Kirigami-inspired parachutes with programmable reconfiguration

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The art of kirigami allows programming a sheet to deform into a particular manner with a pattern of cuts, endowing it with exotic mechanical properties and behaviours[1–17]. Here we program discs to deform into stably falling parachutes as they deploy under fluid–structure interaction. Parachutes are expensive and delicate to manufacture, which limits their use for humanitarian airdrops or drone delivery. Laser cutting a closed-loop kirigami pattern[18] in a disc induces porosity and flexibility into an easily fabricated parachute. By performing wind tunnel testing and numerical simulations using a custom flow-induced reconfiguration model[19], we develop a design tool to realize kirigami-inspired parachutes. Guided by these results, we fabricate parachutes from the centimetre to the metre scale and test them in realistic conditions. We show that at low load-to-area ratios, kirigami-inspired parachutes exhibit a comparable terminal velocity to conventional ones. However, unlike conventional parachutes that require a gliding angle for vertical stability[20] and fall at random far from a target, our kirigami-inspired parachutes always fall near the target, regardless of their initial release angle. These kinds of parachutes could limit material losses during airdropping as well as decrease manufacturing costs and complexity.

The art of kirigami, in which cutting paper leads to complex shape morphing, has recently been exploited by researchers[1–3] to design deployable structures with programmable deformation[4–6], coupling stretching, twisting and bending[7–10], auxeticity[11–13] and nonlinear behaviour[14–17]. Although kirigami structures are typically deployed manually, recent studies have shed light on their complex fluid–structure interactions (FSI)[21,22], which can be harnessed for aerodynamic control[23–25].

When subjected to incoming flow, a slender elastic structure such as a tree leaf[26], a sheet of polymer[27–29] or a kirigami motif[21] can deform with large amplitude and affect the scaling of the drag with the flow velocity. This flow-induced reconfiguration[30,31] is commonly found in nature, for example, trees[32], leaves[26,28,31] and aquatic plants[33,34], as well as in engineering applications, including draping discs that exhibit multiple stable states[35], kirigami sheets that can tune porosity and permeability[21,22], passive actuation[36] and energy harvesting[37]. Here we focus on the closed-loop kirigami pattern[18] (Fig. 1a) and, taking inspiration from wind-dispersal seeds[38] and deciduous tree leaves[39], we build kirigami-inspired parachutes that exploit their quasi-axisymmetric deformation under flow to program the aerodynamic stability of thin circular sheets in free fall. Although leveraging kirigami principles to deploy shapes and objects under mechanical[7,40] and fluid[21,22] actuation has been studied, we apply these concepts to the design and deployment of kirigami-inspired parachutes, a direction that, to our knowledge, has not been previously explored.

First, we study the free-falling motion of kirigami discs and highlight the impact of the cut pattern on the deployed shape and lateral drift. We then quantify experimentally the deployment and drag of our structures using a wind tunnel to apply a uniform flow. By combining analytical models based on beam formulations and finite element simulations using a custom flow-induced reconfiguration model (FIRM)[19], we present a methodology to program the reconfiguration of closed-loop kirigami discs under flow. Finally, we build kirigami-inspired parachutes and characterize their flight performance by dropping them indoors above a target and outdoors from a drone to deliver a bottle of water.

Free fall of flexible kirigami discs

To study the influence of the kirigami pattern on the kinematics of the disc during free fall, we performed laser cutting of three different geometries. As a baseline, the first disc has no cuts. We then fabricate two discs with distinct kirigami patterns, which we call design A and design B (see Methods and Extended Data Fig. 1 for more details on the kirigami pattern geometries). To guide the fall of each disc, we fix a payload consisting of a screw and a bolt with a mass of 4.5 g. When dropped from an initial height of 1.8 m, both the disc with no cuts and design A deform into a cylindrical mode as previously described[35] (referred to as mode $\mathcal{C}$), which is reminiscent of a draping disc under flow[35,41]. As highlighted from the snapshots in Fig. 1b,c, this mode of deformation does not provide stability during the fall and the discs tumble, a behaviour that has been observed in previous works[42,43]. When launched from the same initial height, design B undergoes an elongation that remains aligned with the vertical axis during the entire fall (see snapshots in Fig. 1d and Supplementary Video 1). This quasi-axisymmetric mode of deformation of the closed-loop pattern (referred to as mode $\mathcal{K}$) has

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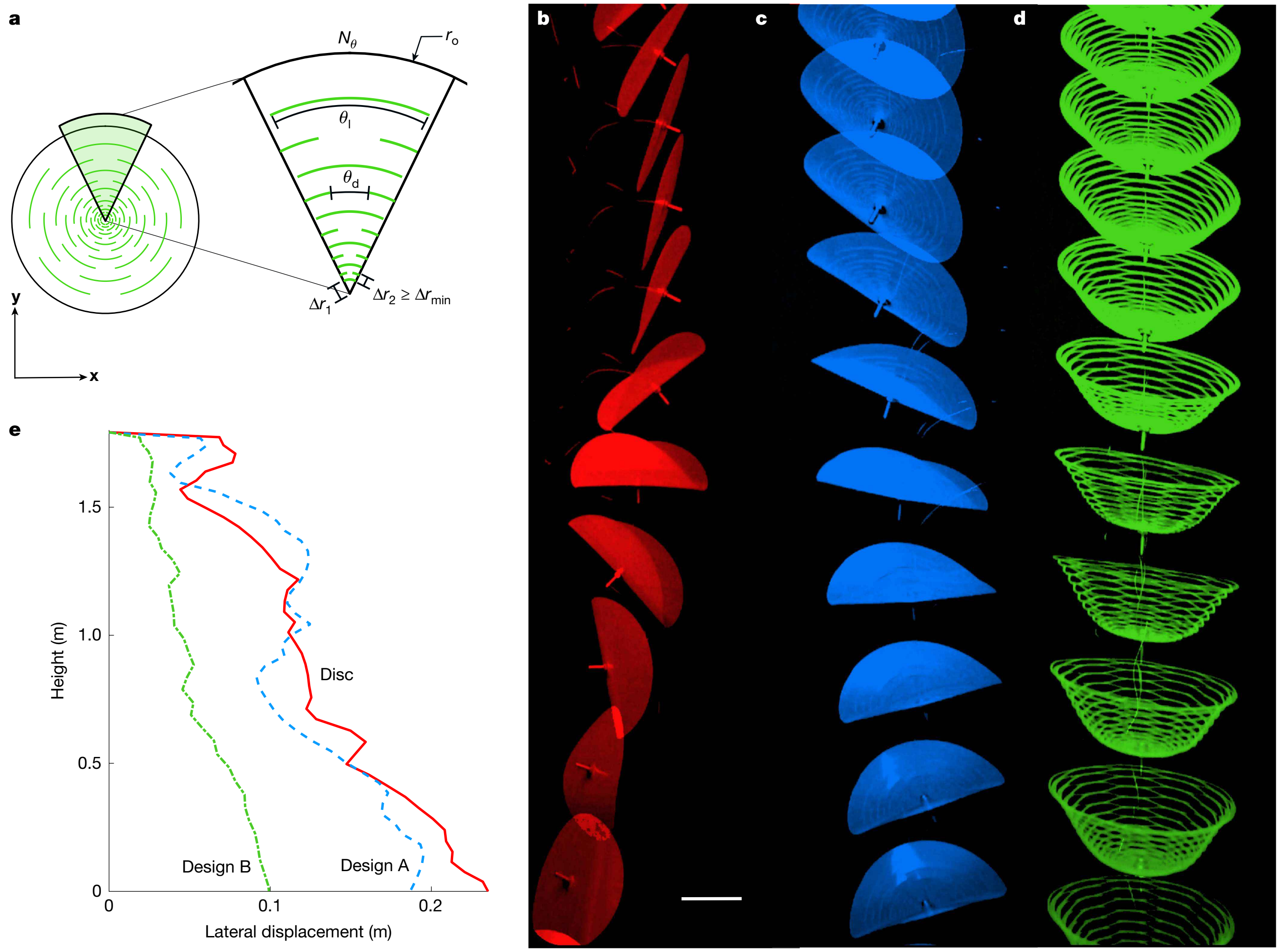

Fig. 1 | Kinematics of free-falling kirigami discs. a, Schematic of the closed-loop kirigami pattern made of N_θ identical sectors of a disc of external radius r_o and thickness t with cuts spanning an angle θ_l spaced from each other by θ_d along the circumference, with $\Theta = \theta_d/\theta_l$, and Δr_j along the radius. The radial spacing Δr_j is defined using the initial spacing Δr_2 and the distribution exponent n, such that $\Delta x_{j+1} = \Delta r_{j+1}/r_0 = (1 + \Delta x_j)^n - 1 \; \forall \, j \geq 2$, with the first cut at Δr_1 from the inner radius r_i. **b**–**d**, Snapshots of three discs with thickness $t = 69$ µm, $r_o = 70$ mm and $r_i = 3$ mm during free fall. A disc with no cuts and discs with a kirigami pattern defined with $\Delta r_1 = 3$ mm, $\Delta r_2 = 2$ mm, $n = 1$, $\Theta = 0.3$ (**b**); $N_\theta = 8$ (design A) (**c**); and $N_\theta = 5$ (design B) (**d**). **e**, Three standard deviations of the lateral displacement as a function of vertical height during free fall for the disc with no cuts, design A and design B. The lines represent three times the absolute standard deviation of 10 drop tests for each disc. Scale bar, 50 mm (**b**–**d**).

been reported previously for discs under displacement or force loading[8,18,22,44,45]. To quantify the repeatability of the free-falling motion of the kirigami discs, we repeat the drop test on each geometry 10 times while tracking the lateral displacement as a function of the height. The curves in Fig. 1e represent three times the envelope of the standard deviation for the disk with no cuts, design A and design B. The results confirm that design B has the lowest lateral drift after the fall.

Kirigami reconfiguration under flow

Inspired by the impact of the kirigami pattern on the vertical stability of discs during free fall, we subject the previously manufactured discs to a uniform air flow of speed U_∞ in a wind tunnel (Methods and Supplementary Video 2). Figure 2a,b shows the snapshots of designs A and B at increasing flow velocities. We note the same reconfiguration in the wind tunnel and the free fall, that is, designs A and B deform into modes $\mathcal{C}$ and $\mathcal{K}$, respectively. Figure 2c,d shows the elongation w (defined as the distance along the z-axis between the inner and outer radii of the disc) and the drag D (defined as the measured force along the z-axis) as a function of U_∞ for design A (blue continuous line) and design B (green continuous line). The circular and diamond markers correspond to the snapshots in Fig. 2a,b, respectively. For the same flow velocity U_∞, design B elongates more than design A (see w–U_∞ curves in Fig. 2c). This is due to two contributions. First, design B shows a softer response under uniaxial extension compared with design A (Methods and Extended Data Fig. 5), thus allowing a higher elongation. Second, the maximum extension of mode $\mathcal{K}$ of design B is dictated by the added length of each beam (see Supplementary Methods, section S2C, for more details), whereas, for mode $\mathcal{C}$ of design A, this limit is given by $r_o - r_i$. Although their deformation under flow differs, the drag generated by designs A and B is similar and smaller than that of a rigid disc because of reconfiguration (Fig. 2d, continuous black line). Similar to a leaf bending and twisting under the wind[26], the kirigami discs reduce their cross-sectional area perpendicular to the flow and become more streamlined as their components become aligned with the flow[31]. Apart from these two mechanisms of drag reduction, there is also an opening of the pores of the kirigami discs, which occurs as they deform, which modifies the effective flow speed.

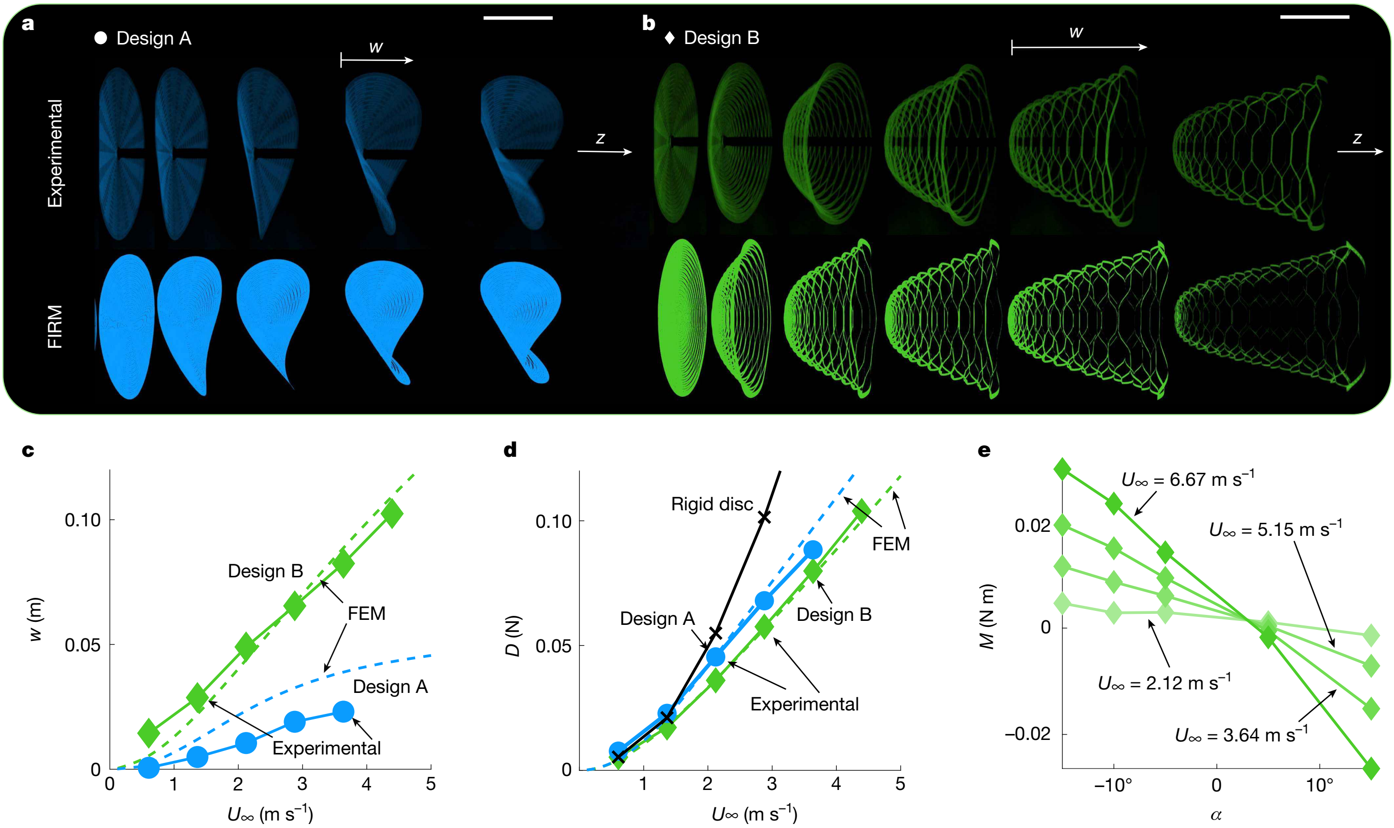

Fig. 2 | Reconfiguration of kirigami discs under flow. a,**b**, Snapshots of kirigami discs design A and design B reconfiguring under flow during a wind tunnel experiment (top) and as predicted numerically by our custom FIRM (bottom). **c**,**d**, Evolution of axial elongation w (**c**) and drag D (**d**) as a function of flow velocity U_∞. Both experimental (continuous lines) and numerical (dashed lines) are reported in **c** and **d**. Displacements are measured from pictures, and drag is averaged over a 30-s period in the wind tunnel. The markers identify the velocities of the snapshots highlighted in **a** and **b**. **e**, Measured aerodynamic moment M generated by the kirigami disc design B as a function of the angle of attack with the flow α. The different continuous lines correspond to experimental measurements at different velocities, and the markers are averages over a 30-s period in the wind tunnel. Scale bars, 50 mm (**a**,**b**).

When we compare these experimental results with our numerical simulations performed using the FIRM framework[19], we find an excellent agreement, both qualitatively (see numerical snapshots in Fig. 2a,b at the same fluid velocity) and quantitatively (dashed lines in Fig. 2c,d and Methods). It is important to note that the simulations did not take the deformation mode as an input, yet they accurately predicted the deformation mode in all cases we tested.

From the free-falling and wind tunnel tests, we note that, when deforming in mode $\mathcal{K}$, the large extension has an important contribution to the stability of the disc. We believe that this is due to a lever effect that helps in generating a stabilizing moment for the disc. To verify this hypothesis, we measure, in the wind tunnel, the moment M generated by design B for different angles of attack, α and velocities (Fig. 2e (green continuous lines), in which the shading corresponds to different values of U_∞). We note that all the M–α curves are decreasing such that $\mathrm{d}M/\mathrm{d}\alpha < 0$, which leads to statically stable falling dynamics. Moreover, we see that at higher velocities, the slope of the moment becomes larger, thus increasing the stability of the discs.

To better understand how to obtain kirigami discs that deform in mode $\mathcal{K}$, we manufacture 24 specimens in a parametric sweep, varying one parameter from design B at a time (see the Methods for a complete list of kirigami discs manufactured). We then perform a tensile test on all these kirigami discs (see Extended Data Fig. 4 for the full traction curves) and measure their stiffness K. To gain more insight into the impact of geometrical parameters on the stiffness of the kirigami discs, we develop an analytical model based on an assembly of Euler–Bernoulli beams and compute their theoretical stiffness $\widetilde{K}$ (see Supplementary Methods, section S2B, for more details regarding the analytical model). Through this modelling procedure, we find that the total stiffness of the structure comes from three contributions: (1) the material bending stiffness B; (2) the external radius r_o of the disc; and (3) the added stiffness $\overline{K}$ of the cut pattern (see Supplementary Methods, section S2B, for the expression of $\overline{K}$). Figure 3a shows the experimentally measured stiffness according to the theoretically predicted stiffness, in which we find that $K \sim \widetilde{K} = B\overline{K}/r_o^2$ because the slope of the fit is close to unity. Therefore, our theoretical model can be used to predict the kirigami disc stiffness under extension.

This added stiffness of the modelled pattern can be used to define a linear transition criterion: when mode $\mathcal{K}$ is softer than mode $\mathcal{C}$, then mode $\mathcal{K}$ prevails. We find that this stiffness criterion scales as $\overline{K} \leq 28$, which is identified empirically (see Supplementary Methods, section S2D, for more details regarding the transition criterion). To validate this transition criterion, we plot in Fig. 3b the pattern added stiffness $\overline{K}$ of 24 different kirigami discs and highlight in blue and green if their observed deformation is mode $\mathcal{C}$ or $\mathcal{K}$, respectively.

Using our transition criterion, we characterize the extension and drag of each of the discs in our parametric study that deform initially in mode $\mathcal{K}$ (see Extended Data Figs. 6 and 7 for the complete drag and extension curves of the different specimens). The dimensionless numbers that describe the behaviour of the closed-loop kirigami specimens under flow are (1) the aspect ratio $l = L_e/r_o$, which defines a normalized maximum elongation measure with L_e the theoretical maximum extension length; (2) the Cauchy number $C_Y = \rho U_\infty^2 r_o^2 C_D / K L_e$, which compares aerodynamic loading to typical elastic restoring forces; (3) the normalized extension $\delta = w/L_e$; and (4) the reconfiguration number $\mathcal{R} = D/D_{\mathrm{rigid}}$, where D_{rigid} is the drag of a rigid disc in the

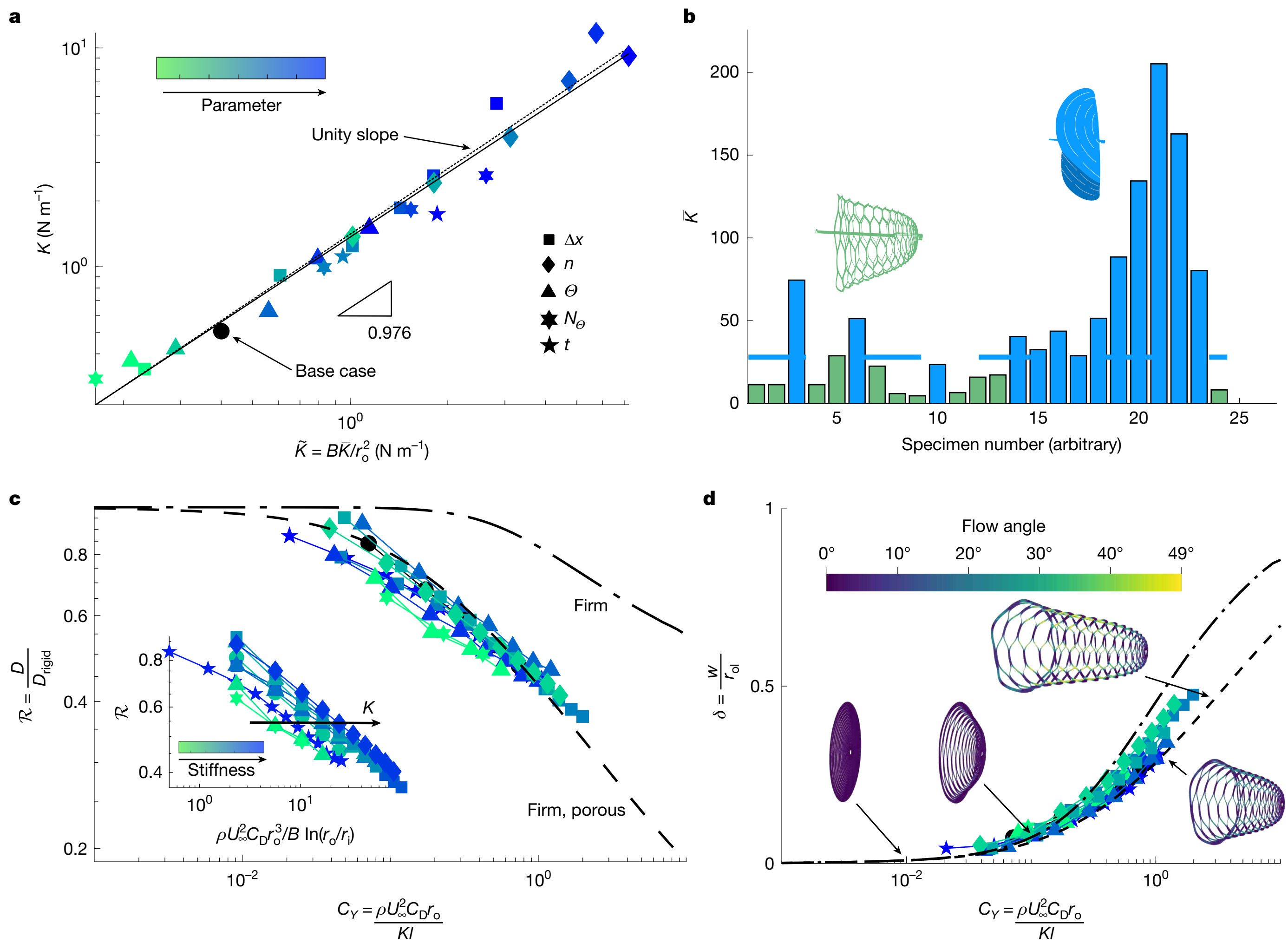

Fig. 3 | Design space of the kirigami discs. a, Theoretical stiffness modelling of the kirigami specimens, where K is the experimental stiffness in a tensile test, $\tilde{K}$ is the theoretical stiffness, B is the bending stiffness, r_o is the external radius and $\overline{K}$ is the added stiffness of the kirigami pattern. **b**, Transition criterion applied to the different specimens. Tested specimens are arbitrarily ordered, and the added stiffness $\overline{K}$ of their pattern is measured and compared with the transition criterion (dashed horizontal line). **c**, Reconfiguration number, $\mathcal{R}$, of the kirigami specimens deforming in mode $\mathcal{K}$ according to the Cauchy number, C_Y, studied experimentally, over a wide range of specimens, and numerically, with and without the porosity model based on ref. 46 when simulating design B. The inset shows the reconfiguration number of the experimentally tested disc according to the Cauchy number of a draping disc[35], showing a scatter according to the experimental stiffness of the specimen. **d**, Dimensionless displacement, δ, of the kirigami specimens deforming in mode $\mathcal{K}$ as a function of the Cauchy number for experimental and numerical results with and without porosity. The accompanying snapshots show the deformed disc at different extension lengths, and their colour map shows the angle the normal of the structure makes with the flow, with the colour scale at the top of the plot in degrees.

same conditions, which allows us to compare actual drag with the rigid case. Figure 3c shows the $\mathcal{R}-C_Y$ curve of our specimens on a logarithmic scale. Experimentally, we see that the reconfiguration number of each specimen decreases as the Cauchy number increases. Moreover, we see that at low Cauchy numbers, that is, $C_Y \in [0, 2\times10^{-2}]$, their reconfiguration tends towards unity, which indicates a behaviour similar to a rigid body, which is expected[29]. However, at higher Cauchy numbers, that is, $C_Y \in [1\times10^{-1}, 100]$, $\mathcal{R}$ tends towards a constant slope in logarithmic scale, such that the drag follows a constant power law according to the velocity. This is well known in reconfiguration problems, such that $D \sim U_\infty^{2+\mathcal{V}}$, where $\mathcal{V}$ is the Vogel's exponent[26]. In our case, we find $\mathcal{V} \cong -0.279$, which means that the drag of our structure grows more slowly than a rigid structure. We note that the different kirigami specimens tested fall onto a master curve with little scatter using the reported dimensionless numbers. To showcase the impact of the cut pattern, we also plot in Fig. 3c (inset) the experimental reconfiguration number of our kirigami discs using the Cauchy number of a flexible disc without any cuts[35]. The results indicate that the data are scattered according to the stiffness of the different specimens. Therefore, the aerodynamic behaviour of our specimens is dictated by the stiffness added by the kirigami pattern. We also plot the reconfiguration number according to the Cauchy number obtained from simulating design B using the FIRM framework. We first plot the results without considering porosity in a dash-dot line and see that the predicted reconfiguration number is higher than the experimentally measured one, that is, we predict a higher drag than the one measured. However, when the discs deform in mode $\mathcal{K}$, they elongate, which will force the slits to open, creating pores in the structure. By considering a porosity model based on ref. 46 (Methods), we plot a second curve in the dashed line that is in excellent agreement with our experimental results. This porosity could also explain the small experimental scatter that persists after normalization, as it can induce complex flow phenomena that are not considered. The reconfiguration curve shown here can be used as a tool to design the best free-falling parachute for a given disc. To maximize drag and ensure free-fall stability in a deployed state, the Cauchy number should be minimized while respecting the constraint that $\overline{K} \leq 28$ using an appropriate kirigami pattern.

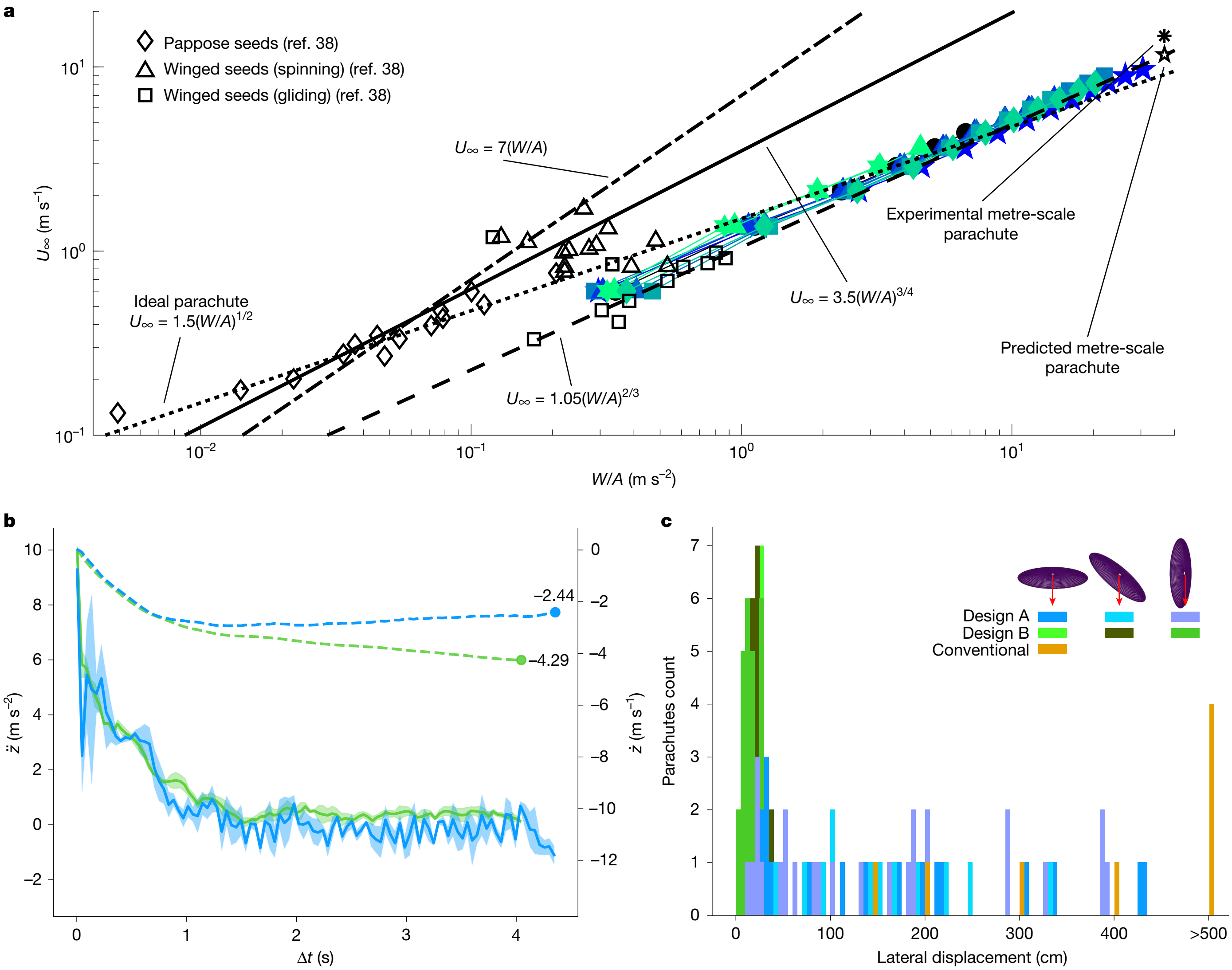

Fig. 4 | Performance of kirigami-inspired parachutes. a, Terminal velocity U_∞ as a function of load per unit of area W/A for different species of wind-dispersal seeds[38] and our kigirami-inspired parachutes (coloured markers, with the same colours that were used in Fig. 3a). The lines are trends and fits identified in ref. 38, with the black dotted line indicating the relationship of an ideal parachute. The black asterisk and star are the experimental and predicted terminal velocities of the metre-scale parachute discussed in this work. **b**, Vertical acceleration, $\ddot{z}$, and velocity, $\dot{z}$, of kirigami-inspired parachute designs A and B (blue and green, respectively). The solid lines and shaded areas are the average and standard deviation of the vertical acceleration of three fall experiments measured with an accelerometer. The dashed lines are the vertical velocity obtained by integrating numerically the mean vertical acceleration of three fall experiments. **c**, Lateral displacement across multiple drop tests of kirigami-inspired parachute designs A and B as well as a small-scale elliptical parachute (orange bars) manufactured by Fruity Chutes with $r_o = 195$ mm, $r_i = 24$ mm and a drag coefficient of $C_D = 1.5$ (Methods). The coloured bars represent parachutes launched at 0°, 45° and 90°.

We plot the normalized extension of our specimens δ according to the Cauchy number C_Y in Fig. 3d, using our experiments and different numerical results when simulating design B. Experimentally, we see that δ increases with C_Y and once again collapses on a master curve. When we overlay the simulation curves, we find that the experimental data fall between the predictions of FIRM with and without the porosity model (dash-dot and dash lines, respectively in Fig. 3d). Along the dash curve representing the FIRM simulation, we show different snapshots of the kirigami disc at different elongations along with a colour map of the angle the normal to the discs make with the flow. We see that most of the disc remains perpendicular to the flow (their normal is parallel to the flow, causing a flow angle of 0°), and only the blades generate a flow angle as the disc elongates. This deformation mode, therefore, limits the drag reduction through both profiling and area reduction[31], which explains why, at similar stiffness, a disc deforming in mode $\mathcal{K}$ would generate more drag than a disc deforming in mode $\mathcal{C}$.

We note that the elongation law can also be used to ensure parachute stability. If the parachute does not extend enough during falling, then the aerodynamic moment generated might not be sufficient to ensure vertical falling and could behave as a rigid falling disc, which is known to tumble[43].

Kirigami-inspired parachutes

The terminal velocity, U_∞, of our kirigami discs is characterized by their weight to area ratio, W/A, and can be compared with wind-dispersal seeds as well as conventional parachutes (Fig. 4a). From static equilibrium at a constant flow velocity U_∞ during the wind tunnel test, we set the measured drag, D, equal to a payload of weight, W, and plot in Fig. 4a the U_∞–W/A relation of each kirigami specimen with coloured markers. We also plot, in comparison, the behaviour of flying seeds such as the Pappose seeds, and spinning and gliding winged seeds[38]. In ref. 38, the

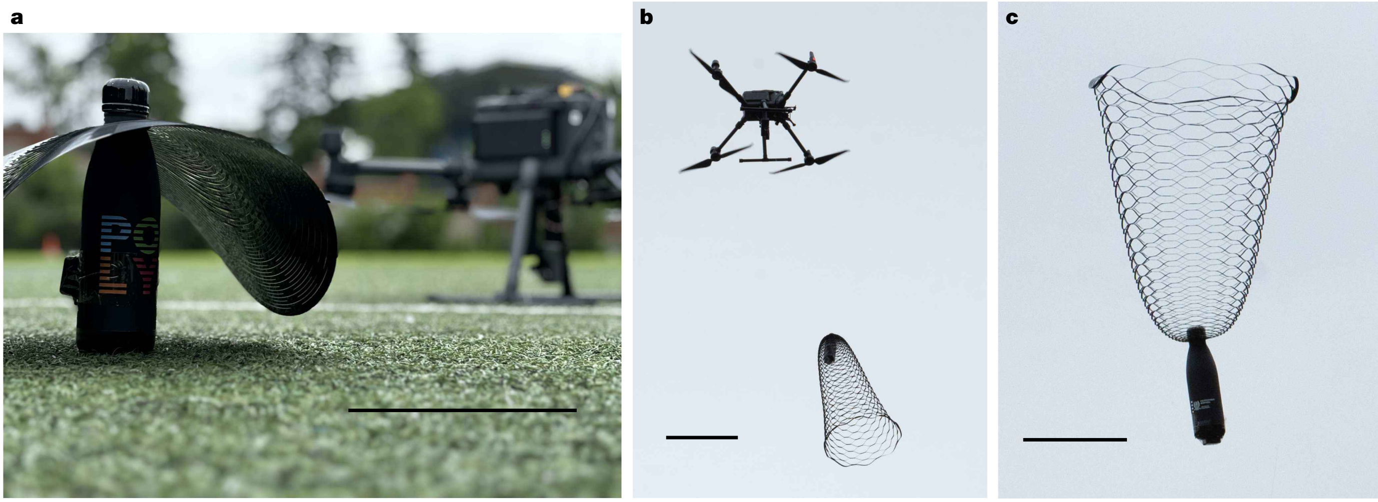

Fig. 5 | Kirigami-inspired parachutes in realistic conditions. a, Water bottle mounted on a kirigami-inspired parachute attached to a drone. **b**, Parachute elongating as the drone pulls it up to its dropping altitude of 60 m. **c**, Snapshot of a kirigami-inspired parachute during free fall in realistic conditions. Scale bars, 250 mm (**a**,**c**); 500 mm (**b**).

authors found different scaling laws, as identified in Fig. 4a, for the flying seeds, in which we happen to fit the most efficient trend as $U_\infty = 1.05(W/A)^{2/3}$. These natural flyers and our kirigami discs match conventional parachutes at low *W*/*A*, because the latter are typically modelled using $W = 1/2\rho U_\infty^2 AC_D$. This typical drag law leads to $U_\infty = (2W/\rho AC_D)^{1/2}$, which, when using the rigid disc from our experiment, the terminal velocity is described as $U_\infty = 1.5(W/A)^{1/2}$, because $C_D = 1.26$, the drag coefficient obtained experimentally, and $\rho = 1.225$ kg m^{-3}, the density of air. Although for high *W*/*A*, conventional parachutes achieve a lower terminal velocity compared with our kirigami discs, they require a gliding angle for vertical stability[20]. This leads to an important lateral drift when launched above a target (Fig. 4c). Moreover, their manufacturing involves complex assembly and folding. In comparison, kirigami parachutes could be easily mass-produced by simple die cutting. This could be especially relevant in the context of humanitarian airdropping, in which current parachute design and fabrication still require skilled manufacturers[47].

We then characterize the free-flight ability of kirigami-inspired parachutes based on designs A and B (Methods). We launch each parachute three times indoors from a height of 14.9 m and record their lateral, $\ddot{x}$ and $\ddot{y}$, and vertical, $\ddot{z}$, accelerations. Figure 4b shows the vertical acceleration, $\ddot{z}$, as a function of time (lateral accelerations and tumbling frequencies are reported in Extended Data Fig. 8). We find that design A (solid blue curve), deforming in mode $\mathcal{C}$, descends with an unsteady vertical acceleration. In comparison, the acceleration of design B (solid green curve), deforming in mode $\mathcal{K}$, plateaus after 2 s of flight. By integrating the average of the vertical acceleration $\ddot{z}$, we can obtain the vertical velocity $\dot{z}$ over time (Fig. 4b, dashed lines). The results indicate that the terminal velocity is $U_\infty = 2.44$ m s^{-1} for design A and $U_\infty = 4.29$ m s^{-1} for design B. In comparison, the terminal velocity of free fall from a height of 14.9 m is $U_\infty = 17.1$ m s^{-1}.

Apart from their deceleration during free fall, we characterize the lateral drift of designs A and B in a flight situation. For this purpose, we drop multiple parachutes from a height of 16.6 m with three initial release angles: 0°, 45° and 90°. We then measure the distance between the landing spot of each parachute and a ground target representing the initial release position. Figure 4c shows the distribution of the lateral displacement during the drop tests for parachute design A and design B launched at 0°, 45° and 90°. Coherent with the acceleration results, we observe that design A, while reaching a lower terminal velocity, shows a random distribution of lateral drift. This situation is similar to that of a conventional parachute, which also exhibits substantial lateral drift during free fall (see orange curves and bars in Fig. 4c and Extended Data Fig. 9). By contrast, we observe that design B consistently falls close to the target, regardless of the initial release angle (Fig. 4c). This highlights that kirigami-inspired parachutes deforming in mode $\mathcal{K}$ can quickly reach terminal velocity, provide increased stability and drop near intended targets if used to deliver humanitarian aid.

Finally, to demonstrate the concept of a kirigami-inspired parachute that can deliver humanitarian aid, we manufacture a 0.5 m diameter kirigami disc that deforms in mode $\mathcal{K}$ (Methods). We attach a water bottle to the parachute (Fig. 5a) and drop it from a drone from a height of 60 m multiple times, as shown in Fig. 5b,c and Supplementary Video 4. Based on the elongation of the parachute in Fig. 5c, we calculate a terminal velocity equal to $U_\infty = 14.1$ m s^{-1} (FIRM predicted $U_\infty = 11.7$ m s^{-1}; Methods). In comparison, the terminal velocity reached during free fall from a height of 60 m is 34.3 m s^{-1}. The predicted and experimental terminal velocity of the metre-scale parachutes are added as a comparison in Fig. 4a to show that the parachute remains on the same line as the tested kirigami discs.

Conclusions and outlook

With inspiration from kirigami, we showed that introducing cuts into thin circular sheets can lead to the design of stable parachutes to deliver humanitarian aid. Through experiments and simulations, we provided a rational strategy to trigger flow-induced reconfiguration leading to an unstable cylindrical mode of deformation (mode $\mathcal{C}$) and a stable mode of deformation (mode $\mathcal{K}$) under flow. Inspired by our simple manufacturing technique, we fabricated a large-scale kirigami parachute that successfully delivered a water bottle from a drone flying at an altitude of 60 m. We found the same reconfiguration behaviour in our kirigami discs across scales (from the centimetre scale to the metre scale) and environmental conditions (from a free fall test in the laboratory to a closed wind tunnel experiment and an outdoor test with realistic conditions). Through dimensional analysis, we showed that this behaviour depends on the added stiffness $\overline{K}$ of the kirigami pattern. Moreover, the reconfiguration of our structures can be adequately predicted by our FIRM framework, a custom corotational finite element solver. Apart from being easy to fabricate, our parachute reduces lateral displacement during descent, unlike conventional designs that often drift randomly and far from an intended target. This could be especially useful for humanitarian aid delivery. Scaling up our manufacturing process without requiring manual assembly (Extended Data Fig. 2 and Supplementary Video 3) would be possible with industrial-size laser cutters and cutting dies. Although our software cannot evaluate the stabilizing moment numerically, it could be adapted to take circulation into account. Moreover, the terminal velocity of our kirigami-inspired parachute could be reduced by covering the cuts with a soft and highly stretchable membrane to limit the impact of porosity. Although this study focuses on the closed-loop kirigami pattern, expanding the geometrical parameter space to other designs, such as asymmetric, chiral or hierarchical patterns, could enable programming the entire fall trajectory of parachutes. Moreover, using multiple patterns of our kirigami-inspired parachute in a single launch could be used to sort out different populations during flight (Supplementary Video 5). Finally, origami could be exploited to fold the kirigami parachute for compactness.

Online content

Any methods, additional references, Nature Portfolio reporting summaries, source data, extended data, supplementary information, acknowledgements, peer review information; details of author contributions and competing interests; and statements of data and code availability are available at https://doi.org/10.1038/s41586-025-09515-9.

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Methods

Geometric parameters of the closed-loop pattern

The closed-loop kirigami pattern reported in this study can be described by eight independent parameters, that is, $\mathbf{p} = \{r_o, r_i, t, \Delta r_1, \Delta r_2, n, N_\theta, \Theta\}$. The disc is characterized by a thickness t, an outer radius r_o, and an inner hole of radius r_i to impose loading and boundary conditions. The cutting pattern is defined by the number of angular sectors N_θ, the ratio of angular spacing θ_d to angular slits θ_l, that is, $\Theta = \theta_d/\theta_l$, and the radial spacing between two consecutive slits Δr_j with the jth ring forming the closed-loop pattern. The radial slits are spaced from the central hole by an initial distance Δr_1 and the next slit is spaced by Δr_2. The following slits are then made at a spacing given by

$$\Delta r_{j+1} = r_0\left(\left(1+\frac{\Delta r_j}{r_0}\right)^n - 1\right) \forall j \geq 2, \tag{1}$$

which is a sequence chosen so that the radial distribution of the cuts could be controlled through a parameter n, where Δr_j is the spacing associated with the last slit cut, slit j. The next slit, $j + 1$, will be made at a spacing Δr_{j+1} from slit j. The parameters Δr_2 and Δr_1 are limited by the minimum width possible to cut by the manufacturing method Δr_{min}. The parameter $n \geq 1$ ensures that $\Delta r_j \geq \Delta r_{min} \forall j > 1$. The slits are hereby completely defined radially. We can rewrite equation (1) in the form of a power law as

$$\Delta r_j = r_0\left(\left(1+\frac{\Delta r_2}{r_0}\right)^{n^j} - 1\right), \tag{2}$$

which allows us to solve for the radial position r_j of each slit j using a sum

$$r_j = r_0\left(\sum_{j=0}^{j}\left(1+\frac{\Delta r_2}{r_0}\right)^{n^j} - 1\right). \tag{3}$$

We can also find the number of slits N_r from the parameters Δr_2 and n such that $r_o - r_{Nr} \geq \Delta r_{min}$, which is done using a Python script that automatically generates the cutting pattern. Therefore, the last slit will be distanced from the outer radius by an equal or larger distance than intended, so that $\Delta r_{Nr} \geq \Delta r_{min}$. In the special case in which we choose Δr_j to be constant, therefore $n = 1$, and we want the last blades to have the same with as the previous ones, we need to choose $\Delta r_2 = r_o/N_r$. In this case, equation (2) is simplified to $\Delta r_j = r_o/N_r$, and equation (3) becomes

$$r_j = \frac{jr_0}{N_r}. \tag{4}$$

Here, we consider the general case in which $\Delta r_2 \neq r_o/N_r$ and $n \neq 1$. We note that we normalize the design parameter Δr_2 by the external radius, such that $\Delta x_2 = \Delta r_2/r_o$, which leads to $x_j = r_j/r_o$. Moreover, when considering the slits in the angular direction, we need to specify their number and their width. We decide to keep the angle of the slits constant and therefore define the number of slits in the angular direction as N_θ. Considering the angle of a slit θ_l and the angle of the angular spacing θ_d, we find

$$2\pi = N_\theta(\theta_l + \theta_d) = N_\theta\theta_l(1+\Theta) \rightarrow \theta_l = \frac{2\pi}{N_\theta(1+\Theta)}. \tag{5}$$

The slits are, therefore, completely defined radially and angularly.

Fabrication of kirigami discs

Our kirigami discs and parachutes were made from polyethylene terephthalate, also called Mylar, sheets of varying thicknesses, which remain elastic for large strains. Our Mylar sheets came from a curved roller and, therefore, have an initial curvature that we removed by annealing by leaving the Mylar sheets flat in an oven at 75 °C for an hour, which also removed plasticity effects from the sheets, and letting them rest flat for another hour under a weighted plate outside the oven. Then, the sheets were either cut using a CO_2 cutter (EKO 7, THERMOFLAN) or a laser cutter (Speedy 400 Flexx, TROTEC). For our simulations, we assumed that the cuts made to the kirigami specimens have a width close to 0.1 mm. However, it was observed in a previous study that the width of the cuts at this scale did not affect the kirigami kinematics in an important manner[21], which was confirmed by our observations. A picture of the cutting process as well as the obtained kirigami specimens is shown in Extended Data Fig. 2. Designs A and B of the kirigami discs, used in the drop tests presented in Fig. 1b,c and in the wind tunnel experiments presented in Fig. 2 had a thickness of $t = 69$ µm and an outer radius of $r_o = 70$ mm, with an inner hole of radius $r_i = 3$ mm to attach the payload, which consisted of a screw and a bolt with a mass of 4.5 g. Their cutting parameters are described by $\{\Delta r_1, \Delta r_2, n, N_\theta, \Theta\} = \{3$ mm, 2 mm, 1.0, 8, 0.3$\}$ (design A) and $\{3$ mm, 2 mm, 1.0, 5, 0.3$\}$ (design B). The kirigami specimens used to generate the design space presented in Figs. 3 and 4 were based on the design B kirigami disc, with a single parameter being swept at a time. This leads to the following series:

- Series t: $r_o = 70$ mm, $r_i = 3$ mm, $\Delta r_1 = 6$ mm, $\Delta r_2 = 2$ mm, $n = 1$, $\Theta = 0.3$, $N_\theta = 5$, $t = \{75, 100, 125\}$ µm;
- Series Δr_2: $r_o = 70$ mm, $r_i = 3$ mm, $\Delta r_1 = 6$ mm, $t = 69$ µm, $n = 1$, $\Theta = 0.3$, $N_\theta = 5$, $\Delta r_2 = \{1.5, 2, 2.5, 3, 3.5, 4, 5\}$ mm;
- Series n: $r_o = 70$ mm, $r_i = 3$ mm, $\Delta r_1 = 6$ mm, $\Delta r_2 = 2$ mm, $t = 69$ µm, $\Theta = 0.3$, $N_\theta = 5$, $n = \{1, 1.025, 1.05, 1.075, 1.1, 1.125, 1.15\}$;
- Series Θ: $r_o = 70$ mm, $r_i = 3$ mm, $\Delta r_1 = 6$ mm, $\Delta r_2 = 2$ mm, $t = 69$ µm, $n = 1$, $N_\theta = 5$, $\Theta = \{0.2, 0.25, 0.3, 0.35, 0.4, 0.45\}$;
- Series N_θ: $r_o = 70$ mm, $r_i = 3$ mm, $\Delta r_1 = 6$ mm, $\Delta r_2 = 2$ mm, $t = 69$ µm, $n = 1$, $\Theta = 0.3$, $N_\theta = \{4, 5, 6, 7, 8\}$.

We note that, through our manufacturing process, we identified some manufacturing constraints. First, as discussed, there exists a minimum width Δr_{min} that needs to be used for the radial spacing between the slits. Second, for interactions between the cuts to occur, we need $\Theta \in [0, 1]$ and in order to ensure there is sufficient material between the cuts angularly, we use the same spacing than used radially, leading to the condition

$$N_\theta \leq \frac{2\pi\Delta r_1\Theta}{\Delta r_{min}(1+\Theta)}. \tag{6}$$

We need to respect these conditions; otherwise, our discs tend to break as the material between the slits becomes too thin.

To characterize the mechanical properties of our Mylar sheets, we manufactured different sheets of width $H = 100$ mm, thickness $t = 69$ µm, and initial length $L_0 = 150$ mm. We measured the mass of the sheets and found its density $\rho = 1{,}513.7$ kg m^{-3}. By clamping our sheet at different points along its length or its width, we performed bending tests on three different sheets to measure the bending stiffness B. We also assume a Poisson's ratio $\nu = 0.3$ to identify the Young's modulus E for our simulations. We clamped one end of our sheet and let it bend in a cantilever manner. We measured the length of the sheet that is clamped to find the length of the cantilevered sheet and measure the maximum displacement at the end of the sheet w_{max}. We developed the solution to the maximum displacement of the sheet, as the deformation remains 2D, using the nonlinear Euler–Bernoulli beam equation[29]. By fitting the obtained solution through our measurements as shown in Extended Data Fig. 3, we found a Young's modulus of 6.47 GPa along the length of the sheet and 6.13 GPa along its width. This difference comes from the initial laminated nature of our sheets, causing anisotropy, although the difference remains small here. As our simulations assumed an isotropic material, we instead considered the mean of the Young's moduli $E = 6.3$ GPa.

Fabrication of kirigami-inspired parachutes

To record the lateral, $\ddot{x}$ and $\ddot{y}$, and vertical, $\ddot{z}$, accelerations of the kirigami-inspired parachutes in Fig. 4b, a six-axis accelerometer (AX6 from Axivity) was mounted on the parachutes. For this purpose, larger parachutes inspired by the kirigami disc designs A and B were subjected to laser cutting in polyester plastic sheets. The parachutes had a thickness of $t = 311$ μm and an outer radius $r_o = 215$ mm, with an inner hole of radius $r_i = 21$ mm to attach the payload. The payload consisted of the accelerometer and a water bottle, totalling a mass 0.144 kg. To make sure that the larger parachutes keep the same stiffness of the kirigami disc designs A and B, we adjusted their cutting parameters as described by $\{\Delta r_1, \Delta r_2, n, N_\theta, \Theta\} = \{10$ mm, 6.13 mm, 1.0, 8, 0.3$\}$ (design A), and $\{10$ mm, 6.13 mm, 1.0, 5, 0.3$\}$ (design B).

The kirigami-inspired parachutes used to characterize the lateral drift of designs A and B in Fig. 4c had a thickness of $t = 127$ μm and an outer radius of $r_o = 100$ mm, with an inner hole of radius $r_i = 3$ mm to attach the payload. The payload consisted of a screw and a bolt with a mass of 12.6 g. Their cutting parameters are described by $\{\Delta r_1, \Delta r_2, n, N_\theta, \Theta\} = \{3$ mm, 2.85 mm, 1.0, 8, 0.3$\}$ (design A)} and $\{3$ mm, 2.85 mm, 1.0, 5, 0.3$\}$ (design B).

The large parachute used outdoors presented in Fig. 5 had a thickness of $t = 317.5$ μm and an outer radius of $r_o = 250$ mm, with an inner hole of radius $r_i = 20$ mm to attach the payload. Its cutting parameters are described by $\{\Delta r_1, \Delta r_2, n, N_\theta, \Theta\} = \{10$ mm, 6.21 mm, 1.0, 9, 0.0758$\}$.

We note that all the parachutes and their payload remained intact and did not suffer any breaks or malfunctions during the multiple tests, showing their robustness.

Drop testing of kirigami discs

To obtain the lateral shift of the kirigami discs when free-falling, as discussed in Fig. 1, we perform drop tests in series to find a statistical distribution for each disc. Using the manufactured discs, that is, the plain disc, design A and design B, we place a digital camera (Canon EOS Rebel T4i) in front of a black curtain in a room with good lighting. We use the camera to record the specimens while falling using settings that allow for sharp snapshots, as shown in Fig. 1c–e. We drop the different parachutes 10 times each using the same payload, a screw and a nut, that we switch from one parachute to the other, so that we can perform a statistical analysis on their falling behaviour. To ensure repeatability, we use a small clamp attached to the top of the curtain to indicate the horizontal location of the drop and align the parachute with the top of the curtain visually. To ensure the parachute does not initially start with an angle of attack, we use a string attached to the screw so that the disc remains aligned with the vertical axis. We use MATLAB to convert each snapshot to a grayscale format and extract the pixels that have a higher value than a certain threshold. Moreover, as we aligned the parachutes by hand, we corrected the initial position of the parachute within the software to ensure all parachutes start in the same position so that we can compute the mean and standard deviation of the path of the parachute. The curves of the 10 tests are reported in Extended Data Fig. 1.

Tensile tests

To find the stiffness of our kirigami parachutes, we performed tensile tests at a displacement rate of 2 mm s^{-1}, which we found was sufficiently slow to observe quasi-static deformations and forces, on an Instron 4204 equipped with a 10 N force gauge using a custom 3D printed holder for our discs, forcing them to deform in a mode $\mathcal{K}$ through a traction force in its centre and a clamped perimeter. To estimate the potential hysteresis as well as the error from the tensile test, we manufactured a first specimen, using the same dimensions as design B, and performed three traction cycles, in which we increased and decreased the displacement of the specimen up to $2r_o = 140$ mm, which leads to six force–displacement curves. We plot the mean of these curves along with a shaded area that covers three times its standard deviation in Extended Data Fig. 4a, with a picture of one of the tested specimens during a tensile test in its inset. We observed no noticeable hysteresis, as the shaded area remains relatively small. We note that, as this curve is an average of six other curves, there is little noise observed. We used the specimens manufactured from the previously described series and tested them all to find their force–displacement curve. These specimens observed a first linear behaviour from which a constant stiffness K can be extracted. Extended Data Fig. 4b–f shows the force–displacement curves of the different specimens, arranged by the varied parameter, along with their initial stiffness, using the displacement over their radius to give a better idea of what the displacement represents. The curves did not all reach the same displacements or forces, as we stopped the deformations before the specimen suffered too important deformations, so that it could be reused for other tests. Once a series of tests was performed, we annealed the discs and reused them to ensure that mechanical properties remained the same, rather than manufacturing multiple sets of every specimen.

To compare with the numerical results of our FIRM, we plot the experimental traction curve in Extended Data Fig. 5 for designs A and B, in which the x-axis is the displacement of the centre of the disc w and the y-axis is the traction force F used to deform the disc. We see that the traction curve of design A, which deformed in a mode $\mathcal{C}$ when free-falling, is higher than that of design B, which deformed in mode $\mathcal{K}$. We can also observe that the experimental response of our disc initially follows a linear trend before encountering a nonlinear behaviour at higher displacements. We record this stiffness K, which is $K = 2.606$ N m^{-1} and $K = 0.508$ N m^{-1} for designs A and B, respectively. We compare these experimental traction curves with finite element simulations performed with the FIRM framework in Extended Data Fig. 5 as well. The numerical force–displacement curves of both designs are in overall agreement with the experimental results, with some discrepancies. The simulations for design B predict a smaller force than experimentally recorded, which could be because of experimental errors such that the initial position of the kirigami disc did not generate 0 N. Nevertheless, both curves observe the same behaviour and, most importantly, the numerical simulations predict a stiffness that is close to what is measured experimentally. However, these force–displacement curves describe only the stiffness associated with mode $\mathcal{K}$ as, because of the outer clamp, the disc is forced to elongate. The stiffness associated with mode $\mathcal{C}$, however, is characterized by the bending stiffness $B = Et^3/(12(1-\nu^2))$ of the discs, where E is the Young's modulus and ν is the Poisson's ratio.

Wind tunnel testing

To conduct the wind tunnel experiments presented in Fig. 2, we positioned the kirigami disc perpendicular to the flow in the closed-loop, 61 cm × 61 cm cross-section wind tunnel at Polytechnique Montreal and clamped it at $r_1 = r_i + \Delta r_1$ while leaving the outer radius free. To track deformation and measure aerodynamic forces, we positioned a digital camera (Canon EOS Rebel T4i camera) in front of the test window and connected the sample to a multi-axial load cell (Gamma type from ATI Technologies). During the test, we progressively increase the flow velocity from $U_\infty = [0.61, 10]$ m s^{-1} by intervals of 0.7575 m s^{-1}. The Reynolds number $\mathrm{Re} = 2r_o U_\infty/\nu_a$, where ν_a is the kinematic viscosity of air, reached in the experiments varied in the range of $5{,}600 < \mathrm{Re} < 94{,}000$. We took a snapshot at every increment and recorded the time-average of the forces and moments measured by the load cell over a 30 s period.

To compare the drag of our flexible kirigami discs, we first studied the drag of a rigid disc made of acrylic with a thickness of 3 mm. To maintain the same flow dynamics around the structure, we aimed to keep a small thickness and therefore made the disc of radius $r_o = 68$ mm and attached a flexible disc made out of Mylar of $r_o = 70$ mm and thickness $t = 69$ μm in front of it. Owing to the large, rigid support behind the flexible disc, its behaviour remained similar to a rigid disc. Extended Data Fig. 6a shows the total measured drag of this rigid disc D, the contribution from the isolated stand and the isolated drag of the specimen once we remove the contribution of the stand from the total measurement according to the velocity U_∞. This allows us to compare our flexible disc with a rigid reference. Here, we considered that the slits in the kirigami discs did not modify the drag of their rigid counterpart drastically. Moreover, with the drag generated by the stand, we isolated the drag generated by the flexible kirigami specimens. Extended Data Fig. 6b–f shows the drag of a limited number of our previously manufactured discs that deform in mode $\mathcal{K}$, arranged according to the varied parameter. From these tests, we also took pictures of our specimens to extract their elongation along the flow stream (Extended Data Fig. 7a). By converting the image to a grayscale format and filtering the pixels that are darker than a certain threshold, we isolated the specimen in the picture and measured its deformed length. We plot the elongation of all the previously tested specimens, arranged according to their varied parameter (Extended Data Fig. 7b–f).

FIRM framework

The FIRM framework is a finite element simulation software based on a corotational formulation of plate elements that uses a semi-empirical momentum conservation formulation to approximate the flow load on a flexible structure. Through momentum conservation, we find that the local applied pressure field p on a small element follows $p = \rho U_\infty^2 C_D \cos^2\beta/2$, where ρ is the fluid density, U_∞ is the flow velocity, C_D is the drag coefficient of the rigid structure, and β is the angle the normal of the surface of the element makes with the flow[19,28,29,35]. During wind tunnel experiments, we noted that, whereas the simulations for design A did not require any modification to the FIRM framework, design B showed a high porosity, especially at high values of U_∞ (as evident from the pores created by the structure deploying in Fig. 2b). This led to a more complex flow regime around the structure than the uniform flow assumed by FIRM. To account for this effect, we implemented a porosity model based on ref. 46, in which the area opened through the pores in the structure reduces the effective drag coefficient of the structure (Supplementary Methods, section S1, for more details).

Terminal velocity of Kirigami-inspired parachutes

To conduct the outdoor drop tests with the large kirigami-inspired parachute, we used a payload consisting of a water bottle weighing 0.401 kg equipped with a GoPro camera (Black 11 weighing 0.253 kg). Note that the weight of the parachute itself is 0.08 kg. Based on the total weight of 0.734 kg, we expect a terminal velocity of 11.66 m s^{-1} and an elongation of 0.54 m, which is found at $C_Y = 1.804$ using the FIRM prediction with the added porosity model. Figure 5c shows that the kirigami parachute is highly deformed but remains in the predicted Cauchy range. We note that winds were present during testing, causing relatively important lateral accelerations that are not modelled in our simulations. These winds caused angular vibrations of the water bottle, which were damped by the interaction of the parachute with the flow. Nevertheless, the kirigami-inspired parachute fell vertically and did not deviate substantially from its axis (we estimated a lateral displacement of about 7 m over the 60-m free fall based on the GoPro attached to the parachute; Supplementary Video 4). Using Fig. 5c, we can estimate the falling velocity using the elongation of the parachute. Although we expected an elongation of 0.54 m, we observed an elongation in the range of [0.572, 0.685] m. The pattern of the parachute has a maximum elongation $r_o l = 1.4232$ m, leading to $\delta = [0.402, 0.481]$, which is found in the range $C_Y = [2.0713, 3.2754]$ using the elongation solution of the FIRM with the porosity model. We, therefore, find that the mean velocity is $U_\infty = 14.11$ m s^{-1}. The velocity we find is slightly higher than predicted, with an error of 21.01%. However, the method with which we estimated the terminal velocity here led to potential errors due to scaling and orientation uncertainties. Nevertheless, the parachute does slow down the water bottle from reaching a free-fall velocity, and, although the scale at which this parachute operates is different from the specimens studied in the wind tunnel, we still find a similar performance to what we predicted.

Tumbling of kirigami-inspired parachutes

To investigate the tumbling frequency of our parachute, we conducted drop tests for parachutes with designs A and B cut patterns. The parachutes were manufactured from a 0.311 mm thick shim with outer radius of $r_o = 215$ mm and inner radius of $r_i = 21$ mm. We mounted a six-axis accelerometer (Ax6 from Axivity) on the parachutes and dropped them indoors from a height of 14.9 m while measuring their linear accelerations, $\ddot{x}$, $\ddot{y}$ and $\ddot{z}$ at a sampling rate of 200 Hz. Extended Data Fig. 8 shows the magnitude of the lateral acceleration, that is, $\ddot{r} = (\ddot{x}^2 + \ddot{y}^2)^{1/2}$, as a function of time during the fall. For design A deforming in mode $\mathcal{C}$ (blue curve in Extended Data Fig. 8a), no distinct pattern emerged in the signal. By contrast, for design B deforming in mode $\mathcal{K}$ (green curve in Extended Data Fig. 8b), we see a distinct frequency emerging. To extract the tumbling frequency from the raw accelerometer data, we used the autocorrelation function:

$$R(\tau) = \frac{1}{N-\tau}\sum_{t=0}^{N-\tau-1} \ddot{r}(t)\cdot\ddot{r}(t+\tau), \tag{7}$$

where N is the total number of samples and τ is the time lag. To determine the frequency of a signal using this method, we computed the $R(\tau)$ for different values of τ and identified the highest peak following the initial maximum at $\tau = 0$. This peak represents the fundamental periodicity of the signal, as it indicates the time shift at which the signal best aligns with itself. By applying this method to each of the three tests conducted on design B, we found tumbling frequencies of 1.40 Hz, 1.39 Hz and 1.48 Hz for an average frequency of 1.42 Hz. Simplifying the problem to the swing of a simple gravity pendulum with frequency equal to $f_p = 1/2\pi(g/l_p)^{1/2}$, where g is the acceleration of gravity and l_p is the length of the pendulum, which we assume is of the same order as the disc radius, that is, $l_p = r_o = 0.215$ mm, we find $f_p = 1.08$ Hz, which is very close to the measured value of $f = 1.42$ Hz. We propose that our kirigami parachutes deforming in mode $\mathcal{K}$ sways at frequency $f \sim 1/2\pi(g/r_o)^{1/2}$.

Drop testing of a conventional parachute

To compare the behaviour of our kirigami-inspired parachutes with a conventional parachute, we conducted similar drop experiments to the ones we conducted on designs A and B cut patterns. We used a conventional elliptical parachute manufactured by Fruity Chutes with $r_o = 195$ mm, $r_i = 24$ mm and a drag coefficient of $C_D = 1.5$. First, the parachute was dropped indoors from a height of 14.9 m, while being equipped with a 6-axis accelerometer (AX6 from Axivity). The accelerometer measured the vertical acceleration $\ddot{z}$ of the parachute at a sampling rate of 200 Hz. Extended Data Fig. 9a shows the vertical acceleration measured over three tests as a function of time (solid curve). We observed that the conventional parachute descended with an unsteady vertical acceleration, similar to design A deforming in mode $\mathcal{C}$. By integrating the average of the vertical acceleration $\ddot{z}$, we obtained the vertical velocity $\dot{z}$ over time (dashed curve in Extended Data Fig. 9a). The terminal velocity of the conventional parachute was calculated as −4.66 m s^{-1}. In Extended Data Fig. 9b, we report the lateral displacement of the fall across eight drop tests. We found a large discrepancy with one parachute falling more than 10 m away from the target.

Data availability

All wind-tunnel and tensile testing raw data are included as Supplementary Data 1 and 2. The FIRM is openly available at GitHub (https://github.com/lm2-poly/FIRM).

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Author contributions D.L., S.R., F.P.G. and D.M. proposed and developed the research idea. D.L. designed, fabricated and tested the kirigami disks and parachutes for the initial submission of the manuscript. J.F. fabricated the kirigami parachutes for the revised version of the manuscript. D.L. conducted the numerical simulations. D.L., J.F., S.R., F.P.G. and D.M. wrote the paper. S.R., F.P.G. and D.M. supervised the research.

Competing interests The authors declare no competing interests.

Additional information

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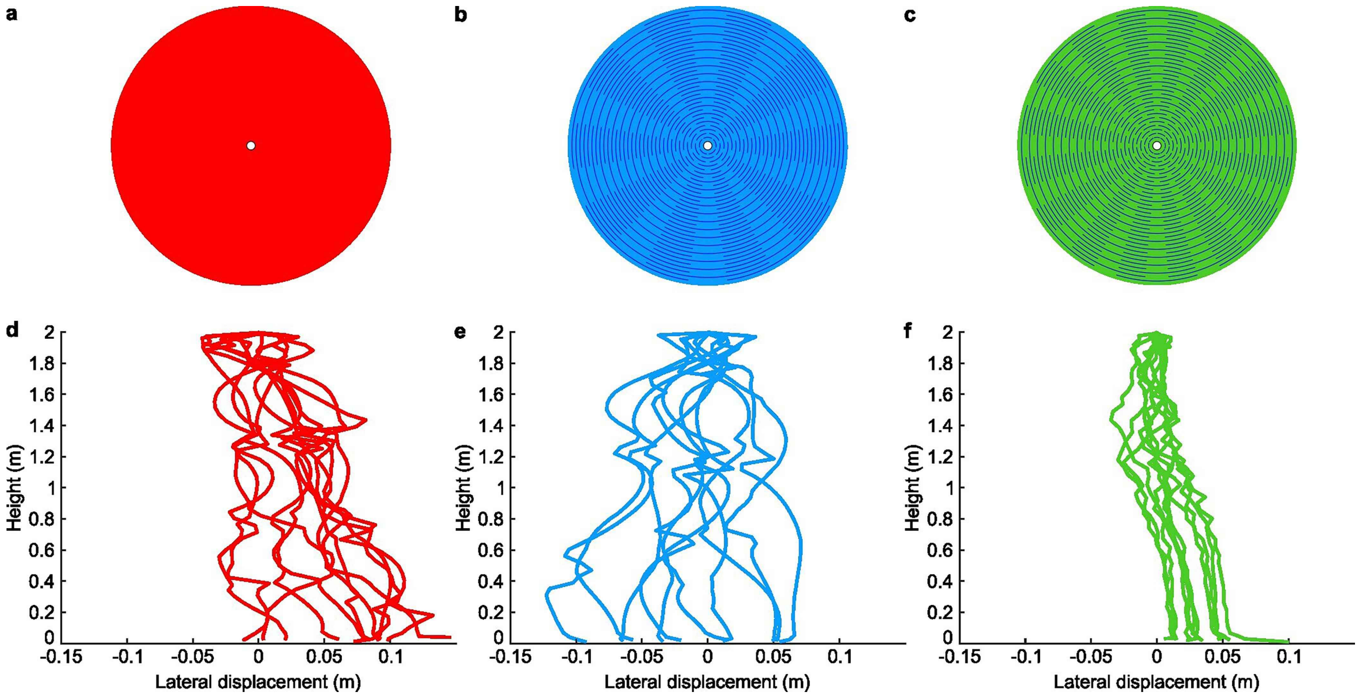
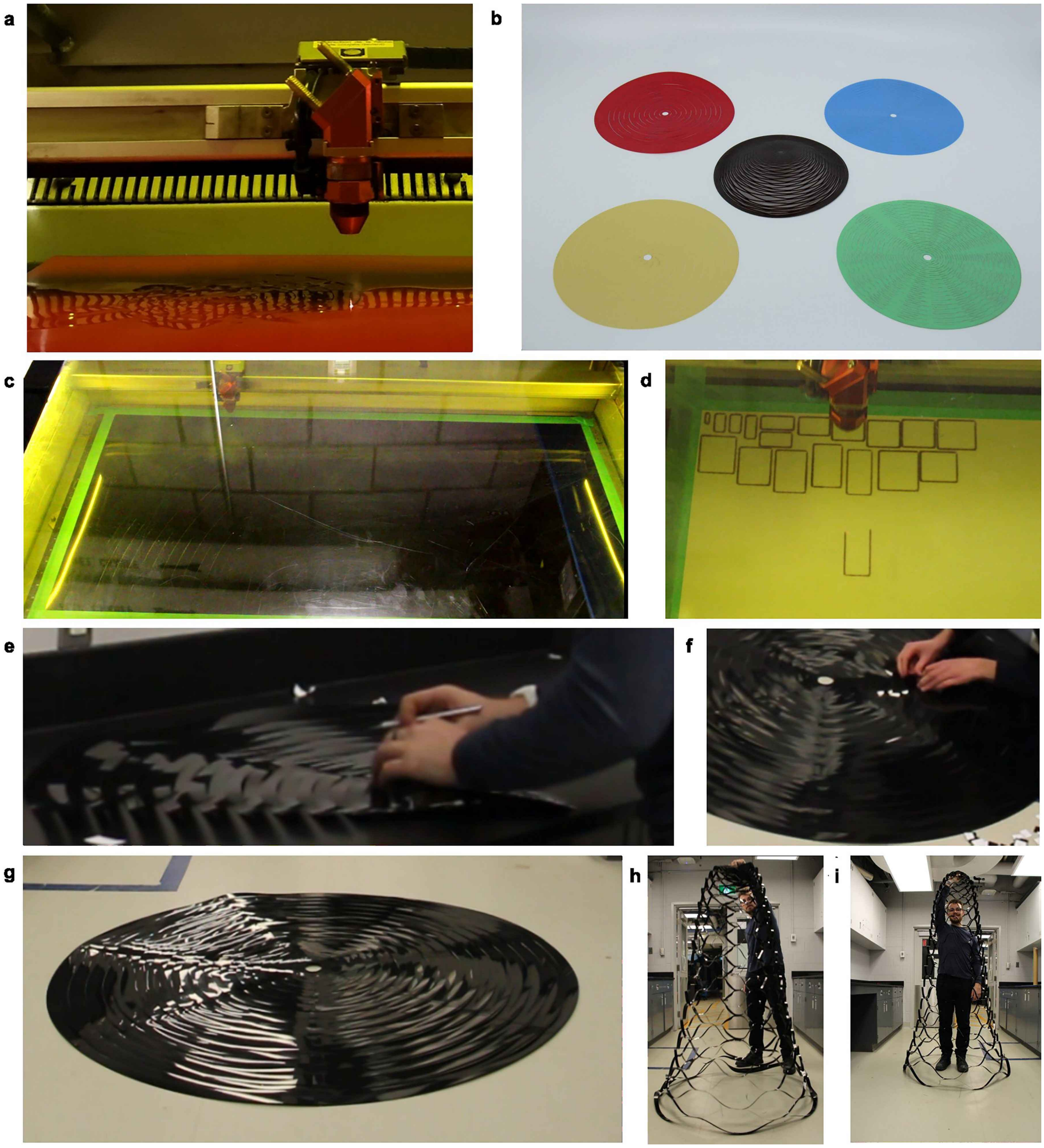
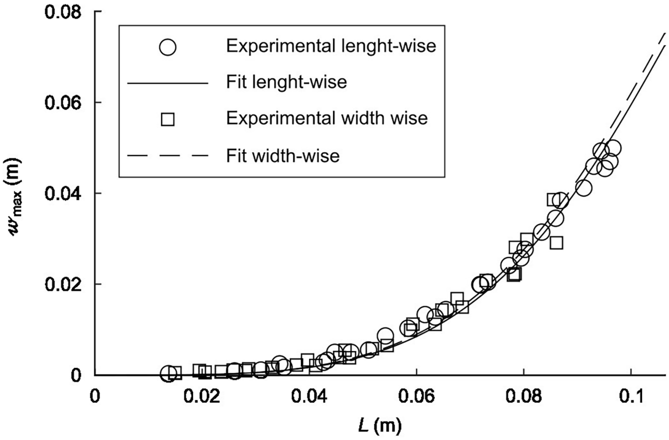


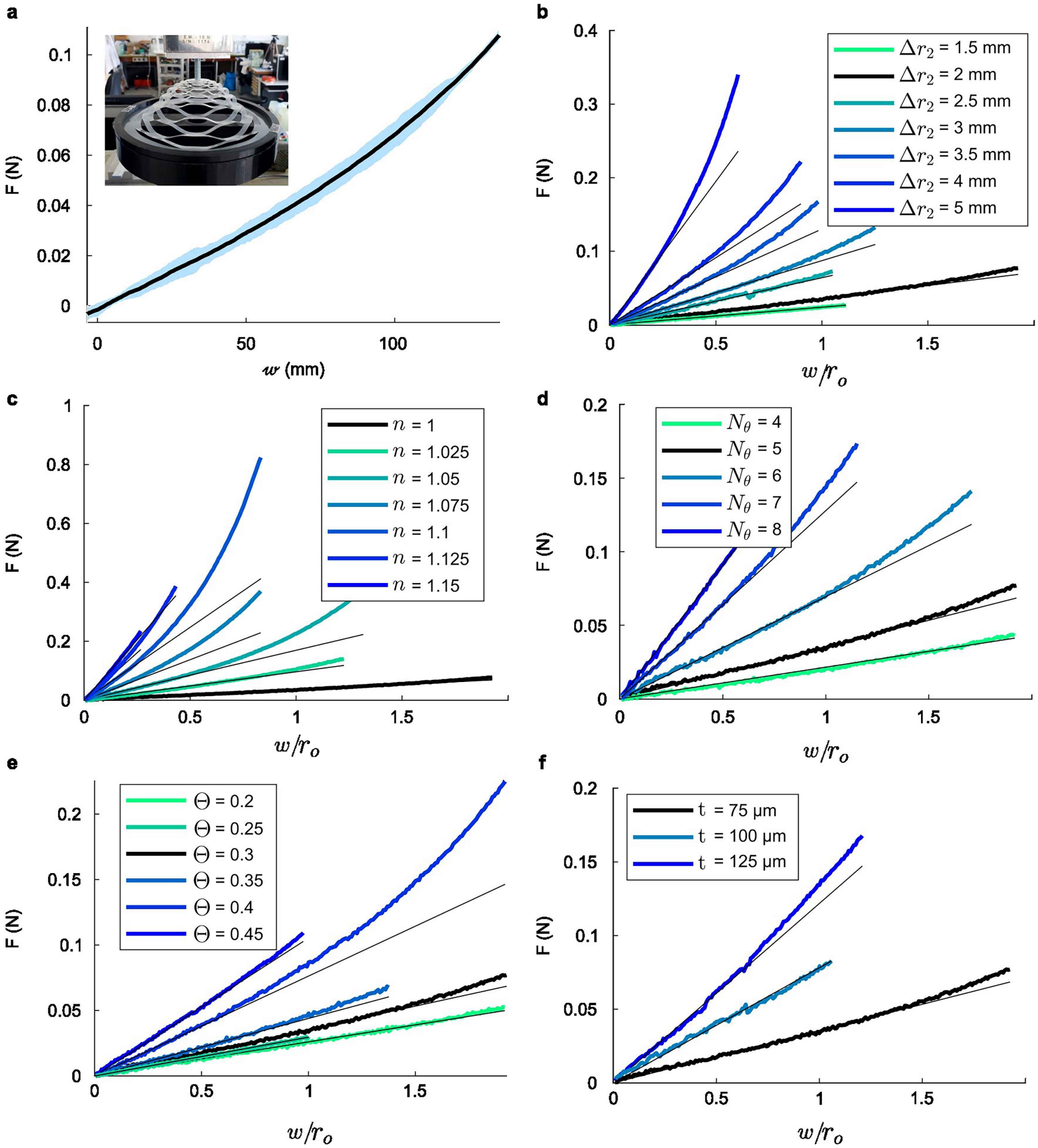
Extended Data Fig. 1 | Lateral displacement of plain and kirigami disks during free fall. a. Plain circular disk. **b**. Cutting pattern of kirigami disk Design A. **c**. Cutting pattern of kirigami disk Design B. **d**. Lateral displacement as a function of vertical height during free fall for ten disks with no cuts (**d**), ten disks with cutting pattern Design A (**e**), and ten disks with cutting pattern Design B (**f**).



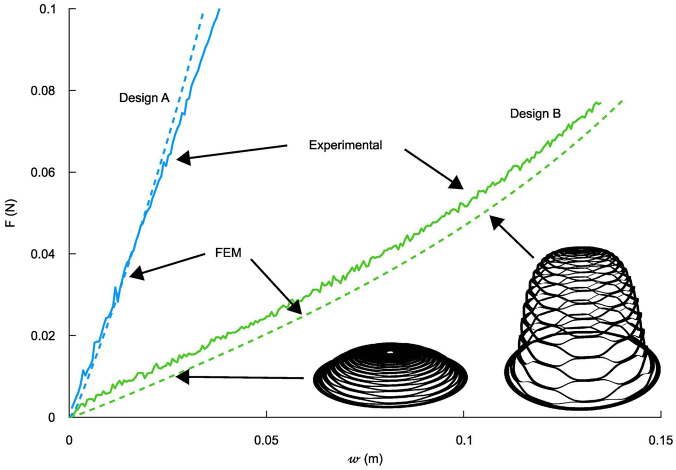
Extended Data Fig. 2 | Manufacturing method for both small and meter-scale parachutes. a. Laser cutting process using the TROTEC Speedy 400 Flexx, leading to (**b**) small parachute specimens. **b**. Laser cutting of large parachute specimen sectors and **c**. adhesive patches to link the parachute sectors. **e**. Assembly method between two sectors leading to **f**. assembling the patched sectors into the whole parachute. **g**. Complete assembled meter-scale parachute **h**. observing mode $\mathcal{K}$ under its own weight up to **i**. the height of one of the authors.



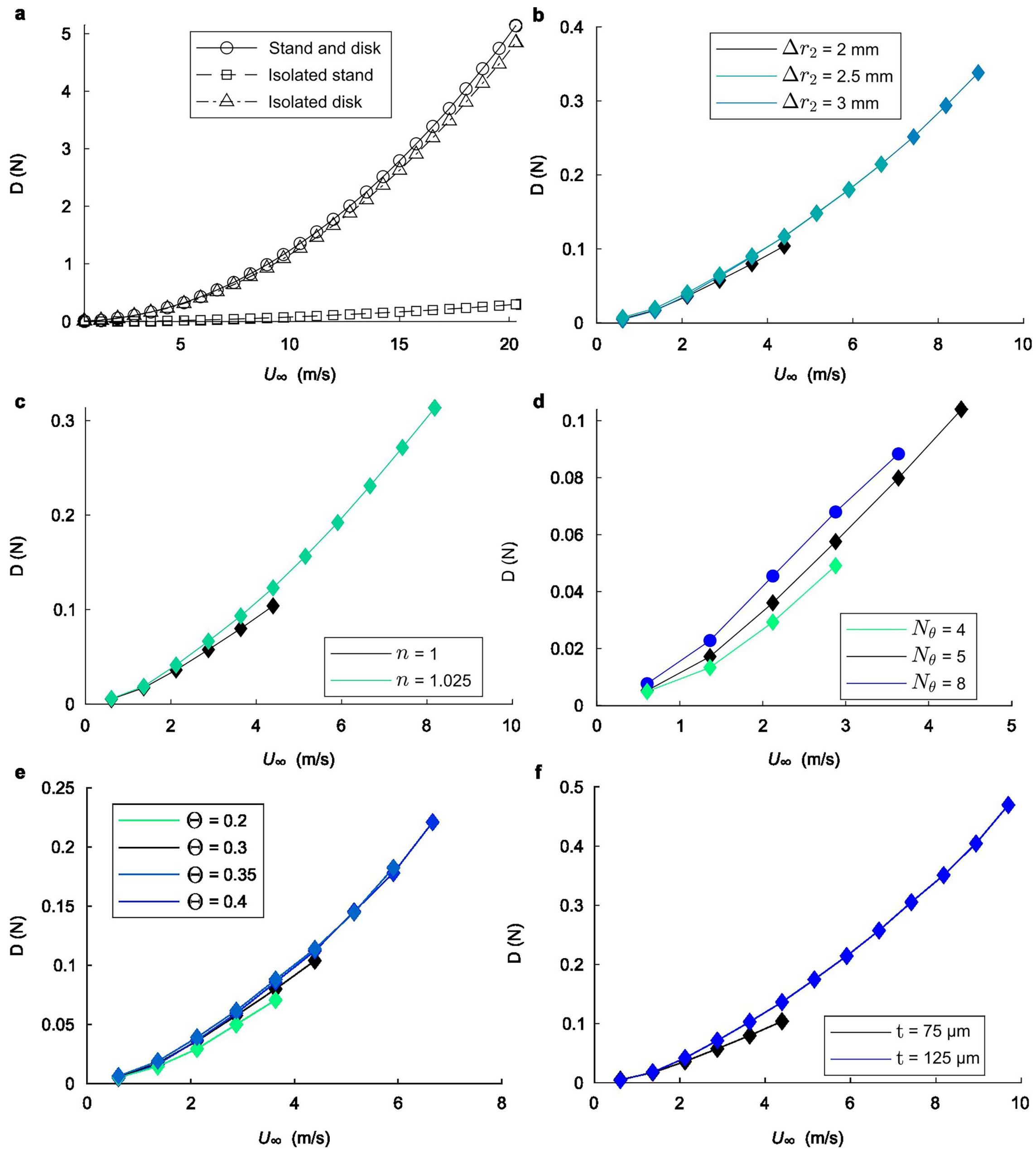
Extended Data Fig. 3 | Mechanical characterization of the base material. Maximum displacement w_{max} of different Mylar sheets of lengths L obtained through bending tests. Due to the laminated nature of the sheet, an anisotropy is obtained when the sheet is bending in different directions, which is illustrated through the different fits.



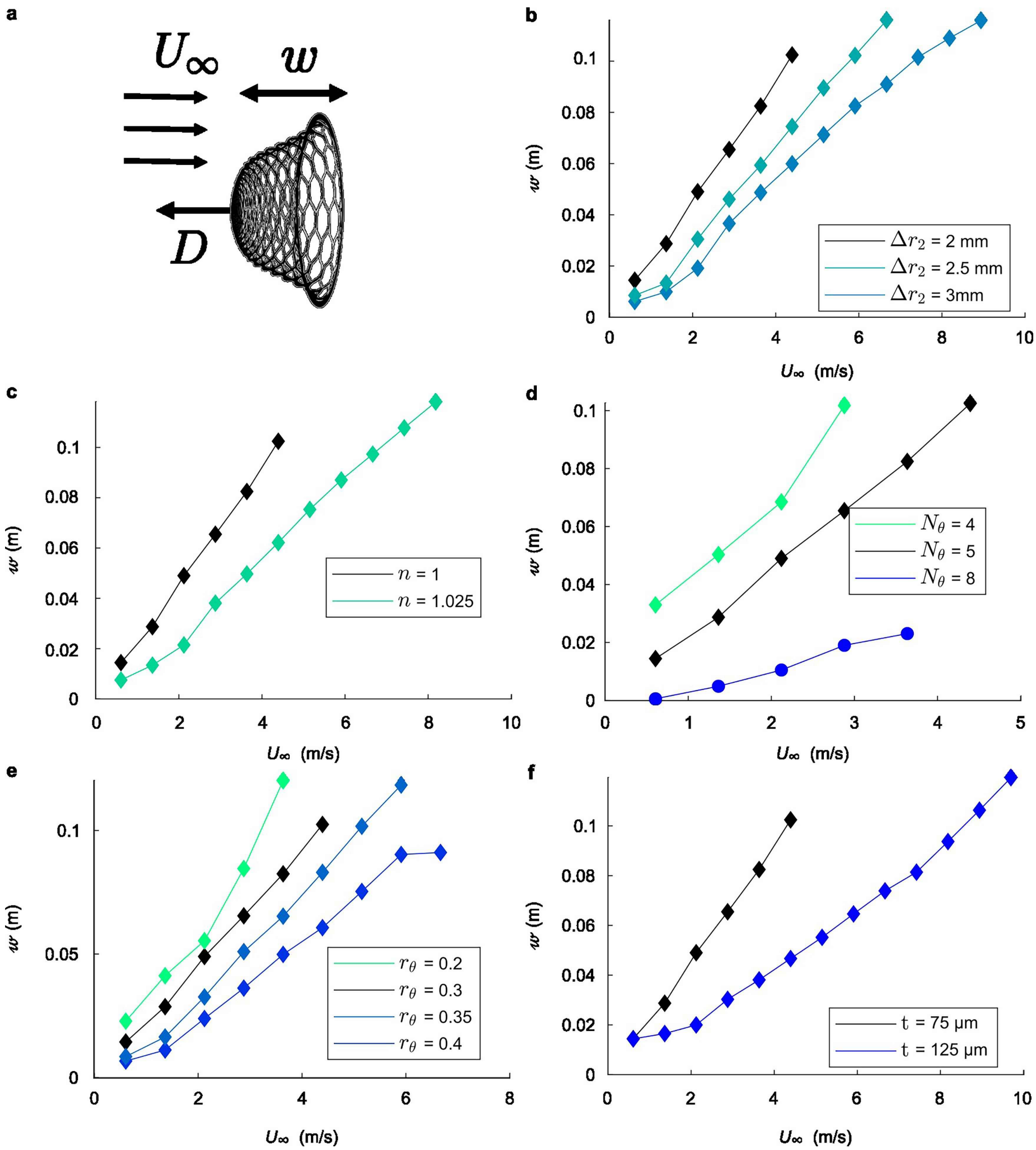
Extended Data Fig. 4 | Force-displacement curves of different closed-loop kirigami specimens. a. Hysteresis and error of the force-displacement curve of the Design B kirigami disk. The line shows the average of six force-displacement curves over three traction cycles while the shaded area shows three times the standard deviation. **b**-**f**. The force-displacement curves of the specimens with varied **b**. radial spacing Δr_2, **c**. radial distribution exponent n, **d**. number of angular sectors N_θ, **e**. cutting ratio Θ and **f**. thickness t also present initial stiffnesses of the tested specimens.



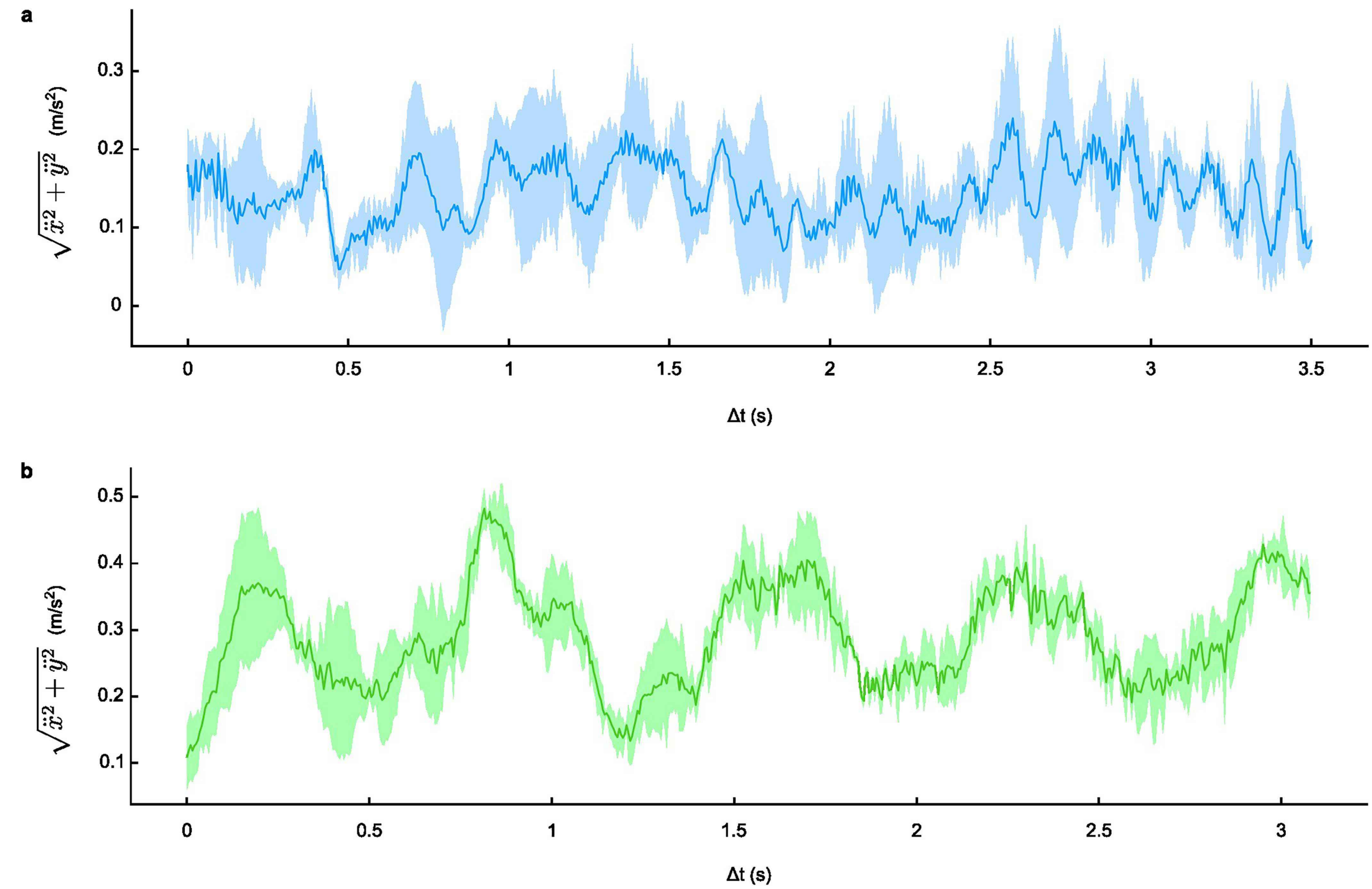
Extended Data Fig. 5 | Comparison between experimental and numerical force-displacement curves of Design B. Force applied F to the kirigami disk designs to obtain the displacement of the center w using experiments and numerical simulations. Accompanying images show the deformed shape of Design B at different displacements, which are similar to the deformed shapes of Design A, as the deformation is forced to be in mode $\mathcal{K}$.



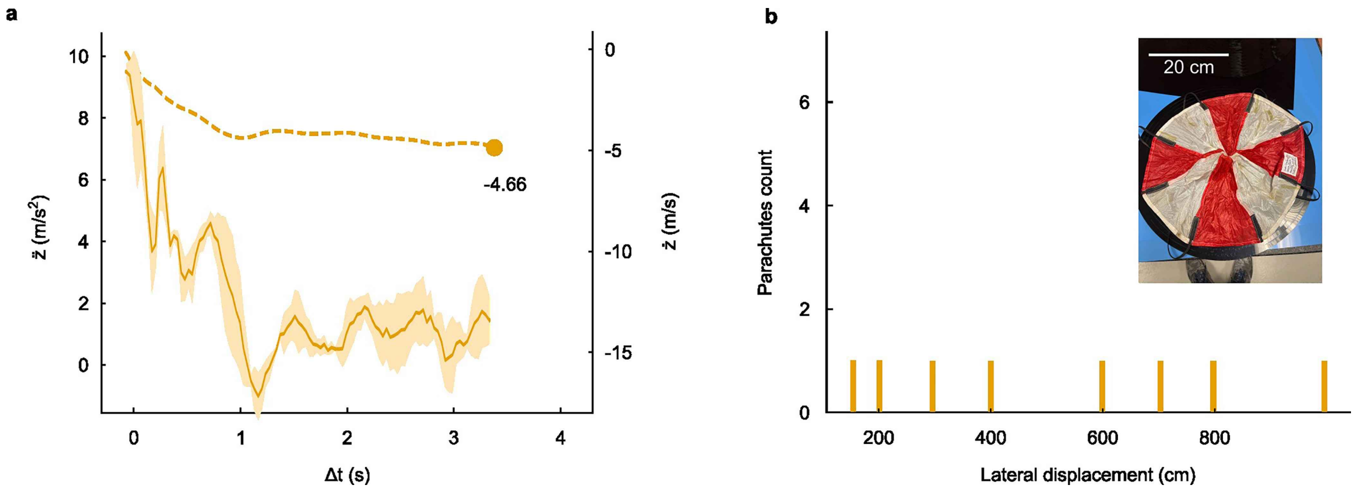
Extended Data Fig. 6 | Drag of the kirigami specimens D according to the flow velocity U_∞. **a**. Total measured drag of a rigid disk along with the contributions from the stand and the isolated specimen. **b-f**. The drag-velocity curves of the specimens with with varied **b**. radial spacing Δr_2, **c**. radial distribution exponent n, **d**. number of angular sectors N_θ, **e**. cutting ratio Θ and **f**. thickness t, where the markers show the deformation mode (diamonds are mode $\mathcal{K}$ and circles is mode $\mathcal{C}$).



Extended Data Fig. 7 | Elongation of the kirigami specimens w under flow velocity U_∞. **a**. Schematic of the deformed kirigami disk. **b**-**f**. Displacement-velocity curves of the specimens with with varied **b**. radial spacing Δr_2, **c**. radial distribution exponent n, **d**. number of angular sectors N_θ, **e**. cutting ratio Θ and **f**. thickness t, where the markers show the deformation mode (diamonds are mode $\mathcal{K}$ and circles is mode $\mathcal{C}$).



Extended Data Fig. 8 | Magnitude of the lateral acceleration as a function of time during fall. a. Results for Design A deforming in the cylindrical mode $\mathcal{C}$. **b**. Results for Design B deforming in the kirigami mode $\mathcal{K}$. The lines and shaded areas are the average and standard deviation of three fall experiments.



Extended Data Fig. 9 | Performance of a conventional parachute. a. Vertical acceleration, $\ddot{z}$, and velocity, $\dot{z}$, of the conventional parachute. The solid line and shaded area are the average and standard deviation of the vertical acceleration of three fall experiments measured with an accelerometer. The dashed line is the vertical velocity obtained by integrating numerically the mean vertical acceleration of three fall experiments. **b**. Lateral displacement of the conventional parachute across multiple drop tests. Inset shows the parachute by *Fruity Chutes*.

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Supplementary information

Kirigami-inspired parachutes with programmable reconfiguration

In the format provided by the authors and unedited

Supplementary Materials

Kirigami-inspired parachutes with programmable reconfiguration

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This PDF file includes:

Supporting Methods

Figs. S1 to S5

Legends for Supplementary Movies S1 to S5

Legends for Supplementary Data S1 to S2

SI References

Other supporting materials for this manuscript include the following:

Supplementary Movies S1 to S5

Supplementary Data S1 to S2

Supplementary Methods

S1. Finite element simulations

To perform our fluid-structure interaction simulations, we use the FIRM framework developed to study flow-induced reconfiguration of flexible structures in a static context (1). The FIRM framework is developed on MATLAB and uses bilinear triangular plate elements based on the Discrete Kirchoff Triangular plate formulation coupled with the Assumed Natural Deviatoric Strain membrane theory, which are meshed using GMSH. We perform both our traction simulations and our reconfiguration simulations using this framework.

A. Meshing. To mesh the disk with slits, we first model the external disk and add pockets to model the inner radius and the slits. Regarding the cuts, we consider that their ends are rounded with a diameter equal to the width of the cut. Here, we consider a cut width of 0.1 mm for all our simulations. This leads to the geometry illustrated in Fig. S1a for the Design B disk, for example. Rounding the slits allows us to represent reality better, but also limits some potential numerical difficulties due to distorted elements. However, due to the different scales of the structure and the slits' width, we were unable to have a sufficiently fine mesh without any distorted elements while keeping computation times low. For the same disk, by using an element size of 2 mm, we obtain the mesh illustrated in Fig. S1b,c,d. While some elements are very elongated compared to other more equilateral triangles, these distorted regions are mainly limited around the end of the slits, where we do not expect particularly important deformations for our applications and calculations. Moreover, as shown in Figs. S1c,d, the regions where we expect interesting and highly nonlinear behavior have more elements than found around the rounded ends. For example, where we expect the blades to deform similarly to beams circumferentially, we don't expect a particular radial behavior. Therefore, while we only use one element radially, or along the width of the blades, we use more elements along their lengths. This specific meshing configuration, which is reproduced for Design A as well, is a compromise between a sufficiently fine and undistorted mesh and acceptable computational times, as the whole geometry of the Design B kirigami disk comprises 10946 nodes and 22519 elements, which takes a long time to use in the finite element iterative process, especially considering that the corotational framework upon which the FIRM software is built is known to be computationally expensive (2).

B. Traction simulations. To perform the traction simulations, we clamp the disk on its external radius and apply a dead pressure on the nodes that are within r_1, such as how it was performed experimentally. Since no instabilities or snapping behaviors are observed, we used the Newton-Raphson solver implemented within FIRM. The different mechanical properties of our disks are taken as defined in the Methods section of the main paper and we simulate both Designs A and B as defined in the main text. We use a residual tolerance $\epsilon = 10^{-9}$, along with a relaxation of 0.85 for Design A and 0.5 for Design B. The relaxation parameters were found through trial and error such that the simulations would not diverge. By applying a pressure load on our nodes, we do not know the exact load we apply beforehand, and instead compute it post-mortem from the applied load vector.

C. Reconfiguration simulations. Regarding the reconfiguration simulations, we instead clamp the nodes that were within r_1, similarly to how the screw and nut applied the boundary condition experimentally in the wind tunnel, and applied the nominal pressure over the disk. Once deformed, the pressure distribution is recalculated until convergence through the momentum conservation equation used in Ref. (3). We perform our simulations in a continuation method by increasing the tested velocities incrementally. We use $\rho = 1.225\,\mathrm{kg\,m^{-3}}$ for the density of the fluid and $C_D = 1.2613$ for the rigid drag coefficient of the disk,

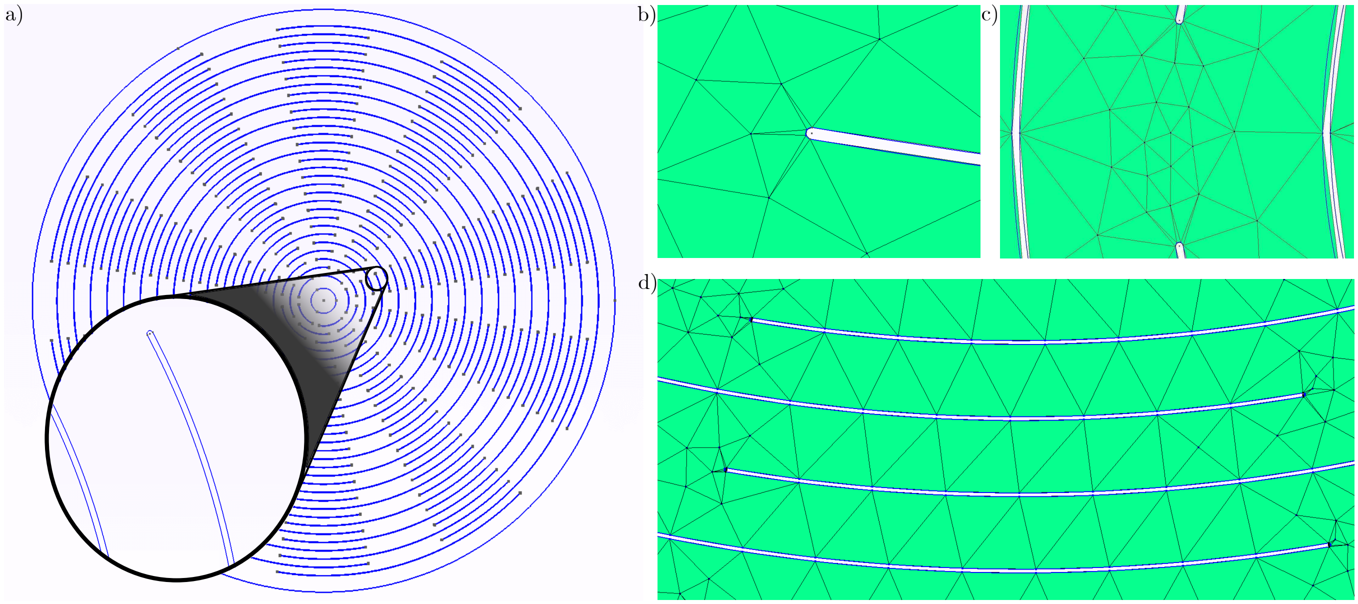

Fig. S1. Mesh of a kirigami inspired disk. a) Adapted geometry of the simulated disk, with the inset showing a closer image of the rounded end of a slit. The disk used here is the Design B kirigami disk. b) Meshed rounded end of a slit, showing distorted elements. c) Mesh of the region between two slits in the angular direction, showing a refined mesh as we expect non-planar behavior. d) Mesh of different blades along the radius of the disk. Multiple elements are used along the beams to observe a sufficiently refined deformation.

as is measured experimentally from Extended Data Fig. 6a. The different mechanical properties are again taken from Methods section of the main paper and we simulate both Designs A and B as defined in the main text. We use a residual tolerance $\epsilon = 10^{-9}$ using the implemented Newton-Raphson solver, along with a relaxation of 0.25 for Design A and 0.6 for Design B, again found through trial and error. For Design A, the simulation setup is done from here. However, Design B's deformation causes more complex manipulations.

D. Porosity model. The given implementation of the FIRM does not take into account the pores that open up as the structures elongates due to its simplified flow mechanics, leading to an overestimation of the drag. To solve this problem, we use an approximation of the fluid behavior through the pores. To do so, we compute the area that the pores open up in comparison to the frontal area of the structure. We define an approximate model of the porous structure's open area such that each pore is enclosed within beams that deform similarly to how a beam under small displacement deforms, considering the large displacement of each beam becomes complex to compute the adequate area. We consider that each beam has clamped-sliding boundary conditions, similarly to Fig. S2a, where we control the vertical displacement w. This leads to the following beam's displacement according to the applied force relationship when using Euler-Bernoulli beams along the curvilinear coordinate of the beam S

$$w(S) = \frac{FL^3}{6EI}\left(\frac{3}{2}\left(\frac{S}{L}\right)^2 - \left(\frac{S}{L}\right)^3\right). \quad [1]$$

We assume the beams have this general shape, which is an hypothesis that decreases the validity of our solution as this shape is only valid in the case of small displacements and considers a punctual force rather than a distributed pressure due to the flow. Nevertheless, we expect the actual shape of the beam to be close to this hypothesis, but we do not necessarily know the applied force, while we know the applied displacement from our simulations. Indeed, we measure the deformed height of the beginning and end of each beam, leading to the vertical displacement of these beams. Therefore, knowing $w_{S=L} = w_{end}$, we can find F and express the beam's deformed shape as

$$w(s) = 2w_{end}\left(s^2 - s^3\right), \tag{2}$$

with $s = S/L \in [0, 1]$. Due to all these simplifications, the porosity model we are developing is an approximation of reality rather than an exact model of what happens experimentally. By considering that the area of the pores is dictated as the area between the two beams, we find the area of half of one pore on ring j as

$$A_{pore,j} = \int_0^{L_j} w_{\text{top beam}}(S) - w_{\text{bottom beam}}(S)dS = \frac{L_j}{4}\left(w_{end}^{top} + w_{end}^{bottom}\right), \tag{3}$$

where $L_j = r_j\theta_\ell/2$ the length of the half-slit made up by two sets of beams. We assume that each pore on a ring j is identical, leading to the total area of the pores A_p

$$A_p = \sum_{j=1}^{N_r} \frac{L_j N_\theta}{2}\left(w_{j,end}^{top} + w_{j,end}^{bottom}\right). \tag{4}$$

From this porous area, we can compute the porosity of the structure as the area of the pores compared to the total area the structure covers

$$\phi = \frac{A_p}{A_0 + A_p} \in [0, 1[, \tag{5}$$

where A_0 is the area of the underformed disk. The area $A_0 + A_p$ is therefore similar to the area of a bell that has a similar shape that our deformed kirigami disk, which has a porosity ϕ.

It was observed experimentally (4) that a porous structure has a different rigid drag coefficient than its non-porous equivalent following a linear relationship $C_d = C_D(1 - \sigma\phi)$, with C_d the drag coefficient of the porous structure, C_D that of the non-porous structure and σ a fitting parameter in the case of a cantilever plate filled with holes. We make the hypothesis that this relationship is maintained for our complex deformed structure such that the porosity is instead calculated from the opened up pores, thus changing the drag coefficient of the structure as it deforms. Moreover, Ref. (4) found $\sigma \approx 1$, thus we make the assumption that $\sigma = 1$ in our case. The reality will be slightly different, but this allows to obtain an approximation without using any computational fluid dynamics.

The applied nominal pressure on the structure is defined as $\rho U_\infty^2 C_d/2$, but we simulated pressures defined as $\rho U_\infty^2 C_D/2$. As discussed in Section S3, since the Cauchy and reconfiguration numbers scale with the non-porous drag coefficient $C_Y \sim C_D$ and $\mathcal{R} \sim 1/C_D$, we compute the porosity of the deformed structure at every velocity considered and compute the required non-porous drag coefficient to obtain the porous drag coefficient applied, thus modifying C_Y and $\mathcal{R}$ and leading to the porosity model presented in the main text. From the Cauchy and reconfiguration numbers obtained after applying the porosity model, we compute the new velocities and drag the structure generates.

S2. Theoretical beam model

A. Beam element definition. By considering the kirigami disk defined in Fig. 1a of the main text, we discretize this structure into an assembly of beams, as we observed experimentally that only the material between two slits deforms in a 2D manner, similarly to an Euler-Bernoulli beam. We neglect the in-plane curvature of the beams and assume they are equivalent to a straight beam of the same length. Since we consider that each beam is equivalent to its curved counterpart, we consider that the beams on ring j are at at mean radius $\bar{r_j} = r_j + \Delta r_j/2$, where r_j is the radius of the previous slit, and, since the beams are only comprised of the overlap of two slits, their length is defined as $L = \bar{r_j}(\theta_\ell - \theta_d)/2$, as there are two beams per slit. We can define the length L and the width H of each beam as

$$L = \frac{\pi \bar{r_j}}{N_\theta} \frac{1-\Theta}{1+\Theta} \text{ and } H = \Delta r_j. \quad [6]$$

We can therefore define each beam that our specimens are comprised of, which allows to define their mechanical properties.

B. Stiffness model. We consider that each beam has clamped-sliding boundary conditions when the whole structure deforms in mode $\mathcal{K}$, such that

$$w(x=0) = 0,\ \theta(x=0) = 0; \quad [7]$$

$$\theta(x=L) = 0,\ V(x=L) = 0, \quad [8]$$

where w is the displacement of the beam, θ the rotation angle of the beam and V is the shear force of the beam. This model is illustrated in Fig. S2a.

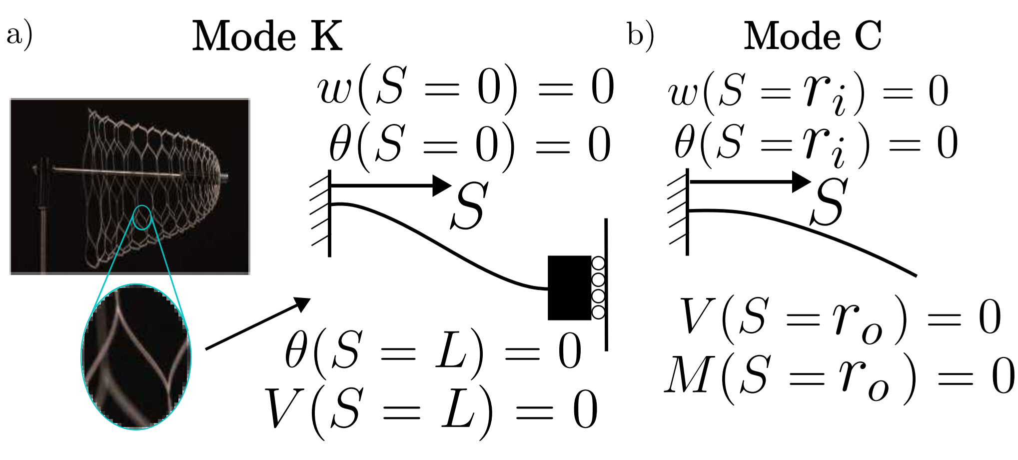

Fig. S2. Theoretical beam models. Illustration of the theoretical models for modes a) K and b) mode $\mathcal{C}$.

By using a Euler-Bernoulli beam formulation with these boundary conditions, we find that the force-end displacement relation of each beam is $F = (12EI/L^3)w_{end}$, with F the punctual force applied at the end of the beam, w_{end} the displacement at the end of the beam, E the beam's Young modulus and I its second area moment. By substituting the geometrical properties of our previously defined beams, we find the stiffness of the beam as

$$\tilde{K}_{1beam} = \frac{N_\theta^3 E \Delta r_j t^3}{\pi^3 \bar{r}_j^3} \left(\frac{1+\Theta}{1-\Theta}\right)^3. \quad [9]$$

We can consider that, for each ring, the beams are in parallel, which causes the force applied to one ring to be defined as $F_{1ring} = \left(\sum_{j=1}^{2N_\theta} \tilde{K}_{j,1beam}\right)\delta_{1ring}$, leading to $\tilde{K}_{1ring} = \sum_{j=1}^{2N_\theta} \tilde{K}_{j,1beam}$. Furthermore, each ring acts in series to one another, as the displacement of each ring contributes to the total displacement. Indeed, we define the total displacement as $\delta = \sum_{i=1}^{N_r} \delta_{i,1ring}$. Moreover, for each ring to deform in an independent manner, the force in each ring needs to be equal, as $F = F_{1,1ring} = F_{2,1ring} = ... = F_{i,1ring}$. Therefore, we find that $\tilde{K} = \left(\sum_{j=1}^{N_r} \frac{1}{\tilde{K}_{j,1ring}}\right)^{-1}$. Putting this together defines the theoretical stiffness model for the angular kirigami disks. We also use the dimensionless terms $\Delta x_j = \Delta r_j / r_o$, $x_j = r_j / r_o$ and $\bar{x_j} = \bar{r_j}/r_o$, which leads to the structure's theoretical stiffness as

$$\tilde{K} = \left(\sum_{j=1}^{N_r} \frac{\pi^3 \bar{r}_j^3}{2N_\theta^4 E \Delta r_j t^3}\left(\frac{1-\Theta}{1+\Theta}\right)^3\right)^{-1} = \frac{2N_\theta^4 E t^3}{\pi^3}\left(\frac{1+\Theta}{1-\Theta}\right)^3\left(\sum_{j=1}^{N_r}\frac{\bar{r}_j^3}{\Delta r_j}\right)^{-1}, \qquad [10]$$

which can be decomposed into the contributions from the material through the bending stiffness B, the disk's size through the outer radius r_o, and the kirigami pattern's added stiffness $\bar{K}$ as

$$\tilde{K} = \left(\frac{Et^3}{12}\right)\left(\frac{1}{r_o^2}\right)\left(\frac{24N_\theta^4}{\pi^3}\left(\frac{1+\Theta}{1-\Theta}\right)^3\left(\sum_{j=1}^{N_r}\frac{\bar{x}_j^3}{\Delta x_j}\right)^{-1}\right) = \frac{B\bar{K}}{r_o^2}. \qquad [11]$$

C. Extension length. In a similar manner to the stiffness model, we can estimate a theoretical maximum extension length such that each ring can be extended at a maximum of the length of one of its beams. Therefore, the maximum extension length of the kirigami disk is the sum of the length of each unique beam and can be defined in a dimensionless manner such that

$$L_e = \sum_{j=1}^{N_r}\frac{\pi\bar{r}_j}{N_\theta}\left(\frac{1-\Theta}{1+\Theta}\right) = r_o\sum_{j=1}^{N_r}\frac{\pi\bar{x}_j}{N_\theta}\left(\frac{1-\Theta}{1+\Theta}\right) = r_o\ell. \qquad [12]$$

D. Transition criteria. To understand when the kirigami disks deform in a mode $\mathcal{C}$ or a mode $\mathcal{K}$, we aim to define an adequate transition criteria using our stiffness model.

D.1. Stiffness comparison. In the case of a disk that deforms in mode $\mathcal{K}$, we already know that an expression for its stiffness when a punctual load is applied in its center as equation Eq. (10). In the case of mode $\mathcal{C}$, we know that the stiffness for the displacement of the free end of a cantilevered beam follows $K \sim EI/L^3$, therefore, for the equivalent tapered beam, the stiffness will scale as

$$K_C \sim \frac{B}{r_o^2}. \qquad [13]$$

When we compare the two modes, in the case where we had the exact expression of the stiffnesses, we would look for a transition where both stiffnesses become equal. However, since we did not compute the required constants, and due to our many assumptions, these constants would not allow for an exact representation of reality, we can instead look for $\tilde{K}/K_C = C_1$, with C_1 a constant. Therefore, we rather compute

$$\frac{\tilde{K}}{K_C} \sim \frac{B\bar{K}}{r_o^2}\frac{r_o^2}{B} = \bar{K} = C_2, \qquad [14]$$

where C_2 is a constant.

E. Stiffness and elongation mapping. In the case of simplified patterns, such that $\Delta x_2 = 1/N_r$ and $n = 1$, we can simplify the equation for the pattern's stiffness $\bar{K}$ and the normalized maximum elongation ℓ such that

$$\bar{K} = \frac{24}{\pi^3} \frac{N_\theta^4}{N_r^6 (N_r + 1)^2} \left(\frac{1+\Theta}{1-\Theta} \right)^3 \quad [15]$$

$$\ell = \frac{\pi}{2} \frac{N_r (N_r + 1)}{N_\theta} \left(\frac{1+\Theta}{1-\Theta} \right). \quad [16]$$

Using these equations, we see that we can control a pattern's stiffness and elongation through two dimensionless terms, the slit length ratio Θ and the cut ratio N_θ/N_r^2, as illustrated in Fig. S3a,b. Using these maps, which illustrate the cut ratio required for each Θ to obtain a certain $\bar{K}$ and ℓ, we can use them to design simplified parachutes that have a regular radial distribution of the cuts. When considering $n \neq 1$ and $\Delta x \neq 1/N_r$, this map becomes more complex as Δx_j are not constant anymore. With a combination of $\bar{K}$ and ℓ required, it is possible to find the cut and slit length ratio required as well, and since N_θ and N_r are integers, we can find how many radial and angular cuts are needed to obtain the required values. In the main text, we consider the case where Δx_j are not necessarily constant.

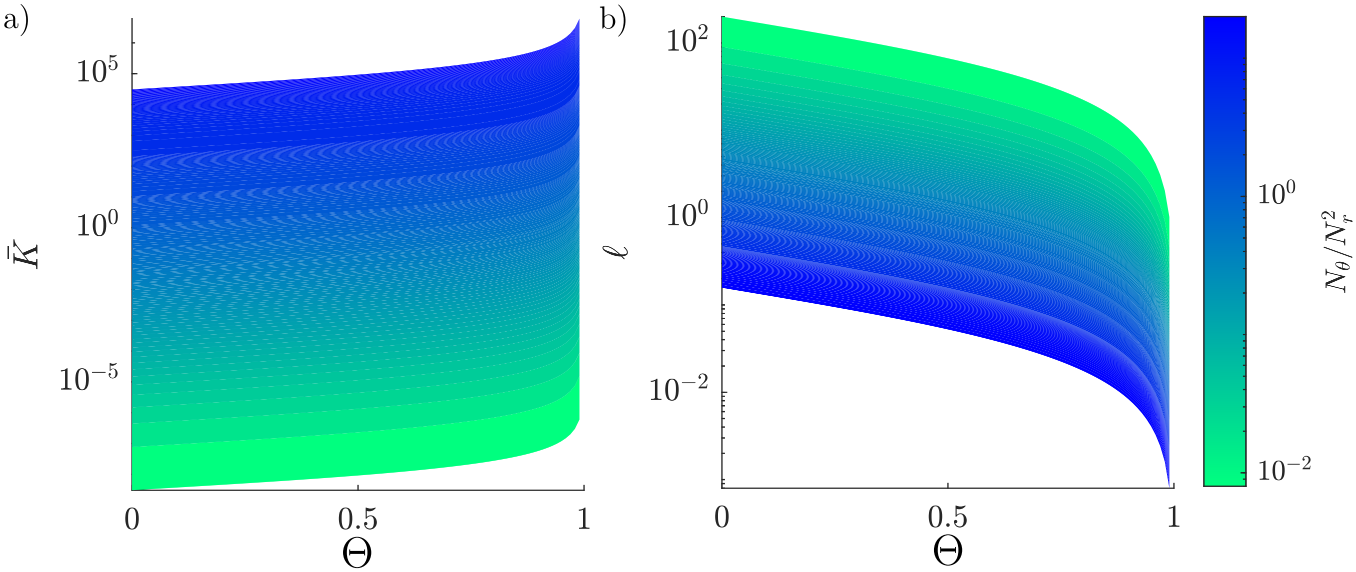

Fig. S3. Closed-loop kirigami parachutes design map. a) Design map of the pattern's stiffness of the parachute $\bar{K}$ with the slit length ratio Θ and cut ratio N_θ/N_r^2 as the control parameters. b) Design map of the maximum theoretical normalized elongation of the parachute ℓ with the slit length ratio Θ and cut ratio N_θ/N_r^2 as the control parameters.

S3. Dimensional analysis

A. Traction. We find the dimensionless form of our force-displacement curves to determine the expression of the typical elastic restoring forces. We normalize the displacement of the structure by the maximum extension length $w/L_e = w/r_o\ell$, while the reaction force F is normalized by the linear maximum expected force $F/KL_e = F/Kr_o\ell$. By considering all of the previously presented traction curves, we plot their dimensionless forms in Fig. S4. Due to the number of presented curves, as well as the number of data points making up the curves, we do not identify them as this would lead to an unclear plot. Nevertheless, the dimensional data is available in Extended Data Fig. 7 if necessary. All of the curves collapse on top of one another at small displacements, while they observe a large scatter at higher displacements, indicating that unconsidered physics might be at play, such as plasticity or geometrically nonlinear variable stiffness. Nevertheless, we find that the typical restoring forces are adequately represented by the linear maximum expected force KL_e.

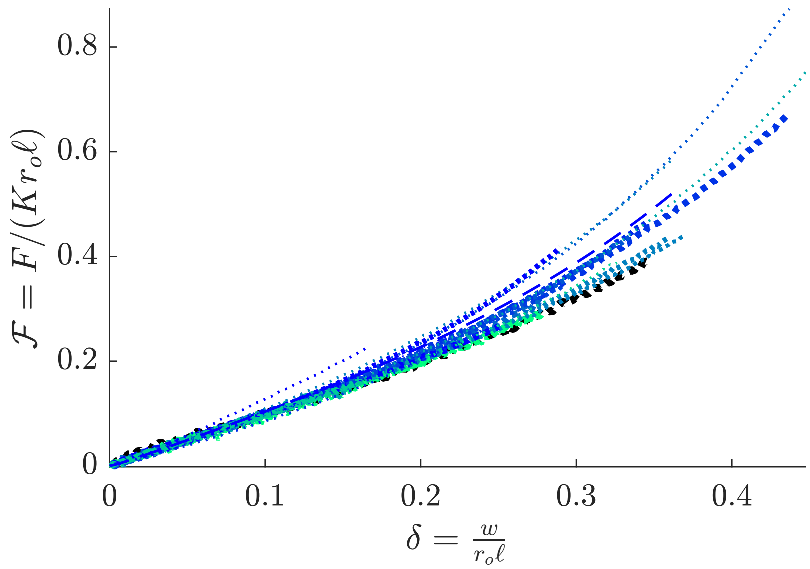

Fig. S4. Dimensionless force-displacement curves. Dimensionless form of the force-displacement curves of the kirigami disk, where F is the reaction force, w the vertical displacement of the center of the disk, K the structure's stiffness in the linear regime and L_e its maximum extension length.

B. Reconfiguration.

B.1. Drag. In the case of a disk that deforms in mode $\mathcal{K}$, we consider that the drag of the parachute follows

$$D[MLT^{-2}] = g\left(\rho[ML^{-3}], r_o[L], L_e[L], U_\infty[LT^{-1}], K[MT^{-2}], C_D[-]\right), \quad [17]$$

where the terms in brackets represent the dimensions of the variable, such that M is the mass dimension, L the length dimension and T the time dimension. Using Pi-Buckingham theorem with 7 parameters and 3 dimensions, we find 4 dimensionless numbers. We first have C_D as a given, then we choose

$$\ell = \frac{L_e}{r_o} \text{ The extended kirigami's aspect ratio;} \quad [18]$$

$$C_Y = \frac{\rho U_\infty^2 \pi r_o^2 C_D}{K L_e} \sim C_D \frac{\rho U_\infty^2 r_o}{B \bar{K} \ell} \text{ Cauchy number; Fluid force to elastic restoring forces;} \quad [19]$$

$$\mathcal{R} = \frac{D}{\frac{1}{2}\rho C_D U_\infty^2 A} = \frac{D}{D_{rigid}} \text{ Reconfiguration number; Structure's drag compared with its rigid counterpart.} \quad [20]$$

We note that we normalize the fluid forces by the maximum expected linear force, as it was shown that it is a good representation of elastic restoring forces.

B.2. Extension. We consider that the extension of the parachute follows

$$w[L] = h\left(\rho[ML^{-3}], U_\infty[LT^{-1}], r_o[L], L_e[L], K[MT^{-2}], C_D[-]\right). \quad [21]$$

Using Pi-Buckingham theorem again with 7 parameters and 3 dimensions, we find 4 dimensionless numbers again. For simplicity, we keep our previous definition of ℓ, C_Y and keep C_D. Then, we define a dimensionless extension of the structure

$$\delta = \frac{w}{L_e} = \frac{w}{r_o \ell}. \quad [22]$$

S4. Design of a larger parachute in realistic conditions

To design a larger parachute, we use the reconfiguration-Cauchy number curve that was obtained from the simulations performed when considering the applied porosity model. To design our parachute, we consider that, for a given velocity U_∞, we want to maximize the weight used so that the parachute is as efficient as possible. We know that, when considering that the applied weight W is equivalent to its generated drag D at terminal velocity and by assuming that the drag of its rigid counterpart follows $D_{rigid} = \rho U_\infty^2 C_D A/2$,

$$\mathcal{R} = \frac{W}{\frac{1}{2}\rho U_\infty^2 A C_D}, \quad [23]$$

therefore we want to maximize $\mathcal{R}$ at a given U_∞, which requires that we minimize C_Y (see Fig. 3c from the main text), while keeping a certain elongation to allow for increased stability. One of the first things we can do to minimize the Cauchy number is to increase the pattern's added stiffness without deforming in a mode $\mathcal{C}$. Therefore, we choose $\bar{K} = 25$ so that we keep a certain margin of error with our transition criterion $\bar{K} = 28$. By considering that the parachute remains in air with the same rigid drag coefficient and terminal velocity, we find the relationship between the maximum allowed weight, the external radius, the bending stiffness and the normalized elongation of the structure is approximately following the scaling law $W \sim B^{1/3}\ell^{1/3}r_o$, as shown in Fig. S5a. From this scaling law, we find that we want a parachute that is as big as possible and as stiff as possible in bending, while having a sufficiently long elongation. In order to manufacture a parachute that does not require assembly, we choose a radius of $r_o = 0.25\,\mathrm{m}$ and we use the stiffest material in bending available to us, which are sheets of polyester plastic of thickness $t = 0.3175\,\mathrm{mm}$ (MCMASTER-CARR 9513K71).

In order to ensure that we only observe mode $\mathcal{K}$ from this parachute, we choose $n = 1$, and therefore $\Delta x_2 = \Delta x$, as those that behaved in degenerate modes in comparison with modes C and K typically used $n \neq 1$. We explore the complete design space $\Delta x \in]0, 1[$, $\Theta \in]0, 1[$ and $N_\theta \in \{3, ..., 10\}$ and compute their respective $\bar{K}$ and ℓ. We consider that the inner center has a radius $r_i = 2 \times 10^{-2}\,\mathrm{m}$ to attach the water bottle, with the first slits being cut at a spacing $\Delta r_1 = 10\,\mathrm{mm}$ and that the minimum spacing between slits is $\Delta r_{min} = 1.35\,\mathrm{mm}$. We show the resulting pattern stiffness $\bar{K}\ell$ map across the design space in Fig. S5b, where we only show the configurations that respect the manufacturing and deformation constraints ($\bar{K} \leq 25$) and reduce the axes so that only regions where the configurations are feasible are shown.

We find that the design space that meets our requirements is below $N_\theta = 9$, which we choose to maximize the stiffness of the parachute. To choose a specific configuration within this design space, we know we want to minimize the Cauchy number at a given terminal velocity, which leads to maximizing the product $\bar{K}\ell$. As seen in Fig. S5b, the maximum $\bar{K}\ell$ product is also found at high N_θ. We plot the stiffness $\bar{K}$, elongation ℓ and product $\bar{K}\ell$ across this chosen design space in Fig. S5c,d,e, respectively. To maintain our margin of error ensuring we deform in mode $\mathcal{K}$ rather than mode $\mathcal{C}$, we do not go up to the border of the design space. Moreover, since we want a minimum elongation of the parachute to ensure stability, we do not want to use the smallest ℓ possible. Therefore, the exact configuration we choose is a compromise between our requirements, and we choose, following the presented plots, a configuration that belongs to the design space while having promising properties, such that $\Delta x = 0.0248497$, $n = 1$, $N_\theta = 9$ and $\Theta = 0.0757515$, which is identified in Figs. S5c,d,e by a star. While this specific design does not have the optimal $\bar{K}\ell$ value, it follows our design requirements and we ensure to have a sufficiently flexible parachute to deform in mode $\mathcal{K}$. Therefore, the manufactured parachute presented in the main text has an external radius $r_o = 0.25\,\mathrm{m}$, internal radius $r_i = 0.02\,\mathrm{m}$, thickness $t = 0.3175\,\mathrm{mm}$, first radial spacing $\Delta r_1 = 10\,\mathrm{mm}$, second radial spacing $\Delta r_2 = 6.21\,\mathrm{mm}$, $N_\theta = 9$ angular sectors and $\Theta = 0.0757515$. The results for this parachute are illustrated in Fig. 4 of the main text.

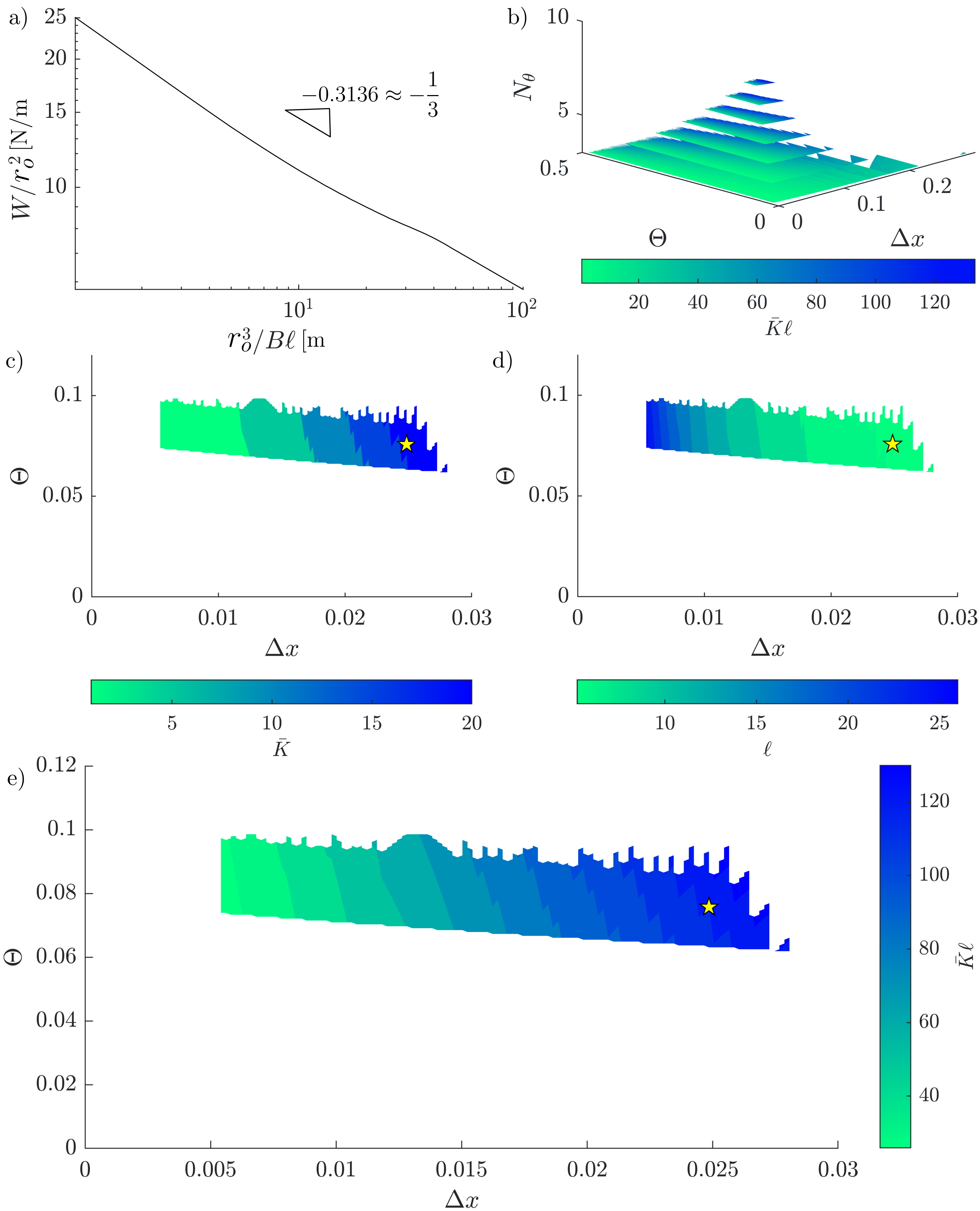

Fig. S5. Large-scale parachute design process. a) Scaling curve for the weight according to the stiffness, elongation and dimension of the parachute, showing a scaling law in $-1/3$. b) Colormap of the pattern's added stiffness $\bar{K}$ over the complete design space for the radial spacing Δx, number of angular sectors N_θ and the ratio of the material to the slit angles Θ when $n = 1$, with only the feasable configurations presented. c) Colormap of the pattern's added stiffness $\bar{K}$ and d) maximum theoretical elongation ℓ for the single level where $N_\theta = 9$ according to Δx and Θ. The star indicates the manufactured meter-scale parachute. e) Colormap of the product $\bar{K}\ell$ according to Δx and Θ, showing the optimal design regions, for $N_\theta = 9$. The star indicates the manufactured meter-scale specimen.

Supplementary Movie S1. Manufacturing and drop tests: Overview of the manufacturing process and drop testing of our kirigami-inspired parachutes.

Supplementary Movie S2. Wind tunnel testing and simulations: Kirigami disks deforming in mode $\mathcal{C}$ and $\mathcal{K}$ in the wind-tunnel and corresponding FIRM simulations.

Supplementary Movie S3. Manufacturing of large-scale parachutes: Time-lapse of the manufacturing and opening of a meter-scale parachute.

Supplementary Movie S4. Falling behavior of a large-scale kirigami-inspired parachute in realistic conditions: Dropping of a water bottle from a drone at 60 m elevation using our kirigami-inspired parachute.

Supplementary Movie S5. Mass dropping of two different populations of kirigami-inspired parachutes: Distinct falling behavior of kirigami parachutes mode $\mathcal{C}$ and $\mathcal{K}$ leads to self-sorting during a drop test.

SI Supplementary Data S1 (Supplementary_Data_windtunnel.xlsx)

Raw data from the experimental wind-tunnel test conducted on the kirigami specimens.

SI Supplementary Data S2 (Supplementary_Data_tensile.xlsx)

Raw data from the experimental tensile tests on Design A and Design B.

References

1. D Lamoureux, S Ramananarivo, D Melancon, FP Gosselin, Simulating flow-induced reconfiguration by coupling corotational plate finite elements with a simplified pressure drag (2024).
2. J Shi, Z Liu, J Hong, A New Rotation-Free Shell Formulation Using Exact Corotational Frame for Dynamic Analysis and Applications. *J. Comput. Nonlinear Dyn.* **13**, 041006 (2018).
3. F Gosselin, E de Langre, BA Machado-Almeida, Drag reduction of flexible plates by reconfiguration. *J. Fluid Mech.* **650**, 319–341 (2010).
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nature portfolio

Peer Review File

Kirigami-inspired parachutes with programmable reconfiguration

Corresponding Author: Professor David Melancon

Version 1:

Reviewer comments:

Referee #1

(Remarks to the Author)
I have read the manuscript with great interest, and the authors have explored a beautiful and elegant idea. Indeed, they apply the traditional Japanese art of Kirigami to fabricate parachute-like structures. These structures are simple disks made porous by the application of cuts. When subjected to flow, the loading of the structure induces large deformations that help the deployment of this new type of "parachute" and, ultimately, allow its slow descent in the air. Like I said, I find the idea beautiful. The paper is also beautifully illustrated. My biggest concern regarding publication in Nature is the following:
The concept of using cuts to alter the shape of an object has now been largely studied in the soft matter community. As noted by the authors, this idea has also been explored in the presence of flow. As such, there is little fundamental novelty in fluid-structure interaction here. I appreciate and am impressed by the quality of the numerical results, but one could perceive these improvements as iterative — thus not warranting publication in Nature.

Conversely, the work is the first to explore the flight of these structures (free flight, not in a wind tunnel). That is the part of the work which (1) is the novel and where the results are the most impressive (Fig 4) and (2) the most likely to generate excitement in the soft matter community and the broader audience. Thus, the authors should rethink the way the manuscript is written, putting more emphasis on flight capabilities and studying some essential aspects of this process. The results in Fig1b-d are very different from a simple free fall, yet the authors mainly focus on U_\infty (admittedly the most important parameter to characterize flight, but not the only one). More knowledge is needed here. Does the parachute tumble? If yes, what is the frequency? Where do they land compared to the vertical to the origin of flight? What happens if there is some side wind? Or if the payload is distributed differently than attached in the middle?

Can these parachutes achieve something exciting that a regular parachute could not do? I would suggest, for example, stacking many disks (10-100) and dropping them at once from a drone or something of the like. These disks could be identical or even better different (2 populations), e.g., allowing them to sort themselves during the fall. The manuscript could also benefit from an explicit discussion of the limitations of this approach. Could we go bigger? How would these contraptions compare with regular parachutes?

In conclusion, I find the idea beautiful but would like to see the concept pushed further before I can recommend publication.

(Remarks on code availability)

Referee #2

(Remarks to the Author)
Key results:
This work studies how kirigami structures change shape amidst fluid flow. It uses kirigami cuts to manufacture parachutes.

The kirigami patterns can be laser cut into a disk which deploys into a parachute shape upon falling through air. The kirigami patterns are not new - there is no attempt to design them for this purpose, or indeed optimize them.

The paper has simulation, experimental, and analysis components which generally agree. The authors build a meter-scale kirigami parachute and find that it can help an object maintain a more vertical trajectory when drifting to the ground, and that it slows the fall down. The kirigami parachute is theoretically easier to manufacture than a conventional parachute because it uses lasercuts instead of seams and folds. However, it is almost certainly true that the cuts will grow and might fail catastrophically - so likely this can be used once - which is quite wasteful compared to parachutes: the large demo parachute in this paper still has pieces which must still be taped together, and this is not scalable. The kirigami parachutes slow the terminal velocity comparably to conventional parachutes in a low load-to-area ratio regime. It looks like conventional parachutes begin outperforming the kirigami parachutes at about 2.25lbs to m^2 weight to area ratio (10N/m^2).

Originality and Significance:
The topic and potential application of this work are interesting but not particularly surprising. Streamlining parachute manufacturing improves their potential for airdropping items to people. Additionally, fluid interaction behavior is a potentially interesting area of the kirigami materials field.

However, the potential noteworthiness of this paper comes from the kirigami parachute application, which is very limited in its applicability. Kirigami parachutes perform comparably to conventional parachutes only for small weight to area ratios, which is interesting but not remarkable. The demo parachute in this paper also still needs to be pieced together with seams, and is not yet easier to manufacture than a conventional parachute. The other findings in this paper are nice, but not significant relative to advances in kirigami technology, so the parachute demonstration falls a little flat.

Falling disks and wind tunnel experiments:
These experiments show that there is a regime of kirigami cut patterns in a disk which causes a large z-axis extension (“Mode K”) and improved stability when the disk falls.

The authors should address more clearly why Design A and other patterns could lack a Mode K. There’s a discussion on line 287 which says the extension limit of Design A’s Mode C is given by r_0 - r_1, but why does Design A not have a Mode K at all, even at higher flow velocities? Visually, it seems the reason is geometric.

Minor notes:
Fig. 1b-d is a nice visualization of what the different trajectories look like.
In some locations 1e is said to display the standard deviation of displacement, while in other locations it says “Lateral displacement” (in-figure x-axis label on Fig. 1e, combined with the first sentence in the caption “Lateral displacement as a function…”). It’s confusing, and it would be good to make it clear that the standard deviation is being plotted.
The “cylindrical mode C” the authors describe is not really a cylinder, as the ends wrapping around the cylinder never turn back inward.

Simulation framework:
The simulation results agree nicely with the experiments above.

Parachute demonstration:
The kirigami parachute slows the fall down to about 40% of free fall velocity (line 616, 673).

There are terminal velocity vs. W/A curves for winged seeds and for an ideal parachute. The colored points in Fig. 4a should be the kirigami parachutes, but what do the different colored markers mean?

What are the authors saying in line 586?

Suggested improvements

- Was the water bottle or camera damaged after landing with the kirigami parachute?
- In Fig. 4a, the kirigami parachute is comparable in slowing the fall to a conventional parachute in a certain regime (up to around 10^1 N/m^2). Is this a realistic regime for airdrops of helpful items? Where on this graph would the water bottle experiment fall (both predicted and experimental results)?
- The authors should provide more clarity on how accurately the theoretical transition model can predict whether a cut pattern deforms into mode C or K. In the current text, it seems like the simulations are only accurate when the deformation mode is already known.
- The authors claim the kirigami parachutes can offer stability “without consideration of the initial release orientation”. Is this supported anywhere?

(Remarks on code availability)

Version 2:

Reviewer comments:

Referee #1

(Remarks to the Author)
This is the second time I am reviewing this manuscript, so I will focus on the differences to the first manuscript. I believe that the work is improved and I appreciate that the authors have carefully answered all my queries. Of course more work is always possible, but I see no reason to further delay publication and I am happy to recommend that the manuscript should be accepted in its present form. Here is why:

As previously stated, the design and the mechanics of kirigami has been the topic of several studies in the soft matter community in the last few years. This includes the interaction of kirigami structure with flows. Yet, this work is the first of its kind to explore the flight of kirigami structures. I think this is a beautiful idea, and the authors have developed a significant body of knowledge on this topic. The application of their work to practical settings is convincing. It is indeed easy enough to laser cut the patterns they report and use it in the field. These results, and their application will generate the type of excitement that one can expect from articles in a journal like Nature. As such, I reiterate my support towards publication.

(Remarks on code availability)

Referee #3

(Remarks to the Author)
The authors describe a novel parachute design, made by placing azimuthal cuts in a thin plastic sheet (fig 1). The effect of the cut pattern on aerodynamic behaviour is measured and simulated with a recently introduced toolkit (fig 2,3). Experimental results for two cut patterns are obtained and compared to air-dispersed seeds and ideal parachutes (fig4). A metre-scale sample is produced and used to safely deposit a water bottle from around 60m elevation (fig5).

The concept of shape-morphing kirigami and the study of its behaviour under flow is not new. However, this work provides an important advancement: it demonstrates how to translate previous theoretical work into a practical application. I believe that this is a necessary and broadly welcomed development in the field of architected structures. In addition, the experimental, theoretical, and numerical work are well carried out and reported.

That said, the manuscript would benefit from a sharper narrative and updated figures. The parachute application is central to the work's importance. The authors show that, at low load-to-area ratios, kirigami parachutes can match the typical terminal velocity of conventional ones, and improve control over lateral drift. However, this result is not clearly stated in either the abstract, the introduction, fig. 4, or the discussion around fig 5, and is only partially addressed in the conclusions. I would recommend that the authors update the manuscript to help understand readers what is being achieved here (matching terminal velocity and improved lateral precision).

Significant notes:
- fig 2c—e, fig3a, fig3c: are error bars included here and simply not visible?
- line 303: please refer to the SI equation or section where the added stiffness is defined.
- line 310: is the choice of 28 for the stiffness criterion an ad hoc one to separate the populations in fig.3b? Please add an explanation in the SI.
- line 614: "stability": does this refer to lateral displacement, vibration sensitivity, or something else?
- fig 4b: including the results of fig. S9 here would be very helpful to clarify the utility of a kirigami parachute.
- line 852: please provide a rough estimate for the observed lateral displacement of the parachute.

If the authors address these concerns, I can recommend publication in Nature.

Minor comments:
- line 14-15: ref. 19 looks at undesired motion of supersonic parachutes, which is not relevant here.
- line 25: "reduce the risk to human life" is not clearly motivated.
- line 20: "closed-loop" is confusing here, please add a citation or omit the term.
- line 48: ref. 39 refers to an APS meetings abstract, please reformat citation.
- Fig.1: panel b—d: adding a schematic at the top to illustrate the circular cutting patterns would be very helpful. Panel e: please add the complete lateral displacement data, or provide it in an SI figure.
- line 111: please define U_infty as the wind tunnel air flow speed here.
- line 177: r_1 should be r_i.
- line 303: please show the unity slope in fig. 3a.
- in fig.3b, is the added stiffness measured or calculated?
- if possible, add a legend instead of inserted labels in fig.4a.

Questions on SI:
- line 113-114: define exactly which deformation regime was used to fit the stiffness of the various samples. If possible, indicate this in fig. S4. Linear fit results can depend a lot on fitting regime, and it would be great to quantify this e.g. using error bars in fig. 3a.

- line 225: “alpha” is mentioned but not defined.
- line 312: C_2 is not defined and may be mixed up with C_1.

(Remarks on code availability)

Kirigami-inspired parachutes with programmable reconfiguration
Manuscript number: 2024-07-13735A

Danick Lamoureux[a], **Jérémi Fillion**[a], **Sophie Ramananarivo**[b], **Frédérick P. Gosselin**[a], **and David Melancon**[a]

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Remark on the review process

We would like to thank the editor and reviewers for their thorough evaluation of our manuscript. The initial submission was made to *Nature* in July 2024, and we received the first round of comments in early January 2025. In their feedback, the editor recommended further development of the application of kirigami-inspired parachutes and granted us 4 to 6 months to complete the revision. Before we received the reviewers' comments, the first author, Danick Lamoureux, completed his MSc in July 2025 and subsequently began a PhD at EPFL. Most of the additional experimental work was performed in the Winter 2025 semester by Jérémi Fillion, an undergraduate intern at Polytechnique Montreal, which we have added as a new co-author.

Response to the editor

Title – this should be no longer than 75 characters (including spaces), and should be focused firmly on the main result of broad interest (the parachute application).

We have modified the title as follows: *Kirigami-inspired parachutes with programmable reconfiguration*

Abstract/summary paragraph – this is of an appropriate length and style (indeed, it could be up to 50 words longer if that would help), but needs to cite references.

We are now citing references in the abstract.

Body text – at 3,800 words, this is much longer than we would normally allow (2,500-3,000 words is the target that you should aim for). You might consider adding a formal Methods section to the end of the paper and make use of our Extended Data format to help make the necessary reductions while leaving room for more experimental results (e.g. some of the simulation work could perhaps be relocated there, in addition to some of the current supplementary information?)

We have made substantial efforts to reduce the length of the text in our manuscript while adding new experimental data that focus on the parachute application. As per the editor's suggestion, we have added a formal *Methods* section in which we have included the details of our design, fabrication, simulation, and tests. In the revised version of our manuscript, we have highlighted in yellow the new text and left in ~~strikethrough~~ the text we have removed. For easier reading, we have also included a clean version of the revised manuscript with no highlights.

Response to reviewer #1

I have read the manuscript with great interest, and the authors have explored a beautiful and elegant idea. Indeed, they apply the traditional Japanese art of Kirigami to fabricate parachute-like structures. These structures are simple disks made porous by the application of cuts. When subjected to flow, the loading of the structure induces large deformations that help the deployment of this new type of "parachute" and, ultimately, allow its slow descent in the air. Like I said, I find the idea beautiful. The paper is also beautifully illustrated.

We are glad reviewer #1 found our research article beautiful and elegant. We have addressed their comments and revised our work accordingly. In particular, we have reshaped the structure of the main manuscript, added new figures, and performed new experiments to further emphasize the parachute application. We hope reviewer #1 will agree it is now suitable for publication in *Nature*.

Comment 1A

My biggest concern regarding publication in Nature is the following: The concept of using cuts to alter the shape of an object has now been largely studied in the soft matter community. As noted by the authors, this idea has also been explored in the presence of flow. As such, there is little fundamental novelty in fluid-structure interaction here. I appreciate and am impressed by the quality of the numerical results, but one could perceive these improvements as iterative — thus not warranting publication in Nature.

The reviewer is right that deploying shapes and objects via the kirigami art of paper cutting through mechanical (1, 2) or fluid-driven (3, 4) actuation has been studied in the soft matter community. The novelty of our work lies in applying the fluid-structure interaction of kirigami sheets to design and fabricate parachutes, a direction that, to our knowledge, has not been previously explored. To highlight this distinction, we have added the following text in the introduction of our manuscript:

> While leveraging kirigami principles to deploy shapes and objects under mechanical (7,42) and fluid (21,22) actuation has been studied, we apply these concepts to the design and deployment of kirigami-inspired parachutes, a direction that, to our knowledge, has not been previously explored."

In addition, we have performed additional experiments to strengthen the part of our manuscript describing the application to kirigami-inspired parachutes. See **Comments 1B**, **1D** and **1I**.

Comment 1B

Conversely, the work is the first to explore the flight of these structures (free flight, not in a wind tunnel). That is the part of the work which (1) is the novel and where the results are the most impressive (Fig 4) and (2) the most likely to generate excitement in the soft matter community and the broader audience. Thus, the authors should rethink the way the manuscript is written, putting more emphasis on flight capabilities and studying some essential aspects of this process.

We appreciate the reviewer's input and agree that the novelty is indeed the application of kirigami to design new kinds of parachutes. To further characterize the flight capabilities of our kirigami-inspired parachutes, we performed new drop testing on Designs A and B (deforming in a cylindrical mode $\mathcal{C}$ and Kirigami mode $\mathcal{K}$ under flow, respectively) to study their free fall kinematics. For these new tests, we manufactured the kirigami-inspired parachutes out of 0.311 mm thick shims with outer radius of $r_o = 215$ mm and inner radius of $r_i = 21$ mm. These dimensions allowed us to screw a bottle of water on the parachutes' center which was equipped with a 6-axis accelerometer (AX6 from Axivity) with its z-axis opposed to gravity. The total payload was 144 g, including the weight of the parachute itself. We launched each parachute three times indoors from a height of 14.9 m and recorded their lateral, $\ddot{x}$ and $\ddot{y}$, and vertical, $\ddot{z}$, accelerations at a sampling rate of 200 Hz. During the fall, we observed that Design B (deforming in mode $\mathcal{K}$) fell steadily, while Design A (deforming in mode $\mathcal{C}$) descended with a high tumbling amplitude resulting in an unsteady vertical acceleration. This can be observed in Fig. R1b, where we plot the vertical acceleration $\ddot{z}$ of Design A (solid blue curve) and B (solid green curve) as a function of time. By integrating the average of the vertical acceleration $\ddot{z}$, we obtained the vertical velocity $\dot{z}$ over time. The results, shown by the dashed lines in Fig. R1b, reveal that the terminal velocity is $U_\infty = 2.44\,\mathrm{m\,s^{-1}}$ for Design A and $U_\infty = 4.29\,\mathrm{m\,s^{-1}}$ for Design B. In comparison, the terminal velocity of free fall from a height of 14.9 m is $U_\infty = 17.09\,\mathrm{m\,s^{-1}}$. In addition to measuring acceleration of our parachutes during free fall, we characterized their lateral drift in an indoor flight situation with little to no cross-wind. The kirigami-inspired parachutes manufactured for these tests have a thickness of $t = 127\,\mu\mathrm{m}$ and an outer radius of $r_o = 100\,\mathrm{mm}$, with an inner hole of radius $r_i = 3\,\mathrm{mm}$ to attach the payload. The payload consists of a screw and a bolt with a mass of 12.6 g. We dropped multiple parachutes Designs A and B from a height of 16.6 m with different initial release angles: 0°, 45° and 90°. We then measured the distance between each parachutes' landing spot and a ground target representing their initial release position. As mentioned above, we observed that Design A (deforming in mode $\mathcal{C}$), while slower, descended unsteadily. This lead to significant lateral drift for design A, landing at a completely random distance from the ground target as plotted in Fig. R1c (blue bars). On the other hand, we observed that Design B (deforming in mode $\mathcal{K}$) had high precision with consistently low lateral displacement, regardless of the initial release angle (see green bars in Fig. R1c). To take into account these new experimental results and put more emphasis on the novelty of the parachute application, we have made several changes to our manuscript. First, we split Fig. 4 of the original manuscript into two figures which are reproduced in Figs. R1 and R2 for completeness.

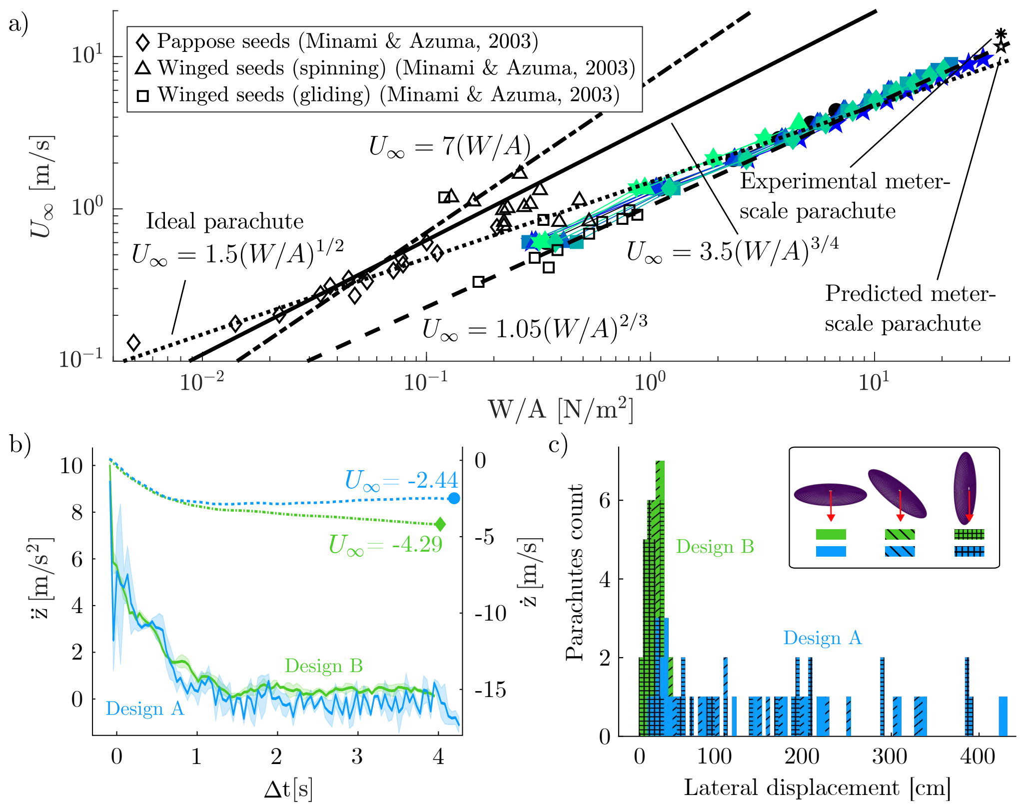

Fig. R1. Performance of kirigami-inspired parachutes. a) Terminal velocity U_∞ as a function of load per unit of area W/A for different species of wind-dispersal seeds (40) and our kigirami-inspired parachutes (colored markers, with the same colors that were used in Fig. 3a). The lines are trends and fits identified by Ref. (40), with the black dotted line the relationship of an ideal parachute. The black asterisk and star are the experimental and predicted terminal velocities of the meter-scale parachute discussed in this work. b) Vertical acceleration, $\ddot{z}$, and velocity, $\dot{z}$, of kirigami-inspired parachutes Designs A and B. The solid lines and shaded areas are the average and standard deviation of the vertical acceleration of three fall experiments measured with an accelerometer. The dashed lines are the vertical velocity obtained by integrating numerically the mean vertical acceleration of three fall experiments. c) Lateral displacement of kirigami-inspired parachutes Designs A and B across multiple drop tests. The solid bars represent parachutes launched at 0°, the hatched bars at 45°, and the crosshatched bars at 90°.

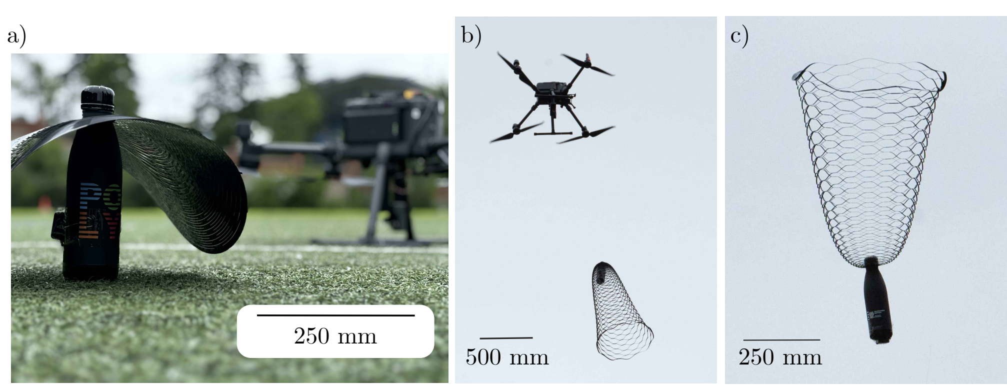

Fig. R2. Kirigami-inspired parachute in realistic conditions. a) Water bottle mounted on a kirigami-inspired parachute attached to a drone. b) Parachute elongating as the drone pulls it up to its dropping altitude of 60 meters. c) Snapshot of a kirigami-inspired parachute during free fall in realistic conditions.

Second, in the *Introduction* section, we have modified the text as follows:

> "Here, we focus on the closed-loop kirigami pattern (see Fig.1a) and, taking inspiration from wind-dispersal seeds (40) and deciduous tree leaves (41), we build kirigami-inspired parachutes that exploit their quasi-axisymmetric deformation under flow to program the aerodynamic stability of thin circular sheets in free fall. [...]"

> "Finally, we build kirigami-inspired parachutes and characterize their flight performance by dropping them indoors above a target and outdoors from a drone to deliver a bottle of water."

Third, in the *Results* section, we also explain the utility of the reconfiguration, $\mathcal{R}$ and elongation, δ, curves as it pertains to parachuting applications:

> "The reconfiguration curve shown here can be used as a tool to design the best free falling parachute for a given disk. To maximize drag and ensure free-fall stability in a deployed state, the Cauchy number should be minimized while respecting the constraint that $\bar{K} < 28$ through the use of an appropriate kirigami pattern."

> "We note that the elongation law can also be used to ensure parachute stability. Indeed, if the parachute does not extend enough during falling, then the aerodynamic moment generated might not be sufficient to ensure vertical falling, and could behave as a rigid falling disk, which is known to tumble (46)."

Fourth, we report the new experimental data of Fig. R1 in the *Results* section:

> "We first characterize the flight capability of kirigami-inspired parachutes based on Designs A and B (see *Methods* for details). We launch each parachute three times indoors from a height of 14.9 m and record their lateral, $\ddot{x}$ and $\ddot{y}$, and vertical, $\ddot{z}$, accelerations. Fig. R1b reports the vertical acceleration, $\ddot{z}$, as a function of time (lateral accelerations and tumbling frequencies are reported Fig. S8). We find that Design A (solid blue curve) deforming in mode $\mathcal{C}$ descends with an unsteady vertical acceleration. In comparison, the acceleration of Design B (solid green curve) deforming in mode $\mathcal{K}$ plateaus after 2 seconds of flight. By integrating the average of the vertical acceleration $\ddot{z}$, we can obtain the vertical velocity $\dot{z}$ over time (dashed lines in Fig. R1b). The results reveal that the terminal velocity is $U_\infty = 2.44\,\mathrm{m\,s^{-1}}$ for Design A and $U_\infty = 4.29\,\mathrm{m\,s^{-1}}$ for Design B. In comparison, the terminal velocity of free fall from a height of 14.9 m is $U_\infty = 17.09\,\mathrm{m\,s^{-1}}$.
>
> In addition to their deceleration during free fall, we characterize the lateral drift of Designs A and B in a flight situation. For this purpose, we drop multiple parachutes from a height of 16.6 m with three initial release angles: 0°, 45°, and 90°. We then measure the distance between each parachutes' landing spot and a ground target representing the initial release position. Fig. R1c reports the distribution of the lateral displacement during the drop tests for parachutes Design A (blue bars) and Design B (green bars) launched at 0° (solid bars), 45° (hatched bars), and 90° (crosshatched bars). Coherently to the acceleration results, we observe that Design A, while reaching a lower terminal velocity, shows a random distribution of lateral drift. This situation is similar to that of a conventional parachute, which also exhibits significant lateral drift during free fall (see Fig. S9). On the other hand, we observe that Design B consistently falls close to the target, regardless of the initial release angle. (see Fig. R1c). This highlights that kirigami-inspired parachutes deforming in mode $\mathcal{K}$ can quickly reach terminal velocity, provide increased stability, and drop near intended targets if used to deliver humanitarian aid."

Fifth, we describe the fabrication of the kirigami-inspired parachutes used in these new tests in the *Methods* section:

> "***Fabrication of kirigami-inspired parachutes***
> To record the lateral, $\ddot{x}$ and $\ddot{y}$, and vertical, $\ddot{z}$, accelerations of the kirigami-inspired parachutes in Fig. R1b), a 6-axis accelerometer (AX6 from Axivity) was mounted on the parachutes. For this purpose, larger parachutes inspired by the kirigami disks Designs A and B were lasercut in polyester plastic sheets (see section S2 (5) for more details on the manufacturing process). The parachutes have a thickness of $t = 311\,\mu\mathrm{m}$ and an outer radius of $r_o = 215\,\mathrm{mm}$, with an inner hole of radius $r_i = 21\,\mathrm{mm}$ to attach the payload. The payload consists of the accelerometer and a water bottle, totaling a mass of $0.144\,\mathrm{kg}$. To make sure that the larger parachutes keep the same stiffness of the kirigami disks Designs A and B, we adjust their cutting parameters as described by $\{\Delta r_1, \Delta r_2, n, N_\theta, \Theta\} = \{10\,\mathrm{mm}, 6.13\,\mathrm{mm}, 1.0, 8, 0.3\}$ (Design A), and $\{10\,\mathrm{mm}, 6.13\,\mathrm{mm}, 1.0, 5, 0.3\}$ (Design B).
>
> The kirigami-inspired parachutes used to characterize the lateral drift of Designs A and B in Fig. R1c) have a thickness of $t = 127\,\mu\mathrm{m}$ and an outer radius of $r_o = 100\,\mathrm{mm}$, with an inner hole of radius $r_i = 3\,\mathrm{mm}$ to attach the payload. The payload consists of a screw and a bolt with a mass of $12.6\,\mathrm{g}$. Their cutting parameters are described by $\{\Delta r_1, \Delta r_2, n, N_\theta, \Theta\} = \{3\,\mathrm{mm}, 2.85\,\mathrm{mm}, 1.0, 8, 0.3\}$ (Design A), and $\{3\,\mathrm{mm}, 2.85\,\mathrm{mm}, 1.0, 5, 0.3\}$ (Design B)."

Comment 1C

The results in Fig1b-d are very different from a simple free fall, yet the authors mainly focus on U_∞ (admittedly the most important parameter to characterize flight, but not the only one). More knowledge is needed here.

Figs. 1b-d of the main manuscript show snapshots of three kirigami disks during free fall from a height of about 1.75 m. This first set of experiments serves to highlight that some cut patterns are associated with smaller lateral drift as reported in Fig. 1e.

In turn, this motivates the study of the reconfiguration of our kirigami disks under flow of velocity U_∞ which unveils that disks deforming in mode $\mathcal{K}$ are associated with an aerodynamic moment M that is inversely proportional to the angle of attack α. This explains the small lateral drift seen in disks (Fig. 1) and parachutes (Figs. 4 and 5) deforming in mode $\mathcal{K}$. We agree with the reviewer that U_∞ is not the only variable needed to characterize flight. We refer to the answer of **Comment 1B** where we have presented other variables such as lateral and vertical accelerations as well as lateral displacement from a fall of 16.6 m.

Comment 1D

Does the parachute tumble? If yes, what is the frequency?

To provide a comprehensive response to this question, we conducted additional experiments to study the lateral movements during fall of our kirigami-inspired parachutes Designs A and B. For this purpose, we conducted drop tests using a small 6-axis accelerometer (AX6 from Axivity) mounted on a bottle of water attached to the parachutes' center as presented in **Comment 1B**. We launched the parachutes indoors from a height of 14.9 m and recorded the linear accelerations, $\ddot{x}$, $\ddot{y}$, and $\ddot{z}$ at a sampling rate of 200 Hz (note that the z-axis of the accelerometer was positioned opposite to gravity). Figs. R3a-b show the magnitude of the lateral acceleration, i.e., $\sqrt{\ddot{x}^2+\ddot{y}^2}$, as a function of time from launch to landing for three fall tests with Designs A and B. For Design A deforming in the cylindrical mode $\mathcal{C}$, no distinct pattern emerges in the signal to measure frequency (see Fig. R3a). On the contrary, for Design B deforming in the kirigami mode $\mathcal{K}$, we see a distinct frequency emerging (see Fig. R3b). To extract the tumbling frequency from the raw accelerometer data, we used the autocorrelation function:

$$R(\tau) = \frac{1}{N-\tau}\sum_{t=0}^{N-\tau-1} \ddot{r}(t)\cdot\ddot{r}(t+\tau), \qquad \text{[R1]}$$

where $\ddot{r}=\sqrt{\ddot{x}^2+\ddot{y}^2}$, N is the total number of samples, and τ is the time lag, which represents the amount by which a time series is shifted or delayed when comparing it to itself during the computation of autocorrelation. To determine the frequency of a signal using this method, we computed the $R(\tau)$ for different values of τ and identified the highest peak following the initial maximum at $\tau=0$. This peak represents the fundamental periodicity of the signal, as it indicates the time shift at which the signal is most correlated with itself. By applying this method to each of the three tests conducted on Design B, we find frequencies of 1.40 Hz, 1.39 Hz and 1.48 Hz for a mean frequency of 1.42 Hz. Simplifying the problem to the swing of a simple gravity pendulum with frequency equal to $f_p=\frac{1}{2\pi}\sqrt{\frac{g}{l_p}}$, with g the acceleration of gravity and l_p the length of the pendulum which we assume is of the same order as the disk radius, i.e., $l_p=r_0=0.215$ mm, we find $f_p=1.08$ Hz which is very close to the measured value of $f=1.42$ Hz.

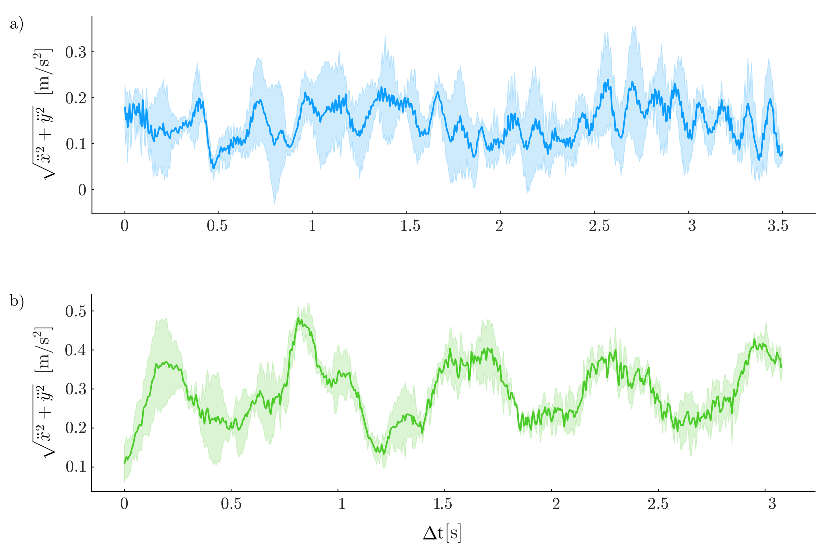

Fig. R3. Magnitude of the lateral acceleration $\sqrt{\ddot{x}^2+\ddot{y}^2}$ as a function of time during fall. (a) Results for Design A deforming in the cylindrical mode $\mathcal{C}$. (b) Results for Design B deforming in the kirigami mode $\mathcal{K}$. The lines and shaded areas are the average and standard deviation of three fall experiments.

To take into account this comment, we have added Fig. R3 and the following text in section S3. Experiments which is reproduced below for completeness

"**D. Tumbling of kirigami-inspired parachutes**

To investigate the tumbling frequency of our parachute, we conduct drop tests for parachutes with Designs A and B cut patterns. The parachutes are manufactured from a 0.311 mm thick shim with outer radius of $r_o=215$ mm and inner radius of $r_i = 21$ mm. We attach a 6-axis accelerometer (Ax6 rom Axivity) on a bottle of water mounted on the center of the parachutes and drop them indoor from a height of 14.9m while measuring their linear accelerations, $\ddot{x}$, $\ddot{y}$, and $\ddot{z}$ at a sampling rate of 200 Hz. Fig. R3 shows the magnitude of the lateral acceleration, i.e., $\sqrt{\ddot{x}^2 + \ddot{y}^2}$, as a function of time during the fall. For Design A deforming in mode $\mathcal{C}$ (blue curve in Fig. R3a), no distinct pattern emerges in the signal. On the contrary, for Design B deforming in mode $\mathcal{K}$ (green curve in Fig. R3b), we see a distinct frequency emerging. To extract the tumbling frequency from the raw accelerometer data, we use the autocorrelation function:

$$R(\tau) = \frac{1}{N-\tau} \sum_{t=0}^{N-\tau-1} \ddot{r}(t) \cdot \ddot{r}(t+\tau), \quad \text{[R2]}$$

where $\ddot{r} = \sqrt{\ddot{x}^2 + \ddot{y}^2}$, N is the total number of samples, and τ is the time lag. To determine the frequency of a signal using this method, we computed the $R(\tau)$ for different values of τ and identify the highest peak following the initial maximum at $\tau = 0$. This peak represents the fundamental periodicity of the signal, as it indicates the time shift at which the signal best aligns with itself. By applying this method to each of the three tests conducted on Design B, we find tumbling frequencies of 1.40 Hz, 1.39 Hz and 1.48 Hz for an average frequency of 1.42 Hz. Simplifying the problem to the swing of a simple gravity pendulum with frequency equal to $f_p = \frac{1}{2\pi}\sqrt{\frac{g}{l_p}}$, with g the acceleration of gravity and l_p the length of the pendulum which we assume is of the same order as the disk radius, i.e., $l_p = r_0 = 0.215$ mm, we find $f_p = 1.08$ Hz which is very close to the measured value of $f = 1.42$ Hz. We hypothesize our kirgiami parachutes deforming in mode $\mathcal{K}$ sways at frequency $f \sim \frac{1}{2\pi}\sqrt{\frac{g}{r_o}}$."

Comment 1E

Where do they land compared to the vertical to the origin of flight?

Additional experiments regarding the distance between the parachutes landing spot and their initial release position were conducted and are presented in **Comment 1B**.

Comment 1F

What happens if there is some side wind?

In the presence of side wind, the parachute and its payload will be advected and drift roughly at wind speed. Our parachutes are "ballistic" in the sense that they are unguided and passive. Any such ballistic parachute will drift at wind speed plus any random deviation that might arise from instability or tumbling.

Comment 1G

What happens if the payload is distributed differently than attached in the middle?

While the problem of setting up the payload off-centered could lead to interesting behaviors, the goal here is to provide an easy to manufacture stable parachute. Installing the payload in the center is a simple and repeatable way to do so, whereas off-centering the payload might not be as straight-forward. However, from our understanding, the parachute will adopt a slight angle of attack as it reaches an angular equilibrium between the moment around the center of pressure of the parachute generated by the eccentric mass and the aerodynamic moment.

Comment 1H

Can these parachutes achieve something exciting that a regular parachute could not do?

First, conventional parachutes require a gliding angle for vertical stability (6, 7). Without onboard control, their landing position compared to the origin of the flight is difficult to predict. To highlight this, we performed the same drop experiments as presented in **Comment 1B** on a elliptical conventional parachute. The parachute was manufactured by *Fruity Chutes* with $r_o = 195$ mm, $r_i = 24$ mm and a drag coefficient $CD = 1.5$. Fig. R4b shows the distribution of the lateral displacements for the conventional parachute dropped 8 times. The results show a large discrepancy with maximum lateral displacement of 10.1 m. In comparison, our kirigami parachutes fall straight down and close to the landing target, regardless of the release angle (see Fig. R1c). This is exciting for humanitarian airdrop applications where one could predict more accurately the landing of emergency supplies. In addition, we expect that by extending our geometrical parameter space, e.g., investigating asymmetric, chiral or hierarchical kirigami patterns, could enable us to program the fall trajectory of parachutes. However, this is beyond of the scope of the current research. To account for this comment, we have added Fig. R4 and the following text in Section S3. Experiments, which is reproduced below for completeness.

"**Drop testing of a conventional parachute**

To compare the behavior of our kirigami-inspired parachutes to a conventional parachute, we conduct similar drop experiments to the ones we conducted on Designs A and B cut patterns. We use a conventional elliptical parachute manufactured by *Fruity Chutes* with $r_o = 195$ mm, $r_i = 24$ mm and a drag coefficient of $CD = 1.5$. First, the parachute is dropped indoor from a height of 14.9 m, while being equipped with a 6-axis accelerometer (AX6 from Axivity). The accelerometer measures the parachute's vertical acceleration $\ddot{z}$ at a sampling rate of 200 Hz. Fig. R4a shows the vertical acceleration measured over three tests as a function of time (solid curve). We observe that the conventional parachute descends with an unsteady vertical acceleration, similarly to Design A deforming in mode $\mathcal{C}$. By integrating the average of the vertical acceleration $\ddot{z}$, we can obtain the vertical velocity $\dot{z}$ over time (dashed curve in Fig. R4a). The terminal velocity of the conventional parachute is calculated as -4.66 m/s. In Fig. R4, we report the lateral displacement of the fall across eight drop tests. We find a large discrepancy with one parachute falling more than 10 m away from the target."

In addition, we have added the following text in the *Conclusions and outlook*:

> "While this study focuses on the closed-loop kirigami pattern, expanding the geometrical parameter space to other designs such as asymmetric, chiral or hierarchical patterns, could enable programming the entire fall trajectory of parachutes."

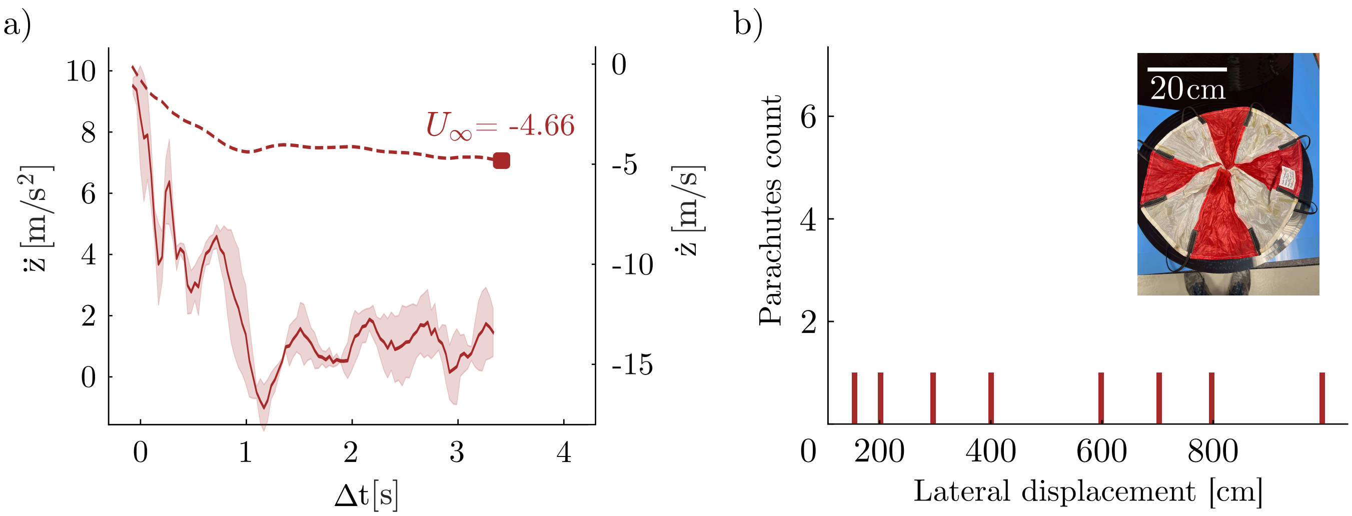

Fig. R4. Performance of a conventional parachute. a) Vertical acceleration, $\ddot{z}$, and velocity, $\dot{z}$, of the conventional parachute. The solid line and shaded area are the average and standard deviation of the vertical acceleration of three fall experiments measured with an accelerometer. The dashed line is the vertical velocity obtained by integrating numerically the mean vertical acceleration of three fall experiments. b) Lateral displacement of the conventional parachute across multiple drop test. Inset shows the parachute by *Fruity Chutes*.

Comment 1I

I would suggest, for example, stacking many disks (10-100) and dropping them at once from a drone or something of the like. These disks could be identical or even better different (2 populations), e.g., allowing them to sort themselves during the fall.

We thank the reviewer for their suggestion. Following their recommendation, we conducted additional experiments to observe the behavior of two different populations of kirigami-inspired parachutes during mass drop tests. For this purpose, we attached ten parachutes to individual ropes held together to ensure a simultaneous release of all the parachutes. The ten parachutes consisted in five parachutes Design A (deforming in mode $\mathcal{C}$) and five parachutes Design B (deforming in mode $\mathcal{C}$). We launched the parachute indoors from a height of 16.6 m and filmed their descent. As a result, we observed that the two populations sorted themselves as suggested by the reviewer. At the front, the five parachutes Design B synchronized their steady descent, while behind, the five parachutes Design A followed at random. To show the results, we added Movie S5 *Mass dropping of two different populations of kirigami-inspired parachutes* to the Supplementary Information, and mentioned in the conclusion the potential use of multiple patterns.

> "Additionally, using multiple patterns of our kirigami-inspired parachute in a single launch could be used to sort out different populations during flight (see Supplementary Movie S5 (5))."

Comment 1J

The manuscript could also benefit from an explicit discussion of the limitations of this approach. Could we go bigger? How would these contraptions compare with regular parachutes?

We thank the reviewer for their input. To take into account the comment and highlight the limitation of our manufacturing approach, we have added the following text in the *Conclusions and outlook* section:

"We note that our parachute's main advantage is the improved stability in comparison to conventional parachutes which could be useful for humanitarian aid delivery. Scaling up our manufacturing process without requiring manual assembly (see Fig. S2) would be possible via industrial size laser cutters and cutting dies."

Comment 1K

In conclusion, I find the idea beautiful but would like to see the concept pushed further before I can recommend publication.

We hope the new set of experiments, shinning lights on our kirigami parachute kinematics, distance from targets, tumbling frequency, and self-sorting capability will have pushed our concept further.

Response to reviewer #2

Key results: This work studies how kirigami structures change shape amidst fluid flow. It uses kirigami cuts to manufacture parachutes. The kirigami patterns can be laser cut into a disk which deploys into a parachute shape upon falling through air. The kirigami patterns are not new - there is no attempt to design them for this purpose, or indeed optimize them. The paper has simulation, experimental, and analysis components which generally agree. The authors build a meter-scale kirigami parachute and find that it can help an object maintain a more vertical trajectory when drifting to the ground, and that it slows the fall down.

We thank reviewer #2 for their review and overall assessment of our manuscript.

Comment 2A

The kirigami parachute is theoretically easier to manufacture than a conventional parachute because it uses lasercuts instead of seams and folds. However, it is almost certainly true that the cuts will grow and might fail catastrophically - so likely this can be used once - which is quite wasteful compared to parachutes.)

Multiple drop tests were conducted to measure the vertical acceleration of the parachutes (see **Comment 1B**). Each parachute was dropped at least three times from a height of 14.9 m with a payload of 144 g and remained intact. Additionally, a large amount of tests were carried out on other parachutes to observed their lateral drifts (see **Comment 1B**). Again, no parachutes were damaged during the multiple drop tests. Therefore, we anticipate our parachute can be used more than once.

Comment 2B

The large demo parachute in this paper still has pieces which must still be taped together, and this is not scalable.

We thank the reviewer for their comment. On the one end, it is true that, based on our manufacturing technique, kirigami parachutes with a diameter larger than the laser cutter bed require manual assembly (see Fig. S2). Other methods, such as using large dies or industrial sized laser cutters could be exploited, but this falls out of the scope of the current study. On the other hand, conventional parachute manufacturing still requires a lot of manual labor done by skilled workers when it comes to sewing and assembling the parachutes, which is comparable to our current technique. To take into account the comment and highlight the limitation of our manufacturing approach, we have added the following text in the *Conclusions and outlook* section:

> "We note that our parachute's main advantage is the improved stability in comparison to conventional parachutes which could be useful for humanitarian aid delivery. Scaling up our manufacturing process without requiring manual assembly (see Fig. S2) would be possible via industrial size laser cutters and cutting dies."

Comment 2C

The kirigami parachutes slow the terminal velocity comparably to conventional parachutes in a low load-to-area ratio regime. It looks like conventional parachutes begin outperforming the kirigami parachutes at about 2.25lbs to m^2 weight to area ratio ($10N/m^2$).

We agree with the reviewer that conventional parachutes outperform our kirigami parachutes at about about 2.25lbs to m^2 weight to area ratio ($10\mathrm{N/m}^2$) in terms of terminal velocity. However, conventional parachutes require a gliding angle for vertical stability (6, 7). In comparison, our kirigami parachutes fall straight down and close to an intended landing target (see the comparison between conventional and kirigami parachutes in Figs. R1 and R4) of the response.

Comment 2D

The topic and potential application of this work are interesting but not particularly surprising. Streamlining parachute manufacturing improves their potential for airdropping items to people. Additionally, fluid interaction behavior is a potentially interesting area of the kirigami materials field.

We thank the reviewer for their understanding of our work. The novelty here is the application of these fluid-structure interactions to the parachuting field. We refer to **Comment 1A** for a clarification about the novelty of our work.

Comment 2E

The potential noteworthiness of this paper comes from the kirigami parachute application, which is very limited in its applicability. Kirigami parachutes perform comparably to conventional parachutes only for small weight to area ratios, which is interesting but not remarkable. The demo parachute in this paper also still needs to be pieced together with seams, and is not yet easier to manufacture than a conventional parachute. The other findings in this paper are nice, but not significant relative to advances in kirigami technology, so the parachute demonstration falls a little flat.

The novelty with our parachutes is not an improvement on falling velocity, but rather the added stability. We have characterized the performance of our kirigami parachutes by performing additional experimental tests to measure their free fall kinematics, distance from targets, tumbling frequency, and self-sorting capability. The reviewer is referred to **Comments 1B**, **1D**, **1H**, and **1I** for details.

Comment 2F

Falling disks and wind tunnel experiments: These experiments show that there is a regime of kirigami cut patterns in a disk which causes a large z-axis extension ("Mode K") and improved stability when the disk falls. The authors should address more clearly why Design A and other patterns could lack a Mode K. There's a discussion on line 287 which says the extension limit of Design A's Mode C is given by r_0 *-* r_1*, but why does Design A not have a Mode K at all, even at higher flow velocities? Visually, it seems the reason is geometric.*

We approach the distinction between mode $\mathcal{C}$ and mode $\mathcal{K}$ through the use of our linear transition criteria. The geometric explanation the reviewer discusses is linked to the geometric pattern, which influences the dimensionless stiffness $\bar{K}$, which is directly related to our transition criteria. A clarification regarding this has been added after the introduction of the transition criteria in the *Results* section:

> "This modeled pattern's added stiffness can be used to define a linear transition criterion: when mode $\mathcal{K}$ is softer than mode $\mathcal{C}$, then mode $\mathcal{K}$ prevails. We find that this stiffness criterion scales as $\bar{K} \leq 28$ (see section S5D (43) for more details regarding the transition criterion)."

Comment 2G

Fig. 1b-d is a nice visualization of what the different trajectories look like. In some locations 1e is said to display the standard deviation of displacement, while in other locations it says "Lateral displacement" (in-figure x-axis label on Fig. 1e, combined with the first sentence in the caption "Lateral displacement as a function..."). It's confusing, and it would be good to make it clear that the standard deviation is being plotted.

We changed the caption to represent the fact that three standard deviations are plotted. However, the label of the x-axis is not changed as the lines represent three standard deviations, not the axis itself. The caption now reads:

> [...] e) Three standard deviations of the lateral deviation [...].

Comment 2H

The "cylindrical mode C" the authors describe is not really a cylinder, as the ends wrapping around the cylinder never turn back inward.

Here we use this term as it is referred to in that manner in the literature in Schouveiler and Eloy, 2013 (32). A clarification has been added to the text.

> [...] into a cylindrical mode as described by Ref. (32) (referred to as mode $\mathcal{C}$) which is reminiscent of a draping disk under flow (32, 40).

Comment 2I

Simulation framework: The simulation results agree nicely with the experiments above.

We thank the reviewer for their appreciation of our simulations.

Comment 2J

Parachute demonstration: The kirigami parachute slows the fall down to about 40% of free fall velocity (line 616, 673). There are terminal velocity vs. W/A curves for winged seeds and for an ideal parachute. The colored points in Fig. 4a should be the kirigami parachutes, but what do the different colored markers mean?

The colored markers refer to the previously used colors in Fig. 3a. A mention has been added to the caption.

> [...] (colored markers, with the same colors that were used in Fig. 3a).

Comment 2K

What are the authors saying in line 586?

Line 586 refers to the following:

> "However, these natural flyers and our kirigami disks underperform conventional parachutes at high W/A as the latter are typically modeled using $W = \rho U_\infty^2 A C_D/2$, which leads to $U_\infty = (2W/\rho A C_D)^{1/2} = 1.5(W/A)^{1/2}$ using the rigid disk from our experiments as example, with $C_D = 1.26$ the drag coefficient obtained experimentally and $\rho = 1.225\,\mathrm{kg\,m^{-3}}$ the density of air."

Here, we explain that the conventional parachutes follow the usual drag law (rigid drag), whereas natural flyers and kirigami parachutes follow a drag law that modified due to reconfiguration in the case of kirigami disks. We reformulated this sentence to make it clearer.

> "However, these natural flyers and our kirigami disks underperform conventional parachutes at high W/A as the latter are typically modeled using $W = \rho U_\infty^2 A C_D/2$. This typical drag law leads to $U_\infty = (2W/\rho A C_D)^{1/2}$, which, when using the rigid disk from our experiment, the terminal velocity is described as $U_\infty = 1.5(W/A)^{1/2}$, since $C_D = 1.26$ the drag coefficient obtained experimentally and $\rho = 1.225\,\mathrm{kg\,m^{-3}}$ the density of air."

Comment 2L

Was the water bottle or camera damaged after landing with the kirigami parachute?

The water bottle and camera were undamaged after the landing of the large kirigami-inspired parachute. Additionally, multiple drop tests were conducted indoor using an accelerometer and a bottle of water (see **Comment 1B**). Both remained intact throughout all tests.

Comment 2M

In Fig. 4a, the kirigami parachute is comparable in slowing the fall to a conventional parachute in a certain regime (up to around 10^1 N/m^2). Is this a realistic regime for airdrops of helpful items? Where on this graph would the water bottle experiment fall (both predicted and experimental results)?

We thank the reviewer for noting this regime. Reaching a regime of $W/A < 10\,\mathrm{N\,m^{-2}}$ is possible by adjusting the parachute's area, but it is rarely required. By accepting to drop items slightly faster, smaller parachutes can be used while maintaining the improved stability. Again, here, our parachutes do not aim to compete with conventional parachutes regarding their terminal velocity, but their improved stability. A clarification regarding this topic has been added towards the end of the *Results* section.

> "The predicted and experimental terminal velocity of the meter-scale parachutes are added as a comparison in Fig. 4a to show that the parachute remains on the same line as the tested kirigami disks.

Regarding the water bottle's performance, we added it to Fig. 4a (see Fig. R1a above for details).

Comment 2N

The authors should provide more clarity on how accurately the theoretical transition model can predict whether a cut pattern deforms into mode C or K. In the current text, it seems like the simulations are only accurate when the deformation mode is already known.

The theoretical transition model's accuracy is illustrated within Fig. 3b, such that most parachutes follow the transition criterion. Numerically speaking, due to the cost of running these simulations, few different geometries were run, but the numerically observed behavior was always accurately simulated with no input on our end. A precision regarding this has been added in the text in the *Results* section.

> "It is important to note that the simulations did not take the deformation mode as an input, yet they accurately predicted the deformation mode in all cases we tested.

Comment 2O

The authors claim the kirigami parachutes can offer stability "without consideration of the initial release orientation". Is this supported anywhere?

The impacts of the initial release orientation on our kirigami-inspired parachutes were further investigated and are presented in **Comment 1B**. Especially, we refer the reviewer to the results of Fig. R1c and Fig. R4.

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Kirigami-inspired parachutes with programmable reconfiguration
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<u>Response to Reviewer #3</u>

The authors describe a novel parachute design, made by placing azimuthal cuts in a thin plastic sheet (fig 1). The effect of the cut pattern on aerodynamic behaviour is measured and simulated with a recently introduced toolkit (fig 2,3). Experimental results for two cut patterns are obtained and compared to air-dispersed seeds and ideal parachutes (fig4). A metre-scale sample is produced and used to safely deposit a water bottle from around 60m elevation (fig5).

The concept of shape-morphing kirigami and the study of its behaviour under flow is not new. However, this work provides an important advancement: it demonstrates how to translate previous theoretical work into a practical application. I believe that this is a necessary and broadly welcomed development in the field of architected structures. In addition, the experimental, theoretical, and numerical work are well carried out and reported.

We thank Reviewer #3 for their insightful comments and appreciation of our work. Please see below our point-by-point response.

Comment 3A

That said, the manuscript would benefit from a sharper narrative and updated figures. The parachute application is central to the work's importance. The authors show that, at low load-to-area ratios, kirigami parachutes can match the typical terminal velocity of conventional ones, and improve control over lateral drift. However, this result is not clearly stated in either the abstract, the introduction, fig. 4, or the discussion around fig 5, and is only partially addressed in the conclusions. I would recommend that the authors update the manuscript to help understand readers what is being achieved here (matching terminal velocity and improved lateral precision).

We agree with the Reviewer that we should clarify the advantages of our kirigami-inspired parachute over conventional ones. Fig. 4a shows that at high load-to-area ratios W/A the terminal velocity of conventional parachutes is lower compared to our kirigami-inspired parachutes.

However, at low W/A, our kirigami parachute can match conventional ones in terms of terminal velocity. First, we have modified our abstract to highlight the advantage of kirigami-inspired parachutes over conventional parachutes. It now reads as:

> "The art of kirigami allows programming a sheet to deform into a particular manner with a pattern of cuts, endowing it with exotic mechanical properties and behaviors.[1-17] Here we program disks to deform into stably falling parachutes as they deploy under fluid-structure interaction. Parachutes are expensive and delicate to manufacture, which limits their use for humanitarian airdrops or drone delivery. Laser cutting a closed-loop kirigami pattern[18] in a disk induces porosity and flexibility into an easily fabricated parachute. By performing wind tunnel testing and numerical simulations using a custom flow-induced reconfiguration model[19], we develop a design tool to realize kirigami-inspired parachutes. Guided by these results, we fabricate parachutes from the centimeter to the meter scale and test them in realistic conditions. We show that at low load-to-area ratios, kirigami-inspired parachutes exhibit a comparable terminal velocity to conventional ones. However, unlike conventional parachutes that require a gliding angle for vertical stability[20] and fall at random far from a target, our kirigami-inspired parachutes always fall near the target, regardless of their initial release angle. These kinds of parachutes could limit material losses during airdropping as well as decrease manufacturing costs and complexity."

Second, we have added the results of Fig. S9 in Fig. 4c to clarify the utility of a kirigami-inspired parachute. The updated Fig. 4 is reproduced below as **Figure 1** for completeness.

Third, we have further highlighted the benefits of our parachutes in the discussion around Fig.4:

> "Ref. 21 found different scaling laws, as identified in Fig.4a, for the flying seeds, where we happen to fit the most efficient trend, as $U_\infty = 1.05(W/A)^{2/3}$. These natural flyers and our kirigami disks match conventional parachutes at low W/A as the latter are typically modeled using $W = \frac{1}{2}\rho U_\infty^2 A C_D$. This typical drag law leads to $U_\infty = (2W/\rho A C_D)^{1/2}$, which, when using the rigid disk from our experiment, the terminal velocity is described as $U_\infty = 1.5(W/A)^{1/2}$, since C_D=1.26 the drag coefficient obtained experimentally and ρ =1.225 kg/m^3 the density of air. While for high W/A, conventional parachutes achieve a lower terminal velocity compared to our kirigami disks, they require a gliding angle for vertical stability.[20]"

Finally, we have modified the conclusion to emphasize the benefits of our concept:

> "In addition to being easy to fabricate, our parachute reduces lateral displacement during descent, unlike conventional designs that often drift randomly and far from an intended target. This could be especially useful for humanitarian aid delivery."

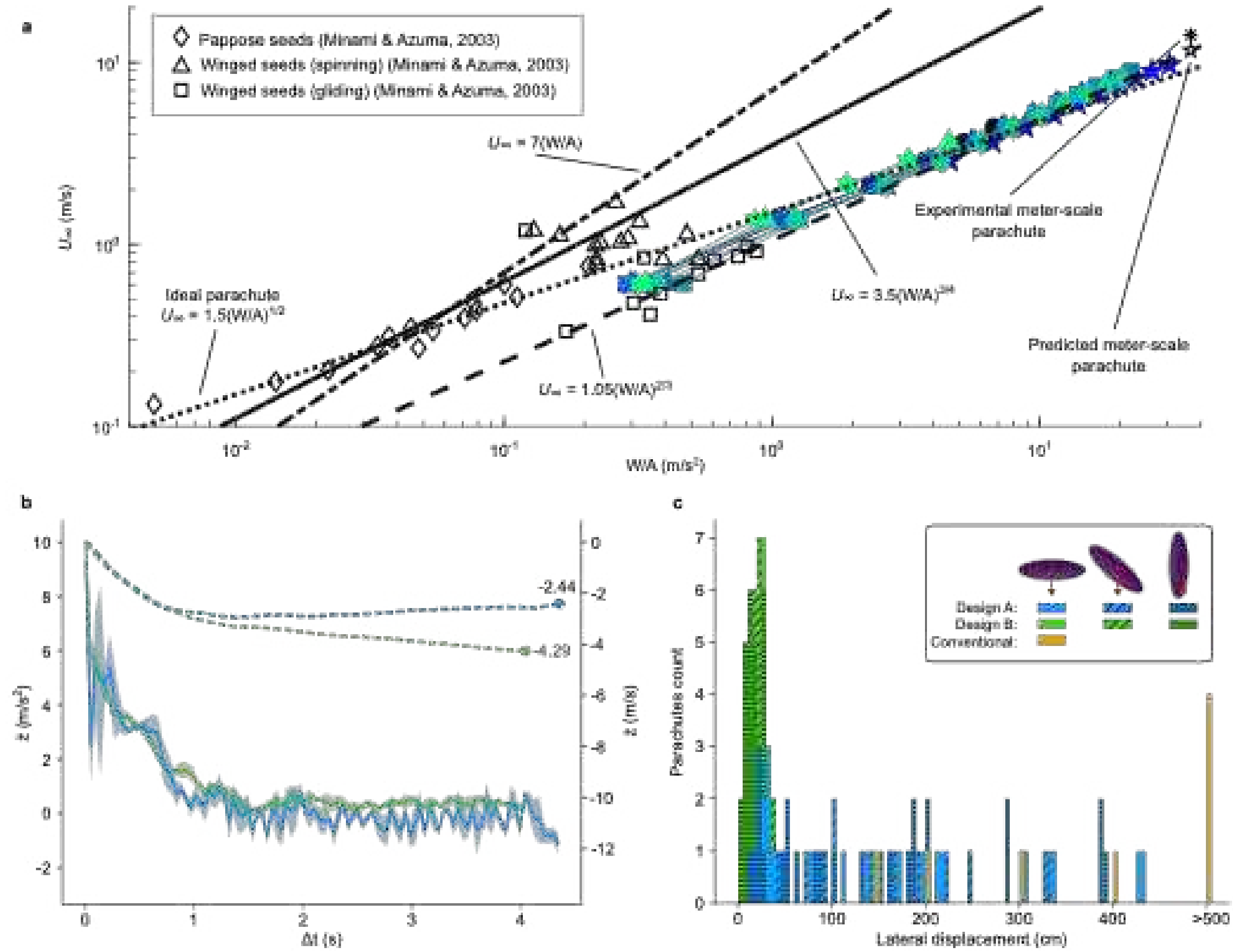

Figure 1. Performance of kirigami-inspired parachutes. a. Terminal velocity U_∞ as a function of load per unit of area W/A for different species of wind-dispersal seeds[21] and our kigirami-inspired parachutes (colored markers, with the same colors that were used in Fig.3a). The lines are trends and fits identified by Ref. 21, with the black dotted line the relationship of an ideal parachute. The black asterisk and star are the experimental and predicted terminal velocities of the meter-scale parachute discussed in this work. **b.** Vertical acceleration, $\ddot{z}$, and velocity, $\dot{z}$, of kirigami-inspired parachutes Designs A and B (blue and green, respectively). The solid lines and shaded areas are the average and standard deviation of the vertical acceleration of three fall experiments measured with an accelerometer. The dashed lines are the vertical velocity obtained by integrating numerically the mean vertical acceleration of three fall experiments. **c.** Lateral displacement across multiple drop tests of kirigami-inspired parachutes Designs A and B as well as a small-scale elliptical parachute (orange bars) manufactured by Fruity Chutes with r_o=195 mm, r_i=24 mm, and a drag coefficient of C_D = 1.5 (see Methods). The solid bars represent parachutes launched at 0°, the hatched bars at 45°, and the horizontally bars at 90°.

Comment 3B

fig 2c—e, fig3a, fig3c: are error bars included here and simply not visible?

As mentioned in the legend of Fig. 2, the experimental data from Fig. 2c-e and Fig. 3c are the average value of the tests performed in the wind-tunnel over a period of 30s. The experimental data from Fig. 3c is the initial slope of tensile test on the kirigami disks. As reported in Extended Data Fig. 4, there is very little discrepancies between runs, and we report here only the average value. It is important to note that the experimental error induced by the manufacturing of our specimens, the wind-tunnel experiment, and tensile testing do not change the conclusions of our study as we showed that by conducting dimensional analysis, our experimental results collapsed unto a master curve that is aligned with our numerical prediction (see Figs. 3c-d). To account for the Reviewer's comment, we include all wind-tunnel and tensile testing raw data as Supplementary Data.

Comment 3C

line 303: please refer to the SI equation or section where the added stiffness is defined.

A reference to Supplementary Methods Section S2B has been added in the main text where the added stiffness is defined.

Comment 3D

line 310: is the choice of 28 for the stiffness criterion an ad hoc one to separate the populations in fig.3b? Please add an explanation in the SI.

The choice of $\overline{K}\leq 28$ for the transition criteria is purely based on observations, as it seems to separate relatively well the two populations. A small clarification has been made in the main text.

> "We find that this stiffness criterion scales as $\overline{K}\leq 28$, which is identified empirically [...]"

Comment 3E

line 614: "stability": does this refer to lateral displacement, vibration sensitivity, or something else?

We have modified the text around line 614 to take into account the Reviewer's comment. It now reads:

"In addition to being easy to fabricate, our parachute reduces lateral displacement during descent, unlike conventional designs that often drift randomly and far from an intended target. This could be especially useful for humanitarian aid delivery."

Comment 3F

fig 4b: including the results of fig. S9 here would be very helpful to clarify the utility of a kirigami parachute.

We agree with the Reviewer, and we have added the results of Fig. S9 to Fig. 4b. Please see **Comment 3A**.

Comment 3G

line 852: please provide a rough estimate for the observed lateral displacement of the parachute.

As discussed in our first response to the reviewers, in the presence of side wind, any parachute and its payload will be advected and drift roughly at wind speed. Our parachutes are "ballistic" in the sense that they are unguided and passive. Any such ballistic parachute will drift at wind speed plus any random deviation that might arise from instability or tumbling. Therefore, the results highly depend on wind condition which we did not characterize during our outdoor experiments. To provide a rough estimate of the lateral displacement during the launch from the drone, we used the footage from the GoPro that was attached directly to the parachute. At launch, the parachute was near the 24-yard line and upon collision with the ground, it reaches the 32-yard line. This gives an estimated lateral displacement of about 7 m for a fall of 60m. To consider this comment, we have modified the text in the Methods section as:

> "We note that winds were present during testing, causing relatively important lateral accelerations that are not modeled in our simulations. These winds caused angular vibrations of the water bottle, which were damped by the parachute's interaction with the flow. Nevertheless, the kirigami-inspired parachute fell vertically and did not deviate substantially from its axis (we estimated a lateral displacement of about 7 meter over the 60-meter free fall based on the GoPro attached to the parachute, see Supplementary Movie S4)."

Comment 3H

line 14-15: ref. 19 looks at undesired motion of supersonic parachutes, which is not relevant here.

Ref.19 has been removed.

Comment 3I

line 25: "reduce the risk to human life" is not clearly motivated.

We agree with the Reviewer #3 that the statement is not clearly motivated. The last sentence of the abstract has been rephrased as:

"These kinds of parachutes could limit material losses during airdropping as well as decrease manufacturing costs and complexity."

Comment 3J

line 20: "closed-loop" is confusing here, please add a citation or omit the term.

The term closed-loop kirigami is standard in the community. We have added the proper reference to the abstract.

Comment 3K

line 48: ref. 39 refers to an APS meetings abstract, please reformat citation.

This has been updated.

Comment 3L

Fig.1: panel b—d: adding a schematic at the top to illustrate the circular cutting patterns would be very helpful. Panel e: please add the complete lateral displacement data, or provide it in an SI figure.

We have added the schematic of the circular cutting patterns of Designs A and B as well as the complete lateral displacement data of Fig. 1e as Extended Data Fig. 1 (which is reproduced here for completeness as **Figure 2**.)

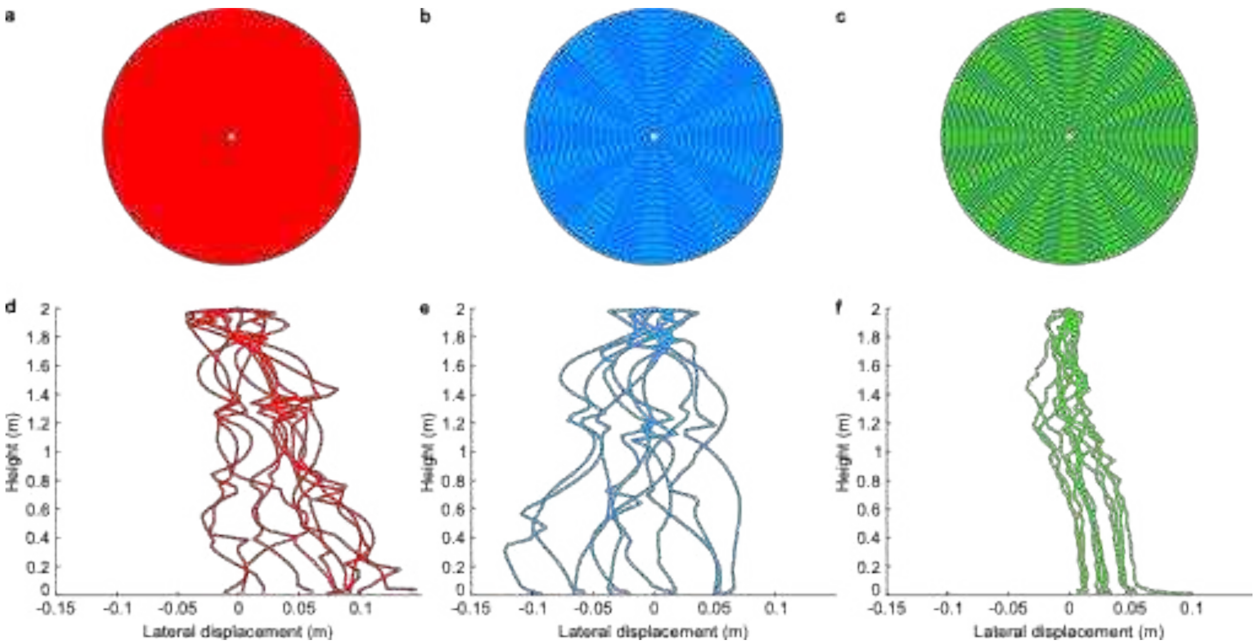

Figure 2. Lateral displacement of plain and kirigami disks during free fall. a. Plain circular disk. **b.** Cutting pattern of kirigami disk Design A. **c.** Cutting pattern of kirigami disk Design B. **d.** Lateral displacement as a function of vertical height during free fall for ten disks with no cuts (**d**), ten disks with cutting pattern Design A (**e**), and ten disks with cutting pattern Design B (**f**).

Comment 3M

line 111: please define U_∞ as the wind tunnel air flow speed here.

This has been updated.

Comment 3N

line 177: r_1 should be r_i.

This has been updated.

Comment 3O

line 303: please show the unity slope in fig. 3a.

This has been updated.

Comment 3P

in fig.3b, is the added stiffness measured or calculated?

The parameter $\overline{K}$ is always calculated in our study. A clarification has been made in the text to refer to the correct section in the Supplementary Methods. Please see **Comment 3C**.

Comment 3Q

if possible, add a legend instead of inserted labels in fig.4a.

We agree with the Reviewer that in its original version, Fig. 4a was cluttered. However, we have now formatted the Figures according to Nature's guidelines and the size of the inserted labels have reduced substantially, making it easier to read. Therefore, we decided to keep it as it is.

Comment 3R

SI: line 113-114: define exactly which deformation regime was used to fit the stiffness of the various samples. If possible, indicate this in fig. S4. Linear fit results can depend a lot on fitting regime, and it would be great to quantify this e.g. using error bars in fig. 3a.

To extract the experimental stiffness of the kirigami disks during tensile testing, we first used the function *ischange()* from Matlab to extract the linear part of the force and displacement curve. We then used the *polyfit*() function to interpolate a polynomial $p(x)$ of degree 1 that is a best fit (in a least-squares sense) for the data. Since the initial part of the force-displacement curves are quasi-linear, modifying the threshold parameter of the function *ischange*() produces little impact of the fitted value of K. In addition, as reported in Extended Data Fig. 4, there is very little discrepancies between runs. Therefore, we leave the average value in Fig. 3a and include the raw experimental data from the tensile tests as Supplementary Data (see **Comment 3B**).

Comment 3S

SI: line 225: "alpha" is mentioned but not defined.

We thank the reviewer for their attention to detail. There was indeed an error, such that α should be replaced by σ. The change has been added.

Comment 3T

SI: line 312: C_2 is not defined and may be mixed up with C_1.

We again thank the reviewer for catching this mistake. The text has been corrected as:

> "However, since we did not compute the required constants, and due to our many assumptions, these constants would not allow for an exact representation of reality, we can instead look for $\widetilde{K}/K_C=C_1$, with C_1 a constant. Therefore, we rather compute:

$$\frac{\widetilde{K}}{K_C} \sim \frac{B\overline{K}}{r_o^2}\frac{r_o^2}{B} = \overline{K} = C_2,$$

where C_2 is a constant."

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Tab name	Design	Wind-tunnel frequency (Hz)
A-f1	A	1
A-f1.5	A	1.5
A-f2	A	2
A-f2.5	A	2.5
A-f3	A	3
B-f1	B	1
B-f1.5	B	1.5
B-f2	B	2
B-f2.5	B	2.5
B-f3	B	3
B-f3.5	B	3.5
B-5deg-f2	B	2
B-5deg-f3	B	3
B-5deg-f4	B	4
B-5deg-f5	B	5
B-10deg-f2	B	2
B-10deg-f3	B	3
B-10deg-f4	B	4
B-10deg-f5	B	5
B-15deg-f2	B	2
B-15deg-f3	B	3
B-15deg-f4	B	4
B-15deg-f5	B	5
B-m5deg-f2	B	2
B-m5deg-f3	B	3
B-m5deg-f4	B	4
B-m5deg-f5	B	5
B-m10deg-f2	B	2
B-m10deg-f3	B	3
B-m10deg-f4	B	4
B-m10deg-f5	B	5
B-m15deg-f2	B	2
B-m15deg-f3	B	3
B-m15deg-f4	B	4
B-m15deg-f5	B	5

Wind speed (m/s)	Angle of attack (deg)
0.61	0
1.36	0
2.12	0
2.88	0
3.64	0
0.61	0
1.36	0
2.12	0
2.88	0
3.64	0
4.39	0
2.12	5
3.64	5
5.15	5
6.67	5
2.12	10
3.64	10
5.15	10
6.67	10
2.12	15
3.64	15
5.15	15
6.67	15
2.12	-5
3.64	-5
5.15	-5
6.67	-5
2.12	-10
3.64	-10
5.15	-10
6.67	-10
2.12	-15
3.64	-15
5.15	-15
6.67	-15

Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
0.001096	-0.003119	1.470733	0.002245	-0.003665	0.000548
0.004789	0.001286	0.011228	-0.000363	-0.000101	-0.000048
0.004704	0.001013	0.004765	-0.000293	-0.000173	-0.000037
0.004628	0.001087	0.003968	-0.000367	-0.000092	-0.000032
0.004634	0.001638	0.00527	-0.000349	-0.000162	-0.000036
0.00488	0.001074	0.004644	-0.000404	-0.000098	-0.000032
0.004855	0.001033	0.005052	-0.000335	-0.000089	-0.000054
0.004779	0.000927	0.004392	-0.000364	-0.00015	-0.000057
0.005239	0.000975	0.002188	-0.000366	-0.00013	-0.000038
0.004699	0.000961	0.005821	-0.000358	-0.000114	-0.000041
0.005391	0.00116	0.007077	-0.000382	-0.000058	-0.000051
0.004837	0.000837	0.003971	-0.000312	-0.000117	-0.000028
0.00462	0.001319	0.005441	-0.000389	-0.000129	-0.000037
0.004802	0.00132	0.005145	-0.000383	-0.000132	-0.000043
0.004679	0.001025	0.005497	-0.000391	-0.000113	-0.000039
0.004963	0.001194	0.005259	-0.000361	-0.000167	-0.000045
0.00487	0.000781	0.008076	-0.000354	-0.000128	-0.000054
0.004801	0.000679	0.005435	-0.000376	-0.000106	-0.000044
0.005125	0.001127	0.006348	-0.000437	-0.00014	-0.000045
0.00503	0.000692	0.007839	-0.000407	-0.000159	-0.000052
0.004831	0.001374	0.003069	-0.000358	-0.000127	-0.000041
0.004929	0.00114	0.003405	-0.000387	-0.000142	-0.000047
0.004517	0.001106	0.004574	-0.000322	-0.000112	-0.000048
0.00494	0.001321	0.004997	-0.000371	-0.000065	-0.000047
0.004994	0.001037	0.007557	-0.000434	-0.000154	-0.000055
0.005509	0.001093	0.00572	-0.000431	-0.000156	-0.000063
0.005187	0.000952	0.004492	-0.000336	-0.000127	-0.000036
0.005315	0.000719	0.004692	-0.000364	-0.000125	-0.000043
0.005193	0.001615	0.004023	-0.000335	-0.000102	-0.000039
0.004876	0.001047	0.002636	-0.000369	-0.000164	-0.000045
0.004343	0.000814	0.006056	-0.000308	-0.000099	-0.000038
0.005542	0.000691	0.004373	-0.000363	-0.000068	-0.000043
0.004723	0.001372	0.001301	-0.000327	-0.000061	-0.000043
0.005246	0.001035	0.002003	-0.000412	-0.000132	-0.000032
0.005273	0.001427	0.003584	-0.00036	-0.000093	-0.000023
0.005096	0.001053	0.005996	-0.000356	-0.000091	-0.000061
0.005482	0.001166	0.000874	-0.000338	-0.000107	-0.000053
0.005268	0.000879	0.003393	-0.000364	-0.000128	-0.000059
0.00548	0.001418	0.00388	-0.000333	-0.000108	-0.000045
0.005402	0.001212	0.005333	-0.000416	-0.000159	-0.000042
0.005403	0.00132	0.001596	-0.000361	-0.000075	-0.000045
0.005267	0.001281	0.002218	-0.000319	-0.000119	-0.00005
0.004309	0.00135	0.001129	-0.00037	-0.000082	-0.00005
0.004708	0.001931	0.002676	-0.000364	-0.00012	-0.000061
0.004746	0.001454	0.00405	-0.000355	-0.000113	-0.000066

0.005488	0.001416	0.004933	-0.000332	-0.000061	-0.000064
0.005634	0.00182	0.003516	-0.000344	-0.000085	-0.000074
0.005076	0.001506	0.002786	-0.000349	-0.00008	-0.000038
0.005377	0.001097	0.006461	-0.000343	-0.000094	-0.000055
0.005063	0.001517	0.002169	-0.000276	-0.000044	-0.000073
0.005276	0.002059	0.003807	-0.000377	-0.000112	-0.00007
0.005073	0.001563	0.00227	-0.000242	-0.00007	-0.00005
0.005331	0.001251	0.005911	-0.000334	-0.000056	-0.000033
0.005495	0.00146	0.004201	-0.000281	-0.000127	-0.000055
0.005758	0.001282	0.005777	-0.000345	-0.00012	-0.000055
0.004996	0.001339	0.002074	-0.000324	-0.000127	-0.000065
0.005374	0.00132	0.00326	-0.000341	-0.000069	-0.00006
0.005582	0.001457	0.004742	-0.000352	-0.000074	-0.000049
0.005325	0.001896	0.004713	-0.000325	-0.000094	-0.000047
0.005222	0.001738	0.002245	-0.000387	-0.000077	-0.000053
0.005446	0.001511	0.001811	-0.000368	-0.000093	-0.000046
0.004984	0.001675	0.004135	-0.000354	-0.000108	-0.000071
0.005015	0.001244	0.005269	-0.000378	-0.000083	-0.000052
0.005667	0.001431	0.003059	-0.000318	-0.000099	-0.000046
0.005398	0.001088	0.004337	-0.000327	-0.000083	-0.000039
0.005988	0.001548	0.004715	-0.000368	-0.000116	-0.000048
0.005457	0.001165	0.004586	-0.000408	-0.000099	-0.000036
0.005259	0.000725	0.006164	-0.000447	-0.000162	-0.000037
0.004795	0.000911	0.007739	-0.000395	-0.000169	-0.000056
0.005394	0.001882	0.00271	-0.000302	-0.000111	-0.000067
0.005379	0.001203	0.004149	-0.000322	-0.000063	-0.000056
0.005394	0.001564	0.003423	-0.000368	-0.000138	-0.000029
0.00573	0.0011	0.004468	-0.000382	-0.000088	-0.000054
0.005278	0.001481	0.00551	-0.000366	-0.000085	-0.000046
0.005398	0.001264	0.002551	-0.0003	-0.000105	-0.000043
0.004775	0.001747	0.004513	-0.000363	-0.000165	-0.000045
0.005003	0.001828	0.004156	-0.000322	-0.000119	-0.000034
0.005951	0.00117	0.002305	-0.000405	-0.00012	-0.000016
0.005579	0.002158	0.001785	-0.000327	-0.000092	-0.000035
0.005192	0.001038	0.00626	-0.000378	-0.000088	-0.000056
0.006336	0.002369	0.003974	-0.000386	-0.000131	-0.000049
0.005697	0.001779	0.002263	-0.00036	-0.000124	-0.000042
0.00552	0.001339	0.004949	-0.000354	-0.000153	-0.000042
0.005979	0.002477	0.004968	-0.00038	-0.000055	-0.000033
0.005164	0.00182	0.00311	-0.000368	-0.00011	-0.000068
0.005582	0.001709	0.005214	-0.000422	-0.000169	-0.000049
0.006045	0.001282	0.003474	-0.000346	-0.000134	-0.000035
0.005564	0.002326	0.004923	-0.000337	-0.000108	-0.000025
0.005403	0.001547	0.001669	-0.000327	-0.0001	-0.000054
0.005676	0.001707	0.004954	-0.000332	-0.000076	-0.000048
0.006469	0.001807	0.001512	-0.000333	-0.000093	-0.000029

0.005894	0.001833	0.001576	-0.000327	-0.000081	-0.000033
0.005456	0.001897	0.002849	-0.000323	-0.000089	-0.000053
0.005399	0.002202	0.004027	-0.000368	-0.000155	-0.000046
0.005527	0.002201	0.003294	-0.000377	-0.000101	-0.000042
0.005321	0.001317	0.001035	-0.000343	-0.000043	-0.000048
0.0059	0.001645	0.003372	-0.000363	-0.000073	-0.000038
0.005766	0.002068	0.004191	-0.000368	-0.000115	-0.000025
0.005383	0.001959	0.003331	-0.000369	-0.000148	-0.000058
0.005699	0.002138	0.005896	-0.000319	-0.000089	-0.000032
0.005476	0.001701	0.002724	-0.000375	-0.000087	-0.000072
0.005655	0.001376	0.004541	-0.00036	-0.000062	-0.000059
0.005503	0.001564	0.0051	-0.000361	-0.000079	-0.000043
0.005268	0.001759	0.005158	-0.000322	-0.000056	-0.000062
0.005232	0.001515	0.004804	-0.000333	-0.00011	-0.00005
0.005544	0.001375	0.00408	-0.000351	-0.000125	-0.000061
0.005499	0.001717	0.003036	-0.000327	-0.000107	-0.000048
0.005693	0.002168	0.002582	-0.000334	-0.0001	-0.000042
0.005552	0.001505	0.00498	-0.000284	-0.000082	-0.000052
0.005505	0.001788	0.005296	-0.000418	-0.000189	-0.000058
0.005542	0.001908	0.004582	-0.000347	-0.000144	-0.000049
0.00636	0.001574	0.004331	-0.000316	-0.000122	-0.000042
0.00606	0.001432	0.006447	-0.000395	-0.000116	-0.000053
0.005587	0.001737	0.004446	-0.000365	-0.000042	-0.000065
0.006277	0.001872	0.004814	-0.000389	-0.000079	-0.000065
0.006394	0.001463	0.005147	-0.000379	-0.00017	-0.000079
0.006202	0.001125	0.008274	-0.000348	-0.00004	-0.000054
0.006015	0.002265	0.003234	-0.000296	-0.000116	-0.000069
0.005876	0.001897	0.002236	-0.000314	-0.00012	-0.000071
0.005691	0.002252	0.004792	-0.000396	-0.000122	-0.000051
0.005735	0.00177	0.003472	-0.000345	-0.000078	-0.000063
0.006011	0.001805	0.004827	-0.000383	-0.000135	-0.000035
0.006275	0.001778	0.00621	-0.000384	-0.000085	-0.00006
0.006023	0.00219	0.006286	-0.000376	-0.000098	-0.000048
0.006016	0.001589	0.004968	-0.000337	-0.000058	-0.000038
0.006006	0.002095	0.000991	-0.000299	-0.000027	-0.000027
0.005396	0.002148	0.003786	-0.000325	-0.000085	-0.000045
0.006322	0.001657	0.003365	-0.000382	-0.000149	-0.000055
0.005626	0.001308	0.004253	-0.000367	-0.000062	-0.000073
0.006005	0.002003	0.005876	-0.000335	-0.000058	-0.000041
0.005929	0.001426	0.005751	-0.000418	-0.000078	-0.000055
0.005766	0.001059	0.002967	-0.000343	-0.000125	-0.000037
0.006187	0.001838	0.004676	-0.000324	-0.000071	-0.000069
0.005854	0.001938	0.003767	-0.000327	-0.000087	-0.000063
0.005853	0.001648	0.002226	-0.000342	-0.000178	-0.000055
0.00582	0.001857	0.002828	-0.000367	-0.000046	-0.000053
0.005988	0.001586	0.003617	-0.000341	-0.00012	-0.000057

0.00676	0.001776	0.004587	-0.000372	-0.000087	-0.000037
0.005845	0.001282	0.007084	-0.000427	-0.000052	-0.000049
0.005876	0.001628	0.006154	-0.000396	-0.000086	-0.000067
0.006287	0.001641	0.007628	-0.000332	-0.00008	-0.000057
0.005535	0.001639	0.006201	-0.000377	-0.000061	-0.000042
0.005994	0.002031	0.003213	-0.000275	-0.000091	-0.000042
0.005397	0.001598	0.006403	-0.000387	-0.000058	-0.000062
0.005603	0.001462	0.004072	-0.000332	-0.000089	-0.000033
0.005252	0.00219	0.005852	-0.000382	-0.000106	-0.000063
0.00615	0.00156	0.002451	-0.000318	-0.000051	-0.000038
0.005913	0.001737	0.004411	-0.000335	-0.000079	-0.000052
0.006511	0.001714	0.004523	-0.000359	-0.000076	-0.000058
0.005972	0.001175	0.005225	-0.000334	-0.000024	-0.000052
0.005933	0.001379	0.006282	-0.000343	-0.00006	-0.000046

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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
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0.01853	-0.000136	0.000563	-0.000283	0.000128	-9.50E-05
0.018953	0.000636	0.00206	-0.000309	0.000159	-6.80E-05
0.019165	0.000686	0.002862	-0.000329	0.00014	-8.60E-05
0.018872	0.000307	-0.002604	-0.000333	0.000156	-6.70E-05
0.019157	0.001121	-0.004908	-0.000329	9.90E-05	-5.70E-05
0.019454	0.00073	-0.003563	-0.000309	0.000178	-7.80E-05
0.019189	-4.40E-05	-0.004734	-0.000257	0.000163	-8.20E-05
0.018979	0.000635	-0.000795	-0.000294	0.000143	-7.40E-05
0.019112	0.000898	-0.00365	-0.00024	0.000158	-7.20E-05
0.019243	0.000559	-0.001325	-0.000325	0.000198	-7.10E-05
0.018987	0.000402	0.000207	-0.000381	0.000153	-7.60E-05
0.019162	0.000754	-0.002206	-0.000309	0.00014	-9.20E-05
0.019406	0.000932	-0.003802	-0.000267	0.000169	-7.20E-05
0.019449	0.000426	-0.002123	-0.000326	0.000157	-7.80E-05
0.019575	0.000619	-0.003559	-0.000338	0.000174	-8.00E-05
0.019213	0.000194	0.000321	-0.000359	0.000171	-8.10E-05
0.019672	0.000665	0.000193	-0.000298	0.000125	-7.50E-05
0.018636	0.000288	0.001385	-0.000293	0.000149	-8.00E-05
0.018814	0.000907	-0.000218	-0.000334	0.000125	-5.80E-05
0.019615	0.00076	-0.002038	-0.000378	0.000125	-8.70E-05
0.019108	0.000554	-0.002572	-0.000284	0.000174	-7.10E-05
0.019251	0.000459	-0.003403	-0.000314	0.000142	-9.00E-05
0.019571	7.00E-05	-0.001608	-0.000312	0.000169	-9.20E-05
0.019982	0.000768	-0.005202	-0.000297	0.00019	-5.60E-05
0.019662	0.000782	-0.001873	-0.000341	0.000173	-7.30E-05
0.020099	0.000409	-0.003282	-0.000294	0.000205	-9.00E-05
0.019687	-7.40E-05	-0.003658	-0.000351	0.000136	-7.30E-05
0.018834	0.000881	-0.001936	-0.000345	0.000159	-7.50E-05
0.019021	0.000682	-0.001058	-0.000328	0.000147	-9.40E-05
0.018978	0.001036	-0.001898	-0.0003	0.000135	-7.70E-05
0.018769	0.000145	-0.002932	-0.000349	0.000114	-8.70E-05
0.019628	7.70E-05	-0.002365	-0.000325	0.000189	-8.40E-05
0.019483	0.00058	-0.00315	-0.000368	0.000156	-8.70E-05
0.0204	0.000135	-0.001463	-0.000349	0.000176	-8.90E-05
0.020177	1.20E-05	-0.002657	-0.000285	0.000159	-7.20E-05
0.01949	0.000739	-0.001713	-0.000293	0.000142	-6.60E-05
0.019754	0.000558	-0.002642	-0.000311	0.000189	-8.10E-05
0.019478	0.000592	-0.001524	-0.000339	0.000177	-0.000102
0.019347	0.001127	-0.004759	-0.000288	0.000118	-6.30E-05
0.019609	0.000863	-0.002566	-0.000327	9.00E-05	-9.10E-05
0.019066	0.000132	-0.001956	-0.000335	0.000202	-7.90E-05
0.019567	0.000825	-0.004153	-0.000283	0.000101	-8.30E-05
0.019493	0.000835	-0.001028	-0.000289	0.000102	-6.90E-05
0.018809	0.000369	-0.00135	-0.000352	0.000183	-7.30E-05

0.019018	0.000414	-0.003693	-0.000323	0.000122	-8.60E-05
0.019288	0.000635	-0.001384	-0.000289	0.000204	-8.40E-05
0.01908	4.00E-06	-0.00131	-0.000339	0.000197	-7.30E-05
0.018699	0.000509	-0.002854	-0.000311	0.000146	-8.00E-05
0.019316	0.000549	-0.001416	-0.000325	0.00014	-7.60E-05
0.020116	5.00E-06	-0.001926	-0.000311	0.000198	-6.90E-05
0.019559	4.60E-05	-0.003604	-0.000385	6.40E-05	-8.40E-05
0.01953	0.000257	-0.002975	-0.000328	0.000112	-7.30E-05
0.0194	0.000467	-0.004471	-0.000337	0.000109	-9.00E-05
0.018886	0.000615	-0.003125	-0.000287	0.000189	-5.60E-05
0.019125	-5.60E-05	-0.001584	-0.000316	0.000153	-6.30E-05
0.019822	0.00031	-0.001186	-0.000332	0.000193	-8.90E-05
0.019417	0.000412	-0.000646	-0.00032	0.00015	-9.50E-05
0.018942	-0.000174	-0.003802	-0.000345	0.000138	-9.60E-05
0.019352	-0.000169	-0.00056	-0.000318	0.000126	-6.50E-05
0.01967	5.00E-06	-0.002496	-0.000323	0.000166	-8.00E-05
0.018905	0.000272	-0.003936	-0.000315	0.000117	-5.70E-05
0.019169	-0.000428	-0.001905	-0.000337	0.000143	-8.80E-05
0.019725	-5.80E-05	-0.001913	-0.000352	0.000113	-8.00E-05
0.018605	-0.000197	-0.001402	-0.000379	0.000144	-5.10E-05
0.018741	-0.0001	-0.001194	-0.000338	0.000128	-8.30E-05
0.018544	-0.000861	-0.000484	-0.000323	0.000141	-9.10E-05
0.018625	-0.000831	0.001404	-0.00044	0.000117	-9.10E-05
0.019456	-0.000269	-0.002226	-0.000317	0.000131	-8.20E-05
0.019664	-0.000402	0.00014	-0.00028	0.000187	-0.000102
0.019851	-0.00047	0.001252	-0.000394	0.000138	-8.30E-05
0.019088	-0.000466	-0.002507	-0.000311	0.000192	-7.60E-05
0.01975	-0.000264	-0.004768	-0.000299	0.000169	-8.00E-05
0.019301	-0.000391	-0.001736	-0.000302	0.000216	-8.10E-05
0.019538	-0.000312	-0.004282	-0.000305	0.000183	-9.60E-05
0.019861	9.10E-05	-0.002733	-0.00032	0.000181	-9.50E-05
0.019571	-0.001102	-0.002456	-0.000323	0.000202	-8.10E-05
0.019692	-0.000433	-0.000503	-0.000308	0.000194	-9.10E-05
0.019523	0.000163	-0.002392	-0.0003	0.000169	-9.20E-05
0.01884	5.50E-05	-0.002051	-0.000307	0.00022	-7.50E-05
0.018911	-0.000397	-0.000936	-0.000294	0.000205	-7.10E-05
0.018953	-0.000958	0.000208	-0.000375	0.000176	-0.00011
0.019068	-0.000658	-0.00026	-0.000323	0.000193	-7.50E-05
0.019178	0.000138	-0.002551	-0.000292	0.00015	-8.40E-05
0.019332	-0.000265	-0.003758	-0.000288	0.000196	-8.90E-05
0.019268	-0.000376	-0.003239	-0.000297	0.0002	-7.70E-05
0.019059	-0.00063	-0.002469	-0.000359	0.000138	-7.10E-05
0.018652	-0.000766	-0.000452	-0.000293	0.000162	-8.20E-05
0.018921	-0.00034	-0.000279	-0.000335	0.000142	-8.10E-05
0.01877	-0.00044	-0.001949	-0.000335	0.000204	-7.20E-05
0.019329	-0.000882	-0.000887	-0.000305	0.000177	-9.40E-05

0.019382	-0.001038	-0.003381	-0.000322	0.000164	-9.20E-05
0.019324	-0.000232	-0.00339	-0.000299	0.000176	-6.30E-05
0.018948	-0.000267	-0.004028	-0.000316	0.000189	-7.50E-05
0.019236	-0.000764	-0.003549	-0.000312	0.000202	-6.60E-05
0.01902	-0.000171	-0.004243	-0.000293	0.000178	-6.10E-05
0.018831	-0.000487	-0.003098	-0.000305	0.000189	-9.00E-05
0.018909	-0.000937	-0.002009	-0.00027	0.000247	-7.20E-05
0.019249	-0.000396	-0.003703	-0.000326	0.000152	-5.40E-05
0.019373	-0.000369	-0.004112	-0.000293	0.000114	-6.20E-05
0.018974	-0.000326	-0.002111	-0.000303	0.000184	-8.60E-05
0.018595	-0.000758	-0.001156	-0.000357	0.000157	-6.50E-05
0.019207	-0.000958	-0.001654	-0.000291	0.000158	-4.80E-05
0.019035	-0.000557	-0.001277	-0.000333	0.000172	-5.90E-05
0.018716	-0.000269	-0.00242	-0.000295	0.000121	-8.60E-05
0.018335	-0.000273	-0.001077	-0.000294	0.000193	-7.10E-05
0.018409	-0.000676	-0.001284	-0.000313	0.00016	-6.30E-05
0.019246	-0.000491	-0.001138	-0.000301	0.000126	-8.80E-05
0.01925	-0.000858	-0.001402	-0.00037	0.000133	-7.70E-05
0.019117	-0.0007	-0.002148	-0.0003	0.000221	-6.40E-05
0.018772	-0.000758	0.000371	-0.00027	0.000218	-6.70E-05
0.018856	-0.001034	-0.000411	-0.00029	0.000191	-0.000111
0.018689	-0.000334	-0.000431	-0.000287	0.000165	-7.00E-05
0.019118	-0.000709	-0.00098	-0.000303	0.000122	-6.10E-05
0.018198	0.000248	0.000912	-0.000331	0.000192	-0.000104
0.018879	-0.000379	-0.000223	-0.000288	0.000155	-7.80E-05
0.018793	-0.000503	-0.002224	-0.000274	0.000182	-7.40E-05
0.019079	-0.000431	-0.004411	-0.000296	0.000203	-7.30E-05
0.018941	-0.000984	-0.000894	-0.00031	0.000213	-9.20E-05
0.018858	-0.000448	0.000667	-0.000311	0.000113	-0.00011
0.019045	-0.000379	-0.00099	-0.000325	0.000179	-8.80E-05
0.018438	-0.000535	-0.000136	-0.000249	0.000222	-8.30E-05
0.018703	-0.000891	-0.000351	-0.000352	0.000165	-8.50E-05
0.018926	-0.000117	-0.001359	-0.0003	0.000174	-8.50E-05
0.019487	-0.00043	-0.002124	-0.000352	0.000162	-6.30E-05
0.01866	-0.000669	-0.001993	-0.000316	0.000131	-9.60E-05
0.018434	-0.000944	-0.001012	-0.000259	0.00015	-7.00E-05
0.018511	-0.000418	-0.002432	-0.000307	0.000177	-0.000103
0.018739	-0.000247	-0.002616	-0.000235	0.000225	-7.70E-05
0.018641	-0.000144	-0.000866	-0.000306	0.000174	-9.90E-05
0.01955	-0.000378	0.001054	-0.000284	0.000179	-7.50E-05
0.018723	7.00E-05	-0.002182	-0.000278	0.000232	-0.000108
0.018485	-0.000189	-0.000675	-0.000314	0.000165	-6.60E-05
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0.019624	-0.000316	-0.003224	-0.000264	0.000238	-8.00E-05
0.01988	8.80E-05	-0.000929	-0.000295	0.000173	-8.40E-05

0.019837	-6.20E-05	-0.002933	-0.000333	0.000147	-7.60E-05
0.018401	-0.000413	0.001121	-0.000291	0.000194	-7.30E-05
0.018736	-1.00E-06	0.001321	-0.000351	0.000161	-0.000104
0.018595	9.00E-06	-0.000464	-0.0003	0.000219	-8.00E-05
0.018603	-5.90E-05	0.00053	-0.000357	0.000174	-6.80E-05
0.019019	-0.000653	-0.001427	-0.000331	0.000142	-8.70E-05
0.019062	0.000445	-0.004861	-0.000279	0.000189	-7.40E-05
0.019263	-0.000728	-0.00344	-0.000366	0.000155	-7.70E-05
0.019883	-4.90E-05	-0.003402	-0.000313	0.000134	-0.000107
0.019417	-0.000605	-0.000868	-0.000326	0.000127	-8.90E-05
0.018516	-0.001006	-0.001058	-0.000288	0.000209	-8.80E-05
0.019684	-0.000448	-0.001411	-0.000326	0.000194	-8.10E-05
0.020245	-0.000382	-0.001157	-0.000279	0.000169	-8.60E-05
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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
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0.044071	0.000119	-0.022683	4.00E-05	0.000781	-9.20E-05
0.044339	-0.000676	-0.024364	9.60E-05	0.000775	-0.000102
0.044249	-0.000954	-0.024358	1.40E-05	0.000786	-0.000103
0.043541	-0.00085	-0.025732	2.50E-05	0.000748	-9.10E-05
0.043579	-0.000924	-0.025525	2.00E-06	0.000733	-8.60E-05
0.043569	-0.000186	-0.025564	5.40E-05	0.000703	-0.000111
0.04417	-0.000952	-0.028519	0.000111	0.000775	-0.000106
0.043665	-0.000439	-0.02662	7.90E-05	0.000781	-7.40E-05
0.04418	-0.000264	-0.024573	3.10E-05	0.000782	-7.80E-05
0.043637	-0.00082	-0.026959	4.40E-05	0.000762	-8.70E-05
0.044326	-0.000441	-0.027507	1.90E-05	0.000777	-7.10E-05
0.043493	-0.000625	-0.026556	4.60E-05	0.000817	-8.60E-05
0.043745	-0.000351	-0.026799	7.30E-05	0.000839	-8.80E-05
0.043903	-0.000741	-0.030304	3.70E-05	0.000777	-0.000106
0.043987	-0.000828	-0.028088	0.000104	0.000789	-8.90E-05
0.044595	-0.000468	-0.02762	5.20E-05	0.000754	-0.000103
0.043968	-0.000764	-0.027302	3.70E-05	0.000785	-6.30E-05
0.044369	-0.00054	-0.029338	8.90E-05	0.000758	-0.000103
0.044771	-0.000413	-0.028109	6.60E-05	0.000796	-9.90E-05
0.044517	-0.000844	-0.029381	0.000125	0.000759	-8.70E-05
0.044677	-0.000356	-0.029763	7.00E-05	0.000771	-9.00E-05
0.044109	-0.001319	-0.029877	8.20E-05	0.000842	-8.40E-05
0.043818	-0.000644	-0.027382	4.20E-05	0.000752	-0.000107
0.043907	-0.000545	-0.026079	3.30E-05	0.000782	-7.80E-05
0.043638	-0.000803	-0.02741	5.60E-05	0.000801	-9.70E-05
0.044302	-0.000395	-0.028759	0.000112	0.000714	-9.60E-05
0.043803	-0.000598	-0.029338	2.20E-05	0.000779	-0.000102
0.044114	-0.000298	-0.030471	8.40E-05	0.000763	-0.000127
0.044707	-0.000432	-0.027203	0.000104	0.000796	-0.000122
0.044204	-0.000892	-0.028064	5.70E-05	0.000736	-7.80E-05
0.044026	-0.000612	-0.028881	3.20E-05	0.000748	-8.80E-05
0.042648	-0.001169	-0.027907	-6.00E-06	0.000772	-8.60E-05
0.044258	-0.00071	-0.027159	2.90E-05	0.000725	-6.20E-05
0.043981	-0.000417	-0.029666	8.30E-05	0.000786	-8.70E-05
0.044479	-0.001041	-0.02979	0.000136	0.000806	-9.00E-05
0.044406	-0.001018	-0.030851	9.30E-05	0.000786	-9.50E-05
0.044577	-0.000995	-0.030445	0.000102	0.000796	-8.90E-05
0.04392	-0.000471	-0.027457	6.60E-05	0.00079	-0.000103
0.043853	-0.000624	-0.032715	9.50E-05	0.000758	-9.60E-05
0.043813	-0.001132	-0.029129	0.000118	0.000834	-9.60E-05
0.044476	-0.000375	-0.031074	0.000167	0.000799	-9.30E-05
0.044224	-0.001046	-0.031032	6.40E-05	0.000807	-9.40E-05
0.04406	-0.000642	-0.028509	5.50E-05	0.000778	-9.90E-05
0.043609	-0.000744	-0.027275	5.30E-05	0.000784	-0.000107

0.043436	-0.00091	-0.028573	8.40E-05	0.0008	-8.00E-05
0.043497	-0.000363	-0.028546	7.60E-05	0.00083	-9.70E-05
0.043453	-0.001093	-0.029211	9.90E-05	0.00077	-9.00E-05
0.044084	-0.000263	-0.02803	5.00E-05	0.000704	-7.50E-05
0.044235	-0.000875	-0.027493	6.10E-05	0.000762	-9.10E-05
0.044067	-0.001252	-0.029671	0.000123	0.000819	-9.30E-05
0.044649	-0.000666	-0.030626	8.60E-05	0.000803	-0.000105
0.04395	-0.001196	-0.031591	9.00E-05	0.000869	-8.70E-05
0.044046	-0.000772	-0.031907	0.000146	0.0008	-9.30E-05
0.044199	-0.00061	-0.032349	0.000118	0.000815	-0.000101
0.044022	-0.001257	-0.031058	0.000108	0.000827	-9.50E-05
0.044486	-0.000629	-0.032415	9.40E-05	0.000759	-0.0001
0.043745	-0.000931	-0.030517	8.60E-05	0.000791	-8.50E-05
0.044099	-0.00059	-0.02968	0.000112	0.000794	-9.30E-05
0.043182	-0.001167	-0.032359	0.000118	0.000794	-6.30E-05
0.042812	-0.000872	-0.029395	7.30E-05	0.000782	-9.40E-05
0.044241	-0.000407	-0.02871	9.30E-05	0.000811	-0.000116
0.044656	-0.000693	-0.033155	0.000132	0.000815	-8.40E-05
0.044736	-0.000292	-0.030075	8.40E-05	0.000795	-0.000135
0.044459	-0.001243	-0.028468	9.50E-05	0.000853	-0.000108
0.044219	-0.000737	-0.027704	0.000106	0.000807	-0.000113
0.044629	-0.000293	-0.03001	0.000158	0.000855	-7.40E-05
0.044013	-0.000967	-0.031258	0.000152	0.000823	-8.00E-05
0.043995	-0.000879	-0.029358	5.70E-05	0.000807	-0.0001
0.0436	-0.000577	-0.029477	0.000109	0.000806	-9.70E-05
0.044285	-0.001191	-0.03077	5.60E-05	0.00077	-0.000107
0.044538	-0.001115	-0.030808	7.80E-05	0.000815	-9.50E-05
0.044662	-0.001565	-0.032487	0.000132	0.000815	-8.50E-05
0.04514	-0.000631	-0.031807	0.000156	0.00088	-9.00E-05
0.044883	-0.001268	-0.029531	0.000126	0.000852	-9.70E-05
0.045245	-0.00135	-0.033662	0.000108	0.000815	-9.40E-05
0.044967	-0.000773	-0.03058	0.00011	0.000836	-9.50E-05
0.044826	-0.001328	-0.03169	0.000134	0.000843	-8.50E-05
0.044838	-0.000557	-0.029342	9.30E-05	0.00083	-7.60E-05
0.04479	-0.000454	-0.032812	5.90E-05	0.000717	-8.60E-05
0.044125	-0.000667	-0.030015	8.30E-05	0.000828	-7.40E-05
0.044432	-0.000953	-0.030789	3.00E-05	0.000754	-8.00E-05
0.043862	-0.001918	-0.030169	0.000152	0.000813	-0.000117
0.045231	-0.000931	-0.031964	0.000103	0.000765	-8.40E-05
0.044232	-0.001652	-0.033967	0.000133	0.000786	-0.000114
0.044448	-0.000905	-0.031882	6.70E-05	0.000777	-9.50E-05
0.044565	-0.001217	-0.032268	7.80E-05	0.000855	-8.40E-05
0.045281	-0.001529	-0.029256	6.90E-05	0.000782	-8.30E-05
0.044903	-0.001307	-0.031996	7.40E-05	0.000784	-8.70E-05
0.045403	-0.001531	-0.03319	4.50E-05	0.000814	-9.60E-05
0.045145	-0.001332	-0.032224	8.90E-05	0.000806	-8.50E-05

0.045942	-0.001204	-0.032034	6.70E-05	0.000819	-8.50E-05
0.045533	-0.001453	-0.03032	7.80E-05	0.000904	-0.000108
0.045281	-0.000994	-0.029768	8.10E-05	0.00085	-0.000105
0.044696	-0.001527	-0.029566	8.80E-05	0.000809	-0.000104
0.045064	-0.000737	-0.031207	6.60E-05	0.000777	-9.00E-05
0.045769	-0.001013	-0.030983	0.000129	0.000838	-9.70E-05
0.045083	-0.001423	-0.033448	0.000148	0.000844	-0.000103
0.04481	-0.000608	-0.031467	0.000115	0.000809	-9.60E-05
0.044964	-0.001371	-0.03399	0.000144	0.000917	-7.40E-05
0.045101	-0.000931	-0.034408	0.000141	0.000823	-6.90E-05
0.045408	-0.001143	-0.034427	0.000194	0.00079	-7.90E-05
0.04452	-0.001535	-0.03465	0.000215	0.000885	-7.90E-05
0.045474	-0.000993	-0.034648	0.000191	0.000871	-8.30E-05
0.045148	-0.001618	-0.035454	0.000157	0.000839	-6.30E-05
0.045059	-0.00053	-0.034558	0.000121	0.000799	-0.000101
0.045365	-0.000682	-0.033098	0.000197	0.000836	-7.10E-05
0.044511	-0.001431	-0.033493	0.000123	0.00082	-9.60E-05
0.045301	-0.000855	-0.032848	9.50E-05	0.000775	-0.0001
0.044792	-0.001727	-0.033006	0.000105	0.00082	-7.10E-05
0.045338	-0.00084	-0.0297	0.000104	0.000852	-8.80E-05
0.045256	-0.00113	-0.03281	8.70E-05	0.000804	-8.10E-05
0.044831	-0.001534	-0.03195	0.000112	0.000885	-9.10E-05
0.045284	-0.000981	-0.031114	8.50E-05	0.000857	-9.30E-05
0.044966	-0.001757	-0.029527	3.70E-05	0.000802	-6.40E-05
0.044233	-0.001147	-0.028186	2.30E-05	0.000808	-0.000105
0.044465	-0.001085	-0.032017	9.40E-05	0.000764	-6.80E-05
0.043939	-0.001609	-0.030168	8.60E-05	0.00087	-0.000102
0.044852	-0.000968	-0.033098	0.000105	0.000855	-7.40E-05
0.044289	-0.001991	-0.030042	0.000105	0.00082	-7.70E-05
0.04468	-0.001044	-0.029821	7.40E-05	0.000843	-0.000106
0.045677	-0.000738	-0.033387	0.000196	0.000891	-9.30E-05
0.045296	-0.001599	-0.030995	0.000112	0.00087	-0.000102
0.045053	-0.001372	-0.032464	0.000132	0.000865	-9.90E-05
0.04465	-0.002461	-0.029607	7.70E-05	0.000889	-8.90E-05
0.044339	-0.001157	-0.0304	0.000131	0.000861	-0.00011
0.044904	-0.001688	-0.031123	7.00E-05	0.000851	-7.70E-05
0.04456	-0.001392	-0.032395	9.80E-05	0.000811	-8.60E-05
0.044777	-0.001529	-0.03136	6.70E-05	0.000775	-8.30E-05
0.043388	-0.002418	-0.028923	-1.00E-06	0.00081	-6.30E-05
0.043264	-0.001195	-0.026491	-1.00E-05	0.000757	-7.70E-05
0.044269	-0.001461	-0.031268	9.40E-05	0.000809	-4.70E-05
0.044557	-0.001385	-0.03125	0.000147	0.000871	-8.00E-05
0.04471	-0.001432	-0.030679	9.10E-05	0.000824	-8.30E-05
0.044517	-0.002074	-0.033014	7.80E-05	0.000744	-5.90E-05
0.044952	-0.000931	-0.031198	0.000101	0.000834	-8.40E-05
0.044328	-0.00147	-0.03208	0.000158	0.000857	-9.40E-05

0.045257	-0.00126	-0.032179	9.70E-05	0.000852	-9.70E-05
0.044884	-0.001159	-0.032513	0.000159	0.000819	-9.70E-05
0.044527	-0.001825	-0.030806	0.000117	0.000818	-8.20E-05
0.044235	-0.00128	-0.03148	9.20E-05	0.00084	-9.20E-05
0.044656	-0.002229	-0.032799	0.000164	0.000838	-8.10E-05
0.044352	-0.001812	-0.030242	8.40E-05	0.000844	-8.40E-05
0.044451	-0.00104	-0.033405	0.000169	0.00084	-8.60E-05
0.04431	-0.00191	-0.032549	4.90E-05	0.000711	-5.10E-05
0.044208	-0.00097	-0.028771	0.000123	0.000865	-9.00E-05
0.044651	-0.002083	-0.030902	6.90E-05	0.000823	-0.000101
0.044704	-0.00179	-0.03	6.00E-05	0.0008	-0.000105
0.044788	-0.001247	-0.031468	0.000104	0.000852	-0.000102
0.044209	-0.002158	-0.032875	0.000139	0.000839	-7.60E-05
0.044561	-0.00175	-0.031249	7.10E-05	0.000838	-9.20E-05

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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
0.065205	-0.007007	1.400102	0.003238	-0.002244	0.000478
0.06984	-0.002519	-0.05701	0.000628	0.001459	-0.000149
0.06878	-0.001808	-0.058802	0.000587	0.001475	-0.000136
0.069442	-0.002518	-0.057171	0.00055	0.001469	-0.000124
0.069896	-0.002496	-0.062181	0.000606	0.001482	-0.000117
0.069402	-0.00297	-0.058663	0.000499	0.001468	-0.000112
0.068847	-0.002496	-0.061214	0.000585	0.001486	-0.000111
0.068587	-0.002531	-0.058018	0.000564	0.001404	-0.000139
0.068756	-0.001994	-0.060224	0.00055	0.001437	-0.000114
0.06904	-0.002222	-0.061257	0.000519	0.001492	-0.000112
0.069024	-0.002276	-0.059929	0.000535	0.001464	-0.000118
0.069361	-0.002357	-0.060822	0.000609	0.001431	-0.000123
0.068912	-0.002243	-0.060719	0.000609	0.001476	-0.000118
0.069254	-0.002637	-0.063067	0.00058	0.001486	-0.000118
0.06943	-0.002216	-0.064236	0.000649	0.001518	-0.000114
0.069353	-0.002444	-0.061231	0.000617	0.001465	-0.000118
0.068798	-0.002767	-0.062191	0.000597	0.001501	-0.000118
0.068552	-0.002795	-0.059743	0.000551	0.001455	-0.000106
0.068675	-0.002739	-0.059946	0.000583	0.001442	-0.000134
0.069483	-0.002874	-0.061479	0.000573	0.001443	-0.000102
0.069436	-0.002404	-0.061899	0.000555	0.001495	-0.000106
0.068677	-0.002497	-0.061505	0.000677	0.001448	-0.000129
0.068784	-0.00279	-0.062442	0.00058	0.001497	-0.000102
0.069103	-0.002579	-0.059755	0.000528	0.001485	-0.000103
0.068319	-0.002585	-0.061634	0.00062	0.001384	-0.000127
0.068728	-0.002839	-0.060746	0.000482	0.001478	-0.000113
0.068504	-0.002433	-0.058476	0.000536	0.001451	-0.000119
0.068605	-0.002755	-0.061778	0.000558	0.001479	-9.70E-05
0.068199	-0.002492	-0.061731	0.000569	0.001435	-0.000117
0.068436	-0.00211	-0.057452	0.000553	0.0015	-0.000122
0.068315	-0.002031	-0.061953	0.000598	0.001417	-0.000127
0.067922	-0.001902	-0.060215	0.000613	0.001464	-0.000133
0.068551	-0.002699	-0.05937	0.00056	0.001451	-0.000129
0.068569	-0.002646	-0.060624	0.000636	0.001441	-0.000111
0.068041	-0.002582	-0.059081	0.000561	0.001422	-0.000117
0.068379	-0.002956	-0.059611	0.000546	0.001444	-0.000131
0.068571	-0.002547	-0.061981	0.000661	0.001481	-0.00013
0.068237	-0.00202	-0.061196	0.000606	0.001487	-0.000129
0.068157	-0.002943	-0.061615	0.000578	0.001467	-0.000106
0.068179	-0.002526	-0.062694	0.000564	0.001447	-0.000155
0.068455	-0.002849	-0.061922	0.000587	0.001454	-0.000119
0.068611	-0.002597	-0.063544	0.000577	0.001453	-0.000135
0.068763	-0.002984	-0.061263	0.00056	0.001517	-0.000121
0.068369	-0.002775	-0.064336	0.000647	0.001432	-0.000122
0.06765	-0.003323	-0.058307	0.00055	0.001422	-0.000114

0.068085	-0.002374	-0.05873	0.00052	0.001459	-0.000126
0.068106	-0.0023	-0.061349	0.000537	0.001458	-0.000108
0.067944	-0.002979	-0.059808	0.000537	0.001427	-0.000136
0.067564	-0.00243	-0.058875	0.000564	0.001415	-0.00014
0.068305	-0.002869	-0.059656	0.000629	0.001538	-0.000154
0.068816	-0.002818	-0.060195	0.000595	0.001473	-0.000129
0.069124	-0.002975	-0.059627	0.000596	0.001506	-0.000144
0.068986	-0.00298	-0.060779	0.000573	0.001515	-0.000134
0.068821	-0.002899	-0.060408	0.000612	0.001533	-0.000108
0.068126	-0.003258	-0.060262	0.00053	0.001425	-0.000112
0.069357	-0.00242	-0.062942	0.000585	0.001523	-0.000101
0.068768	-0.003154	-0.060912	0.00057	0.001484	-9.60E-05
0.068872	-0.002811	-0.059443	0.000602	0.001401	-0.000112
0.069148	-0.003196	-0.060643	0.000577	0.001426	-0.000103
0.069164	-0.003044	-0.061061	0.000631	0.001487	-0.000113
0.068434	-0.003494	-0.060431	0.000568	0.001481	-0.000116
0.068376	-0.00305	-0.059042	0.000528	0.001471	-0.000132
0.06825	-0.003283	-0.05999	0.000544	0.001437	-0.000106
0.068576	-0.002874	-0.062769	0.00063	0.001452	-0.000141
0.068709	-0.003389	-0.061225	0.000556	0.001459	-0.000129
0.069143	-0.003606	-0.059633	0.000565	0.001499	-0.000141
0.0689	-0.002756	-0.063319	0.000532	0.001452	-0.000114
0.068944	-0.002718	-0.062812	0.000561	0.001413	-0.000113
0.068264	-0.003473	-0.0619	0.000581	0.001461	-0.00013
0.068641	-0.00267	-0.060441	0.000596	0.001482	-0.000104
0.068427	-0.002906	-0.063155	0.000675	0.001441	-9.40E-05
0.068323	-0.002668	-0.061431	0.000548	0.001446	-9.30E-05
0.068453	-0.002671	-0.062233	0.000636	0.001501	-9.60E-05
0.068737	-0.002627	-0.060751	0.000633	0.001456	-9.80E-05
0.068416	-0.002479	-0.061409	0.000661	0.001529	-0.000111
0.069076	-0.002363	-0.063729	0.000633	0.001511	-0.000123
0.069005	-0.002883	-0.060266	0.000534	0.001431	-0.000114
0.068871	-0.003016	-0.060852	0.000683	0.001478	-0.000119
0.068773	-0.002285	-0.060876	0.000611	0.001496	-0.000129
0.068257	-0.002728	-0.061852	0.000586	0.001452	-0.000133
0.068083	-0.003224	-0.061881	0.000605	0.001436	-0.000121
0.068222	-0.002422	-0.061514	0.00058	0.001451	-0.000117
0.068116	-0.00282	-0.059675	0.000619	0.001477	-0.000101
0.068814	-0.003161	-0.060501	0.000631	0.001495	-0.000105
0.069043	-0.002947	-0.0629	0.000674	0.001522	-0.000107
0.069037	-0.003362	-0.060747	0.000617	0.001496	-0.000125
0.069312	-0.002755	-0.061927	0.000665	0.001511	-0.000118
0.06869	-0.003203	-0.060868	0.000652	0.00151	-0.000159
0.06866	-0.003457	-0.059038	0.000585	0.001476	-9.20E-05
0.068733	-0.003255	-0.061372	0.000587	0.001488	-0.000125
0.068816	-0.003498	-0.061066	0.000567	0.001514	-0.000139

0.069755	-0.003048	-0.062481	0.000656	0.001494	-0.000134
0.068617	-0.003368	-0.061922	0.000583	0.001447	-0.000111
0.0688	-0.002857	-0.061073	0.000575	0.001474	-0.000122
0.068974	-0.003248	-0.060162	0.000541	0.001476	-0.000119
0.068943	-0.002897	-0.060551	0.000621	0.001451	-0.000143
0.069099	-0.00308	-0.060212	0.000602	0.001467	-0.000139
0.068856	-0.002846	-0.062307	0.000624	0.00154	-0.000104
0.068723	-0.003208	-0.062751	0.000652	0.001528	-0.000113
0.068613	-0.00307	-0.062201	0.000563	0.001441	-8.90E-05
0.068648	-0.002933	-0.059836	0.000618	0.001481	-0.000112
0.069616	-0.002802	-0.060158	0.000623	0.001432	-0.000138
0.068424	-0.003189	-0.060145	0.000594	0.001477	-0.000122
0.068927	-0.00276	-0.062337	0.000639	0.001494	-0.000137
0.068479	-0.002793	-0.060821	0.00059	0.001471	-9.40E-05
0.068542	-0.00295	-0.062941	0.000623	0.001451	-0.000123
0.068296	-0.002714	-0.05888	0.000608	0.001521	-0.000101
0.068445	-0.003322	-0.061613	0.000608	0.001495	-0.0001
0.068702	-0.003129	-0.060685	0.000561	0.001454	-0.000125
0.06868	-0.002951	-0.058005	0.000544	0.001498	-0.000115
0.068854	-0.003604	-0.058393	0.000543	0.001487	-9.60E-05
0.067897	-0.002552	-0.061462	0.000643	0.001486	-0.000119
0.068068	-0.003297	-0.060598	0.000611	0.001464	-8.60E-05
0.068252	-0.002471	-0.058954	0.000584	0.001398	-8.90E-05
0.068461	-0.003809	-0.061919	0.000609	0.001482	-9.10E-05
0.068515	-0.002849	-0.060564	0.000569	0.001439	-9.60E-05
0.068556	-0.002594	-0.059909	0.000598	0.001476	-0.000127
0.068138	-0.003014	-0.058294	0.000532	0.001503	-0.00012
0.067981	-0.00332	-0.06022	0.000592	0.001445	-0.000135
0.068209	-0.003262	-0.059419	0.000596	0.001521	-9.80E-05
0.068442	-0.003478	-0.059381	0.000557	0.001455	-0.000112
0.068368	-0.002891	-0.059752	0.000611	0.001443	-0.000106
0.067947	-0.003708	-0.057453	0.000558	0.001463	-0.000114
0.067238	-0.003175	-0.058891	0.000533	0.00144	-9.40E-05
0.067691	-0.003914	-0.060918	0.000594	0.001388	-0.000124
0.068313	-0.003585	-0.059014	0.000608	0.001511	-0.000126
0.068554	-0.004066	-0.057612	0.00056	0.00151	-0.000112
0.068394	-0.003795	-0.058254	0.000621	0.001477	-0.000124
0.068249	-0.003634	-0.060338	0.000594	0.001461	-0.000106
0.06842	-0.003417	-0.060143	0.00064	0.001471	-0.000117
0.068601	-0.003845	-0.060374	0.000584	0.001492	-0.000109
0.069183	-0.003502	-0.06143	0.000589	0.001397	-0.000109
0.068626	-0.003999	-0.059562	0.000607	0.00139	-0.000127
0.069819	-0.004064	-0.057513	0.000574	0.001522	-0.000152
0.068627	-0.003977	-0.059944	0.000579	0.001452	-0.000131
0.069502	-0.004277	-0.061191	0.000555	0.001459	-0.000104
0.068304	-0.003873	-0.05666	0.000596	0.001479	-0.000123

0.068925	-0.003962	-0.057132	0.000566	0.001492	-0.000118
0.069344	-0.00395	-0.060394	0.000647	0.001505	-0.00012
0.069834	-0.004489	-0.0607	0.000575	0.001507	-0.00011
0.069108	-0.004373	-0.060076	0.000593	0.001447	-8.50E-05
0.068952	-0.00387	-0.059068	0.000629	0.001416	-0.000113
0.069073	-0.004092	-0.057272	0.000587	0.001495	-0.000122
0.069053	-0.003963	-0.059424	0.000581	0.001493	-0.000124
0.068618	-0.003719	-0.057642	0.000471	0.00143	-8.40E-05
0.068753	-0.00365	-0.05847	0.000523	0.001476	-0.00011
0.069681	-0.003868	-0.056601	0.000592	0.001448	-0.000134
0.069876	-0.003805	-0.058562	0.000518	0.001455	-0.00012
0.069127	-0.00399	-0.059048	0.000551	0.001428	-0.000125
0.06828	-0.003644	-0.057182	0.000554	0.001466	-0.000134
0.069077	-0.003436	-0.057802	0.000585	0.001451	-9.50E-05

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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
0.088903	-0.008317	1.423203	0.003722	1.50E-05	0.000387
0.092254	-0.002814	-0.08154	0.001083	0.002087	-0.000269
0.091433	-0.003911	-0.083839	0.001031	0.002071	-0.000223
0.092047	-0.002646	-0.085474	0.001063	0.00209	-0.000232
0.09141	-0.003207	-0.078663	0.000996	0.002058	-0.000268
0.092196	-0.003655	-0.083972	0.00101	0.002118	-0.000244
0.092037	-0.003727	-0.083386	0.001054	0.002054	-0.000244
0.091555	-0.002773	-0.083216	0.00101	0.002012	-0.00024
0.091364	-0.003075	-0.081488	0.001035	0.002058	-0.000236
0.091924	-0.004071	-0.08176	0.000996	0.00201	-0.000264
0.091872	-0.003522	-0.082669	0.000979	0.002024	-0.000263
0.091579	-0.003721	-0.083072	0.001054	0.002098	-0.000278
0.091959	-0.003797	-0.084383	0.000994	0.002079	-0.000254
0.09155	-0.003222	-0.082834	0.000988	0.002046	-0.000241
0.091153	-0.003862	-0.083774	0.001019	0.002088	-0.000237
0.092258	-0.003302	-0.083294	0.001005	0.002104	-0.000264
0.092503	-0.003609	-0.084056	0.001004	0.00203	-0.000268
0.091598	-0.004175	-0.083317	0.001015	0.002073	-0.000254
0.092754	-0.003774	-0.085716	0.00101	0.002085	-0.000254
0.092414	-0.003897	-0.085432	0.00102	0.002107	-0.000243
0.092345	-0.004552	-0.084439	0.00101	0.002044	-0.000258
0.093385	-0.003735	-0.083886	0.000988	0.002097	-0.00028
0.092916	-0.004127	-0.087316	0.0011	0.002128	-0.000274
0.092328	-0.00376	-0.085413	0.001027	0.002063	-0.000261
0.092499	-0.004454	-0.086174	0.001012	0.002116	-0.000268
0.092711	-0.003514	-0.085492	0.000991	0.002077	-0.000247
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0.092759	-0.003919	-0.083831	0.001043	0.002137	-2.75E-04
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0.092255	-0.003911	-0.085597	0.001007	0.002089	-0.000248
0.092245	-0.003861	-0.081672	0.000983	0.002098	-0.000237
0.092557	-0.004611	-0.085292	0.00106	0.002106	-0.00026
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0.091984	-0.004143	-0.084539	0.000999	0.002029	-0.000214
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0.092003	-0.003088	-0.083759	0.000985	0.00203	-0.000236
0.092357	-0.003749	-0.086153	0.001086	0.002094	-0.000251
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0.092218	-0.004404	-0.084592	0.001005	0.002097	-0.000249
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0.092007	-0.002904	-0.085539	0.001015	0.002035	-0.000247
0.092164	-0.004003	-0.083612	0.001049	0.002068	-0.000218
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0.092237	-0.004229	-0.082465	0.001049	0.002148	-0.000236
0.092159	-0.004727	-0.087924	0.001083	0.002126	-0.000217
0.092471	-0.003857	-0.083366	0.000992	0.002117	-0.000238
0.092386	-0.003796	-0.084645	0.001024	0.00207	-0.000244
0.092613	-0.003916	-0.085871	0.000988	0.002126	-2.49E-04
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0.092266	-0.003176	-0.084685	0.000986	0.00206	-0.000226
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0.092178	-0.003865	-0.084318	0.001028	0.002116	-0.000252
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0.0921	-0.004306	-0.084482	0.001052	0.002118	-0.000252
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0.091369	-0.004361	-0.082547	0.000983	0.00203	-2.49E-04
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0.091569	-0.004099	-0.083808	0.000989	0.002006	-0.000228
0.090737	-0.003962	-0.085179	0.001139	0.002115	-0.000244
0.091727	-0.00409	-0.085125	0.001064	0.002082	-0.000237
0.092102	-0.003561	-0.086855	0.001053	0.002065	-0.000261
0.092252	-0.004275	-0.085926	0.00103	0.002128	-0.000238
0.092228	-0.004302	-0.08226	0.000989	0.002079	-2.49E-04
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0.091443	-0.004481	-0.084812	0.001042	0.002063	-0.000237
0.092387	-0.004464	-0.084199	0.00104	0.002131	-0.000283
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0.091826	-0.004344	-0.084733	0.00107	0.002128	-0.000264
0.093016	-0.004083	-0.084863	0.00101	0.002087	-2.47E-04
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0.09269	-0.003653	-0.085793	0.001039	0.002059	-0.000217
0.092985	-0.003971	-0.08695	0.001091	0.002017	-2.34E-04
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0.092944	-0.004416	-0.087666	0.001021	0.002067	-0.000248
0.092918	-0.004122	-0.087179	0.001037	0.002104	-2.60E-04
0.092328	-0.004376	-0.085359	0.001038	0.002058	-0.000262
0.091677	-0.004491	-0.08278	0.001008	0.002106	-0.000253
0.092318	-0.004321	-0.084956	0.001003	0.002091	-0.000244
0.09199	-0.004076	-0.085438	0.001025	0.002071	-2.48E-04
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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
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0.002683	-0.000932	0.018998	5.90E-05	6.00E-05	-6.00E-06
0.002915	-0.000225	0.012477	6.80E-05	7.40E-05	1.20E-05
0.002751	-0.000689	0.011751	3.60E-05	-1.30E-05	1.50E-05
0.002847	-0.000405	0.011857	2.60E-05	4.90E-05	2.50E-05
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0.003244	-0.000152	0.0091	5.20E-05	0.000133	1.70E-05
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0.003388	-0.000538	0.012385	8.20E-05	0.000108	-1.60E-05
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0.002675	-0.000789	0.008031	0.000129	0.000134	-8.00E-06
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0.003236	-0.00018	0.00827	0.000146	0.000191	2.50E-05
0.002681	-0.000736	0.008315	0.000177	4.80E-05	1.40E-05
0.003199	-5.60E-05	0.007719	0.000144	0.000106	1.10E-05
0.00257	6.90E-05	0.008101	0.000149	0.000148	-1.20E-05
0.003055	0.000331	0.008543	0.000186	0.000177	6.00E-06
0.002838	-0.000421	0.006563	0.0002	0.000135	2.90E-05
0.002637	-1.10E-05	0.007261	0.000203	0.000107	-2.00E-06
0.003029	-0.000602	0.010304	0.000146	0.000106	7.00E-06
0.003329	-0.000664	0.007693	0.000154	0.000161	8.00E-06
0.003303	-0.000936	0.00847	0.000113	0.00013	2.60E-05
0.003069	-0.000105	0.010718	6.50E-05	0.000118	2.50E-05
0.003089	-0.000604	0.010098	0.000148	9.40E-05	1.50E-05
0.002688	-0.000738	0.009245	0.000153	0.000114	1.00E-06
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0.003349	-0.000454	0.011648	0.000152	0.000165	3.50E-05
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0.003141	-0.000697	0.00621	9.40E-05	0.000124	1.00E-05
0.002844	-0.000707	0.010387	7.60E-05	9.40E-05	1.80E-05
0.002646	-0.000693	0.007195	0.00013	0.000178	-8.00E-06
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0.002561	-0.000751	0.00985	0.000108	8.90E-05	1.00E-06
0.002917	-0.000738	0.010177	0.00011	9.30E-05	-1.10E-05
0.002811	-0.000402	0.009422	0.000146	0.000107	-1.20E-05
0.002577	-0.000741	0.010273	8.80E-05	4.70E-05	-1.20E-05
0.002453	-0.000813	0.007927	0.000139	2.60E-05	-1.20E-05
0.003301	-0.000559	0.009152	0.000143	0.00015	-2.30E-05
0.002757	-0.000657	0.009447	0.000153	7.40E-05	-2.60E-05
0.002547	-0.000164	0.010823	0.000133	0.000135	-6.00E-06
0.002764	-0.000924	0.009737	0.000161	0.000188	-1.20E-05
0.003519	-0.000436	0.011112	0.000121	0.000142	-4.00E-06
0.002598	-0.000252	0.011096	9.30E-05	5.50E-05	2.30E-05
0.002719	-0.000439	0.007577	0.000166	0.000154	7.00E-06
0.002985	-0.000789	0.007978	0.000195	0.000113	-3.00E-06
0.00294	-0.00102	0.01036	0.000128	0.000145	-1.80E-05
0.002854	-0.001203	0.013596	5.90E-05	5.50E-05	-1.50E-05
0.002784	0.000155	0.009098	0.000178	0.000136	-1.40E-05
0.002652	-0.000319	0.010804	0.000149	0.0001	-1.40E-05
0.003419	-0.001186	0.007303	0.000155	9.10E-05	4.00E-06
0.002541	-0.000777	0.009617	0.000156	0.000131	-9.00E-06
0.002949	-0.00071	0.009362	0.000127	4.90E-05	-1.00E-06
0.003291	-0.00072	0.008693	0.000129	0.000102	3.00E-06
0.003083	-0.000597	0.009597	0.000128	0.00011	7.00E-06
0.003007	-0.001043	0.009381	0.000134	8.50E-05	-1.30E-05
0.00242	-0.000987	0.008876	0.000167	0.000107	-5.00E-06
0.00297	-0.001002	0.008332	6.90E-05	0.000147	-2.00E-06
0.002647	-0.000914	0.010572	6.20E-05	0.000119	1.80E-05
0.00277	-0.00072	0.011677	0.000136	0.000167	3.00E-06
0.002779	-0.001162	0.010482	8.80E-05	0.000143	-1.80E-05
0.003033	-0.000609	0.010379	0.000103	0.000105	2.70E-05
0.003621	-0.000406	0.007464	7.80E-05	8.40E-05	1.30E-05
0.003187	-0.001192	0.007449	0.000189	0.000218	-1.10E-05
0.003231	-0.000116	0.010808	9.10E-05	8.90E-05	6.00E-06
0.002758	-0.000592	0.01279	7.80E-05	5.10E-05	1.80E-05
0.002668	-0.000497	0.006777	0.000143	0.000117	9.00E-06
0.00307	-0.000623	0.010225	7.00E-05	0.000116	1.30E-05
0.002903	-0.000659	0.009463	0.00017	0.000113	0
0.00277	-0.000847	0.00963	0.000113	0.000114	2.00E-06
0.002567	-0.00033	0.011168	0.000101	0.000142	2.50E-05
0.003374	-0.000244	0.011795	8.90E-05	1.50E-05	-7.00E-06
0.002972	-0.000607	0.011273	8.30E-05	0.000122	-7.00E-06

0.002924	-0.001099	0.0116	6.00E-06	0.000102	1.00E-06
0.002819	-0.000582	0.009795	9.10E-05	7.90E-05	1.10E-05
0.002375	-9.50E-05	0.010871	0.000152	0.000109	8.00E-06
0.003032	0.000429	0.011841	0.000102	9.50E-05	3.00E-06
0.00265	-0.000613	0.009603	0.000161	0.000131	8.00E-06
0.003794	-0.001085	0.00877	4.50E-05	8.40E-05	2.30E-05
0.002974	0.000112	0.008011	0.00013	0.000109	9.00E-06
0.003031	-0.000417	0.007755	0.000145	0.000114	1.80E-05
0.002481	4.90E-05	0.010639	9.80E-05	8.30E-05	8.00E-06
0.003287	-7.70E-05	0.008312	0.000182	0.000108	-1.80E-05
0.002999	-0.001134	0.006664	0.000126	4.60E-05	3.20E-05
0.003227	-0.00119	0.008545	0.000127	8.10E-05	1.00E-05
0.003065	-0.000763	0.008617	0.000128	3.30E-05	-2.00E-06
0.003077	-0.000401	0.010206	0.000129	6.50E-05	9.00E-06
0.002897	-0.000652	0.012339	7.10E-05	9.10E-05	2.50E-05
0.002972	-0.000742	0.00962	5.60E-05	0.000114	2.20E-05
0.002837	-9.80E-05	0.010541	0.000129	9.40E-05	1.90E-05
0.003066	-0.000443	0.011141	0.000104	8.80E-05	-9.00E-06
0.002463	-0.001175	0.011808	9.00E-05	7.90E-05	-2.50E-05
0.003205	8.50E-05	0.010339	0.000122	0.000122	4.00E-06
0.002451	-0.000953	0.011936	7.90E-05	0.000147	1.60E-05
0.003048	-0.001253	0.011674	0.000108	0.000123	-1.20E-05
0.002971	-0.000631	0.010675	0.000123	0.000146	0
0.003011	-0.000612	0.013158	0.000103	0.000149	-2.10E-05
0.003458	-0.001072	0.011365	4.30E-05	8.60E-05	2.50E-05
0.00283	-0.0004	0.010392	0.000123	7.10E-05	-8.00E-06
0.003021	-0.000567	0.010689	0.000102	0.000181	-1.30E-05
0.003437	-0.001548	0.010131	7.90E-05	8.50E-05	3.20E-05
0.003348	-0.000799	0.009163	8.70E-05	0.000124	1.30E-05
0.003388	-0.000373	0.007747	0.000136	0.000104	2.40E-05
0.003299	-0.000712	0.009244	0.000145	8.80E-05	-7.00E-06
0.003571	-0.001071	0.009944	7.80E-05	0.000143	1.70E-05
0.003655	-0.001115	0.009143	0.00011	9.40E-05	1.50E-05
0.003037	-0.001556	0.009949	0.000103	0.000109	2.00E-06
0.003176	-0.001201	0.010213	0.000114	0.000118	1.20E-05
0.003415	-0.00058	0.010431	0.000107	0.000107	-1.00E-06
0.003378	-0.001174	0.011973	9.10E-05	5.70E-05	8.00E-06
0.003311	-0.000455	0.008825	0.0001	9.40E-05	2.60E-05
0.0035	-0.000534	0.010823	9.70E-05	0.000101	2.10E-05
0.003419	-0.001156	0.009945	8.80E-05	9.90E-05	-6.00E-06
0.003685	-0.001177	0.012125	0.00012	0.000135	1.90E-05
0.00331	-0.000838	0.009427	0.000126	0.000154	1.00E-06
0.004088	-0.001246	0.008076	0.00013	0.000119	3.40E-05
0.0032	-0.001607	0.009978	0.000134	8.20E-05	-4.00E-06
0.003334	-0.001604	0.010843	5.00E-05	7.80E-05	3.70E-05
0.003595	-0.000836	0.007826	8.00E-05	1.30E-05	-1.80E-05

0.003847	-0.000821	0.009715	0.000134	0.000159	6.00E-06
0.003905	-0.001206	0.01022	0.000111	0.000115	1.00E-06
0.003267	-0.001172	0.006994	0.000138	0.000142	-2.10E-05
0.003473	-0.000771	0.010148	0.000119	0.000131	2.40E-05
0.002905	-0.001167	0.011539	0.000117	0.00011	3.10E-05
0.003703	-0.000786	0.009563	0.000131	0.000135	2.50E-05
0.003498	-0.000928	0.010513	0.000144	6.40E-05	2.60E-05
0.003904	-0.001403	0.010124	0.000103	0.000157	1.30E-05
0.003239	-0.001164	0.006586	8.90E-05	0.000124	-4.00E-06
0.00395	-0.000889	0.011886	0.000146	8.30E-05	1.00E-06
0.003661	-0.001216	0.00866	0.000107	0.000175	1.60E-05
0.003534	-0.001254	0.009677	0.000107	0.000139	-1.70E-05
0.003257	-0.001057	0.009211	0.000168	0.000132	-1.40E-05
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0.014488	-0.003883	0.011507	5.00E-06	0.000297	4.20E-05
0.014505	-0.003958	0.009719	2.60E-05	0.000273	4.10E-05
0.014256	-0.004522	0.01233	0	0.000219	1.80E-05
0.013993	-0.004248	0.006024	-1.00E-05	0.000287	2.40E-05
0.014088	-0.004745	0.008073	1.20E-05	0.000223	2.20E-05
0.014005	-0.003886	0.005721	5.20E-05	0.000195	2.00E-05
0.014265	-0.004558	0.006049	5.90E-05	0.000254	4.00E-06
0.01416	-0.004832	0.009963	0	0.00023	3.30E-05
0.014516	-0.004421	0.009396	8.00E-06	0.000277	2.90E-05
0.014534	-0.004465	0.007036	8.00E-05	0.00034	3.60E-05
0.013986	-0.004656	0.005978	8.90E-05	0.000267	2.80E-05
0.014452	-0.004295	0.006024	3.70E-05	0.000289	4.50E-05
0.014234	-0.00479	0.007739	0.000139	0.000264	2.70E-05
0.013761	-0.005195	0.008632	-7.00E-06	0.000293	2.30E-05
0.013331	-0.004682	0.008629	5.50E-05	0.000322	2.20E-05
0.01386	-0.004135	0.005525	5.00E-05	0.000239	2.70E-05
0.013987	-0.004217	0.007497	7.90E-05	0.000287	2.90E-05
0.013653	-0.004778	0.008326	8.40E-05	0.00021	2.60E-05
0.013799	-0.004752	0.006273	3.40E-05	0.00024	3.70E-05
0.013319	-0.00429	0.009504	4.30E-05	0.000286	3.40E-05
0.014001	-0.004086	0.005771	-6.00E-06	0.000264	3.70E-05
0.013531	-0.003925	0.008122	3.40E-05	0.000271	3.10E-05
0.01372	-0.004824	0.007406	2.70E-05	0.000227	5.70E-05
0.01384	-0.00473	0.009172	8.70E-05	0.000245	6.40E-05
0.013778	-0.004663	0.007301	3.10E-05	0.000217	7.20E-05
0.013572	-0.003995	0.006268	6.30E-05	0.000319	5.60E-05
0.013626	-0.004215	0.007039	8.90E-05	0.000322	5.80E-05
0.013491	-0.004492	0.006892	0.000111	0.000284	5.50E-05
0.013894	-0.003859	0.00639	0.00011	0.000225	4.60E-05
0.013457	-0.003794	0.00433	8.20E-05	0.00025	3.20E-05
0.013284	-0.00359	0.00297	7.20E-05	0.000279	5.70E-05
0.013841	-0.004343	0.004971	7.50E-05	0.000265	6.50E-05
0.013751	-0.004307	0.002518	0.000121	0.000346	6.20E-05
0.013388	-0.004094	0.005707	5.70E-05	0.000298	4.30E-05
0.014085	-0.004034	0.005294	7.80E-05	0.000282	3.60E-05
0.013496	-0.004141	0.007883	7.10E-05	0.00025	6.10E-05
0.013382	-0.003689	0.004587	8.90E-05	0.000323	4.20E-05
0.012971	-0.004331	0.004454	7.40E-05	0.000272	4.10E-05
0.013488	-0.004153	0.001921	0.000108	0.000258	5.60E-05
0.014167	-0.00379	0.003125	4.90E-05	0.000311	4.40E-05
0.013972	-0.003578	0.006073	9.20E-05	0.000286	2.30E-05
0.013589	-0.003532	0.006897	8.80E-05	0.000269	4.10E-05
0.013617	-0.004296	0.006521	0.000103	0.000347	4.30E-05
0.01352	-0.004511	0.004867	9.80E-05	0.000334	3.90E-05

0.013495	-0.004318	0.003841	0.000162	0.000324	4.10E-05
0.013771	-0.003989	0.002264	0.000117	0.000331	5.50E-05
0.013779	-0.004141	0.003878	9.90E-05	0.000265	7.80E-05
0.013525	-0.004089	0.005261	9.70E-05	0.000257	4.60E-05
0.01366	-0.004168	0.006806	0.000137	0.000319	4.00E-05
0.013541	-0.003812	0.005102	0.000159	0.000328	5.30E-05
0.012902	-0.004203	0.0049	0.00015	0.000325	6.70E-05
0.01335	-0.004083	0.002946	0.000168	0.00028	6.20E-05
0.013529	-0.003805	0.00275	0.000179	0.000312	6.10E-05
0.013384	-0.004077	0.004685	0.000135	0.000309	6.70E-05
0.01378	-0.003452	0.00223	0.00017	0.000362	6.30E-05
0.013343	-0.003752	0.003052	0.000157	0.000349	4.20E-05
0.014062	-0.004088	0.001496	0.000246	0.000326	3.80E-05
0.014129	-0.004859	0.003321	0.000137	0.000281	6.20E-05
0.013343	-0.004223	0.002865	0.000193	0.000333	6.50E-05
0.013573	-0.004127	0.002328	0.000228	0.000421	5.60E-05
0.013493	-0.004382	0.001394	0.000167	0.00033	6.40E-05
0.013955	-0.004076	0.002056	0.00017	0.000323	7.10E-05
0.013773	-0.004146	0.004738	0.000125	0.000336	7.10E-05
0.013089	-0.004851	0.004188	0.0002	0.000299	5.90E-05
0.013578	-0.003554	0.001591	0.000163	0.00029	6.50E-05
0.013805	-0.004226	0.006739	0.00014	0.000347	4.00E-05
0.014094	-0.004309	0.003988	0.000213	0.000356	3.00E-05
0.013594	-0.004286	0.000258	0.000192	0.000289	5.50E-05
0.013625	-0.004636	0.003002	0.0002	0.000378	2.40E-05
0.014002	-0.004704	0.004729	0.000134	0.000315	3.70E-05
0.013821	-0.004078	0.000236	0.000205	0.000393	3.40E-05
0.014231	-0.003945	0.000847	0.000179	0.000379	5.20E-05
0.014194	-0.0043	0.001829	0.000209	0.000336	2.60E-05
0.014189	-0.004924	0.002589	0.000153	0.000287	2.70E-05
0.013822	-0.004757	0.002914	0.000168	0.000323	5.30E-05
0.01368	-0.003908	-0.000601	0.000165	0.000316	5.30E-05
0.014022	-0.004753	0.001951	0.000147	0.000339	6.60E-05
0.013878	-0.004531	0.002462	0.000211	0.000353	3.70E-05
0.013945	-0.004862	0.003482	0.000185	0.000359	3.80E-05
0.014081	-0.004401	0.001405	0.000196	0.000332	4.90E-05
0.013618	-0.004372	0.003109	0.000198	0.000349	2.40E-05
0.014178	-0.003798	0.000505	0.00018	0.000349	7.00E-05
0.013906	-0.004349	-0.00177	0.000199	0.000345	4.60E-05
0.013871	-0.005072	0.001661	0.000261	0.000381	5.40E-05
0.013764	-0.004432	0.001022	0.000202	0.000383	5.80E-05
0.014089	-0.004478	0.003044	0.000173	0.000374	7.30E-05
0.013872	-0.003896	0.000564	0.00023	0.000381	5.60E-05
0.013859	-0.004502	0.002203	0.000277	0.000307	6.60E-05
0.0142	-0.004299	0.002727	0.000197	0.000418	3.50E-05
0.014637	-0.00348	-0.000454	0.000245	0.000388	7.80E-05

0.013831	-0.004518	0.005028	0.000215	0.000429	5.00E-05
0.01401	-0.004273	0.001202	0.000309	0.000363	5.60E-05
0.013946	-0.004537	0.000952	0.000232	0.000398	5.00E-05
0.013848	-0.004298	6.10E-05	0.000297	0.000366	7.30E-05
0.013879	-0.004817	0.00361	0.000167	0.00032	5.70E-05
0.013201	-0.004387	-0.000639	0.000241	0.000289	7.20E-05
0.01355	-0.004695	0.00039	0.000221	0.000369	6.40E-05
0.013649	-0.004426	0.001236	0.000221	0.000352	5.90E-05
0.013494	-0.00476	0.002546	0.000236	0.000437	6.20E-05
0.013521	-0.004662	-0.000916	0.000239	0.00039	8.10E-05
0.012894	-0.0043	-0.000686	0.000281	0.000408	8.40E-05
0.01377	-0.00444	0.00062	0.000259	0.000373	7.10E-05
0.013287	-0.005199	0.002827	0.000196	0.000395	6.60E-05
0.013522	-0.00505	0.001738	0.000264	0.000424	6.80E-05
0.013496	-0.004788	0.00386	0.000232	0.000382	6.30E-05
0.013901	-0.004857	0.000399	0.000255	0.000365	5.50E-05
0.013588	-0.005206	0.00114	0.000247	0.000465	5.80E-05
0.013663	-0.004849	0.001172	0.000261	0.000456	5.20E-05
0.013693	-0.004798	0.001144	0.000268	0.000369	6.20E-05
0.014115	-0.004866	-0.000144	0.000275	0.000412	8.50E-05
0.013917	-0.004282	0.000859	0.000257	0.000395	4.20E-05
0.013747	-0.005183	1.20E-05	0.000291	0.000419	5.00E-05
0.013614	-0.0049	-0.001278	0.000256	0.000368	7.60E-05
0.013259	-0.005524	-0.00026	0.000248	0.000363	5.30E-05
0.013674	-0.005502	0.000839	0.000251	0.000445	7.90E-05
0.013651	-0.005605	0.00038	0.000252	0.000351	4.70E-05
0.013584	-0.004715	0.000189	0.000271	0.000356	6.30E-05
0.012833	-0.005299	-0.002262	0.000281	0.00043	6.40E-05
0.013429	-0.005682	-0.000909	0.000273	0.000405	5.50E-05
0.013059	-0.00559	-0.000386	0.000276	0.000429	5.40E-05
0.013115	-0.005688	-0.00401	0.000354	0.000419	7.90E-05
0.013506	-0.004918	-0.002524	0.000302	0.000361	8.80E-05
0.013174	-0.005909	-0.001372	0.000337	0.000412	8.20E-05
0.013469	-0.005683	-0.001886	0.000333	0.000459	6.90E-05
0.012745	-0.005759	-0.00153	0.000267	0.000396	6.90E-05
0.013124	-0.005802	-0.002274	0.000307	0.000469	6.20E-05
0.013256	-0.005981	-0.003538	0.000318	0.000448	8.10E-05
0.012239	-0.005584	-0.002272	0.000375	0.000431	8.00E-05
0.012653	-0.005794	-0.000936	0.000241	0.000438	8.30E-05
0.012873	-0.005889	-0.00309	0.000353	0.000418	5.90E-05
0.012655	-0.005683	-0.001247	0.000277	0.000452	5.00E-05
0.01272	-0.00568	-0.003114	0.000297	0.000422	8.40E-05
0.012832	-0.00581	-0.003715	0.0004	0.0005	8.70E-05
0.012676	-0.005248	-0.002127	0.000297	0.000407	7.10E-05
0.012696	-0.006124	-0.003912	0.000342	0.000412	7.10E-05
0.012699	-0.00604	-0.001949	0.000317	0.000458	5.80E-05

0.012046	-0.005282	-0.002451	0.000242	0.000363	7.50E-05
0.012413	-0.005259	-0.004412	0.000312	0.000472	6.50E-05
0.01286	-0.005633	-0.001861	0.000326	0.000427	5.90E-05
0.012374	-0.006225	-0.003839	0.000361	0.000408	5.40E-05
0.01227	-0.006084	-0.001013	0.000303	0.000458	5.50E-05
0.012782	-0.006178	-0.001597	0.000281	0.000456	6.40E-05
0.012743	-0.005607	-0.003933	0.000371	0.000424	7.60E-05
0.012744	-0.006029	-0.002285	0.000347	0.000435	7.40E-05
0.013106	-0.006211	0.000999	0.000319	0.000392	4.50E-05
0.012554	-0.006001	-0.003669	0.000328	0.00041	6.20E-05
0.013296	-0.006444	0.000413	0.00025	0.000458	4.80E-05
0.013552	-0.006252	-0.003785	0.000237	0.000422	7.10E-05
0.013183	-0.006387	-0.002449	0.000273	0.000413	6.90E-05
0.01307	-0.006516	-0.003922	0.000312	0.000452	5.10E-05

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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
0.026131	-0.012314	1.479681	0.00343	-0.001322	0.000673
0.030295	-0.006083	-0.023639	0.000805	0.000935	6.40E-05
0.030222	-0.00675	-0.022571	0.000754	0.000932	8.70E-05
0.030662	-0.007409	-0.027445	0.000808	0.000931	8.10E-05
0.030897	-0.00625	-0.027344	0.000738	0.001021	7.70E-05
0.030774	-0.007492	-0.026452	0.00073	0.000935	7.00E-05
0.032545	-0.006784	-0.027293	0.000756	0.000968	5.60E-05
0.031531	-0.006182	-0.02653	0.000827	0.000947	5.70E-05
0.03171	-0.007045	-0.029777	0.000794	0.001012	5.90E-05
0.031398	-0.006374	-0.028617	0.000771	0.000972	4.90E-05
0.031978	-0.006927	-0.028715	0.000795	0.001041	7.80E-05
0.03179	-0.006583	-0.026502	0.000719	0.00092	7.00E-05
0.032607	-0.007054	-0.029588	0.000775	0.000984	8.40E-05
0.032483	-0.007036	-0.0282	0.000776	0.001036	6.20E-05
0.032554	-0.006478	-0.029787	0.000733	0.00102	5.60E-05
0.033347	-0.007135	-0.028752	0.000787	0.001034	4.80E-05
0.033016	-0.006655	-0.027534	0.000832	0.000984	4.10E-05
0.03381	-0.007499	-0.028344	0.000781	0.001024	6.20E-05
0.033629	-0.006937	-0.030411	0.000822	0.001023	3.50E-05
0.033777	-0.006799	-0.030314	0.000801	0.001076	7.80E-05
0.033872	-0.007336	-0.029715	0.000817	0.001045	5.80E-05
0.034154	-0.006973	-0.031182	0.00076	0.000995	4.60E-05
0.033727	-0.007057	-0.031981	0.000816	0.001043	7.40E-05
0.03377	-0.00686	-0.030753	0.000815	0.001032	8.50E-05
0.034204	-0.006533	-0.032032	0.000841	0.001016	6.60E-05
0.033558	-0.007869	-0.031777	0.000801	0.001065	6.80E-05
0.034328	-0.006353	-0.030088	0.000812	0.001005	7.00E-05
0.034481	-0.007547	-0.032419	0.000826	0.001058	7.60E-05
0.034114	-0.007259	-0.031499	0.000814	0.000995	7.00E-05
0.033746	-0.00684	-0.0335	0.000801	0.001012	8.10E-05
0.033621	-0.00722	-0.03268	0.000824	0.001108	8.20E-05
0.034571	-0.006367	-0.029539	0.000742	0.001059	0.000104
0.034419	-0.006727	-0.033506	0.000848	0.00112	9.30E-05
0.03469	-0.006909	-0.032265	0.000791	0.001069	7.60E-05
0.034188	-0.006661	-0.029833	0.000738	0.001048	9.40E-05
0.034369	-0.007138	-0.033064	0.000843	0.001004	7.70E-05
0.035509	-0.006998	-0.032749	0.000834	0.001033	9.60E-05
0.034367	-0.007099	-0.032206	0.000797	0.001068	8.30E-05
0.034854	-0.007037	-0.03508	0.000844	0.001092	6.10E-05
0.034603	-0.006646	-0.033959	0.000826	0.001091	8.80E-05
0.034874	-0.007388	-0.033533	0.000827	0.00107	7.70E-05
0.035059	-0.00702	-0.035107	0.000832	0.001062	8.00E-05
0.034795	-0.00686	-0.034447	0.000854	0.001033	0.000105
0.034666	-0.007256	-0.033097	0.000764	0.001017	6.90E-05
0.035077	-0.007047	-0.03252	0.000836	0.001052	7.90E-05

0.03444	-0.007631	-0.030085	0.00085	0.001007	7.80E-05
0.034811	-0.007135	-0.033902	0.000871	0.001072	8.50E-05
0.034722	-0.00662	-0.036347	0.000845	0.001106	0.0001
0.034932	-0.006291	-0.034924	0.000824	0.001117	0.000122
0.035277	-0.007322	-0.037686	0.000899	0.001142	8.60E-05
0.034585	-0.007547	-0.032466	0.000818	0.001077	9.70E-05
0.035151	-0.007279	-0.03532	0.000889	0.001085	9.40E-05
0.034744	-0.007045	-0.036564	0.000855	0.001074	8.00E-05
0.034682	-0.00693	-0.033952	0.000889	0.001101	9.90E-05
0.034169	-0.007394	-0.033308	0.000888	0.00114	8.40E-05
0.034946	-0.007543	-0.033911	0.000916	0.001094	9.40E-05
0.034517	-0.007347	-0.034182	0.000905	0.001154	0.000103
0.034518	-0.007934	-0.03696	0.000891	0.001122	9.10E-05
0.034941	-0.00713	-0.04065	0.000997	0.001174	0.00012
0.035309	-0.00756	-0.037127	0.000958	0.001141	8.80E-05
0.034544	-0.007252	-0.034568	0.0009	0.001154	9.20E-05
0.035007	-0.008	-0.034869	0.000879	0.001171	8.70E-05
0.034632	-0.007735	-0.035099	0.0009	0.001137	9.60E-05
0.034685	-0.007281	-0.038684	0.000941	0.001155	0.000124
0.034307	-0.007194	-0.038614	0.001045	0.001173	6.10E-05
0.034958	-0.007527	-0.037316	0.000945	0.001164	0.000118
0.034097	-0.007433	-0.03497	0.0009	0.001118	9.00E-05
0.034791	-0.008008	-0.037126	0.00097	0.001194	7.70E-05
0.034902	-0.007718	-0.037572	0.000986	0.001112	9.50E-05
0.035	-0.007778	-0.036874	0.000883	0.001128	8.70E-05
0.034832	-0.008222	-0.038377	0.000926	0.001144	9.50E-05
0.035246	-0.007373	-0.037773	0.000888	0.001108	9.70E-05
0.035052	-0.008436	-0.036417	0.000908	0.00113	0.000132
0.034924	-0.007828	-0.038711	0.001013	0.001144	0.000112
0.034712	-0.007358	-0.037652	0.001024	0.001199	9.60E-05
0.034389	-0.007955	-0.034468	0.000973	0.001177	8.90E-05
0.035763	-0.007818	-0.038686	0.000936	0.001168	0.000113
0.035033	-0.008225	-0.036946	0.001012	0.001177	9.30E-05
0.03514	-0.008095	-0.038778	0.000997	0.001149	6.10E-05
0.034886	-0.008549	-0.03675	0.000992	0.00121	8.70E-05
0.035694	-0.008012	-0.036235	0.000968	0.001128	9.80E-05
0.035596	-0.007526	-0.035598	0.000927	0.001143	7.60E-05
0.035729	-0.008418	-0.040948	0.001024	0.001166	0.000108
0.035764	-0.007954	-0.041485	0.000926	0.001176	9.80E-05
0.035491	-0.00858	-0.038306	0.000915	0.001166	0.00012
0.035625	-0.008455	-0.037559	0.001006	0.0012	9.10E-05
0.035168	-0.008343	-0.038317	0.000959	0.001217	9.90E-05
0.035757	-0.008593	-0.040466	0.001025	0.001173	7.60E-05
0.035311	-0.008652	-0.037923	0.001004	0.001183	7.60E-05
0.036304	-0.008467	-0.04098	0.000969	0.001216	9.40E-05
0.03563	-0.008463	-0.03822	0.001061	0.001288	8.40E-05

0.03627	-0.008656	-0.038944	0.001032	0.001257	0.000115
0.035801	-0.008939	-0.040323	0.001014	0.001246	0.000106
0.036045	-0.008261	-0.040401	0.000986	0.00117	0.000113
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0.035876	-0.008322	-0.043207	0.001062	0.001171	0.000104
0.035896	-0.008508	-0.043303	0.001006	0.001236	0.000104
0.035401	-0.009098	-0.040893	0.000938	0.001226	0.000108
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0.035863	-0.008742	-0.039746	0.000985	0.001218	8.60E-05
0.035865	-0.008297	-0.040971	0.001045	0.001214	0.000113
0.036056	-0.008716	-0.040951	0.001029	0.001204	0.000118
0.035379	-0.008479	-0.041176	0.0011	0.001229	0.000108
0.034939	-0.008924	-0.038698	0.001009	0.001224	9.60E-05
0.03533	-0.007689	-0.039658	0.001072	0.001178	0.000114
0.035443	-0.008138	-0.038895	0.001038	0.00117	0.000103
0.035117	-0.0088	-0.040106	0.001042	0.001275	0.000126
0.035856	-0.008348	-0.040988	0.001033	0.001202	0.000134
0.035444	-0.008666	-0.042624	0.001028	0.001259	0.000107
0.036222	-0.008749	-0.041439	0.001027	0.001206	0.000122
0.035907	-0.008418	-0.041338	0.000981	0.001162	0.000125
0.03541	-0.009063	-0.040591	0.001052	0.00123	8.10E-05
0.036178	-0.008138	-0.040928	0.001088	0.001237	0.000112
0.035473	-0.009292	-0.041597	0.00101	0.001252	9.80E-05
0.036133	-0.008671	-0.043157	0.001045	0.001261	0.000106
0.035856	-0.00911	-0.041718	0.000986	0.00124	0.000115
0.035771	-0.009411	-0.042022	0.001049	0.001202	0.0001
0.036	-0.008232	-0.041788	0.001064	0.001221	0.000107
0.035703	-0.009017	-0.042079	0.001025	0.001262	0.000129
0.036003	-0.008759	-0.043294	0.001093	0.001242	0.000104
0.036006	-0.008827	-0.043789	0.001044	0.001245	0.000153
0.035543	-0.009352	-0.043177	0.001084	0.001285	0.000115
0.035672	-0.009176	-0.042434	0.000978	0.001195	0.000117
0.035774	-0.009496	-0.041024	0.001095	0.001247	0.000112
0.036217	-0.008736	-0.042983	0.001097	0.001281	0.000112
0.035954	-0.009531	-0.04316	0.001083	0.001227	0.000126
0.035728	-0.009017	-0.044038	0.001055	0.00127	0.000111
0.036198	-0.009244	-0.042154	0.001088	0.001246	0.000125
0.035911	-0.00901	-0.04369	0.00108	0.001285	0.000111
0.036219	-0.00922	-0.041494	0.001053	0.001213	0.000125
0.035201	-0.009141	-0.042852	0.001057	0.001205	0.000103
0.036034	-0.009447	-0.04102	0.001052	0.001286	9.30E-05
0.036204	-0.00842	-0.04378	0.001101	0.001277	0.000106
0.035699	-0.008937	-0.043411	0.001152	0.001246	0.000113
0.03545	-0.008855	-0.041615	0.001096	0.00124	0.000104
0.03576	-0.009127	-0.043187	0.001063	0.001246	0.000125

0.035207	-0.009055	-0.041274	0.001057	0.001242	0.000114
0.035219	-0.009269	-0.043483	0.001073	0.001309	0.00012
0.035692	-0.009854	-0.043606	0.001123	0.001263	0.000115
0.035738	-0.008955	-0.043618	0.001112	0.001265	0.000115
0.035799	-0.00959	-0.042919	0.001013	0.001278	9.60E-05
0.035764	-0.009811	-0.043464	0.001057	0.001224	0.000118
0.036098	-0.009629	-0.042725	0.001053	0.00131	9.30E-05
0.036502	-0.009327	-0.042759	0.00106	0.001247	9.80E-05
0.036594	-0.009313	-0.04031	0.001107	0.001266	9.70E-05
0.036659	-0.009814	-0.041638	0.001125	0.001269	0.000107
0.035602	-0.009837	-0.041617	0.001151	0.001279	6.80E-05
0.035928	-0.00883	-0.043158	0.001097	0.001306	0.000118
0.03644	-0.009699	-0.042157	0.001133	0.001298	0.000109
0.036152	-0.009593	-0.043199	0.001115	0.001292	9.70E-05

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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
0.055301	-0.018136	1.422166	0.004479	-0.000304	0.000797
0.058421	-0.013268	-0.075708	0.001792	0.002033	0.000171
0.058146	-0.013061	-0.075199	0.001779	0.002046	0.000157
0.058302	-0.013627	-0.076768	0.001754	0.002001	0.000174
0.058839	-0.012651	-0.07433	0.001794	0.002027	0.000167
0.058876	-0.01258	-0.078614	0.001819	0.002016	0.000143
0.058828	-0.013608	-0.076028	0.001774	0.00196	0.000153
0.058918	-0.013231	-0.076583	0.001789	0.002034	0.000169
0.058318	-0.013598	-0.07793	0.001814	0.002003	0.00015
0.059387	-0.013307	-0.075452	0.001798	0.002031	0.000172
0.05939	-0.012687	-0.079958	0.001734	0.002067	0.000154
0.059019	-0.013532	-0.076322	0.001726	0.002085	0.000165
0.058977	-0.012663	-0.076814	0.001759	0.002018	0.000188
0.059044	-0.012826	-0.077861	0.001764	0.002008	0.000186
0.058948	-0.013242	-0.077609	0.00177	0.001982	0.00016
0.058878	-0.013497	-0.077271	0.001752	0.002021	0.000168
0.05844	-0.013629	-0.080976	0.001821	0.002068	0.000178
0.059006	-0.012813	-0.076951	0.001779	0.002058	0.000178
0.059389	-0.013784	-0.078722	0.001784	0.002113	0.000185
0.058602	-0.013061	-0.078952	0.001766	0.002004	0.000175
0.058322	-0.013422	-0.079836	0.001832	0.002011	0.000173
0.058701	-0.012746	-0.080118	0.001779	0.002047	0.00015
0.058797	-0.013724	-0.083353	0.001814	0.002035	0.000183
0.058755	-0.013049	-0.078063	0.001712	0.001975	0.000172
0.058262	-0.013656	-0.080503	0.00171	0.002063	0.000181
0.059095	-0.012801	-0.080403	0.001815	0.002008	0.000184
0.058958	-0.012963	-0.07875	0.001772	0.002075	0.00018
0.059009	-0.013083	-0.077159	0.001763	0.002046	1.89E-04
0.058814	-0.013791	-0.08161	0.00179	0.002051	0.000168
0.058938	-0.013531	-0.07985	0.001777	0.002034	0.000205
0.058915	-0.014114	-0.078146	0.001791	0.002019	0.000183
0.059301	-0.013505	-0.07954	0.0018	0.002061	0.000192
0.058463	-0.01317	-0.080082	0.001826	0.002092	0.000183
0.059021	-0.013619	-0.080532	0.001803	0.002004	0.000181
0.058991	-0.013882	-0.083437	0.001843	0.002022	0.000175
0.0586	-0.013084	-0.081285	0.001797	0.00209	0.000178
0.059002	-0.013688	-0.083647	0.001787	0.002115	0.000185
0.059062	-0.013574	-0.08195	0.001846	0.001992	0.000184
0.05885	-0.013818	-0.082284	0.001853	0.002042	0.000162
0.058138	-0.013177	-0.081824	0.001848	0.002021	0.00016
0.058607	-0.013867	-0.083888	0.001845	0.002001	0.000198
0.058492	-0.013941	-0.081474	0.001875	0.002092	0.000188
0.058387	-0.01458	-0.08075	0.001931	0.00216	0.000185
0.059313	-0.013794	-0.082775	0.001834	0.002041	0.000156
0.059139	-0.01365	-0.082095	0.001865	0.002064	0.000178

0.059219	-0.013465	-0.080626	0.001831	0.002036	0.00017
0.058679	-0.014251	-0.083138	0.001813	0.002013	0.000157
0.059078	-0.014131	-0.083555	0.001843	0.002043	0.000176
0.058814	-0.01417	-0.083152	0.001806	0.002096	0.000174
0.0594	-0.013384	-0.081592	0.001825	0.002048	0.000154
0.059025	-0.013796	-0.081262	0.001905	0.002057	0.000175
0.059292	-0.013975	-0.083508	0.00184	0.002038	0.000163
0.058848	-0.014269	-0.08235	0.001871	0.002089	0.000172
0.059095	-0.013428	-0.080828	0.001834	0.002069	0.000185
0.058794	-0.014631	-0.079226	0.00186	0.002116	0.000166
0.059229	-0.014339	-0.08352	0.001873	0.002081	0.000167
0.059267	-0.014226	-0.081302	0.001741	0.002068	1.94E-04
0.058912	-0.014182	-0.084884	0.001803	0.002085	0.000189
0.059038	-0.014312	-0.084047	0.001847	0.002049	0.000176
0.058553	-0.013844	-0.083095	0.00189	0.002103	0.000183
0.059295	-0.014463	-0.083543	0.001846	0.002123	0.000164
0.05941	-0.013859	-0.082946	0.001827	0.002065	0.00018
0.059119	-0.014348	-0.083673	0.001866	0.002105	0.000177
0.059194	-0.014201	-0.081484	0.001765	0.002072	0.00018
0.059622	-0.014226	-0.082248	0.001783	0.002091	0.000167
0.05873	-0.014462	-0.083299	0.001872	0.002114	0.000185
0.058862	-0.015215	-0.080774	0.001799	0.001991	0.000217
0.058516	-0.014289	-0.085256	0.001903	0.002088	0.00018
0.05839	-0.014829	-0.07926	0.00181	0.002039	0.000161
0.059403	-0.014394	-0.083786	0.001831	0.00209	0.00018
0.058204	-0.014985	-0.084896	0.001898	0.002025	1.83E-04
0.058959	-0.014734	-0.082418	0.001854	0.002094	1.85E-04
0.059548	-0.015135	-0.082004	0.001876	0.002119	1.67E-04
0.058507	-0.014676	-0.081761	0.001847	0.002073	1.69E-04
0.058873	-0.014619	-0.083511	0.001873	0.002071	0.000162
0.058557	-0.014284	-0.083548	0.00186	0.002074	0.000165
0.058849	-0.015084	-0.083039	0.001784	0.002062	0.000199
0.058937	-0.014493	-0.080044	0.001765	0.002112	0.000198
0.058784	-0.014807	-0.083039	0.001839	0.00204	0.000187
0.058615	-0.014678	-0.085081	0.001832	0.002092	0.00016
0.057979	-0.014913	-0.080175	0.001886	0.002092	0.000167
0.059094	-0.014487	-0.079139	0.001812	0.002071	0.000184
0.058755	-0.015603	-0.082604	0.001862	0.002087	0.00017
0.05831	-0.014871	-0.079201	0.001828	0.002132	0.000164
0.058756	-0.015426	-0.083411	0.001884	0.002037	0.000177
0.058842	-0.01467	-0.080167	0.001823	0.002073	0.000153
0.059277	-0.015322	-0.085261	0.00189	0.002081	0.000185
0.05905	-0.014713	-0.083965	0.00182	0.002083	0.000195
0.059208	-0.015916	-0.082589	0.0018	0.002074	2.07E-04
0.058739	-0.014968	-0.084213	0.001835	0.002043	0.000194
0.058481	-0.015722	-0.081761	0.001858	0.002074	0.000182

0.058247	-0.015053	-0.084632	0.001905	0.002101	0.000197
0.058931	-0.016108	-0.081683	0.001815	0.002074	0.000199
0.058592	-0.015393	-0.083212	0.001892	0.00217	0.000175
0.058734	-0.015392	-0.081829	0.001837	0.002103	0.000183
0.058435	-0.015405	-0.081343	0.001884	0.002157	0.000169
0.058632	-0.015633	-0.082887	0.001784	0.002106	0.000207
0.058062	-0.015876	-0.082613	0.001851	0.002119	0.000184
0.058756	-0.016291	-0.081265	0.001922	0.002145	0.000199
0.058277	-0.015199	-0.083028	0.001869	0.002144	1.81E-04
0.058246	-0.015962	-0.081979	0.001856	0.002094	0.000208
0.057498	-0.015201	-0.084381	0.001934	0.002136	0.00019
0.058198	-0.01563	-0.085357	0.001915	0.00212	0.000181
0.058076	-0.015674	-0.082231	0.001858	0.002032	0.000184
0.058431	-0.015684	-0.079991	0.001896	0.002101	2.15E-04
0.058077	-0.015517	-0.084367	0.001933	0.002105	0.000163
0.057863	-0.015386	-0.081031	0.001903	0.002126	0.000203
0.057729	-0.015503	-0.082344	0.00187	0.002104	0.000173
0.057622	-0.016178	-0.083764	0.001887	0.002151	0.000184
0.057146	-0.015827	-0.082991	0.001889	0.002115	0.000177
0.057826	-0.015743	-0.081867	0.001848	0.002105	2.01E-04
0.057842	-0.015938	-0.084407	0.00187	0.002125	0.000209
0.057561	-0.01587	-0.084676	0.001926	0.002063	1.59E-04
0.057319	-0.015807	-0.083218	0.00192	0.002125	1.78E-04
0.057454	-0.015649	-0.082614	0.00194	0.002176	1.90E-04
0.056993	-0.015677	-0.084214	0.001956	0.002095	1.75E-04
0.057198	-0.016555	-0.083245	0.001963	0.002148	0.000211
0.057569	-0.015595	-0.082793	0.001909	0.002156	0.000167
0.057205	-0.015571	-0.081126	0.001946	0.002226	0.000185
0.057057	-0.015626	-0.083947	0.001885	0.002088	1.98E-04
0.057364	-0.01594	-0.080411	0.001853	0.002097	0.000187
0.057412	-0.015555	-0.082512	0.001905	0.002131	0.000201
0.056995	-0.016073	-0.081799	0.001898	0.002114	0.000181
0.057212	-0.015641	-0.083643	0.001947	0.002134	1.97E-04
0.057443	-0.016362	-0.086687	0.001914	0.002106	0.000224
0.057177	-0.01581	-0.084847	0.001889	0.002099	0.000232
0.057646	-0.016308	-0.08297	0.001878	0.002015	0.000213
0.057349	-0.016681	-0.082853	0.001918	0.002107	0.000211
0.057074	-0.016116	-0.085114	0.001918	0.002151	0.00022
0.056738	-0.016602	-0.084265	0.001883	0.002094	0.000204
0.056096	-0.016012	-0.084971	0.001934	0.00209	0.000197
0.057005	-0.016398	-0.082967	0.001893	0.002118	0.000207
0.056861	-0.016454	-0.086983	0.001923	0.002128	0.000201
0.057004	-0.016299	-0.085368	0.00196	0.002173	0.000214
0.05634	-0.016452	-0.084371	0.001945	0.002083	0.000192
0.057376	-0.016313	-0.084895	0.001879	0.002151	0.000201
0.056975	-0.016949	-0.082961	0.001945	0.002195	0.000206

0.057042	-0.01624	-0.085484	0.001903	0.002176	0.000202
0.05707	-0.016403	-0.081426	0.001934	0.002153	0.000189
0.056424	-0.016425	-0.081137	0.001944	0.002185	0.000178
0.056672	-0.016328	-0.082875	0.001907	0.002114	1.90E-04
0.056354	-0.016095	-0.083315	0.00191	0.002075	0.000187
0.056609	-0.016946	-0.082552	0.001932	0.002151	0.000201
0.056592	-0.016411	-0.083092	0.00189	0.002055	0.000157
0.056463	-0.016581	-0.085798	0.001963	0.002098	1.97E-04
0.05652	-0.016841	-0.084177	0.001929	0.002156	0.000203
0.056247	-0.016545	-0.084011	0.001959	0.002119	0.00019
0.056379	-0.016209	-0.082636	0.001938	0.002126	0.000172
0.056568	-0.016654	-0.081336	0.001882	0.002113	0.000207
0.056377	-0.01637	-0.084361	0.001952	0.002096	0.000181
0.056386	-0.01646	-0.084539	0.001882	0.00209	2.04E-04

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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
0.079859	-0.026521	1.385925	0.005279	8.00E-04	0.000879
0.084204	-0.02041	-0.120087	0.002715	0.003006	0.000291
0.084737	-0.020873	-0.121839	0.002644	0.002962	0.000281
0.084146	-0.020934	-0.119947	0.00259	0.002936	0.000251
0.083839	-0.020787	-0.121193	0.002584	0.00293	0.000258
0.084755	-0.021008	-0.124265	0.002623	0.002998	0.000283
0.083934	-0.020785	-0.121876	0.002652	0.003008	0.000283
0.084753	-0.020263	-0.122856	0.002646	0.003023	0.000278
0.084277	-0.021419	-0.123638	0.002615	0.00298	0.000263
0.084381	-0.020847	-0.123598	0.002622	0.002965	0.000276
0.085179	-0.021207	-0.126542	0.002581	0.003	0.000289
0.08471	-0.020934	-0.124604	0.002695	0.003079	0.00028
0.084963	-0.021394	-0.125134	0.002672	0.003027	0.000293
0.084789	-0.021292	-0.125809	0.002661	0.003018	0.000307
0.084542	-0.020865	-0.127202	0.002699	0.00297	0.000292
0.084233	-0.020601	-0.124981	0.002701	0.003064	0.000302
0.084696	-0.021372	-0.125869	0.002665	0.003042	0.000327
0.084217	-0.021365	-0.125083	0.002708	0.003063	0.000325
0.084262	-0.020725	-0.124806	0.002604	0.002967	0.000308
0.08436	-0.021192	-0.124461	0.002646	0.002963	0.000278
0.083925	-0.021161	-0.125923	0.002696	0.002999	0.000303
0.084118	-0.021072	-0.12842	0.002731	0.003023	0.000297
0.08356	-0.021294	-0.125543	0.002727	0.003009	0.000268
0.084328	-0.02091	-0.124098	0.002662	0.003071	0.000304
0.08432	-0.021588	-0.126365	0.002704	0.003033	0.000304
0.084127	-0.021464	-0.12759	0.002761	0.00307	0.000311
0.084133	-0.021618	-0.127282	0.002683	0.003081	0.000302
0.084153	-0.020673	-0.131259	0.002748	0.003015	2.87E-04
0.084291	-0.021208	-0.127057	0.002686	0.003041	0.00028
0.083845	-0.022254	-0.127096	0.002724	0.003047	0.000287
0.084314	-0.02218	-0.125275	0.002697	0.003034	0.000304
0.084068	-0.022052	-0.123947	0.002674	0.003075	0.000294
0.083762	-0.021704	-0.126124	0.002593	0.003023	0.000292
0.084376	-0.022016	-0.12642	0.002667	0.003042	0.000271
0.083958	-0.022028	-0.126267	0.002645	0.003028	0.00028
0.084779	-0.022336	-0.126595	0.002655	0.003084	0.000274
0.083965	-0.022256	-0.12593	0.002776	0.003017	0.000288
0.083757	-0.02225	-0.128679	0.002734	0.003028	0.000279
0.083829	-0.022057	-0.12593	0.002706	0.003021	0.000266
0.083146	-0.022604	-0.125929	0.002679	0.003022	0.000282
0.084019	-0.022655	-0.124979	0.002656	0.00303	0.00029
0.083831	-0.022647	-0.124122	0.002702	0.003009	0.000286
0.083197	-0.022564	-0.122977	0.002668	0.00297	0.000287
0.083676	-0.022841	-0.125078	0.002703	0.00306	0.000285
0.083283	-0.022614	-0.124198	0.002696	0.002987	0.000265

0.083744	-0.023182	-0.126052	0.002681	0.003079	0.000288
0.08421	-0.023349	-0.12321	0.002618	0.003011	0.000274
0.083421	-0.022556	-0.12392	0.002663	0.002974	0.000297
0.083806	-0.022658	-0.124309	0.002631	0.00306	0.000272
0.083401	-0.022332	-0.125723	0.002661	0.002993	0.000301
0.082744	-0.023048	-0.126262	0.002668	0.002966	0.000306
0.083044	-0.022471	-0.12457	0.002646	0.003031	0.000279
0.083333	-0.022484	-0.128519	0.002696	0.003016	0.000301
0.08392	-0.022554	-0.123561	0.002635	0.003031	0.000312
0.083408	-0.023245	-0.126953	0.00266	0.003052	0.000299
0.083197	-0.022745	-0.127151	0.002645	0.003037	0.000286
0.084053	-0.02331	-0.122176	0.002587	0.002996	2.74E-04
0.083973	-0.023205	-0.12612	0.002714	0.003048	0.000276
0.084017	-0.022869	-0.124133	0.002666	0.003059	0.000286
0.083688	-0.023008	-0.12654	0.00271	0.003029	0.000285
0.084394	-0.023162	-0.127932	0.002675	0.003073	0.000297
0.083584	-0.022185	-0.127455	0.002721	0.003057	0.000298
0.083671	-0.022755	-0.128967	0.002666	0.00306	0.000323
0.083934	-0.022539	-0.127247	0.002697	0.003083	0.000296
0.083261	-0.02311	-0.126527	0.002744	0.003058	0.000305
0.083433	-0.022729	-0.123179	0.002683	0.003092	0.000289
0.084051	-0.022993	-0.125665	0.002724	0.003102	0.000277
0.083859	-0.023121	-0.126607	0.002707	0.003071	0.000264
0.084307	-0.023008	-0.126979	0.002619	0.002979	0.000277
0.083742	-0.022532	-0.124682	0.002672	0.00302	0.00027
0.083339	-0.02349	-0.125372	0.002682	0.003018	2.79E-04
0.084478	-0.023109	-0.127148	0.002685	0.003016	2.73E-04
0.084046	-0.023267	-0.127627	0.002659	0.003057	3.02E-04
0.084676	-0.022559	-0.123545	0.002667	0.003049	2.84E-04
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0.084186	-0.023073	-0.126147	0.002723	0.003123	0.000276
0.083933	-0.023552	-0.123736	0.00267	0.003022	0.000273
0.083524	-0.023058	-0.127471	0.002748	0.002972	0.00026
0.08388	-0.023257	-0.126192	0.002699	0.003023	0.000271
0.083567	-0.022914	-0.126054	0.002722	0.003022	0.000266
0.083953	-0.023641	-0.125859	0.002654	0.003026	0.000287
0.084239	-0.022896	-0.125335	0.002704	0.00305	0.000291
0.083901	-0.023677	-0.125383	0.002664	0.003044	0.000307
0.084569	-0.023154	-0.127475	0.002687	0.003061	0.000278
0.083795	-0.02301	-0.126878	0.002723	0.003097	0.000292
0.083931	-0.023702	-0.127143	0.002774	0.003037	0.000271
0.083731	-0.023491	-0.126003	0.002692	0.003076	0.000292
0.084258	-0.023359	-0.128109	0.002718	0.003091	0.000279
0.084009	-0.023415	-0.126868	0.00272	0.003066	2.85E-04
0.08326	-0.023393	-0.128481	0.002692	0.003069	0.000296
0.084332	-0.023518	-0.124655	0.002675	0.00307	0.0003

0.083935	-0.023037	-0.129721	0.002761	0.003099	0.000283
0.083249	-0.023782	-0.125262	0.002718	0.003122	0.000273
0.084903	-0.022907	-0.128607	0.00271	0.003113	0.000281
0.083501	-0.023585	-0.126424	0.002701	0.003039	0.000292
0.08383	-0.023011	-0.127005	0.002706	0.003044	0.000278
0.083877	-0.023462	-0.125307	0.002762	0.0031	0.000283
0.083659	-0.024386	-0.127328	0.002673	0.00307	0.000316
0.084008	-0.023746	-0.126283	0.002685	0.00313	0.000287
0.084087	-0.023484	-0.125354	0.002702	0.003071	2.88E-04
0.083771	-0.023723	-0.127985	0.002695	0.003071	0.000302
0.084205	-0.023712	-0.128682	0.002695	0.003103	0.000295
0.083363	-0.024013	-0.127086	0.002754	0.003128	0.000311
0.083588	-0.023429	-0.12771	0.002746	0.003102	0.000287
0.083324	-0.023797	-0.127682	0.002703	0.003026	2.71E-04
0.083559	-0.024279	-0.125584	0.002745	0.003091	0.000249
0.083819	-0.023876	-0.128049	0.002733	0.003054	0.000299
0.084266	-0.024267	-0.126456	0.002682	0.00306	0.000278
0.08308	-0.024237	-0.124162	0.002652	0.003067	0.000289
0.083394	-0.023979	-0.126231	0.002711	0.003024	0.000267
0.082512	-0.024334	-0.125007	0.0027	0.003073	2.95E-04
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0.083278	-0.024022	-0.127381	0.002732	0.003074	3.15E-04
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0.083598	-0.024058	-0.128289	0.002748	0.003063	2.77E-04
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0.083213	-0.024186	-0.128064	0.002762	0.003069	0.000302
0.083497	-0.023929	-0.126274	0.002782	0.00304	0.000272
0.082682	-0.023851	-0.126157	0.0027	0.003082	2.69E-04
0.082666	-0.024247	-0.12639	0.002772	0.003101	0.000299
0.083131	-0.023278	-0.130087	0.002827	0.003056	0.000279
0.082711	-0.02422	-0.129155	0.002772	0.003105	0.000273
0.08323	-0.023368	-0.125914	0.002722	0.003078	2.65E-04
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0.08253	-0.024162	-0.124323	0.002726	0.003072	0.000302
0.082967	-0.023638	-0.127069	0.002725	0.003104	0.000282
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0.083057	-0.024407	-0.125969	0.002703	0.003084	0.000281
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0.08309	-0.024182	-0.128057	0.002762	0.003089	0.000282

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0.082753	-0.023983	-0.127469	0.002744	0.003089	0.000242
0.083115	-0.024641	-0.126788	0.002702	0.003118	0.000263
0.08287	-0.02495	-0.126451	0.002775	0.003075	3.06E-04
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0.082459	-0.024373	-0.126656	0.002761	0.003115	0.000252
0.083405	-0.024838	-0.126787	0.002721	0.003093	2.82E-04
0.082988	-0.024386	-0.128845	0.002732	0.003082	0.000285
0.082941	-0.023705	-0.12628	0.002762	0.003111	0.00027
0.082216	-0.024996	-0.126566	0.002732	0.003117	0.000262
0.082392	-0.024557	-0.126549	0.002667	0.003037	0.000282
0.082435	-0.02472	-0.126155	0.002725	0.003075	0.000297
0.083185	-0.024848	-0.127496	0.002731	0.003044	2.82E-04

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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
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0.112449	-0.030388	-0.165937	0.003452	0.003987	0.000351
0.113229	-0.03006	-0.165809	0.003456	0.004012	0.000364
0.113862	-0.029628	-0.166352	0.003401	0.004022	0.000342
0.113365	-0.029372	-0.16553	0.003454	0.00403	0.000338
0.113486	-0.029695	-0.168948	0.003466	0.004024	0.000363
0.11309	-0.03024	-0.170386	0.003497	0.004031	0.000363
0.112818	-0.030335	-0.168374	0.003443	0.004053	0.000358
0.113115	-0.03046	-0.167271	0.00343	0.003984	0.000351
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0.114009	-0.030555	-0.16893	0.003351	0.004028	0.000342
0.113179	-0.030133	-0.170004	0.003456	0.00396	0.00033
0.113961	-0.030604	-0.170067	0.003455	0.003976	0.000365
0.113751	-0.030063	-0.171563	0.003426	0.004033	0.000402
0.114091	-0.03108	-0.169452	0.003419	0.004024	0.000357
0.113838	-0.030838	-0.170058	0.003413	0.004016	0.000361
0.113222	-0.0308	-0.170401	0.003487	0.004078	0.00031
0.11341	-0.031182	-0.169564	0.003455	0.004088	0.000341
0.113886	-0.030531	-0.170797	0.003464	0.003987	0.000334
0.1141	-0.030714	-0.169032	0.003495	0.004012	0.000321
0.113592	-0.031221	-0.168913	0.003475	0.004118	0.000354
0.113015	-0.031202	-0.167204	0.003461	0.004	0.000345
0.113686	-0.031181	-0.171574	0.003408	0.003995	0.000341
0.113448	-0.031083	-0.169215	0.00347	0.004036	0.000357
0.113562	-0.030693	-0.1675	0.003423	0.003998	0.000351
0.112897	-0.031302	-0.169819	0.003452	0.003999	0.000354
0.113043	-0.031846	-0.170434	0.003475	0.004004	0.00036
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0.113273	-0.031088	-0.167377	0.003413	0.004004	0.000326
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0.113246	-0.031155	-0.172523	0.003453	0.004059	0.000413
0.113298	-0.031424	-0.169713	0.003493	0.004007	0.000353
0.113012	-0.031622	-0.168203	0.003436	0.004015	0.000371
0.112765	-0.031193	-0.171462	0.003471	0.004045	0.000375
0.113184	-0.030942	-0.166934	0.003432	0.004009	0.000367
0.113215	-0.031319	-0.17013	0.003495	0.004049	0.00039
0.113566	-0.031127	-0.172339	0.003518	0.004089	0.00036
0.112906	-0.030696	-0.172081	0.003486	0.003974	0.000357
0.11389	-0.031672	-0.173149	0.003496	0.00409	0.000337
0.113135	-0.031389	-0.169356	0.003507	0.004089	0.000341
0.113139	-0.031357	-0.169298	0.003408	0.004069	0.000353
0.113635	-0.031265	-0.171525	0.003467	0.004083	0.000363
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0.11313	-0.032066	-0.173737	0.003495	0.004033	0.000395
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0.112502	-0.031533	-0.169467	0.003491	0.004062	0.000358
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0.11313	-0.03163	-0.16685	0.003434	0.004022	0.000361
0.112936	-0.031706	-0.171152	0.003476	0.004046	0.000379
0.112992	-0.030841	-0.172127	0.003531	0.004048	0.000372
0.112501	-0.030845	-0.171958	0.003498	0.003979	0.000363
0.111721	-0.031984	-0.169443	0.003473	0.004046	0.000376
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0.112151	-0.031561	-0.17004	0.003452	0.004066	0.000391
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0.11293	-0.031751	-0.173091	0.00349	0.00403	0.000372
0.112702	-0.030845	-0.169989	0.003467	0.004027	0.000342
0.113378	-0.031505	-0.168499	0.003472	0.004008	0.000328
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0.113011	-0.031969	-0.168268	0.003441	0.00403	0.000378
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0.113175	-0.03202	-0.171941	0.003497	0.004083	0.000369
0.112896	-0.032368	-0.172847	0.003503	0.004033	0.00035
0.113407	-0.031752	-0.17316	0.003506	0.004014	0.000356
0.112871	-0.031723	-0.172414	0.003506	0.004046	0.000379
0.113152	-0.03188	-0.1754	0.003587	0.004065	0.000375
0.11241	-0.032012	-0.170951	0.003486	0.00405	0.000358
0.112567	-0.032477	-0.169553	0.003413	0.004047	0.000355

0.112718	-0.031672	-0.172865	0.00355	0.004037	0.000348
0.112217	-0.031618	-0.172875	0.003554	0.004065	0.000361
0.113141	-0.031526	-0.170334	0.003488	0.004054	0.000371
0.112246	-0.032705	-0.170458	0.003458	0.003979	0.000364
0.112388	-0.032483	-0.1697	0.003483	0.004076	0.000366
0.112543	-0.031971	-0.168544	0.003465	0.003974	0.000319
0.112583	-0.032025	-0.171232	0.003504	0.004028	0.000342
0.112074	-0.031837	-0.168457	0.003481	0.004072	0.000302
0.112262	-0.032358	-0.170552	0.00347	0.004037	0.000348
0.112222	-0.031976	-0.16897	0.00349	0.004016	0.000341
0.112632	-0.0328	-0.169059	0.00343	0.004059	0.00035
0.112459	-0.032466	-0.170298	0.003483	0.004044	0.000356
0.111894	-0.032321	-0.16847	0.003482	0.004053	0.00033
0.112274	-0.032127	-0.167899	0.003466	0.004011	0.000341
0.112571	-0.03281	-0.166395	0.003389	0.003971	0.000334
0.112421	-0.032509	-0.170565	0.003461	0.004023	0.00036
0.112701	-0.032491	-0.172767	0.003541	0.004079	0.000348
0.112718	-0.032065	-0.170677	0.003516	0.004009	0.000375
0.112636	-0.032136	-0.167685	0.003391	0.003999	0.000341
0.112619	-0.033213	-0.171588	0.003447	0.004014	0.000387
0.112666	-0.032457	-0.172173	0.003556	0.00413	0.000369
0.112538	-0.03288	-0.169894	0.003513	0.00408	0.000351
0.112988	-0.032788	-0.170494	0.003516	0.004029	0.000345
0.112508	-0.032995	-0.172457	0.003528	0.004071	0.000377
0.112108	-0.033074	-0.170966	0.003525	0.004084	0.000356
0.113112	-0.03277	-0.174381	0.003563	0.004063	0.000366
0.113062	-0.032579	-0.171354	0.003492	0.004053	0.000365
0.112911	-0.033522	-0.170346	0.003439	0.004073	0.000385
0.113352	-0.033627	-0.171803	0.00351	0.00406	0.000375
0.113013	-0.033187	-0.169283	0.003508	0.004093	0.00035
0.113407	-0.033882	-0.173995	0.003463	0.004121	0.000386
0.112788	-0.033793	-0.169968	0.00347	0.004099	0.000331
0.113029	-0.033694	-0.169907	0.003487	0.004099	0.000353
0.112931	-0.033084	-0.17403	0.003556	0.004038	0.000359
0.1128	-0.033606	-0.171193	0.003525	0.004127	0.00038
0.113413	-0.033783	-0.170944	0.003506	0.004069	0.000382
0.113163	-0.0344	-0.172413	0.0036	0.004205	0.000363
0.112731	-0.033636	-0.169177	0.00346	0.004102	0.000341
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0.11268	-0.034153	-0.170945	0.003457	0.004069	0.000357
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0.112734	-0.034368	-0.168771	0.003452	0.004065	0.000364
0.113104	-0.033941	-0.170553	0.003539	0.004079	0.000362
0.112765	-0.034183	-0.167354	0.003464	0.004091	0.000364
0.113125	-0.034232	-0.171506	0.003475	0.004028	0.000386

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0.11272	-0.034245	-0.167354	0.003457	0.004075	0.000334
0.113164	-0.033625	-0.171436	0.003492	0.004046	0.000332
0.113587	-0.032877	-0.171373	0.00353	0.004092	0.000341
0.113394	-0.034197	-0.171905	0.003493	0.004109	0.000369
0.11247	-0.034105	-0.170801	0.003539	0.004057	0.000358
0.113332	-0.033857	-0.171683	0.003535	0.004098	0.000376
0.112774	-0.033468	-0.171433	0.003502	0.004062	0.000373
0.113088	-0.033953	-0.171807	0.003504	0.004069	0.000346
0.11292	-0.033279	-0.172098	0.003526	0.0041	0.000344
0.112546	-0.034172	-0.172075	0.003463	0.004041	0.000378
0.112897	-0.033603	-0.170665	0.003536	0.004065	0.000329
0.112329	-0.034413	-0.168147	0.003494	0.004095	0.000377

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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
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0.031314	0.007742	-0.005436	-0.000541	0.000401	0.000158
0.030973	0.006784	-0.005645	-0.000527	0.000358	0.000148
0.031471	0.007461	-0.006186	-0.000546	0.000379	0.000132
0.032076	0.007521	-0.006988	-0.000541	0.000337	0.000121
0.031568	0.006779	-0.00849	-0.000555	0.000303	0.000149
0.031756	0.007289	-0.006238	-0.000542	0.000362	0.000142
0.032327	0.007755	-0.007525	-0.000562	0.000357	0.000114
0.03259	0.007932	-0.00873	-0.000569	0.000324	0.000143
0.032485	0.007243	-0.007156	-0.000549	0.000334	0.000116
0.032907	0.007062	-0.006977	-0.000574	0.000374	0.000109
0.033047	0.00827	-0.00947	-0.000581	0.000323	0.000113
0.03323	0.007263	-0.007265	-0.000587	0.000383	0.000126
0.032982	0.007909	-0.009309	-0.000592	0.000344	9.60E-05
0.033902	0.00786	-0.008137	-0.000605	0.000387	0.000118
0.03333	0.007273	-0.010713	-0.00062	0.000323	0.000149
0.033705	0.007399	-0.008557	-0.000612	0.00038	0.000124
0.033613	0.007399	-0.008908	-0.000596	0.000342	0.000117
0.033815	0.007882	-0.010131	-0.000648	0.000396	0.000128
0.034345	0.008136	-0.00874	-0.000594	0.000347	0.000115
0.033924	0.008029	-0.010416	-0.000637	0.000368	0.000127
0.034171	0.008115	-0.00868	-0.000621	0.000396	0.000127
0.033787	0.007439	-0.007803	-0.000596	0.000377	0.000115
0.0348	0.008223	-0.008744	-0.000627	0.000398	0.000124
0.034583	0.00795	-0.011197	-0.000648	0.000351	0.000119
0.034688	0.007495	-0.009211	-0.000637	0.00039	0.000109
0.035772	0.008395	-0.009667	-0.000664	0.000416	0.00015
0.035018	0.007592	-0.00836	-0.000615	0.000375	0.000114
0.035396	0.007671	-0.008598	-0.000635	0.000398	0.00011
0.03564	0.007972	-0.009401	-0.000683	0.000458	9.80E-05
0.035667	0.007878	-0.013691	-0.00069	0.000323	0.000111
0.036447	0.008726	-0.011813	-0.000677	0.000364	0.000139
0.035871	0.008055	-0.011718	-0.000693	0.000394	0.000121
0.035845	0.008562	-0.011197	-0.000696	0.000425	0.000136
0.035593	0.008135	-0.010034	-0.000673	0.000422	0.000111
0.035852	0.007647	-0.010689	-0.000676	0.000394	9.30E-05
0.036404	0.008349	-0.011909	-0.000681	0.000364	0.000117
0.035375	0.00824	-0.011106	-0.000676	0.000398	8.90E-05
0.036187	0.008582	-0.010481	-0.00067	0.000401	0.000107
0.036126	0.00833	-0.009607	-0.000676	0.000438	9.00E-05
0.036172	0.00829	-0.010252	-0.000679	0.000419	0.000101
0.036449	0.008277	-0.010193	-0.000694	0.000441	0.000125
0.036102	0.008469	-0.012544	-0.000691	0.000369	9.90E-05
0.036606	0.009464	-0.012321	-0.000726	0.000448	0.0001
0.036546	0.008707	-0.011332	-0.000682	0.000391	8.70E-05

0.036592	0.008129	-0.01089	-0.000689	0.000405	0.000109
0.036586	0.009216	-0.011817	-0.000693	0.000401	0.000124
0.036119	0.008127	-0.010861	-0.000694	0.000423	9.40E-05
0.036734	0.008213	-0.011729	-0.000729	0.000444	0.000132
0.036613	0.008233	-0.013385	-0.000721	0.000383	7.10E-05
0.036738	0.00838	-0.010729	-0.000704	0.00044	9.20E-05
0.03646	0.009073	-0.012486	-0.000694	0.000381	0.000109
0.036137	0.007938	-0.009721	-0.000676	0.000428	7.10E-05
0.036199	0.009223	-0.01334	-0.000706	0.000383	7.10E-05
0.036978	0.008269	-0.010367	-0.000686	0.000417	6.70E-05
0.036295	0.008482	-0.011483	-0.000698	0.000411	0.000117
0.036833	0.008869	-0.012073	-0.000705	0.000405	8.70E-05
0.036599	0.008233	-0.010263	-0.000688	0.000427	9.80E-05
0.037251	0.009149	-0.012097	-0.000749	0.00048	8.60E-05
0.036969	0.008991	-0.012002	-0.000713	0.000422	9.70E-05
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0.037067	0.00937	-0.011056	-0.000681	0.000404	8.30E-05
0.035963	0.008171	-0.011545	-0.000691	0.0004	8.10E-05
0.036628	0.009489	-0.012139	-0.000699	0.000408	6.90E-05
0.037302	0.008906	-0.012795	-0.000742	0.000441	6.60E-05
0.037472	0.008889	-0.011528	-0.000767	0.000524	7.20E-05
0.037586	0.008758	-0.012377	-0.000742	0.000445	0.000104
0.036686	0.008464	-0.012525	-0.000735	0.000439	6.90E-05
0.036712	0.009852	-0.013049	-0.000719	0.000418	8.70E-05
0.03723	0.009564	-0.012118	-0.000717	0.00043	0.000106
0.03704	0.009219	-0.011315	-0.000738	0.000492	8.50E-05
0.037478	0.009374	-0.013213	-0.000755	0.000455	7.50E-05
0.037356	0.00882	-0.013903	-0.000772	0.000449	0.000114
0.036871	0.009666	-0.013357	-0.000725	0.000412	9.80E-05
0.036836	0.009108	-0.013705	-0.000729	0.0004	6.00E-05
0.036735	0.009632	-0.012862	-0.00073	0.000438	9.00E-05
0.036686	0.00866	-0.010885	-0.000715	0.000463	7.20E-05
0.037058	0.009164	-0.0139	-0.000745	0.000416	8.60E-05
0.037346	0.010085	-0.014131	-0.000748	0.000426	8.50E-05
0.036578	0.008881	-0.012535	-0.000711	0.000406	7.10E-05
0.036892	0.010037	-0.013491	-0.000736	0.000433	8.90E-05
0.036882	0.009512	-0.012753	-0.000738	0.00045	9.60E-05
0.036807	0.00899	-0.011639	-0.000711	0.000434	7.20E-05
0.037134	0.009934	-0.013139	-0.000729	0.000427	9.20E-05
0.03639	0.009137	-0.011218	-0.000721	0.000475	6.20E-05
0.036956	0.009957	-0.012593	-0.000742	0.000468	0.00011
0.03717	0.009417	-0.012392	-0.000732	0.000445	9.90E-05
0.036965	0.008662	-0.012337	-0.00075	0.000467	0.000112
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0.036979	0.008609	-0.012517	-0.000747	0.000457	7.90E-05
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0.036729	0.009978	-0.01416	-0.000783	0.000495	7.30E-05
0.03627	0.009326	-0.014693	-0.000789	0.000481	9.30E-05
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0.037616	0.009818	-0.013325	-0.000754	0.000455	6.50E-05
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0.037243	0.00894	-0.012988	-0.000764	0.000472	7.60E-05
0.036823	0.009594	-0.012809	-0.000752	0.000475	8.80E-05
0.037091	0.009729	-0.013051	-0.000762	0.000485	7.50E-05
0.036857	0.009686	-0.014453	-0.000748	0.000416	8.80E-05
0.037432	0.009672	-0.014119	-0.000761	0.000439	9.70E-05
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0.037382	0.008622	-0.012477	-0.000765	0.000485	6.90E-05
0.037319	0.010051	-0.013803	-0.000745	0.000435	4.20E-05
0.037028	0.00948	-0.012509	-0.000746	0.000473	6.40E-05
0.037321	0.008969	-0.012161	-0.000753	0.000484	4.60E-05
0.037366	0.010067	-0.014804	-0.000761	0.000425	8.00E-05
0.036811	0.009099	-0.012956	-0.000741	0.000447	4.00E-05
0.03709	0.009764	-0.013878	-0.000756	0.00045	4.80E-05
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0.037185	0.009266	-0.011395	-0.000723	0.000467	2.80E-05
0.037426	0.009643	-0.014061	-0.000759	0.000441	5.90E-05
0.036527	0.009312	-0.011519	-0.000708	0.000444	6.80E-05
0.037166	0.009206	-0.012409	-0.000732	0.000445	4.70E-05
0.036987	0.008902	-0.012781	-0.000729	0.000427	3.70E-05
0.036825	0.009018	-0.013265	-0.000765	0.000474	6.20E-05
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0.037601	0.009472	-0.012984	-0.000745	0.000448	3.70E-05
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0.037294	0.010079	-0.01281	-0.000751	0.000478	6.40E-05
0.036536	0.009074	-0.011676	-0.000744	0.000497	4.90E-05
0.037557	0.009318	-0.013185	-0.000774	0.000485	7.90E-05
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0.036796	0.00987	-0.013572	-0.000751	0.000455	8.60E-05
0.037157	0.009353	-0.011911	-0.00073	0.00046	6.60E-05
0.036839	0.00935	-0.013957	-0.00075	0.000432	5.40E-05
0.036887	0.009247	-0.013769	-0.000773	0.000475	7.10E-05
0.036372	0.00846	-0.011534	-0.000742	0.00049	4.50E-05
0.037455	0.009268	-0.014292	-0.000791	0.000481	5.10E-05
0.037493	0.009536	-0.012197	-0.000763	0.000506	5.80E-05
0.037795	0.009226	-0.013105	-0.000737	0.00042	7.10E-05
0.037317	0.009131	-0.011557	-0.000748	0.000497	5.60E-05

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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
0.086509	-0.004612	0.399947	-0.002571	0.016371	0.000216
0.087321	0.009476	-0.052067	-0.002507	0.001438	-0.000112
0.087355	0.00898	-0.050887	-0.002477	0.001417	-0.000123
0.087984	0.008557	-0.047792	-0.00244	0.001443	-0.000173
0.088122	0.008562	-0.049732	-0.002466	0.001419	-0.000149
0.088296	0.009366	-0.051578	-0.002506	0.00144	-0.000158
0.087487	0.009131	-0.048834	-0.002443	0.001429	-0.000145
0.087661	0.008779	-0.048199	-0.002462	0.001474	-0.000135
0.087328	0.008864	-0.049379	-0.002476	0.001467	-0.00016
0.087602	0.008808	-0.050083	-0.0025	0.001478	-0.000131
0.088047	0.009749	-0.049622	-0.00244	0.001399	-0.000135
0.087517	0.008626	-0.048915	-0.002439	0.001414	-0.000186
0.088043	0.00948	-0.050912	-0.002505	0.001463	-0.00011
0.087122	0.009089	-0.049447	-0.002436	0.001401	-0.000131
0.087913	0.008528	-0.052026	-0.002517	0.001432	-0.000125
0.088146	0.009038	-0.0513	-0.002498	0.001432	-0.000176
0.087902	0.009376	-0.049388	-0.002459	0.001436	-0.000147
0.088043	0.009045	-0.051649	-0.002495	0.001415	-0.00015
0.087074	0.009205	-0.050069	-0.002478	0.001455	-0.000128
0.088168	0.009432	-0.050999	-0.002494	0.001439	-0.000122
0.087474	0.009913	-0.052606	-0.002524	0.001458	-0.00014
0.08663	0.00942	-0.051624	-0.002464	0.001389	-0.000115
0.087451	0.008924	-0.052064	-0.002529	0.001464	-9.80E-05
0.087197	0.008962	-0.052341	-0.002513	0.001435	-0.000152
0.086954	0.009691	-0.051927	-0.002479	0.001408	-0.000153
0.087631	0.009208	-0.049045	-0.002451	0.001435	-0.000145
0.087581	0.009505	-0.052247	-0.002515	0.001446	-0.000137
0.087891	0.0096	-0.051355	-0.002488	0.001425	-0.000119
0.087165	0.009189	-0.051881	-0.002494	0.001423	-0.000159
0.087603	0.009065	-0.050024	-0.002474	0.001442	-0.000171
0.087109	0.009134	-0.050722	-0.0025	0.001472	-0.000157
0.087477	0.009473	-0.049724	-0.002474	0.001459	-0.000141
0.087817	0.009589	-0.050312	-0.002504	0.00149	-0.000158
0.087173	0.009446	-0.050171	-0.002489	0.001475	-0.000134
0.087761	0.00885	-0.051102	-0.002483	0.001411	-0.00012
0.087489	0.009789	-0.051038	-0.002477	0.001426	-0.000133
0.087041	0.009675	-0.050407	-0.002493	0.001481	-0.000157
0.0874	0.009923	-0.052407	-0.002498	0.00142	-0.00013
0.087743	0.00964	-0.052634	-0.002462	0.001341	-0.000137
0.087518	0.009349	-0.050231	-0.002477	0.001444	-0.000126
0.087596	0.010189	-0.052952	-0.002522	0.001449	-0.000163
0.086694	0.009274	-0.050933	-0.002484	0.001448	-0.000163
0.087028	0.009795	-0.051917	-0.002468	0.00139	-0.000144
0.087925	0.009599	-0.051102	-0.002483	0.001426	-0.000144
0.087704	0.009569	-0.04884	-0.002471	0.00148	-0.000125

0.087584	0.010067	-0.051745	-0.002516	0.001475	-0.000145
0.086855	0.00963	-0.049758	-0.002425	0.001389	-0.000174
0.087341	0.009827	-0.051159	-0.002477	0.001423	-0.000119
0.087307	0.009749	-0.051278	-0.002486	0.00144	-0.000194
0.087906	0.009401	-0.04857	-0.002466	0.001478	-0.000147
0.087525	0.009986	-0.050877	-0.002457	0.001402	-0.000145
0.087453	0.009381	-0.048844	-0.002443	0.001437	-0.00018
0.087616	0.009712	-0.049835	-0.002462	0.001441	-0.000178
0.086996	0.009905	-0.05083	-0.002472	0.001436	-0.00016
0.086804	0.009625	-0.048655	-0.002423	0.001423	-0.000176
0.086815	0.010151	-0.051454	-0.002483	0.001444	-0.000174
0.086961	0.009623	-0.049593	-0.002438	0.001416	-0.000193
0.08666	0.009526	-0.049603	-0.002458	0.001451	-0.000159
0.08747	0.009334	-0.048412	-0.002443	0.001454	-0.000227
0.087151	0.009573	-0.049806	-0.002458	0.001442	-0.000202
0.087608	0.010166	-0.049816	-0.002457	0.001439	-0.000142
0.086784	0.009321	-0.050337	-0.002474	0.001449	-0.000171
0.0874	0.01016	-0.04873	-0.002456	0.001477	-0.00015
0.087334	0.009875	-0.050063	-0.002479	0.00147	-0.000177
0.086522	0.009775	-0.052428	-0.002508	0.001451	-0.000169
0.087267	0.009897	-0.04919	-0.002468	0.001485	-0.000212
0.087043	0.00986	-0.050155	-0.002482	0.001478	-0.000192
0.087106	0.009564	-0.050051	-0.002488	0.001483	-0.000155
0.08658	0.010613	-0.051895	-0.00246	0.001403	-0.000191
0.086419	0.009999	-0.050851	-0.002473	0.001449	-0.000179
0.087094	0.009928	-0.048878	-0.002427	0.001423	-0.000176
0.087265	0.009888	-0.050314	-0.002475	0.001456	-0.000188
0.086614	0.010265	-0.050509	-0.002474	0.001464	-0.000162
0.086992	0.010156	-0.049319	-0.002466	0.001482	-0.000164
0.087441	0.010476	-0.051063	-0.002459	0.001411	-0.000161
0.087819	0.010711	-0.050151	-0.002462	0.001447	-0.000181
0.087646	0.010459	-0.051411	-0.002491	0.001447	-0.000133
0.087141	0.010209	-0.051254	-0.002492	0.001459	-0.000138
0.087342	0.010406	-0.050049	-0.002436	0.001404	-0.000167
0.087196	0.010315	-0.051878	-0.002476	0.001413	-0.00015
0.0878	0.0108	-0.050743	-0.002484	0.001462	-0.000131
0.086973	0.010738	-0.050705	-0.00248	0.001467	-0.000122
0.087104	0.010355	-0.050403	-0.002469	0.00145	-0.000146
0.087306	0.010351	-0.050195	-0.002456	0.001433	-0.000144
0.087522	0.010025	-0.049835	-0.002441	0.001411	-0.000171
0.087165	0.010539	-0.049735	-0.002454	0.001451	-0.00017
0.087128	0.010865	-0.051782	-0.002461	0.001405	-0.000207
0.087064	0.010583	-0.050535	-0.002445	0.001412	-0.000168
0.086568	0.010837	-0.05025	-0.002446	0.001437	-0.000176
0.086447	0.010718	-0.053694	-0.002499	0.001409	-0.000124
0.086706	0.011204	-0.053077	-0.002489	0.001417	-0.000127

0.08677	0.010831	-0.050005	-0.002436	0.001422	-0.000158
0.086993	0.01107	-0.05244	-0.002487	0.001428	-0.000131
0.086481	0.010685	-0.052368	-0.002465	0.001397	-0.000172
0.086608	0.010872	-0.049952	-0.002447	0.001447	-0.000153
0.086689	0.010843	-0.051009	-0.00247	0.001449	-0.000157
0.086881	0.011147	-0.050039	-0.002425	0.001407	-0.000165
0.086436	0.010699	-0.049593	-0.00244	0.001445	-0.000152
0.086788	0.010751	-0.049204	-0.002407	0.001396	-0.000157
0.086648	0.010993	-0.04954	-0.002413	0.001403	-0.000154
0.086608	0.010992	-0.051128	-0.002445	0.001407	-0.000177
0.086626	0.011047	-0.050253	-0.002437	0.001422	-0.000156
0.08622	0.010538	-0.050852	-0.00244	0.001403	-0.000151
0.086491	0.010449	-0.049518	-0.002428	0.001423	-0.000167
0.086792	0.010895	-0.048314	-0.002395	0.001412	-0.000204
0.086114	0.010313	-0.05113	-0.002465	0.001435	-0.00016
0.086571	0.011181	-0.051684	-0.002462	0.001419	-0.000132
0.085893	0.01018	-0.050325	-0.002446	0.001434	-0.000201
0.086089	0.010262	-0.04595	-0.002381	0.001469	-0.00023
0.086321	0.00994	-0.051593	-0.002508	0.001485	-0.000167
0.085962	0.010722	-0.053285	-0.002473	0.001387	-0.000145
0.08586	0.011199	-0.051929	-0.002463	0.001425	-0.000141
0.085941	0.010989	-0.052187	-0.002469	0.001423	-0.000164
0.086595	0.010457	-0.049925	-0.002459	0.001461	-0.000169
0.085956	0.011148	-0.051851	-0.002467	0.001432	-0.000143
0.086262	0.010792	-0.049742	-0.002448	0.001462	-0.000194
0.086099	0.010375	-0.049704	-0.002459	0.001476	-0.000173
0.085537	0.01022	-0.050711	-0.002448	0.00143	-0.000184
0.086464	0.011257	-0.051216	-0.00246	0.001438	-0.000186
0.085145	0.010754	-0.051606	-0.00245	0.00142	-0.000197
0.085763	0.010342	-0.052013	-0.00248	0.001443	-0.000201
0.086169	0.011132	-0.051996	-0.00248	0.001447	-0.000145
0.0861	0.010996	-0.052007	-0.002473	0.001433	-0.000154
0.086432	0.010428	-0.051546	-0.002479	0.001447	-0.000197
0.086207	0.010685	-0.051419	-0.002473	0.00145	-0.00021
0.086492	0.010714	-0.052029	-0.002459	0.001398	-0.000183
0.085262	0.010944	-0.052525	-0.002467	0.001423	-0.000221
0.085559	0.011088	-0.053648	-0.002444	0.00134	-0.000175
0.085595	0.010566	-0.05069	-0.002474	0.001482	-0.000198
0.086197	0.010593	-0.05108	-0.002462	0.001439	-0.000192
0.085746	0.010889	-0.053	-0.002496	0.001444	-0.000176
0.086042	0.011284	-0.050717	-0.002436	0.00142	-0.000185
0.085616	0.010819	-0.049527	-0.002421	0.001435	-0.000209
0.086282	0.011127	-0.051335	-0.002462	0.001439	-0.00018
0.085858	0.010798	-0.051976	-0.002483	0.001452	-0.000157
0.085851	0.011035	-0.050214	-0.002402	0.001378	-0.0002
0.086492	0.010805	-0.04987	-0.002418	0.0014	-0.000175

0.086278	0.010555	-0.048931	-0.002444	0.001477	-0.000187
0.086261	0.010959	-0.048924	-0.002409	0.001425	-0.000209
0.086151	0.011152	-0.049232	-0.002414	0.00143	-0.000203
0.085645	0.010624	-0.049018	-0.002435	0.001472	-0.000209
0.08643	0.010929	-0.048793	-0.002404	0.001419	-0.000211
0.085714	0.010526	-0.050243	-0.002435	0.001425	-0.000178
0.086439	0.010718	-0.047286	-0.002403	0.001464	-0.000211
0.085985	0.011522	-0.049672	-0.002434	0.001458	-0.000186
0.085134	0.010402	-0.047267	-0.002394	0.001465	-0.000232
0.08576	0.010698	-0.050593	-0.002461	0.001462	-0.000187
0.086104	0.010461	-0.050326	-0.00244	0.001425	-0.000185
0.085471	0.011178	-0.049417	-0.002398	0.001406	-0.000205
0.085226	0.010664	-0.050058	-0.002435	0.001444	-0.000219
0.085453	0.010758	-0.052184	-0.002448	0.001392	-0.000195

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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
0.151034	-0.004415	0.355274	-0.004627	0.017466	-9.00E-06
0.15432	0.009353	-0.088569	-0.004468	0.002604	-0.000432
0.153996	0.009031	-0.089689	-0.004511	0.002633	-0.000349
0.153462	0.008627	-0.088405	-0.00447	0.002614	-0.000442
0.155228	0.009227	-0.090056	-0.004529	0.002639	-0.000374
0.153978	0.009517	-0.090967	-0.004511	0.002603	-0.000391
0.153812	0.009607	-0.086704	-0.004428	0.002605	-0.000378
0.154305	0.009709	-0.092328	-0.004542	0.002611	-0.000389
0.153232	0.00921	-0.088413	-0.004458	0.002609	-0.000463
0.154571	0.009419	-0.091277	-0.00454	0.002632	-0.000391
0.153354	0.009771	-0.093168	-0.004555	0.002621	-0.000392
0.154161	0.010158	-0.088998	-0.004449	0.002569	-0.000365
0.153821	0.009243	-0.089479	-0.004485	0.00261	-0.000451
0.152921	0.009431	-0.090555	-0.004517	0.002642	-0.00039
0.153091	0.00955	-0.090343	-0.004472	0.00257	-0.00038
0.153525	0.009457	-0.08862	-0.004457	0.002596	-0.000412
0.15356	0.010226	-0.090614	-0.004486	0.002595	-0.000432
0.15313	0.009067	-0.090041	-0.004506	0.00263	-0.000374
0.152992	0.009215	-0.088279	-0.004418	0.002549	-0.00048
0.154447	0.009453	-0.090493	-0.004501	0.002589	-0.000347
0.153714	0.009634	-0.089643	-0.004435	0.002527	-0.000448
0.154347	0.009748	-0.088255	-0.004452	0.002589	-0.000366
0.153987	0.009285	-0.087647	-0.004443	0.002594	-0.00042
0.153344	0.00985	-0.089035	-0.004463	0.002601	-0.000407
0.153217	0.009994	-0.086923	-0.004392	0.002551	-0.000375
0.154127	0.01025	-0.087734	-0.004416	0.002561	-0.000428
0.153005	0.009618	-0.08722	-0.004414	0.002582	-0.000437
0.15389	0.01022	-0.091569	-0.004494	0.00256	-0.000293
0.152333	0.009122	-0.084483	-0.004342	0.002557	-0.000547
0.153251	0.009668	-0.090152	-0.004457	0.002549	-0.000365
0.153826	0.009949	-0.090897	-0.004477	0.002556	-0.000366
0.153719	0.009828	-0.089649	-0.004425	0.002509	-0.000406
0.151343	0.008656	-0.086337	-0.004365	0.002535	-0.000467
0.153183	0.009844	-0.08959	-0.004442	0.002545	-0.000365
0.153132	0.0095	-0.089253	-0.004399	0.002482	-0.000422
0.15326	0.009824	-0.090138	-0.004467	0.002571	-0.000378
0.152876	0.009547	-0.086597	-0.004375	0.002533	-0.000421
0.152724	0.010388	-0.092311	-0.004495	0.002559	-0.000314
0.153428	0.009219	-0.088544	-0.004431	0.002554	-0.000449
0.153461	0.01019	-0.092527	-0.004515	0.002573	-0.000318
0.15382	0.009816	-0.09041	-0.004478	0.002578	-0.000452
0.154033	0.01034	-0.088553	-0.004455	0.002603	-0.000415
0.153902	0.009666	-0.089548	-0.004436	0.002527	-0.000423
0.153338	0.010246	-0.092387	-0.004496	0.002555	-0.000413
0.153561	0.00985	-0.089193	-0.004467	0.002606	-0.00048

0.153477	0.010224	-0.090112	-0.004455	0.002555	-0.000377
0.153609	0.010732	-0.090413	-0.004455	0.002558	-0.000447
0.153534	0.010037	-0.09113	-0.004483	0.002568	-0.000416
0.153919	0.009759	-0.08887	-0.004489	0.002643	-0.000431
0.154559	0.009882	-0.08804	-0.004423	0.002549	-0.000424
0.154526	0.009856	-0.0884	-0.004429	0.002552	-0.000474
0.154018	0.010842	-0.090224	-0.00447	0.002585	-0.000437
0.153653	0.0108	-0.09118	-0.004449	0.002515	-0.000357
0.153689	0.010036	-0.087952	-0.004416	0.002557	-0.000428
0.15237	0.010695	-0.090947	-0.004461	0.002563	-0.000368
0.153121	0.010059	-0.089265	-0.004403	0.002499	-0.000419
0.153529	0.009762	-0.088904	-0.004435	0.002556	-0.000437
0.153428	0.010975	-0.093105	-0.004512	0.002565	-0.000328
0.153346	0.009642	-0.08731	-0.004401	0.002553	-0.000472
0.153643	0.009648	-0.08958	-0.004456	0.002563	-0.000398
0.152492	0.010515	-0.090975	-0.00445	0.002541	-0.000409
0.1538	0.010426	-0.088482	-0.004441	0.002589	-0.000437
0.153411	0.009955	-0.089686	-0.004459	0.002573	-0.000383
0.152913	0.010147	-0.088836	-0.004421	0.002551	-0.000451
0.153659	0.010447	-0.0915	-0.004468	0.002532	-0.000384
0.153409	0.009784	-0.089885	-0.004446	0.002542	-0.000408
0.153175	0.011328	-0.090927	-0.004471	0.002577	-0.000324
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0.152493	0.010203	-0.090316	-0.004444	0.002545	-0.000393
0.153664	0.010537	-0.091681	-0.004452	0.002498	-0.000343
0.15231	0.010647	-0.092887	-0.004493	0.002558	-0.00043
0.15317	0.011449	-0.090179	-0.004384	0.002453	-0.000338
0.153693	0.010328	-0.087657	-0.0044	0.002549	-0.0005
0.153088	0.010675	-0.089945	-0.004441	0.002559	-0.000473
0.151667	0.010485	-0.088283	-0.004398	0.002552	-0.000403
0.153108	0.010776	-0.086775	-0.004414	0.00261	-0.000362
0.152732	0.010181	-0.090276	-0.004444	0.002552	-0.000509
0.152359	0.01086	-0.087908	-0.004371	0.002513	-0.000396
0.152338	0.011372	-0.089459	-0.004406	0.002531	-0.000384
0.152295	0.010515	-0.087758	-0.004433	0.002623	-0.00042
0.153274	0.010814	-0.090158	-0.00445	0.00256	-0.00039
0.152859	0.010331	-0.08709	-0.004384	0.002549	-0.000447
0.153178	0.011417	-0.090004	-0.004469	0.002608	-0.000355
0.151767	0.010737	-0.087943	-0.004377	0.00253	-0.000398
0.152816	0.010901	-0.08945	-0.004432	0.002561	-0.000391
0.152673	0.010144	-0.090429	-0.00451	0.002654	-0.000419
0.15253	0.011411	-0.088788	-0.0044	0.002537	-0.000329
0.153589	0.011018	-0.091248	-0.004471	0.002563	-0.000442
0.152621	0.011291	-0.091194	-0.004462	0.002563	-0.000367
0.152584	0.011151	-0.089294	-0.004442	0.002591	-0.000382
0.152808	0.011347	-0.090231	-0.004428	0.002535	-0.000364

0.153651	0.011523	-0.090182	-0.004461	0.002588	-0.000423
0.153308	0.010984	-0.087975	-0.004415	0.002578	-0.00044
0.153442	0.011605	-0.088562	-0.00442	0.002573	-0.000395
0.152724	0.011227	-0.091118	-0.004469	0.002579	-0.000414
0.152722	0.010516	-0.087259	-0.004384	0.002545	-0.000404
0.152835	0.011422	-0.090023	-0.004415	0.002524	-0.000416
0.15314	0.01142	-0.0917	-0.004472	0.00256	-0.000384
0.153125	0.010688	-0.087257	-0.004386	0.002552	-0.000469
0.152236	0.011294	-0.087876	-0.004384	0.002545	-0.000362
0.154016	0.011053	-0.089657	-0.004438	0.002548	-0.000386
0.153349	0.011565	-0.091826	-0.004473	0.002559	-0.000417
0.153818	0.011153	-0.0873	-0.004396	0.002559	-0.000392
0.153417	0.010434	-0.086651	-0.004421	0.002623	-0.000454
0.152973	0.011296	-0.090956	-0.004486	0.002613	-0.000422
0.152354	0.010884	-0.08907	-0.004417	0.002557	-0.000418
0.152858	0.011104	-0.087452	-0.004404	0.002588	-0.00045
0.153448	0.010883	-0.089796	-0.004437	0.002546	-0.000373
0.153125	0.011022	-0.089519	-0.004418	0.002537	-0.00046
0.153734	0.011818	-0.093915	-0.004522	0.002571	-0.000396
0.153869	0.011424	-0.08997	-0.004453	0.002573	-0.000383
0.152992	0.011552	-0.091038	-0.004475	0.002595	-0.000424
0.153377	0.011696	-0.089472	-0.004452	0.002596	-0.000328
0.15302	0.011268	-0.089449	-0.004462	0.002621	-0.000433
0.153082	0.011824	-0.089456	-0.004412	0.002539	-0.000386
0.152577	0.01121	-0.089701	-0.004427	0.002559	-0.000468
0.15195	0.011706	-0.091859	-0.004461	0.002557	-0.000365
0.152944	0.011538	-0.089459	-0.004455	0.002614	-0.000431
0.152445	0.012163	-0.091379	-0.004456	0.002565	-0.000351
0.152095	0.011486	-0.089304	-0.004411	0.002553	-0.000419
0.152467	0.011211	-0.090487	-0.004429	0.002535	-0.00041
0.151433	0.010924	-0.087895	-0.00439	0.002567	-0.00044
0.152362	0.01182	-0.091421	-0.004471	0.002586	-0.000377
0.151435	0.011607	-0.090134	-0.004443	0.002597	-0.000454
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0.152378	0.011601	-0.091556	-0.004489	0.002608	-0.000372
0.152471	0.01148	-0.088161	-0.004396	0.002559	-0.000412
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0.152822	0.011833	-0.091056	-0.004424	0.002504	-0.000311
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0.150626	0.011262	-0.088286	-0.004395	0.002579	-0.000418
0.151276	0.011403	-0.08751	-0.004378	0.002575	-0.000497
0.151486	0.01127	-0.088188	-0.004387	0.002555	-0.000425
0.152664	0.011081	-0.0901	-0.004395	0.002488	-0.000466
0.151629	0.011565	-0.088941	-0.004386	0.002532	-0.000424
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Time (s)
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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
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0.240769	0.016716	-0.150832	-0.007166	0.003962	3.00E-06
0.240382	0.013585	-0.142917	-0.00707	0.004048	-0.000478
0.240177	0.008592	-0.123253	-0.006669	0.003985	-0.001294
0.240247	0.011672	-0.126301	-0.006601	0.003786	-0.000857
0.239979	0.017552	-0.150099	-0.007057	0.003828	-2.10E-05
0.23961	0.015258	-0.147339	-0.007128	0.004035	-0.000374
0.240009	0.008641	-0.121392	-0.00665	0.004025	-0.001369
0.241016	0.010733	-0.124676	-0.006588	0.003801	-0.00101
0.240137	0.01669	-0.144739	-0.006949	0.003816	-0.000218
0.240132	0.018294	-0.158152	-0.007306	0.003994	7.70E-05
0.240324	0.011654	-0.130799	-0.006846	0.004073	-0.001018
0.240511	0.009303	-0.120827	-0.006547	0.003857	-0.001212
0.241301	0.015779	-0.143657	-0.006915	0.003756	-0.000185
0.240979	0.01643	-0.152181	-0.00719	0.003965	-0.000175
0.239821	0.011577	-0.134816	-0.006945	0.004113	-0.000979
0.239299	0.009927	-0.122973	-0.006594	0.0039	-0.001252
0.239829	0.015272	-0.139587	-0.006857	0.003824	-0.000408
0.239959	0.018018	-0.155726	-0.007231	0.003945	4.10E-05
0.238775	0.011788	-0.135611	-0.006912	0.004037	-0.000823
0.240093	0.009184	-0.124029	-0.006596	0.003845	-0.001303
0.240831	0.013737	-0.135838	-0.006776	0.003777	-0.000571
0.240787	0.017983	-0.157844	-0.007322	0.004016	7.20E-05
0.239405	0.014319	-0.146495	-0.007119	0.004049	-0.00057
0.240858	0.00812	-0.120602	-0.006614	0.003966	-0.001368
0.241432	0.011497	-0.133707	-0.00677	0.003802	-0.000769
0.241417	0.016014	-0.152583	-0.007178	0.003902	-2.00E-05
0.240861	0.01335	-0.146073	-0.007136	0.004044	-0.000471
0.240181	0.00725	-0.122722	-0.006722	0.004076	-0.001362
0.241888	0.011251	-0.128538	-0.006689	0.003829	-0.00085
0.239898	0.017067	-0.153137	-0.00714	0.003861	-1.70E-05
0.242394	0.013916	-0.146689	-0.007201	0.004114	-0.000376
0.242838	0.007137	-0.12348	-0.006718	0.003996	-0.001324
0.24315	0.010843	-0.12547	-0.006653	0.003846	-0.000898
0.241937	0.016793	-0.149402	-0.007098	0.003873	9.00E-06
0.242307	0.014992	-0.150571	-0.007237	0.004059	-0.000254
0.241867	0.007393	-0.124949	-0.006721	0.003968	-0.001267
0.242839	0.008095	-0.121426	-0.006564	0.003798	-0.001111
0.243134	0.016491	-0.148069	-0.007078	0.003863	-1.80E-05
0.243148	0.015424	-0.149889	-0.007243	0.004078	-0.000154
0.242786	0.008047	-0.128945	-0.006887	0.004116	-0.001211
0.242734	0.007146	-0.118623	-0.006518	0.003805	-0.00122
0.242798	0.015799	-0.145712	-0.007002	0.003811	-0.000132
0.243366	0.016403	-0.15053	-0.007221	0.004028	-9.30E-05
0.242416	0.008873	-0.126503	-0.006806	0.004074	-0.001148

0.2433	0.008826	-0.121968	-0.006618	0.003889	-0.001212
0.242587	0.013524	-0.141035	-0.006869	0.003711	-0.000306
0.242173	0.015833	-0.151973	-0.007214	0.00398	-0.000123
0.242045	0.010767	-0.132778	-0.006933	0.004106	-0.000905
0.240548	0.009137	-0.124524	-0.006614	0.003841	-0.001153
0.242134	0.013802	-0.141994	-0.00695	0.003834	-0.000329
0.241242	0.016939	-0.154569	-0.007236	0.003949	8.00E-05
0.241754	0.01136	-0.1353	-0.00698	0.004123	-0.000967
0.241373	0.008501	-0.11873	-0.006544	0.003897	-0.00127
0.241678	0.014046	-0.140095	-0.006902	0.003823	-0.000296
0.240979	0.016184	-0.152383	-0.007222	0.003995	-6.00E-06
0.241526	0.011155	-0.133362	-0.006921	0.004077	-0.000871
0.242148	0.007972	-0.119901	-0.006583	0.003904	-0.001269
0.241905	0.012327	-0.131334	-0.006728	0.003804	-0.000612
0.241679	0.017112	-0.151032	-0.007161	0.003933	7.70E-05
0.240822	0.012149	-0.135497	-0.006932	0.004035	-0.000641
0.240501	0.007912	-0.116808	-0.006474	0.003848	-0.001326
0.240497	0.01283	-0.129154	-0.006652	0.003777	-0.000629
0.2401	0.017258	-0.15136	-0.007105	0.003858	2.00E-06
0.239859	0.014366	-0.146969	-0.007168	0.0041	-0.000424
0.238985	0.008618	-0.119231	-0.006558	0.003946	-0.001292
0.239392	0.010512	-0.126993	-0.006587	0.003727	-0.000836
0.239763	0.018661	-0.154679	-0.007157	0.003857	0.000158
0.240988	0.012942	-0.142893	-0.007126	0.004126	-0.000508
0.240812	0.008709	-0.125765	-0.006698	0.003933	-0.001163
0.24125	0.011157	-0.130265	-0.006723	0.003837	-0.000815
0.240799	0.016191	-0.148189	-0.007061	0.003861	-4.60E-05
0.240181	0.013406	-0.147257	-0.007198	0.004124	-0.000466
0.240041	0.006703	-0.120737	-0.006635	0.003984	-0.001378
0.240183	0.009427	-0.124708	-0.006635	0.003868	-0.000995
0.239836	0.016116	-0.149136	-0.007082	0.00388	-5.00E-05
0.240448	0.014442	-0.148157	-0.007197	0.004094	-0.000326
0.239523	0.006773	-0.122591	-0.006703	0.004046	-0.001343
0.239949	0.007976	-0.123228	-0.006607	0.003859	-0.001155
0.240155	0.013989	-0.141257	-0.006937	0.003866	-0.000288
0.239353	0.016662	-0.153785	-0.007273	0.004078	-8.80E-05
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0.239061	0.008027	-0.122077	-0.006573	0.003861	-0.001251
0.238974	0.014191	-0.13825	-0.006815	0.003777	-0.000285
0.239506	0.016001	-0.150291	-0.007119	0.003915	-0.000115
0.239731	0.011609	-0.139258	-0.006982	0.004009	-0.000719
0.238094	0.006945	-0.119118	-0.006537	0.003906	-0.001412
0.239388	0.013412	-0.137038	-0.006785	0.00376	-0.000475
0.238675	0.018001	-0.15817	-0.007277	0.003946	0.000229
0.23803	0.011587	-0.138783	-0.006979	0.004049	-0.000751
0.237986	0.007529	-0.120316	-0.006528	0.003866	-0.00144

0.239183	0.01422	-0.135561	-0.006739	0.003746	-0.000448
0.239787	0.017207	-0.151925	-0.007154	0.003925	6.00E-05
0.239299	0.01186	-0.136052	-0.006946	0.004064	-0.000703
0.241267	0.007536	-0.11916	-0.006594	0.003957	-0.001313
0.24177	0.011197	-0.131226	-0.006685	0.003723	-0.000715
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0.240212	0.012045	-0.140975	-0.007067	0.004092	-0.000617
0.240949	0.006329	-0.117665	-0.006549	0.003918	-0.00141
0.241103	0.011431	-0.129779	-0.006662	0.00374	-0.000647
0.239527	0.014932	-0.147124	-0.007067	0.003911	-0.000124
0.239495	0.012572	-0.142754	-0.00706	0.004034	-0.000524
0.241227	0.008005	-0.121828	-0.006679	0.004018	-0.001241
0.240151	0.009679	-0.127089	-0.006628	0.00377	-0.000852
0.241075	0.016552	-0.153049	-0.007181	0.003888	0.000223
0.240656	0.011688	-0.140558	-0.007078	0.004115	-0.000666
0.241505	0.007338	-0.120005	-0.006614	0.00395	-0.001259
0.241539	0.01006	-0.124081	-0.00658	0.003772	-0.000841
0.241398	0.015799	-0.149194	-0.007101	0.003873	3.70E-05
0.239227	0.013882	-0.145728	-0.007114	0.004044	-0.000362
0.240734	0.005479	-0.119514	-0.006636	0.004	-0.001455
0.239879	0.007702	-0.124573	-0.006637	0.003855	-0.001066
0.240482	0.015947	-0.148924	-0.007065	0.003835	7.00E-05
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0.239274	0.006464	-0.120444	-0.006619	0.003969	-0.001327
0.240364	0.008254	-0.122567	-0.00658	0.003822	-0.001023
0.239211	0.01457	-0.146194	-0.007017	0.00385	-9.40E-05
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0.239479	0.007286	-0.122788	-0.006667	0.003982	-0.001271
0.238595	0.008294	-0.119855	-0.00649	0.003793	-0.001127
0.240341	0.015906	-0.149204	-0.007066	0.003835	-7.00E-06
0.238555	0.014941	-0.147638	-0.007152	0.004066	-0.000229
0.238406	0.007681	-0.122726	-0.006648	0.003972	-0.001244
0.237933	0.006629	-0.114493	-0.006365	0.003745	-0.001262
0.240062	0.01425	-0.143569	-0.006958	0.003821	-0.000164
0.240714	0.014703	-0.147593	-0.007155	0.004026	-0.000151
0.240339	0.008674	-0.128927	-0.006789	0.003974	-0.000939
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0.239852	0.012625	-0.137044	-0.006811	0.003777	-0.000394
0.239686	0.013547	-0.145066	-0.007054	0.003935	-0.000201
0.239009	0.009501	-0.133747	-0.006881	0.004007	-0.000907
0.239105	0.007272	-0.120109	-0.00652	0.003823	-0.001279
0.240621	0.013947	-0.137448	-0.006833	0.003815	-0.000395
0.239228	0.016494	-0.156853	-0.007309	0.004028	2.40E-05
0.241021	0.010153	-0.131926	-0.006904	0.004081	-0.000823
0.241065	0.007024	-0.119347	-0.00658	0.003922	-0.001336
0.240319	0.012821	-0.135682	-0.00681	0.003823	-0.000457

0.242426	0.016183	-0.148735	-0.007129	0.003931	2.00E-05
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0.242248	0.004907	-0.114925	-0.006509	0.003904	-0.001527
0.240819	0.010464	-0.125552	-0.006578	0.003725	-0.000693
0.239805	0.017028	-0.152643	-0.00715	0.003881	0.000159
0.239961	0.012117	-0.13944	-0.007029	0.004083	-0.000616
0.240718	0.008253	-0.120293	-0.006634	0.004004	-0.001234
0.240049	0.011179	-0.12773	-0.006644	0.003785	-0.000614
0.240484	0.015409	-0.147372	-0.00702	0.003811	-8.00E-05
0.240186	0.012015	-0.138835	-0.006991	0.004028	-0.000561
0.240568	0.007578	-0.120564	-0.006617	0.003957	-0.001268
0.240578	0.011002	-0.124508	-0.006558	0.003748	-0.0008
0.240752	0.016082	-0.147796	-0.007052	0.003851	3.90E-05
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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
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0.459497	0.121671	0.198915	0.002768	-0.003454	0.004842
0.459332	0.122032	0.195715	0.002756	-0.003529	0.00483
0.459127	0.121974	0.196507	0.002762	-0.003519	0.004915
0.458645	0.122341	0.19514	0.002734	-0.0035	0.004891
0.458827	0.1216	0.196255	0.002769	-0.003538	0.004876
0.458908	0.121655	0.196047	0.002766	-0.003537	0.004841
0.45833	0.122467	0.1942	0.002764	-0.003572	0.004844
0.45819	0.121923	0.195756	0.002762	-0.003526	0.004863
0.45809	0.121639	0.195161	0.002741	-0.003517	0.004909
0.458437	0.121739	0.194949	0.002756	-0.003552	0.004883
0.459229	0.121426	0.19557	0.002721	-0.003488	0.00488
0.458098	0.121701	0.196584	0.002746	-0.003474	0.004881
0.458629	0.122386	0.1947	0.002722	-0.003491	0.004871
0.458674	0.122008	0.195284	0.002737	-0.003505	0.004877
0.458038	0.121327	0.195431	0.002731	-0.003492	0.004878
0.458224	0.121507	0.19285	0.00271	-0.003543	0.004889
0.458061	0.121357	0.195005	0.002712	-0.003474	0.004891
0.458378	0.120846	0.196856	0.002758	-0.003505	0.004865
0.45901	0.12162	0.196077	0.002746	-0.003506	0.004869
0.4583	0.12105	0.195663	0.002747	-0.003522	0.004871
0.45866	0.121662	0.194705	0.002761	-0.003569	0.004842
0.457907	0.120936	0.194799	0.002749	-0.003549	0.004863
0.457724	0.120915	0.195855	0.002719	-0.00346	0.004875
0.458711	0.121329	0.194741	0.002743	-0.003546	0.004865
0.457884	0.120348	0.195644	0.002732	-0.003503	0.004864
0.457916	0.120794	0.195167	0.002729	-0.003509	0.00491
0.457039	0.120045	0.195036	0.002748	-0.003542	0.004847
0.457488	0.120959	0.19569	0.002744	-0.003507	0.004898
0.457838	0.120604	0.195624	0.00274	-0.003509	0.004839
0.457242	0.120974	0.195228	0.002743	-0.003513	0.004859
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0.456811	0.120201	0.195938	0.002744	-0.0035	0.004877
0.45712	0.120491	0.192766	0.002721	-0.00357	0.00492
0.456825	0.120448	0.195048	0.002754	-0.003542	0.004866
0.45723	0.119362	0.19302	0.002696	-0.003536	0.00487
0.457917	0.120305	0.194153	0.002716	-0.003525	0.004856
0.457451	0.120672	0.193964	0.002749	-0.003578	0.004899
0.457457	0.120341	0.196542	0.002732	-0.003467	0.004882
0.458295	0.12077	0.192559	0.002689	-0.003528	0.004845
0.456582	0.120331	0.19512	0.00273	-0.003495	0.004845
0.457064	0.120399	0.193074	0.002706	-0.003531	0.004886
0.457303	0.120533	0.192961	0.002709	-0.003544	0.004912
0.4569	0.120733	0.192798	0.002721	-0.003554	0.004853
0.457546	0.120253	0.194319	0.002711	-0.003507	0.004876

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0.457167	0.11983	0.194724	0.002693	-0.003464	0.004861
0.456854	0.119703	0.193224	0.002716	-0.003553	0.004893
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0.456374	0.119554	0.193092	0.002738	-0.003588	0.004859
0.456926	0.120258	0.193341	0.002726	-0.003558	0.004887
0.456561	0.120398	0.194824	0.002717	-0.003486	0.004899
0.456769	0.119628	0.194204	0.002704	-0.003498	0.004861
0.457306	0.12001	0.194383	0.002676	-0.003447	0.004902
0.4566	0.119116	0.193497	0.002709	-0.003537	0.004861
0.456746	0.119759	0.193436	0.002706	-0.003527	0.00489
0.456794	0.120003	0.193142	0.0027	-0.003523	0.004898
0.45641	0.119143	0.195943	0.002707	-0.003449	0.004866
0.456288	0.119502	0.194928	0.002696	-0.003455	0.004873
0.456246	0.118963	0.195343	0.002704	-0.003465	0.004872
0.456291	0.119997	0.193432	0.002712	-0.003527	0.004915
0.455997	0.119759	0.193045	0.002694	-0.003506	0.004885
0.456398	0.11917	0.197176	0.002712	-0.003414	0.004846
0.456544	0.119258	0.192235	0.002683	-0.003531	0.004875
0.455969	0.118939	0.195189	0.002699	-0.003461	0.004905
0.456368	0.119756	0.191939	0.002681	-0.003527	0.00488
0.455983	0.119027	0.193783	0.00269	-0.003489	0.004897
0.455558	0.119892	0.192764	0.002691	-0.003503	0.004906
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0.455894	0.118495	0.194526	0.002706	-0.003496	0.004836
0.456737	0.119436	0.193403	0.002678	-0.003484	0.004891
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0.454583	0.119489	0.191117	0.002672	-0.003513	0.004866
0.456192	0.119779	0.192108	0.002665	-0.003488	0.004874
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0.455585	0.119248	0.195655	0.002675	-0.003391	0.004905
0.455457	0.119719	0.192018	0.002635	-0.003434	0.004925
0.455489	0.119041	0.192002	0.00267	-0.003504	0.004875
0.456123	0.119231	0.193589	0.002683	-0.003479	0.00486
0.455451	0.119341	0.192518	0.002661	-0.003466	0.004876
0.455326	0.11882	0.193659	0.002671	-0.00345	0.004847

0.454854	0.119109	0.192141	0.002696	-0.003534	0.004884
0.455101	0.11812	0.194615	0.002678	-0.003443	0.004894
0.455906	0.118998	0.190992	0.002651	-0.003517	0.00493
0.455797	0.118108	0.192952	0.002661	-0.003478	0.004855
0.455099	0.118993	0.191508	0.002663	-0.003501	0.004853
0.455903	0.118476	0.19399	0.002656	-0.003432	0.004891
0.455458	0.118304	0.193869	0.002679	-0.003469	0.004861
0.455338	0.118928	0.192492	0.00266	-0.003472	0.004887
0.455712	0.118125	0.192411	0.002638	-0.003455	0.004862
0.455555	0.118196	0.194057	0.00266	-0.003434	0.004849
0.455738	0.118413	0.193323	0.002662	-0.00346	0.004849
0.45513	0.118344	0.193661	0.002667	-0.003451	0.00487
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0.456065	0.117987	0.192615	0.002657	-0.003489	0.00486
0.455473	0.117695	0.193741	0.002675	-0.003476	0.004817
0.455684	0.118201	0.193396	0.002682	-0.003494	0.004844
0.455474	0.118375	0.192731	0.002669	-0.00349	0.004862
0.45602	0.118395	0.194617	0.00264	-0.003385	0.004876
0.454459	0.117801	0.192303	0.002681	-0.003519	0.00486
0.455314	0.118004	0.196019	0.00264	-0.003335	0.00488
0.455267	0.118702	0.193171	0.002662	-0.003454	0.004863
0.455036	0.118433	0.193141	0.002657	-0.00345	0.004887
0.455228	0.118645	0.192708	0.002667	-0.003477	0.004844
0.455111	0.118019	0.194337	0.002662	-0.003424	0.004859
0.455386	0.117876	0.193876	0.002641	-0.003412	0.004884
0.455844	0.118723	0.193428	0.00266	-0.003453	0.004896
0.454841	0.117538	0.190406	0.00262	-0.003488	0.004872
0.455637	0.118553	0.193079	0.002658	-0.003456	0.004836
0.455269	0.117235	0.193855	0.00266	-0.003452	0.004849
0.455135	0.118161	0.190812	0.002635	-0.003494	0.004866
0.455006	0.117835	0.191863	0.002633	-0.003461	0.004883
0.454575	0.117468	0.189916	0.002641	-0.003539	0.004882
0.455033	0.118532	0.190589	0.002634	-0.003491	0.004879
0.454617	0.117876	0.192102	0.002637	-0.003453	0.004886
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0.454841	0.117829	0.19296	0.002635	-0.003425	0.004885
0.454665	0.117724	0.190868	0.002606	-0.003445	0.004896
0.455328	0.119368	0.192393	0.002656	-0.00346	0.004883
0.454632	0.117414	0.19082	0.002643	-0.003516	0.004911
0.454388	0.118814	0.191162	0.002623	-0.003434	0.004832
0.454882	0.117768	0.19124	0.002633	-0.003482	0.004896
0.455114	0.117694	0.193576	0.002631	-0.003399	0.00481
0.454763	0.117628	0.194194	0.002631	-0.003377	0.00486
0.454075	0.116898	0.19152	0.002631	-0.003471	0.004881
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0.023428	-0.010003	-0.005538	-0.00067	0.000487	-0.000737
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0.023798	-0.010156	-0.007234	-0.000728	0.000526	-0.000774
0.023233	-0.009888	-0.007959	-0.000717	0.000493	-0.000748
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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
0.51582	0.109007	0.655952	0.001828	0.012408	0.003929
0.517715	0.122322	0.200681	0.00192	-0.002714	0.003584
0.51828	0.123073	0.199776	0.001921	-0.002742	0.003616
0.518123	0.122487	0.200392	0.001932	-0.002749	0.003615
0.517969	0.12209	0.200579	0.0019	-0.002694	0.003628
0.517086	0.12261	0.197429	0.001937	-0.002837	0.003603
0.517041	0.122561	0.201451	0.001942	-0.002707	0.003546
0.517552	0.122582	0.198296	0.001905	-0.002762	0.003614
0.518037	0.122646	0.197423	0.001924	-0.00283	0.003622
0.517359	0.121806	0.200584	0.001933	-0.002743	0.00358
0.517165	0.122097	0.199739	0.001915	-0.002733	0.003594
0.517614	0.123131	0.197813	0.001921	-0.002796	0.003605
0.517798	0.122506	0.197844	0.001947	-0.002854	0.003601
0.517402	0.121793	0.197029	0.001901	-0.002807	0.003571
0.517064	0.12243	0.201853	0.001931	-0.002681	0.003591
0.516931	0.12161	0.197779	0.00191	-0.002796	0.003606
0.518028	0.121743	0.199792	0.00193	-0.002774	0.003555
0.517947	0.121307	0.196383	0.001878	-0.002808	0.003592
0.517055	0.121933	0.197376	0.001909	-0.002802	0.003598
0.517819	0.121692	0.196809	0.001896	-0.002814	0.003588
0.517038	0.121734	0.196938	0.001844	-0.002706	0.003578
0.517537	0.121211	0.196485	0.001857	-0.002762	0.003593
0.517557	0.122028	0.197913	0.001871	-0.002724	0.003583
0.517357	0.12097	0.19789	0.001859	-0.00272	0.003579
0.518043	0.121217	0.196749	0.00185	-0.002749	0.003593
0.517165	0.121757	0.197088	0.001891	-0.002784	0.00358
0.517575	0.120934	0.195425	0.00188	-0.002843	0.003569
0.51715	0.121876	0.198061	0.001874	-0.002726	0.00364
0.516713	0.121349	0.198353	0.001895	-0.002755	0.003638
0.51732	0.120794	0.198661	0.001882	-0.002736	0.003566
0.516637	0.121086	0.196036	0.00188	-0.002804	0.003578
0.516999	0.121385	0.195999	0.001896	-0.002834	0.003575
0.517057	0.120824	0.197449	0.001886	-0.00278	0.003586
0.517288	0.121462	0.196725	0.001873	-0.002773	0.003576
0.517127	0.121111	0.197753	0.001873	-0.002742	0.00359
0.516618	0.121209	0.198412	0.001893	-0.002745	0.003566
0.516292	0.120698	0.196969	0.00188	-0.002777	0.003588
0.517277	0.121199	0.197252	0.001888	-0.002784	0.003549
0.516726	0.120809	0.197122	0.001883	-0.002782	0.003598
0.517003	0.120519	0.197118	0.001898	-0.002814	0.003553
0.516772	0.120556	0.197309	0.001894	-0.002798	0.003581
0.517436	0.120256	0.196775	0.00186	-0.002772	0.003562
0.517188	0.121251	0.19845	0.001866	-0.002706	0.003587
0.51661	0.120685	0.199752	0.001898	-0.002718	0.003574
0.517179	0.120933	0.198055	0.001913	-0.002804	0.003554

0.517147	0.120572	0.198003	0.001867	-0.002732	0.003553
0.516659	0.120463	0.196126	0.001882	-0.002815	0.003549
0.516178	0.120953	0.19602	0.001869	-0.002782	0.00358
0.516818	0.120535	0.197728	0.00188	-0.002762	0.003587
0.516474	0.120012	0.197667	0.00186	-0.002732	0.003569
0.51705	0.119824	0.197126	0.001851	-0.002746	0.003565
0.517005	0.12038	0.195212	0.00184	-0.002784	0.003609
0.516596	0.120479	0.198981	0.001894	-0.002738	0.003539
0.516393	0.120763	0.196927	0.00189	-0.002796	0.003592
0.517172	0.119991	0.197401	0.001868	-0.002767	0.003589
0.516433	0.120178	0.196996	0.001845	-0.002723	0.00355
0.516653	0.119981	0.197872	0.001863	-0.002737	0.003614
0.516223	0.119979	0.199145	0.001875	-0.002703	0.003546
0.516084	0.119821	0.197684	0.001864	-0.002736	0.003566
0.516716	0.119703	0.196169	0.001847	-0.002771	0.003578
0.5162	0.120893	0.196235	0.001865	-0.00277	0.003589
0.515797	0.119632	0.195942	0.001839	-0.002751	0.003592
0.516458	0.119854	0.198359	0.001871	-0.002733	0.003592
0.516199	0.119749	0.197246	0.001855	-0.002742	0.003611
0.515534	0.119772	0.197626	0.001871	-0.002742	0.003575
0.516076	0.119982	0.197613	0.001853	-0.002718	0.003579
0.515869	0.119329	0.198902	0.001869	-0.002711	0.003579
0.515669	0.119454	0.197796	0.001866	-0.002734	0.003549
0.515289	0.119223	0.199468	0.001871	-0.002689	0.00358
0.516589	0.119946	0.195767	0.001835	-0.002757	0.003585
0.515239	0.120103	0.196613	0.001854	-0.002739	0.003604
0.515419	0.120109	0.196767	0.00187	-0.002762	0.003579
0.51594	0.120039	0.195256	0.001844	-0.002781	0.003624
0.515487	0.119252	0.19862	0.00186	-0.002701	0.003573
0.515995	0.119391	0.195017	0.001842	-0.002795	0.003589
0.515271	0.119587	0.196419	0.001834	-0.00272	0.003582
0.515164	0.11992	0.199073	0.001879	-0.002701	0.003592
0.516104	0.119938	0.195261	0.001832	-0.002763	0.003602
0.515212	0.119244	0.197276	0.001865	-0.002745	0.003529
0.515747	0.119418	0.197052	0.001854	-0.002742	0.003572
0.51548	0.118883	0.198852	0.001858	-0.002694	0.003551
0.515338	0.118614	0.196775	0.001869	-0.002787	0.003573
0.51569	0.118039	0.197037	0.001847	-0.002752	0.003525
0.515166	0.118732	0.195275	0.001812	-0.002733	0.003582
0.51498	0.118806	0.197587	0.001813	-0.002654	0.003576
0.515336	0.118887	0.197818	0.001859	-0.002729	0.003569
0.515439	0.117757	0.198324	0.001809	-0.002644	0.003525
0.515327	0.119196	0.195315	0.001847	-0.002785	0.003571
0.514962	0.119123	0.19737	0.001862	-0.002737	0.003543
0.515117	0.11854	0.197071	0.001848	-0.002738	0.003574
0.514095	0.118877	0.196524	0.001822	-0.00269	0.003585

0.514125	0.117883	0.195288	0.001797	-0.002707	0.003588
0.514789	0.118472	0.196372	0.001822	-0.002711	0.003562
0.515024	0.118063	0.195774	0.001811	-0.002728	0.00361
0.515226	0.118984	0.195259	0.001827	-0.002756	0.003564
0.514668	0.118377	0.196746	0.001825	-0.002708	0.003597
0.515171	0.118949	0.196494	0.001831	-0.00272	0.003558
0.515484	0.1184	0.19638	0.001814	-0.00271	0.003554
0.515119	0.117676	0.198012	0.001847	-0.002718	0.003543
0.514806	0.117941	0.199279	0.001845	-0.002663	0.003537
0.514573	0.118699	0.195598	0.001849	-0.002777	0.003556
0.515064	0.118549	0.196019	0.001832	-0.002744	0.003571
0.514088	0.117995	0.197468	0.001824	-0.002676	0.003553
0.5144	0.118407	0.195375	0.001826	-0.002751	0.003606
0.514108	0.118124	0.196175	0.001828	-0.002725	0.003553
0.514727	0.118327	0.196247	0.001801	-0.002684	0.003596
0.514476	0.118268	0.194884	0.001791	-0.00271	0.003591
0.514329	0.117745	0.197223	0.001839	-0.002718	0.003562
0.513886	0.117907	0.197884	0.001816	-0.002646	0.003544
0.514965	0.118748	0.196253	0.001831	-0.002729	0.003563
0.514136	0.118408	0.196695	0.00184	-0.002723	0.003563
0.514647	0.117616	0.19723	0.001818	-0.00269	0.003572
0.514322	0.118958	0.19565	0.001801	-0.002684	0.003582
0.513837	0.118447	0.195967	0.001837	-0.002737	0.00357
0.513807	0.117933	0.196585	0.001815	-0.002685	0.003539
0.514067	0.117735	0.195469	0.001775	-0.00266	0.003527
0.514017	0.117306	0.194945	0.001787	-0.002705	0.003523
0.514415	0.116907	0.194364	0.001762	-0.002701	0.003595
0.513635	0.11754	0.194417	0.001769	-0.002687	0.003597
0.514076	0.117215	0.193066	0.00176	-0.002725	0.003543
0.513883	0.117495	0.195042	0.001793	-0.002707	0.003542
0.514224	0.117465	0.193254	0.00176	-0.002718	0.003565
0.513921	0.117885	0.19403	0.001773	-0.002702	0.00356
0.512965	0.117367	0.193772	0.001755	-0.002672	0.003538
0.512988	0.118085	0.194297	0.001751	-0.002639	0.003578
0.513568	0.117822	0.194065	0.001756	-0.002668	0.003569
0.513261	0.118056	0.195652	0.001775	-0.002639	0.003573
0.514262	0.117953	0.195668	0.001788	-0.002678	0.003556
0.513859	0.117791	0.195491	0.001806	-0.002708	0.003524
0.512978	0.116876	0.198556	0.001821	-0.002639	0.003572
0.513956	0.117504	0.194974	0.001799	-0.002717	0.003494
0.513607	0.117513	0.19324	0.001757	-0.002705	0.003593
0.514034	0.117096	0.193359	0.001751	-0.002701	0.003543
0.51334	0.11705	0.194977	0.001775	-0.002681	0.003564
0.513894	0.116982	0.194433	0.00175	-0.002666	0.003565
0.513962	0.116709	0.195526	0.001767	-0.002663	0.003549
0.512726	0.116394	0.197033	0.001773	-0.002609	0.003535

0.513235	0.116768	0.194811	0.001758	-0.002657	0.003527
0.512895	0.117266	0.193318	0.001743	-0.00267	0.003557
0.513509	0.117049	0.193686	0.001752	-0.002689	0.003592
0.513186	0.117475	0.194896	0.00174	-0.002612	0.003568
0.51258	0.116616	0.195138	0.001758	-0.002639	0.003526
0.513216	0.116737	0.194991	0.001783	-0.002696	0.003537
0.512755	0.116612	0.193572	0.001733	-0.002654	0.003571
0.513024	0.117046	0.19472	0.001744	-0.002628	0.003522
0.513377	0.116526	0.195417	0.001769	-0.002667	0.003564
0.51318	0.116024	0.194512	0.00174	-0.002651	0.003544
0.513057	0.117522	0.194694	0.001742	-0.002619	0.003551
0.512049	0.116842	0.196434	0.001782	-0.002624	0.003512
0.511691	0.116384	0.195027	0.00176	-0.002638	0.003544
0.513252	0.116615	0.192801	0.001734	-0.002691	0.003578
0.070046	-0.031762	0.438797	-0.002068	0.016704	-0.001695
0.072574	-0.018778	-0.015866	-0.00196	0.00156	-0.002039
0.072507	-0.018293	-0.016372	-0.001967	0.001563	-0.002016
0.072385	-0.01872	-0.015157	-0.00193	0.001537	-0.002054
0.072276	-0.018327	-0.016734	-0.001933	0.001499	-0.002067
0.072368	-0.017998	-0.019265	-0.00196	0.001464	-0.002047
0.072343	-0.019519	-0.015662	-0.001917	0.001484	-0.00208
0.072717	-0.018628	-0.01741	-0.001937	0.00147	-0.00206
0.07274	-0.018556	-0.017593	-0.001945	0.001479	-0.00205
0.072644	-0.017891	-0.015094	-0.001919	0.001531	-0.002044
0.072334	-0.018097	-0.015955	-0.001917	0.001495	-0.002005
0.072151	-0.019094	-0.015166	-0.001909	0.001497	-0.002062
0.072316	-0.01851	-0.015564	-0.001918	0.001507	-0.002054
0.072498	-0.018468	-0.017207	-0.00194	0.001491	-0.002086
0.072264	-0.017929	-0.017689	-0.001953	0.001503	-0.002002
0.072645	-0.01834	-0.015424	-0.001945	0.00156	-0.002086
0.072359	-0.018502	-0.017195	-0.001973	0.001546	-0.002044
0.072575	-0.018185	-0.016924	-0.001929	0.001478	-0.002008
0.071797	-0.018155	-0.015673	-0.001938	0.001554	-0.002057
0.072095	-0.018141	-0.017593	-0.001907	0.001432	-0.002057
0.072332	-0.01818	-0.016603	-0.001909	0.001463	-0.002049
0.071362	-0.018639	-0.015664	-0.001906	0.001496	-0.002068
0.072462	-0.018188	-0.016901	-0.001925	0.001478	-0.002059
0.072005	-0.018209	-0.015851	-0.001901	0.00148	-0.002068
0.072509	-0.017902	-0.017573	-0.00195	0.001503	-0.002057
0.071893	-0.017886	-0.016694	-0.001924	0.001496	-0.002033
0.072152	-0.018797	-0.0164	-0.001935	0.001507	-0.002064
0.071848	-0.018239	-0.018657	-0.001936	0.001445	-0.002019
0.071225	-0.017692	-0.017122	-0.001919	0.001491	-0.00207
0.071998	-0.017751	-0.016966	-0.001964	0.001557	-0.002035
0.071884	-0.017919	-0.018208	-0.001955	0.0015	-0.00204
0.071571	-0.018727	-0.01827	-0.001979	0.001529	-0.002046

0.071768	-0.017688	-0.018944	-0.001969	0.001504	-0.002027
0.072026	-0.017433	-0.018931	-0.001969	0.001507	-0.002046
0.071831	-0.018068	-0.019178	-0.002	0.001542	-0.002024
0.072066	-0.017994	-0.018872	-0.00197	0.001498	-0.002026
0.071619	-0.018141	-0.018425	-0.001959	0.0015	-0.00205
0.072157	-0.018075	-0.017089	-0.001962	0.001541	-0.002021
0.072006	-0.017366	-0.018707	-0.001961	0.001501	-0.002031
0.071233	-0.018401	-0.017965	-0.001967	0.001532	-0.002067
0.072007	-0.017546	-0.017775	-0.001971	0.001543	-0.002003
0.071841	-0.017883	-0.019038	-0.001965	0.00149	-0.002042
0.071676	-0.01781	-0.01845	-0.001945	0.001479	-0.002037
0.071835	-0.018535	-0.01817	-0.001954	0.001488	-0.00203
0.071639	-0.017278	-0.019811	-0.001965	0.001477	-0.002012
0.071334	-0.018182	-0.018566	-0.001938	0.001464	-0.002069
0.071786	-0.017147	-0.018141	-0.00195	0.001511	-0.002066
0.071723	-0.017393	-0.019573	-0.001977	0.001506	-0.002053
0.07129	-0.0169	-0.019634	-0.001964	0.001496	-0.002046
0.071058	-0.018014	-0.019285	-0.001985	0.001528	-0.002059
0.071342	-0.017853	-0.017808	-0.001967	0.001548	-0.002086
0.071029	-0.017462	-0.016598	-0.001937	0.001544	-0.002041
0.071132	-0.017511	-0.017635	-0.001936	0.001507	-0.002069
0.071096	-0.017672	-0.018766	-0.001951	0.001494	-0.002077
0.071079	-0.0176	-0.017003	-0.001926	0.001513	-0.0021
0.071347	-0.017987	-0.018872	-0.001952	0.001483	-0.002079
0.070913	-0.017846	-0.016914	-0.001929	0.00152	-0.002106
0.071077	-0.017305	-0.017104	-0.001939	0.001538	-0.002095
0.071429	-0.017889	-0.017733	-0.001959	0.001534	-0.002087
0.071084	-0.017877	-0.018507	-0.001952	0.001502	-0.002086
0.071657	-0.017965	-0.019367	-0.001962	0.00148	-0.002075
0.070912	-0.018038	-0.017518	-0.001934	0.001504	-0.002109
0.071477	-0.018242	-0.01703	-0.001943	0.001521	-0.002072
0.071201	-0.017348	-0.018387	-0.001941	0.001496	-0.002109
0.071093	-0.0185	-0.017601	-0.001948	0.001511	-0.002068
0.072131	-0.017596	-0.017323	-0.001953	0.001531	-0.002067
0.071284	-0.017591	-0.017789	-0.001912	0.00146	-0.002115
0.071391	-0.017011	-0.017018	-0.001918	0.001505	-0.002086
0.071181	-0.017345	-0.016515	-0.001904	0.001494	-0.002094
0.071285	-0.017919	-0.015961	-0.00193	0.001543	-0.002064
0.071122	-0.018488	-0.019216	-0.00198	0.001513	-0.00208
0.071	-0.01759	-0.017571	-0.001951	0.001537	-0.002071
0.071131	-0.01791	-0.018494	-0.001954	0.001505	-0.002096
0.071329	-0.017043	-0.019522	-0.001952	0.001476	-0.002049
0.070528	-0.017629	-0.019187	-0.001965	0.001513	-0.002061
0.070984	-0.017512	-0.018649	-0.001986	0.001561	-0.002052
0.070407	-0.017056	-0.020251	-0.001988	0.001526	-0.002007
0.070854	-0.017003	-0.019667	-0.001987	0.001541	-0.002048

0.070568	-0.017334	-0.020941	-0.002001	0.001524	-0.0021
0.070367	-0.017651	-0.018728	-0.001975	0.001549	-0.002083
0.071275	-0.017348	-0.018952	-0.001987	0.001553	-0.002065
0.070669	-0.017683	-0.018987	-0.001966	0.00152	-0.002079
0.070943	-0.017545	-0.017862	-0.001955	0.001539	-0.002114
0.070786	-0.017923	-0.018216	-0.001954	0.001518	-0.002079
0.07092	-0.017562	-0.01934	-0.001962	0.001497	-0.002067
0.070727	-0.017745	-0.017106	-0.001936	0.001524	-0.002039
0.070447	-0.016918	-0.020149	-0.00199	0.001536	-0.002018
0.071061	-0.017504	-0.016598	-0.00194	0.001552	-0.002089
0.071274	-0.017136	-0.019092	-0.001963	0.001509	-0.002041
0.070139	-0.017675	-0.018097	-0.00194	0.001512	-0.002074
0.07032	-0.017721	-0.018158	-0.001936	0.001505	-0.00213
0.070797	-0.017634	-0.018487	-0.001975	0.001551	-0.002078
0.070585	-0.017438	-0.019562	-0.001982	0.001532	-0.002052
0.071372	-0.016906	-0.020086	-0.00195	0.001458	-0.002063
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0.071805	-0.017597	-0.018013	-0.001958	0.001521	-0.002063
0.071116	-0.017358	-0.016255	-0.001946	0.001576	-0.002098
0.070988	-0.017836	-0.018063	-0.001935	0.001489	-0.002083
0.070449	-0.016849	-0.018687	-0.001935	0.00149	-0.002029
0.070362	-0.017498	-0.017846	-0.001934	0.001509	-0.00207
0.070986	-0.017818	-0.018118	-0.001923	0.001469	-0.002102
0.070334	-0.017042	-0.017764	-0.001922	0.001502	-0.002088
0.071186	-0.017826	-0.01887	-0.001936	0.001463	-0.002095
0.071095	-0.016863	-0.016523	-0.001886	0.001472	-0.002091
0.070506	-0.017482	-0.016954	-0.001937	0.001545	-0.002098
0.070823	-0.01693	-0.01599	-0.001895	0.001511	-0.002103
0.070639	-0.017536	-0.018605	-0.001935	0.001478	-0.002045
0.070111	-0.017233	-0.017517	-0.001914	0.001495	-0.002071
0.070873	-0.017045	-0.017569	-0.001931	0.001515	-0.002074
0.070104	-0.016543	-0.020227	-0.001936	0.001454	-0.002046
0.070668	-0.017708	-0.018795	-0.001931	0.001464	-0.002085
0.070228	-0.01746	-0.017938	-0.00194	0.001521	-0.002076
0.070327	-0.016901	-0.019819	-0.001945	0.00147	-0.002011
0.070304	-0.016658	-0.019444	-0.001943	0.001485	-0.002023
0.070461	-0.016991	-0.018485	-0.001937	0.001502	-0.002084
0.070385	-0.016712	-0.017872	-0.001933	0.001519	-0.002053
0.070293	-0.016389	-0.018601	-0.001927	0.001495	-0.002076
0.070246	-0.016671	-0.018106	-0.001923	0.001497	-0.002044
0.070447	-0.016507	-0.017897	-0.001927	0.001514	-0.002095
0.069989	-0.016875	-0.017856	-0.00192	0.001504	-0.002088
0.070424	-0.017292	-0.017801	-0.001926	0.001502	-0.002096
0.070231	-0.017169	-0.019496	-0.001944	0.001481	-0.002076
0.06949	-0.016783	-0.016024	-0.001905	0.001548	-0.002076
0.070382	-0.017852	-0.017563	-0.001904	0.00146	-0.002078

0.069761	-0.017123	-0.018289	-0.001926	0.001498	-0.002091
0.069416	-0.016763	-0.01799	-0.001934	0.001532	-0.002051
0.069605	-0.017058	-0.017227	-0.001938	0.001558	-0.002091
0.069857	-0.016803	-0.01813	-0.001946	0.001543	-0.002084
0.070324	-0.015987	-0.021314	-0.001943	0.001438	-0.002072
0.069101	-0.017071	-0.02009	-0.001965	0.001517	-0.002082
0.069647	-0.016781	-0.018072	-0.001911	0.001489	-0.002095
0.069555	-0.016514	-0.018042	-0.001928	0.001529	-0.002124
0.069677	-0.017069	-0.017613	-0.0019	0.00148	-0.002113
0.070342	-0.017318	-0.017549	-0.001917	0.001497	-0.002108
0.069498	-0.017073	-0.01909	-0.001923	0.001474	-0.002104
0.069503	-0.016717	-0.01714	-0.00189	0.001487	-0.002093
0.069417	-0.017182	-0.016846	-0.001889	0.001491	-0.002123
0.069049	-0.01596	-0.019084	-0.001921	0.001495	-0.002082
0.069789	-0.016421	-0.01954	-0.00193	0.001476	-0.002088
0.069093	-0.016266	-0.020474	-0.001931	0.001459	-0.00206
0.069636	-0.01649	-0.019838	-0.00193	0.001466	-0.002068
0.069519	-0.01635	-0.019886	-0.001922	0.001459	-0.002109
0.069382	-0.016697	-0.018623	-0.001926	0.001503	-0.002102
0.069091	-0.017013	-0.01863	-0.001916	0.001483	-0.002099
0.069238	-0.017303	-0.01939	-0.00194	0.00149	-0.002073
0.069156	-0.017185	-0.01807	-0.001909	0.001484	-0.002068
0.068877	-0.016394	-0.01846	-0.001907	0.001489	-0.002107
0.068733	-0.017216	-0.017384	-0.001917	0.001528	-0.002089
0.069082	-0.016472	-0.017289	-0.00189	0.001493	-0.002101
0.06881	-0.017495	-0.017664	-0.001922	0.001523	-0.002129
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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
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0.595386	0.123169	0.198791	0.000749	-0.001812	0.002066
0.595223	0.122906	0.199211	0.000753	-0.001807	0.002062
0.594762	0.122857	0.201192	0.000818	-0.001843	0.002007
0.595249	0.123293	0.199417	0.000758	-0.001797	0.002012
0.593846	0.123472	0.199092	0.000754	-0.001781	0.002084
0.594721	0.122474	0.201311	0.000769	-0.001766	0.002079
0.595278	0.122688	0.198455	0.000736	-0.001807	0.002056
0.594531	0.121786	0.202571	0.000815	-0.001803	0.001946
0.593868	0.122775	0.198114	0.000746	-0.001815	0.002092
0.593703	0.122607	0.199116	0.000772	-0.001824	0.002065
0.593618	0.121136	0.19992	0.000748	-0.001776	0.001985
0.594359	0.12252	0.198178	0.000696	-0.001739	0.002089
0.593898	0.12186	0.199177	0.000756	-0.001812	0.002074
0.594107	0.122093	0.196707	0.000725	-0.001839	0.002057
0.593311	0.121964	0.196729	0.000717	-0.001817	0.002082
0.592918	0.121784	0.199401	0.000739	-0.00176	0.002048
0.59349	0.122051	0.198732	0.000709	-0.00173	0.001998
0.593456	0.123308	0.195015	0.00065	-0.001737	0.00211
0.593504	0.121162	0.196829	0.000673	-0.00175	0.002025
0.593812	0.121499	0.194936	0.000613	-0.001711	0.002071
0.593641	0.121428	0.195731	0.000684	-0.001805	0.002051
0.593534	0.121777	0.196416	0.000702	-0.001808	0.002093
0.593823	0.121134	0.199682	0.000734	-0.001768	0.002044
0.593014	0.121478	0.196911	0.000723	-0.001824	0.00206
0.593511	0.12047	0.199126	0.00073	-0.001785	0.002018
0.593174	0.120876	0.197549	0.000696	-0.001765	0.002018
0.593186	0.121843	0.195095	0.000665	-0.001782	0.002097
0.592535	0.120779	0.197981	0.000727	-0.001794	0.001995
0.592826	0.121191	0.199119	0.000729	-0.001764	0.00208
0.591786	0.121836	0.195821	0.000674	-0.00175	0.002068
0.592715	0.12071	0.19753	0.000713	-0.001794	0.002049
0.592642	0.121189	0.196103	0.000644	-0.001719	0.00213
0.592146	0.121215	0.19842	0.000743	-0.001798	0.002048
0.592331	0.120669	0.195966	0.000666	-0.001761	0.002071
0.591255	0.120717	0.196278	0.000745	-0.001863	0.001987
0.592156	0.120511	0.197432	0.000698	-0.001771	0.002098
0.591793	0.121401	0.19743	0.000693	-0.001737	0.002063
0.592098	0.121158	0.19738	0.000743	-0.001836	0.002073
0.592294	0.120127	0.198338	0.000717	-0.001777	0.002034
0.59153	0.119489	0.198148	0.000711	-0.00177	0.001996
0.590793	0.120563	0.196864	0.000699	-0.001766	0.002061
0.591494	0.121205	0.195085	0.000696	-0.001825	0.00213
0.591224	0.119926	0.198783	0.000724	-0.00176	0.002002
0.591516	0.1207	0.195984	0.000691	-0.001797	0.002133

0.591236	0.120415	0.198176	0.000691	-0.00172	0.002084
0.591041	0.119851	0.200351	0.000706	-0.001674	0.00201
0.591743	0.120377	0.196967	0.000705	-0.001789	0.002043
0.591371	0.119242	0.197938	0.0007	-0.001761	0.002014
0.592199	0.119533	0.196492	0.000679	-0.001785	0.002074
0.592117	0.119463	0.194671	0.000677	-0.001842	0.002057
0.591359	0.119683	0.198587	0.000717	-0.00176	0.002003
0.591279	0.119212	0.198151	0.000719	-0.00179	0.002055
0.59239	0.120033	0.198011	0.0007	-0.001766	0.00209
0.592205	0.119179	0.197807	0.000717	-0.001813	0.002062
0.592547	0.118966	0.200458	0.00074	-0.001771	0.002022
0.592353	0.119964	0.195176	0.000645	-0.001769	0.002125
0.59239	0.119254	0.197539	0.000694	-0.001781	0.002022
0.592407	0.119696	0.196142	0.000677	-0.001802	0.002169
0.591526	0.118479	0.2002	0.000735	-0.001761	0.001982
0.591965	0.119749	0.1971	0.000697	-0.001792	0.002099
0.591123	0.118086	0.199004	0.000722	-0.001778	0.001974
0.590801	0.118604	0.195537	0.000646	-0.001755	0.00206
0.591399	0.11987	0.19488	0.00067	-0.001806	0.002085
0.591568	0.118343	0.199065	0.000721	-0.001781	0.002019
0.590855	0.117587	0.198774	0.00068	-0.001724	0.002038
0.590409	0.117564	0.198773	0.000677	-0.001709	0.001995
0.591132	0.118551	0.196901	0.000659	-0.001733	0.002002
0.591743	0.118082	0.196975	0.00068	-0.001789	0.002052
0.591277	0.118591	0.196235	0.000643	-0.001732	0.002045
0.590737	0.118672	0.199323	0.000713	-0.001737	0.001988
0.590499	0.118137	0.197974	0.000663	-0.001711	0.002098
0.591031	0.118342	0.199884	0.000686	-0.001685	0.002031
0.590712	0.118458	0.19535	0.000638	-0.00175	0.00207
0.59058	0.1177	0.199012	0.000694	-0.00173	0.001995
0.590159	0.118268	0.197381	0.000684	-0.001755	0.002054
0.590126	0.117498	0.197025	0.000639	-0.001701	0.002035
0.590329	0.117961	0.196374	0.000667	-0.001768	0.002058
0.590315	0.117422	0.197936	0.000654	-0.0017	0.002008
0.590222	0.117861	0.195488	0.000651	-0.001767	0.002023
0.590035	0.119329	0.19618	0.000669	-0.001743	0.001994
0.589816	0.117322	0.197443	0.000674	-0.001745	0.002018
0.590055	0.117973	0.196315	0.000653	-0.001741	0.002051
0.589805	0.11716	0.196076	0.00063	-0.001716	0.001997
0.590998	0.118009	0.193858	0.000581	-0.001722	0.00216
0.589754	0.11697	0.197401	0.000655	-0.001717	0.00199
0.589801	0.117086	0.19569	0.000607	-0.001692	0.002019
0.589673	0.116791	0.198947	0.000674	-0.0017	0.001991
0.589927	0.117743	0.195061	0.000611	-0.001712	0.002055
0.589361	0.117418	0.198809	0.000658	-0.001663	0.002014
0.589796	0.116992	0.198938	0.000663	-0.001679	0.001987

0.589614	0.116487	0.197287	0.000629	-0.001682	0.001987
0.589817	0.116773	0.197432	0.000668	-0.001742	0.001976
0.589905	0.117137	0.193559	0.000576	-0.001711	0.00203
0.589716	0.116279	0.200082	0.000639	-0.001611	0.001975
0.590241	0.117206	0.197262	0.000584	-0.001604	0.002019
0.590008	0.116271	0.194898	0.000593	-0.001713	0.002021
0.589536	0.11696	0.194434	0.000584	-0.001693	0.002034
0.589206	0.116993	0.196153	0.000658	-0.001757	0.002027
0.590093	0.11619	0.197741	0.000622	-0.001668	0.00199
0.589985	0.116403	0.198858	0.000636	-0.00165	0.002002
0.590167	0.11656	0.197003	0.000599	-0.001652	0.002045
0.590596	0.116964	0.197367	0.000635	-0.001698	0.002007
0.590235	0.117375	0.194884	0.000604	-0.001721	0.002089
0.589964	0.115447	0.199642	0.000658	-0.001671	0.001892
0.589691	0.117468	0.191774	0.000518	-0.001671	0.002164
0.588982	0.115934	0.19968	0.00064	-0.001623	0.002001
0.588654	0.116525	0.197695	0.000617	-0.001636	0.002033
0.589113	0.116757	0.196603	0.000609	-0.001662	0.002037
0.589598	0.115876	0.195977	0.000575	-0.001642	0.00198
0.589239	0.116442	0.195315	0.00058	-0.001663	0.002064
0.589142	0.115782	0.199193	0.000658	-0.001672	0.00195
0.589379	0.11619	0.198296	0.000633	-0.001655	0.001953
0.588372	0.116095	0.196388	0.000616	-0.001678	0.001999
0.587792	0.116181	0.195208	0.000589	-0.00166	0.002002
0.588238	0.115434	0.199582	0.000664	-0.001667	0.002019
0.588019	0.11493	0.196112	0.00061	-0.00169	0.001949
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0.587658	0.114097	0.199516	0.000657	-0.001662	0.001896
0.588318	0.115847	0.192776	0.000542	-0.001683	0.002096
0.58846	0.114899	0.197754	0.000619	-0.00166	0.00198
0.587892	0.115582	0.194682	0.000551	-0.001627	0.002029
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0.587312	0.115959	0.194947	0.000527	-0.001563	0.002068
0.58693	0.115387	0.193662	0.000552	-0.001651	0.002028
0.587561	0.114311	0.195444	0.000574	-0.001653	0.001939
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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
0.717097	0.124247	0.640591	-0.001026	0.014244	0.000965
0.718229	0.130523	0.215384	-0.00056	-0.000592	3.00E-05
0.717967	0.131818	0.220358	-0.000309	-0.000842	0.000143
0.719418	0.135887	0.195163	-0.000861	-0.000738	0.000919
0.719697	0.132647	0.198084	-0.000906	-0.000593	0.000516
0.718622	0.125433	0.222832	-0.000469	-0.000573	-0.000332
0.71928	0.12968	0.217912	-0.000413	-0.0008	8.90E-05
0.720077	0.133401	0.19713	-0.000848	-0.000741	0.000805
0.720241	0.132723	0.194584	-0.00101	-0.000549	0.000658
0.717776	0.125771	0.219209	-0.000534	-0.000561	-0.000334
0.718503	0.125749	0.223268	-0.000363	-0.000753	-0.00011
0.720755	0.131877	0.201776	-0.00079	-0.000712	0.000631
0.719943	0.131883	0.194808	-0.001036	-0.000513	0.000731
0.718034	0.127691	0.20956	-0.000727	-0.000544	-7.00E-06
0.715701	0.126649	0.224107	-0.000274	-0.000806	-0.000253
0.716295	0.13324	0.201987	-0.00069	-0.000787	0.000676
0.715385	0.134132	0.194003	-0.000931	-0.000619	0.000862
0.713871	0.129344	0.211278	-0.000709	-0.000437	0.000179
0.714045	0.12634	0.219864	-0.000398	-0.000717	-0.000198
0.715001	0.131382	0.210089	-0.000584	-0.000708	0.000599
0.717829	0.133188	0.187348	-0.001136	-0.000547	0.000921
0.71648	0.125036	0.214382	-0.000648	-0.000533	-0.000151
0.715574	0.122015	0.227235	-0.000288	-0.000745	-0.000478
0.716788	0.130605	0.203704	-0.000707	-0.000752	0.000612
0.716382	0.132226	0.190718	-0.001067	-0.000551	0.000935
0.713661	0.126183	0.208105	-0.000721	-0.000567	4.20E-05
0.713007	0.123243	0.230041	-0.000251	-0.000654	-0.00045
0.71638	0.1295	0.205684	-0.000662	-0.000774	0.000565
0.71417	0.132801	0.190725	-0.00103	-0.000569	0.000933
0.711738	0.12719	0.205355	-0.000773	-0.000527	0.000125
0.711724	0.123475	0.223445	-0.00036	-0.000666	-0.000383
0.712475	0.129641	0.205096	-0.000638	-0.000767	0.000514
0.712563	0.132136	0.186639	-0.001129	-0.000524	0.000965
0.712125	0.127941	0.200213	-0.000907	-0.000469	0.000275
0.712855	0.123049	0.222282	-0.000462	-0.000557	-0.000333
0.712722	0.127042	0.213295	-0.000506	-0.00075	0.000216
0.712856	0.132608	0.187396	-0.001051	-0.00063	0.000979
0.712591	0.127174	0.20089	-0.000932	-0.000429	0.000316
0.711328	0.121767	0.224094	-0.000441	-0.000527	-0.00041
0.71221	0.125184	0.215335	-0.000418	-0.00085	7.50E-05
0.713317	0.131475	0.188383	-0.001042	-0.000641	0.000967
0.711343	0.127169	0.201267	-0.000887	-0.000473	0.000296
0.710471	0.122453	0.218561	-0.000548	-0.000508	-0.000323
0.711102	0.125581	0.217594	-0.000418	-0.000748	4.50E-05
0.711559	0.130603	0.18834	-0.001016	-0.000676	0.000964

0.709356	0.128242	0.19323	-0.001015	-0.000485	0.000492
0.709355	0.123549	0.215759	-0.000545	-0.000581	-0.000184
0.70968	0.124377	0.216135	-0.000429	-0.000771	-2.10E-05
0.711019	0.129395	0.190259	-0.000953	-0.000726	0.000843
0.709497	0.128768	0.192736	-0.001071	-0.00041	0.000656
0.708029	0.122482	0.214393	-0.000591	-0.00054	-0.00025
0.707994	0.122634	0.223042	-0.000294	-0.000768	-0.000186
0.709205	0.130038	0.190883	-0.000923	-0.000713	0.000805
0.707979	0.130004	0.18692	-0.001151	-0.000435	0.000857
0.706842	0.122325	0.212971	-0.000642	-0.00049	-0.000165
0.708103	0.122759	0.216332	-0.000409	-0.000795	-0.000145
0.70847	0.128047	0.197467	-0.000835	-0.000666	0.000732
0.707258	0.12896	0.18869	-0.001133	-0.000415	0.000848
0.705433	0.122757	0.209105	-0.000765	-0.000378	-0.000141
0.705456	0.121188	0.218573	-0.00044	-0.000653	-0.000177
0.70576	0.1284	0.197255	-0.00077	-0.000741	0.00077
0.704608	0.130639	0.180206	-0.001211	-0.000501	0.000965
0.702549	0.124362	0.205114	-0.000779	-0.000424	2.00E-06
0.702638	0.122876	0.219593	-0.000332	-0.000725	-0.000248
0.704388	0.128369	0.195722	-0.000773	-0.000764	0.000747
0.704985	0.128116	0.185712	-0.001161	-0.000442	0.000802
0.704262	0.122809	0.205132	-0.000793	-0.000448	-6.10E-05
0.704305	0.12016	0.21918	-0.000409	-0.000671	-0.000368
0.703623	0.126415	0.199203	-0.000688	-0.000807	0.000593
0.702761	0.128807	0.182674	-0.001152	-0.000521	0.000899
0.701452	0.122191	0.203464	-0.000759	-0.000531	-6.40E-05
0.702092	0.118858	0.217583	-0.000454	-0.000637	-0.000359
0.705702	0.123011	0.201799	-0.000796	-0.000615	0.00043
0.707357	0.126372	0.184768	-0.001211	-0.000463	0.000858
0.705885	0.119817	0.204384	-0.000891	-0.000372	-0.000215
0.703004	0.118934	0.216893	-0.000522	-0.000555	-0.000344
0.703311	0.123995	0.199445	-0.00079	-0.000654	0.000504
0.703397	0.127343	0.183871	-0.001153	-0.000518	0.000918
0.703428	0.120753	0.20239	-0.000899	-0.000383	-5.20E-05
0.703004	0.117562	0.219593	-0.000472	-0.000565	-0.000519
0.703667	0.12288	0.203347	-0.000684	-0.000725	0.000386
0.703066	0.128916	0.179261	-0.001255	-0.000472	0.001064
0.702243	0.120834	0.203191	-0.000874	-0.000381	-4.00E-05
0.702322	0.117281	0.219153	-0.000456	-0.00061	-0.000411
0.704299	0.120512	0.208842	-0.000625	-0.000678	0.000151
0.704411	0.124952	0.189027	-0.001101	-0.000484	0.000763
0.702221	0.121512	0.197335	-0.000999	-0.000367	0.000207
0.700309	0.115567	0.225527	-0.000345	-0.000569	-0.000667
0.702468	0.122194	0.204218	-0.000685	-0.000677	0.000259
0.6996	0.127265	0.178472	-0.001214	-0.000539	0.000969
0.699721	0.121859	0.196952	-0.00098	-0.000367	0.00021

0.699151	0.115615	0.223937	-0.000393	-0.000525	-0.000605
0.700465	0.123736	0.197318	-0.000768	-0.000722	0.000474
0.700751	0.127193	0.181187	-0.001223	-0.000451	0.00095
0.699837	0.120806	0.198376	-0.000984	-0.00033	0.000169
0.698683	0.114934	0.222071	-0.000402	-0.000577	-0.000606
0.69862	0.121312	0.202243	-0.0007	-0.000679	0.000314
0.699678	0.126615	0.180875	-0.001227	-0.000449	0.000958
0.698384	0.121309	0.195517	-0.000999	-0.000374	0.00024
0.696962	0.115958	0.217562	-0.000455	-0.000604	-0.000435
0.699627	0.119975	0.209913	-0.000606	-0.000612	0.000131
0.699236	0.124803	0.183945	-0.001183	-0.000445	0.000904
0.698739	0.122531	0.193082	-0.001043	-0.000374	0.000382
0.698442	0.115401	0.218709	-0.000528	-0.000459	-0.000611
0.699808	0.12008	0.207618	-0.000626	-0.000659	0.00019
0.70013	0.123827	0.190795	-0.001067	-0.000434	0.000715
0.699879	0.120186	0.194842	-0.001055	-0.000344	0.000233
0.698821	0.116171	0.213606	-0.000614	-0.000488	-0.000403
0.698808	0.11761	0.211712	-0.000574	-0.000619	-9.70E-05
0.700635	0.122413	0.192954	-0.000936	-0.000608	0.000538
0.701041	0.123618	0.182815	-0.001285	-0.000341	0.000734
0.69886	0.116397	0.208142	-0.000764	-0.000414	-0.000314
0.699431	0.114534	0.216682	-0.00046	-0.000689	-0.000461
0.701899	0.120994	0.194117	-0.000973	-0.000548	0.000494
0.699731	0.12361	0.183233	-0.001252	-0.000365	0.000735
0.698962	0.117406	0.205733	-0.00084	-0.000363	-0.000111
0.698556	0.114609	0.22175	-0.000419	-0.000576	-0.000442
0.699577	0.122288	0.195326	-0.000904	-0.000575	0.000594
0.698162	0.121298	0.186069	-0.001158	-0.000442	0.000619
0.698071	0.117583	0.202099	-0.000914	-0.000342	-6.30E-05
0.697864	0.114162	0.217791	-0.000495	-0.000576	-0.000429
0.698993	0.120473	0.202207	-0.000779	-0.000572	0.000409
0.697114	0.12428	0.183397	-0.001151	-0.000487	0.000815
0.696737	0.117657	0.201511	-0.000905	-0.000354	-7.20E-05
0.696529	0.116269	0.216758	-0.000497	-0.000548	-0.000401
0.699006	0.121946	0.19623	-0.000894	-0.000561	0.000598
0.70028	0.121864	0.185413	-0.001225	-0.000381	0.000739
0.698392	0.117964	0.197565	-0.001019	-0.000325	0.000124
0.696836	0.113725	0.220117	-0.000437	-0.00058	-0.000556
0.696408	0.119457	0.201209	-0.000779	-0.000574	0.000276
0.697956	0.123896	0.177909	-0.001302	-0.000441	0.000967
0.696331	0.118138	0.196041	-0.001057	-0.000268	6.00E-05
0.695612	0.113293	0.218626	-0.000511	-0.000492	-0.000524
0.697296	0.117431	0.203329	-0.000722	-0.000645	0.000168
0.69731	0.12269	0.184001	-0.001175	-0.000461	0.000845
0.695548	0.120476	0.18994	-0.001133	-0.000303	0.000296
0.694675	0.113	0.218669	-0.000523	-0.000456	-0.000597

0.696858	0.117503	0.208295	-0.000619	-0.000648	0.000151
0.696436	0.123105	0.178822	-0.001221	-0.000535	0.000878
0.693473	0.120753	0.188969	-0.001108	-0.000357	0.000463
0.691672	0.114871	0.216021	-0.000528	-0.000465	-0.000459
0.693368	0.118319	0.204831	-0.00064	-0.000653	0.000102
0.694052	0.122414	0.185066	-0.001091	-0.000519	0.000766
0.692797	0.117833	0.193805	-0.001018	-0.000374	0.000224
0.693081	0.112748	0.219279	-0.000518	-0.000425	-0.000583
0.694842	0.116419	0.207489	-0.000658	-0.000579	-4.70E-05
0.697044	0.120935	0.188108	-0.001084	-0.000499	0.000708
0.694737	0.11879	0.193739	-0.001036	-0.000365	0.000301
0.694369	0.113393	0.212946	-0.000665	-0.000398	-0.000479
0.694512	0.115956	0.210708	-0.000557	-0.00064	-0.000178
0.695301	0.122079	0.187578	-0.001063	-0.000509	0.000756
0.218233	-0.048687	0.4216	-0.005205	0.019216	-0.004896
0.221679	-0.032	-0.054232	-0.005554	0.004158	-0.004585
0.221966	-0.038236	-0.038516	-0.005377	0.004322	-0.005406
0.220434	-0.041706	-0.02031	-0.004906	0.004118	-0.005965
0.223	-0.039864	-0.024858	-0.004946	0.003996	-0.005552
0.222563	-0.033489	-0.055991	-0.005579	0.004104	-0.004628
0.222909	-0.037482	-0.041474	-0.005418	0.004286	-0.005304
0.221926	-0.041534	-0.020565	-0.004947	0.00416	-0.005946
0.223026	-0.039942	-0.022846	-0.004891	0.003971	-0.005615
0.223154	-0.033664	-0.049874	-0.005449	0.004079	-0.004742
0.221555	-0.036069	-0.042634	-0.005382	0.004225	-0.005222
0.221282	-0.042167	-0.020195	-0.004956	0.004191	-0.006006
0.221492	-0.03886	-0.025168	-0.004895	0.00393	-0.005446
0.222523	-0.034822	-0.046709	-0.005427	0.004144	-0.004848
0.221444	-0.036481	-0.043875	-0.00544	0.004276	-0.005183
0.22071	-0.041305	-0.023284	-0.004999	0.004183	-0.005961
0.221389	-0.038472	-0.025962	-0.004915	0.003957	-0.00555
0.222287	-0.034512	-0.048516	-0.005424	0.004085	-0.004802
0.221681	-0.035492	-0.048025	-0.005502	0.004244	-0.005013
0.220027	-0.042322	-0.01777	-0.004845	0.004105	-0.006104
0.219343	-0.038066	-0.025407	-0.004893	0.003975	-0.00553
0.220626	-0.032775	-0.046341	-0.005298	0.003994	-0.004764
0.219479	-0.033592	-0.048624	-0.005457	0.004217	-0.005012
0.217747	-0.040168	-0.019473	-0.004813	0.004062	-0.006038
0.219233	-0.037127	-0.025355	-0.004856	0.003933	-0.005553
0.220267	-0.032006	-0.048538	-0.005353	0.004032	-0.004707
0.221525	-0.036388	-0.041156	-0.005349	0.004212	-0.005216
0.221141	-0.041753	-0.019698	-0.004934	0.004179	-0.006012
0.221843	-0.03953	-0.023947	-0.004899	0.003981	-0.005703
0.221467	-0.032021	-0.049615	-0.005354	0.003975	-0.004673
0.220115	-0.032397	-0.046372	-0.005417	0.004235	-0.005001
0.217023	-0.039522	-0.023496	-0.004922	0.004122	-0.005816

0.220743	-0.040345	-0.017863	-0.004796	0.004022	-0.005859
0.223107	-0.034232	-0.044528	-0.005312	0.004021	-0.00487
0.222634	-0.034947	-0.043472	-0.005394	0.004209	-0.005062
0.22094	-0.039321	-0.029329	-0.005138	0.004241	-0.005775
0.22231	-0.041324	-0.014093	-0.004706	0.003963	-0.006053
0.223878	-0.036574	-0.036231	-0.005142	0.003974	-0.005174
0.222687	-0.033024	-0.05118	-0.005516	0.00418	-0.004842
0.221763	-0.039137	-0.030205	-0.005176	0.004263	-0.005717
0.2211	-0.040654	-0.015392	-0.004735	0.003994	-0.005959
0.221556	-0.034817	-0.038729	-0.005133	0.00393	-0.005011
0.220987	-0.03269	-0.050766	-0.005484	0.004165	-0.004779
0.21934	-0.03736	-0.029058	-0.005092	0.004221	-0.005646
0.220168	-0.040564	-0.015498	-0.00475	0.004035	-0.005978
0.221576	-0.034938	-0.036636	-0.005111	0.003961	-0.005045
0.221037	-0.033662	-0.050491	-0.005471	0.004136	-0.004806
0.220035	-0.039004	-0.029609	-0.005137	0.00425	-0.005766
0.220211	-0.039483	-0.018743	-0.004804	0.004027	-0.005831
0.219016	-0.034042	-0.035549	-0.00501	0.003879	-0.005045
0.220243	-0.03209	-0.054708	-0.005534	0.004136	-0.004691
0.21767	-0.038057	-0.02924	-0.005052	0.004167	-0.005735
0.216981	-0.038858	-0.020165	-0.004749	0.003947	-0.005829
0.218136	-0.033498	-0.037584	-0.005047	0.003898	-0.005038
0.220028	-0.031724	-0.053108	-0.005486	0.00412	-0.004724
0.220225	-0.039196	-0.02653	-0.005042	0.004176	-0.0057
0.220046	-0.040733	-0.017388	-0.004794	0.004047	-0.005982
0.22042	-0.03695	-0.034376	-0.005074	0.003964	-0.005169
0.218911	-0.033529	-0.050917	-0.005469	0.004153	-0.004805
0.217409	-0.039142	-0.035363	-0.005195	0.004185	-0.005645
0.217503	-0.040351	-0.017748	-0.00475	0.004004	-0.005957
0.217027	-0.033197	-0.037948	-0.00506	0.003929	-0.005007
0.216996	-0.032141	-0.051356	-0.005432	0.004128	-0.00477
0.217535	-0.038084	-0.030921	-0.005089	0.004172	-0.005692
0.218125	-0.038574	-0.020265	-0.004789	0.003999	-0.005819
0.219757	-0.03564	-0.029688	-0.004928	0.003899	-0.005143
0.220919	-0.03264	-0.048888	-0.005442	0.004155	-0.004756
0.219071	-0.038896	-0.027699	-0.005052	0.00418	-0.005736
0.218216	-0.039796	-0.018104	-0.004755	0.003998	-0.00593
0.220114	-0.034921	-0.030181	-0.004933	0.003902	-0.005169
0.220273	-0.031546	-0.05133	-0.005433	0.004082	-0.004661
0.219188	-0.037263	-0.035901	-0.00523	0.004221	-0.005472
0.22005	-0.040614	-0.017781	-0.004772	0.003997	-0.005976
0.219757	-0.03626	-0.027758	-0.004919	0.003954	-0.00536
0.219717	-0.029981	-0.053706	-0.005476	0.004102	-0.004515
0.219284	-0.037131	-0.034221	-0.005188	0.004206	-0.005477
0.219636	-0.041854	-0.013243	-0.004701	0.004016	-0.006053
0.22145	-0.036875	-0.026307	-0.004893	0.003921	-0.005376

0.221479	-0.031962	-0.050091	-0.005455	0.004139	-0.004712
0.219733	-0.036876	-0.033009	-0.005153	0.004181	-0.005444
0.218838	-0.041685	-0.01484	-0.004707	0.003994	-0.00612
0.221287	-0.037292	-0.025315	-0.00483	0.003844	-0.005427
0.220952	-0.031681	-0.04797	-0.005334	0.004008	-0.004665
0.219257	-0.034272	-0.040932	-0.005259	0.004137	-0.005195
0.217861	-0.039668	-0.016424	-0.00478	0.004106	-0.005946
0.216802	-0.035958	-0.023278	-0.004724	0.003821	-0.005414
0.217263	-0.030242	-0.049797	-0.005328	0.00402	-0.004639
0.216007	-0.034765	-0.038179	-0.005181	0.004138	-0.005241
0.216852	-0.039507	-0.015009	-0.004738	0.004098	-0.005922
0.217624	-0.036258	-0.029112	-0.004845	0.00382	-0.005434
0.217394	-0.02998	-0.051852	-0.005355	0.003996	-0.004594
0.218629	-0.034321	-0.042375	-0.005347	0.004247	-0.005164
0.218773	-0.041718	-0.015865	-0.004743	0.004021	-0.006111
0.21992	-0.038137	-0.025306	-0.004854	0.003891	-0.005429
0.218746	-0.030649	-0.053336	-0.005397	0.003981	-0.004533
0.219512	-0.036814	-0.038014	-0.005297	0.004261	-0.005357
0.220596	-0.044045	-0.012242	-0.004715	0.004033	-0.006229
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0.219634	-0.031006	-0.052068	-0.005443	0.004084	-0.004539
0.218374	-0.034619	-0.040042	-0.005265	0.004187	-0.005232
0.217198	-0.038528	-0.02126	-0.00486	0.004107	-0.005843
0.215678	-0.036591	-0.024058	-0.004743	0.003836	-0.005432
0.216824	-0.031069	-0.047906	-0.005298	0.004025	-0.004683
0.218076	-0.036596	-0.03514	-0.005182	0.004187	-0.005393
0.218039	-0.040666	-0.016279	-0.004783	0.004098	-0.005985
0.220272	-0.038003	-0.023923	-0.004845	0.003925	-0.005512
0.220785	-0.033469	-0.045656	-0.005319	0.004041	-0.004807
0.219896	-0.035751	-0.040353	-0.005314	0.004215	-0.005225
0.219367	-0.042116	-0.01295	-0.004749	0.004118	-0.006172
0.221286	-0.040014	-0.01713	-0.004719	0.003893	-0.005657
0.222998	-0.033865	-0.049031	-0.005373	0.003976	-0.004757
0.221572	-0.035916	-0.040235	-0.005351	0.00425	-0.005166
0.219941	-0.041946	-0.01206	-0.004703	0.004054	-0.006067
0.220916	-0.039759	-0.016822	-0.004687	0.00386	-0.005687
0.2216	-0.032933	-0.04739	-0.00532	0.003976	-0.00473
0.220467	-0.035519	-0.040022	-0.005286	0.004165	-0.005133
0.219313	-0.04073	-0.015714	-0.004789	0.0041	-0.005909
0.219365	-0.039391	-0.017043	-0.004702	0.003909	-0.005684
0.22158	-0.033364	-0.042419	-0.005271	0.004049	-0.004723
0.22023	-0.034076	-0.043434	-0.005334	0.004157	-0.005022
0.219666	-0.040483	-0.018576	-0.004845	0.004098	-0.005876
0.220529	-0.039171	-0.018275	-0.004791	0.004012	-0.005722
0.221747	-0.032834	-0.042878	-0.005247	0.004001	-0.004748
0.220845	-0.03431	-0.04219	-0.005353	0.004224	-0.005097

0.21981	-0.041873	-0.013478	-0.00476	0.004111	-0.00609
0.220486	-0.037753	-0.021621	-0.004775	0.003893	-0.005637
0.220961	-0.031106	-0.046683	-0.005286	0.003977	-0.004642
0.220306	-0.035301	-0.040184	-0.005279	0.004162	-0.005211
0.220611	-0.04	-0.019452	-0.004859	0.004089	-0.005895
0.220848	-0.037908	-0.020057	-0.004738	0.003868	-0.005587
0.222211	-0.032864	-0.045205	-0.005294	0.003997	-0.004745
0.222533	-0.036316	-0.038926	-0.00531	0.004206	-0.005234
0.22136	-0.039889	-0.017027	-0.004829	0.004111	-0.005926
0.221902	-0.03885	-0.018139	-0.004748	0.003916	-0.005596
0.22199	-0.032924	-0.044218	-0.005267	0.00399	-0.004812
0.22097	-0.034994	-0.042669	-0.005339	0.004169	-0.005113
0.219261	-0.042079	-0.012	-0.004712	0.004083	-0.006122
0.22074	-0.039983	-0.015184	-0.004691	0.003927	-0.005762
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0.221498	-0.034312	-0.042927	-0.005372	0.004216	-0.005039
0.219956	-0.042029	-0.016253	-0.004831	0.004129	-0.006008
0.219618	-0.03805	-0.018929	-0.004749	0.003938	-0.005552
0.218421	-0.032576	-0.039434	-0.005103	0.003929	-0.004821
0.219677	-0.031763	-0.049824	-0.005472	0.004212	-0.004751
0.217596	-0.040779	-0.01817	-0.00478	0.004038	-0.006023
0.218304	-0.039328	-0.018276	-0.004671	0.003837	-0.005746
0.220112	-0.033928	-0.037563	-0.005124	0.003987	-0.004959
0.219955	-0.03288	-0.046691	-0.005386	0.004153	-0.004879
0.218012	-0.039576	-0.019333	-0.004891	0.004198	-0.005907
0.218042	-0.041315	-0.009726	-0.004519	0.003852	-0.006054
0.219974	-0.032528	-0.042768	-0.005204	0.003965	-0.004765

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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
0.033248	-0.009412	0.462197	-0.000395	0.01548	-0.000559
0.034579	0.00373	0.009282	-0.000258	0.000362	-0.000881
0.034723	0.004077	0.009657	-0.000255	0.000373	-0.000879
0.03503	0.004546	0.010677	-0.000254	0.000409	-0.000859
0.03425	0.004157	0.011187	-0.000254	0.00043	-0.000844
0.035138	0.004929	0.011048	-0.000264	0.000443	-0.000852
0.034367	0.004371	0.010138	-0.000239	0.000374	-0.000889
0.034926	0.005091	0.010033	-0.000268	0.000427	-0.0009
0.035303	0.004036	0.010751	-0.00025	0.000397	-0.000948
0.03457	0.004245	0.008695	-0.000243	0.000326	-0.000878
0.034426	0.004945	0.009112	-0.000276	0.000413	-0.000884
0.034577	0.004314	0.009265	-0.000266	0.000387	-0.000881
0.034919	0.004479	0.009935	-0.000264	0.000405	-0.000905
0.035489	0.004161	0.010873	-0.000259	0.000416	-0.000934
0.034579	0.004005	0.010345	-0.000253	0.000399	-0.000944
0.034768	0.004391	0.009849	-0.00025	0.000382	-0.000936
0.034452	0.003712	0.0091	-0.00027	0.000378	-0.000876
0.034873	0.00514	0.009214	-0.000279	0.000417	-0.000864
0.034747	0.004599	0.009326	-0.000291	0.00043	-0.000827
0.034573	0.004129	0.008573	-0.000276	0.000375	-0.000854
0.035548	0.004055	0.010648	-0.00026	0.000409	-0.000958
0.035407	0.003196	0.011245	-0.000261	0.000415	-0.000932
0.035832	0.00505	0.012327	-0.000251	0.00046	-0.000923
0.035632	0.004017	0.010831	-0.000256	0.0004	-0.000876
0.03563	0.004033	0.010466	-0.000261	0.000397	-0.0009
0.035631	0.004525	0.010872	-0.000256	0.000412	-0.000903
0.035436	0.00447	0.007825	-0.000273	0.000339	-0.000877
0.035643	0.004752	0.007834	-0.000272	0.000342	-0.000903
0.034987	0.004084	0.008475	-0.000256	0.000333	-0.000881
0.034925	0.004375	0.008016	-0.00028	0.000366	-0.000897
0.034842	0.004214	0.010131	-0.000266	0.000413	-0.000912
0.034725	0.004205	0.010182	-0.000237	0.000364	-0.000894
0.03531	0.004744	0.010401	-0.000253	0.000404	-0.000933
0.034893	0.003736	0.01135	-0.000297	0.000493	-0.000865
0.03465	0.004595	0.01026	-0.00026	0.000415	-0.000888
0.035257	0.004805	0.010264	-0.000274	0.000429	-0.00085
0.034685	0.003803	0.009192	-0.000286	0.000407	-0.000886
0.035826	0.004704	0.00865	-0.000278	0.000379	-0.000931
0.034329	0.004503	0.009796	-0.000269	0.000421	-0.000916
0.0349	0.004546	0.009689	-0.000292	0.000445	-0.000883
0.035107	0.00507	0.008502	-0.000275	0.000384	-0.000886
0.034817	0.004338	0.008909	-0.00027	0.000378	-0.000868
0.035002	0.004951	0.007349	-0.00031	0.000402	-0.000848
0.035061	0.004207	0.009744	-0.000284	0.000427	-0.000898
0.034852	0.005319	0.009854	-0.000244	0.000387	-0.00094

0.035343	0.004907	0.008695	-0.000259	0.000358	-0.000924
0.034835	0.00493	0.008967	-0.000252	0.000362	-0.000899
0.035114	0.005541	0.008714	-0.000253	0.000361	-0.000889
0.034608	0.004339	0.010398	-0.000259	0.000414	-0.0009
0.035244	0.00545	0.008747	-0.000274	0.000394	-0.000881
0.035523	0.00513	0.010563	-0.000257	0.000418	-0.000908
0.034389	0.004784	0.01007	-0.000258	0.000411	-0.000879
0.035605	0.005897	0.009359	-0.000258	0.000391	-0.000897
0.034467	0.004858	0.00929	-0.000253	0.000378	-0.000885
0.035191	0.005838	0.011067	-0.000248	0.000435	-0.000878
0.035518	0.005134	0.009743	-0.000245	0.00037	-0.000918
0.035357	0.005735	0.009516	-0.000244	0.000374	-0.000907
0.035563	0.005411	0.008773	-0.000245	0.000341	-0.000917
0.034739	0.004503	0.009712	-0.000246	0.000372	-0.000925
0.034693	0.006334	0.010125	-0.000233	0.000396	-0.000905
0.035021	0.005395	0.00938	-0.000258	0.00039	-0.000892
0.034743	0.005698	0.009162	-0.000252	0.000382	-0.000871
0.035444	0.005964	0.008518	-0.000254	0.000362	-0.000911
0.034312	0.005764	0.011056	-0.000238	0.000431	-0.000907
0.034812	0.005322	0.010881	-0.00024	0.000416	-0.000938
0.034874	0.005917	0.009183	-0.000237	0.000363	-0.000934
0.034801	0.005674	0.008661	-0.00024	0.000344	-0.000881
0.034399	0.006152	0.009229	-0.000254	0.000402	-0.000881
0.033867	0.005276	0.009708	-0.000257	0.000416	-0.000887
0.03398	0.006273	0.009622	-0.000254	0.000426	-0.000901
0.034651	0.005246	0.009249	-0.000255	0.000386	-0.000912
0.034612	0.006001	0.008442	-0.000264	0.000388	-0.000903
0.03488	0.006891	0.007834	-0.000265	0.000381	-0.000869
0.033551	0.00484	0.009029	-0.000263	0.0004	-0.000881
0.034102	0.005952	0.006865	-0.000284	0.000374	-0.000861
0.034744	0.0061	0.006929	-0.000268	0.000344	-0.000885
0.034468	0.006035	0.00945	-0.000242	0.000387	-0.000903
0.034372	0.006101	0.009016	-0.000249	0.000388	-0.000911
0.033954	0.005916	0.006927	-0.000252	0.000325	-0.000898
0.034493	0.006389	0.008227	-0.000252	0.000369	-0.000905
0.03447	0.006084	0.008714	-0.000261	0.000397	-0.000899
0.034591	0.006229	0.00825	-0.00026	0.000381	-0.000906
0.034753	0.006619	0.008074	-0.000262	0.00038	-0.000876
0.03393	0.005153	0.008493	-0.000267	0.000393	-0.000931
0.034416	0.007245	0.005492	-0.000269	0.000321	-0.000857
0.034749	0.005752	0.008258	-0.00025	0.000352	-0.000895
0.0347	0.005529	0.009127	-0.000261	0.000397	-0.000908
0.035646	0.006531	0.009433	-0.000256	0.000403	-0.000923
0.034121	0.005397	0.010018	-0.000257	0.000424	-0.000888
0.034823	0.006217	0.00964	-0.000244	0.000393	-0.000875
0.034338	0.00638	0.007515	-0.000242	0.000331	-0.000898

0.034727	0.006389	0.007653	-0.000262	0.000361	-0.000858
0.034809	0.006257	0.008332	-0.000261	0.000381	-0.000898
0.034565	0.006848	0.009579	-0.00024	0.0004	-0.000891
0.03491	0.006544	0.009245	-0.000244	0.000384	-0.000886
0.034765	0.005958	0.01055	-0.000228	0.000394	-0.000914
0.034765	0.006171	0.009518	-0.000236	0.000375	-0.000891
0.034941	0.006956	0.008628	-0.000257	0.000391	-0.000854
0.034447	0.005893	0.010447	-0.000242	0.000417	-0.000888
0.035148	0.006776	0.009768	-0.000238	0.000395	-0.00091
0.034824	0.006312	0.01155	-0.000233	0.000445	-0.000938
0.034538	0.006855	0.010472	-0.000224	0.000401	-0.000868
0.034673	0.006341	0.008232	-0.00024	0.000344	-0.000882
0.034739	0.006294	0.007753	-0.000254	0.000349	-0.000863
0.035224	0.006903	0.009036	-0.000245	0.000384	-0.000905
0.034661	0.006271	0.009916	-0.000229	0.000384	-0.000938
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0.03452	0.006969	0.009704	-0.000241	0.00041	-0.000896
0.034102	0.006476	0.009056	-0.000234	0.000374	-0.000887
0.035286	0.006949	0.007604	-0.000268	0.000371	-0.000848
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0.034633	0.006457	0.008451	-0.000239	0.000351	-0.000878
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0.03478	0.006282	0.01025	-0.000233	0.000395	-0.000873
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0.03562	-0.00224	-0.001402	-0.00066	0.000581	-0.00095
0.035909	-0.000972	-0.001912	-0.000655	0.000576	-0.000968
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0.038228	-0.002629	-0.000282	-0.000685	0.000628	-0.001126
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0.039043	-0.002451	0.000792	-0.00067	0.000628	-0.0011
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0.04057	-0.00197	0.000143	-0.00068	0.000609	-0.001121
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0.040977	-0.001241	0.000419	-0.000686	0.000635	-0.001113
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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
0.081886	-0.025723	0.493716	-0.000791	0.016371	-0.003137
0.083841	-0.011531	0.044278	-0.000648	0.001374	-0.003505
0.083181	-0.012003	0.044708	-0.000648	0.001393	-0.003543
0.083657	-0.011459	0.044549	-0.000627	0.001353	-0.003522
0.083268	-0.011637	0.043031	-0.000641	0.001331	-0.00355
0.083727	-0.011831	0.042968	-0.000669	0.001364	-0.003526
0.083371	-0.011405	0.043971	-0.000634	0.001352	-0.003544
0.0835	-0.011651	0.043916	-0.000631	0.001338	-0.003545
0.083842	-0.011573	0.041852	-0.000664	0.001319	-0.003504
0.083385	-0.011594	0.042654	-0.000637	0.001306	-0.003504
0.083566	-0.011538	0.041156	-0.000671	0.001312	-0.003492
0.083854	-0.011833	0.042839	-0.00067	0.00136	-0.003526
0.083664	-0.012497	0.042405	-0.000674	0.001339	-0.00349
0.082986	-0.011672	0.043157	-0.000655	0.001359	-0.003498
0.083204	-0.011639	0.041546	-0.000673	0.001336	-0.00353
0.083933	-0.011588	0.043922	-0.000655	0.001372	-0.003512
0.083542	-0.012041	0.041835	-0.000656	0.001304	-0.003535
0.084364	-0.012286	0.04221	-0.000678	0.001335	-0.003524
0.083186	-0.011059	0.041657	-0.00067	0.001343	-0.003492
0.083559	-0.011995	0.041326	-0.000667	0.001303	-0.003499
0.083888	-0.011391	0.04251	-0.000659	0.001337	-0.003514
0.084145	-0.011978	0.042145	-0.000682	0.001346	-0.003481
0.083864	-0.011625	0.043287	-0.000654	0.00135	-0.00351
0.083829	-0.011449	0.041589	-0.000661	0.001309	-0.003501
0.083284	-0.012086	0.042126	-0.000666	0.00133	-0.003496
0.084093	-0.011329	0.042095	-0.00065	0.001307	-0.003532
0.084366	-0.011617	0.042562	-0.000645	0.001303	-0.00353
0.084239	-0.011575	0.042329	-0.000653	0.001313	-0.003529
0.083958	-0.011174	0.042207	-0.000638	0.001292	-0.003515
0.083707	-0.011565	0.041708	-0.000655	0.001301	-0.0035
0.084094	-0.011473	0.042001	-0.000671	0.001334	-0.003492
0.083795	-0.01162	0.043097	-0.000652	0.001343	-0.003533
0.083483	-0.011847	0.041403	-0.000644	0.001272	-0.003527
0.083106	-0.011667	0.042143	-0.000664	0.001338	-0.0035
0.082791	-0.011128	0.042655	-0.000646	0.001339	-0.003488
0.083093	-0.011276	0.043884	-0.000638	0.001357	-0.003475
0.083238	-0.011926	0.041873	-0.000666	0.001327	-0.003511
0.083124	-0.011035	0.04009	-0.000654	0.00126	-0.003457
0.083591	-0.010801	0.042051	-0.000636	0.001296	-0.003512
0.083054	-0.011126	0.041171	-0.000641	0.001278	-0.003516
0.083715	-0.01073	0.042098	-0.000644	0.00131	-0.003494
0.082853	-0.011584	0.04241	-0.000644	0.001319	-0.003504
0.083008	-0.011394	0.041359	-0.000632	0.001261	-0.003475
0.082872	-0.011088	0.040742	-0.000662	0.001302	-0.003486
0.082453	-0.011128	0.041274	-0.000649	0.001304	-0.003486

0.083034	-0.010831	0.042938	-0.00065	0.001355	-0.003473
0.083038	-0.01133	0.040585	-0.000658	0.001281	-0.003477
0.082727	-0.011105	0.042688	-0.000617	0.001292	-0.003498
0.082804	-0.010678	0.042304	-0.000633	0.001313	-0.003496
0.082473	-0.011469	0.0421	-0.000645	0.001317	-0.0035
0.083405	-0.010974	0.045465	-0.000584	0.001323	-0.003554
0.082966	-0.011956	0.044465	-0.000616	0.001328	-0.003479
0.082113	-0.010595	0.042073	-0.00063	0.001313	-0.003503
0.08262	-0.010539	0.042518	-0.000636	0.00133	-0.003488
0.08208	-0.011396	0.040198	-0.000632	0.001238	-0.003495
0.08289	-0.010866	0.041246	-0.000621	0.001253	-0.003497
0.082186	-0.010193	0.041452	-0.000624	0.001286	-0.003482
0.082052	-0.011442	0.043096	-0.000613	0.001304	-0.003514
0.082372	-0.011469	0.042894	-0.000611	0.001289	-0.003513
0.082268	-0.011348	0.042319	-0.000637	0.001316	-0.003491
0.082944	-0.011527	0.044513	-0.000608	0.001329	-0.003538
0.082296	-0.011229	0.042872	-0.000626	0.001318	-0.003507
0.081908	-0.011215	0.041716	-0.000614	0.001265	-0.003508
0.082092	-0.011231	0.043134	-0.000625	0.001331	-0.003545
0.082009	-0.010672	0.041813	-0.00064	0.001318	-0.003459
0.081988	-0.011484	0.043641	-0.000618	0.001332	-0.003518
0.082016	-0.010773	0.041782	-0.000616	0.001278	-0.003512
0.081744	-0.011577	0.043337	-0.000603	0.001295	-0.00349
0.08201	-0.011064	0.0413	-0.00061	0.001246	-0.003506
0.081676	-0.011035	0.042893	-0.0006	0.001287	-0.003499
0.081685	-0.011614	0.041783	-0.000585	0.001213	-0.003508
0.081621	-0.011345	0.041835	-0.000605	0.001255	-0.003509
0.081449	-0.011427	0.043016	-0.000602	0.001292	-0.003516
0.082441	-0.011552	0.042038	-0.000602	0.001242	-0.003522
0.082127	-0.011242	0.043997	-0.000601	0.001314	-0.003501
0.081393	-0.011713	0.043181	-0.00062	0.001323	-0.003502
0.081792	-0.011101	0.04257	-0.000611	0.001289	-0.003469
0.081403	-0.011313	0.043292	-0.000607	0.00131	-0.00349
0.081328	-0.011547	0.042946	-0.000601	0.001284	-0.003482
0.080811	-0.011209	0.041566	-0.000609	0.001267	-0.003478
0.08142	-0.011458	0.044115	-0.000576	0.001285	-0.003533
0.081849	-0.011184	0.042776	-0.000613	0.0013	-0.003492
0.081195	-0.01112	0.042286	-0.000613	0.001294	-0.003475
0.081542	-0.011248	0.041637	-0.000611	0.001261	-0.003479
0.081042	-0.011301	0.043725	-0.000592	0.001305	-0.003498
0.081402	-0.011838	0.042006	-0.000623	0.001285	-0.003485
0.081461	-0.01168	0.04246	-0.000609	0.001281	-0.003511
0.081178	-0.011799	0.043802	-0.000593	0.0013	-0.003515
0.081212	-0.011798	0.043428	-0.000613	0.001319	-0.003481
0.080543	-0.011989	0.042807	-0.000621	0.00132	-0.003505
0.081532	-0.011925	0.042317	-0.000622	0.001293	-0.003519

0.080869	-0.01195	0.041666	-0.000649	0.001326	-0.003484
0.080936	-0.01238	0.044159	-0.000628	0.001364	-0.003498
0.081455	-0.012412	0.043124	-0.00061	0.001291	-0.003514
0.080968	-0.012434	0.043952	-0.000622	0.001345	-0.003492
0.080901	-0.012062	0.042332	-0.000608	0.001273	-0.003485
0.080855	-0.011743	0.043385	-0.000611	0.001323	-0.003508
0.080732	-0.011904	0.042264	-0.000613	0.001287	-0.003501
0.080981	-0.012319	0.042643	-0.000618	0.001298	-0.003508
0.080987	-0.01268	0.041797	-0.000624	0.001272	-0.003511
0.080988	-0.01226	0.043122	-0.000611	0.001303	-0.003513
0.080405	-0.012204	0.043186	-0.000616	0.00132	-0.003485
0.080569	-0.012432	0.04314	-0.000609	0.001302	-0.003509
0.080831	-0.012568	0.043695	-0.000593	0.00129	-0.003546
0.080304	-0.012328	0.043489	-0.000622	0.001342	-0.003503
0.080913	-0.012963	0.044958	-0.000593	0.001321	-0.003528
0.08097	-0.01209	0.04282	-0.000605	0.001287	-0.003524
0.08018	-0.012727	0.043882	-0.00061	0.001332	-0.003546
0.080102	-0.012474	0.042957	-0.000609	0.001303	-0.003514
0.080615	-0.012139	0.042773	-0.000602	0.001286	-0.003547
0.080746	-0.01233	0.041847	-0.000628	0.001292	-0.003514
0.081068	-0.012341	0.04361	-0.000609	0.001314	-0.00353
0.079779	-0.012726	0.043011	-0.000602	0.001293	-0.003505
0.080653	-0.0124	0.043202	-0.000602	0.001295	-0.003543
0.080435	-0.011795	0.042763	-0.000602	0.001294	-0.003524
0.080443	-0.012678	0.042597	-0.000605	0.001276	-0.003529
0.080685	-0.012979	0.043415	-0.000612	0.001309	-0.003551
0.080521	-0.012784	0.043126	-0.00063	0.001332	-0.003505
0.080146	-0.012577	0.04307	-0.000605	0.001296	-0.003501
0.079849	-0.012351	0.042789	-0.000611	0.001306	-0.003497
0.080311	-0.012562	0.042719	-0.000634	0.001331	-0.003467
0.080421	-0.012306	0.042911	-0.000603	0.001288	-0.003489
0.080001	-0.012294	0.043385	-0.000587	0.001286	-0.003534
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0.080336	-0.01164	0.042945	-0.000614	0.001321	-0.003491
0.080236	-0.012956	0.04297	-0.000603	0.00128	-0.003493
0.081024	-0.012377	0.042943	-0.000619	0.001307	-0.003511
0.080198	-0.013166	0.042648	-0.000609	0.00128	-0.003527
0.079834	-0.013211	0.043434	-0.000605	0.001301	-0.003498
0.07995	-0.012462	0.042801	-0.000628	0.001332	-0.003494
0.079632	-0.01278	0.043085	-0.000613	0.001315	-0.003501
0.080063	-0.012929	0.042626	-0.000599	0.001265	-0.003497
0.079516	-0.012604	0.043394	-0.000603	0.001313	-0.003496
0.079589	-0.012447	0.041827	-0.000603	0.001262	-0.003502
0.07984	-0.012609	0.044519	-0.000588	0.001319	-0.003496
0.079052	-0.01273	0.04315	-0.000595	0.001295	-0.003485
0.080135	-0.012908	0.042178	-0.000621	0.001289	-0.003509

0.079846	-0.01315	0.042566	-0.000616	0.001296	-0.003541
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0.080276	-0.012668	0.043442	-0.00062	0.001331	-0.003489
0.079811	-0.013312	0.043413	-0.000608	0.001305	-0.003497
0.080012	-0.012886	0.04165	-0.000622	0.001273	-0.003485
0.079527	-0.013061	0.042966	-0.000605	0.001294	-0.00351
0.079832	-0.013444	0.044417	-0.000601	0.001324	-0.003513
0.079934	-0.012767	0.04439	-0.000588	0.001311	-0.0035
0.080253	-0.013273	0.042061	-0.000597	0.001236	-0.003518
0.079264	-0.01302	0.042161	-0.000598	0.001261	-0.003507
0.079184	-0.013086	0.044955	-0.000593	0.001341	-0.003473
0.078939	-0.013267	0.042497	-0.000612	0.001293	-0.003475
0.079785	-0.013123	0.043538	-0.000606	0.001311	-0.003535
0.079841	-0.013649	0.041933	-0.00062	0.001269	-0.003495
0.091867	-0.024462	0.462954	-0.001521	0.016431	-0.00258
0.094717	-0.010688	0.016023	-0.001395	0.001524	-0.002907
0.09442	-0.01093	0.016612	-0.001381	0.00152	-0.002924
0.09455	-0.010892	0.015697	-0.001386	0.001497	-0.002922
0.09467	-0.010799	0.014925	-0.001394	0.001482	-0.002892
0.094529	-0.010641	0.016251	-0.001375	0.001501	-0.002914
0.09416	-0.010335	0.015631	-0.001398	0.001528	-0.002891
0.094323	-0.010782	0.016303	-0.001364	0.001485	-0.002936
0.094475	-0.010397	0.014727	-0.001389	0.001479	-0.002908
0.094723	-0.010326	0.013769	-0.001411	0.001481	-0.002892
0.093647	-0.010963	0.016049	-0.001374	0.001502	-0.002932
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0.09454	-0.010626	0.015349	-0.001375	0.001471	-0.002933
0.094467	-0.010208	0.014579	-0.001372	0.001449	-0.002923
0.094439	-0.010909	0.016348	-0.001354	0.001466	-0.002948
0.094428	-0.010013	0.015065	-0.001394	0.001505	-0.002882
0.094461	-0.010939	0.015371	-0.001389	0.001491	-0.002926
0.094514	-0.010109	0.013944	-0.001391	0.001461	-0.002906
0.09486	-0.010241	0.013734	-0.001415	0.001486	-0.002885
0.09476	-0.010694	0.015246	-0.001387	0.001484	-0.002921
0.094054	-0.010515	0.013779	-0.001392	0.001453	-0.002866
0.094595	-0.010493	0.014408	-0.001394	0.001472	-0.002894
0.094804	-0.010165	0.013355	-0.001418	0.001482	-0.002912
0.094275	-0.010168	0.014026	-0.001394	0.001471	-0.002897
0.09511	-0.010063	0.013698	-0.001414	0.00148	-0.002874
0.09434	-0.010576	0.014342	-0.001401	0.001487	-0.002924
0.094552	-0.010324	0.014112	-0.001412	0.001497	-0.002896
0.094249	-0.009915	0.014041	-0.001395	0.001478	-0.002903
0.094288	-0.009794	0.012883	-0.001418	0.001475	-0.002828
0.094627	-0.009994	0.014502	-0.001413	0.001516	-0.002889
0.094393	-0.010123	0.013929	-0.001407	0.001489	-0.002891
0.094866	-0.010447	0.014452	-0.001416	0.00151	-0.00292

0.095276	-0.010502	0.014747	-0.001392	0.001474	-0.002951
0.094623	-0.010522	0.014411	-0.001394	0.001474	-0.002931
0.094977	-0.010171	0.01561	-0.001381	0.001492	-0.002914
0.094361	-0.010656	0.014461	-0.001384	0.00146	-0.002925
0.09425	-0.01074	0.015746	-0.001372	0.00148	-0.002919
0.094716	-0.009873	0.014825	-0.001392	0.001493	-0.002915
0.095028	-0.010363	0.014736	-0.001394	0.00148	-0.002907
0.09532	-0.009874	0.013317	-0.001408	0.001455	-0.002849
0.094791	-0.010473	0.014014	-0.001423	0.001504	-0.002868
0.095153	-0.010369	0.013129	-0.00144	0.001503	-0.0029
0.095062	-0.009766	0.012689	-0.001421	0.001464	-0.002861
0.094956	-0.010902	0.013539	-0.00142	0.001473	-0.002879
0.095474	-0.009934	0.013632	-0.001423	0.001496	-0.002927
0.09505	-0.010395	0.014185	-0.001421	0.001504	-0.002875
0.094661	-0.010524	0.014171	-0.001399	0.001472	-0.002911
0.094948	-0.010009	0.013694	-0.001404	0.00147	-0.002916
0.094607	-0.010077	0.013694	-0.00139	0.001448	-0.002896
0.095908	-0.010157	0.013671	-0.001394	0.001433	-0.002894
0.095118	-0.010271	0.013977	-0.001407	0.001474	-0.002875
0.09549	-0.010588	0.014661	-0.001394	0.001465	-0.002891
0.094915	-0.009532	0.014224	-0.001404	0.001494	-0.002873
0.094759	-0.010126	0.013007	-0.001404	0.001444	-0.002876
0.09549	-0.009649	0.013197	-0.001405	0.001451	-0.002883
0.095362	-0.010465	0.01393	-0.001412	0.001475	-0.002884
0.095252	-0.00997	0.015547	-0.00138	0.001482	-0.002866
0.09554	-0.009455	0.01532	-0.001377	0.001477	-0.002893
0.095293	-0.010578	0.015284	-0.001385	0.001472	-0.002894
0.095461	-0.009585	0.014894	-0.001371	0.00145	-0.002885
0.095116	-0.009851	0.014081	-0.0014	0.001474	-0.002867
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0.095035	-0.010011	0.014743	-0.001372	0.001448	-0.002908
0.095048	-0.01069	0.016212	-0.00139	0.001516	-0.002921
0.096031	-0.00959	0.015335	-0.001388	0.001486	-0.002886
0.094731	-0.01024	0.014935	-0.001378	0.001461	-0.002859
0.095422	-0.010293	0.013807	-0.001414	0.001474	-0.002869
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0.09566	-0.009882	0.014867	-0.001376	0.001452	-0.002922
0.094739	-0.009657	0.015399	-0.001379	0.00149	-0.002865
0.095463	-0.009977	0.012896	-0.00141	0.001444	-0.002883
0.095752	-0.010018	0.013612	-0.001414	0.00147	-0.002873
0.094818	-0.010143	0.014934	-0.001376	0.001459	-0.002875
0.095541	-0.009848	0.014661	-0.001395	0.001476	-0.002857
0.094529	-0.010191	0.015577	-0.001362	0.001461	-0.00288
0.095134	-0.009858	0.014764	-0.001374	0.001451	-0.002865
0.095572	-0.009627	0.014581	-0.00139	0.001471	-0.002879

0.095168	-0.010643	0.016123	-0.001376	0.001484	-0.002878
0.09545	-0.009561	0.014268	-0.001409	0.001494	-0.002846
0.095481	-0.009555	0.014486	-0.001399	0.001486	-0.002883
0.095027	-0.010316	0.015915	-0.001364	0.001467	-0.002901
0.095848	-0.010038	0.014557	-0.001404	0.001481	-0.002858
0.095121	-0.009747	0.014027	-0.0014	0.001471	-0.002848
0.095872	-0.00962	0.01462	-0.001377	0.001444	-0.002867
0.095205	-0.010075	0.015026	-0.001384	0.00147	-0.002861
0.095389	-0.010103	0.014889	-0.001376	0.00145	-0.002884
0.095671	-0.009848	0.015556	-0.001383	0.001487	-0.002904
0.095468	-0.01037	0.016256	-0.00139	0.001513	-0.002869
0.096214	-0.00981	0.015079	-0.001385	0.001466	-0.002898
0.095483	-0.009764	0.014358	-0.001407	0.00149	-0.002854
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0.096239	-0.009683	0.01497	-0.001424	0.00153	-0.002872
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0.09572	-0.009374	0.01353	-0.001405	0.001463	-0.00286
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0.096622	-0.009698	0.015628	-0.001383	0.001478	-0.002906
0.096275	-0.009867	0.015633	-0.001385	0.001483	-0.002911
0.095864	-0.010382	0.015111	-0.001378	0.001452	-0.002925
0.096066	-0.010291	0.016734	-0.001368	0.001485	-0.002886
0.095171	-0.009591	0.014521	-0.001379	0.001456	-0.002889
0.095506	-0.01008	0.01276	-0.001418	0.001452	-0.002896
0.096037	-0.010289	0.016434	-0.001371	0.00148	-0.002886
0.09581	-0.009719	0.014749	-0.001396	0.001481	-0.002883
0.096406	-0.010008	0.016242	-0.001383	0.001495	-0.002908
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0.095707	-0.010709	0.017567	-0.00134	0.001466	-0.002931
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0.096022	-0.010616	0.017125	-0.001354	0.001473	-0.002949
0.096328	-0.009942	0.016016	-0.001369	0.001465	-0.002902
0.096456	-0.010086	0.015407	-0.001393	0.00148	-0.002866
0.096007	-0.010282	0.017335	-0.001354	0.001483	-0.002909
0.096354	-0.009732	0.016524	-0.00135	0.001455	-0.002914
0.095977	-0.00984	0.01587	-0.001338	0.001413	-0.002889
0.096363	-0.010203	0.017083	-0.001341	0.001448	-0.002898
0.096331	-0.009682	0.016684	-0.001355	0.001467	-0.002882
0.096011	-0.010083	0.017952	-0.001342	0.001485	-0.002883
0.096291	-0.009488	0.015605	-0.001362	0.001444	-0.00285
0.096281	-0.010155	0.016644	-0.00135	0.001448	-0.002872

0.096093	-0.009682	0.016308	-0.00135	0.001449	-0.002877
0.096193	-0.009689	0.015225	-0.001365	0.001437	-0.002868
0.096115	-0.009859	0.015518	-0.001372	0.001455	-0.002835
0.095998	-0.010073	0.015791	-0.001361	0.001447	-0.002889
0.095933	-0.009905	0.016148	-0.001376	0.001486	-0.002864
0.095793	-0.009562	0.015373	-0.001359	0.001443	-0.00289
0.09593	-0.01024	0.015746	-0.001386	0.001485	-0.00288
0.095627	-0.009702	0.015807	-0.001379	0.001487	-0.002845
0.095552	-0.009934	0.015012	-0.001375	0.00145	-0.002841
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0.09627	-0.010191	0.016844	-0.001349	0.001452	-0.002879
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0.095995	-0.009893	0.01697	-0.001333	0.001442	-0.002904
0.096281	-0.010161	0.017395	-0.001337	0.001451	-0.002879
0.096031	-0.010222	0.018006	-0.001325	0.001454	-0.002889
0.095836	-0.009791	0.015378	-0.00138	0.00147	-0.002858
0.096243	-0.009964	0.015983	-0.001365	0.001458	-0.002888
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0.095709	-0.010251	0.016578	-0.001347	0.001448	-0.002878
0.095838	-0.010231	0.017045	-0.001343	0.001457	-0.002887
0.096464	-0.009989	0.016944	-0.001343	0.001444	-0.002849
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0.09592	-0.009917	0.01668	-0.001336	0.001436	-0.002895
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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
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0.140335	-0.035781	0.078772	-0.001275	0.002544	-0.006683
0.140826	-0.034922	0.07556	-0.00131	0.002497	-0.00658
0.14024	-0.035276	0.079218	-0.001265	0.002552	-0.006669
0.140138	-0.034657	0.074212	-0.00132	0.002483	-0.006548
0.139388	-0.03493	0.077128	-0.001247	0.002466	-0.006616
0.139055	-0.034162	0.07599	-0.001255	0.002453	-0.006524
0.138575	-0.035112	0.080002	-0.001198	0.002489	-0.006655
0.138769	-0.033561	0.07499	-0.001265	0.002454	-0.006518
0.137702	-0.034506	0.078704	-0.001187	0.002447	-0.006592
0.139529	-0.034416	0.075676	-0.001279	0.002475	-0.006545
0.139887	-0.035212	0.079638	-0.001226	0.002505	-0.006672
0.140466	-0.035796	0.077798	-0.001265	0.002489	-0.006635
0.14126	-0.035709	0.077861	-0.001291	0.002522	-0.006593
0.141046	-0.036467	0.08174	-0.001203	0.002503	-0.006772
0.141813	-0.035559	0.077632	-0.001288	0.002503	-0.006592
0.141366	-0.037056	0.081321	-0.001219	0.002496	-0.00673
0.141335	-0.036089	0.075658	-0.001325	0.002499	-0.006599
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0.142002	-0.036263	0.078289	-0.001285	0.002508	-0.006658
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0.141266	-0.036312	0.078191	-0.00129	0.002526	-0.006666
0.140932	-0.035615	0.076945	-0.001259	0.002447	-0.006647
0.141254	-0.036299	0.078889	-0.001252	0.002484	-0.006679
0.141051	-0.037098	0.079866	-0.001257	0.002521	-0.006754
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0.140653	-0.036618	0.07696	-0.001293	0.002491	-0.006638
0.140001	-0.036249	0.07772	-0.00128	0.00251	-0.006638
0.140803	-0.035255	0.076925	-0.001299	0.002523	-0.006632
0.141469	-0.036168	0.079002	-0.001239	0.002468	-0.006719
0.141593	-0.034457	0.07361	-0.001316	0.002438	-0.006554
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0.141266	-0.035574	0.07832	-0.001276	0.002516	-0.006624
0.140799	-0.03591	0.077528	-0.001281	0.002505	-0.006708
0.141548	-0.035941	0.077289	-0.00129	0.002492	-0.006611
0.141834	-0.034665	0.076442	-0.001302	0.002503	-0.006584
0.14086	-0.035408	0.078887	-0.001252	0.002506	-0.006673
0.141146	-0.035431	0.077087	-0.001296	0.002514	-0.006614
0.141273	-0.035949	0.078317	-0.001264	0.002494	-0.006698
0.142098	-0.035539	0.076759	-0.001291	0.002479	-0.006642
0.141262	-0.035322	0.078341	-0.001251	0.002483	-0.006675
0.141708	-0.035989	0.077246	-0.001239	0.002405	-0.006678
0.141283	-0.034605	0.076339	-0.001295	0.002493	-0.006536
0.140885	-0.035614	0.077626	-0.001249	0.002461	-0.006741
0.141224	-0.033721	0.076386	-0.00129	0.002506	-0.006562

0.141607	-0.034982	0.081305	-0.001215	0.002527	-0.006767
0.141023	-0.0341	0.07647	-0.001286	0.002494	-0.006524
0.140354	-0.034605	0.079685	-0.001216	0.002493	-0.006675
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0.140327	-0.035178	0.076977	-0.001262	0.00247	-0.006657
0.1403	-0.034055	0.074801	-0.001276	0.00244	-0.006604
0.140489	-0.034948	0.077196	-0.001239	0.00244	-0.006646
0.140187	-0.03519	0.077	-0.001263	0.002475	-0.006643
0.140641	-0.034478	0.07722	-0.001223	0.00242	-0.006665
0.140571	-0.034341	0.074865	-0.001295	0.002461	-0.006547
0.14064	-0.034517	0.077429	-0.001214	0.002409	-0.006642
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0.140416	-0.034731	0.079435	-0.001159	0.002385	-0.0067
0.141254	-0.033661	0.075912	-0.001244	0.002413	-0.006582
0.140794	-0.033734	0.07758	-0.001205	0.00241	-0.006628
0.140111	-0.033776	0.079069	-0.001228	0.002508	-0.006608
0.139734	-0.034892	0.077921	-0.001214	0.002431	-0.006616
0.139874	-0.034512	0.078226	-0.001195	0.002417	-0.006667
0.140627	-0.033523	0.076836	-0.001223	0.002416	-0.006541
0.140498	-0.033797	0.079775	-0.001188	0.002461	-0.006672
0.140512	-0.033975	0.078549	-0.001213	0.002452	-0.006582
0.139958	-0.034536	0.079993	-0.001188	0.002459	-0.006643
0.139828	-0.033677	0.07474	-0.001226	0.002362	-0.006557
0.139608	-0.033613	0.077479	-0.001212	0.002435	-0.006574
0.140055	-0.033184	0.076741	-0.001188	0.002371	-0.006598
0.139344	-0.0335	0.079561	-0.001139	0.00239	-0.006638
0.139214	-0.032994	0.079362	-0.001136	0.002383	-0.006565
0.138298	-0.032239	0.080363	-0.001142	0.002456	-0.006574
0.139568	-0.033072	0.075808	-0.001209	0.002381	-0.006532
0.139734	-0.033676	0.079478	-0.001148	0.002394	-0.006659
0.14135	-0.034124	0.076803	-0.001248	0.002435	-0.006538
0.1412	-0.035208	0.080725	-0.001158	0.002405	-0.006708
0.14148	-0.034189	0.07752	-0.001272	0.002498	-0.006551
0.140929	-0.034373	0.079478	-0.001201	0.002456	-0.006661
0.141896	-0.033773	0.077927	-0.001241	0.002464	-0.006601
0.140483	-0.034057	0.078546	-0.00119	0.002416	-0.006645
0.139823	-0.033634	0.077852	-0.001209	0.002435	-0.006538
0.139256	-0.033872	0.079247	-0.001144	0.002383	-0.00664
0.140639	-0.03363	0.078421	-0.001179	0.002394	-0.006597
0.141359	-0.034655	0.081207	-0.001187	0.002474	-0.006642
0.141457	-0.033944	0.077716	-0.001232	0.002441	-0.00656
0.140956	-0.035458	0.078917	-0.001169	0.002365	-0.006727
0.140595	-0.034123	0.077322	-0.001255	0.002474	-0.006521
0.14085	-0.035076	0.08148	-0.001153	0.002433	-0.006739
0.14224	-0.033809	0.07764	-0.001251	0.002468	-0.006618

0.142607	-0.035194	0.080911	-0.001203	0.002468	-0.006705
0.142776	-0.035739	0.081628	-0.001206	0.002483	-0.006682
0.142718	-0.035429	0.078518	-0.001266	0.002491	-0.006707
0.142524	-0.035996	0.082371	-0.001205	0.00251	-0.006742
0.141756	-0.033436	0.076016	-0.00124	0.002401	-0.006529
0.140918	-0.034399	0.082073	-0.001141	0.002441	-0.006704
0.14167	-0.033668	0.073672	-0.001276	0.002382	-0.006531
0.140669	-0.034772	0.079719	-0.001161	0.002393	-0.006706
0.140891	-0.034762	0.0803	-0.001224	0.002512	-0.006612
0.141293	-0.035039	0.078427	-0.001207	0.002415	-0.006699
0.141637	-0.033629	0.076988	-0.001259	0.002469	-0.006584
0.141249	-0.035541	0.079485	-0.001211	0.002449	-0.006702
0.141109	-0.034387	0.077869	-0.001239	0.002463	-0.006648
0.14021	-0.033821	0.07862	-0.0012	0.002445	-0.006652
0.140071	-0.033821	0.07863	-0.001165	0.002387	-0.006644
0.141051	-0.034706	0.080037	-0.001167	0.002411	-0.0067
0.141433	-0.034985	0.077712	-0.001264	0.002482	-0.006605
0.140371	-0.03531	0.080691	-0.001171	0.002439	-0.006715
0.141803	-0.034137	0.077539	-0.001259	0.002476	-0.006589
0.141431	-0.035259	0.079314	-0.001203	0.002438	-0.006772
0.141381	-0.034861	0.076182	-0.001246	0.002399	-0.006563
0.141474	-0.035198	0.080405	-0.001188	0.002442	-0.006697
0.141133	-0.034465	0.076393	-0.001264	0.00245	-0.006585
0.141458	-0.035429	0.081588	-0.001173	0.002451	-0.006682
0.141457	-0.033959	0.077731	-0.001229	0.002439	-0.006597
0.141171	-0.03484	0.079243	-0.001215	0.002456	-0.006627
0.14174	-0.034212	0.077544	-0.001238	0.002437	-0.00657
0.140799	-0.035189	0.079869	-0.00122	0.00249	-0.006681
0.141475	-0.034727	0.076871	-0.001267	0.002463	-0.006609
0.14208	-0.034942	0.079504	-0.001196	0.00242	-0.006678
0.141819	-0.034105	0.078992	-0.001201	0.002424	-0.006593
0.142039	-0.03474	0.079247	-0.001194	0.002413	-0.006692
0.141524	-0.034376	0.081122	-0.001154	0.002418	-0.006652
0.14165	-0.034316	0.079718	-0.001191	0.002428	-0.006569
0.142129	-0.035336	0.082412	-0.001118	0.002373	-0.006679
0.142399	-0.033855	0.080815	-0.001156	0.002407	-0.006654
0.141928	-0.034521	0.080823	-0.001164	0.002416	-0.006649
0.141101	-0.034659	0.079726	-0.001181	0.002414	-0.006583
0.140823	-0.034809	0.082675	-0.00109	0.002365	-0.00668
0.141985	-0.034407	0.078065	-0.001177	0.002341	-0.006577
0.141239	-0.035238	0.082186	-0.001096	0.002344	-0.006691
0.141005	-0.034592	0.079247	-0.001199	0.00243	-0.006555
0.140894	-0.034391	0.081445	-0.001129	0.00239	-0.006599
0.140682	-0.034769	0.080451	-0.001146	0.002385	-0.006627
0.141682	-0.034975	0.080475	-0.001161	0.002392	-0.006605
0.141979	-0.03497	0.082144	-0.001128	0.002385	-0.006601

0.142624	-0.036242	0.084748	-0.001122	0.002435	-0.006702
0.141729	-0.035938	0.084015	-0.001095	0.002382	-0.00668
0.141449	-0.03573	0.082904	-0.001125	0.002403	-0.006653
0.142403	-0.035747	0.083616	-0.001132	0.002422	-0.00663
0.142133	-0.035731	0.084697	-0.001124	0.002451	-0.006659
0.142138	-0.035948	0.081995	-0.001122	0.002356	-0.006685
0.142338	-0.035234	0.082103	-0.001124	0.002369	-0.006626
0.14197	-0.035928	0.080394	-0.001139	0.00233	-0.00663
0.141651	-0.035375	0.082252	-0.00114	0.002411	-0.006647
0.141942	-0.035663	0.082257	-0.001131	0.002384	-0.006641
0.142608	-0.035042	0.082353	-0.001136	0.002397	-0.006624
0.1413	-0.035685	0.082424	-0.001107	0.00236	-0.006663
0.141891	-0.034715	0.08106	-0.001135	0.002369	-0.006622
0.142514	-0.035192	0.082506	-0.001138	0.002405	-0.006637
0.158459	-0.041659	0.475565	-0.002628	0.0176	-0.004808
0.160892	-0.02706	0.029176	-0.002499	0.002726	-0.005124
0.16025	-0.027416	0.028936	-0.002472	0.002679	-0.005179
0.160296	-0.02719	0.02807	-0.002495	0.002685	-0.005081
0.160199	-0.027474	0.028397	-0.002473	0.002657	-0.00512
0.159879	-0.026906	0.027123	-0.002484	0.00265	-0.005135
0.160763	-0.026953	0.02576	-0.002541	0.002687	-0.005109
0.160628	-0.027105	0.027792	-0.002475	0.002643	-0.005139
0.160377	-0.026815	0.027749	-0.002487	0.002667	-0.005091
0.160263	-0.027765	0.029481	-0.002452	0.002655	-0.005162
0.160352	-0.026768	0.026848	-0.002497	0.002653	-0.005062
0.159822	-0.027305	0.028804	-0.002438	0.002623	-0.00516
0.160543	-0.026783	0.025954	-0.002521	0.00266	-0.005047
0.16042	-0.026431	0.025467	-0.00251	0.002634	-0.005058
0.160279	-0.028037	0.030828	-0.002442	0.00268	-0.005203
0.160858	-0.026238	0.022841	-0.00258	0.002658	-0.004962
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0.160797	-0.026455	0.024913	-0.002524	0.002634	-0.005052
0.160221	-0.02694	0.029798	-0.002427	0.002639	-0.005179
0.159962	-0.026551	0.026143	-0.002513	0.002663	-0.005017
0.159333	-0.027356	0.027996	-0.00242	0.002569	-0.005138
0.159437	-0.026484	0.026287	-0.002481	0.002626	-0.005066
0.160384	-0.027134	0.028364	-0.002445	0.002612	-0.005141
0.160044	-0.026755	0.028257	-0.002465	0.002652	-0.005106
0.159803	-0.02792	0.029088	-0.002435	0.002612	-0.005124
0.159553	-0.027099	0.027572	-0.00246	0.002619	-0.005072
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0.160739	-0.026121	0.026281	-0.002463	0.00258	-0.005064
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0.160282	-0.026635	0.025646	-0.002493	0.002602	-0.004962
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0.161151	-0.026751	0.025905	-0.002505	0.002618	-0.005004
0.161384	-0.027221	0.030838	-0.002406	0.002613	-0.005168
0.161156	-0.027569	0.03144	-0.002408	0.002629	-0.005123
0.16122	-0.027098	0.027762	-0.002495	0.00266	-0.005061
0.160793	-0.027963	0.032078	-0.002383	0.00261	-0.005179
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0.161074	-0.028478	0.031771	-0.0024	0.002611	-0.005129
0.16182	-0.027561	0.030963	-0.002431	0.002642	-0.005117
0.161206	-0.028341	0.032139	-0.002393	0.002616	-0.005186
0.161347	-0.028343	0.029052	-0.002452	0.002604	-0.005074
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0.161835	-0.027707	0.027839	-0.002492	0.002637	-0.005075
0.160981	-0.028454	0.032666	-0.002376	0.002608	-0.005207
0.161183	-0.027545	0.027304	-0.002478	0.002601	-0.004984
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0.160027	-0.027423	0.028567	-0.002446	0.002614	-0.005049
0.159772	-0.027716	0.030024	-0.002416	0.002614	-0.005111
0.159718	-0.026714	0.027594	-0.002453	0.002609	-0.005012
0.158854	-0.027447	0.029705	-0.002426	0.002639	-0.005101
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0.158519	-0.027084	0.028075	-0.002436	0.00261	-0.005056
0.159046	-0.027994	0.031639	-0.002391	0.002632	-0.005139
0.159651	-0.027316	0.026908	-0.002495	0.002649	-0.005029
0.159926	-0.028216	0.031421	-0.002399	0.002623	-0.005165
0.159998	-0.028036	0.026274	-0.00253	0.002671	-0.005051
0.159324	-0.028047	0.030998	-0.002385	0.002597	-0.005158
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0.16053	-0.027957	0.029172	-0.002453	0.002634	-0.005119
0.15979	-0.028097	0.030442	-0.002424	0.002637	-0.005143
0.16049	-0.026967	0.026486	-0.002504	0.002641	-0.004989
0.159361	-0.02811	0.030129	-0.002421	0.002631	-0.005187
0.159978	-0.027625	0.028899	-0.002455	0.002643	-0.00511
0.160481	-0.027278	0.025556	-0.002525	0.002646	-0.005053
0.15962	-0.02803	0.030234	-0.002416	0.00262	-0.00516
0.159133	-0.027335	0.029119	-0.002449	0.002655	-0.005088
0.159494	-0.02783	0.026388	-0.002507	0.002651	-0.005084
0.159365	-0.027757	0.028785	-0.002457	0.002651	-0.005126
0.159228	-0.027481	0.027007	-0.002518	0.002699	-0.005073
0.160307	-0.027846	0.02779	-0.002493	0.002662	-0.005109
0.160313	-0.028041	0.027953	-0.002474	0.002631	-0.005121
0.15915	-0.027818	0.028181	-0.002458	0.002633	-0.005108
0.159779	-0.028082	0.026769	-0.002508	0.002657	-0.005105

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0.159658	-0.028187	0.028374	-0.002466	0.002639	-0.005127
0.159453	-0.028218	0.026063	-0.002521	0.002655	-0.005058
0.159404	-0.027866	0.028137	-0.00247	0.002647	-0.0051
0.15979	-0.027661	0.026093	-0.002522	0.002663	-0.005067
0.159558	-0.028768	0.032025	-0.002399	0.002644	-0.005215
0.159804	-0.027894	0.027107	-0.002531	0.002709	-0.005068
0.159254	-0.029039	0.030588	-0.002423	0.002631	-0.005145
0.159488	-0.027972	0.02948	-0.002467	0.002685	-0.005119
0.160249	-0.027173	0.027795	-0.002485	0.002659	-0.005074
0.160093	-0.028272	0.028408	-0.002473	0.002645	-0.005137
0.159732	-0.02884	0.030627	-0.002432	0.002639	-0.005093
0.159591	-0.028107	0.027597	-0.002488	0.002654	-0.005115
0.15993	-0.028047	0.029193	-0.00244	0.002621	-0.005133
0.160165	-0.028488	0.029948	-0.002458	0.002666	-0.005143
0.160431	-0.027284	0.029827	-0.002425	0.00262	-0.005093
0.159413	-0.028195	0.029541	-0.002448	0.002648	-0.005092
0.159812	-0.027925	0.029603	-0.002468	0.002684	-0.00509
0.160014	-0.02815	0.029037	-0.002457	0.002641	-0.005112
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0.160396	-0.027567	0.029478	-0.002474	0.002681	-0.005026
0.159979	-0.028652	0.030688	-0.00242	0.002628	-0.005195
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0.159142	-0.027624	0.027915	-0.002474	0.002651	-0.005045
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0.159981	-0.028398	0.029843	-0.002461	0.002673	-0.005148
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0.160665	-0.027495	0.028041	-0.002476	0.002635	-0.00503
0.160151	-0.029758	0.033617	-0.002403	0.002675	-0.00521
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0.160764	-0.02819	0.030236	-0.002436	0.002636	-0.005171
0.160919	-0.028064	0.030282	-0.002449	0.002656	-0.005116
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0.159772	-0.029079	0.034037	-0.002373	0.002656	-0.005216
0.160411	-0.027493	0.027783	-0.002489	0.002655	-0.00504
0.16037	-0.027836	0.030435	-0.002421	0.002625	-0.00511

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0.160251	-0.028331	0.031795	-0.002418	0.002657	-0.00511
0.16038	-0.028043	0.030685	-0.002441	0.002664	-0.005119
0.160776	-0.027114	0.0273	-0.002483	0.002628	-0.005031
0.160105	-0.028943	0.032487	-0.002392	0.002638	-0.005251
0.160973	-0.027826	0.028375	-0.002492	0.002666	-0.005073
0.160815	-0.028133	0.031703	-0.002407	0.002634	-0.005159
0.160301	-0.02857	0.0307	-0.002453	0.002677	-0.005122
0.161202	-0.027653	0.028866	-0.002477	0.002658	-0.005083
0.160815	-0.029102	0.031644	-0.002431	0.00266	-0.00522
0.161118	-0.027345	0.028858	-0.00248	0.002669	-0.005073
0.161056	-0.028866	0.03045	-0.002453	0.002653	-0.005142
0.1606	-0.028394	0.028444	-0.002496	0.002672	-0.005098
0.160545	-0.028601	0.029032	-0.002472	0.002653	-0.005156
0.160511	-0.028229	0.028853	-0.002477	0.002658	-0.005097
0.16076	-0.027361	0.028245	-0.002492	0.002675	-0.005078
0.160219	-0.028126	0.030102	-0.002436	0.00264	-0.005148
0.160165	-0.028052	0.028361	-0.002479	0.002655	-0.005103
0.160304	-0.02843	0.029532	-0.002447	0.00263	-0.005112
0.160339	-0.027421	0.027733	-0.00248	0.002642	-0.005077
0.16052	-0.02802	0.030584	-0.002449	0.002674	-0.005127
0.161371	-0.027784	0.031263	-0.00243	0.002657	-0.005144
0.161382	-0.027577	0.029699	-0.002451	0.002639	-0.00508
0.159912	-0.028261	0.031039	-0.002426	0.002656	-0.005145
0.160948	-0.027712	0.027575	-0.002508	0.002667	-0.005023
0.160085	-0.027961	0.03103	-0.002418	0.002645	-0.005148
0.160112	-0.027991	0.029123	-0.002463	0.00265	-0.005049

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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
0.231133	-0.076288	0.57993	-0.00232	0.019212	-0.010091
0.230825	-0.06797	0.148857	-0.001631	0.003849	-0.01098
0.232726	-0.064836	0.136615	-0.001824	0.003751	-0.010362
0.234085	-0.059891	0.117572	-0.002275	0.003925	-0.009819
0.232103	-0.064477	0.12953	-0.002112	0.004037	-0.010431
0.231162	-0.068048	0.148389	-0.001614	0.0038	-0.011038
0.232722	-0.064757	0.139392	-0.001741	0.003712	-0.010489
0.23455	-0.058912	0.114227	-0.002268	0.003797	-0.009649
0.229815	-0.06307	0.126818	-0.002101	0.003986	-0.01039
0.226503	-0.064989	0.144397	-0.00164	0.003827	-0.010854
0.227635	-0.062345	0.13903	-0.001589	0.003551	-0.010357
0.23208	-0.057629	0.113577	-0.002268	0.003836	-0.009606
0.232314	-0.063377	0.120231	-0.002276	0.004012	-0.010236
0.22995	-0.068296	0.150029	-0.001595	0.003836	-0.011024
0.230823	-0.064122	0.13757	-0.001731	0.003666	-0.010372
0.23281	-0.059785	0.115042	-0.002258	0.003819	-0.009652
0.23184	-0.064255	0.123256	-0.002217	0.004011	-0.010329
0.230924	-0.067833	0.1459	-0.001715	0.003886	-0.010868
0.231195	-0.064893	0.138807	-0.001737	0.003695	-0.010353
0.231218	-0.058791	0.109137	-0.002365	0.003843	-0.009567
0.229376	-0.062513	0.121303	-0.002174	0.003929	-0.010191
0.227215	-0.066107	0.139148	-0.001758	0.003819	-0.010774
0.229394	-0.06451	0.141283	-0.001654	0.003676	-0.010431
0.231965	-0.058367	0.112371	-0.002277	0.003793	-0.009549
0.229052	-0.062336	0.123838	-0.002128	0.003946	-0.010218
0.22923	-0.067244	0.146342	-0.001651	0.003837	-0.01098
0.231626	-0.065333	0.142427	-0.00167	0.003696	-0.010486
0.23385	-0.059312	0.116336	-0.002231	0.003808	-0.009657
0.23228	-0.063567	0.124228	-0.002196	0.003997	-0.010163
0.230074	-0.069455	0.150918	-0.0016	0.003854	-0.011065
0.232726	-0.065869	0.143331	-0.001638	0.003648	-0.010544
0.233384	-0.058938	0.112831	-0.002277	0.003764	-0.009401
0.233223	-0.063424	0.120627	-0.00226	0.003975	-0.010146
0.230922	-0.069599	0.147914	-0.001665	0.00385	-0.011043
0.231389	-0.066691	0.147221	-0.001567	0.003657	-0.010501
0.234203	-0.059729	0.112596	-0.002316	0.003809	-0.009567
0.230886	-0.063349	0.125901	-0.002135	0.003975	-0.010175
0.229862	-0.067832	0.143901	-0.001738	0.003875	-0.010838
0.231898	-0.065835	0.142946	-0.00162	0.003613	-0.010473
0.234508	-0.061128	0.114641	-0.002318	0.003868	-0.009774
0.233131	-0.064132	0.122568	-0.002228	0.003973	-0.010156
0.230891	-0.070357	0.149375	-0.001669	0.003896	-0.011105
0.233351	-0.066882	0.144225	-0.001627	0.003639	-0.010645
0.233887	-0.060126	0.115704	-0.002251	0.003807	-0.009661
0.232223	-0.063638	0.122264	-0.002217	0.003977	-0.010274

0.227917	-0.068013	0.147355	-0.001601	0.0038	-0.011086
0.228452	-0.063975	0.143847	-0.001589	0.003676	-0.010452
0.230398	-0.058401	0.114979	-0.002209	0.00379	-0.009601
0.228946	-0.061789	0.123194	-0.002129	0.003934	-0.010181
0.227767	-0.067406	0.144392	-0.001678	0.003831	-0.010878
0.228255	-0.063266	0.137375	-0.00167	0.003607	-0.010343
0.23114	-0.058267	0.113121	-0.002246	0.003778	-0.009526
0.227727	-0.060785	0.11935	-0.002188	0.003928	-0.009958
0.226535	-0.066806	0.145236	-0.001634	0.003809	-0.010844
0.228836	-0.064196	0.141142	-0.00162	0.003631	-0.010471
0.2306	-0.058322	0.113533	-0.002263	0.003827	-0.009521
0.227026	-0.061552	0.120146	-0.002123	0.003852	-0.010126
0.226295	-0.066373	0.143199	-0.001652	0.003788	-0.010881
0.227158	-0.063613	0.139045	-0.00162	0.003604	-0.010552
0.229589	-0.059127	0.117011	-0.002128	0.003722	-0.009649
0.230508	-0.061143	0.119128	-0.002249	0.003982	-0.010023
0.228515	-0.067393	0.142117	-0.001706	0.003792	-0.010884
0.229003	-0.066419	0.146464	-0.001536	0.003635	-0.010662
0.232222	-0.060249	0.118446	-0.002156	0.00376	-0.009695
0.231838	-0.062776	0.120208	-0.002308	0.00407	-0.010038
0.229379	-0.069585	0.149697	-0.00165	0.003906	-0.011031
0.232209	-0.067702	0.146308	-0.001622	0.003707	-0.010692
0.234506	-0.060658	0.117268	-0.002194	0.003742	-0.009673
0.231858	-0.06243	0.122932	-0.002216	0.004011	-0.010101
0.230414	-0.070664	0.149944	-0.001666	0.003907	-0.011055
0.232678	-0.067091	0.142524	-0.001663	0.003644	-0.010551
0.23398	-0.061905	0.121449	-0.002153	0.003807	-0.009828
0.233938	-0.063162	0.120427	-0.002283	0.003992	-0.01003
0.232306	-0.069222	0.143821	-0.001786	0.003896	-0.0109
0.233304	-0.068587	0.146738	-0.001627	0.003697	-0.010707
0.23517	-0.062781	0.125515	-0.00209	0.003805	-0.009912
0.232818	-0.062428	0.117122	-0.002321	0.003974	-0.009978
0.229789	-0.069481	0.146084	-0.001698	0.003863	-0.011008
0.229509	-0.067638	0.148791	-0.001519	0.003651	-0.010648
0.231162	-0.059314	0.116047	-0.002164	0.00372	-0.009609
0.230503	-0.061252	0.116743	-0.002292	0.003962	-0.009881
0.226641	-0.067899	0.146297	-0.001625	0.003818	-0.010969
0.228307	-0.066085	0.141205	-0.001614	0.003599	-0.010527
0.23278	-0.061493	0.121392	-0.002065	0.003674	-0.00976
0.232157	-0.063363	0.118417	-0.002305	0.003992	-0.010078
0.230464	-0.068972	0.142459	-0.001762	0.003839	-0.01087
0.231842	-0.068268	0.142609	-0.001671	0.003653	-0.010574
0.232378	-0.060167	0.118536	-0.002165	0.003772	-0.009643
0.230565	-0.063026	0.11806	-0.002242	0.003903	-0.0101
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0.229617	-0.061154	0.118355	-0.002225	0.003918	-0.009909
0.226653	-0.0675	0.144146	-0.001612	0.003722	-0.010854
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0.229399	-0.068643	0.141992	-0.001778	0.003873	-0.010859
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0.233072	-0.06188	0.121865	-0.002124	0.003781	-0.00979
0.231505	-0.063239	0.119637	-0.002256	0.003956	-0.010038
0.227737	-0.068328	0.14593	-0.001615	0.003753	-0.010841
0.229937	-0.066751	0.14317	-0.001583	0.003573	-0.010511
0.233028	-0.05983	0.115205	-0.002246	0.003786	-0.009497
0.229963	-0.064082	0.122934	-0.002192	0.003974	-0.010165
0.230204	-0.067647	0.142809	-0.001742	0.003839	-0.010789
0.231006	-0.065977	0.141261	-0.00166	0.003637	-0.010482
0.233292	-0.061737	0.119578	-0.002175	0.003785	-0.009683
0.232578	-0.064568	0.122011	-0.00223	0.003959	-0.010155
0.228522	-0.069227	0.147102	-0.001622	0.003788	-0.011
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0.231574	-0.059058	0.112509	-0.002269	0.003776	-0.009529
0.230886	-0.065982	0.129844	-0.002061	0.003939	-0.010309
0.229226	-0.069662	0.148753	-0.001625	0.003831	-0.011009
0.228898	-0.064507	0.139286	-0.001641	0.003583	-0.010282
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0.228652	-0.064884	0.138161	-0.00167	0.003592	-0.010283
0.232822	-0.06109	0.118453	-0.002174	0.00376	-0.009628
0.230268	-0.064468	0.125022	-0.002105	0.003884	-0.0102
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0.231676	-0.065712	0.139751	-0.001682	0.003609	-0.010364
0.232883	-0.060741	0.115878	-0.002253	0.003816	-0.00961
0.230174	-0.064256	0.127024	-0.002072	0.003894	-0.010142
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0.23287	-0.066623	0.140501	-0.001699	0.003627	-0.010331
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0.231896	-0.070228	0.150823	-0.001636	0.00387	-0.011049
0.233763	-0.066742	0.142058	-0.001673	0.003621	-0.010384
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0.226864	-0.067093	0.148282	-0.001514	0.003698	-0.010902
0.232271	-0.065788	0.13695	-0.001715	0.00356	-0.010325
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0.2319	-0.061711	0.117808	-0.00222	0.003829	-0.009738
0.230173	-0.064742	0.125314	-0.002127	0.003937	-0.010298
0.22889	-0.07021	0.153034	-0.001517	0.003788	-0.011104
0.234862	-0.068434	0.143318	-0.001731	0.003724	-0.010488
0.235587	-0.062022	0.115277	-0.002305	0.003813	-0.009535
0.234519	-0.068122	0.135429	-0.001989	0.003901	-0.010279
0.234687	-0.073239	0.155798	-0.001549	0.003774	-0.010915
0.237943	-0.068798	0.14126	-0.00176	0.003629	-0.010232
0.249158	-0.054455	0.432546	-0.004124	0.017267	-0.006729
0.250609	-0.045967	0.039483	-0.004068	0.004242	-0.007541
0.250083	-0.052424	0.066484	-0.003491	0.004109	-0.0085
0.250246	-0.051567	0.070608	-0.003287	0.00389	-0.008294
0.251193	-0.044934	0.044643	-0.003847	0.004028	-0.007391
0.252009	-0.047014	0.043457	-0.003984	0.004195	-0.007637
0.249732	-0.053608	0.0701	-0.003405	0.004072	-0.008597
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0.251681	-0.044496	0.04186	-0.003859	0.003948	-0.007288
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0.249548	-0.053388	0.069605	-0.00346	0.004153	-0.008529
0.249935	-0.050857	0.06574	-0.003389	0.003915	-0.0082
0.25196	-0.043834	0.039399	-0.003907	0.003953	-0.00723
0.250436	-0.046508	0.042043	-0.003988	0.004183	-0.007572
0.248032	-0.054099	0.074638	-0.003299	0.004071	-0.008751
0.247349	-0.048614	0.064275	-0.003345	0.003861	-0.008074
0.248571	-0.043319	0.03966	-0.003844	0.003909	-0.007168
0.251235	-0.046479	0.04165	-0.004008	0.004192	-0.007567
0.251766	-0.055053	0.074162	-0.003385	0.004127	-0.008736
0.253464	-0.051249	0.062535	-0.003492	0.003915	-0.008101
0.254904	-0.046	0.041354	-0.003969	0.004044	-0.007288
0.25357	-0.048053	0.043652	-0.004017	0.004224	-0.007727
0.251955	-0.055	0.07346	-0.003408	0.004138	-0.008701
0.252782	-0.0525	0.069993	-0.003355	0.003932	-0.008314
0.254002	-0.045632	0.04212	-0.003959	0.004076	-0.007332
0.253571	-0.047863	0.043066	-0.004004	0.004176	-0.007632
0.251047	-0.0529	0.063415	-0.003559	0.004094	-0.008407
0.252483	-0.054225	0.073226	-0.003306	0.003941	-0.008479
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0.253928	-0.045785	0.044121	-0.003855	0.003967	-0.007402
0.25021	-0.045097	0.039168	-0.004039	0.004194	-0.007415
0.247227	-0.051045	0.063245	-0.003504	0.004093	-0.008482
0.249077	-0.05079	0.067108	-0.003332	0.003878	-0.008229
0.250369	-0.044597	0.044289	-0.00377	0.003899	-0.007352
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0.248901	-0.051449	0.06942	-0.0033	0.003901	-0.008362
0.250141	-0.0428	0.040683	-0.00382	0.00389	-0.007194
0.249454	-0.0431	0.032418	-0.004161	0.004219	-0.007302
0.247415	-0.049643	0.058702	-0.003609	0.004128	-0.008262
0.248977	-0.051805	0.071173	-0.003274	0.003918	-0.008494
0.250695	-0.044731	0.045957	-0.003741	0.003904	-0.007444
0.249961	-0.044584	0.037557	-0.00406	0.00419	-0.007422
0.248666	-0.051165	0.059738	-0.003633	0.004165	-0.008366
0.249537	-0.052212	0.071973	-0.003271	0.003914	-0.00838
0.25326	-0.046749	0.045825	-0.003847	0.004017	-0.007578
0.253804	-0.046777	0.041141	-0.004031	0.004164	-0.007498
0.250379	-0.050834	0.056895	-0.003718	0.004188	-0.008252
0.249755	-0.053356	0.077904	-0.003206	0.003993	-0.008615
0.250055	-0.044445	0.04581	-0.003709	0.003856	-0.007405
0.248649	-0.043727	0.036963	-0.00401	0.004109	-0.007302
0.247746	-0.048988	0.055305	-0.003705	0.004187	-0.008235
0.248238	-0.05005	0.070066	-0.003258	0.003876	-0.008231
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0.251406	-0.044926	0.038853	-0.004013	0.004124	-0.007428
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0.251891	-0.054737	0.078551	-0.003187	0.003921	-0.008589
0.254231	-0.045668	0.046226	-0.003821	0.003977	-0.007422
0.250548	-0.043435	0.037003	-0.004023	0.004106	-0.007256
0.248154	-0.050665	0.063666	-0.003541	0.004155	-0.008374
0.249605	-0.052266	0.070156	-0.003296	0.003898	-0.008425
0.250775	-0.044811	0.049509	-0.003656	0.003867	-0.007379
0.252186	-0.044951	0.037962	-0.00404	0.004119	-0.007328

0.251501	-0.051672	0.05856	-0.003722	0.004217	-0.008251
0.25093	-0.052836	0.073331	-0.003239	0.00387	-0.008384
0.253161	-0.046288	0.048481	-0.003723	0.003889	-0.007427
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0.252205	-0.051484	0.061889	-0.003652	0.004203	-0.008296
0.251072	-0.053554	0.074224	-0.003263	0.003934	-0.008477
0.251559	-0.046395	0.050443	-0.003663	0.003875	-0.007452
0.251957	-0.04579	0.039218	-0.003988	0.004064	-0.007394
0.249828	-0.049745	0.058866	-0.003647	0.004148	-0.008116
0.248341	-0.053043	0.076467	-0.003181	0.003923	-0.008536
0.251911	-0.045499	0.049931	-0.003658	0.003858	-0.007416
0.25197	-0.044652	0.038729	-0.004027	0.004127	-0.007273
0.25021	-0.050926	0.060202	-0.003644	0.004169	-0.008239
0.250022	-0.051947	0.070343	-0.00332	0.003939	-0.008348
0.251594	-0.046108	0.049754	-0.003677	0.003877	-0.007412
0.250775	-0.044909	0.040533	-0.003936	0.004051	-0.007363
0.249782	-0.050751	0.056734	-0.003718	0.004189	-0.008192
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0.251982	-0.053262	0.072006	-0.003365	0.004033	-0.008546
0.253121	-0.049047	0.058313	-0.003567	0.003925	-0.007793
0.254699	-0.045197	0.037176	-0.004105	0.004154	-0.007229
0.25172	-0.051246	0.059314	-0.003663	0.004142	-0.008214
0.251343	-0.055801	0.077798	-0.003253	0.004012	-0.008743
0.25342	-0.049005	0.057423	-0.003577	0.003909	-0.007786
0.252369	-0.044369	0.03984	-0.003994	0.0041	-0.007207
0.251015	-0.05033	0.054928	-0.003777	0.004204	-0.007998
0.249073	-0.054616	0.075628	-0.003263	0.004	-0.008568
0.250442	-0.048585	0.061034	-0.003445	0.003856	-0.007806
0.250676	-0.043557	0.037834	-0.003972	0.004028	-0.007115
0.248845	-0.048902	0.053959	-0.003744	0.004171	-0.007961
0.245741	-0.052539	0.074793	-0.00317	0.003904	-0.008606
0.249019	-0.046612	0.057198	-0.003428	0.003746	-0.007676
0.250107	-0.043499	0.039456	-0.003918	0.003999	-0.007112
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0.247528	-0.053937	0.074555	-0.003226	0.003937	-0.008578
0.250792	-0.050121	0.06408	-0.003391	0.003837	-0.007887
0.25158	-0.044852	0.039045	-0.003948	0.003998	-0.007213
0.249329	-0.048079	0.047973	-0.003851	0.004149	-0.007787
0.248253	-0.054287	0.077075	-0.003227	0.00401	-0.008637

0.248546	-0.049011	0.062579	-0.003367	0.0038	-0.007883
0.24839	-0.043997	0.041065	-0.003819	0.003908	-0.007241
0.245787	-0.044886	0.043033	-0.003837	0.004047	-0.007455
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0.246441	-0.050119	0.06853	-0.003234	0.003799	-0.008115
0.250223	-0.045206	0.044407	-0.00379	0.003921	-0.007258
0.251444	-0.048937	0.049914	-0.00384	0.004145	-0.007776
0.250278	-0.054143	0.072053	-0.00336	0.004036	-0.008543
0.250779	-0.051405	0.069232	-0.003308	0.003855	-0.008074
0.253278	-0.045312	0.041988	-0.003892	0.003972	-0.007303
0.251108	-0.049489	0.051781	-0.003797	0.004134	-0.007855
0.25199	-0.054429	0.070223	-0.003458	0.004113	-0.008527
0.25094	-0.052696	0.073354	-0.003205	0.003801	-0.00822
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0.248795	-0.046851	0.045289	-0.003853	0.004087	-0.007688
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0.250442	-0.050206	0.067204	-0.003313	0.003823	-0.008064
0.250936	-0.044873	0.044969	-0.003801	0.003954	-0.007273
0.250035	-0.047417	0.045767	-0.003901	0.004158	-0.007715
0.248705	-0.054902	0.075527	-0.003254	0.003989	-0.008652
0.251661	-0.050368	0.063747	-0.003386	0.003802	-0.007931
0.25164	-0.044077	0.037751	-0.003968	0.003996	-0.007143
0.24825	-0.045064	0.045045	-0.003879	0.004159	-0.007611
0.246754	-0.052749	0.075547	-0.0032	0.003963	-0.008621
0.250475	-0.048803	0.061165	-0.003378	0.003744	-0.007863
0.253504	-0.044278	0.035275	-0.004052	0.004024	-0.007105
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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
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0.028834	0.011429	-0.006836	-0.000561	0.000506	5.50E-05
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0.029564	0.011368	-0.005696	-0.000503	0.000432	3.50E-05
0.029482	0.012037	-0.004945	-0.000505	0.000473	6.40E-05
0.029203	0.012114	-0.006563	-0.00052	0.00045	6.50E-05
0.029993	0.013021	-0.006391	-0.000526	0.00047	6.60E-05
0.030448	0.010626	-0.005471	-0.000557	0.000505	3.40E-05
0.030647	0.012432	-0.00698	-0.000556	0.00048	8.60E-05
0.029936	0.012222	-0.007705	-0.000587	0.000518	7.70E-05
0.030188	0.012415	-0.006942	-0.00056	0.000497	6.70E-05
0.031017	0.012868	-0.006937	-0.000553	0.00048	7.80E-05
0.03004	0.012053	-0.00516	-0.000523	0.000489	5.50E-05
0.031298	0.013059	-0.007396	-0.000554	0.000464	8.70E-05
0.031473	0.012147	-0.006455	-0.000594	0.000546	8.60E-05
0.031195	0.013059	-0.009917	-0.000565	0.000401	8.30E-05
0.03134	0.013588	-0.008483	-0.000588	0.000495	0.000104
0.031294	0.013073	-0.007592	-0.000579	0.000502	9.00E-05
0.031327	0.013556	-0.007769	-0.000585	0.000512	0.000112
0.031495	0.012965	-0.009238	-0.000566	0.000418	0.000107
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0.032139	0.01369	-0.009797	-0.000604	0.000468	0.000108
0.031722	0.012887	-0.005792	-0.000579	0.000551	9.10E-05
0.031611	0.013688	-0.009355	-0.000575	0.000441	0.000102
0.031956	0.013955	-0.005974	-0.000554	0.000517	9.60E-05
0.032453	0.013577	-0.008852	-0.000634	0.000544	0.000121
0.032965	0.013765	-0.011228	-0.00066	0.000505	0.00012
0.032594	0.012993	-0.007966	-0.000619	0.000534	0.000113
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0.033108	0.013737	-0.008771	-0.000595	0.000471	0.000117
0.033555	0.013973	-0.008631	-0.00064	0.000553	0.000119
0.034869	0.014189	-0.008705	-0.000624	0.000503	0.000135
0.033201	0.013816	-0.010864	-0.000614	0.000434	0.000124
0.033624	0.015365	-0.011145	-0.000635	0.000478	0.000188
0.033642	0.014331	-0.009977	-0.000614	0.000468	0.000115
0.0339	0.014582	-0.011129	-0.000686	0.000554	0.000118
0.033517	0.0147	-0.009145	-0.000589	0.000459	0.000128
0.033335	0.013912	-0.010377	-0.000628	0.000474	0.000123
0.033585	0.014362	-0.008784	-0.000618	0.000516	0.000116
0.03401	0.014452	-0.011484	-0.000638	0.00045	0.000176
0.033571	0.014971	-0.011648	-0.000656	0.000495	0.00015
0.033897	0.014063	-0.010244	-0.000648	0.000506	0.00015
0.033856	0.013823	-0.010505	-0.000661	0.000516	0.000155
0.034382	0.01561	-0.01288	-0.000652	0.000445	0.000155

0.034041	0.014262	-0.013065	-0.000695	0.000492	0.000167
0.034392	0.01564	-0.010529	-0.000603	0.00044	0.000138
0.034826	0.014483	-0.008727	-0.000607	0.000478	0.000168
0.034615	0.014663	-0.010281	-0.000633	0.000483	0.000102
0.03415	0.015147	-0.010886	-0.000638	0.000484	0.000139
0.03408	0.014743	-0.011888	-0.000683	0.00052	0.000162
0.034939	0.01611	-0.009184	-0.000618	0.000507	0.000192
0.034906	0.014777	-0.012138	-0.000665	0.000469	0.000154
0.03455	0.015528	-0.008667	-0.000618	0.000523	0.000159
0.034358	0.014893	-0.013752	-0.000705	0.000495	0.000149
0.034732	0.014745	-0.011927	-0.000643	0.000442	0.000144
0.034621	0.015168	-0.012269	-0.000666	0.000477	0.000169
0.034836	0.015824	-0.012767	-0.000653	0.000447	0.000164
0.034355	0.014865	-0.011239	-0.000659	0.000497	0.000169
0.034423	0.015327	-0.009282	-0.000602	0.000474	0.000134
0.034872	0.015049	-0.010685	-0.000633	0.000468	0.000162
0.034972	0.01581	-0.010127	-0.000641	0.000511	0.000176
0.034852	0.016034	-0.012324	-0.000657	0.000472	0.000165
0.035167	0.015502	-0.009229	-0.000636	0.000525	0.00015
0.035035	0.016017	-0.011503	-0.000665	0.000509	0.000183
0.034739	0.015002	-0.012673	-0.000663	0.000451	0.000197
0.035054	0.016094	-0.012766	-0.00069	0.000513	0.000157
0.034876	0.016003	-0.011398	-0.000621	0.000442	0.000145
0.034924	0.015612	-0.010318	-0.000657	0.000532	0.000149
0.035376	0.016966	-0.013154	-0.000628	0.000401	0.000191
0.034824	0.016167	-0.012792	-0.000663	0.000469	0.000187
0.035132	0.015665	-0.012354	-0.000685	0.000512	0.000121
0.034816	0.015319	-0.010939	-0.00065	0.000492	0.000182
0.03486	0.015897	-0.012595	-0.000699	0.000533	0.000164
0.03547	0.016959	-0.012913	-0.000666	0.000477	0.000154
0.035615	0.016108	-0.014226	-0.000653	0.000392	0.000172
0.034784	0.016708	-0.011447	-0.000656	0.000514	0.000161
0.035091	0.015919	-0.01012	-0.000639	0.000509	0.000165
0.034316	0.016426	-0.013752	-0.000644	0.000422	0.000124
0.035333	0.016311	-0.01283	-0.000677	0.000487	0.000168
0.034707	0.015663	-0.011305	-0.000659	0.000504	0.000179
0.035278	0.016774	-0.012003	-0.000654	0.000485	0.000177
0.035354	0.01667	-0.013785	-0.000679	0.000467	0.000154
0.034894	0.015754	-0.011902	-0.000674	0.000512	0.00016
0.035228	0.015994	-0.011548	-0.000664	0.000504	0.000167
0.034659	0.016281	-0.010382	-0.000653	0.000537	0.000185
0.034778	0.016813	-0.010498	-0.000612	0.000473	0.000149
0.035396	0.016118	-0.010895	-0.000659	0.000516	0.000185
0.035542	0.016145	-0.01028	-0.000644	0.000507	0.000188
0.034895	0.016575	-0.011127	-0.000617	0.000453	0.000161
0.034692	0.015899	-0.011378	-0.000622	0.000445	0.000136

0.034929	0.016938	-0.010909	-0.000659	0.000541	0.000153
0.035256	0.016234	-0.013756	-0.000676	0.000456	0.000161
0.034774	0.016524	-0.010964	-0.000656	0.000527	0.000161
0.035665	0.016821	-0.013522	-0.000691	0.00049	0.000199
0.0349	0.016015	-0.013138	-0.000665	0.00046	0.000151
0.034884	0.016946	-0.00928	-0.000608	0.000507	0.000154
0.034988	0.016814	-0.011867	-0.000598	0.000399	0.000152
0.034281	0.016342	-0.011524	-0.000671	0.000539	0.000165
0.035413	0.017005	-0.011301	-0.000634	0.000476	0.000173
0.035143	0.01593	-0.014374	-0.000704	0.000478	0.000178
0.035372	0.017133	-0.013751	-0.000664	0.00045	0.00015
0.035427	0.016934	-0.012233	-0.000645	0.000461	0.000186
0.035003	0.016772	-0.010034	-0.000648	0.000549	0.000119
0.035591	0.016585	-0.010555	-0.000645	0.000512	0.000147
0.03472	0.015573	-0.013671	-0.000666	0.000435	0.000183
0.034918	0.016853	-0.011783	-0.000661	0.000511	0.000182
0.035241	0.016012	-0.012009	-0.000672	0.000501	0.000176
0.03488	0.016483	-0.012786	-0.000667	0.000482	0.000176
0.035721	0.016965	-0.011888	-0.000655	0.000489	0.000135
0.035239	0.016622	-0.012841	-0.00067	0.000481	0.000185
0.03556	0.016757	-0.012953	-0.000671	0.000478	0.000162
0.035902	0.016833	-0.013729	-0.00068	0.000463	0.000175
0.035047	0.01631	-0.012285	-0.000654	0.000468	0.000195
0.035087	0.016155	-0.010742	-0.000644	0.000502	0.000161
0.034356	0.016459	-0.010612	-0.000649	0.00053	0.000181
0.03591	0.017512	-0.013534	-0.000664	0.000454	0.000181
0.035038	0.01622	-0.009989	-0.000616	0.000481	0.00015
0.034994	0.016059	-0.011534	-0.000606	0.000411	0.000141
0.035453	0.016896	-0.010865	-0.000664	0.000538	0.000186
0.035876	0.015905	-0.013532	-0.000694	0.000479	0.000154
0.035253	0.016875	-0.014205	-0.000677	0.000452	0.000191
0.034841	0.016177	-0.012404	-0.000651	0.000463	0.000151
0.034766	0.017122	-0.012438	-0.000641	0.000462	0.000178
0.035301	0.016223	-0.01107	-0.00066	0.000518	0.000149
0.034692	0.016625	-0.011581	-0.000634	0.000473	0.000151
0.035322	0.017249	-0.011593	-0.000637	0.000477	0.000174
0.034606	0.0171	-0.012533	-0.000639	0.00046	0.000145
0.035166	0.016911	-0.011627	-0.000637	0.000475	0.000146
0.034848	0.0167	-0.01411	-0.000696	0.000491	0.000183
0.034693	0.016116	-0.013209	-0.000688	0.000499	0.000186
0.035775	0.017209	-0.01073	-0.000628	0.000484	0.000151
0.035462	0.017289	-0.01164	-0.000616	0.000439	0.000165
0.034338	0.016843	-0.011501	-0.000631	0.00048	0.000148
0.035922	0.016719	-0.012003	-0.000653	0.000469	0.000195
0.035938	0.016576	-0.012506	-0.000691	0.000518	0.000188
0.035578	0.017857	-0.012505	-0.000639	0.000459	0.00016

0.035222	0.016586	-0.012749	-0.000669	0.000482	0.000181
0.036401	0.017314	-0.00975	-0.000622	0.000496	0.000181
0.035587	0.016502	-0.011542	-0.000637	0.000462	0.000156
0.03555	0.015919	-0.011571	-0.000644	0.000461	0.000192
0.035178	0.017015	-0.013116	-0.000652	0.000452	0.000138
0.035072	0.016702	-0.013826	-0.000664	0.000443	0.00017
0.035069	0.016657	-0.009638	-0.000636	0.000539	0.000111
0.0363	0.016824	-0.010669	-0.00063	0.000476	0.000136
0.035523	0.016754	-0.01269	-0.000656	0.00046	0.000177
0.036087	0.017765	-0.012488	-0.000609	0.000396	0.000162
0.035882	0.016384	-0.011532	-0.000669	0.000511	0.000157
0.036008	0.017081	-0.013239	-0.000675	0.00047	0.000212
0.03596	0.016658	-0.012404	-0.000618	0.000396	0.000166
0.036135	0.01717	-0.01322	-0.000647	0.000427	0.000155

Time (s)
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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
0.079672	0.018704	0.934885	0.014687	0.004708	0.001516
0.086039	0.024842	-0.02581	-0.001406	0.000624	0.000942
0.086	0.025114	-0.027022	-0.001502	0.000755	0.000959
0.086823	0.02508	-0.028722	-0.001524	0.000721	0.000986
0.085734	0.024081	-0.028068	-0.001493	0.000686	0.00099
0.086019	0.024772	-0.028399	-0.001498	0.000692	0.001001
0.085906	0.024713	-0.028567	-0.0015	0.000695	0.000951
0.085729	0.024478	-0.029212	-0.001503	0.000678	0.00094
0.086546	0.025423	-0.029274	-0.001527	0.000719	0.000967
0.086235	0.024445	-0.0282	-0.001507	0.000707	0.000978
0.086212	0.024658	-0.02821	-0.001523	0.000741	0.000935
0.08567	0.025131	-0.027443	-0.001495	0.000735	0.000947
0.086018	0.024609	-0.029042	-0.001499	0.000676	0.000916
0.086463	0.024657	-0.028209	-0.001492	0.00068	0.000973
0.086165	0.024666	-0.029595	-0.001492	0.000642	0.000944
0.086443	0.024914	-0.02877	-0.001492	0.000669	0.000946
0.08639	0.024125	-0.028978	-0.001484	0.000633	0.00095
0.086368	0.024487	-0.028465	-0.001507	0.000703	0.000905
0.086354	0.024278	-0.030912	-0.001537	0.000664	0.000959
0.086049	0.024343	-0.028447	-0.001504	0.000696	0.000948
0.086667	0.023955	-0.031617	-0.001549	0.000651	0.000943
0.086418	0.025093	-0.030082	-0.001531	0.000698	0.000942
0.086269	0.024698	-0.029234	-0.001504	0.000672	0.000967
0.086421	0.024637	-0.03136	-0.001531	0.000648	0.000924
0.086298	0.02482	-0.030701	-0.001526	0.000661	0.000986
0.08608	0.02484	-0.03045	-0.001503	0.000637	0.00094
0.086036	0.025233	-0.031148	-0.001537	0.000677	0.000979
0.086326	0.024804	-0.03026	-0.001518	0.000666	0.000929
0.086703	0.024993	-0.027276	-0.001487	0.000708	0.000936
0.08643	0.024919	-0.031498	-0.00151	0.00061	0.000939
0.086692	0.025559	-0.03113	-0.001568	0.000728	0.000983
0.086631	0.025447	-0.032377	-0.001513	0.000587	0.001016
0.086381	0.024775	-0.029733	-0.001509	0.000661	0.001007
0.086463	0.025551	-0.03011	-0.001528	0.000701	0.000923
0.086338	0.024669	-0.029786	-0.001535	0.00071	0.000928
0.086704	0.025034	-0.029815	-0.001506	0.000655	0.000977
0.087263	0.025789	-0.029754	-0.001465	0.00059	0.000979
0.085917	0.024403	-0.030705	-0.001552	0.000706	0.000951
0.086725	0.025741	-0.031421	-0.001528	0.000651	0.00099
0.086784	0.026427	-0.030319	-0.001522	0.000686	0.00103
0.086347	0.025161	-0.02943	-0.001516	0.000695	0.000954
0.086542	0.026025	-0.027386	-0.001494	0.000735	0.000987
0.08645	0.025736	-0.030443	-0.00151	0.000657	0.000988
0.087106	0.02546	-0.030851	-0.001553	0.000705	0.000943
0.086682	0.025917	-0.031207	-0.001523	0.000654	0.000971

0.08705	0.025613	-0.032344	-0.001547	0.000647	0.00097
0.085951	0.025335	-0.030066	-0.001515	0.000679	0.000976
0.086285	0.026685	-0.032313	-0.001492	0.000581	0.001009
0.086318	0.025319	-0.031359	-0.001529	0.000657	0.000933
0.085207	0.02492	-0.030702	-0.00149	0.000619	0.000977
0.085983	0.025318	-0.02835	-0.001484	0.000683	0.000969
0.086284	0.025499	-0.033896	-0.001595	0.000686	0.001006
0.085865	0.025636	-0.031089	-0.00152	0.000659	0.001
0.085762	0.025558	-0.029152	-0.001511	0.000711	0.000959
0.086643	0.025293	-0.029814	-0.001493	0.00064	0.000945
0.086071	0.025763	-0.031779	-0.001533	0.00066	0.000968
0.086546	0.025083	-0.029558	-0.001501	0.000656	0.001001
0.085545	0.024795	-0.029667	-0.001514	0.000691	0.000933
0.085279	0.025383	-0.02826	-0.001482	0.000694	0.000971
0.085518	0.025599	-0.031146	-0.001502	0.000631	0.000989
0.08613	0.025653	-0.029926	-0.001461	0.000597	0.000936
0.085449	0.025668	-0.032476	-0.001529	0.000639	0.000945
0.085699	0.025619	-0.030626	-0.00147	0.000594	0.000945
0.086257	0.025546	-0.031641	-0.001526	0.000646	0.000958
0.085783	0.025486	-0.030079	-0.001518	0.000692	0.000949
0.085716	0.025605	-0.031277	-0.001538	0.000687	0.000992
0.086116	0.025309	-0.031994	-0.001515	0.000612	0.000968
0.08638	0.025311	-0.030268	-0.00152	0.000673	0.000985
0.086116	0.025956	-0.030886	-0.001526	0.000681	0.000965
0.085262	0.025144	-0.030248	-0.001492	0.000641	0.000961
0.085849	0.025391	-0.031886	-0.00154	0.000664	0.000982
0.085403	0.026614	-0.032927	-0.001525	0.000636	0.000952
0.085496	0.025194	-0.0309	-0.001491	0.000616	0.000956
0.086069	0.025925	-0.030255	-0.001514	0.00068	0.000981
0.085881	0.025733	-0.031358	-0.001514	0.000644	0.000953
0.085559	0.025667	-0.030087	-0.001501	0.000671	0.000937
0.085683	0.025264	-0.031461	-0.00155	0.000694	0.000991
0.085642	0.026106	-0.032566	-0.001503	0.000593	0.000984
0.085151	0.026135	-0.031902	-0.001483	0.00059	0.000963
0.086196	0.026015	-0.032853	-0.001552	0.000659	0.000978
0.084887	0.025838	-0.031413	-0.001502	0.000636	0.000996
0.085506	0.026106	-0.030579	-0.001488	0.000639	0.000943
0.085863	0.026106	-0.033833	-0.001532	0.000598	0.000972
0.085529	0.026102	-0.031801	-0.001521	0.000653	0.000967
0.085677	0.025736	-0.031305	-0.001524	0.000667	0.000952
0.085216	0.026434	-0.030932	-0.001506	0.000666	0.000978
0.085566	0.026481	-0.030659	-0.00149	0.000646	0.000948
0.08527	0.026572	-0.032143	-0.001509	0.000631	0.001
0.085204	0.025857	-0.029586	-0.001492	0.000681	0.00093
0.084635	0.026809	-0.030536	-0.001473	0.000641	0.000953
0.085216	0.026412	-0.03087	-0.001509	0.000673	0.00098

0.085526	0.025696	-0.030584	-0.001511	0.000671	0.000937
0.085202	0.025943	-0.030018	-0.001521	0.000716	0.000958
0.084982	0.02707	-0.030923	-0.001509	0.000689	0.000953
0.085396	0.026126	-0.02965	-0.001506	0.000702	0.000951
0.084771	0.025657	-0.030212	-0.001501	0.000675	0.000973
0.08526	0.025564	-0.03165	-0.001548	0.000701	0.000945
0.085055	0.026297	-0.03216	-0.001511	0.000636	0.000958
0.084913	0.026215	-0.031393	-0.001496	0.000636	0.000961
0.084803	0.026065	-0.029622	-0.001459	0.000634	0.000905
0.08529	0.025966	-0.031949	-0.001511	0.000633	0.000951
0.085847	0.026488	-0.030172	-0.001494	0.000666	0.00094
0.084933	0.02577	-0.030255	-0.001504	0.000678	0.000965
0.085076	0.026099	-0.031027	-0.001537	0.000713	0.000972
0.085865	0.026201	-0.031705	-0.001529	0.000669	0.000948
0.0847	0.026782	-0.029538	-0.00144	0.000615	0.000965
0.085014	0.026549	-0.029129	-0.001472	0.000679	0.000897
0.084854	0.02627	-0.030591	-0.001509	0.000691	0.000924
0.084764	0.026445	-0.031132	-0.001495	0.000653	0.000923
0.085893	0.027197	-0.034138	-0.001535	0.000615	0.000964
0.085509	0.025655	-0.032683	-0.001541	0.000654	0.000923
0.085211	0.026457	-0.032513	-0.001502	0.000612	0.00093
0.085015	0.02682	-0.030309	-0.0015	0.000686	0.000997
0.085638	0.025586	-0.029975	-0.001529	0.000717	0.000956
0.085205	0.026622	-0.032995	-0.001491	0.000576	0.000972
0.08528	0.026472	-0.031166	-0.001497	0.000643	0.000961
0.085241	0.027457	-0.032512	-0.00149	0.000603	0.00101
0.085296	0.026761	-0.034078	-0.001554	0.000653	0.000939
0.085438	0.026479	-0.031369	-0.001503	0.000647	0.000944
0.08522	0.026542	-0.033503	-0.001532	0.000626	0.001006
0.085347	0.025599	-0.031259	-0.001527	0.000677	0.000941
0.085537	0.027116	-0.030875	-0.001473	0.000619	0.000985
0.085305	0.02629	-0.032159	-0.00151	0.00063	0.000972
0.085581	0.026761	-0.03274	-0.001493	0.000581	0.001021
0.085355	0.026916	-0.031847	-0.00146	0.000571	0.000884
0.084957	0.026717	-0.035102	-0.00156	0.000627	0.00101
0.085734	0.026629	-0.031262	-0.001511	0.000659	0.00098
0.085168	0.026689	-0.034252	-0.001546	0.000626	0.00103
0.084798	0.026441	-0.031475	-0.001484	0.000619	0.000947
0.085785	0.026409	-0.032329	-0.001496	0.000593	0.000969
0.084652	0.026604	-0.031987	-0.001492	0.000625	0.000916
0.085691	0.026271	-0.031292	-0.001506	0.000645	0.000969
0.085124	0.026783	-0.032302	-0.001493	0.000607	0.000967
0.08507	0.026154	-0.032622	-0.001552	0.000685	0.000991
0.085449	0.02659	-0.029598	-0.001538	0.000764	0.001002
0.084854	0.026564	-0.031425	-0.001494	0.000638	0.000969
0.084634	0.026735	-0.028598	-0.001465	0.00069	0.000956

0.084745	0.026953	-0.031496	-0.001511	0.000673	0.000982
0.084652	0.026462	-0.031485	-0.001499	0.000644	0.00098
0.085033	0.026575	-0.030415	-0.001493	0.000671	0.000935
0.085276	0.026332	-0.032046	-0.001493	0.000605	0.000961
0.085337	0.026223	-0.033957	-0.001574	0.000676	0.000995
0.084369	0.027006	-0.031456	-0.001486	0.000637	0.000989
0.084828	0.026307	-0.030451	-0.001492	0.00066	0.000996
0.084781	0.026777	-0.030612	-0.001492	0.000665	0.000981
0.084184	0.027025	-0.03309	-0.001479	0.000573	0.000988
0.085046	0.026995	-0.029814	-0.001507	0.000721	0.000959
0.084439	0.026875	-0.029585	-0.001473	0.000677	0.00094
0.084832	0.026995	-0.03215	-0.001472	0.000582	0.000989
0.084841	0.026649	-0.030117	-0.001472	0.000647	0.000957
0.0853	0.026913	-0.031621	-0.001472	0.000597	0.000924

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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
0.143803	0.029385	0.919218	0.01359	0.005207	0.002507
0.152324	0.034744	-0.049266	-0.002594	0.000975	0.001904
0.151279	0.035569	-0.051259	-0.002595	0.000942	0.00189
0.15146	0.035069	-0.050284	-0.002632	0.001021	0.001951
0.150946	0.033652	-0.052269	-0.00262	0.000921	0.001889
0.151692	0.035951	-0.049922	-0.002616	0.001014	0.002008
0.151907	0.035397	-0.052352	-0.00265	0.000991	0.001862
0.151576	0.035038	-0.054128	-0.002632	0.000894	0.001917
0.151681	0.034278	-0.051877	-0.002646	0.000978	0.001912
0.151216	0.035412	-0.049493	-0.002595	0.000999	0.001902
0.151507	0.035117	-0.051144	-0.002619	0.000976	0.001876
0.15211	0.035936	-0.053769	-0.002664	0.000965	0.001983
0.152042	0.036494	-0.051358	-0.002607	0.000966	0.00187
0.151871	0.035303	-0.051953	-0.002641	0.000982	0.001939
0.152117	0.035298	-0.052235	-0.002635	0.000962	0.001885
0.152535	0.0353	-0.054717	-0.002677	0.00094	0.001938
0.15186	0.035142	-0.050727	-0.002606	0.000965	0.001854
0.15089	0.035723	-0.051049	-0.002628	0.001008	0.001977
0.152292	0.035624	-0.05456	-0.002675	0.000958	0.001881
0.15216	0.035442	-0.051629	-0.002644	0.001004	0.001826
0.151867	0.035758	-0.053383	-0.00263	0.000928	0.001887
0.151625	0.035162	-0.053216	-0.002653	0.000964	0.001901
0.151613	0.034443	-0.048236	-0.002603	0.001036	0.001841
0.151781	0.03544	-0.054776	-0.002686	0.000968	0.001958
0.152153	0.035116	-0.053733	-0.002657	0.000942	0.001928
0.151528	0.036145	-0.053097	-0.002645	0.000972	0.00193
0.152259	0.034868	-0.053373	-0.002676	0.000982	0.001915
0.151412	0.036037	-0.053688	-0.002657	0.00097	0.001953
0.152109	0.035698	-0.054618	-0.002666	0.000936	0.001973
0.152066	0.035592	-0.052543	-0.002658	0.000996	0.001906
0.151333	0.035331	-0.053285	-0.002627	0.000922	0.001923
0.151098	0.035715	-0.053262	-0.002601	0.000889	0.001916
0.152176	0.034827	-0.05162	-0.002656	0.001008	0.001898
0.151326	0.034783	-0.054334	-0.002669	0.000949	0.001931
0.151379	0.035128	-0.053932	-0.002659	0.000955	0.001898
0.151781	0.035243	-0.053817	-0.002651	0.00094	0.001899
0.151282	0.036209	-0.051329	-0.002592	0.000942	0.001951
0.150034	0.035268	-0.052225	-0.002625	0.000978	0.001874
0.150639	0.035727	-0.053937	-0.002624	0.000916	0.00189
0.150219	0.03466	-0.053348	-0.002622	0.000923	0.001842
0.150398	0.034355	-0.052647	-0.002659	0.001004	0.001811
0.151881	0.0346	-0.052052	-0.002628	0.000944	0.001907
0.151006	0.035157	-0.052626	-0.002653	0.00099	0.001936
0.151952	0.034334	-0.052353	-0.00264	0.000953	0.001865
0.152009	0.034225	-0.053044	-0.002672	0.000983	0.001863

0.151076	0.035787	-0.051571	-0.002605	0.000956	0.00191
0.151774	0.034063	-0.05076	-0.002615	0.000962	0.00184
0.151629	0.035669	-0.053108	-0.002659	0.000983	0.001962
0.152058	0.035423	-0.052458	-0.002615	0.000917	0.001947
0.151397	0.034677	-0.053877	-0.002664	0.000958	0.001876
0.151851	0.035072	-0.051659	-0.002642	0.000992	0.001908
0.151186	0.035534	-0.053899	-0.002639	0.000931	0.001899
0.152187	0.035192	-0.054579	-0.00267	0.000937	0.001946
0.151951	0.035738	-0.051489	-0.00258	0.000903	0.001864
0.151896	0.035456	-0.053447	-0.002675	0.000989	0.001976
0.15169	0.035219	-0.052962	-0.00264	0.00095	0.001897
0.152092	0.034912	-0.05265	-0.002664	0.00099	0.001901
0.152139	0.034555	-0.05314	-0.002653	0.000956	0.001799
0.151931	0.034921	-0.049148	-0.002655	0.001092	0.00193
0.151441	0.034894	-0.052886	-0.002656	0.00098	0.001883
0.151557	0.03582	-0.053177	-0.002641	0.00095	0.00199
0.15197	0.034796	-0.051274	-0.002619	0.000959	0.001892
0.151966	0.035614	-0.053638	-0.002671	0.000981	0.001932
0.152025	0.034983	-0.052003	-0.002648	0.000996	0.001774
0.151071	0.03588	-0.051341	-0.002632	0.001009	0.001927
0.15211	0.035521	-0.053265	-0.002628	0.00092	0.001876
0.152425	0.035609	-0.054712	-0.002646	0.000898	0.001888
0.151669	0.03512	-0.053941	-0.002653	0.000941	0.001872
0.152197	0.035658	-0.049226	-0.002596	0.000999	0.001901
0.152004	0.036502	-0.053468	-0.002631	0.000937	0.001905
0.151494	0.03557	-0.05305	-0.002635	0.00095	0.001873
0.152451	0.035693	-0.051287	-0.00266	0.001034	0.001941
0.151979	0.035998	-0.053385	-0.002633	0.000942	0.001801
0.151376	0.037012	-0.056174	-0.002669	0.000924	0.002
0.152108	0.035359	-0.051837	-0.00262	0.000953	0.00185
0.1512	0.036005	-0.055099	-0.002648	0.000911	0.001957
0.151742	0.034836	-0.050902	-0.002654	0.001037	0.001865
0.15172	0.036241	-0.054976	-0.002662	0.000936	0.001939
0.151057	0.035281	-0.054821	-0.002639	0.0009	0.001857
0.150702	0.035622	-0.051613	-0.002609	0.000962	0.001912
0.152115	0.034222	-0.051345	-0.002656	0.001011	0.001843
0.151495	0.03526	-0.051903	-0.00264	0.00099	0.001878
0.151053	0.036627	-0.053031	-0.002635	0.000969	0.001982
0.151546	0.035384	-0.051156	-0.002594	0.000941	0.001844
0.151723	0.035767	-0.05392	-0.002646	0.000937	0.001913
0.150647	0.035504	-0.051495	-0.002613	0.000973	0.001915
0.151912	0.03523	-0.053391	-0.002655	0.000962	0.001863
0.151531	0.035792	-0.054006	-0.002626	0.000906	0.001869
0.152188	0.036639	-0.054589	-0.002678	0.000973	0.001985
0.151514	0.035126	-0.0505	-0.002626	0.001017	0.001807
0.150276	0.036643	-0.050609	-0.002614	0.001027	0.001969

0.151743	0.036021	-0.051826	-0.002651	0.001023	0.001882
0.151724	0.035857	-0.052202	-0.002637	0.000983	0.001882
0.151251	0.035333	-0.051573	-0.00263	0.000989	0.001884
0.150783	0.035727	-0.051982	-0.002613	0.000958	0.001916
0.151437	0.03541	-0.053484	-0.002645	0.000944	0.001954
0.151548	0.035034	-0.051955	-0.002633	0.000971	0.001883
0.15126	0.036329	-0.052084	-0.002608	0.000957	0.001844
0.151817	0.035661	-0.052394	-0.002649	0.00099	0.001907
0.151404	0.035711	-0.053301	-0.002652	0.000973	0.001888
0.151527	0.036013	-0.052569	-0.002622	0.000946	0.001931
0.151078	0.035556	-0.054769	-0.002664	0.000944	0.001945
0.151224	0.036341	-0.053081	-0.002642	0.000973	0.001945
0.151717	0.035303	-0.049693	-0.002601	0.001	0.001815
0.151887	0.036494	-0.053836	-0.002628	0.000917	0.001945
0.151408	0.03563	-0.053398	-0.002626	0.000928	0.001855
0.151256	0.035623	-0.050585	-0.002621	0.001009	0.001911
0.151236	0.036099	-0.054786	-0.002631	0.000892	0.001952
0.151622	0.035942	-0.054033	-0.002667	0.000982	0.001826
0.151375	0.03642	-0.053181	-0.002681	0.001034	0.001977
0.151004	0.036138	-0.054166	-0.002633	0.000925	0.001917
0.15082	0.036055	-0.053068	-0.002623	0.000946	0.001904
0.150807	0.036122	-0.051272	-0.002602	0.000974	0.001854
0.150549	0.036778	-0.053733	-0.002636	0.000958	0.001983
0.150649	0.035505	-0.051489	-0.002611	0.000969	0.001914
0.149727	0.035941	-0.052361	-0.002605	0.000956	0.001869
0.15065	0.036011	-0.051324	-0.002597	0.000964	0.001871
0.149706	0.036192	-0.052657	-0.002609	0.000956	0.001899
0.150873	0.03618	-0.051535	-0.002586	0.000934	0.001915
0.150666	0.035772	-0.051726	-0.002588	0.000933	0.001844
0.150227	0.035332	-0.053904	-0.002638	0.000939	0.001923
0.150063	0.035856	-0.054116	-0.002627	0.000931	0.001847
0.150024	0.036079	-0.052532	-0.002591	0.00092	0.001918
0.150882	0.03514	-0.052085	-0.002597	0.000919	0.001862
0.150788	0.035011	-0.051767	-0.002632	0.000984	0.001922
0.150557	0.03588	-0.050184	-0.002582	0.000977	0.001843
0.150272	0.034954	-0.052184	-0.002636	0.000991	0.001852
0.150572	0.036025	-0.050834	-0.002589	0.000966	0.001899
0.151061	0.035988	-0.054792	-0.002651	0.000931	0.001912
0.150701	0.035836	-0.050709	-0.002587	0.000965	0.001843
0.150449	0.035945	-0.052947	-0.002632	0.000966	0.001945
0.149993	0.035379	-0.049338	-0.002596	0.00103	0.001832
0.150095	0.035736	-0.053341	-0.00263	0.000955	0.001889
0.14983	0.036504	-0.050058	-0.002549	0.000945	0.001869
0.149303	0.035641	-0.053346	-0.002599	0.000909	0.001935
0.150048	0.034991	-0.052002	-0.002609	0.000958	0.001805
0.149101	0.035734	-0.053687	-0.002654	0.000997	0.001924

0.149004	0.035516	-0.052975	-0.00262	0.000967	0.00184
0.150982	0.036186	-0.051389	-0.002575	0.000916	0.001929
0.148791	0.035441	-0.049694	-0.002574	0.000999	0.001838
0.148282	0.035806	-0.05163	-0.002583	0.00096	0.0019
0.149046	0.034535	-0.05051	-0.002576	0.000955	0.001817
0.149371	0.035505	-0.054202	-0.002635	0.000941	0.001904
0.149506	0.034765	-0.050304	-0.002579	0.000964	0.001843
0.149156	0.035085	-0.050066	-0.002621	0.001051	0.001892
0.149381	0.034366	-0.052793	-0.002623	0.000952	0.001829
0.149527	0.036116	-0.052314	-0.002605	0.000958	0.001941
0.149394	0.035041	-0.052452	-0.002574	0.000885	0.001906
0.149642	0.035412	-0.049788	-0.002566	0.000965	0.001876
0.148779	0.035685	-0.051535	-0.002596	0.00098	0.001843
0.148695	0.035512	-0.054437	-0.002635	0.000943	0.001926

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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
0.231739	0.042358	0.935137	0.012178	0.006971	0.003593
0.239314	0.054513	-0.088549	-0.004179	0.001261	0.003895
0.238714	0.051112	-0.079961	-0.004056	0.00132	0.003412
0.23799	0.045558	-0.068104	-0.003899	0.001423	0.002549
0.238605	0.049782	-0.081504	-0.004084	0.001319	0.003128
0.236447	0.054863	-0.092648	-0.004224	0.001252	0.003928
0.23912	0.051604	-0.081574	-0.004115	0.001366	0.003474
0.237605	0.044793	-0.067892	-0.003903	0.001441	0.002416
0.237967	0.049561	-0.084107	-0.004107	0.001274	0.003155
0.237979	0.056117	-0.093131	-0.004236	0.001244	0.004077
0.239214	0.050006	-0.076727	-0.004039	0.001387	0.003207
0.238941	0.046029	-0.071264	-0.003965	0.001425	0.002576
0.237871	0.050228	-0.085082	-0.004122	0.001282	0.003159
0.239599	0.055635	-0.093845	-0.004283	0.001269	0.004046
0.239741	0.050737	-0.078601	-0.004043	0.001323	0.003385
0.239895	0.044959	-0.068354	-0.003921	0.001413	0.002529
0.240038	0.050057	-0.08548	-0.004152	0.001283	0.003172
0.239621	0.054	-0.090993	-0.004268	0.001321	0.003867
0.240645	0.050766	-0.081681	-0.004122	0.001342	0.003395
0.239243	0.044944	-0.069757	-0.003946	0.001422	0.002501
0.239233	0.048402	-0.077396	-0.004059	0.001398	0.002875
0.239139	0.05459	-0.096826	-0.004302	0.001196	0.003975
0.23969	0.050627	-0.081036	-0.004082	0.001308	0.003383
0.239002	0.046627	-0.071151	-0.00394	0.00139	0.002636
0.238529	0.049186	-0.082466	-0.00409	0.001294	0.003035
0.238339	0.053556	-0.091831	-0.004219	0.001224	0.003835
0.238603	0.052373	-0.081429	-0.004069	0.001315	0.00347
0.239144	0.047314	-0.069451	-0.003916	0.001414	0.00265
0.23806	0.047848	-0.080485	-0.004061	0.001305	0.002882
0.238292	0.055561	-0.093261	-0.004262	0.001278	0.003953
0.239299	0.052581	-0.080814	-0.004086	0.00136	0.003454
0.239319	0.047119	-0.072868	-0.003975	0.001397	0.002647
0.238737	0.048914	-0.082502	-0.004088	0.001282	0.003012
0.238808	0.056051	-0.092598	-0.004184	0.001169	0.003918
0.239471	0.051618	-0.08204	-0.004115	0.001354	0.003368
0.238279	0.046683	-0.073396	-0.003952	0.001357	0.002541
0.23777	0.050602	-0.082539	-0.004053	0.001261	0.003107
0.238744	0.05573	-0.093802	-0.004241	0.001214	0.004024
0.240791	0.050096	-0.077705	-0.004089	0.001413	0.003271
0.237942	0.045623	-0.069428	-0.003927	0.001433	0.0025
0.237129	0.049507	-0.084541	-0.004118	0.001294	0.003115
0.23848	0.05478	-0.089587	-0.0042	0.001279	0.003927
0.238612	0.049802	-0.07815	-0.004059	0.001375	0.003266
0.238869	0.043802	-0.068599	-0.003937	0.001439	0.002406
0.239473	0.050489	-0.084157	-0.004125	0.001292	0.003238

0.238459	0.054572	-0.091394	-0.004221	0.00125	0.003944
0.238022	0.049222	-0.077307	-0.004015	0.001336	0.003143
0.237801	0.046156	-0.072571	-0.003964	0.001392	0.002655
0.238123	0.051343	-0.086307	-0.00413	0.00125	0.003433
0.238581	0.054406	-0.095653	-0.004262	0.001167	0.004016
0.23927	0.048568	-0.074438	-0.004011	0.001401	0.003051
0.237789	0.047139	-0.07511	-0.003983	0.001351	0.002747
0.23758	0.051153	-0.085999	-0.004104	0.001229	0.003321
0.237765	0.054451	-0.090327	-0.004192	0.001251	0.00385
0.238564	0.049006	-0.075442	-0.004033	0.001425	0.003039
0.237983	0.046128	-0.074825	-0.003979	0.001338	0.002671
0.239197	0.050663	-0.084854	-0.004136	0.001291	0.003278
0.238964	0.055617	-0.095507	-0.00426	0.00118	0.004089
0.240191	0.047725	-0.073177	-0.003997	0.001402	0.002877
0.239053	0.043969	-0.07023	-0.00395	0.001407	0.002399
0.239017	0.051587	-0.086508	-0.004172	0.001309	0.003395
0.237977	0.054266	-0.090201	-0.004179	0.001227	0.003831
0.239303	0.048371	-0.075272	-0.004048	0.001433	0.003052
0.239229	0.044869	-0.070661	-0.00397	0.001433	0.002507
0.23911	0.053142	-0.092181	-0.004215	0.001197	0.003685
0.238446	0.05417	-0.089411	-0.004217	0.001303	0.00392
0.240105	0.046233	-0.073683	-0.004043	0.001453	0.002713
0.238546	0.046624	-0.075354	-0.004021	0.001394	0.002671
0.238371	0.054301	-0.090887	-0.004205	0.001249	0.003772
0.239341	0.053976	-0.088951	-0.004191	0.001264	0.003822
0.239487	0.046548	-0.070197	-0.003958	0.001447	0.002609
0.239586	0.047444	-0.079267	-0.004082	0.001355	0.002845
0.239664	0.054698	-0.090139	-0.004218	0.001283	0.003775
0.239373	0.053498	-0.086023	-0.004141	0.001284	0.0036
0.23925	0.046544	-0.070188	-0.003971	0.001474	0.002601
0.239934	0.049066	-0.07939	-0.004084	0.001375	0.002898
0.239495	0.054765	-0.091337	-0.004211	0.001236	0.003777
0.240831	0.052644	-0.083289	-0.004142	0.001342	0.003555
0.239603	0.04885	-0.075246	-0.004026	0.001415	0.002873
0.241374	0.04883	-0.079164	-0.004072	0.001343	0.002787
0.240027	0.055381	-0.093086	-0.004242	0.001233	0.003792
0.240082	0.052173	-0.084149	-0.004148	0.001332	0.003481
0.240155	0.047801	-0.070297	-0.003962	0.001456	0.002681
0.240115	0.049724	-0.080528	-0.004099	0.001371	0.002908
0.239238	0.055865	-0.091275	-0.00421	0.001259	0.003783
0.23942	0.053703	-0.087959	-0.004171	0.001271	0.003656
0.237621	0.048934	-0.071996	-0.003909	0.001366	0.002721
0.237539	0.04885	-0.078161	-0.004014	0.001334	0.002807
0.239203	0.055842	-0.095501	-0.004261	0.001195	0.003926
0.239448	0.052597	-0.084151	-0.004172	0.001385	0.00357
0.23887	0.046776	-0.072736	-0.003966	0.001382	0.00269

0.238813	0.049964	-0.083659	-0.004126	0.001322	0.003092
0.238866	0.052685	-0.091515	-0.004231	0.001243	0.003677
0.239458	0.052086	-0.081763	-0.0041	0.001338	0.00347
0.238642	0.046748	-0.071697	-0.003941	0.00138	0.002645
0.238012	0.048968	-0.079269	-0.004028	0.001307	0.002927
0.237736	0.055774	-0.096029	-0.004257	0.001188	0.003975
0.237526	0.05243	-0.078465	-0.004037	0.001382	0.003402
0.236661	0.045477	-0.068399	-0.003892	0.001428	0.00247
0.236182	0.050095	-0.083085	-0.004038	0.001236	0.003049
0.23759	0.054403	-0.093754	-0.004156	0.001081	0.003789
0.237603	0.051798	-0.083343	-0.004086	0.001287	0.00344
0.236194	0.046376	-0.069058	-0.003879	0.001401	0.002539
0.235711	0.048757	-0.081554	-0.00402	0.001246	0.002947
0.236142	0.056273	-0.094999	-0.004221	0.00119	0.004031
0.239388	0.051586	-0.078934	-0.004077	0.001393	0.003378
0.240509	0.044327	-0.067225	-0.00395	0.001492	0.002403
0.239759	0.049634	-0.085691	-0.004142	0.001256	0.003151
0.240811	0.054314	-0.090732	-0.00422	0.001235	0.003861
0.240945	0.051246	-0.07755	-0.004054	0.001372	0.003326
0.23969	0.044615	-0.06632	-0.003945	0.001532	0.002403
0.240274	0.050437	-0.083286	-0.004143	0.001343	0.003165
0.24015	0.055908	-0.093423	-0.004259	0.001245	0.003974
0.23954	0.051308	-0.080951	-0.004092	0.001344	0.003363
0.239149	0.045488	-0.071773	-0.003972	0.001411	0.00251
0.238363	0.051068	-0.084093	-0.004102	0.00128	0.003251
0.238255	0.0548	-0.094016	-0.00427	0.001255	0.003946
0.238984	0.049886	-0.07773	-0.004065	0.001401	0.00319
0.236967	0.045703	-0.069194	-0.003891	0.001396	0.002489
0.237814	0.051196	-0.084291	-0.004099	0.001282	0.003215
0.236826	0.056457	-0.093701	-0.004231	0.001244	0.00402
0.238462	0.049883	-0.075817	-0.004016	0.001394	0.003138
0.237731	0.046825	-0.071984	-0.003914	0.001349	0.002531
0.237504	0.051898	-0.084323	-0.004077	0.001254	0.003297
0.238727	0.054363	-0.088847	-0.004203	0.001308	0.003792
0.239279	0.0499	-0.073908	-0.00399	0.001401	0.003123
0.238552	0.04494	-0.069772	-0.003935	0.00142	0.002425
0.237033	0.051811	-0.08541	-0.004121	0.001285	0.003478
0.236911	0.054399	-0.092183	-0.004206	0.001217	0.003957
0.237074	0.048588	-0.073853	-0.003969	0.001382	0.003058
0.236667	0.04726	-0.069953	-0.003904	0.001419	0.002604
0.236671	0.053137	-0.089245	-0.004133	0.001213	0.003425
0.238129	0.054044	-0.09179	-0.004208	0.001207	0.003966
0.239472	0.049107	-0.077148	-0.004021	0.001337	0.003015
0.238403	0.045914	-0.072315	-0.003969	0.001399	0.002622
0.238458	0.051582	-0.087822	-0.004156	0.001242	0.003438
0.238782	0.0535	-0.091262	-0.004221	0.001242	0.003792

0.239336	0.048948	-0.075122	-0.00401	0.001382	0.003061
0.237638	0.046139	-0.071438	-0.003916	0.001357	0.002559
0.237241	0.052559	-0.088894	-0.004154	0.001237	0.003475
0.237332	0.054167	-0.091377	-0.004185	0.001205	0.003869
0.238721	0.049125	-0.072009	-0.003966	0.001426	0.003017
0.239618	0.045413	-0.071891	-0.004006	0.001458	0.002509
0.238462	0.053215	-0.089705	-0.004175	0.001231	0.003568
0.239925	0.054286	-0.088775	-0.004184	0.001258	0.003774
0.240505	0.047966	-0.072004	-0.00398	0.00141	0.002913
0.238749	0.045563	-0.072665	-0.004017	0.001467	0.002506
0.239138	0.05286	-0.088535	-0.004183	0.001268	0.003568
0.238683	0.054591	-0.0889	-0.004185	0.001276	0.003835
0.23879	0.048109	-0.072054	-0.003958	0.0014	0.002904
0.238349	0.047102	-0.073801	-0.003995	0.001412	0.002682

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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
0.011403	-0.001497	1.013418	0.016156	0.005504	0.001068
0.020132	0.006372	0.001244	-0.000105	-1.50E-05	0.000526
0.019473	0.006335	0.001178	-6.40E-05	-7.60E-05	0.000497
0.019926	0.005919	-0.001853	-0.000105	-0.000118	0.00046
0.020308	0.005934	-0.000828	-0.000102	-9.80E-05	0.000502
0.020576	0.005444	0.000271	-0.000108	-6.60E-05	0.000511
0.020783	0.006735	-0.001873	-0.000143	-5.40E-05	0.000494
0.021756	0.006134	0.000763	-0.000128	-2.20E-05	0.000547
0.021186	0.006248	-0.001929	-0.000136	-8.60E-05	0.000536
0.020497	0.006338	-0.004427	-0.000171	-9.90E-05	0.000565
0.02133	0.006387	-0.003777	-0.000169	-9.30E-05	0.000569
0.021936	0.007004	-0.004868	-0.000178	-0.000111	0.000553
0.021525	0.005879	-0.002386	-0.000156	-8.10E-05	0.000551
0.021552	0.006543	-0.002955	-0.000138	-0.00012	0.000564
0.022138	0.007221	-0.005505	-0.0002	-9.40E-05	0.000568
0.022101	0.007045	-0.003326	-0.000135	-0.000138	0.000574
0.02208	0.007832	-0.005709	-0.00016	-0.000161	0.000601
0.022457	0.007105	-0.004511	-0.000225	-2.50E-05	0.000573
0.022395	0.007619	-0.003706	-0.000197	-3.80E-05	0.000589
0.022907	0.007649	-0.003722	-0.000196	-4.90E-05	0.000599
0.022757	0.007795	-0.003122	-0.000175	-6.30E-05	0.00064
0.022775	0.007575	-0.001793	-0.000169	-3.20E-05	0.000631
0.02323	0.007433	-0.001785	-0.000159	-6.10E-05	0.00065
0.023867	0.008648	-0.007203	-0.000198	-0.00016	0.000621
0.022807	0.007707	-0.0051	-0.000198	-9.00E-05	0.000623
0.022752	0.007317	-0.00395	-0.000195	-6.40E-05	0.000624
0.023208	0.008059	-0.003728	-0.000195	-4.90E-05	0.00063
0.023818	0.008239	-0.006206	-0.000239	-6.60E-05	0.000682
0.02346	0.008267	-0.003577	-0.000188	-6.00E-05	0.000666
0.023235	0.007693	-0.004095	-0.000168	-0.000116	0.000632
0.023111	0.008741	-0.005598	-0.000218	-6.10E-05	0.000659
0.023443	0.008692	-0.006927	-0.000221	-0.000104	0.00065
0.024722	0.008219	-0.006636	-0.000255	-6.60E-05	0.000672
0.024103	0.008689	-0.006368	-0.000252	-4.60E-05	0.000688
0.023926	0.008826	-0.004905	-0.000211	-6.60E-05	0.000722
0.024898	0.009142	-0.006204	-0.00025	-4.80E-05	0.000694
0.024672	0.009177	-0.005559	-0.000222	-7.00E-05	0.000682
0.024315	0.00833	-0.00667	-0.000249	-7.10E-05	0.000683
0.024179	0.00917	-0.00647	-0.000255	-3.40E-05	0.000674
0.024175	0.00887	-0.005083	-0.000222	-5.50E-05	0.000714
0.02539	0.008561	-0.007177	-0.000244	-0.000113	0.000737
0.024697	0.009243	-0.006883	-0.000235	-9.70E-05	0.000741
0.025	0.009033	-0.004369	-0.000193	-9.30E-05	0.000733
0.025593	0.009333	-0.007149	-0.000286	-2.70E-05	0.000722
0.02537	0.008658	-0.007078	-0.000242	-0.000109	0.000712

0.02571	0.009646	-0.006135	-0.00026	-3.80E-05	0.000771
0.026257	0.008901	-0.007582	-0.000315	-1.20E-05	0.000744
0.026381	0.009146	-0.006963	-0.000274	-6.00E-05	0.000742
0.026069	0.009957	-0.006776	-0.000267	-4.40E-05	0.000737
0.025888	0.008872	-0.008227	-0.000276	-9.60E-05	0.000746
0.025534	0.009262	-0.005132	-0.000245	-3.50E-05	0.000754
0.025988	0.009786	-0.006886	-0.000264	-5.90E-05	0.000785
0.026039	0.009872	-0.006285	-0.000283	-4.00E-06	0.000774
0.025974	0.01034	-0.008011	-0.000284	-5.20E-05	0.000796
0.026367	0.009558	-0.009834	-0.000311	-8.40E-05	0.000757
0.025847	0.010208	-0.00857	-0.0003	-4.00E-05	0.000764
0.02578	0.009845	-0.007733	-0.000265	-8.10E-05	0.000775
0.02667	0.009573	-0.007274	-0.000287	-4.90E-05	0.000803
0.026143	0.01056	-0.007659	-0.00027	-6.10E-05	0.000762
0.026703	0.00981	-0.005934	-0.000233	-9.60E-05	0.000826
0.025942	0.010674	-0.007681	-0.000256	-8.20E-05	0.000787
0.025987	0.010147	-0.011373	-0.000329	-9.30E-05	0.000818
0.026495	0.010003	-0.009231	-0.000293	-9.40E-05	0.000813
0.025841	0.010592	-0.010028	-0.000287	-0.000106	0.00077
0.026258	0.009503	-0.007752	-0.000307	-2.60E-05	0.000835
0.026853	0.010543	-0.008116	-0.000291	-5.80E-05	0.000851
0.026536	0.010854	-0.009297	-0.000286	-9.20E-05	0.000809
0.026966	0.010589	-0.006664	-0.000255	-7.00E-05	0.000812
0.026928	0.0106	-0.00661	-0.000257	-6.40E-05	0.000817
0.026837	0.009939	-0.006967	-0.000251	-9.90E-05	0.000827
0.026646	0.01027	-0.010079	-0.000311	-9.00E-05	0.000848
0.026899	0.010331	-0.008267	-0.000283	-7.90E-05	0.000822
0.026667	0.011026	-0.008214	-0.000292	-4.80E-05	0.000857
0.027255	0.011221	-0.007824	-0.000236	-0.000137	0.000836
0.02731	0.01016	-0.007325	-0.000269	-8.50E-05	0.000856
0.026772	0.011572	-0.008688	-0.000275	-7.90E-05	0.000792
0.026846	0.010505	-0.008537	-0.000289	-7.50E-05	0.00083
0.027304	0.010011	-0.007167	-0.000299	-2.90E-05	0.000847
0.026606	0.011069	-0.008509	-0.000278	-7.90E-05	0.000829
0.027048	0.010645	-0.008099	-0.000298	-4.70E-05	0.000859
0.026389	0.01168	-0.008108	-0.000273	-5.90E-05	0.000824
0.027009	0.010106	-0.008844	-0.000278	-0.000113	0.00081
0.026686	0.010892	-0.007895	-0.000269	-7.80E-05	0.000836
0.026881	0.010945	-0.010361	-0.000315	-8.30E-05	0.000836
0.026102	0.010723	-0.007178	-0.000283	-2.60E-05	0.000856
0.027775	0.011929	-0.009843	-0.000279	-0.000125	0.000853
0.026463	0.01121	-0.011849	-0.000297	-0.000152	0.000823
0.026302	0.011027	-0.007088	-0.000299	8.00E-06	0.000835
0.026713	0.011527	-0.008393	-0.000291	-4.60E-05	0.000827
0.026515	0.011452	-0.009769	-0.00027	-0.000127	0.000844
0.026837	0.012057	-0.008116	-0.000242	-0.000114	0.000839

0.026088	0.011375	-0.00767	-0.000287	-2.70E-05	0.000904
0.026754	0.011535	-0.006171	-0.000238	-6.60E-05	0.000871
0.027061	0.011784	-0.010295	-0.000333	-4.00E-05	0.000872
0.026021	0.011652	-0.009752	-0.000289	-8.30E-05	0.000855
0.026627	0.012003	-0.009709	-0.000238	-0.000172	0.000833
0.026169	0.011269	-0.008949	-0.00025	-0.000131	0.00083
0.02594	0.011295	-0.006759	-0.00023	-9.00E-05	0.000843
0.026251	0.011767	-0.01026	-0.000284	-0.000108	0.000829
0.025637	0.011315	-0.008269	-0.00027	-6.80E-05	0.000881
0.026547	0.012449	-0.008568	-0.000271	-6.70E-05	0.00084
0.026466	0.010746	-0.00696	-0.000287	-1.70E-05	0.00086
0.026914	0.011445	-0.007546	-0.000266	-6.70E-05	0.000859
0.026326	0.011501	-0.007987	-0.000246	-0.000105	0.00084
0.026338	0.011361	-0.009129	-0.000291	-6.90E-05	0.000855
0.026081	0.012011	-0.007865	-0.000249	-8.10E-05	0.000826
0.027224	0.012042	-0.006213	-0.000241	-6.10E-05	0.000871
0.026304	0.012715	-0.008161	-0.00021	-0.000152	0.00086
0.026179	0.011759	-0.007246	-0.000266	-4.00E-05	0.00086
0.026199	0.011743	-0.006947	-0.000285	1.00E-06	0.000862
0.026046	0.013328	-0.009488	-0.000249	-0.000116	0.000905
0.026452	0.011391	-0.009659	-0.000279	-0.000113	0.000907
0.026468	0.011823	-0.006304	-0.000263	-1.50E-05	0.000845
0.026116	0.011901	-0.009128	-0.000269	-9.30E-05	0.000844
0.025949	0.012341	-0.006168	-0.000245	-2.40E-05	0.000839
0.026585	0.012328	-0.009946	-0.000272	-0.000114	0.000836
0.026584	0.011497	-0.009075	-0.000256	-0.00013	0.000867
0.025657	0.011623	-0.007639	-0.000229	-0.000113	0.00087
0.026087	0.012245	-0.005478	-0.000231	-2.90E-05	0.000848
0.025535	0.012517	-0.004854	-0.000223	-1.20E-05	0.000878
0.026137	0.011975	-0.007845	-0.000226	-0.000125	0.000856
0.025338	0.012359	-0.008676	-0.000239	-0.000107	0.000819
0.026001	0.012381	-0.008562	-0.000232	-0.000129	0.000879
0.026401	0.012491	-0.007401	-0.00023	-9.70E-05	0.000857
0.026062	0.012223	-0.007598	-0.000238	-8.90E-05	0.000845
0.025379	0.012271	-0.00965	-0.000245	-0.000135	0.000852
0.025604	0.012263	-0.006315	-0.00022	-7.10E-05	0.000872
0.025108	0.012774	-0.007822	-0.000216	-0.000107	0.000827
0.025918	0.01195	-0.007263	-0.000249	-5.90E-05	0.00083
0.025712	0.012377	-0.007374	-0.000223	-9.80E-05	0.000821
0.025589	0.013054	-0.009648	-0.000242	-0.000129	0.00086
0.024999	0.011952	-0.006024	-0.000195	-0.0001	0.000867
0.02526	0.012679	-0.006538	-0.000235	-3.90E-05	0.000865
0.024923	0.011552	-0.007973	-0.000266	-4.60E-05	0.000836
0.024606	0.012227	-0.004994	-0.000152	-0.000127	0.000834
0.024692	0.012791	-0.009836	-0.000238	-0.000131	0.000854
0.025495	0.012471	-0.007485	-0.000243	-6.60E-05	0.000877

0.025726	0.012627	-0.007722	-0.000222	-0.00011	0.000873
0.025448	0.012408	-0.006743	-0.000198	-0.000116	0.000826
0.024832	0.01254	-0.00833	-0.000178	-0.000194	0.000865
0.025065	0.011939	-0.006388	-0.000232	-5.10E-05	0.000862
0.025323	0.012432	-0.005566	-0.000207	-6.00E-05	0.00086
0.025634	0.013076	-0.006479	-0.000189	-0.000119	0.000898
0.02507	0.012073	-0.005088	-0.000203	-5.30E-05	0.000838
0.02516	0.012662	-0.008111	-0.000231	-9.80E-05	0.00088
0.024902	0.012429	-0.007406	-0.000215	-9.90E-05	0.000817
0.025193	0.01174	-0.007042	-0.000229	-8.30E-05	0.000871
0.024956	0.013286	-0.007624	-0.000232	-6.80E-05	0.000908
0.024891	0.011944	-0.004418	-0.000205	-2.60E-05	0.000836
0.025275	0.012756	-0.007085	-0.000198	-0.000119	0.00084
0.024356	0.012036	-0.00784	-0.000223	-9.90E-05	0.000837

Time (s)
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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
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0.072837	0.026734	-0.034387	-0.001134	-3.90E-05	0.002677
0.073392	0.026542	-0.035369	-0.001173	-1.30E-05	0.002634
0.073692	0.027132	-0.037683	-0.001186	-6.20E-05	0.002644
0.073385	0.02753	-0.03971	-0.001193	-0.000104	0.002625
0.073193	0.026832	-0.037192	-0.00118	-5.30E-05	0.002631
0.073709	0.027046	-0.037931	-0.001202	-4.00E-05	0.002589
0.072444	0.027588	-0.038453	-0.001202	-3.20E-05	0.002647
0.073788	0.027235	-0.038462	-0.001237	1.00E-06	0.002655
0.073629	0.027513	-0.036007	-0.001168	-3.00E-05	0.002659
0.072454	0.027744	-0.038122	-0.001206	-9.00E-06	0.002624
0.073314	0.027643	-0.042029	-0.001226	-0.000123	0.002655
0.073024	0.026948	-0.038544	-0.001205	-5.40E-05	0.002692
0.073579	0.027684	-0.036823	-0.00117	-5.20E-05	0.002691
0.072876	0.027221	-0.038399	-0.001209	-2.80E-05	0.0026
0.072911	0.027022	-0.037081	-0.001176	-4.60E-05	0.002616
0.072556	0.027424	-0.038395	-0.001186	-6.00E-05	0.002616
0.072912	0.026296	-0.037492	-0.001207	-1.90E-05	0.002598
0.072576	0.026593	-0.037279	-0.001189	-3.40E-05	0.002622
0.07239	0.026846	-0.038138	-0.001206	-2.50E-05	0.002611
0.07325	0.027543	-0.03936	-0.001217	-5.30E-05	0.002681
0.073229	0.027625	-0.036786	-0.001203	1.40E-05	0.002649
0.072088	0.02749	-0.040167	-0.001222	-4.90E-05	0.002618
0.072862	0.027373	-0.037892	-0.001205	-1.60E-05	0.002625
0.072892	0.027275	-0.039172	-0.001188	-9.20E-05	0.00264
0.072959	0.027781	-0.03821	-0.001179	-6.60E-05	0.002623
0.073018	0.026735	-0.039396	-0.001225	-4.70E-05	0.002634
0.072285	0.027314	-0.038986	-0.001233	4.00E-06	0.002609
0.073052	0.027174	-0.037029	-0.001219	2.90E-05	0.002624
0.072131	0.027981	-0.038108	-0.001165	-7.00E-05	0.002618
0.072617	0.027232	-0.037984	-0.001192	-3.90E-05	0.002599
0.072996	0.027533	-0.038164	-0.00119	-4.80E-05	0.002592
0.07211	0.027379	-0.037808	-0.001213	1.00E-05	0.002648
0.072831	0.026623	-0.035958	-0.001166	-3.20E-05	0.00261
0.071876	0.027786	-0.037952	-0.00119	-1.90E-05	0.002596
0.072282	0.027649	-0.037132	-0.001171	-3.30E-05	0.002601
0.072248	0.027167	-0.038222	-0.001226	1.50E-05	0.002624
0.072718	0.027548	-0.039827	-0.001197	-9.00E-05	0.002632
0.072302	0.027901	-0.041779	-0.00119	-0.000152	0.002608
0.07286	0.027936	-0.038217	-0.001177	-7.00E-05	0.002668
0.071881	0.02755	-0.038609	-0.001179	-6.60E-05	0.002611
0.072795	0.0281	-0.039554	-0.001212	-4.70E-05	0.002642
0.072094	0.02745	-0.037716	-0.0012	-4.00E-06	0.002601
0.072401	0.028088	-0.039257	-0.001214	-2.80E-05	0.002643
0.072284	0.027915	-0.038335	-0.001161	-8.50E-05	0.002583

0.072071	0.027814	-0.037679	-0.00119	-1.50E-05	0.002624
0.072318	0.027842	-0.040182	-0.001223	-4.50E-05	0.002618
0.072059	0.027737	-0.039369	-0.001208	-4.40E-05	0.002657
0.071707	0.027909	-0.038373	-0.001179	-5.10E-05	0.002631
0.072279	0.028119	-0.039509	-0.001192	-7.00E-05	0.002621
0.07191	0.0285	-0.03788	-0.00117	-4.50E-05	0.00267
0.072467	0.028403	-0.037058	-0.001163	-3.70E-05	0.002633
0.071452	0.028013	-0.039552	-0.001202	-4.40E-05	0.002644
0.072046	0.027584	-0.036915	-0.001192	1.00E-05	0.002637
0.071651	0.028725	-0.038274	-0.001195	-7.00E-06	0.002672
0.071032	0.027994	-0.038899	-0.001214	6.00E-06	0.002614
0.072088	0.028475	-0.039132	-0.001177	-7.70E-05	0.002663
0.071337	0.028714	-0.038182	-0.001192	0	0.002619
0.071159	0.028093	-0.039217	-0.001199	-3.30E-05	0.002649
0.071911	0.028151	-0.038304	-0.001213	1.10E-05	0.002646
0.071265	0.028737	-0.039608	-0.001183	-6.10E-05	0.002626
0.071262	0.029339	-0.039688	-0.001179	-6.30E-05	0.002648
0.070935	0.027644	-0.038841	-0.001159	-9.10E-05	0.002613
0.070661	0.028285	-0.038948	-0.001176	-5.10E-05	0.002615
0.071205	0.028618	-0.03808	-0.001158	-5.80E-05	0.00266
0.070784	0.027565	-0.036523	-0.001156	-2.00E-05	0.00262
0.07126	0.028384	-0.041135	-0.001194	-9.80E-05	0.002596
0.07151	0.027979	-0.037114	-0.001193	1.90E-05	0.002652
0.070959	0.028235	-0.036306	-0.001119	-6.40E-05	0.002582
0.071137	0.027954	-0.037105	-0.001154	-3.90E-05	0.002598
0.071116	0.028408	-0.037682	-0.001205	3.70E-05	0.002634
0.071126	0.028555	-0.037907	-0.001146	-6.80E-05	0.002595
0.070517	0.028673	-0.038265	-0.00115	-6.00E-05	0.002587
0.070669	0.027702	-0.037928	-0.001172	-3.20E-05	0.002608
0.071855	0.028515	-0.037396	-0.001152	-5.50E-05	0.002624
0.070669	0.02841	-0.038187	-0.001152	-6.50E-05	0.002628
0.071117	0.028132	-0.039768	-0.001181	-7.80E-05	0.002614
0.070861	0.028059	-0.038973	-0.001198	-1.90E-05	0.00261
0.070494	0.028347	-0.038232	-0.001167	-3.90E-05	0.002622
0.07115	0.029	-0.039212	-0.001129	-0.000133	0.002608
0.07066	0.028634	-0.038567	-0.001155	-6.80E-05	0.002625
0.07042	0.029028	-0.038254	-0.001157	-4.40E-05	0.00263
0.070189	0.028851	-0.037357	-0.001098	-0.000114	0.002613
0.07058	0.028872	-0.037882	-0.001138	-6.60E-05	0.002585
0.070916	0.028676	-0.039529	-0.001161	-9.20E-05	0.00261
0.070184	0.028325	-0.037808	-0.001117	-0.000105	0.002604
0.0705	0.028896	-0.037262	-0.001141	-4.00E-05	0.002619
0.070342	0.028701	-0.0389	-0.001131	-0.000112	0.002592
0.071022	0.028964	-0.038226	-0.00117	-2.90E-05	0.0026
0.07067	0.02888	-0.037868	-0.001176	-4.00E-06	0.002634
0.07093	0.029339	-0.037225	-0.001153	-1.80E-05	0.00264

0.069757	0.028873	-0.035911	-0.001113	-3.10E-05	0.002595
0.070812	0.028858	-0.039347	-0.001173	-6.40E-05	0.002657
0.070645	0.02914	-0.037293	-0.00113	-6.20E-05	0.002654
0.070584	0.02935	-0.03888	-0.001169	-4.10E-05	0.002631
0.069913	0.028284	-0.037555	-0.00112	-8.90E-05	0.002615
0.070012	0.029192	-0.038574	-0.001132	-8.40E-05	0.002591
0.070602	0.02853	-0.037436	-0.001158	-2.20E-05	0.002575
0.070381	0.028976	-0.035644	-0.001128	-4.00E-06	0.002595
0.070122	0.028612	-0.038725	-0.001158	-6.20E-05	0.002639
0.0703	0.028567	-0.037225	-0.001167	1.00E-06	0.002637
0.0705	0.028507	-0.039694	-0.00119	-4.60E-05	0.002636
0.07038	0.029302	-0.038711	-0.001152	-5.80E-05	0.002595
0.069994	0.028557	-0.040192	-0.001179	-6.80E-05	0.002587
0.070935	0.029189	-0.037047	-0.001118	-7.40E-05	0.00261
0.069913	0.028801	-0.037782	-0.001139	-5.20E-05	0.002597
0.070671	0.028312	-0.036288	-0.001159	1.00E-05	0.002615
0.070519	0.028671	-0.035257	-0.00111	-3.10E-05	0.002619
0.0698	0.02893	-0.035632	-0.001148	4.00E-05	0.002594
0.070019	0.029124	-0.037802	-0.001121	-7.90E-05	0.002589
0.069907	0.028247	-0.037875	-0.001142	-6.20E-05	0.002604
0.070117	0.029195	-0.037056	-0.00113	-4.10E-05	0.002612
0.069443	0.027964	-0.035628	-0.001108	-4.20E-05	0.002596
0.069658	0.028247	-0.036835	-0.001113	-7.00E-05	0.002556
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0.069948	0.028353	-0.036201	-0.001096	-8.30E-05	0.002586
0.07003	0.028661	-0.03788	-0.001135	-6.50E-05	0.002579
0.070158	0.028485	-0.035989	-0.00113	-2.00E-05	0.002618
0.069736	0.029033	-0.036043	-0.001103	-4.80E-05	0.002576
0.069705	0.029401	-0.037513	-0.001132	-4.40E-05	0.00264
0.070364	0.028854	-0.036346	-0.001127	-3.40E-05	0.002618
0.069973	0.028656	-0.037632	-0.001154	-2.50E-05	0.002584
0.069197	0.029071	-0.037597	-0.001127	-5.00E-05	0.00258
0.070018	0.028842	-0.03631	-0.001136	-1.20E-05	0.00263
0.069508	0.029233	-0.038323	-0.001172	1.00E-06	0.002594
0.06978	0.029454	-0.036395	-0.001112	-3.60E-05	0.002564
0.069902	0.028508	-0.038757	-0.001123	-0.000116	0.00258
0.069785	0.02898	-0.039636	-0.001143	-0.000103	0.002601
0.069971	0.029498	-0.038703	-0.001132	-8.50E-05	0.002619
0.069411	0.029341	-0.038692	-0.001102	-0.000127	0.00258
0.069606	0.029253	-0.03708	-0.001114	-6.00E-05	0.002608
0.069225	0.02909	-0.040531	-0.001174	-6.90E-05	0.002616
0.069454	0.029286	-0.039181	-0.001215	4.70E-05	0.002618
0.069377	0.028859	-0.038434	-0.001147	-5.30E-05	0.002616
0.06977	0.029935	-0.037135	-0.001099	-7.60E-05	0.002601
0.069359	0.028661	-0.036181	-0.0011	-5.90E-05	0.002578
0.069975	0.029174	-0.037093	-0.001129	-4.20E-05	0.002615

0.069357	0.02906	-0.035146	-0.001089	-3.80E-05	0.002598
0.069409	0.029662	-0.037072	-0.001126	-2.90E-05	0.002623
0.069493	0.029859	-0.036474	-0.001109	-3.60E-05	0.002611
0.068887	0.029633	-0.037772	-0.001119	-6.00E-05	0.002655
0.068405	0.028506	-0.035354	-0.001134	3.70E-05	0.002606
0.068825	0.029932	-0.040017	-0.001134	-9.90E-05	0.002619
0.068608	0.029113	-0.039137	-0.001143	-6.60E-05	0.002608
0.069742	0.030015	-0.036615	-0.001095	-6.50E-05	0.0026
0.068825	0.030314	-0.039123	-0.001112	-0.000102	0.002629
0.069221	0.029738	-0.038205	-0.001107	-9.60E-05	0.002627
0.069313	0.029146	-0.036355	-0.001095	-6.60E-05	0.002609
0.06889	0.028708	-0.03587	-0.001105	-3.00E-05	0.002549
0.068822	0.030156	-0.038298	-0.001102	-9.50E-05	0.002641
0.068045	0.029494	-0.036537	-0.001102	-3.60E-05	0.002624

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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
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0.133389	0.044567	-0.073132	-0.002359	2.00E-05	0.004628
0.132692	0.04509	-0.075222	-0.002368	-1.50E-05	0.004641
0.132789	0.045186	-0.074816	-0.00241	7.00E-05	0.004682
0.132472	0.045943	-0.076783	-0.002427	4.50E-05	0.004751
0.132045	0.045391	-0.074738	-0.002382	4.20E-05	0.004649
0.132404	0.045363	-0.078499	-0.002434	-4.00E-06	0.004701
0.132482	0.044632	-0.07402	-0.002378	3.50E-05	0.004664
0.132545	0.044982	-0.07545	-0.002401	3.50E-05	0.004644
0.132554	0.045356	-0.075236	-0.00242	7.90E-05	0.004678
0.13274	0.045565	-0.07669	-0.002406	6.00E-06	0.004692
0.13335	0.045229	-0.077386	-0.002475	8.80E-05	0.004693
0.132329	0.044905	-0.076019	-0.002403	1.90E-05	0.004674
0.13302	0.044613	-0.075911	-0.002431	5.70E-05	0.004648
0.131497	0.045547	-0.076636	-0.00243	6.90E-05	0.004686
0.13258	0.045474	-0.075352	-0.002447	0.000124	0.004694
0.132847	0.046022	-0.077471	-0.002403	-1.70E-05	0.004671
0.131252	0.04495	-0.075736	-0.002399	4.30E-05	0.004641
0.132642	0.045496	-0.074145	-0.00239	6.60E-05	0.004678
0.132012	0.045622	-0.075275	-0.002433	0.000115	0.004674
0.132562	0.045741	-0.07839	-0.002442	1.40E-05	0.004741
0.132581	0.04566	-0.077644	-0.002429	1.80E-05	0.004695
0.132118	0.045743	-0.080033	-0.002472	1.90E-05	0.004733
0.132476	0.045566	-0.076167	-0.002412	3.90E-05	0.00468
0.132937	0.046235	-0.078066	-0.002443	3.20E-05	0.004715
0.132525	0.045805	-0.076026	-0.002415	5.90E-05	0.004616
0.13311	0.046563	-0.078379	-0.002473	7.20E-05	0.004779
0.132274	0.045627	-0.076341	-0.002399	1.90E-05	0.004627
0.132334	0.046131	-0.07928	-0.002445	6.00E-06	0.004682
0.133427	0.046244	-0.075424	-0.002433	9.90E-05	0.004671
0.132753	0.046201	-0.076918	-0.002439	7.00E-05	0.004665
0.132649	0.045563	-0.075549	-0.002421	7.70E-05	0.004647
0.132886	0.045815	-0.078667	-0.002471	5.50E-05	0.004704
0.132686	0.045785	-0.077	-0.00245	7.40E-05	0.004735
0.13227	0.045798	-0.075338	-0.002397	5.20E-05	0.00465
0.132625	0.045825	-0.075466	-0.002432	9.90E-05	0.004695
0.132615	0.045433	-0.07634	-0.002435	7.10E-05	0.004649
0.132278	0.046711	-0.07676	-0.002414	4.90E-05	0.004668
0.132738	0.045684	-0.076289	-0.002394	5.00E-06	0.004649
0.131587	0.045897	-0.077887	-0.002403	-1.30E-05	0.00468
0.131805	0.045932	-0.076043	-0.002402	4.80E-05	0.004629
0.132867	0.045867	-0.076862	-0.002424	3.60E-05	0.004698
0.132172	0.045111	-0.075584	-0.002408	5.20E-05	0.004638
0.131967	0.045497	-0.075345	-0.002431	0.000106	0.004689
0.132286	0.045707	-0.07588	-0.00244	0.000107	0.004636

0.132648	0.045723	-0.077747	-0.002439	4.00E-05	0.004614
0.132591	0.045696	-0.078591	-0.002443	1.50E-05	0.004668
0.132577	0.04438	-0.074603	-0.002402	5.70E-05	0.004597
0.132218	0.045002	-0.075484	-0.002402	4.20E-05	0.00464
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0.131578	0.046007	-0.074369	-0.0024	0.000104	0.004643
0.131469	0.045798	-0.075773	-0.002424	9.40E-05	0.004671
0.131436	0.045895	-0.075047	-0.002389	5.90E-05	0.004683
0.131888	0.044814	-0.074611	-0.00242	0.000107	0.004593
0.131697	0.046619	-0.076044	-0.002385	2.10E-05	0.004781
0.132155	0.045391	-0.074662	-0.002402	8.20E-05	0.004581
0.131925	0.045697	-0.077502	-0.002428	3.30E-05	0.004693
0.131187	0.045462	-0.074444	-0.002394	8.50E-05	0.004664
0.131275	0.045088	-0.073696	-0.002388	9.40E-05	0.00464
0.13137	0.045714	-0.076095	-0.002423	7.90E-05	0.004705
0.13129	0.045443	-0.077412	-0.002416	2.50E-05	0.004639
0.131977	0.044558	-0.076898	-0.002434	4.00E-05	0.004703
0.13168	0.045539	-0.073819	-0.002356	3.50E-05	0.004664
0.130888	0.045883	-0.077071	-0.002405	2.80E-05	0.004689
0.131813	0.045138	-0.073649	-0.002393	9.90E-05	0.004595
0.131234	0.046415	-0.078372	-0.002426	2.20E-05	0.004725
0.131669	0.045085	-0.074148	-0.002412	0.000117	0.004595
0.131109	0.045198	-0.075674	-0.002406	6.00E-05	0.004685
0.131324	0.045523	-0.077939	-0.002425	2.00E-05	0.004684
0.131282	0.045657	-0.074235	-0.002384	7.90E-05	0.00463
0.131214	0.046193	-0.078421	-0.002447	5.40E-05	0.004708
0.131165	0.046093	-0.074057	-0.002383	9.60E-05	0.004606
0.131242	0.04621	-0.077543	-0.002422	4.20E-05	0.00468
0.13165	0.045545	-0.07573	-0.002386	2.70E-05	0.004615
0.131817	0.046934	-0.078165	-0.002407	-4.00E-06	0.004737
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0.131487	0.045578	-0.074982	-0.002387	6.00E-05	0.004581
0.13106	0.046096	-0.077646	-0.002412	2.30E-05	0.004679
0.131866	0.045117	-0.075248	-0.002411	7.00E-05	0.004669
0.13221	0.045799	-0.073731	-0.002363	4.70E-05	0.004641
0.131054	0.045683	-0.073843	-0.002386	0.000104	0.004592
0.131107	0.045561	-0.075606	-0.002368	4.00E-06	0.004664
0.131709	0.046311	-0.076809	-0.002414	5.00E-05	0.004647
0.131307	0.045295	-0.074989	-0.00241	9.20E-05	0.004637
0.131381	0.046748	-0.078583	-0.002397	-3.00E-05	0.004718
0.130816	0.045782	-0.075921	-0.002378	2.40E-05	0.004616
0.130661	0.046236	-0.078715	-0.002434	3.50E-05	0.00467
0.131024	0.045472	-0.074693	-0.002357	2.70E-05	0.004539
0.131082	0.045397	-0.076212	-0.002429	8.50E-05	0.004702
0.130456	0.045262	-0.075269	-0.002371	3.50E-05	0.004556
0.130771	0.045994	-0.075282	-0.002395	7.20E-05	0.004715

0.130586	0.045949	-0.074996	-0.002369	4.40E-05	0.004653
0.131146	0.045602	-0.075789	-0.002363	-2.00E-06	0.004564
0.130976	0.045788	-0.074566	-0.002387	7.80E-05	0.004659
0.131124	0.045299	-0.07606	-0.002391	3.00E-05	0.004591
0.13178	0.046795	-0.073142	-0.00235	6.50E-05	0.004701
0.131718	0.046204	-0.0765	-0.002402	4.20E-05	0.004592
0.131749	0.045727	-0.074988	-0.002379	4.40E-05	0.004589
0.130954	0.047209	-0.076966	-0.002398	4.00E-05	0.004715
0.131001	0.044877	-0.073973	-0.002367	5.50E-05	0.004551
0.13104	0.047087	-0.076058	-0.002406	8.80E-05	0.004645
0.131123	0.046298	-0.075863	-0.002397	5.50E-05	0.004716
0.130746	0.046823	-0.076442	-0.002377	1.90E-05	0.004686
0.1308	0.044801	-0.074286	-0.002366	4.10E-05	0.004607
0.130443	0.046157	-0.074957	-0.002384	7.40E-05	0.004675
0.130256	0.045752	-0.076192	-0.002365	4.00E-06	0.004579
0.130413	0.046347	-0.076257	-0.00241	7.90E-05	0.004696
0.130444	0.045624	-0.073499	-0.002326	2.30E-05	0.004556
0.130436	0.04516	-0.076349	-0.002399	4.10E-05	0.004611
0.130312	0.045146	-0.073874	-0.002355	4.50E-05	0.004653
0.130621	0.046229	-0.074838	-0.00239	9.10E-05	0.004631
0.129657	0.046054	-0.076342	-0.002359	-2.00E-06	0.004639
0.13034	0.044289	-0.074337	-0.002373	4.90E-05	0.004594
0.129943	0.045557	-0.07544	-0.002356	4.00E-06	0.004711
0.130247	0.044432	-0.075703	-0.002397	5.00E-05	0.004593
0.13131	0.044886	-0.076364	-0.002429	7.30E-05	0.004622
0.130867	0.046436	-0.077492	-0.002398	8.00E-06	0.004739
0.131023	0.045841	-0.074992	-0.002377	4.30E-05	0.004709
0.130839	0.044669	-0.075393	-0.002405	6.70E-05	0.004621
0.130451	0.044885	-0.074461	-0.002375	5.10E-05	0.004683
0.130349	0.045505	-0.075325	-0.002353	1.10E-05	0.004523
0.130439	0.046016	-0.076018	-0.002397	6.10E-05	0.004662
0.130239	0.045207	-0.072295	-0.002364	0.000124	0.004557
0.130303	0.046303	-0.075499	-0.002372	3.90E-05	0.004686
0.130739	0.046067	-0.074477	-0.002334	-4.00E-06	0.004696
0.130967	0.04567	-0.074431	-0.00237	5.60E-05	0.004609
0.129822	0.047298	-0.077369	-0.002378	1.30E-05	0.004687
0.130567	0.045809	-0.071899	-0.002293	1.70E-05	0.004597
0.13002	0.045879	-0.076448	-0.002431	0.000107	0.004687
0.130627	0.045468	-0.074713	-0.002386	7.50E-05	0.004623
0.130822	0.04616	-0.075241	-0.002376	4.50E-05	0.004676
0.131896	0.045345	-0.073763	-0.002394	0.0001	0.004604
0.130943	0.045885	-0.075406	-0.002382	4.70E-05	0.004627
0.130981	0.045967	-0.07516	-0.002404	9.50E-05	0.004633
0.130144	0.04644	-0.076529	-0.002378	1.40E-05	0.004754
0.129848	0.045256	-0.07346	-0.002349	6.30E-05	0.004584
0.130482	0.046474	-0.074996	-0.002395	9.50E-05	0.004718

0.130564	0.044973	-0.073431	-0.002369	9.10E-05	0.004486
0.130093	0.046607	-0.076019	-0.002372	2.60E-05	0.004749
0.129529	0.04548	-0.075636	-0.00239	7.00E-05	0.004596
0.129831	0.04566	-0.077065	-0.002402	3.80E-05	0.004654
0.129902	0.04537	-0.074581	-0.00238	8.00E-05	0.004601
0.128975	0.046276	-0.07556	-0.002373	5.90E-05	0.004696
0.12956	0.045121	-0.07472	-0.002384	8.60E-05	0.004566
0.129761	0.046143	-0.075309	-0.002343	0	0.004709
0.130202	0.045119	-0.074842	-0.002379	6.20E-05	0.004582
0.130408	0.045243	-0.075496	-0.002363	7.00E-06	0.004632
0.130393	0.045409	-0.073474	-0.00235	5.50E-05	0.004632
0.129846	0.045575	-0.076455	-0.002385	2.60E-05	0.004666
0.129968	0.045083	-0.072946	-0.002329	3.70E-05	0.004628
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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
0.205482	0.065635	0.886108	0.01209	0.005916	0.008544
0.213396	0.070181	-0.119751	-0.003977	0.000281	0.007296
0.215253	0.065297	-0.11303	-0.003892	0.000296	0.006592
0.213956	0.068436	-0.127363	-0.004099	0.000199	0.007273
0.213423	0.074048	-0.137577	-0.004202	8.90E-05	0.008004
0.214283	0.070231	-0.123533	-0.004047	0.00026	0.007348
0.216832	0.064033	-0.113504	-0.003934	0.000309	0.006537
0.214185	0.070025	-0.133389	-0.004147	9.90E-05	0.007388
0.213525	0.074243	-0.137657	-0.004161	2.10E-05	0.007957
0.215562	0.069109	-0.119376	-0.004008	0.000304	0.007173
0.215938	0.065993	-0.120658	-0.004025	0.000265	0.006719
0.215717	0.070448	-0.13197	-0.004152	0.000134	0.007442
0.214054	0.074864	-0.138398	-0.004199	6.20E-05	0.008011
0.21609	0.067741	-0.117637	-0.003975	0.000287	0.006967
0.217021	0.064657	-0.117031	-0.003973	0.000259	0.00666
0.215743	0.070386	-0.134861	-0.004203	0.000119	0.007507
0.214897	0.073887	-0.135554	-0.004162	6.30E-05	0.007998
0.216126	0.067637	-0.119346	-0.003998	0.000267	0.006988
0.216302	0.06455	-0.117095	-0.004016	0.000345	0.006608
0.214211	0.072194	-0.137504	-0.004222	0.000104	0.007711
0.213807	0.073032	-0.133445	-0.004174	0.000164	0.007876
0.215882	0.066869	-0.120682	-0.004032	0.000275	0.006935
0.21736	0.064386	-0.115368	-0.003913	0.000213	0.0065
0.215012	0.072829	-0.136389	-0.004211	0.000113	0.007824
0.215653	0.072021	-0.134217	-0.004192	0.000135	0.007729
0.215926	0.067323	-0.121054	-0.004017	0.000241	0.006963
0.217197	0.065748	-0.121367	-0.004052	0.000258	0.006789
0.214737	0.071036	-0.135823	-0.00421	0.000103	0.007787
0.215855	0.070328	-0.128762	-0.004127	0.000182	0.007578
0.217701	0.065734	-0.11812	-0.004019	0.000294	0.006872
0.21667	0.065264	-0.121791	-0.004044	0.000216	0.006933
0.215625	0.069842	-0.135344	-0.004239	0.000138	0.00772
0.214168	0.071626	-0.131109	-0.004137	0.000157	0.007737
0.215854	0.063588	-0.11159	-0.003928	0.000367	0.006582
0.215792	0.065374	-0.125146	-0.004084	0.00019	0.006918
0.213172	0.071912	-0.138497	-0.004241	9.80E-05	0.007897
0.214317	0.070445	-0.12685	-0.004095	0.000213	0.007606
0.215788	0.063301	-0.114273	-0.003974	0.000348	0.006642
0.214604	0.06696	-0.123856	-0.004071	0.000252	0.007012
0.213819	0.072622	-0.136901	-0.004211	9.50E-05	0.007999
0.21355	0.069495	-0.127143	-0.004091	0.000209	0.007396
0.215162	0.063839	-0.116569	-0.003954	0.00026	0.006599
0.214921	0.067491	-0.124994	-0.004082	0.000228	0.007135
0.213678	0.073872	-0.137744	-0.004189	5.40E-05	0.008008
0.215929	0.069454	-0.125743	-0.004092	0.000227	0.007307

0.216734	0.06419	-0.113472	-0.003905	0.000269	0.006488
0.214697	0.068775	-0.130618	-0.00414	0.000147	0.007377
0.214169	0.073042	-0.136342	-0.004226	0.000152	0.007882
0.214913	0.068873	-0.122261	-0.004033	0.000257	0.007159
0.216133	0.065466	-0.117828	-0.003991	0.000287	0.006725
0.214479	0.067108	-0.127911	-0.004093	0.000155	0.007071
0.213698	0.074038	-0.136073	-0.00419	0.000117	0.007962
0.215944	0.069183	-0.122568	-0.004029	0.000225	0.007221
0.216198	0.063097	-0.114722	-0.00395	0.000299	0.006427
0.214347	0.070924	-0.134013	-0.004197	0.000163	0.007567
0.213674	0.074159	-0.13587	-0.004189	0.000123	0.007984
0.21545	0.066985	-0.117736	-0.003977	0.000287	0.006926
0.2164	0.063632	-0.115235	-0.003966	0.00031	0.006507
0.214981	0.072289	-0.134532	-0.004175	0.00011	0.007729
0.215399	0.072765	-0.132788	-0.00414	0.000103	0.007814
0.216238	0.068169	-0.120304	-0.004021	0.000282	0.00699
0.216785	0.064851	-0.119176	-0.004016	0.000263	0.006729
0.21588	0.070966	-0.133845	-0.0042	0.000148	0.007589
0.215203	0.074111	-0.137976	-0.004242	0.000119	0.008005
0.216219	0.066785	-0.117304	-0.003988	0.000307	0.006914
0.217772	0.065058	-0.119613	-0.004043	0.000286	0.006709
0.21589	0.072625	-0.13901	-0.004227	3.30E-05	0.007847
0.215941	0.073179	-0.133783	-0.004181	0.000135	0.007881
0.216182	0.066662	-0.117844	-0.004009	0.000325	0.006881
0.218227	0.065519	-0.11753	-0.003997	0.000289	0.006568
0.214109	0.071915	-0.137037	-0.004177	3.90E-05	0.0077
0.213911	0.072104	-0.132288	-0.004138	0.000134	0.007721
0.216332	0.066802	-0.11824	-0.003982	0.000267	0.006862
0.217359	0.066301	-0.121471	-0.004041	0.000247	0.006746
0.214476	0.072575	-0.137601	-0.00423	0.0001	0.00791
0.215017	0.072888	-0.131444	-0.004141	0.000158	0.007794
0.217087	0.066456	-0.116644	-0.003956	0.000262	0.0068
0.216594	0.064967	-0.118948	-0.004017	0.000277	0.006726
0.216015	0.070924	-0.137308	-0.004252	0.000102	0.00781
0.215104	0.072397	-0.130635	-0.004165	0.000225	0.007692
0.216685	0.065974	-0.114602	-0.003954	0.000327	0.006777
0.21724	0.065348	-0.123622	-0.004101	0.000255	0.006839
0.21521	0.073042	-0.139424	-0.00427	0.0001	0.007991
0.216141	0.071854	-0.131594	-0.004177	0.000185	0.007731
0.217411	0.065583	-0.11534	-0.004001	0.000361	0.006821
0.217192	0.066653	-0.125439	-0.004113	0.000231	0.006959
0.215367	0.07144	-0.137998	-0.004302	0.00018	0.007875
0.216753	0.072776	-0.132984	-0.004174	0.000135	0.007801
0.217627	0.065969	-0.116685	-0.003984	0.000293	0.006802
0.217612	0.065219	-0.12471	-0.004114	0.000233	0.006831
0.216569	0.07288	-0.139258	-0.004261	7.10E-05	0.007922

0.216961	0.071436	-0.128467	-0.004162	0.000244	0.007721
0.217774	0.064994	-0.115164	-0.003991	0.000344	0.00668
0.218236	0.066326	-0.125195	-0.004098	0.000191	0.006944
0.215837	0.075206	-0.140816	-0.004277	8.10E-05	0.008177
0.216585	0.070572	-0.129727	-0.004165	0.000207	0.007604
0.217159	0.063446	-0.116218	-0.004006	0.000325	0.006579
0.215856	0.067147	-0.126237	-0.0041	0.000199	0.007103
0.215138	0.072503	-0.140028	-0.004286	0.0001	0.007962
0.215922	0.069353	-0.123784	-0.004045	0.000197	0.007454
0.21588	0.064011	-0.115078	-0.003978	0.000337	0.006657
0.216377	0.067504	-0.125519	-0.004065	0.000156	0.007163
0.213935	0.073179	-0.138786	-0.004253	0.000109	0.008046
0.21558	0.070602	-0.127793	-0.004108	0.000196	0.007513
0.218464	0.064151	-0.117089	-0.004022	0.00031	0.006657
0.216907	0.06813	-0.130098	-0.00414	0.00013	0.007239
0.21417	0.073007	-0.135773	-0.004203	0.000123	0.007966
0.215145	0.069948	-0.124695	-0.004047	0.000196	0.007412
0.216346	0.06412	-0.113776	-0.003941	0.000318	0.006576
0.217132	0.067768	-0.129104	-0.004166	0.0002	0.007223
0.214759	0.073481	-0.139155	-0.004259	9.60E-05	0.008096
0.213573	0.069811	-0.125342	-0.00404	0.000186	0.007389
0.217006	0.06446	-0.116061	-0.003975	0.000297	0.006584
0.215946	0.068644	-0.13132	-0.004156	0.000126	0.007425
0.21534	0.072218	-0.137688	-0.004271	0.000146	0.007954
0.21584	0.067884	-0.121458	-0.004064	0.000299	0.007247
0.216509	0.064837	-0.117093	-0.003992	0.000296	0.006713
0.215808	0.068676	-0.129946	-0.004121	0.000114	0.00743
0.214302	0.073622	-0.134933	-0.004174	0.000107	0.008017
0.215982	0.067118	-0.117931	-0.003966	0.00025	0.006989
0.216829	0.063512	-0.117198	-0.004016	0.000317	0.006575
0.215795	0.070521	-0.133379	-0.004218	0.000178	0.007713
0.214532	0.072567	-0.132652	-0.004165	0.000154	0.007881
0.216276	0.066862	-0.11785	-0.004023	0.000352	0.006883
0.215857	0.066568	-0.123628	-0.004024	0.000162	0.00688
0.213142	0.071924	-0.134767	-0.004151	8.70E-05	0.007684
0.215201	0.0716	-0.131256	-0.004138	0.000138	0.007727
0.214726	0.066695	-0.119538	-0.004011	0.000296	0.00689
0.215454	0.066065	-0.121461	-0.004021	0.000228	0.006849
0.213197	0.071538	-0.13604	-0.004185	8.50E-05	0.007786
0.213796	0.071282	-0.133895	-0.004174	0.000128	0.007746
0.214293	0.065877	-0.113913	-0.003909	0.000309	0.006743
0.214811	0.065944	-0.122497	-0.004049	0.000241	0.006957
0.212611	0.072007	-0.135542	-0.004188	0.000124	0.007805
0.212671	0.072291	-0.134166	-0.00415	0.000105	0.007859
0.213786	0.065555	-0.116054	-0.003948	0.000292	0.006933
0.213038	0.065446	-0.122406	-0.003991	0.000171	0.006838

0.21123	0.071673	-0.136357	-0.004152	5.00E-05	0.007803
0.213669	0.070829	-0.12779	-0.004103	0.000207	0.007686
0.216929	0.065049	-0.114116	-0.003938	0.000296	0.006744
0.216601	0.064917	-0.121061	-0.00403	0.00022	0.00684
0.215514	0.070851	-0.136134	-0.004233	0.000116	0.007796
0.21461	0.071503	-0.129963	-0.004125	0.00016	0.007799
0.216497	0.064553	-0.111668	-0.003923	0.000363	0.006587
0.215794	0.065297	-0.123008	-0.004073	0.00024	0.006942
0.215335	0.073779	-0.140642	-0.004297	0.000113	0.008049
0.215286	0.071844	-0.127173	-0.004093	0.000206	0.00765
0.218024	0.064896	-0.115374	-0.003979	0.000312	0.006669
0.216997	0.065749	-0.122505	-0.004064	0.000224	0.007009
0.21543	0.072304	-0.135265	-0.004215	0.000138	0.007859
0.217232	0.070767	-0.128595	-0.004161	0.000225	0.007671

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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
0.014994	-0.000908	0.995338	0.015754	0.005504	0.001654
0.023226	0.006949	-0.018214	-0.000514	-3.80E-05	0.001071
0.022449	0.006678	-0.018455	-0.000464	-0.000126	0.001073
0.022699	0.006163	-0.017748	-0.000502	-5.20E-05	0.001103
0.023298	0.007158	-0.018586	-0.000556	2.20E-05	0.001113
0.022614	0.005947	-0.019601	-0.000524	-7.90E-05	0.001111
0.023032	0.007012	-0.017162	-0.000521	1.00E-05	0.001116
0.023472	0.006492	-0.019202	-0.000557	-1.40E-05	0.001135
0.023484	0.006898	-0.018263	-0.000507	-6.00E-05	0.001102
0.022985	0.006746	-0.021532	-0.000557	-7.60E-05	0.001107
0.023805	0.006693	-0.019043	-0.000534	-5.00E-05	0.001143
0.024362	0.008514	-0.02178	-0.000572	-5.20E-05	0.001167
0.024093	0.006678	-0.021149	-0.000585	-3.90E-05	0.001167
0.024031	0.007862	-0.020954	-0.000586	-1.10E-05	0.001202
0.024109	0.007572	-0.020373	-0.000544	-7.20E-05	0.001204
0.02442	0.007928	-0.023942	-0.000613	-6.80E-05	0.001204
0.024318	0.008581	-0.022987	-0.000563	-0.00011	0.001214
0.024994	0.007404	-0.021775	-0.000588	-5.70E-05	0.001182
0.024495	0.007347	-0.023189	-0.000618	-4.70E-05	0.001215
0.02468	0.008131	-0.023326	-0.000579	-0.00011	0.001231
0.025037	0.007373	-0.021928	-0.000609	-2.90E-05	0.001217
0.025607	0.008754	-0.022051	-0.000596	-4.10E-05	0.001239
0.025156	0.008183	-0.021221	-0.000581	-4.30E-05	0.001234
0.02561	0.008645	-0.024706	-0.000626	-7.90E-05	0.001229
0.025813	0.008754	-0.023847	-0.000625	-5.70E-05	0.001272
0.025968	0.007953	-0.022586	-0.000619	-3.80E-05	0.001226
0.026179	0.008479	-0.022638	-0.000595	-7.80E-05	0.001255
0.026163	0.007735	-0.022874	-0.00064	-2.30E-05	0.001274
0.025859	0.009685	-0.027047	-0.00063	-0.00014	0.001289
0.02543	0.009376	-0.025631	-0.00062	-0.000106	0.001257
0.025975	0.008789	-0.023027	-0.000578	-0.000115	0.001295
0.026413	0.009254	-0.024965	-0.000613	-0.000118	0.001304
0.026336	0.008056	-0.024409	-0.000628	-9.50E-05	0.001317
0.026159	0.008799	-0.022414	-0.000588	-8.10E-05	0.001305
0.027086	0.008954	-0.022395	-0.000603	-6.30E-05	0.001286
0.026674	0.00875	-0.023433	-0.000615	-7.60E-05	0.001301
0.027172	0.009655	-0.023949	-0.000659	-1.40E-05	0.001371
0.027706	0.009132	-0.028819	-0.000723	-7.90E-05	0.00132
0.02687	0.00927	-0.025852	-0.000657	-8.00E-05	0.001326
0.027588	0.009081	-0.026443	-0.000689	-5.80E-05	0.001329
0.026835	0.009418	-0.023253	-0.00062	-5.60E-05	0.001345
0.027373	0.010025	-0.030144	-0.0007	-0.000147	0.001395
0.027031	0.009621	-0.024505	-0.000662	-2.80E-05	0.001398
0.02809	0.009872	-0.024841	-0.000621	-0.000119	0.001373
0.027104	0.009648	-0.024265	-0.000618	-9.10E-05	0.001341

0.02727	0.009732	-0.023984	-0.000657	-1.60E-05	0.001343
0.027209	0.010205	-0.02475	-0.000637	-6.80E-05	0.001373
0.028128	0.009988	-0.026611	-0.000694	-5.20E-05	0.001382
0.027947	0.010063	-0.026212	-0.000638	-0.000131	0.001378
0.027744	0.010839	-0.027878	-0.000651	-0.00015	0.001439
0.027864	0.010508	-0.027742	-0.000681	-0.000101	0.00143
0.028073	0.011343	-0.031086	-0.000707	-0.000156	0.001429
0.027824	0.010316	-0.024698	-0.000645	-5.90E-05	0.001365
0.027747	0.010744	-0.028147	-0.000687	-0.000101	0.001456
0.02889	0.010169	-0.028133	-0.000733	-5.00E-05	0.00146
0.029006	0.010408	-0.026437	-0.000686	-7.00E-05	0.001435
0.028764	0.010603	-0.026397	-0.000692	-5.20E-05	0.001455
0.028054	0.010628	-0.028014	-0.000681	-0.000111	0.001418
0.02848	0.011686	-0.028532	-0.000693	-9.60E-05	0.001452
0.028576	0.01124	-0.027184	-0.000665	-0.000107	0.001418
0.028956	0.011024	-0.025674	-0.000666	-6.70E-05	0.001432
0.028591	0.01111	-0.025707	-0.000677	-4.00E-05	0.001418
0.029089	0.010482	-0.028123	-0.000698	-0.000104	0.001429
0.029346	0.011227	-0.026698	-0.000691	-6.20E-05	0.001457
0.028685	0.010925	-0.028288	-0.000723	-4.90E-05	0.001403
0.027976	0.010568	-0.027366	-0.00068	-9.50E-05	0.001456
0.028652	0.011293	-0.028895	-0.00069	-0.000122	0.00144
0.029393	0.0115	-0.028492	-0.000708	-9.00E-05	0.001477
0.029398	0.011408	-0.028481	-0.000692	-0.000119	0.001498
0.02916	0.011062	-0.025191	-0.000635	-0.000112	0.001492
0.028791	0.010923	-0.026768	-0.000673	-9.20E-05	0.001449
0.029536	0.012292	-0.027514	-0.000665	-0.000115	0.001436
0.029091	0.010946	-0.027707	-0.000707	-6.80E-05	0.001447
0.028792	0.011483	-0.029083	-0.000699	-0.000115	0.001478
0.029044	0.011426	-0.02684	-0.000696	-4.90E-05	0.001466
0.028841	0.011298	-0.028279	-0.000692	-0.000104	0.001473
0.028787	0.011737	-0.027397	-0.000664	-0.000113	0.001458
0.029015	0.011011	-0.027944	-0.000681	-0.000119	0.001448
0.028955	0.011865	-0.027526	-0.000699	-5.70E-05	0.001464
0.029606	0.011768	-0.028725	-0.000707	-0.0001	0.001519
0.029334	0.011616	-0.027517	-0.000731	-1.70E-05	0.001507
0.029458	0.011611	-0.026865	-0.000673	-9.80E-05	0.001512
0.028976	0.011033	-0.027599	-0.000711	-5.60E-05	0.001478
0.028676	0.011962	-0.02583	-0.000682	-2.60E-05	0.001485
0.02862	0.01168	-0.026062	-0.000629	-0.000127	0.00145
0.029239	0.01227	-0.026803	-0.000675	-7.60E-05	0.001514
0.02918	0.012614	-0.027944	-0.00065	-0.00015	0.001512
0.028991	0.011371	-0.027349	-0.000695	-7.00E-05	0.001481
0.028722	0.01238	-0.026852	-0.000653	-0.000104	0.001494
0.028919	0.011383	-0.028087	-0.000675	-0.00013	0.0015
0.028157	0.012297	-0.028038	-0.000674	-9.90E-05	0.001486

0.028397	0.012325	-0.02591	-0.000656	-6.10E-05	0.001466
0.028075	0.011221	-0.028471	-0.000704	-7.90E-05	0.001462
0.027675	0.012204	-0.028589	-0.000698	-7.40E-05	0.00152
0.028386	0.011364	-0.026262	-0.000662	-8.50E-05	0.001522
0.028655	0.012443	-0.029175	-0.000706	-8.80E-05	0.0015
0.027902	0.012431	-0.027977	-0.000662	-0.000113	0.001496
0.028656	0.011133	-0.028484	-0.000649	-0.000188	0.001487
0.02839	0.012478	-0.028164	-0.000712	-3.70E-05	0.001478
0.02849	0.011315	-0.026984	-0.000705	-3.70E-05	0.001522
0.028367	0.01157	-0.027155	-0.000681	-7.40E-05	0.001472
0.028306	0.011941	-0.029732	-0.000742	-4.90E-05	0.001504
0.028818	0.011861	-0.029894	-0.000692	-0.000148	0.001476
0.028516	0.01248	-0.027964	-0.000653	-0.000136	0.001491
0.028416	0.011352	-0.026662	-0.000647	-0.000121	0.001466
0.027806	0.012322	-0.026785	-0.000642	-0.000105	0.001474
0.028847	0.01195	-0.027133	-0.000661	-0.00011	0.001499
0.02855	0.012367	-0.027286	-0.000647	-0.000124	0.001469
0.028582	0.011906	-0.029231	-0.000709	-9.40E-05	0.001503
0.029004	0.0117	-0.029807	-0.000689	-0.000156	0.001488
0.028661	0.012483	-0.026326	-0.000663	-6.50E-05	0.001475
0.028874	0.011575	-0.028491	-0.000695	-0.0001	0.00145
0.028449	0.011373	-0.026074	-0.00067	-6.50E-05	0.00151
0.028177	0.012005	-0.027896	-0.000694	-6.70E-05	0.001495
0.028949	0.01205	-0.027557	-0.000691	-7.00E-05	0.001476
0.028582	0.012209	-0.028721	-0.00067	-0.00014	0.001516
0.029217	0.012064	-0.029074	-0.000717	-8.10E-05	0.001488
0.02884	0.012224	-0.027107	-0.000663	-9.80E-05	0.001474
0.028982	0.012796	-0.028127	-0.000692	-7.30E-05	0.001473
0.027871	0.011963	-0.027639	-0.000671	-9.40E-05	0.001494
0.028496	0.012624	-0.030922	-0.000729	-9.80E-05	0.00147
0.028736	0.011841	-0.026191	-0.000658	-8.60E-05	0.001526
0.028108	0.012389	-0.028388	-0.000672	-0.000112	0.001491
0.028998	0.012215	-0.028981	-0.000702	-9.90E-05	0.001507
0.028704	0.01183	-0.027648	-0.000701	-5.80E-05	0.001501
0.028205	0.012947	-0.025271	-0.000621	-8.30E-05	0.001429
0.028592	0.012052	-0.028318	-0.000664	-0.000136	0.001471
0.028477	0.013058	-0.028706	-0.000714	-4.00E-05	0.001459
0.028128	0.012242	-0.028838	-0.0007	-8.30E-05	0.001511
0.028397	0.012303	-0.028268	-0.000712	-4.40E-05	0.001468
0.028421	0.012772	-0.027338	-0.000665	-8.40E-05	0.001461
0.028986	0.013066	-0.028872	-0.000669	-0.000131	0.001455
0.028777	0.012249	-0.026082	-0.000659	-7.30E-05	0.001507
0.028261	0.013077	-0.025943	-0.000628	-9.70E-05	0.001501
0.028528	0.012949	-0.031005	-0.000663	-0.000213	0.001504
0.028141	0.01305	-0.028186	-0.000668	-0.0001	0.001491
0.027996	0.013174	-0.027876	-0.000656	-0.000107	0.001491

0.028022	0.013023	-0.027989	-0.000665	-9.70E-05	0.001486
0.027964	0.013125	-0.025613	-0.000624	-8.80E-05	0.001492
0.028139	0.012641	-0.026861	-0.000622	-0.000143	0.001483
0.027732	0.013082	-0.031127	-0.000723	-0.000102	0.001555
0.028115	0.012348	-0.028471	-0.000721	-3.20E-05	0.001503
0.027106	0.013282	-0.028021	-0.000644	-0.000116	0.001483
0.028131	0.01306	-0.028876	-0.000637	-0.000182	0.001537
0.027472	0.01213	-0.027408	-0.000639	-0.000131	0.001479
0.028368	0.013335	-0.027184	-0.000628	-0.000133	0.001473
0.027825	0.012927	-0.027369	-0.000625	-0.000148	0.001517
0.027703	0.012796	-0.027372	-0.000674	-6.10E-05	0.001494
0.02782	0.012577	-0.028645	-0.000667	-0.000122	0.001498
0.027993	0.011774	-0.02641	-0.000639	-0.000108	0.001424
0.028261	0.01301	-0.029006	-0.000672	-0.000123	0.001477

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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
0.068023	0.023658	0.959183	0.014548	0.005812	0.004192
0.075374	0.030048	-0.063506	-0.001671	-0.000132	0.00358
0.075919	0.030479	-0.064643	-0.001722	-8.30E-05	0.003583
0.076541	0.031049	-0.066758	-0.001721	-0.000156	0.003605
0.076077	0.030729	-0.066004	-0.001738	-9.90E-05	0.003601
0.076335	0.030792	-0.067901	-0.001739	-0.000166	0.003624
0.075541	0.030278	-0.066863	-0.001715	-0.000168	0.003597
0.076042	0.030418	-0.065702	-0.001745	-8.10E-05	0.003582
0.07552	0.030586	-0.066746	-0.001753	-9.30E-05	0.003609
0.075563	0.030881	-0.064356	-0.001685	-0.000123	0.003578
0.075563	0.031134	-0.065234	-0.001709	-0.000106	0.003576
0.075432	0.030645	-0.067691	-0.001775	-8.60E-05	0.003638
0.075828	0.031226	-0.068864	-0.001718	-0.000215	0.003587
0.075246	0.031183	-0.065807	-0.001719	-0.000103	0.003593
0.075021	0.031138	-0.066343	-0.001726	-0.00011	0.003625
0.075593	0.030927	-0.065447	-0.001712	-0.000114	0.003602
0.075626	0.030557	-0.066053	-0.001687	-0.000184	0.003589
0.075275	0.03079	-0.067693	-0.001743	-0.000134	0.003611
0.075051	0.031302	-0.065111	-0.001714	-8.40E-05	0.003602
0.075047	0.030639	-0.066181	-0.001729	-0.000106	0.003587
0.07545	0.031107	-0.066059	-0.001741	-7.70E-05	0.003568
0.074804	0.030804	-0.064878	-0.001683	-0.000134	0.003578
0.074864	0.031008	-0.065728	-0.001702	-0.000128	0.003595
0.075299	0.030475	-0.064911	-0.001728	-7.30E-05	0.003596
0.075271	0.03104	-0.067555	-0.001724	-0.000156	0.003598
0.075087	0.030849	-0.067595	-0.001722	-0.000163	0.003606
0.074846	0.030157	-0.066335	-0.001741	-9.70E-05	0.003594
0.074832	0.031061	-0.06546	-0.001669	-0.000174	0.003583
0.074703	0.031278	-0.065767	-0.001712	-0.000102	0.003576
0.074326	0.031777	-0.068203	-0.001713	-0.000171	0.003621
0.075023	0.031718	-0.066249	-0.001719	-0.000105	0.003591
0.074531	0.031062	-0.066476	-0.001687	-0.000174	0.003616
0.074674	0.031205	-0.067376	-0.001711	-0.000158	0.003564
0.074896	0.031323	-0.06697	-0.001716	-0.000136	0.003558
0.074658	0.031664	-0.064997	-0.001691	-0.000105	0.003575
0.074921	0.03168	-0.069797	-0.001787	-0.000107	0.003616
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0.07467	0.03157	-0.064835	-0.001707	-7.60E-05	0.003596
0.074162	0.030909	-0.066472	-0.001734	-9.30E-05	0.003647
0.074324	0.031405	-0.065624	-0.001709	-9.90E-05	0.00363
0.074279	0.031212	-0.067271	-0.001727	-0.000123	0.003599
0.074979	0.031325	-0.067507	-0.001719	-0.000156	0.003621
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0.073975	0.030877	-0.066468	-0.001711	-0.000126	0.003608

0.074561	0.03197	-0.069663	-0.001747	-0.000157	0.003589
0.074618	0.031629	-0.066546	-0.001719	-0.00011	0.003604
0.074609	0.030698	-0.06632	-0.001735	-9.40E-05	0.003617
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0.074418	0.031218	-0.065393	-0.001744	-3.30E-05	0.0036
0.074176	0.031317	-0.067317	-0.001747	-8.90E-05	0.003632
0.073756	0.032717	-0.066086	-0.001669	-0.000147	0.003594
0.073364	0.031467	-0.065524	-0.00169	-0.000109	0.00358
0.074306	0.032073	-0.065715	-0.001674	-0.000144	0.003568
0.073843	0.031468	-0.064683	-0.001672	-0.000117	0.003566
0.073812	0.031689	-0.064836	-0.001675	-0.000115	0.00358
0.073476	0.031275	-0.065671	-0.001678	-0.000141	0.003589
0.074003	0.031854	-0.06466	-0.001675	-0.000107	0.003572
0.073476	0.031807	-0.066339	-0.001701	-0.000112	0.00358
0.072792	0.031833	-0.066922	-0.001683	-0.000152	0.003585
0.073886	0.032119	-0.066984	-0.001723	-9.60E-05	0.003578
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0.073707	0.032462	-0.067049	-0.001696	-0.000139	0.003606
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0.074016	0.031481	-0.064711	-0.001678	-0.000111	0.003558
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0.073984	0.032405	-0.066134	-0.001687	-0.000127	0.003588
0.073768	0.031881	-0.068099	-0.001698	-0.000181	0.003607
0.073497	0.031377	-0.065171	-0.001703	-8.00E-05	0.003607
0.073262	0.031171	-0.067117	-0.001698	-0.000151	0.003572
0.074147	0.032318	-0.066973	-0.001712	-0.000118	0.003612
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0.073954	0.03193	-0.065989	-0.001689	-0.000126	0.00356
0.07374	0.03282	-0.06556	-0.001693	-8.60E-05	0.003597
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0.073354	0.032129	-0.065777	-0.001656	-0.000163	0.003568
0.073324	0.032363	-0.065613	-0.001656	-0.000153	0.003562
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0.073624	0.032161	-0.066292	-0.001664	-0.000168	0.003562
0.073369	0.032383	-0.065263	-0.001642	-0.000161	0.003526
0.073402	0.032525	-0.064782	-0.001645	-0.000141	0.003569
0.073384	0.031703	-0.062559	-0.00161	-0.000139	0.003515
0.07387	0.031751	-0.064497	-0.001673	-0.000105	0.003555
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0.072855	0.032299	-0.066183	-0.001665	-0.00015	0.003585
0.073454	0.032317	-0.064853	-0.001673	-9.70E-05	0.003535
0.073476	0.032489	-0.066722	-0.001689	-0.000134	0.003592
0.072956	0.032597	-0.065582	-0.001659	-0.000134	0.003544
0.072764	0.032343	-0.066	-0.00169	-9.90E-05	0.003576
0.073003	0.033389	-0.064519	-0.001647	-0.000105	0.003554
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0.07318	0.033202	-0.066104	-0.001666	-0.000133	0.003561

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0.073483	0.033305	-0.066263	-0.001653	-0.000167	0.003601
0.073174	0.032499	-0.065165	-0.001673	-9.90E-05	0.00352
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0.074144	0.032523	-0.0648	-0.001654	-0.000137	0.00355
0.074061	0.032253	-0.067198	-0.001702	-0.000137	0.003548
0.074053	0.032626	-0.067135	-0.001691	-0.00015	0.003597
0.073376	0.032934	-0.064424	-0.001637	-0.000134	0.003553
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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
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0.136338	0.05097	-0.106759	-0.002995	-3.70E-05	0.005979
0.136188	0.0511	-0.108055	-0.002994	-8.50E-05	0.006058
0.136454	0.050945	-0.109685	-0.00299	-0.000145	0.005968
0.136257	0.050638	-0.107447	-0.003033	-8.00E-06	0.006082
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0.136448	0.050822	-0.1075	-0.002988	-8.20E-05	0.006004
0.135877	0.051081	-0.108928	-0.003029	-4.60E-05	0.006028
0.135093	0.050708	-0.110634	-0.003047	-7.00E-05	0.006076
0.13584	0.050133	-0.105619	-0.002995	-1.00E-05	0.006001
0.136254	0.051276	-0.110871	-0.003022	-0.000129	0.006075
0.136115	0.049543	-0.108837	-0.003027	-7.40E-05	0.005976
0.136102	0.050798	-0.10821	-0.003014	-5.20E-05	0.005973
0.137056	0.050842	-0.107707	-0.00299	-9.20E-05	0.00598
0.135728	0.051363	-0.11201	-0.003042	-0.000123	0.006089
0.136298	0.049761	-0.107723	-0.003028	-3.50E-05	0.005985
0.136205	0.051562	-0.111738	-0.003075	-6.10E-05	0.006091
0.13661	0.050252	-0.107441	-0.00303	-1.40E-05	0.005946
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0.136251	0.051538	-0.110493	-0.003053	-6.70E-05	0.00619
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0.13626	0.050998	-0.106577	-0.002997	-2.70E-05	0.005975
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0.136069	0.051398	-0.111578	-0.003051	-9.70E-05	0.006069
0.136302	0.051073	-0.108621	-0.003009	-7.20E-05	0.005963
0.136579	0.050971	-0.109282	-0.003034	-6.40E-05	0.006059
0.136343	0.052176	-0.111702	-0.003025	-0.000135	0.006047
0.136452	0.051016	-0.110479	-0.003034	-9.90E-05	0.006021
0.136397	0.050676	-0.110147	-0.003052	-6.80E-05	0.006085
0.136699	0.051664	-0.108374	-0.003028	-3.30E-05	0.006039
0.136408	0.051478	-0.111138	-0.00303	-0.000122	0.006063
0.136546	0.052023	-0.111392	-0.003043	-0.000104	0.006108
0.137049	0.051167	-0.110902	-0.003047	-9.90E-05	0.006039
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0.136321	0.050709	-0.105344	-0.002966	-4.10E-05	0.005934

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0.136631	0.051861	-0.109763	-0.003008	-0.000107	0.006033
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0.135457	0.050513	-0.1101	-0.003023	-9.50E-05	0.005961
0.136085	0.051447	-0.109024	-0.003026	-5.80E-05	0.006109
0.136533	0.050523	-0.107395	-0.002979	-9.90E-05	0.005992
0.136358	0.051555	-0.109411	-0.003017	-8.20E-05	0.006035
0.136079	0.050852	-0.10779	-0.002994	-7.50E-05	0.006014
0.1359	0.050797	-0.107888	-0.003004	-5.80E-05	0.005997
0.135203	0.0508	-0.111513	-0.003046	-0.0001	0.006059
0.135609	0.051227	-0.111149	-0.003031	-0.000111	0.00604
0.135446	0.050332	-0.106995	-0.002976	-7.60E-05	0.005973
0.135633	0.050746	-0.10963	-0.003019	-8.90E-05	0.006021
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0.135515	0.050477	-0.10992	-0.003013	-0.00011	0.006006
0.136019	0.050798	-0.107626	-0.00301	-4.10E-05	0.006011
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0.136441	0.04955	-0.107168	-0.003029	-2.30E-05	0.006018
0.136419	0.050956	-0.110218	-0.003048	-6.50E-05	0.005997
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0.137034	0.051384	-0.108589	-0.003004	-8.90E-05	0.006008
0.135834	0.051774	-0.109001	-0.003027	-4.30E-05	0.00607
0.135702	0.051213	-0.11019	-0.003034	-7.30E-05	0.006002
0.135556	0.050979	-0.108685	-0.003018	-5.10E-05	0.005989
0.135909	0.052146	-0.108627	-0.003001	-6.60E-05	0.006052
0.135376	0.05263	-0.11212	-0.003052	-8.80E-05	0.006164
0.136428	0.050807	-0.107926	-0.002985	-9.50E-05	0.00595
0.13625	0.050828	-0.110233	-0.003068	-3.80E-05	0.006085
0.135235	0.051272	-0.109129	-0.003015	-6.70E-05	0.006078
0.135485	0.051649	-0.112168	-0.00306	-8.80E-05	0.006091
0.135894	0.051115	-0.108401	-0.003007	-6.40E-05	0.005996
0.135495	0.052273	-0.111464	-0.003037	-9.20E-05	0.006081
0.134795	0.050786	-0.108443	-0.002999	-6.80E-05	0.006001
0.135739	0.050892	-0.108064	-0.002986	-9.00E-05	0.005992
0.135397	0.051968	-0.108295	-0.002993	-6.30E-05	0.006041
0.135261	0.051132	-0.108536	-0.002986	-9.60E-05	0.006013
0.135935	0.051033	-0.109327	-0.003025	-7.00E-05	0.00605
0.135859	0.050737	-0.109055	-0.003032	-5.40E-05	0.006068
0.135319	0.050811	-0.108101	-0.003002	-6.30E-05	0.006047
0.135771	0.051407	-0.10914	-0.002987	-0.000122	0.006062
0.135596	0.050761	-0.107316	-0.002973	-8.70E-05	0.005982

0.135283	0.050793	-0.107263	-0.002994	-4.80E-05	0.006038
0.134763	0.050012	-0.108345	-0.002996	-8.30E-05	0.005989
0.13468	0.050204	-0.107717	-0.002979	-8.70E-05	0.005987
0.135171	0.05089	-0.109914	-0.003039	-5.50E-05	0.006038
0.135475	0.051761	-0.106574	-0.003013	1.80E-05	0.006094
0.136112	0.050985	-0.108443	-0.002992	-0.0001	0.00603
0.135627	0.050217	-0.107769	-0.002976	-0.000111	0.006035
0.135014	0.050733	-0.106822	-0.002994	-2.60E-05	0.005986
0.134782	0.05075	-0.105237	-0.002966	-1.80E-05	0.005998
0.134761	0.051779	-0.10822	-0.002984	-7.40E-05	0.006067
0.134809	0.051175	-0.106764	-0.002937	-0.000107	0.005934
0.135583	0.051172	-0.109069	-0.003005	-9.00E-05	0.006066
0.134492	0.049612	-0.105456	-0.002938	-8.10E-05	0.005878
0.134714	0.050811	-0.108188	-0.002982	-9.50E-05	0.006083
0.134021	0.05045	-0.108297	-0.002957	-0.000127	0.005958
0.134484	0.0509	-0.107399	-0.002981	-5.60E-05	0.00599
0.134271	0.050458	-0.106575	-0.003007	7.00E-06	0.006037
0.134406	0.049977	-0.10578	-0.002963	-4.60E-05	0.005939
0.134911	0.051414	-0.109718	-0.002999	-0.000104	0.006041
0.134005	0.049463	-0.105231	-0.002931	-8.70E-05	0.005948
0.134153	0.050932	-0.107139	-0.002968	-6.50E-05	0.005995
0.134654	0.050282	-0.10952	-0.003028	-6.00E-05	0.00599
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0.134034	0.05099	-0.108655	-0.002967	-0.000114	0.005982
0.133855	0.050872	-0.109995	-0.002984	-0.000131	0.006012
0.134739	0.051179	-0.107467	-0.002988	-4.80E-05	0.006027
0.135015	0.049988	-0.107281	-0.003009	-3.10E-05	0.00602
0.133778	0.050064	-0.106141	-0.00295	-6.90E-05	0.00594
0.135068	0.051323	-0.107872	-0.002985	-6.90E-05	0.006012
0.13342	0.051159	-0.106133	-0.002954	-4.40E-05	0.006033
0.134897	0.050706	-0.106651	-0.002971	-5.90E-05	0.005988
0.134983	0.05053	-0.106397	-0.002975	-5.20E-05	0.006023
0.134565	0.051149	-0.107592	-0.002943	-0.00013	0.006034
0.134712	0.049933	-0.10663	-0.002985	-4.40E-05	0.005967
0.134952	0.050302	-0.108195	-0.002984	-9.20E-05	0.005938
0.134611	0.051301	-0.109088	-0.003018	-4.60E-05	0.006026
0.134916	0.050688	-0.108736	-0.002998	-7.80E-05	0.005929
0.134312	0.050686	-0.110892	-0.003015	-0.000123	0.006082
0.134705	0.050522	-0.104827	-0.002949	-3.20E-05	0.005931
0.133965	0.051323	-0.106222	-0.002922	-0.000111	0.006073
0.134659	0.051041	-0.109892	-0.003026	-5.80E-05	0.005947
0.134293	0.050718	-0.109979	-0.002995	-0.000118	0.005989
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0.134022	0.050883	-0.106271	-0.002964	-3.90E-05	0.005961
0.134392	0.050517	-0.111041	-0.003057	-5.20E-05	0.005992
0.1342	0.050489	-0.105232	-0.00296	-2.00E-05	0.005947

0.134564	0.051734	-0.109015	-0.00301	-5.60E-05	0.006102
0.134263	0.049581	-0.108155	-0.002978	-0.000105	0.005951
0.134144	0.051457	-0.108739	-0.002973	-0.000108	0.006076
0.133577	0.050286	-0.106479	-0.002968	-4.10E-05	0.005941
0.133834	0.052007	-0.111008	-0.002995	-0.00013	0.006096
0.134885	0.050444	-0.107119	-0.002996	-2.80E-05	0.005892
0.134195	0.052104	-0.107534	-0.002973	-5.50E-05	0.006071
0.13471	0.050307	-0.107902	-0.002988	-7.20E-05	0.005952
0.134581	0.051664	-0.108489	-0.002984	-7.50E-05	0.005986
0.134824	0.051546	-0.107074	-0.003004	3.00E-06	0.005963
0.134924	0.051477	-0.110125	-0.003006	-0.000108	0.006084
0.134935	0.049283	-0.108949	-0.003024	-6.70E-05	0.005936
0.133911	0.050695	-0.109752	-0.002998	-0.000105	0.006045
0.133795	0.051604	-0.107502	-0.002964	-6.40E-05	0.005972

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Fx (N)	Fy (N)	Fz (N)	Mx (N)	My (N)	Mz (N)
0.214649	0.067784	0.867832	0.011622	0.005966	0.00914
0.220799	0.076554	-0.162433	-0.004764	9.90E-05	0.008804
0.220184	0.081017	-0.177321	-0.004936	-8.10E-05	0.009702
0.220848	0.078994	-0.165117	-0.004784	5.00E-05	0.009288
0.223046	0.075563	-0.157072	-0.004696	0.000124	0.008611
0.22167	0.076784	-0.167886	-0.004835	3.10E-05	0.008808
0.220835	0.082463	-0.179947	-0.004929	-0.000163	0.009706
0.221238	0.080301	-0.171849	-0.004872	-2.00E-05	0.00947
0.222513	0.075469	-0.159439	-0.00473	0.000117	0.008532
0.221156	0.07731	-0.165231	-0.004794	6.40E-05	0.008833
0.221583	0.084063	-0.180871	-0.00495	-0.000155	0.009894
0.223806	0.079481	-0.168286	-0.004815	-4.00E-05	0.009291
0.223829	0.073807	-0.154558	-0.004686	0.00017	0.008322
0.221946	0.077466	-0.169482	-0.004852	6.00E-06	0.008926
0.220477	0.083234	-0.180412	-0.00496	-0.000115	0.009811
0.222134	0.079454	-0.171195	-0.004889	1.70E-05	0.00929
0.222876	0.074054	-0.155706	-0.004669	0.00011	0.008447
0.221172	0.078384	-0.173894	-0.004885	-6.90E-05	0.009097
0.221546	0.084099	-0.182337	-0.004988	-0.000149	0.010017
0.221935	0.076983	-0.162109	-0.004766	9.60E-05	0.008916
0.22453	0.073516	-0.158994	-0.004708	3.80E-05	0.008378
0.221597	0.080314	-0.172912	-0.004841	-9.20E-05	0.009194
0.220247	0.082501	-0.179106	-0.004949	-0.0001	0.009812
0.223151	0.07747	-0.162465	-0.004767	7.10E-05	0.008961
0.22216	0.073031	-0.157231	-0.0047	0.000111	0.008367
0.221053	0.079814	-0.174385	-0.004911	-2.80E-05	0.009289
0.220684	0.082039	-0.178297	-0.00495	-8.90E-05	0.009846
0.223129	0.074318	-0.160474	-0.004755	8.40E-05	0.008652
0.223196	0.074902	-0.164124	-0.004782	1.90E-05	0.008657
0.220332	0.081397	-0.176591	-0.004928	-5.00E-05	0.009523
0.221428	0.081317	-0.172755	-0.004887	-1.90E-05	0.009612
0.22321	0.074333	-0.157021	-0.004721	0.000147	0.008557
0.222273	0.075018	-0.163025	-0.004762	4.50E-05	0.008564
0.220266	0.081814	-0.17834	-0.004928	-0.000105	0.009581
0.221301	0.080973	-0.173479	-0.004913	2.00E-06	0.009553
0.223079	0.074773	-0.157935	-0.004703	9.80E-05	0.008542
0.221736	0.075169	-0.160847	-0.004742	8.90E-05	0.008623
0.220343	0.082818	-0.17861	-0.004923	-0.000112	0.009667
0.220215	0.080988	-0.169405	-0.004827	1.40E-05	0.009449
0.222095	0.074376	-0.156603	-0.004676	0.00011	0.008454
0.220896	0.076068	-0.163967	-0.00475	2.30E-05	0.008694
0.219105	0.083482	-0.182343	-0.004954	-0.000161	0.009774
0.22009	0.079326	-0.168756	-0.004801	-2.10E-05	0.009241
0.222041	0.073287	-0.154906	-0.004628	7.30E-05	0.008351
0.219845	0.077779	-0.167926	-0.004773	-3.10E-05	0.008804

0.218002	0.082412	-0.179738	-0.004932	-0.000111	0.00973
0.219787	0.079703	-0.168381	-0.004821	3.20E-05	0.009307
0.220402	0.073768	-0.157381	-0.004682	0.000107	0.008477
0.21945	0.076914	-0.169181	-0.0048	-4.40E-05	0.008905
0.217811	0.081553	-0.175734	-0.004881	-7.20E-05	0.009648
0.219658	0.079464	-0.168637	-0.004774	-5.00E-05	0.009202
0.221623	0.074658	-0.157946	-0.004663	5.20E-05	0.008496
0.219869	0.07727	-0.167859	-0.004797	-4.00E-06	0.008887
0.218517	0.083706	-0.181201	-0.004944	-0.000131	0.009823
0.220385	0.079071	-0.16743	-0.004792	2.00E-06	0.009203
0.221257	0.073722	-0.155199	-0.004639	0.000104	0.008337
0.220215	0.077764	-0.16799	-0.004796	-1.50E-05	0.008995
0.219158	0.082667	-0.180409	-0.004923	-0.000168	0.009789
0.221043	0.079318	-0.166736	-0.004804	4.30E-05	0.009168
0.220626	0.074695	-0.158742	-0.004679	7.30E-05	0.008441
0.219582	0.080532	-0.175675	-0.004878	-8.60E-05	0.009228
0.219886	0.083102	-0.179132	-0.004929	-0.000113	0.009737
0.221376	0.076848	-0.163853	-0.004742	6.00E-06	0.008842
0.221166	0.074415	-0.156569	-0.004655	9.70E-05	0.008365
0.219001	0.082277	-0.177013	-0.004908	-5.50E-05	0.009445
0.219606	0.082852	-0.179345	-0.004946	-9.20E-05	0.009753
0.221028	0.075125	-0.15845	-0.00471	0.000127	0.00859
0.220535	0.073835	-0.160011	-0.004693	4.50E-05	0.008385
0.219725	0.082143	-0.176265	-0.004909	-4.50E-05	0.009463
0.219192	0.081987	-0.173141	-0.004823	-9.40E-05	0.009579
0.221694	0.077017	-0.160451	-0.004725	9.20E-05	0.00882
0.221394	0.075935	-0.16262	-0.004727	3.50E-05	0.008491
0.220004	0.080082	-0.176558	-0.004885	-0.000122	0.009276
0.220196	0.083192	-0.173255	-0.004861	-3.40E-05	0.009686
0.221444	0.076534	-0.159781	-0.004737	0.000136	0.008754
0.221789	0.076109	-0.161341	-0.004737	9.40E-05	0.008476
0.219689	0.083815	-0.183382	-0.004988	-0.000137	0.009759
0.220034	0.080851	-0.174295	-0.004874	-7.00E-05	0.009482
0.221375	0.077381	-0.161055	-0.004696	3.70E-05	0.008779
0.221133	0.075437	-0.161955	-0.004732	5.00E-05	0.008616
0.218791	0.084171	-0.181896	-0.004966	-0.000101	0.009714
0.2201	0.082192	-0.172041	-0.004838	-3.50E-05	0.009502
0.223136	0.075746	-0.157925	-0.004721	0.000147	0.008525
0.220608	0.077673	-0.164407	-0.004738	1.20E-05	0.008818
0.21881	0.083257	-0.179173	-0.004919	-0.000112	0.009746
0.220204	0.080747	-0.17165	-0.004829	-5.50E-05	0.009384
0.222591	0.075237	-0.160702	-0.004734	7.90E-05	0.008495
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0.219488	0.082305	-0.177848	-0.004944	-4.50E-05	0.009641
0.219858	0.080726	-0.170126	-0.004841	2.10E-05	0.009388
0.222075	0.073615	-0.15522	-0.004654	0.000113	0.008333

0.21953	0.078314	-0.170391	-0.004796	-7.40E-05	0.008988
0.21947	0.083642	-0.180254	-0.004906	-0.000168	0.009666
0.221253	0.079264	-0.167307	-0.004817	3.50E-05	0.009243
0.221977	0.073834	-0.156934	-0.004672	9.60E-05	0.008318
0.219191	0.079146	-0.172122	-0.004797	-0.000115	0.009054
0.218759	0.083954	-0.180937	-0.004937	-0.000137	0.009879
0.220308	0.077035	-0.16222	-0.00473	6.00E-05	0.008858
0.221718	0.074632	-0.157031	-0.004669	9.60E-05	0.008426
0.219683	0.080082	-0.175302	-0.004882	-7.70E-05	0.00923
0.219292	0.082985	-0.178303	-0.004892	-0.000139	0.00969
0.220768	0.077	-0.162093	-0.004766	0.000117	0.008872
0.221797	0.07466	-0.15794	-0.004689	0.000103	0.008397
0.219352	0.081194	-0.17844	-0.004919	-0.000114	0.009481
0.21899	0.081555	-0.175485	-0.004898	-4.90E-05	0.009618
0.222205	0.074854	-0.156554	-0.004671	0.000104	0.008522
0.221762	0.074088	-0.161374	-0.00474	6.30E-05	0.008433
0.219624	0.082854	-0.180251	-0.004944	-0.000113	0.009592
0.220211	0.081934	-0.174686	-0.004914	-7.00E-06	0.009619
0.221055	0.075866	-0.159071	-0.00472	0.000131	0.008655
0.221232	0.075375	-0.162746	-0.004752	6.30E-05	0.008528
0.220198	0.08195	-0.178652	-0.004932	-0.000105	0.009588
0.219745	0.081642	-0.171034	-0.00482	-3.30E-05	0.009451
0.221483	0.074541	-0.160829	-0.004719	5.00E-05	0.008525
0.220506	0.076682	-0.165415	-0.004746	-1.60E-05	0.008699
0.2186	0.083239	-0.180404	-0.00495	-9.70E-05	0.009757
0.220229	0.082385	-0.174462	-0.004898	-1.80E-05	0.009595
0.221467	0.075714	-0.160439	-0.004691	3.60E-05	0.008527
0.220201	0.077102	-0.167085	-0.004767	-2.60E-05	0.008741
0.220368	0.083086	-0.181617	-0.004948	-0.000171	0.009752
0.219945	0.079993	-0.17056	-0.004848	6.00E-06	0.009353
0.222493	0.075156	-0.159932	-0.004754	0.000135	0.008552
0.221576	0.078306	-0.168271	-0.004795	-2.50E-05	0.008856
0.221261	0.083672	-0.179054	-0.004952	-7.30E-05	0.009647
0.220537	0.080459	-0.169681	-0.004833	1.10E-05	0.009324
0.222821	0.075612	-0.158126	-0.004689	9.00E-05	0.008505
0.22013	0.077459	-0.164026	-0.004753	5.50E-05	0.008801
0.218737	0.08359	-0.178932	-0.004959	-3.00E-05	0.009773
0.219621	0.080098	-0.168299	-0.004778	-2.50E-05	0.009251
0.221775	0.074271	-0.157522	-0.00465	4.90E-05	0.008308
0.218557	0.079103	-0.170351	-0.004827	7.00E-06	0.009047
0.217002	0.08464	-0.180472	-0.004912	-0.000128	0.009912
0.219278	0.078389	-0.162026	-0.004722	8.60E-05	0.008957
0.220129	0.073719	-0.15531	-0.004635	0.000111	0.008314
0.219353	0.079837	-0.174919	-0.004911	-1.80E-05	0.009293
0.217979	0.082918	-0.175671	-0.004852	-9.40E-05	0.009605
0.217812	0.076946	-0.162074	-0.004718	7.60E-05	0.008924

0.219907	0.072772	-0.154422	-0.004636	0.000129	0.00831
0.218174	0.080425	-0.174566	-0.004871	-5.40E-05	0.00937
0.217815	0.082168	-0.177221	-0.004873	-0.000125	0.009655
0.219578	0.075436	-0.159264	-0.004688	7.70E-05	0.008742
0.220433	0.074783	-0.158505	-0.004672	8.00E-05	0.008379
0.217246	0.08237	-0.176465	-0.004876	-6.90E-05	0.009505
0.218356	0.081063	-0.173647	-0.004855	-5.20E-05	0.009496
0.219575	0.076048	-0.160364	-0.004672	3.10E-05	0.008668
0.218929	0.07533	-0.161587	-0.004728	9.10E-05	0.008583
0.216569	0.082336	-0.176658	-0.004861	-9.70E-05	0.009576
0.218208	0.079789	-0.169176	-0.00479	-2.30E-05	0.009319
0.220291	0.073864	-0.156788	-0.004667	0.000109	0.008424
0.218951	0.076752	-0.168697	-0.004806	-2.00E-06	0.008771
0.217774	0.082125	-0.177434	-0.004904	-7.90E-05	0.009664

Time (s)
0.09975
0.29975
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Displacement (m)	Force (mN)
-0.00166	-3.756
-0.001723	-3.818
-0.001468	-3.721
-0.001915	-3.142
-0.005489	-2.554
-0.007404	-1.913
-0.009446	-1.392
-0.009829	-0.8042
-0.01143	-0.1458
-0.01296	0.38
-0.01436	0.9765
-0.01487	1.538
-0.01736	2.201
-0.01704	2.678
-0.0196	3.345
-0.02011	3.906
-0.02196	4.489
-0.02342	5.055
-0.02559	5.674
-0.02694	6.27
-0.02828	6.818
-0.02962	7.41
-0.03153	7.976
-0.03491	8.59
-0.03364	9.16
-0.03504	9.757
-0.03587	10.33
-0.03734	10.95
-0.04168	11.47
-0.04193	12.09
-0.04193	12.65
-0.04398	13.27
-0.04589	13.8
-0.04774	14.42
-0.04787	14.95
-0.04915	15.6
-0.05068	16.19
-0.05521	16.75
-0.0517	17.38
-0.05496	17.94
-0.05706	18.52
-0.05942	19.07
-0.06121	19.71
-0.06185	20.25
-0.06376	20.85

-0.06427	21.4
-0.0667	22.04
-0.06817	22.58
-0.0704	23.21
-0.07085	23.73
-0.07289	24.35
-0.07398	24.89
-0.07487	25.56
-0.07685	26.1
-0.07832	26.68
-0.07978	27.22
-0.08144	27.83
-0.0824	28.39
-0.08585	29
-0.08495	29.62
-0.08751	30.18
-0.08795	30.79
-0.09057	31.3
-0.09268	31.93
-0.09415	32.5
-0.09529	33.1
-0.09791	33.68
-0.09753	34.31
-0.1011	34.86
-0.1015	35.45
-0.1044	36.03
-0.1059	36.6
-0.1072	37.22
-0.1084	37.77
-0.1105	38.39
-0.112	38.96
-0.1138	39.53
-0.1149	40.08
-0.1166	40.73
-0.1185	41.27
-0.1201	41.88
-0.1213	42.47
-0.1231	43.03
-0.1243	43.58
-0.1261	44.2
-0.1284	44.73
-0.1294	45.39
-0.1291	45.93

Displacement (m)	Force (mN)
0.0002553	0.008837
0.0001915	0.01326
-6.38E-05	-0.02651
0.0001277	0.1502
-0.001021	0.4286
-0.001468	0.6982
-0.002298	1.034
-0.002042	1.295
-0.004276	1.564
-0.003319	1.949
-0.004596	2.201
-0.004085	2.492
-0.004659	2.753
-0.005489	3.089
-0.00434	3.376
-0.005106	3.65
-0.005362	3.897
-0.005808	4.277
-0.005872	4.525
-0.005553	4.808
-0.006319	5.051
-0.007021	5.422
-0.00683	5.705
-0.00683	5.983
-0.006191	6.213
-0.007085	6.566
-0.007085	6.845
-0.007851	7.127
-0.007723	7.428
-0.007915	7.746
-0.007915	8.02
-0.007468	8.316
-0.008234	8.643
-0.00817	8.868
-0.008042	9.187
-0.008681	9.452
-0.009383	9.796
-0.008744	10.1
-0.00951	10.34
-0.009829	10.59
-0.009319	10.94
-0.00951	11.22
-0.009766	11.53
-0.008744	11.79
-0.009702	12.12

-0.01047	12.43
-0.01174	12.68
-0.009957	13.05
-0.01104	13.29
-0.01149	13.56
-0.01168	13.81
-0.01225	14.18
-0.01283	14.44
-0.01232	14.73
-0.01174	15
-0.01232	15.36
-0.01257	15.58
-0.01334	15.9
-0.01353	16.17
-0.01353	16.51
-0.0136	16.77
-0.01366	17.06
-0.0127	17.32
-0.01417	17.64
-0.0136	17.93
-0.01334	18.22
-0.01513	18.56
-0.01487	18.83
-0.01455	19.1
-0.01545	19.35
-0.01417	19.72
-0.01519	20.02
-0.01462	20.27
-0.01564	20.56
-0.01608	20.9
-0.01634	21.15
-0.01608	21.44
-0.01608	21.78
-0.01672	22.01
-0.01596	22.33
-0.01615	22.6
-0.01698	22.96
-0.01723	23.22
-0.01806	23.5
-0.01736	23.79
-0.01755	24.09
-0.01794	24.38
-0.01819	24.66
-0.01845	24.91
-0.01896	25.24
-0.01864	25.51

-0.01883	25.83
-0.01902	26.15
-0.01915	26.44
-0.01947	26.7
-0.01908	26.99
-0.01877	27.23
-0.02023	27.56
-0.0196	27.87
-0.02125	28.15
-0.01991	28.51
-0.02094	28.77
-0.02055	29.02
-0.02189	29.33
-0.02074	29.67
-0.02132	29.91
-0.02215	30.22
-0.02202	30.49
-0.02253	30.83
-0.02234	31.06
-0.02272	31.39
-0.02138	31.67
-0.02221	31.97
-0.02304	32.26
-0.02349	32.5
-0.02279	32.88
-0.02381	33.17
-0.02425	33.39
-0.02483	33.68
-0.02349	34.03
-0.02381	34.32
-0.0247	34.55
-0.02432	34.85
-0.02572	35.21
-0.02559	35.46
-0.02572	35.72
-0.02591	35.99
-0.02611	36.37
-0.02662	36.63
-0.02553	36.91
-0.02694	37.17
-0.0263	37.51
-0.02687	37.79
-0.02725	38.05
-0.02777	38.43
-0.02757	38.72
-0.02732	38.97

-0.02732	39.2
-0.02764	39.59
-0.02764	39.87
-0.02764	40.14
-0.02815	40.43
-0.02719	40.75
-0.02789	41.01
-0.02777	41.28
-0.02923	41.58
-0.02942	41.91
-0.02834	42.19
-0.02891	42.49
-0.03038	42.79
-0.02994	43.05
-0.03006	43.34
-0.02955	43.63
-0.03045	43.94
-0.02917	44.23
-0.02942	44.53
-0.03025	44.8
-0.03045	45.13
-0.03025	45.38
-0.03121	45.67
-0.03128	45.94
-0.03134	46.28
-0.03108	46.58
-0.03128	46.75
-0.03185	47.11
-0.03211	47.49
-0.03204	47.71
-0.03249	48
-0.03223	48.31
-0.03306	48.55
-0.03306	48.9
-0.03236	49.19
-0.03338	49.52
-0.03396	49.78
-0.03319	50.06
-0.03428	50.34
-0.03396	50.67
-0.03408	50.94
-0.03453	51.22
-0.03498	51.5
-0.03485	51.83
-0.03504	52.08
-0.03542	52.37

-0.03542	52.72
-0.03562	52.98
-0.0367	53.23
-0.03651	53.55
-0.03645	53.9
-0.03606	54.15
-0.03664	54.45
-0.03721	54.7
-0.03753	54.99
-0.03779	55.31
-0.03804	55.58
-0.03811	55.88
-0.03862	56.22
-0.03779	56.51
-0.03836	56.78
-0.03925	57.03
-0.03913	57.35
-0.0383	57.62
-0.03983	57.93
-0.03842	58.25
-0.03951	58.55
-0.03913	58.84
-0.03983	59.07
-0.04053	59.39
-0.0411	59.68
-0.04059	59.97
-0.04085	60.24
-0.04117	60.61
-0.04149	60.89
-0.04168	61.12
-0.04123	61.39
-0.04162	61.8
-0.0413	62.01
-0.042	62.34
-0.04206	62.61
-0.04245	62.9
-0.0427	63.18
-0.04372	63.45
-0.04328	63.81
-0.04398	64.1
-0.04385	64.36
-0.04436	64.65
-0.0443	64.96
-0.04366	65.26
-0.04545	65.53
-0.04589	65.78

-0.04493	66.12
-0.04551	66.44
-0.04628	66.67
-0.04596	66.91
-0.04628	67.31
-0.04653	67.58
-0.04596	67.85
-0.04628	68.19
-0.04704	68.45
-0.04634	68.73
-0.04774	68.95
-0.0473	69.34
-0.04774	69.59
-0.04793	69.9
-0.04921	70.15
-0.04908	70.49
-0.04864	70.77
-0.04915	71.04
-0.04921	71.32
-0.04972	71.64
-0.04908	71.94
-0.04953	72.2
-0.04953	72.59
-0.04985	72.85
-0.05023	73.12
-0.05119	73.36
-0.05164	73.73
-0.05132	74.04
-0.05157	74.25
-0.05183	74.54
-0.05157	74.88
-0.0524	75.2
-0.05234	75.47
-0.05208	75.71
-0.05234	76.03
-0.05272	76.35
-0.05291	76.6
-0.05368	76.88
-0.05393	77.23
-0.054	77.47
-0.05419	77.75
-0.05451	78.05
-0.05508	78.4
-0.0547	78.67
-0.05476	78.94
-0.05547	79.25

-0.05559	79.55
-0.05591	79.86
-0.05572	80.12
-0.05617	80.44
-0.05636	80.7
-0.05668	80.96
-0.05681	81.27
-0.05744	81.6
-0.05783	81.86
-0.05713	82.16
-0.05783	82.43
-0.0584	82.73
-0.05776	83.05
-0.05808	83.3
-0.0591	83.6
-0.05885	83.93
-0.05968	84.21
-0.05949	84.48
-0.05981	84.79
-0.06044	85.1
-0.05987	85.36
-0.06057	85.65
-0.06166	85.95
-0.06083	86.26
-0.06076	86.5
-0.0614	86.74
-0.0614	87.11
-0.06185	87.43
-0.06249	87.69
-0.06153	88
-0.06204	88.29
-0.06332	88.57
-0.063	88.85
-0.06351	89.2
-0.06344	89.46
-0.06383	89.75
-0.06402	90.04
-0.06325	90.34
-0.06408	90.61
-0.06383	90.93
-0.0653	91.16
-0.0653	91.57
-0.06593	91.79
-0.066	92.06
-0.06632	92.36
-0.06568	92.69

-0.06638	92.99
-0.06676	93.2
-0.06651	93.59
-0.06727	93.87
-0.06836	94.15
-0.06823	94.38
-0.06842	94.75
-0.069	95.02
-0.06804	95.34
-0.06861	95.56
-0.06906	95.92
-0.06996	96.15
-0.06938	96.46
-0.07047	96.75
-0.0704	97.05
-0.07034	97.34
-0.07193	97.64
-0.07047	97.94
-0.07142	98.25
-0.07149	98.5
-0.07174	98.8
-0.07168	99.09
-0.07295	99.42
-0.0734	99.67
-0.07276	99.91
-0.07321	100.3
-0.07391	100.6
-0.07385	100.8
-0.0734	101.1
-0.07423	101.4
-0.07538	101.7
-0.07532	102
-0.07525	102.3
-0.075	102.6
-0.07583	102.8
-0.07589	103.2
-0.07736	103.5
-0.07685	103.8
-0.0771	104
-0.07647	104.3
-0.07685	104.7
-0.07749	104.9
-0.07749	105.2
-0.07806	105.5
-0.07793	105.8
-0.07864	106.1

-0.07895	106.4
-0.07991	106.6
-0.07978	107
-0.08106	107.3
-0.08068	107.6
-0.08202	107.9
-0.08164	108.1
-0.08068	108.4
-0.08106	108.7
-0.08202	109.1
-0.08151	109.4
-0.08195	109.6
-0.08304	109.9
-0.08291	110.2
-0.08304	110.5
-0.0833	110.7
-0.08374	111
-0.08425	111.4
-0.08374	111.6
-0.08412	111.9
-0.08483	112.2
-0.08572	112.5
-0.08566	112.8
-0.08636	113.1
-0.08585	113.4
-0.08559	113.7
-0.08649	114
-0.08655	114.2
-0.08649	114.6
-0.08725	114.8
-0.0877	115.1
-0.08815	115.4
-0.08821	115.8
-0.08789	116
-0.08929	116.3
-0.08885	116.6
-0.09012	116.9
-0.08961	117.2
-0.09006	117.4
-0.09108	117.8
-0.0907	118.1
-0.08961	118.4
-0.09159	118.7
-0.09178	119
-0.09146	119.2
-0.09274	119.5

-0.09178	119.8
-0.09229	120.2
-0.09281	120.4
-0.09306	120.7
-0.09357	121
-0.09344	121.3
-0.09529	121.6
-0.09402	121.8
-0.09434	122.1
-0.09466	122.5
-0.096	122.7
-0.09498	123
-0.09555	123.3
-0.09587	123.6
-0.096	123.9
-0.09574	124.2
-0.09587	124.5
-0.09587	124.8
-0.09625	125.1
-0.09721	125.4
-0.09676	125.7
-0.09715	125.9
-0.09791	126.2
-0.09842	126.5
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-0.04462	68.12
-0.04487	68.42
-0.04481	68.7
-0.04462	68.99
-0.04525	69.25
-0.04532	69.56
-0.04621	69.9
-0.0464	70.16
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-0.04672	70.83
-0.04749	71.08

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-0.04672	71.6
-0.04691	71.96
-0.0473	72.23
-0.04793	72.5
-0.04774	72.79
-0.04838	73.09
-0.0487	73.36
-0.04851	73.65
-0.04915	74.01
-0.048	74.31
-0.04927	74.57
-0.04959	74.84
-0.0487	75.17
-0.04979	75.44
-0.05042	75.73
-0.05081	75.97
-0.05106	76.32
-0.05068	76.65
-0.05017	76.88
-0.05074	77.15
-0.05132	77.49
-0.05087	77.76
-0.05234	78.02
-0.05164	78.28
-0.05234	78.65
-0.05189	78.96
-0.05247	79.24
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-0.05298	79.85
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-0.05349	80.38
-0.05342	80.72
-0.05336	80.99
-0.05444	81.22
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-0.05553	82.42
-0.05655	82.71
-0.05527	83.05
-0.05706	83.32
-0.05547	83.52
-0.05662	83.92
-0.05713	84.17
-0.05623	84.47

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-0.05764	85.09
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-0.05764	85.62
-0.05783	85.9
-0.0584	86.22
-0.05776	86.47
-0.05872	86.8
-0.0584	87.08
-0.0591	87.37
-0.05987	87.72
-0.06025	87.98
-0.05917	88.25
-0.06108	88.56
-0.05936	88.86
-0.05898	89.17
-0.06102	89.42
-0.06191	89.73
-0.06076	90.04
-0.06236	90.27
-0.06179	90.64
-0.06115	90.92
-0.06357	91.13
-0.06287	91.45
-0.06274	91.79
-0.06313	92.1
-0.0637	92.35
-0.0621	92.63
-0.0637	92.91
-0.06555	93.26
-0.06338	93.5
-0.06427	93.8
-0.06472	94.16
-0.06523	94.4
-0.06491	94.69
-0.06625	95.01
-0.06587	95.31
-0.06568	95.59
-0.06568	95.83
-0.06638	96.18
-0.06702	96.47
-0.06689	96.74
-0.06696	97
-0.06772	97.36
-0.06747	97.63
-0.06804	97.9

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-0.07066	100.8
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-0.06996	101.4
-0.07123	101.7
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-0.07149	102.3
-0.07187	102.6
-0.07206	102.9
-0.07168	103.2
-0.07264	103.4
-0.07359	103.7
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-0.07321	104.3
-0.07506	104.6
-0.07449	104.9
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-0.07449	105.8
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-0.07519	106.4
-0.07608	106.7
-0.07589	106.9
-0.07672	107.2
-0.07761	107.6
-0.07685	107.8
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-0.07793	108.4
-0.07825	108.7
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-0.0787	109.2
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-0.08023	110.8
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-0.08112	111.3

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-0.08253	112.8
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-0.08253	113.6
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-0.08253	114.2
-0.08381	114.5
-0.08483	114.8
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-0.08476	115.7
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-0.09019	120.4
-0.09127	120.7
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-0.09127	121.2
-0.09127	121.6
-0.09166	121.9
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-0.09268	122.4
-0.09172	122.7
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-0.09427	123.9
-0.09485	124.2
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-0.09804	126.8
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-0.09772	127.4
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-0.09881	128.3
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-0.1004	129.7
-0.1008	130
-0.101	130.3
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-0.102	130.9
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-0.1026	131.5
-0.1024	131.8
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-0.106	133.8
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-0.1074	135.6
-0.108	135.9
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-0.1081	136.4
-0.1094	136.7
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-0.1098	137.3
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-0.1104	137.9
-0.1109	138.2

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-0.1127	139.3
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-0.1104	138.4
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-0.1111	137.8
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-0.1104	137.2
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-0.1012	130.8
-0.1014	130.5
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-0.1003	129

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-0.09402	124.4
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-0.09312	123.8
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-0.0817	113.3
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-0.07161	103.4
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-0.07174	102.7
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-0.07142	102.2

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-0.06683	98.12
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-0.06536	96.34
-0.0644	96.04
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-0.06466	95.17
-0.06389	94.85
-0.06306	94.63
-0.06287	94.23
-0.06242	94.01
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-0.06236	93.42
-0.06249	93.1
-0.063	92.84
-0.06153	92.55
-0.06249	92.25
-0.06127	91.96
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-0.0607	91.08
-0.06064	90.8
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-0.04059	64.24
-0.03989	63.95
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-0.03976	62.55
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-0.01008	13.37
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-0.01225	18.28
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-0.01277	18.91
-0.01372	19.14
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-0.01366	20.34
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-0.01481	21.25
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-0.01506	21.78

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-0.01717	23.8
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-0.01583	24.47
-0.0166	24.75
-0.01679	25
-0.01653	25.31
-0.01838	25.59
-0.01704	25.89
-0.01794	26.19
-0.01845	26.5
-0.01711	26.8
-0.01813	27.07
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-0.01806	27.65
-0.01877	27.92
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-0.01908	29.12
-0.01998	29.36
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-0.03485	53.57
-0.03396	53.89
-0.03581	54.25
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-0.04002	61.16
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-0.04015	61.81
-0.04085	62.09

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-0.04513	68.52
-0.04436	68.78
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-0.04659	69.7
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-0.0801	111.7
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-0.03268	55.5
-0.03287	55.19
-0.03357	54.92
-0.03306	54.58
-0.03332	54.3
-0.0344	53.94
-0.03325	53.74
-0.03319	53.41
-0.03102	53.17
-0.0314	52.87
-0.03159	52.56
-0.03217	52.25
-0.03153	51.96
-0.03262	51.69
-0.03083	51.39
-0.03064	51.09
-0.03115	50.78
-0.03025	50.52
-0.03019	50.24
-0.02981	49.87
-0.02936	49.61
-0.03102	49.36
-0.03019	49.02
-0.02904	48.74
-0.02898	48.48
-0.02853	48.21
-0.02942	47.85
-0.02866	47.53
-0.02821	47.28
-0.0284	47.02

-0.02821	46.69
-0.02808	46.45
-0.02796	46.15
-0.02719	45.87
-0.02764	45.5
-0.0277	45.25
-0.02662	44.96
-0.02623	44.7
-0.02585	44.33
-0.02649	44.09
-0.02694	43.85
-0.0263	43.48
-0.02508	43.19
-0.02681	42.92
-0.02598	42.65
-0.02483	42.3
-0.02496	42.05
-0.02477	41.79
-0.02477	41.5
-0.02528	41.16
-0.02553	40.89
-0.02515	40.61
-0.02445	40.37
-0.02406	40
-0.02406	39.7
-0.02323	39.45
-0.02368	39.1
-0.02349	38.83
-0.02355	38.56
-0.02125	38.26
-0.02291	37.95
-0.02177	37.62
-0.02272	37.4
-0.02196	37.1
-0.02151	36.73
-0.02125	36.52
-0.02183	36.21
-0.02087	35.95
-0.02106	35.6
-0.02145	35.3
-0.02119	35.02
-0.02062	34.77
-0.02049	34.42
-0.02023	34.17
-0.02062	33.85
-0.01953	33.55

-0.02023	33.26
-0.01985	33
-0.01985	32.74
-0.01877	32.4
-0.0194	32.09
-0.0203	31.83
-0.01915	31.59
-0.01928	31.2
-0.0194	30.96
-0.01774	30.68
-0.01736	30.38
-0.01794	30.05
-0.01813	29.77
-0.01787	29.5
-0.01794	29.2
-0.01781	28.89
-0.01691	28.63
-0.01666	28.35
-0.01679	28
-0.01755	27.74
-0.01749	27.47
-0.01583	27.17
-0.01532	26.84
-0.01608	26.53
-0.01653	26.31
-0.01602	26.03
-0.01474	25.67
-0.01628	25.4
-0.01417	25.14
-0.01391	24.87
-0.01423	24.55
-0.01494	24.24
-0.01417	23.99
-0.01487	23.64
-0.01379	23.43
-0.01417	23.09
-0.01321	22.81
-0.01391	22.44
-0.01334	22.2
-0.01404	21.88
-0.01328	21.66
-0.0127	21.32
-0.0127	21.04
-0.01264	20.71
-0.01385	20.54
-0.01245	20.12

-0.01251	19.86
-0.01219	19.57
-0.01168	19.23
-0.01174	18.97
-0.01162	18.68
-0.01232	18.43
-0.01187	18.08
-0.01149	17.84
-0.01053	17.59
-0.01053	17.27
-0.01002	16.88
-0.01104	16.65
-0.009829	16.34
-0.009766	16.1
-0.009957	15.75
-0.01002	15.49
-0.01034	15.18
-0.009064	14.86
-0.009383	14.58
-0.008936	14.33
-0.009574	13.99
-0.01008	13.79
-0.00951	13.49
-0.009255	13.17
-0.008744	12.9
-0.007787	12.53
-0.01015	12.24
-0.008681	12
-0.007659	11.71
-0.008936	11.34
-0.00734	11.09
-0.008234	10.84
-0.008744	10.56
-0.007149	10.23
-0.006319	9.929
-0.007213	9.659
-0.007213	9.39
-0.006383	9.067
-0.006702	8.762
-0.006	8.493
-0.006191	8.232
-0.006383	7.879
-0.004659	7.636
-0.005106	7.348
-0.006064	6.99
-0.004979	6.708

-0.003957	6.416
-0.004979	6.169
-0.004851	5.837
-0.004021	5.55
-0.004213	5.21
-0.003128	4.984
-0.003511	4.657
-0.003	4.397
-0.003255	4.118
-0.003638	3.738
-0.003447	3.5
-0.003319	3.199
-0.003574	2.961
-0.002489	2.638
-0.002553	2.346
-0.002298	2.081
-0.002362	1.821