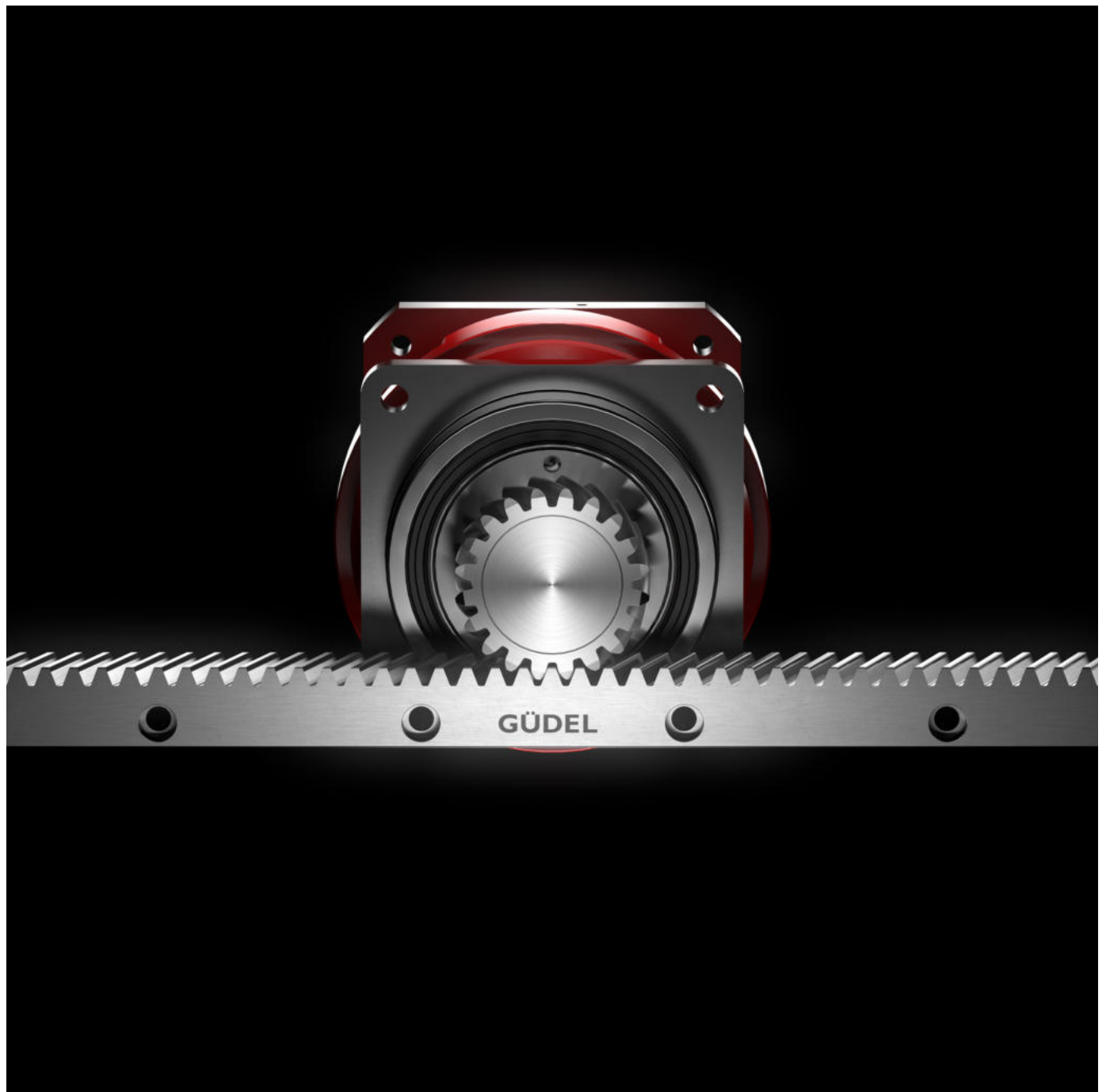


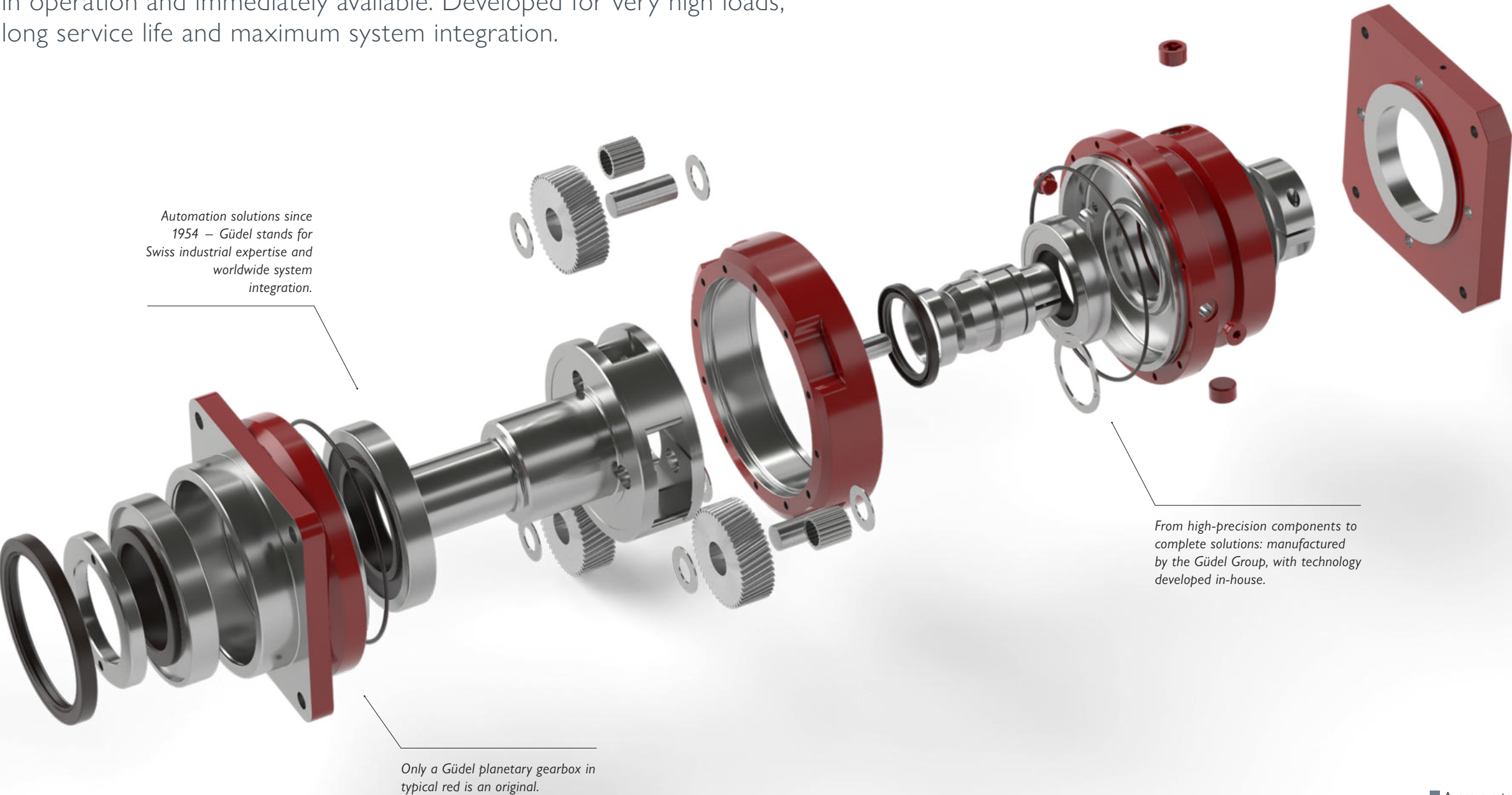
# 180 High-precision planetary gearbox

Four types for maximum efficiency and movement accuracy



# The benchmark for maximum precision

With the Güdel high-precision planetary gearboxes in size 180, we offer a compact product for all requirements: flexibly combinable, efficient in operation and immediately available. Developed for very high loads, long service life and maximum system integration.

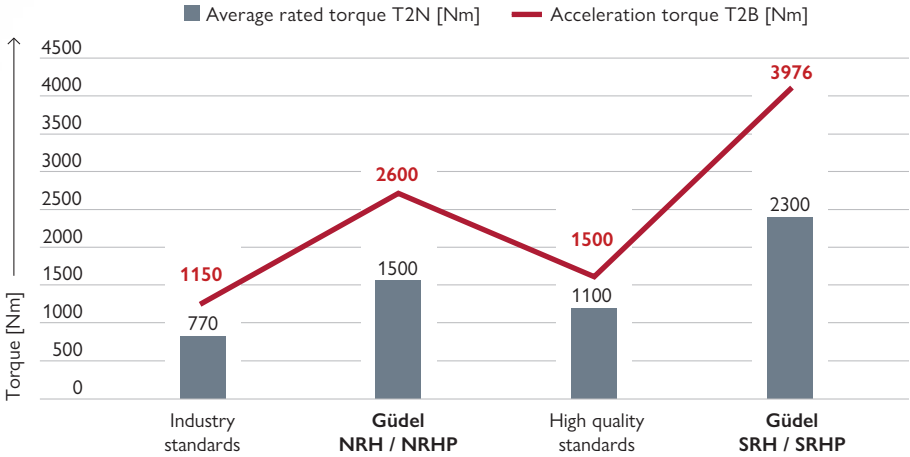


The 180 high-performance planetary gearbox portfolio from Güdel offers four well-designed types for a wide range of requirements. The Güdel Product Finder helps you select the right gear rack – tailored to application, module, length, quality, or toothing. This ensures that planetary gearbox and gear rack are perfectly matched. Suitable pinions are automatically suggested.



### Performance compared to the Market standard

The graph shows the average nominal and acceleration torques (T2N/T2B) of the four Güdel types NRH, NRHP, SRH and SRHP in comparison to customary values in the industry.



Four types – depending on requirements

**NRH / NRHP**  
The versatile and precise NRH and NRHP high-power planetary gearboxes impress with their high flexibility and high-precision. Ideal for applications with high speeds, fast cycles and precision-critical processes.

**SRH / SRHP**  
The compact SRH and SRHP high-performance planetary gearboxes offer maximum power density with high rigidity. Developed for tight installation spaces and sophisticated machine concepts with the highest demands on torque and load capacity.

# For each solution a gearbox

Four types – developed for different requirements and designed as an integrable component of high-performance drive systems.

## Type NRH Powerful and solution-oriented

The Güdel NRH planetary gearbox with optimized helical gearing impresses with its modular design and versatility. Whether in mechanical engineering, printing, packaging or robotics – the Güdel NRH delivers dynamic performance at high speeds and accelerations. Developed for demanding applications in which production flow and precision must fit together seamlessly.

*Your advantage: adaptability meets precision – in a robust drive system.*

## Type SRH Maximum performance in minimal space

When space is limited but requirements are high, the Güdel SRH planetary gearbox delivers impressive power density in a compact design. Ideal for applications where standard solutions reach their limits – the Güdel SRH gearbox provide maximum torque in minimum space.

*Your advantage: compact, high power density and suitable for tight installation situations.*

Güdel planetary gearbox NRH180 with pinion



Güdel planetary gearbox NRHP180 with flange



## Type NRHP Precision with high rigidity

The Güdel NRHP planetary gearbox impresses with its high torsional and tilting rigidity, making it ideal for precision-critical processes. The helical gearing ensures optimum force distribution – perfect for automation, metrology or robotic applications where accuracy is crucial.

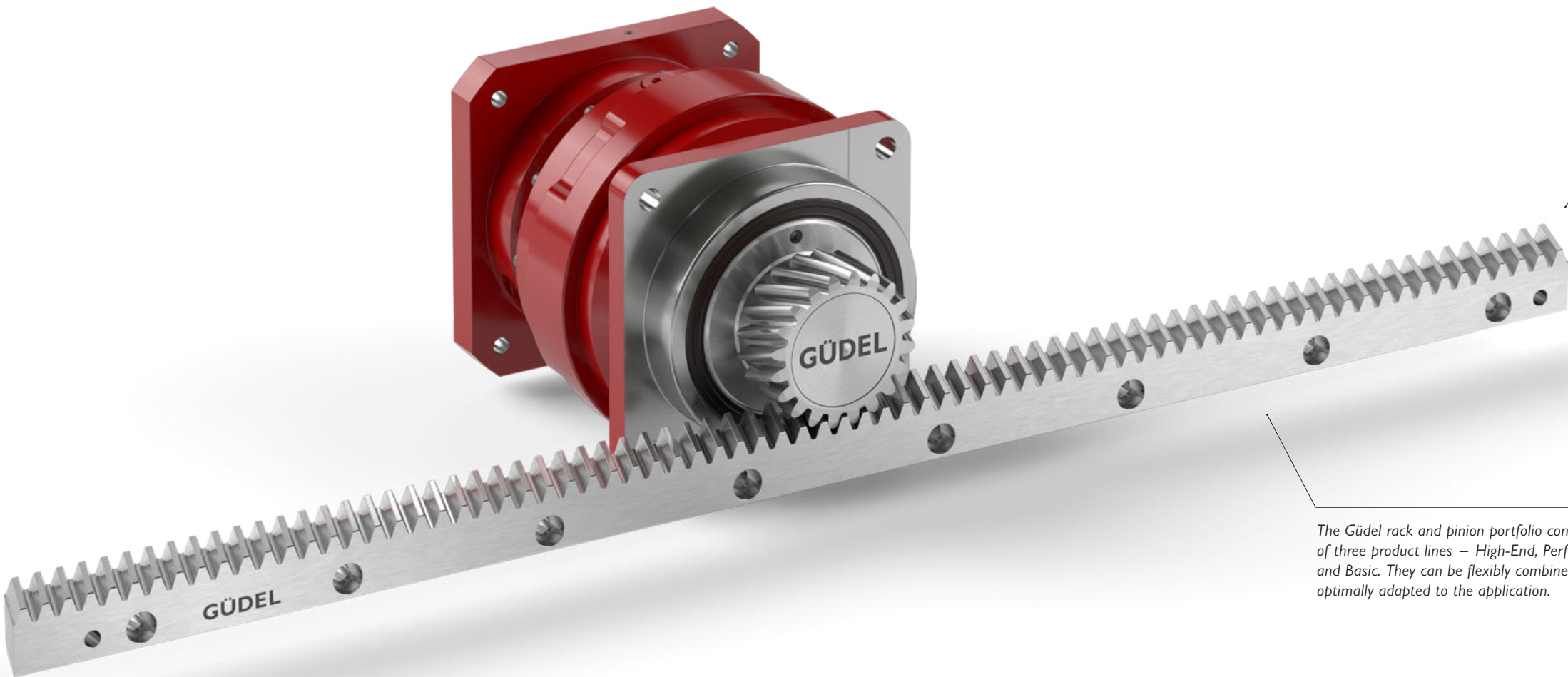
*Your advantage: maximum precision – even under the most demanding conditions.*

## Type SRHP Maximum power density and stability

The Güdel SRHP planetary gearbox combines state-of-the-art technology with a reinforced flange for maximum power density, high rigidity and torque – with minimum installation space. Suitable for demanding applications with high-precision and highest loads and quality requirements.

*Your advantage: maximum performance in the smallest of spaces.*

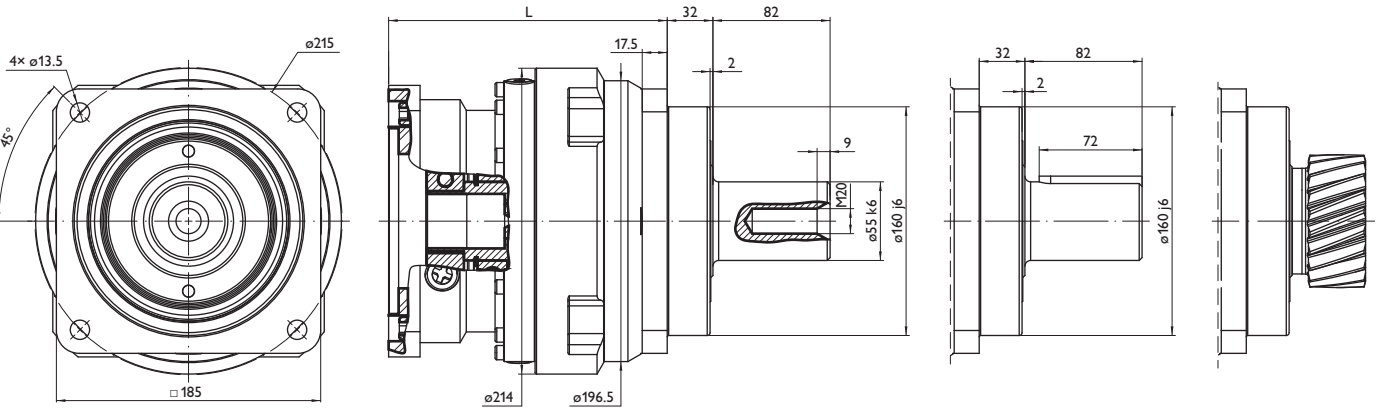
Güdel gearboxes, racks and pinions fit together perfectly – for maximum performance, repeat accuracy and a long service life.



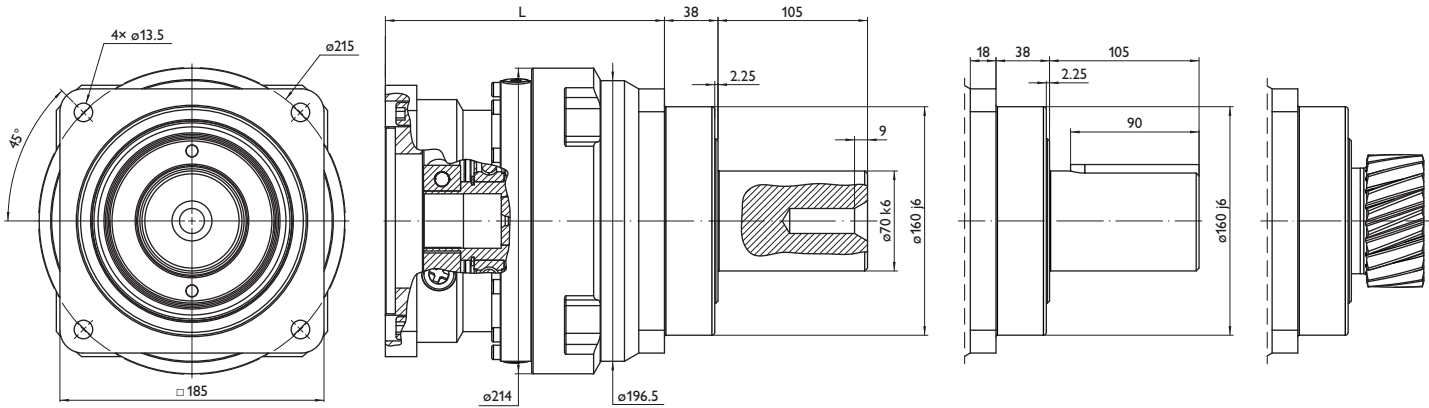
The Güdel rack and pinion portfolio consists of three product lines – High-End, Performance and Basic. They can be flexibly combined and optimally adapted to the application.



Scan the QR code and find the perfect rack.



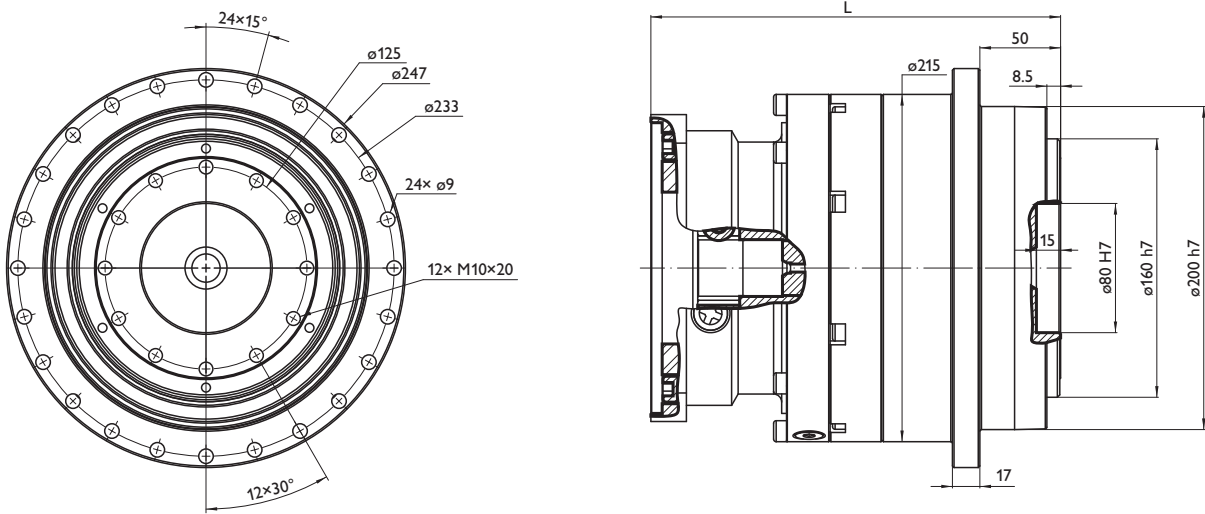
Type NRH: Dimensions for the corresponding output variants



Type SRH: Dimensions for the corresponding output variants

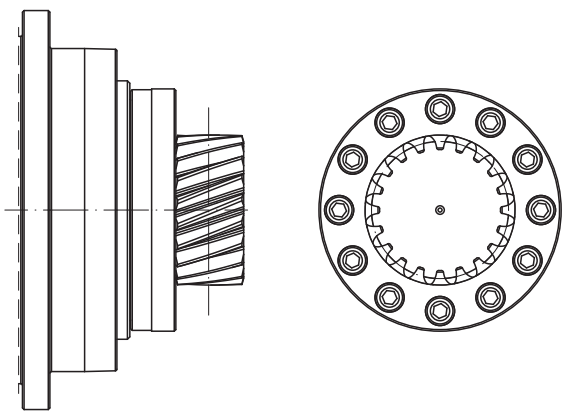
| Size 180                                                          |                   |                | 1-stage                    |       |       |       | 2-stage |       |       |       |       |       |       |       |       |       | 3-stage                                                                                                                                                                                              |  |
|-------------------------------------------------------------------|-------------------|----------------|----------------------------|-------|-------|-------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Available ratio <sup>a</sup>                                      | i                 | unit           | 4                          | 5     | 7     | 10    | 16      | 20    | 25    | 28    | 35    | 40    | 49    | 50    | 70    | 100   | Ratio in 3 stage available on request:<br>64,<br>80,<br>100,<br>112,<br>125,<br>140,<br>154,<br>160,<br>175,<br>200,<br>245,<br>250,<br>280,<br>343,<br>350,<br>400,<br>490,<br>500,<br>700,<br>1000 |  |
| Nominal torque S5 <sup>a)</sup>                                   | T <sub>2N</sub>   | [Nm]           | 1401                       | 1614  | 1281  | 798   | 1625    | 1625  | 1614  | 1625  | 1614  | 1625  | 1281  | 1614  | 1281  | 798   |                                                                                                                                                                                                      |  |
| Acceleration torque S5 <sup>b)</sup>                              | T <sub>2B</sub>   | [Nm]           | 2242                       | 2583  | 2049  | 1277  | 2600    | 2600  | 2583  | 2600  | 2583  | 2600  | 2049  | 2583  | 2049  | 1277  |                                                                                                                                                                                                      |  |
| Nominal input speed S5 <sup>c)</sup>                              | n <sub>1N</sub>   | [rpm]          | 1500                       | 1600  | 2200  | 2200  | 2600    | 2600  | 2700  | 3000  | 3000  | 3000  | 3000  | 3000  | 3000  | 3000  |                                                                                                                                                                                                      |  |
| Maximum input speed S5                                            | n <sub>1max</sub> | [rpm]          | 4500                       | 4500  | 4500  | 4500  | 4500    | 4500  | 4500  | 4500  | 4500  | 4500  | 4500  | 4500  | 4500  | 4500  |                                                                                                                                                                                                      |  |
| Nominal torque S1 <sup>a)</sup>                                   | T <sub>2N</sub>   | [Nm]           | 1191                       | 1372  | 1089  | 678   | 1463    | 1463  | 1453  | 1463  | 1453  | 1463  | 1153  | 1453  | 1153  | 718   |                                                                                                                                                                                                      |  |
| Acceleration torque S1 <sup>b)</sup>                              | T <sub>2B</sub>   | [Nm]           | 2242                       | 2583  | 2049  | 1277  | 2600    | 2600  | 2583  | 2600  | 2583  | 2600  | 2049  | 2583  | 2049  | 1277  |                                                                                                                                                                                                      |  |
| Nominal input speed S1 <sup>c)</sup>                              | n <sub>1N</sub>   | [rpm]          | 1350                       | 1440  | 1980  | 1980  | 2340    | 2340  | 2430  | 2700  | 2700  | 2700  | 2700  | 2700  | 2700  | 2700  |                                                                                                                                                                                                      |  |
| Maximum input speed S1                                            | n <sub>1max</sub> | [rpm]          | 4050                       | 4050  | 4050  | 4050  | 4050    | 4050  | 4050  | 4050  | 4050  | 4050  | 4050  | 4050  | 4050  | 4050  |                                                                                                                                                                                                      |  |
| Emergency stop torque <sup>d)</sup>                               | T <sub>2not</sub> | [Nm]           | 4484                       | 5166  | 4098  | 2554  | 5200    | 5200  | 5166  | 5200  | 5166  | 5200  | 4098  | 5166  | 4098  | 2554  |                                                                                                                                                                                                      |  |
| Efficiency                                                        | η                 | [%]            | 96                         |       |       |       |         |       |       |       |       |       |       |       |       |       |                                                                                                                                                                                                      |  |
| Lifetime                                                          | L <sub>h</sub>    | [h]            | >20000                     |       |       |       |         |       |       |       |       |       |       |       |       |       |                                                                                                                                                                                                      |  |
| Weight                                                            | M                 | [kg]           | 33                         |       |       |       | 41      |       |       |       |       |       |       |       |       |       |                                                                                                                                                                                                      |  |
| Angular backlash                                                  | j <sub>t</sub>    | [arcmin]       | P1≤1min; P3≤3min ; P5≤5min |       |       |       |         |       |       |       |       |       |       |       |       |       |                                                                                                                                                                                                      |  |
| Torsionnal rigidity <sup>e)</sup>                                 | C <sub>t2</sub>   | [Nm/arcmin]    | 786                        | 736   | 662   | 610   | 453     | 437   | 435   | 420   | 411   | 411   | 398   | 392   | 378   | 376   |                                                                                                                                                                                                      |  |
| Noise <sup>f)</sup>                                               | L <sub>pA</sub>   | [dB(A)]        | <60                        |       |       |       |         |       |       |       |       |       |       |       |       |       |                                                                                                                                                                                                      |  |
| Max. permitted housing temperature <sup>g)</sup>                  | T                 | [°C]           | 90                         |       |       |       |         |       |       |       |       |       |       |       |       |       |                                                                                                                                                                                                      |  |
| Protection class                                                  |                   |                | IP65                       |       |       |       |         |       |       |       |       |       |       |       |       |       |                                                                                                                                                                                                      |  |
| Direction of rotation                                             |                   |                | Same way Input/Output      |       |       |       |         |       |       |       |       |       |       |       |       |       |                                                                                                                                                                                                      |  |
| Max. radial force on output shaft <sup>h)</sup>                   | F <sub>rmax</sub> | [N]            | 18000                      |       |       |       |         |       |       |       |       |       |       |       |       |       |                                                                                                                                                                                                      |  |
| Max. axial force on output shaft <sup>h)</sup>                    | F <sub>amax</sub> | [N]            | 20000                      |       |       |       |         |       |       |       |       |       |       |       |       |       |                                                                                                                                                                                                      |  |
| Color                                                             |                   |                |                            |       |       |       |         |       |       |       |       |       |       |       |       |       |                                                                                                                                                                                                      |  |
| Inertia in kg.cm <sup>2</sup> including motor shaft <sup>h)</sup> | Ø24               | J <sub>1</sub> | [kgcm <sup>2</sup> ]       | 25.99 | 19.1  | 13.83 | 11.21   | 9.10  | 6.87  | 6.66  | 4.95  | 4.85  | 3.84  | 4.76  | 3.79  | 3.75  | 7.31                                                                                                                                                                                                 |  |
|                                                                   | Ø32               |                |                            | 29.37 | 22.47 | 17.21 | 14.58   | 13.99 | 11.75 | 11.55 | 9.84  | 9.73  | 8.73  | 9.64  | 8.68  | 8.63  | 12.20                                                                                                                                                                                                |  |
|                                                                   | Ø35               |                |                            | 29.77 | 22.86 | 17.60 | 14.98   | 14.49 | 12.26 | 12.05 | 10.35 | 10.24 | 9.24  | 10.15 | 9.18  | 9.14  | 12.71                                                                                                                                                                                                |  |
|                                                                   | Ø38               |                |                            | 30.32 | 23.42 | 18.15 | 15.53   | 14.83 | 12.59 | 12.39 | 10.68 | 10.58 | 9.57  | 10.49 | 9.52  | 9.48  | 13.04                                                                                                                                                                                                |  |
|                                                                   | Ø42               |                |                            | 31.52 | 24.62 | 19.34 | 16.74   | 16.13 | 13.90 | 13.69 | 11.99 | 11.88 | 10.87 | 11.79 | 10.82 | 10.78 | 14.35                                                                                                                                                                                                |  |
|                                                                   | Ø48               |                |                            | 31.67 | 24.77 | 19.50 | 16.88   | 17.41 | 15.17 | 14.97 | 13.26 | 13.16 | 12.15 | 13.07 | 12.10 | 12.06 | 15.62                                                                                                                                                                                                |  |

| Size 180                                                          |                   |                | 1-stage                    |       | 2-stage |       |       |       |       |       |       |       | 3-stage                                                                                                                                                                                                                                                  |  |
|-------------------------------------------------------------------|-------------------|----------------|----------------------------|-------|---------|-------|-------|-------|-------|-------|-------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Available ratio <sup>a</sup>                                      | i                 | unit           | 4                          | 5.5   | 16      | 20    | 22    | 28    | 30.25 | 38.5  | 40    | 55    | Ratio in 3 stage available on request:<br><br>64,<br>80,<br>88,<br>100,<br>110,<br>121,<br>137.5,<br>140,<br>151.25,<br>154,<br>160,<br>166.375,<br>192.5,<br>196,<br>200,<br>211.75,<br>220,<br>269.5,<br>275,<br>280,<br>302.5,<br>385,<br>400,<br>550 |  |
| Nominal torque S5 <sup>a)</sup>                                   | T <sub>2N</sub>   | [Nm]           | 2485                       | 1926  | 2485    | 2485  | 2485  | 2485  | 1926  | 1926  | 2485  | 1926  |                                                                                                                                                                                                                                                          |  |
| Acceleration torque S5 <sup>b)</sup>                              | T <sub>2B</sub>   | [Nm]           | 3976                       | 3082  | 3976    | 3976  | 3976  | 3976  | 3082  | 3082  | 3976  | 3082  |                                                                                                                                                                                                                                                          |  |
| Nominal input speed S5 <sup>c)</sup>                              | n <sub>1N</sub>   | [rpm]          | 1500                       | 1600  | 2500    | 2500  | 2500  | 3000  | 3000  | 3000  | 3000  | 3000  |                                                                                                                                                                                                                                                          |  |
| Maximum input speed S5                                            | n <sub>1max</sub> | [rpm]          | 4500                       | 4500  | 4500    | 4500  | 4500  | 4500  | 4500  | 4500  | 4500  | 4500  |                                                                                                                                                                                                                                                          |  |
| Nominal torque S1 <sup>a)</sup>                                   | T <sub>2N</sub>   | [Nm]           | 1988                       | 1541  | 1988    | 1988  | 1988  | 1988  | 1541  | 1541  | 1988  | 1541  |                                                                                                                                                                                                                                                          |  |
| Acceleration torque S1 <sup>b)</sup>                              | T <sub>2B</sub>   | [Nm]           | 3976                       | 3082  | 3976    | 3976  | 3976  | 3976  | 3082  | 3082  | 3976  | 3082  |                                                                                                                                                                                                                                                          |  |
| Nominal input speed S1 <sup>c)</sup>                              | n <sub>1N</sub>   | [rpm]          | 1200                       | 1280  | 2125    | 2125  | 2125  | 2550  | 2550  | 2550  | 2550  | 2550  |                                                                                                                                                                                                                                                          |  |
| Maximum input speed S1                                            | n <sub>1max</sub> | [rpm]          | 3600                       | 3600  | 3825    | 3825  | 3825  | 3825  | 3825  | 3825  | 3825  | 3825  |                                                                                                                                                                                                                                                          |  |
| Emergency stop torque <sup>d)</sup>                               | T <sub>2not</sub> | [Nm]           | 7952                       | 6164  | 7952    | 7952  | 7952  | 7952  | 6164  | 6164  | 7952  | 6164  |                                                                                                                                                                                                                                                          |  |
| Efficiency                                                        | η                 | [%]            | 96                         |       |         |       |       |       |       |       |       |       |                                                                                                                                                                                                                                                          |  |
| Lifetime                                                          | L <sub>h</sub>    | [h]            | >20000                     |       |         |       |       |       |       |       |       |       |                                                                                                                                                                                                                                                          |  |
| Weight                                                            | M                 | [kg]           | 34                         |       | 41      |       |       |       |       |       |       |       |                                                                                                                                                                                                                                                          |  |
| Angular backlash                                                  | j <sub>t</sub>    | [arcmin]       | P1≤1min; P3≤3min ; P5≤5min |       |         |       |       |       |       |       |       |       |                                                                                                                                                                                                                                                          |  |
| Torsionnal rigidity <sup>e)</sup>                                 | C <sub>t2</sub>   | [Nm/arcmin]    | 901                        | 828   | 566     | 546   | 544   | 514   | 514   | 498   | 490   | 473   |                                                                                                                                                                                                                                                          |  |
| Noise <sup>f)</sup>                                               | L <sub>pA</sub>   | [dB(A)]        | <60                        |       |         |       |       |       |       |       |       |       |                                                                                                                                                                                                                                                          |  |
| Max. permitted housing temperature <sup>g)</sup>                  | T                 | [°C]           | 90                         |       |         |       |       |       |       |       |       |       |                                                                                                                                                                                                                                                          |  |
| Protection class                                                  |                   |                | IP65                       |       |         |       |       |       |       |       |       |       |                                                                                                                                                                                                                                                          |  |
| Direction of rotation                                             |                   |                | Same way Input/Output      |       |         |       |       |       |       |       |       |       |                                                                                                                                                                                                                                                          |  |
| Max. radial force on output shaft <sup>h)</sup>                   | F <sub>rmax</sub> | [N]            | 25000                      |       |         |       |       |       |       |       |       |       |                                                                                                                                                                                                                                                          |  |
| Max. axial force on output shaft <sup>h)</sup>                    | F <sub>amax</sub> | [N]            | 30000                      |       |         |       |       |       |       |       |       |       |                                                                                                                                                                                                                                                          |  |
| Color                                                             |                   |                |                            |       |         |       |       |       |       |       |       |       |                                                                                                                                                                                                                                                          |  |
| Inertia in kg.cm <sup>2</sup> including motor shaft <sup>h)</sup> | Ø24               | J <sub>1</sub> | [kg cm <sup>2</sup> ]      | 22.48 | 15.6    | 25.08 | 18.33 | 16.66 | 13.61 | 16.43 | 13.47 | 11.18 | 11.17                                                                                                                                                                                                                                                    |  |
|                                                                   | Ø32               |                |                            | 25.86 | 18.99   | 28.46 | 21.71 | 20.04 | 16.99 | 19.81 | 16.85 | 14.56 | 14.54                                                                                                                                                                                                                                                    |  |
|                                                                   | Ø35               |                |                            | 26.27 | 19.39   | 28.85 | 22.11 | 20.45 | 17.39 | 20.20 | 17.24 | 14.96 | 14.94                                                                                                                                                                                                                                                    |  |
|                                                                   | Ø38               |                |                            | 26.81 | 19.95   | 29.41 | 22.66 | 20.99 | 17.94 | 20.75 | 17.79 | 15.51 | 15.49                                                                                                                                                                                                                                                    |  |
|                                                                   | Ø42               |                |                            | 28.01 | 21.15   | 30.61 | 23.87 | 22.19 | 19.14 | 21.96 | 19.00 | 16.71 | 16.70                                                                                                                                                                                                                                                    |  |
|                                                                   | Ø48               |                |                            | 28.16 | 21.30   | 30.76 | 24.01 | 22.34 | 19.29 | 22.10 | 19.14 | 16.86 | 16.84                                                                                                                                                                                                                                                    |  |



Type NRHP and SRHP 180: Dimensions with the flange output variant

| Size 180                                                             |                   |                | 1-stage                    |       |       |       | 2-stage |       |       |       |       |       |       |       |       |       | 3-stage                                                                                                                                                                                              |  |
|----------------------------------------------------------------------|-------------------|----------------|----------------------------|-------|-------|-------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Available ratio <sup>a)</sup>                                        | i                 | unit           | 4                          | 5     | 7     | 10    | 16      | 20    | 25    | 28    | 35    | 40    | 49    | 50    | 70    | 100   | Ratio in 3 stage available on request:<br>64,<br>80,<br>100,<br>112,<br>125,<br>140,<br>154,<br>160,<br>175,<br>200,<br>245,<br>250,<br>280,<br>343,<br>350,<br>400,<br>490,<br>500,<br>700,<br>1000 |  |
| Nominal torque S5 <sup>a)</sup>                                      | T <sub>2N</sub>   | [Nm]           | 1401                       | 1614  | 1281  | 798   | 1625    | 1625  | 1614  | 1625  | 1614  | 1625  | 1281  | 1614  | 1281  | 798   |                                                                                                                                                                                                      |  |
| Acceleration torque S5 <sup>b)</sup>                                 | T <sub>2B</sub>   | [Nm]           | 2242                       | 2583  | 2049  | 1277  | 2600    | 2600  | 2583  | 2600  | 2583  | 2600  | 2049  | 2583  | 2049  | 1277  |                                                                                                                                                                                                      |  |
| Nominal input speed S5 <sup>c)</sup>                                 | n <sub>1N</sub>   | [rpm]          | 1500                       | 1600  | 2200  | 2200  | 2600    | 2600  | 2700  | 3000  | 3000  | 3000  | 3000  | 3000  | 3000  | 3000  |                                                                                                                                                                                                      |  |
| Maximum input speed S5                                               | n <sub>1max</sub> | [rpm]          | 4500                       | 4500  | 4500  | 4500  | 4500    | 4500  | 4500  | 4500  | 4500  | 4500  | 4500  | 4500  | 4500  | 4500  |                                                                                                                                                                                                      |  |
| Nominal torque S1 <sup>a)</sup>                                      | T <sub>2N</sub>   | [Nm]           | 1191                       | 1372  | 1089  | 678   | 1463    | 1463  | 1453  | 1463  | 1453  | 1463  | 1153  | 1453  | 1153  | 718   |                                                                                                                                                                                                      |  |
| Acceleration torque S1 <sup>b)</sup>                                 | T <sub>2B</sub>   | [Nm]           | 2242                       | 2583  | 2049  | 1277  | 2600    | 2600  | 2583  | 2600  | 2583  | 2600  | 2049  | 2583  | 2049  | 1277  |                                                                                                                                                                                                      |  |
| Nominal input speed S1 <sup>c)</sup>                                 | n <sub>1N</sub>   | [rpm]          | 1350                       | 1440  | 1980  | 1980  | 2340    | 2340  | 2430  | 2700  | 2700  | 2700  | 2700  | 2700  | 2700  | 2700  |                                                                                                                                                                                                      |  |
| Maximum input speed S1                                               | n <sub>1max</sub> | [rpm]          | 4050                       | 4050  | 4050  | 4050  | 4050    | 4050  | 4050  | 4050  | 4050  | 4050  | 4050  | 4050  | 4050  | 4050  |                                                                                                                                                                                                      |  |
| Emergency stop torque <sup>d)</sup>                                  | T <sub>2not</sub> | [Nm]           | 4484                       | 5166  | 4098  | 2554  | 5200    | 5200  | 5166  | 5200  | 5166  | 5200  | 4098  | 5166  | 4098  | 2554  |                                                                                                                                                                                                      |  |
| Efficiency                                                           | η                 | [%]            | 98                         |       |       |       |         |       |       |       |       |       |       |       |       |       |                                                                                                                                                                                                      |  |
| Lifetime                                                             | L <sub>h</sub>    | [h]            | >20000                     |       |       |       |         |       |       |       |       |       |       |       |       |       |                                                                                                                                                                                                      |  |
| Weight                                                               | M                 | [kg]           | 33                         | 43    | 41    |       | 51      |       |       |       |       |       |       |       |       |       |                                                                                                                                                                                                      |  |
| Angular backlash                                                     | j <sub>t</sub>    | [arcmin]       | P1≤1min; P3≤3min ; P5≤5min |       |       |       |         |       |       |       |       |       |       |       |       |       |                                                                                                                                                                                                      |  |
| Torsionnal rigidity <sup>e)</sup>                                    | C <sub>t2</sub>   | [Nm/arcmin]    | 1238                       | 1118  | 956   | 852   | 716     | 677   | 672   | 617   | 585   | 575   | 550   | 550   | 546   | 520   |                                                                                                                                                                                                      |  |
| Noise <sup>f)</sup>                                                  | L <sub>pA</sub>   | [dB(A)]        | <60                        |       |       |       |         |       |       |       |       |       |       |       |       |       |                                                                                                                                                                                                      |  |
| Max. permitted housing temperature <sup>g)</sup>                     | T                 | [°C]           | 90                         |       |       |       |         |       |       |       |       |       |       |       |       |       |                                                                                                                                                                                                      |  |
| Protection class                                                     |                   |                | IP65                       |       |       |       |         |       |       |       |       |       |       |       |       |       |                                                                                                                                                                                                      |  |
| Direction of rotation                                                |                   |                | Same way Input/Output      |       |       |       |         |       |       |       |       |       |       |       |       |       |                                                                                                                                                                                                      |  |
| Max. radial force on output shaft <sup>h)</sup>                      | F <sub>rmax</sub> | [N]            | 30000                      |       |       |       |         |       |       |       |       |       |       |       |       |       |                                                                                                                                                                                                      |  |
| Max. axial force on output shaft <sup>h)</sup>                       | F <sub>amax</sub> | [N]            | 25 000                     |       |       |       |         |       |       |       |       |       |       |       |       |       |                                                                                                                                                                                                      |  |
| Color                                                                |                   |                |                            |       |       |       |         |       |       |       |       |       |       |       |       |       |                                                                                                                                                                                                      |  |
| Inertia in kg.cm <sup>2</sup><br>including motor shaft <sup>h)</sup> | Ø24               | J <sub>1</sub> | [kg.cm <sup>2</sup> ]      | 52.26 | 36.2  | 22.75 | 15.66   | 9.75  | 7.92  | 7.34  | 5.49  | 5.19  | 4.10  | 4.93  | 3.96  | 3.83  | 3.76                                                                                                                                                                                                 |  |
|                                                                      | Ø32               |                |                            | 55.64 | 39.61 | 26.13 | 19.04   | 14.63 | 12.81 | 12.22 | 10.37 | 10.07 | 8.99  | 9.82  | 8.84  | 8.72  | 8.65                                                                                                                                                                                                 |  |
|                                                                      | Ø35               |                |                            | 56.04 | 40.00 | 26.52 | 19.44   | 15.14 | 13.31 | 12.73 | 10.88 | 10.59 | 9.50  | 10.33 | 9.35  | 9.23  | 9.16                                                                                                                                                                                                 |  |
|                                                                      | Ø38               |                |                            | 56.59 | 40.55 | 27.08 | 19.99   | 15.49 | 13.65 | 13.06 | 11.22 | 10.92 | 9.84  | 10.67 | 9.69  | 9.56  | 9.49                                                                                                                                                                                                 |  |
|                                                                      | Ø42               |                |                            | 57.79 | 41.76 | 28.28 | 21.20   | 16.78 | 14.95 | 14.37 | 12.52 | 12.23 | 11.14 | 11.97 | 10.99 | 10.87 | 10.80                                                                                                                                                                                                |  |
|                                                                      | Ø48               |                |                            | 57.94 | 41.91 | 28.43 | 21.34   | 18.06 | 16.23 | 15.64 | 13.80 | 13.50 | 12.42 | 13.25 | 12.27 | 12.14 | 12.07                                                                                                                                                                                                |  |



Dimensions of the pinion output variant

- Key to tables pages 6 to 9
- a) Nominal output torque when operating at n<sub>1N</sub>
  - b) 1000 cycles per hour max
  - c) Valid for an ambient temperature of 20°C and T<sub>2N</sub>.  
At higher temperatures, please reduce speed
  - d) Valid for 1000 times during the gearbox life
  - e) Valid for an input Ø of 48 mm in 1 stage and 38 mm in 2 and 3 stage
  - f) Valid at the middle of shaft, output gear, output flange
  - g) For the other temperatures, please contact us
  - h) Value including the motor output shaft.  
For the others motor output shaft Ø, please contact us.
  - i) With n<sub>1N</sub>=3000 rpm no load

| Size 180                                                             |                   |                | 1-stage                    |       | 2-stage |       |       |       |       |       |       |       | 3-stage                                                                                                                                                                                                                                                       |
|----------------------------------------------------------------------|-------------------|----------------|----------------------------|-------|---------|-------|-------|-------|-------|-------|-------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Available ratio <sup>a)</sup>                                        | i                 | unit           | 4                          | 5.5   | 16      | 20    | 22    | 28    | 30.25 | 38.5  | 40    | 55    | Ratio in<br>3 stage<br>available<br>on request:<br>64,<br>80,<br>88,<br>100,<br>110,<br>121,<br>137.5,<br>140,<br>151.25,<br>154,<br>160,<br>166.375,<br>192.5,<br>196,<br>200,<br>211.75,<br>220,<br>269.5,<br>275,<br>280,<br>302.5,<br>385,<br>400,<br>550 |
| Nominal torque S5 <sup>a)</sup>                                      | T <sub>2N</sub>   | [Nm]           | 2485                       | 1926  | 2485    | 2485  | 2485  | 2485  | 1926  | 1926  | 2485  | 1926  |                                                                                                                                                                                                                                                               |
| Acceleration torque S5 <sup>b)</sup>                                 | T <sub>2B</sub>   | [Nm]           | 3976                       | 3082  | 3976    | 3976  | 3976  | 3976  | 3082  | 3082  | 3976  | 3082  |                                                                                                                                                                                                                                                               |
| Nominal input speed S5 <sup>c)</sup>                                 | n <sub>1N</sub>   | [rpm]          | 1500                       | 1600  | 2500    | 2500  | 2500  | 3000  | 3000  | 3000  | 3000  | 3000  |                                                                                                                                                                                                                                                               |
| Maximum input speed S5                                               | n <sub>1max</sub> | [rpm]          | 4500                       | 4500  | 4500    | 4500  | 4500  | 4500  | 4500  | 4500  | 4500  | 4500  |                                                                                                                                                                                                                                                               |
| Nominal torque S1 <sup>a)</sup>                                      | T <sub>2N</sub>   | [Nm]           | 1988                       | 1541  | 1988    | 1988  | 1988  | 1988  | 1541  | 1541  | 1988  | 1541  |                                                                                                                                                                                                                                                               |
| Acceleration torque S1 <sup>b)</sup>                                 | T <sub>2B</sub>   | [Nm]           | 3976                       | 3082  | 3976    | 3976  | 3976  | 3976  | 3082  | 3082  | 3976  | 3082  |                                                                                                                                                                                                                                                               |
| Nominal input speed S1 <sup>c)</sup>                                 | n <sub>1N</sub>   | [rpm]          | 1200                       | 1280  | 2125    | 2125  | 2125  | 2550  | 2550  | 2550  | 2550  | 2550  |                                                                                                                                                                                                                                                               |
| Maximum input speed S1                                               | n <sub>1max</sub> | [rpm]          | 3600                       | 3600  | 3825    | 3825  | 3825  | 3825  | 3825  | 3825  | 3825  | 3825  |                                                                                                                                                                                                                                                               |
| Emergency stop torque <sup>d)</sup>                                  | T <sub>2not</sub> | [Nm]           | 7952                       | 6164  | 7952    | 7952  | 7952  | 7952  | 6164  | 6164  | 7952  | 6164  |                                                                                                                                                                                                                                                               |
| Efficiency                                                           | η                 | [%]            | 98                         |       |         |       |       |       |       |       |       |       |                                                                                                                                                                                                                                                               |
| Lifetime                                                             | L <sub>h</sub>    | [h]            | >20000                     |       |         |       |       |       |       |       |       |       |                                                                                                                                                                                                                                                               |
| Weight                                                               | M                 | [kg]           | 34                         |       | 41      |       |       |       |       |       |       |       |                                                                                                                                                                                                                                                               |
| Angular backlash                                                     | j <sub>t</sub>    | [arcmin]       | P1≤1min; P3≤3min ; P5≤5min |       |         |       |       |       |       |       |       |       |                                                                                                                                                                                                                                                               |
| Torsionnal rigidity <sup>e)</sup>                                    | C <sub>t2</sub>   | [Nm/arcmin]    | 1549                       | 1347  | 895     | 846   | 841   | 772   | 772   | 731   | 719   | 683   |                                                                                                                                                                                                                                                               |
| Noise <sup>f)</sup>                                                  | L <sub>pA</sub>   | [dB(A)]        | <60                        |       |         |       |       |       |       |       |       |       |                                                                                                                                                                                                                                                               |
| Max. permitted housing temperature <sup>g)</sup>                     | T                 | [°C]           | 90                         |       |         |       |       |       |       |       |       |       |                                                                                                                                                                                                                                                               |
| Protection class                                                     |                   |                | IP65                       |       |         |       |       |       |       |       |       |       |                                                                                                                                                                                                                                                               |
| Direction of rotation                                                |                   |                | Same way Input/Output      |       |         |       |       |       |       |       |       |       |                                                                                                                                                                                                                                                               |
| Max. radial force on output shaft <sup>h)</sup>                      | F <sub>rmax</sub> | [N]            | 30000                      |       |         |       |       |       |       |       |       |       |                                                                                                                                                                                                                                                               |
| Max. axial force on output shaft <sup>h)</sup>                       | F <sub>amax</sub> | [N]            | 25000                      |       |         |       |       |       |       |       |       |       |                                                                                                                                                                                                                                                               |
| Color                                                                |                   |                |                            |       |         |       |       |       |       |       |       |       |                                                                                                                                                                                                                                                               |
| Inertia in kg.cm <sup>2</sup><br>including motor shaft <sup>h)</sup> | Ø24               | J <sub>1</sub> | [kgcm <sup>2</sup> ]       | 47.02 | 28.6    | 26.61 | 19.32 | 17.47 | 14.11 | 16.86 | 13.73 | 11.43 | 11.41                                                                                                                                                                                                                                                         |
|                                                                      | Ø32               |                |                            | 50.39 | 31.99   | 29.99 | 22.69 | 20.85 | 17.49 | 20.24 | 17.11 | 14.81 | 14.79                                                                                                                                                                                                                                                         |
|                                                                      | Ø35               |                |                            | 50.79 | 32.39   | 30.39 | 23.09 | 21.25 | 17.89 | 20.63 | 17.51 | 15.20 | 15.19                                                                                                                                                                                                                                                         |
|                                                                      | Ø38               |                |                            | 51.34 | 32.94   | 30.94 | 23.64 | 21.80 | 18.44 | 21.18 | 18.06 | 15.75 | 15.74                                                                                                                                                                                                                                                         |
|                                                                      | Ø42               |                |                            | 52.55 | 34.15   | 32.14 | 24.85 | 23.00 | 19.64 | 22.39 | 19.26 | 16.96 | 16.94                                                                                                                                                                                                                                                         |
|                                                                      | Ø48               |                |                            | 52.70 | 34.30   | 32.29 | 24.99 | 23.15 | 19.79 | 22.53 | 19.41 | 17.10 | 17.09                                                                                                                                                                                                                                                         |

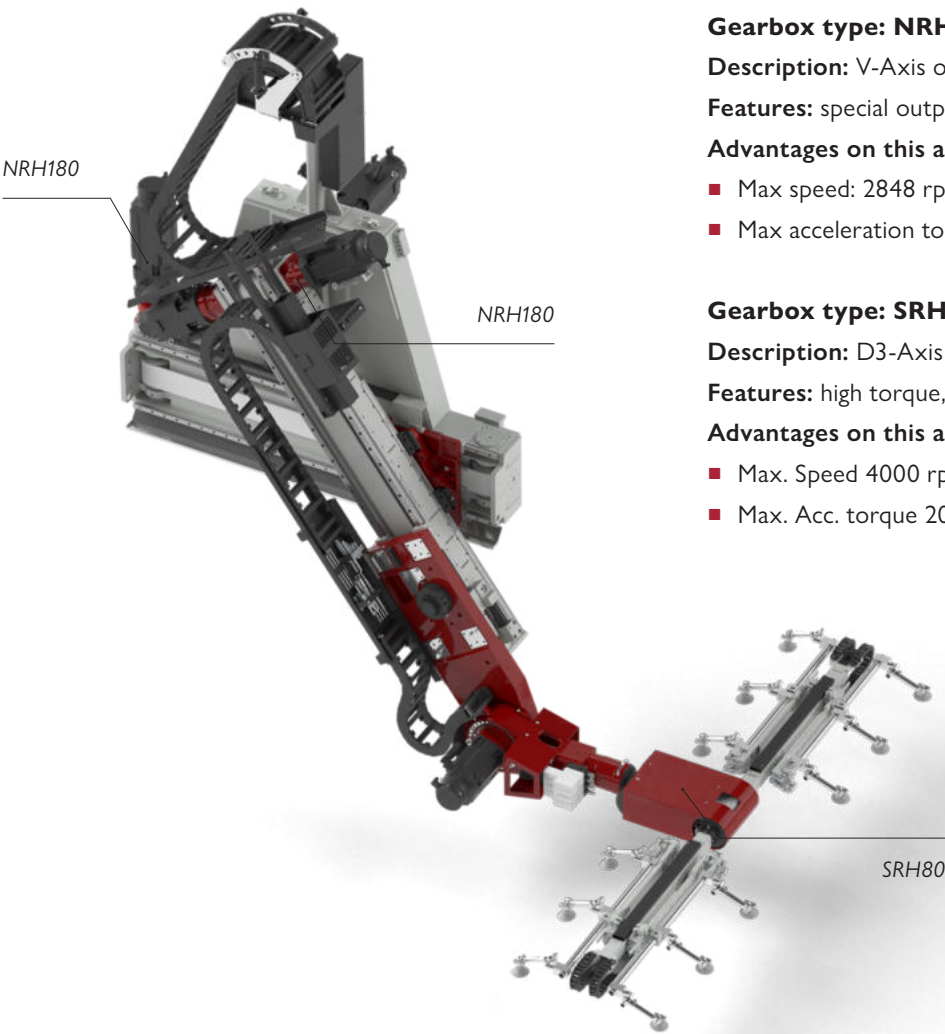
# Application examples of planetary gearboxes



The roboSpeed and roboBeam demonstrate the use of our 180 gearboxes in practice – from dynamic handling to precise positioning of heavy axes.

## Dynamics and precision – drive solutions for roboSpeed

With the NRH180 and SRH80, roboSpeed offers the right solution for every axis – whether highly dynamic, compact or specialized. The gearboxes are powerful, adaptable and designed for continuous operation. Precision and efficiency – exactly when it counts.



**Gearbox type: NRH180**  
**Description:** W-Axis on roboSpeed  
**Features:** high dynamics  
**Advantages on this application:**

- Max. Speed 4250 rpm
- Max. Acc. torque 1130 Nm

**Gearbox type: NRH180**  
**Description:** V-Axis on roboSpeed  
**Features:** special output  
**Advantages on this application:**

- Max speed: 2848 rpm.
- Max acceleration torque 1635 Nm

**Gearbox type: SRH80**  
**Description:** D3-Axis on roboSpeed  
**Features:** high torque, small sized  
**Advantages on this application:**

- Max. Speed 4000 rpm
- Max. Acc. torque 200 Nm

## Power and rigidity – gearbox performance for roboBeam

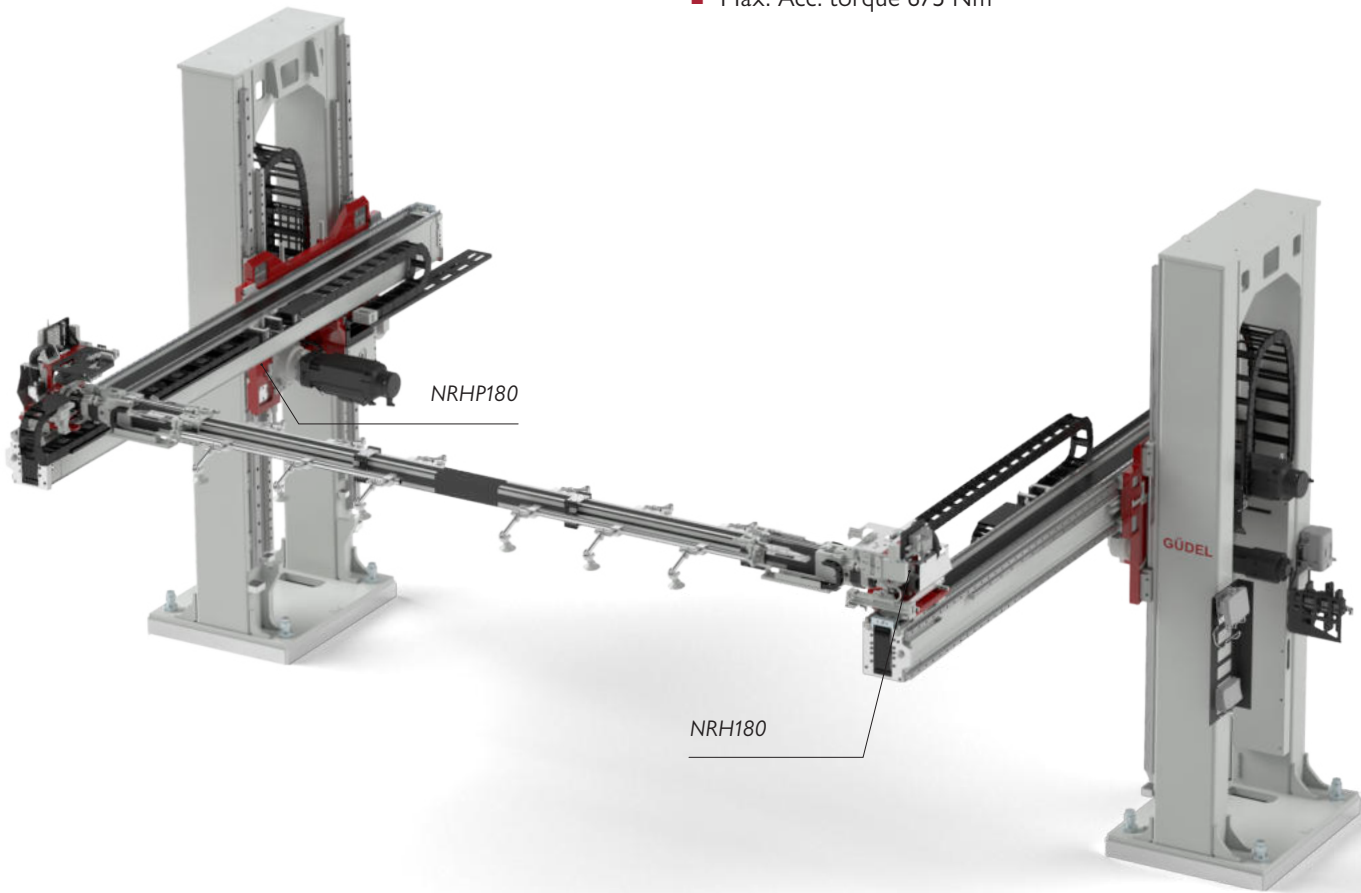
In the roboBeam, the NRHP180 and NRH180 ensure precise power transmission for demanding axes. Whether high rigidity, optimized bearings or vertical alignment – these gearboxes offer maximum reliability and performance in continuous operation.

**Gearbox type: NRHP180**  
**Description:** Yx-Axis  
**Features:** high torque, breather  
**Advantages on this application:**

- Max. Speed 3850 rpm
- Max. Acc. torque 1095 Nm

**Gearbox type: NRH180**  
**Description:** Yxx-Axis  
**Features:** high dynamics  
**Advantages on this application:**

- Max. Speed 2000 rpm
- Max. Acc. torque 675 Nm



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