

PLFN

## The precision planetary gearbox for maximum loads and the highest performance – fast and easy to install

Our **PLFN** features a standardized flange interface for ease of installation. The straight-teeth precision planetary gearbox has been designed for the highest performance and torque. Its high tilting moment delivers the best performance even under the highest radial and axial forces.

### 1 Standardized flange interface

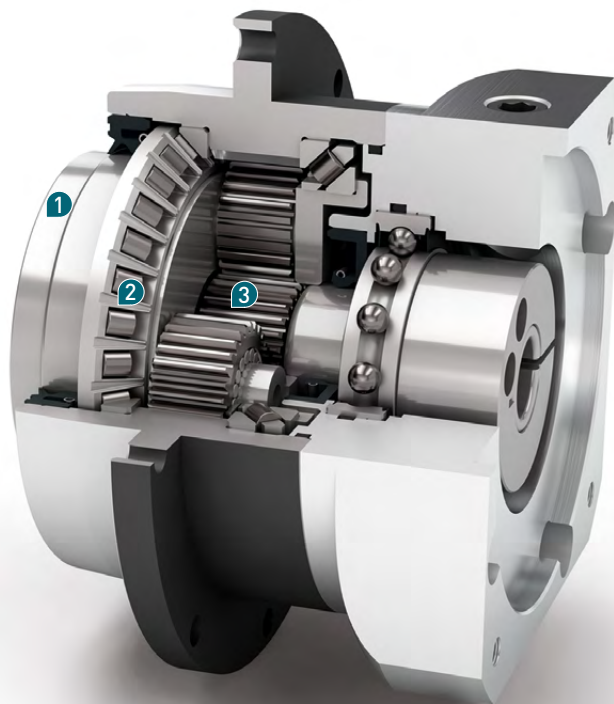
Fitted with an EN ISO 9409-1 interface, the **PLFN** precision planetary gearbox promises you fast and easy installation of the drive components like flange pinion, pulley, or turntable. The optional dowel hole provides additional secureness during fitting.

### 2 Maximized loads

Thanks to its high tilting moment, the **PLFN** is particularly robust and withstands even the highest axial and radial forces. This advanced technology is intended for your complex applications, e.g. turntable or rack and pinion.

### 3 Maximized torque

Thanks to its straight teeth, the **PLFN** is ideal for the highest performance. Its intelligent design delivers greater power than conventional planetary gearboxes.



- + Minimized backlash for maximized precision (< 1 arcmin)
- + For any mounting position
- + Individual adaptation of the input flange to the motor
- + Lifetime lubrication for maintenance-free operation
- + Equidirectional rotation
- + Clamping systems with optimized mass moment of inertia

| Code     | Gearbox characteristics  |                  |   | PLFN064                   | PLFN090  | PLFN110                    | PLFN140                        | PLFN200                        | z <sup>(1)</sup>               |
|----------|--|------------------|---|---------------------------|--|----------------------------|--------------------------------|--------------------------------|--------------------------------|
|          | Service life   | t <sub>L</sub>   | h   | 20,000                    |  |                            |                                |                                |                                |
|          | Service life at T <sub>2N</sub> × 0.88                               |                  |   | 30,000                    |  |                            |                                |                                |                                |
|          | Efficiency at full load <sup>(2)</sup>                               | η                | %   | 97                        |  |                            |                                |                                | 1                              |
|          |  |                  |   | 96                        |  |                            |                                |                                | 2                              |
|          | Min. operating temperature   | T <sub>min</sub> | °C<br>(°F)                                    | -25 (-13)                 |  |                            |                                |                                |                                |
|          | Max. operating temperature   | T <sub>max</sub> |   | 90 (194)                  |  |                            |                                |                                |                                |
|          | Protection class   |                  |   |                           | IP 65  |                            |                                |                                |                                |
| <b>S</b> | Standard lubrication   |                  |   |                           | Oil  |                            |                                |                                |                                |
| <b>F</b> | Food grade lubrication   |                  |   |                           | Oil  |                            |                                |                                |                                |
| <b>L</b> | Low temperature lubrication <sup>(3)</sup>                           |                  |   |                           | Oil  |                            |                                |                                |                                |
|          | Installation position  |                  |   |                           | Any  |                            |                                |                                |                                |
| <b>S</b> | Standard backlash  | j <sub>t</sub>   | arcmin  | < 3                       |  |                            |                                |                                | 1                              |
| <b>R</b> | Reduced backlash   |                  |   | < 5                       |  |                            |                                |                                | 2                              |
|          | Torsional stiffness <sup>(2)</sup>                                   | c <sub>g</sub>   | Nm/arcmin<br>(lb <sub>r</sub> .in/<br>arcmin) | 10.8 - 14.5<br>(96 - 128) | 25.5 - 34.0<br>(226 - 301)                                 | 64.0 - 86.0<br>(566 - 761) | 145.0 - 195.0<br>(1283 - 1726) | 470.0 - 630.0<br>(4160 - 5576) | 1                              |
|          |  |                  |   |                           | 11.0 - 14.5<br>(97 - 128)                                  | 25.0 - 32.5<br>(221 - 288) | 63.0 - 83.0<br>(558 - 735)     | 142.0 - 187.0<br>(1257 - 1655) | 460.0 - 605.0<br>(4071 - 5354) |
|          | Gearbox weight   | m <sub>G</sub>   | kg<br>(lb <sub>m</sub> )                      | 1.5 (3.3)                 | 3 (6.6)  | 6.5 (14.3)                 | 13.8 (30.4)                    | 35.5 (78.3)                    | 1                              |
|          |  |                  |   |                           | 2.2 (4.9)  | 4 (8.8)                    | 8 (17.6)                       | 16 (35.3)                      | 42.5 (93.7)                    |
| <b>S</b> | Standard surface   |                  |   |                           | Housing: Steel – nitrocarburized and post-oxidized (black) |                            |                                |                                |                                |
|          | Running noise <sup>(4)</sup>   | Q <sub>g</sub>   | dB(A)   | 60                        | 62   | 65                         | 70                             | 74                             |                                |
|          | Max. bending moment based on the gearbox input flange <sup>(5)</sup> | M <sub>b</sub>   | Nm<br>(lb <sub>r</sub> .in)                   | 18 (159)                  | 38 (336)   | 80 (708)                   | 180 (1593)                     | 300 (2655)                     | 1                              |
|          |  |                  |   |                           | 18 (159)   | 18 (159)                   | 38 (336)                       | 80 (708)                       | 180 (1593)                     |
|          | Motor flange precision   |                  |   |                           | DIN 42955-R  |                            |                                |                                |                                |

| Output shaft loads                            |                         |                             | PLFN064    | PLFN090     | PLFN110     | PLFN140      | PLFN200                     | z <sup>(1)</sup> |
|---|-------------------------|-----------------------------|------------|-------------|-------------|--------------|-----------------------------|------------------|
| Radial force for 20,000 h <sup>(6)(7)</sup>   | F <sub>r 20.000 h</sub> | N<br>(lb <sub>r</sub> )     | 2400 (540) | 4400 (990)  | 5500 (1238) | 12000 (2700) | 33000 (7425)                |                  |
| Axial force for 20,000 h <sup>(6)(7)</sup>    | F <sub>a 20.000 h</sub> |                             | 4300 (968) | 8200 (1845) | 9500 (2138) | 8500 (1913)  | 15000 (3375) <sup>(8)</sup> |                  |
| Radial force for 30,000 h <sup>(6)(7)</sup>   | F <sub>r 30.000 h</sub> |                             | 2100 (473) | 3900 (878)  | 4800 (1080) | 11000 (2475) | 29500 (6638)                |                  |
| Axial force for 30,000 h <sup>(6)(7)</sup>    | F <sub>a 30.000 h</sub> |                             | 3800 (855) | 7200 (1620) | 8400 (1890) | 7500 (1688)  | 13500 (3038) <sup>(8)</sup> |                  |
| Static radial force <sup>(7)(8)</sup>         | F <sub>r Stat</sub>     |                             | 2400 (540) | 4400 (990)  | 5500 (1238) | 12000 (2700) | 33000 (7425)                |                  |
| Static axial force <sup>(7)(8)</sup>          | F <sub>a Stat</sub>     |                             | 4300 (968) | 8200 (1845) | 9500 (2138) | 8500 (1913)  | 15000 (3375) <sup>(8)</sup> |                  |
| Tilting moment for 20,000 h <sup>(6)(8)</sup> | M <sub>K 20.000 h</sub> | Nm<br>(lb <sub>r</sub> .in) | 148 (1310) | 363 (3213)  | 534 (4726)  | 1219 (10788) | 4957 (43869)                |                  |
| Tilting moment for 30,000 h <sup>(6)(8)</sup> | M <sub>K 30.000 h</sub> |                             | 129 (1142) | 322 (2850)  | 466 (4124)  | 1117 (9885)  | 4431 (39214)                |                  |

| Moment of inertia                     |   |   | PLFN064                          | PLFN090                          | PLFN110                            | PLFN140                              | PLFN200                                | z <sup>(1)</sup> |
|---------------------------------------|---|---|----------------------------------|----------------------------------|------------------------------------|--------------------------------------|--|------------------|
| Mass moment of inertia <sup>(2)</sup> | J | kgcm <sup>2</sup><br>(lb <sub>r</sub> .in.s <sup>2</sup> 10 <sup>-4</sup> ) | 0.217 - 0.288<br>(1.920 - 2.549) | 0.580 - 0.920<br>(5.133 - 8.142) | 2.036 - 2.942<br>(18.019 - 26.037) | 7.313 - 12.365<br>(64.720 - 109.430) | 26.880 - 61.170<br>(237.888 - 541.355) | 1                |
|                                       |   |   | 0.209 - 0.243<br>(1.850 - 2.151) | 0.211 - 0.269<br>(1.867 - 2.381) | 0.546 - 0.737<br>(4.832 - 6.522)   | 1.947 - 2.760<br>(17.231 - 24.426)   | 6.896 - 11.720<br>(61.030 - 103.722)   | 2                |

(1) Number of stages  
(2) The ratio-dependent values can be retrieved in Tec Data Finder – www.neugart.com  
(3) T<sub>min</sub> = -40°C (-40°F). Optimal operating temperature max. 50°C (122°F)  
(4) Sound pressure level from 1 m, measured on input running at n<sub>1</sub>=3000 rpm no load; i=5  
(5) Max. motor weight\* in kg = 0.2 × M<sub>s</sub> / motor length in m  
\* with symmetrically distributed motor weight  
\* with horizontal and stationary mounting  
(6) These values are based on an output shaft speed of n<sub>2</sub>=100 rpm  
(7) Based on the end of the output shaft  
(8) Other (sometimes higher) values following changes to T<sub>2N</sub>, F<sub>r</sub>, F<sub>a</sub>, cycle, and service life of bearing. Application specific configuration with NCP – www.neugart.com

| Output torques                       |                   |                             | PLFN064      | PLFN090      | PLFN110    | PLFN140      | PLFN200      | i <sup>(1)</sup> | z <sup>(2)</sup> |
|--------------------------------------|-------------------|-----------------------------|--------------|--------------|------------|--------------|--------------|------------------|------------------|
| Nominal output torque <sup>(3)</sup> | T <sub>2N</sub>   | Nm<br>(lb <sub>f</sub> .in) | 60 (531)     | 140 (1239)   | 300 (2655) | 600 (5310)   | 1300 (11505) | 4                | 1                |
|                                      |                   |                             | 65 (575)     | 140 (1239)   | 260 (2301) | 750 (6638)   | 1600 (14160) | 5                |                  |
|                                      |                   |                             | 45 (398)     | 90 (797)     | 180 (1593) | 530 (4691)   | 1300 (11505) | 7                |                  |
|                                      |                   |                             | 40 (354)     | 80 (708)     | 150 (1328) | 450 (3983)   | 1000 (8850)  | 8                |                  |
|                                      |                   |                             | 27 (239)     | 60 (531)     | 125 (1106) | 305 (2699)   | 630 (5576)   | 10               |                  |
|                                      |                   |                             | 77 (681)     | 150 (1328)   | 300 (2655) | 1000 (8850)  | 1800 (15930) | 16               | 2                |
|                                      |                   |                             | 77 (681)     | 150 (1328)   | 300 (2655) | 1000 (8850)  | 1800 (15930) | 20               |                  |
|                                      |                   |                             | 65 (575)     | 140 (1239)   | 260 (2301) | 900 (7965)   | 1800 (15930) | 25               |                  |
|                                      |                   |                             | 77 (681)     | 150 (1328)   | 300 (2655) | 600 (5310)   | 1800 (15930) | 32               |                  |
|                                      |                   |                             | 65 (575)     | 140 (1239)   | 260 (2301) | 750 (6638)   | 1800 (15930) | 40               |                  |
|                                      |                   |                             | 65 (575)     | 130 (1151)   | 260 (2301) | 620 (5487)   | 1525 (13496) | 50               |                  |
|                                      |                   |                             | 40 (354)     | 80 (708)     | 150 (1328) | 450 (3983)   | 1000 (8850)  | 64               |                  |
|                                      |                   |                             | 27 (239)     | 60 (531)     | 125 (1106) | 305 (2699)   | 630 (5576)   | 100              |                  |
|                                      |                   |                             | 96 (850)     | 224 (1982)   | 480 (4248) | 960 (8496)   | 2080 (18408) | 4                |                  |
| 104 (920)                            | 224 (1982)        | 416 (3682)                  | 1200 (10620) | 2560 (22656) | 5          |              |              |                  |                  |
| 72 (637)                             | 144 (1274)        | 288 (2549)                  | 848 (7505)   | 2080 (18408) | 7          |              |              |                  |                  |
| 64 (566)                             | 128 (1133)        | 240 (2124)                  | 720 (6372)   | 1600 (14160) | 8          |              |              |                  |                  |
| 43 (381)                             | 96 (850)          | 200 (1770)                  | 488 (4319)   | 1008 (8921)  | 10         |              |              |                  |                  |
| Max. output torque <sup>(4)</sup>    | T <sub>2max</sub> | Nm<br>(lb <sub>f</sub> .in) | 123 (1089)   | 240 (2124)   | 480 (4248) | 1600 (14160) | 2880 (25488) | 16               | 2                |
|                                      |                   |                             | 123 (1089)   | 240 (2124)   | 480 (4248) | 1600 (14160) | 2880 (25488) | 20               |                  |
|                                      |                   |                             | 104 (920)    | 224 (1982)   | 416 (3682) | 1440 (12744) | 2880 (25488) | 25               |                  |
|                                      |                   |                             | 123 (1089)   | 240 (2124)   | 480 (4248) | 960 (8496)   | 2880 (25488) | 32               |                  |
|                                      |                   |                             | 104 (920)    | 224 (1982)   | 416 (3682) | 1200 (10620) | 2880 (25488) | 40               |                  |
|                                      |                   |                             | 104 (920)    | 208 (1841)   | 416 (3682) | 992 (8779)   | 2440 (21594) | 50               |                  |
|                                      |                   |                             | 64 (566)     | 128 (1133)   | 240 (2124) | 720 (6372)   | 1600 (14160) | 64               |                  |
|                                      |                   |                             | 43 (381)     | 96 (850)     | 200 (1770) | 488 (4319)   | 1008 (8921)  | 100              |                  |

<sup>(1)</sup> Ratios (i=n<sub>1</sub>/n<sub>2</sub>)

<sup>(2)</sup> Number of stages

<sup>(3)</sup> Application specific configuration with NCP – www.neugart.com

<sup>(4)</sup> 30,000 rotations of the output shaft permitted; see page 128

| Output torques                       |                    |                             | PLFN064    | PLFN090    | PLFN110      | PLFN140      | PLFN200      | i <sup>(1)</sup> | z <sup>(2)</sup> |
|--------------------------------------|--------------------|-----------------------------|------------|------------|--------------|--------------|--------------|------------------|------------------|
| Emergency stop torque <sup>(3)</sup> | T <sub>2Stop</sub> | Nm<br>(lb <sub>f</sub> .in) | 120 (1062) | 280 (2478) | 650 (5753)   | 1300 (11505) | 2700 (23895) | 4                | 1                |
|                                      |                    |                             | 130 (1151) | 280 (2478) | 650 (5753)   | 1500 (13275) | 3200 (28320) | 5                |                  |
|                                      |                    |                             | 90 (797)   | 175 (1549) | 340 (3009)   | 1300 (11505) | 2600 (23010) | 7                |                  |
|                                      |                    |                             | 90 (797)   | 200 (1770) | 380 (3363)   | 1000 (8850)  | 2600 (23010) | 8                |                  |
|                                      |                    |                             | 90 (797)   | 200 (1770) | 480 (4248)   | 750 (6638)   | 1350 (11948) | 10               |                  |
|                                      |                    |                             | 150 (1328) | 300 (2655) | 650 (5753)   | 2000 (17700) | 3600 (31860) | 16               |                  |
|                                      |                    | 150 (1328)                  | 300 (2655) | 650 (5753) | 2000 (17700) | 3600 (31860) | 20           | 2                |                  |
|                                      |                    | 150 (1328)                  | 300 (2655) | 650 (5753) | 1800 (15930) | 3600 (31860) | 25           |                  |                  |
|                                      |                    | 150 (1328)                  | 300 (2655) | 650 (5753) | 1500 (13275) | 3600 (31860) | 32           |                  |                  |
|                                      |                    | 150 (1328)                  | 300 (2655) | 650 (5753) | 1500 (13275) | 3600 (31860) | 40           |                  |                  |
|                                      |                    | 150 (1328)                  | 300 (2655) | 650 (5753) | 1500 (13275) | 3600 (31860) | 50           |                  |                  |
|                                      |                    | 80 (708)                    | 200 (1770) | 380 (3363) | 1000 (8850)  | 2600 (23010) | 64           |                  |                  |
|                                      |                    | 80 (708)                    | 200 (1770) | 480 (4248) | 750 (6638)   | 1350 (11948) | 100          |                  |                  |

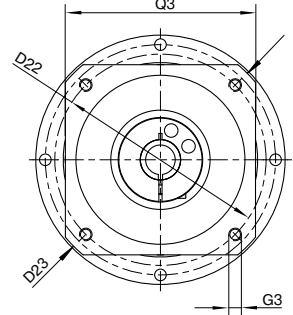
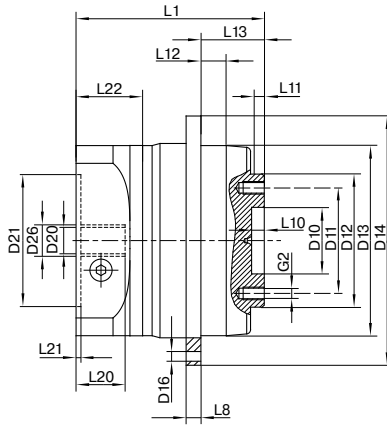
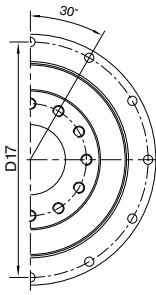
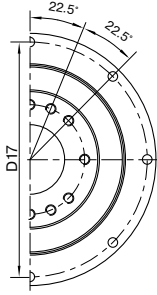
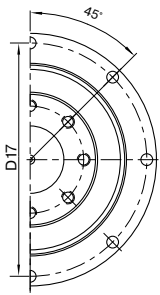
| Input speeds  |                 |       | PLFN064                                    | PLFN090             | PLFN110             | PLFN140             | PLFN200             | i <sup>(1)</sup> | z <sup>(2)</sup> |
|---|-----------------|-------|--|---------------------|---------------------|---------------------|---------------------|------------------|------------------|
| Average thermal input speed at T <sub>2N</sub> and S1 <sup>(4)(5)</sup> | n <sub>1N</sub> | rpm   | 2100 <sup>(6)</sup>                        | 1750 <sup>(6)</sup> | 1300 <sup>(6)</sup> | 850 <sup>(6)</sup>  | 500 <sup>(6)</sup>  | 4                | 1                |
|   |                 |       | 2450 <sup>(6)</sup>                        | 2100 <sup>(6)</sup> | 1650 <sup>(6)</sup> | 950 <sup>(6)</sup>  | 600 <sup>(6)</sup>  | 5                |                  |
|   |                 |       | 3200 <sup>(6)</sup>                        | 3000 <sup>(6)</sup> | 2350 <sup>(6)</sup> | 1400 <sup>(6)</sup> | 850 <sup>(6)</sup>  | 7                |                  |
|   |                 |       | 3550 <sup>(6)</sup>                        | 3350 <sup>(6)</sup> | 2650 <sup>(6)</sup> | 1650 <sup>(6)</sup> | 1000 <sup>(6)</sup> | 8                |                  |
|   |                 |       | 4100 <sup>(6)</sup>                        | 4000 <sup>(6)</sup> | 3150 <sup>(6)</sup> | 2050 <sup>(6)</sup> | 1300 <sup>(6)</sup> | 10               |                  |
|   |                 |       | 3700 <sup>(6)</sup>                        | 3850 <sup>(6)</sup> | 3150 <sup>(6)</sup> | 1700 <sup>(6)</sup> | 1100 <sup>(6)</sup> | 16               | 2                |
|   |                 |       | 4200 <sup>(6)</sup>                        | 4450 <sup>(6)</sup> | 3750 <sup>(6)</sup> | 2100 <sup>(6)</sup> | 1350 <sup>(6)</sup> | 20               |                  |
|   |                 |       | 4500 <sup>(6)</sup>                        | 4500 <sup>(6)</sup> | 4000 <sup>(6)</sup> | 2500 <sup>(6)</sup> | 1550 <sup>(6)</sup> | 25               |                  |
|   |                 |       | 4500 <sup>(6)</sup>                        | 4500                | 4000                | 3500 <sup>(6)</sup> | 2000 <sup>(6)</sup> | 32               |                  |
|   |                 |       | 4500                                       | 4500                | 4000                | 3500 <sup>(6)</sup> | 2250 <sup>(6)</sup> | 40               |                  |
|   |                 |       | 4500                                       | 4500                | 4000                | 3500                | 2750 <sup>(6)</sup> | 50               |                  |
|   |                 |       | 4500                                       | 4500                | 4000                | 3500                | 3000 <sup>(6)</sup> | 64               |                  |
|   |                 |       | 4500                                       | 4500                | 4000                | 3500                | 3000                | 100              |                  |
|   |                 |       | Max. mechanical input speed <sup>(4)</sup> | n <sub>1Limit</sub> | rpm                 | 14000               | 10000               | 8500             |                  |
| 14000   | 14000           | 10000 |  |                     |                     | 8500                | 6500                |                  | 2                |

(1) Ratios (i=n<sub>1</sub>/n<sub>2</sub>)  
 (2) Number of stages  
 (3) Permitted 1000 times  
 (4) Application-specific speed configurations with NCP – www.neugart.com  
 (5) See page 128 for the definition  
 (6) Average thermal input speed at 50% T<sub>2N</sub> and S1

PLFN064  
PLFN090

PLFN110

PLFN140  
PLFN200



Drawing corresponds to a PLFN090 / 1-stage / flange output shaft / 19 mm clamping system / motor adaptation – 2-part – round universal flange / B5 flange type motor  
All other variants can be retrieved in the Tec Data Finder at [www.neugart.com](http://www.neugart.com)

| Geometry <sup>(1)</sup>                             |     |   | PLFN064      | PLFN090      | PLFN110     | PLFN140       | PLFN200       | z <sup>(2)</sup> | Code |    |
|---|-----|---|--------------|--------------|-------------|---------------|---------------|------------------|------|----|
| Centering diameter output shaft                     | D10 | H7  | 20 (0.787)   | 31.5 (1.240) | 40 (1.575)  | 50 (1.969)    | 80 (3.150)    |                  |      |    |
| Pitch circle diameter output shaft                  | D11 |   | 31.5 (1.240) | 50 (1.969)   | 63 (2.480)  | 80 (3.150)    | 125 (4.921)   |                  |      |    |
| Centering diameter output shaft                     | D12 | h7  | 40 (1.575)   | 63 (2.480)   | 80 (3.150)  | 100 (3.937)   | 160 (6.299)   |                  |      |    |
| Centering diameter output flange                    | D13 |   | 64 (2.520)   | 90 (3.543)   | 110 (4.331) | 140 (5.512)   | 200 (7.874)   |                  |      |    |
| Flange diameter output                              | D14 |   | 86 (3.386)   | 118 (4.646)  | 145 (5.709) | 179 (7.047)   | 247 (9.724)   |                  |      |    |
| Mounting bore output                                | D16 |   | 4.5 8x45°    | 5.5 8x45°    | 5.5 8x45°   | 6.6 12x30°    | 9 12x30°      |                  |      |    |
| Pitch circle diameter output flange                 | D17 |   | 79 (3.110)   | 109 (4.291)  | 135 (5.315) | 168 (6.614)   | 233 (9.173)   |                  |      |    |
| Min. total length                                   | L1  |   | 71 (2.795)   | 89 (3.504)   | 108 (4.252) | 157 (6.181)   | 212.5 (8.366) | 1                |      |    |
|   |     |   | 99.5 (3.917) | 111 (4.370)  | 130 (5.118) | 187.5 (7.382) | 264 (10.394)  | 2                |      |    |
| Flange thickness output                             | L8  |   | 4 (0.157)    | 7 (0.276)    | 8 (0.315)   | 10 (0.394)    | 12 (0.472)    |                  |      |    |
| Centering depth output shaft                        | L10 |   | 4.5 (0.177)  | 6.5 (0.256)  | 6.5 (0.256) | 6.5 (0.256)   | 10 (0.394)    |                  |      |    |
| Centering depth output shaft                        | L11 |   | 3 (0.118)    | 6 (0.236)    | 6 (0.236)   | 6 (0.236)     | 8 (0.315)     |                  |      |    |
| Centering depth output flange                       | L12 |   | 10 (0.394)   | 12 (0.472)   | 12 (0.472)  | 14 (0.551)    | 17.5 (0.689)  |                  |      |    |
| Output flange length                                | L13 |   | 19.5         | 30.0         | 29.0        | 38.0          | 50.0          |                  |      |    |
| Clamping system diameter input                      | D26 | More information on page 117  |              |              |             |               |               |                  |      |    |
| Motor shaft diameter j6/k6                          | D20 | The dimensions vary with the motor/gearbox flange.<br>The input flange geometries can be retrieved for each specific motor in Tec Data Finder at <a href="http://www.neugart.com">www.neugart.com</a> |              |              |             |               |               |                  |      |    |
| Max. permis. motor shaft length                     | L20 |   |              |              |             |               |               |                  |      |    |
| Min. permis. motor shaft length                     |     |   |              |              |             |               |               |                  |      |    |
| Centering diameter input                            | D21 |   |              |              |             |               |               |                  |      |    |
| Centering depth input                               | L21 |   |              |              |             |               |               |                  |      |    |
| Pitch circle diameter input                         | D22 |   |              |              |             |               |               |                  |      |    |
| Motor flange length                                 | L22 |   |              |              |             |               |               |                  |      |    |
| Diagonal dimension input                            | D23 |   |              |              |             |               |               |                  |      |    |
| Mounting thread x depth                             | G3  |   |              |              |             |               |               |                  |      | 4x |
| Flange cross section input                          | Q3  |   |              |              |             |               |               |                  |      | ■  |
| Flange output shaft (similar EN ISO 9409-1)         |     |   |              |              |             |               |               |                  | D    |    |
| Number x thread x depth                             | G2  |   | 8xM5x7       | 8xM6x10      | 12xM6x12    | 12xM8x15      | 12xM10x20     |                  | E    |    |
| Flange output shaft with dowel hole (EN ISO 9409-1) |     |   |              |              |             |               |               |                  |      |    |
| Dowel hole x depth                                  | D15 | H7  | 5x5          | 6x6          | 6x6         | 8x8           | 10x10         |                  |      |    |
| Number x thread x depth                             | G2  | -   | 7xM5x7       | 7xM6x10      | 11xM6x12    | 11xM8x15      | 11xM10x20     |                  |      |    |

<sup>(1)</sup> Dimensions in mm (in)

<sup>(2)</sup> Number of stages