



WGN

The hypoid-toothed right-angle gearbox with hollow shaft – low-noise and force-fit mounting

Our **WGN** is the right-angle hollow shaft gearbox that operates particularly quietly. At the same time, the hypoid gearing increases the quality of the surface of your workpiece. With a shrink disc, it can be connected directly to the application - this is uncomplicated, safe and opens up new design possibilities.

Nominal output torque **22 - 320 Nm**



Radial force **2700 - 10000 N**



Axial force **4300 - 14500 N**



Torsional backlash **5 arcmin**

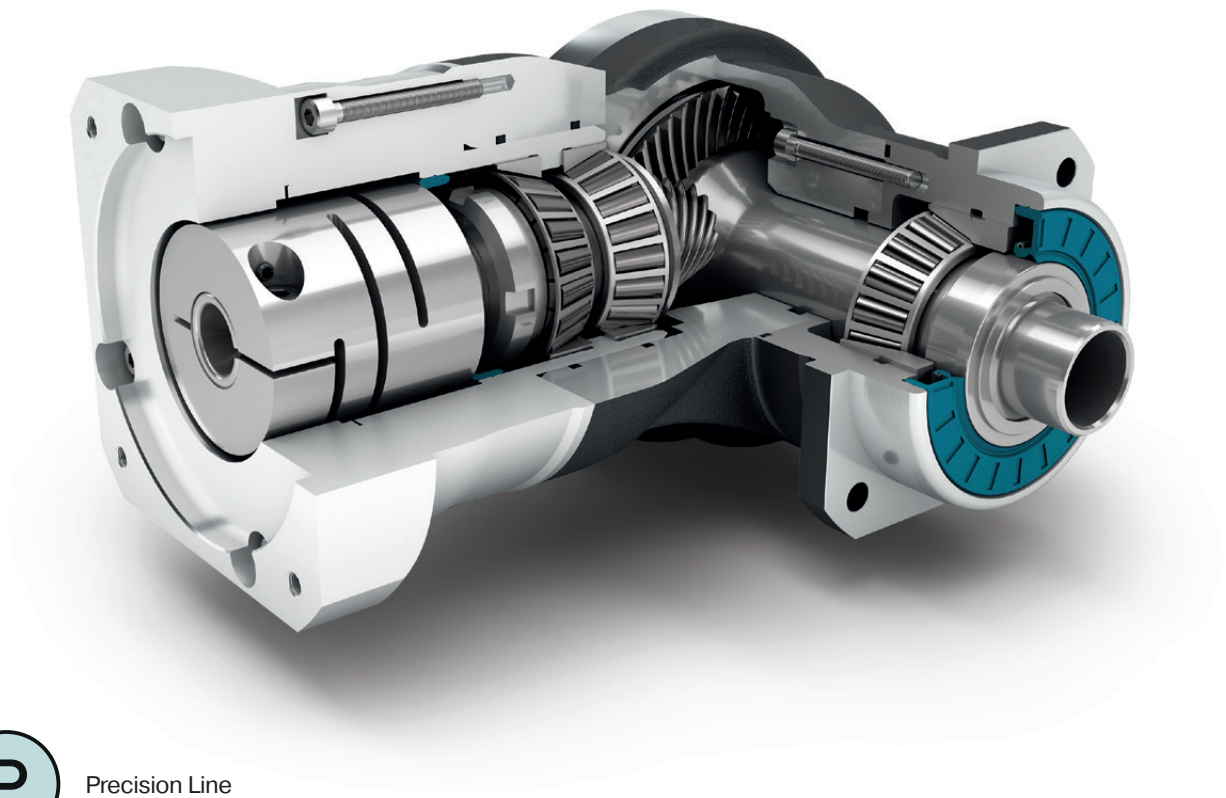


Protection class **IP65**



Frame sizes

- 70
- 90
- 115
- 142



Precision Line



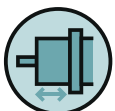
Right angle gearbox



Hypoid gear right angle stage



Preloaded tapered roller bearings



Extra long centering collar



Counterdirectional rotation



Square type output flange



Rotary shaft seal



Hollow shaft for clamping system with shrink disc

Detailed explanations of the technical features starting on page 173.

| Code | Gearbox characteristics | | | WGN070 | WGN090 | WGN115 | WGN142 | p ⁽¹⁾ |
|----------|--|------------------|--|--|----------------------------|--------------------------|------------------------------|------------------|
| | Service life (L _{10h}) | t _L | h | 20,000 | | | | |
| | Service life at T _{2N} × 0,88 | | | 30,000 | | | | |
| | Efficiency at full load ⁽²⁾ | η | % | 95 | | | | |
| | Min. operating temperature | T _{min} | °C | -25 (-13) | | | | |
| | Max. operating temperature | T _{max} | (°F) | 90 (194) | | | | |
| | Protection class | | | IP65 | | | | |
| S | Standard lubrication | | | Oil (lifetime lubrication) | | | | |
| F | Food grade lubrication | | | Oil (lifetime lubrication) | | | | |
| | Installation position | | | Any | | | | |
| S | Standard backlash | j _t | arcmin | < 5 | | | | |
| R | Reduced backlash | | | - | | | | |
| | Torsional stiffness ⁽²⁾ | c _g | Nm /arcmin (lb _f .in / arcmin) | 1.6 - 2.2 (14 - 19) | 4.2 - 5.7 (37 - 50) | 9.2 - 12.4 (81 - 110) | 23.5 - 31.5 (208 - 279) | |
| | Gearbox weight ⁽²⁾ | m _G | kg (lb _m) | 3.2 - 3.3 (7.1 - 7.2) | 5.1 - 5.6 (11.3 - 12.3) | 10.9 (24.0) | 23.3 - 23.8 (51.3 - 52.5) | |
| S | Standard surface | | | Right angle housing: Aluminum – anodized (black) | | | | |
| | Running noise ⁽³⁾ | Q _g | dB(A) | 66 | 67 | 68 | 70 | |
| | Max. bending moment based on the gearbox input flange ⁽⁴⁾ | M _b | Nm (lb _f .in) | 12 (106) | 25.5 (226) | 53 (469) | 120 (1062) | |

| Output shaft loads | | | WGN070 | WGN090 | WGN115 | WGN142 | p ⁽¹⁾ |
|---|-------------------------|-----------------------------|------------|-------------|-------------|--------------|------------------|
| Radial force for 20,000 h ⁽⁵⁾⁽⁶⁾ | F _{r 20.000 h} | N (lb _f) | 2700 (607) | 4000 (899) | 6500 (1461) | 10000 (2248) | |
| Axial force for 20,000 h ⁽⁵⁾⁽⁶⁾ | F _{a 20.000 h} | | 4300 (967) | 5900 (1326) | 7000 (1574) | 14500 (3260) | |
| Radial force for 30,000 h ⁽⁵⁾⁽⁶⁾ | F _{r 30.000 h} | | 2700 (607) | 4000 (899) | 6500 (1461) | 10000 (2248) | |
| Axial force for 30,000 h ⁽⁵⁾⁽⁶⁾ | F _{a 30.000 h} | | 3700 (832) | 5200 (1169) | 6100 (1371) | 12000 (2698) | |
| Maximum radial force ⁽⁶⁾⁽⁷⁾ | F _{r Stat} | | 2700 (607) | 4000 (899) | 6500 (1461) | 10000 (2248) | |
| Maximum axial force ⁽⁶⁾⁽⁷⁾ | F _{a Stat} | | 4300 (967) | 5900 (1326) | 7000 (1574) | 14500 (3260) | |
| Tilting moment for 20,000 h ⁽⁵⁾⁽⁷⁾ | M _{K 20.000 h} | Nm (lb _f .in) | 252 (2230) | 442 (3912) | 970 (8585) | 1505 (13320) | |
| Tilting moment for 30,000 h ⁽⁵⁾⁽⁷⁾ | M _{K 30.000 h} | | 252 (2230) | 442 (3912) | 970 (8585) | 1505 (13320) | |

| Moment of inertia | | | WGN070 | WGN090 | WGN115 | WGN142 | p ⁽¹⁾ |
|---------------------------------------|---|---|----------------------------------|-----------------------------------|------------------------------------|--|------------------|
| Mass moment of inertia ⁽²⁾ | J | kgcm ² (lb _f .in.s ² 10 ⁻⁴) | 0.502 - 0.834 (4.443 - 7.382) | 1.018 - 1.417 (9.010 - 12.542) | 4.805 - 6.111 (42.528 - 54.087) | 12.934 - 18.905 (114.476 - 167.323) | |

(1) Number of stages
 (2) The ratio-dependent values can be retrieved in Tec Data Finder – www.neugart.com
 (3) Sound pressure level from 1 m, measured on input running at n_i=3000 rpm no load; i=5
 (4) Max. motor weight* in kg = 0.2 × M_b / motor length in m
 * with symmetrically distributed motor weight
 * with horizontal and stationary mounting
 (5) These values are based on an output shaft speed of n₂=100 rpm
 (6) Based on center of output shaft
 (7) Other (sometimes higher) values following changes to T_{2N}, F_r, F_a, cycle, and service life of bearing. Application specific configuration with NCP – www.neugart.com

| Output torques | | | WGN070 | WGN090 | WGN115 | WGN142 | i ⁽¹⁾ | p ⁽²⁾ |
|--------------------------------------|--------------------|---------------|-----------|------------|------------|------------|------------------|------------------|
| Nominal output torque ⁽³⁾ | T _{2N} | Nm (lb.in) | 45 (398) | 70 (620) | 140 (1239) | 320 (2832) | 4 | 1 |
| | | | 42 (372) | 70 (620) | 140 (1239) | 280 (2478) | 5 | |
| | | | 28 (248) | 51 (451) | 91 (805) | 189 (1673) | 7 | |
| | | | 27 (239) | 50 (443) | 90 (797) | 180 (1593) | 8 | |
| | | | 22 (195) | 40 (354) | 75 (664) | 160 (1416) | 10 | |
| Max. output torque ⁽⁴⁾ | T _{2max} | Nm (lb.in) | 72 (637) | 112 (991) | 224 (1983) | 512 (4532) | 4 | |
| | | | 67 (593) | 112 (991) | 224 (1983) | 448 (3965) | 5 | |
| | | | 45 (398) | 82 (726) | 145 (1283) | 302 (2673) | 7 | |
| | | | 43 (381) | 80 (708) | 144 (1275) | 288 (2549) | 8 | |
| | | | 35 (310) | 64 (566) | 120 (1062) | 256 (2266) | 10 | |
| Emergency stop torque ⁽⁵⁾ | T _{2Stop} | Nm (lb.in) | 100 (885) | 200 (1770) | 400 (3540) | 800 (7081) | 4 | |
| | | | 100 (885) | 200 (1770) | 400 (3540) | 800 (7081) | 5 | |
| | | | 75 (664) | 150 (1328) | 300 (2655) | 700 (6196) | 7 | |
| | | | 75 (664) | 150 (1328) | 300 (2655) | 700 (6196) | 8 | |
| | | | 75 (664) | 150 (1328) | 300 (2655) | 700 (6196) | 10 | |

| Input speeds | | | WGN070 | WGN090 | WGN115 | WGN142 | i ⁽¹⁾ | p ⁽²⁾ |
|---|---------------------|-----|---------------------|---------------------|---------------------|---------------------|------------------|------------------|
| Average thermal input speed at T _{2N} and S1 ⁽⁴⁾⁽⁵⁾ | n _{1N} | rpm | 1750 ⁽⁶⁾ | 1700 ⁽⁶⁾ | 1150 ⁽⁶⁾ | 950 ⁽⁶⁾ | 4 | 1 |
| | | | 1900 ⁽⁶⁾ | 1850 ⁽⁶⁾ | 1200 ⁽⁶⁾ | 1000 ⁽⁶⁾ | 5 | |
| | | | 2250 ⁽⁶⁾ | 2200 ⁽⁶⁾ | 1400 ⁽⁶⁾ | 1200 ⁽⁶⁾ | 7 | |
| | | | 2300 ⁽⁶⁾ | 2200 ⁽⁶⁾ | 1400 ⁽⁶⁾ | 1200 ⁽⁶⁾ | 8 | |
| | | | 2400 ⁽⁶⁾ | 2350 ⁽⁶⁾ | 1500 ⁽⁶⁾ | 1300 ⁽⁶⁾ | 10 | |
| Max. mechanical input speed ⁽⁴⁾ | n _{1Limit} | rpm | 16,000 | 14,000 | 9500 | 8000 | | |

⁽¹⁾ Ratios (i=n₁/n₂)

⁽²⁾ Number of stages

⁽³⁾ Application specific configuration with NCP – www.neugart.com

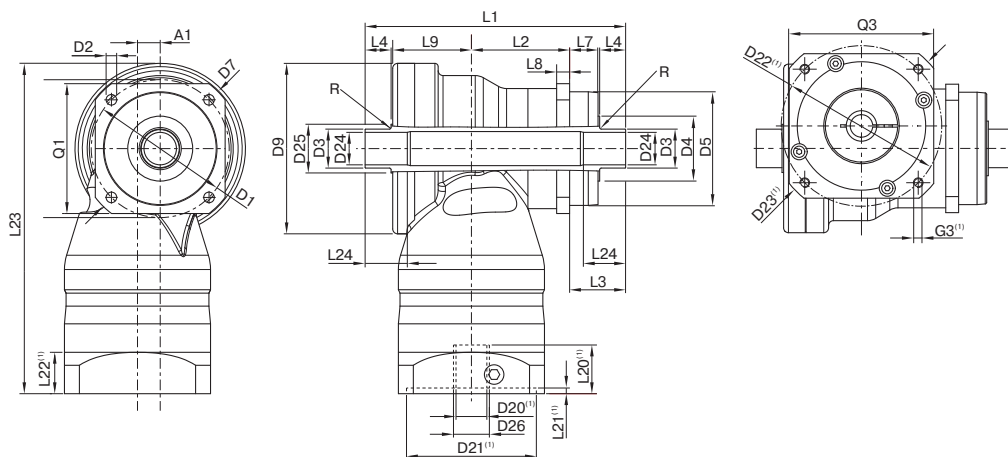
⁽⁴⁾ 30,000 rotations of the output shaft permitted; see page 166

⁽⁵⁾ Permitted 1000 times

⁽⁶⁾ Application-specific speed configurations with NCP – www.neugart.com

⁽⁷⁾ See page 166 for the definition

⁽⁸⁾ Average thermal input speed at 50% T_{2N} and S1



Drawing corresponds to a WGN090 / 1-stage / hollow output shaft on both sides / 19 mm clamping system / motor adaptation – 2-part – round universal flange / B5 flange type motor

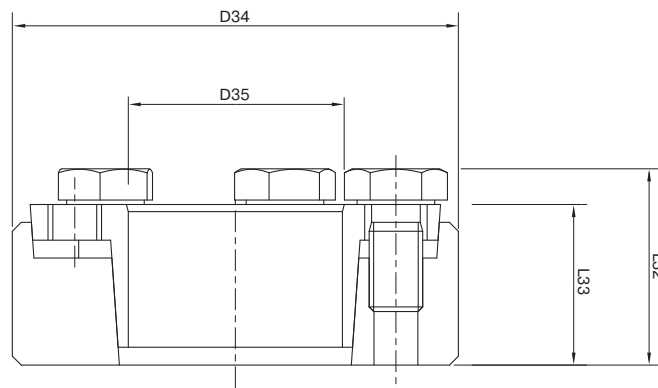
⁽¹⁾ The dimensions vary with the motor/gearbox flange. The input flange dimensions can be retrieved for each specific motor in Tec Data Finder at www.neugart.com

| Geometry ⁽²⁾ | | | WGN070 | WGN090 | WGN115 | WGN142 | p ⁽³⁾ | Code |
|-----------------------------------|-----|----|----------------------------------|---------------|---------------|--------------|------------------|------|
| Axis offset | A1 | | 10 (0.394) | 14 (0.551) | 20 (0.787) | 26 (1.024) | 1 | |
| Pitch circle diameter output | D1 | | 68 - 75 (2.677 - 2.953) | 85 (3.346) | 120 (4.724) | 165 (6.496) | | |
| Mounting bore output | D2 | 4x | 5.5 (0.217) | 6.5 (0.256) | 9.0 (0.354) | 11.0 (0.433) | | |
| Shaft diameter output | D3 | h8 | 18 (0.709) | 24 (0.945) | 36 (1.417) | 50 (1.969) | | |
| Shaft collar output | D4 | | 30 (1.181) | 34 (1.339) | 45 (1.772) | 70 (2.756) | | |
| Centering diameter output | D5 | g7 | 60 (2.362) | 70 (2.756) | 90 (3.543) | 130 (5.118) | | |
| Diagonal dimension output | D7 | | 92 (3.622) | 100 (3.937) | 140 (5.512) | 185 (7.283) | | |
| Max. diameter | D9 | | 86 (3.386) | 105 (4.134) | 120 (4.724) | 170 (6.693) | | |
| Flange cross section output | Q1 | ■ | 70 (2.756) | 80 (3.150) | 110 (4.331) | 142 (5.591) | | |
| Housing length | L2 | | 46.5 (1.831) | 60.5 (2.382) | 73.5 (2.894) | 76 (2.992) | | |
| Shaft length output | L3 | | 33 (1.299) | 34.5 (1.358) | 48 (1.890) | 54 (2.126) | | |
| Centering depth output | L7 | | 18 (0.709) | 17.5 (0.689) | 27 (1.063) | 28 (1.102) | | |
| Flange thickness output | L8 | | 7 (0.276) | 8 (0.315) | 10 (0.394) | 12 (0.472) | | |
| Offset length | L9 | | 43 (1.693) | 48.5 (1.909) | 56.5 (2.224) | 87 (3.425) | | |
| Min. overall height | L23 | | 179 (7.047) | 203.5 (8.012) | 247.5 (9.744) | 318 (12.520) | | |
| Max. radius | R | | 1.5 (0.059) | | | | | |
| Motor shaft diameter j6/k6 | D20 | | More information on page 163/164 | | | | | |
| Clamping system diameter input | D26 | | More information on page 163/164 | | | | | |
| Hollow output shaft on one side | | | | | | | F | |
| Hollow shaft diameter | D24 | H6 | 15 (0.591) | 20 (0.787) | 30 (1.181) | 40 (1.575) | | |
| Total length | L1 | | 122.5 (4.823) | 143.5 (5.650) | 178 (7.008) | 217 (8.543) | | |
| Shaft length from shoulder | L4 | | 14 (0.551) | 16 (0.630) | 20 (0.787) | 25 (0.984) | | |
| Min. fit length | L24 | | 20 (0.787) | 25 (0.984) | 30 (1.181) | 35 (1.378) | G | |
| Hollow output shaft on both sides | | | | | | | | |
| Hollow shaft diameter | D24 | H6 | 15 (0.591) | 20 (0.787) | 30 (1.181) | 40 (1.575) | | |
| Shaft collar | D25 | | 25 (0.984) | 30 (1.181) | 42 (1.654) | 55 (2.165) | | |
| Total length | L1 | | 137.5 (5.413) | 160.5 (6.319) | 199 (7.835) | 243 (9.567) | | |
| Shaft length from shoulder | L4 | | 14 (0.551) | 16 (0.630) | 20 (0.787) | 25 (0.984) | | |
| Min. fit length | L24 | | 20 (0.787) | 25 (0.984) | 30 (1.181) | 35 (1.378) | | |

⁽²⁾ Dimensions in mm

⁽³⁾ Number of stages

WGN Shrink disc



This shrink disc can be used to make a force-fit connection between your machine shaft and the right angle hollow shaft gearbox WGN.

| | | | WGN070 | WGN090 | WGN115 | WGN142 |
|-------------------------------|------|---|----------------|----------------|----------------|-----------------|
| Art. No. | | | 58365 | 58366 | 58367 | 58368 |
| Outside diameter | D34 | mm (in) | 44 (1.732) | 50 (1.968) | 72 (2.835) | 90 (3.543) |
| Inner diameter | D35 | | 18 (0.709) | 24 (0.945) | 36 (1.417) | 50 (1.968) |
| Overall length ⁽¹⁾ | L32 | | 19 (0.748) | 22 (0.866) | 27.3 (1.075) | 31.3 (1.232) |
| Clamp length ⁽¹⁾ | L33 | | 15 (0.591) | 18 (0.709) | 22 (0.866) | 26 (1.024) |
| Width across flats | SW30 | | 10 (0.394) | 10 (0.394) | 13 (0.512) | 13 (0.512) |
| Number of clamp screws | N30 | | 4 (0.157) | 5 (0.197) | 5 (0.197) | 8 (0.315) |
| Mass moment of inertia | J | kgcm ² (lb _r .in.s ² 10 ⁻⁴) | 0.4251 (3.672) | 0.7831 (6.930) | 4.212 (37.276) | 11.55 (102.218) |

For the load shaft, we recommend a tolerance of h6 and a surface roughness of Ra < 3.2 µm. CAD data can be accessed at www.neugart.com

For correct installation of the shrink disc, please refer to the corresponding mounting instructions (www.neugart.com)

Included parts

1 x Shrink disc (incl. screws)

⁽¹⁾ Dimensions in unclamped state