



For new perspectives

The WPLE is the logical refinement of our PLE series. This bevel gearbox series was designed especially for space-saving installation in a right-angle position of the motor/gearbox combination.



- > Low backlash
- > High output torque - the industry's highest torque density
- > Precise, easy, and flexible motor mounting (patented PCS®)
- > Balanced motor pinion
- > High efficiency (up to 94%)
- > 22 ratios 3:1 to 512:1
- > Low noise
- > Consistent quality (ISO 9001 and 14001)
- > Operable in any mounting positions
- > Lifetime lubrication
- > Numerous options



WPLE

| | | |
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| 9 | CAD drawings, dimension sheets | www.neugartusa.com |
| 10 | Sizing/calculation/selection | NCP Software, free download from the Neugart website |

| Type-Size | | WPLE 40 | WPLE 60 | WPLE 80 | WPLE 120 | i ⁽¹⁾ | Z ⁽²⁾ |
|---|-----------|---------------------------|-------------------------|---------------------------|---------------------------|------------------|------------------|
| Nominal (rated continuous duty) Output torque T _{2N} ⁽³⁾⁽⁴⁾⁽⁶⁾ | Nm (lbin) | 4.5 (40) | 14 (124) | 40 (354) | 80 (708) | 3 | 1 |
| | | 6 (53) | 19 (168) | 53 (469) | 105 (929) | 4 | |
| | | 7.5 (66) | 24 (212) | 67 (593) | 130 (1151) | 5 | |
| | | 6 (53) | 18 (159) | 50 (443) | 120 (1062) | 8 | |
| | | 16.5 (146) ⁽⁷⁾ | 44 (389) ⁽⁷⁾ | 130 (1151) ⁽⁷⁾ | 210 (1859) ⁽⁷⁾ | 9 | 2 |
| | | 20 (177) ⁽⁷⁾ | 44 (389) | 120 (1062) ⁽⁷⁾ | 260 (2301) ⁽⁷⁾ | 12 | |
| | | 18 (159) ⁽⁷⁾ | 44 (389) | 110 (974) | 230 (2036) | 15 | |
| | | 20 (177) ⁽⁷⁾ | 44 (389) | 120 (1062) | 260 (2301) | 16 | |
| | | 20 (177) ⁽⁷⁾ | 44 (389) | 120 (1062) | 260 (2301) | 20 | |
| | | 18 (159) | 40 (354) | 110 (974) | 230 (2036) | 25 | |
| | | 20 (177) | 44 (389) | 120 (1062) | 260 (2301) | 32 | |
| | | 18 (159) | 40 (354) | 110 (974) | 230 (2036) | 40 | |
| | | 7.5 (66) | 18 (159) | 50 (443) | 120 (1062) | 64 | 3 |
| | | 20 (177) | 44 (389) | 110 (974) | 260 (2301) | 60 | |
| | | 20 (177) | 44 (389) | 120 (1062) | 260 (2301) | 80 | |
| | | 20 (177) | 44 (389) | 120 (1062) | 260 (2301) | 100 | |
| | | 18 (159) | 44 (389) | 110 (974) | 230 (2036) | 120 | |
| | | 20 (177) | 44 (389) | 120 (1062) | 260 (2301) | 160 | |
| | | 18 (159) | 40 (354) | 110 (974) | 230 (2036) | 200 | |
| | | 20 (177) | 44 (389) | 120 (1062) | 260 (2301) | 256 | |
| 18 (159) | 40 (354) | 110 (974) | 230 (2036) | 320 | | | |
| 7.5 (66) | 18 (159) | 50 (443) | 120 (1062) | 512 | | | |

| Type-Size | | WPLE 40 | WPLE 60 | WPLE 80 | WPLE 120 | i ⁽¹⁾ | Z ⁽²⁾ |
|--|-----------|------------|------------|------------|------------|------------------|------------------|
| Output torque sustainable 30,000 output shaft rotations ⁽³⁾⁽⁴⁾⁽⁵⁾⁽⁶⁾ | Nm (lbin) | 7 (62) | 22 (195) | 64 (566) | 128 (1133) | 3 | 1 |
| | | 10 (89) | 30 (266) | 85 (752) | 168 (1487) | 4 | |
| | | 12 (106) | 38 (336) | 107 (947) | 208 (1841) | 5 | |
| | | 10 (89) | 29 (257) | 80 (708) | 192 (1699) | 8 | |
| | | 26 (230) | 70 (620) | 208 (1841) | 336 (2974) | 9 | 2 |
| | | 32 (283) | 70 (620) | 192 (1699) | 416 (3682) | 12 | |
| | | 29 (257) | 70 (620) | 176 (1558) | 368 (3257) | 15 | |
| | | 32 (283) | 70 (620) | 192 (1699) | 416 (3682) | 16 | |
| | | 32 (283) | 70 (620) | 192 (1699) | 416 (3682) | 20 | |
| | | 29 (257) | 64 (566) | 176 (1558) | 368 (3257) | 25 | |
| | | 32 (283) | 70 (620) | 192 (1699) | 416 (3682) | 32 | |
| | | 29 (257) | 64 (566) | 176 (1558) | 368 (3257) | 40 | |
| | | 12 (106) | 29 (257) | 80 (708) | 192 (1699) | 64 | 3 |
| | | 32 (283) | 70 (620) | 176 (1558) | 416 (3682) | 60 | |
| | | 32 (283) | 70 (620) | 192 (1699) | 416 (3682) | 80 | |
| | | 32 (283) | 70 (620) | 192 (1699) | 416 (3682) | 100 | |
| | | 29 (257) | 70 (620) | 176 (1558) | 368 (3257) | 120 | |
| | | 32 (283) | 70 (620) | 192 (1699) | 416 (3682) | 160 | |
| | | 29 (257) | 64 (566) | 176 (1558) | 368 (3257) | 200 | |
| | | 32 (283) | 70 (620) | 192 (1699) | 416 (3682) | 256 | |
| 29 (257) | 64 (566) | 176 (1558) | 368 (3257) | 320 | | | |
| 12 (106) | 29 (257) | 80 (708) | 192 (1699) | 512 | | | |

(1) Ratio (i=n_{1 rpm high speed side}/n_{2 rpm low speed side})
 (2) Number of gear stages
 (3) Values reference output shaft speed n₂=100 rpm, S1= 100% duty cycle, K_A=1 application factor and T=30°C, 86°F ambient temperature
 (4) Dependent on the motor shaft diameter
 (5) Permissible for 30,000 output shaft revolutions; see page 80
 (6) Keyed shaft subjected to dynamic unidirectional load
 (7) Different lifetime 10,000 h at T_{2N}

| Type-Size | | WPLE 80/90 | WPLE 120/115 | i ⁽¹⁾ | Z ⁽²⁾ |
|---|------------|---------------------------|---------------------------|------------------|------------------|
| Nominal (rated continuous duty) Output torque T _{2N} ⁽³⁾⁽⁴⁾⁽⁶⁾ | Nm (lbin) | 40 (354) | 80 (708) | 3 | 1 |
| | | 53 (469) | 105 (929) | 4 | |
| | | 67 (593) | 130 (1151) | 5 | |
| | | 50 (443) | 120 (1062) | 8 | |
| | | 130 (1151) ⁽⁷⁾ | 210 (1859) ⁽⁷⁾ | 9 | |
| | | 120 (1062) ⁽⁷⁾ | 260 (2301) ⁽⁷⁾ | 12 | 2 |
| | | 110 (974) | 230 (2036) | 15 | |
| | | 120 (1062) | 260 (2301) | 16 | |
| | | 120 (1062) | 260 (2301) | 20 | |
| | | 110 (974) | 230 (2036) | 25 | |
| | | 120 (1062) | 260 (2301) | 32 | |
| | | 110 (974) | 230 (2036) | 40 | |
| | | 50 (443) | 120 (1062) | 64 | |
| | | 110 (974) | 260 (2301) | 60 | |
| | | 120 (1062) | 260 (2301) | 80 | |
| | | 120 (1062) | 260 (2301) | 100 | 3 |
| | | 110 (974) | 230 (2036) | 120 | |
| | | 120 (1062) | 260 (2301) | 160 | |
| | | 110 (974) | 230 (2036) | 200 | |
| | | 120 (1062) | 260 (2301) | 256 | |
| 110 (974) | 230 (2036) | 320 | | | |
| 50 (443) | 120 (1062) | 512 | | | |

| Type-Size | | WPLE 80/90 | WPLE 120/115 | i ⁽¹⁾ | Z ⁽²⁾ |
|--|------------|------------|--------------|------------------|------------------|
| Output torque sustainable 30,000 output shaft rotations ⁽³⁾⁽⁴⁾⁽⁵⁾⁽⁶⁾ | Nm (lbin) | 64 (566) | 128 (1133) | 3 | 1 |
| | | 85 (752) | 168 (1487) | 4 | |
| | | 107 (947) | 208 (1841) | 5 | |
| | | 80 (708) | 192 (1699) | 8 | |
| | | 208 (1841) | 336 (2974) | 9 | |
| | | 192 (1699) | 416 (3682) | 12 | 2 |
| | | 176 (1558) | 368 (3257) | 15 | |
| | | 192 (1699) | 416 (3682) | 16 | |
| | | 192 (1699) | 416 (3682) | 20 | |
| | | 176 (1558) | 368 (3257) | 25 | |
| | | 192 (1699) | 416 (3682) | 32 | |
| | | 176 (1558) | 368 (3257) | 40 | |
| | | 80 (708) | 192 (1699) | 64 | |
| | | 176 (1558) | 416 (3682) | 60 | |
| | | 192 (1699) | 416 (3682) | 80 | |
| | | 192 (1699) | 416 (3682) | 100 | 3 |
| | | 176 (1558) | 368 (3257) | 120 | |
| | | 192 (1699) | 416 (3682) | 160 | |
| | | 176 (1558) | 368 (3257) | 200 | |
| | | 192 (1699) | 416 (3682) | 256 | |
| 176 (1558) | 368 (3257) | 320 | | | |
| 80 (708) | 192 (1699) | 512 | | | |

⁽¹⁾ Ratio (i=n_{1 rpm high speed side}/n_{2 rpm low speed side})

⁽²⁾ Number of gear stages

⁽³⁾ Values reference output shaft speed n₂=100 rpm, S1= 100% duty cycle, K_A=1 application factor and T=30°C, 86°F ambient temperature

⁽⁴⁾ Dependent on the motor shaft diameter

⁽⁵⁾ Permissible for 30,000 output shaft revolutions; see page 80

⁽⁶⁾ Keyed shaft subjected to dynamic unidirectional load

⁽⁷⁾ Different lifetime 10,000 h at T_{2N}



| | | | |
|---|-----------|---------------------------------|------------------|
| Gearbox type | | WPLE | Z ⁽²⁾ |
| Gearbox life at full load | h | 20,000 | |
| Gearbox life at 88% nominal torque $T_{2N} \times 0,88$ | | 30,000 | |
| Emergency stop torque ⁽⁶⁾ | Nm (lbin) | 2 - times T_{2N} | |
| Efficiency at full load ⁽⁷⁾ | % | 94 | 1 |
| | | 92 | 2 |
| | | 88 | 3 |
| Min. operating temp. ⁽⁴⁾ | °C (°F) | -25 (-13) | |
| Max. operating temp. ⁽⁴⁾ | | +90 (194) | |
| Protection class | | IP 54 | |
| Lubrication | | lifetime lubrication | |
| Mounting position | | any | |
| Recommended motor flange / shaft tolerance | | DIN 42955-N | |
| shaft seal | | contact rubber seal of bearings | |

| Type-Size | | WPLE 40 | WPLE 60 | WPLE 80 | WPLE 120 | Z ⁽²⁾ |
|---|------------------------------|-------------|------------|-------------|--------------|------------------|
| Standard backlash | arcmin | < 30 | < 22 | < 15 | < 12 | 1 |
| | | < 34 | < 26 | < 19 | < 16 | 2 |
| | | < 36 | < 28 | < 21 | < 18 | 3 |
| $F_{r_{max.}}$ for 10,000 h ⁽²⁾⁽³⁾ | N (lb) | 200 (45) | 500 (113) | 950 (214) | 2000 (450) | |
| $F_{a_{max.}}$ for 10,000 h ⁽²⁾⁽³⁾ | | 200 (45) | 600 (135) | 1200 (270) | 2800 (630) | |
| $F_{r_{max.}}$ for 30,000 h ⁽²⁾⁽³⁾ | | 160 (36) | 340 (77) | 650 (146) | 1500 (338) | |
| $F_{a_{max.}}$ for 30,000 h ⁽²⁾⁽³⁾ | | 160 (36) | 450 (101) | 900 (203) | 2100 (473) | |
| Torsional stiffness | Nm /arcmin (lbin /arcmin) | 0.7 (6) | 1.5 (13) | 4.5 (40) | 10 (89) | 1 |
| | | 1.1 (10) | 2.5 (22) | 6.5 (58) | 13 (115) | 2 |
| | | 1.0 (9) | 2.5 (22) | 6.3 (56) | 12 (106) | 3 |
| Weight | kg (lb) | 0.51 (1.12) | 1.7 (3.75) | 4.4 (9.70) | 12.0 (26.46) | 1 |
| | | 0.61 (1.35) | 1.9 (4.19) | 5.0 (11.03) | 14.0 (30.87) | 2 |
| | | 0.71 (1.57) | 2.1 (4.63) | 5.5 (12.13) | 16.0 (35.28) | 3 |
| Running noise ⁽⁵⁾ | dB(A) | 68 | 70 | 73 | 75 | |
| Max. recommended input speed ⁽⁸⁾ | min ⁻¹ (rpm) | 18000 | 13000 | 7000 | 6500 | |

- (1) Number of gear stages
- (2) Values reference output shaft speed $n_2=100$ rpm, S1= 100% duty cycle, $K_A=1$ application factor and T=30°C, 86°F ambient temperature
- (3) Measured at the middle of the output shaft
- (4) Measured at the middle of the gearbox housing surface
- (5) Sound pressure level measured 1 m from the gearbox for ratio 5:1 at 3000 input rpm and no load
- (6) Permissible about 1000 times during the gearbox life
- (7) Ratio dependent; based on $n_2=100$ rpm output shaft speed
- (8) Recommended gearbox operating temperature should not be exceeded, consult Neugart in case higher than listed rpm is required

| Gearbox type | | WPLE | Z ⁽²⁾ |
|---|-----------|---------------------------------|------------------|
| Gearbox life at full load | h | 20,000 | |
| Gearbox life at 88% nominal torque $T_{2N} \times 0,88$ | | 30,000 | |
| Emergency stop torque ⁽⁶⁾ | Nm (lbin) | 2 - times T_{2N} | |
| Efficiency at full load ⁽⁷⁾ | % | 94 | 1 |
| | | 92 | 2 |
| | | 88 | 3 |
| Min. operating temp. ⁽⁴⁾ | °C (°F) | -25 (-13) | |
| Max. operating temp. ⁽⁴⁾ | | +90 (194) | |
| Protection class | | IP 54 | |
| Lubrication | | lifetime lubrication | |
| Mounting position | | any | |
| Recommended motor flange / shaft tolerance | | DIN 42955-N | |
| shaft seal | | contact rubber seal of bearings | |

| Type-Size | | WPLE 80/90 | WPLE 120/115 | Z ⁽²⁾ |
|---|------------------------------|-------------|--------------|------------------|
| Standard backlash | arcmin | < 15 | < 12 | 1 |
| | | < 19 | < 16 | 2 |
| | | < 21 | < 18 | 3 |
| $Fr_{max.}$ for 10,000 h ⁽²⁾⁽³⁾ | N (lb) | 2500 (563) | 3500 (788) | |
| $Fa_{max.}$ for 10,000 h ⁽²⁾⁽³⁾ | | 2800 (630) | 2800 (630) | |
| $Fr_{max.}$ for 30,000 h ⁽²⁾⁽³⁾ | | 1700 (383) | 2400 (540) | |
| $Fa_{max.}$ for 30,000 h ⁽²⁾⁽³⁾ | | 2000 (450) | 2100 (473) | |
| Torsional stiffness | Nm /arcmin (lbin /arcmin) | 4.5 (40) | 10 (89) | 1 |
| | | 6.5 (58) | 13 (115) | 2 |
| | | 6.3 (56) | 12 (106) | 3 |
| Weight | kg (lb) | 5.5 (12.13) | 12.6 (27.78) | 1 |
| | | 6.1 (13.45) | 14.6 (32.19) | 2 |
| | | 6.6 (14.55) | 16.6 (36.60) | 3 |
| Running noise ⁽⁵⁾ | dB(A) | 73 | 75 | |
| Max. recommended input speed ⁽⁸⁾ | min ⁻¹ (rpm) | 7000 | 6500 | |

- (1) Number of gear stages
- (2) Values reference output shaft speed $n_2=100$ rpm, S1= 100% duty cycle, $K_A=1$ application factor and $T=30^\circ\text{C}$, 86°F ambient temperature
- (3) Measured at the middle of the output shaft
- (4) Measured at the middle of the gearbox housing surface
- (5) Sound pressure level measured 1 m from the gearbox for ratio 5:1 at 3000 input rpm and no load
- (6) Permissible about 1000 times during the gearbox life
- (7) Ratio dependent; based on $n_2=100$ rpm output shaft speed
- (8) Recommended gearbox operating temperature should not be exceeded, consult Neugart in case higher than listed rpm is required

| Type-Size | | WPLE 40 | WPLE 60 | WPLE 80 | WPLE 120 | i ⁽¹⁾ |
|--|-------------------------|---------|---------|---------|----------|------------------|
| Recommended max. mean input speed at 50% rated continuous duty torque (S1) rpm ⁽²⁾⁽³⁾ | min ⁻¹ (rpm) | 5000 | 4500 | 4000 | 3500 | 3 |
| | | 5000 | 4500 | 4000 | 3500 | 4 |
| | | 5000 | 4500 | 4000 | 3500 | 5 |
| | | 5000 | 4500 | 4000 | 3500 | 8 |
| | | 5000 | 4500 | 3600 | 3450 | 9 |
| | | 5000 | 4500 | 4000 | 3500 | 12 |
| | | 5000 | 4500 | 4000 | 3500 | 15 |
| | | 5000 | 4500 | 4000 | 3500 | 16 |
| | | 5000 | 4500 | 4000 | 3500 | 20 |
| | | 5000 | 4500 | 4000 | 3500 | 25 |
| | | 5000 | 4500 | 4000 | 3500 | 32 |
| | | 5000 | 4500 | 4000 | 3500 | 40 |
| | | 5000 | 4500 | 4000 | 3500 | 60 |
| | | 5000 | 4500 | 4000 | 3500 | 64 |
| | | 5000 | 4500 | 4000 | 3500 | 80 |
| | | 5000 | 4500 | 4000 | 3500 | 100 |
| | | 5000 | 4500 | 4000 | 3500 | 120 |
| | | 5000 | 4500 | 4000 | 3500 | 160 |
| | | 5000 | 4500 | 4000 | 3500 | 200 |
| 5000 | 4500 | 4000 | 3500 | 256 | | |
| 5000 | 4500 | 4000 | 3500 | 320 | | |
| 5000 | 4500 | 4000 | 3500 | 512 | | |

| Type-Size | | WPLE 40 | WPLE 60 | WPLE 80 | WPLE 120 | i ⁽¹⁾ |
|---|-------------------------|---------|---------|---------|----------|------------------|
| Recommended max. mean input speed at 100% rated continuous duty torque (S1) rpm ⁽²⁾⁽³⁾ | min ⁻¹ (rpm) | 5000 | 4450 | 2750 | 2200 | 3 |
| | | 5000 | 4450 | 2650 | 2150 | 4 |
| | | 5000 | 4400 | 2650 | 2150 | 5 |
| | | 5000 | 4500 | 4000 | 3300 | 8 |
| | | 3350 | 3850 | 2150 | 2050 | 9 |
| | | 5000 | 4500 | 2850 | 2150 | 12 |
| | | 5000 | 4500 | 3550 | 2800 | 15 |
| | | 5000 | 4500 | 3400 | 2650 | 16 |
| | | 5000 | 4500 | 4000 | 3050 | 20 |
| | | 5000 | 4500 | 4000 | 3500 | 25 |
| | | 5000 | 4500 | 4000 | 3500 | 32 |
| | | 5000 | 4500 | 4000 | 3500 | 40 |
| | | 5000 | 4500 | 4000 | 3500 | 60 |
| | | 5000 | 4500 | 4000 | 3500 | 64 |
| | | 5000 | 4500 | 4000 | 3500 | 80 |
| | | 5000 | 4500 | 4000 | 3500 | 100 |
| | | 5000 | 4500 | 4000 | 3500 | 120 |
| | | 5000 | 4500 | 4000 | 3500 | 160 |
| | | 5000 | 4500 | 4000 | 3500 | 200 |
| 5000 | 4500 | 4000 | 3500 | 256 | | |
| 5000 | 4500 | 4000 | 3500 | 320 | | |
| 5000 | 4500 | 4000 | 3500 | 512 | | |

(1) Ratio ($i = n_1 \text{ rpm high speed side} / n_2 \text{ rpm low speed side}$)

(2) Recommended gearbox operating temperature should not be exceeded, consult Neugart in case higher than listed rpm is required

(3) Exact definition see page 81

| Type-Size | | WPLE 80/90 | WPLE 120/115 | i ⁽¹⁾ |
|--|-------------------------|------------|--------------|------------------|
| Recommended max. mean input speed at 50% rated continuous duty torque (S1) rpm ⁽²⁾⁽³⁾ | min ⁻¹ (rpm) | 3550 | 3500 | 3 |
| | | 3700 | 3500 | 4 |
| | | 3800 | 3500 | 5 |
| | | 4000 | 3500 | 8 |
| | | 3450 | 3450 | 9 |
| | | 4000 | 3500 | 12 |
| | | 4000 | 3500 | 15 |
| | | 4000 | 3500 | 16 |
| | | 4000 | 3500 | 20 |
| | | 4000 | 3500 | 25 |
| | | 4000 | 3500 | 32 |
| | | 4000 | 3500 | 40 |
| | | 4000 | 3500 | 60 |
| | | 4000 | 3500 | 64 |
| | | 4000 | 3500 | 80 |
| | | 4000 | 3500 | 100 |
| | | 4000 | 3500 | 120 |
| | | 4000 | 3500 | 160 |
| | | 4000 | 3500 | 200 |
| | | 4000 | 3500 | 256 |
| 4000 | 3500 | 320 | | |
| 4000 | 3500 | 512 | | |

| Type-Size | | WPLE 80/90 | WPLE 120/115 | i ⁽¹⁾ |
|---|-------------------------|------------|--------------|------------------|
| Recommended max. mean input speed at 100% rated continuous duty torque (S1) rpm ⁽²⁾⁽³⁾ | min ⁻¹ (rpm) | 2500 | 2200 | 3 |
| | | 2500 | 2150 | 4 |
| | | 2500 | 2150 | 5 |
| | | 4000 | 3300 | 8 |
| | | 2100 | 2050 | 9 |
| | | 2850 | 2150 | 12 |
| | | 3550 | 2800 | 15 |
| | | 3400 | 2650 | 16 |
| | | 4000 | 3050 | 20 |
| | | 4000 | 3500 | 25 |
| | | 4000 | 3500 | 32 |
| | | 4000 | 3500 | 40 |
| | | 4000 | 3500 | 60 |
| | | 4000 | 3500 | 64 |
| | | 4000 | 3500 | 80 |
| | | 4000 | 3500 | 100 |
| | | 4000 | 3500 | 120 |
| | | 4000 | 3500 | 160 |
| | | 4000 | 3500 | 200 |
| | | 4000 | 3500 | 256 |
| 4000 | 3500 | 320 | | |
| 4000 | 3500 | 512 | | |

⁽¹⁾ Ratio ($i = n_1 \text{ rpm high speed side} / n_2 \text{ rpm low speed side}$)

⁽²⁾ Recommended gearbox operating temperature should not be exceeded, consult Neugart in case higher than listed rpm is required

⁽³⁾ Exact definition see page 81

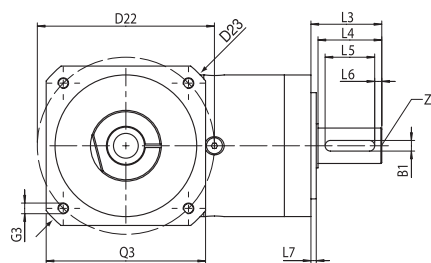
| Type-Size | | WPLE 40 | WPLE 60 | WPLE 80 | WPLE 120 | i ⁽¹⁾ |
|---------------------------------------|--|--------------|--------------|---------------|--------------|------------------|
| Mass moment of inertia ⁽²⁾ | kgcm ² (lbin s ² x 10 ⁻⁴) | 0.044 (0.39) | 0.246 (2.18) | 1.189 (10.52) | 5.75 (50.89) | 3 |
| | | 0.035 (0.31) | 0.204 (1.81) | 0.939 (8.31) | 3.91 (34.60) | 4 |
| | | 0.032 (0.28) | 0.189 (1.67) | 0.869 (7.69) | 3.35 (29.65) | 5 |
| | | 0.030 (0.27) | 0.176 (1.56) | 0.809 (7.16) | 2.89 (25.58) | 8 |
| | | 0.043 (0.38) | 0.242 (2.14) | 1.159 (10.26) | 5.73 (50.71) | 9 |
| | | 0.042 (0.37) | 0.238 (2.11) | 1.139 (10.08) | 5.60 (49.56) | 12 |
| | | 0.036 (0.32) | 0.188 (1.66) | 1.129 (9.99) | 5.53 (48.94) | 15 |
| | | 0.035 (0.31) | 0.199 (1.76) | 0.919 (8.13) | 3.83 (33.90) | 16 |
| | | 0.032 (0.28) | 0.186 (1.65) | 0.859 (7.60) | 3.28 (29.03) | 20 |
| | | 0.032 (0.28) | 0.186 (1.65) | 0.859 (7.60) | 3.26 (28.85) | 25 |
| | | 0.030 (0.27) | 0.175 (1.55) | 0.809 (7.16) | 2.84 (25.13) | 32 |
| | | 0.029 (0.26) | 0.175 (1.55) | 0.809 (7.16) | 2.84 (25.13) | 40 |
| | | 0.042 (0.37) | 0.187 (1.65) | 0.929 (8.22) | 5.62 (49.74) | 60 |
| | | 0.029 (0.26) | 0.175 (1.55) | 0.809 (7.16) | 2.84 (25.13) | 64 |
| | | 0.032 (0.28) | 0.186 (1.65) | 0.919 (8.13) | 3.28 (29.03) | 80 |
| | | 0.032 (0.28) | 0.186 (1.65) | 0.859 (7.60) | 3.26 (28.85) | 100 |
| | | 0.042 (0.37) | 0.175 (1.55) | 1.119 (9.90) | 5.47 (48.41) | 120 |
| | | 0.029 (0.26) | 0.175 (1.55) | 0.809 (7.16) | 2.84 (25.13) | 160 |
| | | 0.029 (0.26) | 0.175 (1.55) | 0.809 (7.16) | 2.84 (25.13) | 200 |
| | | 0.029 (0.26) | 0.175 (1.55) | 0.809 (7.16) | 2.84 (25.13) | 256 |
| 0.029 (0.26) | 0.175 (1.55) | 0.809 (7.16) | 2.84 (25.13) | 320 | | |
| 0.029 (0.26) | 0.175 (1.55) | 0.809 (7.16) | 2.84 (25.13) | 512 | | |

⁽¹⁾ Ratio ($i = n_{1 \text{ rpm high speed side}} / n_{2 \text{ rpm low speed side}}$)
⁽²⁾ The moment of inertia relates to the high speed side (typically motor shaft)

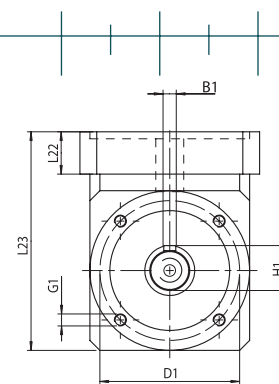
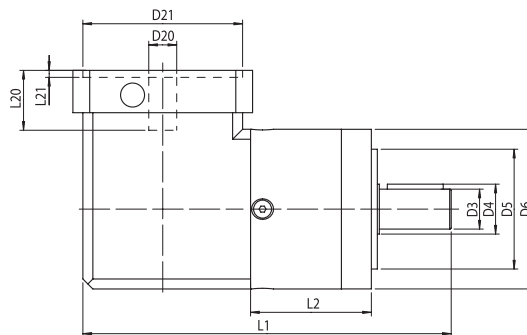
| Type-Size | | WPLE 80/90 | WPLE 120/115 | i ⁽¹⁾ |
|---------------------------------------|--|---------------|--------------|------------------|
| Mass moment of inertia ⁽²⁾ | kgcm ² (lbin s ² x 10 ⁻⁴) | 1.189 (10.52) | 5.75 (50.89) | 3 |
| | | 0.939 (8.31) | 3.91 (34.60) | 4 |
| | | 0.869 (7.69) | 3.35 (29.65) | 5 |
| | | 0.809 (7.16) | 2.89 (25.58) | 8 |
| | | 1.159 (10.26) | 5.73 (50.71) | 9 |
| | | 1.139 (10.08) | 5.60 (49.56) | 12 |
| | | 1.129 (9.99) | 5.53 (48.94) | 15 |
| | | 0.919 (8.13) | 3.83 (33.90) | 16 |
| | | 0.859 (7.60) | 3.28 (29.03) | 20 |
| | | 0.859 (7.60) | 3.26 (28.85) | 25 |
| | | 0.809 (7.16) | 2.84 (25.13) | 32 |
| | | 0.809 (7.16) | 2.84 (25.13) | 40 |
| | | 0.929 (8.22) | 5.62 (49.74) | 60 |
| | | 0.809 (7.16) | 2.84 (25.13) | 64 |
| | | 0.919 (8.13) | 3.28 (29.03) | 80 |
| | | 0.859 (7.60) | 3.26 (28.85) | 100 |
| | | 1.119 (9.90) | 5.47 (48.41) | 120 |
| | | 0.809 (7.16) | 2.84 (25.13) | 160 |
| | | 0.809 (7.16) | 2.84 (25.13) | 200 |
| | | 0.809 (7.16) | 2.84 (25.13) | 256 |
| 0.809 (7.16) | 2.84 (25.13) | 320 | | |
| 0.809 (7.16) | 2.84 (25.13) | 512 | | |

⁽¹⁾ Ratio ($i = n_1 \text{ rpm high speed side} / n_2 \text{ rpm low speed side}$)

⁽²⁾ The moment of inertia relates to the high speed side (typically motor shaft)



Input side view



Output side view

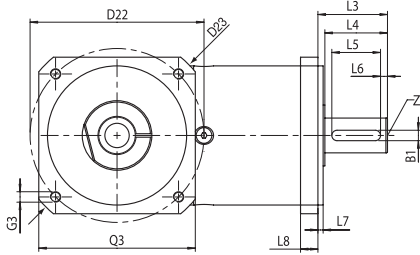
| Type-Size | | WPLE 40 | WPLE 60 | WPLE 80 | WPLE 120 | Z ⁽²⁾ |
|---|----|---------|---------|---------|----------|------------------|
| All dimensions in mm | | | | | | |
| B1 Key DIN 6885 T1 | | 3 | 5 | 6 | 8 | |
| D1 Flange bolt hole circle | | 34 | 52 | 70 | 100 | |
| D3 Output shaft diameter | h7 | 10 | 14 | 20 | 25 | |
| D4 Output shaft collar diameter | | 12 | 17 | 25 | 35 | |
| D5 Pilot diameter | h7 | 26 | 40 | 60 | 80 | |
| D6 Body diameter | | 40 | 60 | 80 | 115 | |
| D20 Pinion bore diameter ⁽¹⁾⁽⁴⁾ | | 6 | 9 | 14 | 19 | |
| D21 Motor centering pilot diameter ⁽¹⁾ | | 30 | 40 | 80 | 95 | |
| D22 Motor matching bolt circle diameter ⁽¹⁾ | | 46 | 63 | 100 | 115 | |
| D23 Motor matching adapter diagonal | | 54 | 80 | 116 | 145 | |
| G1 Mounting hole thread x depth ⁽¹⁾ | 4x | M4x6 | M5x8 | M6x10 | M10x16 | |
| G3 Mounting hole thread x depth ⁽¹⁾ | | M4x6 | M5x8 | M6x10 | M8x20 | |
| H1 Key DIN 6885 T1 | | 11.2 | 16 | 22.5 | 28 | |
| L1 Overall length ⁽³⁾ | | 110 | 147.5 | 184 | 249.5 | 1 |
| | | 123 | 159.5 | 201.5 | 276.5 | 2 |
| | | 135 | 172.5 | 219 | 303.5 | 3 |
| L2 Main-body length | | 39 | 47 | 60 | 74 | 1 |
| | | 52 | 59 | 77.5 | 101 | 2 |
| | | 64 | 72 | 95 | 128 | 3 |
| L3 Output shaft length from mounting face | | 26 | 35 | 40 | 55 | |
| L4 Output shaft length from collar | | 23 | 30 | 36 | 50 | |
| L5 Key length | | 18 | 25 | 28 | 40 | |
| L6 Distance from shaft end | | 2.5 | 2.5 | 4 | 5 | |
| L7 Pilot length | | 2 | 3 | 3 | 4 | |
| L20 Reference motor shaft length ⁽³⁾ | | 25 | 23 | 30 | 40 | |
| L21 Motor pilot depth | | 3 | 2.5 | 3.5 | 3.5 | |
| L22 Reference motor adapter flange width ⁽³⁾ | | 19 | 16 | 21.2 | 21.8 | |
| L23 Overall height ⁽³⁾ | | 68 | 85.5 | 109.5 | 145.5 | 1 |
| Q3 Motor adapter square ⁽¹⁾ | □ | 40 | 60 | 90 | 115 | |
| Z Center bore DIN 332, page 2, form DR | | M3x9 | M5x12 | M6x16 | M10x22 | |

⁽¹⁾ Dimensions reference to the mounted motor-type, see page 66

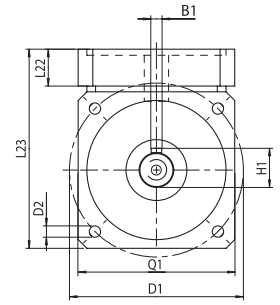
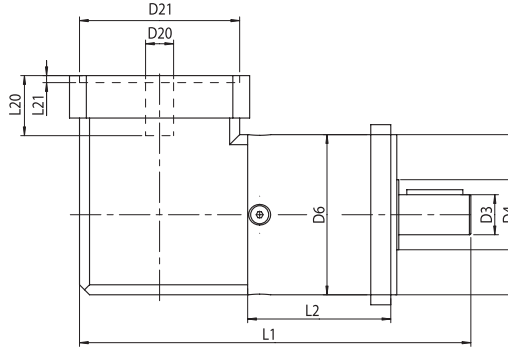
⁽²⁾ Number of gear stages

⁽³⁾ For longer motor shaft > L20, actual minimal L22 dimension = L22 + (Motor shaft length - L20)

⁽⁴⁾ For shaft fit j6 to k6



Input side view



Output side view

| Type-Size | | PLE 80/90 | PLE 120/115 | Z ⁽²⁾ |
|---|----|-----------|-------------|------------------|
| All dimensions in mm | | | | |
| B1 Key DIN 6885 T1 | | 6 | 8 | |
| D1 Flange bolt hole circle | | 100 | 130 | |
| D2 Mounting bolt hole diameter | 4x | 6.5 | 8.5 | |
| D3 Output shaft diameter | h7 | 20 | 25 | |
| D4 Output shaft collar diameter | | 35 | 35 | |
| D5 Pilot diameter | h7 | 80 | 110 | |
| D6 Body diameter | | 80 | 115 | |
| D20 Pinion bore diameter ⁽¹⁾⁽⁴⁾ | | 14 | 19 | |
| D21 Motor centering pilot diameter ⁽¹⁾ | | 80 | 95 | |
| D22 Motor matching bolt circle diameter ⁽¹⁾ | | 100 | 115 | |
| D23 Motor matching adapter diagonal | | 116 | 145 | |
| G3 Mounting hole thread x depth ⁽¹⁾ | 4x | M6x15 | M8x20 | |
| H1 Key DIN 6885 T1 | | 22.5 | 28 | |
| L1 Overall length ⁽³⁾ | | 195.5 | 274.5 | 1 |
| | | 212.5 | 301.5 | 2 |
| | | 230 | 328.5 | 3 |
| L2 Main-body length | | 71.5 | 99 | 1 |
| | | 88.5 | 126 | 2 |
| | | 106 | 153 | 3 |
| L3 Output shaft length from mounting face | | 40 | 55 | |
| L4 Output shaft length from collar | | 36 | 50 | |
| L5 Key length | | 28 | 40 | |
| L6 Distance from shaft end | | 4 | 5 | |
| L7 Pilot length | | 3 | 4 | |
| L8 Flange width | | 10 | 15 | |
| L20 Reference motor shaft length ⁽³⁾ | | 30 | 40 | |
| L21 Motor pilot depth | | 3.5 | 3.5 | |
| L22 Reference motor adapter flange width ⁽³⁾ | | 21.2 | 21.8 | |
| L23 Overall height ⁽³⁾ | | 114.5 | 145.5 | 1 |
| Q1 Motor adapter square | □ | 90 | 115 | |
| Q3 Motor adapter square ⁽¹⁾ | □ | 90 | 115 | |
| Z Center bore DIN 332, page 2, form DR | | M6x16 | M10x22 | |

⁽¹⁾ Dimensions reference to the mounted motor-type, see page 66

⁽²⁾ Number of gear stages

⁽³⁾ For longer motor shaft > L20, actual minimal L22 dimension = L22 + (Motor shaft length – L20)

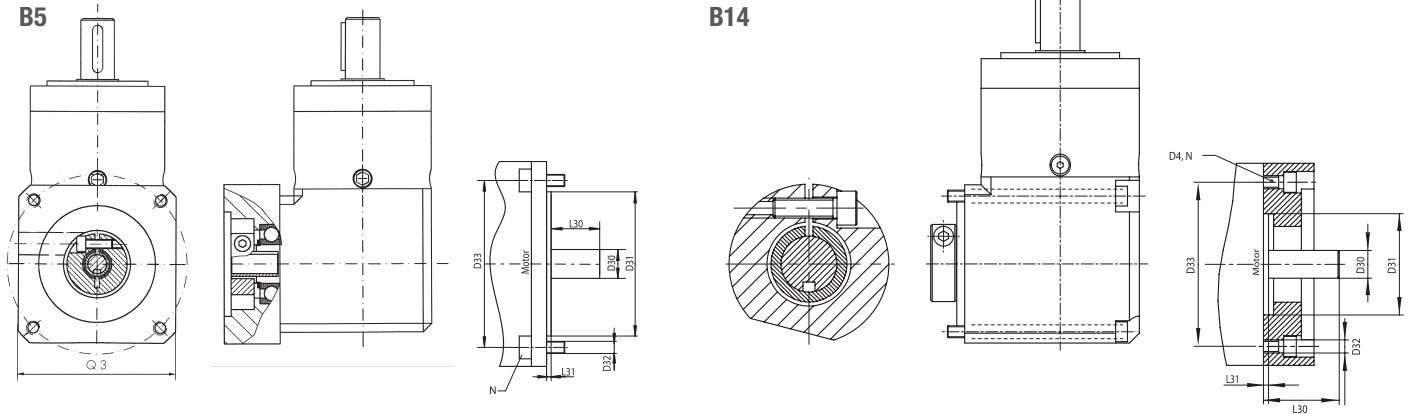
⁽⁴⁾ For shaft fit j6 to k6

OP 2: Motor Mount option

Note: B5 mounting depicted;

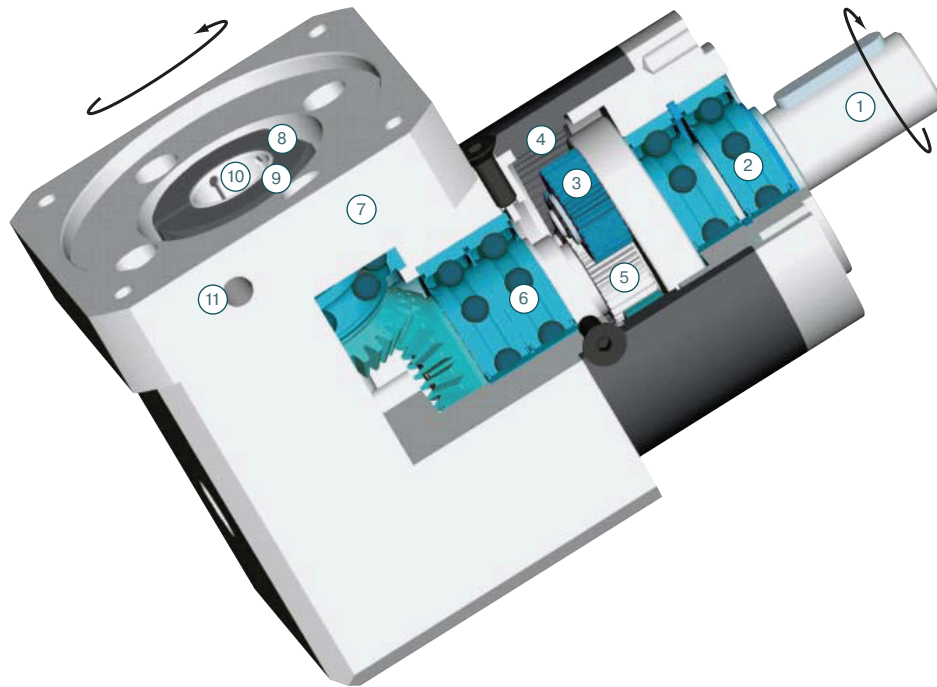
B14 motor mounting requires special/custom motor adapter

See page 77 for other options



| Type-Size | | WPLE 40 | WPLE 60 | WPLE 80-80/90 | WPLE 120-120/115 | Z ⁽²⁾ |
|--|-----------|--------------------|----------------------------|---|-----------------------------------|------------------|
| D4 Motor mounting hole diameter ⁽³⁾ | | any | any | any | any | |
| D30 Motor shaft diameter/ Available pinion bores / bushings ⁽¹⁾⁽⁵⁾ | mm | 4/5/6/ 6.35/8/9 | 6/6.35/8/9/ 9.525/11/14 | 9.525/10/11/12/12.7/ 14/15.875/16/19 | 11/12.7/14/15.875/ 16/19/22/24 | |
| D31 Motor pilot diameter ⁽³⁾ | | any | any | any | any | |
| D32 Motor bolt hole diameter ⁽³⁾ | | any | any | any | any | |
| D33 Hole circle diameter ⁽³⁾ | | any | any | any | any | |
| G4 Motor mounting thread size | | any | any | any | any | |
| L30 min. motor shaft length ⁽¹⁾ | mm | 12.5 | 16 | 19 | 21 | |
| L31 pilot depth | | any | any | any | any | |
| N Number of bolt holes | | 4 | 4 | 4 | 4 | |
| Q3 Min flange square ⁽¹⁾ | □ | 40 | 60 | 42 | 115 | |
| Recommended max. motor weight ⁽⁴⁾ | kg (lb) | 2 (4.41) | 3.5 (7.72) | 9 (19.85) | 16 (35.28) | |
| Motor type ⁽¹⁾ | | B5/B14 | B5/B14 | B5/B14 | B5/B14 | |
| Recommended clamping screw tightening torque | Nm (lbin) | 2 (18) | 4.5 (40) | 9.5 (84) | 16.5 (146) | |
| SW wrench width | mm | 2.5 | 3 | 4 | 5 | |

⁽¹⁾ Other dimensions on inquiry⁽²⁾ Number of gear stages⁽³⁾ Provided that flange dimensions are compatible⁽⁴⁾ In horizontal and stationary mounting position⁽⁵⁾ Shaft fit: j6; k6



- 1** Output shaft
Made of high-strength high quality steel for high shaft reliability
- 2** Output shaft bearing
Deep groove ball bearings with contact seals
- 3** Planet gears
Precision zero helix angle gear with optimized profile modifications and crowning; case hardened and hard finished by honing
- 4** Housing with integrated ring gear
Ring gear is case hardened and precision honed for high loadability, minimum wear, consistent backlash
- 5** Sun gear
Precision machined optimized gear profile, case hardened and honed for high loadability, low running noise, minimum wear, and consistent backlash
- 6** Sun gear bearing
Paired deep groove ball bearings
- 7** Motor matching adapter plate
Matches the gear head with virtually any servo motor; made of aluminum for enhanced thermal conductivity
- 8** Clamping ring
Balanced ring, suitable for high rpm, made of steel to allow high clamping forces for safe torque transfer
- 9** Clamping screw
High strength steel screw with special low pitch thread to generate a high clamping force
- 10** PCS System
Patented multiple closed slot Precision Clamping System - most reliable advanced system available today
- 11** Assembly bore
Access bore for the clamping screw
- 12** Bevel gears
Straight tooth bevel gears; hardened