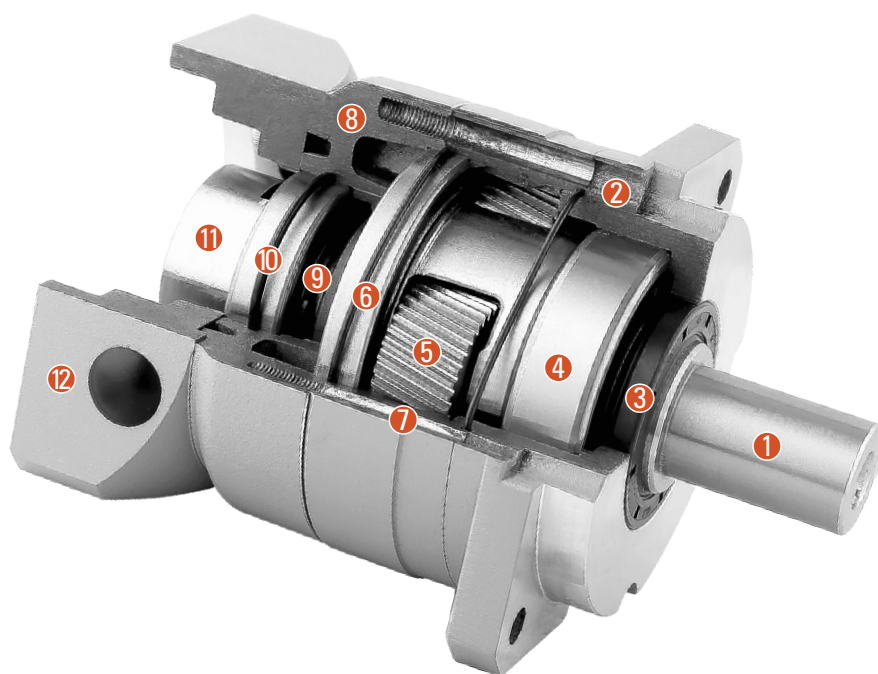


SBF SERIES GEAR BOX

Sectional drawing



- ① Output shaft
- ② Front cover
- ③ Oil seal
- ④ Output shaft front bearing
- ⑤ Planetary gear
- ⑥ Output shaft rear bearing
- ⑦ Inner ring gear
- ⑧ Rear cover
- ⑨ Solar wheel
- ⑩ Coupling bearing
- ⑪ Coupling
- ⑫ Flange

Type and model number

| SBF Reducers | | | | | Servo motor | | |
|--------------|-----|----|-----|-----|-------------|-----|----|
| 60 | SBF | 10 | () | (S) | - | 400 | T1 |
| ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | |

① Gear head frame size: 060/090/115/142/180

② Gear head series code:
SBF: Square mounting flange series

③ Gear ratio: Single stage 10

| | Cabin seat | Stage | Gear ratio: Single stage 10 | |
|---|------------|-------|-----------------------------|-------------|
| | | | Precise P1 | Standard P2 |
| ④ Accuracy Output shaft load value at $\pm 3\%$ of allowable output torque | 060SBF | 1 | 3 | 5 |
| | | 2 | 5 | 7 |
| | 090SBF | 1 | 3 | 5 |
| | | 2 | 5 | 7 |
| | 115SBF | 1 | 3 | 5 |
| | | 2 | 5 | 7 |
| | 142SBF | 1 | 3 | 5 |
| | | 2 | 5 | 7 |
| | 180SBF | 1 | 3 | 5 |
| | | 2 | 5 | 7 |

Input shaft type

S: Overall locking (Omitted) (Can be used regardless of whether the motor has a keyway)

⑤ S1: Locking with locking ring (Can be used regardless of whether the motor has a keyway)

S2: Lock with keyway (Input shaft with key)

K: With keyway

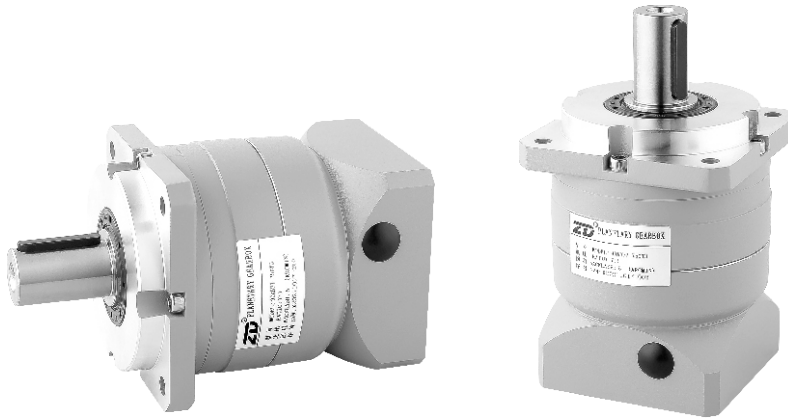
A: Other adapters (Please contact us)

⑥ Applicable servo motor power (W)

⑦ Corresponding dimension table of input flange and servo motor ()

SBF PLANETARY GEAR BOX

Product diagram



Technical information

| Product type | | 060 | 090 | 115 | 142 | 180 | Reduction ratio | Stage |
|-------------------------------|------|-----------------------------|-----|-----|-----|------|-----------------|-------|
| Rated output torque | N.M | 45 | 120 | 198 | 332 | 578 | 3 | 1 |
| | | 40 | 130 | 280 | 532 | 1040 | 4 | |
| | | 50 | 150 | 320 | 650 | 1190 | 5 | |
| | | 40 | 130 | 290 | 540 | 1090 | 7 | |
| | | 35 | 110 | 250 | 490 | 990 | 8 | |
| | | 30 | 90 | 220 | 440 | 890 | 10 | |
| | | 45 | 120 | 198 | 332 | 578 | 15 | 2 |
| | | 40 | 130 | 280 | 532 | 1040 | 20 | |
| | | 50 | 150 | 320 | 640 | 1190 | 25 | |
| | | 40 | 130 | 290 | 540 | 1190 | 35 | |
| | | 35 | 110 | 250 | 490 | 990 | 40 | |
| | | 50 | 150 | 320 | 640 | 1190 | 50 | |
| | | 45 | 140 | 300 | - | - | 64 | |
| | | 40 | 130 | 290 | 540 | 1090 | 70 | |
| | | 35 | 110 | 250 | 490 | 990 | 80 | |
| | | 30 | 90 | 220 | 440 | 890 | 100 | |
| Life | Hour | 20000 | | | | | | |
| Instant emergency stop torque | N.M | 3 times rated output torque | | | | | | |

| Product type | 060 | 090 | 115 | 142 | 180 | Unit | Stage |
|-----------------------|----------------------|-------|------|-------|-------|------|-------|
| Radial force | 1100 | 3000 | 6023 | 9230 | 13500 | N | - |
| Axial force | 630 | 1230 | 2550 | 4200 | 7000 | N | - |
| Full load efficiency | ≥ 97 | | | | | % | 1 |
| | | | | | | | 2 |
| Weight | 1.055 | 2.680 | 6.32 | 18.30 | 26.80 | Kg | 1 |
| | 1.065 | 3.135 | 7.20 | 22.14 | 33.55 | | 2 |
| Operating temperature | -10 ~ +90 | | | | | °C | - |
| Protection level | IP65 | | | | | | |
| Lubrication method | Lifetime lubrication | | | | | | |
| Installation method | Any | | | | | | |

Maximum radial force and maximum axial force, when the output is 100RPM, it acts on the center position (L/2) of the output shaft.

SBF PLANETARY GEAR BOX

Technical information

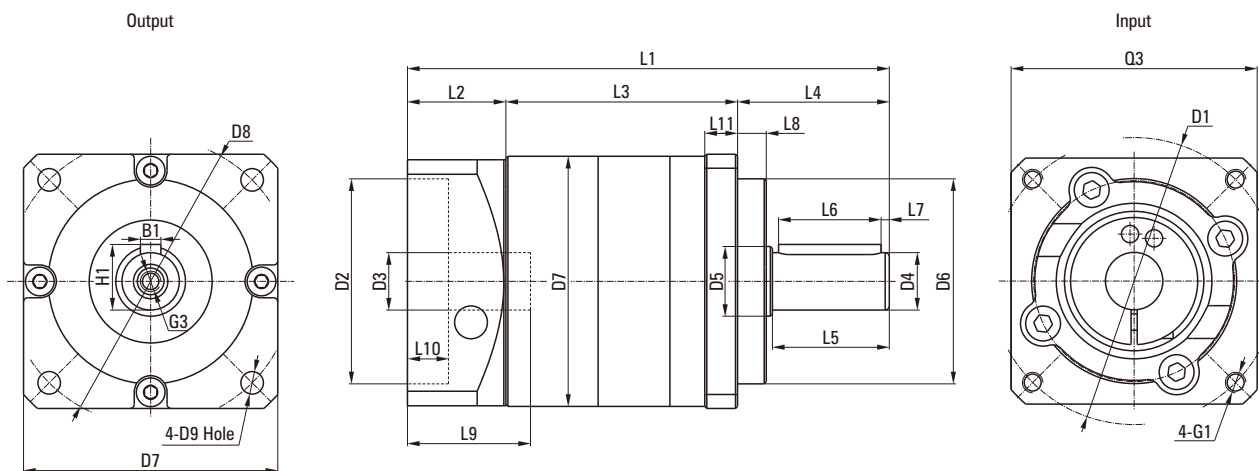
| Product type | | 060 | 090 | 115 | 142 | 180 | Reduction ratio | Stage |
|-------------------|-------------------|------|------|------|------|-------|-----------------|-------|
| Moment of inertia | Kgcm ² | 0.16 | 0.61 | 3.25 | 9.21 | 28.98 | 3 | 1 |
| | | 0.14 | 0.48 | 2.74 | 7.54 | 23.67 | 4 | |
| | | 0.13 | 0.47 | 2.71 | 7.42 | 23.29 | 5 | |
| | | 0.13 | 0.45 | 2.62 | 7.14 | 22.48 | 7 | |
| | | 0.13 | 0.44 | 2.58 | 7.07 | 22.59 | 8 | |
| | | 0.13 | 0.44 | 2.57 | 7.03 | 22.51 | 10 | |
| | | 0.03 | 0.13 | 0.47 | 2.71 | 7.42 | 15 | 2 |
| | | 0.03 | 0.13 | 0.47 | 2.71 | 7.42 | 20 | |
| | | 0.03 | 0.13 | 0.47 | 2.71 | 7.42 | 25 | |
| | | 0.03 | 0.13 | 0.47 | 2.71 | 7.42 | 35 | |
| | | 0.03 | 0.13 | 0.47 | 2.71 | 7.42 | 40 | |
| | | 0.03 | 0.13 | 0.44 | 2.57 | 7.03 | 50 | |
| | | 0.03 | 0.13 | 0.44 | - | - | 64 | |
| | | 0.03 | 0.13 | 0.44 | 2.57 | 7.03 | 70 | |
| | | 0.03 | 0.13 | 0.44 | 2.57 | 7.03 | 80 | |
| | | 0.03 | 0.13 | 0.44 | 2.57 | 7.03 | 100 | |

| Product type | | 60 | 90 | 115 | 142 | 180 | Stage |
|-------------------------|-------------------|------|------|------|------|------|-------|
| Backlash | arcmin | ≤5 | ≤5 | ≤5 | ≤5 | ≤5 | 1 |
| | | ≤7 | ≤7 | ≤7 | ≤7 | ≤7 | 2 |
| Torsion resistance | N.M/arcmin | 7 | 14 | 25 | 50 | 145 | - |
| Noise | dB(A) | ≤63 | | | | | - |
| Output speed | min ⁻¹ | 6000 | 6000 | 6000 | 6000 | 6000 | - |
| Recommended input speed | min ⁻¹ | 3000 | 3000 | 3000 | 3000 | 3000 | - |

- Moment of inertia is related to input shaft.
- Noise detection standard, distance 1m, measured at input speed of 3000 rpm with no load.

SBF PLANETARY GEAR BOX-MECHANICAL PARAMETER

Dimensional drawing



Dimensional table

Unit: mm

| Product type | 060SBF | | 090SBF | | 115SBF | | 142SBF | | 180SBF | |
|--|--------|-------|--------|-------|--------|-----|----------|-------|----------|-------|
| Number of stage | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| L1 overall length | 121.5 | 131.5 | 153 | 167.5 | 208 | 219 | 295.3 | 330.5 | 295.5 | 352.5 |
| L3 body length | 60.5 | 70.5 | 71.3 | 85.8 | 95 | 106 | 132.3 | 167.5 | 141 | 198 |
| Output | | | | | | | | | | |
| L4 output shaft length | 37 | | 48 | | 65 | | 97 | | 105 | |
| L5 output length to the shaft shoulder | 28.5 | | 36 | | 51 | | 79 | | 82 | |
| L6 key length | 25 | | 32 | | 40 | | 70 | | 70 | |
| L7 key length to shaft end | 2 | | 2 | | 5 | | 4 | | 6 | |
| L8 spigot diameter | 7 | | 10 | | 12 | | 15 | | 20 | |
| L11 output flange thickness | 8 | | 10 | | 14 | | 15 | | 20 | |
| D4 output shaft diameter | Φ16h7 | | Φ22h7 | | Φ32h7 | | Φ40h7 | | Φ55h7 | |
| D5 shaft shoulder diameter | Φ20 | | Φ30 | | Φ40 | | Φ50 | | Φ65 | |
| D6 spigot diameter | Φ50h7 | | Φ80h7 | | Φ110h7 | | Φ130h7 | | Φ160h7 | |
| D7 body diameter | Φ61 | | Φ90 | | Φ115 | | Φ142 | | Φ180 | |
| D8 hole circle | Φ70 | | Φ100 | | Φ130 | | Φ165 | | Φ215 | |
| D9 mounting hole | Φ5.5 | | Φ6.5 | | Φ8.5 | | Φ11 | | Φ13 | |
| D10 mounting width | □62 | | □90 | | □120 | | □142 | | □180 | |
| B1 key width | 5 | | 6 | | 10 | | 12 | | 16 | |
| H1 key height | 18 | | 22.5 | | 35 | | 43 | | 59 | |
| G3 center screw hole | M5X15 | | M8X18 | | M12X28 | | M16X36 | | M20X42 | |
| Input | | | | | | | | | | |
| L2 input flange length | 24 | | 33.7 | | 48 | | 66 | | 49.5 | |
| L9 motor shaft length | 30 | | 40 | | 58 | | 81 | | 81 | |
| L10 spigot depth | 10 | | 10 | | 10 | | 12 | | 12 | |
| D1 mounting hole distribution circle | Φ70 | | Φ90 | | Φ145 | | Φ200 | | Φ200 | |
| D2 spigot diameter | Φ50G7 | | Φ70G7 | | Φ110G7 | | Φ114.3G7 | | Φ114.3G7 | |
| D3 input shaft diameter | ≤Φ14G7 | | ≤Φ19G7 | | ≤Φ24G7 | | ≤Φ35G7 | | ≤Φ35G7 | |
| G1 mounting threads X depth | M4X10 | | M5X12 | | M8X21 | | M12X28 | | M12X28 | |
| Q3 input flange | □60 | | □80 | | □130 | | □176 | | □176 | |