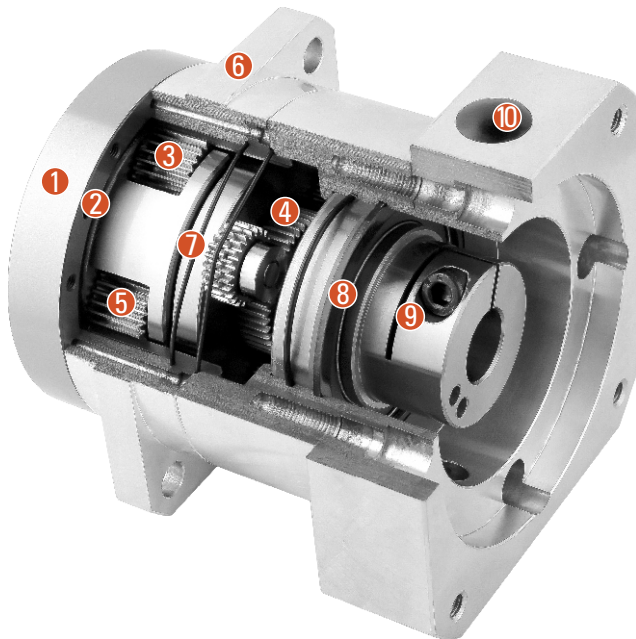


SPG/SDPG SERIES GEAR BOX

Sectional Drawing



- ① Output shaft
- ② Output shaft front bearing
- ③ Planetary gear
- ④ Sun Gear
- ⑤ Full needle bearing
- ⑥ Front cover
- ⑦ Output shaft rear bearing
- ⑧ Oil seal
- ⑨ Coupling
- ⑩ Rear cover

Type And Model Number

| SPG/SDPG Reducers | | | | Servo Motor | | | |
|-------------------|----------|----|-----|-------------|---|------|----|
| 32 | SPG/SDPG | 21 | () | (S) | - | 1000 | T1 |
| ① | ② | ③ | ④ | ⑤ | | ⑥ | ⑦ |

- ① Gear head frame size: 20, 32, 50
- ② Gear head series code: SPG: High torque type SDPG: Standard torque type
- Gear ratio
- ③ Single stage: 5
- Two stages: 11, 15, 21, 33, 45

- ④ Backlash
- Output load is $\pm 3\%$ of the rated output torque

| Reducer Type No | Stage | Standard Type | High Precision Type PO |
|-----------------|-------|---------------|------------------------|
| 20SPG | 1 | 3分arc-min | 1分arc-min |
| | 2 | 5分arc-min | 3分arc-min |
| 32SPG | 1 | 3分arc-min | 1分arc-min |
| | 2 | 5分arc-min | 3分arc-min |
| 50SPG | 1 | 3分arc-min | 1分arc-min |
| | 2 | 5分arc-min | 3分arc-min |

| |
|---|
| Input shaft type |
| S: Overall Locking (Omission)(Regardless whether the motor with keyway can use it) |
| ⑤ S1: Locking with locking ring (Omission)(Regardless whether the motor with keyway can use it) |
| S2: Locking with keyway (Input shaft with key) |
| A: Other type (Please contact with us) |
| ⑥ Applicable servo motor power (W) |
| ⑦ Model of servo motor & input flange |

PRODUCT SPECIFICATIONS

Reducer Performance Data

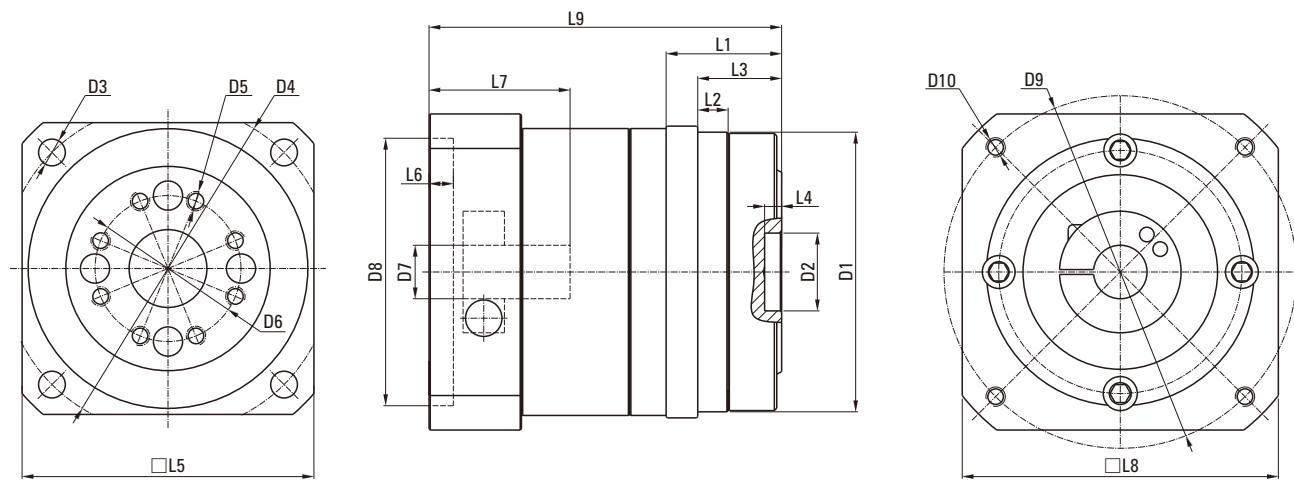
| Specifications | | Stage Number | Reduction Ratio | 20SPG | 32SPG | 50SPG |
|------------------------------|-----------|--------------|-----------------------------|----------------------|-------|-------|
| Rated output torque T_{2N} | Nm | 1 | 5 | 50 | 150 | 380 |
| | | | 2 | 11 | 59 | 160 |
| | | 15 | | 70 | 220 | 460 |
| | | 21 | | 78 | 240 | 490 |
| | | 33 | 72 | 200 | 620 | |
| 45 | 98 | 280 | 640 | | | |
| Instantaneous maximum torque | Nm | 1,2 | 2 times rated output torque | | | |
| Recommended input speed | rpm | 1,2 | 5~45 | 3000 | 3000 | 2000 |
| Maximum input speed | rpm | 1,2 | 5~45 | 6000 | 6000 | 4500 |
| Precision back lash | arcmin | 1 | 5 | ≤1 | ≤1 | ≤1 |
| | | 2 | 11~45 | ≤3 | ≤3 | ≤3 |
| Standard back lash | arcmin | 1 | 5 | ≤3 | ≤3 | ≤3 |
| | | 2 | 11~45 | ≤5 | ≤5 | ≤5 |
| Torsional rigidity | Nm/arcmin | 1,2 | 5~45 | 0.55 | 2.2 | 14 |
| Life | hr | 1,2 | 5~45 | 20000 | | |
| Efficiency | % | 1 | 5 | ≥97 | | |
| | | 2 | 11~45 | ≥94 | | |
| Weight | Kg | 1 | 5 | 1.2 | 3.0 | 10 |
| | | 2 | 11~45 | 1.5 | 3.7 | 12 |
| Ambient temperature | °C | 1,2 | 11~45 | -10°C ~ +90°C | | |
| lubrication | | 1,2 | 11~45 | Lifetime lubrication | | |
| Protection grade | | 1,2 | 11~45 | IP65 | | |
| Installation direction | | 1,2 | 11~45 | Any direction | | |
| Noise value | dB (A) | 1,2 | 11~45 | ≤63 | ≤65 | ≤72 |
| The moment of inertia | Nm | 1 | 5 | 0.16 | 0.80 | 4.90 |
| | | | 2 | 11 | 0.17 | 1.00 |
| | | 15 | | 0.15 | 0.74 | 3.50 |
| | | 21 | | 0.071 | 0.35 | 1.60 |
| | | 33 | 0.029 | 0.17 | 0.72 | |
| 45 | 0.022 | 0.12 | 0.50 | | | |

Reducer Performance Data

| Specifications | | Stage Number | Reduction Ratio | 20SDPG | 32SDPG | 50SDPG |
|------------------------------|-----------|--------------|-----------------------------|----------------------|--------|--------|
| Rated output torque T_{2N} | Nm | 1 | 5 | 38 | 120 | 290 |
| | | | 2 | 11 | 46 | 160 |
| | | 15 | | 58 | 170 | 400 |
| | | 21 | | 58 | 190 | 450 |
| | | 33 | 70 | 200 | 470 | |
| 45 | 73 | 240 | 560 | | | |
| Instantaneous maximum torque | Nm | 1,2 | 2 times rated output torque | | | |
| Recommended input speed | rpm | 1,2 | 5~45 | 3000 | 3000 | 2000 |
| Maximum input speed | rpm | 1,2 | 5~45 | 6000 | 6000 | 4500 |
| Precision back lash | arcmin | 1,2 | 5~45 | ≤1 | ≤1 | ≤1 |
| Standard back lash | arcmin | 1,2 | 5~45 | ≤3 | ≤3 | ≤3 |
| Torsional rigidity | Nm/arcmin | 1,2 | 5~45 | 0.55 | 2.2 | 14 |
| Life | hr | 1,2 | 5~45 | 20000 | | |
| Efficiency | % | 1 | 5 | ≥97 | | |
| | | 2 | 11~45 | ≥94 | | |
| Weight | Kg | 1 | 5 | 1.2 | 3.0 | 10 |
| | | 2 | 11~45 | 1.5 | 3.7 | 12 |
| Ambient temperature | °C | 1,2 | 11~45 | -10°C ~ +90°C | | |
| lubrication | | 1,2 | 11~45 | Lifetime lubrication | | |
| Protection grade | | 1,2 | 11~45 | IP65 | | |
| Installation direction | | 1,2 | 11~45 | Any direction | | |
| Noise value | dB (A) | 1,2 | 11~45 | ≤63 | ≤65 | ≤72 |
| The moment of inertia | Nm | 1 | 5 | 0.17 | 0.73 | 4.8 |
| | | | 2 | 11 | 0.15 | 0.78 |
| | | 15 | | 0.14 | 0.62 | 2.9 |
| | | 21 | | 0.069 | 0.34 | 1.6 |
| | | 33 | 0.023 | 0.12 | 0.6 | |
| 45 | 0.022 | 0.11 | 0.6 | | | |

SPG DIMENSIONS (SINGLE STAGE, RATIO I=5, TWO STAGE I=11-45)

Dimensional Drawing



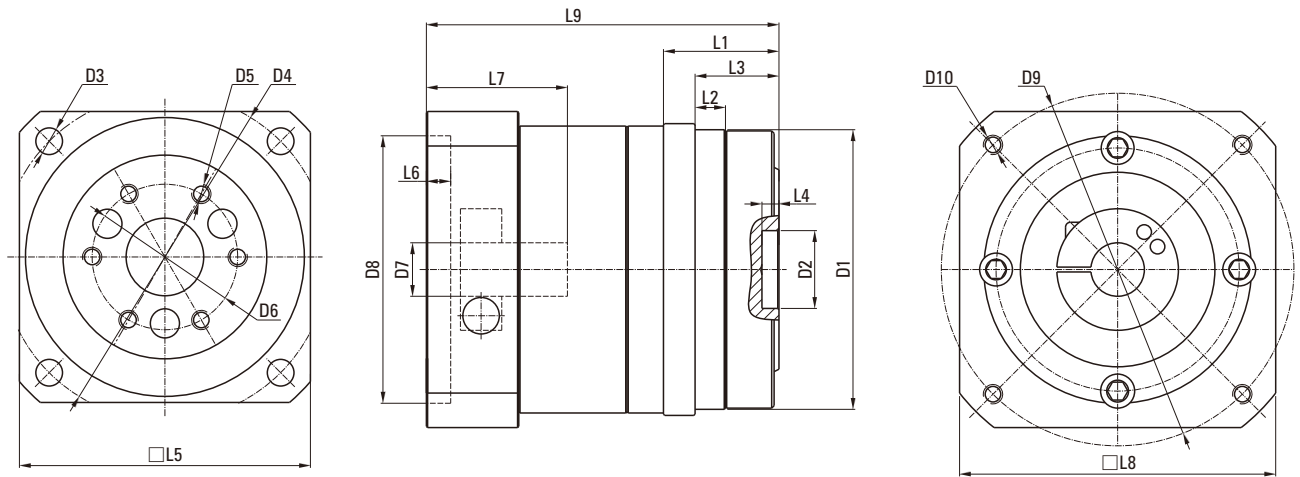
Dimensional Table

Unit: mm

| Type | 20SPG | 32SPG | 50SPG |
|---|---------|---------|----------|
| D1 Mounting boss | Φ85h7 | Φ115h7 | Φ165h7 |
| D2 Install seam | Φ24H7 | Φ32H7 | Φ47H7 |
| D3 Flange mounting through hole | 4-Φ9 | 4-Φ11 | 4-Φ14 |
| D4 Distribution circle of mounting hole | Φ105 | Φ135 | Φ190 |
| D5 Threaded mounting holes | 8-M6×10 | 8-M8×12 | 8-M12×20 |
| D6 Distribution circle of thread hole | Φ45 | Φ60 | Φ90 |
| D7 Input coupling hole | Φ14~Φ19 | Φ22 | Φ35 |
| D8 Input lip | Φ70 | Φ110 | Φ114.3 |
| D9 Distribution circle of threaded hole | Φ90 | Φ145 | Φ200 |
| 4-D10 Gasket threaded hole | M6×10 | M8×12 | M12×20 |
| L1 Flange face to face length | 37 | 47.5 | 69 |
| L2 Boss length | 8 | 12.5 | 12 |
| L3 Output flange thickness | 27 | 34.5 | 53 |
| Depth of L4 seam | 5 | 7 | 7 |
| L5 Flange width | □90 | □120 | □170 |
| L6 Gasket seam depth | 5 | 8 | 10 |
| L7 Coupling depth | 41 | 58 | 81 |
| L8 Gasket width | 100 | 130 | 176 |
| L9 Reducer length | 1 stage | 96 | 120 |
| | 2 stage | 113 | 145 |

SDPG DIMENSIONS (SINGLE STAGE, RATIO I=5, TWO STAGE I=11-45)

Dimensional Drawing



Dimensional Table

Unit: mm

| Type | 20SDPG | 32SDPG | 50SDPG |
|---|---------|---------|----------|
| D1 Mounting boss | Φ85h7 | Φ115h7 | Φ165h7 |
| D2 Install seam | Φ24H7 | Φ32H7 | Φ47H7 |
| D3 Flange mounting through hole | 4-Φ9 | 4-Φ11 | 4-Φ14 |
| D4 Distribution circle of mounting hole | Φ105 | Φ135 | Φ190 |
| D5 Threaded mounting holes | 6-M6×10 | 6-M8×12 | 14-M8×12 |
| D6 Distribution circle of thread hole | Φ45 | Φ60 | Φ100 |
| D7 Input coupling hole | Φ14~Φ19 | Φ22 | Φ35 |
| D8 Input lip | Φ70 | Φ110 | Φ114.3 |
| D9 Distribution circle of threaded hole | Φ90 | Φ145 | Φ200 |
| 4-D10 Gasket threaded hole | M6×10 | M8×12 | M12×20 |
| L1 Flange face to face length | 37 | 47.5 | 69 |
| L2 Boss length | 8 | 12.5 | 12 |
| L3 Output flange thickness | 27 | 34.5 | 53 |
| Depth of L4 seam | 5 | 7 | 7 |
| L5 Flange width | □90 | □120 | □170 |
| L6 Gasket seam depth | 5 | 8 | 10 |
| L7 Coupling depth | 41 | 58 | 81 |
| L8 Gasket width | 100 | 130 | 176 |
| L9 Reducer length | 1 stage | 96 | 120 |
| | 2 stage | 113 | 145 |