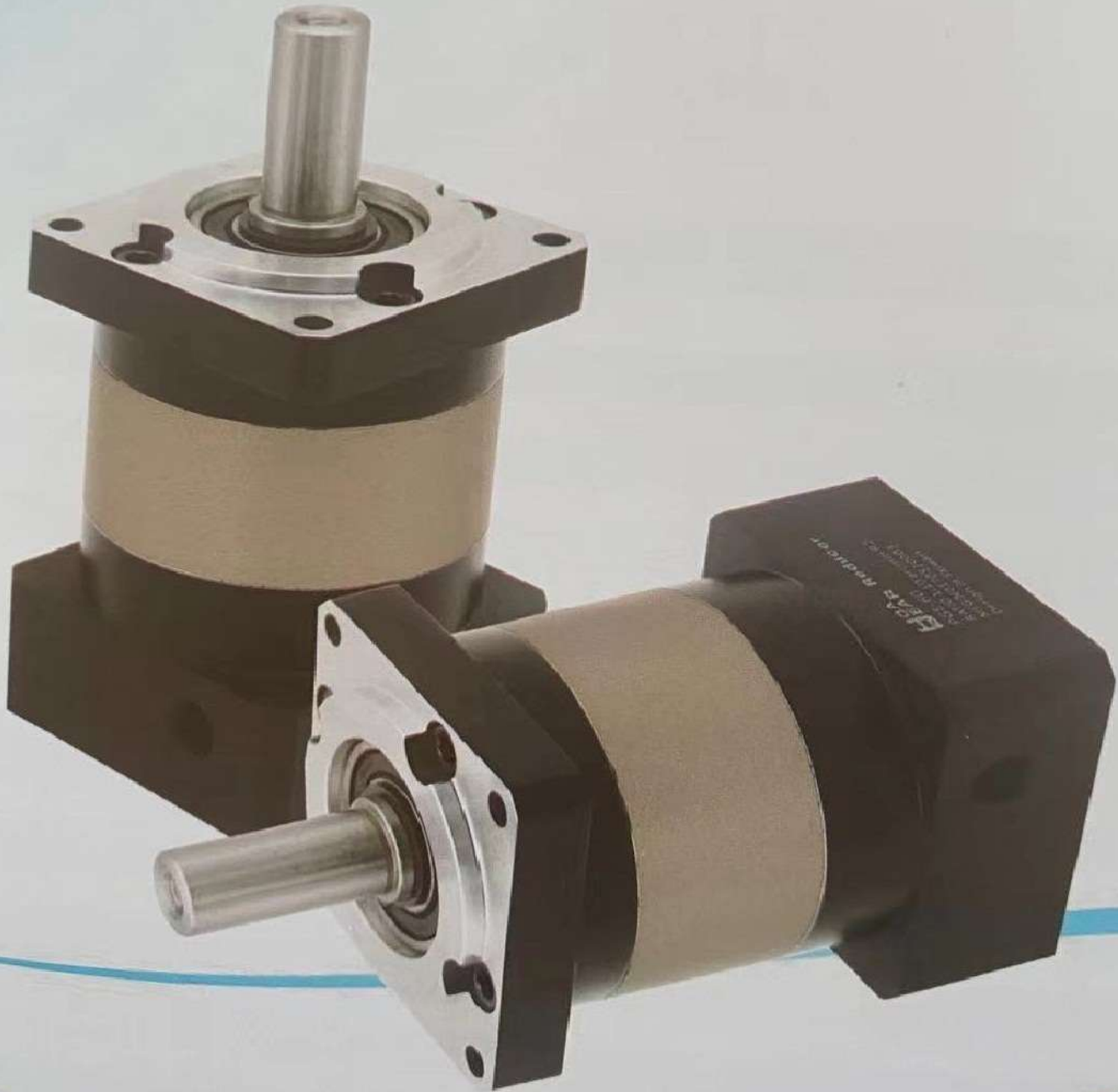



PLANETARY GEAR BOX



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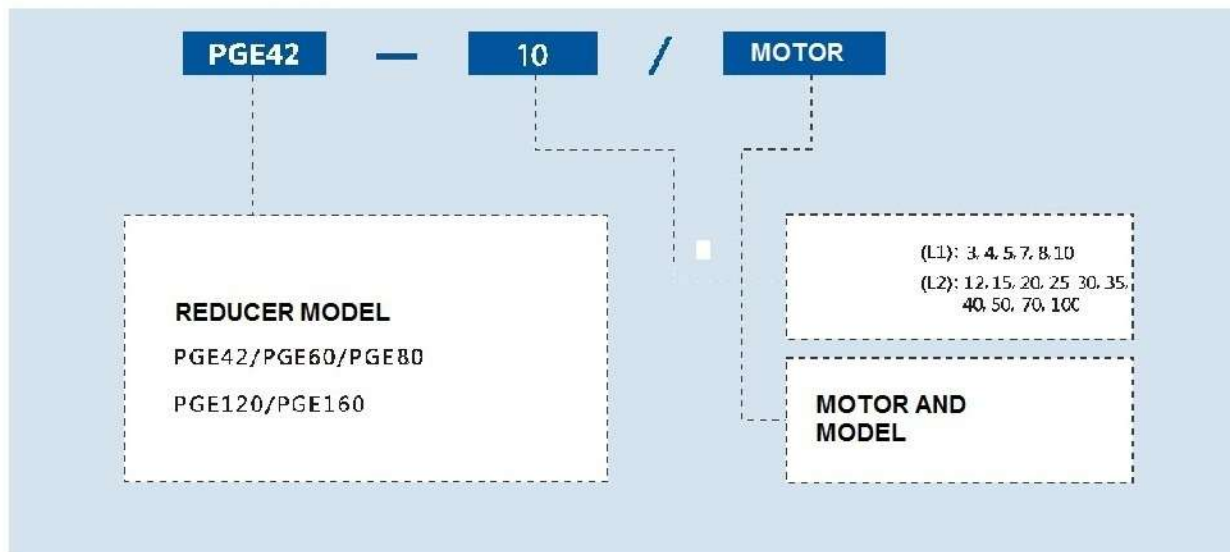
 OPP DHAWANS NURSERY, RAMBAUG LANE
UPVAN, POKHARAN ROAD 1, THANE(W)-400606 MH

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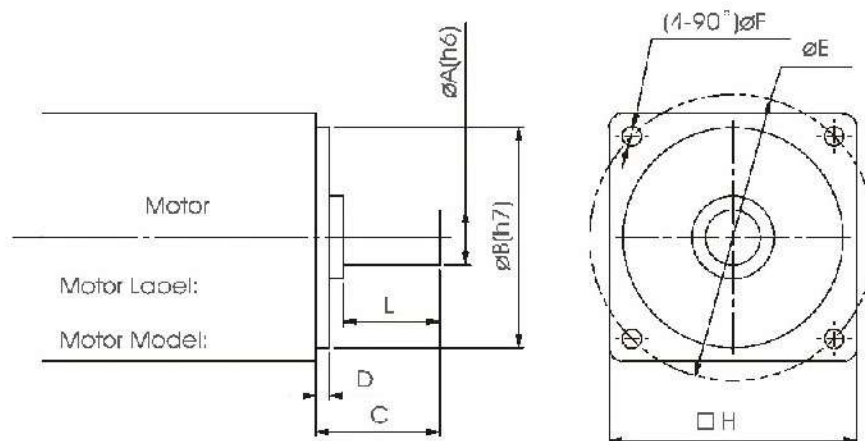


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MODEL ILLUMINATE



FILL IN DATA OF MOTOR



SPECIFICATIONS

| Motor Shaft Dia. | Flange Dia. | Motor Shaft Length | Flange Height | P.C.D of Bore | Bore Dia. | Motor Flange Square | Actual Length of Motor Shaft | Backlash |
|---------------------|---------------------|--------------------|---------------|-----------------|-----------------|---------------------|------------------------------|----------|
| $\varnothing A(h6)$ | $\varnothing B(h7)$ | C | D | $\varnothing E$ | $\varnothing F$ | $\square H$ | L | P0/P1/P2 |
| | | | | | | | | |



GEAR BOX PERFORMANCE INFORMATION



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| SPECIFICATION | | SERIES | REDUCION RATIO | PGE42 | PGE60 | PGE 80 | PGE120 | PGE160 |
|---------------------------|-----------|----------------------|----------------|------------------------------|-------|------------------------------|--------|--------|
| RATED OUTPUT TORQUE 1 | Nm | 1 | 3 | 14 | 39 | 104 | 215 | 423 |
| | | | 4 | 12 | 31 | 85 | 176 | 364 |
| | | | 5 | 14 | 39 | 104 | 215 | 423 |
| | | | 7 | 12 | 33 | 91 | 195 | 358 |
| | | | 8 | 10 | 33 | 80 | 160 | 330 |
| | | 10 | 9 | 23 | 45 | 110 | 210 | |
| | | 2 | 12 | 14 | 39 | 104 | 215 | 423 |
| | | | 15 | 14 | 39 | 104 | 215 | 423 |
| | | | 20 | 12 | 31 | 85 | 176 | 364 |
| | | | 25 | 14 | 39 | 104 | 215 | 423 |
| | | | 30 | - | - | 104 | 215 | 423 |
| | | | 35 | 14 | 39 | 104 | 215 | 423 |
| | | | 40 | 14 | 39 | 104 | 215 | 423 |
| | | | 50 | - | - | 104 | 215 | 423 |
| | | | 70 | - | - | 104 | 215 | 423 |
| | | | 100 | 9 | 23 | 45 | 110 | 210 |
| | | MAX OUTPUT TORQUE Ta | Nm | 1,2 | 3~100 | x3 TIMES RATED OUTPUT TORQUE | | |
| RATED INPUT SPEED n | rpm | 1,2 | 3~100 | 4,50 | 4,000 | 3,000 | 3,000 | 2,500 |
| MAX INPUT SPEED | rpm | 1,2 | 3~100 | 8,00 | 6,000 | 5,000 | 4,800 | 3,600 |
| BACKLASH | arcmin | 1 | 3~10 | ≤ 8 | ≤ 8 | ≤ 15 | ≤ 6 | ≤ 6 |
| | | 2 | 12~100 | ≤ 10 | ≤ 10 | ≤ 25 | ≤ 8 | ≤ 8 |
| TORSIONAL RIGIDITY | Nm/arcmin | 1,2 | 3~100 | 0.8 | 2.2 | 7.2 | 14.5 | 65.5 |
| ALLOWABLE RADIAL FORCE Fa | N | 1,2 | 3~100 | 300 | 680 | 1,750 | 3,080 | 6,520 |
| ALLOWABLE AXIAL FORCE Fi | N | 1,2 | 3~100 | 150 | 340 | 875 | 1,540 | 3,260 |
| SERVICE LIFE | hr | 1,2 | 3~100 | 20,000* | | | | |
| EFFICIENCY | % | 1 | 3~10 | ≥ 97% | | | | |
| | | 2 | 12~100 | ≥ 94% | | | | |
| WEIGHT | kg | 1 | 3~10 | 0.7 | 1.7 | 1.5 | 8.2 | 18.2 |
| | | 2 | 12~100 | 1.0 | 2.4 | 2.0 | 11.4 | 24.9 |
| TEMPERATURE | °C | 1,2 | 3~100 | -10°C~+90°C | | | | |
| LUBRICATING | | 1,2 | 3~100 | SYNTHETIC LUBRICATING GREASE | | | | |
| PROTECTION LEVEL | | 1,2 | 3~100 | IP 64 | | | | |
| INSTALLATION DIRECTION | | 1,2 | 3~100 | ANY DIRECTION | | | | |
| NOISE VALUE 3000 | dB | 1,2 | 3~100 | ≤ 68 | ≤ 70 | ≤ 45 | ≤ 74 | ≤ 75 |

OR THE MOMENT OF INERTIA OF SPEED MACHINE

| SPECIFICATION | | SERIES | REDUCION RATIO | PGE42 | PGE60 | PGE 80 | PGE120 | PGE160 |
|-------------------|--------------------|--------|----------------|-------|-------|--------|--------|--------|
| MOMENT OF INERTIA | kg-cm ² | 1 | 3 | 0.16 | 0.63 | 3.48 | 12.84 | 36.72 |
| | | | 4 | 0.16 | 0.60 | 3.31 | 12.22 | 34.63 |
| | | | 5 | 0.16 | 0.59 | 3.28 | 12.10 | 34.24 |
| | | | 7 | 0.16 | 0.59 | 3.27 | 12.05 | 34.07 |
| | | | 8 | 0.16 | 0.59 | 3.26 | 12.03 | 34.02 |
| | | 10 | 0.16 | 0.59 | 3.26 | 12.03 | 34.02 | |
| | | 2 | 12 | 0.16 | 0.59 | 3.28 | 12.10 | 34.24 |
| | | | 15 | 0.16 | 0.59 | 3.28 | 12.10 | 34.24 |
| | | | 20 | 0.16 | 0.59 | 3.28 | 12.10 | 34.24 |
| | | | 25 | 0.16 | 0.59 | 3.28 | 12.10 | 34.24 |
| | | | 30 | - | - | 3.26 | 12.03 | 34.02 |
| | | | 35 | 0.16 | 0.59 | 3.28 | 12.10 | 34.24 |
| | | | 40 | 0.16 | 0.59 | 3.26 | 12.03 | 34.02 |
| | | | 50 | - | - | 3.26 | 12.03 | 34.02 |
| | | | 70 | - | - | 3.26 | 12.03 | 34.02 |
| | | | 100 | 0.16 | 0.59 | 3.26 | 12.03 | 34.02 |

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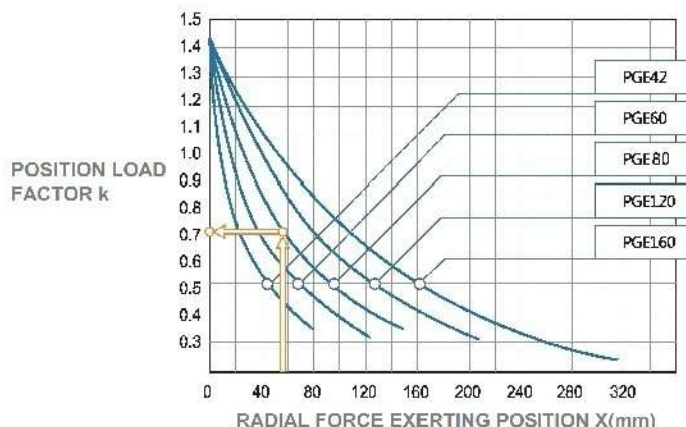
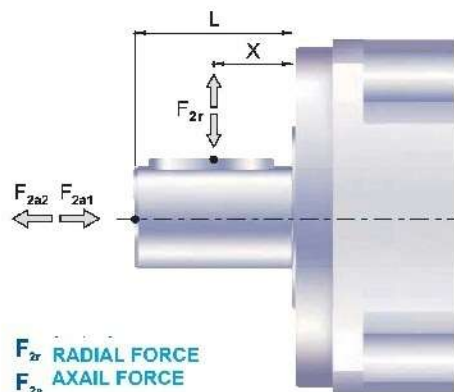
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PLANETARY GEAR BOX



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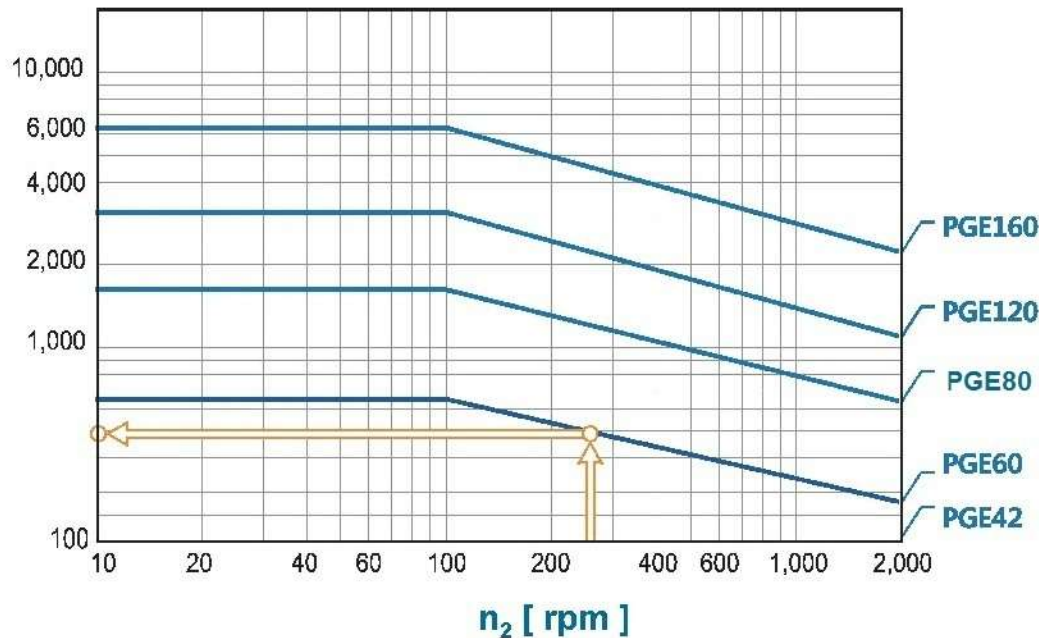
REDUCER OUTPUT SHAFT OF THE PERMISSIBLE RADIAL FORCE AND SHAFT AND FORCE



THE MAX RADIAL FORCE AND AXIAL FORCE THAT THE OUTPUT SHAFT OF THE REDUCER CAN BEAR DEPENDS ON THE DESIGN OF THE INTERNAL SUPPORTING BEARING

WHEN THE RADIAL FORCE F IS NOT AT THE CENTRE OF THE SHAFT, THAT IS $X < 1/2xL$, THE GREATER THE ALLOWABLE RADIAL FORCE TO BEAR THE FARTHER AWAY FROM THE REDUCER, THAT IS $X > 1/2xL$, THE ALLOWABLE RADIAL FORCE BECOMES SMALLER. ACCORDING TO THE ABOVE FIG, THE REDUCER SPECIFICATION AND RADIAL POSITION X , THE POSITION LOAD FACTOR k CAN BE FOUND

ALLOWABLE RADIAL FORCE F_{re} (N) FORCE APPLIED TO THE CENTRE OF THE SHAFT



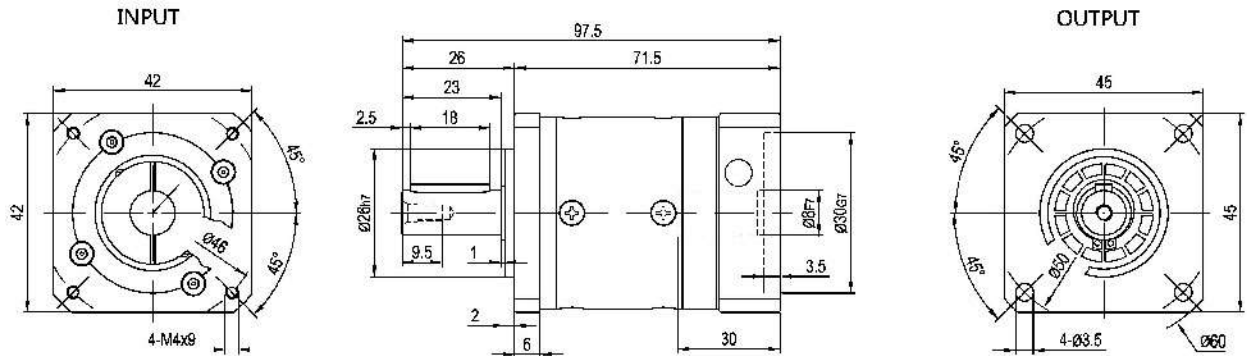
WHEN THE RADIAL FORCE F IS APPLIED TO THE CENTRE OF SHAFT, THAT IS $X = 1/2xL$, THE SERVICE LIFE OF DIFFERENT REDUCERS UNDER OUTPUT SPEEDS IS 20,000 HOURS, AND THE ALLOWABLE RADIAL FORCE THAT CAN BE WITHSTOOD, PLEASE REFER TO ABOVE FIG.

* THE SERVICE LIFE UNDER CONTINUOUS OPERATION (S1) IS REDUCED BY 50%

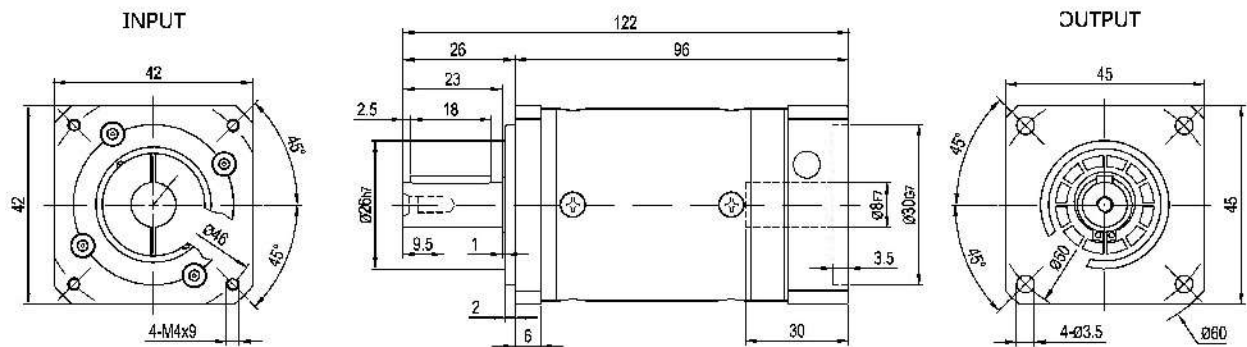


OUTLINE DIMENSION SHEET

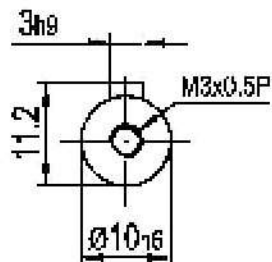
PGE42-L1



PGE42-L2



Output Diameter



*The input motor specific dimensions could be customised.



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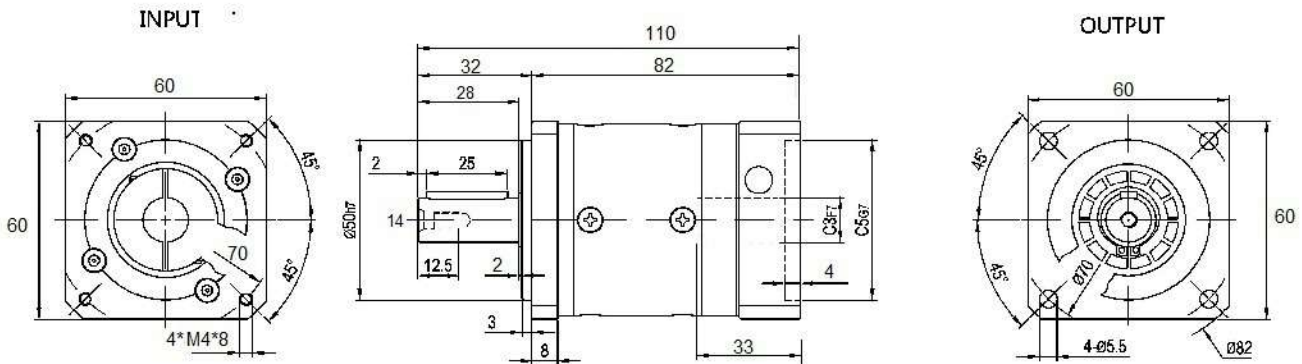
PGE60 1:16



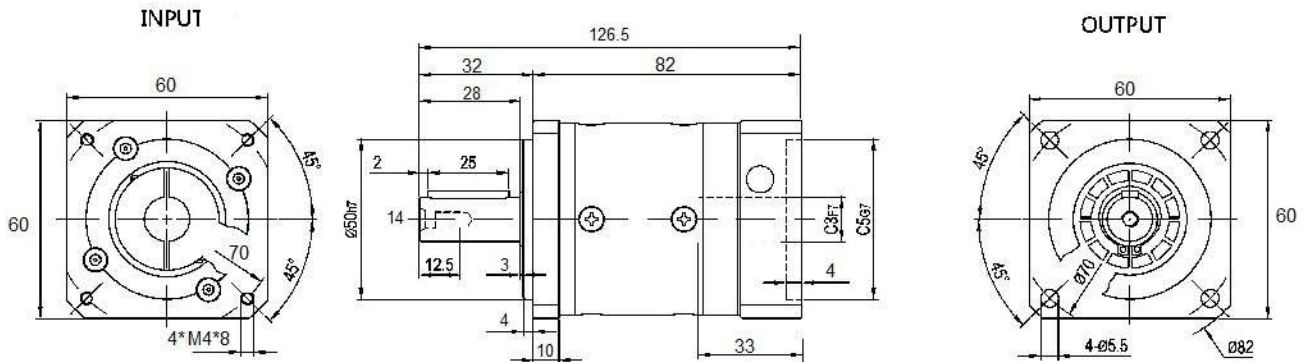


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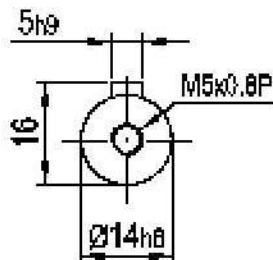
PGE60-L1



PGE60-L2



Output Diameter



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PGE80 1:25



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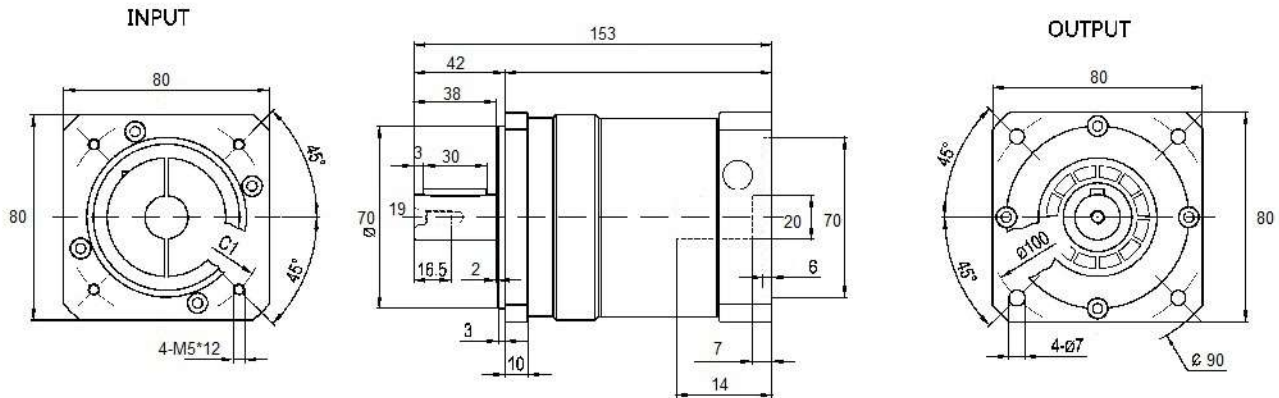


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UPVAN, POKHARAN ROAD 1, THANE(W)-400606 MH

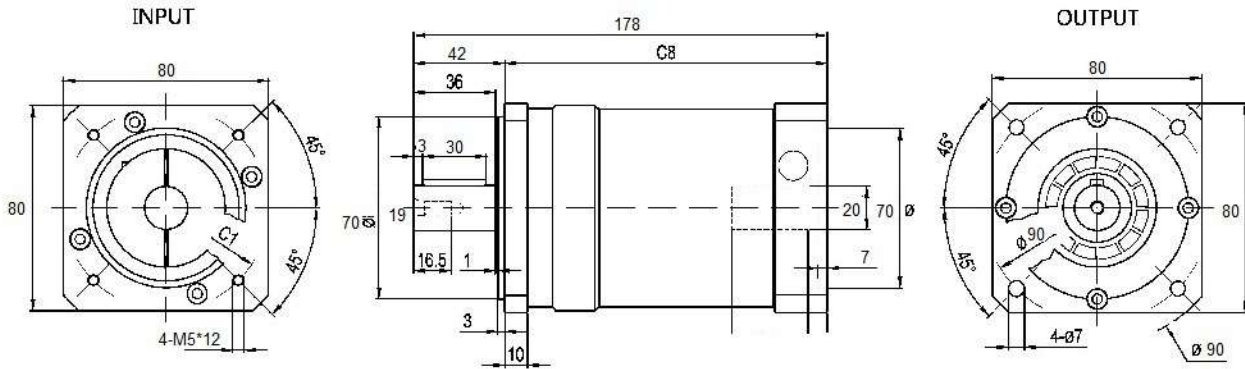


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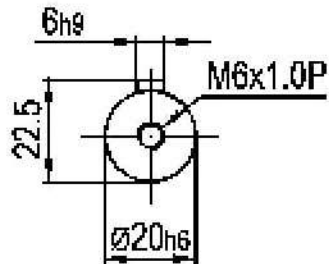
PGE80-L1



PGE80-L2



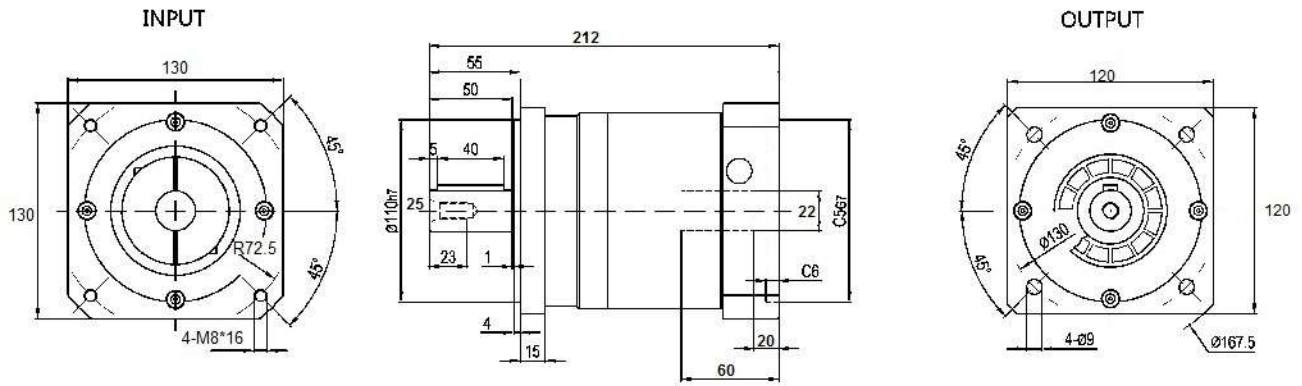
Output Diameter



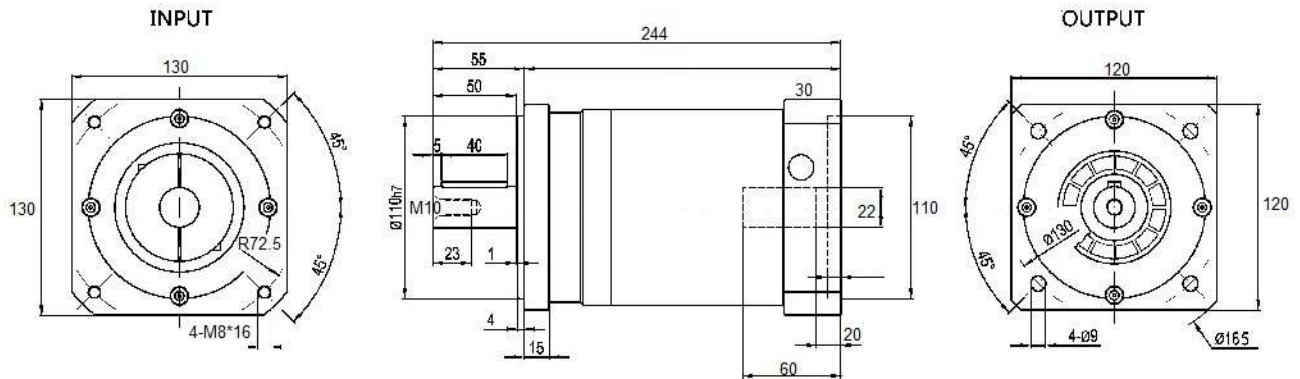


OUTLINE DIMENSION SHEET

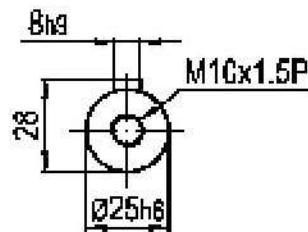
PGE120-L1



PGE120-L2



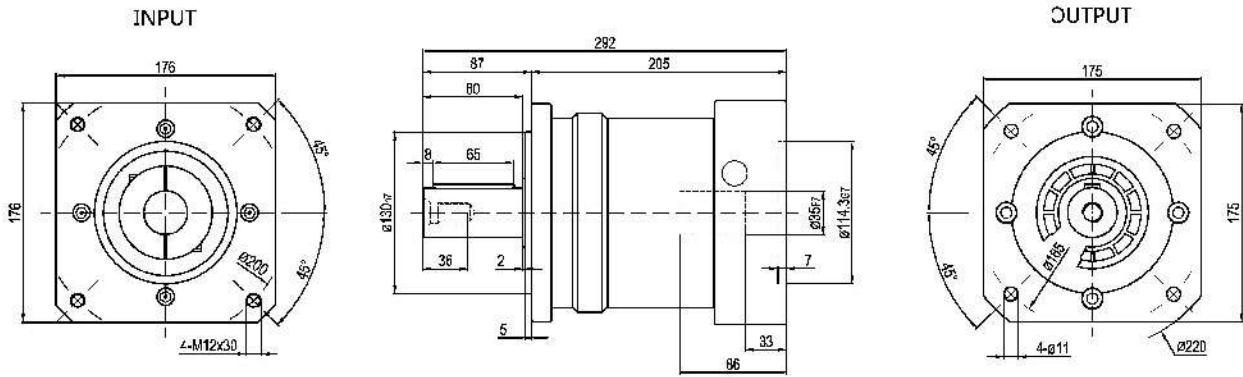
Output Diameter



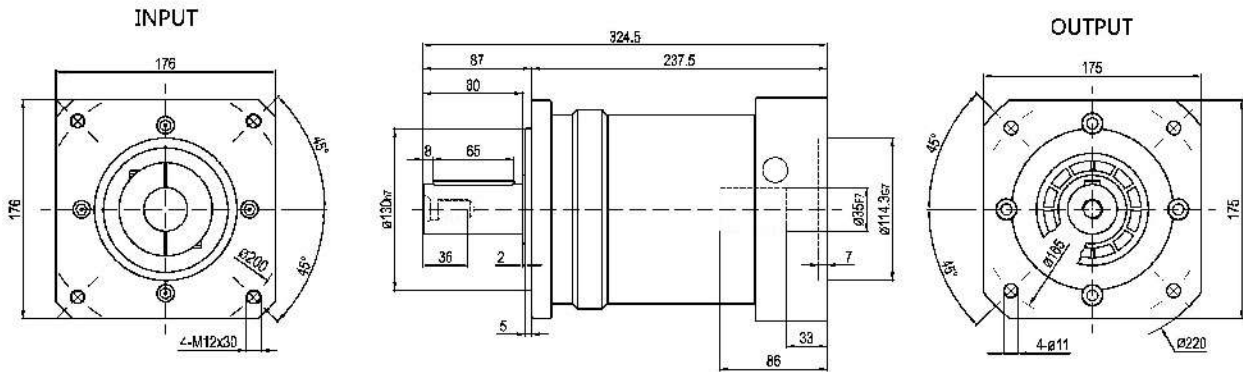


OUTLINE DIMENSION SHEET

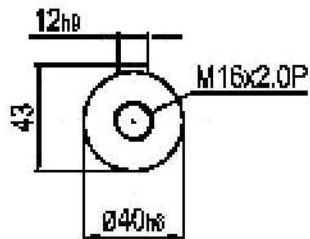
PGE160-L1



PGE160-L2



Output Diameter



*The input motor specific dimensions could be customised.



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GEAR BOX PERFORMANCE INFORMATION



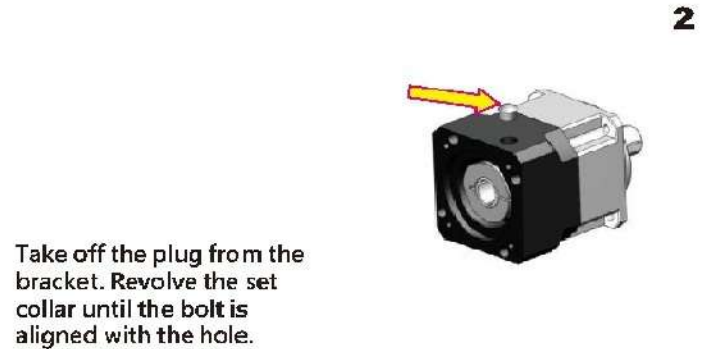
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PLANETARY GEARBOX WITH MOTOR MOUNTING INSTRUCTIONS

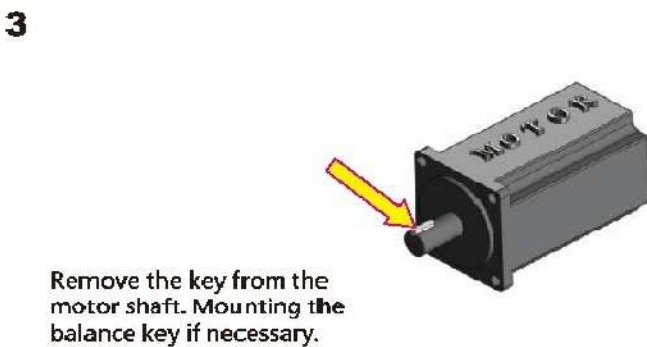
For General Type



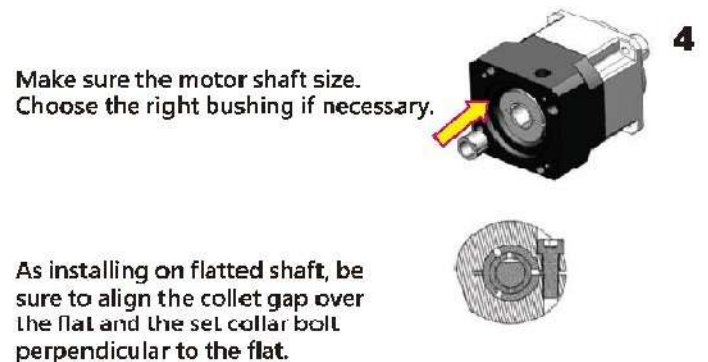
Check the motor and gearbox size. Clean the mounting surface.



Take off the plug from the bracket. Revolve the set collar until the bolt is aligned with the hole.

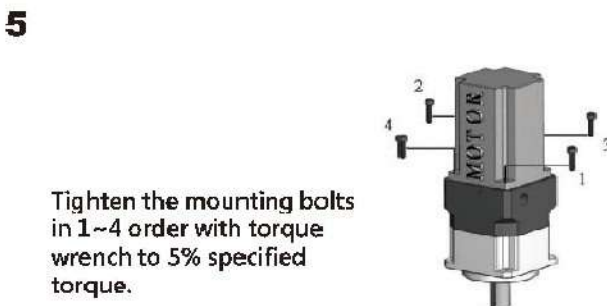


Remove the key from the motor shaft. Mounting the balance key if necessary.

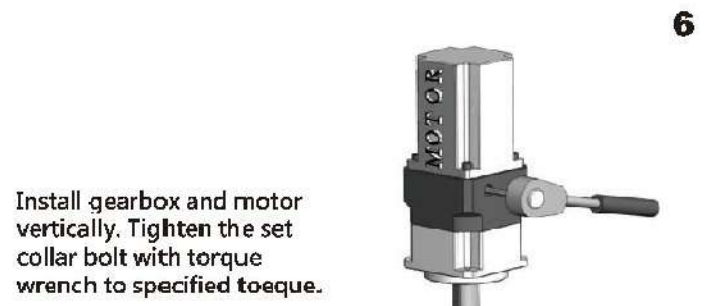


Make sure the motor shaft size. Choose the right bushing if necessary.

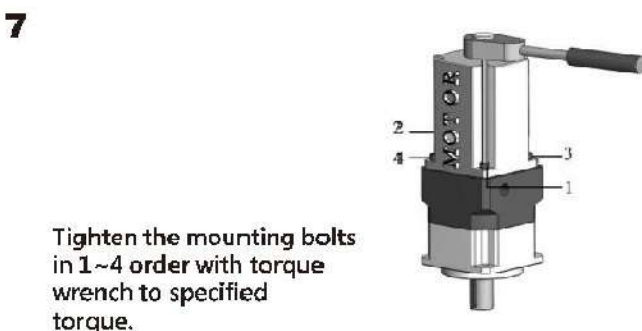
As installing on flatted shaft, be sure to align the collet gap over the flat and the set collar bolt perpendicular to the flat.



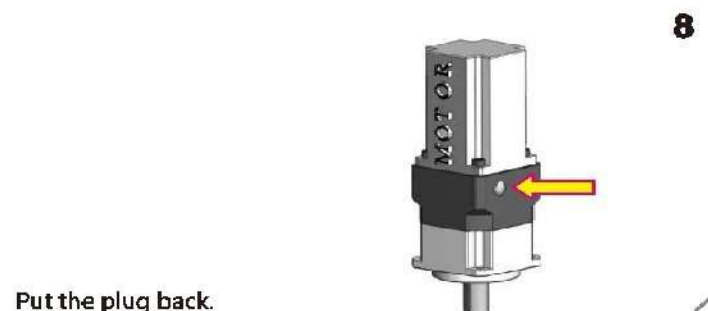
Tighten the mounting bolts in 1~4 order with torque wrench to 5% specified torque.



Install gearbox and motor vertically. Tighten the set collar bolt with torque wrench to specified torque.



Tighten the mounting bolts in 1~4 order with torque wrench to specified torque.



Put the plug back.

GEAR BOX PERFORMANCE INFORMATION



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TABLE 1 RECOMMENDED TORQUE FOR MOTOR LOCKING SCREWS

| SCREW SIZE | HEXAGON HEAD SIZE | STRENGTH 8.8 SCREW TIGHTENING TORQUE | | STRENGTH 10.9 YOSHI TIGHTENING TORQUE | | STRENGTH 12.9 NISY LIGHTENING TORQUE | |
|-------------|-------------------|--------------------------------------|----------|---------------------------------------|----------|--------------------------------------|----------|
| | [mm] | [Nm] | [In-lbs] | [Nm] | [In-lbs] | [Nm] | [In-lbs] |
| M3 x 0.5P | 2.5 | 1.3 | 12 | 1.8 | 16 | 2.1 | 19 |
| M4 x 0.7P | 3 | 3 | 27 | 4.1 | 37 | 4.9 | 44 |
| M5 x 0.8P | 4 | 6.1 | 55 | 8.2 | 73 | 9.8 | 87 |
| M6 x 1P | 5 | 11 | 98 | 14 | 124 | 17 | 151 |
| M8 x 1.25P | 6 | 25 | 222 | 34 | 302 | 41 | 364 |
| M10 x 1.5P | 8 | 49 | 434 | 67 | 594 | 80 | 709 |
| M12 x 1.75P | 10 | 85 | 753 | 116 | 1028 | 139 | 1232 |
| M14 x 2P | 12 | 137 | 1214 | 186 | 1648 | 223 | 1976 |
| M16 x 2P | 14 | 210 | 1860 | 286 | 2534 | 343 | 3038 |

TABLE 2 RECOMMENDED TORQUE FOR MOTOR LOCKING SCREWS

| REDUCER MODEL | MOTOR SHAFT DAIMETER | SCREW SIZE | HEXAGON HEAD SIZE | | TIGHTENING TORQUE |
|---------------|----------------------|------------------|-------------------|------|-------------------|
| | | | [mm] | [Nm] | [In-lbs] |
| PGE42 | SINGLE STAGE | M3 x 0.5P x 8L | 2.5 | 2.1 | 19 |
| | DOUBLE STAGE | | | | |
| PGE60 | SINGLE STAGE | M4 x 0.7P x 14L | 3 | 4.9 | 44 |
| | DOUBLE STAGE | | | | |
| PGE80 | SINGLE STAGE | M6 x 1P x 18L | 5 | 17 | 151 |
| | DOUBLE STAGE | | | | |
| PGE120 | SINGLE STAGE | M8 x 1.25P x 20L | 6 | 41 | 364 |
| | DOUBLE STAGE | | | | |
| PGE160 | SINGLE STAGE | M8 x 1.25P x 25L | 6 | 41 | 364 |
| | DOUBLE STAGE | | | | |