



APEX DYNAMICS, INC.

AE / AER Series

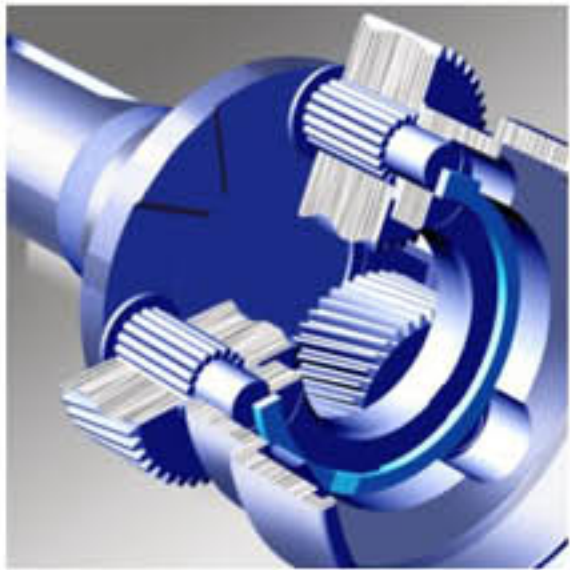
*Planetary Gearboxes
High Precision
High Speed*



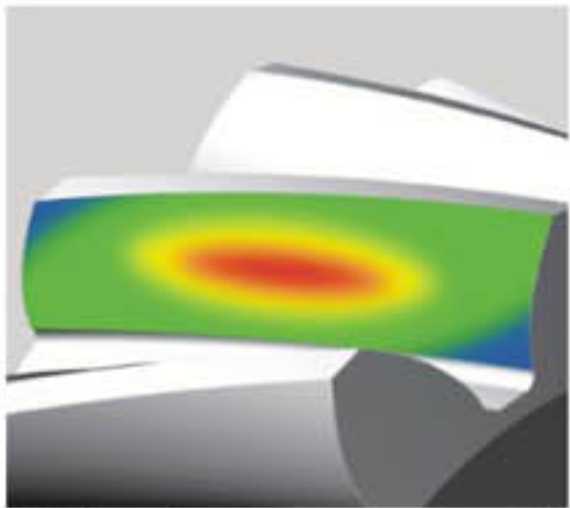
Stainless

AE / AER Series

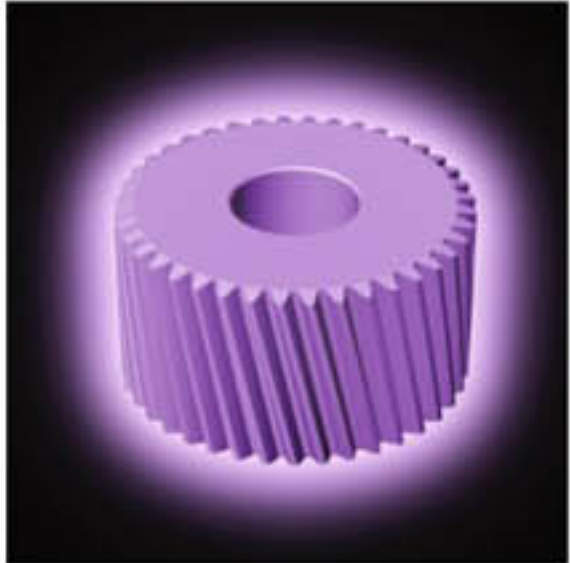
Characteristic Highlights



Equipped with **solid uncaged needle roller bearings**, provides maximum contact points to increase stiffness and transmit high output torque.



A high setting gear performance is achieved by using our **HeliTopo technology**. This **eases off the tooth profile** and **crowns the lead of each tooth**. This optimizes the gear mesh alignment and overlap to achieve maximum tooth surface contact.



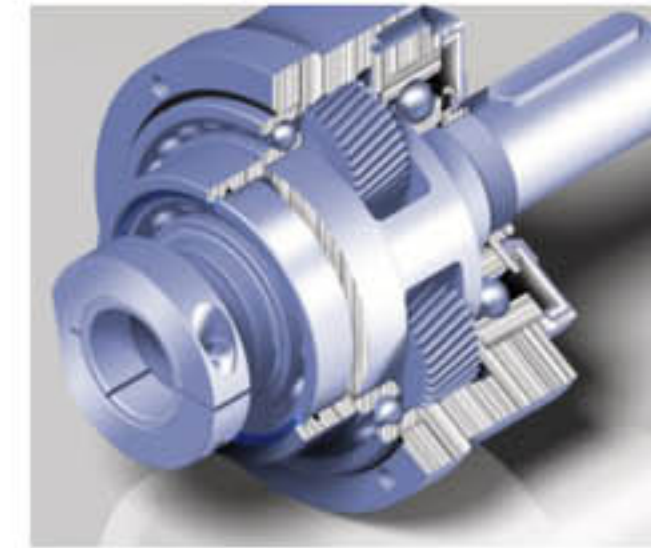
Our **in-house plasma nitriding** heat treatment process maintains the tooth surface hardness at **840Hv** for superior wear-resistance and a core hardness at **30 HRC** for toughness.



One piece planet carrier with extended bearing design provides maximum radial load capacity and increases system reliability and stiffness.



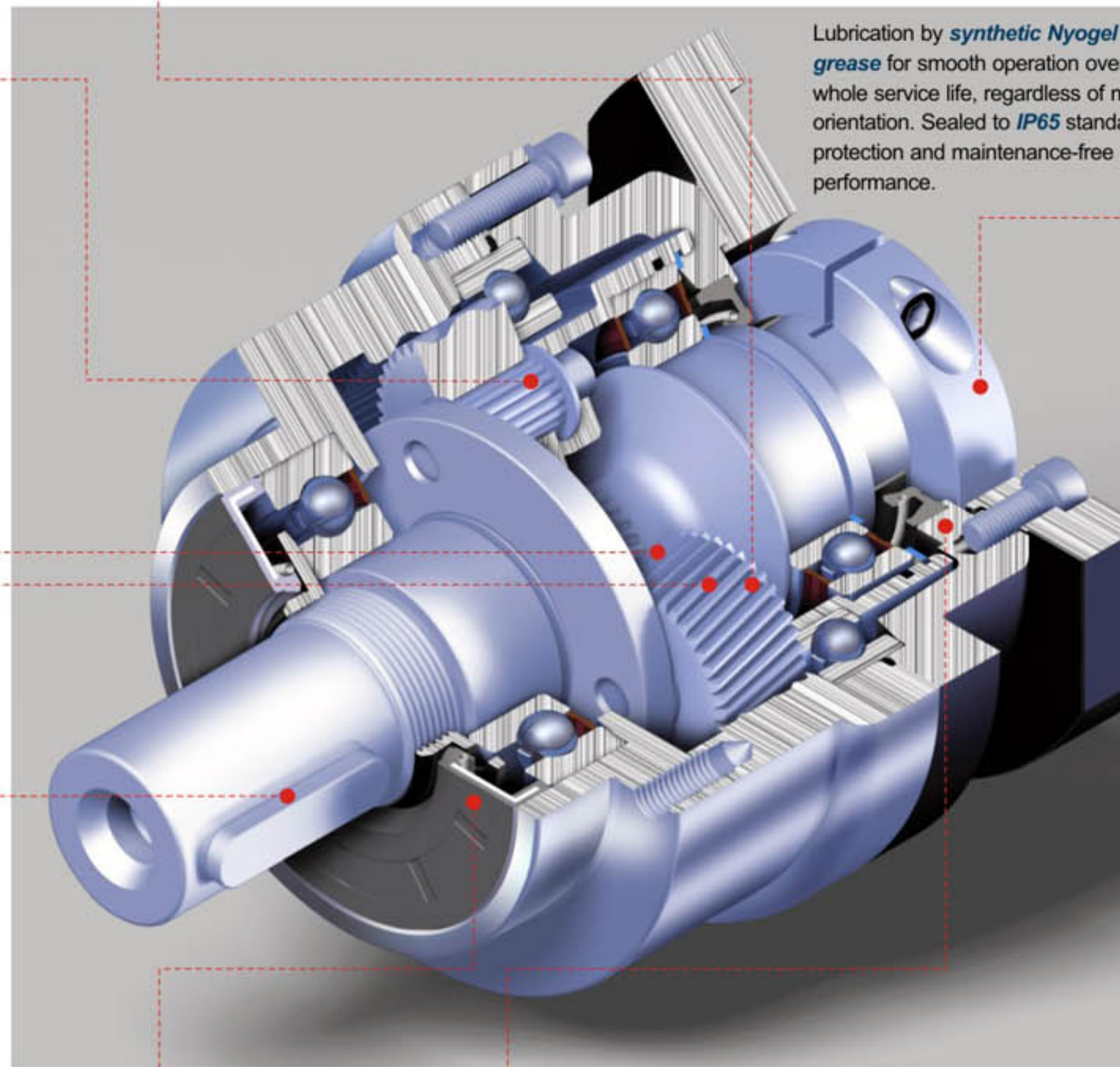
True helical gear design
Precision helical gearing increases tooth to tooth contact ratio by over 33% vs spur gearing. The helix angle produces smooth and quiet operation with decreased backlash (less than 8 arc-minutes and $\leq 56\text{dB}$).



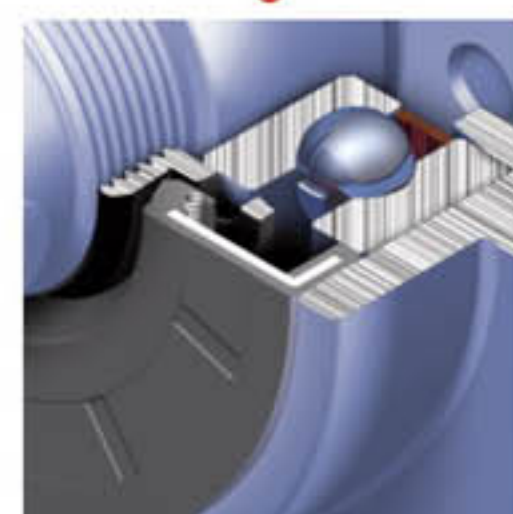
Patented planet carrier design puts the sun gear bearing directly into the planet carrier. It minimizes gear misalignment to gain higher accuracy.



Triple split collet with dynamic balanced set collar clamping system provides backlash free power transmission and eliminates slippage. 100% concentricity allows for smooth rotation and higher input speed capability.

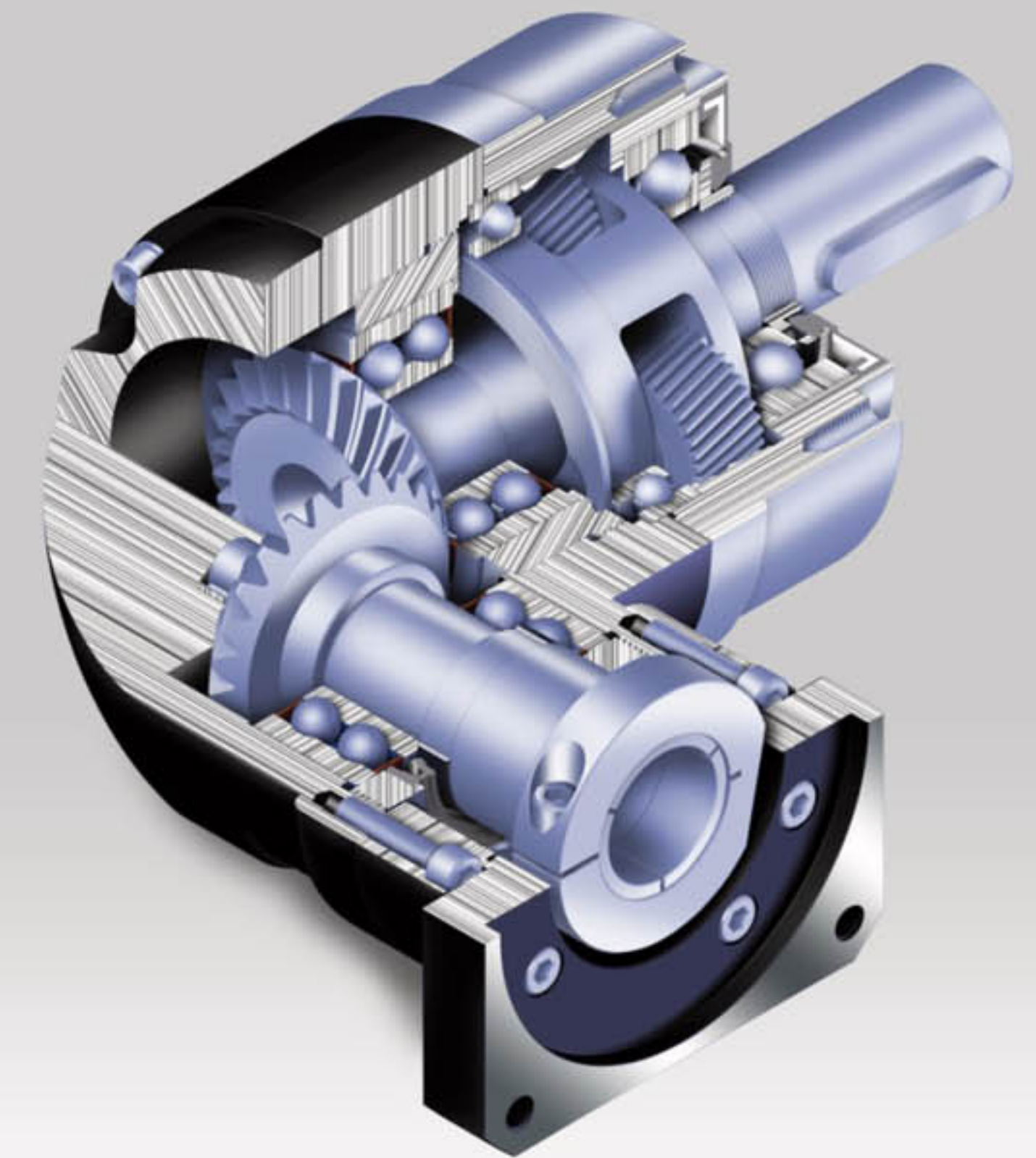


Lubrication by **synthetic Nyogel 762D grease** for smooth operation over the whole service life, regardless of mounting orientation. Sealed to **IP65** standard for protection and maintenance-free performance.



Patented sealing system featuring a TICN coated shaft surface that eliminates leakage and increases service life to over 20,000 hours. The high tech coating, with a surface quality of $0.2 \mu\text{m}$ and hardness of 3700 Hv. Interfaces with our proprietary seal, decreasing wear and running temperature.

AER Series



AER version with 90° input via helical bevel gear. Featuring an extremely short, light yet rigid housing and full compatibility with standard motor adapters.



AE Series

Specifications

Gearbox Performance

| Model No. | Stage | Ratio | AE050 | AE070 | AE090 | AE120 | AE155 | AE205 | AE235 | | |
|--------------------------------|-----------|-------|--------|--------|--------|-------|-------|-------|--------|-------------------------------------|--|
| Nominal output torque T_{2N} | 1 | 3 | 20 | 55 | 130 | 208 | 342 | 588 | 1,140 | | |
| | | 4 | 19 | 50 | 140 | 290 | 542 | 1,050 | 1,700 | | |
| | | 5 | 22 | 60 | 160 | 330 | 650 | 1,200 | 2,000 | | |
| | | 6 | 20 | 55 | 150 | 310 | 600 | 1,100 | 1,900 | | |
| | | 7 | 19 | 50 | 140 | 300 | 550 | 1,100 | 1,800 | | |
| | | 8 | 17 | 45 | 120 | 260 | 500 | 1,000 | 1,600 | | |
| | | 9 | 14 | 40 | 100 | 230 | 450 | 900 | 1,500 | | |
| | | 10 | 14 | 40 | 100 | 230 | 450 | 900 | 1,500 | | |
| | | 2 | 15 | 20 | 55 | 130 | 208 | 342 | 588 | 1,140 | |
| | | | 20 | 19 | 50 | 140 | 290 | 542 | 1,050 | 1,700 | |
| | 25 | | 22 | 60 | 160 | 330 | 650 | 1,200 | 2,000 | | |
| | 30 | | 20 | 55 | 150 | 310 | 600 | 1,100 | 1,900 | | |
| | 35 | | 19 | 50 | 140 | 300 | 550 | 1,100 | 1,800 | | |
| | 40 | | 17 | 45 | 120 | 260 | 500 | 1,000 | 1,600 | | |
| | 45 | | 14 | 40 | 100 | 230 | 450 | 900 | 1,500 | | |
| | 50 | | 22 | 60 | 160 | 330 | 650 | 1,200 | 2,000 | | |
| | 60 | | 20 | 55 | 150 | 310 | 600 | 1,100 | 1,900 | | |
| | 70 | | 19 | 50 | 140 | 300 | 550 | 1,100 | 1,800 | | |
| | 80 | 17 | 45 | 120 | 260 | 500 | 1,000 | 1,600 | | | |
| | 90 | 14 | 40 | 100 | 230 | 450 | 900 | 1,500 | | | |
| 100 | 14 | 40 | 100 | 230 | 450 | 900 | 1,500 | | | | |
| Max. output torque T_{2B} | Nm | 1,2 | 3~100 | | | | | | | 3 times of nominal output torque | |
| Nominal input speed n_{1N} | rpm | 1,2 | 3~100 | 5,000 | 5,000 | 4,000 | 4,000 | 3,000 | 3,000 | 2,000 | |
| Max. input speed n_{1B} | rpm | 1,2 | 3~100 | 10,000 | 10,000 | 8,000 | 8,000 | 6,000 | 6,000 | 4,000 | |
| Backlash | arcmin | 1 | 3~10 | ≤8 | ≤8 | ≤8 | ≤8 | ≤8 | ≤8 | ≤8 | |
| | | 2 | 15~100 | ≤12 | ≤12 | ≤12 | ≤12 | ≤12 | ≤12 | ≤12 | |
| Torsional rigidity | Nm/arcmin | 1,2 | 3~100 | 3 | 7 | 14 | 25 | 50 | 145 | 225 | |
| Max. radial load F_{2aB}^2 | N | 1,2 | 3~100 | 702 | 1,377 | 2,985 | 6,100 | 8,460 | 13,050 | 8,700 | |
| Max. axial load F_{2a1B}^2 | N | 1,2 | 3~100 | 350 | 630 | 1,300 | 2,400 | 4,000 | 6,200 | 4,800 | |
| Max. axial load F_{2a2B}^2 | N | 1,2 | 3~100 | 390 | 765 | 1,625 | 3,350 | 4,700 | 7,250 | 18,000 | |
| Service life | hr | 1,2 | 3~100 | | | | | | | 20,000* | |
| Efficiency η | % | 1 | 3~10 | | | | | | | ≥97% | |
| | | 2 | 15~100 | | | | | | | ≥94% | |
| Weight | kg | 1 | 3~10 | 0.6 | 1.4 | 3.3 | 6.9 | 13 | 31 | 53 | |
| | | 2 | 15~100 | 0.9 | 1.6 | 4.7 | 8.7 | 17 | 35 | 66 | |
| Operating temp | °C | 1,2 | 3~100 | | | | | | | -10°C~+90°C | |
| Lubrication | | 1,2 | 3~100 | | | | | | | synthetic gear grease (NYOGEL 792D) | |
| Degree of gearbox protection | | 1,2 | 3~100 | | | | | | | IP65 | |
| Mounting position | | 1,2 | 3~100 | | | | | | | all directions | |
| Noise level ($n_1=3000$ rpm) | dB | 1,2 | 3~100 | ≤56 | ≤58 | ≤60 | ≤63 | ≤65 | ≤67 | ≤70 | |

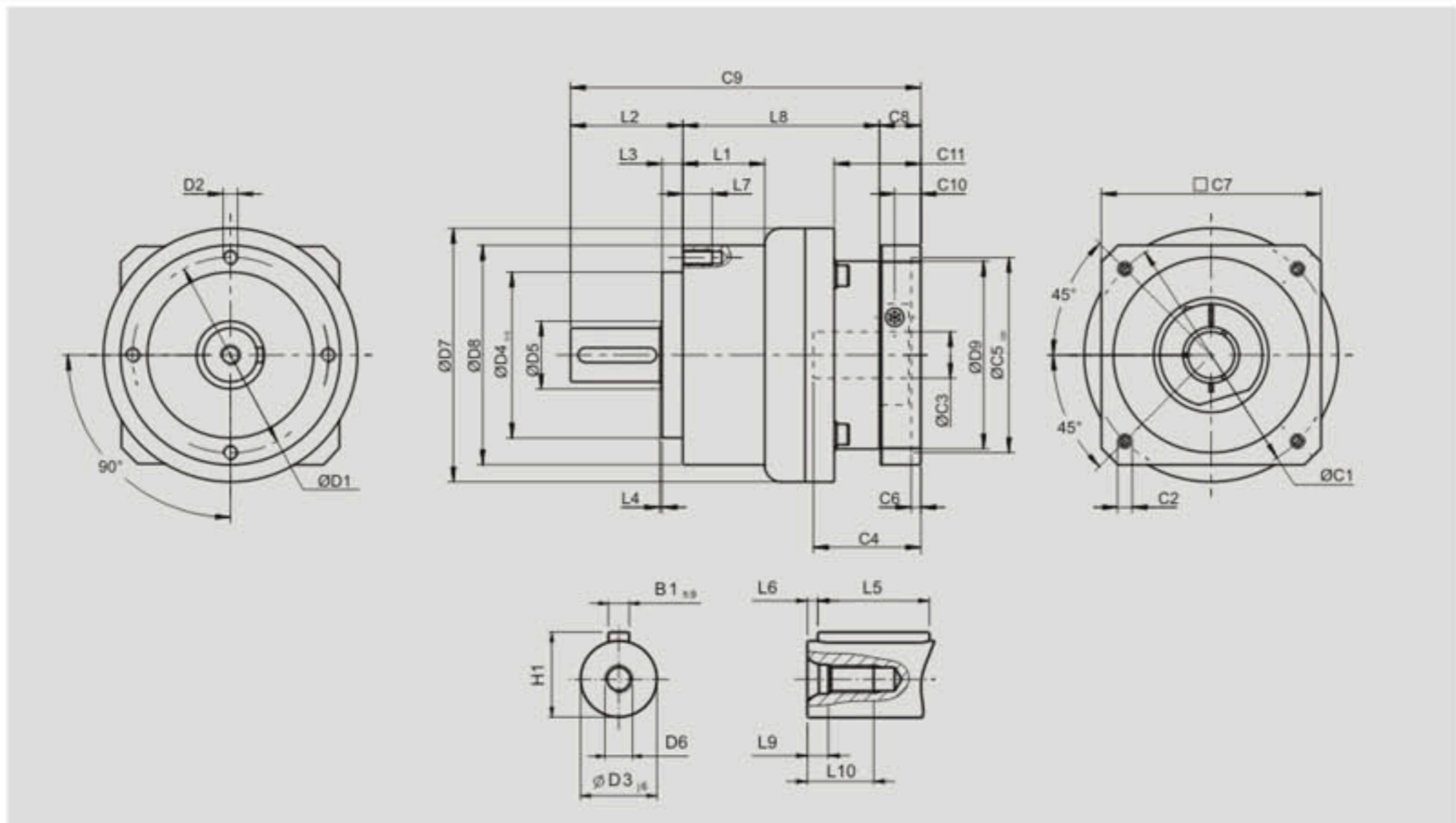
Gearbox Inertia

| Model No. | Stage | Ratio | AE050 | AE070 | AE090 | AE120 | AE155 | AE205 | AE235 | |
|-------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Mass moments of inertia J_1 | 1 | 3 | 0.03 | 0.16 | 0.61 | 3.25 | 9.21 | 28.98 | 69.61 | |
| | | 4 | 0.03 | 0.14 | 0.48 | 2.74 | 7.54 | 23.67 | 54.37 | |
| | | 5 | 0.03 | 0.13 | 0.47 | 2.71 | 7.42 | 23.29 | 53.27 | |
| | | 6 | 0.03 | 0.13 | 0.45 | 2.65 | 7.25 | 22.75 | 51.72 | |
| | | 7 | 0.03 | 0.13 | 0.45 | 2.62 | 7.14 | 22.48 | 50.97 | |
| | | 8 | 0.03 | 0.13 | 0.44 | 2.58 | 7.07 | 22.59 | 50.84 | |
| | | 9 | 0.03 | 0.13 | 0.44 | 2.57 | 7.04 | 22.53 | 50.63 | |
| | | 10 | 0.03 | 0.13 | 0.44 | 2.57 | 7.03 | 22.51 | 50.56 | |
| | | 2 | 15 | 0.03 | 0.03 | 0.13 | 0.47 | 2.71 | 7.42 | 23.29 |
| | | | 20 | 0.03 | 0.03 | 0.13 | 0.47 | 2.71 | 7.42 | 23.29 |
| | 25 | | 0.03 | 0.03 | 0.13 | 0.47 | 2.71 | 7.42 | 23.29 | |
| | 30 | | 0.03 | 0.03 | 0.13 | 0.47 | 2.71 | 7.42 | 23.29 | |
| | 35 | | 0.03 | 0.03 | 0.13 | 0.47 | 2.71 | 7.42 | 23.29 | |
| | 40 | | 0.03 | 0.03 | 0.13 | 0.47 | 2.71 | 7.42 | 23.29 | |
| | 45 | | 0.03 | 0.03 | 0.13 | 0.47 | 2.71 | 7.42 | 23.29 | |
| | 50 | | 0.03 | 0.03 | 0.13 | 0.44 | 2.57 | 7.03 | 22.51 | |
| | 60 | | 0.03 | 0.03 | 0.13 | 0.44 | 2.57 | 7.03 | 22.51 | |
| | 70 | | 0.03 | 0.03 | 0.13 | 0.44 | 2.57 | 7.03 | 22.51 | |
| | 80 | 0.03 | 0.03 | 0.13 | 0.44 | 2.57 | 7.03 | 22.51 | | |
| | 90 | 0.03 | 0.03 | 0.13 | 0.44 | 2.57 | 7.03 | 22.51 | | |
| 100 | 0.03 | 0.03 | 0.13 | 0.44 | 2.57 | 7.03 | 22.51 | | | |

1. Ratio ($i=N_{in}/N_{out}$)
* S1 service life 10,000 hrs

2. Applied to the output shaft center @ 100 rpm

Dimensions (1-stage, Ratio i=3~10)



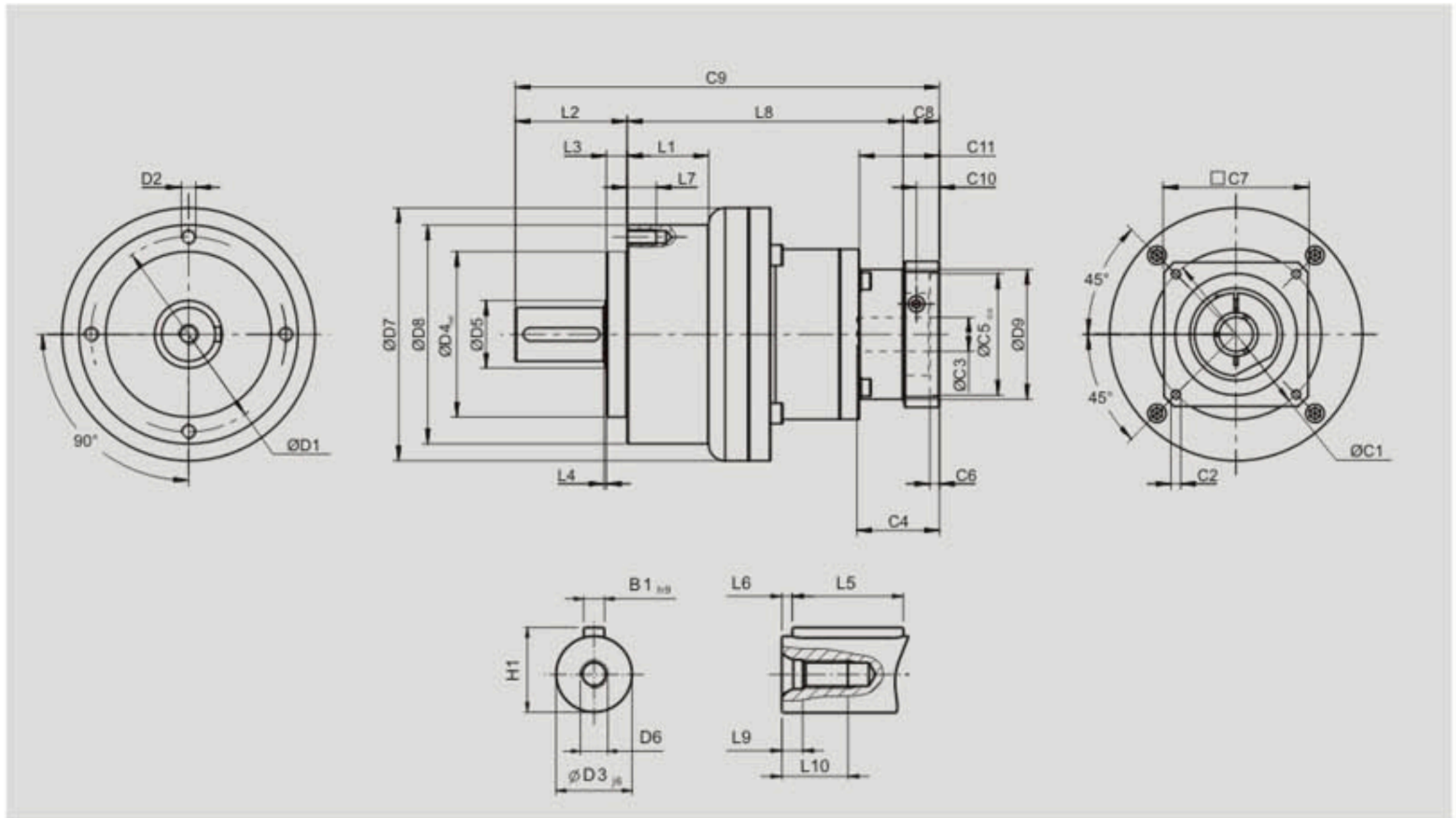
[unit: mm]

| Dimension | AE050 | AE070 | AE090 | AE120 | AE155 | AE205 | AE235 |
|-------------------------------|-----------|-------------|------------|-------------|------------|-------------|-------------|
| D1 | 44 | 62 | 80 | 108 | 140 | 184 | 210 |
| D2 | M4 x 0.7P | M5 x 0.8P | M6 x 1P | M8 x 1.25P | M10 x 1.5P | M12 x 1.75P | M16 x 2P |
| D3 _{j6} | 12 | 16 | 22 | 32 | 40 | 55 | 75 |
| D4 _{h6} | 35 | 52 | 68 | 90 | 120 | 160 | 180 |
| D5 | 22 | 22 | 30 | 40 | 75 | 95 | 115 |
| D6 | M4 x 0.7P | M5 x 0.8P | M8 x 1.25P | M12 x 1.75P | M16 x 2P | M20 x 2.5P | M20 x 2.5P |
| D7 | 53 | 70 | 104 | 130 | 162 | 205 | 260 |
| D8 | 50 | 70 | 90 | 120 | 155 | 205 | 235 |
| D9 | 45.5 | 53.4 | 77 | 102 | 125 | 160 | 205 |
| L1 | -- | -- | 33.5 | 38 | 50 | -- | 70 |
| L2 | 24.5 | 36 | 46 | 70 | 97 | 100 | 126 |
| L3 | 4 | 6.5 | 8.5 | 17.5 | 15 | 15 | 18 |
| L4 | 1 | 1 | 1 | 1.5 | 3 | 3 | 3 |
| L5 | 14 | 25 | 32 | 40 | 63 | 70 | 90 |
| L6 | 2 | 2 | 3 | 5 | 5 | 6 | 7 |
| L7 | 8 | 10 | 12 | 16 | 20 | 22 | 28 |
| L8 | 47 | 62 | 80.5 | 97 | 119.5 | 159 | 175.5 |
| L9 | 3.2 | 4 | 6 | 9.5 | 12 | 15 | 15 |
| L10 | 10 | 12.5 | 19 | 28 | 36 | 42 | 42 |
| C1 ³ | 46 | 70 | 100 | 130 | 165 | 200 | 235 |
| C2 ³ | M4 x 0.7P | M4 x 0.7P | M6 x 1P | M8 x 1.25P | M10 x 1.5P | M12 x 1.75P | M12 x 1.75P |
| C3 ³ | ≤11 | * ≤14 / ≤16 | ≤19 / ≤24 | ≤32 | ≤38 | ≤48 | ≤55 |
| C4 ³ | 30 | 30 | 40 | 50 | 60 | 113 | 116 |
| C5 ³ ₀₆ | 30 | 50 | 80 | 110 | 130 | 114.3 | 200 |
| C6 ³ | 3.5 | 4 | 4 | 5 | 6 | 6 | 6 |
| C7 ³ | 48 | 60 | 90 | 115 | 142 | 180 | 220 |
| C8 ³ | 19.5 | 15 | 17 | 19.5 | 22.5 | 57 | 63 |
| C9 ³ | 91 | 113 | 143.5 | 186.5 | 239 | 316 | 364.5 |
| C10 ³ | 13.25 | 9.5 | 10.75 | 13 | 15.5 | 48.75 | 53.5 |
| C11 ³ | 19.5 | 33 | 35.5 | 46 | 53.5 | 107.5 | 106.5 |
| B1 _{h9} | 4 | 5 | 6 | 10 | 12 | 16 | 20 |
| H1 | 14 | 18 | 24.5 | 35 | 43 | 59 | 79.5 |

3. C1-C11 are motor specific dimensions (metric std shown). Refer to apexdyna.com and design tool to view your specific motor mounting system.
* AE070 ratio 5,10 offers C3 ≤ 16 option.

AE Series

Dimensions (2-stage, Ratio $i = 15 \sim 100$)



[unit: mm]

| Dimension | AE050 | AE070 | AE090 | AE120 | AE155 | AE205 | AE235 |
|-------------------------------|-----------|-------------|-----------------------|-------------|------------|-------------|-------------|
| D1 | 44 | 62 | 80 | 108 | 140 | 184 | 210 |
| D2 | M4 x 0.7P | M5 x 0.8P | M6 x 1P | M8 x 1.25P | M10 x 1.5P | M12 x 1.75P | M16 x 2P |
| D3 _{j6} | 12 | 16 | 22 | 32 | 40 | 55 | 75 |
| D4 _{h6} | 35 | 52 | 68 | 90 | 120 | 160 | 180 |
| D5 | 22 | 22 | 30 | 40 | 75 | 95 | 115 |
| D6 | M4 x 0.7P | M5 x 0.8P | M8 x 1.25P | M12 x 1.75P | M16 x 2P | M20 x 2.5P | M20 x 2.5P |
| D7 | 53 | 70 | 104 | 130 | 162 | 205 | 260 |
| D8 | 50 | 70 | 90 | 120 | 155 | 205 | 235 |
| D9 | 45.5 | 45.5 | 53.4 | 77 | 102 | 125 | 160 |
| L1 | -- | -- | 33.5 | 38 | 50 | -- | 70 |
| L2 | 24.5 | 36 | 46 | 70 | 97 | 100 | 126 |
| L3 | 4 | 6.5 | 8.5 | 17.5 | 15 | 15 | 18 |
| L4 | 1 | 1 | 1 | 1.5 | 3 | 3 | 3 |
| L5 | 14 | 25 | 32 | 40 | 63 | 70 | 90 |
| L6 | 2 | 2 | 3 | 5 | 5 | 6 | 7 |
| L7 | 8 | 10 | 12 | 16 | 20 | 22 | 28 |
| L8 | 74 | 87.5 | 113.5 | 138.5 | 176 | 214.5 | 260 |
| L9 | 3.2 | 4 | 6 | 9.5 | 12 | 15 | 15 |
| L10 | 10 | 12.5 | 19 | 28 | 36 | 42 | 42 |
| C1 ⁴ | 46 | 46 | 70 | 100 | 130 | 165 | 200 |
| C2 ⁴ | M4 x 0.7P | M4 x 0.7P | M4 x 0.7P | M6 x 1P | M8 x 1.25P | M10 x 1.5P | M12 x 1.75P |
| C3 ⁴ | ≤11 | * ≤11 / ≤12 | * ≤14 / ≤15.875 / ≤16 | ≤19 / ≤24 | ≤32 | ≤38 | ≤48 |
| C4 ⁴ | 30 | 30 | 30 | 40 | 50 | 60 | 113 |
| C5 ⁴ _{G6} | 30 | 30 | 50 | 80 | 110 | 130 | 114.3 |
| C6 ⁴ | 3.5 | 3.5 | 4 | 4 | 5 | 6 | 6 |
| C7 ⁴ | 48 | 48 | 60 | 90 | 115 | 142 | 180 |
| C8 ⁴ | 19.5 | 19.5 | 15 | 17 | 19.5 | 22.5 | 57 |
| C9 ⁴ | 118 | 143 | 174.5 | 225.5 | 292.5 | 337 | 443 |
| C10 ⁴ | 13.25 | 13.25 | 9.5 | 10.75 | 13 | 15.5 | 48.75 |
| C11 ⁴ | 19.5 | 19.5 | 33 | 35.5 | 46 | 53.5 | 107.5 |
| B1 _{h9} | 4 | 5 | 6 | 10 | 12 | 16 | 20 |
| H1 | 14 | 18 | 24.5 | 35 | 43 | 59 | 79.5 |

4. C1-C11 are motor specific dimensions (metric std shown). Refer to apexdyna.com and design tool to view your specific motor mounting system.
 * AE070 ratio 15-50 offers C3 ≤ 12 option. * AE090 ratio 15-50 offers C3 ≤ 15.875 / ≤ 16 option.

AER Series

Specifications

Gearbox Performance

| Model No. | Stage | Ratio | AER050 | AER070 | AER090 | AER120 | AER155 | AER205 | AER235 | |
|--------------------------------|-----------|-------|--------|-------------------------------------|--------|--------|--------|--------|--------|--------|
| Nominal output torque T_{2N} | 1 | 3 | 9 | 36 | 90 | 195 | 342 | 588 | 1,140 | |
| | | 4 | 12 | 48 | 120 | 195 | 520 | 1,040 | 1,680 | |
| | | 5 | 15 | 60 | 150 | 260 | 650 | 1,200 | 2,000 | |
| | | 6 | 18 | 55 | 150 | 325 | 600 | 1,100 | 1,900 | |
| | | 7 | 19 | 50 | 140 | 310 | 550 | 1,100 | 1,800 | |
| | | 8 | 17 | 45 | 120 | 300 | 500 | 1,000 | 1,600 | |
| | | 9 | 14 | 40 | 100 | 260 | 450 | 900 | 1,500 | |
| | | 10 | 14 | 40 | 100 | 230 | 450 | 900 | 1,500 | |
| | | 14 | - | 42 | 140 | 300 | 550 | 1,100 | 1,800 | |
| | | 20 | - | 40 | 100 | 230 | 450 | 900 | 1,500 | |
| | 2 | 15 | 14 | - | - | - | - | - | - | - |
| | | 20 | 14 | - | - | - | - | - | - | - |
| | | 25 | 15 | 60 | 150 | 325 | 650 | 1,200 | 2,000 | |
| | | 30 | 20 | 55 | 150 | 310 | 600 | 1,100 | 1,900 | |
| | | 35 | 19 | 50 | 140 | 300 | 550 | 1,100 | 1,800 | |
| | | 40 | 17 | 45 | 120 | 260 | 500 | 1,000 | 1,600 | |
| | | 45 | 14 | 40 | 100 | 230 | 450 | 900 | 1,500 | |
| | | 50 | 14 | 60 | 100 | 230 | 650 | 1,200 | 2,000 | |
| | | 60 | 20 | 55 | 150 | 310 | 600 | 1,100 | 1,900 | |
| | | 70 | 19 | 50 | 140 | 300 | 550 | 1,100 | 1,800 | |
| | | 80 | 17 | 45 | 120 | 260 | 500 | 1,000 | 1,600 | |
| | | 90 | 14 | 40 | 100 | 230 | 450 | 900 | 1,500 | |
| | | 100 | 14 | 40 | 100 | 230 | 450 | 900 | 1,500 | |
| | | 120 | - | - | 150 | 310 | 600 | 1,100 | 1,900 | |
| | | 140 | - | - | 140 | 300 | 550 | 1,100 | 1,800 | |
| | | 160 | - | - | 120 | 260 | 550 | 1,000 | 1,600 | |
| 180 | - | - | 100 | 230 | 450 | 900 | 1,500 | | | |
| 200 | - | - | 100 | 230 | 450 | 900 | 1,500 | | | |
| Max. output torque T_{2B} | Nm | 1,2 | 3~200 | 3 times of nominal output torque | | | | | | |
| Nominal Input Speed n_{1N} | rpm | 1,2 | 3~200 | 5,000 | 5,000 | 4,000 | 4,000 | 3,000 | 3,000 | 2,000 |
| Max. Input Speed n_{1B} | rpm | 1,2 | 3~200 | 10,000 | 10,000 | 8,000 | 8,000 | 6,000 | 6,000 | 4,000 |
| Backlash | arcmin | 1 | 3~20 | ≤10 | ≤10 | ≤10 | ≤10 | ≤10 | ≤10 | ≤10 |
| | | 2 | 25~200 | ≤14 | ≤14 | ≤14 | ≤14 | ≤14 | ≤14 | ≤14 |
| Torsional Rigidity | Nm/arcmin | 1,2 | 3~200 | 3 | 7 | 14 | 25 | 50 | 145 | 225 |
| Max. radial load F_{2B}^2 | N | 1,2 | 3~200 | 702 | 1,377 | 2,985 | 6,100 | 8,460 | 13,050 | 8,700 |
| Max. axial load F_{2a1B}^2 | N | 1,2 | 3~200 | 350 | 630 | 1,300 | 2,400 | 4,000 | 6,200 | 4,800 |
| Max. axial load F_{2a2B}^2 | N | 1,2 | 3~200 | 390 | 765 | 1,625 | 3,350 | 4,700 | 7,250 | 18,000 |
| Service life | hr | 1,2 | 3~200 | 20,000* | | | | | | |
| Efficiency η | % | 1 | 3~20 | ≥95% | | | | | | |
| | | 2 | 25~200 | ≥92% | | | | | | |
| Weight | kg | 1 | 3~20 | 1.0 | 2.1 | 5.8 | 11.2 | 22.4 | 46.8 | 78.0 |
| | | 2 | 25~200 | 1.3 | 2.0 | 4.6 | 11.1 | 21.8 | 43.7 | 81.9 |
| Operating temp | °C | 1,2 | 3~200 | -10°C~+90°C | | | | | | |
| Lubrication | | 1,2 | 3~200 | synthetic gear grease (NYOGEL 792D) | | | | | | |
| Degree of gearbox protection | | 1,2 | 3~200 | IP65 | | | | | | |
| Mounting position | | 1,2 | 3~200 | all directions | | | | | | |
| Noise level ($n_1=3000$ rpm) | dB | 1,2 | 3~200 | ≤61 | ≤63 | ≤65 | ≤68 | ≤70 | ≤72 | ≤74 |

Gearbox Inertia

| Model No. | Stage | Ratio | AER050 | AER070 | AER090 | AER120 | AER155 | AER205 | AER235 |
|-------------------------------|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| Mass Moments of Inertia J_1 | 1 | 3~10 | 0.09 | 0.35 | 2.25 | 6.84 | 23.4 | 68.9 | 135.4 |
| | | 14 | - | 0.07 | 1.87 | 6.25 | 21.8 | 65.6 | 119.8 |
| | | 20 | - | 0.07 | 1.87 | 6.25 | 21.8 | 65.6 | 119.8 |
| | 2 | 15 | 0.09 | - | - | - | - | - | - |
| | | 20 | 0.09 | - | - | - | - | - | - |
| | | 25~100 | 0.09 | 0.09 | 0.35 | 2.25 | 6.84 | 23.4 | 68.9 |
| 120~200 | - | - | 0.31 | 1.87 | 6.25 | 21.8 | 65.6 | | |

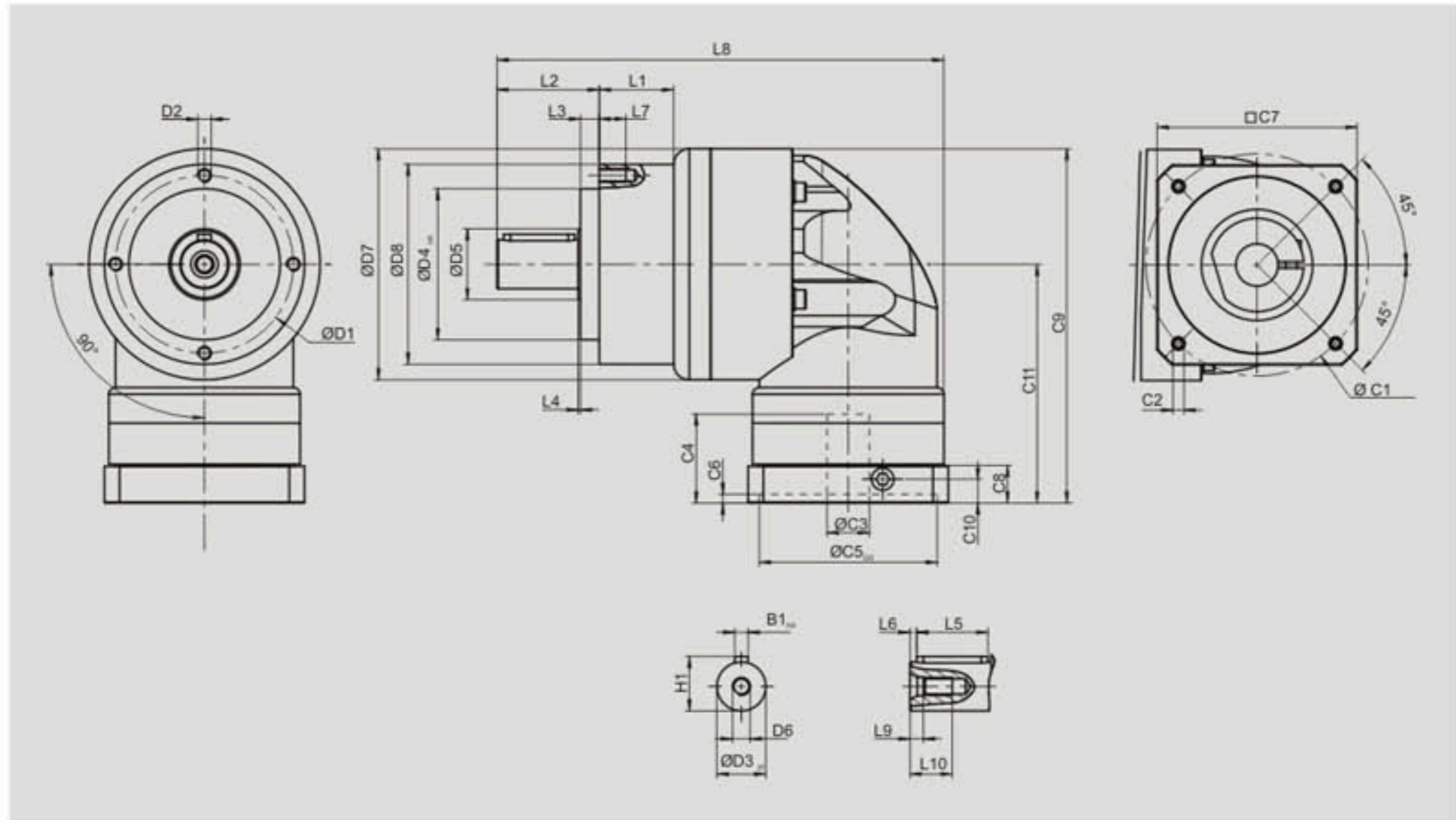
1. Ratio ($i=N_{in}/N_{out}$)

*S1 service life 10,000 hrs

2. Applied to the output shaft center @ 100 rpm

AER Series

Dimensions (1-stage, Ratio $i=3\sim 20$)

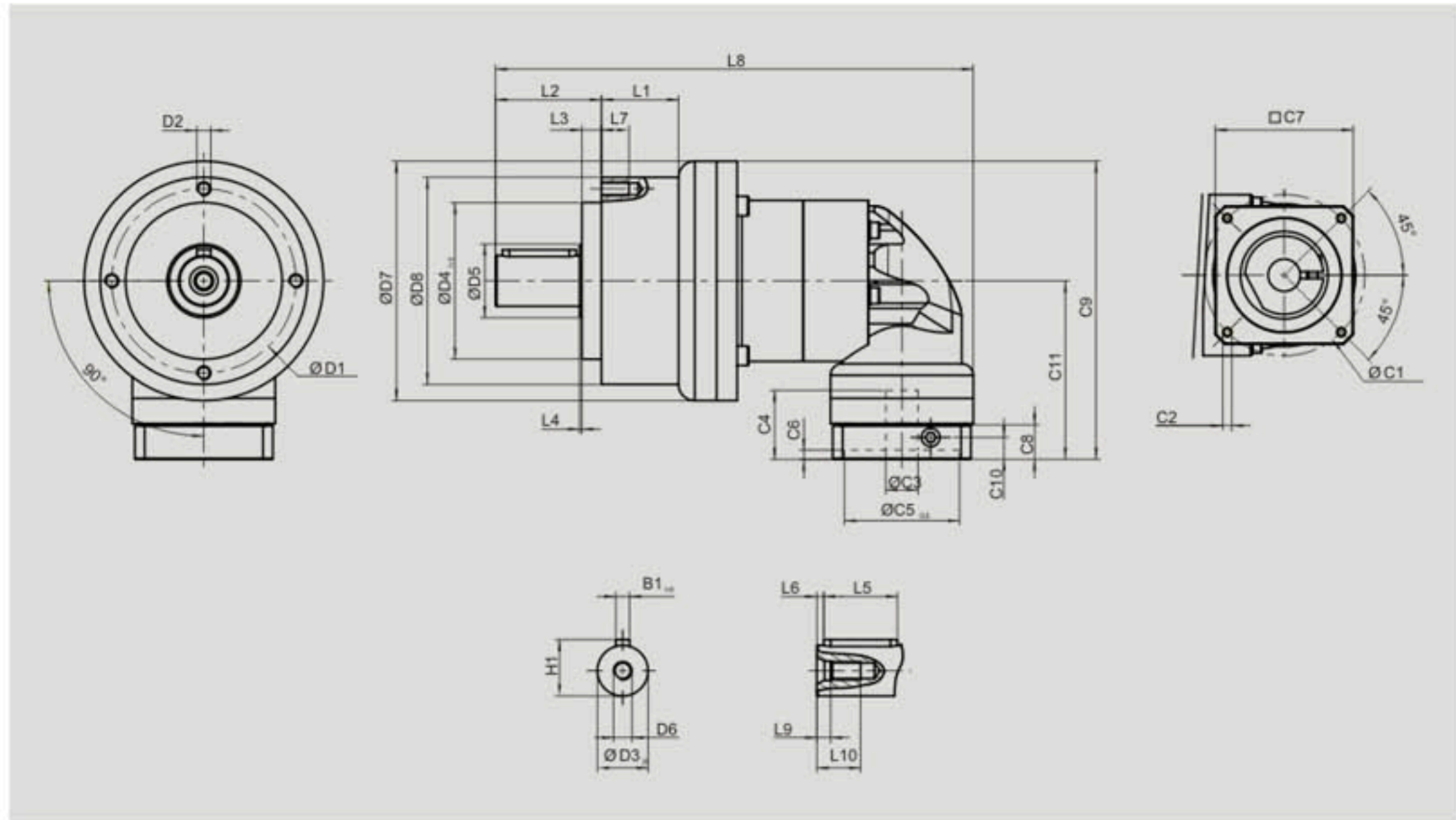


[unit: mm]

| Dimension | AER050 | AER070 | AER090 | AER120 | AER155 | AER205 | AER235 |
|-------------------------------|-----------|-----------|------------|-------------|------------|-------------|-------------|
| D1 | 44 | 62 | 80 | 108 | 140 | 184 | 210 |
| D2 | M4 x 0.7P | M5 x 0.8P | M6 x 1P | M8 x 1.25P | M10 x 1.5P | M12 x 1.75P | M16 x 2P |
| D3 _{j6} | 12 | 16 | 22 | 32 | 40 | 55 | 75 |
| D4 _{h8} | 35 | 52 | 68 | 90 | 120 | 160 | 180 |
| D5 | 22 | 22 | 30 | 40 | 75 | 95 | 115 |
| D6 | M4 x 0.7P | M5 x 0.8P | M8 x 1.25P | M12 x 1.75P | M16 x 2P | M20 x 2.5P | M20 x 2.5P |
| D7 | 53 | 70 | 104 | 130 | 162 | 205 | 260 |
| D8 | 50 | 70 | 90 | 120 | 155 | 205 | 235 |
| L1 | -- | -- | 33.5 | 38 | 50 | -- | 70 |
| L2 | 24.5 | 36 | 46 | 70 | 97 | 100 | 126 |
| L3 | 4 | 6.5 | 8.5 | 17.5 | 15 | 15 | 18 |
| L4 | 1 | 1 | 1 | 1.5 | 3 | 3 | 3 |
| L5 | 14 | 25 | 32 | 40 | 63 | 70 | 90 |
| L6 | 2 | 2 | 3 | 5 | 5 | 6 | 7 |
| L7 | 8 | 10 | 12 | 16 | 20 | 22 | 28 |
| L8 | 115.5 | 146 | 201 | 252 | 324.5 | 379.5 | 461.5 |
| L9 | 3.2 | 4 | 6 | 9.5 | 12 | 15 | 15 |
| L10 | 10 | 12.5 | 19 | 28 | 36 | 42 | 42 |
| C1 ³ | 46 | 70 | 100 | 130 | 165 | 200 | 235 |
| C2 ³ | M4 x 0.7P | M4 x 0.7P | M6 x 1P | M8 x 1.25P | M10 x 1.5P | M12 x 1.75P | M12 x 1.75P |
| C3 ³ | ≤11 | ≤14 / ≤16 | ≤19 / ≤24 | ≤32 | ≤38 | ≤48 | ≤55 |
| C4 ³ | 30 | 30 | 40 | 50 | 60 | 113 | 116 |
| C5 ³ _{GB} | 30 | 50 | 80 | 110 | 130 | 114.3 | 200 |
| C6 ³ | 3.5 | 4 | 4 | 5 | 6 | 6 | 6 |
| C7 ³ | 48 | 60 | 90 | 115 | 142 | 180 | 220 |
| C8 ³ | 19.5 | 15 | 17 | 19.5 | 22.5 | 57 | 63 |
| C9 ³ | 100.5 | 112.5 | 159.5 | 199 | 245.5 | 344 | 398.5 |
| C10 ³ | 13.25 | 9.5 | 10.75 | 13 | 15.5 | 48.75 | 53.5 |
| C11 ³ | 74 | 77.5 | 107.5 | 134 | 164.5 | 241.5 | 268.5 |
| B1 _{h9} | 4 | 5 | 6 | 10 | 12 | 16 | 20 |
| H1 | 14 | 18 | 24.5 | 35 | 43 | 59 | 79.5 |

3. C1-C11 are motor specific dimensions (metric std shown). Refer to apexdyna.com and design tool to view your specific motor mounting system.

Dimensions (2-stage, Ratio $i=25\sim 200$)

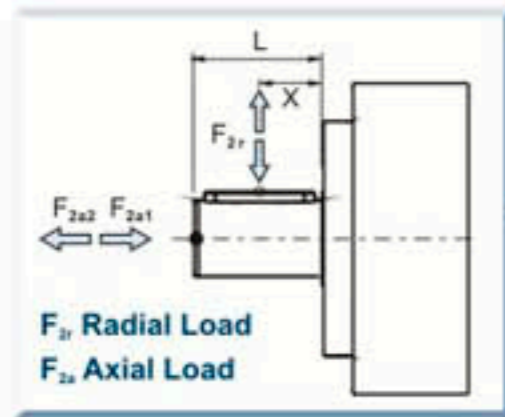
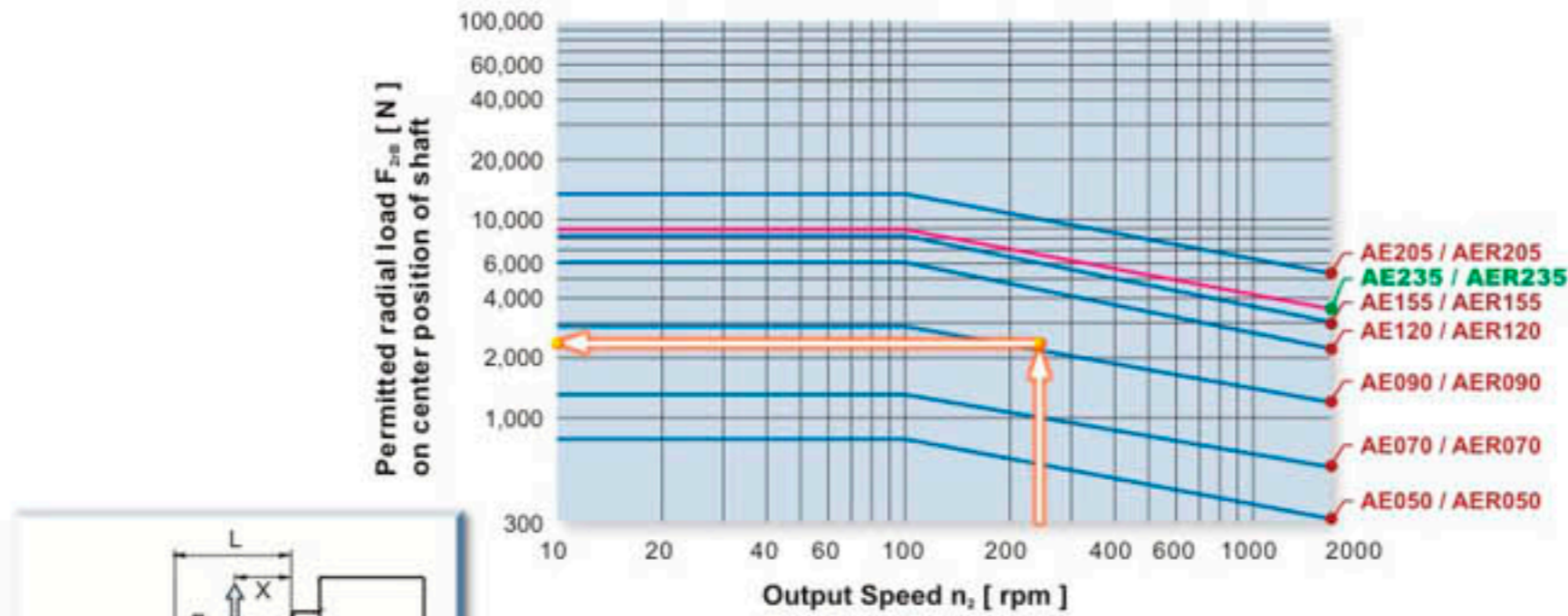


[unit: mm]

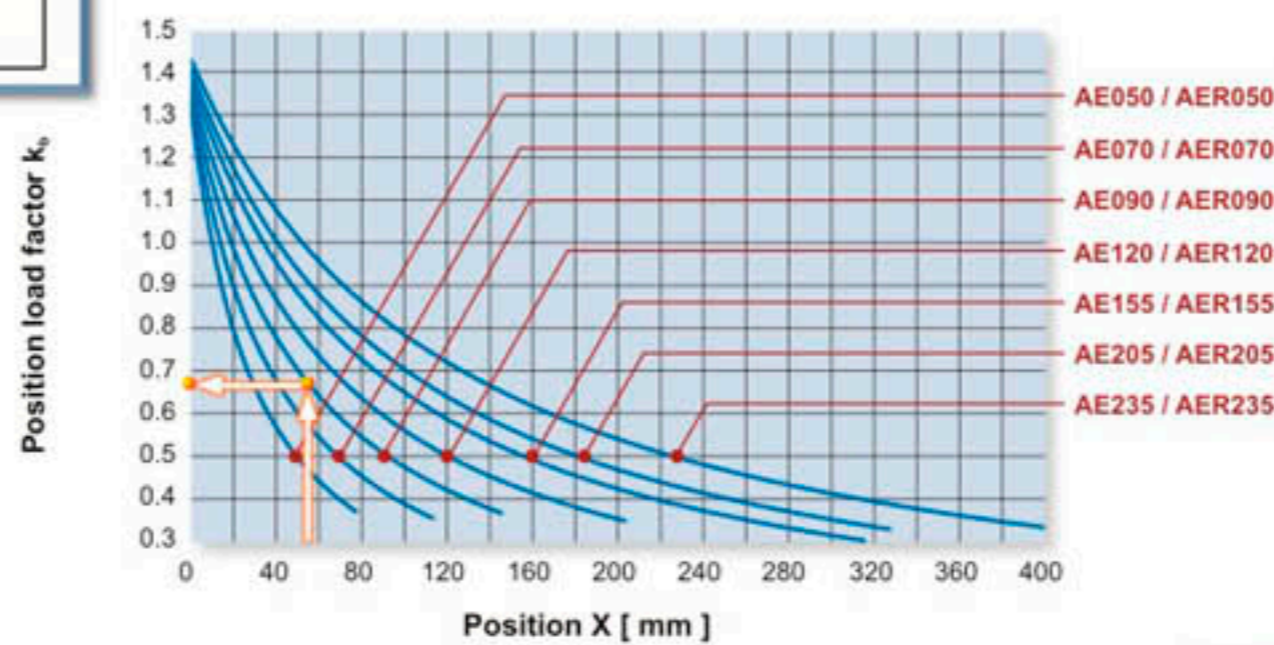
| Dimension | AER050 | AER070 | AER090 | AER120 | AER155 | AER205 | AER235 |
|--------------------|-----------|-----------|---------------------|-------------|------------|-------------|-------------|
| D1 | 44 | 62 | 80 | 108 | 140 | 184 | 210 |
| D2 | M4 x 0.7P | M5 x 0.8P | M6 x 1P | M8 x 1.25P | M10 x 1.5P | M12 x 1.75P | M16 x 2P |
| D3 _{js} | 12 | 16 | 22 | 32 | 40 | 55 | 75 |
| D4 _{h6} | 35 | 52 | 68 | 90 | 120 | 160 | 180 |
| D5 | 22 | 22 | 30 | 40 | 75 | 95 | 115 |
| D6 | M4 x 0.7P | M5 x 0.8P | M8 x 1.25P | M12 x 1.75P | M16 x 2P | M20 x 2.5P | M20 x 2.5P |
| D7 | 53 | 70 | 104 | 130 | 162 | 205 | 260 |
| D8 | 50 | 70 | 90 | 120 | 155 | 205 | 235 |
| L1 | -- | -- | 33.5 | 38 | 50 | -- | 70 |
| L2 | 24.5 | 36 | 46 | 70 | 97 | 100 | 126 |
| L3 | 4 | 6.5 | 8.5 | 17.5 | 15 | 15 | 18 |
| L4 | 1 | 1 | 1 | 1.5 | 3 | 3 | 3 |
| L5 | 14 | 25 | 32 | 40 | 63 | 70 | 90 |
| L6 | 2 | 2 | 3 | 5 | 5 | 6 | 7 |
| L7 | 8 | 10 | 12 | 16 | 20 | 22 | 28 |
| L8 | 142.5 | 167.5 | 207.5 | 283 | 358 | 422.5 | 506.5 |
| L9 | 3.2 | 4 | 6 | 9.5 | 12 | 15 | 15 |
| L10 | 10 | 12.5 | 19 | 28 | 36 | 42 | 42 |
| C1 ⁴ | 46 | 46 | 70 | 100 | 130 | 165 | 200 |
| C2 ⁴ | M4 x 0.7P | M4 x 0.7P | M4 x 0.7P | M6 x 1P | M8 x 1.25P | M10 x 1.5P | M12 x 1.75P |
| C3 ⁴ | ≤11 | ≤11 / ≤12 | ≤14 / ≤15.875 / ≤16 | ≤19 / ≤24 | ≤32 | ≤38 | ≤48 |
| C4 ⁴ | 30 | 30 | 30 | 40 | 50 | 60 | 113 |
| C5 ⁴ G6 | 30 | 30 | 50 | 80 | 110 | 130 | 114.3 |
| C6 ⁴ | 3.5 | 3.5 | 4 | 4 | 5 | 6 | 6 |
| C7 ⁴ | 48 | 48 | 60 | 90 | 115 | 142 | 180 |
| C8 ⁴ | 19.5 | 19.5 | 15 | 17 | 19.5 | 22.5 | 57 |
| C9 ⁴ | 100.5 | 109 | 129.5 | 172.5 | 215 | 267 | 371.5 |
| C10 ⁴ | 13.25 | 13.25 | 9.5 | 10.75 | 13 | 15.5 | 48.75 |
| C11 ⁴ | 74 | 74 | 77.5 | 107.5 | 134 | 164.5 | 241.5 |
| B1 _{h9} | 4 | 5 | 6 | 10 | 12 | 16 | 20 |
| H1 | 14 | 18 | 24.5 | 35 | 43 | 59 | 79.5 |

4. C1-C11 are motor specific dimensions (metric std shown). Refer to Apexdyna.com and Design Tool to view your specific motor mounting system.

Output Dimensions



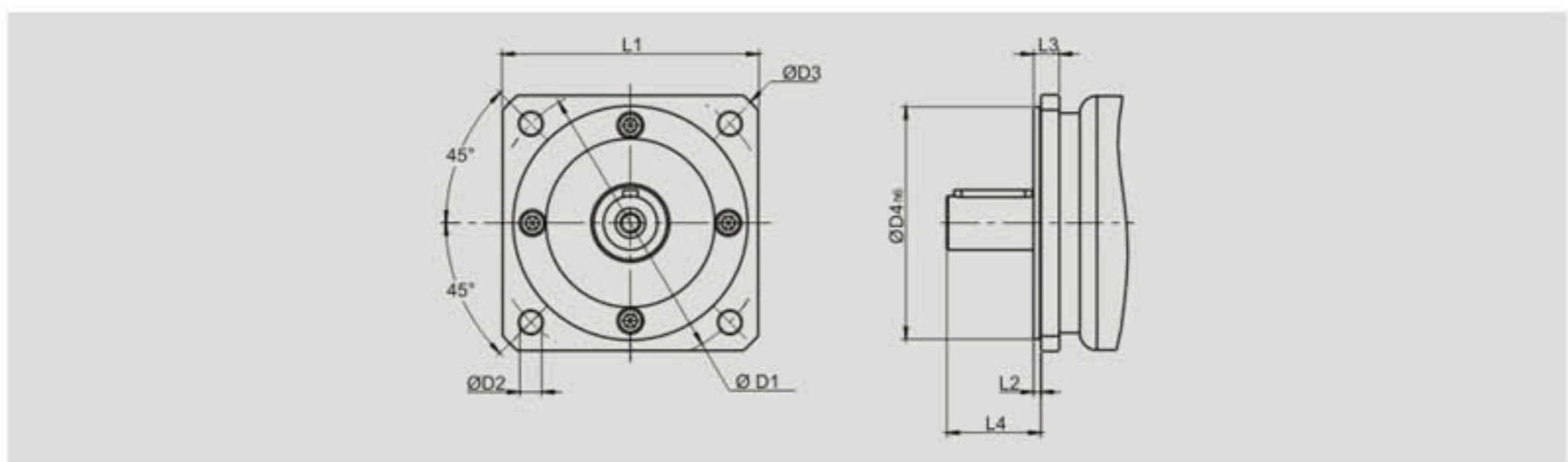
If radial force F_{2r} exert on the center of the output shaft $X=1/2 \times L$. Under various operating condition the lifetime is over 20,000* hours. The permitted radial load is given on left diagram.



If radial force F_{2r} not exert on the center of the output shaft $X < 1/2 \times L$ or $X > 1/2 \times L$. The permitted radial and axial load can be calculated by the position load factor k_0 on the left diagram.

* Continuous running reduces service life by 50%

Front plate option



[unit: mm]

| Dimension | D1 | D2 | D3 | D4 ^{ht} | L1 | L2 | L3 | L4 |
|---------------------------|---------|-----|------|------------------|------|-----|------|------|
| AE050(AER050)-NEMA23 | 66.675 | 6 | 77 | 38.15 | 57.2 | 2 | 8 | 18.5 |
| AE050(AER050)-PX60 | 70 | 5.6 | 80.5 | 50 | 60 | 2.5 | 8.5 | 18.5 |
| AE070(AER070)-Metric | 90 | 6.6 | 106 | 50 | 80 | 3 | 11 | 28 |
| AE070(AER070)-NEMA34 | 98.425 | 5.6 | 115 | 73.08 | 86 | 2.5 | 8 | 30.5 |
| AE070(AER070)-DT90/PX90 | 100 | 6.6 | 120 | 80 | 90 | 3 | 8 | 31 |
| AE090(AER090)-IEC 63D5 B5 | 115 | 9 | 140 | 95 | 105 | 3 | 10.5 | 38.5 |
| AE090(AER090)-NEMA42 | 125.73 | 7 | 144 | 55.58 | 107 | 4 | 14.5 | 35.5 |
| AE120(AER120)-NEMA56 | 149.225 | 6.6 | 170 | 114.3 | 127 | 3 | 17.5 | 55.5 |
| AE155(AER155)-B5 | 175 | 11 | 196 | 130 | 160 | 5 | 20 | 82 |
| AE205(AER205)-B5 | 230 | 13 | 277 | 180 | 210 | 5 | 23 | 82 |
| AE235(AER235)-B5 | 275 | 17 | 317 | 235 | 240 | 5 | 23 | 108 |

Ordering Code

AE Series

AE090

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010

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MOTOR

Gearbox Size:

AE050, AE070, AE090
AE120, AE155, AE205, AE235

Motor Designation:

Manufacturer Type
And Model

Ratio:

1 Stage: 3, 4, 5, 6, 7, 8, 9, 10
2 Stage: 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100

Ordering Example: AE090-010 / SIEMENS 1FT6 041-4AF71

AER Series

AER050

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010

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MOTOR

Gearbox Size:

AER050, AER070, AER090
AER120, AER155, AER205, AER235

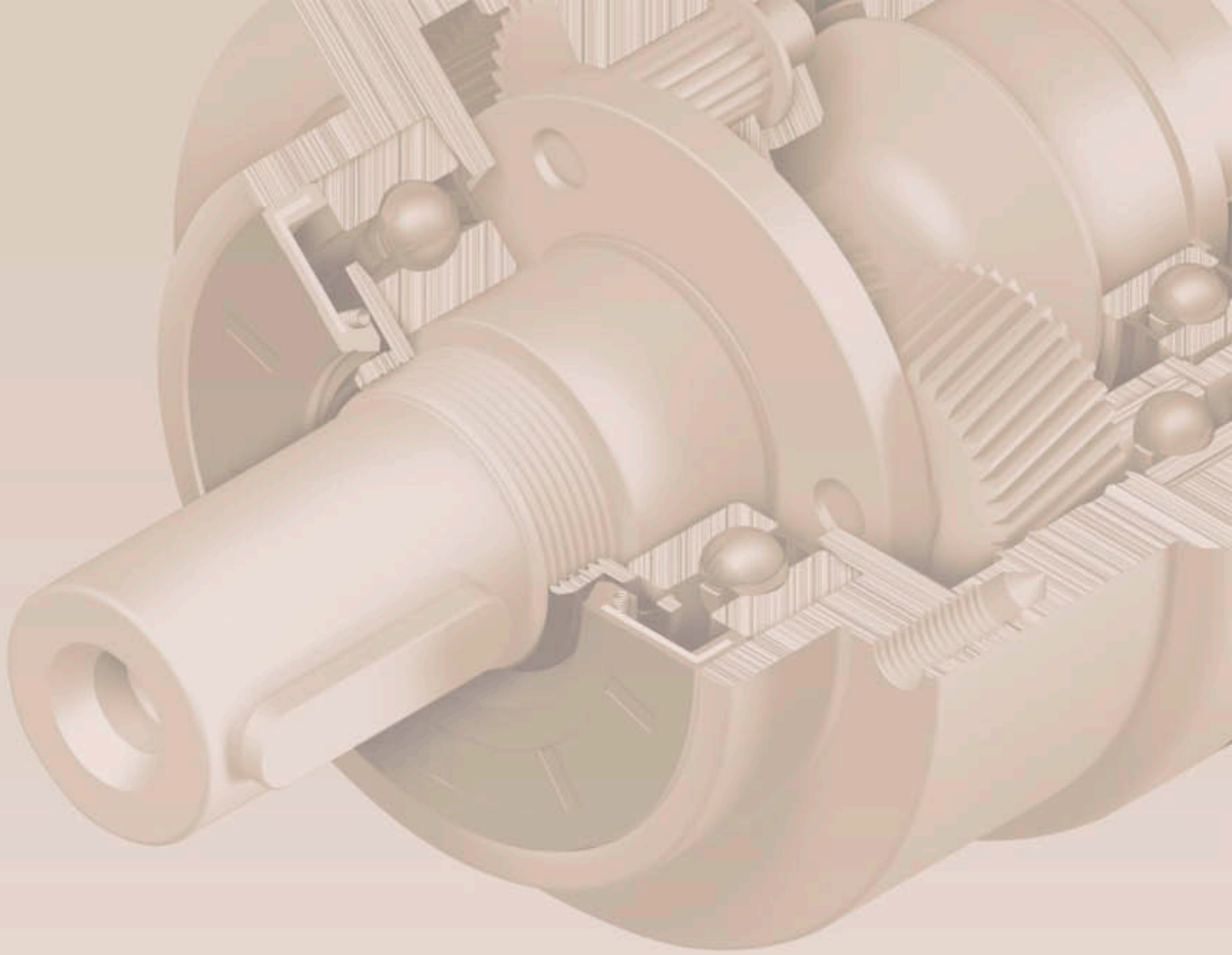
Motor Designation:

Manufacturer Type
And Model

Ratio:

1 Stage: 3, 4, 5, 6, 7, 8, 9, 10, 14, 20
2 Stage: 15, 20, 25, 30, 35, 40, 45, 50, 60, 70,
80, 90, 100, 120, 140, 160, 180, 200

Ordering Example: AER050-010 / SIEMENS 1FT5 034-OAK71



AE / AER Series

www.apexdyna.com



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