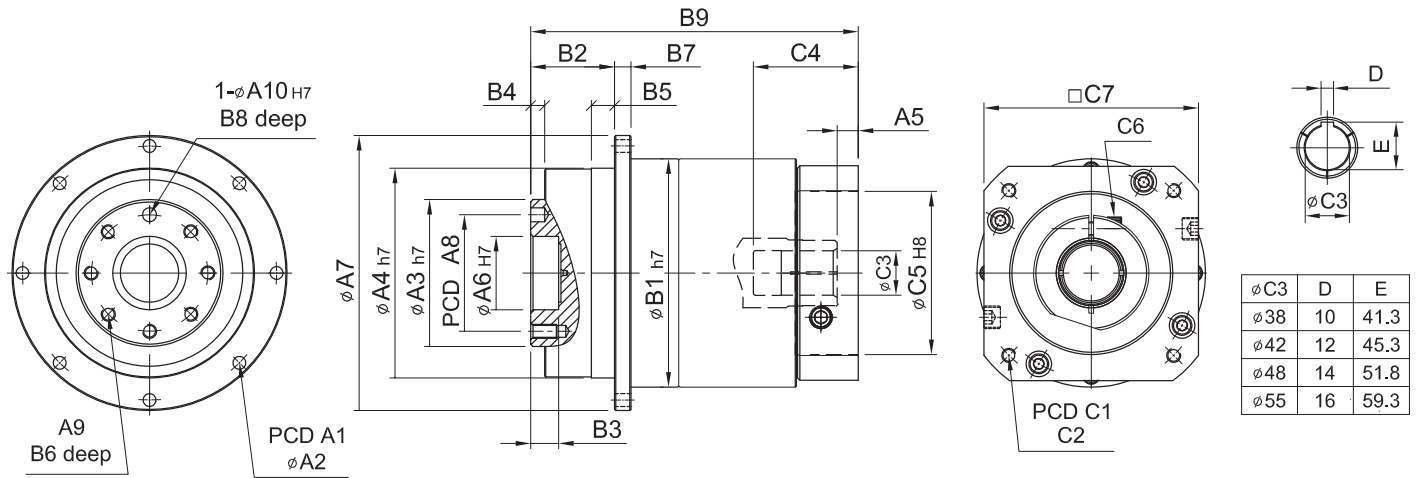


SERVOBOX

MODEL : SD

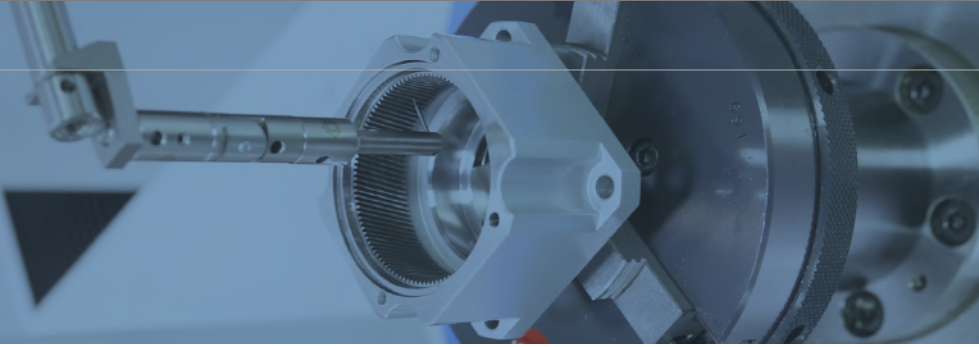
1-Stage / Kademe

RATIO / ÇEVİRİM : 4, 5, 7, 10



unit / birim: mm

| Model Code | 47 | 64 | 90 | 110 | 140 | 200 | 255 |
|------------|---------------|---------------|----------------------|-----------------|-----------------|-------------------|-------------------|
| A | | | | | | | |
| A1 | 67 | 79 | 109 | 135 | 168 | 233 | 280 |
| A2 | 8-3.4 | 8-4.5 | 8-5.5 | 8-5.5 | 12-6.6 | 12-9.0 | 16-13.5 |
| A3 | 28 | 40 | 63 | 80 | 100 | 160 | 180 |
| A4 | 47 | 64 | 90 | 110 | 140 | 200 | 255 |
| A5 | 6 | 6 | 9 · 23.5 | 10 · 20 | 10 | 11.5 · 13.5 | 10.5 · 12.5 |
| A6 | 12 | 20 | 31.5 | 40 | 50 | 80 | 100 |
| A7 | 72 | 86 | 118 | 146 | 179 | 248 | 300 |
| A8 | 20 | 31.5 | 50 | 63 | 80 | 125 | 140 |
| A9 | 4 - M3 x P0.5 | 7 - M5 x P0.8 | 7 - M6 x P1.0 | 11 - M6 x P1.0 | 11 - M8 x P1.25 | 11 - M10 x P1.5 | 12 - M16 x P2.0 |
| A10 | 3 | 5 | 6 | 6 | 8 | 10 | 12 |
| B | | | | | | | |
| B1 | 59 | 70 | 98 | 125 | 156 | 212 | 255 |
| B2 | 19.5 | 19.5 | 30 | 29 | 38 | 50 | 66 |
| B3 | 5 | 7 | 12 | 12 | 12 | 16 | 20 |
| B4 | 1.5 | 4 | 6 | 6 | 6 | 8 | 12 |
| B5 | 5 | 6 | 10 | 10 | 15 | 15 | 20 |
| B6 | 6.5 | 8 | 12 | 12 | 16 | 22 | 32 |
| B7 | 4 | 5 | 7 | 8 | 10 | 12 | 18 |
| B8 | 4 | 6 | 6 | 7 | 7 | 10 | 10 |
| B9 | 74.7 | 84.5 | 133 · 147.5 | 153 · 163 | 186.5 | 250.5 · 252.5 | 263 · 265 |
| C | | | | | | | |
| C1 | 46 · 60 · 63 | 70 · 75 · 90 | 90 · 100 · 115 · 145 | 115 · 145 · 165 | 145 · 165 · 200 | 200 · 215 · 265 | 200 · 265 · 300 |
| C2 | M3 · M4 · M5 | M4 · M5 · M6 | M5 · M6 · M8 | M6 · M8 · M10 | M8 · M10 · M12 | M10 · M12 · M16 | M12 · M16 |
| C3 | 8 · 9 · 11 | 14 · 19 | 19 · 22 · 24 | 24 · 28 · 32 | 32 · 35 · 38 | 38 · 42 · 48 · 55 | 42 · 48 · 55 |
| C4 | 33 | 34 | 58.5 · 73 | 67 · 77 | 84.5 | 114.5 · 116.5 | 115.5 · 117.5 |
| C5 | 30 · 40 · 50 | 50 · 60 · 70 | 70 · 80 · 95 · 110 | 95 · 110 · 130 | 110 · 130 · 180 | 114.3 · 180 · 230 | 114.3 · 230 · 250 |
| C6 | M4 x P0.7 | M5 x P0.8 | M6 x P1.0 | M8 x P1.25 | M10 x P1.5 | M10 x P1.5 | M10 x P1.5 |
| C7 | 46 · 55 | 64 · 70 · 80 | 92 · 110 · 130 | 122 · 130 · 150 | 146 · 150 · 190 | 182 · 200 · 250 | 222 · 250 · 265 |



| Model No. | | Unit/Birim | Ratio Çevrim | 47 | 64 | 90 | 110 | 140 | 200 | 255 |
|---|------------|------------|-----------------|---|-------|-------|--------|--------|--------|--------|
| Nominal output torque / Nominal Çıkış Torku | T_{2N} | Nm | 4 | 22 | 60 | 160 | 335 | 650 | 1,200 | 2,020 |
| | | | 5 | 20 | 50 | 155 | 333 | 618 | 1,189 | 2,010 |
| | | | 7 | 19 | 47 | 142 | 309 | 573 | 1,108 | 1,870 |
| | | | 10 | 16 | 43 | 136 | 294 | 549 | 1,059 | 1,779 |
| Max. Acceleration Torque / Max. İvmelenme Torku | T_{2B} | Nm | 4 ~ 10 | 1.8 Times of Rated Output Torque / 1,8 x Nominal Çıkış Torku | | | | | | |
| Max. Output Torque / Max. Çıkış Torku | T_{2NOT} | Nm | 4 ~ 10 | 3 Times of Rated Output Torque / 3 x Nominal Çıkış Torku | | | | | | |
| Rated Input Speed / Nominal Giriş Devri | n_{1N} | rpm | 4 ~ 10 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 2,000 |
| Max. Input Speed / Max. Giriş Devri | n_{1B} | rpm | 4 ~ 10 | 6,000 | 6,000 | 6,000 | 6,000 | 5,000 | 4,000 | 3,000 |
| Backlash Ps / Min. Boşluk Oranı | | arcmin | 4 ~ 10 | - | - | ≤ 1 | ≤ 1 | ≤ 1 | ≤ 1 | ≤ 1 |
| Backlash P0 / Düşük Boşluk Oranı | | arcmin | 4 ~ 10 | ≤ 3 | ≤ 3 | ≤ 3 | ≤ 3 | ≤ 3 | ≤ 3 | ≤ 3 |
| Backlash P1 / Azaltılmış Boşluk Oranı | | arcmin | 4 ~ 10 | ≤ 5 | ≤ 5 | ≤ 5 | ≤ 5 | ≤ 5 | ≤ 5 | ≤ 5 |
| Backlash P2 / Standart Boşluk Oranı | | arcmin | 4 ~ 10 | ≤ 7 | ≤ 7 | ≤ 7 | ≤ 7 | ≤ 7 | ≤ 7 | ≤ 7 |
| Torsional Rigidity / Burulma Direnci | | Nm/arcmin | 4 ~ 10 | 6 | 14 | 30 | 86 | 155 | 450 | 1126 |
| Max. Axial Force Taper Bearing / Max. Aksiyel Yük Bilyalı Rulman | F_{2rB} | N | 4 ~ 10 | 1,020 | 1,260 | 4,230 | 6,360 | 7,035 | 17,600 | 19,800 |
| Max. Axial Force Taper Bearing / Max. Aksiyel Yük Masuralı Rulman | F_{2aB} | N | 4 ~ 10 | - | - | 7,330 | 11,500 | 18,600 | 36,800 | 53,600 |
| Service Life / Hizmet Ömrü | L_H | hr | 4 ~ 10 | S5 Döngüsel Çalışma: >30,000 (S1 Sürekli Çalışma: >15,000 saat) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs) | | | | | | |
| Efficiency / Verim | η | % | 4 ~ 10 | ≥ 97 | | | | | | |
| Operating Temperature / Çalışma Sıcaklığı | | °C | 4 ~ 10 | - 25° C ~ + 90° C | | | | | | |
| Lubrication / Yağlama | | | 4 ~ 10 | Synthetic Grease / Sentetik Gres | | | | | | |
| Protection Class / Koruma Sınıfı | | | 4 ~ 10 | IP65 | | | | | | |
| Mounting Position / Montaj Pozisyonu | | | 4 ~ 10 | Any / Her Yönde | | | | | | |
| Noise Level / Ses Seviyesi | | dB | 4 ~ 10 | ≤ 56 | ≤ 58 | ≤ 60 | ≤ 63 | ≤ 65 | ≤ 67 | ≤ 70 |
| Weight / Ağırlık ±3% | | Kg | 4 ~ 10 | 0.7 | 1.4 | 4.2 | 7.4 | 13.9 | 32.4 | 55 |

■ Mass Moments of Inertia / Atalet Ağırlık Momenti (kg.cm²)

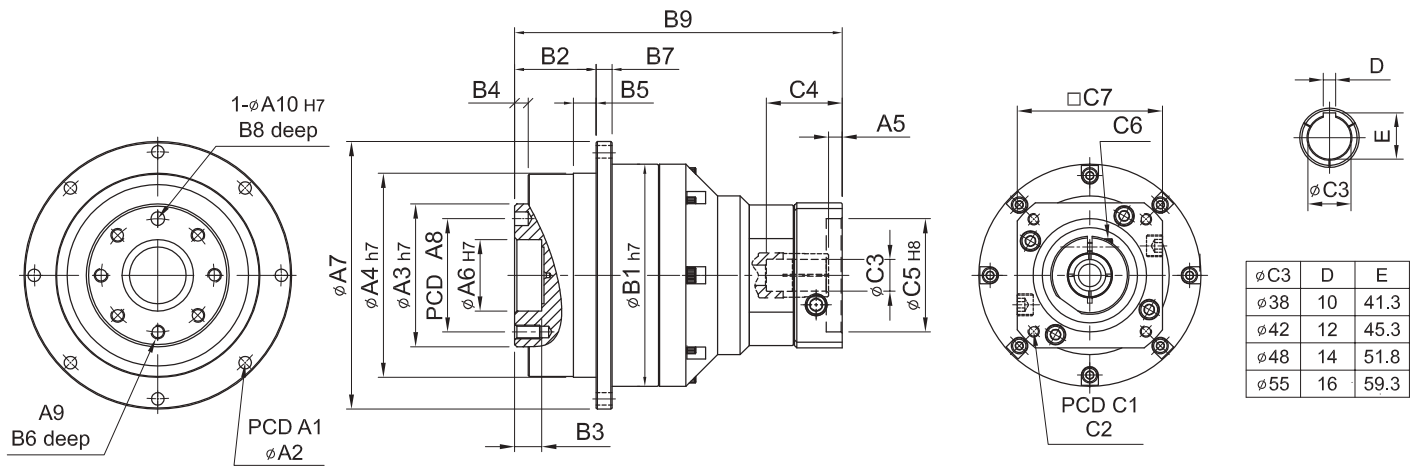
| Ratio / Çevrim | 47 | 64 | 90 | 110 | 140 | 200 | 255 |
|----------------|------|------|------|------|------|-------|-------|
| 4 | 0.03 | 0.13 | 0.47 | 2.75 | 7.46 | 24.00 | 55 |
| 5 | 0.03 | 0.12 | 0.45 | 2.70 | 7.41 | 23.23 | 53.19 |
| 7 | 0.03 | 0.12 | 0.45 | 2.64 | 7.12 | 22.11 | 50.78 |
| 10 | 0.03 | 0.12 | 0.43 | 2.56 | 7.01 | 22.21 | 50.50 |

SERVOBOX

MODEL : SD

2-Stage / Kademe

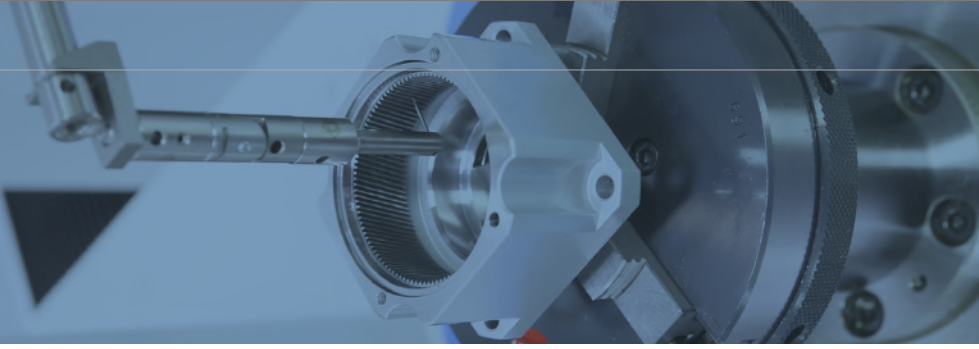
RATIO / ÇEVİRİM : 20, 25, 35, 40, 50, 70, 100



| øC3 | D | E |
|-----|----|------|
| ø38 | 10 | 41.3 |
| ø42 | 12 | 45.3 |
| ø48 | 14 | 51.8 |
| ø55 | 16 | 59.3 |

unit / birim: mm

| Model Code | 47 | 64 | 90 | 110 | 140 | 200 | 255 |
|------------|---------------|---------------|---------------|----------------|-----------------|-----------------|-----------------|
| A | | | | | | | |
| A1 | 67 | 79 | 109 | 135 | 168 | 233 | 280 |
| A2 | 8-3.4 | 8-4.5 | 8-5.5 | 8-5.5 | 12-6.6 | 12-9.0 | 16-13.5 |
| A3 | 28 | 40 | 63 | 80 | 100 | 160 | 180 |
| A4 | 47 | 64 | 90 | 110 | 140 | 200 | 255 |
| A5 | 5 | 6.5 | 6 | 9-23 | 10-20 | 10 | 11.5-13.5 |
| A6 | 12 | 20 | 31.5 | 40 | 50 | 80 | 100 |
| A7 | 72 | 86 | 118 | 146 | 179 | 248 | 300 |
| A8 | 20 | 31.5 | 50 | 63 | 80 | 125 | 140 |
| A9 | 4 - M3 x P0.5 | 7 - M5 x P0.8 | 7 - M6 x P1.0 | 11 - M6 x P1.0 | 11 - M8 x P1.25 | 11 - M10 x P1.5 | 12 - M16 x P2.0 |
| A10 | 3 | 5 | 6 | 6 | 8 | 10 | 12 |
| B | | | | | | | |
| B1 | 59 | 70 | 98 | 125 | 156 | 212 | 255 |
| B2 | 19.5 | 19.5 | 30 | 29 | 38 | 50 | 66 |
| B3 | 5 | 7 | 12 | 12 | 12 | 16 | 20 |
| B4 | 1.5 | 4 | 6 | 6 | 6 | 8 | 12 |
| B5 | 5 | 6 | 10 | 10 | 15 | 15 | 20 |
| B6 | 6.5 | 8 | 12 | 12 | 16 | 22 | 30.5 |
| B7 | 4 | 5 | 7 | 8 | 10 | 12 | 16 |
| B8 | 4 | 6 | 6 | 7 | 7 | 10 | 10 |
| B9 | 100.7 | 109 | 144.5 | 189-203.5 | 224.5-234.5 | 290.5 | 349-351 |
| C | | | | | | | |
| C1 | 46-60-63 | 46-60-63 | 70-75-90 | 90-100-115-145 | 115-145-165 | 145-165-215 | 200-215-265 |
| C2 | M3-M4-M5 | M3-M4-M5 | M4-M5-M6 | M5-M6-M8 | M6-M8-M10 | M8-M10-M12 | M10-M12-M16 |
| C3 | 8-9-11 | 8-9-11-14 | 14-19 | 19-22-24 | 24-28-32 | 28-32-35 | 38-42-48-55 |
| C4 | 26 | 32 | 33.5 | 59-73.5 | 67-77 | 84.5 | 114.5-116.5 |
| C5 | 30-40-50 | 30-40-50 | 50-60-70 | 70-80-95-110 | 95-110-130 | 110-130-180 | 114.3-180-230 |
| C6 | M4 x P0.7 | M4 x P0.7 | M5 x P1.8 | M6 x P1.0 | M8 x P1.25 | M10 x P1.5 | M10 x P1.5 |
| C7 | 46-55 | 46-55 | 64-70-80 | 92-110-130 | 122-130-150 | 146-150-190 | 182-200-250 |



| Model No. | | Unit/Birim | Ratio Çevrim | 47 | 64 | 90 | 110 | 140 | 200 | 255 |
|--|------------|------------|-----------------|---|-------|-------|--------|--------|--------|--------|
| Nominal output torque / Nominal Çıkış Torku | T_{2N} | Nm | 20 | 22 | 60 | 160 | 335 | 650 | 1,200 | 2,020 |
| | | | 25 | 20 | 50 | 155 | 333 | 618 | 1,189 | 2,010 |
| | | | 35 | 19 | 47 | 142 | 309 | 573 | 1,108 | 1,870 |
| | | | 40 | 22 | 60 | 160 | 335 | 650 | 1,200 | 2,020 |
| | | | 50 | 20 | 50 | 155 | 333 | 618 | 1,189 | 2,010 |
| | | | 70 | 19 | 47 | 142 | 309 | 573 | 1,108 | 1,870 |
| | | | 100 | 16 | 43 | 136 | 294 | 549 | 1,059 | 1,779 |
| Max. Acceleration Torque / Max. İvmelenme Torku | T_{2B} | Nm | 20 ~ 100 | 1.8 Times of Rated Output Torque / 1,8 x Nominal Çıkış Torku | | | | | | |
| Max. Output Torque / Max. Çıkış Torku | T_{2NOT} | Nm | 20 ~ 100 | 3 Times of Rated Output Torque / 3 x Nominal Çıkış Torku | | | | | | |
| Rated Input Speed / Nominal Giriş Devri | n_{1N} | rpm | 20 ~ 100 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 2,000 |
| Max. Input Speed / Max. Giriş Devri | n_{1B} | rpm | 20 ~ 100 | 6,000 | 6,000 | 6,000 | 6,000 | 5,000 | 4,000 | 3,000 |
| Backlash P _s / Min. Boşluk Oranı | | arcmin | 20 ~ 100 | - | - | - | ≤ 3 | ≤ 3 | ≤ 3 | ≤ 3 |
| Backlash P ₀ / Düşük Boşluk Oranı | | arcmin | 20 ~ 100 | ≤ 5 | ≤ 5 | ≤ 5 | ≤ 5 | ≤ 5 | ≤ 5 | ≤ 5 |
| Backlash P ₁ / Azaltılmış Boşluk Oranı | | arcmin | 20 ~ 100 | ≤ 7 | ≤ 7 | ≤ 7 | ≤ 7 | ≤ 7 | ≤ 7 | ≤ 7 |
| Backlash P ₂ / Standart Boşluk Oranı | | arcmin | 20 ~ 100 | ≤ 9 | ≤ 9 | ≤ 9 | ≤ 9 | ≤ 9 | ≤ 9 | ≤ 9 |
| Torsional Rigidity / Burulma Direnci | | Nm/arcmin | 20 ~ 100 | 6 | 14 | 30 | 86 | 155 | 450 | 1,126 |
| Max. Axial Force Ball Bearing / Max. Aksiyel Yük Bilyalı Rulman | F_{2rB} | N | 20 ~ 100 | 1,020 | 1,260 | 4,230 | 6,360 | 7,035 | 17,600 | 19,800 |
| Max. Axial Force Taper Bearing / Max. Aksiyel Yük Masuralı Rulman | F_{2aB} | N | 20 ~ 100 | - | - | 7,330 | 11,500 | 18,600 | 36,800 | 53,600 |
| Service Life / Hizmet Ömrü | L_{H1} | hr | 20 ~ 100 | S5 Döngüsel Çalışma: >30,000 (S1 Sürekli Çalışma: >15,000 saat) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs) | | | | | | |
| Efficiency / Verim | η | % | 20 ~ 100 | ≥ 94 | | | | | | |
| Operating Temperature / Çalışma Sıcaklığı | | °C | 20 ~ 100 | - 25° C ~ + 90° C | | | | | | |
| Lubrication / Yağlama | | | 20 ~ 100 | Synthetic Grease / Sentetik Gres | | | | | | |
| Protection Class / Koruma Sınıfı | | | 20 ~ 100 | IP65 | | | | | | |
| Mounting Position / Montaj Pozisyonu | | | 20 ~ 100 | Any / Her Yönde | | | | | | |
| Noise Level / Ses Seviyesi | | dB | 20 ~ 100 | ≤ 56 | ≤ 58 | ≤ 60 | ≤ 63 | ≤ 65 | ≤ 67 | ≤ 70 |
| Weight / Ağırlık ±3% | | Kg | 20 ~ 100 | 1 | 1.9 | 4.8 | 9.4 | 16.7 | 40.12 | 64 |

■ Mass Moments of Inertia / Atalet Ağırlık Momenti (kg.cm²)

| Ratio / Çevrim | 47 | 64 | 90 | 110 | 140 | 200 | 255 |
|----------------|------|------|------|------|-----|------|-------|
| 20 | 0.03 | 0.03 | 0.15 | 0.45 | 2.7 | 7.22 | 23.22 |
| 25 | 0.03 | 0.03 | 0.15 | 0.45 | 2.7 | 7.22 | 23.22 |
| 35 | 0.03 | 0.03 | 0.15 | 0.45 | 2.7 | 7.22 | 23.22 |
| 40 | 0.03 | 0.03 | 0.15 | 0.45 | 2.7 | 7.22 | 23.22 |
| 50 | 0.03 | 0.03 | 0.14 | 0.4 | 2.6 | 7.05 | 23.07 |
| 70 | 0.03 | 0.03 | 0.14 | 0.4 | 2.6 | 7.05 | 23.07 |
| 100 | 0.03 | 0.03 | 0.14 | 0.4 | 2.6 | 7.01 | 22.67 |