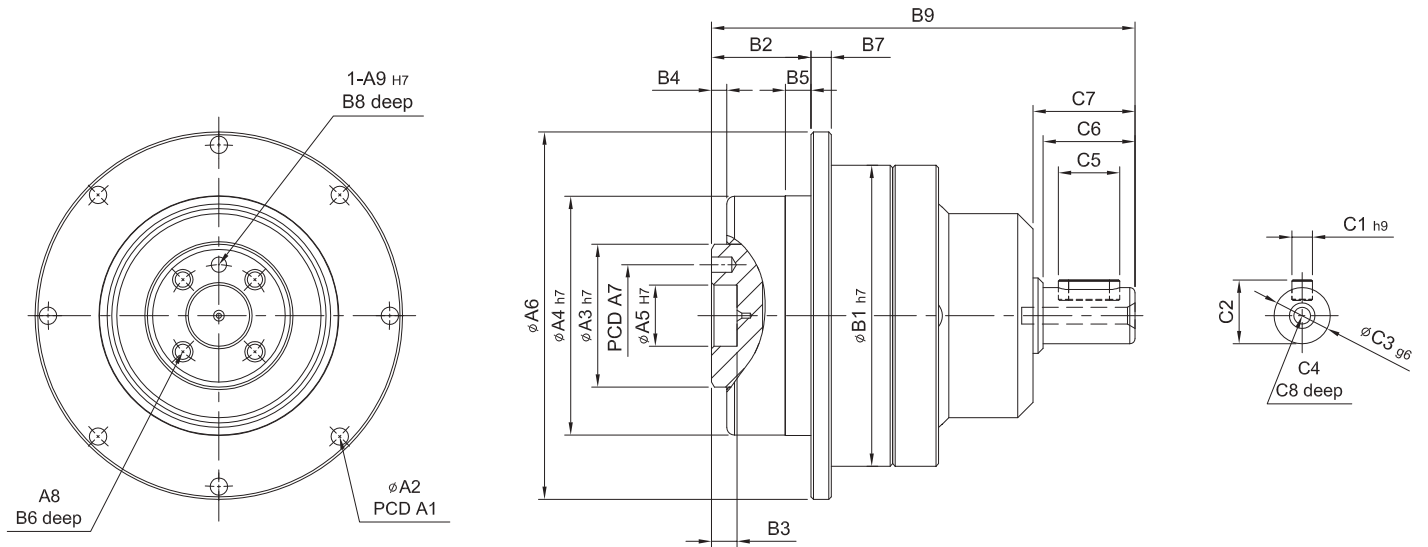
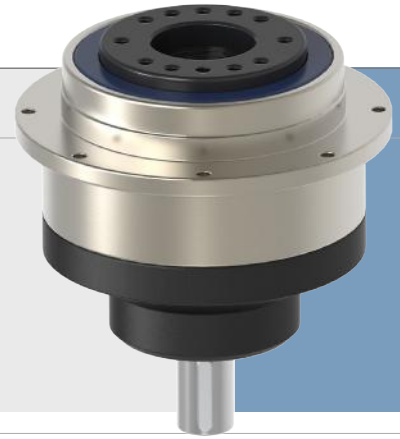


# SERVOBOX

## MODEL : SDD

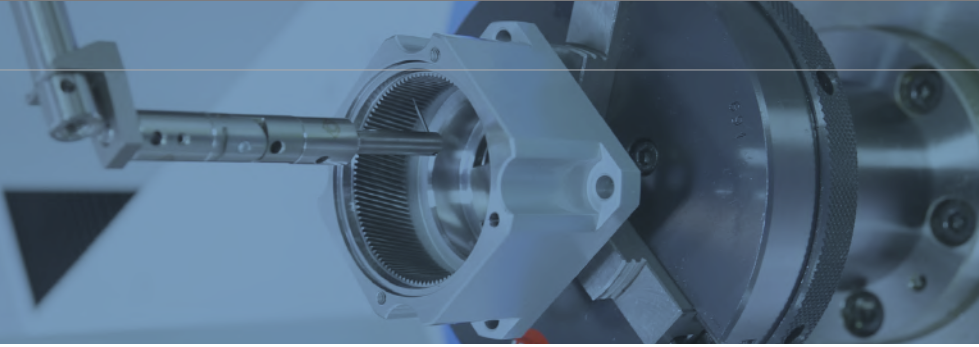
1-Stage / Kademe

RATIO / ÇEVİRİM : 4, 5, 7, 10



unit / birim: mm

| Model Code | 47            | 64            | 90            | 110            | 140             | 200             | 255            |
|------------|---------------|---------------|---------------|----------------|-----------------|-----------------|----------------|
| 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         | 12            | 20            | 31.5          | 40             | 50              | 80              | 100            |
| A6         | 72            | 86            | 118           | 146            | 179             | 248             | 300            |
| A7         | 20            | 31.5          | 50            | 63             | 80              | 125             | 140            |
| A8         | 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 2.0 |
| A9         | 3             | 5             | 6             | 6              | 8               | 10              | 12             |
| 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         | 83            | 99            | 134           | 160            | 195             | 252             | 322.5          |
| C1         | 4             | 5             | 5             | 6              | 10              | 12              | 16             |
| C2         | 12.5          | 16            | 18            | 24.5           | 35              | 43              | 59             |
| C3         | 11            | 14            | 16            | 22             | 32              | 40              | 55             |
| C4         | M4 x P0.7     | M5 x P0.8     | M6 x P1.0     | M8 x P1.25     | M12 x P1.75     | M14 x P2.0      | M16 x P2.0     |
| C5         | 12            | 20            | 20            | 30             | 40              | 50              | 75             |
| C6         | 18            | 24            | 28            | 36             | 50              | 60              | 85             |
| C7         | 20            | 26.3          | 31.5          | 40             | 54              | 65              | 90             |
| C8         | 8             | 10            | 12            | 16             | 24              | 28              | 32             |



| Model No.   |            | Unit/Birim | Ratio<br>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    | 1,126  |
| Max. Axial Force Ball 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)<br>S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs) |       |       |        |        |        |        |
| Efficiency / Verim  | $\eta$     | %          | 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          |   | 1.3   | 4.2   | 8.5    | 15.2   | 42.3   | 71.5   |

#### ■ Mass Moments of Inertia / Atalet Ağırlık Momenti (kg.cm<sup>2</sup>)

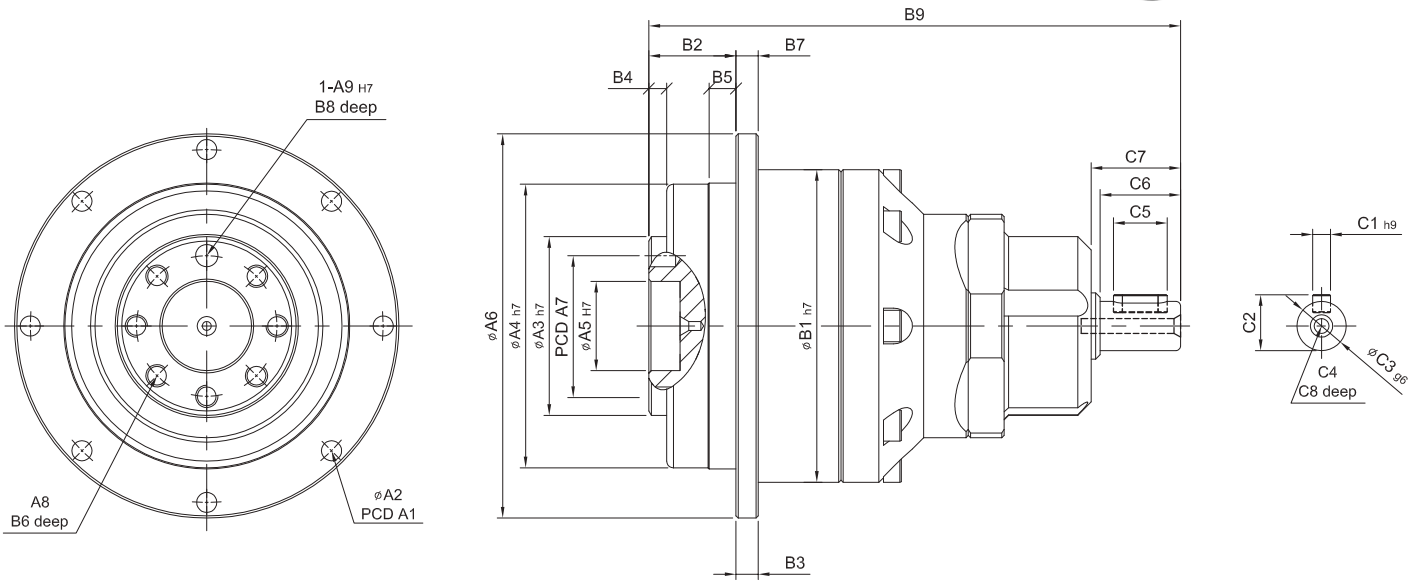
| Ratio / Çevrim | 47   | 64   | 90   | 110  | 140  | 200   | 255   |
|----------------|------|------|------|------|------|-------|-------|
| 4              | 0.03 | 0.13 | 0.47 | 2.75 | 7.46 | 24.00 | 55    |
| 5              | 0.03 | 0.12 | 0.45 | 2.70 | 7.41 | 23.23 | 53.19 |
| 7              | 0.03 | 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 : SDD

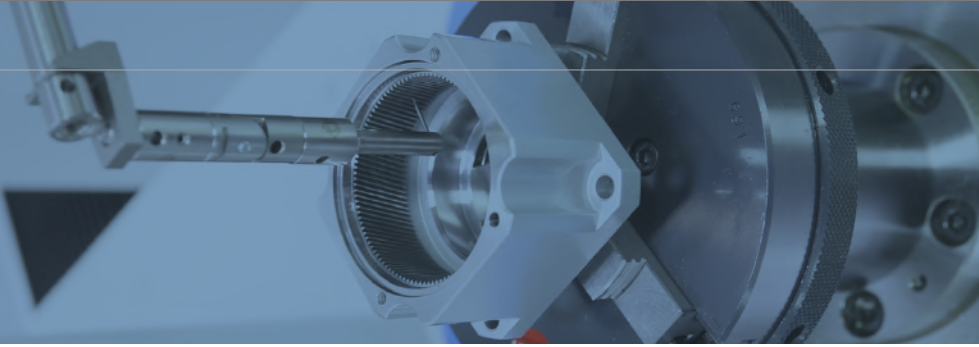
2-Stage / Kademe

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



unit / birim: mm

| Model Code | 47 | 64            | 90            | 110           | 140            | 200             | 255             |                 |
|------------|----|---------------|---------------|---------------|----------------|-----------------|-----------------|-----------------|
| <b>A</b>   | 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 | 12            | 20            | 31.5          | 40             | 50              | 80              | 100             |
|            | A6 | 72            | 86            | 118           | 146            | 179             | 248             | 300             |
|            | A7 | 20            | 31.5          | 50            | 63             | 80              | 125             | 140             |
|            | A8 | 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 |
|            | A9 | 3             | 5             | 6             | 6              | 8               | 10              | 12              |
| <b>B</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 | 109           | 119           | 159           | 190            | 231.5           | 299             | 350.5           |
| <b>C</b>   | C1 | 4             | 4             | 5             | 5              | 6               | 10              | 12              |
|            | C2 | 12.5          | 12.5          | 16            | 18             | 24.5            | 35              | 43              |
|            | C3 | 11            | 11            | 14            | 16             | 22              | 32              | 40              |
|            | C4 | M4 x P0.7     | M4 x P0.7     | M5 x P0.8     | M6 x P1.0      | M8 x P1.25      | M12 x P1.75     | M14 x P2.0      |
|            | C5 | 12            | 12            | 20            | 20             | 30              | 40              | 50              |
|            | C6 | 18            | 18            | 24            | 28             | 36              | 50              | 60              |
|            | C7 | 20            | 20            | 26            | 31.5           | 40              | 54              | 65              |
|            | C8 | 8             | 8             | 10            | 12             | 16              | 24              | 28              |



| Model No.   |            | Unit/Birim | Ratio<br>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                           | $n_{IN}$   | rpm        | 20 ~ 100        | 3,000   | 3,000 | 3,000 | 3,000  | 3,000  | 3,000  | 2,000  |
| Max. Input Speed / Max. Giriş Devri                               | $n_{IB}$   | rpm        | 20 ~ 100        | 6,000   | 6,000 | 6,000 | 6,000  | 5,000  | 4,000  | 3,000  |
| Backlash P <sub>s</sub> / Min. Boşluk Oranı                       |            | arcmin     | 20 ~ 100        | -   | -     | -     | ≤ 3    | ≤ 3    | ≤ 3    | ≤ 3    |
| Backlash P <sub>0</sub> / Düşük Boşluk Oranı                      |            | arcmin     | 20 ~ 100        | ≤ 5   | ≤ 5   | ≤ 5   | ≤ 5    | ≤ 5    | ≤ 5    | ≤ 5    |
| Backlash P <sub>1</sub> / Azaltılmış Boşluk Oranı                 |            | arcmin     | 20 ~ 100        | ≤ 7   | ≤ 7   | ≤ 7   | ≤ 7    | ≤ 7    | ≤ 7    | ≤ 7    |
| Backlash P <sub>2</sub> / 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   | $F_{2FB}$  | 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  | $L_H$      | hr         | 20 ~ 100        | S5 Döngüsel Çalışma: >30,000 (S1 Sürekli Çalışma: >15,000 saat)<br>S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs) |       |       |        |        |        |        |
| Efficiency / Verim  | $\eta$     | %          | 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        |   |       |       |        |        |        |        |

#### ■ Mass Moments of Inertia / Atalet Ağırlık Momenti (kg.cm<sup>2</sup>)

| 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 |