# MODEL 46HD

● Wirewound ● Bushingmount ● Servomount ● RoHS Compliant



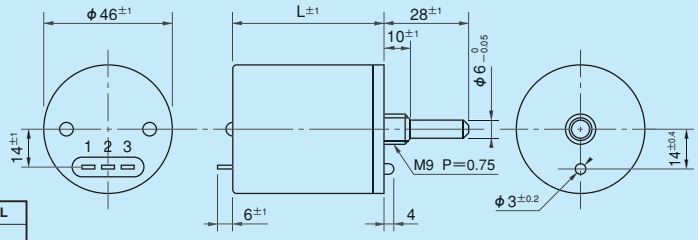
Model 46HD-10

## ● Standard Model Numbers

| | |
|---|---|
| **Bushingmount type** | |
| 3-turn models | 46HD-3 |
| 5-turn models | 46HD-5 |
| 10-turn models | 46HD-10 |
| 15-turn models | 46HD-15 |
| 20-turn models | 46HD-20 |
| **Servomount type** | |
| 3-turn models | 46HDS-3 |
| 5-turn models | 46HDS-5 |
| 10-turn models | 46HDS-10 |
| 15-turn models | 46HDS-15 |
| 20-turn models | 46HDS-20 |

## ● Standard Dimensions

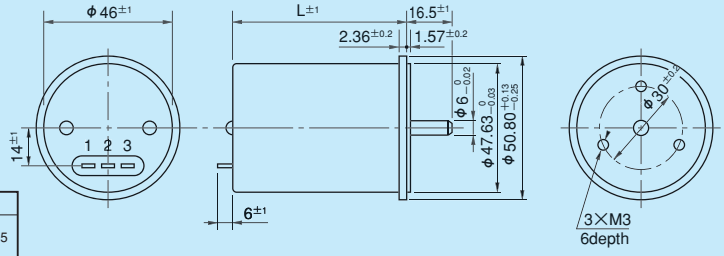
### ■ Bushingmount type




| Model No. | L |
|---|---|
| 46HD-3 | 38.5 |
| 46HD-5 | |
| 46HD-10 | 56 |
| 46HD-15 | 75 |
| 46HD-20 | 94.5 |

Note: 1. 1 pc. each inner teeth washer and 2 pcs. hex nuts are attached.
2. Please process the mounting hole on the panel. The diameter should be 9.0mm $^{+0.05}_{0}$.

### ■ Servomount type




| Model No. | L |
|---|---|
| 46HDS-3 | 43.5 |
| 46HDS-5 | |
| 46HDS-10 | 61.5 |
| 46HDS-15 | 80 |
| 46HDS-20 | 100 |

## ● General Specifications

| | |
|---|---|
| **Standard Resistance Range** | 10Ω to 20kΩ (3-turn)<br>20Ω to 50kΩ (5-turn)<br>50Ω to 100kΩ (10,15-turn)<br>50Ω to 200kΩ (20-turn) |
| **Max. Practical Resistance Value** | 50kΩ, 100kΩ (3-turn)<br>100kΩ (5-turn)<br>200kΩ (10,15-turn)<br>500kΩ (20-turn) |
| **Total Resistance Tolerance** | Standard Class ±3% (H)<br>〔±5% (J) in case of within 1kΩ〕<br>Precision Class ±1% (F)<br>〔in the pot. with a single-wire resistive element, the precision class should read ±2% (G)〕 |
| **Independent Linearity Tolerance** | 3,5-turn / 10, 15, 20-turn<br>Standard Class: ±0.4% / ±0.3%<br>Precision Class: ±0.2% / ±0.1%<br>(Within 5kΩ): (±0.25%) / (±0.15%) |

| | |
|---|---|
| **Power Rating** | 2.0W (3-turn)<br>2.5W (5-turn)<br>5.0W (10-turn)<br>7.5W (15-turn)<br>10.0W (20-turn) |
| **Noise** | Within 100Ω E.N.R. |
| **Electrical Travel** | 360° ×n ±5° (n: No. of turns) |
| **Mechanical Travel** | 360° ×n $^{+10^\circ}_{0^\circ}$ (n: No. of turns) |
| **Insulation Resistance** | Over 100MΩ at 1,000V.D.C. |
| **Dielectric Strength** | 1 minute at 1,000V.A.C. |
| **Starting Torque** | Within 20mN・m (200gf・cm) (Bushingmount type)<br>Within 10mN・m (100gf・cm) (Servomount type) |
| **Stopper Strength** | Approx. 0.9N・m (9kgf・cm) |
| **Resistance Temperature Coefficient** | ±20p.p.m./℃ |
| **Mass** | Approx. 90g (3,5-turn)<br>Approx. 120g (10-turn)<br>Approx. 150g (15-turn)<br>Approx. 180g (20-turn) |

## ● Special Specifications Available

(In case of the potentiometer with special specifications, the general specifications and environmental specifications may change. Please consult us in advance.)

● 30-turn type (S46HD-30) ● Multi-ganged (Available up 2 gangs) ● With limit-switches

● Shaft with front and rear extension (in case of bushingmount type, rear shaft with 6mm dia. and 28mm length together with the bushing of M9 × 10mm and in case of servomount type, rear shaft with 6mm dia. and 15mm length)

● Shaft dia. (ϕ6.35mm) & bushing with inch dimension ● Simple sealed housing ● Oil-filled type (OF46HD)

● Special machining on the shaft

## ● Standard Resistance Values ■ No. of Wire Turns ■ Resistance Wire Used

| Resist. Value (Ω) | 0.5 | 1 | 2 | 5 | 10 | 20 | 50 | 100 | 200 | 500 |
|---|---|---|---|---|---|---|---|---|---|---|
| 46HD-3 | ※ | ※ | ※ | ※ | 556 | 690 | 950 | 1,190 | 1,515 | 2,080 |
| 46HD-5 | ※ | ※ | ※ | ※ | ※ | 925 | 1,275 | 1,640 | 2,080 | 2,860 |
| 46HD-10 | ※ | ※ | ※ | ※ | ※ | ※ | 2,000 | 2,500 | 3,180 | 4,350 |
| 46HD-15 | ※ | ※ | ※ | ※ | ※ | ※ | 2,530 | 3,220 | 4,160 | 5,710 |
| 46HD-20 | ※ | ※ | ※ | ※ | ※ | ※ | 3,030 | 3,920 | 5,120 | 7,140 |
| Resist. Wire Used | Cu-Ni System | | | | | | | | | |

| Resist. Value (Ω) | 1k | 2k | 5k | 10k | 20k | 50k | 100k | 200k | 500k |
|---|---|---|---|---|---|---|---|---|---|
| 46HD-3 | 2,550 | 2,330 | 3,225 | 4,080 | 5,130 | 6,890＊ | 8,330＊ | — | — |
| 46HD-5 | 3,450 | 3,230 | 4,170 | 5,720 | 7,410 | 11,000 | 12,500＊ | — | — |
| 46HD-10 | 5,400 | 6,850 | 6,600 | 8,550 | 10,850 | 14,900 | 18,850 | 24,390＊ | — |
| 46HD-15 | 7,410 | 9,510 | 8,800 | 11,300 | 14,500 | 20,000 | 25,600 | 32,250＊ | — |
| 46HD-20 | 9,300 | 11,900 | 14,100 | 13,150 | 16,950 | 23,250 | 30,790 | 38,200 | 55,550 ＊ |
| Resist. Wire Used | Cu-Ni System | | | Ni-Cr System | | | | | |

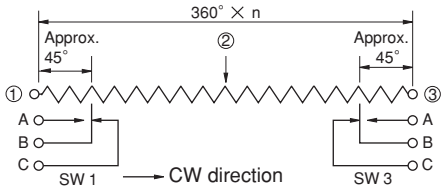
Note: Mark※shows the pot. with a single-wire resistive element, which gives an essentially infinite resolution.
Mark＊shows special high resistance value.

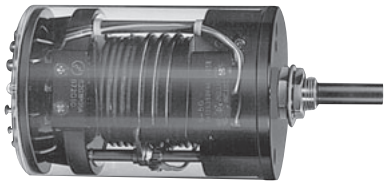
## S46HD Series with LIMIT-SWITCHES

46HD Series Helicalohm potentiometer can have Limit-Switch built in. Limit-Switch works as an alert and can prevent the mechanical stopper from being fractured and it is also used as a compact automatic control unit.
There are basically 2 types depending on where it is mounted. Unless being specified, circumscription type (b) is supplied.

### Inscription Type (a)

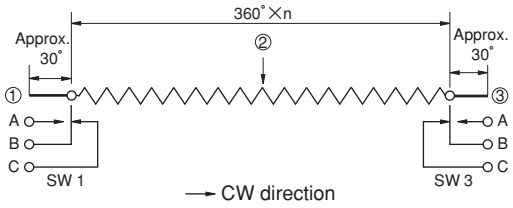
Limit-Switch is activated within effective electrical rotating angle (360° x n).

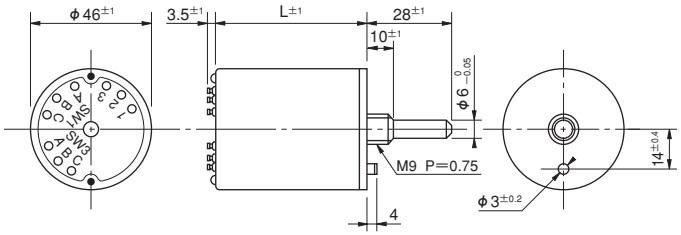


### Circumscription Type (b)

Limit-Switch is activated outside effective electrical angel (360° x n).




- Rating of Limit-Switch is 5 A. 125V. A.C. (or 2.5A, 250V. A.C.)
- Outer dimensions of these special versions are the same as those of standard model 46HD Series except its body length which is longer than the latter by 28 mm.
- Electrical and mechanical specifications and mounting dimensions are also the same as those of standard model 46HD series.
- As for smaller multi-turn potentiometer with limit-switches, please see page 44.