



Model 46HD-10

Standard Model Nos.

Bushingmount type:

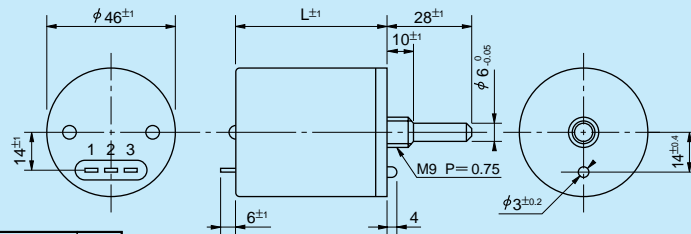
| | |
|---------|-----------|
| 46HD-3 | (3-turn) |
| 46HD-5 | (5-turn) |
| 46HD-10 | (10-turn) |
| 46HD-15 | (15-turn) |
| 46HD-20 | (20-turn) |

Servomount type:

| | |
|----------|-----------|
| 46HDS-3 | (3-turn) |
| 46HDS-5 | (5-turn) |
| 46HDS-10 | (10-turn) |
| 46HDS-15 | (15-turn) |
| 46HDS-20 | (20-turn) |

Standard Dimensions

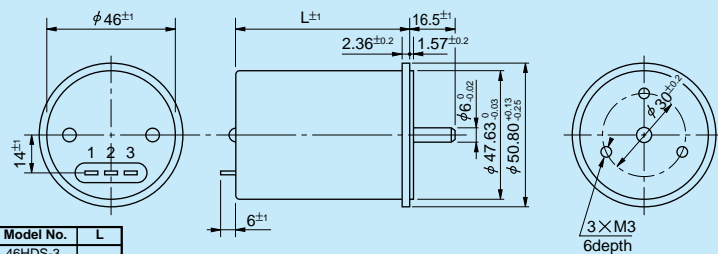
Bushingmount type



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

- Note: 1. 1 pc. each inner teeth washer and hex nut are attached.
2. Please process the mounting hole on the panel to be mounted with this potentiometer by the diameter of 9.0mm +0.05.

Servomount type



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

General Specifications

Standard Resistance Range:

| | |
|---------------|--------------|
| 0.5Ω to 20kΩ | (3-turn) |
| 0.5Ω to 50kΩ | (5-turn) |
| 0.5Ω to 100kΩ | (10,15-turn) |
| 0.5Ω to 200kΩ | (20-turn) |

Max. Practical Resistance Value:

| | |
|-------------|--------------|
| 50kΩ, 100kΩ | (3-turn) |
| 100kΩ | (5-turn) |
| 200kΩ | (10,15-turn) |
| 500kΩ | (20-turn) |

Total Resistance Tolerance:

Standard Class ±3% (H)
[±5% (J) in case of below 1kΩ
Precision Class ±1% (F)]
[in the pot. with a single-wire
resistive element, the precision
class should read ±2% (G)]

Independent Linearity Tolerance:

| | | |
|-----------------|----------|----------|
| 3, | 10, 15, | |
| 5-turn | 20-turn | |
| Standard Class | ±0.4% | ±0.3% |
| Precision Class | ±0.2% | ±0.1% |
| (Below 5kΩ) | (±0.25%) | (±0.15%) |

Power Rating:

| | |
|-------|-----------|
| 2.0W | (3-turn) |
| 2.5W | (5-turn) |
| 5.0W | (10-turn) |
| 7.5W | (15-turn) |
| 10.0W | (20-turn) |

Noise:

Below 100Ω E.N.R.

Electrical Travel:

360°×n ±5°(n: No. of turns)

Mechanical Travel:

360°×n +10°
0°(n: No. of turns)

Insulation Resistance:

Over 100MΩ at 1,000V.D.C.

Dielectric Strength:

1 minute at 1,000V.A.C.

Starting Torque:

Below 20mN•m (200gf•cm)
(Bushingmount type)
Below 10mN•m (100gf•cm)
(Servomount type)

Stopper Strength:

Approx. 0.9N•m (9kgf•cm)

Max. Working Voltage:

900V

Resist. Temperature Coefficient of Wire:

±20p.p.m./°C

Mass:

| | |
|--------------|------------|
| Approx. 90g | (3,5-turn) |
| Approx. 120g | (10-turn) |
| Approx. 150g | (15-turn) |
| Approx. 180g | (20-turn) |

Special Specifications Available

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. (∅6.35mm)•bushing with inch dimensions, 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 values at special higher practical resistance.

S46HD Series with LIMIT-SWITCHES

Special 46HD Series Helicalohm potentiometer with incorporated Limit-Switch can automatically control the circuit. It can conveniently be used for minifying the instrument in which this model is employed.

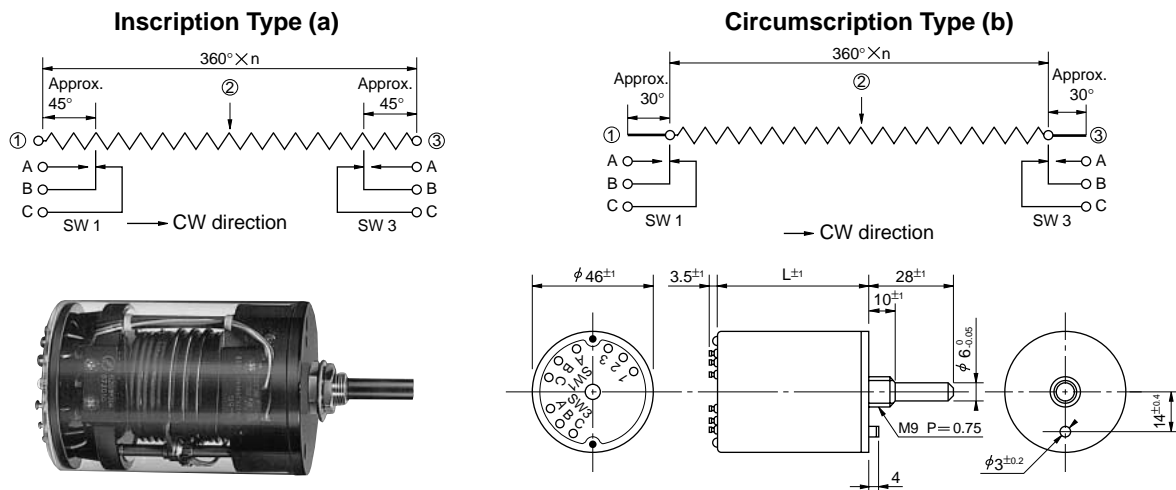
The construction of the Limit-Switch is given in the below figure and its function limit, either upper or lower, or to either side, can be freely determined according to customer's requirement.

Its capacity is 5 A, 125V.A.C. (or 2.5A, 250V.A.C.)

This model is most recommended to all kinds of automatic control equipment.

Note. Functioning position of Limit-Switch...

In case of this model being coupled to servo-motor, an over-rotation of the servo-motor due to its inertia, after the power source being OFF, may sometimes break the Helicalohm Pot. unless an adequate precaution is made. In order to avoid such failure, two kinds of the Helicalohm Potentiometer with limit-switch are offered: one is an inscription type (a) limit-switch having its function position slightly this side from the stopper of Helicalohm Pot. and the other is a circumscription type (b) for which a special overtravel is prepared in the Helicalohm Pot.



N.B.: Unless otherwise specified, we will supply the circumscription type (b).

- 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 47.