Position Transducers
up to 900 mm
LWH Series

Special features
• very long life > 100 x 10⁶ movements
• outstanding linearity
• high resolution 0.01 mm
• very high operating speed
• connection via plug and socket to DIN 43 650 (hydraulic connector)
• protection class IP 54

LWH transducers are designed for the direct, absolute measurement of displacement or length in control regulation and measuring applications. High resolution (0.01 mm) combined with a stroke length of up to 900 mm permits the accurate measurement of linear displacement. Rack and pinions or similar devices are not required because the design of the transducers is such that they may be built directly into the mechanical system.

Tighter tolerances on the extruded body combined with a special surface treatment permit high operating speeds and reduced wear. A pivoting front bearing overcomes “stick-slip” operation even where some angular or out of parallel errors are present. The technique for fixing and making connections to the resistance track ensures the highest degree of reliability even under harsh working conditions.

The transducer has mounting grooves on all four housing surfaces. Thus the transducer can always be mounted with the resistance element directed upwards (recognizable by the position of the middle mounting groove directly across from the resistance element), independent of the mounting surface.

By mounting overhead on difficult-to-reach machines it is possible to premount the clamps to the mounting surface and then simply “snap-on” the transducer.

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<table>
<thead>
<tr>
<th>Description</th>
<th>Housing</th>
<th>aluminum, anodized</th>
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</thead>
<tbody>
<tr>
<td>Fixings</td>
<td>see drawing, “snap-on” clamps, adjustable</td>
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<tr>
<td>Actuator</td>
<td>stainless steel, rotatable</td>
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<td>Bearings</td>
<td>pivoting sleeve bearing</td>
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<td>Resistance element</td>
<td>conductive plastic</td>
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<tr>
<td>Wiper assembly</td>
<td>precious metal multi-finger wiper, elastomer-damped</td>
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<tr>
<td>Electrical connections</td>
<td>4-pole socket to DIN 43650</td>
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</table>
Environmental Data
Temperature range -30...+100 °C
Vibration 5...2000 Hz
Amax = 0.75 mm
amax = 20 g
Shock 50 g
11 ms
Life > 100 x 10^6 movements
Operating speed 10 m/s max.
Operational acceleration 200 (20 g) m/s^2 max.
Protection class IP 54 (DIN 400 50 / IEC 529)

Type designations
<table>
<thead>
<tr>
<th>LWH  75</th>
<th>LWH 100</th>
<th>LWH 130</th>
<th>LWH 150</th>
<th>LWH 225</th>
<th>LWH 300</th>
<th>LWH 450</th>
<th>LWH 500</th>
<th>LWH 600</th>
<th>LWH 750</th>
<th>LWH 900</th>
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Electrical Data
Defined electrical range 75 100 130 150 225 300 360 450 500 600 750 900 mm
Electrical stroke 76 102 132 152 228 304 366 457 508 610 762 914 mm
Nominal resistance 3 3 3 3 5 5 5 5 5 5 10 10 kΩ
Resistance tolerance 20 ±%
Independent linearity 0.1 0.1 0.09 0.08 0.07 0.06 0.05 0.05 0.05 0.04 0.04 ±%
Repeatability 0.01 mm
Recommended operating wiper current 1 µA
Max. wiper current in case of malfunction 10 mA
Max. permissible applied voltage 42 V
Effective temperature coefficient of the output-to-applied voltage ratio typical 5 ppm/K
Insulation resistance (500 VDC, 1 bar, 2 s) ≥ 10 MΩ
Dielectric strength (50 Hz, 2 s, 1 bar, 500 VAC) ≤ 100 µA

Mechanical Data
Body length (dimension A) 148 173 203 223 300 375 438 528 579 680 783 985 ±2 mm
Mechanical stroke (dimension B) 83 109 139 160 236 312 373 465 515 617 709 922 ±2 mm
Pacing of fixing clamps (dimension C) 52.5 77.5 108.5 128.5 204.5 280.5 343.5 433.5 484.5 585.5 738.5 890.5 ±1.5 mm
Total weight 220 250 290 320 410 500 570 680 740 870 1050 1230 g
Weight of actuator and wiper 50 55 60 65 85 100 115 135 145 170 210 245 g
Operating force horizontal < 10 N
vertical < 10 N
Max. permitted torque for fixing screws (with washers) 240 Ncm

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Included in delivery
1 plug connector GDM 3009,
1 sealing gasket GDM 3-16,
2 fixing clamps with 4 screws

Recommended accessories
Pivot head (see accessories)
Z 60
Process-controlled indicators MAP...with display Signal conditioner MUV.../MUK...
for standardized output signals

Order designations
Type | Art. no.
---|---
LWH 75 | 024303
LWH 100 | 024304
LWH 130 | 024305
LWH 150 | 024306
LWH 225 | 024309
LWH 300 | 024312
LWH 360 | 024314
LWH 450 | 024318
LWH 500 | 024320
LWH 600 | 024324
LWH 750 | 024330
LWH 900 | 024336

Important
All values given for this series – including linearity, lifetime, micro-linearity, resistance to external disturbances and temperature coefficient in voltage dividing mode – are quoted for the device operating with the wiper voltage driving an operational amplifier working as a voltage follower where virtually no load is applied to the wiper (le ≤ 1 µA).

Subject to changes
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