

# Position Transducers up to 900 mm

## Series LWH



### Special features

- very long life  $>100 \times 10^6$  operations
- outstanding linearity
- high resolution 0.01 mm
- very high operating speed
- connection via plug and socket to DIN 43 650 (hydraulic connector)

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 construction of the transducers is such that they may be built directly into the mechanical system.

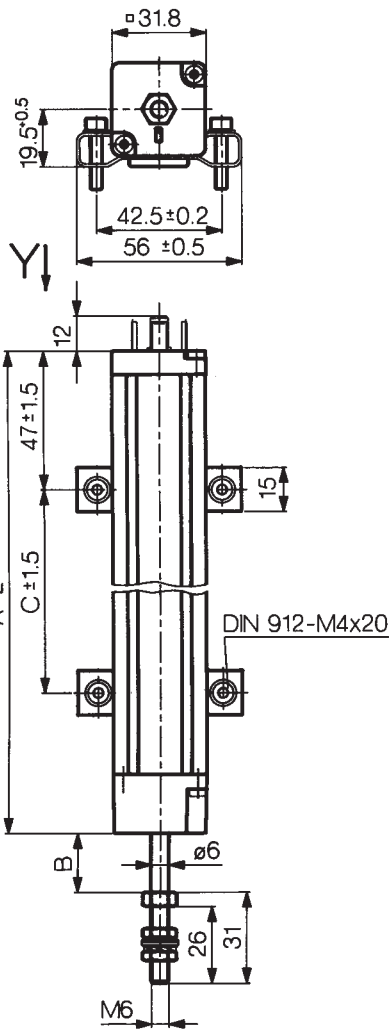
Tighter tolerances on the extruded body combined with a special surface treatment permit high operating speeds and reduced wear. A pivoting front bearing overcomes "stick-slip" type of operation even where some angular or out of parallel errors are present. The technique for fixing and making connections to the resistance track ensures the highest degree of reliability even under the most adverse working conditions. The fixing "feet" are adjustable and may therefore be at the most convenient points.

By mounting overhead on difficult-to-reach machines it is possible to pre-mount the clamps to the mounting surface and then simply "snap-on" the transducer.

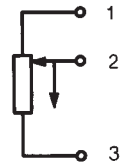
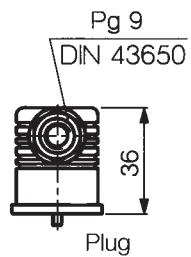
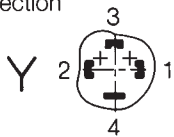
The transducer has mounting grooves on all four housing surfaces. Thus the transducer can always be mounted with the resistance element directed upwards (recognizable by the position of the middle mounting groove directly across from

the resistance element), independent of the mounting surface.

Erosion particles from inside the transducer will therefore not remain on the resistance element, improving the lifespan of the sensor.



Connection pin assignment  
Section



Schematic

**Description**

Housing	aluminium, anodized
Fixings	"snap-on" clamps
Actuator	stainless steel, rotatable
Bearings	pivoting sleeve bearing
Resistance element	conductive plastic
Wiper assembly	precious metal multi-finger wiper, elastomer-damped
Electrical connections	4pole socket to DIN 43650

Type designations	LWH 75	LWH 100	LWH 130	LWH 150	LWH 225	LWH 300	LWH 360	LWH 450	LWH 500	LWH 600	LWH 750	LWH 900	
<b>Electrical Data</b>													
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	5	5	5	5	5	5	5	10	10	kΩ
Resistance tolerance													±%
Independent linearity	0.1	0.1	0.09	0.08	0.07	0.06	0.05	0.05	0.05	0.05	0.04	0.04	±%
Repeatability													mm
Recommended operating wiper current													μA
Max. wiper current in case of malfunction													mA
Max. permissible applied voltage													V
Effective temperature coefficient of the output-to-applied voltage ratio	typical 5												ppm/°C
Insulation resistance (500 VDC, 1 bar, 2 s)	≥10												MΩ
Dielectric strength (50 Hz, 2 s, 1 bar, 500 VAC)	≤100												μA
<b>Mechanical Data</b>													
Body length (dimension A)	148	173	203	223	300	375	438	528	579	680	833	985	±2 mm
Mechanical stroke (dimension B)	83	109	139	160	236	312	373	465	515	617	769	922	±2 mm
spacing of fixing feet (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)	1.5	1.6	1.6	1.6	1.7	1.8	1.8	1.9	1.9	2.0	2.2	2.3	N
vertical	2.0	2.1	2.2	2.3	2.6	2.8	3.0	3.4	3.5	3.9	4.4	5.0	N
Max. permitted torque for fixing screws (with washers)	240												Ncm

<b>Environmental Data</b>		
Temperature range	-30... +100	°C
Vibration	5... 2000 A <sub>max</sub> = 0.75 a <sub>max</sub> = 20	Hz mm g
Shock	50 11	g ms
Life	>100 x 10 <sup>6</sup>	operations
Operating speed	10	m/s max.
Operational acceleration	200 (20 g)	m/s <sup>2</sup> max.
Protection class	IP 50 (DIN 400 50 / IEC 529)	

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

Other lengths on request

#### Included in delivery

1 free socket  
 GDM 3009 EEM 33-98,  
 1 sealing gasket  
 GDM 3-16 EEM 33-99,  
 2 fixing clamps with 4 screws

#### Recommended accessories

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

#### Important

All the values given in this data sheet for linearity, lifetime, micro-linearity, resistance to external disturbances and temperature coefficient in the voltage dividing mode are quoted for the device operating with the wiper voltage driving on operational amplifier working as a voltage follower, where virtually no load is applied to the wiper ( $I_e \leq 1 \mu A$ ).

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Subject to changes