

**Transducer  
Pivot head mounting  
potentiometric  
up to 750 mm, IP67**

Series LWX  
Model 004  
Shaft protected



Designed for extreme operating environments, the LWX series features an all-metal construction and a pressure compensation technology to prevent buildup that could degrade operation in mechanical, vehicle, automation and robotic applications where an extended operating life is essential.

**Special features**

- protection class IP67
- all-metal housing with shaft protection
- corrosion resistant
- differential pressure compensation system with GORE membrane - compensates for pump effect of push rod movement
- high vibration resistance
- suitable for harsh environmental conditions (humidity, oil, dust)
- double beared actuating rod
- mountable via low-backlash pivot heads with a large angle of free movement (up  $\pm 12.5^\circ$ )
- outstanding linearity up to  $\pm 0.04\%$
- resolution better than 0.01 mm
- long life up to 50 million movements, depending on application
- cable or connector version available
- version IP65 see data sheet LWG
- version without shaft protection see data sheet LWX, model 003

**Applications**

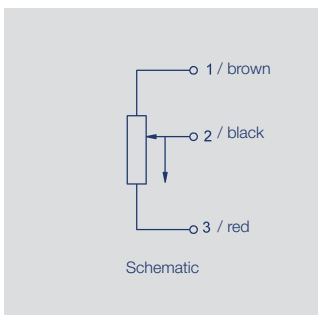
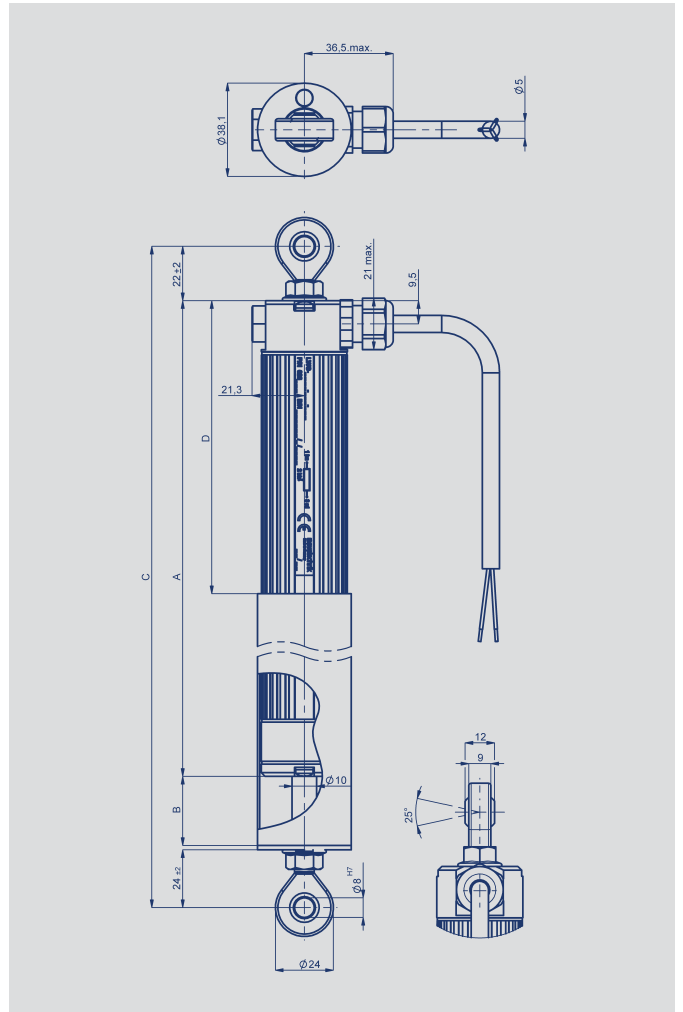
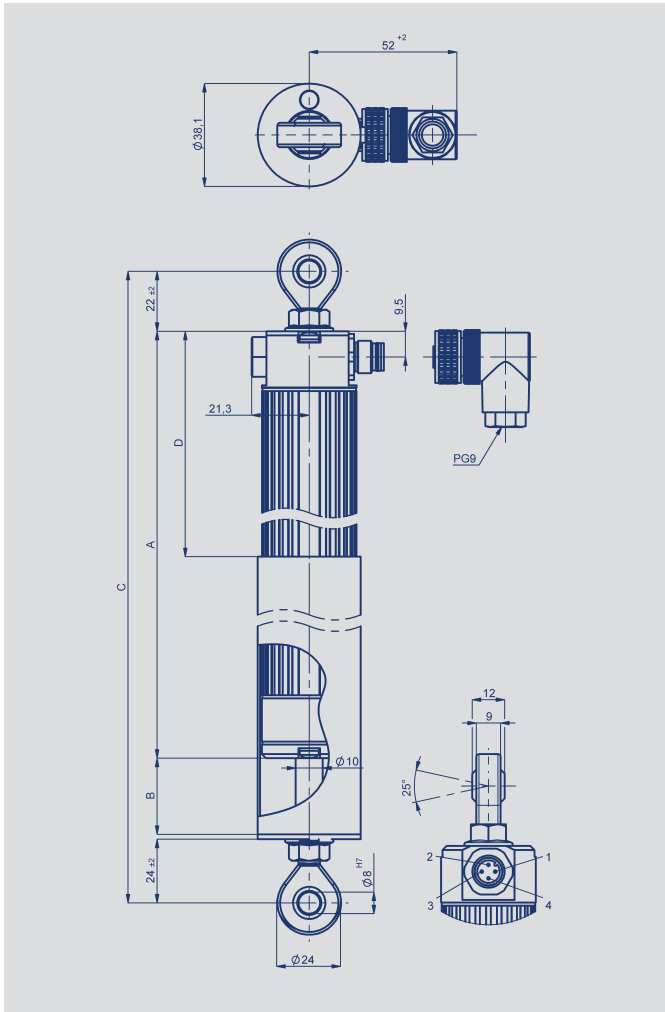
- steering cylinders in mobile machines
- building equipment
- machines in the media-polluted environment (e.g. production of concrete fabricated components)

These rugged position transducers provide direct, absolute measurement of displacement or length.

A free-pivot-head mounted on the actuating rod eliminates backlash guaranteeing high accuracy.

**Description**

Housing	aluminium, anodized
Mounting	see drawing
Actuating rod	stainless steel (1.4305), rotatable
Bearings	metal-polymer slide bearing
Resistane element	conductive plastic
Wiper assembly	precious metal multi-finger wiper, elastomer damped
Electrical connections	4-pin round connector, M12x1 or 3-wire PVC-cable, 3x0.5 mm <sup>2</sup> (AWG 20), shielded, 1 m length



Type designations	LWX 0050	LWX 0075	LWX 0100	LWX 0150	LWX 0175	LWX 0225	LWX 0250	LWX 0300	LWX 0360	LWX 0450	LWX 0500	LWX 0600	LWX 0750		
<b>Electrical Data</b>															
Defined electrical range	50	75	100	150	175	225	250	300	360	450	500	600	750	mm	
Electrical stroke	52	77	102	152	178	229	254	305	366	457	508	610	762	mm	
Nominal resistance	2	3	3	5	5	5	5	5	5	5	5	5	10	kΩ	
Resistance toleranz	20													± %	
Independent linearity	0.2	0.1	0.1	0.08	0.07	0.07	0.07	0.06	0.05	0.05	0.05	0.05	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)	≥ 10													MΩ	
Dielectric strength (500 VAC, 50 Hz)	≤ 100													μA	
<b>Mechanical Data</b>															
Body length (dimension A)	176	201	227	277	303	354	379	430	505	619	684	810	994	± 2 mm	
Mechanical stroke (dimension B)	54	79	105	155	181	231	257	307	368	460	510	612	764	± 2 mm	
Minimum distance between pivot heads, nominal (dimension C)	224	249	275	325	351	402	427	478	553	667	732	858	1042	mm	
Open housing area (dimension D)	84	90	90	90	90	90	90	90	103	126	141	164	196	± 2 mm	
Weight with connector approx.	413	453	493	573	613	693	733	832	1023	1167	1247	1407	1647	g	
Operating force															
horizontal	typical 50													N	
vertical	typical 50													N	
Tearing force															
horizontal	150 *)													N	
<b>Environmental Data</b>															
Temperature range	-30...+100														°C
Operating humidity range	0... 95 (no condensation)														% R.H.
Vibration	5...2000 Amax =0.75 amax =20														Hz mm g
Shock	50 11														g ms
Life	>50 x 10 <sup>6</sup> typical														movements
Operating speed	5														m/s max.
Protection class	IP 67 (DIN EN 60529), also dynamic														

\*) Depending on the environmental temperature and standstill time, the necessary force for the initial operating of the push rod can increase.



Order designations (connector version)	
Typ	P/N
LWX-0050-004-101	026502
LWX-0075-004-101	026503
LWX-0100-004-101	026504
LWX-0150-004-101	026506
LWX-0175-004-101	026507
LWX-0225-004-101	026509
LWX-0250-004-101	026510
LWX-0300-004-101	026512
LWX-0360-004-101	026514
LWX-0450-004-101	026518
LWX-0500-004-101	026520
LWX-0600-004-101	026524
LWX-0750-004-101	026530

Order designations (cable version)	
Typ	P/N
LWX-0050-004-201	026602
LWX-0075-004-201	026603
LWX-0100-004-201	026604
LWX-0150-004-201	026606
LWX-0175-004-201	026607
LWX-0225-004-201	026609
LWX-0250-004-201	026610
LWX-0300-004-201	026612
LWX-0360-004-201	026614
LWX-0450-004-201	026618
LWX-0500-004-201	026620
LWX-0600-004-201	026624
LWX-0750-004-201	026630

### Important

All values specified in this data sheet for linearity, lifetime and temperature coefficient are only valid for a sensor used as a voltage divider with virtually no load applied to the wiper ( $I_e < 1 \mu A$ ).



Female connector,  
angled



Female connector,  
angled



Signal conditioner  
e.g. MUP-110

### Included in delivery (connector version)

M12x1 female connector, angled, with coupling nut, screw termination,  $4 \times 0.75 \text{ mm}^2$ , cable diameter 6 ... 8 mm, IP67, not shieldable, EEM 33-89

### Recommended accessories

M12x1 female connector, 4-pin, angled, with molded cable, shielded,  $4 \times 0,34 \text{ mm}^2$ , IP67, open ended:  
length 2 m, EEM 33-33, P/N 005601;  
length 5 m, EEM 33-63, P/N 005610;  
length 10 m, EEM 33-99, P/N 005696.  
(other versions see data sheet Accessories M12-connection system)

### Recommended accessories

Process-controlled indicators MAP... with display,  
Signal conditioner MUP... / MUK ... for standardized output signals.