

Position measuring system / 位置测量系统

This contactless and absolute position measuring system is pressure-tight up to 500 bar. Its function principle is based on the magnetostrictive effect. In connection with this, a torsion impulse is triggered off when two magnetic fields meet. This impulse is directed from the point of measurement via the waveguide inside the measuring scale to the sensor head. The transit time is constant and virtually independent of temperature. It is proportional to the position of the solenoid and can therefore be used as a reference for the actual position value and is converted into a direct analog or digital output in the sensor head.

无机机械接触及无干扰的位置测量系统压力可达到500bar，其功能原理基于磁场的相互影响。与此相关，当两个磁场相遇则产生应变脉冲，该脉冲将从测试点由测量仪内部波导传向传感头。输送时间将持续不变且不受温度影响，此于线圈位置成比例，是确切实际的位置测量值，并可通过传感头使之变成模拟量输出或数字量输出。

Technical data/工作压力:

Operating pressure: 250 bar

**Analog output:** 0 bis 10 V  
Load resistance:  $\geq 5 \text{ k}\Omega$   
Resolution: Infinite  
**Analog output:** 4 bis 20 mA  
Load resistance:  $\geq 100 \text{ k}\Omega$   
Resolution: Infinite  
**Digital output:**  
SSI 24 bit Gray-coded  
Resolution:  $5 \mu\text{m}$

**Linearity (absolute accuracy):**  
 $\leq \pm 0.05\%$  (referred to measuring length)  
min.  $\pm 0.05 \text{ mm}$

**Reproducibility:**  
 $\leq \pm 0.001\%$  (referred to measuring length)  
min.  $\pm 0.006 \text{ mm}$

**Hysteresis:**  $\leq 0.03 \text{ mm}$

**Supply voltage:**  
24 V DC ( $\pm 25\%$  With analog output)  
Power requirement: 80 mA  
Residual ripple content:  $\leq 1\%$  s-s  
24 V DC ( $+20\%/-15\%$  with digital output)  
Power requirement: 55 mA  
Residual ripple content:  $\leq 1\%$  s-s

**Type of insulation:**  
Tube and flange: IP 67  
Sensor electronics: IP 65

**Operation temperature:**  
Sensor electronics:  $-40^\circ\text{C}$  bis  $+65^\circ\text{C}$   
Measuring scale:  $-40^\circ\text{C}$  bis  $+85^\circ\text{C}$

**Temperature coefficient:**  
Voltage: 700 ppm/ $^\circ\text{C}$   
Current: 90 ppm/ $^\circ\text{C}$

**工作压力:** 250 bar  
**模拟量输出:** 0 到 10 V  
负载阻力:  $\geq 5 \text{ k}\Omega$   
分辨能力: 无限制  
**模拟量输出:** 4 到 20 mA  
负载阻力:  $\geq 100 \text{ k}\Omega$   
分辨能力: 无限制  
**数字量输出:**  
分辨能力:  $5 \mu\text{m}$

**直线性 (完全精确):**  
 $\leq \pm 0.05\%$  (与测量长度有关)  
最小  $\pm 0.05 \text{ mm}$

**重复性:**  
 $\leq \pm 0.001\%$  (与测量长度有关)  
最小  $\pm 0.006 \text{ mm}$

**滞后:**  $\leq 0.03 \text{ mm}$

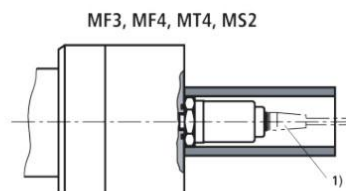
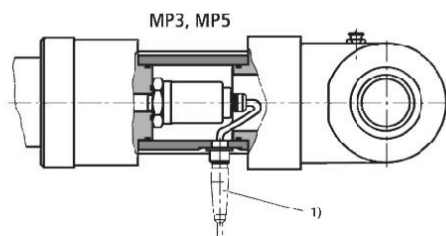
**电源电压:**  
24 V DC ( $\pm 25\%$  模拟量输出)  
电流要求: 80 mA  
残余波动:  $\leq 1\%$  s-s  
24 V DC ( $+20\%/-15\%$  数字量输出)  
电流要求: 55 mA  
残余波动:  $\leq 1\%$  s-s

**绝缘类型:**  
管路和法兰: IP 67  
传感器电子元件: IP 65

**工作温度:**  
传感电子元件:  $-40^\circ\text{C}$  到  $+65^\circ\text{C}$   
测量仪:  $-40^\circ\text{C}$  到  $+85^\circ\text{C}$

**温度系数:**  
电压: 700 ppm/ $^\circ\text{C}$   
电流: 90 ppm/ $^\circ\text{C}$

Mounting types / 安装方式



" For analogue output:  
6-pin Amphenol-  
Plug-in connector material no. **00072231**  
(Plug-in connector is **not** included within the  
scope of supply, has to be ordered separately)

" 模拟量输出:  
6针插脚-  
插脚材料号: **00072231**  
(插座不在供货范围之内, 请  
另外订购)



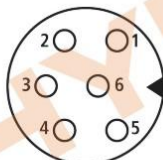
" For digital output:  
7-pin Amphenol-  
Plug-in connector material no. **00079551**  
(Plug-in connector is **not** included within the  
scope of supply, has to be ordered separately)

" 数字量输出:  
7针插脚-  
插座材料号: **00079551**  
(插座不在供货范围之内, 请  
另外订购)



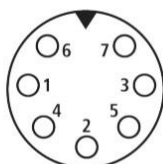
Connection allocation / 连接布置

**Pos. measuring system (analogue output)**  
Component plug (viewed on the pin side)  
位置测量系统 (模拟量输出)  
插座元件 (插脚面视图)



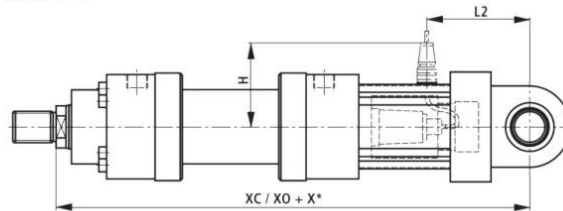
Pin 插脚	Cable 电缆	Signal / current 信号 / 电流	Signal / voltage 信号 / 电压
1	grey / 灰色	4...20 mA	0-10 V
2	pink / 粉色	Gnd / 地线	Gnd / 地线
3	yellow / 黄色	n. C. / 不接	10-0 V
4	green / 绿色	n. C. / 不接	Gnd / 地线
5	brown / 棕色	+24 V DC (± 25%)	+24 V DC (± 25%)
6	white / 白色	Gnd / 地线	Gnd / 地线

**Pos. measuring system (digital output)**  
Component plug (viewed on the pin side)  
位置测量系统 (数字量输出)  
插座元件 (插脚面视图)

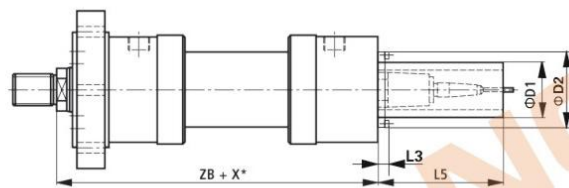


Pin 插脚	Cable 电缆	Signal / SSI 信号 / SSI
1	grey / 灰色	Data(-) / 数据 (-)
2	pink / 粉色	Data(+) / 数据 (+)
3	yellow / 黄色	Tact(+) / 脉冲 (+)
4	green / 绿色	Tact(-) / 脉冲 (-)
5	brown / 棕色	+24 V DC (+20%/-15%)
6	white / 白色	0 V
7	--	n. C.

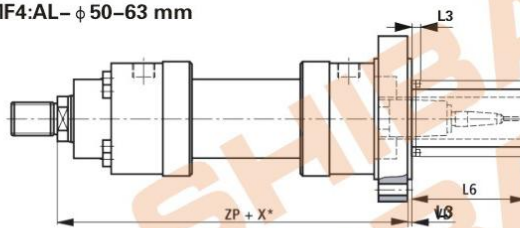
MP3,MP5:AL- $\phi$  50-200 mm



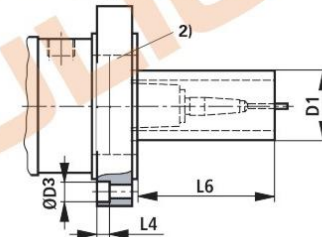
MF3:AL- $\phi$  50-200 mm



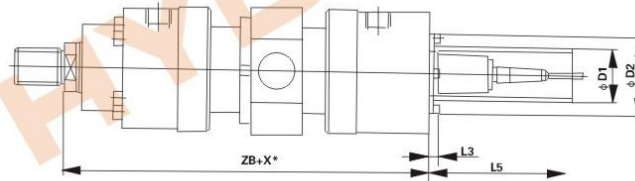
MF4:AL- $\phi$  50-63 mm



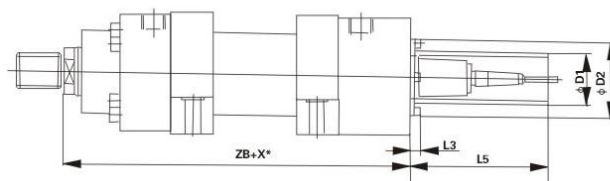
MF4:AL- $\phi$  80-200 mm



MT4:AL- $\phi$  50-200 mm



MS2:AL- $\phi$  50-200 mm



## Position measuring system / 位置测量系统

Dimensions (in mm) / 尺寸 (mm)

AL φ	MM φ	X* max. 最大	XC	XO	H	ZB	ZP	NF	L2	L3	L4	L5	L6	D1 φ	D2 φ	D3 φ
50	32 36	800	470	470	120	254	278	28	132	12	3	160	160	60	88	20
63	40 45	1100	526	526	130	299	313	28	150	12	0	160	160	60	88	0
80	50 56	1400	580	580	125	332.5	350	32	176.5	12	0	160	142.5	60	88	0
100	63 70	1700	617	617	135	362	390	36	192	12	0	160	132	60	88	0
125	80 90	2000	693	693	145	410	445	55	227	12	21.5	160	125	60	88	33
140	90 100	2300	755	755	155	440	485	60	262	12	25.5	160	115	60	88	40
160	100 110	2600	787	787	165	472.5	525	65	269.5	12	25.5	160	112.5	60	88	40
180	110 125	2600	855	855	175	510	570	70	307	12	32	160	100	60	88	48
200	125 140	3000	926	926	190	550	616	76	333	12	32	160	94	60	88	48
250	160 180	3000	1)	1)	1)	1)	1)	1)	1)	1)	1)	1)	1)	1)	1)	1)
320	200 220	3000	1)	1)	1)	1)	1)	1)	1)	1)	1)	1)	1)	1)	1)	1)

### Notes

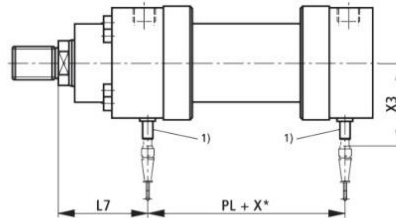
for main dimensions, see pages 10 and 11  
 AL = Piston φ  
 MM = Piston rod φ  
 X\* = Stroke length  
 1) = Dimensions on request  
 2) = Centring ring BA cannot be used

### 注解

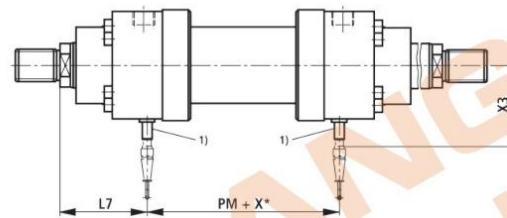
主要尺寸请看第10和11页  
 AL = 活塞直径—φ  
 MM = 活塞杆直径—φ  
 X\* = 行程长度  
 1) = 尺寸请问  
 2) = 中心圈BA不可采用

Proximity switch / 接近开关

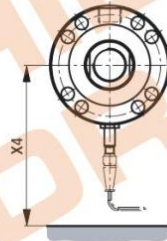
CDH2:AL-  $\phi$  50-320 mm



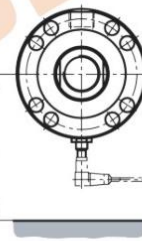
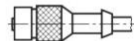
CGH2:AL-  $\phi$  50-320 mm



Mounting types / 安装类型

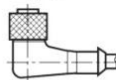


**Plug-in connector with 5m cable**  
Material n. o. **00026512**  
(Plug-in connector is **not** included within the scope of supply, has to be ordered separately)



**带5米电缆的插座**  
材料号: **00026512**  
(插座不在供货范围之内, 请另外订购)

**Plug-in connector, angled with 5m cable**  
(The orientation of the cable exit is not definable)  
Material no. **00021404**  
(Plug-in connector is **not** included within the scope of supply, has to be ordered separately)



**插座,有角度,带5米电缆**  
(电缆出口处方向不可限定)

材料号: **00021404**  
(插座不在供货范围之内, 请另外订购)