PLK-SERIE

PLK 系列

PLK

PLK 系列

PLK - SERIES

THE ROBUST

PLK系列气缸是为机床与机器人行业的搬运系统设计。功能强大的循环滚珠轴承导轨系统与PLF系列气缸相结合，发挥出了无与伦比的性能。

This extremely robust linearsystem from the series PLK 16 – 63 has been especially developed for use in the machine tool and robototics industries. The move force for this guide is our proven rodless cylinder Ø 16 – 63 mm.

Besides the proven technical aspects of our rodles cylinder, the following facts are important performance characteristics.

优势 / BENEFITS

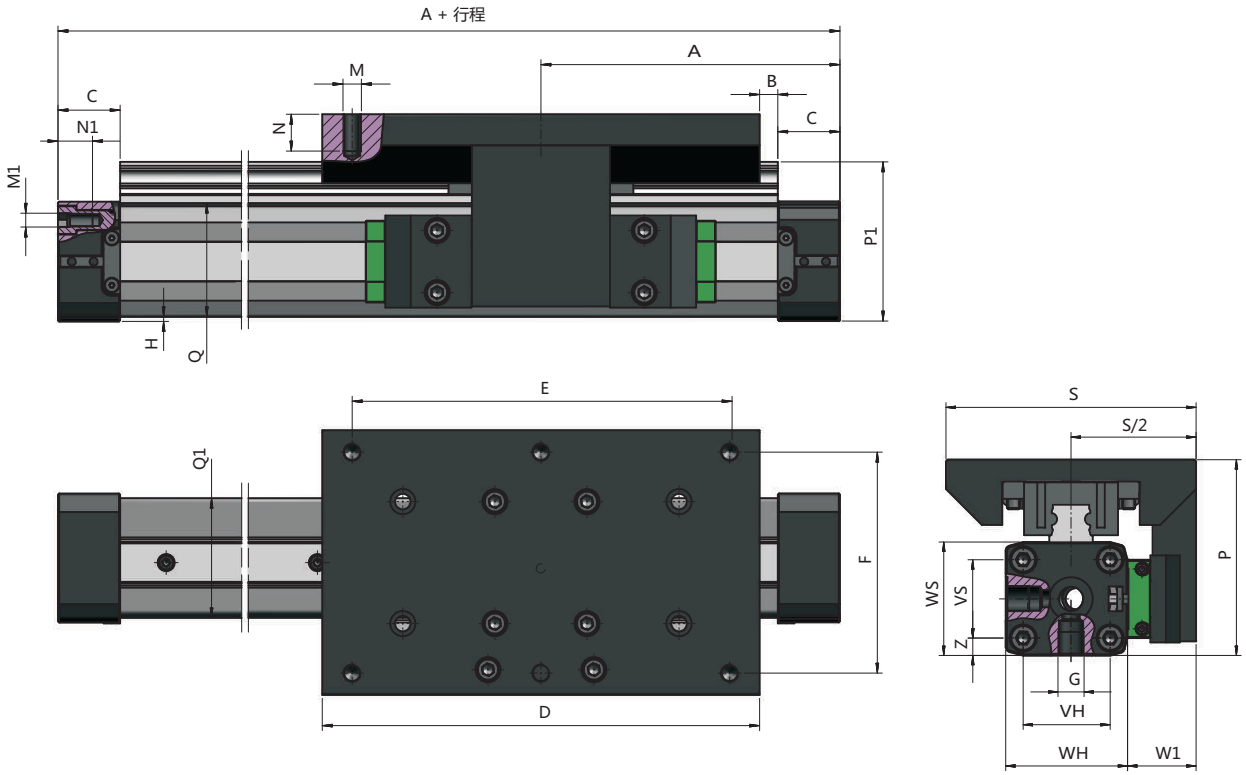
- 负载超强（约为PLF系列的4倍）
- 全方位高静载能力
- 运行顺畅无噪音
- 坚固的轴承座
- 易操作的油嘴
- 经加硬和研磨的直线导轨
- 低摩擦轴承
- 互换性强
- 直线导轨可自由选择单滑块或双滑块

- High loading characteristics
- High static loading in all directions
- Quiet and smooth running
- Robust bearing housing
- Easy access to grease nipple
- Hardened and grinded guiderail
- Low friction bearing
- Easy interchangeability
- UNO/TANDEM Carriage system

技术参数 / TECHNICAL DATA

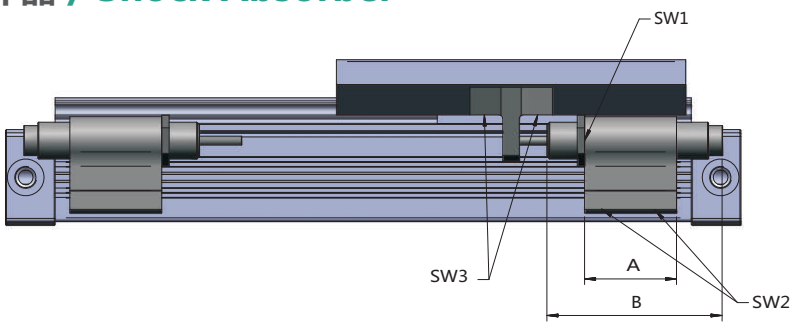
设计	无杆气缸、双动						Design	Rodless cylinder, double acting					
行程							Strokes						
ø 16 mm	100–3300mm, 1mm的增量						ø 16 mm	100–3300mm, in increments of 1mm					
ø 25-63 mm	100–5700mm, 1mm的增量 (可按要求制作更长的行程)						ø 25-63 mm	100–5700mm, in increments of 1mm (longer strokes on request)					
供气口	Ø16	Ø25	Ø32	Ø40	Ø50	Ø63	Air connection	Ø16	Ø25	Ø32	Ø40	Ø50	Ø63
	M5	G1/8	G1/4	G1/4	G1/4	G3/8		M5	G1/8	G1/4	G1/4	G1/4	G3/8
安装位置	自由安装						Mounting	free					
力 + 力矩	见负载，作用力和力矩图表						Forces + moments	see Forces and moments					
支撑力	见中部支撑图表						Support Forces	see Deflection Diagram					
缓冲长度	见缓冲图表						Cushion Length	see Cushion Diagram					
温度	–10°C ~ +80°C（其他温度范围可定制）						Temperatures	–10°C ~ +80°C (other temperatures on request)					
压力范围	0,5–8,0 bar						Pressure range	0,5–8,0 bar					
介质	压缩空气，过滤最大50微米						Medium	compressed air, filtered max. 50µm					
材料							Materials						
缸筒	高强度阳极氧化铝合金						Barrel	High-strength anodized aluminum					
端盖	高强度阳极氧化铝合金						End caps	High-strength anodized aluminum					
活塞轴	高强度阳极氧化铝合金						Piston axle	High-strength anodized aluminum					
密封件	耐油合成材料（NBR：v < 1m/s，VITON 可选：v ≥ 1m/s）						Seals	Oilproof synthetic material (NBR: v< 1m/s , VITON: v ≥ 1m/s)					
密封带	不锈钢						Sealing bands	Stainless steel					
活塞	耐磨合成材料						Piston caps	Wear proof synthetic material					
滑动件	耐磨合成材料						Sliding parts	Wear proof synthetic material					

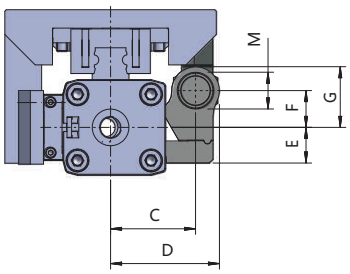
气缸外形尺寸 / CYLINDER DIMENSIONS



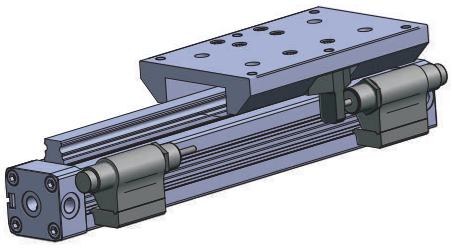
ø	A	B	C	D	E	F	G	H	M	N	M1	N1	P	P1	Q x Q1	S	S2	VH	VS	WH	WS	W1	Z
16	65	5	15	90	70	36	M5	1,0	M4	10	M3	7	48,9	34	24,5 x 25	63	31,5	18	18	27	27	18	4,5
25	100	4,5	23	145	125	64	1/8	2,0	M6	12	M5	10	73	52,3	36 x 36	80	40	27	27	40	40	20	6,5
32	125	3	27	190	164	96	1/4	2,0	M8	13	M6	14	90	69,3	48 x 52	115	57,5	40	36	56	52	30,5	8,0
40	150	25	30	190	164	96	1/4	7,0	M8	18	M6	17	105	84,3	58 x 58	115	57,5	54	54	69	72	24,5	9,0
50	175	34,5	33	215	180	110	1/4	1,0	M8	20	M6	18	130	102,3	77 x 78	130	65	70	70	80	80	28,5	5,0
63	215	57,5	50	215	180	140	3/8	2,0	M8	20	M8	18	155	128,3	102 x 102	170	85	78	78	106	106	31,5	14

缓冲器 / Shock Absorber

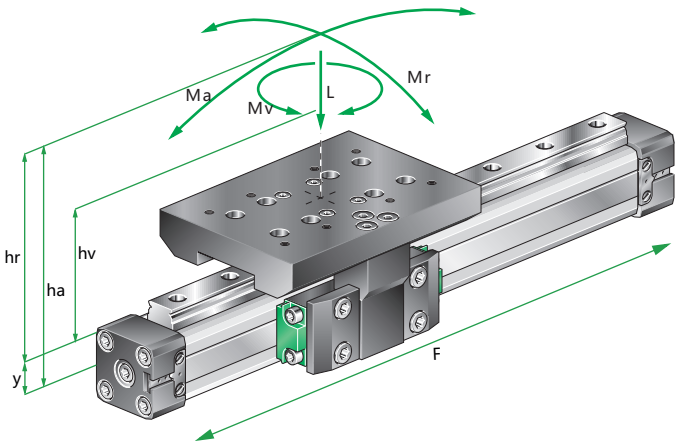




ø	A	B	C	D	E	F	G	M	SW1	SW2	SW3
16	28	43,2	22,2	29,2	13,2	9	16	M10 x 1	SW13	SW3	SW3
25	50	81,3	31,4	41,4	11,7	15,5	25,5	M14 x 1,5	SW17	SW4	SW4
32	50	95,5	46,2	59,2	19,4	20	33	M20 x 1,5	SW24	SW4	SW4
40	50	94,5	47,2	60,2	19,4	20	33	M20 x 1,5	SW24	SW4	SW4
50	70	102,5	63	79	11	31	59	M25 x 1,5	-	-	-
63	-	-	-	-	-	-	-	-	-	-	-



力和力矩 / FORCES AND MOMENTS

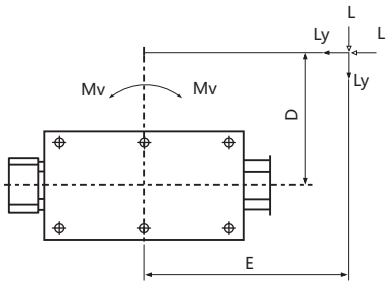


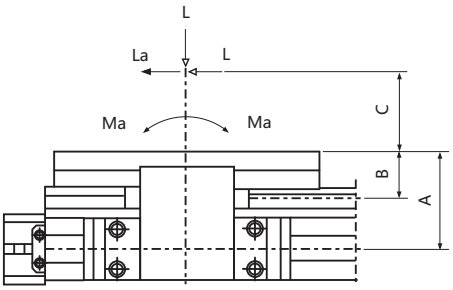
公式 / FORMELN

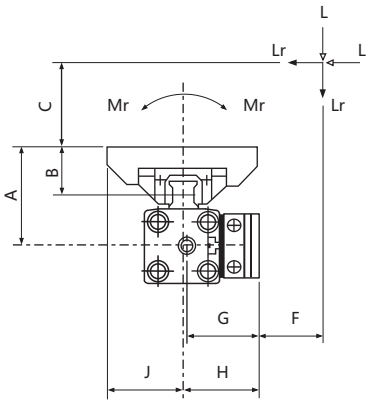
$M_a = F * h_a$

$M_r = F * h_r$

$M_v = F * h_v$







单滑块系统 / UNO CARRIAGE SYSTEM

气缸 Ø	16	25	32	40	50	63
有效作用力F (6 bar) (N)	110	250	420	640	1000	1550
缓冲长度 (mm)	15	21	26	32	32	40
A (mm)	35,0	53,0	64,0	69	90	102
B (mm)	19,0	26,0	29,7	29,7	40	38,5
C/D/E/F (mm)	按设计定制尺寸					
G (mm)	30,3	38,0	55,0	54,5	65	75
H (mm)	31,5	40,0	57,5	57,5	68,5	85
J (mm)	31,5	40,0	57,5	57,5	65	85
最大负载力 L (N)	500	1500	2950	3960	7500	7500
最大允许力矩La,Lr,Lv (N)	500	1500	2950	3960	4000	4000
最大轴向允许弯曲力矩 Ma (Nm)	4	40	61	115	580	580
最大径向允许弯曲力矩 Mr (Nm)	6	14	30	52	210	210
最大允许中心扭矩 Mv (Nm)	11	40	62	70	580	580

Cylinder Ø	16	25	32	40	50	63
Effect force F (6 bar) (N)	110	250	420	640	1000	1550
Cushioning (mm)	15	21	26	32	32	40
A (mm)	35,0	53,0	64,0	69	90	102
B (mm)	19,0	26,0	29,7	29,7	40	38,5
C/D/E/F (mm)	Dimensions according design					
G (mm)	30,3	38,0	55,0	54,5	65	75
H (mm)	31,5	40,0	57,5	57,5	68,5	85
J (mm)	31,5	40,0	57,5	57,5	65	85
Max. allowed load L (N)	500	1500	2950	3960	7500	7500
Moment forces max.La,Lr,Lv (N)	500	1500	2950	3960	4000	4000
Axial moments max Ma (Nm)	4	40	61	115	580	580
Radial moments max Mr (Nm)	6	14	30	52	210	210
torsion moments max Mv (Nm)	11	40	62	70	580	580

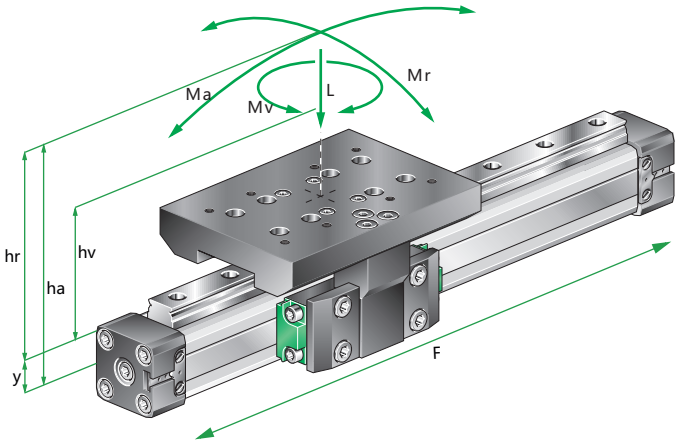
- 上述力矩（Ma，Mr，Mv）是与线性滑轨的中心相关，负载（L）位于工件的重心，并且是与轴向，径向，中心三种力相关。工件的中心可以处于滑块范围之外。
- 通常情况下，滑块总是承受动态负载，需要考虑计算活塞的作用力（F）和气缸直线导向系统的能力。
- 请使用以下计算公式：

$$\frac{Ma}{Ma\ max} + \frac{Mr}{Mr\ max} + \frac{Mv}{Mv\ max} + \frac{L}{L\ max} \leq 1$$

- The above mentioned moments (Ma max, Mr max, Mv max) are related to the guide rail centre. The load force (L) is the summary of all single forces related to the common centre of the mass. The centre of the mass can be placed inside or outside the surface area of the carriage.
- Normally the carriage would experience a dynamic load,which has to be considered with the calculation of needed piston force (F) and capacity of the ballguided system.
- Use the following calculation formular:

$$\frac{Ma}{Ma\ max} + \frac{Mr}{Mr\ max} + \frac{Mv}{Mv\ max} + \frac{L}{L\ max} \leq 1$$

力和力矩 / FORCES AND MOMENTS



公式 / FORMELN

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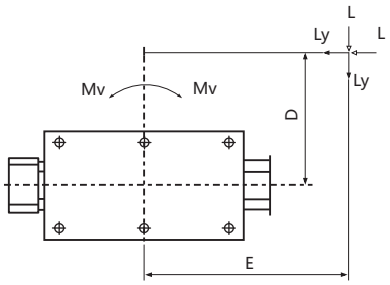
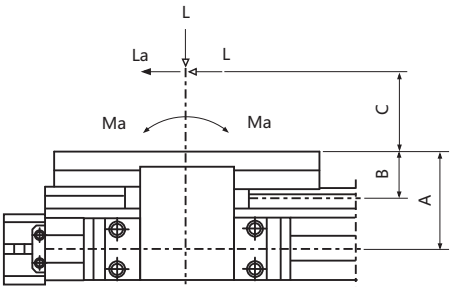
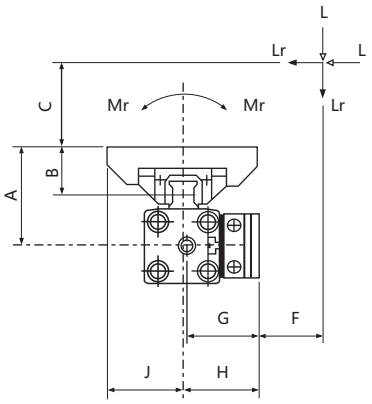
$M_v = F * h_v$







双滑块系统 / TANDEM CARRIAGE SYSTEM

气缸 Ø	16	25	32	40	50	63
有效作用力F (6 bar) (N)	110	250	420	640	1000	1550
缓冲长度 (mm)	15	21	26	32	32	40
A (mm)	35,0	53,0	64,0	69	90	102
B (mm)	19,0	26,0	29,7	29,7	40	38,5
C/D/E/F (mm)	按设计定制尺寸					
G (mm)	30,3	38,0	55,0	54,5	65	75
H (mm)	31,5	40,0	57,5	57,5	68,5	85
J (mm)	31,5	40,0	57,5	57,5	65	85
最大负载力 L (N)	500	1500	2950	3960	7500	7500
最大允许力矩La,Lr,Lv (N)	500	1500	2950	3960	4000	4000
最大轴向允许弯曲力矩 Ma (Nm)	4	40	61	115	580	580
最大径向允许弯曲力矩 Mr (Nm)	6	14	30	52	210	210
最大允许中心扭矩 Mv (Nm)	11	40	62	70	580	580

Cylinder Ø	16	25	32	40	50	63
Effect force F (6 bar) (N)	110	250	420	640	1000	1550
Cushioning (mm)	15	21	26	32	32	40
A (mm)	35,0	53,0	64,0	69	90	102
B (mm)	19,0	26,0	29,7	29,7	40	38,5
C/D/E/F (mm)	Dimensions according design					
G (mm)	30,3	38,0	55,0	54,5	65	75
H (mm)	31,5	40,0	57,5	57,5	68,5	85
J (mm)	31,5	40,0	57,5	57,5	65	85
Max. allowed load L (N)	500	1500	2950	3960	7500	7500
Moment forces max.La,Lr,Lv (N)	500	1500	2950	3960	4000	4000
Axial moments max Ma (Nm)	4	40	61	115	580	580
Radial moments max Mr (Nm)	6	14	30	52	210	210
torsion moments max Mv (Nm)	11	40	62	70	580	580

- 上述力矩（Ma，Mr，Mv）是与线性滑轨的中心相关，负载（L）位于工件的重心，并且是与轴向，径向，中心三种力相关。工件的中心可以处于滑块范围之外。
- 通常情况下，滑块总是承受动态负载，需要考虑计算活塞的作用力（F）和气缸直线导向系统的能力。
- 请使用以下计算公式：

$$\frac{Ma}{Ma\ max} + \frac{Mr}{Mr\ max} + \frac{Mv}{Mv\ max} + \frac{L}{L\ max} \leq 1$$

- The above mentioned moments (Ma max, Mr max, Mv max) are related to the guide rail centre. The load force (L) is the summary of all single forces related to the common centre of the mass. The centre of the mass can be placed inside or outside the surface area of the carriage.
- Normally the carriage would experience a dynamic load,which has to be considered with the calculation of needed piston force (F) and capacity of the ballguided system.
- Use the following calculation formular:

$$\frac{Ma}{Ma\ max} + \frac{Mr}{Mr\ max} + \frac{Mv}{Mv\ max} + \frac{L}{L\ max} \leq 1$$

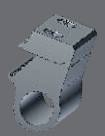
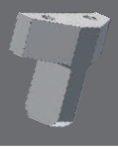
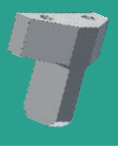
循环滚珠线性导轨组合气缸PLK / LINEAR UNIT PLK

• • • • 行程尺寸 (0100-5700 mm)
• • • • Ident-figures for stroke definition (0100-5700 mm)

型号	定购码	描述	Types	Ident.-N0.	Description
PLK16.1	71.691. • • • •	单滑块 无杆气缸 PLF16 线性装置	PLK16.1	71.691. • • • •	Uno Rodless cylinder PLF16 Linear unit
PLK16.2	71.692. • • • •	双滑块 无杆气缸 PLF16 线性装置	PLK16.2	71.692. • • • •	Tandem Rodless cylinder PLF16 Linear unit
PLK25.1	72.591. • • • •	单滑块 无杆气缸 PLF25 线性装置	PLK25.1	72.591. • • • •	Uno Rodless cylinder PLF25 Linear unit
PLK25.2	72.592. • • • •	双滑块 无杆气缸 PLF25 线性装置	PLK25.2	72.592. • • • •	Tandem Rodless cylinder PLF25 Linear unit
PLK32.1	73.291. • • • •	单滑块 无杆气缸 PLF32 线性装置	PLK32.1	73.291. • • • •	Uno Rodless cylinder PLF32 Linear unit
PLK32.2	73.292. • • • •	双滑块 无杆气缸 PLF32 线性装置	PLK32.2	73.292. • • • •	Tandem Rodless cylinder PLF32 Linear unit
PLK40.1	74.091. • • • •	单滑块 无杆气缸 PLF40 线性装置	PLK40.1	74.091. • • • •	Uno Rodless cylinder PLF40 Linear unit
PLK40.2	74.092. • • • •	双滑块 无杆气缸 PLF40 线性装置	PLK40.2	74.092. • • • •	Tandem Rodless cylinder PLF40 Linear unit
PLK50.1	75.091. • • • •	单滑块 无杆气缸 PLF50 线性装置	PLK50.1	75.091. • • • •	Uno Rodless cylinder PLF50 Linear unit
PLK50.2	75.092. • • • •	双滑块 无杆气缸 PLF50 线性装置	PLK50.2	75.092. • • • •	Tandem Rodless cylinder PLF50 Linear unit
PLK63.1	76.391. • • • •	单滑块 无杆气缸 PLF63 线性装置	PLK63.1	76.391. • • • •	Uno Rodless cylinder PLF63 Linear unit
PLK63.2	76.392. • • • •	双滑块 无杆气缸 PLF63 线性装置	PLK63.2	76.392. • • • •	Tandem Rodless cylinder PLF63 Linear unit

特殊要求：可按要求制做氟橡胶密封件和不锈钢 / Special version: Viton seals and stainless steel on request

缓冲器安装配件 / SHOCK ABSORBE MOUNTINGS

型号	定购码	气缸-ø	描述	Types	Ident.-N0.	Zyl. -ø	Description
缓冲器安装支架 Ø 16 Ø 25 Ø 32 - 40 Ø 50 	71.631.0000 72.531.0000 73.231.0000 75.031.0000	PLK16 PLK25 PLK32-40 PLK50	颜色：本色 材料： 阳极氧化铝合金	Shock Absorber Mounting Ø 16 Ø 25 Ø 32 - 40 Ø 50 	71.631.0000 72.531.0000 73.231.0000 75.031.0000	PLK16 PLK25 PLK32-40 PLK50	Colour: natur Material: Zinc diecasting
缓冲器挡块 Ø 16 Ø 25 Ø 32 - 40 Ø 50 	71.631.0003 72.531.0003 73.231.0003 75.031.0003	PLK16 PLK25 PLK32-40 PLK50	颜色：本色 材料： 阳极氧化铝合金	Shock Absorber Stop Ø 16 Ø 25 Ø 32 - 40 Ø 50 	71.631.0003 72.531.0003 73.231.0003 75.031.0003	PLK16 PLK25 PLK32-40 PLK50	Colour: natur Material: Zinc diecasting