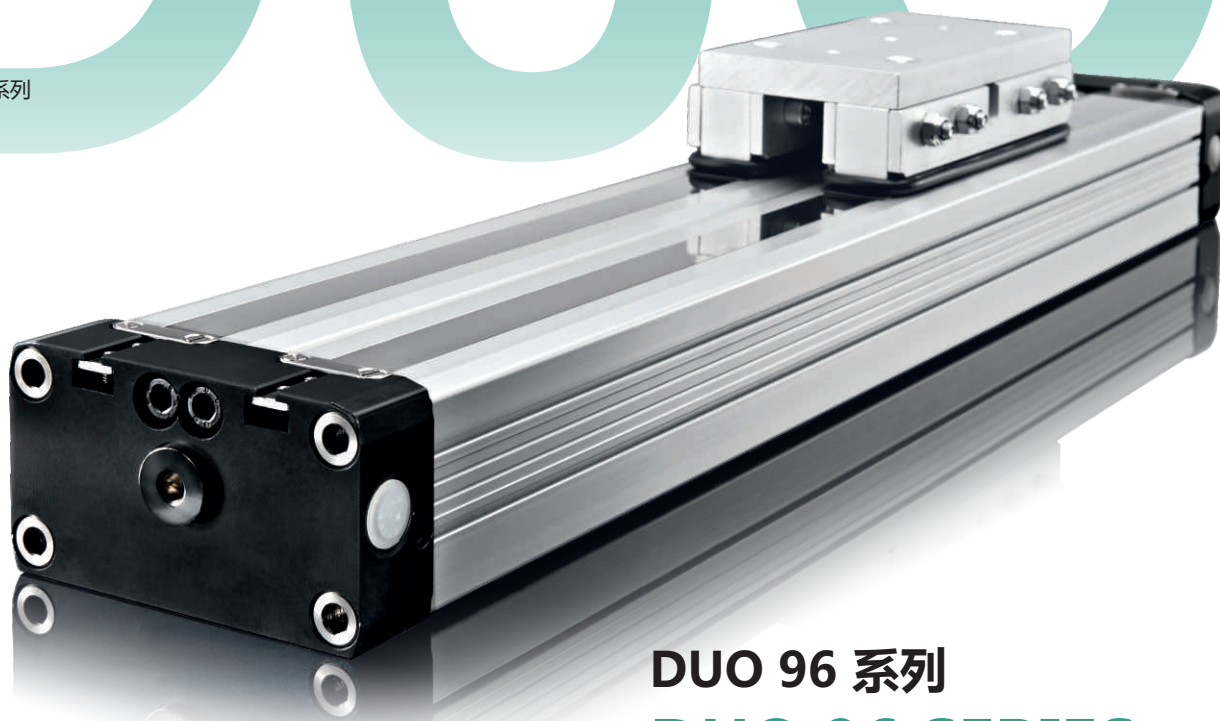


DUO 96 SERIE

DUO 96 系列



DUO 96 系列 DUO 96 SERIES THE STRONG

滑块运动的沟槽于轴向贯通整个缸筒，气缸作用力由与活塞成一体的滑块来传递。

推力传递原理如下：

压缩空气推动内部活塞侧面，带动外部滑块做对应方向运动。

气缸内部的沟槽位置由极其光滑的精磨不锈钢带来保证密封，沟槽两侧的磁条保证了内钢带始终处于同一个位置不变。外钢带与防尘刷系统可以防止灰尘进入气缸内部。

活塞与滑块内部具有独特的导向槽，当滑块运动或静止时，内外钢带在活塞内部是分离的，外钢带被拉高，内钢带则低于滑块，而活塞两侧的内外钢带很牢固地附着在沟槽两侧。

The entire tube is slotted throughout its full length. The force is transmitted through the load friction, which is attached to the piston axle.

The design of the piston axle is that way that the inner part of the piston axle is connected through the slot with the outer part of it. Therefore the force transmission runs as follows:

Air pressure Piston area, piston axle (inner part), piston axle (outer part), load friction, load.

The sealing of the cylinder slot is guaranteed by a most precisely grinded inner steel band. The inner band is kept in position due to magnet stripes which are placed on both sides of the slot. In addition there is an outer steel band covering the slot in order to keep dust out of inner space of the cylinder.

During piston movement as well as during stillstand of it both steelbands are lifted right after the piston seal and led through the piston axle by means of a separate own guiding channel. Before and behind the piston axle both bands are covering the slot permanently again.

优势 / BENEFITS

- 更优越的导向性能
- 双倍的作用力
- 更大的负载
- 活塞两端作用力相同
- 作用力传递直接，扭矩安全
- 标准活塞附磁，可订购无磁活塞
- 结构独特，节约50%安装空间
- 可达5700mm长行程
- 端盖具有三个不同方向的供气口及可调气缓冲
- 运行反应快，活塞可高速运动
- 可根据用户要求进行灵活设计
- 无润滑压缩空气供给或润滑压缩空气供给**

可接受特殊订货要求

注意：在将润滑压缩空气供给换成无润滑压缩空气供给之前，气缸必须拆卸清洁，重新加入润滑脂，正确组装后方可。

- Superior guiding capacity
- Stronger forces
- Higher loads
- Equal forces on both ends of the piston
- Force connection direct, torque safe
- Piston with or without magnets
- 50% space-savings
- Long strokes up to →5700mm
- End caps with 3 air connections and adjustable cushioning
- Fast acceleration and high piston velocity
- Very flexible in the user's design
- Non lubricated or lubricated air supply**)

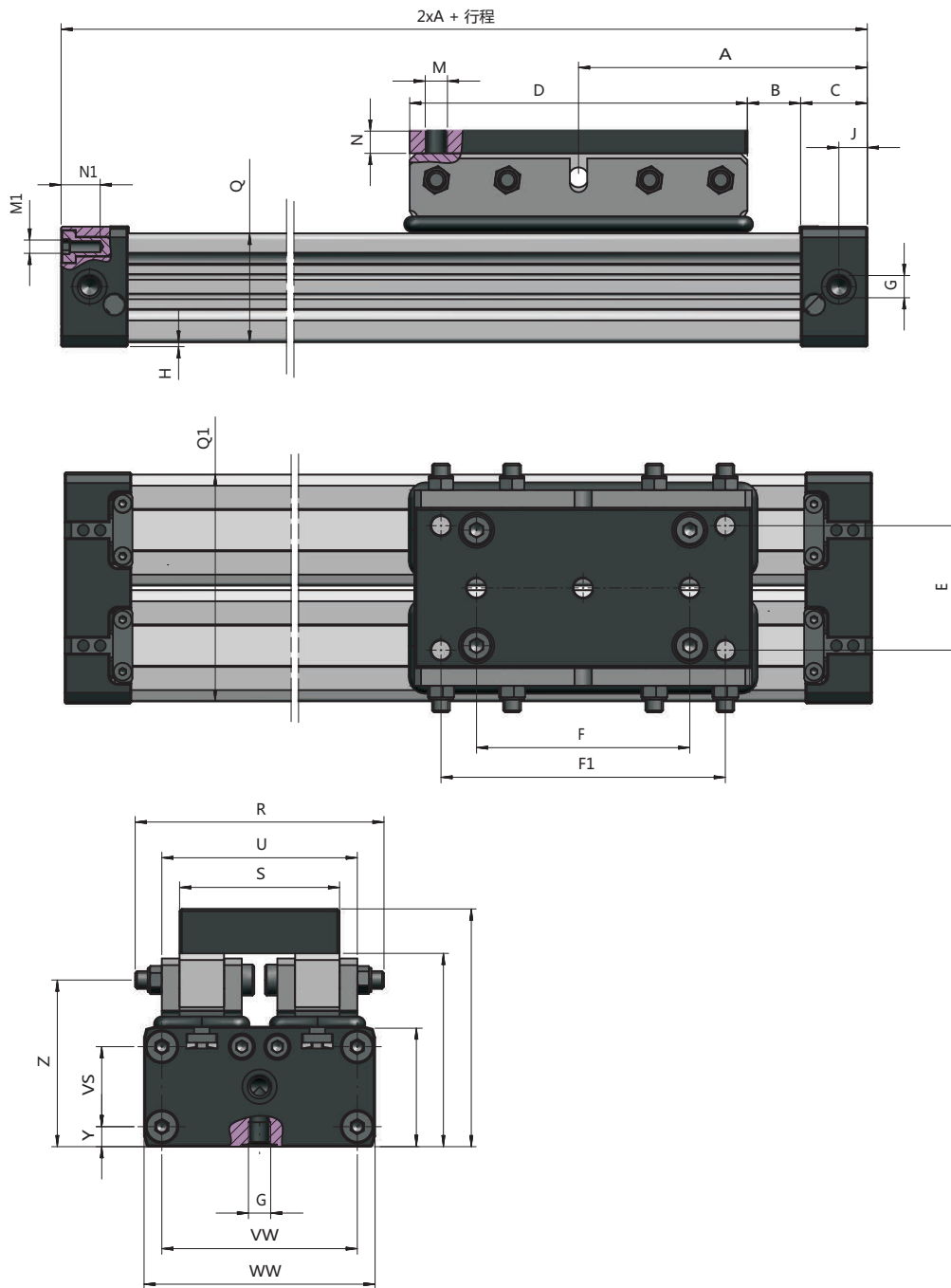
*) Special Version On request

***) Attention: Before changing operation from lubricated to nonlubricated air the cylinder has to be disassembled, cleaned, newly greased and reassembled

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 25-32 mm	100–5700mm, 1mm的增量 (可按要求制作更长的行程)			ø 25-32mm	100–5700mm, in increments of 1mm (longer strokes on request)		
供气口	Ø16	Ø25	Ø32	Air connection	Ø16	Ø25	Ø32
	M5	G1/8	G1/4		M5	G1/8	G1/4
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		

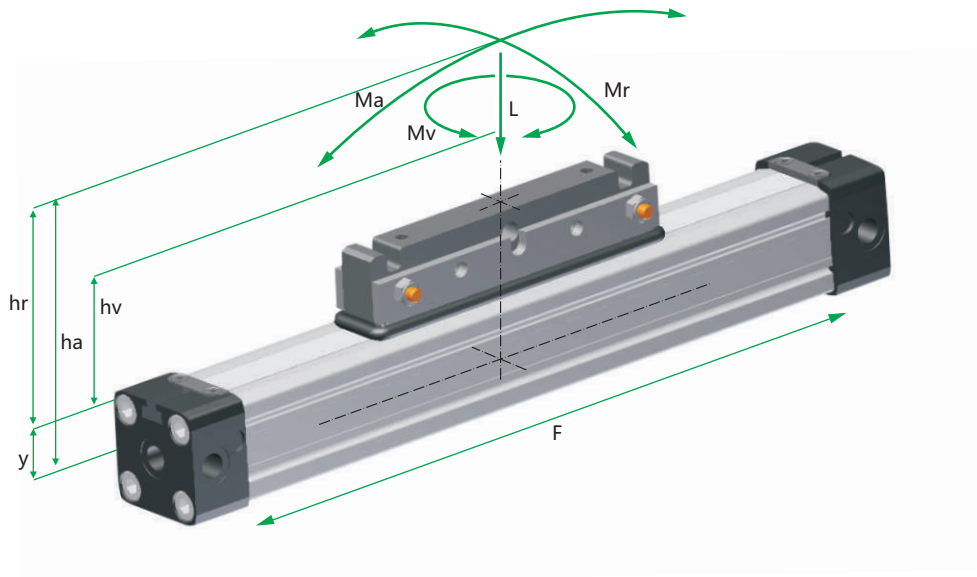
气缸外形尺寸 / CYLINDER DIMENSIONS



\varnothing	A	B	C	D	E	F	F1	G	H	J	M	N	M1	N1
2x16	65	12	15	76	—	—	48	M5	1,5	5,5	M5	10,0	M3	7
2x25	100	17	23	120	32,4	80	100	G1/8"	2	8,5	M6	15,0	M5	10
2x32	125	23	27	150	40,4	90	120	G1/4"	2	10,5	M8	12,0	M6	14

\varnothing	P	P1	QxQ1	R	S	U	VW	VS	WW	WS	Y	Z
2x16	53,5	42,3	24x48	56	34	42	42	18	51	27	4,5	37,5
2x25	74,0	58,5	36x72	74	50	59	63	27	72	41	7,0	53,5
2x32	94,0	82	52x96	90	70	75	84	40	98	56	8,0	74,0

力和力矩 / FORCES AND MOMENTS



公式 /

FORMELN

$$M_a = F \cdot h_a$$

$$M_r = F \cdot h_r$$

$$M_v = F \cdot h_v$$

气缸	有效作用力 (N)	缓冲长度 (mm)	最大允许负载(N)	最大允许弯曲力矩(Nm)		最大允许扭矩(Nm)
	at 6 Bar	(mm)	DUO	DUO		DUO
Ø	F	S	L	Ma 轴向	Mr 径向	Mv 中心
2x16	200	15	240	8,0	2,4	1,0
2x25	480	21	600	30,0	8,0	6,0
2x32	820	26	900	60,0	16,5	10,0

Cylinder	Effect Force (N)	Cushioning (mm)	Max. allowed load (N)	Max. allowed bending moments (Nm)		Max. allowed torque (Nm)
	at 6 Bar	(mm)	DUO	DUO		DUO
Ø	F	S	L	Ma axial	Mr radial	Mv zentral
2x16	200	15	240	8,0	2,4	1,0
2x25	480	21	600	30,0	8,0	6,0
2x32	820	26	900	60,0	16,5	10,0

以上数据显示了在轻负载，无震动操作时的最大值，即使在动态情况下，也不应该超出此值。

负荷与力矩数据以最大压力6bar，速度 $v \leq 0.2\text{m/sec}$ (PL系列) ，速度 $v \leq 0.45\text{m/sec}$ (PLF系列) 为基准。

注意：当气缸作用力时，应该考虑到不同负载和应用所产生的摩擦力，鉴于一些不确定的使用场合，以上数值应减少10-20%。

我们将乐于在特殊应用方面给您一些建议。

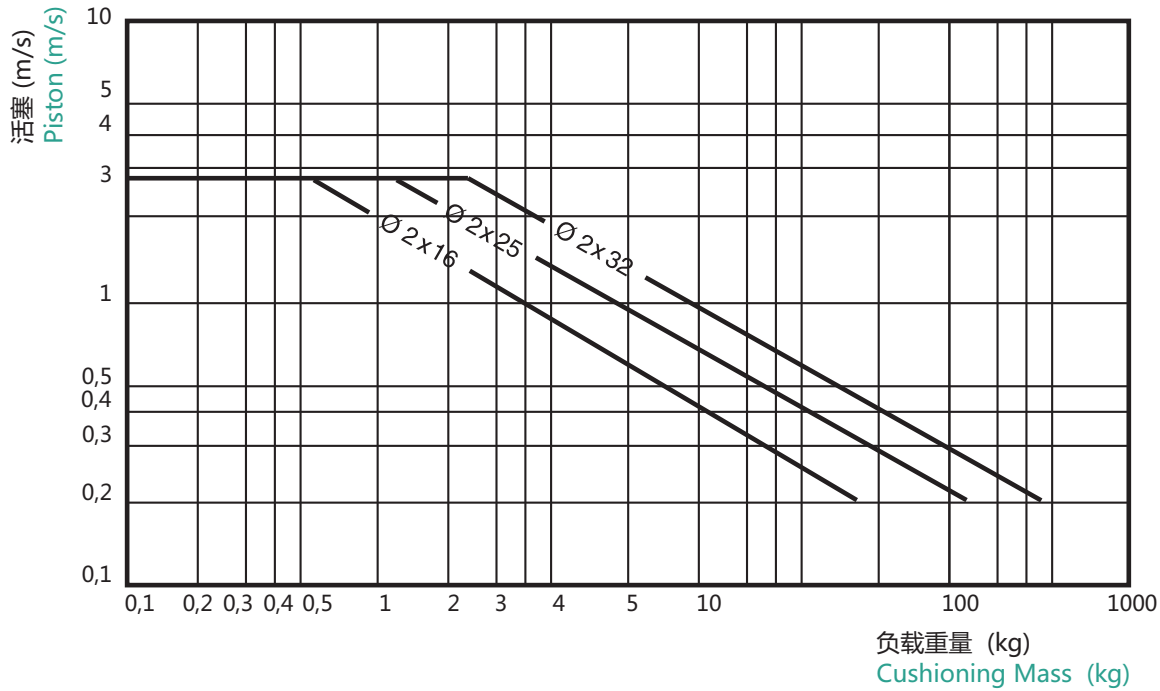
The figures above are max. values based on light shock free duty and speed of $v \leq 0,2\text{m/sec}$ [PL-series] – $v \leq 0,45\text{m/sec}$ [PLF-series]. Max. pressure 6 bar.

An exceeding of the values in dynamic operations, even for short moments, has to be avoided.

Attention: Resulting forces could lead to extreme exceedings of the values. In case of undefinable situations the above max. values have to be reduced by 10–20%.

Please ask our sales representatives

缓冲图表 / CUSHIONING DIAGRAM



请注意以下事项:

- 如果超出以上图标允许范围，必须安装附加的缓冲器。
- 当活塞运动速度大于1m/sec，则建议使用VITON密封圈。
- 当活塞速度 $V \leq 0.1\text{m/sec}$ (NBR)， $V \leq 0.2\text{m/sec}$ (VITON)，需要更换成低速润滑油脂。
- 密封件最长使用寿命是基于活塞运动速度 $V \leq 1\text{m/sec}$ 。

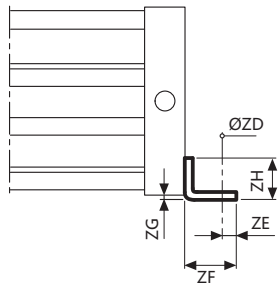
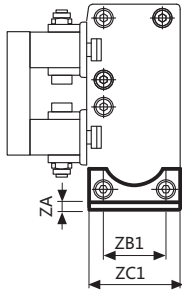
Pay attention to the following points:

- If the limits above are exceeded additional shock absorbers are necessary.
- For piston speeds of more than $\geq 1\text{m/s}$ viton seals are recommended.
- For piston speeds $\leq 0,1\text{m/s}$ (NBR), $\leq 0,2\text{m/s}$ (VITON) slow speed lubrication is necessary see at sperpart kids
- Maximum duration life will be achieved when piston speeds do not exceed 1m/s.

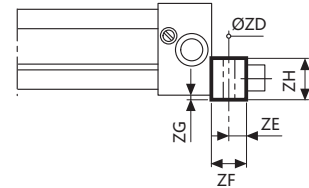
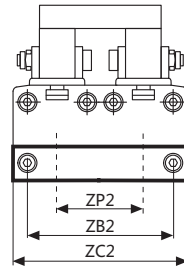
安装配件尺寸 / MOUNTINGS DIMENSIONS

端盖支架（底座） / End cover bracket (foot)

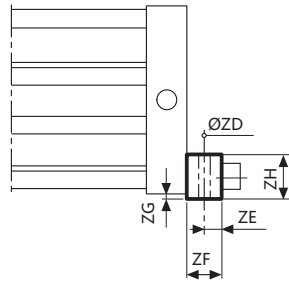
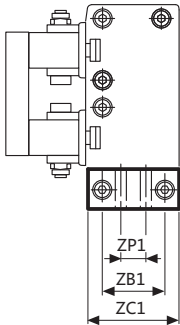
24/1.0 - 2.0



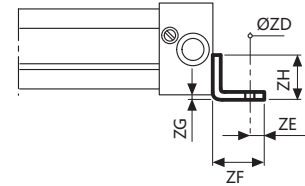
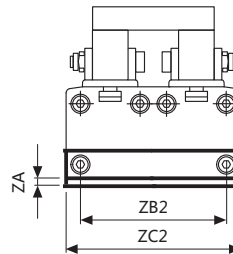
24/1.2 - 2.2



24/3.1

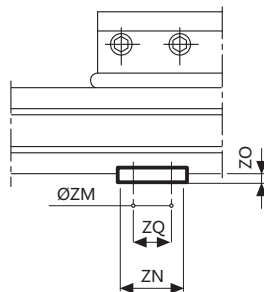
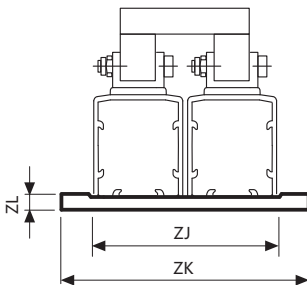


24/3.2



中部支撑座 / Mid section support

25/1.2 - 3.2










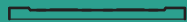
ø	ZA	ZB1	ZB2	ZC1	ZC2	ZD	ZE	ZF	ZG	ZH	ZJ	ZK	ZL	ZM	ZN	ZO	ZP1	ZP2	ZQ
2x16	1,6	18	42	26	51	3,6	4,0	14	1,5	12,5	56	64	6	Ø3,5	12	4	-	-	6,0
2x25	2,5	27	63	40	72	5,6	6,0	22	2,0	18,0	84,5	96	6	Ø5,5	20	4	-	-	10,5
2x32	-	40	84	56	97	6,6	8,0	26	4,0	20,0	109,0	121	10	Ø6,5	55	6	20	62,4	40

气缸 DUO 96 / CYLINDER DUO 96

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

型号	订购码	描述	Types	Ident.-N0.	Description
PL 2x16 PL 2x25 PL2x32	11.652. 12.552. 13.252.	标准 00: v=1 m/s 刚性负载连接 丁腈橡胶密封件 10.9 镀锌螺丝	PL 2x16 PL 2x25 PL2x32	11.652. 12.552. 13.252.	Standard 00- v=1 m/s Rigid load connection NBR-seals screws 10.9 zinc plated

安装配件 / CYLINDER MOUNTINGS

型号	订购码	气缸-ø	描述	Types	Ident.-N0.	Zyl. -ø	Description
端盖支架 (脚架) 24/1.0 24/2.0 	89.581.0001 89.582.0001	PL 2 x 16 PL 2 x 25	组装套件 24/: 2 个支架 4个DIN912标准的 10.9镀锌螺丝	Cylinder mounting 24/1.0 24/2.0 	89.581.0001 89.582.0001	PL 2 x 16 PL 2 x 25	Connection set 24/: 2 brackets steel zinc plated 4 screws 10.9 zinc plated acc. DIN912
端盖支架 (脚架) 24/1.2 24/2.2 	98.581.2001 89.582.2001	PL 2 x 16 PL 2 x 25	组装套件 24/: 2 个支架 4个DIN912标准的 10.9镀锌螺丝	Cylinder mounting 24/1.2 24/2.2 	98.581.2001 89.582.2001	PL 2 x 16 PL 2 x 25	Connection set 24/: 2 brackets steel zinc plated 4 screws 10.9 zinc plated acc. DIN912
端盖支架 (脚架) 24/3.1 24/3.2 	89.581.0001 89.583.2001	PL 2 x 32	组装套件 24/: 2 个支架 4个DIN912标准的 10.9镀锌螺丝	Cylinder mounting 24/3.1 24/3.2 	89.581.0001 89.583.2001	PL 2 x 32	Connection set 24/: 2 brackets 4 screws 10.9 zinc plated acc. DIN912
中部支撑座 25/1.2 25/2.2 25/3.2 	89.581.2002 89.582.2002 89.583.2002	PL 2 x 16 PL 2 x 25 PL 2 x 32	组装套件 25/: 缸体支架 阳极氧化铝合金	Cylinder mounting 25/1.2 25/2.2 25/3.2 	89.581.2002 89.582.2002 89.583.2002	PL 2 x 16 PL 2 x 25 PL 2 x 32	Connection set 25/: body brackets anodised aluminium



Kolbenachsprofil
PL 032
13.208.0000

Kolbenachsprofil
PL 040
008.0000

PL F 032
13.278.0000

