

PMA Robotic Equipment

The PMA Robotic Equipment has been designed to protect cables and leads in extreme automation and robotic installations. All components help to reduce damage and outwear of the stear and lead elements and can therefore significantly increase the life cycle of the installation. The movements of the installation will not be limited. Different conduit types for different applicational demands, supports and a range of accessories can avoid torsion forces on the conduits if correctly applied and stresses on the complete cable package can be reduced. The PMA Robotic Equipment series allow an optimum installation along moving elements as well as a quick and easy installation.

If PMA products are used in conjunction with non PMA products, all product liability claims will be rejected.

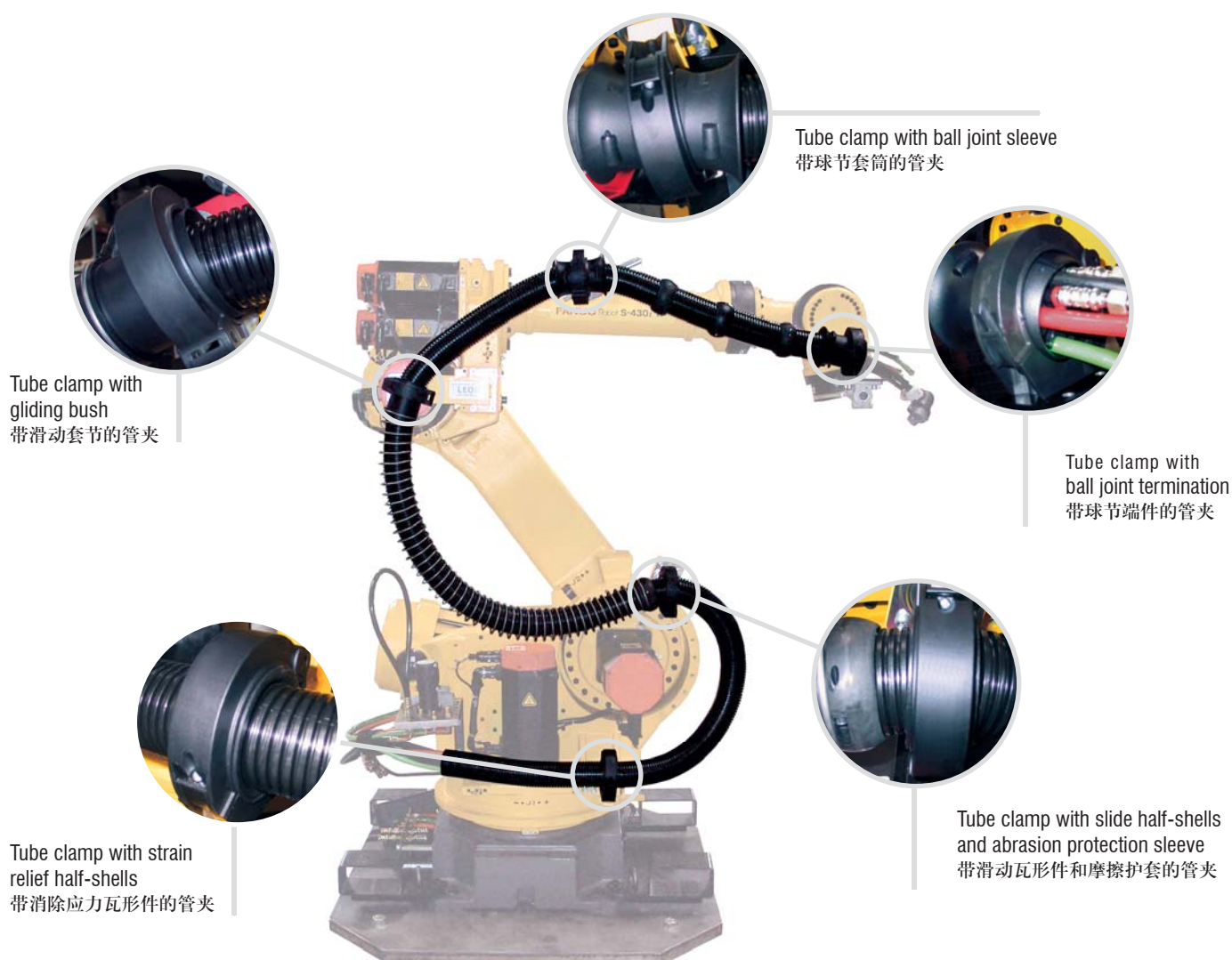
PMA机器人系列软管和配件

PMA机器人系列软管和配件专为电缆保护和引导极端自动控制和机器人安装而设计。所有组件有助于减少损坏和老化且能引导单元并显著提升生命周期。安装的运动部分将不会被限制。

不同种类的软管可应用于不同的需求，如正确安装系列附件可避免作用在软管上的旋转扭力，同时也可减少电缆系统上的压力。

PMA机器人系列软管和配件可使移动单元的安裝最佳化，同时使安装过程更快更简单。

所有与非PMA产品联合使用而产生的不良后果责任由用户自负。





- **Material:** specially modified polyurethane
- Free of halogens and cadmium
- Excellent chafing properties
- Highest flexibility
- **Temperature range:** -60°C to +50°C

- 材料: 特殊改良聚亚胺脂制成
- 不含卤素和镉
- 优异的抗磨性
- 优异的柔软性
- 温度范围: -60°C 至 +50°C

PUE highly flexible, medium-and heavy-duty

Produced from specially modified polyurethane
Conduit type with low mechanical strength, allowing very tight bending radius.
Extreme flexibility and particularly good chafing resistance (e. g. axes 5 and 6 in robotic installations).

PUE 极柔软, 中壁和厚壁

用特殊改良聚亚胺脂制造。
低机械强度软管, 弯曲半径极小。
极度柔软, 耐磨性好(如机器人结构中的5-6轴)。



Order No. black	Conduit size NW	Conduit size metric	Profile	Inside Diameter	Outside Diameter	stat.**/dyn.*** Radius	PU meter
订货号 黑色	软管规格 标称内径	软管规格 公制	波纹	内径	外径	静态**/动态*** 最小弯曲半径	包装米
PUET-29B	29	32	T	28.8 mm	34.5 mm	40 / 90 mm	30
PUET-36B	36	40	T	35.8 mm	42.4 mm	50 / 120 mm	30
PUET-48B	48	50	T	48.6 mm	54.5 mm	60 / 130 mm	21
PUEG-56B	56	68	G	56.3 mm	67.2 mm	90 / 170 mm	30
PUEG-70B	70	80	G	68.2 mm	80.5 mm	100 / 220 mm	30
PUEHG-70B	70	80	G	67.5 mm	80.2 mm	100 / 220 mm	30

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.11701/11702
要了解详细技术规格, 请索取“技术数据表” DB-Nr.11701/11702



- **Material:** specially modified polyamide 12
- Excellent resistance to ultra violet rays and atmospheric corrosion
- Excellent flexibility
- Self-extinguishing
- Free from halogens and cadmium
- Good mechanical strength at low temperatures and dry conditions
- **Temperature range:** -50°C to +95°C; **Short-term** to +150°C

- 材料: 特殊改良聚酰胺12制成
- 优异的耐候性和抗紫外线能力
- 优异的柔软性
- 自熄灭性好
- 不含卤素和镉
- 低温下也有极好的机械性能
- 在温度范围: -50°C至+95°C; 短期温度+150°C

PIS/PIH highly flexible, medium-and heavy-duty

Produced from specially modified polyamide(PA12)
Combines material strength with excellent flexibility
For dynamic conduit movements in robotic and automation systems(e.g.axes 1 to 4)

PIS/PIH 极柔软, 中壁和厚壁

用特殊改良聚酰胺(PA12)制造。
材料强度高, 柔软性极高
适用于机器人和自动化系统的动态的柔性
软管敷设(如轴1-4)。



Order No. black	Conduit size NW	Conduit size metric	Profile	Inside Diameter	Outside Diameter	stat.**/dyn.*** Radius	PU meter
订货号 黑色	软管规格 标称内径	软管尺寸 公制	波纹	内径	外径	静态**/动态*** 最小弯曲半径	包装米
PIST-29B	29	32	T	29.0 mm	34.3 mm	45 / 110 mm	50
PIST-36B	36	40	T	36.5 mm	42.5 mm	60 / 165 mm	30
PIST-48B	48	50	T	47.5 mm	54.5 mm	70 / 180 mm	30
PIHG-56B	56	68	G	56.3 mm	67.2 mm	110 / 270 mm	30
PIHG-70B	70	80	G	67.2 mm	79.6 mm	150 / 350 mm	30
PIHG-95B	95	106	G	91.3 mm	106.0 mm	170 / 450 mm	30
PIHG-125B	125	146	G	126.5 mm	146.5 mm	350 / 480 mm	20

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.11000
要了解详细技术规格, 请索取“技术数据表” DB-Nr.11000



- **Material:** specially modified polyolefin
- Excellent reversed bending performance
- Very good insulating characteristics
- Free from halogens and cadmium
- Excellent flexibility
- Good impact resistance
- Good resistance against strong acids
- **Temperature range:** -25°C to +95°C; **Short-term:** +130°C
- **Chemical resistance:** To fuels, mineral oils, fats, alkalies, acids and bases etc.

- 材料: 特别改良聚烯烃
- 极好的交变弯曲性能
- 非常好的绝缘特性
- 不含卤素和镉
- 极好的柔韧性
- 良好的抗冲击性
- 耐强酸性
- 在温度范围: -25°C至+95°C; 短期温度+130°C
- 耐化学性: 防燃油, 矿物油, 脂肪, 碱, 酸等

POS highly flexible, medium-duty

Use in automation as well as in machine building and industrial installations, especially where continuous movements occur.

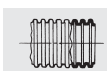
POS 极柔软, 中壁

适用于自动化, 机械制造及工业装置中经常频繁活动区域。

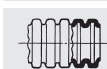
Order No. black	Conduit size NW	Conduit size metric	Profile	Inside Diameter	Outside Diameter	stat.**/dyn.*** Radius	PU meter	MOQ (M)
订货号 黑色	软管规格 标称内径	软管尺寸 公制	波纹	内径	外径	静态/动态*** 最小弯曲半径	包装单位 米	最小起订量 黑色B
POST-29B	29	32	T	29.0 mm	34.5 mm	50 / 120 mm	50	—
POST-36B	36	40	T	36.5 mm	42.5 mm	60 / 180 mm	30	—
POST-48B	48	50	T	47.5 mm	54.5 mm	70 / 195 mm	30	—
POSG-70B	70	80	G	67.2 mm	79.6 mm	150 / 350 mm	30	—
# POSG-95B	95	106	G	91.3 mm	106.0 mm	170 / 450 mm	30	300

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.11040
要了解详细技术规格, 请索取“技术数据表” DB-Nr.11040

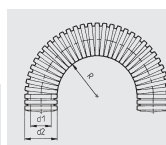
标记为 # 的产品有最小起订量 (MOQ)



Fine profile T/细波纹T
Tight bend radius
更小弯曲半径



Coarse profile G/粗波纹G
High pull-out strength
抗拉强度高



** stat. R = lowest recommended bending radius for stat ic (fixed) installation.
** stat. R = 静态(固定)安装最小弯曲半径
*** dyn. R = lowest recommended bending radius for dynamic (flexible) installation.
*** dyn. R = 动态安装最小弯曲半径

XR90G very flexible, medium-duty

For dynamically moving conduit systems in robotics and automation industry

XR90G 非常柔软, 中壁。

适用于机器人及自动化领域动态软管系统。

Order No. black 订货号 黑色	Conduit size NW 软管规格 标称内径	Conduit size metric 软管规格 公制	Profile 波纹	Inside Diameter 内径	Outside Diameter 外径	stat.**/dyn.*** Radius 静态/动态 最小弯曲半径	PU meter 包装单位 米
XR90G-29BR	29	32	G	29.1 mm	34.3 mm	45 / 110 mm	50
XR90G-36BR	36	40	G	36.8 mm	42.2 mm	60 / 165 mm	30
XR90G-48BR	48	50	G	47.3 mm	54.2 mm	70 / 200 mm	30
XR90G-56BR	56	68	G	56.3 mm	67.3 mm	110 / 270 mm	30
XR90G-70BR	70	80	G	67.4 mm	79.8 mm	150 / 350 mm	30

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.16080
要了解详细技术规格, 请索取“技术数据表”DB-Nr.16080

XR90-Index

min.	max.
ductility	柔软性
fatigue / reversed bending	抗弯性
pressure resistance	抗压性
cold temperature performance	抗冻性
weather resistance	耐候性



- **Material:** outer, intermediate and inner layer made from high-grade, specially formulated polyamide 12
- With wear indicator
- High resistance to continuous bending
- Excellent flexibility in combination with very good mechanical properties
- Improved chafing resistance
- High resistance to torsion and elongation
- Long service life
- Free from halogen and cadmium
- **Temperature range:** -40°C to +95°C; **Short-term** to +150°C
- **Chemical resistance:** To fuels, mineral oils, fats, alkalies, acids and bases etc.

- 材料: 外层, 中间夹层和内层: 高级特别配方聚酰胺12
- 磨损指示器
- 优异的交变弯曲性
- 柔软性极佳, 同时具有良好的机械强度
- 经改进的抗磨损性
- 良好的扭转及抗拉强度
- 使用寿命较长
- 不含卤素、镉
- 温度范围: -40°C 至 +95°C; 短期温度 +150°C
- 耐化学性: 防燃油、矿物油、脂肪、碱、酸等

XR90H Highly flexible, medium-duty

Multilayer conduit for the robotic and automation industry.

XR90H 极柔软, 中壁

多层软管适用于机器人和自动化领域。

Order No. black 订货号 黑色	Conduit size NW 软管规格 标称内径	Conduit size metric 软管规格 公制	Profile 波纹	Inside Diameter 内径	Outside Diameter 外径	stat.**/dyn.*** Radius 静态/动态 最小弯曲半径	PU meter 包装单位 米
XR90H-70BR	70	80	T	67.5 mm	82.5 mm	150 / 300 mm	30

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.16081
要了解详细技术规格, 请索取“技术数据表”DB-Nr.16081

XR90H-Index

min.	max.
ductility	柔软性
fatigue / reversed bending	抗弯性
pressure resistance	抗压性
cold temperature performance	抗冻性
weather resistance	耐候性



- **Material:** outer, intermediate and inner layer made from high-grade, specially formulated polyamide 12
- With wear indication function
- High resistance to continuous bending
- No abrupt conduit failure due to high tear propagation resistance
- Improved chafing resistance
- Highly flexible, small bending radii possible
- High resistance to torsion
- Long service life
- Free from halogen and cadmium
- **Temperature range:** -40°C to +95°C; **Short-term** to +150°C

- 材料: 外层, 中间夹层和内层: 高级特别配方聚酰胺12
- 带有磨损指示器功能
- 优异的交变弯曲性
- 由于抗撕裂的扩展, 以便于软管不会突然发生断裂,
- 经改良, 具有抗磨损性
- 高灵活性, 较小的弯曲半径
- 极好的扭转性能
- 使用寿命较长
- 不含卤素、镉
- 温度范围: -40°C 至 +95°C; 短期温度 +150°C



- **Material:** high grade, specially formulated polyamide 12
- Prevents electrostatic charging
- For indoor and outdoor use (very good cold temperature performance)
- Excellent UV-resistance and high dynamic load resistance
- Free from halogens and cadmium
- Very good chemical properties
- **Temperature range:** -40°C to +90°C; **Shot-term:** +150°C;
- **Chemical resistance:** To fuels, mineral oils, fats, alkalies, acids etc.
- 材料: 高级, 特殊配方聚酰胺12制成
- 防静电产生
- 用于室内和室外使用 (非常良好的低温性能)
- 优异的抗紫外线和高动态负载阻抗
- 不含卤素和镉
- 非常好的化学性能
- 温度范围: -40°C 至 +90°C; 短期温度: +150°C;
- 耐化学性: 防燃油, 矿物油, 脂肪, 碱, 酸等

ESD highly flexible, medium-duty

For dynamic applications in robotics and automation where electrostatic charge and uncontrolled discharge need to be avoided.

ESD 极柔软, 中壁

在机器人和自动化领域动态安装中需要防静电要求的场合。



Order No. black 订货号 黑色	Conduit size NW 软管规格 标称内径	Conduit size metric 软管规格 公制	Profile 波纹	Inside Diameter 内径	Outside Diameter 外径	stat.**/dyn.** Radius 静态/动态 最小弯曲半径	PU meter 包装单位 米	MOQ (M) 最小起订量 黑色B
ESDT-29B	29	32	T	29.0 mm	34.3 mm	55/110 mm	50	—
ESDT-36B	36	40	T	36.5 mm	42.5 mm	60/160 mm	30	—
ESDT-48B	48	50	T	47.5 mm	54.5 mm	70/200 mm	30	—
#ESDG-56B	56	68	G	56.5 mm	67.0 mm	110/250 mm	30	630
#ESDG-70B	70	80	G	67.5 mm	80.0 mm	150/330 mm	10	560
#ESDG-75B	75	—	G	76.0 mm	89.0 mm	155/350 mm	10	810
#ESDG-95B	95	106	G	91.5 mm	106.0 mm	170/440 mm	10	300

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.11501

要了解详细技术规格, 请索取“技术数据表” DB-Nr.11501

标记为 # 的产品有最小起订量 (MOQ)

SH tube clamp

The SH tube clamp in combination with GN half shells is used for fixation or guiding PMAFLEX conduits in automation applications. The massive construction allows to withstand high mechanical forces. Clamps allow pre-positioning of the conduits and a safety screw guarantees additional locking if required. The rounded and compact design avoids interference of the clamp with moving elements.

SH 管夹

SH管夹与GN瓦形件组合, 应用在机器人PMAFLEX保护软的敷设和固定。粗厚的结构用作球节大筒, 球节端件和滑动套节的支撑。管夹用作软管的初步固定, 安全螺钉可确保更高的稳固要求。合拢和紧凑的设计可避免带移动器件的管夹受干扰。

Order No. black 订货号 黑色	Fits with half-shell GN 适配 瓦形件	Fits to conduit size NW 适配软管 标称内径	Fits to conduit size metric 适配软管 公制	Conduit profile 软管 波纹	Dimensions Length/Height/Width 尺寸 长度/高度/宽度
BSH-R29	BGN-S29T	29	32	T	71.0/67.0/26.0 mm
BSH-R29	BGN-S29G/BGN-R29	29	32	G/T+G	71.0/67.0/26.0 mm
BSH-R36	BGN-S36T	36	40	T	81.5/77.5/26.0 mm
BSH-R36	BGN-S36G/BGN-R36	36	40	G/T+G	81.0/77.5/26.0 mm
BSH-R48	BGN-S48T	48	50	T	96.0/91.0/26.0 mm
BSH-R48	BGN-S48G/BGN-R48	48	50	G/T+G	96.0/91.0/26.0 mm
BSH-R56	BGN-S56G/BGN-R56	56	68	G	112.5/103.5/30.0 mm
BSH-R70	BGN-R70G/BGN-R70	70	80	G	149.0/144.0/40.0 mm

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.40500

要了解详细技术规格, 请索取“技术数据表” DB-Nr.40500

LH tube clamp compact

The LH tube clamp in combination with GN half shells is used for fixation of PMAFLEX conduits in automation applications. The 2-piece clamp is characterized by its compact, space-saving design. The massive construction allows to withstand high mechanical forces.

LH 紧凑型管夹

配合GN瓦形件的LH紧凑型管夹可应用于自动化应用中对PMAFLEX软管的固定。

Order No. black 订货号 黑色	Including half-shell GN 包括 瓦形件	Fits to Conduit size NW 适配软管尺寸 标称内径	metric 公制	Conduit Profile 软管 波纹	Dimensions Width x Length x Depth 尺寸 宽 x 长 x 深
BLH-R56G	BGN -S56G/70	56	68	G	121 x 30 x 128 mm
BLH-R70G	BGN -S70G	70	80	G	121 x 30 x 128 mm
BLH-R70	—	—	—	—	—

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.40501

要了解详细技术规格, 请索取“技术数据表” DB-Nr.40501



- **Material:** High-grade formulated polyamide
- **Temperature range:** -40°C to +105°C; **Shot-term:** +160°C
- Free of halogens and cadmium
- **Content of delivery:** Tube clamp, 1 PT screw, 1 Straight pin

- 材料: 高级合成聚酰胺制成
- 温度范围: -40°C 至 +105°C; 短期温度: +160°C;
- 不含卤素和镉
- 包含配件: 管夹, 1个PT型螺钉, 1个直形钉



- **Material:** High-grade, specially formulated polyamide 6
- 2-piece tube clamp
- Specially compact construction
- To be used in combination with standard half-shell GN, data sheet No.40050
- Easy installation
- Allows optimum installations in automation applications due to space saving design
- Extends lifecycle of the cable pack due to reduced mechanical stress (avoiding torsion)
- Free from halogens and cadmium
- **Temperature range:** -40°C to +105°C; **Shot-term:** +160°C;
- **Content of delivery:** Tube clamp, BGN half shells, 2PT screw, 1 Straight pin

- 材料: 高级, 特殊配方聚酰胺6制成
- 2件管夹
- 特别紧凑的结构
- 要使用标准的半壳GN组合, “技术数据表” No.40050
- 易于安装
- 允许缘于节省空间设计的自动化应用设备优化
- 由于减少机械应力 (避免扭) 延长电缆包的生命周期
- 不含卤素和镉
- 温度范围: -40°C 至 +105°C; 短期温度: +160°C;
- 包含配件: 管夹, BGN瓦形件, 2个PT型螺钉, 1个直形钉

GN slide half-shell

These inserts for SH tube clamps allow sliding of the conduit in the clamps and thus reduce axial stress on the conduit.

GN 滑动瓦形件

用于SH管夹的滑动瓦形件能让软管滑入管夹，从而降低软管的轴向应力。

Order No. black 订货号 黑色	Fits to 适配	Fits to conduit size NW 适配软管 标称内径	Fits to conduit size metric 适配软管 公制	Conduit profile 软管 波纹	Dimensions Outside/Width 尺寸 外径/宽度
BGN-R29	BSH-R29	29	32	T + G	47.0/ 34.0 mm
BGN-R36/48	BSH-R48	36	40	T + G	66.5/ 34.0 mm
BGN-R36	BSH-R36	36	40	T + G	55.0/ 36.0 mm
BGN-R48	BSH-R48	48	50	T + G	66.5/ 36.5 mm
BGN-R56	BSH-R56	56	68	G	81.0/ 38.0 mm
BGN-R56S/70	BSH-R70	56	68	G	105.0/ 45.0 mm
BGN-R70	BSH-R70	70	80	G	105.0/ 45.0 mm

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.40505

要了解详细技术规格，请索取“技术数据表”DB-Nr.40505



- **Material:** High-grade formulated polyamide
- **Temperature range:** -40°C to +105°C; **Shot-term:** +160°C
- Free of halogens and cadmium

- 材料：高级合成聚酰胺制成
- 温度范围：-40°C 至 +105°C；短期温度：+160°C；
- 不含卤素和镉

GN strain relief half-shell

These inserts for SH tube clamps fix the conduits against axial movements but still allow radial turning of the conduit within the clamps.

GN 消除应力瓦形件

用于SH管夹的这种瓦形件可防止轴向移动，但仍可使软管在管夹内选择运动。

Order No. black 订货号 黑色	Fits to Tube Clamp SH 适配 SH管夹	Fits to conduit size NW 适配软管 标称内径	Fits to conduit size metric 适配软管 公制	Conduit profile 软管 波纹	Dimensions Outside/Width 尺寸 外径/宽度
BGN-S29T	BSH-R29	29	32	T	47.0/ 34.0 mm
BGN-S29G	BSH-R29	29	32	G	47.0/ 34.0 mm
BGN-S36T	BSH-R36	36	40	T	55.0/ 34.0 mm
BGN-S36G	BSH-R36	36	40	G	55.0/ 34.0 mm
BGN-S48T	BSH-R48	48	50	T	66.5/ 36.5 mm
BGN-S48G	BSH-R48	48	50	G	66.5/ 36.5 mm
BGN-S56G	BSH-R56	56	68	G	81.0/ 38.0 mm
BGN-R70G	BSH-R70	70	80	G	105.0/ 45.0 mm

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.40505

要了解详细技术规格，请索取“技术数据表”DB-Nr.40505



- **Material:** High-grade formulated polyamide
- **Temperature range:** -40°C to +105°C; **Shot-term:** +160°C
- Free of halogens and cadmium

- 材料：高级合成聚酰胺制成
- 温度范围：-40°C 至 +105°C；短期温度：+160°C；
- 不含卤素和镉

GN strain relief half-shell reduction

The GN Strain Relief Half-Shell Reductions allow the application of PMA SH tube clamps and other automation accessories also for conduits of the next smaller dimension. Radial turning of the conduits within the reduction rings is possible.

GN 消除应力缩减瓦形件

这种瓦形件可用于PMA SH管夹和其它较小软管的自动化附件。软管的径向转动可在允许的范围之内。

Order No. black 订货号 黑色	Fits to tube clamp 适配 管夹	Fits to conduit size NW 适配软管 标称内径	Fits to conduit size metric 适配软管 公制	Conduit profile 软管 波纹	Dimensions Outside/Width 尺寸 外径/宽度
BGN-R36GT/48	BSH-R48	36	40	T + G	66.5/ 34.0 mm
BGN-S56G/70	BSH-R70	56	68	G	105.0/ 45.0 mm
BGN-R56G/70G	BTR-R70G BKE-R70G	56	68	G	80.0/ 35.0 mm

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.40505

要了解详细技术规格，请索取“技术数据表”DB-Nr.40505



- **Material:** High-grade formulated polyamide
- **Temperature range:** -40°C to +105°C; **Shot-term:** +160°C
- Free of halogens and cadmium

- 材料：高级合成聚酰胺制成
- 温度范围：-40°C 至 +105°C；短期温度：+160°C；
- 不含卤素和镉



- **Material:** High-grade formulated polyamide 6
- **Temperature range:** -40°C to +105°C; **Shot-term:** +160°C
- Free of halogens and cadmium
- **Content of delivery:** Ball Joint Sleeve, 4 PT screws

- 材料: 高级合成聚酰胺6制成
- 温度范围: -40°C 至 +105°C; 短期温度: +160°C;
- 不含卤素和镉
- 包含配件: 球节套筒, 4个PT型螺钉

TK ball joint sleeve

The TK ball joint sleeve combined with SH tube clamp can be used for gliding PMAFLEX conduits in automation applications. The ball joint offers additional flexibility and reduces mechanical stress on the conduit. The TR strain relief insert can be used to fix the conduit in the sleeve in axial direction.

TK 球节套筒

SH管夹配合TK球节套筒, 可以在机器人的应用中控制PMAFLEX系列电缆保护软管滑动和定位。此外, 球节套筒提供更高的柔软性和消除软管应力。TR消除应力插入件可用于来固定软管在套管内的轴向运动。

Order No. black 订货号 黑色	Fits to conduit size NW 适配软管 标称内径	Fits to conduit size metric 适配软管 公制	PT Screws PT型螺钉	Outside Diameter 外径	Dimensions Width 宽度
BTK-R70	70	80	KA 50x20	122.0 mm	140.0 mm

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.40510
要了解详细技术规格, 请索取“技术数据表”DB-Nr.40510



- **Material:** High-grade formulated polyamide 6
- **Temperature range:** -40°C to +105°C; **Shot-term:** +160°C
- Free of halogens and cadmium

- 材料: 高级合成聚酰胺6制成
- 温度范围: -40°C 至 +105°C; 短期温度: +160°C;
- 不含卤素和镉

TR strain relief insert

The TR strain relief insert can be used to fix the conduit against axial movements in TK ball joint sleeves. Rotation of the conduit remains possible.

TR 消除应力插入件

TR消除应力插入件可防止软管在TK球节套筒上的轴向运动, 但仍允许其径向旋转。

Order No. black 订货号 黑色	Fits to conduit size NW 适配软管 标称内径	Fits to conduit size metric 适配软管 公制	Conduit profile 软管 波纹	Outside Diameter 外径	Dimensions Length 长度
BTR-R70G	70	80	G	92.0 mm	25.0 mm

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.40510
要了解详细技术规格, 请索取“技术数据表”DB-Nr.40510



- **Material:** High-grade formulated polyamide 6
- **Temperature range:** -40°C to +105°C; **Shot-term:** +160°C
- Free of halogens and cadmium
- **Content of delivery:** Ball Joint Sleeve, 4 PT screws

- 材料: 高级合成聚酰胺6制成
- 温度范围: -40°C 至 +105°C; 短期温度: +160°C;
- 不含卤素和镉
- 包含配件: 球节套筒, 4个PT型螺钉

KE ball joint termination

The KE ball joint termination used in the BSH tube clamp offers highest flexibility at the end of the installation. Due to reduced mechanical stress it helps to additionally relief conduit and cables. A grommet can be inserted directly into this termination to hold and strain relief the cables.

KE 球节端件

安装在BSH管夹的球节端件, 在末端安装时提高灵活性。由于降低了机械压力来帮助减少对软管和电缆的应力。分线垫圈可被直接插入端口来控制并拉紧电缆, 减少应力。

Order No. black 订货号 黑色	Fits to conduit size NW 适配软管 标称内径	Fits to conduit size metric 适配软管 公制	PT Screws PT型螺钉	Outside Diameter 外径	Dimensions Width 宽度
BKE-R70G	70	80	KA 50 x 20	122.0 mm	128.0 mm

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.40515
要了解详细技术规格, 请索取“技术数据表”DB-Nr.40515



- **Material:** High-grade formulated polyamide 6
- **Temperature range:** -40°C to +105°C; **Shot-term:** +160°C
- Free of halogens and cadmium

- 材料: 高级合成聚酰胺6制成
- 温度范围: -40°C 至 +105°C; 短期温度: +160°C;
- 不含卤素和镉

FE gliding bush

The FE gliding bush can be fixed in the SH tube clamp and allows easy gliding of the conduit e.g. in combination with a specialised pull back system.

FE 滑动套筒

FE滑动套筒可固定在SH管夹上, 使软管易于滑动, 例如: 与某一特定回拉装置组合使用。

Order No. black 订货号 黑色	Fits to conduit size NW 适配软管 标称内径	Fits to conduit size metric 适配软管 公制	Outside Diameter 外径	Dimensions Width 宽度
BFE-R70	70	79	104.0 mm	93.5 mm

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.40520
要了解详细技术规格, 请索取“技术数据表”DB-Nr.40520

GS grommet half-shell

The GS half-shells for grommet assembly with strain relief are used as insert to the SH tube clamp to fix a loom of cables of special dimensions.

GS 垫圈式瓦形件

GS垫圈用消除应力瓦形件应用于SH管夹上，用以固定不同大小特殊规格的电缆。

Order No. black 订货号 黑色	Fits to conduit size NW 适配软管 标称内径	Fits to conduit size metric 适配软管 公制	Conduit profile 软管 波纹	Outside Diameter 外径	Dimensions Width 宽度
BGS-R70	70	80	G	105.0 mm	45.0 mm

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.40507
要了解详细技术规格，请索取“技术数据表”DB-Nr.40507



- Material: High-grade formulated polyamide
- Temperature range: -40°C to +105°C; Shot-term: +160°C
- Free of halogens and cadmium
- 材料: 高级合成聚酰胺制成
- 温度范围: -40°C 至 +105°C; 短期温度: +160°C;
- 不含卤素和镉

BKS grommets

The BKS grommets are manufactured from special polymeric materials used for arrangement and strain relief of hoses and leads in cable assemblies.

BKS 分线垫圈

消除应力分线垫圈，配合BGS垫圈式瓦形件，用于设置软管内电线电缆组装。

Order No. black 订货号 黑色	Fits to conduit size NW 适配软管 标称内径	Dimensions in mm			Weight kg/100pcs 重量 公斤/每100个
		B	Ød	ØD	
BKS-R70/00	70	35	17.5	81.5	13.8
BKS-R70/01	70	35	28.0	81.5	9.3
BKS-R70/02	70	35	13.2	81.5	10.7
BKS-R70/03	70	35	17.5	81.5	16.2
BKS-R70/04	70	30	17.5	81.5	10.2
BKS-R70/05	70	30	28.0	81.5	8.8

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.40507
要了解详细技术规格，请索取“技术数据表”DB-Nr.40507

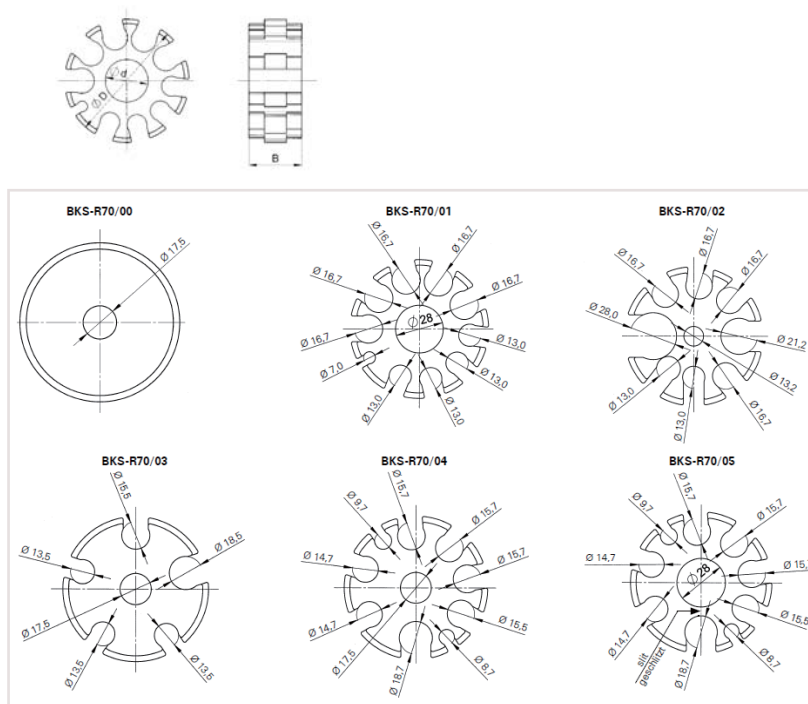


- Material: Special polymer
- Temperature range: -40°C to +105°C; Shot-term: +160°C
- Free of halogens and cadmium
- 材料: 特殊聚合物
- 温度范围: -40°C 至 +105°C; 短期温度: +160°C;
- 不含卤素和镉

BSH tube clamp
BSH 管夹

BGS grommet half-shell
BGS 垫圈式瓦形件

BKS grommet
BKS 垫圈





SS/SV abrasion protection sleeve

The SV and SS sleeves are made from specially modified polyamide. The material is self-extinguishing, free of halogens and cadmium and offers excellent chafing properties. The SV sleeve can also be used as connector and repair sleeve.

SS/SV 摩擦护套

SV/SS摩擦护套由特殊改良聚酰胺制造。该材料为自熄灭，不含卤素和镉，具有优异的耐磨性能。其中BSV型既可用作摩擦护套，又可用于连接护套或修理护套。

Order No. black 订货号 黑色	Fits to conduit size NW 适配软管 标称内径	Fits to conduit size metric 适配软管 公制	Conduit Profile 软管 波纹	Outside Diameter 外径	Dimensions Width 宽度
BSS-29	29	32	T + G	55.0 mm	26.0 mm
BSS-36	36	40	T + G	63.0 mm	30.0 mm
BSS-48	48	50	T + G	75.0 mm	30.0 mm
BSS-56G	56	68	G	90.0 mm	33.0 mm
BSV-70G	70	80	G	108.0 mm	60.0 mm

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.40225/40220
要了解详细技术规格，请索取“技术数据表” DB-Nr.40225/40220

- **Material:** High-grade formulated polyamide
- **Temperature range:** -40°C to +105°C; **Shot-term:** +160°C
- Free of halogens and cadmium
- **Content of delivery:** Abrasion protection sleeves with assembling screws
- 材料: 高级合成聚酰胺
- 温度范围: -40°C 至 +105°C; 短期温度: +160°C;
- 不含卤素和镉
- 包括配件: 配螺钉的防摩擦保护套



AS conduit support sleeve

These AS conduit support sleeves increase the maximum pull-out strength values significantly. Specially suitable for soft PMAFLEX conduit type PUE with PMAFLX connectors or PMACLIP system supports.

AS 软管支撑护套

这种AS型的护套可以在允许的范围内增加抗拉强度到最大值。特别适合PMAFLEX系列的PUE软管，PMAFIX系列管接头或PMACLIP系列的支撑夹。

Order No. black 订货号 黑色	Fits to conduit size NW 适配软管规格 标称内径	Fits to conduit size metric 适配软管 公制	Conduit Profile 软管 波纹	Inside/Outside Diameter 内径/外径	Dimensions Width 宽度
BAS-29T	29	32	T	25.5/30.0 mm	34.0 mm
BAS-36T	36	40	T	33.5/38.0 mm	47.0 mm
BAS-48T	48	50	T	44.0/50.0 mm	47.0 mm

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.40215
要了解详细技术规格，请索取“技术数据表” DB-Nr.40215

- **Material:** High-grade formulated polyamide
- **Temperature range:** -40°C to +105°C; **Shot-term:** +160°C
- Free of halogens and cadmium
- 材料: 高级合成聚酰胺
- 温度范围: -40°C 至 +105°C; 短期温度: +160°C;
- 不含卤素和镉



SGS tube clamps

These tube clamps used for mounting conduits are produced from galvanized steel according to DIN 3016. The elastomer which is free of halogen, offers additional protection to the PMAFLEX conduit.

SGS 管夹

用于软管安装的这种管夹，是用符合DIN3016要求的镀锌钢制造而成。不含卤素的弹性件，为PMAFLEX软管提供外加保护。

Order No. black 订货号 黑色	Fits to conduit size NW 适配软管 标称内径	Fits to conduit size metric 适配软管 公制	Dimensions Width 尺寸 宽度	Dimensions Height 尺寸 高度	Dimensions Thickness 尺寸 厚度	Fixing screw 适配 螺钉
SGS-36	36	40	80.0 mm	48.0 mm	19.0 mm	2 x M6
SGS-48	48	50	94.0 mm	58.0 mm	19.0 mm	2 x M6
SGS-56	56	68	118.0 mm	72.0 mm	24.0 mm	2 x M8
SGS-70	70	80	130.0 mm	85.0 mm	24.0 mm	2 x M8

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.60021
要了解详细技术规格，请索取“技术数据表” DB-Nr.60021

- **Material:** Galvanized steel
- Elastomer profile (EPDM), free from halogens
- Smooth connection to PMAFLEX corrugated conduits
- Good ozone and ageing resistance
- **Temperature range:** -40°C to +120°C;
- 材料: 钢制镀锌
- 人造橡胶剖面 (EPDM), 不含卤素
- 平滑固定PMAFLEX软管
- 良好的臭氧和耐老化性能
- 温度范围: -40°C 至 +120°C

ES internal conduit support sleeve

Reduces the end deformation of soft conduit types thus increasing the pull out retention forces of the conduits. Specially suitable for SH Tube Clamps and GN Strain Relief Half-Shell.

ES 套管内套支撑

减少软管末端的变形以增强其抗拉强度。特别适配于SH管夹和GN消除应力瓦形件。

Order No. black 订货号 黑色	Fits to conduit size NW 适配软管 标称内径	Fits to conduit size metric 适配软管 公制	Conduit Profile 软管 波纹	Inside/Outside Diameter 内径/外径	Dimensions Width 宽度
BES-48G	48	50	G	43.5/51.0 mm	18.0 mm
BES-70G	70	80	G	63.0/80.0 mm	23.0 mm

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.40210
要了解详细技术规格, 请索取“技术数据表”DB-Nr.40210



- **Material:** High-grade formulated polyamide
- **Temperature range:** -40°C to +105°C; **Shot-term:** +160°C
- Free of halogens and cadmium

- 材料: 高级合成聚酰胺
- 温度范围: -40°C 至 +105°C; 短期温度: +160°C;
- 不含卤素和镉

DKLK swivel base

In automation and robotic applications.

DKLK 带有运转器设计的旋转底座

应用于自动化和机器人方面。

Order No. black 订货号 黑色	Fits to 适配	Dimensions Length 长度	Dimensions Width 宽度	Dimensions Height 高度	Fits to screws 适配螺钉 尺寸
DKLK-R56X56	BSH-R29/BSH-R36/BSH-R48	56 mm	56 mm	21.5 mm	M 8
DKLK-R100X80	BSH-R56/BSH-R70	100 mm	80 mm	20.0 mm	M10
DKLK-R100X80/01	BSH-R29/BSH-R36/BSH-R48	100 mm	80 mm	23.0 mm	M 8

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.40503
要了解详细技术规格, 请索取“技术数据表”DB-Nr.40503



- **Material:** black anodized aluminium
- robust construction
- sealed high quality bearing with minimal play
- allows rotation of cable pack supports
- suitable for high mechanical forces in all assembly positions
- BSH tube clamp easy to install on the bearing with central screw
- Cylinder pin prevents twisting of the clamp on the bearing
- **Temperature range:** -50°C to +105°C
- **Content of delivery:**
Swivel Base with transition piece, 1 allen screw
- 材料: 黑色阳极化铝
- 结构紧凑
- 以最小的活动轴承高质量密封
- 允许电缆组件旋转
- 适用于在所有装配位置中相对较高的机械力
- 易于安装在中央螺杆轴承上的BSH型系列管夹
- 圆柱销防止轴承的扭曲
- 温度范围: -50°C 至 +105°C
- 包含配件:
带有运转器设计的旋转底座, 1个螺丝钉



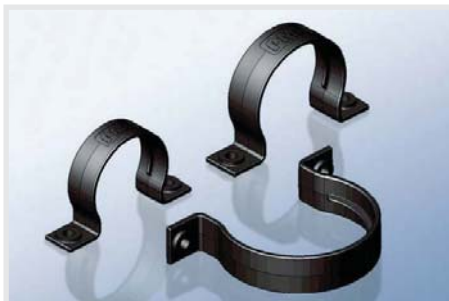
- **Material:** high-grade formulated polyamide
- **Temperature range:** -40°C to +105°C;
- Free from halogens and cadmium
- **Content of delivery:** Flange part with clamps for fixation and flat flange seal, conduit seal ring(optional mounting for IP65)

- 材料: 高级合成聚酰胺
- 温度范围: -40°C 至 +105°C;
- 不含卤素和镉
- 包装配件: 带管夹的法兰, 扁平法兰密封圈, 软管密封环 (选择性安装 IP65)



- **Material:** high-grade, specially formulated polyamide 6
- Flange seal FG04 made from EPDM
- Flange seal FG04/01 made from NBR, on request
- Very high impact resistance
- Vibration-proof connection to PMAFLEX conduits
- High conduit pull-out strength
- Ingress protection:IP50(IP65 with conduit seal ring)
- Very good chemical properties, Free from halogens and cadmium
- **Temperature range:** -40°C to +105°C;
- **Content of delivery:** Flange part, fixation clamps(incl.2 screws),flange seal (FG04 or FG04/01),conduit seal ring (SG03,optional for IP65)

- 材料: 高级, 特殊配方聚酰胺6制成
- 法兰密封圈FG04由EPDM制成
- 法兰密封圈FG04/01由NBR制成, 按需提供
- 非常高的抗冲击强度
- 配合PMAFLEX软管使用具有很好的防振作用
- 高强度的抗拉能力
- 防护等级: IP50 (使用软管密封圈达到IP65)
- 非常良好的化学性能, 不含卤素和镉
- 温度范围: -40°C 至 +105°C;
- 包装配件: 法兰主体, 固定夹 (包含螺丝), 法兰密封圈 (FG04 或 FG04/01), 软管密封圈 (选配SG03,可达IP65)



- **Material:** High-grade formulated polyamide
- **Temperature range:** -40°C to +105°C; Short-term: +160°C
- Free from halogens and cadmium

- 材料: 高级合成聚酰胺
- 温度范围: -40°C 至 +105°C; 短期温度: +160°C;
- 不含卤素和镉

GG flange straight

The simple mounting with locking clips guarantees a vibration free connection to PMAFLEX conduits. The locking clips also provide high pull-out force value in combination with ES internal conduit sleeve supports. With the optional conduit seal ring, an ingress protection rating of up to IP65 can be achieved.

GG 直型法兰

带缩紧装置的卡子能保证了PMAFLEX软管的无振动连接。此外, 在与ES软管内套支撑连用时, 还能提高抗拉强度。配合选配的密封圈, 防护等级可达IP65。

Order No. IP50,black 订货号 黑色	Order No. IP50,grey 订货号 灰色	Fits to conduit size NW 适配软管尺寸 标称内径	metric 公制	Dimensions Width 尺寸 宽	Dimensions Height 尺寸 高	Dimensions Diameter 尺寸 直径
BGG-56	SGG-56	56	68	82.0 mm	42.0 mm	97.0 mm
BGG-70	SGG-70	70	80	97.0 mm	48.0 mm	114.0 mm

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.37000
要了解详细技术规格, 请索取“技术数据表” DB-Nr.37000

GO flange, 90° elbow

For cable protection systems in a wide range of applications.

GO 90° 度法兰弯头

在电缆保护系统中被广泛地应用。

Order No. black 订货号 黑色	Fits to conduit size NW 适配软管 标称内径	Fits to conduit size metric 适配软管 公制	Dimensions Width 尺寸 宽度	Dimensions Height 尺寸 高度	Dimensions Length 尺寸 长度
BGO-56	56	66	82.0 mm	101.0 mm	122.0 mm
BGO-70	70	80	97.0 mm	115.0 mm	142.0 mm

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.37010
要了解详细技术规格, 请索取“技术数据表” DB-Nr.37010

GH tube clamps

These tube clamps are used for the mounting of PMA conduits with large nominal widths. The integrated rib allows an optimal strain relief and thus avoids the movement of the conduit in axial direction. Due to the rib the clamp can also be pre-mounted on the conduit. This allows easy handling during installation.

GH 管夹

这种管夹通常用在大口径PMA软管的安装上, 结合理想的消除应力设计, 避免软管轴向运动, 管夹可以预安装在软管上, 使安装工作简单化。

Order No. black 订货号 黑色	Fits to conduit size NW 适配软管尺寸 标称内径	metric 公制	Dimensions Width 尺寸 宽度	Dimensions Height 尺寸 高度	Dimensions Thickness 尺寸 厚度	Fixing screw 适配 螺钉
BGH-23	23	25	58.0 mm	31.5 mm	16.0 mm	2 x M5
BGH-29	29	32	70.0 mm	37.5 mm	19.0 mm	2 x M6
BGH-36	36	40	80.0 mm	46.0 mm	24.0 mm	2 x M6
BGH-48	48	50	94.0 mm	58.5 mm	24.0 mm	2 x M6
BGH-56	56	68	118.0 mm	72.0 mm	26.0 mm	2 x M8
BGH-70	70	80	130.0 mm	85.0 mm	30.0 mm	2 x M8

For technical specification in details, please ask for "Technical Data Sheet" DB-Nr.60025
要了解详细技术规格, 请索取“技术数据表” DB-Nr.60025

Tube Clamp and Half-Shell / 管夹和瓦形件

	Tube Clamp 管夹	Slide Support 滑动支承		Fixation 固定	Swivel Base 旋转底座
	SH	GN	FE	GN	DKLK
					
Conduit Size 软管规格NW		Slide Half-Shell 滑动瓦形件	Gliding Bush 滑动套筒	Strain Relief Half-Shell 消除应力瓦形件	Swivel Base with Transition piece 带运转器设计的旋转底座
29	BSH-R29	BGN-R29	-	BGN-S29*	DKLK-R56X56
36	BSH-R36	BGN-R36	-	BGN-S36*	DKLK-R56X56
48	BSH-R48	BGN-R48	-	BGN-S48*	DKLK-R56X56
56	BSH-R56	BGN-R56	-	BGN-S56*	DKLK-R100X80
70	BSH-R70	BGN-R70	BFE-R70	BGN-R70G	DKLK-R100X80
					
		SH + GN	SH + FE	SH + GN	SH + DKLK

Tube Clamp and Ball Joint Sleeve / 管夹和球节套筒

	SH	TK	TK+TR+(GN)	DKLK
				
Conduit Size 软管规格	Tube Clamp 管夹	Slide Half-Shell 球节套筒	Strain Relief Insert 消除应力插入件	Swivel Base with Transition piece 带运转器设计的旋转底座
56	BSH-R70	BTK-R70	BTK-R70 + BTR-R70G + BGN-R56G/70G	DKLK-R100X80
70	BSH-R70	BTK-R70	BTK-R70 + BTR-R70G	DKLK-R100X80
				
		SH + TK	SH + TK+TR+(GN)	SH + DKLK

Tube Clamp and Ball Joint Termination / 管夹和球节端件

	SH	KE+(GN)	DKLK
			
Conduit Size 软管规格	Tube Clamp 管夹	Ball Joint Termination 球节端件	Swivel Base with Transition piece 带运转器设计的旋转底座
56	BSH-R70	BKE-R70G + BGN-R56G/70G	DKLK-R100X80
70	BSH-R70	BKE-R70G	DKLK-R100X80
			
		SH + KE+(GN)	SH + DKLK

* =选配 “T” 适用细波纹软管或 “G” 适用粗波纹软管