



CRESA
BREVETTATO - PATENTED

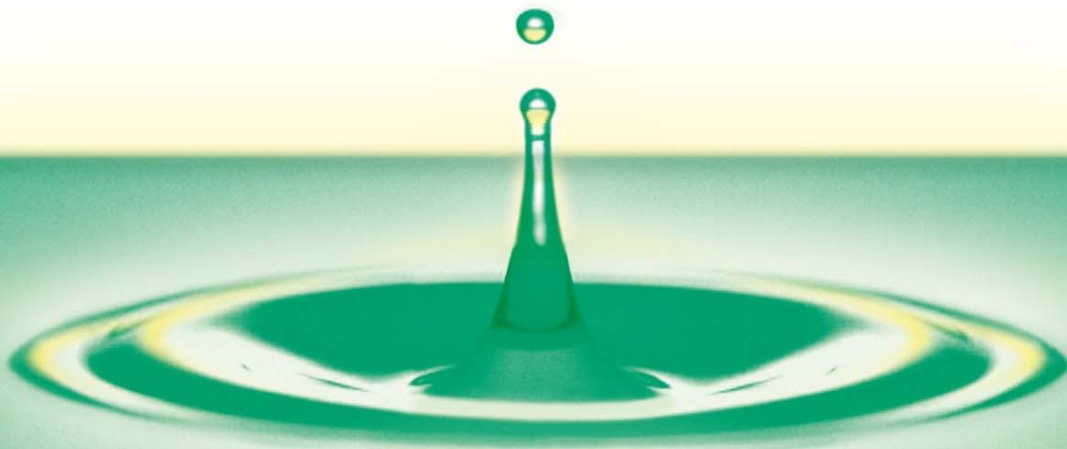
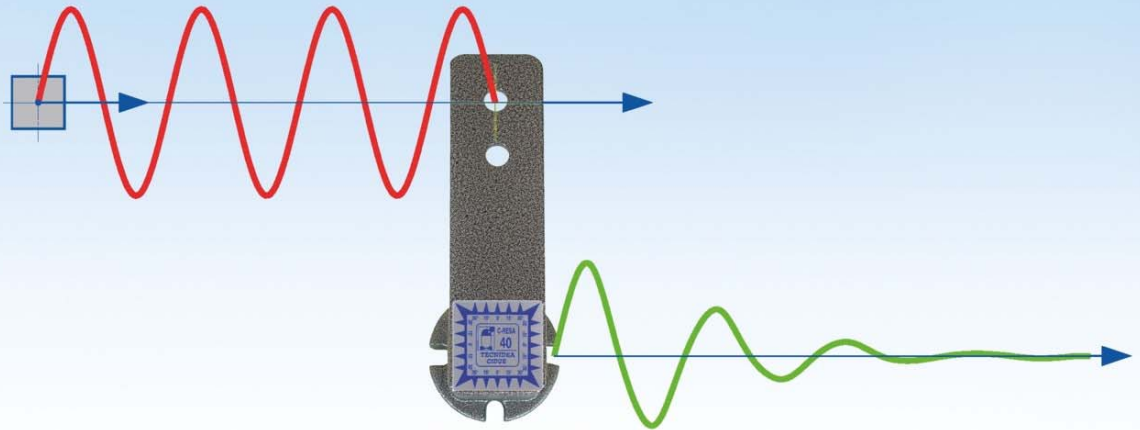


TECNIDEA CIDUE
泰尼达 S.r.l.

C 07



CRESA



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扭转式弹性组件, “张紧装置组件”: Tecnidea Cidue 的弹性组件是使用橡胶弹性的机械组件, 在不同应用范围内使用, 具有“弹簧”、“减震器”、“减速器”和“振动支撑”的功能。CRESA 组件结构简单, 使用方便, 具极高的弹性和对碰撞、敲击、振动和摆动的优良吸收功能。设计者可以这些产品取代陈旧的抗震、振动、减震和悬挂装置, 避免昂贵的耽误时间, 另外减低维修费用。不同的应用方式均使用同样的功能原理: 位于由两个扭转角度为 45° 的方形部件的联接所构成的空间中的四个天然橡胶制圆柱的弹性变形性。橡胶圆柱使用天然橡胶, 在其中加入专用添加剂并经过特殊的化学处理和热处理使其适合这些应用。两个方形部件的可允许的最大扭转角度为 $\pm 30^\circ$, 此角度与振动频率成反比。由于预应力橡胶的摩擦防止向两个方向中其中一个方向移出, 两个方形部件无需使用轴式约束系统。为此, 其特殊的构造方式组成一项完整的弹性系统, 以最小的占地提供极大的可信度, 永远消除噪音 (由于在它们之间没有金属部分的接触) 和污染 (由于不使用润滑剂并且磨损极低) 的问题, 同时显著减低运转过程的费用。

CRESA 产品是扭转式运转的弹性组件。这些产品是扭转弹簧, 可应用于众多的方面, 最广泛的应用方面为: 链条和皮带张紧装置、输送带刮料器弹性支撑、压力组件和缓动装置。使用天然橡胶的扭转弹簧具有对震动极高的吸收力, 由于在受到外界的刺激, 比如说振荡, 可通过在橡胶分子在移动中产生的摩擦而吸收动能, 将其转变成热量而排放到外界。CRESA 组件用于链条传输或皮带传输, 不仅长期保持活动部件的拉紧而且可以削减在运动机制中所产生的振动, 保证更常规的效能并延长机器其他部件的寿命。在本产品目录中所展示的所有弹性组件在 -40°C 至 $+80^\circ\text{C}$ 的环境温度使用。由于所使用的材料本性和处理方式, 以及其抗污垢性、抗水性和抗日光性, 这些产品组件均可在极端的外界环境中使用。Tecnidea Cidue 拥有世界上最广泛的张紧装置系列因此可为各种应用提供理想的解决方式。与腐蚀剂接触的应用中, 我们向您推荐我们的 NIC 产品, 这些产品表面经过镀镍处理。如客户要求, 我们可提供经过表面镀锌处理的弹性组件。为了在室外、与潮湿剂接触或在食品或医药领域的应用, 我们推荐您使用完全用塑性材料制造的 CIAO 产品。为了在直至 300°C 的条件下或低空间的条件下使用, 推荐使用 ARCO 系列产品。

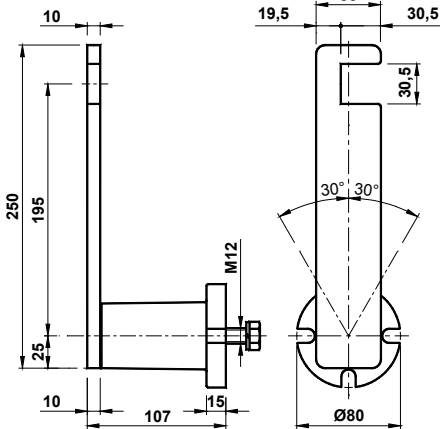
ELASTIC ROTATING ELEMENTS, “TIGHTENERS ELEMENTS”: *The elastic elements produced by TECNIDEA CIDUE S.r.l. are mechanical parts which exploit the elastic characteristics of rubber for use in various applications such as: springs, shock absorbers, decelerators and oscillating supports. CRESA components, with their simple structure and use, are distinguished for their high elasticity and ability to absorb impacts, blows, vibrations and oscillations. With these products, designers can replace obsolete vibration-damping, oscillating, shock absorbing and suspension systems, avoiding expensive wastes of time and also reducing maintenance costs. The various applications all exploit the same operating principle: the elastic deformation of four cylinders made of natural rubber, lodged inside the cavities that result when two elements with square section are turned at an angle of 45° one to the other. The rubber cylinders have a base of natural rubber, suited for use in these applications by inserting particular additives and carrying out special chemical and heat treatments. The maximum admissible angle of torsion between the two square sections is $\pm 30^\circ$ and is inversely proportional to the oscillation frequency. It is not necessary to use axial containment systems for the two square-section elements, since the friction of the prestressed rubber prevents them coming out in either of the two directions. The particular constructive system therefore forms a highly reliable, integral elastic system with minimum bulk, which permanently eliminates problems such as noise (there are no metal parts in contact with one another) and pollution (there are no lubricants and wear is insignificant), with a notable reduction or running costs.*

CRESA articles are elastic elements that work by rotation. These products are torsion springs which may be used for a great many applications, the most common of which are: chain or belt tighteners, elastic supports for belt scrapers, pressure elements, decelerators. The natural rubber used as a torsion spring has a high capacity of absorbing oscillations because, when it is stressed by external sources, such as vibrations, it absorbs the kinetic energy by means of the friction which is formed between the moving rubber molecules and transforms it into heat which is dispersed in the environment. CRESA elements are used in chain or belt transmissions, not only to keep the flexible element taut over time, but also to absorb the vibrations that are created in the kinematic mechanisms, ensuring a more regular operation and thus increasing the working life even of other components of the machine. All the elastic elements in this catalogue can work in a temperature range varying from -40°C to $+80^\circ\text{C}$ and under any external environmental condition since, thanks to the nature of the materials used and the treatments to which they are subjected, they are insensitive to dirt and are very resistant to water and to the rays of the sun. Tecnidea can boast the widest range of tighteners in the world, so the ideal solution can be supplied for every application. For applications in contact with corrosive agents we recommend our NIC products, on which the surface is covered with a nickel-plating treatment. On request we can supply elastic elements covered with a galvanising treatment. For outdoor applications, in contact with humid agents, or in the food or pharmaceutical sectors, we recommend our CIAO products made entirely of plastic. For applications with temperatures up to 300°C or with small bulk, we recommend our ARCO products.


刮料器用弹性组件 / ELASTIC ELEMENTS FOR SCRAPERS

张紧装置组件 – 型号: RER 40 具焊接手柄 / 型号: REMER 40 具带槽手柄

Tighteners elements – Type: RER 40 with welded lever / Type: REMER 40 with slotted lever




RER 40 DX (编号 N° RE010850)

 RER 40 具焊接在轴上的手柄。

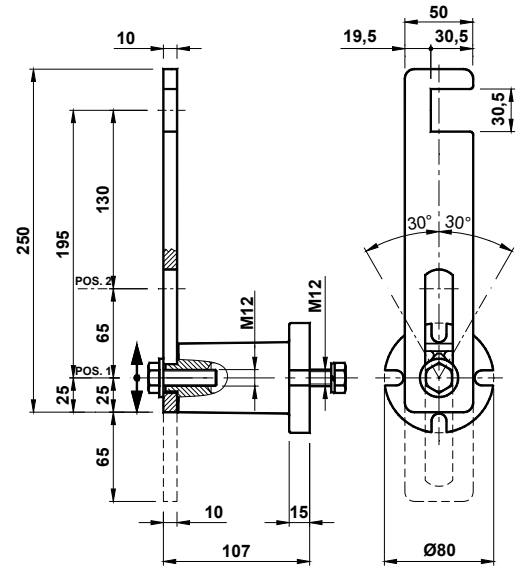
REMER 40 具带槽手柄，可允许对轴进行调整，因此可调节清洁器的力量。

扭转角度 $\pm 30^\circ$ 。工作温度从 -40°C 到 $+80^\circ\text{C}$ 。

根据不同需要和数量的要求，可提供不同尺寸和形状的这类产品。

 RER 40 has the lever welded to the pin.

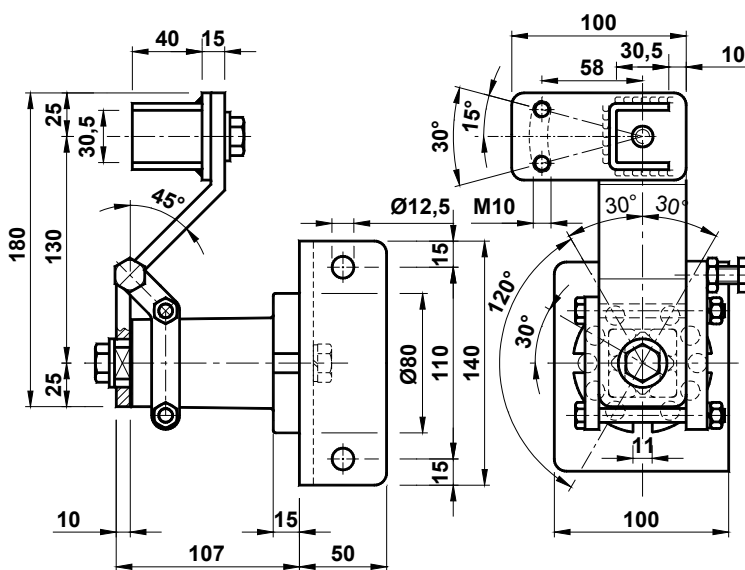
REMER 40 has the lever with a slot which allows axial regulation and therefore an adjustable force of the cleaning device. Rotation angle $\pm 30^\circ$. Operating temperature from -40°C to $+80^\circ\text{C}$. On request, these products are also supplied with different dimensions and shapes, according to necessities and quantities.




REMER 40 (编号 N° RE010860)

张紧装置组件– 型号: RERU 40 具轴调整

Tighteners elements – Type: RERU 40 with radial regulation



RERU 40 (编号 N° RE010870)


 这个弹性组件允许对清洁刮料器倾角进行调整（总共 30° ），并可调整底座组件的安装角度（已定为总共 120° / 之间有 30° 的 5 个位置）。

具轴调整的弹性组件 RERU 40 已配有 PR 40 预加负荷系统，此系统可应用于简化安装操作并将手柄在事先确定的高度固定。

扭转角度 $\pm 30^\circ$ 。

工作温度从 -40°C 到 $+80^\circ\text{C}$ 。

根据不同需要和数量的要求，可提供不同尺寸和形状的这类产品。

 This elastic element allows both regulation of the angle of incidence of the cleaning scraper (total 30°) and of the fitting angle of the base element (already equipped for total 120° / 5 positions with angles of 30° one from the other).

The elastic element RERU 40 with radial regulation is already equipped with a PR 40 preloading system which may be used both to facilitate assembly operations and to block the lever at a predetermined height.

Rotation angle $\pm 30^\circ$.

Operating temperature from -40°C to $+80^\circ\text{C}$.

On request, these products are also supplied with different dimensions and shapes, according to necessities and quantities.



产品展示 / PRODUCT RANGE

<p>1</p>  <p>RER / REMER 第 3 页</p>	<p>2</p>  <p>RERU 40 第 3 页</p>	<p>3</p>  <p>RE / REP 第 6 页</p>	<p>4</p>  <p>FE / FEP 第 7 页</p>
<p>5</p>  <p>BE / BEP 第 8 页</p>	<p>6</p>  <p>ME / MEP 第 9 页</p>	<p>7</p>  <p>CET / CETP 第 10 页 CEP / CEPP 第 10 页</p>	<p>8</p>  <p>CEA/CEAP 第 11 页 CEB/CEBP 第 11 页</p>
<p>9</p>  <p>FM 第 12 页</p>	<p>10</p>  <p>FPI 第 12 页</p>	<p>11</p>  <p>SU 第 13 页</p>	<p>12</p>  <p>ST 第 13 页</p>
<p>13</p>  <p>SB 第 13 页</p>	<p>14</p>  <p>V 第 14 页</p>	<p>15</p>  <p>PR 第 14 页</p>	<p>16</p>  <p>VR 第 25 页</p>
<p>17</p>  <p>OVR 第 25 页</p>	<p>18</p>  <p>RO 第 26 页</p>	<p>19</p>  <p>ZN/ZI 第 27 页</p>	<p>20</p>  <p>ZK 第 28 页</p>
<p>21</p>  <p>RP 第 29 页</p>	<p>22</p>  <p>RU 第 29 页</p>	<p>23</p>  <p>SP 第 29 页</p>	<p>24</p>  <p>REG 第 30 页</p>

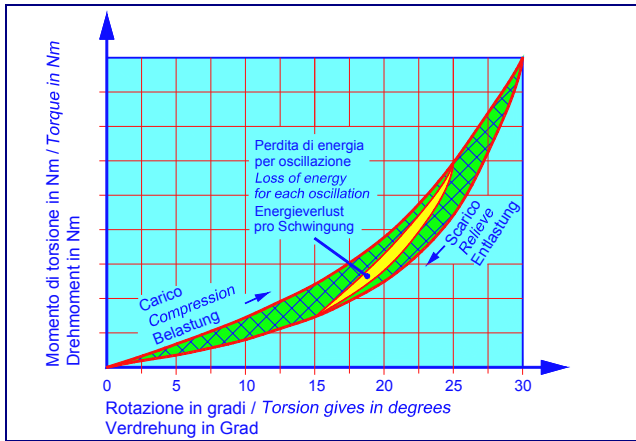
参见 vib 表面处理：涂漆 / SUPERFICIAL TREATMENT: PAINTING



CRESA 产品标准颜色是在图位□显示的“阿拉伯式”。若有需要，我们可提供 RAL 系列的所有颜色 / The standard colour of the CRESA products is that one at the position □ "Arabesqued". Upon request we can supply all the colours of the RAL range.



技术: 图表 / **TECHNOLOGY: GRAPHICS**

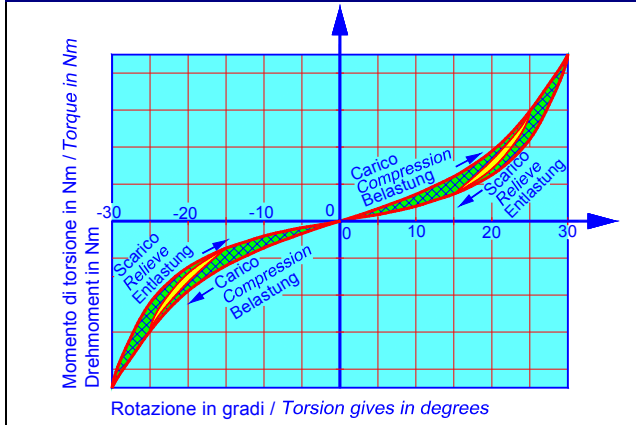


减震系数

由于取决于温度或加速等因素，减震等级不是定值。在负荷曲线和松放曲线之间的面积代表因振动而释放的能量。

SHOCK ABSORBING FACTOR

The shock absorption value is not constant as it depends on factors such as temperature and acceleration. The area between the loading curve and the release curve represents the loss of energy by oscillation.

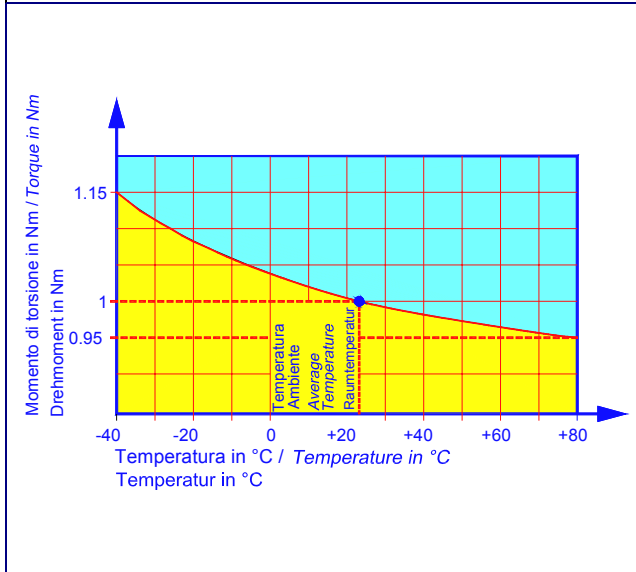


弹性特征

振动组件的特殊设计使得在负荷和松放阶段具有渐进的弹力（由左图所示）。扭矩与橡胶的长度成比例。

ELASTICITY

The special construction of the oscillating element offers progressive elasticity (as can be seen in the graph at the side) both in the loading and releasing phase. The torque is proportional to the length of the rubber.

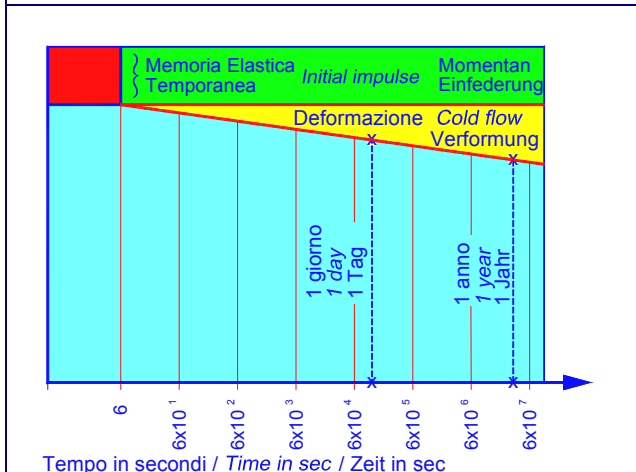


工作温度

用于我们产品的橡胶是为预定在-40°C 至+80°C 之间波动的温度范围内的应用而生产的。如果超过 80°C，丧失机械耐性，其结果是减震比例在低温条件下升高，在其他温度减低。另外，应考虑到实际工作温度不是外围环境的温度，因为橡胶和金属材料之间的摩擦可造成进一步的温度升高。

OPERATING TEMPERATURE

The rubber used in our products has been designed to operate in a -40°C +80°C temperature range if the temperature exceeds 80°C, mechanical resistance is reduced and the percentage shock absorption consequently increases at low temperatures and drops at high temperatures. It should also be remembered that the real operating temperature is not the temperature of the surrounding environment as the friction produced between the rubber and the metal causes a further rise in temperature.

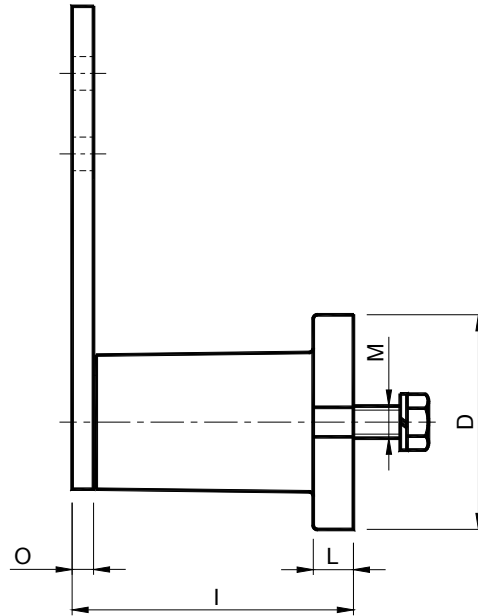
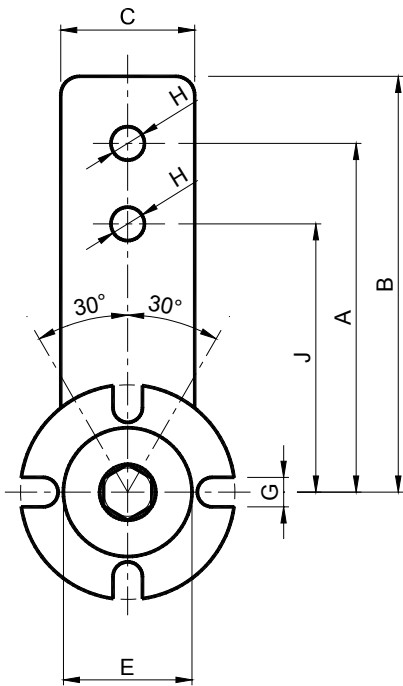



橡胶的长期变形


左图表示 VIB 产品中所使用的橡胶在长期使用过程中的变形。操作范围为 ±30° 扭转角度，变形负荷在专门的列表中显示。由此图可见在一天中的变形比一整年工作变形的一半稍多。与静止位置相比，用于我们产品中的橡胶的不回返角度在 3° 至 5° 范围内。

LONG-TERM DEFORMATION OF THE RUBBER

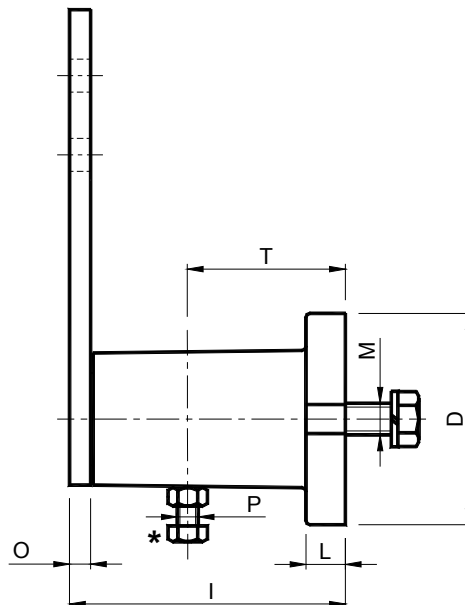
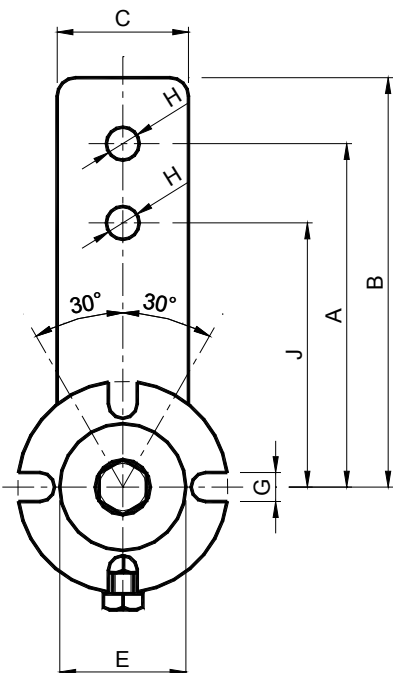
The graph at the side shows the long-term deformation of the rubber used in the CRESA elements. The operating range varies by ±30° rotation and deforming load is as shown in the specific technical tables. As can be seen one day's deformation of an entire year of operation. The non-return memory of the rubber used in our products ranges 3° to 5° with respect to the rest position.


张紧装置组件- 型号: RE / Tighteners elements – Type: RE


 扭转角度 $\pm 30^\circ$
 工作温度从 -40°C 至 $+80^\circ\text{C}$


 *Rotation angle $\pm 30^\circ$*
Operating temperature from -40°C to $+80^\circ\text{C}$

型号 Type	编号 N°	A	B	C	Ø D	Ø E	G	Ø H	I	J	L	M	O	P	T	Newton 0°-30° 臂 A Arm A	Newton 0°-30° 臂 J Arm J	重量 Weight in Kg	型号 Type	编号 N°
RE 10	RE010010	80	90	25	40	20	7	8.5	50	60	6	M 6	5	M 4	25	0÷ 85	0÷ 113	0.28	REP 10	RE010080
RE 20	RE010020	100	112.5	30	50	30	9	10.5	62	80	8	M 8	5	M 6	35	0÷ 136	0÷ 170	0.48	REP 20	RE010090
RE 30	RE010030	100	115	35	60	35	9	10.5	76	80	10	M 10	6	M 6	40	0÷ 340	0÷ 425	0.73	REP 30	RE010100
RE 40	RE010040	130	155	50	80	48	11	12.5	105	100	15	M 12	8	M 8	60	0÷ 790	0÷1027	2.00	REP 40	RE010110
RE 50	RE010050	175	205	65	100	62	13	20.5	136	140	15	M 16	10	M 8	80	0÷1600	0÷2000	4.20	REP 50	RE010120
RE 60	RE010060	225	260	80	120	80	13	20.5	196	180	18	M 20	12	M 10	115	0÷2550	0÷3190	7.00	REP 60	RE010130
RE 70	RE010070	250	290	90	130	78	17	20.5	210	200	20	M 24	20	M 12	115	0÷3950	0÷4950	9.60	REP 70	RE010140

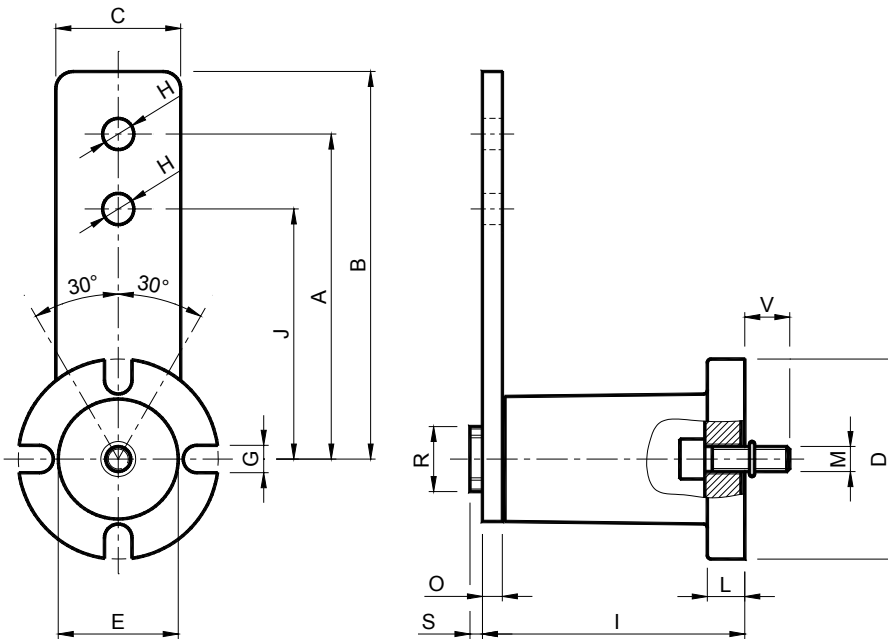
**配预加负荷用螺钉(*)的张紧装置组件- 型号: REP /
 Tighteners elements with preloading screw (*) – Type REP**


 扭转角度 $\pm 30^\circ$
 工作温度从 -40°C 至 $+80^\circ\text{C}$

为了便利安装、拆除和调整的操作，配有预加负荷系统 (*)

 *Rotation angle $\pm 30^\circ$*
Operating temperature from -40°C to $+80^\circ\text{C}$
Equipped with preloading system () in order to facilitate the mounting, dismounting and regulation operations.*

前端安装的张紧装置组件 – 型号: FE / Tighteners elements with front mounting – Type: FE



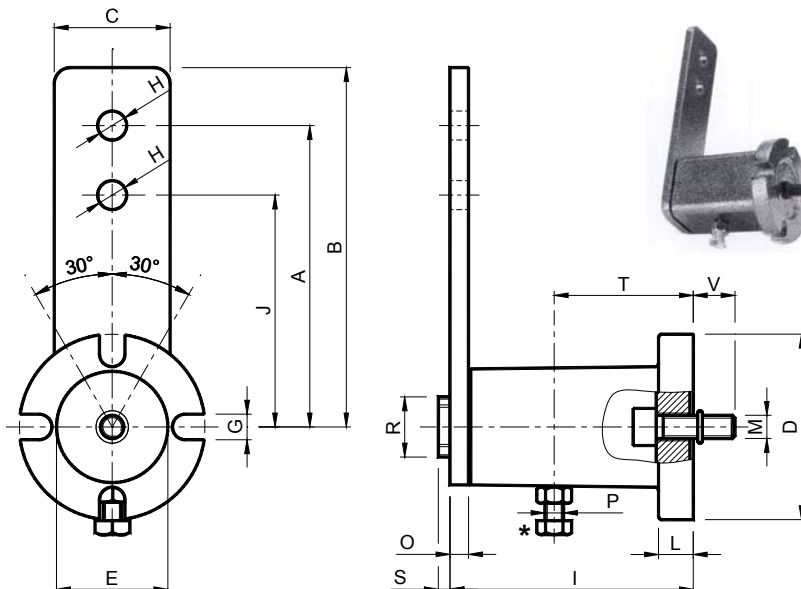
扭转角度 $\pm 30^\circ$
 工作温度从 -40°C 至 $+80^\circ\text{C}$
 使用内部螺钉 M 的前端安装。

Rotation angle $\pm 30^\circ$
 Operating temperature from -40°C to $+80^\circ\text{C}$
 Frontal mounting with interior M screw.

型号 Type	编号 N°	A	B	C	Ø D	Ø E	G	Ø H	I	J	L	M	O	P	Ø R	S	T	V	Newton 0°-30° 臂 A Arm A	Newton 0°-30° 臂 J Arm J	重量 Weight in Kg	型号 Type	编号 N°
FE 10	RE010150	80	90	25	40	20	7	8.5	50	60	6	M 5	5	M 4	14	3.5	25	10	0÷ 85	0÷ 113	0.25	FEP 10	RE010220
FE 20	RE010160	100	112.5	30	50	30	9	10.5	62	80	8	M 6	5	M 6	20	5	35	14	0÷ 136	0÷ 170	0.45	FEP 20	RE010230
FE 30	RE010170	100	115	35	60	35	9	10.5	76	80	10	M 8	6	M 6	20	5	40	19	0÷ 340	0÷ 425	0.69	FEP 30	RE010240
FE 40	RE010180	130	155	50	80	48	11	12.5	105	100	15	M 10	8	M 8	26	5	60	18	0÷ 790	0÷1027	1.90	FEP 40	RE010250
FE 50	RE010190	175	205	65	100	62	13	20.5	136	140	15	M 12	10	M 8	35	6	80	20	0÷1600	0÷2000	3.90	FEP 50	RE010260
FE 60	RE010200	225	260	80	120	80	13	20.5	196	180	18	M 16	12	M10	40	6	115	36	0÷2550	0÷3190	6.90	FEP 60	RE010270
FE 70	RE010210	250	290	90	130	78	17	20.5	210	200	20	M 20	20	M12	40	6	115	25	0÷3950	0÷4950	9.50	FEP 70	RE010280

配预加负荷用螺钉(*)用于前端安装的张紧装置组件– 型号: FEP /

Tighteners elements with front mounting and screw for preloading (*) – Type: FEP

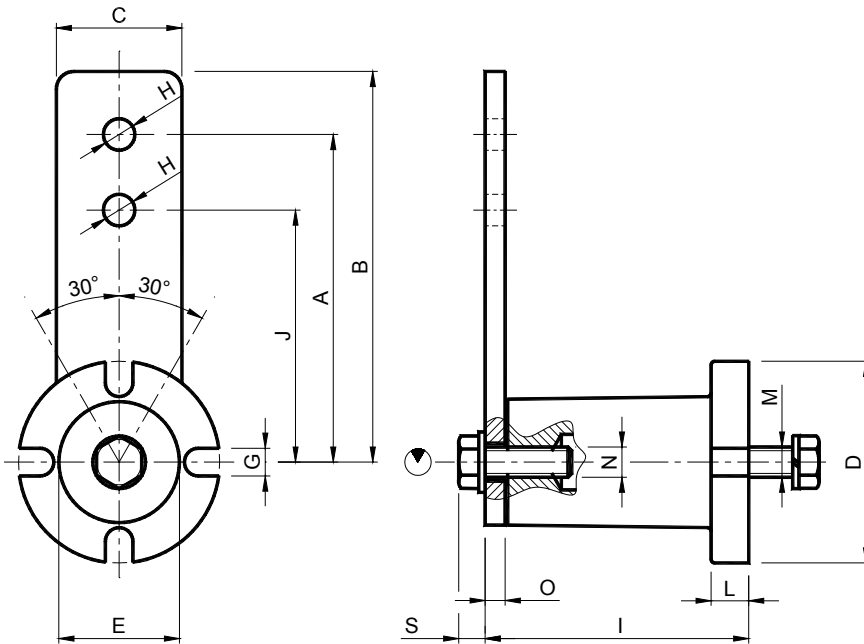



扭转角度 $\pm 30^\circ$
 工作温度从 -40°C 至 $+80^\circ\text{C}$
 使用内部螺钉 M 的前端安装。


为了便利安装、拆除和调整的操作，配有预加负荷系统(*)

Rotation angle $\pm 30^\circ$
 Operating temperature from -40°C to $+80^\circ\text{C}$
 Frontal mounting with interior M screw.
 Equipped with preloading system (*) in order to facilitate the mounting, dismounting and regulation operations.

具 360° 放射性调整的张紧装置 (☉) - 型号 BE /
 Tighteners elements with radial regulation of 360° (☉) - Type: BE

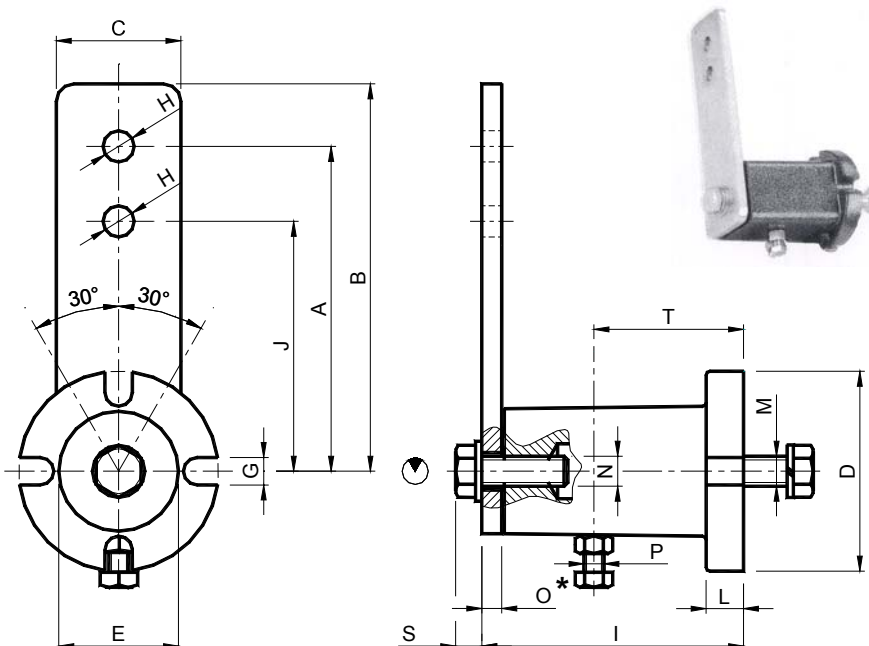



 扭转角度 $\pm 30^\circ$
 工作温度从 -40°C 至 $+80^\circ\text{C}$
 手柄 360° 放射性调整。


 *Rotation angle $\pm 30^\circ$*
Operating temperature from -40°C to $+80^\circ\text{C}$
Radial regulation of the lever of 360°.

型号 Type	编号 N°	A	B	C	∅ D	∅ E	G	∅ H	I	J	L	M	N	O	P	S	T	Newton 0°-30° 臂 A Arm A	Newton 0°-30° 臂 J Arm J	重量 Weight in Kg	型号 Type	编号 N°
BE 10	RE010290	80	90	25	40	20	7	8.5	50	60	6	M 6	M 8	5	M 4	7	25	0÷ 85	0÷ 113	0.28	BEP 10	RE010360
BE 20	RE010300	100	112,5	30	50	30	9	10.5	62	80	8	M 8	M10	5	M 6	9	35	0÷ 136	0÷ 170	0.48	BEP 20	RE010370
BE 30	RE010310	100	115	35	60	35	9	10.5	76	80	10	M10	M10	6	M 6	9	40	0÷ 340	0÷ 425	0.73	BEP 30	RE010380
BE 40	RE010320	130	155	50	80	48	11	12.5	105	100	15	M12	M12	8	M 8	11	60	0÷ 790	0÷1027	2.00	BEP 40	RE010390
BE 50	RE010330	175	205	65	100	62	13	20.5	136	140	15	M16	M20	10	M 8	16	80	0÷1600	0÷2000	4.20	BEP 50	RE010400
BE 60	RE010340	225	260	80	120	80	13	20.5	196	180	18	M20	M20	12	M10	16	115	0÷2550	0÷3190	7.00	BEP 60	RE010410
BE 70	RE010350	250	290	90	130	78	17	20.5	210	200	20	M24	M24	20	M12	19	115	0÷3950	0÷4950	9.60	BEP 70	RE010420

具 360° 放射性调整 (☉) 和预加负荷用螺钉 (*) 的张紧装置组件 - 型号 BEP /
 Tighteners elements with radial regulation of 360° (☉) and screw for preloading (*) - Type: BEP



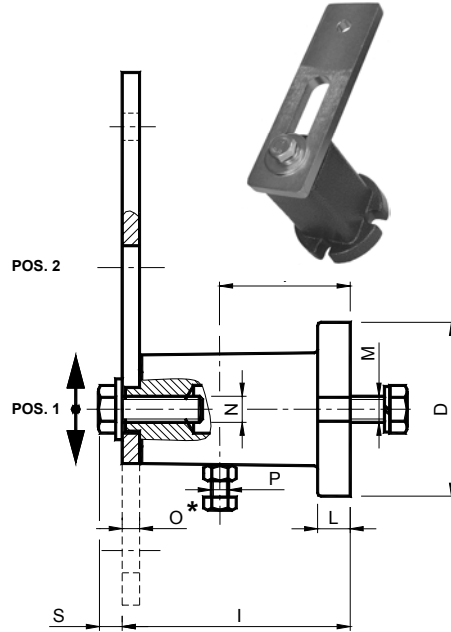
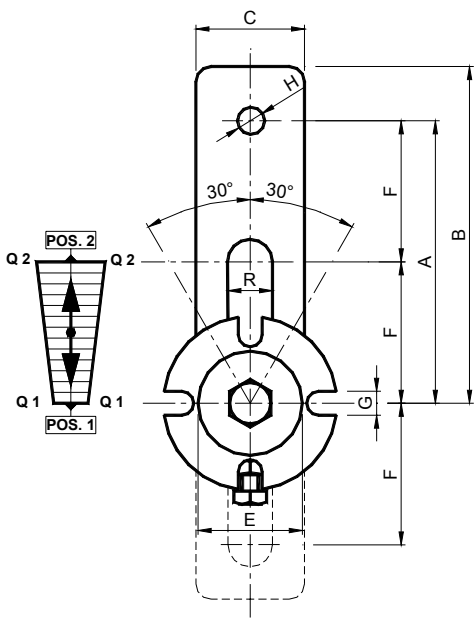
 扭转角度 $\pm 30^\circ$
 工作温度从 -40°C 至 $+80^\circ\text{C}$
 手柄 360° 放射性调整。
 为了便利安装、拆除和调整的操作，配有预加负荷系统(*)

 *Rotation angle $\pm 30^\circ$*
Operating temperature from -40°C to $+80^\circ\text{C}$
Radial regulation of the lever of 360°.
Equipped with preloading system () in order to facilitate the mounting, dismounting and regulation operations.*



具可变负载的张紧装置组件 – 型号: ME (↓) /

Tighteners elements with variable loading – Type: ME (↓)



扭转角度 $\pm 30^\circ$

工作温度从 -40°C 至 $+80^\circ\text{C}$

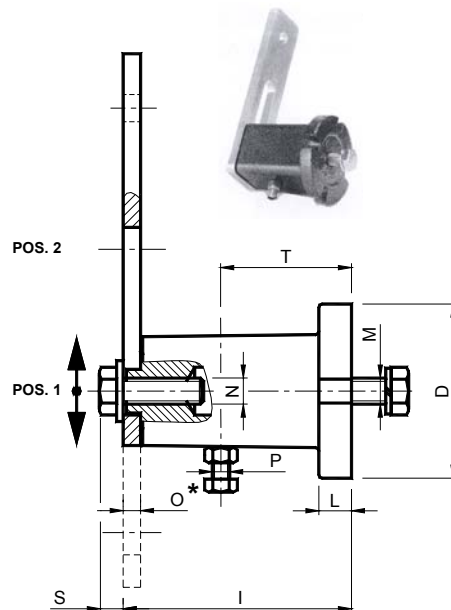
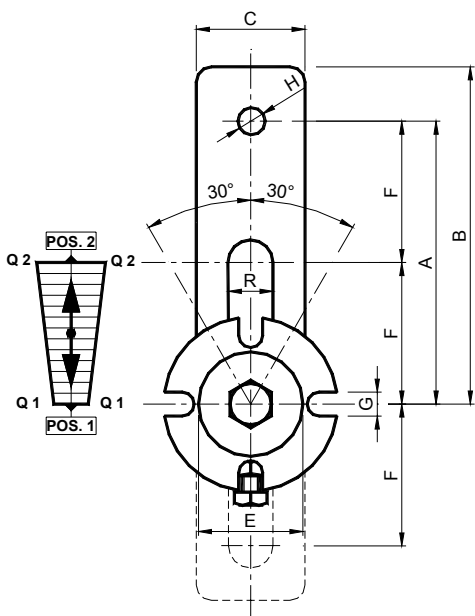
通过对摇杆调整产生力量的变化。以这种方式，将手柄从位置 1 移动到位置 2，可改变臂负载直至成倍；手柄可在位置 1 和位置 2 之间空槽所有中间位置固定，所产生的相应负载与臂成反比。

Rotation angle $\pm 30^\circ$

Operating temperature from -40°C to $+80^\circ\text{C}$
Variation of the force developed by adjusting the slotter lever. In this way the arm load can be varied and even doubled by moving the lever from 1 to position 2. The lever can be fixed in all the intermediate slot positions between positions 1 and 2 and the loads developed are inversely proportional to the arms.

型号 Type	编号 N°	A	B	C	Ø D	Ø E	F	G	Ø H	I	L	M	N	O	P	Ø R	T	Newton $0^\circ-30^\circ$		重量 Weight in Kg	型号 Type	编号 N°		
																		位置 1 Q 1	位置 2 Q 2					
ME 10	RE010430	80	90	25	40	20	40	7	8.5	51	6	M 6	M 6	6	M 4	10	25	0+	85	0+	113	0.28	MEP 10	RE010500
ME 20	RE010440	100	112.5	30	50	30	50	9	10.5	63	8	M 8	M 8	6	M 6	12	35	0+	136	0+	170	0.48	MEP 20	RE010510
ME 30	RE010450	100	115	35	60	35	50	9	10.5	78	10	M10	M10	8	M 6	14.5	40	0+	340	0+	425	0.73	MEP 30	RE010520
ME 40	RE010460	130	155	50	80	48	50	11	12.5	107	15	M12	M12	10	M 8	20.5	60	0+	790	0+	1027	2.00	MEP 40	RE010530
ME 50	RE010470	175	205	65	100	62	65	13	20.5	138	15	M16	M16	12	M 8	27	80	0+	1600	0+	2000	4.20	MEP 50	RE010540
ME 60	RE010480	225	260	80	120	80	87.5	13	20.5	199	18	M20	M20	15	M10	35	115	0+	2550	0+	3190	7.00	MEP 60	RE010550
ME 70	RE010490	250	290	90	130	78	110	17	20.5	212	20	M24	M24	20	M12	42	115	0+	3950	0+	4950	10.00	MEP 70	RE010560

具可变负载和预加负荷用螺钉(*)的张紧装置组件 – 型号: MEP (↓) / Tighteners elements with variable loading and screw for preloading (*) – Type : MEP (↓)



扭转角度 $\pm 30^\circ$

工作温度从 -40°C 至 $+80^\circ\text{C}$

通过对摇杆调整产生力量的变化。以这种方式，将手柄从位置 1 移动到位置 2，可改变臂负载直至成倍；手柄可在位置 1 和位置 2 之间空槽的所有中间位置固定，所产生的相应负载与臂成反比。

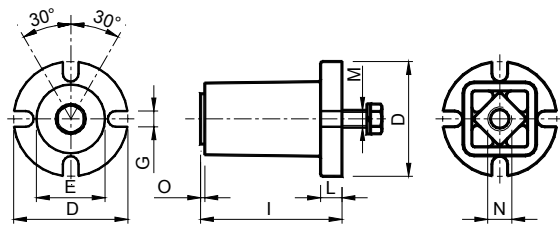
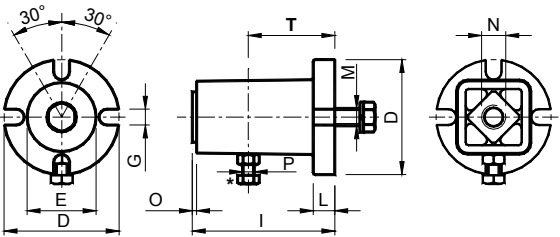
为了便利安装、拆除和调整的操作，配有预加负荷系统。

Rotation angle $\pm 30^\circ$

Operating temperature from -40°C to $+80^\circ\text{C}$
Variation of the force developed by adjusting the slotter lever. In this way the arm load can be varied and even doubled by moving the lever from 1 to position 2. The lever can be fixed in all the intermediate slot positions between positions 1 and 2 and the loads developed are inversely proportional to the arms. Equipped with preloading system (*) in order to facilitate the mounting, dismounting and regulation operations.

具预加负荷用螺钉基本弹性组件- 型号: CEA e CEAP (*) /

Basic elastic elements – Type: CEA and CEAP with screw for preloading (*)


CEA

CEAP


CEA 和 CEAP 是基本弹性支撑，与在产品目录中显示的可互换的附件一并使用，或者根据需要与其他另外设计的特别部件组合。为了便利安装、拆除和调整的操作，CEAP 配有预加负荷系统(□)。

扭转角度 $\pm 30^\circ$

工作温度从 -40°C 至 $+80^\circ\text{C}$

CEA and CEAP are basic elastic supports either to utilize with the interchangeable accessories represented in the catalogue, or to assemble themselves with special particulars that have to be realized separately on the different requests.

CEAP are equipped with preloading system (□) in order to facilitate the mounting, dismounting and regulation operations.

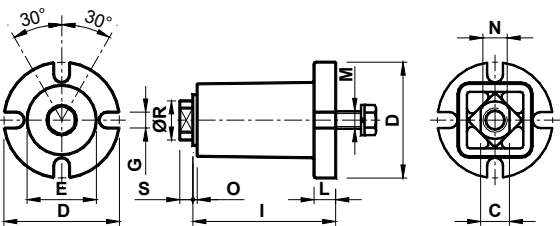
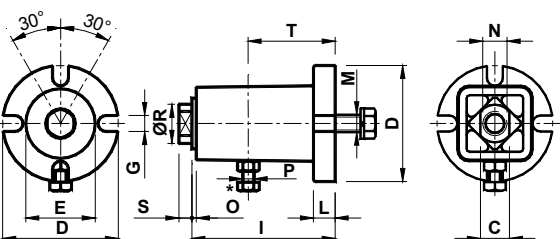
Rotation angle $\pm 30^\circ$

Operating temperature from -40°C to $+80^\circ\text{C}$.

型号 Type	编号 N°	Ø D	Ø E	G	I	L	M	N	O	□ P	T	Nm 0°-30°		重量 Weight in Kg	型号 Type	编号 N°
												扭矩负载 Q 以 Nm 表示 Torque Q in Nm				
CEA 10	RE010570	40	20	7	51	6	M 6	M 6	1	M 4	25	0 – 6.8	0.19	CEAP 10	RE010640	
CEA 20	RE010580	50	30	9	63	8	M 8	M 8	1	M 6	35	0 – 13.6	0.34	CEAP 20	RE010650	
CEA 30	RE010590	60	35	9	78	10	M10	M10	1	M 6	40	0 – 34.0	0.52	CEAP 30	RE010660	
CEA 40	RE010600	80	48	11	107	15	M12	M12	1	M 8	60	0 – 103.0	1.50	CEAP 40	RE010670	
CEA 50	RE010610	100	62	13	138	15	M16	M16	1	M 8	80	0 – 280.0	3.10	CEAP 50	RE010680	
CEA 60	RE010620	120	80	13	199	18	M20	M20	2	M10	115	0 – 574.0	4.90	CEAP 60	RE010690	
CEA 70	RE010630	130	78	17	209	20	M24	M24	2	M12	115	0 – 987.5	6.00	CEAP 70	RE010700	

预加负荷用螺钉的基本弹性组件 – 型号: CEB e CEBP (*) /

Basic elastic elements – Type: CEB and CEBP with screw for preloading (*)


CEB

CEBP


CEB 和 CEBP 是基本弹性支撑，与在产品目录中显示的可互换的附件一并使用，或者根据需要与其他另外设计的特别部件组合。为了便利安装、拆除和调整的操作，CEBP 配有预加负荷系统(*)。

扭转角度 $\pm 30^\circ$ 。

工作温度从 -40°C 至 $+80^\circ\text{C}$ 。

CEB and CEBP are basic elastic supports either to utilize with the interchangeable accessories represented in the catalogue, or to assemble themselves with special particulars that have to be realized separately on the different requests.

CEBP are equipped with preloading system (*) in order to facilitate the mounting, dismounting and regulation operations.

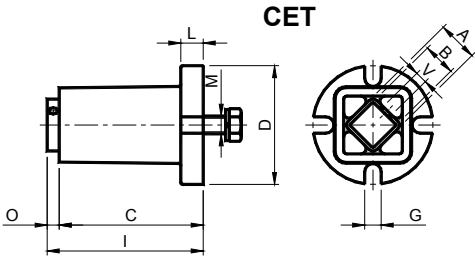
Rotation angle $\pm 30^\circ$

Operating temperature from -40°C to $+80^\circ\text{C}$.


型号 Type	编号 N°	C	Ø D	Ø E	G	I	L	M	N	O	□ P	Ø R	S	T	Nm 0°-30°		重量 Weight in Kg	型号 Type	编号 N°
															扭矩负载 Q 以 Nm 表示 Torque Q in Nm				
CEB 10	RE010710	9.5	40	20	7	50	6	M 6	M 6	1	M 4	11	5	25	0 – 6.8	0.19	CEBP 10	RE010780	
CEB 20	RE010720	12	50	30	9	62	8	M 8	M 8	1	M 6	15	5	35	0 – 13.6	0.34	CEBP 20	RE010790	
CEB 30	RE010730	14.5	60	35	9	77	10	M10	M10	1	M 6	18	7	40	0 – 34.0	0.52	CEBP 30	RE010800	
CEB 40	RE010740	20	80	48	11	106	15	M12	M12	1	M 8	27	9	60	0 – 103.0	1.50	CEBP 40	RE010810	
CEB 50	RE010750	26	100	62	13	137	15	M16	M16	1	M 8	38	11	80	0 – 280.0	3.10	CEBP 50	RE010820	
CEB 60	RE010760	34	120	80	13	198	18	M20	M20	2	M10	45	14	115	0 – 574.0	4.90	CEBP 60	RE010830	
CEB 70	RE010770	40	130	78	17	209	20	M24	M24	2	M12	50	19	115	0 – 987.5	6.00	CEBP 70	RE010840	

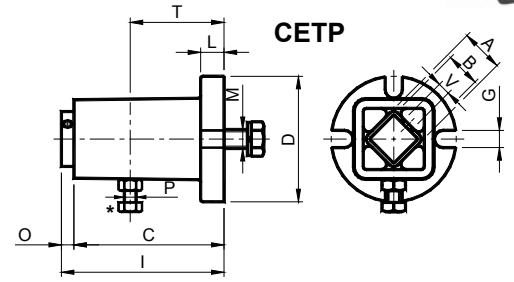


具预加负荷用螺钉(*)的基本弹性组件型号: CET e CETP (*) / *Basic elastic elements Type: CET and CETP with screw for preloading (*)*



 **CET e CETP** 是与方形部件配合使用的基本弹性支撑。CETP 配有预加负荷系统 (*). 扭转角度 $\pm 30^\circ$ 。工作温度从 -40°C 至 $+80^\circ\text{C}$ 。

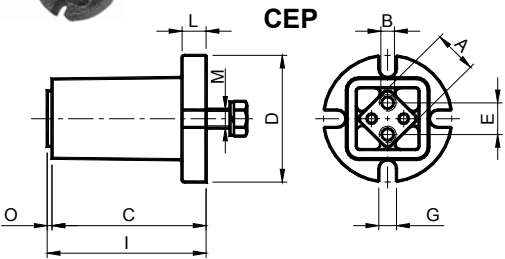
 **CET and CETP** are elastic base supports for coupling with profiles with a square section. CETP are equipped with preloading system (*). Rotation angle $\pm 30^\circ$. Working temperature from -40°C to $+80^\circ\text{C}$.





型号 Type	编号 N°	A	B	C	D	G	I	L	M	O	P	T	V	Nm 0°-30°		重量 Weight in Kg	型号 Type	编号 N°
														扭矩负载 Q 以 Nm 表示 Torque Q in Nm				
CET 10	RE010711	11	8 ^{+0.15} _{+0.00}	44	40	7	50	6	M 6	6	M 4	25	M 6	0 – 6.8	0.16	CETP 10	RE010781	
CET 20	RE010721	15	11 ^{+0.15} _{+0.00}	56	50	9	64	8	M 8	8	M 6	35	M 6	0 – 13.6	0.30	CETP 20	RE010791	
CET 30	RE010731	18	12 ^{+0.15} _{+0.00}	69	60	9	77	10	M10	8	M 6	40	M 6	0 – 34.0	0.46	CETP 30	RE010801	
CET 40	RE010741	27	22 ^{+0.15} _{+0.00}	96	80	11	106	15	M12	10	M 8	60	M 8	0 – 103.0	1.40	CETP 40	RE010811	
CET 50	RE010751	38	30 ^{+0.15} _{+0.00}	125	100	13	125	15	M16	10	M 8	80	M 8	0 – 280.0	2.50	CETP 50	RE010821	
CET 60	RE010761	45	35 ^{+0.15} _{+0.00}	182	120	13	196	18	M20	14	M10	115	M10	0 – 574.0	4.30	CETP 60	RE010831	
CET 70	RE010771	50	40 ^{+0.15} _{+0.00}	180	130	17	195	20	M24	15	M12	115	M10	0 – 987.5	5.50	CETP 70	RE010841	

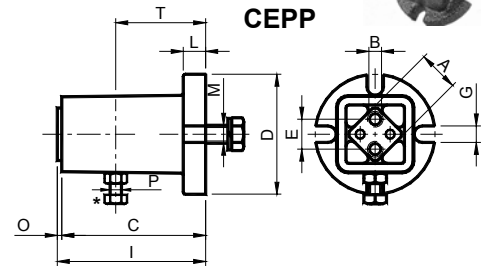


具预加负荷用螺钉(*)的基本弹性组件 型号: CEP e CEPP (*) / *Basic elastic elements Type: CEP and CEPP with screw for preloading (*)*

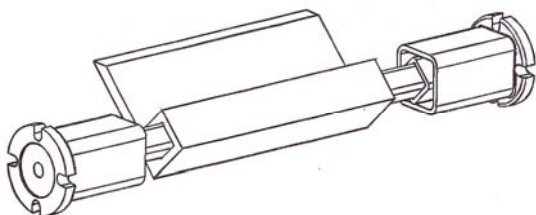


 **CEP e CEPP** 是通过螺钉与特定机械结构配合使用的基本弹性支撑。CEPP 配有预加负荷系统(*) 扭转角度 $\pm 30^\circ$ 。工作温度从 -40°C 至 $+80^\circ\text{C}$ 。

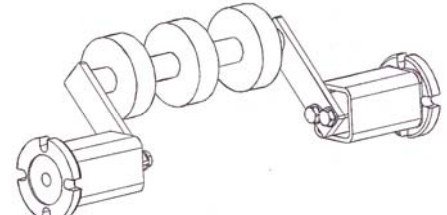
 **CEP and CEPP** are elastic base supports for coupling to mechanical parts with screws. CEPP are equipped with preloading system (*). Rotation angle $\pm 30^\circ$. Working temperature from -40°C to $+80^\circ\text{C}$.



型号 Type	编号 N°	A	B	C	D	E	G	I	L	M	O	P	T	Nm 0°-30°		重量 Weight in Kg	型号 Type	编号 N°
														扭矩负载 Q 以 Nm 表示 Torque Q in Nm				
CEP 20	RE010722	15	M 6x15	56	50	10	9	57	8	M 8	1	M 6	35	0 – 13.6	0.30	CEPP 20	RE010792	
CEP 30	RE010732	18	M 6x15	69	60	12	9	70	10	M10	1	M 6	40	0 – 34.0	0.46	CEPP 30	RE010802	
CEP 40	RE010742	27	M10x30	96	80	20	11	97	15	M12	1	M 8	60	0 – 103.0	1.40	CEPP 40	RE010812	
CEP 50	RE010752	40	M12x30	125	100	25	13	126	15	M16	1	M 8	80	0 – 280.0	2.50	CEPP 50	RE010822	
CEP 60	RE010762	45	M14x35	182	120	35	13	184	18	M20	2	M10	115	0 – 574.0	4.30	CEPP 60	RE010832	
CEP 70	RE010772	50	M12x40	180	130	40	17	182	20	M24	2	M12	115	0 – 987.5	5.50	CEPP 70	RE010842	



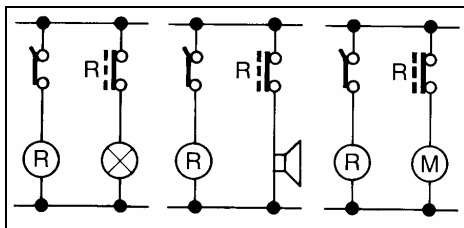
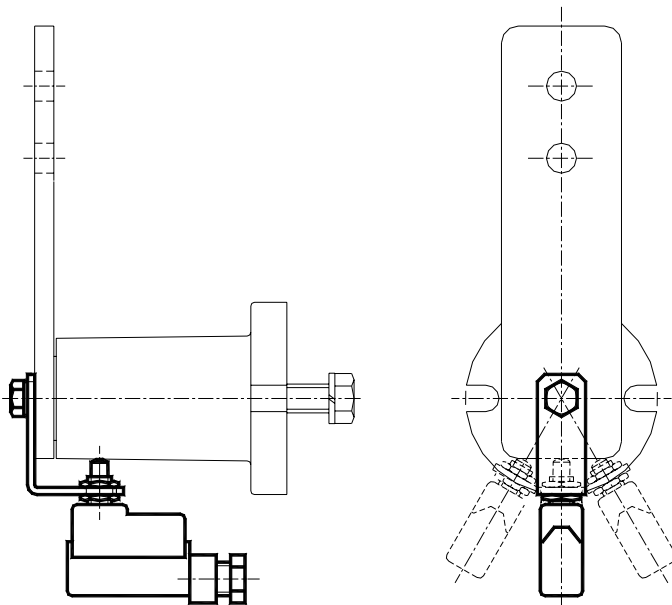
应用实例 1: CET 50 / Example of application 1: CET 50



应用实例 2: CEP 50 / Example of application 2: CEP 50

附件 / Accessories


具电子限位开关的弹性组件 – 型号: FM / Elastic elements with travel-end switch – Type: FM




电子线路 – Electrical diagram
Elektrischem diagramm

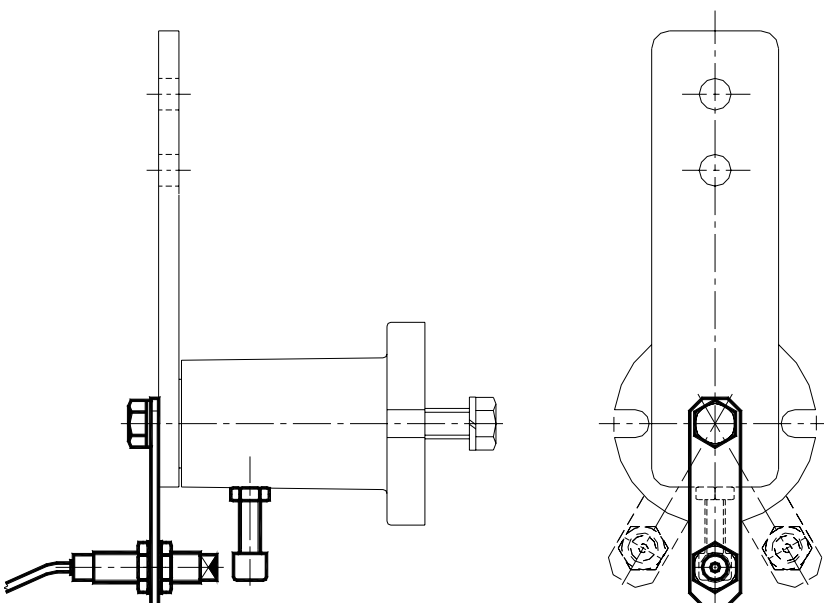


型号 Type	编号 N°
FM 10	RE011065
FM 20	RE011066
FM 30	RE011067
FM 40	RE011068
FM 50	RE011069
FM 60	RE011070
FM 70	RE011071

 在有意监控机器正确运转或保证操作人员的安全时，电子限位开关“FM”和感应开关“FPI”尤其有用。参见电子线路。

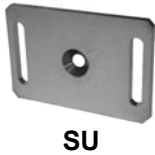
 The electric limit switch “FM” or inductive limit switch “FPI” are particularly useful when you have to control the correct operation of the machine and/or ensure operator safety. See wiring diagram.

具电子感应式限位开关的弹性组件 – 型号: FPI / Elastic elements with travel-end switch – Type: FPI



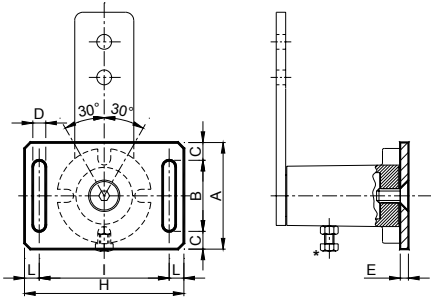
型号 Type	编号 N°
FPI 10	RE011075
FPI 20	RE011076
FPI 30	RE011077
FPI 40	RE011078
FPI 50	RE011079
FPI 60	RE011080
FPI 70	RE011081

附件 / Accessories



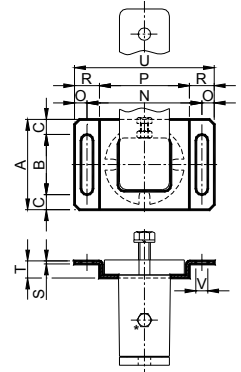
支架 – 型号: SU / Support – Type: SU

支架 – 型号: ST / Support – Type: ST



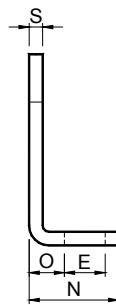
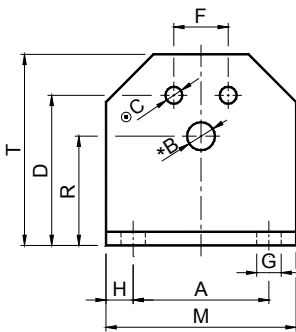
使用夹具“SU”和“ST”，可能对“放射型”和“轴型”弹性组件进行双重调整。在以轴调整安装的情况下，有必要首先使用适当的螺钉(*)将张紧装置预加负荷，然后(沿着所选方向)使用支架上的空槽移动整个组件。

The elastic element can be adjusted two ways radially and axially by means of the brackets “SU” and “ST”. When fitting with axial adjustment, the tensioner must be firstly preloaded by means of the screw (*) and then the whole unit can be moved (in the required direction) using the slots in the supporting element.



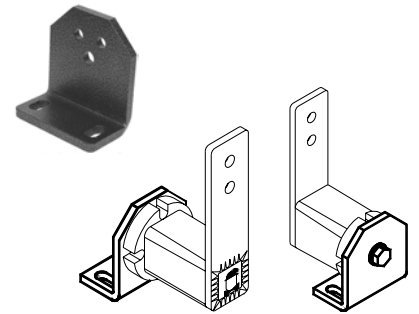
型号 Type	编号 N°	重量 Weight in Kg	A	B	C	D	E	H	I	L	N	O	P	S	T	V	重量 Weight in Kg	型号 Type	编号 N°
SU 10	RE011010	0.07	40	30	5	7	4	75	60	7.5	65	7.5	46	2	7.4	7	0.03	ST 10	RE011020
SU 20	RE011011	0.18	55	35	10	9	5	95	75	10	80	10	58	2	9	9	0.07	ST 20	RE011021
SU 30	RE011012	0.27	65	40	12.5	9	6	105	85	10	95	10	70	2.5	11.5	9	0.13	ST 30	RE011022
SU 40	RE011013	0.60	90	60	15	11	7	135	110	12.5	115	12.5	90	3	17	12	0.27	ST 40	RE011023
SU 50	RE011014	0.90	110	70	20	13	8	160	135	12.5	145	12.5	115	4	18	14	0.39	ST 50	RE011024
SU 60	RE011015	1.70	130	90	20	17	10	200	160	20	180	15	140	5	22	18	0.75	ST 60	RE011025

夹具 – 型号: SB / Support – Type: SB



夹具 SB 用于简化弹性组件在机器上的安装。

The bracket SB is used to facilitate the assembly of the elastic element on the machine.



型号 Type	编号 N°	A	*			D	E	F	G	H	M	N	O	R	S	T	重量 Weight in kg	
			尺寸 Size	B	尺寸 Size													C
SB 10	RE020510	30	10	6.5	20	5.5	35	13	10	7	7.5	45	30	11.5	27	4	46	0.09
SB 20	RE020511	40	20	8.5	30	6.5	44	13	12	7	7.5	55	32	13.5	34	5	58	0.17
SB 30	RE020512	50	30	10.5	40	8.5	55	15.5	20	9.5	10	70	38	16.5	43	6	74	0.29
SB 40	RE020513	65	40	12.5	50	10.5	75	21.5	25	11.5	12.5	90	52	21	57	8	98	0.72
SB 50	RE020514	80	50	16.5	60	12.5	85	24	35	14	15	110	55	21	66	8	116	0.93
SB 60	RE020515	100	60	20.5	70	12.5	110	30	40	18	20	140	66	26	80	10	140	1.82

* 孔 B 用于 CRESA 以下型号“张紧装置组件”的安装: RE、FE、BE、ME、CEA、CEB

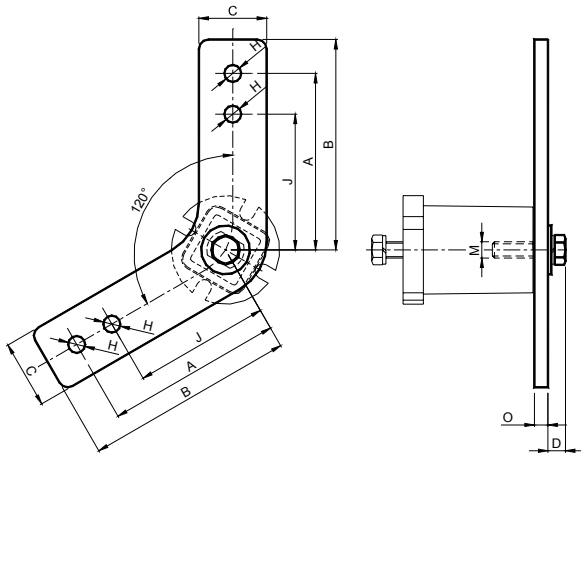
□ 孔 C 用于 VIB 以下型号“弹性组件”的安装: AR-P、AC-P、AD-P、TB、CR-P

* Bore B is used for the fixation of the CRESA tighteners type: RE, FE, BE, ME, CEA, CEB

□ Bores C are used for the fixation of the VIB elastic elements type: AR-P, AC-P, AD-P, TB, CR-P

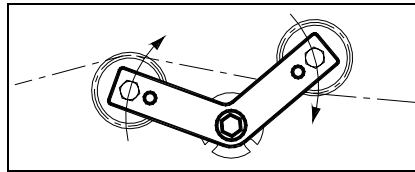
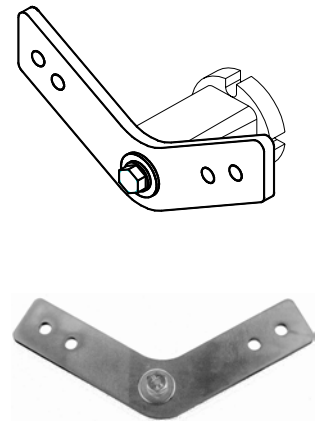
附件 / Accessories

型号: V – Type: V



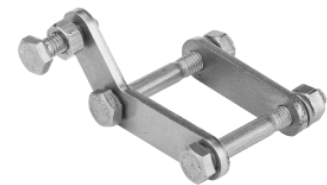
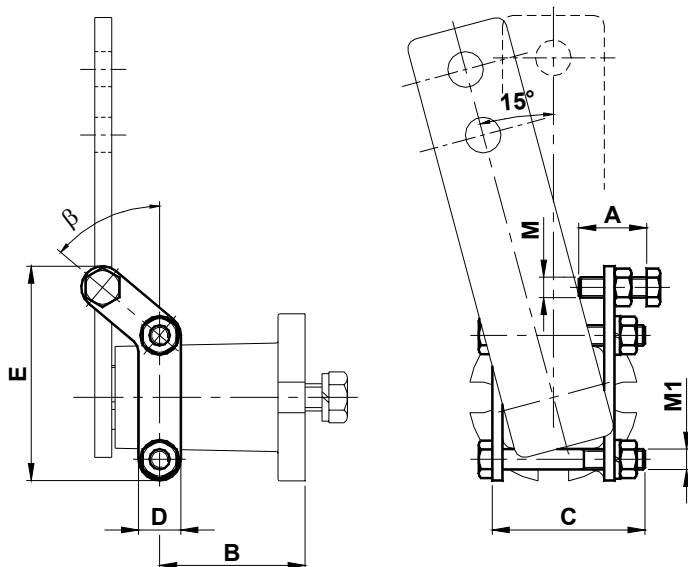
附件 V 是附在基本组件 CEB 和 CEBP 上的镀锌钢制的双臂。由于允许以“S”形张紧，可在极长的传动系统中使用。

The accessory V is a double arm of galvanised steel applied on the base elements CEB and CEBP. It is used in very long transmission systems because it allows tightening in “S” form.



型号 Type	编号 N°	A	B	C	D	H	J	M	O	重量 Weight in Kg
V 30	RE010997	100	115	35	11.2	10.5	80	M10	8	0.51
V 40	RE010998	130	155	50	13.0	12.5	100	M12	10	1.22

预加负荷- 型号 镀锌钢制 PR Preloading – Type: PR in galvanised steel



附件 PR 允许轻易地将弹性组件预加负荷，事先确定初始负载和工作范围。这项产品适用于设计压力组、校准器和精确减震器。

The accessory PR allows easy preloading of the elastic element, predetermining the initial load and the work range. This product is ideal for realising pressure sets, calibrators and precision shock absorbers.

型号 Type	编号 N°	b	A	B	C	D	E	M	M1	重量 Weight in kg
PR 10	RE012470	47.5°	20	34.5	40	12.5	55.8	M 6	M 6	0.065
PR 20	RE012472	50°	20	44	45	12.5	63.1	M 6	M 6	0.070
PR 30	RE012474	45°	25	54.2	55	17	81.3	M 8	M 8	0.158
PR 40	RE012476	44.5°	30	75.7	80	16	96.5	M10	M 8	0.390
PR 50	RE012478	47°	45	97.5	100	25	137	M12	M12	0.756
PR 60	RE012480	42.5°	70	141	130	30	187.5	M16	M16	1.749

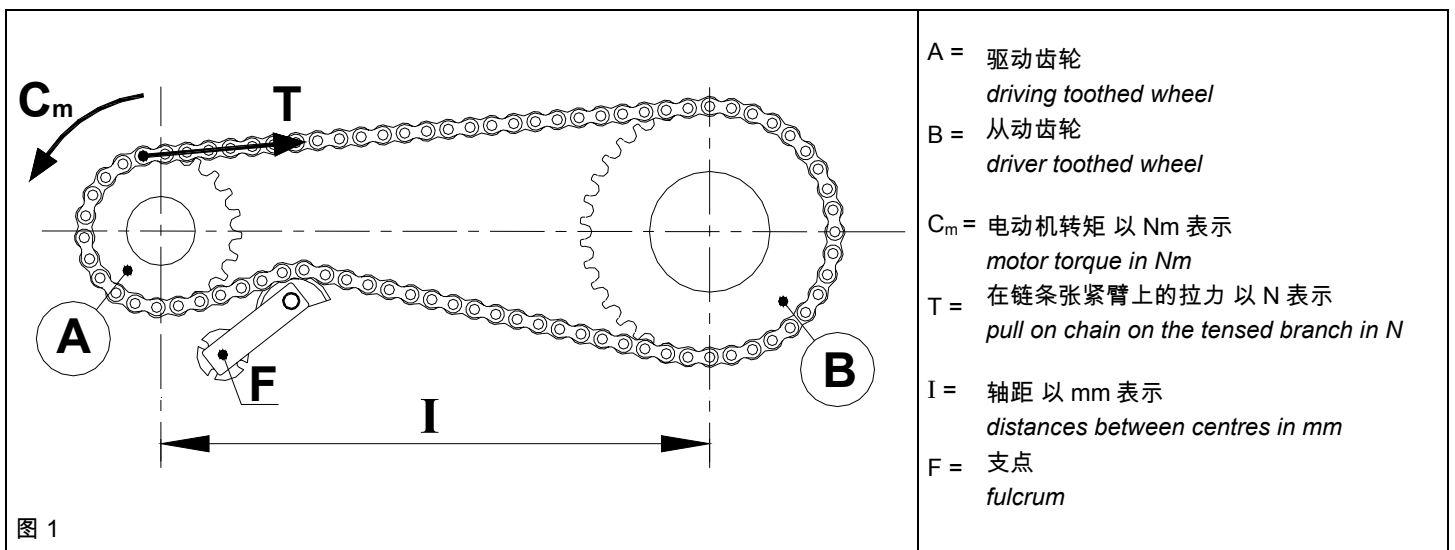
计算手册 / CALCULATION MANUAL

链条或皮带传输

(用于传输或输送的)滚轮链和皮带是称为包络灵活组件的机械结构系列的一部分，这些结构仅对拉伸应力做出反应的特性。这些机械结构一般应用于在两个旋转轮轴之间传输能量，但也可用于物品运输或抬举。为了正确使用包络灵活组件，有必要在设计阶段，提供一项始终在运转过程中使其处于张紧状态的系统。自动旋转式张紧装置具有一个旋转点，称为支点，在其上张紧装置臂用力，由此拉紧链条或皮带。

CHAIN OR BELT TRANSMISSIONS

Roller chains (for transmission or transport) and belts are part of the series of mechanical systems called enveloping flexible elements which share the characteristic of reacting only to tensile stress. These mechanical parts are generally used to transmit power between two rotating hubs, but they may also be used to carry or lift objects. For a correct use of enveloping flexible elements it is necessary, in the design phase, to contemplate a system for keeping these units always taut during operation. Automatic rotation tighteners present a point of rotation, known as the fulcrum, on which the arm of the tightener acts, thus tightening the chain or belt.




滚轮链条 DIN 8187

在运转过程中，链条的接触表面的磨损（轴、轴衬和滚轮）造成更严重的齿隙游移和链条增长，如果过度，可能造成：缠绕角度更小，缺乏传输比例的恒定性，链条滚轮和轮齿的接触不正常，磨损提早，高噪音，振动，滑齿，链条从传输带上滑落，在更严重的情况下，链条的断裂。

因此有必要为传输设备配备可弥补链条增长情况并不断消减振动的自动链条张紧装置。旋转式链条自动张紧装置应安置在传动系统的缓慢端尽量与驱动齿轮接近的位置。可安装在传动系统外部（图 2）和内部（图 3），可能的外部安装为更佳选择。旋转式自动链条张紧装置具有一个旋转点，称为支点。在支点上，张紧装置的臂通过拉紧链条或皮带而作用。安装张紧装置时，支点不处于链条受力直线方向极为重要（图 5），这样的话不会被卡住。

ROLLER CHAINS DIN 8187

 The wear of the surfaces of a chain (pins, bushes and rollers) in contact with each other during operation creates a greater play and the relative stretching of the chain; when this is excessive it may cause a smaller winding angle, lack of constancy in the transmission ratio, abnormal contact between the chain rollers and the teeth of the pinion, premature wear, high noise, vibrations, tooth skipping, escape of the chain from the transmission and, in extreme cases, breakage of the chain.

It is therefore inevitable to equip the transmission with an automatic chain tightener, which allows the recovery of stretching and constantly absorbs vibrations. Automatic rotation chain tighteners must be positioned on the loose part of the transmission, as close as possible to the motor pinion. They may be fitted either on the outside (Fig 2) or on the inside (Fig 3), preferably the former, if possible. Automatic rotation tighteners present a point of rotation, known as the fulcrum, on which the arm of the tightener acts, thus tightening the chain or belt. It is extremely important to position the tightener in such a way that its fulcrum is never in the direction of the line of application of the chain force (Fig 5), so that it can never get stuck.

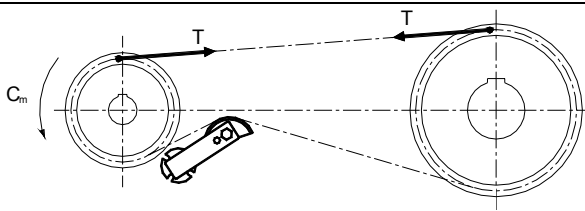


图 2 安装正确 (建议使用!)
 CORRECT ASSEMBLY (RECOMMEND!)

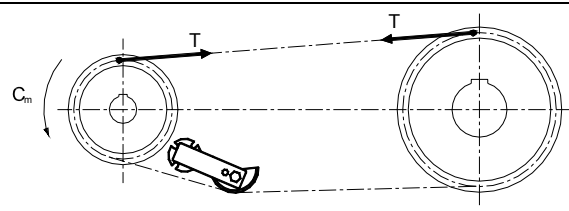


图 3 安装正确
 CORRECT ASSEMBLY

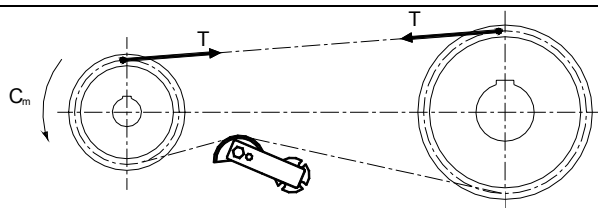


图 4 安装正确 (不建议使用!)
 CORRECT ASSEMBLY (NOT RECOMMEND!)

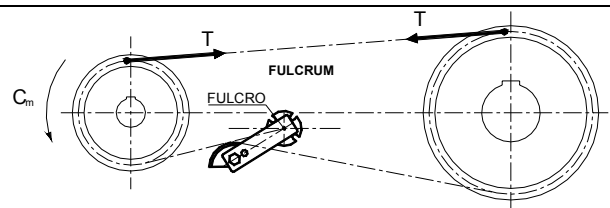
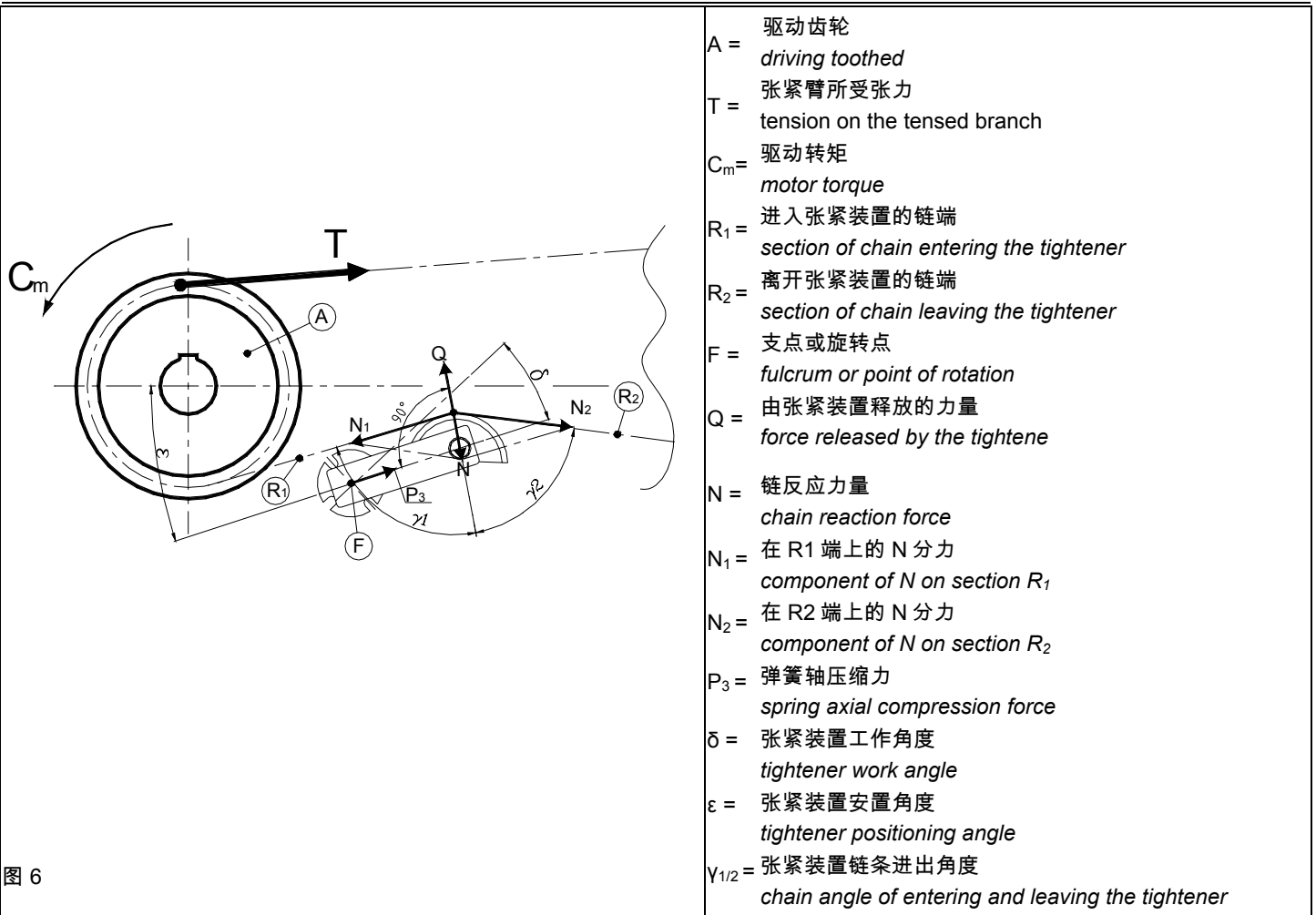



图 5 安装错误!
 WRONG ASSEMBLY



张紧装置释放一份与旋转臂垂直的力量 Q (图 6)，由于机械效应，这份能量与分配在张紧装置进入端 R₁ 和离开端 R₂ 上所受的牵引力 N₁ 和 N₂ 总共的力量 N 平衡。在安置链条张紧装置时，应注意两份力量 Q 和 N 尽可能在同一准线上，如此不会发生在支点上施加切线力。即使在一定限度内，这些不想要的切线力可由橡胶轴压缩力 P₃ 抵消。因此，张紧装置的安置取决于 δ 角，即弹性组件的工作角度，及 ε，即相对于传动系统的放置角度，如此 γ₁ 角和 γ₂ 角尽可能相等。

 A tightener releases a force Q (Fig. 6) perpendicular to the rotation arm which by reaction is balanced by the chain with the force N which is distributed with the traction forces N₁ and N₂ on the sections entering and leaving the chain tightener, respectively R₁ and R₂. When positioning a chain tightener, you must ensure that the forces Q and N are as much as possible on the same line so that there is no formation of tangential components which would be discharged on the fulcrum. Even though, within certain limits, these undesired tangential forces are cancelled by the axial compression force P₃ of the rubber. The positioning of the tightener therefore depends on the angle δ, that is the working angle of the elastic element, and on the angle ε, that is the positioning angle with respect to the transmission, so that the angles γ₁ and γ₂ are equal as much as possible.

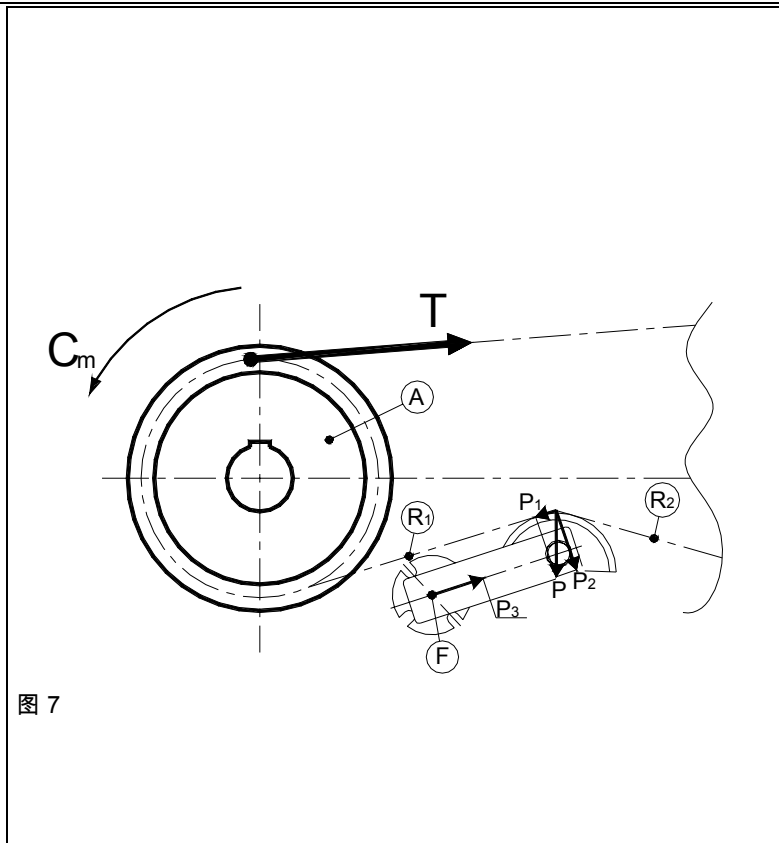


图 7

- A = 驱动齿轮
driving toothed wheel
- T = 张紧臂张力
- C_m = pull on chain on the tensed branch
驱动转矩
- R_1 = motor torque
进入张紧装置的链端
- R_2 = section of chain entering the tightener
离开张紧装置的链端
- F = section of chain leaving the tightener
- P = 支点或旋转点
fulcrum or rotation point
- P_1 = 重量力
weight force
- P_2 = P 正切分力
tangential component of P
- P_3 = P 普通分力
normal component of P
- 弹簧轴压缩力
spring axial compression force

图 7 显示在水平传动系统中链条的重力 P 对张紧装置的影响。事实上，链条的重量在张紧装置上分为在手柄上普通的力量 P_2 和力量 P_1 。后一份压缩力量由弹簧轴压缩力 P_3 所平衡。

Fig. 7 shows the influence of the weight force P of the chain on the tightener in horizontal transmissions. In fact, the weight of the chain is divided on the chain tightener into a force P_2 normal to the lever and a force P_1 . The latter compression component is balanced by the spring axial compression force P_3 .

滚轮链条计算实例: / Example of calculation for roller chains:

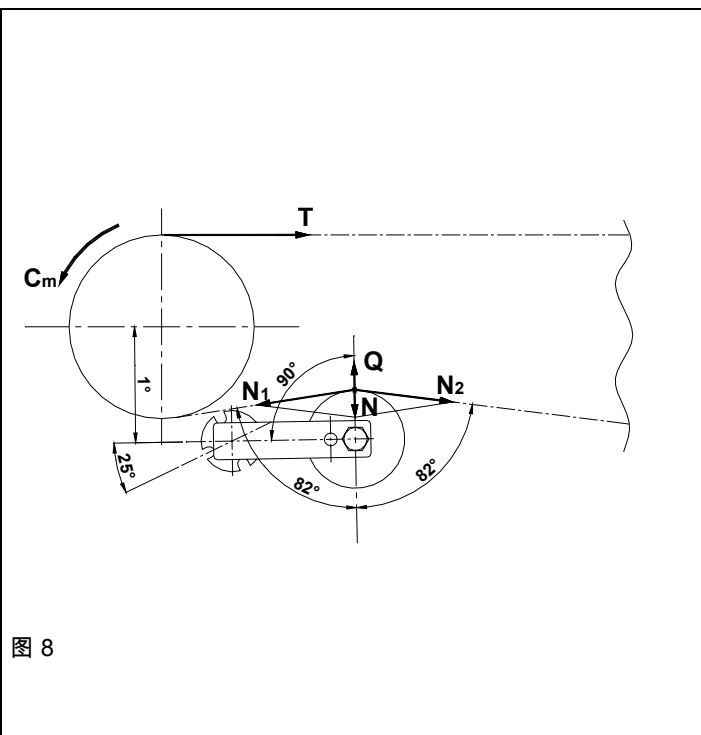


图 8

- C_m = 驱动转矩 以 Nm 表示
motor torque in Nm
- M_t = 在正常条件下要传输的转矩 以 Nm 表示
torque to be transmitted at uniform rating in Nm
- T = 张紧臂所受张力
pull on chain on the tensed branch
- W = 电动机功率
power drive
- n = 驱动齿轮每分钟转数
rounds per minute of the driving toothed wheel
- Q = 由张紧装置释放的力量
force released by the tightener
- N = 链反应力量
chain reaction force
- N_1 = N 的分力
component of N
- N_2 = N 的分力
component of N

电动机性能: $W=15\text{ KW}$; $n=1460\text{ 转 / 分}$

将之前的数据转换为国际计量单位: $\omega=1460 \times \pi / 30 = 152.81\text{ rad/s}$

$W = M_t \times \omega \rightarrow M_t = P / \omega = 98.2\text{ Nm}$ 为计算方便假设 $M_t = 100\text{ Nm}$ 。

假设电动机的工作系数 f_s 为 3.5 $\rightarrow C_m = 3.5 \times M_t = 350\text{ Nm}$

驱动滑轮直径 $D_p = 150\text{ mm} \rightarrow r = 0.075\text{ m}$

$T \times 0.075 = 350 \rightarrow T = 4667\text{ N}$


假设在链条上的安全系数为 10。

因此链条应具有至少 46670 N 的最大应力 \rightarrow 我

们选择一个简单链条，齿距为 $p = 1'' \times 17.02\text{ mm}$

轴距 $l = 2\text{ m} \rightarrow$ 松弛端重量 = 54 N

在配套元件选择表上，我们选择一份配套元件，比如 RO 40-5 S，应选择尺寸为 40 的弹性组件。张紧装置应尽可能按图 8 的描述安装。

 Motor features: $W=15\text{ KW}$; $n=1460\text{ rpm}$

We convert the previous values into the unit of measures SI: $= 1460 \times \pi / 30 = 152.81\text{ rad/s}$

$W = M_t \times \omega \rightarrow M_t = P / \omega = 98.2\text{ Nm}$ we presume $M_t = 100\text{ Nm}$ to facilitate calculations.

It is supposed that the motor has a service factor f_s of 3,5 \rightarrow

$C_m = 3,5 \times M_t = 350\text{ Nm}$

Diametral pitch of the driving pulley $D_p = 150\text{ mm} \rightarrow r = 0,075\text{ m}$

$T \times 0,075 = 350 \rightarrow T = 4667\text{ N}$

Let us suppose a safety factor of 10 on the chain.


The chain must therefore have a yield stress

of at least 46670 N \rightarrow Let us choose a simple chain with pitch $p = 1'' \times 17,02\text{ mm}$


Centre distance $l = 2\text{ m} \rightarrow$ Free section weight = 54 N

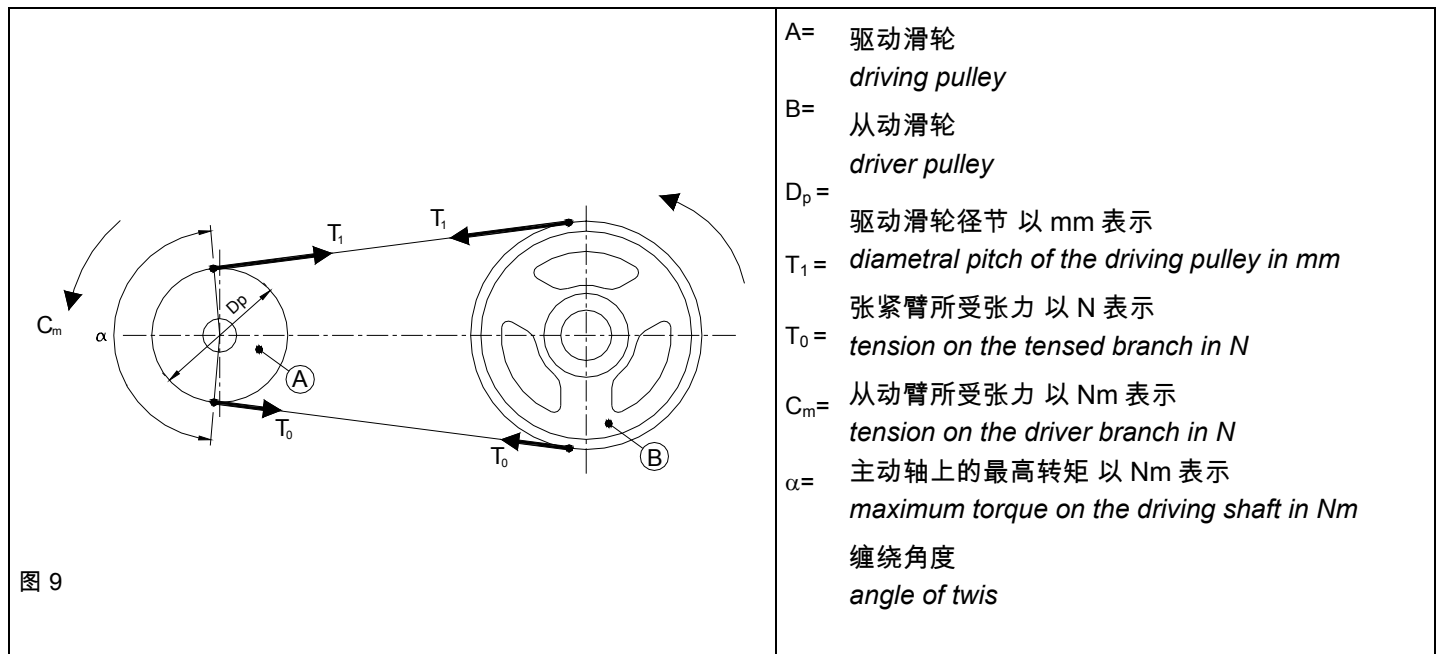
From the kit selection table we take, for example, a RO 40-5 S kit on which we must apply a 尺寸 40 elastic element. The tightener must be positioned as much as possible as described in Fig 8.

平面、梯形和圆形皮带

 一般来讲，皮带以塑性材料制造，可以具长方形（平带）、梯形（V 型带）或圆形（履带）切面。有关嵌齿轮皮带，参考有关滚轮链条的章节。应观察皮带的两项主要参数为：皮带的宽度和其速度。皮带的宽度或皮带面的宽度应比滚轮的宽度大约低 10mm。在皮带施与滚轮的旋转速度提高，由摩擦所致的温度升高时，应选择钢制和塑料的滚轮，由此可保证轴承在其套中的耦合。

FLAT, TRAPEZOIDAL OR CIRCULAR BELTS

 Belts are generally made of plastic material and may have a rectangular section (flat belts), a trapezoid section ("V" belts) or a circular section (side belts). For cogged belts consult the section on roller chains. For belts, two main parameters must be observed: the width of the belt and its speed. The width of the belt or of the bundle of belts must be about 10 mm smaller than that of the roller and when the rotation speed that the belt exerts on the roller is high and the temperatures due to friction increase, steel rollers should be preferred to plastic ones because they ensure a better coupling of the bearings inside their housings.



- A= 驱动滑轮
driving pulley
- B= 从动滑轮
driver pulley
- D_p = 驱动滑轮径节 以 mm 表示
diametral pitch of the driving pulley in mm
- T_1 = 张紧臂所受张力 以 N 表示
tension on the tensed branch in N
- T_0 = 从动臂所受张力 以 N 表示
tension on the driver branch in N
- C_m = 主动轴上的最高转矩 以 Nm 表示
maximum torque on the driving shaft in Nm
- α = 缠绕角度
angle of twis

由于皮带长度伸展的错误以及在皮带和滑轮之间存在的打滑，皮带传输不能保证完美持久的传动比。这些滑动由以下因素造成：缠绕角度 α 小，由于接触表面有油、脂肪存在的情况造成摩擦系数低，由磨损和老化所造成的皮带的屈服以及皮带预紧力低。

为了消除打滑现象，有必要使用自动张紧装置，由此可保证对皮带加长做出修正并在皮带轨道的适当部位造成一个结“n”而削减振动；如果皮带张紧装置使用从外部向内部驱动的方式安置，可提高缠绕角度 α 。我们建议将皮带张紧装置安装在传动装置外部，图 10，但也可安装于内部，图 11。钢制或塑料滚轮仅适用与皮带背部的接触。在使用 V 型皮带和齿形皮带进行从内部到外部的张紧时，所使用的滑轮的凹槽应具有皮带轮廓。

UK The belt transmission does not ensure a perfect constancy of the transmission ratio due to inevitable errors in the development of the length of the belt and because of the presence of slipping between belt and pulley due to the following factors: small winding angle α , low friction coefficient between the contact surfaces due to the possible presence of oil or grease, yielding of the belt caused by wear and age and low pre-tightening of the belt.

To avoid micro-sliding, the use of an automatic tightener becomes a must and a way to recover any lengthening as well as vibrations with an “n” knot in a convenient position along the belt path if the belt tightener is positioned with operation from the outside towards the inside. We advise fitting the belt tightener on the outside of the transmission, Fig. 10, but it may also be positioned on the inside, Fig. 11. Steel or plastic rollers are suitable only for coming in contact with the back of the belt. Instead, when tightening is performed from the inside towards the outside, with V-belts and cogged belts, a pulley which reproduces the outline of the belt must be used.

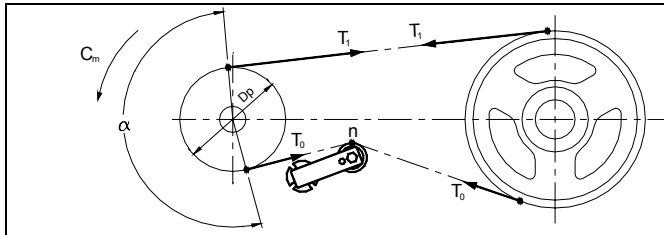


图 10 从外部向内部的张紧
 TIGHTENING FROM THE OUTSIDE TOWARDS THE INSIDE

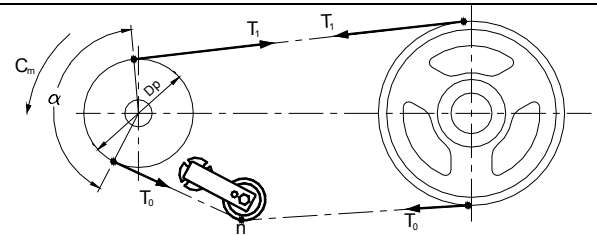


图 11 从内部向外部的张紧 TIGHTENING FROM THE INSIDE TOWARDS THE OUTSIDE

在选择张紧装置时，应了解沿着皮带作用的拉力，由以下数据获得：驱动滑轮旋转平衡方程式 1 和打滑极限条件方程式 2。一般来讲 α 应接近 π rad。要解决的系统如下：

You can make the perfect selection of the tightener if you know which are the pulling tensions acting along the belt, which are given by: which are given by: equation 1 rotation balance of the drive pulley and equation 2 slipping limit condition. In general α must be approximately π rad. The system to be solved is the following:

$$\left\{ \begin{array}{l} (T_1 - T_0) \cdot \frac{D_p}{2} \cdot \frac{1}{1000} = C_m \text{ (方程式 1)} \\ T_1 = T_0 e^{\eta \alpha} \text{ (方程式 2)} \end{array} \right.$$

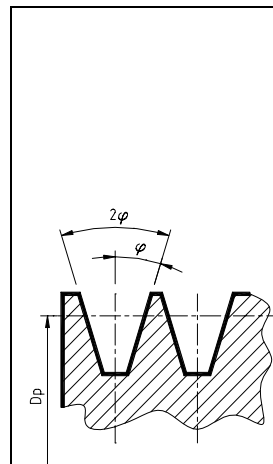


图 1

- $e =$ 自然常数 e ，约为 2.72
 Nepero's number equal to 2,72
- $\eta =$ 在皮带和滑轮之间的摩擦系数 (在 V 型皮带的情况下，应将此系数除以 $\sin(\varphi)$ ，在此 φ 为沟槽的半开角，以 rad 表示)
 friction coefficient between belt and pulley (in case of V-type belts, this coefficient has to be divided by $\sin(\varphi)$, where φ is the angle of the semiaperture of the rim of the pulley in rad)
- $M_t =$ 在正常条件下所要传输的转矩 以 Nm 表示
 torque to be transmitted at uniform rating in Nm
- $C_m =$ 主动轴上最大转矩 以 Nm 表示
 maximum torque on the driving shaft in Nm
- $f_s =$ 工作系数 (2-5)
 duty factor (2-5)

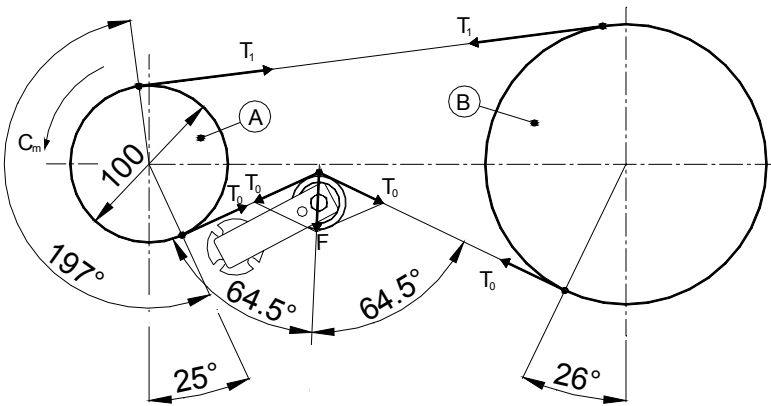
“ C_m ”是在启动过程中所达到的最高转矩，即在最严重的打滑情况下，以工作系数“ f_s ” (2-5)乘以在正常条件下所要传输的转矩“ M_t ”，即 $C_m = f_s \cdot M_t$ 。

自动张紧装置应安置于从动端，与驱动滑轮最接近的部位。张紧装置的弹性组件应产生一份力量，这份力量有必要至少对在安装张紧装置的链条端所受的两份张力之和作出平衡。

UK “ C_m ” is the maximum value of the couple that can be reached during the start up, i.e. in the heaviest sliding conditions. This is obtained by multiplying the value of the couple to be driven “ M_t ” by a service factor “ f_s ” (2÷5) in regimen conditions, i.e. $C_m = f_s \cdot M_t$.

The automatic tightener should be positioned in the driven branch as close as possible to the driving pulley. The tension in the belt branch on which the tightener acts is steady because the friction and contrasting forces on the belt tightener are almost zeroed. The force developed by the elastic element should be at least necessary to re-balance the resulting value from the sum of the two components of the tension on the branch on which the tightener is applied, along the tightener axis itself.

V-带计算实例: / Example of calculation for V-belts:



A= 驱动滑轮
driving pulley

B= 从动滑轮
driver pulley

C_m = 驱动转矩 以 Nm 表示
motor torque in Nm

M_t = 在正常条件下所要传输的转矩 以 Nm 表示
torque to be transmitted at uniform rating in Nm

T_1 = 在张紧臂上的张力 以 N 表示
tension on the tensed branch in N

T_0 = 在从动臂上的张力 以 N 表示
tension on the driver branch in N

W= 电动机功率
power drive

n= 驱动齿轮每分钟转数
rounds per minute of the driving toothed wheel

图 13

中国 电动机性能: $W=3 \text{ Cv}$

$n=940$ 转/分

将之前的数据转换为国际计量单位:

$W=3 \times 735 = 2205 \text{ W}$

$\omega = 940 \times \pi / 30 = 98.4 \text{ rad/s}$

$W = M_t \times \omega \rightarrow M_t = W / \omega = 22.4 \text{ Nm}$

假设 $f_s = 2.5$

$C_m = 2.5 \times M_t = 56 \text{ Nm}$

驱动滑轮直径

$D_p = 100 \text{ mm} \rightarrow D_p = 0.05 \text{ m}$

$$\begin{cases} (T_1 - T_0) \times 0.05 = 56 \rightarrow (T_1 - T_0) = 1120 & \text{(方程式 1)} \\ T_1 = T_0 e^{\eta \alpha} & \text{(方程式 2)} \end{cases}$$

- 缠绕角度 $\alpha = 197^\circ \times \pi / 180^\circ = 3.44 \text{ rad}$
- 皮带和滑轮之间的摩擦系数 $\eta = 0.2$
- V型皮带半开角 $\varphi = 17^\circ \rightarrow \sin(\varphi) = 0.29$
- V带 $\rightarrow \eta' = 0.2 / \sin(\varphi) = 0.2 / 0.29 = 0.69$
- 常数 $e = 2.72$

$$\begin{cases} T_1 = T_0 e^{0.69 \times 3.44} = T_0 \times 10.74 & \text{(方程式 2)} \\ (10.74 T_0 - T_0) = 1120 & \text{(方程式 1)} \end{cases}$$

$\rightarrow T_0 = 115 \text{ N}$
 $\rightarrow T_1 = 1120 + 115 = 1235 \text{ N}$
 $\rightarrow F = 2 \times 115 \times \cos(64.5^\circ) = 99 \text{ N}$

现在可选择一台可产生比力量 F 更高的推力的旋转式张紧装置。



Motor features: $W=3$ Cv
 $n=940$ rpm
 We convert the previous values into the unit of measure SI:
 $W=3 \times 735=2205$ W
 $\omega=940 \times \pi/30=98,4$ rad/s

$W=M_t \times \omega \rightarrow M_t=W/\omega=22,4$ Nm
 We suppose $f_s=2,5$
 $C_m=2,5 \times M_t=56$ Nm

Diametral pitch of the driving pulley
 $D_p=100$ mm $\rightarrow D_p=0,05$ m

$$\left\{ \begin{array}{l} (T_1 - T_0) \times 0,05 = 56 \rightarrow (T_1 - T_0) = 1120 \quad (\text{equation 1}) \\ T_1 = T_0 e^{\eta \alpha} \quad (\text{equation 2}) \end{array} \right.$$

- angle of twist $\alpha=197^\circ \times \pi/180^\circ=3,44$ rad
- friction coefficient between belt and pulley $\square=0,2$
- V-type belt with angle of semiaperture $\varphi=17^\circ \rightarrow \sin(\varphi)=0,29$
- V-type belt $\rightarrow \square'=0,2/\sin(\varphi)=0,2/0,29=0,69$
- Nepero's number $e=2,72$

$$\left\{ \begin{array}{l} T_1 = T_0 \times e^{0,69 \times 3,44} = T_0 \times 10,74 \quad (\text{equation 2}) \\ (10,74 T_0 - T_0) = 1120 \quad (\text{equation 1}) \end{array} \right.$$










$$\begin{aligned} \rightarrow T_0 &= 115 \text{ N} \\ \rightarrow T_1 &= 1120 + 115 = 1235 \text{ N} \\ \rightarrow F &= 2 \times 115 \times \cos(64,5^\circ) = 99 \text{ N} \end{aligned}$$

Now the rotation tightener can be chosen, which must develop a thrust greater than the force F.

计量单位：“换算” / Unit of measure: “conversions”

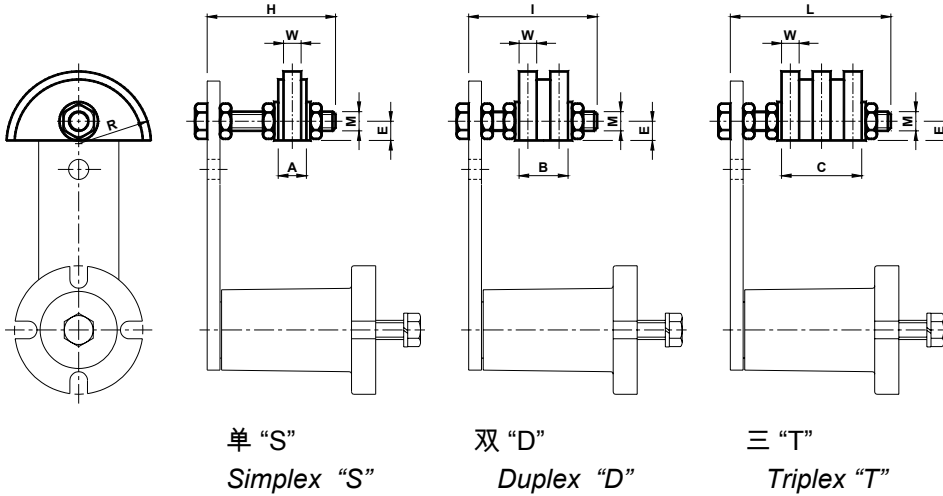
		国际单位制		技术单位制			英制单位		
尺度	符号	单位	符号	单位	符号	从国际单位转换	单位	符号	从国际单位转换
长度	l	米	m	米	m	-	英尺	ft	x 3.3
							英寸	in	x 39.37
表面	A	平方米	m ²	平方米	m ²	-	平方英寸	in ²	x 1550.39
体积	V	立方米	m ³	立方米	m ³	-	立方英寸	in ³	x 61012.81
							加仑	gal	x 219.974
时间	t	秒	s	秒	s	-	分	min	x 60
速度	v	米 / 秒	m/s	米 / 分	m/min	x 60	英尺 / 秒	ft/s	x 3.3
加速	a	米 / 秒 ²	m/s ²	米 / 分 ²	m/s ²	-	英尺 / 秒 ²	ft/s ²	x 3.3
角速度	ω	弧度 / 秒	rad/s	弧度 / 秒	rad/s	-	弧度 / 秒	rad/s	-
旋转速度	n	秒 ⁻¹	1/s	转 / 分	1/min	x 60	转 / 分	rpm	x 60
重量	m	千克 (重量)	Kg	千克米秒 ² / 米	K _{ps} ² /m		磅 (质量)	lb	
力	F	牛顿	N	千克 (重量)	K _p	x 0,10194	磅 (重量)	lbf	x 2.205
密度	ρ	千克 / 米 ³	Kg/m ³	-	-	-	磅 / 立方英尺	lb/in ³	x 3.6x10 ⁻⁵
特定重量	γ	-	-	千克 / 立方米	K _p /m ³	-	磅 / 平方英尺	lb/in ³	-
力矩	M	牛顿米	Nm	千克米	K _p m	x 0,10194	磅英尺	lbf · ft	x 0.73746
能量	W	焦耳	J	千克米	K _p m	x 0,10194	磅英尺	lbf · ft	x 0.73746
				马力	CV	x 0,00136			
功率	P	瓦特	W	千克米 / 秒	K _p /s	x 0,10194	磅英尺 / 秒	lbf · ft/s	x 0.73746
							马力	hp	x 1.341x10 ⁻³
温度	T	热力学温标	K	摄氏度	°C	K-273,15	华氏度	°F	$\frac{9}{5}$ (K-255.37)


配套元件选择表 / Choose table KIT


链条 - Chain DIN 8187		型号 - Type						尺寸 Size	皮带 - Belt			
ISO	节距 Pitch	VR	OVR	RO	ZN	ZI	ZK		型号 - Type		皮带 最高宽度 Max belt width	型号 Type
		 第 25 页	 第 25 页	 第 26 页	 第 27 页	 第 27 页	 第 28 页		 第 29 页	 第 29 页		 第 29 页
05-B1	8 mm	VR 10-0S	OVR 10-0S	RO 10-0S				10	RP 1	RU 1	30	
06-B1	3/8"x7/32"	VR 10-1S	OVR 10-1S	RO 10-1S				10				
06-B1	3/8"x7/32"				ZN 20-1S	ZI 20-1S	ZK 20-1S	20				
06-B1	3/8"x7/32"				ZN 30-1S	ZI 30-1S	ZK 30-1S	30				
08-B1	1/2"x5/16"	VR 20-2S	OVR 20-2S	RO 20-2S				20	RP 2/3	RU 2/3	40	
08-B1	1/2"x5/16"	VR 30-2S	OVR 30-2S	RO 30-2S	ZN 30-2S	ZI 30-2S	ZK 30-2S	30	RP 2/3	RU 2/3	40	SPZ
10-B1	5/8"x3/8"	VR 30-3S	OVR 30-3S	RO 30-3S	ZN 30-3S	ZI 30-3S		30				
10-B1	5/8"x3/8"				ZN 40-3S	ZI 40-3S	ZK 40-3S	40				SPA
12-B1	3/4"x7/16"	VR 30-4S	OVR 30-4S	RO 30-4S	ZN 30-4S	ZI 30-4S		30				
12-B1	3/4"x7/16"	VR 40-4S	OVR 40-4S	RO 40-4S	ZN 40-4S	ZI 40-4S	ZK 40-4S	40	RP 4	RU 4	55	SPB
12-B1	3/4"x7/16"				ZN 50-4S	ZI 50-4S	ZK 50-4S	50				
16-B1	1"x17.02mm	VR 40-5S		RO 40-5S	ZN 40-5S	ZI 40-5S		40				
16-B1	1"x17.02mm				ZN 50-5S	ZI 50-5S	ZK 50-5S	50	RP 5	RU 5	85	
20-B1	1"1/4x3/4"	VR 50-6S		RO 50-6S				50				
20-B1	1"1/4x3/4"				ZN 60-6S	ZI 60-6S	ZK 60-6S	60				
24-B1	1"1/2x1"	VR 50-7S		RO 50-7S				50				
24-B1	1"1/2x1"				ZN 60-7S	ZI 60-7S	ZK 60-7S	60	RP 6	RU 6	130	
05-B2	8 mm	VR 10-0D	OVR 10-0D	RO 10-0D				10				
06-B2	3/8"x7/32"	VR 10-1D	OVR 10-1D	RO 10-1D				10				
06-B2	3/8"x7/32"				ZN 20-1D	ZI 20-1D	ZK 20-1D	20				
06-B2	3/8"x7/32"				ZN 30-1D	ZI 30-1D	ZK 30-1D	30				
08-B2	1/2"x5/16"	VR 20-2D	OVR 20-2D	RO 20-2D				20				
08-B2	1/2"x5/16"	VR 30-2D	OVR 30-2D	RO 30-2D	ZN 30-2D	ZI 30-2D	ZK 30-2D	30				SPZ
10-B2	5/8"x3/8"	VR 30-3D	OVR 30-3D	RO 30-3D	ZN 30-3D	ZI 30-3D		30				
10-B2	5/8"x3/8"				ZN 40-3D	ZI 40-3D	ZK 40-3D	40				SPA
12-B2	3/4"x7/16"	VR 30-4D	OVR 30-4D	RO 30-4D				30				
12-B2	3/4"x7/16"	VR 40-4D	OVR 40-4D	RO 40-4D	ZN 40-4D	ZI 40-4D	ZK 40-4D	40				SPB
12-B2	3/4"x7/16"				ZN 50-4D	ZI 50-4D	ZK 50-4D	50				
16-B2	1"x17.02mm	VR 40-5D		RO 40-5D	ZN 40-5D	ZI 40-5D		40				
16-B2	1"x17.02mm	VR 50-5D		RO 50-5D	ZN 50-5D	ZI 50-5D	ZK 50-5D	50				
20-B2	1"1/4x3/4"	VR 50-6D		RO 50-6D				50				
20-B2	1"1/4x3/4"				ZN 60-6D	ZI 60-6D	ZK 60-6D	60/70				
24-B2	1"1/2x1"	VR 50-7D		RO 50-7D				50				
24-B2	1"1/2x1"				ZN 60-7D	ZI 60-7D	ZK 60-7D	60/70				
06-B3	3/8"x7/32"	VR 20-1T		RO 20-1T				20				
06-B3	3/8"x7/32"				ZN 30-1T	ZI 30-1T	ZK 30-1T	30				SPZ
08-B3	1/2"x5/16"	VR 30-2T		RO 30-2T				30				
08-B3	1/2"x5/16"				ZN 40-2T	ZI 40-2T	ZK 40-2T	40				SPA
10-B3	5/8"x3/8"	VR 40-3T		RO 40-3T	ZN 40-3T	ZI 40-3T	ZK 40-3T	40				
10-B3	5/8"x3/8"				ZN 50-3T	ZI 50-3T	ZK 50-3T	50				
12-B3	3/4"x7/16"	VR 40-4T		RO 40-4T	ZN 40-4T	ZI 40-4T		40				
12-B3	3/4"x7/16"				ZN 50-4T	ZI 50-4T	ZK 50-4T	50				SPB
16-B3	1"x17.02mm	VR 40-5T		RO 40-5T				40				
16-B3	1"x17.02mm	VR 50-5T		RO 50-5T	ZN 50-5T	ZI 50-5T		50				
16-B3	1"x17.02mm				ZN 60-5T	ZI 60-5T	ZK 60-5T	60				
20-B3	1"1/4x3/4"	VR 50-6T		RO 50-6T				50				
20-B3	1"1/4x3/4"				ZN 60-6T	ZI 60-6T	ZK 60-6T	60/70				
24-B3	1"1/2x1"	VR 50-7T		RO 50-7T				50				
24-B3	1"1/2x1"				ZN 60-7T	ZI 60-7T	ZK 60-7T	60/70				

链条张紧装置配套元件 / KIT for chain tighteners

聚乙烯滑块 - 型号: VR Polyethylene sliding block Type: VR

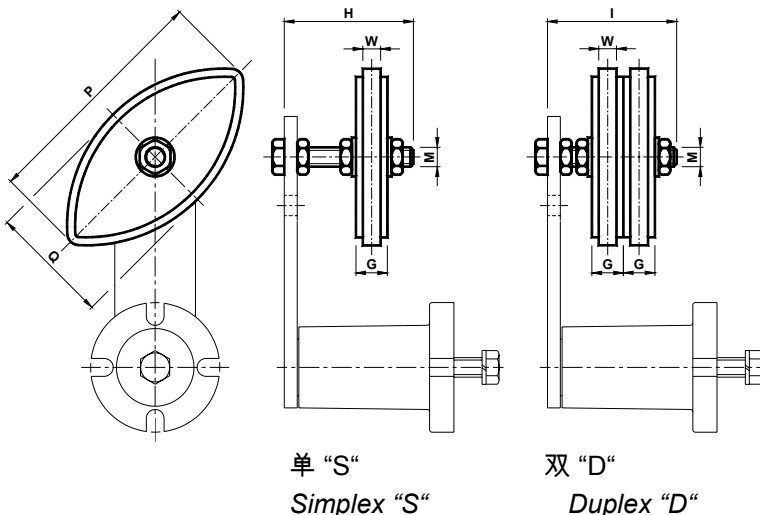



 高分子密度聚乙烯滑块。工作速度 ≤ 20 米 / 分。滑块工作温度 $\leq 70^{\circ}\text{C}$ 。具半圆形轮廓的滑块 V 适用于小轴距或者靠近链轮位置的安装。


 Polyethylene sliding block, high molecular density. Operating speed ≤ 20 m/min. Sliding block operating temperature $\leq 70^{\circ}\text{C}$. Semi-circular sliding block (V) suitable for reduced interaxis or for installation close to the pinion.

型号 Type	S 编号 N°	D 编号 N°	T 编号 N°	链条 Chain	型号 Type	S 编号 N°	D 编号 N°	尺寸 Size	A	B	C	E	G	H	I	L	M	P	Q	R	W	重量 Weight in Kg		
																						S.	D.	T.
VR 10-0	RE011110	RE011150		8 mm				10	10	12		10	45	45		M 8			35	2.5	0.09	0.10		
VR 10-1	RE011111	RE011152		3/8" x 7/32"	OVR 10-1	RE011030	RE011040	10	10	18		10	10.2	45	45		M 8	75	40	35	5	0.09	0.10	
VR 20-1			RE011191	3/8" x 7/32"				20		25		10			45	M10			35	5			0.12	
VR 20-2	RE011113	RE011155		1/2" x 5/16"	OVR 20-2	RE011032	RE011042	20	14	20.5		10	13.9	55	55		M10	96	50	35	7	0.10	0.11	
VR 30-2	RE011114	RE011156	RE011194	1/2" x 5/16"	OVR 30-2	RE011032	RE011044	30	14	20.5	34	10	13.9	55	60	70	M10	96	50	35	7	0.11	0.12	0.13
VR 30-3	RE011117	RE011160		5/8" x 3/8"	OVR 30-3	RE011034	RE011046	30	16.5	25		12	16.6	55	70		M12	126	65	45	9	0.12	0.14	
VR 40-3			RE011199	5/8" x 3/8"				40		42		12			100	M10			45	9			0.27	
VR 30-4	RE011120	RE011163		3/4" x 7/16"	OVR 30-4	RE011036	RE011048	30	17.5	30		12	19.5	60	70		M10	148	74	45	11	0.13	0.15	
VR 40-4	RE011121	RE011164	RE011202	3/4" x 7/16"	OVR 40-4	RE011038	RE011050	40	17.5	30	49	12	19.5	80	80	100	M12	148	74	45	11	0.20	0.22	0.28
VR 40-5	RE011124	RE011167	RE011205	1" x 17.02mm				50	18	47	79.5	20		80	90	100	M20			55	16	0.22	0.31	0.44
VR 50-5		RE011168	RE011206	1" x 17.02mm				50		47	79.5	20		100	120	M20				55	16		0.68	0.80
VR 50-6	RE011128	RE011172	RE011210	1"1/4 x 3/4"				50	20	54	91	20		100	120	130	M20			55	18	0.59	0.74	0.89
VR 50-7	RE011134	RE011176	RE011214	1"1/2 x 1"				50	24	72	120	20		100	120	130	M20			55	24	0.61	0.77	0.93

聚乙烯滑块 - 型号: OVR Polyethylene sliding block - Type: OVR



 高分子密度聚乙烯滑块。工作速度 ≤ 20 米 / 分。滑块工作温度 $\leq 70^{\circ}\text{C}$ 。OVR 滑块的特殊椭圆形形状允许在双边使用。

 Polyethylene sliding block high molecular density. Operating speed ≤ 20 m/min. Sliding block operating temperature $\leq 70^{\circ}\text{C}$. The special oval form of the sliding block OVR allows to use it on both sides.

链条张紧装置配套元件 / KIT for chain tighteners

聚乙烯轮 - 型号: RO

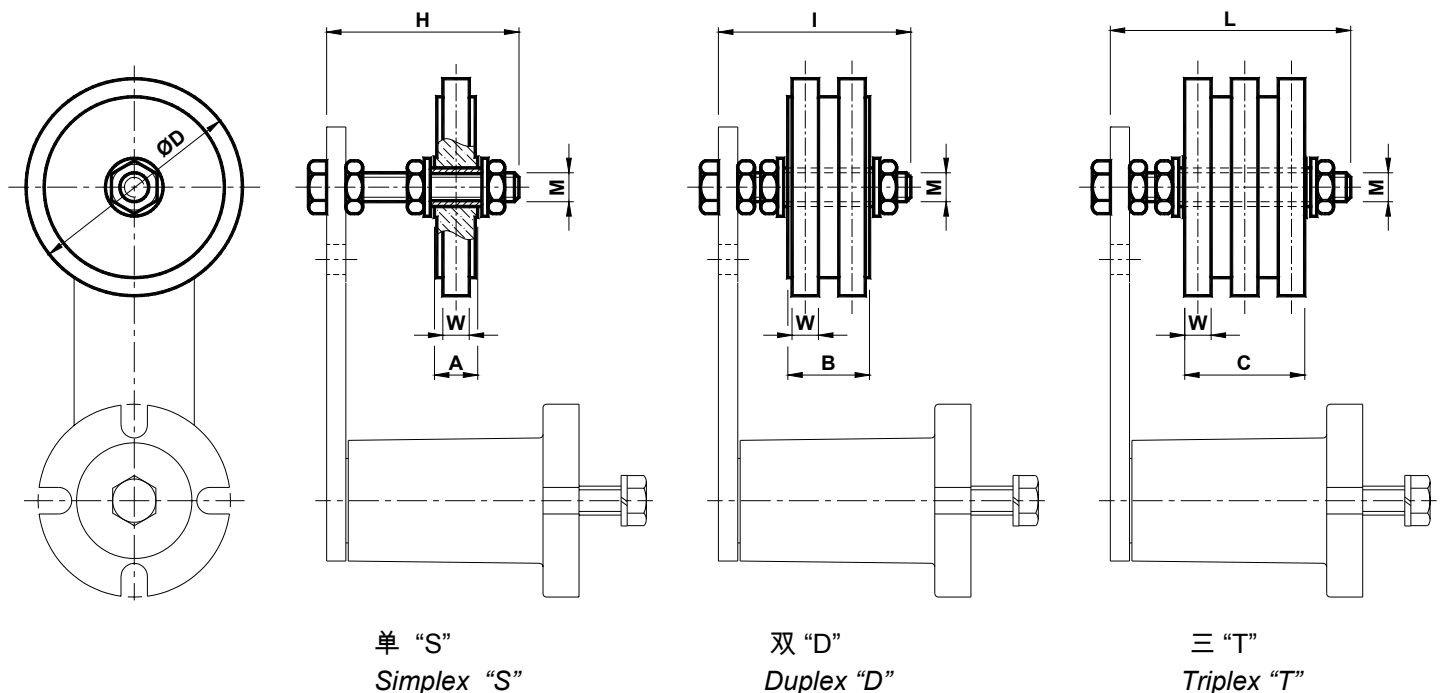
Polyethylene wheel set - Type: RO



此配套元件由一个在轴上的空转轮组成。轮材质为具高分子密度的聚乙烯。工作速度 ≤ 30 米 / 分。轮工作温度 ≤ 70°C。

KIT is composed by a idle wheel on a pin. Polyethylene wheel, high molecular density. Operating speed ≤ 30 m/min. Wheel operating temperature ≤ 70°C.

型号 Type	S 编号 N°	D 编号 N°	T 编号 N°	链条 Chain	尺寸 	A	B	C	ØD	H	I	L	M	W	重量 Weight in Kg		
															S.	D.	T.
RO 10-0	RE011350	RE011388		8 mm	10	18	18		70	45	45		M 8	2.5	0.14	0.15	
RO 10-1	RE011351	RE011389		3/8" x 7/32"	10	18	18		70	45	50		M 8	5	0.14	0.15	
RO 20-1			RE011428	3/8" x 7/32"	20			36	70			60	M10	5			0.21
RO 20-2	RE011353	RE011392		1/2" x 5/16"	20	18	36		70	55	55		M10	7	0.15	0.20	
RO 30-2	RE011354	RE011393	RE011432	1/2" x 5/16"	30	18	36	36	70	55	60	70	M10	7	0.16	0.22	0.23
RO 30-3	RE011357	RE011397		5/8" x 3/8"	30	18	36		90	55	70		M10	9	0.19	0.28	
RO 30-4			RE011437	5/8" x 3/8"	30			49	90			100	M10	9			0.43
RO 30-4	RE011360	RE011400		3/4" x 7/16"	30	18	36		90	55	70		M12	11	0.19	0.29	
RO 40-4	RE011361	RE011401	RE011440	3/4" x 7/16"	40	18	36	49	90	80	80	100	M10	11	0.25	0.35	0.46
RO 40-5	RE011364	RE011404	RE011443	1" x 17.02 mm	40	18	49	82	110	80	90	100	M12	16	0.32	0.56	0.70
RO 50-5		RE011405	RE011444	1" x 17.02 mm	50		49	82	110		100	120	M12	16		0.74	1.00
RO 50-6	RE011369	RE011409	RE011448	1"1/4 x 3/4"	50	19	57	95	110	100	120	130	M20	18	0.57	0.83	1.10
RO 50-7	RE011373	RE011413	RE011452	1"1/2 x 1"	50	26	75	125	110	100	120	130	M20	24	0.63	1.00	1.27





链条张紧装置配套元件 / KIT for chain tighteners

链条张紧链轮 (具国产轴承) – 型号: ZN

Sprocket wheelset (with national bearing) – Type: ZN



链条张紧链轮 (具 INA 轴承) – 型号: ZI

Sprocket wheelset (with INA bearing) – Type: ZI

链轮由一个安装在底部放大的轴承上的钢冠组成。

这些元件可包含国产轴承 (ZN) 或者 INA 轴承 (ZI)。

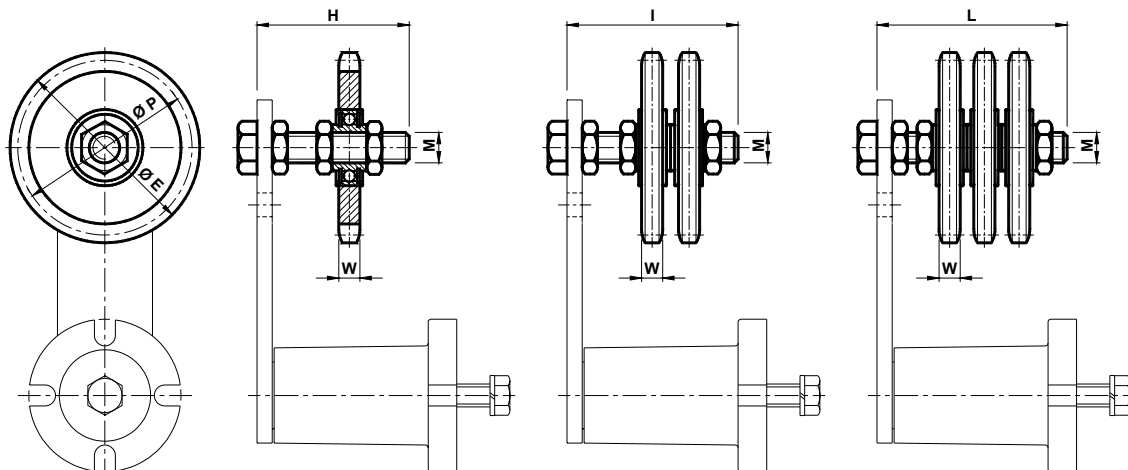
工作速度 ≤ 60 米 / 分。

工作温度 ≤ 100°C。

The pinion consists of a steel crown, installed on enlarged bearings. Units are supplied with national bearings. Units are supplied with national (ZN) or INA (ZI) bearings. Operating speed ≤ 60 m/min. Operating temperature ≤ 100°C.

ZN: 链条张紧链轮 (具国产轴承) ZN: Sprocket wheelset (with national bearing)				ZI: 链条张紧链轮 (具 INA 轴承) ZI: Sprocket wheelset (with INA bearing)				尺寸 Image	ØE	H	I	L	M	ØP	Z	W	重量 Weight in Kg		
型号 Type	S 编号 N°	D 编号 N°	T 编号 N°	链条 Chain	型号 Type	S 编号 N°	D 编号 N°										T 编号 N°	S.	D.
ZN 20-1	RE011470	RE011507		3/8" x 7/32"	ZI 20-1	RE011580	RE011618		20	68.0	55	55	M16	63.90	21	5.3	0.29	0.41	
ZN 30-1	RE011471	RE011508	RE011545	3/8" x 7/32"	ZI 30-1	RE011581	RE011619	RE011655	30	68.0	55	60	M16	63.90	21	5.3	0.29	0.42	0.55
ZN 30-2	RE011474	RE011511		1/2" x 5/16"	ZI 30-2	RE011584	RE011622		30	77.8	55	60	M16	73.14	18	7.2	0.39	0.62	
ZN 40-2			RE011549	1/2" x 5/16"	ZI 40-2			RE011659	40	77.8		90	M16	73.14	18	7.2			0.88
ZN 30-3	RE011477	RE011514		5/8" x 3/8"	ZI 30-3	RE011587	RE011625		30	93.0	60	70	M16	86.39	17	9.1	0.54	0.91	
ZN 40-3	RE011478	RE011515	RE011553	5/8" x 3/8"	ZI 40-3	RE011588	RE011626	RE011663	40	93.0	80	90	M16	86.39	17	9.1	0.57	0.94	1.30
ZN 50-3			RE011554	5/8" x 3/8"	ZI 50-3			RE011664	50	93.0		120	M16	86.39	17	9.1			1.36
ZN 30-4	RE011480			3/4" x 7/16"	ZI 30-4	RE011590			30	99.8	60		M16	91.63	15	11.1	0.66		
ZN 40-4	RE011481	RE011518	RE011557	3/4" x 7/16"	ZI 40-4	RE011591	RE011629	RE011667	40	99.8	80	90	M16	91.63	15	11.1	0.69	1.18	1.66
ZN 50-4	RE011482	RE011519	RE011558	3/4" x 7/16"	ZI 50-4	RE011592	RE011630	RE011668	50	99.8	80	90	M16	91.63	15	11.1	0.70	1.20	1.72
ZN 40-5	RE011485	RE011521		1" x 17.02mm	ZI 40-5	RE011596	RE011632		40	109.0	80	100	M20	98.14	12	16.2	1.05	1.83	
ZN 50-5	RE011486	RE011522	RE011560	1" x 17.02mm	ZI 50-5	RE011597	RE011633	RE011670	50	109.0	100	120	M20	98.14	12	16.2	1.09	1.87	2.61
ZN 60-5			RE011561	1" x 17.02mm	ZI 60-5			RE011671	60	109.0		160	M20	98.14	12	16.2			2.69
ZN 60-6	RE011490	RE011527	RE011564	1"1/4 x 3/4"	ZI 60-6	RE011601	RE011638	RE011674	60/70	147.8	100	140	M20	132.65	13	18.5	2.19	4.11	5.99
ZN 60-7	RE011494	RE011531	RE011567	1"1/2 x 1"	ZI 60-7	RE011605	RE011677	RE011677	60/70	150.0	140	140	M20	135.21	11	24.1	2.37	4.31	6.33

如有需要，由客户负责扩大弹性组件上的孔 / The client must widen the hole in the elastic element where necessary



单 "S"
Simplex "S"


双 "D"
Duplex "D"


三 "T"
Triplex "T"

链条张紧装置配套元件 / KIT for chain tighteners

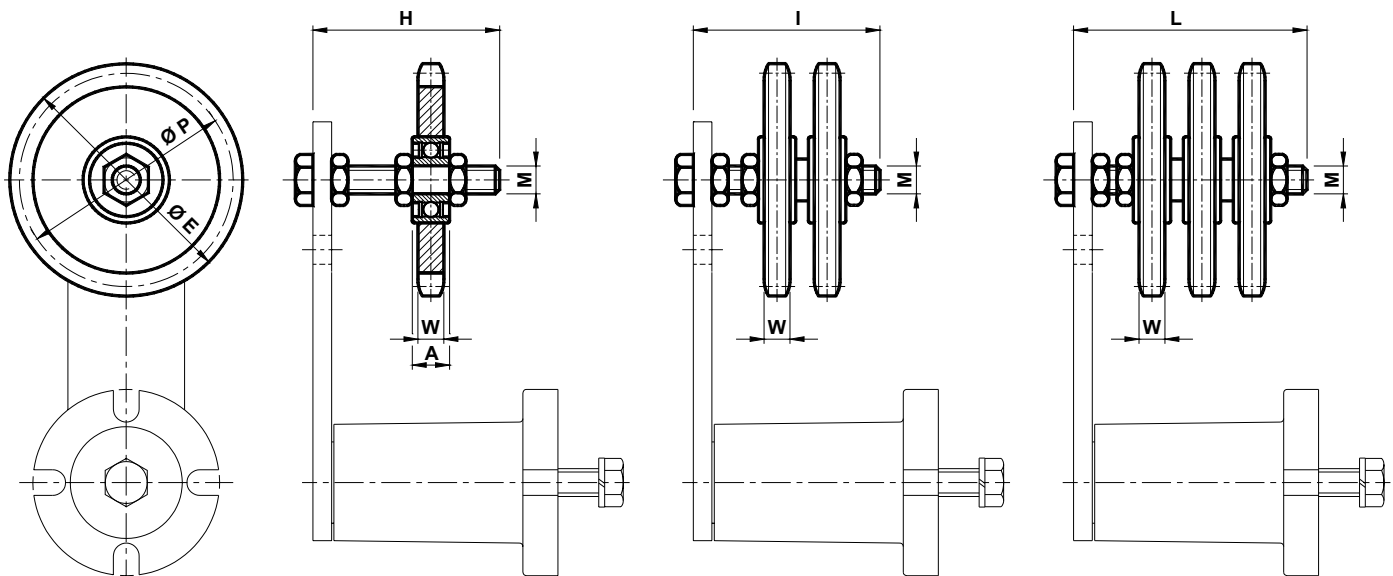
具轴承的链条张紧链轮 - 型号: ZK

Sprocket wheelset with ballbearing - Type: ZK


 链轮由一个安装在轴承上的钢冠构成，一并提供螺钉和螺母。工作速度 ≤ 60 米 / 分。工作温度 $\leq 100^{\circ}\text{C}$ 。

 The sprocket is composed by a steel crown with a bearing and is supplied with screws and nuts. Operating speed ≤ 60 m/min. Operating temperature $\leq 100^{\circ}\text{C}$.

型号 Type	S 编号 N°	D 编号 N°	T 编号 N°	链条 Chain	尺寸 	A	ØE	H	I	L	M	ØP	W	Z	重量 Weight in Kg		
															S.	D.	T.
ZK 20-1	RE011690	RE011727		3/8" x 7/32"	20	9	49.3	55			M10	45.81	5.3	15	0.13	0.23	
ZK 30-1	RE011691	RE011728	RE011764	3/8" x 7/32"	30	9	49.3	55	60	70	M10	45.81	5.3	15	0.13	0.23	0.26
ZK 30-2	RE011694	RE011731		1/2" x 5/16"	30	9	65.5	55	60		M10	61.09	7.2	15	0.21	0.37	
ZK 40-2			RE011768	1/2" x 5/16"	40	12	65.5			80	M12	61.09	7.2	15			0.51
ZK 40-3	RE011698	RE011735	RE011771	5/8" x 3/8"	40	12	83.0	80	80	80	M12	76.36	9.1	15	0.38	0.60	0.96
ZK 50-3			RE011772	5/8" x 3/8"	50	15	83.0			120	M20	76.36	9.1	15			1.26
ZK 40-4	RE011701	RE011738		3/4" x 7/16"	40	12	99.8	80	80		M12	91.63	11.1	15	0.56	1.00	
ZK 50-4	RE011702	RE011739	RE011776	3/4" x 7/16"	50	15	99.8	100	120	120	M20	91.63	11.1	15	0.81	1.35	1.60
ZK 50-5	RE011706	RE011743		1" x 17.02mm	50	15	117.0	100	120		M20	106.12	16.2	13	1.23	2.10	
ZK 60-5			RE011780	1" x 17.02mm	60	15	117.0			160	M20	106.12	16.2	13			2.92
ZK 60-6	RE011710	RE011747	RE011784	1"1/4 x 3/4"	60/70	15	147.8	100	140	160	M20	132.65	18.5	13	2.28	3.60	5.20
ZK 60-7	RE011714	RE011751	RE011788	1"1/2 x 1"	60/70	15	150.0	140	140	180	M20	135.21	24.1	11	2.33	4.20	6.10


 单 "S"
 Simplex "S"

 双 "D"
 Duplex "D"

 三 "T"
 Triplex "T"

皮带张紧装置配套元件 / KIT for belt-tighteners

聚酰胺滚轮 – 型号: RP

⊙ 聚酰胺滚轮用 / 螺钉“M”

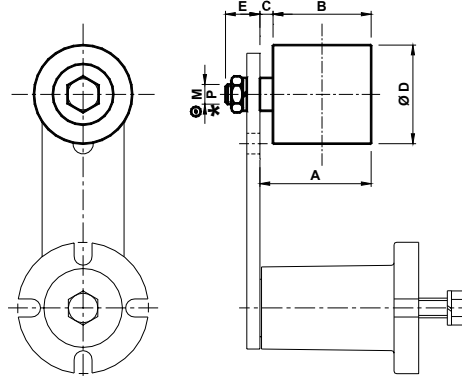
Rollerset of polyamid – Type: RP

⊙ For polyamid-roller / Screw “M”



滚轮为塑性材料，在润滑轴承上安装。滚轮工作温度为 ≤70°C。

The roller is in plastic installed on greased bearings. Roller operating temperature ≤70°C.



镀锌钢滚轮 – 型号: RU

* 镀锌钢滚轮用 / 螺钉“P”

Rollerset of galvanized steel – Type: RU

* For steel-roller / Screw “P”



滚轮为镀锌钢制，在润滑轴承上安装。滚轮工作温度为 ≤100°C。

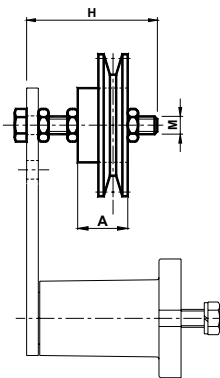
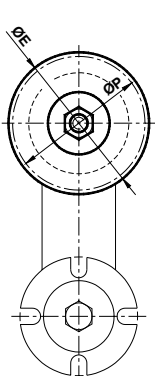
The roller is in galvanized steel installed on greased bearings. Roller operating temperature ≤100°C.

型号 Type	编号 N°	重量 Weight in Kg	A	B	C	ØD	E	⊙M	*P	尺寸 	型号 Type	编号 N°	重量 Weight in Kg
RP 1	RE011090	0.08	38	35	3	30	13	M 8	M 8	10	RU 1	AR070870	0.16
RP 2/3	RE011092	0.18	51	45	6	40	16	M10	M10	20-30	RU 2/3	AR070872	0.37
RP 4	RE011094	0.40	68	60	8	60	21	M12	M16	40	RU 4	AR070874	0.85
RP 5	RE011096	1.20	99	90	9	80	28	M20	M20	50	RU 5	AR070876	2.09
RP 6	RE011098	1.70	142	135	7	90	27	M20	M20	60	RU 6	AR070878	2.44

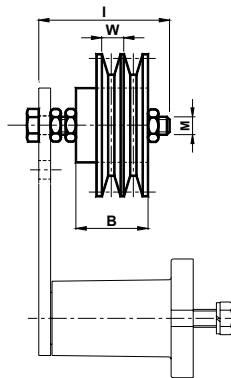
滑轮: SP (Z-A-B)

Pulley : SP (Z-A-B)

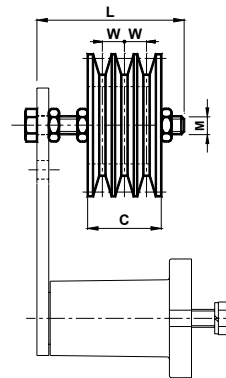
Scheibe: SP (Z-A-B)



单 “S”
Simplex “S”



双 “D”
Duplex “D”



三 “T”
Triplex “T”

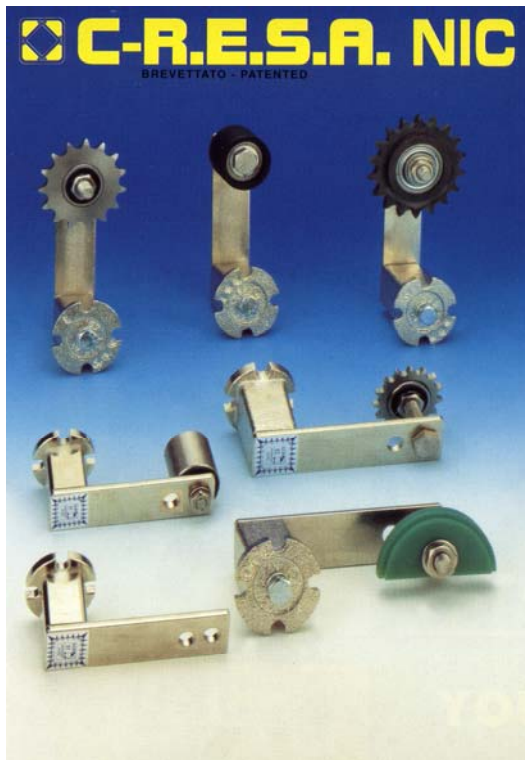
配套元件由一个用于 V 型带的铸铁滑轮构成，在润滑轴承上安装。若有需要，我们可提供具不同轮廓或用于齿型皮带的滑轮。


The kit is composed of a cast-iron pulley for V-belts mounted on lubricated bearings. On request pulleys may be supplied with a different profile or for cogged belts.


型号 Type	S 编号 N°	D 编号 N°	T 编号 N°	皮带 Belt	尺寸 	A	B	C	ØE	H	I	L	M	ØP	W	重量 Weight in Kg		
																S.	D.	T.
SP 30-Z	RE011800	RE011802	RE011804	SPZ	30	24	35	40	67	55	60	70	M10	63	12	0.40	0.70	1.10
SP 40-A	RE011806	RE011808	RE011810	SPA	40	34	49	50	95,6	80	80	80	M12	90	15	1.00	1.70	1.80
SP 40-B	RE011812	RE011814		SPB	40	41	60		132	80	80		M12	125	19	1.90	2.80	
SP 50-B			RE011816	SPB	50			63	132			120	M16	125	19			3.50

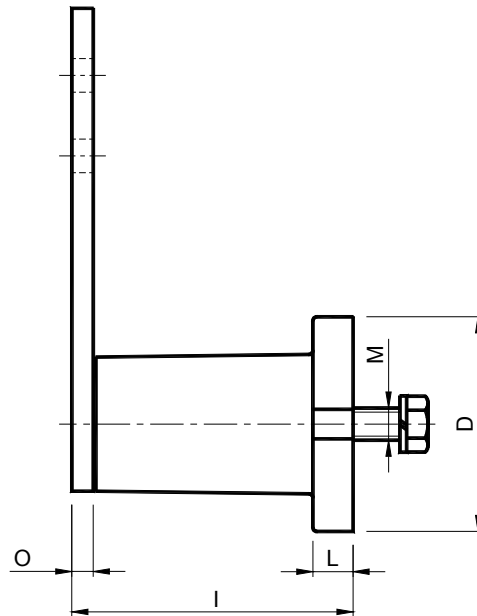
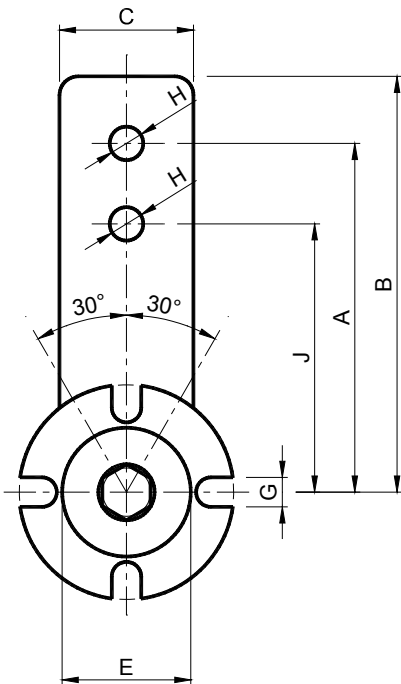
若有要求，我们可提供将轴焊接在杆上的滑轮 / On request we can supply the pulley with the pin welded on the lever

张紧装置组件- 型号: REG / Tighteners elements – Type: REG




 NIC 为 CRESA 弹性张紧装置。在安装前其金属表面得到镀镍处理。这项特征使其对恶劣的工作条件比如与腐蚀剂的接触情况下具有极高的耐性。

 *NIC are CRESA tighteners elements which are subjected to nickel-plating of the metal surfaces before assembly. This characteristic makes them highly resistant to severe working conditions such as those in contact with corrosive agents.*



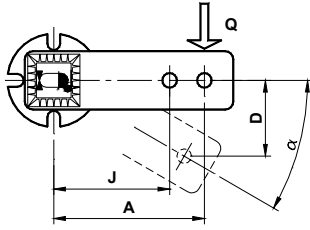
 扭转角度 $\pm 30^\circ$

工作温度从 -40°C 至 $+80^\circ\text{C}$

 *Rotation angle $\pm 30^\circ$
Operating temperature from -40°C to $+80^\circ\text{C}$*

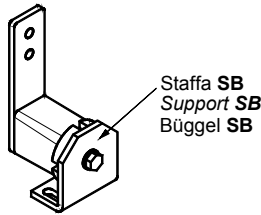



安装指导 / MOUNTING INSTRUCTION




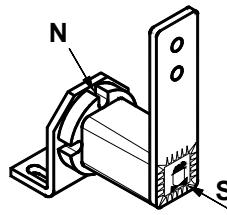
型号 Type	拉紧扭矩 Mt 以 Nm 表示 Torque Mt in Nm						
	尺寸 size						
	10	20	30	40	50	60	70
RE	10	25	49	89	210	410	750
FE	7	17	41	83	145	355	690


型号 Type	预加负荷角度 $\alpha \leq 10^\circ$ Angle of preloading $\alpha \leq 10^\circ$				预加负荷角度 $\alpha \leq 20^\circ$ Angle of preloading $\alpha \leq 20^\circ$				预加负荷角度 $\alpha \leq 30^\circ$ Angle of preloading $\alpha \leq 30^\circ$			
	臂 A Arm A		臂 J Arm J		臂 A Arm A		臂 J Arm J		臂 A Arm A		臂 J Arm J	
	Q [N]	D [mm]	Q [N]	D [mm]	Q [N]	D [mm]	Q [N]	D [mm]	Q [N]	D [mm]	Q [N]	D [mm]
RE 10 / FE 10	15	14	20	10	40	28	53	20	85	40	113	30
RE 20 / FE 20	25	17	31	14	65	34	81	27	136	50	170	40
RE 30 / FE 30	75	17	93	14	180	34	225	27	340	50	425	40
RE 40 / FE 40	150	22	195	17	380	44	494	34	790	65	1027	50
RE 50 / FE 50	290	30	362	24	730	60	912	47	1600	87	2000	70
RE 60 / FE 60	500	39	625	31	1300	78	1625	61	2550	112	3190	90
RE 70 / FE 70	600	43	750	34	1700	86	2125	68	4000	125	5000	100




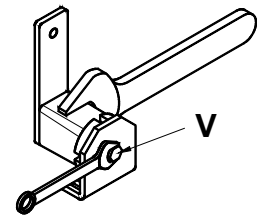
 CRESA 组件可在机器金属结构上直接装配，否则可使用上图所示的夹具 SB。


 The elements CRESA can be mounted directly on the metallic structure of the machine otherwise you can use the supports SB as indicated in the above figure.




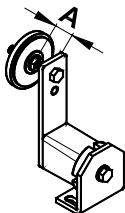
 附在弹性组件上的标签 S，帮助识别预加负荷角度。凹处 N 用于主体的固定，使得组件的固定更可靠。


 The label S, which is put on the elastic elements, helps the identification the preloading angle. The niche N is used to fix the body, so the anchorage of the element is stabler.




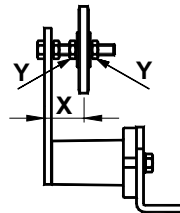
 为了给张紧装置预加负荷，只需要放松螺钉 V 并旋转主体上装的扳手，直至达到想要的角度。根据拉紧扭矩 Mt 重新锁紧螺钉 V。


 To preload the tensioner, you only have to turn the screw V out and turn the monkey wrench which is put on the body until you reach the wanted angle. You have to lock the screw V again with the couple of tightening screws Mt.




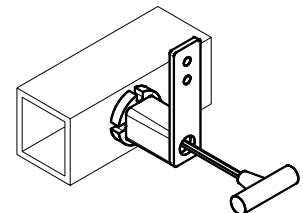
 在有必要将配套元件向外端方向安装时，尺度 A 应减低，受力 Q 应比在表格中显示的低 50%。


 When you need to mount the KIT on the outside, the dimension A must be reduced the best possible and the force Q must be inferior to the 50% of that one indicated in the table.




 在第 7 页中所描述的配套元件的滑块、滑轮、链轮可使用两个螺帽 Y 轻易安装在尺度 A。

 The KITS sliding block, roller, sprocket wheelseet, which are described on page 17-18-19-20, can be easily mounted at the dimension X through the two nuts Y.

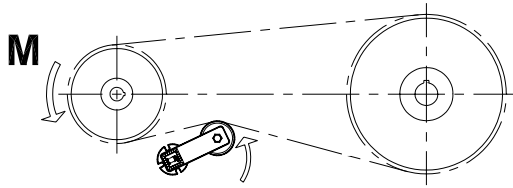



 在不可能使用传统式安装方式时，由于钻孔不可见，建议使用 FE 组件。


 When the traditional placement (position) is not possible because of the dead connection hole, it would be suggested to use FE elements.

应用实例 / EXAMPLES OF APPLICATION

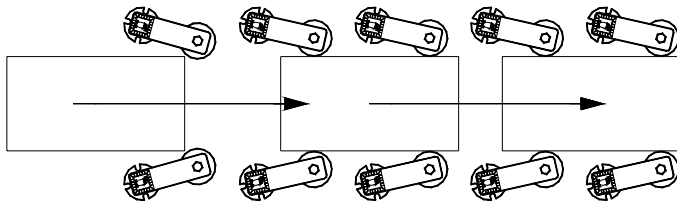
例 1





 CRESA 弹性组件应在链条缓慢端并沿滑动方向安置。另外其位置应尽可能接近驱动轮。

 *CRESA elastic element has to be positioned in the slow portion and in the sliding sense of the chain. Moreover it must be nearer than possible to the working wheel.*

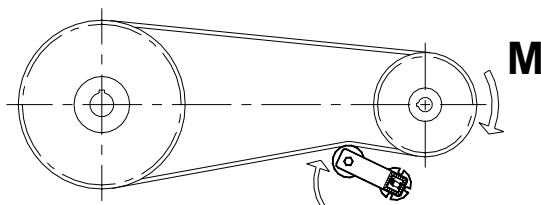
例 3





 压力或传送带组件

 *Pressure or conveyor elements*

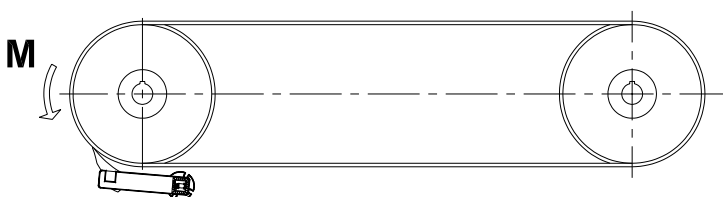
例 5



 皮带张紧轮 RP 和 RU 应在接近驱动滑轮的位置安装。也可在传动系统内部安置。

 *The belt stretcher RP and RU must be set up near the driving pulley. They can be positioned also inside the transmission.*

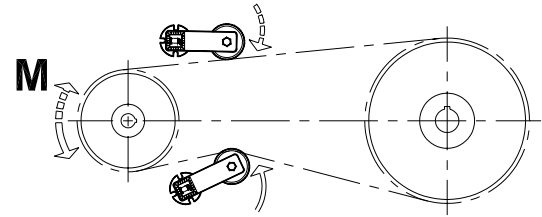
例 7





 刮料器用支撑。

 *Support for scraper.*

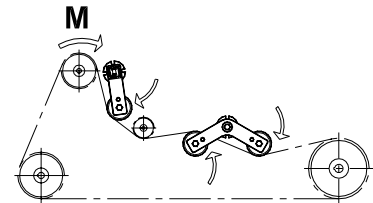
例 2





 对于可逆转传动系统，CRESA 组件应安装在两端。由于在张紧臂存在更高的负载，应使用大尺寸的组件以 15° 的最大角度加载张紧装置。

 *For reversible transmission system, CRESA elements must be positioned on both sides. Use greater size elements because in the tight portion occurs a bigger load, but loading the tightener with a maximum angle of 15°.*

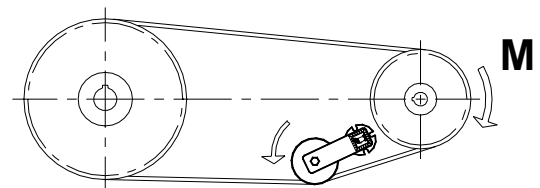
例 4




 使用长链条的传动系统，建议使用更多的张紧装置组件。对这个应用类型的理想张紧装置是包括基础组件 CEB-CEBP 和配套元件“V”的装置。

 *For long transmission system, we recommend the use of more tightener elements. The ideal tightener in this kind of application is the basic element CEB-CEBP with the KIT "V".*

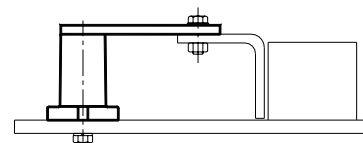
例 6





 安装 V 型皮带的滑轮的张紧装置应在传动系统内部安装。

 *The tightener that set up the pulleys for V-type belt must be assembly inside, in the system of transmission.*

例 8



 导向用支撑。

 *Example as support for guide*

一般销售条件：

- 1) **订货** – 标准材料或特殊材料的订货应始终根据TECNIDEA CIDUE S.r.l. 公司的报价作出。所有的订货对客户都是有约束力的。加工生产一旦开始，便不可接受取消订货或减少订货，除非客户一方赔偿直至中止时刻所使用的材料和加工费用。无论如何，这些费用将由 TECNIDEA CIDUE S.r.l.公司决定。
- 2) **价格** – 意指在订货日期有效的价格。所有的价格均为维罗纳交货价计价，包装费除外。如果在供应工程中出现材料费或其他生产费用的增长情况，TECNIDEA CIDUE S.r.l.公司有权根据相应的增长修正价格，这一点也包括已在进行过程中的订货。
- 3) **交货期限** – 唯有TECNIDEA CIDUE S.r.l.公司所指定的交货期限为有效期限。无论如何，此期限只是具有说明意义的。若存在材料供应困难和罢工的情况，或者在任何不可抗力的情况下，交货期限将自动延期，TECNIDEA CIDUE S.r.l.公司没有义务赔偿任何可能的相关损失。材料准备完毕，客户在任何情况下有义务提取所订的材料。
- 4) **运输** – 运输费由订货方负担，即使是到岸计价，风险和危险也由其承担。就可能发生的短装货投诉应在接收货物后8天内提出。如果经商议，运输费由TECNIDEA CIDUE S.r.l.公司负担，或者仅是部分负担，公司保留可选择最经济的运输方式的权利。
- 5) **包装** – 包装费在费用价格中计算。
- 6) **退货** – 如果未经事先批准或有包装费，不接受具任何理由的退货，可能存在的海关手续费及退货完全由买方负担。仓库存放或管理费用保证金的将以退货价值的15%计算并通过欠款通知账单的方式而发放。
- 7) **质量保证** – TECNIDEA CIDUE S.r.l.公司将致力于免费修理或更换由其认定有缺陷的部件。有争议的货物应交还 TECNIDEA CIDUE S.r.l.公司所在地，所有费用均免。在将有缺陷的部件修理或拆开复原后，保质期到期。由买方对有缺陷的部件进行的修理仅在 TECNIDEA CIDUE S.r.l. 公司批准并同意费用预定价的情况下得到承认。
TECNIDEA CIDUE S.r.l.公司对在用户使用其产品，包括有缺陷产品的过程中所造成的损害不负任何责任，也不偿付任何相关的赔款。
- 8) **责任** - TECNIDEA CIDUE S.r.l.公司对在用户使用其产品，包括由缺陷产品的过程中所造成的损害不负任何责任，也不偿付任何相关的赔款。TECNIDEA CIDUE S.r.l.公司按照从属客户提出的特殊细节制造产品，但是对此产品是否由专利保护不负任何责任。
- 9) **付款** – 只有在所商议的方式和期限内所做的付款被认为有效。在付款期过后，TECNIDEA CIDUE S.r.l.公司有权要求付款，并将以超过法定税率以上3%的税率计算罚款利息。在订货方延迟付款或不付款的情况下，TECNIDEA CIDUE S.r.l.公司有权中断在进行过程中的订货的送交或者提出提前付款的要求，无需向订货方保证任何的赔款或赔偿。在生产过程中或材料已由订货方拥有，对材料提出的任何争议不解除订货方在确定期限内付款的义务，应付全部款项并不可要求任何的折扣。
- 10) **财产** – 在就发票额完全支付款项之前，一切寄出的货物仍为TECNIDEA CIDUE S.r.l.公司的财产。
- 11) **主管法院** – 与TECNIDEA CIDUE S.r.l.商业关系相联的任何争议将为维罗纳法院的权限。

N.B. Fa fede la versione in Italiano o Inglese.

注：所有的文件以意大利文或英文版为准。



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