

工程塑料拖链系列简介

Introduction to the engineering plastic cable chain series

拖链的用途和特点 / Characteristics and Applications of Drag Chains

- ◆ 适合于使用在往复运动的场合，能够对内置的电缆、油管、气管、水管等起到牵引和保护作用。
- ◆ 拖链每节都能打开，便于安装和维修。运动时噪音低、耐磨、可高速运动。
- ◆ 拖链已被广泛应用于数控机床、电子设备、石材机械、玻璃机械、门窗机械、注塑机、机械手、起重运输设备、自动化仓库等。
- ◆ The product can be used for such locations where reciprocating motions are required so that internally installed cables, oil pipes, gas tubes and water tubes can be dragged and protected.
- ◆ Each joint of the chain can be opened up so as to facilitate repairs and maintenance. It gives low noises and is of anti-wearing while running. It can also be operated under high speed.
- ◆ The drag chains have already extensively used in digital-controlled machine tools, electronic equipment, machinery for stone industry, machinery for glass industry, machinery for doors and windows, moulding injectors, manipulators, lifting and transport equipment and automatic warehouses, etc.

拖链的结构 / Construction of the drag chains

- ◆ 拖链外形似坦克链，由众多单元链节组成，链节之间转动自如。
- ◆ 相同系列的拖链内高、外高、节距相同，拖链内高、弯曲半径R可有不同的选择。
- ◆ 单元链节由左右链板和上下盖板组成，拖链每节都能打开，装拆方便，不必穿线，打开盖板后即可把电缆、油管、气管等放入拖链内。
- ◆ 另可提供分隔片，将链内空间按需要分隔开。
- ◆ The appearance of the chain looks like the crawler of a tank consisting of certain number of joints. The joints of crawler are freely turned round.
- ◆ The same series of chain has same inner height and out height and same pitch but the inner height and bend radius R can be made per different specifications.
- ◆ A unit chain joint is consisting of a left-right chain plate and a updown cover. Each chain joint can be opened up so as to facilitate assembly and dismantal without threading. Cables, oil pipes and gas pipes can be put into the drag chain after the cover plate is opened.
- ◆ Spacers are available for use, which are able to divide the space inside the chain into divisions according to requirements.

拖链的基本参数 / Basic parameters of drag chains

- ◆ 材料：增强尼龙，具有高的压力和抗拉负荷，良好的韧性、高弹性、耐磨性、阻燃性。高温时性能稳定，可以使用在室外。
- ◆ 抗耐性：耐油、盐并有一定的耐酸、耐碱能力。
- ◆ 运行速度和加速度：最高速度可达5米/秒，最高加速度可达5米/秒²(具体速度、加速度视运行情况而定)。
- ◆ 运行寿命：在正常架空使用情况下，可达500万往复运动次数(具体寿命视运行情况而定)。
- ◆ Material: reinforced nylon. It can stand with high pressure and has good tensile strength, toughness and elasticity, wearing and flammable resistance.
- ◆ Resistances: It is oil and salt resistant.
- ◆ Operating speed and acceleration: Max. operating speed is 5m/sec. and max. acceleration is 5m/sec. (specific speed and acceleration depends on specific situation).
- ◆ Service life: Under normal conditions, 5 million reciprocating motions can be reached (which is also related to the operating conditions.)

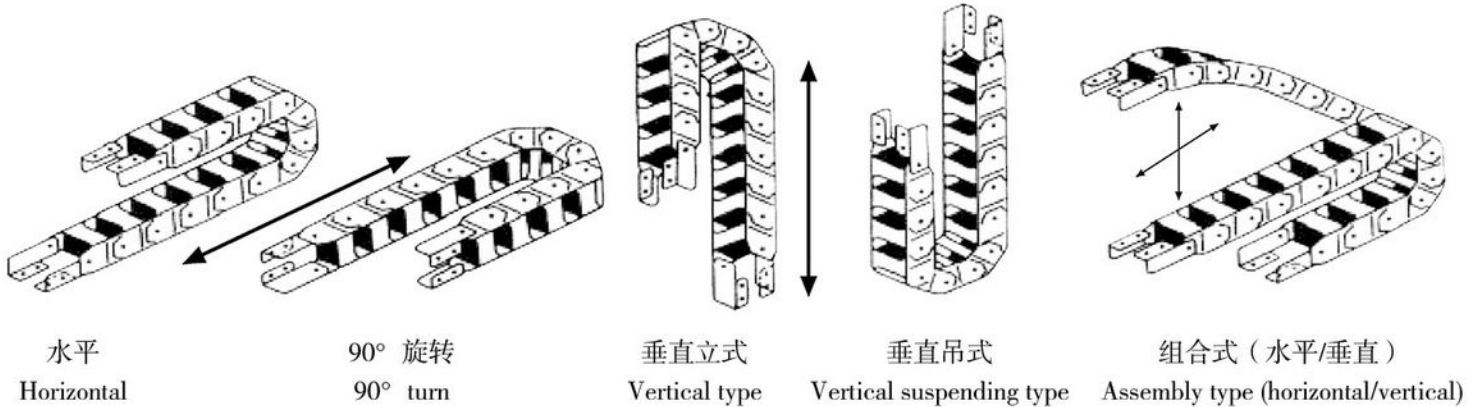
技术指标 / Technical data:

抗拉强度 Tensile Strength	180N/mm ²	体积电阻 Volume Resistance	10 ¹⁰ –10 ¹⁵ Ω
冲击强度 Impact Strength	50KJ/m ²	吸水性 (23℃) Water Absorbency	4%
温度范围 Temperature Range	–40℃–130℃	摩擦系数 Friction Coefficient	0.3
表面电阻 Surface Resistance	10 ¹⁰ –10 ¹² Ω	阻燃性 Flame Retardancy	HB(UL94)

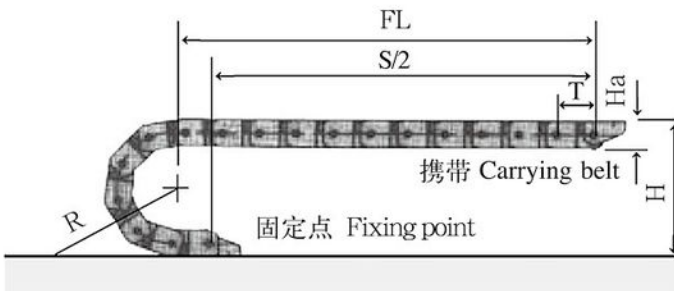
工程塑料拖链系列简介

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拖链的运行方式 / Operating mode of chain



水平架空运行/Horizontally run with no load



H=安装高度

H=Installed height

T=节距

T=Pitch

Ha=外高

Ha=Outside height

FL=架空长度

FL=Suspended length

P=固定端偏离行程中心的距离

P=Deviation from center at the fixed end

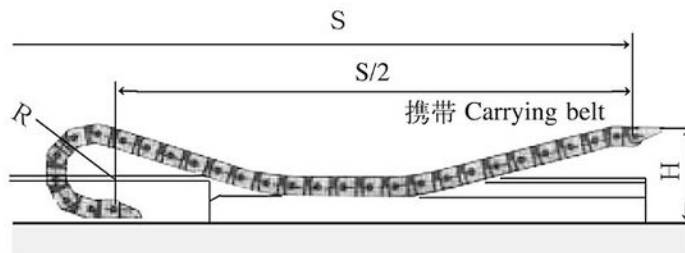
S=运行行程

S=Travel range

R=弯曲半径

R=Bending radius

滑动运行/Coast operation



固定端在行程中间

Be fixed at the middle point of the travel

在导向槽中运动

Move in the guide slot

固定点在运行行程中间时（即P=0），拖链长度最为节约。

When the fixed point being located at the middle point of the travel range (P=0), the length of drag chain will be optimized.

拖链长度和安装高度计算

拖链长度 $L = S/2 + \pi R + P + (2 \sim 3)T$ 拖链安装高度 $H = 2R + Ha + 0.1Ha$

滑动运行拖链的长度和安装高度请来电咨询。

Calculations for chain's length and installation height

Chain's length $L = S/2 + \pi R + P + (2 \sim 3)T$ Drag chain's installation height $H = 2R + Ha + 0.1Ha$

Please ask by telephone or fax about the length and installation of the drag chain in coast operation

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工程塑料拖链系列简介

Introduction to the engineering plastic cable chain series

拖链的选用原则 / Principle for selecting drag chains

- ◆ 内高：选择内置电缆、油管、气管、水管等中最粗的一根作为参考高度，加上至少10%的高度空间作为拖链内高 H_i 。如果重叠按重叠后实际高度作为参考高度。
- ◆ 内宽：选择较粗的一些电缆、油管、气管、水管等，其外径之和作为拖链内宽的参考，并留有至少10%的宽度空间。
- ◆ 弯曲半径：选择内置电缆、油管、气管、水管等中最大的弯曲半径作为参考值，并留有10%以上的空间。
- ◆ Inner height: Take the most thick piece of the internally installed cable, oil pipe, gas pipe or water pipe as the reference height plus 10% of the space height at least as the inner height H_i . If overlapping, take the overlapped height as the actual height.
- ◆ Inner width: Take the sum of the outside diameter of the thicker cables, oil pipes, gas pipes or water pipes as the reference of the inner width and leave at least 10% of the space as a margin.
- ◆ Radius of a bend: Take the biggest radius of a bend of a cable, oil pipe, gas pipe or water pipe as a reference value and leave 10% of the space as a margin.

拖链内置电缆、油管、水管、气管的放置原则 / Installation principles for internally laid cable, oil pipe water pipe or gas pipe

- ◆ 应该留有15%的剩余空间，让内置电缆、油管等可以自由活动，在半径方向上对拖链不产生拉力。
- ◆ 直径差别大的导线应该分开铺设，重量平均分布，必要时可用分隔片分开。
- ◆ 在高速或高频率运行时，要尽量使导线在水平上相互分开，不要使之相互叠置，在电缆、气管、油管等较多的时候建议使用分隔片。
- ◆ 15% of the space should be reserved as a margin so that the internally laid cables and oil pipes can move freely and there will not be any stress on the drag chains in the direction of radius.
- ◆ For those cables that are quite different in diameter, they should be laid separately and the weight should be balanced evenly. They can also be separated from one another by using spacers if necessary.
- ◆ When operating in high speed or high frequency, the horizontally laid cables should be in a parted way and should not be overlapped. If too many cables, gas pipes and oil pipes laid together, it is recommended that spacers be used.

电缆拖链的安装 / Installation for cable drag chains

- ◆ 使用适当的平头螺丝刀，垂直插入盖板两端的开启孔，打开盖板，将电缆、油管等按照我们提供的放置原则放入拖链，然后盖上盖板，此外，电线的固定端和活动端均应去张力装置加以固定。
- ◆ 在长距离滑动使用时，建议使用导向槽。导向槽的使用和安装请咨询我公司的专业人员。
- ◆ Put a screw driver vertically into the opening hole at both ends of the cover and then open the cover. Put the drag chain for cables and oil pipes according to the instructions provided. Put the cover back. Note that the fixed end and the moving end of a cable should be fixed by using a tension device.
- ◆ When used in a long sliding service, it is recommended to use a guiding groove. Please ask our technical personnel about the usage of the guiding groove.



供货状态
Delivery state



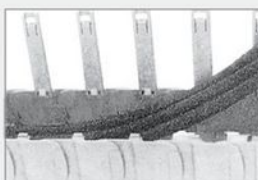
从一面撬开
Open one side...



从另一面撬开
Open the other side...



打开拖链
Open drag chains



铺入电缆
Cables inserted



用螺丝刀作为杠杆把链盖封闭
Tighten the chain' cover by using screwdriver

支承滚轮介绍

Support Roller Introduction

支撑轮单位

当拖链应用在 $\frac{LA}{2}$ 行程上，且承载的重量超过拖链自我的支撑能力的时候，有必要使用支撑轮。

决定使用支撑轮的数量，注意下面的情况：

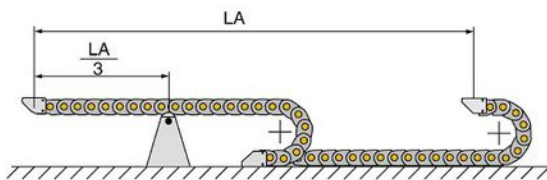
Support Roller Units

For applications of cable chains with $\frac{LA}{2}$ and weights not included in the area of the diagram of self-supporting capacity it is necessary to use the appropriate support rollers.

To decide on the number of support rollers needed, note the following:

当使用一个支撑轮的情况

One Support Roller when

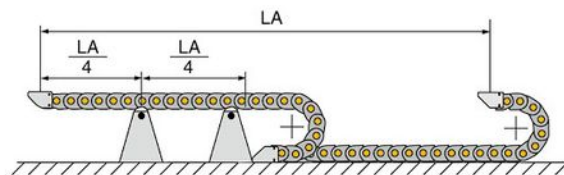


表格中 $\frac{LA}{3}$ 的行程上显示了拖链自我支撑的能力

The length $\frac{LA}{3}$ is included in the values of the diagram showing self-supporting capacity.

当使用两个支撑轮的情况

Two Support Rollers when

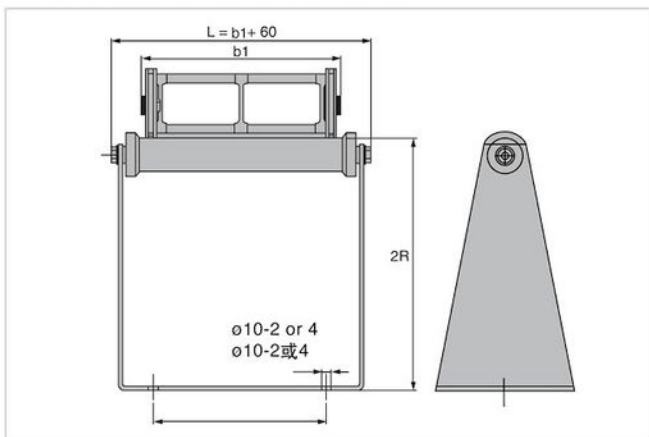


表格中 $\frac{LA}{4}$ 的行程上显示了拖链自我支撑的能力

The length $\frac{LA}{4}$ is included in the values of the diagram showing self-supporting capacity.

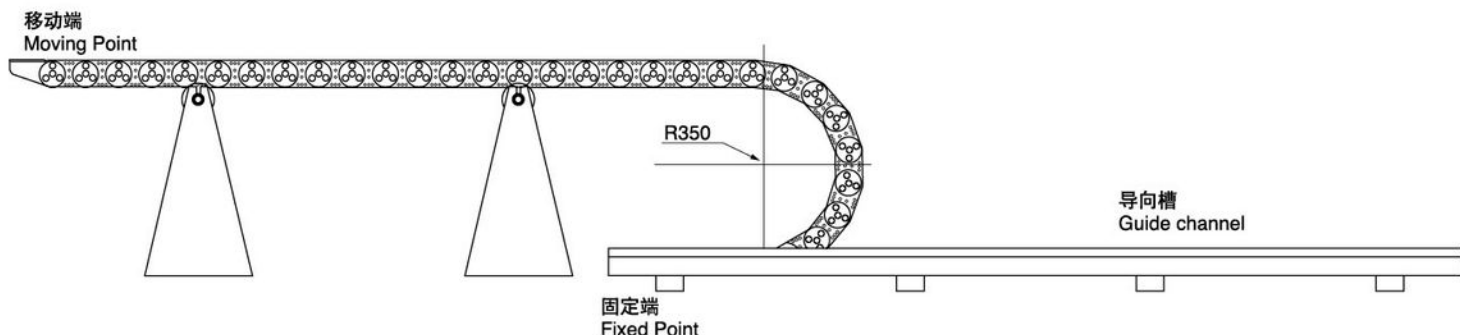
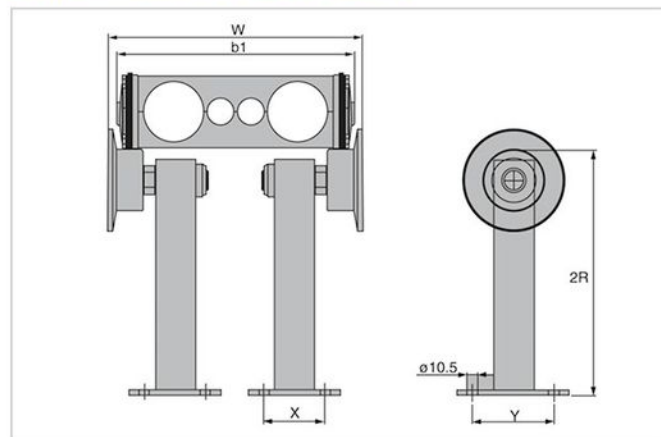
支撑轮为尼龙材质的情况

Support Roller for Nylon Chains



支撑轮为钢制的情况

Support Roller for Steel Chains



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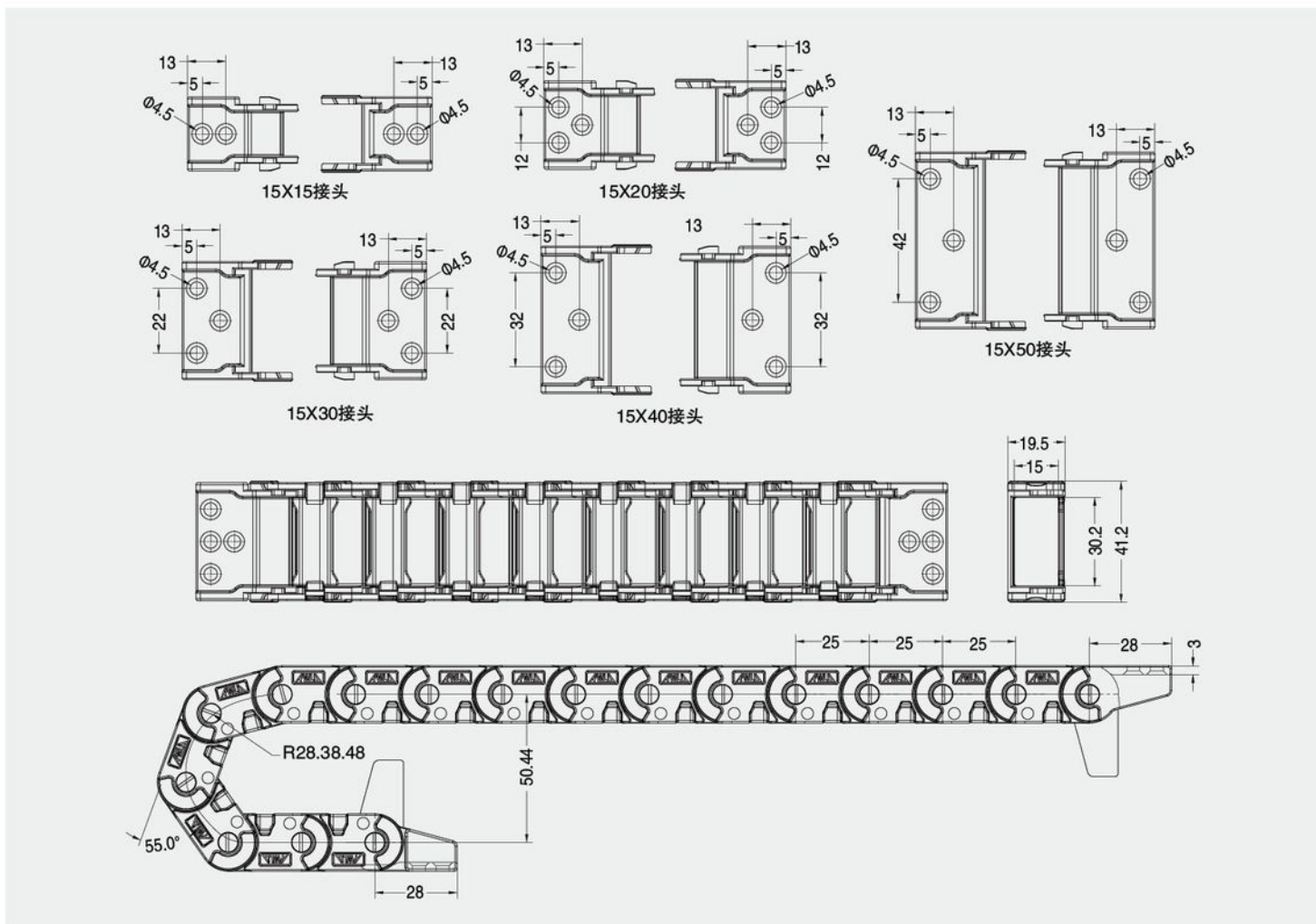
TLW系列 微型拖链

TLW series micro cable chains

TLW15系列 / TLW15 Series



型号 Type	内腔(高 × 宽) Inside Diameter (height × width) (mm)	外径(高 × 宽) Outside Diameter (height × width) (mm)	弯曲半径(R) Bending radius (mm)	节距 Pitch (mm)
TLW15.15	15 × 15	20 × 26.2	28.38.48	25
TLW15.20	15 × 20	20 × 31.2	28.38.48	25
TLW15.30	15 × 30	20 × 41.2	28.38.48	25
TLW15.40	15 × 40	20 × 51.2	28.38.48	25
TLW15.50	15 × 50	20 × 61.2	28.38.48	25



TDG系列 多功能型 拖链

TDG series multifunctional cable chains

- 电气分隔
- 完美束线
- 合理固定
- 功能齐全

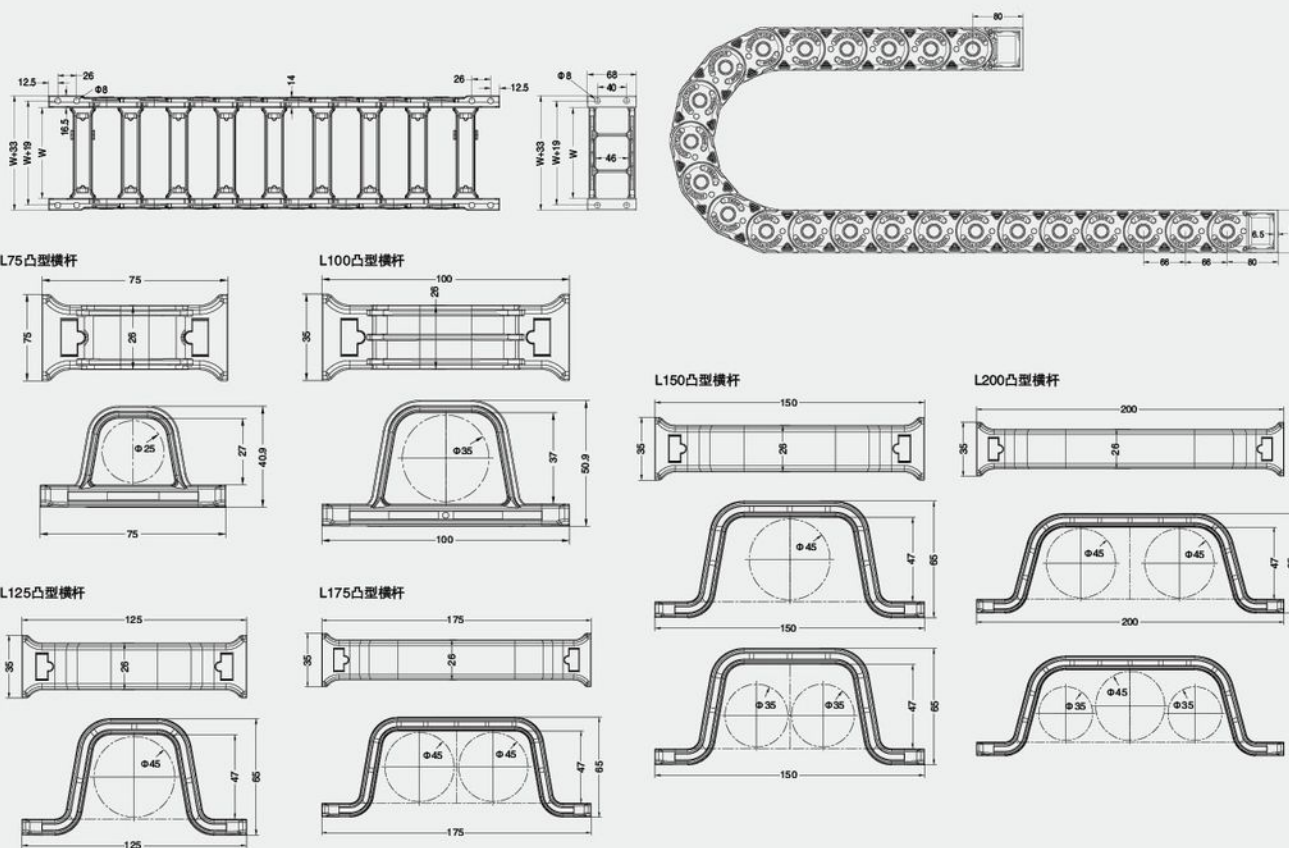


TDG45A系列
TDG45A series



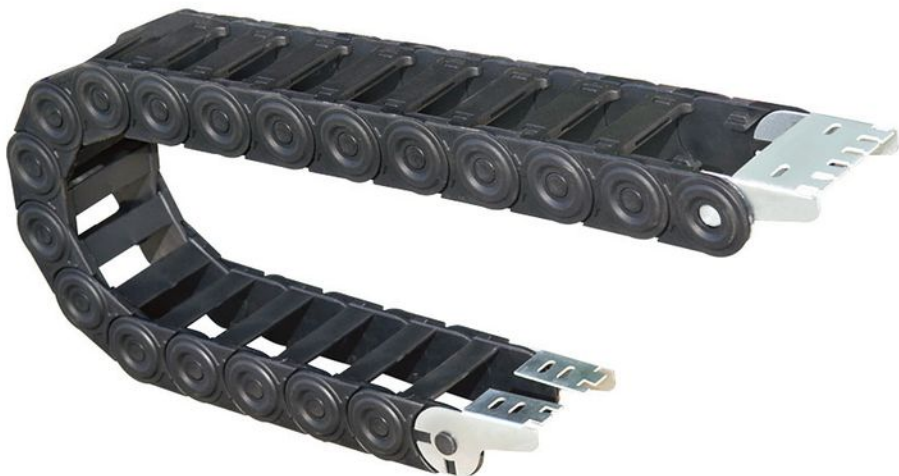
可安装隔离片、横隔片

型号 Type	内腔(高 × 宽) Inside Diameter (height × width) (mm)	外径(高 × 宽) Outside Diameter (height × width) (mm)	弯曲半径(R) Bending radius (mm)	节距 Pitch (mm)	型式 Type
TDG45A.50	45 × 50	68 × 83	75.100.125. 150.175.200. 250	66	桥式 全封闭式 内外开盖 Bridge type Totally enclosed The inner and outer cover can be opened
TDG45A.60	45 × 60	68 × 93			
TDG45A.75	45 × 75	68 × 108			
TDG45A.100	45 × 100	68 × 133			
TDG45A.125	45 × 125	68 × 158			
TDG45A.150	45 × 150	68 × 183			
TDG45A.175	45 × 175	68 × 208			
TDG45A.200	45 × 200	68 × 233			



TLZ系列 承重超长型 拖链

TLZ series load-bearing and over-length cable chains



TLZ45系列

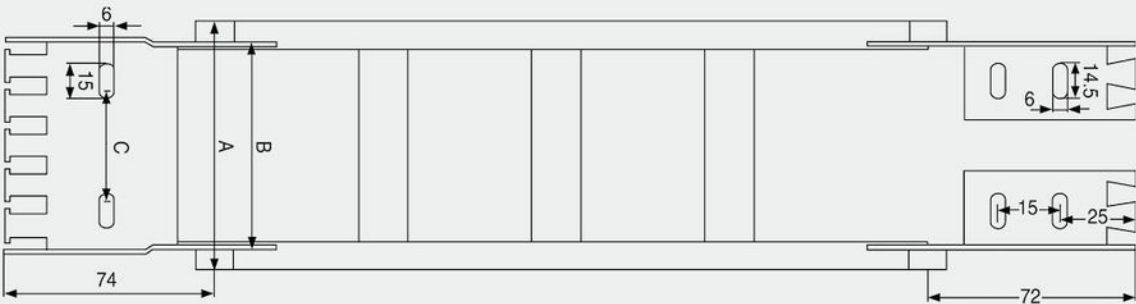
TLZ45 Series

型号 Type	规格 Spec.	外径(mm) Outside Diameter	弯曲半径(R) Bending radius(mm)	材质 Material
TLZ45.50	45 × 50	62 × 75	100.125	增强尼龙 PA66
TLZ45.75	45 × 75	62 × 101		
TLZ45.100	45 × 100	62 × 126		



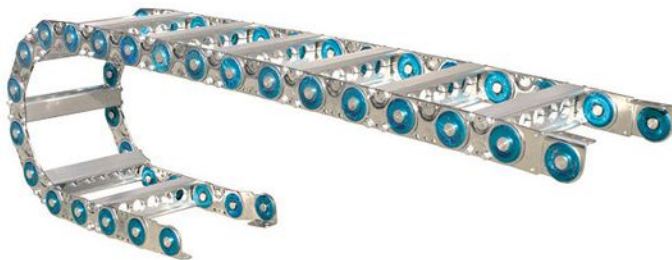
型号 Type	A	B	C
TLZ45.50	71	61	37
TLZ45.75	97	87	64
TLZ45.100	122	111	90

联接器示意图 A sketch for connecting device



TLG型钢制拖链

TLG series steel cable drag chains



TLG型钢制拖链可承载数量多，重量大的电缆及油管，自由悬置（允许不用支承轮）长度大，支撑板可依顾客需要制作，适用于工作母机，移动机械等。其弯曲半径为75-600mm，链板高度为50-150mm，可任意选用。

TLG型钢制拖链其使用行程最大为32米。适用于所有传动方式。可随意加长和缩短。此外，可通过改变销轴获得改变弯曲半径。

拖链的支撑板宽度为50mm至600mm，孔与孔之间的间隔量为5mm。

链板的高度，也就是支撑板的高度，是由电缆最大直径决定的，机床最大限度运转时，如拖链的宽度超过300mm，拖链的长度超过4m时出于稳定性原因，应考虑选择加大一号规格的拖链。

弯曲半径要根据电缆的最大直径选择并应达到电缆直径的10倍。弯曲半径可根据所给表格选择50-600mm，行程小的可相应选择较小的半径。

拖链的长= 1/2行程+4个弯曲半径，这只适用于当固定连接是在行程的中点时。

拖链的固定可根据机床的位置情况选择。固定角钢可放在外周或内周在拖链内或外部，一般情况联结部分在拖链内，而向外周。

The TLG drag chains are suitable for installing a large quantity and heavy duty of cables and oil pipes which allow suspending installation (supporting is not allowed) and is lengthy. The supporting plate can be made according to the user's requirements. It is suitable for machine tools and moving machines. Their bent radius ranges from 50-600mm and the chain's height is from 35 to 150mm. Users can make a free selection of them.

The TLG type drag chains has a max. travel range of 32 meters and are suitable for all kinds of transmissions. It can freely be made longer or shorter. In addition, the bend radius can be changed by changing the pinshaft.

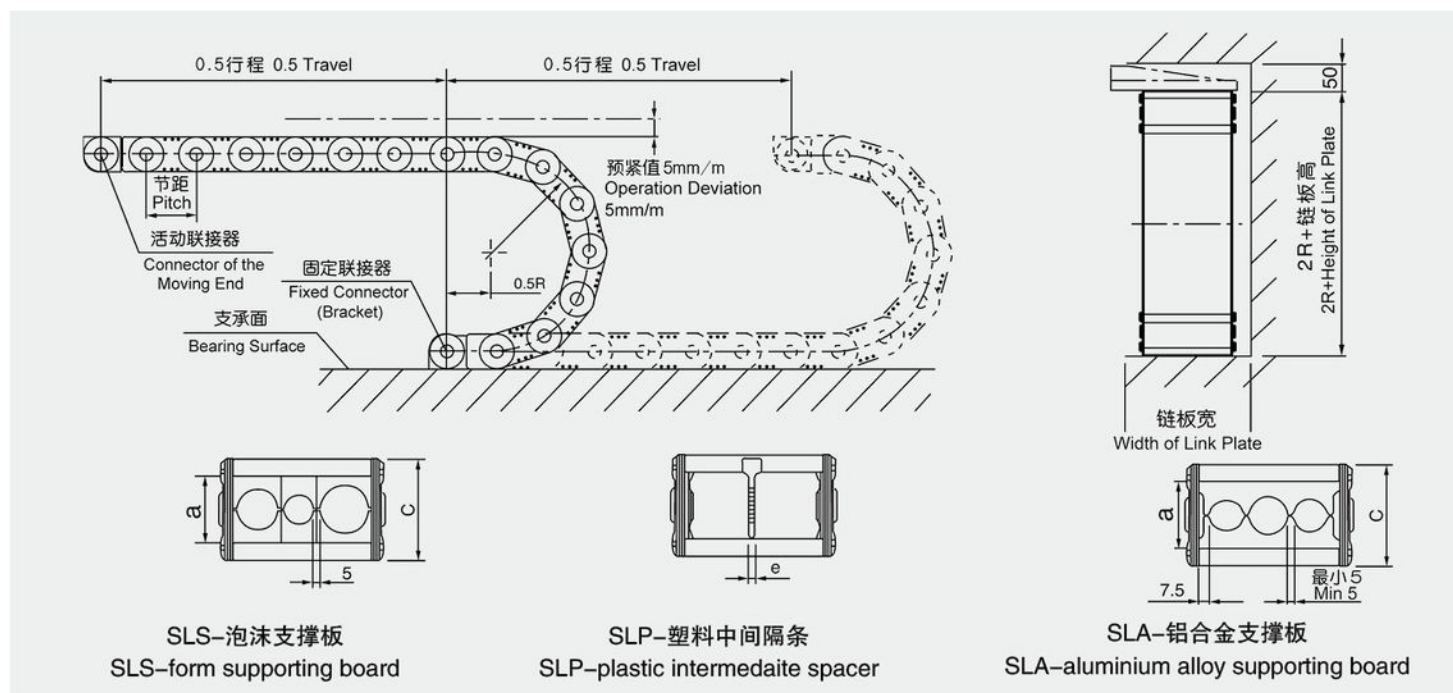
The width of the supporting board is from 150mm to 600mm. The distance between the holes is 5mm.

The height of the supporting board depends on the max. outside diameter of the cables. When the machine tool is working in the highest speed and if the max. width of the drag chain is longer than 300mm with the chain's length longer than 4m, one size larger than normal should be selected just out of considration of safety.

The bend radius should be selected according to the max. diameter of a cable and should be 10 times of the diameter of the cable used. The bend radius can be selected as 50-600mm according to the given table. Small radius should be selected for those ones with small travel range.

Drag chain length= 1/2 travel range + 4 bend radius, this is only used for the fixed connection which is located at the middle point of the travel range.

The fixation of the drag chains can be done according to the location of the machine tools. The angle steel can be put in the outer or the inner, in other words, in the inner side of the chains or in the oute side. In common cases, it is in the inner side of the chains and face towards outside.

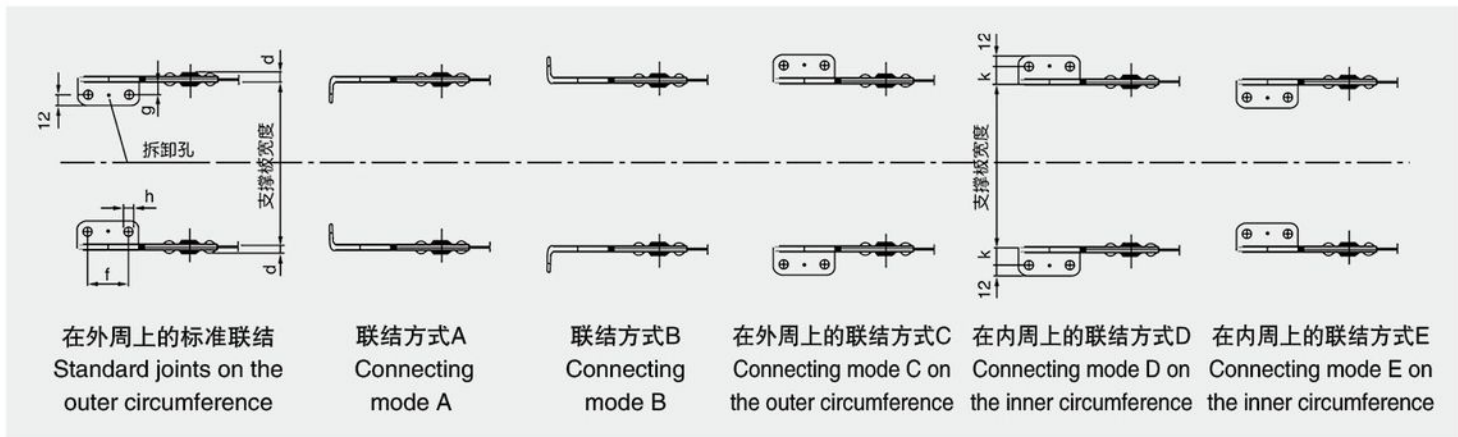


TLG型钢制拖链

TLG series steel cable drag chains

TLG型钢制拖链主要参数及支撑尺寸 / Main parameters & demensions for TLG type steel drag chains

型号 Type	弯曲半径R Bending radius (mm)	节距 Pitch	a	c	d	e	f	g	h	k	允许不用支承轮时 When non-support wheel is allowed		重量 weight (100mm)
											长度(m) Length	负载 (Kg/m)	
TLG20	75.100.150.200.250.300	75	31	50	8	4	30	7.5	9	15	3/2/2	20/30/30	4.90/4.80/5.50
TLG30	150.200.250.300.400	100	49	75	13	4	50	10	11	21	4/3/3	25/40/40	9.10/9.10/10.00
TLG40	200.250.300.400.500	125	68	100	16	4	70	7.5	13	28	6/4/4	30/50/50	18.10/18.10/19.30
TLG50	250.300.400.500.600	175	118	150	14	8	115	26	13	32	10/8	10/30	25.00



订货举例：行程11.2m，弯曲半径300mm，3电缆直径48，3电缆直径28，2软管直径36

Specifications for ordering: Travel 11.2m, Bending radius 300mm, 3 Cable diameter 48, 3 Cable diameter 28, 2 Hoses diameter 36

TLG50 / 300 × 350 – 6875 / D / E “S”

型号 Type	半径 Radius	支撑板宽度 Width of support board	长度 Length	固定方式 Mode of fixing	安装形式 Mode of installation
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TLG型的多种不同支撑板 / TLG type supporting boards in various specifications

TLG铝合金型拖链与一般的拖链不同，它可通过固定的铝型材满足不同要求的需要，支撑板宽或达1200mm，在最高速度和行程速度下，拖链的内部分隔无懈可击，并保证使电缆达到最佳保护。

我们每二节链板提供一条支撑板。如每一节均需支撑板，请在订货时，订10A / 20A / 30A / 40A / 50A，而不是10B / 20B / 30B / 40B / 50B。即 TLG20A / 200 × 2100 / 200 “h” 或 TLG20B / 200 × 2100 / 200 “h”。

银星(silber Star)铝合金护板的拖链，订货型号为325 / 525 / 625。进一步的了解请参见下图“银星护板”。即 TLG325 / 200 × 2100 / 200 “h”。

The TLG type aluminium alloy drag chains are different from the ordinary ones. They can be made by using fixed aluminium shape materials to meet the needs of the users. The width of the supporting board can be 1200mm. When operating under high operating speed and high travel speed, the drag chains can be separated from one another so as to ensure the cables being protected in a very safe conditions.

One supporting board is provided for every two chain joints. If one supporting board is needed for each chain joint, please give a clear indication of the model no.10A/20A/30A/40A/50A rather than 10B/20B/30B/40B/50B. TLG20B/200X2100/200 “h” or TLG221/200X2100/200 “h”.

The order number for “Silver Star” type drag chains with aluminium alloy guard is 325/525/625. For further information, please see “Silver Star type Guards” below for details. TLG325/200X2100/200 “h”.

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TLG型钢制拖链

TLG series steel cable drag chains

TLG铝合金型是解决较大钢链的唯一的解决办法。支撑板可根据使用者的要求生产。牢固的结构，使支撑板宽度可达到1200mm。

TLG型带塑料隔条，可随意移动调节位置，进行多种分隔，见下图。

如果电缆规格多，可选用此经济的装置。

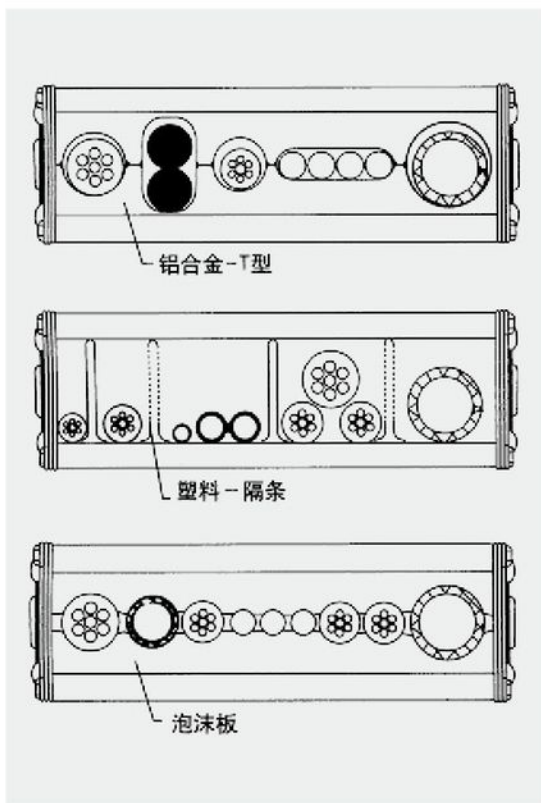
TLG泡沫支撑板具有很多优点，使电缆得到最好的保护，以及适合于高速行程的情况下。许多著名的汽车生产厂家多年来均选用此装置，所有电缆均被分布在中心位置的纤维内。

TLG aluminium alloy type is the only solution to the larger size chains. The supporting boards can be made according to the requirements of the users. Thanks to the strong construction, the width of the supporting board can be 1200mm.

TLG plastic spacing straps can moved and adjusted in position freely. See figure for details.

If cables in many different specifications, you may select this economic device.

TLG foam supporting board has many advantages such as cables be protected in a most appropriate way and suitable for the condition of high travel speed. Many famous car makers have chosen this type of device. All cables are distributed in the center position of the fibres.



TLG型的护板采用铝合金全封闭型——“银星护板”

型号TLG的拖链是新开发的“银星护板”，采用铝合金制造，供用户选用。订货号为TLG10、TLG20、TLG30、TLG40、TLG50。

TLG型带不锈钢带的钢链

外部和内部可安装弹性钢带，以保护电缆和更好地保持内部的清洁，安全可靠。

TLG type aluminium alloy protecting board is of completely enclosed type

TLG type drag chains are newly developed “Sliver Star Protecting Board”, which are made by using aluminium alloy. Various types of it are available for selection. The order number are TLG10, TLG20, TLG30, TLG40, TLG50.

TLG type steel chains with stainless steel straps

Plastic steel straps can be installed internally or externally with the aim to protect the cables and keep clean inside. It is very safe and reliable.



银星护板的特点 / Features of the Sliver Star Supporting Board

外形美观。

护板结构装置已经接受了15年以上的考验。

极稳定，坚固的电缆保护，可达1000mm宽。

在任意一个部位都能打开拖链。

根据用户需要可随时加装“银星护板”。

It has nice-looking appearance.

The shield structure device has passed more than 15 years experience successfully.

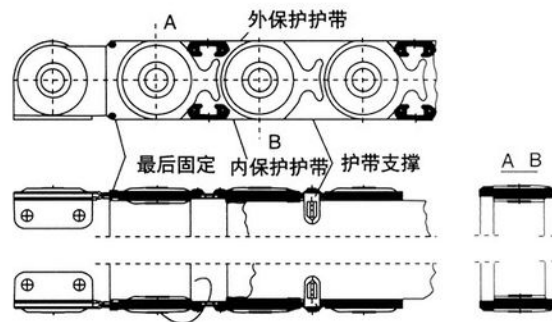
It is very stable and a solid protection for cables. The width can be 1000mm.

The drag chains can be opened at any positions.

The “Sliver Star Protecting Board” can be installed according to the user’s request.

订货举例：TLG30 / 200 × 200 / 2100 “h” 带不锈钢护带或银星护板 TLG30 / 200 × 200 / 2100 “h” 带不锈钢护带或银星护板

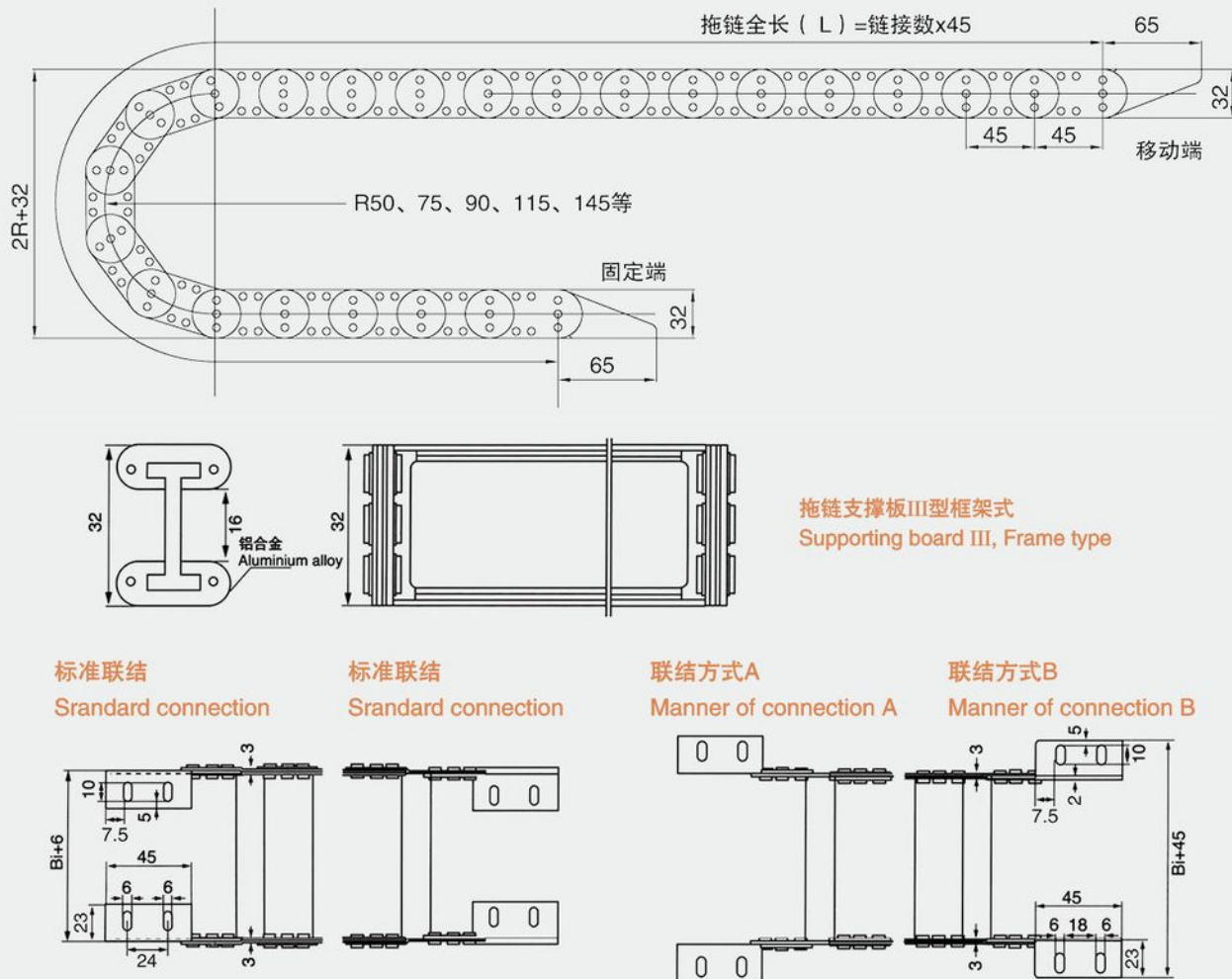
Specifications for ordering: TLG30 / 200 × 200 / 2100 “h” Stainless steel straps or TLG30 / 200 × 200 / 2100 “h” Stainless steel straps.



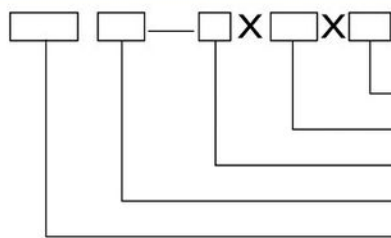
TL型钢制拖链

TL series steel cable drag chains

TL45型钢制拖链安装尺寸图 / Fixing Dimensions Drawing Steel Drag Link of Model TL45



标记意义 / Legends



拖链长度L
拖链支撑板宽度Bi
弯曲半径
支撑板型式III
型号

L=length of drag chains
Bi=width of supporting board of drag chain
Bending radius
Supporting Board Type III
Model No.

订货举例 / Example for an order

拖链型号TL45，支撑板III型，弯曲半径R=90，拖链长度L=5500

拖链 TL45 III- 90 × 5500

III型-上下是铝板内有隔离片(根据用户要求放隔条)

Drag chain model number TL45, supporting board III type, bend radius R=90, length L=5500

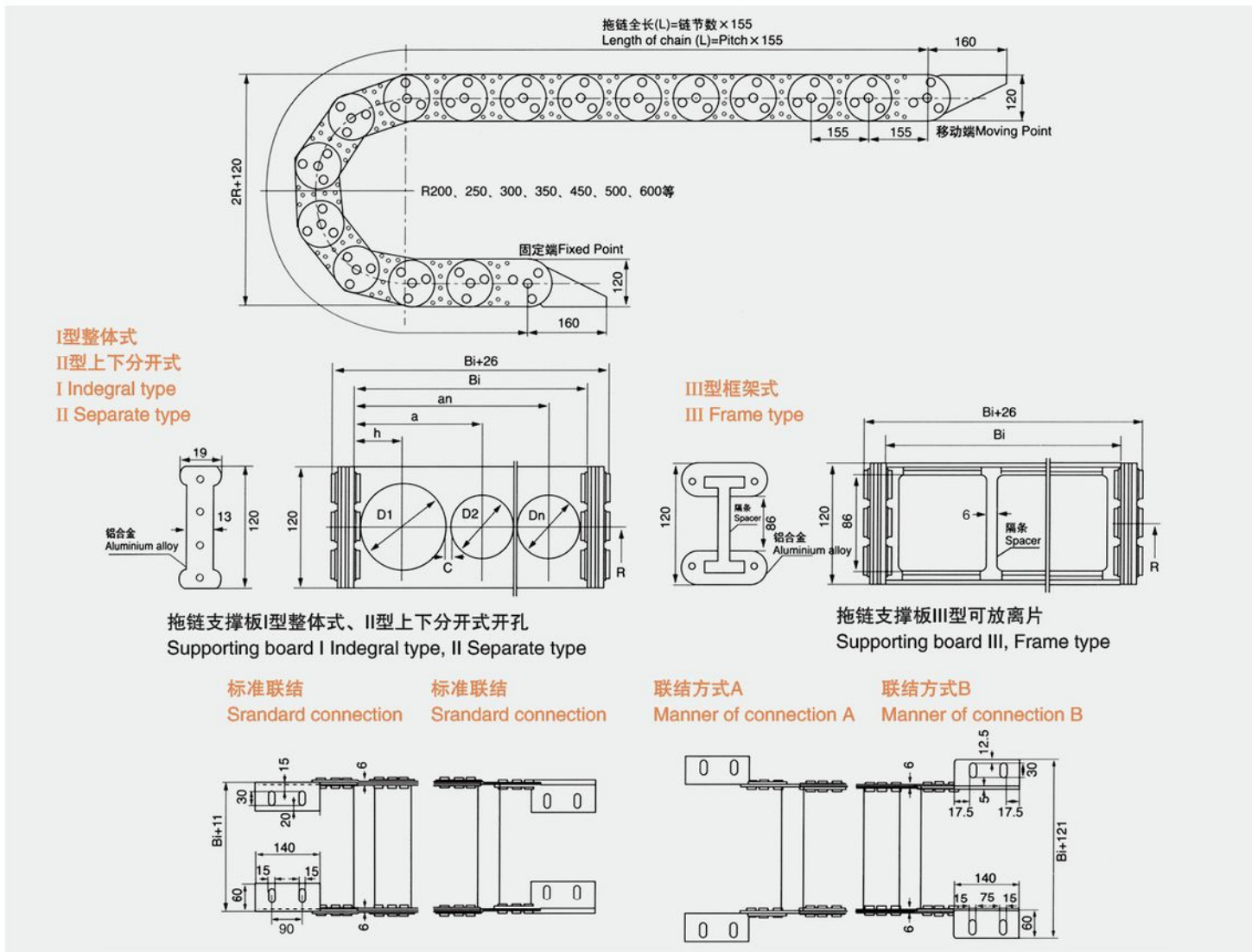
Drag chain TL45 III - 90 × 5500

III-type the upper one and the lower one are made of aluminium with spacer inside

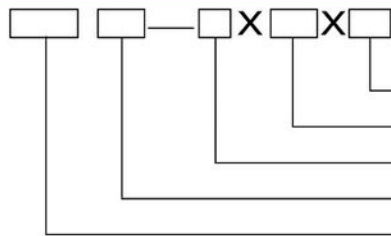
TL型钢制拖链

TL series steel cable drag chains

TL155型钢制拖链安装尺寸图 / Fixing Dimensions Drawing Steel Drag Link of Model TL155



标记意义 / Legends



拖链长度L
拖链支撑板宽度Bi
弯曲半径
支撑板型式I、II、III
型号

L=length of drag chains
Bi=width of supporting board of drag chain
Bending radius
Supporting Board Type I、II、III
Model No.

订货举例 / Example for an order

拖链型号TL155, 支撑板III型, 弯曲半径R=250, 支撑板宽度Bi=300, 拖链长度L=8800

拖链 TL155 III - 250×300×8800

I型-支撑板整体型(根据用户要求开孔)

II型-支撑板上下分开型(根据用户要求开孔)

III型-上下是铝板内有隔离片(根据用户要求放隔条)

Drag chain model number TL155, supporting board III type, bend radius R=250, supporting board width Bi=300 length L=8800

Drag chain TL155 III -250×300×8800

I-type integral type of support board

II-type separate type of support board

III-type the upper one and the lower one are made of aluminium with spacer inside