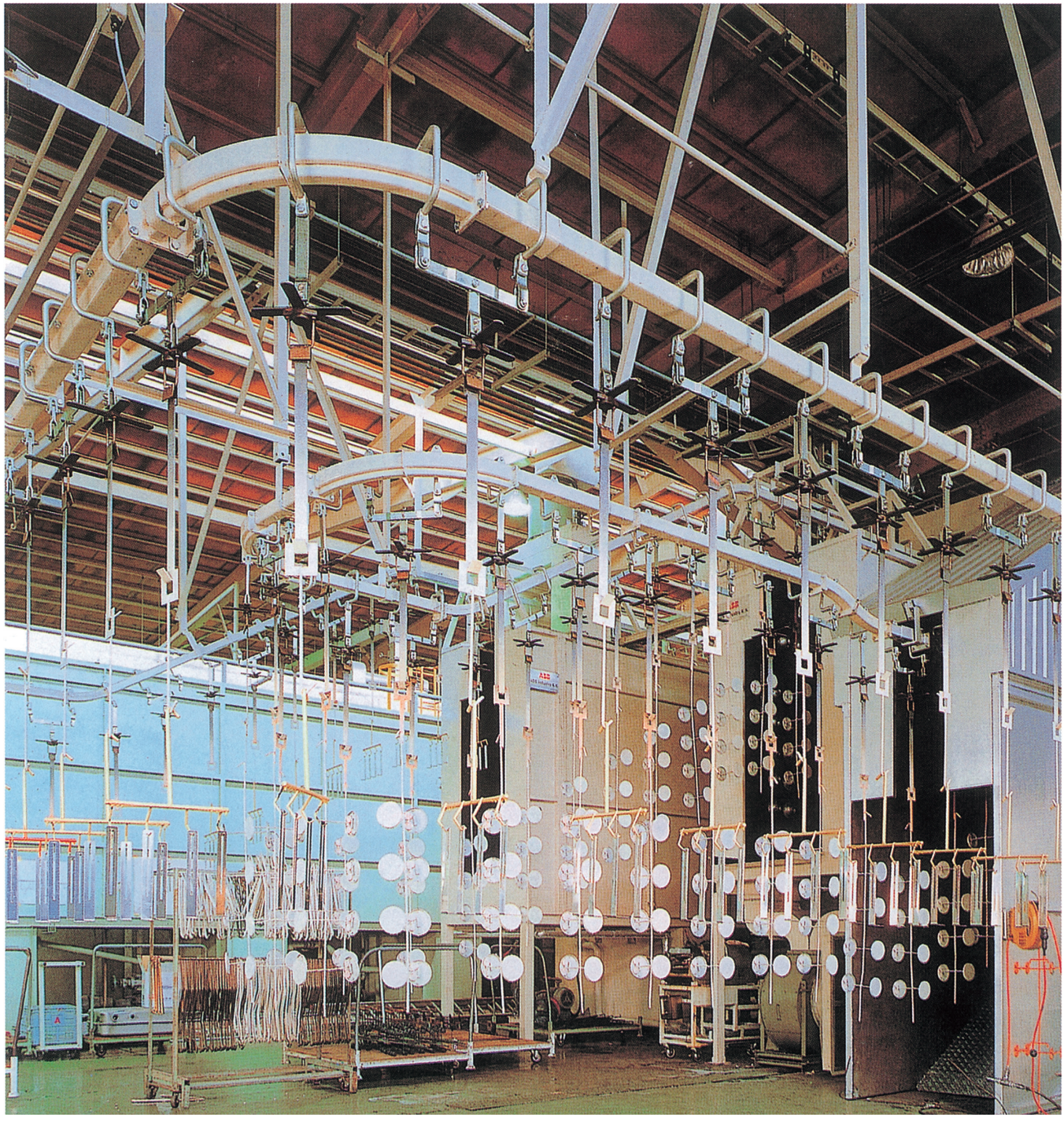
Innovation in Motion
TSUBAKI

TSUBAKI Free Curve
TH,THC,TR Series



Wide range/high quality conveyor: TSUBAKI Free Curve Series

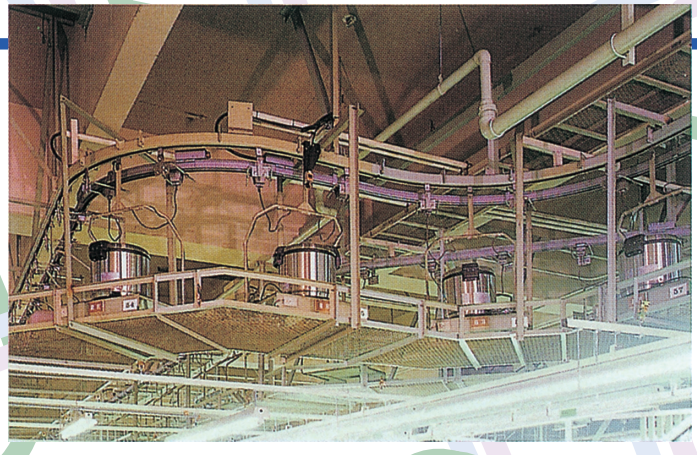
Guarantee a wide-range of material handling; from under 15kg to a maximum 500kg.

TSUBAKI Free Curve Series

1 TH Free Curve

Loading capacity is between 15kg and 120kg, the model for use with midrange weight. Available to make the best selection for appropriate use.

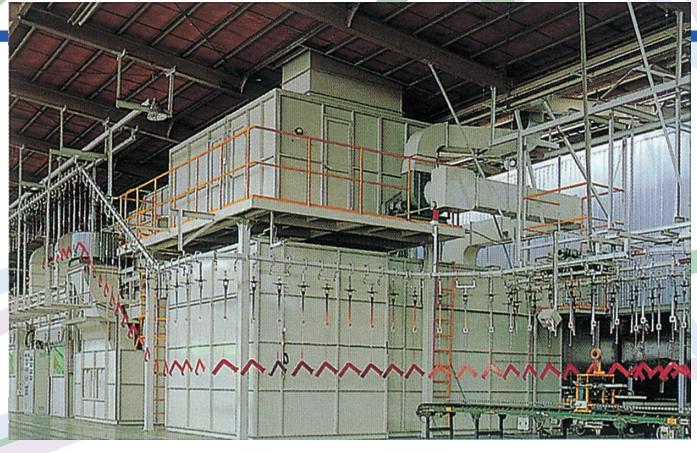
General purpose type



2 THC Free Curve Duscovery

A clean type model which adopts [_] type track. This model fits to a line which needs to avoid dust and/or oil dropping such as painting, especially high quality painting and resin painting (the model for use with midrange weight).

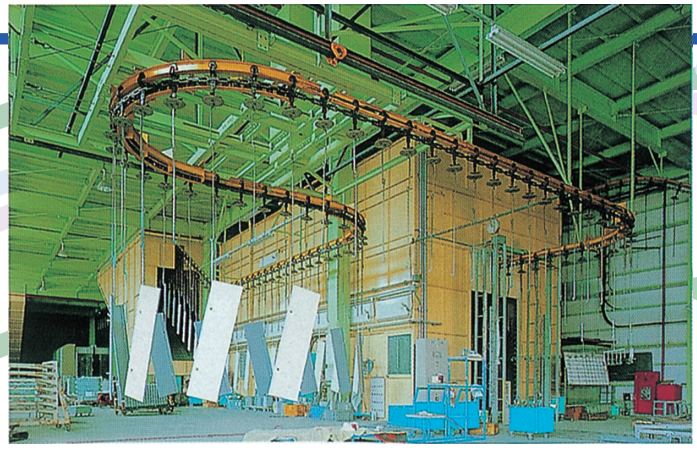
Clean type



3 TR Free Curve

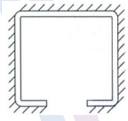
Maximum loading capacity is 500 kg, the model for use with heavy weight. You can build the best conveyor system without waste which matches the duty and capacity by making a suitable combination of hangers (pendant, crevice and load bar hangers).

Rivetless type



CONTENTS

Paint specification
Hatched area is painted once with primer only.
Non-hatched area is painted with antirust oil.



TH TRACK
THC TRACK

TR TRACK

Models and loading capacity

- If it is use it for 5m/min or faster, please contact us.
- For heat resistance specification, a combination use of a lubricator.
- The vertical curves up to maximum 45° are available.

Note: Conventional unit and figure thereof in { } displayed in the table is for reference only.

Conveyor Type	Rated Loading Max. Allowable kg		Chain								
	Hanger type		Average Breakage Strength N {kgf}	MAX. Allowable Chain Pull N {kgf}	Types			Chain Weight kg/m	Hanger Spacing mm		Max. Allowable Conveyor Speedm/min
	Single Hanger	U Hanger			Spec	Operating Temperature	Roller Specs		Single Hanger	U Hanger	
TH015	15	30	15000 {1530}	1500 {153}	Normal	Max 80°C	Press	2.5	150 and its multiples	300 and the multiples of 150	15
					Heat resistance	Max 230°C	Machine	3.5			
TH030	30	60	30000 {3060}	3000 {303}	Normal	Max 80°C	Press	4	300 and its multiples	600 and the multiples of 300	
TH050	50	100	50000 {5100}	5000 {510}	Normal	Max 80°C	Machine	4	300 and its multiples	600 and the multiples of 300	
					Heat resistance	Max 230°C					
TH300	60	120	70000 {7140}	7000 {714}	Normal	Max 80°C	Machine	8	300 and its multiples	600 and the multiples of 300	
					Heat resistance	Max 230°C					

Conveyor Type	Rated Loading Max. Allowable kg		Chain								
	Hanger type		Average Breakage Strength N {kgf}	MAX. Allowable Chain Pull N {kgf}	Types			Chain Weight kg/m	Hanger Spacing mm		Max. Allowable Conveyor Speedm/min
	Single Hanger	U Hanger			Spec	Operating Temperature	Roller Specs		Single Hanger	U Hanger	
THC030	30	60	30000 {3060}	3000 {306}	Normal	Max 80°C	Press	4	300 and its multiples	600 and the multiples of 300	15
THC050	50	100	50000 {5100}	5000 {510}	Normal	Max 80°C	Machine	4			
	Anti-Swing25	Anti-Swing35			Heat resistance	Max 230°C					

* When using THC050 anti swing hanger, vertical curves up to maximum 30° are available.

Conveyor Type	Rated Loading Max. Allowable kg				Chain					
	Hanger type				Average Breakage Strength N {kgf}	MAX. Allowable Chain Pull N {kgf}	Types		Hanger Spacing mm		Max. Allowable Conveyor Speedm/min
	Pendant A	Pendant B	Crevice	Load Bar			Grease Spec ~150°C	Grease Spec ~230°C	Pendant Crevice	Load Bar	
TR458	140	250		500	210700 {21500}	19600 {2000}	Amblygon	All balls (Parallel use of lubricator) or Barrierta	204.2 and its multiples	408.4 and the multiples of 204.2	16

* When using the usage temperature above 150°C and roller turn, please contact us.
* If the usage vertical curves are more than 30°, Please contact us.

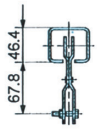
❶ TH Free Curve

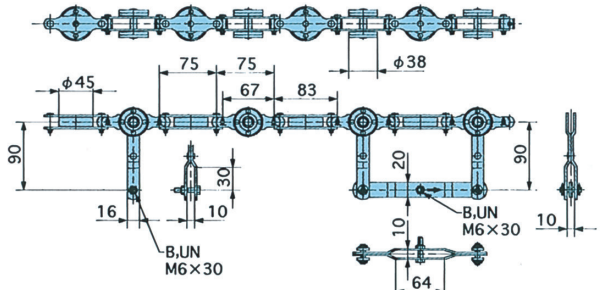
TH015
TH030/TH050
TH300

Chain/Primary hanger

As a general purpose model to fit for a wide range of use, the greatest number of models will be standardized such as the allowable chain pull and the loading pitch. There are normal spec chain and heat resistance spec chain. For the sake of durability and maintenance, if the environment is exposed to over 80°C normally, please make a combination use of heat resistance spec chain and the automatic lubricator (see page 12). In the case that you need a dust proof, please consider to use C-type hanger (see page 13).

TH015

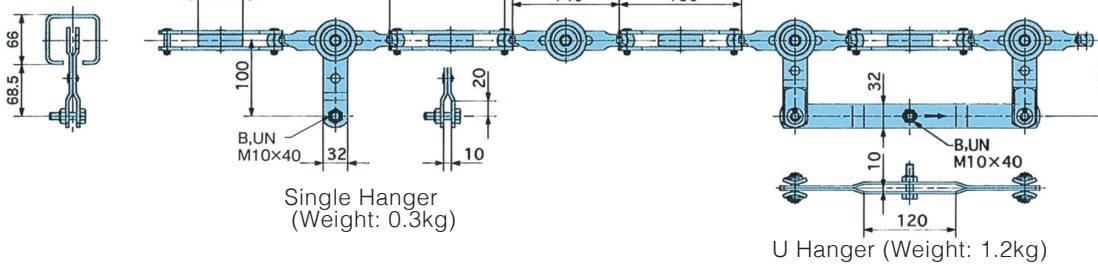




Single Hanger
(Weight: 0.11kg)

U Hanger (Weight: 0.32kg)

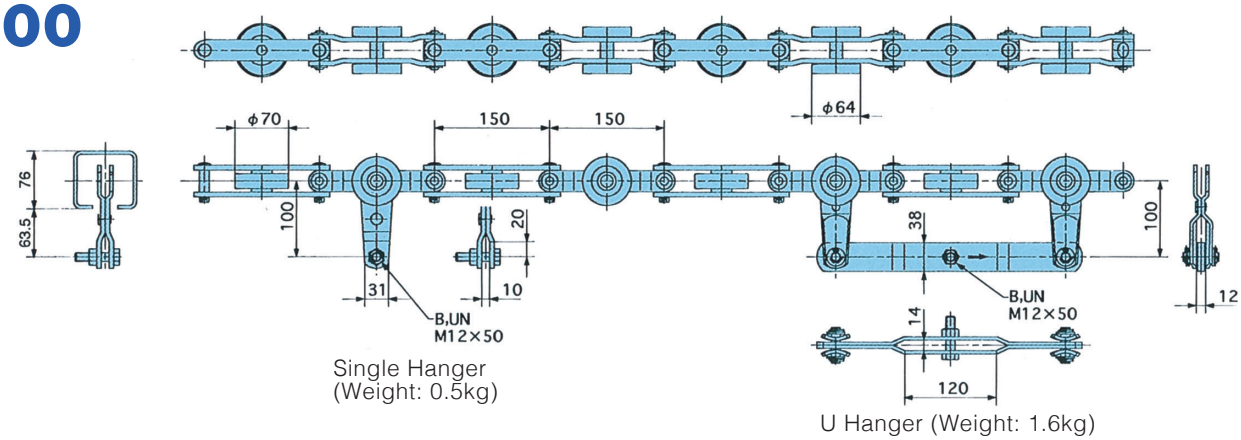
TH030/TH050



Single Hanger
(Weight: 0.3kg)

U Hanger (Weight: 1.2kg)

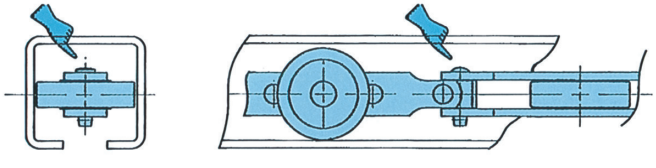
TH300



Single Hanger
(Weight: 0.5kg)

U Hanger (Weight: 1.6kg)

CORRECT METHOD OF INSERTING CONVEYOR CHAIN INTO THE TRACK

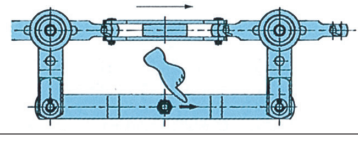


When inserting the chain into the track, please check that the head of the c-pin is on the upper side of the chain as shown in the picture.

Asembly Instruction of the U Hanger

Match the travel direction with the arrow on the load bar.

Chain travel direction.

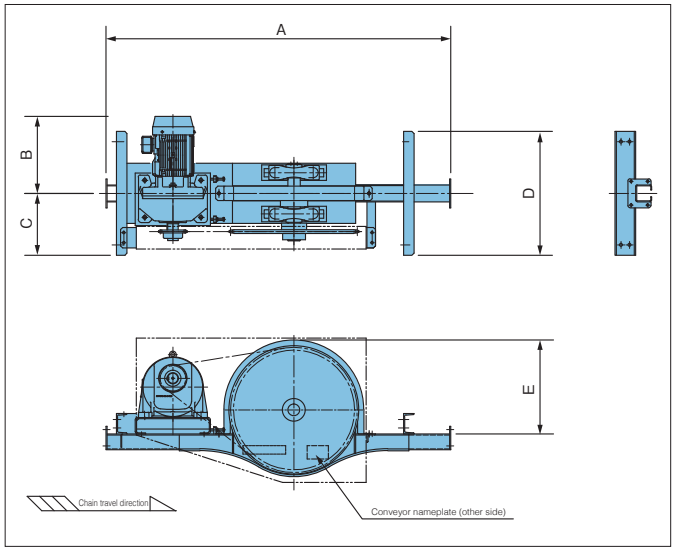


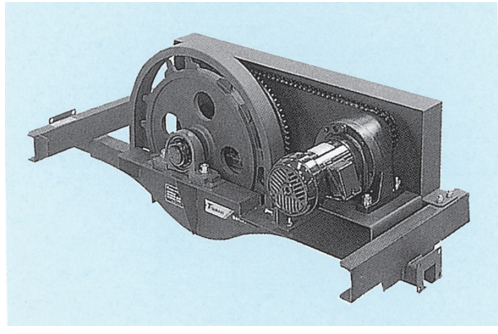
Drive Unit

There are two types of the drive units for the TH Free Curve; Choose either the sprocket drive or the caterpillar drive. For the multiple drive consists of the plural number of drive units in one line, the synchro multi drive system (see page 13) is a standard component to make sure the control over the load variance.
Please use the overload protection device (see page 14) as the safety device.

Sprocket Drive

This is a method to drive the conveyor chain directly by the sprocket, through the geared motor.



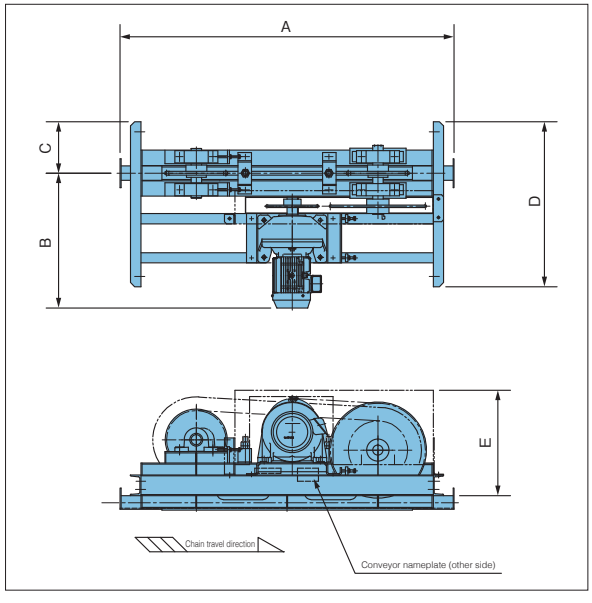


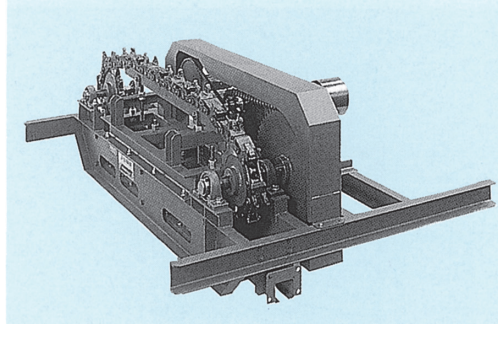
Dim (mm)

Dimension \ Conveyor Type	TH015	TH030 TH050	TH300
A	1050	1650	1650
B	Max 460	Max 450	Max 450
C	250	300	300
D	500	600	600
E	280	456	465
Weight (kg)	Max 89	Max 250	Max 331

Caterpillar Drive

This is a method to drive the conveyor chain by the vertical caterpillar chain, through the geared motor. The track is flattened even when track is passing drive unit underneath.





Dim (mm)

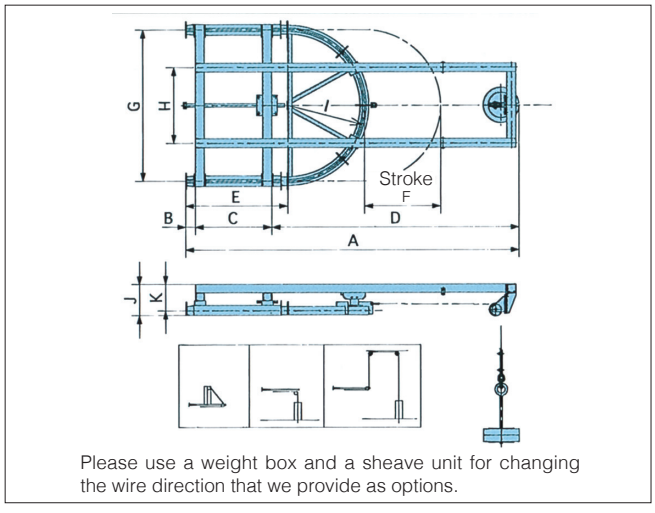
Dimension \ Conveyor Type	TH015	TH030 TH050	TH300
A	1600	1600	2100
B	Max 730	Max 790	Max 850
C	250	250	250
D	800	800	1000
E	450	520	633
Weight (kg)	Max 200	Max 340	Max 550

Take Up Unit

Normally, it is used for a counter weight type. This type is especially appropriate for machines with high-temperature specifications such as the oven line. If there are no inclines or declines, if the machine is short, and if the line is slow, a spring type can also be used.

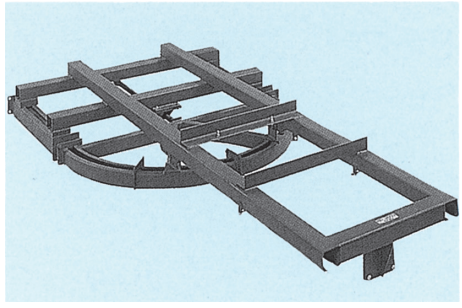
■ Counter weight type Take Up Unit with a back stopper (standard specification)

This system is to pull the take up track by the counter weight, which allows a smooth automatic adjustment. A back stopper is standard component to prevent a backward motion.



Please use a weight box and a sheave unit for changing the wire direction that we provide as options.

The sheave of the counter weight can change the direction of the wire from downward to upward, or to horizontal direction, flexibly as per installing location.



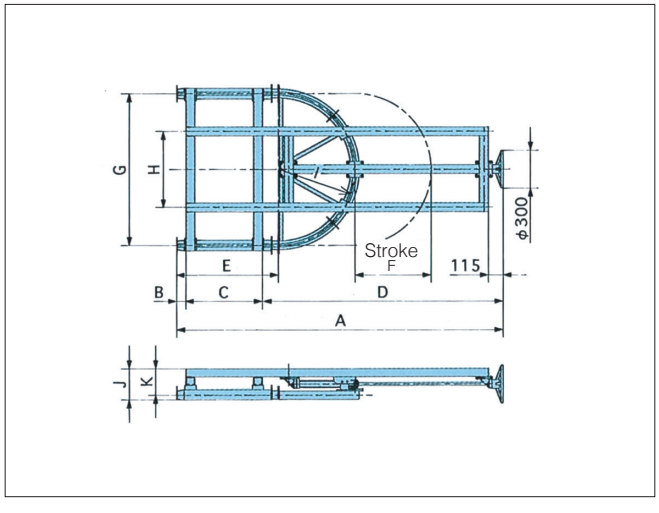
Dim (mm)

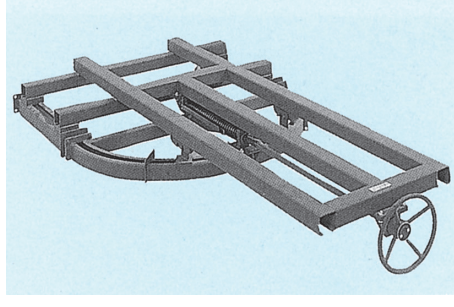
Dimension \ Conveyor Type	TH015	TH030 TH050	TH300
A	1900	2614	2601
B	75	75	75
C	400	600	600
D	1425	1939	1926
E	600	800	800
F	400	600	600
G	800	1200	1200
H	400	600	600
I	400	600	600
J	179	248	278
K	152	211	236
Weight (kg)	115	144	176

※ Weight does not include the mass of the counter weight itself.

■ Spring type Take Up Unit

Fix the take up track at a certain position through the spindle enable to turn easily by handle to use it. Usage of this unit is limited to systems with no inclines and declines, short machines with slow lines, and a small chain pull. This type is to pull by the compression spring through the spindle.

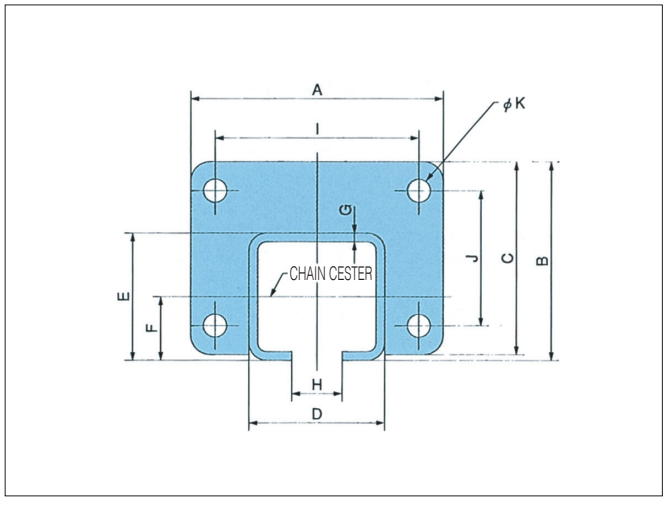




Dim (mm)

Dimension \ Conveyor Type	TH015	TH030 TH050	TH300
A	1848	2565	2575
B	75	75	75
C	400	600	600
D	1373	1890	1900
E	600	800	800
F	400	600	600
G	800	1200	1200
H	400	600	600
I	400	600	600
J	179	248	278
K	152	211	236
Pull(N)	490	690	980
Weight (kg)	120	157	204

Tracks and attached parts

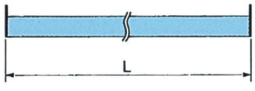
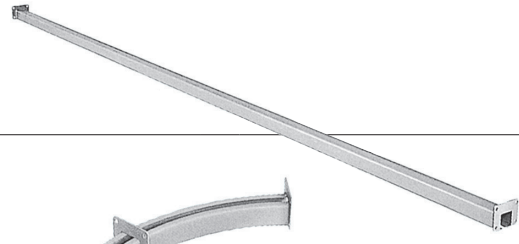
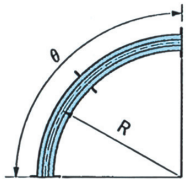
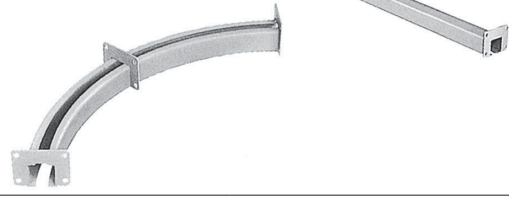
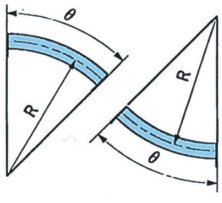
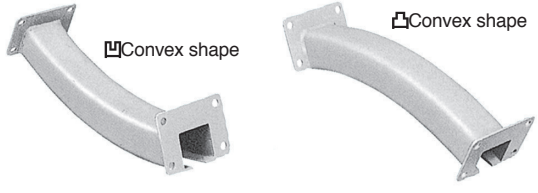
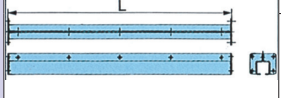
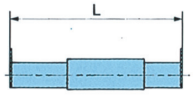
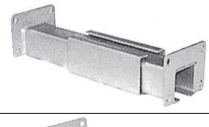
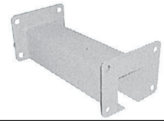
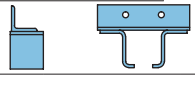


Dim (mm)

Dimension \ Conveyor Type	TH015	TH030 TH050	TH300
A	100	130	140
B	72	103	113(114.5)
C	70	100	110
D	53.4	70	82(85)
E	46.4	66	76(79)
F	22.2	31.5	36.5(38)
G	3.2	4.5	4.5(6)
H	15	26	33
I	80	105	115
J	50	70	80
K	10	12	12

※Dimension in the ( ) is a dimension of the curve track.

Track Specification

Name	Shape	Dimension	Conveyor Type	Weight (kg)	Appearance
Straight Track		L=3000	TH015	12.5	
			TH030,050	23	
			TH300	27	
Horizontal Turn Track		R400 θ=45°	TH015	1.5	
		R400 θ=90°	TH015	3	
		R600 θ=45°	TH030,050	4	
			TH300	6	
		R600 θ=90°	TH030,050	7	
			TH300	11	
Vertical Turn Track		R400 θ=30°	TH015	1.2	
		R400 θ=45°	TH015	1.6	
		R600 θ=30°	TH030,050	3	
			TH300	4	
		R600 θ=45°	TH030,050	4	
			TH300	6	
Insert Track		L=600	TH015	2	 Install this at the place where the chain is removed and inserted. In general, install one in every 50m at the low level of the line.
		L=1000	TH030,050	12	
			TH300	14	
Oven Expansion Track		L=450	TH015	3	 This track is installed to absorb the heat expansion of the track in ovens. Install it in the straight portion. Both inside and outside are applied with heat resistance painting.(50 strokes)
			TH030,050	7	
			TH300	7	
Connect Track		L=150	TH015	1	 If a horizontal curve track and a vertical curve track are connected directly, the chain may be twisted. In such a case, install this track at the joint section.
		L=300	TH030,050	3	
			TH300	3	
Rail Yoke					 Production of the irregular length track and track hanging auxiliary clasps. We have a yoke for a curved track for TH 300 only.
Suspension Fittings	Hole fitting 	Internal support fitting for ovens 			Hole fitting Auxiliary suspension fitting for installation outside ovens / Internal support fitting for ovens Auxiliary suspension fitting for installation inside ovens

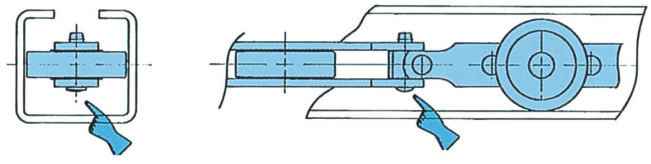
Note: Tracks described by◎are hardened tracks.

❷ TH Free Curve Duscovery THC030 THC050

Chain/Primary hanger

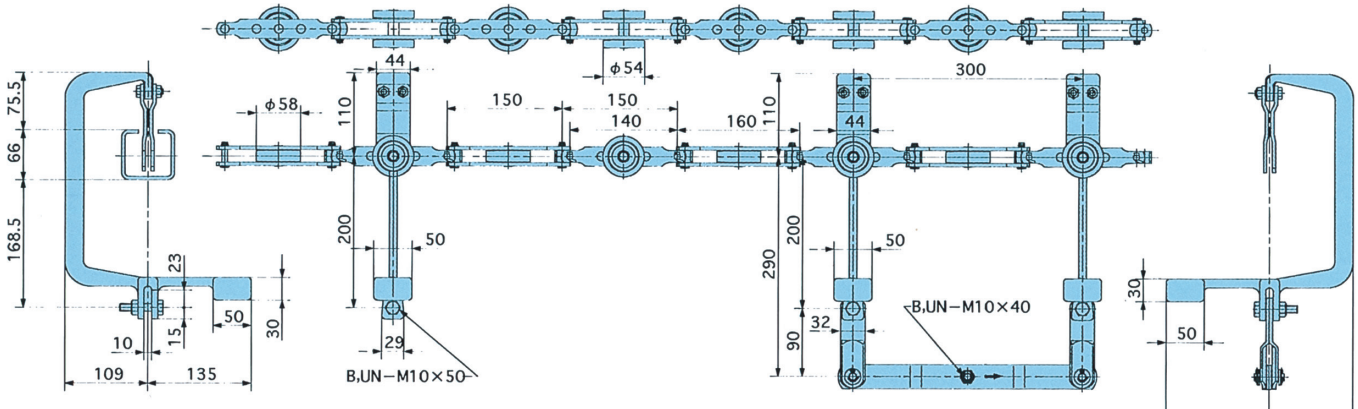
Duscovery specific chain that the details are re-arranged for the [_] shape track, based on the renowned chain for the TH Free Curve.

CORRECT METHOD OF INSERTING CONVEYOR CHAIN INTO THE TRACK



When inserting the chain into the track, please check that the head of the c-pin is on the downside of the chain as shown in the picture. It is different from TH Free Curve
Make sure you install it properly when inserting the chain to the track.

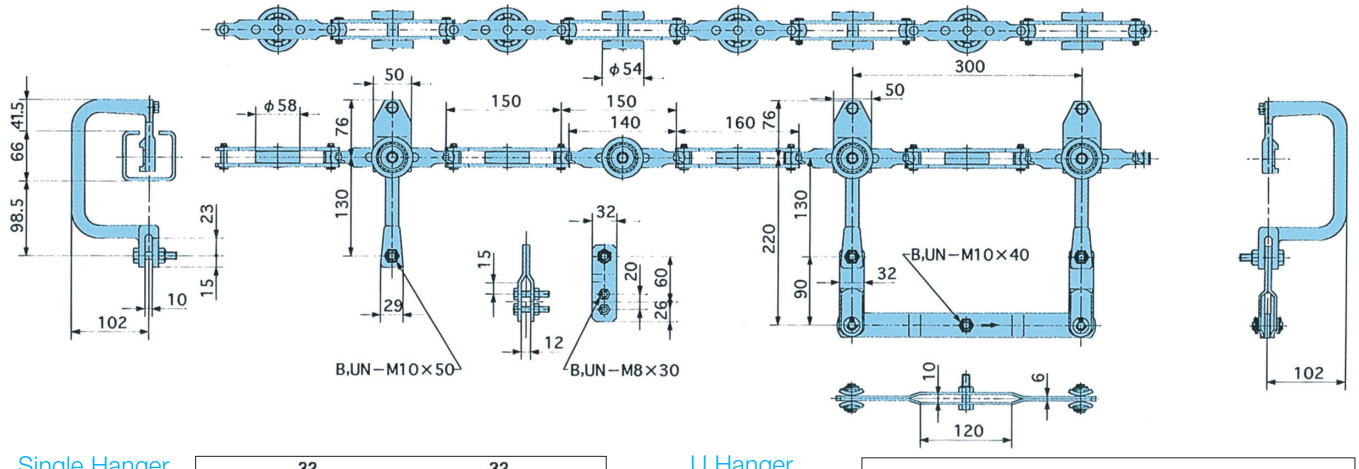
Standard Hanger Specification



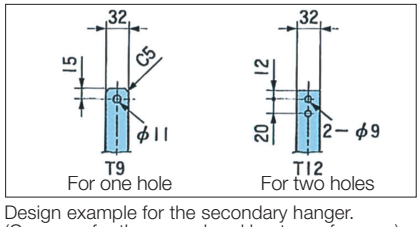
Single hanger (Weight 2.0kg)

U hanger (Weight 5.5kg)

Anti-swing Hanger Specification



Single Hanger (Weight 1.5kg)

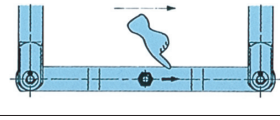


Design example for the secondary hanger.
(Common for the normal and heat proof specs.)

U Hanger (Weight4.0kg)

Assembly instruction of the U Hanger
Match the travel direction with the arrow on the load bar.

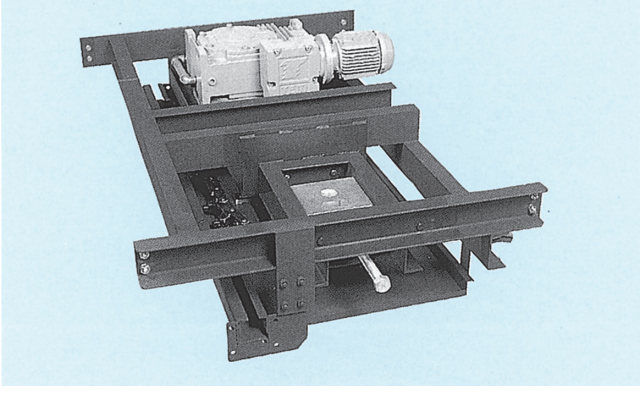
Chain travel direction.

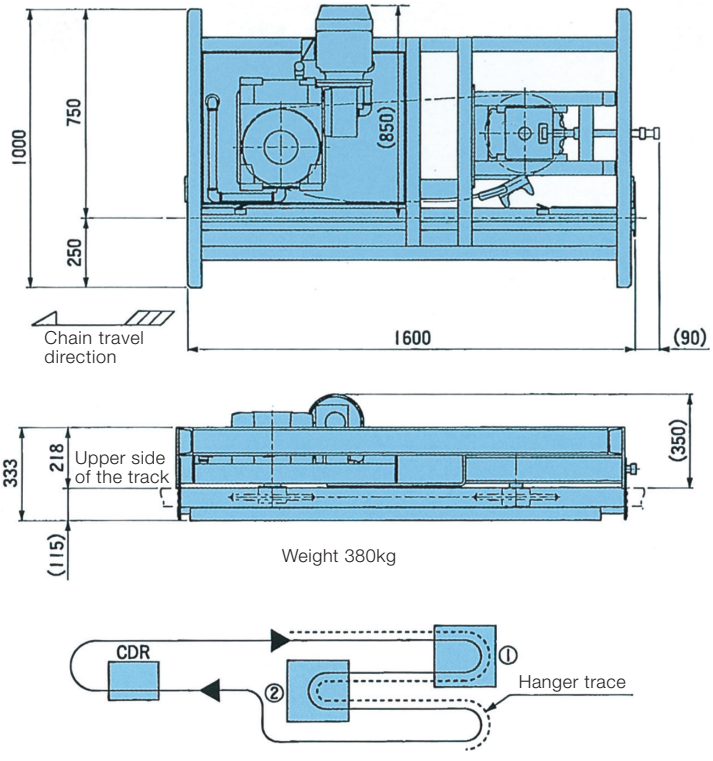


Drive Unit

This is the caterpillar drive type with a horizontal drive. It is a simple structure to connect a main sprocket directly to a reducer output shaft, which makes the maintenance easy.
For the multiple drive consists of a plural number of drive units in one line, the synchro multi drive system (see page 13) is standerd component make sure of the control over the load variance.
Please use the overload protection device (see page 14) as the safety device.

※ The standard model is shown in the right drawing (CDR).
We can manufacture the mirror image model (CDL).
However, both models cannot be used on the same line (due to hanger orientation).

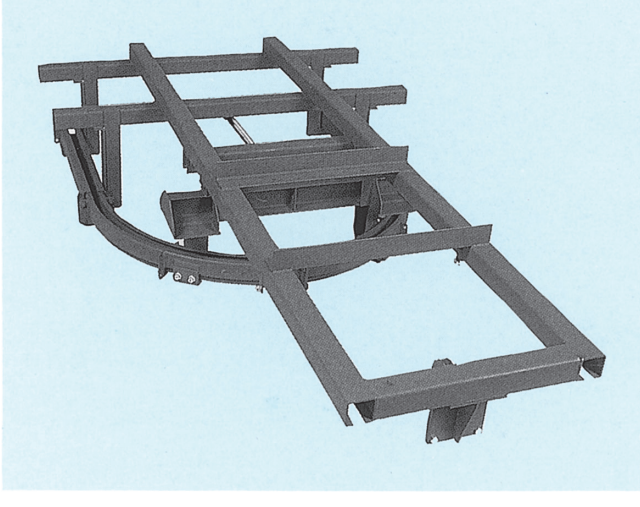




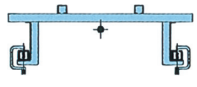
Arrangement example of Drive Unit and Take Up unit.

Take Up Unit

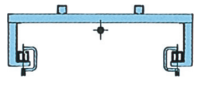
Counter weight type Take Up with a back stopper is standard component.
This take up unit automatically keeps proper chain tension, it enable to avoid being trouble and failure generated from elongation of the chain caused by wearing.
Available units for an inner tracks and outer tracks depending on the direction of the hanger which goes through the take up.
Enable to change between inner and outer tracks.

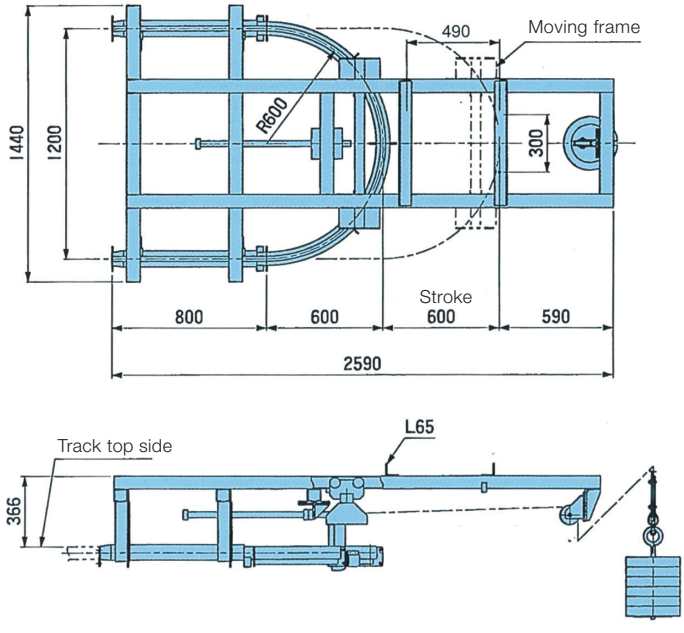


(1) For outer tracks



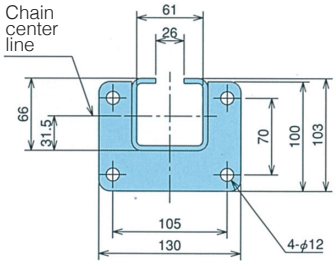
(2) For innner tracks



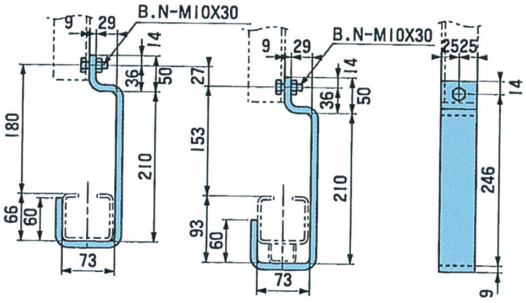


Weight 190kg (mass of the counter weight itself is not included).

Section of the Track

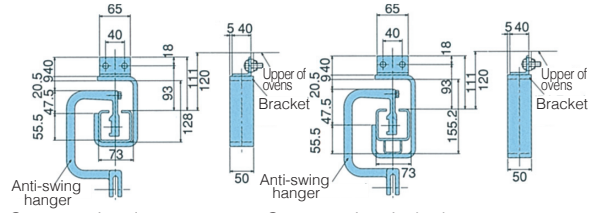


Track Suspension Brackets



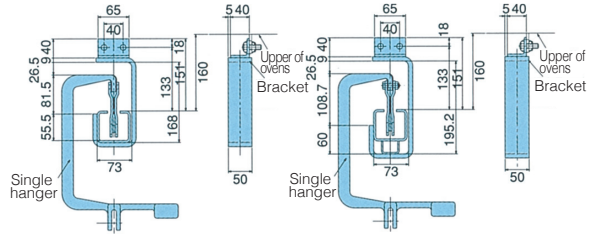
Suspension of general straight portion/ vertical turn portion.

Suspension of horizontal turn portion.



Suspension in ovens. (straight/vertical turn)

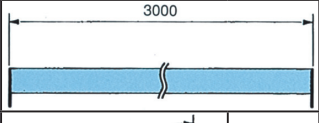
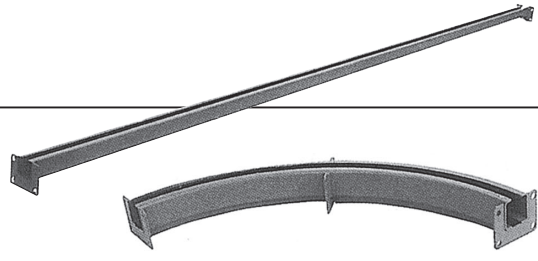
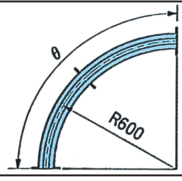
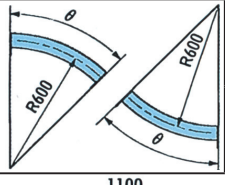
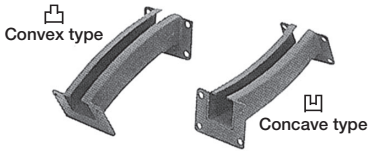
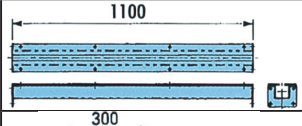
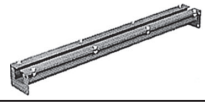
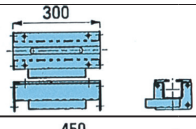
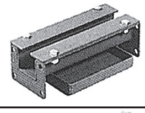
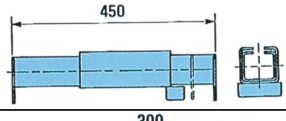
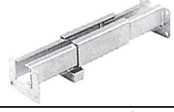
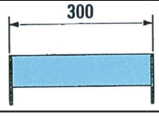
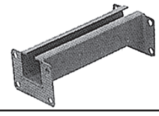
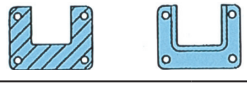
Suspension in bake ovens. (horizontal turn)



Suspension in ovens. (straight/vertical turn)

Suspension in bake ovens. (horizontal turn)

Tracks specification

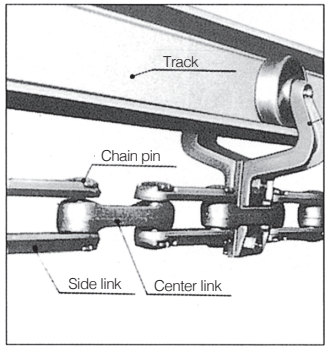
Name	Shape/dimension		Weight kg	Appearance
Straight Track			23	
◎ Horizontal Turn Track		θ=30°	4	
		θ=45°	5	
		θ=90°	10	
◎ Vertical Turn Track		θ=30°	3	
		θ=45°	4	
Insert Track			15	 Install this at the place where the chain is removed and inserted. In general, install one every 50m at the low level of the line.
Cleaning Track			5	 Install this to remove the gathered dust inside the track. Install one in every 50m at the low level of the line, either right after the drive unit or right after the down section.
Oven Expansion Track			6	 This track is installed to absorb the heat expansion of the track in ovens. Install it in the straight portion. Both inside and outside are applied with heat resistance painting.(50 strokes)
Connect Track			3	 If a horizontal turn track and a vertical turn track are connected directly, the chain may be twisted. In such a case, install this track at the joint section.
Rail Yoke			0.3	 This is used for the production of the irregular length tracks.
Flange Packing			—	Depending on how a rail yoke is installed, there is a possibility for a gap in a track joint part. Install them in such a case. Sheet may be installed to the area which is below 80°C. Use the liquid gasket in the range of 80°C and 230°C.
Suspension bracket for track	See above drawing		1.5	See above drawing.

Note) Tracks described by ◎ are hardened tracks.

❸ TR Free Curve

Chain

Special alloy steel is adopted, and after processing for precision forge, a heat treatment is conducted.
It maintains very high strength. It is composed of center link, side link and chain pin only, so that you can assemble/disassemble any part without special tool. Since the chain pin does not turn, it has an excellent abrasion resistance, and easy to replace the pin.

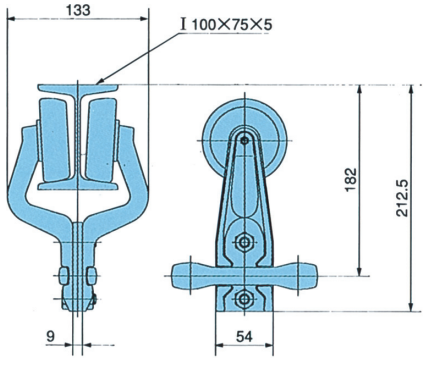


Chain name

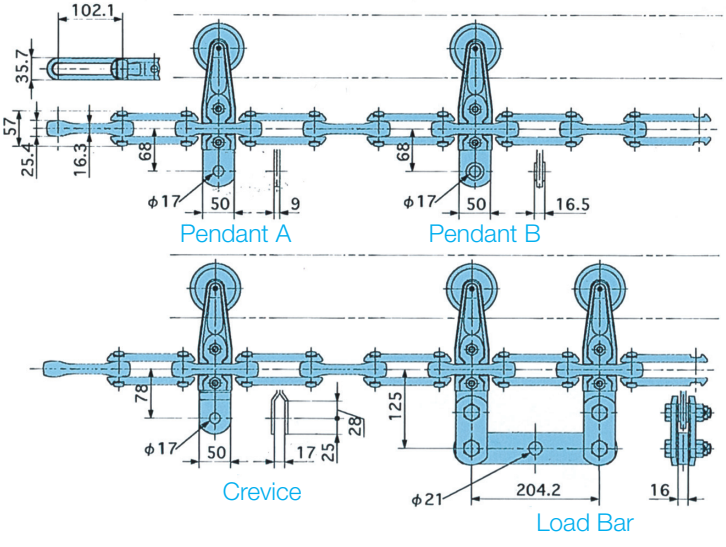
TR458

- Chain pin diameter (5/8 inch)
- Chain pitch (equivalent to 4 inch)
- Conveyor style

TR458



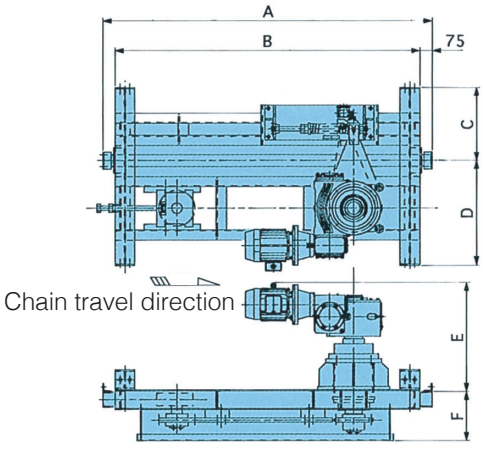
Middle Trolley (Weight 2.7kg)

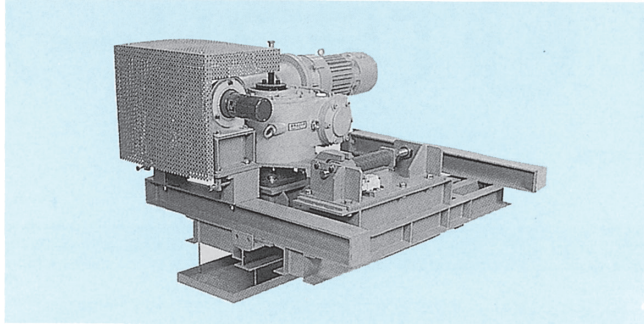


	Trolley spec	Standard horizontal turn radius mm	Standard vertical turn radius mm			Allowable hanging weight and hanger weight kg							
			Every 4 links Trolley	Every 6 links Trolley	Every 8 links Trolley	Pendant A		Pendant B		Grevice		Load Bar	
						Rated Loading MAX. Allowable kg	Weight	Rated Loading MAX. Allowable kg	Weight	Rated Loading MAX. Allowable kg	Weight	Rated Loading MAX. Allowable kg	Weight
TR458	Normal150°C	600	2300	3000	3600	140	2.9	250	2.9	250	3.0	500	8.9
	Heat resistance230°C												

Drive Unit

This is a caterpillar drive type



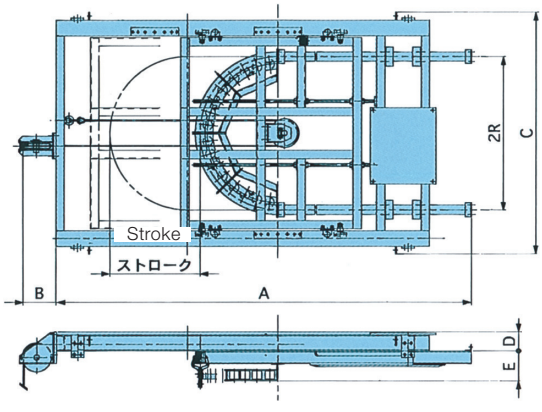


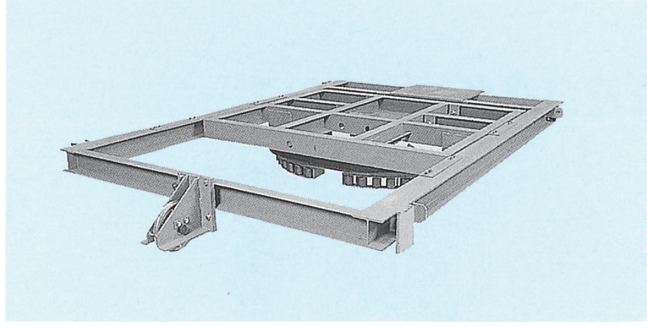
Dim (mm)

Dimension / Conveyor type	A	B	C	D	E	F	Weight kg
TR458	2050	1900	460	660	581	310	1010

Take Up Unit

This type is to pull the take up rail by the force of the weight, which allows a smooth automatic adjustment. A back stopper to prevent a reversal is equipped as a standard.
If 2R is 2 meters long or longer, the form changes. Please contact us for more information.





Dim (mm)

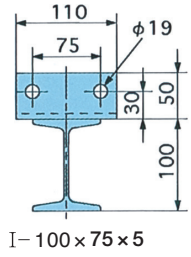
Dimension / Conveyor type	R	Stroke	A	B	C	D	E	Weight kg
TR458	600	700	3220	282	1890	150	235	852

* Weight does not include the mass of the counter weight itself.

Take Up Unit

■Section of the Track

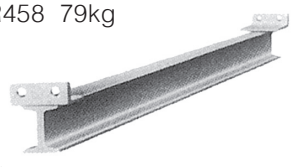
TR458



I－100×75×5

■Rail specification

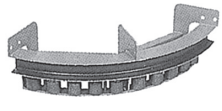
● Straight Track
L=: 6m
Weight: TR458 79kg



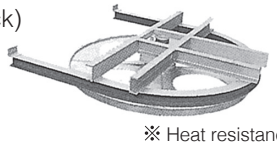
● Roller Turn
(Horizontal Turn Track)
R 600

Weight(kg)

Type / θ°	30°	90°
TR458	20	52

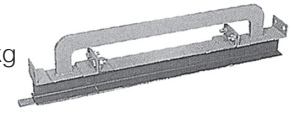


● Oven Wheel Turn
(Oven Horizontal Turn Track)
R 600, 180° (up to R 1000)
Weight: TR458 261kg



※ In the case that you use a roller turn with the use temperature of above 150°C, please contact us.

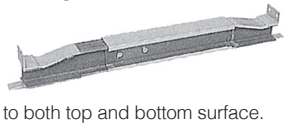
● Insert Track
L = 900 mm
Weight: TR458 19kg



● Vertical Turn Track
R is determined by trolley composition

Type / Dim	R	θ°
TR458	2300~3600	30 · 45

● Oven Expansion Track
L=800mm
Weight: TR458 22kg



※ Heat resistance painting is applied to both top and bottom surface.

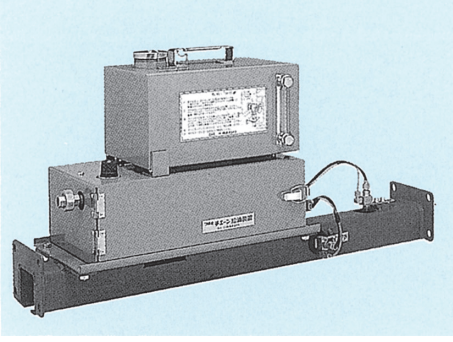
4 Options

Tsubaki Free Curve provides not only component parts of the main body, but also different options. You can choose from a variety of convenient options, such as an automatic lubricator for the chain in the painting line, various devices for the Synchro Multi Drive and functional hangers.

Note: Conventional unit and figures thereof indicated by bracket{ } in the table are listed for reference.

Automatic Lubricator for Chain

Heat resistance spec chain uses non-sealmachined roller. In the case that the chain goes through high temperature zones repeatedly, please consider to use this automatic lubricator for the chain. The checker arm will detect the position of the roller exactly, and inject oil automatically to the balls of the bearing roller.



Main Specification

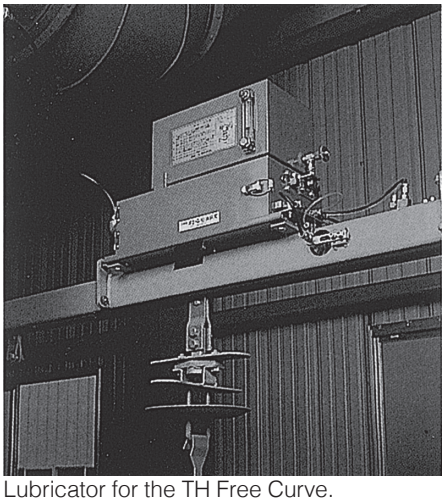
Air pressure Required	0.3~0.4MPa {3.2~4.0kgf/cm^2} (Pressure capacity of the device is 0.88MPa {9kgf/cm^2})
Oil Consumption	0 — 0.03ml/spray
Number of spray nozzles	Standard is 3(max5)
Spray cycle	Min 1.2 sec/cycle (The relationship between the oil injection pitch and the maximum conveyor rate is as shown in the left chart.)
Timing detection	Checker arm detecting type (Even when the conveyer stops, oil will not drop at all.)
Oil tank capacity	5L (Removable)
Air pipe	PT 1/4B
Location	To be in an indoor environment with a temperature not more than 60°C

Models and oil injection pitch, maximum speed.

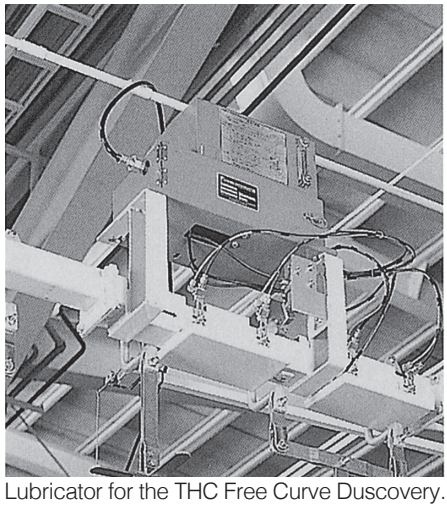
Conveyor type	Oil injection pitch	Maximum speed
TH015	150mm	7.5m/min
TH050 TH300	300	15
TR458	204.2	10.2

Oil

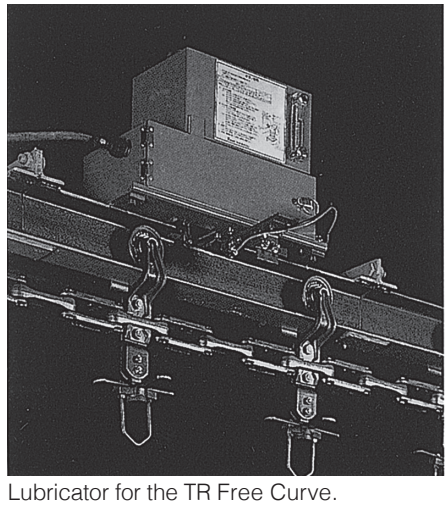
Use a type of oil suitable for 100 mm^2 to 320 mm^2 per second and 40°C.
We recommend using MORESCO HILUBE RX-150.
You can not use one which contains solid lubricant agent.
You may not use mixed oil of different makers.
(It will cause a nozzle clogging and/or bearing rotation problem.)



Lubricator for the TH Free Curve.



Lubricator for the THC Free Curve Duscovery.

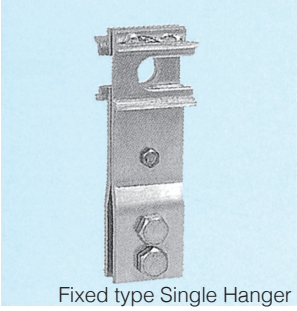


Lubricator for the TR Free Curve.

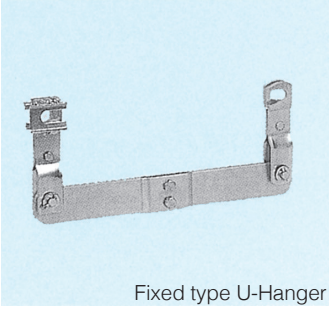
Function hanger *If you need, then please contact us

■Functional primary hanger

By fixing it to the chain, you may Index hanger smoothly.



Fixed type Single Hanger



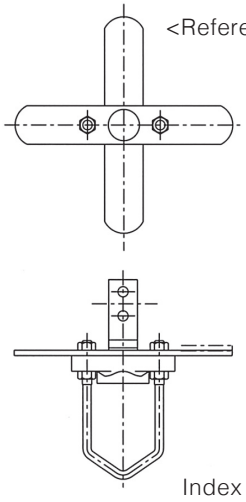
Fixed type U-Hanger

■Index Hanger

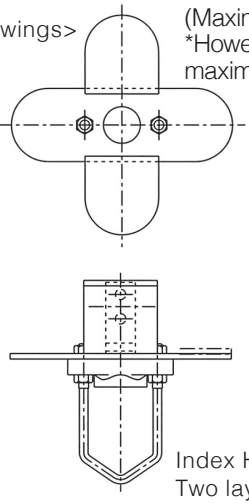
This is effective when you need a directional change or directional control of the hanging material due to the shape/facility and workability of the painted material.

<Reference drawings>

(Maximum allowable load: Up to 60 kg)
*However, this depends on the maximum allowable load for each model.



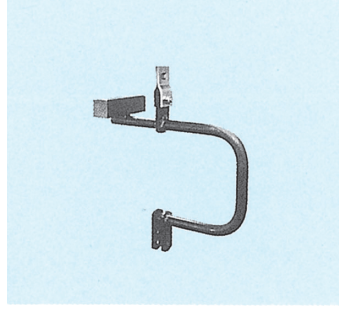
Index Hanger



Index Hanger
Two layer wing type

■C-Type Hanger

This is an effective measure to prevent trash falling from the chain/track.



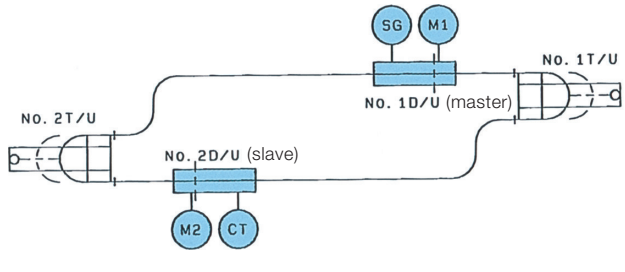
5 Synchro Multi Drive

Synchro multi drive system

This is the best suited for a painting line with many inclines and beclines with a large load variation on the layout. Since there is not much speed fluctuation, it can accommodate robot process well and easy to synchronized control. It can improve the defects of the conventional torque multi.

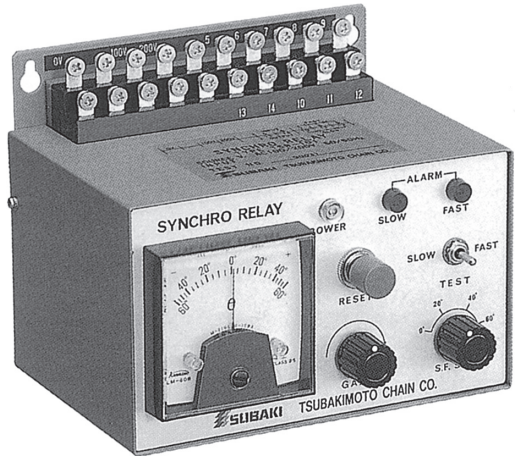
This is a driving system to match and follow the phase of one child drive or more to one unit of the parent drive.

Upon installing a synchro transmitter in the parent (master) drive, and a synchro control transformer in the children drives (slave), detect the difference of the turning angle between the parent and the children, and give feedback to the children drives in the form of a voltage from the Synchro Relay to make the angle difference“0.”



M1, M2: Motor
SG: Synchro transmitter
CT: Synchro control transformer

Synchro Relay (For 200 V AC)



Feature

1. Because of using electric appliance, even at the time of power recovery, the phase difference (angle difference) is accurately kept.
2. Phase difference may be read by the meter.
3. You can set the detection angle of synchronism loss by a dial button easily.
4. Synchronism loss output and synchronism loss indication lamp are installed and their operation may be checked by TEST switch.
5. It is light weight and compact.

Tsubaki Overload Protection Device (Shock Monitor, Shock Relay)

Shock Monitor

This is to be used for the inverter control.
If the speed setting frequency is in the range of 30Hz - 60 Hz, the Shock Relay shown on the right may be used.

Feature

1. Ideal for monitoring light loads.
2. Almost completely unaffected by source voltage variation.
3. Can be used with a wide range of frequencies (5-120Hz)
4. Quick response
5. Record of load state (Analog output DC 0-3.0V)

Shock Relay

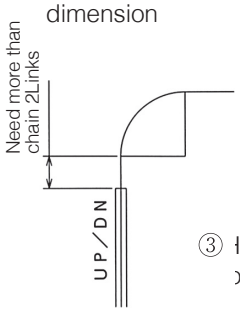
For the inverter control, this may be used only when the speed setting frequency is in the range of 30 Hz - 60 Hz.

Feature

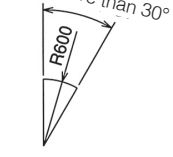
1. Instantly detects overcurrent.
2. Easy to install on existing equipment.
3. The abnormal signal is only output under abnormal conditions

Points to pay attention for layout

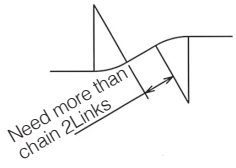
①TH turn part joint dimension



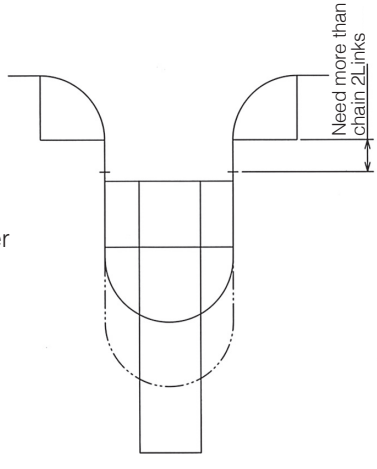
②Horizontal turn Part



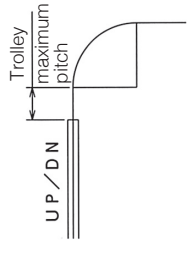
③ Horizontal turn part in S character joint dimension



④T/U gateway straight line dimension



⑤TR turn part joint dimension



For Safe Use

Always read this catalog and the instruction manual appended to product before using Tsubaki Free Curve Conveyor.

⚠ WARNING

- Do not use chain and accessories (accessories and parts) for anything other than their original purpose.
- Never perform additional processing on the chain.
- When there is need to replace a lost or damaged portion of a chain, always replace the whole chain with a new product rather than replacing only the lost or damaged portion.
- If a substance that can cause embrittlement cracking (acid, strong alkali, battery fluid, etc) adheres to the chain, stop using the chain immediately and replace it with a new one.
- During installation, removal, maintenance inspection and lubrication of the chain.
  - Perform the operation according to the instruction manual.
  - Always turn off the power switch to the device and make sure that it can not be turned on accidentally.
  - Wear clothing and employ protective devices that are appropriate to the job.
    (safety glasses, gloves, safety shoes, etc.)
  - Only allow experienced personnel to perform chain replacement procedures.

⚠ CAUTION

- The Free Curve Chain is a convenient part of machinery for conveyance, but this does not mean it has unlimited life. The chain is an expendable item requiring periodic checks and reqlacement.
- Excessive tension may cause chain failure. Including inertial forces and other forces when making the proper selection can help avoid this problem.
- Corrosion and other environmental factors can cause chain failure. Selecting material in light of usage conditions can help avoid this problem.
- In situations where chain failure may pose a danger to human life or major damage to machinery, install the proper safety equipment to ensure against chain failure and potentially dangerous situations.

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■ Note

1. The specifcations, dimensions and other particulars specified in this catalog are subject to change for improvement. Before designing your system, please consult with Tsubakimoto Chain Co.

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