



# TKN

## CONVEYOR CHAIN

CATALOG

 **TKN** TOKUNO

# A comprehensive manufacture of conveyor chains providing new value to meet the needs of a new age

Conveying equipment serve as the base for the flow of new products that supply contemporary needs. In this field, Tokuno Manufacturing Co., Ltd. handles the integrated production of conveyor chains, covering all stages from development and design to parts manufacturing and assembly.

For more than sixty years since foundation, we have accumulated experience and technology along with our "Customer First" motto. Through developing new products leveraging our technical capability, and always considering how to provide "new value" to meet the demands of the age and society, we have been delivering appropriate products focusing mainly on the industrial world.

Based on a wealth of experience as well as research and development, we will continue endeavoring to provide products that will leave users satisfied with the TKN brand name.



# INDEX

- Guidelines for Selecting Conveyor Chains p.1-3
- TM/TE Standard Conveyor Chains ————— p.4-9  
Dimensions and Specifications
- Conveyor Chains with Attachments ——— p.10-11
- Flow Conveyor Chains ————— p.12-13
- Deep Link Conveyor Chains ————— p.14
- Conveyor Chains with Outboard Rollers ——— p.15
- Conveyor Chains with Top Rollers ————— p.16
- Conveyor Chains with CA-2 Attachments p.17
- Apron Conveyor Chains ————— p.18
- Welded Chains p.19
- TZ Type Trolley Conveyor Chains ————— p.20-21
- TRX Rivetless Chains & Trolley Hanger p.22-23
- Standard Trolley Conveyor Chains ——— p.24-25

# Guidelines for Selecting Conveyor Chains

## Caution

Products listed products are manufactured with proper care. However, incorrect selection, handling, or maintenance can cause breakage of the chain, leading to a severe accident.

For the selection, handling, and maintenance of chains (and sprockets), be sure to consult relevant documents on design and selection, instruction manuals, and other related materials for each product. For inquiries or clarification, please contact us.

### 1. Selection Method for General Applications

In order to obtain adequate performance of a chain conveyor, it is necessary to select correct conveyor chains according to their intended use. For this purpose, please be sure to fully understand the characteristics of the chain conveyor system and the conditions in which it is used, then select the most appropriate chain for each application. Selecting conveyor chains requires comprehensive knowledge and experience.

#### ■ Selection Procedure

- (1) Type of the conveyor
- (2) Type and nature of the objects to be conveyed
- (3) Quantity of the objects to be conveyed and conveying distance
- (4) Conveying speed
- (5) Ambient conditions
- (6) Operation hours, etc.

The above items except item (4) can be roughly determined when designing the conveyor. Item (4), conveying speed, can also be roughly determined based on the form of conveyance, type of the conveyor, and the quantity of the objects to be conveyed. In the case of selection for special applications, please contact Tokuno Manufacturing Co., Ltd.

#### 1.1. Form of the chain

Comprehensively consider the items in the Selection Procedure, and select appropriate chains.

- Chain pitch
- Roller type
- Attachment type

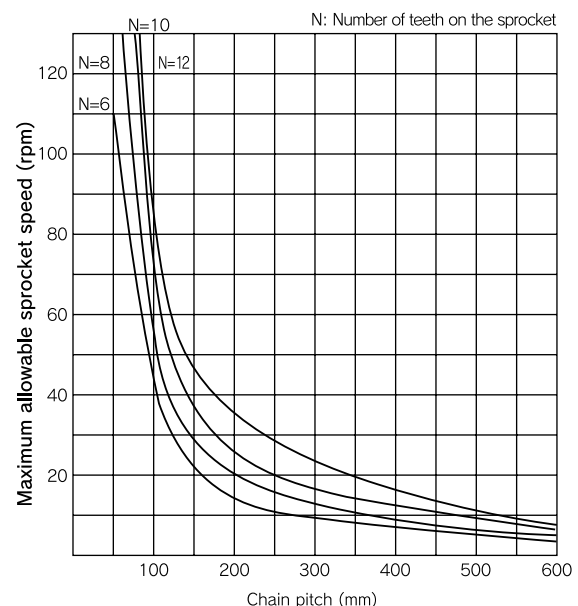
### 2. Determining the chain pitch

Sizes of the parts attached to the chain, such as slats, trays, buckets, and aprons, are determined based on the

type of the conveyor, shape and nature of the objects to be conveyed, conveyance capacity, conveying speed, etc., and the approximate size of the chain can be determined accordingly. However, the pitch of the conveyor chain is restricted by the rotation speed and the number of teeth on the sprocket as shown in the graph below; therefore, the sprocket speed (rpm), as obtained from the equation below, must be less than the allowable speed.

$$\text{Sprocket speed (rpm)} = \frac{1000 \times \text{Conveying speed (m/min)}}{\text{Number of teeth} \times \text{Pitch (mm)}}$$

In general, selecting a chain so that the pitch is as small as possible within the scope of requirements will help to suppress shock during conveyance and lengthen its life span.



Relationship between the chain pitch and the maximum allowable sprocket speed

# Guidelines for Selecting Conveyor Chains

## 3. Maximum chain tension and transmission power

The maximum tension applied to the chain during operation and the required transmission power can be calculated using the formulas given in Table 4.

- T : Maximum chain tension (load) kN {kgf}  
 Q : Maximum quantity of objects conveyed t/h {tf/h}  
 S : Conveying speed (chain speed) m/min  
 V : Vertical center distance between sprockets m  
 H : Horizontal center distance between sprockets m  
 C : Center distance between sprockets m  
 M : Mass {weight} of moving parts kg/m {kgf/m}  
 (Mass {weight} of the chains, buckets, aprons, etc.)  
 f<sub>1</sub> : Coefficient of friction between chain and guide rail Tables 1 and 2  
 f<sub>2</sub> : Coefficient of friction between object conveyed and bottom/side plates Table 3  
 η : Mechanical efficiency of power transmission at the actuator  
 kw : Required transmission power kw  
 W : Total mass {weight} of objects conveyed on the conveyor kg {kgf}  
 g : Gravitational acceleration 9.80665m/S<sup>2</sup>

Note: With reference to the above unit symbols, the values for mass (kg) and weight (kgf) are to be the same.

Table 1: Coefficient of rolling friction between chain and guide rail (at room temperature) f<sub>1</sub>

Roller diameter D (mm)	With lubrication	Without lubrication
D < 50	0.15	0.20
50 ≤ D < 65	0.14	0.19
65 ≤ D < 75	0.13	0.18
75 ≤ D < 100	0.12	0.17
100 ≤ D	0.11	0.16

Table 2: Coefficient of sliding friction between chain and guide rail f<sub>1</sub>

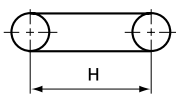
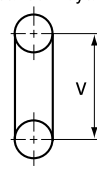
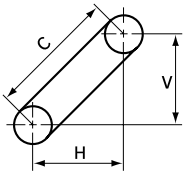
Temperature of object conveyed (°C)	With lubrication	Without lubrication
Room temperature~400	0.20	0.30
400~600	0.30	0.35
600~800	0.35	0.40
800~1,000	—	0.45

Table 3: Coefficient of friction f<sub>2</sub>

Object conveyed	f <sub>2</sub>
Coal	0.30~0.70
Coke	0.35~0.70
Ash	0.45~0.65
Sand	0.55~0.90
Grit	0.55~0.70
Ore	0.45~0.70
Cement	0.60~0.75
Grain	0.35~0.45
Limestone	0.35~0.55

Note: The f<sub>2</sub> values vary depending on the grain size, moisture condition, etc.

Table 4: Formulas to calculate tension

Configuration of conveyance	Method of conveyance	Form of object conveyed	SI units	Gravitational units
Horizontal conveyance 	Loaded conveyance ( Slat conveyors, apron conveyors, etc. )	Mass-produced items	$T = (W + 2.1MH) f_1 \times \frac{g}{1000}$ $kw = \frac{T \cdot S}{54.5\eta}$	$T = (W + 2.1MH) f_1$ $kw = \frac{TS}{5565\eta}$
		Bulk solids	$T = (16.7 \frac{Q}{S} + 2.1M) H f_1 \times \frac{g}{1000}$ $kw = \frac{T \cdot S}{54.5\eta}$	$T = (16.7 \frac{Q}{S} + 2.1M) H f_1$ $kw = \frac{TS}{5565\eta}$
	Scraped conveyance ( Flow conveyors, scraper conveyors, etc. )	Bulk solids	$T = (16.7 \frac{Q}{S} f_2 + 2.1M f_1) H \times \frac{g}{1000}$ $kw = \frac{T \cdot S}{54.5\eta}$	$T = (16.7 \frac{Q}{S} f_2 + 2.1M f_1) H$ $kw = \frac{TS}{5565\eta}$
Vertical conveyance 	Loaded conveyance ( Bucket elevators, tray elevators, etc. )	Mass-produced items	$T = (W + MV) \times \frac{g}{1000}$ $kw = \frac{T \cdot S}{54.5\eta} \times \frac{g}{1000}$	$T = W + MV$ $kw = \frac{W \cdot S}{5565\eta}$
		Bulk solids	$T = \{ (16.7 \frac{Q}{S} + M) (v + 2) \} \times \frac{g}{1000}$ $kw = \frac{Q(V+2)}{333\eta}$	$T = (16.7 \frac{Q}{S} + M) (v + 2)$ $kw = \frac{Q(V+2)}{333\eta}$
Inclined conveyance 	Loaded conveyance ( Slat conveyors, apron conveyors, etc. )	Mass-produced items	$T = \{ (W + MC) \frac{Hf_1 + v}{C} + 1.1M (Hf_1 - v) \} \times \frac{g}{1000}$ $kw = \frac{S}{54.5\eta} \{ T - M(v - Hf_1) \times \frac{g}{1000} \}$	$T = (W + MC) \frac{Hf_1 + v}{C} + 1.1M (Hf_1 - v)$ $kw = \frac{S}{5565\eta} \{ T - M(v - Hf_1) \}$
		Bulk solids	$T = \{ (16.7 \frac{Q}{S} + M) (Hf_1 + v) + 1.1M (Hf_1 - v) \} \times \frac{g}{1000}$ $kw = \frac{S}{54.5\eta} \{ T - M(v - Hf_1) \times \frac{g}{1000} \}$	$T = (16.7 \frac{Q}{S} + M) (Hf_1 + v) + 1.1M (Hf_1 - v)$ $kw = \frac{S}{5565\eta} \{ T - M(v - Hf_1) \}$
	Scraped conveyance ( Flow conveyors, scraper conveyors, etc. )	Bulk solids	$T = \{ (16.7 \frac{Q}{S} (Hf_2 + v) + M (Hf_1 + v) + 1.1M (Hf_1 - v) \} \times \frac{g}{1000}$ $kw = \frac{S}{54.5\eta} \{ T - M(v - Hf_1) \times \frac{g}{1000} \}$	$T = (16.7 \frac{Q}{S} (Hf_2 + v) M (Hf_1 + v) + 1.1M (Hf_1 - v)$ $kw = \frac{S}{5565\eta} \{ T - M(v - Hf_1) \}$

Note: In the above formulas, if Hf<sub>1</sub> - V < 0, then let Hf<sub>1</sub> - V = 0. Also, if V - Hf<sub>1</sub> < 0, then let V - Hf<sub>1</sub> = 0.

# Guidelines for Selecting Conveyor Chains

## 4. Load correction factors

The value of the maximum chain tension obtained from the tension calculation formula in Table 4 needs correction depending on various factors such as the ambient conditions in which the chain is used and the chain speed. Obtain the service factor from Table 5 and the safety factor for chain speed from Table 6 to correct the value.

Table 5: Service factor SF

Service condition	Operation hours per day	
	Within 10 hours	Over 10 hours
Good	1.0	1.2
Rather bad	1.2	1.4
Very bad	1.5 or more	1.8 or more

Table 6: Safety factor for chain speed SV

Chain speed (m/min)	Safety factor SV
20 or less	7
20~30	7~9
30~40	8~10
40~50	9~13
50~60	10~15
60 or more	12~20

## 5. Determining the chain size

Select the appropriate chain size from the catalog based having determined the maximum chain tension (load) and the load correction factors that will satisfy the formula given below.

$$\boxed{\text{Average tensile strength of chain}} \geq \boxed{\text{Calculated value of chain tension}} \times \boxed{\text{Service factor SF}} \times \boxed{\text{Safety factor for chain speed SV}}$$

If any of the following working conditions apply, please contact Tokuno Manufacturing Co., Ltd.

- Short distance conveyance of objects with a heavy load.
- Abrasive, adhesive, or corrosive objects are to be conveyed and may spill down on the chain.
- High-temperature, high-humidity atmosphere.

## 6. Determining the attachment

Select the most suitable attachment for the shapes and sizes of the objects to be attached, according to the type of conveyor.

## 7. Roller types

Tokuno Manufacturing Co., Ltd. offers three types of rollers (i.e. S(M), R, and F) for both TM- and TE-type conveyor chains.

Select the most appropriate roller type for the

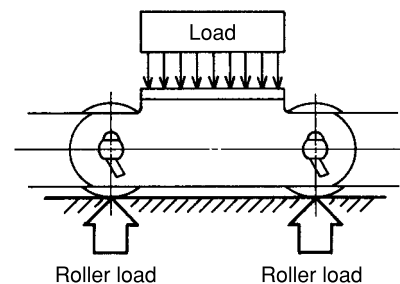
working conditions of the conveyor. Use the R or F rollers except in the case of vertical conveyance. The S(M) rollers, wherever possible, should not be used except for the following cases:

- Light objects are to be conveyed.
- Conveying distance is short.
- Long life span is not required.
- Mass is supported by plates.

(For reference)

### Allowable roller load (R-type and F-type rollers)

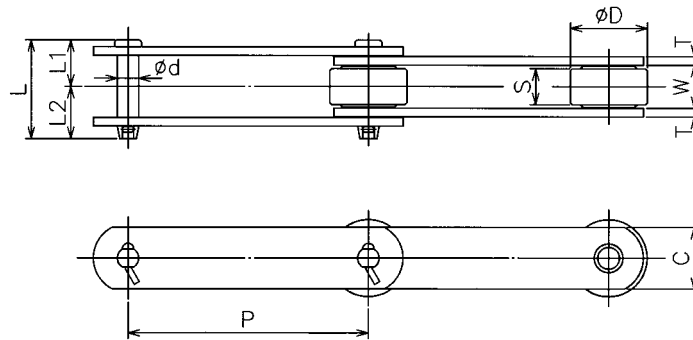
Since the allowable roller load differs depending on the objects conveyed and the conveyance conditions, there is no unified form of representation. For reference purposes, the table below shows the allowable roller loads in circumstances where lubrication is possible. The material for the chain rails is required to have a tensile strength of 400 N/mm<sup>2</sup> {41 kgf/mm<sup>2</sup>} or greater.



Allowable load of R-type and F-type rollers Units: kN(kgf)/roller

Chain	Regular Series		High-strength Series	
	kN	kgf	kN	kgf
TMS/TMSH 3000	0.54	55	0.88	90
TM/TMH 3000	0.54	55	0.88	90
TM/TMH 5000	0.93	95	1.47	150
TM/TMH 7000	1.18	120	1.91	195
TM/TMH 8000	1.23	125	2.06	210
TM/TMH10000	1.57	160	2.60	265
TM/TMH12000	2.45	250	4.12	420
TM/TMH17000	4.02	410	6.66	680
TM/TMH20000	3.58	365	5.98	610
TM/TMH26000	5.30	540	8.83	900
TM/TMH36000	7.45	760	12.35	1260
TM/TMH52000	9.80	1000	15.80	1620
TE/TEH 3400	0.88	90	1.42	145
TE/TEH 5400	1.23	125	2.06	210
TE/TEH 5600	1.57	160	2.65	270
TE/TEH 9400	1.47	150	2.40	245
TE/TEH12600	2.11	215	3.53	360
TE/TEH17600	2.60	265	4.31	440

# Standard Conveyor Chains (TM/TMH-R Roller Type, TE/TEH-R Roller Type)



## Dimensions

Chain code	Pitch P	Roller		Width between inner link plates W	Plate		Pin			Approx. mass (kg/m)	
		Diameter D	Contact width S		Width C	Thickness T	Diameter d	Length L	L1		L2
TMS/TMSH 3075-R	75										2.7
TMS/TMSH 3100-R	100	31.8	15.5	16.1	22	3.2	7.94	36.4	17.1	19.3	2.4
TMS/TMSH 3125-R	125										2.2
TMS/TMSH 3150-R	150										2.0
TM/TMH 3075-R	75										2.5
TM/TMH 3100-R	100	30	15.5	18	22	3.2	7.94	38	18	20	2.2
TM/TMH 3125-R	125										2.0
TM/TMH 3150-R	150										1.9
TM/TMH 5075-R	75										5.6
TM/TMH 5100-R	100	40	19	22.2	32	4.5	11.11	51	24	27	5.0
TM/TMH 5125-R	125										4.5
TM/TMH 5150-R	150										4.1
TM/TMH 7100-R	100										6.8
TM/TMH 7125-R	125	45	21.5	25	32	6.0	12.70	61.5	29	32.5	6.1
TM/TMH 7150-R	150										5.5
TM/TMH 8125-R	125	44.45	23.5	27	28.6	6.3 (6.0)	11.11	63	30	33	5.9
TM/TMH 8150-R	150										5.6
TM/TMH 10100-R	100										10.0
TM/TMH 10125-R	125	50	26.5	30	38	6.3 (6.0)	14.29	68	32	36	8.7
TM/TMH 10150-R	150										7.5
TM/TMH 10200-R	200										6.8
TM/TMH 12200-R	200	65	32	36.5	45	7.9 (8.0)	15.88	85.5	39.5	46	11.6
TM/TMH 12250-R	250										10.4
TM/TMH 17200-R	200										19.7
TM/TMH 17250-R	250	80	45.8	50.8	50.8	9.5 (9.0)	19.05	110.5	51	59.5	17.2
TM/TMH 17300-R	300										15.8
TM/TMH 26200-R	200	100	50	56.6	63.5	9.5	22.23	116	54	62	28.4
TM/TMH 26250-R	250										26.2
TM/TMH 36300-R	300	125	56	66	76.2	12.7	25.40	141	65.5	75.5	40.4
TM/TMH 36450-R	450										31.8
TE/TEH 3400-R	101.60	38.1	18.7	22.2	25.4	4.8 (4.5)	9.53	51	24	27	4.3
TE/TEH 5400-R	101.60	44.45	23.5	27	28.6	6.3 (6.0)	11.11	63	30	33	6.7
TE/TEH 5600-R	152.40	50.8	26.5	30	38	6.3 (6.0)	11.11	66	31.5	34.5	7.8
TE/TEH 9400-R	101.60	44.45	27.5	31	38	7.9 (8.0)	15.88	78.5	37	41.5	10.4
TE/TEH 12600-R	152.40	57.2	31.5	36.5	45	7.9 (8.0)	15.88	85.5	39.5	46	12.1
TE/TEH 17600-R	152.40	69.9	31.5	36.5	50.8	9.5 (9.0)	19.05	96.1	43.8	52.3	17.1

Notes: 1. The values in parentheses ( ) denote those for the high-strength type and the SUS300 and 400 series.

# R Roller Type Specifications

	Regular Series				High-strength Series				Stainless Series										
	Average tensile strength kN {kgf}	Material of parts				Average tensile strength kN {kgf}	Material of parts				SUS400 Series (MS/MSH)				SUS300 Series (AS)				
		Plate	Pin	Bushing	Roller		Plate	Pin	Bushing	Roller	Average tensile strength kN {kgf}	Material of parts							
												Plate	Pin	Bushing	Roller				
MS		MSH		MS		MSH													
TMS3000-R	29.4 {3,000}				60.8 {6,200}					29.4 {3,000}	53.9 {5,500}					29.4 {3,000}			
TM3000-R	29.4 {3,000}			Aly ⊕	60.8 {6,200}					29.4 {3,000}	53.9 {5,500}					29.4 {3,000}			
TM5000-R	68.6 {7,000}				138.2 {14,100}					68.6 {7,000}	107.8 {11,000}	MS				68.6 {7,000}			
TM7000-R	84.3 {8,600}				171.5 {17,500}					73.5 {7,500}	127.4 {13,000}	S4 ⊕	S4 ⊕	S4 ⊕	S4 ⊕	73.5 {7,500}			S3
TM8000-R	83.3 {8,500}				132.3 {13,500}					73.5 {7,500}	117.6 {12,000}	MSH				68.6 {7,000}			
TM10000-R	112.7 {11,500}				225.4 {23,000}					102.9 {10,500}	166.6 {17,000}	S4 ⊕				102.9 {10,500}			
TM12000-R	186.2 {19,000}				274.4 {28,000}					166.6 {17,000}	264.6 {27,000}					132.3 {13,500}			
TM17000-R	245.0 {25,000}	Car	Aly ⊕	Car ⊕	392.0 {40,000}	Car ⊕ or Aly ⊕	Aly ⊕	Aly ⊕	Car ⊕	205.8 {21,000}	323.4 {33,000}					186.2 {19,000}			
TM26000-R	279.3 {28,500}				529.2 {54,000}					—	—	—	—	—	—	—			—
TM36000-R	475.3 {48,500}				686.0 {70,000}														
TE3400-R	53.9 {5,500}				98.0 {10,000}					49.0 {5,000}	78.4 {8,000}					44.1 {4,500}			
TE5400-R	83.3 {8,500}				132.3 {13,500}					73.5 {7,500}	117.6 {12,000}	MS				68.64 {7,000}			
TE5600-R	83.3 {8,500}				132.3 {13,500}					73.5 {7,500}	132.3 {13,500}	S4 ⊕	S4 ⊕	S4 ⊕	S4 ⊕	68.6 {7,000}			S3
TE9400-R	137.2 {14,000}				274.4 {28,000}					117.6 {12,000}	186.2 {19,000}	MSH				122.5 {12,500}			
TE12600-R	186.2 {19,000}				274.4 {28,000}					166.6 {17,000}	264.6 {27,000}	S4 ⊕				132.3 {13,500}			
TE17600-R	245.0 {25,000}				392.0 {40,000}					205.8 {21,000}	323.4 {33,000}					186.2 {19,000}			
Examples of product codes representing specifications	TM5100-R TE5400-R	1A-2 1A-2			TMH5100-R TEH5400-R	1A-2 1A-2				TM5100-R TE5400-R	1A-2 1A-2	MSorMSH MSorMSH				TM5100-R TE5400-R	1A-2 1A-2	AS AS	
	Attachment interval and type				High-strength type				SUS400 Series				SUS300 Series						

Material Codes Car ..... Carbon steel

S3 ..... SUS300 series stainless steel

Aly ..... Alloy steel

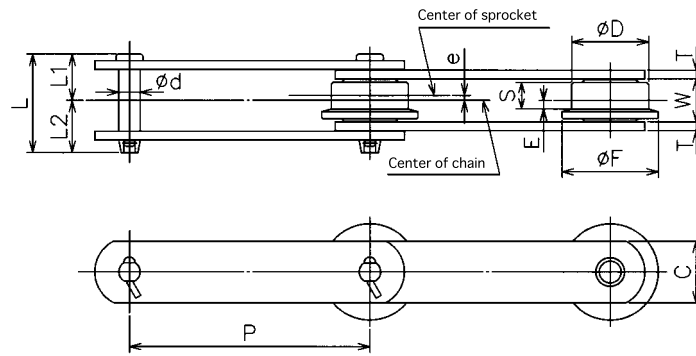
⊕ ..... Heat treatment

S4 ..... SUS400 series stainless steel

(Remodeled products are also available, such as those made by combining the materials listed above and those with larger clearances between parts.)



# Standard Conveyor Chains (TM/TMH - F Roller Type, TE/TEH - F Roller Type)



## Dimensions

Chain code	Pitch P	Roller					Width between inner link plates W	Plate		Pin				Approx. mass (kg/m)
		Diameter D	Flange diameter F	Contact width S	E	Eccentricity e		Width C	Thickness T	Diameter d	Length L	L1	L2	
TMS/TMSH 3075-F	75													2.8
TMS/TMSH 3100-F	100	31.8	42	12	4.3	1.8	16.1	22	3.2	7.94	36.4	17.1	19.3	2.5
TMS/TMSH 3125-F	125													2.3
TMS/TMSH 3150-F	150													2.1
TM/TMH 3075-F	75													2.7
TM/TMH 3100-F	100	30	38	12	4	2	18	22	3.2	7.94	38	18	20	2.3
TM/TMH 3125-F	125													2.1
TM/TMH 3150-F	150													2.0
TM/TMH 5075-F	75													5.8
TM/TMH 5100-F	100	40	50	14	4.5	2.5	22.2	32	4.5	11.11	51	24	27	5.2
TM/TMH 5125-F	125													4.7
TM/TMH 5150-F	150													4.3
TM/TMH 7100-F	100													7.2
TM/TMH 7125-F	125	45	60	16	5	3	25	32	6.0	12.70	61.5	29	32.5	6.5
TM/TMH 7150-F	150													5.8
TM/TMH 8125-F	125	44.45	55	18	6.5	2.5	27	28.6	6.3 (6.0)	11.11	63	30	33	6.2
TM/TMH 8150-F	150													5.8
TM/TMH 10100-F	100													10.2
TM/TMH 10125-F	125	50	65	20	6.5	3.5	30	38	6.3 (6.0)	14.29	68	32	36	8.9
TM/TMH 10150-F	150													7.7
TM/TMH 10200-F	200													7.0
TM/TMH 12200-F	200	65	85	24	8	4	36.5	45	7.9 (8.0)	15.88	85.5	39.5	46	12.2
TM/TMH 12250-F	250													10.9
TM/TMH 17200-F	200													20.7
TM/TMH 17250-F	250	80	105	34	12	5	50.8	50.8	9.5 (9.0)	19.05	110.5	51	59.5	18.2
TM/TMH 17300-F	300													16.6
TM/TMH 26200-F	200	100	130	38	13	6	56.6	63.5	9.5	22.23	116	54	62	30.4
TM/TMH 26250-F	250													27.8
TM/TMH 36300-F	300	125	160	42	14	7	66	76.2	12.7	25.40	141	65.5	75.5	42.0
TM/TMH 36450-F	450													33.3
TE/TEH 3400-F	101.60	38.1	50	13	4	2.5	22.2	25.4	4.8(4.5)	9.53	51	24	27	4.7
TE/TEH 5400-F	101.60	44.45	55	18	6.5	2.5	27	28.6	6.3(6.0)	11.11	63	30	33	6.9
TE/TEH 5600-F	152.40	50.8	65	20	7	3.0	30	38	6.3(6.0)	11.11	66	31.5	34.5	8.1
TE/TEH 9400-F	101.60	44.45	60	19.5	6	3.8	31	38	7.9(8.0)	15.88	78.5	37	41.5	10.7
TE/TEH 12600-F	152.40	57.2	75	25	9	3.5	36.5	45	7.9(8.0)	15.88	85.5	39.5	46	12.4
TE/TEH 17600-F	152.40	69.9	90	23.5	8	3.8	36.5	50.8	9.5(9.0)	19.05	96.1	43.8	52.3	17.6

Notes: 1. The values in parentheses ( ) denote those for the high-strength type and the SUS300 and 400 series.

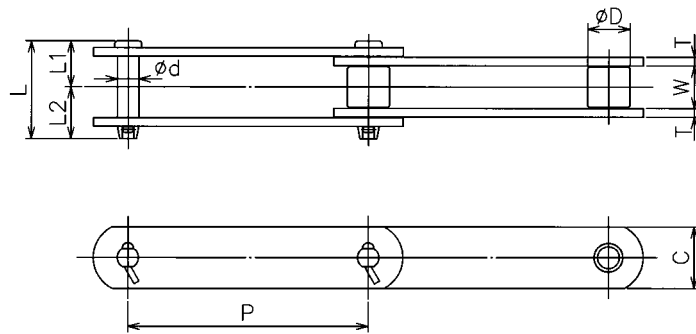
# F Roller Type Specifications

	Regular Series				High-strength Series				Stainless Series																	
	Average tensile strength kN {kgf}	Material of parts				Average tensile strength kN {kgf}	Material of parts				SUS400 Series (MS/MSH)				SUS300 Series (AS)											
		Plate	Pin	Bushing	Roller		Plate	Pin	Bushing	Roller	Average tensile strength kN {kgf}		Material of parts				Average tensile strength kN {kgf}	Material of parts								
											MS	MSH	Plate	Pin	Bushing	Roller		Plate	Pin	Bushing	Roller					
TMS3000-F	29.4 {3,000}	Aly ⊕	Aly ⊕	Car ⊕	Car ⊕	60.8 {6,200}	Car ⊕ or Aly ⊕	Aly ⊕	Aly ⊕	Car ⊕	29.4 {3,000}	53.9 {5,500}	MS S4 ⊕ MSH S4 ⊕	S4 ⊕	S4 ⊕	S4 ⊕	29.4 {3,000}	S3	S3	S3	S3	S3	S3	S3	S3	
TM3000-F	29.4 {3,000}					60.8 {6,200}					29.4 {3,000}	53.9 {5,500}					29.4 {3,000}									S3
TM5000-F	68.6 {7,000}					138.2 {14,100}					68.6 {7,000}	107.8 {11,000}					68.6 {7,000}									
TM7000-F	84.3 {8,600}					171.5 {17,500}					73.5 {7,500}	127.4 {13,000}					73.5 {7,500}									
TM8000-F	83.3 {8,500}					132.3 {13,500}					73.5 {7,500}	117.6 {12,000}					68.6 {7,000}									
TM10000-F	112.7 {11,500}					225.4 {23,000}					102.9 {10,500}	166.6 {17,000}					102.9 {10,500}									
TM12000-F	186.2 {19,000}					274.4 {28,000}					166.6 {17,000}	264.6 {27,000}					132.3 {13,500}									
TM17000-F	245.0 {25,000}					392.0 {40,000}					205.8 {21,000}	323.4 {33,000}					186.2 {19,000}									
TM26000-F	279.3 {28,500}					529.2 {54,000}					-	-					-									
TM36000-F	475.3 {48,500}					686.0 {70,000}					-	-					-									
TE3400-F	53.9 {5,500}	Aly ⊕	Aly ⊕	Car ⊕	Car ⊕	98.0 {10,000}	Car ⊕ or Aly ⊕	Aly ⊕	Aly ⊕	Car ⊕	49.0 {5,000}	78.4 {8,000}	MS S4 ⊕ MSH S4 ⊕	S4 ⊕	S4 ⊕	S4 ⊕	44.1 {4,500}	S3	S3	S3	S3	S3	S3	S3		
TE5400-F	83.3 {8,500}					132.3 {13,500}					73.5 {7,500}	117.6 {12,000}					68.6 {7,000}									
TE5600-F	83.3 {8,500}					132.3 {13,500}					73.5 {7,500}	132.3 {13,500}					68.6 {7,000}									
TE9400-F	137.2 {14,000}					274.4 {28,000}					117.6 {12,000}	186.2 {19,000}					122.5 {12,500}									
TE12600-F	186.2 {19,000}					274.4 {28,000}					166.6 {17,000}	264.6 {27,000}					132.3 {13,500}									
TE17600-F	245.0 {25,000}					392.0 {40,000}					205.8 {21,000}	323.4 {33,000}					186.2 {19,000}									
Examples of product codes representing specifications	TM5100-F 1 <sup>1</sup> A-2 TE5400-F 1 <sup>1</sup> A-2					TMH5100-F 1 <sup>1</sup> A-2 TEH5400-F 1 <sup>1</sup> A-2					TM5100-F 1 <sup>1</sup> A-2 TE5400-F 1 <sup>1</sup> A-2	MSorMSH MSorMSH					TM5100-F 1 <sup>1</sup> A-2 AS TE5400-F 1 <sup>1</sup> A-2 AS									
	Attachment interval and type					High-strength type					SUS400 Series						SUS300 Series									

Material Codes Car ..... Carbon steel S3..... SUS300 series stainless steel  
 Aly ..... Alloy steel ⊕ ..... Heat treatment  
 S4 ..... SUS400 series stainless steel

(Remodeled products are also available, such as those made by combining the materials listed above and those with larger clearances between parts.)

# Standard Conveyor Chains (TM/TMH - S(M) Roller Type, TE/TEH - S(M) Roller Type)



## Dimensions

Chain code	Pitch P	Roller Diameter D		Width between inner link plates W	Plate		Pin				Approx. mass (kg/m)	
		S roller	M roller		Width C	Thickness T	Diameter d	Length L	L1	L2	S	M
TMS/TMSH 3075-S	75										1.8	—
TMS/TMSH 3100-S	100	15.9	—	16.1	22	3.2	7.94	36.4	17.1	19.3	1.6	—
TMS/TMSH 3125-S	125										1.4	—
TMS/TMSH 3150-S	150										1.2	—
TM/TMH 3075-S	75										2.0	—
TM/TMH 3100-S	100	19.05	—	18	22	3.2	7.94	38	18	20	1.8	—
TM/TMH 3125-S	125										1.6	—
TM/TMH 3150-S	150										1.4	—
TM/TMH 5075-S	75										4.2	—
TM/TMH 5100-S	100	22.2	—	22.2	32	4.5	11.11	51	24	27	3.8	—
TM/TMH 5125-S	125										3.4	—
TM/TMH 5150-S	150										3.3	—
TM/TMH 7100-S	100										6.0	—
TM/TMH 7125-S	125	27	—	25	32	6.0	12.70	61.5	29	32.5	5.5	—
TM/TMH 7150-S	150										5.0	—
TM/TMH 8125-S	125	22.2	—	27	28.6	6.3 (6.0)	11.11	63	30	33	4.2	—
TM/TMH 8150-S	150										4.0	—
TM/TMH 10100-S/M	100										7.0	7.4
TM/TMH 10125-S/M	125	30	31.75	30	38	6.3 (6.0)	14.29	68	32	36	6.3	6.7
TM/TMH 10150-S/M	150										5.9	6.3
TM/TMH 10200-S/M	200										5.5	5.9
TM/TMH 12200-S/M	200	34.93	38.1	36.5	45	7.9 (8.0)	15.88	85.5	39.5	46	8.4	8.7
TM/TMH 12250-S/M	250										7.8	8.0
TM/TMH 17200-S/M	200										12.0	13.0
TM/TMH 17250-S/M	250	40.08	44.45	50.8	50.8	9.5 (9.0)	19.05	110.5	51	59.5	11.1	12.2
TM/TMH 17300-S/M	300										10.5	11.5
TM/TMH 26200-S/M	200										15.2	16.5
TM/TMH 26250-S/M	250	44.45	50.8	56.6	63.5	9.5	22.23	116	54	62	14.7	16.0
TM/TMH 36300-S/M	300										22.9	24.0
TM/TMH 36450-S/M	450	50.8	57.2	66	76.2	12.7	25.40	141	65.5	75.5	20.2	21.0
TE/TEH 3400-S	101.60	20.1	—	22.2	25.4	4.8 (4.5)	9.53	51	24	27	3.0	—
TE/TEH 5261-S	66.27	22.2	—	27	28.6	6.3 (6.0)	11.11	63	30	33	5.6	—
TE/TEH 5400-S	101.60	22.2	—	27	28.6	6.3 (6.0)	11.11	63	30	33	4.6	—
TE/TEH 5600-S/M	152.40	25.8	31.75	30	38	6.3 (6.0)	11.11	66	31.5	34.5	5.7	6.1
TE/TEH 7400-S	101.60	25.8	—	28.6	38	6.3 (6.0)	12.70	66	31	35	6.5	—
TE/TEH 9307-S	78.11	31.75	—	36.5	38	7.9 (8.0)	14.29	81.5	39	42.5	10.3	—
TE/TEH 9400-S/M	101.60	31.75	34.93	31	38	7.9 (8.0)	15.88	78.5	37	41.5	8.7	9.1
TE/TEH 12600-S/M	152.40	34.93	38.1	36.5	45	7.9 (8.0)	15.88	85.5	39.5	46	9.3	9.6
TE/TEH 17600-S/M	152.40	40.08	44.45	36.5	50.8	9.5 (9.0)	19.05	96.1	43.8	52.3	12.6	13.0

Notes: 1. The values in parentheses ( ) denote those for the high-strength type and the SUS300 and 400 series.

# S(M) Roller Type Specifications

	Regular Series				High-strength Series				Stainless Series												
	Average tensile strength kN {kgf}	Material of parts				Average tensile strength kN {kgf}	Material of parts				SUS400 Series (MS/MSH)				SUS300 Series (AS)						
		Plate	Pin	Bushing	Roller		Plate	Pin	Bushing	Roller	Average tensile strength kN {kgf}		Material of parts				Average tensile strength kN {kgf}	Material of parts			
											MS	MSH	Plate	Pin	Bushing	Roller		Plate	Pin	Bushing	Roller
TMS3000-S	29.4 {3,000}				60.8 {6,200}					29.4 {3,000}	53.9 {5,500}					29.4 {3,000}					
TM3000-S	29.4 {3,000}		Aly ⊕		60.8 {6,200}					29.4 {3,000}	53.9 {5,500}					29.4 {3,000}					
TM5000-S	68.6 {7,000}				138.2 {14,100}					68.6 {7,000}	107.8 {11,000}	MS				68.6 {7,000}					
TM7000-S	84.3 {8,600}				171.5 {17,500}					73.5 {7,500}	127.4 {13,000}	S4 ⊕	S4 ⊕	S4 ⊕	S4 ⊕	73.5 {7,500}				S3	
TM8000-S	83.3 {8,500}				132.3 {13,500}					73.5 {7,500}	117.6 {12,000}	MSH				68.6 {7,000}					
TM10000-S	112.7 {11,500}				225.4 {23,000}					102.9 {10,500}	166.6 {17,000}	S4 ⊕				102.9 {10,500}					
TM12000-S	186.2 {19,000}				274.4 {28,000}					166.6 {17,000}	264.6 {27,000}					132.3 {13,500}					
TM17000-S	245.0 {25,000}				392.0 {40,000}					205.8 {21,000}	323.4 {33,000}					186.2 {19,000}					
TM26000-S	279.3 {28,500}				529.2 {54,000}					—	—	—	—	—	—	—				—	
TM36000-S	475.3 {48,500}	Car ⊕	Aly ⊕	Car ⊕	686.0 {70,000}	Car ⊕ or Aly ⊕	Aly ⊕	Aly ⊕	Aly ⊕	—	—	—	—	—	—	—				—	
TE3400-S	53.9 {5,500}				98.0 {10,000}					49.0 {5,000}	78.4 {8,000}					44.1 {4,500}					
TE5261-S	83.3 {8,500}				132.3 {13,500}					73.5 {7,500}	117.6 {12,000}					68.6 {7,000}					
TE5400-S	83.3 {8,500}				132.3 {13,500}					73.5 {7,500}	117.6 {12,000}					68.6 {7,000}					
TE5600-S	83.3 {8,500}				132.3 {13,500}					73.5 {7,500}	132.3 {13,500}	MS				68.6 {7,000}					
TE7400-S	98.0 {10,000}				166.6 {17,000}					88.3 {9,000}	137.2 {14,000}	S4 ⊕	S4 ⊕	S4 ⊕	S4 ⊕	73.5 {7,500}				S3	
TE9307-S	117.6 {12,000}				225.4 {23,000}					117.6 {12,000}	186.2 {19,000}	MSH				102.9 {10,500}					
TE9400-S	137.2 {14,000}				274.4 {28,000}					117.6 {12,000}	186.2 {19,000}	S4 ⊕				122.5 {12,500}					
TE12600-S	186.2 {19,000}				274.4 {28,000}					166.6 {17,000}	264.6 {27,000}					132.3 {13,500}					
TE17600-S	245.0 {25,000}				392.0 {40,000}					205.8 {21,000}	323.4 {33,000}					186.2 {19,000}					
Examples of product codes representing specifications	TM5100-F TE5400-F	1 <sup>1</sup> A-2 1 <sup>1</sup> A-2			TMH5100-F TEH5400-F	1 <sup>1</sup> A-2 1 <sup>1</sup> A-2				TM5100-F TE5400-F	1 <sup>1</sup> A-2 1 <sup>1</sup> A-2	MSorMSH MSorMSH				TM5100-F TE5400-F	1 <sup>1</sup> A-2 1 <sup>1</sup> A-2	AS AS			
	Attachment interval and type				High-strength type				SUS400 Series				SUS300 Series								

Material Codes Car ..... Carbon steel

S3 ..... SUS300 series stainless steel

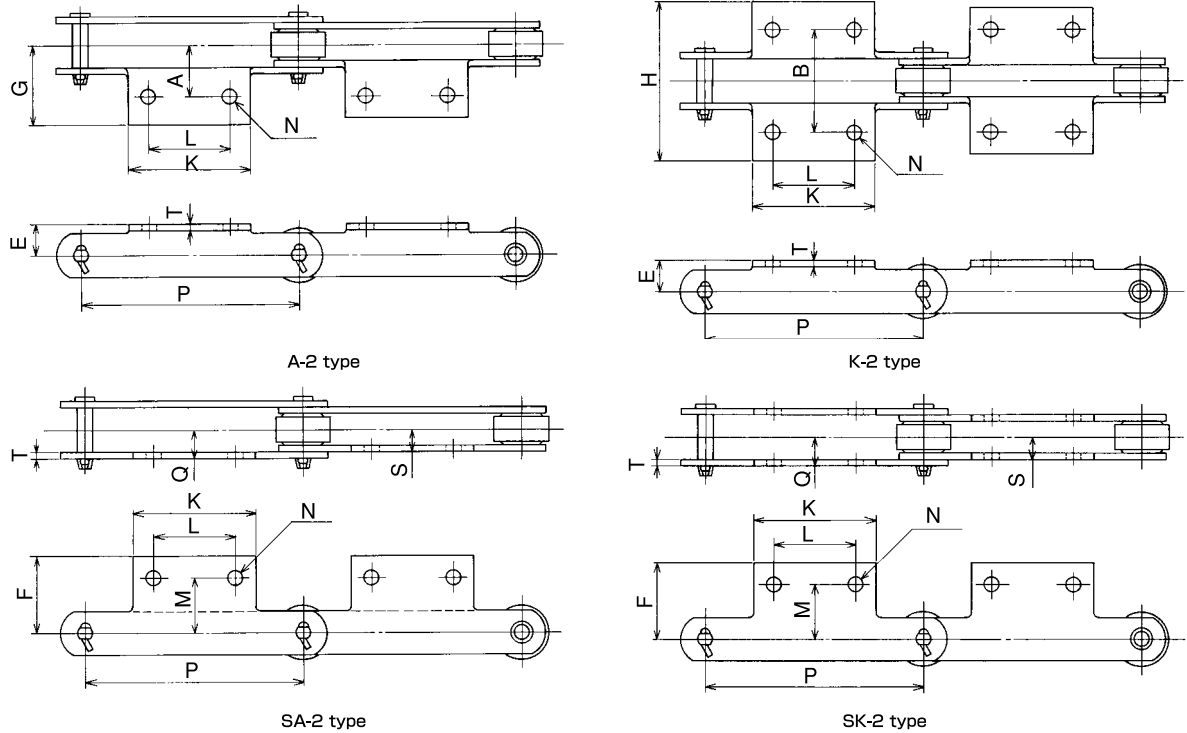
Aly ..... Alloy steel

⊕ ..... Heat treatment

S4 ..... SUS400 series stainless steel

(Remodeled products are also available, such as those made by combining the materials listed above and those with larger clearances between parts.)

# Conveyor Chains with Attachments

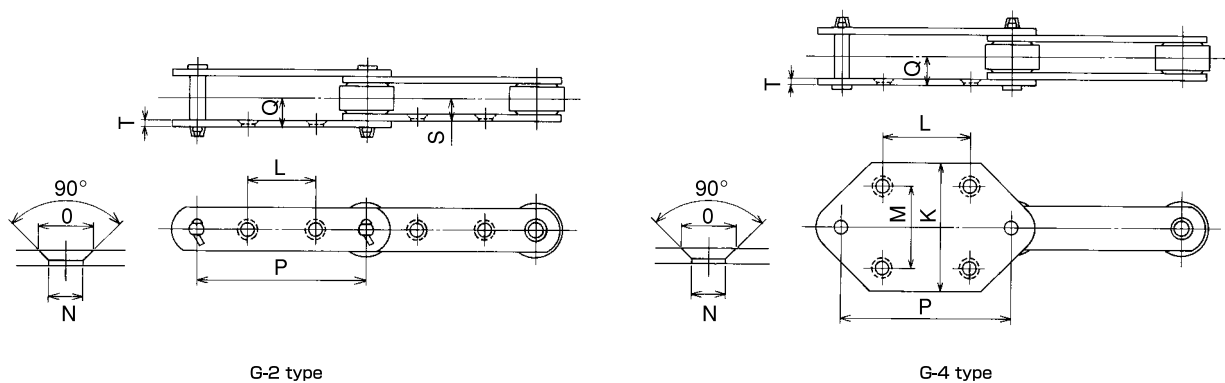


## Dimensions

Chain code	Pitch P	Plate T	A-2 type dimensions						K-2 type dimensions		SA-2/SK-2 type dimensions				Additional mass per attachment	
			K	N	L	A	E	G	(2A)B	(2G)H	M	F	S	Q	A-2 (kg)	K-2 (kg)
TMS 3075-R/F/S	75		55		30										0.05	0.1
TMS 3100-R/F/S	100		65		40										0.06	0.12
TMS 3125-R/F/S	125	3.2	75	10	50	30	20	46	60	92	33	47	11.3	14.9	0.06	0.12
TMS 3150-R/F/S	150		85		60										0.07	0.14
TM 3075-R/F/S	75		60		35										0.05	0.10
TM 3100-R/F/S	100		65		40	30	15	46	60	92	30	42	12.2	15.8	0.06	0.12
TM 3125-R/F/S	125	3.2	75	10	50	30	15	46	60	92	30	42	12.2	15.8	0.06	0.12
TM 3150-R/F/S	150		85		60										0.07	0.14
TM 5075-R/F/S	75		58		35										0.07	0.14
TM 5100-R/F/S	100		65		40	35	22	56.5	70	113	40	54	15.6	20.5	0.08	0.16
TM 5125-R/F/S	125	4.5	75	10	50	35	22	56.5	70	113	40	54	15.6	20.5	0.09	0.18
TM 5150-R/F/S	150		85		60										0.10	0.20
TM 7100-R/F/S	100		70		40										0.20	0.40
TM 7125-R/F/S	125		80		50										0.22	0.44
TM 7150-R/F/S	150	6.0	90	12	60	40	25	63	80	126	45	59	18.5	24.9	0.25	0.50
TM 7175-R/F/S	175		100		70										0.28	0.56
TM 8125-R/F/S	125	6.3	80	12	50	50	28	74	100	148	46.1	70.7	19.8	26.5	0.20	0.40
TM 8150-R/F/S	150	(6.0)	90	12	60	50	28	74	100	148	46.1	70.7	19.8	26.5	0.24	0.48
TM 10100-R/F/S/M	100		70		40										0.18	0.36
TM 10125-R/F/S/M	125	6.3	80	12	50										0.23	0.46
TM 10150-R/F/S/M	150	(6.0)	90	12	60	50	28	74	100	148	50	69	21.3	28.1	0.28	0.56
TM 10200-R/F/S/M	200		120		80										0.37	0.74
TM 12200-R/F/S/M	200	7.9	120	15	80	60	38	85	120	170	60	82.5	26.2	34.7	0.42	0.84
TM 12250-R/F/S/M	250	(8.0)	170		125										0.58	1.16
TM 17200-R/F/S/M	200		120		80										0.80	1.60
TM 17250-R/F/S/M	250	9.5	170	15	125	75	45	108	150	216	70	101.6	34.9	45.2	1.11	2.22
TM 17300-R/F/S/M	300	(9.0)	220		180										1.49	2.98
TM 26200-R/F/S/M	200	9.5	120	15	80	80	55	111.5	160	223	—	—	—	—	0.85	1.70
TM 26250-R/F/S/M	250		170		125										1.17	2.34
TE 3400-R/F/S	101.60	4.8(4.5)	70	11	40	40	22	59	80	118	40	55.3	15.9	21	0.15	0.30
TE 5261-S	66.27	6.3(6.0)	60	11	35	50	28	74	100	148	—	—	(15.6)	(20.7)	0.18	0.36
TE 5400-R/F/S	101.60	6.3(6.0)	70	11	40	50	28	74	100	148	50	70.7	19.8	26.5	0.20	0.40
TE 5600-R/F/S	152.40	6.3(6.0)	90	11	60	50	32	72	100	144	50	71	(19.5)	(26.2)	0.25	0.50
TE 7400-S	101.6	6.3(6.0)	68	11	38	51	30	71.5	102	143	—	—	(21.0)	(27.8)	0.17	0.34
TE 9307-S	78.11	7.9(8.0)	65	12	30	60	35	86.5	120	173	—	—	—	—	0.25	0.50
TE 9400-R/F/S/M	101.60	7.9(8.0)	80	15	40	55	35	84	110	168	60	81	23.4	31.8	0.30	0.60
TE 12600-R/F/S/M	152.40	7.9(8.0)	100	15	60	60	38	85	120	170	60	82.5	26.2	34.7	0.40	0.80
TE 17600-R/F/S/M	152.40	9.5(9.0)	100	15	60	65	45	94.5	130	189	70	94.6	27.8	38	0.55	1.10
													(27.3)	(37.5)		

Notes: 1. The values in parentheses ( ) denote those for the high-strength type and the SUS300 and 400 series.

# Conveyor Chains with Attachments



G-2 type

G-4 type

## ■Dimensions (G-2 type)

Chain code	Pitch P	Plate T	G-2 type dimensions					Maximum length of attaching bolts	
			N	O	L	Q	S	Outer link	Inner link
TMS 3075-R/S	75	3.2	8	13.5	30	14.9	11.3	26	19
TMS 3100-R/F/S	100								
TM 3075-R/S	75	3.2	8	13	30	15.8	12.2	27	20
TM 3100-R/F/S	100								
TM 5100-R/S	100	4.5	9.5	17	40	20.5	15.6	35	25
TM 5125-R/F/S	125								
TM 5150-R/F/S	150								
TM 7100-R/S	100	6.0	11	22	35	24.9	18.5	42	28
TM 7150-R/F/S	150								
TM 8150-R/F/S	150	6.3 (6.0)	12	20	60	26.5 (26.2)	19.8 (19.5)	44	30
TM 10100-S	100	6.3 (6.0)	11	22	30	28.1 (27.8)	21.3 (21.0)	49	35
TM 10125-R/S	125								
TM 10150-R/F/S	150								
TM 12200-R/F/S	200	7.9 (8.0)	15	27	80	34.7 (34.8)	26.2 (26.3)	63	45
TM 12250-R/F/S	250								
TM 17200-R/F/S	200	9.5 (9.0)	15	27	80	45.2 (44.7)	34.9 (34.4)	80	60
TM 17250-R/F/S	250								
TM 17300-R/F/S	300								
TM 26300-R/F/S	300	9.5	15	27	140	48.1	37.8	86	64
TM 26450-R/F/S	450								
TE 5600-R/F/S	152.40	6.3 (6.0)	11	22	60	28.1 (27.8)	21.3 (21.0)	48	34
TE 12600-R/F/S	152.40	7.9 (8.0)	15	27	50	34.7	26.2	62	44

Notes:1. The values in parentheses ( ) denote those for the high-strength type and the SUS300 and 400 series.

## ■Dimensions (G-4 type)

Chain code	Pitch P	Plate T	G-4 type dimensions						Additional mass per attachment (kg)	Approx. mass with an attachment on every 2nd link (kg/m)		
			N	O	L	M	K	Q		R type	F type	S type
TM 5100-S	100	4.5	9.5	17	50	50	80	20.5	0.31	6.5	6.8	5.3
TM 5150-R/F/S	150											
TM 10150-R/F/S	150	6.0	11	22	75	70	110	27.8	0.61	9.5	9.7	8.9
TM 12200-R/F/S	200	8.0	15	27	100	70	110	34.8	0.82	14.0	14.6	10.8
TM 12250-R/F/S	250											
TM 17200-R/F/S	200	9.5 (9.0)	15	27	100	80	127	45.2	1.12	22.5	23.5	14.8
TM 17250-R/F/S	250											
TM 26300-R/F/S	300	9.5	15	27	180	120	170	48.1	2.24	27.1	28.4	17.5
TM 26450-R/F/S	450											
TE 5600-R/F/S	152.40	6.3 (6.0)	11	22	75	70	110	27.8	0.50	9.4	9.7	7.6
TE 12600-R/F/S	152.40	7.9 (8.0)	15	27	75	70	110	34.8	0.53	13.8	14.1	11.0

Notes:1. The values in parentheses ( ) denote those for the high-strength type and the SUS300 and 400 series.

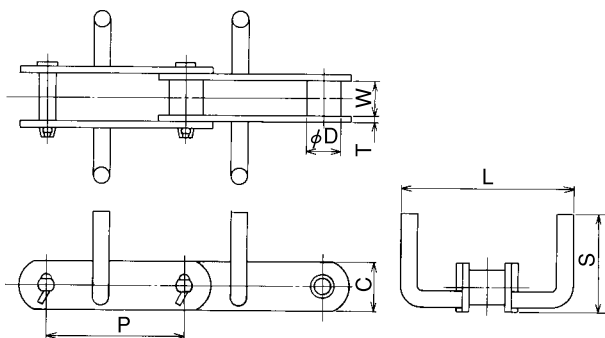
# Flow Conveyor Chains

The flow conveyor, which conveys powder/granular materials in closed containers, is an optimal conveyor in terms of the prevention of dust pollution.

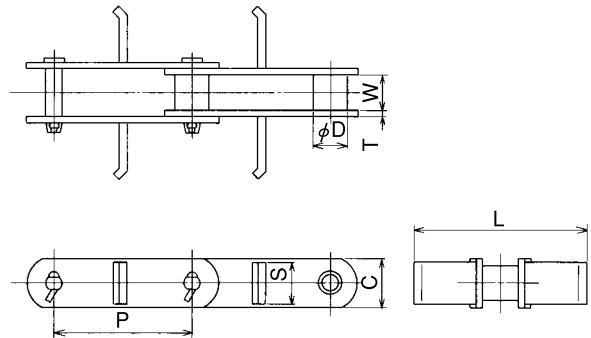
The attachments for these chains have been designed specifically for flow conveyors. Select the attachment type according to the object to be conveyed.

The materials of the chains themselves correspond to those for standard conveyor chains (Regular Series or High-strength Series). Wear-resistant series are also available for design and manufacture.

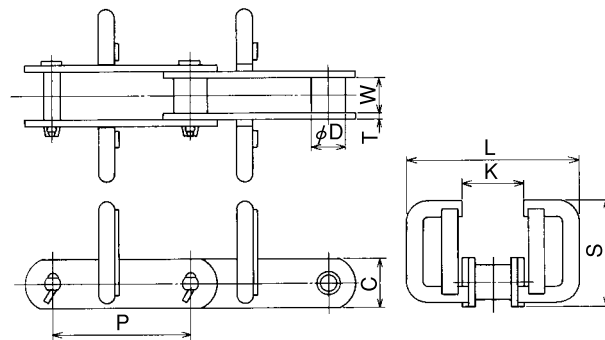
## ◆ Horizontal flow conveyor chains



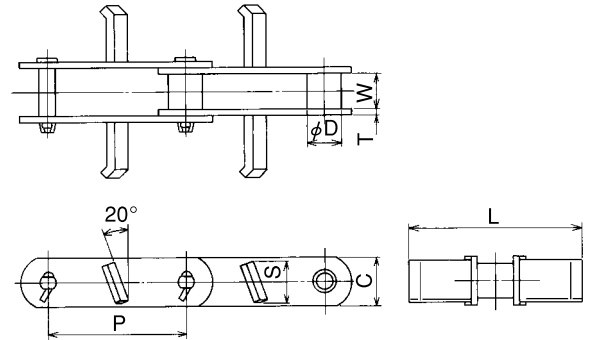
B Attachment



L Attachment



U₂V Attachment



KL Attachment

## ■ Dimensions

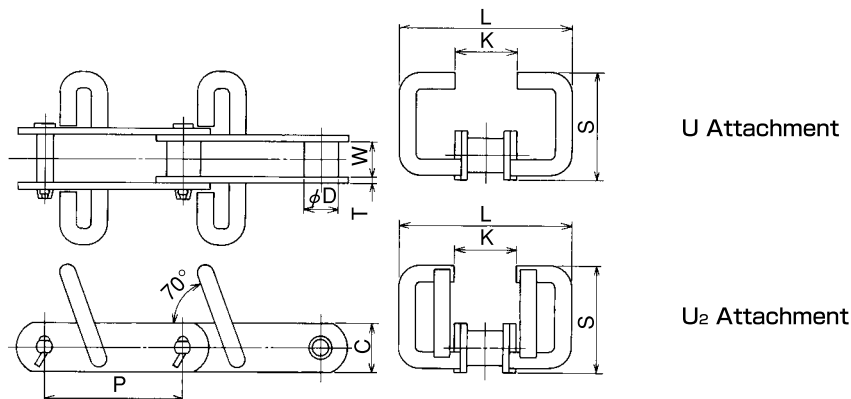
Chain code	Pitch P	Roller diameter D	Width between inner link plates W	Plate		B Attachment			U₂V Attachment			L Attachment			KL Attachment			Average tensile strength kN {kgf}		
				Width C	Thickness T	Wing width L	Height S	Mass (kg/m)	Wing width L	Height S	K	Mass (kg/m)	Wing width L	Height S	Mass (kg/m)	Wing width L	Height S	Mass (kg/m)	Regular Series	High-strength Series
TE 5400W-M	101.6	25.4	27	32	6.0	135	55	7.4	135	80	60	9.1	135	28	6.5	135	28	6.5	107.8 {11,000}	142.2 {14,500}
TM 8125W-M	125	25.4	27	32	6.0	185	80	8.2	185	115	85	10.1	185	28	6.5	185	28	6.5	107.8 {11,000}	142.2 {14,500}
TM 10125-M	125	31.75	30	38	6.3	185	80	8.9	185	115	85	10.9	185	34	8.1	185	34	8.1	112.7 {11,500}	225.4 {23,000}
TM 10150-M	150	31.75	30	38	6.3	250	100	9.8	250	140	105	12	250	34	8.1	250	34	8.1	112.7 {11,500}	225.4 {23,000}
TE 9400-M	101.6	34.93	31	38	7.9	135	55	10.2	—	—	—	—	185	34	10.5	185	34	10.5	137.2 {14,000}	274.4 {28,000}
TE 12600-M	152.4	38.1	36.5	45	7.9	250	100	14.4	250	140	105	18.5	250	38	12	250	38	12	186.2 {19,000}	274.4 {28,000}
TM 12200-M	200	38.1	36.5	45	7.9	330	125	16.3	330	185	130	20	330	38	12	330	38	12	186.2 {19,000}	274.4 {28,000}

Notes: Basic specifications for the chains are the same as those for the standard conveyor chains.

Chain codes for the High-strength Series are to begin with TMH or TEH, instead of TM or TE respectively.

# Flow Conveyor Chains

## ◆ Inclined/vertical flow conveyor chains

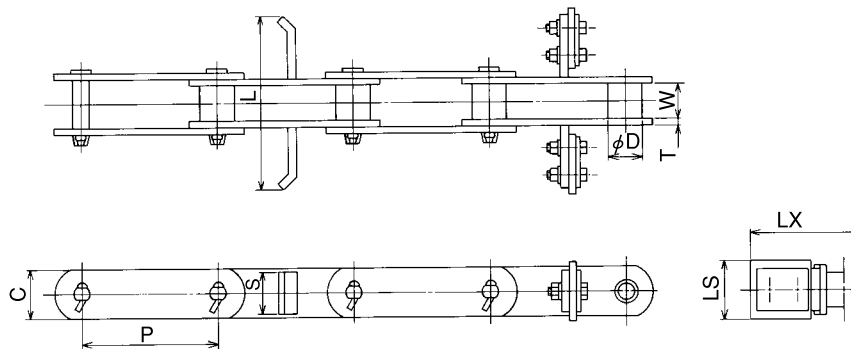


### ■ Dimensions

Chain code	Pitch P	Roller diameter D	Width between inner link plates W	Plate		U Attachment				U <sub>2</sub> Attachment				Average tensile strength	
				Width C	Thickness T	Wing width L	Height S	K	Mass (kg/m)	Wing width L	Height S	K	Mass (kg/m)	kN {kgf}	
														Regular Series	High-strength Series
TE 5400W-M	101.6	25.4	27	32	6.0	145	110	50	10.1	145	110	50	10.9	107.8 {11,000}	142.2 {14,500}
TM 10125-M	125	31.75	30	38	6.3	225	140	65	14.3	225	140	65	15.7	112.7 {11,500}	225.4 {23,000}
TE 12600-M	152.4	38.1	36.5	45	7.9	300	175	80	20.1	300	175	80	21.7	186.2 {19,000}	274.4 {28,000}

Notes: Basic specifications for the chains are the same as those for the standard conveyor chains.  
Chain codes for the High-strength Series are to begin with TMH or TEH, instead of TM or TE respectively.

## ◆ Flow conveyor chains for grain



L Attachment (with cleaner)

### ■ Dimensions

Chain code	Pitch P	Roller diameter D	Width between inner link plates W	Plate		Attachment		Cleaner		Approx. mass (kg/m)	Average tensile strength kN {kgf}
				Width C	Thickness T	Wing width L	Height S	Width LX	Height LS		
TE 3400-S	101.6	20.1	22.2	25.4	4.8	135	22	145	32	3.4	53.9 {5,500}
TE 5400-S	101.6	22.2	27	28.6	6.3	135	25	145	34	5.0	83.3 {8,500}
TM 8125-S	125	22.2	27	28.6	6.3	185	25	195	34	5.0	83.3 {8,500}
TM 10125-S	125	30	30	38	6.3	185 225	34	195 235	47	6.8 7.3	112.7 {11,500}
TM 10150-S	150	30	30	38	6.3	250 300	34	265 315	47	6.9 7.2	112.7 {11,500}
TE 12600-S	152.4	34.93	36.5	45	7.9	250	38	265	53	10.3	186.2 {19,000}
TM 12200-S	200	34.93	36.5	45	7.9	330	38	345	53	10.1	186.2 {19,000}

Notes: Basic specifications for the chains are the same as those for the TM/TE standard conveyor chains.  
Chain codes for the High-strength Series are to begin with TMH or TEH, instead of TM or TE respectively.

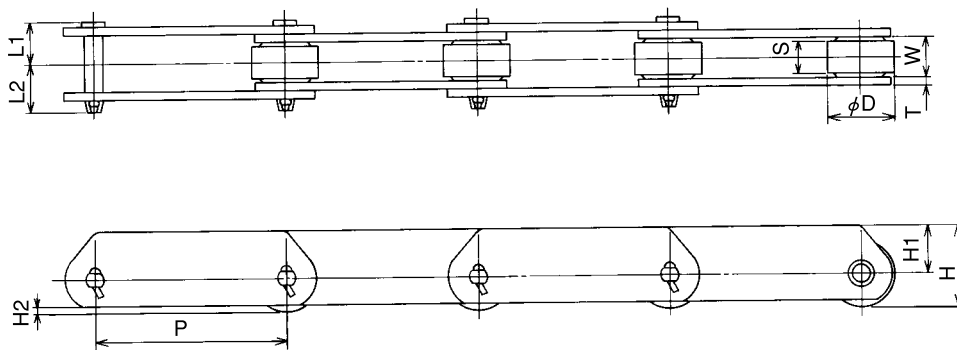


# Deep Link Conveyor Chains

Based on the TM/TE type standard conveyor chains, these chains incorporate wide plates and R-type rollers, and convey objects directly placed on the plates.

## Application Examples

1. Sheet and section steel conveyor lines at ironworks
2. Automotive assembly lines
3. Pallet/container conveyor lines



## ■ Dimensions

Chain code	Pitch P	Roller		Width between inner link plates W	Chain height H	Plate			Pin		Approx. mass (kg/m)	Average tensile strength			
		Diameter D	Contact width S			H1	H2	T	L1	L2		Regular Series		High-strength Series	
												kN	kgf	kN	kgf
TMSD 3075-R	75	31.8	15.5	16.1	36.9	21	4.9	3.2	17.1	19.3	3.2	29.4	3,000	60.8	6,200
TMSD 3100-R	100										2.8				
TMD 3075-R	75	30	15.5	18	36	21	4	3.2	18	20	3.0	29.4	3,000	60.8	6,200
TMD 3100-R	100										2.6				
TMD 5100-R	100	40	19	22.2	44	24	4	4.5	24	27	5.9	68.6	7,000	138.2	14,100
TMD 5150-R	150										4.9				
TMD 10150-R	150	50	26.5	30	57	32	6	6.3	32	36	9.7	112.7	11,500	225.4	23,000
TMD 10200-R	200										8.5				
TMD 12200-R	200	65	32	36.5	73.5	41	10	7.9	39.5	46	14.9	186.2	19,000	274.4	28,000
TMD 12250-R	250										13.5				
TMD 17250-R	250	80	45.8	50.8	90	50	14.6	9.5	51	59.5	22.5	245.0	25,000	392.0	40,000
TMD 17300-R	300										21.5				
TED 12600-R	152.4	57.2	31.5	36.5	63.6	35	6.1	7.9	39.5	46	14.0	186.2	19,000	274.4	28,000

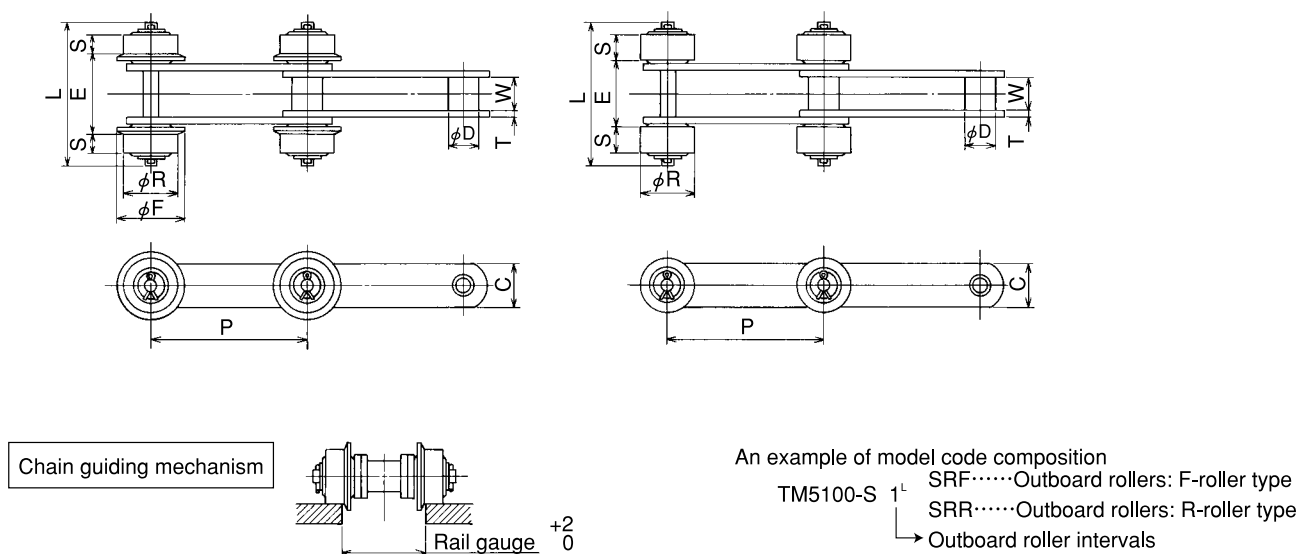
Notes: Basic specifications for the chains are the same as those for the standard conveyor chains.  
Chain codes for the High-strength Series are to begin with TMSHD, TMHD, or TEHD, instead of TMSD, TMD, or TED respectively.

# Conveyor Chains with Outboard Rollers

Based on the TM/TE type standard conveyor chains with S-type rollers, these chains incorporate side rollers fitted onto extended pins on both sides. While the S-type rollers at the center engage with the sprockets, the side rollers serve to guide the chain movement. Using various attachments, these chains have a wide range of applications.

## Intended Use

1. In cases where special attachments on the plates cause instability.
2. In cases where it is difficult to support the load with the S-type rollers at the center.
3. In cases where it is difficult to guide the chain on the return side
4. In cases where R-roller type outboard rollers (SRR) are to have an accumulating function.



## Dimensions

Chain code	Pitch	Roller diameter D	Width between inner link plates W	Plate		Side roller SRF				Side roller SRR			Rail gauge (SRF)	Approx. mass of main part (kg/m)	Additional weight per pair of SR (kg)	
	P			C	T	R	F	S	E	R	S	E				L
TMS 3075-S/SR	75	15.9	16.1	22	3.2	31.8	42	12	38	31.8	15.5	31	74	40	1.8	0.3
TMS 3100-S/SR	100															
TM 3075-S/SR	75	19.05	18	22	3.2	30	38	12	42.5	30	15.5	34.6	79	44.5	2.0	0.3
TM 3100-S/SR	100															
TM 5075-S/SR	75	22.2	22.2	32	4.5	40	50	14	55	40	19	45	102	57	3.8	0.5
TM 5100-S/SR	100															
TM 5150-S/SR	150															
TM 10100-S/SR	100	30	30	38	6.3	50	65	20	73	50	26	60	135.6	75	7.0	1.0
TM 10150-S/SR	150															
TM 12200-S/SR	200	34.93	36.5	45	7.9	65	85	24	92.5	65	32	75.5	165	94.5	8.4	1.8
TM 12250-S/SR	250															
TM 17200-S/SR	200	40.1	50.8	50.8	9.5	65	85	24	111.4	65	32	95.5	186	113.4	12.1	3.8
TM 17250-S/SR	250															
TM 17300-S/SR	300															

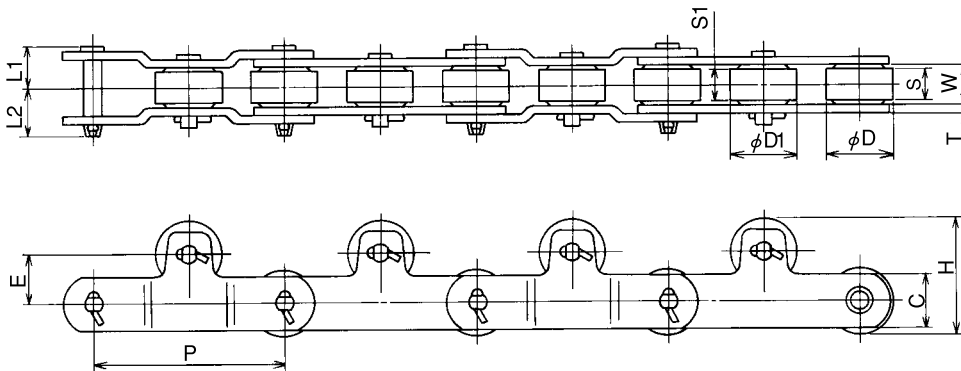
Notes: 1. Basic specifications for the chains, including the mean tensile strength, are the same as those for the TM/TE standard conveyor chains.  
2. When placing an order, please specify the necessity, if any, of quenching the side rollers and their placing intervals.

# Conveyor Chains with Top Rollers

Based on the TM/TE type standard conveyor chains with R-type rollers, these chains incorporate a top roller on the upper part in the middle of each chain pitch, and directly support the objects conveyed.

## Intended Use

1. In cases where the chains are being operated continuously, conveyed objects can be accumulated or temporarily stopped with a stopper above the conveyor.
2. In cases where conveying and stopping temporary are to be performed repeatedly on the same chain line.



An example of model code composition

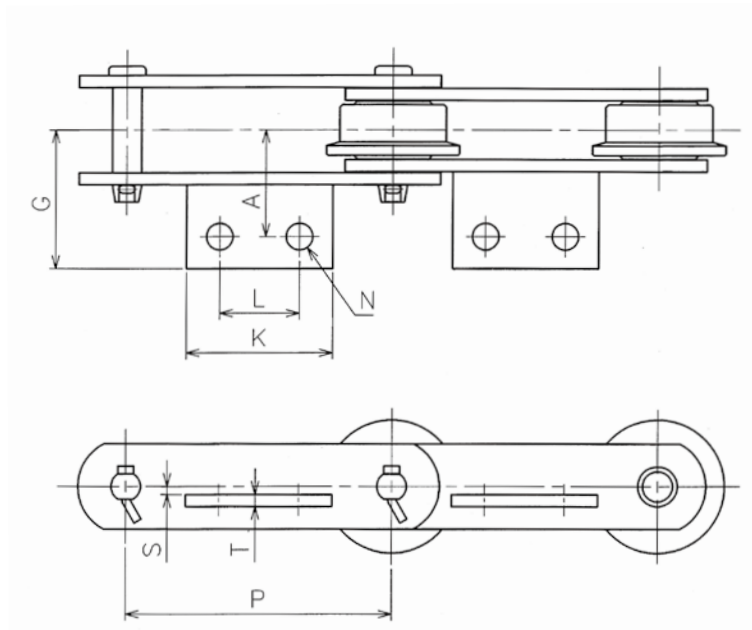
TM5100-R  $\frac{1}{L} \frac{T}{R}$   
 ↳ With top rollers  
 ↳ Top roller intervals

## Dimensions

Chain code	Pitch P	Roller		Width between inner link plates W	Plate		Pin		E	Top roller		H	Approx. mass (kg/m)	Additional weight per TR (kg)
		Diameter D	Contact width S		C	T	L <sub>1</sub>	L <sub>2</sub>		D <sub>1</sub>	S <sub>1</sub>			
TM 5100-R/TR	100	40	19	22.2	32	4.5	24	27	30	40	19	70	5.0	0.26
TM10150-R/TR	150	50	26.5	30	38	6.3	32	36	30	50	26.5	80	7.5	0.56
TM12200-R/TR	200	65	32	36.5	45	7.9	39.5	46	45	65	32	110	11.6	1.15
TM12600-R/TR	152.4	57.2	31.5	36.5	45	7.9	39.5	46	37.8	57.2	31.5	95	12.1	0.91

Notes: 1. Basic specifications for the chains, including the average tensile strength, are the same as those for the TM/TE standard conveyor chains.  
 2. When placing an order, please specify the necessity, if any, of quenching the top rollers and their placing intervals.  
 (When the top rollers are to be placed at even-numbered intervals of links, they will be placed on inner links unless otherwise specified.)

# Conveyor Chains with CA-2 Attachent



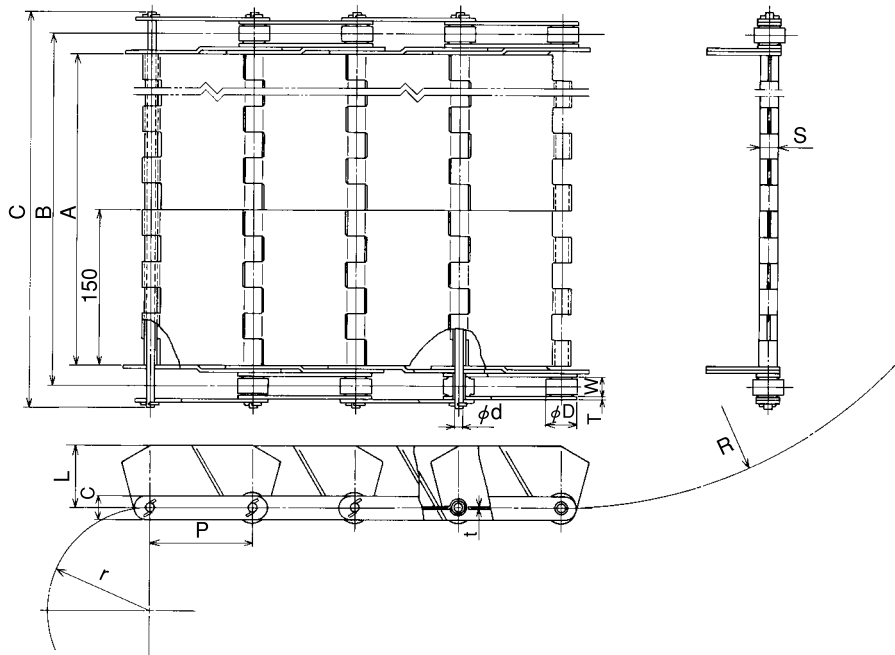
## ■Dimensions

Chain code	Pitch P	A	G	K	L	T	N	S
TMS 3075	75	35	46	55	30	3.2	10	0
TMS 3100	100	35	46	65	40	3.2	10	0
TM 5100	100	40	52	65	40	4.5	10	3
TM 5150	150	40	52	85	60	4.5	10	3
TM 8125	125	50	64	80	50	6	12	4
TM 8150	150	50	64	90	60	6	12	4
TM 10100	100	50	65	70	40	6	12	4
TM 10150	150	50	65	90	60	6	12	4
TM 12200	200	60	79	120	80	9	15	5
TM 12250	250	60	79	165	125	9	15	5
TM 17200	200	75	98	120	80	9	15	6
TM 17250	250	75	98	165	125	9	15	6
TM 26200	200	80	105	120	80	9	15	6
TM 26250	250	80	105	165	125	9	15	6
TE 5400	101.6	50	64	70	40	6	12	4
TE 12600	152.6	60	79	100	60	9	15	5

Notes: 1. Welded points of CA-2 attachments can be changed.

2. Basic specifications for the chains, including the average tensile strength, are the same as those for the TM/TE standard conveyor chains.

# Apron Conveyor Chains



An example of model code composition

HEC3100-R · 150W

Apron width

## Dimensions

Chain code	Apron width A	Center distance between side chains B	Outer width between chains C	Side wing height L	Hinge plate thickness t	S	Side chain						Minimum upward curving radius R	Minimum downward curving radius r	Average tensile strength		Approx. mass (kg/m)	
							Code	Pitch P	Roller diameter D	Width between inner link plates W	Plate C T				Pin diameter d	kN		kgf
HEC 3075-150	150	188.4	227.3				TM3075-R	75	30	18	22	3.2	7.94	300	75	58.8	6,000	13.0
HEC 3075-300	300	338.4	377.3	40	2.0	16.4	TM3075-R	75	30	18	22	3.2	7.94	300	75	58.8	6,000	17.5
HEC 3075-450	450	488.4	527.3				TM3075-R	75	30	18	22	3.2	7.94	300	75	58.8	6,000	22.4
HEC 3100-150	150	188.4	227.3				TM3100-R	100	30	18	22	3.2	7.94	450	100	58.8	6,000	12.7
HEC 3100-300	300	338.4	377.3	60	2.0	16.4	TM3100-R	100	30	18	22	3.2	7.94	450	100	58.8	6,000	16.9
HEC 3100-450	450	488.4	527.3				TM3100-R	100	30	18	22	3.2	7.94	450	100	58.8	6,000	21.1
HEC 5150-150	150	200.4	252.7				TM5150-R	150	40	22.2	32	4.5	11.11	900	150	137.3	14,000	18.8
HEC 5150-300	300	350.4	402.7				TM5150-R	150	40	22.2	32	4.5	11.11	900	150	137.3	14,000	25.7
HEC 5150-450	450	500.4	552.7	80	3.2	26.0	TM5150-R	150	40	22.2	32	4.5	11.11	900	150	137.3	14,000	32.2
HEC 5150-600	600	650.4	702.7				TM5150-R	150	40	22.2	32	4.5	11.11	900	150	137.3	14,000	39.9
HEC 5150-750	750	800.4	852.7				TM5150-R	150	40	22.2	32	4.5	11.11	900	150	137.3	14,000	46.3

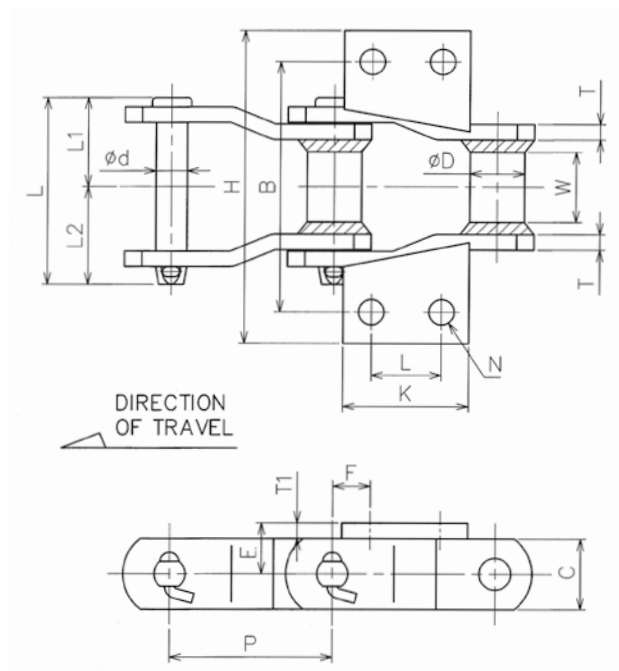
Notes: 1. If the effective apron width A is larger than the value shown in this table, please contact Tokuno Manufacturing Co., Ltd.

2. Side chains with F or S rollers are also available.

3. Hinge plates thicker than the value t shown in the table are also available in the form of a welded-pipe hinge.

4. Chains larger than the HEC5000 class are also available. Please contact Tokuno Manufacturing Co., Ltd.

# Welded Chains



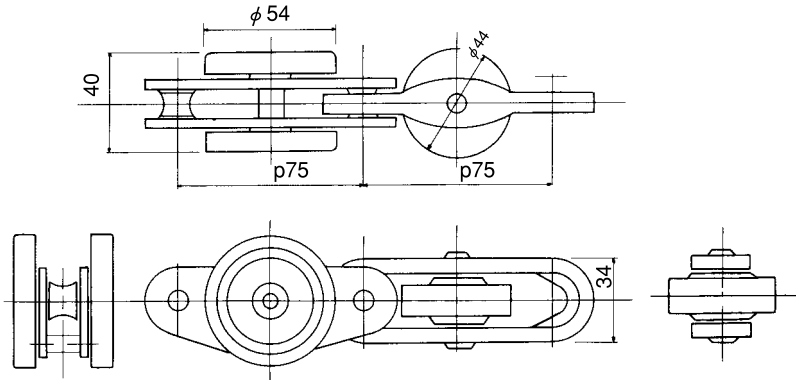
## ■ Dimensions

Chain code	Pitch P	Barrel		Diameter d	Pin			Plate		Approx. mass (kg/m)	Average tensile strength kN (kgf)
		Diameter D	Contact width W		Length			Width C	Thickness T		
					L	L1	L2				
BWH 78	66.3	22.2	28.6	12.7	76	36.5	39.5	28.6	6.3	5.9	98kN {10,000kgf}
BWH 710	119.9	28.6	57.5	17.5	120.8	58.6	62.2	35	7.9	8.3	137.2kN {14,000kgf}
BWH 132	153.7	41.3	76	25.4	164	77	87	50	12	19.7	343kN {35,000kgf}

Chain code	K-2 attachment								Additional mass per K-2 attachment (kg)
	B	E	F	H	K	L	N	T1	
BWH 78	101.6	20.3	10.5	127.6	50	28.4	11	6	0.17
BWH 710	159	20.6	30	186	84	58.7	11	6	0.35
BWH 132	165	37	40	192	110	70	14	12	0.82

# TZ Type Trolley Conveyor Chains

Chains of this type can be curved both horizontally and vertically; in other words, they can be curved three dimensionally. In general, these chains run inside C-shaped light-gauge steel rails, and are used to suspend relatively light loads in conveyor lines involving vertical and horizontal movements.



TYPE	P	Average tensile strength	Vertical R (min.)	Horizontal R (min.)	Maximum 1-point suspending load	Allowable tension	Approx. mass
TZI type	75	49kN {5,000kgf}	600mm	600mm	25kgf	4.9kN {500kgf}	4.6kg/m

Designated maximum operating temperature of the TZ type trolley conveyor chains is 180°C. Additionally, high-temperature type chains are also available (210°C).

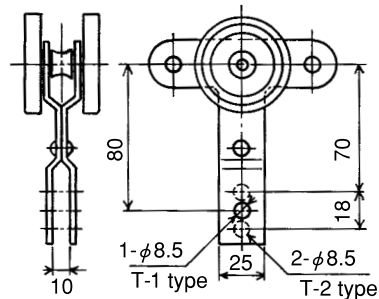
Chain	Item	Operating temperature (max.)	Rollers		Remarks
			Side rollers	Intermediate rollers	
Standard type		180°C	Retainer bearings	Press bearings	—
Heat-resistant type		210°C	All-ball bearings	All-ball bearings	Heat-resistant oil to be supplied

## Hangers

### T-shaped hanger

This hanger is integrated with chain plates. Available in two types according to the number of holes: the T-1 type with one hole and the T-2 type with two holes. Please specify the intervals as the number of links between hangers.

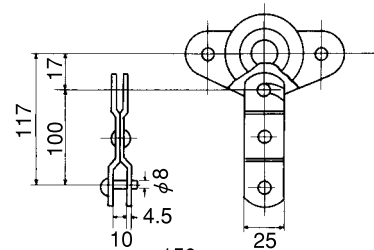
Hanging load: 25kgf (including the hanger weight)



### A-shaped hanger

This hanger can easily be removed and attached to desired locations.

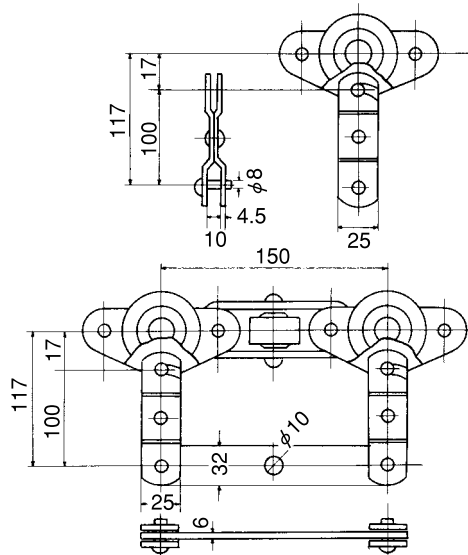
Hanging load: 25kgf (including the hanger weight)



### C-shaped hanger

This hanger is composed of two A-shaped hangers attached to the chain and a horizontal plate linking them in between. When an object is hung from the center of the plate, the load is equally distributed to both hangers.

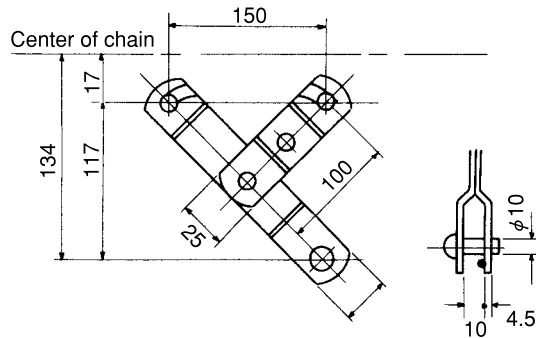
Hanging load: 50kgf (including the hanger weight)



### Y-shaped hanger

This is a combination of an A-shaped hanger and another hanger. While the hanger can be removed as shown in the figure to the right, the hanger itself functions in the same way as a fixed type.

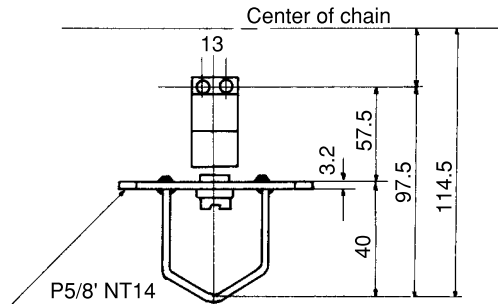
Hanging load: 50kgf (including the hanger weight)



### D-shaped hanger

With this hanger, only the hanging metal fitting of the chain is fixed. The part below the rotation wheel can be replaced. Used for a wide range of applications including painting and drying.

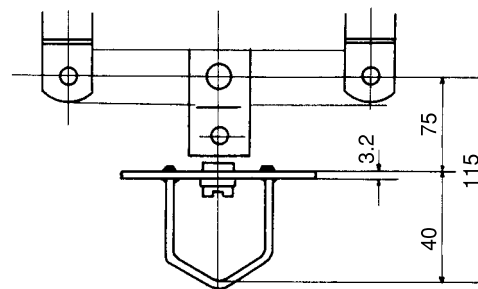
Hanging load: 25kgf (including the hanger weight)



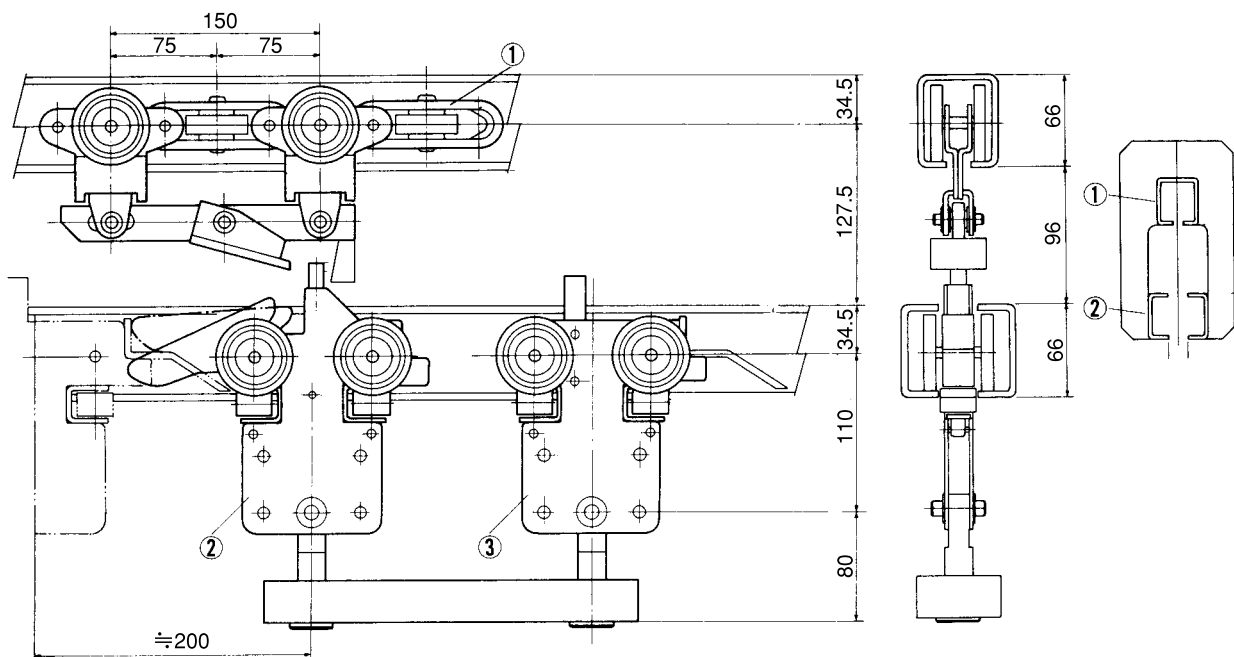
### C- + D-shaped hanger

This hanger is a combination of a C-shaped hanger and a D-shaped hanger.

Hanging load: 50kgf (including the hanger weight)



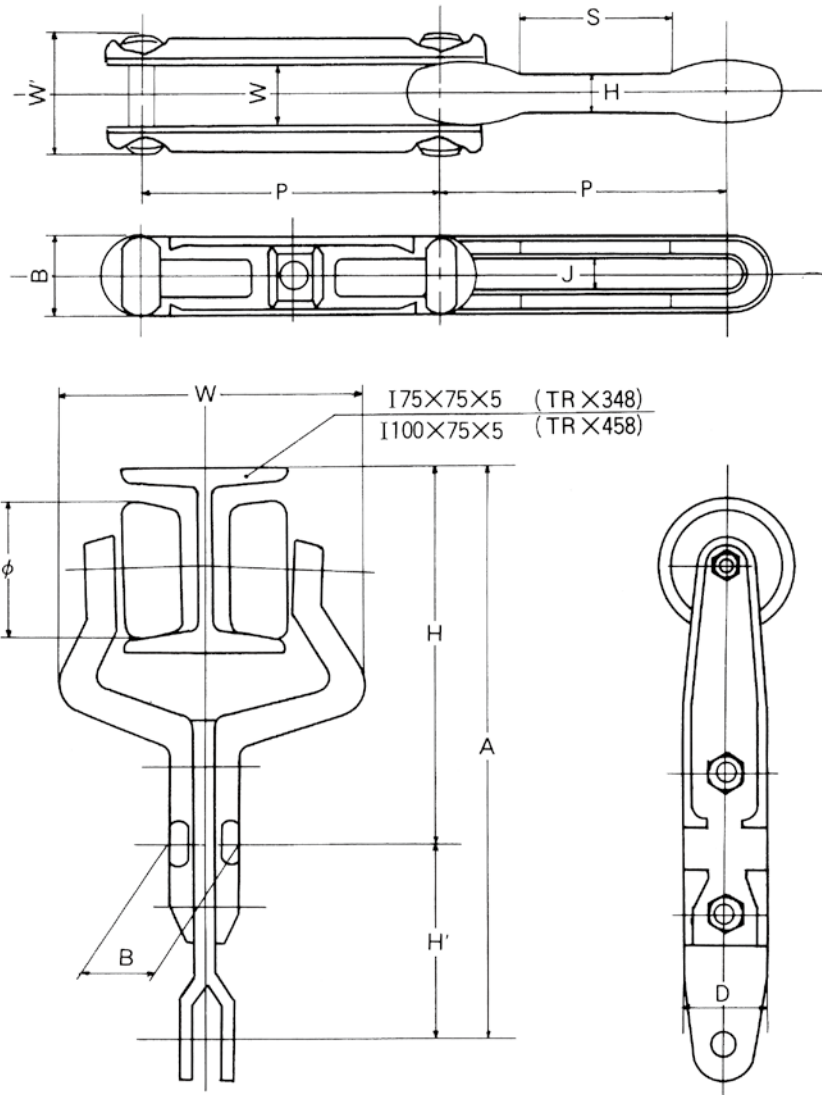
## An application example of a TZ type trolley conveyor chain PF-L Conveyor System



The PF-L Conveyor System was developed specifically for the purpose of conveying light-weight parts. In addition to simply conveying objects, this new conveyor system can also incorporate such functions as diverging/converging and drop-lift storage, allowing effective utilization of space and flexible design of production lines for different purposes, such as process automation and unattended operations.



# TRX Rivetless Chain • Trolley Hanger



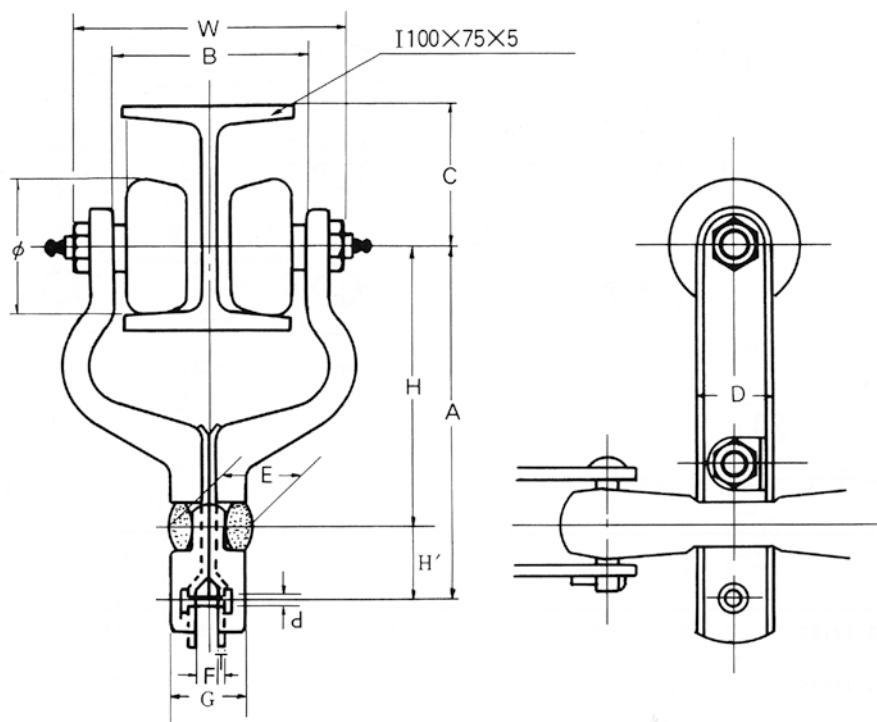
## ■ Forged Rivetless Chain (inch Type)

Chain code	P	W	W'	B	J	S	H	Approx. mass (kg/m)	Average tensile strength kN {kgf}
TRX 348	76.2	21	44.1	28	14	46	13	2.75	102.9 {10,500}
TRX 458	102.4	27	55.5	35	17	56	17	4.35	205.8 {21,000}

## ■ Forged Trolley Hanger (inch Type)

Chain code	A	H	H'	W	B	φ	D	Approx. mass (kg/set)	Suspending load (kgf)
TRX 348	210	140	70	122	28	54	40	1.5	125
TRX 458	256	183	70	137	35	80	54	2.8	250

## TRX Rivetless Chain • Trolley Hanger



### ■ Drawed Trolley Hanger (inch Type)

Chain code	A	H	H'	C	W	B	$\phi$	E	F	d	D	G	T	Approx. mass (kg)	Suspending load (kgf)
TRL 348	146	111	35	63	116	76	58	28.6	10	12	40	28	3.2	1.7	100
TRL 458	184	144	40	53	114	76	80	35	12	12	54	32	4.5	2.8	200

### ■ Horizontal Corner

There are two types of Horizontal Corner; Turn Roller Type and Traction Wheel Type.

Standards for Turn Roller Type are

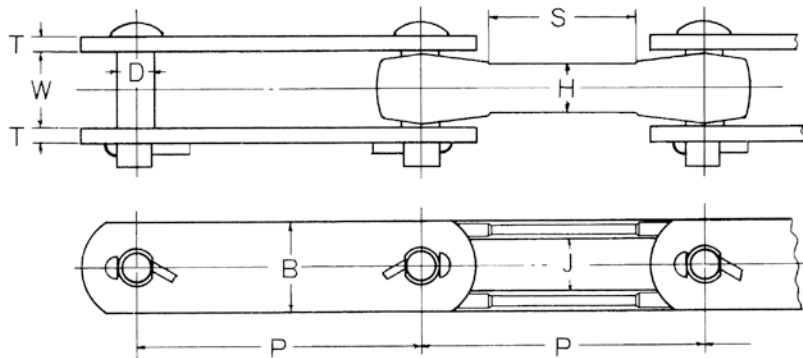
- 90° — R600, R800, R1000, R1500
- 180° — R600, R800, R1000, R1500

Standards for Traction Wheel Type are

- 90° — R300~R550
- 180° — R300~R550

Units with different R and angles can be designed and manufactured by requests.

# Standard Trolley Conveyor Chain



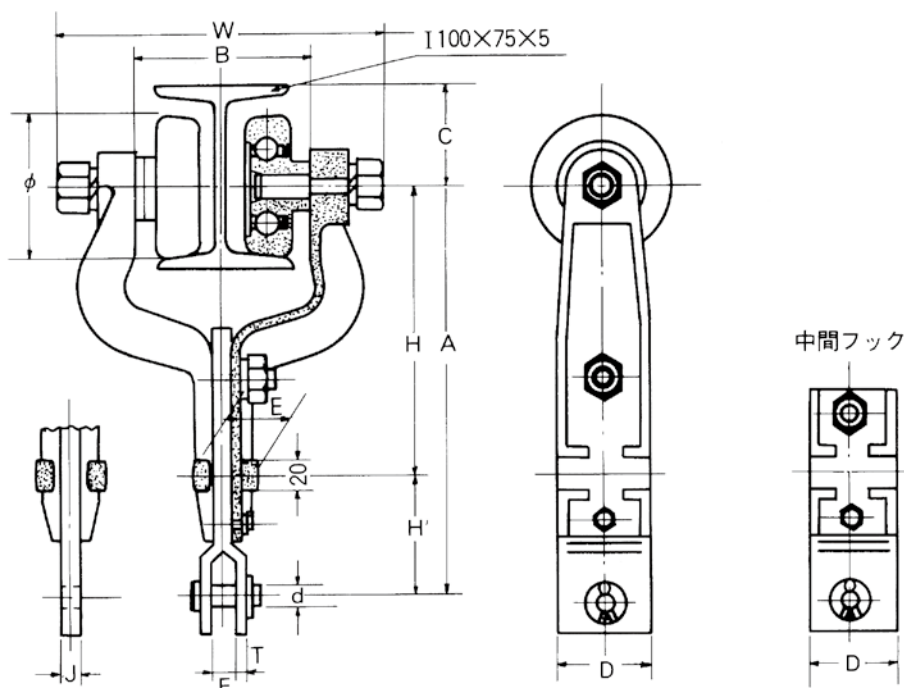
## ■ Trolley Chains (millimeter Type)

Chain code	P	T	W	D	B	J	S	H	Approx. mass (kg/m)	Average tensile strength kN {kgf}
TRL 16100	100								5.62	
TRL 16125	125	8	31	16	35	18	50	20	5.12	176.4
TRL 16150	150								4.68	{18,000}
TRL 20125	125	9	32	18	38	20	50	20	6.57	235.2
TRL 20150	150								6.07	{24,000}

## ■ Trolley Chains (inch Type)

Chain code	P	T	W	D	B	J	S	H	Approx. mass (kg/m)	Average tensile strength kN {kgf}
TRL 348	77	6.3	21	12.7	28.6	14	42	12.7	3.3	79.9
TRL 458	102.4	8	27	15.8	35	17	56	17	4.1	137.2
										{14,000}

# Trolley Hanger



## ■Forged Trolley Hanger for TRL

Forged Trolley Arms withstand heavy loads and impacts sufficiently.

Also, the arms can be used for a long term.

They are made of SUJ-2 and sealed with heat-resistant grease.

Trolley Hangers can be arranged 2-point suspending, 4-point suspending, and so on.

Hanging parts can be designed and manufactured for its use.

(When suspending loads are more than 300kgf should be used 2-point suspending.)

## ■Trolley Hanger (millimeter Type)

Chain code	A	H	H'	C	W	B	$\phi$	E	F	d	D	T	Approx. mass (kg)	Suspending load (kgf)
TRL I	229	159	70	53	180	94	80	35	12	12	50	4.5	4.2	300
TRL II	229	159	70	53	183	97	80	38	12	12	50	6.0	4.3	300

## ■Trolley Hanger (inch Type)

Chain code	A	H	H'	C	W	B	$\phi$	E	F	d	D	T	Approx. mass (kg)	Suspending load (kgf)
TRL 348	181	111	70	63	177	91	58	28.6	12	12	40	3.2	3	125
TRL 458	214	144	70	53	180	94	80	35	12	12	54	4.5	4.7	250

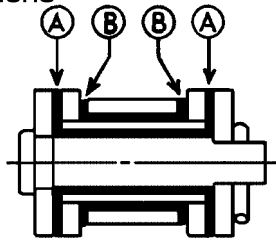
# Lubrication of Conveyor Chains (Supplying Oil)

Periodical lubrication is essential for the chain to be used for an extended period. Lubrication decreases the wear of chain parts, as well as reducing required power.

## ◆A general rule for lubrication

Supply oil approximately once a week by hand oiling or drip-feed lubrication; however, more frequent lubrication is required for a certain period after initial operation (running-in period).

## ◆Lubrication locations



- Ⓐ Between pin and bushing
- Ⓑ Between bushing and roller

## ◆Avoid lubrication in the following cases:

1. Where the chain is buried in the object conveyed
2. Where it is deemed that, when powder/granular materials are being conveyed, lubrication will cause adverse effects due to the adhesion of such materials to the chain
3. Where the chain temperature becomes high

## ◆Recommended lubricating oils (for reference)

Viscosity (SAE viscosity classification) Manufacturer	ISO VG 100 (SAE 30)	ISO VG 150 (SAE 40)	ISO VG 220 (SAE 50)
Idemitsu Kosan	Daphne Mechanic Oil 100	Daphne Mechanic Oil 150	Daphne Mechanic Oil 220
	Tellus Oil C 100	Tellus Oil C 150	Tellus Oil C 220
JXTG Nippon Oil & Energy Corporation	FBK Oil RO 100	FBK Oil RO 150	FBK Oil RO 220
	Diamond Lube RO 100	Diamond Lube RO 150	Diamond Lube RO 220
Exxon Mobil	Mobil DTE Oil Heavy	Mobil DTE Oil Extra Heavy	Mobil DTE Oil BB
	Teresso100	Teresso150	—

Manufacturer names are listed in random order.

## For Safe Use



### Precautions for handling the chain

#### To avoid danger, follow the instructions below.

- ◆ DO NOT make any modifications to the chain.
  - Do not anneal any parts of the chain.
  - Do not wash the chain with acidic or alkaline solutions. Doing so may cause cracks.
  - Do not electroplate the chain or any part of it. Doing so may cause cracks due to hydrogen embrittlement.
  - Do not weld anything to the chain. Doing so may impair the strength of the chain or cause cracks under the influence of heat.
  - If the chain is thermally cut by a torch or other similar equipment, remove the links adjacent to and near the cut section completely. Do not reuse the removed links.
- ◆ If the chain is worn or damaged even partially, replace the entire chain with a new one, rather than replacing only the worn or damaged section.
- ◆ When using a chain with suspending equipment, set up a safety fence or other barrier, and do not allow persons to come under the suspended objects.
- ◆ Be sure to provide a guard, such as a safety cover, for the chains and sprockets.
- ◆ Abide by Section 1 General Standards, Chapter I, Part II of the Ordinance on Industrial Safety and Health.
- ◆ When handling the chain (installing, removing, servicing, oiling, etc.):
  - ◆ Follow the instructions in the manual or the catalog.
    - Turn off power before working on the chain, and take measures to prevent the device from being switched on unexpectedly.
    - When linking or separating a chain, support it in a fixed position so that the chain and parts do not move freely.
    - When separating or linking a chain, use pressing apparatus and specialized tools, and follow the appropriate procedure.
    - Removal and insertion of pins and rivets is to be conducted in the correct direction.
    - Wear clothes that are appropriate for the work, and appropriate protective gear (safety goggles, gloves, safety shoes, etc.).
    - Replacement of chains is to be performed by authorized personnel.

#### To prevent accidents, observe the instructions below.

- ◆ Make sure you understand the structure and specifications of the chain before handling it.
- ◆ Before installing the chain, check it for any damage which may have been caused during transportation.
- ◆ Be sure to check and maintain the chains and sprockets periodically.
- ◆ Strength of chains differs depending on the manufacturer. Be sure to use Tokuno Manufacturing Co., Ltd. products if they have been selected based on our catalog or drawings.
- ◆ The mean tensile strength is the mean value of load at which the chain breaks, and is not the minimum tensile strength. Furthermore, this does not mean the actual working load.
- ◆ If there is a possibility that disconnecting a chain could cause accidents resulting in injury or death, or serious damage to equipment, do not disconnect the chain, or alternatively, provide safety equipment to prevent serious accidents even if the chain is disconnected.



■Flow Conveyor Chain with L Attachment



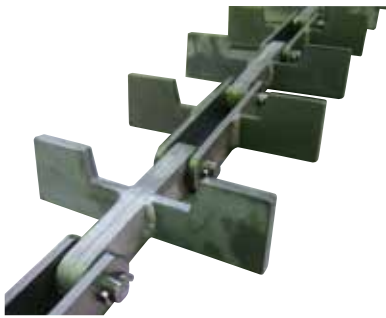
■Flow Conveyor Chain with U Attachment



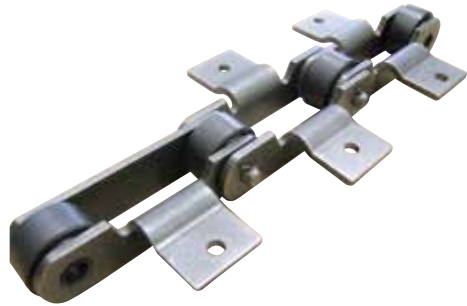
■Conveyor Chain with Special G-2 Attachment



■Conveyor Chain with Top Rollers and Outboard Rollers



■Block Chain



■Conveyor Chain made of Titanium



■Chain for Wire Mesh Conveyor System



■Conveyor Chain with Flight (No Bushing)



■Conveyor Chains with C A-2 Attachment



■Apron Chain with Dimples



■Apron Chain made of Stainless Steel



■Apron Chain for Waste Incineration Plant



■Apron Chain for Waste Incineration Plant



■Conveyor Chain for Water Screening



■Long Pan Conveyor Chain



■Draw Bench Chain



■Tenter Chain with Clips



■Welded Chains





■ Resin Lined Conveyor Chain



■ Special Conveyor Chain



■ Bottle Washer Chain



■ Overhead Chain



■ Overhead Chain



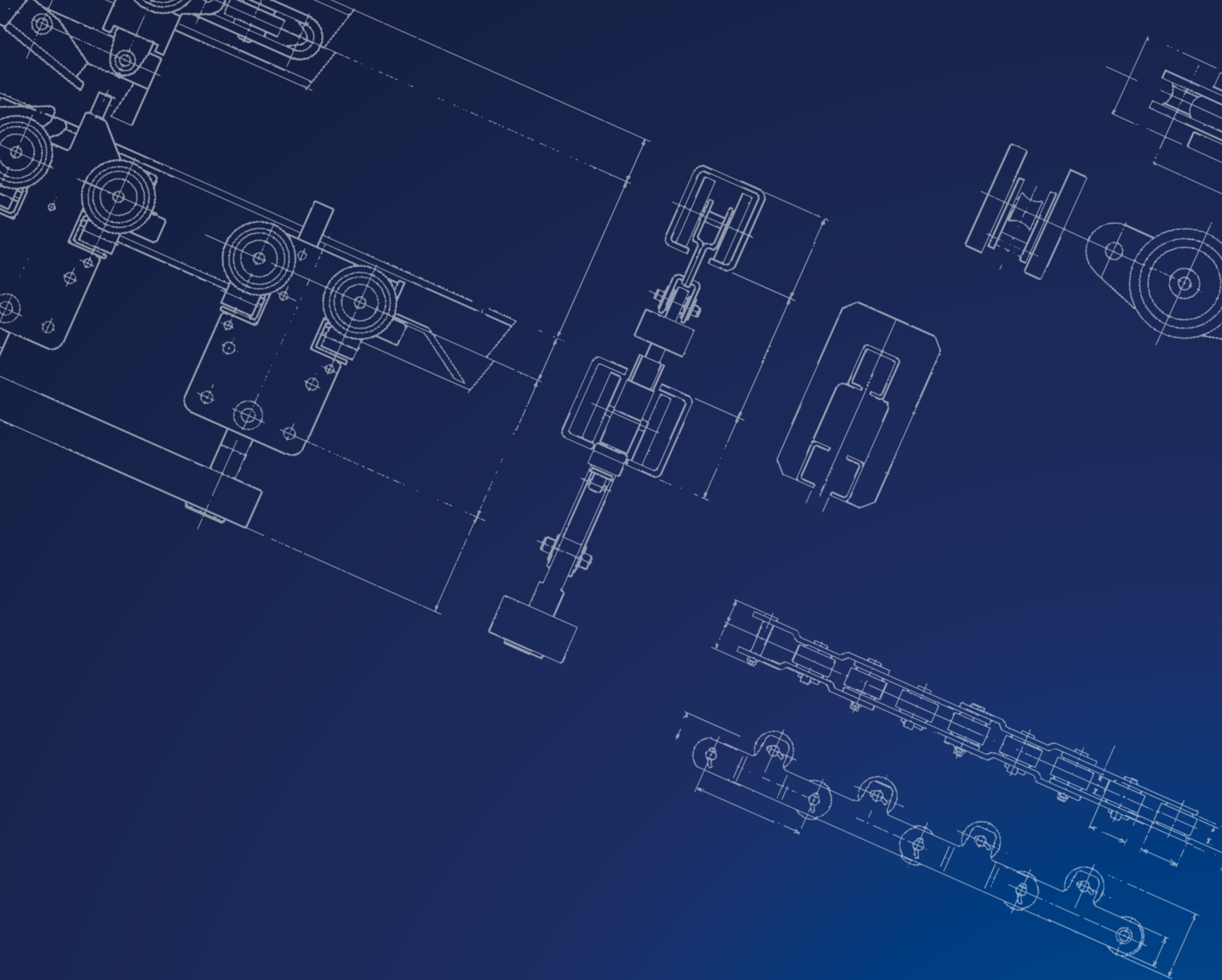
■ Trolley Conveyor Chain



■ TZ Type Trolley Conveyor Chain



■ Rivetless Chain



**TOKUNO MANUFACTURING CO.,LTD**

2-1 NISHI AO-MACHI NOMI-SHI ISHIKAWA 923-1121 JAPAN

TEL. +81-761-57-0168

FAX. +81-761-58-5726

HP : <http://www.tkn-ss.com>