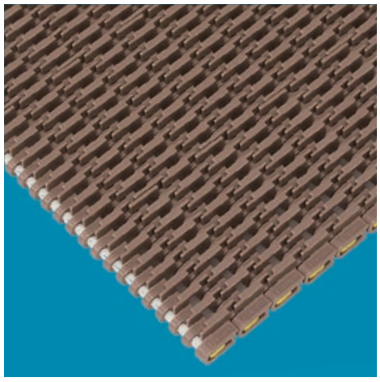
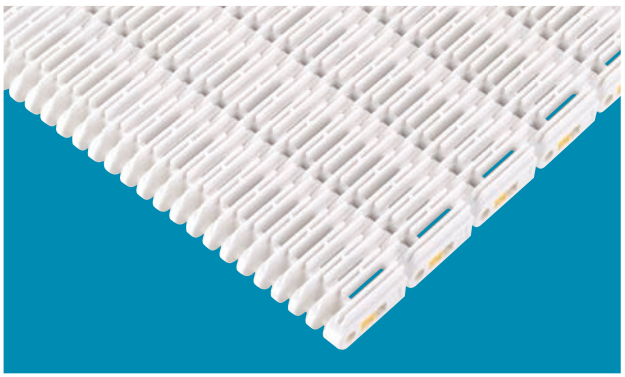
Innovation in Motion
TSUBAKI

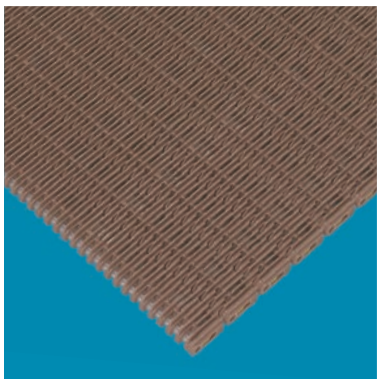
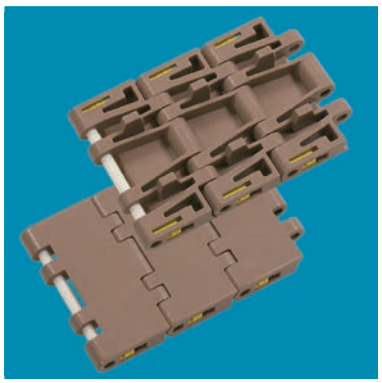
NEW

TSUBAKI
Plastic Modular Chain
Raised-Rib Type







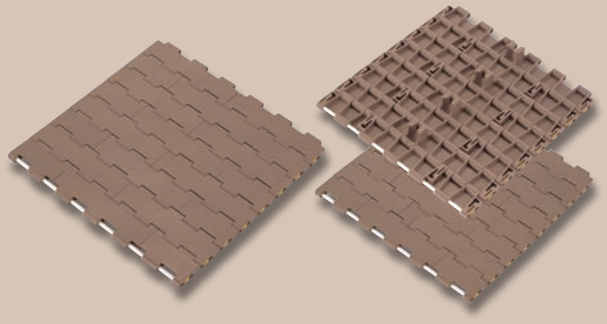
Raised-Rib Type—
The Newest Member of the Tsubaki Plastic Modular Chain Line-up

Raised-rib Plastic Modular Chain works in combination with transfer plates to eliminate the gap that occurs at transfer points (see illustration at right). It prevents conveyed items from becoming entangled or snagged, providing for smooth conveyance.

Closed Type

New expanded line-up of versatile 38.1mm-pitch Plastic Modular Chain.
Now more than ever, Tsubaki offers the Plastic Modular Chain that will meet your needs.

WT3835-K Chain Pages 9–10



Newly introduced 38.1mm-pitch closed-type Plastic Modular Chain provides even greater versatility. Models are available with float-prevention tabs for use on inclined and vertical vacuum conveyors.

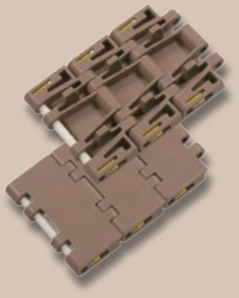
Features
A slide stopper pin retention system allows the modules to be disconnected and reconnected easily using a screwdriver.

Specifications
Chain type: Closed type, straight running
Chain pitch: 38.1mm
Chain width: 152.4mm (min. width); chain width can be expanded in units of 76.2mm
Chain material: LFB (Low Friction/Wear Resistant), NLF (Low Friction), HTW (High Temperature)

Applications
Mass handling conveyors

WT3835G-M Chain Page 13

Newly available, highly versatile 38.1mm-pitch Plastic Modular Chain with fixed 82.6mm width and tab guide attachments. Ideal for conveyors such as single filers where adjacent chains are traveling at different speeds.

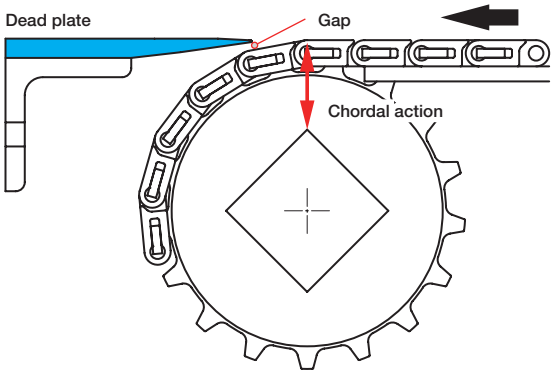


Features
Line-up is based on WT3835-K links having a fixed width (82.6mm). A slide stopper pin retention system allows the modules to be disconnected and reconnected easily using a screwdriver.

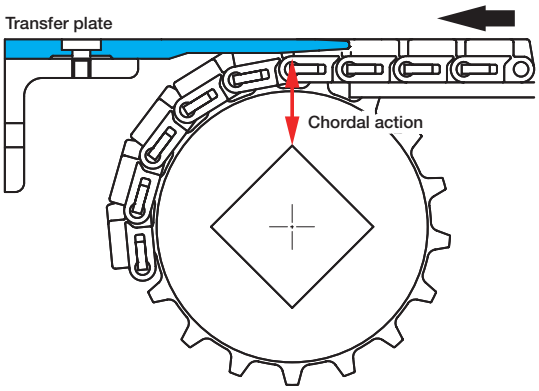
Specifications
Chain type: Closed type, straight running
Chain pitch: 38.1mm
Chain width: 82.6mm (fixed width)
Chain material: LFB (Low Friction/Wear Resistant), NLF (Low Friction), HTW (High Temperature)

Applications
Single filers

Raised-Rib Chain Features



When using a dead plate where the leading edge of the plate is situated forward of the sprocket center, the width of the gap between the dead plate and the top surface of the chain will vary as a result of the up and down motion of the chain caused by chordal action. Conveyed objects may get caught in the gap and tip over depending on their shape.



When using a transfer plate, the comb-like fingers of the transfer plate begin sliding in-between the ribs of the top surface of the chain at a point where chordal action has no effect. This effectively prevents conveyed objects from tipping over.

WT1907-K Chain

Pages 5–6

Features
Raised-rib type with a small chain pitch. Recommended for conveying small containers and rubber sheeting.

Specifications
Chain type: Raised-rib type, straight running
Chain pitch: 19.05mm
Chain width: 228.6mm (min. width); chain width can be expanded in units of 76.2mm
Chain material: LFB (Low Friction/Wear Resistant), NLF (Low Friction), HTW (High Temperature)

Applications
- Accumulation conveyors
- Water spray bath equipment
- Rubber sheet conveyance

WT3827-K Chain

Pages 7–8

Features
General-purpose-size, raised-rib type. A slide stopper pin retention system allows the modules to be disconnected and reconnected easily using a screwdriver.

Specifications
Chain type: Raised-rib type, straight running
Chain pitch: 38.1mm
Chain width: 457.2mm (min. width); chain width can be expanded in units of 152.4mm
Chain material: LFB (Low Friction/Wear Resistant), HTW (High Temperature)

Applications
- Accumulation conveyors
- Water spray bath equipment

WT5707-K Chain

Pages 11–12

Features
Raised-rib type with highest allowable load. Recommended for conveying large amounts of containers, for example, through water spray baths.

Specifications
Chain type: Raised-rib type, straight running
Chain pitch: 57.15mm
Chain width: 457.2mm (min. width); chain width can be expanded in units of 152.4mm
Chain material: LFB (Low Friction/Wear Resistant), HTW (High Temperature)

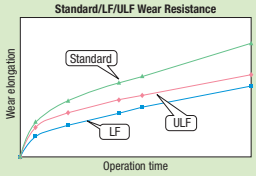
Applications
- Accumulation conveyors
- Water spray bath equipment

Specifications (Plastic Chain Materials)

LF — Low Friction/Wear Resistant Series

Low-friction wear-resistant polyacetal chain links

1. **Protects conveyed items**
   Coefficient of friction is 15% to 45% lower than Standard Series, resulting in reduced line pressure during accumulation and minimizing potential scratching or other damage to conveyed items.
2. **Long life (compared to Standard Series)**
   Chain life is 1.2 to 2 times longer than Standard Series because of lower chain load.
3. **Smooth divergence and accumulation of conveyed items**
4. **Less required drive power**



Applications
- Versatile type of chain that can be used in a wide range of applications
- Ideal in harsh conditions (high speeds, high loads) where chain elongation is accelerated, resulting in short chain replacement cycles
- Ideal in high line pressure conditions where conveyed goods may be damaged

NLF — Low Friction Series

Low-friction polyacetal chain links

1. **Protects conveyed items**
   Coefficient of friction is 10% to 30% lower than Standard Series, resulting in reduced line pressure during accumulation and minimizing potential scratching or other damage to conveyed items.
2. **Smooth divergence and accumulation of conveyed items**
3. **Less required drive power**

Applications
- Versatile chain that can be used in a wide range of applications
- Ideal in high line pressure conditions where conveyed goods may be damaged

HTW — Heat Resistant Series

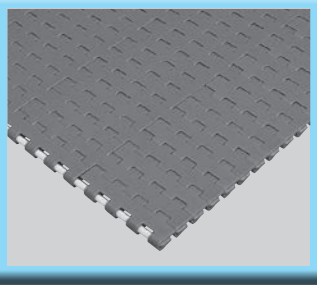
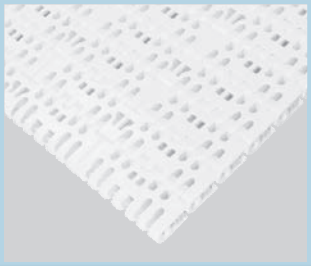
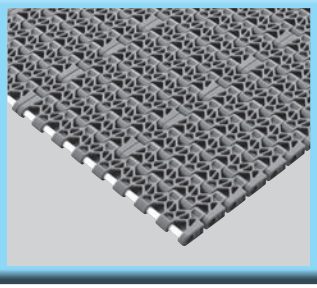
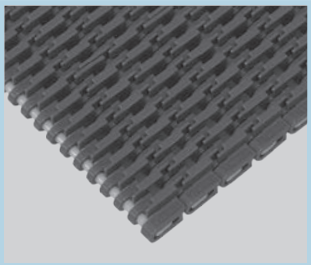
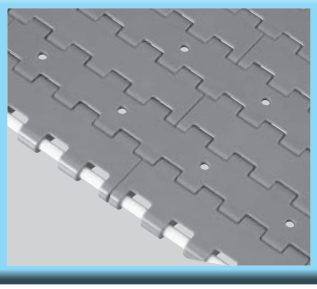
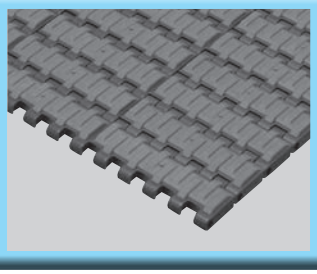
Polypropylene chain links

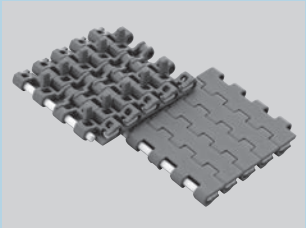
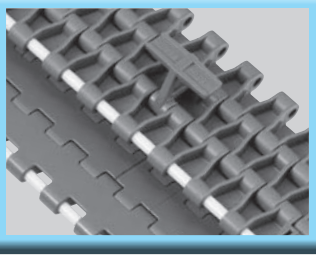
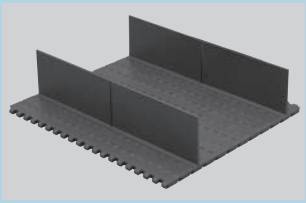
1. **Maximum usable temperature: 105°C**
   Ideal chain for use in coolers and warmers in beverage plants where hot water is used.
2. **Chemical resistant**
   Excellent chemical resistance, including to acids and alkaline substances.
3. **High friction**
   Coefficient of friction is 1.2 to 1.6 times the Standard Series. Can be used at a slight incline under dry conditions.
4. **Lightweight**
   About 40% lighter than polyacetal chain. Easy to handle and can reduce drive power requirements.

Note: Max. allowable load is approx. 40% of Standard Series.

Applications
- Chain for use in warmers and coolers in beverage plants
- Conveyors for batteries
- Slightly inclined conveyors

Plastic Modular Chain Type Chart

Type		Features	Applicable Series
Closed		• Multi-purpose type with a flat, smooth top plate with no openings. Has a proven track record of use in a wide range of industries, including the can manufacturing and bottling industries, but also in the dairy, bakery, and confectionery industries. • This type is also effective in conveying glass bottles such as mini-bottles (as a measure to prevent broken bottles). Also suitable for PET bottle conveyance, including bottles with a petaloid base.	WT1505 (including G, GTO) BTC6 (including –A) BTC8 (including –A) BTC8S, WT2250FT WT2505 WT3005 (including G) WT3835 BTM8H (with embedded magnets)
Open		• Uses smooth, flat top plates with a porous surface. Depending on the hinge design, types with larger openings and types with elongated openings based on the closed type are available. The WT2506 and WT3816 deliver excellent results when used with water spray bath equipment in the bottling industry in combination with TOD types.	WT1506, BTO6 WT2250FG, WT2506 WT3086 (including G) WT3816
Net		• Net-type modules have 20% to 30% lower friction under dry conditions (compared to closed and open types) for cans, PET bottles, etc. With an open-area ratio of 53%, this type is designed to be easily cleaned by washing, and is about 15% lighter than closed-type chain.	BTN5 (including –A), BTN6
NEW Raised Rib		• When used together with transfer plates, this type is ideal for preventing conveyed objects from getting hung up or tipping over when conveyed objects are transferred directly to another conveyor or when introduced directly into the intake of a machine. • The openings in the top plates are large and are highly effective in draining water away. This type has proven results for conveyors used inside water spray bath equipment.	WT1907, WT3827 WT5707
Perforated		• This type is based on the closed type but has small perforations (for suction) in the top surface of the plate. Suitable for inclined or vertical conveyance of items such as empty cans.	BTCP6- perforated The following chain models can also be modified to be perforated with additional processing: BTC6, BTC8, BTC8S, WT2250FT WT2505, WT3005, WT3005G, WT3835, WT1505
Rubber		• A thermoplastic rubber insert is molded into the top of the plate to provide a high-friction surface. This anti-slip surface prevents conveyed objects from slipping off, such as boxes or cartons moving on an inclined conveyor. Ideal for the packaging and logistics industries.	WT2250VG

Type		Features	Applicable Series
Fixed Width		• This type is matched to the standard plate width of Top Chain (also available with tab guide attachments). Ideal for use as replacement for Top Chain conveyors and for combiners (alignment conveyors).	BTC4-M, WT1505G-M WT1515G-M, BTO8-M BTC8H-M BTM8H-M (with embedded magnets) WT2505-M, WT2505G-M WT3005G-M, WT3086G-M WT3835G-M
With Float-Prevention Tabs		• This type is equipped with float-prevention tabs. These attachments prevent the chain from floating up, and keep the chain securely in position in sections of the conveyor that are inclined from the horizontal.	BTC6-T, WT3835-T
With Flights		• Flight attachments are mounted on the plates, spaced several links apart, to enable reliable conveyance for inclined conveyors or for conveyors submerged in water baths. • Flight heights of 25.4mm, 50.8mm, and 76.2mm are available.	WT2250FT (with flights) WT2250FG (with flights)

Availability by Type

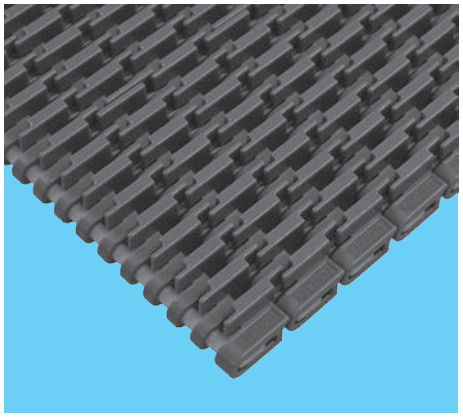
	Material	Standard	Low Friction/Wear Resistant			Ultra Low Friction	Low Friction			High Temperature	Chain type
	Material mark	—	LFW	LFG	LFB	ULF	UL	NLF	WR	HTW	
	Link color	Gray	White	Green	Brown	Blue	Green	Dark gray	Green	White	
Wide type	WT1907-K	▲	▲	▲	○	▲	▲	○	▲	○	Raised rib
	WT3827-K	▲	▲	▲	○	▲	▲	○	▲	○	
	WT5707-K	▲	▲	▲	○	▲	▲	○	▲	○	
	WT3835-K	▲	▲	▲	○	▲	▲	○	▲	○	Closed
	WT1505-K (including G-K, GTO-K)	▲	▲	▲	▲	○	○	○	▲	×	
	BTC6, BTCP6, BTC6-T	○	○	○	○	○	×	×	×	×	
	BTC8 (including –A)	○	○	○	○	○	×	×	×	×	
	BTC8S	○*	×	×	×	×	×	×	×	×	
	WT2250FT	○	×	×	×	×	×	×	×	○	
	WT2505-K	▲	▲	○	▲	○	▲	▲	▲	×	
	WT3005-K (including G-K)	▲	▲	▲	▲	○	○	○	▲	×	
	WT1506-K	▲	▲	▲	▲	○	○	○	▲	○	Open
	BTO6	○	○	○	○	○	×	×	×	×	
	WT2250FG	○	×	×	×	×	×	×	×	○	
	WT2506-K, WT3816-K	×	×	×	×	×	×	×	×	○	
	WT3086-K (including G-K)	▲	▲	▲	▲	○	○	○	▲	×	
	BTN5 (including –A)	○	○	○	○	○	×	×	×	×	Net
	BTN6	○	○	○	○	○	×	×	×	×	
Fixed-width type	WT3835G-M	▲	▲	▲	○	▲	▲	○	▲	○	Closed
	BTC4-M	○	○	○	○	○	×	×	×	×	
	WT1505G-M, WT1505GTO-M	▲	▲	▲	▲	○	○	○	▲	×	
	WT1515G-M	▲	▲	▲	▲	○	○	○	▲	×	
	WT2505-M, WT2505G-M	▲	▲	○	▲	○	▲	▲	▲	×	
	WT3005G-M	▲	▲	▲	▲	○	○	○	▲	×	
	BTO8-M	○	○	○	○	○	×	×	×	×	Open
	WT3086G-M	▲	▲	▲	▲	○	○	○	▲	×	

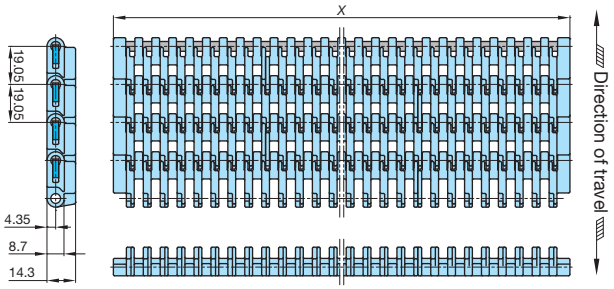
Note: 1. ○ : Made-to-order product ×: Not available ▲ : Special configurations may be available. Contact a Tsubaki representative for further information.
2. * BTC8S links are blue.
3. Refer to individual product pages in the *Tsubaki Top Chain* catalog to check whether high-performance series not listed here can be made to order.

Plastic Modular Chain WT1907-K Raised-Rib Type: Straight Running

Features

Small-pitch raised-rib chain that, when used in combination with a transfer plate, eliminates the difference in level at transfer points, making it possible to prevent containers from toppling. Recommended for conveying small containers and rubber sheeting.





Dimensions in mm

Material mark	Chain pitch mm	Link color	Open area %	Max. allowable load kN/m {kgf/m}	Chain mass kg/m²	Operating temperature range °C	Pin material	Pin retention system
LFB	19.05	Brown	20	22.2 {2265}	11.0	-20 to (60) 80	Special engineering plastic	Plug-clip
NLF		Dark gray						
HTW		White		10.3 {1051}	7.5	5 to 105	Polypropylene	

Note: 1. Values for max. allowable load are at ambient temperature (20°C) and assume that tension acts uniformly over the entire chain width. Values for max. allowable load in the table above are for chain that is one meter (1m) in width. To calculate values for other chain widths, multiply the chain width in question by the max. allowable load for one-meter (1m) wide chain.
2. Operating temperature of (60) is for wet conditions.
3. Made-to-order product.
4. Contact a Tsubaki representative for chain specifications (materials) other than the above.
5. Max. allowable speed: 50 m/min.

Chain (Plastic Pins)

Chain width X mm	Low Friction/Wear Resistant LFB	Low Friction NLF	High Temperature HTW
	Tsubaki model no.	Tsubaki model no.	Tsubaki model no.
228.6	WT1907-K09-LFB	WT1907-K09-NLF	WT1907-K09-HTW
304.8	WT1907-K12-LFB	WT1907-K12-NLF	WT1907-K12-HTW
381.0	WT1907-K15-LFB	WT1907-K15-NLF	WT1907-K15-HTW
457.2	WT1907-K18-LFB	WT1907-K18-NLF	WT1907-K18-HTW
533.4	WT1907-K21-LFB	WT1907-K21-NLF	WT1907-K21-HTW
609.6	WT1907-K24-LFB	WT1907-K24-NLF	WT1907-K24-HTW
685.8	WT1907-K27-LFB	WT1907-K27-NLF	WT1907-K27-HTW
762.0	WT1907-K30-LFB	WT1907-K30-NLF	WT1907-K30-HTW
838.2	WT1907-K33-LFB	WT1907-K33-NLF	WT1907-K33-HTW
914.4	WT1907-K36-LFB	WT1907-K36-NLF	WT1907-K36-HTW
990.6	WT1907-K39-LFB	WT1907-K39-NLF	WT1907-K39-HTW
1066.8	WT1907-K42-LFB	WT1907-K42-NLF	WT1907-K42-HTW
1143.0	WT1907-K45-LFB	WT1907-K45-NLF	WT1907-K45-HTW
1219.2	WT1907-K48-LFB	WT1907-K48-NLF	WT1907-K48-HTW
1295.4	WT1907-K51-LFB	WT1907-K51-NLF	WT1907-K51-HTW
1371.6	WT1907-K54-LFB	WT1907-K54-NLF	WT1907-K54-HTW
1447.8	WT1907-K57-LFB	WT1907-K57-NLF	WT1907-K57-HTW
1524.0	WT1907-K60-LFB	WT1907-K60-NLF	WT1907-K60-HTW

Note: 1. Standard chain width is 76.2mm (3 inches). Custom chain widths and widths greater than 1,524mm are available upon request.
2. Chain width X shown is a nominal width. Actual width range is $^{+0}_{-0.7\%}$ at 20°C operating temperature. Chain width is subject to expansion or contraction with changes in temperature. Expansion/contraction rate is 0.00015/°C based on reference temperature of 20°C.

Model Numbering

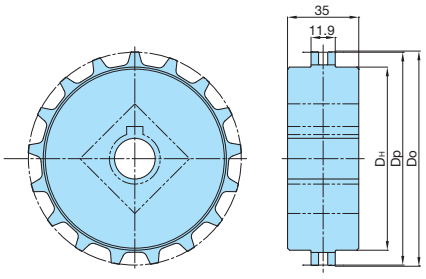
Chain type	Chain pitch	Chain type		Chain width		Chain material
WT	**19**	**07**	**–**	**K24**	**–**	**LFB**

Note: Do not leave spaces between letters and symbols.

Number denotes width in inches.
Multiply the number by 25.4 to convert it into millimeters.
Example: 24 x 25.4 = 609.6mm

Accessories for WT1907-K Chain

Sprockets for WT1907-K Chain

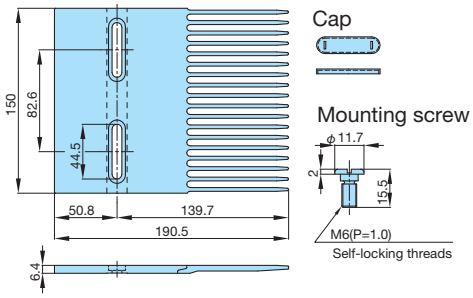


Tsubaki model no.	No. of teeth	Pitch diameter D_P	Outside diameter D_O	Hub diameter D_H	Bore shape	Bore diameter d	Type	Material
WT-S1900-17T	17	104.6	105	90	Bore shape and size are made-to-order.		Solid	UHMW-PE (green)
WT-S1900-21T	21	129.0	130	114				
WT-S1900-24T	24	147.3	148	133				
WT-S1900-25T	25	153.4	154	139				

Note: 1. Made-to-order product. Sprockets can also be manufactured with other shapes, number of teeth, and materials than noted above.
2. Operating temperature range: –20°C to 60°C

Transfer Plate for WT1907-K Chain

WT-TP1907-L190

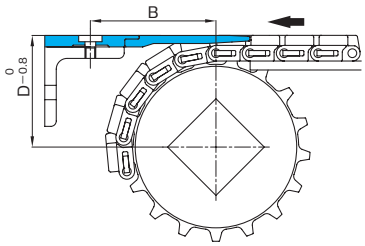


Tsubaki model no.	Plate material	Color	Approx. mass kg
WT-TP1907-L190	Reinforced polyamide	Black	0.17

Note: 1. Made-to-order product.
2. Two each of caps and mounting screws are included with each transfer plate.

Transfer Plate Installation

The illustration below shows the ideal placement of the transfer plate.

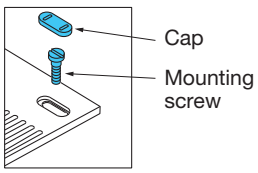


Note: Transfer plates are designed to be used only in conjunction with raised-rib chain.

Tsubaki chain model no.	Tsubaki transfer plate model no.	B mm	D mm
WT1907-K	WT-TP1907-L190	100	$\frac{Dp}{2}$ +9.9

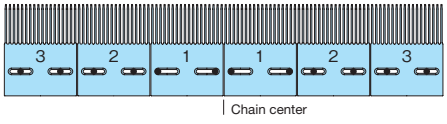
Dp: pitch diameter

Mount the transfer plate as shown in the figure at the right using the included mounting screws and caps. In addition, expansion of the chain due to heat must be taken into account. Mount the transfer plate(s) by installing the mounting screws as shown in the diagrams at the right depending on temperature conditions during use.



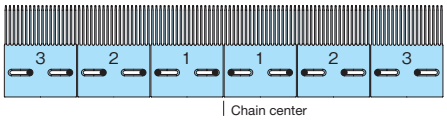
1) When operating temperatures are essentially the same as ambient temperature (20°C)

Install the mounting screws for transfer plates 2 and 3 in the center of the slotted holes.



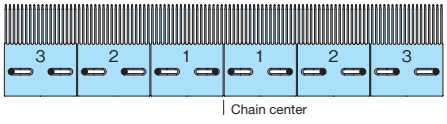
2) For low temperatures

Install the mounting screws for transfer plates 2 and 3 in the slotted holes closer to the center of the chain.



3) For high temperatures

Install the mounting screws for transfer plates 2 and 3 in the slotted holes closer to the edge of the chain.

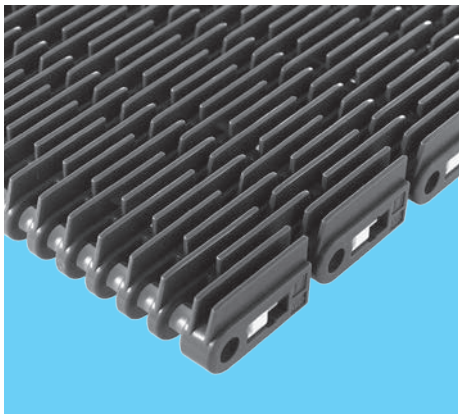


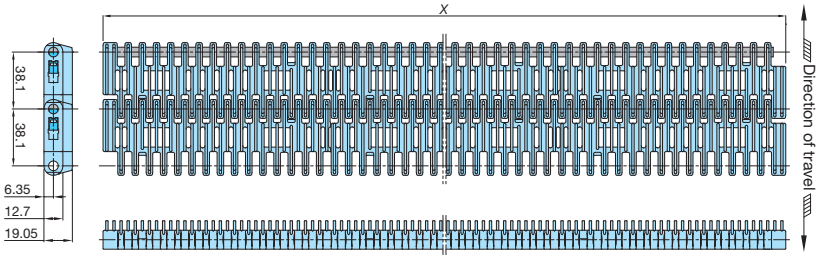
Dimensions in mm

Plastic Modular Chain WT3827-K Raised-Rib Type: Straight Running

Features

General-purpose-size, raised-rib chain intended to be used together with transfer plates to eliminate the difference in level at transfer points. A slide stopper pin retention system allows the modules to be disconnected and reconnected easily using a flat-head screwdriver.





Dimensions in mm

Material mark	Chain pitch mm	Link color	Open area %	Max. allowable load kN/m {kgf/m}	Chain mass kg/m²	Operating temperature range °C	Pin material	Pin retention system
LFB	38.1	Brown	17	30.9 {3153}	12.7	-20 to (60) 80	Polypropylene	Slide stopper
HTW		White		15.6 {1592}	8.7	5 to 105		

Note: 1. Values for max. allowable load are at ambient temperature (20°C) and assume that tension acts uniformly over the entire chain width. Values for max. allowable load in the table above are for chain that is one meter (1m) in width. To calculate values for other chain widths, multiply the chain width in question by the max. allowable load for one-meter (1m) wide chain.
2. Operating temperature of (60) is for wet conditions.
3. Made-to-order product.
4. Contact a Tsubaki representative for chain specifications (materials) other than the above.
5. Max. allowable speed: 50 m/min.

Chain (Plastic Pins)

Chain width X mm	Low Friction/Wear Resistant LFB	High Temperature HTW
	Tsubaki model no.	Tsubaki model no.
457.2	WT3827-K18-LFB	WT3827-K18-HTW
609.6	WT3827-K24-LFB	WT3827-K24-HTW
762.0	WT3827-K30-LFB	WT3827-K30-HTW
914.4	WT3827-K36-LFB	WT3827-K36-HTW

Chain width X mm	Low Friction/Wear Resistant LFB	High Temperature HTW
	Tsubaki model no.	Tsubaki model no.
1066.8	WT3827-K42-LFB	WT3827-K42-HTW
1219.2	WT3827-K48-LFB	WT3827-K48-HTW
1371.6	WT3827-K54-LFB	WT3827-K54-HTW
1524.0	WT3827-K60-LFB	WT3827-K60-HTW

Note: 1. Standard chain width is 152.4mm (6 inches). Custom chain widths and widths greater than 1,524mm are available upon request.
2. Chain width X shown is a nominal width. Actual width range is $^{+0}_{-0.7\%}$ at 20°C operating temperature. Chain width is subject to expansion or contraction with changes in temperature. Expansion/contraction rate is 0.00015/°C based on reference temperature of 20°C.

Model Numbering

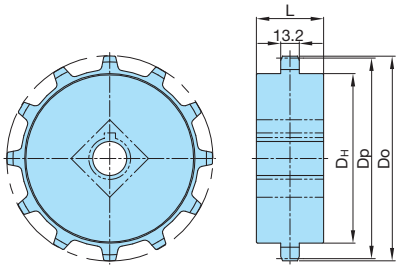
Chain type	Chain pitch	Chain type		Chain width		Chain material
WT	**38**	**27**	**–**	**K42**	**–**	**LFB**

Note: Do not leave spaces between letters and symbols.

Number denotes width in inches.
Multiply the number by 25.4 to convert it into millimeters.
Example: 42 x 25.4 = 1066.8mm

Accessories for WT3827-K Chain

Sprockets for WT3827-K Chain

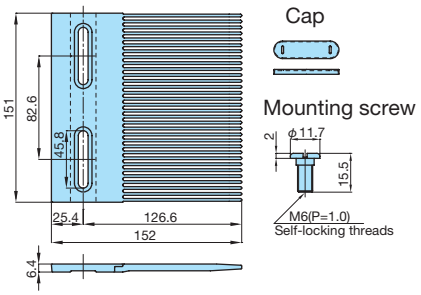


Tsubaki model no.	No. of teeth	Pitch diameter D_P	Outside diameter D_O	Hub diameter D_H	Hub length L	Bore shape	Bore diameter d	Type	Material
WT-S3820-8T	8	99.6	99	74	44	Bore shape and size are made-to-order.		Solid	UHMW-PE (green)
WT-S3820-12T	12	147.2	148	122	48				

Note: 1. Made-to-order product. Sprockets can also be manufactured with other shapes, number of teeth, and materials than noted above.
2. Operating temperature range: –20°C to 60°C

Transfer Plate for WT3827-K Chain

WT-TP3827-L152

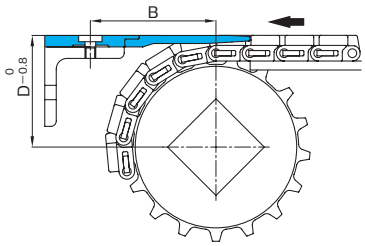


Tsubaki model no.	Plate material	Color	Approx. mass kg
WT-TP3827-L152	Reinforced polyamide	Black	0.15

Note: 1. Made-to-order product.
2. Two each of caps and mounting screws are included with each transfer plate.

Transfer Plate Installation

The illustration below shows the ideal placement of the transfer plate.

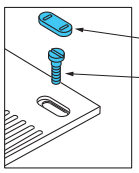


Note: Transfer plates are designed to be used only in conjunction with raised-rib chain.

Tsubaki chain model no.	Tsubaki transfer plate model no.	B mm	D mm
WT3827-K	WT-TP3827-L152	82	$\frac{Dp}{2}$ +12.7

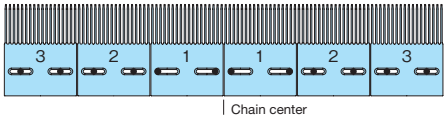
Dp: pitch diameter

Mount the transfer plate as shown in the figure at the right using the included mounting screws and caps. In addition, expansion of the chain due to heat must be taken into account. Mount the transfer plate(s) by installing the mounting screws as shown in the diagrams at the right depending on temperature conditions during use.



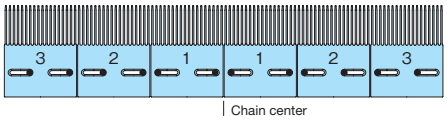
1) When operating temperatures are essentially the same as ambient temperature (20°C)

Install the mounting screws for transfer plates 2 and 3 in the center of the slotted holes.



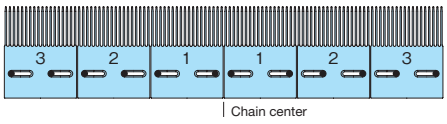
2) For low temperatures

Install the mounting screws for transfer plates 2 and 3 in the slotted holes closer to the center of the chain.



3) For high temperatures

Install the mounting screws for transfer plates 2 and 3 in the slotted holes closer to the edge of the chain.



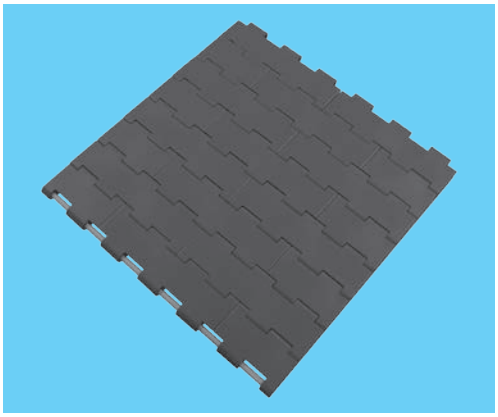
Dimensions in mm

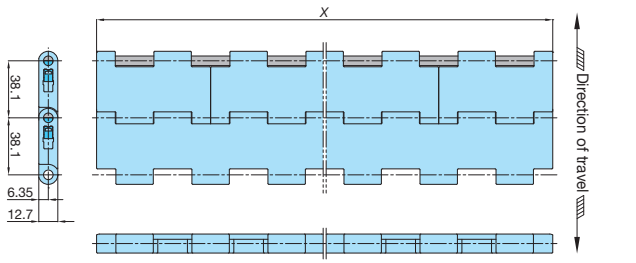
Plastic Modular Chain WT3835-K

Closed Type: Straight Running

Features

A slide stopper pin retention system allows the modules to be disconnected and reconnected easily using a flat-head screwdriver.





Dimensions in mm

Material mark	Chain pitch mm	Link color	Open area %	Max. allowable load kN/m {kgf/m}	Chain mass kg/m²	Operating temperature range °C	Pin material	Pin retention system
LFB	38.1	Brown	2	12.8 {1300}	9.5	-20 to (60) 80	Special engineering plastic	Slide stopper
NLF		Dark gray						
HTW		White		5.1 {520}	7.0	5 to 105	Polypropylene	

Note: 1. Values for max. allowable load are at ambient temperature (20°C) and assume that tension acts uniformly over the entire chain width. Values for max. allowable load in the table above are for chain that is one meter (1m) in width. To calculate values for other chain widths, multiply the chain width in question by the max. allowable load for one-meter (1m) wide chain.
2. Operating temperature of (60) is for wet conditions.
3. Made-to-order product.
4. Contact a Tsubaki representative for chain specifications (materials) other than the above.
5. Max. allowable speed: 50 m/min.

Chain (Plastic Pins)

Chain width X mm	Low Friction/Wear Resistant LFB	Low Friction NLF	High Temperature HTW
	Tsubaki model no.	Tsubaki model no.	Tsubaki model no.
152.4	WT3835-K06-LFB	WT3835-K06-NLF	WT3835-K06-HTW
228.6	WT3835-K09-LFB	WT3835-K09-NLF	WT3835-K09-HTW
304.8	WT3835-K12-LFB	WT3835-K12-NLF	WT3835-K12-HTW
381.0	WT3835-K15-LFB	WT3835-K15-NLF	WT3835-K15-HTW
457.2	WT3835-K18-LFB	WT3835-K18-NLF	WT3835-K18-HTW
533.4	WT3835-K21-LFB	WT3835-K21-NLF	WT3835-K21-HTW
609.6	WT3835-K24-LFB	WT3835-K24-NLF	WT3835-K24-HTW
685.8	WT3835-K27-LFB	WT3835-K27-NLF	WT3835-K27-HTW
762.0	WT3835-K30-LFB	WT3835-K30-NLF	WT3835-K30-HTW
838.2	WT3835-K33-LFB	WT3835-K33-NLF	WT3835-K33-HTW
914.4	WT3835-K36-LFB	WT3835-K36-NLF	WT3835-K36-HTW
990.6	WT3835-K39-LFB	WT3835-K39-NLF	WT3835-K39-HTW
1066.8	WT3835-K42-LFB	WT3835-K42-NLF	WT3835-K42-HTW
1143.0	WT3835-K45-LFB	WT3835-K45-NLF	WT3835-K45-HTW
1219.2	WT3835-K48-LFB	WT3835-K48-NLF	WT3835-K48-HTW
1295.4	WT3835-K51-LFB	WT3835-K51-NLF	WT3835-K51-HTW
1371.6	WT3835-K54-LFB	WT3835-K54-NLF	WT3835-K54-HTW
1447.8	WT3835-K57-LFB	WT3835-K57-NLF	WT3835-K57-HTW
1524.0	WT3835-K60-LFB	WT3835-K60-NLF	WT3835-K60-HTW

Note: 1. Standard chain width is 76.2mm (3 inches). Custom chain widths and widths greater than 1,524mm are available upon request.
2. Chain width X shown is a nominal width. Actual width range is $^{+0}_{-0.7\%}$ at 20°C operating temperature. Chain width is subject to expansion or contraction with changes in temperature. Expansion/contraction rate is 0.00015/°C based on reference temperature of 20°C.

Model Numbering

Chain type	Chain pitch	Chain type		Chain width		Chain material
WT	**38**	**35**	**–**	**K18**	**–**	**LFB**

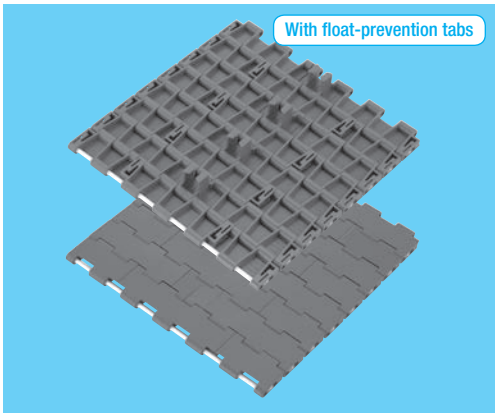
Note: Do not leave spaces between letters and symbols.

Number denotes width in inches.
Multiply the number by 25.4 to convert it into millimeters.
Example: 18 x 25.4 = 457.2mm

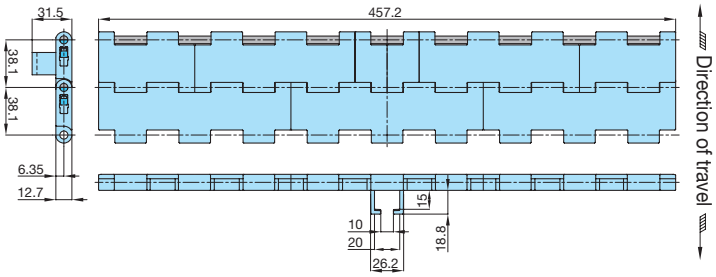
Plastic Modular Chain WT3835-T and Sprockets

Features

A slide stopper pin retention system allows the modules to be disconnected and reconnected easily using a flat-head screwdriver.



2D view (for reference): Chain width 457.2mm



Note: The above 2D view is only an example. For information regarding attachment positions of float-prevention tabs other than the above, or regarding holes for vacuum operation, please contact a Tsubaki representative.

Material mark	Chain pitch mm	Link color	Open area %	Max. allowable load kN/m {kgf/m}	Chain mass kg/m²	Operating temperature range °C	Pin material
LFB	38.1	Brown	2	12.8 {1300}	9.5	-20 to (60) 80	Special engineering plastic

Note: 1. Values for max. allowable load are at ambient temperature (20°C) and assume that tension acts uniformly over the entire chain width. Values for max. allowable load in the table above are for chain that is one meter (1m) in width. To calculate values for other chain widths, multiply the chain width in question by the max. allowable load for one-meter (1m) wide chain.
2. Operating temperature of (60) is for wet conditions.
3. Chain with float-prevention tabs will be 0.2 kg/m heavier. Float-prevention tabs are attached to every second link.
4. Made-to-order product.
5. Max. allowable speed: 50 m/min.

Model Numbering

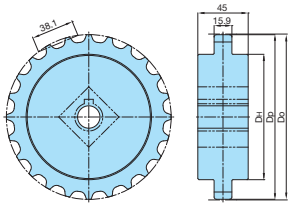
Chain type	Chain pitch	Chain type	With tabs		Chain width		Chain material		Special
WT	**38**	**35**	**T**	**–**	**K18**	**–**	**LFB**	**–**	**TK**

Note: Do not leave spaces between letters and symbols.

Number denotes width in inches.
Multiply the number by 25.4 to convert it into millimeters.
Example: 18 x 25.4 = 457.2mm

Sprockets for WT3835-K/WT3835-T Chain

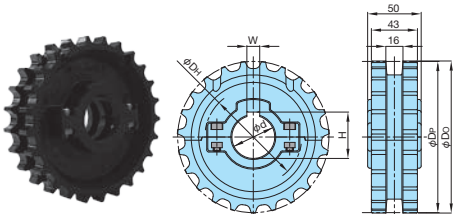
• Machined solid sprocket



Tsubaki model no.	Actual no. of teeth	Effective no. of teeth	Pitch diameter D_P	Outside diameter D_O	Hub diameter D_H	Bore shape	Bore diameter d	Type	Material
WT-S3830-1200T	24	12	147.2	147	106	Bore shape and size are made-to-order.		Solid	UHMW-PE (green)
WT-S3830-1212T	25	12 1/2	153.2	153	112				

Note: 1. Made-to-order product. Sprockets can also be manufactured with other shapes, number of teeth, and materials than noted above.
2. Operating temperature range: –20°C to 60°C

• Molded split sprocket, reinforced polyamide



Tsubaki model no.	Actual no. of teeth	Effective no. of teeth	Pitch diameter D_P	Outside diameter D_O	Shaft diameter d	Keyway W	Keyway H	Boss diameter D_H	Approx. mass kg	Type	Material: Body	Material: Bolt & nut
TTP-21T25	21	10 1/2	129.2	130.0	25	8	28.3	90	0.4	Split type. Keyway specifications: DIN 6885 key seat	Reinforced polyamide (color: black)	Stainless steel
TTP-21T30					30	8	33.3					
TTP-21T35					35	10	38.3					
TTP-21T40					40	12	43.3					
TTP-21T45					45	14	48.8					
TTP-23T25	23	11 1/2	141.2	142.0	25	8	28.3	90	0.5			
TTP-23T30					30	8	33.3					
TTP-23T35					35	10	38.3					
TTP-23T40					40	12	43.3					
TTP-23T45					45	14	48.8					
TTP-25T25	25	12 1/2	153.2	154.5	25	8	28.3	94	0.5			
TTP-25T30					30	8	33.3					
TTP-25T35					35	10	38.3					
TTP-25T40					40	12	43.3					
TTP-25T45					45	14	48.8					
TTP-25T50					50	14	53.8					

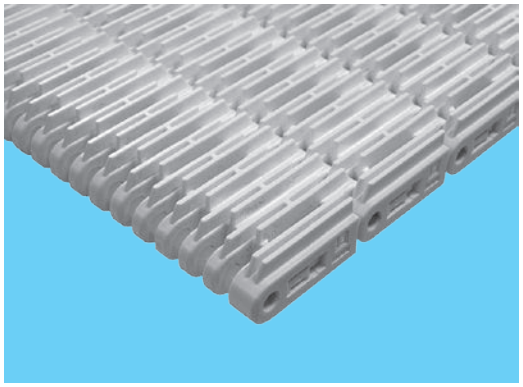
Note: 1. Standard product.
2. Operating temperature range: –20°C to 80°C
3. Bolt tightening torque: 5.7 N·m {0.58 kgf·m}
4. When assembling the halves of the sprocket, do not mix the halves with halves from other sprockets.
5. Should not be subjected to extreme changes in operating temperature.

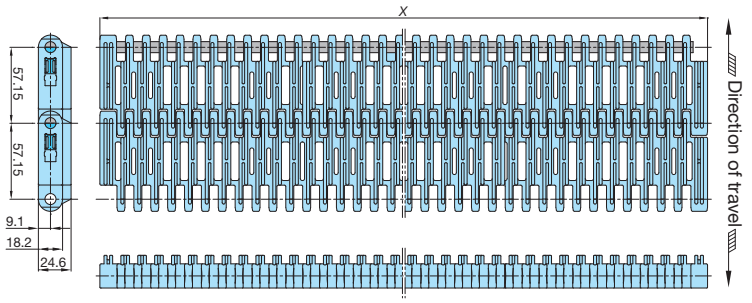
Dimensions in mm

Plastic Modular Chain WT5707-K Raised-Rib Type: Straight Running

Features

Raised-rib chain intended to be used together with transfer plates to eliminate the difference in level at transfer points, making it possible to prevent containers from toppling. This type has the highest allowable load, and is recommended for conveying large amounts of containers, such as through water spray bath equipment.





Dimensions in mm

Material mark	Chain pitch mm	Link color	Open area %	Max. allowable load kN/m {kgf/m}	Chain mass kg/m²	Operating temperature range °C	Pin material	Pin retention system
LFB	57.15	Brown	23	43.9 {4480}	17.2	-20 to (60) 80	Polypropylene	Slide stopper
HTW		White		26.1 {2663}	11.3	5 to 105		

Note: 1. Values for max. allowable load are at ambient temperature (20°C) and assume that tension acts uniformly over the entire chain width. Values for max. allowable load in the table above are for chain that is one meter (1m) in width. To calculate values for other chain widths, multiply the chain width in question by the max. allowable load for one-meter (1m) wide chain.
2. Operating temperature of (60) is for wet conditions.
3. Made-to-order product.
4. Contact a Tsubaki representative for chain specifications (materials) other than the above.
5. Max. allowable speed: 50 m/min.

Chain (Plastic Pins)

Chain width X mm	Low Friction/Wear Resistant LFB	High Temperature HTW
	Tsubaki model no.	Tsubaki model no.
457.2	WT5707-K18-LFB	WT5707-K18-HTW
609.6	WT5707-K24-LFB	WT5707-K24-HTW
762.0	WT5707-K30-LFB	WT5707-K30-HTW
914.4	WT5707-K36-LFB	WT5707-K36-HTW
1066.8	WT5707-K42-LFB	WT5707-K42-HTW
1219.2	WT5707-K48-LFB	WT5707-K48-HTW
1371.6	WT5707-K54-LFB	WT5707-K54-HTW
1524.0	WT5707-K60-LFB	WT5707-K60-HTW
1676.4	WT5707-K66-LFB	WT5707-K66-HTW

Chain width X mm	Low Friction/Wear Resistant LFB	High Temperature HTW
	Tsubaki model no.	Tsubaki model no.
1828.8	WT5707-K72-LFB	WT5707-K72-HTW
1981.2	WT5707-K78-LFB	WT5707-K78-HTW
2133.6	WT5707-K84-LFB	WT5707-K84-HTW
2286.0	WT5707-K90-LFB	WT5707-K90-HTW
2438.4	WT5707-K96-LFB	WT5707-K96-HTW
2590.8	WT5707-K102-LFB	WT5707-K102-HTW
2743.2	WT5707-K108-LFB	WT5707-K108-HTW
2895.6	WT5707-K114-LFB	WT5707-K114-HTW
3048.0	WT5707-K120-LFB	WT5707-K120-HTW

Note: 1. Standard chain width is 152.4mm (6 inches). Custom chain widths and widths greater than 3,048mm are available upon request.
2. Chain width X shown is a nominal width. Actual width range is $^{+0}_{-0.7\%}$ at 20°C operating temperature. Chain width is subject to expansion or contraction with changes in temperature. Expansion/contraction rate is 0.00015/°C based on reference temperature of 20°C.

Model Numbering

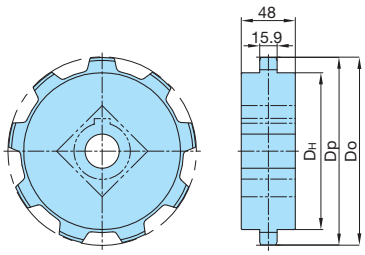
Chain type	Chain pitch	Chain type		Chain width		Chain material
WT	**57**	**07**	**–**	**K54**	**–**	**HTW**

Note: Do not leave spaces between letters and symbols.

Number denotes width in inches.
Multiply the number by 25.4 to convert it into millimeters.
Example: 54 x 25.4 = 1371.6mm

Accessories for WT5707-K Chain

Sprockets for WT5707-K Chain

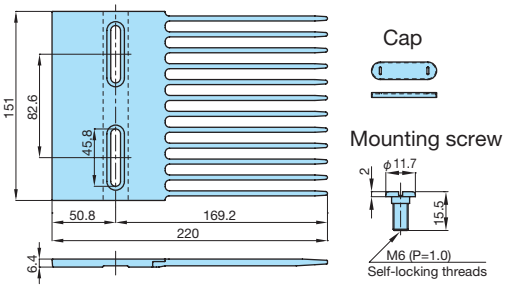


Tsubaki model no.	No. of teeth	Pitch diameter D_P	Outside diameter D_O	Hub diameter D_H	Bore shape	Bore diameter d	Type	Material
WT-S5707-9T	9	167.0	164	137	Bore shape and size are made-to-order.		Solid	UHMW-PE (green)
WT-S5707-12T	12	220.8	220	193				
WT-S5707-14T	14	256.8	256	230				

Note: 1. Made-to-order product. Sprockets can also be manufactured with other shapes, number of teeth, and materials than noted above.
2. Operating temperature range: –20°C to 60°C

Transfer Plate for WT5707-K Chain

WT-TP5707-L220

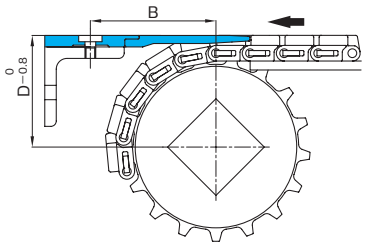


Tsubaki model no.	Plate material	Color	Approx. mass kg
WT-TP5707-L220	Reinforced polyamide	Black	0.18

Note: 1. Made-to-order product.
2. Two each of caps and mounting screws are included with each transfer plate.

Transfer Plate Installation

The illustration below shows the ideal placement of the transfer plate.

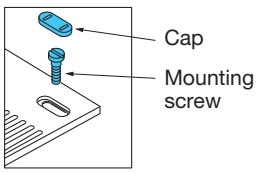


Note: Transfer plates are designed to be used only in conjunction with raised-rib chain.

Tsubaki chain model no.	Tsubaki transfer plate model no.	B mm	D mm
WT5707-K	WT-TP5707-L220	82	$\frac{Dp}{2}$ +15.5

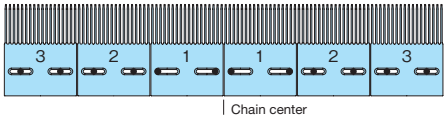
Dp: pitch diameter

Mount the transfer plate as shown in the figure at the right using the included mounting screws and caps. In addition, expansion of the chain due to heat must be taken into account. Mount the transfer plate(s) by installing the mounting screws as shown in the diagrams at the right depending on temperature conditions during use.



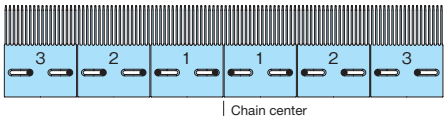
1) When operating temperatures are essentially the same as ambient temperature (20°C)

Install the mounting screws for transfer plates 2 and 3 in the center of the slotted holes.



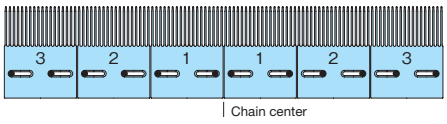
2) For low temperatures

Install the mounting screws for transfer plates 2 and 3 in the slotted holes closer to the center of the chain.



3) For high temperatures

Install the mounting screws for transfer plates 2 and 3 in the slotted holes closer to the edge of the chain.



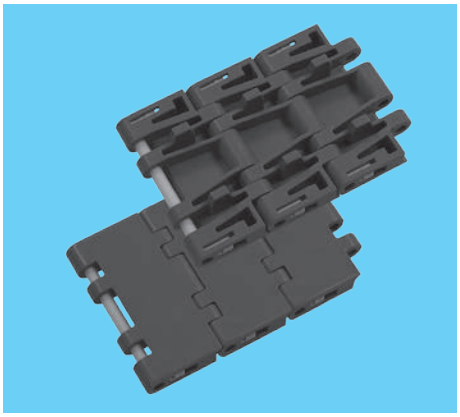
Dimensions in mm

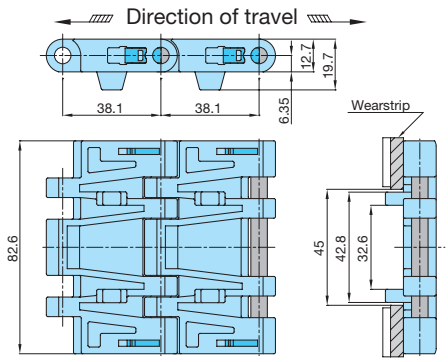
Plastic Modular Chain WT3835G-M

Closed Type: Straight Running

Features

Based on WT3835-K links with a fixed width (82.6mm). Ideal for conveying containers. A slide stopper pin retention system allows the modules to be disconnected and reconnected easily using a flat-head screwdriver.





Dimensions in mm

Material		Low Friction/Wear Resistant	Low Friction	High Temperature	Open area %	Pin retention system
Material mark		LFB	NLF	HTW		
Link color		Brown	Dark gray	White		
Max. allowable load kN {kgf}		1.2 {122.4}		0.5 {51}		
Max. allowable speed m/min	With lube	100				
	No lube	50				
Operating temperature range °C		-20 to (60) 80		5 to 105	2	Slide stopper
Approx. mass kg/m		1.0		0.7		
Pin material		Special engineering plastic		Polypropylene		
Tsubaki model no.		WT3835G-M325-LFB	WT3835G-M325-NLF	WT3835G-M325-HTW		

Note: 1. Made-to-order product.
2. Operating temperature of (60) is for wet conditions.
3. Contact a Tsubaki representative for chain specifications (materials) other than the above.
4. Use WT-S3830 machined solid sprocket (on page 10). Molded split sprockets cannot be used.

Model Numbering

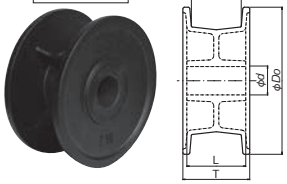
Chain type	Chain pitch	Chain type	With tab guide attachments		Fixed chain width	Chain width		Chain material
WT	**38**	**35**	**G**	**–**	**M**	**325**	**–**	**LFB**

Note: Do not leave spaces between letters and symbols.

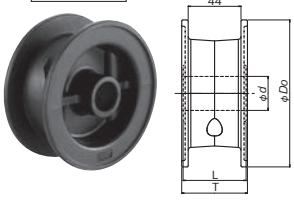
Number denotes width in inches multiplied by 100. Multiply the number by 25.4 and then divide it by 100 to convert it into millimeters.
Example: 325 x 25.4 ÷ 100 = 82.6mm

Idler Wheel for WT3835G-M Chain

Solid type



Split type



Tsubaki model no.	Equivalent no. of teeth	Outside diameter *Do*	Shaft diameter *d*	Hub length *L*	Width *T*	Approx. mass kg	Material	Type
TP-C12200BT-IW	21	129.8	25	52	58	0.21	Polyamide (color: black)	Solid
TP-C12201BT-IW			30			0.21		
TP-C12203BT-IW			40			0.19		
TP-C12212BT-IW	23	142.2	25	52	58	0.20		
TP-C12213BT-IW			30			0.20		
TP-C12215BT-IW			40			0.21		
TP-C12204BT-IW	25	154.7	25	52	58	0.23		
TP-C12205BT-IW			30			0.23		
TP-C12207BT-IW			40			0.25		
TP-C12077BT-IW	21	129.8	25	61	58	0.26	Bolt & nut: Stainless steel Body: Polyamide (color: black)	Split
TP-C12078BT-IW			30			0.25		
TP-C12079BT-IW			35			0.28		
TP-C12080BT-IW			40			0.25		
TP-C121928BT-IW	23	142.2	25	61	58	0.29		
TP-C121929BT-IW			30			0.27		
TP-C121930BT-IW			35			0.30		
TP-C121931BT-IW			40			0.27		
TP-C12081BT-IW	25	154.7	25	61	58	0.32		
TP-C12082BT-IW			30			0.30		
TP-C12083BT-IW			35			0.32		
TP-C12084BT-IW			40			0.30		

Note: 1. Standard product.
2. Operating temperature range: –20°C to 80°C
3. Bolt tightening torque: 6 N·m {0.61 kgf·m}
4. When assembling the halves of the idler wheel, do not mix the halves with halves from other idler wheels.
5. Should not be used under abrasive conditions.
6. Shaft metal must be polished.

Dimensions in mm

⚠ Important Selection Considerations

- Because of the risk of damage and/or breakage, Plastic Top Chain is not recommended for use under conditions in which the chain may be subject to impact, or in which foreign materials or objects might become jammed in the conveyor. Please consider the use of a metal chain under these conditions. Also, be sure to start up slowly (using inverter control) and stop slowly.
- The presence of abrasives during operation will cause Plastic Top Chain to wear prematurely. Please consider the use of a steel chain in this case.
- When conveying food products, the Impact Resistant series (DIA or DIY) or Metal Detectable series (MPD or MPW) is recommended in situations where a chance impact may damage the Plastic Top Chain and there would be a possibility that broken chain pieces or fragments might become intermixed with the product or item being conveyed.
- Contact a Tsubaki representative before using Plastic Top Chain in cases where it will be in contact with special liquids (for example, solvents or chemicals such as acids or alkalis) or used under special environments (for example, exposure to ultraviolet radiation).
- Using Plastic Top Chain in a wet environment will decrease the plastic's self-lubricating ability and thus shorten the life of the chain. Since this is especially true with stainless steel pins, we recommend using plastic pins in wet environments.
- The operating temperature range for accessories, sprockets, and idler wheels made of UHMW-PE (ultra-high molecular weight polyethylene) is –20°C to 60°C. Also, do not use in environments where such components will be exposed to steam.
- Toxic gases may be generated if the Chemical Resistant series (including Super Chemical Resistant series) is exposed directly to open flame or to temperatures above 150°C. Do not expose to excessive heat or to open flame.
- Plastic chain is flammable. Do not use at temperatures above the maximum allowable temperature or use near open flame. Combustion may generate toxic gases.

⚠ Corrosion Resistance to Various Fluids

When selecting a chain, refer to Table 1 to determine the suitability of the chain material for specific applications. In addition, Table 1 can be used to check the corrosion resistance of the wearstrip material to be used together with the Top Chain. The overall usage environment, including humidity and other conditions, must also be thoroughly evaluated in the selection process. This table lists materials separately for the top plate and for other chain components. These must be considered together for optimal selection. Chemicals for which no concentration is noted in the table were used at 100% concentration or as saturated solutions. Note that conditions will change if a mixture of solutions is used.
The table shows the results of lab tests conducted at 20°C (68°F) and is provided for reference only. No warranty conditions whatsoever are stated or implied by the data in this table.

Table 1: Corrosion Resistance to Various Fluids

Fluid	Steel	Stainless steel			LF polyacetal	Polyamide/ reinforced polyamide	UHMW-PE	Special engineering plastic pins	HTW Polypropylene
		SUS304	SUS430	SUS410					
Acetic acid (10%)	×	○	○	×	×	×	○	×	–
Acetone	×	○	○	○	○	○	○	○	○
Alcohol	○	○	○	○	○	○	○	○	○
Aqueous ammonia	△	○	○	○	○	○	○	△	○
Beer	○	○	○	○	○	○	○	○	○
Benzene	○	○	○	○	○	○	△	○	△
Carbon tetrachloride	△	○	○	△	△	○	△	○	△
Chromic acid (5%)	×	○	△	○	×	×	○	×	×
Citric acid	×	○	○	△	×	△	○	×	○
Formic acid (50%)	×	○	○	×	×	×	○	△	○
Formic acid aldehyde	○	○	○	○	○	○	○	–	○
Fruit juice	×	○	△	△	○	○	○	○	○
Gasoline	○	○	○	○	○	○	△	○	○
Hydrochloric acid (2%)	×	×	×	×	×	×	○	○	○
Hydrogen peroxide (3%)	×	○	△	△	×	×	○	×	○
Hypochlorite soda	×	×	×	×	×	○	○	△	○
Iodine	×	×	×	×	×	×	△	–	–
Lactic acid	×	○	△	×	○	△	○	△	○
Milk, butter	○	○	○	○	○	○	○	○	○
Nitric acid (5%)	×	○	△	△	×	×	△	○	○
Oils (vegetable, mineral)	○	○	○	○	○	○	○	○	○
Paraffin	○	○	○	○	○	○	○	○	○
Phosphoric acid (10%)	×	△	△	×	×	×	○	△	○
Potassium hydroxide	△	○	○	○	○	×	○	×	–
Seawater	×	△	×	×	△	△	○	△	○
Soapy water	△	○	○	○	○	○	○	○	○
Sodium chloride	×	○	○	○	○	○	○	○	○
Sodium hydroxide (caustic soda [25%])	×	○	○	○	×	△	○	×	○
Soft drinks, coffee	○	○	○	○	○	○	○	○	○
Sulfuric acid (5%)	×	×	×	×	×	×	○	×	○
Vegetable juice	△	○	○	○	○	○	○	○	○
Vinegar	×	△	×	×	△	×	○	○	○
Water	×	○	○	○	○	○	○	○	○
Whiskey	○	○	○	○	○	○	○	○	○
Wine	○	○	○	○	○	○	○	○	○
Xylene	○	○	○	○	△	–	△	–	△

○ : Totally resistant
△ : Partially resistant (depending on operating conditions)
× : Not resistant
– : Unknown

Note: "LF polyacetal" includes LFB, LFG, LFW, NLF, ULF, UL, and MWS chains.

1. Chain Selection

Follow the procedure below to select chains most suitable for the application.

Step 1: Establish operating conditions
(conveyed goods, conveyor arrangement, conveying conditions, environment)

Step 2: Select type of chain (such as LFB, NLF, or HTW)

Step 3: Select wearstrip material
(plastic, stainless steel, steel)

Step 4: Determine whether chain is acceptable
(calculate chain tension and check allowable load graphs)

Step 5: Determine chain size and width

Step 6: Select sprockets, shafts, and bearing units
(number of sprocket teeth, shaft diameter, bearing unit)

Step 7: Determine sprocket locations

Note: 1. Step 6 is not required for fixed-width chains.
2. When selecting chain, refer to Table 1 to confirm that the chain material has sufficient corrosion resistance for the usage environment and the liquids it will be exposed to.

Step 1: Establish Operating Conditions

1) Conveyed goods
   ① Material of conveyed goods
   ② Mass per conveyed item
   ③ Shape and dimensions
2) Conveyor arrangement
   ① Conveyor length and width
   ② Conveyor layout
   ③ Space limitations
3) Other conditions
   ① Conveying capacity
   ② Interval/spacing between goods to be conveyed
   ③ Conveying speed
   ④ Lubrication
   ⑤ Goods accumulated or not
4) Environment
   ① Temperature
   ② Corrosive conditions including the presence of chemicals, water, and high humidity
   ③ Abrasive conditions including the presence of glass, paint chips, metal powder, sand, etc.
   (See Table 1 Corrosion Resistance to Various Fluids on page 14.)
   ④ Exposure to ultraviolet radiation

Step 2: Select Type of Chain

Determine the type of chain to be used (chain type, pitch, and material) based on operating environment (ambient temperature and necessity of corrosion resistance) and application.

Note: 1. See the page for each individual product regarding chain types and the temperature levels and environments for which they are acceptable.
2. See page 14 for corrosion resistance.

Step 3: Select Wearstrip Material

Chain type	Wearstrip material	No lube		With lube	
		Abrasives			
		No	Yes	No	Yes
Plastic modular chain • Straight running	Stainless steel	B	D	A	A
	Steel	A	C	B	B
	Solidur (P plastic rail)	D	×	A	×
	PMW plastic rail	B	×	A	×
	M plastic rail, SJ-CNO	A	×	×	×

A: Most recommended B: Highly recommended C: Recommended
D: Acceptable ×: Inappropriate

Note: 1. See the page for each individual product regarding chain types and the temperature levels and environments for which they are acceptable.
2. See page 14 for corrosion resistance.

	Material, Color	Features
Solidur (P plastic rail)	• UHMW-PE • White or green	• Most commonly used wearstrip • Machined or extruded • Recommended for plastic chains used under wet conditions
PMW plastic rail	• Low friction, wear resistant UHMW-PE • White	• Lower friction and more wear resistant than P plastic rail • Machined
M plastic rail, SJ-CNO	• Special polyamide • Blue (M plastic rail), gray (SJ-NCO)	• Specifically designed for dry use • Wear resistant • Machined

Note: Operating temperature range
Solidur (P plastic rail), PMW plastic rail: –20°C to 60°C
M plastic rail, SJ-CNO: –20°C to 80°C

Coefficient of Dynamic Friction between Chain and Other Materials (μ_1, μ_2)

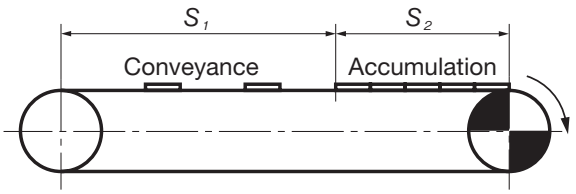
Other material	Lubrication	LFB, NLF	HTW
Solidur (P plastic rail), M plastic rail	Dry, water	0.20	0.30
	Soapy water, oil	0.13	0.20
PMW plastic rail, SJ-CNO	Dry, water	0.15	–
	Soapy water, oil	0.12	–
Steel, Stainless steel	Dry, water	0.20	0.32
	Soapy water, oil	0.15	0.20
Metallic cans	Dry, water	0.20	0.35
	Soapy water, oil	0.13	0.20
Glass bottles	Dry, water	0.14	0.22
	Soapy water, oil	0.14	0.10
Plastic containers	Dry, water	0.17	0.30
	Soapy water, oil	0.13	0.20
Paper packages	Dry, water	0.29	0.35
	Soapy water, oil	0.21	–

Note: 1. The coefficients of friction listed above are for room temperature (50°C or less); for high temperatures exceeding 50°C, use 0.35.
2. This friction coefficient data is based on experiments conducted by Tsubaki. Contamination on the chain, the shape of the bottom surface of conveyed goods, and other factors will cause slight differences in friction coefficient values. In particular, because the shape of the bottom surface, the type of paper material, etc., of paper packs and paper-based beverage containers may produce significant differences in friction coefficient values, we recommend that the coefficient of friction be measured for each type of conveyed item. Use the values given in the table above to calculate chain tension.
3. M plastic rails and SJ-NCO are specifically designed for dry conditions.
4. For lubrication with water, the friction coefficient may be significantly larger than the values given in the table above depending on the type of conveyed item. In addition, adhesion may occur.

Step 4: Calculate Chain Tension

1) Calculate the tension acting on the chain and required power (general-purpose conveyor)

Note: For special conveyors (pasteurizers, warmers, coolers), see page 38 of the *Tsubaki Top Chain Engineering Manual* (catalog no. ME12Y2) or contact a Tsubaki representative.



Note: Formulas are given for both SI units and gravimetric units. When calculating the chain tension (F), gravimetric weight units (kgf) have the same value as SI mass units (kg).

F = Chain tension kN {kgf}
m_1 = Chain mass (kg/m)
How to calculate chain mass:
Calculate the chain mass per 1-meter unit of length.
When Amm is the chain width being considered, m1 = chain mass (value from catalog [kg/m^2]) × A/1000
S_1 = Length of conveyance section (m)
m_2 = Mass of conveyed goods (kg/m)
S_2 = Length of accumulation section (m)
m_3 = Mass of accumulated goods (kg/m)
μ_1 = Coefficient of dynamic friction between chain and wearstrip
μ_1 = Coefficient of dynamic friction between conveyed goods and accumulation section
P = Power required (kw)
V = Chain speed (m/min)
η = Mechanical transmission efficiency for drive unit

Note: For fixed-width chains, follow the chain tension calculation for Plastic Top Chain (see page 9 of the *Tsubaki Top Chain Engineering Manual* [catalog no. ME12Y2]) or contact a Tsubaki representative.

SI Units (kN)

Chain Tension

$$F = 9.80665 \times 10^{-3}\{(2.1m_1 + m_2)S_1 \cdot \mu_1 + (2.1m_1 + m_3)S_2 \cdot \mu_1 + m_3 \cdot S_2 \cdot \mu_2\} \quad \cdots\cdots (1)$$

Power Required

$$P = \frac{F \cdot V}{60\ \eta}$$

Gravimetric Units (kgf)

Chain Tension

$$F = (2.1m_1 + m_2)S_1 \cdot \mu_1 + (2.1m_1 + m_3)S_2 \cdot \mu_1 + m_3 \cdot S_2 \cdot \mu_2\} \quad \cdots\cdots (1)$$

Power Required

$$P = \frac{F \cdot V}{6120\ \eta}$$

Step 5: Determine Chain Size and Width

1) The maximum tension applied to the chain (*F*) derived using formula (1) is converted into chain tension per one meter of chain width by the following formula.

$$F' = \frac{1000F}{\text{Chain width (mm)}} \quad \cdots\cdots (2)$$

2) A chain can be used when the tension per one meter of chain width (*F* ') that is obtained using formula (2) is below a curve representing the maximum allowable load of the chain that takes into account chain speed and temperature. If the tension, thus obtained, is found to be within the allowable range, determine the size and width of the chain.

■ Allowable Load Graphs

A chain can be used if its allowable load is below the curve in the load graph that takes chain speed and temperature into account. Refer to maximum allowable load graphs starting from page 21.

Step 6: Select Sprockets, Shafts, and Bearing Units

Select a shaft, bearing, and sprocket that satisfy requirements based on the Shaft Capacity Graphs and Type of Shafts and Corresponding Bearing Units on pages 16 and 17. Square shafts are generally recommended for drive and driven shafts except in special cases (fixed-width type, orthogonal with GTO, etc.).

Note: Some types of bearings (according to the internal diameter of the bearing) impose limits on the chain tension rate F1 (%).

■ Relation between Chain Tension Rate (*F* 1) and Bearing Support Span

Select a value that stays in the left area of the appropriate maximum allowable load graph.

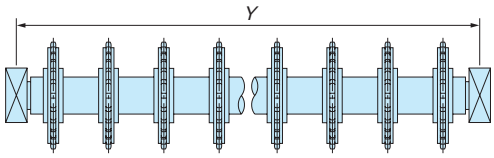
Formula of Chain Tension Rate F1 (%)

$$F1 = \frac{100F'}{A} \quad \cdots (3)$$

F'···Tension applied per one meter of chain width derived by formula (2) [kN (kgf)]

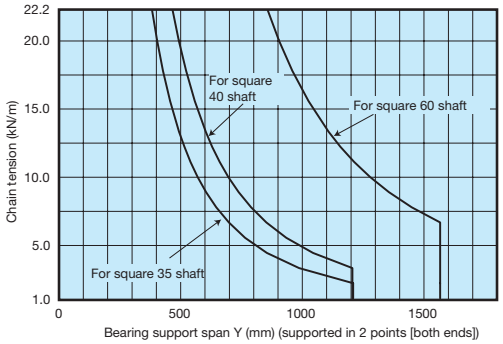
A ···Maximum allowable load per one meter of chain width with given temperature [kN (kgf)]

Select a value that stays in the left area of the appropriate maximum allowable load graph.

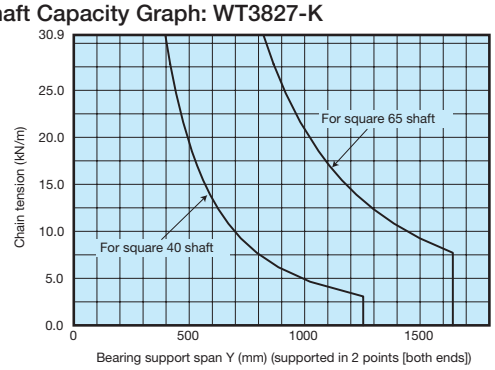


1. Relation between bearing support span Y and chain width X
   For square shafts: Approximately Y = X + 150 (mm)
2. Operating temperature range: –20°C to 60°C (when using sprockets made of UHMW-PE)

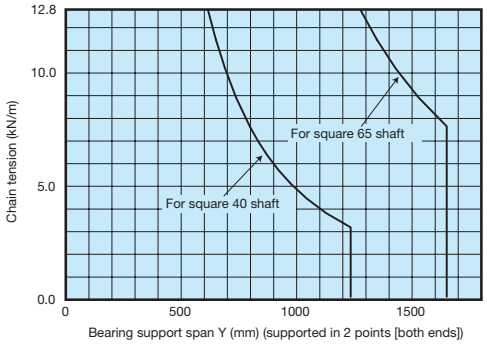
Shaft Capacity Graph: WT1907-K



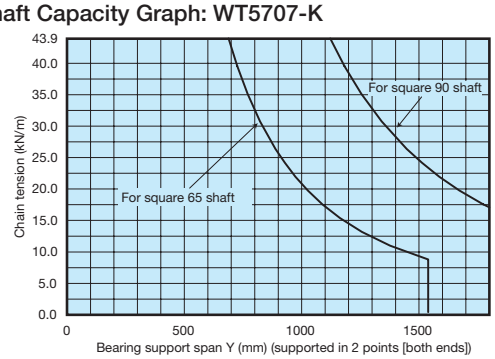
Shaft Capacity Graph: WT3827-K



Shaft Capacity Graph: WT3835-K



Shaft Capacity Graph: WT5707-K



■ Type of Shafts and Corresponding Bearing Units

Note: 1. For diamond and square flanges, the numbers following "TP-C" indicate the code for Tsubaki Top Chain components.
2. Operating temperature range –20°C to 60°C (when using sprockets made of UHMW-PE)

WT-S1900-17T (square 35 bore)

Shaft type	Bearing unit				Limitation on chain tension rate (F1)
	Bearing ID	Pillow	Diamond flange	Square flange	
SUS304 Square 35 polished steel bar	ϕ 25	UCP205	TP-C54205,59205	TP-C50205,55205	Applies only when 2.0 kN or less
			UCFL205	UCF205	
	ϕ 30	UCP206	UCFL206	TP-C50206,55206	Applies only when 7.5 kN or less
				UCF206	
	ϕ 35	UCP207	UCFL207	TP-C50207,55207	Applies only when 20.0 kN or less
				UCF207	

WT-S1900-21T (square 40 bore)

Shaft type	Bearing unit				Limitation on chain tension rate (F1)
	Bearing ID	Pillow	Diamond flange	Square flange	
SUS304 Square 40 polished steel bar	ϕ 25	UCP205	TP-C54205,59205	TP-C50205,55205	Applies only when 1.0 kN or less
			UCFL205	UCF205	
	ϕ 30	UCP206	UCFL206	TP-C50206,55206	Applies only when 3.0 kN or less
				UCF206	
	ϕ 35	UCP207	UCFL207	TP-C50207,55207	Applies only when 8.5 kN or less
				UCF207	
	ϕ 40	UCP208	UCFL208	TP-C50208,55208	Applies only when 20.0 kN or less
				UCF208	

WT-S1900-21T (square 60 bore)

Shaft type	Bearing unit				Limitation on chain tension rate (F1)
	Bearing ID	Pillow	Diamond flange	Square flange	
SUS304 Square 60 polished steel bar	ϕ 35	UCP207	UCFL207	TP-C50207,55207	Applies only when 3.0 kN or less
				UCF207	
	ϕ 40	UCP208	UCFL208	TP-C50208,55208	Applies only when 5.5 kN or less
				UCF208	
	ϕ 45	UCP209	UCFL209	UCF209	Applies only when 11.0 kN or less
	ϕ 55	UCP210	UCFL210	UCF210	Applies only when 22.3 kN or less
	ϕ 55	UCP211	UCFL211	UCF211	

WT-S1900-24T (square 35 bore)

Shaft type	Bearing unit				Limitation on chain tension rate (F1)
	Bearing ID	Pillow	Diamond flange	Square flange	
SUS304 Square 35 polished steel bar	ϕ 25	UCP205	TP-C54205,59205	TP-C50205,55205	Applies only when 1.0 kN or less
			UCFL205	UCF205	
	ϕ 30	UCP206	UCFL206	TP-C50206,55206	Applies only when 3.0 kN or less
				UCF206	
	ϕ 35	UCP207	UCFL207	TP-C50207,55207	Applies only when 10.0 kN or less
				UCF207	

WT-S1900-25T (square 35 bore)

Shaft type	Bearing unit				Limitation on chain tension rate (F1)
	Bearing ID	Pillow	Diamond flange	Square flange	
SUS304 Square 35 polished steel bar	ϕ 25	UCP205	TP-C54205,59205	TP-C50205,55205	Applies only when 1.0 kN or less
			UCFL205	UCF205	
	ϕ 30	UCP206	UCFL206	TP-C50206,55206	Applies only when 3.0 kN or less
				UCF206	
	ϕ 35	UCP207	UCFL207	TP-C50207,55207	Applies only when 8.5 kN or less
				UCF207	

WT-S3830-1200T, WT-S3830-1212T (square 40 bore)

Shaft type	Bearing unit				Limitation on chain tension rate (F1)
	Bearing ID	Pillow	Diamond flange	Square flange	
SUS304 Square 40 polished steel bar	ϕ 25	UCP205	TP-C54205,59205	TP-C50205,55205	Applies only when 1.0 kN or less
			UCFL205	UCF205	
	ϕ 30	UCP206	UCFL206	TP-C50206,55206	Applies only when 2.5 kN or less
				UCF206	
	ϕ 35	UCP207	UCFL207	TP-C50207,55207	Applies only when 6.0 kN or less
				UCF207	
	ϕ 40	UCP208	UCFL208	TP-C50208,55208	Applies only when 12.7 kN or less
				UCF208	

WT-S3830-1200T, WT-S3830-1212T (square 65 bore)

Shaft type	Bearing unit				Limitation on chain tension rate (F1)
	Bearing ID	Pillow	Diamond flange	Square flange	
SUS304 S45C SS400 Square 65 polished steel bar	ϕ 35	UCP207	UCFL207	TP-C50207,55207	Applies only when 2.5 kN or less
				UCF207	
	ϕ 40	UCP208	UCFL208	TP-C50208,55208	Applies only when 3.5 kN or less
				UCF208	
	ϕ 45	UCP209	UCFL209	UCF209	Applies only when 5.5 kN or less
	ϕ 50	UCP210	UCFL210	UCF210	Applies only when 7.5 kN or less
	ϕ 55	UCP211	UCFL211	UCF211	Applies only when 12.7 kN or less
	ϕ 60	UCP212	UCFL212	UCF212	

WT-S3820-8T (square 40 bore)

Shaft type	Bearing unit				Limitation on chain tension rate (F1)
	Bearing ID	Pillow	Diamond flange	Square flange	
SUS304 Square 40 polished steel bar	ϕ 25	UCP205	TP-C54205,59205	TP-C50205,55205	Applies only when 1.5 kN or less
			UCFL205	UCF205	
	ϕ 30	UCP206	UCFL206	TP-C50206,55206	Applies only when 4.5 kN or less
				UCF206	
	ϕ 35	UCP207	UCFL207	TP-C50207,55207	Applies only when 13.5 kN or less
				UCF207	
	ϕ 40	UCP208	UCFL208	TP-C50208,55208	Applies only when 30.9 kN or less
				UCF208	

WT-S3820-12T (square 40 bore)

Shaft type	Bearing unit				Limitation on chain tension rate (F1)
	Bearing ID	Pillow	Diamond flange	Square flange	
SUS304 Square 40 polished steel bar	ϕ 25	UCP205	TP-C54205,59205	TP-C50205,55205	Applies only when 1.5 kN or less
			UCFL205	UCF205	
	ϕ 30	UCP206	UCFL206	TP-C50206,55206	Applies only when 1.5 kN or less
				UCF206	
	ϕ 35	UCP207	UCFL207	TP-C50207,55207	Applies only when 6.0 kN or less
				UCF207	
	ϕ 40	UCP208	UCFL208	TP-C50208,55208	Applies only when 15.0 kN or less
				UCF208	

WT-S3820-12T (square 65 bore)

Shaft type	Bearing unit				Limitation on chain tension rate (F1)
	Bearing ID	Pillow	Diamond flange	Square flange	
SUS304 S45C SS400 Square 65 polished steel bar	ϕ 35	UCP207	UCFL207	TP-C50207,55207	Applies only when 1.5 kN or less
				UCF207	
	ϕ 40	UCP208	UCFL208	TP-C50208,55208	Applies only when 3.0 kN or less
				UCF208	
	ϕ 45	UCP209	UCFL209	UCF209	Applies only when 4.5 kN or less
	ϕ 50	UCP210	UCFL210	UCF210	Applies only when 7.5 kN or less
	ϕ 55	UCP211	UCFL211	UCF211	Applies only when 13.5 kN or less
	ϕ 60	UCP212	UCFL212	UCF212	Applies only when 21.5 kN or less

WT-S5707-9T (square 65 bore)

Shaft type	Bearing unit				Limitation on chain tension rate (F1)
	Bearing ID	Pillow	Diamond flange	Square flange	
SUS304 S45C SS400 Square 65 polished steel bar	ϕ 30	UCP206	UCFL206	TP-C50206,55206	Applies only when 0.4 kN or less
				UCF206	
	ϕ 35	UCP207	UCFL207	TP-C50207,55207	Applies only when 2.0 kN or less
				UCF207	
	ϕ 40	UCP208	UCFL208	TP-C50208,55208	
				UCF208	
	ϕ 45	UCP209	UCFL209	UCF209	Applies only when 4.0 kN or less
	ϕ 50	UCP210	UCFL210	UCF210	Applies only when 6.5 kN or less
	ϕ 55	UCP211	UCFL211	UCF211	Applies only when 11.0 kN or less
	ϕ 60	UCP212	UCFL212	UCF212	Applies only when 17.5 kN or less

WT-S5707-14T65S (square 65 bore)

Shaft type	Bearing unit				Limitation on chain tension rate (F1)
	Bearing ID	Pillow	Diamond flange	Square flange	
SUS304 S45C SS400 Square 65 polished steel bar	ϕ 30	UCP206	UCFL206	TP-C50206,55206	Applies only when 0.4 kN or less
				UCF206	
	ϕ 35	UCP207	UCFL207	TP-C50207,55207	
				UCF207	
	ϕ 40	UCP208	UCFL208	TP-C50208,55208	Applies only when 2.0 kN or less
				UCF208	
	ϕ 45	UCP209	UCFL209	UCF209	
	ϕ 50	UCP210	UCFL210	UCF210	Applies only when 4.0 kN or less
	ϕ 55	UCP211	UCFL211	UCF211	
	ϕ 60	UCP212	UCFL212	UCF212	Applies only when 6.5 kN or less

WT-S5707-12T (square 90 bore)

Shaft type	Bearing unit				Limitation on chain tension rate (F1)
	Bearing ID	Pillow	Diamond flange	Square flange	
SUS304 S45C SS400 Square 90 polished steel bar	ϕ 30	UCP206	UCFL206	TP-C50206,55206	Applies only when 0.4 kN or less
				UCF206	
	ϕ 35	UCP207	UCFL207	TP-C50207,55207	
				UCF207	
	ϕ 40	UCP208	UCFL208	TP-C50208,55208	Applies only when 2.0 kN or less
				UCF208	
	ϕ 45	UCP209	UCFL209	UCF209	
	ϕ 50	UCP210	UCFL210	UCF210	Applies only when 4.0 kN or less
	ϕ 55	UCP211	UCFL211	UCF211	
	ϕ 60	UCP212	UCFL212	UCF212	Applies only when 6.5 kN or less

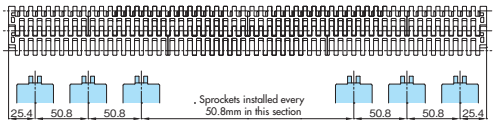
WT-S5707-14T (square 90 bore)

Shaft type	Bearing unit				Limitation on chain tension rate (F1)
	Bearing ID	Pillow	Diamond flange	Square flange	
SUS304 S45C SS400 Square 90 polished steel bar	ϕ 30	UCP206	UCFL206	TP-C50206,55206	Applies only when 0.4 kN or less
				UCF206	
	ϕ 35	UCP207	UCFL207	TP-C50207,55207	
				UCF207	
	ϕ 40	UCP208	UCFL208	TP-C50208,55208	Applies only when 2.0 kN or less
				UCF208	
	ϕ 45	UCP209	UCFL209	UCF209	
	ϕ 50	UCP210	UCFL210	UCF210	Applies only when 4.0 kN or less
	ϕ 55	UCP211	UCFL211	UCF211	
	ϕ 60	UCP212	UCFL212	UCF212	Applies only when 6.5 kN or less

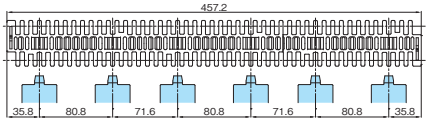
Step 7: Determine Sprocket Locations

The diagrams below show the location and distance between sprockets (pitch) for each type of chain.

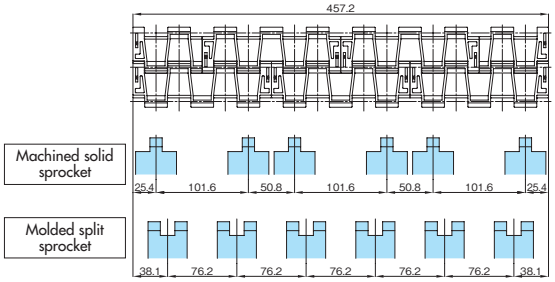
① **WT1907-K**



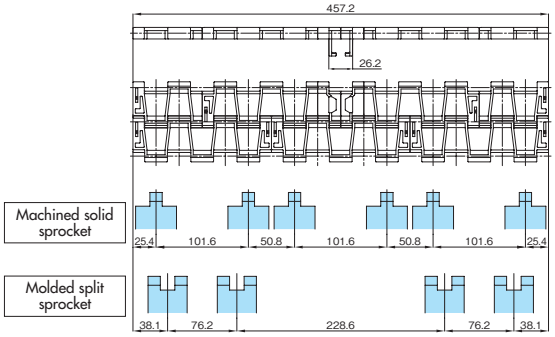
② **WT3827-K**



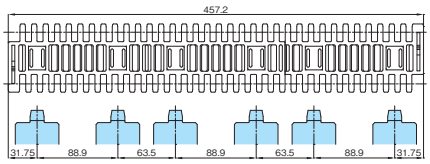
③ **WT3835-K**



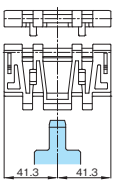
④ **WT3835-T (with float-prevention tabs)**



⑤ **WT5707-K**



⑥ **WT3835G-M325**

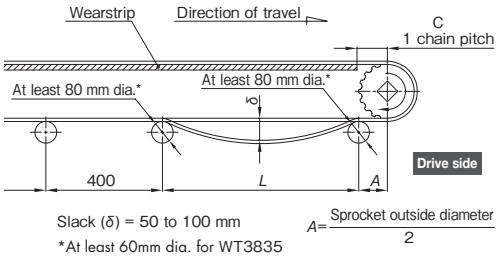


2. Conveyor Design

2-1. Layout of Supports for Chains

The layout of the supports for chains will vary according to the installation space available and other parameters.
A typical layout is shown below.

Note: The wearstrip of the drive sprocket section and the end of the frame should be chamfered to prevent interference.



Slack (δ) = 50 to 100 mm

$A = \frac{\text{Sprocket outside diameter}}{2}$

*At least 60mm dia. for WT3835

1. Amount of Chain Slack

The table below shows the spacing L between return rollers supporting the chain on the return way below the drive sprocket. The amount of slack in the chain between return rollers should be 50 to 100 mm. This slack prevents chain teeth jumping. There is a possibility of chain teeth jumping if the amount of slack is outside this range.

Return Roller Spacing L (Units: mm)

Conveyance conditions	Roller spacing L
Conveyor length less than 12 m, mass of conveyed objects 75 kg/m^2 or less	600 to 900
Conveyor length less than 20 m, mass of conveyed objects 100 kg/m^2 or less	750 to 900
Conveyor length less than 20 m, mass of conveyed objects exceeds 100 kg/m^2	1,200 to 1,500

Note: Design fixed-width types the same as Plastic Top Chain.

2. Engagement Angle

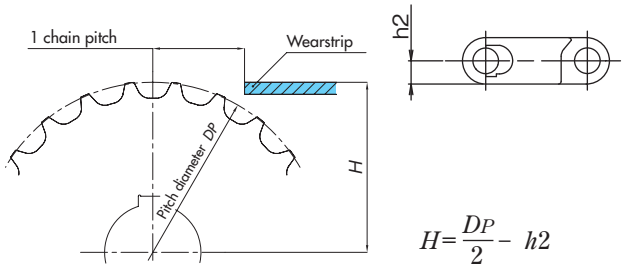
The engagement angle of the chain on the drive sprocket should be at least 180°. If the angle is small, teeth jumping may occur.

3. Wearstrip Ends

A distance C equivalent to the pitch spacing of the chain should be provided between the sprocket and the end of the wearstrip. In addition, the end of the driven-side wearstrip should be rounded or chamfered to prevent the chain from snagging or catching on the wearstrip.

4. Location of Sprockets and Wearstrips

See illustration below.



$$H = \frac{DP}{2} - h2$$

Backflex Radius

Chain type	Backflex radius R
WT1907-K	90
WT3827-K	50
WT3835-K	40
WT5707-K	70
WT3835G-M325	40

2-2. Guide Clearance

Leave a clearance between the chain and the wearstrip (guide clearance) as indicated below to allow for thermal expansion.
Conveyor guide width (G) = chain width (X)
+ guide clearance (Gc)

Guide Clearance Gc (mm)

Chain width mm \ Temperature °C	-20 to 40	40 to 60	60 to 80
300 or less	5.0	6.0	7.0
300 to 500	6.0	7.0	9.0
500 to 1,000	8.0	11.0	15.0
1,000 to 1,500	11.0	15.0	21.0
1,500 to 2,000	14.0	20.0	28.0
2,000 to 2,500	17.0	24.0	34.0
2,500 to 3,000	19.0	27.0	40.0

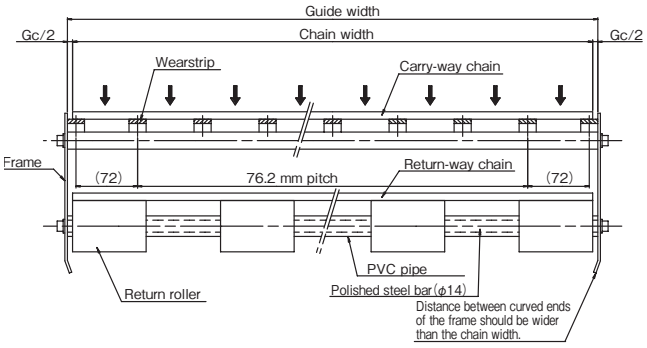
Reference: Coefficient of linear expansion of polyacetal chain: 15×10^{-5}/°C

2-3. Example of Wearstrip Installation (at Ambient Temperature)

2-3-1. Wide Types (without Float-Prevention Tabs)

Wearstrips should be located at equal intervals alternating with sprockets. Wearstrip spacing A is 76.2mm for WT1907 and WT3835 and 152.4mm for WT3827 and WT5707.

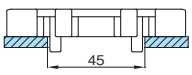
Example (WT3835-K)



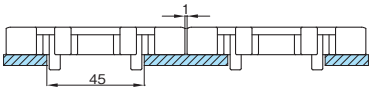
2-3-2. Fixed-Width Types (WT3835G-M325)

Refer to the figure below for guide clearance for chains with guides. Leave a clearance of around 1mm between chains when used in multi-strand conveyors.

Single strand



Multi-strand



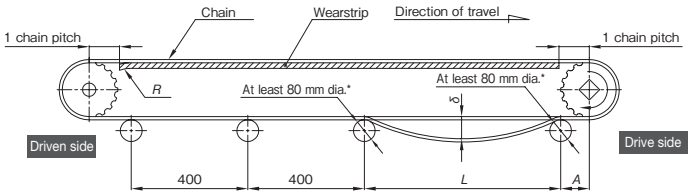
2-4. Conveyor Layout

There are two methods of supporting the return way: the return roller system, and the wearstrip system. Examples are shown below.

Precautions:
1. Pay particular attention to the ends when connecting conveyors using GTO chain.
2. The infeed section of the return wearstrip should be made with a large radius of at least R40.
3. Cut the chain so that the catenary section will have an appropriate amount of slack to compensate for expansion and contraction caused by temperature changes. A tensioner or similar device should be used to adjust the chain take-up.

2-4-1. Support System Using Return Rollers

(Conveyor side view)

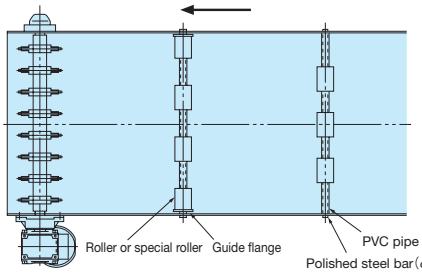


Slack (δ) =50 to 100 mm

$A = \frac{\text{Sprocket outside diameter}}{2}$

See page 18 for L dimensions.
*At least 60mm dia. for WT3835

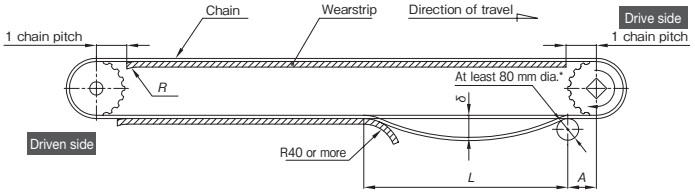
(Conveyor plan view)



The center distance of the rollers (in the direction of the conveyor width) should be adjusted according to the width of the chain to be used.

2-4-2. Support System Using Wearstrips

(Conveyor plan view)



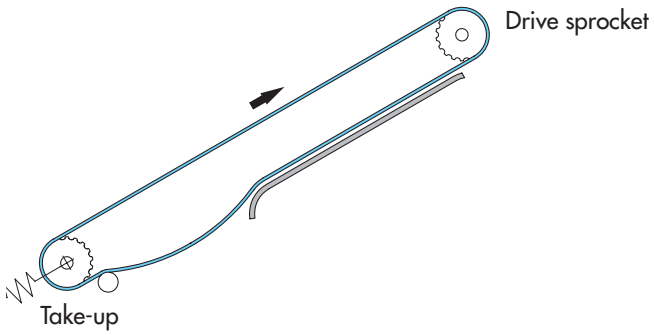
Slack (δ) =50 to 100 mm

$A = \frac{\text{Sprocket outside diameter}}{2}$

See page 18 for L dimensions.
*At least 60mm dia. for WT3835

2-4-3. Take-Up for Inclined Conveyors

With inclined conveyors, the chain's own weight can cause it to come off the driven sprocket. Therefore, installing a take-up device is recommended.

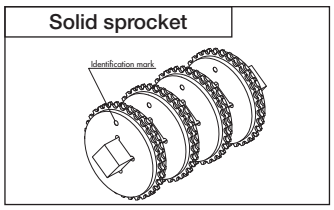


Handling Sprockets

In general, square shafts are recommended for the drive and driven shafts used with plastic modular chain, except for fixed-width chains. Because changes in temperature will cause the chain to expand and contract, sprockets must be mounted so that they are free to move laterally across the width. However, to prevent meandering (snaking) of the chain, one (or two) sprocket(s) should be locked in position in the center of both the drive and driven shafts using setscrews or set-collars and hexagonal socket head cap screws. When installing the sprockets on the square shaft, the inscribed markings or identification marks should be used to orient the sprockets so that they all face the same direction and to keep the position of the teeth aligned.

■ Phase Matching of Sprockets

Install the sprockets on the shaft in such a manner that the direction and the position of all the inscribed markings or identification marks on the sprockets are aligned.



■ Chain Expansion/Contraction

Plastic modular chain is made of polymer resin, and will expand and contract with changes in temperature. A rough estimate for linear chain expansion is 15×10^{-5} (/°C) using 20°C as the reference temperature. The expansion per nominal width (ΔW) is found using the following formula:

ΔW = chain nominal width × (operating ambient temperature − 20) $\times15\times10^{-5}$

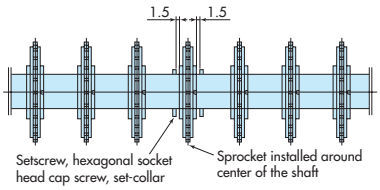
(Example)

For K60 chain (1,524mm wide) used in an environment where the temperature rises from 20°C to 60°C:

$\Delta W=1524\times (60-20)\times15\times10^{-5}=9.1$mm

■ Locking Sprockets

The sprockets and the shaft are loosely fitted in order to absorb differences in thermal expansion between the chain and the conveyor and also installation errors of the chain and the sprockets. However, a setscrew, a hexagonal socket head cap screw, or a set-collar should be mounted on each side of a sprocket installed around the center with about 0.5mm clearance with the sprocket in order to prevent winding motion in the chain.



■ Chain Installation

Wind the chain onto the sprockets installed at the given intervals (see page 18).

> If the sprockets are installed at the wrong interval, the chain may run over the sprocket and break. Make certain of the center distance between the sprockets.

Handling Plastic Modular Chain

■ Disconnecting the WT1907

1) Insert a small flathead screwdriver or similar tool between the chain and the plug-clip on the side of the chain.

2) Using the screwdriver as a lever, pry out and remove the plug-clip from the base chain. Work carefully so that the plug-clip does not pop out and fly off.

3) Use a threaded head screwdriver and screw it into the center hole (1.0mm dia.) of the pin and pull out the pin to disconnect the chain.

■ Reconnecting the WT1907

1) When reconnecting the links of a chain, bring the ends of the two chains together, interlace the links, and insert the connecting pin from one side.

2) Then re-insert the plug-clip to cover the insertion area. At this point, check the orientation of the plug-clip (make sure that the protrusion is going into the pin hole), and seat the plug-clip by pushing in until you hear it click into place.

3) Check that the plug-clip is properly installed.

Note: When reconnecting chain links, be sure to use the pins provided or special pins.

■ Disconnecting the WT3827/3835/5707

1) Insert a small flathead screwdriver or similar tool into the hole in the stopper on the side of the chain.

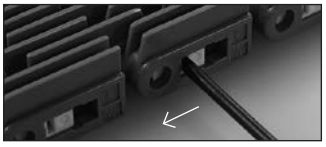
2) Push the screwdriver in the direction of the arrow to slide the stopper to the side.

3) Use a threaded head screwdriver and screw it into the center hole (1.0mm dia.) of the pin and pull out the pin to disconnect the chain.

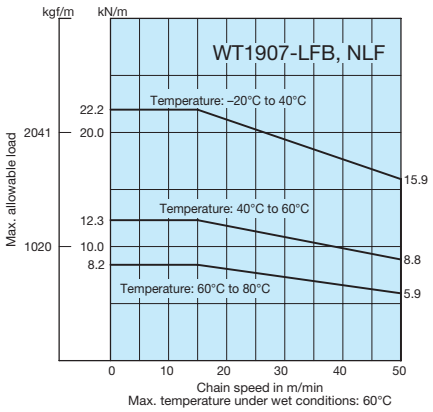
■ Reconnecting the WT3827/3835/5707

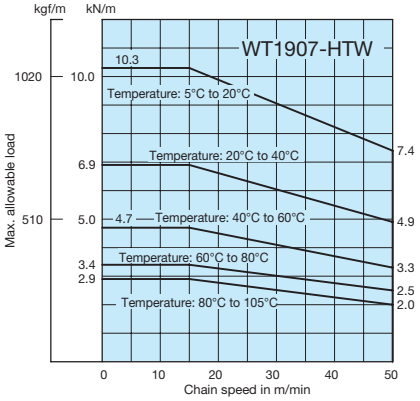
1) When reconnecting the links of a chain, bring the ends of the two chains together, interlace the links, and insert the connecting pin from one side.

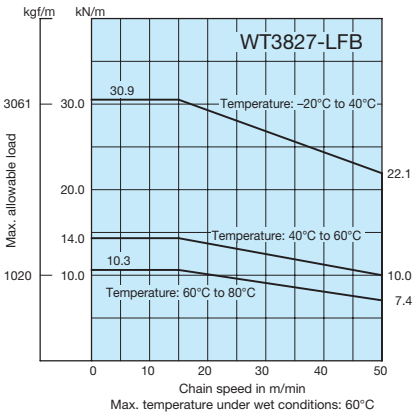
2) Slide the stopper to the side to cover the insertion area.

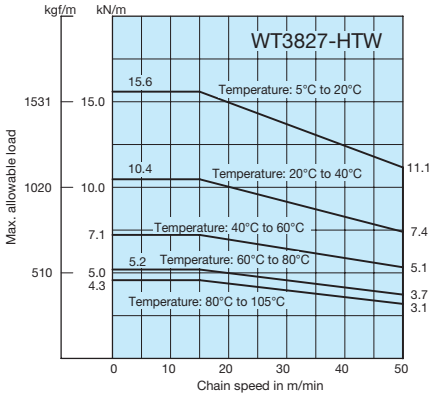


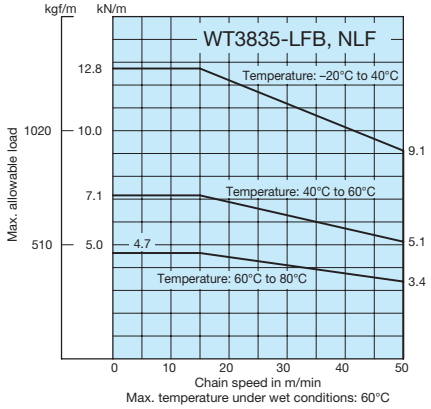
4. Allowable Load Graphs

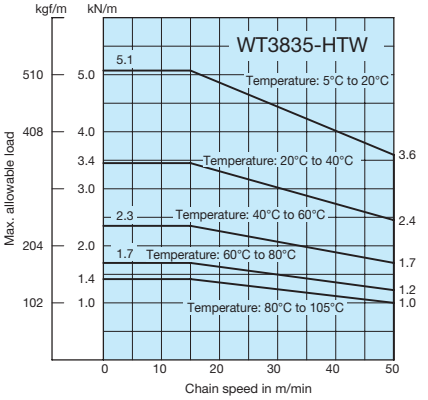


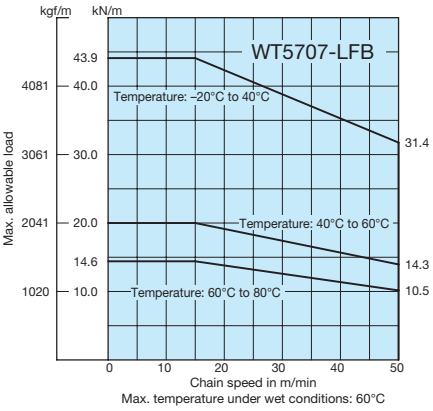


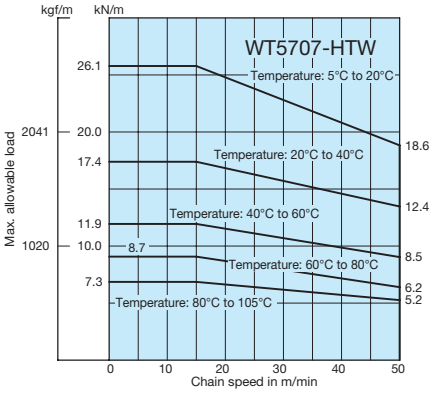


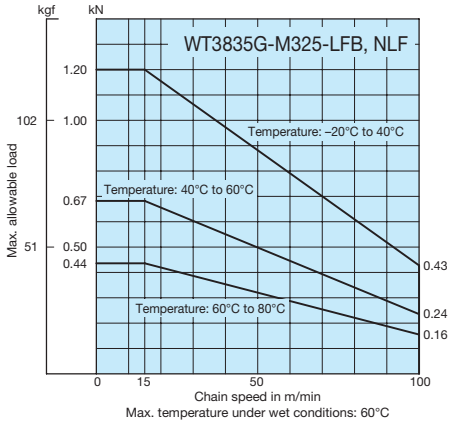


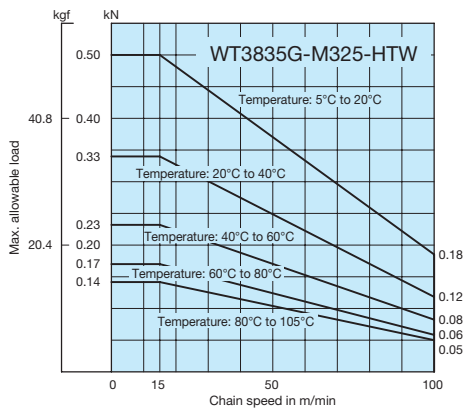












For Your Safety When Using the Chain

Warning

To avoid danger, observe the following rules.

General

- Do not use chain or chain accessories for any purpose other than their originally intended use.
- Never perform additional work on chain (including machining, grinding, annealing, cleaning with acids or alkalis, electroplating, or welding or cutting with a torch which will cause heat effects). These processes may cause the chain to break during operation, leading to a risk of severe injury.
- When replacing a worn or damaged part, do not replace just the worn or damaged part. Replace all parts with new parts. The chain may break during operation, leading to a risk of severe injury.
- When using chain in a lifting device, set up a safety barrier and do not allow anyone to go under the equipment. Also, when jigs or tools are connected to the edges of the chain, be sure to adequately lubricate the connecting parts. Detachment of the chain or unexpected chain breakage may lead to severe injury from flying or falling parts.
- Strictly observe the general guidelines listed in Section 1, Chapter 1, 2nd Edition of the Japanese Occupational Safety and Health Regulations as well as rules and regulations concerning occupational safety and health in your region/country. Always install safety equipment (safety covers, etc.) on chain and sprockets. There is a risk of severe injury from conveyed items or the chain as a result of becoming caught in the chain or from unexpected chain breakage.
- Chain and sprockets must be inspected on a regular basis. Damaged parts, or parts that have reached the end of their service life, should be replaced with new parts. There is a risk not only of the chain not functioning properly, but also of severe injury from chain breakage or abnormal operation. Perform the work as instructed in the manual, catalog or other documentation that was provided with the product.

During Installation

- Before starting work, turn off the power switch and take measures to prevent it from being turned on accidentally. There is a risk of severe injury from becoming caught in the chain.
- Always wear safety goggles when using hammers while working to connect chains. There is a risk of severe injury from flying metal fragments or splinters.
- Secure the chain and parts to prevent them from moving freely. There is a risk of severe injury from chain components moving under their own weight, or from falling and body parts becoming pinched in the chain.

Caution

To prevent accidents, observe the following rules.

- Understand the structure and specifications of the chain that you are handling.
- Before installing chain, inspect it to make sure no damage occurred during delivery.
- Inspect and maintain chain and sprockets at regular intervals.
- Chain strength varies by manufacturer. Only Tsubaki products should be used when chain is selected using Tsubaki catalogs.
- Start and stop the chain gradually, and do not subject it to sudden impact.
- Do not apply initial tension to the chain.
- Consult a Tsubaki representative before using the chain in cases where it will be in contact with special liquids or used under special environments.
- When disconnecting chains that have engineering plastic pins, do not reuse a pin once removed since it may not engage properly or it may even come loose.
- When using chains with engineering plastic pins under wet conditions, make sure that the temperature does not exceed 60°C.
- The link material for ULF ultra low friction series contains silicone-based lubricant. Therefore, do not use this chain for printing processes, or in cases where silicone will have a harmful effect.
- The TP-IR18/IR60/RR55 (return rollers), PR520-M (M plastic rail), and SJ-CNO are dry conveyor parts (lube-free, no water adhesion). DIA, MPD, MF, HS, and KV150 chains are specifically for dry environments. Do not use these on a conveyor under wet conditions (environments where they will come into contact with water, soapy water or other liquids), since this may cause the chain to malfunction. Bearing corner discs are also designed for use in dry environments.
- Using a plastic top chain in a wet environment will decrease the resin's self-lubricating ability and thus shorten the life of the chain. Since this is especially true with stainless steel pins, we recommend using plastic pins or KV series chain.
- The operating temperature range for accessories, sprockets, and idler wheels made of UHMW-PE (ultra-high molecular weight polyethylene) is –20°C to 60°C. Also, do not use in environments where such components will be exposed to steam.
- Toxic gases may be generated if the Chemical Resistant series (including Super Chemical Resistant) is exposed directly to open flame, or to temperatures above 150°C. Do not expose to excessive heat or to open flame.
- Plastic chain is flammable. Do not use at temperatures above the maximum allowable temperature or use near open flame. Combustion may generate dangerous toxic gases.

Warranty

1. LIMITED WARRANTY

Products manufactured by Seller: (a) conform to the design and specifications, if any, expressly agreed to in writing by Seller; and (b) are free of defects in workmanship and materials at the time of shipment. The warranties set forth in the preceding sentence are exclusive of all other warranties, express or implied, and extend only to Buyer and to no other person. ALL WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY EXCLUDED.

2. NON-RELIANCE

Buyer is not relying upon any advice, representations or warranties (except the warranties expressly set forth above) of Seller, or upon Seller's skill or judgment regarding the Seller's products.
Buyer is solely responsible for the design and specifications of the products, including without limitation, the determination of suitability for Buyer's application of the products.

3. CLAIMS

(a) Any claim relating to quantity or type shall be made to Seller in writing within 7 days after receipt of the products; any such claim made thereafter shall be barred.
(b) Any claim under the above-stated Limited Warranty shall be made to Seller in writing within three (3) months after receipt of the products; any such claim made thereafter shall be barred.
(c) Seller's liability for breach of warranty or otherwise is limited to repair or replacement, at Seller's option, of non-conforming or defective products. Buyer waives all other remedies, including, but not limited to, all rights to consequential, special or incidental damages, including, but not limited to, damages resulting from personal injury, death or damage to or loss of use of property.
(d) Repair, alteration, neglect or misuse of the products shall void all applicable warranties.

4. INDEMNIFICATION

Buyer will indemnify, defend and hold Seller harmless from all loss, liability, damage and expense, including attorneys' fees, arising out of any claim (a) for infringement of any patent, trademark, copyright, misappropriation of trade secrets, unfair competition or similar charge by any products supplied by Seller in accordance with the design or specifications furnished by Buyer, or (b) arising out of or connected with the products or any items into which the products are incorporated, including, but not limited to, any claim for product liability (whether or not based on negligence or strict liability of Seller), breach of warranty, breach of contract or otherwise.

5. ENTIRE AGREEMENT

These terms and conditions constitute the entire agreement between Buyer and Seller and supersede any inconsistent terms and conditions, whether contained in Buyer's purchase order or otherwise, and whether made heretofore or hereafter.
No statement or writing subsequent to the date hereof which purports to modify or add to the terms and conditions hereof shall be binding unless consented to in writing, which makes specific reference hereto, and which has been signed by the party against which enforcement thereof is sought. Seller reserves the right to change these terms and conditions without prior notice.

TSUBAKIMOTO CHAIN CO.

TSUBAKI YAMAKYU CHAIN CO.

Headquarters
Nakanoshima Mitsui Building
3-3-3 Nakanoshima, Kita-ku
Osaka 530-0005, Japan
Phone : +81-6-6441-0011
Facsimile : +81-6-6441-0489
Internet:
http://tsubakimoto.com/

Top Chain Products Department
2-15-16 Takanawa, Minato-ku
Tokyo 108-0074, Japan
Phone : +81-3-3445-8512
Facsimile : +81-3-3445-8636
Internet:
http://tsubaki-yamakyu.co.jp/

Global Market Development Department
2-15-16 Takanawa, Minato-ku
Tokyo 108-0074, Japan
Phone : +81-3-3445-8518
Facsimile : +81-3-3445-4330

Global Associated Partners:

NORTH and SOUTH AMERICA

U.S. TSUBAKI POWER TRANSMISSION, LLC
301 E. Marquardt Drive, Wheeling, IL 60090-6497, U.S.A.
Phone : +1-847-459-9500
Facsimile : +1-847-459-9515

TSUBAKI of CANADA LIMITED
1630 Drew Road, Mississauga, Ontario L5S 1J6, Canada
Phone : +1-905-676-0400
Facsimile : +1-905-676-0904

TSUBAKI BRASIL EQUIPAMENTOS INDUSTRIAIS LTDA.
Rua Pamplona, 1018 - CJ. 73/74, Jardim Paulista
CEP 01405-001, São Paulo – S.P. Brazil
Phone : +55-11-3253-5656
Facsimile : +55-11-3253-3384

EUROPE

TSUBAKIMOTO EUROPE B.V.
Aventurijn 1200, 3316 LB Dordrecht, The Netherlands
Phone : +31-78-6204000
Facsimile : +31-78-6204001

TSUBAKIMOTO U.K. LTD.
Osier Drive, Sherwood Park, Annesley, Nottingham
NG15 0DX U.K.
Phone : +44-1623-688-700
Facsimile : +44-1623-688-789

TSUBAKI DEUTSCHLAND GmbH
ASTO Park Oberpfaffenhofen, Friedrichshafener Straße 1
D-82205 Gilching, Germany
Phone : +49-8105-7307100
Facsimile : +49-8105-7307101

TSUBAKI KABELSCHLEPP (RUSSIA)
Prospekt Andropova 18 Building 6 115432 Moscow, Russia
Phone : +7-499-4180212
Facsimile : +7-499-4180212

ASIA and OCEANIA

TAIWAN TSUBAKIMOTO CO.
No. 33, Lane 17, Zihciang North Road
Gueishan Township, Taoyuan County, Taiwan
Phone : +886-33-293827/8/9
Facsimile : +886-33-293065

TSUBAKIMOTO CHAIN TRADING (SHANGHAI) CO., LTD.
Room 601, Urban City Centre, 45 Nanchang Road
Huangpu District, Shanghai 200020, People's Republic of China
Phone : +86-21-5396-6651/2
Facsimile : +86-21-5396-6628

TSUBAKIMOTO CHAIN CO. KOREA OFFICE
#1401, West Wing, Hanshin Intervalley 24, 707-34
Yeoksam 2(i)-dong, Gangnamu-gu, Seoul, Korea
Phone : +82-2-2183-0311
Facsimile : +82-2-2183-0314

TSUBAKIMOTO SINGAPORE PTE. LTD.
25 Gul Lane, Jurong, Singapore 629419
Phone : +65-6861-0422/3/4
Facsimile : +65-6861-7035

TSUBAKIMOTO SINGAPORE PTE. LTD.
VIETNAM REPRESENTATIVE OFFICE
8F H&H Building, 209 Hoang Van Thu
Phu Nhuan District, Ho Chi Minh City, Vietnam
Phone : +84-8-3999-0131 or 0132
Facsimile : +84-8-3999-0130

TSUBAKIMOTO (THAILAND) CO., LTD.
388 Exchange Tower, 19th Floor, Unit 1902
Sukhumvit Road, Klongtoey, Bangkok 10110, Thailand
Phone : +66-2-262-0667
Facsimile : +66-2-262-0670

TSUBAKI INDIA POWER TRANSMISSION PTE. LTD.
Chandrika Chambers No.4, 3rd Floor, Anthony Street,
Royapettah, Chennai-600014, Tamil Nadu, India
Phone : +91-44-4231-5251
Facsimile : +91-44-4231-5253

PT. TSUBAKI INDONESIA TRADING
Wisma 46 - Kota BNI, 24th Floor, Suite 24.15
Jl. Jend. Sudirman, Kav. 1 Jakarta 10220, Indonesia
Phone : +62-21-571-4230/1
Facsimile : +62-21-571-4232

TSUBAKI POWER TRANSMISSION (MALAYSIA) SDN. BHD.
No. 22, Jalan Astaka U8/84A, Bukit Jelutong Industrial Park,
Section U8, 40150 Shah Alam, Selangor, Malaysia
Phone : +60-3-7859-8585
Facsimile : +60-3-7859-7575

TSUBAKI AUSTRALIA PTY. LTD.
Unit E, 95-101 Silverwater Road
Silverwater, N.S.W. 2128, Australia
Phone : +61-2-9704-2500
Facsimile : +61-2-9704-2550

TSUBAKI AUSTRALIA PTY LIMITED
NEW ZEALAND BRANCH
2 Kalmia Street, Ellerslie, Auckland 1051, New Zealand
Phone : +64-275-082-726
Facsimile :

Distributed by:

Catalog No. ME13Y2 ©2013/7 TSUBAKIMOTO CHAIN CO. Printed in Japan M1,000