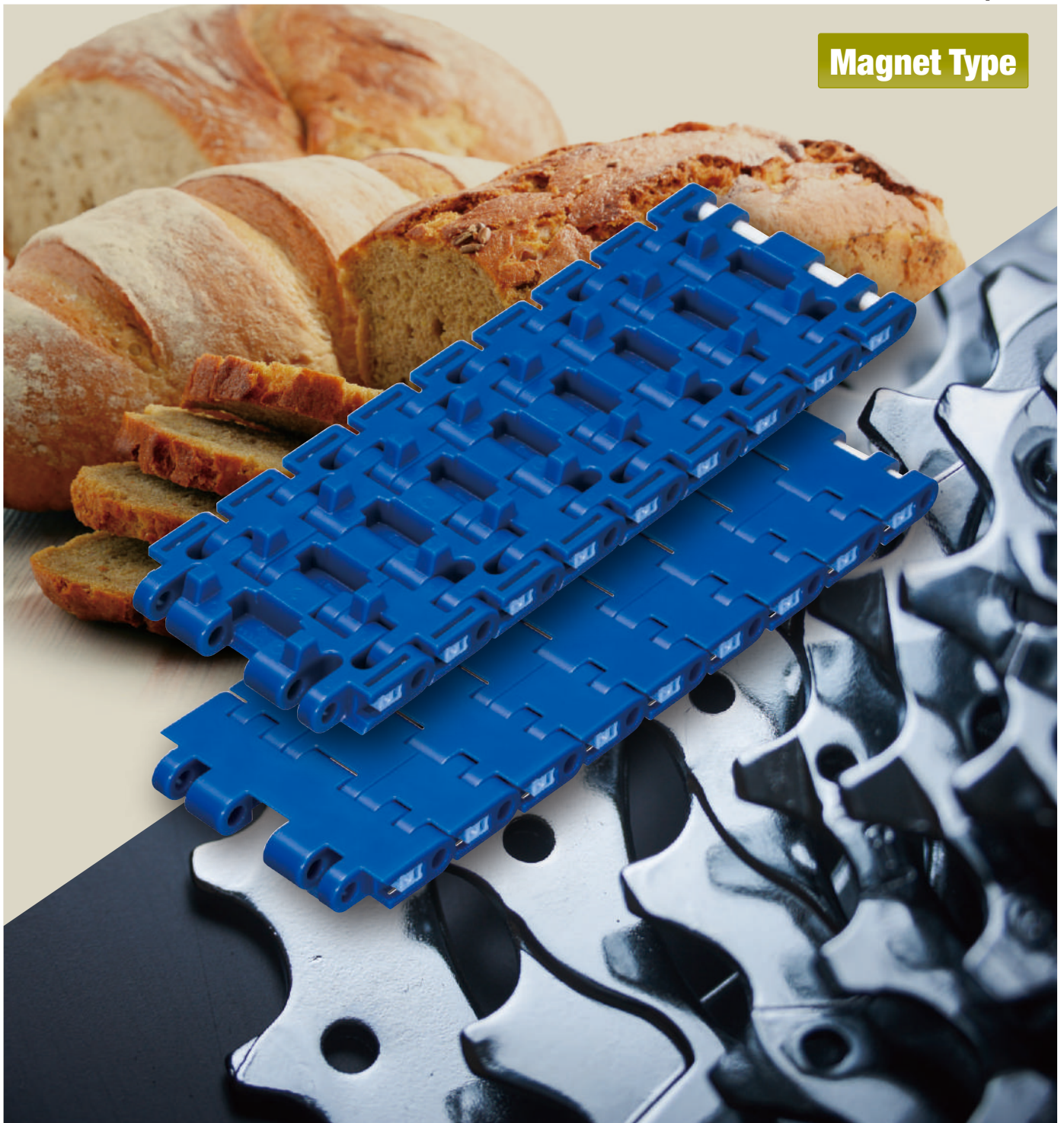


TSUBAKI PLASTIC MODULAR CHAIN WTM2535G-M

Top Chains

Magnet Type



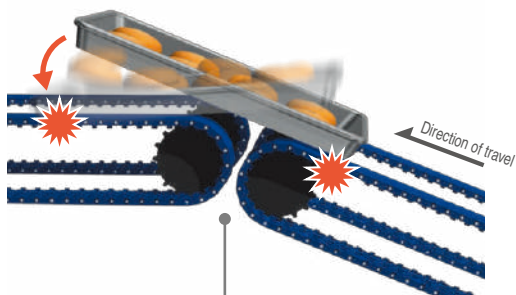
A new addition to the Plastic Modular Chain lineup: Low magnetic type

WTM2535G-M can transport magnetic products vertically.

Features 1 Reduces damage to products and chain

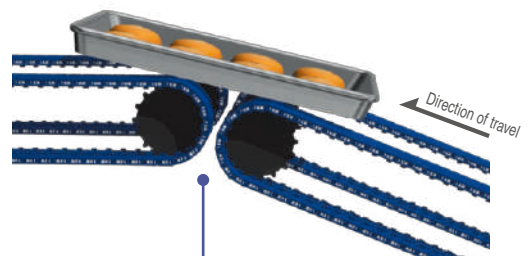
Low magnetic force reduces the impact on the conveyed products when they leave the chain, which minimizes damage to the products and the chain.

If the magnet is too strong...



If the magnetic force is too strong, the tray does not leave the chain easily, which causes the chain of the inclined conveyor to rise up. It also causes strong impact to the products and the chains.

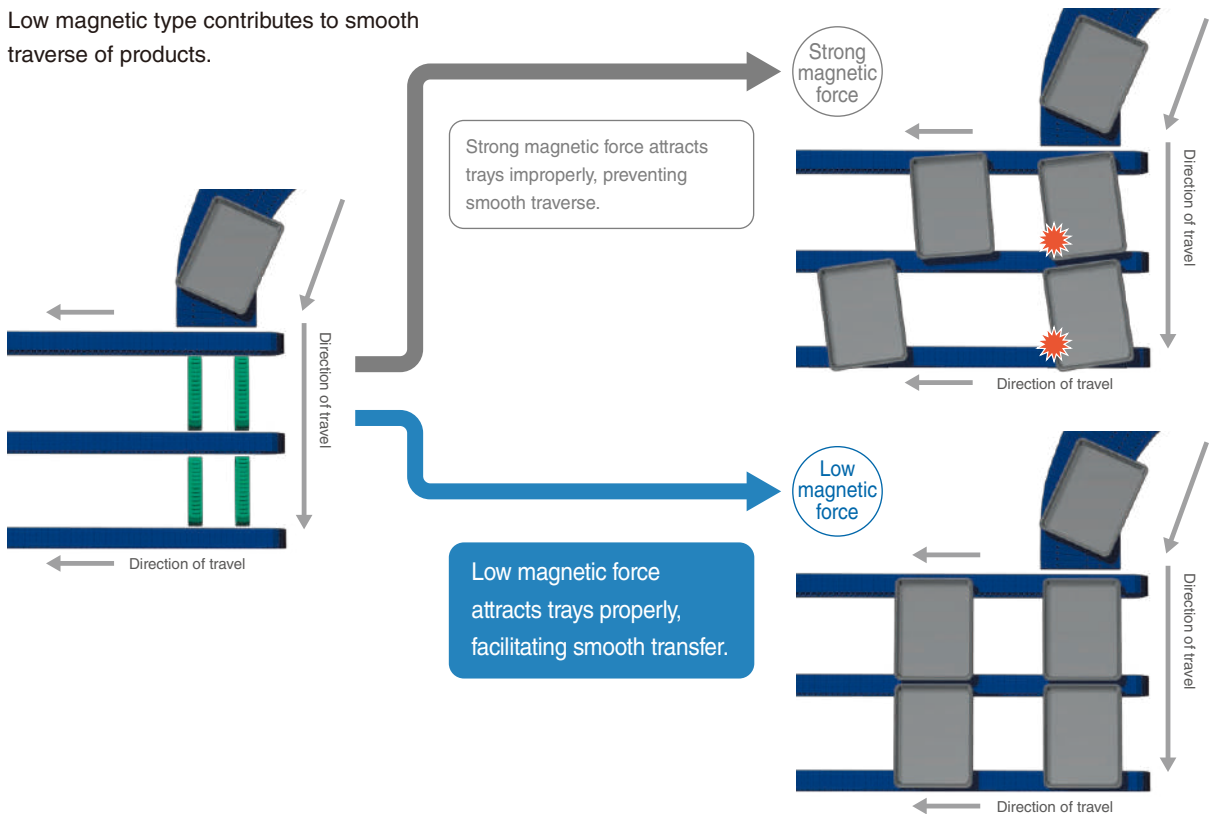
By using WTM2535G-M

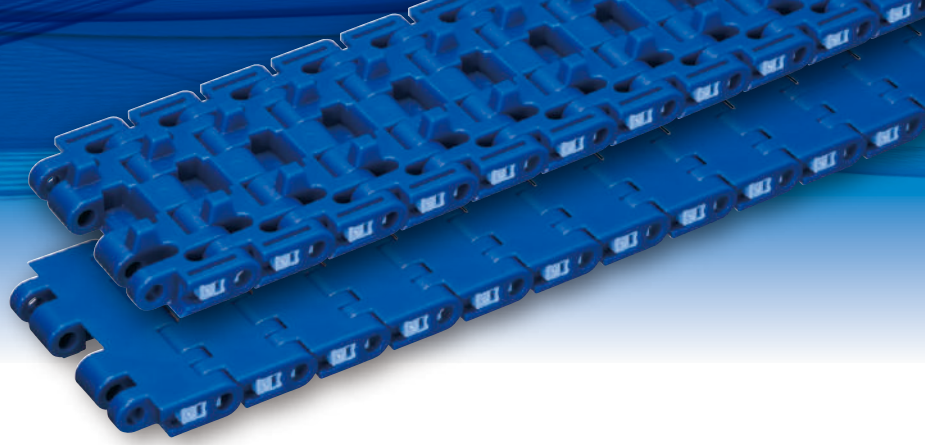


Lower magnetic force causes minimal impact when transferring trays between conveyors, reducing the risk of damage to the tray and the chain.

Features 2 Smooth transfer

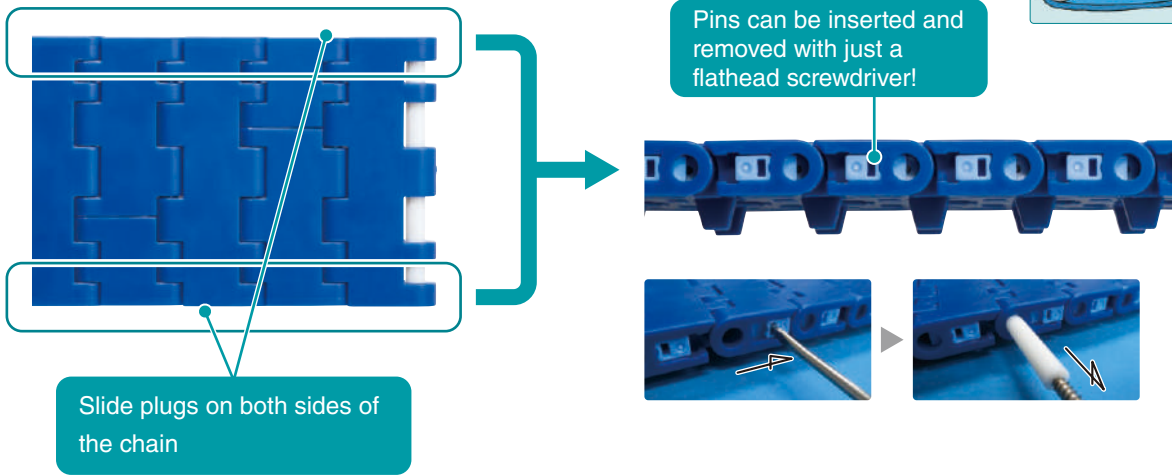
Low magnetic type contributes to smooth traverse of products.





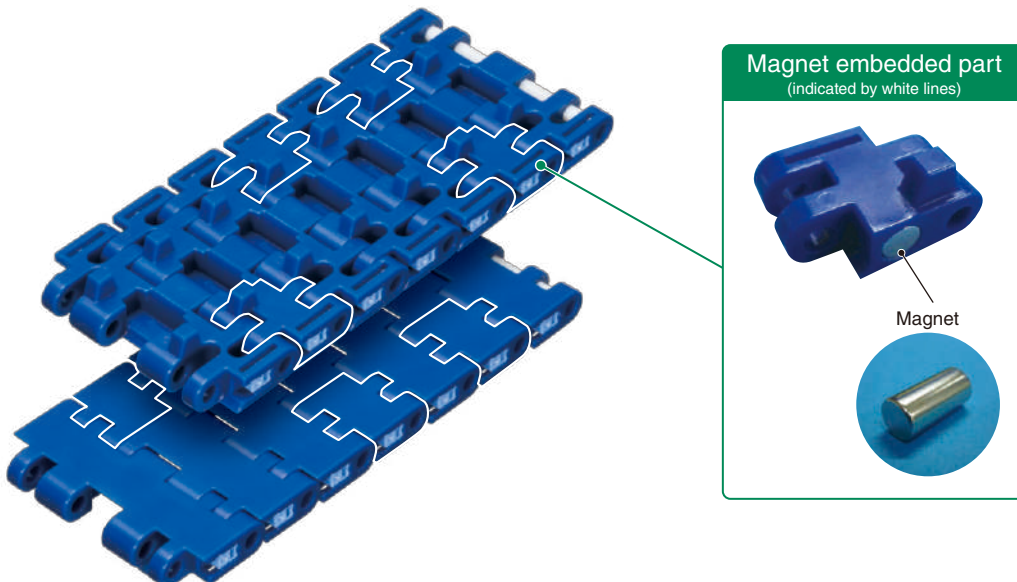
Features **3** Slide plugs for easy maintenance

WTM2535G-M adopts slide plugs for preventing pins from falling off on both sides of the chains. Pins can be inserted or removed from both sides. This feature contributes to easy maintenance.



Features **4** Cylindrical design prevents the magnets from flying out

WTM2535G-M adopts cylindrical shape of magnet to prevent magnet from flying out when chain wears. Note: This feature does not guarantee safe use of worn chain with exposed magnets.

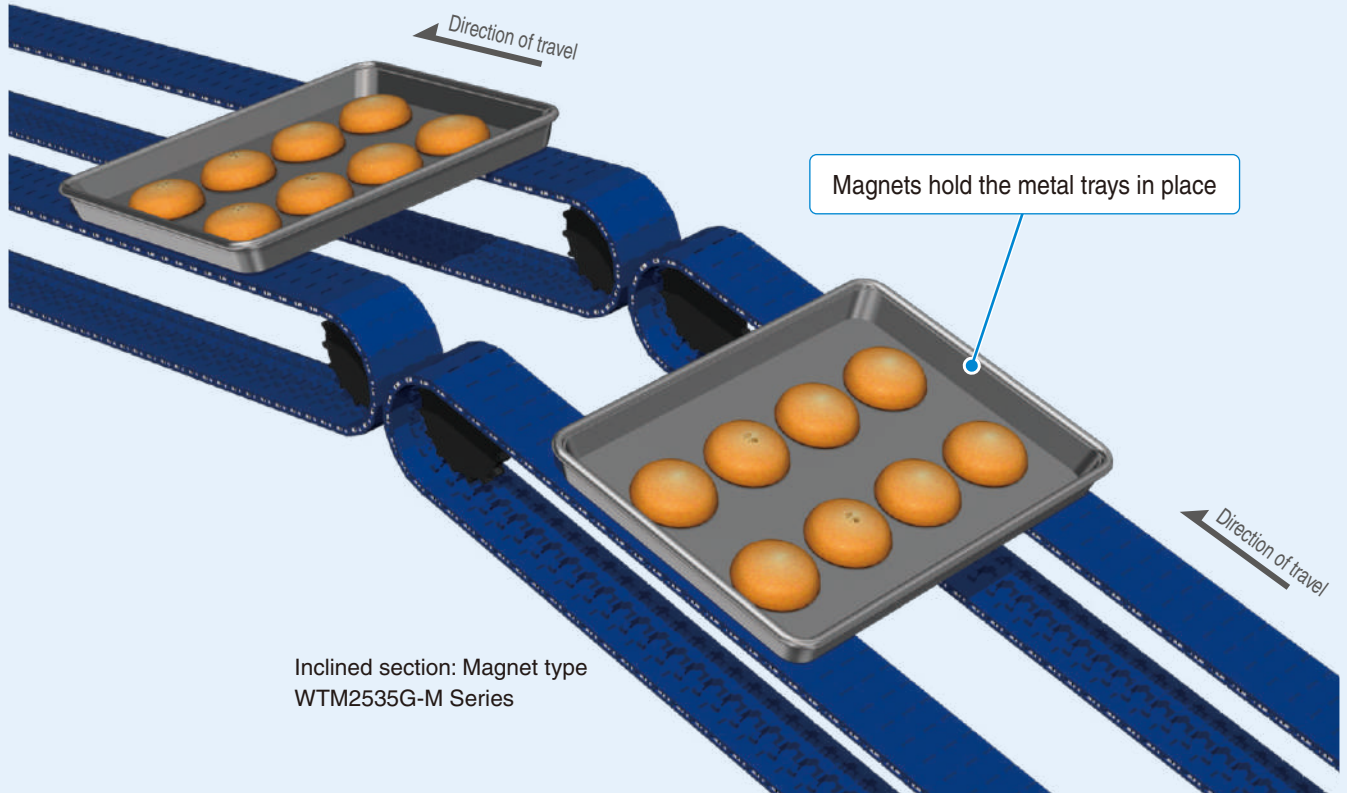


* WTM2535G-M has approximately 60% of magnetic force compared to BTM8H, strong magnetic type.

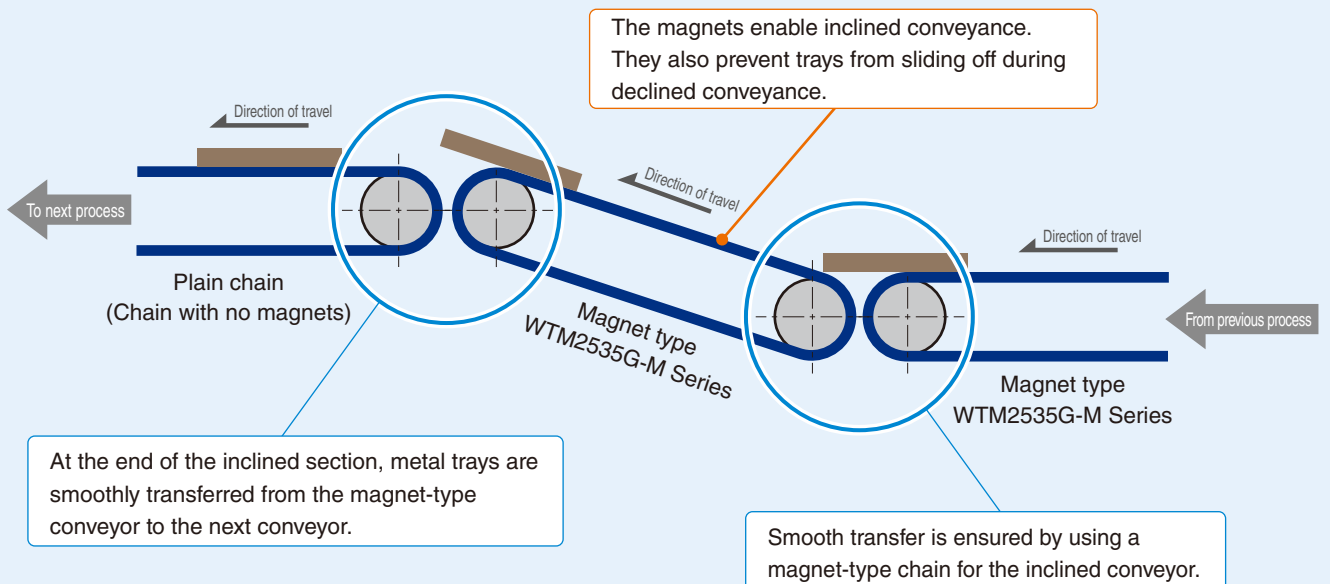
Applications



Vertical conveyance of trays



Conveyor image



Industry Icons

Tsubaki recommends application in the following industries for your reference.



Bakery/
Food

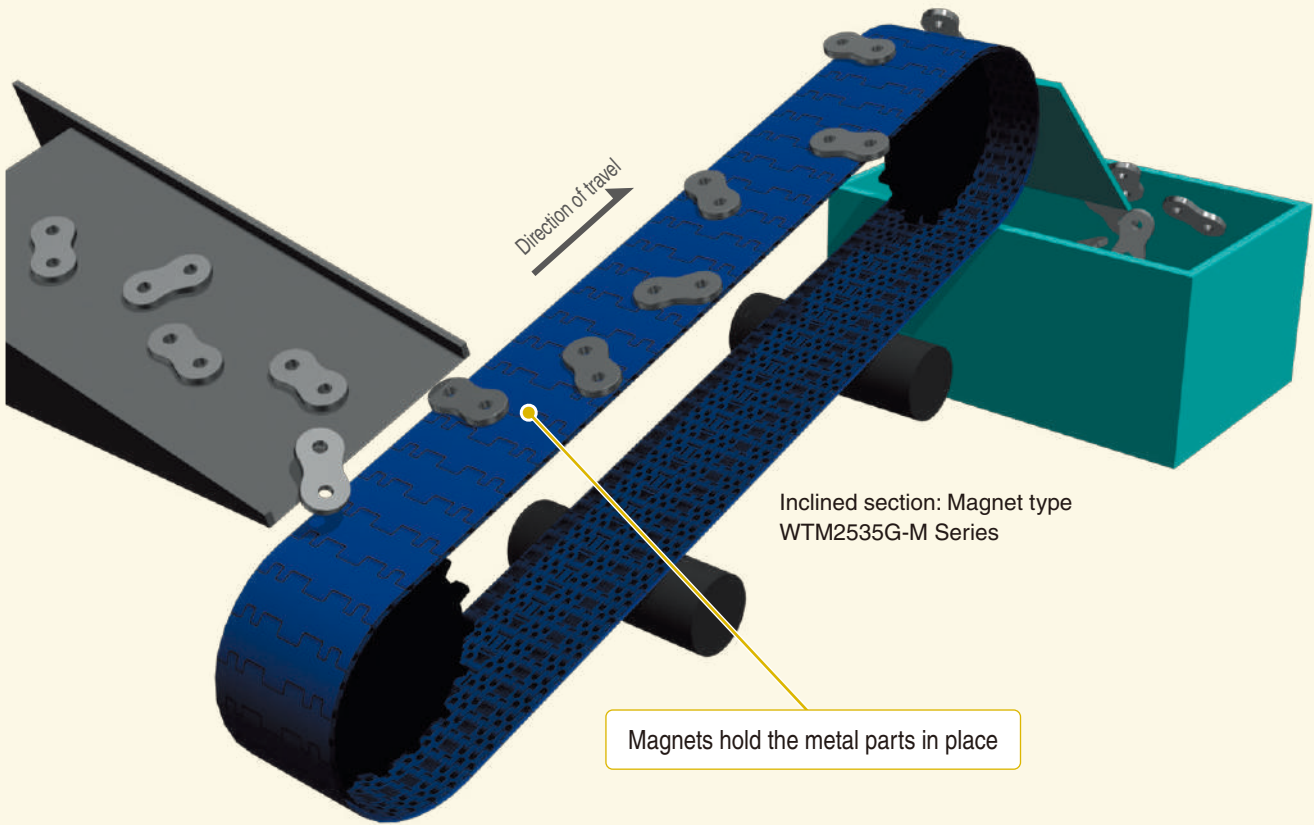


Machine part
manufacturing

* Plastic Modular Chains may not be applicable for certain speeds, items conveyed, mass, environmental conditions, purpose, and other requirements. Contact a Tsubaki representative for further information.

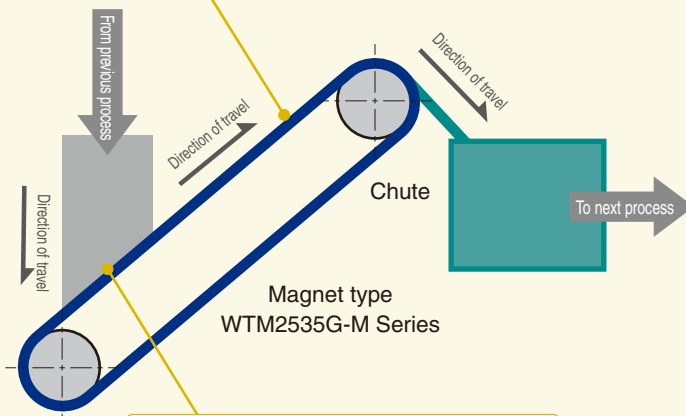


Vertical conveyance of machined (metal) parts



Conveyor image

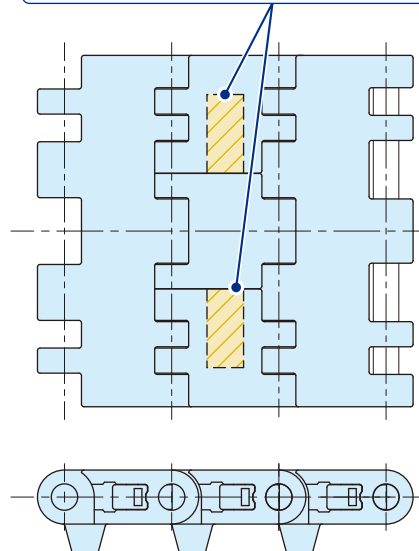
Not having to use flights prevents breakage they can cause on contact with parts.



No need to adjust speed and/or cycle time to transfer products.

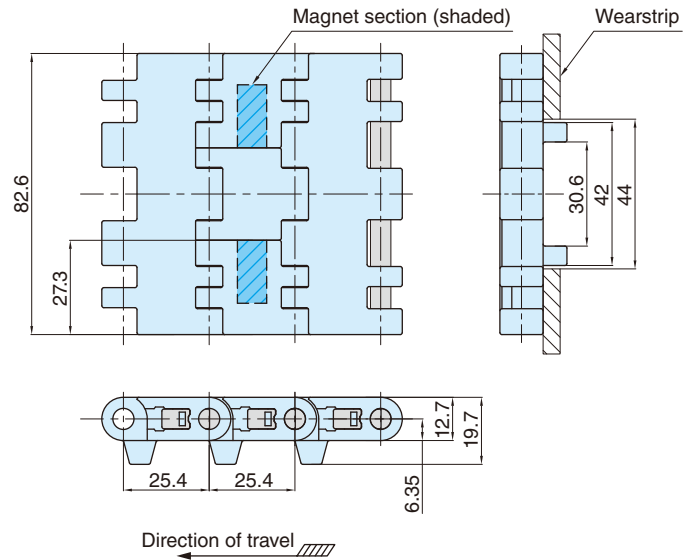
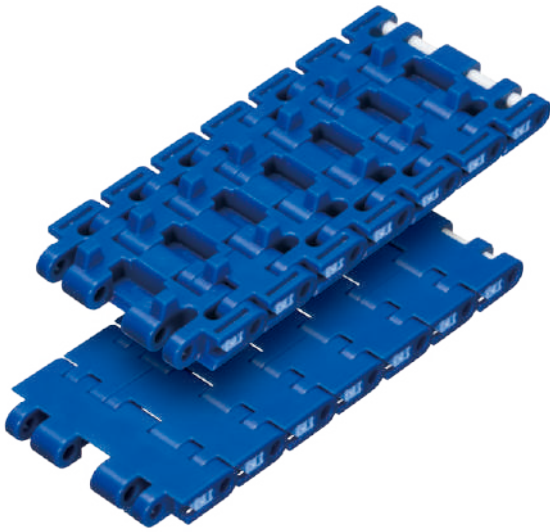
Chain shape (Reference)

Shaded sections contain magnets.
Magnets can be placed at desired intervals and arrangements.



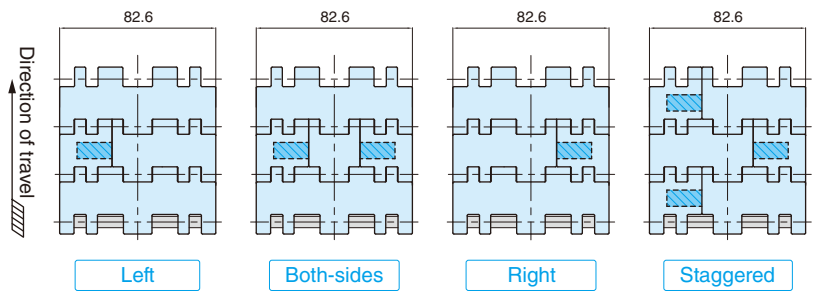
WTM2535G-M Magnet Type

Chain



Magnet Configuration

Magnet can be replaced in your preferred arrangement and on either right, left, both sides or staggered. Specify magnet arrangement and interval.



* Magnets cannot be incorporated into the chain on both sides in every link.

| Chain Pitch mm | Open Area % | Backflex Radius mm | Number of Links Per Unit |
|-------------------|----------------|-----------------------|-----------------------------|
| 25.4 | 1 | 20 | 120 |

| Chain Type | Chain Material | Material Mark | Link Color | Max. Allowable Load kN {kgf} | Chain Mass kg/m | Operating Temperature Range °C | Max. Allowable Speed m/min | Pin Material |
|---------------|----------------|---------------|------------|---------------------------------|---------------------------|-----------------------------------|-------------------------------|-----------------------------|
| WTM2535G-M325 | standard | B | Blue | 1.47 {150} | 1.1 <small>Note 2</small> | -20 to 80°C -4 to 176°F | 50 | Special engineering plastic |
| | | G | Gray | | | | | |

- Note 1. Made-to-order product. Contact a Tsubaki representative for other chain material.
 2. Chain mass does not include the mass of the magnets. Add 0.008 kg for each magnet.
 3. Dry use only. Not suitable for conditions where the chain can be exposed to water or steam. Magnets are vulnerable to heat. Do not store or use these chains in conditions where the temperature may exceed 80°C.
 4. Color of plug is blue. (material: polypropylene)
 5. Chain without magnets is not available.

Model numbering

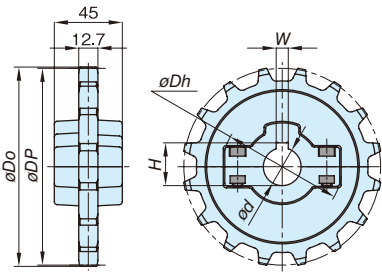
| Chain Type | Link Shape | Chain Pitch | Link Shape | Tab Guide Attachments | Mold to Width | Chain Width | Material Mark | Special Configuration |
|------------|----------------|-------------|----------------|-------------------------------|---------------|-------------|---------------|-----------------------|
| WT | M | 25 | 35 | G | - M | 325 | B | - TK |
| | M: Magnet type | 25: 25.4 mm | 5: Closed type | G: With tab guide attachments | | Note 2 | Note 3 | Note 4 |

- Note 1. Do not leave space between letters and symbols.
 2. 325 = 82.6 mm. Chain width is indicated up to the first decimal place.
 3. Refer to the table above for the Material mark.
 4. Specify the magnet arrangement and interval when ordering.

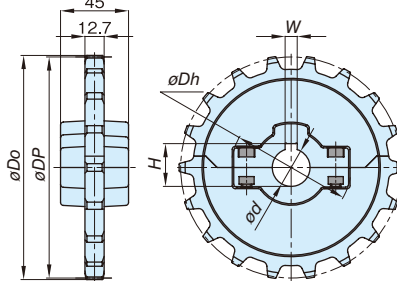
Sprockets

Split Type

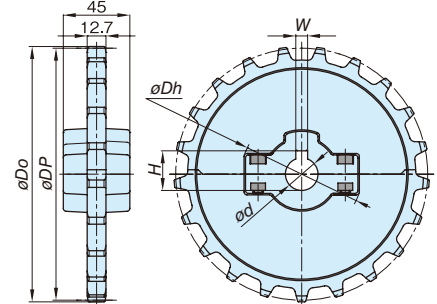
WT-SW2500-16T



WT-SW2500-18T



WT-SW2500-21T

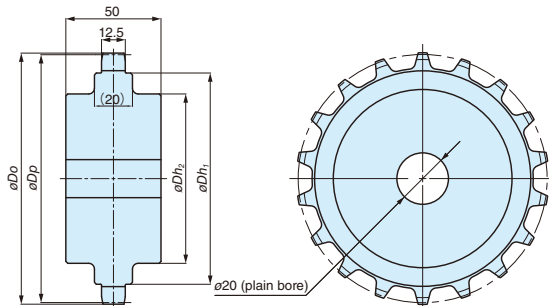


| Tsubaki Model No. | Teeth | Pitch Diameter D_p | Outside Diameter D_o | Bore Shape | Bore Diameter d | Keyway | | Hub Diameter D_h | Approx. Mass kg | Material | | Bolt Tightening Torque N·m {kgf·m} |
|------------------------|-------|----------------------|------------------------|------------|-------------------|--------|------|--------------------|-----------------|------------------------------|-----------------|------------------------------------|
| | | | | | | W | H | | | Body | Bolts/Nuts | |
| WT-SW2500-16T25 | 16 | 130.20 | 131.9 | Round | ø25 | 8 | 28.3 | 82 | 0.26 | Reinforced polyamide (black) | Stainless steel | 5.7 {0.58} |
| WT-SW2500-16T30 | | | | | ø30 | | 33.3 | | 0.25 | | | |
| WT-SW2500-16T35 | | | | | ø35 | 38.3 | 0.24 | | | | | |
| WT-SW2500-16T40 | | | | | ø40 | 43.3 | 0.24 | | | | | |
| WT-SW2500-18T25 | 18 | 146.27 | 148.3 | | ø25 | 8 | 28.3 | | 0.30 | | | |
| WT-SW2500-18T30 | | | | | ø30 | | 33.3 | | 0.29 | | | |
| WT-SW2500-18T35 | | | | | ø35 | 38.3 | 0.28 | | | | | |
| WT-SW2500-18T40 | | | | | ø40 | 43.3 | 0.28 | | | | | |
| WT-SW2500-21T25 | 21 | 170.42 | 172.7 | | ø25 | 8 | 28.3 | | 0.36 | | | |
| WT-SW2500-21T30 | | | | | ø30 | | 33.3 | | 0.35 | | | |
| WT-SW2500-21T35 | | | | | ø35 | 38.3 | 0.34 | | | | | |
| WT-SW2500-21T40 | | | | | ø40 | 43.3 | 0.33 | | | | | |

- Note 1. Tsubaki Model No. in boldface are standard products. Tsubaki Model No. in normal face are made-to-order products.
 2. Operating temperature range: -20 to 80°C (-4 to 176°F).
 3. A split sprocket pair should not be mixed and combined with another pair.
 4. Use a cold rolled steel shaft.

Solid Type

Machined type



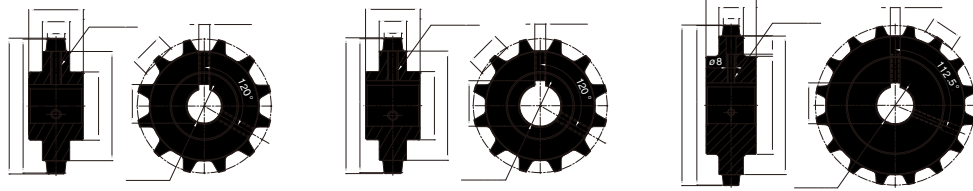
| Tsubaki Model No. | Teeth | Pitch Diameter D_p | Outside Diameter D_o | Hub Diameter | | Bore Shape | Bore Diameter | Material |
|-------------------|-------|----------------------|------------------------|--------------|-----------|--|-----------------|----------|
| | | | | D_{h_1} | D_{h_2} | | | |
| WT-S2500-16T | 16 | 130.20 | 131.9 | 111 | 89 | Bore shape and size are made-to-order. | UHMW-PE (green) | |
| WT-S2500-18T | 18 | 146.27 | 148.3 | 127 | 105 | | | |
| WT-S2500-21T | 21 | 170.42 | 172.7 | 152 | 130 | | | |

- Note 1. Made-to-order product.
 2. Operating temperature range: -20 to 60°C (-4 to 140°F)
 3. The sprockets listed above are all machined.

Sprockets and Idler Wheels

Steel Type

With keyway

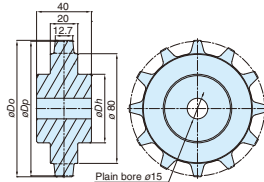


| Tsubaki Model No. | Teeth | Pitch Diameter D_p | Outside Diameter D_o | Bore Shape | Bore Diameter d | Keyway | | Hub Diameter D_h | Approx. Mass kg | Material | | | |
|----------------------|-------|----------------------|------------------------|-------------------|-------------------|--------|------|--------------------|-----------------|--------------|------|----|-----|
| | | | | | | W | H | | | | | | |
| BT8H-12T25-CS | 12 | 98.14 | 99.5 | Round with keyway | $\phi 25$ | 8 | 28.3 | 50 | 1.1 | Carbon steel | | | |
| BT8H-12T30-CS | | | | | | | | | | | 33.3 | 80 | 2.3 |
| BT8H-16T30-CS | | | | | | | | | | | | | |

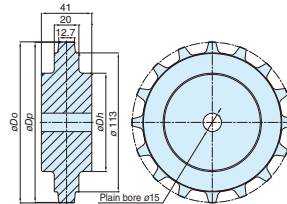
Note 1. Standard products. 2. Teeth of all sprockets above have not been hardened. 3. Set screws are not included.
4. Sprocket with other no. of teeth or material is also available. Contact a Tsubaki representative in details. 5. Use a cold rolled steel shaft.

Plain bore

● BT8H-12T-CS



● BT8H-16T-CS

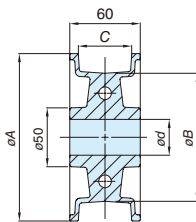


| Tsubaki Model No. | Teeth | Pitch Diameter D_p | Outside Diameter D_o | Bore Diameter (d) | | Hub Diameter D_h | Approx. Mass kg | Material |
|--------------------|-------|----------------------|------------------------|-----------------------|-----------|--------------------|-----------------|-------------------------------------|
| | | | | Plain Bore | Maximum | | | |
| BT8H-12T-CS | 12 | 98.14 | 99.5 | $\phi 15$ | $\phi 30$ | 50 | 1.2 | Carbon steel for machine structures |
| BT8H-16T-CS | 16 | 130.20 | 131.0 | $\phi 15$ | $\phi 50$ | 80 | 2.5 | |

Note 1. Standard products. 2. Teeth of all sprockets above have not been hardened. 3. Set screws are not included.
4. Sprocket with other no. of teeth or material is also available. Contact a Tsubaki representative in details. 5. Use a cold rolled steel shaft.

Idler Wheels

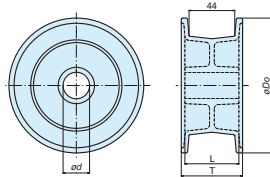
Split type



| Tsubaki Model No. | Effective Teeth of Sprocket Teeth | Dimensions | | | | Approx. Mass kg | Material | | Bolt Tightening Torque N·m (kgf·m) |
|---------------------|-----------------------------------|------------|----------|------|----------|-----------------|--------------------|-----------------|------------------------------------|
| | | ϕA | ϕB | C | ϕd | | Body | Bolts/Nuts | |
| TP-IW1221-25 | 21 | 130.0 | 100 | 45 | 25.3 | 0.4 | Polyacetal (green) | Stainless steel | 9.8 (1) |
| TP-IW1221-30 | | | | | 30.3 | | | | |
| TP-IW1221-40 | | | | | 40.3 | | | | |
| TP-IW1223-30 | 23 | 142.5 | 109 | 43.5 | 30.3 | | | | |
| TP-IW1223-40 | | | | | 40.3 | | | | |
| TP-IW1225-30 | | | | | 25 | | | | |
| TP-IW1225-40 | 40.3 | | | | | | | | |

Note 1. Standard products
2. Operating temperature range: -20 to 80°C (-4 to 176°F)
3. A split sprocket pair should not be mixed and combined with another pair.
4. Use a cold rolled steel shaft.
5. Should not be used under abrasive condition.

Solid type



| Tsubaki Model No. | Effective Teeth of Sprocket Teeth | Outside Diameter D_o | Bore Diameter d | Boss Length L | Width T | Approx. Mass kg | Type | Material | | Bolt Tightening Torque N·m (kgf·m) | |
|------------------------|-----------------------------------|------------------------|-------------------|-----------------|-----------|-----------------|-------|-------------------|------------|------------------------------------|----|
| | | | | | | | | Body | Bolts/Nuts | | |
| TP-C12200BT-IW | 21 | 129.8 | 25 | 52 | 58 | 0.21 | Solid | Polyamide (black) | — | 6 (0.61) | |
| TP-C12201BT-IW | | | | | | | | | | | 30 |
| TP-C12203BT-IW | | | | | | | | | | | 40 |
| TP-C12212BT-IW | 23 | 142.2 | 25 | 61 | 58 | 0.20 | Solid | Polyamide (black) | — | 6 (0.61) | |
| TP-C12213BT-IW | | | | | | | | | | | 30 |
| TP-C12215BT-IW | | | | | | | | | | | 40 |
| TP-C12204BT-IW | 25 | 154.7 | 25 | 61 | 58 | 0.23 | Split | Stainless steel | — | 6 (0.61) | |
| TP-C12205BT-IW | | | | | | | | | | | 30 |
| TP-C12207BT-IW | | | | | | | | | | | 40 |
| TP-C12077BT-IW | 21 | 129.8 | 25 | 61 | 58 | 0.26 | Split | Stainless steel | — | 6 (0.61) | |
| TP-C12078BT-IW | | | | | | | | | | | 30 |
| TP-C12079BT-IW | | | | | | | | | | | 35 |
| TP-C12080BT-IW | 23 | 142.2 | 25 | 61 | 58 | 0.25 | Split | Stainless steel | — | 6 (0.61) | |
| TP-C121928BT-IW | | | | | | | | | | | 40 |
| TP-C121929BT-IW | | | | | | | | | | | 40 |
| TP-C121930BT-IW | 25 | 154.7 | 25 | 61 | 58 | 0.29 | Split | Stainless steel | — | 6 (0.61) | |
| TP-C121931BT-IW | | | | | | | | | | | 30 |
| TP-C121932BT-IW | | | | | | | | | | | 35 |
| TP-C12081BT-IW | 25 | 154.7 | 25 | 61 | 58 | 0.27 | Split | Stainless steel | — | 6 (0.61) | |
| TP-C12082BT-IW | | | | | | | | | | | 30 |
| TP-C12083BT-IW | | | | | | | | | | | 35 |
| TP-C12084BT-IW | 40 | 154.7 | 25 | 61 | 58 | 0.30 | Split | Stainless steel | — | 6 (0.61) | |

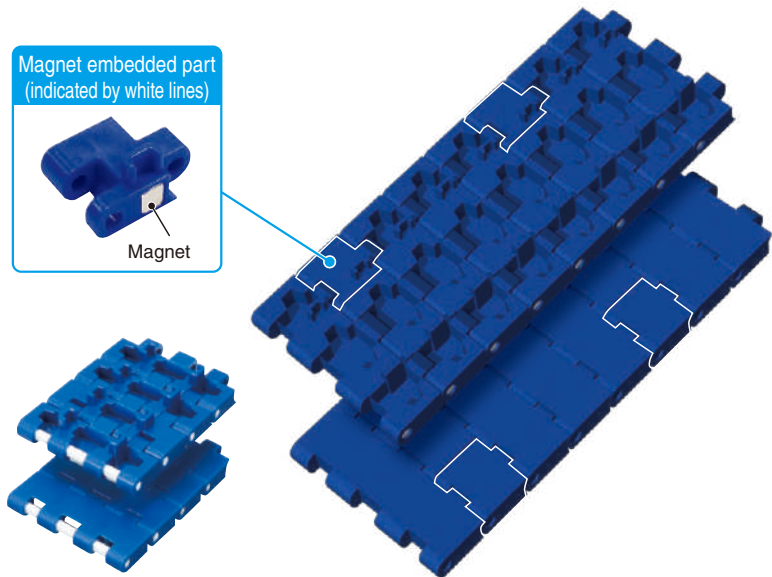
Note 1. Standard products
2. Operating temperature range: -20 to 80°C (-4 to 176°F)
3. The solid type with 23 teeth has the same dimensions but a different shape.
4. A split sprocket pair should not be mixed and combined with another pair.
5. Use a cold rolled steel shaft.
6. Should not be used under abrasive condition.

Other Products **Magnet Type**

BTM8H-M Straight Running

Plastic Modular Chain Mold to Width
Strong magnetic type

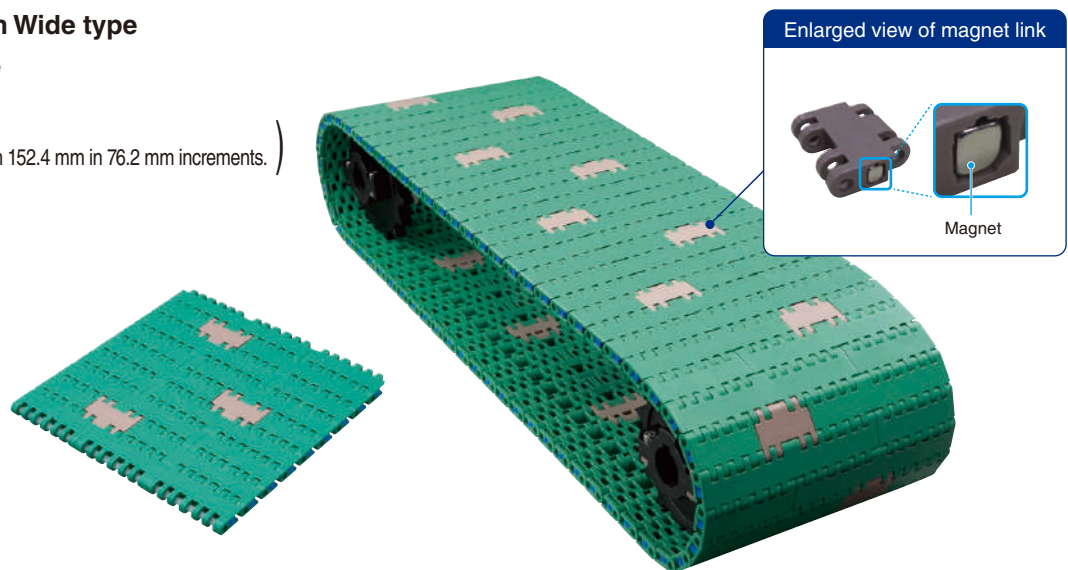
(Chain pitch: 25.4 mm
Chain width: 82.6 mm)



BTM8H Straight Running

Plastic Modular Chain Wide type
Strong magnetic type

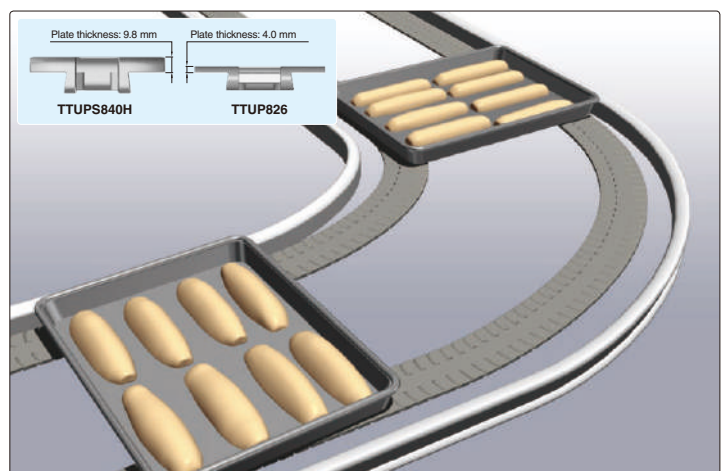
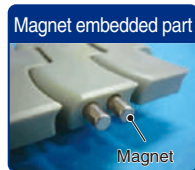
(Chain pitch: 25.4 mm
Chain width: Available width from 152.4 mm in 76.2 mm increments.)



TTUPS-H Sideflexing

TTUPS-H can be embedded with magnets.
Low magnetic type

(Chain pitch : 25.4 mm
Chain width : 84.0 mm
Minimum sideflexing radius : R450 mm
Plate thickness : 9.8 mm)



Selection

■ Precautions for Selection

- Plastic Top Chains are not recommended for use in operating conditions where they may be subjected or catch foreign materials as this may damage or break the chains. Consider using a metal chain. Also, use inverter control, etc. to start and stop conveyor slowly.
- Plastic Top Chains may suffer premature wear when used in operating conditions where they may contact abrasive material. Consider using a metal chain.
- Contact a Tsubaki representative before using Plastic Top Chains in contact with special liquids (acidic or alkaline chemicals or solutions) or in special environments (UV rays, etc.).
- The operating temperature range for accessories, sprockets, and idler wheels made of UHMW-PE (ultra-high-molecular-weight polyethylene) is -20 to 60°C . Do not use in contact with steam.
- Plastic top chains are flammable. Do not use them in environments exceeding max. allowable temperature or near open flame, as they may catch fire and generate dangerous toxic gasses.

■ Step 1: Check Conveyance Conditions

- 1) Conveyed Goods
 1. Material of the container or conveyed goods
 2. Mass per conveyed good
 3. Shape and dimensions
- 2) Conveyor Arrangement
 1. Straight-running or side-flexing conveyance
 2. Conveyor length and width
 3. Layout
 4. Space
- 3) Conveyor Conditions (Dry Use Only)
 1. Throughput
 2. Pitch of conveyed goods
 3. Conveyor speed
- 4) Ambient Environment
 1. Temperature
 2. Check if any abrasive materials such as debris of glass, paint or metal, or sand are present.
 3. Exposure to UV ray or not.

■ Step 2: Select Wearstrip Material

Select an appropriate wearstrip material.

Table 2. Wearstrip Material Selection Chart

| Wearstrip material | No lubrication | |
|------------------------|-------------------|-----|
| | Abrasive material | |
| | No | Yes |
| Stainless steel | B | C |
| P plastic rail | C | × |
| PLF plastic rail | B | × |
| M plastic rail, SJ-CNO | A | × |

A: Strongly recommended, B: Recommended, C: Possible, ×: Not appropriate

Step 2: Select Wearstrip Material (Continued)

| | Material/Color | Feature |
|--------------------------|---|--|
| P plastic rail | <ul style="list-style-type: none"> ● UHMW-PE ● White or green | <ul style="list-style-type: none"> ● Most common rail ● Machined or extruded product ● Excellent impact resistance |
| PLF plastic rail | <ul style="list-style-type: none"> ● Low friction and wear resistant UHMW-PE ● White | <ul style="list-style-type: none"> ● Lower friction and stronger wear resistance compared to P plastic rail ● Machined or extruded product |
| M plastic rail SJ-CNO | <ul style="list-style-type: none"> ● Special polyamide ● Blue (M plastic rail) ● Purple (SJ-CNO) | <ul style="list-style-type: none"> ● Dry use only ● Wear resistant ● Machined |

Note: Operating temperature range

P plastic rail, PLF plastic rail : -20 to 60°C(-4 to 140°F)

M plastic rail, SJ-CNO : -20 to 80°C(-4 to 176°F)

Step 3: Determine Coefficient Friction Factor

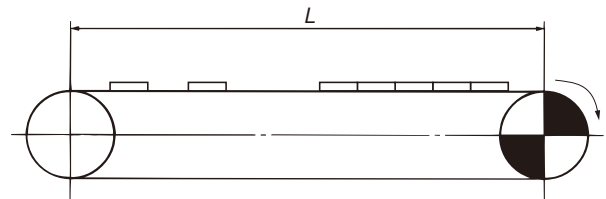
Coefficient of dynamic friction between chain and wearstrip (μ_1)

Coefficient factors shown in table below are based on in house test data. These values may differ depending on the operation conditions, atmosphere, shape of the conveyed goods, chain grime, and other conditions. Use these factors to calculate chain tension.

| Chain Material | Lubrication | Stainless steel | Steel | P plastic/M plastic rail | SJ-CNO | PLF plastic rail |
|----------------|----------------|-----------------|-------|--------------------------|--------|------------------|
| Standard | No lubrication | 0.25 | 0.25 | 0.25 | 0.20 | 0.18 |

Step 4: Calculate Chain Tension and Power Required

Calculating Tension F for Straight Running Movement



Note: SI units and gravimetric units

The formulas are given for both SI units and gravimetric units. When calculating tension F with gravimetric units, the weight (kgf) in gravimetric units is the same value as the mass (kg) in SI units.

1) Description of Symbols

F = Chain tension kN {kgf}

m_1 = Chain mass (kg/m)

L = Length of conveyance section (m)

m_2 = Weight of conveyed goods in carry-way section (kg/m)

μ_1 = Coefficient of dynamic friction between chain and wearstrip

P = Power required (kW)

V = Chain speed (m/min)

η = Mechanical transmission efficiency for drive unit

Note: For the mechanical transmission efficiency, check the drive unit used.

SI unit (kN)

Chain tension

$$F = 9.80665 \times 10^{-3} (2.1 m_1 + m_2) L \cdot \mu_1$$

Power required

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

Gravimetric unit (kgf)

Chain tension

$$F = (2.1 m_1 + m_2) L \cdot \mu_1$$

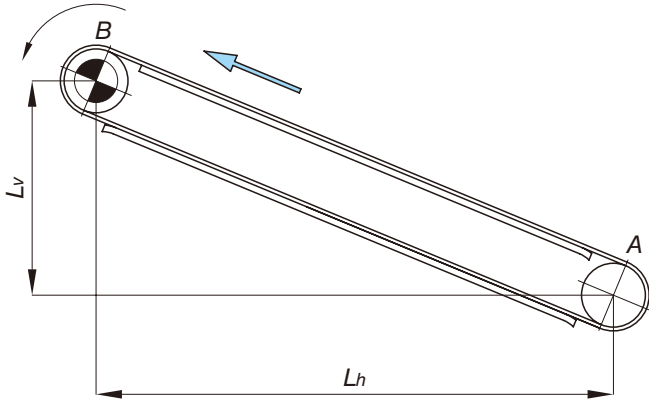
Power required

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

Selection

Step 4: Calculate Chain Tension and Power Required (Continued)

Calculating Tension F for Inclined Movement



The effects of speed, conveyed goods, center of gravity, mass, environment and other parameters will make it difficult to determine maximum inclination angle precisely. It will be necessary to perform test.

$$F = 9.80665 \times 10^{-3} F_B \text{ (kN)}$$

Return way

[Tension at section A: F_A]

$$F_A = 1.1 m_1 (L_h \cdot \mu_1 - L_v)$$

If $F_A < 0$, then $F_A = 0$

Carry way

[Tension at section B: F_B]

$$F_B = F_A + \{(m_1 + m_2) (L_h \cdot \mu_1 + L_v)\}$$

Chain tension

$$F = F_B$$

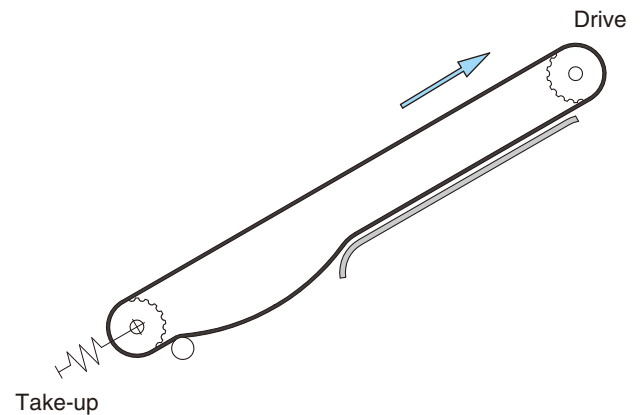
When selecting a chain, refer to the Allowable Load Graph, while also considering conveyor speed and ambient temperature.

$$F \leq \text{Max. allowable chain load (considering speed and temperature)}$$

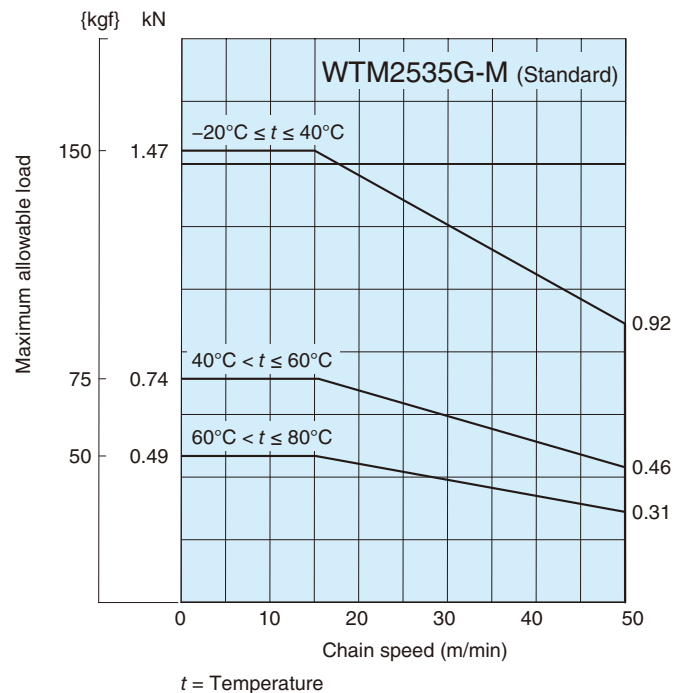
When the maximum allowable load calculated is insufficient, it can be corrected by increasing the number of chain strands or by splitting conveyor into short conveyors.

Take-up for Inclined Conveyors

It is recommended to install take-up unit at driven side of inclined conveyor to prevent tooth jumping at driven sprocket.

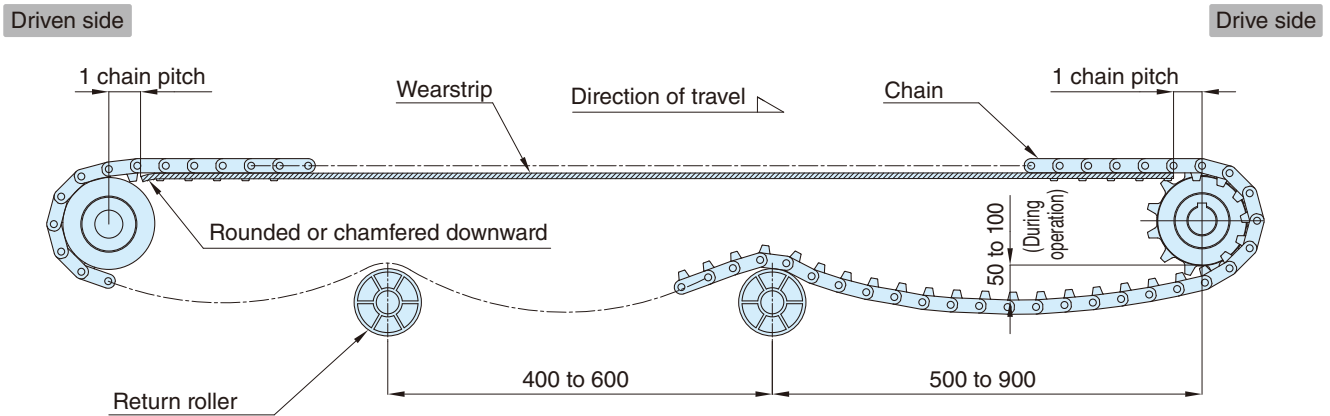


Allowable Load Graph



Conveyor Design

Guide rail arrangement depends on the installation space and other factors. An example is shown in the figure below.



1) Chain Slack

The distance between return rollers should be spaced at intervals of 500 to 900 mm. The amount of slack between rollers should be 50 to 100 mm. This slack prevents tooth jumping. Tooth jumping may occur when the amount of slack in these intervals falls outside of this range.

2) Engagement Angle

The engagement angle between drive sprocket and the chain must be greater than 150°.

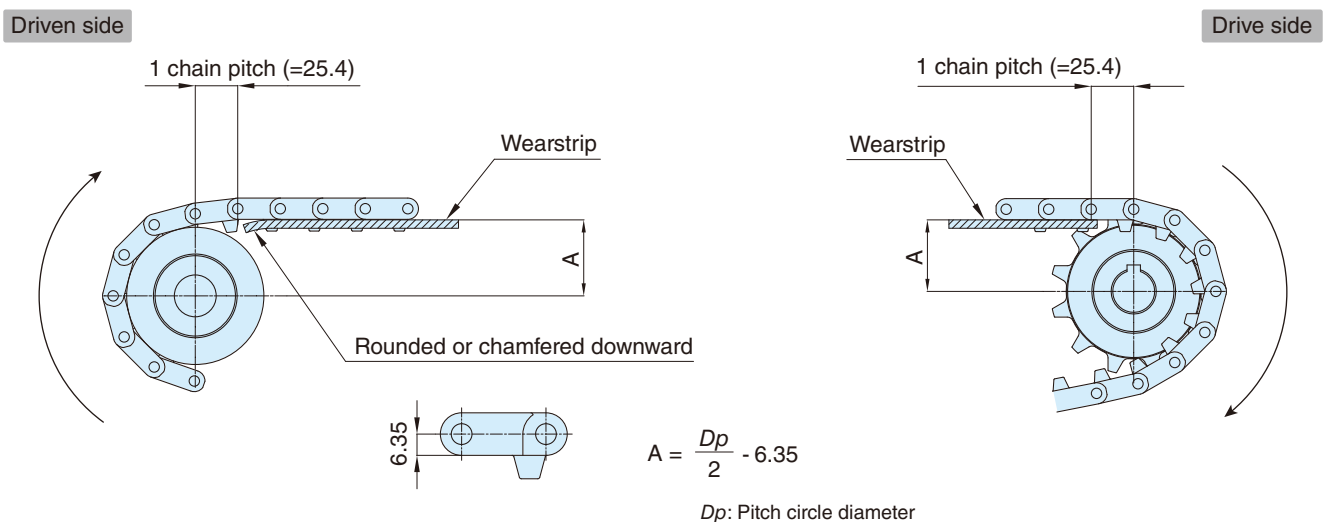
3) Wearstrip End

The space between the center of drive/driven shaft and the end of wearstrip should be set to one pitch of the chain used. In addition, the end of the wearstrip faced to driven side should be rounded or chamfered downward in order to prevent the chain from snagging or catching on the wearstrip.

4) Height of Wearstrip on Carry Way

See figure below

Location of Sprockets and Wearstrip on Carry Way

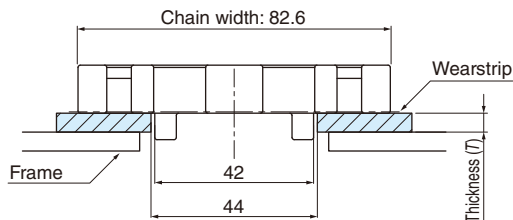


Technical Information

Conveyor Design

Example of Wearstrip Installation

Figure 1. Carry way



Sprocket Location

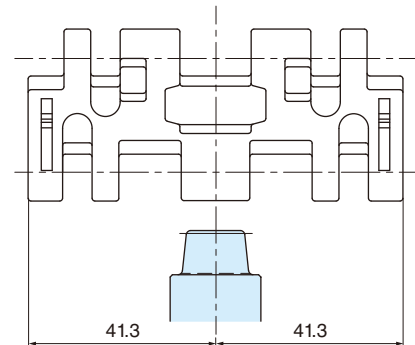
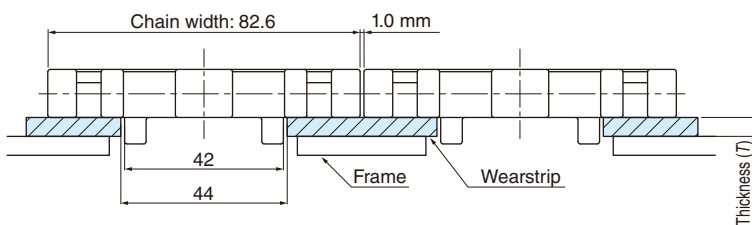


Figure 2. Multiple Strand Application



● Precautions

1. Do not place any equipment that can be affected by magnetic force around a conveyor using magnet-type chains.
2. Make sure that the magnet-type chain does not interfere with facilities and tools attached to the conveyor, such as trash chutes.
3. Do not bring together magnets embedded in the chain as once they stick to each other they may not come apart.

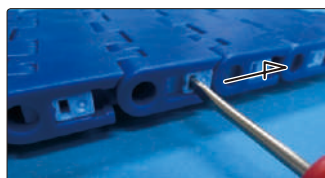
WT2500 Series Disconnecting and Connecting

● Disconnecting

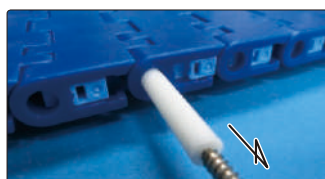
- (1) Insert a small flathead screwdriver or similar tool into the hole of the plug on the side of the chain.



- (2) Slide the plug to the direction of the arrow.



- (3) Insert ball driver or similar tool into the hole at the end of the pin and pull out.



● Connecting

- (1) Combine both ends of the chain and insert pin from side where plug has slid.



- (2) Slide the plug back to the direction of the arrow to close up the pin hole.



Note: Use the supplied or dedicated pins to connect the chains.

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.
- If using chain for people conveyors (moving walkways), install protective equipment on the conveyor for safety. There is a risk of bodily injury or damage to the conveyor if the conveyor runs out of control.

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 with a Tsubaki representative before using the chain in cases where it will be in contact with special liquids or used under special environments.
- When using chains with engineering plastic pins under wet conditions, make sure that the temperature does not exceed 60°C.
- The link material for ALF advanced low friction/wear resistant series contains silicone-based lubricant. Therefore, do not use this chain for printing processes, or in cases where silicone will have a harmful effect.
- 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.
- The operating temperature range for accessories, sprockets, and idlers 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.
- 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.



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AMERICAS

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| Brazil | Tsubaki Brasil Equipamentos Industriais Ltda. | https://tsubaki.ind.br/ |
| Canada | Tsubaki of Canada Limited | https://tsubaki.ca/ |

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| Germany | Tsubaki Deutschland GmbH | https://tsubaki.de/ |
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| Poland | Kabelschlepp Sp. z o.o. | https://kabelschlepp.pl/ |

INDIAN OCEAN RIM

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|-------------|---|---|
| Singapore | Tsubakimoto Singapore Pte. Ltd. | https://tsubaki.sg/ |
| Australia | Tsubaki Australia Pty. Limited | https://tsubaki.com.au/ |
| India | Tsubaki India Power Transmission Private Limited | https://en.tsubaki.in/ |
| Indonesia | PT. Tsubaki Indonesia Trading | https://tsubaki.id/ |
| Malaysia | Tsubaki Power Transmission (Malaysia) Sdn. Bhd. | https://en.tsubaki.my/ |
| New Zealand | Tsubaki Australia Pty. Limited - New Zealand Branch | https://tsubaki.com.au/ |
| Philippines | Tsubakimoto Philippines Corporation | https://en.tsubaki.ph/ |
| Thailand | Tsubakimoto (Thailand) Co., Ltd. | https://tsubaki.co.th/ |
| Vietnam | Tsubakimoto Vietnam Co., Ltd. | https://tsubaki.net.vn/ |

EAST ASIA

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|-------------------|--------------------------------------|---|
| Republic of Korea | Tsubakimoto Korea Co., Ltd. | https://tsubakimoto-tck.co.kr/ |
| Taiwan | Taiwan Tsubakimoto Trading Co., Ltd. | https://tsubakimoto.tw/ |

CHINA

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| China | Tsubakimoto Chain (Shanghai) Co., Ltd. | https://www.tsubaki-sh.cn/ |
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