Innovation in Motion
TSUBAKI

Extremelly Small Space × Power Transmission

[Actual size]

The world's smallest roller chain

Epsilon

Stainless Steel Epsilon Chain™

According to our research in 2024

TSUBAKI ECO LINK

Miniature chain made with Tsubaki pride

Epsilon

Stainless Steel Epsilon Chain™

Comparison with other small power-transmitting components

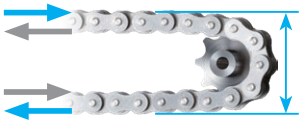
Epsilon's extremely small size means it can be used for applications where conventional chains are unsuitable—and it can be used to replace belts and wires.

	Epsilon Chain™	Small-pitch toothed belt	Small-diameter wire rope
Compact	◎	△	△
Tensile strength	○	—	◎
Positioning accuracy	○	◎	×
Extrusion applications	○	×	×
Installation tension settings	○ (Not needed)	× (Needed)	—

◎ Excellent ○ Good △ OK × Not good — Not applicable

Benefits

- **Reliable power transmission**
  Unlike power transmission by friction, engaging transmission prevents chain slippage.
- **High rigidity**
  Also usable for pushing applications.
- **Compact articulation**
  Unlike wire ropes or belt core wire, the chain resists deformation or breakage from bending.

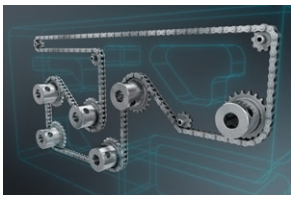


7.6mm

(When using the smallest drive sprocket with 9 teeth.)

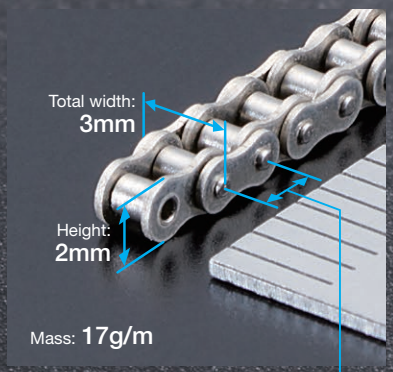
Epsilon chain can be used in complex layouts in tight spaces.

Belt sprockets used with toothed belts and wire ropes have flanges to prevent them from coming off.
This requires a larger space in the direction of the pitch circle diameter.



Extremely small

Our smallest roller chain, achieved through the culmination of Tsubaki's parts manufacturing and assembly technologies developed over the years.

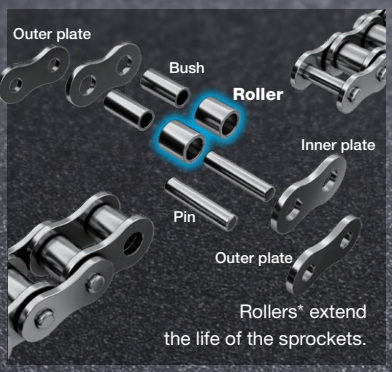


Pitch:

1.905mm

Sufficient strength

This high-spec chain, small yet strong, was created by fully leveraging our core technologies.



Min. tensile strength:

0.36kN

*Conventional small-size chains don't have rollers.

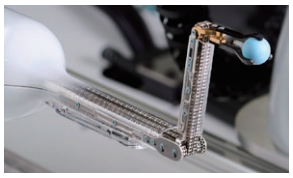
Withstands corrosive environments

This stainless steel chain can be used in environments exposed to water, such as cleaning processes.

Application examples

A smaller chain size allows for more compact and lightweight applications.
Also a smaller backlash helps enhance operational accuracy.

Endoscope

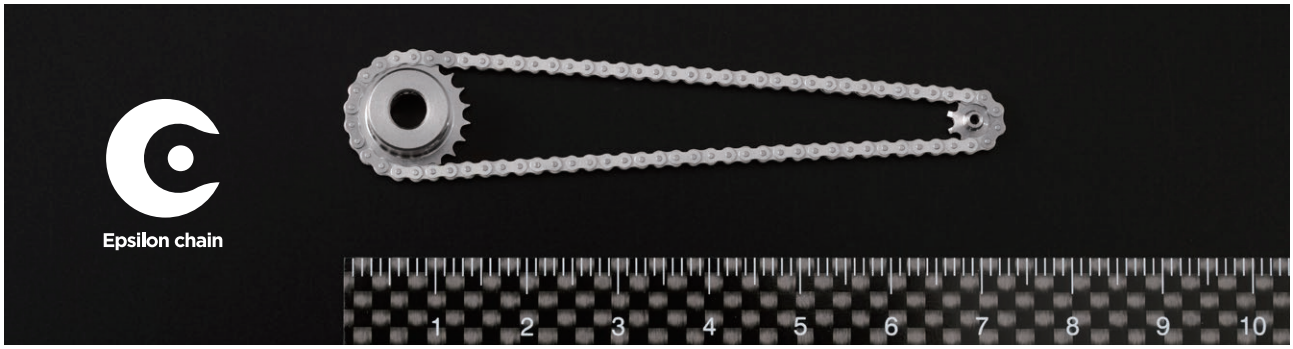


End effector

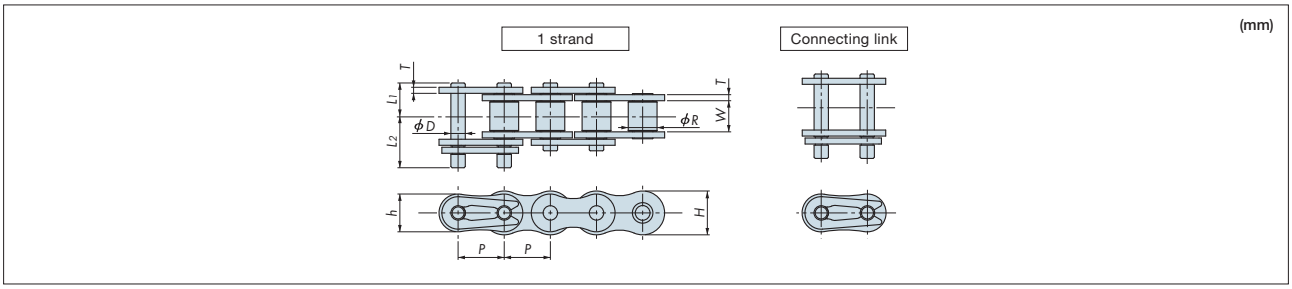
Crop harvesting robot

Powered exoskeleton

Prosthetic hand



(mm)



Tsubaki chain number	Pitch *P*	Roller dia. *R*	Inner width of inner link *W*	Plates			Pin			Min. tensile strength kN{kgf}	Approx. mass kg/m	Links per unit
				Thickness *T*	Width *H*	Width *h*	Dia. *D*	*L*1	*L*2			
RS6-ESS-1	1.905	1.19	1.27	0.25	1.81	1.56	0.596	1.4	2.1	0.36 {37}	0.017	532

Model numbering example

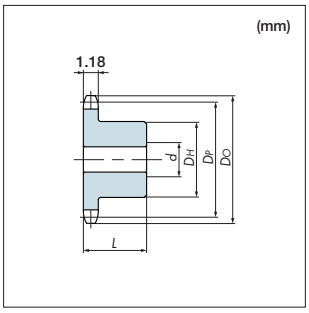
RS6 - ESS - 1 - RP + 151L - RR

Size	Series	Number of strands	Pin type	Number of links	End link

Note) 1 For appropriate selecting and handling this chain, please contact a Tsubaki representative as this chain requires different handling than standard-sized chains. Some of the information in the "Selection and Handling" section on the Drive chains and Sprockets catalog and in the technical data on Tsubaki Power Transmission Products Information site do not apply to this chain, due to its extremely small size.
2 There are no stamps on the plates.
3 The pins are not riveted.
4 Using connecting links is not recommended since they are difficult to assemble.
5 Offset links are not available.
6 Long-length formations of more than one standard length unit are not available.
7 Chains with an even number of links will be in an “endless” (loop) formation using outer links with no connecting links. Chains with fewer than 80 links will be in an endless formation using connecting links. Chains with an odd number of links will have inner links on both ends. Contact a Tsubaki representative if you need a further information.

Dedicated sprocket

(mm)



Model number	No. of teeth	Pitch circle dia. *DP*	Outer dia. *DO*	Boa dia. *d*	Hub		Approx. mass g
					Dia. *DH*	Length *L*	
RS6-1B9T-ESS	9	5.57	6.3	2	3	3.5	0.2
RS6-1B15T-ESS	15	9.16	10.1	2	6	5	1.4
RS6-1B21T-ESS	21	12.78	13.7	4	10	6	3.1

Note) 1 The minimum number of teeth is 9. Please contact a Tsubaki representative for the specifications other than above.
2 Finished-shaft bore. Contact a Tsubaki representative for requirements on shaft fastening methods.
3 Surface treatments to improve wear resistance are also available. Contact a Tsubaki representative.

TSUBAKI

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The Tsubaki Eco Link logo is used only on products that satisfy the standards for environmental friendliness set by the Tsubaki Group.

TSUBAKI GLOBAL NETWORKS ▶▶

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