

Timing Belts / Pulleys - Overview ①

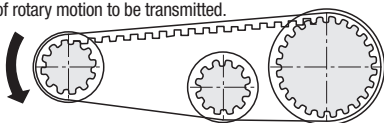
Overview

As the means of transmitting the power of rotary motion driven by a motor, a designing approach based on timing pulleys and belts is generally and widely used. Even for machinery parts which are required to have higher positioning accuracy than ever along with improvement of the machinery in precision and speed, MISUMI Timing Pulleys and Belts can be used with a sense of security due to their thorough control of quality. Various types of Pulleys and Belts are offered. For Belts, Conventional Timing Belts for Transmission, Timing Belts with Attachments for Conveyance, Tooth Count Configurable Long Timing Belts, and Open End Belts are available. As to delivery, the first day shipping is available at earliest (if the express service is used) for pulleys machined with shaft bores and surface-treated. And for Keyless Timing Pulleys, the 5th day shipping is available. For belts, as well as In Stock products, products 3rd-day-shipped even on a made-to-order basis are added to the product lineup.

App. Example

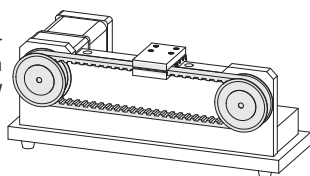
<App. Example 1>

Driving: Is installed onto motors and rotary shafts to allow the driving force of rotary motion to be transmitted.

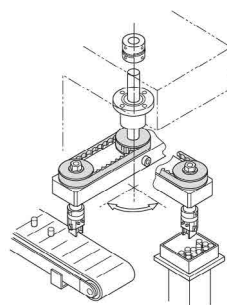


<App. Example 2>

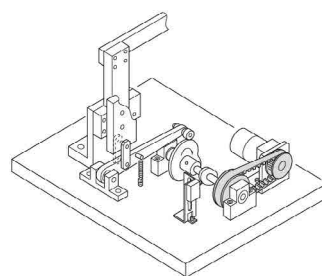
Conveyance: Is used for reciprocating motion with high positioning accuracy rather than for rotary motion.



<App. Example 3>



<App. Example 4>



Timing Pulley Belt Selection Steps

* When selecting timing pulleys and belts, please check each of the following steps for its details by referring to the page indicated on the right side.

[Step 1]	Determine conditions needed for designing.	P.2253
[Step 2]	Calculate the design power.	P.2253
[Step 3]	By using the simplified selection table, select the target belt types on an interim basis.	P.2255
[Step 4]	For each of Small/Large Dia. Pulley, determine the number of teeth, belt length and shaft center distance.	P.2256
[Step 5]	Determine the belt width.	P.2256
[Step 6]	Check that the adjustment allowance of the shaft center distance is adequate.	P.2257
[Step 7]	Verify the transmission capacity.	P.2259
Others	Precautions for Use of Belts	P.2283
Technical Data	Pulleys with Teeth - JIS B 1856 (1993)	P.2285

Cautions

- Do not bend belts too hard.
- When core wire is steel cord, avoid giving tension from the backside.
- Avoid using and storing the products in an environment of extremely high or low temperature (beyond the operating temperature) and high humidity.
- Avoid direct contact with water, solvent, oil, acid, alkali, ultra-violet light, ozone, etc. If the belt swells due to contact with oil, its service life will be considerably shortened.
- Make sure to shut down the machine and confirm the complete stop of its behavior before starting installation or maintenance check.
- Timing Pulleys and Belts (MXL, XL, L, H) for general use are compliant with JIS and ISO Standards.
Timing Pulleys: JIS B 1856 (ISO5294)
Timing Belts: JIS K6372 (ISO5296-1), JIS K6373 (ISO5296-2)
- S Type (S□M) timing pulleys and belts are compatible with S□M type from Mitsubishi Belting Ltd. as well as Bando Chemical Industries Ltd.
- MTS Type (MTS8M) timing belts are compatible with MTS8M from Mitsubishi Belting Ltd.
- P Type (P□M) timing pulleys and belts are compatible with P□M Type from Tsubakimoto Chain Co.
- UP Type (UP□M) timing belts are compatible with UP□M-HC Type from Tsubakimoto Chain Co.
- MA Type timing pulleys and belts are compatible with MA□Type from NOK Corporation.
- GT Type (□GT) and EV Type (EV5GT, EV8YU) timing pulleys and belts are compatible with □GT, EV5GT, EV8YU Types from Gates Unitt Asia Company.

■ Timing Pulleys

MISUMI timing pulleys are shaft bore machined and surface-treated. In addition to regular pulleys, wide variety of pulleys including Non-Backlash Timing Pulley and MechaLock Incorporated Keyless Timing Pulleys are available.

[List of Timing Pulleys and Idlers]

Usage	Features	Belt Type	Pitch	Timing Pulleys			Idler		
				Timing Pulleys	Keyless Timing Pulley	Clamping Timing Pulley	Idlers with Teeth		Idler
									
				General purpose pulleys, surface treated and bores machined.	MechaLock incorporated timing pulleys, easy phase matching.	Timing pulleys easily fastened to shafts with a single screw.	Surface-treated and bearing incorporated idlers with Teeth.	Idlers without teeth used for belt backside tensioning.	
Regular Torque	General purpose timing pulleys suitable for torque transmission and light load conveyance.	MXL	2.032mm (2/25inch)	P.1389	-	-	P.1445	P.1457	
		XL	5.08mm (1/5inch)	P.1391	P.1426				
		L	9.525mm (3/8inch)	P.1393	P.1427, 1428		P.1447		
		H	12.7mm (1/2inch)	P.1395	P.1429, 1430				
High Torque	Timing pulleys for high torque transmission.	S2M	2.0mm	P.1397	-	P.1443	P.1449	P.1457	
		S3M	3.0mm	P.1399	P.1431, 1432				
		S5M	5.0mm	P.1401	P.1433, 1434				
		S8M	8.0mm	P.1403, 1407	P.1435, 1436		P.1451		
		S14M	14.0mm	P.1405	-	-			
		P2M	2.0mm	P.1409	-	-	P.1453	P.1457	
		P3M	3.0mm	P.1409	-				
		P5M	5.0mm	P.1411	P.1437				
		P8M	8.0mm	P.1413	P.1438				
		High Accuracy Positioning	Timing pulleys with small backlash. Suitable for positioning.	1.5GT	1.5mm	P.1381	-	-	-
2GT	2.0mm			P.1381					
3GT	3.0mm			P.1383					
5GT	5.0mm			P.1385	P.1453	P.1457			
8YU	8.0mm			P.1387					
Light Load Conveyance, Regular Torque	Trapezoidal toothed timing pulleys suitable for conveyance. Also usable for transmission.	T2.5	2.5mm	P.1415	P.1439, 1440 P.1441, 1442	-	-	-	
		T5	5.0mm	P.1417					
		T10	10.0mm	P.1419			P.1455	P.1457	
Heavy Load Conveyance	Timing belts suitable for heavy load conveyance. Possesses 1.3 times larger allowable tension than T type.	AT5	5.0mm	P.1421	-	-	P.1455	P.1457	
		AT10	10.0mm	P.1421					

⚠ Significantly reduced backlash timing pulley is available for S8M (P.1407). Special timing belts are not required.

⚠ For Belts dedicated for 1.5GT and T2.5, please contact MISUMI VONA.

■ Timing Belt

MISUMI offers a wide variety of timing belts.

Conventional Timing Belts for Transmission, Timing Belts with Attachments for Conveyance, Tooth Count Configurable Long Timing Belts, and Open End Belts are available. The GT series suitable for high accuracy positioning is also offered.

[List of Timing Belts]

Usage	Belt Type	Pitch	Timing Belt										
			Timing Belt		Timing Belt with Attachment	Long Timing Belt - Number of Teeth Configurable	Long Timing Belt - Number of Teeth Configurable, Cloth		Open End Belt				
													
			General purpose timing belts for transmission.		Belts with attachments for conveyors.	Number of Teeth Configurable Type. Can be specified up to 10m.	Timing belts with low friction cloth. Most suitable for accumulation conveyance and noise reduction.		Most suitable for reciprocal motion. Various metal joints are available.				
			Rubber	Polyurethane	Polyurethane (for Joint Process)	Iron Rubber® (Polyurethane)	Polyurethane (for Joint Process)	Iron Rubber® (Polyurethane)	Polyurethane (for Joint Process)	Rubber	Iron Rubber® (Polyurethane)	Polyurethane	
Regular Torque	MXL	2.032mm (2/25inch)	P.1463	P.1463	-	P.1473	-	-	-	-	-	-	
	XL	5.08mm (1/5inch)					-	-	-	-	-		
	L	9.525mm (3/8inch)					-	P.1474	P.1473	P.1474	P.1476	P.1475	P.1476
	H	12.7mm (1/2inch)					-	-	-	-	-	-	-
High Torque	S2M	2.0mm	P.1465	P.1465	-	-	-	-	-	-	-	-	
	S3M	3.0mm		-			-	-	-	-	P.1476	-	P.1476
	S5M	5.0mm		-			-	-	-	-	-	-	
	S8M	8.0mm		-			-	-	-	-	-		
	S14M	14.0mm	-	-	-	-	-	-	-				
	P2M	2.0mm	P.1467	-	-	-	-	-	-	-	-		
	P3M	3.0mm		-	-	-	-	-	-	-			
	P5M	5.0mm		-	-	-	-	-	-	-			
P8M	8.0mm	-		-	-	-	-	-	-	-			
High Accuracy Positioning	2GT	2.0mm	P.1459	-	-	-	-	-	-	-	-	-	
	3GT	3.0mm											
	EV5GT	5.0mm	P.1461	-	-	-	-	-	-	-	-		
	EV8YU	8.0mm											
	MA3	3.0mm	-	-	-	-	-	-	-	-			
	MA5	5.0mm											
Super High Torque	MTS8M	8.0mm	P.1469	-	-	-	-	-	-	-	-	-	
	UP5M	5.0mm											
	UP8M	8.0mm											
Light Load Conveyance, Regular Torque	T5	5.0mm	-	P.1470	P.1471	P.1473	P.1474	P.1473	P.1474	-	P.1475	P.1476	
	T10	10.0mm											
Heavy Load Conveyance	AT5	5.0mm	-	-	-	P.1473	P.1474	-	-	-	P.1475	P.1476	
	AT10	10.0mm											

⚠ MTS8M belts are applicable to S8M timing pulleys and idlers. ⚠ UP5M, UP8M belts are applicable to P5M, P8M timing pulleys and idlers.

⚠ EV5GT belts are applicable to 5GT and EV8YU belts are applicable to 8YU timing pulleys and idlers.

⚠ Iron Rubber® is a registered trademark of NOK Corp.