

Roller Chain Couplings

Features

Outstanding Durability

The coupling performs outstanding durability with the torque on the coupling shared with the surface-hardened teeth of the sprockets and the powerful roller chains that engage with the teeth.

Easy Coupling and Decoupling

Both shafts can be easily coupled or decoupled with a single joint pin inserted into or extracted from the roller chains.

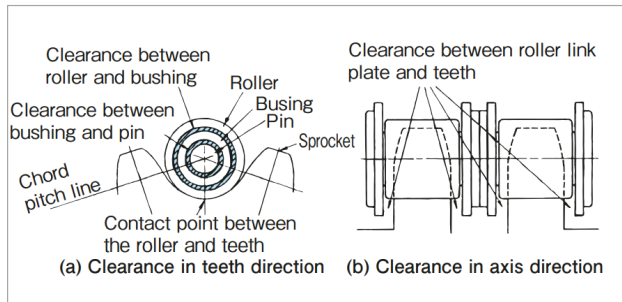
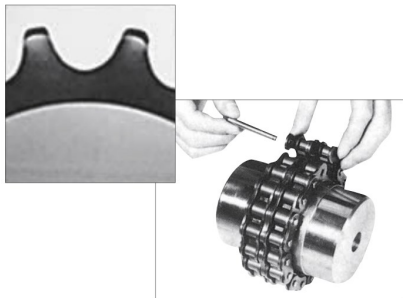
Absorption of Large Misalignment

The clearances between the chains and sprockets and between chain components absorb the great positional misalignment of both shafts.

Models in a Wide Variety

A total of 24 models including 15 models conforming to JIS and 9 other models are standardized.

(Roller chain shaft joint: Conforms to JIS B 1456-1989)



Ordering Information on Roller Chain Couplings

- Place each order with the product code and model number.

• Body with Pilot bore

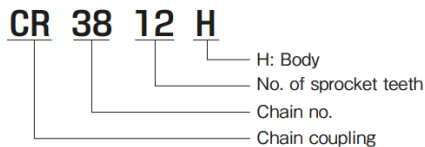
Product code	Model no.	Quantity	Unit
P710001	CR3812H	10	K (units)

• Casing (Sold separately. Place orders if required.)

Product code	Model no.	Quantity	Unit
P710030	CR3812K	10	K (units)

- Model No.

Pilot Bore (Body)



Casing

CR3812K

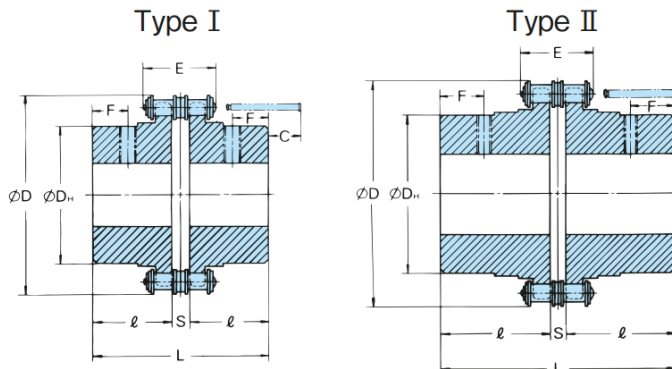
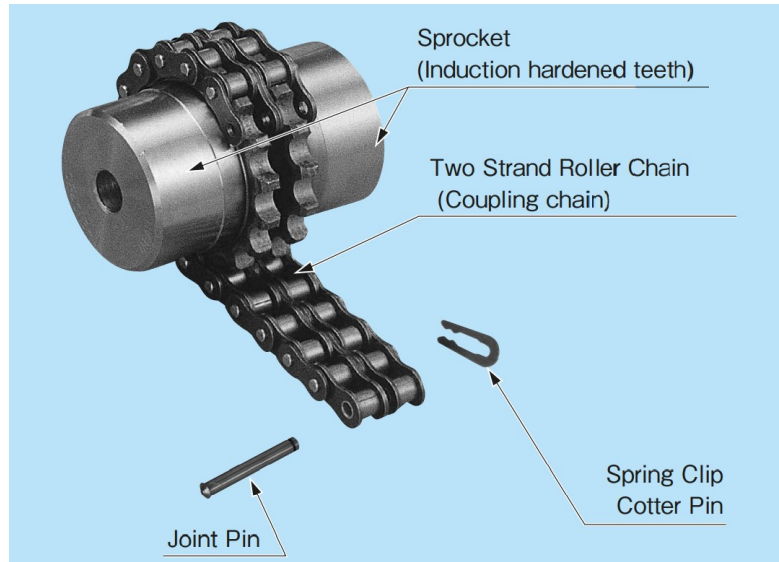
Dedicated casing: If required.
(Oil seal, packing, and mounting bolt included.)

Note: Place orders of body and casings separately.

Body Construction

Body

The body consists of two dedicated sprockets with hardened teeth and two-strand roller chains. The sprockets are coupled when the chains are wound around the sprockets, and decoupled with the chains removed. Therefore, transmission power can be coupled or separated without moving the transmission system.



- Notes:
1. Dimension "C" shows the space that must be left to allow insertion and removal of the joint pin.
 2. Dimension "F" is the recommended place where the customer should make a tapped hole for a set screw.

Unit: mm

Product code	Model no.	JIS code	Type	Pilot bore dia.	Bore dia.		Inertia kg·m ²	GD ² (kgf·m ²)	Chain		D	DH	L	R	S	C	F	Approx. Mass kg			
					Min.	Max.			Pitch	Max. Width											
P710001	CR 3812H	-	I	8	9.5	16	5.60×10 ⁻⁵	{2.24×10 ⁻⁴ }	9.525	24.0	45	25	64.9	30	4.9	4	14	0.3			
P710002	CR 4012H	4012		9	11	22	2.47×10 ⁻⁴	{9.89×10 ⁻⁴ }	12.70	33.1	61	35	79.4	36	7.4	10	16	0.8			
P710003	CR 4014H	4014		9	11	28	4.53×10 ⁻⁴	{1.81×10 ⁻³ }			69	43	79.4	36				10	16	1.1	
P710004	CR 4016H	4016		13	16	32	7.90×10 ⁻⁴	{3.16×10 ⁻³ }	15.875	41.0	77	50	87.4	40	9.7	12	21	1.6			
P710005	CR 5014H	5014		13	16	35	1.37×10 ⁻³	{5.49×10 ⁻³ }			86	53	99.7	45				11.5	15	26	2.2
P710006	CR 5016H	5016		13	18	40	2.18×10 ⁻³	{8.72×10 ⁻³ }			96	60									107
P710007	CR 5018H	5018		18	18	45	3.53×10 ⁻³	{1.41×10 ⁻² }	19.05	51.1	128	85	123.5	56	11.5	15	26	3.6			
P710008	CR 6018H	6018		18	22	56	9.33×10 ⁻³	{3.73×10 ⁻² }			152	110						152	110	10.3	
P710009	CR 8022H	6022		23	32	80	2.16×10 ⁻²	{8.63×10 ⁻² }			25.40	65.3	170	115	141.2	63	15.2	30	26	6.5	
P710010	CR 8018H	8018		28	40	100	8.00×10 ⁻²	{3.20×10 ⁻¹ }					203	140	157.2	71				22	34
P710011	CR 8022H	8022		33	45	110	1.61×10 ⁻¹	{6.42×10 ⁻¹ }	31.75	81.9	233	160	178.8	80	18.8	30	36	32.6			
P710012	CR10020H	10020		43	50	125	2.68×10 ⁻¹	{1.07 }			38.10	102.7	256	170				202.7	90	22.7	50
P710013	CR12018H	12018		53	56	140	5.93×10 ⁻¹	{2.37 }	304	210			222.7	100	40	46	69.0				
P710014	CR12022H	12022		58	63	160	1.05	{4.19 }	50.80	131.7	341	224	254.1	112	30.1	68	42	96.3			
P710015	CR16018H	16018		73	80	200	2.50	{9.99 }			405	280	310.1	140				40	70	166.8	
P710016	CR16022H	16022		85	88	205	4.60	{1.84×10 }	63.50	160.6	426	294	519.5	241	37.5	-	100	294.4			
P710017	CR20018H		95	98	260	1.07×10	{4.26×10 }	507			374	507						374	461.6		
P71	CR24022H		II	117	120	310	2.70×10	{1.08×10 ² }	76.20	197.3	608	420	751.1	353	45.1	-	150	871.4			
P71	CR24026H			147	150	380	5.70×10	{2.28×10 ² }			705	520						705	520	1276.4	
P71	CR32022H			197	200	430	1.08×10 ²	{4.32×10 ² }	101.60	263.0	806	570	860.1	400	60.1	-	200	1791.2			
P71	CR40020H			247	250	470	2.29×10 ²	{9.16×10 ² }	127.0	332.3	932	640	1099.6	512	75.6	-	250	2862.5			
P71	CR40024H			297	300	590	4.95×10 ²	{1.98×10 ³ }			1093	800						1093	800	4294.6	
P71	CR40028H			347	350	700	9.48×10 ²	{3.79×10 ³ }			1255	960						1255	960	6019.4	

- Notes:
1. The pilot bores of the items in bold are normally in stock, while those in regular typeface are made to order. If you require a size larger than those specified, please consult TSUBAKI.
 2. The range of bore diameters for the CR4012-J to CR16022-J conforms to JIS standards. However, the minimum bore diameter can be of larger bore than the pilot bore. The maximum bore diameter shows the permissible bore diameter for standard smooth transmission with no impact or reverse rotation.
 3. The items in regular typeface are made to order and the dimension "DH" is just for reference.
 4. Inertia and GD² are based on pilot bore.

Note: Be sure to follow the procedure for the selection of couplings.

Unit: kW

Model no.	Max. bore dia. (mm)	Max. allowable transmission torque at below 50 r/min. (N·m)	Speed of rotation (r/min.)													
			1	5	10	25	50	100	200	300	400	500	600	800		
CR 3812	16	99.9	0.01	0.05	0.11	0.26	0.52	0.79	1.21	1.58	1.89	2.26	2.58	3.19		
CR 4012	22	217	0.02	0.11	0.22	0.58	1.15	1.73	2.63	3.46	4.15	4.96	5.67	7.01		
CR 4014	28	295	0.03	0.16	0.32	0.79	1.58	2.36	3.59	4.72	5.66	6.77	7.72	9.56		
CR 4016	32	386	0.04	0.21	0.41	1.03	2.06	3.09	4.69	6.17	7.41	8.85	10.1	12.5		
CR 5014	35	562	0.06	0.30	0.60	1.50	3.00	4.48	6.80	8.95	10.7	12.8	14.7	18.1		
CR 5016	40	735	0.08	0.39	0.78	1.95	3.91	5.86	8.92	11.7	14.1	16.8	19.2	23.8		
CR 5018	45	931	0.10	0.50	0.99	2.48	4.95	7.43	11.3	14.9	17.8	21.3	24.4	30.1		
CR 6018	56	1750	0.18	0.93	1.87	4.67	9.33	14.0	21.3	28.0	33.6	40.1	45.9	56.8		
CR 6022	71	2370	0.25	1.25	2.51	6.31	12.5	18.8	28.6	37.7	45.3	54.1	61.9	76.5		
CR 8018	80	3880	0.41	2.07	4.14	10.3	20.7	31.0	47.2	62.1	74.5	89.0	101	126		
CR 8022	100	5580	0.59	2.96	5.93	14.8	29.6	44.5	67.2	89.0	106	127	146	180		
CR10020	110	8780	0.93	4.66	9.33	23.3	46.6	70.0	106	140	168	200	229	283		
CR12018	125	13200	1.40	7.02	14.0	35.1	70.2	105	160	210	252	302	345	426		
CR12022	140	17100	1.81	9.07	18.1	45.3	90.7	136	206	272	326	390	446	551		
CR16018	160	28600	3.03	15.1	30.3	75.8	151	227	345	455	546	652	746	922		
CR16022	200	41700	4.43	22.1	44.3	110	221	333	506	665	799	954	1090	1350		
CR20018	205	57000	6.06	30.3	60.6	151	303	454	691	909	1090	1300	1490	1840		
CR20022	260	71900	7.63	38.2	76.3	191	382	572	871	1140	1370	1640	1880			
CR24022	310	129000	13.7	68.8	137	344	688	1030	1570	2060	2470	2960	3380			
CR24026	380	157000	16.7	83.7	167	418	837	1250	1900	2510	3010	3600				
CR32022	430	255000	27.2	136	272	680	1360	2040	2850	4080	4900					
CR40020	470	494000	52.6	263	526	1310	2630	3940	5990	7890	9470					
CR40024	590	602000	64.0	320	640	1600	3200	4800	7300	9600						
CR40028	700	717000	76.2	380	762	1900	3800	5700	8690	11400						
Lubrication type			I	II		III										

Unit: kW

Model no.	Max. bore dia. (mm)	Max. allowable transmission torque at below 50 r/min. (N·m)	Speed of rotation (r/min.)											
			1000	1200	1500	1800	2000	2500	3000	3600	4000	4800	5200	6000
CR 3812	16	99.9	3.88	4.41	5.35	6.25	6.73	8.12	9.44	11.0	12.0	14.0	14.8	16.7
CR 4012	22	217	8.53	9.68	11.6	13.7	14.8	17.9	20.7	24.1	26.3	30.8		
CR 4014	28	295	11.64	13.21	15.8	18.7	20.2	24.4	28.3	32.9	35.9	42.1		
CR 4016	32	386	15.3	17.3	21.0	24.4	26.3	31.9	37.0	43.0	46.9	54.9		
CR 5014	35	562	22.1	25.1	30.0	35.4	38.3	46.2	53.6	62.4				
CR 5016	40	735	28.9	32.9	39.9	46.4	50.0	60.6	70.4	81.6				
CR 5018	45	931	36.6	41.6	50.5	58.8	63.4	76.8	89.2					
CR 6018	56	1750	69.1	78.4	95.2	111	120	145						
CR 6022	71	2370	93.1	105	128	149	161	195						
CR 8018	80	3880	153	174	211	246	265							
CR 8022	100	5580	219	249	302	352	379							
CR10020	110	8780	345	392	476	554								
CR12018	125	13200	519	590	716									
CR12022	140	17100	671	762										
CR16018	160	28600	1122											
CR16022	200	41700	1640											
CR20018	205	57000												
CR20022	260	71900												
CR24022	310	129000												
CR24026	380	157000												
CR32022	430	255000												
CR40020	470	494000												
CR40024	590	602000												
CR40028	700	717000												
Lubrication type			<p>Lubrication System I : Apply grease regularly on a monthly basis.</p> <p>Lubrication System II : Apply grease regularly on a weekly basis, or mount the casing filled with grease.</p> <p>Lubrication System III : Mount the casing filled with grease.</p> <p>Refer to page 8 for lubrication method.</p>											

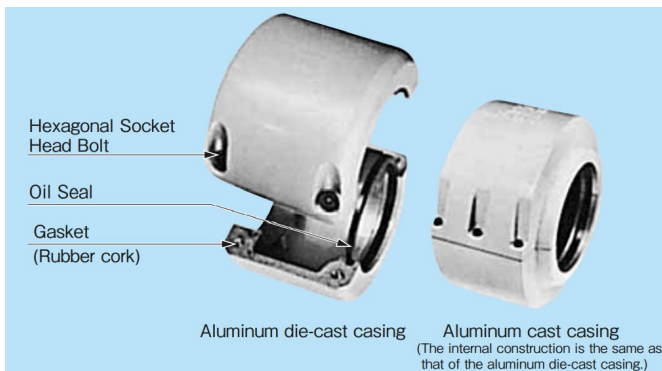
Casing Construction

Casing

For ease of mounting and inspection, the casing can be separated at a right angle to the shaft. The mating part to the hub is finished precisely to hold the hub firmly with no eccentricity. Furthermore, the other hole has a trapezoidal groove into which an oil seal is inserted for the prevention of oil leakage while holding the sprocket boss flexibly so that the flexibility of the coupling will not be lost.

The coupling life is notably extended due to the prevention of both lubricant spatter and the infiltration of dust particles when installing the casing, which ensures effective lubrication. The casing protects the unit from corrosion and ensures safe operation.

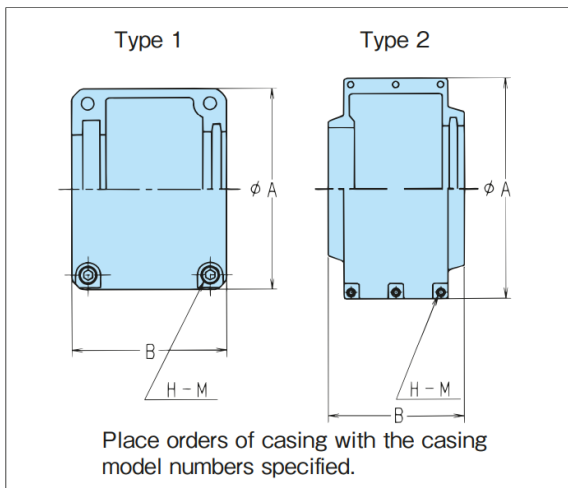
If the coupling with casing is used under frequent start and stop operation or large vibration, please consult TSUBAKI.



Be sure to mount the casing in the following cases.

- (1) The coupling is rotated at high speed (see the notes in the Kilowatt Ratings Table).
- (2) The coupling is used in an abrasive atmosphere, such as a place with dust and dirt.
- (3) The coupling is used in a corrosive atmosphere, such as a humid place.

Casing (K)



Coating specifications:

Aluminum die-cast casings are bake coated with melamin resin. Aluminum cast casings are bake coated with acrylic resin.

Coating color: Munsell 8.1YR7.6/15.2 orange yellow

Unit: mm

Product code	Model no.	Type	Inertia (kg·m ²)	GD ² (kgf·m ²)	A	B	H-M	Oil seal	Casing material	Approx. mass (kg)
P710030	CR 3812K	1	1.55 × 10 ⁻⁴	{ 6.18 × 10 ⁻⁴ }	59	61	4-M5	Special type	Aluminum die-cast	0.19
P710031	CR 4012K		5.13 × 10 ⁻⁴	{ 2.05 × 10 ⁻³ }	75	75	4-M6			0.33
P710032	CR 4014K		6.53 × 10 ⁻⁴	{ 2.61 × 10 ⁻³ }	84					0.38
P710033	CR 4016K		8.58 × 10 ⁻⁴	{ 3.43 × 10 ⁻³ }	92	0.41				
P710034	CR 5014K		1.29 × 10 ⁻³	{ 5.16 × 10 ⁻³ }	101	85	4-M8			0.50
P710035	CR 5016K		1.81 × 10 ⁻³	{ 7.25 × 10 ⁻³ }	111					0.58
P710036	CR 5018K		2.35 × 10 ⁻³	{ 9.40 × 10 ⁻³ }	122	106	4-M8			0.66
P710037	CR 6018K		4.85 × 10 ⁻³	{ 1.94 × 10 ⁻² }	142					0.96
P710038	CR 6022K		9.35 × 10 ⁻³	{ 3.74 × 10 ⁻² }	167	130	4-M8			1.3
P710039	CR 8018K		1.86 × 10 ⁻²	{ 7.43 × 10 ⁻² }	186					2.0
P710040	CR 8022K	3.30 × 10 ⁻²	{ 1.32 × 10 ⁻¹ }	220	148	4-M10	2.5			
P710041	CR10020K	6.60 × 10 ⁻²	{ 2.64 × 10 ⁻¹ }	250			3.7			
P710042	CR12018K	7.63 × 10 ⁻²	{ 3.05 × 10 ⁻¹ }	307	181	* 4-M10	3.3			
P710043	CR12022K	1.29 × 10 ⁻²	{ 5.15 × 10 ⁻¹ }	357			3.9			
P710044	CR16018K	2	5.73 × 10 ⁻¹	{ 2.29 }	406	250	6-M10	ZF48	14.7	
P710045	CR16022K		1.11	{ 4.45 }	472			ZF60	17.2	
P710046	CR20018K		1.42	{ 5.67 }	496	Special type	Aluminum alloy	22.2		
P710047	CR20022K		2.41	{ 9.66 }	578			26.6		

Notes: 1. The casings of the items in regular typeface are made to order.

2. The ZF type oil seal is made by NOK Co.

3. The item marked * has 4 bolts and not 6, as indicated on the drawing.

■ Selection

1. Operating Conditions Required for Selection

- (1) Daily operating hours
- (2) Load characteristics and type of motor
- (3) Transmission power (kW) and rotation speed (r/min) or torque (N·m)
- (4) Outer diameters of both shafts

2. Selection Method

- (1) Obtain the service factor from the table of service factors on the right-hand side according to the operating conditions.
- (2) Multiply the transmission power (or torque) by the service factor and obtain the correction transmission power (or correction transmission torque).
- (3) Select from the kilowatt ratings table a coupling that satisfy the corrected transmission power (or correction transmission torque) at the operating rotation speed.
- (4) If the required shaft diameter exceeds the maximum shaft diameter of the coupling selected, adopt a coupling a size larger.
- (5) The contact surface pressure may become excessive if a standard key is used. Calculate the contact surface pressure of the key and consider the necessity of using a special key or spline.
- (6) If the coupling is directly connected to the motor, select the coupling from the following table of recommended models for direct motor connection.

Table of Service Factors (SF)

Load Characteristics	Source of Power		
	Motor Turbine	Steam engine Gasoline engine (4 cylinders)	Diesel engine Gas engine
Low fluctuation, low impact, low starting torque, and no reverse rotation	1.0	1.5	2.0
Middle fluctuation, middle impact, and no reverse rotation (standard load)	1.5	2.0	2.5
High fluctuation, high impact, reverse rotation, and loaded starting	2.0	2.5	3.0

Note1. An increase according to the operating hour of the chain coupling (provided that the rotation speed is 50 r/min. or more).

8 to 16 hours/day: 0.5

16 hours or more/day: 1.0

2. The above table shows rough service factor standards. Decide on the service factor according to the operating conditions.

Reference: Relationship between torque, transmission, and rotation speed

$$T = \frac{60000 \times P}{2 \pi \times n} \quad \left\{ T = \frac{974 \times P}{n} \right\}$$

T : Torque N · m

P : Transmission power kW

n : Rotation speed r/min

3. Recommended Coupling Models for Direct Motor Connection

Motor Output kW	Motor shaft dia. mm	Model no.
0.1 0.2	11	CR3812
0.4	14	CR3812
0.75	19	CR4012
1.5	24	CR4014
2.2 3.7	28	CR4014

Motor capacity kW	Motor shaft dia. mm	Model no.
5.5 7.5	38	CR5016
11 15	42	CR5018
22	48	CR6018
30	55	CR6018
37 45	60	CR6022

Note: The above motor is of 4-pole type with a totally enclosed external fan.

4. Backlash

Model no.	CR3812	CR4012	CR4014	CR4016	CR5014	CR5016	CR5018	CR6018	CR6022
Backlash (Angle°)	±1.02	±1.06	±0.90	±0.79	±0.86	±0.75	±0.66	±0.62	±0.51

Model no.	CR8018	CR8022	CR10020	CR12018	CR12022	CR16018	CR16022	CR20018	CR20022
Backlash (Angle°)	±0.58	±0.47	±0.50	±0.42	±0.34	±0.31	±0.26	±0.33	±0.27

Note: The above figures are calculated value and not guaranteed. Consult your TSUBAKI representative for the backlash angles of other models.

5. Operating Ambient Temperature

– 10°C ~ 60°C

If the operating ambient temperature range is other than the above, refer to page 190 for information on special applications.

Lubrication

Lubrication

The following three lubrication systems are recommended when using Roller Chain Couplings. The choice depends on the operating speed. (Refer to the Kilowatt Ratings Table).

Lubrication System I

Apply grease regularly on a monthly basis.

Lubrication System II

Apply grease regularly on a weekly basis, or mount the casing filled with grease.

Lubrication System III

Mount the casing filled with grease. For System III, it is especially important to use high-grade grease because of grease stick to the inner surface of the case due to centrifugal force, resulting in poor lubrication. The following types of grease are recommended:

Manufacturer	Grease name
Exxon Mobil	Mobilux EP. 1 or 2
Shell	Alvania EP. 1 or 2

* Consistency: NLGI No. 1 or 2

Grease Change Interval for Lubrication System III

Operating conditions	Grease change interval	
	First change	Change interval after first change
Over ½ max. speed	1000hrs.	2000hrs.
Less than ½ max. speed	2000hrs.	4000hrs.

The amount of grease to apply is shown in the table below. If these amounts are adhered to, there will be slight leakage during initial operation, but this will soon stop.

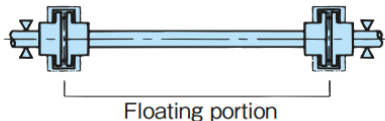
Coupling no.	Amount of grease (kg)	Coupling no.	Amount of grease (kg)
CR 3812	0.04	CR 8018	0.6
CR 4012	0.07	CR 8022	0.8
CR 4014	0.08	CR10020	1.4
CR 4016	0.10	CR12018	2.6
CR 5014	0.12	CR12022	3.4
CR 5016	0.14	CR16018	6.6
CR 5018	0.20	CR16022	8.0
CR 6018	0.32	CR20018	10.1
CR 6022	0.40	CR20022	12.2

Special Use and Service Parts

Special Use

Floating Shaft Type

The standard product can be used as a floating shaft type as shown in the illustration below if there is a distance between applicable devices, provided that the shaft is in horizontal operation with minimal errors under the following limited operating conditions.



Operating conditions

1. The shaft is in horizontal operation.
2. The shaft in operation does not rotate in the reverse direction. The shaft may rotate in the reverse direction only after the shaft comes to a perfect stop.
3. The mounting errors are within the following ranges.

Angle error α : 0.5° max.

Parallel error ε : 1% max. of chain pitch

4. The maximum operating rotation speed and the permissible mass of the floating portion are within the ranges specified in the table.
5. Decide the length and diameter of the shaft in comparison with equivalent standard machinery parts.

Apply standard permissible transmission torque.

Model no.	Permissible mass of floating portion (kg)	Max. operating rotation speed (r/min)
CR 3812	19	250
CR 4012	36	250
CR 4014	35	200
CR 4016	35	200
CR 5014	62	150
CR 5016	62	150
CR 5018	61	150
CR 6018	83	100
CR 6022	79	100
CR 8011	136	50
CR 8022	128	50

Other Types for Special Use

Specifications	Applicable model	Content	Parts different from those of standard product
Heat resistant	CR4012~CR10020 (Consult your TSUBAKI representative for other types whenever required.)	Used if the operating ambient temperature is 60°C to 150°C.	E.g., oil seal, packing, body, and casing modification
Cold resistant		Used if the operating ambient temperature is -10°C to -40°C. Consult your TSUBAKI representative for the selection of models.	E.g., oil seal and main component (chain and sprocket)
Casing rotation stopper (with pin)		To prevent grease leakage with the casing rotation stopper because the operation of the chain coupling is start and stop frequently under horizontal use.	E.g., body and casing modification
Vertical use		Used to prevent grease leakage from the casing if the chain coupling is mounted vertically.	E.g., body and casing modification

● Service Parts

Use the following dedicated parts at the time of servicing.

Service Parts for Roller Chain Coupling

Part name (Symbol)	Model legend	Content
Dedicated roller chain (C)	CR3812 <u>C</u>	Dedicated two strand roller chains and the joint pin specified in this table are provided.
Joint pin (JP)	CR3812 <u>JP</u>	A joint pin is provided along with a clip or cotter pin for retaining.
Oil seal (OR)	CR3812 <u>OR</u>	A dedicated rubber oil seal fit into the casing. The CR20018 or later ones are made of felt.
Gasket (OS)	CD3812 <u>OS</u>	A cork seat attached to the matching surface of the casing.

Sizes of Hexagonal Head Bolts for Casing

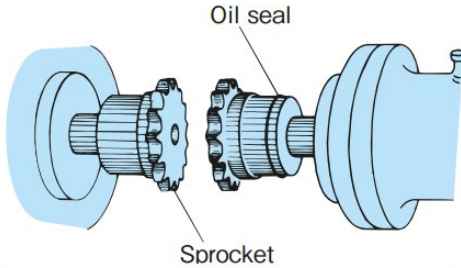
Model no.	Size	Model no.	Size
CR 3812	M 5×10	CR 8018	M 8×25
CR 4012	M 6×14	CR 8022	M 8×28
CR 4014	M 6×18	CR10020	M 8×28
CR 4016	M 6×18	CR12018	M10×35
CR 5014	M 6×18	CR12022	M10×35
CR 5016	M 6×18	CR16018	M10×45
CR 5018	M 6×18	CR16022	M10×45
CR 6018	M 8×25	CR20018	M10×45
CR 6022	M 8×25	CR20022	M10×45

- Note 1. Each size in the table indicate the nominal screw diameter and length of the corresponding bolt.
 2. The material is SCM435, strength grade of 12.9.

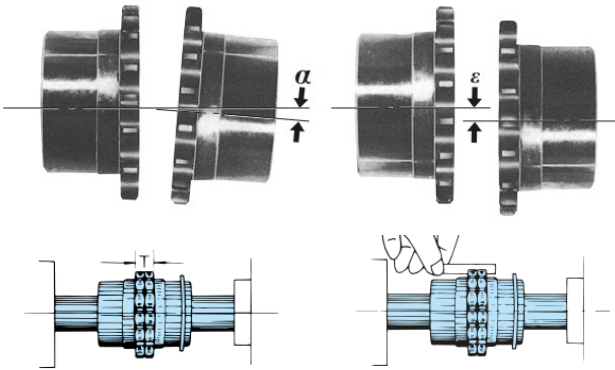
Installation

Installation

1. Place the oil seal on either the left or right sprocket. (Place the oil seal on upper side sprocket when vertical use.)



2. Bring the sprocket faces close together and correct the angular and offset misalignment.

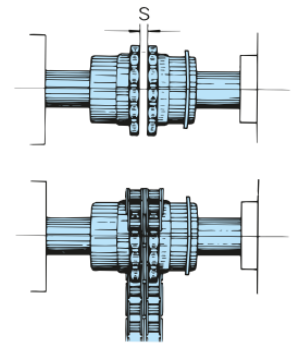


Adjust the angular misalignment (α) so that the dimension "T" is the same around the circumference of the sprockets. The allowable angular misalignment (α) is 1° .

Place a straight edge at the bottom of the corresponding teeth of the two sprockets and adjust in order to minimize the offset misalignment. The allowable offset misalignment (ϵ) is 2% of the chain pitch.

When the sprocket speed is 1/3 or more of the maximum speed, the allowable angular and offset misalignments are 0.5° and 1% of the chain pitch.

3. Measure the distance "S" between the sprocket faces and firmly fasten the set bolt (refer to the table of dimensions).
4. Fill the grease into the space "S" and lubricate the chain and teeth with grease, then wrap the chain around both sprockets and fix with the joint pin.



Insert the joint pin from oil seal side and confirm that the clip or cotter pin is securely fastened at counter oil seal side.

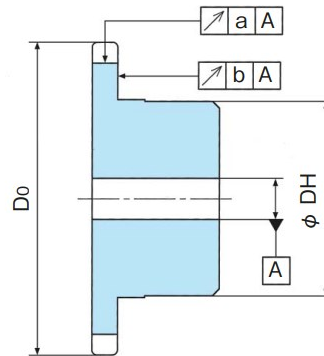
5. Fill the required quantity of grease into both sides of the casing and fasten them firmly. There will be slight leakage during initial operation, but this will soon stop. If the grease still leaks, check the conditions of installation.

Precautions for Additional Processing Work

Additional processing work on bore and keyway

In the case of processing and finishing the keyway and bore of a purchased product provided with a pilot bore (with no bore processed), perform the work based on the outer circumference of the hub. Be careful not to degrade tooth runout "a" or "b" in that case.

Do not perform additional processing work on the teeth and outer circumference of the hub.



Permissible Misalignment

Model no.	CR3812	CR4012	CR4014	CR4016	CR5014	CR5016	CR5018	CR6018	CR6022
Permissible offset error (ϵ) mm	0.190	0.254	0.254	0.254	0.318	0.318	0.318	0.381	0.381
Permissible angular error (α)°	1	1	1	1	1	1	1	1	1
Permissible distance error (mm)	S±0.31	S±0.68	S±0.68	S±0.68	S±0.88	S±0.88	S±0.88	S±1.02	S±1.02

Model no.	CR8018	CR8022	CR10020	CR12018	CR12022	CR16018	CR16022	CR20018	CR20022
Permissible offset error (ϵ) mm	0.508	0.508	0.635	0.762	0.762	1.016	1.016	1.270	1.270
Permissible angular error (α)°	1	1	1	1	1	1	1	1	1
Permissible distance error (mm)	S±1.32	S±1.32	S±1.52	S±2.02	S±2.02	S±2.52	S±2.52	S $^{+1.0}_{-3.0}$	S $^{+1.0}_{-3.0}$

Note 1. Consult your TSUBAKI representative for the asterisk-marked values.

2. Each permissible error is acceptable on the condition that other errors are all zero.