CR SERIES ROLLER CHAIN COUPLING

The Tsubaki Roller Chain Coupling is a flexible coupling of amazingly simple construction. It consists of the combination of one coupling chain and a pair of coupling sprockets. This coupling can be used over a wide range of applications. It is flexible and strong, and surpasses all others with its unique qualities.

Compact and Powerful

Torque is apportioned over the whole roller chain and all sprocket teeth, and is held at a point close to the outer diameter of the sprockets. This construction and the superior qualities of the Tsubaki roller chain combine to make a compact and light weight coupling.

Excellent Durability

The roller chain in designed for strength for use in couplings. The sprocket is precisely machined and it provides special flexibility because of the induction hardened teeth which are specially shaped.

Safe and Smart

The case which revolves with the body of the coupling looks smart, and unlike other couplings, there are no projecting bolt heads to hamper safety.

Wide Choice

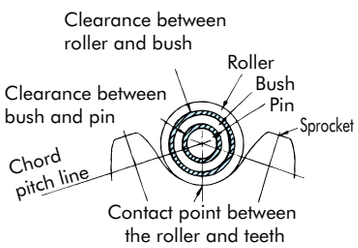
16 types are available from stock with standard pilot bore which can transmit from 0.1 kW to in excess of 1.600 kW.

Simple Installation

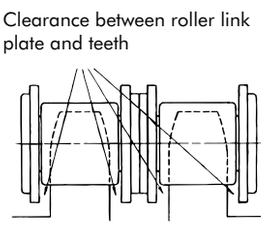
Connecting and disconnecting of both shafts is very simple, using only the connecting pin which can be freely inserted and removed.

Easy Alignment

Shafts to be coupled should be aligned as accurately as possible along a straight line. Unfortunately however, this usually proves quite difficult. The chain coupling provides necessary flexibility because the chain and sprocket produce a clearance, as shown in the diagram below. As well as protecting the bearings from over-heating and abrasion, it safeguards the machine in use.

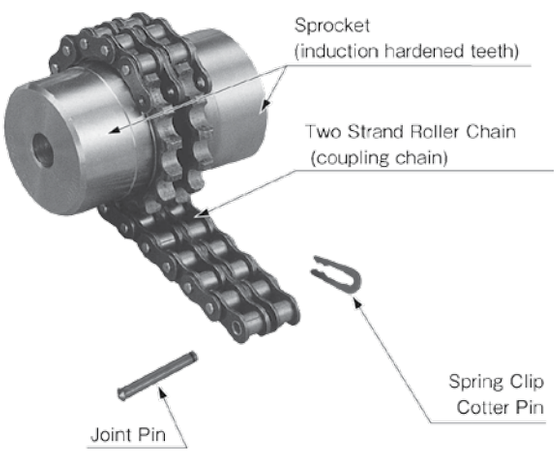


(a) Clearance in teeth direction



(b) Clearance in axis direction

Construction



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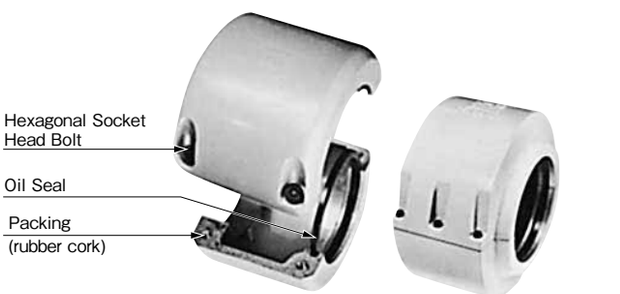
Case Construction

The standard case performs as part of the coupling. The cases of the small size couplings are made of die-cast zinc and those of the large size are made of cast aluminum alloy. The split type construction enables easy inspection and installation. The contact area with the coupling sprocket hub is precisely machined to support the hub and to prevent misalignment. The other end of the case has trapezoidal grooves where oil seal seats protect against oil leakage and the sprocket hub is freely supported in such a way it will not detract from the coupling's flexibility. The split joining portions of the coupling are sealed shut with bolts after inserting the packing.

Coupling life is notably increased due to prevention of lubricant spattering and the entrance of dust particles at the time of case installation. This means effective lubrication. The case, while protecting the unit from corrosion, prevents danger and makes for a fine appearance.

In the following cases, be sure to install the case:

1. When using at high revolution speeds consult Tsubaki.
2. When using in abrasive conditions caused by dust etc.
3. When using in corrosive conditions caused by humidity.
4. When starting and stopping frequency is particularly high or vibration is great (please consult with Tsubaki).



Lubrication

The following three lubrication systems are recommended when using Roller Chain Couplings. Choice depends on operating speed. (refer to Kilowatt Ratings Table)
Lubrication system I: Apply grease regularly once per month
Lubrication system II: Apply grease regularly once per week, or install the case filled with grease
Lubrication system III: Install the case filled with grease
For System III, it is especially important to use high grade grease because of the tendency of the grease to stick to the inner surface of the case due to centrifugal force, resulting in poor lubrication. The following types of grease are recommended:

Oil Company	Grease Name
Mobil	Mobil Plex EP No. 1 or 2
Shell	Alvania EP No. 1 or 2
ESSO	Lithin EP No. 1 or 2

Grease Change Interval for Lubrication System III

Operating Conditions	Grease Change Interval	
	First Change	Change Interval after first change
1/2 and over of max. r/min of catalogue rating	1000 hrs.	2000 hrs.
less than 1/2 of max. r/min	2000 hrs.	4000 hrs.

Grease filling amount is shown in the table below. If these amounts are followed, there will be slight leakage at the beginning of operations, however, momentarily this stabilizes and there will be almost no leakage after this.

Model	Filling Amount (kg)	Model	Filling Amount (kg)
CR3812	0.04	CR6022	0.40
CR4012	0.07	CR8018	0.6
CR4014	0.08	CR8022	0.8
CR4016	0.10	CR10020	1.4
CR5014	0.12	CR12018	2.6
CR5016	0.14	CR12022	3.4
CR5018	0.20	CR16018	6.6
CR6018	0.32	CR16022	8.0

Kilowatt Ratings Table

Model	Bore Diameter Max.	Max. Allowable Transmission Torque at Below 50 r/min	Revolution Speed (r/min) 1	5	10	25	50	100	200	300	400	500	600	800	1000	1200	1500	1800	2000	2500	3000	3600	4000	4800	5200	6000
CR3812H	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	3.88	4.41	5.35	6.25	6.73	8.12	9.44	11.0	12.0	14.0	14.8	16.7
CR4012H	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	8.53	9.68	11.6	13.7	14.8	17.9	20.7	24.1	26.3	30.8		
CR4014H	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	11.64	13.21	15.8	18.7	20.2	24.4	28.3	32.9	35.9	42.1		
CR4016H	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	15.3	17.3	21.0	24.4	26.3	31.9	37.0	43.0	46.9	54.9		
CR5014H	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	22.1	25.1	30.0	35.4	38.3	46.2	53.6	62.4				
CR5016H	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	28.9	32.9	39.9	46.4	50.0	60.6	70.4	81.6				
CR5018H	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	36.6	41.6	50.5	58.8	63.4	76.8	89.2					
CR6018H	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	69.1	78.4	95.2	111	120	145						
CR6022H	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	93.1	105	128	149	161	195						
CR8018H	80	3880	0.41	2.07	4.14	10.3	20.7	31.0	47.2	62.1	74.5	89.0	101	126	153	174	211	246	265							
CR8022H	100	5580	0.59	2.96	5.93	14.8	29.6	44.5	67.2	89.0	106	127	146	180	219	249	302	352	379							
CR10020H	110	8780	0.93	4.66	9.33	23.3	46.6	70.0	106	140	168	200	229	283	345	392	476	554								
CR12018H	125	13200	1.40	7.02	14.0	35.1	70.2	105	160	210	252	302	345	426	519	590	716									
CR12022H	140	17100	1.81	9.07	18.1	45.3	90.7	136	206	272	326	390	446	551	671	762										
CR16018H	160	28600	3.03	15.1	30.3	75.8	151	227	345	455	546	652	746	922	1122											
CR16022H	200	41700	4.43	22.1	44.3	110	221	333	506	665	799	954	1090	1350	1640											
CR20018H	205	57000	6.06	30.3	60.6	151	303	454	691	909	1090	1300	1490	1840												
CR20022H	260	71900	7.63	38.2	76.3	191	382	572	871	1140	1370	1640	1880													
CR24022H	310	129000	13.7	68.8	137	344	688	1030	1570	2060	2470	2960	3380													
CR24026H	380	157000	16.7	83.7	167	418	837	1250	1900	2510	3010	3600														
CR32022H	430	255000	27.2	136	272	680	1360	2040	2850	4080	4900															
CR40020H	470	494000	52.6	263	526	1310	2630	3940	5990	7890	9470															
CR40024H	590	602000	64.0	320	640	1600	3200	4800	7300	9600																
CR40028H	700	717000	76.2	380	762	1900	3800	5700	8690	11400																
Lubrication Type			I	II		III																				

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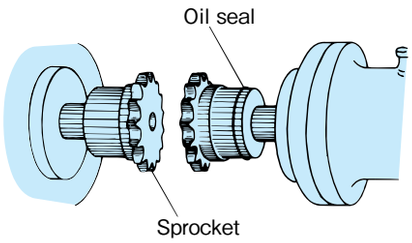
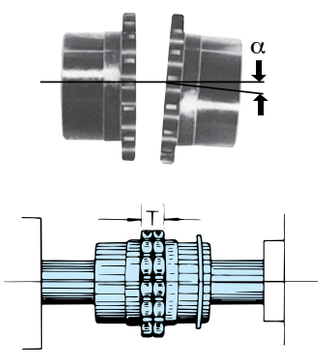
Installation

1. Place the oil seal on either the left or right sprocket.

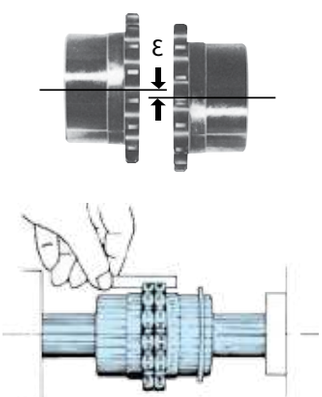


2. Bring the sprocket faces close together and correct the angular and parallel misalignment.

Adjust the angular mis-alignment (α) so that the width of the teeth surface T is the same around the circumference of the sprockets. Allowable angular misalignment (α) is 1°.



Place a straight edge at the bottom of corresponding teeth of the two sprockets and adjust so that parallel misalignment is minimized. Allowable parallel misalignment (ε) is 2% of the chain pitch.



In the case where sprocket r/min is 1/3 or more of the maximum r/min, the allowable angular and parallel 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 (referring to the dimensions table).
4. Lubricate the chain with grease then wrap the chain around both sprockets and fix with the connecting pin.

Note:
1. During high speed operations or conditions of large vibration, please use locking cement when fastening the bolts.
2. Ambient temperature range is -10°C to 60°C. If used outside this temperature range, please consult with Tsubaki.

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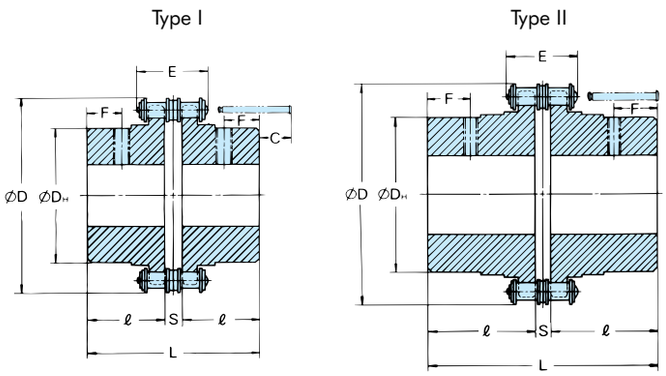

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Dimensions in mm

Model	Type	Pilot Bore	Bore Diameter Min.	Bore Diameter Max.	Chain Pitch	Chain Max. Width	D	D_H	L	ℓ	S	C	F	Approx. Mass kg/pc
CR3812H	I	8	9.5	16	9.525	24.0	45	25	64.9	30	4.9	4	14	0.3
CR4012H		9	11	22	12.70	33.1	61	35	79.4	36	7.4	10	16	0.8
CR4014H		9	11	28			69	43	79.4	36		10	16	1.1
CR4016H		13	16	32			77	50	87.4	40		6	20	1.6
CR5014H		13	16	35	15.875	41.0	86	53	99.7	45	9.7	12	21	2.2
CR5016H			18	40			96	60						2.8
CR5018H			18	45			107	70						3.6
CR6018H		18	22	56	19.05	51.1	128	85	123.5	56	11.5	15	26	6.5
CR6022H			28	71			152	110						10.3
CR8018H		23	32	80	25.40	65.3	170	115	141.2	63	15.2	30	26	13.8
CR8022H		28	40	100			203	140	157.2	71		22	34	21.7
CR10020H		33	45	110	31.75	81.9	233	160	178.8	80	18.8	30	36	32.6
CR12018H		43	50	125	38.10	102.7	256	170	202.7	90	22.7	50	36	43.9
CR12022H		53	56	140			304	210	222.7	100		40	46	69.0
CR16018H		58	63	160	50.80	131.7	341	224	254.1	112	30.1	68	42	96.3
CR16022H		73	80	200			405	280	310.1	140		40	70	166.8
CR20018H*	II	85	88	205	63.50	160.6	426	294	519.5	241	37.5	-	100	294.4
CR20022H*		95	98	260			507	374						461.6
CR24022H*		117	120	310	76.20	197.3	608	420	751.1	353	45.1	-	150	871.4
CR24026H*		147	150	380			705	520						1276.4
CR32022H*		197	200	430	101.60	263.0	806	570	860.1	400	60.1	-	200	1791.2
CR40020H*		247	250	470	127.0	332.3	932	640	1099.6	512	75.6	-	250	2862.5
CR40024H*		297	300	590			1093	800						4294.6
CR40028H*		347	350	700			1255	960						6019.4

*= Non-stock item

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.
3. Finished bore with keyway and/or set screw hole is available upon request at additional cost.
4. The items in regular typeface are made-to-order and the dimension "D_H" is only a guide.

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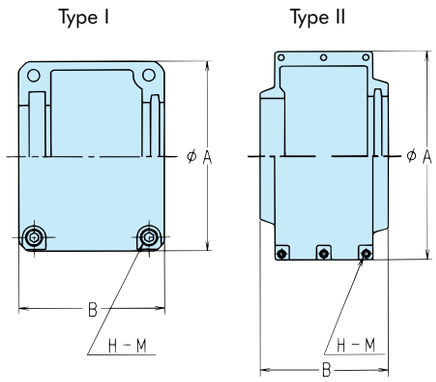

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Dimensions in mm

Model	Type	A	B	H-M	Oil Seal	Case Material	Approx. Mass kg/pc
CR3812K	I	59	61	4-M 5	Special Type ZF36 ZF38 ZF46	Aluminium Die-Cast	0.19
CR4012K		75	75	4-M 6			0.33
CR4014K		84					0.38
CR4016K		92					0.41
CR5014K		101	85				0.50
CR5016K		111					0.58
CR5018K		122					0.66
CR6018K		142	106	4-M 8			0.96
CR6022K		167					1.3
CR8018K		186	130				2.0
CR8022K		220					2.5
CR10020K		250	148				3.7
CR12018K	II	307	181	$^{\Delta}$4-M10			3.3
CR12022K		357					3.9
CR16018K		406	250	6-M10	ZF48	Aluminum Alloy	14.7
CR16022K		472			ZF60		17.2
CR20018K*		496	280		Special Type		22.2
CR20022K*		578					26.6

*= Non-stock item

Note:

1. Place orders of casing with the casing model numbers specified.
2. The ZF type oil seal is made by Japan Oil Seal
3. The item marked with a $^{\Delta}$ has 4 bolts and not 6 as indicated in the drawing.