

ELECON

TRACTION TYPE HYDROKINETIC FLUID COUPLING



Catalogue No.: 149/G/11/07 R3

radicon 
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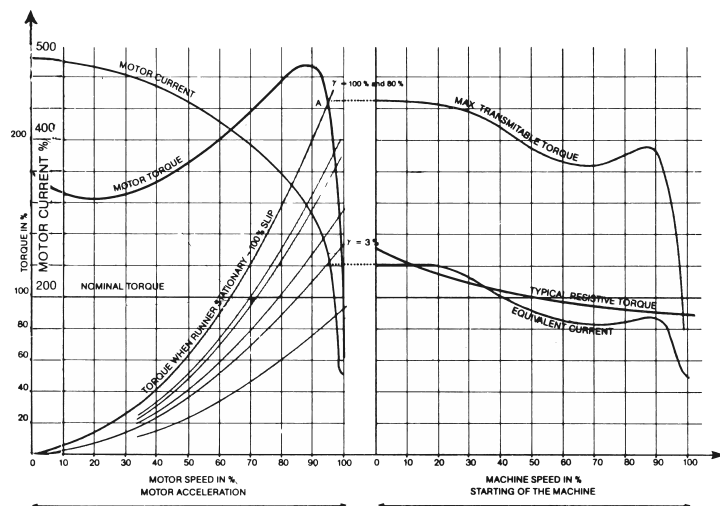
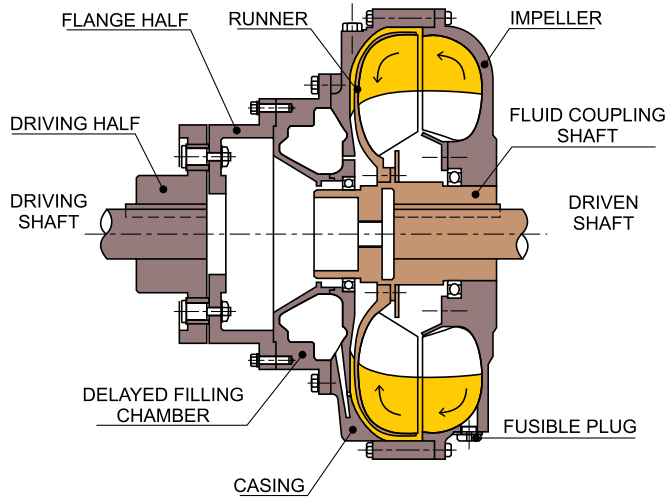
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Hydrokinetic Fluid Couplings

SELECTION OF TRACTION TYPE FLUID COUPLINGS AS A FUNCTION OF POWER TRANSMITTED AND INPUT SPEED.



The graph shows how, With the use of fluid coupling demand during acceleration of the load is kept to an acceptable value: thus, favouring the use of a squirrel cage motor. After switch-on, as the motor accelerates, the torque transmitted by the fluid coupling builds up according to curve OA in the lefthand graph while the output shaft is stationary. The motor thus has available a high surplus of torque and so accelerates to point A very rapidly.

The abrupt start usually associated with squirrel cage motor is cushioned by a fluid coupling. It assures a very smooth start and protects the machine in event of jamming or overload: because the fluid coupling acts as torque limiter the inertia of motor rotor is not transmitted in a damaging way.

SELECTION TABLE							
POWER TRANSMITTED IN kW							
MOTOR SPEED (rpm)	750	960	1170	1450	1760	2950	
FLUID COUPLING SIZE	185	0.2	0.45	0.75	1.5	3	5
	235	0.6	1.3	2.3	4.5	9	15
	270	1.1	2.5	4.5	9	17	28
	320	2.5	5.5	10	22	38	65
	370	5.5	12	22	45	90	132
	420	10	22	40	80	150	250
	450	16.7	35	72	132	185	450
	480	22	45	80	160	250	500
	584	40	100	175	340	500	
	660	80	180	310	600	700	
	760	180	350	580	950		

When the fluid coupling is filled with oil to the appropriate level and the motor is switched on, oil in the passages between the vanes of the impeller is accelerated radially outwards gaining energy all the time until it reaches the maximum circuit diameter. The oil then passes from the impeller to the runner in which it is forced to move inwards between the vanes and as its radial velocity falls energy is transferred to the runner and output shaft. Because the oil passes directly from the impeller to the runner, (there is no reaction member, as in torque converter), the efficiency is high, with full load slips of between 2 To 5 % being achieved in practice and depending on the application and size selection. Windage and oil circulation losses are negligible therefore efficiency equals 100% slip %. Should an overload occur the fluid coupling will stall, i.e. slip 100% at a torque value determined by the initial oil filling level. Thus, motor and machine are both protected.

ELECON constant filling fluid coupling have the following advantages: PERFORMANCE

The level of performance achieved by fluid coupling is governed mainly by the design of its working circuit which includes the shape of the circuit, number of vanes in the circuit, the vanes placement etc. The working circuit developed by elecon is out of number of years of experience in the field and is vital in the performance of the fluid coupling. Elecon fluid couplings are very rugged in construction simple in design and reliable in operation.

REDUCED STARTING CURRENT

when elecon fluid coupling is connected to the drive system it allows the motor to start practically at no load. This results in reduces starting current enabling quick start and acceleration of the drive motor.

SOFT START

If gives gradual start to driven equipment and thus provides smooth and shockless transmission.

LOW MAINTENANCE COST

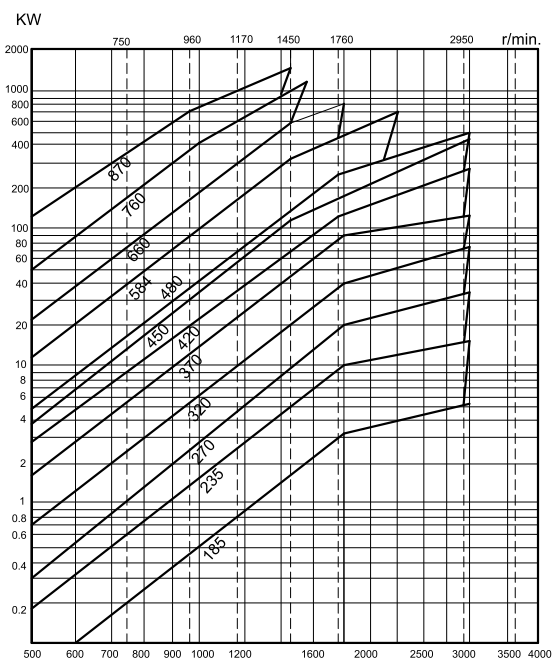
Driving and driven equipment suffer less wear and tear and thus there is reduction in electrical and mechanical maintenance cost.

PROTECTION TO MOTOR AND MACHINE

In case of overload, accidental jamming, the transmission torque is limited by the fluid coupling and thereby proving protection to the eclectic motor and connected machine.

In case of extended jamming period, fusible plug blow off will empty the fluid coupling thereby disconnecting the output from the input and protecting both driving and driven equipment.

To prevent the loss of oil and to have an additional safety device, thermal trig switch can be provided when demanded in addition to the fusible plug.



The table shows maximum power ratings for each size of fluid coupling at different motor speeds. The chart may be used for preliminary size selection when drive power and motor speeds are known. When electric motor is being used the selection chart allows twice motor full load torque for starting.

For Dual drive application Fluid coupling with multi disc type are more suitable.

TRACTION TYPE FLUID COUPLINGS

DESCRIPTION

These are following types of ELECON traction couplings:

- CD : Coupling without delayed filling chamber
- CDR : Coupling with delayed filling chamber
- CDRP : Coupling with extended delayed filling chamber
- CDRS : Coupling with extended delayed filling chamber and controlled nozzles.

- Type CD consists of impeller, driven by motor and a runner, driving the output shaft, which together with casing forms an oil tight unit.
- The working circuit includes a central bypass chamber which in conjunction with baffle helps to limit the torque conditions of high slip without sacrificing efficiency under normal running conditions.
- Type CDR includes in addition a delayed filling chamber attached to the casing communicating with the working circuit by means of holes.
- This permits machines to start reduced torque e.g. 1.4 times full load torque.
- Type CDRP has an extra-large delayed filling chamber. This allows low starting torques (1.2 times full load torque) and low full load slip.
- Type CDRS has an extra-large, delayed filling chamber with controlled nozzles. This allows very low starting torques (0.6 times full load torque)

FLUID COUPLING TYPES AND MOUNTINGS

1. Model CDR-XR (hollow shaft):

An in-line arrangement with the hollow shaft of the fluid coupling generally fitted over the driven machine shaft. The connection to the motor is by means of a fully flexible coupling.

2. Model CDR-XR (hollow shaft):

Reversed coupling with delayed filling chamber. It is possible in certain cases to mount the fluid coupling on the motor shaft with the flexible coupling on the motor shaft with the flexible coupling on the output side, this is referred as "reverse mounting" (model XR reversed).

3. Model PH (with "V-belt" pulleys):

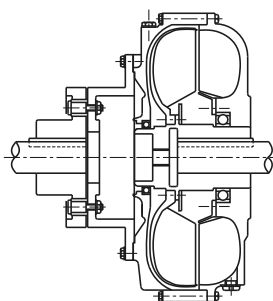
This is combinations of fluid coupling and "V-belt" pulley.

PHR: Fluid coupling mounted on motor shaft

PHM: Fluid coupling mounted on machine shaft

4. Model CD/CDR-R:

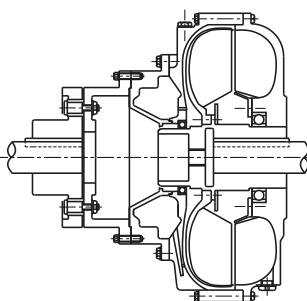
Fluid coupling with solid shaft Also, an in-line arrangement which is mounted on motor shaft and has a solid output shaft which facilitate the radial removal of fluid coupling without disturbing motor as well as machine. There is choice of flexible couplings & brake drum.



CD

"BASIC COUPLING"

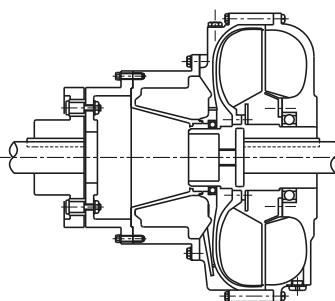
The CD design without delay fill chamber is used for high inertia machines requiring a starting torque limited to 200% of nominal torque.



CDR

"SOFT START COUPLING"

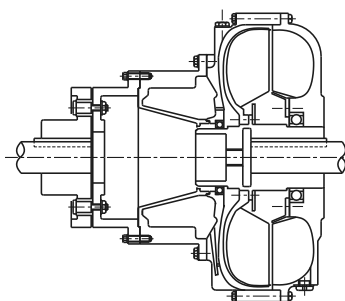
The CDR design with standard delay fill chamber is used where the starting torque limitation down to 140% of nominal torque is required.



CDRP

"PROLONGED SOFT START COUPLING"

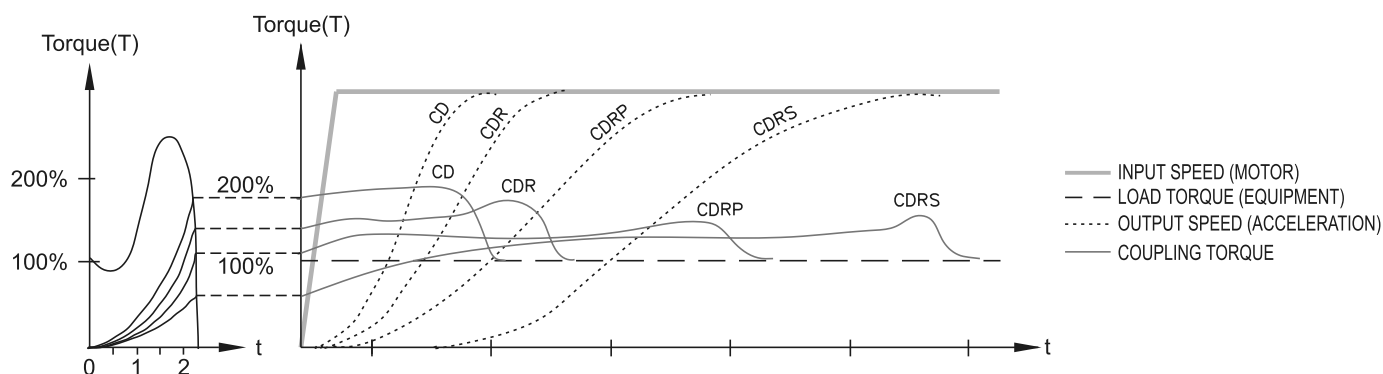
The CDRP design has a delay fill chamber of twice the volume of that of the CDR, and is used for belt conveyors where torque limitation down to 120% of nominal torque is required.



CDRS

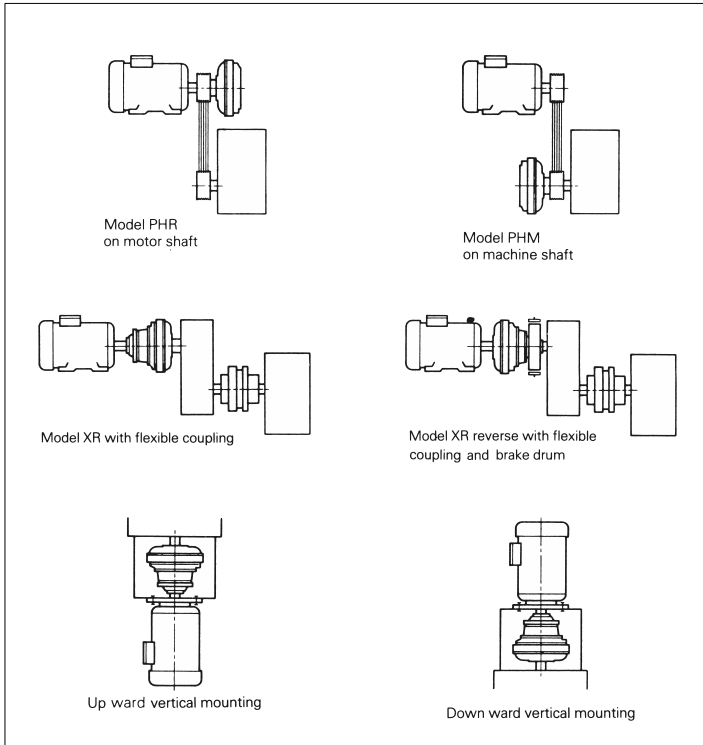
"SUPER SOFT START COUPLING"

The CDRS design is used particularly on belt conveyors where the motor starting torque is limited to 60% of the nominal torque. It allows progressive tensioning of the belt before accelerating the load with a torque limitation down to 120% of nominal torque.

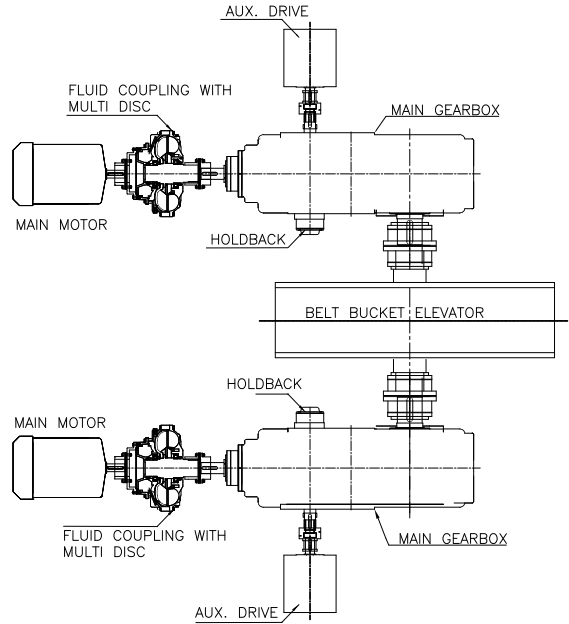


COMPARISON OF START - UP CHARACTERISTICS

Examples of Mounting



RECOMMENDED FOR DUAL DRIVE



REFER PAGE NO. 21

ELECON

SOFT TOUCH GIVES YOU THE SOLUTION TO SIX MACHINE KILLING PROBLEMS

1. Soft starts

Start an empty conveyor with too much torque. You'll break belts. Damage idlers and wear the equipment out before its time. The soft start of Elecon fluid coupling controls torque, allowing it to build up gradually without shock loads.

2. The right starting torque

A fully loaded crusher or mixer takes more torque to start than a standard squirrel cage motor can safely provide. An elecon fluid coupling boosts the usable torque of motor by as much as 200% and at same time reduces current draw.

3. Protection of the motor

A motor slowly starting a big fan draws excessive current and is a source of electric overload and failure. The ELECON fluid couplings allows the motor to quickly accelerate to full speed, reducing current draw to normal levels in seconds.

4. Shock absorption

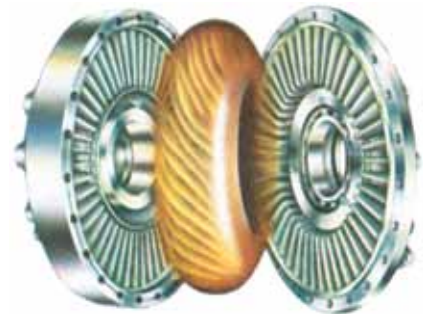
A jam in the systems can create torque loads ten times the nominal. Equipment will break. The ELECON fluid coupling will absorb this machine killing shock.

5. Perfectly balanced motor loading

Two or more motors driving the same load are nearly impossible to balance. But, with ELECON fluid coupling, you can balance the load easily by adjusting the amount of fluid in the coupling.

6. Elimination of unwanted vibrations

When the motor and driven machinery vibrate together, the resonance can cause severe damage. The ELECON fluid coupling dampens out the unwanted vibrations.



ELECON FLUID COUPLING

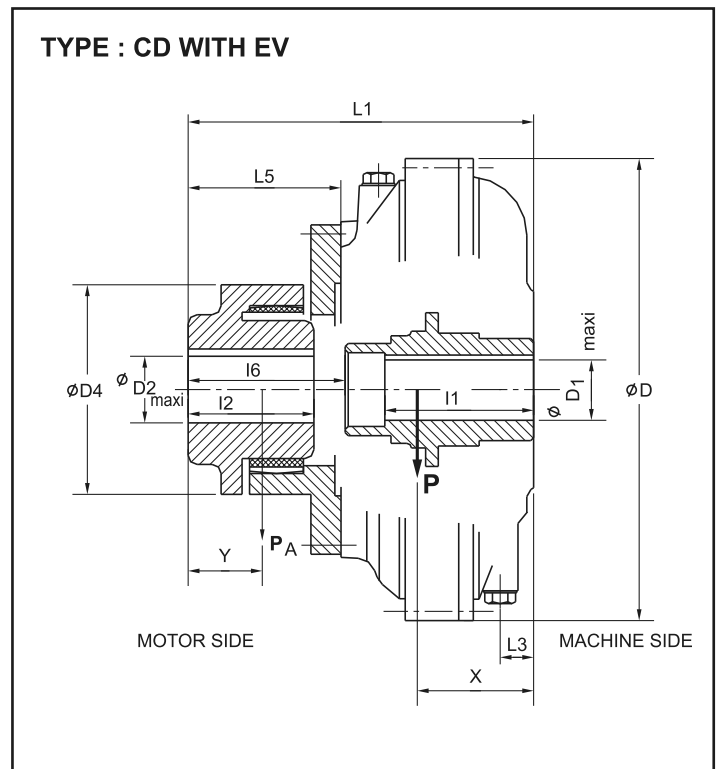
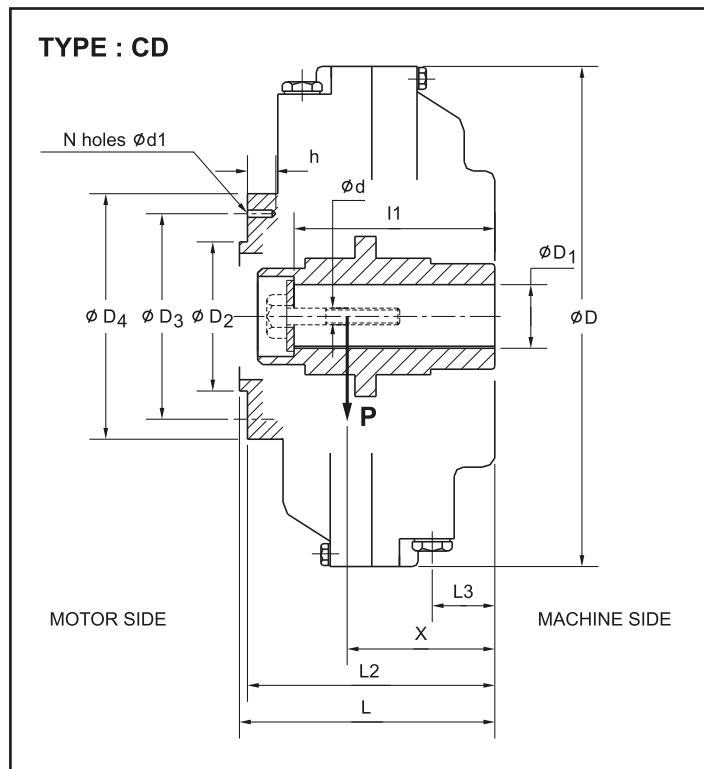


ELECON FLUID COUPLING INSTALLED WITH CRUSHER DRIVE AT GANDHINAGAR T.P.S.

Hydrokinetic Fluid Couplings TRACTION TYPE MOUNTING : XR (Hollow Shaft)

SIZE : 185-235

TYPE : CD AND CD with Flexible Coupling EV



FLUID COUPLING	SIZE	185	235
J (kgm²)	INPUT	0.003	0.009
	OUTPUT	0.025	0.06
WEIGHT P (DRY) x	kg	7	12
	mm	75	102
	D	225	275
	D1	38	42
	D2	71	82
	D3	97	113
	D4	110	135
	L3	116	140
	L2	114	136
	l1	85	112
	N	8	6
	d1	M5	M6
	L3	26	34
	h	14	18

FLUID COUPLING FLEXIBLE COUPLING	SIZE	185	235
	TYPE	EV-75	235
J (kgm²)	FLUID COUPLING	0.03	0.065
	FLEXIBLE COUPLING	0.003	0.009
TOTAL WEIGHT (DRY)	kg	7	12
	kg	2.5	3
	D	225	275
	D1	38	42
	D2	30	38
	D4	70	85
	L1	165	192
	L5	51	56
	l1	85	112
	l2	45	45
	L3	26	34
	l6	55	58

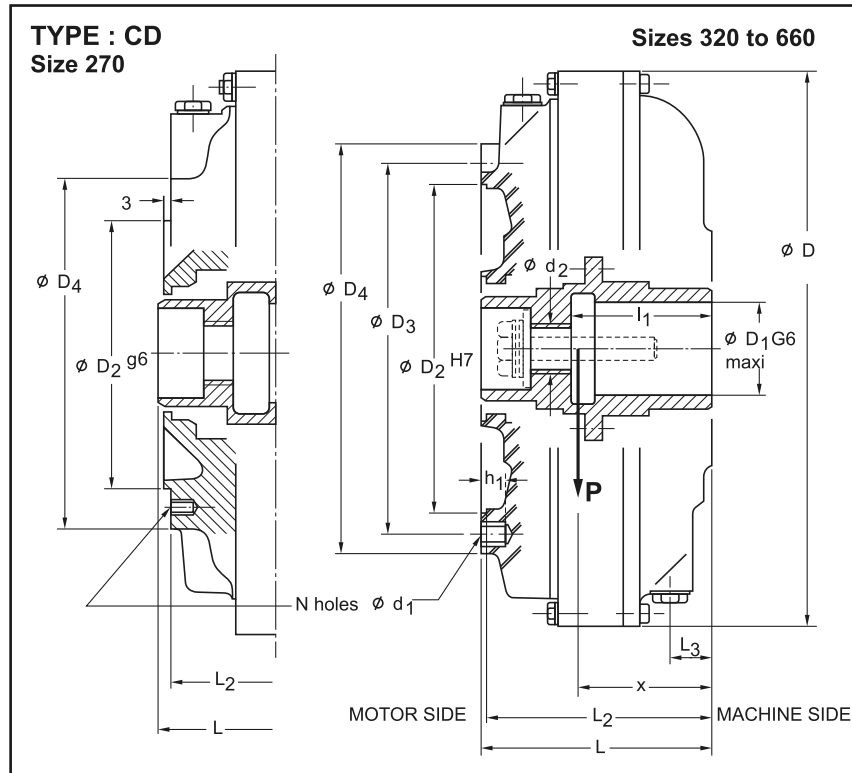
Owing to continuous development and improvement all dimensions and characteristics are subject to change without notice.

Hydrokinetic Fluid Couplings

TRACTION TYPE MOUNTING : XR (Hollow Shaft)

SIZE : 270-660

TYPE : CD



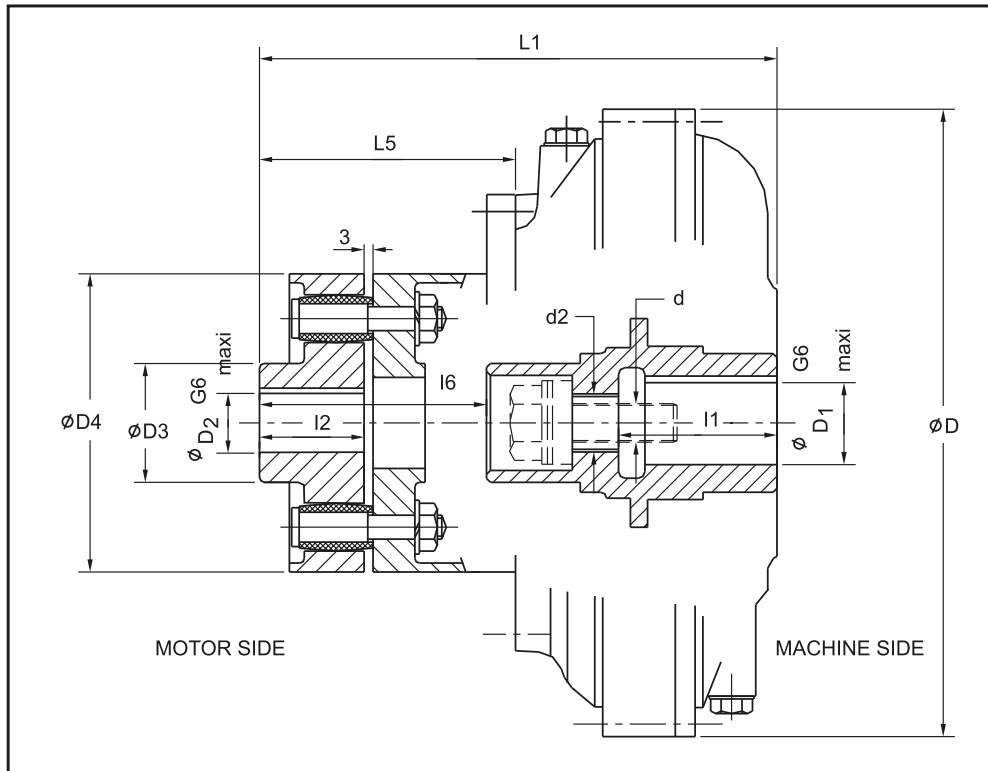
FLUID COUPLING	SIZE	270	320	370	420	450	480	584	660
J (kgm²)	INPUT	0.12	0.24	0.47	0.72	1.16	1.33	2.9	5.3
	OUTPUT	0.02	0.04	0.08	0.16	0.23	0.36	0.83	1.45
WEIGHT P (DRY) x	kg	15	24	33	47	56	68	120	170
	mm	75	90	95	103	130	115	136	155
	D2	150	215	245	280	317	320	385	445
	D3	172	250	280	320	345	366	432	500
	D4	194	274	306	348	375	392	468	540
	L1	143	158	180	200	224	224	262	304
	L2	136	153	174	194	218	218	256	298
	N	6	12	12	12	12	12	12	12
	d1	M8	M10	M12	M12	M12	M12	M14	M14
	h1	12	18	18	18	18	18	21	21
	D	315	365	425	475	520	550	670	760
	D1	55	60	65	80	80	90	110	120
	L3	25	25	29	37	60	37	49	55
	l1	100	110	110	120	120	155	170	200
TAPPED HOLE	d2	1" BSP	1" BSP	1" BSP	1-1/4" BSP	1-1/4" BSP	1-1/4" BSP	1-1/4" BSP	1-1/4" BSP

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Hydrokinetic Fluid Couplings TRACTION TYPE MOUNTING : XR (Hollow Shaft)

SIZE : 270-660

TYPE : CD with Flexible Coupling CDF



FLUID COUPLING FLEXIBLE COUPLING		SIZE	270	320	370	420	450	480	584	660
		TYPE	CDF5.5	CDF6	CDF7	CDF9	CDF 9	CDF10	CDF13	CDF14
FLUID COUPLING + FLEXIBLE COUPLING	J (kgm²)	FLUID COUPLING	0.14	0.28	0.55	0.88	1.39	1.69	3.73	6.75
		FLEXIBLE COUPLING	0.02	0.04	0.08	0.16	0.16	0.36	0.83	1.45
	TOTAL WEIGHT (DRY)	FLUID COUPLING	15	24	33	47	56	68	120	170
		FLEXIBLE COUPLING	9.5	17	24	37	37	47	88	135
		D	315	365	425	475	520	550	670	760
		D1	55	60	65	80	80	90	110	120
		D2	40	48	60	80	80	90	110	120
		D4	152.4	165.1	190.5	241.3	241.3	266.7	342.9	368.3
		L1	245	285	337	371	395	412	481	576.6
		L5	109	127	157	171	171	188	219	272
		I1	100	110	110	120	120	155	170	200
		I2	44.5	48	60	82.5	82.5	95	108	120
		I6	100	105	137	151	-	167	192	241
		D3	63.5	73	92	124	124	143	165	190
TAPPED HOLE		d2	1" BSP	1" BSP	1" BSP	1-1/4" BSP	1-1/4" BSP	1-1/4" BSP	1-1/4" BSP	1-1/4" BSP

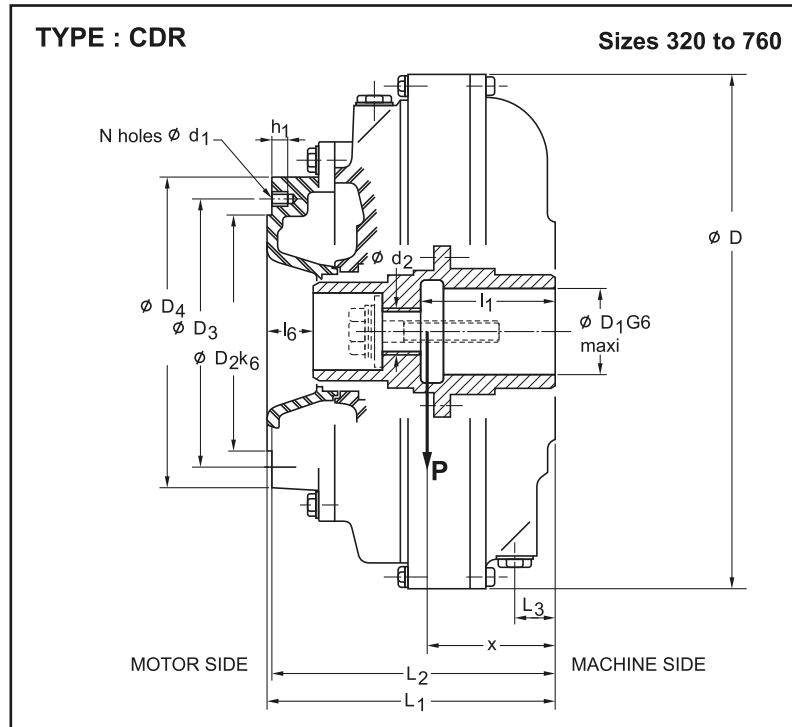
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Hydrokinetic Fluid Couplings

TRACTION TYPE MOUNTING : XR (Hollow Shaft)

SIZE : 320-760

TYPE : CDR



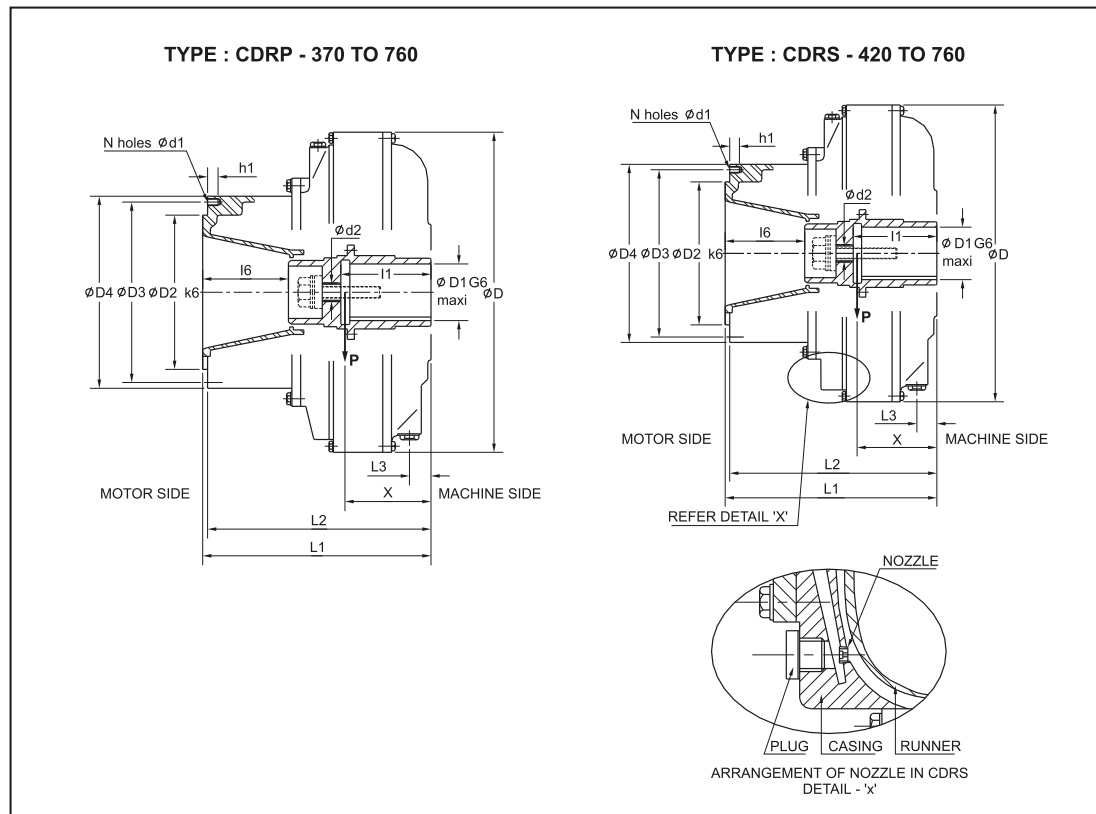
FLUID COUPLING	SIZE	320	370	420	450	480	584	660	760
J (kgm ²)	INPUT	0.25	0.48	0.74	1.3	1.35	2.95	5.4	9.5
	OUTPUT	0.04	0.08	0.16	0.23	0.36	0.83	1.45	2.6
WEIGHT P (DRY) x	kg	26	36	51	62	74	128	180	250
	mm	110	116	135	130	155	172	200	222
	D2	170	195	220	235	265	315	360	420
	D3	195	228	165	260	310	360	420	480
	D4	220	252	290	313	330	392	468	530
	L1	206	228	260	322	300	336	389	449
	L2	203	225	257	319	297	333	385	445
	l6	26	28	40	-	55	47	54	54
	N	6	8	8	12	12	16	16	20
	d1	M12	M12	M12	M12	M12	M12	M14	M16
	h1	18	18	18	18	18	18	21	36
	D	365	425	475	520	550	670	760	870
	D1	60	65	80	80	90	110	120	135
	L3	25	29	37	60	37	49	55	49
	l1	110	110	120	120	155	170	200	240
TAPPED HOLE	d2	1" BSP	1" BSP	1-1/4" BSP	1-1/4" BSP	1-1/4" BSP	1-1/4" BSP	1-1/4" BSP	1-1/4" BSP

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Hydrokinetic Fluid Couplings TRACTION TYPE MOUNTING : XR (Hollow Shaft)

SIZE : 370-760 , TYPE : CDRP and

SIZE : 420-760 , TYPE : CDRS



FLUID COUPLING	SIZE	370	420	480	584	660	760
J (kgm ²)	INPUT	0.51	0.8	1.46	3.2	5.85	10.3
	OUTPUT	0.08	0.16	0.36	0.83	1.45	2.6
WEIGHT P (DRY) x	kg	38	54	78	135	190	265
	mm	120	142	165	180	210	235
	D	425	475	550	670	760	870
	D1	65	80	90	110	120	135
	D2	195	220	265	315	360	420
	D3	228	265	310	360	420	480
	D4	252	290	330	392	468	530
	L1	263	339	387	433	499	572
	L2	260	336	384	430	495	568
	L3	29	37	37	49	55	49
	I1	110	120	155	170	200	240
	I6	63	119	142	144	164	177
	N	8	8	12	16	16	20
	d1	M12	M12	M12	M12	M14	M16
	h1	18	18	18	18	21	36
TAPPED HOLE	d2	1" BSP	1-1/4" BSP	1-1/4" BSP	1-1/4" BSP	1-1/4" BSP	1-1/4" BSP

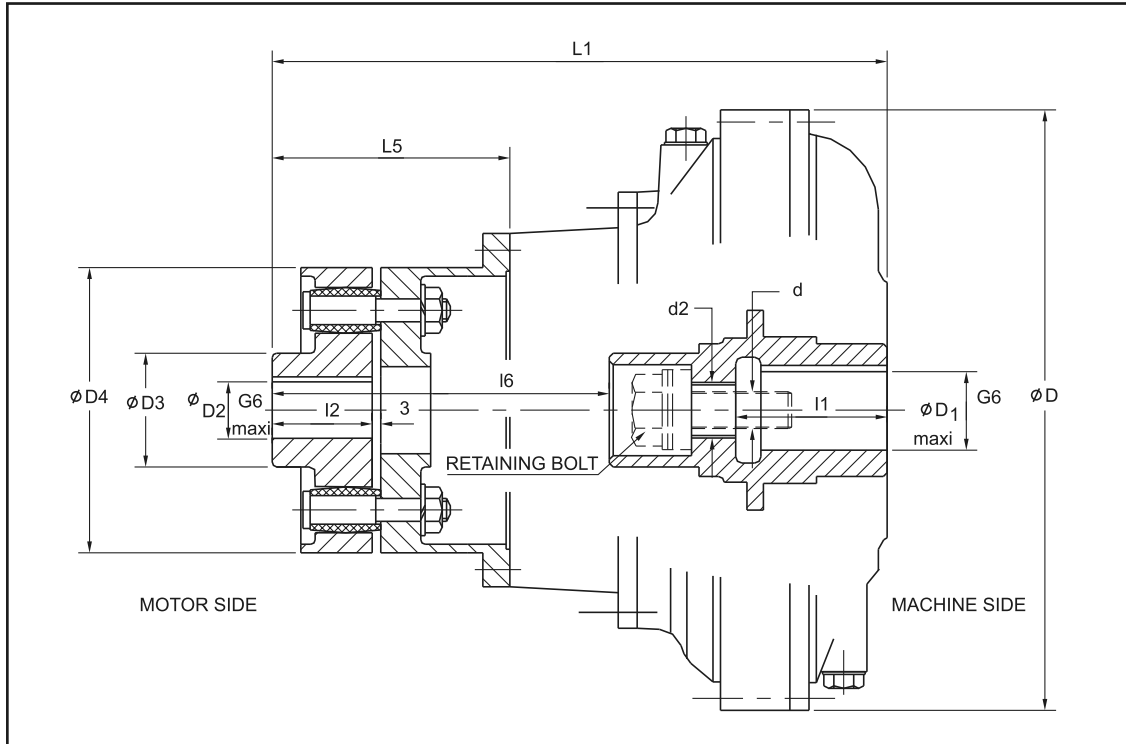
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Hydrokinetic Fluid Couplings

TRACTION TYPE MOUNTING : XR (Hollow Shaft)

SIZE : 370-760 , TYPE : CDRP with Flexible Coupling FCF and

SIZE : 420-760 , TYPE : CDRS with Flexible Coupling FCF



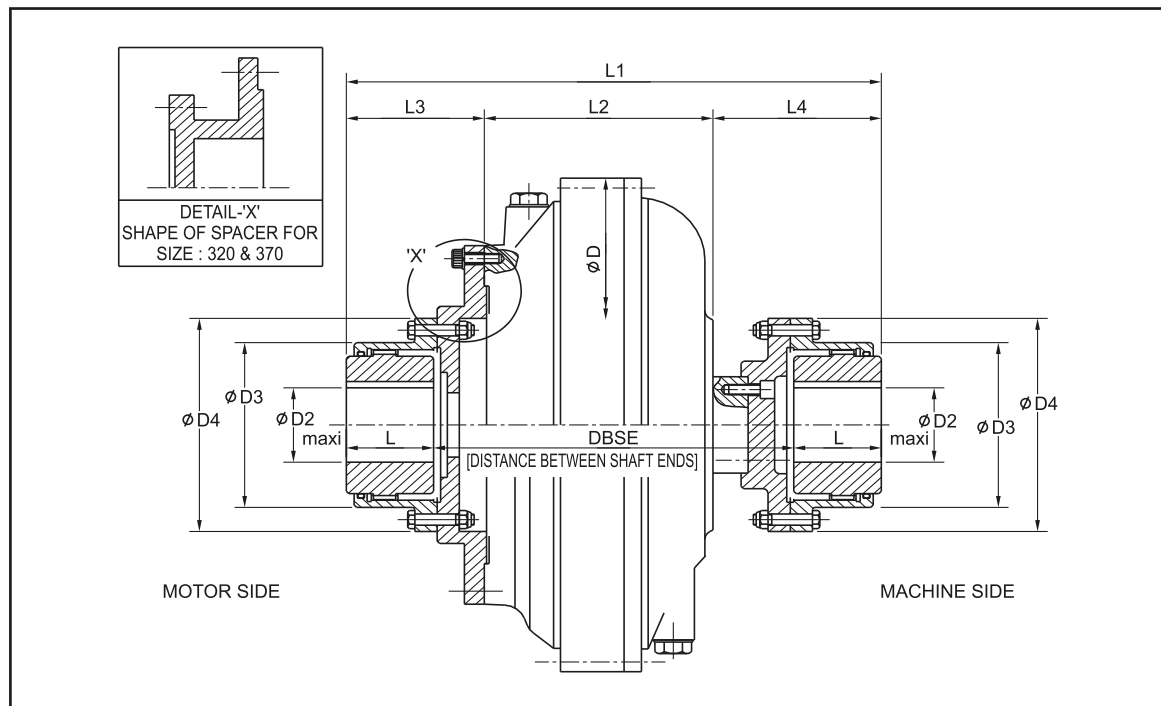
FLUID COUPLING (CDRP / CDRS)		SIZE	370	420	480	584	660	760
FLEXIBLE COUPLING		TYPE	FCF7	FCF9	FCF10	FCF13	FCF14	FCF16
FLUID COUPLING + FLEXIBLE COUPLING	J (kgm²)	FLUID COUPLING	0.59	0.96	1.82	4.03	7.3	12.9
		FLEXIBLE COUPLING	0.17	0.35	0.51	1.93	4.8	7
	TOTAL WEIGHT (DRY)	FLUID COUPLING	38	53	78	135	192	262
		FLEXIBLE COUPLING	21	32	40	78	120	150
		D	425	475	550	670	760	870
		D1	65	80	90	110	120	135
		D2	60	80	90	110	120	135
		D4	190.5	241.3	266.7	342.9	368.3	419.1
		L1	417	507	572	649	766	841
		L5	157	171	188	219	272	273
		l1	110	120	155	170	200	240
		l2	60	82.5	95	108	120	146
		l6	217	287	327	360	431	446
		D3	92	124	143	165	190	235
TAPPED HOLE		d2	1" BSP	1-1/4"BSP	1-1/4"BSP	1-1/4"BSP	1-1/4"BSP	1-1/4"BSP

Hydrokinetic Fluid Couplings

TRACTION TYPE MOUNTING : R (Solid Shaft - Radially removable)

SIZE : 320-660

TYPE : CD-R with Elign Gear Coupling ED



FLUID COUPLING		CD-R		320	370	420	450	480	584	660
ELIGN GEAR COUPLING		ED		500	1000	1000	1000	1600	2200	3200
FLUID COUPLING + GEAR COUPLING	J (kgm²)	FLUID COUPLING		0.3	0.6	0.96	1.42	1.85	4.1	7.43
		FLUID COUPLING	INPUT	0.08	0.14	0.27	0.27	0.48	1.22	2.25
			OUTPUT	0.02	0.09	0.09	0.09	0.16	0.36	0.66
	TOTAL WEIGHT (DRY)	FLUID COUPLING		27	36	52	57	75	132	187
		GEAR COUPLING	INPUT	14	25.2	27	27	37	65	90
			OUTPUT	11	21	21	21	28	44	67
		D	365	425	475	520	550	670	760	
		D2	75	95	95	95	110	130	155	
		D3	129.5	156	156	156	181	209	247	
		D4	171	210	210	210	234	274	312	
		L	62	76	76	76	90	105	120	
		DBSC	306	351	366	390	357	416	475	
		L1	430	503	518	542	537	626	715	
		L2	158	180	200	224	224	262	304	
		L3	148	171	155	155	144	168	192	
		L4	124	152	163	163	169	196	219	

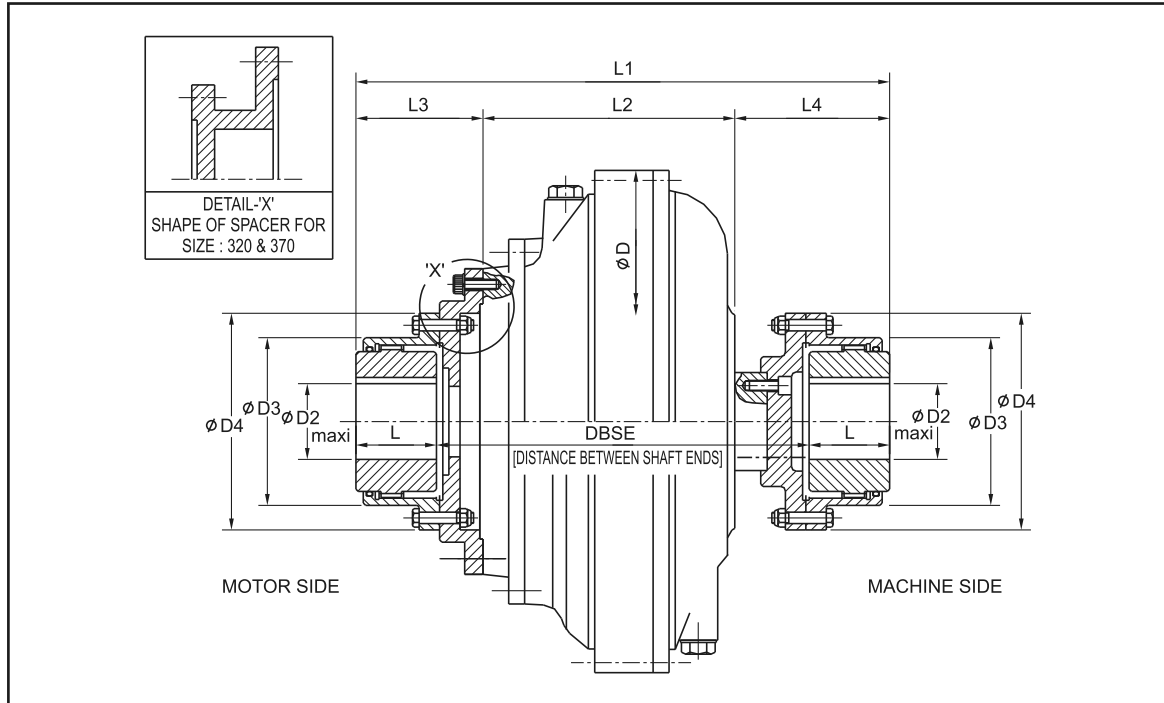
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Hydrokinetic Fluid Couplings

TRACTION TYPE MOUNTING : R (Solid Shaft - Radially removable)

SIZE : 320-660

TYPE : CDR-R with Elign Gear Coupling ED



FLUID COUPLING		CDR-R		320	370	420	450	480	584	660	760
ELIGN GEAR COUPLING		ED		500	1000	1000	1000	1600	2200	3200	4500
FLUID COUPLING + GEAR COUPLING	J (kgm²)	FLUID COUPLING		0.32	0.62	0.99	1.56	1.88	4.15	7.54	13.3
		FLUID COPLING	INPUT	0.05	0.13	0.19	0.19	0.34	0.7	1.52	2.53
			OUTPUT	0.02	0.09	0.09	0.09	0.16	0.36	0.66	1.01
	TOTAL WEIGHT (DRY)	FLUID COUPLING		29	40	56	67	81	141	198	275
		GEAR COPLING	INPUT	13	23	24	24	33	47	78	104
			OUTPUT	11	21	21	21	28	44	67	86
		D		365	425	475	520	550	670	760	870
		D2		75	95	95	95	110	130	155	175
		D3		129.5	156	156	156	181	209	247	273
		D4		171	210	210	210	234	274	312	337
		L		62	76	76	76	90	105	120	135
		DBSC		351	396	423	485	430	487	555	635
		L1		475	548	575	637	610	697	795	905
		L2		203	225	257	319	297	333	384	445
		L3		148	171	155	155	144	168	192	210
		L4		124	152	163	163	169	196	219	250

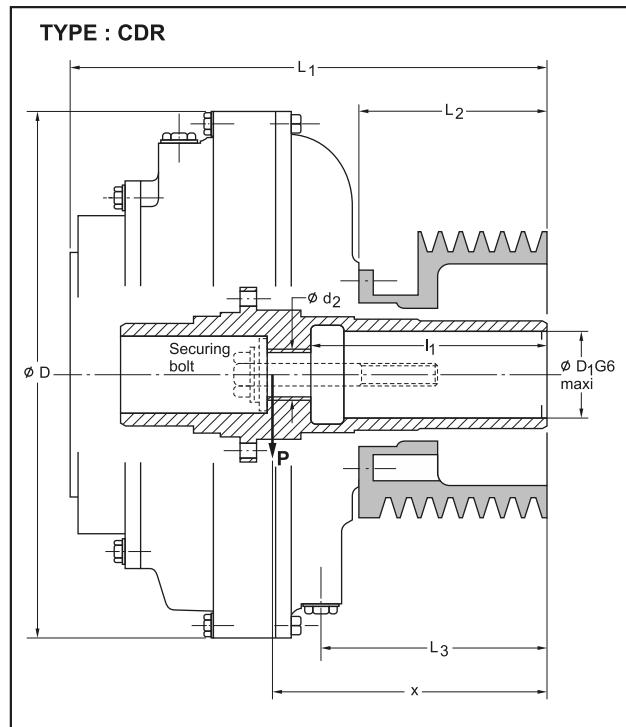
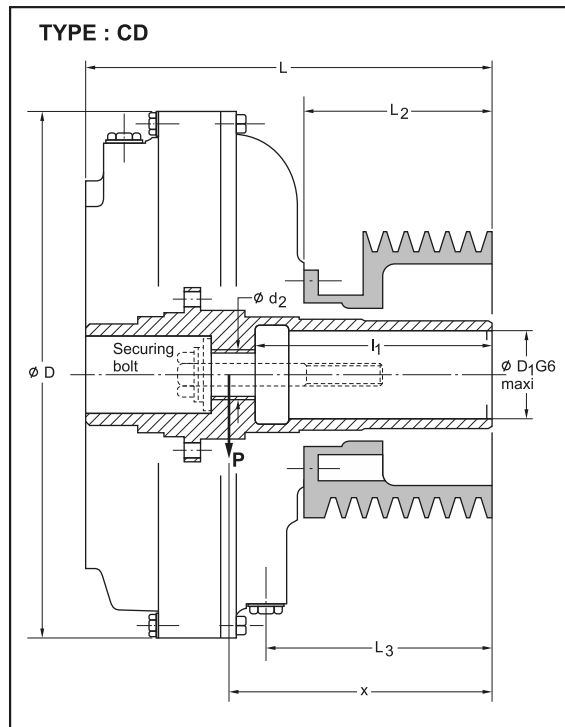
Owing to continuous development and improvement all dimensions and characteristics are subject to change without notice.

Hydrokinetic Fluid Couplings TRACTION TYPE MOUNTING : PH (V-BELT PULLEY)

SIZE : 270-370

TYPE : CD and CDR

MOUNTING : ● On Motor Shaft (PHR)
● On Machine Shaft (PHM)



FLUID COUPLING		SIZE	270	320	370
TYPE CD	J* (kgm ²)	INPUT	0.02	0.04	0.07
		OUTPUT	0.12	0.24	0.47
	WEIGHT P (Dry & without Pulley)	kg	17	26	36
	x	mm	140	168	200
	L	mm	251	273	322
TYPE CDR	J* (kgm ²)	INPUT	-	0.04	0.07
		OUTPUT	-	0.25	0.48
	WEIGHT P (Dry & without Pulley)	kg	-	29	40
	x	mm	-	180	210
	L	mm	-	320	370
		D	315	365	425
		D1	50	55	60
		L2	110	115	140
		L3	135	142	167
		l1	165	165	190
		d2	1" BSP	1" BSP	1" BSP

J* Values of inertia for PHR

For PHM the values of inertia are reversed for primary and secondary parts.

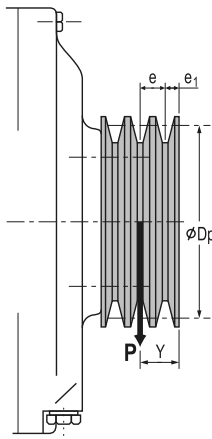
Hydrokinetic Fluid Couplings

TRACTION TYPE MOUNTING : PH

SIZE : 270-370

PROFILE OF GROOVES : SPA-SPB-SPC

Coupling Size (mm)	Profile Groove	N Grooves	Symbols	PITCH CIRCLE DIAMETER																										
				140	150	160	170	180	190	200	212	224	236	250	265	280	300	315	335	355										
270	SPA	3	J P Y	0.021 5.8 45	0.029 7.4 45	0.04 9.1 45	0.052 11 45	0.067 13 45	0.084 15 45	0.10 17 45	0.14 20 45	0.17 23 45	0.21 26 45	Profile Type SPA 13X8 SPB 17X11 SPC 22X14 e 15 19 25 e1 9 11 15 For other profiles refer to ELECON *J = kgm² P = kg Y = mm																
		4	J P Y	0.021 5.8 45	0.029 7.4 45	0.04 9.1 45	0.052 11 45	0.067 13 45	0.084 15 45	0.10 17 45	0.14 20 45	0.17 23 45	0.21 26 45																	
		5	J P Y	0.021 5.8 45	0.029 7.4 45	0.04 9.1 45	0.052 11 45	0.067 13 45	0.084 15 45	0.10 17 45	0.14 20 45	0.17 23 45	0.21 26 45																	
	SPB	2	J P Y	0.021 5.8 45	0.029 7.4 45	0.04 9.1 45	0.052 11 45	0.067 13 45	0.084 15 45	0.10 17 45	0.14 20 45	0.17 23 45	0.21 26 45																	
		3	J P Y	0.021 5.8 45	0.029 7.4 45	0.04 9.1 45	0.052 11 45	0.067 13 45	0.084 15 45	0.10 17 45	0.14 20 45	0.17 23 45	0.21 26 45																	
		4	J P Y	0.021 5.8 45	0.029 7.4 45	0.04 9.1 45	0.052 11 45	0.067 13 45	0.084 15 45	0.10 17 45	0.14 20 45	0.17 23 45	0.21 26 45																	
	SPC	2	J P Y		0.029 7.4 45	0.04 9.1 45	0.052 11 45	0.067 13 45	0.084 15 45	0.10 17 45	0.14 20 45	0.17 23 45	0.21 26 45																	
		3	J P Y		0.029 7.4 45	0.04 9.1 45	0.052 11 45	0.067 13 45	0.084 15 45	0.10 17 45	0.14 20 45	0.17 23 45	0.21 26 45																	
	320	SPA	3	J P Y			0.039 8.8 56	0.052 11 56	0.067 13 56	0.085 15 56	0.11 17 56	0.14 20 63	0.17 23 63											0.22 26 63	0.27 30 36	0.34 34 63	0.42 39 63	0.55 46 63	0.67 52 63	
			4	J P Y			0.039 8.8 56	0.052 11 56	0.067 13 56	0.085 15 56	0.11 17 56	0.14 20 63	0.17 23 63											0.22 26 63	0.27 30 36	0.34 34 63	0.42 39 63	0.55 46 63	0.67 52 63	
5			J P Y			0.039 8.8 56	0.052 11 56	0.067 13 56	0.085 15 56	0.11 17 56	0.14 20 63	0.17 23 63	0.22 26 63	0.27 30 36	0.34 34 63	0.42 39 63	0.55 46 63	0.67 52 63												
SPB		2	J P Y			0.039 8.8 56	0.052 11 56	0.067 13 56	0.085 15 56	0.11 17 56	0.14 20 63	0.17 23 63	0.22 26 63	0.27 30 36	0.34 34 63	0.42 39 63	0.55 46 63	0.67 52 63												
		3	J P Y			0.039 8.8 56	0.052 11 56	0.067 13 56	0.085 15 56	0.11 17 56	0.14 20 63	0.17 23 63	0.22 26 63	0.27 30 36	0.34 34 63	0.42 39 63	0.55 46 63	0.67 52 63												
		4	J P Y			0.039 8.8 56	0.052 11 56	0.067 13 56	0.085 15 56	0.11 17 56	0.14 20 63	0.17 23 63	0.22 26 63	0.27 30 36	0.34 34 63	0.42 39 63	0.55 46 63	0.67 52 63												
SPC		2	J P Y			0.039 8.8 56	0.052 11 56	0.067 13 56	0.085 15 56	0.11 17 56	0.14 20 63	0.17 23 63	0.22 26 63	0.27 30 36	0.34 34 63	0.42 39 63	0.55 46 63	0.67 52 63												
		3	J P Y			0.039 8.8 56	0.052 11 56	0.067 13 56	0.085 15 56	0.11 17 56	0.14 20 63	0.17 23 63	0.22 26 63	0.27 30 36	0.34 34 63	0.42 39 63	0.55 46 63	0.67 52 63												
370		SPA	4	J P Y					0.081 15 60	0.1 17 60	0.13 20 60	0.17 24 60	0.21 27 60	0.31 31 73	0.40 37 73	0.51 43 73	0.64 50 73	0.85 60 73	1 67 73	1.3 78 73	1.7 90 73									
			5	J P Y					0.081 15 60	0.1 17 60	0.13 20 60	0.17 24 60	0.21 27 60	0.31 31 73	0.40 37 73	0.51 43 73	0.64 50 73	0.85 60 73	1 67 73	1.3 78 73	1.7 90 73									
	6		J P Y					0.081 15 60	0.1 17 60	0.13 20 60	0.17 24 60	0.21 27 60	0.31 31 73	0.40 37 73	0.51 43 73	0.64 50 73	0.85 60 73	1 67 73	1.3 78 73	1.7 90 73										
	SPB	3	J P Y					0.081 15 60	0.1 17 60	0.13 20 60	0.17 24 60	0.21 27 60	0.31 31 73	0.40 37 73	0.51 43 73	0.64 50 73	0.85 60 73	1 67 73	1.3 78 73	1.7 90 73										
		4	J P Y					0.081 15 60	0.1 17 60	0.13 20 60	0.17 24 60	0.21 27 60	0.31 31 73	0.40 37 73	0.51 43 73	0.64 50 73	0.85 60 73	1 67 73	1.3 78 73	1.7 90 73										
		5	J P Y					0.081 15 60	0.1 17 60	0.13 20 60	0.17 24 60	0.21 27 60	0.31 31 73	0.40 37 73	0.51 43 73	0.64 50 73	0.85 60 73	1 67 73	1.3 78 73	1.7 90 73										
		6	J P Y											0.40 37 73	0.51 43 73	0.64 50 73	0.85 60 73	1 67 73	1.3 78 73	1.7 90 73										
		3	J P Y					0.081 15 60	0.1 17 60	0.13 20 60	0.17 24 60	0.21 27 60	0.31 31 73	0.40 37 73	0.51 43 73	0.64 50 73	0.85 60 73	1 67 73	1.3 78 73	1.7 90 73										
		4	J P Y					0.081 15 60	0.1 17 60	0.13 20 60	0.17 24 60	0.21 27 60	0.31 31 73	0.40 37 73	0.51 43 73	0.64 50 73	0.85 60 73	1 67 73	1.3 78 73	1.7 90 73										
	SPC	5	J P Y					0.081 15 60	0.1 17 60	0.13 20 60	0.17 24 60	0.21 27 60	0.31 31 73	0.40 37 73	0.51 43 73	0.64 50 73	0.85 60 73	1 67 73	1.3 78 73	1.7 90 73										
		4	J P Y											0.40 37 73	0.51 43 73	0.64 50 73	0.85 60 73	1 67 73	1.3 78 73	1.7 90 73										
		5	J P Y											0.40 37 73	0.51 43 73	0.64 50 73	0.85 60 73	1 67 73	1.3 78 73	1.7 90 73										

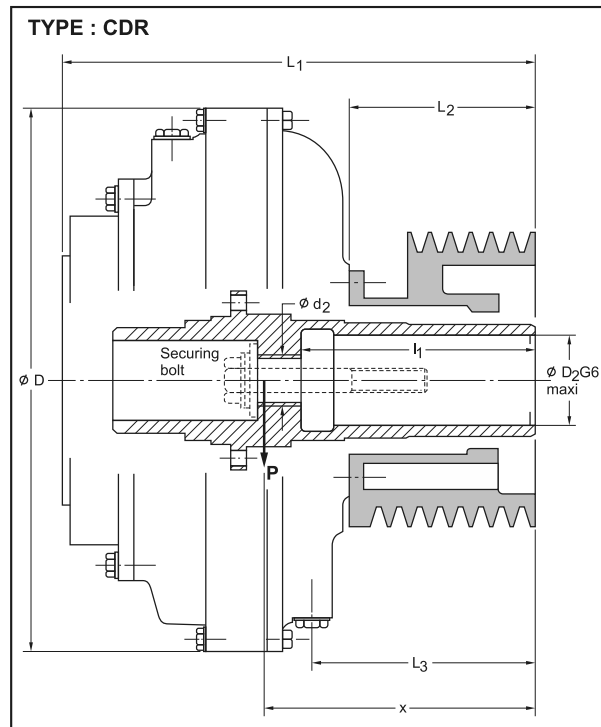
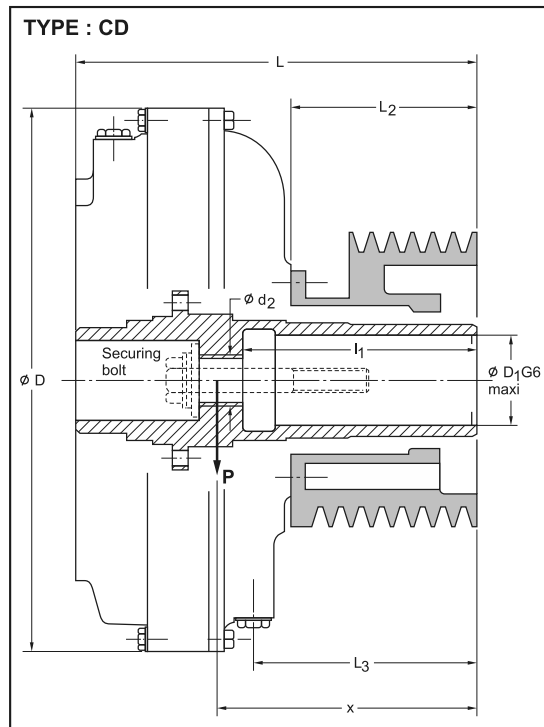


Hydrokinetic Fluid Couplings TRACTION TYPE MOUNTING : PH (V-BELT PULLEY)

SIZE : 420-584

TYPE : CD and CDR

MOUNTING : ● On Motor Shaft (PHR)
● On Machine Shaft (PHM)



FLUID COUPLING		SIZE	420	480	584
TYPE CD	J* (kgm ²)	INPUT	0.16	0.36	0.83
		OUTPUT	0.7	1.3	2.9
	WEIGHT P (Dry & without Pulley)	kg	51	72	125
	x	mm	236	280	290
	L	mm	368	427	467
TYPE CDR	J* (kgm ²)	INPUT	0.16	0.36	0.83
		OUTPUT	0.74	1.35	2.95
	WEIGHT P (Dry & without Pulley)	kg	56	75	134
	x	mm	250	305	320
	L	mm	428	503	541
		D	475	550	670
		D1	75	80	100
		L2	170	205	205
		L3	205	240	254
		l1	215	252	290
		d2	1-1/4" BSP	1-1/4" BSP	1-1/4" BSP

J* Values of inertia for PHR

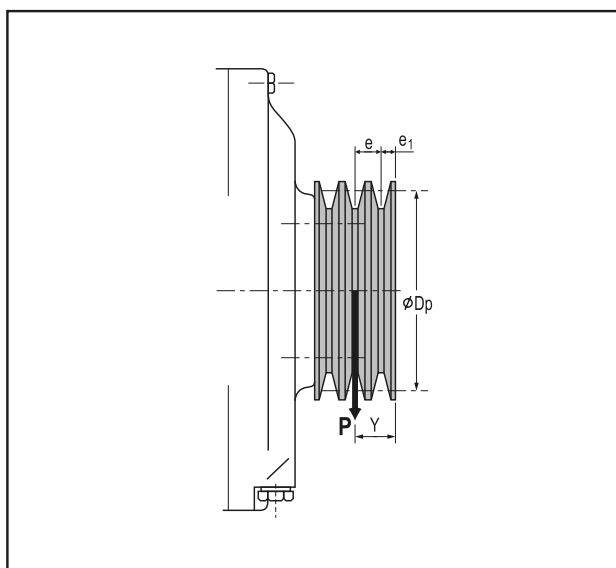
For PHM the values of inertia are reversed for primary and secondary parts.

Hydrokinetic Fluid Couplings TRACTION TYPE MOUNTING : PH

SIZE : 420-584

PROFILE OF GROOVES : SPB-SPC

Coupling Size (mm)	Profile Groove	N Grooves	Symbols	PITCH CIRCLE DIAMETER													
				200	212	224	236	250	265	280	300	315	335	355	400	450	
420	SPB	4	J P Y	0.15 21 70	0.19 25 70	0.25 30 70	0.31 35 70	0.40 41 70	0.59 54 90	0.74 62 90	0.99 74 90	1.2 83 90	1.55 97 90	1.95 112 90			
		5	J P Y	0.15 21 70	0.19 25 70	0.25 30 70	0.31 35 70	0.40 41 70	0.59 54 90	0.74 62 90	0.99 74 90	1.2 83 90	1.55 97 90	1.95 112 90			
		6	J P Y	0.15 21 70	0.19 25 70	0.25 30 70	0.31 35 70	0.40 41 70	0.59 54 90	0.74 62 90	0.99 74 90	1.2 83 90	1.55 97 90	1.95 112 90			
	SPC	3	J P Y	0.15 21 70	0.19 25 70	0.25 30 70	0.31 35 70	0.40 41 70	0.59 54 90	0.74 62 90	0.99 74 90	1.2 83 90	1.55 97 90	1.95 112 90			
		4	J P Y	0.15 21 70	0.19 25 70	0.25 30 70	0.31 35 70	0.40 41 70	0.59 54 90	0.74 62 90	0.99 74 90	1.2 83 90	1.55 97 90	1.95 112 90			
		5	J P Y	0.15 21 70	0.19 25 70	0.25 30 70	0.31 35 70	0.40 41 70	0.59 54 90	0.74 62 90	0.99 74 90	1.2 83 90	1.55 97 90	1.95 112 90			
		6	J P Y						0.47 45 90	0.59 54 90	0.74 62 90	0.99 74 90	1.2 83 90	1.55 97 90			1.95 112 90
480	SPB	6	J P Y						0.47 46 82	0.60 53 82	0.76 53 105	1.07 68 105	1.34 79 105	1.36 62 110	1.88 80 110	3.4 122 110	
		8	J P Y						0.47 46 82	0.60 53 82	0.76 53 105	1.07 68 105	1.34 79 105	1.36 62 110	1.88 80 110	3.4 122 110	
		10	J P Y								0.76 53 105	1.07 68 105	1.34 79 105	1.36 62 110	1.88 80 110	3.4 122 110	
	SPC	5	J P Y						0.47 46 82	0.60 53 82	0.76 53 105	1.07 68 105	1.34 79 105	1.36 62 110	1.88 80 110	3.4 122 110	
		6	J P Y						0.47 46 82	0.60 53 82	0.76 53 105	1.07 68 105	1.34 79 105	1.36 62 110	1.88 80 110	3.4 122 110	
		8	J P Y								0.76 53 105	1.07 68 105	1.34 79 105	1.36 62 110	1.88 80 110	3.4 122 110	
584	SPC	6	J P Y						0.51 52 110	0.63 55 110	0.76 52 110	1.07 65 110	1.34 70 110	1.36 60 110	1.88 75 110	3.4 120 110	5.2 175 110
		8	J P Y										1.34 70 110	1.36 60 110	1.88 75 110	3.4 120 110	5.2 175 110



Profile Type	SPB 17X11	SPC 22X14
e	19	25
e1	11	15

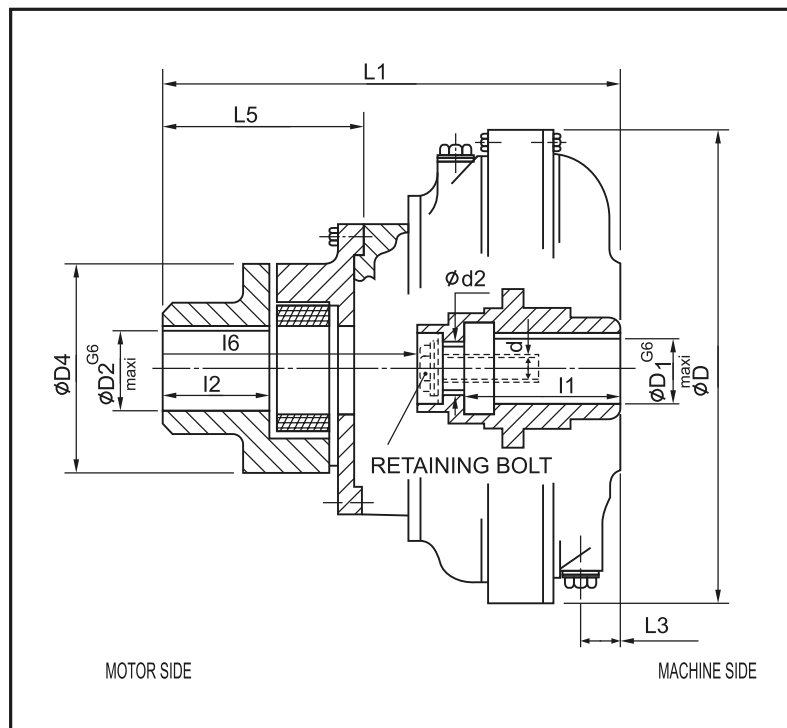
For other profiles refer to
ELECON

* J = kgm²
P = kg
Y = mm

Hydrokinetic Fluid Couplings TRACTION TYPE MOUNTING : XR (Hollow Shaft)

SIZE : 320-760

TYPE : CDR with Flexible Coupling EX



FLUID COUPLING		SIZE	320	370	420	450	480	584	660	760
FLEXIBLE COUPLING		TYPE	EX65	EX75	EX95	EX95	EX110	EX125	ES140	EX140
FLUID COUPLING + FLEXIBLE COUPLING	J (kgm²)	FLUID COUPLING	0.28	0.55	0.88	1.53	1.7	3.75	6.5	12.1
		FLEXIBLE COUPLING	0.07	0.13	0.26	0.26	0.53	1.11	2.7	3.47
	TOTAL WEIGHT (DRY)	FLUID COUPLING	28	38	53	62	78	135	192	262
		FLEXIBLE COUPLING	14	22	33	33	50	78	128	141
		D	365	425	475	520	550	670	760	870
		D1	60	65	80	80	90	110	120	135
		D2	65	75	95	95	100	120	140	140
		D4	170	200	230	230	260	300	360	360
		L1	329.5	382	428	490	485	552	656	718
		L3	25	29	37	60	37	49	55	49
		L5	126.5	157	171	171	188	219	272	273
		I1	110	110	120	120	155	170	200	240
		I2	74.5	98.5	110	110	112.5	131.5	172	172
		I6	149.5	181	200	-	237	261	300	322
TAPPED HOLE		d2	1"BSP	1"BSP	1-1/4"BSP	1-1/4"BSP	1-1/4"BSP	1-1/4"BSP	1-1/4"BSP	1-1/4"BSP

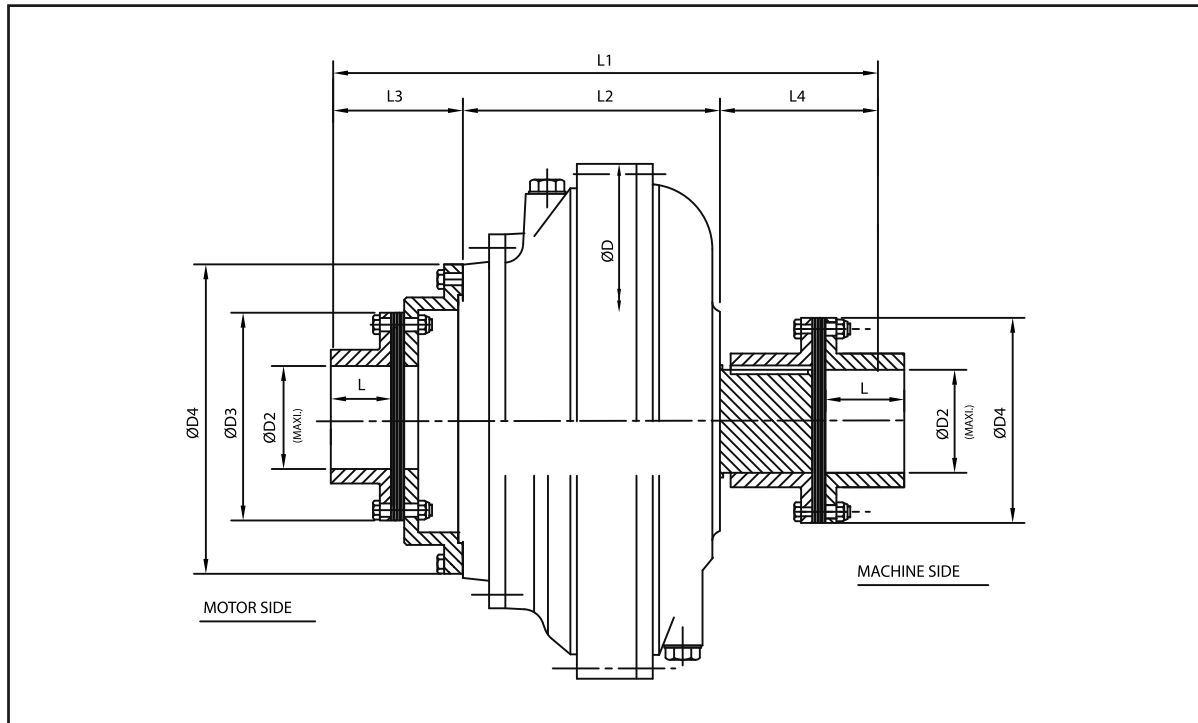
Owing to continuous development and improvement all dimensions and characteristics are subject to change without notice.

Hydrokinetic Fluid Couplings

TRACTION TYPE MOUNTING : R (Solid Shaft - Radially removable)

SIZE : 370-584

TYPE : CDR-R with Multidisc Coupling



NOTE : FOR DUAL DRIVE APPLICATION USE MULTIDISC TYPE COUPLING.

FLUID COUPLING WITH MULTI DISC COUPLING		SIZE	370	420	450	480	584
			80L-262	80L-300	80L-300	80-L300	80L-375
FLUID COUPLING + MULTI DISC COUPLING	J (kgm²)	FLUID COULING	0.56	0.8	1.56	1.88	4.15
		MULTI DISC COUPLING	0.15	0.22	0.22	0.28	0.58
	TOTAL WEIGHT (DRY)	FLUID COULING	41	78	74	81	141
		MULTI DISC COUPLING	34	37	37	40	68
		D	425	475	520	550	670
		D2	75	90	90	90	100
		D3	168	198	198	198	246
		D4	252	290	290	330	392
		L	67	90	90	90	110
		L1	525	609	671	669	804
		L2	225	257	319	297	333
		L3	140	158	158	158	195
		L4	160	194	194	214	276

DETERMINATION OF THE INITIAL OIL FILLING

OIL FILLING

The size of fluid coupling will have been chosen to suit the speed of rotation and the power to be Transmitted the oil filling required will be dependent on:

- The power absorbed by driven machine and
- The required starting (or, stalling) torque.

N.B.: The oil filling should be allowed to exceed 80% of the total capacity of the fluid coupling when cold, because overfilling may cause excessive internal pressure and damage the seals.

To determine the amount of oil required:

USE

Table 3.a for CD (without delayed filling chamber)
Table 3.b for CDR (with delayed filling chamber)
Table 3.c for CDRP/CDRS (with extended filling chamber)

Calculate the nominal torque co-efficient, K_n ,
Using the following formula: $K_n = P/X$

The Co-efficient K_n corresponds to the nominal full load torque.

Calculate the co-efficient K_m corresponding to starting (or stalling) torque as shown in the following example.

EXAMPLE:

P = Motor power or transmitted power = 75kw at 1450 rpm.

T_s/T_n = Ratio of starting torque to full load torque = 1.4

For a coupling with a delayed filling Chamber CDR-420 at 1450 rpm, Value of X

From Table 01 = 29.

$K_n = P/X = 75/29 = 2.59$

$K_m = K_n \times (T_s/T_n) = 2.59 \times 1.4 = 3.63$

To Allow for the fact starting torque is delivered at a speed less than for Nomina torque, Divide the value of K_m by 0.9 i.e. $K_m = 3.63/0.9=4.03$

From Table 2.b for $K_m = 4.03$ Oil filling angle is about 65 degree and

From Table 3.b for angle = 65 Degree, Quantity of fluid is 11.0 Ltr. Approximately.

Referring to table-2, to obtain a full load slip not exceeding 3%, the Value of K_n should be less than Indicated for chosen filling.

OIL CHANGE

Recommended every 8000 hours of working or every two years.

CHECKING THE OIL FILL

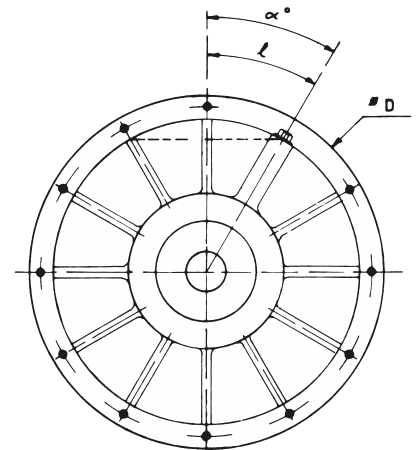
- 1) Place filling plug in vertical Position and remove.
- 2) Rotate the coupling slowly Until the oil just comes up to The filling hole. This position Must the angle top dead centre Calculated by method given above.
- 3) If necessary, remove or add Some oil.
- 4) Replace filling plug and tighten.

TABLE 1 : Value of X , For type CD, CDR, CDRP, CDRS)

FLUID COUPLING	Size	185	235	270	320	370	420	450	480	584	660	760
	Outside Diameter Dmm	225	275	315	365	425	475	520	550	670	760	870
SPEED IN RPM	750	0.06	0.2	0.38	0.9	1.9	3.57	4.47	6.85	18.7	34.4	70
	900	0.1	0.34	0.66	1.56	3.27	6.17	7.81	11.9	32.3	59.4	120
	1000	0.14	0.47	0.91	2.15	4.48	8.45	10.65	16.3	44.2	81.5	165
	1200	0.25	0.82	1.6	3.75	7.5	14.7	19.17	28.5	77.3	142	280
	1500	0.49	1.62	3.14	7.4	15.5	29	37	56.2	153	280	565
	1800	0.85	2.8	5.43	12.8	26.8	50.1	68.75	97.1	264	484	
	3000	3.91	12.9	25.2	59.3	123						

TABLE 2

FILLING ANGLE		Table 2.a		Table 2.b		Tbale 2.C	
FILLING ANGLE α°	Coupling Type Co-efficient	CD		CDR		CDRP/CDRS	
		K_m	K_n	K_m	K_n	K_m	K_n
	50	5.6	2.4	5.7	2.7	-	-
	55	5.1	2.1	5.2	2.5	-	-
	60	4.5	1.9	4.7	2.2	4.7	2.8
	65	3.65	1.7	4.1	2.1	4.1	2.7
	70	2.66	1.6	3.2	2	3.2	2.5
	75	2	1.3	2.8	1.8	2.8	2.2
	80	1.5	0.8	2.4	1.7	2.4	2.1
	85	1.3	0.6	2.1	1.4	2.1	2
	90	1	0.4	1.6	1.2	1.6	1.8
	95	0.8	0.3	1.2	0.9	1.2	1.5
	100	0.7	0.2	0.96	0.7	0.95	1.3



$$l = \frac{\pi \times D \times \alpha}{360^\circ}$$

TABLE 3 : Approximate equivalent oil volume in litres at 20 C

COUPLING		Table 3.a										Table 3.b								Table 3.c							
		CD (Without Delayed Filling Chamber)										CDR (Without Delayed Filling Chamber)								CDRP/CDRS (Without Delayed Filling Chamber)							
FILLING ANGLE	SIZE	185	235	270	320	370	420	450	480	584	660	320	370	420	450	480	584	660	760	370	420	450	480	584	660	760	
	50	1	1.9	2.6	4.2	7.1	10.05	15.4	15	26.55	44.5	5.2	9	12.5	20.5	20	34.1	52	75	10.9	15.2	22.6	22	36.5	59.5	90	
	55	0.97	1.86	2.45	4	6.9	9.5	15.0	14.3	26.6	42.6	5	8.6	12.1	19.8	18.9	32.7	50.2	71	10.3	14.8	22.2	21.1	35.1	57.8	85	
	60	0.93	1.8	2.3	3.8	6.5	8.9	14.1	13.6	24.6	40.6	4.7	8.2	11.3	18.5	17.9	31.2	47.8	67	10	14.2	20.9	20.2	33.6	55.1	80	
	65	0.88	1.7	2.2	3.6	6	8.4	13.9	12.8	23	38.2	4.4	7.6	11	18.0	16.6	29.2	45	62	9.2	13.65	20.8	19.1	31.8	51.8	75	
	70	0.82	1.58	2	3.3	5.7	7.8	12.9	12	21.4	35.8	4	7	10	16.4	15.3	27.2	42	57	8.3	13	19.4	18.1	30	48.2	68	
	75	0.76	1.5	1.9	3.1	5.2	7.2	12.1	11.2	20	33.4	3.7	6.5	9.4	15.4	14.3	25	39	63	7.8	11.9	18.2	16.9	28.2	44.2	63	
	80	0.7	1.39	1.8	2.9	4.8	6.7	10.8	10.2	18.4	31	3.3	5.9	8.6	14.1	13.3	22.8	36	49	7	10.8	16.6	15.7	26.2	41	58	
	85	0.64	1.27	1.7	2.65	4.4	6.3	10.2	9.3	16.8	28.6	3.1	5.6	8.1	13.3	12.1	20.9	33	46	6.6	9.7	15.9	14.5	24.2	37.4	54	
	90	0.57	1.14	1.55	2.4	4	5.7	9.3	8.5	15.3	26.3	2.9	5	7.25	11.9	10.9	19	30.2	42	6	8.6	14.4	13.2	22.2	34.1	49	
	95	0.52	1.02	1.4	2.25	3.7	5	8.7	7.8	14	24	2.7	4.8	6.5	10.7	9.6	17.5	27.6	38	5.9	7.3	13.3	12	20	31.2	44	
	100	0.46	0.9	1.3	2.1	3.4	4.6	8.3	7.2	13	22	2.5	4.2	5.9	9.7	8.4	15.9	25.3	34	6	6.5	12.3	10.7	17.8	28.6	40	

Owing to continuous development and improvement all dimensions and characteristics are subject to change without notice.

Notes:

Handwriting practice area with horizontal dashed lines.

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