MOVICON

FLUID
COUPLINGS



MOVICON
FLUID COUPLINGS



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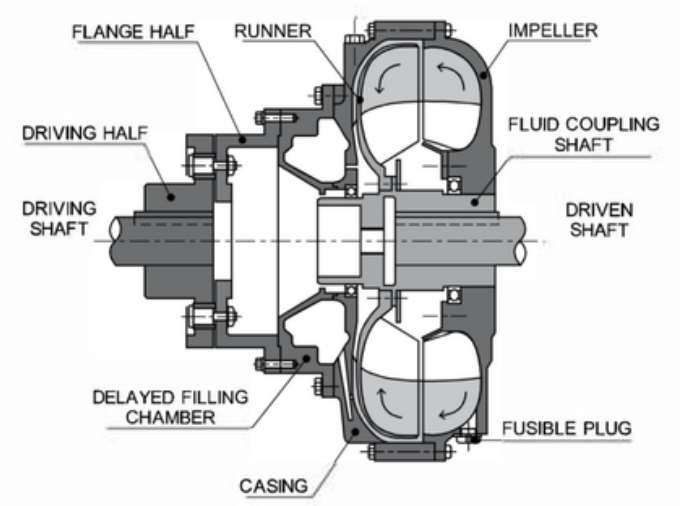
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06. DETERMINATION OF INITIAL OIL FILLING

MOVICON
HYDROKENETIC FLUID COUPLINGS



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 lasses 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.

ADVANTAGES:

PERFORMACE
The level of performance achieved by fluid couplings 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 MOVICON is out of a number of years of experience in the field and is vital in the performance of the fluid coupling. MOVICON fluid couplings are very rugged in construction, simple in design and reliable in operation.

REDUCED STARTING CURRENT
When the MOVICON Fluid Coupling is connected to the drive system, it allows the motor to start practically at no load. This results in reduced starting current enabling a quick start and acceleration of the drive motor.

SOFT START
It gives a gradual start to the driven equipment and thus provides smooth and shockless transmission.

LOW MAINTENANCE COST
Driven and driving equipment experiences less wear and tear, resulting in reduced electrical and mechanical maintenance costs.

PROTECTION TO MOTOR AND MACHINE
In case of overload or accidental jamming, the transmission torque is limited by the fluid coupling and thereby providing protection to the eclectic motor and connected machine.

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

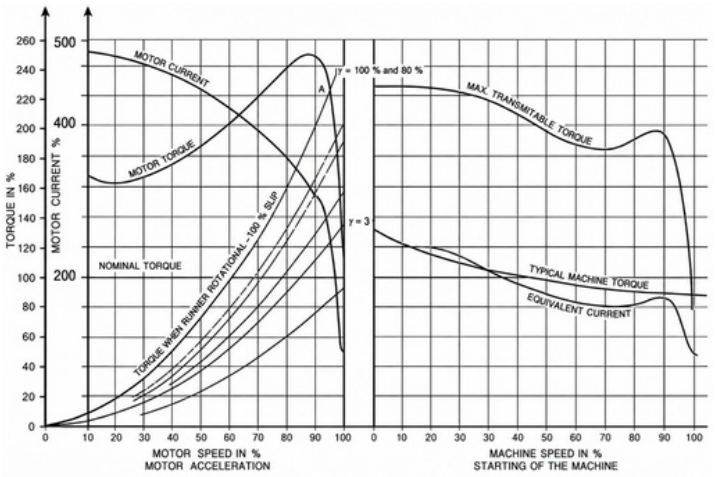
To prevent the loss of oil and to have an additional safety device, the thermal trig switch can be provided when demanded in addition to the fusible plug.

SELECTION
OF TRACTION TYPE FLUID COUPLINGS

The graph shows, how with the use of fluid couplings, the 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 a high surplus of torque available and accelerates to point a very rapidly.

The abrupt start usually associated with squirrel cage motors is cushioned by a fluid coupling. lt 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 the 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	505	10	22	38	65
	370	5.5	12	22	45	90	132
	420	10	22	40	80	15	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	350	950		

When the electric motor is being used, the selection chart allows twice the motor full load torque for starting. For dual drive application, fluid couplings with multi disc types are more suitable.

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.

TRACTION TYPE
FLUID COUPLINGS



There are following types of the MOVICON traction couplings:

MCD: Coupling without delayed filling chamber
MCDR: Coupling with delayed filling chamber
MCDRP: Coupling with extended delayed filling chamber
MCDRS: Coupling with extended delayed filling chamber and controlled nozzles

- Type MCD consists of an impeller, driven by motor and a runner, driving the output shaft, which together with the casing forms an oil tight unit.
- The working circuit includes a central bypass chamber which is a conjunction with a baffle and helps to limit the torque conditions of high slip without sacrificing efficiency under normal running conditions.
- Type MCDR additionally includes 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 MCDRP has an extra-large delayed filling chamber. This allows for low starting torques (1.2 times full load torque) and full load slip.
- Type MCDRS has an extra-large delayed filling chamber with controlled nozzles. This allows for very low starting torques (0.6 times full loas torque).

FLUID COUPLING
TYPES AND MOUNTINGS

1. Model MCDR-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.

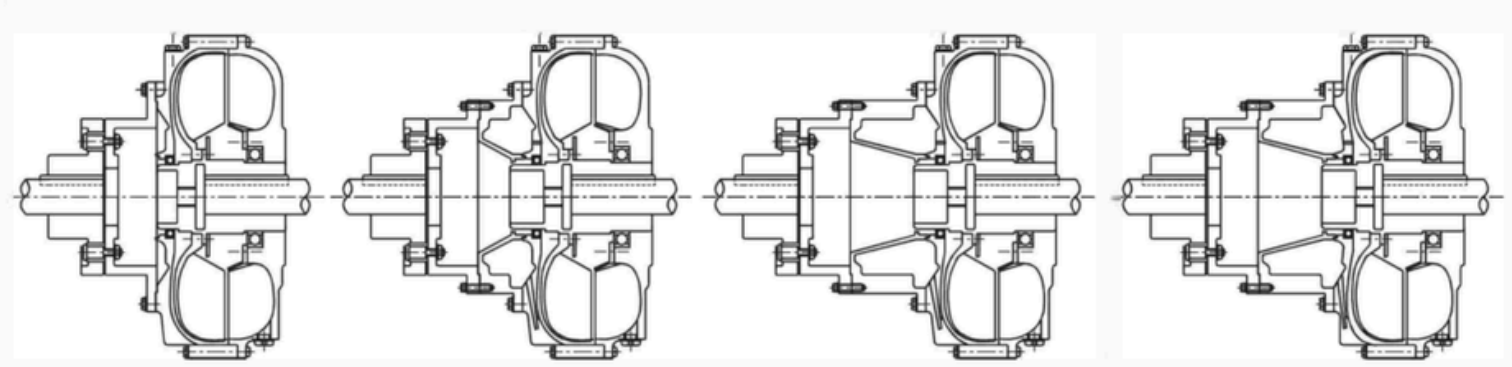
2. Model MCDIR-XR (hollow shaft):
Reversed coupling with delayed filling chamber. It is possible in certain cases to mount the fluid coupling on the motor shaft with the flexible coupling on the motor shaft with the flexible coupling on the output side, this is referred as “reverse mounting" (model XR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

3. Model MCD/MCDR-R:
Fluid coupling with solid shaft. Also, an in-line arrangement which is mounted on motor shaft and has a solid output shaft which facilitates the radial removal of fluid coupling without disturbing motor as well as machine.
There is an option of flexible couplings & brake drum.

4. Model MPH (with "V-belt" pulleys):
This is a combination of a fluid coupling and a "V-belt" pulley.

PHR: Fluid coupling mounted on motor shaft
PHM: Fluid coupling mounted on machine shaft

FLUID COUPLING
TYPES AND MOUNTINGS



MCD
"BASIC COUPLING"

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

MCDR
"SOFT START COUPLING"

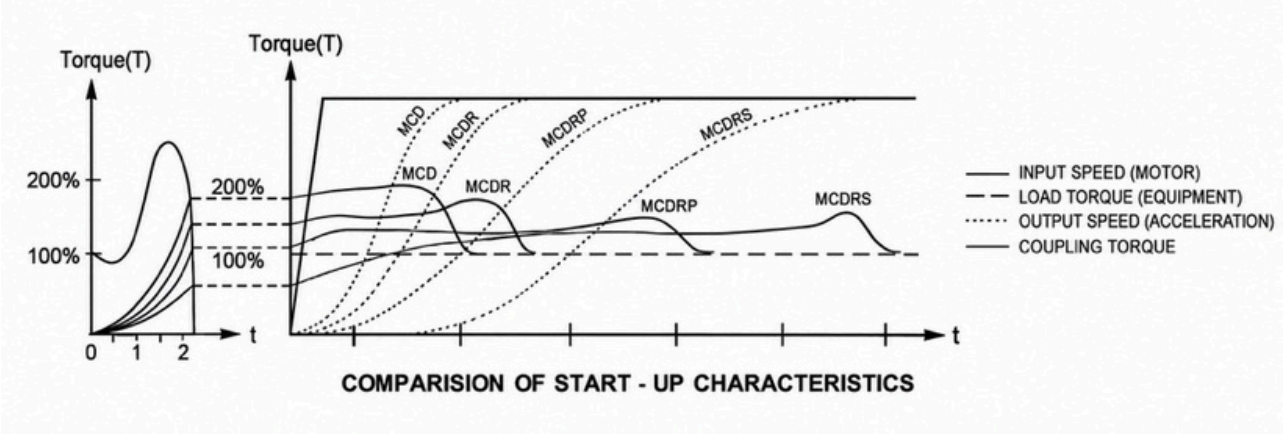
The MCDR design with standard delay fill chamber is used where the starting torque limitation down to 140% of nominal torque is required.

MCDRP
"PROLONGED SOFT START COUPLING"

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

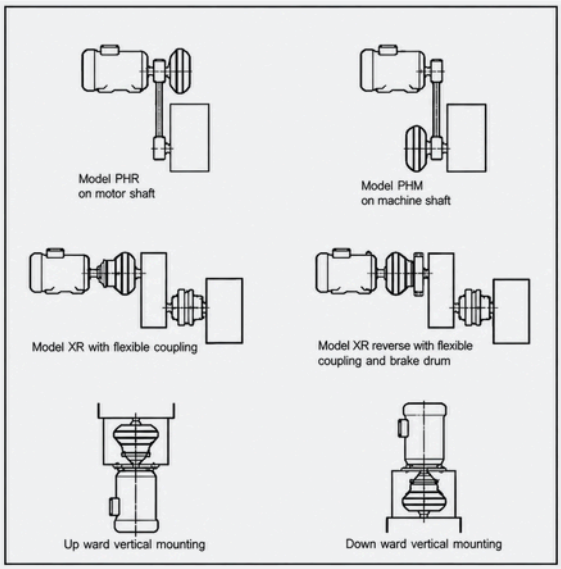
MCDRS
"SUPER SOFT START COUPLING"

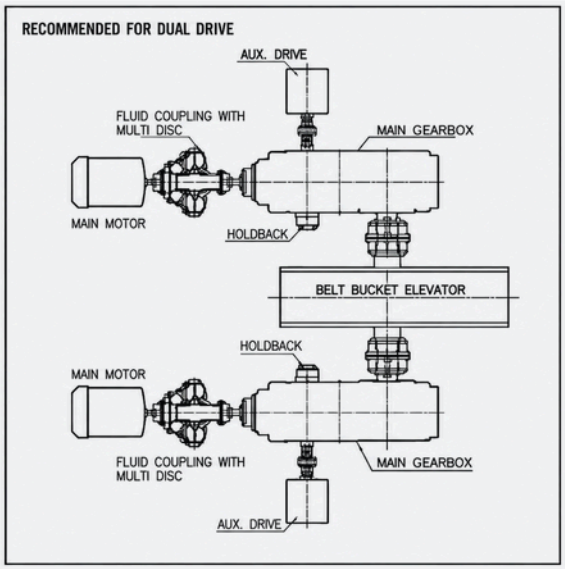
The MCDRS design is used particularly on belt conveyors where the motor starting torque is limited to 60% of the nominal torque. It allows progressive tensioning of the belt before accelerating the load with a torque limitation down to 120% of nominal torque.



COMPARISION OF START - UP CHARACTERISTICS

EXAMPLES OF MOUNTING





MOVICON

SOFT TOUCH GIVES YOU THE MAXIMUM 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 MOVICON fluid couplings controls torque, allowing it to build up gradually wihout 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. A MOVICON Fluid Coupling boosts the usable torque of motor by as much as 200% and at the 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 MOVICON Fluid Coupling 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 MOVICON 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 the MOVICON fluid coupling, you can balance the load easily by adjusting the amount of fluid in the coupling.

6. **ELIMINATION OF UNWANTED VIBRATIONS**

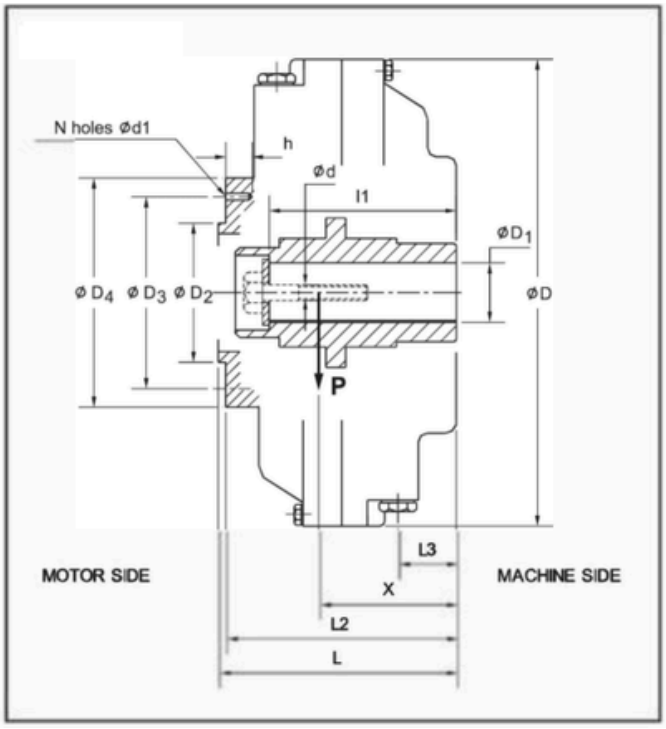
   When the motor and driven machinery vibrate together, the resonance can cause severe damage. The MOVICON fluid coupling dampens out the unwanted vibrations.



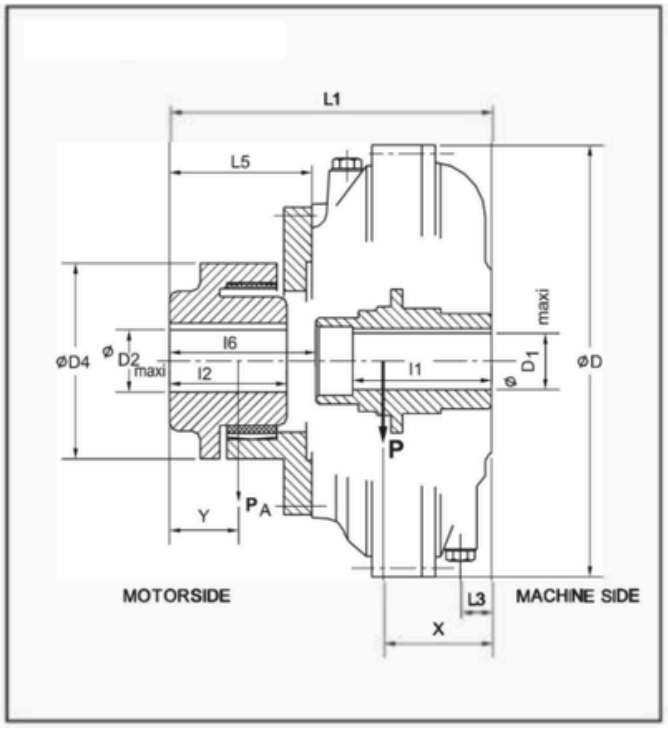
HYDROKINETIC FLUID COUPLINGS
TRACTION TYPE MOUNTING: XR (HOLLOW SHAFT)

SIZE: 185 - 235
TYPE: MCD and MCD with Flexible Coupling MEV

TYPE: MCD



TYPE: MCD with MEV



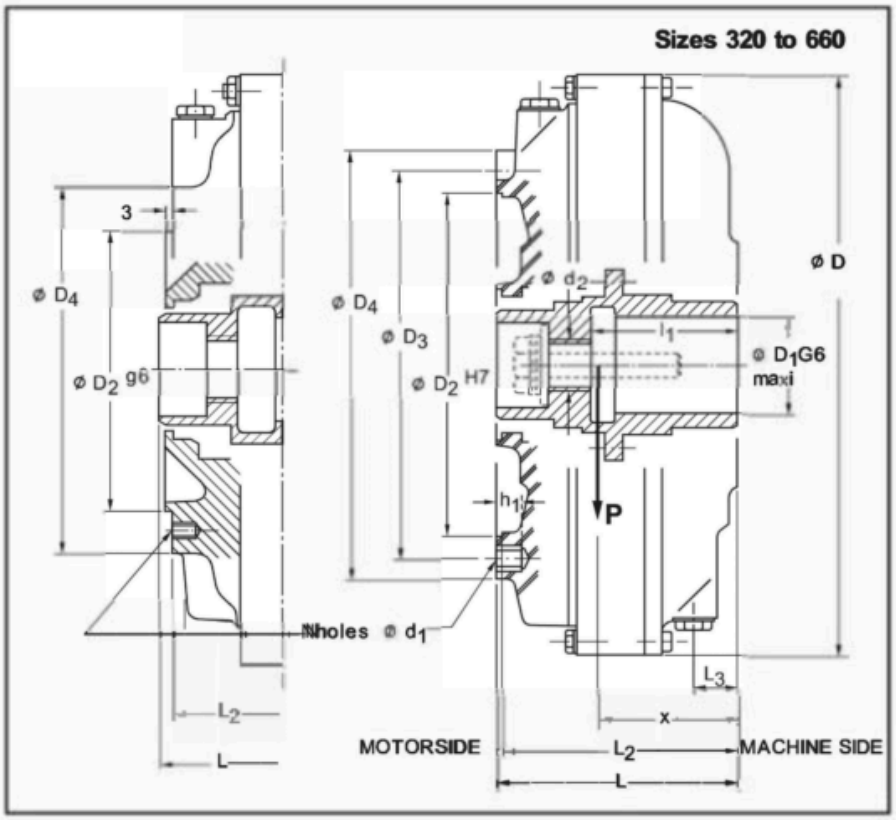
FLUID COUPLING	SIZE	185	235
J (kgm2)	INPUT	0.003	0.009
	OUTPUT	0.025	0.06
Weight P (DRY)	kg	7	12
	mm	75	102
	D	225	275
	D1	38	42
	D2	71	82
	D3	97	113
	D4	110	135
	L3	116	140
	L2	114	136
	l1	85	112
	N	8	6
	d1	M5	M6
	L3	26	34
	h	14	18

FLUID COUPLING	SIZE	185	235
	TYPE	MEV-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: MCD

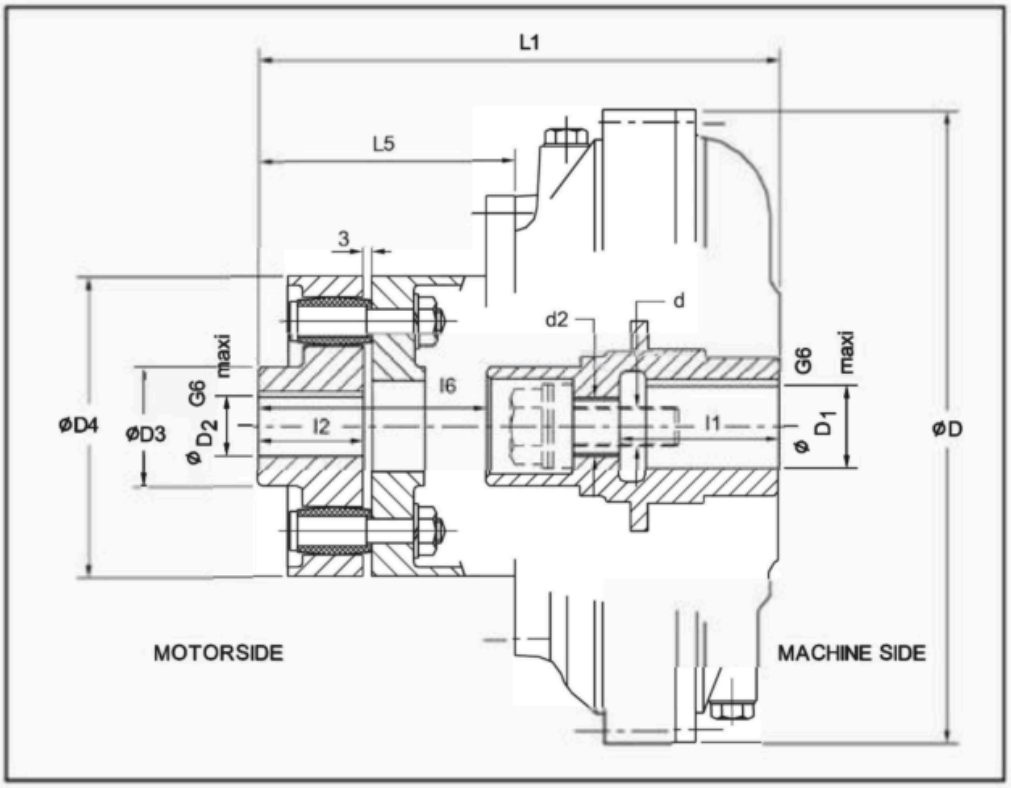


FLUID COUPLING	SIZE	270	320	370	420	450	480	584	660
J (kgm2)	INPUT	12	24	47	72	116	133	29	53
	OUTPUT	2	4	8	16	23	36	83	145
WEIGHT (DRY) X	kg	15	24	33	47	56	68	120	170
	mm	75	90	95	103	130	115	136	155
	D2	150	215	245	280	317	320	385	445
	D3	172	250	280	320	345	366	432	500
	D4	194	274	306	348	375	392	468	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: MCD with Flexible Coupling MCDF

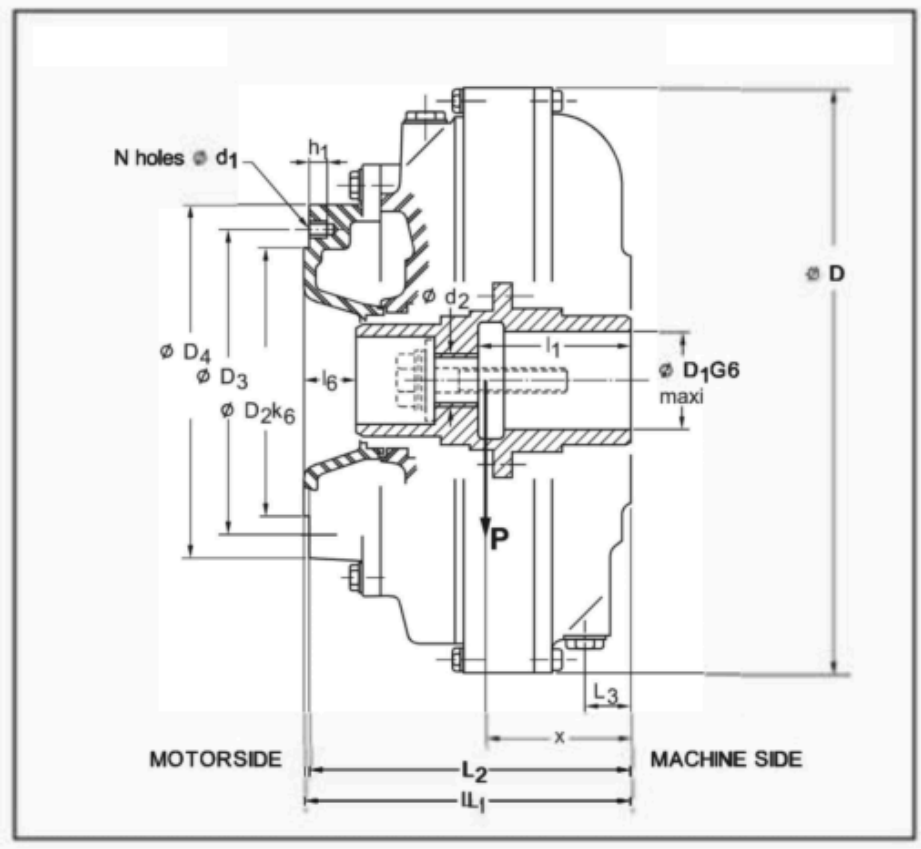


FLUID COUPLING FLEXIBLE COUPLING		SIZE	270	320	370	420	450	480	584	660
		TYPE	MCDF5.5	MCDF6	MCDF7	MCDF9	MCDF9	MCDF10	MCDF13	MCDF14
FLUID COUPLING + FLEXIBLE COUPLING	J (kgm2)	FLUID COUPLING	14	28	55	88	139	139	373	675
		FLEXIBLE COUPLING	2	4	8	16	16	36	83	145
	total weight (DRY)	FLUID COUPLING	15	24	33	47	56	58	120	170
		FLEXIBLE COUPLING	95	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	1.524	1.651	1.905	2.413	2.413	2.667	3.429	3.683
		L1	245	285	337	371	395	412	481	5.766
		L5	109	127	157	171	171	188	219	272
		I1	100	110	110	120	120	155	170	200
		I2	445	48	60	825	825	95	108	120
		I6	100	105	137	151		167	192	241
		D3	635	73	92	124	124	143	165	190
TAPPED HOLE		d2	1" BSP	1" BSP	1" BSP	1-1/4" BS	1-1/4" BSP	1-1/4" BSP	1-/4" BSP	1-1/4" BSP

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HYDROKINETIC FLUID COUPLINGS
TRACTION TYPE MOUNTING: XR (HOLLOW SHAFT)

SIZE: 320 - 760
TYPE: MCDR

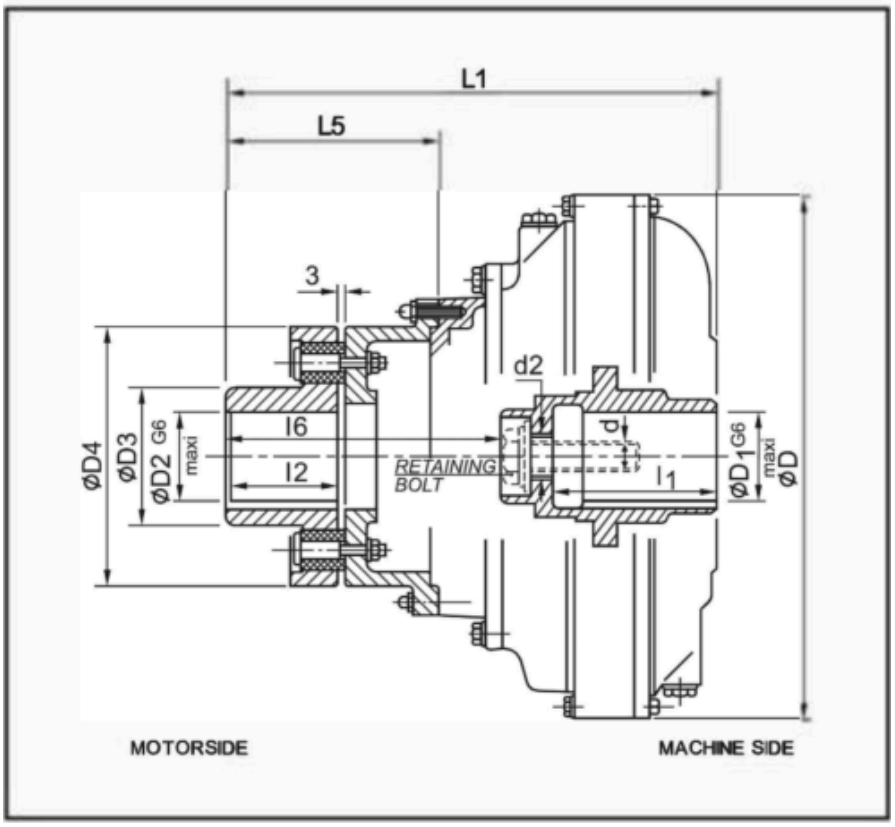


FLUID COUPLING	SIZE	320	370	420	450	480	584	660	760
J (kgm2)	INPUT	25	48	74	13	135	295	54	95
	OUTPUT	4	8	16	23	36	93	145	26
WEIGHT P (DRY) X	kg	26	36	51	62	74	128	180	250
	mm	110	116	135	130	155	172	200	222
	D2	170	195	220	235	265	315	360	420
	D3	195	228	165	260	310	360	420	280
	D4	220	252	290	313	330	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	60	80	80	90	110	120	135
	L3	25	25	60	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: 320 - 760
TYPE: MCDR with Flexible Coupling MFCF

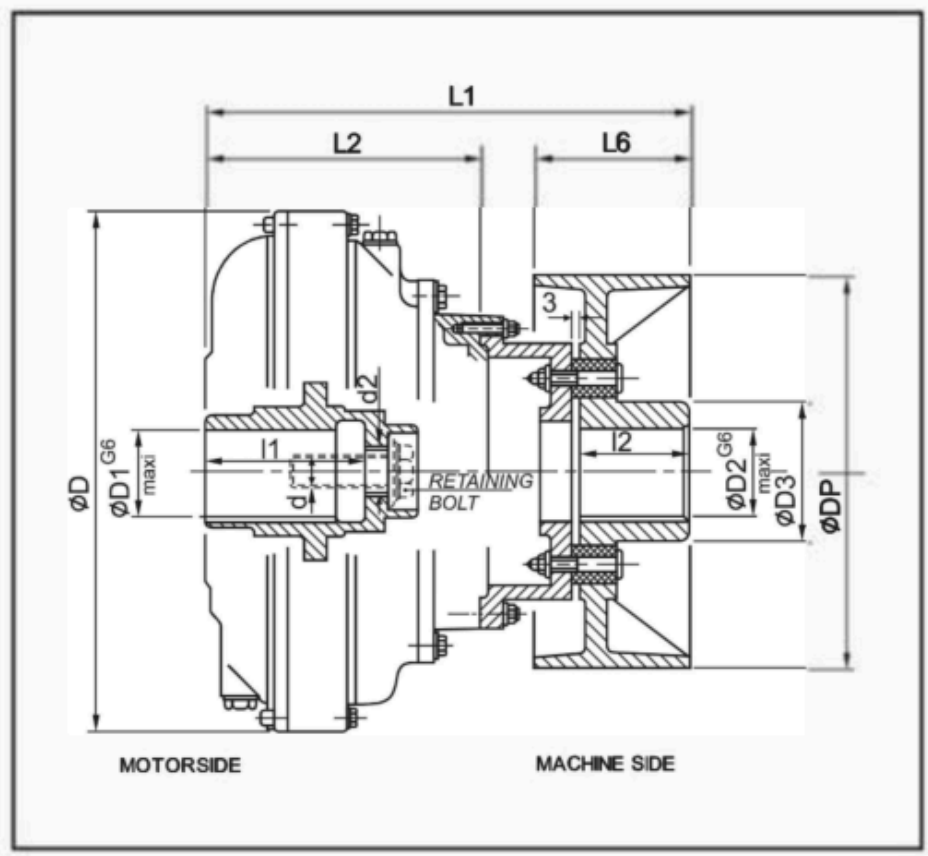


FLUID COUPLING FLEXIBLE COUPLING		SIZE	320	370	420	450	480	584	660	760
		TYPE	MFCF6	MFCF7	MFCF9	MFCF9	MFCF10	MFCF13	MFCF14	MFCF16
FLUID COUPLING + FLEXIBLE COUPLING	J(kgm2)	FLUID COUPLING	28	55	88	153	17	375	65	121
		FLEXIBLE COUPLING	9	17	35	35	51	193	48	7
	total weight (DRY)	FLUID COUPLING	28	38	53	62	78	135	192	363
		FLEXIBLE COUPLING	14	21	32	32	40	78	120	150
		D	365	425	475	520	550	670	760	870
		D1	60	65	80	80	90	110	120	135
		D2	48	60	80	80	90	110	120	135
		D4	1.651	1.905	2.413	2.413	267	3.429	3.683	4.191
		L1	330	382	428	490	486	552	656	718
		L5	127	157	171	171	188	219	272	273
		l1	110	110	120	120	155	170	200	240
		l2	48	60	825	825	95	108	120	146
		l6	150	182	208		240	263	312	344
		D3	73	92	124	124	143	165	190	236
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: XR (HOLLOW SHAFT – REVERSE MOUNTING)

SIZE: 320 - 760
TYPE: MCDIR with Flexible Brake Drum Coupling MFCFB

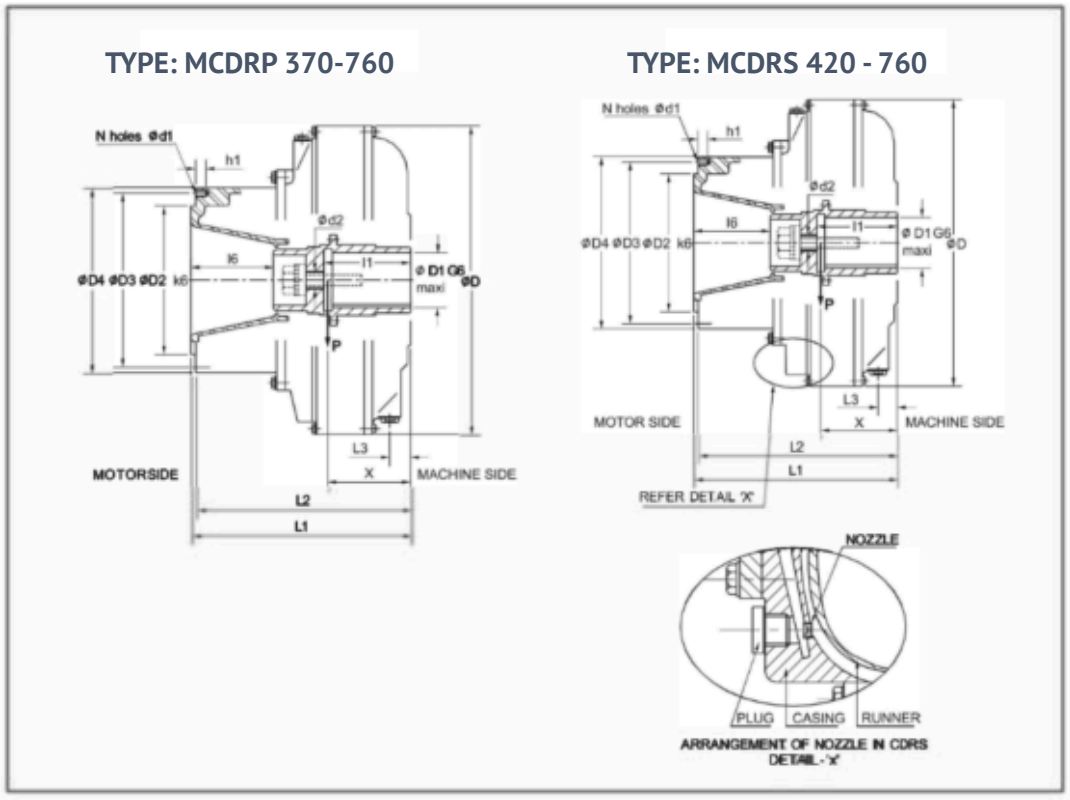


FLUID COUPLING		SIZE	320		370			420			450			480		584			660		760	
BRAKE DRUM		DIA (MM)	250	315	250	315	400	315	400	500	315	400	500	400	500	400	500	630	500	530	630	710
FLEXIBLE COUPLING		TYPE	MFCFB6		MFCFB7			MFCFB9			MFCFB9			MFBFC10		MFCFB13			MFCFB14		MFCFB16	
FLUID COUPLING + FLEXIBLE COUPLING	J (kgm2)	FLUID COUPLING	28		55			88			153			17		375			65		121	
		FLEXIBLE COUPLING	39	84	47	94	18	11	25	59	11	25	59	35	62	456	10	23	118	254	292	44
	TOTAL WEIGHT (DRY)	FLUID COUPLING	28		38			62			53			78		135			192		262	
		FLEXIBLE COUPLING	25	34	30	38	50	47	65	95	47	65	95	80	110	114	165	225	190	270	295	350
		D	365		425			520			475			550		670			760		870	
		D1	60		65			80			80			90		110			120		135	
		L1	380		392	392	448	499	499	582	437	437	520	544		562	603	625	656	716	804	
		L2	203		225			319			257			297		333			384		445	
		l1	110		110			120			120			155		170			200		240	
		DP	250	315	250	315	400	315	400	500	315	400	500	400	500	400	500	530	500	630	630	710
		D2	48	48	60	60	60	80	80	80	80	80	80	90	90	100	100	100	115	115	140	140
		L6	95	118	95	118	150	118	150	190	118	150	190	150	190	150	190	236	190	236	236	236
		l2	75	75	70	70	95	117	117	117	117	117	117	120	120	118	159	159	120	180	146	146
		D3	73		92			124			124			143		165			190		235	
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: XR (HOLLOW SHAFT)

SIZE: 320 - 760, TYPE: MCDRP and
SIZE: 420 - 760, TYPE: MCDRS

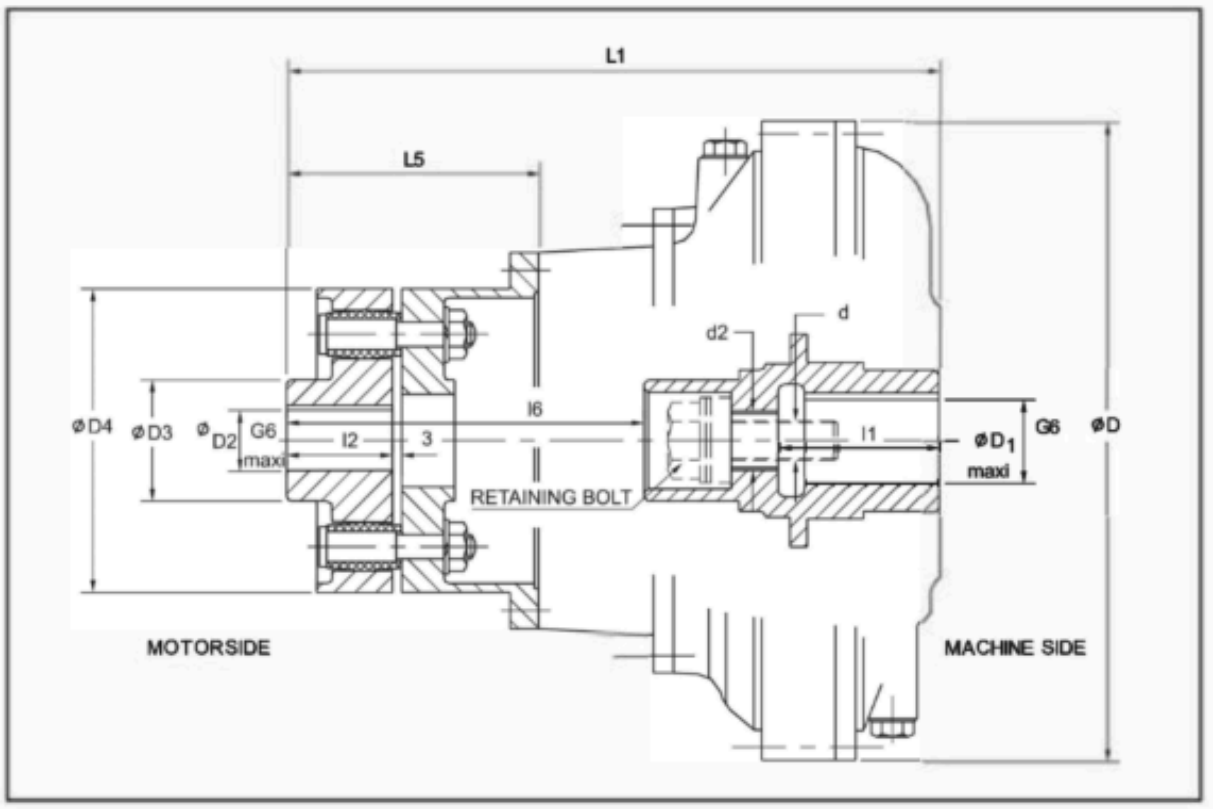


FLUID COUPLING	SIZE	370	420	480	584	660	760
J (kgm2)	INPUT	51	8	146	32	585	103
	OUTPUT	8	16	36	83	145	26
WEIGHT P (DRY) x	kg	38	38	78	135	190	265
	mm	120	120	165	180	210	235
	D	425	425	550	670	760	870
	D1	65	65	90	110	120	135
	D2	195	195	265	315	360	420
	D3	228	228	310	360	420	480
	D4	252	252	330	392	468	530
	L1	263	263	387	433	499	572
	L2	260	260	384	430	495	568
	L3	29	29	37	49	55	49
	l1	110	110	155	170	200	240
	l6	63	63	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

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: 370 - 760, TYPE: MCDRP with Flexible Coupling MFCF
SIZE: 420 - 760, TYPE: MCDRS with Flexible Coupling MFCF

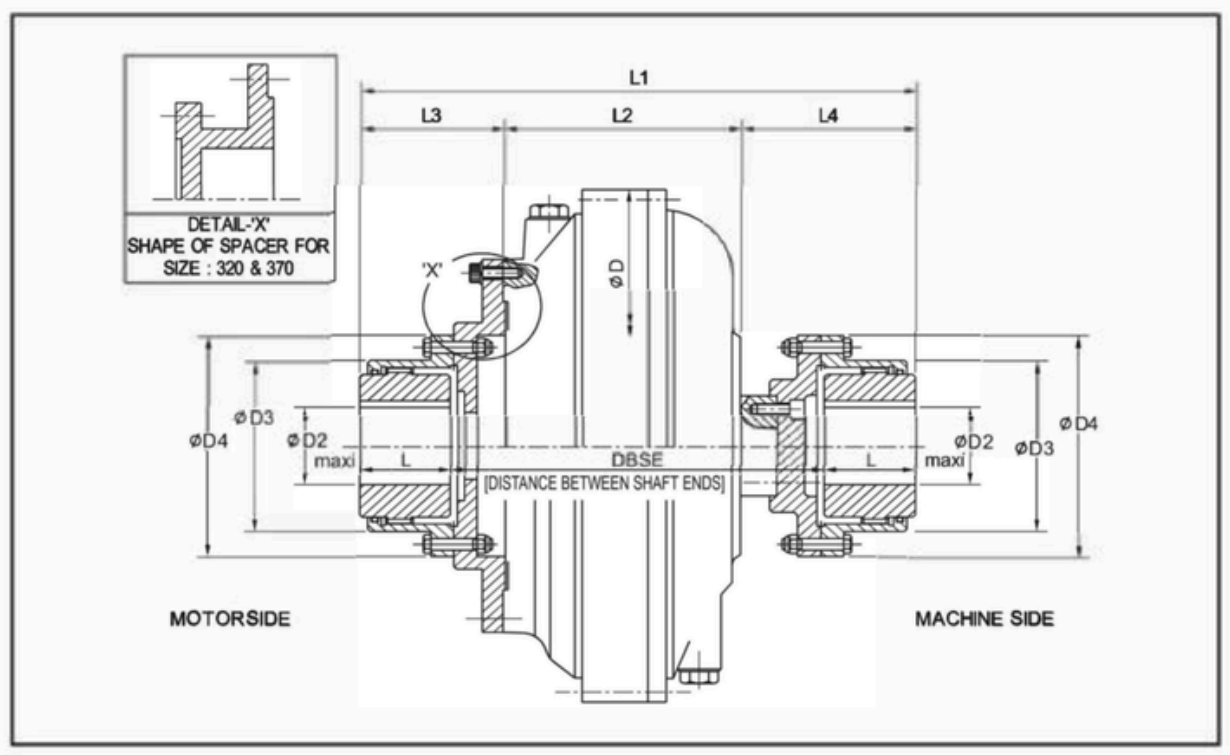


FLUID COUPLING (MCDRP/ MCDRS)		SIZE	370	420	480	584	660	760
FLEXIBLE COUPLING		TYPE	MFCF7	MFCF9	MFCF10	MFCF13	MFCF14	MFCF16
FLUID COUPLING + FLEXIBLE COUPLING	J (kgm2)	FLUID COUPLING	59	96	182	403	73	129
		FLEXIBLE COUPLING	17	35	51	193	48	7
	Total Weight (DRY)	FLUID COUPLING	38	53	78	135	192	262
		FLEXIBLE 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	1.905	2.413	2.667	3.429	3.683	4.191
		L1	417	507	572	649	766	841
		L5	157	171	188	219	272	273
		l1	110	120	155	170	200	240
		l2	60	825	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

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: 320 - 660
TYPE: MCD-R with MOVICON Gear Coupling MED

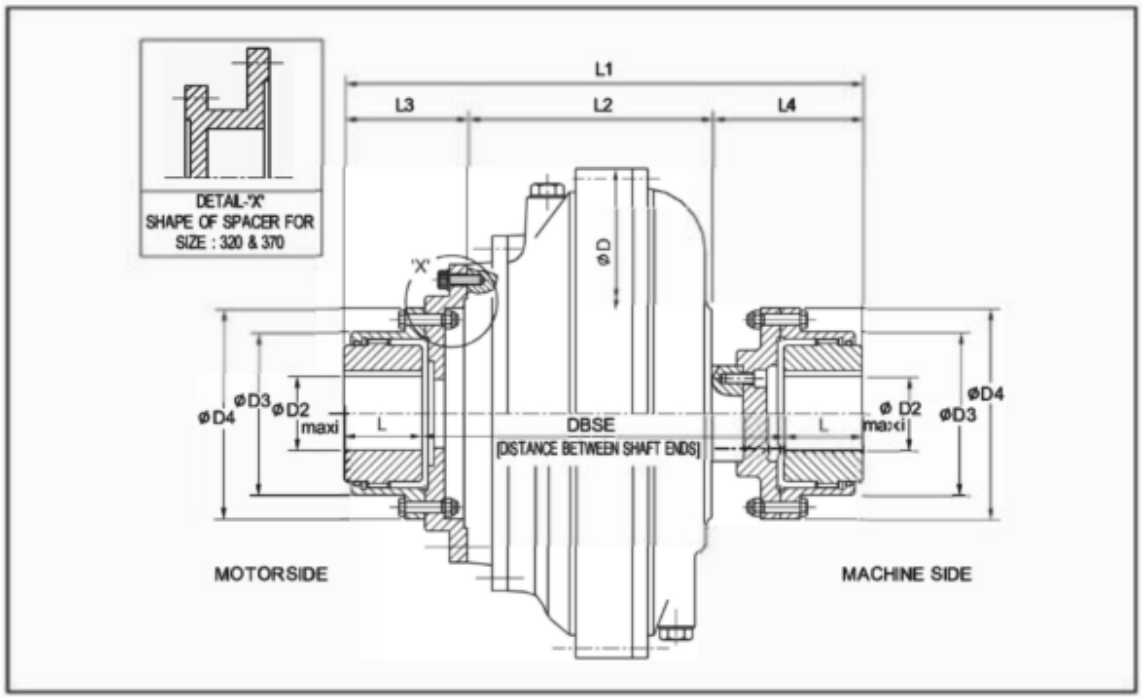


FLUID COUPLING		MCD-R		320	370	420	450	480	584	660
GEAR COUPLING		MED		500	1000	1000	1000	1600	2200	3200
FLUID COUPLING + GEAR COUPLING	J (kgm2)	FLUID COUPLING		3	6	96	142	185	41	743
		FLUID COUPLING	INPUT	8	14	27	27	48	122	225
			OUTPUT	2	9	9	9	16	36	66
	Total Weight (DRY)	FLUID COUPLING		27	36	52	57	75	132	187
		GEAR COUPLING	INPUT	14	252	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	1.295	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	547
			L1	430	503	518	542	537	626	715
			L2	158	180	20	224	224	262	304
			L3	148	171	155	155	144	168	192
			L4	124	152	163	163	169	196	219

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: 320 - 660
TYPE: MCD-R with MOVICON Gear Coupling MED

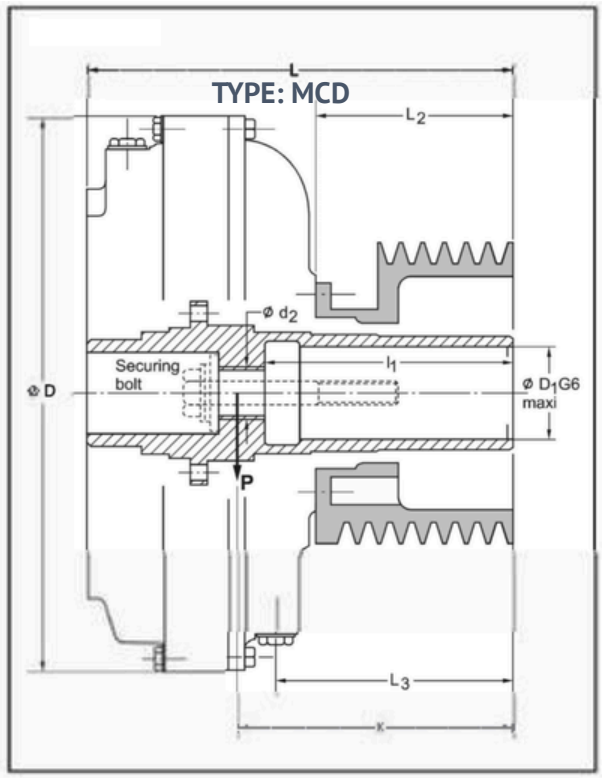


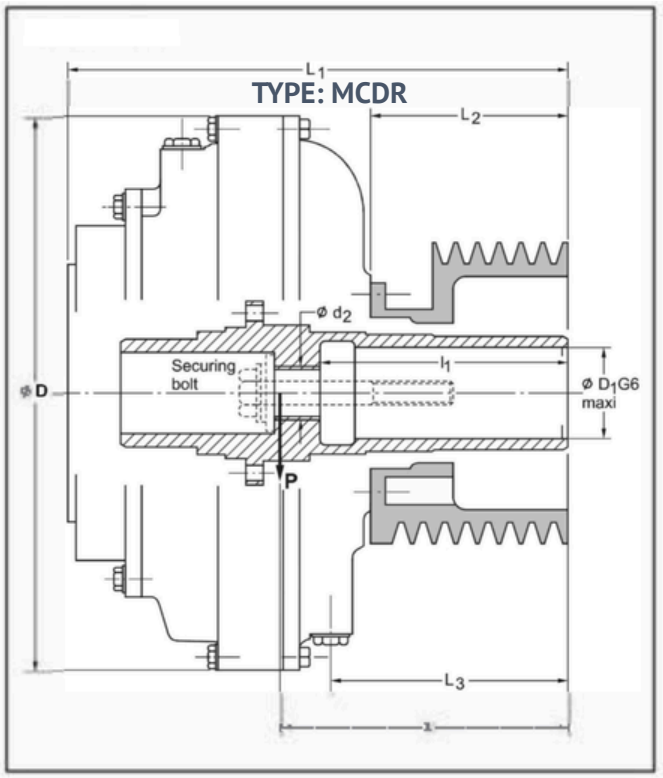
FLUID COUPLING		MCDR-R		320	370	420	450	480	584	660	760
GEAR COUPLING		MED		500	1000	1000	1000	1600	2200	3200	4500
FLUID COUPLING + GEAR COUPLING	J (kgm2)	FLUID COUPLING		32	62	99	156	188	415	754	133
		FLUID COUPLING	INPUT	5	13	19	19	34	7	152	253
			OUTPUT	2	9	9	9	16	36	66	101
	Total Weight (DRY)	FLUID COUPLING		29	40	56	67	81	141	198	275
		GEAR COUPLING	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	1.295	156	156	156	181	209	247	270
			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: MCD and MCDR
MOUNTING: On Shaft Motor (PHR) and on Machine Shaft (PHM)





FLUID COUPLING		SIZE	270	320	370
TYPE MCD	J* (kgm2)	INPUT	2	4	7
		OUTPUT	12	24	47
	Weight P (Dry & without Pulley)	kg	17	26	36
	x	mm	140	168	200
	L	mm	251	273	322
TYPE MCDR	J* (kgm2)	INPUT	-	4	7
		OUTPUT	-	25	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.

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

HYDROKINETIC FLUID COUPLINGS
TRACTION TYPE MOUNTING: PH

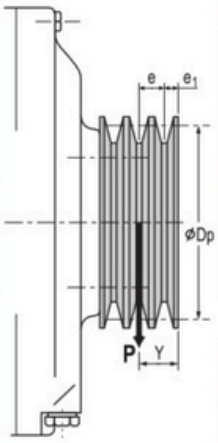
SIZE: 270 - 370
PROFILE OF GROOVES: SPA-SPB-SPC

Size Coupling (mm)	Profile groove	N° grooves	*Sym-bols	PITCH CIRCLE DIAMETER Dp																
				140	150	160	170	180	190	200	212	224	236	250	265	280	300	315	335	355
270	SPA	3	J	0.021	0.029	0.04	0.052	0.067	0.084	0.10	0.14	0.17	0.21							
			P	5.8	7.4	9.1	11	13	15	17	20	23	26							
			Y	45	45	45	45	45	45	45	45	45	45							
		4	J	0.021	0.029	0.04	0.052	0.067	0.084	0.10	0.14	0.17	0.21							
			P	5.8	7.4	9.1	11	13	15	17	20	23	26							
			Y	45	45	45	45	45	45	45	45	45	45							
		5	J	0.021	0.029	0.04	0.052	0.067	0.084	0.10	0.14	0.17	0.21							
			P	5.8	7.4	9.1	11	13	15	17	20	23	26							
			Y	45	45	45	45	45	45	45	45	45	45							
	SPB	2	J	0.021	0.029	0.04	0.052	0.067	0.084	0.10	0.14	0.17	0.21							
			P	5.8	7.4	9.1	11	13	15	17	20	23	26							
			Y	45	45	45	45	45	45	45	45	45	45							
		3	J	0.021	0.029	0.04	0.052	0.067	0.084	0.10	0.14	0.17	0.21							
			P	5.8	7.4	9.1	11	13	15	17	20	23	26							
			Y	45	45	45	45	45	45	45	45	45	45							
		4	J	0.021	0.029	0.04	0.052	0.067	0.084	0.10	0.14	0.17	0.21							
			P	5.8	7.4	9.1	11	13	15	17	20	23	26							
			Y	45	45	45	45	45	45	45	45	45	45							
	SPC	2	J		0.029	0.04	0.052	0.067	0.084	0.10	0.14	0.17	0.21							
			P		7.4	9.1	11	13	15	17	20	23	26							
			Y		45	45	45	45	45	45	45	45	45							
		3	J		0.029	0.04	0.052	0.067	0.084	0.10	0.14	0.17	0.21							
			P		7.4	9.1	11	13	15	17	20	23	26							
			Y		45	45	45	45	45	45	45	45	45							
320	SPA	3	J			0.039	0.052	0.067	0.085	0.11	0.14	0.17	0.22	0.27	0.34	0.42	0.55	0.67		
			P			8.8	11	13	15	17	20	23	26	30	34	39	46	52		
			Y			56	56	56	56	56	63	63	63	63	63	63	63	63		
		4	J			0.039	0.052	0.067	0.085	0.11	0.14	0.17	0.22	0.27	0.34	0.42	0.55	0.67		
			P			8.8	11	13	15	17	20	23	26	30	34	39	46	52		
			Y			56	56	56	56	56	63	63	63	63	63	63	63	63		
		5	J			0.039	0.052	0.067	0.085	0.11	0.14	0.17	0.22	0.27	0.34	0.42	0.55	0.67		
			P			8.8	11	13	15	17	20	23	26	30	34	39	46	52		
			Y			56	56	56	56	56	63	63	63	63	63	63	63	63		
	SPB	2	J			0.039	0.052	0.067	0.085	0.11	0.14	0.17	0.22	0.27	0.34	0.42	0.55	0.67		
			P			8.8	11	13	15	17	20	23	26	30	34	39	46	52		
			Y			56	56	56	56	56	63	63	63	63	63	63	63	63		
		3	J			0.039	0.052	0.067	0.085	0.11	0.14	0.17	0.22	0.27	0.34	0.42	0.55	0.67		
			P			8.8	11	13	15	17	20	23	26	30	34	39	46	52		
			Y			56	56	56	56	56	63	63	63	63	63	63	63	63		
		4	J			0.039	0.052	0.067	0.085	0.11	0.14	0.17	0.22	0.27	0.34	0.42	0.55	0.67		
			P			8.8	11	13	15	17	20	23	26	30	34	39	46	52		
			Y			56	56	56	56	56	63	63	63	63	63	63	63	63		
	SPC	2	J			0.039	0.052	0.067	0.085	0.11	0.14	0.17	0.22	0.27	0.34	0.42	0.55	0.67		
			P			8.8	11	13	15	17	20	23	26	30	34	39	46	52		
			Y			56	56	56	56	56	63	63	63	63	63	63	63	63		
		3	J			0.039	0.052	0.067	0.085	0.11	0.14	0.17	0.22	0.27	0.34	0.42	0.55	0.67		
			P			8.8	11	13	15	17	20	23	26	30	34	39	46	52		
			Y			56	56	56	56	56	63	63	63	63	63	63	63	63		
370	SPA	4	J					0.081	0.10	0.13	0.17	0.21	0.31	0.40	0.51	0.64	0.85	1.0	1.3	1.7
			P					15	17	20	24	27	31	37	43	50	60	67	78	90
			Y					60	60	60	60	60	73	73	73	73	73	73	73	73
		5	J					0.081	0.10	0.13	0.17	0.21	0.31	0.40	0.51	0.64	0.85	1.0	1.3	1.7
			P					15	17	20	24	27	31	37	43	50	60	67	78	90
			Y					60	60	60	60	60	73	73	73	73	73	73	73	73
		6	J					0.081	0.10	0.13	0.17	0.21	0.31	0.40	0.51	0.64	0.85	1.0	1.3	1.7
			P					15	17	20	24	27	31	37	43	50	60	67	78	90
			Y					60	60	60	60	60	73	73	73	73	73	73	73	73
	SPB	3	J					0.081	0.10	0.13	0.17	0.21	0.31	0.40	0.51	0.64	0.85	1.0	1.3	1.7
			P					15	17	20	24	27	31	37	43	50	60	67	78	90
			Y					60	60	60	60	60	73	73	73	73	73	73	73	73
		4	J					0.081	0.10	0.13	0.17	0.21	0.31	0.40	0.51	0.64	0.85	1.0	1.3	1.7
			P					15	17	20	24	27	31	37	43	50	60	67	78	90
			Y					60	60	60	60	60	73	73	73	73	73	73	73	73
		5	J					0.081	0.10	0.13	0.17	0.21	0.31	0.40	0.51	0.64	0.85	1.0	1.3	1.7
			P					15	17	20	24	27	31	37	43	50	60	67	78	90
			Y					60	60	60	60	60	73	73	73	73	73	73	73	73
		6	J										0.31	0.40	0.51	0.64	0.85	1.0	1.3	1.7
			P										31	37	43	50	60	67	78	90
			Y										73	73	73	73	73	73	73	73
	SPC	3	J					0.081	0.10	0.13	0.17	0.21	0.31	0.40	0.51	0.64	0.85	1.0	1.3	1.7
			P					15	17	20	24	27	31	37	43	50	60	67	78	90
			Y					60	60	60	60	60	73	73	73	73	73	73	73	73
		4	J					0.081	0.10	0.13	0.17	0.21	0.31	0.40	0.51	0.64	0.85	1.0	1.3	1.7
			P					15	17	20	24	27	31	37	43	50	60	67	78	90
			Y					60	60	60	60	60	73	73	73	73	73	73	73	73
		5	J										0.31	0.40	0.51	0.64	0.85	1.0	1.3	1.7
			P										31	37	43	50	60	67	78	90
			Y										73	73	73	73	73	73	73	73

Profile type	SPA 13x8	SPB 17x11	SPC 22x14
e	15	19	25
e1	9	11	15

For other profiles refer to MOVICON

*J = kgm^2
P = kg
Y = mm

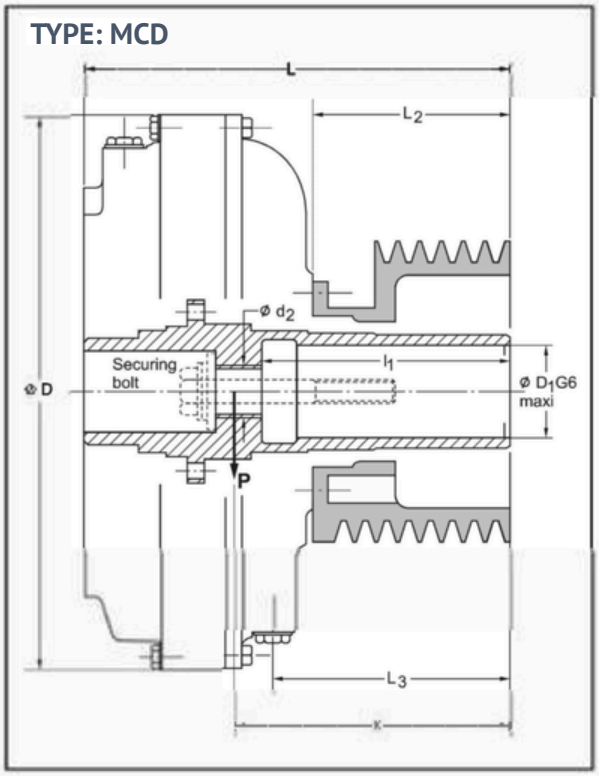


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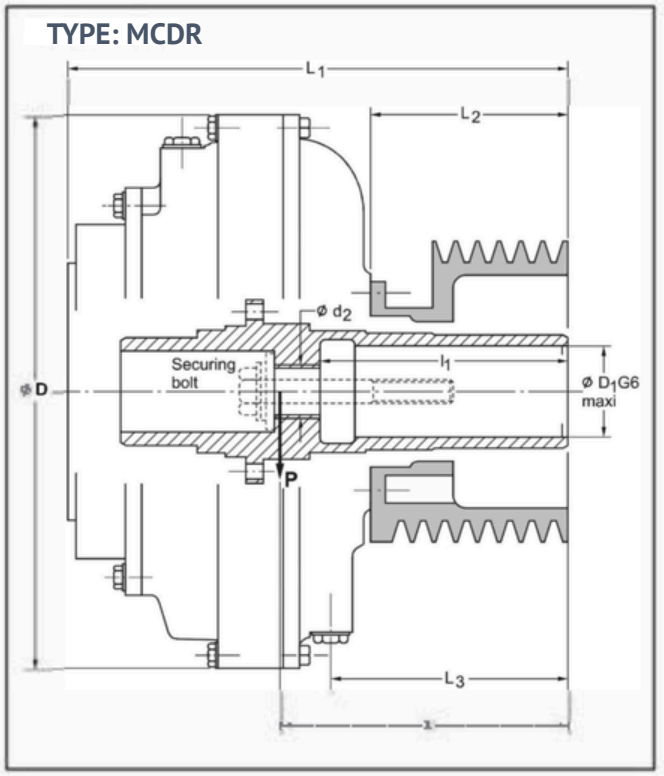
HYDROKINETIC FLUID COUPLINGS
TRACTION TYPE MOUNTING: PH (V-BELT PULLEY)

SIZE: 420 - 584
TYPE: MCD and MCDR
MOUNTING: On Shaft Motor (PHR) and on Machine Shaft (PHM)

TYPE: MCD



TYPE: MCDR



FLUID COUPLING		SIZE	420	480	584
TYPE MCD	J* (kgm2)	INPUT	16	36	83
		OUTPUT	7	13	29
	Weight (Dry and without Pulley)	kg	51	72	125
	x	mm	236	280	290
	L	mm	368	427	467
TYPE MCDR	J* (kgm2)	INPUT	16	36	83
		OUTPUT	74	135	295
	Weight (Dry and 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	20505
		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

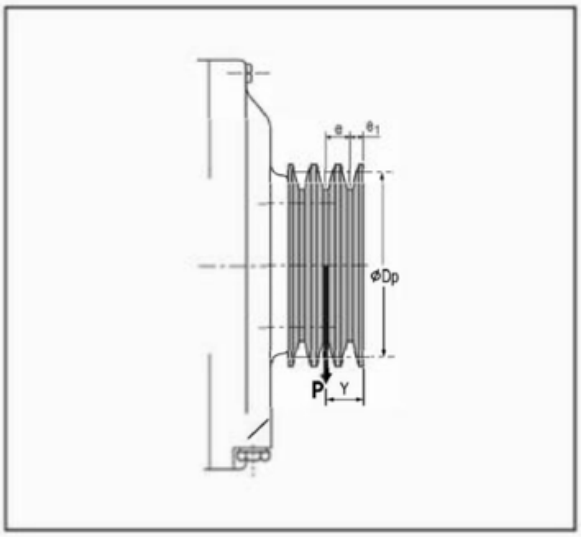
For PHM the values of inertia are reversed for primary and secondary parts.

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

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

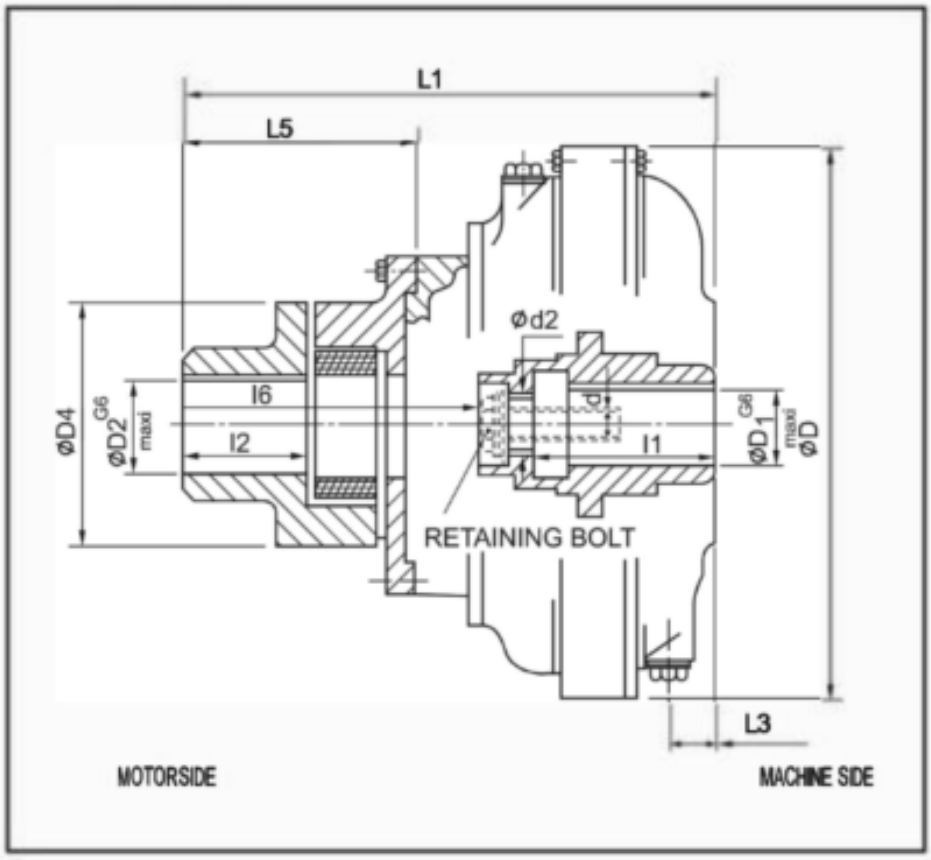
For other profiles refer to **MOVICON.**

J* = kgm2
P = kg
Y = mm

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: 320 - 760
TYPE: MCDR with Flexible Coupling MEX

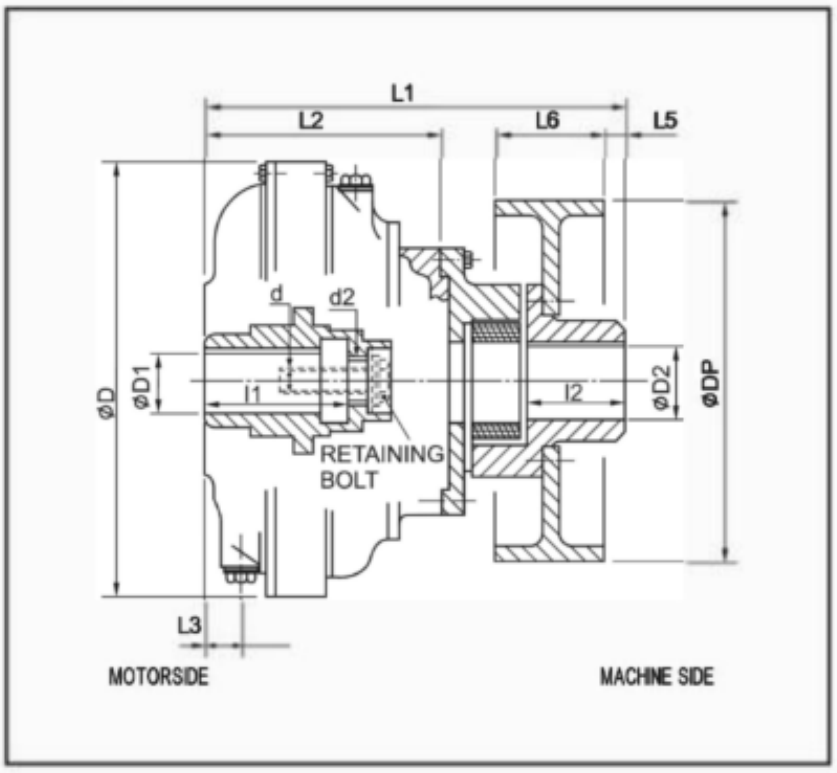


FLUID COUPLING		SIZE	320	370	420	450	480	584	660	760
FLEXIBLE COUPLING		TYPE	MEX65	MEX75	MEX95	MEX95	MEX110	MEX125	MEX140	MEX140
FLUID COUPLING + FLEXIBLE COUPLING	J (kgm2)	FLUID COUPLING	28	55	88	153	17	375	65	121
		FLEXIBLE COUPLING	7	13	26	26	53	111	27	347
	Total Weight (DRY)	FLUID COUPLING	28	38	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	3.295	382	428	490	485	552	656	718
		L3	25	29	37	60	37	49	55	49
		L5	1.265	157	171	171	188	219	272	273
		I1	110	110	120	120	155	170	200	240
		I2	745	985	110	110	1.125	1.315	172	172
		I6	1.495	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: XR (HOLLOW SHAFT – REVERSE MOUNTING)

SIZE: 320 - 760
TYPE: MCDIR with Flexible Coupling MEB

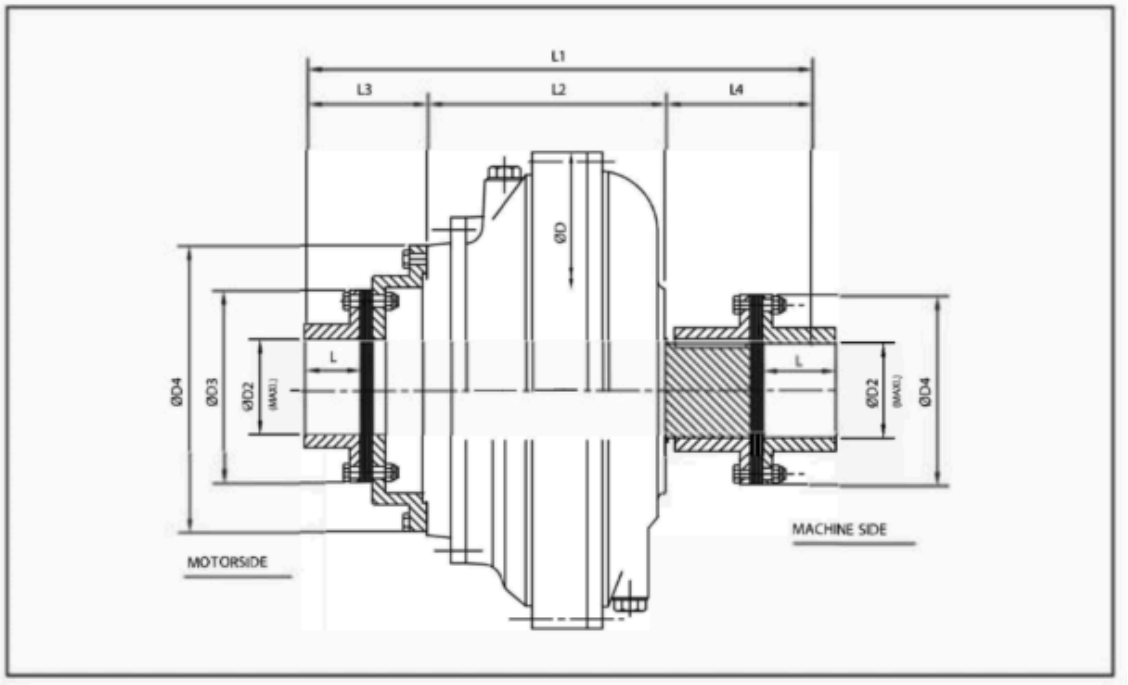


FLUID COUPLING		SIZE	320		370			420			450			480		584			660		760	
BRAKE DRUM		DIA (MM)	250	315	250	315	400	315	400	500	315	400	500	400	500	400	500	630	500	630	630	710
FLEXIBLE COUPLING		TYPE	MEB65		MEB75			MEB95			MEB95			MEB110		MEB125			MEB140		MEB140	
FLUID COUPLING + FLEXIBLE COUPLING	J (kgm2)	FLUID COUPLING	28		55			88			153			17		375			65		121	
		FLEXIBLE COUPLING	2	44	26	53	14	6	158	42	6	158	42	2	445	226	486	114	645	129	137	209
	Total Weight (DRY)	FLUID COUPLING	28		53			53			62			78		135			192		262	
		FLEXIBLE COUPLING	24	33	53	75	113	53	75	113	53	75	113	97	130	112	150	209	203	310	270	320
		D	365		425			475			520			550		670			760		870	
		D1	60		65			80			80			90		110			120		135	
		L1	3.295		382			428			490			485		552			656		718	
		L2	203		225			257			319			297		333			384		445	
		l1	110		119			120			120			155		170			200		240	
		DP	250	315	250	315	400	315	400	500	315	400	500	400	500	4400	500	630	500	630	630	710
		D2	65	65	75	75	75	95	95	95	95	95	95	110	110	125	125	125	125	125	125	125
		L5	25	10	35	35	25	20	35	25	20	35	25	35	25	25	20	20	30	50	50	50
		L6	95	118	95	118	150	118	150	190	118	150	190	150	190	150	190	236	190	236	236	265
		l2	745		985			110			110			1.125		1.315			172		172	
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: MCDR-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	80L-300	80L-375
FLUID COUPLING + MULTI DISC COUPLING	J (kgm2)	FLUID COUPLING	56	8	156	188	415
		MULTI DISC COUPLING	15	22	22	28	58
	Total Weight (DRY)	FLUID COUPLING	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

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

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 (following page) for MCD (without delayed filling chamber)
Table 3.b (following page) for MCDR (with delayed filling chamber)
Table 3.c (following page) for MCDRP/MCDRS (with extended filling chamber)

Calculate the nominal torque co-efficient, Kn, Using the following formula: Kn = P/X
The co-efficient Kn corresponds to the nominal full load torque. Calculate the co-efficient Km corresponding to starting [or stalling] torque as shown in the following example.

EXAMPLE:

P = Motor power or transmitted power = 75kw at 1450 rpm.
Ts/In = Ration of starting torque to full load torque = 1.4
For a coupling with a delayed filling chamber MCDR-420 at 1450 rpm, value of X

From Table-01 → 29.
Kn = P/X = 75/29 = 2.59
Km = Kn x [Ts/Tn] = 2.59x1 .4 = 3.63

To allow for the fact starting torque is delivered at a speed less than for nominal torque. Divide the value of Km by 0.9 i.e. Km =3.63/0.9=4.03

From Table 2.b for → Km = 4.03 Oil filling angle is about 65 degrees and from Table 3.b for angle → 65 Degrees
Quantity of fluid is 11.0 Ltr approximately.

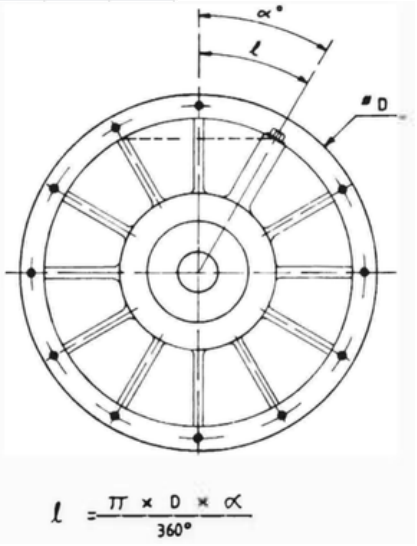
Referring to table-2, to obtain a full load slip not exceeding 3%, the value of Kn should be less than indicated for chosen filling.

TABLE 1: Value of X, for Type MCD, MCDR, MCDRP, MCDRS

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	6	2	38	9	19	357	447	685	187	344	70
	900	1	34	66	156	327	617	781	119	323	594	120
	1000	14	47	91	215	448	845	1.065	163	442	815	165
	1200	25	82	16	375	75	147	1.917	285	773	142	280
	1500	49	162	314	74	155	29	37	562	153	280	565
	1800	85	28	543	128	268	501	6.875	971	264	484	-
	3000	391	129	252	593	123	-	-	-	-	-	-

TABLE 2:

FILLING ANGLE		Table 2a		Table 2b		Table 2c	
	Coupling Type Co-efficient	MCD		MCDR		MCDRP / MCDRS	
		Km	Kn	Km	Kn	Km	Kn
FILLING ANGLE a	50	56	24	57	27	-	-
	55	51	21	52	25	-	-
	60	45	19	47	22	47	28
	65	365	17	41	21	41	27
	70	266	16	32	2	32	25
	75	2	13	28	18	28	22
	80	15	8	24	17	24	21
	85	13	6	21	14	21	2
	90	1	4	16	12	16	18
	95	8	3	12	9	12	15
	100	7	2	96	7	95	13



DETERMINATION
OF THE INITIAL OIL FILLING

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

COUPLING		Table 3a									
		MCD (Without delayed filling chamber)									
FILLING ANGLE	SIZE	185	235	270	320	370	420	450	480	584	660
	50	1	19	26	42	71	1.005	154	15	2.655	445
	55	97	186	245	4	69	95	15	143	266	426
	60	93	18	23	38	65	89	141	136	246	406
	65	88	17	22	36	6	84	139	128	23	382
	70	82	158	2	33	57	78	129	12	214	358
	75	76	15	19	31	52	72	121	112	20	334
	80	7	139	18	29	48	67	108	102	184	31
	85	64	127	17	265	44	63	102	93	168	286
	90	57	114	155	24	4	57	93	85	153	263
	95	52	102	14	225	37	5	87	78	14	24
	100	46	9	13	21	34	46	83	72	13	22

COUPLING		Table 3b							
		MCDR (Without delayed filling chamber)							
FILLING ANGLE	SIZE	320	370	420	450	480	584	660	760
	50	52	9	125	205	20	341	52	75
	55	5	86	121	198	189	327	502	71
	60	47	82	113	179	179	312	478	67
	65	44	76	11	166	169	292	45	62
	70	4	7	10	153	153	272	42	57
	75	37	65	94	145	143	25	39	63
	80	33	59	86	133	133	228	36	49
	85	31	56	81	121	121	209	33	46
	90	29	5	725	109	109	19	302	42
	95	27	48	65	96	96	175	276	38
	100	25	42	59	84	84	159	253	34

COUPLING		Table 3c						
		MCDRP/ MCDRS (Without delayed filling chamber)						
FILLING ANGLE	SIZE	370	420	450	480	584	660	760
	50	109	152	226	22	365	595	90
	55	103	148	222	212	351	578	85
	60	10	142	209	202	336	551	80
	65	92	1.365	208	191	318	518	75
	70	83	13	194	181	30	482	68
	75	78	119	182	169	282	442	63
	80	7	108	166	157	262	41	58
	85	66	97	159	145	242	374	54
	90	6	86	144	132	222	341	49
	95	59	73	133	12	20	3.122	44
	100	6	65	123	107	178	286	40

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 centered calculated by method given above.
3. If necessary, remove or add same oil.
4. Replace filling plug and tighten.

OIL CHANGE

Recommended every 8,000 hours of working or every two years.



For additional information or further details please get in touch with us:

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Details and dimensions are subject to change without prior notice.