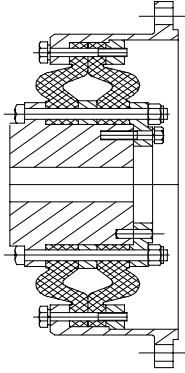


Unique Diaphragm Type Flexible Couplings



- * Highly Flexible and resilient
- * Low Dynamic Torsional Stiffness
- * Torsional Stiffness varies with Load
- * Isolates and dampens Torsional Vibration
- * Ideally suitable for Diesel Engine Drives , Compressors , Rolling Mills , DG Sets Pumps
- * Available for reputed makes of Diesel Engines & compressors.
- * Custom Design for special Requirements
- * Torsional Vibration Calculation on request
- * No Lubrication . Minimum Maintenance

Unique Diaphragm Couplings use highly flexible Diaphragms. These consist of Rubber reinforced with Nylon Chords. Further at inner and outer bolting PCD Steel ring reinforcements are used. Torque ratings are determined after extensive tests and have large service factor against rupture. Rupture torque is typically 6 to 10 times rated torque.

At nominal torque torsional angle is large - typically 10 to 15 degrees. Torsional Stiffness is low. This results in low critical speeds , usually below operating speed. Further torsional stiffness varies with load. At lower loads stiffness is lower. The Feature allows operation at wide range of speeds. Favourable damping characteristics ensure vibration amplitude are limited at resonance.

Design Series - Series 1000 , Series 1100 are for Direct Flywheel mounting.

Series 1750 are for shaft to shaft connection.

Series IP are suitable for diesel drives in association with cardan shaft - highly popular for Diesel driven vertical Turbine Fire Pumps.

Selection -

- 1) First selection is based on nominal torque , Max bore , Max speed , end fitment.
- 2) Next for Diesel / Compressor drives in particular - TV analysis is performed to check that vibratory torques are within acceptable limits in operating speed range. If necessary several sizes are tested - to obtain best match
- 3) ' Unique' would be glad to perform TV analysis on request. For this normally we would require Mass elastic data , Torque - Crank angle data (for compressors)

Note - Many alternative custom made designs can be offered to suit specific requirements

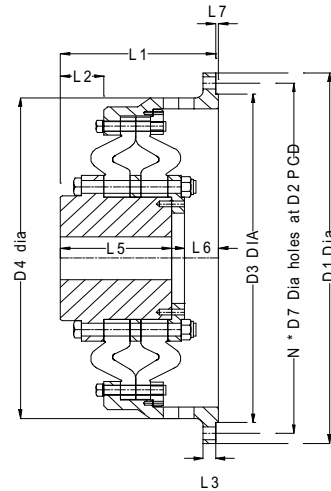
Torsional stiffness may vary + - 20 % of catalogue figures.

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Unique Double Diaphragm Coupling

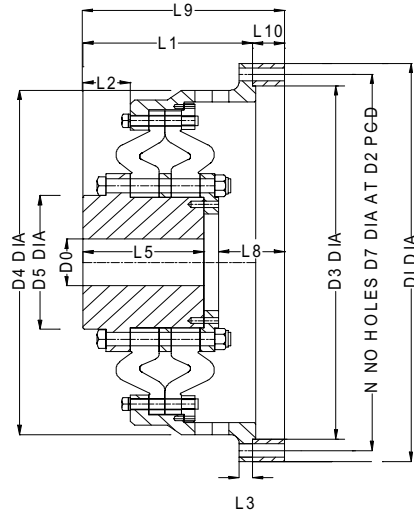
Series 1000



Size VEZ	Max Speed		Dimensuins									D0 MAX		N	D7	Weight Kg	Inertia MR^2	
	CI RPM	CS RPM	L1 mm	L2 mm	L3 mm	L5 mm	L6 mm	L7 mm	D1 mm	D2 mm	D3 mm	CI mm	Steel mm				Inner Kg.m^2	Outer Kg.m^2
35S,40S	4600	6700	71	16	8	52	13	3	221	205	189	35	35	12	10	6.2	0.002	0.027
43S,45S	4000	5870	83	21	8	62	14	3	252	235	218	45	50	12	10	8.8	0.006	0.049
51S,55S	3400	5500	92	23	10	69	14	3	290	268	246	50	55	12	11	13	0.011	0.099
60S	3400	5100	92	23	10	69	14	3	290	268	246	60	65	12	11	14	0.022	0.099
61S,65S	2850	4480	106	26	12	80	16	3	330	304	276	60	65	12	15	19.1	0.022	0.175
70S	2850	4480	106	26	12	80	16	3	335	308	283	70	75	12	15	21	0.039	0.176
71S,80S	2500	3890	132	36	14	103	16	3	380	354	328	70	75	12	15	31.3	0.052	0.398
82S	2500	3890	107	35	15	98		3	370	350	320	70	75	12	11	31.8	0.055	0.349
85S	2160	3330	108	42	15	110	12	3	400	370	340	90	100	12	10.5	39.4	0.098	0.480
86S,95S	2160	3330	162	47	14	126	21	4	445	420	392	90	100	12	15	52.1	0.172	0.797
102S,115S	1880	2880	185	52	16	143	24	4	514	486	458	105	120	16	17	80	0.324	1.68
121S,135S	1620	2500	216	66	18	168	27	5	593	561	529	120	135	16	17	126	0.736	3.22
141S,165S	1370	2150	254	75	23	199	30	5	690	650	610	140	160	16	22	191	1.39	6.87
171S,195S	1160	1840	283	82	25	222	33	6	808	767	726	170	190	16	26	315	3.34	15.3
201S,235S	980	1540	331	100	28	258	41	8	956	908	858	200	230	16	32	509	7.55	34.5
241S,275S		1340	388	116	32	302	46	8	1110	1051	992		280	16	35	790	17.0	62.7
280S,285S		1170	476	116	34	358	76	8	1262	1195	1128		310	16	35	1385	36.5	163.7
310S,320S		1080	520	131	40	400	75	10	1386	1315	1244		330	24	38	1686	52.9	251
360S		1080	520	131	40	400	75	10	1386	1315	1244		330	24	38	1686	52.9	251

Unique Double Diaphragm Coupling

Series 1100



Size VEZ	Max Speed		Dimensions										D0 MAX		N		Weight Kg	Inertia MR^2	
	CI RPM	CS RPM	L1 mm	L2 mm	L3 mm	L5 mm	L8 mm	L9 mm	L7 mm	D1 mm	D2 mm	D3 mm	CI mm	Steel mm	D7 mm	D7 mm		Inner Kg.m^2	Outer Kg.m^2
35S,40S	4600	6700	71	16	8	52	37	98	3	221	205	189	35	35	12	10	8	0.002	0.047
43S,45S	4000	5870	83	21	8	62	38	110	3	252	235	218	45	50	12	10	10.9	0.006	0.078
51S,55S	3400	5500	92	23	10	69	38	119	3	290	268	246	50	55	12	11	14.9	0.011	0.15
60S	3400	5100	92	23	10	69	38	119	3	290	268	246	60	65	12	11	15.9	0.022	0.15
61S,65S	2850	4480	106	26	12	80	50	143	3	330	304	276	60	65	12	15	24.2	0.022	0.291
70S	2850	4480	106	26	12	80	50	143	3	335	308	283	70	75	12	15	25.5	0.039	0.299
71S,80S	2500	3890	132	36	14	103	43	162	3	380	354	328	70	75	12	15	35.5	0.052	0.527
82S	2500	3890	107	35	15	98	43	157	3	370	350	320	70	75	12	11	35.5	0.055	0.527
85S	2160	3330	108	42	15	110	48	177	3	400	370	340	90	100	12	10.5	57.7	0.098	1.036
86S,95S	2160	3330	162	47	14	126	48	193	4	445	420	392	90	100	12	15	57.7	0.172	1.036
102S,115S	1880	2880	185	52	16	143	58	223	4	514	486	458	105	120	16	17	104	0.324	2.188
121S,135S	1620	2500	216	66	18	168	67	261	5	593	561	529	120	135	16	17	138	0.736	4.179
141S,165S	1370	2150	254	75	23	199	75	304	5	690	650	610	140	160	16	22	211	1.39	9.143
171S,195S	1160	1840	283	82	25	222	93	349	6	808	767	726	170	190	16	26	366	3.34	22.88
201S,235S	980	1540	331	100	28	258	110	408	8	956	908	858	200	230	16	32	594	7.55	52.3
241S,275S		1340	388	116	32	302	138	488	8	1110	1051	992		280	16	35	950	17.0	112.6
280S,285S		1170	476	116	34	358	197	605	8	1262	1195	1128		310	16	35	1640	36.5	255
310S,320S		1080	520	131	40	400	225	680	10	1386	1315	1244		330	24	38	2074	52.9	418
360S		1080	520	131	40	400	225	680	10	1386	1315	1244		330	24	38	2074	52.9	418

Series 1750



Size VEZ	Max Speed		Dimensuins										D0 Max		D6 max	N	D7	Weight Kg	Inertia MR^2	
	CI	CS	L1	L2	L3	L5	L8	L9	L10	D1	D2	D3	CI	Steel					Inner	Outer
	RPM	RPM	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	Kg.m^2	Kg.m^2		
35S,40S	4600	6700	71	16	8	52	104	157	56	221	205	189	35	35	52	12	10	11.6	0.002	0.057
43S,45S	4000	5870	83	21	8	62	117	176	62	252	235	218	45	50	58	12	10	16	0.006	0.098
51S,55S	3400	5500	92	23	10	69	128	196	71	290	268	246	50	55	70	12	11	22.8	0.011	0.196
60S	3400	5100	92	23	10	69	128	196	71	290	268	246	60	65	70	12	11	23.8	0.022	0.196
61S,65S	2850	4480	106	26	12	80	157	243	90	330	304	276	60	65	80	12	15	36.6	0.022	0.382
70S	2850	4480	106	26	12	80	157	243	90	335	308	283	70	75	80	12	15	37.9	0.039	0.382
71S,80S	2500	3890	132	36	14	103	178	285	111	380	354	328	70	75	110	12	15	59.3	0.052	0.755
82S	2500	3890	107	35	15	98	173	280	111	370	350	320	70	75	110	12	11	59.3	0.055	0.755
85S	2160	3330	108	42	15	110	192	316	129	400	370	340	90	100	130	12	10.5	94.8	0.098	1.535
86S,95S	2160	3330	162	47	14	126	208	332	129	445	420	392	90	100	130	12	15	94.8	0.172	1.535
102S,115S	1880	2880	185	52	16	143	242	387	150	514	486	458	105	120	150	16	17	147	0.324	3.267
121S,135S	1620	2500	216	66	18	168	285	455	175	593	561	529	120	135	170	16	17	230	0.736	6.52
141S,165S	1370	2150	254	75	23	199	331	521	196	690	650	610	140	160	205	16	22	358	1.39	14
171S,195S	1160	1840	283	82	25	222	349	572	229	808	767	726	170	190	245	16	26	567	3.34	29.8
201S,235S	980	1540	331	100	28	258	408	675	272	956	908	858	200	230	290	16	32	950	7.55	69.2
241S,275S		1340	388	116	32	302	488	823	340	1110	1051	992		280	330	16	35	1561	17.0	152.8
280S,285S		1170	476	116	34	358	605	957	358	1262	1195	1128		310	355	16	35	2437	36.5	329.6
310S,320S		1080	520	131	40	400	680	1147	475	1386	1315	1244		330	380	24	38	3347	52.9	540
360S		1080	520	131	40	400	680	1147	475	1386	1315	1244		330	380	24	38	3347	52.9	540

Unique Double Diaphragm Coupling

Technical Data of Unique Double Diaphragm Couplings

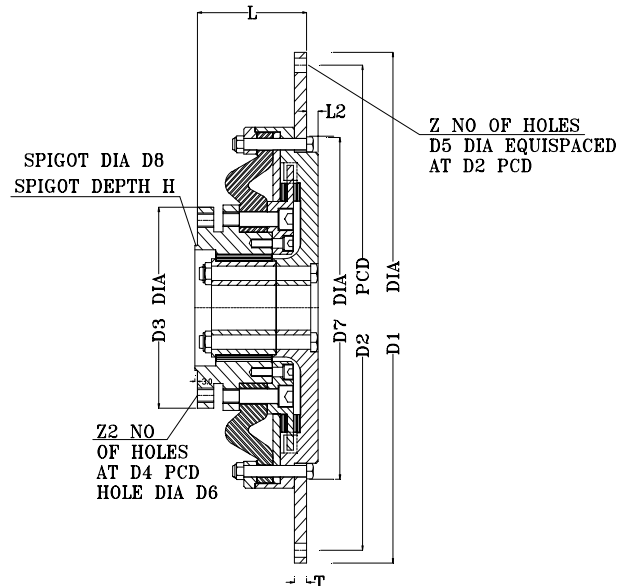
Size	Torque			Dynamic Torsional Stiffness					Stiffness		Perm Shaft Disp.		Torsional Angle		Dyn Mag at res- onance	damping factor
	Normal Qo	Max Qm	Vib Qv at 10 Hz	0.00Qo	0.25Qo	0.50Qo	0.75Qo	1.00Qo	Axial	Radial	Axial	Radial	At Qo	At Qm		
	Nm	Nm	Nm	Nm/rad	Nm/rad	Nm/rad	Nm/rad	Nm/rad	N/mm	N/mm	mm	mm	deg	deg		
35S	200	600	80	490	690	1235	1520	1915	165	215	3	0.9	17	24	5.5	0.18
40S	295	885	118	600	855	1785	2710	3560	165	215	3	0.9	19.5	26	5.5	0.18
43S	445	1335	177	880	1255	2130	3160	4355	165	225	3.5	1	20.5	28	5.5	0.18
45S	540	1620	216	980	1415	2590	3955	5750	165	225	3.5	1	23.5	30.5	5.5	0.18
51S	640	1920	255	1430	2040	2980	4710	6435	175	245	4	1.2	21.5	28.5	5.5	0.18
55S	740	2220	295	1205	1715	3500	5865	8710	175	245	4	1.2	25	31.5	5.5	0.18
60S	740	2220	295	1205	1715	3500	5865	8710	175	245	4	1.2	25	31.5	5.5	0.18
61S	985	2955	393	3275	4680	8320	12400	18360	320	500	4.5	1.4	13.5	18.5	5.5	0.18
65S	1325	3975	530	3925	5540	9810	14390	21090	320	500	4.5	1.4	16.5	21.5	5.5	0.18
70S	1770	5310	710	6180	8830	13145	18440	27270	490	785	4.8	1.5	15	21	5.5	0.18
71S	1670	5010	670	6180	8830	13145	18440	27270	620	940	5	1.6	15	21	5.5	0.18
80S	2260	6780	905	7260	10300	15200	24800	33700	620	940	5	1.6	18	24	5.5	0.18
82S	2260	6780	1110	7950	11280	16700	27270	37000	620	940	5	1.6	16	22	5.5	0.18
85S	2945	8835	1230	11080	15890	24230	34000	52400	880	940	6	1.9	16	21	5.5	0.18
86S	2945	8835	1180	11080	15890	24230	34000	52400	880	940	6	1.9	13	18.5	5.5	0.18
95S	3925	11775	1570	12260	17560	29400	43460	60900	880	940	6	1.9	16	21	5.5	0.18
102S	4610	13830	1865	21980	31390	43950	63400	84700	1470	2350	7	2.2	11.5	16.5	5.5	0.18
115S	6675	20025	2650	22860	32670	59400	85800	113000	1470	2350	7	2.2	15.5	20	5.5	0.18
121S	8440	25320	3335	37800	53960	75900	108000	136000	1370	1760	7.5	2.5	12.5	18	5.5	0.18
135S	11480	34440	4610	41200	58860	89300	133400	178000	1370	1760	7.5	2.5	15.5	21	5.5	0.18
141S	14330	42990	5740	52700	75200	134000	213000	292000	2060	2650	8	2.9	12.5	17	5.5	0.18
165S	19820	59460	7950	60500	86500	193000	302000	409000	2060	2650	8	2.9	15	20	5.5	0.18
171S	24530	73590	9810	78480	111800	169000	247000	343000	2940	3040	9	3.5	15	21.5	5.5	0.18
195S	33850	101550	13540	83400	118700	213000	356000	496000	2940	3040	9	3.5	18.5	24.5	5.5	0.18
201S	42680	128040	17070	145000	207000	340000	541500	792600	2600	3530	10	4	15	20	5.5	0.18
235S	68670	206010	27470	191000	273700	549000	885000	1350000	2600	3530	10	4	19.5	23.5	5.5	0.18
241S	81430	244290	32570	240000	343000	568000	871000	1210000	3200	4260	11	4.5	16.5	21.5	5.5	0.18
275S	104000	312000	41700	264000	377000	700000	1138000	1770000	3200	4260	11	4.5	19	23.5	5.5	0.18
280S	122650	367950	49050	647000	932000	1800000	2650000	3500000	8200	17600	12	5	10	13	5.5	0.18
285S	147500	442500	58860	726000	1040000	2060000	3160000	4410000	8200	17600	12	5	11	14.5	5.5	0.18
310S	176600	529800	70640	652000	944000	1620000	2450000	3480000	9800	14200	13	5.5	14	18	5.5	0.18
320S	235500	706500	94180	735000	1050000	2140000	3400000	4630000	9800	14200	13	5.5	16.5	20.5	5.5	0.18
360S	300000	900000	120000	954000	1360000	2570000	4150000	6430000	9800	14200	13	5.5	19	22.5	5.5	0.18

Notes - Permissible Qv at other frequencies = $Q_v \cdot (10/f)^{0.5}$ where f is frequency in Hz
For Temperatures higher than 60 deg C, Permissible Qv = $Q_v \cdot 0.60$



Unique Diaphragm Coupling Type IP

Specially Designed to connect Diesel Engine Flywheel with cardan shafts



Ratings and Technical Data

Size	Nominal Torque Qo NM	Max Torque Qm NM	Perm Vib Torque Qv NM	Perm Power Loss Watts	Max Permissible Speed RPM	Dynamic Torsional Stiffness				
						NM/Rad				
						0.00Qo	0.25 Qo	0.50Qo	0.75Qo	1.00Qo
IP0512	320	960	130	20	4100	1250	1500	2480	3660	5100
IP0522	380	1140	150	20	4100	1270	1670	2820	4280	5950
IP0612	500	1500	200	30	3100	2140	2690	4120	6050	9000
IP0622	630	1890	250	30	3100	2240	2930	4900	7650	10650
IP0712	800	2400	320	70	3100	3150	4000	6350	9600	13450
IP0722	1000	3000	400	70	3100	3620	4810	8000	12350	17350
IP0732	1250	3750	500	70	3100	3810	5650	9850	15650	21700
IP0812	1600	4800	640	100	3100	6400	7400	11350	16850	23450
IP0822	2000	6000	800	100	3100	7600	9650	16400	24900	36000
IP1012	2500	7500	1000	180	2540	11350	13550	20250	30000	41500
IP1022	3150	9450	1250	180	2540	10950	13800	22300	35700	50500
IP1212	4000	12000	1600	300	2100	16650	20950	30700	45000	62500
IP1222	5000	15000	2000	300	2100	17150	22600	37150	57000	82000
IP1232	6250	18750	2500	300	2100	19500	26200	46000	73000	102500
IP1412	8000	24000	3200	510	1950	30000	37600	62000	96500	133500
IP1422	10000	30000	4000	510	1950	26650	38350	71500	119500	175000
IP1712	12500	37500	5000	820	1650	40500	55000	93000	142000	198500
IP1722	15800	47400	6320	820	1650	49050	69000	123000	193000	268500

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Unique Diaphragm Coupling Type IP

Dimensions & Technical Data

Size	Flywheel Type SAE	D1 Dia	Z No Of Holes	D5 Hole Dia	D2 PCD Holes	L	D3 Dia	T	L2	MR ² Inner	MR ² Outer	Total Weight
		MM		MM	MM	MM	MM	MM	MM	KgM ²	KgM ²	Kg
IP0512	8"	263.5	6	11	244.5						0.062	11.5
IP0522	10"	314.3	8	11	295.3	65	113	9	8	0.008	0.092	13.1
	11.5"	352.4	8	11	333.4						0.132	14.5
IP0612	10"	314.3	8	11	295.3						0.130	17.5
IP0622	11.5"	352.4	8	11	333.4	75	135	10	9	0.018	0.176	19.1
	14"	466.7	8	14	438.2						0.418	24.8
IP0712	11.5"	352.4	8	11	333.4						0.270	27.5
IP0722	14"	466.7	8	14	438.2	92	156	12	8	0.030	0.569	33.4
IP0732												
IP0812	14"	466.7	8	14	438.2	110	205	13	10	0.118	0.823	49.5
IP0822												
IP1012	14"	466.7	8	14	438.2						1.236	71.5
IP1022	16"	517.5	8	14	489.0	130	230	15	14	0.227	1.511	76.5
	18"	571.5	6	17	542.9						1.912	81.6
IP1212	18"	571.5	6	17	542.9						2.671	115.5
IP1222	21"	673.1	12	17	641.4	147	271	16	18	0.528	3.89	128.0
IP1232												
IP1412	21"	673.1	12	17	641.4	176	298	22	22	0.970	6.35	187.0
IP1422	24"	733.4	12	20	692.2						7.77	198.5
IP1712	24"	733.4	12	20	692.2	190	358	22	24	2.410	11.66	288.0
IP1722		870.0	12	26	820.0						16.48	318.0

For Cardan Shaft refer catalogue on Cardan shaft. Standard connection details given below for easy reference only.

Cardan shaft Series	Flange OD	PCD mm	Bolt No*Dia	Spacing of Holes Degrees	Spigot Type	Spigot Dia MM	Spigot Depth mm
1140	87.3	57.3	4*M8	80,100,80,100	Male	56.1	1.6
1310	96.8	96.8	4*3/8"	80,100,80,100	Male	60.3	1.6
1410	115.9	115.9	4*7/16"	80,100,80,100	Male	69.85	1.6
2872	120	120	6*M10	Equispaced	Male	82.5	2.0
1510	146	146	4*1/2"	80,100,80,100	Male	95.2	1.6
3120	129	129	8*M10	Equispaced	Male	82.5	2.0
1600	174.6	174.6	8*3/8"	Equispaced	Male	168.28	1.6
1700	203.2	203.2	8*3/8"	Equispaced	Male	196.85	1.6
1800	203.2	203.2	12*7/16"	See Catalogue	Male	196.85	1.6
1900	276.2	276.2	8*M16	Equispaced	Male	222.25	2.4
116.150	150	130	8*M12	Equispaced	Female	90	3
133.180	180	155.5	8*M14	Equispaced	Female	110	3
152.180	180	155.5	10*M16	Equispaced	Female	110	3
172.225	225	196	8*M16	Equispaced	Female	140	5
246M220	250	218	8*M18	Equispaced	Female	140	6
280M220	285	245	8*M20	Equispaced	Female	175	7
310M230	315	280	8*M22	Equispaced	Female	175	7

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