

RPX Coupling Selection

Table 1, Service Factors

Special cases For applications where shock, vibration and torque fluctuations occur – consult Challenge	Type of prime mover		
	Electric motors and other smooth running devices	Internal combustion engines with 4 or more cylinders	Internal combustion engines with less than 4 cylinders
Type of driven machine			
Uniform load Light duty agitators, belt conveyors for sand etc., fans up to 7.5 kW, centrifugal compressors and pumps,	1.0	1.25	1.50
Moderate load Variable density agitators, belt conveyors (non-uniform loads), fans over 7.5 kW, other rotary compressors and pumps, machine tools, printing machinery, laundry machinery, rotary screens, rotary woodworking machinery	1.25	1.50	2.00
Heavy load Reciprocating compressors and pumps, positive displacement blowers, heavy duty conveyors such as screw, bucket etc., hammer mills, pulverisers, presses, shears, punches, rubber machinery, crushers, metal mills	1.75	2.00	2.50

The above Service Factors are based on 24 hours/day duty

Additional service factor multiplier for temperature : -30°C to +30° = 1.00, +40°C = 1.2, +60°C = 1.4, +80°C = 1.8

Additional frequent start multiplier : up to 100 starts/hour = 1.0 100-200 = 1.2 200-400= 1.4 400-800=1.6

Challenge elements are manufactured from polyurethane with an operating temperature span between -40°C to +100°C.

They can also accommodate transient temperatures up to +120°C

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Table 2, Power Ratings (kW) for 92 shore elements (Yellow)

Rotational speed in rev/min	19	24	28	38	42	48	55	65	75	90
100	0.10	0.37	1.00	1.99	2.78	3.25	4.29	6.55	13.4	25.1
150	0.15	0.56	1.50	2.99	4.17	4.88	6.44	9.83	20.1	37.7
200	0.20	0.74	2.00	3.98	5.56	6.50	8.58	13.1	26.8	50.2
300	0.30	1.11	3.00	5.97	8.34	9.75	12.9	19.7	40.2	75.3
400	0.40	1.48	4.00	7.96	11.1	13.0	17.2	26.2	53.6	100
500	0.52	1.83	4.98	9.95	13.9	16.2	21.5	32.7	67.0	126
600	0.60	2.22	6.00	11.9	16.7	19.5	25.7	39.3	80.4	151
700	0.73	2.56	6.97	13.9	19.4	22.7	30.1	45.8	93.8	176
720	0.75	2.64	7.16	14.3	20.0	23.4	30.9	47.1	96.5	181
800	0.84	2.93	7.96	15.9	22.2	26.0	34.3	52.4	107	201
900	0.94	3.29	8.96	17.9	25.0	29.2	38.6	58.9	121	226
960	1.01	3.51	9.55	19.1	26.6	31.2	41.2	62.8	129	241
1000	1.05	3.66	9.95	19.9	27.8	32.5	42.9	65.5	134	251
1200	1.26	4.39	11.9	23.9	33.3	39.0	51.5	78.5	161	302
1400	1.47	5.12	13.9	27.9	38.9	45.4	60.1	91.6	188	352
1440	1.51	5.27	14.3	28.7	40.0	46.7	61.8	94.2	193	362
1500	1.57	5.49	14.9	29.9	41.6	48.7	64.4	98.2	201	377
1800	1.88	6.59	17.9	35.8	50.0	58.4	77.3	118	241	452
2000	2.09	7.32	19.9	39.8	55.5	64.9	85.9	131	268	503
2500	2.62	9.15	24.9	49.8	69.4	81.2	107	164	335	628
2880	3.02	10.5	28.7	57.3	79.9	93.5	124	188	386	724
3000	3.14	11.0	29.9	59.7	83.3	97.4	129	196	402	754
3500	3.66	12.8	34.8	69.7	97.1	114	150	229	469	880
4000	4.19	14.6	39.8	79.6	111	130	172	262	536	-
4500	4.71	16.5	44.8	89.6	125	146	193	295	603	-
5000	5.24	18.3	49.8	99.5	139	162	215	327	-	-

Table 2, Power Ratings (kW) for 98 shore elements (Red)

Rotational speed in rev/min	19	24	28	38	42	48	55	65	75	90
100	0.18	0.63	1.68	3.40	4.71	5.50	7.17	9.84	20.1	37.7
150	0.27	0.95	2.52	5.10	7.07	8.25	10.8	14.8	30.2	56.6
200	0.36	1.26	3.36	6.80	9.42	11.0	14.3	19.7	40.2	75.4
300	0.54	1.89	5.04	10.2	14.1	16.5	21.5	29.5	60.3	113
400	0.72	2.52	6.72	13.6	19.0	22.0	28.7	39.4	80.4	151
500	0.89	3.14	8.38	17.0	23.6	27.5	35.9	49.2	101	189
600	1.08	3.78	10.1	20.4	28.3	33.0	43.0	59.0	121	226
700	1.25	4.40	11.7	23.8	33.0	38.5	50.2	68.9	141	264
720	1.28	4.52	12.1	24.5	33.9	39.6	51.6	70.9	145	271
800	1.42	5.02	13.4	27.2	37.7	44.0	57.4	78.7	161	302
900	1.60	5.65	15.1	30.6	42.4	49.5	64.6	88.6	181	339
960	1.71	6.03	16.1	32.7	45.2	52.8	68.9	94.5	193	362
1000	1.78	6.28	16.8	34.0	47.1	55.0	71.7	98.4	201	377
1200	2.14	7.54	20.1	40.8	56.5	66.0	86.1	118	241	452
1400	2.49	8.79	23.5	47.6	66.0	77.0	100	138	281	528
1440	2.56	9.04	24.1	49.0	67.9	79.2	103	142	290	543
1500	2.67	9.42	25.1	51.0	70.7	82.5	108	148	302	566
1800	3.20	11.3	30.2	61.3	84.8	98.9	129	177	362	679
2000	3.56	12.6	33.5	68.1	94.2	110	143	197	402	754
2500	4.45	15.7	41.9	85.1	118	137	179	246	503	943
2880	5.13	18.1	48.2	98.0	136	158	207	283	579	1086
3000	5.34	18.8	50.3	102	141	165	215	295	603	1131
3500	6.23	22.0	58.6	119	165	192	251	345	704	1320
4000	7.12	25.1	67.0	136	188	220	287	394	804	-
4500	8.01	28.3	75.4	153	212	247	323	443	905	-
5000	8.90	31.4	83.8	170	236	275	359	492	-	-

All power ratings are constant torque
Interpolate for speeds not listed

92 shore (yellow) are the standard elements and 98 shore
(red) elements can be used for higher torques.

Every effort has been taken to ensure that the data listed in this catalogue is correct. Challenge accepts no liability for any inaccuracies or damage caused.

RPX Coupling Selection

IEC Motor Selection Table (50Hz)

Frame size shaft diameter and length		Motor power (kW) 2-pole 3000 rev/min	RPX size *	Motor power (kW) 4-pole 1500 rev/min	RPX size *	Motor power (kW) 6-pole 1000 rev/min	RPX size *	Motor power (kW) 8-pole 750 rev/min	RPX size *	
	2 pole	4, 6, 8 pole								
80	19 x 40		0.75	19 / 24	0.55	19 / 24	0.37	19 / 24	0.18	19 / 24
			1.1	19 / 24	0.75	19 / 24	0.55	19 / 24	0.25	19 / 24
90S	24 x 50		1.5	19 / 24	1.1	19 / 24	0.75	19 / 24	0.37	19 / 24
90L			2.2	19 / 24	1.5	19 / 24	1.1	19 / 24	0.55	19 / 24
100L	28 x 60		3.0	24 / 28	2.2	24 / 28	1.5	24 / 28	0.75	24 / 28
					3.0	24 / 28			1.1	24 / 28
112M	38 x 80		4.0	24 / 28	4.0	24 / 28	2.2	24 / 28	1.5	24 / 28
132S			5.5	28 / 42	5.5	28 / 42	3.0	28 / 42	2.2	28 / 42
	132M		7.5	28 / 42						
					7.5	28 / 42	4.0	28 / 42	3.0	28 / 42
160M	42 x 110		11	38 / 42	11	38 / 42	7.5	38 / 42	4.0	38 / 42
			15	38 / 42					5.5	38 / 42
160L	48 x 110		18.5	38 / 42	15	38 / 42	11	38 / 42	7.5	38 / 42
180M			22	38 / 42	18.5	42 / 55				
180L	55 x 110				22	42 / 55	15	42 / 55	11	42 / 55
			30	42 / 65	30	42 / 65	18.5	42 / 65	15	42 / 65
200L	55 x 110		37	42 / 65			22	42 / 65		
					37	48 / 65			18.5	48 / 65
225S	55 x 110	60 x 140			45	42 / 65	45	55 / 65	30	55 / 65
225M			45	42 / 65	45	55 / 65	30	55 / 65	22	55 / 65
250M	60 x 140	65 x 140	55	48 / 65	55	55 / 65	37	65 / 65	30	65 / 65
280S		75 x 140	75	48 / 65	75	65 / 75	45	65 / 75	37	65 / 75
280M			90	48 / 65	90	75 / 75	55	75 / 75	45	75 / 75
315S		80 x 170	110	65 / 65	110	75 / 90	75	75 / 90	55	75 / 90
315M	65 x 140		132	65 / 65	132	75 / 90	90	75 / 90	75	90 / 90
			160	65 / 65	160	90 / 90	110	90 / 90	90	90 / 90
315L	65 x 140		200	75 / 75	200	90 / 90	132	90 / 90	110	90 / 90
							160	90 / 90	132	90 / 90
315		85 x 170	250	75 / 75	250	90 / 90	200	90 / 90		

The above selection procedure is based on the following parameters:-

- Service factor of 2.0
- 30° C maximum temperature
- 92 Shore insert
- 100 starts per hour maximum

If the parameters differ from the above, selection should be based on power and speed

* Pilot bore flanges are in **bold normal** type face

* Taper bore flanges are in *light italic* type face