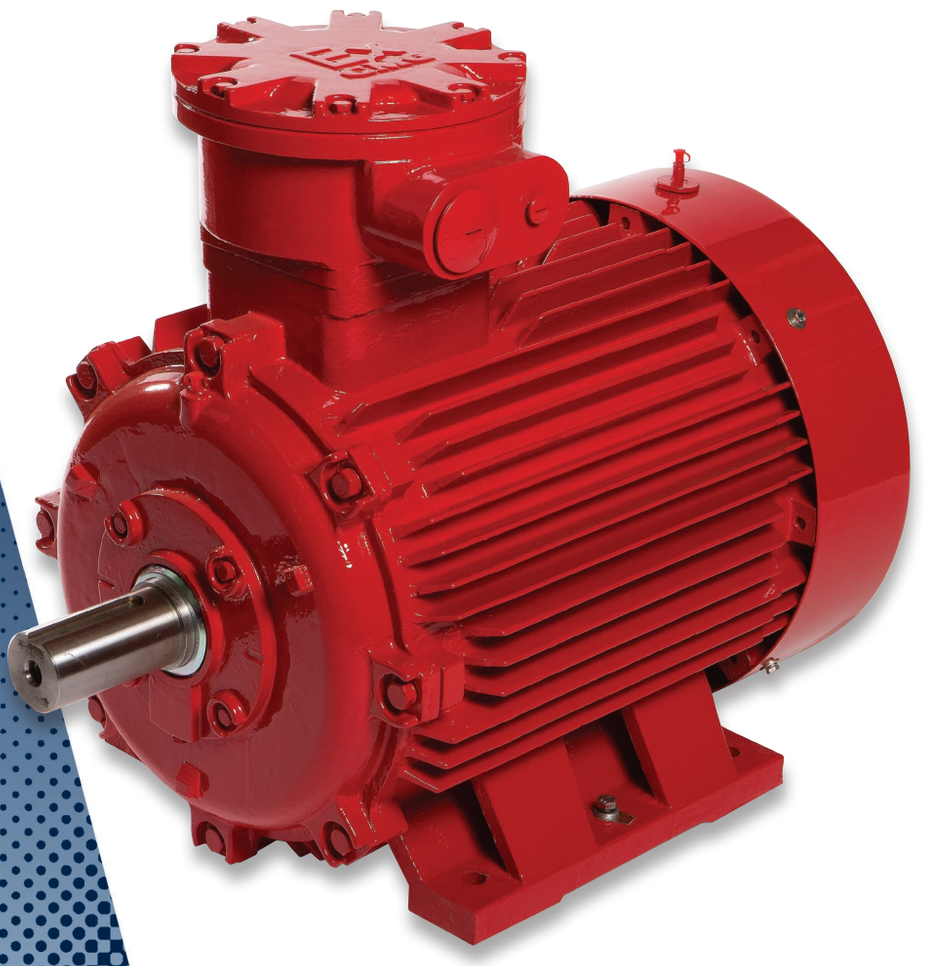
marathon™
CMG Motors

HPD series
Zone 1 Ex d
cast iron motors



A Regal Brand

REGAL

REGAL

marathon™ CMG Motors

"We convert power into motion to help the world run more efficiently"

BUSINESS PURPOSE

ABOUT US

Regal Beloit Corporation is a leading manufacturer of electric motors, mechanical and electrical motion controls and power generation products serving markets throughout the world. Regal Beloit is headquartered in Beloit, Wisconsin, and has manufacturing, sales and service facilities throughout the United States, Canada, Mexico, Europe and Asia.

Regal Australia brings together the strength and experience of three of Australia's leading suppliers of engineered industrial products. CMG, OBA and Transmission Australia are now in a position to offer industry an unparalleled range of products under the Regal Australia banner.

Our products are efficient and innovative; they conform to Australian design, performance and engineering standards. Regal Australia sources products from Regal manufacturing facilities and represents some of the world's leading industrial manufactures.

Regal Australia embraces the company core values of Integrity, High Energy and Performance and has adopted the initiatives of customer care, globalization, innovation, sustainability and simplification.

Our company business statement is that "We convert power into motion to help the world run more efficiently" has direct lineage to our core values and initiatives.

REGAL OUR CORE VALUES

Integrity
We are a company that is honest, trustworthy, candid, transparent and fair.

High Energy
Our culture promotes a strong work ethic with high energy teams fostering a culture of inclusion and respect for all.

Performance
Everyone is expected to perform and our stakeholders count on us to execute, meet commitments and continuously improve.

REGAL OUR INITIATIVES

Customer Care
Our future depends on the success of our customers. We will establish closer relationships with our customers, actively listen to their feedback and respond with a sense of urgency.

Globalization
We want to be global for three reasons. First, we want to participate in high growth markets around the world. Second, many of our customers are global and we want to serve customers where they do business. Finally, we want to utilize our global capabilities to seek out the best talent and to remain globally competitive.

Innovation
We will build the future of the Company on products that are new and needed. While we accept that with an innovation headset comes a certain degree of risk, we are committed to investing in new products, technologies and processes that deliver real value to our customers.

Sustainability
The long term sustainability of our Company requires not only continuous growth and profitability, but also that we take personal responsibility for the impact we have on our planet, and for the fair and just treatment of the people we employ.

Simplification
Complexity is a serious disadvantage in business. We aim to simplify every aspect of our operations to eliminate complexities in order to increase our speed, improve our flexibility and reduce our costs.

HPD Zone 1, Group I & IIB, T4 Class, Ex d motors Sizes 80 to 315, 0.55 to 200 kW, three phase

Regal Australia's HPD range of Ex d 'flameproof' motors are certified for use in Zone 1 hazardous locations. These motors are designed to contain any sparks within the motor without igniting external vapours. They incorporate features such as a robust cast iron construction and special terminal box to meet the stringent certification requirements.

The complete HPD range covers sizes 80 to 315, three phase 2, 4, 6 & 8 pole, with foot and flange mounting options

Certification

The HPD range is specially designed and certified to IEC 60079.1 for use in a Zone 1, Group I & IIB, T4 class temperature, Ex d area. IEC certification number is IECEX TSA 10.0007X. ATEX certification number is Sira 10ATEX1001X.

Standards and specifications

The main dimensions and rated outputs of the HPD series generally conform to Australian Standard AS/NZS1359 (CENELEC kW-frame size allocation table) and International Standards IEC 60034 and IEC 60072.

Operating parameters

HPD series motors are designed with the following parameters:

- Continuous duty (S1)
- Three phase 415 Volts, 50 Hz power supply
- Ambient temperatures up to 40°C
- Installation at altitudes up to 1000 metres
- Motors may be suitable for other operating parameters, enquire with Regal Australia

Performance data is based on these parameters and may need adjustment for different conditions.
Motors can be manufactured for any supply between 100 and 1100 Volts and frequencies 40 Hz, 50 Hz or 60 Hz.

F class insulation, T4 surface temperature

HPD series motors have F class insulation and B class temperature rise. This design feature assures cool running of the motor. Certified Ex d T4 class motors have a maximum allowable surface temperature of 135°C. **(T5)** surface temperature class (maximum 100°C) is available on request (refer certificate, motor output will need to be derated).

Degree of protection

Level of enclosure protection for the HPD series is IP66.

Paint finish

Motors are painted with a high quality enamel finish. The standard colour is Carmine Red (RAL 3002), with other colours available on request.

MEPS compliance

The HPD range of motors exceed MEPS2 efficiency requirements as per AS/NZS 1359.5:2004 that corresponds to the IE2 (high efficiency) of the international standard IEC 60034-30.

Bearings

Bearings fitted are deep groove ball type and are the same size both ends on frames 80 to 280. 315 Frame motors have a deep groove ball type bearing on the Non Drive end, with a deep groove ball bearing on the drive end for 2 Pole motors, and a cylindrical roller bearing for 4, 6, and 8 Pole motors. Frames 80 to 180 have sealed for life bearings. Frames 200 to 315 have open bearings that are capable of being replenished via grease nipples

Motor frame	Bearing Size (DE / NDE)
80	6204ZZ / 6204ZZ
90	6205ZZ / 6205ZZ
100	6206ZZ / 6206ZZ
112	6306ZZ / 6306ZZ
132	6308ZZ / 6308ZZ
160	6309ZZ / 6309ZZ
180	6310ZZ / 6310ZZ
200	6312 / 6312
225	6313 / 6313
250	6314 / 6314
280 - 2	6314 / 6314
280 - 4, 6, 8	6317 / 6317
315 - 2	6316 / 6316
315 - 4, 6, 8	NU318 / 6316

Terminal box

The terminal box of the HPD series is amply sized to allow for termination of cables and has dual conduit entry designed to accept flameproof glands. Motors, as standard, have two entries.

Thermistors

HPD motors are fitted, as standard, with one set of (3) 145°C PTC thermistors and are terminated within the main terminal box.

Internal connections

Frame sizes 80 to 112 have three terminals suitable for DOL starting. Frame sizes 132 to 315 have six terminals suitable for DOL or Star/Delta starting.

VVVF drive selection

HPD Ex d hazardous location motors require thermistors when used in conjunction with VVVF drive to ensure the temperature rise remains below the certified T4 level. Ex d/VVVF drive packages are available including a force ventilation option on frames 200 and above. Please contact your nearest Regal Australia office for details of requirements.

Product code specification

When placing an order the motor product code should be specified. The product code of the motor is composed in accordance with the following example:

M	3	2	0 0 1 5 0	3	H P D	/ 4 0 5
1	2	3	4-8	9	10 - 12	13-16

Position 1
M = metric frame size

Position 2
Phase
3 = three phase single speed motor

Position 3
Number of poles
2 = 2 poles **4** = 4 poles
6 = 6 poles **8** = 8 poles

Positions 4 to 8
Rated power output
(kW x 100)

Position 9
Mounting arrangement
3 = B3 **4** = B3/B5
5 = B5

Positions 10 to 12
Series
HPD = Regal Australia HPD series motors

Positions 13 to 16
Supply power
Blank = 415V 50Hz
/385 = 380V 50Hz
/405 = 400V 50Hz

Performance data

HPD series, Three phase, 415 V 50 Hz
IP66, F class insulation , T4 class surface temperature

			415V 50Hz							380V 50Hz	400V 50Hz		
kW	Frame	Speed [r/min]	Efficiency [%]	Power Factor Cos φ	Current Full Load I_N [A]	Current Locked Rotor I_L/I_N	Torque Full Load T_N [Nm]	Torque Locked Rotor T_L/T_N	Torque Break down T_B/T_N	Current Full Load I_N [A]	Current Full Load I_N [A]	Moment of Inertia J=1/4GD² [kg-m²]	Weight of foot mount motor [kg]
3000 r/min = 2 Poles													
0.75	**80A**	2885	81.8	0.85	1.5	7	2.5	2.7	3.2	1.6	1.6	0.000	34
1.1	**80B**	2885	83.4	0.84	2.2	7.8	3.6	2.7	3.3	2.3	2.2	0.000	37
1.5	**90S**	2890	86.3	0.88	2.8	8.3	5	2.7	3	3.1	2.9	0.000	42
2.2	**90L**	2880	87.1	0.87	4.1	7.8	7.3	2.8	2.9	4.5	4.3	0.000	46
3	**100L**	2905	89.9	0.87	5.3	7.5	9.9	2.1	3.3	5.7	5.5	0.001	60
4	**112M**	2920	87.6	0.88	7.3	9	13.1	2.6	3.6	8	7.6	0.001	73
5.5	**132SA**	2930	92.5	0.90	9.1	8.7	17.9	1.9	3.5	9.9	9.4	0.003	100
7.5	**132SB**	2920	91.5	0.90	12.7	7.7	24.5	1.7	3	13.7	13.1	0.003	100
11	**160MA**	2945	91.7	0.90	18.5	6.6	35.7	1.7	2.8	19.9	19	0.054	150
15	**160MB**	2945	93.6	0.90	24.6	7.4	48.6	1.8	2.7	26.8	25.4	0.056	170
18.5	**160L**	2940	91.9	0.92	30.5	7.5	60.1	2.7	2.9	33.3	31.6	0.066	190
22	**180M**	2945	93.0	0.90	36.5	5.6	71.3	2.4	2.7	39.5	37.6	0.094	221
30	**200LA**	2950	92.9	0.90	50	8	97.1	2.4	3	55	52	0.167	290
37	**200LB**	2955	93.3	0.91	61	7.8	119.6	2.7	2.9	67	63	0.174	300
45	**225M**	2975	93.7	0.94	72	8	144.5	2.7	3.1	79	75	0.30	400
55	**250M**	2975	94.3	0.89	91	7.2	176.6	2.2	2.8	99	94	0.38	458
75	**280S**	2985	95.0	0.91	122	7.1	239.9	3.0	3.1	133	127	0.79	676
90	**280M**	2972	95.3	0.90	146	6.8	289.2	3.0	3.2	159	151	0.93	758
110	**315S**	2985	95.8	0.90	177	7.4	351.9	2	3.4	191	182.2	1.4	1187
132	**315M**	2984	95.4	0.91	210	7	422.5	1.7	3.5	227.3	216.5	1.55	1294
160	**315LA**	2979	95.6	0.92	253	6.0	512.9	1.9	2.7	276	262	1.73	1351
185	**315LB**	2979	95.8	0.90	298	7.5	593.1	2.1	2.9	325	309	1.77	1414
200	**315LC**	2980	95.9	0.93	312	6.3	640.9	2	3	341	324	1.81	1460

[1)] 380V 50Hz and 400V 50Hz columns denote full load currents for motors **specifically** designed to run at these voltages

Performance data

HPD series, Three phase, 415 V 50 Hz
IP66, F class insulation , T4 class surface temperature

			415V 50Hz							380V 50Hz	400V 50Hz		
kW	Frame	Speed [r/min]	Efficiency [%]	Power Factor Cos φ	Current Full Load I_N [A]	Current Locked Rotor I_L/I_N	Torque Full Load T_N [Nm]	Torque Locked Rotor T_L/T_N	Torque Break down T_B/T_N	Current Full Load I_N [A]	Current Full Load I_N [A]	Moment of Inertia J=1/4GD² [kg-m²]	Weight of foot mount motor [kg]
1500 r/min = 4 Poles													
0.55	**80A**	1440	81.0	0.71	1.4	8.4	3.6	2.7	3	1.5	1.5	0.000	27
0.75	**80B**	1445	83.1	0.72	1.8	7.4	5	3.3	3.4	2	1.9	0.000	30
1.1	**90S**	1440	85.7	0.77	2.4	7.7	7.3	3.3	3.2	2.6	2.5	0.001	39
1.5	**90L**	1440	85.8	0.76	3.2	7.9	9.9	3.5	3.2	3.5	3.3	0.001	44
2.2	**100L**	1455	86.9	0.84	4.3	8.4	14.4	3.7	4.9	4.7	4.5	0.001	52
3	**100L**	1455	87.6	0.84	5.7	8.5	19.7	2.7	3.3	6.2	5.9	0.001	65
4	**112M**	1450	88.4	0.84	7.5	8.1	26.3	2.5	3.5	7.9	7.6	0.002	74
5.5	**132S**	1460	90.1	0.85	10	8.1	36	1.9	3.1	10.7	10.3	0.003	90
7.5	**132M**	1465	91.0	0.83	13.8	8.7	48.9	1.8	3.3	15.1	14.3	0.007	98
11	**160M**	1470	91.8	0.85	19.6	7.1	71.5	2.3	2.6	21.4	20.3	0.089	155
15	**160L**	1471	93.2	0.84	26.7	8.2	97.4	2	3	28.5	27.4	0.103	179
18.5	**180M**	1475	92.6	0.89	31.1	7.7	119.8	2.3	3	33.5	32	0.16	215
22	**180L**	1470	93.0	0.88	37.3	7.1	142.9	2	2.8	40.4	38.4	0.18	225
30	**200L**	1475	94.1	0.88	50.5	8.8	194.2	2.7	3.4	54.2	51.7	0.31	310
37	**225S**	1485	94.6	0.90	61	8.1	237.9	2.4	2.9	67	63	0.53	392
45	**225M**	1480	94.4	0.89	74.4	7.5	290.4	1.7	2.7	80.5	76.7	0.58	418
55	**250M**	1480	95.1	0.89	89.7	7.2	354.9	1.6	2.5	97.6	92.8	0.79	575
75	**280S**	1485	95.3	0.90	121	6.7	482.3	1.6	2.8	131	124.9	1.6	687
90	**280M**	1485	95.5	0.90	144.5	7	578.8	1.8	2.9	157	149.3	1.89	755
110	**315S**	1484	95.3	0.86	188	6.6	707.9	2	2.5	205	195	2.73	1043
132	**315M**	1485	96.3	0.88	217	7.4	848.9	2.1	3	235	223.9	3.04	1165
160	**315LA**	1485	96.5	0.88	261	7.6	1029	1.7	3.1	282.2	270.1	3.43	1362
185	**315LB**	1487	96.2	0.90	298	7.8	1188.1	2.4	2.5	325	309	3.52	1536
200	**315LC**	1490	96.9	0.89	323	7.9	1281.9	2.5	3.2	353.8	334.2	3.62	1594

[1)] 380V 50Hz and 400V 50Hz columns denote full load currents for motors **specifically** designed to run at these voltages

Performance data

HPD series, Three phase, 415 V 50 Hz
IP66, F class insulation , T4 class surface temperature

			415V 50Hz							380V 50Hz	400V 50Hz		
kW	Frame	Speed [r/min]	Efficiency [%]	Power Factor Cos φ	Current Full Load I_N [A]	Current Locked Rotor I_L/I_N	Torque Full Load T_N [Nm]	Torque Locked Rotor T_L/T_N	Torque Break down T_B/T_N	Current Full Load I_N [A]	Current Full Load I_N [A]	Moment of Inertia $J=1/4GD^2$ [kg-m²]	Weight of foot mount motor [kg]
1000 r/min = 6 Poles													
0.75	**90S**	950	79.1	0.70	1.9	5.3	7.5	2.2	2.7	2.1	2	0.001	34
1.1	**90L**	950	80.6	0.70	2.7	5.1	11.1	2.3	2.7	2.9	2.8	0.001	39
1.5	**100L**	970	85.0	0.73	3.4	6.3	14.8	2.1	3.1	3.5	3.4	0.002	59
2.2	**112M**	960	84.0	0.73	5	6.4	21.9	2.4	2.9	5.5	5.2	0.035	64
3	**132S**	970	86.0	0.78	6.2	7.3	29.5	2.5	2.9	6.5	6.3	0.007	92
4	**132MA**	970	86.9	0.79	8.2	6.7	39.4	2.3	2.6	9	8.5	0.009	107
5.5	**132MB**	970	87.8	0.79	11	7	54.1	2	2.6	12	11.4	0.046	118
7.5	**160M**	975	89.4	0.78	15	6.3	73.5	2.5	2.8	16.4	15.6	0.11	143
11	**160L**	975	90.9	0.78	21.6	6.8	107.7	2	2.7	22.8	22	0.13	165
15	**180L**	975	90.7	0.85	27	7.5	146.9	2.4	2.6	29.5	28	0.25	216
18.5	**200LA**	983	92.3	0.84	33.3	7.4	179.7	2.2	2.7	35.6	34.2	0.31	276
22	**200LB**	975	91.8	0.84	39.5	6.8	215.5	2.4	2.6	43.1	41	0.41	297
30	**225M**	985	92.8	0.84	54	7	290.9	2.4	3	59	56	0.67	393
37	**250M**	985	93.0	0.88	63	6.5	358.7	2.1	2.6	69	65	0.94	467
45	**280S**	990	93.9	0.90	75	7	434.1	2.2	2.6	82	78	1.15	646
55	**280M**	994	94.8	0.90	90	6.6	528.4	2.4	2.7	98	83	1.82	775
75	**315S**	992	94.9	0.90	123	6.6	722	2.8	3	134	128	2.33	1070
90	**315M**	991	94.9	0.87	153	6.6	867.3	2.2	2.6	186	158	4.57	1133
110	**315LA**	991	95.5	0.86	186	6.1	1060	2.1	3.4	202	192	4.83	1207
132	**315LB**	990	95.4	0.87	222	6.1	1273.3	2	2.4	242	230	5.32	1233

[1)] 380V 50Hz and 400V 50Hz columns denote full load currents for motors **specifically** designed to run at these voltages

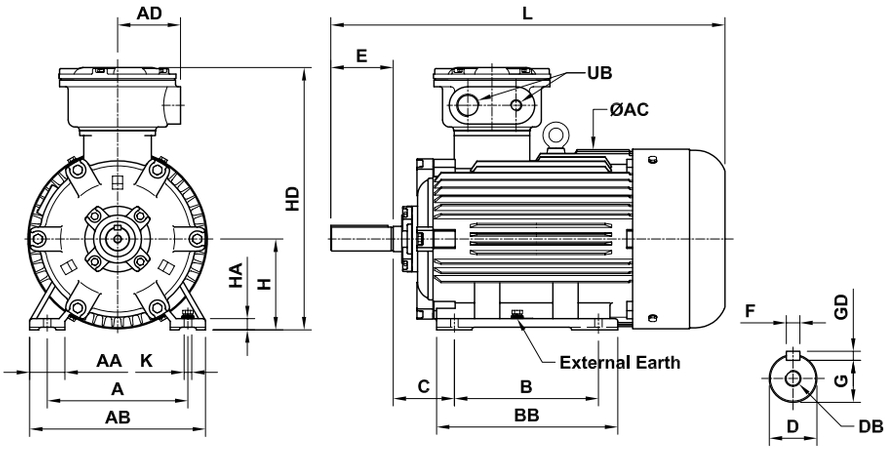
Performance data

HPD series, Three phase, 415 V 50 Hz
IP66, F class insulation , T4 class surface temperature

			415V 50Hz							380V 50Hz	400V 50Hz		
kW	Frame	Speed [r/min]	Efficiency [%]	Power Factor Cos φ	Current Full Load I_N [A]	Current Locked Rotor I_L/I_N	Torque Full Load T_N [Nm]	Torque Locked Rotor T_L/T_N	Torque Break down T_B/T_N	Current Full Load I_N [A]	Current Full Load I_N [A]	Moment of Inertia J=1/4GD² [kg-m²]	Weight of foot mount motor [kg]
750 r/min = 8 Poles													
2.2	**132S**	705	80.9	0.73	5.2	5.5	29.8	2.1	2.1	5.7	5.4	0.031	78
3	**132M**	705	82.7	0.73	6.9	5.5	40.6	2.1	2.1	7.5	7.2	0.04	94
4	**160M**	720	84.2	0.77	8.6	5.5	53.1	2.2	2.6	9.4	8.9	0.085	129
5.5	**160M**	720	85.8	0.78	11.4	5.6	73	2.3	2.6	12.5	11.8	0.1	136
7.5	**160L**	720	87.2	0.76	15.7	5.8	99.5	2.6	2.8	17.1	16.3	0.18	143
11	**180L**	730	88.8	0.78	22.1	6.2	143.9	2.3	2.7	24.1	22.9	0.24	210
15	**200L**	730	90.0	0.78	29.7	5.3	196.2	2.1	2.4	32.4	30.8	0.37	316
18.5	**225S**	735	90.7	0.77	36.9	5.8	240.4	2.3	2.5	40.3	38.3	0.6	379
22	**225M**	735	91.2	0.77	43.6	5.9	285.9	2.3	2.6	47.6	45.2	0.69	421
30	**250M**	740	92.1	0.79	57.4	5.7	387.2	2	2.4	63	60	0.96	606
37	**280S**	740	92.7	0.80	69.4	5.3	477.5	1.9	2.2	76	72	1.82	685
45	**280M**	745	93.2	0.82	81.9	5.8	576.8	2.1	2.4	89	85	2.14	715
55	**315S**	743	94.0	0.80	103	6.5	706.9	2.7	3	112	107	4.6	1054
75	**315M**	740	94.4	0.82	135	4.9	967.9	1.5	2	147	140	5.32	1159
90	**315L**	740	94.7	0.83	159	4.9	1161.5	1.5	2	174	165	5.95	1296
110	**315L**	740	95.2	0.83	194	5.1	1419.6	1.6	2.1	212	201	6.7	1338

Dimensional drawings

Foot mount B3 (IM1001)



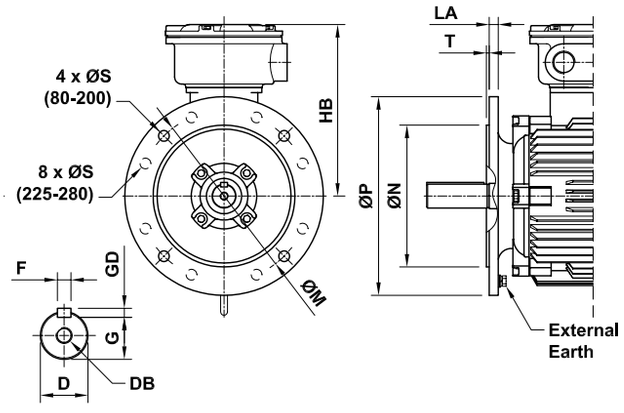
HPD Foot mount B3 (IM1001)

Motor Frame		A	AA	AB	AC	AD	B	BB	C	D	DB	E	F	GD	G	H	HA	HD	K	UB	L
80	**19**	125	34	160	175	120	100	126	50	19	M6	40	6	6	15.5	80	10	305	10	1 x M25, 1 x M20	350
90S	**24**	140	36	180	185	120	100	126	56	24	M8	50	8	7	20	90	14	335	10	1 x M25, 1 x M20	397
90L	**24**	140	36	180	185	120	125	151	56	24	M8	50	8	7	20	90	14	335	10	1 x M25, 1 x M20	427
100L	**28**	160	40	200	225	120	140	170	63	28	M10	60	8	7	24	100	15	365	12	1 x M25, 1 x M20	450
112M	**28**	190	50	240	230	120	140	180	70	28	M10	60	8	7	24	112	16	375	12	1 x M25, 1 x M20	466
132S	**38**	216	60	280	270	135	140	210	89	38	M12	80	10	8	33	132	18	435	12	1 x M40, 1 x M20	505
132M	**38**	216	60	280	270	135	178	238	89	38	M12	80	10	8	33	132	18	435	12	1 x M40, 1 x M20	545
160M	**42**	254	70	330	320	135	210	265	108	42	M16	110	12	8	37	160	20	500	15	1 x M40, 1 x M20	645
160L	**42**	254	70	330	320	135	254	310	108	42	M16	110	12	8	37	160	20	500	15	1 x M40, 1 x M20	685
180M	**48**	279	70	355	360	135	241	321	121	48	M16	110	14	9	42.5	180	22	535	15	1 x M40, 1 x M20	730
180L	**48**	279	70	355	360	135	279	359	121	48	M16	110	14	9	42.5	180	22	535	15	1 x M40, 1 x M20	750
200L	**55**	318	70	388	400	160	305	366	133	55	M20	110	16	10	49	200	25	595	19	1 x M50, 1 x M20	785
225S	**60**	356	75	431	450	160	286	368	149	60	M20	140	18	11	53	225	28	635	19	1 x M50, 1 x M20	845
225M*	**55***	356	75	431	450	160	311	393	149	55	M20	110	16	10	49	225	28	635	19	1 x M50, 1 x M20	840
225M	**60**	356	75	431	450	160	311	393	149	60	M20	140	18	11	53	225	28	635	19	1 x M50, 1 x M20	870
250M*	**60***	406	80	486	500	190	349	425	168	60	M20	140	18	11	53	250	30	710	24	1 x M63, 1 x M20	924
250M	**65**	406	80	486	500	190	349	425	168	65	M20	140	18	11	58	250	30	710	24	1 x M63, 1 x M20	924
280S*	**65***	457	85	545	560	190	368	448	190	65	M20	140	18	11	58	280	35	770	24	1 x M63, 1 x M20	965
280S	**75**	457	85	545	560	190	368	448	190	75	M20	140	20	12	67.5	280	35	770	24	1 x M63, 1 x M20	985
280M*	**65***	457	85	545	560	190	419	499	190	65	M20	140	18	11	58	280	35	770	24	1 x M63, 1 x M20	1010
280M	**75**	457	85	545	560	190	419	499	190	75	M20	140	20	12	67.5	280	35	770	24	1 x M63, 1 x M20	1030
315S*	**65***	508	114	622	700	250	406	510	216	65	M20	140	18	11	58	315	40	1030	28	1 x M63, 1 x M20	1208
315S	**80**	508	114	622	700	250	406	510	216	80	M20	170	22	14	71	315	40	1030	28	1 x M63, 1 x M20	1238
315M*	**65***	508	114	622	700	250	457	562	216	65	M20	140	18	11	58	315	40	1030	28	1 x M63, 1 x M20	1258
315M	**80**	508	114	622	700	250	457	562	216	80	M20	170	22	14	71	315	40	1030	28	1 x M63, 1 x M20	1288
315L*	**65***	508	114	622	700	250	508	612	216	65	M20	140	18	11	58	315	40	1030	28	1 x M63, 1 x M20	1348
315L	**80**	508	114	622	700	250	508	612	216	80	M20	170	22	14	71	315	40	1030	28	1 x M63, 1 x M20	1378

***** 2 pole motors only.

Dimensional drawings

Flange mount B5 (IM3001)



HPD Flange mount B5 (IM3001)

Motor Frame		HB	LA	M	N	P	S	T
80	**19**	225	12	165	130	200	12	3.5
90S	**24**	245	12	165	130	200	12	3.5
90L	**24**	245	12	165	130	200	12	3.5
100L	**28**	265	14	215	180	250	15	4
112M	**28**	263	14	215	180	250	15	4
132S	**38**	303	14	265	230	300	15	4
132M	**38**	303	14	265	230	300	15	4
160M	**42**	340	16	300	250	350	19	5
160L	**42**	340	16	300	250	350	19	5
180M	**48**	355	18	300	250	350	19	5
180L	**48**	355	18	300	250	350	19	5
200L	**55**	395	18	350	300	400	19	5
225S	**60**	410	20	400	350	450	19	5
225M*	**55***	410	20	400	350	450	19	5
225M	**60**	410	20	400	350	450	19	5
250M*	**60***	460	22	500	450	550	19	5
250M	**65**	460	22	500	450	550	19	5
280S*	**65***	490	22	500	450	550	19	5
280S	**75**	490	22	500	450	550	19	5
280M*	**65***	490	22	500	450	550	19	5
280M	**75**	490	22	500	450	550	19	5
315S*	**65***	715	25	600	550	660	24	6
315S	**80**	715	25	600	550	660	24	6
315M*	**65***	715	25	600	550	660	24	6
315M	**80**	715	25	600	550	660	24	6
315L*	**65***	715	25	600	550	660	24	6
315L	**80**	715	25	600	550	660	24	6

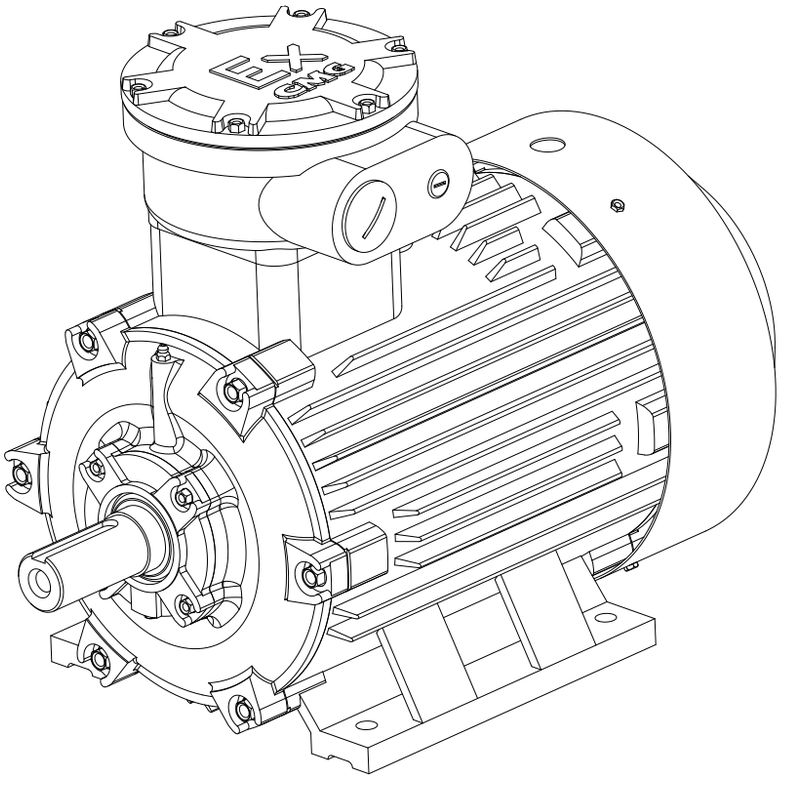
* 2 pole motors only.

HPD Modification options

The HPD series can be modified to incorporate one or more of the following options, please contact your nearest Regal Australia branch for more details.

- Socket head cap screws, Grades 8.8, 10.9 or 12.9 to replace all external bolts and/or screws.
- Stainless steel external fasteners in Grades 304 or 316 for frame size 132 and above.
- Anti-condensation heater terminated in the main terminal box.
- Stainless steel shafts.
- Alternative shaft diameters and/or shaft length.
- Double shaft extensions.
- Alternative conduit entry dimensions.
- Alternative bearing arrangements (ball, roller, angular contact or four point contact types).
- Force ventilation for frame size 200 and above.
- Low noise fan and cowl in steel or cowl only in stainless steel.
- Rain canopy for vertical mount (V1) in steel or stainless steel.
- Coal shields in either steel or stainless steel for frame size 160 and above.
- T5 temperature class with motor de-rated to 75% of standard output kW, fitted with 100°C PTC thermistors fitted. (Suitability to be confirmed by test).
- Class H winding insulation.
- Non standard paint colour in Alkyd Enamel.
- Two pack epoxy paint finish.

Please note: The HPD series has allowance in the main terminal box for only two auxiliary terminal posts, combinations of thermistors and heaters terminated in the main box is not possible.



Installation and maintenance

Regal Australia HPD series motors are designed and manufactured to be robust and reliable for minimal maintenance. The following items should be taken into consideration to ensure trouble free installation and reliable running throughout the motors' life.

Inspection

On receipt of the motor check the following:

- rating plate details and enclosure are as ordered
- shaft turns freely
- motor was not damaged during transport
- If the winding is meggered to earth, ensure that the thermal protectors are not inadvertently damaged. (The thermistor leads should be shorted together whilst meggering takes place)

Storage

When the motor is not for immediate use store in a clean, dry location, free from vibration. (Bearings are susceptible to damage from vibration.)

Installation

The following items should be considered when installing to ensure motor reliability:

Surroundings

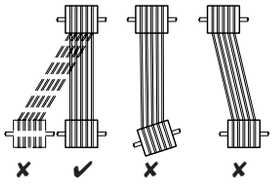
Ensure that the motor is properly protected against ingress of oil, water or dust if construction work is in progress around the motor.

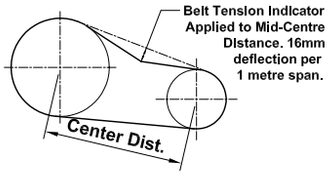
Pulleys and couplings

- Pulleys and couplings should be machined to H7 limits. Both shaft and bore should be cleaned and lubricated. If the fit is still too tight the pulley or coupling should be heated up in air or oil to approximately 93°C.
- Shock methods must not be used in removing pulleys and couplings. Proper wheel or pulley removers should be used to prevent shaft and bearing damage.
- Pulleys and couplings should be balanced before the keyway is cut to eliminate vibration caused by lack of balancing. (Rotor and shaft assemblies have been finely balanced during manufacture, and drive end shafts balanced with a half key.)
- When slide rails are used in conjunction with pulley drives the adjusting screw ends should be positioned between the motor and load at drive shaft end and the other diagonally opposite. This helps speedy and accurate belt aligning, tensioning and replacement.

Belt Drives

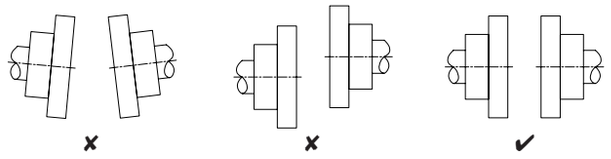
The belt manufacturer's recommendations for installation, alignment and tensioning must be strictly adhered to when fitting belt drives.





Direct Coupling

Care must be taken in checking alignment of driving and driven shafts. The motor and driven equipment must be in alignment from all aspects. Misalignment of pulleys will lead to premature bearing failure.



Running current check

Check the running current of the motor on no load and full load.

Current

Check periodically that the current drawn is balanced and is the same as at the time of installation.

Cable Terminations

Cable terminations should have all incoming supply leads compressed between two nuts.

Insulation testing

When checking for insulation resistance (IR) the test voltage must not be applied across the thermal protection device. The correct procedure is to short the entire protector leads together and apply the test voltage between the shorted leads and earth and/or phases. 'Meggering' across the terminals of the thermal protection device, when not shorted, is likely to cause irreparable damage, and must not be carried out.

Special Requirements

- For Group I applications the motor should be installed in accordance with AS/NZS4871.1:2010.
- Any unused cable entries to the terminal box must be blanked off with an appropriately certified conduit stop (temporary plastic stops must be discarded.)
- For any motor operated from a VVVF drive the thermal protection devices must be connected into the motor control circuit so as to disconnect the supply in order to prevent the T4 temperature class from being exceeded.
- Repairs/maintenance involving the dismantling of the motor must be carried out in service facilities recognized for that purpose and only accredited and competent personnel should carry out or supervise maintenance procedures.

marathon™
CMG Motors

19 Corporate Ave / PO Box 2340
Rowville VIC 3178 AUSTRALIA
Sales: 1300 888 853
Tel: +61 (0)3 9237 4000
Fax: +61 (0)3 9237 4010

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www.regalbeloit.com