

**PERFORMANCE DATA -  
CHALLENGER SERIES**

CONFIDENTIAL  
**Marathon Electric Motors  
(India) Limited**  
ROTATING MACHINES  
INDUSTRIAL PRODUCTS UNIT

SPEC. NO. : C12R1ED658  
PAGE : 1 OF 4  
ISSUE : A  
DATE : 14.12.2007



**Amb. Temp. : 50°C \***

BRAND	CODE	FRAME	POLE	VOLTS	C/S
CHALLENGER	12	D80-D315L	4	415	50

FRAME SIZE	D71	D71	D80	D80	D90S	D90L	D100L	D112M	D132S	
OUTPUT (KW/HP)	0.25/ 0.34	0.37/ 0.5	0.55/ 0.75	0.75/ 1.0	1.1/ 1.5	1.5/ 2.0	2.2/ 3.0	3.7/ 5.0	5.5/7.5	
F.L.RPM	1340	1380	1400	1400	1410	1410	1430	1430	1440	
F.L.AMPS	0.8	1.08	1.48	1.93	2.6	3.4	4.6	7.5	10.7	
EFFICIENCY ( % )	100%	60	68	70	73	76.2	78.5	81	84	85.8
	75%	59	66	68	70	70	72	78	81	85
	50%	54	62	65	67	67	67	76	80	82
POWER FACTOR	100%	0.72	0.70	0.74	0.74	0.78	0.79	0.82	0.82	0.83
	75%	0.68	0.65	0.65	0.65	0.70	0.76	0.75	0.77	0.75
	50%	0.54	0.52	0.50	0.53	0.61	0.60	0.62	0.70	0.62
APPROX. NO LOAD CURRENT (AMPS)	0.6	0.70	1.2	1.3	1.5	2.1	2.6	4.0	5.5	
STARTING CURRENT ( X FLC )	4.0	4.5	4.5	5.0	5.0	5.5	6.0	6.0	6.0	
STARTING TORQUE (X FLT)	2.0	2.0	2.0	2.2	2.0	2.1	1.9	2.1	2.2	
PULL OUT TORQUE (XFLT)	2.25	2.3	2.5	2.5	2.5	2.5	2.5	2.6	2.7	
SAFE STALL TIME -COLD/ HOT(sec.)	12/10	10/8	11/9	11/9	10/8	10/8	10/8	12/10	10/8	
ROTOR GD <sup>2</sup> (Kg-m <sup>2</sup> )	0.0023	0.0023	0.0064	0.0064	0.0136	0.0156	0.0392	0.0516	0.124	
APPROX. MOTOR WT. (KG)	13.3	13.3	16.4	16.4	21.5	25	34	42	64	

\* Except for 7.5KW, 75KW & 90KW ratings. These will be suitable for 45°C.

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SIGN. NAME DATE	M.MANDAL 14.12.2007	K.G.CHOUDHURY 14.12.2007			RAJIV RANJAN 14.12.2007		
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BRAND	CODE	FRAME	POLE	VOLTS	C/S
CHALLENGER	12	D80-D315L	4	415	50

FRAME SIZE	D132M	D160M	D160M	D160LA (Standard)	D160LB	D180M	D180L	D200L	D225S
OUTPUT (KW/HP)	7.5/ 10	9.3/ 12.5	11/ 15	15/ 20	15/ 20	18.5/ 25	22/ 30	30/ 40	37/ 50
F.L.RPM	1440	1445	1450	1455	1460	1460	1460	1470	1470
F.L.AMPS	14.5	17.0	20.1	27.3	27.1	33.5	39.0	52.4	65.0
EFFICIENCY (%)	100%	87	88.5	88.5	88.8	89.5	90.5	91	92.5
	75%	84	88.5	88.5	89	89	90	90.5	91
	50%	82	86.5	87.5	88	88	89	89.5	89
POWER FACTOR	100%	0.83	0.86	0.86	0.86	0.86	0.85	0.87	0.86
	75%	0.78	0.84	0.84	0.84	0.84	0.82	0.85	0.83
	50%	0.70	0.76	0.76	0.76	0.76	0.78	0.79	0.78
APPROX. NO LOAD CURRENT (AMPS)	7.5	7.5	9.5	11.5	11.5	12.0	14.0	20.0	27.0
STARTING CURRENT ( X FLC )	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
STARTING TORQUE (X FLT)	2.0	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3
PULL OUT TORQUE (XFLT)	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
SAFE STALL TIME -COLD/ HOT(sec.)	10/8	23/12	23/12	28/15	28/15	37/21	36/19	25/19	24/15
ROTOR GD <sup>2</sup> (Kg-m <sup>2</sup> )	0.135	0.177	0.177	0.238	0.26	0.416	0.504	0.853	1.001
APPROX. MOTOR WT. (KG)	71	126	126	136	140	166	174	277	315

\* Except for 7.5KW, 75KW & 90KW ratings. These will be suitable for 45°C.

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CHALLENGER	12	D80-D315L	4	415	50

FRAME SIZE	D225M	D250M	D280S	D280M	D315S	D315M1	D315M1
OUTPUT (KW/HP)	45/60	55/75	75/100	90/120	110/150	125/167	132/177
F.L.RPM	1475	1470	1480	1480	1485	1485	1485
F.L.AMPS	78.0	96	128	153	190.5	217	228
EFFICIENCY (%)	100%	92.7	93	93.6	93.9	94.5	94.7
	75%	92	92.3	92.8	93.3	93.3	93.7
	50%	90.5	90.5	91	91	91.2	92
POWER FACTOR	100%	0.87	0.86	0.87	0.87	0.85	0.85
	75%	0.85	0.85	0.84	0.84	0.82	0.81
	50%	0.78	0.78	0.77	0.76	0.74	0.75
APPROX. NO LOAD CURRENT (AMPS)	28.0	32	45	62	76	90	84
STARTING CURRENT ( X FLC )	6.0	6.0	6.0	6.0	6.0	6.0	6.0
STARTING TORQUE (X FLT)	2.3	2.4	2.2	2.2	2.2	2.2	2.2
PULL OUT TORQUE (XFLT)	2.7	2.7	2.7	2.7	2.5	2.5	2.5
SAFE STALL TIME -COLD/ HOT(sec.)	32/24	29/22	25/19	21/16	36/27	29/22	29/22
ROTOR GD <sup>2</sup> (Kg-m <sup>2</sup> )	1.850	2.252	3.789	4.601	7.385	8.205	8.205
APPROX. MOTOR WT. (KG)	385	450	710	758	836	876	876

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CHALLENGER	12	D80-D315L	4	415	50

FRAME SIZE	D315M2/ D315L	D315L	D355S	D355M	D355MB	D355LA	D355LB
OUTPUT (KW/HP)	160/214	180/240	200/268	220/294	250/335	280/375	315/422
F.L.RPM	1485	1485	1488	1488	1488	1487	1487
F.L.AMPS	272	305	340	368	417	461	517
EFFICIENCY (%)	100%	95	95	95.3	95.5	95.8	96.3
	75%	94	94.2	94.5	95.0	95.3	96
	50%	92	92.5	92.5	93.0	94	94
POWER FACTOR	100%	0.86	0.865	0.86	0.87	0.87	0.88
	75%	0.82	0.83	0.83	0.84	0.84	0.86
	50%	0.75	0.76	0.76	0.74	0.77	0.8
APPROX. NO LOAD CURRENT (AMPS)	106	112	110	125	130	140	160
STARTING CURRENT ( X FLC )	6.5	6.5	6.0	6.0	6	6	6
STARTING TORQUE ( X FLT )	1.8	1.8	2.0	2.0	2	1.8	2
PULL OUT TORQUE (XFLT)	2.5	2.6	2.5	2.5	2.5	2.4	2.5
SAFE STALL TIME -COLD/ HOT(sec.)	33/25	33/25	33/24	31/23	29/22	30/22	27/20
ROTOR GD <sup>2</sup> (Kg-m <sup>2</sup> )	10.434	11.2	20.6	21.55	23.4	25.29	29
APPROX. MOTOR WT. (KG)	1225	1260	1500	1600	1650	1900	1980

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Amendment

Issue : A, Original Issue, Dt. 14.12.07