



ROYCECROSSGROUP



ROYCE CROSS GROUP

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

NAMEPLATE DATA			
Y3-90L-4 FRAME	IEC TYPE	1.5 kW	1428 r/min
4 POLE	3 PHASE	415 VOLTS	50 Hz
ROYCE CROSS GROUP MANUFACTURER	2.9 AMPS	IP55 IP	
	S1 DUTY	F INS.CLASS	Y CONNECTION

MAJOR CONTENTS	UNIT	TEST VALUE
STATOR RESISTANCE OF PHASE	OHM	3.68623
NO LOAD CURRENT	AMP	1.57
NO LOAD INPUT	W	93.7
CORE LOSS(Pfe)	W	51.8
WINDAGE FRICTION LOSS(Pfw)	W	19.7
STATOR WINDING LOSS(Pcu1)	W	96.7
ROTOR WINDING LOSS(Pcu2)	W	76.1
STRAY LOAD LOSS(Ps)	W	9.2
FULL LOAD CURRENT	AMP	2.96
LOCKED ROTOR CURRENT	AMP	17.16
LOCKED ROTOR CURRENT/FULL LOAD CURRENT	P.U.	5.82
FULL LOAD TORQUE	N.m	10.02
LOCKED ROTOR TORQUE	N.m	25.19
LOCKED ROTOR TORQUE/FULL LOAD TORQUE	P.U.	2.51
PULL OUT TORQUE	N.m	21.71
PULL OUT TORQUE/FULL LOAD TORQUE	P.U.	2.16
INPUT @ FULL LOAD	kW	1.754
EFFICIENCY @ FULL LOAD	%	85.54
POWER FACTOR @ FULL LOAD		0.825
FULL LOAD SLIP	%	4.740
FULL LOAD SPEED	r/min	1428.9
STATOR WINDING TEMPERATURE RISE	K	56
D.E. BEARINGS TEMPERATURE BY PT100	Deg. C	26.7
AMBIENT TEMPERATURE OF TESTING	Deg. C	11.5
NOISE	dB(A)	59
VIBRATION	mm/s	0.5

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Voltage	415 V	Current	2.9 A	Frequency	50 Hz
Speed	1428 r/min	Duty	S1	Connection	Y
Ins. class	F	Weight	0 kg		IP55

NO LOAD TEST

VOL	mul.	Hz	I01	I02	I03	mul.	W1	W2	mul.	
460.0	1	50	2.053	2.118	2.136	1	-393.4	541.7	1	34.5
415.1	1	50	1.551	1.559	1.591	1	-267.9	361.7	1	34.5
361.6	1	50	1.174	1.174	1.164	1	-180.9	246.0	1	34.5
308.4	1	50	0.920	0.926	0.894	1	-120.9	171.5	1	34.5
255.1	1	50	0.718	0.731	0.694	1	-75.7	116.2	1	34.5
207.0	1	50	0.561	0.579	0.545	1	-44.6	78.1	1	34.1
158.7	1	50	0.420	0.443	0.412	1	-21.5	49.2	1	34.1
109.3	1	50	0.302	0.330	0.307	1	-4.6	29.6	1	33.9
78.5	1	50	0.246	0.276	0.260	1	1.1	19.8	1	33.7

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Type	Y3-90L-4	Poles	4	Power	1.5	kW
Voltage	415 V	Current	2.9 A	Frequency	50.0	Hz
Speed	1428 r/min	Duty	S1	Connection	Y	
Ins. class	F	Weight	0 kg		IP55	

LOCKED ROTOR TEST

VOL	mul.	Ik1	Ik2	Ik3	mul.	W1	W2	mul.	Torqure N. m
418.3	1.0	1.730	1.735	1.744	10.0	28.8	714.8	10	25.67
364.6	1.0	1.399	1.404	1.414	10.0	20.5	490.7	10	17.76
311.7	1.0	1.100	1.105	1.111	10.0	9.5	310.1	10	11.46
246.0	1.0	0.768	0.771	0.775	10.0	-0.7	163.1	10	5.96
177.4	1.0	0.485	0.487	0.489	10.0	-11.9	79.0	10	2.52
122.0	1.0	0.309	0.311	0.310	10.0	-6.3	33.9	10	1.03
117.3	1.0	0.296	0.297	0.297	10.0	-5.9	31.3	10	0.92

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Type	Y3-90L-4		Poles	4		Power	1.5 kW	
Voltage	415 V		Current	2.9 A		Frequency	50 Hz	
Speed	1428 r/min		Duty	S1		Connection	Y	
Ins. class	F		Weight	0 kg			IP55	

TEMPERATURE RISE TEST

TIME (h:min)	V	I1	I2	I3	mul.	W1	W2	mul.	T1 °C	T2 °C	T3 °C	T4 °C	T5 °C	T6 °C	T7 °C	T8 °C	T9 °C	T10 °C	T11 °C	T12 °C	T13 °C	
13:30	414.7	2.901	2.901	2.956	1	438.2	1304.0	1	28.7	—	39.6	39.1	—	—	—	—	—	—	—	—	—	11.1
14:00	415.2	2.909	2.909	2.964	1	439.6	1309.2	1	28.5	—	39.4	38.9	—	—	—	—	—	—	—	—	—	11.4
14:30	415.2	2.909	2.909	2.964	1	439.0	1309.0	1	27.2	—	39.4	38.9	—	—	—	—	—	—	—	—	—	11.4
14:58	414.7	2.905	2.901	2.959	1	439.4	1303.8	1	26.7	—	39.0	38.5	—	—	—	—	—	—	—	—	—	11.6
最后三点平均值		2.926			A	1746.667		W	26.7	—	39.3	38.8	—	—	—	—	—	—	—	—	—	11.5

T1 T2: DE BEARING TEMPERATURE
T3~T10: DE WINDING TEMPERATURE

T11: CORE TEMPERATRE
T13: AMBIENT TEMPERATURE

T12: FRAME TEMPERATRE

WINDING RESISTANCE (HOT) AT END OF TEMPERATURE RISE TEST

TIME (S)	15	25	35	45	55	65		
RESISTANCE	3.3660	3.3625	3.3600	3.3575	3.3545	3.3525		

WINDING RESISTANCE (COLD)

△	U1-V1	U1-W1	V1-W1	AVERAGE	MIN	AMBIENT TEM.
						°C
Y	U1-U2	V1-V2	W1-W2	AVERAGE	MIN	AMBIENT TEM.
	2.742	2.742	2.743	2.742	2.742	10.5 °C

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Voltage	415	V	Current	2.9	A	Frequency	50.0	Hz
Speed	1428	r/min	Duty	S1	Connection	Y		
Ins. class	F	Weight	0	kg	IP55			

LOAD TEST

V	Hz	A1 (unit)	A2 (unit)	A3 (unit)	mul.	W1 (unit)	W2 (unit)	mul.	r/min
415.1	50.00	2.047	2.046	2.083	2	344.2	963.7	2	1406.3
414.9	50.00	1.710	1.705	1.734	2	288.0	770.9	2	1422.3
414.8	50.00	1.455	1.457	1.482	2	215.9	650.4	2	1435.9
415.3	50.00	1.196	1.206	1.216	2	125.3	525.2	2	1452.7
414.9	50.00	0.984	0.991	0.999	2	34.2	404.1	2	1467.6
415.1	50.00	0.847	0.855	0.867	2	-55.7	300.5	2	1480.2

% LOAD	OUTPUT W	INPUT W	AMPS A	Pcu1 W	SLIP %	Pcu2 W	Ps W	EFF %	P. F.
150	2250	2714.1	4.249	199.7	7.075	174.1	18.8	82.90	0.889
125	1875	2222.0	3.578	141.6	5.928	120.4	13.5	84.38	0.864
100	1500	1753.5	2.957	96.7	4.740	76.1	9.2	85.54	0.825
75	1125	1309.1	2.422	64.9	3.481	41.5	6.2	85.94	0.752
50	750	888.8	1.996	44.1	2.400	19.0	4.2	84.38	0.620
25	375	487.8	1.712	32.4	1.443	5.8	3.1	76.87	0.397

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Voltage	415 V	Current	2.9 A	Frequency	50.0	Hz
Speed	1428 r/min	Duty	S1	Connection	Y	
Ins. class	F	Weight	0 kg		IP55	

Load Curve

