



ROYCECROSSGROUP



ROYCE CROSS GROUP

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

NAMEPLATE DATA			
Y3-225M-2 FRAME	IEC TYPE	45 kW	2968 r/min
2 POLE	3 PHASE	415 VOLTS	50 Hz
ROYCE CROSS GROUP MANUFACTURER	73.6 AMPS	IP55 IP	
	S1 DUTY	F INS.CLASS	CONNECTION

MAJOR CONTENTS	UNIT	TEST VALUE
STATOR RESISTANCE OF PHASE	OHM	0.17055
NO LOAD CURRENT	AMP	17.58
NO LOAD INPUT	W	1407.5
CORE LOSS(Pfe)	W	544.7
WINDAGE FRICTION LOSS(Pfw)	W	814.1
STATOR WINDING LOSS(Pcu1)	W	913.2
ROTOR WINDING LOSS(Pcu2)	W	505.9
STRAY LOAD LOSS(Ps)	W	240.1
FULL LOAD CURRENT	AMP	73.31
LOCKED ROTOR CURRENT	AMP	508.61
LOCKED ROTOR CURRENT/FULL LOAD CURRENT	P.U.	6.91
FULL LOAD TORQUE	N.m	144.81
LOCKED ROTOR TORQUE	N.m	304.37
LOCKED ROTOR TORQUE/FULL LOAD TORQUE	P.U.	2.10
PULL OUT TORQUE	N.m	373.21
PULL OUT TORQUE/FULL LOAD TORQUE	P.U.	2.58
INPUT @ FULL LOAD	kW	48.02
EFFICIENCY @ FULL LOAD	%	93.71
POWER FACTOR @ FULL LOAD		0.91
FULL LOAD SLIP	%	1.086
FULL LOAD SPEED	r/min	2967.4
STATOR WINDING TEMPERATURE RISE	K	50
D.E. BEARINGS TEMPERATURE BY PT100	Deg. C	53.8
AMBIENT TEMPERATURE OF TESTING	Deg. C	16.4
NOISE	dB(A)	85
VIBRATION	mm/s	1.3

The data above is calculated as per IEC 34-2, all data at nominal Volts.

	ROYCE CROSS GROUP	SERIAL NO.	0		
					0

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Type	Y3-225M-2	Poles	2	Power	45.0 kW
Voltage	415 V	Current	73.6 A	Frequency	50 Hz
Speed	2968 r/min	Duty	S1	Connection	△
Ins. class	F	Weight	0 kg		IP55

NO LOAD TEST

VOL	mul.	Hz	I01	I02	I03	mul.	W1	W2	mul.	
470.8	1	50	2.975	3.010	3.001	10	-790.7	1015.9	10	68.6
445.6	1	50	2.328	2.361	2.351	10	-582.1	756.8	10	68.4
415.2	1	50	1.747	1.771	1.766	10	-396.1	537.0	10	68.3
366.1	1	50	1.228	1.239	1.238	10	-227.1	346.3	10	68.2
317.0	1	50	2.004	2.017	2.032	5	-291.3	508.0	5	67.9
256.9	1	50	1.576	1.585	1.594	5	-150.0	350.3	5	67.6
207.3	1	50	1.300	1.306	1.314	5	-67.1	255.1	5	67.3
194.5	1	50	1.221	1.228	1.234	5	-47.5	232.1	5	66.9
170.2	1	50	1.106	1.112	1.118	5	-17.6	195.3	5	66.6
124.2	1	50	0.966	0.971	0.975	5	30.0	142.7	5	66.1

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	0.00	0
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	0/01/1900	0

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Type	Y3-225M-2	Poles	2	Power	45.0	kW
Voltage	415 V	Current	73.6 A	Frequency	50.0	Hz
Speed	2968 r/min	Duty	S1	Connection		
Ins. class	F	Weight	0 kg		IP55	

LOCKED ROTOR TEST

VOL	mul.	Ik1	Ik2	Ik3	mul.	W1	W2	mul.	Torqu N. m
407.5	1.0	2.462	2.481	2.484	200.0	-160.9	928.0	200	292.74
362.1	1.0	2.059	2.078	2.079	200.0	-117.0	690.5	200	222.80
315.3	1.0	1.680	1.697	1.692	200.0	-84.6	490.6	200	163.86
257.5	1.0	1.259	1.273	1.264	200.0	-54.5	300.1	200	103.91
212.9	1.0	1.964	1.990	1.970	100.0	-72.9	386.3	100	67.94
157.2	1.0	1.373	1.387	1.374	100.0	-39.2	197.6	100	34.97
107.4	1.0	0.915	0.921	0.912	100.0	-17.8	89.3	100	15.99

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Type	Y3-225M-2		Poles	2		Power	45	kW
Voltage	415	V	Current	73.6	A	Frequency	50	Hz
Speed	2968	r/min	Duty	S1		Connection		
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
10:30	415.3	1.641	1.654	1.653	50	332.2	657.7	50	45.2	—	77.0	—	—	—	—	—	—	—	40.4	—	15.0
11:00	415.2	1.626	1.637	1.636	50	330.9	651.2	50	49.7	—	82.3	—	—	—	—	—	—	—	43.2	—	15.7
11:30	415.3	1.600	1.612	1.612	50	324.4	641.5	50	51.9	—	85.0	—	—	—	—	—	—	—	44.7	—	16.3
12:00	415.3	1.619	1.632	1.631	50	328.6	649.5	50	52.6	—	86.2	—	—	—	—	—	—	—	45.1	—	16.6
12:30	415.3	1.625	1.638	1.637	50	330.5	651.0	50	53.1	—	87.5	—	—	—	—	—	—	—	45.5	—	16.5
13:00	415.1	1.636	1.650	1.648	50	331.4	653.6	50	53.4	—	88.8	—	—	—	—	—	—	—	45.6	—	16.4
13:30	415.3	1.636	1.650	1.648	50	334.2	655.6	50	53.5	—	89.4	—	—	—	—	—	—	—	46.0	—	16.5
14:00	415.4	1.635	1.647	1.647	50	332.8	654.3	50	53.8	—	88.9	—	—	—	—	—	—	—	46.0	—	16.3
最后三点平均值	82.204		A		49365		W		53.8	—	89.0	—	—	—	—	—	—	—	46.0	—	16.4

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)	46	68	91	124	151	185	222	256
RESISTANCE	0.1090	0.1085	0.1079	0.1071	0.1066	0.1058	0.1053	0.1046

WINDING RESISTANCE (COLD)

△	U1-V1	U1-W1	V1-W1	AVERAGE	MIN	AMBIENT TEM.
	0.08601	0.08601	0.08598	0.08600	0.08598	14.6 °C
Y	U1-U2	V1-V2	W1-W2	AVERAGE	MIN	AMBIENT TEM.
	0	0	0	0.000	0	0 °C

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Type	Y3-225M-2	Poles	2	output Power	45.0	kW		
Voltage	415	V	Current	73.6	A	Frequency	50.0	Hz
Speed	2968	r/min	Duty	S1	Connection			
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
414.9	49.99	2.023	2.039	2.038	50	460.0	888.4	50	2950.5
415.1	49.99	1.877	1.892	1.891	50	425.4	820.7	50	2955.3
414.9	49.99	1.512	1.526	1.523	50	337.1	662.2	50	2966.1
415.2	49.98	2.870	2.900	2.886	20	584.2	1260.1	20	2976.3
415.1	49.99	2.125	2.145	2.138	20	347.9	924.4	20	2985.9
415.0	49.99	1.884	1.901	1.896	20	256.9	808.6	20	2988.3
415.0	49.99	1.519	1.536	1.530	20	104.4	622.4	20	2993.1

% LOAD	OUTPUT W	INPUT W	AMPS A	Pcu1 W	SLIP %	Pcu2 W	Ps W	EFF %	P. F.
150	67500	72699.3	109.151	2024.7	1.844	1292.7	523.2	92.85	0.927
125	56250	60238.3	91.383	1419.2	1.444	841.5	368.8	93.38	0.917
100	45000	48018.1	73.306	913.2	1.086	505.9	240.1	93.71	0.911
75	33750	36058.4	56.624	544.9	0.749	261.9	142.8	93.60	0.886
50	22500	24330.0	41.415	291.5	0.440	103.5	76.2	92.48	0.817
25	11250	12793.3	27.817	131.5	0.210	25.4	27.7	87.94	0.640

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