



ROYCECROSSGROUP



ROYCE CROSS GROUP

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

NAMEPLATE DATA			
Y3-250M-4 FRAME	IEC TYPE	55 kW	1484 r/min
4 POLE	3 PHASE	415 VOLTS	50 Hz
ROYCE CROSS GROUP MANUFACTURER	92.7 AMPS	IP55 IP	
	S1 DUTY	F INS.CLASS	CONNECTION

MAJOR CONTENTS	UNIT	TEST VALUE
STATOR RESISTANCE OF PHASE	OHM	0.13678
NO LOAD CURRENT	AMP	28.32
NO LOAD INPUT	W	1252.4
CORE LOSS(Pfe)	W	748.1
WINDAGE FRICTION LOSS(Pfw)	W	405.9
STATOR WINDING LOSS(Pcu1)	W	1185.5
ROTOR WINDING LOSS(Pcu2)	W	698.1
STRAY LOAD LOSS(Ps)	W	298.4
FULL LOAD CURRENT	AMP	93.10
LOCKED ROTOR CURRENT	AMP	614.87
LOCKED ROTOR CURRENT/FULL LOAD CURRENT	P.U.	6.63
FULL LOAD TORQUE	N.m	354.52
LOCKED ROTOR TORQUE	N.m	724.11
LOCKED ROTOR TORQUE/FULL LOAD TORQUE	P.U.	2.05
PULL OUT TORQUE	N.m	955.38
PULL OUT TORQUE/FULL LOAD TORQUE	P.U.	2.70
INPUT @ FULL LOAD	kW	58.34
EFFICIENCY @ FULL LOAD	%	94.28
POWER FACTOR @ FULL LOAD		0.87
FULL LOAD SLIP	%	1.238
FULL LOAD SPEED	r/min	1481.4
STATOR WINDING TEMPERATURE RISE	K	68
D.E. BEARINGS TEMPERATURE BY PT100	Deg. C	46.4
AMBIENT TEMPERATURE OF TESTING	Deg. C	5.2
NOISE	dB(A)	79
VIBRATION	mm/s	1.2

	ROYCE CROSS GROUP				
				0	

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Type	Y3-250M-4		Poles	4		Power	55.0 kW	
Voltage	415	V	Current	92.7	A	Frequency	50 Hz	
Speed	1484	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.	
485.2	1	50	4.199	4.157	4.201	10	-870.8	1056.7	10	61.6
450.5	1	50	3.365	3.339	3.375	10	-642.9	790.9	10	61.4
414.9	1	50	2.833	2.816	2.843	10	-493.8	619.0	10	61.2
366.8	1	50	2.354	2.340	2.357	10	-357.0	461.5	10	61.1
312.5	1	50	1.936	1.923	1.935	10	-242.8	330.0	10	60.8
260.6	1	50	1.576	1.567	1.578	10	-156.1	230.9	10	60.7
207.1	1	50	2.502	2.486	2.534	5	-177.4	303.4	5	60.3
168.5	1	50	2.022	2.010	2.047	5	-100.9	211.9	5	60.1
136.5	1	50	1.678	1.668	1.705	5	-50.9	154.4	5	59.9
93.2	1	50	3.085	3.182	3.278	2	-9.3	231.5	2	59.5

Initial Resistance immediately before no-load test: 0 Ω ambient temperature: 0.0 °C

Final Resistance immediately later no-load test: 0 Ω ambient temperature: 0.0 °C

ROYCE CROSS GROUP	Manufacturing Date	Serial No
	0.00	0
	Test Date	Report Number
	0/01/1900	0

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Type	Y3-250M-4	Poles	4	Power	55.0	kW
Voltage	415 V	Current	92.7 A	Frequency	50.0	Hz
Speed	1484 r/min	Duty	S1	Connection		
Ins. class	F	Weight	0 kg		IP55	

LOCKED ROTOR TEST

VOL	mul.	Ik1	Ik2	Ik3	mul.	W1	W2	mul.	Torqure (kg. m)
404.2	1.0	2.973	2.978	2.992	200.0	-186.5	952.1	200	69.90
367.7	1.0	2.656	2.662	2.674	200.0	-159.8	770.3	200	56.40
325.8	1.0	2.294	2.297	2.311	200.0	-128.4	585.5	200	42.50
286.7	1.0	1.969	1.974	1.983	200.0	-102.3	438.0	200	31.55
251.4	1.0	3.347	3.368	3.384	100.0	-157.3	649.8	100	23.10
220.8	1.0	2.845	2.860	2.879	100.0	-122.9	481.1	100	17.15
182.9	1.0	2.270	2.280	2.290	100.0	-87.7	313.4	100	10.90
143.0	1.0	3.398	3.409	3.422	50.0	-110.4	361.3	50	6.15
104.2	1.0	2.379	2.396	2.404	50.0	-57.2	183.6	50	3.05

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Type	Y3-250M-4			Poles	4			Power	55 kW		
Voltage	415 V			Current	92.7 A			Frequency	50 Hz		
Speed	1484 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	
10:29	415.5	4.699	4.706	4.713	20	1011.3	1999.0	20	46.4	—	67.7	68.2	—	—	—	—	—	—	—	—	—	4.3
11:00	415.4	4.699	4.706	4.711	20	1014.0	1993.3	20	48.5	—	70.0	70.6	—	—	—	—	—	—	—	—	—	4.4
11:30	415.4	4.666	4.680	4.685	20	1002.8	1972.5	20	47.6	—	71.1	71.7	—	—	—	—	—	—	—	—	—	4.4
12:01	415.4	4.642	4.654	4.661	20	1001.0	1969.8	20	46.4	—	71.6	72.3	—	—	—	—	—	—	—	—	—	4.5
12:30	415.5	4.663	4.673	4.678	20	995.5	1970.5	20	45.8	—	72.8	73.4	—	—	—	—	—	—	—	—	—	5.0
13:00	415.4	4.633	4.640	4.644	20	995.8	1966.5	20	46.3	—	73.1	73.8	—	—	—	—	—	—	—	—	—	5.0
13:29	415.6	4.651	4.659	4.663	20	1002.3	1975.3	20	46.1	—	73.3	73.9	—	—	—	—	—	—	—	—	—	5.1
14:00	415.6	4.644	4.663	4.668	20	1009.3	1977.8	20	46.4	—	73.5	74.1	—	—	—	—	—	—	—	—	—	5.5
最后三点平均值		93.035			A	59511.67		W	46.4	—	73.3	73.9	—	—	—	—	—	—	—	—	—	5.2

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)	51	74	92	109	128	150	179	204
RESISTANCE	0.08536	0.08517	0.08501	0.08487	0.08473	0.08455	0.08434	0.08419

WINDING RESISTANCE (COLD)

△	U1-V1	U1-W1	V1-W1	AVERAGE	MIN	AMBIENT TEM.
	0.06589	0.0659	0.06592	0.06590	0.06589	3.5 °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	Y3-250M-4	Poles	4	output Power	55.0	kW		
Voltage	415	V	Current	92.7	A	Frequency	50.0	Hz
Speed	1484	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
415.0	50.00	2.380	2.384	2.388	50	500.3	990.6	50	1476.8
415.2	50.00	2.160	2.165	2.166	50	455.6	899.7	50	1479.4
415.4	50.00	1.873	1.876	1.877	50	395.7	780.2	50	1482.4
415.2	50.00	3.608	3.599	3.603	20	714.3	1491.4	20	1487.3
415.0	50.00	2.652	2.642	2.644	20	427.0	1088.5	20	1491.7
414.9	50.00	1.790	1.784	1.783	20	97.0	683.1	20	1496.0

% LOAD	OUTPUT W	INPUT W	AMPS A	Pcu1 W	SLIP %	Pcu2 W	Ps W	EFF %	P. F.
150	82500	88620.8	142.067	2760.6	2.029	1726.6	479.6	93.09	0.868
125	68750	73402.0	117.334	1883.1	1.615	1142.7	472.2	93.66	0.870
100	55000	58335.8	93.098	1185.5	1.238	698.1	298.4	94.28	0.872
75	41250	43654.2	71.425	697.8	0.891	375.9	176.7	94.49	0.850
50	27500	29276.6	51.717	365.8	0.567	159.8	97.0	93.93	0.788
25	13750	15151.3	35.182	169.3	0.274	39.1	39.1	90.75	0.599

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