



ROYCECROSSGROUP



ROYCE CROSS GROUP

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

NAMEPLATE DATA			
Y3-250M-2 FRAME	IEC TYPE	55 kW	2974 r/min
2 POLE	3 PHASE	415 VOLTS	50 Hz
ROYCE CROSS GROUP MANUFACTURER	89.8 AMPS	IP55 IP	
	S1 DUTY	F INS.CLASS	CONNECTION

MAJOR CONTENTS	UNIT	TEST VALUE
STATOR RESISTANCE OF PHASE	OHM	0.13836
NO LOAD CURRENT	AMP	22.33
NO LOAD INPUT	W	1433.1
CORE LOSS(Pfe)	W	475.2
WINDAGE FRICTION LOSS(Pfw)	W	896.4
STATOR WINDING LOSS(Pcu1)	W	1187.4
ROTOR WINDING LOSS(Pcu2)	W	527.3
STRAY LOAD LOSS(Ps)	W	323.3
FULL LOAD CURRENT	AMP	94.40
LOCKED ROTOR CURRENT	AMP	626.65
LOCKED ROTOR CURRENT/FULL LOAD CURRENT	P.U.	6.98
FULL LOAD TORQUE	N.m	176.71
LOCKED ROTOR TORQUE	N.m	347.67
LOCKED ROTOR TORQUE/FULL LOAD TORQUE	P.U.	1.96
PULL OUT TORQUE	N.m	487.43
PULL OUT TORQUE/FULL LOAD TORQUE	P.U.	2.76
INPUT @ FULL LOAD	kW	58.41
EFFICIENCY @ FULL LOAD	%	94.16
POWER FACTOR @ FULL LOAD		0.861
FULL LOAD SLIP	%	0.929
FULL LOAD SPEED	r/min	2972.1
STATOR WINDING TEMPERATURE RISE	K	61
D.E. BEARINGS TEMPERATURE BY PT100	Deg. C	36.0
AMBIENT TEMPERATURE OF TESTING	Deg. C	11.6
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		
		DATE	0/01/1900	REV	
	Y3-250M-2	DRAWN		DOCUMENT NO.	
	55 kW	APPRVD			
415 VOLTS 50 Hz	CHECKED			0	

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Type	Y3-250M-2	Poles	2	Power	55.0 kW
Voltage	415 V	Current	89.8 A	Frequency	50 Hz
Speed	2974 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.	Ω
500.4	1	50	3.164	3.304	3.238	10	-765.6	955.0	10	0.082
460.7	1	50	2.563	2.682	2.609	10	-563.0	728.8	10	0.082
415.3	1	50	4.478	4.407	4.531	5	-814.6	1101.4	5	0.082
370.0	1	50	3.845	3.783	3.880	5	-602.4	864.2	5	0.082
319.3	1	50	3.259	3.206	3.283	5	-414.6	656.2	5	0.082
257.4	1	50	2.558	2.555	2.595	5	-228.2	450.0	5	0.082
206.8	1	50	2.096	2.099	2.129	5	-115.4	324.2	5	0.082
150.6	1	50	1.675	1.675	1.700	5	-13.9	209.3	5	0.082
123.6	1	50	1.474	1.479	1.494	5	8.8	181.3	5	0.082

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Type	Y3-250M-2	Poles	2	Power	55.0	kW
Voltage	415 V	Current	89.8 A	Frequency	50.0	Hz
Speed	2974 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
393.9	1.0	2.922	2.913	2.967	200.0	-162.2	880.8	200	312.62
348.0	1.0	2.493	2.481	2.525	200.0	-124.6	660.8	200	236.18
300.6	1.0	2.070	2.057	2.093	200.0	-92.2	472.5	200	172.48
260.3	1.0	1.739	1.725	1.757	200.0	-69.0	342.0	200	126.42
227.1	1.0	2.940	2.917	2.971	100.0	-106.0	500.6	100	94.08
187.0	1.0	2.349	2.333	2.373	100.0	-72.5	327.8	100	60.76
157.5	1.0	1.939	1.927	1.955	100.0	-52.0	227.4	100	42.14
116.1	1.0	2.811	2.798	2.834	50.0	-57.6	242.8	50	21.56

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Type	Y3-250M-2		Poles	2		Power	55	kW	
Voltage	415	V	Current	89.8	A	Frequency	50	Hz	
Speed	2974	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	
14:30	415.3	4.572	4.565	4.588	20	1079.0	1927.8	20	38.1	—	68.9	67.9	—	—	—	—	—	—	—	—	—	12.2
15:00	415.1	4.491	4.484	4.507	20	1067.3	1893.3	20	38.3	—	70.0	68.7	—	—	—	—	—	—	—	—	—	11.7
15:30	415.3	4.482	4.477	4.500	20	1058.3	1893.8	20	37.1	—	70.2	68.9	—	—	—	—	—	—	—	—	—	11.6
16:00	415.3	4.491	4.484	4.507	20	1051.5	1884.0	20	36.0	—	70.3	69.0	—	—	—	—	—	—	—	—	—	11.6
最后三点平均值	89.826		A		58986.67		W		36.0	—	70.2	69.0	—	—	—	—	—	—	—	—	—	11.6

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)	64	94	108.5	140	171	190	204	225
RESISTANCE	0.0845	0.0843	0.0843	0.0841	0.0839	0.0838	0.0837	0.0837

WINDING RESISTANCE (COLD)

△	U1-V1	U1-W1	V1-W1	AVERAGE	MIN	AMBIENT TEM.
	0.06866	0.06859	0.06861	0.06862	0.06859	10.5 °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-2	Poles	2	output Power	55.0	kW		
Voltage	415	V	Current	89.8	A	Frequency	50.0	Hz
Speed	2974	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
415.2	50.02	2.851	2.853	2.869	50	634.6	1136.3	50	2958.0
415.1	50.03	2.073	2.072	2.083	50	465.4	825.1	50	2971.6
415.4	50.02	1.887	1.886	1.896	50	420.6	748.6	50	2974.5
415.4	50.02	1.462	1.458	1.466	50	308.8	582.3	50	2981.5
415.3	50.02	1.280	1.276	1.282	50	258.4	508.8	50	2984.8
415.0	50.02	2.602	2.659	2.618	20	451.4	1057.6	20	2988.5
415.4	50.01	2.193	2.252	2.206	20	307.0	888.6	20	2991.2
415.3	50.02	1.713	1.769	1.724	20	126.8	669.3	20	2995.1

% LOAD	OUTPUT W	INPUT W	AMPS A	Pcu1 W	SLIP %	Pcu2 W	Ps W	EFF %	P. F.
150	82500	88625.9	143.022	2725.6	1.506	1286.7	741.9	93.09	0.862
125	68750	73375.4	118.322	1865.4	1.220	867.5	520.8	93.70	0.863
100	55000	58409.7	94.400	1187.4	0.929	527.3	323.3	94.16	0.861
75	41250	43786.5	71.971	690.2	0.672	286.4	188.2	94.21	0.846
50	27500	29445.4	51.565	354.3	0.429	122.8	96.7	93.39	0.794
25	13750	15347.5	34.008	154.1	0.204	30.0	41.7	89.59	0.628

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