



ROYCECROSSGROUP



ROYCE CROSS GROUP

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

NAMEPLATE DATA			
Y3-112M-6 FRAME	IEC TYPE	2.2 kW	952 r/min
6 POLE	3 PHASE	415 VOLTS	50 Hz
ROYCE CROSS GROUP MANUFACTURER	4.8 AMPS	IP55 IP	
	S1 DUTY	F INS.CLASS	Y CONNECTION

MAJOR CONTENTS	UNIT	TEST VALUE
STATOR RESISTANCE OF PHASE	OHM	3.31039
NO LOAD CURRENT	AMP	2.74
NO LOAD INPUT	W	169.8
CORE LOSS(Pfe)	W	66.6
WINDAGE FRICTION LOSS(Pfw)	W	30.0
STATOR WINDING LOSS(Pcu1)	W	218.1
ROTOR WINDING LOSS(Pcu2)	W	93.4
STRAY LOAD LOSS(Ps)	W	13.5
FULL LOAD CURRENT	AMP	4.86
LOCKED ROTOR CURRENT	AMP	25.21
LOCKED ROTOR CURRENT/FULL LOAD CURRENT	P.U.	5.25
FULL LOAD TORQUE	N.m	21.89
LOCKED ROTOR TORQUE	N.m	51.68
LOCKED ROTOR TORQUE/FULL LOAD TORQUE	P.U.	2.34
PULL OUT TORQUE	N.m	58.47
PULL OUT TORQUE/FULL LOAD TORQUE	P.U.	2.65
INPUT @ FULL LOAD	kW	2.61
EFFICIENCY @ FULL LOAD	%	84.18
POWER FACTOR @ FULL LOAD		0.75
FULL LOAD SLIP	%	4.010
FULL LOAD SPEED	r/min	959.9
STATOR WINDING TEMPERATURE RISE	K	47
D.E. BEARINGS TEMPERATURE BY PT100	Deg. C	52.4
AMBIENT TEMPERATURE OF TESTING	Deg. C	11.6
NOISE	dB(A)	61
VIBRATION	mm/s	0.7

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	Y3-112M-6		Poles	6		Power	2.2 kW	
Voltage	415	V	Current	4.8	A	Frequency	50 Hz	
Speed	952	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.	
461.2	1	50	3.625	3.555	3.516	1	-873.0	1135.5	1	50.6
414.8	1	50	2.781	2.724	2.720	1	-602.5	772.1	1	50.9
364.2	1	50	2.173	2.134	2.147	1	-408.5	529.8	1	50.9
309.8	1	50	1.713	1.700	1.694	1	-271.8	362.8	1	50.9
255.9	1	50	1.344	1.349	1.336	1	-172.0	241.9	1	50.8
207.1	1	50	1.051	1.066	1.051	1	-101.9	160.7	1	50.6
158.5	1	50	0.782	0.804	0.787	1	-53.0	97.4	1	50.4
110.1	1	50	0.550	0.578	0.557	1	-17.9	55.2	1	50.2
85.4	1	50	0.451	0.482	0.462	1	-4.7	40.2	1	49.2
68.0	1	50	0.406	0.442	0.423	1	2.1	32.3	1	48.3

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Voltage	415 V	Current	4.8 A	Frequency	50.0	Hz
Speed	952 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.	Torqur N. m
417.1	1.0	2.540	2.538	2.541	10.0	23.1	1157.6	10	52.30
370.4	1.0	2.120	2.117	2.126	10.0	8.0	852.3	10	38.40
322.8	1.0	1.728	1.724	1.731	10.0	-6.4	598.5	10	26.50
275.9	1.0	1.372	1.369	1.375	10.0	-16.9	399.6	10	17.50
215.9	1.0	0.965	0.964	0.969	10.0	-19.7	214.6	10	9.30
156.4	1.0	0.625	0.623	0.627	10.0	-13.8	97.9	10	4.40
108.6	1.0	0.400	0.399	0.402	10.0	-7.4	42.7	10	2.20

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Type	Y3-112M-6		Poles	6		Power	2.2 kW	
Voltage	415 V		Current	4.8 A		Frequency	50 Hz	
Speed	952 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	
13:40	415.0	2.399	2.406	2.398	2	270.1	1035.9	2	52.6	—	58.9	55.6	—	—	—	—	—	—	—	—	—	10.7
14:10	414.5	2.392	2.398	2.395	2	270.7	1030.2	2	52.1	—	58.5	55.2	—	—	—	—	—	—	—	—	—	11.5
14:40	414.9	2.394	2.406	2.399	2	269.3	1035.2	2	52.2	—	58.5	55.2	—	—	—	—	—	—	—	—	—	11.8
15:10	415.4	2.401	2.410	2.395	2	268.4	1038.1	2	52.0	—	58.5	55.2	—	—	—	—	—	—	—	—	—	11.8
15:40	415.3	2.405	2.411	2.394	2	268.9	1039.2	2	52.4	—	58.9	55.6	—	—	—	—	—	—	—	—	—	11.1
最后三点平均值		4.803			A	2612.733		W	52.4	—	58.6	55.3	—	—	—	—	—	—	—	—	—	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)	30	40	50	60	70	80		
RESISTANCE	2.936	2.931	2.926	2.922	2.919	2.916		

WINDING RESISTANCE (COLD)

△	U1-V1	U1-W1	V1-W1	AVERAGE	MIN	AMBIENT TEM.
	0	0	0	0.00000	0.00000	0 °C
Y	U1-U2	V1-V2	W1-W2	AVERAGE	MIN	AMBIENT TEM.
	2.445	2.443	2.443	2.444	2.443	8.6 °C

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Voltage	415	V	Current	4.8	A	Frequency	50.0	Hz
Speed	952	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
414.8	50.00	3.551	3.564	3.541	2	440.4	1549.5	2	940.0
415.3	50.00	2.765	2.774	2.759	2	369.3	1197.9	2	953.0
414.8	50.00	2.413	2.419	2.405	2	265.1	1029.5	2	962.0
414.9	50.00	2.038	2.043	2.026	2	128.9	839.7	2	973.3
414.8	50.00	1.755	1.757	1.740	2	-7.3	671.5	2	982.8
414.7	50.00	1.578	1.568	1.552	2	-147.7	518.3	2	991.2

% LOAD	OUTPUT W	INPUT W	AMPS A	Pcu1 W	SLIP %	Pcu2 W	Ps W	EFF %	P. F.
150	3300	4134.8	7.393	505.5	6.515	232.4	31.0	79.81	0.778
125	2750	3333.8	5.903	322.3	5.228	154.1	20.2	82.49	0.786
100	2200	2613.3	4.856	218.1	4.010	93.4	13.5	84.18	0.749
75	1650	1956.5	4.094	155.0	2.823	48.9	9.6	84.33	0.665
50	1100	1338.4	3.511	114.0	1.812	20.9	7.1	82.19	0.530
25	550	751.5	3.139	91.1	0.934	5.5	5.6	73.19	0.333

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Load Curve

