



ROYCECROSSGROUP



ROYCE CROSS GROUP

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

NAMEPLATE DATA			
Y3-160M2-2 FRAME	IEC TYPE	15 kW	2937 r/min
2 POLE	3 PHASE	415 VOLTS	50 Hz
ROYCE CROSS GROUP MANUFACTURER	25.2 AMPS	IP55 IP	
	S1 DUTY	H INS.CLASS	CONNECTION

MAJOR CONTENTS	UNIT	TEST VALUE
STATOR RESISTANCE OF PHASE	OHM	0.73528
NO LOAD CURRENT	AMP	6.53
NO LOAD INPUT	W	553.9
CORE LOSS(Pfe)	W	363.3
WINDAGE FRICTION LOSS(Pfw)	W	161.8
STATOR WINDING LOSS(Pcu1)	W	455.2
ROTOR WINDING LOSS(Pcu2)	W	344.6
STRAY LOAD LOSS(Ps)	W	81.9
FULL LOAD CURRENT	AMP	25.13
LOCKED ROTOR CURRENT	AMP	159.58
LOCKED ROTOR CURRENT/FULL LOAD CURRENT	P.U.	6.33
FULL LOAD TORQUE	N.m	48.82
LOCKED ROTOR TORQUE	N.m	108.58
LOCKED ROTOR TORQUE/FULL LOAD TORQUE	P.U.	2.23
PULL OUT TORQUE	N.m	136.27
PULL OUT TORQUE/FULL LOAD TORQUE	P.U.	2.79
INPUT @ FULL LOAD	kW	16.41
EFFICIENCY @ FULL LOAD	%	91.43
POWER FACTOR @ FULL LOAD		0.91
FULL LOAD SLIP	%	2.211
FULL LOAD SPEED	r/min	2933.7
STATOR WINDING TEMPERATURE RISE	K	62
D.E. BEARINGS TEMPERATURE BY PT100	Deg. C	49.9
AMBIENT TEMPERATURE OF TESTING	Deg. C	15.3
NOISE	dB(A)	82
VIBRATION	mm/s	1.1

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	Y3-160M2-2		Poles	2		Power	15.0 kW
Voltage	415	V	Current	25.2	A	Frequency	50 Hz
Speed	2937	r/min	Duty	S1		Connection	△
Ins. class	H		Weight	0	kg		IP55

NO LOAD TEST

VOL	mul.	Hz	I01	I02	I03	mul.	W1	W2	mul.	
497.3	1	50	2.214	2.146	2.147	5	-477.8	647.1	5	69.3
457.7	1	50	1.669	1.616	1.607	5	-324.8	458.7	5	69.1
415.1	1	50	1.339	1.297	1.283	5	-230.2	341.0	5	68.7
363.8	1	50	2.730	2.662	2.629	2	-401.1	623.0	2	68.1
317.7	1	50	2.286	2.224	2.198	2	-279.7	465.9	2	67.9
246.7	1	50	1.707	1.662	1.636	2	-141.4	287.7	2	67.7
206.8	1	50	1.451	1.417	1.389	2	-85.0	217.4	2	67.4
187.7	1	50	1.325	1.299	1.271	2	-61.8	186.5	2	67.1
105.9	1	50	0.885	0.880	0.854	2	7.4	87.3	2	66.0

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Voltage	415 V	Current	25.2 A	Frequency	50.0	Hz
Speed	2937 r/min	Duty	S1	Connection		
Ins. class	H	Weight	0 kg		IP55	

LOCKED ROTOR TEST

VOL	mul.	Ik1	Ik2	Ik3	mul.	W1	W2	mul.	Torqure N. m
412.6	1.0	1.590	1.580	1.580	100.0	-17.7	646.2	100	107.21
370.3	1.0	1.372	1.362	1.362	100.0	-13.8	500.5	100	83.05
325.2	1.0	2.330	2.312	2.314	50.0	-25.5	743.8	50	61.27
280.0	1.0	1.947	1.935	1.934	50.0	-21.7	533.3	50	43.71
233.2	1.0	1.567	1.556	1.556	50.0	-18.1	355.8	50	29.19
192.4	1.0	1.254	1.245	1.244	50.0	-14.1	233.0	50	18.89
148.7	1.0	2.346	2.329	2.329	20.0	-26.1	334.4	20	11.13
109.1	1.0	1.672	1.660	1.660	20.0	-15.1	173.2	20	5.44

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Type	Y3-160M2-2			Poles	2		Power	15 kW	
Voltage	415 V			Current	25.2 A		Frequency	50 Hz	
Speed	2937 r/min			Duty	S1		Connection		
Ins. class	H			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	
10:00	415.3	2.559	2.570	2.537	10	603.2	1091.6	10	49.5	—	74.4	77.6	—	—	—	—	—	—	—	—	—	13.6
10:30	415.1	2.529	2.541	2.507	10	592.1	1078.6	10	50.4	—	76.3	79.5	—	—	—	—	—	—	—	—	—	13.7
11:00	415.3	2.529	2.540	2.506	10	595.3	1079.1	10	51.2	—	77.1	80.3	—	—	—	—	—	—	—	—	—	14.4
11:30	415.3	2.527	2.537	2.504	10	595.6	1078.0	10	51.3	—	77.7	80.8	—	—	—	—	—	—	—	—	—	15.0
12:00	415.4	2.531	2.541	2.508	10	596.3	1079.5	10	50.7	—	77.5	80.7	—	—	—	—	—	—	—	—	—	14.8
12:30	415.4	2.511	2.524	2.491	10	589.8	1071.8	10	50.6	—	77.2	80.3	—	—	—	—	—	—	—	—	—	15.2
13:00	415.4	2.507	2.523	2.488	10	586.1	1070.9	10	50.2	—	76.8	80.1	—	—	—	—	—	—	—	—	—	15.2
13:30	415.4	2.517	2.525	2.491	10	591.6	1072.2	10	49.9	—	76.5	79.7	—	—	—	—	—	—	—	—	—	15.4
最后三点平均值		25.086			A	16608		W	49.9	—	76.8	80.0	—	—	—	—	—	—	—	—	—	15.3

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)	54	76	98	118	138	162	189	221
RESISTANCE	0.4622	0.4610	0.4596	0.4586	0.4576	0.4564	0.4552	0.4539

WINDING RESISTANCE (COLD)

△	U1-V1	U1-W1	V1-W1	AVERAGE	MIN	AMBIENT TEM.
	0.3686	0.3689	0.3681	0.36853	0.36810	13.1 °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	Y3-160M2-2	Poles	2	output Power	15.0	kW		
Voltage	415	V	Current	25.2	A	Frequency	50.0	Hz
Speed	2937	r/min	Duty	S1	Connection			
Ins. class		H	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	3.651	3.666	3.632	10	840.1	1533.3	10	2900.1
415.1	50.00	3.316	3.330	3.296	10	768.0	1392.3	10	2910.7
415.0	50.00	2.635	2.650	2.617	10	613.3	1108.4	10	2932.1
415.1	50.00	2.381	2.395	2.362	10	549.6	1002.7	10	2939.8
415.1	49.99	1.987	1.999	1.966	10	438.7	836.8	10	2951.2
415.0	50.00	1.418	1.426	1.395	10	271.0	598.0	10	2968.5
415.1	49.99	1.234	1.240	1.208	10	210.4	518.2	10	2974.0
415.1	49.99	0.956	0.958	0.927	10	104.5	390.9	10	2982.6

% LOAD	OUTPUT W	INPUT W	AMPS A	Pcu1 W	SLIP %	Pcu2 W	Ps W	EFF %	P. F.
150	22500	25172.4	38.734	1081.7	3.683	873.2	192.5	89.38	0.904
125	18750	20700.4	31.703	724.6	2.916	571.6	129.1	90.58	0.908
100	15000	16406.7	25.126	455.2	2.211	344.6	81.9	91.43	0.908
75	11250	12250.4	18.808	255.0	1.549	179.4	40.9	91.83	0.906
50	7500	8259.2	13.517	131.7	1.022	79.3	23.1	90.81	0.850
25	3750	4354.8	8.693	54.5	0.493	19.2	6.1	86.11	0.697

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Voltage	415 V	Current	25.2 A	Frequency	50.0	Hz
Speed	2937 r/min	Duty	S1	Connection		
Ins. class	H	Weight	0 kg		IP55	

Load Curve

