



ROYCECROSSGROUP



ROYCE CROSS GROUP

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

NAMEPLATE DATA			
Y3-160M1-8 FRAME	IEC TYPE	4 kW	707 r/min
8 POLE	3 PHASE	415 VOLTS	50 Hz
ROYCE CROSS GROUP MANUFACTURER	8.8 AMPS	IP55 IP	
	S1 DUTY	F INS.CLASS	CONNECTION

MAJOR CONTENTS	UNIT	TEST VALUE
STATOR RESISTANCE OF PHASE	OHM	4.85790
NO LOAD CURRENT	AMP	5.06
NO LOAD INPUT	W	290.6
CORE LOSS(Pfe)	W	162.9
WINDAGE FRICTION LOSS(Pfw)	W	14.5
STATOR WINDING LOSS(Pcu1)	W	372.9
ROTOR WINDING LOSS(Pcu2)	W	164.2
STRAY LOAD LOSS(Ps)	W	23.6
FULL LOAD CURRENT	AMP	8.76
LOCKED ROTOR CURRENT	AMP	48.86
LOCKED ROTOR CURRENT/FULL LOAD CURRENT	P.U.	5.55
FULL LOAD TORQUE	N.m	53.00
LOCKED ROTOR TORQUE	N.m	120.85
LOCKED ROTOR TORQUE/FULL LOAD TORQUE	P.U.	2.24
PULL OUT TORQUE	N.m	142.50
PULL OUT TORQUE/FULL LOAD TORQUE	P.U.	2.64
INPUT @ FULL LOAD	kW	4.74
EFFICIENCY @ FULL LOAD	%	84.42
POWER FACTOR @ FULL LOAD		0.75
FULL LOAD SLIP	%	3.906
FULL LOAD SPEED	r/min	720.7
STATOR WINDING TEMPERATURE RISE	K	65
D.E. BEARINGS TEMPERATURE BY PT100	Deg. C	51.5
AMBIENT TEMPERATURE OF TESTING	Deg. C	21.4
NOISE	dB(A)	66
VIBRATION	mm/s	1.1

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Type	Y3-160M1-8	Poles	8	Power	4.0 kW
Voltage	415 V	Current	8.8 A	Frequency	50 Hz
Speed	707 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
488.9	1	50	4.091	4.088	4.104	2	-904.2	1241.0	2	2.948
457.9	1	50	3.300	3.298	3.308	2	-697.7	925.7	2	2.948
414.7	1	50	2.522	2.523	2.528	2	-490.5	635.3	2	2.948
363.5	1	50	1.941	1.944	1.945	2	-331.9	428.9	2	2.948
308.3	1	50	1.537	1.540	1.539	2	-221.5	289.8	2	2.948
255.0	1	50	1.228	1.230	1.228	2	-144.5	192.7	2	2.948
206.1	1	50	0.974	0.977	0.974	2	-91.0	125.1	2	2.948
171.2	1	50	0.803	0.807	0.801	2	-61.1	86.9	2	2.948
136.6	1	50	0.639	0.644	0.637	2	-37.2	56.3	2	2.948
83.3	1	50	0.396	0.402	0.395	2	-11.7	23.3	2	2.948

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	0.00	0
	Test Date	Report Number
	0/01/1900	0

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Type	Y3-160M1-8	Poles	8	Power	4.0	kW
Voltage	415 V	Current	8.8 A	Frequency	50.0	Hz
Speed	707 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)
415.4	1.0	2.443	2.443	2.454	20.0	11.4	810.2	20	12.36
370.8	1.0	2.085	2.087	2.098	20.0	0.0	615.3	20	9.33
328.0	1.0	1.766	1.770	1.779	20.0	0.0	458.1	20	6.82
285.0	1.0	2.935	2.941	2.962	10.0	-15.2	654.8	10	4.79
242.7	1.0	2.391	2.398	2.411	10.0	-23.4	448.3	10	3.21
202.0	1.0	1.902	1.908	1.915	10.0	-23.6	292.4	10	2.05
154.5	1.0	2.753	2.766	2.771	5.0	-35.7	320.5	5	1.09
109.4	1.0	1.880	1.889	1.892	5.0	-19.4	152.9	5	0.51

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ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

ROYCE CROSS GROUP

Type	Y3-160M1-8		Poles	8		Power	4 kW	
Voltage	415 V		Current	8.8 A		Frequency	50 Hz	
Speed	707 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
8:30	415.1	1.786	1.785	1.788	5	223.7	746.2	5	37.3	—	73.0	—	—	—	—	—	—	—	43.6	—	19.3
9:00	414.9	1.788	1.788	1.790	5	229.1	747.9	5	44.2	—	78.3	—	—	—	—	—	—	—	48.9	—	20.4
9:30	415.1	1.783	1.783	1.784	5	229.6	746.4	5	47.9	—	80.8	—	—	—	—	—	—	—	51.4	—	20.4
10:00	415.3	1.784	1.783	1.784	5	231.6	746.9	5	50.3	—	83.6	—	—	—	—	—	—	—	54.2	—	21.0
10:30	415.1	1.772	1.773	1.775	5	228.9	742.2	5	51.0	—	83.9	—	—	—	—	—	—	—	54.5	—	21.4
10:59	415.1	1.774	1.773	1.776	5	229.4	742.2	5	51.5	—	84.5	—	—	—	—	—	—	—	55.1	—	21.7
最后三点平均值	8.885		A		4868.667		W		51.5	—	84.5	—	—	—	—	—	—	—	55.1	—	21.4

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)	50	70	80	90	102	113	127	138
RESISTANCE	3.159	3.145	3.138	3.133	3.125	3.118	3.113	3.107

WINDING RESISTANCE (COLD)

△	U1-V1	U1-W1	V1-W1	AVERAGE	MIN	AMBIENT TEM.
	2.478	2.48	2.479	2.479	2.478	17.6 °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	Y3-160M1-8	Poles	8	output Power	4.0	kW		
Voltage	415	V	Current	8.8	A	Frequency	50.0	Hz
Speed	707	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	49.99	2.140	2.140	2.143	5	326.6	903.6	5	709.6
415.1	50.00	1.939	1.938	1.941	5	274.0	814.6	5	715.0
415.3	50.00	1.788	1.788	1.789	5	229.7	746.2	5	720.0
415.4	50.00	1.613	1.612	1.613	5	173.7	664.5	5	725.1
415.2	49.99	3.700	3.702	3.715	2	312.3	1498.4	2	729.1
415.0	50.00	3.105	3.105	3.115	2	49.2	1171.4	2	737.9
415.0	49.99	2.887	2.884	2.897	2	-92.5	1014.8	2	741.8
415.4	49.99	2.758	2.754	2.771	2	-211.7	893.1	2	744.5

% LOAD	OUTPUT W	INPUT W	AMPS A	Pcu1 W	SLIP %	Pcu2 W	Ps W	EFF %	P. F.
150	6000	7401.8	12.430	750.3	6.641	428.2	45.9	81.06	0.828
125	5000	6034.6	10.541	539.6	5.314	283.4	34.1	82.86	0.796
100	4000	4738.1	8.763	372.9	3.906	164.2	23.6	84.42	0.752
75	3000	3539.6	7.329	260.9	2.719	84.8	16.5	84.76	0.672
50	2000	2408.4	6.192	186.2	1.602	33.0	11.8	83.04	0.541
25	1000	1341.5	5.511	147.5	0.705	7.3	9.3	74.54	0.339

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Type	Y3-160M1-8	Poles	8	output Power	4.0	kW		
Voltage	415	V	Current	8.8	A	Frequency	50.0	Hz
Speed	707	r/min	Duty	S1	Connection			
Ins. class	F	Weight	0	kg			IP55	

Load Curve

