



ROYCECROSSGROUP



ROYCE CROSS GROUP

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

NAMEPLATE DATA			
Y3-90L-2 FRAME	IEC TYPE	2.2 kW	2885 r/min
2 POLE	3 PHASE	415 VOLTS	50 Hz
ROYCE CROSS GROUP MANUFACTURER	4.1 AMPS	IP55 IP	
	S1 DUTY	F INS.CLASS	Y CONNECTION

MAJOR CONTENTS	UNIT	TEST VALUE
STATOR RESISTANCE OF PHASE	OHM	3.53633
NO LOAD CURRENT	AMP	1.68
NO LOAD INPUT	W	119.5
CORE LOSS(Pfe)	W	43.6
WINDAGE FRICTION LOSS(Pfw)	W	51.1
STATOR WINDING LOSS(Pcu1)	W	175.6
ROTOR WINDING LOSS(Pcu2)	W	87.9
STRAY LOAD LOSS(Ps)	W	12.7
FULL LOAD CURRENT	AMP	4.07
LOCKED ROTOR CURRENT	AMP	27.72
LOCKED ROTOR CURRENT/FULL LOAD CURRENT	P.U.	6.76
FULL LOAD TORQUE	N.m	7.27
LOCKED ROTOR TORQUE	N.m	17.38
LOCKED ROTOR TORQUE/FULL LOAD TORQUE	P.U.	2.39
PULL OUT TORQUE	N.m	20.81
PULL OUT TORQUE/FULL LOAD TORQUE	P.U.	2.86
INPUT @ FULL LOAD	kW	2.57
EFFICIENCY @ FULL LOAD	%	85.57
POWER FACTOR @ FULL LOAD		0.879
FULL LOAD SLIP	%	3.739
FULL LOAD SPEED	r/min	2887.8
STATOR WINDING TEMPERATURE RISE	K	42
D.E. BEARINGS TEMPERATURE BY PT100	Deg. C	27.7
AMBIENT TEMPERATURE OF TESTING	Deg. C	9.7
NOISE	dB(A)	63
VIBRATION	mm/s	0.5

The data above is calculated as per IEC 34-2,all data at nominal Volts.

	ROYCE CROSS GROUP	SERIAL NO.			

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Type	Y3-90L-2	Poles	2	Power	2.2 kW
Voltage	415 V	Current	4.1 A	Frequency	50 Hz
Speed	2885 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.	Ω
460.8	1	50	2.192	2.102	2.001	1	-385.2	535.3	1	2.923
415.4	1	50	1.752	1.675	1.623	1	-266.9	386.6	1	2.923
361.8	1	50	1.413	1.372	1.299	1	-182.1	284.3	1	2.921
308.0	1	50	1.147	1.142	1.060	1	-119.0	208.9	1	2.921
253.4	1	50	0.910	0.925	0.842	1	-69.3	146.9	1	2.921
205.3	1	50	0.724	0.754	0.678	1	-35.2	104.4	1	2.919
157.8	1	50	0.571	0.612	0.548	1	-9.6	72.5	1	2.917
133.5	1	50	0.517	0.563	0.511	1	0.9	58.9	1	2.915
109.0	1	50	0.475	0.524	0.483	1	8.2	48.4	1	2.914

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	Test Date	Report Number

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Type	Y3-90L-2	Poles	2	Power	2.2	kW
Voltage	415 V	Current	4.1 A	Frequency	50.0	Hz
Speed	2885 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.	Torqu N. m
416.8	1.0	2.783	2.827	2.765	10.0	266.3	1155.2	10	17.59
372.7	1.0	2.312	2.345	2.294	10.0	205.9	859.9	10	12.65
326.7	1.0	1.914	1.938	1.895	10.0	142.2	621.5	10	8.79
280.0	1.0	1.557	1.575	1.538	10.0	86.4	429.4	10	5.79
232.7	1.0	1.222	1.233	1.204	10.0	44.8	275.7	10	3.57
174.2	1.0	0.843	0.850	0.835	10.0	12.3	138.3	10	1.72
107.5	1.0	0.467	0.468	0.467	10.0	-0.2	44.8	10	0.50
71.8	1.0	0.299	0.300	0.300	10.0	-0.6	18.9	10	0.14

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Type	Y3-90L-2		Poles	2		Power	2.2 kW	
Voltage	415 V		Current	4.1 A		Frequency	50 Hz	
Speed	2885 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	
13:30	415.6	2.054	2.066	2.018	2	413.6	867.9	2	29.1	—	49.9	49.0	—	—	—	—	—	—	—	—	—	9.5
14:00	415.3	2.040	2.064	2.021	2	411.5	866.1	2	28.0	—	47.9	47.0	—	—	—	—	—	—	—	—	—	9.6
14:30	415.5	2.049	2.070	2.025	2	412.3	869.0	2	27.5	—	47.5	46.6	—	—	—	—	—	—	—	—	—	9.8
14:58	414.9	2.049	2.064	2.015	2	411.1	864.7	2	27.7	—	47.3	46.4	—	—	—	—	—	—	—	—	—	9.7
最后三点平均值		4.088			A	2556.439		W	27.7	—	47.6	46.7	—	—	—	—	—	—	—	—	—	9.7

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	3.0758	3.0683	3.0638	3.0568	3.0518	3.0473		

WINDING RESISTANCE (COLD)

△	U1-V1	U1-W1	V1-W1	AVERAGE	MIN	AMBIENT TEM.
						°C
Y	U1-U2	V1-V2	W1-W2	AVERAGE	MIN	AMBIENT TEM.
	2.613	2.614	2.614	2.614	2.613	8.9 °C

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Type	Y3-90L-2	Poles	2	output Power	2.2	kW		
Voltage	415	V	Current	4.1	A	Frequency	50.0	Hz
Speed	2885	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
415.3	50.00	2.388	2.402	2.357	2	519.5	1018.3	2	2879.4
414.9	50.00	2.193	2.199	2.162	2	464.7	931.8	2	2892.0
414.6	50.00	2.021	2.041	2.004	2	412.0	864.6	2	2903.0
415.0	50.00	1.600	1.614	1.568	2	275.7	681.9	2	2928.4
415.3	50.00	1.215	1.244	1.181	2	129.5	514.4	2	2952.6
415.2	50.00	0.954	0.956	0.903	2	-5.3	359.6	2	2974.0

% LOAD	OUTPUT W	INPUT W	AMPS A	Pcu1 W	SLIP %	Pcu2 W	Ps W	EFF %	P. F.
150	3300	4028.3	6.045	387.7	6.169	219.6	26.3	81.92	0.927
125	2750	3281.2	5.048	270.3	4.954	146.8	19.3	83.81	0.904
100	2200	2571.0	4.069	175.6	3.739	87.9	12.7	85.57	0.879
75	1650	1907.4	3.178	107.1	2.725	47.9	7.7	86.50	0.835
50	1100	1282.7	2.422	62.2	1.805	21.2	4.5	85.76	0.737
25	550	689.8	1.857	36.6	0.967	5.9	2.6	79.73	0.517

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Voltage	415 V	Current	4.1 A	Frequency	50.0	Hz
Speed	2885 r/min	Duty	S1	Connection	Y	
Ins. class	F	Weight	0 kg		IP55	

Load Curve

