



ROYCECROSSGROUP



ROYCE CROSS GROUP

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

NAMEPLATE DATA			
Y3-280M-2 FRAME	IEC TYPE 3 PHASE	90 kW	2975 r/min
2 POLE	145.0 AMPS	415 VOLTS	50 Hz
ROYCE CROSS GROUP MANUFACTURER	S1 DUTY	IP55 IP F INS.CLASS	CONNECTION

MAJOR CONTENTS	UNIT	TEST VALUE
STATOR RESISTANCE OF PHASE	OHM	0.05731
NO LOAD CURRENT	AMP	33.61
NO LOAD INPUT	W	2347.4
CORE LOSS(Pfe)	W	1192.9
WINDAGE FRICTION LOSS(Pfw)	W	1096.9
STATOR WINDING LOSS(Pcu1)	W	1195.4
ROTOR WINDING LOSS(Pcu2)	W	730.2
STRAY LOAD LOSS(Ps)	W	430.3
FULL LOAD CURRENT	AMP	144.42
LOCKED ROTOR CURRENT	AMP	1027.14
LOCKED ROTOR CURRENT/FULL LOAD CURRENT	P.U.	7.08
FULL LOAD TORQUE	N.m	288.76
LOCKED ROTOR TORQUE	N.m	623.57
LOCKED ROTOR TORQUE/FULL LOAD TORQUE	P.U.	2.16
PULL OUT TORQUE	N.m	876.30
PULL OUT TORQUE/FULL LOAD TORQUE	P.U.	3.03
INPUT @ FULL LOAD	kW	94.65
EFFICIENCY @ FULL LOAD	%	95.09
POWER FACTOR @ FULL LOAD		0.91
FULL LOAD SLIP	%	0.791
FULL LOAD SPEED	r/min	2976.3
STATOR WINDING TEMPERATURE RISE	K	57
D.E. BEARINGS TEMPERATURE BY PT100	Deg. C	44.0
AMBIENT TEMPERATURE OF TESTING	Deg. C	11.4
NOISE	dB(A)	92
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.		
		DATE		REV
	Y3-280M-2	DRAWN		DOCUMENT NO.
	90 kW	APPRVD		
	415 VOLTS 50 Hz	CHECKED		

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Type	Y3-280M-2	Poles	2	Power	90.0 kW
Voltage	415 V	Current	145 A	Frequency	50 Hz
Speed	2975 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.	
490.2	1	50	2.474	2.522	2.446	20	-802.3	966.8	20	59.4
455.7	1	50	1.993	2.062	1.982	20	-603.4	736.0	20	59.1
415.1	1	50	3.320	3.452	3.317	10	-899.1	1133.9	10	58.8
369.2	1	50	2.808	2.950	2.812	10	-669.1	872.7	10	58.5
318.3	1	50	2.351	2.510	2.362	10	-472.2	655.7	10	58.1
264.9	1	50	1.898	2.057	1.908	10	-301.4	466.6	10	57.8
207.0	1	50	3.054	3.035	3.115	5	-287.6	568.9	5	57.1
180.3	1	50	2.621	2.601	2.672	5	-171.0	448.6	5	56.9
143.4	1	50	2.139	2.126	2.181	5	-74.3	323.0	5	56.7
103.0	1	50	1.727	1.715	1.769	5	15.8	219.5	5	56.4

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Voltage	415 V	Current	145 A	Frequency	50.0	Hz
Speed	2975 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)
301.0	1.0	3.533	3.532	3.584	200.0	-152.3	731.3	200	30.40
266.4	1.0	3.068	3.066	3.107	200.0	-118.1	561.7	200	23.40
224.1	1.0	2.516	2.515	2.547	200.0	-83.4	386.3	200	16.50
190.5	1.0	2.104	2.103	2.128	200.0	-60.5	273.6	200	11.60
165.4	1.0	1.813	1.812	1.832	200.0	-45.5	204.4	200	8.70
146.1	1.0	1.590	1.588	1.606	200.0	-35.4	158.4	200	6.70
122.3	1.0	2.648	2.648	2.677	100.0	-50.3	220.4	100	4.70

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Type	Y3-280M-2		Poles	2		Power	90	kW	
Voltage	415	V	Current	145	A	Frequency	50	Hz	
Speed	2975	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	
11:00	415.5	2.908	2.925	2.934	50	682.1	1225.3	50	40.7	—	65.9	65.2	—	—	—	—	—	—	—	—	—	10.2
11:30	415.5	2.914	2.930	2.937	50	685.1	1227.3	50	41.7	—	67.4	66.8	—	—	—	—	—	—	—	—	—	9.9
12:00	415.6	2.875	2.890	2.897	50	673.2	1210.7	50	42.8	—	69.0	68.4	—	—	—	—	—	—	—	—	—	11.1
12:30	415.4	2.908	2.925	2.934	50	682.9	1224.7	50	43.4	—	68.8	68.2	—	—	—	—	—	—	—	—	—	11.2
13:00	415.3	2.910	2.925	2.936	50	682.1	1225.5	50	44.1	—	69.6	69.1	—	—	—	—	—	—	—	—	—	11.1
13:30	415.4	2.862	2.875	2.884	50	671.4	1205.7	50	44.2	—	70.2	69.5	—	—	—	—	—	—	—	—	—	11.7
14:00	415.2	2.890	2.904	2.914	50	677.6	1216.2	50	44.0	—	69.8	69.1	—	—	—	—	—	—	—	—	—	11.3
最后三点平均值	144.998		A		94640		W		44.0	—	69.9	69.2	—	—	—	—	—	—	—	—	—	11.4

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)	59	91	128	150	174	206	254	295
RESISTANCE	0.03517	0.03511	0.03503	0.03498	0.03493	0.03486	0.03478	0.03472

WINDING RESISTANCE (COLD)

△	U1-V1	U1-W1	V1-W1	AVERAGE	MIN	AMBIENT TEM.
	0.02811	0.02813	0.02816	0.02813	0.02811	8 °C
Y	U1-U2	V1-V2	W1-W2	AVERAGE	MIN	AMBIENT TEM.
						°C

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Manu. Date

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Type	Y3-280M-2	Poles	2	output Power	90.0	kW		
Voltage	415	V	Current	145	A	Frequency	50.0	Hz
Speed	2975	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	50.00	2.205	2.215	2.228	100	511.6	933.0	100	2963.8
415.2	50.00	1.780	1.788	1.797	100	422.5	752.5	100	2972.3
415.1	50.00	1.431	1.438	1.443	100	337.5	604.9	100	2978.2
415.2	50.00	2.418	2.434	2.439	50	552.1	1025.3	50	2982.2
415.0	49.99	2.211	2.226	2.229	50	494.7	938.5	50	2984.5
415.1	49.99	1.575	1.585	1.584	50	291.2	665.0	50	2990.4
415.1	50.00	1.206	1.212	1.208	50	159.9	500.8	50	2992.7
415.1	50.00	1.031	1.036	1.031	50	84.6	413.7	50	2995.4

% LOAD	OUTPUT W	INPUT W	AMPS A	Pcu1 W	SLIP %	Pcu2 W	Ps W	EFF %	P. F.
150	135000	142933.5	219.207	2753.8	1.290	1793.1	1096.9	94.45	0.907
125	112500	118571.4	180.519	1867.5	1.013	1169.7	744.3	94.88	0.914
100	90000	94645.7	144.425	1195.4	0.791	730.2	430.3	95.09	0.912
75	67500	71135.7	110.398	698.5	0.534	369.5	278.0	94.89	0.896
50	45000	47942.1	79.241	359.8	0.326	151.1	141.4	93.86	0.842
25	22500	25015.9	51.781	153.7	0.168	39.7	32.8	89.94	0.672

ROYCE CROSS GROUP	Manufacturing Date 0.00	Serial No 0
	Test Date 0/01/1900	Report Number 0