



ROYCECROSSGROUP



ROYCE CROSS GROUP

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

NAMEPLATE DATA			
Y3-225M-4 FRAME	IEC TYPE	45 kW	1481 r/min
4 POLE	3 PHASE	415 VOLTS	50 Hz
ROYCE CROSS GROUP MANUFACTURER	76.2 AMPS	IP55 IP	
	S1 DUTY	F INS.CLASS	CONNECTION

MAJOR CONTENTS	UNIT	TEST VALUE
STATOR RESISTANCE OF PHASE	OHM	0.18506
NO LOAD CURRENT	AMP	23.45
NO LOAD INPUT	W	1035.8
CORE LOSS(Pfe)	W	745.8
WINDAGE FRICTION LOSS(Pfw)	W	195.1
STATOR WINDING LOSS(Pcu1)	W	1053.2
ROTOR WINDING LOSS(Pcu2)	W	644.6
STRAY LOAD LOSS(Ps)	W	239.6
FULL LOAD CURRENT	AMP	76.20
LOCKED ROTOR CURRENT	AMP	509.95
LOCKED ROTOR CURRENT/FULL LOAD CURRENT	P.U.	6.69
FULL LOAD TORQUE	N.m	290.53
LOCKED ROTOR TORQUE	N.m	623.12
LOCKED ROTOR TORQUE/FULL LOAD TORQUE	P.U.	2.15
PULL OUT TORQUE	N.m	793.25
PULL OUT TORQUE/FULL LOAD TORQUE	P.U.	2.73
INPUT @ FULL LOAD	kW	47.88
EFFICIENCY @ FULL LOAD	%	93.99
POWER FACTOR @ FULL LOAD		0.87
FULL LOAD SLIP	%	1.399
FULL LOAD SPEED	r/min	1479.0
STATOR WINDING TEMPERATURE RISE	K	62
D.E. BEARINGS TEMPERATURE BY PT100	Deg. C	57.7
AMBIENT TEMPERATURE OF TESTING	Deg. C	2.9
NOISE	dB(A)	79
VIBRATION	mm/s	0.9

The data above is calculated as per IEC 60034, all data at nominal Volts.

	ROYCE CROSS GROUP	SERIAL NO.	0		

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Type	Y3-225M-4	Poles	4	Power	45.0 kW
Voltage	415 V	Current	76.2 A	Frequency	50 Hz
Speed	1481 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.	
486.8	1	50	3.717	3.709	3.744	10	-787.5	971.9	10	73.2
450.2	1	50	2.856	2.851	2.874	10	-560.9	691.4	10	73.0
415.4	1	50	2.346	2.346	2.355	10	-424.5	528.3	10	72.7
364.1	1	50	1.869	1.869	1.871	10	-294.0	372.7	10	72.6
319.1	1	50	1.571	1.570	1.571	10	-214.3	277.1	10	72.4
263.2	1	50	2.508	2.505	2.529	5	-270.0	371.5	5	72.0
206.3	1	50	1.918	1.913	1.942	5	-152.1	229.4	5	71.6
175.5	1	50	1.634	1.630	1.653	5	-103.0	172.9	5	71.3
141.1	1	50	3.289	3.351	3.337	2	-156.6	298.1	2	70.8
99.6	1	50	2.406	2.449	2.445	2	-54.5	174.7	2	70.5

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Type	Y3-225M-4	Poles	4	Power	45.0	kW
Voltage	415 V	Current	76.2 A	Frequency	50.0	Hz
Speed	1481 r/min	Duty	S1	Connection		
Ins. class	F	Weight	0 kg		IP55	

LOCKED ROTOR TEST

VOL	mul.	Ik1	Ik2	Ik3	mul.	W1	W2	mul.	Torqu N. m
408.5	1.0	2.493	2.493	2.508	200.0	-122.7	867.5	200	601.72
366.5	1.0	2.161	2.162	2.173	200.0	-98.2	672.3	200	464.52
324.4	1.0	1.848	1.850	1.858	200.0	-78.0	505.8	200	349.86
275.8	1.0	3.024	3.026	3.043	100.0	-119.3	698.6	100	236.67
229.6	1.0	2.398	2.402	2.415	100.0	-85.2	456.3	100	151.90
187.8	1.0	1.867	1.870	1.880	100.0	-59.6	286.9	100	94.57
147.4	1.0	1.400	1.399	1.406	100.0	-38.8	166.6	100	53.90
102.6	1.0	1.870	1.871	1.879	50.0	-38.9	152.8	50	24.01

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Type	Y3-225M-4			Poles	4			Power	45 kW		
Voltage	415 V			Current	76.2 A			Frequency	50 Hz		
Speed	1481 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
10:30	416.1	1.525	1.524	1.530	50	325.1	638.8	50	46.8	—	76.0	78.1	—	—	—	—	—	—	47.8	—	0.6
11:00	416.0	1.490	1.489	1.494	50	320.5	625.4	50	50.9	—	79.0	81.2	—	—	—	—	—	—	49.4	—	0.7
11:30	415.4	1.515	1.513	1.519	50	325.3	633.2	50	53.0	—	81.6	83.8	—	—	—	—	—	—	50.6	—	0.9
12:00	415.3	1.516	1.515	1.519	50	325.3	633.2	50	54.4	—	83.3	85.5	—	—	—	—	—	—	51.6	—	1.3
12:30	415.3	1.542	1.541	1.547	50	331.0	643.8	50	55.7	—	85.2	87.5	—	—	—	—	—	—	52.8	—	1.4
13:00	415.4	1.517	1.516	1.521	50	326.4	634.3	50	56.4	—	85.9	88.1	—	—	—	—	—	—	53.2	—	1.4
13:30	415.5	1.520	1.520	1.525	50	329.0	637.9	50	57.2	—	86.3	88.3	—	—	—	—	—	—	47.5	—	3.6
14:00	415.4	1.526	1.524	1.530	50	328.8	638.7	50	57.7	—	86.3	88.1	—	—	—	—	—	—	47.1	—	3.6
最后三点平均值		76.112			A	48251.67			W	57.7	—	86.2	88.2	—	—	—	—	—	47.1	—	2.9

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)	46	60	78	95	112	128	144	163
RESISTANCE	0.1119	0.1116	0.1114	0.1111	0.1109	0.1107	0.1105	0.1102

WINDING RESISTANCE (COLD)

△	U1-V1	U1-W1	V1-W1	AVERAGE	MIN	AMBIENT TEM.
	0.08845	0.08845	0.08847	0.08846	0.08845	1.6 °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	Y3-225M-4	Poles	4	output Power	45.0	kW		
Voltage	415	V	Current	76.2	A	Frequency	50.0	Hz
Speed	1481	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
415.1	50.00	2.340	2.340	2.349	50	491.0	973.5	50	1468.0
415.0	50.00	1.947	1.948	1.955	50	419.5	809.9	50	1474.2
415.0	50.00	1.522	1.522	1.527	50	325.2	632.3	50	1480.5
415.1	49.99	1.411	1.410	1.414	50	299.0	586.9	50	1482.2
415.1	49.99	2.881	2.887	2.881	20	566.3	1197.5	20	1486.2
415.2	49.98	2.114	2.115	2.113	20	332.8	870.5	20	1490.8
415.0	49.99	1.687	1.686	1.687	20	178.2	675.6	20	1493.4
415.1	49.99	1.484	1.485	1.485	20	87.7	571.6	20	1495.2

% LOAD	OUTPUT W	INPUT W	AMPS A	Pcu1 W	SLIP %	Pcu2 W	Ps W	EFF %	P. F.
150	67500	73084.6	116.913	2479.6	2.290	1599.9	564.3	92.36	0.870
125	56250	60262.6	95.472	1653.5	1.804	1043.9	374.3	93.34	0.878
100	45000	47878.2	76.195	1053.2	1.399	644.6	239.6	93.99	0.874
75	33750	35717.0	57.065	590.7	0.909	311.7	123.7	94.49	0.871
50	22500	23977.3	42.160	322.4	0.614	140.7	73.3	93.84	0.791
25	11250	12403.7	28.577	148.1	0.312	35.8	28.9	90.70	0.604

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Voltage	415 V	Current	76.2 A	Frequency	50.0	Hz
Speed	1481 r/min	Duty	S1	Connection		
Ins. class	F	Weight	0 kg			IP55

Load Curve

