



ROYCECROSSGROUP



ROYCE CROSS GROUP

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

NAMEPLATE DATA			
Y3-315L1-4 FRAME	IEC TYPE	160 kW	1488 r/min
4 POLE	3 PHASE	415 VOLTS	50 Hz
ROYCE CROSS GROUP MANUFACTURER	261.0 AMPS	IP55 IP	
	S1 DUTY	F INS.CLASS	CONNECTION

MAJOR CONTENTS	UNIT	TEST VALUE
STATOR RESISTANCE OF PHASE	OHM	0.02484
NO LOAD CURRENT	AMP	72.53
NO LOAD INPUT	W	3195.5
CORE LOSS(Pfe)	W	1439.0
WINDAGE FRICTION LOSS(Pfw)	W	1646.6
STATOR WINDING LOSS(Pcu1)	W	1692.5
ROTOR WINDING LOSS(Pcu2)	W	1531.2
STRAY LOAD LOSS(Ps)	W	850.0
FULL LOAD CURRENT	AMP	263.04
LOCKED ROTOR CURRENT	AMP	1787.11
LOCKED ROTOR CURRENT/FULL LOAD CURRENT	P.U.	6.85
FULL LOAD TORQUE	N.m	1028.16
LOCKED ROTOR TORQUE	N.m	2118.51
LOCKED ROTOR TORQUE/FULL LOAD TORQUE	P.U.	2.06
PULL OUT TORQUE	N.m	3024.77
PULL OUT TORQUE/FULL LOAD TORQUE	P.U.	2.94
INPUT @ FULL LOAD	kW	167.16
EFFICIENCY @ FULL LOAD	%	95.72
POWER FACTOR @ FULL LOAD		0.88
FULL LOAD SLIP	%	0.933
FULL LOAD SPEED	r/min	1486.0
STATOR WINDING TEMPERATURE RISE	K	64
D.E. BEARINGS TEMPERATURE BY PT100	Deg. C	54.5
AMBIENT TEMPERATURE OF TESTING	Deg. C	4.8
NOISE	dB(A)	95
VIBRATION	mm/s	1.5

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	Y3-315L1-4		Poles	4		Power	160.0 kW
Voltage	415	V	Current	261	A	Frequency	50 Hz
Speed	1488	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
492.5	1	50	2.483	2.469	2.512	50	-635.6	746.9	50	0.014
454.8	1	50	1.845	1.839	1.867	50	-434.5	515.4	50	0.014
415.0	1	50	1.446	1.442	1.464	50	-307.6	371.6	50	0.014
359.4	1	50	2.810	2.929	2.866	20	-528.0	661.6	20	0.014
314.9	1	50	2.365	2.489	2.434	20	-375.1	498.2	20	0.014
261.8	1	50	1.928	2.022	1.975	20	-240.8	352.3	20	0.014
206.5	1	50	1.488	1.595	1.539	20	-131.9	233.4	20	0.014
181.9	1	50	2.669	2.654	2.788	10	-164.6	355.1	10	0.014
95.1	1	50	1.584	1.532	1.636	10	22.6	150.7	10	0.014

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	0.00	0
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Type	Y3-315L1-4	Poles	4	Power	160.0	kW
Voltage	415 V	Current	261 A	Frequency	50.0	Hz
Speed	1488 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 N. m
185.3	1.0	3.502	3.515	3.575	200.0	-129.2	467.7	200	330.75
162.1	1.0	3.020	3.027	3.079	200.0	-99.9	352.2	200	245.00
146.2	1.0	2.695	2.701	2.751	200.0	-81.4	282.8	200	194.53
134.8	1.0	2.470	2.477	2.520	200.0	-68.9	237.9	200	161.70
120.1	1.0	2.183	2.191	2.224	200.0	-54.7	186.9	200	126.42
109.2	1.0	1.977	1.982	2.013	200.0	-45.6	153.9	200	103.88

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Type	Y3-315L1-4			Poles	4		Power	160 kW	
Voltage	415 V			Current	261 A		Frequency	50 Hz	
Speed	1488 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	415.1	2.584	2.590	2.631	100	595.9	1092.8	100	46.7	—	64.0	62.5	—	—	—	—	—	—	—	—	—	4.4
11:30	415.1	2.581	2.585	2.627	100	596.9	1091.4	100	48.8	—	65.4	64.1	—	—	—	—	—	—	—	—	—	4.7
12:00	415.2	2.578	2.580	2.622	100	597.7	1089.4	100	51.6	—	68.5	67.2	—	—	—	—	—	—	—	—	—	4.9
12:30	415.3	2.584	2.585	2.629	100	599.7	1091.4	100	52.8	—	69.9	68.6	—	—	—	—	—	—	—	—	—	5.0
13:00	415.2	2.580	2.585	2.628	100	598.4	1091.7	100	53.5	—	70.8	69.6	—	—	—	—	—	—	—	—	—	4.7
13:30	415.3	2.597	2.601	2.642	100	602.9	1098.3	100	54.2	—	71.3	70.1	—	—	—	—	—	—	—	—	—	4.8
14:00	415.2	2.583	2.587	2.628	100	598.9	1092.0	100	54.5	—	71.8	70.6	—	—	—	—	—	—	—	—	—	4.9
最后三点平均值	260.338		A		169406.7		W		54.5	—	71.8	70.6	—	—	—	—	—	—	—	—	—	4.8

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)	53	111	156	209	240	290	354
RESISTANCE	0.01519	0.01511	0.01505	0.01499	0.01496	0.01492	0.01487

WINDING RESISTANCE (COLD)

△	U1-V1	U1-W1	V1-W1	AVERAGE	MIN	AMBIENT TEM.
	0.01203	0.01202	0.01208	0.01204	0.01202	5 °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	Y3-315L1-4	Poles	4	output Power	160.0	kW		
Voltage	415	V	Current	261	A	Frequency	50.0	Hz
Speed	1488	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
414.9	50.02	4.078	4.082	4.156	100	900.0	1685.1	100	1478.2
414.8	50.02	3.297	3.302	3.359	100	748.6	1361.3	100	1483.2
415.2	50.01	2.880	2.884	2.934	100	657.2	1190.5	100	1485.8
414.9	50.01	2.626	2.631	2.674	100	594.7	1085.9	100	1487.1
414.9	50.00	2.031	2.032	2.065	100	437.0	839.4	100	1491.0
414.9	50.00	1.452	1.452	1.475	100	257.9	597.0	100	1494.5
415.0	49.99	1.934	1.940	1.959	50	134.8	744.2	50	1497.5

% LOAD	OUTPUT W	INPUT W	AMPS A	Pcu1 W	SLIP %	Pcu2 W	Ps W	EFF %	P. F.
150	240000	252850.8	401.236	3938.2	1.553	3843.4	1983.5	94.92	0.877
125	200000	209604.5	329.736	2659.7	1.228	2523.9	1335.3	95.42	0.884
100	160000	167159.4	263.038	1692.5	0.933	1531.2	850.0	95.72	0.884
75	120000	125344.9	201.110	989.4	0.628	771.5	498.5	95.74	0.867
50	80000	84168.9	144.441	510.4	0.384	316.0	256.9	95.05	0.811
25	40000	43493.1	96.673	228.6	0.154	64.5	114.4	91.97	0.626

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