



**ROYCECROSSGROUP**



**ROYCE CROSS GROUP**

**ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR**

<b>NAMEPLATE DATA</b>			
Y3-90S-2 <b>FRAME</b>	IEC TYPE 3 <b>PHASE</b>	1.5 <b>kW</b>	2875 <b>r/min</b>
2 <b>POLE</b>	2.9 <b>AMPS</b>	415 <b>VOLTS</b>	50 <b>Hz</b>
<b>ROYCE CROSS GROUP MANUFACTURER</b>	S1 <b>DUTY</b>	F <b>INS.CLASS</b>	<b>Y CONNECTION</b>

MAJOR CONTENTS	UNIT	TEST VALUE
STATOR RESISTANCE OF PHASE	OHM	5.67692
NO LOAD CURRENT	AMP	1.27
NO LOAD INPUT	W	100.8
CORE LOSS(Pfe)	W	36.3
WINDAGE FRICTION LOSS(Pfw)	W	40.7
STATOR WINDING LOSS(Pcu1)	W	127.7
ROTOR WINDING LOSS(Pcu2)	W	54.0
STRAY LOAD LOSS(Ps)	W	8.8
FULL LOAD CURRENT	AMP	2.83
LOCKED ROTOR CURRENT	AMP	19.45
LOCKED ROTOR CURRENT/FULL LOAD CURRENT	P.U.	6.82
FULL LOAD TORQUE	N.m	4.94
LOCKED ROTOR TORQUE	N.m	11.05
LOCKED ROTOR TORQUE/FULL LOAD TORQUE	P.U.	2.22
PULL OUT TORQUE	N.m	17.36
PULL OUT TORQUE/FULL LOAD TORQUE	P.U.	3.48
INPUT @ FULL LOAD	kW	1.77
EFFICIENCY @ FULL LOAD	%	84.86
POWER FACTOR @ FULL LOAD		0.87
FULL LOAD SLIP	%	3.366
FULL LOAD SPEED	r/min	2899.0
STATOR WINDING TEMPERATURE RISE	K	46
D.E. BEARINGS TEMPERATURE BY PT100	Deg. C	35.8
AMBIENT TEMPERATURE OF TESTING	Deg. C	5.9
NOISE	dB(A)	69
VIBRATION	mm/s	0.7

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

	<b>ROYCE CROSS GROUP</b>	<b>SERIAL NO.</b>			

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Type	Y3-90S-2		Poles	2		Power	1.5 kW
Voltage	415 V		Current	2.85 A		Frequency	50 Hz
Speed	2875 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
490.6	1	50	1.809	1.798	1.818	1	-267.9	404.8	1	4.884
451.8	1	50	1.489	1.476	1.494	1	-194.2	307.9	1	4.884
415.5	1	50	1.279	1.266	1.283	1	-146.1	247.0	1	4.882
370.2	1	50	1.082	1.072	1.086	1	-101.9	189.8	1	4.880
315.4	1	50	0.896	0.885	0.898	1	-60.2	137.7	1	4.880
259.2	1	50	0.728	0.717	0.726	1	-27.4	95.4	1	4.879
207.3	1	50	0.602	0.593	0.598	1	-5.1	66.4	1	4.877
189.3	1	50	0.568	0.557	0.561	1	0.0	57.4	1	4.872
167.0	1	50	0.534	0.523	0.525	1	7.1	47.8	1	4.87
122.3	1	50	0.512	0.501	0.501	1	17.3	32.4	1	4.868

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	0/01/1900	0

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Speed	2875 <b>r/min</b>	Duty	S1	Connection	Y	
Ins. class	F	Weight	0 <b>kg</b>		IP55	

### LOCKED ROTOR TEST

VOL	mul.	Ik1	Ik2	Ik3	mul.	W1	W2	mul.	Torqu N. m
415.8	1.0	1.987	1.961	1.901	10.0	260.4	1034.2	10	11.11
369.9	1.0	1.695	1.667	1.612	10.0	188.1	781.1	10	7.84
329.4	1.0	1.467	1.439	1.386	10.0	131.1	597.9	10	5.88
281.3	1.0	1.203	1.175	1.129	10.0	77.7	413.6	10	3.92
229.1	1.0	1.856	1.809	1.738	5.0	71.4	511.6	5	2.61
188.9	1.0	1.448	1.411	1.359	5.0	31.9	323.8	5	1.31
154.0	1.0	1.117	1.089	1.054	5.0	12.3	200.0	5	0.65
111.3	1.0	1.893	1.849	1.801	2.0	0.0	240.2	2	0.44

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Speed	2875 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	
9:00	415.3	1.433	1.426	1.427	2	308.5	621.1	2	35.0	—	56.8	52.4	—	—	—	—	—	—	—	—	—	6.0
9:30	415.1	1.429	1.424	1.428	2	308.0	619.0	2	35.4	—	56.5	52.0	—	—	—	—	—	—	—	—	—	6.0
10:00	415.1	1.425	1.419	1.424	2	305.1	615.6	2	35.8	—	56.1	51.6	—	—	—	—	—	—	—	—	—	5.9
10:30	415.0	1.432	1.427	1.429	2	307.4	618.8	2	35.8	—	55.7	51.2	—	—	—	—	—	—	—	—	—	5.7
最后三点平均值		2.853			A	1849.267		W	35.8	—	56.1	51.6	—	—	—	—	—	—	—	—	—	5.9

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)	44	63	74	88	100	113	129	144
RESISTANCE	4.9398	4.9241	4.9177	4.9098	4.9030	4.8967	4.8898	4.8835

#### WINDING RESISTANCE (COLD)

△	U1-V1	U1-W1	V1-W1	AVERAGE	MIN	AMBIENT TEM.
	0	0	0	0.00000	0.00000	0 °C
Y	U1-U2	V1-V2	W1-W2	AVERAGE	MIN	AMBIENT TEM.
	4.182	4.182	4.182	4.182	4.182	8.1 °C

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Voltage	415	<b>V</b>	Current	2.85	<b>A</b>	Frequency	50.0	<b>Hz</b>
Speed	2875	<b>r/min</b>	Duty	S1	Connection	Y		
Ins. class	F	Weight	0	<b>kg</b>	IP55			

### LOAD TEST

V	Hz	A1 (unit)	A2 (unit)	A3 (unit)	mul.	W1 (unit)	W2 (unit )	mul.	r/min
415.3	50.00	2.185	2.180	2.184	2	507.0	916.2	2	2844.2
415.1	50.00	1.801	1.794	1.799	2	404.3	755.5	2	2874.2
415.2	49.99	1.475	1.468	1.473	2	309.3	619.5	2	2900.3
415.1	50.00	1.184	1.176	1.182	2	210.5	493.3	2	2924.2
414.9	50.00	0.941	0.931	0.938	2	125.3	383.7	2	2944.2
415.0	50.00	0.879	0.870	0.878	2	95.0	353.4	2	2950.6
415.2	50.00	0.767	0.758	0.767	2	43.7	294.9	2	2962.1

% LOAD	OUTPUT W	INPUT W	AMPS A	Pcu1 W	SLIP %	Pcu2 W	Ps W	EFF %	P. F.
<b>150</b>	2250	2767.3	4.253	288.5	5.391	131.8	19.9	81.31	0.905
<b>125</b>	1875	2246.2	3.485	193.8	4.327	87.1	13.2	83.47	0.897
<b>100</b>	1500	1767.7	2.830	127.7	3.366	54.0	8.8	84.86	0.869
<b>75</b>	1125	1318.1	2.243	80.3	2.530	30.3	5.4	85.35	0.817
<b>50</b>	750	893.3	1.748	48.8	1.753	14.2	3.4	83.96	0.711
<b>25</b>	375	486.3	1.331	28.3	0.989	4.1	1.9	77.11	0.508

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### Load Curve

