

# ROYCE CROSS GROUP

## ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

**NAMEPLATE DATA**

YE2-180L-6 <b>FRAME</b>	IEC TYPE	15 kW	975 r/min
6 <b>POLE</b>	3 <b>PHASE</b>	415 <b>VOLTS</b>	50 Hz
ROYCE CROSS GROUP <b>MANUFACTURER</b>	28.4 <b>AMPS</b>	IP55 <b>IP</b>	
	S1 <b>DUTY</b>	F <b>INS.CLASS</b>	Δ <b>CONNECTION</b>

MAJOR CONTENTS	UNIT	TEST VALUE
STATOR RESISTANCE OF PHASE	OHM	0.9107
NO LOAD CURRENT	AMP	10.773
NO LOAD INPUT	W	536.5
CORE LOSS(Pfe)	W	399.8
WINDAGE FRICTION LOSS(Pfw)	W	37.4
STATOR WINDING LOSS(Pcu1)	W	712.4
ROTOR WINDING LOSS(Pcu2)	W	383.4
STRAY LOAD LOSS(Ps)	W	222.7
FULL LOAD CURRENT	AMP	28.18
LOCKED ROTOR CURRENT	AMP	189.06
LOCKED ROTOR CURRENT/FULL LOAD CURRENT	P.U.	6.66
FULL LOAD TORQUE	N.m	146.83
LOCKED ROTOR TORQUE	N.m	288.17
LOCKED ROTOR TORQUE/FULL LOAD TORQUE	P.U.	1.96
PULL OUT TORQUE	N.m	396.11
PULL OUT TORQUE/FULL LOAD TORQUE	P.U.	2.69
INPUT @ FULL LOAD	kW	16.71
EFFICIENCY @ FULL LOAD	%	89.75
POWER FACTOR @ FULL LOAD		0.825
FULL LOAD SLIP	%	2.450
FULL LOAD SPEED	r/min	975.5
STATOR WINDING TEMPERATURE RISE	K	63.0
D.E. BEARINGS TEMPERATURE BY PT100	Deg. C	45.5
AMBIENT TEMPERATURE OF TESTING	Deg. C	11.9
HIGH VOLTAGE TEST	V	1830
INSULATION RESISTANCE	MΩ	500
NOISE	dB(A)	70.7
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>  YE2-180L-6 15 kW 415 VOLTS 50 Hz	SERIAL NO.		
	DATE		REV
	DRAWN		DOCUMENT NO.
	APPRVD		
	CHECKED		

# ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

## ROYCE CROSS GROUP

Type	YE2-180L-6		Poles	6		Power	15.0 kW	
Voltage	415	V	Current	28.4	A	Frequency	50 Hz	
Speed	975	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.	℃
476.9	1	50	3.569	3.409	3.494	5	-622.0	855.0	5	75.3
446.1	1	50	2.779	2.663	2.716	5	-464.8	617.8	5	75.4
415.2	1	50	2.196	2.126	2.151	5	-348.3	455.8	5	75.1
399.8	1	50	1.979	1.927	1.943	5	-304.1	396.4	5	74.9
337.9	1	50	1.433	1.430	1.429	5	-187.4	246.2	5	74.8
275.5	1	50	2.746	2.764	2.755	2	-289.2	388.6	2	74.5
207.2	1	50	1.993	2.012	2.000	2	-152.8	217.1	2	73.8
175.9	1	50	1.663	1.682	1.671	2	-105.1	157.0	2	73.6
113.1	1	50	1.067	1.082	1.071	2	-37.2	69.8	2	73.4
97.9	1	50	0.939	0.954	0.942	2	-26.2	54.7	2	73.1

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## ROYCE CROSS GROUP

Type	YE2-180L-6	Poles	6	Power	15.0	<b>kW</b>
Voltage	415 V	Current	28.4 A	Frequency	50.0	<b>Hz</b>
Speed	975 r/min	Duty	S1	Connection	Δ	
Ins. class	F	Weight	0 kg		IP55	

### LOCKED ROTOR TEST

VOL	mul.	Ik1	Ik2	Ik3	mul.	W1	W2	mul.	Torque N. m
413.9	1.0	3.768	3.764	3.772	50.0	-0.3	1238.7	50	286.51
367.9	1.0	3.217	3.215	3.221	50.0	-3.2	938.0	50	216.42
321.8	1.0	2.691	2.690	2.696	50.0	-8.6	683.0	50	156.28
290.7	1.0	2.359	2.362	2.364	50.0	-11.1	539.1	50	122.66
244.1	1.0	1.897	1.898	1.900	50.0	-14.4	360.7	50	81.93
197.1	1.0	3.659	3.662	3.667	20.0	-37.0	554.0	20	50.20
165.8	1.0	2.982	2.987	2.990	20.0	-31.3	375.5	20	34.10
103.2	1.0	1.759	1.761	1.761	20.0	-15.3	135.3	20	11.84

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## ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

### ROYCE CROSS GROUP

Type	YE2-180L-6		Poles	6		Power	15 kW	
Voltage	415 V		Current	28.4 A		Frequency	50 Hz	
Speed	975 r/min		Duty	S1		Connection	Δ	
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	415.1	2.862	2.866	2.828	10	507.7	1195.1	10	43.5	—	78.3	—	—	—	—	—	—	—	—	—	—	10.6
11:00	415.1	2.860	2.863	2.827	10	508.0	1194.5	10	43.5	—	79.5	—	—	—	—	—	—	—	—	—	—	11.0
11:30	415.3	2.851	2.855	2.817	10	506.2	1190.8	10	44.8	—	80.3	—	—	—	—	—	—	—	—	—	—	11.3
12:00	415.2	2.860	2.863	2.827	10	509.3	1194.5	10	44.9	—	81.0	—	—	—	—	—	—	—	—	—	—	11.3
12:30	415.1	2.859	2.862	2.827	10	509.2	1194.7	10	45.4	—	81.5	—	—	—	—	—	—	—	—	—	—	11.5
13:00	415.2	2.862	2.865	2.828	10	510.0	1195.4	10	45.9	—	81.9	—	—	—	—	—	—	—	—	—	—	12.0
13:30	415.2	2.839	2.841	2.806	10	504.2	1185.8	10	45.5	—	82.0	—	—	—	—	—	—	—	—	—	—	12.1
最后三点平均值		28.432			A	16997.67		W	45.5	—	82.0	—	—	—	—	—	—	—	—	—	—	11.9

T1 T2: DE BEARING TEMPERATURE  
T3~8: DE WINDING TEMPERATURE

T9: AIR INLET TEMPERATURE  
T10: AIR OUTLET TEMPERATURE

T11: CORE TEMPERATRE  
T13: AMBIENT TEMPERATURE

T12: FRAME TEMPERATRE

#### WINDING RESISTANCE (HOT) AT END OF TEMPERATURE RISE TEST

TIME (S)	35	56.3	75	95	115	135	155	175
RESISTANCE	0.5716	0.5700	0.5688	0.5674	0.5662	0.5650	0.5638	0.5628

#### WINDING RESISTANCE(COLD)

	U1-V1	U1-W1	V1-W1	AVERAGE	MIN	AMBIENT TEM.
	0.4501	0.4502	0.4498	0.4500	0.4498	9.6 °C

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

**ROYCE CROSS GROUP**

Type	YE2-180L-6	Poles	6	Power	15.0	<b>kW</b>
Voltage	415 V	Current	28.4 A	Frequency	50.0	<b>Hz</b>
Speed	975 r/min	Duty	S1	Connection	Δ	
Ins. class	F	Weight	0 kg		IP55	

**LOAD TEST**

V	Hz	I1	I2	I3	mul.	W1	W2	mul.	r/min	Temperature °C	Torque N.m
415.1	50.00	4.115	4.129	4.085	10	790.9	1713.8	10	961.89	82.3	215.50
415.2	50.00	3.525	3.533	3.497	10	670.4	1466.5	10	968.54	82.5	185.29
414.9	50.00	2.850	2.853	2.819	10	505.0	1182.7	10	975.82	82.5	147.28
415.1	49.99	2.237	2.239	2.205	10	326.4	920.5	10	982.55	82.3	108.84
415.1	50.00	1.771	1.769	1.735	10	147.4	702.5	10	988.62	82.0	72.86
415.2	50.00	2.711	2.656	2.645	5	-54.9	938.6	5	994.33	81.6	35.30

Final Resistance of load: 0.00000 Ω ambient temperature 0.0 °C

LOAD %	P2 W	I A	P1 W	Pcu1s W	Ss %	Pcu2s W	Ps W	Pfe W	EFF %	P.F
150.0	22500	42.600	25982.6	1628.1	4.109	986.8	518.5	336.4	86.53	0.849
125.0	18750	34.957	21217.9	1096.3	3.199	632.7	353.3	344.7	88.38	0.844
100.0	15000	28.179	16714.7	712.4	2.450	383.4	222.7	355.4	89.75	0.825
75.0	11250	22.221	12427.2	443.0	1.763	204.9	123.5	367.5	90.53	0.778
50.0	7500	17.410	8331.7	271.9	1.136	87.3	54.2	378.4	89.94	0.666
25.0	3750	13.303	4370.0	158.8	0.579	22.1	13.4	389.2	85.86	0.457

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# ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

Type	YE2-180L-6	Poles	6	output Power	15.0	kW
Voltage	415 V	Current	28.4 A	Frequency	50.0	Hz
Speed	975 r/min	Duty	S1	Connection	Δ	
Ins. class	F	Weight	0 kg		IP55	

## LOAD CURVE

