

<u>DRESSER-RAND</u>	DOCUMENT TITLE	AUX OIL PUMP MOTOR DATA SHEET , GA DRAWING , CURVES, TERMINAL BOX DRAWING			
D-R JOB NO.	PMC	ENGINEERS INDIA LIMITED			
DEL-45410	END USER	Brahmaputra Cracker & Polymer Limited (BCPL)			

P.O. NO. : # 6907-117-KA-PO-5210/0580/0432 PROJECT : Brahmaputra Petrochemical Complex Project (BPM) EQUIPMENT : 6.75" & 6.75" & 6.5" & 4.5" X 9" 4HSE-3 NL2 @ 20 BPM EQUIPMENT NO. : 117-KA-570 A/B	REVIEW CODE 1 2 3 Signature R I हस्ताक्षर एवं नाम _____ Date/दिनांक 24/11/11 V.P. No. _____ वी.पी.नं. 6907/2008
---	--

DRAWING / DOCUMENT CATEGORY (USE TICK MARK) R ✓ I	DOCUMENT REVIEW Approval / Review Code 1 2 3 अनुमोदन / समीक्षा कोड R Information सूचना Signature & Name _____ हस्ताक्षर एवं नाम _____ Date / दिनांक _____ V.P.No. 6907 _____ वी.पी.नं. _____
--	---

PMC ENGINEERS INDIA LIMITED (A Govt. of India Undertaking) ENGINEERS INDIA LIMITED	 ENGINEERS INDIA LIMITED Date _____ Dept. _____ Signature _____ _____
---	---

END USER	BRAHMAPUTRA CRACKER & POLYMER LIMITED
-----------------	--

<u>DRESSER-RAND</u> DRESSER RAND INDIA PRIVATE LIMITED, 187 GIDC ESTATE, NARODA, AHMEDABAD 382 330					
---	--	--	--	--	--

REV.	REVISION RECORD	DATE	PREPARED BY	CHECKED	APPROVED BY
1	FOR REVIEW / APPROVAL	11-Nov-11	HSV	PKS	PKS
0	FOR REVIEW / APPROVAL	25-Aug-11	HSV	PKS	PKS

VENDOR REVISION CONTROL		
DOCUMENT TITLE	AUX OIL PUMP MOTOR DATA SHEET , GA DRAWING , CURVES, TERMINAL BOX DRAWING	NO OF SHEETS (Including this sheet)
		12
DOCUMENT NO.	D410-ELEC-002	SHEET 1 OF 12

PURCHASER'S DATA			
A. Site conditions			
1. Ambient temperature, minimum:	1 °C	2.3 Atmospheric condition:	Humid & highly corrosive
maximum:	39.8 °C	2.4 Altitude:	< 1000 m
design:	40 °C	2.5 Location:	Inside shed
2. Relative humidity:	93 %		
B. Technical particulars			
1. Motor tag no.:	117-ADP-578		
2. Driven equipment name:	AUX OIL PUMP		
3. Voltage:	415 V ±6%	16. Hazardous area classification:	Zone-2
4. Phase:	Three	17. Gas group:	IIA/IB
5. Frequency:	50 Hz ±3%	18. Type of explosion protection:	Ex d
6. Fault level:		19. Type of ingress protection:	IP55
7. Method of starting:	DOL	20. Color shade:	632 as per IS 5
8. Winding connection:	Delta	21. Thermistors:	☐ Required ☒ Not required
9. No. of terminals:	6	22. RTD:	☐ Required ☒ Not required
10. Cable size:	3 x 4 mm ²	23. BTD:	☐ Required ☒ Not required
11. Cable type:	CAPPER lead PVC insul	24. RTD/BTD monitoring device:	☐ Required ☒ Not required
12. Temperature rise:	80 °C		
13. Cooling:	TEFC		
14. Insulation class:	B/F Temp rise limited to B	25. Applicable specification:	EIL spec. 6-51-0032
15. Temp. Class:	T3	26.	6907-117-XZ-SP-5210
DRIVEN EQUIPMENT MANUFACTURER'S DATA			
1. Suggested motor rating:	2.20 kW	9. Torque required, starting:	0.57 mkg
2. Manufacturer:	DEL-PD	maximum:	0.81 mkg
3. BkW at full load:	1.5 kW	10. GD ² of eqpt., including flywheel:	— kgm ²
4. kW at end of curve:	1.0 kW	excluding flywheel:	0.000 kgm ²
5. Speed:	1430 RPM	11. Thrust, up:	— kg
6. Rotation viewed from coupling end:	CW from DE	down:	— kg
7. Driven equipment:	Pump	12. Starting condition:	
8. Coupling type:	Flange		
MOTOR MANUFACTURER'S DATA			
1. Rating:	2.20 kW	17. Efficiency at, 75% voltage:	96 %
2. Manufacturer:	DEL	100% voltage:	92 %
3. No. of poles:	4	18. Power factor at, starting:	0.80
4. Frame designation:	FT100L	100% load:	0.82
5. Full load speed:	1430 RPM	20. Moment of inertia, GD ² :	0.04 kgm ²
6. Mounting:	B3	21. NDE bearing type & no.:	BALL 6206ZZ
7. Full load torque (FLT):	1.55 mkg	22. DE bearing type & no.:	BALL 6206ZZ
8. Starting torque:	225 % of FLT	23. Type of lubrication:	Greased 500 115
9. Break down or pull out torque:	275 %	Weight of motor:	54 kg
10. Full load current (FLC):	5 A	24. Thermistors, NA	quantity: no.
11. Starting current at 100% voltage:	600 % of FLC	make: type:	
12. Rotation viewed from coupling end:	Clockwise from	25. RTD, NA	quantity: no.
13. Starting time at, 75% voltage:	0.11 sec	make: type:	
100% voltage:	0.06 sec	26. BTD, NA	quantity: no.
14. Locked rotor withstand time (cold/hot) at, 75% voltage:	25/14 sec	make: type:	
100% voltage:	16/8 sec	27. Shaft voltage:	V
15. Time (Te) for increased safety motors at 100% Voltage:		28. Critical speed, 1 st /2 nd stage:	RPM
16. Space heater - voltage & power:	reqd (for rating > 22kw)	29. Canopy:	☐ Required ☒ Not required

- Starting time calculations shall be based on operating conditions specified in Material Requisition eg open valve condition/closed valve condition, at no load/under load, as applicable.
- All unfilled data shall be filled by contractor/vendor.
- Separate datasheet shall be filled for each tag no. of motor.

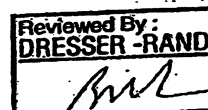
A	12.01.2010	ISSUED WITH MR	RK	VKJ	AKS
Rev. No.	Date	Purpose	Prepared by	Checked by	Approved by

Format No. 1650-687 Rev.3

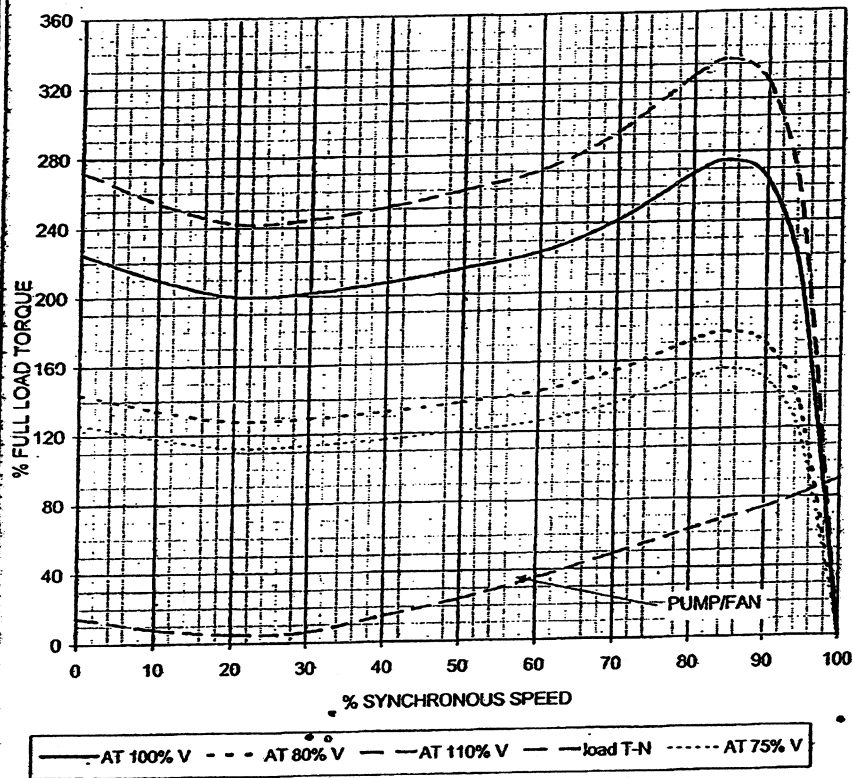
Copyrights EIL - All rights reserved

PO No: DAB/0052116023

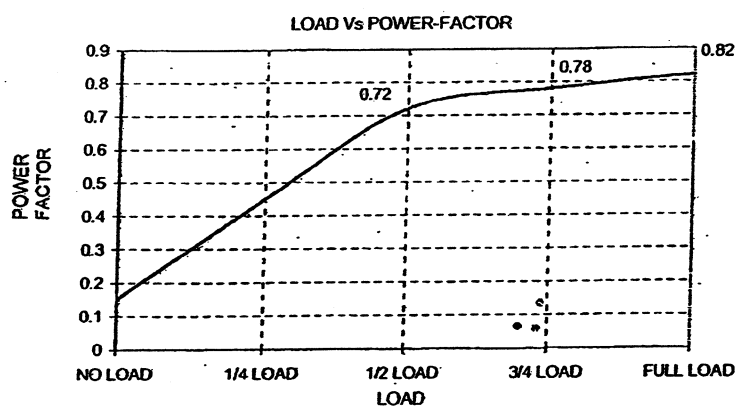
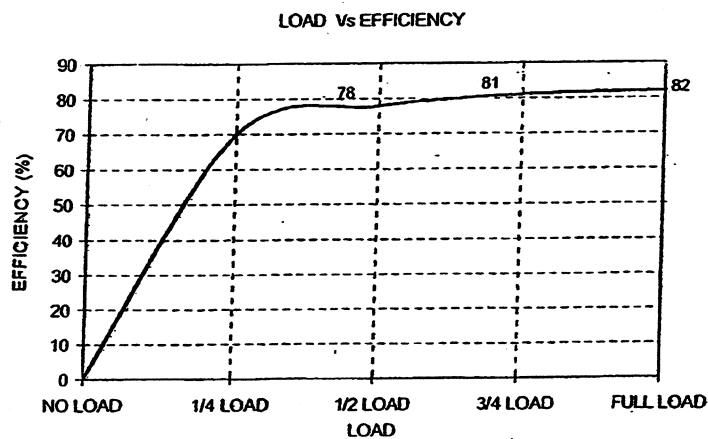
CUSTOMER: DRESSER RAND I. P. Ltd



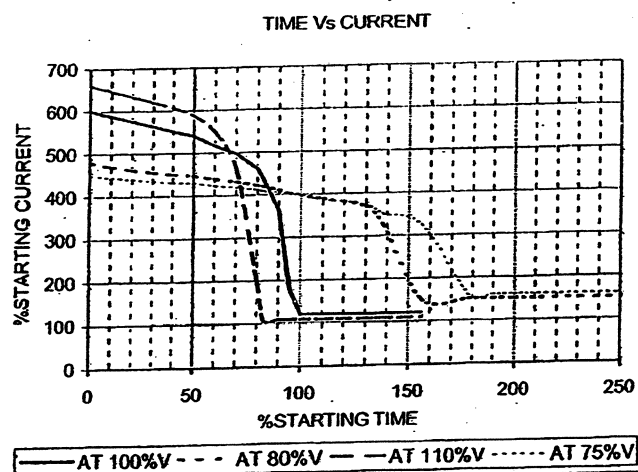
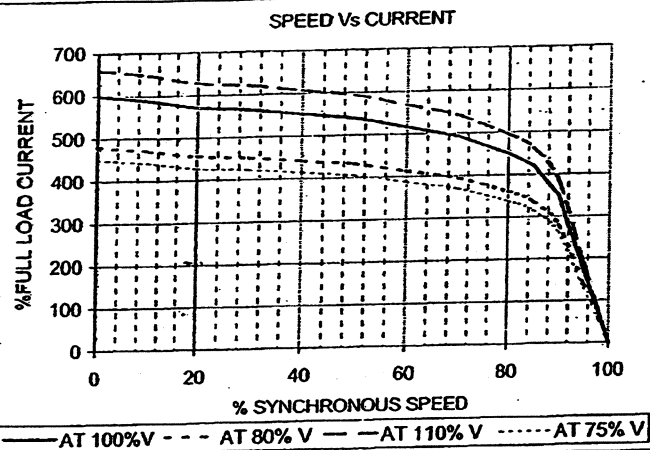
SPEED VS TORQUE



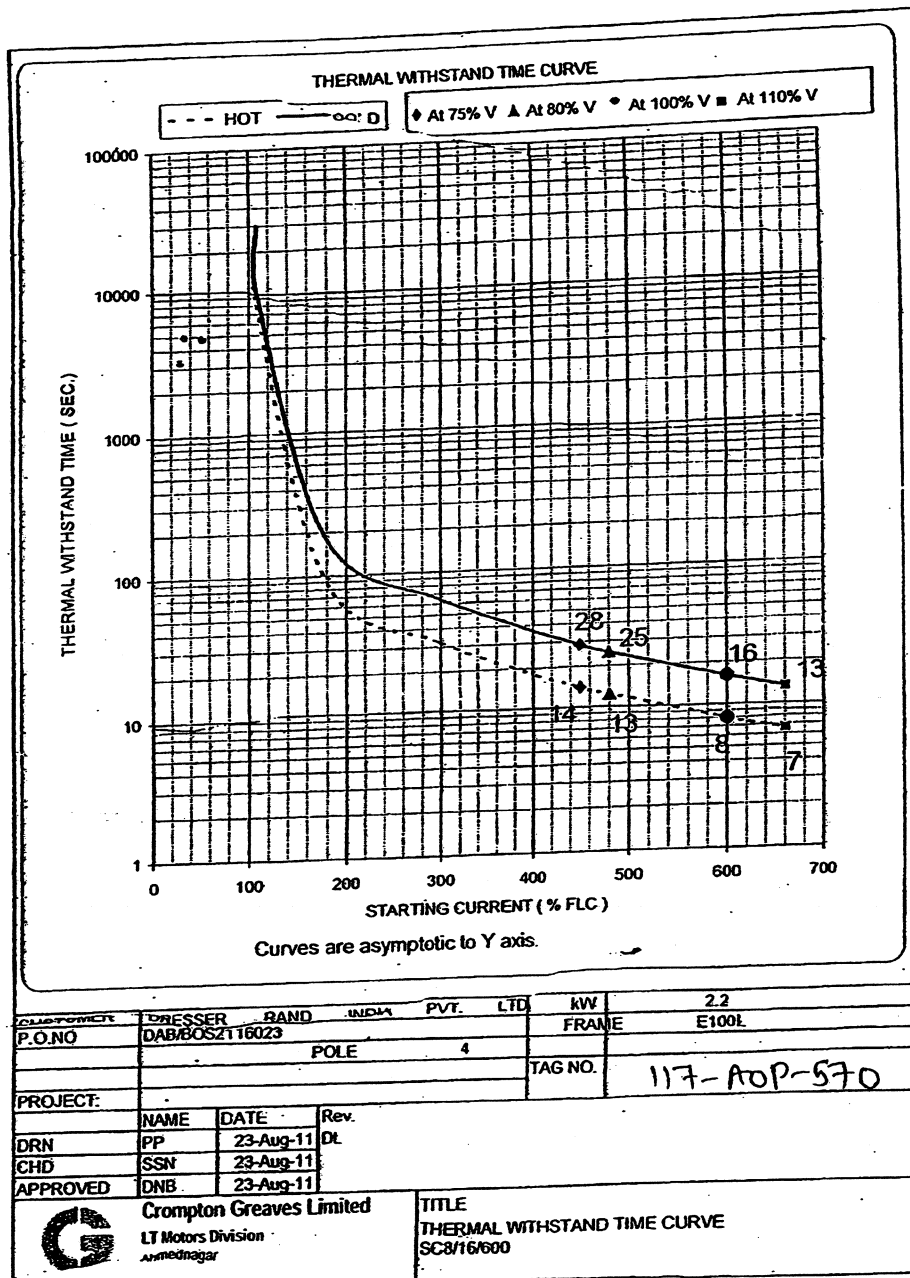
CUSTOMER	DRESSER RAND INDIA PVT.LTD.			KW	2.2
P.O.NO	DAB/ROS2116023			FRAME	E100L
	POLE 4			TAG NO.	117-AOP-570
PROJECT:					
	NAME	DATE	Rev.		
DRN	PP	23-Aug-11	Dt.		
CHD	SSN	23-Aug-11			
APPROVED	DNB	23-Aug-11			
 Crompton Greaves Limited LT Motors Division Ahmednagar				TITLE SUPERIMPOSED TORQUE SPEED CURVE SC225/600	

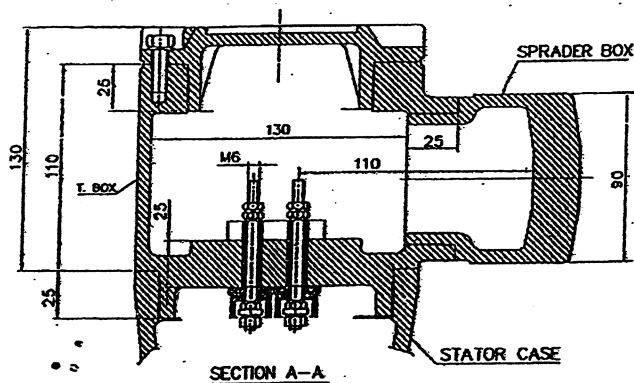
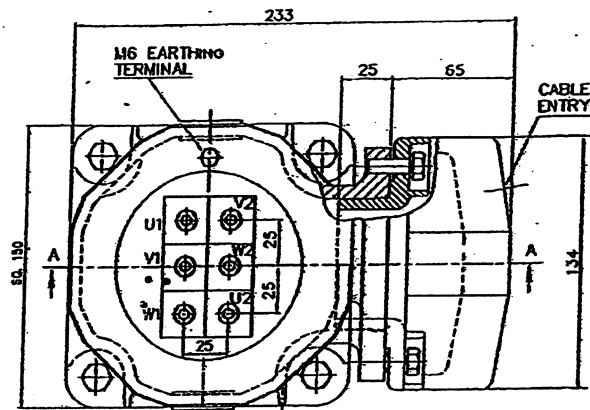


CUSTOMER	DRESSER RAND INDIA PVT.LTD.	kW	2.2	
P.O.NO	DAB/BOS2116023	FRAME	E100L	
	POLE - 4			
PROJECT:		TAG NO.	117-AOP-570	
	NAME	DATE	Rev.	
DRN	PP	23-Aug-11	Dt	
CHD	SSN	23-Aug-11		
APPROVED	DNB	23-Aug-11		
Crompton Greaves Limited LT Motors Division Ahmednagar		TITLE LOAD Vs EFFICIENCY & POWER FACTOR CURVE SC82.00/0.82		



CUSTOMER	DRESSER RAND INDIA PVT.LTD.	KW	2.2
P.O.NO	DAB/BOS2116023	FRAME	E100L
	POLE 4	TAG NO.	117-A0P-570
PROJECT:	0		
ORN	PP	DATE	23-Aug-11
CHD	SSN	DATE	23-Aug-11
APPROVED	DNB	DATE	23-Aug-11
 Crompton Greaves Limited LT Motors Division Ahmednagar		TITLE CURRENT SPEED & CURRENT TIME CURVE SC225/600	





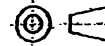
CLEARANCE 10
CREEPAGE 14

TB DESIGN
1.3C.16G
1.4C.10G

	SPACE HEATER	THERMISTOR	ET SIZE	RTD
PROVIDED	NA	NA		NA
CABLE SIZE	NA	NA		NA
MAIN CABLE SIZE:				
CUSTOMER:	DRESSER RAND INDIA PVT. LTD.		KW	22
P.O.NO	PO/DRESSER/CST/2304		FRAME	E112M
IND.NO	NBD19370A/100		POLE	8
CLIENT:	Tag No. 117-AOP-570			
PROJECT:				
	NAME	DATE	ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED	
DRN	SBK	23/08/11		
CHD	SBK	23/08/11		
APPROVED	DNB	23/08/11		
 Crompton Greaves Limited LT Motors Division Ahmednagar			TITLE	
			TERMINAL BOX ARRANGEMENT	EW3650_IICR2

**DIMENSION DRAWING OF 3 PH SQUIRREL CAGE TEFC FOOT
MOUNTED TB ON RHS (FROM DE) FLAME PROOF INDUCTION MOTOR**

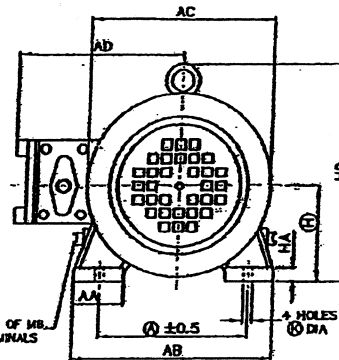
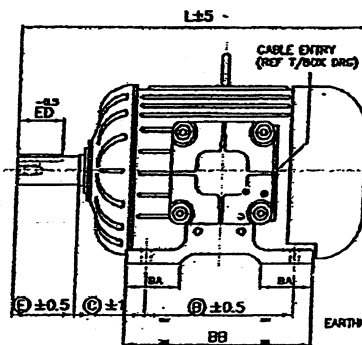
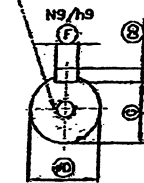
PROJECTION



DO NOT SCALE

PLEASE ASK, IF IN DOUBT

Y THREADED
CENTRE HOLE
AS PER IS:2540-1963



RINGED DIMENSIONS ARE AS PER IS:1231
ALL DIMENSIONS ARE IN mm

FRAME SIZE	FOOT FIXING										OVER ALL				
	A	B	B1	C	HTOL	AA	AB	BA	BB	KTOL	AD	AC	L	HD	HA
E100L	160	140		63	100.0/99.7	38	198	51	168	12	255	240	335		13

SHAFT AND KEY							
D TOL	E	ED	F TOL	GD TOL	G	Y	
28.009/28.002	60	44	8.00/7.96	7.0/6.9	24.0/23.8	M10X22	

ERTL Test Report ERTL(E)TES/C184/0012/12-07 DL 11/01/2008

CCE Letter No. A/P/HQ/MH/104/1534(P211851) DL 13/06/2008

Cable size: 3C X 4 mm²

CUSTOMER	DRESSER RAND INDIA PVT.LTD.		KW	2.2
P.O. NO.	DAB/BOS2116023		FRAME	E100L
			POLE	4
PROJECT			TAG NO.	117-AOP-570
DRN	NAME	DATE	ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED	
CHD	SBK	23-Aug-11		
APPROVED	SBK	23-Aug-11		
	DNB	23-Aug-11		
 Crompton Greaves Limited LT Motors Division Ahmednagar			TITLE OUTLINE DIMENSION DRAWING	
			E90B3,V6RHS	



GOVERNMENT OF INDIA
MINISTRY OF COMMERCE &
INDUSTRY
PETROLEUM AND EXPLOSIVES SAFETY ORGANISATION (PES)
(Formerly Department of Explosives)
CGO COMPLEX SEMINARY HILLS
NAGPUR 440006



Letter No: A/P/HQ/MH/104/
1534(P211851)

Email: explosives@explosives.gov.in

Phone/Fax No. 2510248/2510577

Dated : 13/6/2008

To

M/s. Compton Greaves Ltd.,
L.T. Motors Division,
A-6/2, MIDC,
Ahmednagr-414 111.
Maharashtra (State).

Sub : Approval of Flameproof Induction Motor Frame Sizes E80 to E315L.

Dear Sir(s),

Please refer to your letter No. MIT/CCOE/2008-4 dated 04/06/2008.

The following equipment(s) manufactured by you according to IS:2148-2004 standards are approved for use in Zone 1 , group IIA hazardous areas coming under the purview of the Petroleum Rules, 2002 administered by this Organization.

Sno	Description	Safety Protection	CCEs Identification Number	Test House	Test Report	Drawing Numbers
1	3 phase Flameproof Induction Motor E 80.	Ex d	P211851/1	ERTL	ERTL(E)/TES/C184/0050/12-07 Dtd.16/1/2008	As per Test Report
2	3 phase Flameproof Induction Motor E 90L.	Ex d	P211851/2	ERTL	ERTL(E)/TES/C184/0011/12-07 Dtd.16/1/2008	As per Test Report
3	3 phase Flameproof Induction Motor E 100L.	Ex d	P211851/3	ERTL	ERTL(E)/TES/C184/0012/12-07 Dtd.11/1/2008	As per Test Report
4	3 phase Flameproof Induction Motor E 112M,	Ex d	P211851/4	ERTL	ERTL(E)/TES/C184/0013/12-07 Dtd.11/1/2008	As per Test Report

5	FLP WP 3 phase Flameproof Induction Motor E 132 M.	Ex d	P211851/5	ERTL	ERTL(E)/TES/C184/0006/06- 07 Dtd.17/8/2007	As per Test Report
6	FLP WP 3 phase Flameproof Induction Motor E 160 L.	Ex d	P211851/6	ERTL	ERTL(E)/TES/C184/0014/12- 07 Dtd.11/1/2008	As per Test Report
7	3 phase Flameproof Induction Motor E 180 L.	Ex d	P211851/7	ERTL	ERTL (E)/TES/C184/0015/12-07 Dtd.11/1/2008	As per Test Report
8	3 phase Flameproof Induction Motor E 200L.	Ex d	P211851/8	ERTL	ERTL(E)/TES/C184/0016/12- 07 Dtd.11/1/2008	As per Test Report
9	FLP WP 3 phase Flameproof Induction Motor E 225S.	Ex d	P211851/9	ERTL	ERTL(E)/TES/C184/0007/06- 07 Dtd.17/8/2007	As per Test Report
10	FLP WP 3 phase Induction Motor E 225 M.	Ex d	P211851/10	ERTL	ERTL(E)/TES/C184/0008/06- 07 Dtd.17/8/2007	As per Test Report
11	FLP WP 3 phase Induction Motor E 280 M.	Ex d	P211851/11	ERTL	ERTL(E)/TES/C184/0010/06- 07 Dtd.17/8/2007	As per Test Report
12	FLP WP 3 phase Induction Motor E 315 M.	Ex d	P211851/12	ERTL	ERTL(E)/TES/C184/0011/06- 07 Dtd.17/8/2007	As per Test Report
13	3 phase Flameproof Induction Motor E 315 L.	Ex d	P211851/13	ERTL	ERTL(E)/TES/C184/0049/12- 07 Dtd.16/1/2008	As per Test Report
14	FLP WP 3 phase Flameproof Induction Motor E 250 M.	Ex d	P211851/14	ERTL	ERTL(E)/TES/C184/0009/06- 07 Dtd.17/8/2007	As per Test Report

This Approval is granted subject to observance of the following conditions:-

1. The equipment is covered under a valid BIS Licence.
2. The design and construction of the equipment shall be strictly in accordance with description, condition and drawings as mentioned in the ERTL Test Reports referred to above.
3. The equipment shall be used only with approved type of accessories and associated apparatus.
4. Each equipment shall be marked either by raised lettering cast integrally or by plate attached to the main structure to indicate conspicuously:-
 - 1) Name of the manufacturer
 - 2) Name and number by which the equipment is identified.
 - 3) Number & date of the test report of the ERTL applicable to the equipment.
 - 4) Number and date of this letter by which use of apparatus is approved.
5. A certificate to the effect that the equipment has been manufactured strictly in accordance with the drawing referred to in the ERTL Test report and is identical with the one tested and certified at ERTL, Kolkata shall be furnished with each equipment.
6. The customer shall be supplied with a copy of this letter, an extract of the conditions and maintenance schedule, if any, recommended by ERTL in their test reports and a copy of instructions booklet detailing operation & maintenance of the equipment so as to maintain its Flame Proof characteristics.

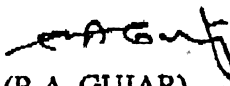
This approval also covers the permissible variations as approved under the ERTL test reports referred to above. This approval may be deemed to have been revoked with immediate effect at any time, if any of the conditions subject to which approval has been granted is violated or not complied with. The approval may also be amended or withdrawn at any time, if considered necessary in the interest of safety.

The field performance report from actual users/your customers of the subject equipment may please be collected and furnished to this office for verification and record at regular intervals.

The Approval otherwise is valid for a period of five years from the date of issue of this approval

6.

Yours faithfully,


(R.A. GUJAR)

Controller of Explosives
for Chief Controller of Explosives
Nagpur

Copy to

The Jt. Chief Controller of Explosives, West Circle, Mumbai.

for Chief Controller of Explosives

Government of India
Ministry of Communications and Information Technology
Department of Information Technology, Standardisation Testing & Quality Certification Directorate
ELECTRONICS REGIONAL TEST LABORATORY (EAST)

TEST REPORT ON : 3 PHASE FLAMEPROOF INDUCTION MOTOR

1.0 SCOPE :

1.1 Service Request No.: TE/0097/06-06

1.2 Test Report No. : ERTL(E)/TES/C184/0013/12-07
Date : 11/01/2008

1.3 Requested by : CROMPTON GREAVES LIMITED
(Name & Address of LT MOTOR DIVISION
of the organisation) A6/2, MIDC AREA,
AHMEDNAGAR 414111-

1.4 Description , i) Item : 3 PHASE FLAMEPROOF INDUCTION MOTOR
Identification ii) Make : CROMPTON GREAVES LTD.
of the item iii) Model : E 112M
to be tested iv) Sl.No. : PROTOTYPE
v) Qty. : 2

1.4.1 Applicable Spec. of the item(s) tested:

415+/-10%V, 50+/-5%Hz, F-CLASS, 0.75kW TO 5.5kW, 2 TO 8 POLE, C.I

1.4.2 Characterisation and (i) Characterisation : Not applicable /
condition of the item (ii) Condition : Satisfactory /

1.5 Date of item received : 19/10/2007

1.6 Date of completion of : 11/01/2008
testing

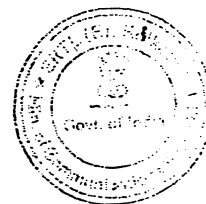
1.7 Location where testing : In house
performed

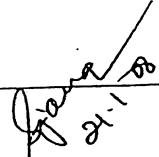
1.8 Ambient condition during : 25 +/- 1.5 Deg.
measurement 70% RH. Max.

1.9 Spec. used for testing : IS:13346-2004, IS:2148-2004, GAS GROUP
I, IIA, IIB.

1.9.1 Details of non-standard : NIL
method followed (if any)

It complies with the requirements of IS:13346-2004 and IS:2148-2004 for
Gas Group I, IIA, IIB.



Released by 
(signature & date) SONALI JANA
Scientist - C
Electronics Regional Test Laboratory (East)
STQC Directorate, Dept. of Info. Technology
Ministry of Comm. & Info. Technology
Government of India
Ahmednagar - 414111