

A. Site conditions			
1	Ambient temperature, minimum:	1 °C	3 Atmospheric condition: Humid & highly corrosive
	maximum:	39.8 °C	4 Altitude: < 1000 m
	design:	40 °C	5 Location: Outdoor
2	Relative humidity:	93 %	6
B. Technical particulars			
1	Motor tag no.:	117-PM-504	
2	Driven equipment name:	MOTOR FOR CLEAN HC DOSING PUMP	
3	Voltage:	415 V ± 6%	16 Hazardous area classification: Zone-2 (I, II, III)
4	Phase:	Three	17 Gas group/Temp class: IIB
5	Frequency:	50 Hz ± 3%	18 Type of explosion protection: Ex d
6	Fault level:	N.A.	19 Type of ingress protection: IP 55
7	Method of starting:	D.O.L.	20 Color shade: 632 as per IS 5
8	Winding connection:	STAR Delta	21 Thermistors: ☒ Required ☐ Not required
9	No. of terminals:	3	22 RTD: ☒ Required ☐ Not required
10	Cable size:	(3C x 4 mm ² Cu)	23 LTD: ☒ Required ☐ Not required
11	Cable type:	Cu/Al cond. PVC Insulated	24 RTD/LTD monitoring device: ☒ Required ☐ Not required
12	Temperature rise:	80° C	
13	Cooling:	TEFC	
14	Insulation class:	B1 F with temp rise limited to Class B.	25 Applicable specification: EIL Spec. 6-51-0032 Rev-4, & 6907-117-PA-SP-5255 Rev-A

1	Suggested motor rating:	1.5 kW	9 Torque required, starting: 0.03 mkg
2	Manufacturer:	SWELORE	maximum: 0.23 mkg
3	BkW at full load:	0.22 kW	10 GD ² of eqpt., including flywheel: 0.09 kgm ²
4	kW at end of curve:	0.34 kW	excluding flywheel: - kgm ²
5	Speed:	100 3PM RPM	11 Thrust, up: N.A. kg
6	Rotation viewed from coupling end: COUNTERWISE		down: N.A. kg
7	Driven equipment:	DOSING PUMP	12 Starting condition: ON NO LOAD
8	Coupling type:	FLEXIBLE	

1	Rating:	1.5 kW	17 Efficiency at, 75% voltage: 79 %
2	Manufacturer:	CoL	100% voltage: 80 %
3	No. of poles:	4	18 Power factor at, starting: 0.15-0.30
4	Frame designation:	E90L	100% load: 0.8
5	Full load speed:	1415 RPM	19 Moment of inertia, GD ² : 0.03 kgm ²
6	Mounting:	V1	20 NDE bearing type & no.: BALL 6205ZZ
7	Full load torque (FLT):	1.03 mkg	21 DE bearing type & no.: BALL 6205ZZ
8	Starting torque:	100 % of FLT	22 Type of lubrication: Greased for life
9	Break down or pull out torque:	150 %	23 Weight of motor: 40 kg
10	Full load current (FLC):	3.00 A	24 Thermistors, quantity: - no.
11	Starting current at 100% voltage:	600 % of FLC	make: type: -
12	Rotation viewed from coupling end: Bi-Directional		25 RTD, quantity: - no.
13	Starting time at, 75% voltage: 0.132 sec.		make: type: -
	100% voltage: 0.07 sec.		26 LTD, quantity: - no.
14	Locked rotor withstand time (cold/hot) at, 75% voltage: 25/13 sec.		make: type: -
	100% voltage: 16/8 sec.		27 Shaft voltage: - V
15	Space heater, voltage & power: Req'd. for ratings > 22kW		28 Critical speed, 1 st stage: - RPM
16	Applicable IS/IEC for hazardous area		29 Canopy: ☒ Required ☐ Not required
Application:			

- Starting time calculations shall be based on operating conditions specified on Material Requisition eg. open valve condition/ closed valve condition, at no load/full load, as applicable.
- Separate datasheet shall be filled for each tag no. of motor.

SEPL Doc. No. : 512692-PM-03

0	10.08.2010	ISSUED WITH PR (M/s SWELORE)	Signature & Name	UAP
A	23.12.2009	ISSUED WITH MR	Signature & Name	AK
Rev. No.	Date	Purpose	Prepared by	Checked by

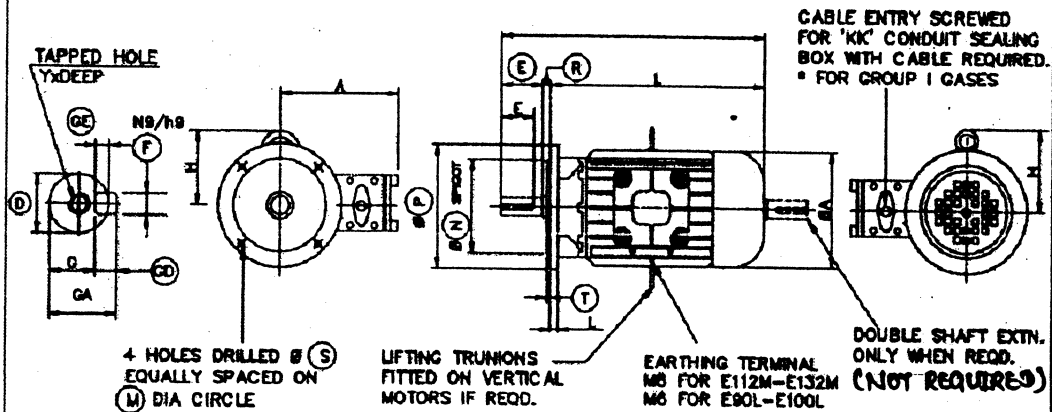
Format No. 1650-887 Rev.3

REVIEW CODE	1	2	3
Signature & Name	Signature & Name	Signature & Name	Signature & Name
Date/दिनांक	Date/दिनांक	Date/दिनांक	Date/दिनांक
V. P. No.	V. P. No.	V. P. No.	V. P. No.
6907/	6907/	6907/	6907/

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OUTLINE DIMENSIONS OF AC SCR TEFC FLANGE MOUNTED FLAME PROOF MOTORS



ALL DIMENSIONS ARE IN mm

Terminal box is rotatable in 360° in steps of 90°

FRAME SIZE	FLANGE FIXING						SHAFT AND KEY							OVER ALL				
	M Tol	N Tol	P	S	T	LA	D Tol	E	ED	F Tol	GD TOL	G	Y	AD	AC	L	LB	HB
E90L	165	130	200	12	3.5	10	24	50	36	8	7	20	M10X22	240	210	380	330	

FRAME SIZE	CONCENTRICITY MICRON		PERPENDICULARITY IN MICRON		RUNOUT IN MICRON	
	NORM CLASS		NORM CLASS		SHAFT	
E90L						

KW	1.5	CUSTOMER	BCPL
POLE	4	IND NO	E1.1KF6FLG/100
FRAME	E90L	TAG NO	117-PM-504
DATE	8/14/2010	BCPL PO.	6904-117-PA-PO-5255/0542/0211



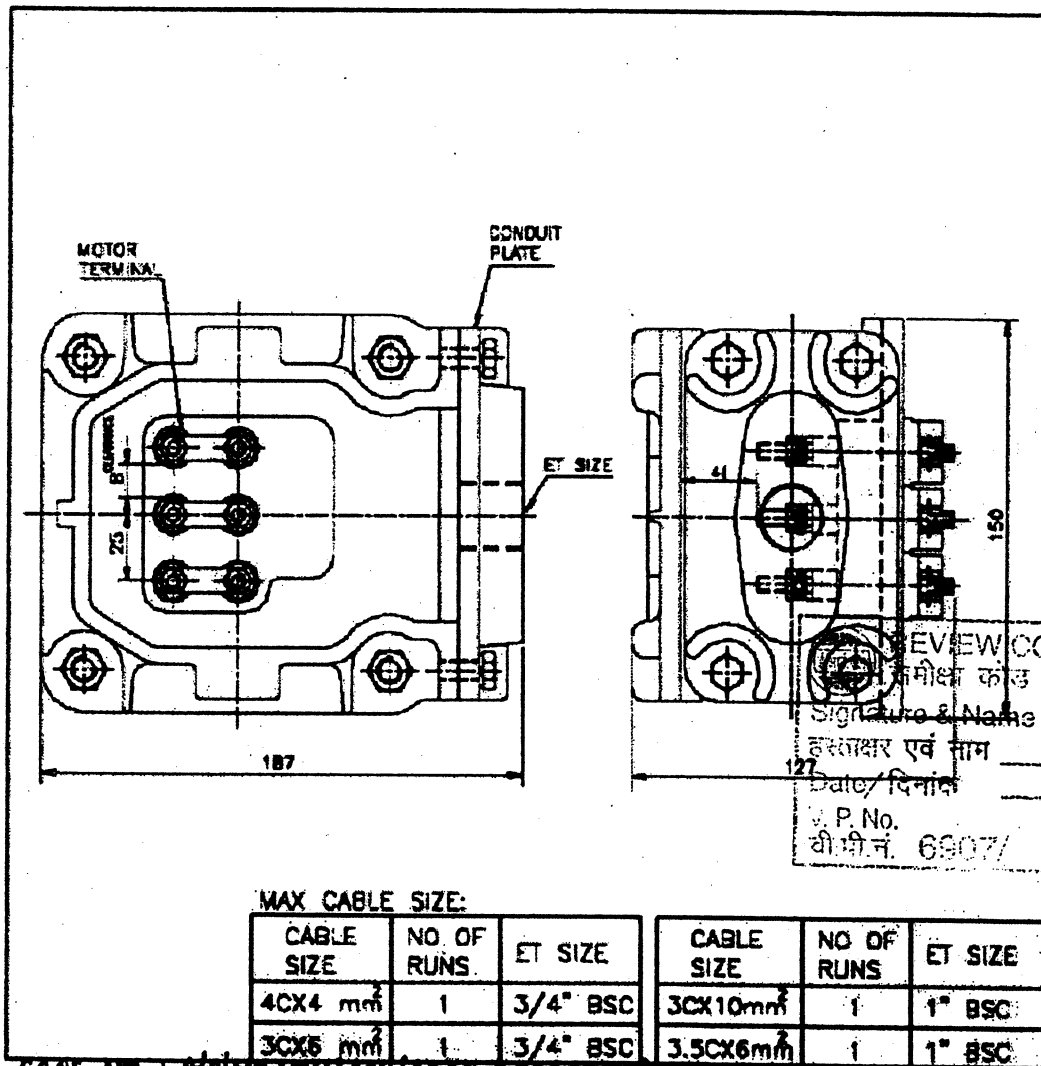
Drawing Name	EX8040
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SEPL DOC. NO.: 3 12692-PM-DRG-001; REV: 01 SHEET: 1 OF 1
TITLE: G.A. DRAWING FOR ELECTRIC MOTOR

CCOE NO.: A/P/HQ/MM/104/1534 CP211651)

ERTL NO.: ERTLCE/YES/CIRY/0011/12-04 SW.: 16/01/2008

REVIEW CODE	☒ 1	☐ 2	☐ 3
समीक्षा कोड			
Signature & Name			
हस्ताक्षर एवं नाम			
Date/दिनांक			
P.No.			
श्री.नं.	69077		



CODE NO.: A/HQ/MA/104/1534 CP211851
 ERTL NO.: ERTL(CE)/TES/C454/0011/11-04 dtd.: 16/01/2008
 For single cable run, cable entry provided at center

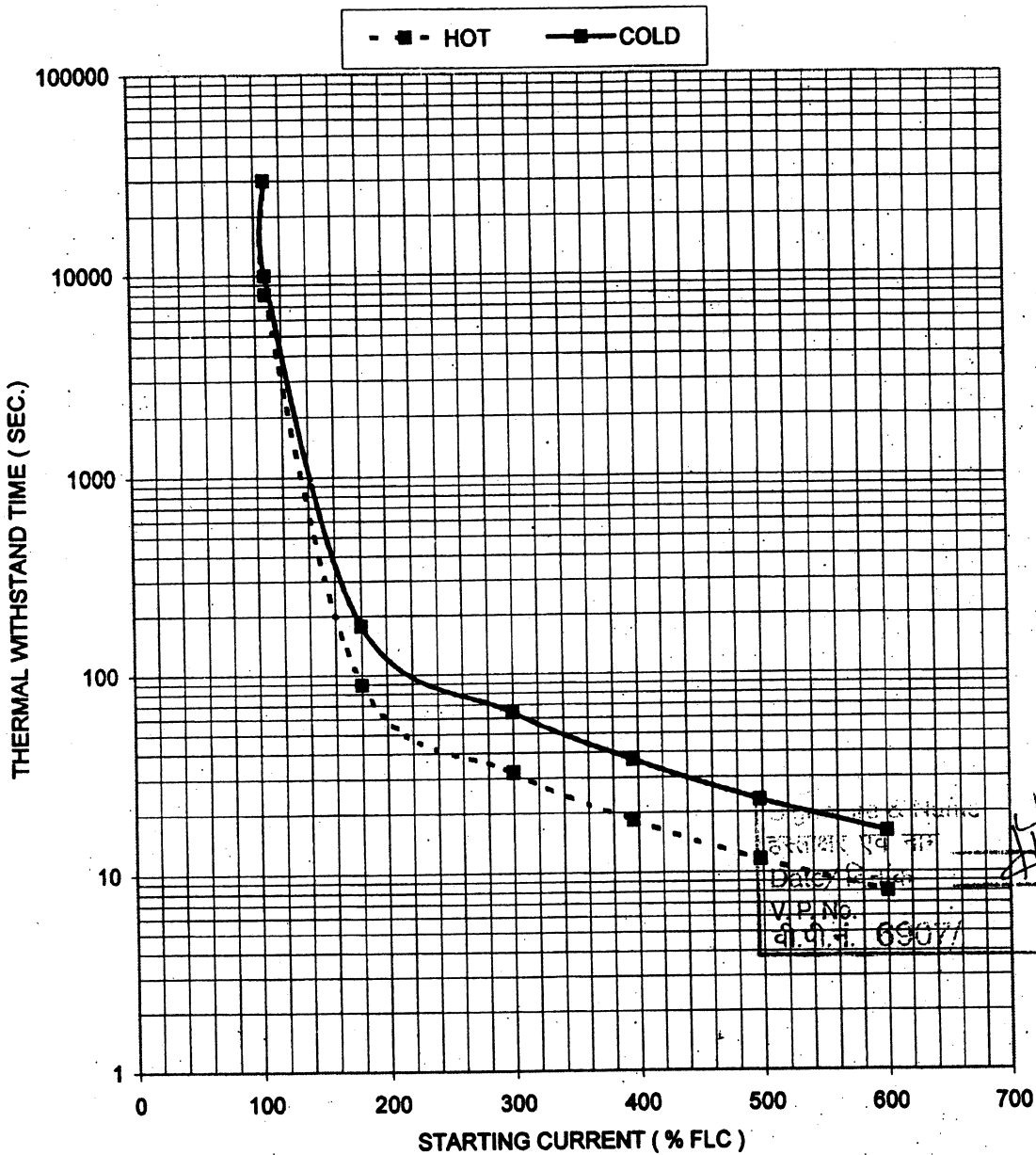
	SPACE HEATER	THERMISTOR	DOUBLE COMPRESSION GLAND
Provided	No	No	YES
Cable Size	3C x 4 mm ² cu		
KW	1.5	CUSTOMER	BCPL
POLE	4	IND NO	E0.75/300
FRAME	E90L	TAG NO	117-PM-504
PO NO	1	Drawing Name	EW3650R1



BCPL DOC NO.: 312692-PM-DWG-002; REV. 01
 TITLE: T.BOX DRAWING FOR ELECTRIC MOTOR

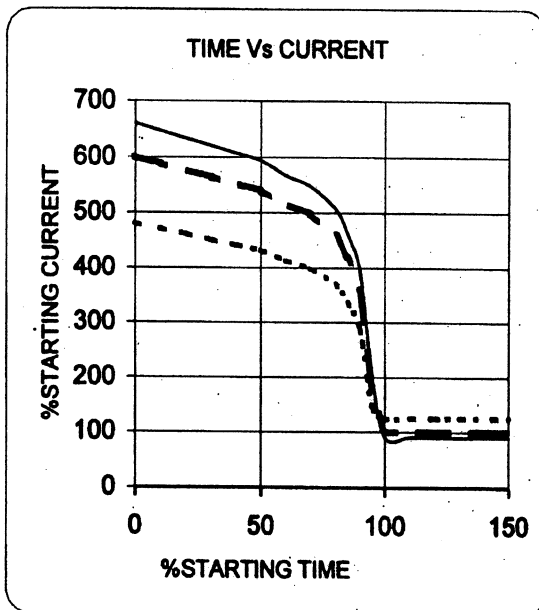
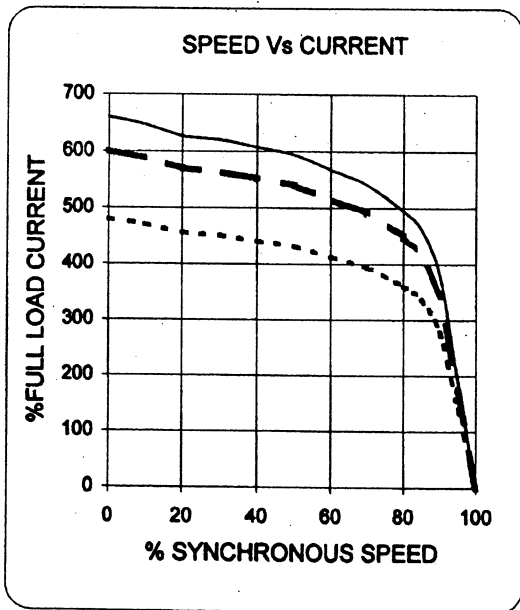
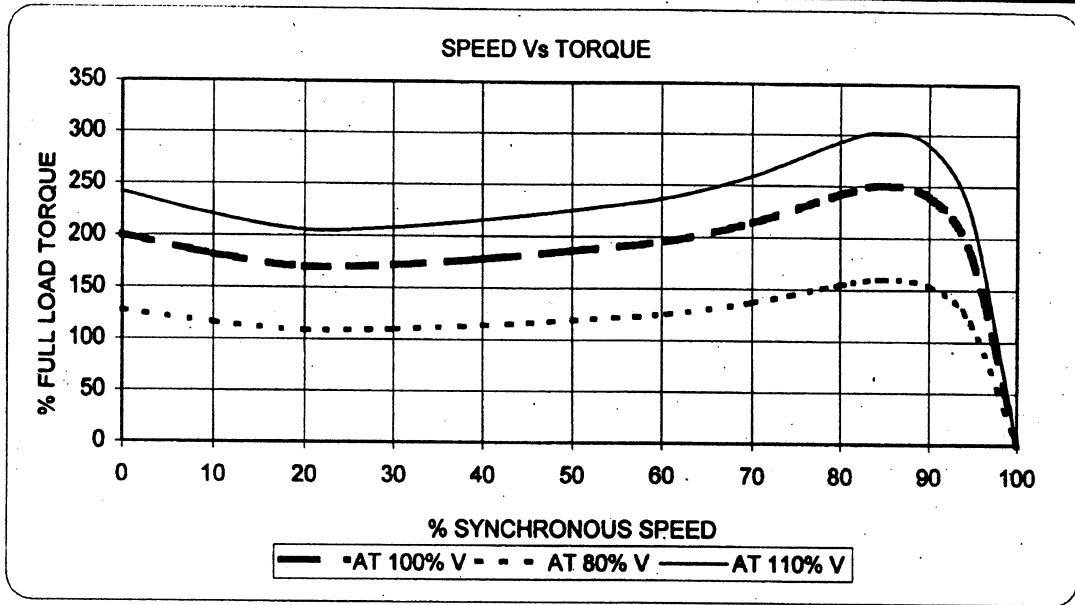
SHEET: 1 OF 1

THERMAL WITHSTAND TIME CURVE



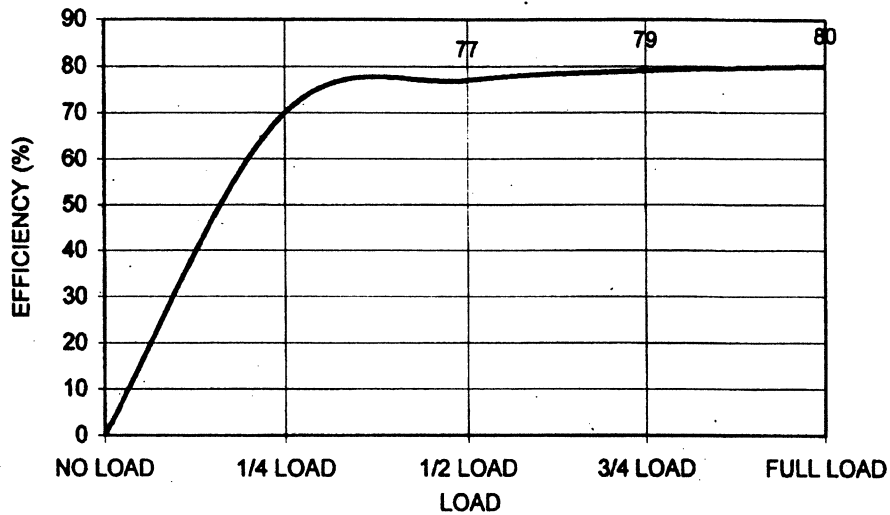
Curves are asymptotic to Y axis.

CUSTOMER	SHILORE ENGG. PVT. LTD.		KW	1.5
BCPL PO. No.	6907-117-PA-PO-5255/0542/0241		FRAME	E90L
IND. NO.	E0.75/300		POLE	4
CLIENT	BCPL		TAG NO.	117-PM-504
PROJECT	BRAHMAPUTRA PETROCHEMICAL			
DRN	NAME	DATE	TITLE	
CHD	PP	11-Sep-10	THERMAL WITHSTAND TIME CURVE	
APPROVED	SSN	11-Sep-10		
	DNB	11-Sep-10		
			 Crompton Grooves AHMEDNAGAR	
			SC8/16/600	
Rev.1			Rev.2	
Dt			Dt	
Rev.1			Rev.2	
Dt			Dt	

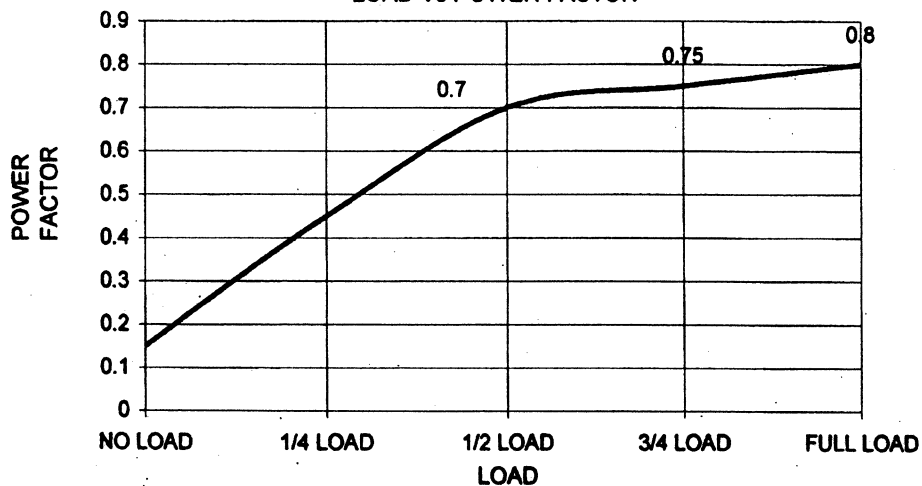


CUSTOMER SHELLORE ENGG. PNT. LTD.		KW	1.5
BCPL PO. NO. 6904-117-PA-PO-5255/0542/0211		FRAME	E90L
IND. NO. E0.75/300		POLE	4
CLIENT: BCPL		TAG NO.	117-PM-504
PROJECT: BRAHMAPUTRA PETROCHEMICAL			
NAME	DATE	TITLE	
DRN PP	11-Sep-10	SPEED TORQUE CURVE	
CHD SSN	11-Sep-10		
APPROVED DNB	11-Sep-10		
Crompton Greaves AHMEDNAGAR		SC200/600 	
Rev.1		Rev.2	
Dt		Dt	
Rev.3		Rev.4	
Dt		Dt	

LOAD Vs EFFICIENCY



LOAD Vs POWER-FACTOR

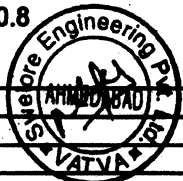


CUSTOMER	SKELORE ENGG. PVT. LTD.		KW	1.5
BCPL PO. NO.	6904-117-PA-PO-5255/0542/0211		FRAME	E90L
IND. NO.	E0.75/300		POLE	4
CLIENT:	BCPL		TAG NO.	117-PM-504
PROJECT:	RAHMAPUTRA PETROCHEMICAL			
	NAME	DATE	TITLE	
DRN	PP	11-Sep-10	EFFICIENCY AND POWER FACTOR CURVES	
CHD	SSN	11-Sep-10		
APPROVED	DNB	11-Sep-10		
Rev.1			Rev.2	
Dt			Dt	
Rev.3			Rev.4	
Dt			Dt	



Crompton Greaves
AHMEDNAGAR

SC80/0.8





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).

REVIEW CODE	1	2	3
समीक्षा कोड			
Signature & Name			
हस्ताक्षर एवं नाम			
P. No.	6907/		

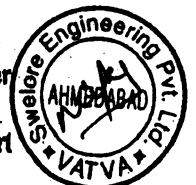
Sub : Approval of Flameproof Induction Motor Frame Sizes E80 to E315L.

Dear Sir(s),

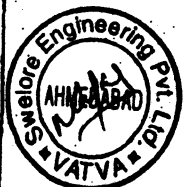
Please refer to your letter No. MiT/CCOE/2008-4 dated 04/06/2008.

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 as to maintain its Flame Proof characteristics.

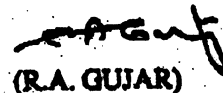
This approval also covers the permissible variations as approved under the ERTL test reports referred to above. This approval may be deemed to have been revoked with immediate effect at any time, if any of the conditions subject to which approval has been granted is violated or not complied with. The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



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

PAGE : OF

1.0 SCOPE

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

1.2 Test Report No.: ERTL(E)/TES/C184/0011/12-07
Date : 16/01/2008

1.3 Requested by : CROMPTON GREAVES LIMITED
(Name & Address of
of the organisation) LT MOTOR DIVISION
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 90L
to be tested iv) Sl. No. : 1
v) Qty : 2

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

415+/- 10%V, 50+/- 5%Hz, F-CLASS, 0.25kW TO 2.2kW, 2 TO 8 POLE, CI

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 testing : 15/01/2008

1.7 Location where testing performed : In house

1.8 Ambient condition during measurement : 25 +/- 1.5 Deg.
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 method followed (if any) : NIL

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



Released by : *[Signature]*
(signature & date) SDNALI JANA
Scientist - C

Electronics Regional Test Laboratory (East)
STQC Directorate, Dept. Of Info Technology
Min. & Info Technology

CG MotorsA Business Unit of
Crompton Greaves Ltd.**CERTIFICATE OF ROUTINE TEST
FOR 3 PHASE INDUCTION MOTOR**Smart solutions.
Strong relationships.**CUSTOMER****ORDER NO. & DATE****INDENT NO. & DATE**

MOTOR NO.	BEC2F4DJ	FRAME	E90L ✓	EXCISE REF NO.	KAAM10726.
KILO WATT	1.5 ✓	DUTY	S1	INSU. CLASS	F ✓
VOLTS	415+-10%	FREQ	50+-5% ✓	EFF (FL)	80% ✓
AMPS - CONN	3.26 STAR ✓	RATING	CONT	GAS GROUP	IIA,IIB ✓
RPM	1415 ✓	AMB.	45°C		

BEARING DE/ODE	6205ZZ/6205ZZ	MOUNTING	B5	ENCLOSURE	FLAME PROOF
SPACE HEATER		DEG. OF PROTN	IP55 ✓	TYPE	SCR
THERMISTOR RESISTANCE BETWEEN TERMINAL	STATOR: 6.992 Ω	ROTOR		at Amb.	30°C

TEST	VOLTS	AMP1	AMP2	AMP3	WATTS
NO LOAD	415	1.5	1.5	1.5	158
LOCKED ROTOR	135	4.2	4.2	4.2	412

INSULATION RESISTANCE (BEFORE AND AFTER HV TEST)

ABOVE 150 MEGA Ω

REDUCED VOLTAGE RUNNING UP TEST AT 1/√3 RATED VOLTAGE

OK

HIGH VOLTAGE TEST AT 2000 V FOR 1 MIN.

OK

OPEN CIRCUIT ROTOR VOLTS (FOR SR MOTORS ONLY)**OTHER DETAILS**

NL RPM 1506

at 50.24 Hzs

Remark TEMP CL.: T4

Reviewed and Found Acceptable

M. J. Gajjar

G. A. Department

Swelore Engineering Pvt. Ltd.

TEST WITNESSED BY:**WE CERTIFY THAT THIS MOTOR HAS BEEN ROUTINE TESTED AS PER IS 325 - 1996**

WORKS : A-6/2, MIDC AREA, AHMEDNAGAR - 414 111, MAHARASHTRA -INDIA.

: D2/21/22/23 TIVIM INDUSTRIAL ESATE, KARASWADA BARDEZ,

GOA -403526, GOA-INDIA

GRAM : CROMGRE, PHONE : (0241) 2777372, 73, 75, 76, 78 FAX : (0241) 2777508,

TELEX: 0143- 203 CGLA IN

This certificate is
electronically generated
hence no signature
required**QUALITY ASSURANCE
LT MOTORS**