

# Lighting & Power Distribution Panel Boards & Control Panel Enclosures



Cat. No. **MFP/1600/IIC-IEC (Up to 40 HP Motor or more,  
Up to 200 HP or More also available)**

Item **Ex'd' IP-65°, FLP/WP. STAR DELTA STARTER  
WITH or WITHOUT ISOLATOR**

## MECHANICAL DATA

### Type of protection

Flameproof Ex'd'.

### Area Classification

Zone 1 & 2.

### Gas Groups

Group IIA, IIB, IIC.

### Apparatus Standard

IS/IEC: 60079-1 (Latest Edition)

### Construction

Cast Aluminium alloy LM-6.

### Temp. Class

T-3 or better.

### IP Protection

IP-65° confirming to IS/IEC: 60529.

### Finishing

Epoxy coated as per shade 631/632 of IS-5.

### Hardware

High tensile M. steel duly cadmium plated.

### Gasket

Endless neoprene rubber.

### Mounting

Mounting on wall, column, steel structure etc.

### Cover Joint

Flanged, Bolted/Spigotted Bolted.

## ELECTRICAL DATA

### STAR DELTA STARTER

**Rating:** Up to 40HP. & more.

**Voltage:** 415V., 50 Hz AC.

**Components:** Contactor, O/L Relay, Timer,  
with or without Isolator.

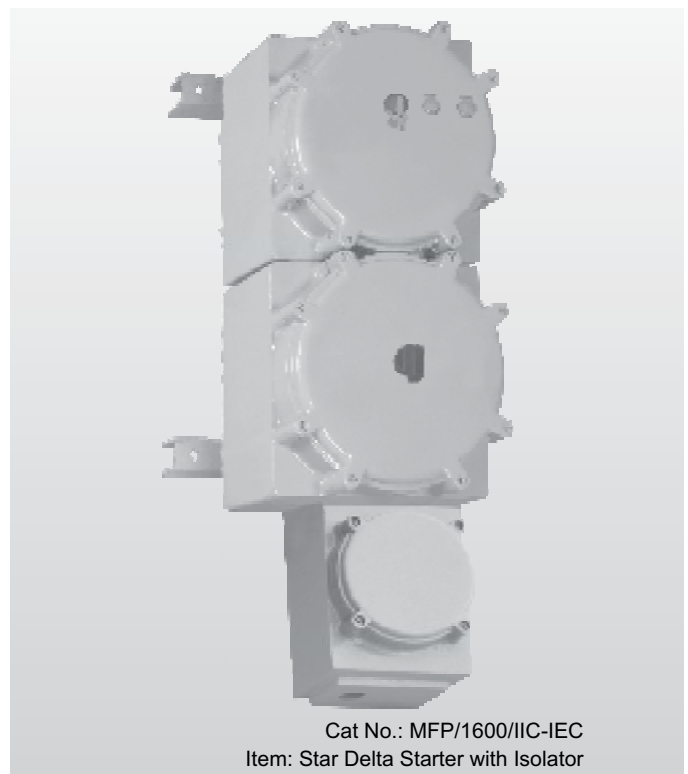
**Push Button:** START-STOP-RESET

**Terminals:** Clip-on/Busbar type.

**Earthing:** Internal: 1 No.-M6 & External 2 Nos.-M6.



Cat No.: MFP/1600/IIC-IEC  
Item: Star Delta Starter without Isolator



Cat No.: MFP/1600/IIC-IEC  
Item: Star Delta Starter with Isolator

### Cat. Numbers▶

### MFP/1600-IEC (For IIA / IIB & IIC)

RATING

Up to 200HP.

CIMFR//ERTL

CIMFR/TC/P/H 705 + CIMFR/TC/SR/99

CCE/PESO

P210206/1

BIS

CM/L-0708044

DGMS

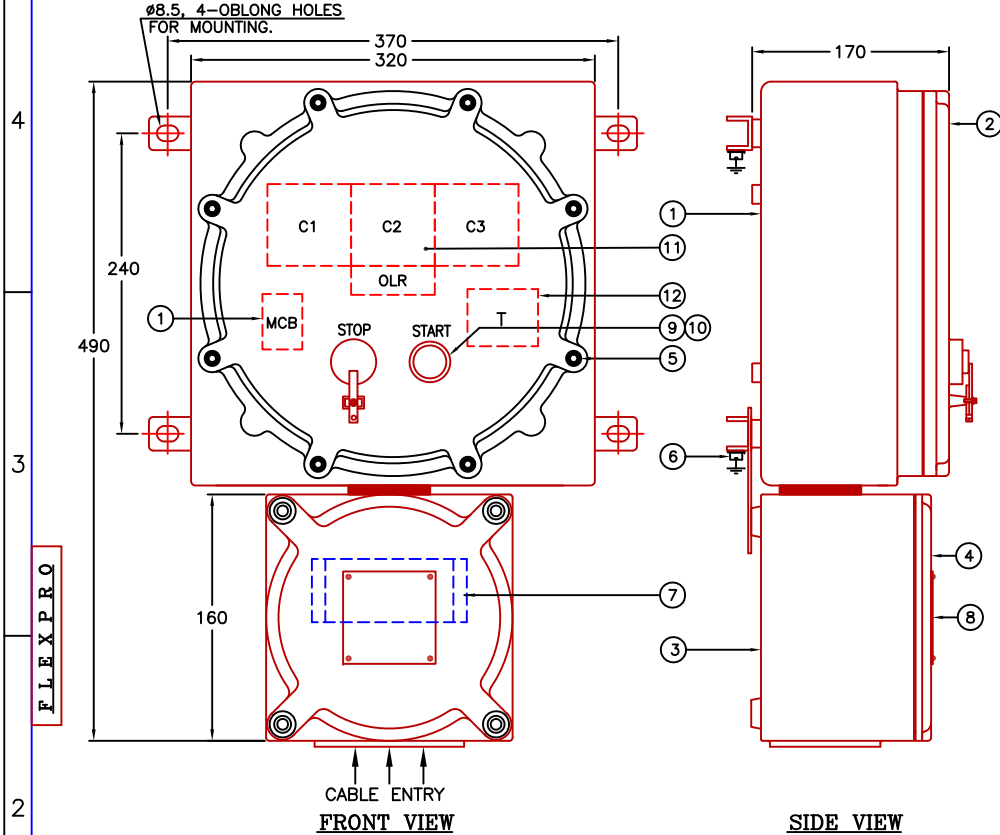
201 (for oil mines) For all variations.



NOTE : ALL DIMENSIONS ARE IN MM. UNLESS OTHERWISE STATED. (TOLERANCE ±5mm)

**FLEXPRO**

NO.	REVISION	DATE	CKD.BY	APPR.BY



**TECHNICAL DATA:-**

CONSTRUCTION : CAST ALUMINIUM ALLOY LM-6.  
 TYPE OF ENCLOSURE : Ex-'d', ZONE -I/II.  
 AREA CLASSIFICATION : GAS GROUP IIA/IIB/IIC.  
 PROTECTION : IP-66.  
 TEMP. CLASS : T-3 OR BETTER.  
 GASKET : ENDLESS MOULDED NEOPRENE RUBBER.  
 RATING : SUITABLE FOR 22KW. 3-PHASE, 415V. AC. (30 HP) MOTOR.  
 PUSH BUTTONS : 1 NO. GREEN "START" SHROUDED & MOMENTARY TYPE ACTUATOR & 1 NO. RED MUSHROOM "STOP" ACTUATOR WITH STAYPUT FEATURE & PAD LOCKING FACILITY.  
 P. B. ELEMENT COMPONENTS : 1NO, 1NC, 5A. 240V. AC.  
 : 2 NOS. 40A.& 1 NO. 32A. 3-POLE, 415V. AC. POWER CONTACTOR WITH 415V. AC. COIL VOLTAGE.  
 : 1 NO. 20-33A. BI-METAL OVER LOAD RELAY (SELF RESET TYPE), 1 NO. 415V. AC. STAR DELTA TIMER.  
 : 1 NO. 2A. 1-POLE, MCB.  
 TERMINALS : 10 NOS. 6mm<sup>2</sup> SCREW CLAMP TYPE.  
 CABLE ENTRY : AS PER CLIENT REQUIREMENTS.  
 CABLE GLAND : Ex' d', DOUBLE COMPRESSION NICKEL PLATED BRASS "FLEXPRO" CABLE GLAND. (OPTIONAL AT AN EXTRA COST)  
 STOPPER PLUG : Ex' d', NICKEL PLATED BRASS STOPPER PLUG. (OPTIONAL AT AN EXTRA COST)  
 EARTHING : 1 NO. INSIDE & 2 NOS. OUTSIDE.  
 FINISHING : DARK GREY, EPOXY COATED, AS PER SHADE 632 OF IS-5.  
 HARDWARE : SS, EXTERNAL HARDWARE.  
 MOUNTING : AS SHOWN IN DRAWING.  
 NAME/TAG PLATE : NAME CUM WARNING LABEL AS PER IS. REQUIREMENT.  
**SPECIAL NOTE:** PURCHASER OR THEIR CONSULTANT TO PROVIDE CABLE SIZE WITH ITS CABLE DIMENSIONS (LIKE O.D., φU.A. & φO.A) AT THE TIME OF APPROVING THIS DRAWING.

FLEXPRO

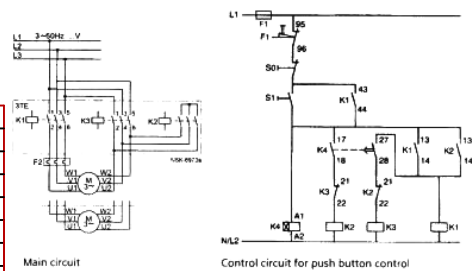
ACAD FILE NO.: STAR DELTA STARTER FLEXPRO

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CABLE ENTRY  
FRONT VIEW

SIDE VIEW

13	MCB	1	LEGRAND/MERLIN-GERIN
12	TIMER	1	L&T/EQUI.
11	CONTACTOR & OVER LOAD RELAY	3+1	L&T/SCHNEIDER
10	PUSH BUTTON ELEMENTS	2	TEKNIC/VAISHNO
9	PUSH BUTTON ACTUATOR (RED & GREEN)	2	FLEXPRO
8	DETAILED LABEL WITH WARNING INSCRIPTION	1	SS.
7	TERMINALS	10	ELMEX/WAGO
6	EARTHING SCREW WITH SP.& PL. WASHER	3	M6 x 10
5	ALLEN CAP SCREW & SP. WASHER	12	M6 x 30
4	TERMINAL ENCLOSURE COVER	1	
3	TERMINAL ENCLOSURE	1	AL. LM-6
2	ENCLOSURE COVER	1	
1	MAIN ENCLOSURE	1	
SR.NO.	DESCRIPTION	QTY.	MATL. & SIZE



S0 - 'OFF' Push button  
 S1 - 'ON' Push button  
 K1 - Line contactor  
 K2 - Star contactor  
 K3 - Delta contactor  
 K4 - Star delta timer (79U60 20)  
 F2 - Overload relay  
 F1 - Backup fuse

CAT. NO.	MFP/1600/IIC-IEC
CERT. NO.	CMRI CIMFR/TC/P/H 705 + CIMFR/TC/SR/99
CCOE	P210206/1
BIS	CM/L-0708044

DRG. NAME: Ex'd'/IIA/IIB/IIC/IP-66		MFG. SUPPLIED BY :	
<b>FLP/WP.</b>		<b>FLEXPRO</b>	
<b>STAR DELTA STARTER</b>		DGN. BY	SHP
CLIENT		CKD. BY	AMP
CONSULTANT		APPR. BY	PAM
PROJECT		DATE	25.10.11
ITEM NO.		SCALE	N.T.S
QTY.		GROUP	IIA/IIB/IIC
PO. NO.		INDENT NO.:	DRG. NO.:
		MFP/0061/11	01

Sheet No. 01

# केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान

(वैज्ञानिक एवं औद्योगिक अनुसंधान परिषद्)

बरवा रोड, धनबाद - 826001, झारखण्ड, भारत

ORIGINAL COPY



## Central Institute of Mining and Fuel Research

Formerly : Central Mining Research Institute,  
(Council of Scientific & Industrial Research)  
BARWA, ROAD, DHANBAD 826001 JHARKHAND, INDIA

### REGISTERED POST/COURIER SERVICE

No. CIMFR/TC/P/H705  
Equipment ID NO. 401/06

Dated: 13<sup>th</sup> December 2007  
Code No. FLP/155/06

To  
**M/S. FLEXPRO ELECTRICALS PVT. LTD.,**  
GIDC, KABILPORE,  
NAVSARI - 396 424,  
**GUJARAT**

**Sub:** Flameproof Testing as per IS: 2148- 2004 (IEC 60079-1/2001) and weatherproof testing as per IS: 12063-1987 (IEC 60529/1989) for IP-66 of your "**FLEXPRO**" Ex 'd' Flameproof-cum-Weatherproof Enclosure for Distribution Type Panel Board/Junction Box/Marshalling Box, in cast aluminium alloy LM-6 construction suitable upto 1500Amp. 650V AC/DC, 50/60 Hz (max.) designated by **Cat. No.: MFP/1600/IIC-IEC** for use in Zone 1 & 2 areas Gas Group - IIC only.

- Report on (PROTOTYPE)

**Your Ref. No.:** FEPL/CMRI/APPLI-TT/0022/2006-07, dated: 16.10.2006 &  
FEPL/CIMFR/G/0005/2007-08, dated: 05.12.2007

Dear Sir,

Please find enclosed the **Test Report (Prototype)** of the above sample submitted by you.

Charges of **Rs. 1,24,541/- (Rupees One Lakh twenty four thousand five hundred forty one only)** including applicable service charges involved towards the testing /issuing the schedule have been adjusted against the advance deposit made by you.

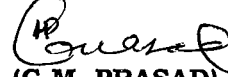
Kindly arrange to collect the sample within 90 days from the date of receipt of this letter failing which CIMFR would dispose off the sample by public auction without any further NOTICE to you.

Kindly acknowledge receipt.

Thanking you.

Encl: As above.  
Test Report in duplicate.  
Copy to: 1. Head, Flame & Explosion Lab  
2. Bill Section.

Yours faithfully,

  
(G.M. PRASAD)

HEAD OF THE DEPARTMENT  
TESTING CELL

Page 1 of 17

फोन - निदेशक Director

पी० ए० एक्स PAX

फैक्स FAX

Ph.: 0091 326 2202326/2203043

Ph.: 0091 326 - 2203010/2203070/2203090/2205045/2209041

0091-326-2201442/2202429/2204339/2203156

e-mail : dcmrips@yahoo.co.in, dcmri@csir.res.in / Website : www. cmriindia. nic. in

कार्यालय के दिन : सोमवार से शुक्रवार तक Working days : Monday to Friday

21

सीएसआईआर-केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान

(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद्)

बरवा रोड , धनबाद - 826015 , झारखण्ड, भारत



CSIR-Central Institute of Mining & Fuel Research

(Council of Scientific & Industrial Research)

Barwa Road, Dhanbad - 826015 , Jharkhand , India

ORIGINAL COPY



SPEED POST/COURIER SERVICE

No. CIMFR/TC/SR/99  
Equipment ID NO. 645/11

Dated: 24<sup>th</sup> April, 2012  
Code No. FLP/274/11-12

To,  
**M/S. FLEXPLO ELECTRICALS PVT. LTD.,**  
C-1/27 & 37 G.I.D.C, KABILPORE,  
**NAVSARI - 396 424 GUJARAT (INDIA)**

**Sub:** Flameproof Testing as per IS/IEC 60079-1: 2007 **Flameproof cum Weatherproof Enclosure for Distribution Type panel Board/Junction Box/Marshalling Box**, in cast aluminum alloy LM-6 construction designated by Cat No. **MFP/1600/IIC-IEC** for use in Zone 1 & 2 and Gas Group: IIC atmosphere only.

- Report on (Revalidation)

Your Ref. Appl. No.: FEPL/CIMFR/APPLI-TT/0026/11-12

Dated: 05/11/2011

Dear Sir,

Please find enclosed the **Test Report (Revalidation)** of the above sample submitted by you.

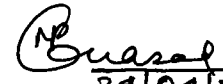
Charges of Rs. ~~3,11,520/-~~ <sup>4,23,607/-</sup> (Rupees ~~Three lakh thousand Five hundred Six hundred & Twenty only~~ <sup>Four Twenty three six seven</sup>) including applicable service charges involved towards the testing /issuing the schedule have been adjusted against the advance deposit made by you.

Kindly arrange to collect the sample within 90 days from the date of receipt of this letter failing which CIMFR would dispose off the sample by public auction without any further NOTICE to you.

Kindly acknowledge receipt.

Thanking you.

Yours faithfully,

  
24/04/2012

(G. M. PRASAD)

HEAD OF THE DEPARTMENT  
TESTING CELL

Encl: As above.

Revalidation Test Report in **Two copies**

Copy to: 1. Head, Flame & Explosion Lab.  
2. Bill Section.

EPABX : 0091-326-229-6027/6028/6029

Fax : 0091-326-229-6025 , email : dcmrips@yahoo.co.in

Working Days : Monday to Friday, Website : www.cimfr.nic.in