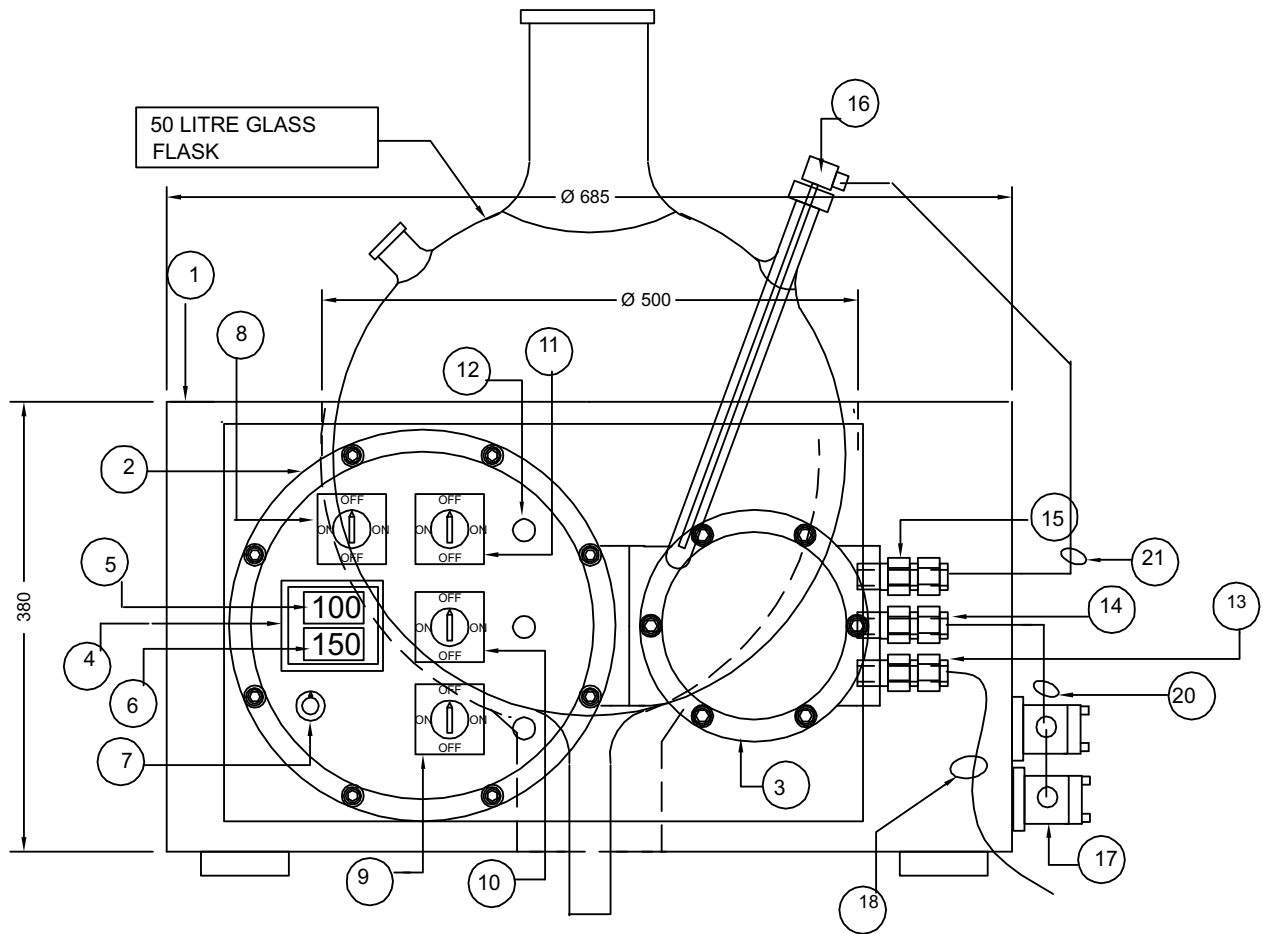


N. K. JOSHI & CO.

**FLAME PROOF - WEATHER PROOF
HEATING MANTLE**

OPERATING INSTRUCTIONS

- 1) FLP - WP 50 LITRE CAP. HEATING MANTLE.
- 2) FLP SWITCH ENCLOSURE (CONTROL PANEL)
- 3) FLP COLD JUNCTION TERMINAL ENCLOSURE
- 4) DIGITAL TEMP. DISPLAY WINDOW
- 5) ACTUAL TEMP. INDICATION
- 6) SET TEMP. INDICATION.
- 7) TEMPERATURE SETTING KNOB (RANGE 0° TO 300°)
- 8) MAIN ON / OFF ROTARY SWITCH 3 POLE
- 9) ON / OFF ROTARY SWITCH FOR BOTTOM HEATER
- 10) ON / OFF ROTARY SWITCH FOR MIDDLE HEATER.
- 11) ON / OFF ROTARY SWITCH FOR TOP HEATER.
- 12) INDICATING LAMP
- 13) FLP CABLE GLAND (INCOMING SUPPLY)
- 14) FLP CABLE GLAND (OUTGOING SUPPLY)
- 15) FLP CABLE GLAND (SENSOR CABLE)
- 16) FLP HEAD PTR 100 OHMS SENSOR.
- 17) FLP HEATER TERMINAL COLD JUNCTION BOX ENCLOSURE
- 18) FOUR CORE ARMOURD CABLE INCOMING SUPPLY IN (440 VOLTS WITH NEUTRAL)
- 19) FOUR CORE ARMOURD CABLE OUT GOING SUPPLY TO HEATER.
- 20) THREE CORE FLEXIBLE CABLE FOR PTR - 100 OHM SENSOR

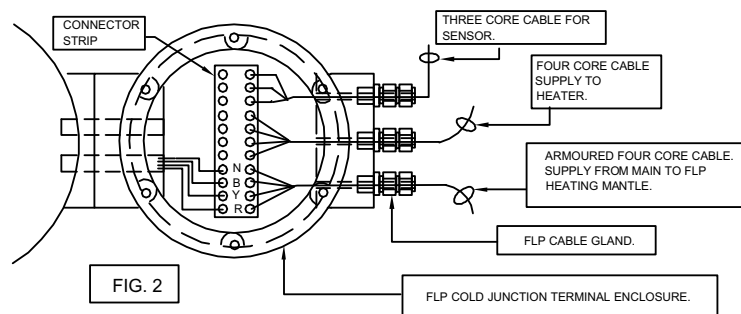


DETAILS OF FLP 50 LITRE CAP. HEATING MANTLE.

GENERAL INFORMATION

FLAME PROOF HEATING MANTLE USED TO HEAT THE INSIDE MATERIAL OF GLASS FLASK BY CONDUCTION HEATING. HEATING ELEMENTS DESIGN IN SUCH WAY THAT IT PRODUCES BLACK HEAT AND UNIFORM HEATING. S. S. SHEATHED TUBULAR HEATING ELEMENTS FITTED IN FLAME PROOF HEATING MANTLE. HEATER TERMINALS TERMINATE IN FLP COLD JUNCTION TERMINAL ENCLOSURE. ALL ELECTRICAL CONTROLS AND COMPONENTS FITTED IN FLP SWITCH ENCLOSURE. DIGITAL TEMPERATURE INDICATOR CUM CONTROLLER PROVIDED WITH DUAL DISPLAY AND PTR - 100 OHMS SENSOR. FIBRE GLASS CLOTH USED FOR TO COVER THE HEATING SURFACE. CERAMIC INSULATING BLANKET, GLASS WOOL INSULATION USED FOR MINIMISE HEAT LOSSES.

POWER SUPPLY TO FLAME PROOF HEATING MANTLE.



FROM MAIN POWER SUPPLY TO FLP HEATING MANTLE USE ARMURED FOUR CORE CABLE AS PER REQUIRED SIZE. CONNECT WIRE END WITH CONNECTOR STRIP FITTED IN FLP COLD JUNCTION TERMINAL ENCLOSURE (FIG. 2)

FITTING OF PTR -100 OHMS SENSOR

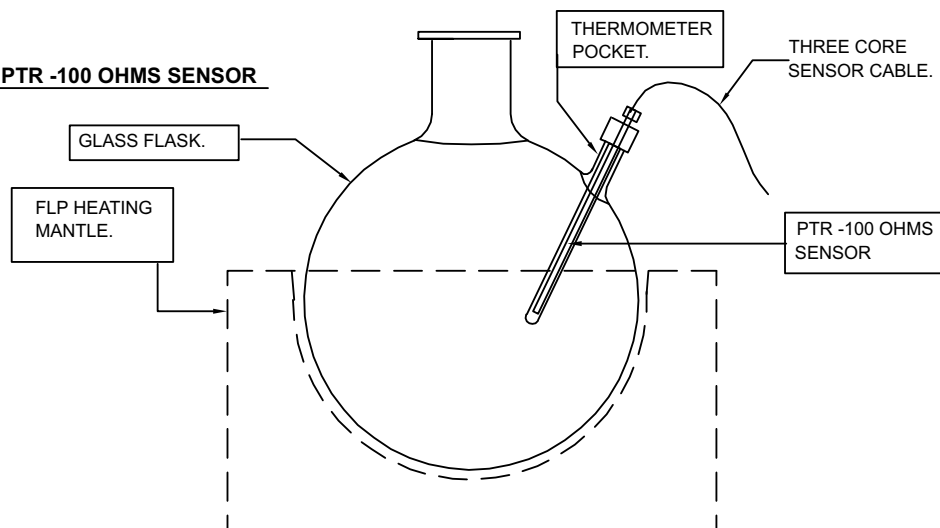
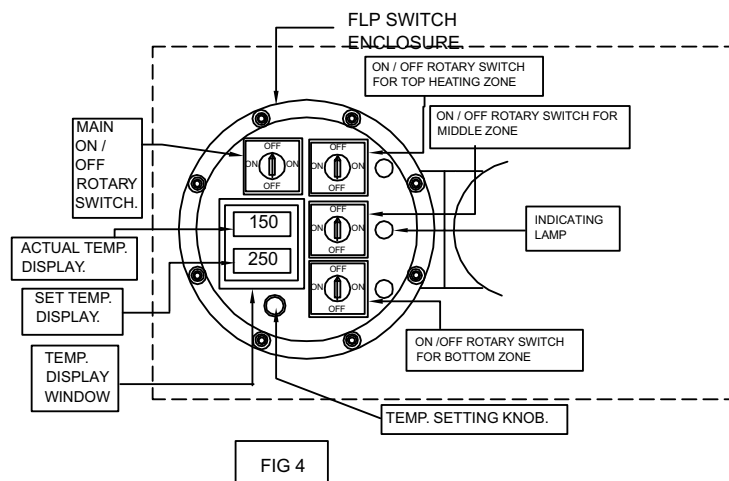


FIG 3

INSERT PTR - 100 OHMS SENSOR IN TO THERMOMETER POCKET OF GLASS FLASK. AS MEDIA PUT PARAFIN OIL OR ANY OTHER LIQUID IN THERMOMETER POCKET (SEE FIG. 3) SENSOR MUST BE MERGED WITH MEDIA.

HOW TO USE FLP HEATING MANTLE.



FLP 50 LITRE CAPACITY HEATING MANTLE DESIGNED WITH 3 HEATING ZONES LIKE BOTTOM ZONE, MIDDLE ZONE AND TOP ZONE AND EACH ZONE ON / OFF ROTARY SWITCH PROVIDED. FIRST INSTALL GLASS FLASK IN HEATING MANTLE . PUT WATER IN GLASS FLASK FOR TO SET THE POSITION IN HEATING MANTLE. DUE TO WEIGHT OF WATER GLASS FLASK SAGGED SLIGHTLY.

BEFORE STARTING TO USE HEATING MANTLE SWITCH OFF MAIN SUPPLY ROTARY SWITCH AND ALL HEATING ZONE ROTARY SWITCHES. THEN SWITCH ON MAIN SUPPLY ROTARY SWITCH , IMMEDIATELY ON TEMP. DISPLAY WINDOW, TEMP. INDICATION FIGURES APPEAR ON SET TEMP. INDICATION AND ACTUAL TEMP. INDICATION. (SEE FIG. 4) ON ACTUAL TEMP. INDICATION WILL SHOW THE AMBIENT TEMP. START TO SET REQUIRED TEMP. BY ROTATING TEMPERATE SETTING KNOB. AFTER SETTING REQUIRED TEMP. FIRST SWITCH ON BOTTOM ZONE ROTARY SWITCH THEN MIDDLE ROTARY SWITCH AND TOP ROTARY SWITCH. IMMEDIATELY HEATER START TO HEAT THE GLASS FLASK.

DO THE NECESSARY MAINTENANCE

- 1) KEEP THE ALL FLP ENCLOSURE CLEAN.
- 2) EVERY SIX MONTH APPLY PAINT ON M.S. BODY OF FLP HEATING MANTLE.

NECESSARY PRECAUTIONS

- 1) DO NOT RUN THE HEATING MANTLE WHEN THE GLASS FLASK IS EMPTY.
 - 2) RUN THE HEATING ZONE AS PER MATERIAL LEVEL IN GLASS FLASK.
 - 3) FOR REPLACEMENT OF ELECTRICAL COMPONENTS ISOLATE SUPPLY BEFORE OPENING OF ENCLOSURE.
 - 4) DO NOT ROTATE TEMPERATURE SETTING KNOB FORCELY, ROTATE IT GENTLY.
 - 5) DO NOT RUN THE HEATING MANTLE WITHOUT INSERTING SENSOR IN THERMOMETER POCKET.
 - 6) DO NOT SPILL ANY MATERIAL IN HEATING MANTLE.
 - 7) DO NOT OPEN ANY FLP ENCLOSURE COVER WHEN HEATING MANTLE IS ON CONDITION.
 - 8) DO NOT CLEAN GLASS FLASK WHEN IT IS IN HOT CONDITION.
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M/s N. K. JOSHI & CO.

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