



Industrial

Test

Renewable

Broadcast

HazLoc

Marine

## 120W - 480W Single Output: 24V 180W - 720W Peak Power DIN Rail Mount Power Supplies for Hazardous Location

| Features                          | Benefits                                  |
|-----------------------------------|-------------------------------------------|
| • IECEx / ATEX Approval           | • Use in Explosive Atmospheres            |
| • DNV / German Lloyd Approval     | • Suits Marine, Shipbuilding Applications |
| • Conformal Coated Circuit Boards | • Resistance to Harsh Environment         |
| • Narrow Convection Cooled Design | • Saves Space on Rail & Cabinet Cost      |
| • Remote On/Off                   | • Supports Intelligent Controls           |
| • ErP Referenced Design           | • Improves "Environmental Footprint"      |



| Specifications                    |     |                                                                                        |                    |                    |
|-----------------------------------|-----|----------------------------------------------------------------------------------------|--------------------|--------------------|
| MODELS                            |     | DRF120-24-1/HL                                                                         | DRF240-24-1/HL     | DRF480-24-1/HL     |
| AC Input voltage range            | VAC | 85 - 264 (withstand 300VAC surge for 5s)                                               |                    |                    |
| Input frequency                   | Hz  | 47 - 63                                                                                |                    |                    |
| Inrush current @ cold start (typ) | A   | 20                                                                                     | 20                 | 40                 |
| Power factor (typ) (115/230)      | -   | 0.98/0.95                                                                              | 0.98/0.95          | 0.98/0.92          |
| Input current (typ) (2)           | A   | 1.2/0.6                                                                                | 2.4/1.2            | 4.7/2.5            |
| Output voltage                    | V   | 24                                                                                     |                    |                    |
| Output current                    | A   | 5                                                                                      | 10                 | 20                 |
| Peak output current (1)           | A   | 7.5                                                                                    | 15                 | 30                 |
| Peak output power (1)             | W   | 180                                                                                    | 360                | 720                |
| Line regulation                   | mV  | <96                                                                                    |                    |                    |
| Load regulation                   | mV  | <240                                                                                   |                    |                    |
| Ripple and noise (2 & 3)          | mV  | <240                                                                                   |                    |                    |
| Over current protection (4)       | -   | > 105% peak output current                                                             |                    |                    |
| Over voltage protection (5)       | V   | 30 - 35.5                                                                              |                    |                    |
| Hold up time (230VAC)             | ms  | 20                                                                                     |                    |                    |
| Efficiency (typ) (230VAC)         | %   | 91                                                                                     | 94                 |                    |
| Average efficiency (230VAC)       | %   | 88.6                                                                                   | 92.4               | 92                 |
| Standby input power (230VAC)      | W   | < 0.5                                                                                  | < 0.5              | < 0.75             |
| Parallel operation (6)            | -   | Possible                                                                               |                    |                    |
| Series operation (6)              | -   | Possible                                                                               |                    |                    |
| LED indicators                    | -   | DC OK signal - green (Vout > 80% rated output voltage): Peak power mode - red          |                    |                    |
| DC OK relay                       | -   | Relay contact 30V/1A (closed if Vout > 80% of rated output voltage)                    |                    |                    |
| Operating temperature             | °C  | -25°C to +70°C (60°C to 70°C derate to 75% load)                                       |                    |                    |
| Storage temperature (7)           | °C  | -40°C to +85°C                                                                         |                    |                    |
| Operating humidity                | %   | 5-95 RH (non condensing)                                                               |                    |                    |
| Operating altitude                | m   | Up to 3,000                                                                            |                    |                    |
| Cooling                           | -   | Convection                                                                             |                    |                    |
| Withstand voltage                 | -   | I/P to FG:1.5kVAC (20mA), I/P to O/P 3kVAC (20mA), O/P to FG: 500VAC (100mA) for 1 min |                    |                    |
| Isolation resistance              | MΩ  | I/P to FG, IP to O/P and O/P to FG: >100MΩ (500VDC) at 25°C & 70%RH                    |                    |                    |
| Vibration                         | -   | Non-operating, 10-55Hz (sweep for 1 min.): 19.6 m/s² constant, X,Y,Z axis 1 hour each  |                    |                    |
| Shock                             | -   | <196m/s²                                                                               |                    |                    |
| Safety agency approvals (8)       | -   | IEC/EN/UL60950-1, CE, UL508 listed, IECEN60079-0, -15(IECEX, ATEX), DNV-GL             |                    |                    |
| Emissions                         | -   | EN55022 Class B, CISPR22-B                                                             |                    |                    |
| Immunity                          | -   | EN61000-4-2,-3,-4,-5,-6,-8,-11                                                         |                    |                    |
| Weight (typ)                      | g   | 600                                                                                    | 900                | 1300               |
| Size (W x H x D)                  | mm  | 36.5 x 123.4 x 115.4                                                                   | 49 x 123.4 x 115.4 | 82 x 123.4 x 115.4 |
| Case material                     | -   | Metal                                                                                  |                    |                    |
| Warranty                          | yrs | 5                                                                                      |                    |                    |

See Page 2 for Notes

## Notes from page 1

1. Operating period at peak output current is 4 sec, max duty cycle <35% & < rated output power
2. At 115 / 230VAC, Ta = 25°C, nominal output voltage, rated output power
3. Ripple & noise is measured at 20MHz using 300mm twisted pair of load wires terminated with 0.1µF film cap & 47µF electrolytic cap
4. Constant current (CC) limit for >105% of peak output current. CC limit with auto recovery within 4 sec, unit will shutdown at >4sec
5. Output will shutdown, manual reset by mains cycle off/on or CNT on/off
6. Refer to instruction manual
7. For -30°C startup please contact your local sales contact or relevant FAE for DIN rail
8. IEC Ex/ATEX code for DRF120/HL & DRF240/HL - II 3G Ex nAnC IIc T4, DRF480/HL - II 3G Ex nAnC IIc T3 DNV-GL type approval procedure V1-7-1

## Model Selector

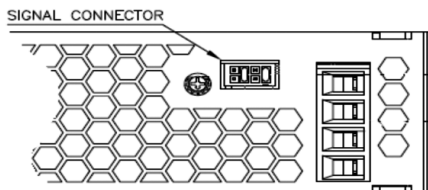
| Model          | Output Voltage | Output Adjust Range (V) | Max Output Current (A) | Peak Current | Max Output Power (W) | Peak Power | Efficiency at 115/230VAC (%) |
|----------------|----------------|-------------------------|------------------------|--------------|----------------------|------------|------------------------------|
| DRF120-24-1/HL | 24             | 24 - 28                 | 5                      | 7.5          | 120                  | 180        | 89 / 91                      |
| DRF240-24-1/HL | 24             | 24 - 28                 | 10                     | 15           | 240                  | 360        | 93 / 94                      |
| DRF480-24-1/HL | 24             | 24 - 28                 | 20                     | 30           | 480                  | 720        | 93 / 94                      |

## Signal Connector Pin Assignment

| PIN | Function | Detail                                                                                                  |
|-----|----------|---------------------------------------------------------------------------------------------------------|
| 1   | CB       | For parallel operation cut the link between pins 1 & 2 for droop mode current share                     |
| 2   | CB-COM   |                                                                                                         |
| 3   | N/C      | No Connection                                                                                           |
| 4   | N/C      |                                                                                                         |
| 5   | CNT+     | Remote ON/OFF control, when CNT+ is pulled to TTL low the power supply turns ON, otherwise it turns OFF |
| 6   | CNT-     |                                                                                                         |
| 7   | PV       | Programming voltage range 5 - 6V presets the output to 24 - 28V                                         |
| 8   | COMM     |                                                                                                         |

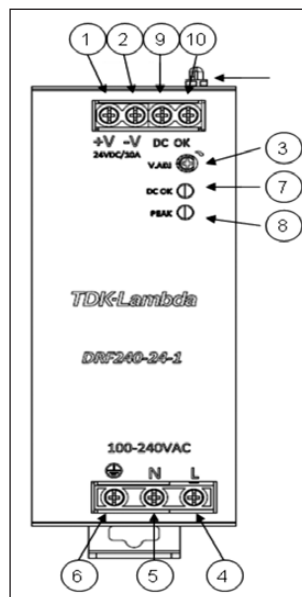
## DRF120/HL example\*

Signal Connector: please refer to instruction manual.  
Potentiometer on top of unit is for factory setting only.  
Please do not adjust.



\*Signal connectors are found on the topside of the unit.  
See product outline drawings for locations

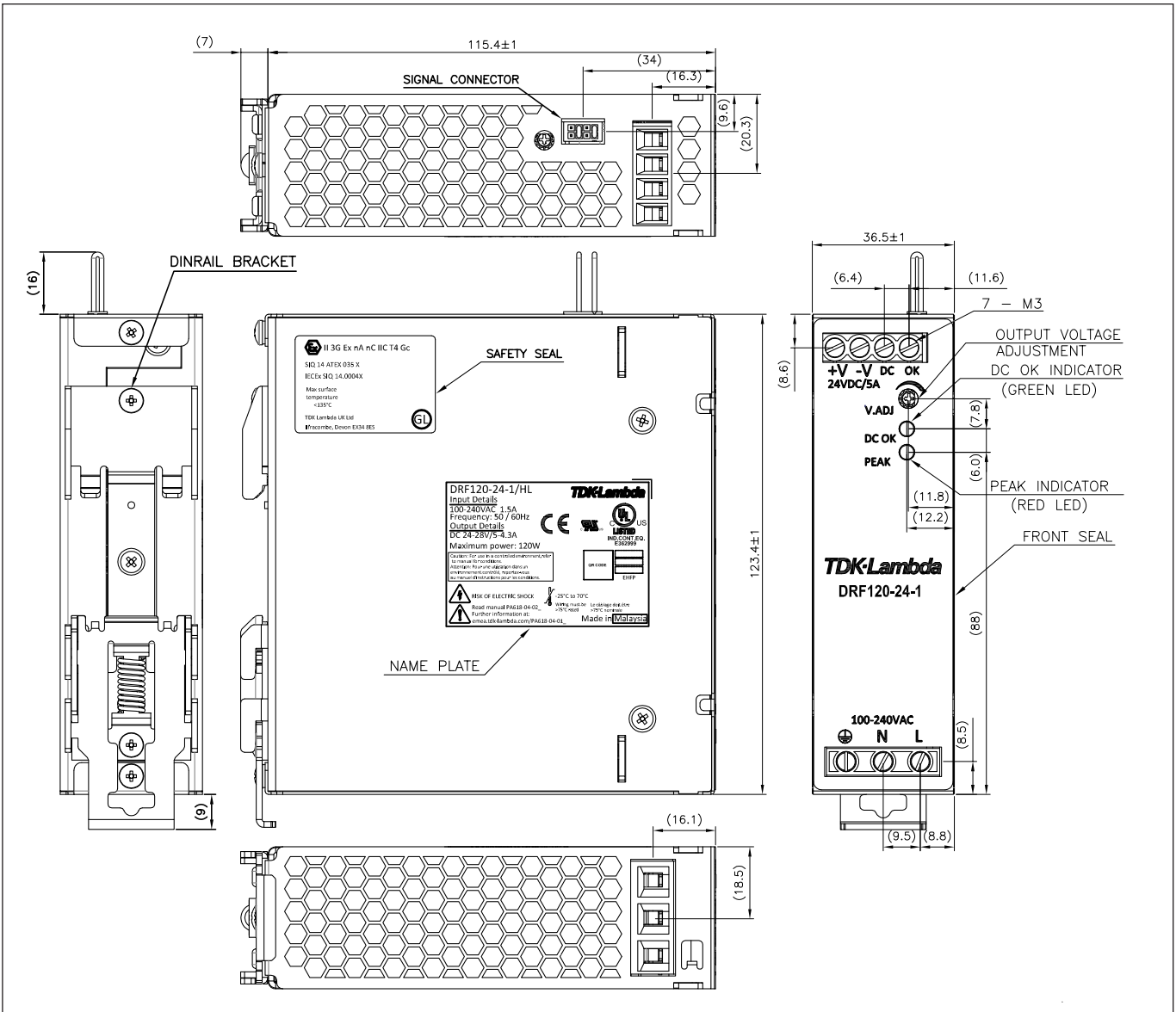
## Terminal Explanation



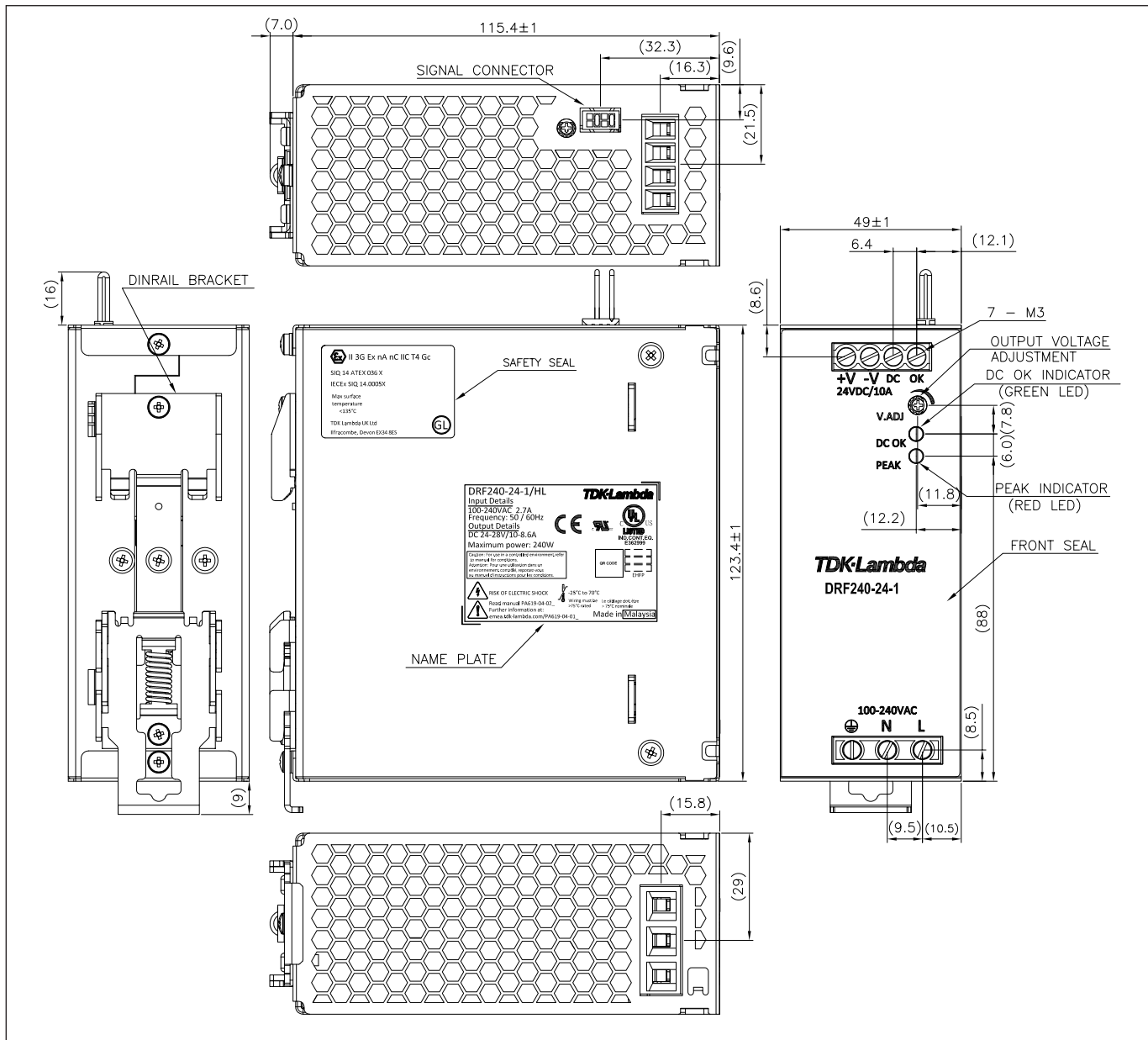
## Connection

- 1 +V: +Output terminal
- 2 -V: -Output terminal
- 3 V.ADJ: Output voltage adjust trimmer  
The output voltage rises when a trimmer is turned clockwise
- 4 L: AC Input terminal. Live line (fuse in line)
- 5 N: AC Input terminal. Neutral line
- 6 -V: Protective Earth  
Connect to safety ground of apparatus or equipment
- 7 DC OK:  
Green LED lights when output voltage is > 80% of rated output voltage
- 8 PEAK:  
Red LED lights when unit is in peak power mode
- 9 DC OK: Relay contact
- 10 DC OK: Relay contact

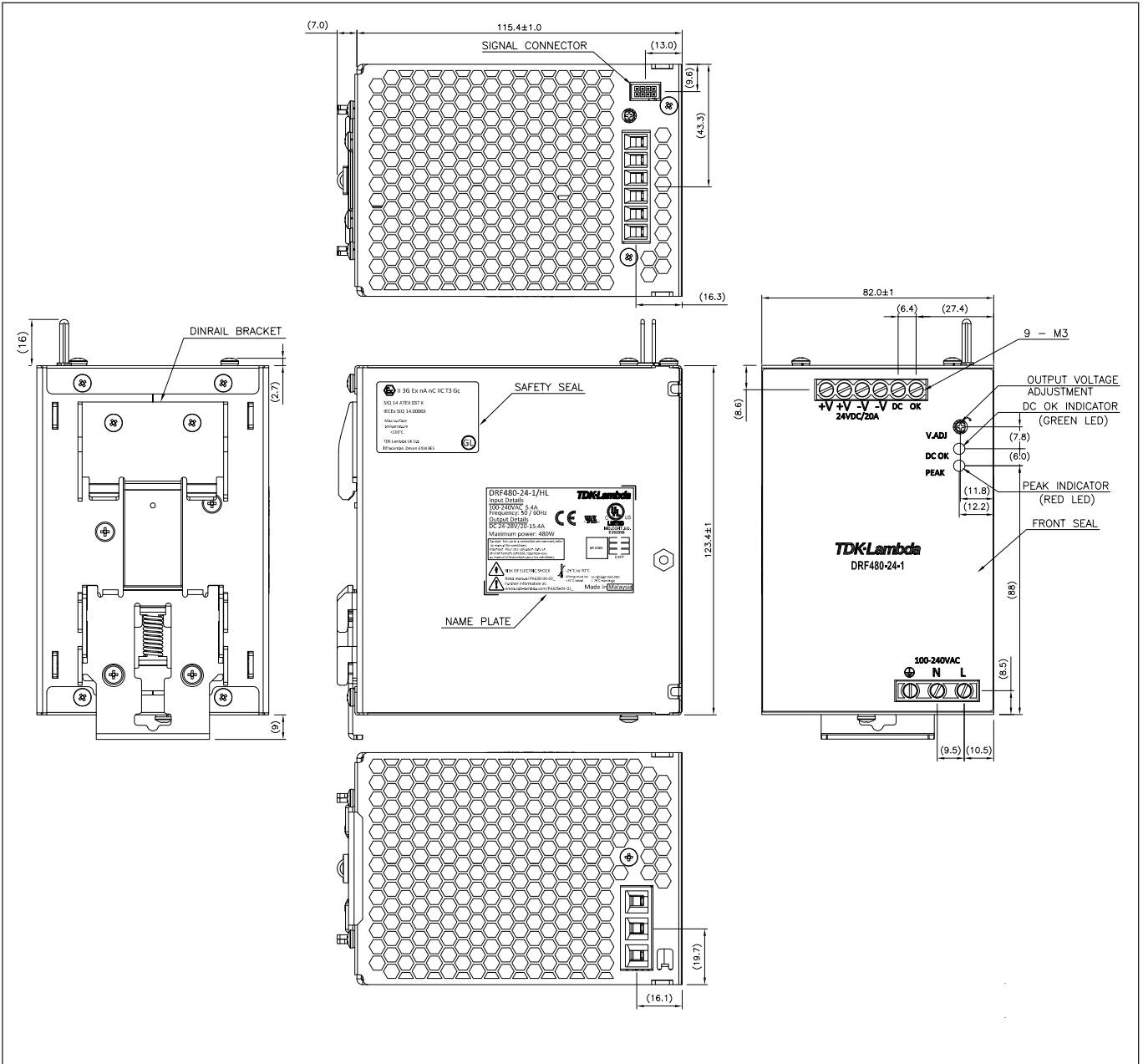
## DRF120-24-1/HL Outline Drawing



## DRF240-24-1/HL Outline Drawing



## DRF480-24-1/HL Outline Drawing





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