# HMRC Hermetic Refrigeration Compressor

## Product Photo:

## Main Features:

- ATEX & IECEx certified
- Ex db px IIC T4 Gb, Ex tb IIIC T130°C Db
- IP66
- Ambient temperature -50°C to 85°C
- Scroll and reciprocating type
- 100-240V single-phase 50/60 Hz or 380-575V 3-phase 50/60 Hz multiple power supply
- Maximum power input up to 60 kW
- Can be used in explosive gas and dust environment Zone 1, Zone 2, Zone 21 and Zone 22
- Complete Ex certified (Ex db IIC, Ex tb IIIC) components and instruments
  - Solenoid coil
  - Oil heater
  - Temperature sensor/switch
  - Pressure sensor/switch

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**Rev: 20-01**
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## Special Features:

- Optional for all models from Danfoss, Copeland and Bitzer etc. compressors
- Corrosion-resistant, ESD coating & multi-layered offshore coating
- Special flameproof and dust protected terminal box (IIC)
- Special flameproof and dust protected components (IIC)
- Special flameproof and dust protected instruments (IIC)

## Product Description

HMRC Hermetic Refrigeration Compressor is designed according to IEC/EN 60079-0, IEC/EN 60079-1, IEC/EN60079-2 and IEC/EN 60079-31 standards. This product can be used in Zone 1 and Zone 2 for explosive gas environment, Zone 21 and Zone 22 for explosive dust environment.

HMRC compressor has two types: scroll type and reciprocating type. The product range can meet the requirements for various cooling capacity. The power supply for HMRC compressor has 230V single-phase 50/60 Hz or 380-690V 3-phase 50/60 Hz. Customers can select the corresponding voltage according to the field voltage requirement.

Adhering to a wide range of applications, high performance, high wear resistance, low noise, compact structure design and long service life, the core part of HMRC compressor comes from world-famous compressor manufacturers e.g. Copeland, Danfoss and Bitzer etc. In terms of explosion-proof design, it is designed and tested in accordance with international standards, and has obtained the highest level of certification in explosion-proof areas (Exdb px IIC T4, Extb IIIC T130°C Db). The explosion-proof oil heater, discharge gas temperature sensor/switch, and different types of instruments e.g. high/low pressure sensor/switch, solenoid coil etc. for the compressor provide the complete solution for explosion-proof refrigeration or air conditioning systems.

HMRC compressor includes the following 7 parts.

1. Compressor main body (core part)
2. Flameproof and dust protected terminal box (IIC)
3. Flameproof and dust protected oil heater
4. Flameproof and dust protected discharge gas temperature sensor/switch
5. Flameproof and dust protected high pressure sensor/switch
6. Flameproof and dust protected low pressure sensor/switch
7. Flameproof and dust protected unloading and capacity control solenoid coil

HMRC compressor is currently the most professional, safest, optimized, and most complete certified explosion-proof refrigeration compressor. Customer-oriented and tailored to customers' specific needs, the product can be widely used in air conditioning, oil and gas refrigeration and cooling, chemical and pharmaceutical, marine and offshore, food industry, sewage treatment, distillation plants and biofuel industries.

## Data Sheet:

| Certification Data: | |
|---|---|
| Notification Body: | (DNV-GL) Presafe |
| Certification Body: | LCIE |
| Certification: | IECEx and ATEX |
| Application Zone: | Zone 1, Zone 2 (Gas) |
| | Zone 21, Zone 22 (Dust) |
| Ex Category: | II 2 G D |
| Gas/Dust Classification: | IIC (Gas) |
| | IIIC (Dust) |
| Temperature Class: | T4 (Gas) |
| | T130°C (Dust) |
| Ambient Temperature: | -50°C to +85°C |
| Ingress Protection: | IP66 |
| Marking: | Ex II 2 G D, Ex db px IIC T4 Gb ; Ex tb IIIC T130°C Db |
| IECEx Certification No.: | IECEx LCIE 19.0016X |
| ATEX Certification No.: | LCIE 19 ATEX 3015X |
| Standards Conformity: | IEC 60079-0:2011 Ed. 6.0, IEC 60079-1:2014-06 Ed. 7.0 , IEC 60079-2:2014-07 Ed. 6, IEC 60079-31:2013 Ed. 2; |
| | EN 60079-0:2012 + A11:2013, EN 60079-1:2014, EN 60079-2:2014, EN 60079-31:2014 |

| Mechanical Data: | |
|---|---|
| Compressor Material: | Cast Iron / Cast Steel |
| Ex Terminal Box Material: | Stainless Steel (SS316) / Carbon Steel |
| Refrigerant Type: | R134a, R404A, R407A, R407C, R407F, R507A, R22 and CO2 |
| Maximum Overpressure: | 4.9 MPa (R410A) or 3.2 MPa (Reciprocating Type) |
| | 3.0 MPa (Reciprocating Type) |
| Minimum Overpressure: | 50 Pa |

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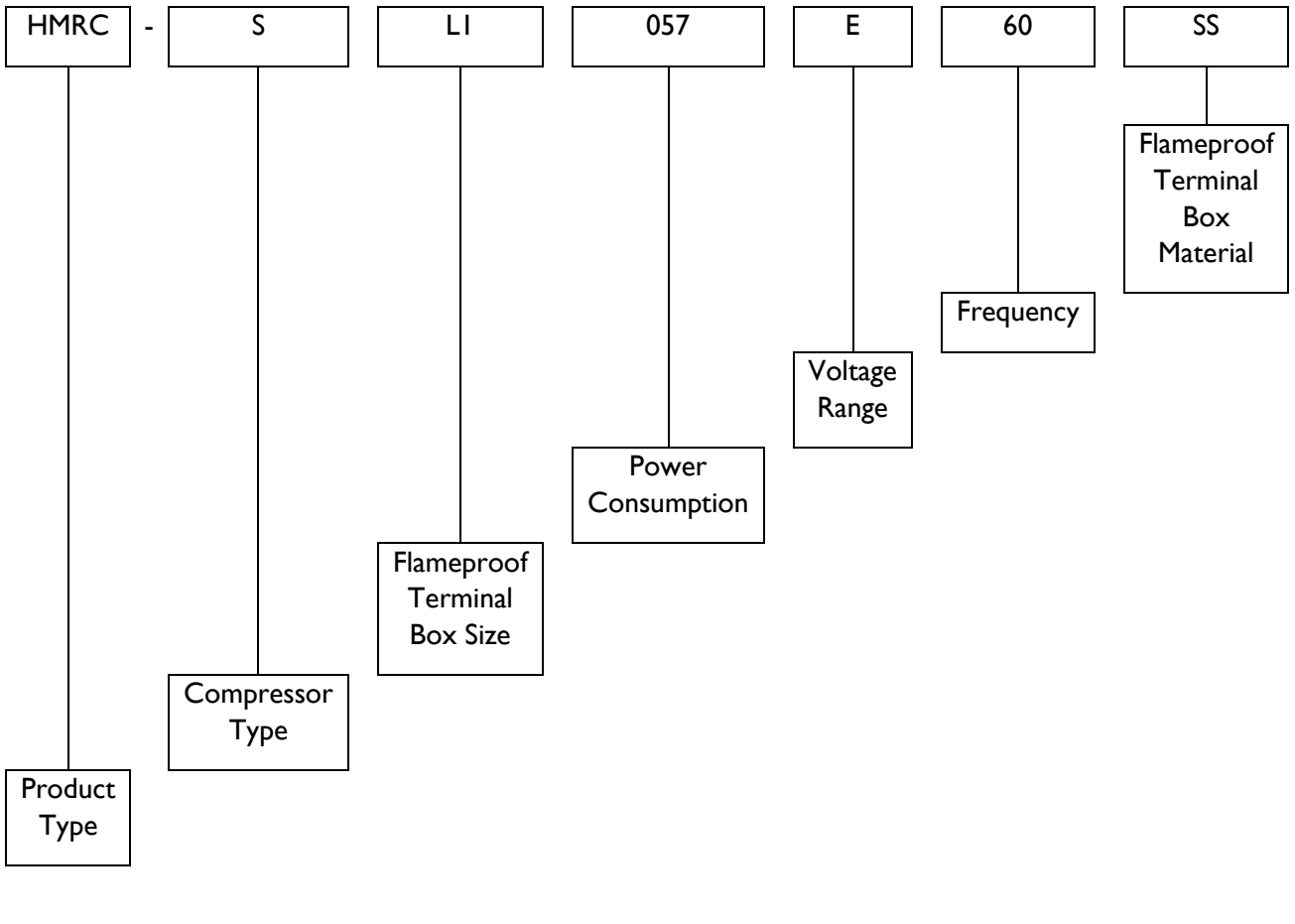
| Electrical Data: | |
|---|---|
| Rated Voltage: | 100-240V or 380-690V |
| Voltage system: | Single-phase or 3-phase |
| Frequency: | 50 or 60Hz |

## Type Explanation:



## Ordering Table:

| Product Type | Compressor Type | Flameproof Terminal Box Size | Power Consumption (kW) | | | Voltage (VAC) | Frequency (Hz) | Flameproof Terminal Box Material |
|---|---|---|---|---|---|---|---|---|
| | | | Hundreds | Tens | Ones | | | |
| HMRC | S-Scroll Type | L1-Large 1 | 0 | 0 | 0 | A-100-115 | 50-50 | SS-Stainless Steel |
| | | | | 1 | 1 | | | |
| | | L2-Large 2 | | 2 | 2 | B-200-240 | | |
| | | | | 3 | 3 | | | |
| | | M1-Medium 1 | | 4 | 4 | C-380-420 | | |
| | | | | 5 | 5 | | | |
| | R-Reciprocating Type | M2-Medium 2 | | 6 | 6 | D-440-480 | 60-60 | CS-Carbon Steel |
| | | | | 7 | 7 | | | |
| | | S1-Small 1 | | 8 | 8 | E-500-575 | | |
| | | | | 9 | 9 | | | |
| | | S2-Small 2 | | | | O-Other Voltage (Specify) | | |
| | | | | | | | | |

E.g.: HMRC-S057E60SS

| HMRC | S | L1 | 057 | E | 60 | SS |
|---|---|---|---|---|---|---|
| Hermetic Refrigeration Compressor | Scroll Type | Large Size-1 Flameproof Terminal Box | 57kW | 500-575 VAC | 60Hz | Stainless Steel Flameproof Terminal Box |

## Components/Instruments:

| Model | Description | Protection | Options | Application | Photo |
|---|---|---|---|---|---|
| IHDC-S | Immersion Heater | Ex db IIC Gb, Ex tb IIC Db | 70W | Oil Heating (Copeland Scroll) | |
| | | | 90W | Oil Heating (Copeland Scroll) | |
| | | | 120W | Oil Heating (Copeland Scroll) | |
| | | | 150W | Oil Heating (Copeland Scroll) | |
| | | | XXX | Customized | |
| TSDC-S | Temperature Switch | Ex db IIC Gb, Ex tb IIC Db | 130°C | Discharge Gas Protection | |
| | Temperature Sensor | | NTC | Discharge Gas Monitoring | |
| | Temperature Switch/ Sensor | | XXX | Customized | |

| Model | Description | Protection | Options | Application | Photo |
|---|---|---|---|---|---|
| SCDC | Solenoid Coil | Ex db IIC Gb, Ex tb IIC Db | 1545 | Pipeline Solenoid Valve Activation | |
| | | | 1240 | Pipeline Solenoid Valve Activation | |
| | | | 1335 | Pipeline Solenoid Valve Activation | |
| | | | XXXX | Customized | |
| PTDC-M | Pressure Transmitter | Ex db IIC Gb, Ex tb IIC Db | -0.8~7 Bar | Low Pressure Control | |
| | | | 0-30 Bar | Low/High Pressure Control | |
| | | | 0-50 Bar | High Pressure Control | |
| | Pressure Transducer | | -0.8~7 Bar | Low Pressure Control | |
| | | | 0-30 Bar | Low/High Pressure Control | |
| | | | 0-50 Bar | High Pressure Control | |

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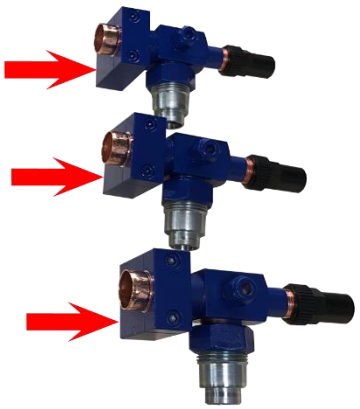
| Model | Description | Protection | Options | Application | Photo |
|---|---|---|---|---|---|
| PTDC-L | Pressure Switch | Ex db IIC Gb, Ex tb IIC Db | -0.8~7 Bar | Low Pressure Control | |
| | | | 0-30 Bar | Low/High Pressure Control | |
| | | | 0-50 Bar | High Pressure Control | |

## Accessories:

| Part No. | Description | Options | Application | Photo |
|---|---|---|---|---|
| HMRC-AS001-IHHB | Heating Block | Small | Heater Installation and Oil Heating (IHDC-S) | |
| | | Medium | Heater Installation and Oil Heating (IHDC-S) | |
| | | Large | Heater Installation and Oil Heating (IHDC-S) | |
| HMRC-AS002-TSCA | Connection Adaptor | Fixed | Discharge Gas Temperature Switch/Sensor Installation (TSDC-S) |  |

# HMRC Hermetic Refrigeration Compressor

| Part No. | Description | Options | Application | Photo |
|---|---|---|---|---|
| HMRC-AS003-CMSV | Customized Shut off Valve | Discharge Shut off Valve | HP Connection and Pipe Installation (PTDC-M/L, TSDC-S) | |
| | | Suction Shut Off Valve | LP Connection and Pipe Installation (PTDC-M/L) | |

If you need more information, you can always send an email to technicalsupport@fonteck.com for assistance.