

Kirby[®] Compressor Racks



Kirby Compressor Racks

Product Overview



Extensive experience, leading design and superior engineering capability provide Heatcraft the ability to offer a huge range of commercial refrigeration systems. With Kirby products you can be assured of longevity, efficiency and reliability. These expectations are synonymous with our Kirby Rack Systems that are manufactured in Australia.



Heatcraft innovation centre, Milperra, NSW

The made to order Kirby Racks are designed and built to meet Australian / New Zealand standards. Kirby equipment is supplied fully featured and offers contractors and end users great value through high performance, low maintenance and ease of installation.

Our extensive compressor range and Australia / New Zealand wide distribution allows you to meet your customer's specific requirements and time lines.

Our equipment can be tailored for all Refrigeration & HVAC applications for all sizes of installations and refrigerants. Refrigerant options range from (R744) CO₂ to HFC variants with leading innovation to support new generation refrigerants.

“ Heatcraft Australia manufacture customised Kirby Racks to suit your individual project requirements. We combine our expertise with leading global brands to deliver efficient and timely solutions for your business. Behind every Kirby Rack, you'll find world leading compressor technology. ”

Kirby Compressor Racks

Product Overview



Kirby Multi Compressor Rack with vertical receiver

Optimal refrigeration system performance and efficiency is achieved by providing variable capacity in periods of low and high demand. Peak load sharing and equalised run times on each compressor allows extended system life expectancy.

Numerous field service connections allow for multiple subsystems offering flexibility of the total system through staged connection of fixtures. This platform is ideal for sites that have multiple units requiring replacement.

An optional pre-wired platform with integrated system control allows delivery to site complete with "Ready to Run" configuration.

Our rack designs provide the choice of Copeland™ or Dorin® compressors.

Copeland Stream compressors include CoreSense™ diagnostics which can reduce service time and switchboard cost savings. The Copeland™ Stream compressors are the most technologically advanced semi-hermetic reciprocating compressors available. The combination of CoreSense™ with an Emerson control system provides enhanced system diagnostics. Variable capacity is available from either digital capacity control or standard cylinder unloading.

To discuss the customisation of a Kirby Multi Compressor Rack for your next project, contact your Heatcraft Representative today on 13 23 50.

Kirby solutions from Heatcraft

- Design standards that exceed expectations
- Assured design compliance with local standards
- Maximum system efficiency through advanced compressor technologies
- System integration with fully wired system options and control supply / configuration packages
- Compressors, components and refrigerant are fully supported by the Heatcraft Wholesale Network
- Capital cost solutions to meet all types of projects and budgets
- Extended warranty options and after market support
- Copeland Stream compressor technology - E2 controller interfacing: digital input, analogue input, discharge temperature probe, phase-loss protection (no MP15 required)

Kirby Compressor Racks

Standard & Custom Engineered Racks



Kirby Engineered Racks are specifically designed to share the refrigeration load between multiple compressors, provide supreme reliability and fail-safe operation (redundancy) in critical applications. The parallel compressor application provides optimal efficiency year round in variable climates and changing load conditions.

Compressor selections from an extensive range of energy efficient compressor solutions

Designed to accommodate 3, 4, 5 & 6 compressor configurations and refrigeration capacity between 10kW to 500kW at various suction temperatures on a singular frame

Suitable for low, medium and high temperature applications with potential to have two applications on a common frame

Systems designed to meet Australian / New Zealand design standards and code requirements

The design process is fully supported and guided by customer requirements

Pre and post commissioning and engineering support

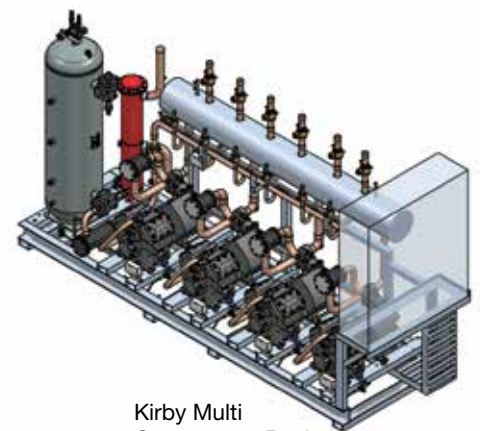
Design is compatible with and can be specifically designed for most HFC refrigerants including R134a, R404A (R507), R407F and R407C refrigerants

Pressure tested with nitrogen and delivered with a holding charge for system integrity and verification

Extended warranties available

Standard Features

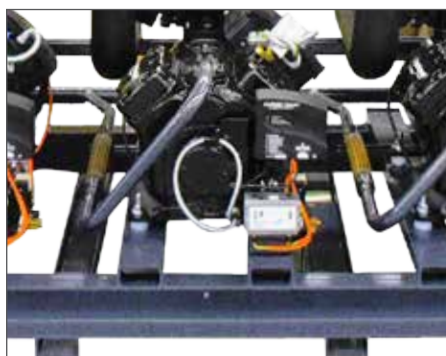
- Welded steel (fully painted) frame - Heavy-duty construction eliminates vibration
- Frame and sealed components engineered to customers' design requirements
- 4, 6 and 8 cylinder compressors offer provision for capacity regulation
- Oil separator, line filter and sight glass
- TraxOil Control with isolating valves
- HP/LP safety on each compressor LP safety for rack
- Return oil drain on suction header
- Suction filter shell per compressor including cores
- Liquid line drier shell including cores
- Oil supplied for rack charging on location
- Parallel headers and piping configuration with insulated suction lines / components



Kirby Multi Compressor Rack system with integrated switchboard

Kirby Compressor Racks

Standard & Custom Engineered Racks



Customised Solutions

- Water cooled condenser configuration
- Pre-wired system with integrated controllers
- Satellite compressor configuration
- Pressure regulating valves
- Fully pre-wired with electrical panel with integrated refrigeration system control
- Liquid sub cooling
- Vertical or horizontal receivers
- Special piping configurations - multiple field connections (header arrangements)
- Upsized receiver selections
- Compressor capacity control (digital)
- Compressor capacity control (unloading)
- Head cooling fans
- Part load start / soft start
- Pressure transducers with isolating valves
- Dixell rack control with LCD display
- Suction accumulators
- 3 gauge panel (suction, discharge and oil pressures)

Standard & Custom Engineered Racks*

Compressor Packages	Length (mm)	Width (mm)	Height (mm)	Dry Weight (kg)
Compressor Package (Small Displacement Models)				
3 Compressor Rack	2590	1135	1932	1100
4 Compressor Rack	3270			1350
5 Compressor Rack	3925			1625
6 Compressor Rack	4500			2150
Compressor Package (Medium - Large Displacement Models)				
3 Compressor Rack	2590	1135	1932	1260
4 Compressor Rack	3955			1620
5 Compressor Rack	3955			2000
6 Compressor Rack	4610			2340

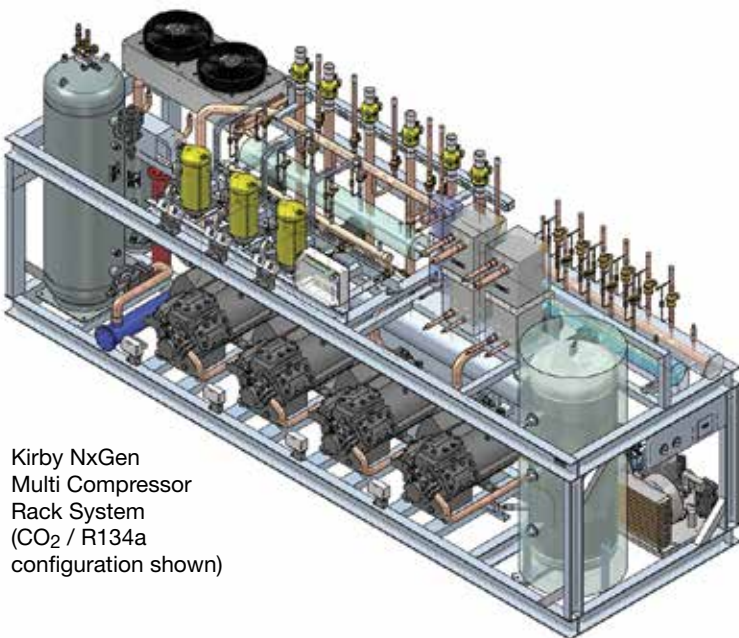
*All Dimensions listed are nominal and may vary depending on engineering to order specifications. Electrical switchboard dimensions not included.

Kirby Compressor Racks

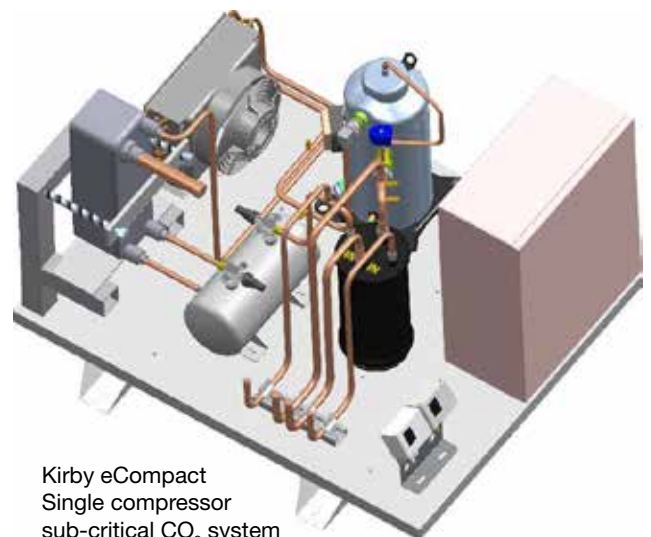
CO₂ Racks



The Kirby Sub-Critical (R744) CO₂ Rack Systems are a premium package designed to be coupled with any Kirby high stage system. These Kirby rack systems have a proven installed base and are engineered for superior performance and longevity. Their robust compact frame allows for fast installation and an extremely stable operating platform with minimal vibration and noise levels.



Kirby NxGen
Multi Compressor
Rack System
(CO₂ / R134a
configuration shown)



Kirby eCompact
Single compressor
sub-critical CO₂ system

Standard Features

- Semi-hermetic and/or scroll compressors can be configured on the standard frame
- The racks come complete with fully insulated headers, lines and components.
- Vertical receiver configuration allows minimal refrigerant charge and optimum liquid seal
- Compressor sub-frame assembly for reduced noise and vibration
- Gauge panels and pressure transducer locating points
- Minimal field connections of relief points with manifold changeover for all locations to aid maintenance, saving time and money.
- Oil supplied for rack charging on location
- The enhanced Kirby package incorporates a suction reheat system providing superior compressor protection
- Superior leak testing and pressure verification process, system leak fastness assured ex. factory
- Pressure tested with nitrogen and delivered with pressure charge for system integrity verification

Kirby Compressor Racks

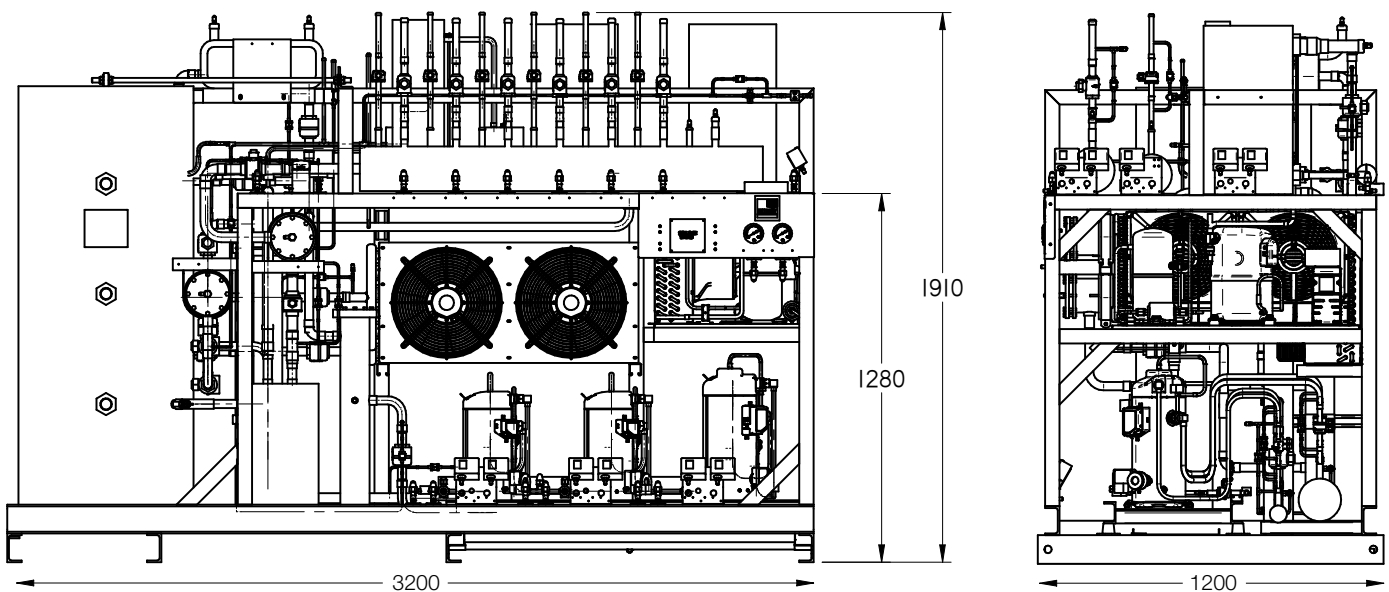
CO₂ Racks



The (R744) CO₂ Rack Systems offered by Heatcraft incorporate system protection which delivers integrity and enhanced installer confidence. Incorporated into the framework of the system is the option for an on board air cooled economiser and auxiliary cooling unit.

The parallel compression system can be configured with 2, 3 or 4 compressors matched to a defined refrigeration load.

The condenser configuration can be singular or multiple as determined by customer requirements. Our local manufacturing capabilities provide the ability to pre-configure system controls including wiring and line components and sensors factory installed.



Kirby Multi compressor CO₂ system with digital lead compressor

*Typical dimensions (mm) - Typical dry weight@1150kg

Customised Solutions

- On board auxiliary unit
- On board economiser (de-super heater)
- Pre-wired switchboard and control configuration
- VSD option (with pre-wired switchboard and control configuration)
- Digital compressor configuration (lead compressor only)
- Pre-wiring of compressors back to an enclosure - service friendly feature
- Pre-wired rack & compressor safety circuits
- Compressors, components and refrigerant are fully supported by the Heatcraft Wholesale Network
- Digital Capacity Control (~20% to 100%) - VSD not required when Digital selected
- Factory fitted CPC/Danfoss probes and sensors
- Compressor condensate trays in stainless steel
- Factory bent tubes provide less braised joints and improved system integrity and leak fastness
- Designs are supported by FMEA, CAD modelling which ensures consistency in manufacturing
- Stainless steel header boxes as standard for a superior finish and longevity

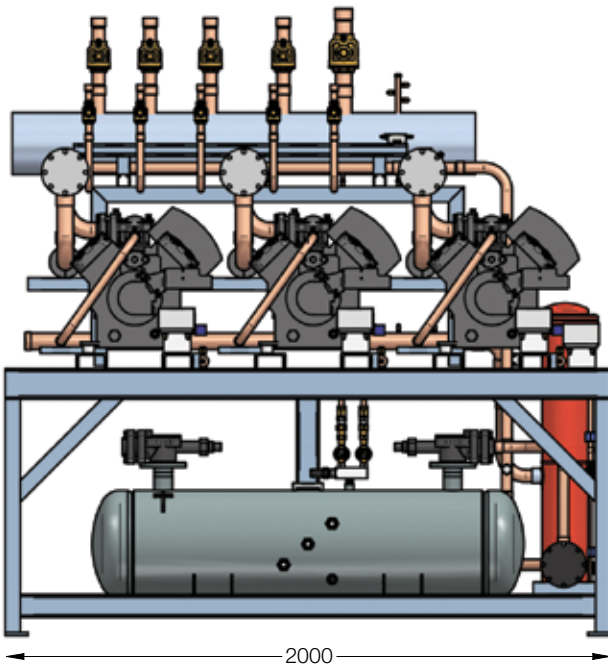
Kirby Compressor Racks Specialty Racks



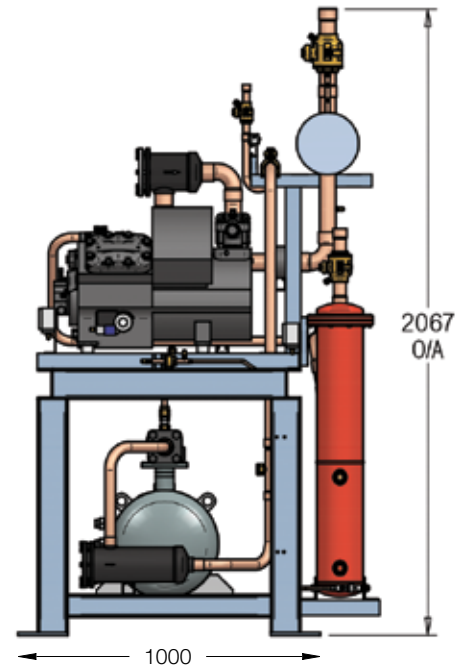
Kirby Specialty Racks are designed and manufactured to order.

The level of inclusions and quality in design is equal to that of the Standard Kirby rack products. A common platform for the Specialty Racks is the frame used for the Screw Packs. Kirby Specialty Racks are commonly used for central plant HVAC solutions. They combine a common compact footprint and standard design features with the flexibility of multiple compressor configurations. The under slung receiver provides further design flexibility and express manufacturing timelines.

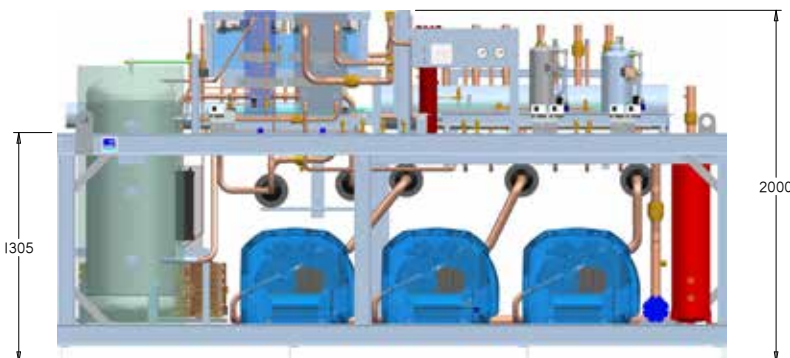
Heatcraft promise that with the inclusion of the Specialty rack product to our range, customers will be sure to find an engineered solution to suit their design requirements.



Multi-purpose HVAC&R Rack System
Digital capacity control on lead compressor



*Typical dimensions (mm)



Kirby NxGen Multi Compressor Rack CO₂ System - combination CO₂/HFC Rack
Shown with compressor sound shells

“ The Kirby specialty racks are configured completely with the end user specifications in mind. ”

Kirby Compressor Racks

Emerson Compressor Technology / Options

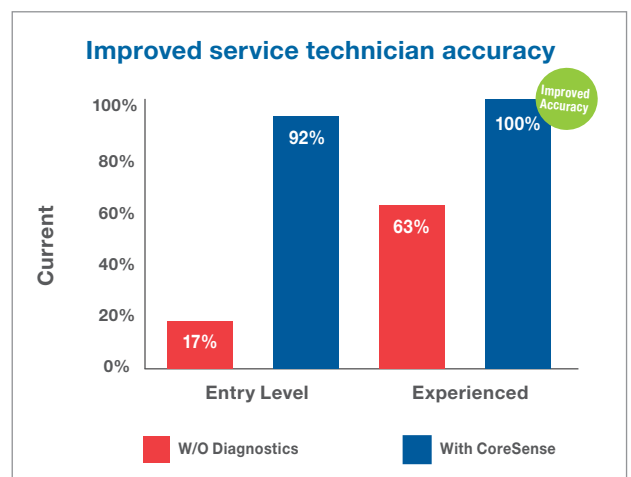
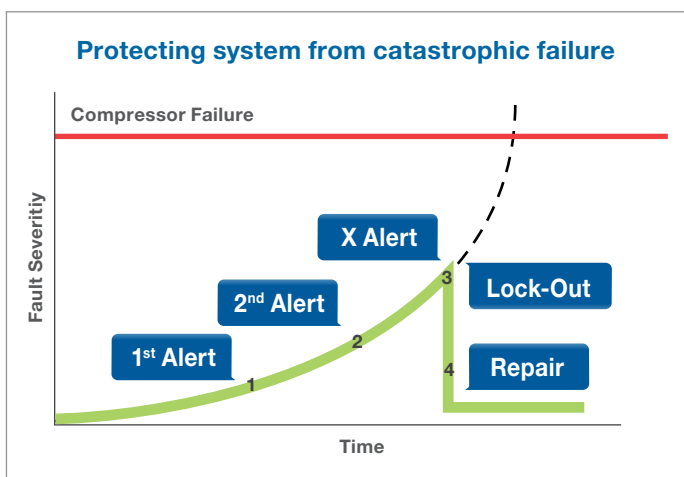


Copeland Stream - State of the Art Semi-Hermetic Piston Technology

- Load matching capacity capabilities
- Range of variable cooling capacity extends beyond inverter capabilities
- Continuous cooling capacity control - prevents off cycle and delayed recovery
- No vibrations or instability - improved longevity, less leaks
- Value capacity control solution
- Precise suction pressure (temperature) control with associated energy savings and stable evaporator temperatures; fewer cycles
- Reduced commissioning - quick and easy integration on Emerson control systems
- CoreSense™ compatibility – improved diagnostics; less downtime



CoreSense™ Diagnostics Module - Active Protection in Critical Conditions



OEM Benefits

- Warranty savings
- Product differentiation

Owner Benefits

- Prevents major repairs
- Extends system life
- Provides peace of mind

Contractor Benefits

- Fast troubleshooting
- Improved accuracy
- Fewer call-backs
- Enhanced reputation

Kirby Compressor Racks

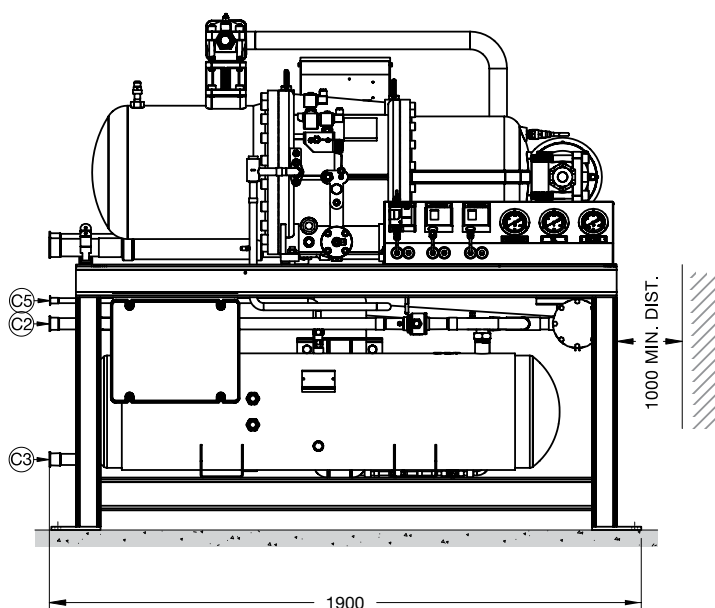
Screw Packs



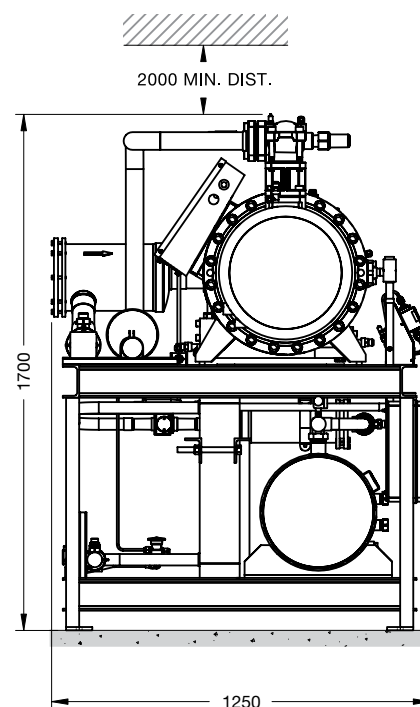
With its compact footprint, the Kirby Screw Pack provides an efficient means of compressing refrigerant in larger refrigeration and HVAC applications. The inclusion of the Hanbell Screw Compressor extends beyond the standard envelope of single reciprocating compressor systems.

The Hanbell Screw Compressor has a wide operating envelope, designed to cover low, medium and high temperature applications using R134a and R404A along with selected other refrigerants.

The Hanbell Screw Compressor offers excellent reliability and is a quieter than reciprocating compressors. Excellent capacities are achievable with the compressor designed to operate at 2800 rpm. Capacity control can be configured to ensure optimal year round performance.



Kirby Screw Pack with Hanbell Screw Compressor



*Dimensions shown are nominal (mm) and will vary depending on specification.
@1100kg live load dry weight

At design conditions, it offers higher operating efficiencies, compared to reciprocating or scroll compressor technologies. Combining a highly efficient motor with the high displacement (volumetric efficiency) of refrigerant provides system efficiency and lower energy use and running costs.

The Hanbell Screw Compressors feature fewer moving parts and incorporate long life bearings for higher levels of reliability and assurance.

The benefits of the Hanbell Screw compressor on a Kirby Screw Pack can be fully realised when coupled with a VSD and a factory wired control system and electrical panel.

Kirby Compressor Racks

Compact Racks

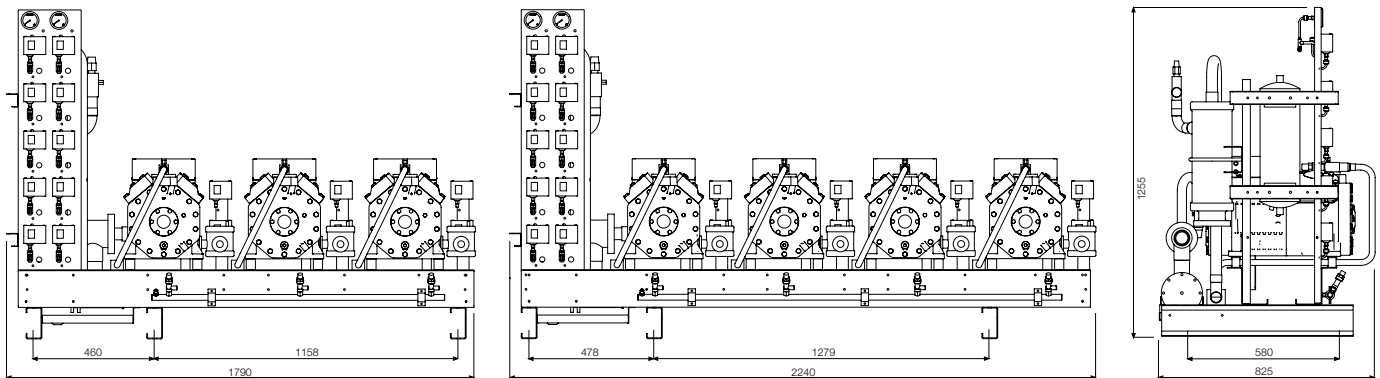


Increased interest in centralised plant application and the development of efficient, smaller displacement compressors has allowed Heatcraft to develop the Kirby Compact Rack. Application of the new generation compressors on a compact frame results in a smaller, lighter and much quieter design.

The overall result is a quality, high-tech unit with lower noise output, lower requirements and optimal performance.

Combining the advantages of a conventional rack system, the Kirby Compact Rack offers the simplicity of one connection point. Unlike traditional racks, the compact rack utilises a sheet metal frame making it a cost effective solution for new developments or replacement opportunities. Designed with a small footprint, this solution is ideal for applications with space constraints.

Using the Kirby Compact Rack makes it easy to deliver a tidy, fast and professional installation.



Kirby Compact Rack with Dorin Compressors

Suitable for 14 to 160 kW refrigeration capacity.

Standard Features

- Suited to all HFC refrigerants - R134a, R407F, R404A as well as many others
- Fully insulated suction header with condensate tray + suction filter shell with inlet isolating valve
- Powder coated frame (mechanically assembled)
- Common discharge header to oil separator / reservoir
- Discharge vibration eliminators
- TraxOil level regulation with individual isolating valves
- High pressure safety control per compressor + high pressure / low pressure safety control per rack
- Suction and discharge pressure gauges

Customised Solutions

- Dorin semi-hermetic compressors (H4 & H34)
- Copeland Scroll™ compressors
- Special piping configuration - multiple field connections (header arrangements)
- Pre-wired system with integrated controllers
- Remote vertical receiver with liquid level sight glasses
- Liquid line drier shell, sight glass and isolating valve
- Compressor capacity control (unloading)
- Compressor capacity control (digital)
- Head cooling fans
- Pressure transducers with isolating valves
- Welded steel (fully painted) frame



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