

COMPRESSORS

Rotary Screw Compressors

For Industrial Refrigeration



Frick[®]

BY JOHNSON CONTROLS

Frick RWF II and RXF Rotary Screw Compressors

Advanced Frick® technology means exceptional reliability and efficiency.

- Engineered and manufactured to meet industrial refrigeration requirements.
- Designed to assure reliability, accessibility, and ease of service.
- Compact package allows reduced engine room size and lower construction costs.
- High stage and booster applications for all common refrigerants.



RWF II with mounted Vyper™ Variable Speed Drive

RWF II Specifications*					
High Stage		R-717		R-507	
Model	CFM	TR	BHP	TR	BHP
100	592	213	235	190	268
134	790	284	314	258	361
177	1,042	384	410	333	466
222	1,311	483	517	436	592
270	1,589	598	638	534	726
316	1,865	688	736	608	839
399	2,349	866	926	768	1,066
480	2,824	1,018	1,127	886	1,268
546	3,216	1,169	1,280	1,011	1,446
496	2,920	1,054	1,181	973	1,341
676	3,982	1,424	1,612	1,258	1,845
856	5,068	1,809	2,056	1,586	2,504
1080**	6,402	603	679	745	1,027

* Based on 20°F Suction and 95°F Condensing with 10° Superheat

** Booster only @ -40°F Suction, 10°F intermediate, no Superheat



RXF Model 12 - 50

RXF Specifications*					
		R-717		R-507	
Model	CFM	TR	BHP	TR	BHP
12	71.5	25.3	30.3	20	35
15	89.2	31.6	37.9	27	44
19	110.5	39.1	46.9	35	54
24	144.1	51	61.1	43	71
30	179.8	63.7	76.3	57	88
39	222.6	78.9	94.5	72	110
50	292.3	103.6	124	94	144
58	341	120.9	143.3	113	166
68	403	142.7	169.3	134	193
85	499	176.8	209.6	169	240
101	596	211.4	250.7	201	292

*Based on 20°F Suction and 95°F Condensing with 10° Superheat



Screw compressor technology preferred –

Screw compressors are specified over reciprocating compressors because of their inherent reliability. Fewer moving parts and simple rotary motion means

- less maintenance
- lower noise and vibration levels
- lower total repair costs.

Frick compressors perform at peak efficiency under varying loads and operating conditions. Volumizer Variable Volume Ratio Control adjusts the compressor volume ratio during operation to the most efficient point, depending upon system requirements. This reduces energy waste caused by under- or overcompression. Infinite capacity reduction from 100% to 10% (RWF II) or 25% (RXF) of full load is provided by a slide valve control—one of the most efficient methods of capacity control for screw compressors. Frick compressors allow close system control under widely varying load conditions.



RWF II with mounted solid-state starter



RXF Model 58 - 101

COMPRESSORS

The World's Best Industrial Refrigeration Compressors

RWF II and RXF Compressors feature **rotor designs** that provide the strongest, most efficient operation for their applications

Continuous capacity control precisely matches load requirements

Variable volume ratio control reduces power consumption

Quantum™ HD Controller for user friendly, worry-free operation

Flange-Mounted Motors eliminate the need for coupling alignment

Cold-Start™ Valve ensures a quick start at any condition

SuperFilter™II keeps your oil clean down to 5 microns

Antifriction Bearings provide the highest reliability available

Easy to Service – All critical components for service and maintenance are easily accessible

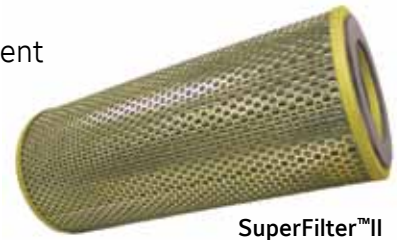
External Oil Cooling – Eliminate capacity and power penalties using the latest technology in plate design; constructed according to ASME Section VIII Division I.

Smart Series™ Motors – NEMA premium efficient, low noise motors also have standard Vacuum Pressurized Impregnation (VPI) of the windings

PhD Vibration Protection – PhD vibration monitoring helps stop interruptions before they start

Reliability with confidence – Dependability proven in thousands of installations

SuperCoalescer – Significantly reduced condensing pressures delivering maximum energy efficiency



SuperFilter™II

OPTIONS

Vyper™ Variable Speed Drive – Changes capacity by varying motor speed

Mounted Starters – Factory mounted, superior motor overload protection, less mounting space, and reduced installation costs

Dual Oil Filters – Ensure continuous operation during service of the primary filter. Isolation valves included.





Peace of Mind Performance



Innovative Design for the Lowest Total operating Cost

+

Industrial Strength for the Lowest Total Maintenance Cost

+

Backed by a Standard 2-Year or Optional 3-Year Warranty

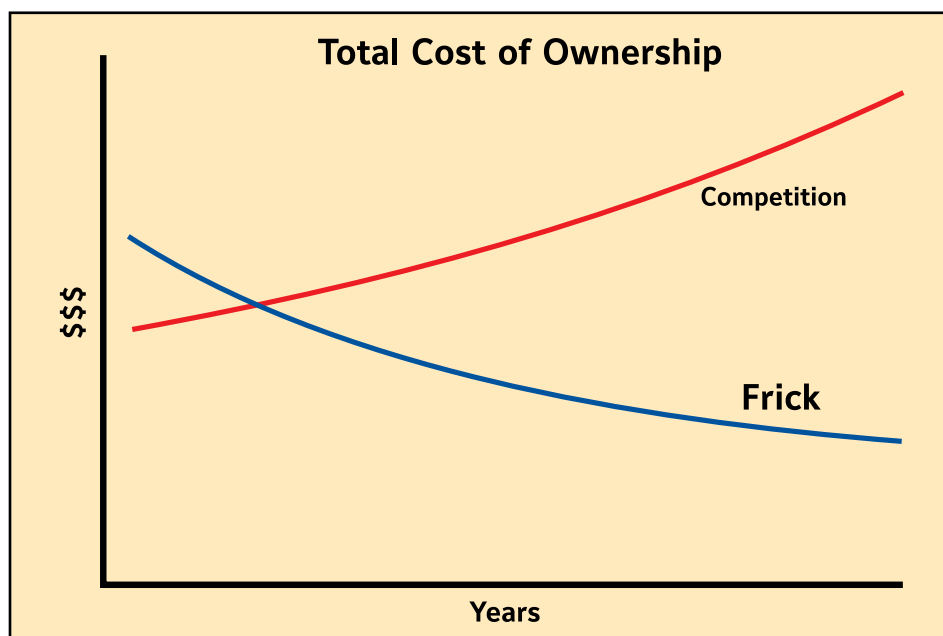
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Lowest Total Cost of Ownership



Energy-saving features reduce operating costs significantly. Your plant's performance depends upon refrigeration equipment reliability and efficiency. While evaluating productivity improvements, it's a good idea to take a close look at life cycle cost. When you

add up maintenance, operating, and repair costs, you'll find that Frick screw compressors provide increased productivity and efficiency resulting in lower total ownership cost. It's the "all work, no waste" compressor that helps you save energy and money.



Quantum HD... On-Screen "TOUCH" Control

Quantum™ HD is Standard – Quantum™ HD control panels make equipment management easy, from anywhere!

The large high-contrast display provides easy reading of operating values and control settings.

Access any control, calibration or configuration value using on-screen touch control.

Simply the easiest-to-use yet most powerful controller available today.



Quantum™ HD - Get Connected and Take Control !

Capacity control

- Four user-defined modes

Sequencing

- Three suction levels
- Up to eight compressors per level
- Uses Ethernet for high-speed communications
- High stage/booster interlock between levels

Communications

Supported serial protocols:

- Frick®
- Modbus ASCII
- Modbus RTU
- Allen-Bradley® DF1

Up to three serial communication ports with any protocol

Remote Networking

- Access all panels from any one panel on the network

Ethernet

- Modbus TCP
- Ethernet IP
- Secure, remote access from any or your web-enabled devices. See screens as though you were standing in front of the compressor using any standard Internet Browser!



The screenshot shows the Home screen of the Quantum HD controller. At the top, a green status bar indicates 'Normal' operation (10). Below it, the 'Control' is set to 'Suction Pressure' and the 'Setpoint' is '20.0 PSIG - Actual : 20.6 PSIG' (9). The 'Frick Factor-1' is displayed as '192.168.0.78 - 129' with the date and time '02/02/2011 14:31:14' (1). Navigation buttons for 'Home', 'Alarms', and 'Menu' are at the top right (2). Below the header, there are tabs for 'Home', 'User Defined', 'Documentation', and 'Sequencing'. The main content area is divided into several sections: 'Package Operating Values' (8) showing a table of pressure, temperature, and superheat for Suction, Discharge, Oil, Separator, and Filter Differential; 'Capacity Management' (3) showing 'Capacity Control' set to 'Mode 1' and 'Setpoint' at '20.0 PSIG', with an 'Actual' value of '20.6 PSIG'; 'Compressor -' (4) showing status 'Running' and controls for 'Capacity Slide', 'Volume Slide', 'Oil Pump', and 'Speed'; and 'System Operating Values' (7) with a 'Select Data' button and a table of values like 'Economizer Pressure' and 'Process/Brine Temperature'. At the bottom, there are large buttons for 'I' (start) and 'O' (stop) the compressor, along with up/down arrows for capacity, volume, and speed (6).

Never Leave the Home Screen !

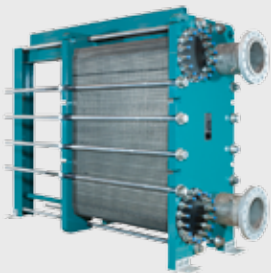
The **Home** screen of the Quantum HD controller is designed to provide normal day-to-day operation without the user leaving the **Home** screen. Above, in clockwise order, are the high points of the **Home** screen.

The Home screen header, including the package status bar, panel name, IP address, date and time, as well as the three primary navigation buttons, is always present. Only the content below the header changes as you navigate the Quantum HD controller.

- 1 The user-defined panel name, IP address, date and time are clearly illustrated.
- 2 Simply touch one of these three buttons to initiate the easy-to-follow, intuitive navigation. The active button is outlined. The Home screen is never more than a single touch away.
- 3 The **Capacity Management** window illustrates the current mode, setpoint and actual value. It also provides the operator the ability to easily and quickly select from up to four capacity control modes, as well as quickly change the capacity control setpoint.
- 4 The **Compressor** window provides the status, position and mode for the compressor, capacity slide, volume slide, oil pump and Variable Speed Drive (if used).
- 5 Easily change the mode of the compressor, capacity slide and volume slide. If used, the Variable Speed Drive mode will match the capacity slide mode.
- 6 Manual control of the capacity slide, volume slide and speed is accomplished by simply touching and holding the Up ▲ arrow to load or increase, or the Down ▼ arrow to unload or decrease. Manually starting and stopping the compressor is just as easy.
- 7 Select up to 6 system operating values from the **User-Defined** screen to be displayed on the Home screen. All analog values can be selected and viewed on the **User-Defined** screen.
- 8 The standard **Package Operating Values** are prominently displayed for easy interpretation.
- 9 The capacity control channel, setpoint, and actual value are clearly displayed adjacent to the package status bar.
- 10 The package status bar is color-coded, letting you know at a glance if the operation is **Normal**, or if the package is in **Warning** or **Shutdown**.

Single Source Industrial Refrigeration Solutions !

Heat Exchangers



Packaged Equipment



Hygienic Air Units



Vessels



Controls



Evaporators



Compressors



Condensers



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From 070.010-SG1 (2014-03)
Supersedes: 070.010-SG1 (2012-03)
Subject to change without notice
Published in U.S.A. • GUI 03/14 1M

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PRINTED ON CHORUS ART GLOSS TEXT
CONTAINS 25% POST-CONSUMER WASTE

