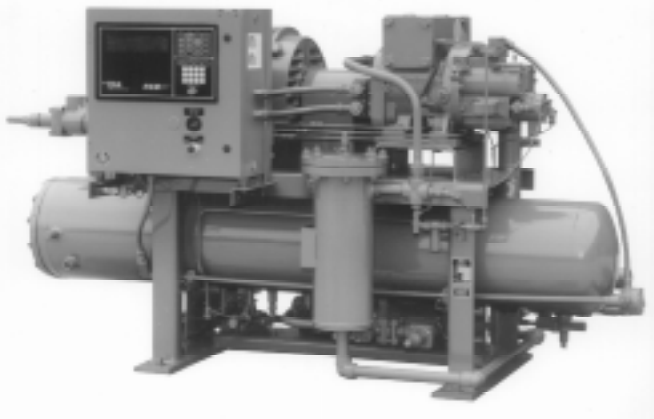




E70-100 SPC/JUN 95

File: EQUIPMENT MANUAL - Section 70
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RXB

ROTARY SCREW COMPRESSOR UNITS Models 12 through 50

SPECIFICATIONS

RXB Rotary Screw Compressor Units are engineered and manufactured to meet the exacting requirements of the industrial refrigeration market. All components have been designed and arranged to ensure reliability, accessibility, and ease of service. Standard units are designed for use as boosters or high-stage machines on ammonia, halocarbon, or hydrocarbon refrigerants, and are shipped completely assembled.

COMPRESSOR: The Frick manufactured **RXB** compressor incorporates the latest technology to bring large screw reliability and efficiency to small screw sizes. The ASTM A-48, class 40, gray-iron compressor casings are designed and tested in accordance with the requirements of ASHRAE 15 safety code, (335 psig working pressure). The steel rotors incorporate a new generation rotor profile. This profile, in combination with an integral gear drive to increase rotor tip speed, brings unprecedented efficiency to screw compressors in this size range. The compressor incorporates a complete antifriction bearing design for reduced power consumption, improved efficiency, and reduced maintenance.

CAPACITY CONTROL: The compressor incorporates a slide valve for capacity control, allowing infinite capacity adjustment from 100% to 25% of full load. Slide valve control is the most efficient unloading method available for part load operation of a screw compressor.

VOLUMIZER® II VARIABLE VOLUME RATIO CONTROL: The **RXB** compressor incorporates a simple mechanism which adjusts the compressor volume ratio during operation to the most efficient of three possible volume ratios, depending on system requirements. This minimizes the power penalty associated with over or undercompression and reduces excess bearing loading caused by running a machine at a less efficient V_i .

LUBRICATION SYSTEM: The **RXB** compressor is designed specifically for operation without an oil pump for high-stage service. All oil required for main oil injection and lubrication is provided by positive gas differential pressure and passes through a 15 micron filter. Boosters and some low differential pressure, high-stage applications will require the full-lube oil pump option.

OIL SEPARATOR/RESERVOIR: The oil separator is a horizontal, three-stage design with integral sump. The separator is designed and constructed in accordance with ASME Section VIII, Div. 1 for a maximum design working pressure

of 300 psig. Replaceable coalescent separator elements are provided for final gas/oil separation of particles down to less than 1 micron.

OIL COOLING: Cooling the compressor oil may be achieved by either liquid refrigerant injection oil cooling, or by the use of water or thermosyphon oil cooling. Water-cooled and thermosyphon oil cooling are supplied with ASME shell and tube heat exchangers mounted on the unit.

CONTROL CENTER: The compressor unit includes either a factory mounted and wired electromechanical or microprocessor control center with all required safety, operating, and monitoring controls as described below.

ELECTROMECHANICAL: Gasketed NEMA 1 panel. Safety controls include high and low pressure cutouts, oil pressure cutout and high discharge temperature cutout. Operating controls include control power switch, manual/remote selector switch, start/stop push button, safety reset button, remote/auto/manual capacity control switch, manual capacity control switch, liquid injection temperature control (LIOC only), automatic capacity control pressure switches and solenoids, and three-step volume ratio control. Manual reset for all safety cutouts. Monitoring devices include suction pressure, discharge pressure and oil pressure liquid filled gauges.

MICROPROCESSOR: Gasketed NEMA 4 panel. All safety, operating, and monitoring functions as described for the electromechanical control are included plus the added features of ammeter/motor load limiter, auto cycle, antirecycling timer, automatic V_i control, automatic liquid injection, dual-port changeover (LIOC only), time-proportioning capacity control, first-out annunciation, prealarms, real-time clock control, and access code protection. All major operating conditions are continuously displayed. All operating conditions prior to a compressor cutout shutdown are stored in memory and shown on the **FREEZE** display.

THERMOMETERS: Suction, discharge, and oil temperature thermometers are mounted on the unit (electromechanical only).

VALVES: The unit's discharge has a mounted combination check and stop valve. The suction has an integral suction strainer and mounted check valve and a separately shipped stop valve.

OPTIONAL FEATURES: Motors, Motor Mounting, Starter Packages, Choice of Electromechanical or Microprocessor Control, Full-Lube Oil Pump, Full-Cycling Oil Pump*, Dual Oil Filters, Economizer Kits (Check Valve and Strainer), Economizer Vessels and Controls, Thermosyphon Oil Temperature Control Valve, Automatic Volume Ratio Control**, Automatic Liquid Injection, Dual-Port Changeover**, Ammeter/Motor Load Limiter**, Antirecycling Timer**, Additional Oil Charge.

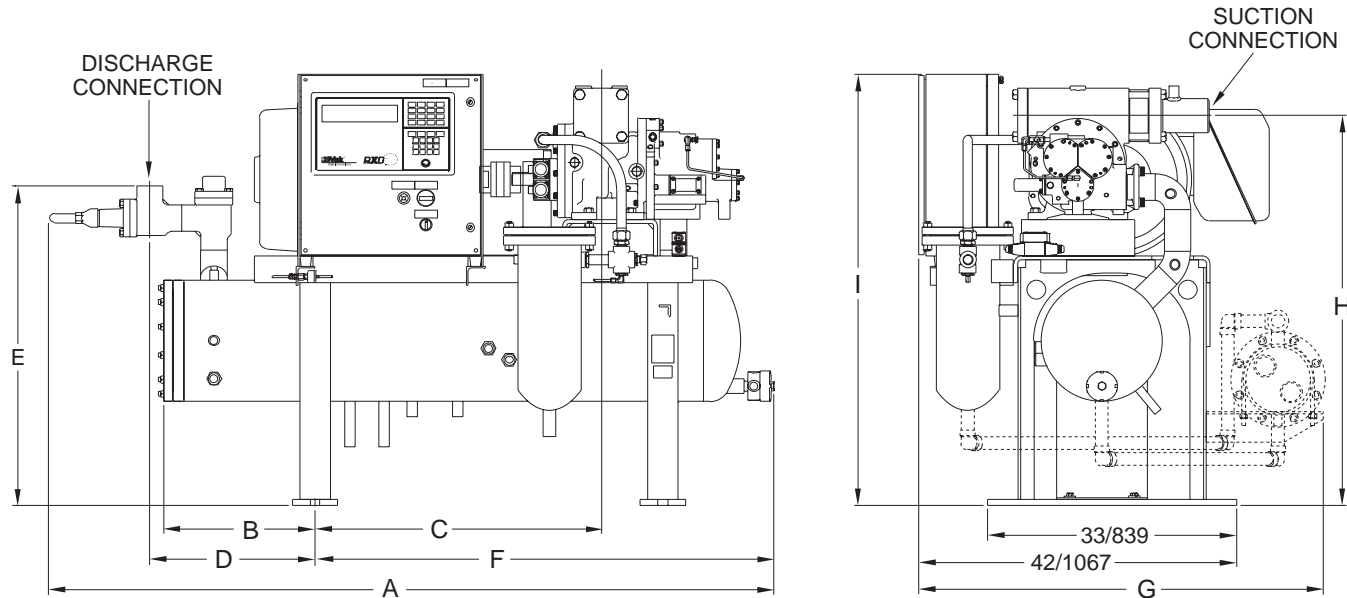
* Option with Microprocessor Control Only

** Furnished as standard with Microprocessor Control

STANDARD DESIGN DATA (with metric equivalents)

RXB MODEL NO.	MOTOR SPEED RPM	COMPRESSOR DISPLACEMENT		RATINGS R-717 (1)				RATINGS R-22 (2)				UNIT WEIGHT LESS MOTOR	
				CAPACITY		POWER		CAPACITY		POWER			
		CFM	M3/HR	TR	(kw)	BHP	(kw)	TR	(kw)	BHP	(kw)	lb.	kg
12	1750	71.5	122	25.3	(89.0)	30.3	(22.6)	22.4	(78.8)	33.1	(24.7)	1600	726
15	3550	89.2	152	31.6	(111.1)	37.9	(28.2)	27.9	(98.1)	41.3	(30.8)	1600	726
19	3550	110.5	188	39.1	(137.5)	46.9	(35.0)	34.6	(121.7)	51.2	(38.2)	1700	771
24	1750	144.1	245	51.0	(179.3)	61.1	(45.5)	45.1	(158.6)	66.7	(49.7)	1900	862
30	3550	179.8	306	63.7	(224.0)	76.3	(56.9)	56.3	(198.0)	83.3	(62.1)	2100	953
39	3550	222.6	378	78.9	(277.5)	94.5	(70.5)	69.7	(245.1)	103.1	(76.8)	2100	953
50	3550	292.3	497	103.6	(364.3)	124.0	(92.4)	91.6	(322.1)	135.4	(100.9)	2300	1043

1. R-717: +20°F (-6.7°C) suction and 95°F (35°C) condensing with 10°F (5.5°C) liquid subcooling and 10°F (5.5°C) suction superheat.
2. R-22: +20°F (-6.7°C) suction and 105°F (40.6°C) condensing with 10°F (5.5°C) liquid subcooling and 10°F (5.5°C) suction superheat.



NOTE: Drawing for reference only! Use certified drawings for erection.

RXB MODEL NO.	APPROXIMATE DIMENSIONS - INCHES/MILLIMETERS									CONNECTIONS	
	A	B(1)	C	D	E	F	G(2)	H	I(3)	SUCT	DISCH
12	92/2337	21/533	40/1016	21/533	38/965	61/1550	53/1346	49/1245	57/1448	2.5/63.5	2/50.8
15	92/2337	21/533	40/1016	21/533	38/965	61/1550	53/1346	49/1245	57/1448	2.5/63.5	2/50.8
19	96/2439	20/508	40/1016	22/559	42/1067	61/1550	53/1346	49/1245	57/1448	3/76.2	3/76.2
24	96/2439	20/508	38/965	22/559	42/1067	61/1550	53/1346	52/1321	57/1448	3/76.2	3/76.2
30	96/2439	20/508	38/965	22/559	43/1092	61/1550	53/1346	52/1321	57/1448	4/101.6	3/76.2
39	96/2439	20/508	38/965	22/559	43/1092	61/1550	53/1346	52/1321	57/1448	4/101.6	3/76.2
50	111/2819	25/635	38/965	27/686	43/1092	71/1804	56/1422	52/1321	57/1448	4/101.6	3/76.2

1. Allow additional 24 in. (610 mm) for coalescer accessibility.
2. Maximum dimension based on largest oil cooler, dimension varies by oil cooler type and size selected.
3. Maximum dimension "I" for RXB Electromechanical is 60 in. (1524 mm).

NOTE: The suction stop valve is shipped separately for field installation. Make allowances for piping.



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