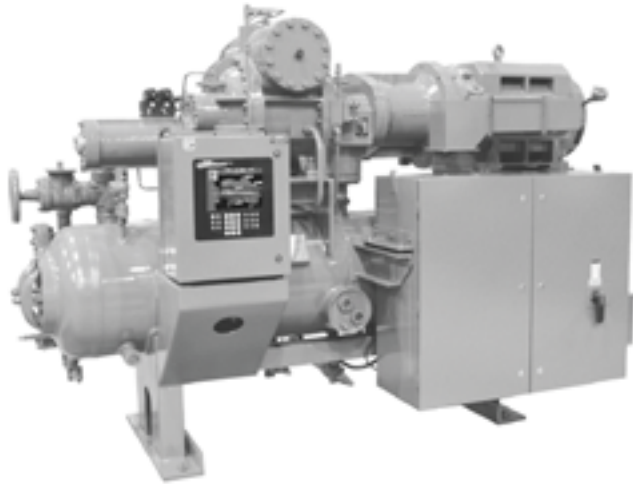




E70-610A SPC (OCT 2006)

## SPECIFICATIONS

File: EQUIPMENT MANUAL - Section 70  
Replaces: E70-610A SPC (DEC 2005)  
Dist: 1, 1a, 1b, 1c, 4, 4b, 4c



# RWF II

## ROTARY SCREW COMPRESSOR UNITS

Models: 100 - 546

## FEATURES AND BENEFITS

**RWF II** 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 assure reliability, accessibility, and servicing convenience. Standard units are designed for use as boosters or high-stage machines on ammonia or halocarbon refrigerants and are shipped completely assembled.

**COMPRESSOR:** The Frick manufactured **RWF II** compressor has been designed utilizing the latest technology to offer the most reliable and energy efficient unit currently available. Setup is easy thanks to the new D-flange connection on our low noise motor that is standard for the **RWF II**. All screw compressor casings are designed and tested in accordance with the requirements of ASHRAE 15 safety code. Rotors for models 100—270 are manufactured from bar stock. Rotors for models 316—546 are manufactured from forged steel. Both use the latest asymmetric profiles. The compressor incorporates a complete antifriction bearing design for reduced power consumption and the bearings selected provide an L10 life in excess of 100,000 hours at design conditions.

**CAPACITY CONTROL:** Capacity control is achieved by use of a slide valve which provides fully modulating capacity control from 100% to approximately 12% of full load.

**“VOLUMIZER” VARIABLE VOLUME RATIO CONTROL:** The **RWF II** compressor includes a patented method of varying the internal volume ratio to match the system pressure ratio, eliminating the power penalty associated with over- or undercompression.

**LUBRICATION SYSTEM:** The **RWF II** compressor is designed specifically for operation without an oil pump. All oil required for main oil injection and lubrication is provided by positive gas differential pressure. All oil passes through the Frick SuperFilter™ II, specifically designed for increased particle capture and cleaner oil and compressor operation. SuperFilter™ II captures 99% of particles 5 microns and larger and has twice the dirt holding capacity of the original filter for maximum bearing life. It is also designed for horizontal filter mounting and furnished with isolation stop valves and drain connections for ease of servicing. Booster and some low-pressure differential, high-stage applications will require the demand 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 EZ-Cool™ liquid-refrigerant-injection oil cooling, water-cooled oil cooling, or thermosyphon oil cooling. Water-cooled and thermosyphon oil-cooled systems are supplied with ASME plate and shell type heat exchangers mounted on the unit. They are also equipped with an oil temperature control valve.

**QUANTUM™ LX CONTROL CENTER:** The Quantum™ LX control panel is factory mounted, NEMA 4, UL @ listed, and completely wired with all the required safety and operating devices. A 10.4" Active Color VGA Graphics Display offers a high contrast, crisp, clear display of compressor information and status. Additional I/O can be easily installed in the field. This feature provides flexibility for future engine room upgrades and changes. Three field-selectable serial communication ports allow you to choose from a combination of RS-422, RS-485, or RS-232 port configurations for both interpanel and external communications. Ethernet communications are also available for direct connection to the internet. Included in the microprocessor is time-proportioning capacity control, first-out annunciation, prealarms, volumizer control, access code protection, lead-lag sequencing, four user-defined capacity control modes, trending, maintenance schedule, and more. The operating conditions at the time of the compressor's last 50 alarms or shutdowns are stored in memory, providing the ultimate in service and troubleshooting convenience.

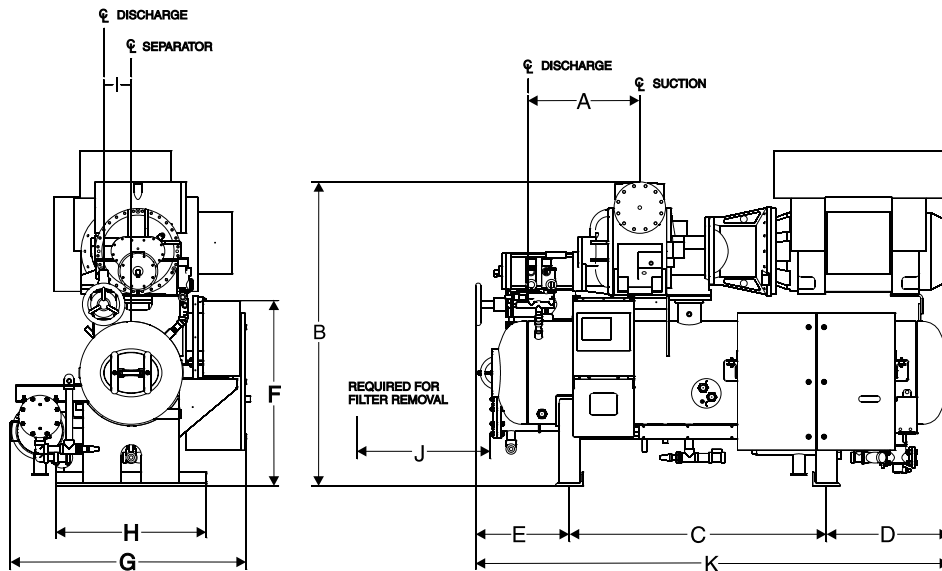
**VALVES:** The Unit's suction strainer is internal to the rotor housing and the suction stop valve can be mounted from either side.

**OPTIONAL FEATURES:** Demand Oil Pump, Dual SuperFilter™ II Oil Filters, Economizer, Unit-Mounted Solid-State Starter Packages, Power-Regulating Control Transformer, oversized Suction Valve, oversized Discharge Valve.

**STANDARD DESIGN DATA (with Metric equivalents) - NOMINAL @ 3550 RPM**

MODEL NO.	COMPRESSOR DISPLACEMENT		RATINGS R-717 (1)(2)				RATINGS R-22 (1)(2)				UNIT WEIGHT (3)	
			CAPACITY		POWER		CAPACITY		POWER			
			CFM	M3/hr	TR	kw	BHP	kw	TR	kw		
100B	592	1,005	59	207	60	45	72	253	77	57	5,400	2,449
100H	592	1,005	213	749	235	175	194	682	261	195	5,400	2,449
134B	790	1,342	79	276	80	60	96	337	102	76	5,600	2,540
134H	790	1,342	284	999	314	234	259	911	348	260	5,600	2,540
177B	1,042	1,770	105	369	102	76	128	450	130	97	7,300	3,311
177H	1,042	1,770	384	1,351	410	306	345	1,213	453	338	7,300	3,311
222B	1,311	2,228	132	464	129	96	161	566	163	122	7,600	3,447
222H	1,311	2,228	483	1,699	517	386	434	1,526	572	427	7,600	3,447
270B	1,589	2,700	163	573	159	119	199	700	202	150	10,000	4,536
270H	1,589	2,700	598	2,103	638	476	538	1,892	705	526	10,000	4,536
316B	1,865	3,169	188	660	183	137	229	806	232	173	12,500	5,670
316H	1,865	3,169	688	2,420	736	549	617	2,170	814	607	12,500	5,670
399B	2,349	3,992	236	831	230	172	289	1,015	292	218	12,800	5,806
399H	2,349	3,992	866	3,046	926	691	778	2,736	1,025	764	12,800	5,806
480B	2,824	4,798	284	1,000	277	207	347	1,221	352	262	16,800	7,620
480H	2,824	4,798	1,018	3,581	1,127	841	847	2,980	1,100	820	16,800	7,620
546B	3,216	5,464	314	1,104	290	216	381	1,340	377	281	19,700	8,936
546H	3,216	5,464	1,169	4,110	1,280	955	1,033	3,633	1,261	940	NA	NA

- Booster conditions are based on -40°F (-40°C) suction and 10°F (-12.2°C) intermediate temperature with liquid at interstage saturation and no superheat.
  - High stage conditions are based on 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) superheat.
  - Unit weight does not include motor.
- NOTE:** All packages with motors larger than 1250 hp will require a vertical oil separator.



MODEL NO.	APPROXIMATE DIMENSIONS Inches/Millimeters										
	A	B	C	D	E	F	G	H	I	J	K
100	37/940	78/1975	66/1676	32/818	25/635	58/1473	63/1600	36/914	7.5/191	34/864	124/3150
134	37/940	78/1975	66/1676	32/818	25/635	58/1473	63/1600	36/914	7.5/191	34/864	124/3150
177	31/787	99/2515	75/1905	36/912	26/660	54/1372	70/1778	44/1118	8/203	39/991	138/3500
222	31/787	99/2515	75/1905	36/912	26/660	54/1372	70/1778	44/1118	8/203	39/991	138/3500
270	37/940	105/2667	88/2235	42/1067	35/892	54/1372	77/1956	60/1524	23/588	39/991	166/4216
316	35/889	117/2972	88/2235	42/1067	35/892	54/1372	83/2108	60/1524	23/588	39/991	166/4216
399	35/889	117/2972	88/2235	42/1067	35/892	54/1372	83/2108	60/1524	23/588	39/991	166/4216
480	39/991	107/2725	82/2083	46/1168	49/1245	60/1524	89/2258	68/1727	22/558	34/864	177/4496
546	39/991	107/2725	82/2083	46/1168	49/1245	60/1524	89/2258	68/1727	23/588	34/864	177/4496

**NOTE:** Graphic above for reference only. Other unit sizes vary slightly. Use only certified drawings for erection.

MODEL NO.	STANDARD CONNECTIONS in./mm			
	R-717		R-22	
	SUCTION	DISCHARGE	SUCTION	DISCHARGE
100	5/127.0	4/101.6	5/127.0	4/101.6
134	6/152.4	4/101.6	6/152.4	4/101.6
177	6/152.4	5/127.0	6/152.4	5/127.0
222	6/152.4	5/127.0	8/203.2	5/127.0
270	8/203.2	6/152.4	10/254.0	6/152.4

MODEL NO.	STANDARD CONNECTIONS in./mm			
	R-717		R-22	
	SUCTION	DISCHARGE	SUCTION	DISCHARGE
316	8/203.2	6/152.4	10/254.0	6/152.4
399	8/203.2	6/152.4	10/254.0	6/152.4
480	8/203.2	8/203.2	10/254.0	8/203.2
546	10/254.0	8/203.2	10/254.0	8/203.2