Carrier <u>Transicold</u>

MARINE COMPRESSORS





The FULL LINE of marinized models for R U G G E D SEA duty.



CARRIER presents Marine compression TECHNOLOGY that's OCEANS apart.

No other manufacturer of compressors for marine air conditioning and refrigeration has the experience or product breadth offered by Carrier Corporation, backed by advanced R&D, engineering, and the technology-driven leadership of United Technologies.

Carrier's advanced compressors and packaged systems are hard at work in virtually every marine air conditioning and refrigeration application. Our Twin-Screw and the Howden Screw compressors are the latest additions to Carrier's full line. Both are revolutionary concepts in compressor technology. And, like our reciprocating models, both are evolutionary in design.

The Twin-Screw design packs all the performance of standard reciprocating compressors into a fraction of the space – and with 855 fewer moving parts. That means greater reliability, less vibration, and less noise. It provides exceptional seasonal energy efficiency. And it's compatible with R-22, R-134a, R-404A, and other HFC refrigerants. Simply put, the Twin-Screw compressor isn't just the most high-tech, high-performance compressor available today. It's the future of compressor technology.



The Howden WRV/XRV Screw is a product of over 50 years of manufacturing compressors for a wide range of applications. Resulting in optimum operating cost efficiency and reliability. Most Howden Screw compressors achieve system lubrication without an oil pump. Reduced size and weight mean a more compact footprint, simplifying installation. And like the Twin-Screw design, they're compatible with all existing refrigerants – and planned alternatives.

Likewise, Carrier's 5 Line reciprocating compressors are recognized as the marine-industry standard for superior performance and exceptional reliability. Every 5 Line model features time-proven, heavy-duty construction for extended life, and uncommonly smooth, balanced operation for the highest reliability in the transport air conditioning and refrigeration industry.

For more than three decades, our respected 06D and 06E semi-hermetic, single-stage compressors have enjoyed an industry-wide record for efficiency and dependability. Today, after years of tough, reliable service, they're still the best in the business.

Along with building the best compressors in the business, Carrier has developed a simple step-by-step specifying procedure. By working closely with Carrier, you can be sure your compressor, compressor-motor-control unit, or condensing unit package will meet the exact requirements and operating conditions of your application. Once you've determined your Carrier equipment specification, your system can be factory-assembled or you can order components separately and assemble them on-site.



PROVEN MARINE systems for EVERY application. INCLUDING YOURS.



Fishing Boat

SPECIFY the system YOU need and WE'LL build it. Or YOU *can* build it.

05T/06T Open-Drive/Semi-Hermetic Twin-Screw Compressor

- No suction or discharge valves provide smooth, quiet, vibration-free operation.
- Low-clearance screw design for lower oil-circulation rates.
- Ideal for variable-speed applications.
- Precision long-life bearings.
- · Capacity control.
- Economizer-cooled motor provides high-efficiency operation.



- Uses O-ring seals.
- End-users and rack manufacturers determine refrigerant/oil combination.
- Internal discharge-check valve.
- No oil pump.
- Two-step Vi for low-temperature models to maximize efficiency over a wide operating range of head pressures.

Howden WRV/XRV Screw Compressor

- Ease of installation makes the WRV/XRV ideal for horizontal separator applications.
- Use of roller bearings eliminates the need for oil pumps on over 90% of installations.
- Available with adjustable or fully automatic variable volume-control systems.
- Stepless capacity control combined with variable volume control delivers maximum energy savings.



- Separate end covers provide easy access to rolling elements, simplifying service.
- For most applications, the compressor uses direct liquidrefrigerant injection, eliminating the need for an oil cooler.
- Compatible with all existing refrigerants and planned alternatives.

5F/5H Open-Drive Reciprocating Compressor

- Automatic unloaded starting, expensive high-torque motors are unnecessary, reducing initial expense.
- High-efficiency motor can further increase efficiency of 5F and 5H compressors.
- Crankcase casting, cylinder head, and valve plate designs allow for a smooth, unrestricted refrigerant flow.
- Refined, two-piece shaft seal assembly virtually eliminates seal leakage for maximum reliability over a wide temperature range.
- Efficient crankcase heater design prevents accumulation of liquid refrigerant in the crankcase during shutdown, dilution of the compressor oil supply.



- As suction pressure changes, capacity control automatically reduces compressor capacity to as low as 35% of full-design load, reducing horsepower requirements as demand changes. Part-load operation increases energy efficiency, reducing utility bills.
- Large-capacity, manually reversible oil pump, automatic pressure regulator, and oil-filtering system provide positive pressure lubrication, extending life.
- Suction gases flow around cylinder sleeve to keep the cylinder cool, reducing cylinder wear.
- Greater operating efficiencies by running an oversized compressor at a reduced RPM.

05K/05G Open-Drive Reciprocating Compressor

- Superior efficiency significantly reduces horsepower drain, reduces maintenance, extends life, saves fuel.
- Exclusive balanced cylinder design minimizes torque pulsations for smoother operation, less wear.
- Extended maintenance, lower operating speeds, lower vibrations, and less wear mean less maintenance and lower operating costs.
- Larger capacity self-priming, reversible oil pump provides dependable oil flow under cold or flooded startup conditions and ample pressure at low rpm.

· High-flow, automatically reversible oil pump provides

Crankcase venting system equalizes pressure during

· Oversize sump holds extra oil in crankcase to prevent

levels dropping below safe lubrication range

positive-displacement oil lubrication.

startup and assures oil return to sump.

during flooded starts.

- Higher capacity, efficiency at speeds at least 30% lower.Housing-mounted clutch and larger clutch bearing provide
 - longer life.
 - Low oil-circulation rate of less than 1% for greater operating efficiency.
 - Exclusive compressor unloading saves fuel, increases efficiency, eliminates coil freezing, for uniform temperature distribution.
 - Industry-leading parts-and-labor warranty.

06D/06E Semi-Hermetic Reciprocating Compressor



- Contoured pistons lower cylinder clearances to increase compressor capacity and efficiency.
- High-efficiency valves provide increased refrigerant flow and lower pressure drops.
- Electronic oil-pressure switch.

05T/06T TWIN-SCREW COMPRESSOR



* CFM @ 3,500 RPM

** Part Winding/Across the Line Start - Low Temp

ARI Standard 540-1999

Low Temp: SST=-25°F (-32°C), SCT=105°F (41°C), Return Gas=40°F (4°C), Ambient=95°F (35°C) Medium Temp: SST=20°F (-7°C), SCT=120°F (49°C), Return Gas=40°F (4°C), Ambient=95°F (35°C)

HOWDEN XRV SCREW COMPRESSOR



Compressor	XRV								
Size	127-R1	127-R3	127-R4	163/1.65	163/1.93	204/1.10	204/1.45	204/1.65	204/1.93
Compressor Type	Screw	Screw	Screw	Screw	Screw	Screw	Screw	Screw	Screw
Drive Type	Open	Open	Open	Open	Open	Open	Open	Open	Open
Displacement (CFM @ 3,600 RPM)	207	280	345	420	500	573	756	860	952
Capacity (Tons):									
Low Temp.	17.88	25.17	31.75	39.15	47.30	55.61	77.14	85.14	94.25
Medium Temp.	55.66	77.38	96.88	118.30	142.60	165.60	229.50	253.30	280.40
High Temp.	82.84	114.50	143.00	175.20	210.80	242.90	336.50	371.40	NA
Nominal HP:									
Low Temp.	70.6	97.4	122.0	147.7	176.8	207.6	266.4	302.1	332.4
Medium Temp.	95.3	131.4	164.7	197.4	236.4	279.9	358.5	406.8	442.4
High Temp.	100.7	138.8	173.9	205.3	245.9	291.8	373.5	424.0	NA
Capacity Control	Stepless	Stepless	Stepless	Stepless	Stepless	Stepless	Stepless	Stepless	Stepless
Oil (Pints)		·	·	System Dep	pendent			·	
Rotor Diameter (Inches)	5	5	5	6.4	6.4	8	8	8	8
L/D Ratio	1.65	1.65	1.65	1.65	1.93	1.10	1.45	1.65	1.93
Max RPM	5,000	4,430	3,600	3,600	3,600	3,600	3,600	3,600	3,600
Min RPM	2,900	2,140	1,740	1,440	1,440	1,440	1,440	1,440	1,440
Min RPM w/ Cap. Control	2,900	2,140	1,740	1,440	1,440	1,440	1,440	1,440	1,440
Dimensions (Inches):									
Length/Depth	33	35	35	42	44	46	49	49	52
Width	15	15	15	17	17	20	20	20	20
Height	20	20	20	18	18	21	21	21	21
Connections (Inches):									
Suction ODF	4	4	4	5	5	6	6	6	6
Discharge ODF	2	2	2	3	3	4	4	4	4
Operating Weight (Lbs.)	550	550	550	800	855	1,400	1,455	1,520	1,620

Low Temp. SST = -25°F (-32°C), SCT = 105°F (41°C), Return Gas = 40°F (4°C), Ambient = 95°F (35°C) Medium Temp. SST = 20°F (-7°C), SCT = 110°F (43°C), Return Gas = 40°F (4°C), Ambient = 95°F (35°C) High Temp. SST = 40°F (4°C), SCT = 110°F (43°C), Return Gas = 65°F (18°C), Ambient = 95°F (35°C)

HOWDEN WRV SCREW COMPRESSOR



†CFM @ 1,800 RPM

Low Temp. SST = $-25^{\circ}F(-32^{\circ}C)$, SCT = $105^{\circ}F(41^{\circ}C)$, Return Gas = $40^{\circ}F(4^{\circ}C)$, Ambient = $95^{\circ}F(35^{\circ}C)$, * SCT = $100^{\circ}F(38^{\circ}C)$ Medium Temp. SST = $20^{\circ}F(-7^{\circ}C)$, SCT = $110^{\circ}F(43^{\circ}C)$, Return Gas = $40^{\circ}F(4^{\circ}C)$, Ambient = $95^{\circ}F(35^{\circ}C)$, * SCT = $100^{\circ}F(38^{\circ}C)$ High Temp. SST = $40^{\circ}F(4^{\circ}C)$, SCT = $110^{\circ}F(43^{\circ}C)$, Return Gas = $65^{\circ}F(18^{\circ}C)$, Ambient = $95^{\circ}F(35^{\circ}C)$, * SCT = $100^{\circ}F(38^{\circ}C)$



5F RECIPROCATING COMPRESSOR

Compressor	5F				
Size	-20	-30	-40	-60	
Compressor Type	Recip.	Recip.	Recip.	Recip.	
Drive Type	Open	Open	Open	Open	
Displacement (CFM @ 1,750 RPM)	19.9	29.8	39.8	59.6	
Capacity (Tons):					
Low Temp.	1.23	1.89	2.52	3.76	
Medium Temp.	4.57	6.90	9.21	13.90	
High Temp.	7.53	11.64	15.30	23.24	
Nominal HP:					
Low Temp.	3.9	5.7	7.9	11.2	
Medium Temp.	8.3	12.4	16.6	24.6	
High Temp.	10.5	15.8	21.3	31.3	
Cylinders	2	3	4	6	
Capacity Control	100/50	100/67	100/75/50/25	100/83/67/50/33	
Oil (Pts.)	5	5-1/2	12	13	
Bore (In.)	2-1/2				
Stroke (In.)	2				
Max RPM	1,750	1,750	1,750	1,750	
Min RPM	400	400	400	400	
Min RPM w/ Cap. Control	600	700	800	900	
Dimensions (In.):					
Length/Depth	16	18	22	24	
Width	19	21	19	21	
Height	19	18	20	25	
Connections (In.):					
ODF	1-1/8	1-5/8	1-5/8	2-1/8	
Discharge ODF	7/8	1-3/8	1-3/8	1-5/8	
Operating Weight (Lbs.)	175	215	355	400	

ARI Standard 540-1999

Low Temp: SST=-25°F (-32°C), SCT=105°F (41°C), Return Gas=40°F (4°C), Ambient=95°F (35°C)

Medium Temp: SST=20°F (-7°C), SCT=120°F (49°C), Return Gas=40°F (4°C), Ambient=95°F (35°C)

5H RECIPROCATING COMPRESSOR



ARI Standard 540-1999

Low Temp: SST=-25°F (-32°C), SCT=105°F (41°C), Return Gas=40°F (4°C), Ambient=95°F (35°C)

 $Medium \ Temp: \ SST=20^{\circ}F \ (-7^{\circ}C), \ SCT=120^{\circ}F \ (49^{\circ}C), \ Return \ Gas=40^{\circ}F \ (4^{\circ}C), \ Ambient=95^{\circ}F \ (35^{\circ}C) \ (10^{\circ}C) \$



05K/05G RECIPROCATING COMPRESSOR



Compressor	05	К	05G		
Size	-12	-24	-37	-41	
Compressor Type	Recip.	Recip.	Recip.	Recip.	
Drive Type	Open	Open	Open	Open	
Displacement (CFM @ 1,750 RPM)	12.4	24.7	37.0	41.0	
Capacity (Tons):					
Low Temp.	1.04	2.03	2.90	3.24	
Medium Temp.	3.14	6.18	9.15	10.55	
High Temp.	5.58	11.08	16.57	18.57	
Nominal HP:					
Low Temp.	3.3	6.6	9.1	10.0	
Medium Temp.	6.0	12.0	18.2	19.6	
High Temp.	7.8	16.2	26.8	27.5	
Cylinders	2	4	6	6	
Capacity Control	100	100/50	100/67/33	100/67/33	
Oil (Pts.)	4	5-1/2	7-3/4	7-3/4	
Bore (In.)	2	2	2	2	
Stroke (In.)	1-15/16	1-15/16	1-15/16	2-9/64	
Max RPM	2,200	2,200	2,200	2,200	
Min RPM	500	500	500	500	
Min RPM w/ Cap. Control	500	500	500	500	
Dimensions (In.):					
Length/Depth	12	13	17	17	
Width	11	13	17	17	
Height	15	17	16	16	
Connections (In.):					
ODF	Various	Various	Various	Various	
Discharge ODF	Various	Various	Various	Various	
Operating Weight (Lbs.)	84	108	146	146	

ARI Standard 540-1999

Low Temp: SST=-25°F (-32°C), SCT=105°F (41°C), Return Gas=40°F (4°C), Ambient=95°F (35°C)

 $\begin{array}{l} Medium \ Temp: \ SST=20^{\circ}F \ (-7^{\circ}C), \ SCT=120^{\circ}F \ (49^{\circ}C), \ Return \ Gas=40^{\circ}F \ (4^{\circ}C), \ Ambient=95^{\circ}F \ (35^{\circ}C) \\ High \ Temp: \ SST=45^{\circ}F \ (7^{\circ}C), \ SCT=130^{\circ}F \ (54^{\circ}C), \ Return \ Gas=65^{\circ}F \ (18^{\circ}C), \ Ambient=95^{\circ}F \ (35^{\circ}C) \\ \end{array}$

06D/06E SEMI-HERMETIC COMPRESSOR



ARI Standard 540-1999

Low Temp: SST=-25°F (-32°C), SCT=105°F (41°C), Return Gas=40°F (4°C), Ambient=95°F (35°C)

Medium Temp: SST=20°F (-7°C), SCT=120°F (49°C), Return Gas=40°F (4°C), Ambient=95°F (35°C)



The EARTH'S surface is COVERED by CARRIER people.



You can depend on Carrier Transicold marine systems for dependable service. You can depend on Carrier Transicold people for responsive support. Trained climate-control specialists, along with our product-support and field-service engineers, provide expert technical assistance worldwide.

Our experienced team is ready to answer questions, diagnose problems, and help prepare your specifications.

What's more, we provide comprehensive warranty

support and genuine Performance Parts through our network of Carrier Transicold Marine Service Centers that are satellite-linked to strategically located parts depots that offer 24-hour order processing and next-day air freight delivery.

For sales, service, and technical support in marine refrigeration and air conditioning, work with Carrier. We'll provide what you need, when you need it, where you need it. On land or sea.

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