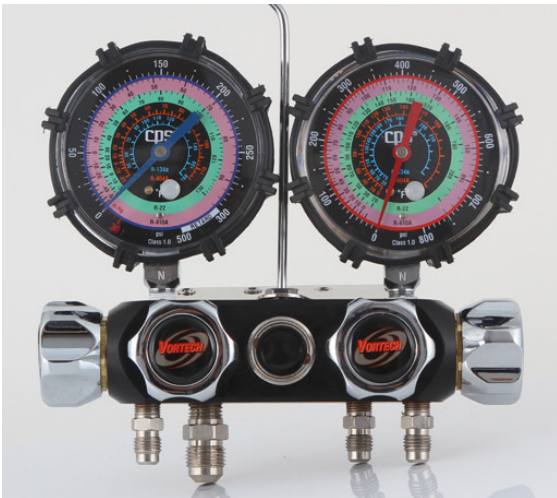




Drew Marine®

**REFRIGERATION
Products and Equipment**



Drew Marine Supports Your IMO Compliance Requirements

Drew Marine understands the challenges you face in operating your vessels efficiently and safely. Regulatory demands place additional pressure on operations, and refrigerants are a component of operations currently under regulatory pressure. Drew Marine offers products and technical support to meet regulatory demands. Drew Marine strongly recommends the recovery and reclamation of all halogenated refrigerants and will provide the support and expertise you need to meet MARPOL Annex VI regulations.

IMO recognizes hydrochlorofluorocarbon (HCFC) refrigerants as ozone-depleting substances. MARPOL Annex VI requires specific management of R22 use in ships' air-conditioning and refrigeration systems. In particular, ships must eliminate the possibility of R22 emissions as a normal course of operation.

Preventative maintenance, including leak detection and repair, must be conducted on a regularly scheduled and documented basis. The vessel's on-hand refrigerant inventory must be recorded, refrigerant additions recorded, and system repairs performed at the earliest practical opportunity. Drew Marine provides a Refrigeration Recovery Journal so all pertinent recordings can be properly documented.

IMO regulations require that ships using R22 have qualified personnel to operate and maintain:

- A leak detector
- A recovery machine
- A log book to record refrigerant inventory and consumption (Refrigeration Recovery Journal)

Note that many Flag and Port State regulations and classification society rules are more rigorous concerning the breadth of refrigerants covered by regulation and the scope of equipment required. Additionally, there are economic initiatives that warrant the practical recovery of hydrofluorocarbons (HFC) and refrigerants. There is a growing focus on the Global Warming Potential (GWP) of each HFC used today. A replacement refrigerant's GWP should be taken into consideration as a vessel moves from an older refrigerant to the newer HFC blend.

Contact a Drew Marine representative for technical support, product selection and recommendations for your refrigerant handling, usage and recovery/ reclamation requirements.



Complete Line of Refrigerant Recovery Equipment

Drew Marine offers a complete line of refrigerant recovery equipment that delivers reliability and efficiency while providing an economic value. We are committed to helping you optimize your green profiles with equipment that is friendly to the environment and safe for crew. Our program along with industry-side conservation, allows a

smooth transition from chlorine-containing refrigerants, like R22, to acceptable refrigerants, like R404A or R407C, with minimum disruption to your operations. Our goal is to assist you in maintaining safe, well-kept vessels that comply with regulatory requirements and avoid costly detentions and penalties.



REFRIGERATION RECOVERY MACHINE

- Powerful 1HP (0.8 kW) 2 cylinder oil less reciprocating compressor
- 550 psig high pressure cut off switch with LED indicator
- Permanently lubricated and sealed main bearings
- Improved piston seal design for less leakage and deeper vacuums
- Suitable for all HCFC and HFC refrigerants
- Capacity: 1.12 kg/min. vapor, 15.37 kg/min. liquid
- Weighs 24.5 lbs.

PCN	DESCRIPTION
0882085	Refrigeration Recovery System 120 V (TR 21)
0882077	Refrigeration Recovery System 220 V (TR 21S)



DUAL STAGE VACUUM PUMP

- Dual voltage design operates on 110V or 220V
- 6 cubic feet per minute capacity

Motor:	1/2 HP (0.4 kW)
Frequency:	50/60 Hz
RPM:	2880@50Hz - 3440@60Hz
Voltage:	110-220/ 220/240 VAC
Internal Start:	Yes
Capacitor-Thermal:	Yes
Overload Protector:	Yes
Oil Capacity:	0.9 liter (0.95q)
Dimensions:	333 mm x 140 mm x 254 mm (13.1" x 5.5" x 10")
Shipping Weight:	13.7 kg (30.2 lb)
PCN	DESCRIPTION
0704024	Refrigeration Vacuum Pump 6 cfm (170 liters/min)

RECOVERY/RECYCLING/RECLAMATION

The Montreal and Kyoto Protocol, in conjunction with environmental regulations in most countries, now mandate the recovery of refrigerant from a system prior to beginning service work. While most marine systems contain receivers that are capable of containing the entire system charge and can be isolated from the rest of the system, it may still be necessary to have recovery equipment on board to meet current requirements. In addition, with the rising costs of all refrigerants, it makes economic sense to recover as much refrigerant as possible and recycle it back into the system, in contrast to replacing the charge with new refrigerant.

In addition to a recovery machine and charging manifold, recovery cylinders are necessary. These cylinders can be used for temporary storage or for landing used refrigerant for reclamation. Drew Marine offers 56-liter (45-kg) capacity recovery cylinders with dual port and valve connections. In an effort to stabilize the marine industry's costs, Drew Marine has implemented a reclamation program in several ports. Our objective is to help maintain an adequate ongoing supply of R22, and HFC blends such as 404A and 407C which are replacing R22.



PCN	DESCRIPTION
0652090	45 KG Recovery Cylinder - 56 L

CHARGING SCALE

- High capacity 100 kg/220 lb refrigerant scale
- Calibrated to strict NIST standards
- Removable metal scale platform
- Large high resolution LCD readout w/ 6 ft (1.8 m) coil cord
- Operates 60 continuous hours on two 9V alkaline batteries

A fully enclosed and removable metal scale platform enables use of product in or out of the protective case. The ergonomic hand-held remote controller incorporates a 6 ft (1.8 m) coil cord, a hanging hook, and is backed with a magnet for attaching to metal surfaces.



Accuracy:	0.05% of Reading
Resolution:	±10g (±1/4oz)
Platform Size:	223 mm x 223 mm (8 3/4" x 8 3/4")
Weight:	2.55 kg (5.6 lb)
Operating Temp:	-10° C to 50° C (14° F – 122° F)
PCN	DESCRIPTION
0129511	Refrigeration Charging Scale

ELECTRONIC REFRIGERANT LEAK DETECTION



- State-of-the-art Cold Cathode Diode (CCD) sensor technology
- For use with all CFC/HFC/HCFC refrigerants
- 75 hour battery life (3 x LR14 “C” type batteries)

PCN	DESCRIPTION
0820028	Automatic Electronic Leak Detector
0820036	Spare Sensor

ACCESSORY ITEMS



PCN	DESCRIPTION
0129503	AC Ratchet Wrench, 4-way, N1000
0658023	Manifold System with Case R134A, R404A, R507, R407C
0698029	Gauge, Compound Blue - HFCs
0699027	Gauge, Pressure Red - HFCs
0700014	Charging Hose, Blue 1.5 m (1/4" X 60")
0701012	Charging Hose, Yellow 1.5 m (1/4" X 60")
0702010	Charging Hose, Red 1.5 m (1/4" X 60")
0703018	Charging Hose, Black 1.5 m (3/8" X 60")
0129529	Infrared Thermometer <ul style="list-style-type: none"> • Simple one-handed operation, laser point sighting • °C/°F select ability
0129537	Electronic Vacuum Gauge <ul style="list-style-type: none"> • Handles 400 PSI (27.6 bar) of positive pressure • 6.4 mm (1/4") standard refrigerant connectors • Includes adapter
0655011	Valve Adapters 6.4 mm (1/4") (4/Set)



For all refrigerant handling use and recovery/reclamation questions, contact your Drew Marine representative.

OUR VISION

Drew Marine is the most trusted brand and preferred global resource for marine solutions that enhance the longevity and operating efficiency of ocean vessels.

OUR MISSION

To sustain the superiority of the Drew Marine brand by bringing environmentally and technologically superior products and services for the benefit of vessel owners and operators while increasing shareholder value.



Drew Marine

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