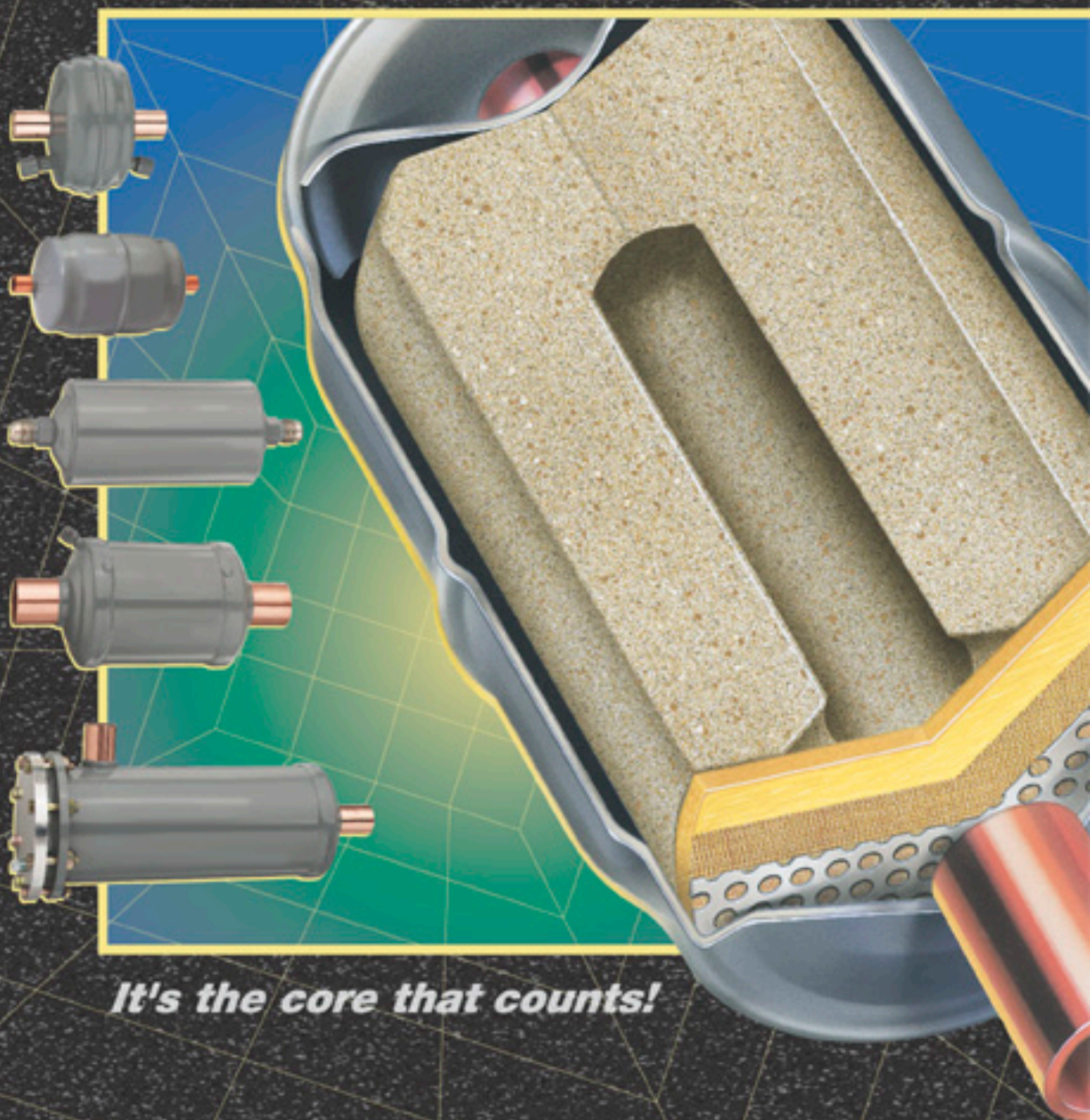


# Catch-All®

## LIQUID & SUCTION LINE FILTER-DRIERS

plus TA-1 & AK-3 Acid Test Kits



*It's the core that counts!*

**SPORLAN**  
**TVT**



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FOR USE ON REFRIGERATION and/or AIR CONDITIONING SYSTEMS ONLY

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## LIQUID LINE QUICK SELECTION RECOMMENDATIONS

SYSTEM SIZE		FIELD REPLACEMENT			
TONS	LINE SIZE Inches OD	AIR CONDITIONING		REFRIGERATION	
		R-12 & R-134a	R-22, R-407C & R-410A*	R-12, R-134a, R-404A, R-502 & R-507	R-22

### SEALED TYPES – SPECIFY FLARE OR SOLDER

1/4 - 1/3	CAP TUBE 1/4	C-032-CAP C-032(-S)	<i>C-032-CAP</i> C-032(-S)	C-032-CAP C-032(-S)	C-032-CAP C-032(-S)
1/2 - 1	1/4 5/16 3/8	C-052(-S) C-052S-S C-053(-S)	<i>C-052(-S)</i> <i>C-052S-S</i> <i>C-053(-S)</i>	C-082(-S) C-082S-S C-083(-S)	C-082(-S) C-082S-S C-083(-S)
1-1/2 - 2-1/2	5/16 3/8 1/2	C-082S-S C-083(-S) C-084(-S)	<i>C-082S-S</i> <i>C-083(-S)</i> <i>C-084(-S)</i>	C-162S-S C-163(-S) C-164(-S)	C-162S-S C-163(-S) C-164(-S)
3 - 6	5/16 3/8 1/2 5/8	C-162S-S C-163(-S) C-164(-S) C-165(-S)	<i>C-162S-S</i> <i>C-163(-S)</i> <i>C-164(-S)</i> <i>C-165(-S)</i>	-- C-303(-S) C-304(-S) C-305(-S)	-- C-303(-S) C-304(-S) C-305(-S)
7 - 9	1/2 5/8 7/8	C-304(-S) C-305(-S) C-307-S	<i>C-304(-S)</i> <i>C-305(-S)</i> <i>C-307-S</i>	C-414(-S) C-415(-S) C-417-S	C-414(-S) C-415(-S) C-417-S
10 - 12	1/2 5/8 7/8 1-1/8	-- C-415(-S) C-417-S C-419-S	<i>C-414(-S)</i> <i>C-415(-S)</i> <i>C-417-S</i> <i>C-419-S</i>	-- C-415(-S) C-417-S C-419-S	C-414(-S) C-415(-S) C-417-S C-419-S
13 - 18	5/8 7/8 1-1/8	-- C-607-S C-609-S	<i>C-415(-S)</i> <i>C-607-S</i> <i>C-609-S</i>	-- C-607-S C-609-S	C-415(-S) C-607-S C-609-S



### REVERSIBLE HEAT PUMP FILTER-DRIER

1 - 5	3/8 1/2 5/8	--	HPC-103-S / HPC-163-S-HH HPC-104-S / HPC-164-S-HH HPC-165-S-HH	--	--
-------	-------------------	----	--	----	----

### REPLACEABLE CORE TYPES

4 - 9	5/8 7/8	C-485 C-487	C-485 C-487	C-485 C-487	C-485 C-487
10 - 15	5/8 7/8 1-1/8	-- C-487 C-489	C-485 C-487 C-489	-- C-487 C-489	C-485 C-487 C-489
16 - 29	7/8 1-1/8 1-3/8	C-967 C-969 C-9611	C-967 C-969 C-9611	C-967 C-969 C-9611	C-967 C-969 C-9611
30 - 39	7/8 1-1/8 1-3/8	-- C-1449 C-14411	C-967 C-969 C-9611	-- C-1449 C-14411	C-967 C-969 C-9611
40 - 59	1-1/8 1-3/8 1-5/8	C-1449 C-19211 C-19213	C-1449 C-14411 C-14413	-- C-19211 C-19213	C-1449 C-14411 C-14413
60 - 75	1-1/8 1-3/8 1-5/8	-- C-19211 C-19213	C-1449 C-19211 C-19213	-- C-19211 C-19213	-- C-19211 C-19213
76 - 99	1-3/8 1-5/8 2-1/8	-- C-30013 C-40017	C-19211 C-19213 C-19217	-- C-30013 C-40017	C-19211 C-19213 C-19217
100 - 130	1-5/8 2-1/8	-- C-40017	C-30013 C-40017	-- C-40017	C-30013 C-40017
131 - 150	2-1/8	(2) C-40017	C-40017	2) C-40017	C-40017

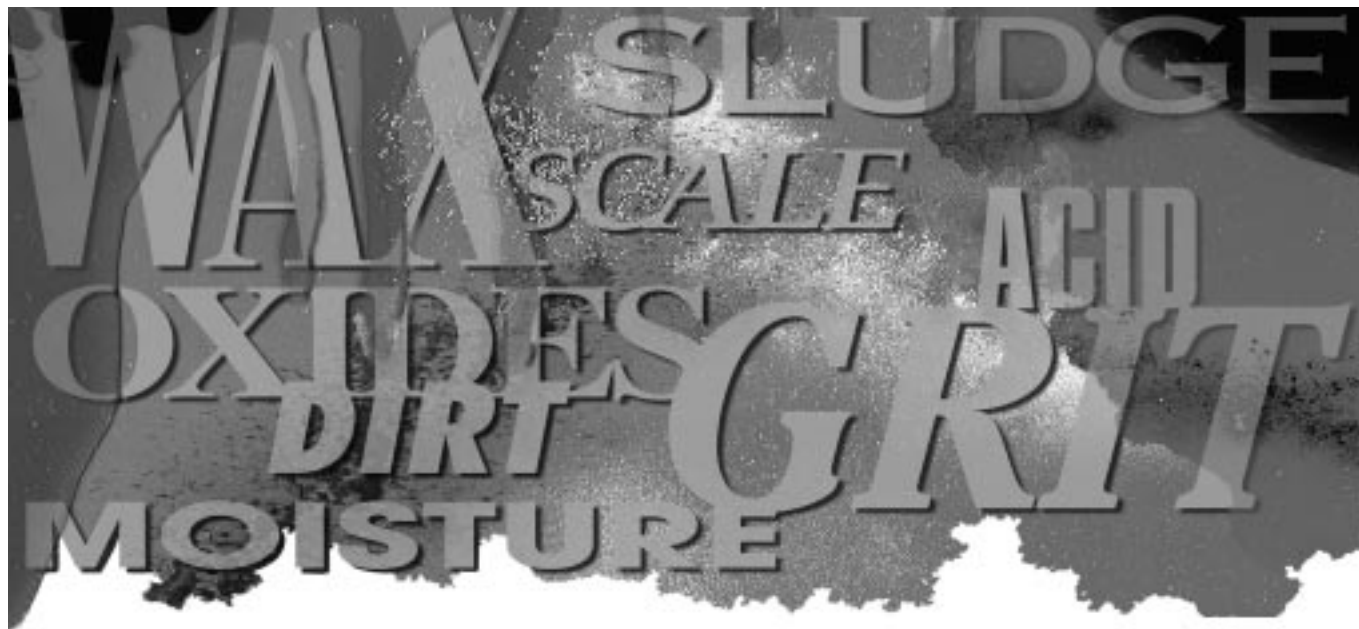


CATCH-ALL SIZE	NO. OF CORES	CORE TYPE
C-R420 Series Shell	1	RCW-42
C-480 Series Shell	1	RCW-48, RC-4864, or RC-4864-HH
C-960 Series Shell	2	
C-14400 Series Shell	3	
C-19200 Series Shell	4	
C-30000 Series Shell	3	RCW-100, RC-10098, or RC-10098-HH
C-40000 Series Shell	4	



\*Italicized Catch-Alls are approved for R-410A. Consult Sporlan Valve Company for additional information.

## WHY CHEMICAL BREAKDOWN OCCURS



Moisture is an important factor in the formation of acids, sludge, copper plating, and corrosion. To be *safe* and *sure*, keep the moisture level as low as possible.

**MOISTURE** — Water or moisture is always present in refrigeration systems, especially with the use of hygroscopic polyolester (POE) lubricants. Acceptable limits vary from one unit to another and from one refrigerant to another. Moisture is harmful even if “freeze-ups” do not occur.

catalytic in effect, resulting in the formation of corrosive compounds.

Another significant source of acidity in refrigeration systems is organic acid formed from lubricant breakdown. Acid is formed when POE lubricant reacts with moisture. Appreciable amounts of *organic acid* are found in lubricant samples analyzed in our laboratory. Since acids corrode metals in a system, they must be removed.



Dirt, oxide scale, sludges, flux, and metallic particles are frequently found in refrigeration systems. Numerous metallic contaminants — cast iron dust, rust, scale, steel, copper, and brass chips — can damage cylinder walls, bearings, and plug capillary tubes or thermostatic expansion valve screens. In addition to mechanical damage and “plug-ups,” these contaminants catalyze chemical reactions that contribute to decomposition of the refrigerant-lubricant mixture at elevated temperatures.

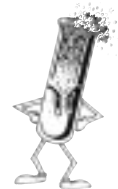
**DIRT** — Dirt, oxide scale, sludges, flux, and metallic particles are frequently found in refrigeration systems. Numerous metallic contaminants — cast iron dust, rust, scale, steel, copper, and brass chips — can damage cylinder walls, bearings, and plug capillary tubes or thermostatic expansion valve screens. In addition to mechanical damage and “plug-ups,” these contaminants catalyze chemical reactions that contribute to decomposition of the refrigerant-lubricant mixture at elevated temperatures.



**SLUDGE and VARNISH** — Although the utmost precaution may be taken in the design and fabrication of a system, once in operation, unusually high discharge temperatures will cause the lubricant to breakdown. By-products of mineral/alkylbenzene lubricant decomposition are varnish, sludge, and possibly carbonaceous powder.

Temperatures may vary in different makes of compressors and under different operating conditions. While temperatures of 265°F are not unusual at the discharge valve under normal operation, temperatures well above 300°F frequently occur under unusual conditions. Common sources of high temperatures in refrigeration systems are dirty condensers, non-condensable gases in the condenser, high compression ratio, high superheat of suction gas returned to compressor, fan failure on forced convection condensers, and others.

In addition to high discharge temperatures, there are certain *catalytic metals* that contribute to the lubricant-refrigerant mixture breakdown. The most noted of these in a refrigeration system is iron. It is used in one form or another in all systems and is an active catalyst. Copper is in the same category as iron, but its action is slower. However, the end result is the same. This reaction causes sludge formation and other corrosive materials that will hinder the normal operation of compressor valves and control devices. **In addition, air in a system will accelerate the deterioration of the lubricant.**



**ACIDS** — Refrigerants by themselves are very stable, even when heated to a high temperature. However under some conditions, reactions do occur which can result in the formation of acids. For example, Refrigerant 22 will decompose at high temperatures to form hydrochloric acid where an “acid acceptor” such as electrical insulation paper is present. The reaction of refrigerants with water may cause hydrolysis and the formation of hydrochloric and hydrofluoric acids. These acids are usually present as a gas in the system and are highly corrosive. In ordinary usage this reaction is negligible, but in a very wet system operating at abnormally high temperatures, some hydrolysis may occur.

All of these reactions are increased by elevated temperature and are

# Catch-All®

## HOW IT WORKS

*The famous molded porous core of the Catch-All Filter-Drier® performs these vital functions:*



**REMOVES MOISTURE** — The *Catch-All Filter-Drier* removes moisture from the refrigerant and lubricant by adsorbing and retaining moisture deep within the desiccant granules. The blend of desiccants used in the Catch-All is specially formulated for exceptional moisture removal. The high degree of activation ensures maximum water capacity, which means the core removes a large amount of water in one pass, thereby protecting the expansion valve from possible freeze-up. Since the refrigerant must flow through the core, maximum contact between the two ensures rapid system dehydration.

**REMOVES FOREIGN MATTER** — Scale, solder particles, dirt, and all types of foreign substances must be removed to protect the compressor, solenoid valves, expansion valves, capillary tubes, and other close tolerance parts of a refrigeration system.

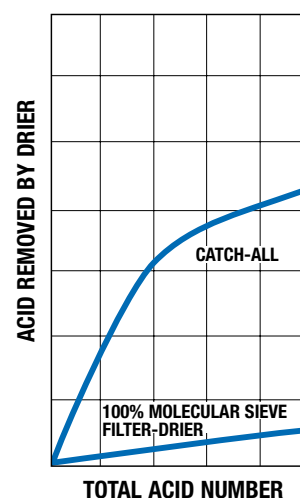
The solution to system filtration is the Catch-All Filter-Drier. The Catch-All has been designed to do the job with maximum efficiency. It removes these particles, down to the minimum size, in one pass filtration. Furthermore, the large filtering surface available on the core results in the ability to collect a large amount of dirt with negligible pressure drop. If plugged, the Catch-All will not burst allowing trapped substances back into the system.

**REMOVES ACIDS** — The *Catch-All Filter-Drier* is unexcelled in acid removal ability. The hydrochloric, hydrofluoric, and various organic acids found in used oil samples are harmful in a system. These acids are adsorbed and remain on the desiccant in a manner similar to the adsorption of moisture.

Laboratory tests have shown that the Catch-All Filter-Drier's desiccant has an acid removal ability superior to other desiccants used in other refrigeration driers. Compared to other filter-driers designed for today's systems, tests show the *Catch-All Filter-Drier* removes much more acid (on an equal weight basis).

The Catch-All has demonstrated excellent field performance in cleaning up severely contaminated systems, whether due to acid, lubricant breakdown, or to hermetic motor burnout. Its success in field service work and in protecting new systems is largely due to its outstanding ability to remove acid and the products of lubricant breakdown.

### ORGANIC ACID REMOVAL ABILITY



**REMOVES SLUDGE and VARNISH** — Even the best refrigeration lubricants frequently break down to produce organic acids and possibly varnish and sludge. These products of lubricant decomposition, typically seen in mineral/alkylbenzene lubricant, are called “oleoresin” and are formed due to excessive heat or air in the system. Varnish can plug small orifices and accumulate on compressor valves causing eventual valve failure.

The ability of various desiccants to remove these products of lubricant decomposition has been evaluated in sealed glass tubes. Of all the desiccants tested, only the desiccant used in the Catch-All Filter-Driers proved capable of removing the products of lubricant breakdown. This ability makes the Catch-All Filter-Drier highly effective in cleaning systems that have had a hermetic motor burnout, and in protecting new systems by preventing an accumulation of these lubricant breakdown products.



## THE INSIDE STORY

*The Catch-All Filter-Driers provide these proven benefits:*



**BLEND OF DESICCANTS** — Through constant engineering research, Sporlan developed a blend of desiccants that gives each core maximum contaminant removal characteristics for today's systems. Each core is formulated with molecular sieve for high water capacity and activated alumina for acid removal. A special grade of activated alumina granules is used to obtain the maximum ability to remove acids and products of lubricant breakdown. The overall result is balanced contaminant removal ability.

**SPECIAL CHARCOAL BLEND** — The HH core, which incorporates activated charcoal along with other desiccants, will remove wax, resins, and lubricant breakdown materials that normal desiccants do not remove. Therefore, this type of core is especially useful on low temperature systems when wax is suspected in the system or when wax-like substances are found in the metering device.

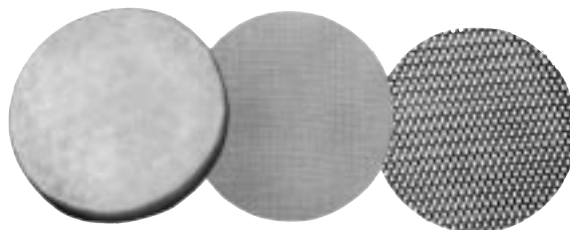
The HH style core has also found wide application for clean-up after a hermetic motor burnout where its ability to remove all types of contaminants is very advantageous. **BE SELECTIVE!** Choose a core designed for the specific application involved.

**UNIFORM MOLDING** — Sporlan pioneered the molded porous core. The core is carefully molded to assure a uniform porosity throughout the entire length and surface of the core. The granules of desiccant are carefully sized and controlled to obtain the proper porosity for maximum filtration ability.



**SHOCKPROOF ASSEMBLY** — The core is held in place by a heavy leaf spring at the inlet end of the Catch-All assembly. This spring holds the core in position and makes the assembly highly resistant to core breakage. The heavy spring gives a "pre-stressed effect" that significantly reduces the tendency of the core to break if the Catch-All is accidentally dropped.

**NO BYPASSING** — The core is sealed to the shell wall at the outlet end with a gasket or fiberglass pad, which prohibits any possible bypassing of refrigerant around the core. All the flow passes through the core for maximum contaminant removal.



**OUTLET SAFETY FILTER** — A final "safety filter" is used in the outlet of every Catch-All. This 100 mesh screen collects any stray core particles that might be rubbed off during assembly, and also serves as a protective safety device in case the molded core is broken.

**LEAKPROOF SHELL** — The Catch-All shell is welded by the heliarc method, which gives a very smooth, strong, entirely leakproof joint. The fittings are attached to the shell by copper brazing. This type of joint is one of the strongest and most reliable joining methods known. Each Catch-All is pressure tested in our factory to make sure that it does not leak. The overall result is a Catch-All with strong, entirely leakproof joints.



**QUALITY FITTINGS** — The flare fittings and sweat fittings used on Sporlan Catch-Alls are inspected 100% during manufacture to make sure no defects are present. The sweat fittings are copper fittings with reliable ID dimension for exact fit to the copper tubing. Flare fittings are nickel plated and their surfaces are smooth and free of scratches. Any imperfect flare fittings are resurfaced during manufacture.

**BE SELECTIVE** — In addition to being manufactured to high quality standards, the Catch-All has been designed specifically for field service work and OEM use. In situations requiring wax removal or clean-up after a hermetic motor burnout, choose the HH style Catch-All core, which is specifically designed for these applications.





## LIQUID LINE RATINGS AND SELECTION RECOMMENDATIONS

### ■ GENERAL

The selection of a filter-drier for a given application involves such technical factors as: the amount of moisture to be expected in a system — operating temperatures — amount of foreign matter present — allowable pressure drop through the filter-drier — its ability to retain both liquid and solid contaminants, and bursting pressure. Proper evaluation of these factors is necessary for optimum service and economy. As an aid, the important factors to be considered for selection purposes are discussed briefly in the following sections.

### ■ STANDARD RATINGS ASHRAE-ARI

The American Society of Heating, Refrigerating and Air Conditioning Engineers Standard 63, “Methods of Testing Liquid Line Refrigerant Driers,” sets up a test procedure to follow for determining the water capacity and refrigerant flow capacity under certain conditions. The Air Conditioning and Refrigeration Institute subsequently issued ARI Standard 710, which specifies the rating conditions for water capacity, refrigerant flow capacity, and safety requirements.

This Standard is intended to provide *comparison points* only. It is a basis for drier evaluation at the specified rating conditions, but does not attempt to govern the performance of a drier over the entire range of possible applications. It serves only to compare driers on their ratings for water capacity, refrigerant flow capacity, and safety requirements.

**WATER CAPACITY** — is the amount of water (in drops or grams) that a drier will hold at the standard temperatures and equilibrium point dryness (EPD) specified. Twenty drops equal one gram, equal one milliliter or one cubic centimeter.

**Equilibrium Point Dryness (EPD)** — is used to define the lowest possible water content in liquid refrigerant attainable by a filter-drier at a specific temperature after it has collected a specific quantity of water after equilibrium has been reached between the water in the refrigerant and the water in the drier. Equilibrium point dryness is expressed in parts per million (ppm) by weight.

**REFRIGERANT FLOW CAPACITY** — is the maximum flow of liquid refrigerant (in tons) that a drier will pass at a 1 psi pressure drop. The “ton” ratings are based on 86°F liquid temperature and refrigerant flows of...

- 4.0 lbs. per minute per ton for Refrigerant 12
- 3.1 lbs. per minute per ton for Refrigerant 134a
- 2.9 lbs. per minute per ton for Refrigerant 22
- 3.9 lbs. per minute per ton for Refrigerant 404A
- 2.9 lbs. per minute per ton for Refrigerant 407C
- 2.8 lbs. per minute per ton for Refrigerant 410A
- 4.4 lbs. per minute per ton for Refrigerant 502
- 4.1 lbs. per minute per ton for Refrigerant 507

**SAFETY** — is based on drier shell bursting pressure. All liquid line driers manufactured under ARI Standard 710 must meet the requirements of Underwriters’ Laboratories, Inc., Standard 207, “Refrigerant Containing Components and Accessories, Nonelectrical” or the fatigue stress analysis per UL 1995.

### ■ SELECTION

When selecting a filter-drier the following should be considered:

**WATER CAPACITY and REFRIGERANT FLOW** — comparisons can be made on the basis of ARI Standard data supplied by the manufacturer. *However, it should be remembered that flow ratings are based on the ideal situation of a completely clean system.* Flow is reduced as dirt accumulates on the filtering surface.

**FILTRATION** — characteristics of a filter-drier are not readily defined or evaluated since laboratory tests cannot reproduce the range of conditions and contaminants seen in an actual system. The ability to filter and *hold* foreign matter varies with the brand and type of filter-drier. The simplest guide to follow is that filter capacity is proportional to *filtering area*. In the tables that follow, the filtering areas of all Catch-All Filter-Driers are tabulated. Filters should be selected with an adequate reserve capacity to allow for the contamination found in most systems.

**ACID REMOVAL** — is also difficult to measure. There are no standard ratings to follow. However, both laboratory and field tests have demonstrated that the *Catch-All* core has superior acid removal ability — many times the acid capacity of competitive filter-driers developed for today’s systems.

### ■ SPORLAN RECOMMENDATIONS

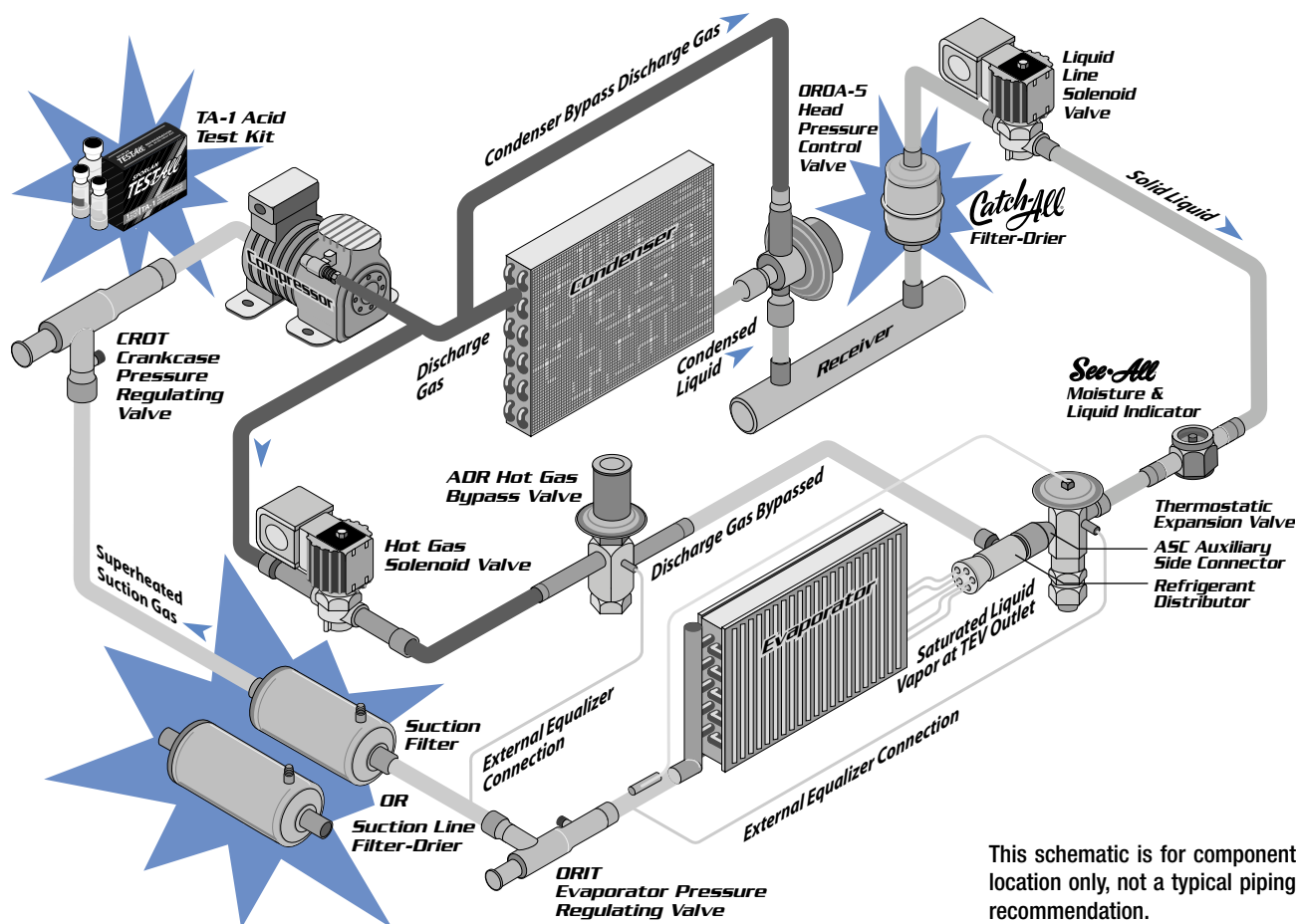
Sporlan’s *Selection Recommendations* are based on the technical data currently available and more than 50 years of **field experience** with molded porous core filter-driers. Satisfactory results will be obtained with the sizes recommended for all normal refrigeration systems. We have considered the difference in requirements for air conditioning and refrigeration applications. Recommendations for these categories are made on pages 11 through 15 and 20 through 22. Recommendations for suction line use of filter-driers are in Form 40-109. Form 40-109 is a quick reference guide for suction line filter-drier selection.

**Drier manufacturers establish ratings for their product, but...** the final selection of the correct drier should be based on the conditions expected for each job. Consideration should be given to providing extra water capacity and filtering area within economical limits.



## APPLICATION — INSTALLATION

### TYPICAL PIPING DIAGRAM



This schematic is for component location only, not a typical piping recommendation.

### ■ CATCH-ALL LOCATION

Catch-All Filter-Driers are most effective in the **liquid line**. Place the filter-drier immediately ahead of other liquid line controls, such as the thermostatic expansion valve, solenoid valve, and **See-All Moisture & Liquid Indicator**. When applied in this way, the Catch-All provides maximum protection for the expansion valve and solenoid valve from dirt that may be in the system. If the system contains appreciable moisture, then this location gives the best results in protecting the expansion valve from freeze-up. If possible, place the filter-drier in a **cold location**. The **acid removal ability** of the Catch-All Filter-Drier is the same whether it is installed in the liquid line or suction line.

Catch-All Filter-Driers are frequently installed in the **suction line** just ahead of the compressor. This procedure is used to clean up a new system or a system that has had a hermetic motor burnout. The main advantage of this location is that it is directly ahead of the compressor, and therefore offers maximum protection to the compressor from all contaminants, even those that may be in the low

side of the system. Suction line filter-driers give excellent performance in removing water, dirt and acid. A larger size filter-drier is required than if it had been placed in the liquid line. The refrigerant velocity in the suction line is about six times the velocity in the liquid line. Therefore, a larger filter-drier is required in order to maintain a sufficiently low pressure drop.

The **water capacity of a Sporlan Catch-All in the suction line** is equal to or slightly greater than the liquid line water capacity. Filtration and acid removal in the suction line is equal to that obtained in the liquid line. The main disadvantage of the suction line location is that a larger more expensive filter-drier is required.

Catch-All Filter-Driers are not recommended for use in the **discharge line**. The water capacity in this location would be greatly reduced due to the high operating temperature.

**Catch-All Filter-Driers** may be installed in **any position**, with top or bottom feed. However, it is advisable to mount replaceable core models horizontally so that foreign material cannot drop into the





## APPLICATION — INSTALLATION

outlet fitting when the cores are removed. Always observe the flow direction. Except for Catch-Alls used in heat pump systems (HPC models), Catch-Alls must **never** be subjected to reverse flow.

### ■ CAPILLARY TUBE SYSTEM

The C-032-CAP Catch-All is designed specifically for capillary tube systems. This unit consists of a C-032-S with 1/4" copper tubes brazed into each end, giving an overall length of 5.81". Capillary tubes of any size may be inserted into the 1/4" copper tube on this Catch-All, then the tubing pinched down, and soldered. In this way the excellent contaminant removal qualities of the Catch-All can be used on domestic refrigerators and freezers. The C-032-CAP-T model has an **access valve for charging purposes**.

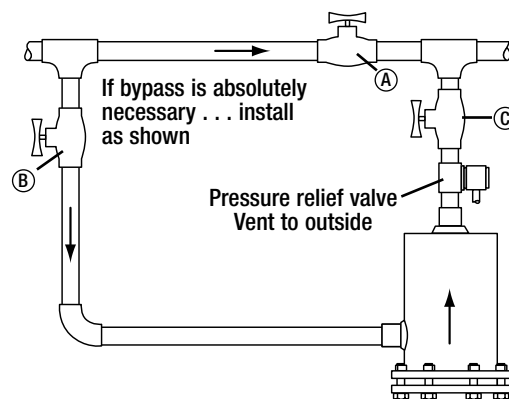
The best filter-drier location is immediately ahead of the capillary tube. The **amount of liquid refrigerant** that the smaller size Catch-All Filter-Driers will contain at 100°F is given below:

CATCH-ALL SERIES TYPE NO.	OUNCES OF REFRIGERANT BY WEIGHT AT 100°F						
	REFRIGERANT						
	12	134a	22	404A	407C	410A	507
C-030	2.1	1.9	1.9	1.6	1.7	1.7	1.6
C-050	5.3	4.9	4.8	3.9	4.2	4.2	4.1
C-080	7.6	6.9	6.8	5.6	6.0	5.9	5.8
C-160	12.0	11.0	10.8	8.9	9.5	9.4	9.3
C-300	19.2	17.6	17.3	14.2	15.2	15.1	14.9
C-410	27.0	24.7	24.3	19.9	21.4	21.1	20.9

### ■ BYPASS INSTALLATION

It is preferred that the Catch-All Filter-Drier be installed in the **main liquid line** for maximum protection. When located in a bypass line, dirt or foreign material may pass into the system through the unprotected main line.

When a **bypass** installation is necessary (see illustration), a hand throttling valve **A** is recommended. By throttling valve **A**, a certain portion of refrigerant can be made to pass through the filter-drier. Note that hand valves **B** and **C** are required only if it is desired to replace the filter-drier without pumping down from the receiver. Always pump out the section of the line containing the filter-drier by closing hand valves **A** and **B** (note direction of flow). Permit isolated section to pump out, close valve **C**, then change the **Catch-All Filter-Drier**.

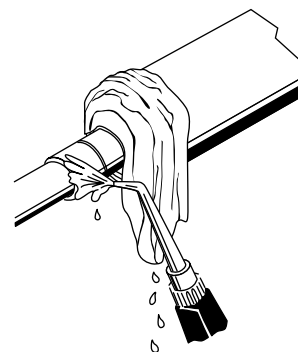


### ■ WARNING ■

**Dangerous hydraulic pressures may develop** if hand valves **B** and **C** are closed and the filter-drier is full of liquid. If there is a possibility of inexperienced personnel closing the valves without pumping down, a pressure relief device is recommended.

### ■ BRAZING AND SOLDERING

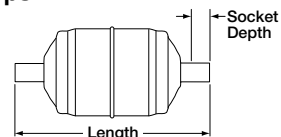
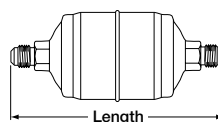
The solder fittings on sealed model and replaceable core Catch-All Filter-Driers are copper. Copper fittings are suitable for all types of brazing and soldering alloys including soft solder, 95-5 solder, Sta-Brite solder, silver brazing alloy, Sil-Fos, or phos-copper alloys. The fittings on the Catch-All have been carefully cleaned and sealed before shipment, and do not require further cleaning before brazing. **Proper brazing technique involves using a wet cloth draped around the shell, a proper torch tip for rapid heating, and also directing the flame away from the Catch-All shell.**



### ■ SEAL REMOVAL

The normal procedure in removing seals from either sweat or flare connections is to gently cut them away with a knife, as shown in the illustration. With flare connections **caution** should be exercised to avoid damaging the flare surface. The seals cannot be removed and replaced without tearing them.



**Catch-All®****SPECIFICATIONS****SEALED TYPE****Liquid Line and Suction Line — Maximum Rated Pressure of 650 psi**Type C-032  
through  
C-167-SUL  
LISTED

"C" SERIES LIQUID LINE TYPE		SUCTION LINE TYPE	CONNECTION SIZE Inches	VOLUME OF DESICCANT Cu. In.	OVERALL LENGTH Inches		SOLDER SOCKET DEPTH Inches	DIAMETER of BODY Inches	SHIPPING WEIGHT Lbs.
SAE Flare	ODF Solder	ODF Solder			SAE Flare	ODF Solder			
C-032	C-032-S	--	1/4	3	4.19	3.81	0.38	1.75	1/2
--	C-032-CAP C-032-CAP-T	--	Extended 1/4 Male		--	5.81	--		
C-032-F	--	--	1/4 Male - Inlet 1/4 Female - Outlet		3.81	--	--		
C-032-FM	--	--	1/4 Female - Inlet 1/4 Male - Outlet		3.81	--	--		
C-033	C-033-S	--	3/8	5	4.69	3.88	0.44	2.44	3/4
C-052	C-052-S	--	1/4		4.75	4.19	0.38		
--	C-0525-S	--	5/16		--	4.38	0.44		
C-052-F	--	--	1/4 Male - Inlet 1/4 Female - Outlet		4.19	--	--		
C-052-FM	--	--	1/4 Female - Inlet 1/4 Male - Outlet	9	4.19	--	--	2.62	1-1/4
C-053	C-053-S	--	3/8		5.19	4.31	0.44		
C-082	C-082-S	--	1/4		5.62	5.12	0.38		
--	C-0825-S	--	5/16		--	5.31	0.44		
C-083	C-083-S	--	3/8	16	6.06	5.25	0.44	3.00	1-3/4
C-084	C-084-S	C-084-S-T-HH	1/2		6.31	5.44	0.50		
C-162	C-162-S	--	1/4		6.25	5.75	0.38		
--	C-1625-S	--	5/16		--	5.94	0.44		
C-163	C-163-S	--	3/8	30	6.75	5.88	0.44	3.00	3-1/2
C-164	C-164-S	C-164-S-T-HH	1/2		6.94	6.00	0.50		
C-165	C-165-S	C-165-S-T-HH	5/8		7.25	6.31	0.62		
--	--	C-166-S-T-HH	3/4		--	6.75	0.62		
--	C-167-S	C-167-S-T-HH	7/8	41	--	6.93	0.75	3.50	4-1/2
C-303	C-303-S	--	3/8		9.69	8.88	0.44		
C-304	C-304-S	--	1/2		9.88	9.00	0.50		
C-305	C-305-S	C-305-S-T-HH	5/8		10.19	9.25	0.62		
--	C-306-S	C-306-S-T-HH	3/4	48	--	9.65	0.62	4.75	8
--	C-307-S	C-307-S-T-HH	7/8		--	9.80	0.75		
--	C-309-S	C-309-S-T-HH	1-1/8		--	9.75	0.96		
C-413	--	--	3/8		9.56	--	--		
C-414	C-414-S	--	1/2	60	9.94	9.05	0.50	3.00	6
C-415	C-415-S	--	5/8		10.25	9.35	0.62		
--	C-417-S	C-417-S-T-HH	7/8		--	9.81	0.75		
--	C-419-S	C-419-S-T-HH	1-1/8		--	9.75	0.96		
--	--	C-437-S-T-HH	7/8	48	--	10.34	0.75	4.75	8
--	--	C-439-S-T-HH	1-1/8		--	10.74	0.94		
--	--	C-4311-S-T-HH	1-3/8		--	10.94	1.00		
--	--	C-4313-S-T-HH	1-5/8		--	10.94	1.06		
--	C-607-S	C-607-S-T-HH	7/8	60	--	16.00	0.75	3.00	6
--	C-609-S	C-609-S-T-HH	1-1/8		--	16.00	0.96		

UL and UL<sub>C</sub> Listed — Guide-SMGT-File No. SA-1756A & B.**SIGNIFICANCE OF THE TYPE NUMBER...**

The letters and numerals in the Catch-All type number each have a significance.

**C** indicates Catch-All.

**FIRST TWO DIGITS** indicate the cubic inches of desiccant in the given drier size.

**LAST ONE OR TWO DIGITS** indicates the fitting size in eighths of an inch. For example: a "3" indicates 3/8" fitting size; a "25" indicates a 5/16" fitting size.

**NO LETTER** following the last digit indicates an SAE flare fitting.

**-S** following the last digit indicates an ODF solder fitting.

Other suffix letters indicate special qualities. Examples:

- T** indicates a pressure tap consisting of a Schrader type access valve on the inlet end of the Catch-All.
- HH** indicates a charcoal style core for wax removal and clean-up after a hermetic motor burnout.
- F** indicates a female flare outlet fitting with a male flare inlet fitting.
- FM** indicates a female flare inlet fitting with a male flare outlet fitting.
- CAP** indicates a Catch-All particularly designed for installation on capillary tube systems. The fittings (a 1/4" OD copper tube brazed into each end of the Catch-All) permit inserting the capillary tube into this 1/4" tube, pinching down, and soldering to make the connections.

*See page 6 for a description of construction details*



## LIQUID LINE RATINGS AND SELECTION RECOMMENDATIONS

### SEALED TYPE — REFRIGERANT 134a

# 134a

TYPE	SURFACE FILTERING AREA Sq. In.	RATINGS AT ARI STANDARD CONDITIONS			SELECTION RECOMMENDATIONS (Tons)		
		WATER CAPACITY DROPS AT 80 PPM*		REFRIGERANT FLOW CAPACITY Tons at 1 psi P	REFRIGERATION Commercial & Low Temperature Equipment	AIR CONDITIONING	
		75°F	125°F			O.E.M. Self Contained	Field Replacement or Field Built-Up Systems
C-032	9	73	53	1.3	1/4	3/4	1/2
C-032-CAP							
C-032-S							
C-032-F							
C-032-FM							
C-033							
C-033-S				3.2			
				3.5			
C-052	15	174	127	1.9	1/3	1	3/4
C-052-S							
C-052-F							
C-052-FM				3.1	1/3	2	1
C-0525-S							
C-053							
C-053-S				3.8			
				4.3			
C-082	21	287	209	1.9	1/2	1	3/4
C-082-S				3.3	3/4	2	1-1/2
C-0825-S							
C-083							
C-083-S				4.2	1	3	2
C-084				4.7	1-1/2	4	2
C-084-S	7.9						
				8.8			
C-162	33	436	317	1.9	1	2	1
C-162-S							
C-1625-S				3.3	2	4	3
C-163				4.2			
C-163-S				4.7			
C-164				9.3	2	5	3
C-164-S				10.1			
C-165				12.6	2	7-1/2	5
C-165-S	14.5						
C-303	53	832	605	4.2	3	4	3
C-303-S				4.7			
C-304				9.3	3	7-1/2	5
C-304-S				10.1			
C-305				13.6	4	10	7-1/2
C-305-S				15.5			
C-307-S				19.8			
C-414	67	1119	814	10.5	5	7-1/2	5
C-414-S				11.4			
C-415				14.5	7-1/2	10	7-1/2
C-415-S				16.1			
C-417-S				20.3			
C-419-S				22.3	10	18	12
C-607-S	106	1664	1210	26.6	15	20	15
C-609-S				30.4		25	



*For suction line  
filter-driers  
see page 25*

NOTES: The variation in flow ratings of filter-driers having the same size core and shell is caused by the difference in connection sizes used. R-12 water capacity values are approximately 15 percent greater than R-134a values.

\*As of this printing, ARI has not established an EPD for R-134a.

*For replaceable core Catch-Alls see page 17*





# LIQUID LINE RATINGS AND SELECTION RECOMMENDATIONS

# 22

## SEALED TYPE — REFRIGERANT 22



*For suction line  
filter-driers  
see page 25*

TYPE	SURFACE FILTERING AREA Sq. In.	RATINGS AT ARI STANDARD CONDITIONS			SELECTION RECOMMENDATIONS (Tons)		
		WATER CAPACITY DROPS AT 60 PPM		REFRIGERANT FLOW CAPACITY Tons at 1 psi P	REFRIGERATION Commercial & Low Temperature Equipment	AIR CONDITIONING	
		75°F	125°F			O.E.M. Self Contained	Field Replacement or Field Built-Up Systems
C-032	9	61	50	1.5	1/4	1	1/2
C-032-CAP							
C-032-S							
C-032-F							
C-032-FM							
C-033							
C-033-S				3.8			
C-052	15	146	119	2.1	1/3	1	3/4
C-052-S							
C-052-F							
C-052-FM				3.4	1/3	2-1/2	1-1/2
C-0525-S							
C-053							
C-053-S				4.7	1/3	3	2
C-082	21	240	196	2.1	1/2	1	1
C-082-S				3.7	3/4	2-1/2	1-1/2
C-0825-S							
C-083							
C-083-S				4.5	1	4	2
				5.2			
C-084	8.7	1-1/2	5	2			
C-084-S	9.6						
C-162	33	364	297	2.1	1-1/2	2	1-1/2
C-162-S				3.7			
C-1625-S				2	5	3	
C-163							4.5
C-163-S				5.2	3	7-1/2	5
C-164				10.1			
C-164-S				11.0	3	10	5
C-165				13.8			
C-165-S	15.9						
C-303	53	696	567	4.6	3	5	4
C-303-S				5.3			
C-304				10.1	5	7-1/2	7-1/2
C-304-S				11.0			
C-305				14.9	5	15	7-1/2
C-305-S				16.9			
C-307-S				21.6	5	20	10
C-414	67	936	763	11.5	5	7-1/2	7-1/2
C-414-S				12.4			
C-415				15.8	7-1/2	15	10
C-415-S				17.5			
C-417-S				22.1	10	20	10
C-419-S				24.3	12	23	15
C-607-S	106	1392	1134	29.1	15	25	20
C-609-S				33.2		30	

NOTE: The variation in flow ratings of filter-driers having the same size core and shell is caused by the difference in connection sizes used.

*For replaceable core Catch-Alls see page 17*



## LIQUID LINE RATINGS AND SELECTION RECOMMENDATIONS

### SEALED TYPE — REFRIGERANT 404A & 507

# 404A & 507

TYPE	SURFACE FILTERING AREA Sq. In.	RATINGS AT ARI STANDARD CONDITIONS			SELECTION RECOMMENDATIONS (Tons)					
		WATER CAPACITY DROPS AT 50 PPM*		REFRIGERANT FLOW CAPACITY Tons at 1 psi P	REFRIGERATION Commercial & Low Temperature Equipment	AIR CONDITIONING				
		75°F	125°F			O.E.M. Self Contained	Field Replacement or Field Built-Up Systems			
C-032	9	71	58	1.0	1/4	3/4	1/2			
C-032-CAP										
C-032-S										
C-032-F										
C-032-FM										
C-033										
C-033-S				2.3						
				2.6						
C-052	15	169	138	1.4	1/3	1	3/4			
C-052-S										
C-052-F										
C-052-FM										
C-0525-S				2.3				1/3	1-1/2	1
C-053				2.7				1/3	2	1
C-053-S	3.1									
C-082	21	279	227	1.4	1/2	1	3/4			
C-082-S										
C-0825-S										
C-083				2.4				3/4	1-1/2	1
C-083-S				3.0				1	2-1/2	2
C-083-S				3.4						
C-084	5.9	1	4	2						
C-084-S	6.4									
C-162	33	424	345	1.4	3/4	2	1			
C-162-S										
C-1625-S										
C-163				2.4				2	3	2
C-163-S				3.0						
C-164				3.4				2	5	3
C-164-S				6.8						
C-165				7.3	2	7-1/2	4			
C-165-S	9.2									
	10.6									
C-303	53	809	658	3.0	2	4	3			
C-303-S										
C-304										
C-304-S				6.8				3	5	5
C-305				7.3						
C-305-S				9.9				5	7-1/2	5
C-307-S	11.3									
	14.4	5	12	7-1/2						
C-414	67	1088	885	7.6	5	5	5			
C-414-S										
C-415										
C-415-S				8.3				7-1/2	7-1/2	5
C-417-S				10.6						
C-419-S				11.8				7-1/2	12	7-1/2
	14.8									
	16.3	10	15	12						
C-607-S	106	1618	1316	19.5	10	15	10			
C-609-S				22.3		20				



*For suction line  
filter-driers  
see page 25*

NOTE: The variation in flow ratings of filter-driers having the same size core and shell is caused by the difference in connection sizes used.

R-502 water capacities are similar to R-404A and R-507.

\*As of this printing, ARI has not established an EPD for R-404A and R-507.

*For replaceable core Catch-Alls see page 17*

*Catch-All®***LIQUID LINE RATINGS AND  
SELECTION RECOMMENDATIONS****407C****SEALED TYPE — REFRIGERANT 407C**

*For suction line  
filter-driers  
see page 25*

TYPE	SURFACE FILTERING AREA Sq. In.	RATINGS AT ARI STANDARD CONDITIONS			SELECTION RECOMMENDATIONS (Tons)		
		WATER CAPACITY DROPS AT 80 PPM*		REFRIGERANT FLOW CAPACITY  Tons at 1 psi P	REFRIGERATION  Commercial & Low Temperature Equipment	AIR CONDITIONING	
		75°F	125°F			O.E.M. Self Contained	Field Replacement or Field Built-Up Systems
C-032	9	60	30	1.3	1/4	1	1/2
C-032-CAP							
C-032-S							
C-032-F							
C-032-FM							
C-033							
C-033-S				3.2			
				3.5			
C-052	15	143	71	1.9	1/3	1	3/4
C-052-S							
C-052-F							
C-052-FM							
C-0525-S				3.1	1/3	2-1/2	1-1/2
C-053				3.8	1/3	3	2
C-053-S	4.3						
C-082	21	235	117	1.9	1/2	1	1
C-082-S				3/4	2-1/2	1-1/2	
C-0825-S							
C-083							4.2
C-083-S				4.7			
C-084				8.0	1-1/2	5	2
C-084-S	8.8						
C-162	33	356	178	1.9	1-1/2	2	1-1/2
C-162-S				3.3			
C-1625-S				4.2	2	5	3
C-163				4.7			
C-163-S				9.3	3	7-1/2	5
C-164				10.1			
C-164-S				12.7	3	10	5
C-165				14.6			
C-165-S							
C-303	53	680	340	4.2	3	5	4
C-303-S				4.7			
C-304				9.3	5	7-1/2	7-1/2
C-304-S				10.1			
C-305				13.7	5	15	7-1/2
C-305-S				15.5			
C-307-S				19.9	5	20	10
C-414	67	915	458	10.5	5	7-1/2	7-1/2
C-414-S				11.4			
C-415				14.6	7-1/2	15	10
C-415-S				16.2			
C-417-S				20.4	10	20	10
C-419-S				22.4	12	23	15
C-607-S	106	1360	680	26.8	15	25	20
C-609-S				30.7		30	

NOTE: The variation in flow ratings of filter-driers having the same size core and shell is caused by the difference in connection sizes used.

\*As of this printing, ARI has not established an EPD for R-407C.

*For replaceable core Catch-Alls see Page 17*





## LIQUID LINE RATINGS AND SELECTION RECOMMENDATIONS

### SEALED TYPE — REFRIGERANT 410A

# 410A

TYPE	SURFACE FILTERING AREA Sq. In.	RATINGS AT ARI STANDARD CONDITIONS			SELECTION RECOMMENDATIONS (Tons)		
		WATER CAPACITY DROPS AT 80 PPM*		REFRIGERANT FLOW CAPACITY Tons at 1 psi P	REFRIGERATION Commercial & Low Temperature Equipment	AIR CONDITIONING	
		75°F	125°F			O.E.M. Self Contained	Field Replacement or Field Built-Up Systems
C-032	9	49	30	1.4	1/4	1	1/2
C-032-CAP							
C-032-S							
C-032-F							
C-032-FM							
C-033							
C-033-S				3.7			
C-052	15	116	71	2.0	1/3	1	3/4
C-052-S							
C-052-F							
C-052-FM				3.3	1/3	2-1/2	1-1/2
C-0525-S							
C-053				4.0	1/3	3	2
C-053-S	4.5						
C-082	21	191	117	2.0	1/2	1	1
C-082-S				3.5	3/4	2-1/2	1-1/2
C-0825-S							
C-083				4.4	1	4	2
C-083-S				5.0			
C-084				8.5	1-1/2	5	2
C-084-S	9.4						
C-162	33	289	178	2.0	1-1/2	2	1-1/2
C-162-S				3.5			
C-1625-S				4.4	2	5	3
C-163							
C-163-S				5.0	3	7-1/2	5
C-164				9.8			
C-164-S				10.7	3	10	5
C-165				13.4			
C-165-S	15.5						
C-303	53	552	340	4.4	3	5	4
C-303-S				5.0			
C-304				9.8	5	7-1/2	7-1/2
C-304-S				10.7			
C-305				14.5	5	15	7-1/2
C-305-S				16.4			
C-307-S	21.0	5	20	10			
C-414	67	742	458	11.1	5	7-1/2	7-1/2
C-414-S				12.1			
C-415				15.4	7-1/2	15	10
C-415-S				17.1			
C-417-S				21.5	10	20	10
C-419-S				23.7	12	23	15
C-607-S	106	1104	680	28.4	15	25	20
C-609-S				32.4		30	



*For suction line  
filter-driers  
see page 25*

NOTE: The variation in flow ratings of filter-driers having the same size core and shell is caused by the difference in connection sizes used.

\*As of this printing, ARI has not established an EPD for R-410A.

*For replaceable core Catch-Alls see page 17*



## REVERSIBLE HEAT PUMP FILTER-DRIERS

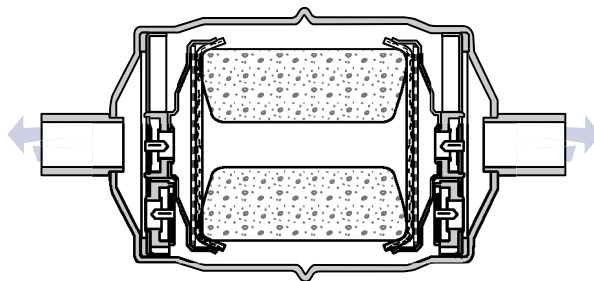
### DESIGN BENEFITS —

- A short overall length for easy installation.
- Drier operates in either flow direction with low pressure drop.
- Proven metal check valves used in construction — no synthetic materials.
- The Sporlan dependable molded core used for maximum filtration ability. When the flow direction reverses, dirt already collected remains in the filter-drier.
- A carefully engineered blend of desiccants for maximum water capacity and acid removal ability. The HPC-160-HH Series also has the HH style core with activated charcoal which offers maximum ability to remove oleoresin and other reactive chemical constituents in the lubricant.
- Same rugged construction as used in the Catch-All.

**APPLICATION —** These filter-driers are *easy to install* — even on compact units — because they are designed for installation in the reversing liquid line. The smaller HPC-100 Series, using the standard Catch-All core, is designed specifically for new installations and for use on OEM equipment. The HPC-160-HH Series uses a larger core which includes activated charcoal for maximum performance in removing all types of contaminants that might be found in a hermetic motor burnout, or in a highly contaminated field system.

The HPC-100 Series is recommended for new installations and system clean-up on HFC refrigerant systems. For HFC system clean-up, a compact style suction line filter-drier is recommended (see page 29) in addition to an HPC-100 Series Catch-All.

While intended for use in the reversing liquid line, these driers can be used in the reversing gas line, providing the system size does not exceed one ton. Since heat pump systems can operate in the winter



at very low evaporator temperatures, problems with wax can occur. The HPC-160-HH Series Filter-Driers, with the charcoal style core, will remove wax and prevent problems with the expansion device.

In cleaning up a system *after a hermetic motor burnout*, follow the same general principles used on standard air conditioning systems. Always remove driers on the unit at the time of burnout. Test a sample of lubricant from the burned out compressor to see if a suction line filter-drier should be used in addition to a new liquid line drier. The HPC style reversible filter-driers can be used in the reversing liquid line, or the driers originally on the units can be replaced with similar standard Catch-All Filter-Driers.

**CONSTRUCTION —** Both filter-driers consist of one core in a shell with two check valves at either end. These check valves control the flow so filtration occurs on the outside of the core, regardless of the flow direction. The HPC driers do not release the dirt collected in one mode when the flow direction reverses. The *reliable check valves* used in these filter-driers have passed the most rigid OEM testing — no synthetic materials are used. These check valves have been thoroughly proven in field systems over a period of many years. They function well even in the presence of solid contaminants.

### SPECIFICATIONS — FOR NEW INSTALLATIONS AND HFC SYSTEM USE

TYPE NUMBER	CONNECTION SIZE Inches	SELECTION RECOMMEND. Tons	DIMENSIONS		FLOW CAPACITY Tons at 1 psi ΔP			WATER CAPACITY						LIQUID CAPACITY Ounces (wt.) @ 100°F											
			OVER- ALL LENGTH Inches	DIA. Inches	REFRIGERANT																				
					R-22	R-407C	R-410A	R-22 Drops at 60 ppm		R-407C Drops at 80 ppm*		R-410A Drops at 80 ppm*		R-22	R-407C	R-410A									
								75°F	125°F	75°F	125°F	75°F	125°F												
HPC-103	3/8 Flare	1 thru 5	6.75	3.0	3.4	3.1	3.3	215	176	211	105	171	105	12.2	10.7	10.6									
HPC-103-S	3/8 Solder		5.88																						
HPC-104	1/2 Flare		6.94		4.5	4.1	4.4																		
HPC-104-S	1/2 Solder		6.00																						

### SPECIFICATIONS — FOR CLEAN-UP AFTER BURNOUT

TYPE NUMBER	CONNECTION SIZE Inches	SELECTION RECOMMENDATIONS Tons	DIMENSIONS		FLOW CAPACITY R-22 Tons at 1 psi ΔP	WATER CAPACITY Refrigerant 22 Drops at 60 ppm		LIQUID CAPACITY Ounces (wt.) R-22 @ 100°F
			OVERALL LENGTH Inches	DIAMETER Inches		75°F	125°F	
HPC-163-HH	3/8 Flare	1 thru 5	7.78	3.0	3.7	93	81	14.5
HPC-163-S-HH	3/8 Solder		6.92					
HPC-164-HH	1/2 Flare		7.95		4.0			
HPC-164-S-HH	1/2 Solder		7.07					
HPC-165-HH	5/8 Flare		8.28		4.9			
HPC-165-S-HH	5/8 Solder		7.35					

HPC-100 Series — Core volume is 10 cubic inches. Core surface filtering area is 18 sq. inches. Maximum rated pressure is 650 psig.

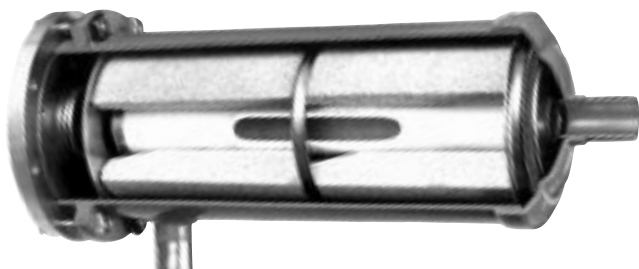
HPC-160-HH Series — Core volume is 14 cubic inches. Core surface filtering area is 26 sq. inches. Maximum rated pressure is 500 psig.

UL and UL<sub>C</sub> Listed — Guide-SMGT-File No. SA-1756A & B.

\*As of this printing, ARI has not established an EPD for R-407C and R-410A.

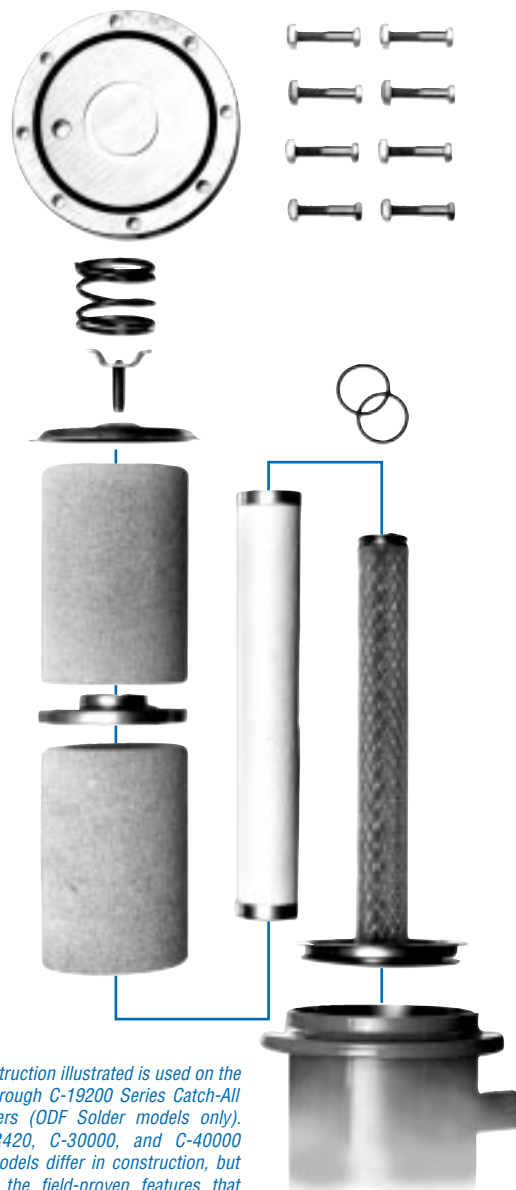
# Catch-All®

## REPLACEABLE CORE TYPE



### ■ DESIGN FEATURES

- The Catch-All shell utilizes an **exclusive filter-within-a-filter construction**. The new internal assembly, when used with Sporlan molded cores, provides maximum water capacity, excellent acid removal characteristics, the ability to remove products of lubricant decomposition, and outstanding filtration. The **optional replaceable secondary filter** offers unsurpassed filtration efficiencies without compromising the Catch-All's ability to hold a large amount of foreign material. The assembly is designed so the cores remove larger sized particles while the secondary filter removes microscopic particles. This unique construction aggressively filters particles circulating in a refrigerant system.
- The shell design offers **flexibility**. The new internal assembly can be used with or without the secondary filter. The type of filtration needed depends upon the system requirements or application. Using the assembly **without** the secondary filter offers the same time tested, field-proven, filtration characteristics expected in a Catch-All Filter-Drier.
- The internal construction is designed to improve **ease of assembly**. The molded cores simply slide over the center tube, followed by spacer plates (if applicable). The outlet plate is fastened to the assembly by a wing screw. With the addition of a spring, the resulting assembly is easy to install and remove.
- The seal gasket prevents solid contaminants from bypassing the filter. The assembly is held tight against the gasket by a spring. **O-rings** are used with the secondary filter to provide a tight seal.
- The internal parts are plated steel – no plastic parts.
- The **bolt and nut attachment** of the endplate allows for simple, trouble-free installation. The nuts lock against the side of the shell for ease in tightening. Other designs, using cap screws threaded into the flange ring, run the risk of twisting off the head of the screw making removal difficult.
- **Copper fittings** are excellent for fast easy soldering. Fittings are pre-sized for proper fit, and suitable for use with soft solder, silver solder, Sil-Fos, or Phos-Copper. The fittings are brazed to



*The construction illustrated is used on the C-480 through C-19200 Series Catch-All Filter-Driers (ODF Solder models only). The C-R420, C-30000, and C-40000 Series models differ in construction, but maintain the field-proven features that have been used successfully for many years.*

the shell with a high temperature brazing alloy so they never loosen during the brazing operation on the job.

- A **complete line of fitting sizes** are available with solder connections from 1/2" to 4-1/8" ODF - and pipe connections from 1/2" to 2".
- Heavy steel shells provide **high bursting strength** and are listed by Underwriters' Laboratories Inc.
- The shell exterior uses an **epoxy powder coating to prevent corrosion** even under the most adverse conditions.





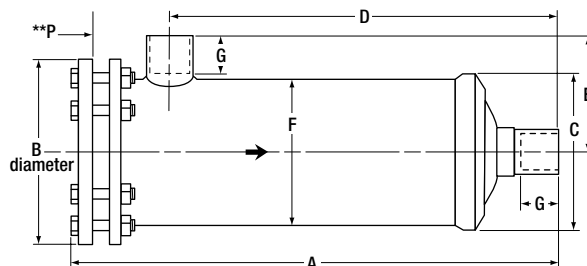
## SPECIFICATIONS

### REPLACEABLE CORE TYPE

Maximum Rated Pressure of 500 psi



C US  
LISTED



TYPE	CONNECTIONS Inches ODF Solder	OPTIONAL SECONDARY FILTER***	NO. OF CORES OR FILTER ELEMENTS	CORE PART NO.	VOLUME OF DESICCANT Cu. In.	FILTER ELEMENT PART NO.	MOUNTING BRACKETS	SHELL DIMENSIONS Inches							NET WEIGHT Lbs.	SHIPPING WEIGHT Lbs.	
								A	B	C	D	E	F	G			**P
*C-R424	1/2	--	1	RCW-42	42	--	A-175-1	9.00			6.76	2.81		.50	6.50	5-1/2	6-1/2
*C-R425	5/8							9.06	4.75	--	6.94	2.69	3.50	.62			
*C-R427	7/8							9.44			7.25	3.03	.75				
C-485	5/8	FS-480	1		48	RPE-48-BD	A-685	9.15			5.92	3.50		.50	7.50	10	12
C-485-G	5/8							9.15			5.92	3.50	.50				
C-487	7/8							9.30			6.07	3.72	.75				
C-487-G	7/8							9.30	6.00	5.00	6.07	3.72	4.75	.75			
C-489-G	1-1/8							9.50			6.37	3.78	.91				
C-4811-G	1-3/8							9.60			6.37	3.94	.97				
C-4813-G	1-5/8							9.60			6.37	3.97	1.09				
C-967	7/8	FS-960	2	RCW-48, RC-4864, or RC-4864-HH	96	RPE-48-BD	A-685	14.84			11.61	3.72		.75	13.00	14	16
C-967-G	7/8							14.84			11.61	3.72	.75				
C-969	1-1/8							15.04			11.81	3.78	.91				
C-969-G	1-1/8							15.04	6.00	5.00	11.81	3.78	4.75	.91			
C-9611-G	1-3/8							15.14			11.91	3.94	.97				
C-9613-G	1-5/8							15.14			11.91	3.97	1.09				
C-1449	1-1/8	FS-1440	3		144	RPE-48-BD	A-685	20.58			17.35	3.78		.91	18.62	17	20
C-1449-G	1-1/8							20.58			17.35	3.78	.91				
C-14411	1-3/8							20.68			17.45	3.94	.97				
C-14411-G	1-3/8							20.68	6.00	5.00	17.45	3.94	.97				
C-14413-G	1-5/8							20.68			17.45	3.97	1.09				
C-19211	1-3/8	FS-19200	4		192	RPE-48-BD	A-685	26.22			22.99	3.94		.97	24.25	20	23
C-19211-G	1-3/8							26.22			22.99	3.94	.97				
C-19213	1-5/8							26.22			22.99	3.97	4.75	1.09			
C-19213-G	1-5/8							26.22	6.00	5.00	22.99	3.97	1.09				
C-19217-G	2-1/8							26.22			22.43	4.65	1.34				
C-30013	1-5/8							--	3		300	RPE-100	A-175-2	27.94			
C-30013-G	1-5/8	27.94	7.50	6.25	23.88	5.12	6.00							1.12			
C-30017-G	2-1/8	28.06			24.00	5.12	1.25										
C-40017	2-1/8	--	4	RC-10098, or RC-10098-HH	400	RPE-100	A-175-2	34.56			30.50	5.31		1.38	32.12	43	47
C-40017-G	2-1/8							34.56			30.50	5.31	1.38				
C-40021-G	2-5/8							34.75			30.56	5.38	1.50				
C-40025-G	3-1/8							34.44	7.50	6.25	29.81	5.06	6.00	1.75			
C-40029-G	3-5/8							34.81			30.06	5.50	2.00				
C-40033-G	4-1/8							35.12			29.81	5.62	2.19				

#### NPT PIPE CONNECTIONS

C-484-P C-966-P C-1448-P C-19212-P	1/2 3/4 1 1-1/2	--	1 2 3 4	RCW-48, RC-4864, or RC-4864-HH	48 96 144 192	RPE-48-BD	A-685	9.08 14.67 20.42 25.85	6.00	5.00	5.85 11.44 17.19 22.62	3.41 3.48 3.66 3.76	4.75	--	7.50 13.00 18.62 24.25	10 14 17 20	12 16 20 23
C-40016-P	2	--	4	RCW-100, RC-10098, or RC-10098-HH	400	RPE-100	A-175-2	34.44	7.50	6.25	30.38	4.38	6.00	--	32.12	46	51

UL and UL<sub>C</sub> Listed. — Guide-SMGT-File No. SA-1756A & B.

\*Underwriters' Laboratories listed for 400 psi maximum rated pressure.

\*\*\*P" Dimension is the pull space required to change core.

\*\*\*Optional Secondary Filter must be purchased separately. O-rings (p/n 621-025) are supplied with each secondary filter, but can be purchased separately. The secondary filter cannot be used if the shell is installed in the suction line.

**TYPE NUMBERS WITH G SUFFIX** indicate that unit is supplied with 1/4" female pipe connection in the flange plate and pipe plug. If the unit is intended for liquid line service an angle charging valve for system charging purposes can be installed in place of the pipe plug. If the unit is used in the suction line for

clean-up after burnout, then insert a Schrader type access valve to serve as a pressure tap. Angle charging and Schrader type access valves are available from your Sporlan wholesaler.

**TYPE NUMBERS WITH P SUFFIX** indicates female threaded pipe connections.



## CORES / ELEMENTS

### ■ REPLACEABLE CORES and FILTER ELEMENTS

#### *Order Separately*

Cores for replaceable core type filter-driers are molded of exactly the same desiccants that are used in the popular sealed filter-driers.

Cores are individually packed in *metal cans*, fully activated, and hermetically sealed against moisture and dirt.

Filter elements are dried and packed in individual sealed metal cans. This method of packaging prevents the element from picking up moisture from the atmosphere.

Detailed *instructions* are printed on each can. Each can contains a “*triple gasket*” consisting of a new endplate gasket, an endplate gasket for certain competitive filter-driers, and a core gasket where desired. See the specifications on Page 18 for the number of cores required for each type drier.

**RCW-42** — High Water Capacity Core — Order as separate item— Fits ONLY shell types C-R424, C-R425, and C-R427. **Designed specially for use with POE lubricants.** This core should be used on systems that have a ruptured water cooled condenser, or that have been exposed to the atmosphere, or for some reason have a high amount of moisture in the system.

**RC-4864** — Activated Core — Order as separate item—Fits types C-480 thru C-19200 Series shells and Replaceable Suction Filter (RSF) shells. This is the standard core suitable for liquid and suction line applications.

**RCW-48** — High Water Capacity Core — Order as separate item— Fits types C-480 thru C-19200 Series shells and Replaceable Suction Filter (RSF) shells. **Designed specially for use with POE lubricants.** This core should be used on systems that have a ruptured water cooled condenser, or that have been exposed to the atmosphere, or for some reason have a high amount of moisture in the system.

**RC-4864-HH** — Activated Charcoal Core — Order as separate item—Fits types C-480 thru C-19200 Series shells and Replaceable Suction Filter (RSF) shells. This core should be used for wax removal on low temperature systems, and for clean-up of systems that have had a hermetic motor burnout.

**RPE-48-BD** — Filter Element — Order as a separate item—Fits types C-480 thru C-19200 Series shells and Replaceable Suction Filter (RSF) shells. This element should be used in RSF shells installed in the suction line to obtain the lowest possible pressure drop after cores were used for system clean-up.

**RC-10098** — Activated Core — Order as separate item—Fits types C-30000 and C-40000 Series shells. This is the standard core suitable for liquid and suction line applications.

**RCW-100** — High Water Capacity Core — Order as separate item— Fits types C-30000 and C-40000 Series shells. **Designed specially for use with POE lubricants.** This core should be used on systems that have a ruptured water cooled condenser, or that have been exposed to the atmosphere, or for some reason have a high amount of moisture in the system.

**RC-10098-HH** — Activated Charcoal Core — Order as separate item—Fits types C-30000 and C-40000 Series shells. This core should be used for wax removal on low temperature systems, and for clean-up of systems that have had a hermetic motor burnout.

**RPE-100** — Filter Element — Order as a separate item—Fits types C-30000 and C-40000 Series shells. This filter element should be used in the suction line to obtain the lowest possible pressure drop after cores were used for system clean-up.



*Sporlan Cores and Filter Elements can replace drier shells made by most other drier manufacturers.*

#### UNIT NET WEIGHTS and CARTON SHIPPING WEIGHTS

PART NUMBER	REPLACEABLE CORES			FILTER ELEMENTS	
	RCW-42	RC-4864, RCW-48, & RC-4864-HH	RC-10098, RCW-100 & RC-10098-HH	RPE-48-BD	RPE-100
No. Per Carton	10	12	6	12	6
Shipping Weight - Lbs.	19	28	28	13	9
Net Weight - Lbs. Ea.	1.5	1.9	4.2	0.8	1.1
Core Dimensions - O.D. x Length Inches	3.18 x 6.00	3.74 x 5.50	4.80 x 6.47	3.70 x 5.50	4.80 x 6.47



# LIQUID LINE RATINGS AND SELECTION RECOMMENDATIONS

# 134a

## REPLACEABLE CORE TYPE — REFRIGERANT 134a



TYPE	SURFACE FILTERING AREA Sq. In.	RATINGS AT ARI STANDARD CONDITIONS			SELECTION RECOMMENDATIONS (Tons)		
		WATER CAPACITY DROPS AT 80 PPM*		REFRIGERANT FLOW CAPACITY Tons at 1 psi P	REFRIGERATION Commercial & Low Temperature Equipment	AIR CONDITIONING	
		75°F	125°F			O.E.M. Self Contained	Field Replacement or Field Built-Up Systems
RCW-42 (High Water Capacity Core)							
C-R424	67	1079	784	10.4	3	5	5
C-R425				12.5	5	10	7-1/2
C-R427				16.9			
RCW-48 or RCW-100 (High Water Capacity Cores)							
C-485	64	1326	964	13.4	7-1/2	10	7-1/2
C-487				21.9	12	15	12
C-489-G				39.5	12	25	15
C-967	128	2652	1928	35.9	20	30	20
C-969				44.5	25	35	25
C-1449	192	3978	2892	54.1	30	40	30
C-14411				61.3	40	50	40
C-19211				77.3	50	60	50
C-19213-G	256	5304	3856	90.6	60	80	60
C-19217-G				95.1	65	80	65
C-30013	294	8112	5901	102	75	110	75
C-40017	392	10816	7868	132	110	130	110
RC-4864 or RC-10098 (Standard Cores)							
C-485	64	440	368	13.4	7-1/2	10	7-1/2
C-487				21.9	12	15	12
C-489-G				39.5	12	25	15
C-967	128	880	736	35.9	20	30	20
C-969				44.5	25	35	25
C-1449	192	1320	1104	54.1	30	40	30
C-14411				61.3	40	50	40
C-19211				77.3	50	60	50
C-19213-G	256	1760	1472	90.6	60	80	60
C-19217-G				95.1	65	80	65
C-30013	294	4509	3468	102	75	110	75
C-40017	392	6012	4624	132	110	130	110

For suction line  
filter-driers  
see page 25

For sealed model  
Catch-Alls  
see page 10

NOTES: The variation in flow ratings of filter-driers having the same size core and shell is caused by the difference in connection sizes used. Installing the secondary filter in C-480 through C-19200 Series shells reduces the flow capacity by approximately 5 percent.

R-12 water capacity values are approximately 15 percent greater than R-134a values.

\*As of this printing, ARI has not established an EPD for R-134a.





## LIQUID LINE RATINGS AND SELECTION RECOMMENDATIONS

### REPLACEABLE CORE TYPE — REFRIGERANT 22

# 22

TYPE	SURFACE FILTERING AREA Sq. In.	RATINGS AT ARI STANDARD CONDITIONS			SELECTION RECOMMENDATIONS (Tons)					
		WATER CAPACITY DROPS AT 60 PPM		REFRIGERANT FLOW CAPACITY  Tons at 1 psi P	REFRIGERATION  Commercial & Low Temperature Equipment	AIR CONDITIONING				
		75°F	125°F			O.E.M. Self Contained	Field Replacement or Field Built-Up Systems			
RCW-42 (High Water Capacity Core)										
C-R424	67	902	735	11.4	5	7-1/2	5			
C-R425				13.7	7-1/2	15	10			
C-R427				18.5						
RCW-48 or RCW-100 (High Water Capacity Cores)										
C-485	64	1109	904	14.6	10	15	10			
C-487				23.9	15	20	15			
C-489-G				43.2	15	30	20			
C-967	128	2218	1808	39.2	25	35	25			
C-969				48.7	35	40	35			
C-1449				59.2	40	50	40			
C-14411	192	3327	2712	67.0	50	60	50			
C-19211				84.5	70	80	70			
C-19213-G				99.0	80	100	80			
C-19217-G	256	4436	3616	104	85	100	85			
C-30013				294	6786	5532	112	100	125	100
C-40017				392	9048	7376	134	130	150	130

<b>RC-4864 or RC-10098 (Standard Cores)</b>							
C-485	64	347	288	14.6	10	15	10
C-487				23.9	15	20	15
C-489-G				43.2	15	30	20
C-967	128	694	576	39.2	25	35	25
C-969				48.7	35	40	35
C-1449				59.2	40	50	40
C-14411	192	1041	864	67.0	50	60	50
C-19211				84.5	70	80	70
C-19213				99.0	80	100	80
C-19217-G	256	1388	1152	104	85	100	85
C-30013				112	100	125	100
C-40017				134	130	150	130



*For suction line  
filter-driers  
see page 25*

### REPLACEABLE CORE TYPE — REFRIGERANT 407C

# 407C

TYPE	SURFACE FILTERING AREA Sq. In.	RATINGS AT ARI STANDARD CONDITIONS			SELECTION RECOMMENDATIONS (Tons)					
		WATER CAPACITY DROPS AT 80 PPM*		REFRIGERANT FLOW CAPACITY  Tons at 1 psi   P	REFRIGERATION  Commercial & Low Temperature Equipment	AIR CONDITIONING				
		75°F	125°F			O.E.M. Self Contained	Field Replacement or Field Built-Up Systems			
RCW-42 (High Water Capacity Core)										
C-R424	67	882	441	10.5	5	7-1/2	5			
C-R425				12.5	7-1/2	15	10			
C-R427				17.0						
RCW-48 or RCW-100 (High Water Capacity Cores)										
C-485	64	1085	542	13.5	10	15	10			
C-487				22.0	15	20	15			
C-489-G				39.8	15	30	20			
C-967	128	2170	1084	36.1	25	35	25			
C-969				44.8	35	40	35			
C-1449				54.6	40	50	40			
C-14411	192	3255	1626	61.7	50	60	50			
C-19211				77.7	70	80	70			
C-19213-G				91.1	80	100	80			
C-19217-G	256	4340	2168	95.7	85	100	85			
C-30013				294	6639	3318	103	100	125	100
C-40017				392	8852	4424	133	130	150	130



*For sealed model  
Catch-Alls  
see page 10*

NOTE: The variation in flow ratings of filter-driers having the same size core and shell is caused by the difference in connection sizes used. Installing the secondary filter in C-480 through C-19200 Series shells reduces the flow capacity by approximately 5 percent.

\*As of this printing, ARI has not established an EPD for R-407C.



# LIQUID LINE RATINGS AND SELECTION RECOMMENDATIONS

# 404A & 507

## REPLACEABLE CORE TYPE — REFRIGERANTS 404A & 507

TYPE	SURFACE FILTERING AREA Sq. In.	RATINGS AT ARI STANDARD CONDITIONS		SELECTION RECOMMENDATIONS (Tons)		
		WATER CAPACITY DROPS AT 50 PPM*		REFRIGERANT FLOW CAPACITY Tons at 1 psi P	REFRIGERATION	AIR CONDITIONING
		75°F	125°F		Commercial & Low Temperature Equipment	O.E.M. Self Contained      Field Replacement or Field Built-Up Systems

### RCW-42 (High Water Capacity Core)

C-R424	67	1049	853	7.6	5	7-1/2	7-1/2
C-R425				9.1	5	7-1/2	7-1/2
C-R427				12.4			

### RCW-48 or RCW-100 (High Water Capacity Cores)

C-485	64	1290	1049	9.8	7-1/2	10	7-1/2
C-487				16.0	10	12	10
C-489-G				28.9	10	20	10
C-967	128	2580	2098	26.2	15	20	15
C-969				32.6	25	30	25
C-1449	192	3870	3147	39.7	30	35	30
C-14411				44.8	35	40	35
C-19211	256	5160	4196	56.3	50	50	50
C-19213-G				66.2	55	60	55
C-19217-G				69.5	60	65	60
C-30013	294	7890	6417	74.5	70	80	70
C-40017	392	10520	8556	96.8	100	125	100

### RC-4864 or RC-10098 (Standard Cores)

C-485	64	408	309	9.8	7-1/2	10	7-1/2
C-487				16.0	10	12	10
C-489-G				28.9	10	20	10
C-967	128	816	618	26.2	15	20	15
C-969				32.6	25	30	25
C-1449	192	1224	927	39.7	30	35	30
C-14411				44.8	35	40	35
C-19211	256	1632	1236	56.3	50	50	50
C-19213-G				66.2	55	60	55
C-19217-G				69.5	60	65	60
C-30013	294	2631	1992	74.5	70	80	70
C-40017	392	3508	2656	96.8	100	125	100



*For suction line  
filter-driers  
see page 25*

*For sealed model  
Catch-Alls  
see page 10*

NOTE: The variation in flow ratings of filter-driers having the same size core and shell is caused by the difference in connection sizes used.

Installing the secondary filter in C-480 through C-19200 Series shells reduces the flow capacity by approximately 5 percent.

R-502 water capacities are similar to R-404A and R-507.

\*As of this printing, ARI has not established an EPD for R-404A and R-507.



## AMMONIA TYPE

**AMMONIA CATCH-ALL FILTER-DRIERS** — The molded porous **Catch-All** core effectively removes scale and other fine particles — keeping the system clean — and prolonging the life of all moving parts.

Small amounts of water are not considered a problem in ammonia systems. Therefore, the “drier” function of the desiccant core is not normally required. See the information below for more details.

The Type C-413-P is a sealed model filter-drier. All of the other models shown at the right are replaceable core types. Use the RC-4864 or RC-10098 replaceable cores for excellent filtration ability.

**NOTE:** Do not use RPE-48-BD and RPE-100 Filter Elements on ammonia systems.

### ■ CLEANLINESS IS VITAL IN AMMONIA REFRIGERATION SYSTEMS

**Scale and other contaminants in an ammonia system cause many unnecessary problems.**

Solid contaminants circulating in an ammonia system tend to plug the float valve, cause erosion of the expansion valve pin by sand blasting, and damage the compressor. These circulating particles can easily be removed by installing a filter in the liquid line.

Probably the biggest benefit to such an installation is longer compressor life. Keeping the system free of dirt and scale eliminates cylinder wall scoring, and thus greatly extends the life of the compressor. A filter in the liquid line frequently means compressor rebuilding is not necessary for many years.

The Sporlan Catch-All Filter-Drier is readily available with steel pipe fittings welded to the drier shell. These filters are made with an all steel construction and an aluminum end plate that is designed specifically for ammonia systems. The table above can be used to select the specific model Catch-All required for a given system.

The **standard** core is the best selection for use on ammonia systems. Filter elements will deteriorate in ammonia service and should not be used.

The filter-drier should be installed with a bypass line around it, so the shell can be pumped down and valved off for changing cores. A pressure relief valve should be installed next to it. When a filter-drier is first installed on a dirty system, it may be necessary to change the cores after several days of operation due to the large amount of scale collected. Changing the cores several times will gradually clean up the entire system. Once the system is clean, changing the cores once or twice a year will keep the system operating properly.

**WHAT ABOUT WATER?** — Normally, water is not considered a problem in ammonia systems. Moisture remaining in a system from installation, or that enters through a small leak, will combine with the anhydrous ammonia to form ammonium hydroxide. Usually this ammonium hydroxide circulates in the system without causing

CATCH-ALL FILTER-DRIER TYPE	FITTING SIZE FPT	SELECTION RECOMMENDATIONS (Tons)	REFRIGERANT FLOW CAPACITY Tons at 1 psi P	REPLACEABLE CORE TYPE AND QUANTITY REQUIRED
<b>C-413-P</b>	3/8	20	58	---
<b>C-484-P</b>	1/2	40	72	RC-4864 (1)
<b>C-966-P</b>	3/4	100	189	RC-4864 (2)
<b>C-1448-P</b>	1	150	289	RC-4864 (3)
<b>C-19212-P</b>	1-1/2	300	476	RC-4864 (4)
<b>C-40016-P</b>	2	450	696	RC-10098 (4)

Consult Sporlan Valve Company for flow capacities with other refrigerants.  
For specifications see page 18.

difficulty. For example, it will not freeze in the expansion device until the temperature drops below  $-110^{\circ}\text{F}$ . However, water in the system in any appreciable amount will increase the corrosion rate of the compressor parts, and will tend to contribute to thickening and sludging of the lubricant.

As the ammonia boils in the evaporator, the gas formed is essentially 100%  $\text{NH}_3$ . Any water associated with the ammonia remains as liquid ammonium hydroxide. In a normal system containing small amounts of water, this ammonia-water solution is carried back to the compressor as droplets by the velocity of the suction gas. If larger amounts of water are present, this liquid will build up in the suction accumulator.

If appreciable amounts of water are present, the operator will also notice that the evaporator temperature does not correspond to the indicated pressure according to the ammonia chart. The evaporator temperature will be higher than normal when excess water is present. A  $5^{\circ}\text{F}$  rise in the evaporator temperature indicates approximately 12% water in the ammonia. The operator may also notice a high head pressure that cannot be reduced by purging.

**TEST METHOD** — The following test method has been recommended for determining if a system contains excessive water. Remove a sample of liquid ammonia into an open beaker from the low side of the suction accumulator. Place a glass plate over the top of the beaker. If the system contains excessive water, then droplets of water will form on the lower side of this glass plate.

A method of removing excessive water from a direct expansion system is to pump the system down and collect the water and lubricant from the evaporator in the suction accumulator during defrost. This water-lubricant mixture from the suction accumulator is then discarded.

Another effective method of removing water from an ammonia system is to build a re-boiler still. Information on the design of this pressure vessel can be obtained from International Institute of Ammonia Refrigeration Bulletin 108. The ammonia-water mixture from the low pressure recirculation line is pumped into the still and

*Catch-All®*

**Select an HH Style Catch-All Filter-Drier if wax problems occur on low temperature systems.** In addition to their wax removal ability, these filter-driers will remove all of the other harmful contaminants that the standard filter-driers remove. Listed in the table are various Catch-All models that incorporate the HH style core.





## SUCTION LINE FILTER-DRIERS

**SPORLAN**  
**SUCTION LINE**  
**Filter-Driers**  
**DESIGNED SPECIFICALLY for**  
**CLEAN-UP after BURNOUT**  
**using the HH Type**  
**CHARCOAL CORE**

### PROVEN BENEFITS:

- Positive protection for the compressor
- Most economical method of clean-up
- Minimum down time — system operates during clean-up
- Method is applicable to almost any size system
- Removes all contaminants — moisture, acid, sludges, dirt...
- Recommended by the leading equipment manufacturers

**THE SUCTION LINE FILTER-DRIER METHOD** of cleaning up a system after a hermetic motor burnout is favored by service technicians and recommended by manufacturers throughout our industry. This method gives the most practical and positive protection of the new compressor, since the refrigerant-lubricant mixture is filtered and purified just before it returns to the compressor. It is important that all contaminants remaining in the system be removed to prevent a repeat burnout of the new compressor.

**THE CONSTRUCTION OF THE SUCTION LINE FILTER-DRIER** is not significantly different from the standard liquid line filter-drier. Both driers remove the important contaminants such as moisture, dirt, acid, and the products of lubricant decomposition. The suction line filter-driers utilizes the HH style charcoal core to obtain the maximum ability for lubricant clean-up and removing all types of contaminants. The sealed models have an access valve (-T) at the inlet end to permit measuring the pressure drop during the first several hours of operation. RSF shells have an access valve to measure pressure drop (see Bulletin 80-10). Also, replaceable core Catch-Alls have a 1/4" female pipe connection (-G) in the endplate to permit the installation of an access valve to measure pressure drop. If the proper style drier is not available, then a suction line filter-drier can be used in the suction or liquid line; and a liquid line filter-drier can be used in the suction line. The pressure drop characteristics of the two types of driers are essentially the same for a given line size.

**INSTALLATION** — The Catch-All Filter-Drier can be installed directly in the suction line by removing a portion of the line. **After clean-up, the Catch-All Filter-Drier is generally left in the line. The cores in the replaceable model or RSF shell should be replaced with filter elements (RPE-48-BD or RPE-100) to obtain the lowest possible pressure drop.** A hermetic motor burnout produces large amounts of acid, moisture, sludge and all types of lubricant decomposition materials. To obtain the maximum ability to remove all these various types of contaminants, the Sporlan HH style charcoal core is preferred. If the HH style core is not available, the standard cores may be used.

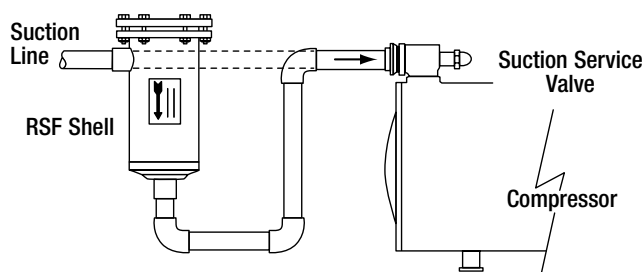
**IMPORTANCE OF LUBRICANT AS A SCAVENGER** — OEM recommendations stress the importance of lubricant in cleaning up a system after a motor burnout. The lubricant acts as a scavenger, collecting the acid, sludges, and other contaminants. Therefore, the service technician should check the **color** and **acid content** of the

lubricant. It must be clean and acid free before the job is finished. The acid content can be checked with the Sporlan Acid Test Kit.

**OBTAINING A LUBRICANT SAMPLE** — This is frequently a difficult task. An lubricant sample can usually be obtained from the burned out compressor. To obtain repeated samples after the system is started up, install a trap in the suction line with an access valve in the bottom of the trap. This permits collecting the small amount of lubricant required for running an acid test. Another method is to build a trap with valves, and connections for charging hoses. Then refrigerant vapor from the discharge service valve is run through this trap and put back into the suction service valve. In a short time sufficient lubricant collects in the trap for analysis. For more information request Sporlan Form 40-139.

**SUCTION LINE PRESSURE DROP** — Most hermetic motors rely on refrigerant vapor for cooling. Any large pressure drop in the suction line could result in reduced flow of suction gas, and thus improper cooling of the new hermetic motor. Field experience has shown that if the filter-drier is properly sized, the pressure drop across it should not exceed the values given in the table on Page 26. The pressure drop across the filter-drier should be checked during the first hour of operation to determine if the cores need to be changed.

Any pressure loss in the suction line also reduces system capacity significantly. When a RSF shell or replaceable core type Catch-All is used, it is recommended that the cores be removed and filter elements installed when the clean-up job is complete. Obtaining a low pressure drop is particularly important for energy savings on supermarket refrigeration systems. Therefore, suction line filter-driers should be sized generously on these systems.



# CLEAN-UP PROCEDURE

1. **DIAGNOSIS** — Make certain that a motor burnout has actually occurred by running the proper electrical tests. Determine the severity of the burnout by analyzing the acid content of the lubricant from the burned out compressor. This can be done on the job with the Sporlan TA-1 One Time Acid Test Kit, or AK-3 Acid Test Kit. Note the color of the lubricant, the smell of the refrigerant, and if carbon deposits are present in the suction line.
2. **PLAN THE PROCEDURE** — Consider the following factors: If the lubricant is not acidic and none of the other indications of severe burnout are present, then the system can be classified as a “mild burnout” and cleaned up accordingly. Under these circumstances, it is easier to save the refrigerant. If a lubricant sample is desired for checking the progress of the clean-up, then a trap should be installed in the suction line (see Form 40-139). A semi-hermetic compressor can be examined and cleaned by having the head removed. A heat pump system will frequently require replacing the 4-way valve, or other special precautions. Systems with a critical charge must have the charge adjusted due to the added volume in the oversized filter-drier that is normally installed in the liquid line.
3. **MILD BURN-OUT** — If the analysis of the lubricant shows no acidity, then the system can be classified as a mild burnout, and cleaned up simply by installing an oversized Catch-All Filter-Drier in the liquid line. If the lubricant is not analyzed, and the other factors indicate some doubt, then the burnout should be considered severe and cleaned up as described below.

CAUTION — Acid burns can result from touching the sludge in the burned out compressor. Rubber gloves should be worn when handling contaminated parts.
4. **SEVERE BURNOUTS** — These systems should be cleaned using the *suction line filter-drier method*. The refrigerant in the system can be saved, and must be removed using refrigerant recovery/recycling equipment. The exact method chosen depends upon the availability of shutoff valves, the amount of charge, and the other equipment available. See the section on “Saving the Refrigerant.”
5. Remove the burned out compressor and install the new compressor.
6. Install a Catch-All Suction Line Filter-Drier or RSF shell (selected from page 28) ahead of the new compressor. The access valve on the drier permits the pressure drop to be checked by installing gauges on the access valve and at the gauge port on the suction service valve. For systems without service valves, install a line tap valve downstream of the Catch-All Filter-Drier for the second connection.
7. Remove the liquid line drier and install an oversized Catch-All (one size larger than the normal selection size). Check the expansion valve and other controls to see if cleaning or replacement is required. Install a See•All Moisture and Liquid Indicator.
8. Evacuate the system according to the manufacturer’s recommendations. Normally this will include the use of a high vacuum pump and a low vacuum micron gauge for measuring the vacuum obtained.
9. Recharge the system through the access valve on the suction line filter-drier. Then start the system according to the manufacturer’s instructions.

10. The use of a Catch-All Filter-Drier installed permanently in the suction line permits the clean-up of a small system to be completed with one service call. The pressure drop across the suction line filter-drier should be measured during the first hour’s operation. If the pressure drop becomes excessive, then the suction line filter-drier should be replaced. If the equipment manufacturer’s recommendations are not available, the following maximum pressure drop levels are suggested.

MAXIMUM RECOMMENDED PRESSURE DROP—PSI  
FOR SUCTION LINE FILTER-DRIERS

SYSTEM	PERMANENT INSTALLATION		TEMPORARY INSTALLATION	
	REFRIGERANT			
	22, 404A, 407C, 410A, 502 & 507	12 & 134a	22, 404A, 407C, 410A, 502 & 507	12 & 134a
Air Conditioning	3	2	8	6
Commercial	2	1-1/2	4	3
Low Temperature	1	1/2	2	1

11. In 24 hours take an lubricant sample. Observe the color and test for acidity. If the lubricant is dirty or acidic, replace the suction line and liquid line filter-driers.

In two weeks re-check the color and acidity of the lubricant to see if another change of filter-driers is necessary. It may also be desirable to change the lubricant in the compressor. Before the job is complete, it is essential that the lubricant be clean and acid-free.
- SAVING THE REFRIGERANT — The refrigerant is not damaged by the burnout, and can be reused, provided the contaminants are removed. When a mild burnout has occurred on a system with service valves, the refrigerant can be saved by closing the valves and trapping the refrigerant in the system, while changing the compressor. *The system can then be pumped down with the new compressor to save the refrigerant while installing an oversized Catch-All Filter-Drier in the liquid line.*
- If a severe burnout has occurred, the above procedure might damage the new compressor. Therefore, it is preferred that the refrigerant be removed from the system for reclamation. If no service valves are available then the refrigerant *must* be removed from the system. Recovery, recycling or reclamation of the refrigerant must be performed in accordance with EPA regulations.
- Sporlan recommends the use of our HH style cores for cleaning up all systems after a hermetic motor burnout. These cores contain a desiccant mix that is suitable for removing all types of system contaminants. Form 40-109 is available for selection recommendations on suction line filter-driers. Information on cleaning up centrifugal systems is given in Bulletin 240-10-3. Information on clean-up after a hermetic motor burnout is also given in Section 91 of the SAM Manual published by the Refrigeration Service Engineers Society.

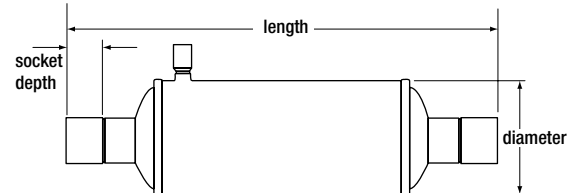


## SUCTION LINE FILTER-DRIER SPECIFICATIONS

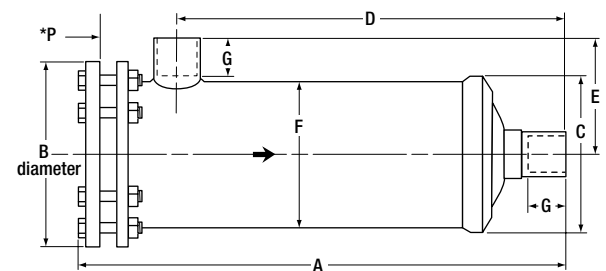
for NEW SYSTEMS and CLEAN-UP AFTER BURNOUT

TYPE NUMBER		CONNECTIONS Inches ODF Solder	LENGTH Inches	SOLDER SOCKET DEPTH Inches	SHELL DIAMETER Inches	SHIPPING WEIGHT Lbs.
SEALED TYPE	C-084-S-T-HH	1/2	5.44	0.50	2.62	1-1/4
	C-164-S-T-HH	1/2	6.00	0.50	3.00	1-3/4
	C-165-S-T-HH	5/8	6.31	0.62		
	C-166-S-T-HH	3/4	6.75	0.62		
	C-167-S-T-HH	7/8	6.93	0.75		
	C-305-S-T-HH	5/8	9.25	0.62	3.00	3-1/2
	C-306-S-T-HH	3/4	9.65	0.62		
	C-307-S-T-HH	7/8	9.80	0.75		
	C-309-S-T-HH	1-1/8	9.75	0.96		
	C-417-S-T-HH	7/8	9.81	0.75	3.50	4-1/2
	C-419-S-T-HH	1-1/8	9.75	0.96		
	C-437-S-T-HH	7/8	10.34	0.75	4.75	8
	C-439-S-T-HH	1-1/8	10.74	0.96		
	C-4311-S-T-HH	1-3/8	10.94	1.00		
	C-4313-S-T-HH	1-5/8	10.94	1.06		
	C-607-S-T-HH	7/8	16.00	0.75	3.00	6
	C-609-S-T-HH	1-1/8	16.00	0.96		

### SEALED TYPE



### REPLACEABLE CORE TYPE



c US  
LISTED

TYPE NUMBER		CONNECTIONS Inches ODF Solder	NUMBER OF CORES/ELEMENTS	CORE/ELEMENT PART NUMBER	MOUNTING BRACKET	DIMENSIONS — Inches								NET WEIGHT Lbs.	SHIPPING WEIGHT Lbs.	
						A	B	C	D	E	F	G	P*			
REPLACEABLE CORE TYPE	RSF-487-T	7/8	1	RC-4864-HH, RC-4864 or RCW-48 Cores	A-685	9.30	6.00	5.00	6.07	3.72	4.75	0.75	7.00	10.6	12	
	RSF-489-T	1-1/8				9.37			6.25	3.80		0.91				
	RSF-4811-T	1-3/8				9.60			6.37	4.00		0.97				
	RSF-4813-T	1-5/8				9.60			6.37	4.00		1.09				
	RSF-4817-T	2-1/8				9.37			5.58	4.60		1.37				
	RSF-4821-T	2-5/8	RPE-48-BD Element	9.75	5.75	5.20	1.47	13.8	17							
	RSF-9617-T	2-1/8		14.96	11.17	4.59	1.37									
	RSF-9621-T	2-5/8		15.43	11.37	5.12	1.47									
	RSF-9625-T	3-1/8		15.12	10.78	4.90	1.68									
	For Systems Requiring the Maximum Amount of Desiccant															
	C-30013-G	1-5/8	3	RC-10098-HH, RC-10098 or RCW-100 Cores	A-175-2	27.94	7.50	6.25	23.88	5.12	6.00	1.12	25.62	36	40	
	C-30017-G	2-1/8				28.06			24.00	5.12		1.38				
	C-40017-G	2-1/8	4	RPE-100 Element		34.56			30.50	5.31		1.38		32.12	43	47
	C-40021-G	2-5/8				34.75			30.56	5.38		1.50			45	47
	C-40025-G	3-1/8				34.44			29.81	5.06		1.75	45		47	
	C-40029-G	3-5/8				34.81			30.06	5.50		2.00	47		49	
	C-40033-G	4-1/8				35.12			29.81	5.62		2.19	47		49	

NOTE: Refer to Bulletin 80-10 for additional information on RSF shells. Screen P/N: 6171-5 is recommended when cores are used in these shells.

\* "P" Dimension is the pull space required to change core.

#### SIGNIFICANCE OF THE TYPE NUMBER...

The letters and numerals in the Catch-All type number each have a significance.

**C** indicates Catch-All.

**RSF** indicates Replaceable Suction Filter.

**FIRST TWO DIGITS** indicates the cubic inches of desiccant in the given drier size.

**LAST ONE OR TWO DIGITS** indicates the fitting size in eighths of an

inch. For example: a "4" indicates 1/2" fitting size; a "13" indicates a 1-5/8" fitting size.

Other suffix letters indicate special qualities. Examples:

- T** indicates a pressure tap consisting of a Schrader type access valve on the inlet end of the Catch-All or RSF shell.
- HH** indicates a charcoal style core for wax removal and clean-up after a hermetic motor burnout.



## SUCTION LINE FILTER-DRIER RATINGS

for NEW SYSTEMS and CLEAN-UP AFTER BURNOUT

### SUCTION LINE FLOW CAPACITY (TONS) — SEALED TYPE

REFRIGERANT		134a			22					404A				407C	410A
EVAPORATOR TEMPERATURE		40°F	20°F	0°F	40°F	20°F	0°F	-20°F	-40°F	20°F	0°F	-20°F	-40°F	40°F	40°F
PRESSURE DROP (psi)		2.0	1.5	1.0	3.0	2.0	1.5	1.0	0.5	2.0	1.5	1.0	0.5	3.0	3.0
SEALED TYPE	C-084-S-T-HH	1.4	0.9	0.6	2.1	1.3	0.9	0.5	0.3	1.3	0.8	0.5	0.3	2.1	2.7
	C-164-S-T-HH	1.7	1.1	0.7	2.7	1.7	1.1	0.7	0.3	1.6	1.0	0.6	0.3	2.7	3.6
	C-165-S-T-HH	2.0	1.3	0.8	3.2	2.0	1.3	0.8	0.4	1.9	1.2	0.7	0.4	3.2	4.2
	C-166-S-T-HH	2.6	1.7	1.0	4.0	2.5	1.6	1.0	0.5	2.4	1.6	0.9	0.5	3.9	5.2
	C-167-S-T-HH	2.8	1.8	1.1	4.5	2.8	1.8	1.1	0.5	2.7	1.7	1.0	0.5	4.4	5.9
	C-305-S-T-HH	2.2	1.4	0.8	3.4	2.1	1.4	0.8	0.4	2.0	1.3	0.8	0.4	3.4	4.4
	C-306-S-T-HH	2.8	1.8	1.1	4.4	2.8	1.8	1.1	0.5	2.7	1.7	1.0	0.5	4.4	5.8
	C-307-S-T-HH	3.4	2.2	1.3	5.3	3.3	2.2	1.3	0.6	3.2	2.0	1.2	0.6	5.3	7.0
	C-309-S-T-HH	3.8	2.4	1.5	5.9	3.7	2.4	1.5	0.7	3.6	2.3	1.4	0.7	5.8	7.7
	C-417-S-T-HH	3.8	2.5	1.5	6.0	3.8	2.5	1.5	0.7	3.6	2.3	1.4	0.7	6.0	7.9
	C-419-S-T-HH	4.0	2.6	1.6	6.2	3.9	2.5	1.5	0.8	3.7	2.4	1.5	0.7	6.1	8.0
	C-437-S-T-HH	5.1	3.3	2.1	8.0	5.0	3.3	2.0	1.0	4.8	3.1	1.9	0.9	7.9	10.4
	C-439-S-T-HH	6.4	4.2	2.5	10.0	6.3	4.1	2.5	1.2	6.0	3.9	2.4	1.2	9.9	13.1
	C-4311-S-T-HH	7.1	4.6	2.8	11.1	6.9	4.6	2.7	1.4	6.7	4.3	2.6	1.3	10.9	14.4
	C-4313-S-T-HH	7.8	5.1	3.1	12.2	7.6	5.0	3.0	1.5	7.3	4.7	2.9	1.4	12.0	15.9
	C-607-S-T-HH	4.2	2.7	1.7	6.7	4.2	2.7	1.6	0.8	4.0	2.6	1.6	0.8	6.6	8.7
	C-609-S-T-HH	4.8	3.1	1.9	7.5	4.7	3.1	1.8	0.9	4.5	2.9	1.8	0.9	7.4	9.8

### SUCTION LINE FLOW CAPACITY (TONS) — SHELLS WITH REPLACEABLE CORES

REFRIGERANT		134a			22						404A & 507				407C	
EVAPORATOR TEMPERATURE		40°F	20°F	0°F	40°F		20°F	0°F	-20°F	-40°F	20°F	0°F	-20°F	-40°F	40°F	
PRESSURE DROP (psi)		2.0	1.5	1.0	3.0	8.0*	2.0	1.5	1.0	0.5	2.0	1.5	1.0	0.5	3.0	8.0*
REPLACEABLE CORE TYPE	RSF-487-T	6.4	4.2	2.5	10.1	17.5	6.3	4.1	2.5	1.2	6.1	4.0	2.3	1.2	10.0	17.3
	RSF-489-T	7.8	5.1	3.1	12.2	21.1	7.6	5.0	3.0	1.5	7.3	4.8	2.8	1.4	12.0	20.7
	RSF-4811-T	9.4	6.2	3.7	14.8	25.6	9.3	6.1	3.6	1.8	8.9	5.8	3.4	1.7	14.6	25.3
	RSF-4813-T	10.1	6.7	4.0	15.9	27.5	10.0	6.5	3.9	1.9	9.6	6.2	3.6	1.8	15.7	27.2
	RSF-4817-T	11.0	7.2	4.4	17.2	29.8	10.8	7.1	4.2	2.1	10.4	6.8	3.9	2.0	17.0	29.4
	RSF-4821-T	11.9	7.8	4.7	18.6	32.2	11.6	7.6	4.6	2.3	11.2	7.3	4.3	2.2	18.4	31.6
	RSF-9617-T	16.1	10.6	6.4	25.2	43.6	15.8	10.3	6.2	3.1	15.2	9.9	5.8	2.9	24.9	42.9
	RSF-9621-T	18.7	12.3	7.4	29.3	50.7	18.3	12.0	7.2	3.6	17.6	11.5	6.7	3.4	28.9	49.8
	RSF-9625-T	19.2	12.6	7.6	30.0	51.9	18.8	12.3	7.4	3.7	18.1	11.8	6.9	3.5	29.7	51.0
	C-30013-G	16.9	11.0	6.7	26.6	46.0	16.7	10.9	6.5	3.2	16.0	10.3	6.2	3.1	26.3	42.8
	C-30017-G	17.2	11.1	6.8	27.0	46.7	16.9	11.1	6.6	3.3	16.2	10.4	6.3	3.1	26.7	43.3
	C-40017-G	21.0	13.6	8.3	32.9	56.9	20.6	13.5	8.1	4.0	19.8	12.8	7.2	3.8	32.4	52.8
C-40021-G thru C-40033-G	21.0	13.6	8.3	32.9	56.9	20.6	13.5	8.1	4.0	19.8	12.8	7.2	3.8	32.4	52.8	

\*Denotes TEMPORARY INSTALLATION. Cores for system clean-up; RPE-48-BD or RPE-100 Filter Elements are to be installed after clean-up. Rated in accordance with ARI Standard 730.

### SELECTION INSTRUCTIONS

Except for the values in bold (R-22/R-407C at 40°F; 8 psi pressure drop), the flow capacities are rated at the maximum recommended pressure drop for **permanent** installation.

To ensure the suction line filter-drier has ample contaminant removal ability, selection must be based on flow capacity and the amount of desiccant required for system clean-up. The suction line filter-drier

must be large enough to adequately remove acid, moisture and solid contaminants without causing nuisance plug-ups. Sizing is especially important for sealed type suction line filter-driers since they should be sized to clean a small system with one service call.

To reduce the pressure drop through replaceable core shells, substitute cores with filter elements (see page 19) after the system has been cleaned up. The 6171-5 screen should be discarded when cores are replaced with RPE-48-BD elements in RSF shells.

*For a simplified "Quick Selection Guide," request Form 40-109*





## COMPACT STYLE SUCTION LINE FILTER-DRIERS

### DESIGN BENEFITS —

- **Short overall length**, suitable for cramped piping situations — shorter than other similar type filter-driers.
- Suitable for use on **1 through 5 ton air conditioning systems**, with suction line sizes in the range of 1/2" to 1-1/8". Also applicable on the common suction line of heat pump systems.
- **The famous Sporlan HH core** removes all types of contaminants including moisture, acid, dirt and sludge. A blend of two desiccants, plus activated charcoal, gives maximum performance.
- **Access valves** permit measuring the pressure drop across the filter-drier during clean-up, following a hermetic motor burnout.

**APPLICATION** — The short overall length of these filter-driers permit easy installation, even on systems with restricted space. While designed for the minimum possible overall length, these filter-driers are suitable for use on most air conditioning systems. The filter-drier has two access valves for measuring the pressure drop across the filter-drier core during the clean-up process.

**Heat pump systems** frequently have cramped piping in the very compact cabinet. The C-140 Series Catch-All is not a reversible filter-drier, therefore it must be installed in the common suction line. The service technician needs a short suction line filter-drier to fit in this restricted space. The C-140 Series Catch-All meets this essential need.

**CONSTRUCTION** — The core is held in place by a leaf spring at the



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inlet end. Filtration occurs on the core surface, and a 100 mesh screen is used as a safety filter at the outlet end. The screen and core are sealed to the shell wall with a fiberglass pad. The threaded valve core for each access valve is supplied in a separate envelope. This way the heat sensitive valve core can be installed after brazing the Catch-All into the line. The Catch-All utilizes copper connections for ease in brazing with any type of alloy.

While designed for use in the suction line these filter-driers may be installed in the liquid line, if desired under unusual circumstances. The performance of these filter-driers in the liquid line is similar to the more familiar C-160 Series Catch-All Filter-Driers.

### SELECTION RECOMMENDATIONS

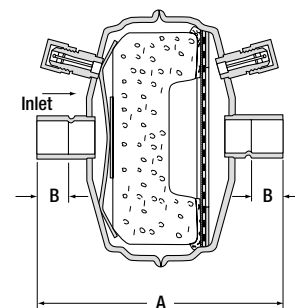
TYPE NUMBER	CONNECTIONS Inches	*FLOW CAPACITY (Tons) EVAPORATOR TEMPERATURE										SELECTION RECOMMENDATIONS	
		40°F				20°F		0°F		-20°F	-40°F		
		PRESSURE DROP											
		2	3	3	3	1-1/2	2	1	1-1/2	1	1/2		
		REFRIGERANT										REFRIGERANT	
		134a	22	407C	410A	134a	22	134a	22	22	22		
C-144-S-TT-HH	1/2 ODF	1.3	2.1	2.1	2.7	0.8	1.3	0.5	0.9	0.4	0.2	22, 407C & 410A	12, 134a, 404A, 502 & 507
C-145-S-TT-HH	5/8 ODF	2.1	3.4	3.4	4.6	1.3	2.2	0.8	1.4	0.8	0.4	2	1
C-146-S-TT-HH	3/4 ODF	2.9	4.8	4.8	6.2	1.8	3.0	1.1	2.0	1.2	0.6	3	2
C-147-S-TT-HH	7/8 ODF	3.2	5.3	5.3	6.8	2.1	3.3	1.3	2.2	1.3	0.7	5	3
C-149-S-TT-HH	1-1/8 ODF	4.2	7.0	7.0	9.0	2.7	4.4	1.6	2.9	1.7	0.9	5	3

Rated in accordance with ARI Standard 730.

### SPECIFICATIONS

CATCH-ALL TYPE NUMBER	CONNECTION SIZE ODF Solder	LENGTH "A" Inches	SOLDER SOCKET DEPTH "B" Inches	DIAMETER OF BODY Inches	SHIPPING WEIGHT Lbs.
C-144-S-TT-HH	1/2	4.14	.50	4.44	2.0
C-145-S-TT-HH	5/8	4.38	.62		
C-146-S-TT-HH	3/4	4.83	.69		
C-147-S-TT-HH	7/8	4.97	.75		
C-149-S-TT-HH	1-1/8	4.93	.96		

Volume of desiccant is 14 cu. in. Filtering area is 27 sq. in.



The water capacity and acid capacity of the C-140 Series are comparable to the more familiar C-160-S-TT-HH Series Filter-Drier. Specific values are not listed since the industry has no standard method for testing the

water capacity or acid removal ability in the **suction line** of refrigerant systems. The flow capacity information above permits selecting C-140 Series Catch-Alls for various conditions with confidence.

## ACID TEST KITS

### Tests Mineral, Alkylbenzene, and POE Lubricants

- Thoroughly Field Proven
- Takes the Guesswork Out of Service Work

TA-1



AK-3



#### The Acid Test Kits offer these outstanding benefits:

- **BUILDS CUSTOMER CONFIDENCE** — Show the test results of the acid test kit to customers, or perform the test in their presence. In this way they realize you are using the most up-to-date scientific method for system maintenance. Showing customers the test results will also help to convince them to spend the money necessary to do a proper clean-up job. Customers who are thoroughly confident of your abilities will be more interested in establishing preventative maintenance programs.
- **ACCURATE and RELIABLE** — Using a simple, scientific method, you can precisely measure the amount of acid in a lubricant sample taken from a contaminated system. The test procedure has been proven by extensive field experience.
- **CONVENIENT** — Both the TA-1 and AK-3 are convenient to use. The TA-1 has pre-measured solutions supplied in bottles with screw caps for easy handling. The AK-3 has all solutions and bottles supplied in a small fitted case. Either kit may be used on the job site, or a lubricant sample can be saved and tested in the presence of the equipment owner.
- **LUBRICANT SAMPLE USED FOR TEST** — Since lubricant is the scavenger, it gives the best indication of acid in the system. Less than an ounce of lubricant is required.
- **QUICK TO USE** — Once the lubricant sample is obtained... it will take only minutes to perform the test. Simply mix the solutions and lubricant to be tested. Shake, and the resulting color tells the complete story.
- **COST** — The cost of the test is very inexpensive, regardless of which kit is used. The TA-1 Kit is more convenient, but for repeated testing the AK-3 is less costly. The bottle of Indicator Solution (Part No. AKI-16) in the AK-3 Kit is sufficient for four tests, and the bottle of Neutralizer Solution (Part No. AKN-2) is sufficient for 150 tests.

**GENERAL INSTRUCTIONS** — A refrigeration system suspected of an acidic lubricant condition should be tested to determine if it is within an acceptable limit before extensive damage is done and/or hermetic motor burnout occurs.

The Acid Test Kits are simple and direct service tools that “take the guesswork out of service work.” The test can be done in the field, or service shop to determine if the acid content of the lubricant is within safe operational limits.

After mixing the solutions and adding the lubricant, the color should be judged immediately. Allowing the solution to set an hour or more may give a false reading. The chart shows the color change points of

the TA-1 Acid Test Kit with mineral, alkylbenzene, and POE lubricant.

The solutions in the kit are stable, but are sensitive to light and heat. Store the kit, in the product box, in a cool, dry place.

The TA-1 Kit is designed to serve as a guideline for testing POE lubricants since the industry has not established a maximum acid level for POE lubricants. Always follow the equipment manufacturer's recommendations. The Sporlan AK-3 Acid Test Kit offers another alternative for testing acidity in POE lubricant by indicating the relative amount of acid in the lubricant.

**The TA-1 and AK-3 Kits should not be used on systems that contain a lubricant additive leak detector. The additives can interfere with the color change point of the acid test kits.**

**CENTRIFUGAL SYSTEMS** — Most of the lubricants used in centrifugal systems contain additives. These additives react like an acid even though the lubricant is not contaminated. Therefore, the TA-1 and AK-3 cannot be used to test many centrifugal lubricant. However, the kits can be used to test certain refrigerants themselves. Refrigerants 11, 113 or 123 from these systems can be tested directly. This permits routine maintenance and a check on the system following clean-up of a contaminated system.

Lubricant Type	Satisfactory Acid Level		Marginal Acid Level		Unsatisfactory Acid Level	
	Solution Color	Acid Number	Solution Color	Acid Number	Solution Color	Acid Number
Mineral or Alkylbenzene	Purple or Red	Less Than 0.05	—		Orange or Yellow	0.05 or Greater
POE	Purple or Red	Less Than 0.17	Orange	0.17 to 0.23	Yellow	0.23 or Greater



## ACCESSORIES

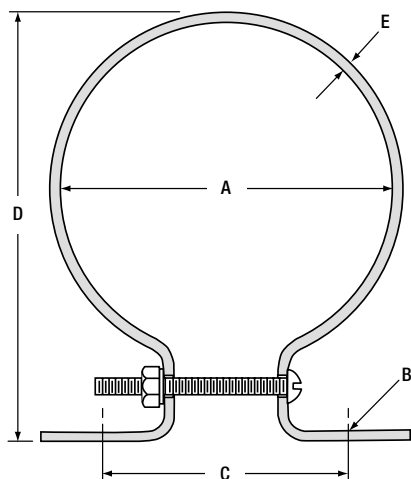
### ■ MOUNTING BRACKETS

#### *Order Separately*

Mounting Brackets designed especially for **replaceable core type Catch-All Filter-Driers and RSF shells** are available. All brackets are supplied with a bolt, nut, and washer.

**A-685** — Mounting Bracket for shell types C-480 thru C-19200 Series and RSF shells. **ONE** bracket per package. Depending on shell size and installation requirements, more than one bracket may be required. Catch-Alls larger than the C-480 and RSF-480 Series shells generally require two brackets. **A-175-1** — Mounting Bracket for shell types C-R424, C-R425 and C-R427 **ONLY**. **ONE** bracket per package. Usually one bracket is adequate for mounting these Catch-Alls.

**A-175-2** — Mounting Bracket for shell types C-30000 and C-40000 Series. **TWO** brackets per package. Two brackets are generally adequate for mounting these large Catch-Alls.

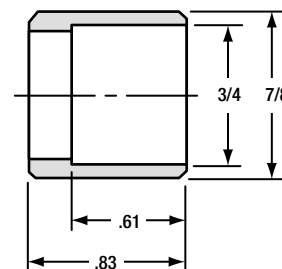


**MOUNTING BRACKET DIMENSIONS—Inches**

MODEL NUMBER	A	B	C	D	E
<b>A-685</b>	4.75	.41 x .81 Slot	3.50	6.12	0.12
<b>A-175-1</b>	3.50		3.50	4.62	0.12
<b>A-175-2</b>	6.00		4.00	7.44	0.12

### ■ FLUSH BUSHING KIT-KFB-7/8

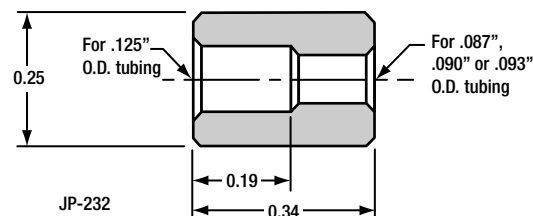
The copper flush bushings are 7/8" OD × 3/4" ID. They may be slipped into any 7/8" ODF solder connection and then 3/4" OD tube can be slipped into the bushing. The soldering or brazing operation of the tube to bushing and bushing to fitting can be accomplished at one time.



### ■ JP-232 CAP TUBE ADAPTER

To simplify the application of **Catch-All Filter-Driers** on systems with cap tubes, Sporlan has designed a brass adapter that fits all standard 1/4" ODF solder fittings. This adapter can be used with the C-032-S, C-052-S, and C-082-S models. As shown in the illustration, one end of the adapter is suitable for 0.125" OD tubing and the other is suitable for cap tubes of .087", .090", or .093" OD. This adapter **CANNOT** be used with the C-032-CAP or C-032-CAP-T Catch-Alls.

The adapter can be brazed to the capillary tubing and the unit fitting in one operation. These adapters are available from all Sporlan wholesalers. Request **part JP-232**.







**SPORLAN VALVE COMPANY**  
206 LANGE DRIVE • WASHINGTON, MO 63090  
636-239-1111 • FAX 636-239-9130  
[www.sporlan.com](http://www.sporlan.com)