Temprite®

Temprite specializes in innovative, energy-efficient coalescent and conventional oil separators, and refrigerant oil management products including oil level controls and oil reservoirs.

Every Temprite product is engineered and manufactured to enhance total thermal efficiency while reducing carbon emissions and providing the highest possible return on investment. Temprite products are the solution to rising energy costs, longer system life and reduced carbon emissions. Each component is designed to make refrigeration systems clean and green.

Founded in 1924, Temprite was a pioneer in the refrigeration industry and one of the first companies to specialize in refrigeration components. Early Temprite products included beer coolers and dispensing valves for soda fountains and water coolers.

The Temprite reputation for innovation arose when the company originated some of the earliest refrigeration components including the conventional oil separator in its current configuration: Every conventional oil separator is a copy of a Temprite oil separator.

In 1988, Temprite was the first company to design and manufacture coalescent oil separators and oil reservoirs with the introduction of the high-efficiency 900 Series. The 920 & 920R Series were developed in 1990-1991 to meet customer needs for energy savings, lower carbon emissions and increased system life.

Today, Temprite is a premier brand name in the industry. Building on decades of experience in manufacturing components for the refrigeration industry, the Temprite tradition of innovation continues with energy-efficient coalescent and conventional oil separators for every type of refrigerant, such as the 130 Series for CO_2 and the ammonia-compatible 920 & 920R Series.

Temprite's Commitment to Customers

Temprite will provide the highest quality refrigeration component products—as well as the best operational specifications—available worldwide.

Product Certifications

Since December 2001, all products conform to the European Pressure Directive (PED). As customer refrigeration systems can vary greatly, each Temprite product is tested both on in-house test beds and in the field, using a variety of parameters. Every time there's a new standard to meet, Temprite products help customers meet it. All Temprite components are certified by at least one of the following notified bodies: UL, ULC, CE, CRN, KHK and ASME.*

UL c UL CE CRN ASME 高圧ガス保安協会 KHK

*Contact Temprite for individual product certifications.

International Distribution

The Temprite plant is located in West Chicago, Illinois, USA, with distribution facilities in Tokyo, Japan; Glasgow, UK; Stuttgart, Germany; Ankara, Turkey; Bangalore, India; and Sydney, Australia. Temprite has worldwide distribution through wholesalers and direct sales to original equipment manufacturers, retailers and medical organizations, and through strategic partners in the United Kingdom, Japan, Germany, Turkey, India and Australia.

Temprite® Coalescent Oil Separators

Filtration & Separation

All Temprite coalescent oil separators are equipped with a Standard Filter that uses a matrix-type borosilicate glass fiber material to do the work formerly done by impingement screens in conventional oil separators.

Illustration #1 shows how a coalescent oil separator moves oil-laden refrigerant gas into the filter and through the separator. Refrigerant pressure moves the aerosolized oil into the separator. Oil droplets separate as they enter the filter, where the oil is stripped from the refrigerant gas. These larger, heavier droplets accumulate at the edge of the filter and fall, collecting at the bottom of the separator where the clean oil is returned to the compressor. The clean refrigerant gas moves upward to the condenser.

Illustration #2 shows a cross-section of a Temprite Standard Filter. System pressure moves the refrigerant oil in aerosol form outward from the center of the filter. The filter's borosilicate fiber matrix causes the aerosolized oil to collide with other oil droplets, creating bigger oil droplets. The oil droplets are pushed to the outer edges of the filter by refrigerant flow, and fall to the bottom of the separator.

Illustration #1: Oil Separator Cross Section

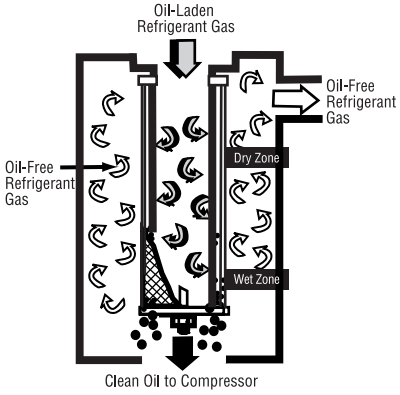
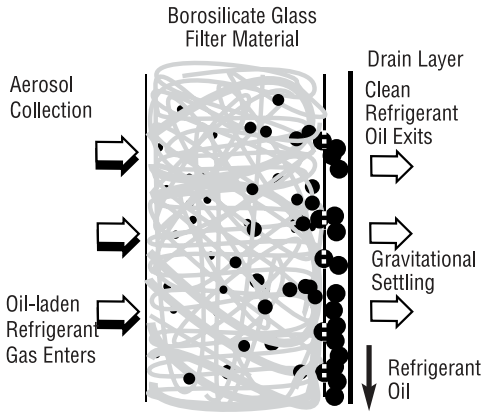


Illustration #2: Standard Filter Cross Section



Temprite Technology

Temprite's coalescent oil separators (COS) set the industry standard for energy-efficient performance. Unlike conventional separators, coalescent oil separators are not dependent on velocity for efficiency, maintaining the same level of effectiveness down to 20% of maximum flow.

- The high-efficiency performance of coalescing oil separators means better heat transfer through the coils, translating into significant kW savings.
- Coalescent oil separators are ideal for OEM applications where system cleanliness is paramount.

Exceptional Performance Range

Temprite products are engineered and manufactured to improve refrigeration and system thermal efficiency by minimizing oil and dirt in the system's evaporator. This results in shorter compressor run times, reduced carbon emissions and energy consumption, and the highest possible return on investment.

- Temprite coalescent oil separators separate and clean oil at a nominal 98.5%+ efficiency level.
- Coalescent oil separators maintain the same level of effectiveness down to 20% of mass flow.

Natural Refrigerant Conversions

Changing to environmentally friendly refrigerants is a mandate in most countries. Make your system as clean and green as possible by converting or retrofitting with Temprite coalescent oil separators.

Typical Aerosol Distribution in Mass Flow

Illustration #3: Aerosol Distribution

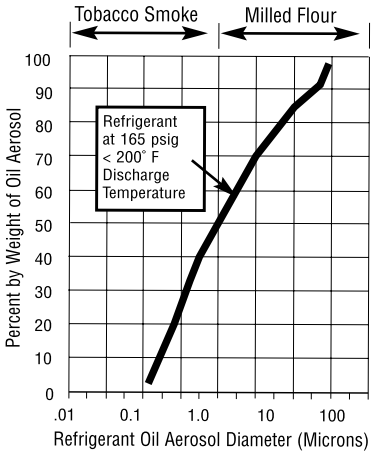


Illustration #3 shows micron particle sizes in a typical aerosol distribution ranging from .01 to 100 microns (µm) in size. Tobacco smoke and milled flour particle sizes are given as a reference point. The majority of oil droplets in refrigerant discharge gas are in the 0.4 to 10 µm range, with more than 50% of the droplets less than 1 µm in size. When evaluating the efficiency of your current separator, compare the micron cleaning range of your separator to Temprite coalescent oil separators. The exceptional Temprite Standard Filter technology cleans contaminants down to 0.3 microns in size.

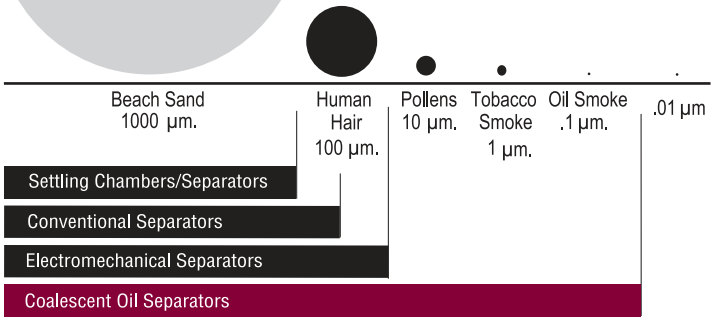
Exceptional Contaminant Removal

Two of the biggest energy drains on any refrigeration system are dirt, contaminants and excess refrigerant oil. Refrigerants also have an enhanced solvent effect, meaning more contaminants than ever can be clogging your system.

Illustration #4 compares the filtration levels of all other types of separators to coalescent oil separators. Temprite filtration gives you the cleanest possible oil and refrigerant gas—the keys to energy efficiency, lower carbon emissions, longer compressor life and lower energy costs.

Illustration #4: Coalescent Oil Separator Filtration Level

Coalescent matrix filters capture solid contaminants above .3 µm and aerosols in liquid form to .001 µm. Conventional separators only work to 100 µm, missing approximately 50% of the aerosols in the mass flow.



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130 Series for CO_2: Hermetic and Accessible

Temprite technology addresses the unique and challenging demands of CO_2 systems. Building on the best attributes of Temprite's 920 and 920R Series* oil separation technology, the 130 Series of coalescent oil separators is designed specifically for transcritical CO_2 systems and optimized for transcritical refrigeration applications.

*Both the 920 & 920R Series have been used extensively in subcritical applications up to 45 bar (650 PSI) for many years.

The 130 Series are the first coalescing oil separators created for transcritical CO_2 to undergo performance testing at internationally recognized testing organizations and have proven to perform the best of any filtration and separation technology. In addition to a range of six different sizes of separators, Temprite developed reservoirs and filter/drier shells specifically for transcritical CO_2 applications.

130 Series Technology

Specifications

- Application range: suitable for R744 (CO_2) transcritical high-, medium- and low-temperature applications
- Dual function: filters dirt out of the refrigerant and oil; separates the oil from the refrigerant gas
- Maximum operating pressure: 130 bar (1885 PSI)
- Efficiency: nominal 98.5%+ separation efficiency rating
- Filtration: Sub-micron particulate retention rating
- Connection sizes: 1/2" NPT to 2" NPT or Butt Weld

$CO_2$4U™

Temprite engineers continue to work with customers and specialists in the CO_2 field to develop products that work with the leading refrigeration technology.

Let us know what you need for your CO_2 system. We can produce liquid receivers and other high-pressure components for CO_2 applications to meet customer requirements.

Advantages

High Efficiency: most efficient oil-refrigerant filtering/separation technology with a 98.5%+ separation efficiency rating across the widest range of mass flows.

Energy-Saving: minimizes the amount of oil in the evaporator, improving heat transfer efficiency.

Cost-Saving: ensures shorter compressor run times.

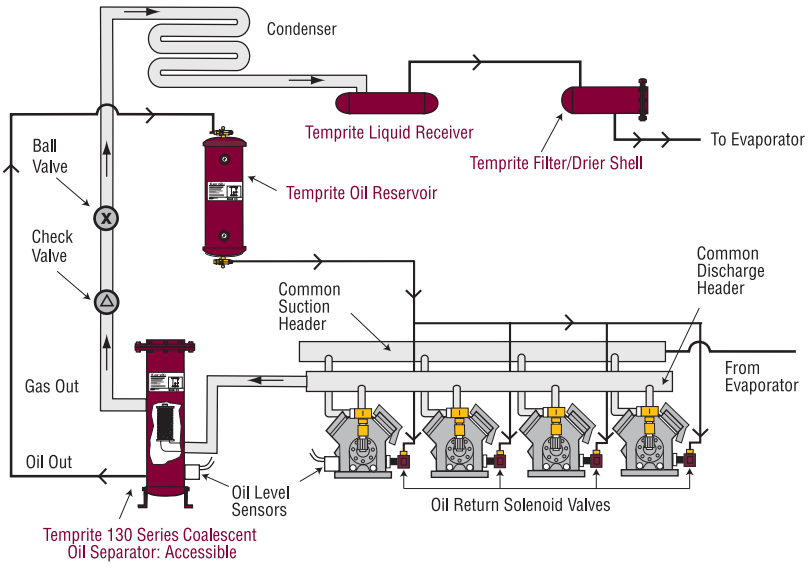
Easy Filter Changing: removable top plate allows for easy filter changing after it captures excess dirt circulating in the system.*

Individually Adjustable Mounting Feet: allow for variable field leveling and adjustment.

Internal Oil Level Monitoring: the integral oil reservoir and sensor port allows monitoring of the internal oil level and the controlled return of the cleaned oil to the compressor crank case for continued lubrication of the moving parts.

*Model 131 is hermetic and the filter is not accessible for changing.

Transcritical CO_2 System Schematic

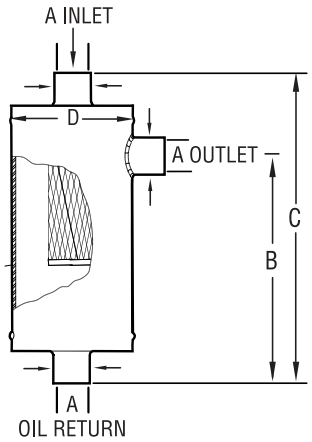


130 Series for CO_2

Maximum Working Pressure: 130 bar (1885 PSI)

Model 131: Hermetic

Part #	Model #	A Dim.	B Dim.	C Dim.	D Dim.
		Inlet/Outlet/ Oil Connector	Outlet Location	Height	Diameter
013101310	131	1/4" FPT*	115 mm 4.5"	165 mm 6.5"	73 mm 2.9"

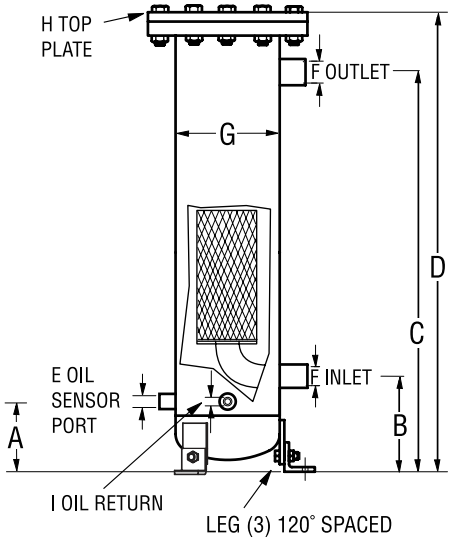


*FPT=Female Pipe Thread, MPT=Male Pipe Thread, BW=Butt Weld

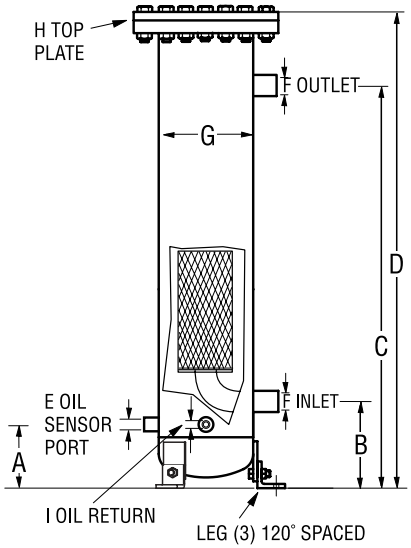
SELECT OIL SEPARATOR WITH CONNECTION SIZE NOT LESS THAN DISCHARGE LINE SIZE

NOTE: See page 10 for the 920 & 920R Series of products, suitable for subcritical applications up to 44.8 bar (650 PSI). The 920 & 920R Series are also ammonia compatible.

Models 133A, 135A, 137A: Accessible



133A, 135A



137A

Part #	Model # Inlet/ Outlet	A Dim.	B Dim.	C Dim.	D Dim.	E Dim.	F Dim.	G Dim.	H Dim.	I Dim.
		Sensor/ Oil Loc.	Inlet Loc.	Outlet Loc.	Height	Sensor	Inlet/ Outlet	Dia.	Dia.	Oil Return
013301330	133A 1/2" MPT*	118 mm 4.6"	152 mm 6"	325 mm 12.8"	435 mm 17"	3/4" FPT*	1/2" MPT*	102 mm 4.0"	176 mm 6.9"	1/4" FPT*
013301331	133A 1/2" BW*	118 mm 4.6"	152 mm 6"	325 mm 12.8"	435 mm 17"	3/4" FPT*	1/2" BW*	102 mm 4.0"	176 mm 6.9"	1/4" FPT*
013501350	135A 3/4" MPT*	118 mm 4.6"	152 mm 6"	433 mm 17.1"	545 mm 21.4"	3/4" FPT*	3/4" MPT*	102 mm 4.0"	176 mm 6.9"	1/4" FPT*
013501351	135A 3/4" BW*	118 mm 4.6"	152 mm 6"	433 mm 17.1"	545 mm 21.4"	3/4" FPT*	3/4" BW*	102 mm 4.0"	176 mm 6.9"	1/4" FPT*
013710142	137A 1" MPT*	131 mm 5.1"	171 mm 6.7"	584 mm 23"	702 mm 27.6"	3/4" FPT*	1" MPT*	141 mm 5.56"	216 mm 8.5"	1/4" FPT*
013701375	137A 1" BW*	131 mm 5.1"	171 mm 6.7"	584 mm 23"	702 mm 27.6"	3/4" FPT*	1" BW*	141 mm 5.56"	216 mm 8.5"	1/4" FPT*
013701370	137A 1-1/4" MPT*	131 mm 5.1"	171 mm 6.7"	584 mm 23"	702 mm 27.6"	3/4" FPT*	1-1/4" MPT*	141 mm 5.56"	216 mm 8.5"	1/4" FPT*
013701371	137A 1-1/4" BW*	131 mm 5.1"	171 mm 6.7"	584 mm 23"	702 mm 27.6"	3/4" FPT*	1-1/4" BW*	141 mm 5.56"	216 mm 8.5"	1/4" FPT*

* FPT=Female Pipe Thread, MPT=Male Pipe Thread, BW=Butt Weld

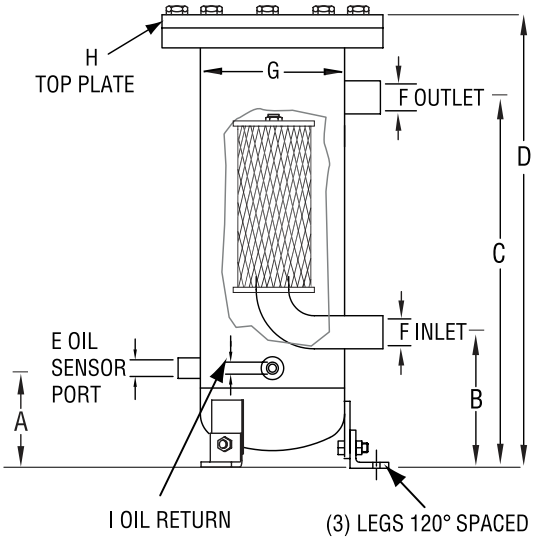
SELECT OIL SEPARATOR WITH CONNECTION SIZE NOT LESS THAN DISCHARGE LINE SIZE.

NOTE: See page 10 for the 920 & 920R Series of products, suitable for subcritical applications up to 44.8 bar (650 PSI). The 920 & 920R Series are also ammonia compatible.

130 Series for CO_2

Maximum Working Pressure: 130 bar (1885 PSI)

Model 138A: Accessible

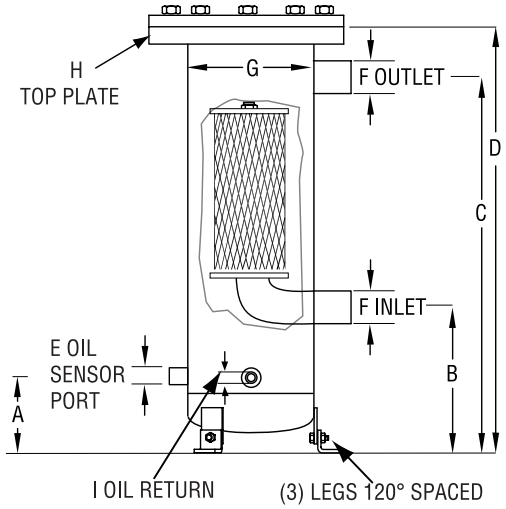


138A

Part #	Model # Inlet/ Outlet	A Dim. Oil Sensor/ Port	B Dim. Inlet	C Dim. Outlet	D Dim. Height	E Dim. Sensor	F Dim. Inlet/ Outlet	G Dim. Dia.	H Dim. Dia.	I Dim Oil Return
013801380	138A 1-1/2" MPT*	131 mm 5.1"	171 mm 6.7"	752 mm 29.6"	870 mm 34.2"	3/4" FPT*	1-1/2" MPT*	141 mm 5.6"	216 mm 8.5"	1/4" FPT*
013801381	138A 1-1/2" BW*	131 mm 5.1"	171 mm 6.7"	752 mm 29.6"	870 mm 34.2"	3/4" FPT*	1-1/2" BW*	141 mm 5.6"	216 mm 8.5"	1/4" FPT*

* FPT=Female Pipe Thread, MPT=Male Pipe Thread, BW=Butt Weld

Model 139A: Accessible



139A

Part #	Model # Inlet/ Outlet	A Dim. Sensor/ Oil Loc.	B Dim. Inlet Loc.	C Dim. Outlet Loc.	D Dim. Height	E Dim. Sensor	F Dim. Inlet/ Outlet	G Dim. Dia.	H Dim. Dia.	I Dim. Oil Return
013911391	139A 1-1/2" BW*	162 mm 6.4"	210 mm 8.3"	765 mm 30.1"	927 mm 36.5"	3/4" FPT*	1-1/2" BW*	219 mm 8.6"	324 mm 12.75"	1/4" FPT*
013921392	139A 2" BW*	162 mm 6.4"	210 mm 8.3"	765 mm 30.1"	927 mm 36.5"	3/4" FPT*	2" BW*	219 mm 8.6"	324 mm 12.75"	1/4" FPT*

* FPT=Female Pipe Thread, MPT=Male Pipe Thread, BW=Butt Weld

SELECT OIL SEPARATOR WITH CONNECTION SIZE NOT LESS THAN DISCHARGE LINE SIZE.

NOTE: See page 10 for the 920 & 920R Series of products, suitable for subcritical applications up to 44.8 bar (650 PSI).
The 920 & 920R Series are also ammonia compatible.