



Multistage Liquid/Particulate Separator

TKO Series



protecting your equipment • protecting your environment

Solberg's TKO series is a multistage liquid and particulate separator. It is an off the shelf solution for a majority of liquid removal applications.

Benefits

- Maximum pump protection with multi-stage filtration & separation
- Reduce costs with a singular modular design
- Housings may be used in a variety of conditions with multiple media pack options available
- Minimize frequent and costly maintenance checks with large liquid/slurry holding chamber

Solberg innovates solutions that meet the needs of our clients.

- Protect pumps from harmful liquids that destroy lubricating/seal oil
- Ease of maintenance
- Prevents emulsification in oil lubricated systems
- Sustain vacuum levels

Standard Features

Filtration Process



Ports

- 2 - 1" sight glass ports with sight glasses (low/high level)
- 1" upper chamber drain port
- 1/4" plugged differential ports on inlet and outlet
- 1/2" plugged equalization port for use with pneumatic drain system

Legs

- 6 position adjustable legs
- Pre drilled to accept pneumatic drain system option
- Predrilled floor anchor holes
- Legs ship in lowest position

Other

- Nameplate
- 2" drain with brass ball valve included
- Lifting lugs on the tank body



Selection Guide

The TKO series is designed to cover most liquid removal applications found in the marketplace. Use self selection guidelines and the chart below to find preferred TKO models based on your target flow rate. Please contact factory to discuss the proper product selection when there are large volumes of liquid, harsh process chemicals or extreme operating conditions.

Operating Guidelines for Self Selection

Vacuum Level (Absolute)	100 mbar	200 mbar	300 mbar	400-1000 mbar
High Temp Level	40°C (86°F)	50°C (104°F)	60°C (113°F)	65°C (150°F)

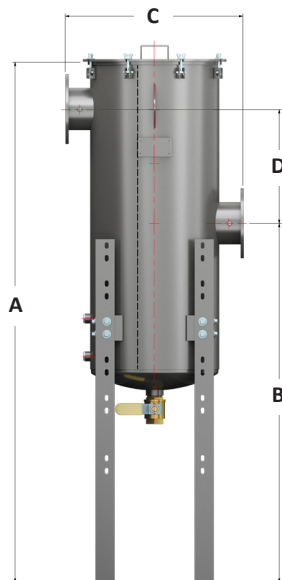
- Service range: Up to 1000 mbar absolute
- Fluids: water and non-corrosive oils
- No foaming substances

Note: Vacuum, temperature, and materials being separated can significantly affect performance. For any conditions outside of those listed, please contact factory to discuss your application specifics.

		Assembly Part Number		Pump Max Flow Rating (CFM)									
		5 micron 99+% particulate protection	1 micron 99+% particulate protection	175	300	400	520	700	1100	1800	2900		
3" FLANGE	Demister	TKO-F175D5-300F	TKO-F175D1-300F	■	■	■	■	■	■	■	■	■	■
	Wire mesh	TKO-F300W5-300F	TKO-F300W1-300F	■	■	■	■	■	■	■	■	■	■
4" FLANGE	Demister	TKO-F400D5-400F	TKO-F400D1-400F	■	■	■	■	■	■	■	■	■	■
	Wire mesh	TKO-F520W5-400F	TKO-F520W1-400F	■	■	■	■	■	■	■	■	■	■
6" FLANGE	Demister	TKO-F700D5-600F	TKO-F700D1-600F	■	■	■	■	■	■	■	■	■	■
	Wire mesh	TKO-F1100W5-600F	TKO-F1100W1-600F	■	■	■	■	■	■	■	■	■	■
8" FLANGE	Demister	TKO-F1100D5-800F	TKO-F1100D1-800F	■	■	■	■	■	■	■	■	■	■
	Wire mesh	TKO-F1800W5-800F	TKO-F1800W1-800F	■	■	■	■	■	■	■	■	■	■
10" FLANGE	Demister	TKO-F1850D5-1000F	TKO-F1850D1-1000F	■	■	■	■	■	■	■	■	■	■
	Wire mesh	TKO-F2900W5-1000F	TKO-F2900W1-1000F	■	■	■	■	■	■	■	■	■	■

- Suitable for use in this flow range
- Contact Solberg for review of application
- Not recommended for use at listed flowrate

Dimensions *(listed for reference only)*



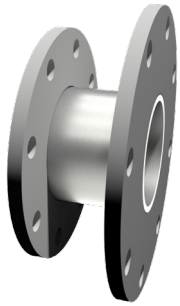
	TKO300F	TKO400F	TKO600F	TKO800F	TKO1000F
A*	80 13/16"	78 1/4"	82 1/4"	82 1/4"	93 1/4"
B*	52 3/4"	52 3/4"	56 3/4"	56 3/4"	63 3/4"
C	20"	23 1/2"	29"	34 1/2"	40"
D	18"	18"	16 1/2"	16 1/2"	17"
ANSI FLANGE CONNECTION	3"	4"	6"	8"	10"
LIQUID CAPACITY	5 Gal.	9 Gal.	15 Gal.	24 Gal.	40 Gal.
SERVICE HEIGHT**	10"	15"	15"	15"	15"
UPPER ELEMENT	235 / 235Z	245 / 245Z	375 / 375Z	377 / 377Z	385 / 385Z
LOWER ELEMENT	230S / DM8	234S / DM12	274S / DM16	276S / DM20	384S / DM26

*Height can be adjusted up or down in 6" increments to a maximum of 12" in either direction.

**To service the lower media pack, additional service height is required.

Optional Equipment

Flange Adapters



FLANGE TO FLANGE	ADAPTER PART NUMBER	FACE TO FACE DIMENSION
300F to 400F	AD-400F/300F	3 ½"
400F to 600F	AD-600F/400F	4 ½"
600F to 800F	AD-800F/600F	5 ½"
800F to 1000F	AD-1000F/800F	6 ½"

STS Series

Benefits

- Prohibit liquid and debris from damaging vacuum valves & pumps
- Easy visual inspection with see-through housing
- Minimize piping costs with "T" style configuration
- Compact design for space restricted work areas
- Shuts off flow to prevent liquid bypass

Filtration Process (standard)



Pneumatic Drain System



The Pneumatic Drain System allows Solberg Liquid Separator units to be drained without stopping the process and breaking the vacuum. The liquid removed by the liquid separator flows under gravity into the drain pot. When the high level sensor detects the liquid, the drain pot is isolated from the liquid separator by the upper pneumatic ball valve. The bleed in valve then opens along with the bottom drain valve allowing the liquid to drain to atmosphere either by gravity (DSG) or forced by compressed air (DSP). When the lower level sensor triggers, the bleed-in valve closes along with the bottom drain valve and the upper pneumatic ball valve opens to allow the process to repeat.



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Technical Data

Inlet Vacuum Filters

Applications & Equipment

- Industrial & Severe Duty
- Vacuum Pumps & Systems: Roots, Rotary Vane, Screw, Piston
- Vacuum Packaging Equipment
- Vacuum Furnace
- Blowers: Side Channel & P.D.
- Vacuum Lifters
- Intake Suction Filters
- Food Industry
- Woodworking/Routers
- Ash Handling
- Printing Industry
- Medical/Hospital
- Remote Installations for Piston & Screw Compressors
- Paper Processing
- Waste Water Aeration
- Cement Processing
- Bag House Systems
- Vacuum Vent Breathers
- Chemical Processing
- Factory Automation Equipment
- Leak Detection Systems

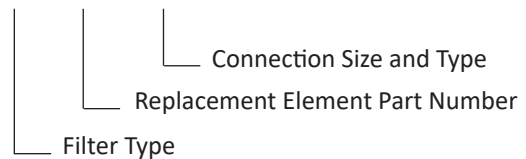
Identification

Standard Solberg assemblies should have an identification label/nameplate that gives the following information:

- Assembly Model #
- Replacement Element #

The part number designates the filter type, the element configuration and housing connection size. For example, the following part number identifies the filter as being a “CSL” design filter with a “235” element, “P” prefilter and 4” flange connection size.

CSL-235P-400F



Vacuum Service Rating Chart

Threaded vacuum filter connections must be free of defect and properly sealed to achieve deeper vacuum levels. Vacuum service levels are given for reference only and serve as a guideline for product selection. Product certification and alternative designs are available for applications requiring deeper vacuum levels and specific leak rates. Please contact factory for details.

Vacuum Level	Pressure (mbar)	Pressure (Torr)	Pressure (Pa)
Atmospheric Pressure	1013	760	1.013x10 ⁺⁵
Coarse Vacuum	1013 to 33	760 to 25	1x10 ⁺⁵ to 3x10 ⁺³
Medium Vacuum	33 to 1.3x10 ⁻³	25 to 1x10 ⁻³	3x10 ⁺³ to 1x10 ⁻¹
High Vacuum	1.3x10 ⁻³ to 1.3x10 ⁻⁹	1x10 ⁻³ to 1x10 ⁻⁹	1x10 ⁻¹ to 1x10 ⁻⁷

Rev: IVTD-US1904K

Inlet Vacuum Filters

Choosing the Best Filter for Your Equipment

A. When the connection & airflow is known:

1. select the appropriate connection style. (i.e.: MPT, Flange, NPSC, etc.)
2. check assembly SCFM (flow) rating. Compare with your required airflow.

(Note: Assembly flow ratings are based on 6,000 FPM or 30m/sec for a given connection size to achieve low pressure drop performance. When required flow exceeds assembly flow rating, the pressure drop through the outlet connection will increase. In such cases select by element SCFM (flow) rating.)

3. when required flow rating matches connection size; skip to “C. Selecting Elements”.

B. When the connection size is unknown, flexible, or the required flow rating exceeds assembly flow rating:

1. match required flow rating with the element flow rating.
2. choose related connection size.

C. Selecting Elements: The filter performance is influenced by the actual application duty and the equipment it is installed on. Regular maintenance checks and proper servicing is required.

Application Duty Descriptions:

Industrial Duty: clean workshop or clean outdoor environment - small element sizing is sufficient.

Severe Duty: dirty workshop, wastewater – medium to large element is recommended.

Extreme Duty: cement, steel making, plastics or dusty material conveying – largest element sizing is recommended.

1. Select media required by your application. Options include:

a. Standard media

1. Polyester: all purpose; withstands pulses, moisture, and oily air
2. Paper: mostly dry, smooth flow applications

b. Special Media: for a variety of micron levels and media types, see the “Filter Media Specifications” in the Replacement Element Section or contact Solberg.

2. Select element size by matching the element with the anticipated duty and upsize accordingly.

Filter Assembly Maintenance

Request the appropriate maintenance manual for more in-depth information from your Solberg representative or on our website www.solbergmfg.com.

Element Maintenance

Solberg elements should be replaced once the pressure drop reaches 15-20” H₂O above the initial pressure drop of the installation. Cleaning the element is also an option.

Solberg recommends replacing dirty elements for optimal performance. Any damage which results from by-pass or additional pressure drop created by element cleaning is the sole responsibility of the operator.

Note: The overall performance of a filter element is altered once cleaned. The initial pressure drop after subsequent cleanings will be greater than the original, clean pressure drop of the element. After each cleaning, the pressure drop will continue to increase. Under all circumstances, the initial pressure drop of the element needs to be maintained at less than 15” H₂O.

If the pressure drop exceeds 20” H₂O at start-up; it should be replaced with a new element. With many types of equipment, the maximum pressure drop allowed will be dictated by the ability of the equipment to perform to its rated capacity. Under all circumstances, the operator should avoid exceeding the manufacturer’s recommended maximum pressure drop for their specific equipment.



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All model offerings and design parameters are subject to change without prior notice.
Contact your representative or Solberg for the most current information.