



FILTER TECHNOLOGY

# Compressed Air Filters





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# ACF & ACB Series



## Problems brought by polluted compressed air

Air is compressible; the air compressor does mechanical work to make itself smaller in size, air pressure increase after called compressed air.

Compressed air is an important driving force that is widely used in various industrial fields. All compressed air systems air comes from the atmosphere and the air contains a lot of dust, water vapor and unburned hydrocarbons and bacteria. In addition, the air compressor lubrication system will produce such contaminants. This oil is acidic, inferior and which doesn't have any lubrication, Pipeline corrosion from compressed air distribution system also pollutes the air.

When air is compressed, the contained vapor (including oil vapor and water vapor) and dust concentration will raise sharply, oil, steam concentrate into large globules, mixed with a high concentration of dust particles, forming an abrasive acidic sludge.

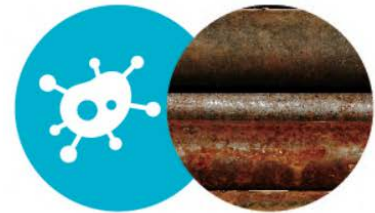
Typically there are different contamination from the below sources, such as atmospheric dirt, water vapor, oil vapor, micro-organism.



Ingested contaminants appear in the form of water, hydrocarbons and particulates.



The compression process introduces lubricant and wear particles into the system.



Piping distribution and storage tanks foster contaminants in the form of rust, pipe scale and bacteria.

If there is no air treatment equipment installed, the above mentioned acidic abrasive sludge will enter your compressed air system, pipeline corrosion, damage pneumatic components and equipment, and to influence the final product quality.

## Air Quality

The primary reason for using a compressed air filter is to remove contamination and improve air quality.

Better compressed air quality means less downtime of production processes and your higher profits, while also your satisfaction as a professional in this field.

GVS provides purification and separation products for the entire compressed air system. A wide range of filters exceeds customer requirements for ISO quality class performance, service life and optimal energy saving.



Aluminum alloy die casting housing with tightly structure and guarantee the operation safety.



The housings are protected by cataphoresis anti-corrosion treatment and allows filters worked in strong corrosive working condition.



Connections can be done in the Rc or NPT version. By installing additional equipment multiple filters of equal size can be joined together.



The lock sign reminds the bowl of housing screwed to this position



7 filtration element grades meet different requirements of compressed air. Color coded end caps promote each of element identification



Special element structure makes air entering element accumulate and smoothly, minimizes pressure loss, improves the filtration efficiency and reduces system costs.



Seam welded ,stainless steel inner and outer support cores enhance dimensional stability of the element



Fluorine rubber can effectively play a sealing role to prevent pollutants from passing through

## What are the benefits of regularly changing filter elements?

- High quality compressed air - Guaranteed.
- Protection of adsorption dryer beds.
- Protection of downstream equipment.
- Reduced operational costs.
- Increased productivity & profitability.
- Continued peace of mind.

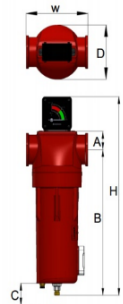
# Product Selection

## ACF series



Below flow rates of compressed air are calculated in rated working pressure of 7 bar (100 psi g) with reference to 20 °C

Model number	Inlet/Outlet (RC)	Rated air flow at 7 bar			Dimensions(mm)					
		L/S	m <sup>3</sup> /min	SCFM	Width (W)	Depth (D)	Height (H)	A	B	C (reserved space)
ACF010HL01	1/2"	16.7	1.0	35.5	96	79	245	29	180	118
ACF020HL01	3/4"	25.0	1.5	53.0	96	79	245	29	180	118
ACF030HL01	3/4"	30.0	1.8	63.6	96	79	274	29	209	153
ACF040HL01	1"	33.3	2.0	71.0	96	79	274	29	209	153
ACF060HL01	1"	60.0	3.6	127.0	138	111	349	37	276	208
ACF070HL01	1"	83.3	5.0	177.0	138	111	450	37	377	303
ACF080HL01	1-1/2"	125.0	7.5	265.0	138	111	450	37	377	303
ACF090HL01	2"	166.7	10.0	353.1	174	142	558	58	500	467
ACF100HL01	2-1/2"	216.7	13.0	459.0	174	142	558	58	500	467
ACF110HL01	2"	283.3	17.0	600.0	174	142	838	58	780	794
ACF120HL01	2-1/2"	316.7	19.0	671.0	174	142	838	58	780	794
ACF130HL01	3"	416.7	25.0	883.0	220	184	616	74	542	514
ACF140HL01	4"	466.7	28.0	989.0	220	184	616	74	542	514
ACF150HL01	3"	683.3	41.0	1448.0	220	184	872	74	798	764
ACF160HL01	4"	800.0	48.0	1695.0	220	184	872	74	798	764



## Pressure Correction Factor

Calculate the minimum filtration capacity

Minimum Filtration Capacity = Compressed Air Flow Rate x correction factor

Pressure	Barg	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Psig	15	29	44	59	73	87	100	116	131	145	160	174	189	203	219
Correction factor		0.38	0.53	0.65	0.76	0.85	0.93	1.00	1.07	1.13	1.19	1.23	1.31	1.36	1.41	1.46	1.51

## Air Filter Element Filtration Grades



PFFL01	AOFL01	AAFL01	AXFL01	ACSFL01	ARFL01	AARL01
As a primary filter, particles whose diameter more than 5µm can be removed, the maximum residual oil content is negligible.	High efficiency general protection, dust particles, water mist and oil mist whose diameter more than 1µm can be removed, the residual content of oil mist does not exceed 0.6 mg/ m <sup>3</sup> (21°C), 1ppm(w).	High efficiency oil removal filtration, dust particles, water mist and oil mist whose diameter more than 0.01µm can be removed, the residual content of oil mist does not exceed 0.01 mg/m <sup>3</sup> (21°C), 0.01ppm(w).	Ultra-efficient filtration, dust particles, water mist and oil mist whose diameter more than 0.01µm can be removed, the residual content of oil mist does not exceed 0.001 mg/m <sup>3</sup> (21°C), 0.001ppm(w).	Dust particles whose diameter more than 0.01µm, oil vapor and odor can be removed, the maximum residual content of oil vapor does not exceed 0.003mg/m <sup>3</sup> (21°C), 0.003ppm(w).	Dust particles whose diameter more than 1µm can be removed.	Dust particles whose diameter more than 0.01µm can be removed.

Filter Element Grades	PF	AO	AA	AX	ACS	AR	AAR
Size of solid particles (ISO12500-3)	5µm	1µm	0.01µm	0.01µm		1µm	0.01µm
Filtration performance of solid particles(ISO12500-3)	-	99.999+%	99.999+%	99.999+%	99.999+%	99.999+%	99.999+%
Filtration performance of oil (ISO12500-1)	50%	80+%	99.9+%	99.99+%	-	-	-
Residual oil content(ISO12500-1)	5mg/m <sup>3</sup>	2.0mg/m <sup>3</sup>	< 0.01mg/m <sup>3</sup>	< 0.001 mg/m <sup>3</sup>	< 0.004 mg/m <sup>3</sup>	-	-





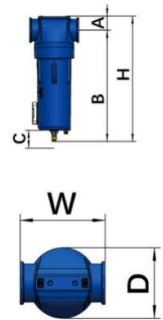
# Product Selection

## ACB series



Below flow rates of compressed air are calculated in rated working pressure of 7 bar (100 psi g) with reference to 20 °C

Model number	Inlet/Outlet (RC)	Rated air flow at 7 bar			Dimensions(mm)					
		L/S	m <sup>3</sup> /m in	SCFM	Width (W)	Depth (D)	Height (H)	A	B	C (reserved space)
ACB010HL01	1/2"	16.7	1.0	35.5	96	79	245	29	180	118
ACB020HL01	3/4"	25.0	1.5	53.0	96	79	245	29	180	118
ACB030HL01	3/4"	30.0	1.8	63.6	96	79	274	29	209	153
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ACB160HL01	4"	800.0	48.0	1695.0	220	184	872	74	798	764



## Pressure Correction Factor

Calculate the minimum filtration capacity

Minimum Filtration Capacity = Compressed Air Flow Rate x correction factor

Pressure	Barg	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Psig	15	29	44	59	73	87	100	116	131	145	160	174	189	203	219	232
Correction factor		0.38	0.53	0.65	0.76	0.85	0.93	1.00	1.07	1.13	1.19	1.23	1.31	1.36	1.41	1.46	1.51

## Air Filter Element Filtration Grades



PFFL01	AOFL01	AAFL01	AXFL01	ACSFL01	ARFL01	AARL01
As a primary filter, particles whose diameter more than 5µm can be removed, the maximum residual oil content is negligible.	High efficiency general protection, dust particles, water mist and oil mist whose diameter more than 1µm can be removed, the residual content of oil mist does not exceed 0.6 mg/ m <sup>3</sup> (21°C), 1ppm(w).	High efficiency oil removal filtration, dust particles, water mist and oil mist whose diameter more than 0.01µm can be removed , the residual content of oil mist does not exceed 0.01 mg/m <sup>3</sup> (21°C), 0.01ppm(w).	Ultra-efficient filtration, dust particles, water mist and oil mist whose diameter more than 0.01µm can be removed, the residual content of oil mist does not exceed 0.001 mg/m <sup>3</sup> (21°C), 0.001ppm(w).	Dust particles whose diameter more than 0.01µm, oil vapor and odor can be removed, the maximum residual content of oil vapor does not exceed 0.003mg/m <sup>3</sup> (21°C), 0.003ppm(w).	Dust particles whose diameter more than 1µm can be removed.	Dust particles whose diameter more than 0.01µm can be removed.

Element grade	PF	AO	AA	AX	ACS	AR	AAR
Filter type	Coalescing	Coalescing	Coalescing	Coalescing	Active carbon	Dry particulate	Dry particulate
Particle size	5 µm	1 µm	0.1 µm	0.01 µm	N/A	1 µm	0.01 µm
Max remaining oil content at 21°C (70°F)	N/A	0.6mg/m <sup>3</sup>	0.01mg/m <sup>3</sup> 0.01ppm	0.001mg/m <sup>3</sup> 0.001ppm	0.003mg/m <sup>3</sup> 0.003ppm	N/A	N/A
Purpose	General purpose	High efficiency general	High efficiency remove oil	Ultra efficiency	Removes oil vapor	Remove dust	Remove dust
Change every	8000hrs	8000hrs	8000hrs	When oil vapor or	When oil vapor or odor	6000hrs	6000hrs

# ISO Standardization

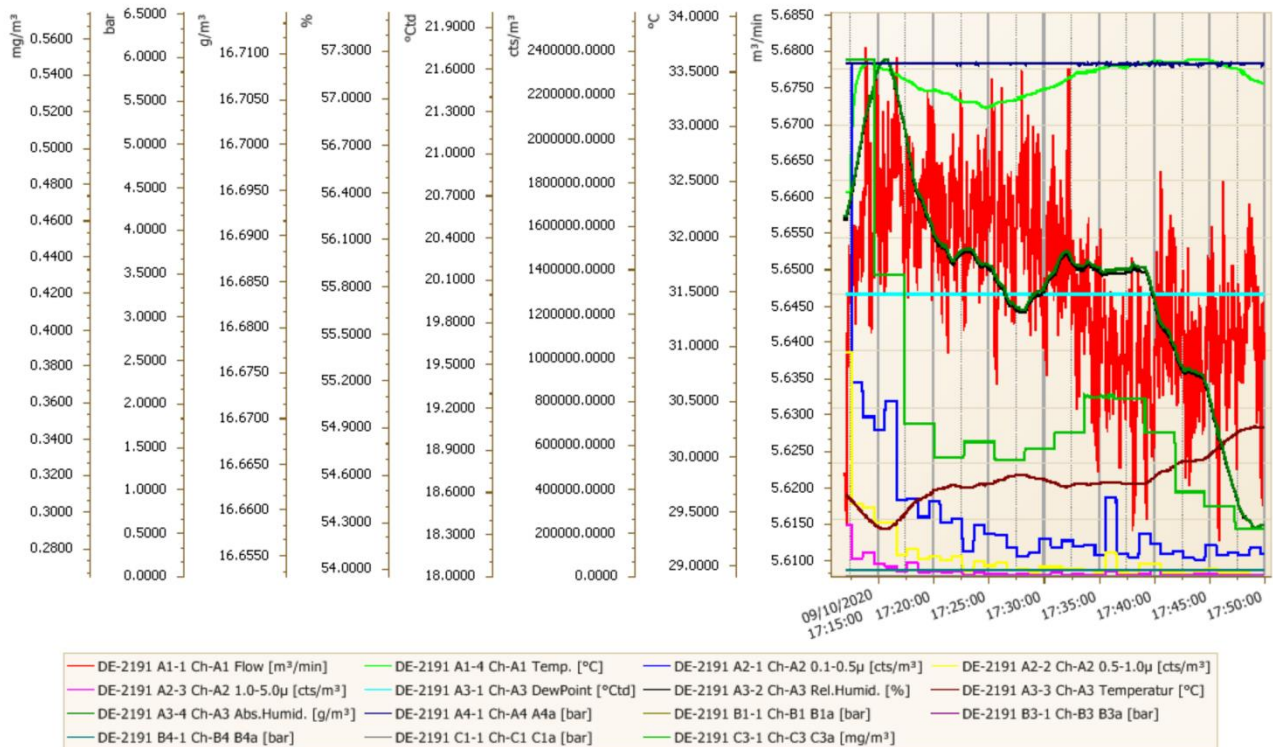
International Standard ISO8573-1 has become the industry standard method for specifying compressed air cleanliness, defines the amount of contamination permissible in compressed air, contaminants are classified and assigned a quality class, range from Class 0, the highest purity level, to Class 9, the most relaxed.

ISO8573-1:2010 CLASS	Solid Particulate			Mass Concentration, mg/m <sup>3</sup>	Water		Oil Total Oil (aerosol liquid and vapour),g/m <sup>3</sup>
	Maximum number of particulates per m <sup>3</sup>				Vapour Pressure Dewpoint	Liquid,g/m <sup>3</sup>	
	0.1 – 0.5 micron	0.5 – 1 micron	1 – 5 micron				
0	As specified by the equipment user or supplier and more stringent than Class 1						
1	≤ 20,000	≤ 400	≤ 10	—	≤ -70°C	—	0.01
2	≤ 400,000	≤ 6,000	≤ 100	—	≤ -40°C	—	0.1
3	—	≤ 90,000	≤ 1,000	—	≤ -20°C	—	1
4	—	—	≤ 10,000	—	≤ +3°C	—	5
5	—	—	≤ 100,000	—	≤ +7°C	—	—
6	—	—	—	≤ 5	≤ +10°C	—	—
7	—	—	—	5-10	—	≤ 0.5	—
8	—	—	—	—	—	0.5 – 5	—
9	—	—	—	—	—	5-10	—
X	—	—	—	> 10	—	> 10	> 10

## Clean, energy efficient compressed air is the goal

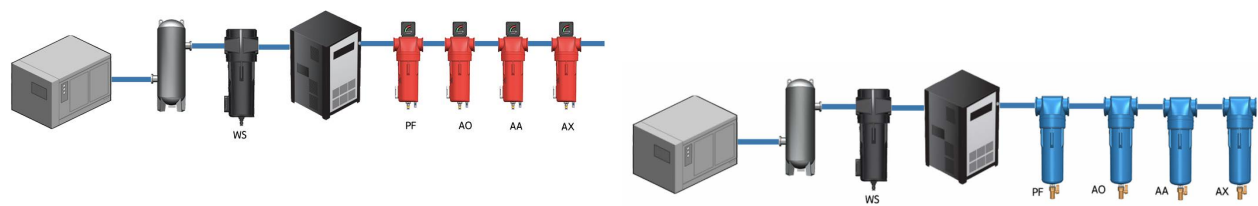
The key is finding the optimum balance of compressed air quality required, and minimizing the cost and energy needed to achieve that quality.

GVS's air filters tested according to ISO standards.



# Applications

Compressed air as the main power after electricity, water and gas, has a number of favorable aspects to its use. It is safe, light-weight, dependable, and recycle from the nature, generated on-site. And the end users have a great deal of control over the compressed air pressure available and its quality. Applications for compressed air are numerous and have requirements from very simple to highly strict, GVS'S ACF Series air line filter designed for removing contaminates to protect downstream of equipment and save costs. The below list of applications is not a comprehensive listing ,but give an overview.



Tire filling	Injection molding	Powder fluidization	Air jet
PET bottle blowing	semiconductor	Air filter after air dryer	Air bearing
Dry bulk solids conveying	Package	Filled/capped beverages	Aerial winch
Dust collection	Deodorant	Aerospace industry	Grain color sorting
Cool down	Processing air	Breathe the air	Parts blasting
Tablet coating	Blow dust	Chemical Industry	Spray paint
Dairy Air	Bag cleaning	Military equipment	Sandblasting
Liquid filling	Nitrogen separation	Pre-air filter	Bottled gas
Instrument gas	Plasma welding/cutting	Air metering	Pneumatic tools
Pneumatic automation	Ferment	Air agitator	Air motor
Pneumatic conveying	Sprinkler system discharge	ventilation	Dental hand tools
Artificial snow	food and drink	Atomizing air	pressure test

# ACW & ACS Series

CYCLONE GAS-WATER SEPARATOR



# Introduction

## Existing problems in compressed air system

Compressed air system has bulk liquid that brings pipeline corrosion, the damages of valves, air cylinder and tools; reduce the efficiency of after air cooler and heat ex-changer and compressed air filter.

## Water separators play an important role in the compressed air system

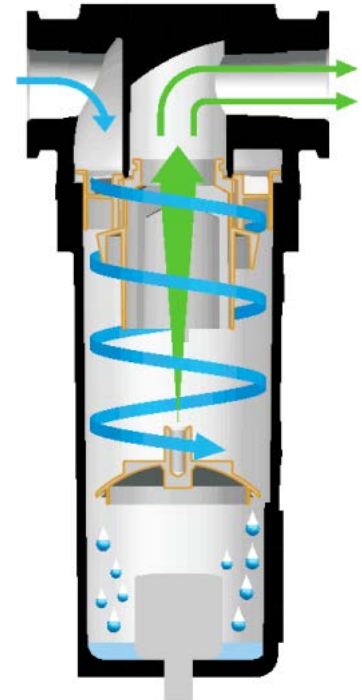
Gas Water separator is one of purification products without elements what is used to before air filter protect coalescing filters against bulk liquid contamination where excessive cooling takes place in air receivers and distribution piping.

## Features

- Aluminum alloy die-casting housing with tightly structure
- External surface epoxy painted for maximum corrosion
- Static rotary vane, keep 99.9% high efficiency separation
- Flow rate: 1.0-70 m<sup>3</sup>/min
- Thread type: Rc/G/NPT
- Max. operating pressure: 16 bar (g)
- Can be installed in any position of compressed air system.

## Installing benefits of high energy efficient water separators

- For the removal of bulk condensed water and liquid oil
- Protects coalescing filters from bulk liquid contamination
- Reduce pipe rusting condition from water and the damages to valves, cylinders
- High liquid removal efficiencies at all flow conditions.
- Improve air quality
- Reduce operational and maintenance costs



## Technical Data

Separator housing	Aluminum alloy
The max. operating pressure	16 bar
Air flow rate	1.0 to 70.0 m <sup>3</sup> /min
Inlet/outlet	1/2" to 4" (G/NPT)
Operating temperature	1.5 to 80 °C
Guarantee time for housing	10 years at rated working condition
Differential pressure at rated flow	0.07 bar

## Pressure Correction Factor

Calculate the minimum filtration capacity

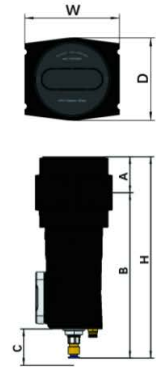
Minimum Filtration Capacity = Compressed Air Flow Rate x correction factor

Pressure	Barg	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Psig	15	29	44	59	73	87	100	116	131	145	160	174	189	203	219	232
Pressure Correction Factor		0.4	0.5	0.7	0.8	0.9	0.9	1	1.1	1.1	1.2	1.2	1.3	1.4	1.4	1.5	1.5

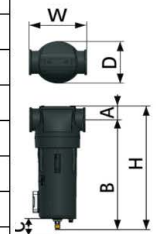
## Product Selection

Below flow rates of compressed air are calculated in rated working pressure of 7 bar (100 psi g) with reference to 20 °C

Model number	Inlet/Outlet (RC)	Rated air flow at 7 bar			Dimensions(mm)					
		L/S	m <sup>3</sup> /m in	SCFM	Width (W)	Depth (D)	Height (H)	A	B	C (reserved space)
ACW15HL01	1/2"	40.0	2.4	84.5	89	79	228	40	186	118
ACW25HL01	3/4"	60.0	3.6	127.1	89	79	228	40	186	118
ACW50HL01	1"	75.0	4.5	158.9	89	79	263	40	220	158
ACW75HL01	1"	125.0	7.5	264.8	120	110	335	55	276	195
ACW100HL01	1-1/2"	166.7	10.0	353.1	120	110	335	55	276	195
ACW200HL01	2"	300.1	18.0	635.6	164	151	564	64	566	480
ACW250HL01	2-1/2"	416.8	25.0	882.8	164	151	664	64	566	480
ACW700HL01	2-1/2"	700.0	42.0	1483.1	200	189	712	78	634	560
ACW800HL01	3"	833.5	50.0	1765.6	200	189	712	78	634	560
ACW800FHL01	DN100	833.5	50.0	1765.6	280	189	744	78	634	560
ACW1000FHL01	DN125	1000.2	60.0	2118.7	280	189	795	78	634	560
ACW1200FHL01	DN125	1166.7	70.0	2646.0	280	189	1073	78	889	780

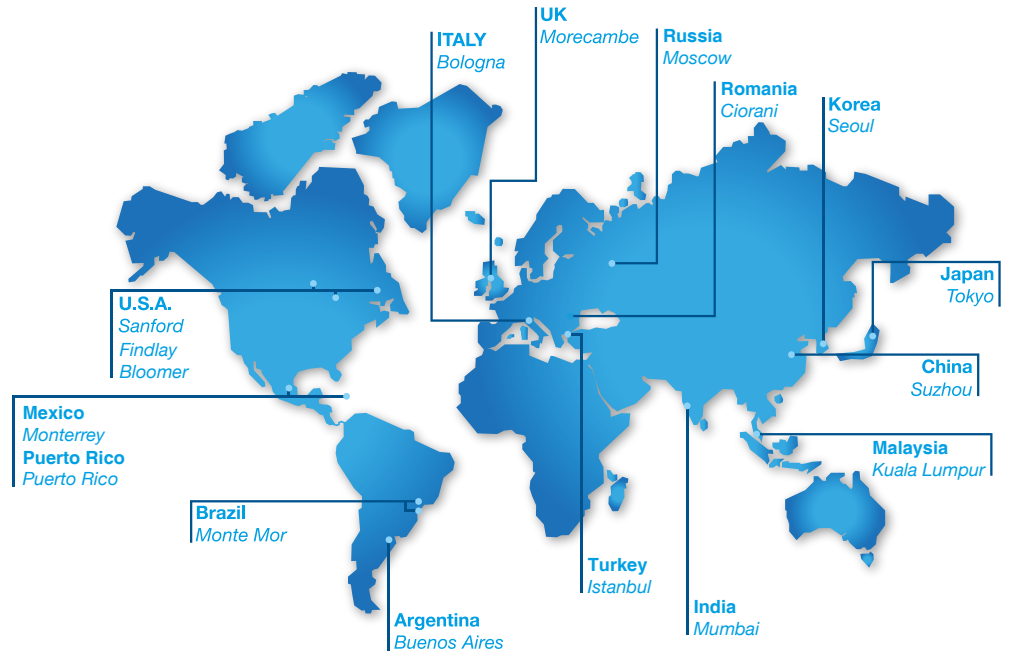


Model number	Pipe Size	Flow rates			QTY (PCS)	Dimensions(mm)					
		L/S	m <sup>3</sup> /min	SCFM		Width (W)	Depth (D)	Height (H)	A	B	C (clearance for housing)
ACS010HL01	RC1/2"	40.0	2.4	84.5	1	96	79	233	29	198	118
ACS020HL01	RC3/4"	60.0	3.6	127.1	1	96	79	233	29	198	118
ACS050HL01	RC1"	75.0	4.5	158.9	1	96	79	268	29	233	153
ACS060HL01	RC1"	125.0	7.5	264.8	1	138	111	339	37	296	208
ACS070HL01	RC1-1/2"	166.7	10.0	353.1	1	138	111	339	37	296	208
ACS100HL01	RC2"	300.1	18.0	635.6	1	174	142	669	58	607	469
ACS110HL01	RC2-1/2"	416.8	25.0	882.8	1	174	142	669	58	607	469
ACS140HL01	RC3"	833.5	50.0	1765.6	1	220	184	726	74	649	514
ACS140FHL01	DN100	833.5	50.0	1765.6	1	300	184	761	74	649	514
ACS150HL01	RC4"	1000.2	60.0	2118.7	1	220	184	726	74	649	514
ACS150FHL01	DN125	1000.2	60.0	2118.7	1	300	184	776	74	649	514
ACS170HL01	RC4"	1166.7	70.0	2464.0	1	220	184	983	74	906	764
ACS170FHL01	DN125	1166.7	70.0	2464.0	1	300	184	1033	74	906	764









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