



Installation manual

SA-FIXAC and SA-ABFL

Air-cooled Fixed Camera 316L with vortex cooler, PoE
Air filter battery 10 - 5 - 0.1 micron

Note: To ensure proper operation, please read this manual thoroughly before using the product and retain the information for future reference.

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SA-FIXAC and SA-ABFL

Installation Manual v1.0

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SA-FIXAC - Installation Manual

Preserve this manual as a reference for future needs.

	<p>Used electrical, electronic and stainless steel products should not be mixed with general waste. For proper treatment, recovery and recycling of old products, take them to applicable collection points, in accordance with your national legislation and the Directives 2002/95/EC and 2002/96/EC.</p> <p>By disposing of these products correctly, you help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling. For more information about collection and recycling of old products, contact your local municipality or your waste disposal service. Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.</p>
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The manufacturer declines all liability for any consequence resulting from improper installation practices, tampering or improper uses of the product.

The descriptions and illustrations contained in this manual are not binding. The manufacturer reserves the right to make any alterations deemed appropriate for the technical, manufacturing and commercial improvement of the product, while leaving the essential product features unchanged, at any time and without undertaking to update the present publication.

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Description

The SA-FIXAC series is well suited to protect CCTV equipment in hot and corrosive environments. The SA-FIXAC series perfectly fills the gap between locations which need a liquid cooling system and locations which don't need any cooling systems at all. The main cooling system used is a Vortex Tube, which converts the air inlet into two streams (one hot and one cold).

The SA-FIXAC series is entirely built in AISI316L stainless steel. 1/4" air nozzle is available as an option for all models. The IP rating of the unit is IP66/IP67

This product must only be installed by suitably trained personnel in accordance with the relevant code of practice. These instructions are intended for their sole use.

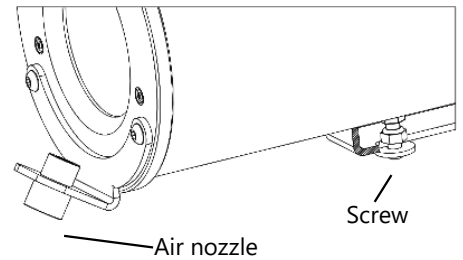
Installing the camera

The camera is already installed in the SA-FIXAC. For repair or other changes to the camera please follow to the steps below:

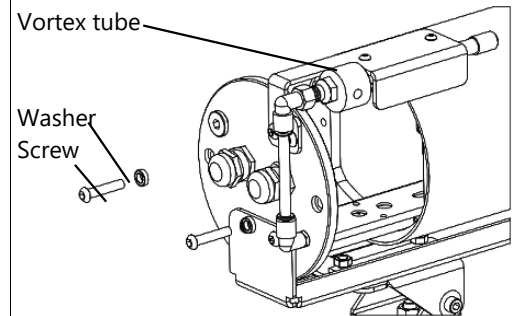
	Prior to installation and operation, read carefully all instructions in this manual and heed all warnings.
	Unpack this equipment and handle it carefully. If the package appears to be damaged, notify the shipper immediately.
	Use the original packaging to transport the unit. Disconnect power supply before moving it. In case of returning the equipment, the original packaging must be used.
	Make sure that the installation surface can support at least four times the weight of the unit in normal operating conditions. In case of excessive external stress (e.g. vibration, strong winds or impact), the equipment may need additional means of protection.
	Proper stainless steel hardware should be carefully chosen to fasten the unit to the surfaces.
	Use caution when lifting and assembling the unit. It is recommended that non-slip protective gloves be worn during installation. The unit could bear sharp edges.
	To maintain the IP rating of the unit, adequate cable glands must be used. The unit must be tightly closed when operating.
	The internal pressure inside the housing must never exceed 0,5 bar.
	Vortex tube surface and hot air outlet could reach very hot temperature.
	A screwdriver slot is available to adjust the temperature/flow ratio. Do not operate on the screwdriver slot when the Vortex tube is working.
	For security reasons, do not install the unit in the proximity of water containers and never push objects or pour liquids into the unit. The unit can be safely used in damp environments or outdoors, as long as the connectors are properly sealed.
	Video and data cables should not share the same conduit with supply voltage cables. Whenever EMC is an issue, adequately shielded cables must be used.
	Open only the covers pointed out in this installation manual. Other covers should be open only by the manufacturer. Tightening/loosing the screws using automatic tools such as drill drivers may result in damaged threads.
	This equipment has been designed to fit in harsh environments requiring little or no maintenance. Suggested inspection interval is 6 months, but extremely harsh environments may require more frequent inspection and maintenance checks. On each inspection check the O-ring seals and the eventual window wiper blade integrity. Replace them if necessary.
Check cables, electrical connections and mounting hardware for integrity and tightness. Replace or tighten any damaged/loose part.	
Heating element may still be hot for some time, even after being shut off.	
	Before performing any operation, turn off the power. The installation of the unit can be performed only by qualified personnel in accordance with the regulations in force. Do not connect the unit to a supply circuit unless the installation is completed.
	An all-pole mains switch with an opening distance between the contacts at least 3 mm in each pole must be incorporated in the electrical installation. The switch must be equipped with protection against the fault current towards the ground (differential) and the overcurrent (magnetothermal, maximum 15A). It must be very quickly recognizable and readily accessible. A suitable blow fuse must also be installed for protection.
	For connection to the mains, use a multipolar cable having minimum 3x1,5 mm ² (15 AWG). The main cable must be at least protected by an ordinary PVC sheath.
	Fasten all the cables inside the housing with cables ties or other fixing means to avoid the electrical contact with surrounding parts in case that terminal blocks screw off.
	Electrical connections (such as plugs and cords) must be protected from potential hazardous environmental factors (e.g. foot traffic, hitting objects).
	Ensure that the unit case is properly earthed, connecting all the earth ground studs. Earth cable should be about 10mm longer than the other cables on the connector, in such way that it won't be accidentally disconnected if the cable is stretched or pulled.
	When leaving the unit unused for long periods, disconnect supply cables.

1. Open the housing

Loosen the screw at the bottom of the external rail. The screw is fixed to a nut welded on the housing.

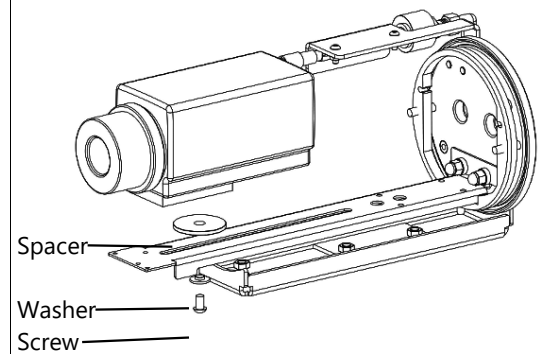


2. Unscrew the two M6 screws on the rear flange. Slide the housing outer body away from the back flange. Be careful not to lose screws, washers and O-rings.



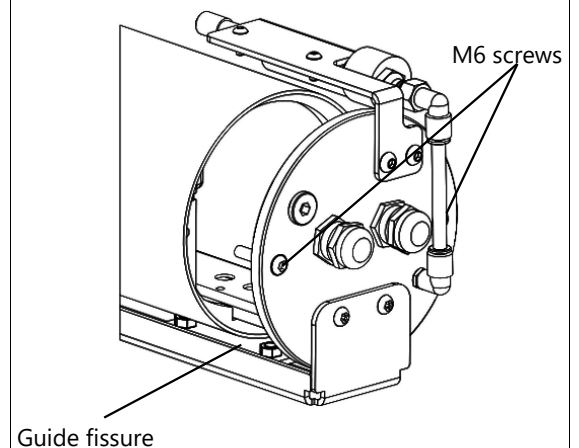
3. Install the camera

Mount the camera on the internal rail using one of the 1/4" screws supplied and the plastic washer. Use the included spacers to adjust its height position. Feed the cables through cable glands on the rear flange and perform electrical and video connections according to the instructions in the camera installation manual.



4. Close the housing.

a. Slide the housing outer body along the internal rail. The internal rail is to be inserted in the guide fissure as shown in the picture. Check the proper position of the seal in its groove on the rear flange.
b. Tighten the cable glands up till an 8 Nm torque ratio.
c. Tighten the two M6 on the rear flange screws to the main body.
d. Fix the screw at the bottom of the external rail to the nut welded on the housing.



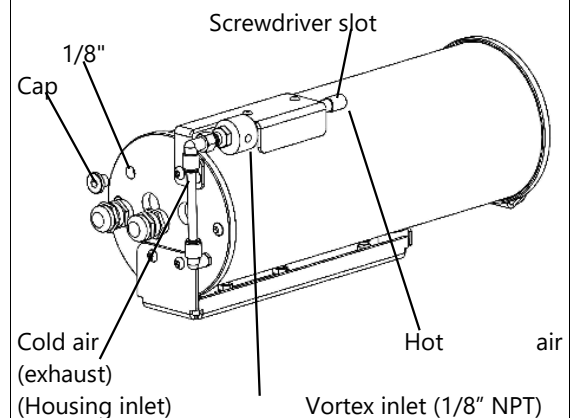
5. Connect compressed air supply to the Vortex tube inlet (1/8" BSPP). ABFL-01 Air Filter available (not included).

Maximum inlet air pressure: 6 Bar.

The Vortex tube converts the inlet air into two streams: one colder (which goes inside the housing) and one hotter (which goes outside). A screwdriver slot is available to adjust the temperature/flow ratio.

On the rear flange is available a 1/8" hole for pressure gauge (not included) to check the internal housing pressure.

The internal pressure inside the housing must never exceed 0,5 bar.

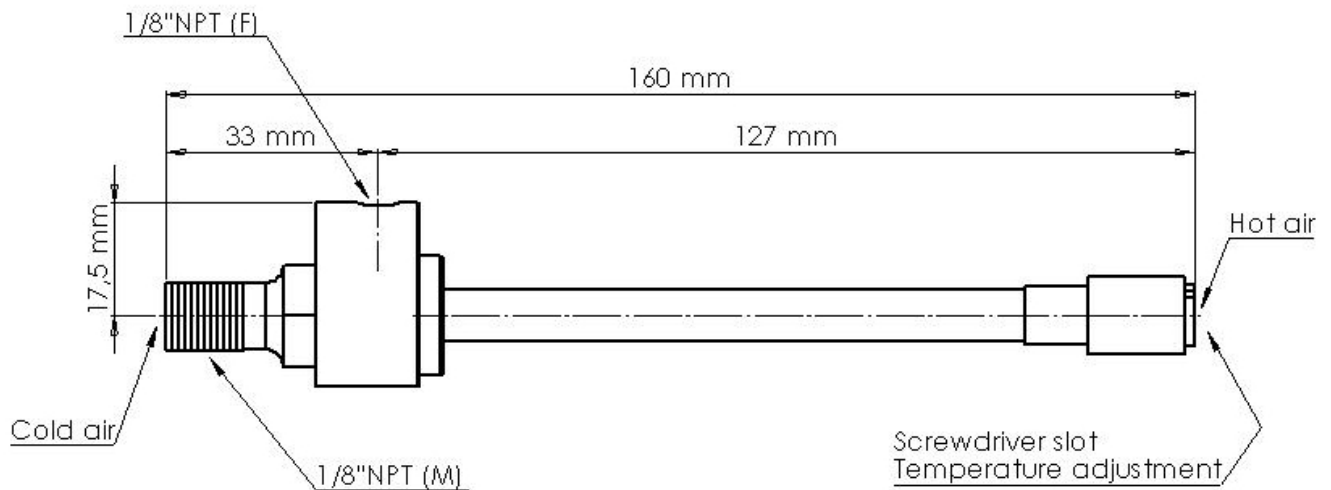


Vortex Reference Information

	Compressed Air Could Cause Death, Blindness or Injury
	Do not operate a Vortex Tube at compressed air pressures above 150 PSIG (10.3 Bar).
	To avoid damaging the units, do not operate above 87 PSIG (6 Bar) when connected to Tecnovideo products .
	Do not operate a Vortex Tube at line temperatures above 110°F (43°C).
	Avoid direct contact with compressed air.
	Do not direct compressed air at any person.
	When using compressed air, wear safety glasses with side shields.

Introduction

A Vortex Tube is a device which, when supplied with filtered compressed air at 100 PSIG (6.9 Bar), converts the air into two streams. One stream is adjustable up to 250°F (121°C) and the other is adjustable down to -50°F (-48°C).



Compressed Air Supply

The compressed air supply must be filtered (5 micron maximum) to remove water and dirt. Failure to use a filter may cause freezing and clogging of the compressed air paths inside the Vortex Tube.

Filter elements must be changed on a regular basis. Frequency of change is determined by the condition of the compressed air supply. Filters should be installed in the compressed air supply line as close as possible to the vortex tube. When the desired cold air stream temperature is less than 32°F (0°C) a compressed air dryer may be necessary to prevent ice formation on the inside of the Vortex Tube. The appropriate compressed air line must be selected to ensure optimal performance.

Operation

Vortex Tubes vary in air consumption from 2 SCFM – 100 SCFM. The cold air temperature and volume can be changed by adjusting the valve at the hot end of the Vortex Tube. turning the valve CCW will decrease the temperature and volume of cold air. Correspondingly, the flow of hot air will increase but its temperature will decrease.

Installation

Vortex Tubes can be installed by directly plumbing to the appropriately-sized, hard piped, compressed air source that does not exceed 150 PSIG (10.3 Bar).

Troubleshooting

Insufficient airflow may be caused by the following:

1. Undersized compressed air supply line
2. Compressed air pressure too low
3. Insufficient compressed air volume (SCFM, SLPM)
4. Partial or complete blockage of internal compressed air path due to dirt
5. Loose cold cap (if disassembled for cleaning)
6. Compressed air line temperature too high

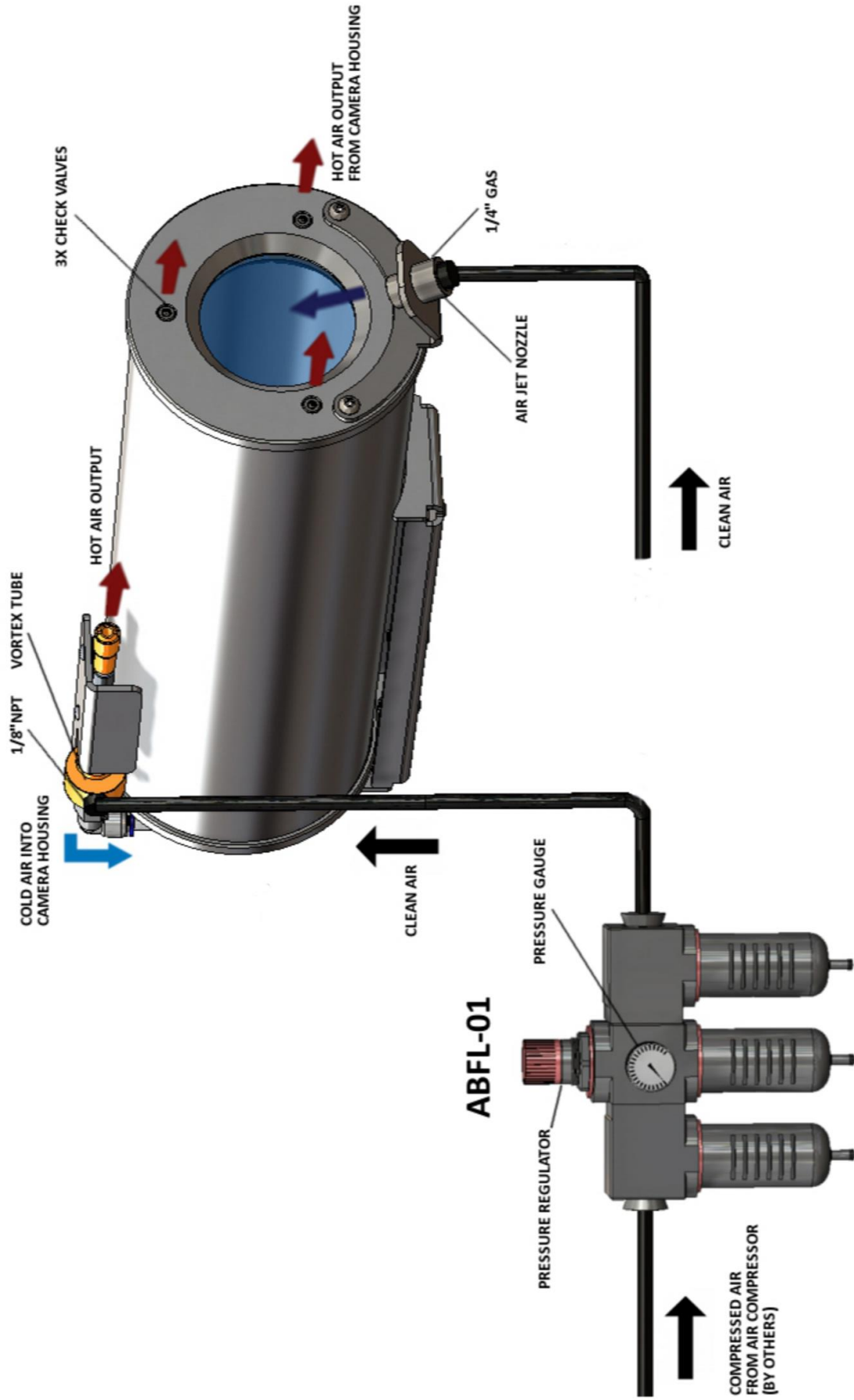
COLD FRACTION		10	20	30	40	50	60	70	80	90	AIR*
PSIG (BAR)		°F (°C)	°F (°C)	°F (°C)	°F (°C)	°F (°C)	°F (°C)	°F (°C)	°F (°C)	°F (°C)	L/MIN
20 (1.4)	TD	63 (35)	62 (34)	60 (33)	56 (31)	51 (28)	44 (24)	36 (20)	28 (15)	17 (9)	67
	TR	7 (4)	15 (8)	25 (14)	36 (20)	50 (28)	64 (36)	83 (46)	107 (59)	148 (82)	
40 (2.8)	TD	91 (51)	88 (49)	85 (47)	80 (44)	73 (41)	63 (35)	52 (28)	38 (21)	26 (14)	105
	TR	9 (5)	21 (11)	35 (19)	52 (29)	71 (39)	92 (51)	117 (65)	147 (82)	220 (122)	
60 (4.1)	TD	107 (59)	104 (58)	100 (56)	93 (52)	84 (47)	73 (41)	60 (33)	45 (25)	29 (16)	143
	TR	10 (6)	24 (13)	40 (22)	59 (33)	80 (44)	104 (58)	132 (73)	168 (93)	236 (131)	
80 (5.5)	TD	119 (66)	115 (64)	110 (61)	102 (57)	92 (51)	80 (44)	66 (36)	49 (27)	31 (17)	182
	TR	11 (7)	25 (14)	43 (24)	63 (35)	86 (48)	113 (63)	143 (79)	181 (101)	249 (138)	
100 (6.9)	TD	127 (71)	123 (68)	118 (66)	110 (61)	99 (55)	86 (48)	71 (39)	53 (29)	33 (18)	220
	TR	12 (8)	26 (14)	45 (25)	67 (37)	91 (51)	119 (66)	151 (84)	192 (107)	252 (140)	
120 (8.3)	TD	133 (74)	129 (72)	124 (69)	116 (64)	104 (58)	91 (50)	74 (41)	55 (31)	34 (19)	258
	TR	13 (8)	27 (14)	46 (26)	69 (38)	94 (52)	123 (68)	156 (87)	195 (108)	257 (142)	
140 (9.7)	TD	139 (78)	135 (75)	129 (72)	121(67)	109 (61)	94 (52)	76 (42)	57 (32)	35 (20)	297
	TR	14 (8)	28 (16)	47 (27)	71 (39)	96 (53)	124 (69)	157 (88)	196 (109)	259 (144)	

The table shows approximate temperature drop and rise achieved by Vortex Tubes when adjusted to various Cold Fraction. A Cold Fraction is the percentage of cold air produced versus total filtered compressed air consumed by any Vortex Tube.

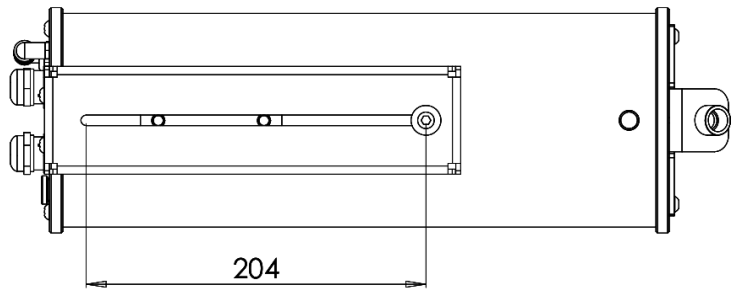
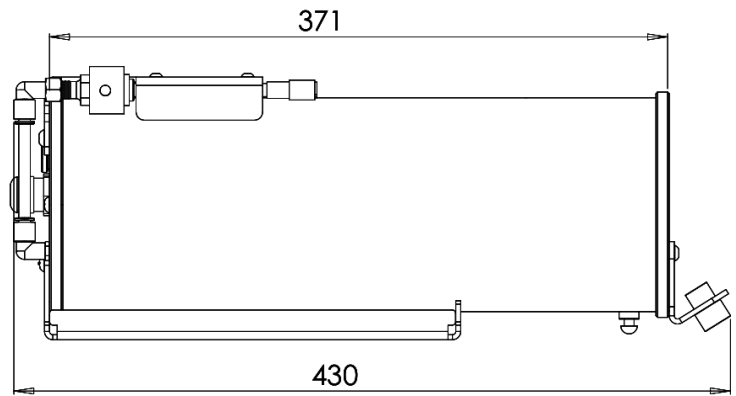
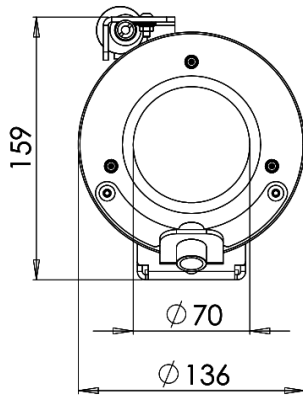
Table baseline: Compressed air temperature: 21 °C

TD: Temperature Drop
 TR: Temperature Rise
 AIR: Air consumption

SA-ABFL AIR BATTERY FILTER CONNECTION TO SA-FIXAC CAMERA HOUSING



Dimensions




SA-ABFL – Air filter

The air filtering battery **SA-ABFL** is used together with the SA-FIXAC, filtering the air from water and oil particles.

The battery is composed by three filters (20, 5 and 0,1 micron) in series, a pressure regulator and a pressure gauge. The water and the oil filtered are collected in 100 cc bowls. The 0.1 micron filter is made up by a microfiber coalescent cartridge which allows a high filtration efficiency of 99,99% on 0,1 µm particles. The regulator filter can keep stable the set pressure regardless of upstream variations. The air filtering battery can easily be installed due to its mounting bracket.

The filtering may be refilled with the microfiber cartridge suitable for the element.

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	Unpack this equipment and handle it carefully. If the package appears to be damaged, notify the shipper immediately.
	Use the original packaging to transport the unit. Disconnect power supply before moving it. In case of returning the equipment, the original packaging must be used.
	Use caution when lifting and assembling the unit. It is recommended that non-slip protective gloves be worn during installation. The unit could bear sharp edges.

TECHNICAL DATA

Dimensions:	250X280x100 mm
Weight:	1,5 kg
Max input pressure:	6 atm
Gauge pressure range:	from 0 to 6 atm
Filters:	20 micron, 5 micron and 0,1 micron
Input connector:	1/2" GAS
Output connector:	1/2" GAS (with 6 mm ext. diameter hose adaptor)
Temperature range:	from +5° to +50° C

MOUNTING INSTRUCTIONS

Place the filter in a suitable location and fix it to the wall using the wall fixing.

Connect the air tube to the filter inlet (as shown in figure) with a 1/2" GAS tube.

From the other side, connect the air outlet with an air tube which has to be connected with the front air flange of the camera housing.

Pay attention to 6 atm maximum inlet pressure.