

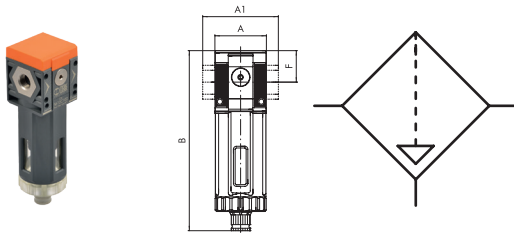
# Active charcoal filter

»SYNTESI« series

**PLUS**

Art. No. 144664

Type No. 5612C102



Exemplary illustration

Activated carbon filters absorb dirt particles (oils, solvents and hydrocarbons) from the compressed air. Cartridge life and efficiency can be increased by using pre-filtered (5 µm) and purified (0.01 µm) air. The cartridge must be replaced at set intervals as there is no difference in load loss between an efficient cartridge and a saturated one.

N.B.: to ensure the performance and duration stated on the data sheet, the load loss ( $\Delta P$ ) must not exceed 75 mbar.

On the front and back there is a port (G 1/8 for size 1 and G 1/4 for size 2) that can be used with pressure gauges, pressure switches or as an additional air outlet. The air taken from here is not filtered by the activated-carbon cartridge.

## Technical data

Series	Syntesi
Size	1
Max. input pressure	15 bar
Temperature range	-10 to 50 °C
Input	G 1/4
Output	G 1/4
Front and back port thread	G 1/8
Recommended flow rate at 6.3 bar	350 NI/min
Residual oil content	0,003 mg/m <sup>3</sup>
Condensate drain	RMSA semi-automatic
Output air purity class according to ISO 8573-1	1.7.1
Medium	Compressed air or other neutral gases
Housing	Technopolymer
Sealant	NBR
Bowl	Technopolymer
A	42.0 mm
A1	- mm
B	148.0 mm
F	25.8 mm

## Commercial data

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Customs tariff number	84213925
Country of origin	IT
eCl@ss 5.1.4	27293004
eCl@ss 9.0	27293004
UNSPSC_Code_v190501	40161505
UNSPSC_CodeDesc_v190501	Air filters

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**SYNTESI® ACTIVE CARBON FILTER**


Activated-carbon filtering systems achieve the highest standard of purification possible in industrial applications. They eliminate all traces of oils, solvents and hydrocarbons, and remove unpleasant odours. The operating principle uses activated carbon, which absorbs most of the polluting particles in the air thanks to minute holes in the granules of carbon.

On the front and back there is a port (1/8" for size 1 and 1/4" for size 2) that can be used with pressure gauges, pressure switches or as an additional air intake. **The air taken from here is not filtered by the activated-carbon cartridge.**

Cartridge life and efficiency can be increased by using pre-filtered (5µm) and purified (0.01µm) air.

The cartridge must be replaced at set intervals as there is no difference in load loss between an efficient cartridge and a saturated one.

**N.B.:** to ensure the performance and duration stated on the data sheet, the load loss (ΔP) must not exceed 75 mbar.

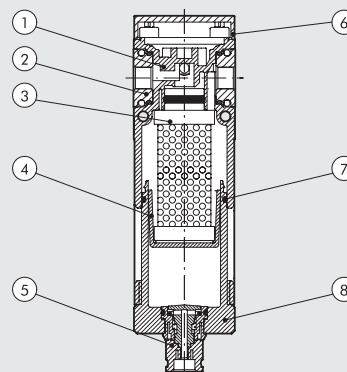


TECHNICAL DATA	FIL CA SY1			FIL CA SY2			
	1/8"	1/4"	3/8"	3/8"	1/2"	3/4"	1"
Threaded port	0.003 - output air purity class ISO8573-1: 1.7.1						
Residual oil at 20°C * mg/m³							
Duration of cartridge * hours	4000			4000			
Max. inlet pressure bar	15			13			
	MPa			1.3			
	psi			188			
Suggested flow rate at 6.3 bar (0.63 MPa; 91 psi) NI/min	350			800			
	scfm			28			
	N.B.: flow rates higher than the recommended value reduces purification efficiency						
Min/max temperature at 10 bar; 1 MPa; 145 psi °C	From -10 to +50			From -10 to +50			
Weight g	195	190	181	483	456	452	440
Condensate drain	RMSA: drain with manual condensate discharge and automatic discharge at zero pressure						
Fluid	0.01 µm filtered and deperated air						
Mounting position	In any position			In any position			
Additional air take-off port (unfiltered air from cartridge CA)	1/8", front and rear			1/4", front and rear			
Additional air take-off flow rate at 6.3 bar NI/min	500			1500			
(0.63 MPa; 91 psi) ΔP 1 bar (0.1 MPa; 14 psi) scfm	18			53			
Wall fixing screws	No. 2 M4 screws			No. 2 M5 screws			
Notes on use	Upstream it's necessary to mount a coalescence filter deparator of 0.01µm.						

\* if the load loss of 75 mbar is not exceeded

**COMPONENTS**

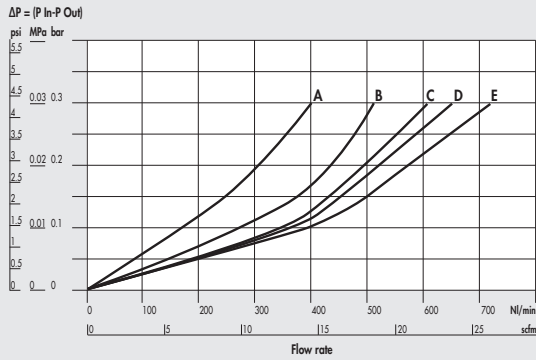
- ① Technopolymer deparator body
- ② IN/OUT bushing made of OT58 nickel-plated brass or passivated aluminium for 3/4" - 1"
- ③ Active carbon cartridge
- ④ Technopolymer cartridge support
- ⑤ Drain (RMSA)
- ⑥ Technopolymer plate
- ⑦ NBR o-ring gasket
- ⑧ Clear technopolymer bowl


**UNITS**

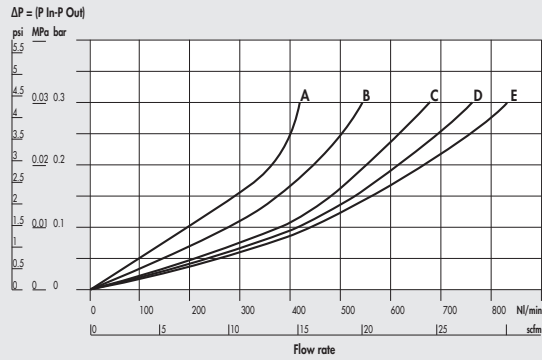
Syntesi® ACTIVE CARBON FILTER

**FLOW CHARTS**

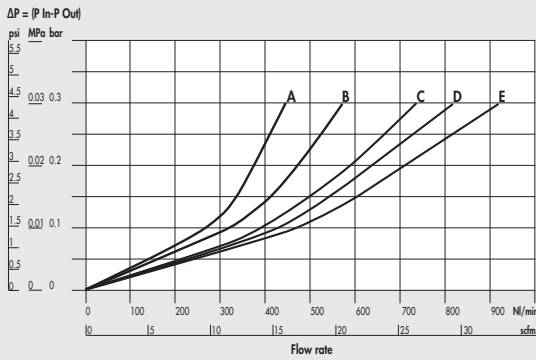
FIL CA Syntesi® SY1 1/8"



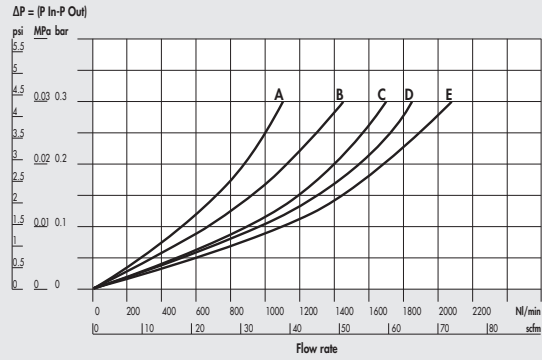
FIL CA Syntesi® SY1 1/4"



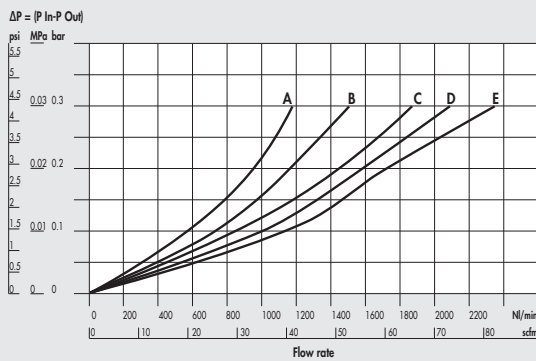
FIL CA Syntesi® SY1 3/8"



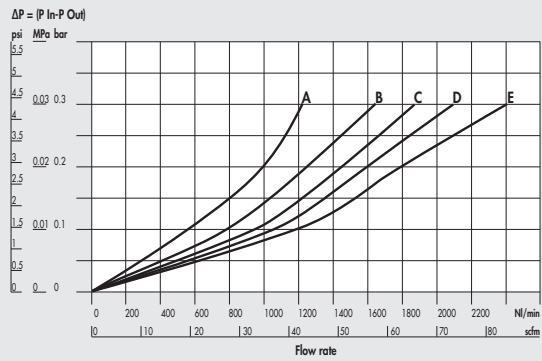
FIL CA Syntesi® SY2 3/8"



FIL CA Syntesi® SY2 1/2"



FIL CA Syntesi® SY2 3/4" - 1"



A = 2.5 bar - 0.25 MPa - 36 psi  
B = 4 bar - 0.4 MPa - 58 psi

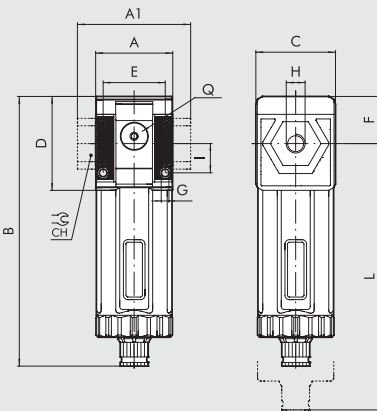
C = 6.3 bar - 0.63 MPa - 91 psi  
D = 8 bar - 0.8 MPa - 116 psi

E = 10 bar - 1 MPa - 145 psi

UNITS

Syntesi® ACTIVE CARBON FILTER

**DIMENSIONS**



	SIZE 1			SIZE 2			
	1/8"	1/4"	3/8"	3/8"	1/2"	3/4"	1"
H (threaded port)	1/8"	1/4"	3/8"	3/8"	1/2"	3/4"	1"
A	42					60.5	
A1	-	-	44	-	-	95	95
B	RMSA			148	178		
C				44	61		
CH				-	-	32	36
D				51.5	70.5		
E				33.5	47.5		
F				25.8	38.2		
G				Hole for M4 screws		Hole for M5 screws	
I				16	22.5		
L	RMSA			202	245		
Q (no. 2 additional air takes-off)				1/8"	1/4"		

**KEY TO CODES**

56	1	1	C	10	1
SYNTESI	SIZE	THREADED INPUT CONNECTION	ELEMENT	TYPE	THREADED OUTPUT CONNECTION
56 Syntesi	1 Size 1	0 Without bushing	C Active carbon filter	10 RMSA	0 Without bushing
5X Syntesi anti-corrosion		1 1/8" port			1 1/8" port
		2 1/4" port			2 1/4" port
		3 3/8" port			3 3/8" port
	2 Size 2	0 Without bushing			0 Without bushing
		3 3/8" port			3 3/8" port
		4 1/2" port			4 1/2" port
		5 3/4" port			5 3/4" port
		6 1" port			6 1" port

RMSA: Drain with manual condensate discharge and automatic discharge at zero pressure.

UNITS

Syntesi® ACTIVE CARBON FILTER

**PURCHASE ORDER CODES HAVING A MORE FREQUENT USE**

N.B. Besides the below mentioned codes, you can order elements composed at your will according to the key to codes.

Code	Description	Code	Description	NOTE
FILTRO CARBONI ATTIVI Syntesi SY1		FILTRO CARBONI ATTIVI Syntesi SY2		Anti-corrosion version
5610C100	AC SY1 RMSA without bushings	5620C100	AC SY2 RMSA without bushings	5X-----
5611C101	AC SY1 1/8 RMSA	5623C103	AC SY2 3/8 RMSA	Example
5612C102	AC SY1 1/4 RMSA	5624C104	AC SY2 1/2 RMSA	5X11C101 AC SY1 1/8 RMSA anti-corrosion
5613C103	AC SY1 3/8 RMSA	5625C105	AC SY2 3/4 RMSA	
		5626C106	AC SY2 1 RMSA	

## GENERAL TECHNICAL DATA SYNTESI®

Syntesi® is an important milestone achieved by Metal Work, the result of thirty years' experience producing air-treatment units. It has been studied in minute detail to obtain the best possible performance in a reduced space and with limited weight. The capacity is much higher than that of other units of the same size.

This modular unit features a very simple yet effective system that requires no brackets, stay bolts or yoke for assembling the elements.

The basic version of Syntesi® incorporates numerous functions that are not provided or are only optional with traditional units. Examples are padlockable knobs, additional pneumatic ports on the front and back, flow options from left to right or vice versa, regulators with compensation system - which are accurate even when the upstream pressure changes, with rapid downstream pressure relief - full indelible marking, automatic condensate drain even in size 1, and 360° visual inspection of oil and condensate levels. The basic materials, technopolymer and nickel-plated brass have excellent corrosion resistance. An anti-corrosion version is available with stainless steel components (screws, plates) or Geomet®-treated ones (regulator springs).



UNITS

GENERAL TECHNICAL DATA Syntesi®

TECHNICAL DATA	SIZE 1			SIZE 2			
	1/8"	1/4"	3/8"	3/8"	1/2"	3/4"	1"
Threaded port							
Max. input pressure	bar	15			13		
	MPa	1.5			1.3		
	psi	217			188		
Flow rate	See catalogue of the various elements						
Min/max temperature at 10 bar; 1 MPa; 145 psi	°C from -10 to +50			°C from -10 to +50			
Padlockable knob	The knobs of the regulators, filter regulators and standard sectioning valves can all be padlocked						
Fluid	Compressed air or other inert gases						
Mounting position	See catalogue of the various elements						
Direction of flow	Flow options right to left or vice versa						
Additional air take-off, for pressure gauges or fittings	1/8", front and rear, on all modules			1/4", front and rear, on all modules			
Wall fixing screws	No. 2 M4 screws			No. 2 M5 screws			
Certification for potentially explosive atmosphere according to ATEX 2014/34/EU rule	 II 3G Ex h IIC T5 Gc -10°C < Ta < 50°C II 3D Ex h IIIC T100 °C Dc						

### ANTI-CORROSION VERSION

- Differences compared to the standard version:
- stainless steel screws
  - stainless steel plate for R, FR, V3V knobs
  - Geomet®-treated regulator spring and filter-regulator

**FIXING TO FRONT PORTS**



Do not use a spanner for fixing taper threaded elements to the front ports. Mount by hand and apply a liquid sealant (not teflon®).

**ROTARY BUSHINGS**



3/4" and 1" bushings in Size 2 rotate freely to facilitate assembly operations.

**LASER MARKING**



The following is marked indelibly on the body:

- Metal Work trademark
- Code
- Maximum pressure and temperature
- Degree of filtration or pressure range, where relevant
- Week and year of manufacture
- ATEX category
- Made in Italy

**MOUNTING OPTIONS**

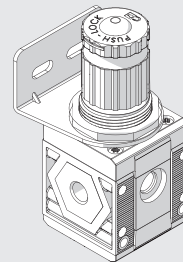
**On the wall, using two screws**



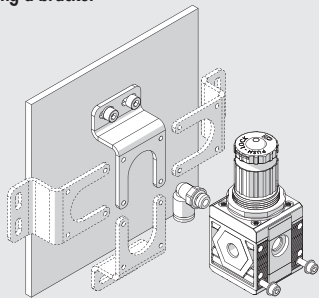
**On a panel**



**Using knob bracket**

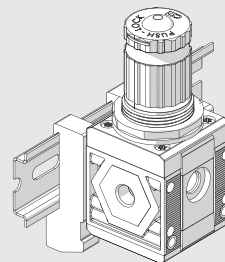


**Using a bracket**



The bracket can be secured in any position, and the fittings can be mounted on the pressure gauge air intake at the back of the unit.

**On a DIN EN50022 bar with the opposite adaptor**



MODULARITY AND FLEXIBILITY

UNITS

GENERAL TECHNICAL DATA Syntesi®





The various elements of Syntesi® A can be connected to the air feed and delivery circuit using pneumatic nickel brass or passivated aluminium ports® and can be fixed together using nipples®.

The nipples and ports are easy to remove by unscrewing the two front screws®. This solution has numerous advantages:

- Reduced overall dimensions.
- Free composition of multiple elements, without the need for brackets, stay bolts or yoke.
- The threads for the fittings are metallic, allowing high tightening torques, also for tapered threads.
- Maximum flexibility: a unit can be transformed at any time by adding an element or replacing a port with another one, e.g. 1/4" instead of 1/8".
- The air intake port can be the same or different from the outlet port, as desired.

Standard Syntesi® ports are: 1/8", 1/4", 3/8" for size 1; 3/8", 1/2", 3/4", 1" for size 2.

It may be necessary to use a vice to insert the bushes into size 2.

The nipples have different functions:

- Nipple® joins two elements of the same size together.
- Size adaptor® can be used to connect an element in the Syntesi® 2 series with one in the Syntesi® 1 series.
- The 90° adaptor® can be used to connect two 90° angled elements. For example, it can help directing the regulator knob or the control knob of a sectioning valve towards the user.
- The two-way air intake® is a simple and cost-effective system which, besides connecting two elements together, has 2 opposing threaded air intakes.
- The adaptor for Regtronic® can be used to fix the Regtronic 1/4" proportional valve to a Syntesi® size 1 element.

**Additional ports®.** On the front and back of ALL Syntesi® elements there is a port (1/8" for size 1, 1/4" for size 2) that can be used for pressure gauges®, pressure switches® or, given the high flow rate, as additional air take-off®. These ports are downstream of the element, so, for example, a regulator port can supply air at a set pressure or a filter port can supply filtered air (not valid for activated carbon filter and depurator).

**Wall fixing.** Only two through screws® are needed. No bulky brackets or additional flanges are required. The bracket® can be used to separate the unit from the fixing wall, e.g. to mount a fitting to the rear port.

**Fixing on a DIN EN50022 bar.** Can be done using the bracket kit®.

**Regulator fixing bracket®.** Regulators and filter-regulators can also be fixed using a steel bracket® that embraces the bell.

**Padlockable knob®.** The knobs of regulators, filter-regulator and sectioning valves can all be padlocked. The steel plate is included in the supply. You can insert up to two 3 mm diameter padlocks® on size 1 and three padlocks on size 2. As an alternative, the sectioning valve can have a steel plate suitable for a single 6 mm diameter padlock.

**Safety valve®.** The unit can incorporate a series 70 SAFE AIR® safety valve.

**Flowmeter series FLUX 1-2®.** The unit can incorporate a series FLUX 1 or FLUX 2 flow meter.

C1

# SYNTESI® KEY TO CODES

## KEY TO CODES SINGLE ELEMENT

56	1	1	F	10	1
SYNTESI	SIZE	THREADED INPUT CONNECTION	ELEMENT	TYPE	THREADED OUTPUT CONNECTION
56 Syntesi 5X Syntesi anti-corrosion	1 Size 1	0 Without bushing 1 1/8" port 2 1/4" port 3 3/8" port	F Filter D Depurator C Active carbon filter R Pressure regulator B Filter-regulator L Lubricator ● V Shut off valve ▲ A Progressive starter ▲ S Pressure switches P Air take-off	Varies from element to element	0 Without bushing 1 1/8" port 2 1/4" port 3 3/8" port
	2 Size 2	0 Without bushing 3 3/8" port 4 1/2" port 5 3/4" port 6 1" port			0 Without bushing 3 3/8" port 4 1/2" port 5 3/4" port 6 1" port

- The anti-corrosion version of this element is only available with manual actuation.
- ▲ Not available in the anti-corrosion version.

## KEY TO CODES UNIT COMPOSED OF TWO OR THREE ELEMENTS

56	1	1	V	10	B	24	L	10	1
SYNTESI	SIZE	THREADED INPUT CONNECTION	ELEMENT 1	TYPE	ELEMENT 2	TYPE	ELEMENT 3	TYPE	THREADED OUTPUT CONNECTION
56 Syntesi 5X Syntesi anti-corrosion	1 Size 1	1 1/8" port 2 1/4" port 3 3/8" port	F Filter D Depurator C Active carbon filter R Pressure regulator B Filter-regulator L Lubricator ● V Shut off valve ▲ A Progressive starter ▲ S Pressure switches P Air Take-off	Varies from element to element	F Filter D Depurator C Active carbon filter R Pressure regulator B Filter-regulator L Lubricator ● V Shut off valve ▲ A Progressive starter ▲ S Pressure switches P Air Take-off	Varies from element to element	F Filter D Depurator C Active carbon filter R Pressure regulator B Filter-regulator L Lubricator ● V Shut off valve ▲ A Progressive starter ▲ S Pressure switches P Air Take-off	Varies from element to element	1 1/8" port 2 1/4" port 3 3/8" port 3 3/8" port 4 1/2" port 5 3/4" port 6 1" port
	2 Size 2	3 3/8" port 4 1/2" port 5 3/4" port 6 1" port							

- The anti-corrosion version of this element is only available with manual actuation.
- ▲ Not available in the anti-corrosion version.

UNITS

Syntesi® KEY TO CODES

C1.8

## Accessories

	Art. No.	Type No.
Mounting bracket, size 1, standard and anti-corr.	145658	9200716X
Adapter for DIN rail, size 1 and size 2	145660	9200718X
Connecting nipple kit, size 1	144695	9210000
Connecting element 90°, size 1	145502	9210009
Size adapter, size 1 - size 2, incl. 4 screws	145504	9210006
Assembly key for bowl size 1, »bit«	145505	9170601
Fastening screw, size 1	145507	9210030

## Spareparts

	Art. No.	Type No.
Bowl, size 1, RMSA semi-automated	145611	9210100
Filter element, size 1, 0,003 µm	145627	9210161
Threaded port bushing, size 1, G 1/4,	144689	9210002