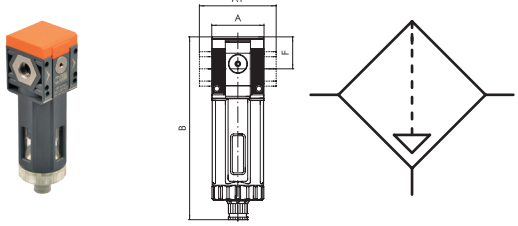
Depurator (Microfilter)

»SYNTESI« series

PLUS

Art. No. **144650**

Type No. **5624D104**



Exemplary illustration

As the second stage after the filter, depurators remove the liquid and solid particles dispersed in the compressed air with a high degree of efficiency via a special filtering element ("coalescence cartridge"). They are particularly suitable for eliminating traces of oil present in the compressed air.
The air flow rate must remain below the maximum values to achieve the desired degree of purification. Beyond this value, there may be a decline in the quality of air from the depurator.

Condensate drain RMSA semi-automatic (SAC fully automatic on request. This only releases the condensate in the event of sudden pressure changes).

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 filtered air outlet. The air taken from here is not purified.

RIEGLER & Co. KG
Schützenstraße 27
72574 Bad Urach
Tel. +49 7125 9497-642
technik@riegler.de

Technical data

Series	Syntesi
Size	2
Max. input pressure	13 bar
Temperature range	-10 to 50 °C
Input	G 1/2
Output	G 1/2
Front and back port thread	G 1/4
Recommended flow rate at 6.3 bar	620 Nl/min
Filter rating	0.01 µm
Condensate drain	RMSA semi-automatic
Output air purity class according to ISO 8573-1	1.7.2
Medium	Compressed air or other neutral gases
Housing	Technopolymer
Sealant	NBR
Bowl	Technopolymer
A	60.5 mm
A1	- mm
B	178.0 mm
F	38.2 mm

Commercial data

Customs tariff number	84213925
Country of origin	IT
eCl@ss 5.1.4	27293003
eCl@ss 9.0	27293003
UNSPSC_Code_v190501	40161505
UNSPSC_CodeDesc_v190501	Air filters

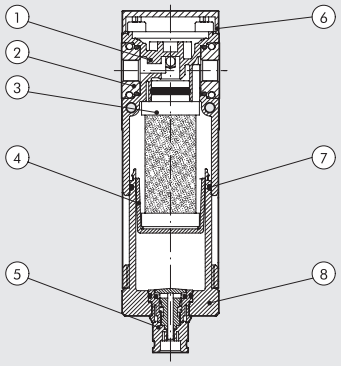
SYNTESi® DEPURATOR

The job of the filter purifier is to separate liquid and solid particles dispersed in the compressed air with a high degree of efficiency.
This separation is achieved by means of a special filtering element called a "coalescence cartridge".
It is particularly indicated for eliminating traces of oil present in the compressed air. The air flow rate must remain below the maximum values to achieve the desired degree of purification. Beyond this value, there may be a decline in the quality of air from the purifier.
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 purified**.

TECHNICAL DATA		DEP SY1			DEP SY2			
Threaded port		1/8"	1/4"	3/8"	3/8"	1/2"	3/4"	1"
Degree of filtration	µm	0.01 - output air purity class ISO8573-1: 1.7.2						
		1 - output air purity class ISO8573-1: 3.7.3						
Max. input pressure	bar	15			13			
	MPa	1.5			1.3			
	psi	217			188			
Suggested flow rate at 6.3 bar (0.63 MPa; 91 psi)	Nl/min	460			620			
	scfm	9			37			
Maximun suggested flow rate		See graph on the next page						
		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	194	189	180	483	456	452	440
Condensate drain		RMSA: drain with manual condensate discharge and automatic discharge at zero pressure						
		SAC: automatic drain with condensate discharge. **Operates by pressure drop – requires variable air take-offs**.						
Fluid		Compressed air or other inert gases						
Bowl capacity	cm^3	15			40			
Mounting position		Vertical			Vertical			
Port for additional air take-off (not purified air)		1/8", front and rear			1/4", front and rear			
Additional air take-off flow rate at 6.3 bar	Nl/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		It is advisable to mount a 5 µm filter upstream of the purifier to retain solid particles						

COMPONENTS

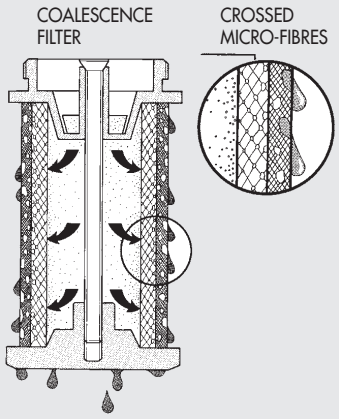
① Technopolymer depurator body
② IN/OUT bushing made of OT58 nickel-plated brass or passivated aluminium for 3/4" - 1"
③ Coalescence cartridge
④ Technopolymer cartridge support
⑤ Drain (RMSA)
⑥ Technopolymer plate
⑦ NBR o-ring gaskets
⑧ Clear technopolymer bowl



RIEGLER & Co. KG
Schützenstraße 27
72574 Bad Urach
Tel. +49 7125 9497-642
technik@riegler.de

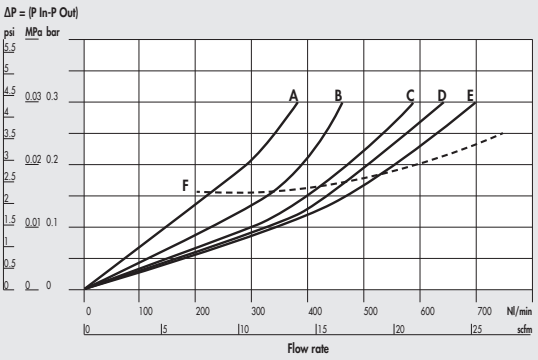
HOW THE COALESCENCE CARTRIDGE WORKS

Air from the mains – full of impurities – flows into the coalescence cartridge and then passes through the crossed micro-fibres that make up the cartridge. During this movement the liquid particles come into contact with the crossed micro-fibres and adhere to them. Due to the air pressure and gravity they join up with other micro-drops at each cross-over point and gradually increase in volume, leading to the physical phenomenon called coalescence. When they stop moving, the drops deposit on the outside of the cartridge, from which they detach and drop to the bottom. Since the volume of liquid leaving the cartridge is exactly the same as the drops arriving, the coalescence cartridge ought to work indefinitely. Solid particles are caught with the same efficiency but, unlike drops, they are not drained out and clog the cartridge. To get round this problem, it is necessary to mount a 5µm prefilter before the fine oil filter to separate the solid particles first.

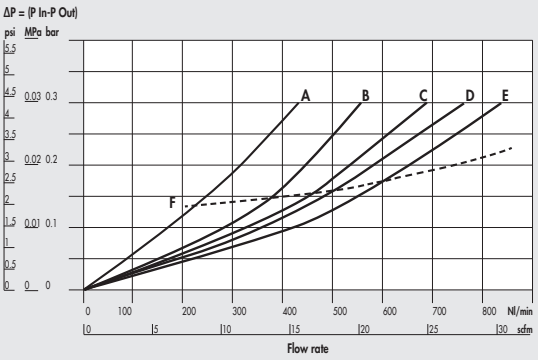


FLOW CHARTS

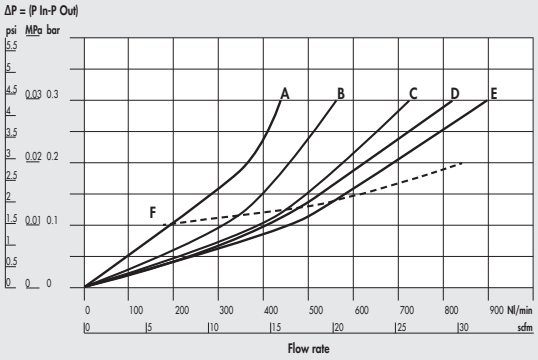
DEP Syntesi® **SY1** 1/8"



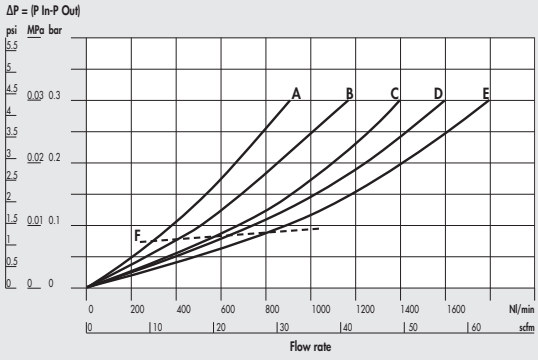
DEP Syntesi® **SY1** 1/4"



DEP Syntesi® **SY1** 3/8"



DEP Syntesi® **SY2** 3/8"



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
F = max suggested flow

RIEGLER & Co. KG
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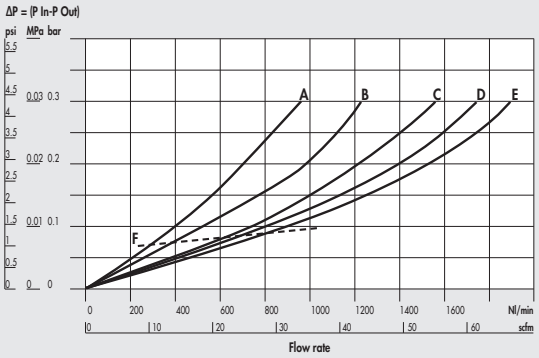
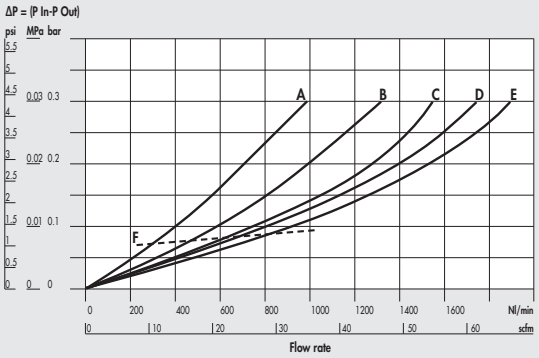
DEP Syntesi® **SY2** 1/2"

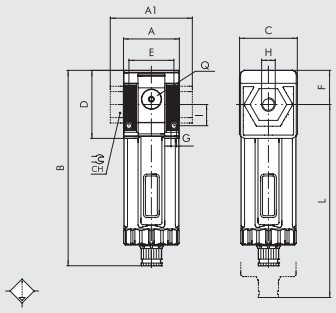


DEP Syntesi® **SY2** 3/4" - 1"



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
F = max suggested flow

DIMENSIONS



		SIZE 1			SIZE 2			
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			
	SAC	152			182			
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			
	SAC	206			249			
Q (no. 2 additional air takes-off)		1/8"			1/4"			

KEY TO CODES

56	1	1	D	10	1
SYNTESI	**SIZE**	**THREADED INPUT CONNECTION**	**ELEMENT**	**TYPE**	**THREADED OUTPUT CONNECTION**
56 Syntesi	**1** Size 1	**0** Without bushing	**D** Depurator	**10** 0.01 µm RMSA	**0** Without bushing
5X Syntesi anti-corrosion		**1** 1/8" port		**11** 0.01 µm SAC	**1** 1/8" port
		2 1/4" port		**30** 1 µm RMSA	**2** 1/4" port
		3 3/8" port		**31** 1 µm SAC	**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.
SAC: automatic drain with condensate discharge.
Operates by pressure drop – requires variable air take-offs.

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
Syntesi® SY1 DEPURATOR	
5610D100	DEP SY1 RMSA without bushings
5611D101	DEP SY1 1/8 RMSA
5612D102	DEP SY1 1/4 RMSA
5613D103	DEP SY1 3/8 RMSA

Code	Description
Syntesi® SY2 DEPURATOR	
5620D100	DEP SY2 RMSA without bushings
5623D103	DEP SY2 3/8 RMSA
5624D104	DEP SY2 1/2 RMSA
5625D105	DEP SY2 3/4 RMSA
5626D106	DEP SY2 1 RMSA

NOTE	
Anti-corrosion version	
5X_ _ _ _ _ _	
Example	
5X11D101	DEP SY1 1/8 RMSA anti-corrosion

RIEGLER & Co. KG
Schützenstraße 27
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technik@riegler.de

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®-reated ones (regulator springs).

TECHNICAL DATA		SIZE 1			SIZE 2			
Threaded port		1/8"	1/4"	3/8"	3/8"	1/2"	3/4"	1"
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			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		Ⓔx 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

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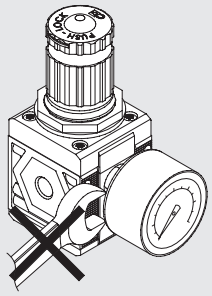
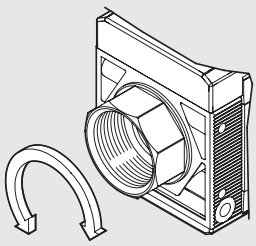
FIXING TO FRONT PORTS



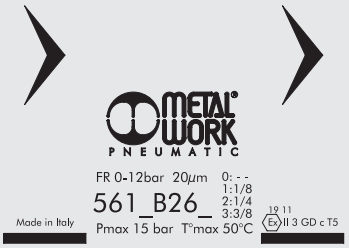
Do not use a spanner for fixing taper threaded elements to the front ports. Mount by hand and apply a liquid sealant (not teflon®).

ROTARY BUSHINGS



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

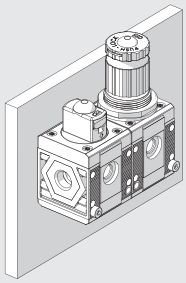
LASER MARKING



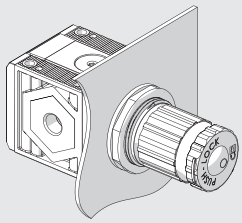
The following is marked indelibly on the body:
- Metal Work trademark
- Code
- Maximum pressure and temperature
- Degree of filtration or pressure range, where relevant
- Week and year of manufacture
- Atex category
- Made in Italy

MOUNTING OPTIONS

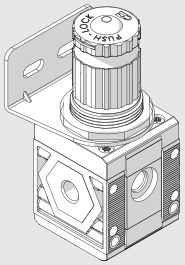
On the wall, using two screws



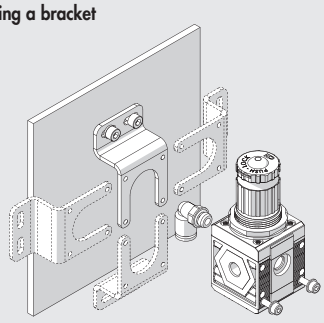
On a panel

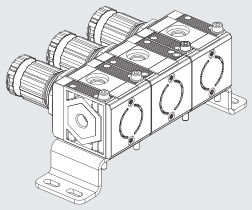


Using knob bracket



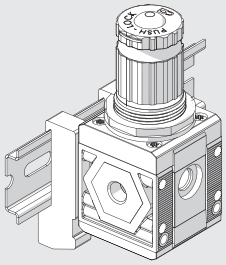
Using a bracket





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 apposite adaptator



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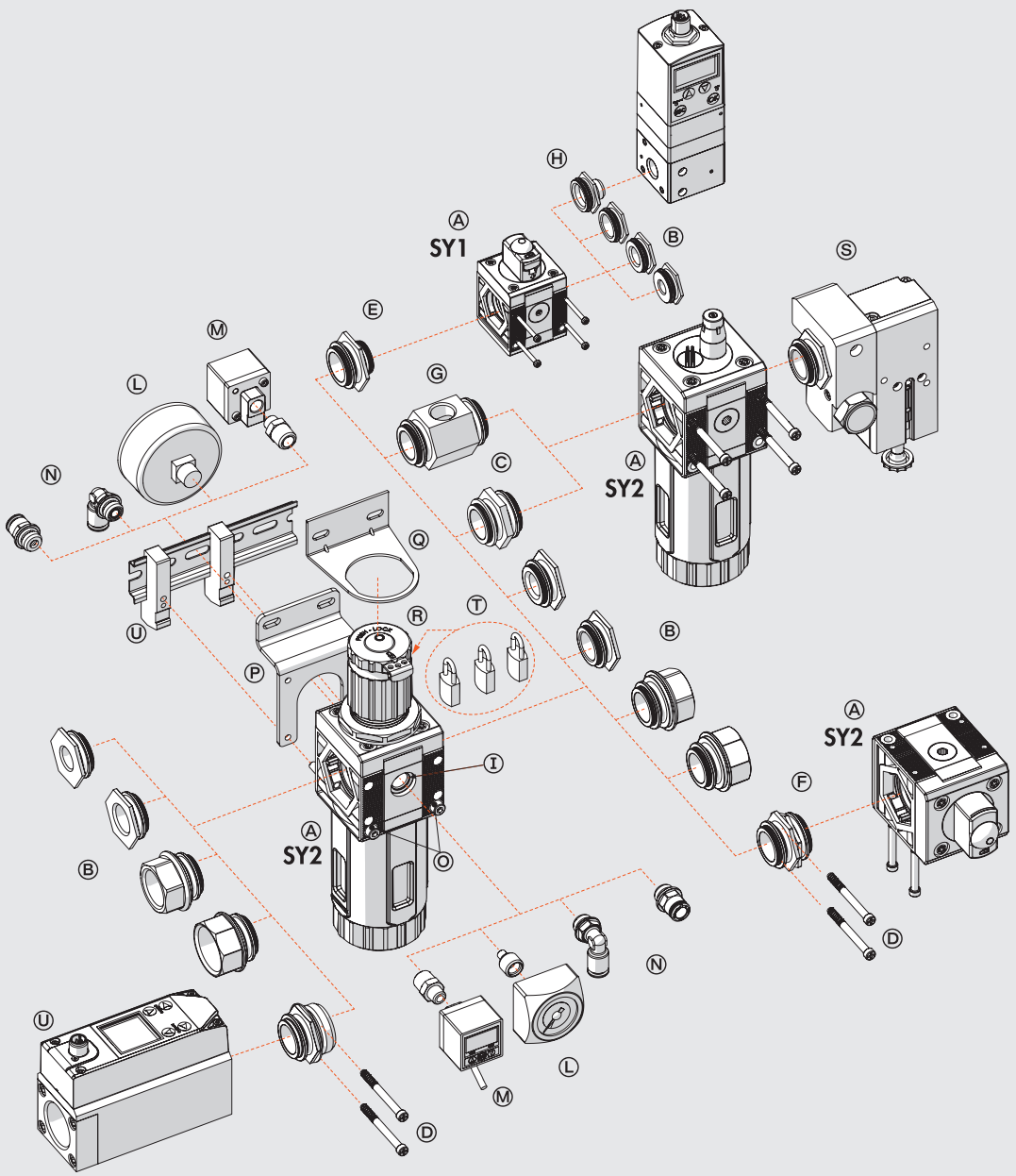
Schützenstraße 27
72574 Bad Urach
Tel. +49 7125 9497-642
technik@riegler.de

MODULARITY AND FLEXIBILITY



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The various elements of Syntesi® Ⓐ 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.

RIEGLER & Co. KG
Schützenstraße 27
72574 Bad Urach
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technik@riegler.de

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 **2** Size 2	**0** Without bushing **1** 1/8" port **2** 1/4" port **3** 3/8" port **0** Without bushing **3** 3/8" port **4** 1/2" port **5** 3/4" port **6** 1" 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 **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 **2** Size 2	**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	**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-of	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

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

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technik@riegler.de

Accessories

	Art. No.	Type No.
Mounting bracket, size 2, standard and anti-corr.	145659	9200717X
Adapter for DIN rail, size 1 and size 2	145660	9200718X
Connecting nipple kit, size 2	144696	9210010
Connecting element 90°,, size 2	145503	9210019
Size adapter, size 1 - size 2, incl. 4 screws	145504	9210006
Assembly key for bowl, size 2	145506	9210050
Fastening screw, size 2	145508	9210031
Bowl, size 2, SAC fully automated	145616	9210107

Spareparts

	Art. No.	Type No.
Bowl, size 2, RMSA semi-automated	145614	9210105
Filter element, size 2, 0,01 µm	145626	9210165

RIEGLER & Co. KG
Schützenstraße 27
72574 Bad Urach
Tel. +49 7125 9497-642
technik@riegler.de