

SATA® filter regulator systems



German Engineering

Spray Guns | Cup Systems | Breathing Protection | Air Filtration | Accessories



Clean air for perfect results

SATA – Ensuring clean atomisation and breathing air

Every paint shop requires compressed air, whether for paint application or for the operation of paint pressure tanks, material pumps, blow guns, cleaning devices and/or air-fed breathing protection systems. According to the field of application, the requirements concerning air quality can be quite different: Whatever the requirements may be, SATA offer the appropriate solution.

Poor material adherence, nibs and other coating flaws lead to time-consuming and expensive rework. Most coating flaws are the result of poor air quality which can be prevented with the installation of SATA filter regulator units.



SATA filter 100 prep
Filter series for the prep area

SATA filter regulator systems help prevent the following coating flaws:



Dust particle inclusions



Condensate



Silicone craters



Optimum personal breathing protection with clean compressed air supplied by e.g. the SATA filter 484 with activated charcoal filter stage.

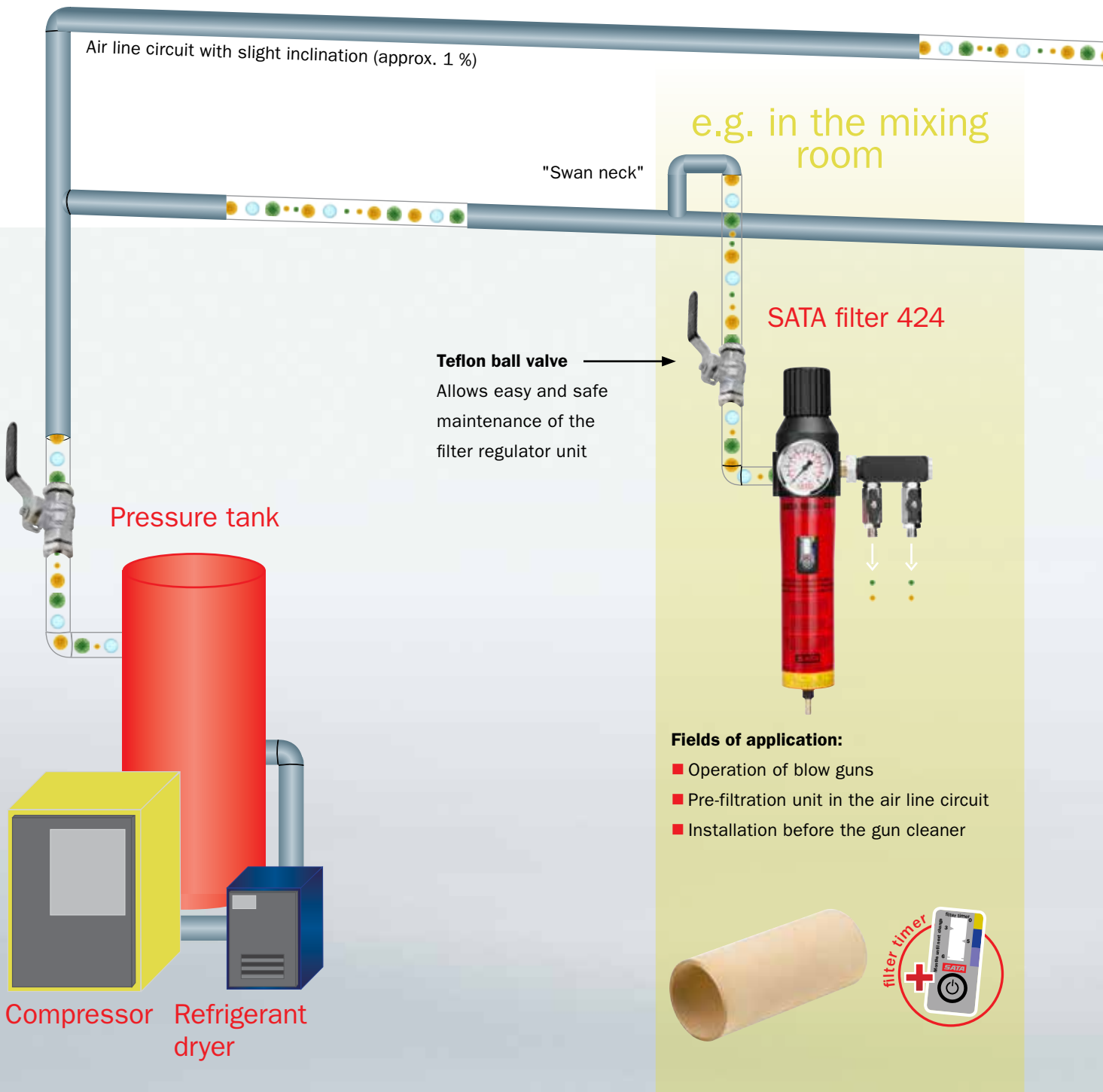


SATA filter 400 series
High performance filter for installation in the spray booth.

For more information on:

1. Technical layout of an air line circuit (see pages 4 – 5)
2. SATA filter 100 prep series – quality from the start (see pages 6 – 7)
3. SATA filter 400 series – professional air filtration (see pages 8 – 9)
4. Top quality ensuring clean compressed air (see page 10)
5. Filter maintenance – ensuring premium air quality (see page 11)
6. Filter cartridges and accessories (see pages 12 – 13)
7. Tips and recommendations (see pages 14 – 15)
8. SATA breathing protection for optimum health protection (see page 16)

Technical layout of an air line circuit



Compressed air generated by the compressor can be contaminated with various substances:

- Oil droplets
- Oil vapours
- Condensate / water vapour
- Particles > 5 μm
- Particles > 0.01 μm

First filter stage: Oil/water separator with sintered filter

- The air is accelerated inside the cyclone separator ensuring that oil droplets and condensate are collected on the wall of the filter canister.
- The sintered filter separates particles > 5 μm .
- Exchange interval: every 6 months.
- Not sufficient for spraying or for breathing



This video demonstrates the requirements to produce compressed air which is suitable for spraying and supplying PPE.

www.sata.com/tv

e.g. in the spray booth

Prep deck: SATA filter 100 prep

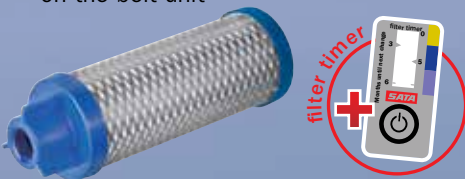
SATA filter 444



99.998 %
technically
particle-free
air

Fields of application:

- Application of solvent-based paint systems
- Air supply to breathing protection equipment with activated charcoal adsorber on the belt unit



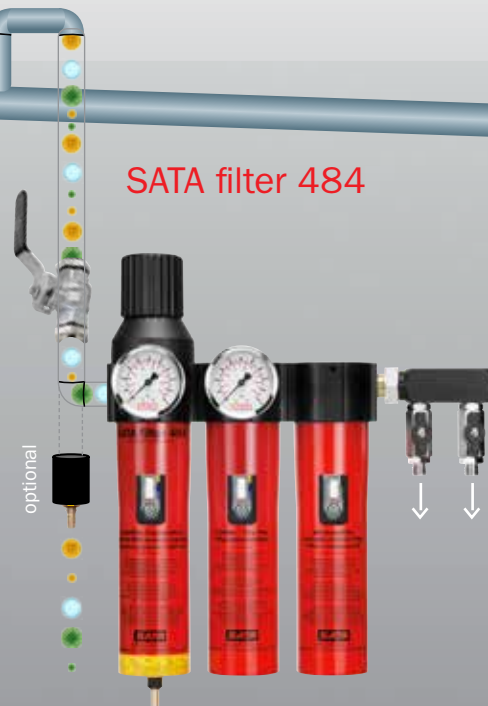
Additional second filter stage: fine filter

- The fine filter separates particles > 0.01 µm;
Capacity of particle filtration: 99.998 %.
- Exchange interval: every 6 months.
- **Not** sufficient for spraying waterborne paint or for breathing

Spray booth

Prep area: SATA filter 103 prep

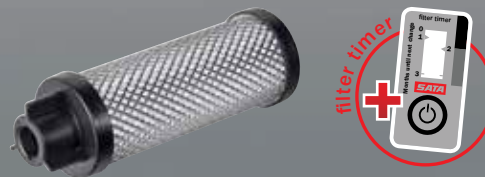
SATA filter 484



100 %
technically
particle-free
air

Fields of application:

- Application of waterborne and solvent-based paint systems
- Air supply to breathing protection equipment without activated charcoal adsorber



Additional third filter stage: activated charcoal filter

- Activated charcoal adsorbes oil vapours from the compressed air.
- Exchange interval: every 3 months.
- Suitable for spraying also waterborne paint and for breathing

SATA filter 100 prep series – Quality from the start

A perfect finish can only be achieved on a perfect foundation. In the best of cases, dust particles, condensate and compressor oil are detected during the sanding process. Very often, however, coating flaws are only noticed later on when the top coat is applied. The consequences are the need for rework and thus additional cost which could have been prevented. This is why compressed air should be already perfectly clean in the prep area.

SATA filters 100 and 103 prep are low-maintenance compressed air filters for the prep area: Less coating flaws, less rework.



Product Benefits

- Especially for providing clean air at the prep deck
- High and safe separation efficiency (automatic condensate drain valve)
- Pressure regulation valve with pressure gauge
- Easy assembly, sturdy and low maintenance

SATA filter 103 prep

- a) Automatic condensate drain valve
- b) First filter stage with cyclone separator and sintered filter removes oil droplets, condensate and aerosols > 5 µm from the compressed air
- c) Second filter stage with fine filter cartridge separates particles > 0.1 µm
- d) Third filter stage with activated charcoal ensures highest process security when applying waterborne primer and prep materials
- e) The SATA filter timer reminds users to exchange saturated filter cartridges in due time
- f) Pressure regulator with gauge for precise adjustment of the outlet pressure
- g) Air outlet with teflon ball valve 1/4" male thread



SATA filter 100 prep – for clean air at the prep deck

The SATA filter 100 prep and 103 prep have been especially developed to meet the requirements of the prep area. Using these filters prevents coating flaws from the beginning. However, they are not suitable for the installation in the spray booth and only for restricted use with breathing protection equipment.

SATA® filter 103 prep™



Triple-stage filter for the application of solvent-based or waterborne primer and prep materials.

Sintered filter: 5 µm; fine filter: 0.1 µm

Air flow at 6.0 bar: 800 NI/min

Ambient temperature: 50 °C

Air inlet: G 1/2" female thread

Air outlet: 1/4" male thread

Art. No. 157420

SATA® filter 100 prep™



Double-stage filter without activated charcoal – suitable for solvent-based primer and prep materials.

Sintered filter: 5 µm; fine filter: 0.1 µm

Air flow at 6.0 bar: 800 NI/min

Ambient temperature: 50 °C

Air inlet: G 1/2" female thread

Air outlet: 1/4" male thread

Art. No. 148247

SATA® filter 101 prep™



Single-stage activated charcoal filter to convert the SATA filter 100 prep to a SATA filter 103 prep.

Air flow at 6.0 bar: 800 NI/min

Ambient temperature: 50 °C

Air inlet: G 1/2" female thread

Air outlet: 1/4" male thread

Art. No. 157412

SATA filter 400 series – Professional air filtration

Maintaining the air line circuit properly also requires regular service of the filter units. To ensure a secure work flow at all times, a filter unit has to be installed either directly in front of or inside the spray booth. The **SATA filter 444** is recommended with **solvent-based paint**. For **waterborne paints**, a **SATA filter 484** is essential to remove harmful oil vapours by means of the activated charcoal filter stage.

Product Benefits

- Prevents expensive coating flaws reliably
- User-friendly and easy to maintain
- Quick and easy installation
- Economical and efficient
- Extremely high air flow (approx. 3,600 NI/min at 6 bar)
- Robust, durable filter canisters
- Includes SATA filter timers to monitor the filter cartridge exchange intervals
- Suitability of the triple-stage filter (SATA filter 484) for applying waterborne paints and for breathing



PRACTICE TIP

1. SATA filter 444 and 484 can be also installed outside of the spray booth. The spraying pressure should then be regulated inside the booth (ideally using a SATA pressure reducer 420) .


Advantage: If needed, two spray booths can be simultaneously supplied with perfectly clean spraying air, eliminating additional cost related to the maintenance of a second filter unit.

2. According to the practical requirements, the SATA filter 400 series can be installed with the air inlet either located on the left (ex-factory) or on the right. In the latter case, the pressure gauges have to be switched from the front to the back, while the ball valves have to be disassembled, turned by 180° and reassembled.




The safest way to achieve clean air is the use of a triple-stage filter with integrated regulator for presetting the atomisation air pressure





SATA® pressure reducer 420™ with pressure gauge	
	Air flow at 6 bar: 3.600 NI/min
	Ambient temperature: 120 °C
	Connection: Air inlet: G 1/2" female thread Air outlet: G 1/2" female thread
	Art. No. 92288


SATA filter 400 – modular filter series meeting highest requirements

The SATA filter 400 series fulfills highest requirements in terms of quality and efficiency. Its modular construction allows to easily adapt it to suit different application needs. The combi units SATA filter 444 and 484 are setting standards – including the preparation of breathing air. They reliably prevent expensive rework.

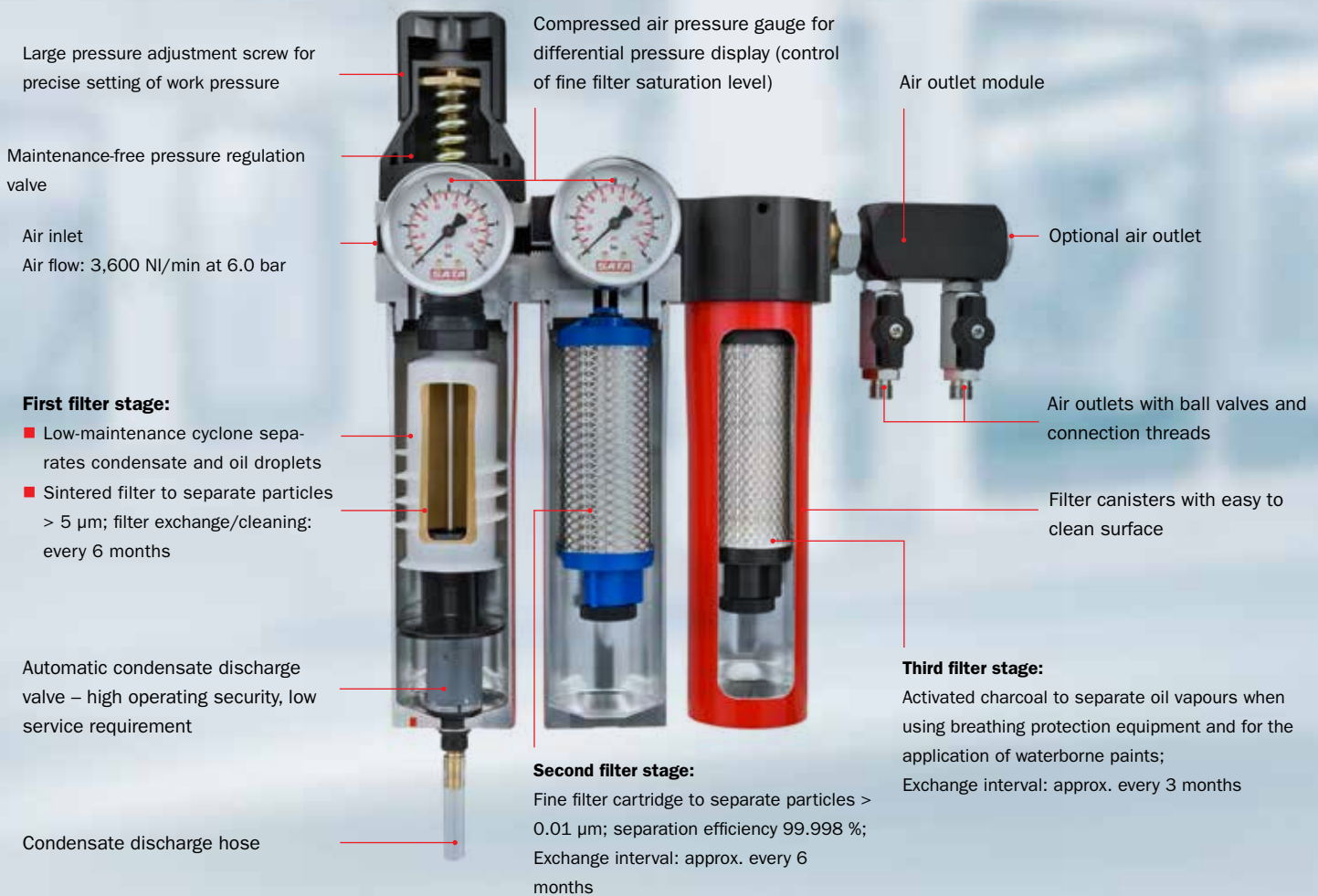
SATA® filter 484® triple-stage combi filter	
	100 % technically particle-free air
	Filter fineness: Sintered filter: 5 µm Fine filter: 0.01 µm Activated charcoal filter: oil vapours
	Air flow at 6 bar: 3.600 NI/min
	Ambient temperature: 120 °C; with activated charcoal filter up to 60 °C
	Connection: Air inlet: G 1/2" female thread Air outlet: 1/4" male thread
	Art. No. 92320

SATA® filter 444® double-stage combi filter	
	99.998 % technically particle-free air
	Filter fineness: Sintered filter: 5 µm Fine filter: 0.01 µm
	Air flow at 6 bar: 3.600 NI/min
	Ambient temperature: 120 °C
	Connection: Air inlet: G 1/2" female thread Air outlet: 1/4" male thread
	Art. No. 92296

SATA® filter 424® single-stage sintered filter	
	Filter fineness: Sintered filter: 5 µm
	Air flow at 6 bar: 3.600 NI/min
	Ambient temperature: 120 °C
	Connection: Air inlet: G 1/2" female thread Air outlet: 1/4" male thread
Art. No. 92221	

SATA® filter 464® single-stage activated charcoal filter	
	Filter fineness: Activated charcoal: adsorbes oil vapours from the compressed air
	Air flow at 6 bar: 3.600 NI/min
	Ambient temperature: 60 °C
	Connection: Air inlet: G 1/2" female thread Air outlet: 1/4" male thread
	to upgrade the SATA filter 444
Art. No. 92247	

Filter cartridges and accessories



First stage: sintered filter

- The sintered filter separates particles > 5 µm
 - Exchange interval: every 6 months
- Art. No. 22160



Second stage: fine filter

- The fine filter separates particles > 0.01 µm
 - Exchange interval: every 6 months
- Art. No. 81810



Third stage: activated charcoal filter

- Activated charcoal separates oil vapours
 - Exchange interval: every 3 months
- Art. No. 85373



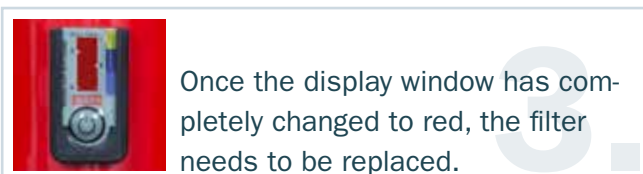
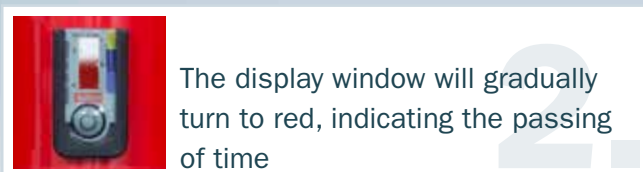
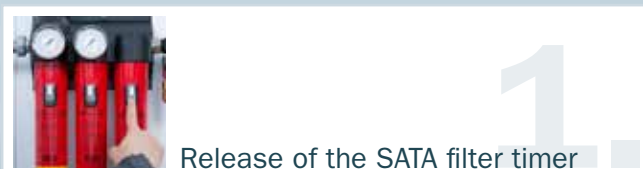
Filter maintenance – ensuring premium air quality

In order to preserve its efficiency, the filter unit must be regularly maintained, thus avoiding coating flaws and other quality issues and eventually expensive rework.

To remind the user to exchange the filter cartridges on a regular basis, every filter unit is now equipped with the new SATA filter timer.

Using the SATA filter timer is extremely easy: When a new filter regulator unit is installed, each filter timer must be activated by pressing the button to "start" the servicing interval of the respective filter stage. Over time, the display window will gradually turn to red, indicating the passing of time and serving as a guide to the measure of filter saturation with normal use. Whenever a window has completely changed to red, the concerned filter cartridge needs to be replaced. In line with the two different recommended replacement intervals of approx. three (activated charcoal) or six months (fine and sintered filter) respectively, there will be two filter timer versions available.

Additionally, the exchange filter cartridges will be also supplied with SATA filter timers which have to be inserted in the self-adhesive cages on the filter canisters and activated once maintenance is completed.



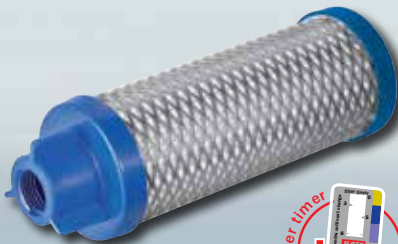
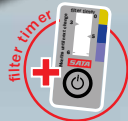
SATA filter timer with 3 months (left) or 6 months (right) run-time, resp.

Spare filters and accessories

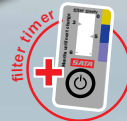
SATA filter cartridges



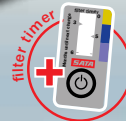
■ **Sintered filter (1. stage)**
for SATA filter series 100, 200, 300 and 400.
Art. No. 22160



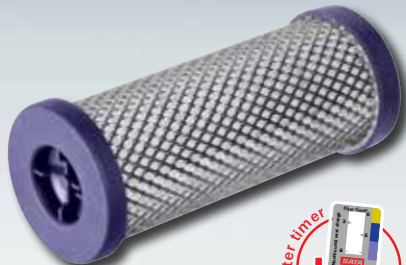
■ **Fine filter cartridge (second stage)**
for SATA filter series 200, 300 and 400
Art. No. 81810



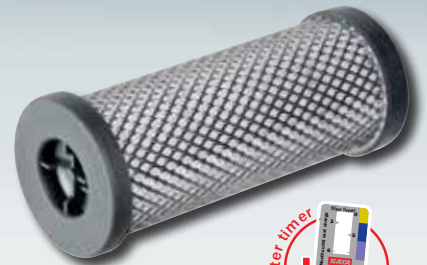
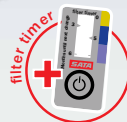
■ **Carbon cartridge (third stage)**
for SATA filter series 200, 300 and 400
Art. No. 85373



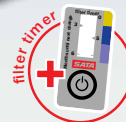
■ **Service kit**
Storage box for wall mounting with fine filter cartridge (1x) and carbon cartridge (1x) for filter series 200, 300 and 400
Art. No. 138933



■ **Fine filter cartridge (second stage)**
for SATA filter series 100 prep
Art. No. 148270



■ **Carbon cartridge (third stage)**
for SATA filter series 103 prep
Art. No. 157362



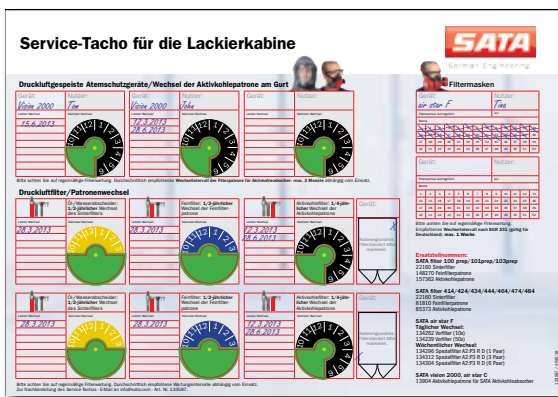
Air quality control



■ **SATA® air tester**
For a quick and safe check of the compressed air concerning substances causing coating flaws.
Art. No. 156299



■ **SATA® air check set**
Compressed air testing device for perfect quality.
Art. No. 7096



■ **SATA Service Tacho**
for the spray booth
Art. No. 133587 (German/English)
Art. No. 160713 (Spanish/French)

SATA filter accessories



■ **Manifold**
for extension with two ball valves for SATA filter series 400
Art. No. 158824



■ **SATA quick coupling**
G 1/4" female thread
Art. No. 13599



■ **SATA quick coupling nipple**
G 1/4" female thread
Art. No. 6981 (5x)
(see Practice Tip below)



■ **Teflon ball valve**
1/2" male thread
Art. No. 10934
(see Practice Tip below)



■ **SATA mini filter**
Dust, oil and condensate are removed from the spraying air directly at the spray gun.
Art. No. 9878



■ **High quality air hose to connect spray guns**
9 mm inner diameter, 10 m long, with quick coupling and nipple, antistatic, free of substances causing coating flaws, 20 bar pressure-resistant, high bursting safety.
Art. No. 53090

PRACTICE TIP

SATA teflon ball valves are equipped with an inner diameter of 1/2" to ensure high air flow.



SATA quick coupling nipples are corrosion-resistant. They are equipped with a teflon seal and dispose of a large inner diameter to avoid pressure drop.



Tips and recommendations

Compressed air supplied by the compressor is the (only) energy used to atomise and to apply paint material. The air must be not only be **clean** and **dry**, but also **constantly** and **sufficiently** available. To fulfill these requirements, the following important aspects have to be taken into account:

- the total air consumption (NI/min)
- the compressor performance
- the construction and the length of the air line circuit
- the inner diameter of main and stub lines

Recommended minimum diameter of the main line for the air line circuit

Required air consumption NI/min	Minimum inner diameter of main line or circuit required based on a length of ...	
	up to 50 m	up to 150 m
50	3/4"	1"
1000	1"	1 1/4"
1500	1"	1 1/2"
2000	1 1/4"	2"
3000	1 1/2"	2"

Stub lines leading from the main line to the respective supply point should be equipped with a minimum inner diameter of 1/2".

Example of an air consumption calculation in a bodyshop

Work scenario	Device	Number	Air requirement NI/min	
			Individual	Total
Blow gun	SATA blow gun	2	150	300
Spray gun for polyester putty	SATAjet 100 B P	1	245	245
Primer gun	SATAjet 100 B F HVLP	1	350	350
Top coat gun	SATAjet 5000 B HVLP	2	430	860
Spot Repair gun	SATAminijet 4400 B HVLP	1	120	120
Dry-blowing gun	SATA dry jet	2	270	540
Air fed breathing protection equipment	SATA air vision 5000	2	150	300
Spray gun cleaning	SATA multi clean 2	1	90	90
Sanding	Orbital sander	2	250	500
Total air consumption:				3.305
Performance efficiency approx. 33.33 % air consumption:				1.100
Rest of approx. 30 % required compressor power (minimum):				1.430

The interactive air consumption calculation tool available at www.sata.com/EN/aircalculation (see QR-Code below) allows to determine the required compressor performance to ensure proper function of all air-powered tools and devices.



The air line circuit is the link between compressor and spray gun featuring various components such as pre-filtration units, ball valves, valves, hoses, couplings, etc. These components are essential to achieve perfect finishes on a consistent basis. Already one defective or non-performing component could cause expensive coating flaws.

The following overview helps prevent coating flaws:

Malfunction	Possible cause	Corrective action
Insufficient air volume / pressure drop / coarse surface structure	Insufficient inlet pressure at the filter unit	Increase inlet pressure to 4 – 6 bar (depending on the design and construction of the air-powered tools, it may have to be set even higher)
	Insufficient compressor performance	Calculate air consumption and increase the compressor power, if necessary
	Insufficient inner diameter of the air line circuit at one or several locations (e.g. due to a ball valve)	Check inner diameter of the air lines and hoses, and whether the filter elements are still sufficiently clean, otherwise replace. Use an air hose with a diameter of min. 9 mm, connection couplings and nipples with min 5.5 mm inner diameter
	Line installation instead of a closed air line circuit	Install an air line circuit, if possible
	Leakage in the air line circuit	Repair leakages
Coating flaws (e.g. silicone craters/particles on painted surface)	Defective compressor causing contamination in the air line circuit, air hoses or filter units, resp.	Check if compressor works properly, repair or replace, if necessary; maintenance of filter units, replace air hoses
	Corrosion, e.g. at connection nipple, ball valve or coupling	Use corrosion-resistant connection nipples, clean components or replace, if necessary
	Contamination (e.g. green rust / corrosion) in compressed air circuit due to non-suitable air line material (e.g. copper / steel / heat sensitive plastic materials)	Only use plastic materials or metals (ideally stainless steel) which are suitable for air line systems
	Missing swan necks, no or defective condensate discharge valve at the lowest point of the air line circuit, no inclination of the main line, troughs	Use swan necks at supply points; install condensate discharge valve at lowest point of main line, avoid troughs

The air hose is the flexible extension of the air line. It has to meet the following requirements:

- Minimum 9 mm inner diameter
- Flexible, silicone-free, antistatic






Recommendation: High flow coupling for easy connection and disconnection

Technical data air hose	
Operating temperature	-40 °C to +100 °C
Minimum burst pressure	60 bar/870 psi
Permanent operating pressure	20 bar/290 psi
Weight	approx. 210 g/m
Dimensions	Ø 9,5 x Ø 16,5 mm
Antistatic	R < 1MΩ
Norms	EN ISO 2398, A4/DIN EN 1953


SATA breathing protection for optimum health protection

SATA breathing protection equipment - whether it be full face respirator or half mask - provides maximum protection, enhanced lifetime and increased wearer comfort to preserve your health without restricting your mobility, thus ensuring perfect results.

SATA air vision 5000 kit		Art. No. 213819
	SATA air vision 5000 hood Art. No. 208397	<ul style="list-style-type: none"> ■ Ergonomic, modern hood design for maximum wearer comfort ■ Soft-stream flow-optimised air distribution in the hood ■ Large field of vision ■ Required minimum volume flow: 150 NI/min
		SATA air regulator Art. No. 212993
	SATA air regulator belt Art. No. 208421	

■ SATA® air vision™ 5000 – the full health protection

Air fed respirator hood providing extremely high wearer comfort and optimum hygiene. High breathing air quality due to air supply independent from ambient air, no inhalation resistance, high breathing comfort. The system was especially developed to painters' requirements and protects the respiratory system, eyes, skin and hair (which is of utmost importance for the application of waterborne paints). In addition to the hood, there is also a new large and soft cushioned belt unit SATA air regulator available. It is equipped with two module adapters for rapid assembly or removal of useful accessories such as the air regulation unit SATA air regulator or the carbon adsorber SATA air carbon regulator (estimated availability as of April 2015).

SATA air star		Art. No. 137588
	<ul style="list-style-type: none"> ■ Safe seat, free field of vision (protective goggles Art. No. 97485 required, not included in delivery) ■ No accumulation of heat and humidity inside the mask ■ Required minimum volume flow: 150 NI/min 	

■ SATA® air star® – the supplied-air half mask

This half mask provides maximum field of vision and a far better breathing protection than any filter mask. The comfortable mask is made of skin-friendly TPE (thermoplastic elastomer) and to almost any head shape. Please make sure to protect eyes, skin and hair during painting.

For more information concerning breathing protection, please contact your SATA dealer.

Your SATA dealer



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