

INDUSTRIAL PNEUMATICS - air treatment units

Atmospheric air is polluted with gases, vapours and molecules of various chemical compounds as well as with swirling dust of various shape, structure and density. The composition and concentration of pollutants in the atmospheric air is dependent on the location and time of the year. All of these pollutions enter pneumatic systems enriched with impurities brought during compression, unless they are removed from the air before and after compression.

In pneumatics, compressed air is prepared in special devices (air preparation units - FRL) which:

- remove impurities from air (F-filter),
- regulate pressure to the required level (R-regulator),
- lubricate the air (L-lubricator).

In addition, a shut-off start-up valve is usually installed before FRL units whereas a soft-start valve after FRL units (before a final device).

Filtered air should not contain:

- water in the form of drops - water vapours are allowable as long as the dew-point (the condensation temperature of the air at a given pressure and humidity) is about $5 \div 10^\circ\text{C}$ below the lowest temperature in the installation, and the relative humidity at the lowest working temperature does not exceed 80% (relative humidity is expressed in %, 0-dry air without water vapour, 100% saturated with water vapour - its cooling causes immediate condensation),
- oil and other fluids in the form of drops,
- mechanical pollution greater than $50 \mu\text{m}$.

Filters - selection and maintenance.

- A filter is a device that does not remove water in the form of steam from the air (for this purpose use a refrigeration or adsorption dryer which transmits air through a tank with adsorbent which captures the moisture).
- A filter insert should be replaced every half a year on average (depending on the extent of air pollution).
- A filter with an insert of $5 \mu\text{m}$ filtration degree should be installed before an accurate filter (depurator). It removes biggest particles so that sudden clogging of accurate filters is avoided.

Regulating valves (regulators) - selection and maintenance

- The range of regulating valve output should be carefully selected - the required working pressure must be within the range but as close to the maximum valve output pressure as possible. Then the regulator operates closer to its set point value and has smaller hysteresis.
- Care must be taken to provide only clean air to the regulating valve inlet. Possible impurities can cause problems with closing of the valve and continuous air venting through secondary venting.
- Some regulating valves are equipped with an air vent working continuously, which is not its disadvantage (it allows to maintain the required value of output pressure more precisely).
- the required pressure in majority of regulators should be set "from the bottom".

Lubricators - selection and maintenance

- Most of pneumatic actuators (e.g. all drives-servo motors MW-...) can work without lubrication (without an external lubricator). If a lubricator is used, its tank must be refilled with oil periodically because oil mist rinses factory-applied grease off.
- At assembly and start-up of the lubricator, a needle which adjusts the amount of the oil mist must be closed and then opened to the required dosage of oil.
- The distance between the lubricator and actuators should not exceed 7 meters.

device	main parameters	common parameters
filter	degree of filtration	- size of connection ports - nominal flow - working temp.
	type of condensate drain	
regulator (regulating valve)	output pressure range	
lubricator	tank volume	
	way of oil refilling	
filter-regulator	degree of filtration	
	type of condensate drain	
	output pressure range	
shut-off start-up valve	type of control signal	
soft-start valve	type of control signal	

INDUSTRIAL PNEUMATICS - air treatment units

EWO series



Panel regulator

Material:	Zinc and aluminium alloy
Size:	3/8"
Inlet pressure:	Up to 25 bar
Working temp.:	From -10°C up to +90°C
Connection:	3/8" BSP thread
Flow rate:	1000 l/min (inlet pressure 8 bar and $\Delta p = 1$ bar)

Membrane type regulating valve with a pressure gauge integrated into a handwheel, perfect for panel mounting. Equipped with an air venting system. Highly accurate in maintaining output pressure. A set for panel mounting available (EW-367K33).

code	outlet pressure range [bar]
EW-367331	0.5 ÷ 3
EW-367332	0.5 ÷ 6
EW-367333	0.5 ÷ 10
EW-367334	0.5 ÷ 16



High pressure regulator

Material:	Brass
Size:	DN 12, DN 20
Inlet pressure:	Up to 60 bar
Working temp.:	From -10°C up to +90°C
Connection:	1/4", 3/8", 1" BSP thread
Flow rate:	1400 l/min - BG I 5000 l/min - BG II (inlet pressure 20 bar and $\Delta p = 4$ bar)

High pressure piston-type regulating valve. Available in two versions BG I (DN 12) and BG II (DN 20). Equipped with an air venting system. Highly accurate in maintaining output pressure. Robust brass housing. As a standard a pressure gauge \varnothing 63 mm is mounted (version without a pressure gauge available).

code	DN [mm]	connection	outlet pressure range [bar]
EW-302323	12	1/4"	0.5 ÷ 12
EW-302324			1 ÷ 20
EW-302325			2 ÷ 35
EW-302326			3 ÷ 50
EW-302333	12	3/8"	0.5 ÷ 12
EW-302334			1 ÷ 20
EW-302335			2 ÷ 35
EW-302336			3 ÷ 50
EW-302393	20	1"	0.5 ÷ 12
EW-302394			1 ÷ 20
EW-302395			2 ÷ 35
EW-302396			3 ÷ 50

INDUSTRIAL PNEUMATICS - air treatment units

BIT series

Main advantages of BIT air preparation system are reduced dimensions, long service life and excellent quality-to-price ratio. Especially recommended for de-centralized compressed air systems or near the final actuators.



FIL filter

Size: 1/8" 1/4"
Degree of filtration: 5 µm, 20 µm, 50 µm
Inlet pressure: Up to 13 bar
Working temp.: Up to +50°C
Connection: 1/8", 1/4" BSP female thread
Condensate drain: Manual / automatic (RMSA)
 Automatic drain (SAC)
Flow rate: 1200 l/min - 1/8"
 1200 l/min - 1/4"
 (input pressure 6 bar and $\Delta p = 1$ bar)

FIL	BIT	1/8	5	RMSA
element	series	connection	degree of filtration	condensate drain
FIL - filtr	BIT	1/8 - 1/8" 1/4 - 1/4"	5 - 5 µm 20 - 20 µm 50 - 50 µm	RMSA - manual/ semi-automatic SAC - automatic, using pressure drop

1/8"		1/4"		degree of filtration [µm]	condensate drain
code	type	code	type		
MW-5101001	FIL BIT 1/8 5 RMSA	MW-5201001	FIL BIT 1/4 5 RMSA	5	RMSA
MW-5101002	FIL BIT 1/8 20 RMSA	MW-5201002	FIL BIT 1/4 20 RMSA	20	
MW-5101003	FIL BIT 1/8 50 RMSA	MW-5201003	FIL BIT 1/4 50 RMSA	50	
MW-5101004	FIL BIT 1/8 5 SAC	MW-5201004	FIL BIT 1/4 5 SAC	5	SAC
MW-5101005	FIL BIT 1/8 20 SAC	MW-5201005	FIL BIT 1/4 20 SAC	20	
MW-5101006	FIL BIT 1/8 50 SAC	MW-5201006	FIL BIT 1/4 50 SAC	50	

Condensate draining, replacing filter inserts - service tips

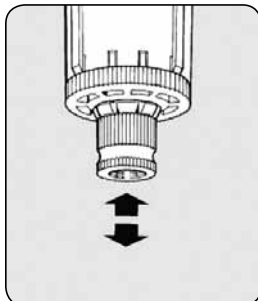


fig. 1a

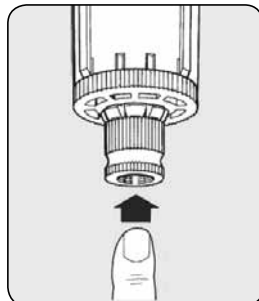


fig. 1b

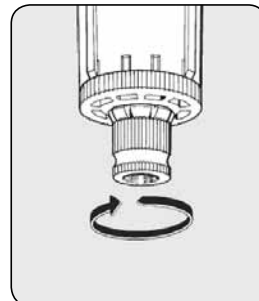


fig. 1c



fig. 1d

When the handwheel is in the centre position, the drain valve is semi-automatic. It opens when the tank is vented and closes after tank is pressurised (fig. 1a). To drain the pressurised tank, press the drain valve (fig. 1b). Clockwise turn of the handwheel closes the drain valve regardless of the tank pressure (fig. 1c). To clean or replace filter inserts, unscrew the separator screen of the centrifuge (fig. 1d). To disassemble the tank use MW-9170601 key.

INDUSTRIAL PNEUMATICS - air treatment units

BIT series



MR regulator

Size: 1/8", 1/4"
Outlet press. range: 0÷2, 0÷4, 0÷8, 0÷12 bar
Inlet pressure: Up to 13 bar
Working temp.: Up to +50°C
Connection: 1/8", 1/4" BSP female thread
Pressure gauge port: 1/8" BSP female thread
Flow rate: 600 l/min - 1/8"
 600 l/min - 1/4"
 (input pressure 6 bar and $\Delta p = 1$ bar)

MR

BIT

FC

1/8

02

element	series	version	connection	outlet pressure range
MR - regulating valve MRA - water regulating valve	BIT	FC SR	1/8 - 1/8" 1/4 - 1/4"	02 - 0÷2 bar 04 - 0÷4 bar 08 - 0÷8 bar 012 - 0÷12 bar

- MR BIT - standard version for pressure adjustment of compressed air in pneumatic system
- MR BIT FC - controlled relief to allow greater accuracy in regulation by means of slight, continuous air relief.
- MR BIT SR - relieves the downstream circuit quickly when the upstream pressure drops. Mount the SR regulator between the start-up valve and the final application.
- MRA BIT - regulates pressure in water circuits; without secondary venting.

1/8"		1/4"		outlet pressure range [bar]	version
code	type	code	type		
MW-5102001	MR BIT SR 1/8 02	MW-5202001	MR BIT SR 1/4 02	0 ÷ 2	MR BIT SR
MW-5102002	MR BIT SR 1/8 04	MW-5202002	MR BIT SR 1/4 04	0 ÷ 4	
MW-5102003	MR BIT SR 1/8 08	MW-5202003	MR BIT SR 1/4 08	0 ÷ 8	
MW-5102004	MR BIT SR 1/8 012	MW-5202004	MR BIT SR 1/4 012	0 ÷ 12	
MW-5107001	MR BIT 1/8 02	MW-5207001	MR BIT 1/4 02	0 ÷ 2	MR BIT
MW-5107002	MR BIT 1/8 04	MW-5207002	MR BIT 1/4 04	0 ÷ 4	
MW-5107003	MR BIT 1/8 08	MW-5207003	MR BIT 1/4 08	0 ÷ 8	
MW-5107004	MR BIT 1/8 012	MW-5207004	MR BIT 1/4 012	0 ÷ 12	
MW-5108001	MRA BIT 1/8 02	MW-5208001	MRA BIT 1/4 02	0 ÷ 2	MRA BIT
MW-5108002	MRA BIT 1/8 04	MW-5208002	MRA BIT 1/4 04	0 ÷ 4	
MW-5108003	MRA BIT 1/8 08	MW-5208003	MRA BIT 1/4 08	0 ÷ 8	
MW-5108004	MRA BIT 1/8 012	MW-5208004	MRA BIT 1/4 012	0 ÷ 12	
MW-5111001	MR BIT FC 1/8 02	MW-5211001	MR BIT FC 1/4 02	0 ÷ 2	MR BIT FC
MW-5111002	MR BIT FC 1/8 04	MW-5211002	MR BIT FC 1/4 04	0 ÷ 4	



Padlockable microregulator

BIT series micro-regulator valve is also available with a padlock. A pin with a hole projects from the top of the knob. When the knob is in the push-lock position, the padlock can be inserted in the hole, preventing any changes in the setting of the microregulator. A padlock and two keys are supplied with the regulator.

INDUSTRIAL PNEUMATICS - air treatment units

BIT series



FR filter - regulator

Size: 1/8" 1/4"
Outlet press. range: 0÷2, 0÷4, 0÷8, 0÷12 bar
Degree of filtration: 5 µm, 20 µm, 50 µm
Inlet pressure: Up to 13 bar
Working temp.: Up to +50°C
Connection: 1/8" 1/4" BSP female thread
Pressure gauge port: 1/8" BSP female thread
Flow rate: 600 l/min - 1/8"
 600 l/min - 1/4"
 (input pressure 6 bar and Δp = 1 bar)

FR	BIT	1/4	5	02	RMSA
element	series	connection	degree of filtration	outlet pressure range	condensate drain
FR - filter regulator	BIT	1/8 - 1/8" 1/4 - 1/4"	5 - 5 µm 20 - 20 µm 50 - 50 µm	02 - 0÷2 bar 04 - 0÷4 bar 08 - 0÷8 bar 012 - 0÷12 bar	RMSA - manual/ semi-automatic SAC - automatic, using pressure drop

1/8"		1/4"		outlet pressure range [bar]	degree of filtration [µm]	condensate drain
code	type	code	type			
MW-5105001	FR BIT 1/8 5 02 RMSA	MW-5205001	FR BIT 1/4 5 02 RMSA	0 ÷ 2	5	RMSA
MW-5105013	FR BIT 1/8 5 02 SAC	MW-5205013	FR BIT 1/4 5 02 SAC			SAC
MW-5105002	FR BIT 1/8 20 02 RMSA	MW-5205002	FR BIT 1/4 20 02 RMSA			RMSA
MW-5105014	FR BIT 1/8 20 02 SAC	MW-5205014	FR BIT 1/4 20 02 SAC		SAC	
MW-5105003	FR BIT 1/8 50 02 RMSA	MW-5205003	FR BIT 1/4 50 02 RMSA		50	RMSA
MW-5105015	FR BIT 1/8 50 02 SAC	MW-5205015	FR BIT 1/4 50 02 SAC			SAC
MW-5105004	FR BIT 1/8 5 04 RMSA	MW-5205004	FR BIT 1/4 5 04 RMSA	0 ÷ 4		RMSA
MW-5105016	FR BIT 1/8 5 04 SAC	MW-5205016	FR BIT 1/4 5 04 SAC		SAC	
MW-5105005	FR BIT 1/8 20 04 RMSA	MW-5205005	FR BIT 1/4 20 04 RMSA		20	RMSA
MW-5105017	FR BIT 1/8 20 04 SAC	MW-5205017	FR BIT 1/4 20 04 SAC			SAC
MW-5105006	FR BIT 1/8 50 04 RMSA	MW-5205006	FR BIT 1/4 50 04 RMSA			50
MW-5105018	FR BIT 1/8 50 04 SAC	MW-5205018	FR BIT 1/4 50 04 SAC		SAC	
MW-5105007	FR BIT 1/8 5 08 RMSA	MW-5205007	FR BIT 1/4 5 08 RMSA	0 ÷ 8	RMSA	
MW-5105019	FR BIT 1/8 5 08 SAC	MW-5205019	FR BIT 1/4 5 08 SAC		SAC	
MW-5105008	FR BIT 1/8 20 08 RMSA	MW-5205008	FR BIT 1/4 20 08 RMSA		20	RMSA
MW-5105020	FR BIT 1/8 20 08 SAC	MW-5205020	FR BIT 1/4 20 08 SAC			SAC
MW-5105009	FR BIT 1/8 50 08 RMSA	MW-5205009	FR BIT 1/4 50 08 RMSA			50
MW-5105021	FR BIT 1/8 50 08 SAC	MW-5205021	FR BIT 1/4 50 08 SAC		SAC	
MW-5105010	FR BIT 1/8 5 012 RMSA	MW-5205010	FR BIT 1/4 5 012 RMSA	0 ÷ 12	RMSA	
MW-5105022	FR BIT 1/8 5 012 SAC	MW-5205022	FR BIT 1/4 5 012 SAC		SAC	
MW-5105011	FR BIT 1/8 20 012 RMSA	MW-5205011	FR BIT 1/4 20 012 RMSA		20	RMSA
MW-5105023	FR BIT 1/8 20 012 SAC	MW-5205023	FR BIT 1/4 20 012 SAC			SAC
MW-5105012	FR BIT 1/8 50 012 RMSA	MW-5205012	FR BIT 1/4 50 012 RMSA			50
MW-5105024	FR BIT 1/8 50 012 SAC	MW-5205024	FR BIT 1/4 50 012 SAC		SAC	

INDUSTRIAL PNEUMATICS - air treatment units

BIT series



LUB lubricator

Size: 1/8", 1/4"
Tank volume: 26.5 cm³
Inlet pressure: Up to 13 bar
Working temp.: Up to +50°C
Connection: 1/8", 1/4" BSP female thread
Flow rate: 710 l/min - 1/8"
 710 l/min - 1/4"
 (input pressure 6 bar and $\Delta p = 1$ bar)

Compressed air lubricator is designed to saturate working medium with oil. It protects against corrosion and reduces the wear of pneumatic system elements.

LUB

BIT

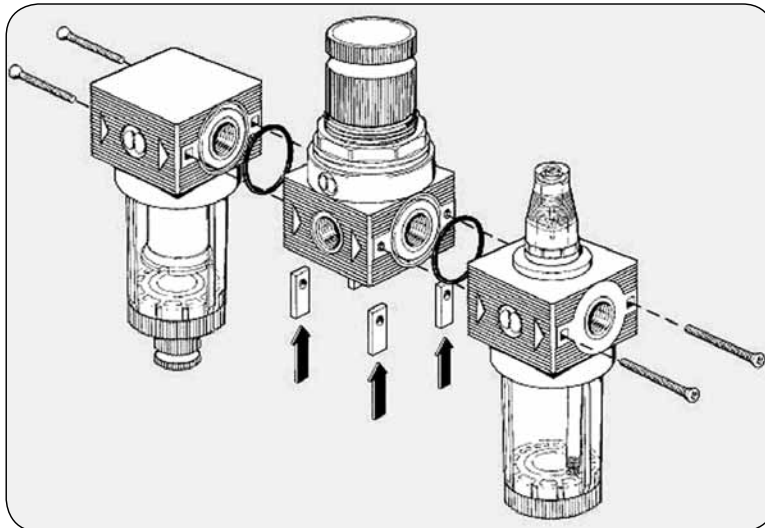
1/4

element	series	connection
LUB - lubricator	BIT	1/8 - 1/8" 1/4 - 1/4"

1/8"		1/4"	
code	type	code	type
MW-5103001	LUB BIT 1/8	MW-5203001	LUB BIT 1/4

Air preparation elements of BIT series can be combined into units according to customer specifications.

BIT elements assembly



- Fit the mounting plates (MW-9170201 assembly set) in the slots under the body of BIT element.
- Check if there are O-rings between threaded connections.
- Check the compatibility of flow direction with the arrows on the body of elements, connect elements.

Also available: wall mounting brackets (MW-9200701; MW-9170301) and spare parts: filter and lubricator tanks, handwheel sets for regulating valves, removable filter inserts and many other.

BIT series



Distributor

- Versions: PA
- Max. working pressure: 13 bar
- Max. working temperature: +50°C



Air preparation unit - F+R+L

- Versions: F+R+L BIT 1/8", F+R+L BIT 1/4"
- Unit elements: filter, regulating valve, lubricator
- Threaded connection: 1/8", 1/4"
- Outlet pressure range: 0 - 2 - 4 - 8 - 12 bar
- Degree of filtration: 5 - 20 - 50 µm
- Nominal flow rate (at 6 bar, Δp = 1 bar): 280 l/min
- Max. inlet pressure: 13 bar
- Max. working temperature: +50°C
- Condensate drain: manual, semi-automatic or automatic



Air preparation unit - FR+L

- Versions: FR+L BIT 1/8", FR+L BIT 1/4"
- Unit elements: filter + regulating valve, lubricator
- Threaded connection: 1/8", 1/4"
- Outlet pressure range: 0 - 2 - 4 - 8 - 12 bar
- Degree of filtration: 5 - 20 - 50 µm
- Nominal flow rate (at 6 bar, Δp = 1 bar): 260 l/min
- Max. inlet pressure: 13 bar
- Max. working temperature: +50°C
- Condensate drain: manual, semi-automatic or automatic



Air preparation unit - F+D

- Versions: F+D BIT 1/8", F+D BIT 1/4"
- Unit elements: filter, precision filter
- Threaded connection: 1/8", 1/4"
- Degree of filtration: filter: 5 µm - precision filter: 0.01 µm
- Nominal flow rate (at 6 bar Δp = 1 bar): 750 l/min
- Max. inlet pressure: 13 bar
- Max. working temperature: +50°C
- Condensate drain: manual, semi-automatic or automatic



Air preparation unit - F+L

- Versions: F+L BIT 1/8", F+L BIT 1/4"
- Unit elements: filter, lubricator
- Threaded connection: 1/8", 1/4"
- Degree of filtration: 5 - 20 - 50 µm
- Nominal flow rate (at 6 bar, Δp = 1 bar): 600 l/min
- Max. inlet pressure: 13 bar
- Max. working temperature: +50°C
- Condensate drain: manual, semi-automatic or automatic

INDUSTRIAL PNEUMATICS - air treatment units

NEW DEAL series

Due to its metal construction, the entire range of NEW DEAL elements is resistant to heavy duty working conditions. Designed for high pressure application (up to 18 bar).



FIL filter

Size: 1/4", 3/8", 1/2", 3/4", 1"
Degree of filtration: 4 µm, 20 µm, 50 µm
Inlet pressure: Up to 18 bar
Working temp.: Up to +50°C
Connection: 1/4", 3/8", 1/2", 3/4", 1" BSP female thread
Condensate drain: Manual / semi-automatic (RMSA)
 Automatic (SAC)
Flow rate: 1720 l/min - 1/4"
 4100 l/min - 3/8", 1/2"
 11000 l/min - 3/4", 1"
 (input pressure 6 bar and Δp = 1 bar)

FIL **1/4** **4** **RMSA**

element	connection	degree of filtration	condensate drain
FIL - filter	1/4 - 1/4" 3/8 - 3/8" 1/2 - 1/2" 3/4 - 3/4" 1 - 1"	4 - 4 µm 20 - 20 µm 50 - 50 µm	RMSA - manual / semi-automatic SAC - automatic, using pressure drop RA - automatic, float type, drainage independent of the flow and pressure

1/4"		3/8"		1/2"		3/4"		1"		degree of filtration [µm]	condensate drain
code	type	code	type	code	type	code	type	code	type		
MW-1221005	FIL 1/4 4 RMSA	MW-1321005	FIL 3/8 4 RMSA	MW-1421005	FIL 1/2 4 RMSA	MW-1521005	FIL 3/4 4 RMSA	MW-1621005	FIL 1 4 RMSA	4	RMSA
MW-1221006	FIL 1/4 20 RMSA	MW-1321006	FIL 3/8 20 RMSA	MW-1421006	FIL 1/2 20 RMSA	MW-1521006	FIL 3/4 20 RMSA	MW-1621006	FIL 1 20 RMSA	20	
MW-1221008	FIL 1/4 50 RMSA	MW-1321008	FIL 3/8 50 RMSA	MW-1421008	FIL 1/2 50 RMSA	MW-1521008	FIL 3/4 50 RMSA	MW-1621008	FIL 1 50 RMSA	50	
MW-1221013	FIL 1/4 4 SAC	MW-1321013	FIL 3/8 4 SAC	MW-1421013	FIL 1/2 4 SAC	-	-	-	-	4	SAC
MW-1221014	FIL 1/4 20 SAC	MW-1321014	FIL 3/8 20 SAC	MW-1421014	FIL 1/2 20 SAC	-	-	-	-	20	
MW-1221016	FIL 1/4 50 SAC	MW-1321016	FIL 3/8 50 SAC	MW-1421016	FIL 1/2 50 SAC	-	-	-	-	50	
-	-	MW-1321009	FIL 3/8 4 RA	MW-1421009	FIL 1/2 4 RA	MW-1521009	FIL 3/4 4 RA	MW-1621009	FIL 1 4 RA	4	RA
-	-	MW-1321010	FIL 3/8 20 RA	MW-1421010	FIL 1/2 20 RA	MW-1521010	FIL 3/4 20 RA	MW-1621010	FIL 1 20 RA	20	
-	-	MW-1321012	FIL 3/8 50 RA	MW-1421012	FIL 1/2 50 RA	MW-1521012	FIL 3/4 50 RA	MW-1621012	FIL 1 50 RA	50	

INDUSTRIAL PNEUMATICS - air treatment units

NEW DEAL series



REG regulator

Size: 1/4", 3/8", 1/2", 3/4", 1"
Outlet press. range: 0÷2, 0÷4, 0÷8, 0÷12 bar
Inlet pressure: Up to 18 bar
Working temp.: Up to +50°C
Connection: 1/4", 3/8", 1/2", 3/4", 1" BSP thread
Pressure gauge port: 1/8" BSP female thread for valves to 1/2"
 (above - BSP 1/4" female thread)
Flow rate: 650 l/min - 1/4"
 2500 l/min - 3/8", 1/2"
 4500 l/min - 3/4", 1"
 (input pressure 6 bar and $\Delta p = 1$ bar)

REG

1/4

04

element	connection	outlet pressure range
REG - regulator	1/4 - 1/4" 3/8 - 3/8" 1/2 - 1/2" 3/4 - 3/4" 1 - 1"	02 - 0÷2 bar 04 - 0÷4 bar 08 - 0÷8 bar 012 - 0÷12 bar

1/4"		3/8"		1/2"		3/4"		1"		outlet press. range
code	type	code	type	code	type	code	type	code	type	
MW-1202004	REG 1/4 02	-	-	-	-	-	-	-	-	0 ÷ 2
MW-1202001	REG 1/4 04	MW-1302001	REG 3/8 04	MW-1402001	REG 1/2 04	MW-1502001	REG 3/4 04	MW-1602001	REG 1 04	0 ÷ 4
MW-1202002	REG 1/4 08	MW-1302002	REG 3/8 08	MW-1402002	REG 1/2 08	MW-1502002	REG 3/4 08	MW-1602002	REG 1 08	0 ÷ 8
MW-1202003	REG 1/4 012	MW-1302003	REG 3/8 012	MW-1402003	REG 1/2 012	MW-1502003	REG 3/4 012	MW-1602003	REG 1 012	0 ÷ 12



Padlockable regulator

NEW DEAL series regulating valve is also available with a padlock. A pin with a hole projects from the top of the knob. When the knob is in the push-lock position, the padlock can be inserted in the hole, preventing any changes in the setting of the regulator. A padlock and two keys are supplied with the regulator.

INDUSTRIAL PNEUMATICS - air treatment units

NEW DEAL series



FR filter - regulator

Size: 1/4", 3/8", 1/2"
Outlet press. range: 0÷8, 0÷12 bar
Inlet pressure: Up to 18 bar
Working temp.: Up to +50°C
Connection: 1/4", 3/8", 1/2" BSP female thread
Pressure gauge port: 1/8" BSP female thread
Flow rate: 700 l/min - 1/4"
 2500 l/min - 3/8", 1/2"
 (input pressure 6 bar and $\Delta p = 1$ bar)

FR
1/4
4
08
RMSA

element	connection	degree of filtration	outlet pressure range	condensate drain
FR - filter - regulator	1/4 - 1/4" 3/8 - 3/8" 1/2 - 1/2"	4 - 4 µm 20 - 20 µm 50 - 50 µm	0 ÷ 8 0 ÷ 12	RMSA - manual/semi-automatic SAC - automatic, using pressure drop

1/4"		3/8"		1/2"		outlet pressure range [bar]	degree of filtration [µm]	condensate drain
code	type	code	type	code	type			
MW-1225029	FR 1/4 4 08 RMSA	MW-1325029	FR 3/8 4 08 RMSA	MW-1425029	FR 1/2 4 08 RMSA	0 ÷ 8	4	RMSA
MW-1225509	FR 1/4 4 08 SAC	MW-1325509	FR 3/8 4 08 SAC	MW-1425509	FR 1/2 4 08 SAC			SAC
MW-1225030	FR 1/4 20 08 RMSA	MW-1325030	FR 3/8 20 08 RMSA	MW-1425030	FR 1/2 20 08 RMSA		20	RMSA
MW-1225510	FR 1/4 20 08 SAC	MW-1325510	FR 3/8 20 08 SAC	MW-1425510	FR 1/2 20 08 SAC			SAC
MW-1225032	FR 1/4 50 08 RMSA	MW-1325032	FR 3/8 50 08 RMSA	MW-1425032	FR 1/2 50 08 RMSA		50	RMSA
MW-1225511	FR 1/4 50 08 SAC	MW-1325512	FR 3/8 50 08 SAC	MW-1425512	FR 1/2 50 08 SAC			SAC
MW-1225053	FR 1/4 4 012 RMSA	MW-1325053	FR 3/8 4 012 RMSA	MW-1425053	FR 1/2 4 012 RMSA	0 ÷ 12	4	RMSA
MW-1225513	FR 1/4 4 012 SAC	MW-1325513	FR 3/8 4 012 SAC	MW-1425513	FR 1/2 4 012 SAC			SAC
MW-1225054	FR 1/4 20 012 RMSA	MW-1325054	FR 3/8 20 012 RMSA	MW-1425054	FR 1/2 20 012 RMSA		20	RMSA
MW-1225514	FR 1/4 20 012 SAC	MW-1325514	FR 3/8 20 012 SAC	MW-1425514	FR 1/2 20 012 SAC			SAC
MW-1225056	FR 1/4 50 012 RMSA	MW-1325056	FR 3/8 50 012 RMSA	MW-1425056	FR 1/2 50 012 RMSA		50	RMSA
MW-1225516	FR 1/4 50 012 SAC	MW-1325516	FR 3/8 50 012 SAC	MW-1425516	FR 1/2 50 012 SAC			SAC

INDUSTRIAL PNEUMATICS - air treatment units

NEW DEAL series



LUB lubricator

Size: 1/4", 3/8", 1/2", 3/4", 1"
Tank volume: 50 cm³ - 1/4"
 150 cm³ - 3/8", 1/2"
 380 cm³ - 3/4", 1"
Inlet pressure: Up to 18 bar
Working temp.: Up to +50°C
Connection: 1/4", 3/8", 1/2", 3/4", 1" BSP female thread
Flow rate: 1100 l/min - 1/4"
 4300 l/min - 3/8", 1/2"
 16000 l/min - 3/4", 1"
 (input pressure 6 bar and Δp = 1 bar)

LUB

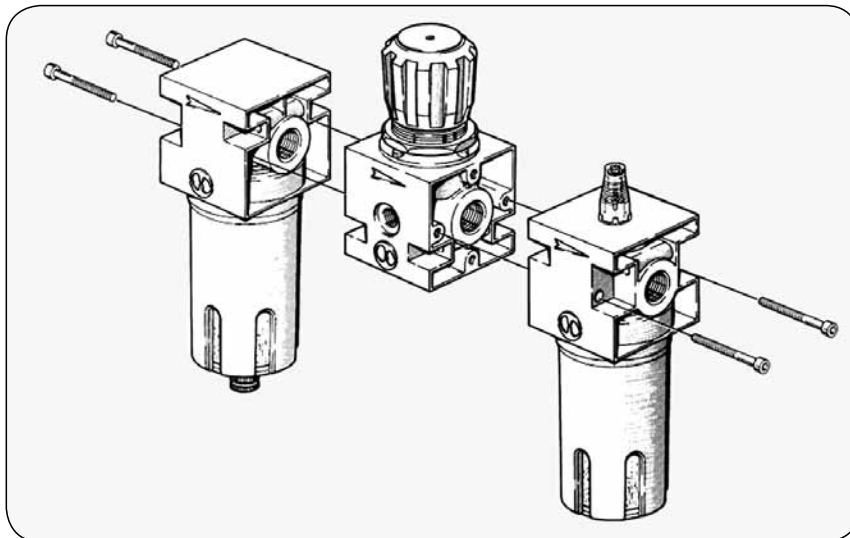
1/4

element	connection
LUB - lubricator	1/4 - 1/4" 3/8 - 3/8" 1/2 - 1/2" 3/4 - 3/4" 1 - 1"

1/4"		3/8"		1/2"		3/4"		1"	
code	type	code	type	code	type	code	type	code	type
MW-1223001	LUB 1/4	MW-1323001	LUB 3/8	MW-1423001	LUB 1/2	MW-1523001	LUB 3/4	MW-1623001	LUB 1

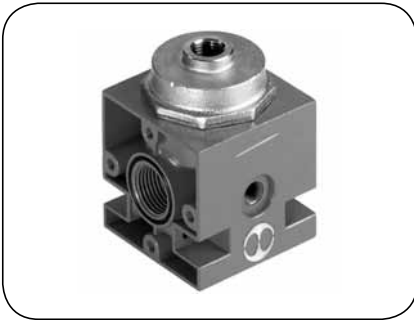
Air preparation elements of NEW DEAL series can be combined into units according to customer specifications.

New Deal elements assembly



Also available: wall mounting brackets (MW-9200701; MW-9400701), mounting screws, filter and lubricator tanks, handwheel sets for regulating valves, removable filter inserts and many other.

NEW DEAL series



Pilot assisted pressure regulator

- Versions: REG. PIL. 3/8", 1/2"
- Threaded connection: 3/8", 1/2"
- Outlet pressure range: depends on a pilot valve
- Max. inlet pressure: 18 bar
- Nominal flow rate (at 6 bar, $\Delta p = 1$ bar): 4500 l/min
- Max. working temperature: +50°C



Pressure regulating start-up valve

- Threaded connection: 3/4", 1"
- Outlet pressure range: 0 - 2 - 4 - 8 - 12 bar
- Max. inlet pressure: 13 bar
- Nominal flow rate (at 6 bar, $\Delta p = 1$ bar): 13000 l/min
- Max. working temperature: +50°C



Depurator - D

- Versions: DEP. ND 3/8", DEP. ND 1/2"
- Threaded connection: 3/8", 1/2"
- Degree of purification: 99.97%
- Degree of filtration: 0.01 mm
- Nominal flow rate (at 6 bar, $\Delta p = 1$ bar): 1600 l/min
- Recommended flow rate (at 6 bar): 230 l/min
- Max. working pressure: 18 bar
- Max. working temperature: +50°C
- Working medium: compressed air with 4 μm filtration degree
- Condensate drain: manual, semi-automatic or automatic



Start-up valves - V

- Versions: V3V ND 1/4", V3V ND 3/8"-1/2", V3V ND 3/4", V3V ND 1"
- Threaded connection: 1/4", 3/8", 1/2", 3/4", 1"
- Nominal flow rate (at 6 bar, $\Delta p = 1$ bar): 1500 ÷ 10200 l/min (depends on the version)
- Max. working pressure: 13 ÷ 18 bar (depends on a version)
- Max. working temperature: +50°C
- Control: manual, electric



Automatic condensate drains

- Version: SCAL. ND 1/2
- Threaded connection: 1/2"
- Max. working pressure: 18 bar
- Max. working temperature: +50°C

NEW DEAL series



Air preparation unit - FRL

- Versions: FRL ND 1/4", FRL ND 3/8", FRL ND 1/2", FRL ND 3/4", FRL ND 1"
- Unit elements: filter, regulating valve, lubricator
- Threaded connection: 1/4", 3/8", 1/2", 3/4", 1"
- Outlet pressure range: 0 - 2 - 4 - 8 - 12 bar
- Degree of filtration: 4 - 20 - 50 µm
- Nominal flow rate (at 6 bar, $\Delta p = 1$ bar): 400 ÷ 3700 l/min (depends on a version)
- Max. inlet pressure: 18 bar
- Max. working temperature: +50°C
- Condensate drain: manual, semi-automatic or automatic



Air preparation unit - FR+L

- Versions: FR+L ND 1/4", FR+L ND 3/8", FR+L ND 1/2"
- Unit elements: filter + regulating valve, lubricator
- Threaded connection: 1/4", 3/8", 1/2"
- Outlet pressure range: 0 - 2 - 4 - 8 - 12 bar
- Degree of filtration: 4 - 20 - 50 µm
- Nominal flow rate (at 6 bar, $\Delta p = 1$ bar): 500 ÷ 2200 l/min (depends on a version)
- Max. inlet pressure: 18 bar
- Max. working temperature: +50°C
- Condensate drain: manual, semi-automatic or automatic



Air preparation unit - FRPL

- Versions: FRPL ND 3/4", FRPL ND 1"
- Unit elements: filter, pilot operated regulating valve, lubricator
- Threaded connection: 3/4", 1"
- Outlet pressure range: 0 - 8 - 12 bar
- Degree of filtration: 4 - 20 - 50 µm
- Nominal flow rate (at 6 bar, $\Delta p = 1$ bar): 8500 l/min
- Max. inlet pressure: 13 bar
- Max. working temperature: +50°C
- Condensate drain: manual, semi-automatic or automatic



Air preparation unit - VFRL

- Versions: VFRL ND 1/4", VFRL ND 3/8", VFRL ND 1/2"
- Unit elements: start-up valve, filter, regulating valve, lubricator
- Threaded connection: 1/4", 3/8", 1/2"
- Outlet pressure range: 0 - 2 - 4 - 8 - 12 bar
- Degree of filtration: 4 - 20 - 50 µm
- Nominal flow rate (at 6 bar, $\Delta p = 1$ bar): 390 ÷ 1700 l/min (depends on a version)
- Max. inlet pressure: 18 bar
- Max. working temperature: +50°C
- Condensate drain: manual, semi-automatic or automatic



Air preparation unit - V+FR+L

- Versions: VFR+L ND 1/4", VFR+L ND 3/8", VFR+L ND 1/2"
- Unit elements: start-up valve, filter + regulating valve, lubricator
- Threaded connection: 1/4", 3/8", 1/2"
- Outlet pressure range: 0 - 2 - 4 - 8 - 12 bar
- Degree of filtration: 4 - 20 - 50 µm
- Nominal flow rate (at 6 bar, $\Delta p = 1$ bar): 480 ÷ 1900 l/min (depends on a version)
- Max. inlet pressure: 18 bar
- Max. working temperature: +50°C
- Condensate drain: manual, semi-automatic or automatic

NEW DEAL series



Air preparation unit - FRPVL

- Versions: FRPVL. ND 3/4", FRPVL. ND 1"
- Unit elements: filter, pilot operated regulating valve, start-up valve, lubricator
- Threaded connection: 3/4", 1"
- Outlet pressure range: 0 - 8 - 12 bar
- Degree of filtration: 4 - 20 - 50 µm
- Nominal flow rate (at 6 bar, Δp = 1 bar): 8500 l/min
- Max. inlet pressure: 13 bar
- Max. working temperature: +50°C



Air preparation unit - F+L

- Versions: F+L. ND 1/4", F+L. ND 3/8", F+L. ND 1/2", F+L. ND 3/4", F+L. ND 1"
- Unit elements: filter + lubricator
- Threaded connection: 1/4", 3/8", 1/2", 3/4", 1"
- Degree of filtration: 4 - 20 - 50 µm
- Nominal flow rate (at 6 bar, Δp = 1 bar): 1000 ÷ 7500 l/min (depends on a version)
- Max. inlet pressure: 18 bar
- Max. working temperature: +50°C
- Condensate drain: manual, semi-automatic or automatic



Air preparation unit - F+D

- Versions: F+D. ND 3/8", F+D. ND 1/2"
- Unit elements: filter, precision filter
- Threaded connection: 3/8", 1/2"
- Degree of filtration: filter: 4 µm - precision filter: 0.01 µm
- Nominal flow rate (at 6 bar, Δp = 1 bar): 1600 l/min
- Max. inlet pressure: 18 bar
- Max. working temperature: +50°C
- Condensate drain: manual, semi-automatic or automatic



Distributor

- Versions: PA ND 1/4", PA ND 3/8"-1/2", PA ND 3/4"-1"
- Threaded connection: 1/8", 1/4", 1/2"
- Max. working pressure: 18 bar
- Max. working temperature: +50°C

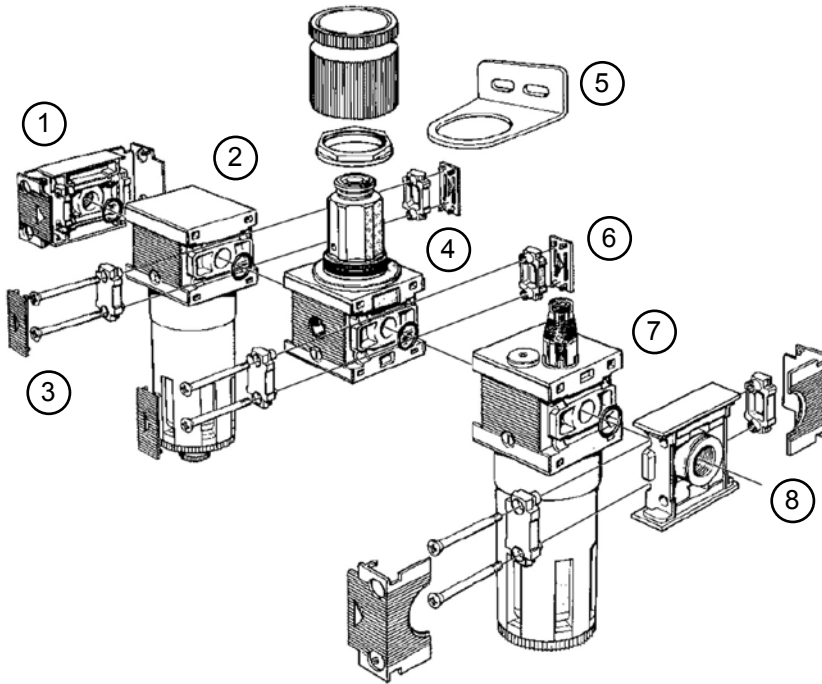
INDUSTRIAL PNEUMATICS - air treatment units

SKILLAIR series

SKILLAIR series allows any combination of shut-off valves, filters, regulators, lubricators, branching modules. Each element can be disassembled without the need to disconnect supply pipes.

Using SKILLAIR series it is possible to create a unit consisting of several FRL elements according to customer specifications. To combine these elements, one or more connection sets must be used. To get the required inlet and outlet connection, the appropriate set of final plates should be used.

An example of FRL unit



- 1, 8 - final plates (set)
- 2 - filter (FIL)
- 3, 6 - connection sets
- 4 - regulating valve (REG)
- 5 - mounting bracket to the wall
- 7 - lubricator (LUB)

The direction of air flow must be compatible with the direction pointed by the arrows on the elements.

series (size)				connection (BSP female)
100	200	300	400	
connection set				-
MW-9230301	MW-9330301	MW-9430301	MW-9630301	-
final plates set *				-
MW-9230401	MW-9330601	-	-	1/4"
MW-9330501	MW-9330701	-	-	3/8"
-	MW-9330801	MW-9430701	-	1/2"
-	-	MW-9530901	-	3/4"
-	-	MW-9531001	MW-9631001	1"
-	-	-	MW-9631101	1.1/4"
-	-	-	MW-9631201	1.1/2"
-	-	-	MW-9631301	2"

* - with input and output connection

An example of FRL SKILLAIR 200 series unit consisting of:

- filter-reducer (FR) - adjustable in the range 0 ÷ 12 bar, filtration 20 µm and RMSA condensate drain,
- lubricator (LUB),
- final plates set with 1/2" connections and connection set.

final plates set	filter-regulator (FR)	connection set	lubricator (LUB)
MW-9330801	MW-3483011A	MW-9330301	MW-3481001A

INDUSTRIAL PNEUMATICS - air treatment units

SKILLAIR series



FIL filter

Size: 100, 200, 300, 400
Degree of filtration: 5 µm, 20 µm, 50 µm
Inlet pressure: Up to 15 bar
Working temp.: Up to +50°C
Connection: 1/4" ÷ 2" BSP female thread
Condensate drain: Manual / semi-automatic (RMSA)
 Automatic (SAC) - 100 and 200 series
 Automatic (RA) - 300 and 400 series

Flow rate:
 2000 l/min - 100 series
 3100 l/min - 200 series
 5300 l/min - 300 series
 16500 ÷ 20000 l/min - 400 series
 (input pressure 6 bar and Δp = 1 bar)

FIL

100

5

RMSA

element	series (size)	degree of filtration	condensate drain
FIL - filter	100 200 300 400	5 - 5 µm 20 - 20 µm 50 - 50 µm	RMSA - manual / semi-automatic SAC - automatic for 100 and 200 sizes, using pressure drop RA - automatic for 300 and 400 sizes, float type, drainage independent of the flow and pressure

100		200		300		400		degree of filtration [µm]	condensate drain
code	type	code	type	code	type	code	type		
MW-3280001A	FIL 100 5 RMSA	MW-3480001A	FIL 200 5 RMSA	MW-4480001A	FIL 300 5 RMSA	MW-6180001A	FIL 400 5 RMSA	5	RMSA
MW-3280002A	FIL 100 20 RMSA	MW-3480002A	FIL 200 20 RMSA	MW-4480002A	FIL 300 20 RMSA	MW-6180002A	FIL 400 20 RMSA	20	
MW-3280003A	FIL 100 50 RMSA	MW-3480003A	FIL 200 50 RMSA	MW-4480003A	FIL 300 50 RMSA	MW-6180003A	FIL 400 50 RMSA	50	
MW-3280007A	FIL 100 5 SAC	MW-3480007A	FIL 200 5 SAC	MW-4480004A	FIL 300 5 RA	MW-6180004A	FIL 400 5 RA	5	SAC / RA
MW-3280008A	FIL 100 20 SAC	MW-3480008A	FIL 200 20 SAC	MW-4480005A	FIL 300 20 RA	MW-6180005A	FIL 400 20 RA	20	
MW-3280009A	FIL 100 50 SAC	MW-3480009A	FIL 200 50 SAC	MW-4480006A	FIL 300 50 RA	MW-6180006A	FIL 400 50 RA	50	

INDUSTRIAL PNEUMATICS - air treatment units

SKILLAIR series



REG regulator

Size: 100, 200, 300, 400
Outlet press. range: 0÷2, 0÷4, 0÷8, 0÷12 bar
Inlet pressure: Up to 15 bar
Working temp.: Up to +50°C
Connection: 1/4" ÷ 2" BSP female thread
Pressure gauge port: 1/8" BSP female (1/4" for 400 series)
Flow rate: 1600 l/min - 100 series
 3500 l/min - 200 series
 7000 l/min - 300 series
 18000 ÷ 20000 l/min - 400 series
 (input pressure 6 bar and $\Delta p = 1$ bar)

REG

100

02

element	series (size)	outlet pressure range
REG - regulator	100 200 300 400	02 - 0÷2 bar 04 - 0÷4 bar 08 - 0÷8 bar 012 - 0÷12 bar

100		200		300		400		connection	outlet press. range
code	type	code	type	code	type	code	type		
MW-3202001A	REG 100 02	MW-3402001A	REG 200 02	MW-4402000A	REG 300 02	MW-6102001A	REG 400*	without final plates	0 ÷ 2
MW-3202002A	REG 100 04	MW-3402002A	REG 200 04	MW-4402001A	REG 300 04				0 ÷ 4
MW-3202003A	REG 100 08	MW-3402003A	REG 200 08	MW-4402002A	REG 300 08				0 ÷ 8
MW-3202004A	REG 100 012	MW-3402004A	REG 200 012	MW-4402003A	REG 300 012				0 ÷ 12

* - additional pilot regulating valve (REG P) is required - it defines outlet pressure range

SKILLAIR series



REG P pilot regulator

Size: 1/4"
Outlet press. range: 0÷2, 0÷4, 0÷8, 0÷12 bar
Inlet pressure: Up to 13 bar
Working temp.: Up to +50°C
Connection: 1/4" BSP female thread
Pressure gauge port: 1/8" BSP female thread
Flow rate: 140 l/min
 (input pressure 6 bar and $\Delta p = 1$ bar)

Pilot regulators are utilized when great accuracy in maintaining the set pressure is required under changing operating conditions. Friction is almost eliminated therefore the valve features high accuracy and has low hysteresis. Continuous air release is necessary to ensure proper operation. It is not a sign of malfunction. Typical for regulating valves of large dimensions (400 series). It is recommended to use filtered air.

REG P

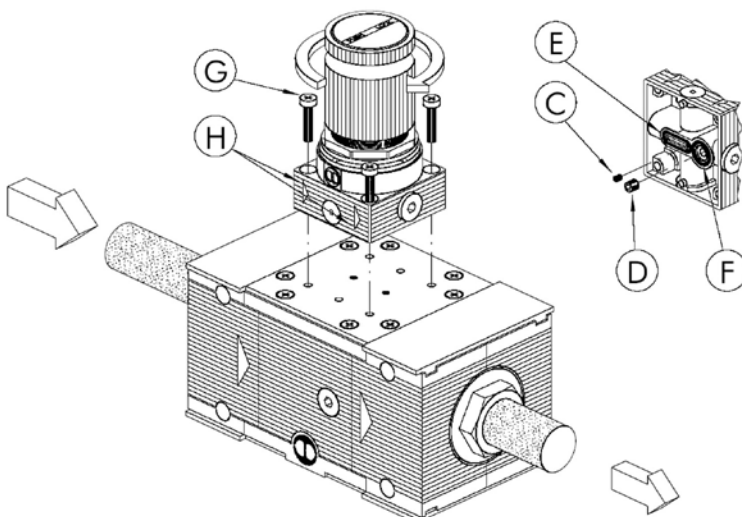
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02

element	size	outlet pressure range
REG P - pilot regulator	1/4 - 1/4"	02 - 0÷2 bar 04 - 0÷4 bar 08 - 0÷8 bar 012 - 0÷12 bar

code	type	connection	outlet pressure range
MW-3206001	REG P 1/4 02	1/4" BSP	0 ÷ 2
MW-3206002	REG P 1/4 04		0 ÷ 4
MW-3206003	REG P 1/4 08		0 ÷ 8
MW-3206004	REG P 1/4 012		0 ÷ 12

Direct pilot regulator assembly on SKILLAIR regulating valve



- Remove the pins C and D under the pilot regulator.
- Check if two seals E and F under the pilot regulator are in place.
- Fix the pilot regulator to the body of the regulating valve using self-threading screws G. Make sure that the arrows H point in the same direction as the arrows on the body of the regulating valve.

INDUSTRIAL PNEUMATICS - air treatment units

SKILLAIR series



FR filter - regulator

Size: 100, 200, 300
Outlet press. range: 0÷2, 0÷4, 0÷8, 0÷12 bar
Degree of filtration: 5 µm, 20 µm, 50 µm
Inlet pressure: Up to 15 bar
Working temp.: Up to +50°C
Connection: 1/4" ÷ 1" BSP thread
Pressure gauge port: 1/8" BSP thread
Flow rate: 1600 l/min - 100 series
 3000 l/min - 200 series
 5600 l/min - 300 series
 (input pressure 6 bar and Δp = 1 bar)

FR	100	5	012	RMSA
element	series	degree of filtration	outlet press. range	condensate drain
FR - f filter - regulator	100 200 300 400	5 - 5 µm 20 - 20 µm 50 - 50 µm	02* - 0÷2 bar 04* - 0÷4 bar 08 - 0÷8 bar 012 - 0÷12 bar * - option	RMSA - manual / semi-automatic SAC - automatic for 100 and 200 sizes, using pressure drop RA - automatic for 300 size, float type, drainage independent of the flow and pressure

100		200		300		outlet press. range [bar]	degree of filtration [µm]	condensate drain
code	type	code	type	code	type			
MW-3283007A	FR 100 5 08 RMSA	MW-3483007A	FR 200 5 08 RMSA	MW-4483004A	FR 300 5 08 RMSA	0 ÷ 8	5	RMSA
MW-3283031A	FR 100 5 08 SAC	MW-3483031A	FR 200 5 08 SAC	MW-4483013A	FR 300 5 08 SAC			SAC / RA
MW-3283008A	FR 100 20 08 RMSA	MW-3483008A	FR 200 20 08 RMSA	MW-4483005A	FR 300 20 08 RMSA		20	RMSA
MW-3283032A	FR 100 20 08 SAC	MW-3483032A	FR 200 20 08 SAC	MW-4483014A	FR 300 20 08 SAC			SAC / RA
MW-3283009A	FR 100 50 08 RMSA	MW-3483009A	FR 200 50 08 RMSA	MW-4483006A	FR 300 50 08 RMSA		50	RMSA
MW-3283033A	FR 100 50 08 SAC	MW-3483033A	FR 200 50 08 SAC	MW-4483015A	FR 300 50 08 SAC			SAC / RA
MW-3283010A	FR 100 5 012 RMSA	MW-3483010A	FR 200 5 012 RMSA	MW-4483007A	FR 300 5 012 RMSA	0 ÷ 12	5	RMSA
MW-3283034A	FR 100 5 012 SAC	MW-3483034A	FR 200 5 012 SAC	MW-4483016A	FR 300 5 012 SAC			SAC / RA
MW-3283011A	FR 100 20 012 RMSA	MW-3483011A	FR 200 20 012 RMSA	MW-4483008A	FR 300 20 012 RMSA		20	RMSA
MW-3283035A	FR 100 20 012 SAC	MW-3483035A	FR 200 20 012 SAC	MW-4483017A	FR 300 20 012 SAC			SAC / RA
MW-3283012A	FR 100 50 012 RMSA	MW-3483012A	FR 200 50 012 RMSA	MW-4483009A	FR 300 50 012 RMSA		50	RMSA
MW-3283036A	FR 100 50 012 SAC	MW-3483036A	FR 200 50 012 SAC	MW-4483018A	FR 300 50 012 RA			SAC / RA

INDUSTRIAL PNEUMATICS - air treatment units

SKILLAIR series



LUB lubricator

Size: 100, 200, 300, 400
Tank volume: 50 cm³ - 100 series
 95 cm³ - 200 series
 160 cm³ - 300 series
 800 cm³ - 400 series
Inlet pressure: Up to 15 bar
Working temp.: Up to +50°C
Connection: 1/4" ÷ 2" BSP female thread
Flow rate: 1500 l/min - 100 series
 3700 l/min - 200 series
 5500 l/min - 300 series
 18000 ÷ 20000 l/min - 400 series
 (input pressure 6 bar and Δp = 1 bar)

LUB

100

STD

element	series (size)	oil filling method
LUB - lubricator	100 200 300 400	STD - standard version, oil refilling by disassembly of the tank or through the cap CA - automatic refilling, refill only when lubricator is working CD - vacuum refilling, pressure drop inside the tank enables refilling. CAML - automatic refilling with minimum level CDML - vacuum refilling with minimum level

100		200		300		400		connection	oil filling method
code	type	code	type	code	type	code	type		
MW-3281001A	LUB 100 STD	MW-3481001A	LUB 200 STD	MW-4481001A	LUB 300 STD	MW-6181001A	LUB 400 STD	without final plates	STD
MW-3281002A	LUB 100 CA	MW-3481002A	LUB 200 CA	MW-4481002A	LUB 300 CA	MW-6181002A	LUB 400 CA		CA
MW-3281005A	LUB 100 CD	MW-3481005A	LUB 200 CD	MW-4481005A	LUB 300 CD	MW-6181004A	LUB 400 CD		CD
				MW-4481006A	LUB 300 CDML	MW-6181006A	LUB 400 CDML		CDML
				MW-4481007A	LUB 300 CAML	MW-6181007A	LUB 400 CAML		CAML

SKILLAIR series



Filter - F

- Versions: FIL100, FIL200, FIL300, FIL400
- Threaded connection: 1/4", 3/8", 1/2", 3/4", 1", 1.1/4", 1.1/2", 2"
- Degree of filtration: 5 - 20 - 50 µm
- Nominal flow rate (at 6 bar, $\Delta p = 0.5$ bar): 1400 ÷ 20000 l/min (depends on a version)
- Max. working pressure: 13 ÷ 15 bar (depends on version)
- Max. working temperature: +50°C
- Condensate drain: manual, semi-automatic or automatic



Pressure regulator - R

- Versions: REG100, REG200, REG300, REG400
- Threaded connection: 1/4", 3/8", 1/2", 3/4", 1", 1.1/4", 1.1/2", 2"
- Outlet pressure range: 0 - 2 - 4 - 8 - 12 bar
- Max. inlet pressure: 13 ÷ 15 bar (depends on version)
- Nominal flow rate (at 6 bar, $\Delta p = 0.5$ bar): 1100 ÷ 20000 l/min (depends on a version)
- Max. working temperature: +50°C



Battery regulator

- Version: REG100
 - Threaded connection: 1/4", 3/8"
 - Outlet pressure range: 0 - 2 - 4 - 8 - 12 bar
 - Max. inlet pressure: 15 bar (depends on a version)
 - Nominal flow rate (at 6 bar, $\Delta p = 1$ bar): 950 l/min
 - Max. working temperature: +50°C
- Each subsequent throttle valve can have a different set pressure, independent of the previous valve. Working compressed air intake - from the pressure gauge port G 1/8"



Precision pressure regulator

- Threaded connection: 1/4"
- Outlet pressure range: 0 - 2 - 4 - 8 - 12 bar
- Max. inlet pressure: 13 bar
- Nominal flow rate (at 6 bar, $\Delta p = 1$ bar): 140 l/min
- Max. working temperature: +50°C



Pilot operated pressure regulator

- Version: regulating valve with Skillair 300 pilot
 - Threaded connection: 1/2", 3/4", 1"
 - Outlet pressure range: depends on pilot valve
 - Max. inlet pressure: 13 bar
 - Nominal flow rate (at 6 bar, $\Delta p = 1$ bar): 7000 l/min
 - Max. working temperature: +50°C
- Advantages: low air load loss, excellent sensitivity

SKILLAIR series



Pressure regulator - SKILLTRONIC

- Versions: SKILLTRONIC A and D, SKILLTRONIC 300A and 300D, SKILLTRONIC 400A and 400D
 - Threaded connection: 1/2", 3/4", 1", 1.1/4", 1.1/2", 2"
 - Outlet pressure range: 0.3 ÷ 7 bar
 - Max. inlet pressure: 8 bar
 - Nominal flow rate (at 6 bar, $\Delta p = 0.5$ bar): 60 ÷ 18000 l/min (depends on a version)
 - Working temperature range: -10°C up to +50°C
 - Operation voltage: 24 V DC
- Advantages: excellent repeatability, sensitivity and extremely fast response time



Pressure regulator with a filter - FR

- Versions: FR100, FR200, FR300,
- Threaded connection: 1/4", 3/8", 1/2", 3/4", 1"
- Outlet pressure range: 0 - 2 - 4 - 8 - 12 bar
- Degree of filtration: 5 - 20 - 50 μm
- Nominal flow rate (at 6 bar, $\Delta p = 1$ bar): 1600 ÷ 5600 l/min (depends on a version)
- Max. inlet pressure: 13 ÷ 15 bar (depends on version)
- Max. working temperature: +50°C
- Condensate drain: manual, semi-automatic or automatic



Lubricator

- Versions: LUB100, LUB200, LUB300, LUB400
- Threaded connection: 1/4", 3/8", 1/2", 3/4", 1", 1.1/4", 1.1/2", 2"
- Degree of filtration: 5 - 20 - 50 μm
- Nominal flow rate (at 6 bar, $\Delta p = 0.5$ bar): 1100 ÷ 21000 l/min (depends on a version)
- Max. working temperature: +50°C
- Various ways of filling with lubricant



Depurator - D

- Versions: DEP100, DEP200, DEP300, DEP400
- Threaded connection: 1/4", 3/8", 1/2", 3/4", 1", 1.1/4", 1.1/2", 2"
- Degree of purification: 99.97%
- Degree of filtration: 0.01 μm
- Nominal flow rate (at 6 bar, $\Delta p = 0.5$ bar): 750 ÷ 8000 l/min (depends on a version)
- Max. working pressure: 13 ÷ 15 bar (depends on a version)
- Max. working temperature: +50°C
- Working medium: compressed air with 5 μm filtration degree
- Condensate drain: manual, semi-automatic or automatic



Start-up valves

- Versions: V3V100, V3V200, V3V300, V3V400
- Threaded connection: 1/4", 3/8", 1/2", 3/4", 1", 1.1/4", 1.1/2", 2"
- Nominal flow rate (at 6 bar, $\Delta p = 0.5$ bar): 1300 to 14000 l/min (depends on a version)
- Max. working pressure: 13 to 15 bar (depends on a version)
- Min. inlet pressure (electrically controlled valves): 3 to 4 bar
- Max. working temperature: +50°C
- Control: manual, pneumatic, electrical

SKILLAIR series



Soft-start valve

- Versions: APR100, APR200, APR300, APR400
- Threaded connection: 1/4", 3/8", 1/2", 3/4", 1", 1.1/4", 1.1/2", 2"
- Nominal flow rate (at 6 bar, $\Delta p = 0.5$ bar): 1300 ÷ 14000 l/min (depends on a version)
- Max. working pressure: 13 ÷ 15 bar (depends on a version)
- Min. inlet pressure (electrically controlled valves): 3 ÷ 4 bar
- Max. working temperature: +50°C
- Control: pneumatic, electrical



Distributor

- Versions: PA100, PA200, PA300, PA400
- Threaded connection: 1/4", 3/8", 1/2", 3/4", 1", 1.1/4", 1.1/2", 2"
- Max. working pressure: 13 ÷ 15 bar (depends on a version)
- Max. working temperature: +50°C



Air preparation unit - FRL

- Versions: FRL100, FRL200, FRL300, FRL400
- Unit elements: filter, regulating valve, lubricator
- Threaded connection: 1/4", 3/8", 1/2", 3/4", 1", 1.1/4", 1.1/2", 2"
- Outlet pressure range: 0 - 8 - 12 bar
- Degree of filtration: 5 - 20 - 50 μ m
- Nominal flow rate (at 6 bar, $\Delta p = 0.5$ bar): 300 ÷ 14000 l/min (depends on a version)
- Max. inlet pressure: 13 ÷ 15 bar (depends on a version)
- Max. working temperature: +50°C
- Condensate drain: manual, semi-automatic or automatic



Air preparation unit - FR+L

- Versions: FR+L100, FR+L200, FR+L300
- Unit elements: filter, regulating valve + lubricator
- Threaded connection: 1/4", 3/8", 1/2", 3/4", 1"
- Outlet pressure range: 0 - 8 - 12 bar
- Degree of filtration: 5 - 20 - 50 μ m
- Nominal flow rate (at 6 bar, $\Delta p = 0.5$ bar): 300 ÷ 2300 l/min (depends on a version)
- Max. inlet pressure: 13 ÷ 15 bar (depends on a version)
- Max. working temperature: +50°C
- Condensate drain: manual, semi-automatic or automatic



Air preparation unit - VFRL

- Versions: FRL100, FRL200, FRL300, FRL400
- Unit elements: start-up valve, filter, regulating valve, lubricator
- Threaded connection: 1/4", 3/8", 1/2", 3/4", 1", 1.1/4", 1.1/2", 2"
- Outlet pressure range: 0 - 8 - 12 bar
- Degree of filtration: 5 - 20 - 50 μ m
- Nominal flow rate (at 6 bar, $\Delta p = 0.5$ bar): 300 ÷ 14000 l/min (depends on a version)
- Max. inlet pressure: 13 ÷ 15 bar (depends on a version)
- Max. working temperature: +50°C
- Condensate drain: manual, semi-automatic or automatic

SKILLAIR series



Air preparation unit - V+FR+L

- Version: V+FR+L100, V+FR+L200, V+FR+L300,
- Unit elements: start-up valve, filter, regulating valve, lubricator
- Threaded connection: 1/4", 3/8", 1/2", 3/4", 1"
- Outlet pressure range: 0 - 8 - 12 bar
- Degree of filtration: 5 - 20 - 50 μm
- Nominal flow rate (at 6 bar, $\Delta p = 0.5$ bar): 300 ÷ 2300 l/min (depends on a version)
- Max. inlet pressure: 13 ÷ 15 bar (depends on a version)
- Max. working temp.: +50°C
- Condensate drain: manual, semi-automatic or automatic



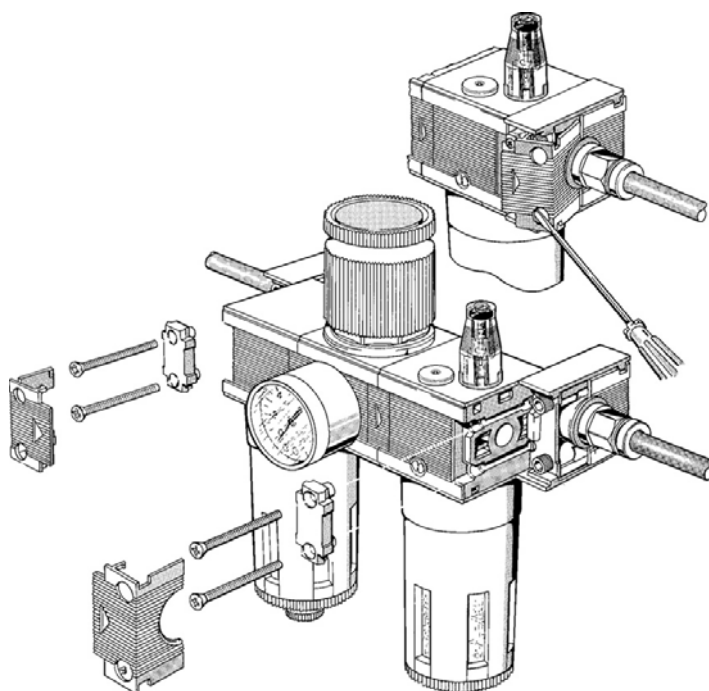
Air preparation unit - F+L

- Version: F+L100, F+L200, F+L300, F+L400
- Unit elements: filter, lubricator
- Threaded connection: 1/4", 3/8", 1/2", 3/4", 1", 1.1/4", 1.1/2", 2"
- Degree of filtration: 5 - 20 - 50 μm
- Nominal flow rate (at 6 bar, $\Delta p = 0.5$ bar): 600 ÷ 14000 l/min
- Max. inlet pressure: 13 ÷ 15 bar (depends on a version)
- Max. working temp.: +50°C
- Condensate drain: manual, semi-automatic or automatic



Air preparation unit - F+D

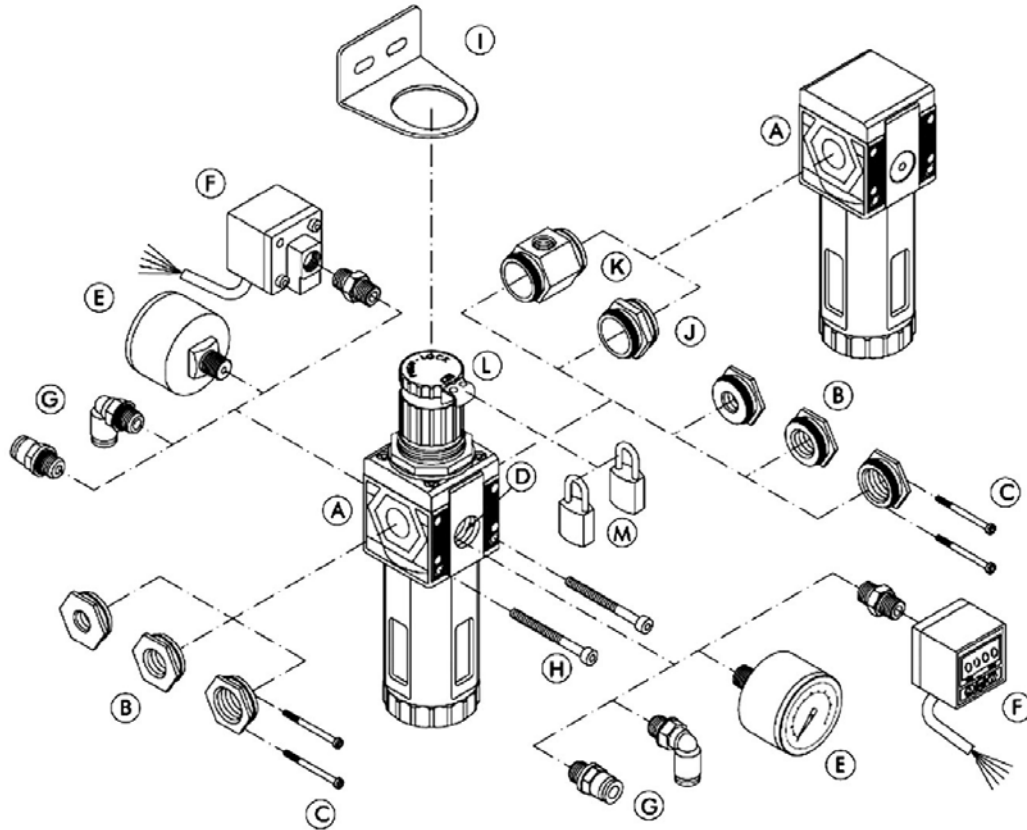
- Version: F+D100, F+D200, F+D300, F+D400
- Unit elements: filter, deaerator
- Threaded connection: 1/4", 3/8", 1/2", 3/4", 1", 1.1/4", 1.1/2", 2"
- Degree of filtration: filter: 5 μm - precision filter: 0.01 μm
- Nominal flow rate (at 6 bar, $\Delta p = 0.5$ bar): 600 ÷ 7000 l/min
- Max. inlet pressure: 13 ÷ 15 bar (depends on a version)
- Max. working temp.: +50°C
- Condensate drain: manual, semi-automatic or automatic



INDUSTRIAL PNEUMATICS - air treatment units

SYNTESI series

SYNTESI provides full modularity and flexibility that SKILLAIR series is known for. The application of threaded metal connections and assembly sets have eliminated such traditional parts as draw bolts and connecting clamps. Therefore the system has become more economical and simple.



Various elements of SYNTESI system can be combined with each other and with pneumatic system using hexagonal nickel brass bushes (B, J, K). The bushes are easy to remove by unscrewing the two front screws (C). At the front and back of every SYNTESI unit there are 1/8" additional connections for e.g. pressure gauges (E), pressure switches (F) or push-in connections (G). The connections enable independent intake of compressed air from any particular element of air preparation unit. The elements of SYNTESI system can be mounted directly to the wall using two M4 screws (H) or indirectly using a mounting bracket (I). A padlockable knob (L) for a manual control shut-off valve, regulating valve and for filter-regulator can be used with one or two padlocks (M) securing from an unintentional change of regulating valve settings or shut-off valve start.

Table of SYNTESI system accessories

description	SY 1			SY 2			
	1/8"	1/4"	3/8"	3/8"	1/2"	3/4"	1"
nickel brass bushes (B) *	MW-9210001	MW-9210002	MW-9210003	MW-9210011	MW-9210012	MW-9210013	MW-9210014
connection set (J,K) **	MW-9210000, MW-5610P100			MW-9210010, MW-5620P100			
steel bracket (I)	MW-9200701			MW-9400701			
padlock (M)				MW-9062401			
gauge adapter 1/4" - 1/8"				MW-9210005			

* - with a connection (1 pc.) and 2 screws

** - with a connector and 4 screws

X - AISI 304 steel version, code example: MW-9210001X, MW-5X20P100

INDUSTRIAL PNEUMATICS - air treatment units

SYNTESI series



Filter FIL

Size: SY1, SY2
Degree of filtration: 5 µm, 20 µm, 50 µm
Inlet pressure: Up to 15 bar
Working temp.: Up to +50°C
Connection: BSP 1/8" ÷ 3/8" female thread for SY1
 BSP 3/8" ÷ 1" female thread for SY2
Condensate drain: Manual/ semiautomatic (RMSA)
 Automatic float type (RA)
Flow rate: 1300 l/min - 1/8"
 1650 l/min - 1/4"
 1750 l/min - 3/8" (SY1)
 4500 l/min - 3/8" (SY2)
 5200 l/min - 1/2", 3/4", 1"
 (input pressure 6 bar and Δp = 1 bar)

FIL	SY1	5	RMSA
element	size	degree of filtration	condensate drop
FIL - filter	SY1 SY2	5 - 5 µm 20 - 20 µm 50 - 50 µm	RMSA - manual/semi-automatic RA - automatic, float type

The elements of SYNTESI system can be easily used to build FRL unit according to customer specifications. The connection set and bushings facilitate assembly.

code	type	connection	degree of filtration [µm]	condensate drop
MW-5610F100	FIL SY1 5 RMSA	without bushing	5	RMSA
MW-5610F200	FIL SY1 20 RMSA		20	
MW-5610F300	FIL SY1 50 RMSA		50	
MW-5610F400	FIL SY1 5 RA		5	RA
MW-5610F500	FIL SY1 20 RA		20	
MW-5610F600	FIL SY1 50 RA		50	
MW-5620F100	FIL SY2 5 RMSA	without bushing	5	RMSA
MW-5620F200	FIL SY2 20 RMSA		20	
MW-5620F300	FIL SY2 50 RMSA		50	
MW-5620F400	FIL SY2 5 RA		5	RA
MW-5620F500	FIL SY2 20 RA		20	
MW-5620F600	FIL SY2 50 RA		50	

INDUSTRIAL PNEUMATICS - air treatment units

SYNTESI series



REG regulator

Size:	SY1, SY2
Outlet press. range:	0÷2, 0÷4, 0÷8, 0÷12 bar
Inlet pressure:	Up to 15 bar
Working temp.:	Up to +50°C
Connection:	BSP 1/8" ÷ 3/8" female thread for SY1 BSP 3/8" ÷ 1" female thread for SY2
Pressure gauge port:	BSP 1/8" female thread for SY1 BSP 1/4" female thread for SY2
Flow rate:	1200 l/min - 1/8" 2800 l/min - 1/4" 3350 l/min - 3/8" (SY1) 5300 l/min - 3/8" (SY2) 7400 l/min - 1/2" 7600 l/min - 3/4", 1" (input pressure 6 bar and Δp = 1 bar)

Instead of a flat membrane, SYNTESI pressure regulator employs a rolling membrane, which guarantees:

- greater nominal flow rate - a result of increased membrane stroke,
- quicker response to the change of settings - a result of reduced dynamic and static friction,
- greater accuracy in maintaining outlet pressure settings at variable flow rates and supply pressure.

If the outlet pressure rises above the set value, the membrane opens the relief valve and vents the regulator until the pressure drops to the set level. The regulator has a push-lock mechanism which locks the knob in any position when it is pushed down. A blocking plate enables padlock assembly, securing from an unintentional change of outlet pressure setting. Additional 1/8" connections, one at the front and one at the back, can be used for pressure gauges, pressure switches or push-in connections. The air taken in through these elements is appropriately reduced.

REG	SY1	02
element	size	outlet pressure range
REG - regulator	SY1 SY2	02 - 0÷2 bar 04 - 0÷4 bar 08 - 0÷8 bar 012 - 0÷12 bar

The elements of SYNTESI system can be easily used to build FRL unit according to customer specifications. The connection set and bushings facilitate assembly.

code	type	connection	outlet pressure range
MW-5610R100	REG SY1 02	without bushing	0 ÷ 2
MW-5610R120	REG SY1 04		0 ÷ 4
MW-5610R140	REG SY1 08		0 ÷ 8
MW-5610R160	REG SY1 012		0 ÷ 12
MW-5620R100	REG SY2 02	without bushing	0 ÷ 2
MW-5620R120	REG SY2 04		0 ÷ 4
MW-5620R140	REG SY2 08		0 ÷ 8
MW-5620R160	REG SY2 012		0 ÷ 12

X - AISI 304 steel version, code example: MW-5X10F100

INDUSTRIAL PNEUMATICS - air treatment units

SYNTESI series



FR filter - regulator

Size: SY1, SY2
Outlet press. range: 0÷2, 0÷4, 0÷8, 0÷12 bar
Degree of filtration: 5 µm, 20 µm, 50 µm
Inlet press: Up to 15 bar
Working temp.: Up to +50°C
Connection: BSP 1/8" ÷ 3/8" female thread for SY1
 BSP 3/8" ÷ 1" female thread for SY2
Pressure gauge port: BSP 1/8" female thread for SY1
 BSP 1/4" female thread for SY2
Flow rate: 1300 l/min - 1/8"
 2000 l/min - 1/4"
 3000 l/min - 3/8" (SY1)
 5800 l/min - 3/8" (SY2)
 7200 l/min - 1/2"
 7400 l/min - 3/4", 1"
 (input pressure 6 bar and Δp = 1 bar)

Filter-regulator combines the functions of filtration and pressure regulation in a single unit. It is made up of the same elements forming the filter and the regulator so technical parameters are the same.

FR	SY1	5	012	RMSA
element	size	degree of filtration	outlet pressure range	condensate drain
FR filter - regulator	SY1 SY2	5 - 5 µm 20 - 20 µm 50 - 50 µm	02* - 0÷2 bar 04* - 0÷4 bar 08 - 0÷8 bar 012 - 0÷12 bar * - option	RMSA - manual / semi-automatic RA - automatic, float type

The elements of SYNTESI system can be easily used to build FRL unit according to customer specifications. The connection set and bushings facilitate assembly.

code	type	connection	outlet pressure range [bar]	degree of filtration [µm]	condensate drain
MW-5610B140	FR SY1 5 08 RMSA	without bushing	0 ÷ 8	5	RMSA
MW-5610B440	FR SY1 5 08 RA				RA
MW-5610B240	FR SY1 20 08 RMSA			20	RMSA
MW-5610B540	FR SY1 20 08 RA				RA
MW-5610B340	FR SY1 50 08 RMSA			50	RMSA
MW-5610B640	FR SY1 50 08 RA				RA
MW-5610B160	FR SY1 5 012 RMSA		0 ÷ 12	5	RMSA
MW-5610B460	FR SY1 5 012 RA				RA
MW-5610B260	FR SY1 20 012 RMSA			20	RMSA
MW-5610B560	FR SY1 20 012 RA				RA
MW-5610B360	FR SY1 50 012 RMSA			50	RMSA
MW-5610B660	FR SY1 50 012 RA				RA
MW-5620B140	FR SY2 5 08 RMSA	without bushing	0 ÷ 8	5	RMSA
MW-5620B440	FR SY2 5 08 RA				RA
MW-5620B240	FR SY2 20 08 RMSA			20	RMSA
MW-5620B540	FR SY2 20 08 RA				RA
MW-5620B340	FR SY2 50 08 RMSA			50	RMSA
MW-5620B640	FR SY2 50 08 RA				RA
MW-5620B160	FR SY2 5 012 RMSA		0 ÷ 12	5	RMSA
MW-5620B460	FR SY2 5 012 RA				RA
MW-5620B260	FR SY2 20 012 RMSA			20	RMSA
MW-5620B560	FR SY2 20 012 RA				RA
MW-5620B360	FR SY2 50 012 RMSA			50	RMSA
MW-5620B660	FR SY2 50 012 RA				RA

INDUSTRIAL PNEUMATICS - air treatment units

SYNTESI series



LUB lubricator

Size: SY1, SY2
Tank volume: 60 cm³
Input pressure: Up to 15 bar
Working temp.: Up to +50°C
Connection: BSP (1/8" ÷ 3/8") female thread for SY1
 BSP (3/8" ÷ 1") female thread for SY2
Flow rate: 1600 l/min - 1/8"
 3000 l/min - 1/4"
 3650 l/min - 3/8" (SY1, SY2)
 6100 l/min - 1/2", 3/4", 1"
 (input pressure 6 bar and $\Delta p = 1$ bar)

LUB	SY1	STD
element	size	oil filling method
LUB - lubricator	SY1 SY2	STD standard version, filling with oil through oil replenishment cap

The elements of SYNTESI system can be easily used to build FRL unit according to customer specifications. The connection set and bushings facilitate assembly.

code	type	connection	oil filling method
MW-5610L100	LUB SY1	without bushing	STD
MW-5620L100	LUB SY2		

INDUSTRIAL PNEUMATICS - air treatment units

Accessories - pressure gauge



Pressure gauge - M type

Size: 1/8" 1/4"
Measuring range: 0÷4, 0÷12 bar
Working temp.: Up to +50°C
Shield size: 40, 50, 63 mm
Casing material: Plastic
Shield material: Aluminium
Filling: None (dry gauge)

General purpose pressure gauge mounted to reducers of BIT, SYNTESI, NEW DEAL and SKILLAIR type. Its measuring range should be selected according to working pressure so that it does not exceed 75% of max. scope. The scale expressed in bar and PSI.

M

40

1/8

04

element	shield size	connection	measuring range
M - pressure gauge	40 mm 50 mm 63 mm	1/8 - 1/8" 1/4 - 1/4"	04 - 0 ÷ 4 bar 12 - 0 ÷ 12 bar

code	type	shield size [mm]	measuring range [bar]
MW-9700101	M 40 1/8 12	40	0 ÷ 12
MW-9700110	M 40 1/8 12		0 ÷ 4
MW-9700102	M 40 1/8 04		0 ÷ 12
MW-9800101	M 50 1/8 12	50	0 ÷ 12
MW-9800102	M 50 1/8 04		0 ÷ 4
MW-9900101	M 63 1/4 12	63	0 ÷ 12