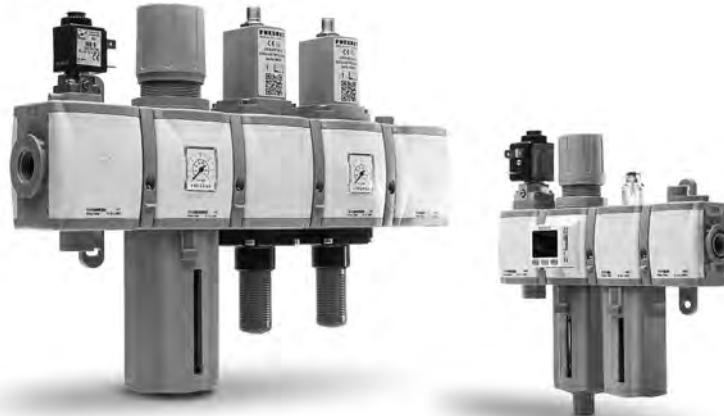


Air service units, series AIRPLUS



- Modular system
- Compact and linear design
- Maximum flexibility and reliability
- Plug-n-play connection thru couplig flanges
- Integral safety elements in assembled group
- Available in 4 sizes with connections from 1/8" to 1"
- ATEX certification (II 2GD or II 3GD)

Construction and working characteristics

Pneumax AIRPLUS air treatment units have been designed and developed to increase reliability, modularity and user-friendly operation and installation.

Thanks to a wide range of modules with different functions and characteristics, together with a wide choice of materials selection, make the Pneumax AIRPLUS air treatment units a robust, reliable and extremely flexible modular system, adaptable to many applications.

AIRPLUS units correctly assembled are modular with unlimited configurations and solutions, capable of fulfilling all functions of compressed air treatment such as filtration, regulation, lubrication, interception and distribution.

Filters, including coalescing and active carbon elements as well as oil separators provide adequate media filtration. Precise and reliable pressure regulation is provided by the regulators or filter-regulators which are also available with a built in pressure gauge or integral digital pressure switch. The lubricators provide oil mist lubrication in proportion to air being consumed whilst the shut-off valves, which can be operated pneumatic, electro-pneumatic or manually will effectively manage the supply and exhaust of the compressed air system.

The range is completed by a series of complementary modules, such as pneumatic connection by-pass, pressure switch and progressive start-up. The complete assembly is built up using the individual modules connected together via quick coupling flanges which provide a 'plug & play' assembly. This provides quick and easy installation or replacement.

Pneumax Airplus air treatment units can be integrated with safety elements that comply with EN-ISO 13849-1 and CE marking according to EU Machinery Directive, Annex V.

AIRPLUS air treatment units are available in 4 different sizes, with connections from 1/8" to 1" and flow rates performances up to 8000NI/min.

Instruction for installation and operation

The FRL unit should be installed as close as possible to the 'point of use'. The air flow direction should follow the direction indicated on the individual modules, following threaded connections (IN and OUT). Units fitted with a bowl should be mounted vertically with the bowl facing down.

All units should be operated in accordance to the specified pressure and temperature ranges and should never exceed 0.2 Hz max frequency whether pulsing inlet pressure occur.

Fittings shall be mounted according to the maximum torque specified.

Maintenance

To carry out maintenance which involves the removal of the caps or supports above the body and where the retaining screws are present, it is necessary to remove the cover plates beforehand. If you attempt to dis-assemble the caps or supports without removing the cover plates and retaining screws, the integrity and function of the device could be compromised.

Bowls, plugs and supports are assembled with a bayonet type mechanism. In order to remove them, rotate anti-clockwise until the mechanical stop is reached and then remove from the body (for the bowls firstly press down the green safety button).

Bowls and transparent parts can be cleaned with water and neutral soap. Do not use solvents or alcohol.

Filtering elements (present in filters and filter regulators) made of HDPE can be regenerated by washing and blowing them.

In order to remove them it is necessary to remove the bowl unscrew the filter element and replace it with a new one or clean it.

Lubricator oil recharge might be performed during normal operation (apart TG1 size) depressurizing the bowl thru dedicated plug.

Pneumax suggest refilling oil directly into the bowl.

No others maintenance operation shall be carried out by client itself, due to complexity of the assembly and Pneumax dedicated post-maintenance testing activities.



FILTRATION



Filter pore sizes
from 50 μm to 5 μm

Coalescing filter with
retention efficiency of 99,97%
particle removal down to 0,01 μm

Coalescing/oil removal filter
with oil residual up to 0,01 ppm

Carbon filter
with oil residual up to < 0,003 ppm

REGULATION



Regulators and filter regulators

Pressure regulation range up to 12 bar

Available with
integrated pressure gauge,
pressure switch or G1/8" connection

LUBRICATION



Manual adjustment of oil quantity
complete with visual indicator

Oil refilled with
pressurized circuit

Oil mist lubrication

SHUT OFF



Manual, pneumatic
or electropneumatic
operation availability

Manual version lockable
up to 3 padlock

COMPLEMENTARY MODULES

Pressure switch

Air intake

Progressive start-up valve



SAFETY

Integrated diagnostic system

Single version CAT.2
in accordance with
ISO EN 13849 up to PL=C

Double version CAT.4
in accordance with
ISO EN 13849 up to PL=E

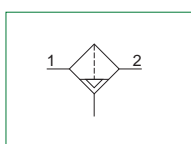
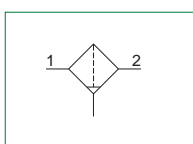
In accordance with
EU Machinery directive,
annex V



Filters (F)



- ▶ Double filter action: air flow centrifugation and filter element
- ▶ Available in 4 sizes with flow rates up to 14000 NI/min and connections from 1/8" to 1"
- ▶ Filtering cartridge made of HDPE available in three different filtration grades (5µm, 20µm, 50µm)
- ▶ Filter cartridge can be regenerated by washing / blowing it or replaced
- ▶ Bowl assembly via bayonet type quick coupling mechanism with safety button
- ▶ Semi-automatic or automatic drain
- ▶ Atex certification (II 2GD or II 3GD)
- ▶ Inlet pressures up to 20 bar



Note

In order to ensure that any fluid discharged by the auto drain assembly is adequately drained away, it is recommended you use a 6mm fitting and tube.

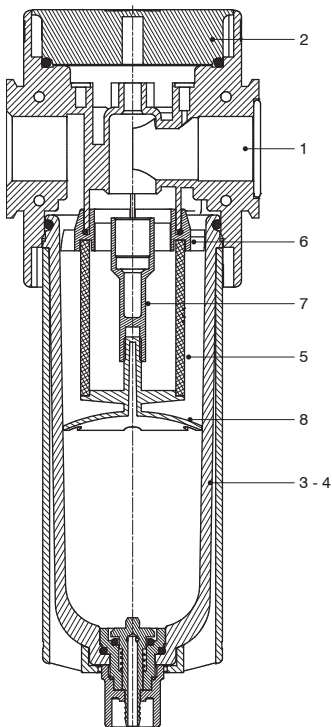
Technical characteristics		Size	Size 1	Size 2	Size 3	Size 4
Body and connections type			Technopolymer body, integrated technopolymer connections (T version) Technopolymer body, metal connections (N version)	Aluminium body, integrated aluminium connections (P - L versions)		/
Protection and bowl type			Technopolymer protection - PC bowl Technopolymer protection - PA bowl	Metal protection - PC bowl Metal protection - PA bowl Metal bowl (blind metal bowl)		/
IN / OUT connections	T version		G1/4"	G3/8"	G1/2"	not available
	N version		G1/8" - G1/4" - 1/4" NPT	G3/8" - G1/4" - 3/8" NPT	G3/8" - G1/2" - 1/2" NPT	
	P and L version		not available	G3/8" - 1/4" NPT	G1/2" - 1/2" NPT	G1" - 1" NPT
Assembly configuration			Stand alone			Panel mounted
Assembly positions			Vertical ±5°			
Filter pore size			5 µm 20 µm 50 µm			
Bowl capacity			18 cm ³	34 cm ³	68 cm ³	90 cm ³
Condensation drain			Semi-automatic Automatic			
Max. fittings torque IN / OUT connections			G1/8" metal: 15Nm G1/4" metal: 20Nm G1/4" technopolymer: 9Nm	G1/4" metal: 20Nm G3/8" metal: 25Nm G3/8" technopolymer: 16Nm	G3/8" metal: 25Nm G1/2" metal: 30Nm G1/2" technopolymer: 22Nm	G1" metal: 35Nm

Operational characteristics								
Size	Size 1	Size 2	Size 3	Size 4	Size 1	Size 2	Size 3	Size 4
Condensation drain	Semi-automatic				Automatic			
Maximum working pressure	13 bar	20 bar (only with body and metal bowl)			10 bar	16 bar (only with body and metal bowl)		
Minimum working pressure	0,5 bar				0,5 bar			
Working temperature	-5°C +50°C		-30°C +80°C (only for P version and metal bowl) -40°C +80°C (only for L version and metal bowl)		-5°C +50°C			

Weights	Size	Size 1	Size 2	Size 3	Size 4
Fully technopolymer version		129 g	226 g	355 g	/
Technopolymer body version, aluminium bowl protection and technopolymer bowl		/	257 g	393 g	/
Technopolymer body version, aluminium bowl		/	301 g	465 g	/
Aluminium body version, technopolymer protection and bowl		/	314 g	477 g	1163 g
Aluminium body version, aluminium bowl protection and technopolymer bowl		/	344 g	514 g	1306 g
Aluminium body version and aluminium bowl		/	389 g	587 g	1330 g

Materials

Exploded sectioned

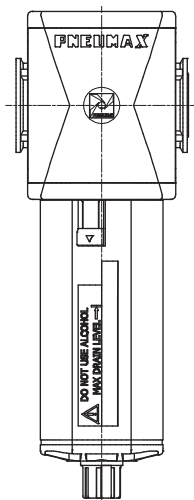


Filter		
1	Body	Polyamide Die-cast aluminium
2	Plug	Polyamide
3	Technopolymer bowl	Polycarbonate Polyamide
4	Metal bowl Bowl protection	Die-cast aluminium Polyamide - Die-cast aluminium
5	Filtering element	Polyethylene
6	Baffle	Acetal resin
7	Spool support	Acetal resin
8	Filtering element support	Acetal resin

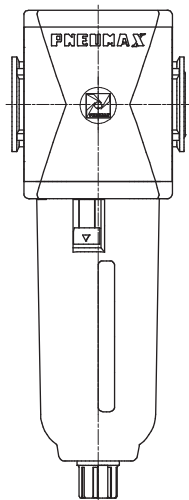
2
AIR TREATMENT

Design

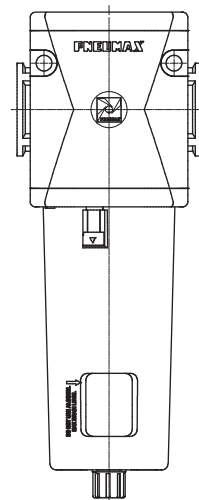
Size 1 - Size 2 - Size 3
Technopolymer protection



Size 1 - Size 2 - Size 3
Protection / Metal bowl



Size 4
All versions



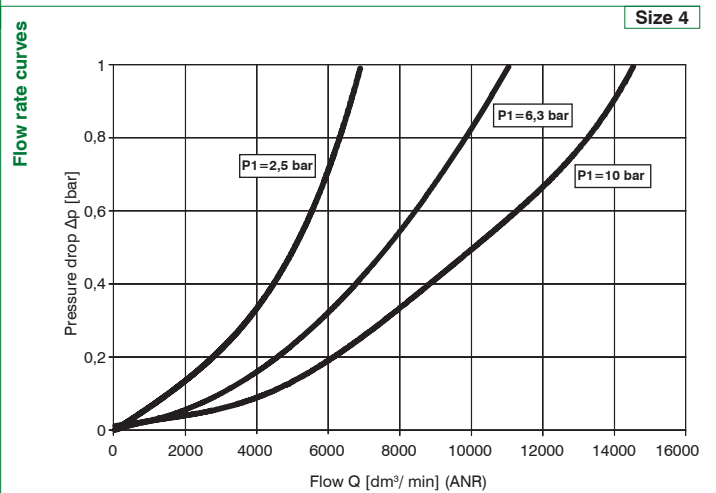
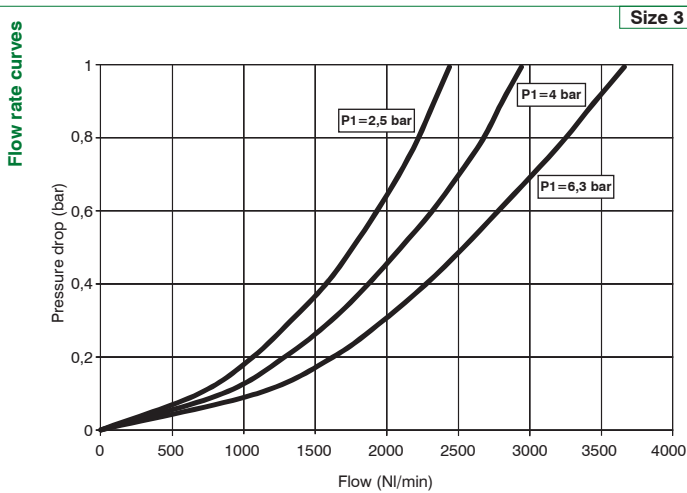
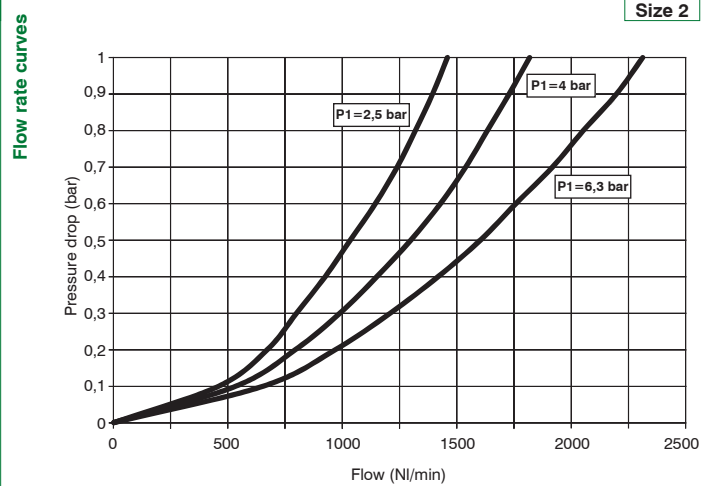
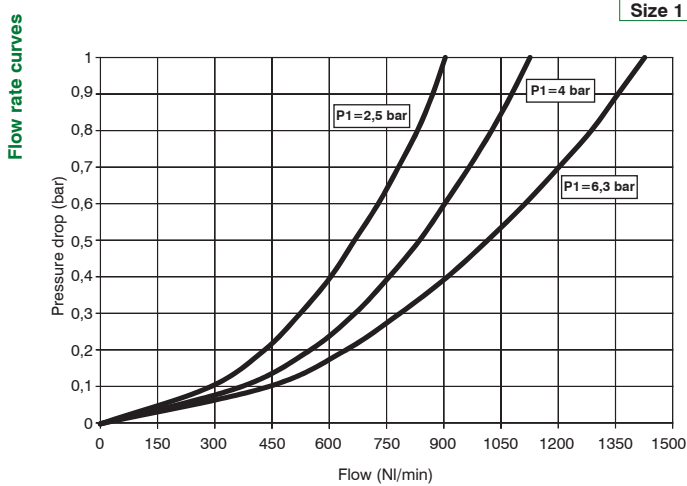


Order codes

	T	17	3B	F	B	S	T
Version							
N : Technopolymer body and metal inserts (not available for size 4)							
T : Technopolymer body and thread (not available for size 4)							
P : Aluminum body (not available for size 1)							
L : Aluminum body, low temperature (not available for size 1)							
Size and connections							
1A : Size 1 - G1/8" only for N version							
1B : Size 1 - G1/4" only for T - N versions							
1C : Size 1 - 1/4" NPT only for N version							
2A : Size 2 - G1/4" only for N version							
2B : Size 2 - G3/8" for all versions							
2C : Size 2 - 3/8" NPT only for N version - 1/4" NPT only for P - L versions							
3A : Size 3 - G3/8" only for N version							
3B : Size 3 - G1/2" for all versions							
3C : Size 3 - 1/2" NPT only for N - P - L versions							
4B : Size 4 - G1" only for P - L versions							
4C : Size 4 - 1" NPT only for P - L versions							
Filter pore size							
A : 5 μm							
B : 20 μm							
C : 50 μm							
Condensation drain							
: Semi-automatic drain							
S : Automatic drain							
Bowl options							
: Technopolymer protection - PC bowl							
N : Technopolymer protection - PA bowl							
P : Metal protection - PC bowl (not available for size 1)							
R : Metal protection - PA bowl (not available for size 1)							
T : Metal bowl (not available for size 1)							

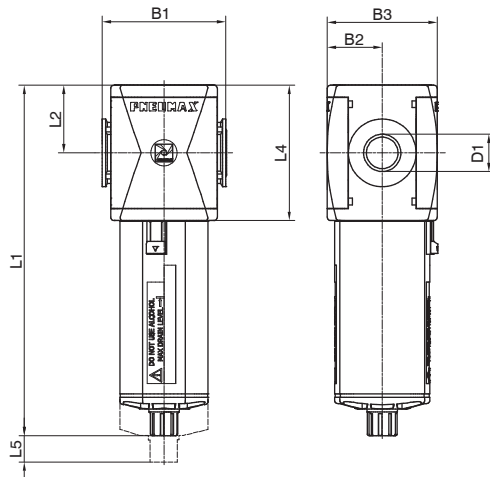
Example : T173BFBST : Size 3 filter G1/2" 20 μm, automatic drain and metal bowl

Characteristic curves

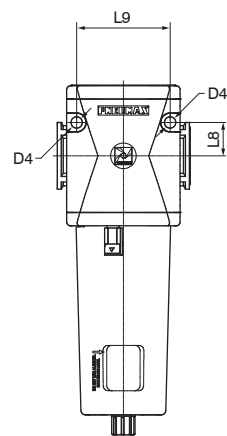


Dimensions

Semi-automatic drain version



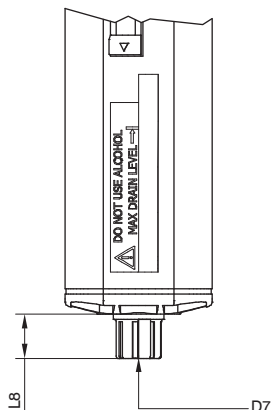
Fixing holes dimension detail (only for size 4)



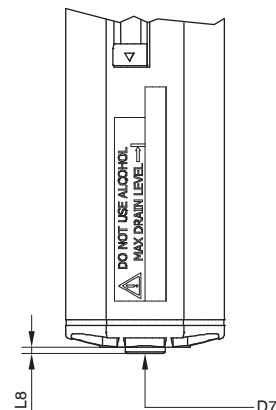
Model	B1	B2	B3	D1	D4	L1 - Bowl material		L2	L4	L5	L8	L9
						Technopolymer	Metal					
#171..	48	21	42	G1/8" G1/4" 1/4" NPT	/	148	/	27,5	55	40	/	/
#172..	62	28,5	57	G1/4" G3/8" 1/4" NPT 3/8" NPT	/	169,1	171,5	34	68	50	/	/
#173..	73	32,5	65	G3/8" G1/2" 1/2" NPT	/	207,2	209,5	40	80	65	/	/
#174..	99	44	88	G1" 1" NPT	8,5	262	264,5	52,5	105	103	25	70

Variable dimensions

Semi-automatic drain version



Automatic drain version



Model	L8 - Bowl material		D7
	Technopolymer	Metal	
Semi-automatic drain	15,7	18	Plastic hose connector
Automatic drain	2	4,5	G1/8"

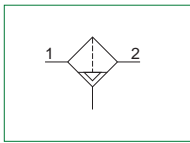
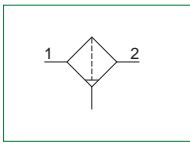
► **Coalescing filters (DA)**



- ▶ Coalescing filter
- ▶ Available in 4 sizes with flow rates up to 8000 NI/min and connections from 1/8" to 1"
- ▶ Filtering cartridge with filtration grade of 0,01 μm
- ▶ Filtering performances 99.97% (particles up to 0.01 μm)
- ▶ Bowl assembly via bayonet type quick coupling mechanism with safety button
- ▶ Semi-automatic or automatic drain
- ▶ Atex certification (II 2GD or II 3GD)
- ▶ Inlet pressures up to 20 bar

2

AIR TREATMENT



Note

In order to ensure the high level of filtration, it is recommended that a 5μ filter is installed before the coalescing filter. In order to ensure that any fluid discharged by the auto drain assembly is adequately drained away, it is recommended you use a 6mm fitting and tube.

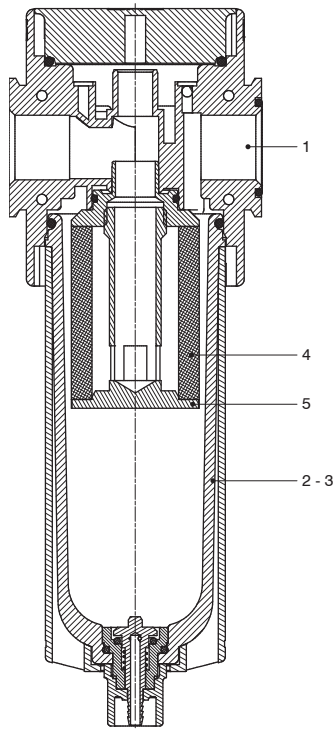
Technical characteristics					
Size		Size 1	Size 2	Size 3	Size 4
Body and connections type		Technopolymer body, integrated technopolymer connections (T version) Technopolymer body, metal connections (N version) / Aluminium body, integrated aluminium connections (P - L versions)			/
Protection and bowl type		Technopolymer protection - PC bowl Technopolymer protection - PA bowl		Metal protection - PC bowl Metal protection - PA bowl Metal bowl (blind metal bowl)	
IN / OUT connections	T version	G1/4"	G3/8"	G1/2"	not available
	N version	G1/8" - G1/4" - 1/4" NPT	G3/8" - G1/4" - 3/8" NPT	G3/8" - G1/2" - 1/2" NPT	
	P and L version	not available	G3/8"	G1/2"	G1"
Assembly configuration		Stand alone			Panel mounted
Assembly positions		Vertical ±5°			
Filter pore size		0,01 μm, efficiency of 99,97%			
Bowl capacity		18 cm ³	34 cm ³	68 cm ³	90 cm ³
Condensation drain		Semi-automatic Automatic			
Max. fittings torque IN / OUT connections		G1/8" metal: 15Nm G1/4" metal: 20Nm G1/4" technopolymer: 9Nm	G1/4" metal: 20Nm G3/8" metal: 25Nm G3/8" technopolymer: 16Nm	G3/8" metal: 25Nm G1/2" metal: 30Nm G1/2" technopolymer: 22Nm	G1" metal: 35Nm

Operational characteristics								
Size	Size 1	Size 2	Size 3	Size 4	Size 1	Size 2	Size 3	Size 4
Condensation drain	Semi-automatic				Automatic			
Maximum working pressure	13 bar	20 bar (only with body and metal bowl)			10 bar	16 bar (only with body and metal bowl)		
Minimum working pressure	0,5 bar				0,5 bar			
Working temperature	-5°C +50°C		-30°C +80°C (only for P version and metal bowl) -40°C +80°C (only for L version and metal bowl)		-5°C +50°C			

Weights					
	Size	Size 1	Size 2	Size 3	Size 4
Fully technopolymer version		130 g	224 g	366 g	/
Technopolymer body version, aluminium bowl protection and technopolymer bowl		/	251 g	402 g	/
Technopolymer body version, aluminium bowl		/	293 g	475 g	/
Aluminium body version, technopolymer protection and bowl		/	309 g	493 g	1197 g
Aluminium body version, aluminium bowl protection and technopolymer bowl		/	337 g	529 g	1340 g
Aluminium body version and aluminium bowl		/	378 g	603 g	1365 g

Materials

Exploded sectioned



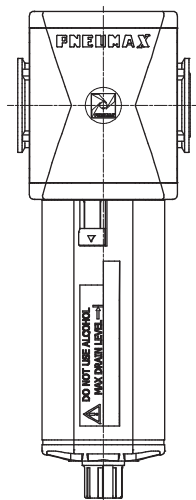
Coalescing filter		
1	Body	Polyamide Die-cast aluminium
2	Technopolymer bowl	Polycarbonate Polyamide
3	Metal bowl Bowl protection	Die-cast aluminium Polyamide - Die-cast aluminium
4	Filtering element	Borosilicate glass fiber
5	Filtering element support	Aluminium

2

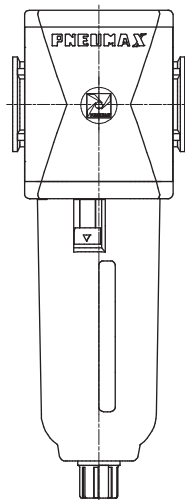
AIR TREATMENT

Design

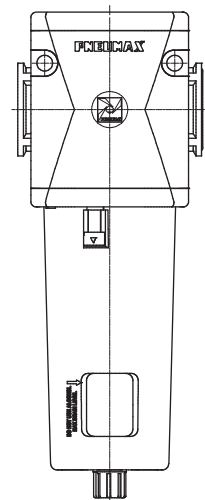
Size 1 - Size 2 - Size 3
Technopolymer protection



Size 1 - Size 2 - Size 3
Protection / Metal bowl



Size 4
All versions





Order codes

T 17 3B DA S T

Version
N : Technopolymer body and metal inserts (not available for size 4)
T : Technopolymer body and thread (not available for size 4)
P : Aluminum body (not available for size 1)
L : Aluminum body, low temperature (not available for size 1)

Size and connections
1A : Size 1 - G1/8" only for N version
1B : Size 1 - G1/4" only for T - N versions
1C : Size 1 - 1/4" NPT only for N version
2A : Size 2 - G1/4" only for N version
2B : Size 2 - G3/8" for all versions
2C : Size 2 - 3/8" NPT only for N version
3A : Size 3 - G3/8" only for N version
3B : Size 3 - G1/2" for all versions
3C : Size 3 - 1/2" NPT only for N version
4B : Size 4 - G1" only for P - L versions

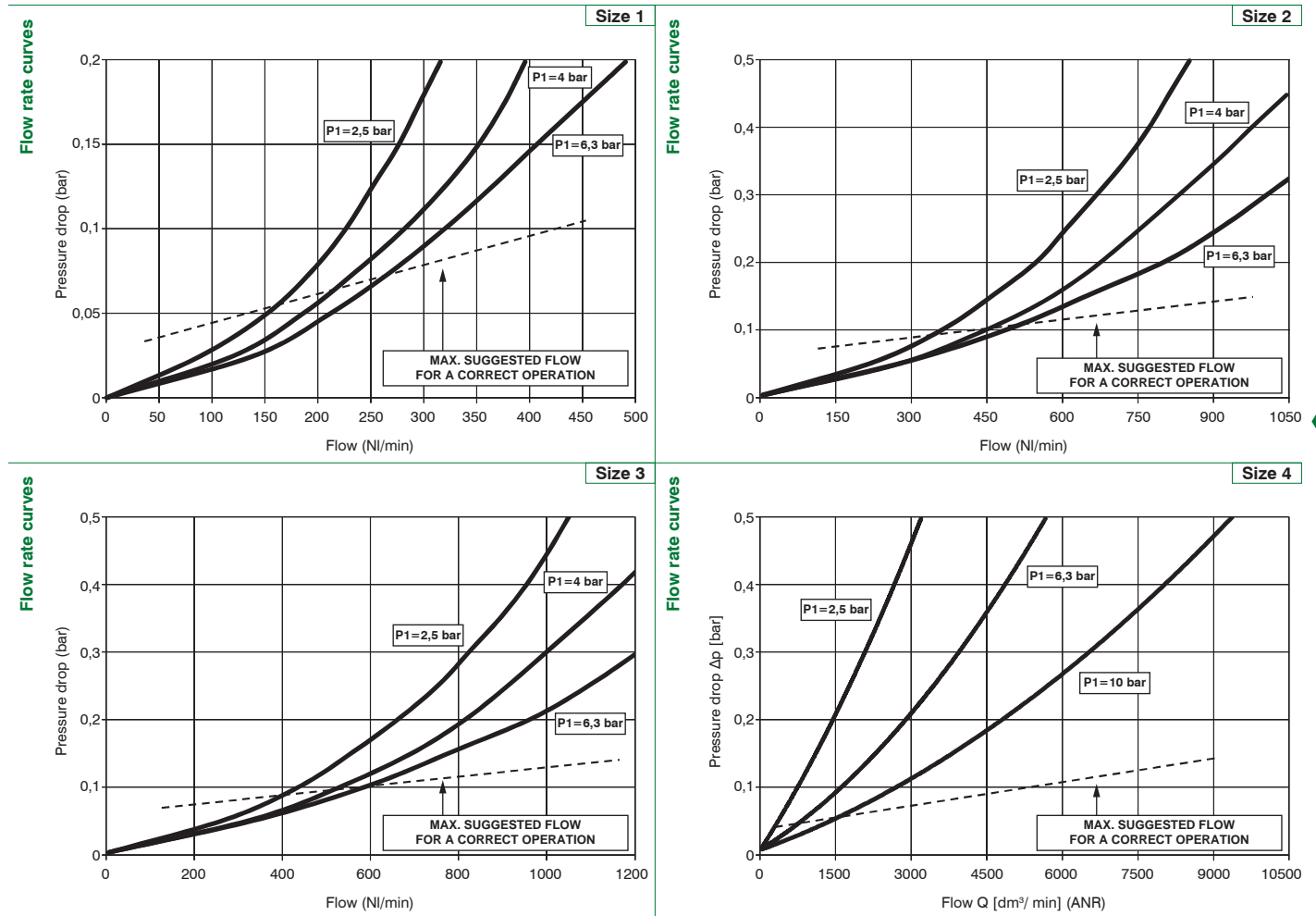
Condensation drain
: Semi-automatic drain
S : Automatic drain

Bowl options
: Technopolymer protection - PC bowl
N : Technopolymer protection - PA bowl
P : Metal protection - PC bowl (not available for size 1)
R : Metal protection - PA bowl (not available for size 1)
T : Metal bowl (not available for size 1)

Example : T173BDAST : Size 3 coalescing filter G1/2" 0,01 µm, automatic drain and metal bowl

2
AIR TREATMENT

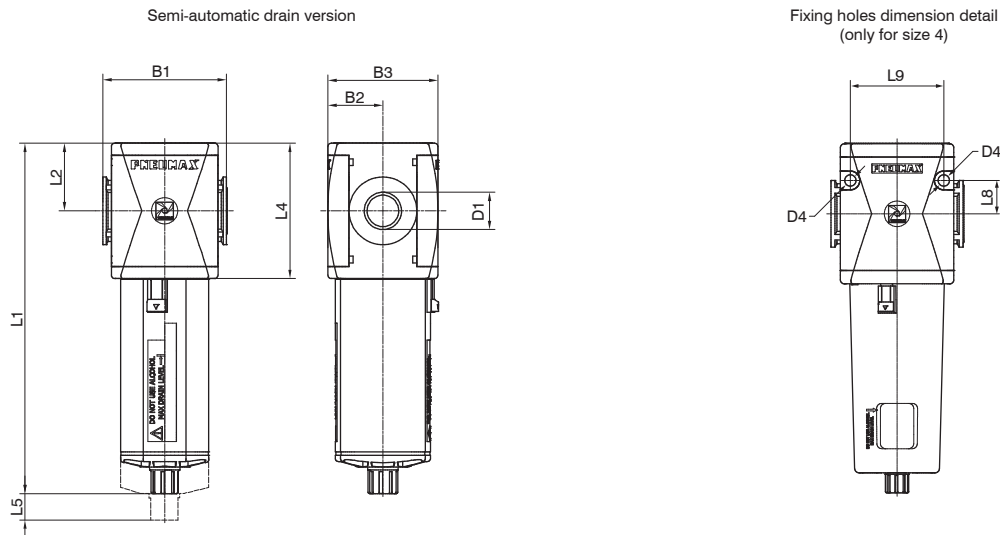
Characteristic curves



2

AIR TREATMENT

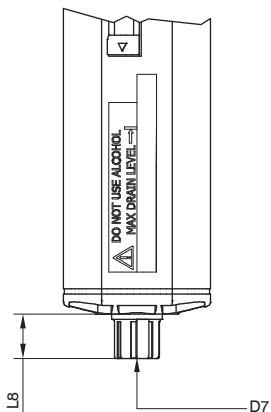
Dimensions



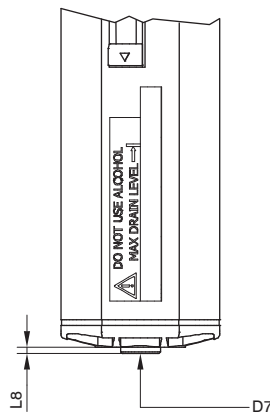
Model	B1	B2	B3	D1	D4	L1 - Bowl material		L2	L4	L5	L8	L9
						Technopolymer	Metal					
#171..	48	21	42	G1/8" G1/4" 1/4" NPT	/	148	/	27,5	55	40	/	/
#172..	62	28,5	57	G1/4" G3/8" 1/4" NPT 3/8" NPT	/	169,1	171,5	34	68	50	/	/
#173..	73	32,5	65	G3/8" G1/2" 1/2" NPT	/	207,2	209,5	40	80	65	/	/
#174..	99	44	88	G1" 1" NPT	8,5	262	264,5	52,5	105	103	25	70

Variable dimensions

Semi-automatic drain version



Automatic drain version



2

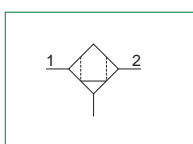
AIR TREATMENT

Model	L8 - Bowl material		D7
	Technopolymer	Metal	
Semi-automatic drain	15,7	18	Plastic hose connector
Automatic drain	2	4,5	G1/8"

Oil removal filters (DBV - DCV - DAV)



- ▶ Oil removal filter with coalescing filter element
- ▶ Available in 2 sizes with connections from 3/8" to 1"
- ▶ Particle removal up to 0,01 μm
- ▶ Oil residual 0,01 ppm
- ▶ Cartridge clogging level display:
 - green color - ok
 - red color - warning ($\Delta p > 0,5$ bar)
- ▶ Bowl assembly via bayonet type quick coupling mechanism with safety button
- ▶ Automatic drain mounted as standard
- ▶ Atex certification (II 2GD or II 3GD)



Note

In order to ensure the high level of filtration, it is recommended that a 5μ filter is installed before the coalescing filter. In order to ensure that any fluid discharged by the auto drain assembly is adequately drained away, it is recommended you use a 6mm fitting and tube.

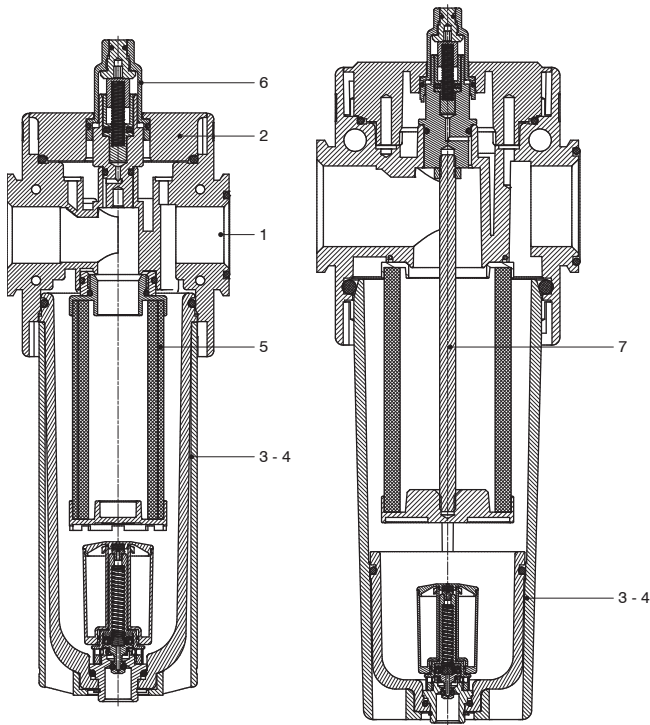
Technical characteristics			
Size		Size 3	Size 4
Body and connections type		Technopolymer body, integrated technopolymer connections (T version) Technopolymer body, metal connections (N version)	Aluminium body, integrated aluminium connections (P version)
Protection and bowl type		Technopolymer protection - PC bowl Technopolymer protection - PA bowl Metal protection - PC bowl Metal protection - PA bowl Metal bowl (blind metal bowl)	
IN / OUT connections	T version	G1/2"	not available
	N version	G3/8" - G1/2" - 1/2" NPT	
	P version	G1/2"	G1"
Assembly configuration		Stand alone	Panel mounted
Assembly positions		Vertical ±5°	
Filter pore size		Particle removal up to 0,01 μm Oil residual 0,01 ppm	
Bowl capacity		30 cm ³	90 cm ³
Condensation drain		Automatic	
Max. fittings torque IN / OUT connections		G3/8" metal: 25Nm G1/2" metal: 30Nm G1/2" technopolymer: 22Nm	G1" metal: 35Nm

Operational characteristics		
Size	Size 3	Size 4
Condensation drain	Automatic	
Maximum working pressure	10 bar	
Minimum working pressure	0,5 bar	
Working temperature	-5°C +50°C	

Weights				
	Size	Size 3 Standard cartridge	Size 3 Oversize cartridge	Size 4
Fully technopolymer version		416 g	634 g	/
Technopolymer body version, aluminium bowl protection and technopolymer bowl		453 g	671 g	/
Technopolymer body version, aluminium bowl		526 g	742 g	/
Aluminium body version, technopolymer protection and bowl		538 g	661 g	1230 g
Aluminium body version, aluminium bowl protection and technopolymer bowl		575 g	698 g	1374 g
Aluminium body version and aluminium bowl		647 g	769 g	1398 g

Materials

Exploded sectioned

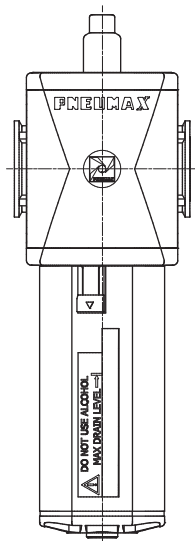


Oil removal filter		
1	Body	Polyamide Die-cast aluminium
2	Upper plug	Polyamide
3	Technopolymer bowl	Polycarbonate Polyamide
4	Metal bowl Bowl protection	Die-cast aluminium Polyamide - Die-cast aluminium
5	Filtering element	/
6	Visual indicator	Polycarbonate
7	Tie rod	Steel (only for size 4)
8	Automatic drain	/

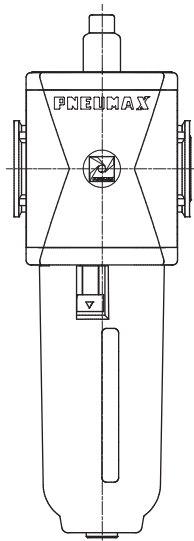
2
AIR TREATMENT

Design

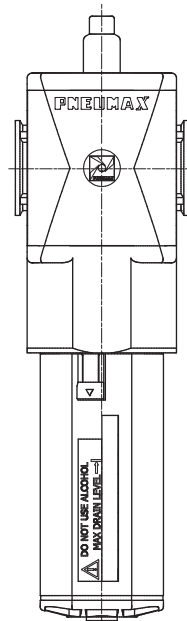
Size 3
Technopolymer protection



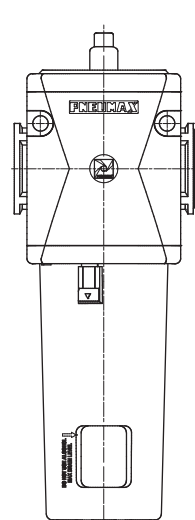
Size 3
Protection / Metal bowl



Size 3 - Oversize cartridge
Technopolymer protection



Size 4
All versions



Order codes

T 17 3BDBV T

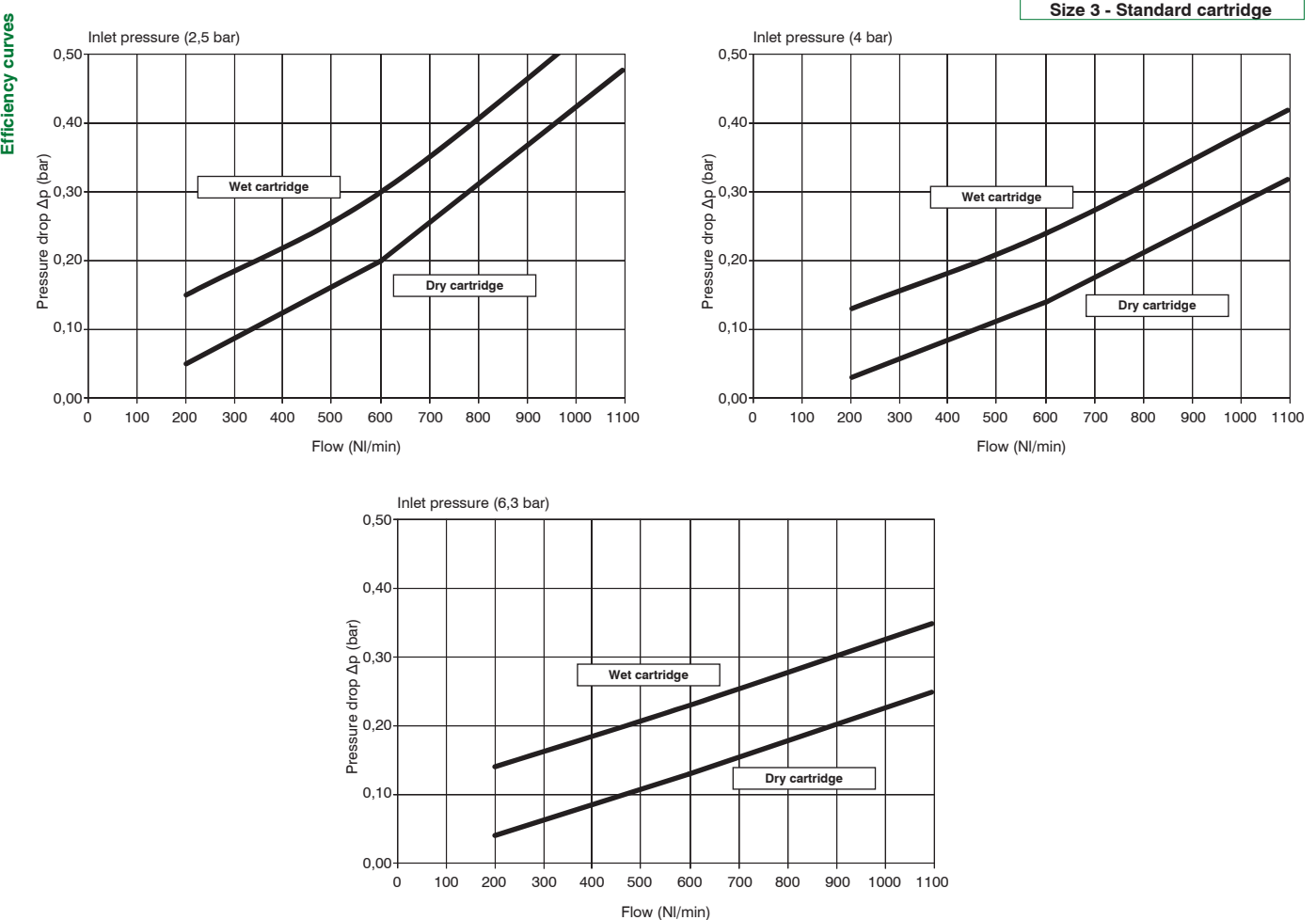
Version
N : Technopolymer body and metal inserts (not available for size 4)
T : Technopolymer body and thread (not available for size 4)
P : Aluminium body

Size and connections
3ADBV : Size 3 - G3/8" standard cartridge only for N version
3BDBV : Size 3 - G1/2" standard cartridge for all versions
3CDBV : Size 3 - 1/2" NPT standard cartridge only for N version
3BDCV : Size 3 - G1/2" oversize cartridge only for P version
4BDAV : Size 4 - G1" standard cartridge only for P version

Bowl options
: Technopolymer protection - PC bowl
N : Technopolymer protection - PA bowl
P : Metal protection - PC bowl
R : Metal protection - PA bowl
T : Metal bowl

Example : T173BDBVT : Size 3 oil removal filter G1/2", standard cartridge, metal bowl

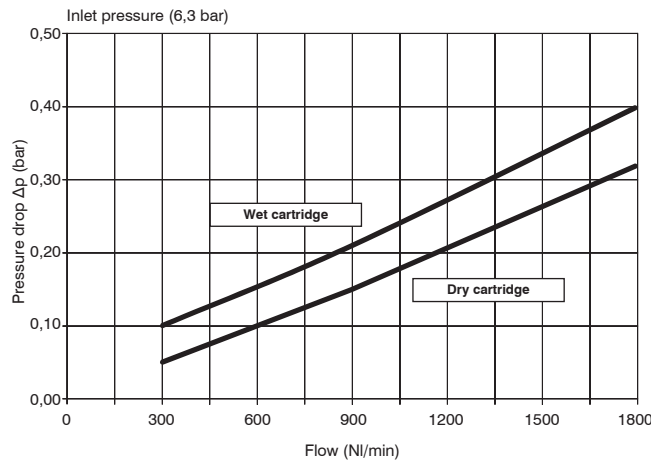
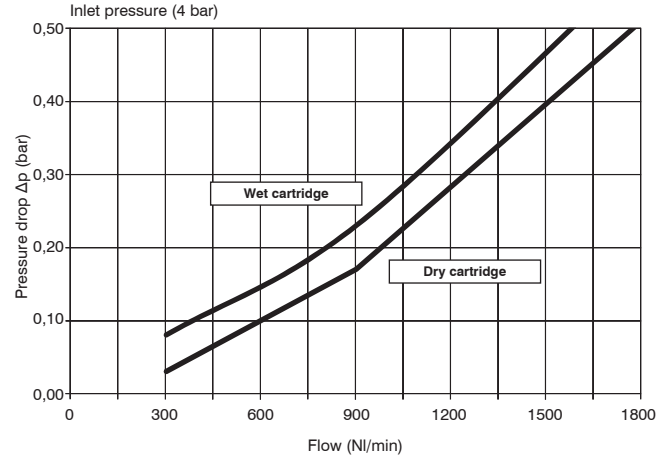
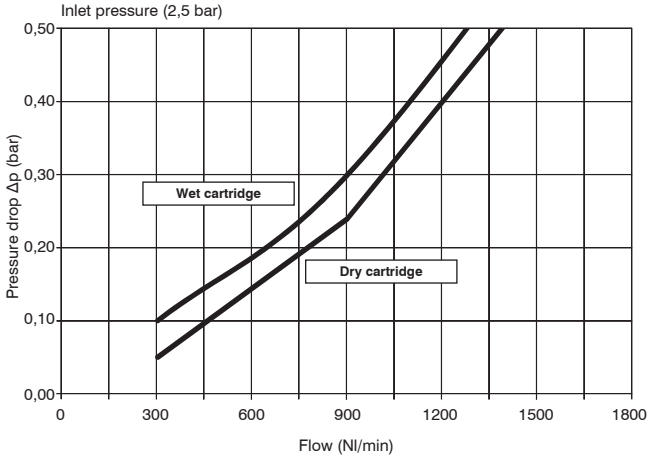
Characteristic curves





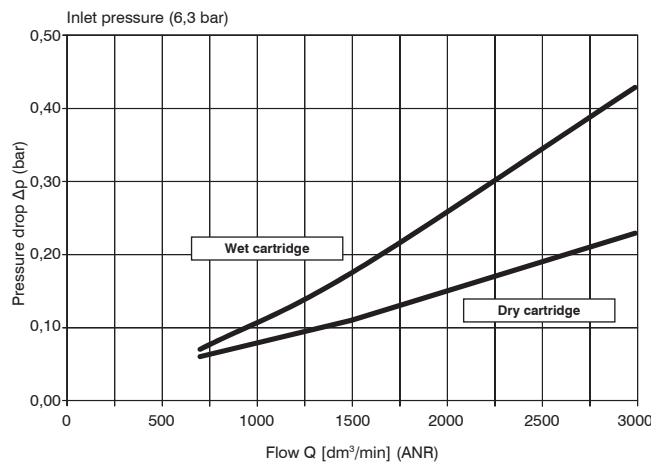
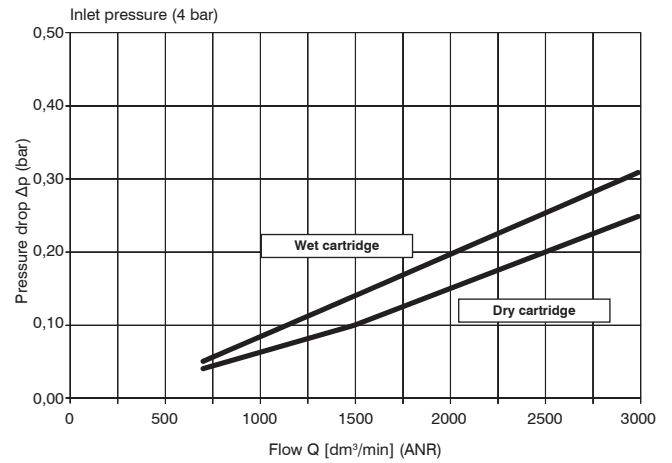
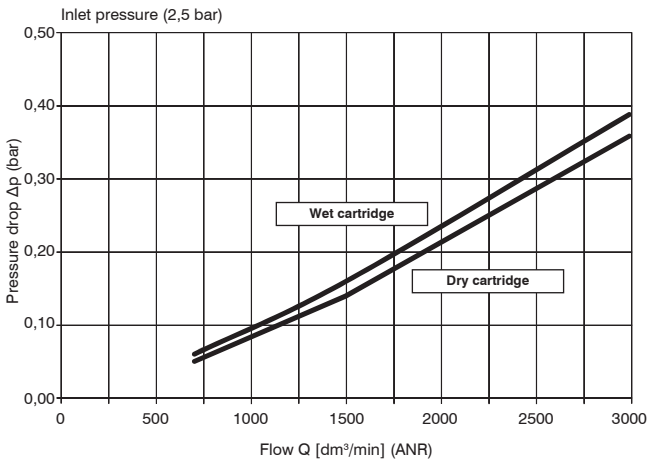
Size 3 - Oversize cartridge

Efficiency curves

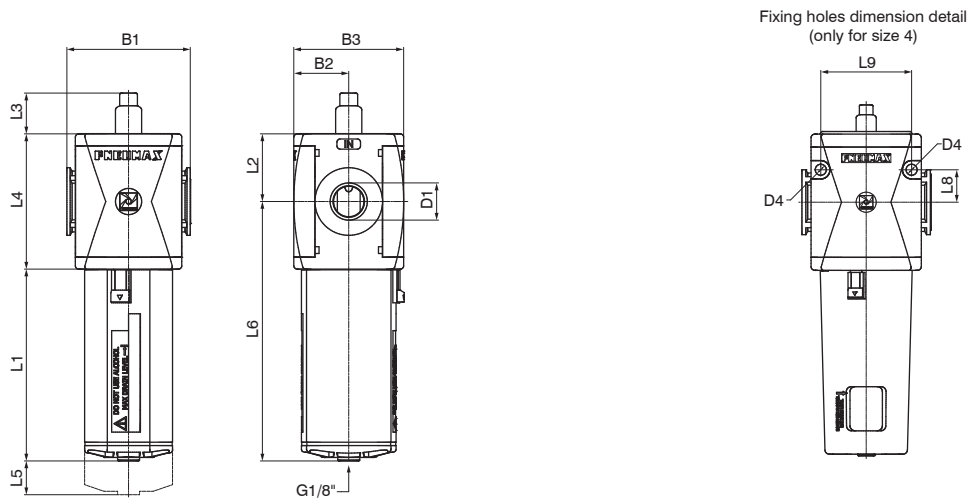


Size 4 - Standard cartridge

Efficiency curves



Dimensions



Model	B1	B2	B3	D1		L1 - Bowl material		L3	L4		L5	L8	L9
				Standard cartridge	Oversize cartridge	Technopolymer	Metal		Standard cartridge	Oversize cartridge			
#173..	73	32,5	65	G3/8" G1/2" 1/2" NPT	G1/2"	113,5	116	24,1	80	118	65	/	/
#174..	99	44	88	G1"	/	143	145,5	22,5	105	/	103	25	70

2

AIR TREATMENT

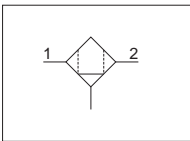
► Carbon filters (DD)



- ▶ Carbon filter
- ▶ Available in 2 sizes with connections from 3/8" to 1"
- ▶ Active carbon cartridge with built in particulate filter
- ▶ Used to remove oil vapours, hydrocarbons, odours and particles
- ▶ Oil residue up to <0,003 ppm (max input aerosol 0.01 ppm)
- ▶ High absorption capacity, with low differential pressure
- ▶ Filtering performances 99.97% (particles up to 0.01 μm)
- ▶ Bowl assembly via bayonet type quick coupling mechanism with safety button
- ▶ Semi-automatic drain
- ▶ Atex certification (II 2GD or II 3GD)
- ▶ Inlet pressures up to 20 bar

2

AIR TREATMENT



Note

A 5μ filter, coalescing filter and oil removing filter must be installed prior to the carbon filter, this is to ensure that the carbon filter operates correctly and safe guard the life of the active carbon element. It may also be necessary to replace the carbon element at fixed intervals.

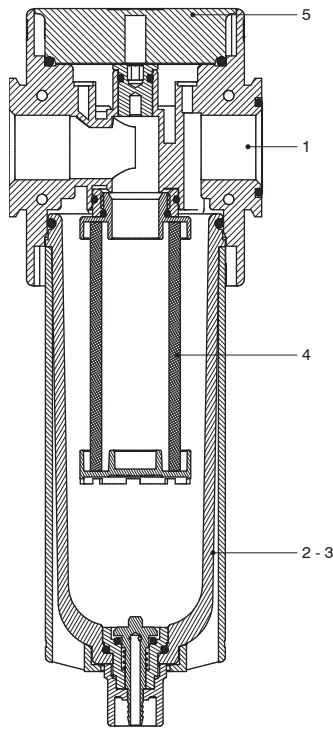
Technical characteristics			
	Size	Size 3	Size 4
Body and connections type		Technopolymer body, integrated technopolymer connections (T version) Technopolymer body, metal connections (N version)	/
		Aluminium body, integrated aluminium connections (P - L versions)	/
Protection and bowl type		Technopolymer protection - PC bowl Technopolymer protection - PA bowl Metal protection - PC bowl Metal protection - PA bowl Metal bowl (blind metal bowl)	
IN / OUT connections	T version	G1/2"	not available
	N version	G3/8" - G1/2" - 1/2" NPT	
	P and L version	G1/2"	G1"
Assembly configuration		Stand alone	Panel mounted
Assembly positions		Vertical ±5°	
Oil residue		< 0,003 ppm (max input aerosol 0.01 ppm)	
Bowl capacity		68 cm ³	90 cm ³
Condensation drain		Semi-automatic	
Max. fittings torque IN / OUT connections		G3/8" metal: 25Nm G1/2" metal: 30Nm G1/2" technopolymer: 22Nm	G1"metal: 35Nm

Operational characteristics			
	Size	Size 3	Size 4
Condensation drain		Semi-automatic	
Maximum working pressure		13 bar 20 bar (only with body and metal bowl)	
Minimum working pressure		0,5 bar	
Working temperature		-5°C +50°C -30°C +80°C (only for P version and metal bowl) -40°C +80°C (only for L version and metal bowl)	
Cartridge life		2000 hours	

Weights			
	Size	Size 3	Size 4
Fully technopolymer version		395 g	/
Technopolymer body version, aluminium bowl protection and technopolymer bowl		432 g	/
Technopolymer body version, aluminium bowl		505 g	/
Aluminium body version, technopolymer protection and bowl		518 g	1201 g
Aluminium body version, aluminium bowl protection and technopolymer bowl		554 g	1344 g
Aluminium body version and aluminium bowl		628 g	1368 g

Materials

Exploded sectioned



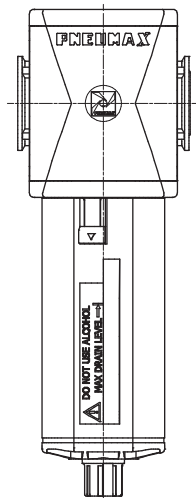
Carbon filter		
1	Body	Polyamide Die-cast aluminium
2	Technopolymer bowl	Polycarbonate Polyamide
3	Metal bowl Bowl protection	Die-cast aluminium Polyamide - Die-cast aluminium
4	Filtering element	Activated carbon
5	Plug	Polyamide Die-cast aluminium

2

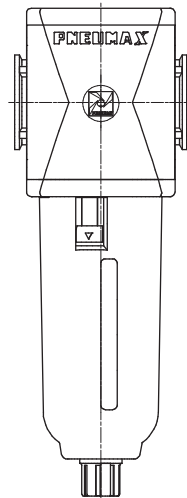
AIR TREATMENT

Design

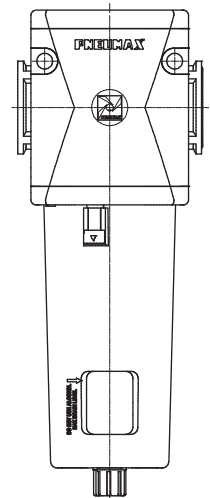
Size 3
Technopolymer protection



Size 3
Protection / Metal bowl



Size 4
All versions





Order codes

T 17 3B DD T

Version
N : Technopolymer body and metal inserts (not available for size 4)
T : Technopolymer body and thread (not available for size 4)
P : Aluminium body
L : Aluminium body, low temperature

Size and connections
3A : Size 3 - G3/8" only for N version
3B : Size 3 - G1/2" for all versions
3C : Size 3 - 1/2" NPT only for N version
4B : Size 4 - G1" only for P - L versions

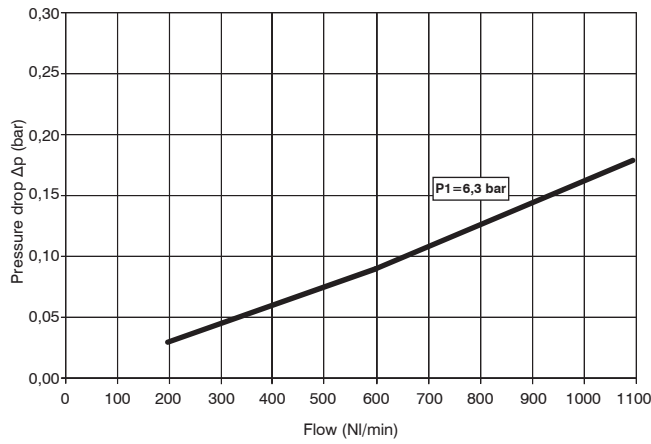
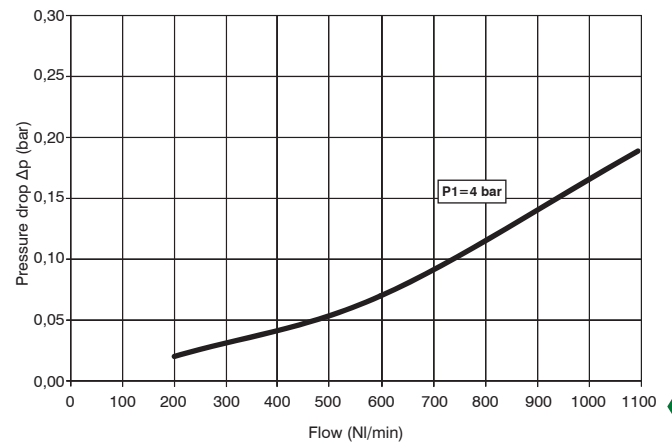
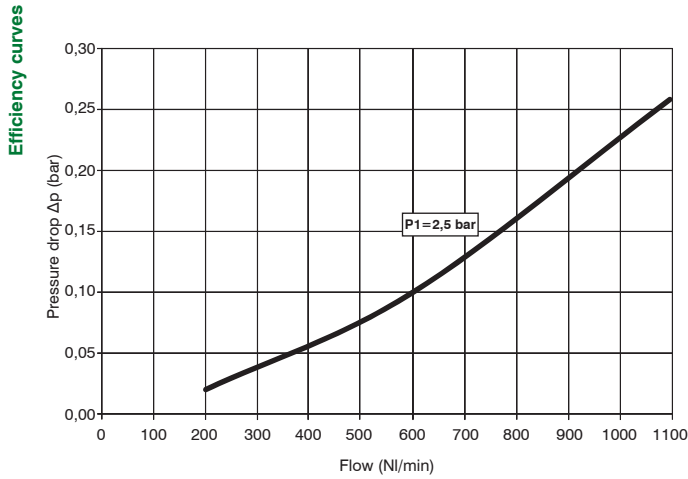
Bowl options
: Technopolymer protection - PC bowl
N : Technopolymer protection - PA bowl
P : Metal protection - PC bowl
R : Metal protection - PA bowl
T : Metal bowl

Example : T173BDDT : Size 3 carbon filter G1/2" metal bowl

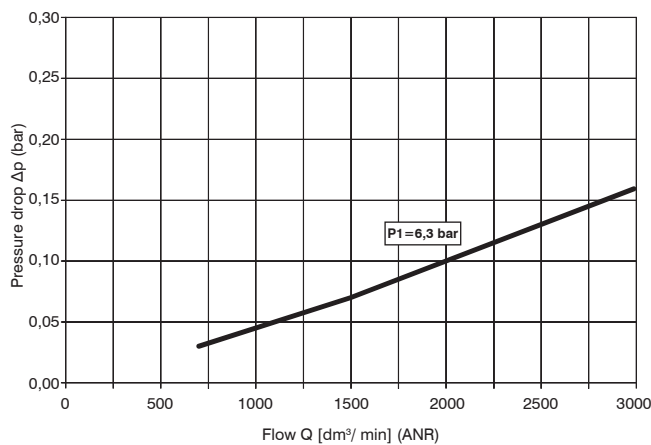
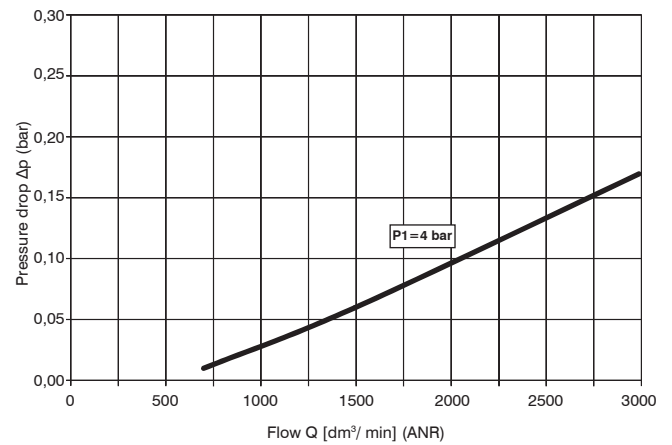
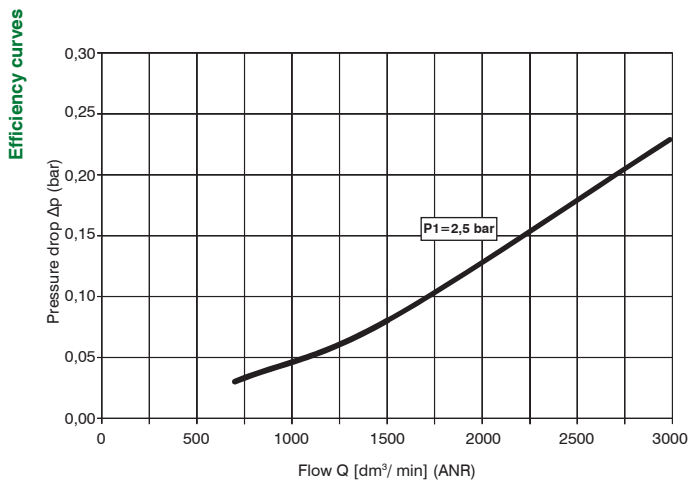
2
AIR TREATMENT

Characteristic curves

Size 3



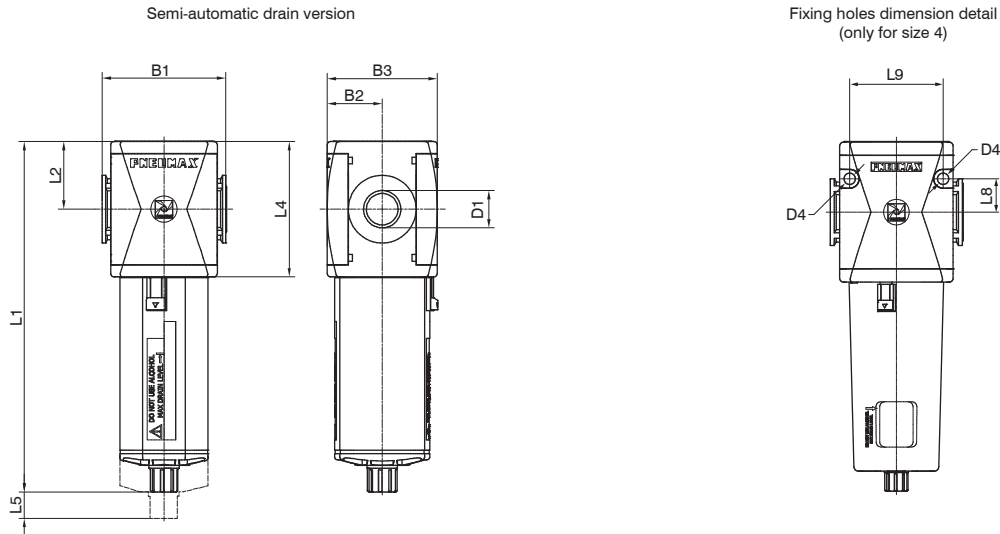
Size 4



2

AIR TREATMENT

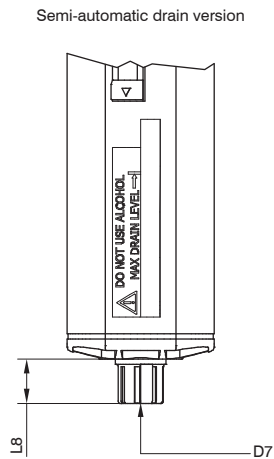
Dimensions



2 AIR TREATMENT

Model	B1	B2	B3	D1	D4	L1 - Bowl material		L2	L4	L5	L8	L9
						Technopolymer	Metal					
#173..	73	32,5	65	G3/8" G1/2" 1/2" NPT	/	207,2	209,5	40	80	65	/	/
#174..	99	44	88	G1" 1" NPT	8,5	262	264,5	52,5	105	103	25	70

Variable dimensions

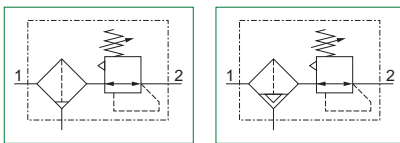


Model	L8 - Bowl material		D7
	Technopolymer	Metal	
Semi-automatic drain	15,7	18	Plastic hose connector

Filter regulators (E - EM - EW - EP - EZ)



- ▶ Filter - diaphragm pressure regulator with relieving
- ▶ Available in 4 sizes with flow rates up to 8000 NI/min and connections from 1/8" to 1"
- ▶ Low hysteresis rolling diaphragm and balanced spool
- ▶ Filtering element made of HDPE available in 3 different filtration grades (5µm, 20µm and 50µm)
- ▶ Bowl assembly via bayonet type quick coupling mechanism with safety button
- ▶ Semi-automatic or automatic drain
- ▶ Available in four pressure ranges up to 12 bar
- ▶ Fitted with panel mounting locking ring
- ▶ Available with pressure gauge or digital pressure switch integrated
- ▶ Atex certification (II 2GD or II 3GD)
- ▶ Inlet pressures up to 20 bar



Note

For installations where a more accurate and constant pressure is required, the unit should be installed as close as possible to the point of use. In order to ensure that any fluid discharged by the auto drain assembly is adequately drained away, it is recommended you use a 6mm fitting and tube.

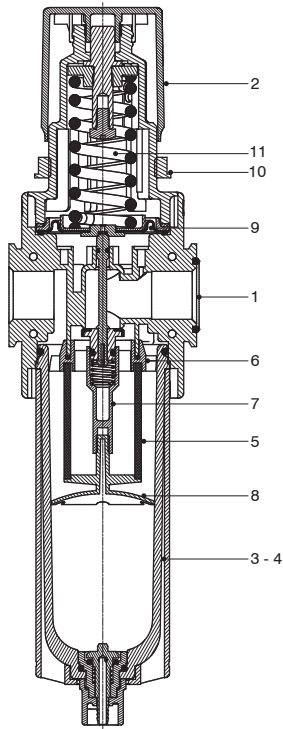
Technical characteristics		Size	Size 1	Size 2	Size 3	Size 4
Body and connections type			Technopolymer body, integrated technopolymer connections (T version) Technopolymer body, metal connections (N version)	Aluminium body, integrated aluminium connections (P - L versions)		/
Protection and bowl type			Technopolymer protection - PC bowl Technopolymer protection - PA bowl	Metal protection - PC bowl Metal protection - PA bowl Metal bowl (blind metal bowl)		
IN / OUT connections	T version		G1/4"	G3/8"	G1/2"	not available
	N version		G1/8" - G1/4" - 1/4" NPT	G3/8" - G1/4" - 3/8" NPT	G3/8" - G1/2" - 1/2" NPT	
	P and L version		not available	G3/8" - 1/4" NPT	G1/2" - 1/2" NPT	G1" - 1" NPT
Assembly configuration			Stand alone Panel mounting With fixing bracket /			Panel mounted
Assembly positions			Vertical ±5°			
Filter pore size			5 µm 20 µm 50 µm			
Pressure range			0-2 bar 0-4 bar 0-8 bar 0-12 bar (P2 max 10 Bar in case of digital pressure switch selection)			
Bowl capacity			18 cm ³	34 cm ³	68 cm ³	90 cm ³
Condensation drain			Semi-automatic Automatic			
Regulation			Manual push and lock with pressure Manual lockable with accessories			
Pressure measurement			G1/8" - 1/8" NPT pressure gauge connection port (only for versions with IN / OUT NPT connections) Integrated pressure gauge (optional) Digital pressure switch (optional)			
Max. fittings torque IN / OUT connections			G1/8" metal: 15Nm G1/4" metal: 20Nm G1/4" technopolymer: 9Nm	G1/4" metal: 20Nm G3/8" metal: 25Nm G3/8" technopolymer: 16Nm	G3/8" metal: 25Nm G1/2" metal: 30Nm G1/2" technopolymer: 22Nm	G1" metal: 35Nm
Max. fitting torque pressure gauge connection port			G1/8" technopolymer: 4Nm G1/8" metal: 15Nm			

Operational characteristics									
Condensation drain	Size	Size 1	Size 2	Size 3	Size 4	Size 1	Size 2	Size 3	Size 4
		Semi-automatic				Automatic			
Maximum working pressure		13 bar	20 bar (only with body and metal bowl)			10 bar	16 bar (only with body and metal bowl)		
Minimum working pressure		0,5 bar				0,5 bar			
Working temperature		-5°C +50°C		-30°C +80°C (only for P version and metal bowl) -40°C +80°C (only for L version and metal bowl)		-5°C +50°C			
Working temperature with digital pressure switch		0°C +50°C							

Weights					
	Size	Size 1	Size 2	Size 3	Size 4
Fully technopolymer version		210 g	410 g	500 g	/
Technopolymer body version, aluminium bowl protection and technopolymer bowl		/	440 g	600 g	/
Technopolymer body version, aluminium bowl		/	460 g	660 g	/
Aluminium body version, technopolymer protection and bowl		/	480 g	710 g	1460 g
Aluminium body version, aluminium bowl protection and technopolymer bowl		/	510 g	730 g	1600 g
Aluminium body version and aluminium bowl		/	560 g	790 g	1620 g

Materials

Exploded sectioned

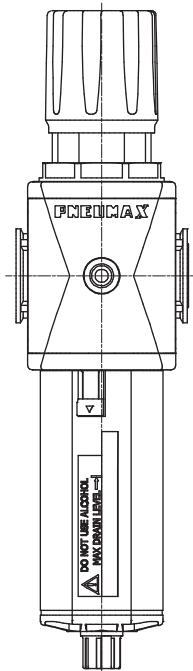


Filter regulator		
1	Body	Polyamide Die-cast aluminium
2	Adjusting knob	Polyamide
3	Technopolymer bowl	Polycarbonate Polyamide
4	Metal bowl Bowl protection	Die-cast aluminium Polyamide - Die-cast aluminium
5	Filtering element	Polyethylene
6	Baffle	Acetal resin
7	Spool support	Acetal resin
8	Filtering element support	Acetal resin
9	Diaphragm	NBR
10	Panel mounting locking ring	Polyamide
11	Adjusting spring	Steel

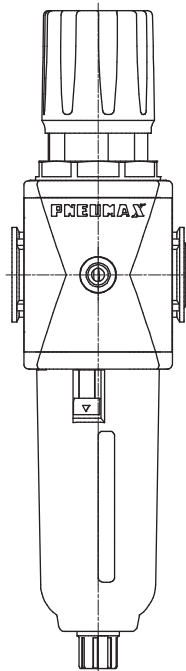
2
AIR TREATMENT

Design

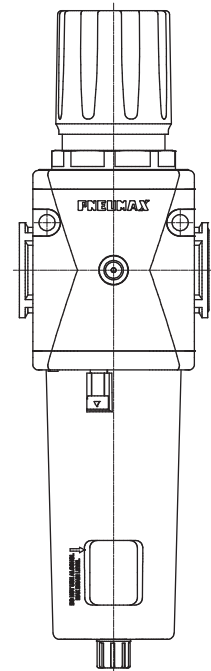
Size 1 - Size 2 - Size 3
Technopolymer protection



Size 1 - Size 2 - Size 3
Protection / Metal bowl



Size 4
All versions





Order codes

	T	17	3B	E	M	B	D	S					T
Version													
N : Technopolymer body and metal inserts (not available for size 4)													
T : Technopolymer body and thread (not available for size 4)													
P : Aluminum body (not available for size 1)													
L : Aluminum body, low temperature (not available for size 1)													
Size and connections													
1A : Size 1 - G1/8" only for N version													
1B : Size 1 - G1/4" only for T - N versions													
1C : Size 1 - 1/4" NPT only for N version													
2A : Size 2 - G1/4" only for N version													
2B : Size 2 - G3/8" for all versions													
2C : Size 2 - 3/8" NPT only for N version - 1/4" NPT only for P - L versions													
3A : Size 3 - G3/8" only for N version													
3B : Size 3 - G1/2" for all versions													
3C : Size 3 - 1/2" NPT only for N - P - L versions													
4B : Size 4 - G1" only for P - L versions													
4C : Size 4 - 1" NPT only for P - L versions													
Pressure measurement options													
: G1/8" - 1/8" NPT thread													
M : Integrated pressure gauge													
W : Integrated pressure gauge Right - Left													
P : Digital pressure switch													
Z : Digital pressure switch Right - Left													
Filter pore size													
A : 5 µm													
B : 20 µm													
C : 50 µm													
Pressure range													
A : 0 - 2 bar													
B : 0 - 4 bar													
C : 0 - 8 bar													
D : 0 - 12 bar													
Condensation drain													
: Semi-automatic drain													
S : Automatic drain													
Relieving options													
: With relieving													
L : Without relieving													
Knob options													
: Non-lockable version													
K : Lockable version													
U : Lockable version with universal key													
Digital pressure switch options													
A : Cable 150 mm + M8 PNP													
B : Cable 150 mm + M8 NPN													
C : Cable 2 m PNP													
D : Cable 2 m NPN													
Bowl options													
: Technopolymer protection - PC bowl													
N : Technopolymer protection - PA bowl													
P : Metal protection - PC bowl (not available for size 1)													
R : Metal protection - PA bowl (not available for size 1)													
T : Metal bowl (not available for size 1)													

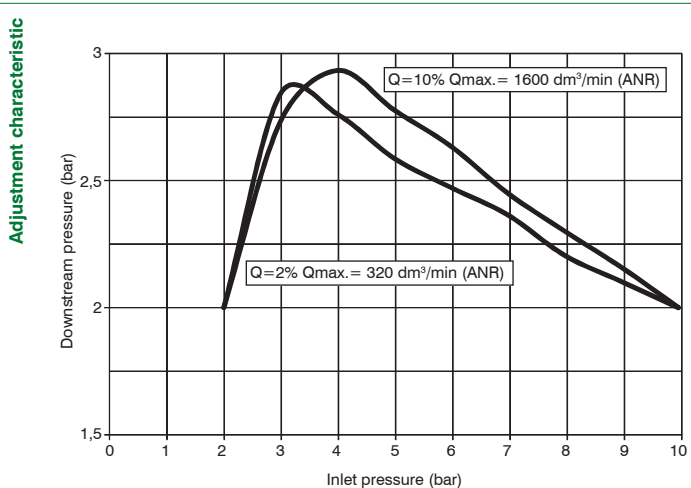
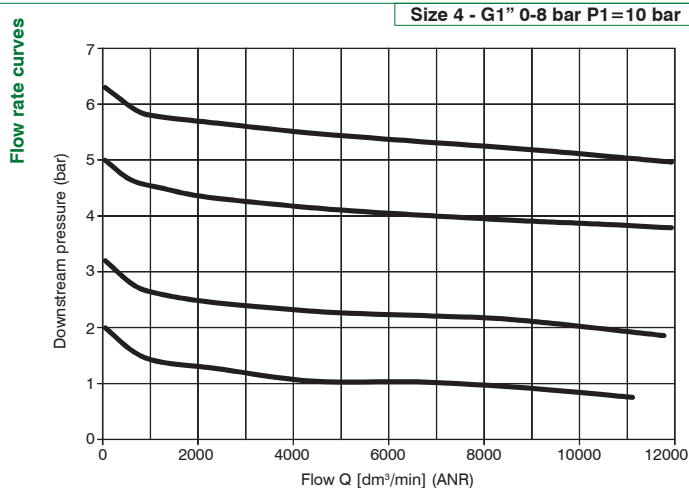
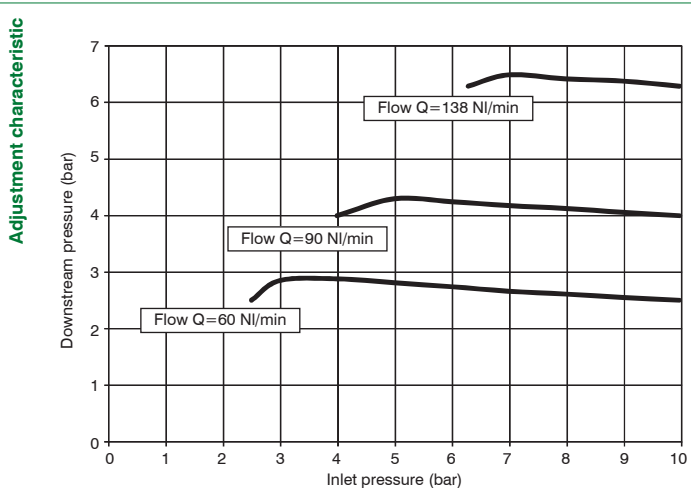
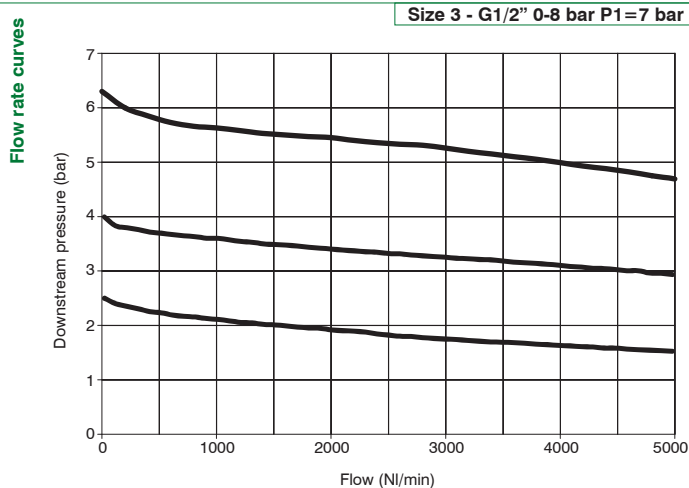
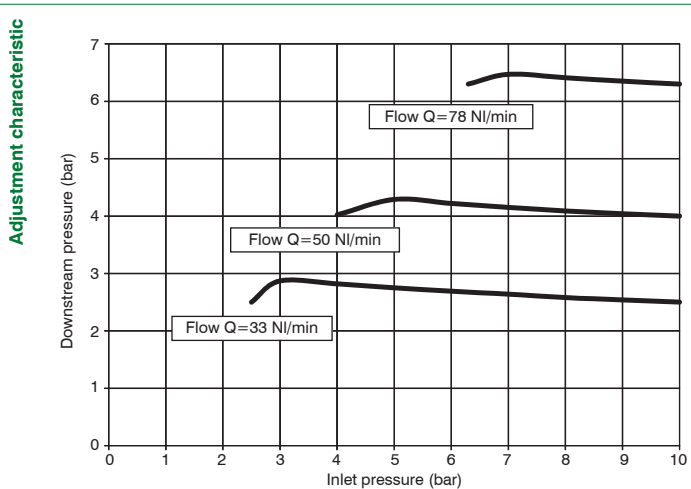
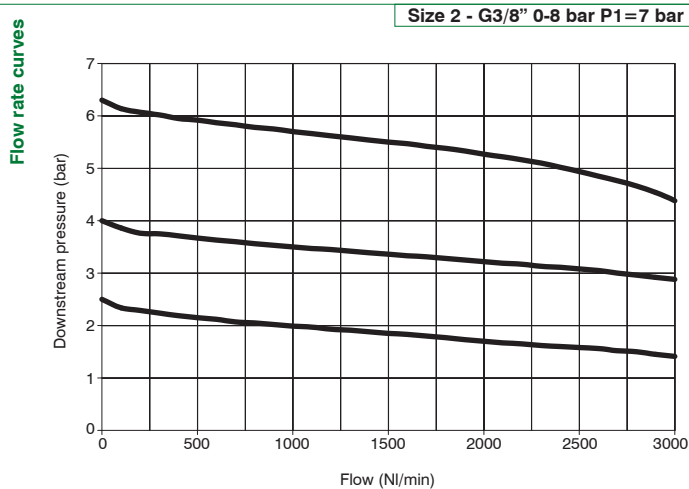
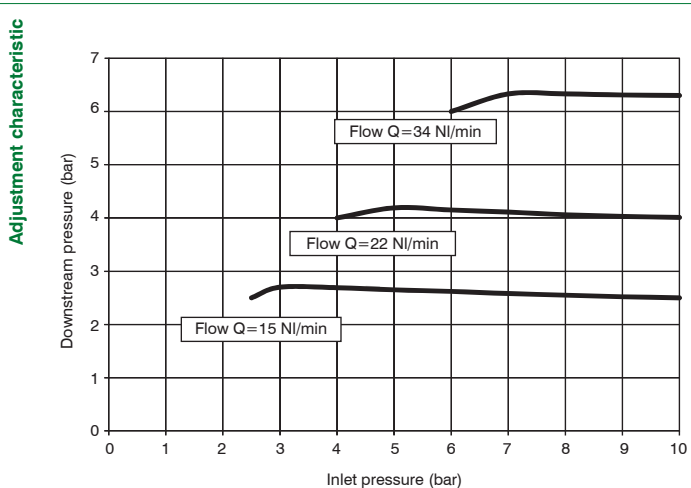
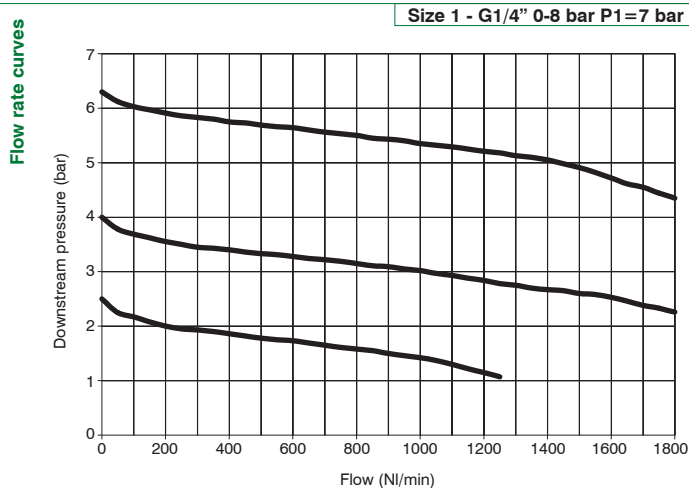
Example : T173BEMBDS : Size 3 filter regulator G1/2" 20 µm 0 - 12 bar, automatic drain and metal bowl

2
AIR TREATMENT

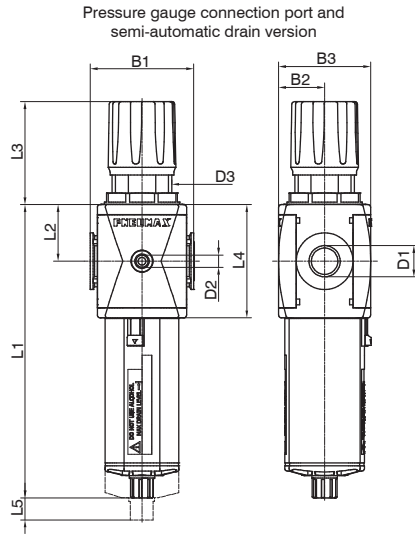


Characteristic curves

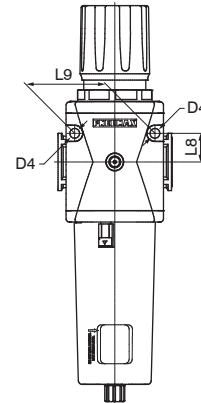
2
AIR TREATMENT



Dimensions



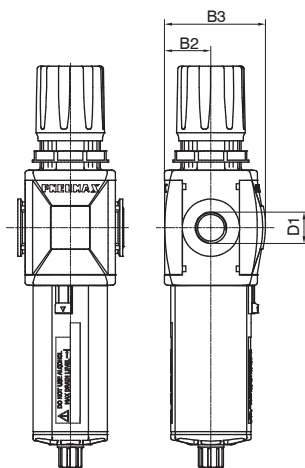
Fixing holes dimension detail (only for size 4)



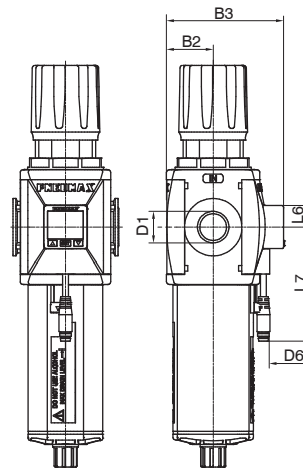
Model	B1	B2	B3	D1	D2	D3	D4	L1 - Bowl material		L2	L3	L4	L5	L8	L9
								Technopolymer	Metal						
#171..	48	21	42	G1/8" G1/4" 1/4" NPT	G1/8" 1/8" NPT	M30x1,5	/	148	/	27,5	54	55	40	/	/
#172..	62	28,5	57	G1/4" G3/8" 1/4" NPT 3/8" NPT	G1/8" 1/8" NPT	M42x1,5	/	169,1	171,5	34	71,8	68	50	/	/
#173..	73	32,5	65	G3/8" G1/2" 1/2" NPT	G1/8" 1/8" NPT	M42x1,5	/	207,2	209,5	40	72,8	80	65	/	/
#174..	99	44	88	G1" 1" NPT	G1/8" 1/8" NPT	M54x1,5	8,5	262	264,5	52,5	87,5	105	103	25	70

Variable dimensions

Integrated pressure gauge version



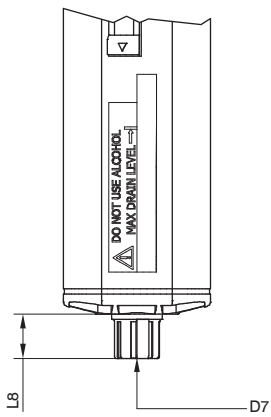
Integrated digital pressure switch version



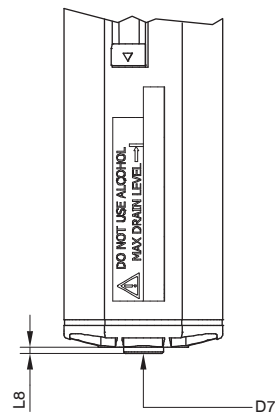
Model	B2	B3		D1	D6 - Type of digital pressure switch		L6	L7 - Type of digital pressure switch	
		With pressure gauge	With digital pressure switch		A - B	C - D		A - B	C - D
#171..	21	48,5	60	G1/8" G1/4" 1/4" NPT	M8 - 3 PIN	3 x 0,129 mm, Ø4 mm	15	150	2000
#172..	28,5	62,5	73,5	G1/4" G3/8" 1/4" NPT 3/8" NPT					
#173..	32,5	70,5	81,5	G3/8" G1/2" 1/2" NPT					
#174..	44	90,5	101,5	G1" 1" NPT					

Variable dimensions

Semi-automatic drain version



Automatic drain version



2

AIR TREATMENT

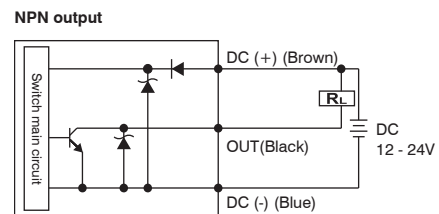
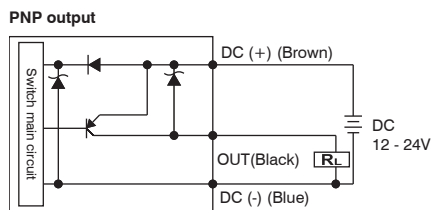
Model	L8 - Bowl material		D7
	Technopolymer	Metal	
Semi-automatic drain	15,7	18	Plastic hose connector
Automatic drain	2	4,5	G1/8"

Digital pressure switch

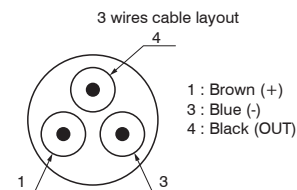
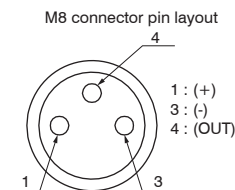


- ▶ 3 color digital LCD display, easy readout
- ▶ 4 units of measurement for pressure indication
- ▶ Optional PNP or NPN digital output
- ▶ N.O. and N.C. output contact selection directly on the digital pressure switch
- ▶ Available with M8-3PIN connector or 3 wire cable length 2 m
- ▶ Available only in combination with a filter regulator

Output circuit wiring diagrams



Digital pressure switch lay out



Cable ordering code

- MCH1** : cable 3 wires l=2,5m with M8 connector
- MCH2** : cable 3 wires l=5m with M8 connector
- MCH3** : cable 3 wires l=10m with M8 connector

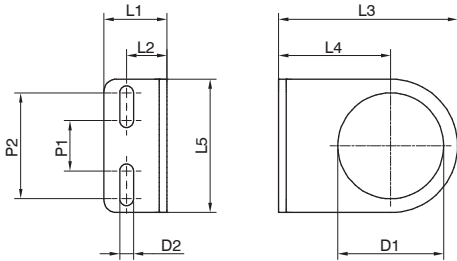


Technical characteristics	
Pressure range and display	0 - 10 bar
Max. inlet pressure	15 bar
Fluid	40µm filtered and dehumidified air
Display unit of measurement	MPa - kgf/cm² - bar - psi
Supply voltage	12 - 24 VDC
Current consumption	≤40mA (without load)
Digital output type	PNP - NPN
Type of contact output	Normally Open - Normally Closed
Max. load current	125 mA
Digital output activation mode	single threshold with fixed hysteresis - window with fixed hysteresis - window without hysteresis
Digital output activation time	0.05s - 0.25s - 0.5s - 1s - 2s - 3s (selections for chattering-proof options)
Display characteristics	Double 3 1/2 digit display Digital output status indication Three-pushbuttons touchpad
Indicator accuracy	≤ ±2% full scale value ± 1 digit
IP Rating	IP40
Working temperature	0°C +50°C
Cable section	3 x 0,129mm², Ø4 mm, PVC

► **Fixing bracket**

T172 50

Size
171 : Size 1
T172 : Size 2 - Size 3



2

AIR TREATMENT

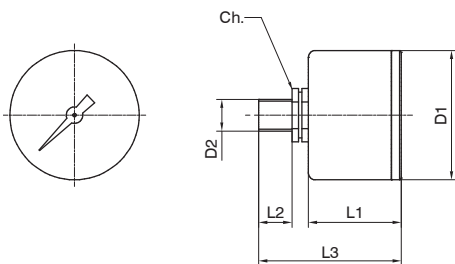
Model	L1	L2	L3	L4	L5	D1	D2	P1	P2
17150	20	13	50	30	40	30	5,5	20	30
T17250	25	16	71	44,5	53	42	5,5	20	42

► **Pressure gauge**

17070 A C

Version
A : Dial Ø40
B : Dial Ø50

Scale
A : 0 - 4 bar
B : 0 - 6 bar
C : 0 - 12 bar

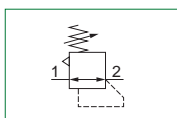


Model	L1	L2	L3	D1	D2	Ch
17070A..	26	10	44	41	Gc - 1/8"	14
17070B..	27	10	45	49	Gc - 1/8"	14

► Regulators (R - RM - RW - RP - RZ)



- ▶ Diaphragm pressure regulator with relieving
- ▶ Available in 4 sizes with flow rates up to 8000 NI/min and connections from 1/8" to 1"
- ▶ Low hysteresis rolling diaphragm and balanced spool
- ▶ Available in four pressure ranges up to 12 bar
- ▶ Fitted with panel mounting locking ring
- ▶ Available with pressure gauge or digital pressure switch integrated
- ▶ Atex certification (II 2GD or II 3GD)
- ▶ Inlet pressures up to 20 bar



Note

For installations where a more accurate and constant pressure is required, the unit should be installed as close as possible to the point of use.

2

AIR TREATMENT

Technical characteristics		Size	Size 1	Size 2	Size 3	Size 4
Body and connections type		Technopolymer body, integrated technopolymer connections (T version) Technopolymer body, metal connections (N version)				/
		/		Aluminium body, integrated aluminium connections (P - L versions)		
IN / OUT connections	T version	G1/4"		G3/8"		G1/2"
	N version	G1/8" - G1/4" - 1/4" NPT		G3/8" - G1/4" - 3/8" NPT		G3/8" - G1/2" - 1/2" NPT
	P and L version	not available		G3/8" - 1/4" NPT		G1/2" - 1/2" NPT
Assembly configuration		Stand alone Panel mounting With fixing bracket /				Panel mounted
Assembly positions		Indifferent				
Pressure range		0-2 bar 0-4 bar 0-8 bar 0-12 bar (P2 max 10 Bar in case of digital pressure switch selection)				
Regulation		Manul push and lock with pressure Manual lockable with accessories				
Pressure measurement		G1/8" - 1/8" NPT pressure gauge connection port (only for versions with IN / OUT NPT connections) Integrated pressure gauge (optional) Digital pressure switch (optional)				
Max. fittings torque IN / OUT connections		G1/8" metal: 15Nm G1/4" metal: 20Nm G1/4" technopolymer: 9Nm		G1/4" metal: 20Nm G3/8" metal: 25Nm G3/8" technopolymer: 16Nm		G3/8" metal: 25Nm G1/2" metal: 30Nm G1/2" technopolymer: 22Nm G1" metal: 35Nm
Max. fitting torque pressure gauge connection port		G1/8" technopolymer: 4Nm G1/8" metal: 15Nm				

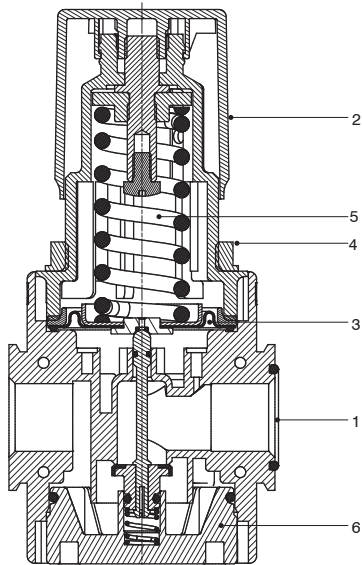
Operational characteristics		Size	Size 1	Size 2	Size 3	Size 4
Maximum working pressure		13 bar		20 bar (only for P - L versions)		
Minimum working pressure		0,5 bar				
Working temperature		-5°C +50°C		-30°C +80°C (only for P version) -40°C +80°C (only for L version)		
Working temperature with digital pressure switch		0°C +50°C				



Weights					
	Size	Size 1	Size 2	Size 3	Size 4
Technopolymer body version		150 g	310 g	390 g	/
Aluminium body version		/	400 g	560 g	1260 g

Materials

Exploded sectioned

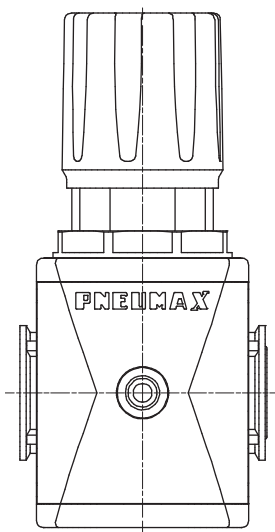


Regulator		
1	Body	Polyamide Die-cast aluminium
2	Adjusting knob	Polyamide
3	Diaphragm	NBR
4	Panel mounting locking ring	Polyamide
5	Adjusting spring	Steel
6	Rear end cap	Polyamide / Die-cast aluminium

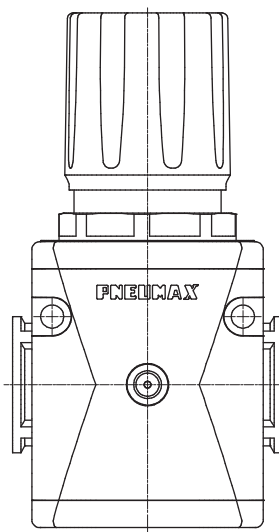
2
AIR TREATMENT

Design

Size 1 - Size 2 - Size 3



Size 4
All versions





Order codes

	T	17	3B	R	M	D			
Version									
N : Technopolymer body and metal inserts (not available for size 4)									
T : Technopolymer body and thread (not available for size 4)									
P : Aluminum body (not available for size 1)									
L : Aluminum body, low temperature (not available for size 1)									
Size and connections									
1A : Size 1 - G1/8" only for N version									
1B : Size 1 - G1/4" only for T - N versions									
1C : Size 1 - 1/4" NPT only for N version									
2A : Size 2 - G1/4" only for N version									
2B : Size 2 - G3/8" for all versions									
2C : Size 2 - 3/8" NPT only for N version - 1/4" NPT only for P - L versions									
3A : Size 3 - G3/8" only for N version									
3B : Size 3 - G1/2" for all versions									
3C : Size 3 - 1/2" NPT only for N - P - L versions									
4B : Size 4 - G1" only for P - L versions									
4C : Size 4 - 1" NPT only for P - L versions									
Pressure measurement options									
: G1/8" - 1/8" NPT thread									
M : Integrated pressure gauge									
W : Integrated pressure gauge Right - Left									
P : Digital pressure switch									
Z : Digital pressure switch Right - Left									
Pressure range									
A : 0 - 2 bar									
B : 0 - 4 bar									
C : 0 - 8 bar									
D : 0 - 12 bar									
Relieving options									
: With relieving									
F : Controlled refiel and improved relieving (not available for size 4)									
L : Without relieving									
R : Improved relieving									
Knob options									
: Non-lockable version									
K : Lockable version									
U : Lockable version with universal key									
Digital pressure switch options									
A : Cable 150 mm + M8 PNP									
B : Cable 150 mm + M8 NPN									
C : Cable 2 m PNP									
D : Cable 2 m NPN									

Example : T173BRMD : Size 3 regulator G1/2" 0 - 12 bar

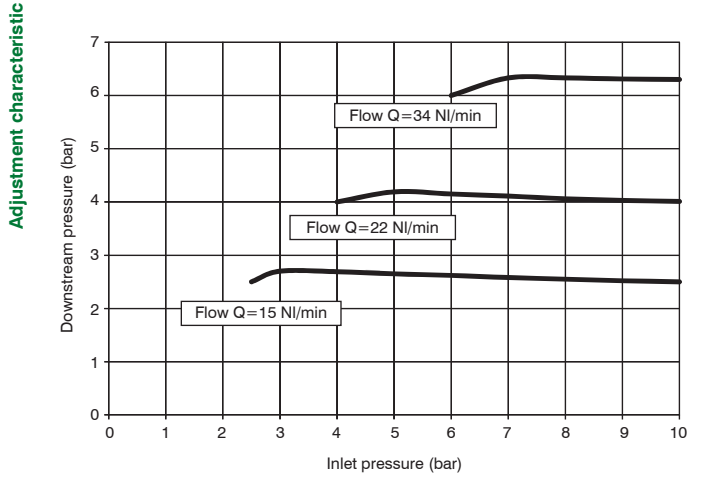
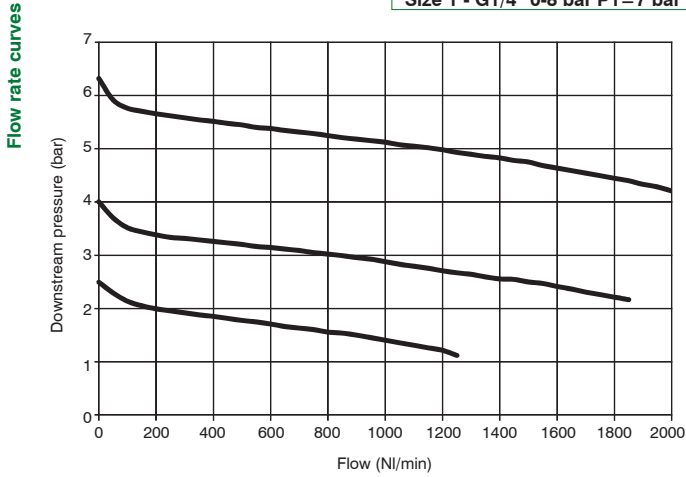


Characteristic curves

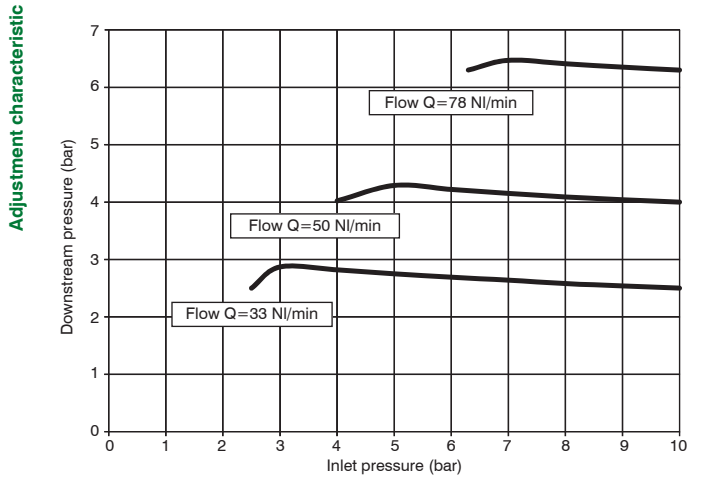
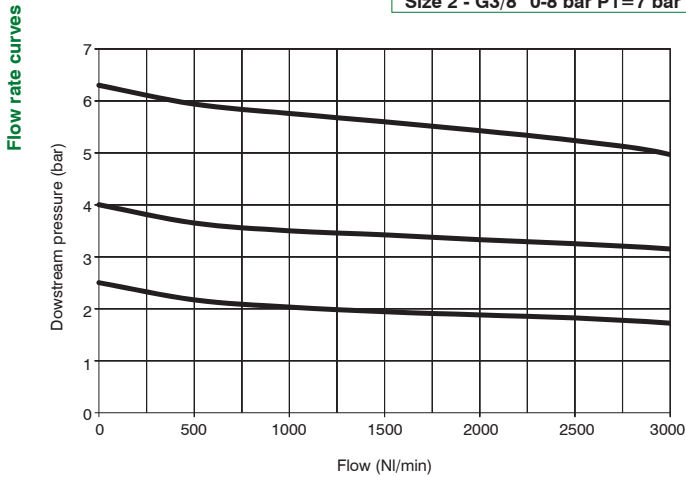
AIR TREATMENT

2

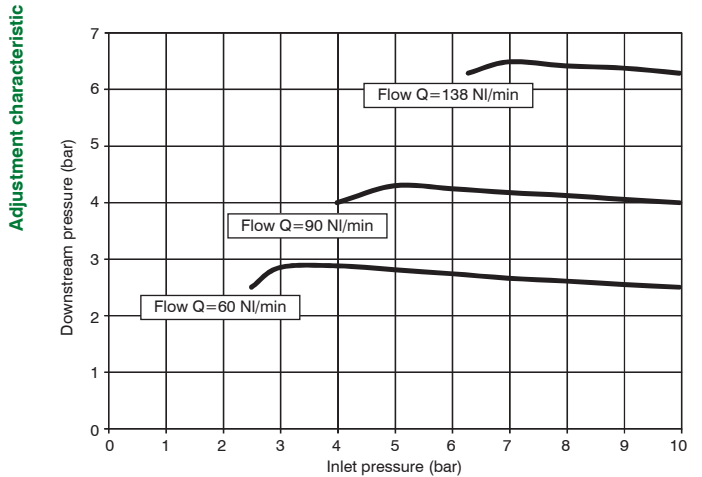
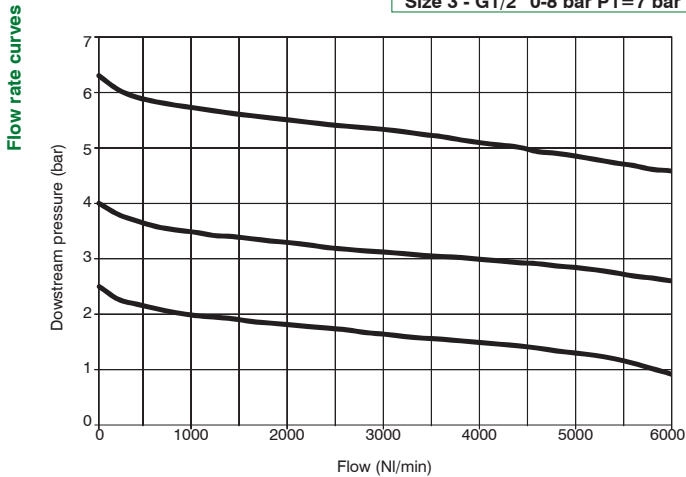
Size 1 - G1/4" 0-8 bar P1=7 bar



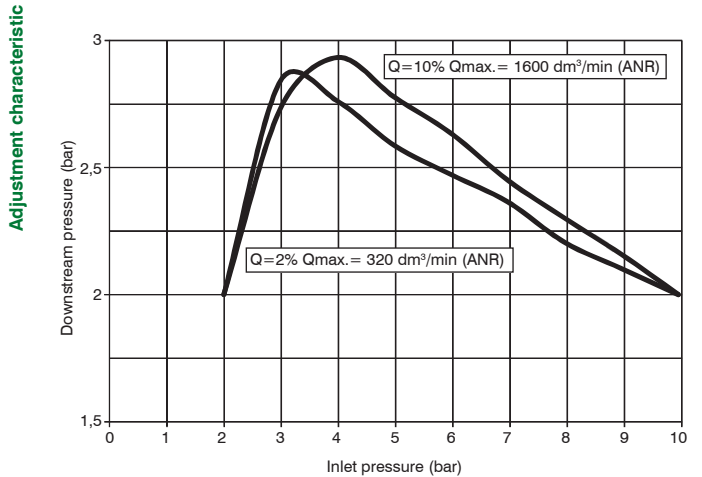
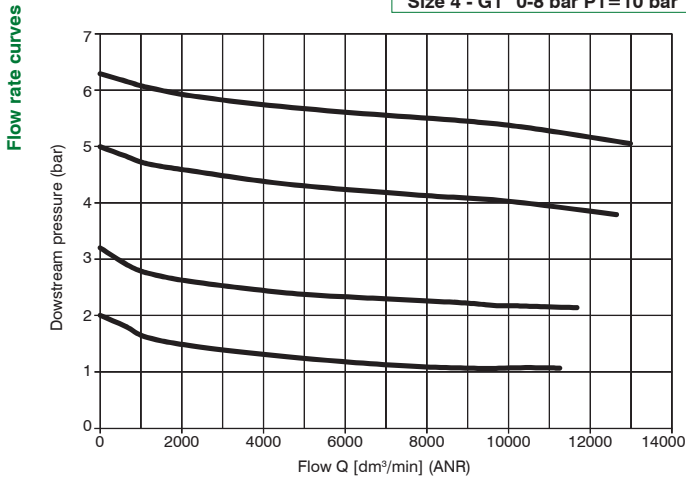
Size 2 - G3/8" 0-8 bar P1=7 bar



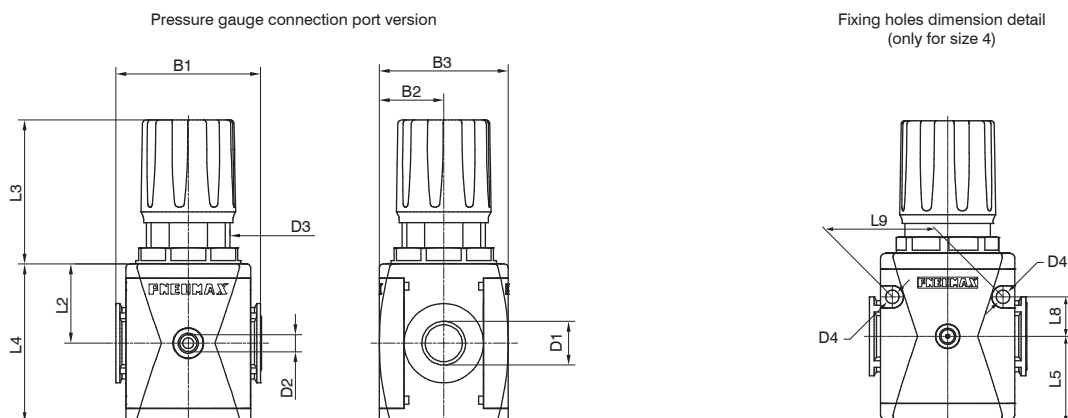
Size 3 - G1/2" 0-8 bar P1=7 bar



Size 4 - G1" 0-8 bar P1=10 bar



Dimensions

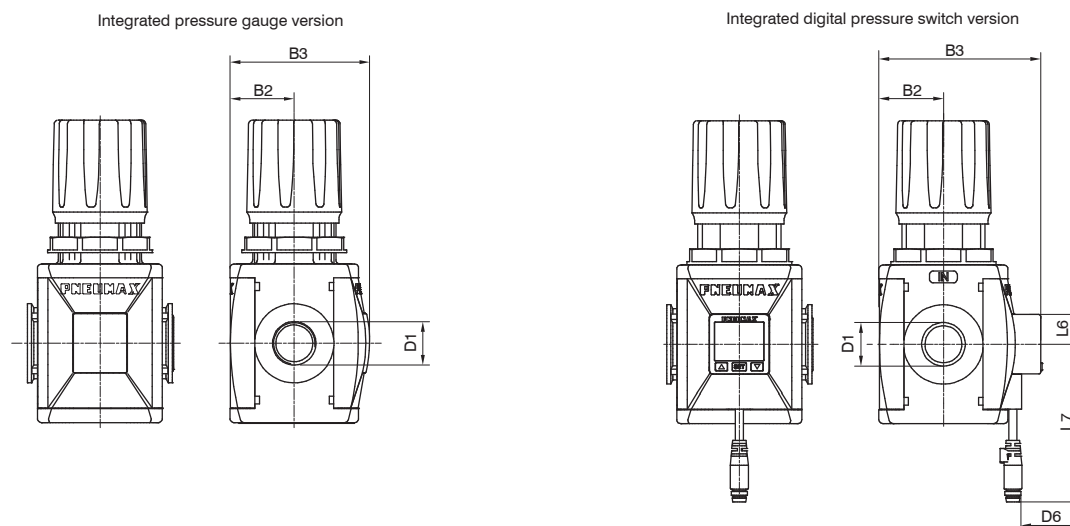


Model	B1	B2	B3	D1	D2	D3	D4	L2	L3	L4	L5	L8	L9
#171..	48	21	42	G1/8" G1/4" 1/4" NPT	G1/8" 1/8" NPT	M30x1,5	/	27,5	54	55	/	/	/
#172..	62	28,5	57	G1/4" G3/8" 1/4" NPT 3/8" NPT	G1/8" 1/8" NPT	M42x1,5	/	34	71,8	68	/	/	/
#173..	73	32,5	65	G3/8" G1/2" 1/2" NPT	G1/8" 1/8" NPT	M42x1,5	/	40	72,8	80	/	/	/
#174..	99	44	88	G1" 1" NPT	G1/8" 1/8" NPT	M54x1,5	8,5	52,5	87,5	105	54,5	25	70

AIR TREATMENT

2

Variable dimensions

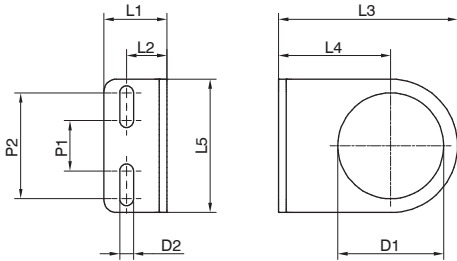


Model	B2	B3		D1	D6 - Type of digital pressure switch		L6	L7 - Type of digital pressure switch	
		With pressure gauge	With digital pressure switch		A - B	C - D		A - B	C - D
#171..	21	48,5	60	G1/8" G1/4" 1/4" NPT	M8 - 3 PIN	3 x 0,129 mm, Ø4 mm	15	150	2000
#172..	28,5	62,5	73,5	G1/4" G3/8" 1/4" NPT 3/8" NPT					
#173..	32,5	70,5	81,5	G3/8" G1/2" 1/2" NPT					
#174..	44	90,5	101,5	G1" 1" NPT					

► **Fixing bracket**

T172 50

Size
171 : Size 1
T172 : Size 2 - Size 3



2

AIR TREATMENT

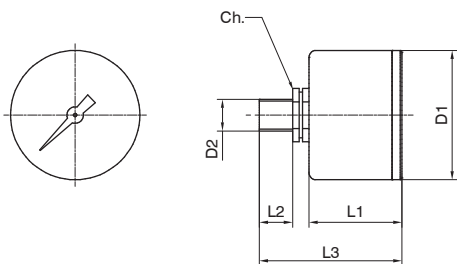
Model	L1	L2	L3	L4	L5	D1	D2	P1	P2
17150	20	13	50	30	40	30	5,5	20	30
T17250	25	16	71	44,5	53	42	5,5	20	42

► **Pressure gauge**

17070 A C

Version
A : Dial Ø40
B : Dial Ø50

Scale
A : 0 - 4 bar
B : 0 - 6 bar
C : 0 - 12 bar

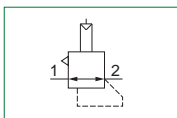


Model	L1	L2	L3	D1	D2	Ch
17070A..	26	10	44	41	Gc - 1/8"	14
17070B..	27	10	45	49	Gc - 1/8"	14

▶ **Piloted pressure regulators (RP - RMP - RPP)**



- ▶ Piston piloted pressure regulator
- ▶ Available with pressure gauge or digital pressure switch integrated
- ▶ Atex certification (II 2GD or II 3GD)
- ▶ Inlet pressures up to 20 bar



Note
Always regulate the rising pressure.

Technical characteristics	
Size	Size 4
Body and connections type	Aluminium body, integrated aluminium connections
IN / OUT connections	G1" - 1" NPT
Assembly configuration	Stand alone Panel mounted
Assembly positions	Indifferent
Pressure range	0,5 - 10 bar
Regulation	Pneumatic piloting
Pressure measurement	G1/8" - 1/8" NPT pressure gauge connection port (only for versions with IN / OUT NPT connections) Integrated pressure gauge (optional) Digital pressure switch (optional)
Max. fittings torque IN / OUT connections	G1"metal: 35Nm
Max.fitting torque pressure gauge connection port	G1/8"metal: 15Nm

Operational characteristics	
Size	Size 4
Maximum working pressure	20 bar
Minimum working pressure	0,5 bar
Pilot pressure range	0,5 - 10 bar
Working temperature	-30°C +80°C
Working temperature with digital pressure switch	0°C +50°C

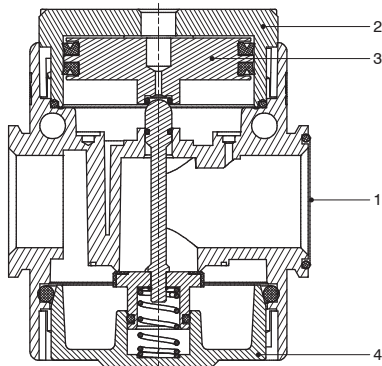
2
AIR TREATMENT



Weights					
	Size	Size 1	Size 2	Size 3	Size 4
Pneumatic pilot aluminum body version		/	/	/	1190 g

Materials

Exploded sectioned



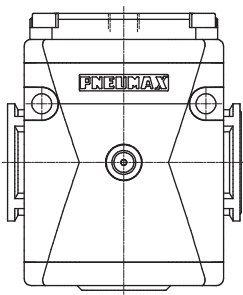
Piloted pressure regulator		
1	Body	Die-cast aluminium
2	Piloting operator	Aluminium
3	Piston	Aluminium
4	Rear end cap	Die-cast aluminium

2

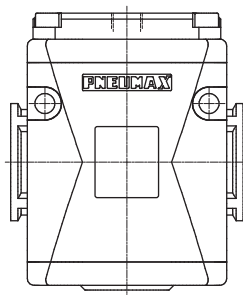
AIR TREATMENT

Design

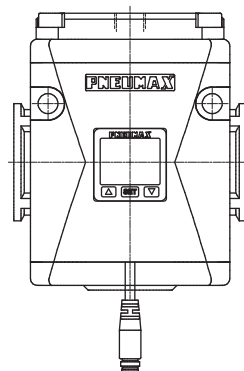
G1/8" pressure gauge connection port version



Integrated pressure gauge version



Integrated digital pressure switch version



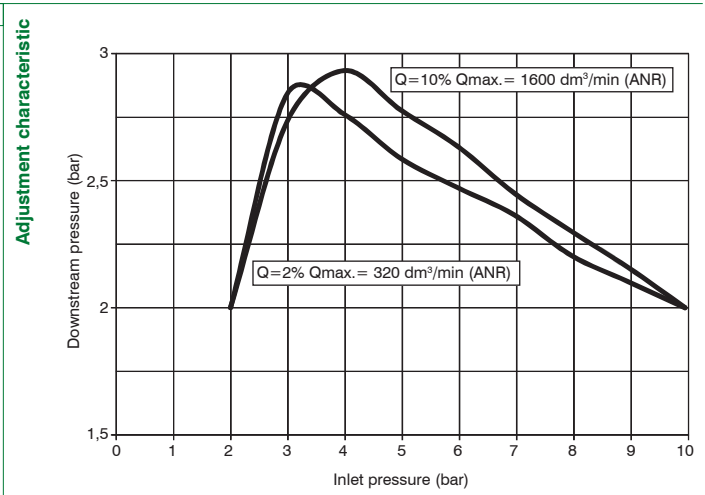
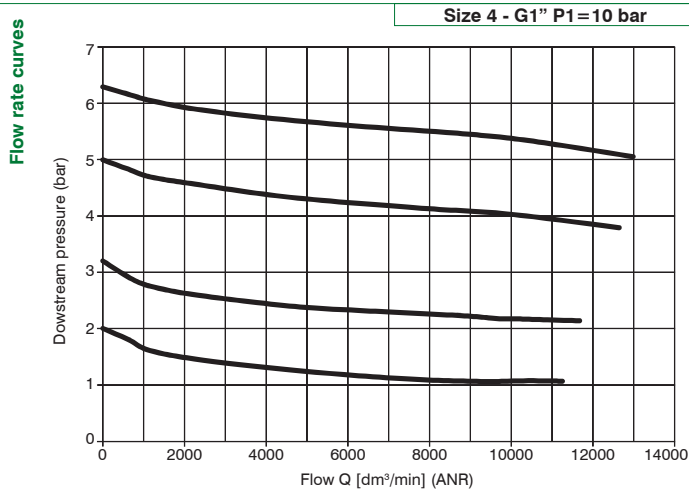
Order codes

P 17 4B R M P

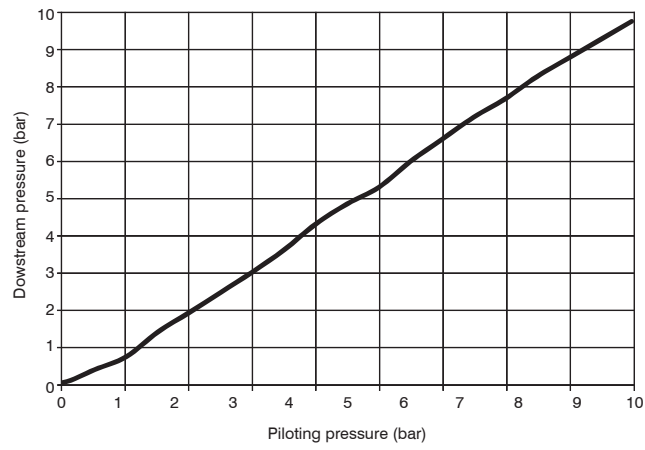
Version	P : Aluminium body
Size and connections	4B : Size 4 - G1" 4C : Size 4 - 1" NPT
Pressure measurement options	: G1/8" - 1/8" NPT thread M : Integrated pressure gauge W : Integrated pressure gauge Right - Left P : Digital pressure switch Z : Digital pressure switch Right - Left
Digital pressure switch options	A : Cable 150 mm + M8 PNP B : Cable 150 mm + M8 NPN C : Cable 2 m PNP D : Cable 2 m NPN

Example : P174BRMP : Size 4 piloted pressure regulator G1", integrated pressure gauge

Characteristic curves



Piloting curves

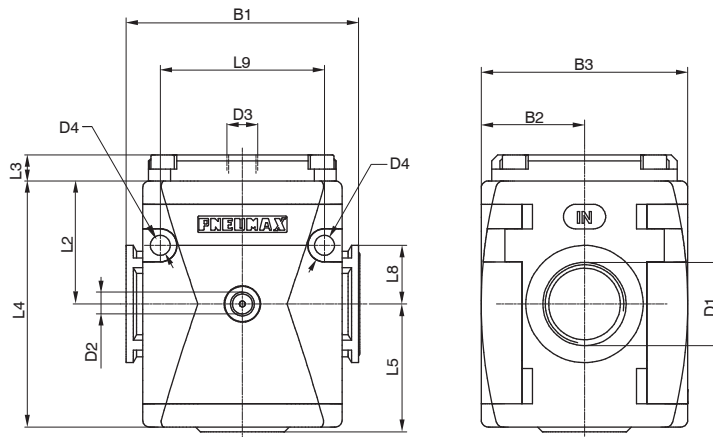


2

AIR TREATMENT



Dimensions



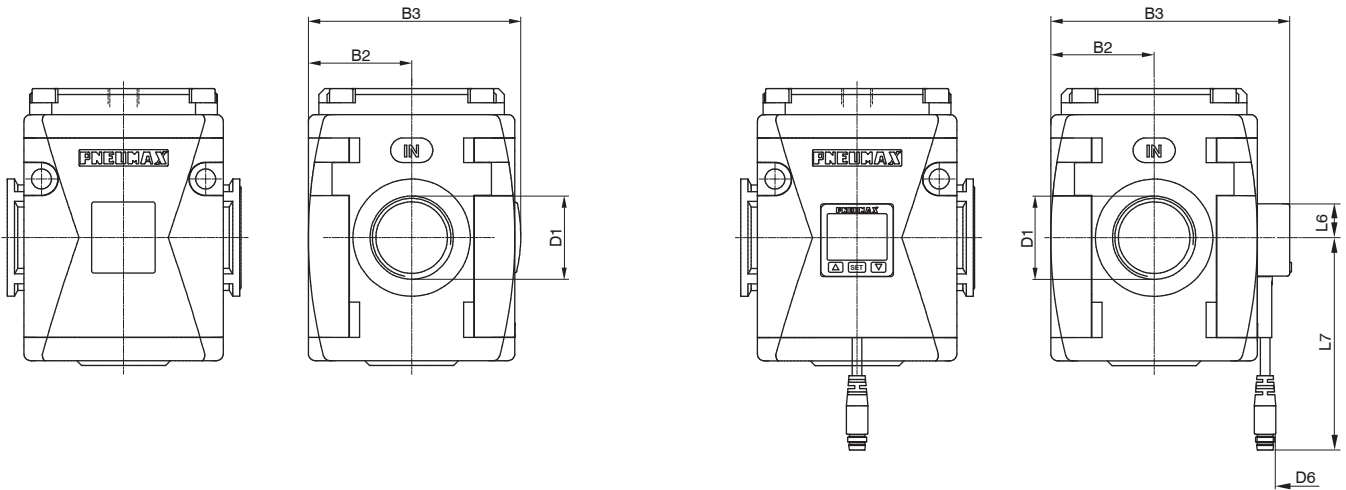
2 AIR TREATMENT

Model	B1	B2	B3	D1	D2	D3	D4	L2	L3	L4	L5	L8	L9
#174..	99	44	88	G1" 1" NPT	G1/8" 1/8" NPT	G1/4"	8,5	52,5	11	105	54,5	25	70

Variable dimensions

Integrated pressure gauge version

Integrated digital pressure switch version



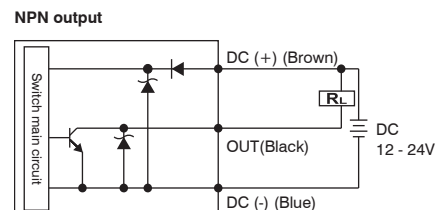
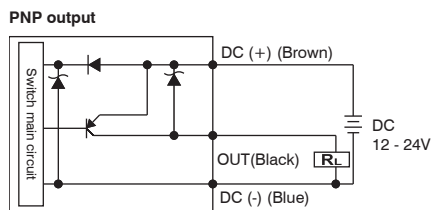
Model	B2	B3		D1	D6 - Type of digital pressure switch		L6	L7 - Type of digital pressure switch	
		With pressure gauge	With digital pressure switch		A - B	C - D		A - B	C - D
#174..	44	90,5	101,5	G1" 1" NPT	M8 - 3 PIN	3 x 0,129 mm, Ø4 mm	15	150	2000

Digital pressure switch

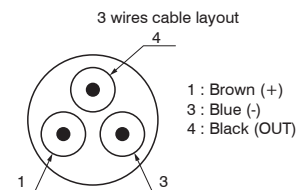
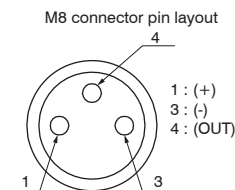


- ▶ 3 color digital LCD display, easy readout
- ▶ 4 units of measurement for pressure indication
- ▶ Optional PNP or NPN digital output
- ▶ N.O. and N.C. output contact selection directly on the digital pressure switch
- ▶ Available with M8-3PIN connector or 3 wire cable length 2 m
- ▶ Available only in combination with a regulator

Output circuit wiring diagrams



Digital pressure switch lay out



Cable ordering code

- MCH1** : cable 3 wires l=2,5m with M8 connector
- MCH2** : cable 3 wires l=5m with M8 connector
- MCH3** : cable 3 wires l=10m with M8 connector



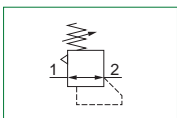
Technical characteristics	
Pressure range and display	0 - 10 bar
Max. inlet pressure	15 bar
Fluid	40µm filtered and dehumidified air
Display unit of measurement	MPa - kgf/cm² - bar - psi
Supply voltage	12 - 24 VDC
Current consumption	≤40mA (without load)
Digital output type	PNP - NPN
Type of contact output	Normally Open - Normally Closed
Max. load current	125 mA
Digital output activation mode	single threshold with fixed hysteresis - window with fixed hysteresis - window without hysteresis
Digital output activation time	0.05s - 0.25s - 0.5s - 1s - 2s - 3s (selections for chattering-proof options)
Display characteristics	Double 3 1/2 digit display Digital output status indication Three-pushbuttons touchpad
Indicator accuracy	≤ ±2% full scale value ± 1 digit
IP Rating	IP40
Working temperature	0°C +50°C
Cable section	3 x 0,129mm², Ø4 mm, PVC

► Pressure regulators for manifold (B - M)



- ▶ Diaphragm pressure regulator with relieving
- ▶ Available with 2 front outputs connections G1/8 " or with 1 front output and integrated pressure gauge on the opposite side
- ▶ Low hysteresis rolling diaphragm and balanced spool
- ▶ Available in four pressure ranges up to 12 bar
- ▶ Fitted with panel mounting locking ring
- ▶ Available with Integrated pressure gauge
- ▶ Air supply can be applied by both directions (Right or Left)
- ▶ Max. 6off pressure regulators in manifold configuration
- ▶ Atex certification (II 3GD)

2



Note
For installations where a more accurate and constant pressure is required, the unit should be installed as close as possible to the point of use.

AIR TREATMENT

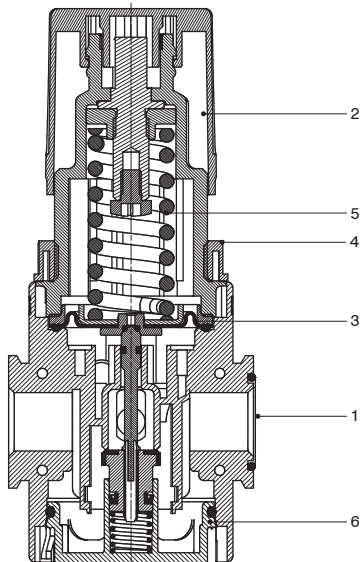
Technical characteristics		Size	Size 1
Body and connections type		Technopolymer body, integrated technopolymer connections (T version) Technopolymer body, metal connections (N version)	
IN connections	T version	G1/4"	
	N version	G1/8" - G1/4" - 1/4" NPT	
OUT connections		G1/8"	
Assembly configuration		Stand alone Panel mounting With fixing bracket	
Assembly positions		Indifferent	
Pressure range		0-2 bar 0-4 bar 0-8 bar 0-12 bar	
Regulation		Manul push and lock with pressure Manual lockable with accessories	
Pressure measurement		G1/8" pressure gauge connection port Integrated pressure gauge (optional)	
Max. fittings torque IN / OUT connections		G1/8" metal: 15Nm G1/4" metal: 20Nm G1/4" technopolymer: 9Nm	
Max.fitting torque pressure gauge connection port		G1/8" technopolymer: 4Nm G1/8" metal: 15Nm	

Operational characteristics		Size	Size 1
Maximum working pressure		13 bar	
Minimum working pressure		0,5 bar	
Working temperature		-5°C +50°C	

Weights		
	Size	Size 1
Technopolymer body version		140 g

Materials

Exploded sectioned



Pressure regulator for manifold

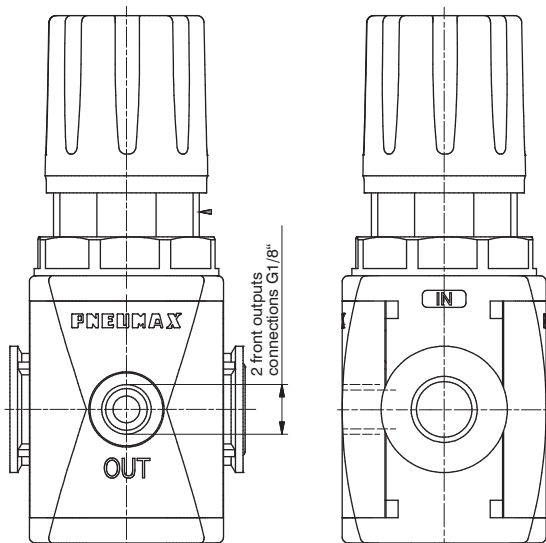
1	Body	Polyamide Die-cast aluminium
2	Adjusting knob	Polyamide
3	Diaphragm	NBR
4	Panel mounting locking ring	Polyamide
5	Adjusting spring	Steel
6	Rear end cap	Polyamide / Die-cast aluminium

2

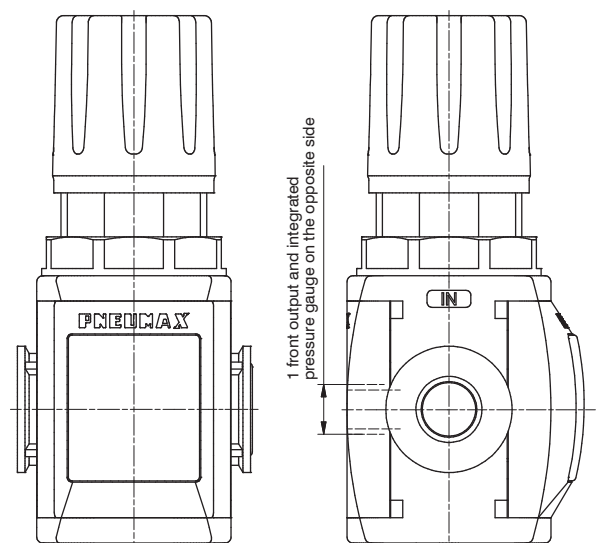
AIR TREATMENT

Design

Pressure gauge connection port version



Integrated pressure gauge version





Order codes

T 17 1B B D

Version
N : Technopolymer body and metal inserts
T : Technopolymer body and thread

Size and connections
1A : Size 1 - G1/8"
1B : Size 1 - G1/4"
1C : Size 1 - 1/4" NPT only for N version

Pressure measurement options
B : G1/8" - 1/8" NPT thread
M : Integrated pressure gauge

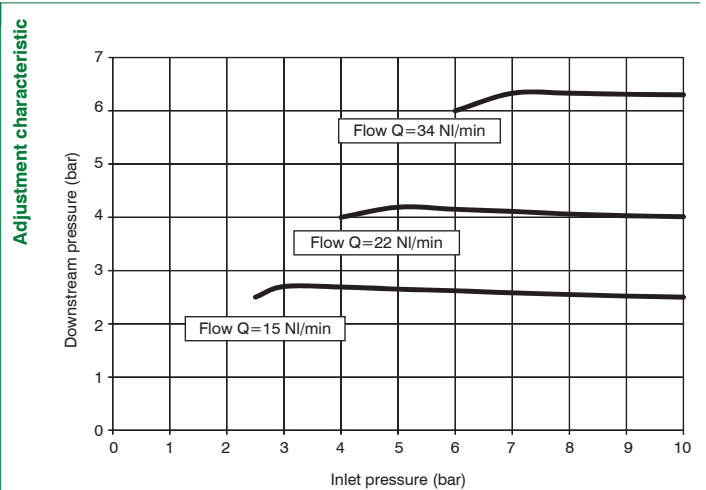
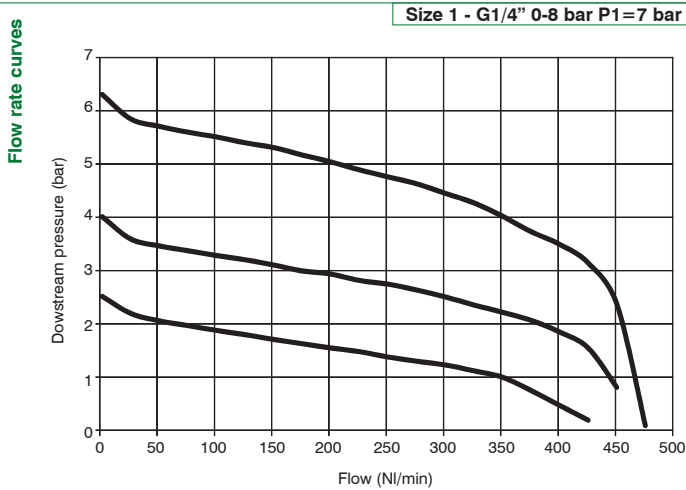
Pressure range
A : 0 - 2 bar
B : 0 - 4 bar
C : 0 - 8 bar
D : 0 - 12 bar

Relieving options
: With relieving
F : Controlled refuel and improved relieving
L : Without relieving
R : Improved relieving

Knob options
: Non-lockable version
K : Lockable version
U : Lockable version with universal key

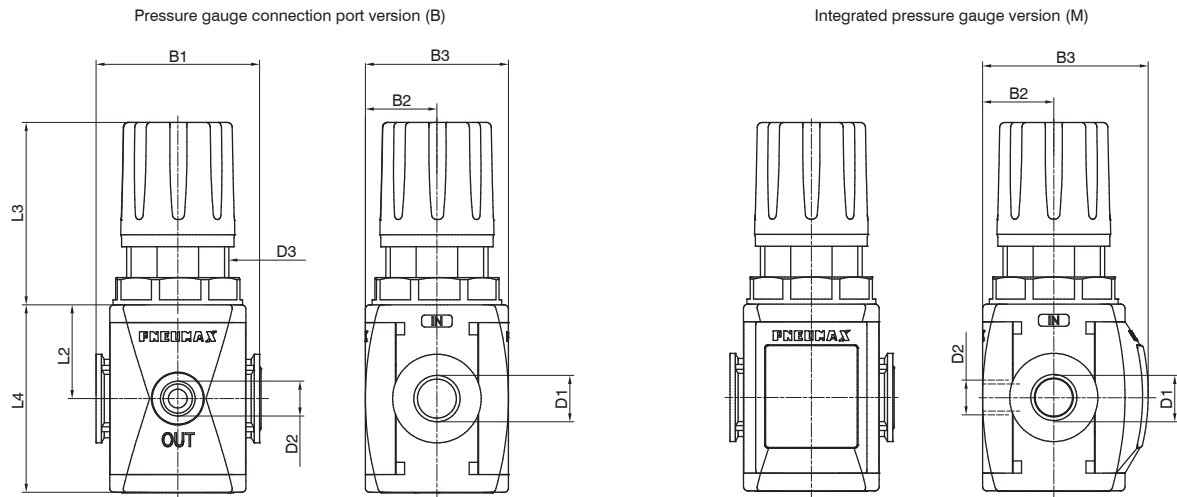
Example : T171BBD : Size 1 pressure regulator for manifold G1/4", 0 - 12 bar

Characteristic curves



2 AIR TREATMENT

Dimensions



Model	B1	B2	B3		D1	D2	D3	L2	L3	L4
			B version	M version						
#171..	48	24	42	48,5	G1/4" G1/8" 1/4" NPT	G1/8"	M30x1,5	27,5	54	55

▶ **Manifold pressure regulators**



- ▶ Manifold pressure regulators
- ▶ Available in four pressure ranges up to 12 bar
- ▶ Inlet pressure common for the whole manifold of pressure regulator
- ▶ A maximum of 6 pressure regulators can be mounted
- ▶ Atex certification (II 3GD)
- ▶ Assembly with X or Y flanges

2

AIR TREATMENT

Technical characteristics		Size	Size 1
Body and connections type		Technopolymer body, integrated technopolymer connections (T version) Technopolymer body, metal connections (N version)	
IN connections	T version	G1/4"	
	N version	G1/8" - G1/4" - 1/4" NPT	
OUT connections		G1/8"	
Assembly configuration		Stand alone Panel mounting With fixing bracket	
Assembly positions		Indifferent	
Pressure range		0-2 bar 0-4 bar 0-8 bar 0-12 bar	
Regulation		Manul push and lock with pressure Manual lockable with accessories	
Pressure measurement		G1/8" pressure gauge connection port Integrated pressure gauge (optional)	
Max. fittings torque IN / OUT connections		G1/8" metal: 15Nm G1/4" metal: 20Nm G1/4" technopolymer: 9Nm	
Max.fitting torque pressure gauge connection port		G1/8" technopolymer: 4Nm G1/8" metal: 15Nm	

Operational characteristics		Size	Size 1
Maximum working pressure		13 bar	
Minimum working pressure		0,5 bar	
Working temperature		-5°C +50°C	



Order codes

G T 17 1B M 6 C C C C C C

Version
N : Technopolymer body and metal inserts
T : Technopolymer body and thread

Size and connections
1A : Size 1 - G1/8"
1B : Size 1 - G1/4"
1C : Size 1 - 1/4" NPT only for N version

Pressure measurement options
B : G1/8" thread with flanges X
M : Integrated pressure gauge with flanges X
P : G1/8" thread with extended flanges Y
R : Integrated pressure gauge with extended flanges Y
W : G1/8" thread with flanges Y
Z : Integrated pressure gauge with flanges Y

Number of regulators
2 : n. 2 regulators
3 : n. 3 regulators
4 : n. 4 regulators
5 : n. 5 regulators
6 : n. 6 regulators

Pressure range
A : 0 - 2 bar
B : 0 - 4 bar
C : 0 - 8 bar
D : 0 - 12 bar

Pressure range
A : 0 - 2 bar
B : 0 - 4 bar
C : 0 - 8 bar
D : 0 - 12 bar

Pressure range
A : 0 - 2 bar
B : 0 - 4 bar
C : 0 - 8 bar
D : 0 - 12 bar

Pressure range
A : 0 - 2 bar
B : 0 - 4 bar
C : 0 - 8 bar
D : 0 - 12 bar

Pressure range
A : 0 - 2 bar
B : 0 - 4 bar
C : 0 - 8 bar
D : 0 - 12 bar

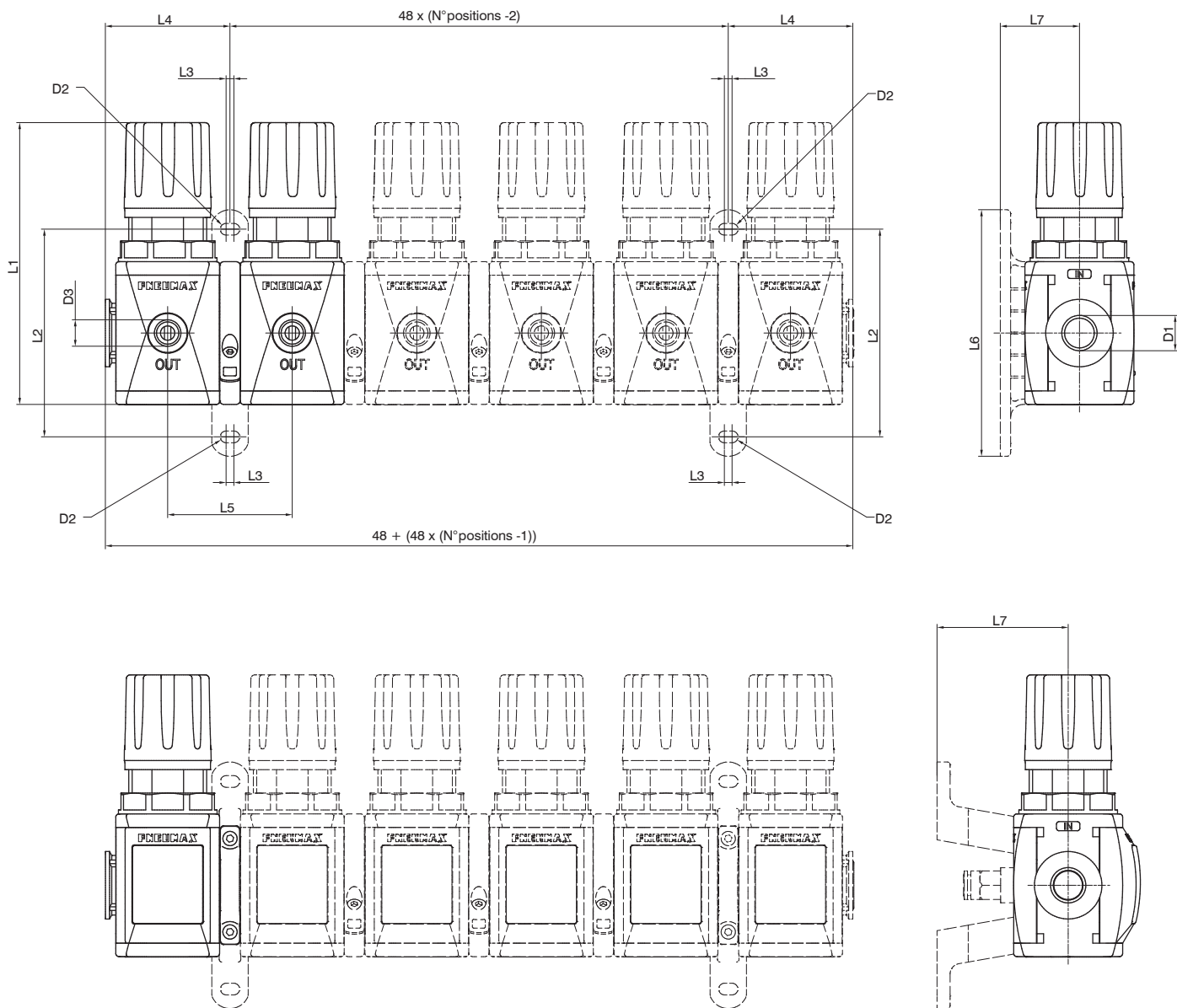
Pressure range
A : 0 - 2 bar
B : 0 - 4 bar
C : 0 - 8 bar
D : 0 - 12 bar

Example : T171BM6CCCCC : Size 1 manifold pressure regulators G1/4", 0 - 8 bar, integrated pressure gauge

2
AIR TREATMENT

Dimensions

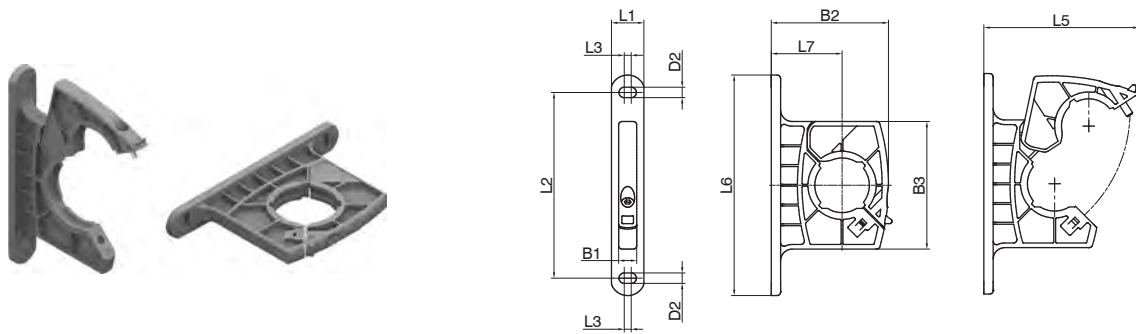
2
AIR TREATMENT



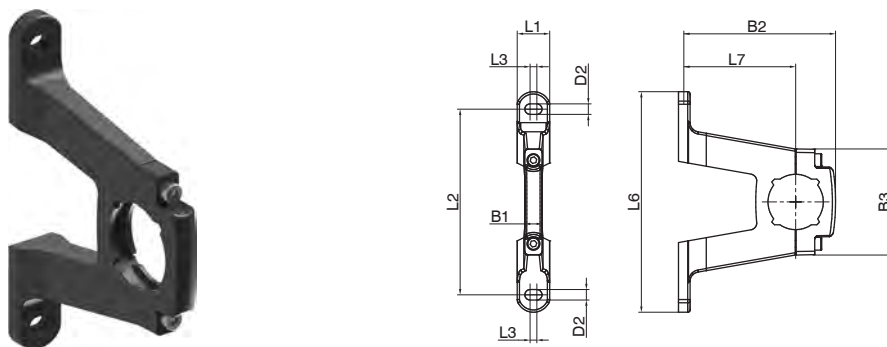
Model	D1	D2	D3	L1	L2	L3	L4	L5	L6	L7
#171..with flanges X	G1/4" G1/8" 1/4" NPT	/	G1/8"	109	/	/	48	48	/	/
#171..with flanges Y		Ø4,5			80	3			105	30,5
#171..with extended flanges Y										50,5

► Manifold mounting flanges

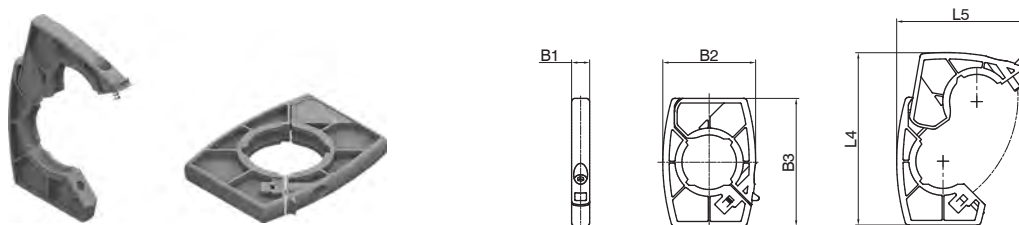
Flange Y



Extended flange Y

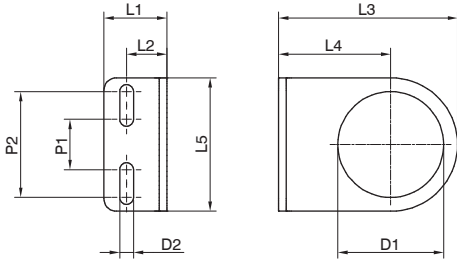


Flange X



Model	B1	B2	B3	D2	L1	L2	L3	L4	L5	L6	L7
T171Y	7,8	50,5	55	Ø4,5	14	80	3	/	66	95	30,5
N171YP		67,7	45,7	Ø4,5	14	80	3	/	66		50,5
T171X		40	55	/	/	/	/	74,5	55,5	/	/

► **Fixing bracket**



2
AIR TREATMENT

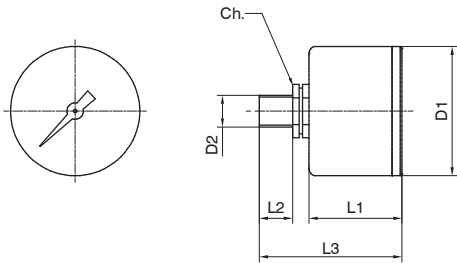
Model	L1	L2	L3	L4	L5	D1	D2	P1	P2
17150	20	13	50	30	40	30	5,5	20	30

► **Pressure gauge**

17070 **A** **C**

Version
A : Dial Ø40
B : Dial Ø50

Scale
A : 0 - 4 bar
B : 0 - 6 bar
C : 0 - 12 bar



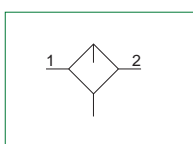
Model	L1	L2	L3	D1	D2	Ch
17070A..	26	10	44	41	Gc - 1/8"	14
17070B..	27	10	45	49	Gc - 1/8"	14



Lubricators (L)



- ▶ Oil mist lubricator
- ▶ Available in 4 sizes with flow rates up to 16000 NI/min and connections from 1/8" to 1"
- ▶ Bowl assembly via bayonet type quick coupling mechanism with safety button
- ▶ Variable orifice size in function of the flow rate
- ▶ Oil quantity regulation mechanism and oil quantity visualization dome made of polycarbonate (PC)
- ▶ Oil refill plug
- ▶ Lubricator oil recharge with pressurized system
- ▶ Available with low level electrical sensor NO and NC
- ▶ Atex certification (II 2GD or II 3GD)



Technical characteristics		Size	Size 1	Size 2	Size 3	Size 4
Body and connections type			Technopolymer body, integrated technopolymer connections (T version) Technopolymer body, metal connections (N version) /	Aluminium body, integrated aluminium connections (P version)		/
Protection and bowl type			Technopolymer protection - PC bowl Technopolymer protection - PA bowl	Metal protection - PC bowl Metal protection - PA bowl		
IN / OUT connections	T version		G1/4"	G3/8"	G1/2"	non disponibile
	N version		G1/8" - G1/4" - 1/4" NPT	G3/8" - G1/4" - 3/8" NPT	G3/8" - G1/2" - 1/2" NPT	
	P version		not available	G3/8"	G1/2"	G1"
Assembly configuration			Stand alone /			Panel mounted
Assembly positions			Vertical ±5°			
Bowl capacity			36 cm³	70 cm³	136 cm³	360 cm³
Lubrication type			Oil mist lubrication			
Oil level regulation			Manual, complete with visual indicator			
Max. fittings torque IN / OUT connections			G1/8" metal: 15Nm G1/4" metal: 20Nm G1/4" technopolymer: 9Nm	G1/4" metal: 20Nm G3/8" metal: 25Nm G3/8" technopolymer: 16Nm	G3/8" metal: 25Nm G1/2" metal: 30Nm G1/2" technopolymer: 22Nm	G1" metal: 35Nm

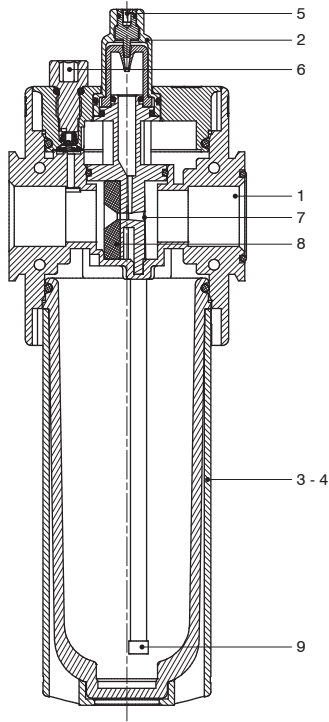
Operational characteristics		Size	Size 1	Size 2	Size 3	Size 4
Maximum working pressure			13 bar			
Minimum working pressure			0,5 bar			
Min. operational flow at 6,3 bar			40 NI/min	70 NI/min	100 NI/min	100 NI/min
Indicative oil drop rate			1 drope every 300/600 NI/min			
Oil type			FD22 - HG32			
Working temperature			-5°C +50°C			

2 AIR TREATMENT

Weights				
Size	Size 1	Size 2	Size 3	Size 4
Fully technopolymer version	121 g	215 g	347 g	/
Technopolymer body version, aluminium bowl protection and technopolymer bowl	/	245 g	383 g	/
Aluminium body version, technopolymer protection and bowl	/	315 g	477 g	1032 g
Aluminium body version, aluminium bowl protection and technopolymer bowl	/	345 g	513 g	1077 g

Materials

Exploded sectioned

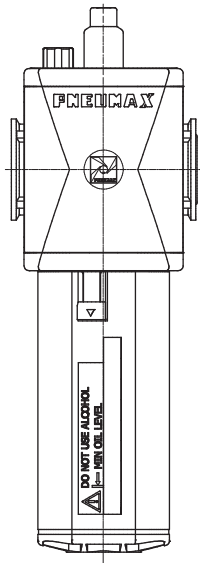


Lubricator		
1	Body	Polyamide Die-cast aluminium
2	Visual indicator	Polyamide
3	Technopolymer bowl	Polycarbonate Polyamide
4	Bowl protection	Polyamide - Die-cast aluminium
5	Oil regulation needle	Brass
6	Recharge plug	Acetal resin
7	Diaphragm support	Acetal resin
8	Diaphragm	NBR
9	Filter	Sintered brass

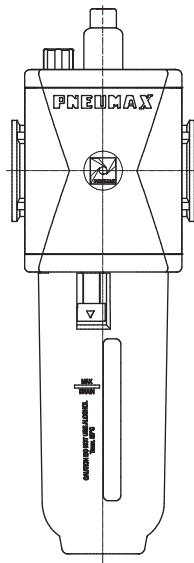
2
AIR TREATMENT

Design

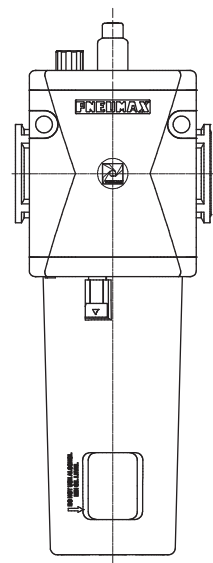
Size 1 - Size 2 - Size 3
Technopolymer protection



Size 1 - Size 2 - Size 3
Metal protection



Size 4
All versions



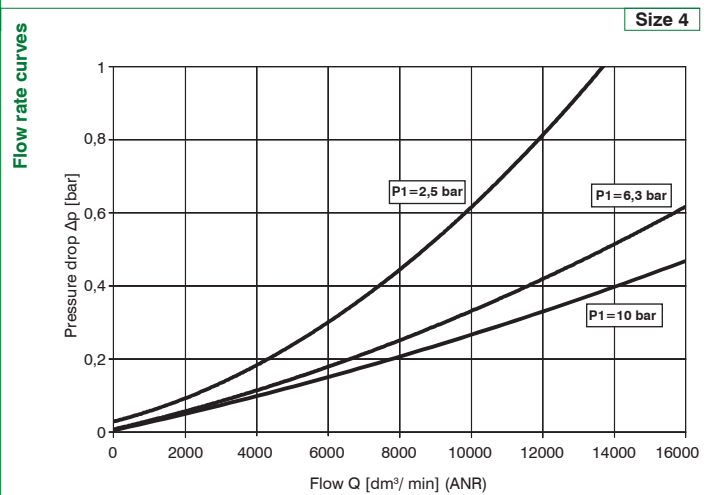
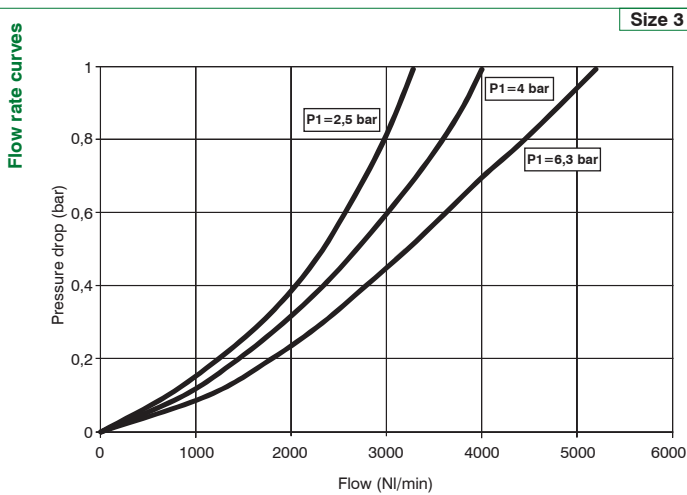
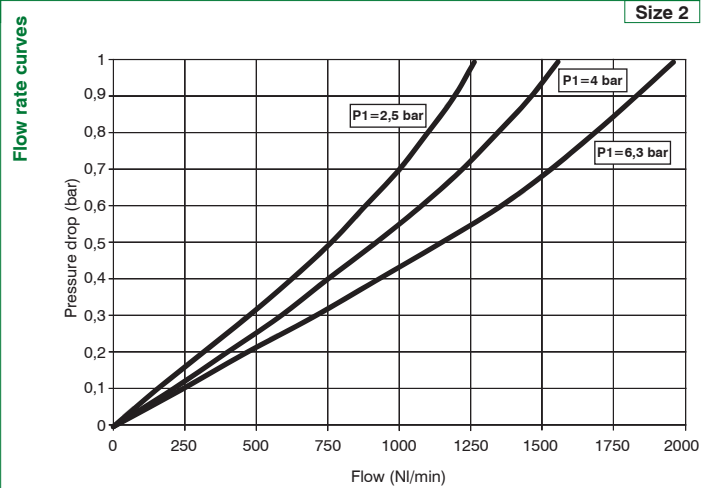
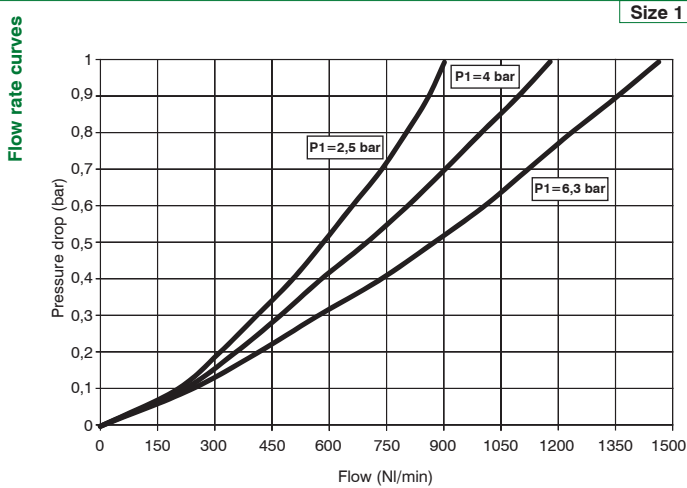


Order codes

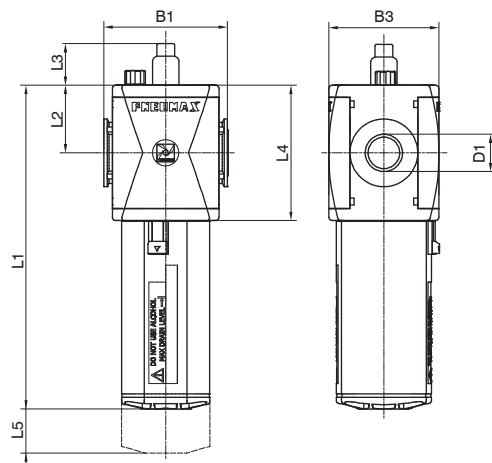
	T	17	3B	L	A	N
Version						
N : Technopolymer body and metal inserts (not available for size 4)						
T : Technopolymer body and thread (not available for size 4)						
P : Aluminium body (not available for size 1)						
Size and connections						
1A : Size 1 - G1/8" only for N version						
1B : Size 1 - G1/4" only for T - N versions						
1C : Size 1 - 1/4" NPT only for N version						
2A : Size 2 - G1/4" only for N version						
2B : Size 2 - G3/8" for all versions						
2C : Size 2 - 3/8" NPT only for N version						
3A : Size 3 - G3/8" only for N version						
3B : Size 3 - G1/2" for all versions						
3C : Size 3 - 1/2" NPT only for N version						
4B : Size 4 - G1" only for P version						
Options						
: No electric level sensor device						
A : Electrical minimum level sensor NO (not available for size 1)						
C : Electrical minimum level sensor NC (not available for size 1)						
Bowl options						
: Technopolymer protection - PC bowl						
N : Technopolymer protection - PA bowl						
P : Metal protection - PC bowl (not available for size 1)						
R : Metal protection - PA bowl (not available for size 1)						

Example : T173BLAN : Size 3 lubricator G1/2", normally open low level electrical sensor, PA bowl with technopolymer protection

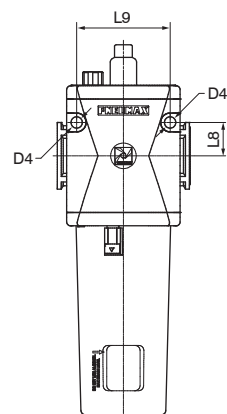
Characteristic curves



Dimensions

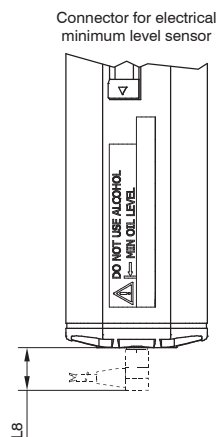


Fixing holes dimension detail (only for size 4)



Model	B1	B3	D1	D4	L1	L2	L3	L4	L5	L8	L9
#171..	48	42	G1/8" G1/4" 1/4" NPT	/	131	27,5	24	55	80	/	/
#172..	62	57	G1/4" G3/8" 3/8" NPT	/	152.7	34	24	68	90	/	/
#173..	73	65	G3/8" G1/2" 1/2" NPT	/	191.4	40	24	80	120	/	/
#174..	99	88	G1"	8,5	247	52,5	24	105	145	25	70

Variable dimensions



Model	L8	Connectors for electrical connection
Electrical minimum level sensor NO	16	C1 - C2 - C3 (see sensors section of general catalog)
Electrical minimum level sensor NC		

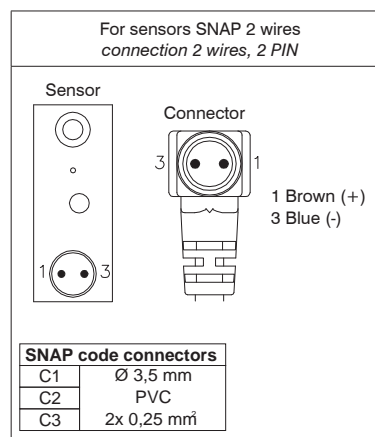
Accessories

Electrical connection details

C1 : connector with 2,5 m cable 2 wires (PVC Ø3,5 mm 2x0,25mm²)

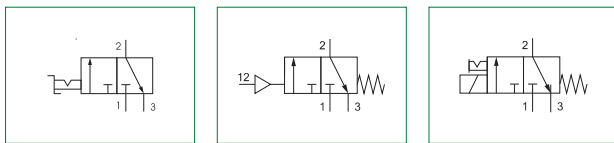
C2 : connector with 5 m cable 2 wires (PVC Ø3,5 mm 2x0,25mm²)

C3 : connector with 10 m cable 2 wires (PVC Ø3,5 mm 2x0,25mm²)



Shut off valves (VL - VP - VE)


- ▶ 3/2 N.C. shut off valve
- ▶ Suitable for system downstream pneumatic feeding or exhaust
- ▶ Manual, pneumatic and electropneumatic operation available
- ▶ Up to 3off manual operation lockable device available (closed position)
- ▶ Atex certification (II 2GD or II 3GD)

AIR TREATMENT


Technical characteristics					
Size		Size 1	Size 2	Size 3	Size 4
Body and connections type		Technopolymer body, integrated technopolymer connections (T version) Technopolymer body, metal connections (N version)			/
		/	Aluminium body, integrated aluminium connections (P version)		/
Operated type		Manual Pneumatic Electropneumatic			
IN / OUT connections	T version	G1/4"	G3/8"	G1/2"	not available
	N version	G1/8" - G1/4" - 1/4" NPT	G3/8" - G1/4" - 3/8" NPT	G3/8" - G1/2" - 1/2" NPT	
	P and L version	not available	G3/8"	G1/2"	
Pilot connection		G1/8"			
Exhaust connection		G1/4"	G3/8"	G1/2"	
Assembly configuration		Stand alone /			Panel mounted
Assembly positions		Indifferent			
Max. fittings torque IN / OUT connections		G1/8" metal: 15Nm G1/4" metal: 20Nm G1/4" technopolymer: 9Nm	G1/4" metal: 20Nm G3/8" metal: 25Nm G3/8" technopolymer: 16Nm	G3/8" metal: 25Nm G1/2" metal: 30Nm G1/2" technopolymer: 22Nm	G1/2" metal: 30Nm G1" metal: 35Nm

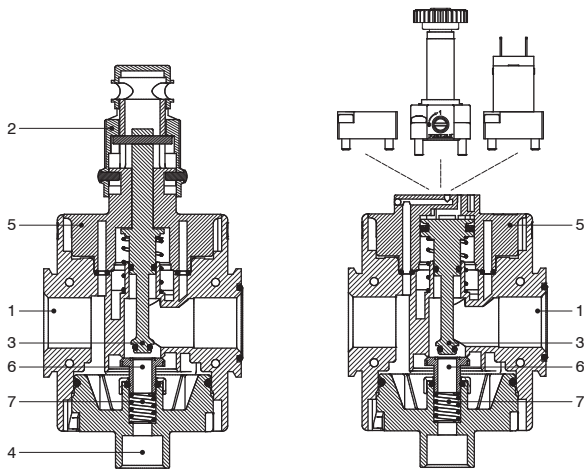
Operational characteristics								
Size	Size 1	Size 2	Size 3	Size 4	Size 1	Size 2	Size 3	Size 4
Operator	Manual				Pneumatic / Solenoid			
Maximum working pressure	13 bar			10 bar	10 bar			
Minimum working pressure	0,5 bar				2,5 bar			
Working temperature	-5°C +50°C				-5°C +50°C			
	-30°C +80°C (only for P version) -40°C +80°C (only for L version)				-30°C +80°C (only with metal body and pneumatic version) -40°C +80°C (only with metal body and pneumatic version)			
Nominal flow rate at 6 bar with Δp=1 (from 1 to 2)	1400 NI/min	2200 NI/min	3600 NI/min	15000 NI/min	1400 NI/min	2200 NI/min	3600 NI/min	15000 NI/min
Exhaust nominal flow rate at 6 bar with Δp=1 (from 2 to 3)	550 NI/min	1500 NI/min		3600 NI/min	550 NI/min	1500 NI/min		3600 NI/min
Un-conveyed exhaust nominal flow rate (from 2 to 3)	1000 NI/min	2500 NI/min		5000 NI/min	1000 NI/min	2500 NI/min		5000 NI/min

Weights								
Size Operator	Size 1				Size 2			
	Manual	Pneumatic	Solenoid M2 actuator	Solenoid 15mm coil	Manual	Pneumatic	Solenoid M2 actuator	Solenoid 15mm coil
Technopolymer body version	110 g	99 g	140 g	140 g	190 g	181 g	210 g	216 g
Aluminium body version	/	/	/	/	270 g	265 g	298 g	301 g

Size Operator	Size 3				Size 4			
	Manual	Pneumatic	Solenoid M2 actuator	Solenoid 15mm coil	Manual	Pneumatic	Solenoid M2 actuator	Solenoid 15mm coil
Technopolymer body version	250 g	270 g	310 g	310 g	/	/	/	/
Aluminium body version	400 g	398 g	429 g	432 g	1100 g	1135 g	1170 g	1180 g

Materials

Exploded sectioned



Shut off valve		
1	Body	Polyamide Die-cast aluminium
2	Manual override	Polyamide
3	Drive pin Piston	Aluminium
4	Exhaust plug	Polyamide
5	Central support	Polyamide
6	Spool	Brass + NBR
7	Repositioning spring	Steel

2

AIR TREATMENT

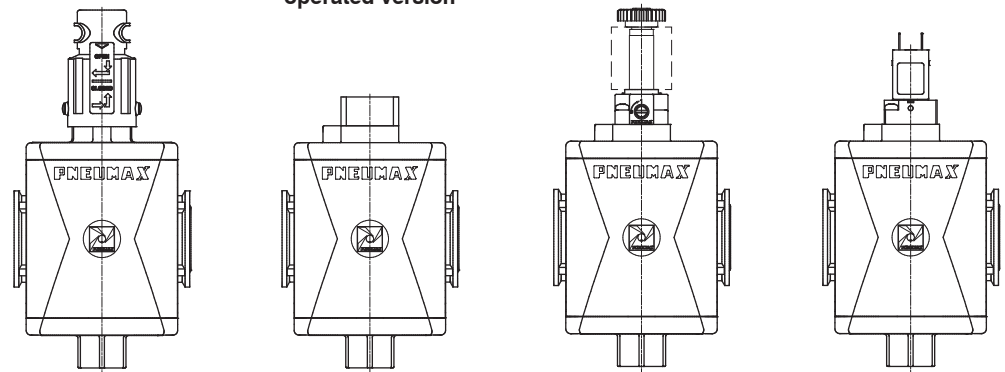
Design

Manual operated version

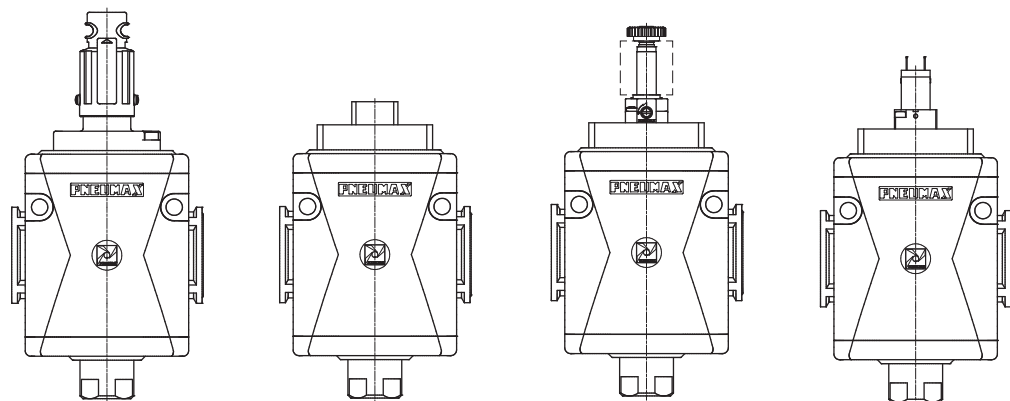
Pneumatic operated version

Solenoid operated version

Size 1 - Size 2
Size 3



Size 4





Order codes

T 17 3B V E A5

Version
N : Technopolymer body and metal inserts (not available for size 4)
T : Technopolymer body and thread (not available for size 4)
P : Aluminum body (not available for size 1)
L : Aluminium body, low temperature (not available for solenoid version)

Size and connections
1A : Size 1 - G1/8" only for N version
1B : Size 1 - G1/4" only for T - N versions
1C : Size 1 - 1/4" NPT only for N version
2A : Size 2 - G1/4" only for N version
2B : Size 2 - G3/8" for all versions
2C : Size 2 - 3/8" NPT only for N version
3A : Size 3 - G3/8" only for N version
3B : Size 3 - G1/2" for all versions
3C : Size 3 - 1/2" NPT only for N version
4B : Size 4 - G1" only for P - L versions

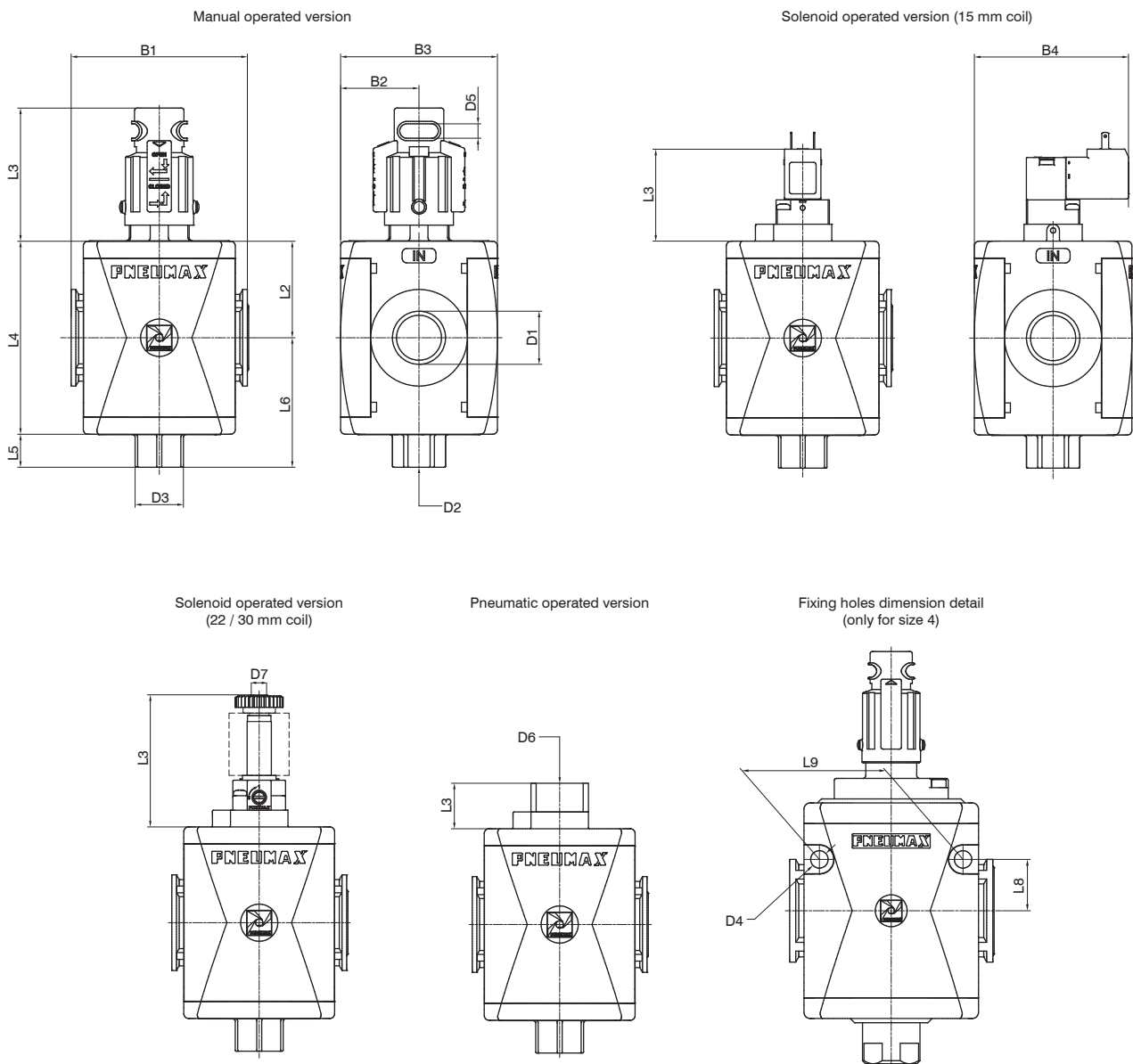
Operator
L : Manual
P : Pneumatic
E : Solenoid

Coil options
15 mm coil
A4 : 12 V DC
A5 : 24 V DC
A6 : 24 V AC (50-60 Hz)
A7 : 110 V AC (50-60 Hz)
A8 : 230 V AC (50-60 Hz)
A9 : 24 V DC (1 Watt)
22 mm coil
B2 : Mechanical M2, without coil
B4 : 12 V DC
B5 : 24 V DC
B6 : 24 V AC (50-60 Hz)
B7 : 110 V AC (50-60 Hz)
B8 : 230 V AC (50-60 Hz)
B9 : 24 V DC (2 Watt) (Atex certification not available)
30 mm coil
C5 : 24 V DC
C6 : 24 V AC (50-60 Hz)
C7 : 110 V AC (50-60 Hz)
C8 : 230 V AC (50-60 Hz)
C9 : 24 V DC (2 Watt) (Atex certification not available)

Example : T173BVEA5 : Size 3 electric shut off valve G1/2", 15 mm coil, 24VDC

2 AIR TREATMENT

Dimensions



2
AIR TREATMENT

Model	B1	B2	B3	B4	D1	D2	D3	D4	D5	D6	D7	L2	L3				L4	L5	L6	L8	L9
													Manual	Pneumatic	Solenoid coil 22 or 30mm	Solenoid 15mm coil					
#171..	48	21	42	52	G1/8" G1/4" 1/4" NPT	G1/4"	Ch.17	/	6	G1/8"	M5	27,5	55	19	57	37,5	55	11	38,5	/	/
#172..	62	28,5	57	59,6	G1/4" G3/8" 3/8" NPT	G3/8"	Ch.20	/	6	G1/8"	M5	34	54,2	22	60	40,3	68	14	48	/	/
#173..	73	32,5	65	63,6	G3/8" G1/2" 1/2" NPT	G3/8"	Ch.20	/	6	G1/8"	M5	40	55	19	57	37,4	80	14	54	/	/
#174..	99	44	88	75	G1"	G1/2"	Ch.25	8,5	6	G1/8"	M5	52,5	71,5	27	67	45,5	105	22	74,5	25	70

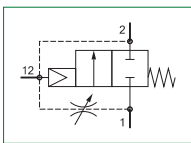
▶ **Progressive start-up valve (AP - APW)**



- ▶ Progressive start-up valve
- ▶ Available in 4 sizes with flow rates up to 15000 NI/min and connections from 1/8" to 1"
- ▶ Suitable for downstream system gradual pressurization
- ▶ Downstream circuit filling time regulated via a built in flow regulator
- ▶ Full pressure is allowed once the down stream circuit pressure reaches 50% of the inlet pressure
- ▶ ATEX certification (II 2GD or II 3GD)

2

AIR TREATMENT



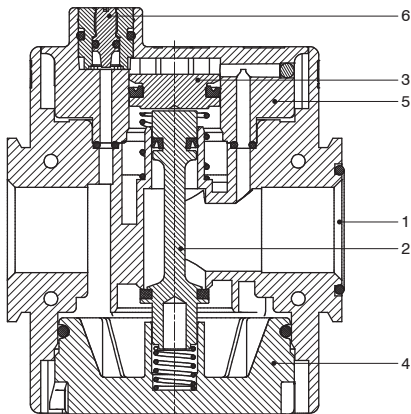
Technical characteristics					
Size		Size 1	Size 2	Size 3	Size 4
Body and connections type		Technopolymer body, integrated technopolymer connections (T version) Technopolymer body, metal connections (N version)			/
		/	Aluminium body, integrated aluminium connections (P version)		/
IN / OUT connections	T version	G1/4"	G3/8"	G1/2"	not available
	N version	G1/8" - G1/4" - 1/4" NPT	G3/8" - G1/4" - 3/8" NPT	G3/8" - G1/2" - 1/2" NPT	
	P version	not available	G3/8"	G1/2"	
Assembly configuration		Stand alone /			Panel mounted
Assembly positions		Indifferent			
Max. fittings torque IN / OUT connections		G1/8" metal: 15Nm G1/4" metal: 20Nm G1/4" technopolymer: 9Nm	G1/4" metal: 20Nm G3/8" metal: 25Nm G3/8" technopolymer: 16Nm	G3/8" metal: 25Nm G1/2" metal: 30Nm G1/2" technopolymer: 22Nm	G1" metal: 35Nm

Operational characteristics				
Size	Size 1	Size 2	Size 3	Size 4
Maximum working pressure	13 bar			10 bar
Minimum working pressure	2,5 bar			
Working temperature	-5°C +50°C			
Nominal flow rate at 6 bar with Δp=1 (from 1 to 2)	1400 NI/min	2200 NI/min	3600 NI/min	15000 NI/min
Fully open flow control device maximum flow rate	75 NI/min	200 NI/min	200 NI/min	1000 NI/min

Weights					
	Size	Size 1	Size 2	Size 3	Size 4
Technopolymer body version		80 g	150 g	240 g	/
Aluminium body version		/	235 g	370 g	1100 g

Materials

Exploded sectioned



Progressive start-up valve

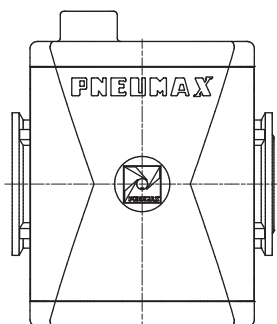
1	Body	Polyamide Die-cast aluminium
2	Drive pin	Aluminium
3	Piston	Aluminium
4	Rear end cap	Polyamide / Die-cast aluminium
5	Central support	Polyamide / Aluminium
6	Modulating needle	Brass

2

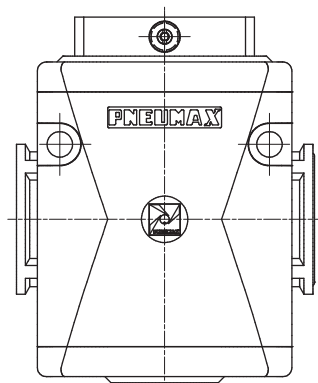
AIR TREATMENT

Design

Size 1 - Size 2 - Size 3



Size 4





Order codes

T 17 3B AP

Version
N : Technopolymer body and metal inserts (not available for size 4)
T : Technopolymer body and thread (not available for size 4)
P : Aluminum body (not available for size 1)

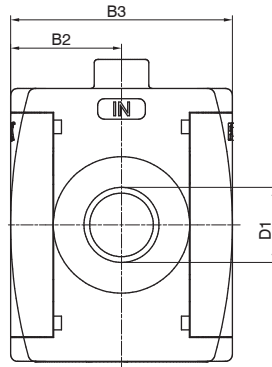
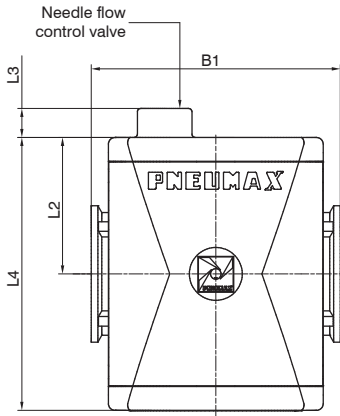
Size and connections
1A : Size 1 - G1/8" only for N version
1B : Size 1 - G1/4" only for T - N versions
1C : Size 1 - 1/4" NPT only for N version
2A : Size 2 - G1/4" only for N version
2B : Size 2 - G3/8" for all versions
2C : Size 2 - 3/8" NPT only for N version
3A : Size 3 - G3/8" only for N version
3B : Size 3 - G1/2" for all versions
3C : Size 3 - 1/2" NPT only for N version
4B : Size 4 - G1" only for P version

Flow direction (only for size 4)
: : From left to right
W : From right to left

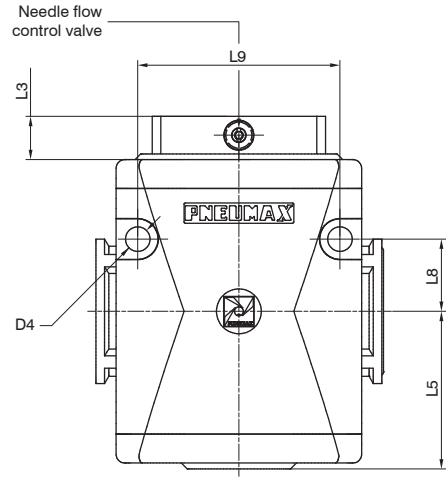
Example : T173BAP : Size 3 progressive start-up valve G1/2"

2 AIR TREATMENT

Dimensions



Fixing holes dimension detail (only for size 4)

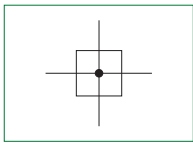


Model	B1	B2	B3	D1	D4	L2	L3	L4	L5	L8	L9
#171..	48	21	42	G1/8" G1/4"	/	27,5	12	55	/	/	/
#172..	62	28,5	57	G1/4" G3/8"	/	34	9,2	68	/	/	/
#173..	73	32,5	65	G3/8" G1/2"	/	40	8,7	80	/	/	/
#174..	99	44	88	G1"	8,5	52,5	13	105	54,5	25	70

Air intake (PA)



- ▶ Pneumatic by-pass
- ▶ Available with 2 threaded connections
- ▶ Atex certification (II 2GD or II 3GD)



2
AIR TREATMENT

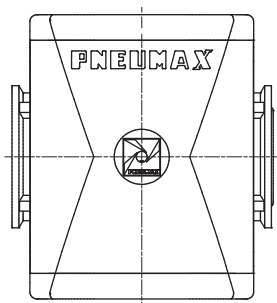
Technical characteristics		Size	Size 1	Size 2	Size 3	Size 4
Body and connections type			Technopolymer body, integrated technopolymer connections (T version) Technopolymer body, metal connections (N version)			/
			Aluminium body, integrated aluminium connections (P version)			/
IN / OUT / INTAKE connections	T version		G1/4"	G3/8"	G1/2"	not available
	N version		G1/8" - G1/4" - 1/4" NPT	G3/8" - G1/4" - 3/8" NPT	G3/8" - G1/2" - 1/2" NPT	
	P version		not available	G3/8"	G1/2"	G1"
Assembly configuration			Stand alone /			Panel mounted
Assembly positions			Indifferent			
Max. fittings torque IN / OUT / INTAKE connections			G1/8" metal: 15Nm G1/4" metal: 20Nm G1/4" technopolymer: 9Nm	G1/4" metal: 20Nm G3/8" metal: 25Nm G3/8" technopolymer: 16Nm	G3/8" metal: 25Nm G1/2" metal: 30Nm G1/2" technopolymer: 22Nm	G1" metal: 35Nm

Operational characteristics		Size	Size 1	Size 2	Size 3	Size 4
Maximum working pressure				13 bar		20 bar
Working temperature				-5°C +50°C		-30°C +80°C (only for P version)

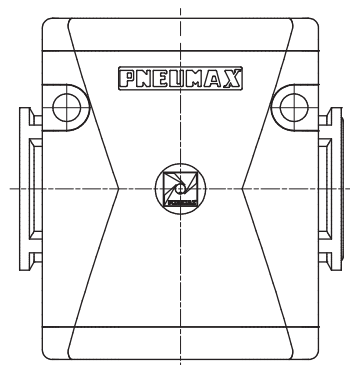
Weights		Size	Size 1	Size 2	Size 3	Size 4
Technopolymer body version			52 g	95,5 g	151 g	/
Aluminium body version			/	248 g	370 g	720 g

Design

Size 1 - Size 2 - Size 3



Size 4





Order codes

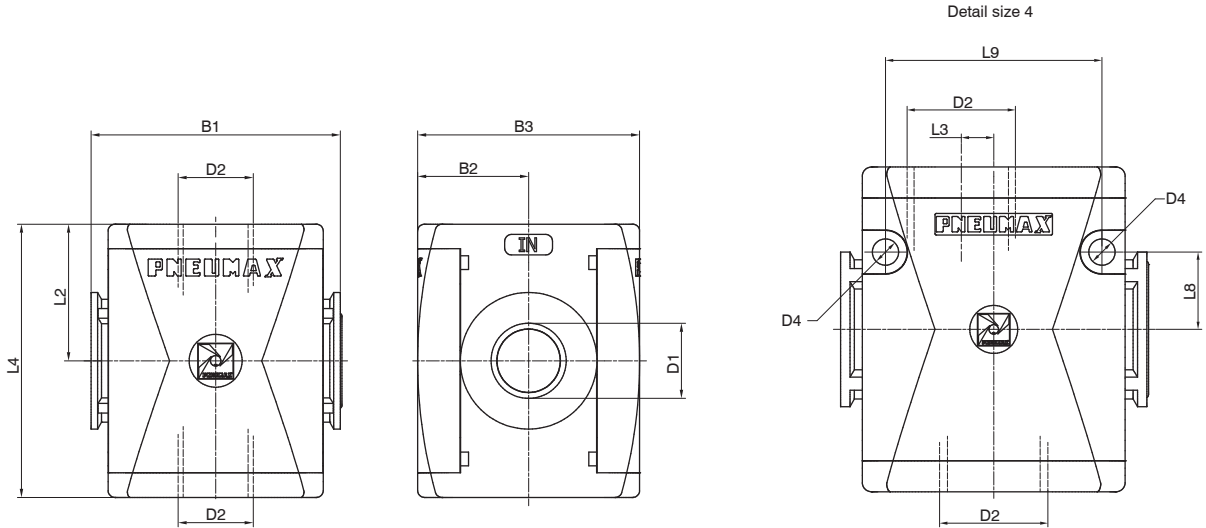
T 17 3B PA

Version
N : Technopolymer body and metal inserts (not available for size 4)
T : Technopolymer body and thread (not available for size 4)
P : Aluminium body (not available for size 1)

Size and connections
1A : Size 1 - G1/8" only for N version
1B : Size 1 - G1/4" only for T - N versions
1C : Size 1 - 1/4" NPT only for N version
2A : Size 2 - G1/4" only for N version
2B : Size 2 - G3/8" for all versions
2C : Size 2 - 3/8" NPT only for N version
3A : Size 3 - G3/8" only for N version
3B : Size 3 - G1/2" for all versions
3C : Size 3 - 1/2" NPT only for N version
4B : Size 4 - G1" only for P version

Example : T173BPA : Size 3 air intake G1/2"

Dimensions

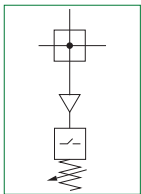


Model	B1	B2	B3	D1	D2	D4	L2	L3	L4	L8	L9
#171..	48	21	42	G1/8" G1/4" 1/4" NPT	/	/	27,5	/	55	/	/
#172..	62	28,5	57	G3/8" G1/4" 3/8" NPT	/	/	34	/	68	/	/
#173..	73	32,5	65	G3/8" G1/2" 1/2" NPT	/	/	40	/	80	/	/
#174..	99	44	88	G1"	8,5	8,5	52,5	10,5	105	25	70

► Pressure switch (PP)



- 2 to 10 bar adjustable pressure switch with electrical connection
- The electrical connection is made by mean of a 15 mm connector (DIN 43650 type C)
- The microswitch contact could be normally closed or open (change overswitch)



Technical characteristics		Size	Size 1	Size 2	Size 3	Size 4
Body and connections type			Technopolymer body, integrated technopolymer connections (T version) Technopolymer body, metal connections (N version)		/	
			/	Aluminium body, integrated aluminium connections (P version)		/
IN / OUT / INTAKE connections	T version		G1/4"	G3/8"	G1/2"	not available
	N version		G1/8" - G1/4" - 1/4" NPT	G3/8" - G1/4" - 3/8" NPT	G3/8" - G1/2" - 1/2" NPT	
	P version		not available	G3/8"	G1/2"	G1"
Assembly configuration			Stand alone /		Panel mounted	
Assembly positions			Indifferent			
Microswitch capacity			1A			
Microswitch maximum tension			250 VAC			
Microswitch IP Rating			IP65 (with connector installed)			
Max. fitting torque IN / OUT / INTAKE connections			G1/8" metal: 15Nm G1/4" metal: 20Nm G1/4" technopolymer: 9Nm	G1/4" metal: 20Nm G3/8" metal: 25Nm G3/8" technopolymer: 16Nm	G3/8" metal: 25Nm G1/2" metal: 30Nm G1/2" technopolymer: 22Nm	G1" metal: 35Nm

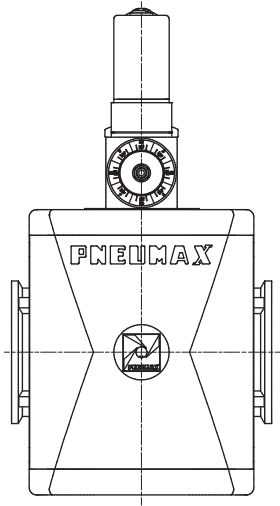
Operational characteristics		Size	Size 1	Size 2	Size 3	Size 4
Maximum working pressure			13 bar			
Working temperature			-5°C +50°C			
Operating pressure range			2 - 10 bar			



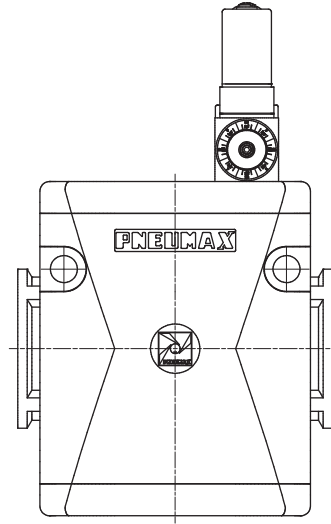
Weights					
	Size	Size 1	Size 2	Size 3	Size 4
Technopolymer body version		138 g	179 g	235 g	/
Aluminium body version		/	330 g	780 g	800 g

Design

Size 1 - Size 2 - Size 3



Size 4



2
AIR TREATMENT

Order codes

T 17 3B PP

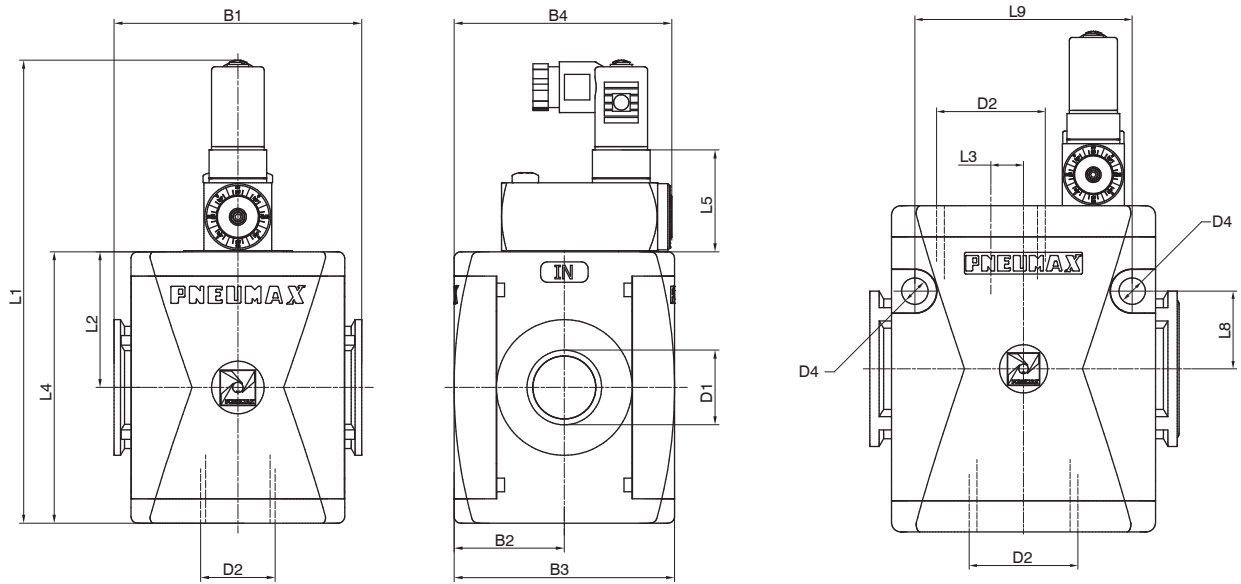
Version
N : Technopolymer body and metal inserts (not available for size 4)
T : Technopolymer body and thread (not available for size 4)
P : Aluminum body (not available for size 1)

Size and connections
1A : Size 1 - G1/8" only for N version
1B : Size 1 - G1/4" only for T - N versions
1C : Size 1 - 1/4" NPT only for N version
2A : Size 2 - G1/4" only for N version
2B : Size 2 - G3/8" for all versions
2C : Size 2 - 3/8" NPT only for N version
3A : Size 3 - G3/8" only for N version
3B : Size 3 - G1/2" for all versions
3C : Size 3 - 1/2" NPT only for N version
4B : Size 4 - G1" only for P version

Flow direction (only for P version)
: : From left to right
W : From right to left

Example : T173BPP : Size 3 pressure switch G1/2"

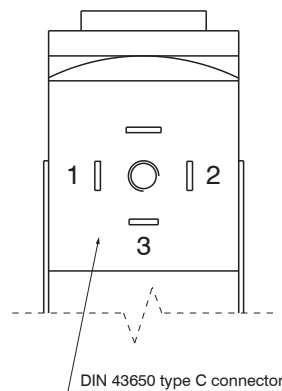
Dimensions



Model	B1	B2	B3	D1	D2	D4	L1	L2	L3	L4	L5	L8	L9
#171..	48	21	42	G1/8" G1/4" 1/4" NPT	/	/	114,7	27,5	/	55	32,7	/	/
#172..	62	28,5	57	G3/8" G1/4" 3/8" NPT	/	/	125	34	/	68	30	/	/
#173..	73	32,5	65	G3/8" G1/2" 1/2" NPT	/	/	137	40	/	80	30	/	/
#174..	99	44	88	G1"	8,5	162	52,5	10,5	105	30	25	70	

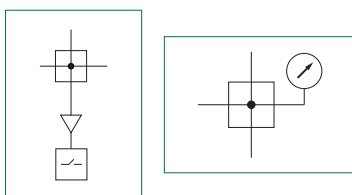
Electrical connection

- 1 = neutral
- 2 = N.C. contact
- 3 = N.O. contact



Air intake with pressure gauge or digital pressure switch integrated (PM-PW-PP-PZ)


- ▶ Available with pressure gauge or digital pressure switch integrated
- ▶ Air intake connection device available
- ▶ Material and version wide selection
- ▶ Available in 4 sizes with connections from 1/8" to 1"
- ▶ Atex certification (II 2GD or II 3GD)
for Integrated pressure gauge version

2
AIR TREATMENT


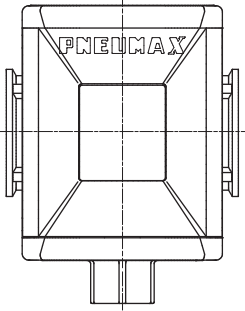
Technical characteristics					
Size		Size 1	Size 2	Size 3	Size 4
Body and connections type		Technopolymer body, integrated technopolymer connections Technopolymer body, metal connections / Aluminium body, integrated aluminium connections			/ /
IN / OUT connections	T version	G1/4"	G3/8"	G1/2"	not available
	N version	G1/8" - G1/4" - 1/4" NPT	G3/8" - G1/4" - 3/8" NPT	G3/8" - G1/2" - 1/2" NPT	
	P version	not available	G3/8"	G1/2"	G1"
Air intake connection		G1/4"	G3/8"	G3/8"	G1/2"
Assembly configuration		Stand alone /			Panel mounted
Assembly positions		Indifferent			
Pressure measurement		Integrated pressure gauge Digital pressure switch			
Max. fittings torque IN / OUT connections		G1/8" metal: 15Nm G1/4" metal: 20Nm G1/4" technopolymer: 9Nm	G1/4" metal: 20Nm G3/8" metal: 25Nm G3/8" technopolymer: 16Nm	G3/8" metal: 25Nm G1/2" metal: 30Nm G1/2" technopolymer: 22Nm	G1"metal: 35Nm

Operational characteristics				
Size	Size 1	Size 2	Size 3	Size 4
Maximum working pressure	13 bar			
Working temperature with integrated pressure gauge	-5°C +50°C		-30°C +80°C (only with metal body)	
Working temperature with digital pressure switch	0°C +50°C			

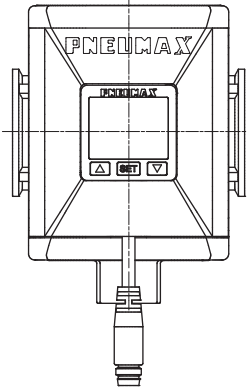
Weights					
	Size	Size 1	Size 2	Size 3	Size 4
Technopolymer body version with Integrated pressure gauge		83 g	161 g	249 g	/
Technopolymer body version with integrated digital pressure switch		111 g	189 g	277 g	/
Aluminium body version with Integrated pressure gauge		/	245 g	373 g	947 g
Aluminium body version with integrated digital pressure switch		/	273 g	401 g	963 g

Design

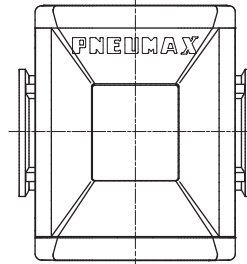
Size 1 - Size 2 - Size 3
Technopolymer body and
integrated pressure
gauge



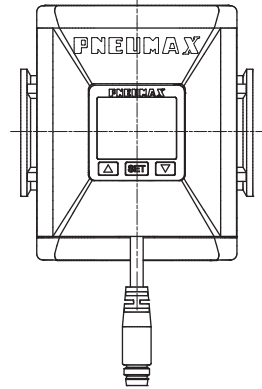
Size 1 - Size 2 - Size 3
Technopolymer body and
integrated digital
pressure switch



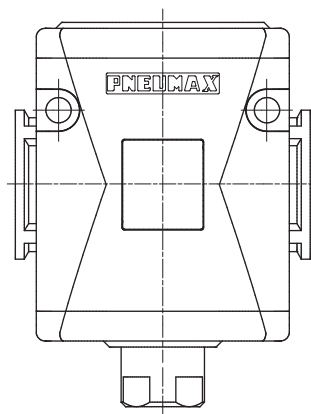
Size 2 - Size 3
Aluminium body and
integrated pressure
gauge



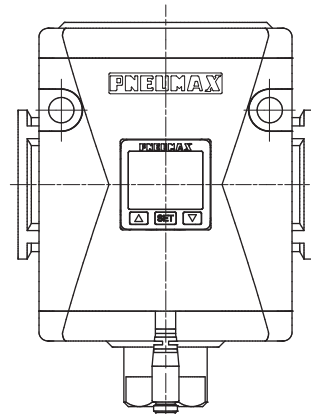
Size 2 - Size 3
Aluminium body and
integrated digital
pressure switch



Size 4
Integrated pressure
gauge version



Size 4
Integrated digital
pressure switch version





Order codes

T 17 3B P P A

Version
N : Technopolymer body and metal inserts (not available for size 4)
T : Technopolymer body and thread (not available for size 4)
P : Aluminum body (not available for size 1)

Size and connections
1A : Size 1 - G1/8" only for N version
1B : Size 1 - G1/4" only for T - N versions
1C : Size 1 - 1/4" NPT only for N version
2A : Size 2 - G1/4" only for N version
2B : Size 2 - G3/8" for all versions
2C : Size 2 - 3/8" NPT only for N version
3A : Size 3 - G3/8" only for N version
3B : Size 3 - G1/2" for all versions
3C : Size 3 - 1/2" NPT only for N version
4B : Size 4 - G1" only for P version

Pressure measurement options
M : Integrated pressure gauge
W : Integrated pressure gauge Right - Left
P : Digital pressure switch
Z : Digital pressure switch Right - Left

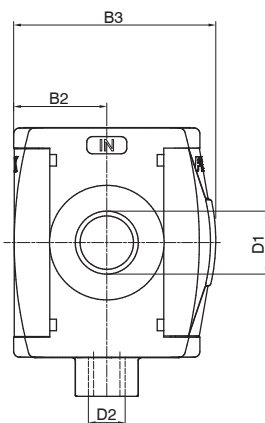
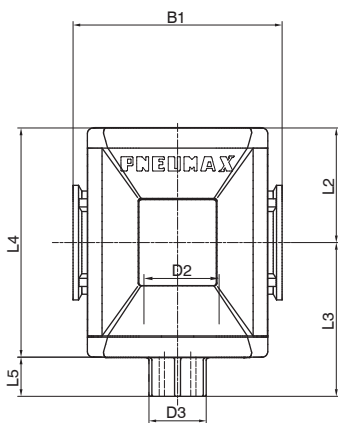
Digital pressure switch options
A : Cable 150 mm + M8 PNP
B : Cable 150 mm + M8 NPN
C : Cable 2 m PNP
D : Cable 2 m NPN

Example : T173BPPA : M8 PNP digital pressure switch, size 3 G1/2"

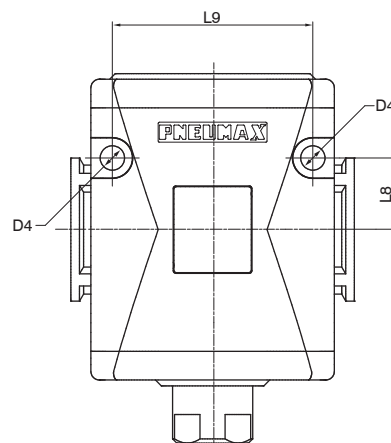
2 AIR TREATMENT

Dimensions - Integrated pressure gauge version

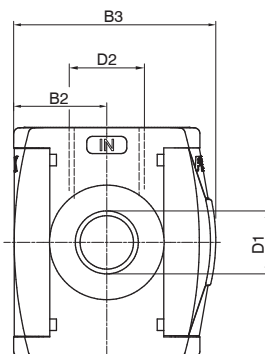
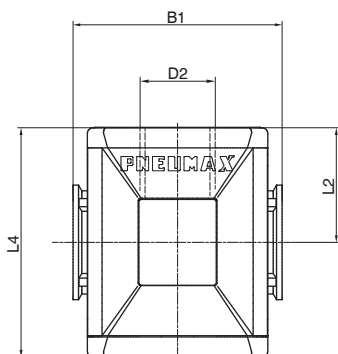
Technopolymer body version



Fixing holes dimension detail (only for size 4)

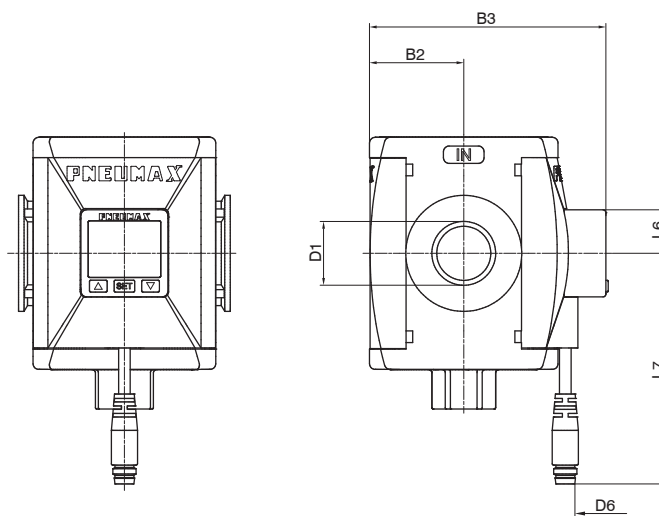


Aluminium body version (Size 2 - Size 3)



Model	B1	B2	B3	D1	D2	D3	D4	L2	L3	L4	L5	L8	L9
#171..	48	21	48,5	G1/8" G1/4" 1/4" NPT	G1/4"	Ch. 17	/	27,5	38,5	55	11	/	/
#172..	62	28,5	62,5	G1/4" G3/8" 3/8" NPT	G3/8"	Ch. 20	/	34	48	68	14	/	/
#173..	73	32,5	70,5	G3/8" G1/2" 1/2" NPT	G3/8"	Ch. 20	/	40	54	80	14	/	/
#174..	99	44	90,5	G1"	G1/2"	Ch. 25	8,5	52,5	74,5	105	22	25	70

Variable dimensions - Digital pressure switch version



2

AIR TREATMENT

Model	B2	B3	D1	D6 - Type of digital pressure switch		L6	L7 - Type of digital pressure switch	
				A - B	C - D		A - B	C - D
#171..	21	60	G1/8" G1/4" 1/4" NPT	M8 - 3 PIN	3 x 0,129 mm, Ø4 mm	15	150	2000
#172..	28,5	73,5	G1/4" G3/8" 3/8" NPT					
#173..	32,5	81,5	G3/8" G1/2" 1/2" NPT					
#174..	44	101,5	G1"					

▶ **Digital pressure switch**

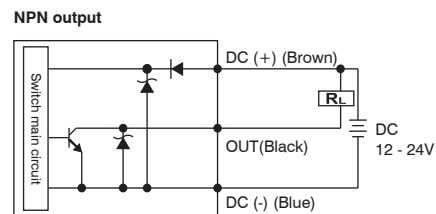
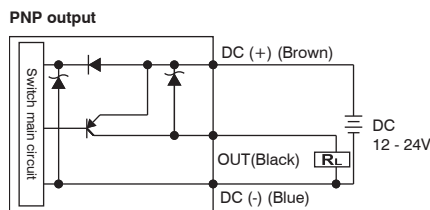


- ▶ 3 color digital LCD display, easy readout
- ▶ 4 units of measurement for pressure indication
- ▶ Optional PNP or NPN digital output
- ▶ N.O. and N.C. output contact selection directly on the digital pressure switch
- ▶ Available with M8-3PIN connector or 3 wire cable length 2 m
- ▶ Available only in combination with a air intake

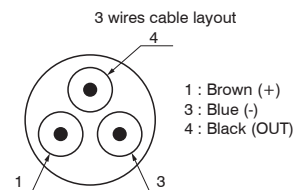
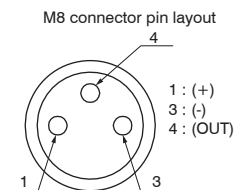
2

AIR TREATMENT

Output circuit wiring diagrams



Digital pressure switch lay out



Cable ordering code

- MCH1** : cable 3 wires l=2,5m with M8 connector
- MCH2** : cable 3 wires l=5m with M8 connector
- MCH3** : cable 3 wires l=10m with M8 connector



Technical characteristics	
Pressure range and display	0 - 10 bar
Max. inlet pressure	15 bar
Fluid	40µm filtered and dehumidified air
Display unit of measurement	MPa - kgf/cm ² - bar - psi
Supply voltage	12 - 24 VDC
Current consumption	≤40mA (without load)
Digital output type	PNP - NPN
Type of contact output	Normally Open - Normally Closed
Max. load current	125 mA
Digital output activation mode	single threshold with fixed hysteresis - window with fixed hysteresis - window without hysteresis
Digital output activation time	0.05s - 0.25s - 0.5s - 1s - 2s - 3s (selections for chattering-proof options)
Display characteristics	Double 3 1/2 digit display Digital output status indication Three-pushbuttons touchpad
Indicator accuracy	≤ ±2% full scale value ± 1 digit
IP Rating	IP40
Working temperature	0°C + 50°C
Cable section	3 x 0,129mm ² , Ø4 mm, PVC

Supply and discharge valves SAFELINE



General

Upon implementation of the AIRPLUS TG3 series, air-treatment units, PNEUMAX develops a supply and discharge valve, with an electropneumatic control and spring-return, fitted with a diagnostic system regarding the state of the valve, with the possibility of creating a double channel to determine the system's redundancy. The valve, as a safety feature, provides the interruption of the air supply and the exhaust of the air circuit it is connected to. The version with one single channel emphasises the features of an EV 3/2 NC, monostable with electropneumatic control and spring-return, whose operation involves:

- condition of the VALVE AT REST, with a DE-ENERGISED coil; Port 1 (air supply) is not been connected to Port 2 (downstream air circuit). Port 2 is discharged out of Port 3;
- condition of the VALVE ACTIVATED, with an ENERGISED coil; Port 1 (air supply) is connected to Port 2 (downstream air circuit), with Port 3 (Discharge) closed.

By de-energising the coil, the system resets the condition of VALVE AT REST by means of the return spring, which repositions the spool. Once again Port 2 (downstream air circuit), discharges via Port 3. The state of the valve is constantly monitored by a diagnostic system, using a Hall effect sensor, which reads the position of the spool and consequently takes note of the valve's position.

The sensor is in the ON position when the valve is at rest (DE-ENERGISED coil), while it is in the OFF position when the valve is activated (ENERGISED coil).

The sensor is in the OFF position under conditions of an activated valve (DE-ENERGISED coil), indicating a possible problem.

The SAFELINE supply and discharge valve in the single version is a classified component in CATEGORY 2 according to ISO EN 13849 and is appropriate for use in safety circuits until PL=C.

The version with a double redundant channel is made using two single solenoid valves 3/2 NC provided with diagnostics, mounted in series so that the Port 2 of the first solenoid valve is linked to the Port 1 of the second solenoid valve. It is sufficient that only one of the EV is de-energised to guarantee the discharge of the air circuit. If one of the two EV must remain blocked due to a malfunction, the other one ensures the discharge function of the pneumatic installation. Even in this case, the diagnostic system of both solenoid valves constantly monitors the state of the 2 single EV.

The SAFELINE supply and discharge valve in the double version is a classified component in CATEGORY 4 according to ISO EN 13849 and is appropriate for use in safety circuits until PL=E.

Both single and double solenoid valves are provided with the following certifications released by BUREAU VERITAS:

- TYPE APPROVAL certificate according to the EN ISO 13849 regulations
- certification of examination of compliance in accordance to the machinery directive 2006/42/CE

The AIRPLUS SAFELINE are solenoid valves marked as ATEX

II 3G Ex nA IIC T6 Gc (X)
II 3D Ex tc IIIC T=80°C Dc (X) IP65



Construction characteristics

Body	Aluminium
Operatore Solenoide	Technopolymer
Rear end cap	Aluminium
Spool	Aluminium
Spool seals	Polyurethane
Piston	Aluminium
Spring	EN 10270-1 DH steel
Electrical Interface	Male MP12 4 PIN TYPE A connector

Operational characteristics

Fluid	Filtered air. No lubrication needed, if applied it shall be continuous.
Working temperature	-10°C +50°C
Minimum working pressure	2,5 bar
Maximum working pressure	10 bar

ASSEMBLY AND INSTALLATION:

Undertake the installation respecting the safety requirements with regards to the system and components for hydraulic and pneumatic transmissions. Install the device as close as possible to the point of use. Its assembly is possible in any position. Pay attention to the flow direction, indicated on the main body with the labels IN and OUT. During the components discharge, high levels of noise occur. The use of a silencer on the discharge port is recommended. Ensure there is sufficient space for assembly during the installation process. Please ensure that the discharge area is always clear, and in case a silencer is used, periodically verify that it is not obstructed. It is possible to integrate and install the device in an existing AIRPLUS group or in a new installation, or else to use the device individually attaching it by aligning the assembled unit with the relevant fastening flange for the supply and discharge valve, or to use the device individually attaching it by aligning the assembled unit with the type "Y" fastening flange for the double supply and discharge valve.

2

AIR TREATMENT



WARNING!

Pay particular attention to external factors such as the nearness of live wires, magnetic fields, metallic objects providing magnetic conduction very close to the device, which may influence and disturb the diagnostic system.



WARNING!

The electrical connection must be made exclusively by specialized personnel, using components that have no voltage present. Only use power supplies which can guarantee a safe electrical isolation of the working voltage in accordance to IEC/EN 60204-1. Additionally, observe the requirements anticipated by the PELV circuits in accordance to IEC/EN 60204-1.

CARE AND MAINTENANCE



WARNING!

Do not connect or disconnect the device when energised! Do not open and/or disassemble the parts that are included in the energised valve. Once the power supply is disconnected, wait for a few minutes before opening or disassembling parts of the valve that result in its disassembly.

Before carrying out any operation, it is essential to remove the pneumatic and power supply to the device and wait for the residual pressure to be completely discharged.

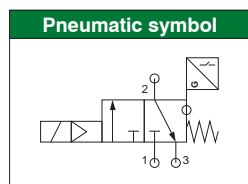
Please ensure that the discharge is always clear, and in case a silencer is used, periodically verify that it is not obstructed.

Periodically remove any dust deposits from the valve using a damp cloth. Use soapy water to clean the device.

Do not use corrosive or alcohol-based products.

For maintenance operations on internal components, please consult with PNEUMAX SPA.

Supply and discharge valve single (VS)

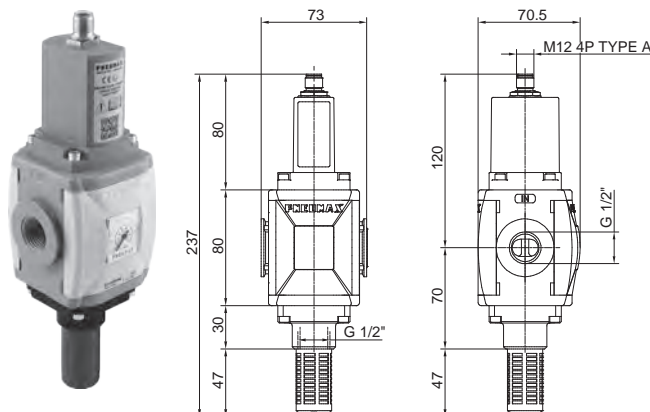
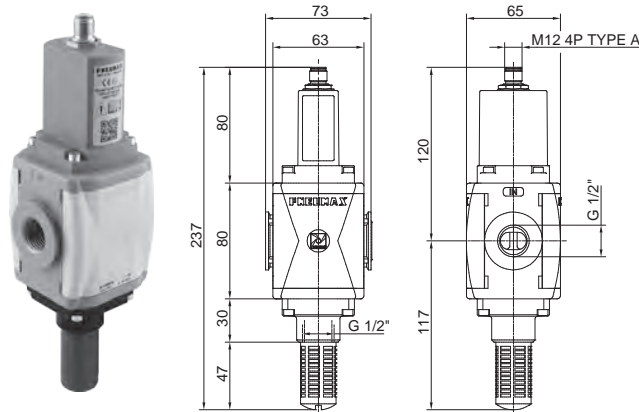
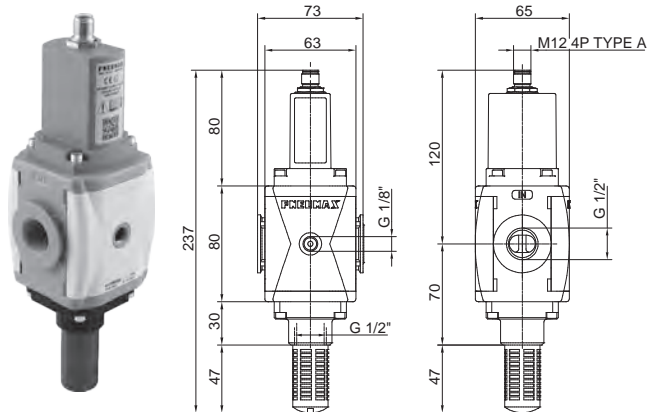


ATEX CE II
II 3G Ex nA IIC T6 Gc (X)
II 3D Ex tc IIIC T=80°C Dc (X) IP65

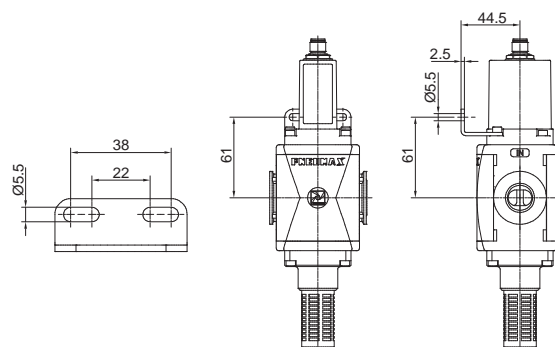


Electrical connection

PIN	Description
1	+24 VDC (Sensor)
2	+24 VDC (EV)
3	GND (Sensor+EV)
4	SENSOR OUTPUT



Dimensions with fixing bracket mounted



2
AIR TREATMENT

Electrical characteristics		Technical characteristics		Ordering code
Electrical connection	Male M12 4 PIN TYPE A connector	Connections	G1/2" UNI-ISO 228/1	N173BVS00
Coil Features	24VDC, 1 Watt	Fluid	Filtered air. No lubrication needed, if applied it shall be continuous.	
Suppressor diode for coil reverse voltage spike	Present	Function	3/2 N.C. monostable	V = Standard* (without connections) M = Integrated pressure gauge W = Integrated pressure gauge (Right-Left) G = G1/8" pressure gauge connection
Supply voltage allowance	-5% +10%	Minimum working pressure	2,5 bar	
Electrical characteristics of sensor		Maximum working pressure	10 bar	FIXING = Without fixing* 01 = Fixing bracket mounted (Left-Right) 02 = Fixing bracket mounted (Right-Left)
Sensor characteristics	10 - 30V DC	Working temperature	-10°C +50°C	
Operating principle	Hall effect	Flow rate at 6bar Δp (from 1 to 2)	3500 NL/min	0 * no additional letter required
Contact type	N.O.	Flow rate at 6bar Δp (from 2 to 3)	2000 NL/min	
Output type	PNP	Flow rate at 6bar (from 2 to 3) with free discharge	3800 NL/min	
Permanent maximum current	100 mA	Type of installation	Stand alone	
Permanent maximum power	3 Watt	Assembly positions	Indifferent	
Voltage drop max.	2 V	Noise level	90 dB	
Safety characteristics		Response time ON ISO 12238	36 ms	
Regulatory compliance	EN ISO 13849-1	Response time OFF ISO 12238	76 ms	
Safety function fulfilled	Interruption of supply and unloading of the downstream pneumatic circuit	IP Rating	IP65 (with connector installed)	
Performance Level (PL)	c			
UNI EN 13849 category	2			
Safety Integrity Level (SIL)	1			
PFH _d	1,7*10 ⁻⁶			
CE marking	In accordance with the EU Machinery Directive, annex V			

Installation tip of a safety system by means of a single valve

Please note: the safety valve is not sufficient alone to guarantee the safety function. Its setup requires the use of a monitoring device.

In this setup, the SIEMENS® 3SK1112-1BB40 monitoring device has been indicated, activated by an S2 start / reset pushbutton, blocked by an S1 emergency shutdown key.

Said monitoring device, by means of the readings of the sensor placed inside the valve (reading made by means of the K1 relay), operates the activation of the valve itself. The monitoring device transmits the safety status as an output.

The preliminary estimate and the final verification of the achieved PL are the responsibility of the designer of the part of the system dedicated to providing the safety function.

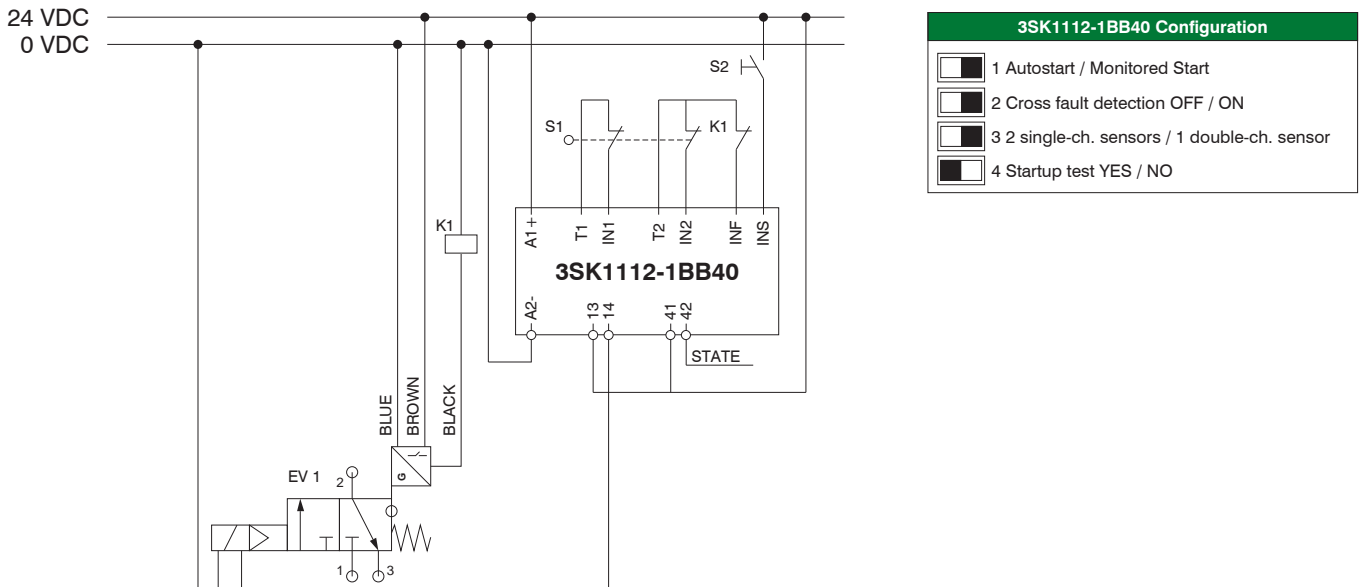
Note: with a single valve, it is not possible to obtain a PL greater than “c”.

Setup suggestions

- The double stop pushbutton is connected to clamps T1-IN1 and T2-IN2 of 3SK1112-1BB40.
- The start / reset pushbutton is connected between +24 V and the INS clamp of 3SK1112-1BB40.
- The valve is supplied between 0 V (Pin 3 of the supply connector) and the 14 clamp of 3SK1112-1BB40 (Pin 2 of the supply connector).
- The HALL effect sensor is supplied between 0 V (Pin 3 of the supply connector) and 24 V (Pin 1 of the supply connector).
- The HALL effect sensor drives (Pin 4 of the supply connector) the K1 relay, whose N.A. contact will be connected between the monitoring device's clamp T2 and INF.

The circuit diagram of the **suggested** configuration is provided, along with the configuration of 3SK1112-1BB40.

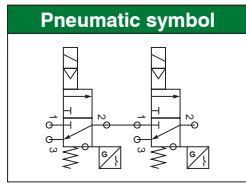
2 AIR TREATMENT



Analysis of malfunctions

The diagnostic system (monitoring device plus sensor) has the purpose of verifying the appearance of malfunctions within the valve that undermine the safety function. In particular, (with 3SK1112-1BB40 configured as in the illustration), the K1 relay prevents resetting the system by means of S2 when the coil is de-energised, but the sensor remains in the OFF position (K1 remains de-energised).

Supply and discharge valve double (V2S)

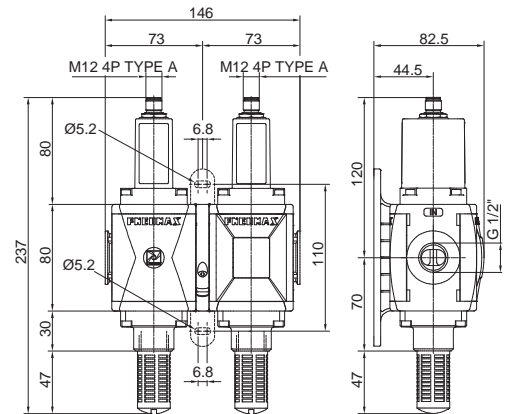
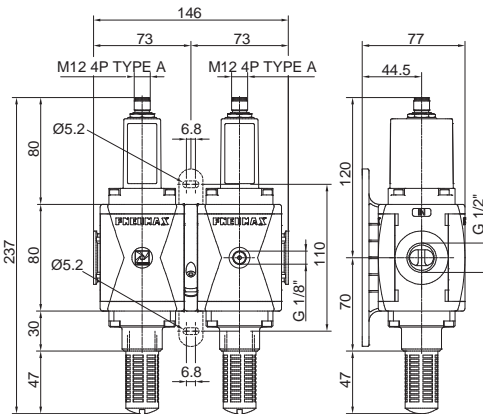
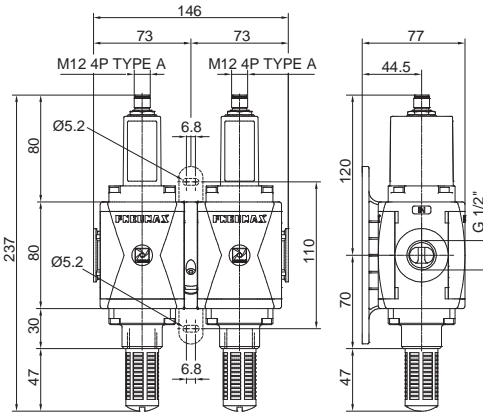


ATEX CE Ex
II 3G Ex nA IIC T6 Gc (X)
II 3D Ex tc IIIC T=80°C Dc (X) IP65



Electrical connection

PIN	Description
1	+24 VDC (Sensor)
2	+24 VDC (EV)
3	GND (Sensor+EV)
4	SENSOR OUTPUT



2

AIR TREATMENT

Electrical characteristics		Technical characteristics		Ordering code
Electrical connection	Male M12 4 PIN TYPE A connector	Connections	G1/2" UNI-ISO 228/1	N173BV2S000 VERSIONS = Standard* (without connections) M = Integrated pressure gauge G = G1/8" pressure gauge connection FIXING X = Flange X Y = Flange Y K = Aluminium flange Y Z = Aluminium flange X FLOW RATE DIRECTION = Standard* (Left-Right) W = (Right-Left) * no additional letter required
Coil Features	24VDC, 1 Watt + 1 Watt	Fluid	Filtered air. No lubrication needed, if applied it shall be continuous.	
Suppressor diode for coil reverse voltage spike	Present	Function	3/2 N.C. monostable	
Supply voltage allowance	-5% +10%	Minimum working pressure	2,5 bar	
Electrical characteristics of sensor		Maximum working pressure	10 bar	
Sensor characteristics	10 - 30V DC	Working temperature	-10°C +50°C	
Operating principle	Hall effect	Flow rate at 6bar Δp (from 1 to 2)	2500 NL/min	
Contact type	N.O.	Flow rate at 6bar Δp (from 2 to 3)	2000 NL/min	
Output type	PNP	Flow rate at 6bar (from 2 to 3) with free discharge	3800 NL/min	
Permanent maximum current	100 mA + 100 mA	Type of installation	Stand alone	
Permanent maximum power	3 Watt + 3 Watt	Assembly positions	Indifferent	
Voltage drop max.	2 V + 2 V	Noise level	90 dB	
Safety characteristics		Response time ON ISO 12238	68 ms	
Regulatory compliance	EN ISO 13849-1	Response time OFF ISO 12238	79 ms	
Safety function fulfilled	Interruption of supply and unloading of the downstream pneumatic circuit	IP Rating	IP65 (with connector installed)	
Performance Level (PL)	e			
UNI EN 13849 category	4			
Safety Integrity Level (SIL)	3			
PFH _d	4,7*10 ⁻⁶			
CE marking	In accordance with the EU Machinery Directive, annex V			

Installation tip of a safety system by means of a double valve

Please note: the safety valve is not sufficient alone to guarantee the safety function. Its setup requires the use of a monitoring device.

In this setup, the SIEMENS 3SK2112 monitoring device has been indicated, activated by an S2 start / reset pushbutton, blocked by an S1 emergency shutdown key. Said monitoring device, by means of the readings of the sensors placed inside the double valve, operates the activation of the valve itself. The preliminary estimate and the final verification of the achieved PL are the responsibility of the designer of the part of the system dedicated to provide the safety function.

Setup suggestions

- The double stop pushbutton is connected to clamps T1-F-IN1 and T2-F-IN2 of 3SK2112.
- The start /reset pushbutton is connected between +24 V and the F-IN10 clamp of 3SK2112.

The double valve, for notation simplicity, is indicated as consisting of 2 valves: EV1 and Ev2

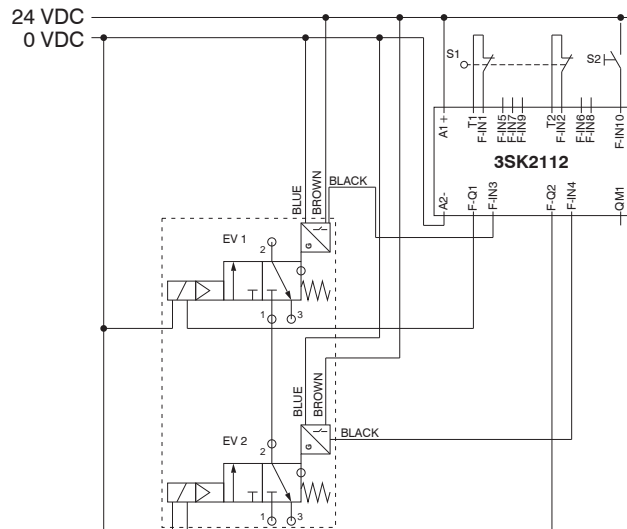
EV1

- The valve is supplied between 0 V (Pin 3 of the supply connector) and the F-Q1 clamp of 3SK2112 (Pin 2 of the supply connector).
- The HALL effect sensor is supplied between 0 V (Pin 3 of the supply connector) and 24 V (Pin 1 of the supply connector).
- The HALL effect sensor is attached (Pin 4 of the supply connector) to the monitoring device's F-IN3 clamp.

EV2

- The valve is supplied between 0 V (Pin 3 of the supply connector) and the F-Q2 clamp of 3SK2112 (Pin 2 of the supply connector).
- The HALL effect sensor is supplied between 0 V (Pin 3 of the supply connector) and 24 V (Pin 1 of the supply connector).
- The HALL effect sensor is attached (Pin 4 of the supply connector) to the monitoring device's F-IN4 clamp.

The circuit diagram of the **suggested** configuration is provided.



Analysis of malfunctions

The diagnostic system (monitoring device plus sensors) has the purpose of verifying the appearance of malfunctions within the valves, which undermine the safety function. In particular, the monitoring device must be appropriately programmed to avoid the system's reset by means of S2 when both coils are de-energised and at least one sensor remains in an OFF position.

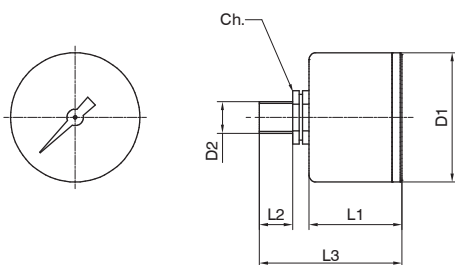
Accessories

Pressure gauge

17070 **A** **C**

Version	
A	Dial Ø40
B	Dial Ø50

Scale	
A	0 - 4 bar
B	0 - 6 bar
C	0 - 12 bar



Model	L1	L2	L3	D1	D2	Ch
17070A..	26	10	44	41	Gc - 1/8"	14
17070B..	27	10	45	49	Gc - 1/8"	14



Regulatory Framework

The purpose of the EU's Machinery Directive is to define the health and safety requirements in the framework of designing and constructing machinery. Since 2009, the new Machinery Directive has become effective in the European Union. Member countries of the EU are required to implement this standard.

The manufacturers of machinery can comply with the Machinery Directive applying the harmonised standards listed in the Official Journal of the European Union.

The design and manufacture of safety controls are developed in compliance with one of the two important harmonised standards:

UNI EN ISO 13849-1
Safety of machinery Safety-related parts of control systems Part 1: General design principles

EN 62061
Safety of machinery Functional safety of electrical, electronic and programmable control systems regarding safety

The UNI EN ISO 13849-1 standard is one of the most important harmonised standards, which has been widely used; it is intended to provide a guide to principles for design and integration of safety-related parts of the control system.

Each safety-related control system must be designed and constructed in accordance with the principles of ISO 12100 and ISO 14121 by which the possible risks are considered and assessed, in view of the intended uses and the reasonably anticipated incorrect uses.

The parts of a machinery's control system are called "Safety-related parts of control systems". Their capacity to perform a safety function under predictable conditions is assigned by means of five possible levels called "**performance levels**" (PL). These levels are defined in terms of probability of dangerous malfunction per hour.

PL - Performance Level	Average probability of dangerous malfunction per hour (1/h)
a	$\geq 10^{-5}$ to $< 10^{-4}$
b	$\geq 3 \times 10^{-6}$ to $< 10^{-4}$
c	$\geq 10^{-6}$ to $< 3 \times 10^{-6}$
d	$\geq 10^{-7}$ to $< 10^{-6}$
e	$\geq 10^{-8}$ to $< 10^{-10}$

The calculated PL must be greater or equal to the necessary value, which arises from the calculation of the risk correlated to one single function and to the need to reduce it to an acceptable level.

S1 Slight danger	F1 Occasional danger and brief exposure	P1 - possibly avoidable danger P2 - largely unavoidable danger	PL= a PL= b
	F2 Frequent danger and long exposure	P1 - possibly avoidable danger P2 - largely unavoidable danger	
S2 Serious danger	F1 Occasional danger and brief exposure	P1 - possibly avoidable danger P2 - largely unavoidable danger	PL= c PL= d
	F2 Frequent danger and long exposure	P1 - possibly avoidable danger P2 - largely unavoidable danger	