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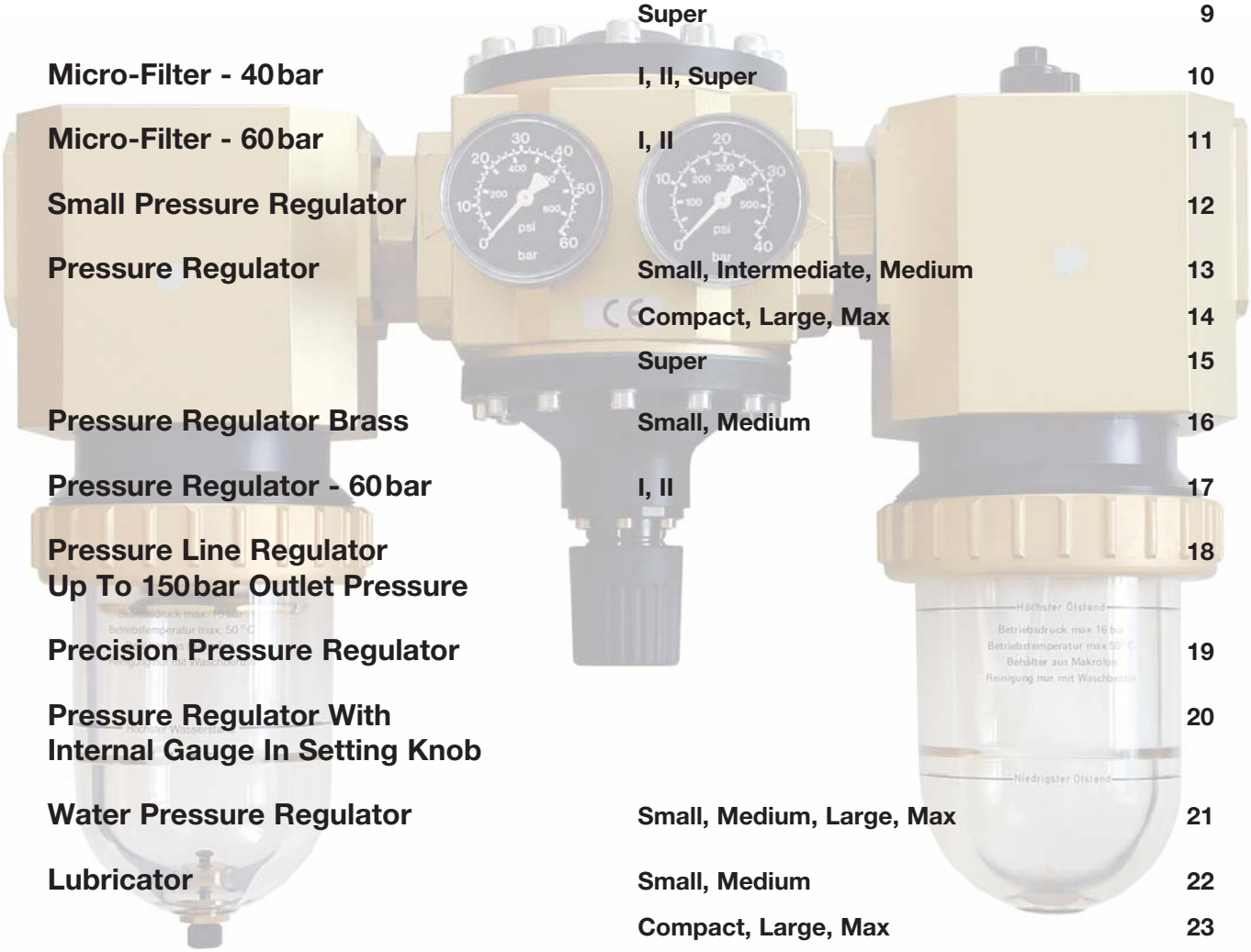
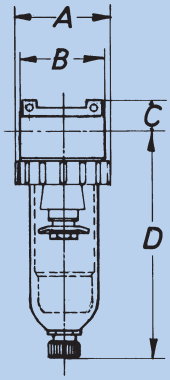


Filter
standard



Compressed air filters serve to remove impurities (condensation water, pipe scaling, rust particles) from the air in the work place. The cleansing is done in two stages by means of cycloning (condensation) and sintering filters (solid contamination). Port sizes G 1/8 to G 1/2.

Technical Data

	Small	Medium
Nominal rates of flow**	1.050 Nl/min	4.670 Nl/min
Max. operating pressure plastic bowl / metal bowl	16 bar / 25 bar	
Operating temperature plastic bowl / metal bowl	0 °C to +50 °C / 0 °C to +90 °C	
Effective bowl volume	25 cm³	80 cm³
Mounting position	vertical	
Direction of flow	arrow	
Nominal width	DN 6	DN 15
Nominal pressure (housing)	PN 25	PN 25
Weight	390 g	950 g
Material		
Seals	NBR	
Housing	zinc alloy	
Filter element	sintered bronze	
Plastic bowl	polycarbonate	

** measured at p_1 = 6 bar and Δp = 1 bar

Filters

Size	G 1/8	G 1/4	G 3/8	G 1/2
with plastic bowl and manually-operated drain valve				
Small	**322.21***	**322.22***	**322.23**	-
Medium	-	-	**322.35***	**322.36**
with plastic bowl and semi-automatic drain valve				
Small	**322.521***	**322.522***	**322.523**	-
Medium	-	-	**322.535***	**322.536**
with plastic bowl and external-automatic drain valve A (max. 16 bar)				
Small	**370.21***	**370.22***	**370.23**	-
Medium	-	-	**370.35***	**370.36**

Accessories

	Small	Medium
Bracket mounting	**322-24**	**322-25**
Bowl protection for plastic bowl with bowl ring	**322-130**	**322-131**
Metal bowl with seal and		
manually-operated drain valve	**324-101**	**324-109**
semi-automatic drain valve	**324-113**	**324-117**
external-automatic drain valve A	**324-114**	**324-118**
Bowl ring	**287-25**	**297-2**

Main spare parts

	Small	Medium
Plastic bowl with seal and		
manually-operated drain valve	**322-112**	**322-118**
semi-automatic drain valve	**322-113**	**322-119**
external-automatic drain valve A	**322-114**	**322-120**
Bowl ring	**287-25**	**297-2**
Sealing ring for all bowls	**287-6**	**297-10**
Filter element		
40 µm (mounted)	**287-10**	**267-37**
5 µm	**287-13**	**298-9**

Dimensions [mm]

Size Port	Small G 1/8*, G 1/4*, G 3/8			Medium G 3/8*	G 1/2
A	56	56	56	87	87
B	57	57	50	88	80
C	19	19	19	24	24
D**	135	135	135	172	172

** -semi-automatic drain valve +10 mm
-external-automatic drain valve +90 mm

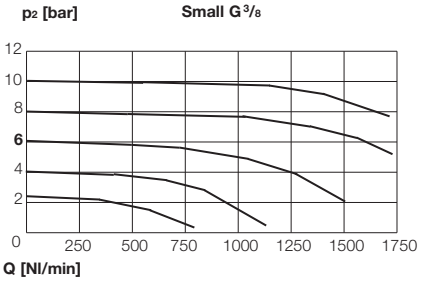
special option - how to order:

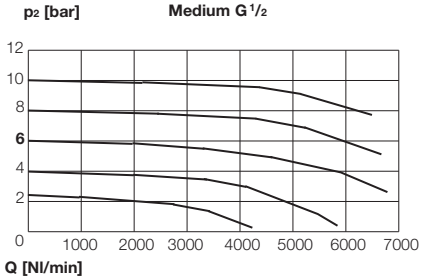
322.21 x

M – metal bowl
S – bowl protection

For example:
322.21 with **bowl protection = 322.21S**

Rates of flow





Drain valves, see chapter 7

* Inlet and outlet reduced

Filter
standard

Compressed air filters serve to remove impurities (condensation water, pipe scaling, rust particles) from the air in the work place. The cleansing is done in two stages by means of cyclonic (condensation) and sintering filters (solid contamination). Port sizes G 3/4 to G 1 1/2.

Technical Data

	Compact	Large	Max
Nominal rates of flow**	6.700 Nl/min	10.000 Nl/min	12.500 Nl/min
Max. operating pressure			
plastic bowl / metal bowl		16 bar / 25 bar	
Operating temperature			
plastic bowl / metal bowl		0 °C to +50 °C / 0 °C to +90 °C	
Effective bowl volume	80 cm³	260 cm³	260 cm³
Mounting position		vertical	
Direction of flow		arrow	
Nominal width	DN 20	DN 20	DN 25
Nominal pressure (housing)		PN 25	
Weight	1320 g	1870 g	2120 g
Material			
Seals		NBR	
Housing	zinc alloy	alu alloy	aluminum
Filter element		sintered bronze	
Plastic bowl		polycarbonate	

** measured at p_1 = 6 bar and Δp = 1 bar

322.49

Filters

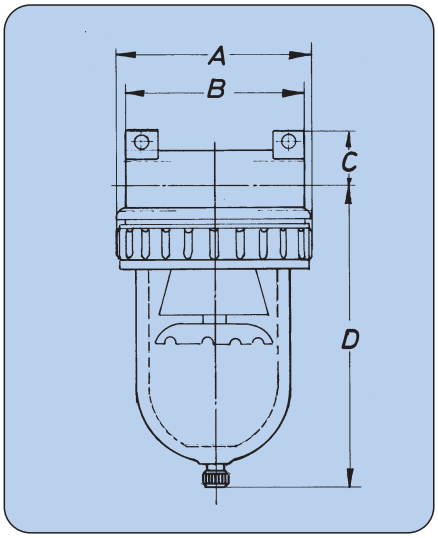
Size	G 3/4	G 1	G 1 1/4	G 1 1/2
with plastic bowl and manually-operated drain valve				
Compact	**405.38***	**405.39**	-	-
Large	**322.48***	**322.49**	-	-
Max	-	-	**322.410***	**322.411**
with plastic bowl and semi-automatic drain valve				
Compact	**405.538***	**405.539**	-	-
Large	**322.548***	**322.549**	-	-
Max	-	-	**322.5410***	**322.5411**
with plastic bowl and external-automatic drain valve A (max. 16 bar)				
Compact	**370.38***	**370.39**	-	-
Large	**370.48***	**370.49**	-	-
Max	-	-	**370.410***	**370.411**

Accessories

	Compact	Large	Max
Bracket mounting	**405-4**	**281-26**	**281-26**
Bowl protection for plastic bowl			
bowl protection	**322-131**	**281-24**	**281-24**
Bowl ring	-	**300-31**	**300-31**
Metal bowl with seal and			
manually-operated drain valve	**324-109**	**322-125**	**322-125**
semi-automatic drain valve	**324-117**	**322-126**	**322-126**
external-automatic drain valve A	**324-118**	**322-127**	**322-127**
Bowl ring	**297-2**	**279-2**	**279-2**

Main spare parts

	Compact	Large	Max
Plastic bowl with seal and			
manually-operated drain valve	**322-118**	**322-122**	**322-122**
semi-automatic drain valve	**322-119**	**322-123**	**322-123**
external-automatic drain valve A	**322-120**	**322-124**	**322-124**
Bowl ring	**297-2**	**279-2**	**279-2**
Sealing ring			
for all bowls	**297-10**	**279-9**	**279-9**
Filter element			
40 µm (mounted)	**267-37**	**281-14**	**281-14**
5 µm	**298-9**	-	-



Dimensions [mm]

Size Port	Compact G 3/4*, G 1		Large G 3/4*, G 1		Max G 1 1/4*, G 1 1/2	
A	102	90	133	133	133	133
B	102	90	134	120	134	120
C	38	38	36	36	46	46
D**	175	175	206	206	216	216

** -semi-automatic drain valve +10 mm
-external-automatic drain valve +90 mm

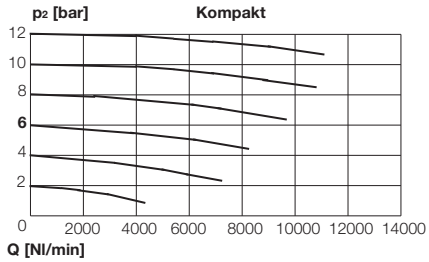
special option - how to order:

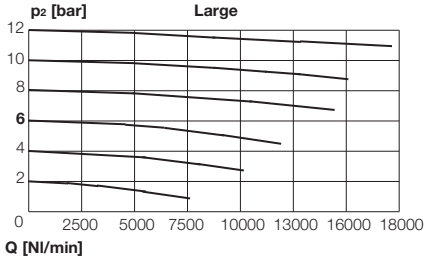
405.38 x

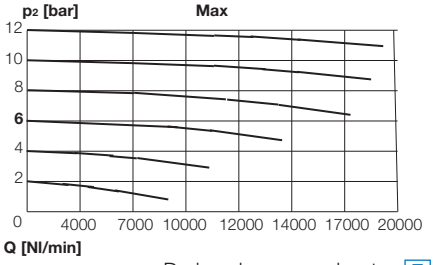
M – metal bowl
S – bowl protection

For example:
405.38 with **bowl protection = 405.38S**

Rates of flow



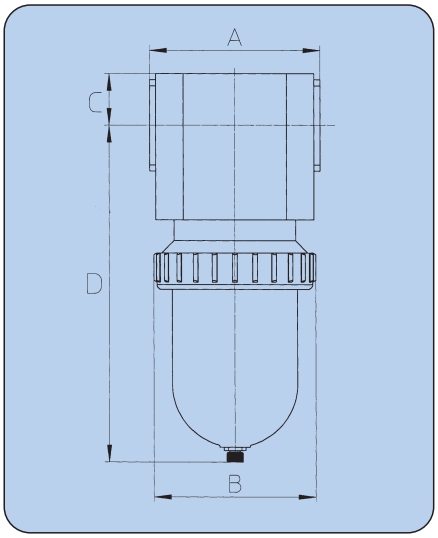




Drain valves, see chapter 7

* Inlet and outlet reduced

Filter
standard



Dimensions [mm]

Size Port	Super G 1 1/2*	Super G2
A	160	140
B	140	140
C	42,5	42,5
D**	330	330

** -semi-automatic drain valve +10 mm
-external-automatic drain valve +90 mm

special option - how to order:

456.212 x

M – metal bowl
S – bowl protection

For example:
456.212 with **metal bowl = 456.212M**

Compressed air filters serve to remove impurities (condensation water, pipe scaling, rust particles) from the air in the work place. The cleansing is done in two stages by means of cyclonic (condensation) and sintering filters (solid contamination). Port sizes G 1 1/2 to G 2.

Technical Data

	Super
Nominal rates of flow**	15830 Nl/min
Max. operating pressure	
plastic bowl / metal bowl	16 bar / 25 bar
Operating temperature	
plastic bowl / metal bowl	0 °C to +50 °C / 0 °C to +90 °C
Effective bowl volume	500 cm³
Mounting position	vertical
Direction of flow	arrow
Nominal width	DN 50
Nominal pressure (housing)	PN 25
Weight	5340 g
Material	
Seals	NBR
Housing	aluminum
Filter element	sintered bronze
Plastic bowl	polycarbonate

** measured at p_1 = 6 bar and Δp = 0,5 bar

Filters

Size	G 1 1/2	G 2
with plastic bowl and manually-operated drain valve		
Super	**456.211***	**456.212**
with plastic bowl and semi-automatic drain valve		
Super	**456.511***	**456.512**
with plastic bowl and external-automatic drain valve A (max. 16 bar)		
Super	**456.611***	**456.612**

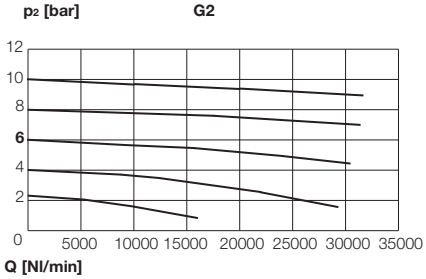
Accessories

	Super
Bracket mounting	**457-12**
Bowl protection for plastic bowl	
bowl protection	**281-24**
Bowl ring	**300-31**
Metal bowl with seal and	
manually-operated drain valve	**322-125**
semi-automatic drain valve	**322-126**
external-automatic drain valve A	**322-127**
Bowl ring	**279-2**

Main spare parts

	Super
Plastic bowl with seal and	
manually-operated drain valve	**322-122**
semi-automatic drain valve	**322-123**
external-automatic drain valve A	**322-124**
Bowl ring	**279-2**
Sealing ring	
for all bowls	**279-9**
Filter element	
40µm (mounted)	**454-3**
5µm	**454-11**

Rates of flow



Drain valves, see chapter 7

* Inlet and outlet reduced

40 bar Filter
standard

Compressed air filters in modular design with condensation drain, manually operated***. Filter element of sintered bronze. Body of aluminium (black anodized). Bowl of brass. Test certificate for pressure bowl included.

Technical Data

	I	II	Super
Nominal rates of flow**	2660 Nl/min	6000 Nl/min	15830 Nl/min
Max. operating pressure		40 bar (PN 40)	
Operating temperature		0 °C to +90 °C	
Effective bowl volume	80 cm³	100 cm³	300 cm³
Mounting position		vertical	
Direction of flow		arrow	
Nominal width	DN 15	DN 20	DN 50
Weight	1220 g	2000 g	5800 g
Material			
Seals		NBR	
Housing		aluminium	
Metal bowl		brass	aluminum
Filter element		sintered bronze	

** measured at p_1 = 6 bar and Δp = 0,2 bar

445.016

40 bar Filters

Size	G 3/8	G 1/2	G 3/4	G 1	G 1 1/2	G 2
I	**445.015***	**445.016**	-	-	-	- II
II	-	-	**445.008***	**445.009**	-	-
Super	-	-	-	-	**454.411***	**454.412**

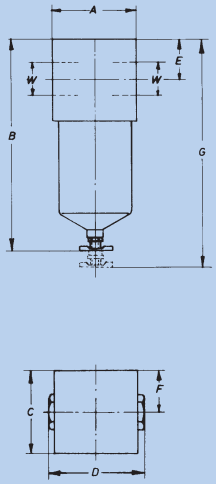
Accessories

	I	II	Super
Bracket mounting for housing	**445-39**	**445-28**	**429-27**

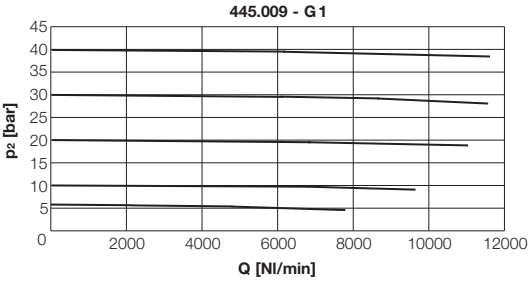
Main spare parts

	I	II	Super
Filter elements			
40 µm (mounted)	**394-16**	**267-37**	**454-3**
5 µm	**394-37**	**298-9**	**454-11**
Manual drain valve for metal bowls	**275-41*****	**275-41*****	**275-41*****

*** Condensate drain under pressure only to 25 bar range



Rates of flow



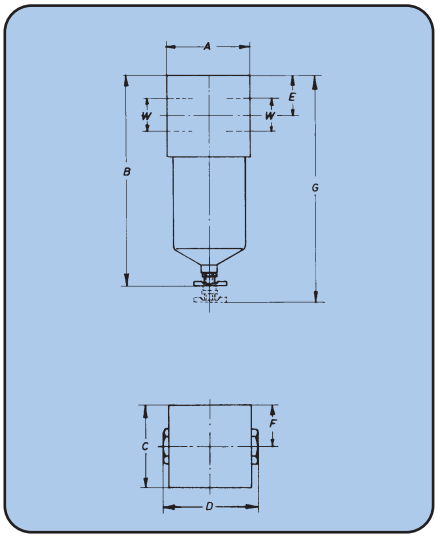
Dimensions [mm]

Size Port	I G 3/8*, G 1/2	II G 3/4*, G 1	Super G 1 1/2*, G 2
A	65	80	140
B	200	210	285
C	65	80	120
D	70 62	92 80	160 140
E	32	40	42,5
F	31	40	70
G**	250	285	350

**Space required to change element.

* Inlet and outlet reduced

60 bar Filter
standard



Compressed air filters in modular design with condensation drain, manually operated. Filter element of sintered bronze. Body of aluminium (black anodized). Bowl of brass. Test certificate for pressure bowl included.

Technical Data

	I	II
Nominal rates of flow**	2660 Nl/min	6000 Nl/min
Max. operating pressure	60 bar (PN 60)	
Operating temperature	0 °C to +90 °C	
Effective bowl volume	80 cm³	100 cm³
Mounting position	vertical	
Direction of flow	arrow	
Nominal width	DN 15	DN 20
Weight	1400 g	3000 g
Material		
Seals	NBR	
Housing	aluminum	
Metal bowl	brass	
Filter element	sintered bronze	

** measured at p_1 = 6 bar and Δp = 0,2 bar

60 bar Filters

Size	G 3/8	G 1/2	G 3/4	G 1
I	**475.015***	**475.016**	-	-
II	-	-	**475.008***	**475.009**

Accessories

	I	II
Bracket mounting for housing	**445-39**	**445-28**

Main spare parts

	I	II
Filter element		
40 µm (mounted)	**394-16**	**267-37**
5 µm	**394-37**	**298-9**
Manual drain valve for metal bowl	**275-41*****	**275-41****

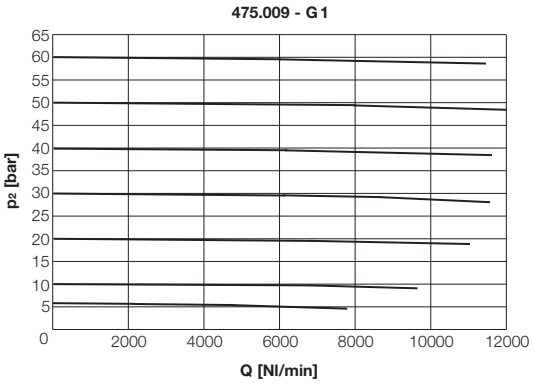
*** Condensate drain under pressure only to 25 bar range

Dimensions [mm]

Size Port	I G 3/8*, G 1/2	II G 3/4*, G 1
A	65	80
B	185	200
C	65	80
D	70 65	92 80
E	25	30
F	33	40
G**	205	285

**Space required to change element.

Rates of flow



* Inlet and outlet reduced

Micro-Filter
standard

Microborosilicate air filters are suitable for use in all situations in which the required purity of the compressed air is especially high. As the second stage after the standard filter they remove almost without residue the smallest remaining particles of water, oil or dirt to 99,9999 % (for 0,01 µm). Residual oil content 0,01 ppm. Port size G 1/8 to G 3/8.

Technical Data

	Small
Nominal rates of flow**	560 Nl/min
Max. operating pressure	
plastic bowl / metal bowl	16 bar / 25 bar
Operating temperature	
plastic bowl / metal bowl	0 °C to +50 °C / 0 °C to +90 °C
Effective bowl volume	max. to Microfilterelement
Mounting position	vertical
Direction of flow	arrow
Nominal width	DN 6
Nominal pressure (housing)	PN 25
Weight	380 g
Material	
Seals	NBR
Housing	zinc alloy
Filter element	borosilicate glass microfiber
Plastic bowl	polycarbonate

** measured at p_1 = 6 bar and Δp = 0,2 bar

Micro-Filters

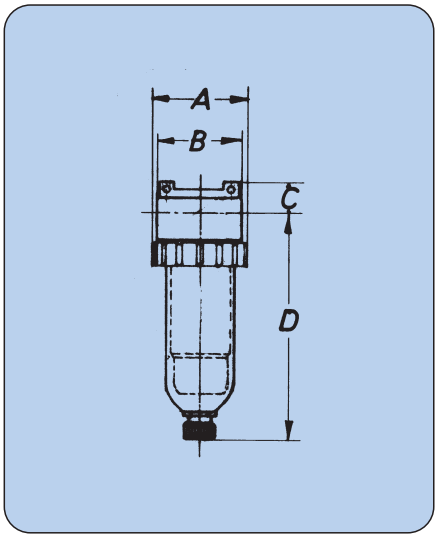
Size	G 1/8	G 1/4	G 3/8
with plastic bowl and manually-operated drain valve			
Small	**403.21***	**403.22***	**403.23**
with plastic bowl and semi-automatic drain valve			
Small	**403.521***	**403.522***	**403.523**
with plastic bowl and add-on automatic drain valve A (max. 16 bar)			
Small	**403.121***	**403.122***	**403.123**

Accessories

	Small
Bracket mounting	**322-24**
Bowl protection for plastic bowl with bowl ring	**322-130**
Metal bowl with seal and manually-operated drain valve	**324-101**
semi-automatic drain valve	**324-113**
external-automatic drain valve A	**324-114**
Bowl ring	**287-25**

Main spare parts

	Small
Plastic bowl with seal and manually-operated drain valve	**403-9**
semi-automatic drain valve	**403-26**
external-automatic drain valve A	**403-30**
Bowl ring	**287-25**
Sealing ring for all bowls	**287-6**
Micro-Filter element with seal 0,01 µm (M 10x1 – ø 28x68)	**403-1**



Dimensions [mm]

Size Port	G 1/8*	Small G 1/4*	G 3/8
A	56	56	56
B	57	57	50
C	19	19	19
D**	135	135	135

** -semi-automatic drain valve +10 mm
-external-automatic drain valve +90 mm

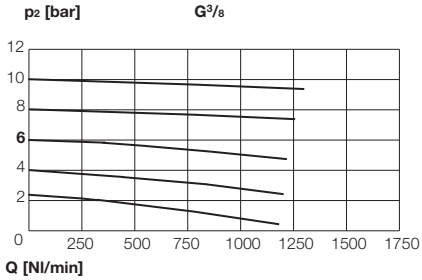
special option - how to order:

403.21 x

M – metal bowl
S – bowl protection

For example:
403.21- with bowl protection = 403.21S

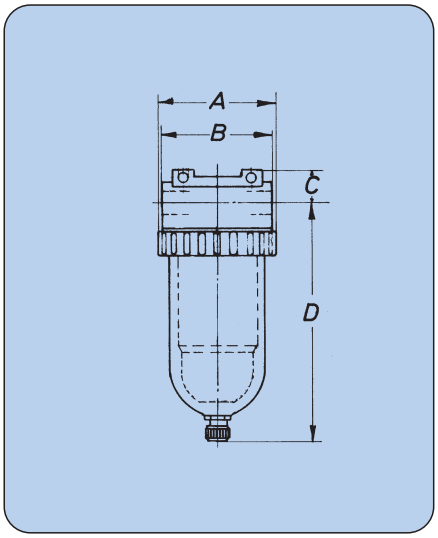
Rates of flow



Drain valves, see chapter 7

* Inlet and outlet reduced

Micro-Filter
standard



Microborosilicate air filters are suitable for use in all situations in which the required purity of the compressed air is especially high. As the second stage after the standard filter they remove almost without residue the smallest remaining particles of water, oil or dirt to 99,9999 % (for 0,01 µm). Residual oil content 0,01 ppm. Port size G 3/8 to G 1.

Technical Data

	Medium	Large
Nominal rates of flow**	2000 Nl/min	4000 Nl/min
Max. operating pressure plastic bowl / metal bowl	16 bar / 25 bar	
Operating temperature plastic bowl / metal bowl	0 °C to +50 °C / 0 °C to +90 °C	
Effective bowl volume	max. to Microfilterelement	
Mounting position	vertical	
Direction of flow	arrow	
Nominal width	DN 15	DN 20
Nominal pressure (housing)	PN 25	PN 25
Weight	980 g	1900 g
Material		
Seals	NBR	
Housing	zinc alloy	aluminum
Filter element	borosilicate glass microfiber	
Plastic bowl	polycarbonate	

** measured at p_1 = 6 bar and Δp = 0,2 bar

Micro-Filters

Size	G 3/8	G 1/2	G 3/4	G 1
with plastic bowl and manually-operated drain valve				
Medium	**403.35***	**403.36**	-	-
Large	-	-	**403.48***	**403.49**
with plastic bowl and semi-automatic drain valve				
Medium	**403.535***	**403.536**	-	-
Large	-	-	**403.548***	**403.549**
with plastic bowl and external-automatic drain valve A (max. 16 bar)				
Medium	**403.135***	**403.136**	-	-
Large	-	-	**403.148***	**403.149**

Accessories

	Medium	Large
Bracket mounting	**322-25**	**281-26**
Bowl protection for plastic bowl bowl protection	**298-8**	**281-24**
Bowl ring	**297-13**	**300-31**
Metal bowl with seal and manually-operated drain valve	**324-109**	**322-125**
semi-automatic drain valve	**324-117**	**322-126**
external-automatic drain valve A	**324-118**	**322-127**
Bowl ring	**297-2**	**279-2**

Main spare parts

	Medium	Large
Plastic bowl with seal and manually-operated drain valve	**360-12**	**360-25****
semi-automatic drain valve	**403-28**	**403-29****
external-automatic drain valve A	**403-32**	**403-33****
Bowl ring	**297-2**	**279-2**
Sealing ring for all bowls	**297-10**	**279-9**
Filter element with seal 0,01 µm (M 23 x 1 – ø 50 x 98)	**403-3**	-
0,01 µm (M 35 x 1,5 – ø 75 x 125)	-	**403-4**

** without seal

Dimensions [mm]

Size Port	Medium G 3/8*,	G 1/2	Large G 3/4*,	G 1
A	87	87	133	133
B	88	80	134	120
C	24	24	36	36
D**	172	172	206	206

** -semi-automatic drain valve +10 mm
-external-automatic drain valve +90 mm

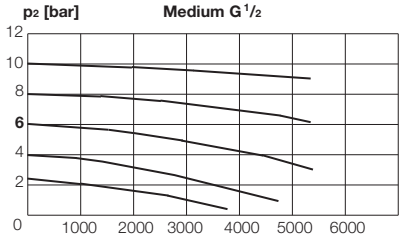
special option - how to order:

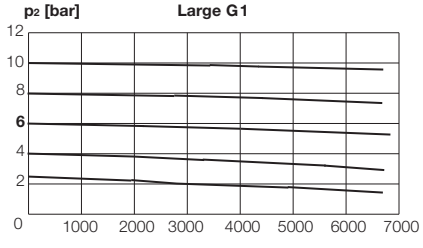
403.35 x

M – metal bowl
S – bowl protection

For example:
403.35- with bowl protection = 403.35S

Rates of flow





Drain valves, see chapter 7

* Inlet and outlet reduced

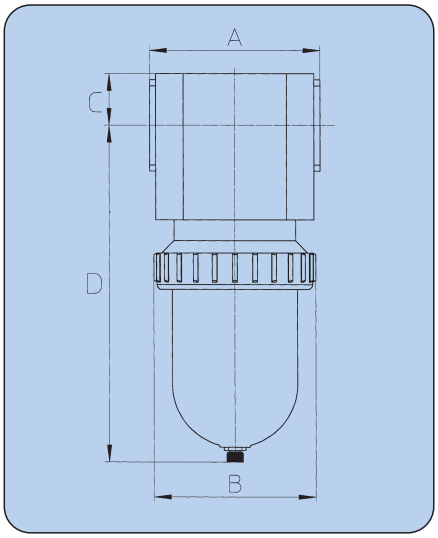
Micro-Filter
standard

Microborosilicate air filters are suitable for use in all situations in which the required purity of the compressed air is especially high. As the second stage after the standard filter they remove almost without residue the smallest remaining particles of water, oil or dirt to 99,9999 % (for 0,01 µm). Residual oil content 0,01 ppm. Port size G 1 1/2 to G 2.

Technical Data

	Super
Nominal rates of flow**	7000 Nl/min
Max. operating pressure	
plastic bowl / metal bowl	16 bar / 25 bar
Operating temperature	
plastic bowl / metal bowl	0 °C to +50 °C / 0 °C to +90 °C
Effective bowl volume	max. to Microfilterelement
Mounting position	vertical
Direction of flow	arrow
Nominal width	DN 50
Nominal pressure (housing)	PN 25
Weight	5400 g
Material	
Seals	NBR
Housing	aluminum
Filter element	borosilicate glass microfiber
Plastic bowl	polycarbonate

** measured at p_1 = 6 bar and Δp = 0,2 bar



Micro-Filters

Size	G 1 1/2	G 2
with plastic bowl and manually-operated drain valve		
Super	**403.511***	**403.512**
with plastic bowl and semi-automatic drain valve		
Super	**403.5511***	**403.5512**
with plastic bowl and external-automatic drain valve A (max. 16 bar)		
Super	**403.1511***	**403.1512**

Accessories

	Super
Bracket mounting	**457-12**
Bowl protection for plastic bowl	
bowl protection	**281-24**
Bowl ring	**300-31**
Metal bowl with seal and	
manually-operated drain valve	**322-125**
semi-automatic drain valve	**322-126**
external-automatic drain valve A	**322-127**
Bowl ring	**279-2**

Main spare parts

	Super
Plastic bowl with seal and	
manually-operated drain valve	**322-122**
semi-automatic drain valve	**322-123**
external-automatic drain valve A	**322-124**
Bowl ring	**279-2**
Sealing ring for all bowls	**279-9**
Filter element with seal	
0,01 µm (ø63x115)	**454-17**

Dimensions [mm]

BG	Super G 1 1/2*	Super G 2
A	140	140
B	133	133
C	42	42
D**	330	330

** - semi-automatic drain valve +10 mm
- external-automatic drain valve +90 mm

special option - how to order:

403.512 x

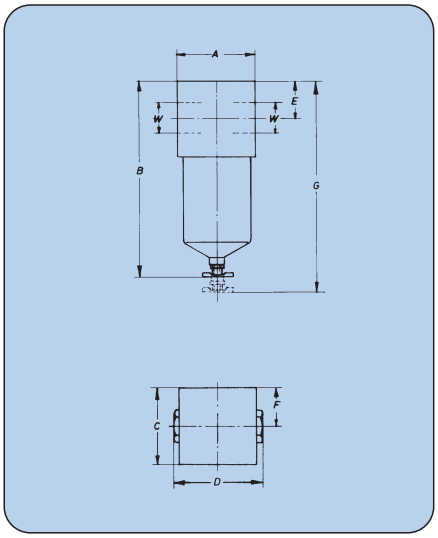
M – metal bowl
S – bowl protection

for example:
403.512 with **metal bowl = 403.512 M**

Drain valves, see chapter 7

* Inlet and outlet reduced

40 bar Micro-Filter
standard



Compressed air filters in modular design with condensation drain, manually operated. Filter element of Borosilicate microfiber fleece. Body of aluminium (black anodized). Bowl of brass. Test certificate for pressure bowl included. Micro-filters guarantee as the second stage best possible quality with an effectiveness of 99,9999 % based on 0,01 µm. Residual oil content 0,01 ppm. The filter element with a pore size lower than 0,01 µm are of borosilicate filter with supporting casing made of stainless steel (V2A) and foamed plastic cover. Flow passes from inside to outside. Replacement after 6 months.

Technical Data

	I	II	Super
Nominal rates of flow**	2000 Nl/min	3000 Nl/min	7000 Nl/min
Max. operating pressure		40 bar (PN 40)	
Operating temperature		0 °C to +90 °C	
Effective bowl volume		max. to Microfilterelement	
Mounting position		vertical	
Direction of flow		arrow	
Nominal width	DN 15	DN 20	DN 50
Weight	1220 g	2000 g	5800 g
Material			
Seals		NBR	
Housing		aluminum	
Metal bowl		brass	aluminum
Filter element		borosilicate glass microfiber	

** measured at p_1 = 6 bar and Δp = 0,2 bar

40 bar Micro-Filters

Size	G 3/8	G 1/2	G 3/4	G 1	G 1 1/2	G 2
I	**445.115***	**445.116**	-	-	-	- II
II	-	-	**445.108***	**445.109**	-	-
Super	-	-	-	-	**454.511***	**454.512**

Accessories

	I	II	Super
Bracket mounting for housing	**445-39**	**445-28**	**429-27**

Main spare parts

	I	II	Super
Filter elements 0,01 µm	**448-8**	**403-3**	**454-17**
Manual drain valve for metal bowls	**275-41*****	**275-41*****	**275-41*****

*** Condensate drain under pressure only to 25 bar range

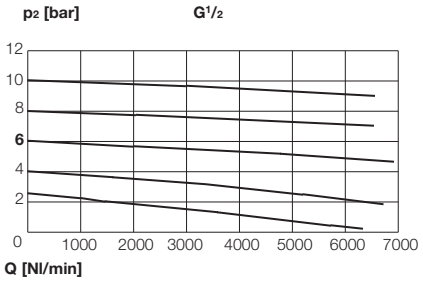
For maximum working life we recommend using a normal filter 40 bar as first stage.

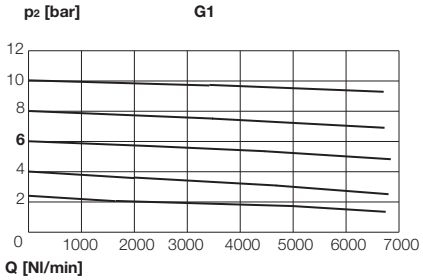
Dimensions [mm]

Size Port	I G 3/8*, G 1/2	II G 3/4*, G 1	Super G 1 1/2*, G 2
A	65	80	140
B	200	210	285
C	65	80	120
D	70 65	92 80	160 140
E	32	40	42,5
F	31	40	70
G**	250	285	350

**Space required to change element.

Rates of flow

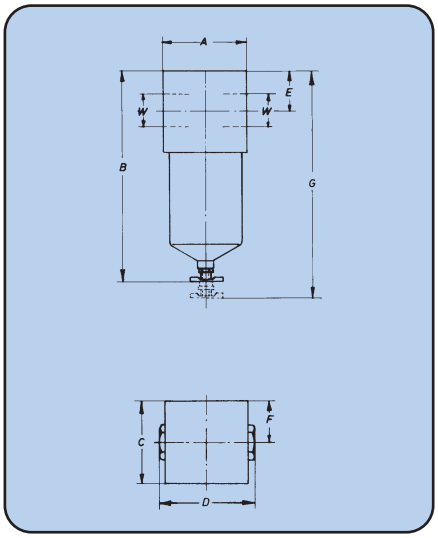




* Inlet and outlet reduced

60 bar Micro-Filter
standard

Compressed air filters in modular design with condensation drain, manually operated. Filter element of Borosilicate microfiber fleece. Body of aluminium (black anodized). Bowl of brass. Test certificate for pressure bowl included. Micro-filters guarantee as the second stage best possible quality with an effectiveness of 99,9999 % based on 0,01 µm. Residual oil content 0,01 ppm. The filter element with a pore size lower than 0,01 µm are of borosilicate filter with supporting casing made of stainless steel (V2A) and foamed plastic cover. Flow passes from inside to outside. Replacement after 6 months.



Technical Data

	I	II
Nominal rates of flow**	2000 Nl/min	3000 Nl/min
Max. operating pressure	60 bar (PN 60)	
Operating temperature	0 °C to +90 °C	
Effective bowl volume	max. to Microfilterelement	
Mounting position	vertical	
Direction of flow	arrow	
Nominal width	DN 15	DN 20
Weight	1400 g	3000 g
Material		
Seals	NBR	
Housing	aluminum	
Metal bowl	brass	
Filter element	borosilicate glass microfiber	

** measured at p_1 = 6 bar and Δp = 0,2 bar

60 bar Micro-Filters

Size	G 3/8	G 1/2	G 3/4	G 1
I	**475.115***	**475.116**	-	-
II	-	-	**475.108***	**475.109**

Accessories

	I	II
Bracket mounting for housing	**445-39**	**445-28**

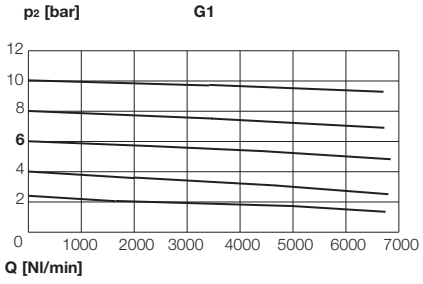
Main spare parts

	I	II
Filter element with seal 0,01 µm	**448-8**	**403-3**
Manual drain valve for metal bowl	**275-41*****	**275-41****

*** Condensate drain under pressure only to 25 bar range

For maximum working life we recommend using a normal filter 60 bar as first stage.

Rates of flow



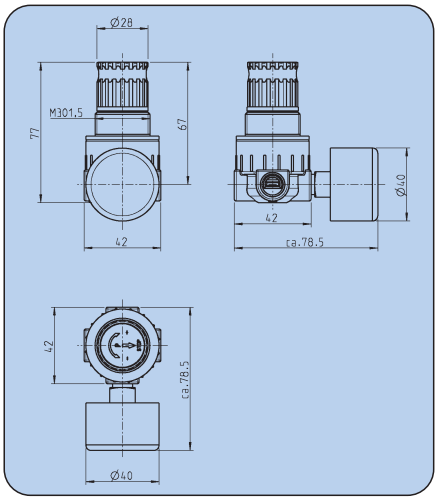
Dimensions [mm]

BG	I G 3/8*, G 1/2		II G 3/4*, G 1	
A	65		80	
B	185		200	
C	65		80	
D	70	65	92	80
E	25		30	
F	33		40	
G**	205		285	

**Space required to change element.

* Inlet and outlet reduced

Small Pressure Regulator
standard



Pressure regulator (diaphragm type) in round shape. Relieving (feedback control), form extensive amount of independence and compensation are given. Typically ranges 0,5 bar to 6, and 10 bar. Operation by handwheel, lockable. Gauges mounted on both sides. Panel or bracket mounting if desired. Connecting thread G 1/4.
Note: To avoid losses should be a pre-filter.

Technical Data

Nominal rates of flow*	600 Nl/min
Max. inlet pressure (P_1)	16 bar at max. +50 °C (122 °F)
Operating temperature	-10 °C up to +90 °C
Mounting position	any
Direction of flow	arrow
Nominal width	DN 6
Dependence upon supply pressure	< 3 %
Reversing control hysteresis	~ 1 bar
Weight	300 g
Material	
Housing	aluminum
Cover	PA6-GF30
Handwheel	POM
Guide pin, disc	PA
Cone, diaphragm	NBR

* measured at p_1 = 10 bar, p_2 = 6 bar and Δp = 1 bar

Small Pressure Regulator 0,5 - 10 bar

Size	G 1/4
Small	**301.223**

special option - how to order:

301.xxx

- **1 – 0,2 - 3 bar**
- **2 – 0,5 - 6 bar**
- **3 – 0,5 - 10 bar**

— operating pressure range

- **2 – thread** (**2** = G 1/4)
- **2 – with pressure gauge**
- **4 – without pressure gauge**

For example:
301.223 – but **without pressure gauge** and **0,5 - 6 bar = 301.422**

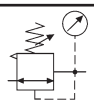
Accessories

	Small
Bracket mounting at cover	**443-36**
Panel mounting	**381-32**
Panel thread	M30x1,5

Main spare parts

		Small
Pressure gauge		ø40
display range	0 - 4 bar	**709**
	0 - 6 bar	**714**
	0 - 10 bar	**723**
	0 - 16 bar	**734**
Seal cone complete		**301-8**
Diaphragm complete		**301-9**

Pressure Regulator
standard



Pressure regulators (diaphragm type) keep the working pressure constant regardless of pressure fluctuations in the system and of air consumption, providing secondary air exhaust (relieving) and almost complete independence of primary pressure. Working pressure ranges from 0,5 to 3, 6, 10 and 16 bar. Operation by means of a toggle or handwheel. Special models (for example, without secondary air exhaust) upon request. Gauge can be mounted on either side. Port sizes G 1/8 to G 1/2. **Important:** Use of filter always recommended.

Technical Data

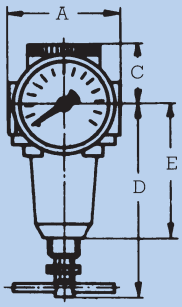
	Small	Intermediate	Medium
Nominal rates of flow**	1000 Nl/min	2000 Nl/min	2670 Nl/min
Max. inlet pressure (P_1)		25 bar (PN 25)	
Operating temperature		-10 °C to +90 °C	
Mounting position		any	
Direction of flow		arrow	
Nominal width	DN 6	DN 10	DN 15
Dependence upon supply pressure	< 3 %	< 2 %	< 2 %
Reversing control hysteresis		~ 1 bar	
Weight	620 g	1150 g	1350 g
Material			
Diaphragm		NBR	
Seals		NBR	
Housing		zinc alloy	

** measured at p_1 = 8 bar, p_2 = 6 bar and Δp = 1 bar

323.333

Pressure Regulators 0,5 - 10 bar

Size	G 1/8	G 1/4	G 3/8	G 1/2
Small	**323.313***	**323.323***	**323.333**	-
Intermediate	**280.313***	**280.323***	**280.333**	-
Medium	-	-	**280.353***	**280.363**



special option - how to order:

323.xxx

- **1** – 0,5 - 3 bar
- **2** – 0,5 - 6 bar
- **3** – 0,5 - 10 bar
- **4** – 0,5 - 16 bar

operating pressure range

– **thread** (**1** = G 1/8, **2** = G 1/4, **3/5** = G 3/8, **6** = G 1/2)

- **2** – handwheel with pressure gauge
- **3** – toggle with pressure gauge
- **4** – handwheel without pressure gauge
- **5** – toggle without pressure gauge

For example:
323.323 – but without **pressure gauge** and **0,5 - 16 bar = 323.524**

Accessories

	Small	Intermediate	Medium
Bracket mounting	**323-68**	**280-134**	**280-132**
Panel mounting	**323-69**	**323-66**	**280-133**
Panel thread	M 14 x 1	M 20 x 1,5	M 22 x 1

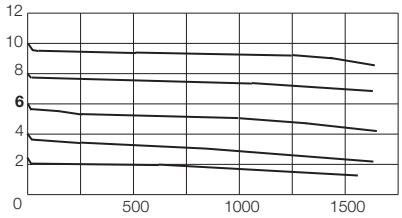
Main spare parts

	Small	Intermediate	Medium
Pressure gauge	ø50	ø63	ø63
display range 0 - 6 bar	**42**	**213**	**213**
0 - 10 bar	**55**	**214**	**214**
0 - 16 bar	**85**	**215**	**215**
0 - 25 bar	**96**	**216**	**216**
Seal cone complete	**323-119**	**406-37**	**280-220**
Diaphragm complete	**323-152**	**280-223**	**280-221**

Rates of flow

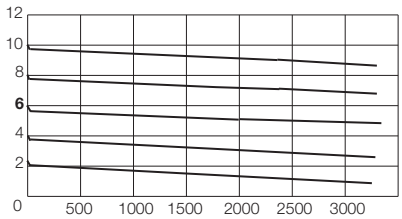
$p_1 = p_2 + 2$ bar

p_2 [bar] — Small G 1/4



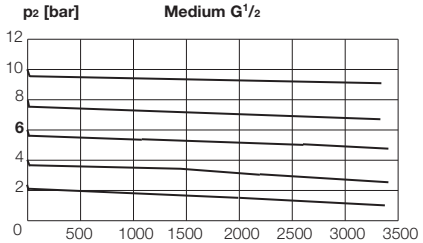
Q [Nl/min]

p_2 [bar] — Intermediate G 3/8



Q [Nl/min]

p_2 [bar] — Medium G 1/2



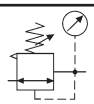
Q [Nl/min]

Dimensions [mm]

Size / Port	Small G 1/8*, G 1/4*, G 3/8			Intermediate G 1/8*, G 1/4*, G 3/8			Medium G 3/8*, G 1/2	
A	61	61	54	77	77	70	90	82
C	30	30	30	33	33	33	34	34
D	100	100	100	127	127	127	136	136
E	67	67	67	78	78	78	85	85

* Inlet and outlet reduced

Pressure Regulator
standard



406.xxx Compact | 280.xxx Large/Max

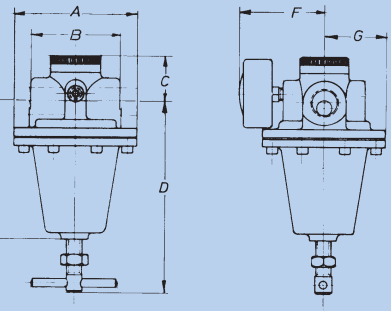
Pressure regulators (diaphragm type) keep the working pressure constant regardless of pressure fluctuations in the system and of air consumption, providing secondary air exhaust (relieving) and almost complete independence of primary pressure. Working pressure ranges from 0,5 to 3, 6, 10, 16 and 25 bar. Operation by means of a toggle or handwheel (size Large + Max for 16 and 25 bar with hexagon screw sw 19. Special models (for example, without secondary air exhaust) upon request. Gauge can be mounted on either side. Port sizes G 3/4 to G 1 1/2.

Important: Use of filter always recommended.

Technical Data

	Compact	Large	Max
Nominal rates of flow**	5330 Nl/min	7830 Nl/min	12160 Nl/min
Max. inlet pressure (P_1)	25 bar (PN 25)	40 bar (PN 40)	40 bar (PN 40)
Operating temperature		-10 °C to +90 °C	
Mounting position		any	
Direction of flow		arrow	
Nominal width	DN 20	DN 20	DN 25
Dependence upon supply pressure	< 3 %	< 1,5 %	< 1,5 %
Reversing control hysteresis		~ 1 bar	
Weight	2050 g	3480 g	5260 g
Material			
Diaphragm		NBR	
Seals		NBR	
Housing	zinc alloy	brass	brass

** measured at p_1 = 8 bar, p_2 = 6 bar and Δp = 1 bar



Pressure Regulators 0,5 - 10 bar

Size	G 3/4	G 1	G 1 1/4	G 1 1/2
Compact	**406.283***	**406.293**	-	-
Large	**280.383***	**280.393**	-	-
Max	-	-	**280.3103***	**280.3113**

special option - how to order:

406.xxx (Compact)
- **1** – 0,5 - 3 bar
- **2** – 0,5 - 6 bar
- **3** – 0,5 - 10 bar
- **4** – 0,5 - 16 bar
  - **thread** (**8**=G 3/4, **9**=G 1)
- **2** – **handwheel with pressure gauge** (to 10 bar)
- **3** – **toggle with presssure gauge**
- **4** – **handwheel without press. gauge** (to 10 bar)
- **6** – **toggle without pressure gauge**

280.xxxx (Large/Max)
- **1** – 0,5 - 3 bar
- **2** – 0,5 - 6 bar
- **3** – 0,5 - 10 bar
- **4** – 0,5 - 16 bar
- **5** – 0,5 - 25 bar
  - **thread** (**8**=G 3/4, **9**=G 1, **10**=G 1 1/4, **11**=G 1 1/2)
- **3** – **toggle* with pressure gauge**
- **5** – **toggle* without pressure gauge**

*16+25 bar with hexagon screw

For example: **280.3113** – but **without pressure gauge** and **0,5 - 25 bar = 280.5115**

Accessories

	Compact	Large	Max
Bracket mounting	**406-17**	**280-239**	**280-239**
Panel mounting	**406-18**	-	-
Panel thread	M28x1,5		

Main spare parts

	Compact	Large	Max
Pressure gauge	ø63	ø63	ø63
display range 0 - 6 bar	**213**	**213**	**213**
0 - 10 bar	**214**	**214**	**214**
0 - 16 bar	**215**	**215**	**215**
0 - 25 bar	**216**	**216**	**216**
0 - 40 bar	-	**217**	**217**
Seal cone complete	**406-32**	**280-218**	**280-235**
Diaphragm complete	**406-50**	**280-219**	**280-219**

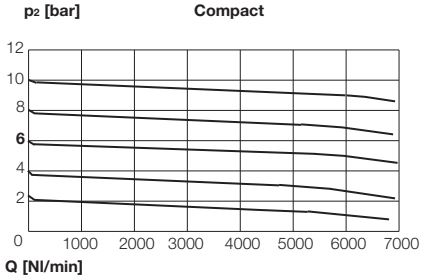
Dimensions [mm]

Size / Port	Compact G 3/4*, G 1		Large G 3/4*, G 1		Max G 1 1/4*, G 1 1/2	
A	-	-	116	116	116	116
B	96	90	95	83	128	114
C	47	47	41	41	50	50
D	139	139	175	175	190	190
E	89	89	-	-	-	-
F	77	77	80	80	80	80
G	39	39	58	58	58	58

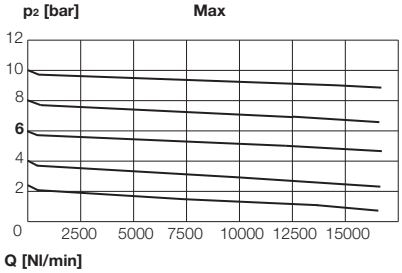
Rates of flow

$p_1 = p_2 + 2$ bar

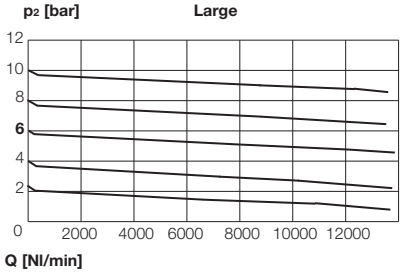
Compact



Max



Large



* Inlet and outlet reduced

Pressure Regulator
standard

Pressure regulator (diaphragm type) with servomechanism. Port sizes G1 1/2 to G2. Secondary air exhaust (relieving) and almost complete independence of primary pressure are provided. Working pressure ranges: 0,5 to 6, 10, 16 and 25 bar. Two gauges (inlet and outlet pressure) can be mounted on either side. Bracket mounting upon request.
Important: Use of filter always recommended.

Technical Data

	Super
Nominal rates of flow**	25000 Nl/min
Max. inlet pressure (P_1)	40 bar (PN 40)
Outlet pressure range (P_2)	0,5 to 6, 10, 16 and 25 bar
Operating temperature	-10 °C to +90 °C
Mounting position	any
Direction of flow	arrow
Nominal width	DN 50
Dependence upon supply pressure	< 1 %
Reversing control hysteresis	~ 0,5 bar
Weight	5500 g
Material	
Diaphragm/Seals	NBR
Housing	aluminum alloy

** measured at p_1 = 8 bar, p_2 = 6 bar and Δp = 1 bar

Pressure Regulators 0,5 - 10 bar

Size	G 1 1/2	G 2
Super	**417.2113***	**417.2123**

Execution "remote control" on request

special option - how to order:

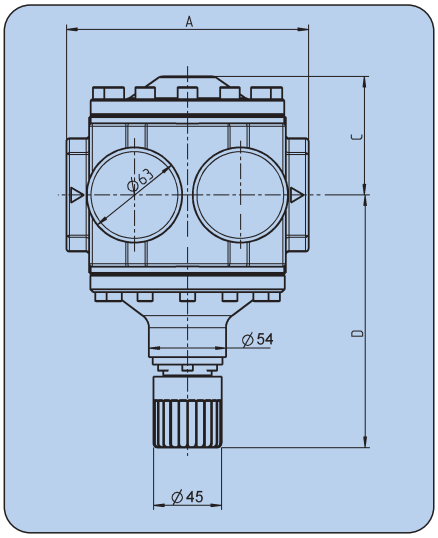
417.xxxx

- **2 – 0,5 - 6 bar**
- **3 – 0,5 - 10 bar**
- **4 – 0,5 - 16 bar**
- **5 – 0,5 - 25 bar**

(operating pressure range)

- **– thread**
- **2 – with pressure gauge**
- **4 – without pressure gauge**

For example:
417.2113 – but **without pressure gauge** and **0,5 - 16 bar = 417.4114**



** picture with one diaphragm (new Model)

Accessories

	Super
Bracket mounting	**417-47**

Main spare parts

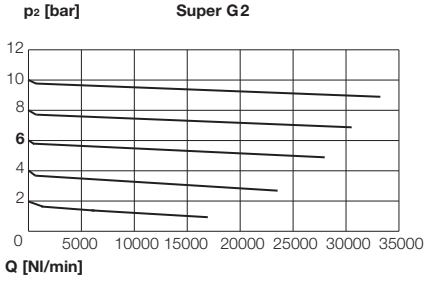
	Super
Pressure gauge horizontal	ø63
display range 0 - 10 bar	**214**
0 - 16 bar	**215**
0 - 25 bar	**216**
0 - 40 bar	**217**
0 - 60 bar	**218**

	"old Model" two diaphragm	"new Model" ** one diaphragm
Seal set (incl. Valves complete)	**417-54**	**417-75**
Seal cone complete	**417-15**	**417-67**
Diaphragm complete	**417-26**	**417-66**

Dimensions [mm]

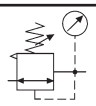
Size Port	Super G 1 1/2*	Super G 2
A	180	160
C	78	78
D	200	200

Rates of flow $p_1 = p_2 + 2$ bar



* Inlet and outlet reduced

Pressure Regulator Brass
standard



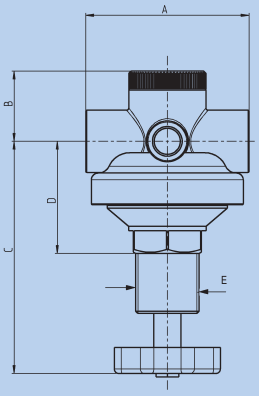
274.663

Pressure regulators (diaphragm type). Port size G 1/4 and G 1/2. Secondary air exhaust (relieving) and almost complete independence of primary pressure. Working pressure ranges 0,5 to 3, 6, 10, 16 and 25 bar. Adjustment by means of a locknut. Gauge can be mounted on either side. Panel mounting or bracket mounting upon request.
Important: Use of filter always recommended.

Technical Data

	Small	Medium
Nominal rates of flow*	430 Nl/min	1250 Nl/min
Max. inlet pressure (P_1)	40 bar (PN 40)	
Operating temperature	-10 °C to +90 °C	
Outlet pressure range (P_2)	0,5 to 3, 6, 10, 16 and 25 bar	
Mounting position	any	
Direction of flow	arrow	
Nominal width	DN 6	DN 12
Dependence upon supply pressure	< 10 %	< 4 %
Reversing control hysteresis	~ 1 bar	
Weight	390 g	1000 g
Material		
Diaphragm / Seals	NBR	
Housing	brass	

* measured at p_1 = 8 bar, p_2 = 6 bar and Δp = 1 bar



Dimensions [mm]

Size Port	Small G 1/4	Medium G 1/2
A	45	72
B	23	30
C	81	115
D	35	52
E	M20x1,5	M28x1,5

Pressure Regulators Brass 0,5 - 10 bar

Size	G 1/4	G 1/2
Small	**286.323**	-
Medium	-	**274.663**

special option - how to order:

274.xxx

- **1** – **0,5 - 3 bar**
- **2** – **0,5 - 6 bar**
- **3** – **0,5 - 10 bar**
- **4** – **0,5 - 16 bar**
- **5** – **0,5 - 25 bar**

(operating pressure range)

- – **thread** (**2** = G 1/4, **6** = G 1/2)
- **3** – **with pressure gauge (Model 286)** (not at 25 bar)
- **6** – **with pressure gauge (Model 274)**
- **4** – **without pressure gauge**

For example:
274.663 – but **without pressure gauge** and **0,5 - 16 bar = 274.464**

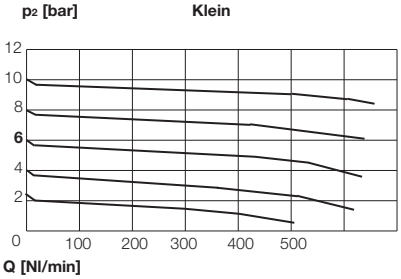
Accessories

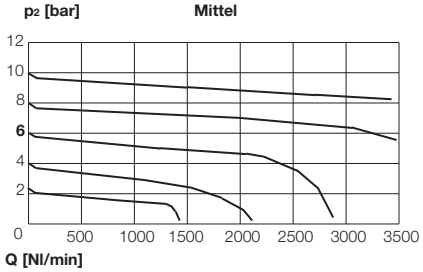
	Small	Medium
Bracket mounting	**286-88**	**274-48**
Panel mounting	**286-89**	**274-49**

Main spare parts

		Small	Medium
Pressure gauge		ø40	ø63
display range	0 - 6 bar	**714**	**213**
	0 - 10 bar	**723**	**214**
	0 - 16 bar	**734**	**215**
	0 - 25 bar	**745**	**216**
	0 - 40 bar	-	**217**
Seal cone complete		**286-120**	**274-75**
Diaphragm complete	0 - 3 bar	**286-126**	**274-65**
	0 - 10 bar	**286-126**	**274-66**
	0 - 25 bar	**286-126**	**274-67**

Rates of flow $p_1 = p_2 + 2$ bar





60 bar Pressure Regulator
standard

Pressure regulator (piston type). Port sizes G1. Secondary air exhaust (relieving) and almost complete independence of primary pressure are provided. Working pressure ranges: 0,5 to 12, 22, 35 and 50 bar. Gauge can be mounted on either side. Bracket mounting upon request.
Important: Use of filter always recommended.

Technical Data

	BGI	BGII
Nominal rates of flow*	1400 Nl/min	5000 Nl/min
Max. inlet pressure (P_1)	60 bar (PN 60)	
Control range (P_2)	see special option - how to order	
Operating temperature	10 °C to +90 °C	
Mounting position	any	
Direction of flow	arrow	
Nominal width	DN 12	DN 20
Weight	1500 g	7100 g
Material		
Seals	NBR	
Housing	brass	

* measured at p_1 = 20 bar, p_2 = 10 bar and Δp = 4 bar

High Pressure Regulators 0,5-8/12 bar

BGI with handwheel (50 bar with hxagon screw) – BGII with toggle (50 bar with hxagon screw)

Size	G 1/4	G 3/8	G 1
I	**302.323***	**302.333**	**-**
II	**-**	**-**	**302.393**

special option - how to order:

302.xxx

- **3** – **0,5-12 bar**
- **4** – **1,0-20 bar**
- **5** – **2,0-35 bar**
- **6** – **3,0-50 bar**

(operating pressure range)

– **thread** (**2** = G 1/4, **3** = G 3/8, **9** = G 1)

- **3** – **with pressure gauge**
- **5** – **without pressure gauge**

For example:
302.333 – but **without pressure gauge** and **2,0-35 bar = 302.535**

Accessories

	I	II
Bracket mounting steel	**274-48**	**302-19**

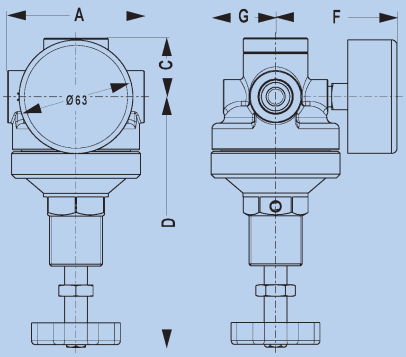
Main spare parts

	I	II
Pressure gauge (built-in ø63 horizontal)	**see chapter 8 page 45 + 46**	
Seal cone complete	**406-37**	**302-6**

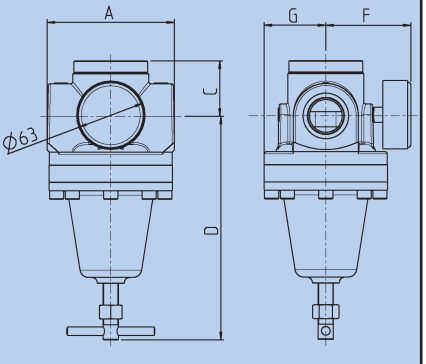
Dimensions [mm]

Size	I	II
A	72	118
C	31	51
D	133	206
F	66	80
G	34	58

BGI

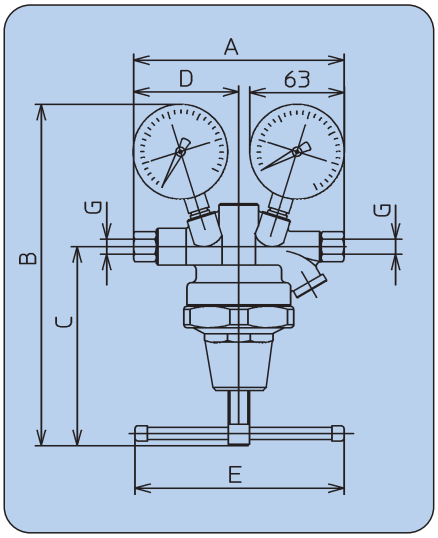


BGII



* Inlet and outlet reduced

Pressure Line Regulator
standard



Pressure line regulator for a maximum inlet pressure of 200 bars. Suitable for compressed air, nitrogen and other neutral compact gases.

Technical Data

Nominal rates of flow	50 bar = 2500 Nl/min 100 bar = 2700 Nl/min 150 bar = 2900 Nl/min
Size Port	G 1/4 i female thread on both sides
Gauge inlet	ø63, 0 - 200 bar
Gauge outlet	ø63, 0 - 50 bar, 100 bar, 200 bar
Max. inlet pressure (P_1)	200 bar (PN 200)
Outlet pressure range (P_2)	1 to 50 bar, 100 bar, 150 bar
Operating temperature	-10 °C to +90 °C
Mounting psoition	any
Direction of flow	left to right
Nominal width	DN 3
Over-pressure protection	blow-off valve
Adjustment	toggle (50 bar - handwheel)
Weight	2200 g
Material	
Seals	NBR
Housing	brass

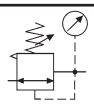
Pressure Line Regulators up to 150 bar outlet pressure

Pressure range		G 1/4
50 bar	(with handwheel)	**120.420**
100 bar	(with toggle)	**120.421**
150 bar		**120.422**

Dimensions [mm]

Size Port	G 1/4
A	150
B	215
C	130
D	160
E	130
G	G 1/4

Precision Pressure Regulator
standard

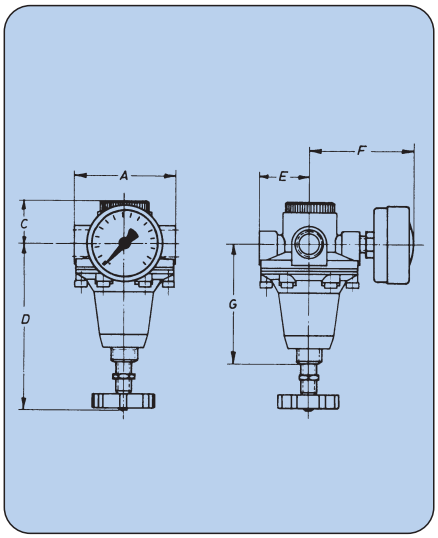


Pressure regulators (diaphragm type) with low operating air consumption. Port sizes G 1/4. Secondary air exhaust (relieving) practically without hysteresis. Working pressure ranges 0,1 to 6 bar. Gauge can be mounted on either side. Setting handwheel with locknut. Panel mounting or bracket mounting possible, if desired.
Important: Use of filter always recommended.

Technical Data

	I
Nominal rates of flow**	500 Nl/min
Max. inlet pressure (P_1)	10 bar (PN 10)
Operating temperature	-10 °C to +60 °C
Outlet pressure range (P_2)	0,1 to 6 bar
Mounting position	any
Direction of flow	arrow
Nominal width	DN 4
Dependence upon supply pressure	< 3 %
Reversing control hysteresis	< 0,1 bar
Air consumption	< 2,5 l/min
Weight	1400 g
Material	
Diaphragm/Seals	NBR
Housing	zinc alloy

** measured from 2 - 6 bar, Δp = 1 bar



Precision Pressure Regulators 0,1 - 6 bar

Size	G 1/4
I	435.222*

special option - how to order:

435.x22

- **2 – with pressure gauge**
- **4 – without pressure gauge**

For example:
435.222 – but **without pressure gauge = 435.422**

Accessories

	I
Bracket mounting	280-132
Panel mounting	280-133
Panel thread	M 22 x 1

Main spare parts

	I
Pressure gauge (fine scale)	ø 63
display rage 0 - 6 bar	257
Seal cone complete	435-16
Diaphragm complete	435-7

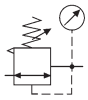
Dimensions [mm]

Size Ports	I G 1/4
A	82
C	34
D	132
E	41
F	80
G	85

* Inlet and outlet reduced

Pressure Regulator with Internal Gauge in Setting Knob

standard

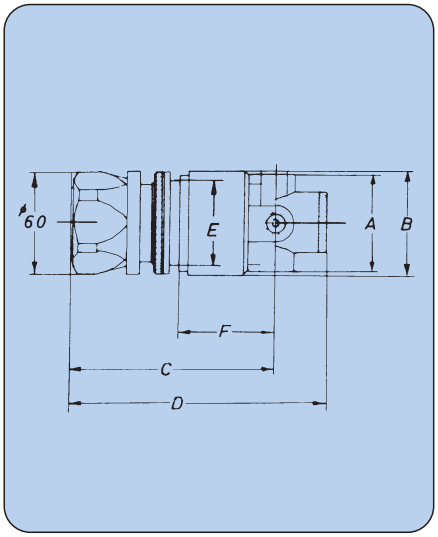


Pressure regulators (diaphragm type), ideal for panel installation. Port size G 3/8. Secondary air exhaust (relieving) and almost complete independence of primary pressure. Working pressure ranges from 0,5 to 3, 6, 10 and 16 bar. Gauge integrated in setting handwheel. Panel mounting possible if desired.
Important: Use of filter always recommended.

Technical Data

	I
Nominal rates of flow*	1000 Nl/min
Max. inlet pressure (P_1)	25 bar (PN 25)
Outlet pressure range (P_2)	0,5 to 3, 6, 10 and 16 bar
Operating temperature	-10 °C to +90 °C
Mounting position	any
Direction of flow	arrow
Nominal width	DN 10
Dependence upon supply pressure	< 3 %
Reversing control hysteresis	~ 1 bar
Weight	985 g
Material	
Diaphragm / Seals	NBR
Housing	zinc alloy and aluminum

* measured at p_1 = 8 bar, p_2 = 6 bar and Δp = 1 bar



Pressure Regulators 0,5 - 10 bar

Size	G 3/8
I	367.333

special option - how to order:

367.xxx

1	**0,5 - 3 bar**	operating pressure range
2	**0,5 - 6 bar**	
3	**0,5 - 10 bar**	
4	**0,5 - 16 bar**	

For example:
367.333 – but **0,5 - 16 bar = 367.334**

Accessories

	I
Panel mounting	**367-33**

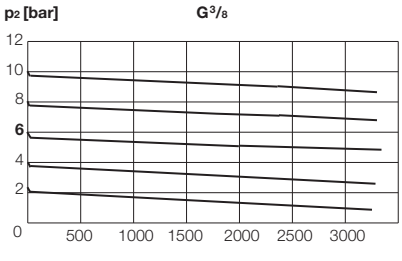
Main spare parts

		I
Pressure gauge (M8x1)		ø 40
display range	0 - 6 bar	**673**
	0 - 10 bar	**674**
	0 - 16 bar	**675**
	0 - 25 bar	**676**
Seal cone complete		**323-119**
Diaphragm complete		**367-88**

Dimensions [mm]

Size Port	I G 3/8
A	54
B	60
C	115
D	145
E	48
F	56

Rates of flow $p_1 = p_2 + 2$ bar



Water Pressure Regulator
standard

Pressure regulators protect water installations against line pressures that are too high. When the specification are observed, these can also be applied in industrial and commercial sectors. Deviations in pressure are avoided during use and the water consumption is reduced. The pressure set at different primary pressures is maintained at a constant level. Disturbing flow noises are reduced at the same time.

Technical Data

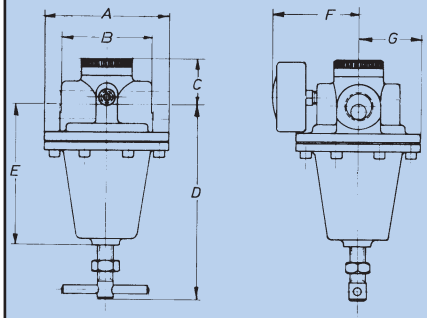
	Small	Medium	Large	Max
Nominal rates of flow*	2,5 l/min	15 l/min	24 l/min	56 l/min
Max. inlet pressure (P_1)	40 bar (PN 40)			
Operating temperature	+5 °C to +90 °C			
Mounting position	any			
Direction of flow	arrow			
Nominal width	DN 6	DN 12	DN 20	DN 25
Regulation	handwheel		toggle	
Reversing control hysteresis	~ 1 bar			
Weight	390 g	1000 g	3480 g	5260 g
Material				
Diaphragm / Seals	NBR			
Housing	brass			

* measured at p_1 = 7 bar, p_2 = 6 bar and Δp = 1 bar

280.600
280.1600

Water Regulators

pressure ranges [bar]		0,5 - 6	0,5 - 10	0,5 - 16	0,5 - 25
with pressure gauge					
Small	**G 1/4**	**286.599**	**286.600**	**286.601**	**286.602**
Medium	**G 1/2**	**274.599**	**274.600**	**274.601**	**274.602**
Large	**G 1**	**280.599**	**280.600**	**280.601**	**280.602**
Max	**G 1 1/2**	**280.1599**	**280.1600**	**280.1601**	**280.1602**
without pressure gauge					
Small	**G 1/4**	**286.399**	**286.400**	**286.401**	**286.402**
Medium	**G 1/2**	**274.399**	**274.400**	**274.401**	**274.402**
Large	**G 1**	**280.399**	**280.400**	**280.401**	**280.402**
Max	**G 1 1/2**	**280.1399**	**280.1400**	**280.1401**	**280.1402**



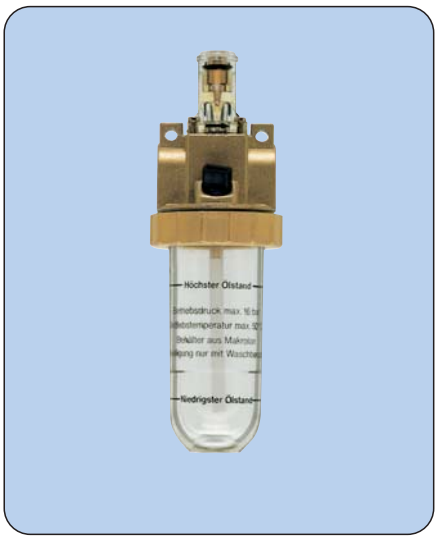
Dimensions [mm]

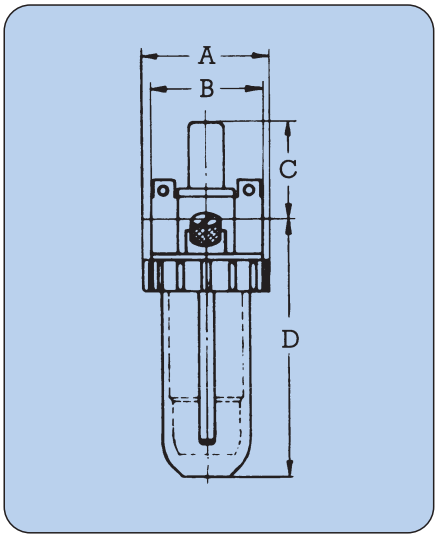
Size Port	Small G 1/4	Medium G 1/2	Large G 1	Max G 1 1/2
A	45	72	116	116
B	45	72	83	114
C	23	30	41	50
D	81	115	175	190
E	56	76	125	140
F	50	55	80	80
G	18	36	58	58

Size	Small	Medium	Large	Max
Accessories				
Bracket mounting	**286-88**	**274-48**	**280-239**	**280-239**
Panel mounting	**286-89**	**274-49**	**–**	**–**
Panel thread	M 20 x 1,5	M 28 x 1,5		

Size	Small	Medium	Large	Max
Main spare parts				
Pressure Gauge	ø 40	ø 63	ø 63	ø 63
0 - 6 bar	**723**	**214**	**214**	**214**
0 - 10 bar	**734**	**215**	**215**	**215**
0 - 16 bar	**745**	**216**	**216**	**216**
0 - 25 bar	**745**	**217**	**217**	**217**
Seal cone complete	**286-124**	**274-82**	**280-171**	**280-172**
Diaphragm complete	**286-45**	**274-81**	**280-173**	**280-173**

Lubricator
standard





Lubricators add a fine oil fog to the compressed air, this effecting a constant and reliable lubrication of pneumatically controlled compressed air tools, valves and cylinders etc.. Refilling oil while under pressure is possible. Needle valve for oil adjustment with high drop constancy for long periods of time. Also available with metal sight dome. Port sizes G 1/8 to G 1/2.

Technical Data

	Small	Medium
Nominal rates of flow**	1160 Nl/min	4330 Nl/min
Min. flow rate***	47 Nl/min	117 Nl/min
Max. operating pressure plastic bowl / metal bowl	16 bar / 25 bar	
Operating temperature plastic bowl / metal bowl	0 °C to +50 °C / 0 °C to +90 °C	
Effective bowl volume	40 cm³	135 cm³
Mounting position	vertical	
Direction of flow	arrow	
Nominal width	DN 8	DN 15
Nominal pressure (housing)	PN 25	
Weight	400 g	890 g
Material		
Seals	NBR	
Housing	zinc alloy	
Plastic bowl	polycarbonate	

** measured at p_1 = 6 bar and Δp = 1 bar
*** Oil delivery 10 droplets/min at 6 bar

Recommended oil see chapter 8

Oil containers made of plastic (polycarbonate) are attacked by oil additives, anti-frost or synthetic oils. We therefore recommend normal lubricating oils of approx. 22 to 32 cSt at 40 °C (in the case of striking tools up to 68 cSt). Metal containers should be used for other oils, especially for low-temperature oils. Also recommended is a metal lubricator adjusting cap.

Lubricators

Size	G 1/8	G 1/4	G 3/8	G 1/2
with plastic bowl				
Small	**327.021***	**327.022***	**327.023**	-
Medium	-	-	**327.035***	**327.036**

Accessories

	Small	Medium
Bracket mounting	**322-24**	**322-25**
Bowl protection for plastic bowl with bowl ring	**322-130**	**322-131**
Metal bowl with seal metal bowl	**327-92**	**327-96**
Bowl ring	**287-25**	**297-2**
Sight dome metal Kit	**327-67**	**327-67**

Main spare parts

	Small	Medium
Plastic bowl with seal plastic bowl	**327-106**	**327-108**
Bowl ring	**287-25**	**297-2**
Sealing ring for all bowls	**287-6**	**297-10**
Sight dome plastic Kit	**330-92**	**330-92**

Dimensions [mm]

Size Port	Small G 1/8*, G 1/4*, G 3/8			Medium G 3/8*, G 1/2	
A	56	56	56	87	87
B	57	57	50	88	80
C	51	51	51	55	55
D	119	119	119	156	156

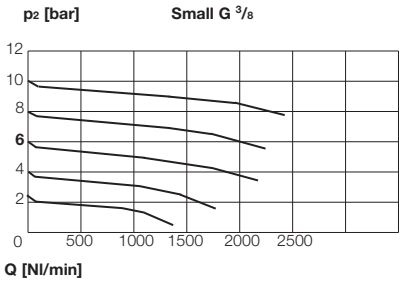
special option - how to order:

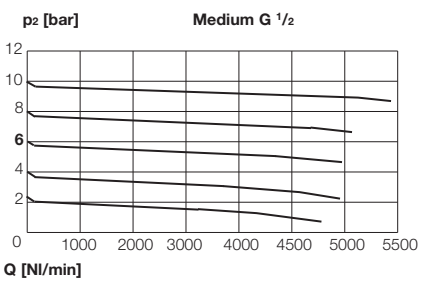
327.023 x

M – metal bowl
S – bowl protection

For example:
327.023 – with **bowl protection = 327.023S**

Rates of flow





* Inlet and outlet reduced

Lubricator
standard

Lubricators add a fine oil fog to the compressed air, this effecting a constant and reliable lubrication of pneumatically controlled compressed air tools, valves and cylinders etc.. Refilling oil while under pressure is possible. Needle valve for oil adjustment with high drop constancy for long periods of time. Also available with metal sight dome. Port sizes G 3/4 to G 1 1/2.

Technical Data

	Compact	Large	Max
Nominal rates of flow**	6330 Nl/min	7330 Nl/min	7830 Nl/min
Min. flow rate***	117 Nl/min	167 Nl/min	167 Nl/min
Max. operating pressure			
plastic bowl / metal bowl		16 bar / 25 bar	
Operating temperature			
plastic bowl / metal bowl		0 °C to +50 °C / 0 °C to +90 °C	
Effective bowl volume	135 cm³	360 cm³	360 cm³
Mounting position		vertical	
Direction of flow		arrow	
Nominal width	DN 20	DN 20	DN 25
Nominal pressure (housing)		PN 25	
Weight	1270 g	1700 g	1970 g
Material			
Seals		NBR	
Housing	zinc alloy	aluminium	aluminum
Plastic bowl		polycarbonate	

** measured at p_1 = 6 bar and Δp = 1 bar
*** Oil delivery 10 droplets/min at 6 bar

Recommended oil see chapter 8

Oil containers made of plastic (polycarbonate) are attacked by oil additives, anti-frost or synthetic oils. We therefore recommend normal lubricating oils of approx. 22 to 32 cSt at 40 °C (in the case of striking tools up to 68 cSt). Metal containers should be used for other oils, especially for low-temperature oils. Also recommended is a metal lubricator adjusting cap.

Lubricators

Size	G 3/4	G 1	G 1 1/4	G 1 1/2
with plastic bowl				
Compact	**407.038***	**407.039**	-	-
Large	**300.080***	**300.090**	-	-
Max	-	-	**327.410***	**327.411**

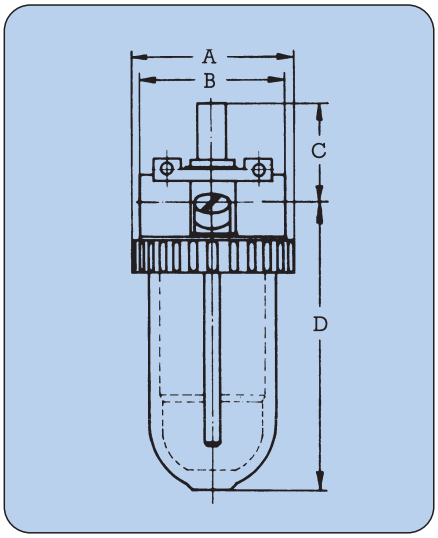
Accessories

	Compact	Large	Max
Bracket mounting	**405-4**	**281-26**	**281-26**
Bowl protection for plastic bowl bowl protection	**322-131**	**281-24**	**281-24**
Bowl ring	**297-13**	**300-31**	**300-31**
Metal bowl with seal metal bowl	**327-96**	**327-112**	**327-112**
Bowl ring	**297-2**	**279-2**	**279-2**
Sight dome metal Kit	**327-67****	**327-67**	**327-67**

**** mounting

Main spare parts

	Compact	Large	Max
Plastic bowl with seal plastic bowl	**327-108**	**327-111**	**327-111**
Bowl ring	**297-2**	**279-2**	**279-2**
Sealing ring for all bowls	**297-10**	**279-9**	**279-9**
Sight dome plastic Kit	-	**330-92**	**330-92**



Dimensions [mm]

Size Port	Compact G 3/4*, G 1		Large G 3/4*, G 1		Max G 1 1/4*, G 1 1/2	
A	102	90	133	133	133	133
B	-	-	134	120	134	120
C	69	69	58	58	65	65
D	166	166	190	190	200	200

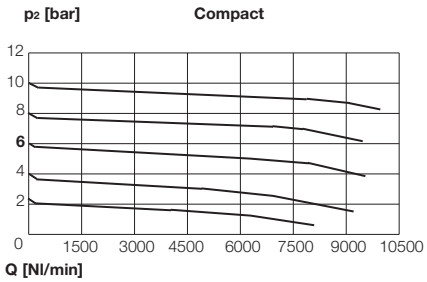
special option - how to order:

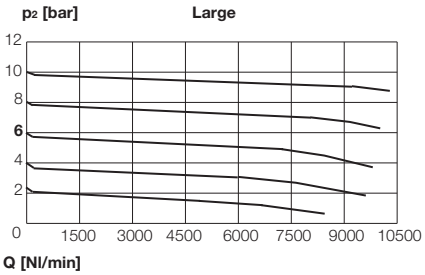
407.038 x

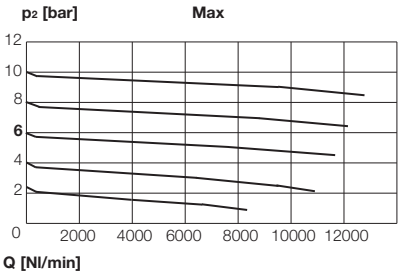
M – metal bowl
S – bowl protection

For example:
407.038 – with **metal bowl = 407.038M**

Rates of flow

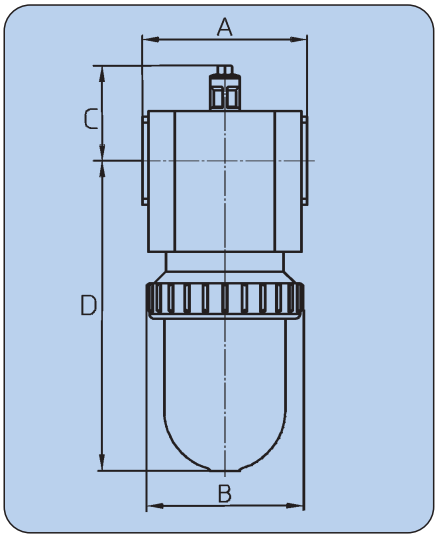






* Inlet and outlet reduced

Lubricator
standard



Lubricators add a fine oil fog to the compressed air, this effecting a constant and reliable lubrication of pneumatically controlled compressed air tools, valves and cylinders etc.. Refilling oil while under pressure is possible. Needle valve for oil adjustment with high drop constancy for long periods of time. Also available with metal sight dome.
Port sizes G 1½ to G 2.

Technical Data

	Super
Nominal rates of flow**	14000 Nl/min
Min. flow rate***	170 Nl/min
Max. operating pressure	
plastic bowl / metal bowl	16 bar / 25 bar
Operating temperature	
plastic bowl / metal bowl	0 °C to +50 °C / 0 °C to +90 °C
Effective bowl volume	600 cm³
Mounting position	vertical
Direction of flow	arrow
Nominal width	DN 50
Nominal pressure (housing)	PN 25
Weight	5290 g
Material	
Seals	NBR
Housing	aluminum
Plastic bowl	polycarbonate

** measured at p_1 = 6 bar and Δp = 1 bar
*** Oil delivery 10 droplets/min at 6 bar

Recommended oil see chapter 8

Oil containers made of plastic (polycarbonate) are attacked by oil additives, anti-frost or synthetic oils. We therefore recommend normal lubricating oils of approx. 22 to 32 cSt at 40 °C (in the case of striking tools up to 68 cSt). Metal containers should be used for other oils, especially for low-temperature oils. Also recommended is a metal lubricator adjusting cap.

Lubricators
with plastic bowl

Size	G 1½	G 2
Super	**457.011***	**457.012**

Accessories

	Super
Bracket mounting	**457-12**
Bowl protection for plastic bowl bowl protection	**281-24**
Bowl ring	**300-31**
Metal bowl with seal metal bowl	**327-112**
Bowl ring	**279-2**
Sight dome plastic Kit	**423-179**

Main spare parts

	Super
Plastic bowl with seal plastic bowl	**327-111**
Bowl ring	**279-2**
Sealing ring for all bowls	**279-9**
Sight dome metal Kit	**423-65**

Dimensions [mm]

Size Port	Super G 1½*	 G 2
A	160	140
B	140	140
C	80	80
D	350	350

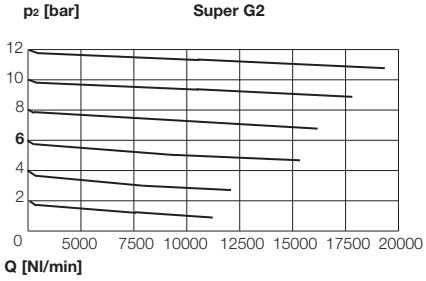
special option - how to order:

457.012 x

M – metal bowl
S – bowl protection

For example:
457.012 – but with **metal bowl = 457.012M**

Rates of flow



* Inlet and outlet reduced

Small Lubricator for Air Pressure Tools

standard

Lubricators (for standard oil fog lubrication) to be mounted on compressed air tools that are used intermittently. Port sizes G 3/8 (with reduction G 1/4). Fixed adjustment of oil dosage. Oil suction should be mounted opposite the filling screw, at the lowest point.

Technical Data

Max. operating pressure (P_1)	10 bar (PN 10)
Operating temperature	0 °C to +50 °C
Mounting position	oil suction at lowest point
Direction of flow	any
Effective bowl volume	12 cm³
Nominal width	DN 8
Weight	87 g
Material	
Seals	NBR
Housing	aluminum
Plastic bowl	polycarbonate

Recommended oil see chapter 8

Oil containers made of plastic (polycarbonate) are attacked by oil additives, anti-frost or synthetic oils. We therefore recommend normal lubricating oils of approximately 22 to 32 cSt at 40 °C.

Oil dosage

The permanently set dosage is about 0,4 cm³ per 100 working strokes. One filling lasts for about 3000 cycles. The adjustment screw on the filler, seals with an O-ring and can be adjusted.

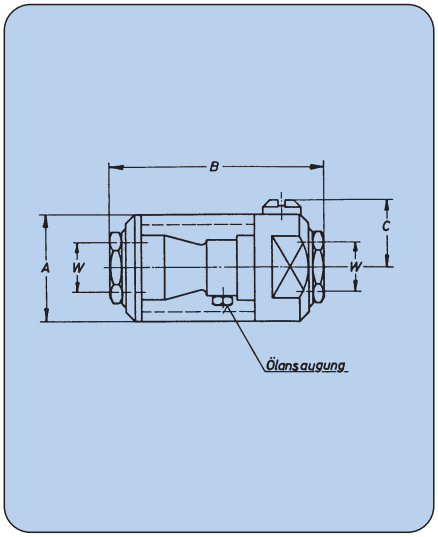
Fog-Lubricators

with plastic bowl

Size	G 1/4	G 3/8
I	**317.12***	**317.14**

Main spare parts

Screw complete	**317-56**

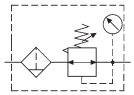


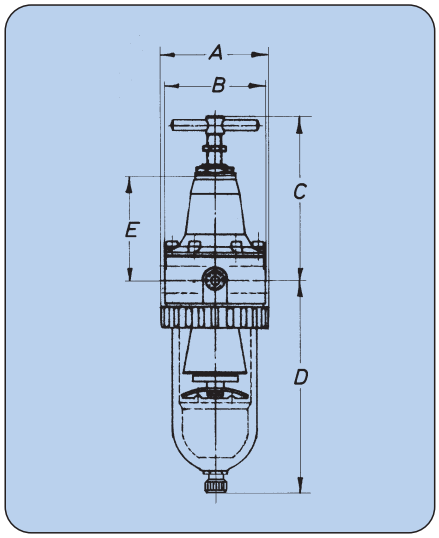
Dimensions [mm]

Size Port	I G 1/4*	I G 3/8
A	33	33
B	67	60
C	22	22

* Inlet and outlet reduced

Filter Pressure Regulator
standard





Compressed air filter and pressure regulator combined in one piece of equipment. The purified compressed air is kept at constant pressure regardless of fluctuations in the system or in the air consumption. This equipment provides secondary air exhaust (relieving) and almost complete independence of primary pressure. Diaphragm regulator with working pressure ranges from 0,5 to 6, 10 or 16 bar. Operation by toggle or handwheel. Special models also available (for example without air exhaust) upon request. Gauge can be mounted on the front or back. Port sizes G 1/8 to G 1/2.

Technical Data

	Small	Medium
Nominal rates of flow**	910 Nl/min	2660 Nl/min
Max. inlet pressure		
plastic bowl / metal bowl	16 bar / 25 bar	
Operating temperature		
plastic bowl / metal bowl	0 °C to +50 °C / 0 °C to +90 °C	
Effective bowl volume	25 cm³	80 cm³
Mounting position	vertical	
Direction of flow	arrow	
Nominal width	DN 6	DN 15
Nominal pressure (housing)	PN 25	
Dependence upon supply pressure	< 3 %	< 2 %
Reversing control hysteresis	~ 1 bar	
Weight	840 g	2290 g
Material		
Seals	NBR	
Housing	zinc alloy	
Plastic bowl	polycarbonate	
Filter element	sintered bronze	

** measured at p_1 = 8 bar, p_2 = 6 bar and Δp = 1 bar

Filter Pressure Regulators 0,5 - 10 bar

Size	G 1/8	G 1/4	G 3/8	G 1/2
Small	**324.313***	**324.323***	**324.333**	-
Medium	-	-	**324.353***	**324.363**

Accessories

	Small	Medium
Bracket mounting	**323-68**	**280-132**
Bowl protection for plastic bowl with bowl ring	**322-130**	**322-131**
Metal bowl with seal and manually-operated drain valve	**324-101**	**324-109**
Bowl ring	**287-25**	**297-2**

Main spare parts

	Small	Medium
Plastic bowl with seal and manually-operated drain valve	**322-112**	**322-118**
Bowl ring	**287-25**	**297-2**
Sealing ring for all bowls	**287/6**	**297-10**
Pressure Gauge	ø 50	ø 63
0 - 3/ 6 bar	**42**	**213**
0 - 6/10 bar	**55**	**214**
0 - 10/16 bar	**85**	**215**
0 - 16/25 bar	**96**	**216**
Seal cone complete	**323-119**	**280-220**
Diaphragm complete	**323-152**	**280-221**
Filter element		
40 µm (mounted)	**287-10**	**267-37**
5 µm	**287-13**	**298-9**

Dimensions [mm]

Size / Port	Small G 1/8*, G 1/4*, G 3/8			Medium G 3/8*, G 1/2	
A	56	56	56	87	87
B	61	61	54	90	82
C	99	99	99	134	134
D	131	131	131	172	172
E	67	67	67	87	87

special option - how to order:

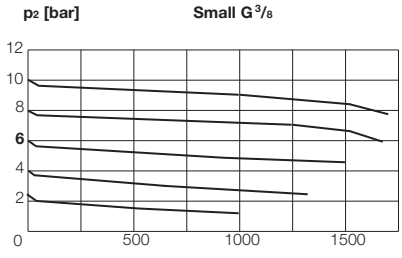
324.xxx x

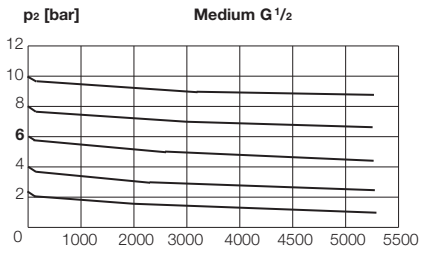
- **M - metal bowl**
- **S - bowl protection**
- operating pressure range:
  - **1 - 0,5 - 3bar**
  - **2 - 0,5 - 6bar**
  - **3 - 0,5 - 10bar**
  - **4 - 0,5 - 16bar**
- **- thread** (**1** G 1/8, **2** G 1/4, **3** + **5** G 3/8, **6** G 1/2)
- **2 - handwheel with gauge**
- **3 - toggle with gauge**
- **4 - handwheel without gauge**
- **5 - toggle without gauge**

For example:
324.333 - but without **gauge**, **0,5 - 10 bar**
and **metal bowl = 324.533M**

Rates of flow

$p_1 = p_2 + 2$ bar





Drain valves, see chapter 7

* Inlet and outlet reduced

Two-Piece Maintenance Unit
standard

A maintenance unit consisting of a filter pressure regulator and lubricator with a double nipple. Can be combined with additional equipment to make other variations. Port sizes G 1/8 to G 1/2.

Technical Data

	Small	Medium
Nominal rates of flow**	580 Nl/min	1830 Nl/min
Min. flow rate***	50 Nl/min	117 Nl/min
Max. inlet pressure		
plastic bowl/metal bowl	16 bar / 25 bar	
Operating temperature		
plastic bowl/metal bowl	0 °C to +50 °C / 0 °C to +90 °C	
Effective bowl volume		
filter bowl/lubricator bowl	25 cm³/40 cm³	80 cm³/135 cm³
Mounting position	vertical	
Direction of flow	arrow	
Nominal width	DN 6	DN 15
Nominal pressure (housing)	PN 25	
Dependence upon supply pressure	< 3 %	< 2 %
Reversing control hysteresis	~ 1 bar	
Weight	1400 g	3670 g
Material		
Diaphragm/Seals	NBR	
Housing	zinc alloy	
Plastic bowl	polycarbonate	
Filter element	sintered bronze	

** measured at p_1 = 8 bar, p_2 = 6 bar and Δp = 1 bar
*** Oil delivery 10 droplets/min at 6 bar

Recommended oil see chapter 8

Oil containers made of plastic (polycarbonate) are attacked by oil additives, anti-frost or synthetic oils. We therefore recommend normal lubricating oils of approximately 22 to 32 cSt at 40 °C (in the case of striking tools up to 68 cSt). Metal containers should be used for other oils, especially for low-temperature oils. Also recommended is a metal lubricator adjusting cap.

Two-Piece Maintenance Units

0,5 - 10 bar

Size	G 1/8	G 1/4	G 3/8	G 1/2
Small	**331.21***	**331.22***	**331.23**	-
Medium	-	-	**331.35***	**331.36**

Accessories

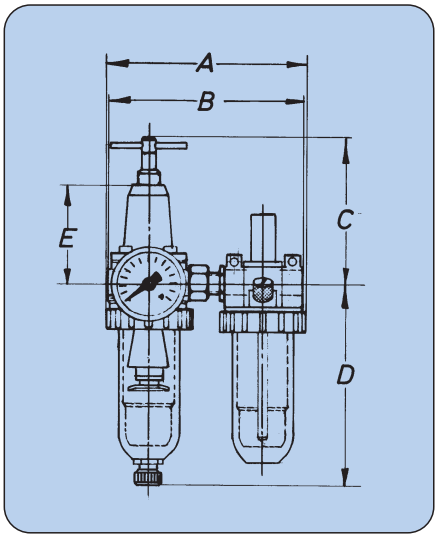
	Small	Medium
Bracket mounting	**323-68**	**280-132**
Connector (double nipple)		
G 1/8	**185.29**	-
G 1/4	**185.33**	-
G 3/8	**185.55**	**185.55**
G 1/2	-	**185.77**

special option - how to order:

331.21 x

M – metal bowl
S – bowl protection

For example:
331.21 – but with **bowl protection = 331.21S**

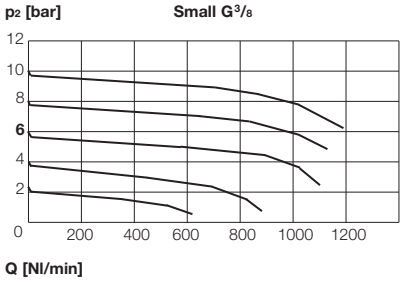


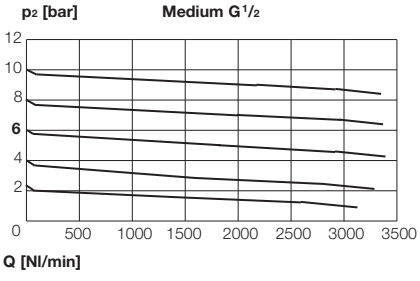
Dimensions [mm]

Size Port	Small G 1/8*, G 1/4*, G 3/8			Medium G 3/8*, G 1/2	
A	124	124	124	182	182
B	130	130	122	184	176
C	99	99	99	134	134
D	131	131	131	172	172
E	67	67	67	87	87

Filter pressure regulator, see page 26
Lubricators, see page 22
Drain valves, see chapter 7

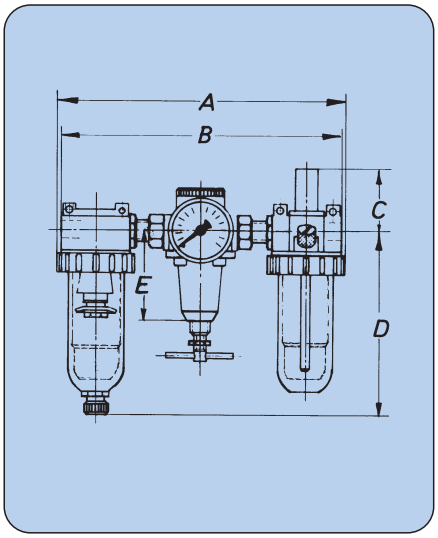
Rates of flow $p_1 = p_2 + 2$ bar





* Inlet and outlet reduced

Three-Piece Maintenance Unit
standard



Maintenance unit consisting of a filter, a pressure regulator and lubricator with a double nipple. Numerous variations are possible by combining with other pieces of equipment. Port sizes G 1/8 to G 1/2.

Technical Data

	Small	Medium
Nominal rates of flow**	500 Nl/min	1830 Nl/min
Min. flow rate***	50 Nl/min	117 Nl/min
Max. inlet pressure		
plastic bowl / metal bowl	16 bar / 25 bar	
Operating temperature		
plastic bowl / metal bowl	0 °C to +50 °C / 0 °C to +90 °C	
Effective bowl volume		
filter bowl / lubricator bowl	25 cm³ / 40 cm³	80 cm³ / 135 cm³
Mounting position	vertical	
Direction of flow	arrow	
Nominal width	DN 6	DN 15
Nominal pressure (housing)	PN 25	
Dependence upon supply pressure	< 3 %	< 2 %
Reversing control hysteresis	~ 1 bar	
Weight	1780 g	3220 g
Material		
Diaphragm/Seals	NBR	
Housing	zinc alloy	
Plastic bowl	polycarbonate	
Filter element	sintered bronze	

** measured at p_1 = 8 bar, p_2 = 6 bar and Δp = 1 bar
*** Oil delivery 10 droplets/min at 6 bar

Recommended oil see chapter 8

Oil containers made of plastic (polycarbonate) are attacked by oil additives, anti-frost or synthetic oils. We therefore recommend normal lubricating oils of approximately 22 to 32 cSt at 40 °C (in the case of striking tools up to 68 cSt). Metal containers should be used for other oils, especially for low-temperature oils. Also recommended is a metal lubricator adjusting cap.

Three-Piece Maintenance Units

0,5 - 10 bar

Size	G 1/8	G 1/4	G 3/8	G 1/2
Small	**333.21***	**333.22***	**333.23**	-
Medium	-	-	**334.35***	**334.36**

Accessories

	Small	Medium
Bracket mounting	**323-68**	**280-132**
Connector (double nipple)		
G 1/8	**185.29**	-
G 1/4	**185.33**	-
G 3/8	**185.55**	**185.55**
G 1/2	-	**185.77**

special option - how to order:

333.21 x

- **M – metal bowl**
- **S – bowl protection**

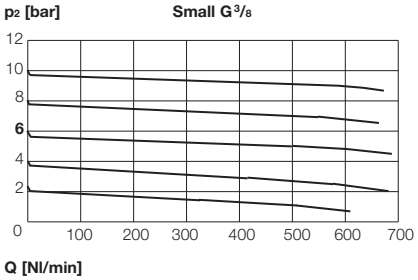
For example:
333.21 – but with **bowl protection = 333.21S**

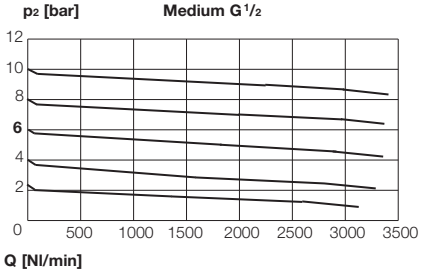
Dimensions [mm]

Size / Port	Small G 1/8*, G 1/4*, G 3/8			Medium G 3/8*, G 1/2	
A	196	196	196	281	281
B	197	197	197	282	274
C	51	51	51	55	55
D	135	135	135	172	172
E	67	67	67	85	85

Filter, see page 2
Pressure regulator, see page 13
Lubricators, see page 22
Drain valves, see chapter 7

Rates of flow $p_1 = p_2 + 2$ bar





* Inlet and outlet reduced

Three-Piece Maintenance Unit
standard

Maintenance unit consisting of a filter, a pressure regulator and lubricator with a double nipple. Numerous variations are possible by combining with other pieces of equipment. Port sizes G 1/4 to G 1 1/2.

Technical Data

	Compact	Large	Max
Nominal rates of flow**	5330 Nl/min	6000 Nl/min	6670 Nl/min
Min. flow rate***	117 Nl/min	167 Nl/min	167 Nl/min
Max. operating pressure			
plastic bowl / metal bowl		16 bar / 25 bar	
Operating temperature			
plastic bowl / metal bowl		0 °C to +50 °C / 0 °C to +90 °C	
Effective bowl volume			
filter bowl / lubricator bowl	80 cm³ / 135 cm³	260 cm³ / 360 cm³	260 cm³ / 360 cm³
Mounting position		vertical	
Direction of flow		arrow	
Nominal width	DN 20	DN 20	DN 25
Nominal pressure (housing)		PN 25	
Dependence upon supply pressure		< 2 %	
Reversing control hysteresis		~ 1 bar	
Weight	5250 g	7270 g	9950 g
Material			
Diaphragm/Seals		NBR	
Housing			
Filter/Lubricator	zinc alloy	aluminum	aluminum
Pressure Regulator	zinc alloy	brass	brass
Filter element		sintered bronze	
Plastic bowl		polycarbonate	

** measured at p_1 = 8 bar, p_2 = 6 bar and Δp = 1 bar
*** Oil delivery 10 droplets/min at 6 bar

Recommended oil see chapter 8

Oil containers made of plastic (polycarbonate) are attacked by oil additives, anti-frost or synthetic oils. We therefore recommend normal lubricating oils of approximately 22 to 32 cSt at 40 °C (in the case of striking tools up to 68 cSt). Metal containers should be used for other oils, especially for low-temperature oils. Also recommended is a metal lubricator adjusting cap.

Three-Piece Maintenance Units

0,5 - 10 bar

Size	G 3/4	G 1	G 1 1/4	G 1 1/2
Compact	**415.38***	**415.39**	-	-
Large	**334.48***	**334.49**	-	-
Max	-	-	**334.410***	**334.411**

Accessories

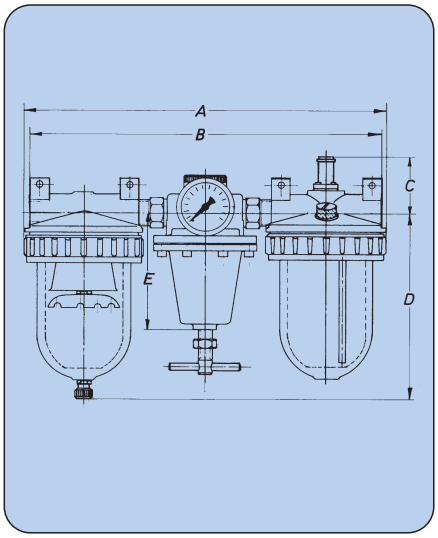
	Compact	Large	Max
Bracket mounting (2x to order)	**406-17**	**281-26**	**281-26**
Connector (double nipple)			
G 3/4	**415-13**	**415-13**	-
G 1	**415-12**	**415-14**	-
G 1 1/2	-	-	**280-228**

special option - how to order:

415.38 x

- **M – metal bowl**
- **S – bowl protection**

For example:
415.38 – but with **bowl protection = 415.38S**

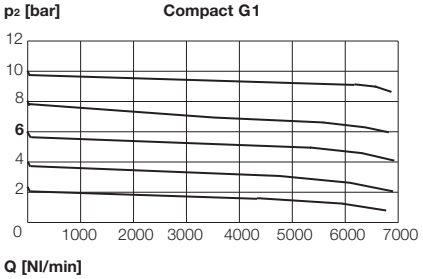


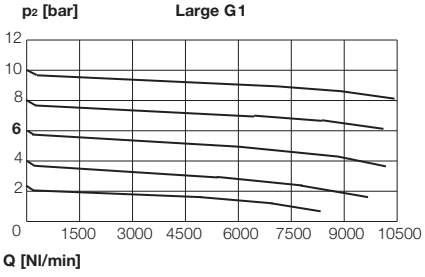
Dimensions [mm]

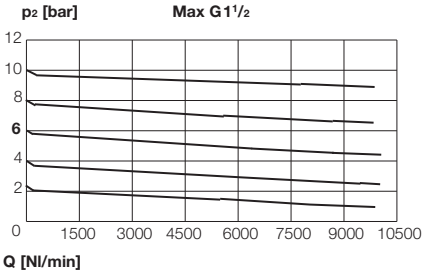
Size Port	Compact G 3/4*, G 1		Large G 3/4*, G 1		Max G1 1/4*, G1 1/2	
A	290	290	426	426	426	426
B	315	290	382	370	382	370
C	69	69	58	58	58	58
D	176	176	206	206	206	206
E	90	90	130	130	130	130

Filter, see page 3
Pressure regulator, page 14
Lubricators, see page 23
Drain valves, see chapter 7

Rates of flow $p_1 = p_2 + 2$ bar

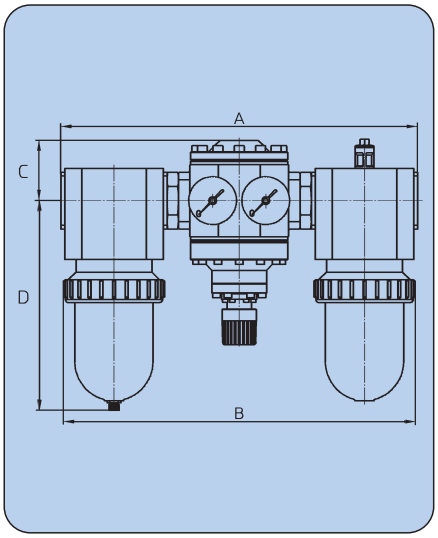






* Inlet and outlet reduced

Three-Piece Maintenance Unit
standard



Maintenance unit consisting of a filter, a pressure regulator and lubricator with a double nipple. Numerous variations are possible by combining with other pieces of equipment. Port sizes G 1 1/2 to G 2.

Technical Data

	Super
Nominal rates of flow**	11660 Nl/min
Min. flow rate***	167 Nl/min
Max. operating pressure	
plastic bowl / metal bowl	16 bar / 25 bar
Operating temperature	
plastic bowl / metal bowl	0 °C to +50 °C / 0 °C to +90 °C
Effective bowl volume	
filter bowl / lubricator bowl	500 cm³ / 600 cm³
Mounting position	vertical
Direction of flow	arrow
Nominal width	DN 50
Nominal pressure (housing)	PN 25
Dependence upon supply pressure	< 2 %
Reversing control hysteresis	~ 1 bar
Weight	17530 g
Material	
Diaphragm/Seals	NBR
Housing	
Filter/Lubricator	aluminum
Pressure Regulator	alu alloy
Filter element	sintered bronze
Plastic bowl	polycarbonate

** measured at p_1 = 8 bar, p_2 = 6 bar and Δp = 1 bar
*** Oil delivery 10 droplets/min at 6 bar

Recommended oil see chapter 8

Oil containers made of plastic (polycarbonate) are attacked by oil additives, anti-frost or synthetic oils. We therefore recommend normal lubricating oils of approximately 22 to 32 cSt at 40 °C (in the case of striking tools up to 68 cSt). Metal containers should be used for other oils, especially for low-temperature oils. Also recommended is a metal lubricator adjusting cap.

Three-Piece Maintenance Units

0,5 - 10 bar

Size	G 1 1/2	G 2
Super	**458.211***	**458.212**

Dimensions [mm]

Size / Port	Super G 1 1/2*	Super G 2
A	332	332
B	332	320
C	69	69
D	176	176

Accessories

	Super
Bracket mounting (with 2 bracket)	**458-1**
Connector (double nipple) **G 2**	**454-9**

special option - how to order:

458.212 x

- **M – metal bowl**
- **S – bowl protection**

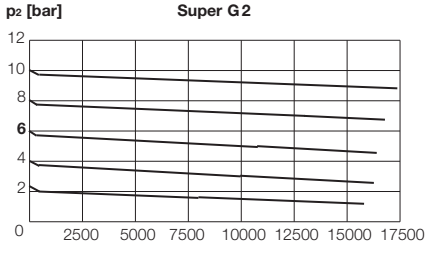
For example:
458.212 – but with **bowl protection = 458.212S**

Filter, see page 4
Pressure regulator, see page 15
Lubricators, see page 24
Drain valves, see chapter 7

Rates of flow

$p_1 = p_2 + 2$ bar

p_2 [bar] — Super G 2



* Inlet and outlet reduced