

INTEGRATED GROUP MANIFOLD TYPE



Series **GSOM**

Air/oil separation **FAI FILTRI**

INTRODUCTION

Thanks to many years of in-field experience regarding research, design and production of oil filters and oil separation for compressors applications, the high quality standard reached by FAI FILTRI has made it possible for the company to design and manufacture integrated groups equipped with oil filters and oil separators, thermostats and minimum pressure valves, suitable for assembly on rotary and screw compressors, which also allow a more and more accurate air cleaning in order to make it suitable for several industrial application such as: food industry, electronic, pharmaceutical, textile and mechanical industries. FAI FILTRI integrated groups are the most technologically and functionally "User Friendly" equipment on the compressed air market since they allow both air-lubricating oil separation and oil filtering. All this is made avoiding further clutter and specific operational exigencies and making any possible intervention and replacement of worn out parts definitely quicker while sharply reducing maintenance costs

GSOM series equipped with spin-on air/oil separation filter, oil filter, thermostat and minimum pressure valve.

The unique feature of FAI FILTRI integrated groups is the recovery/collection of most part of the oil contained in the compressed air flux due to screws or vanes entrainment at the lubricating stage, operated thanks to the employ of top quality materials and a better control on oil contamination levels, which allows longer intervals between maintenance interventions.

TECHNICAL DATA

MATERIALS

- Painted and galvanized steel plate container for the air/oil separator
- Painted steel plate container for the oil filter
- Support drilled hoses and galvanized steel bottoms
- Oil separation baffle in glass microfibers layers made of high quality borosilicate
- Oil filter baffle made of resin impregnated cellulose fibers.
- Filter casing unit made of oxidated aluminium casting
- Brass minimum pressure valve
- Brass thermostat

FILTER PRESSURE VALUES

Air/oil separation filter:

Max operating pressure:	16 bar
Pulsing fatigue pressure:	0/20/0 bar 1 Hz 50.000 min. cycles

Oil filter:

Max operating pressure:	12 bar
Pulsing fatigue pressure:	0/12/0 bar 1 Hz 50.000 min. cycles
By-pass valve	1,75 bar

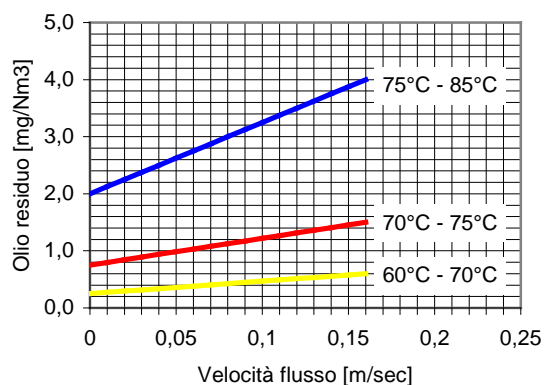
FILTERING ELEMENTS

5 bar collapse differential pressure tested in accordance with : ISO 2941
Axial strain strength tested in accordance with : ISO 3723
Manufacturing compliance and first bubble point determination tested in accordance with : ISO 2942

SEPARATION EFFICIENCY

By avoiding overcoming suggested nominal flow rates it is possible to reach a residual oil waste lower than **1÷3 ppm**

Oil residual in relation to speed and temperature



OPERATING TEMPERATURES

From -20°C to +110°C

FLOW RATES

Air/oil separation filter:

With an operating pressure up to 7 bars from 1 to 5,5 m³/min (See dimensional table)

Oil filter:

From 20 to 70 l/min (See dimensional table)

ASSEMBLY

For filter assembly on the block, lubricate the seal with a thin oil film and tighten by hand. Remove them by using a belt wrench

AIR/OIL SEPARATOR WORKING LIFE

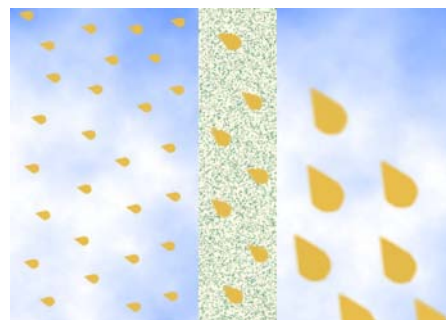
The air/oil separator shall be replaced when reaching a differential pressure (ΔP) up to **1-1,2 bar**. Market research have shown that the average life in normal working conditions can reach over **2500 hours**. Increases in the head loss and the consequent filter operating life depend on the cleanliness of the lubricating oil and of the compressed air ingested by the compressor.

FILTERING SURFACES

Filtro olio					
Type	Filtering surface		Type	Filtering surface	
	P10/P25	A10/A25		P10/P25	A10/A25
CTT 012	2300 cm ²	1370 cm ²	CTT 300	6160 cm ²	3580 cm ²
CTT 025	1460 cm ²	1020 cm ²	CTT 350	9350 cm ²	5440 cm ²
CTT 050	2440 cm ²	1700 cm ²	CTT 400	13580 cm ²	7900 cm ²
CTT 070	3960 cm ²	2700 cm ²			

COALESCENCE EFFECT

The compressed air flux polluted by solid particles and micro drops of oil passes through the first layer of borosilicate micro fibers . At this stage micro drops, smaller than 1 micron , are agglomerated to form bigger drops according to the coalescence principle and are therefore collected and drained by the second layer of porous and synthetic material and end up, due to gravity, on the dry side of the separator.

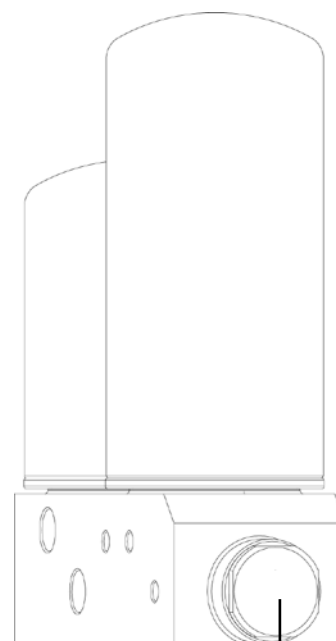


Coalescence principle diagram

MINIMUM PRESSURE VALVE

Setting: 4,5 bar

The minimum pressure valve is assembled on the **GSO** integrated group on the air/oil separator side or on the **GS** group. This valve has to stop the outlet compressed air flux of the compressor when this latter goes under certain values. This grants the minimum pressure in the air/oil separator necessary for lubricating the screw block when restarting the compressor up.



Minimum pressure valve

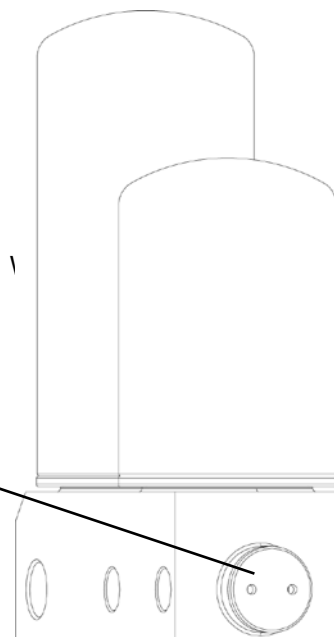
THERMOSTAT

Thermostat operative temperature:

See table for choosing the operative setting

The thermostat is assembled on the **GO / GSO** integrated group on the oil filter side. When reached the oil flux is diverted for cooling by the radiator.

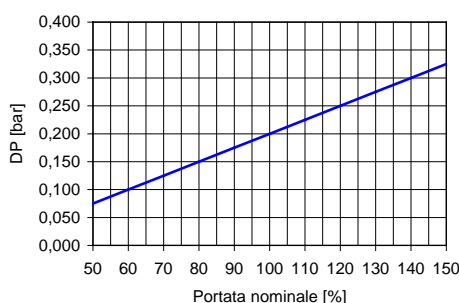
Thermostat



PRESSURE DROP

Air/oil separation filter

With nominal flow rate and 7 bars pressure the head pressure drop with a clean filter is up to 0,2 bars.



Oil filter

Curves are valid for mineral oil with kinematic viscosity up to 30 mm²/sec. (cSt). The ΔP varies alongside the kinematic viscosity in accordance with the following formulas:

① Kinematic viscosity variations ≤ 5

$$\Delta P_1 = \frac{v_1}{v} \Delta P$$

② Kinematic viscosity variations > 5

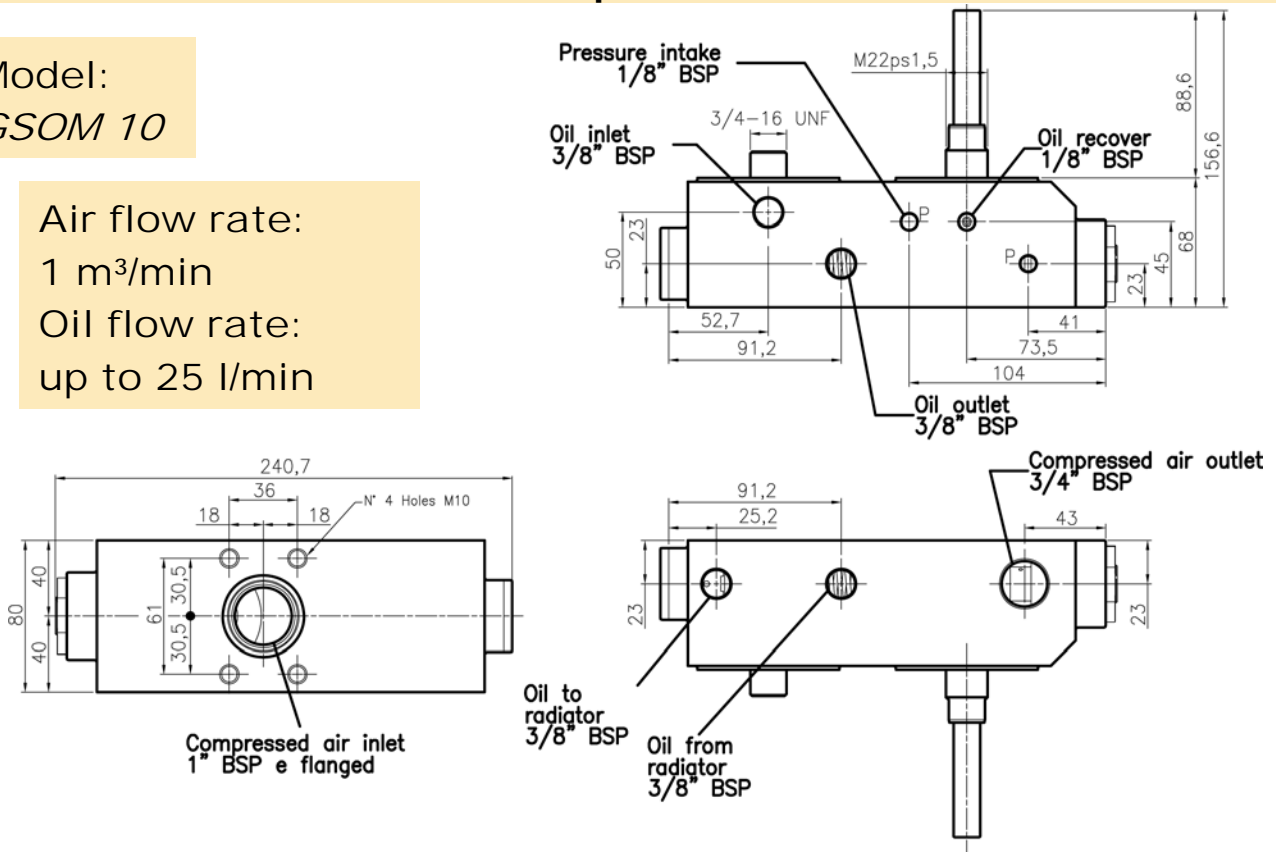
$$\Delta P_1 = \frac{\frac{v_1}{v} + \sqrt{\frac{v_1}{v}}}{2} \Delta P$$

In both formulas ΔP stands for pressure drop is derived from the curves, v is the reference kinematic viscosity (as to say 30 mm²/sec); ΔP_1 is the pressure drop to be calculated and v_1 is the actual kinematic viscosity of the fluid used.

Air oil integrated group Manifold type equipped with thermostat and minimum pressure valve

Model:
GSOM 10

Air flow rate:
1 m³/min
Oil flow rate:
up to 25 l/min

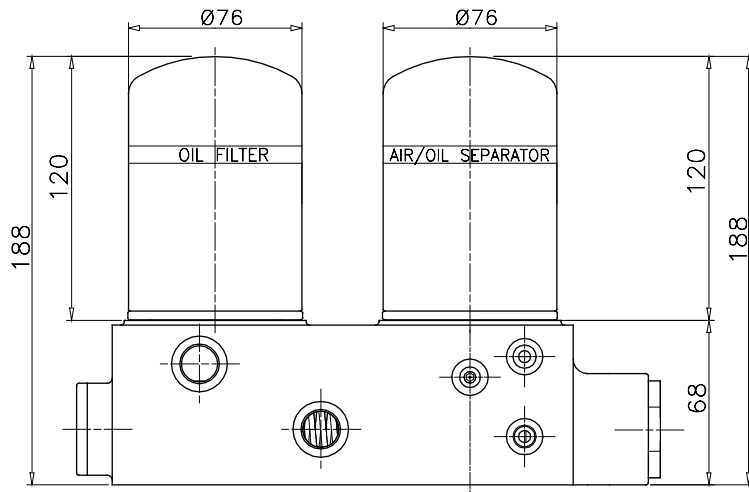


Choice of oil filter integrated group – air/oil separator filter equipped with thermostat and minimum pressure valve

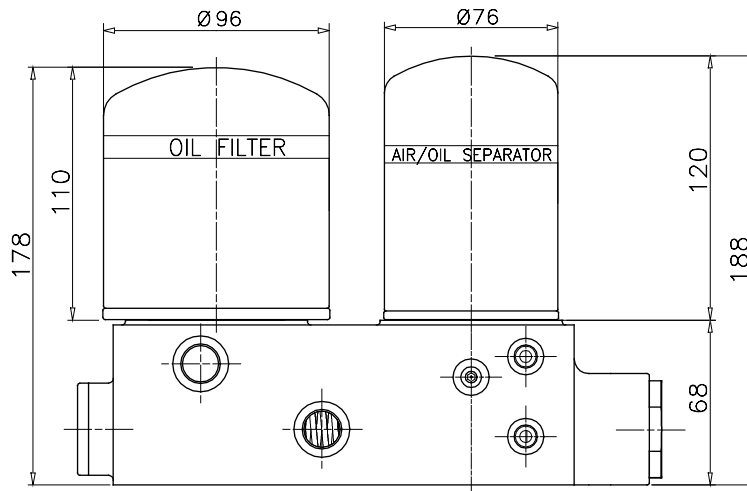
GSOM 10																																							
Thermostat	Clogging indicator	Separator filter	Oil filter	Filtration type oil filter																																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">55°C</td><td style="text-align: center;">A</td></tr> <tr><td style="text-align: center;">65°C</td><td style="text-align: center;">B</td></tr> <tr><td style="text-align: center;">71°C</td><td style="text-align: center;">C</td></tr> <tr><td style="text-align: center;">83°C</td><td style="text-align: center;">D</td></tr> </table>	55°C	A	65°C	B	71°C	C	83°C	D	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">S</td><td>Without</td></tr> <tr><td style="text-align: center;">V</td><td>Visual diff. indicator</td></tr> <tr><td style="text-align: center;">E</td><td>Electric diff. indicator</td></tr> </table>	S	Without	V	Visual diff. indicator	E	Electric diff. indicator	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">X</td><td>Without</td></tr> <tr><td style="text-align: center;">012</td><td>With DSP012.0</td></tr> </table>	X	Without	012	With DSP012.0	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">X</td><td>Without</td></tr> <tr><td style="text-align: center;">012</td><td>With CTT01213</td></tr> <tr><td style="text-align: center;">025</td><td>With CTT02513</td></tr> </table>	X	Without	012	With CTT01213	025	With CTT02513	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">A</td><td>P10 – Paper 10µ</td></tr> <tr><td style="text-align: center;">B</td><td>P25 – Paper 25µ</td></tr> <tr><td style="text-align: center;">C</td><td>A10 – Microfiber 10µ</td></tr> <tr><td style="text-align: center;">D</td><td>A16 – Microfiber 16µ</td></tr> <tr><td style="text-align: center;">E</td><td>A25 – Microfibre 25µ</td></tr> </table>		A	P10 – Paper 10µ	B	P25 – Paper 25µ	C	A10 – Microfiber 10µ	D	A16 – Microfiber 16µ	E	A25 – Microfibre 25µ
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V	Visual diff. indicator																																						
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012	With CTT01213																																						
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C	A10 – Microfiber 10µ																																						
D	A16 – Microfiber 16µ																																						
E	A25 – Microfibre 25µ																																						

Clogging indicator:
For oil group setting:
1.5 bar

Oil filter filtering baffles legend:
P10 – P25: Cellulose fibers impregnated with phenolic resins, 10 and 25µ
A10 – A16 – A25: Multilayer baffle made of reinforced polyester fibers: 10, 16 and 25µ



Dimensions integrated group equipped with CTT012 oil filter and DSP012.0 separator filter

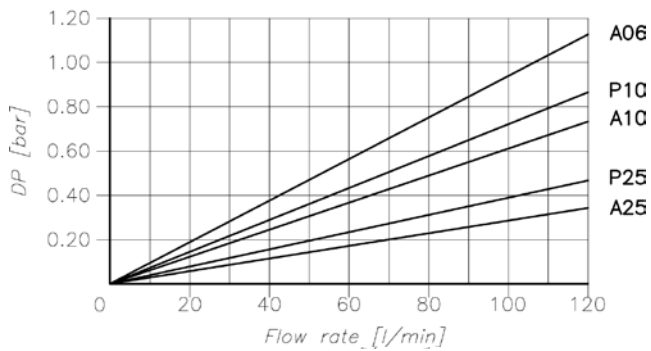


Dimensions integrated group equipped with CTT025 oil filter and DSP012.0 separator filter

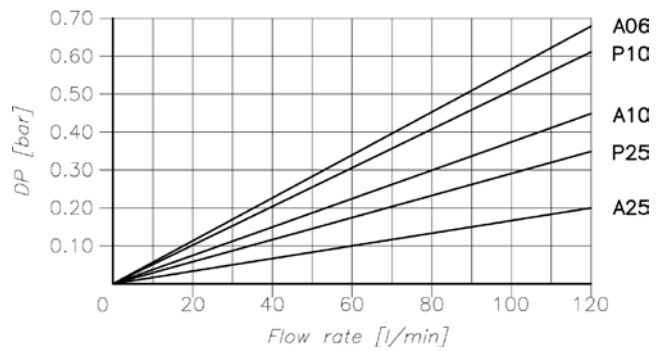
Oil filter pressure drop

Curves are valid for mineral oil with viscosity up to 30 mm²/sec (cSt)
(For oil filter viscosity variations see pag. 5)

CTT 012



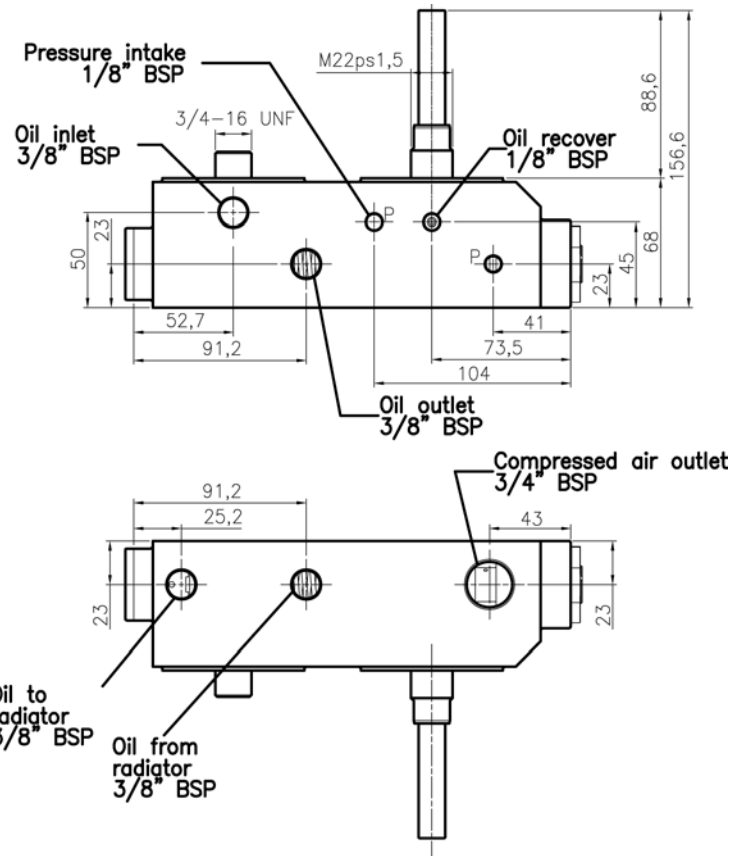
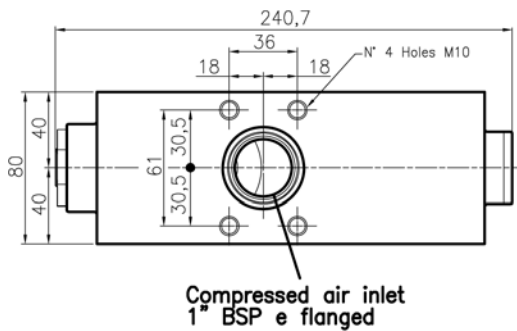
CTT 025



Air oil integrated group Manifold type equipped with thermostat and minimum pressure valve

Model:
GSOM 15

Air flow rate:
1.5 m³/min
Oil flow rate:
up to 50 l/min



Choice of integrated group oil filter – air/oil separator filter equipped with thermostat and minimum pressure valve

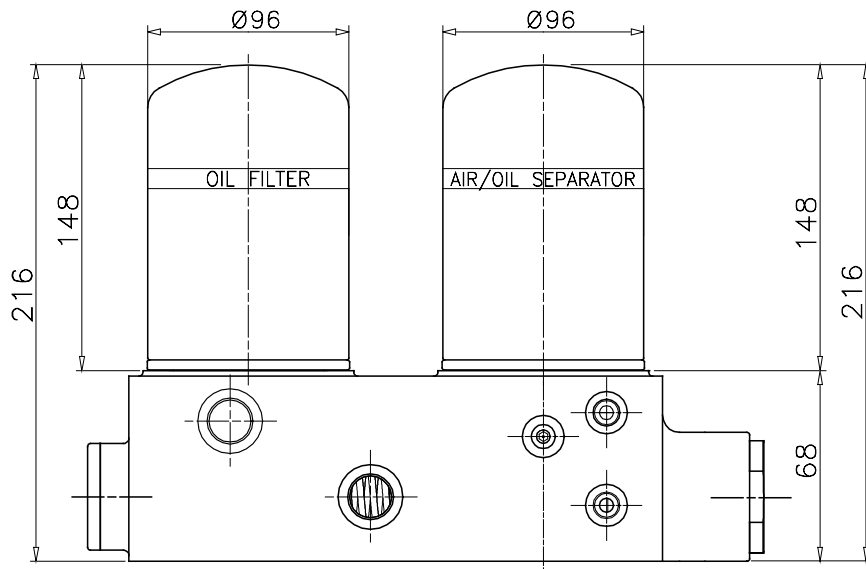
GSOM 15					
Thermostat	Clogging indicator	Separator filter	Oil filter	Filtration type Oil filter	
55°C	A	X	X	A	P10 – Paper 10μ
65°C	B	Without	Without	B	P25 – Paper 25μ
71°C	C	With DSP050.0	050	C	A10 – Microfiber 10μ
83°C	D			012	With CTT01213
	E			025	With CTT02513
				050	With CTT05013
				D	A16 – Microfiber 16μ
				E	A25 – Microfiber 25μ

Clogging indicator:
For oil group setting:
1.5 bar

Oil filter filtering baffles legend:

P10 – P25: Cellulose fibers impregnated with phenolic resins, 10 and 25μ

A10 – A16 – A25: Multilayer baffle made of reinforced polyester fibers: 10, 16 and 25μ

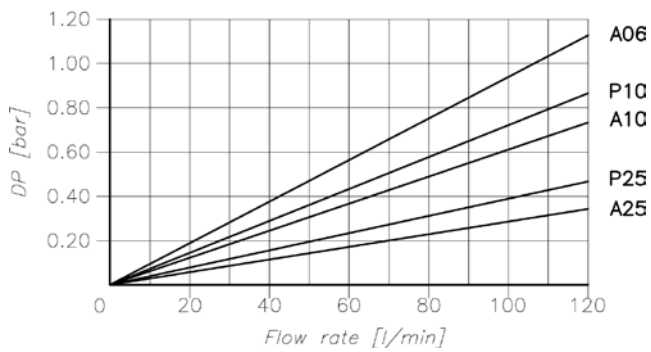


Dimensions integrated group equipped with CTT050oil filter DSP050.0 and separator filter

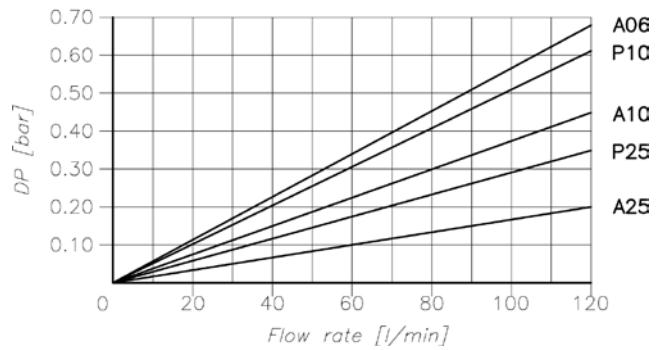
Oil filter pressure drop

Curves are valid for mineral oil with viscosity up to 30 mm²/sec (cSt)
 (For oil filter viscosity variations see page 5)

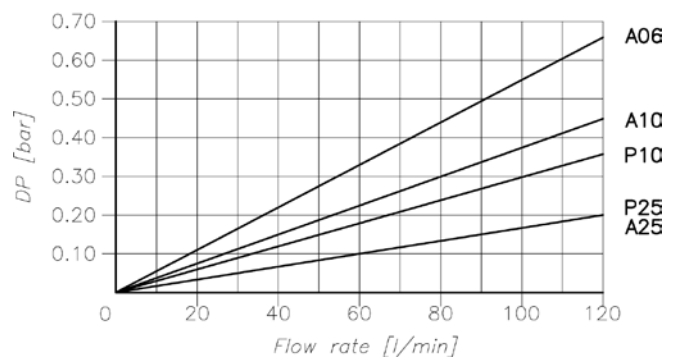
CTT 012



CTT 025



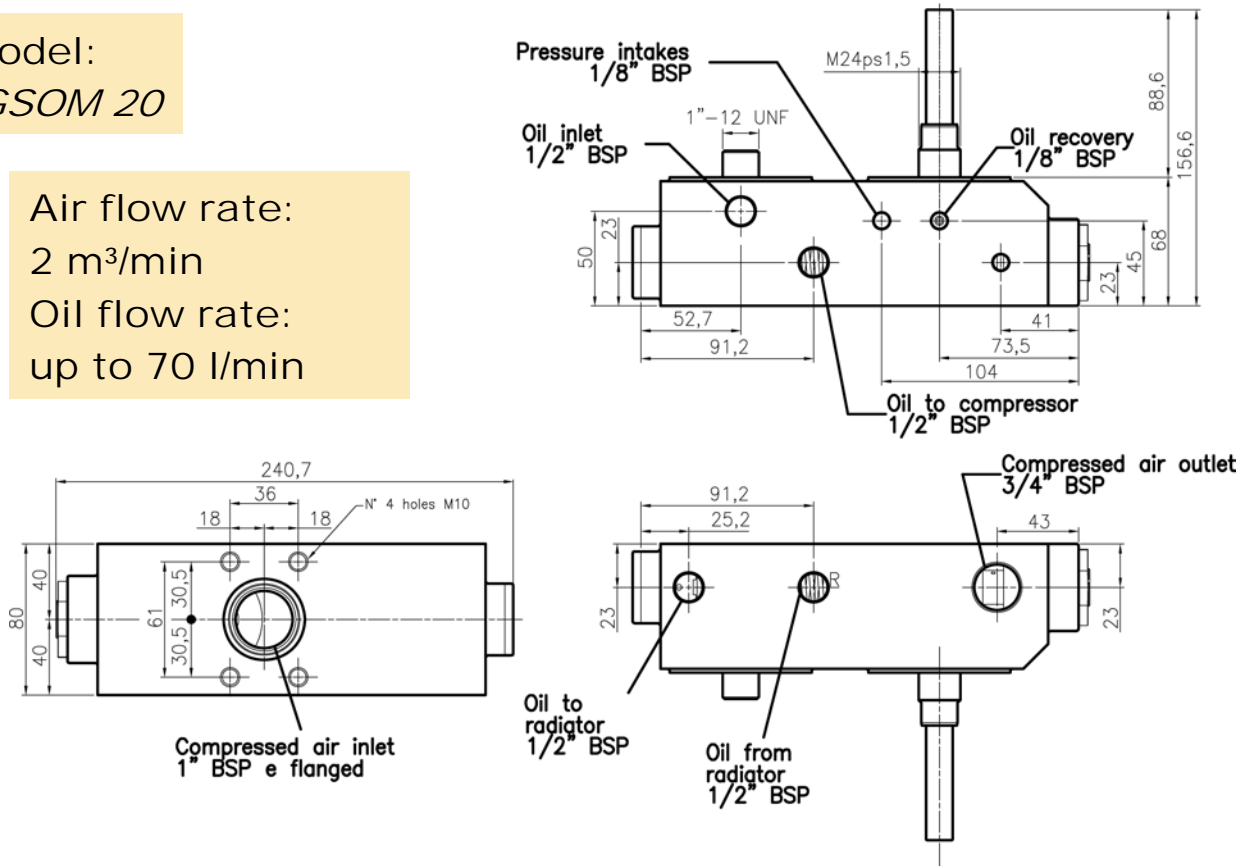
CTT 050



Air oil integrated group Manifold type equipped with thermostat and minimum pressure valve

Model:
GSOM 20

Air flow rate:
2 m³/min
Oil flow rate:
up to 70 l/min



Choice of integrated group oil filter – air/oil separator filter equipped with thermostat and minimum pressure valve

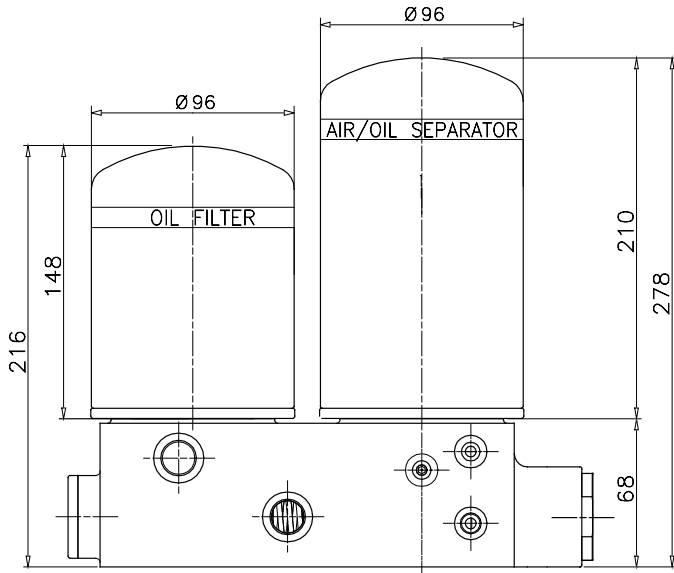
GSOM 20					
Thermostat	Clogging indicator	Separator filter	Oil filter	Filtration type Oil filter	
55°C A 65°C B 71°C C 83°C D	S Without V Visual diff. indicator E Electric diff. indicator	X Without 070 With DSP070.0	X Without 050 With CTT05033 070 With CTT07033	A P10 – Paper 10µ B P25 – Paper 25µ C A10 – Microfiber 10µ D A16 – Microfiber 16µ E A25 – Microfiber 25µ	

Clogging indicator:
For oil group setting:
1.5 bar

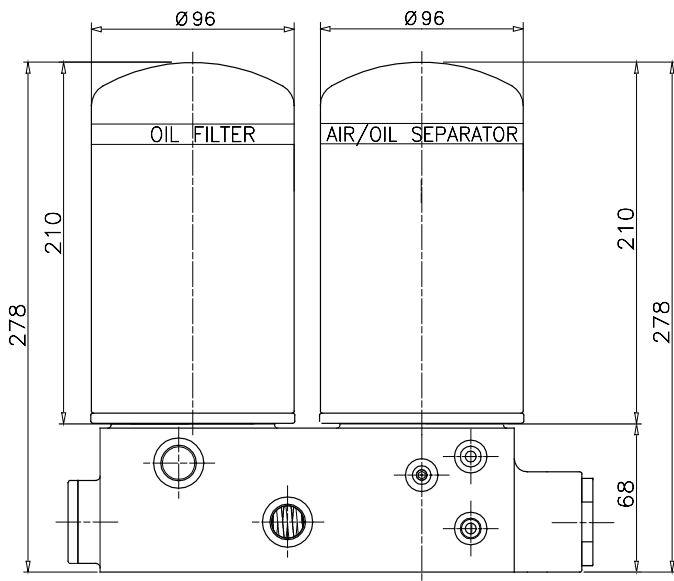
Oil filter filtering baffles legend:

P10 – P25: Cellulose fibers impregnated with phenolic resins, 10 and 25µ

A10 – A16 – A25: Multilayer baffle made of reinforced polyester fibers: 10, 16 and 25µ



Dimensions integrated group equipped with CTT050 oil filter and DSP070.0 separator filter

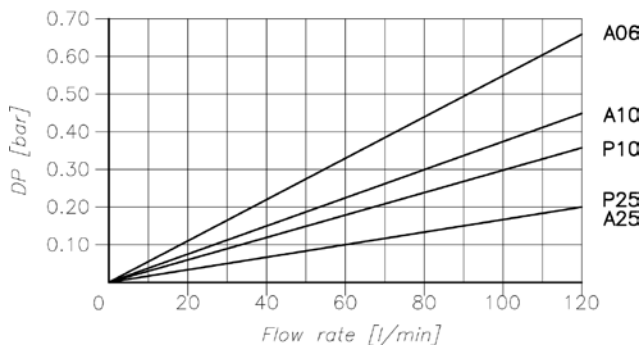


Dimensions integrated group equipped with CTT070 oil filter and DSP070.0 separator filter

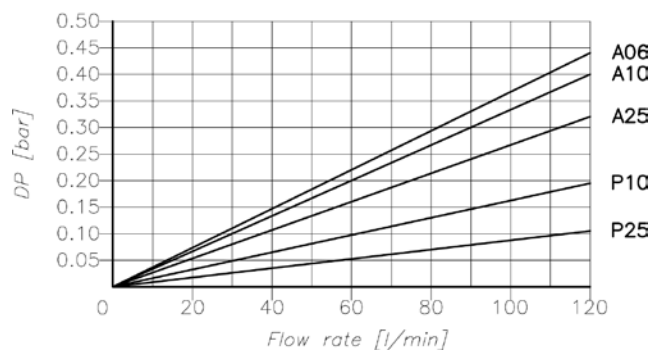
Oil filter pressure drop

Curves are valid for mineral oil with viscosity up to 30 mm²/sec (cSt)
(For oil filter viscosity variations see page 5)

CTT 050



CTT 070

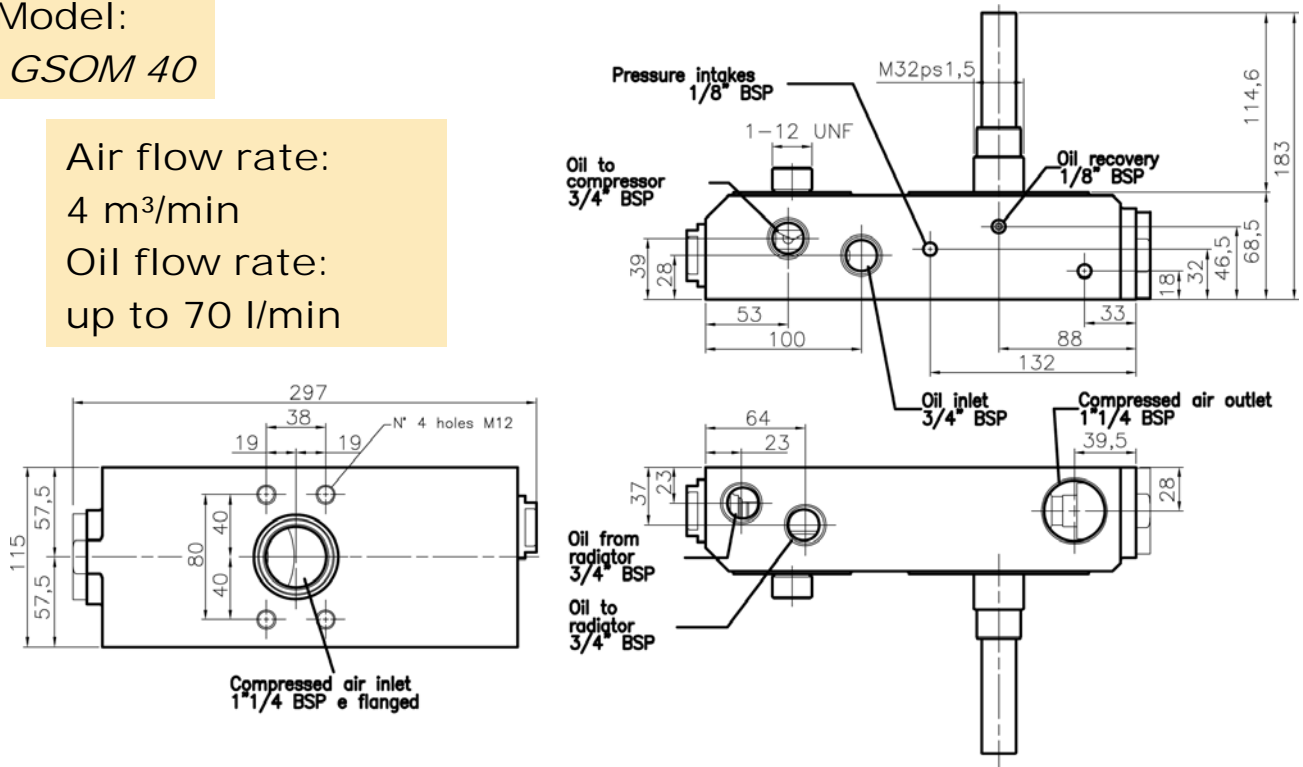


Air oil integrated group Manifold type equipped with thermostat and minimum pressure valve

Model:

GSOM 40

Air flow rate:
4 m³/min
Oil flow rate:
up to 70 l/min



Choice of integrated group oil filter – air/oil separator filter equipped with thermostat and minimum pressure valve

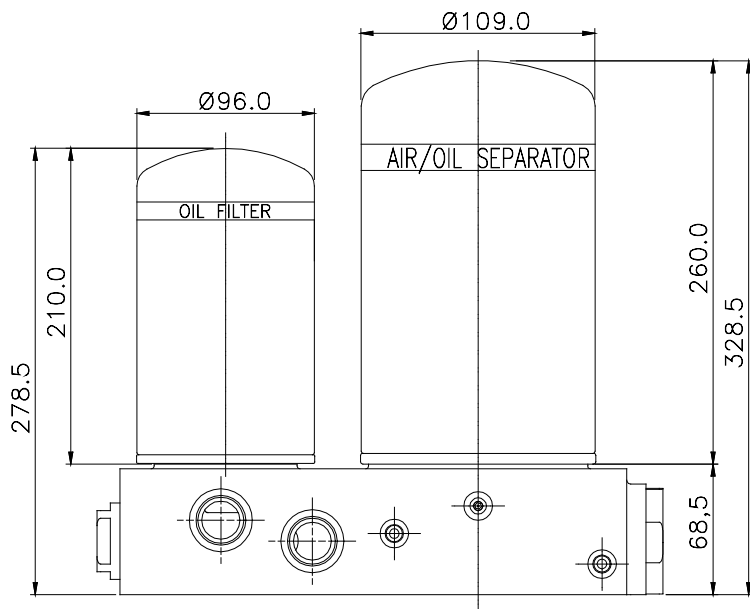
GSOM 40									
Thermostat		Clogging indicator		Separator filter		Oil filter		Filtration type Oil filter	
55°C	A	S	Without	X	Without	X	Without	A	P10 – Paper 10µ
65°C	B	V	Visual diff. indicator	090	With DSP090.0	050	With CTT05033	B	P25 – Paper 25µ
71°C	C	E	Electric diff. indicator			070	With CTT07033	C	A10 – Microfiber 10µ
83°C	D							D	A16 – Microfiber 16µ
								E	A25 – Microfiber 25µ

Clogging indicator.
For oil group setting:
1.5 bar

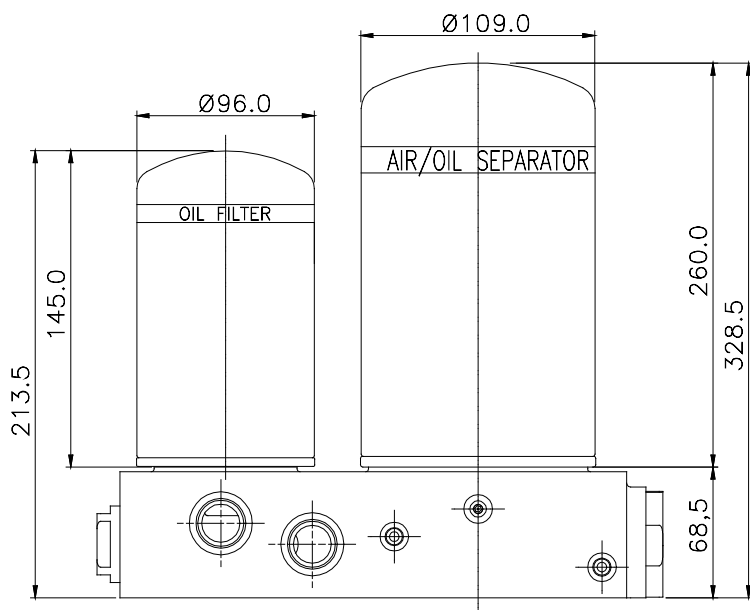
Oil filter filtering baffles legend:

P10 – P25: Cellulose fibers impregnated with phenolic resins, 10 and 25µ

A10 – A16 – A25: Multilayer baffle made of reinforced polyester fibers: 10, 16 and 25µ



Dimensions integrated group equipped with CTT070 oil filter and DSP090.0 separator filter

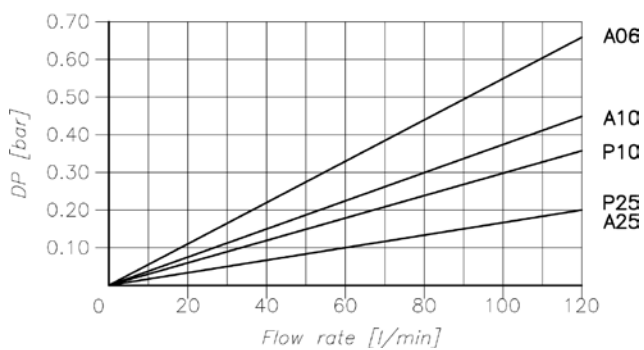


Dimensions integrated group equipped with CTT050 oil filter and DSP090.0 separator filter

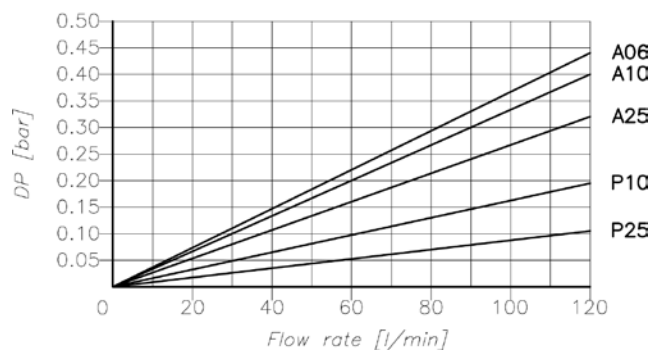
Oil filter pressure drop

Curves are valid for mineral oil with viscosity up to 30 mm²/sec (cSt)
(For oil filter viscosity variations see page 5)

CTT 050



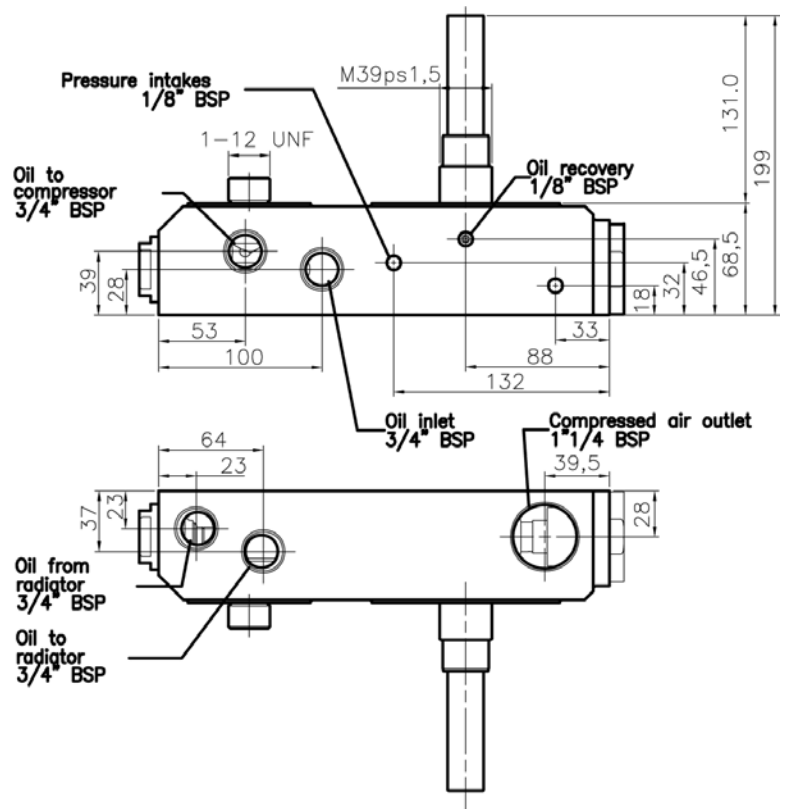
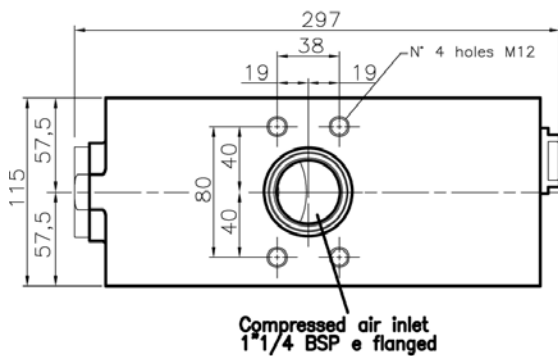
CTT 070



Air oil integrated group Manifold type equipped with thermostat and minimum pressure valve

Model:
GSOM 55

Air flow rate:
up to 5.5 m³/min
Oil flow rate:
up to 70 l/min



Choice of integrated group oil filter – air/oil separator filter equipped with thermostat and minimum pressure valve

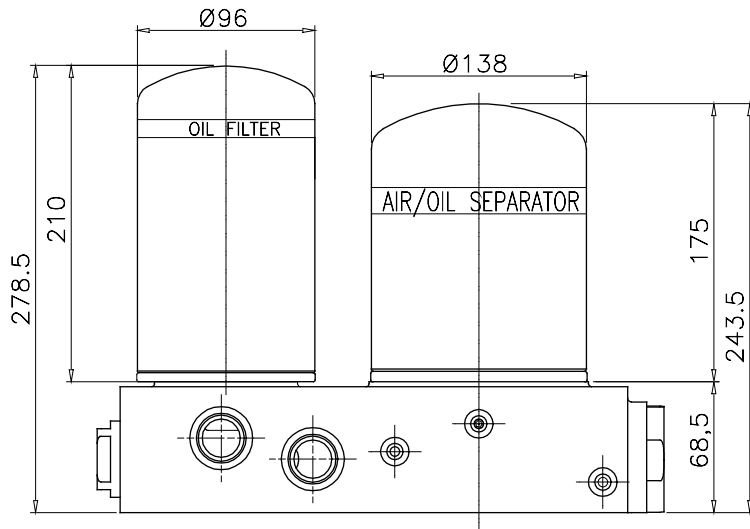
GSOM 55					
Thermostat	Clogging indicator	Separator filter	Oil filter	Filtration type Oil filter	
55°C A 65°C B 71°C C 83°C D	S Without V Visual diff. indicator E Electric diff. indicator	X Without 300 With DSP300.0 400 With DSP400.0	X Without 070 With CTT07033	A	P10 – Paper 10μ
				B	P25 – Paper 25μ
				C	A10 – Microfiber 10μ
				D	A16 – Microfiber 16μ
				E	A25 – Microfiber 25μ

Clogging indicator:
For oil group setting:
1.5 bar

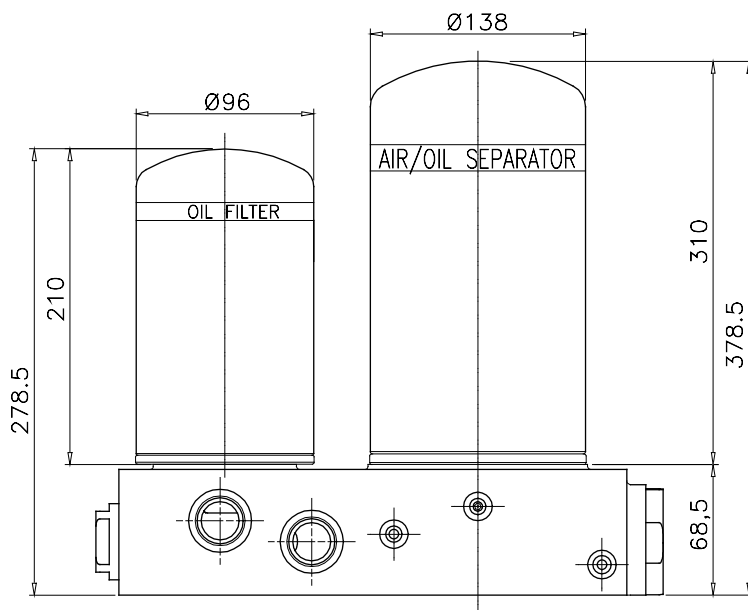
Oil filter filtering baffles legend:

P10 – P25: Cellulose fibers impregnated with phenolic resins, 10 and 25μ

A10 – A16 – A25: Multilayer baffle made of reinforced polyester fibers: 10, 16 and 25μ



Dimensions integrated group equipped with CTT070 oil filter and DSP300.0 separator filter

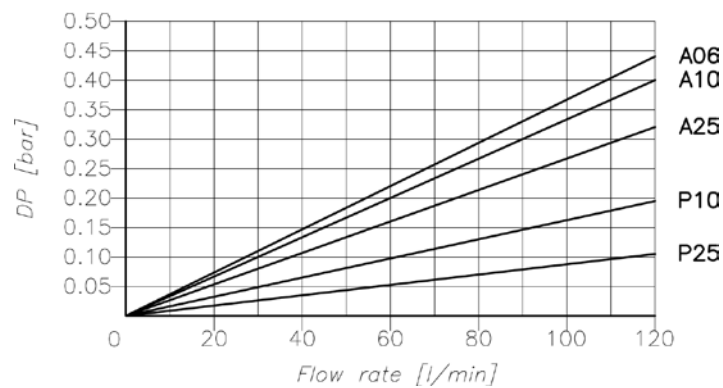


Dimensions integrated group equipped with CTT070 oil filter and DSP400.0 separator filter

Oil filter pressure drop

Curves are valid for mineral oil with viscosity up to 30 mm²/sec (cSt)
 (For oil filter viscosity variations see page 5)

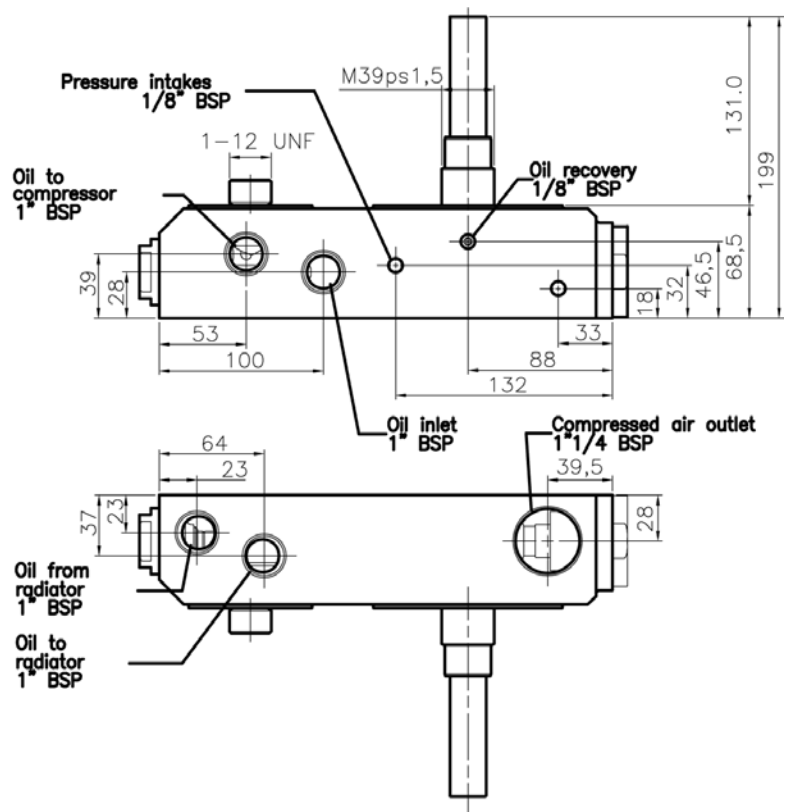
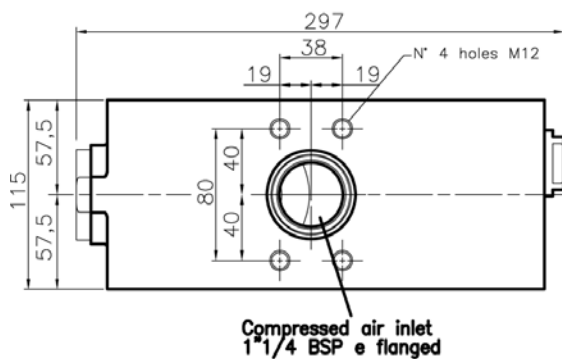
CTT 070



Air oil integrated group Manifold type equipped with thermostat and minimum pressure valve

Model:
GSOM 56

Air flow rate:
up to 5.5 m³/min
Oil flow rate:
up to 70 l/min



Choice of integrated group oil filter – air/oil separator filter equipped with thermostat and minimum pressure valve

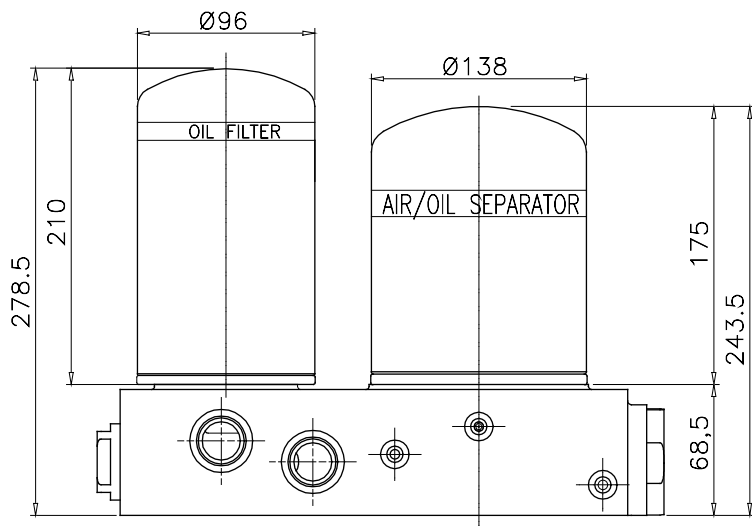
GSOM 56					
Thermostat	Clogging indicator	Separator filter	Oil filter	Filtration type Oil filter	
55°C A 65°C B 71°C C 83°C D	S Without V Visual diff. indicator E Electric diff. indicator	X Without 300 With DSP300.0 400 With DSP400.0	X Without 070 With CTT07033	A	P10 – Paper 10µ
				B	P25 – Paper 25µ
				C	A10 – Microfiber 10µ
				D	A16 – Microfiber 16µ
				E	A25 – Microfiber 25µ

Clogging indicator:
For oil group setting:
1.5 bar

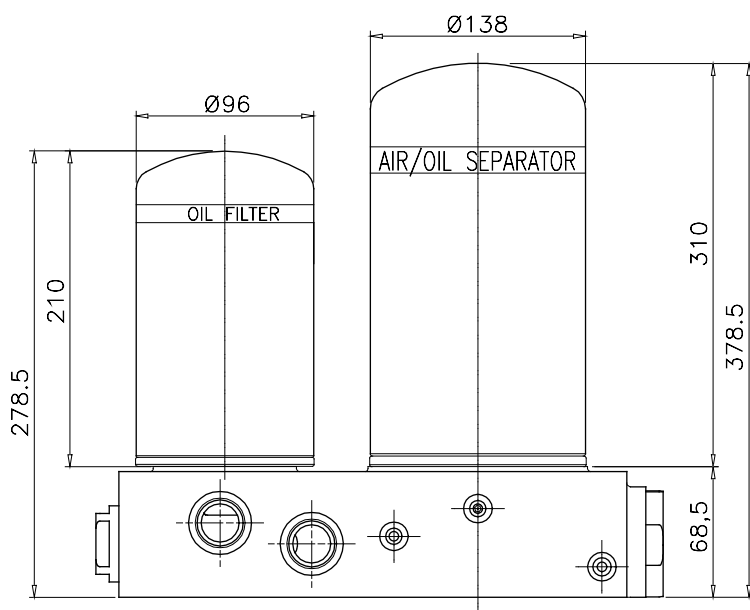
Oil filter filtering baffles legend:

P10 – P25: Cellulose fibers impregnated with phenolic resins, 10 and 25µ

A10 – A16 – A25: Multilayer baffle made of reinforced polyester fibers: 10, 16 and 25µ



Dimensions integrated group equipped with CTT070 oil filter and DSP300.0 separator filter

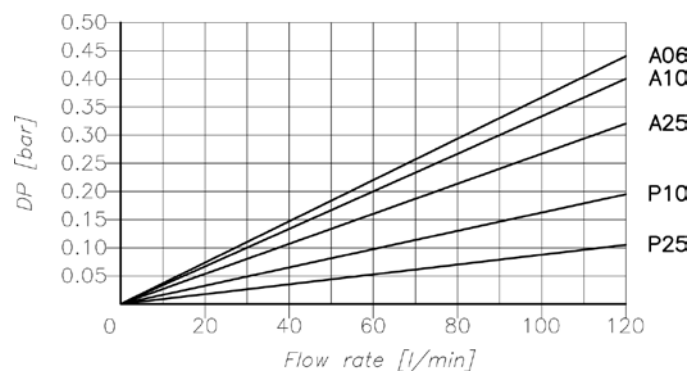


Dimensions integrated group equipped with CTT070 oil filter and DSP400.0 separator filter

Oil filter pressure drop

Curves are valid for mineral oil with viscosity up to 30 mm²/sec (cSt)
(For oil filter viscosity variations see page 5)

CTT 070



Integrated group spare parts

1	Thermostatic closing plug for GSOM10÷GSOM20	<i>033.1.0012</i>
	Thermostatic closing plug for GSOM40÷GSOM55	<i>033.1.0018</i>
2	Thermostat O-Ring seal for GSOM10÷GSOM20 (OR-3118)	<i>032.1.8092</i>
	Thermostat O-Ring seal for GSOM40÷GSOM55 (OR 2137)	<i>032.1.8087</i>
3	Thermosensitive element for oil groups	
	55°C	<i>036.1.0055</i>
	65°C	<i>036.1.0071</i>
	71°C	<i>036.1.0056</i>
	83°C	<i>036.1.0072</i>
4	Thermostat shutter for group GSOM10÷GSOM20	<i>036.1.0054</i>
	Thermostat shutter for group GSOM40÷GSOM55	<i>036.1.0063</i>
5	Thermostat spring for group GSOM10÷GSOM20	<i>003.1.0162</i>
	Thermostat spring for group GO071-GO072	<i>003.1.0174</i>
6	Integrated group head GSOM10	<i>029.1.0368</i>
	Integrated group head GSOM15	<i>029.1.0369</i>
	Integrated group head GSOM20	<i>029.1.0370</i>
	Integrated group head GSOM40 – GSOM55	<i>029.1.0371</i>
7	Reduction unit for GSOM10÷GSOM15	<i>011.1.0299</i>
	Reduction unit for GSOM20÷GSOM55	<i>011.1.0300</i>
8	Adaptor for GSOM10	<i>011.2.0063</i>
	Adaptor for GSOM15÷GSOM20	<i>011.2.0064</i>
	Adaptor for GSOM40	<i>011.2.0071</i>
	Adaptor for GSOM55	<i>011.2.0068</i>
9	2087 O-Ring for GSOM10÷GSOM20	<i>032.1.8096</i>
	2162 O-Ring for GSOM40÷GSOM55	<i>032.1.8101</i>
10	2068 O-Ring for GSOM10÷GSOM20	<i>032.1.8086</i>
	2131 O-Ring for GSOM40÷GSOM55	<i>032.1.8102</i>
11	Minimum pressure valve shutter for GS10-GS15-GS20	<i>001.2.0171</i>
	Minimum pressure valve shutter for GS55	<i>001.2.0174</i>
12	Minimum pressure valve spring	<i>003.1.0171</i>
13	O-Ring 2093 per gruppo integrato GSOM10÷GSOM20	<i>032.1.8095</i>
	O-Ring 3100 per gruppo integrato GSOM40÷GSOM55	<i>032.1.8055</i>
14	Minimum pressure valve cursor for GSOM10÷GSOM20	<i>036.1.0060</i>
	Minimum pressure valve cursor for GSOM40÷GSOM55	<i>036.1.0065</i>
15	Minimum pressure valve spring for GSOM10÷GSOM20	<i>003.1.0170</i>
	Minimum pressure valve spring for GSOM40÷GSOM55	<i>003.1.0175</i>
16	Washer De.18.5 Di.10 Sp.2	<i>034.1.0044</i>
17	2137 O-Ring for GSOM10÷GSOM20	<i>032.1.8087</i>
	3175 O-Ring for GSOM40÷GSOM55	<i>032.1.8103</i>
18	Minimum pressure valve plug for GSOM10÷GSOM20	<i>033.1.0011</i>
	Minimum pressure valve plug for GSOM40÷GSOM55	<i>033.1.0019</i>
19	M20x1 ring nut for Minimum pressure valve GS10-GS-15-GS20	<i>030.1.0009</i>
20	O-Ring inlet for integrated group GSOM10÷GSOM20 (OR 3150)	<i>032.1.8056</i>
	O-Ring inlet for integrated group GSOM40÷GSOM55 (OR 3193)	<i>032.1.8112</i>
21	Visual differential pressure indicator 1.5 bar for separator group	<i>016.2.0003</i>
	Electric differential pressure indicator 1.5 bar for separator group	<i>016.2.0005</i>

