12 bar
170 psi

Series **CS-CTT**

OIL FILTER FAI FILTRI

# DESCRIPTION

Many years of in-field experience have shown the necessity of more and more efficient controls on the contamination level of hydraulic fluids and fuels.

With this goal uppermost in its mind, and thanks to sophisticated design patterns and the use of cutting-edge materials and technologies, FAI FILTRI has engineered a complete series of spin-on filters , in different models and sizes, designed to meet a wide array of filtration and operating requirements, in order to allow a more effective control of contamination levels in hydraulic, lubricating, engine circuits, etc.

CS-CTT spin-on cartridges are engineered to provide an efficient solution to filtration problems offering their highest performances when fitted into inlet, return and exhaust lines of mobile machineries (such as earthworks machines, agricultural machines, industrial vehicles, compressors, hydraulic systems) with pressure peaks up to 12 bar.
The fundamental characteristic of these elements is the possibility, for any clogged filter, to be easily replaced, by a quick and clean procedure, condition that has to be considered of great importance in working contexts where highly deteriorated environmental conditions usually occur.

They can support flow rates up to 270 l/min and each element can be equipped with a by-pass valve and an anti-emptying membrane **(CTT series)**.

FAI FILTRI spin-on cartridges, equipped with new-generation “A” filtering media, can grant high standards of performance even in the hardest conditions.

“A” type elements with absolute filtration power of 3, 6, 10, 25 micron ($\beta x \geq 200$), are formed by inorganic impregnated and resin bonded inert micro-fibers, supported upstream and downstream. The result is a very compact filtering core which ensures the resistance of the media itself to deformation, distortion and strain ,preventing any contaminants to get released, thus improving filtering performances and allowing contaminants to accumulate efficiently, also in the event of phenomena such as high differential pressure and water hammering derived from cold starts and discharge flow rates.

The above mentioned features make the FAI FILTRI spin-on filters consistent with the use of hydraulic, lubricating oils, fuels, glycol water, emulsions and most synthetic fluids.

# TECHNICAL DATA

## MATERIALS

- Galvanized stamped plate flange
- Sinned and painted sheet steel vessel
- Perforated/drilled supporting pipes and galvanized steel end-caps

## CARTRIDGES PRESSURES VALUES

| | |
|---|---|
| Max. operating pressure: | **12 bar** |
| Impulse test in compliance with ISO 3724: | **from 0-12-0 bar 1Hz 50.000 min. cycles** |

## TESTS CARRIED OUT ON FILTER ELEMENTS

Differential collapsing pressure of the filtering elements tested in compliance with ISO 2941:

| | |
|---|---|
| “P” type | **5 bar** |
| “A” e “M” types | **10 bar** |

Resistance to axial deformation tested in compliance with ISO 3723

Manufacturing conformity and determination/assessment of the first bubble point in compliance with ISO 2942

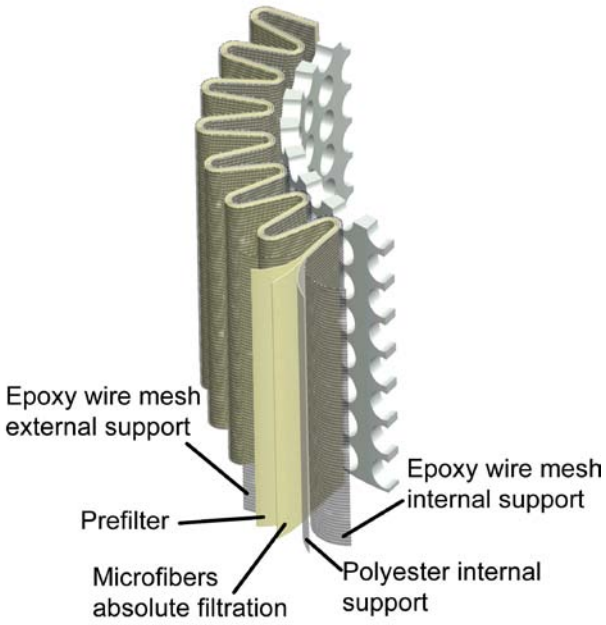
## FILTER ELEMENTS

**"P":** 10 and 25 nominal micron made of impregnated cellulose fibers $\beta x > 2$

**"A":** 3, 6, 10, 16 and 25 absolute micron made of $\beta x \geq 200$ reinforced inorganic microfibers with polyester protections

**"M":** 60 and 90 nominal micron made of wire net/gauze

**New generation "A" filtering elements structure**




## RETENTION POWER

In compliance with ISO 4572 Multi-pass test method

| Filter element | Dimension for β (μm) Value | | | | Filtration rapports | | | final ΔP (bar) |
|---|---|---|---|---|---|---|---|---|
| | β ≥ 2 50% | β ≥ 20 95% | β ≥ 75 98,7% | β ≥ 200 99,5% | $\beta_2$ | $\beta_{10}$ | $\beta_{20}$ | |
| **A03** | - | 2 | 2.4 | 3 | 20 | >10000 | >10000 | 7 |
| **A06** | - | 3 | 4.6 | 6 | 8 | >2000 | >10000 | 7 |
| **A10** | 3 | 6 | 7.8 | 10 | 1.5 | ≥200 | >1000 | 7 |
| **A16** | 7 | 9 | 12 | 16 | - | >25 | >5000 | 7 |
| **A25** | 13 | 19 | 22 | 25 | - | >1.5 | >35 | 7 |
| **P10** | 10 | >30 | >30 | - | 1 | 2 | 4.5 | 4 |
| **P25** | 25 | >30 | >30 | - | 1 | 1 | 1.3 | 4 |

## INTERNATIONAL STANDARDS FOR FLUIDS CONTAMINATION CONTROL

| ISO 4406 CONTAMINATION CODES | | NAS 1638 CORRESPONDING CLASS | SUGGESTED FILTRATION | APPLICATION FIELDS |
|---|---|---|---|---|
| **5 μm** | **15 μm** | | **βx ≥ 200** | |
| 12 | 9 | 3 | 1-2 | High accuracy servo-plants – laboratory |
| 15 | 11 | 6 | 3-6 | Servo-plants – robotics – aeronautics |
| 16 | 13 | 7 | 10-12 | High sensitivity plants – where high standards of operating reliability are required |
| 18 | 14 | 9 | 12-15 | |
| 19 | 16 | 10 | 15-25 | General plant engineering with limited reliability |
| 21 | 18 | 12 | 25-40 | Low pressure plants – desultory services |

## BY-PASS VALVES

Type -1- setting 0,3 bar

Type -2- setting 1,0 bar

Type -3- setting 1,75 bar

Type -4- setting 2,5 bar

## GASKETS

Buna-N “A” type gaskets/seals

Viton “V” type gaskets/seals

## COUPLINGS

For the different coupling see order forms [Specifically on request]

## OPERATING TEMPERATURES

From –25°C up to +110°C [For different temperatures please contact our technical department]

## FLOW RATE

From 20 up to 190 l/min

Choose the cartridge according to the filtration and to the recommended pressure drop.

## FILTERING SURFACE

| Type | P10/P25 | A03/A06/A10/ A16/A25 | M60/M90 | Type | P10/P25 | A03/A06/A 10/A16/A2 | M60/M90 |
|---|---|---|---|---|---|---|---|
| **CS/CTT – 12** | 2300 $cm^2$ | 1370 $cm^2$ | 680 $cm^2$ | **CS/CTT – 83** | 3450 $cm^2$ | 2900 $cm^2$ | 1000 $cm^2$ |
| **CS/CTT – 15** | 2060 $cm^2$ | 1325 $cm^2$ | 470 $cm^2$ | **CS/CTT – 85** | 4400 $cm^2$ | 3710 $cm^2$ | 1360 $cm^2$ |
| **CS/CTT – 20** | 1270 $cm^2$ | 880 $cm^2$ | 360 $cm^2$ | **CS/CTT – 90** | 4990 $cm^2$ | 4200 $cm^2$ | 1575 $cm^2$ |
| **CS/CTT – 25** | 1460 $cm^2$ | 1020 $cm^2$ | 470 $cm^2$ | **CS/CTT – 100** | 5000 $cm^2$ | 4440 $cm^2$ | 1660 $cm^2$ |
| **CS/CTT – 50** | 2440 $cm^2$ | 1700 $cm^2$ | 785 $cm^2$ | **CS/CTT – 150** | 6730 $cm^2$ | 5980 $cm^2$ | 2230 $cm^2$ |
| **CS/CTT – 60** | 2930 $cm^2$ | 2040 $cm^2$ | 950 $cm^2$ | **CS – 300** | 6250 $cm^2$ | 3580 $cm^2$ | 1300 $cm^2$ |
| **CS/CTT – 70** | 3960 $cm^2$ | 2700 $cm^2$ | 1275 $cm^2$ | **CS – 350** | 9350 $cm^2$ | 5440 $cm^2$ | 1980 $cm^2$ |
| **CS/CTT – 80** | 2100 $cm^2$ | 1130 $cm^2$ | 680 $cm^2$ | **CS - 400** | 13580 $cm^2$ | 7900 $cm^2$ | 2770 $cm^2$ |

# PRESSURE DROP

Curves are applicable to mineral oil with a dynamic viscosity of 30 $mm^2$/sec. (cSt). ΔP changes along with the values of dynamic viscosity according to the following formulas:

① **Dynamic viscosity variations ≤5**

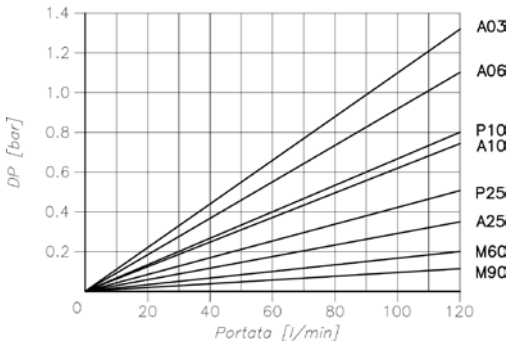
$$\Delta P = \frac{v1}{v} \Delta P$$

② **Dynamic viscosity variations >5**

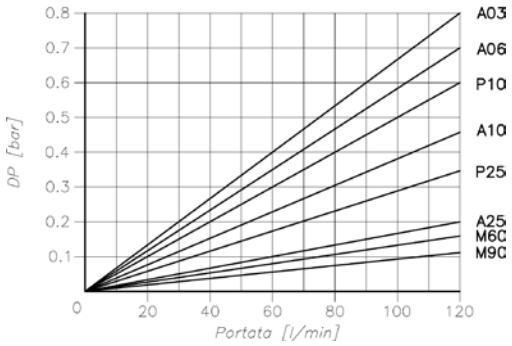
$$\Delta P1 = \frac{\frac{v1}{v} + \sqrt{\frac{v1}{v}}}{2} \Delta P$$

In both formulas **ΔP** stands for the pressure loss calculated on the curves, **v** stands for the reference dynamic viscosity (30 $mm^2$/sec); **ΔP1** is the pressure loss to be calculated and **v1** stands for the actual dynamic viscosity of the tested fluid.

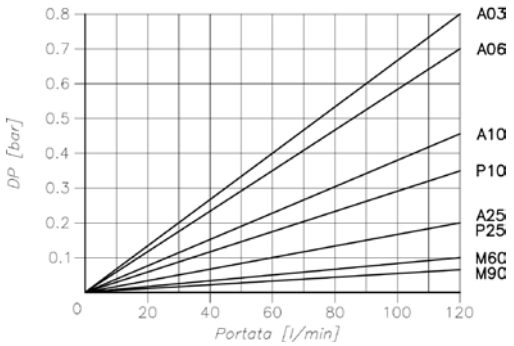
## CS–CTT 012



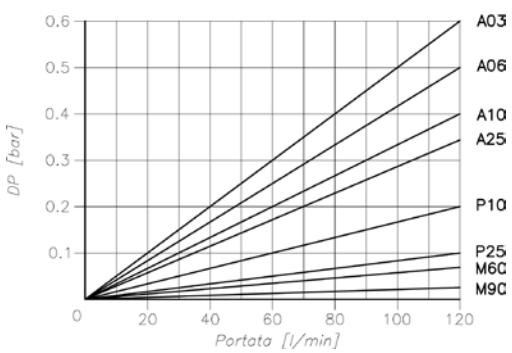

## CS–CTT 025



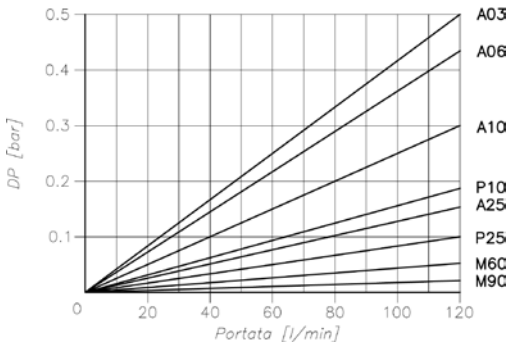

## CS–CTT 050



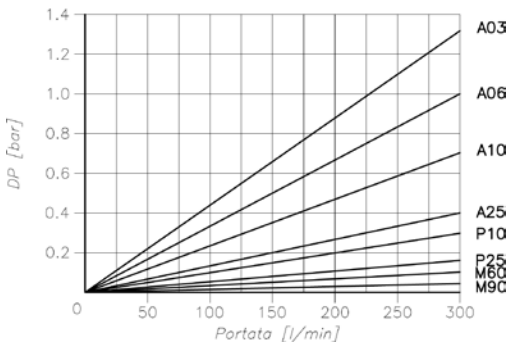

## CS–CTT 070



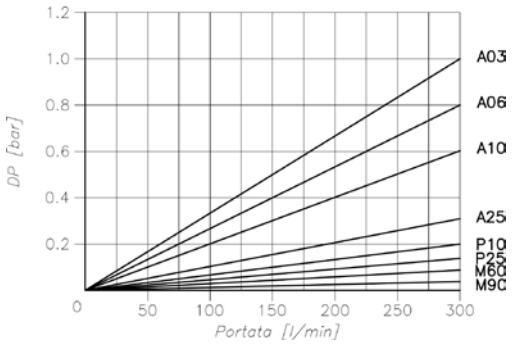

## CS–CTT 090



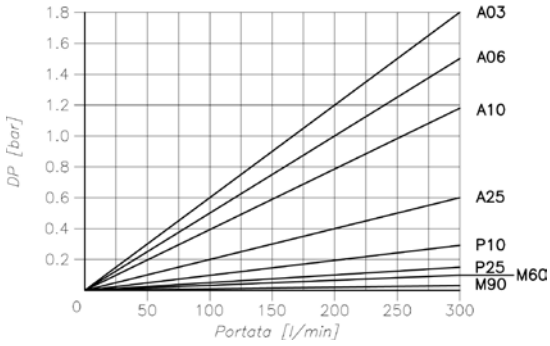

## CS–CTT 100




## CS–CTT 150




## CS–CTT 300

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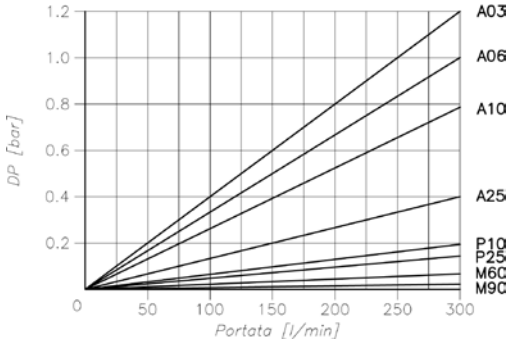
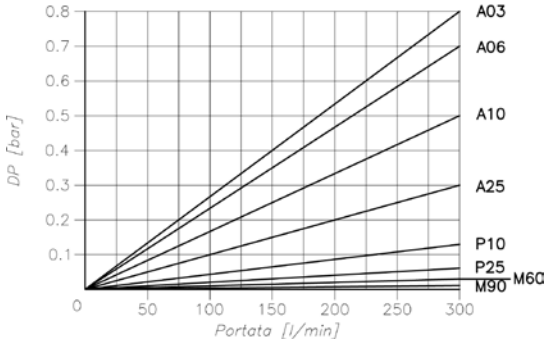
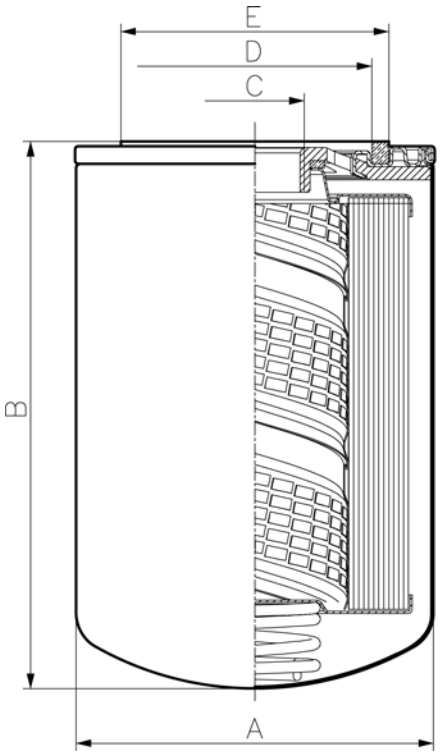


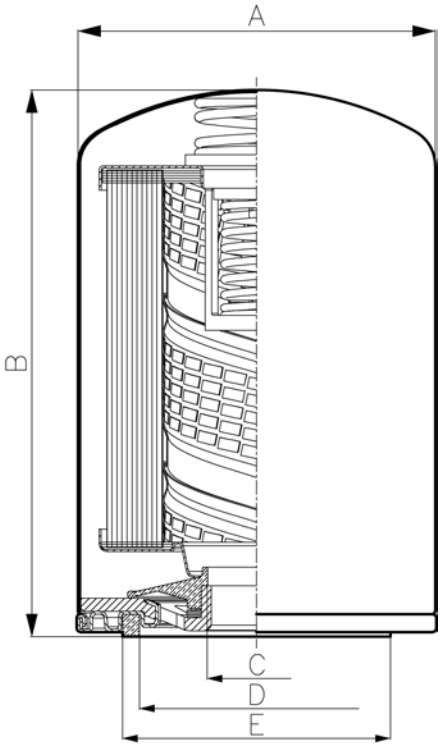

## CS–CTT 400



# DIMENSIONAL INFORMATION

**CS**




**CTT**

| Type | Flow rate [l/min] | A | B | C | D | E |
|---|---|---|---|---|---|---|
| **CS/CTT 012** | 20 | 76 | 120 | SEE ORDER CODE | 62,5 | 71,5 |
| **CS/CTT 015** | | | 140 | | | |
| **CS/CTT 020** | 25 | 96 | 95 | | | |
| **CS/CTT 025** | | | 110 | | | |
| **CS/CTT 050** | 35 | | 148 | | | |
| **CS/CTT 060** | 42 | | 170 | | | |
| **CS/CTT 070** | 55 | | 210 | | | |
| **CS/CTT 080** | 55 | 108 | 135 | | | |
| **CS/CTT 081** | 80 | | 230 | | | |
| **CS/CTT 083** | 60 | | 180 | | 91,5 | 102,0 |
| **CS/CTT 085** | 80 | | 230 | | | |
| **CS/CTT 090** | 100 | | 260 | | | |
| **CS/CTT 100** | 75 | 126 | 180 | | 96,5 | 106,5 |
| **CS/CTT 150** | 150 | | 226 | | | |
| **CS 300** | 120 | 138 | 175 | | 100,5 | 109,5 |
| **CS 350** | 150 | | 230 | | | |
| **CS 400** | 190 | | 310 | | | |

# ORDER CODE

| Series | |
|---|---|
| CS | Nitril (Buna - n) |
| CTT | Membrane Anti-emptying |

| Type | Couplings |
|---|---|
| 12<br>15 | 1 – 2 - A – E |
| 20<br>25<br>50<br>60<br>70 | 0-1-2-3-4-5-B-C-D |
| 80<br>81<br>83<br>85<br>90 | 1 - 3 - 4 - H - P |
| 100<br>150 | 0 |
| 300<br>350<br>400 | 0 – 6 – H – L<br>[only for CS] |

| Seals | |
|---|---|
| A | Nitril (Buna - n) |
| V | Viton |

| Filter element | |
|---|---|
| P10<br>P25 | Resin impregnated papaer $\beta x \geq 2$ |
| A03<br>A06<br>A10<br>A16<br>A25 | Inorganic fiber $\beta x \geq 200$ |
| M60<br>M90 | Squared wire mesh net |

| By-pass valve | |
|---|---|
| 0 | Without by-pass |
| 1 | 0,3 bar |
| 2 | 1 bar |
| 3 | 1,75 bar |
| 4 | 2,5 bar |

**Couplings**

| | Type 12 ÷ 15 | Type 20 ÷ 70 | Type 80 ÷ 90 | Type 100 ÷ 150 | Type 300 ÷ 400 |
|---|---|---|---|---|---|
| 0 | | 3/4“ GAS | | 1 1/4" GAS | |
| 1 | 3/4“ – 16 UNF | | | | |
| 2 | 13/16“ – 16 UNF | | | | |
| 3 | | 1“ – 12 UNF | | | |
| 4 | | 1“ 1/8 – 16 UNF | | | |
| 5 | | 1 1/4“-12 UNF | | | |
| 6 | | | | | 1"1/2 - 16 UNF |
| 8 | | | | | 1” 1/2 GAS |
| A | M20x1,5 | | | | |
| B | | M24x2 | | | |
| C | | M33x1.5 | | | |
| D | | M24x1,5 | | | |
| E | M18x1,5 | | | | |
| H | | | M40x2 | | M42x2 |
| P | | | M30x2 | | |
| L | | | | | M45x2 |