

# MAHLE

*Driven by performance*

## Simplex filter

**ES46**

Simplex filter, welded design, rated pressure up to 40 bar (580 psi)  
Connection sizes: DN 15 to DN 300, steel structure

### 1. Features

#### High-performance filters for modern systems

- Entry-level model among MAHLE Industrial Filtration products
- Used as a protective or safety filter in shipping and industry
- Simple, robust design
- Compact design
- Minimal pressure drop through optimal flow design
- Elements with high differential pressure stability and dirt holding capacity
- Filter ratings from 25 to 5000  $\mu\text{m}$  absolute, other ratings on request
- Suitable for use with fluids of all types
- Easy to service
- Worldwide distribution



## 2. Operating principle

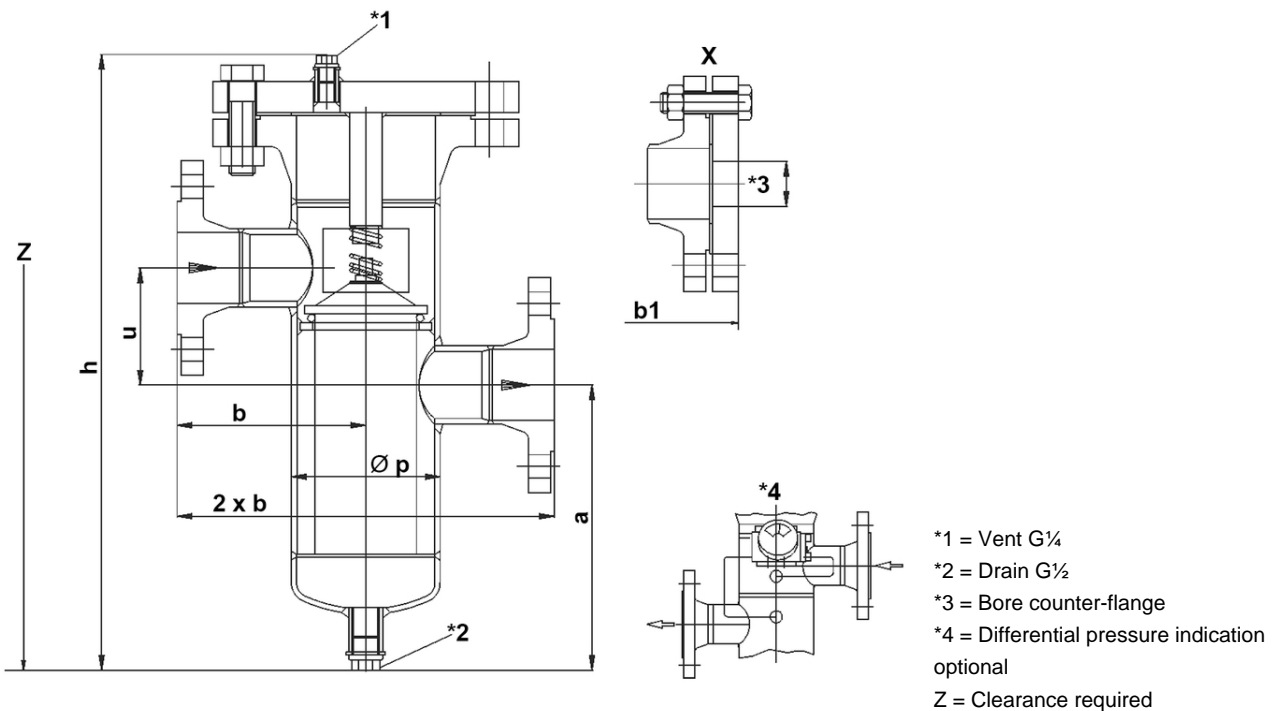
- The medium flows through the filter element (perforated, smooth or pleated) from the inside to the outside.
- Contaminants are trapped on the inside of the element.
- The filtration process is interrupted when a settable fouling threshold is reached.
- The filter is opened and the element removed for cleaning.
- Simplex filters require no maintenance apart from cleaning the filter elements and inspecting the seals.

## 3. Technical Data

Connection:	DN 15 to DN 300
Flange up to DN 50:	DIN 2635
Flange from DN 65:	DIN 2633 PN 33 (x = 3) DIN 2635 PN 40 (x = 5)
Flange DN 65 to DN 150:	DIN 2632 PN 10 (x = 3) DIN 2634 PN 25 (x = 5)
Flange DN 200 to DN 300:	DIN 2632 PN 10 (x = 2) DIN 2634 PN 25 (x = 4)
Material:	C-Steel/Stainless steel
Max. operating pressure:	10-40 bar
Test overpressure up to DN 50:	57.5 bar
Test overpressure from DN 65:	14.5 - 57.5 bar
Max. operating temperature:	120 °C
Filter element:	Screen basket, cartridge
Filter rating:	25 to 5000 µm absolute, other ratings on request

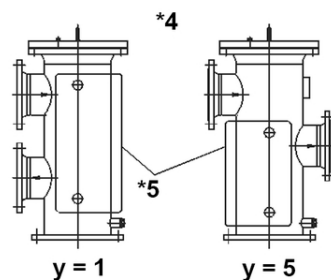
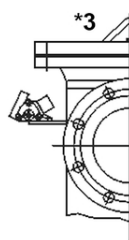
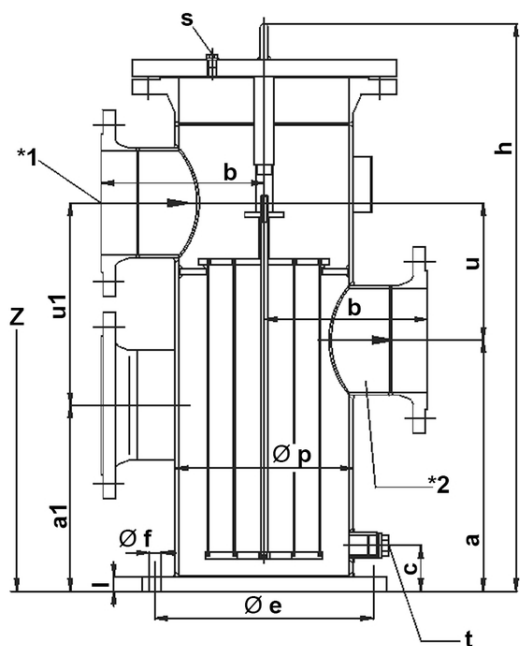
x = pressure stage of flange connection

## 4. Dimensions



Type	DN	a	b	b1	h	Ø p	u	Z	Capacity [l]	Weight [kg]
BG025510A040000 *	15	187	120	140	388	88,9	70	540	1.6	28.0
BG035510A040000 *	20	187	120	140	388	88,9	70	540	1.6	28.0
BG045510A040000 *	25	187	120	140	388	88,9	70	540	1.6	28.0
BG055510A040000	32	187	120	140	388	88,9	70	540	1.6	18.3
BG045510A050000 *	25	219	145	167	473	114,3	90	640	3.2	39.0
BG055510A050000 *	32	219	145	167	473	114,3	90	640	3.2	39.0
BG065510A050000 *	40	219	145	167	473	114,3	90	640	3.2	39.0
BG075510A050000	50	219	145	167	473	114,3	90	640	3.2	26.5

\* Type with counter-flange see Detail "X", blind-flange DIN 2527 PN 40 with bore according to DIN 2576.



- s = Vent
- t = Drain
- Z = Clearance required
- \*1 = Inlet
- \*2 = Outlet
- \*3 = Differential pressure indication optional
- \*4 = Flange position
- \*5 = Type with heating jacket

All dimensions except "s" and "t" in mm.

Type	DN	a (a1)	b	c	Ø e	Ø f	h	l	Ø p	s	t	u (u1)	Z	Capacity [l]	Weight [kg]
BG08xy10A07	65	255 (150)	210	55	225	8x18	640	18	168	G1/4	G3/4	145 (250)	900	10	47
BG09xy10A07	80														50
BG10xy10A07	100														52
BG08xy10A08	65														47
BG09xy10A08	80														50
BG10xy10A08	100														52
BG10xy10A09	100	405 (305)	280	80	350	12x22	950	26	273	G1/4	G1	210 (310)	1360	44	150
BG11xy10A09	125														154
BG12xy10A09	150														158
BG10xy10A10	100	405 (305)	280	80	350	12x22	950	26	273	G1/4	G1	210 (310)	1450	44	150
BG11xy10A10	125														154
BG12xy10A10	150														158
BG12xy10A11*	150	460 (370)	300	70	395	12x22	960	22	324	G3/8	G1	220 (310)	1520	66	170
BG14xy10A13*	200	450 (350)	350	95	470	16x26	1113	30	406	G3/8	G1	300 (400)	1800	120	255
BG15xy10A14*	250	630 (520)	400	80	620	20x26	1360	28	508	G3/8	G1	350 (460)	2250	235	400
BG16xy10A15*	300	750 (640)	500	125	720	3x23	1600	25	610	G1/2	G1	400 (510)	2650	410	550

x = Index for pressure stage

y = Index for flange position

\* Type with counter-flange see Detail "X" (page 2), blind-flange DIN 2527 PN 40 with bore according to DIN 2576.

## 5. Design and application

A wide range of filter elements are available for every filter. The material, type of construction and filter surface and rating are expertly adapted to the specific filtration task based on the medium and capacity.

Each filter can be supplied with various options to ensure the optimum performance for each particular application.

Options:

- Heating cartridge steam/thermal oil or electric
- Heating jacket steam/thermal oil
- Magnetic elements
- Differential pressure indicator/switch as a assembled part
- Internal coating or rubber coating

Simplex filters are not at all complicated to use. The necessary steps are described in the following:

- The filter comprises a cylindrical housing, a cover and a filter element. It is fitted with a vent screw and a drain plug.
- Stress relief must be provided for all pipe connections. The filter must be filled and vented before it is put into service. Install the filter piping so that the medium flows through the filter in the direction indicated by the arrow.
- During the filtration process, the medium flows through the filter element from the inside to the outside. Contaminants are trapped on the inside of the element. As the filter element becomes increasingly dirty, the flow resistance rises accordingly. The degree of fouling is indicated on the differential pressure gauge (optional). The filter element must be cleaned when the pressure difference reaches 0.7 bar.
- In order to remove the filter element, loosen the cover fastening nuts on the depressurised filter and lift off the cover. The dirty element can then be withdrawn without any problems.
- To clean the filter element, either blow it out with compressed air, steam or water or brush it with a soft brush. Be careful not to damage the filter fabric or the perforated sheet and avoid pushing the element inwards as it is blown out. Pre-treat the element with a suitable solvent if the dirt deposits cannot be removed easily.

## 6. Type number key

### Type number key with selection example for ES46 simplex filter with DN 15 to DN 300

#### Main product group

**B** Simplex filter, welded design

#### Series

**G** Simplex filter with filter element or cartridge

#### Inlet and outlet connections

- 02** Flange DN 15
- 03** Flange DN 20
- 04** Flange DN 25
- 05** Flange DN 32
- 06** Flange DN 40
- 07** Flange DN 50
- 08** Flange DN 65
- 09** Flange DN 80
- 10** Flange DN 100
- 11** Flange DN 125
- 12** Flange DN 150
- 14** Flange DN 200
- 15** Flange DN 250
- 16** Flange DN 300

#### Filter connection standard + rated pressure

**5** EN 1092 PN 40 bar

#### Position of main connections

- 1** Stacked on the same side
- 5** Opposite each other, offset pattern

#### Cover fastening

**1** Stud bolts or hexagon screws

#### Options

- 0** Standard version
- 2** Electric cartridge heater
- 3** Steam/thermal cartridge heater
- 7** Version without non-ferrous metals
- G** Rubber coating

#### Type of inner assembly

**A** Filter elements for simplex filter

#### Inner assembly size

**XX**

#### Housing version

- A** C-Steel/Stainless steel
- H** Boiler plate H11 and ST35.8

#### Nozzle material

**0** No material specified (not assigned)

#### Number for special types or design features

**XX**

**00**

**B G 12 5 1 1 0 A 11 H 0 00**

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