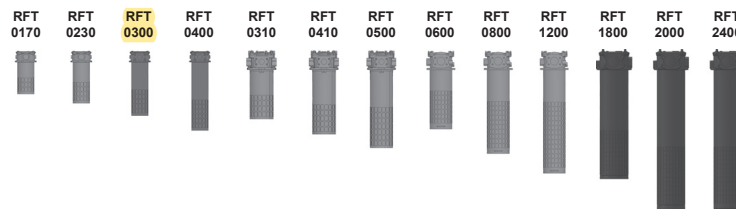




Return Line Filter RFT

Flow direction from in to out
up to 2,400 l/min, up to 10 bar



1. TECHNICAL SPECIFICATIONS

1.1 FILTER HOUSING

Design

This filter system provides an economic solution for full-flow return line filtration. The filter head is mounted on the tank. The housing tube can be supplied in various optional versions. Firstly as a closed tube with the outlet opening facing downwards or with a closed base and rows of opening holes at the height of the tank's oil level. In the second version, separating air from the oil is made easier. The magnetic core is connected to the filter element via a bayonet fitting, guaranteeing effective magnetic pre-filtration.

The filter housings are designed in accordance with international regulations. They consist of a filter cover, filter head, housing tube and element location spigot.

The element is top-removable!

Standard equipment

- Magnetic core integrated into clamp (only for RFT 0170 – 0500)
- Magnetic core integrated into cover (only for RFT 0600 – 2400)
- with housing tube with diffuser
- with bypass valve

1.2 FILTER ELEMENTS

HYDAC filter elements are validated and their quality is constantly monitored according to the following standards:

ISO 2941, ISO 2942, ISO 2943,
ISO 3724, ISO 3968, ISO 11170,
ISO 16889

Filter elements are available with the following pressure stability values:

Plastic fibre (ULP): 6 bar
Glass fibre with pre-filter (UMC): 6 bar
Wire mesh (WPI): 6 bar

Other filtration ratings on request.

1.3 FILTER SPECIFICATIONS

| | |
|--------------------------|--|
| Nominal pressure | 10 bar |
| Temperature range | -30 °C to +120 °C |
| Material of filter cover | RFT 0170 – 0400: EN-AC-43300 RFT 0310 – 1200: EN-AC-47100 RFT 1800 – 2400: EN-AC-43000 |
| Material of filter head | RFT 0170 – 1200: EN-AC-43300 RFT 1800 – 2400: EN-AC-43400 |
| Material of housing tube | Steel |
| Bypass cracking pressure | 2.5 bar (others on request) |

1.4 SEALS

NBR (= Perbunan)

1.5 INSTALLATION

As in-tank filter

1.6 SPECIAL MODELS AND ACCESSORIES

- without magnetic core
- without housing tube (only RFT 0170 – 500)
- with protective tube, base open
- Outlet grille in openings in housing tube
- Seals made of FKM

1.7 SPARE PARTS

See original spare parts list

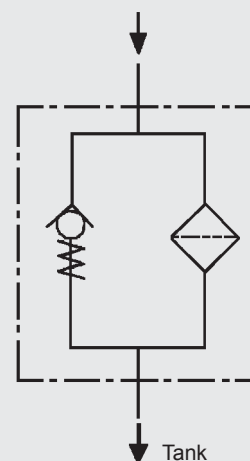
1.8 COMPATIBILITY WITH HYDRAULIC FLUIDS ISO 2943

- Hydraulic oils H to HLPD DIN 51524
- Lubrication oils DIN 51517, API, ACEA, DIN 51515, ISO 6743
- Compressor oils DIN 51506
- Biodegradable operating fluids VDMA 24568 HETG, HEES, HEPG

1.9 IMPORTANT INFORMATION

- Filter housings must be earthed
- When using electrical clogging indicators, the electrical power supply to the system must be switched off before removing the clogging indicator connector

Symbol



2. MODEL CODE (also order example)

RFT 0600 UMC 010 V M B H L N J0 VX X 1 /-XXX

2.1 FILTER ASSEMBLY

Filter type

RFT

Size

0170, 0230, 0300, 0400, 0310, 0410, 0500, 0600, 0800, 1200, 1800, 2000, 2400

Filter material

ULP plastic fibre
 UMC glass fibre with pre-filter
 WPI wire mesh

Filtration rating in µm

ULP 010, 025
 UMC 010, 020
 WPI 100

Bypass valve

C with bypass valve 0.8 bar
 V standard: with bypass valve 2.5 bar
 X without bypass valve

Magnetic core

M with magnetic core
 X without magnetic core

Setting range

B 10 bar

Type and size of port

| Type | Port | Size of filter | | | | | | | | | | | | | |
|------|--|----------------|------|------|------|------|------|------|------|------|------|------|------|------|--|
| | | 0170 | 0230 | 0300 | 0400 | 0310 | 0410 | 0500 | 0600 | 0800 | 1200 | 1800 | 2000 | 2400 | |
| F | E1: G1½ | • | • | • | • | | | | | | | | | | |
| G | E1: SAE DN 50 (2") E2: G1¼ | | | | | • | • | • | | | | | | | |
| H | E1: SAE DN 80 (3") E4: SAE DN 50 (2") E5: G1¼ | | | | | | | | • | • | • | | | | |
| I | E1: SAE DN 65 (2½") E4: SAE DN 40 (1½") E5: G1 | | | | | | | | • | • | • | | | | |
| J | E2: SAE DN 40 (1½") | | | | | • | • | • | | | | | | | |
| K | E1: SAE DN 40 (1½") E2: G1 | • | • | • | • | | | | | | | | | | |
| N | E1: SAE DN 80 (3") | | | | | | | | | | • | • | • | | |
| P | E1: SAE DN 100 (4") | | | | | | | | | | • | • | • | | |

others on request

Tube version

X without housing tube (only RFT 0170, 0230, 0300, 0400, 0310, 0410, 0500)
 B with housing tube, base open
 L standard: with diffuser (perforated)
 R with diffuser (openings with outlet grille)

Seals

N NBR (Perbunan)
 V FKM

Position of clogging indicator

JA both holes bored G½; both closed up with plugs
 J1 as per specifications in 4. of this data sheet
 J2 as per specifications in 4. of this data sheet
 J0 without clogging indicator

Clogging indicator

VA visual / electrical
 VE electrical
 VO visual
 VX no clogging indicator, sealed up with plugs

Response pressure of clogging indicator

C 0.8 bar
 D 2.0 bar
 X none (if no clogging indicator is installed)

Modification number

X the latest version is always supplied

Supplementary details

2.2 REPLACEMENT ELEMENT

UMC-0010-xxx-xxxx-x-N-RT /-XXX

Filter material

ULP, UMC, WPI

Filtration rating in μm

ULP 0010, 0025
 UMC 0010, 0020
 WPI 0100

RT code

Seals

N NBR (Perbunan)
 V FKM

Packaging

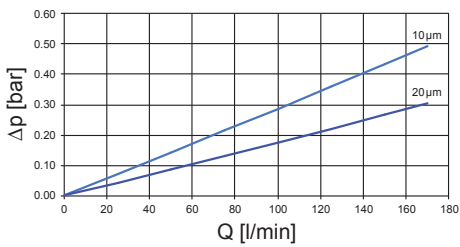
Supplementary details

3. FILTER CALCULATION / DIMENSIONING

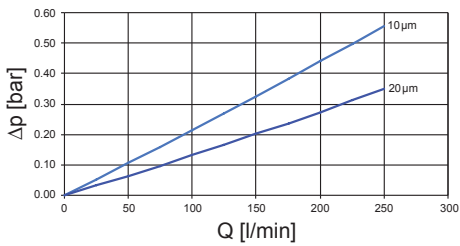
3.1 PERFORMANCE CURVES FOR FILTER ASSEMBLY

The total performance curves with element UMC ... apply to mineral oil with a density of 0.86 kg/dm^3 and a kinematic viscosity of $30 \text{ mm}^2/\text{s}$.

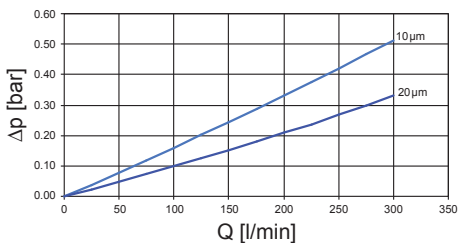
RFT 0170



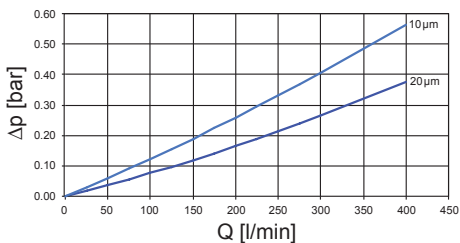
RFT 0230



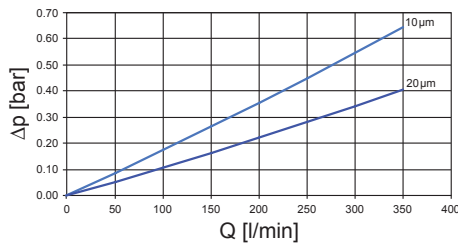
RFT 0300



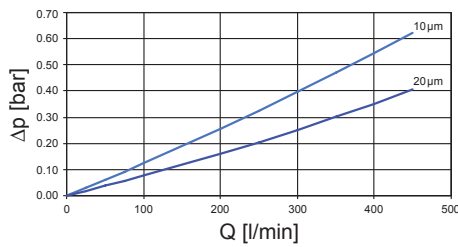
RFT 0400



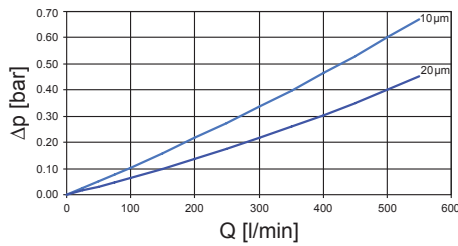
RFT 0310



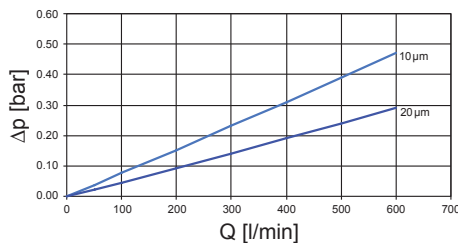
RFT 0410



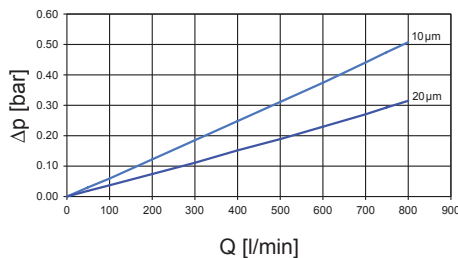
RFT 0500



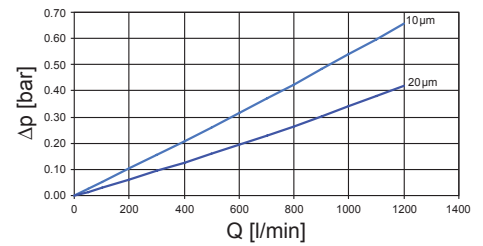
RFT 0600



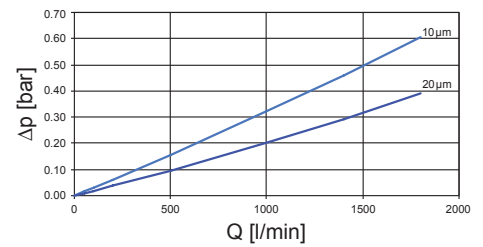
RFT 0800



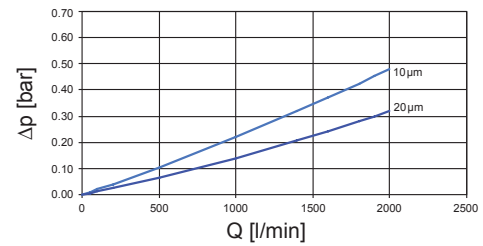
RFT 1200



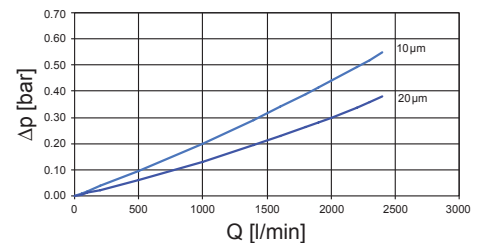
RFT 1800



RFT 2000



RFT 2400

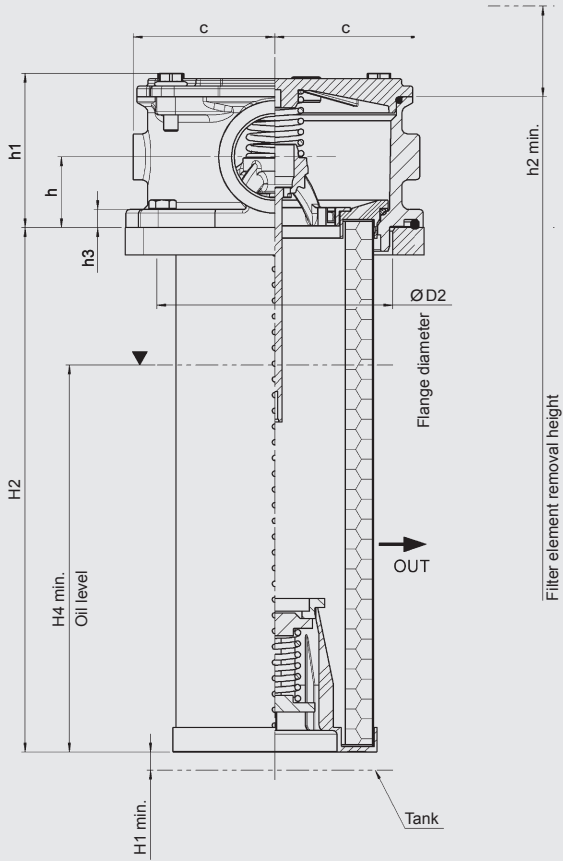


Other curves on request

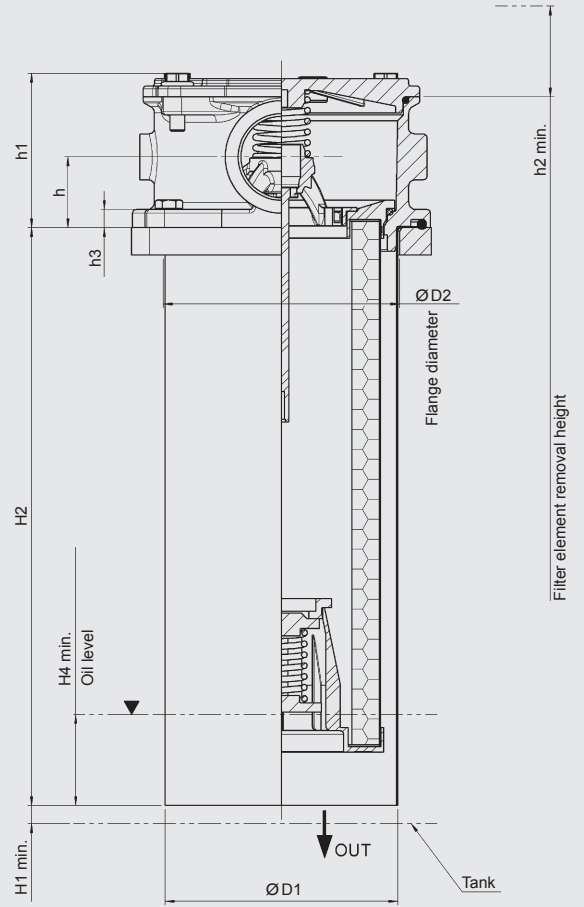
4. DIMENSIONS

RFT 0170, 0230, 0300, 0400

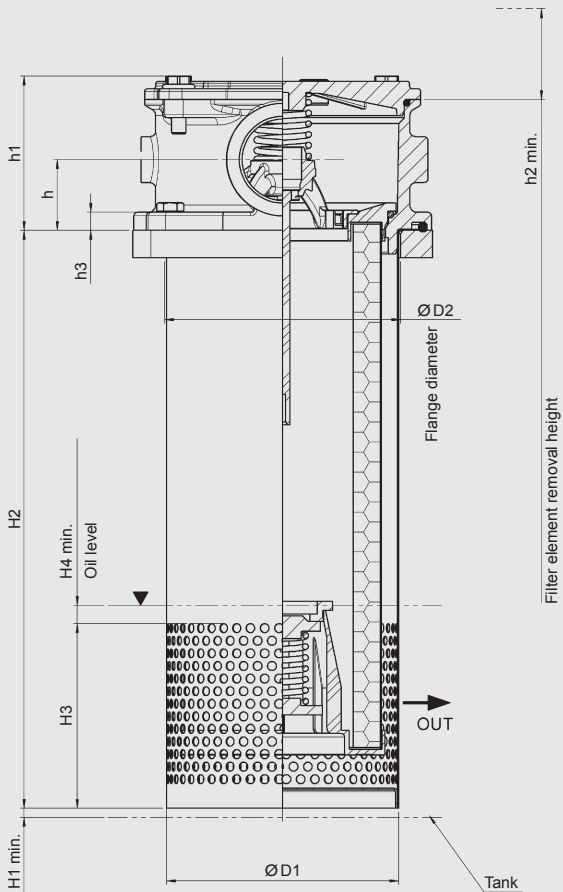
Filter without tube



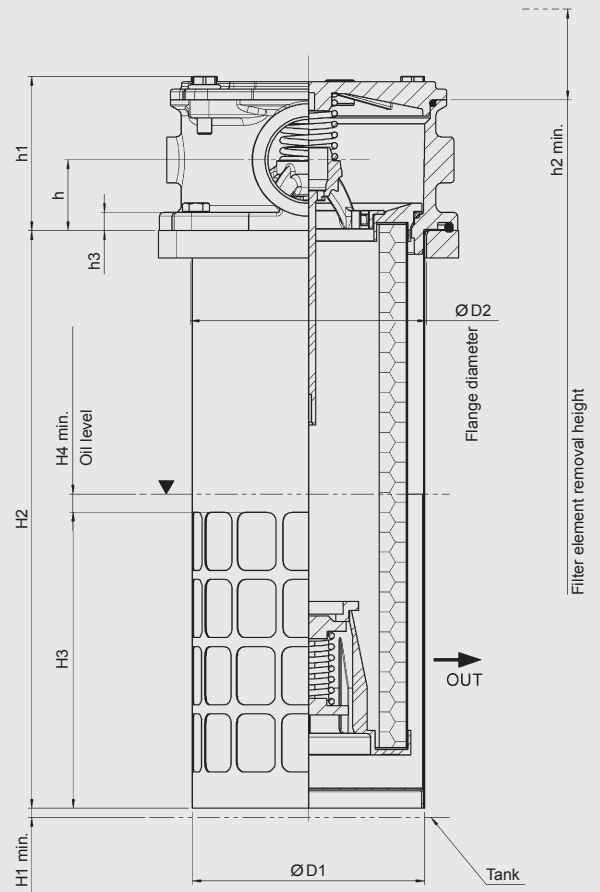
Filter with tube

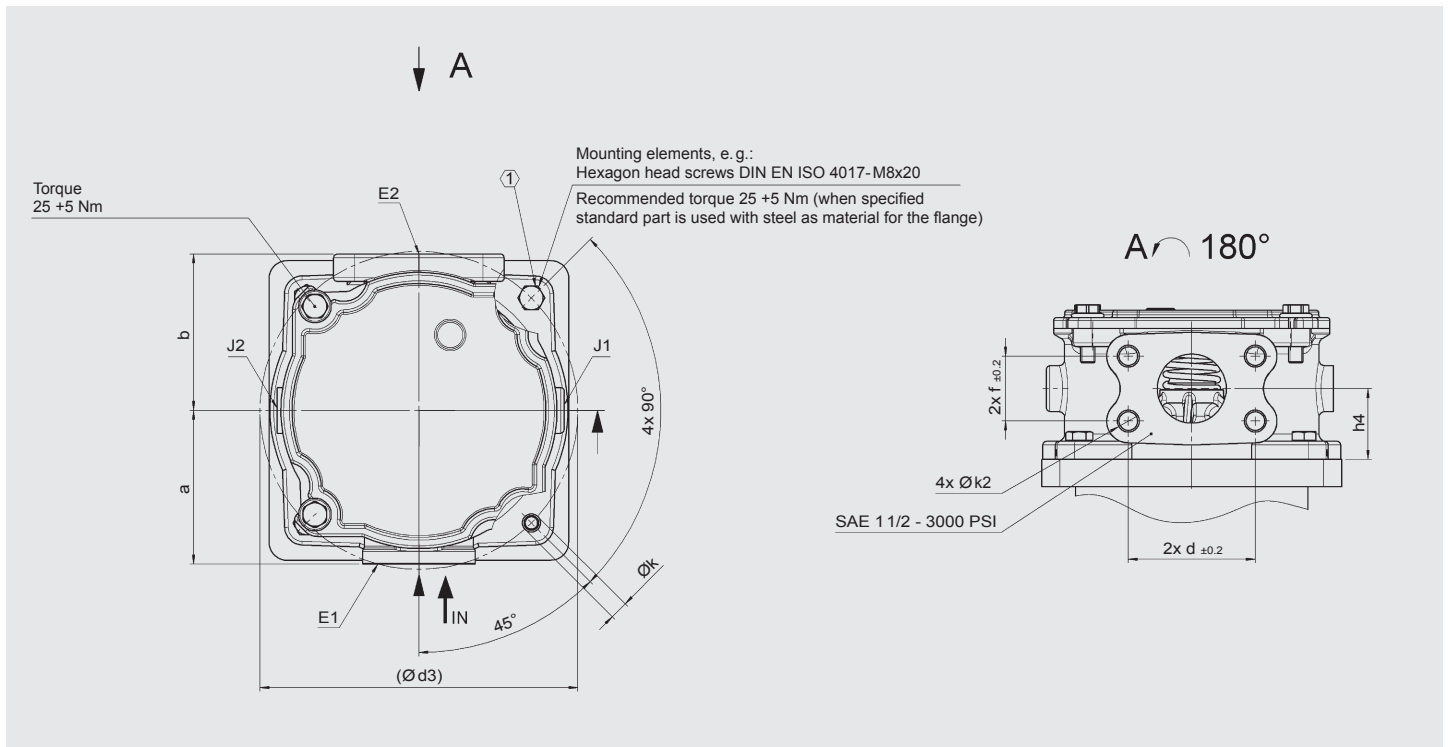


Filter with diffuser



Filter with diffuser (opening with grille)



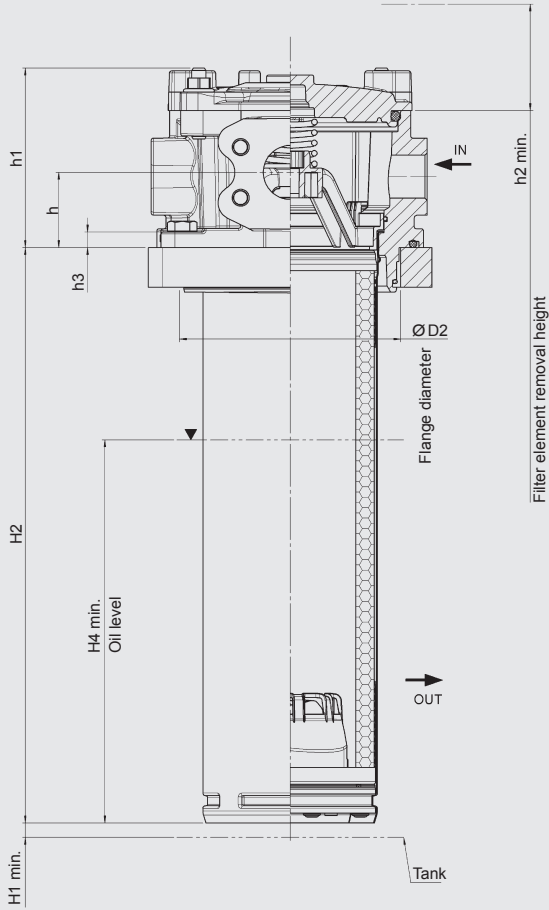


| Type | Design | H1 | H2 | H3 | H4 | h | h1 | h2 | h3 | h4 | ØD1 | ØD2 | Ød3 | a | b | c | d | f | Øk | Øk2 | Weight incl. element [kg] | | |
|----------|-----------------------|----|-----|-----|-----|----|----|-----|----|----|-----|-----|-----|---|---|---|---|---|----|-----|---------------------------|-----|-----|
| RFT 0170 | without tube | 10 | 218 | - | 155 | 39 | 85 | 260 | - | - | - | - | - | - | - | - | - | - | - | - | - | 2.6 | |
| | with tube | | - | 50 | 3.2 | | | | | | | | | | | | | | | | | | |
| | with diffuser | 5 | 247 | 102 | 10 | | | | | | | | | | | | | | | | | 128 | 3.4 |
| | Diffuser with opening | | 126 | 10 | 3.5 | | | | | | | | | | | | | | | | | | |
| RFT 0230 | without tube | 10 | 289 | - | 203 | 39 | 85 | 330 | 10 | - | - | - | - | - | - | - | - | - | - | - | - | 2.9 | |
| | with tube | | - | 50 | 3.5 | | | | | | | | | | | | | | | | | | |
| | with diffuser | 5 | 318 | 102 | 10 | | | | | | | | | | | | | | | | | 128 | 3.7 |
| | Diffuser with opening | | 163 | 10 | 3.8 | | | | | | | | | | | | | | | | | | |
| RFT 0300 | without tube | 10 | 385 | - | 267 | 39 | 85 | 430 | 10 | - | - | - | - | - | - | - | - | - | - | - | - | 3.1 | |
| | with tube | | - | 50 | 3.7 | | | | | | | | | | | | | | | | | | |
| | with diffuser | 5 | 414 | 102 | 10 | | | | | | | | | | | | | | | | | 128 | 3.9 |
| | Diffuser with opening | | 200 | 10 | 4.0 | | | | | | | | | | | | | | | | | | |
| RFT 0400 | without tube | 10 | 499 | - | 336 | 39 | 85 | 540 | 10 | - | - | - | - | - | - | - | - | - | - | - | - | 3.4 | |
| | with tube | | - | 50 | 4.1 | | | | | | | | | | | | | | | | | | |
| | with diffuser | 5 | 528 | 102 | 10 | | | | | | | | | | | | | | | | | 128 | 4.3 |
| | Diffuser with opening | | 237 | 10 | 4.4 | | | | | | | | | | | | | | | | | | |

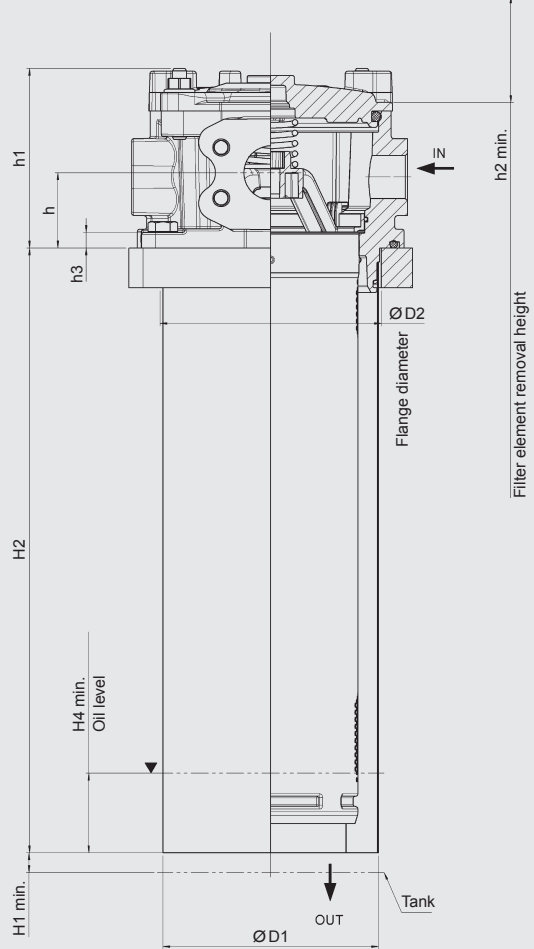
* unworked port

** worked port

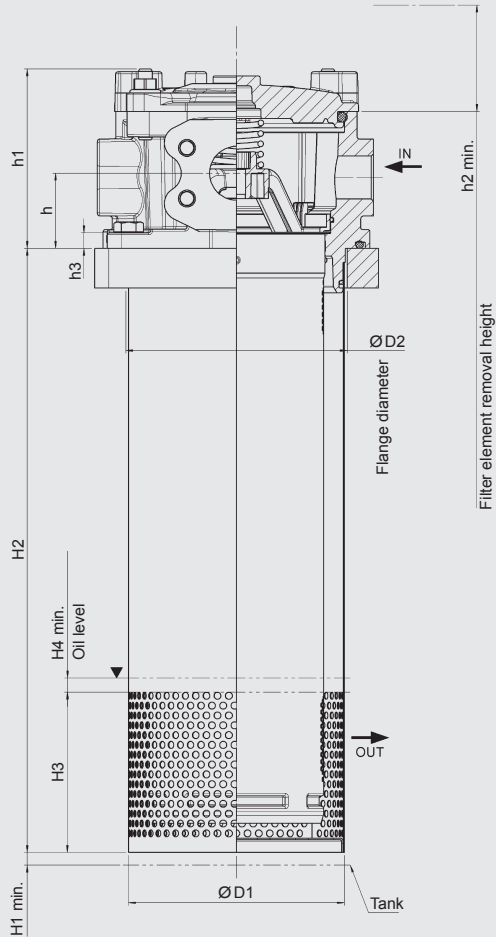
Filter without tube



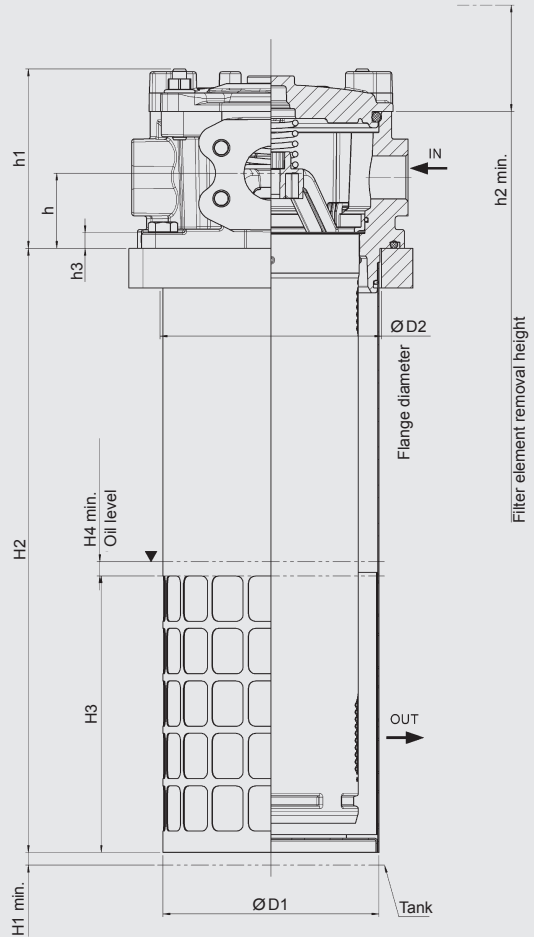
Filter with tube



Filter with diffuser

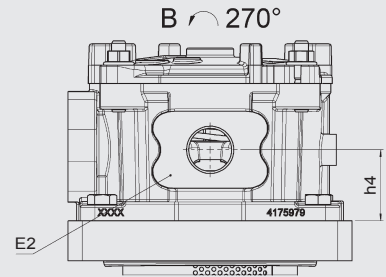
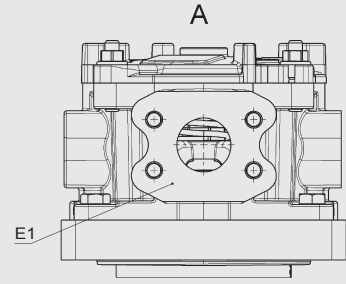
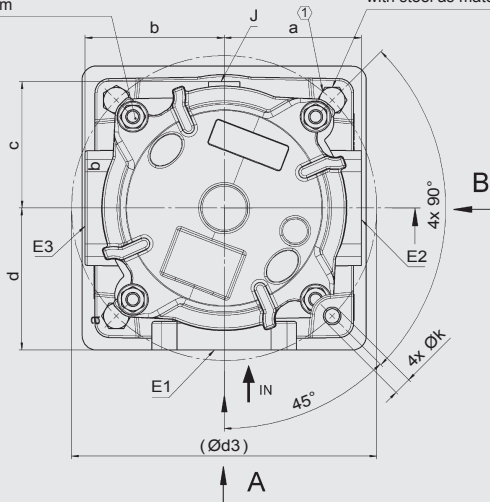


Filter with diffuser (opening with grille)



Mounting elements, e. g.:
 Hexagon nut with collar DIN EN ISO 1661 - M12
 Stud DIN 938 - M12x30 - 8.8
 Recommended torque 30 +5 Nm
 (when specified standard part is used
 with steel as material for the flange)

Torque
 25 +5 Nm

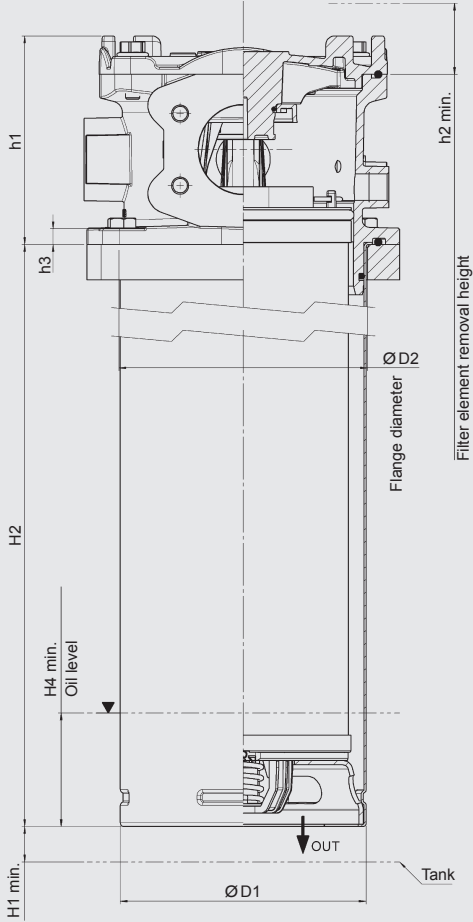


| Type | Design | H1 | H2 | H3 | H4 | h | h1 | h2 | h3 | h4 | ØD1 | ØD2 | Ød3 | a | b | c | d | Øk | Weight incl. element [kg] |
|----------|-----------------------|-----|-------|----|-----|----|-------|-----|----|----|-----|-----|-----|-------|-------|-----|-----|------|---------------------------|
| RFT 0310 | without tube | 10 | 305.5 | - | 200 | 53 | 126.5 | 420 | 11 | 50 | 152 | 156 | 215 | 98.0* | 98.0* | 91* | 100 | 12.5 | 4.2 |
| | with tube | | - | 60 | 4.9 | | | | | | | | | | | | | | |
| | with diffuser | 326 | 115 | 10 | 5.0 | | | | | | | | | | | | | | |
| | Diffuser with opening | | 5 | | 158 | | | | | | | | | | | | | | 5.1 |
| RFT 0410 | without tube | 10 | 405.5 | - | 270 | 53 | 126.5 | 520 | 11 | 50 | 152 | 156 | 215 | 98.0* | 98.0* | 91* | 100 | 12.5 | 4.5 |
| | with tube | | - | 60 | 5.4 | | | | | | | | | | | | | | |
| | with diffuser | 426 | 115 | 10 | 5.5 | | | | | | | | | | | | | | |
| | Diffuser with opening | | 5 | | 195 | | | | | | | | | | | | | | 5.6 |
| RFT 0500 | without tube | 10 | 495.5 | - | 330 | 53 | 126.5 | 610 | 11 | 50 | 152 | 156 | 215 | 98.0* | 98.0* | 91* | 100 | 12.5 | 5.0 |
| | with tube | | - | 60 | 6.0 | | | | | | | | | | | | | | |
| | with diffuser | 516 | 115 | 10 | 6.1 | | | | | | | | | | | | | | |
| | Diffuser with opening | | 5 | | 270 | | | | | | | | | | | | | | 6.2 |

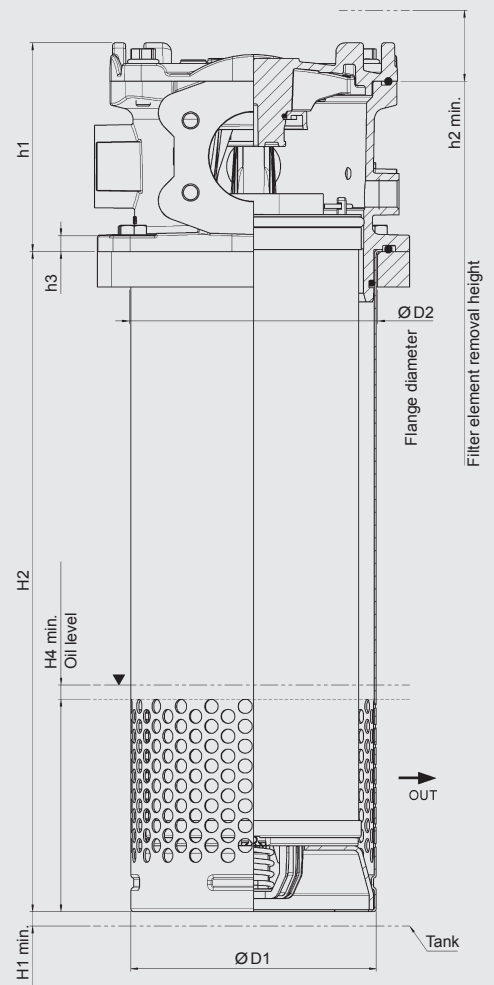
* unworked port

** worked port

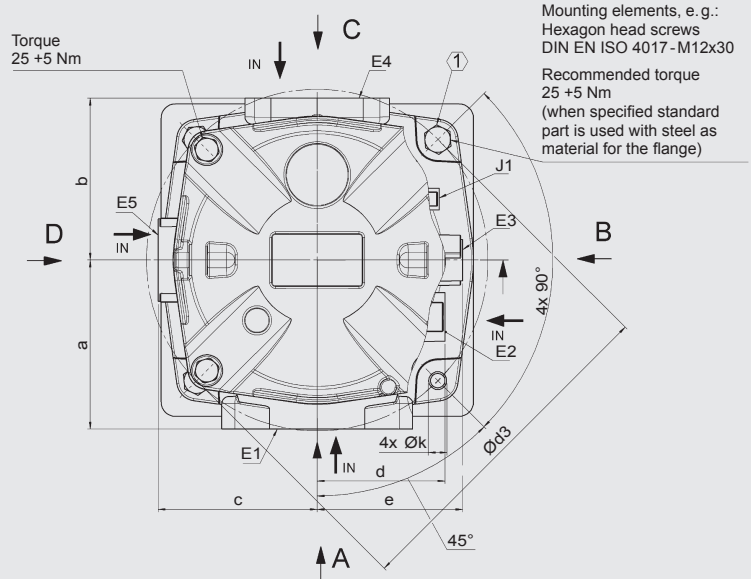
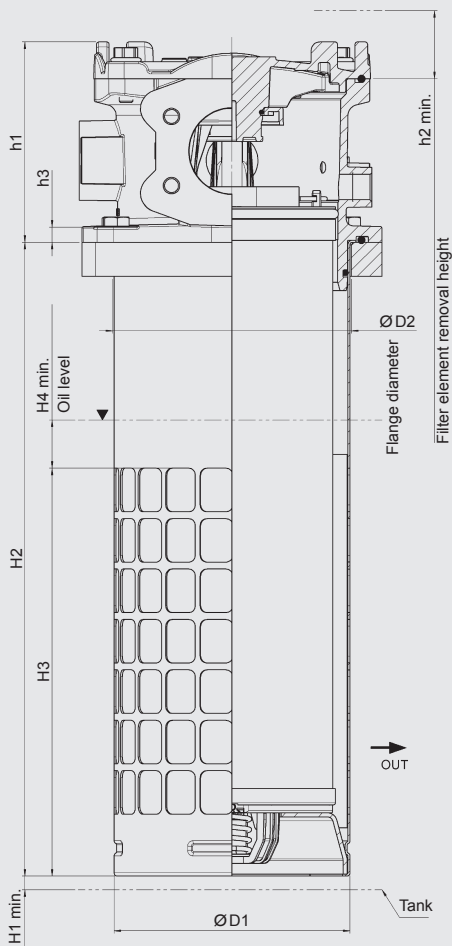
Filter with tube

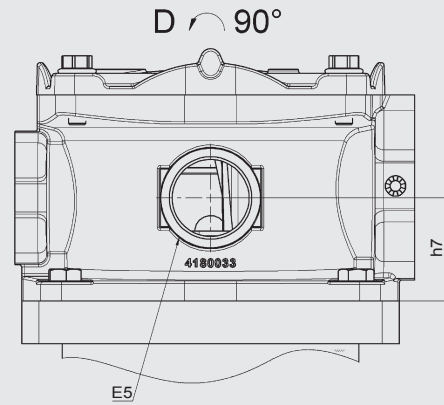
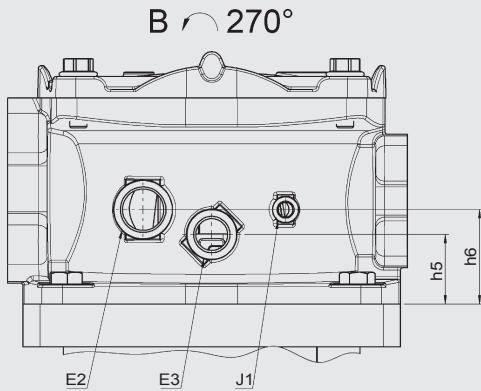
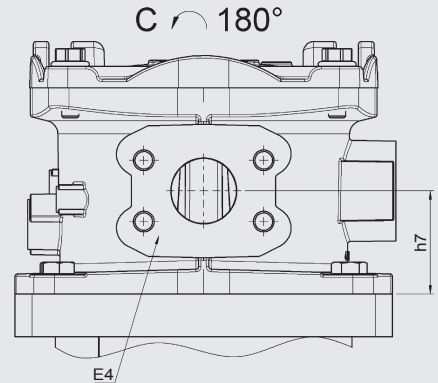
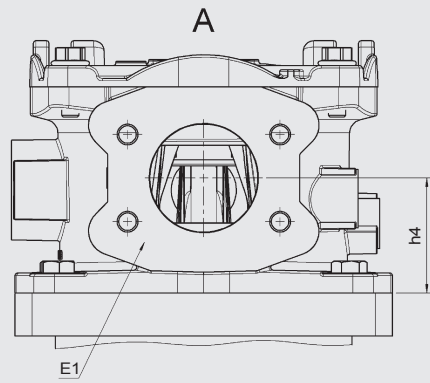


Filter with diffuser



Filter with diffuser (opening with grille)





| Type | Design | H1 | H2 | H3 | H4 | h | h1 | h2 | h3 | h4 | ØD1 | ØD2 | Ød3 | a | f | f2 | g | g2 | Øk | Øk2 | Weight incl. element [kg] |
|----------|-----------------------|----|-----|-----|----|------|-----|-----|----|----|-----|-----|-----|------|------|------|------|------|------|----------------|---------------------------|
| RFT 0600 | with tube | 10 | 481 | - | 80 | 41.5 | 112 | 500 | 13 | 51 | 173 | 175 | 220 | 107* | 69.9 | 77.8 | 35.7 | 42.9 | 12.5 | M12 18 deep | 12.0 |
| | with diffuser | 5 | | 140 | 10 | | | | | | | | | | | | | | | | 12.2 |
| | Diffuser with opening | 5 | | 290 | 10 | | | | | | | | | | | | | | | | 12.3 |
| RFT 0800 | with tube | 10 | 674 | - | 80 | 41.5 | 112 | 700 | 13 | 51 | 173 | 175 | 220 | 107* | 69.9 | 77.8 | 35.7 | 42.9 | 12.5 | M12 18 deep | 12.8 |
| | with diffuser | 5 | | 140 | 10 | | | | | | | | | | | | | | | | 13.0 |
| | Diffuser with opening | 5 | | 400 | 10 | | | | | | | | | | | | | | | | 13.1 |
| RFT 1200 | with tube | 10 | 828 | - | 80 | 41.5 | 112 | 900 | 13 | 51 | 173 | 175 | 220 | 107* | 69.9 | 77.8 | 35.7 | 42.9 | 12.5 | M12 18 deep | 15.7 |
| | with diffuser | 5 | | 140 | 10 | | | | | | | | | | | | | | | | 15.9 |
| | Diffuser with opening | 5 | | 550 | 10 | | | | | | | | | | | | | | | | 16.0 |

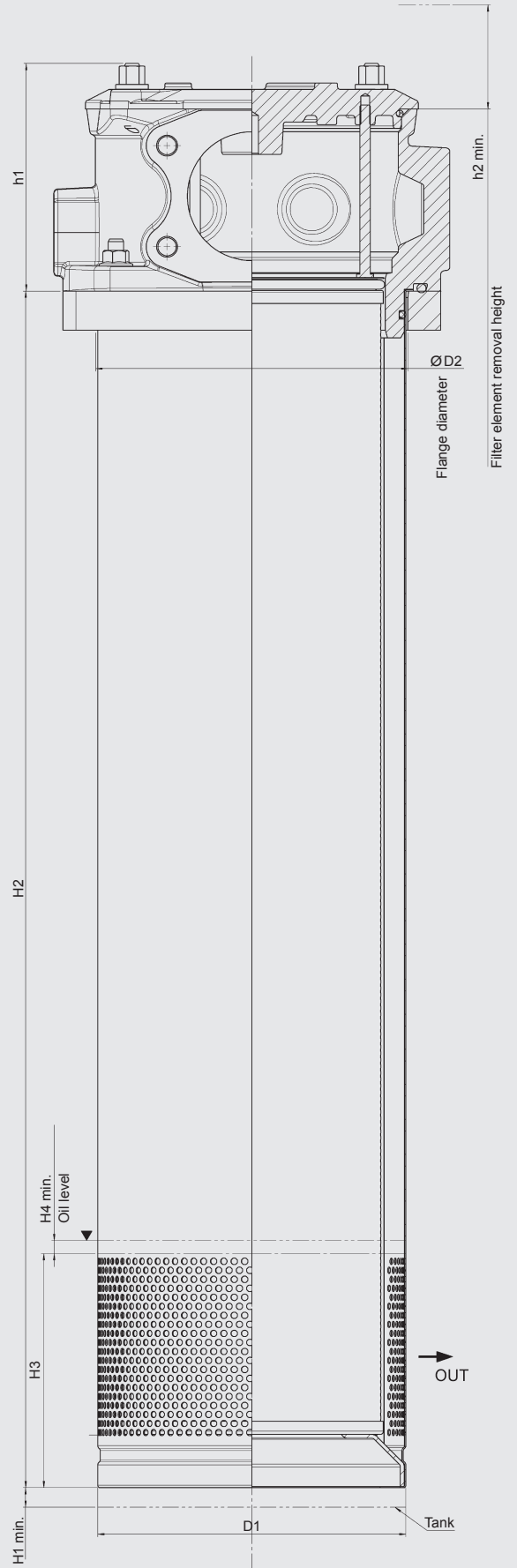
* unworked port

** worked port

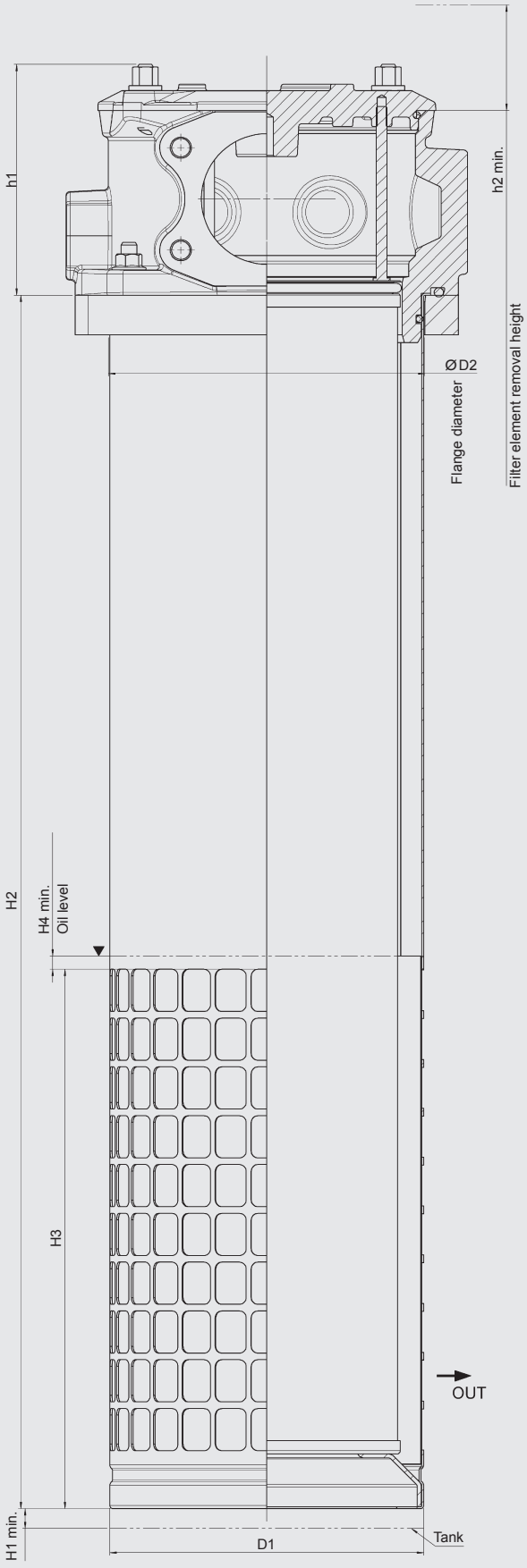
Filter with tube



Filter with diffuser

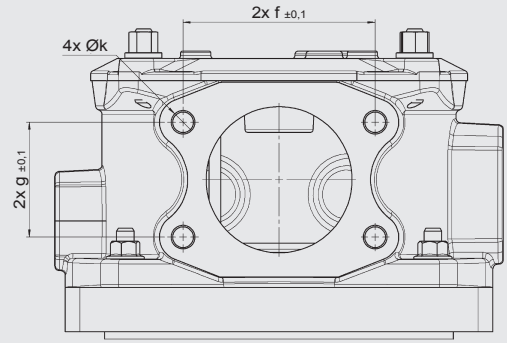
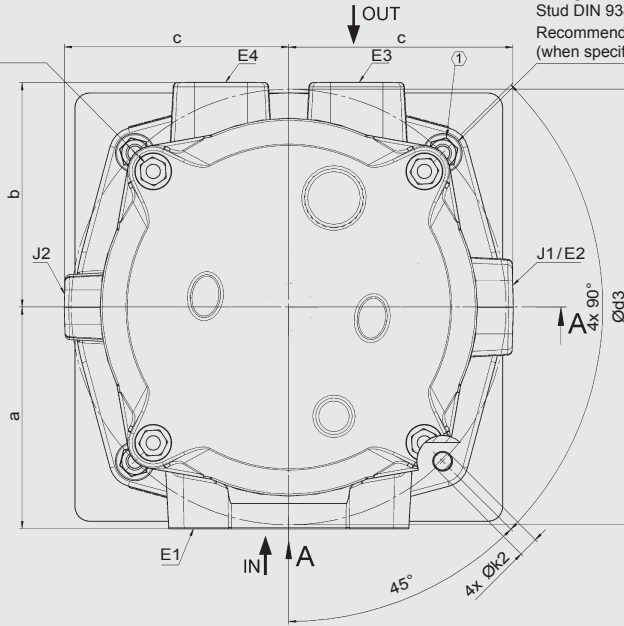


Filter with diffuser (opening with grille)



Mounting elements, e.g.:
 Hexagon nut with collar DIN EN ISO 1661-M12
 Stud DIN 938-M12x30-8.8
 Recommended torque 30 +5 Nm
 (when specified standard part is used with steel as material for the flange)

Torque
 30 +5 Nm



| Type | Design | H1 | H2 | H3 | H4 | h | h1 | h2 | h3 | ØD1 | ØD2 | ØD3 | a | b | c | f | g | Øk | Øk2 | Weight incl. element [kg] |
|----------|-----------------------|----|------|-----|------|----|-----|------|----|-------|-------|-----|------|------|------|-----------------|----------------|----------------|------|---------------------------|
| RFT 1800 | with tube | 35 | 920 | - | 130 | 73 | 175 | 900 | 19 | 237.5 | 239.5 | 295 | 152* | 152* | 152* | SAE 4" 130.2 | SAE 4" 77.8 | M16 32 deep | 13.5 | 29.3 |
| | with diffuser | 15 | | 180 | 10 | | | | | | | | | | | | | | | 30.3 |
| | Diffuser with opening | | | 410 | 30.5 | | | | | | | | | | | | | | | |
| RFT 2000 | with tube | 35 | 1200 | - | 130 | 73 | 175 | 1150 | 19 | 237.5 | 239.5 | 295 | 152* | 152* | 152* | SAE 4" 130.2 | SAE 4" 77.8 | M16 32 deep | 13.5 | 34.7 |
| | with diffuser | 15 | | 205 | 10 | | | | | | | | | | | | | | | 35.7 |
| | Diffuser with opening | | | 550 | 35.9 | | | | | | | | | | | | | | | |
| RFT 2400 | with tube | 35 | 1200 | - | 130 | 73 | 175 | 1180 | 19 | 237.5 | 239.5 | 295 | 152* | 152* | 152* | SAE 4" 130.2 | SAE 4" 77.8 | M16 32 deep | 13.5 | 35.8 |
| | with diffuser | 15 | | 205 | 10 | | | | | | | | | | | | | | | 36.8 |
| | Diffuser with opening | | | 550 | 37.0 | | | | | | | | | | | | | | | |

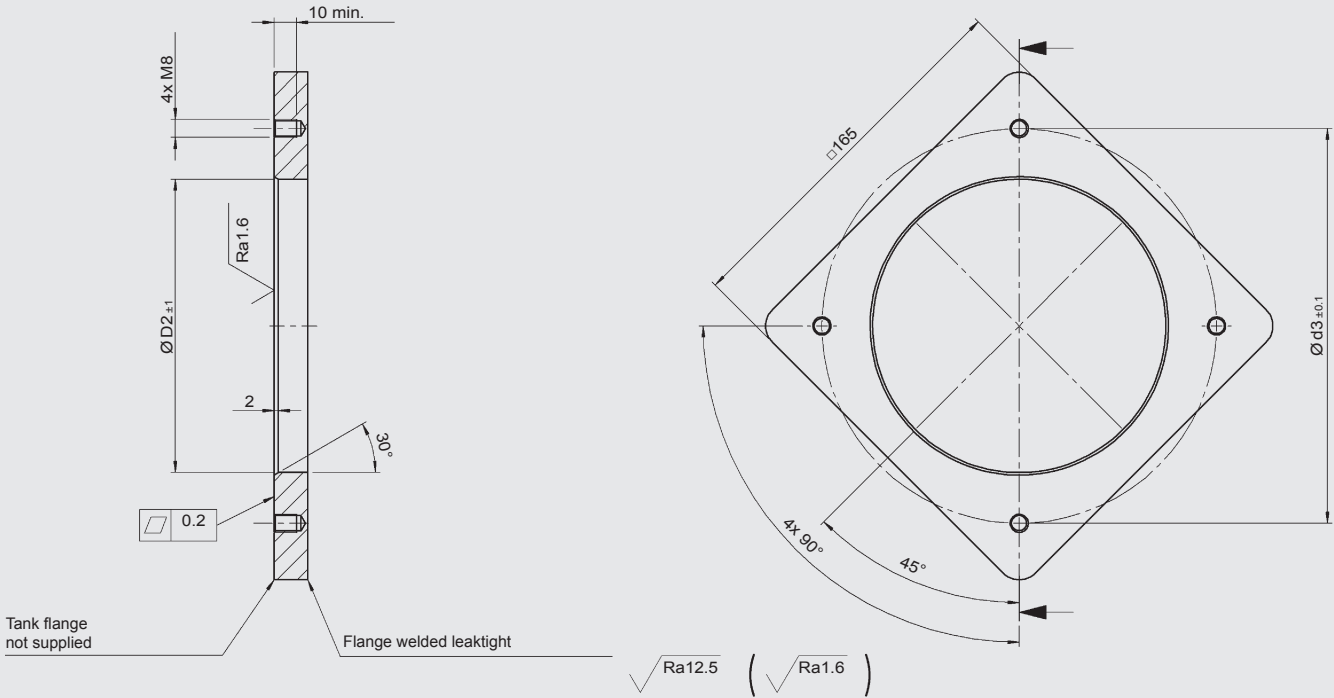
* unworked port

** worked port

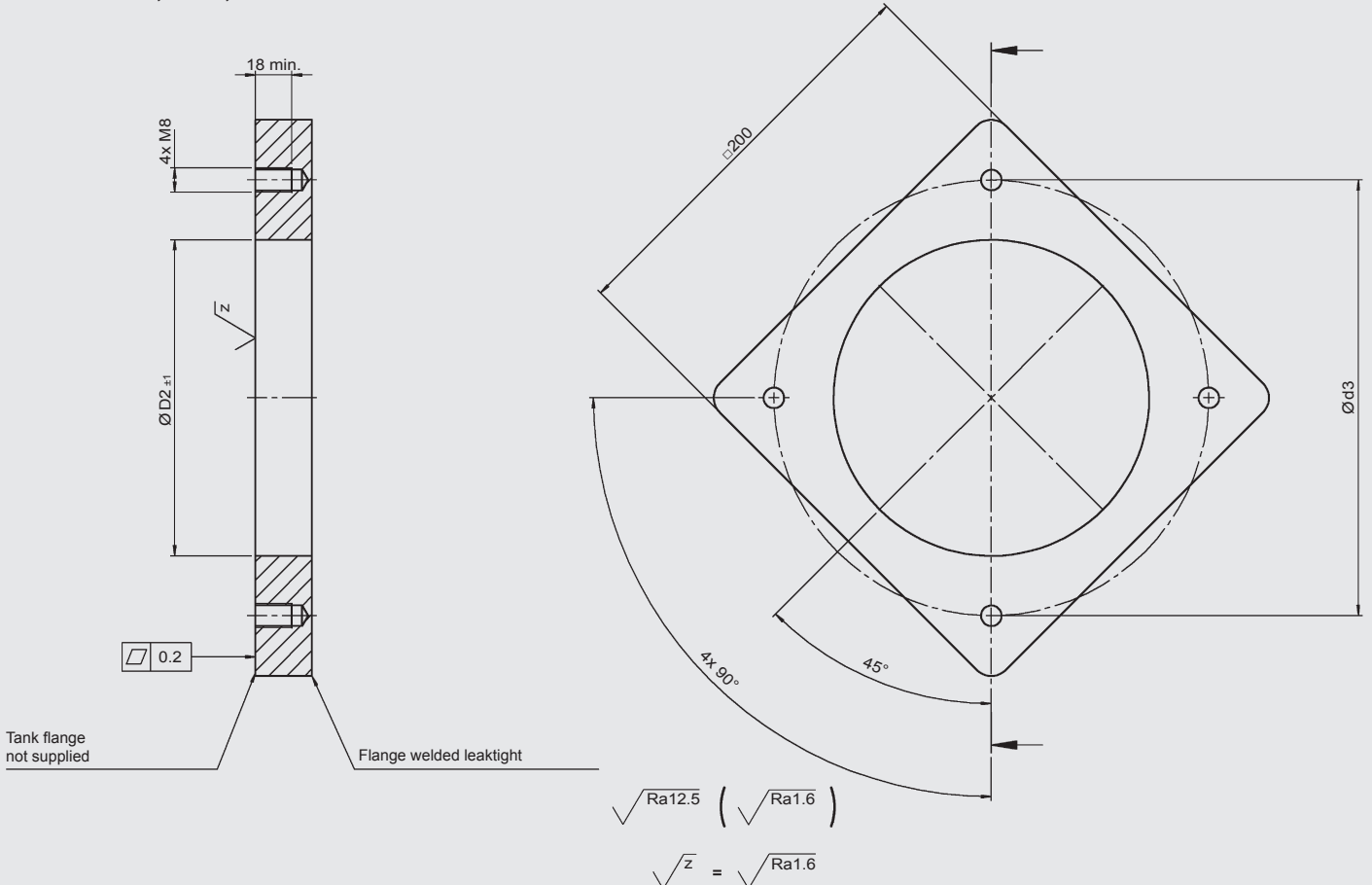
5. SPECIFICATIONS FOR THE TANK FLANGE

1. In the filter mounting interface, the tank flange should have a maximum flatness of 0.3 mm and maximum roughness of Ra 3.2 μm .
2. In addition, the mounting interface should be free from damage and scratches.
3. The fixing holes of the flange must be blind, or stud bolts with threadlocker must be used to fix the filter. As an alternative, the tank flange can be continuously welded from the inside.
4. Both the tank sheet metal and the filter mounting flange must be sufficiently robust so that neither deform when the seal is compressed during tightening.

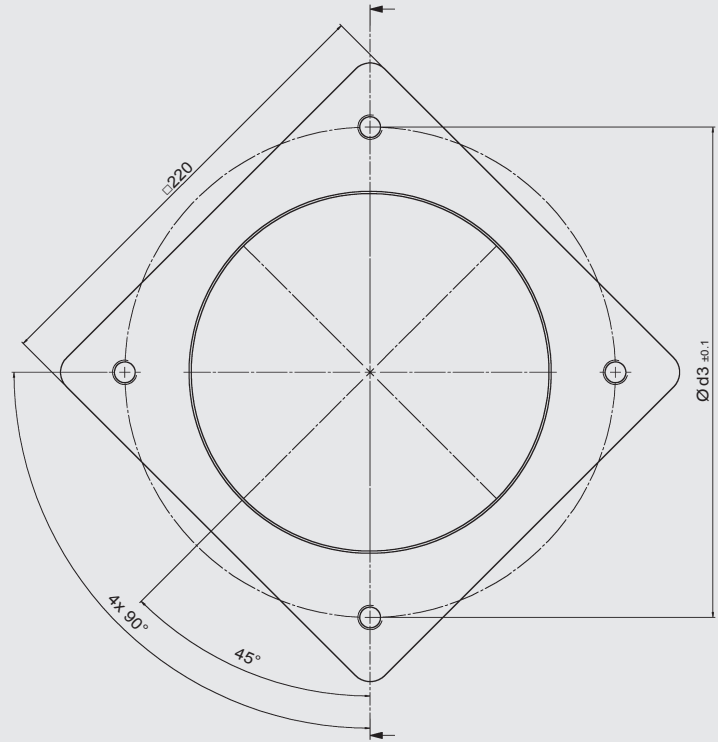
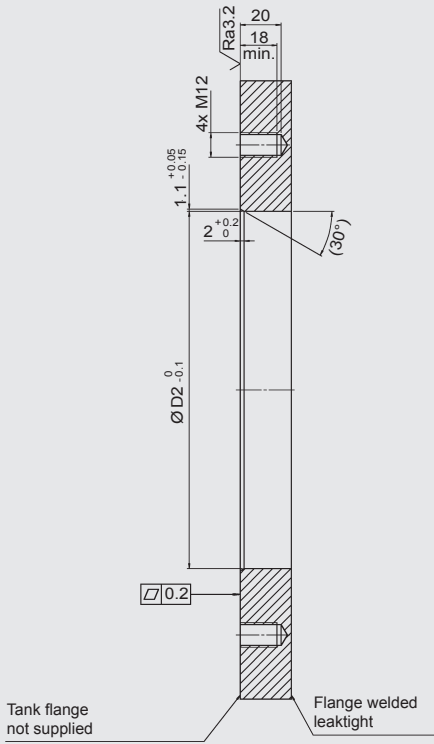
5.1 RFT 0170, 0230, 0300, 0400



5.2 RFT 0310, 0410, 0500

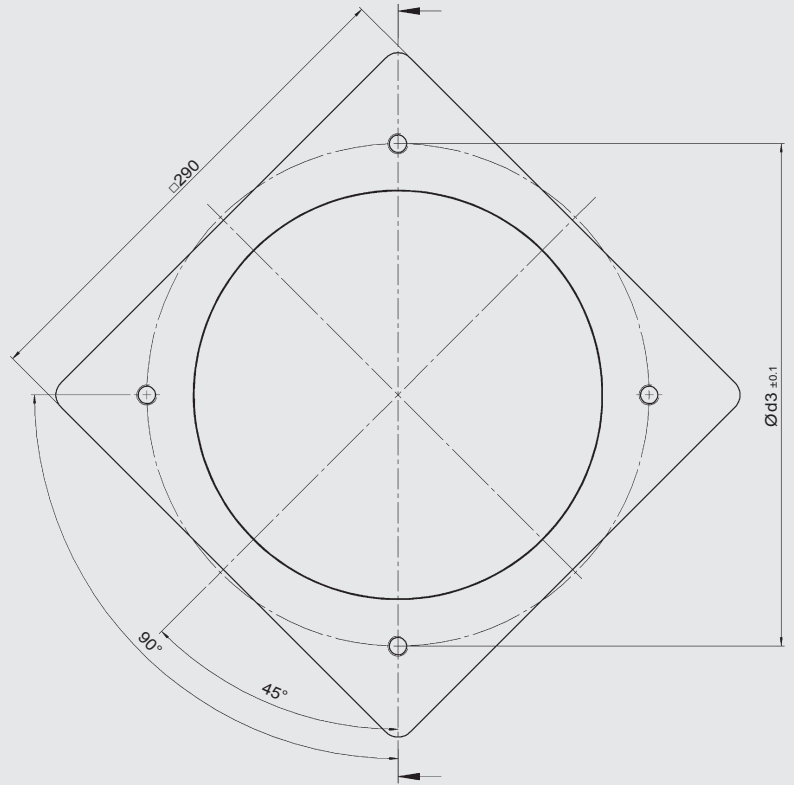
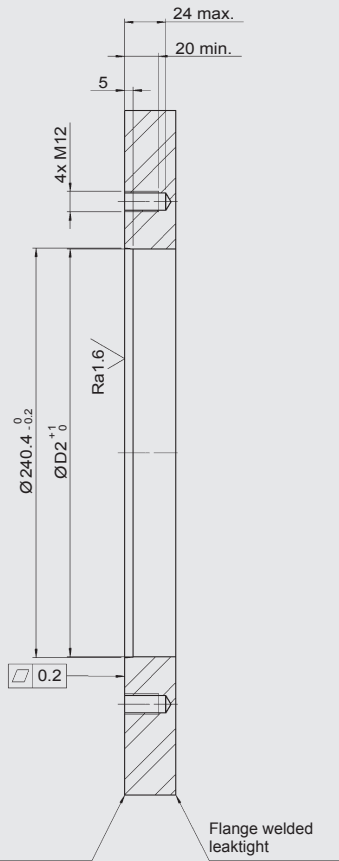


5.3 RFT 0600, 0800, 1200



$$\sqrt{Ra12.5} \quad \left(\sqrt{Ra3.2} \right)$$

5.4 RFT 1800, 2000, 2400



$$\sqrt{Ra12.5} \quad \left(\sqrt{x} = \sqrt{Ra3.2} \right)$$

NOTE

The information in this brochure relates to the operating conditions and applications described.
For applications or operating conditions not described, please contact the relevant technical department.
All technical details are subject to change without notice.

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