

Backflushing Filter AutoFilt® RF10



Traditional Automatic Backwash Filters are designed for high pressure applications with medium to lower loads.

What if pressure is low and contamination is high?

The new RF10 takes the best features of the RF3 and marries them with JetFlush technology. The operating principle subdivides the backflushing into two phases.

Phase One:

Stripping away the contaminant particles

Phase Two:

Discharging the contaminant particles

The new generation is dependent on influent pressure only and does not require the additional back pressure of the effluent to influent differential. With a JetFlush reservoir and internally guided JetFlush valves that can seal the upper lip creating an increased "suction" backflush, the RF10 can handle almost all difficult filtration applications.

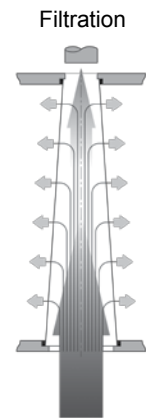
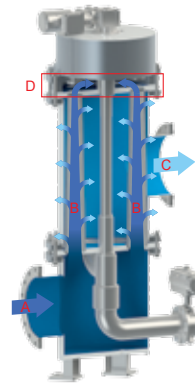
Product Advantages:

- Back-flushing independent of pressure on clean side of filter
- Dependent only on the inlet pressure
- Highly efficient back-flushing with low pressure conditions and long back-flush lines
- With its highly efficient back-flushing, the filter is suitable for high dirt loads and surges in contamination
- Optional davit
- Variable filter isometry

Here is how the JetFlush Technology improves traditional ABF Technology:

Filtration

The medium being filtered enters the filter housing via the filter inlet (A) and flows through the filter elements of the back-flushing filter from the inside to the outside (B) and leaves the filter via the filter outlet (C). During the filtration process, the JetFlush reservoir (D) located above the filter elements fills with and stores medium from the contaminated side. As fluid is filtered, particles collect on the inside of the filter elements. As the level of contamination increases, the differential pressure between the contaminated and clean side of the filter increases. When the differential pressure reaches the pre-set trigger point, back-flushing starts automatically.

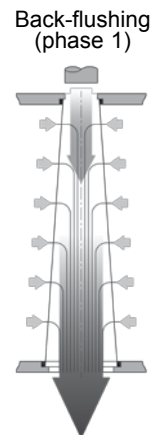
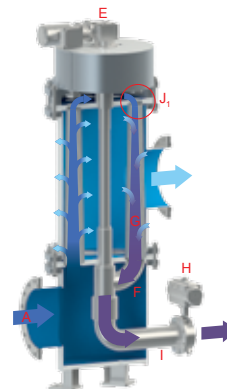


Back-Flushing In General

Automatic back-flushing is triggered:

- When the differential pressure trigger point is exceeded
- By means of a timer
- By pressing the test button

The gear motor (E) rotates the back-flushing arm (F) to the filter element to be cleaned (G). The back-flush valve (H) opens. The pressure drop between the filter inlet (A) and the back-flush line (I), combined with the conical geometry of the filter element, triggers the special JetFlush effect of the AutoFilt® RF10.



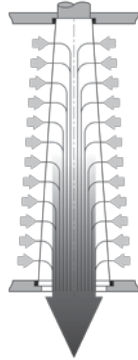
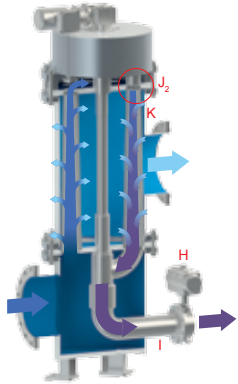
The remaining filter elements continue filtering to ensure uninterrupted filtration.

Backflushing Filter AutoFilt® RF10

Back-Flushing Phase I

Phase 1 - Stripping away the contamination

In the first phase, unfiltered fluid from the JetFlush reservoir (J1) above flows into the filter element. The conical filter element geometry produces a core flow here, supplied mainly by the JetFlush reservoir. This core flow is supported by the open JetFlush effect, which also draws water from the filtrate side into the inside of the filter element.



Back-Flushing Phase II

Phase 2 - Discharging the contamination

Once the core flow has developed, the JetFlush reservoir located above the filter element is closed (J2).

When the opening at the top of the filter element closes, the second phase is initiated, namely discharging the contamination:

The moving column of fluid draws water from the filtrate side (K) as soon as the fluid supply stops as a result of the filter element closing at the top.

The conical filter element geometry ensures the whole surface of the filter element is now clean and residue-free. The contamination is discharged via the back-flush line (I). After cleaning the filter element, the back-flushing arm rotates to the next filter element to be cleaned; the process is repeated. When the back-flush cycle is finished, the back-flush valve is closed (H).



STEEL
MAKING



PULP & PAPER



WASTE WATER
TREATMENT



MINING
TECHNOLOGY



INDUSTRIAL



POWER
GENERATION



MARINE

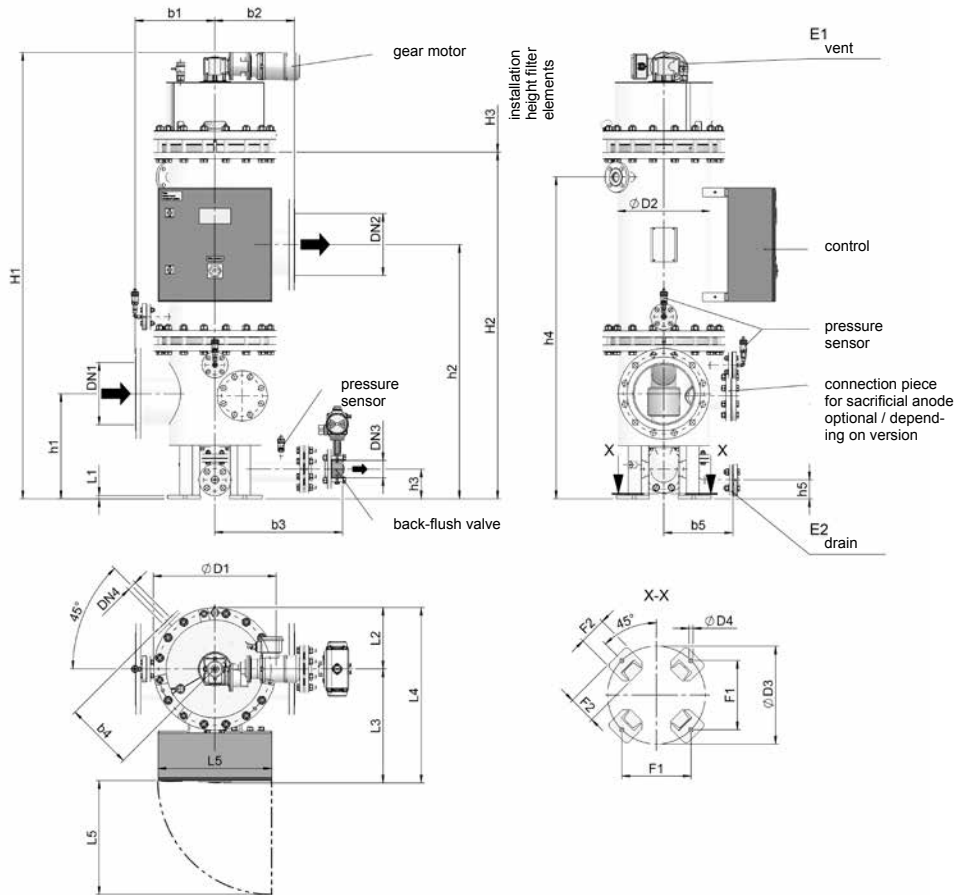


MACHINE
TOOL

Filter Elements

Industries
Served

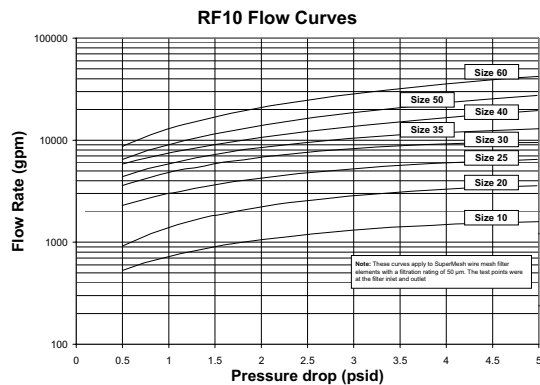
Dimensions



Specifications

Filter Sizes:	10, 20, 23, 25, 30, 35, 40, 50, 60
Flow Range:	2210-12,940 gpm (580-3420 L/min)
Working Pressure:	87 psi (6 bar)
Max. Working Temperature:	131°F (55°C)
Empty Weight:	10 - 624 lbs. (283 kg), 20 - 981 lbs. (445 kg), 23 - 1021 lbs. (463 kg), 25 - 1213 lbs. (550 kg), 30 - 1560 lbs. (725 kg), 35 - 1934 lbs. (877 kg), 40 - 2619 lbs. (1188 kg), 50 - 2985 lbs. (1354 kg), 60 - 5644 lbs. (2560 kg)
Housing Volume:	10 - 10 gallons (36 L), 20 - 25 gallons (95 L), 23 - 35 gallons (131 L), 25 - 42 gallons (160 L), 30 - 80 gallons (304 L), 35 - 119 gallons (452 L), 40 - 163 gallons (616 L), 50 - 235 gallons (891 L), 60 - 393 gallons (1489 L)
Filter Area:	10 - 558 in. ² (3,600 cm ²), 20 - 1,105 in. ² (7,128 cm ²), 23 - 1,868 in. ² (12,050 cm ²), 25 - 2,241 in. ² (14,460 cm ²), 30 - 3,362 in. ² (21,690 cm ²), 35 - 4,109 in. ² (26,510 cm ²), 40 - 6,724 in. ² (43,380 cm ²), 50 - 8,965 in. ² (57,840 cm ²), 60 - 14,942 in. ² (96,400 cm ²)
No. of Filter Elements	Contact Factory
Backflush Flange Size:	Contact Factory
Backflush Volume:	Contact Factory

Pressure Drop Information Based on Flow Rate and Viscosity



Backflushing Filter AutoFilt® RF10

RF10

Dimensions

Size	DN1 in (mm)	DN2 in (mm)	DN3 in (mm)	DN4 in (mm)	b1 in (mm)	b2 in (mm)	b3 in (mm)	b4 in (mm)	b5 in (mm)	h1 in (mm)	h2 in (mm)	h3 in (mm)	h4 in (mm)	h5 in (mm)	H1 in (mm)
RF10-10	10 (100)	10 (100)	4 (40)	G3/4	25 (250)	25 (250)	29.8 (298)	-	-	36 (360)	68.7 (687)	16 (160)	71.7 (717)	-	127.4 (1274)
RF10-20	20 (200)	20 (200)	6.5 (65)	2.5 (25)	32 (320)	32 (320)	30.5 (305)	28 (280)	29.5 (295)	42.5 (425)	88.5 (885)	16.1 (161)	100.5 (1005)	7.9 (79)	155.9 (1559)
RF10-23	20 (200)	20 (200)	6.5 (65)	2.5 (25)	32 (320)	32 (320)	30.5 (305)	28 (280)	29.5 (295)	42.5 (425)	110 (1100)	16.1 (161)	134.1 (1341)	7.9 (79)	189.5 (1895)
RF10-25	25 (250)	25 (250)	6.5 (65)	2.5 (25)	35 (350)	35 (350)	30.5 (305)	30 (300)	29.5 (295)	46.2 (462)	111.7 (1117)	13.1 (131)	141.4 (1414)	8.3 (83)	129.7 (1297)
RF10-30	30 (300)	30 (300)	6.5 (65)	2.5 (25)	40 (400)	40 (400)	62.1 (621)	35 (350)	33 (330)	42 (420)	112.6 (1126)	26.6 (266)	8.2 (82)	140.9 (1409)	197.8 (1978)
RF10-35	35 (350)	35 (350)	6.5 (65)	2.5 (25)	45 (450)	45 (450)	63.7 (637)	41 (410)	42 (420)	42 (420)	113.6 (1136)	26.6 (266)	8.2 (82)	XX (1424)	199.2 (1992)
RF10-40	40 (400)	40 (400)	8 (80)	2.5 (25)	52 (520)	52 (520)	73.5 (735)	46 (460)	47 (470)	47 (470)	122.5 (1225)	30 (300)	8.2 (82)	142.4 (1492)	212.5 (2125)
RF10-50	50 (500)	50 (500)	8 (80)	4 (40)	60 (600)	60 (600)	77 (770)	56 (560)	49 (490)	49 (490)	130 (1300)	35 (350)	10.5 (105)	157.6 (1576)	221 (2210)
RF10-60	60 (600)	60 (600)	10 (100)	4 (40)	70 (700)	70 (700)	90 (900)	65 (650)	61 (610)	61 (610)	136 (1360)	33 (330)	19.5 (195)	159 (1590)	227 (2270)

Size	H2 in (mm)	H3 in (mm)	L1 in (mm)	L2 in (mm)	L3 in (mm)	L4 in (mm)	L5 in (mm)	D1 in (mm)	D2 in (mm)	D3 in (mm)	D4 in (mm)	E1 in (mm)	E2 in (mm)	F1 in (mm)	F2 in (mm)
RF10-10	83.7 (837)	35 (350)	1 (10)	18.8 (188)	46 (460)	64.8 (648)	50 (500)	37.5 (375)	27.3 (273)	34 (340)	1.8 (18)	G1/2	G1/2	24 (240)	9 (90)
RF10-20	112.2 (1122)	55 (550)	1.5 (15)	24.5 (245)	51.7 (517)	76.2 (762)	50 (500)	49 (490)	35.56 (355.6)	37 (370)	1.8 (18)	DN25	G1/2	26.9 (269)	12 (120)
RF10-23	145.8 (1458)	70 (700)	1.5 (15)	24.5 (245)	46 (460)	70.5 (705)	50 (500)	49 (490)	35.56 (355.6)	49.6 (496)	1.8 (18)	DN25	G1/2	35.1 (351)	12 (120)
RF10-25	152.3 (1523)	55 (550)	1.5 (15)	27 (270)	47.7 (477)	74.7 (747)	50 (500)	54 (540)	40.64 (406.4)	43 (430)	1.8 (18)	DN25	G1/2	30.4 (304)	12 (120)
RF10-30	153.1 (1531)	70 (700)	1.5 (15)	32.3 (323)	49.7 (497)	82 (820)	50 (500)	64.5 (645)	50.8 (508)	54 (540)	1.8 (18)	G1/2	G1/2	38.2 (382)	15 (150)
RF10-35	154.8 (1548)	70 (700)	1.5 (15)	37.8 (378)	57.6 (576)	95.4 (954)	50 (500)	75.5 (755)	61 (610)	64 (640)	1.8 (18)	G1/2	G1/2	45.3 (453)	15 (150)
RF10-40	161.7 (1617)	70 (700)	1.5 (15)	48.5 (485)	63.2 (632)	111.7 (1117)	50 (500)	86 (860)	71.1 (711)	72.7 (727)	2.7 (27)	G1/2	G1/2	51.4 (514)	15 (150)
RF10-50	170.1 (1701)	70 (700)	2 (20)	54.3 (543)	69.8 (698)	124 (1240)	50 (500)	97.5 (975)	81.3 (813)	86 (860)	3 (30)	G1/2	G1/2	60.8 (608)	20 (200)
RF10-60	175.9 (1759)	70 (700)	2 (20)	64.3 (643)	79.5 (795)	143.8 (1438)	50 (500)	117.5 (1175)	101.6 (1016)	104 (1040)	3.2 (32)	G1/2	G1/2	73.5 (735)	20 (200)

Size	Pressure Rating psi (bar)	Connection Inlet/Outlet	Connection Backflushing Line	Weight Empty lbs (kg)	Volume Gallons (liters)	Amount of Filter Elements	Filter Area in ² (cm ²)	Backflushing Amount gal (liters)
10	87 (6)	DN 100	40	624 (283)	10 (36)	6	558 (3600)	154 (583)
20	87 (6)	DN 200	65	981 (445)	25 (95)	6	1105 (7128)	330 (1250)
23	87 (6)	DN 200	65	1025 (465)	35 (131)	5	1868 (12050)	374 (1417)
25	87 (6)	DN 250	65	1213 (550)	42 (160)	6	2241 (14460)	374 (1417)
30	87 (6)	DN 300	65	1598 (725)	80 (304)	9	3362 (21690)	374 (1417)
35	87 (6)	DN 350	65	1934 (877)	119 (452)	11	4109 (26510)	374 (1417)
40	87 (6)	DN 400	80	2619 (1188)	163 (616)	18	6724 (43380)	639 (2417)
50	87 (6)	DN 500	80	2985 (1354)	235 (891)	24	8965 (57840)	639 (2417)
60	87 (6)	DN 600	100	5644 (2560)	393 (1489)	40	14942 (96400)	903 (3417)

Technical Data

RF3-C

RF3-0

RF3-1

RF3-2

RF3-2.5

RF3-3

RF3-4

RF3-5

RF3-6

RF3-7

RF3-8

RF5

RF7

RF10

RF4

RF4-1

RF4-2

BTU

ATF

PLF1

PVD

Filter Model Number Selection

How to Build a Valid Model Number for a RF10:

BOX 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
RF10																

Example: NOTE: One option per box

BOX 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
RF10	20	A	1	7	X	P	J	K	N	B	2	1	H	1	1	0

= RF10-20-A-1-7-X-P-J-K-N-B-2-1-H-1-1-0
N-B-2-1-H-1-1-0
(cont'd on pg. 43)

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
Filter Series	Filter Size	Pressure Range	Type Of Control	Voltage Supply
RF10	10 = DN 100 35 = DN 350 20 = DN 200 40 = DN 400 23 = DN 200 50 = DN 500 25 = DN 250 60 = DN 600 30 = DN 300	A = PN6 B = PN10	1 = EPP electro-pneumatic control 2 = EPP functional control (triggered by the customer) 3 = customer-specific version	1 = 3 x 400V / N / PE 50Hz 2 = 3 x 400V / x / PE 50Hz 3 = 3 x 500V / x / PE 50Hz 4 = 3 x 415V / x / PE 50Hz 5 = 3 x 415V / N / PE 60Hz 6 = 3 x 460V / x / PE 60Hz 7 = 3 x 440V / x / PE 60Hz 8 = 3 x 525V / x / PE 50Hz 9 = 3 x 575V / x / PE 60Hz 0 = 3 x 575V / x / PE 60Hz Y = customer-specific version

BOX 6	BOX 7	BOX 8
EX Protection	Housing Material	Flange Standard
X = EX protection according to ATEX C = EX protection according to IECEx	N = Carbon steel, external primer (RAL 9006), no corrosion protection, internal M = Carbon steel, external primer (RAL 9006), 2K epoxy paint, internal P = Carbon steel, external primer (RAL 9006), 2K polyurethane paint, internal E = Stainless steel AISI 304 H = Stainless steel AISI 316	A = ANSI F = DIN / EN J = JIS

BOX 9		BOX 10
Nominal Size		Material of back-flush valve: collar
C = DIN / EN 50 / ANSI 2"	M = DIN / EN 250 / ANSI 10" (standard size 25)	N = NBR (standard)
D = DIN / EN 65 / ANSI 2 1/2"	N = DIN / EN 300 / ANSI 12" (standard size 30)	E = EPDM
E = DIN / EN 80 / ANSI 3"	P = DIN/EN 350 / ANSI 14" (standard size 35)	V = FKM (Viton)
F = DIN / EN 100 / ANSI 4" (standard size 10)	Q = DIN / EN 400 / ANSI 16" (standard size 40)	
H = DIN / EN 125 / ANSI 5"	J = DIN / EN 450 / ANSI 18"	
K = DIN / EN 150 / ANSI 6"	R = DIN / EN 500 / ANSI 20" (standard size 50)	
L = DIN / EN 200 / ANSI 8" (standard size 20, 23)	W = DIN / EN 550 / ANSI 22"	
	S = DIN / EN 600 / ANSI 24" (standard size 60)	

NOTES:
Box 12. Min. pressure is -15 psi (-1 bar) and max. pressure is 131 psi (9 bar), 218 psi (15 bar) and 334 psi (23 bar) depending on design pressure.

BOX 11	BOX 12	BOX 13
Material of back-flush disc	Pressure Transmitter	Flange Position
N = Stainless steel B = Bronze D = Duplex	0 = No pressure transmitter (flange connection on the filter remains) 1 = Pressure transmitter (P-in; P-out and P-rsl) with digital display (type EDS) 2 = Pressure transmitter (P-in; P-out and P-rsl) without digital display on the sensor (type HDA)	1 = Filter outlet opposite filter inlet (standard) 2 = Filter outlet offset by 90° clockwise to standard 3 = Filter outlet offset by 180° clockwise to standard 4 = Filter outlet offset by 270° clockwise to standard

BOX 14	BOX 15	BOX 16	BOX 17
Material of internal parts	Sacrificial Anode	Cover plate lifting device	Modification Number
H = Stainless steel D = Duplex S = Superduplex	0 = No anode 1 = With sacrificial anode 2 = With flange connection, no sacrificial anode	0 = No cover plate lifting device 1 = With cover plate lifting device	X = Determined by manufacturer

Backflushing Filter AutoFilt® RF10

RF10

How to Build a Valid Model Number for an RF10 Filter Element:

BOX 18	BOX 19	BOX 20
S		

Example: NOTE: One option per box

BOX 18	BOX 19	BOX 20	
S	H	D	= RF10 (cont'd) S-H-D

BOX 18	BOX 19	BOX 20
Coating	Material	Version
S = SuperFlush (optional)	H = Stainless steel D = Duplex* S = Superduplex*	D = Conical wire mesh elements only available in stainless steel AISI 316 S = Conical slotted tube elements

Filter Element Model Number Selection

- RF3-C
- RF3-0
- RF3-1
- RF3-2
- RF3-2.5
- RF3-3
- RF3-4
- RF3-5
- RF3-6
- RF3-7
- RF3-8
- RF5
- RF7
- RF10**
- RF4
- RF4-1
- RF4-2
- RF12
- BTU
- ATF
- PLF1
- PVD