



**Aperflux 851**  
Pressure Regulators

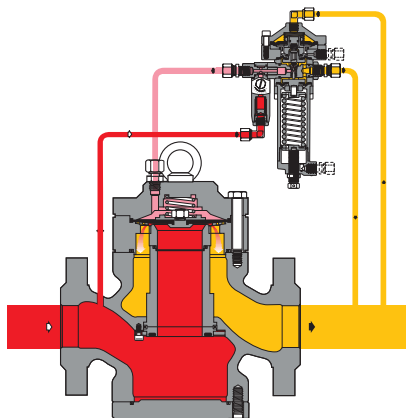
## Pressure Regulators

### Aperflux 851

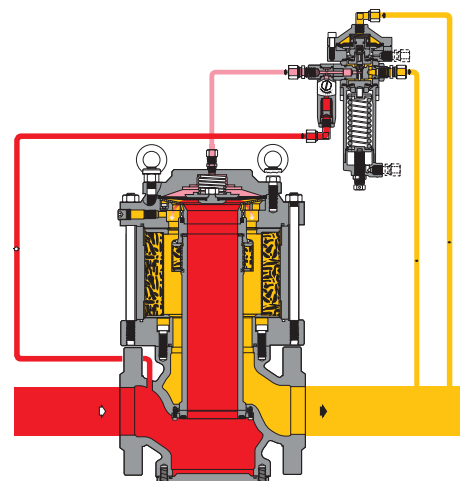
- Aperflux 851 is a pilot-controlled pressure regulator for medium and high pressure applications.
- Aperflux 851 is normally a failed open regulator that will open under the following conditions:
  - breakage of main diaphragm;
  - lack of pressure feeding to the pilot loop.
- This regulator is suitable for use with previously filtered, non-corrosive gases.

### Modular Design

- The modular design of Aperflux 851 pressure regulators allows retrofitting of an emergency monitor PM/819, slam shut valve and or silencer on the same body.
- The Aperflux 851 regulator is truly a “top entry design” which allows ease of maintenance and retrofitting options in the field. The unique dynamic balancing system ensures an outstanding turn-down ratio combined with an extreme accurate outlet pressure control.



Aperflux 851



Aperflux 851 + DB

### Low Noise

- Aperflux 851 is equipped, in standard configuration, with a double cage system. The first cage is designed to optimize the opening / Cg ratio, creating the base for the outstanding 500:1 turndown for this regulator. The second cage is designed to reduce noise emissions, resulting in lower noise than similar products equipped with an additional silencer.
- For extra low noise installation the additional silencer DB is always available.

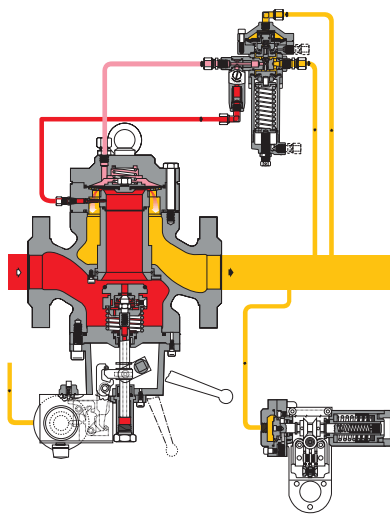
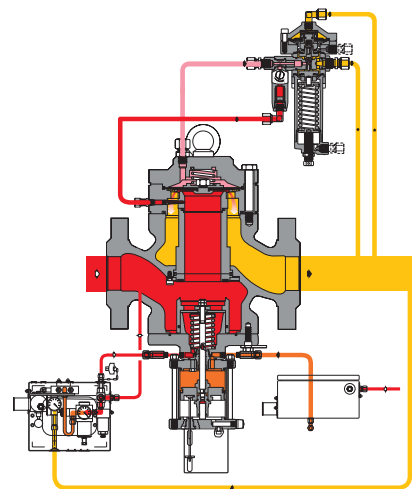
**DESIGNED  
WITH YOUR  
NEEDS IN MIND**

- **COMPACT DESIGN**
- **EASY MAINTENANCE**
- **TOP ENTRY**
- **LOW NOISE**

- **OUTSTANDING TURN DOWN RATIO**
- **HIGH ACCURACY**
- **LOW OPERATION COST**
- **EXTREME FLEXIBILITY**

**SILENCER DB/851**
**Aperflux 851**

With decibel noise limitations and problems becoming an increasing safety concern, the DB silencer option is a unique feature that reduces regulator noise. When the DB silencer is used, it allows you to considerably reduce the noise level (dBa) up to 30 dBa, depending upon the application. The Aperflux 851 pressure regulator can be supplied with an incorporated silencer in either the standard version or version with incorporated slam-shut or incorporated monitor regulator. With the built-in silencer, the Cg and KG valve coefficients are 5% lower than the corresponding version without the silencer. With this modular feature of the regulator, the silencer may be retrofitted to both standard Aperflux 851 version as well as those with incorporated slam-shut or monitor, without any need for piping modification. Pressure reduction and control operate in the same manner as the standard version.

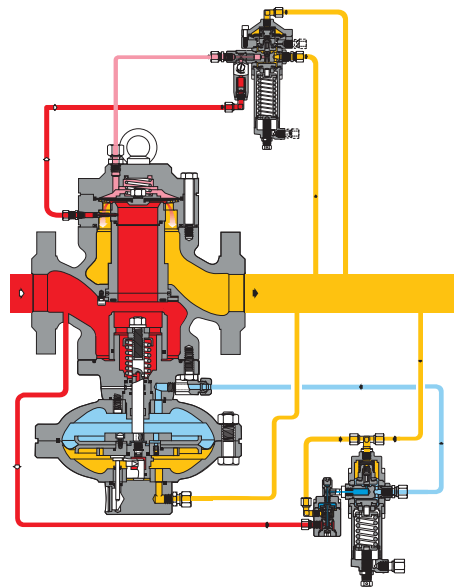
**SLAM SHUT SB82 OR HB/97**
**Aperflux 851**

**Fig. 3**

**Fig. 4**

The Aperflux 851 pressure regulator offers the possibility of installing an incorporated slam shut valve SB/82 or HB/97 valve, depending on the regulator size. This can be done either during the manufacturing process or be retrofitted in the field. Retrofitting can be done without modifying the pressure regulator assembly.

The Cg and KG coefficients of a regulator plus an incorporated slam-shut system are 5% lower than those for standard versions.

The main characteristics of the slam shut are:

- intervention for over pressure and/or under pressure
- manual re-setting with internal bypass activated by the lever mechanism;
- manual push button control;
- compact dimensions;
- easy maintenance;
- optional pneumatic or electromagnetic remote control;
- optional installation remote signal devices (contact switches or proximity switches).

**MONITOR PM/819****Aperflux 851****Fig. 5**

This emergency regulator (monitor) is directly mounted onto the body of the main regulator. Both pressure regulators, therefore, use the same valve body, although they have independent actuators, pilots and valve seats.

The operational characteristics of the PM/819 monitor are the same as for the Reflux 819 regulator (refer to specific catalog).

The  $C_g$  and  $K_G$  coefficients of a regulator having an incorporated monitor are 5% lower than those for the standard version. Another great advantage offered by the incorporated monitor regulator is that it can be installed at any time, even on an existing regulator, without piping modification. This solution allows the construction of regulator stations with compact dimensions.

**MAIN FEATURES****Aperflux 851**

- > **Design pressure: up to 1450 PSIG (100 bar)**
- > **Temperature: Pietro Fiorentini regulators are suitable for a minimum operating ambient temperature:**
  - > **-40°F to 140 °F with a Carbon Steel Body****If the following conditions are met:**
  - **Inlet flowing gas temperature shall be always higher than -4 °F;**
  - **Inlet flowing gas shall filtered, clean and without any liquid impurities;**
- > **Range of inlet pressure bpe: 18.8 to 1230 PSIG (1.3 to 85 bar)**
- > **Range of outlet pressure Wh: 12 to 1073 PSIG (0.8 to 74 bar) depending on installed pilot**
- > **Minimum working differential pressure: 7,25 PSIG (0.5 bar) - Recommended > 30 PSIG (2 bar)**
- > **Accuracy class AC: up to 1%**
- > **Closing pressure class SG: from 5% to 1,5% depending on outlet pressure**
- > **Available size DN: 1" -2" -3" -4" -6" -8" -10"**
- > **Flanging: class 150-300-600 RF or RTJ according to ANSI B16.5 and PN16 according to ISO 7005.**

**MATERIALS**
**Aperflux 851**

<b>Body</b>	Cast steel ASTM A352 LCC for classes 300 and 600 ASTM A216 WCB for classes 150 and PN16
<b>Head covers</b>	Rolled or forged carbon steel
<b>Diaphragm</b>	Vulcanized rubber
<b>Valve seat</b>	Stainless steel for DN ≤3" Carbon Steel with seal edge in stainless steel for size ≥ 4"
<b>Seals</b>	Nitril rubber
<b>Compression fittings</b>	According to DIN 2353 in zinc-plated carbon steel

The characteristics listed above are referred to as standard products. Special characteristics and materials for specific applications may be supplied upon request.

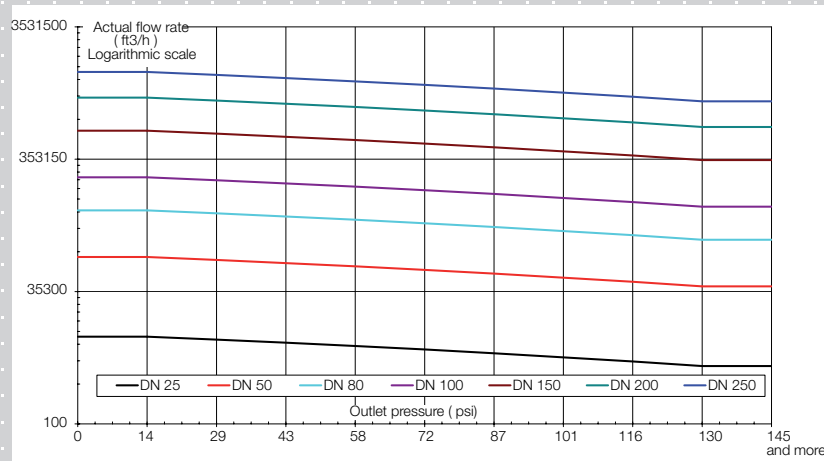
**Cg, KG and K1 coefficient**
**Aperflux 851**

Nominal diameter (mm)	25	50	80	100*	150*	200*	250*
Size (inches)	1"	2"	3"	4"	6"	8"	10"
<b>Cg flow coefficient</b>	480	1,550	3,790	5,554	11,112	17,316	24,548
<b>KG flow coefficient</b>	505	1,627	3,979	5,837	11,678	18,199	25,850
<b>K1 body shape factor</b>	113.9	113.9	113.9	113.9	113.9	113.9	113.9

\*Value with incorporated flow conditioner  
For sizing formula refer to [www.fiorentini.com/sizing](http://www.fiorentini.com/sizing)

**CAUTION:**

The graph gives a quick reference of maximum recommended regulator capacity depending on selected size. Values are expressed in actual SCFH of Natural gas (s.g. 0,6): to have the data directly in SCFH it is necessary to multiply the value by the outlet pressure value in PSI – absolute.



## PILOTS

## Aperflux 851

Aperflux 851 regulators are equipped with series 300 pilot as listed below:

- 302/. control range Wh: 11.6 to 137.7 PSIG; (0.8 to 9.5 bar)
- 304/. control range Wh: 101.5 to 623.5 PSIG; (7 to 43 bar)
- 305/. control range Wh: 290 to 870.2 PSIG; (20 to 60 bar)
- 307/. control range Wh: 594.6 to 1073.3 PSIG; (41 to 74 bar)

Pilots may be adjusted manually or remotely.

## Pilot adjustments

## Aperflux 851

<b>Pilot type .../A</b>	Manual setting
<b>Pilot type .../D</b>	Electric remote setting control
<b>Pilot type .../CS</b>	Pneumatic remote setting control
<b>F.I.O.</b>	Smart unit for remote setting, monitoring flow limitation

The pilot system comes complete with an adjustable **AR100** restrictor. The flow rate of the pilot system is controlled by the bleed rate through the **AR100** restrictor.

The KG coefficients of the AR100 adjustable restrictor are shown for its various degrees of opening. KG formula used for calculating the flow rate of regulator can be applied for adjustable restrictor **AR100**.

It is necessary to consider that the pressure drop through the adjustable **AR100** restrictor should be about 2.9 PSIG (0.2) bar at the minimum opening flow of the regulator and about 14.5 PSIG (1 bar) at the maximum opening flow of regulator main diaphragm.

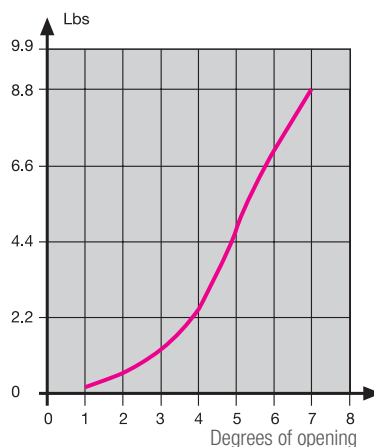


Fig. 6

**SLAM SHUT SWITCH SELECTION DEVICE** **Aperflux 851**

MOD. SB	MIN.	MAX
101M	0.14* - 3.77*	0.29 - 14.5*
102M	0.58 - 40.61	2.9 - 79.77
102MH	40.61 - 79.77	2.9 - 79.77
103M	2.9 - 116.03	29 - 319.02
103MH	116.03 - 275.57	29 - 319.02
104M	23.2 - 261.06	108.77 - 652.66
104MH	261.06 - 594.65	108.77 - 652.66
105M	43.51 - 638.16	435.11 - 1,305.33
105MH	638.16 - 1,305.33	435.11 - 1,305.33

MOD. HB	MIN.	MAX
103	5.8 - 98.62	1.3 - 159.54
104	14.64 - 290.94	145.03 - 456.86
105	36.25 - 725.18	362.59 - 1,102.28
105/92	652.66 - 1,087.78	841.21 - 1,232.82

values in PSIG

**IN-LINE MONITOR** **Aperflux 851**

The monitor is generally installed upstream of the main regulator. Although the function of the monitor regulator is different, the two regulators are virtually identical from the point of view of their mechanical components. The only difference is that the monitor is set at a higher pressure than the main regulator. The Cg and KG coefficients of the regulator plus in-line monitor system are about 20% lower than those of the regulator alone.

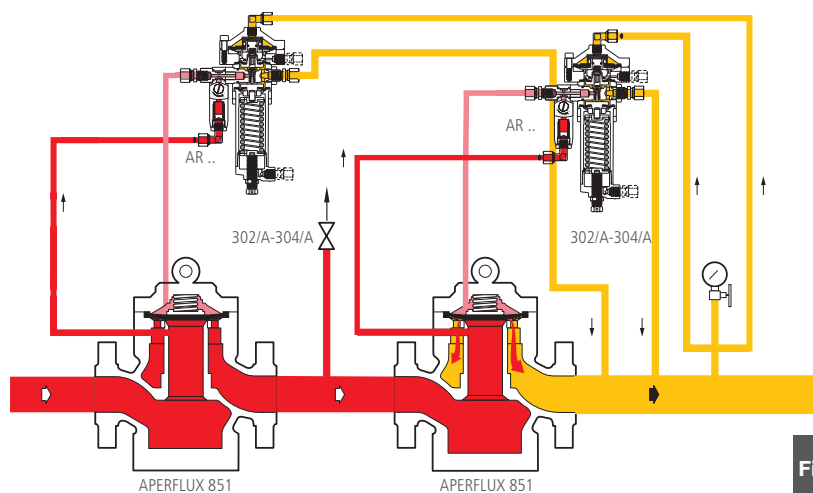
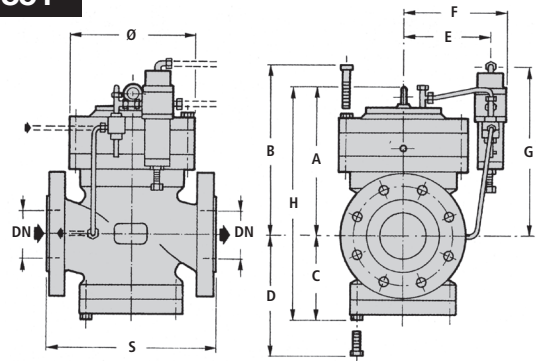


Fig. 7

# Aperflux 851

# Aperflux 851



### Overall dimensions in inches

Inches	1"	2"	3"	4"	6"	8"	10"
<b>S - ANSI 150/PN 16</b>	7.25	10	11.75	13.88	17.75	21.38	26.5
<b>S - ANSI 300</b>	7.75	10.5	12.5	14.5	18.62	22.38	27.88
<b>S - ANSI 600</b>	8.25	11.25	13.25	15.5	20	24	29.62
<b>Ø</b>	4.92	6.29	9.64	11.41	15.15	19.29	24.21
<b>A</b>	7.87	9.05	11.81	13.38	16.53	17.91	22.83
<b>B</b>	9.05	10.23	13.38	14.96	18.5	20.07	20.47
<b>C</b>	3.93	5.11	5.9	7.48	9.44	10.43	13.38
<b>D</b>	5.11	6.29	7.87	9.84	11.81	12.59	17.32
<b>E</b>	5.51	5.7	7.48	8.26	10.23	12.4	14.56
<b>F</b>	6.29	6.88	8.66	9.44	11.41	13.58	16.33
<b>G</b>	10.23	11	13.77	14.96	11.71	12.29	14.96
<b>H</b>	11.81	14.17	17.71	20.86	25.98	28.34	36.22
<b>Tubing Connections</b>	1/4" NPT						

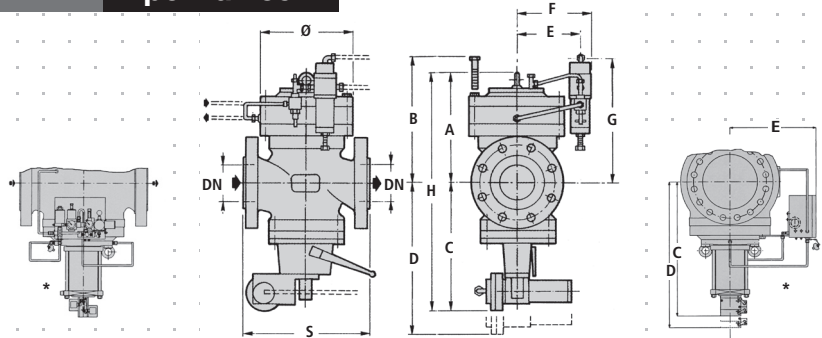
Face to face dimensions S according to ANSI, IEC 534-3 and EN 334

### Weights in Lbs

<b>S - ANSI 150/PN 16</b>	44	77.1	167.5	253.5	518	738.5	1,543.2
<b>S - ANSI 300</b>	46.2	79.3	180.7	282.1	566.5	870.8	1,653.4
<b>S - ANSI 600</b>	48.5	83.7	187.3	304.2	639.3	959	1,873.9

# Aperflux 851+ SB82 / + HB97

# Aperflux 851



### Overall dimensions in inches

Inches	1"	2"	3"	4"	6"	8"	10"				
<b>S - ANSI 150/PN 16</b>	7.25	10	11.75	13.88	17.75	21.38	26.5				
<b>S - ANSI 300</b>	7.75	10.5	12.5	14.5	18.62	22.38	27.88				
<b>S - ANSI 600</b>	8.25	11.25	13.25	15.5	20	24	29.62				
<b>Ø</b>	4.92	6.29	9.64	11.41	15.15	19.29	24.21				
<b>A</b>	7.87	9.05	11.81	13.38	16.53	17.91	22.83				
<b>B</b>	9.05	10.23	13.38	14.96	18.50	20.07	20.47				
<b>C</b>	8.46	9.44	10.62	11.81	20.39*	14.76	25.39*	17.71	27.04*	26.77	31.33*
<b>D</b>	12.59	14.56	16.53	18.89	25.59*	23.62	32.87*	26.18	35.43*	35.43	41.73*
<b>E</b>	5.51	5.7	7.48	8.26	14.09*	10.23	16.14*	12.4	17.51*	14.56	20.07*
<b>F</b>	6.29	6.88	8.66	9.44	11.41	11.41	13.58	16.33			
<b>G</b>	10.23	11.02	13.77	14.96	11.71	11.71	19.29	14.96			
<b>H</b>	16.33	18.5	22.44	25.19	31.29	31.29	35.62	49.6			
<b>Tubing Connections</b>	1/4" NPT										

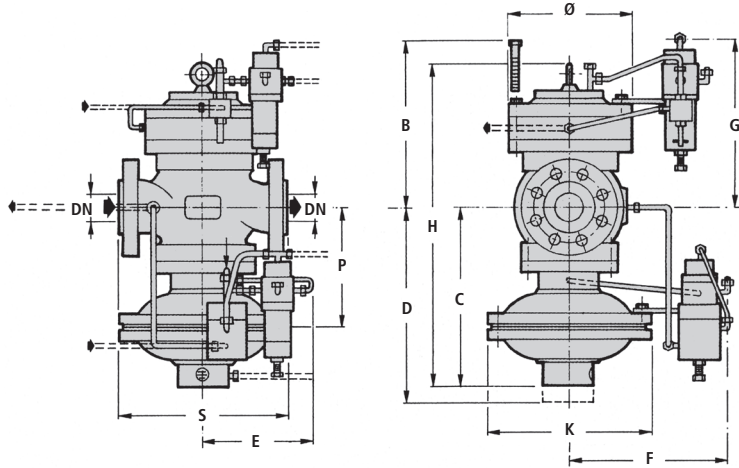
\*Indicated Dimensions with MODEL HB/97

Face to face dimensions S according to ANSI, IEC 534-3 and EN 334

### Weights in Lbs

<b>S - ANSI 150/PN 16</b>	59.5	97	189.5	286.6	573.2	881.8	1,653.4
<b>S - ANSI 300</b>	59.5	101.4	202.8	319.7	639.3	1,036.1	1,763.6
<b>S - ANSI 600</b>	66.1	105.8	211.6	341.7	705.4	1,124.1	1,984.1





**Overall dimensions in inches**

Inches	1"	2"	3"	4"	6"	8"	10"
<b>S - ANSI 150/PN 16</b>	7.25	10	11.75	13.88	17.75	21.38	26.5
<b>S - ANSI 300</b>	7.75	10.5	12.5	14.5	18.62	22.38	27.88
<b>S - ANSI 600</b>	8.25	11.25	13.25	15.5	20	24	29.62
<b>Ø</b>	4.92	6.29	9.64	11.41	15.51	19.29	24.21
<b>B</b>	9.05	10.23	13.38	14.96	18.5	20.07	20.47
<b>C</b>	12.59	13.77	16.92	19.29	25.59	29.52	26.77
<b>D</b>	16.14	16.92	20.86	23.62	28.93	33.46	35.43
<b>E</b>	14.56	14.56	16.14	16.14	19.09	19.09	14.56
<b>F</b>	10.62	10.62	12.2	12.2	15.15	15.15	16.33
<b>G</b>	10.23	11.02	13.77	14.96	17.71	19.29	14.96
<b>H</b>	20.47	22.83	28.74	32.67	42.12	47.44	54.33
<b>K</b>	10.94	10.94	14.17	14.17	20.07	20.07	24.01
<b>P</b>	6.69	7.87	10.23	11.41	12.59	14.56	19.68

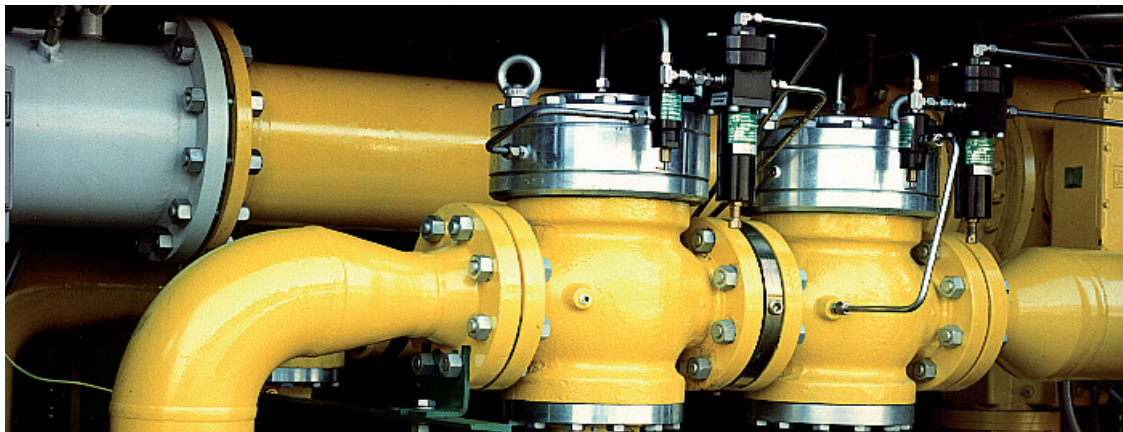
**Tubing Connections**

1/4" NPT

Face to face dimensions S according to ANSI, IEC 534-3 and EN 334

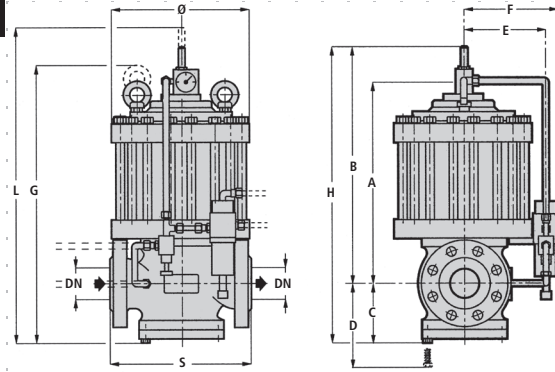
**Weights in Lbs**

<b>S - ANSI 150/PN 16</b>	72.7	149.9	297.6	352.7	815.7	1,157.4	2,425
<b>S - ANSI 300</b>	74.9	154.3	304.2	363.7	859.8	1,289.7	2,535.3
<b>S - ANSI 600</b>	77.1	158.7	326.2	418.8	925.9	1,377.8	2,755.7



**Aperflux 851+ DB/851**

**Aperflux 851**



**Overall dimensions in inches**

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S - ANSI 300	7.75	10.5	12.5	14.5	18.62	22.38	27.88
S - ANSI 600	8.25	11.25	13.25	15.5	20	24	29.62
Ø	8.66	11.81	12.99	15.35	18.89	25.39	29.13
A	13.97	16.53	19.68	22.44	28.14	35.82	40.35
B	18.3	20.86	24.6	27.36	33.46	41.14	42.71
C	3.93	5.11	5.9	7.48	9.44	10.43	13.38
D	5.11	6.29	7.87	9.84	11.81	12.59	17.32
E	6.37	7.71	8.5	9.48	9.21	9.33	10.31
F	7.55	8.89	9.68	10.66	10.39	10.51	11.49
G	14.56	17.32	20.66	23.42	29.33	37.4	54.96
H	17.91	21.65	25.59	29.92	38.58	46.25	47.83
L	22.04	26.49	31.18	35.31	42.55	52.44	54.01

**Tubing Connections**

1/4" NPT

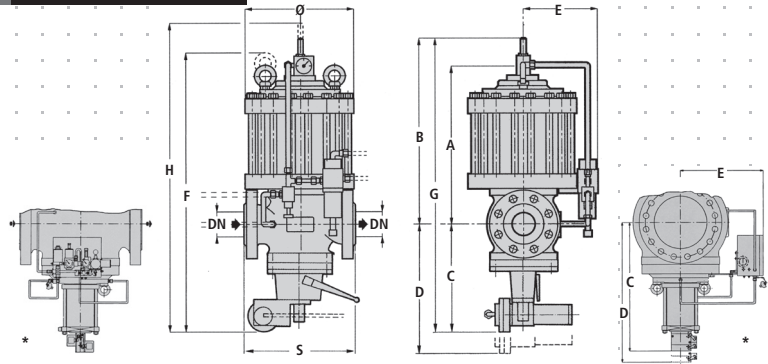
Face to face dimensions S according to ANSI, IEC 534-3 and EN 334

**Weights in Lbs**

S - ANSI 150/PN 16	103.6	220.4	370.3	529.1	862	1,675.5	2,733.7
S - ANSI 300	108	224.8	390.2	590.8	954.6	1,838.6	2,848.3
S - ANSI 600	110.2	229.2	396.8	612.8	1,027.3	1,926.8	3,068.8

**Aperflux 851+DB/851+SB82 /+HB97**

**Aperflux 851**



**Overall dimensions in inches**

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S - ANSI 300	7.75	10.5	12.5	14.5	18.62	22.38	27.88				
S - ANSI 600	8.25	11.25	13.25	15.5	20	24	29.62				
Ø	8.66	11.81	12.99	15.35	18.89	25.39	29.13				
A	13.18	16.53	19.68	22.44	28.14	35.82	40.35				
B	18.3	20.86	24.6	27.36	33.46	41.14	42.71				
C	8.46	9.44	10.62	11.81	20.39*	14.76	25.39*	17.71	27.04*	26.77	31.33*
D	12.59	14.56	16.53	18.89	25.59*	23.62	32.87*	26.18	35.43*	35.43	41.73*
E	7.55	8.89	9.68	10.66	14.09*	10.39	16.14*	10.51	17.51*	11.49	20.07*
F	19.09	21.65	25.39	27.75	34.64	44.68	68.34				
G	22.44	25.98	30.31	34.25	43.89	53.54	61.22				
H	26.57	30.82	35.9	39.64	47.87	59.72	67.40				

**Tubing Connections**

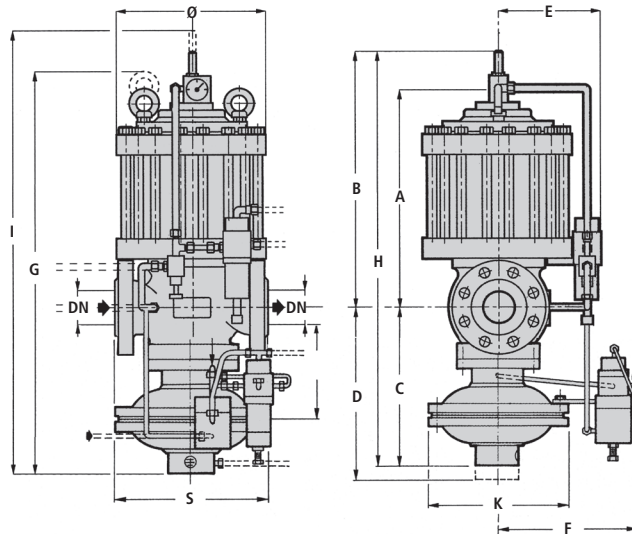
1/4" NPT

\*Indicated Dimensions with MODEL HB/97

Face to face dimensions S according to ANSI, IEC 534-3 and EN 334

**Weights in Lbs**

S - ANSI 150/PN 16	119	240.3	392.4	562.1	917.1	1,818.8	2,843.9
S - ANSI 300	123.4	246.9	412.4	623.9	1,027.3	2,004	2,958.6
S - ANSI 600	127.8	251.3	421	648.1	1,100.1	2,092.1	3,179



**Overall dimensions in inches**

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<b>S - ANSI 150/PN 16</b>	7.25	10	11.75	13.88	17.75	21.38	26.5
<b>S - ANSI 300</b>	7.75	10.5	12.5	14.5	18.62	22.38	27.88
<b>S - ANSI 600</b>	8.25	11.25	13.25	15.5	20	24	29.62
<b>Ø</b>	8.66	11.81	12.99	15.35	18.89	25.39	29.13
<b>A</b>	13.9	16.53	19.68	22.44	28.14	35.82	40.35
<b>B</b>	18.3	20.86	24.6	27.36	33.46	41.14	42.71
<b>C</b>	12.59	13.77	16.92	19.29	25.59	29.52	31.49
<b>D</b>	16.14	16.92	20.86	23.62	28.93	33.46	35.43
<b>E</b>	7.55	8.89	9.68	10.66	10.39	10.51	11.49
<b>F</b>	10.62	10.62	12.2	12.2	15.15	15.15	16.33
<b>G</b>	27.16	25.92	31.69	35.23	45.47	52.46	73.07
<b>H</b>	26.96	29.52	35.62	39.17	49.6	60.23	60.82
<b>I</b>	35.62	38.18	46.65	50.98	65.74	79.33	78.93

**Tubing Connections**

1/4" NPT

Face to face dimensions S according to ANSI, IEC 534-3 and EN 334

**Weights in Lbs**

<b>S - ANSI 150/PN 16</b>	132.2	293.2	491.6	650.3	1,159.6	2,094.3	3,615.5
<b>S - ANSI 300</b>	136.6	297.6	511.4	716.5	1,252.2	2,257.5	3,730.2
<b>S - ANSI 600</b>	138.8	302	518	738.5	1,324.9	2,345.7	3,950.6

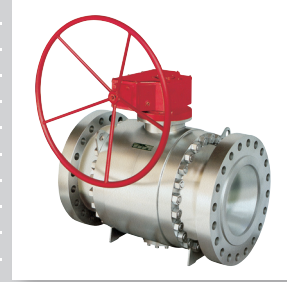




Reducing and Metering Stations



Slam Shut Valves



Ball Valves



**Pietro  
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Fiorentini USA  
4555 South Berkeley Lake Road  
Norcross, GA 30071

Toll - Free: 888.618.8787  
Fax: 770.448.7312

**[www.fioussa.com](http://www.fioussa.com)**

Pietro Fiorentini S.p.A.  
via E.Fermi 8/10  
I-36057 Arcugnano (VI) Italy

Tel: +39 0444 968.511  
Fax: +39 0444 960.468

**[www.fiorentini.com](http://www.fiorentini.com)**

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