Frank Series

Back Pressure Regulator

- **Process fluid is isolated from mechanical parts**
- **Adjustable under working pressure**
- **Adjustment range of 7psi (0.5 bar) to 135psi (9.5 bar) outlet with an inlet of 145psi (10 bar)**
- **Low hysteresis: 1.5psi (0.1 bar) to 8.7psi (0.6 bar)**
- **Highly accurate and stable control**

Description

Maintain upstream pressure. Non-wetted spring closes the diaphragm to keep pressure constant upstream. When the set pressure is overcome, the valve will open and continue to flow.

Typically installed at the end of a pressurized line, if your pump fails to produce pressure, this valve will close to keep the pressure from escaping.

This valve can also be installed on a tee branch to relieve your system from over

Specifications

Size Range:	1/2” (20mm) to 4” (110mm)
Diaphragm/ Seals:	EPDM/EPDM or PTFE/FKM
Connections:	IR/Butt, Socket[1], NPT[1], Flange[2]
Operation:	14psi (1 bar) pressure differential min. 7psi (0.5 bar) to 135psi (9 bar) outlet with 145psi (10 bar) inlet

1) PVC only, 2) Optional

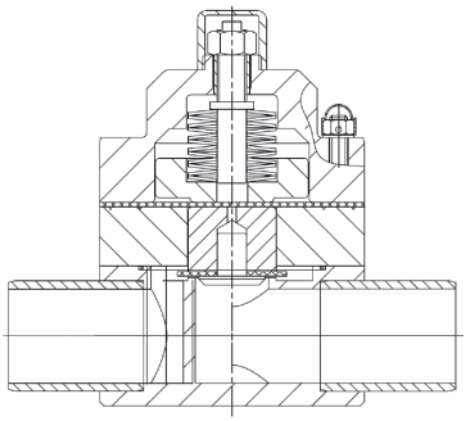
Product Offering

Size in	Size mm	PP	PPn	PVDF	Halar	PVC
1/2"	20	V186	V86	V186	V86	V186
3/4"	25	V186	V86	V186	V86	V186
1"	32	V186	V86	V186	V86	V186
1-1/4"	40	V186	-	V186	-	V186
1-1/2"	50	V186	V86	V186	-	V186
2"	63	V186	V86	V186	-	V186
2-1/2"	75	V86	-	V86	-	V86
3"	90	V86	-	V86	-	V86
4"	110	V86	-	V86	-	V86

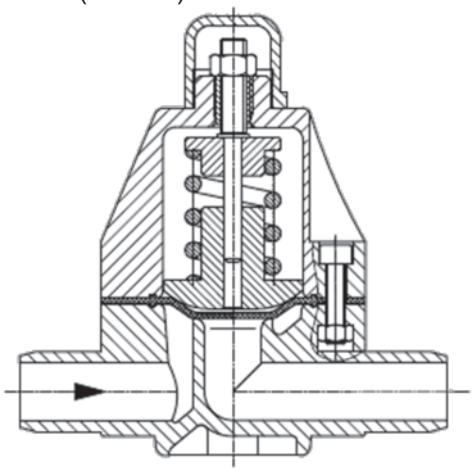
Material	Temperature Range
PVC	32ºF (0ºC) to 140ºF (60ºC)
PP	- 4ºF (-20ºC) to 176ºF (80ºC)
PP-natural*	- 4ºF (-20ºC) to 176ºF (80ºC)
PVDF	- 4ºF (-20ºC) to 248ºF (120ºC)
E-CTFE (Halar®)*	-234ºF (-145ºC) to 340ºF (170ºC)

* PPn & E-CTFE are machined Style V82 in all sizes

Valve Size	Pressure Range
1/2" (20mm) to 2" (63mm)	7-150psi (0.5-10 bar)
2-1/2" (75mm) to 3" (90mm)	14-90psi (1-6 bar)
4" (110mm)	13-60psi (1-4 bar)



V86



V186

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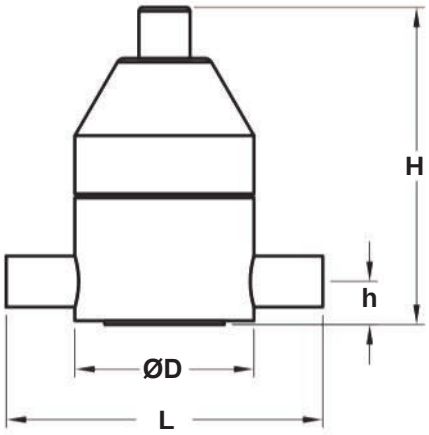
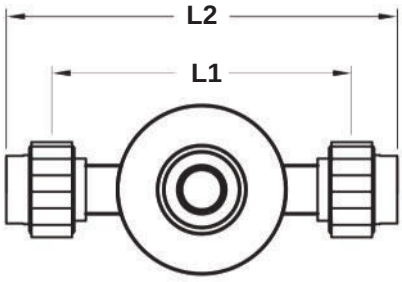




V86/186 Dimensions

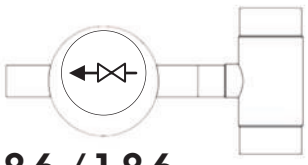
Size in	Size mm	DN	Ø D	H	h	L	L1*	L2*	Weight (lbs) PP	PVDF	PVC
1/2"	20	15	3 1/4	5 3/8	3/4	5 1/4	5 5/8	7	.66	1.3	.66
3/4"	25	20	3 1/4	5 3/8	3/4	5 1/4	5 5/8	7 2/8	.66	1.3	.66
1"	32	25	4 3/8	7 7/8	1 1/8	6 7/8	7 1/4	9	2	3.5	2
1-1/4"	40	32	6 1/2	7 7/8	1 3/4	6 7/8	7 1/4	9 3/8	2	3.5	2
1-1/2"	50	40	6 1/2	11 3/8	1 3/4	8 7/8	9 1/4	11 1/2	9.7	17.5	9.7
2"	63	50	6 1/2	113/8	1 3/4	9 5/8	10 1/4	12 3/4	10	18	10
2-1/2"	75	65	7 1/8	10 7/8	9	11 1/8	-	-	13	19	13
3"	90	75	9 7/8	16 1/8	12 5/8	14 1/8	15 3/8	18	28.5	49	28.5
4"	110	100	9 7/8	19 1/8	16 3/8	15	16 3/8	19 1/2	32	54	32

*PVC only. Union with FNPT or IPS socket

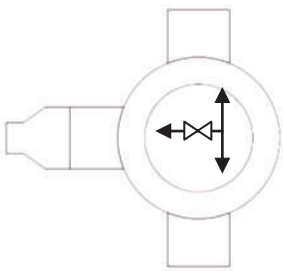
V86/186 Pressure Relief

It is often desirable to use a V86/186 back pressure regulator on the branch of a tee to act as a pressure relief valve. The benefits of this configuration are that you can install a higher pressure rated, smaller diameter, less expensive, more readily available valve that will perform in the same manner as a V85/185 pressure relief valve.

V85/185 pressure relief valves are popular for tight installations, or high purity projects where dead volume can affect the quality of the water.



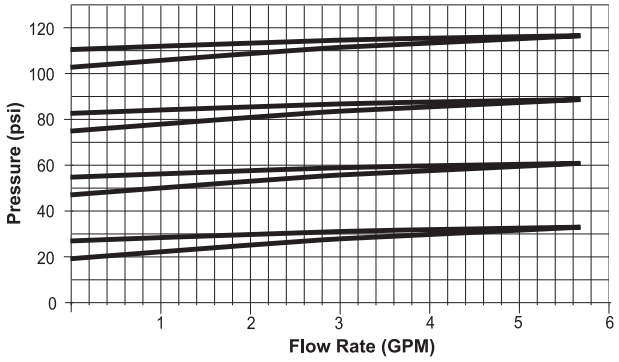
V86/186
2x1 Tee & 1" Valve



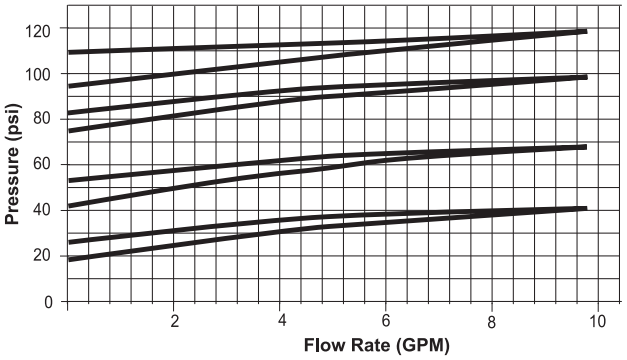
V85/185
2" Valve & 2x1 Reducer

Flow Characteristics

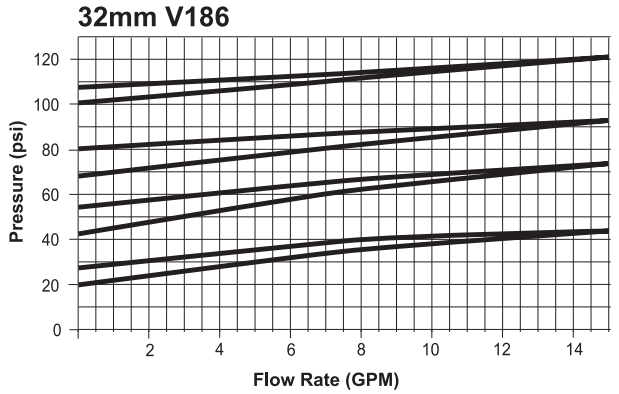
20mm V186



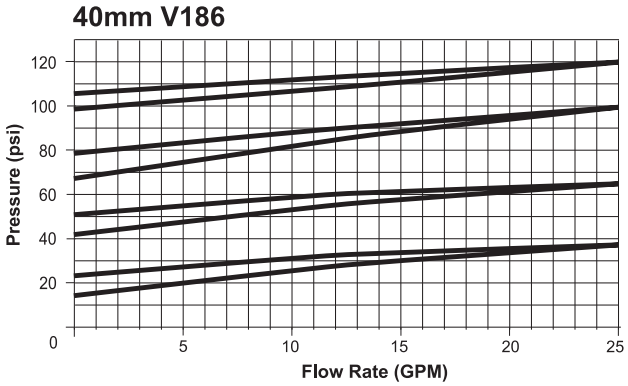
25mm V186



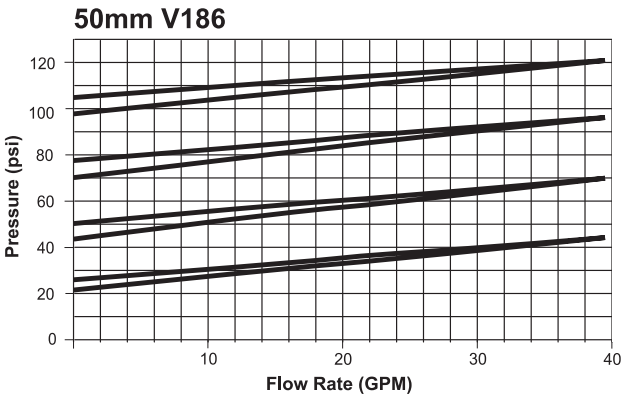
32mm V186



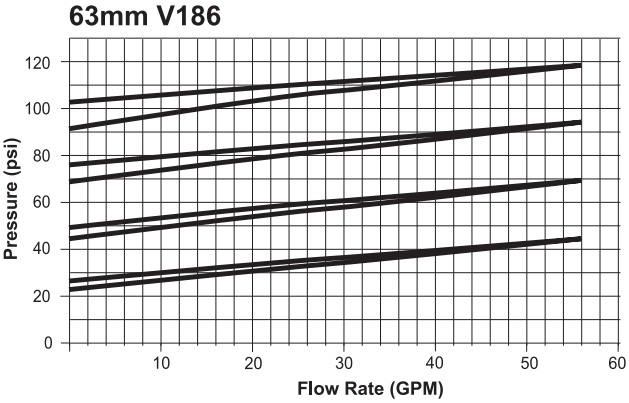
40mm V186



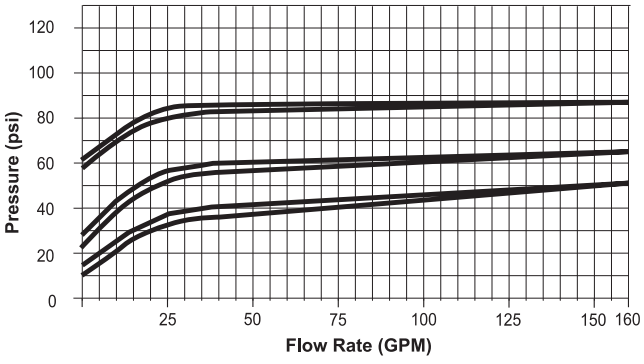
50mm V186



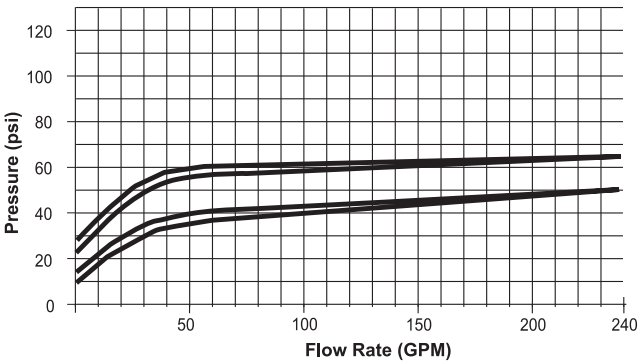
63mm V186



90mm V86



110mm V86



Flow characteristics shown are not a guarantee of performance.

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Size		DN	Type	PVC/EPDM		PVC/PTFE	
Inch	mm			IPS Socket	FNPT	IPS Socket	FNPT
1/2"	20	16	V186	160244005	160244105	160244205	160244305
3/4"	25	20	V186	160244007	160244107	160244207	160244307
1"	32	25	V186	160244010	160244110	160244210	160244310
1-1/4"	40	32	V186	160244012	160244112	160244212	160244312
1-1/2"	50	40	V186	160244015	160244115	160244215	160244315
2"	63	50	V186	160244020	160244120	160244220	160244320
2-1/2"	75	65	V86	160244025	160244125	160244225	160244325
3"	90	80	V86	160244030	160244130	160244230	160244330
4"	110	100	V86	160244040	160244140	160244240	160244340

Size		DN	Type	Proline PP, Butt		PP-Pure, IR Butt	
Inch	mm			EPDM	PTFE	EPDM	PTFE
1/2"	20	16	V186	500244005	500244105	910254005	910244005
3/4"	25	20	V186	500244007	500244107	910254007	910244007
1"	32	25	V186	500244010	500244110	910254010	910244010
1-1/4"	40	32	V186	500244012	500244112	910254012	910244012
1-1/2"	50	40	V186	500244015	500244115	910254015	910244015
2"	63	50	V186	500244020	500244120	910254020	910244020
2-1/2"	75	65	V86	500244025	500244125	910254025	910244025
3"	90	80	V86	500244030	500244130	910254030	910244030
4"	110	100	V86	500244040	500244140	910254040	910244040

Size		DN	Type	Chem Grade PVDF, Butt	Purad HP PVDF, IR Butt
Inch	mm			PTFE	PTFE
1/2"	20	16	V186	590244005	540244005
3/4"	25	20	V186	590244007	540244007
1"	32	25	V186	590244010	540244010
1-1/4"	40	32	V186	590244012	540244012
1-1/2"	50	40	V186	590244015	540244015
2"	63	50	V186	590244020	540244020
2-1/2"	75	65	V86	590244025	540244025

Size		DN	Type	PolyPure PPn, IR Butt		Halar E-CTFE, Butt
Inch	mm			EPDM	PTFE	PTFE
1/2"	20	16	V86	630254105	630244105	550244005
3/4"	25	20	V86	630254107	630244107	550244007
1"	32	25	V86	630254110	630244110	550244010
1-1/4"	40	32	V86	-	-	-
1-1/2"	50	40	V86	630254115	630244115	-
2"	63	50	V86	630254120	630244120	-

Installation and operating instructions

- The valves must be installed without tension, and if possible with a detachable connection.
- Any desired installation position is possible, and has no influence on the function.
- Pay attention to the flow direction. This identified on the valve by an arrow.
- Install a dirt trap for dirty media and media carrying particles.
- Before start-up, we recommend tightening the housing screws (see table below).

Setting the operating pressure

- Unscrew the grey protective cap from the upper body
- Loosen the lock nut
- Turn the adjustment screw with a screwdriver/spanner wrench as follows:
- Clockwise = Increases the inlet pressure
- Counter clockwise = Reduces the inlet pressure

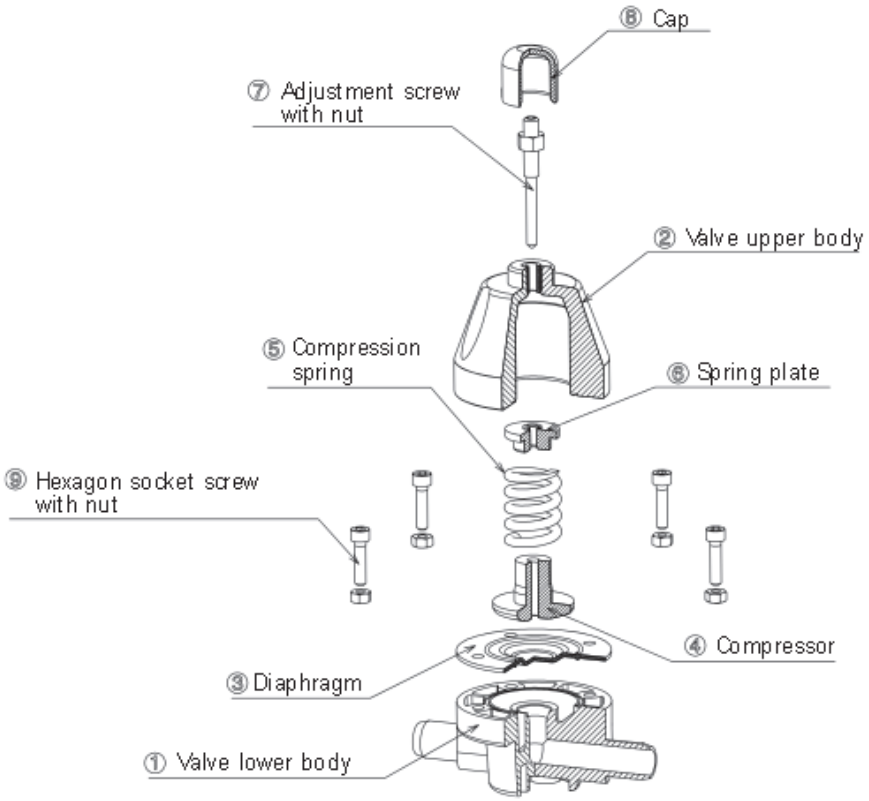
Torque Setting

Type	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
V86/186 Housing	80	80	105	105	175	175	250	250	250

*Torque in in-lbs

Troubleshooting

Problem	Cause	Solution
Leakage at the adjustment screw	Defective diaphragm	Replace the diaphragm or valve
Leakage between upper and lower body	Housing screws are loose	Retighten housing screws
Valve does not close perfectly	Seal seat is dirty or damaged	Backwash or otherwise clean the seal
Pressure rises above the set value	Piston or diaphragm is leaky	Replace valve or repair at Asahi



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