High Pressure, Check Valve

Lift Type

Model 80N

- Pump check valve
- One-way zone isolation
- Return flow prevention

The Model 80N Check Valve is a non-slam, lift type, non return valve that opens to allow flow in the required direction and smoothly closes drip tight to prevent back flow.

Features and Benefits

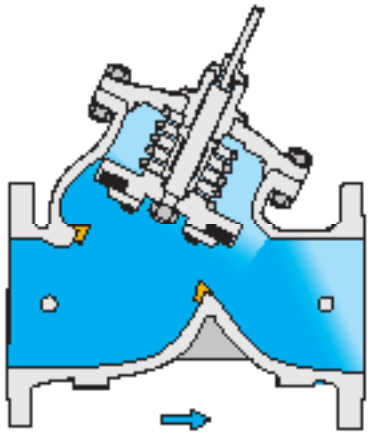
- **Non-slam closing –** Eliminates system surges
- **In-line serviceable –** Easy maintenance
- **Flexible design –** Convertible to hydraulic valve
- **"Y" or angle, wide body –** Minimized pressure loss
- **Semi-straight flow –** Non-turbulent flow
- **Stainless Steel raised seat –** Cavitation damage resistant
- **Obstacle free, full bore –** Uncompromising reliability

Major Additional Features

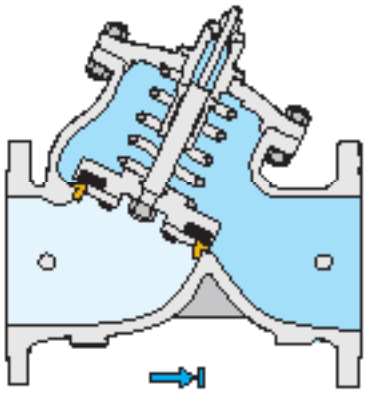
- Valve position indicator – **80N-I**
- Electric limit switch – **80N-S**
- Double check valve – **82N**

Operation

The Model 80N is built on a standard 800 Series body assembly and reacts to differential pressure across its seal disk. It opens and closes in a non-slam manner according to the flow.
A spring provides additional closing force.

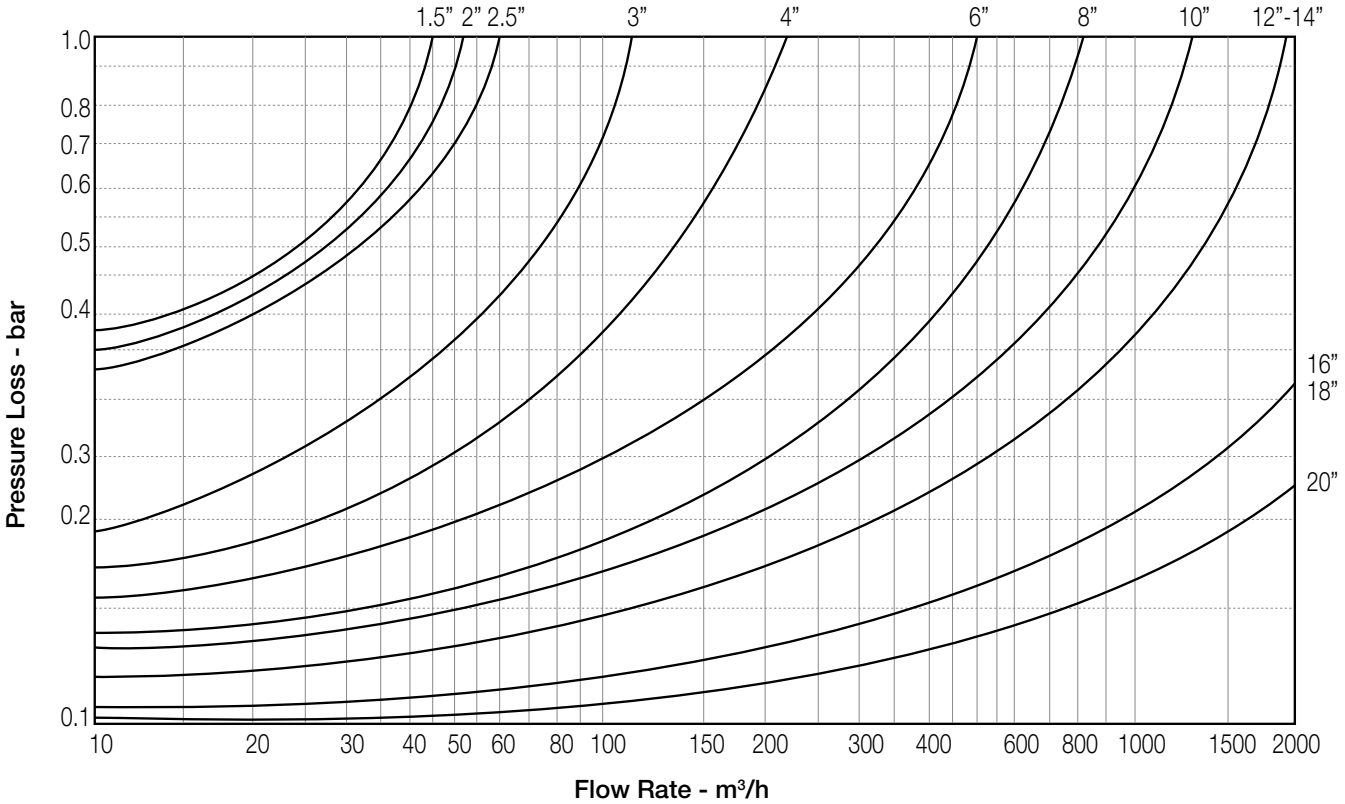


Normal flow



Back flow prevented

Flow Chart



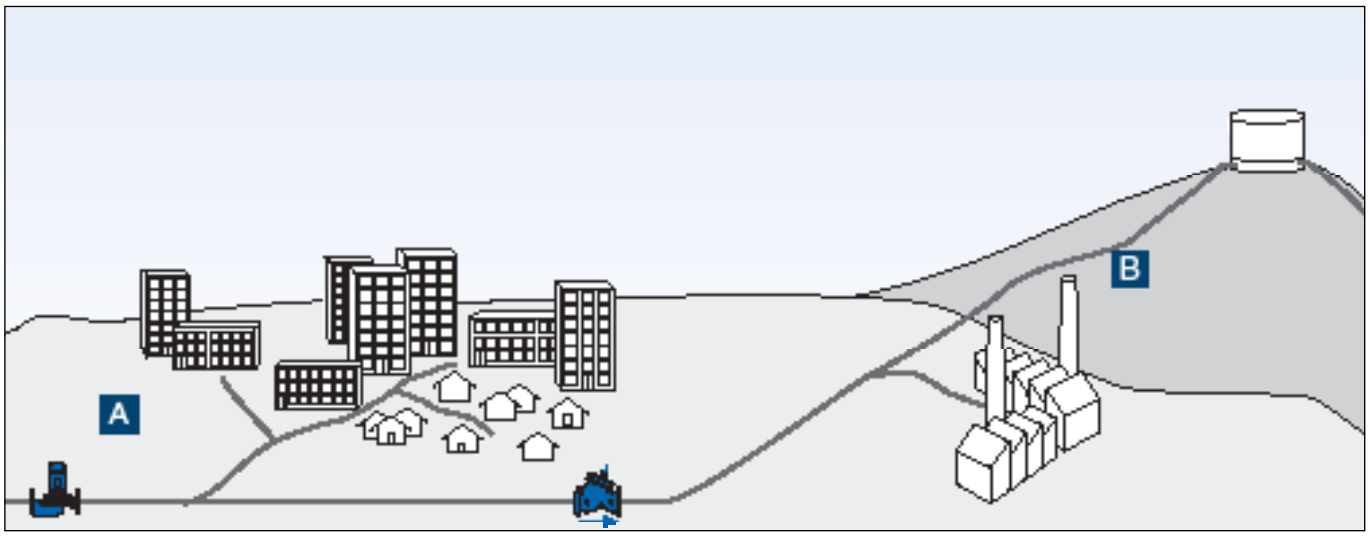
Notes:

- Recommended continuous flow velocity: 0.3-6.0 m/sec ; 1-20 ft/sec
- Minimum operating pressure: 0.7 bar ; 10 psi.

Typical Applications

One-Way Zone Isolation

In complex distribution networks, multiple zones are supplied from multiple sources. Each zone has its own characteristic demands and each source has its characteristic capacity. Often each source is designated to serve a specific zone, with a backup supply designed into the system.



In this system, source **A** supplies zone **A** and backs up the farther zone. Source **B** supplies zone **B**, but does not have enough capacity to backup any other zone.
The Model 80N Check Valve, installed between the zones, allows flow from source **A** to zone **B**, but not from source **B** to zone **A**.

Pump Check Valve

Technical Data

Size Range: DN40-500 ; 1½–20”

End Connections (Pressure Ratings):

Flanged: ISO PN16, PN25, PN40 ; ANSI Class 150, 300, 400

Threaded: BSP or NPT

Others: Available on request

Valve Patterns: “Y” (globe) & angle

Working Temperature: Water up to 80°C ; 180°F

Standard Materials:

Body: Cast Carbon Steel; Ductile Iron; Stainless Steel 316

Cover: Stainless Steel 316; Bronze

Internals: Stainless Steel & Bronze

Seals: Synthetic Rubber

Coating: Fusion Bonded Epoxy, RAL 5005 (Blue) approved for drinking water or Electrostatic Polyester Powder

Differential Pressure Calculation

$$\Delta P = \left(\frac{Q}{(Kv;Cv)}\right)^2$$

ΔP = Differential Pressure for fully open valve (bar; psi)

Q = Flow rate (m^3/h; gpm)

Kv = Metric system - valve flow coefficient (flow in m^3/h at 1 bar ΔP with 15°C water)

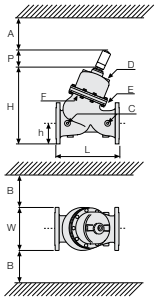
Cv = US system - Valve flow coefficient (flow in gpm at 1 psi ΔP with 60°F water)

Cv = 1.155 Kv

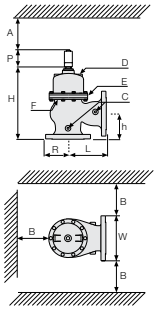
Flow Data & Dimensions Table

		DN / Size	40	1.5"	50	2"	65	2.5"	80	3"	100	4"	150	6"	200	8"	250	10"	300	12"	350	14"	400	16"	450	18"	500	20"
Flow Data	800 "Y"	Kv / Cv - "Y" Flat	42	49	50	58	55	64	115	133	200	230	460	530	815	940	1,250	1,440	1,850	2,140	1,990	2,300	3,310	3,820	3,430	3,960	3,550	4,100
		Kv / Cv - "Y" V-Port	36	41	43	49	47	54	98	113	170	200	391	450	693	800	1,063	1,230	1,573	1,820	1,692	1,950	2,814	3,250	2,916	3,370	3,018	3,490
	800 Angle	Kv / Cv - "A" Flat	46	53	55	64	61	70	127	146	220	250	506	580	897	1,040	1,375	1,590	2,035	2,350	2,189	2,530	3,641	4,210	3,773	4,360	-	-
		Kv / Cv - "A" V-Port	39	45	47	54	51	59	108	124	187	220	430	500	762	880	1,169	1,350	1,730	2,000	1,861	2,150	3,095	3,580	3,207	3,710	-	-
800 "Y" Flanged	PN10; 16 Class 150	L (mm / inch)	205	8.1	210	8.3	222	8.7	250	9.8	320	12.6	415	16.3	500	19.7	605	23.8	725	28.5	733	28.9	990	39.0	1,000	39.4	1,100	43.3
		W (mm / inch)	156	6.1	166	6.5	190	7.5	200	7.9	229	9.0	286	11.3	344	13.5	408	16.1	484	19.1	536	21.1	600	23.6	638	25.1	716	28.2
		h (mm / inch)	78	3.1	83	3.3	95	3.7	100	3.9	115	4.5	143	5.6	172	6.8	204	8.0	242	9.5	268	10.6	300	11.8	319	12.6	358	14.1
		H (mm / inch)	260	10.2	265	10.4	278	10.9	327	12.9	409	16.1	526	20.7	650	25.6	763	30.0	942	37.1	969	38.1	1,154	45.4	1,173	46.2	1,211	47.7
		P (mm / inch)	-	-	-	-	-	-	-	-	-	-	135	5.3	135	5.3	142	5.6	154	6.1	154	6.1	191	7.5	191	7.5	191	7.5
		Weight (Kg/lb)	10.7	24	13	29	16	35	28	62	48	106	94	207	162	356	272	598	455	1,001	482	1,060	1,000	2,200	1,074	2,363	1,096	2,411
	PN25; 40 Class 300	L (mm / inch)	205	8.1	210	8.3	222	8.7	264	10.4	335	13.2	433	17.0	524	20.6	637	25.1	762	30.0	767	30.2	1,024	40.3	1,030	40.6	1,136	44.7
		W (mm / inch)	156	6.1	166	6.5	190	7.5	210	8.3	254	10.0	318	12.5	382	15.0	446	17.6	522	20.6	590	23.2	650	25.6	714	28.1	778	30.6
		h (mm / inch)	78	3.1	83	3.3	95	3.7	105	4.1	127	5.0	159	6.3	191	7.5	223	8.8	261	10.3	295	11.6	325	12.8	357	14.1	389	15.3
		H (mm / inch)	260	10.2	265	10.4	278	10.9	332	13.1	422	16.6	542	21.3	666	26.2	783	30.8	961	37.8	996	39.2	1,179	46.4	1,208	47.6	1,241	48.9
		P (mm / inch)	-	-	-	-	-	-	-	-	-	-	135	5.3	135	5.3	142	5.6	154	6.1	154	6.1	191	7.5	191	7.5	191	7.5
		Weight (Kg/lb)	11.8	26	15	33	18.4	40	32	70	56	123	106	233	190	418	307	675	505	1,111	549	1,208	1,070	2,354	1,095	2,409	1,129	2,484
800 Angle, Flanged	PN10; 16 Class 150	L (mm / inch)	124	4.9	124	4.9	149	5.9	152	6.0	190	7.5	225	8.9	265	10.4	320	12.6	396	15.6	400	15.7	450	17.7	450	17.7	-	-
		W (mm / inch)	156	6.1	166	6.5	190	7.5	200	7.9	229	9.0	285	11.2	344	13.5	408	16.1	496	19.5	528	20.8	598	23.5	640	25.2	-	-
		R (mm / inch)	78	3.1	83	3.3	95	3.7	100	3.9	115	4.5	143	5.6	172	6.8	204	8.0	248	9.8	264	10.4	299	11.8	320	12.6	-	-
		h (mm / inch)	85	3.3	85	3.3	109	4.3	102	4.0	127	5.0	152	6.0	203	8.0	219	8.6	273	10.7	279	11.0	369	14.5	370	14.6	-	-
		H (mm / inch)	252	9.9	252	9.9	271	10.7	308	12.1	390	15.4	476	18.7	619	24.4	717	28.2	911	35.9	915	36.0	1,144	45.0	1,144	45.0	-	-
		P (mm / inch)	-	-	-	-	-	-	-	-	-	-	141	5.6	141	5.6	156	6.1	156	6.1	156	6.1	195	7.7	195	7.7	-	-
		Weight (Kg/lb)	10.7	24.0	13	29.0	16	35.0	26	57.0	46	101	90	198	153	337	259	570	433	953	459	1,010	950	2,090	1,020	2,244	-	-
	PN25; 40 Class 300	L (mm / inch)	124	4.9	124	4.9	149	5.9	159	6.3	200	7.9	234	9.2	277	10.9	336	13.2	415	16.3	419	16.5	467	18.4	467	18.4	-	-
		W (mm / inch)	150	5.9	155	6.1	190	7.5	200	7.9	254	10.0	318	12.5	381	15.0	446	17.6	522	20.6	586	23.1	650	25.6	716	28.2	-	-
		R (mm / inch)	78	3.1	85	3.3	95	3.7	105	4.1	127	5.0	159	6.3	191	7.5	223	8.8	261	10.3	293	11.5	325	12.8	358	14.1	-	-
		h (mm / inch)	85	3.3	85	3.3	109	4.3	109	4.3	135	5.3	165	6.5	216	8.5	236	9.3	294	11.6	299	11.8	386	15.2	386	15.2	-	-
		H (mm / inch)	252	9.9	264	10.4	271	10.7	315	12.4	398	15.7	491	19.3	632	24.9	733	28.9	930	36.6	935	36.8	1,160	45.7	1,160	45.7	-	-
		P (mm / inch)	-	-	-	-	-	-	-	-	-	-	141	5.6	141	5.6	156	6.1	156	6.1	156	6.1	195	7.7	195	7.7	-	-
		Weight (Kg/lb)	11.8	26	15	33	18.4	40	30	66	54	119	101	222	179	394	292	642	481	1,058	523	1,151	1,017	2,237	1,051	2,312	-	-

“Y” Pattern



Angle Pattern



Specify when ordering:

- Size
- Main model
- Additional features
- Pattern
- Body material
- End connection
- Coating
- Voltage & main valve position
- Tubing & Fittings materials
- Operational data (according to model)
- Pressure data
- Flow data
- Reservoir level data
- Settings

* Use Bermad’s Waterworks Ordering Guide