



Non-Water Hammer Check Valve

Patented in Japan, U.S.A., other

Bore 40-1500mm
Rated pressure 10-40kgf/cm²

Non-Water Hammer Check Valve SL series (PAT.)

No valve closure delay means no water hammer and no noise



The YOKOTA Non-Water Hammer Check Valve is a high performance check valve that safely and economically eliminates the danger of water hammer which is a major problem in pumping and water supply equipment.

Mining of underground resources such as coal, from hundreds of meters underground involved contending with a large amount of water. If a pump stopped operating due to a power failure, intense water hammer would occur causing an accident that could lead to pipe ruptures, pump damage, and even put the lives of workers in danger. The YOKOTA Non-Water Hammer Check Valve clearly solved this problem.

Since then, the valve has been widely adopted in many public facilities such as water supply pumping plants, pumping stations, supply pipelines, agricultural irrigation, and sewage systems, with maximum bore reaching 1350mm. With buildings being built higher and various types of equipment requiring higher pressure, a solution to the water hammer problem has become increasingly important, and we have developed a good reputation through our many achievements in this field. Also, many of our clean-finished Non-Water Hammer Check Valves for ultra-pure water are used in the semiconductor industry.

No water hammer

Due to the patented construction of the valve which opens and closes in response to water flow, there is no delay in valve closure and water hammer does not occur. The valve operates quietly and fits well into quiet surroundings.

Superior characteristics

Head loss of the valve is equivalent to JIS swing check valves and the valve is adaptable to a variety of applications.

Easy to handle

Even the large valves feature simple, single-disk construction that eliminates breakdowns so maintenance costs can be reduced considerably.

No-Feed Detector

The valve can be equipped with the accurate No-Feed Detector (except SL-UC, NU types) facilitating the safest possible automatic pumping.

Example applications

Sapporo City Sewage Department
SL-SH-1000



Filtration plant
Dashpot Type Check Valve
SL-SN-400B



Kanmon Undersea Tunnel
drainage equipment
SL-NBP-200



Steelworks drainage equipment
SL-SH-600

Non-water hammer principle (PAT.)

The YOKOTA Non-Water Hammer Check Valve adjusts to the flow so that there is no valve closure delay and water hammer does not occur.

Phenomenon of water hammer

In a pumping system without a check valve, when pump input stops suddenly, the flow in the pipe goes through stages of "normal rotation, normal flow", "normal rotation, reverse flow", and "reverse rotation, reverse flow" and reaches a stable state. In such a case, the maximum pressure increase reaches 150-160% of the total pump head, which is comparatively small. However, check valves are normally installed in actual pump systems, and the situation is entirely different.

Conventional check valves

With conventional check valves, there is a tendency for valves to begin to close only when pressed by reverse flow. Instantaneous stoppage of reverse flow causes pressure to rise resulting in a noise similar to striking a pipe with a hammer, and in some cases, this causes a blowout in the discharge line.

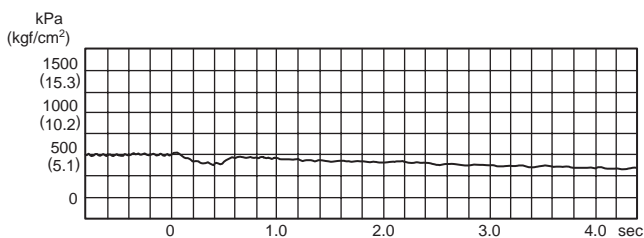
The YOKOTA Non-Water Hammer Check Valve

Water hammer does not occur.

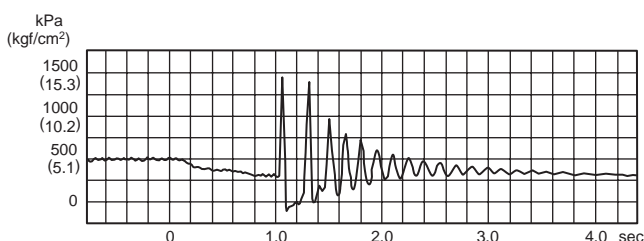
According to our patented non-water hammer principle, the valve disk of the YOKOTA Non-Water Hammer Check Valve is designed to be submerged in, and suspended by the water flowing in the pipes during maximum flow. When normal flow begins to slow down, the valve disk begins to close in response to this. The instant that flow reverses, in other words, when the water in the pipe stops, the valve disk closes completely and water hammer does not occur. This is similar to the shock eliminating effect of a ball that is thrown upward and caught at the moment when it begins to fall.

Comparative test....Pressure change with time after pump operation is stopped

YOKOTA Non-Water Hammer Check Valve

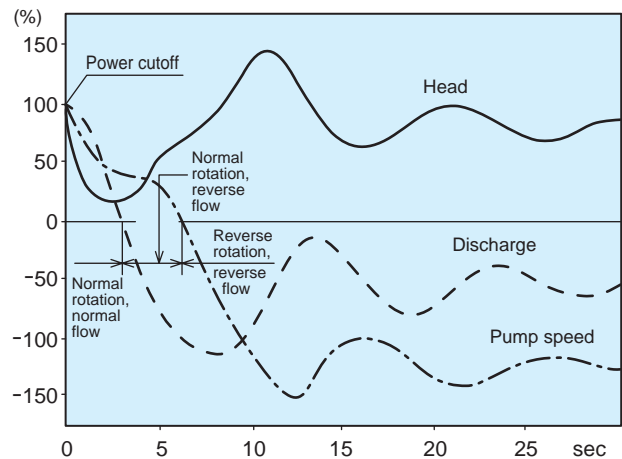


Conventional check valve

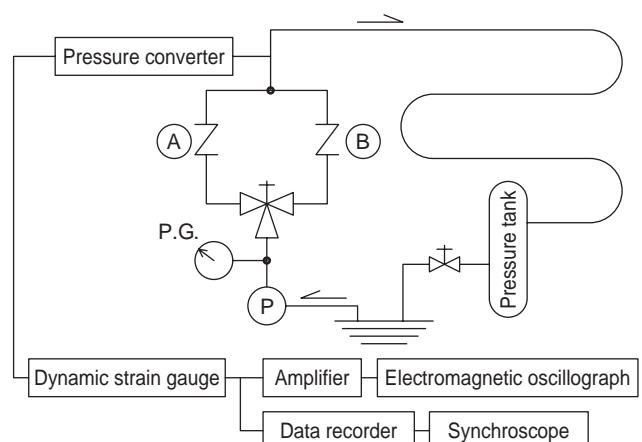
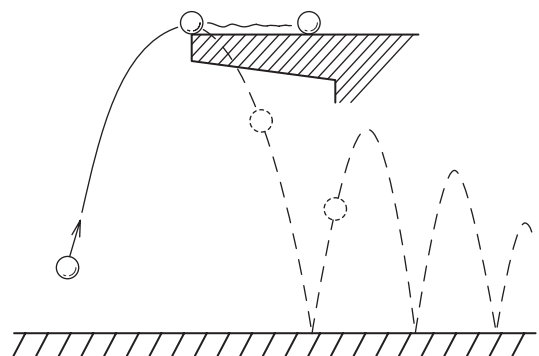


Type of pump: Self-priming centrifugal pump
Pump specification: 12m³/h x 50m x 3500rpm x 7.5kW
Discharge pipe: 40mm SGP13m
Recording paper feed rate: 50mm/sec

Condition in pump immediately after power failure (without check valve)



Concept of the YOKOTA Non-Water Hammer Check Valve





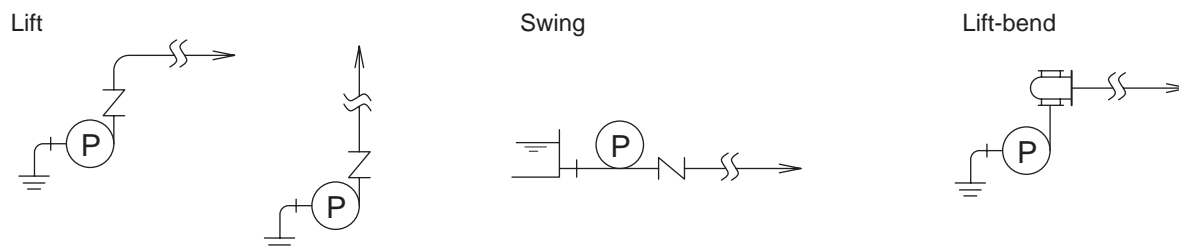
Non-Water Hammer Check Valve

Patented in Japan, U.S.A., other

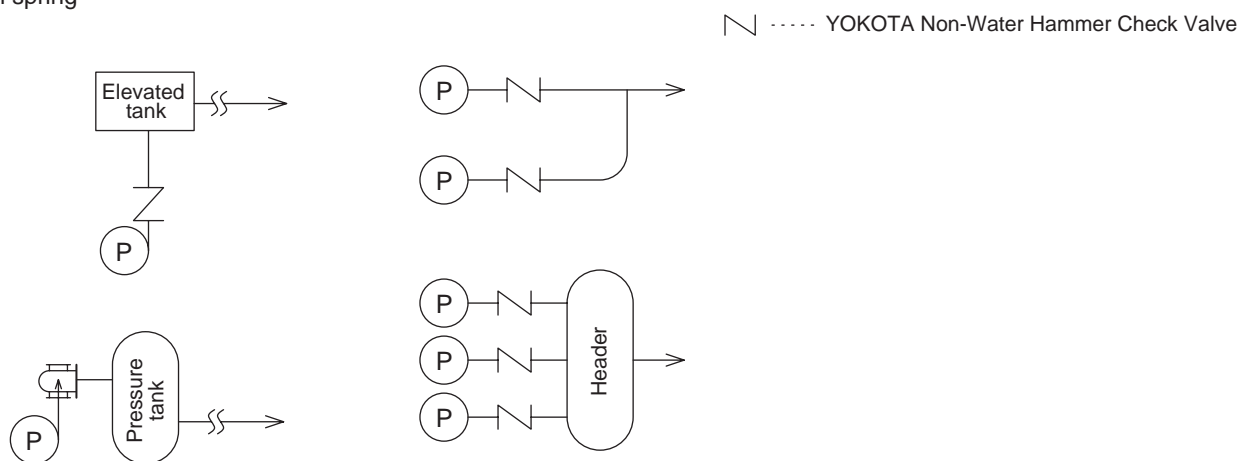
Bore 40-1500mm
Rated pressure 10-40kgf/cm²

Examples of non-water hammer pumping systems

Solution to water hammer caused by simple reverse flow
Eliminated with only the Non-Water Hammer Check Valve

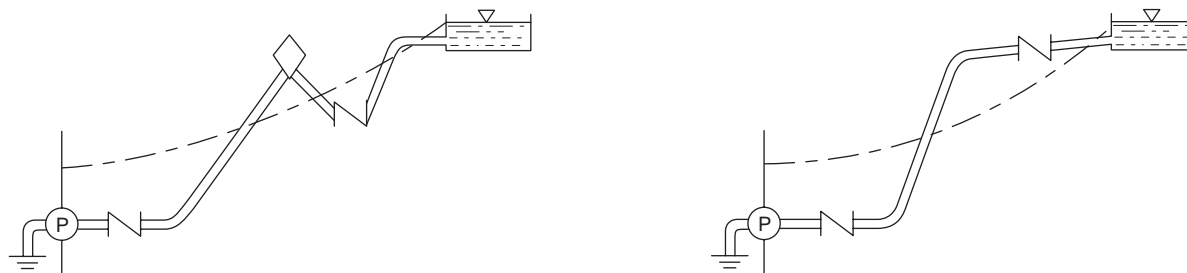


With coil spring



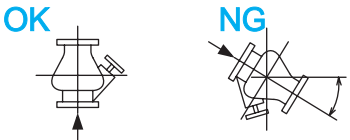
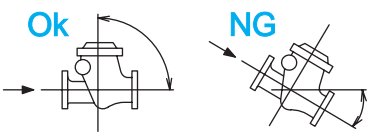

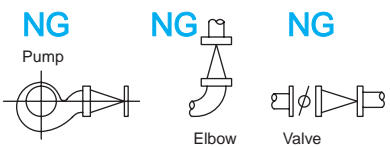
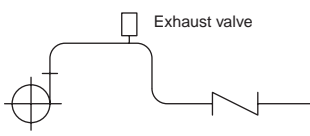
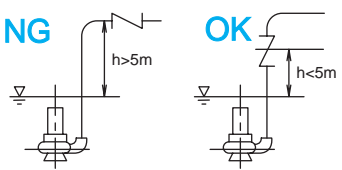
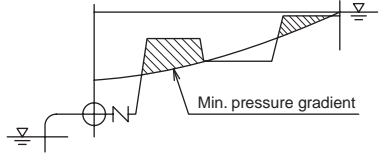
Solution to water hammer caused by recombined flow after water column separation
Surge tank is not required because of patented non-water hammer principle

..... YOKOTA Non-Water Hammer Check Valve
 Air valve



Note : Keep by-pass valves of YOKOTA Non-Water Hammer Check Valves open except the one nearest to the pump on the discharge side.

Please note the following points when installing the Non-Water Hammer Check Valve.

1	Do not install with the discharge side facing downward.	
2	Do not install with the discharge side facing downward.	
3	SL-SN, SH types must not be installed in a leaning position.	
4	The check valve must not be exposed to any deflected flow directly after the pump or other valve.	
5	If air is trapped in the pipe before the check valve, chattering may occur when starting pump operation. Make sure to install an exhaust valve in such cases.	
6	If the check valve on a submerged or vertical pump is installed at ground level, the inlet side of the check valve may become a vacuum when the pump is stopped and may cause water hammer. Carefully plan the location of the check valve in such cases.	
7	In addition to water hammer directly after the discharge of the pump, examine surging due to negative pressure in the middle of piping. (Please contact us for details.)	











Non-Water Hammer Check Valve

Patented in Japan, U.S.A., other

Bore 40-1500mm
Rated pressure 10-40kgf/cm²

SL series lineup

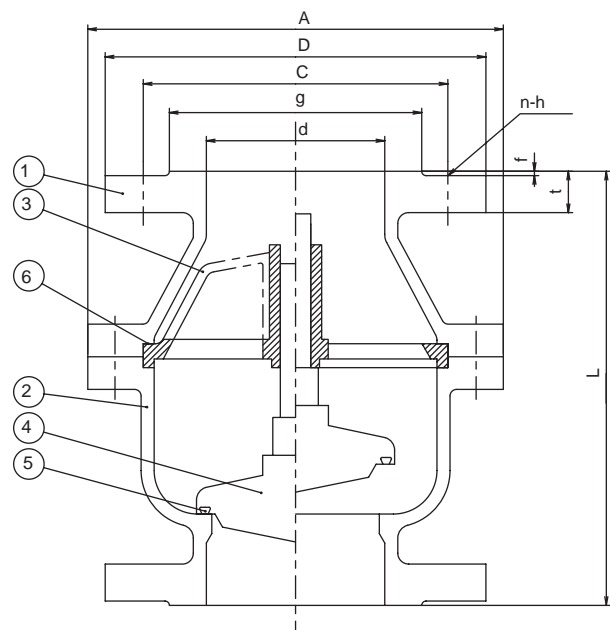
SL-UC Lift type For ultra-pure water		The smoothness of the water-contacting surface is achieved by machining all of the metal parts from stainless steel billets. After electrolysis polishing to the same level as applied to UV oxidation devices, we remove all grease and apply a special grease-proof treatment we have perfected over many years. Additionally, the valve can be completely sealed after being washed with pure water and purged with nitrogen gas upon request. Bore 40-150mm	▶ 93
SL-NU Lift type		This valve is easy to install, highly reliable and safe, and therefore quite suitable to automatic pumping systems. We also manufacture grease-proof treated products using stainless steel material for pure water lines, and have provided an even cleaner electrolysis-polished Non-Water Hammer Check Valve (SL-UC) for ultra-pure water lines. Bore 40-300mm	▶ 94
SL-NB SL-NBP Lift-bend type		Because of its excellent characteristics and convenient design, highly reliable automatic pumping can be easily accomplished. Bore 40-300mm	▶ 95
SL-SN SL-SNP Swing type		This swing type check valve with a built-in counterweight is designed taking into account the inertial moment of the center of gravity of the valve disk. The valve seat is uniquely sloped and the case configuration in front of, and behind the valve seat is designed to facilitate immediate valve closure. Inspection of the interior can be performed easily by removing the valve cover. Bore 50-450mm	▶ 96
SL-SH SL-SHP Swing type		Even the large valves feature simple, single-disk construction (with a built-in counterweight), so highly reliable automatic pumping can be easily accomplished. Bore 500-1500mm	▶ 97
SL-SN-D SL-SNP-D SL-SH-D SL-SHP-D Swing type Dashpot Type Check Valve (Buffered closing main valve)		By making full use of the Non-Water Hammer Check Valve features, which prevents water hammer, and by adding the function of the dashpot, shock is completely absorbed even in short pipes with low head. Bore 150-1500mm	▶ 98
SL-SN-B SL-SNP-B SL-SH-B SL-SHP-B Swing type Dashpot Type Check Valve (Buffered closing by-pass valve)		Based on non-water hammer principle, closure delay of the main valve disk is eliminated and water hammer and shock do not occur. Also, the patented mechanism, including the buffered closing by-pass valve, prevents pressure increase after main valve disk closure. Therefore, the valve is an ideal device that can be used extensively in low to high head specifications. Bore 150-1500mm	▶ 100
No-Feed Detector		The YOKOTA No-Feed Detector is a safety device to prevent the pump from dry operation. Reacting to the movement of the check valve, the switch cuts off power automatically when the amount of flow is close to zero.	▶ 102

Note:

P denotes that the check valve is equipped with a No-Feed Detector.

SL-UC
 (Bore 40-150mm)
Lift type (For ultra-pure water)

It's clean!
 The smoothness of the water-contacting surface is achieved by machining all of the metal parts from stainless steel billets. After electrolysis polishing to the same level as applied to UV oxidization devices, we remove all grease and apply a special grease-proof treatment we have perfected over many years. Additionally, the valve can be completely sealed after being washed with pure water and purged with nitrogen gas upon request.



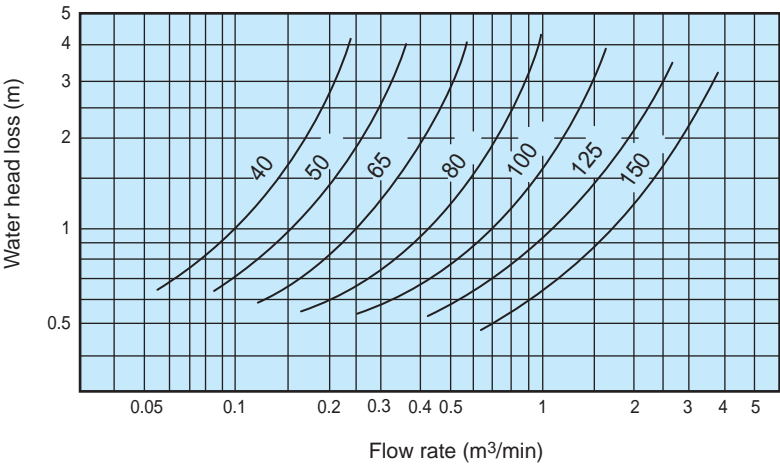
Part name		Material
1	Valve case (upper section)	SUS316
2	Valve case (lower section)	SUS316
3	Guide arm	SUS316
4	Valve disk	SUS316
5	Seal ring	Crystal rubber
6	Gasket	Teflon

Unit : mm

Bore d	JIS 10K standard									Weight (kg)
	L	A	D	t	f	g	C	n	h	
40	120	150	140	16	2	81	105	4	19	7
50	140	155	155	16	2	96	120	4	19	9
65	160	180	175	18	2	116	140	4	19	13
80	180	190	185	18	2	126	150	8	19	15
100	210	225	210	18	2	151	175	8	19	22
125	260	265	250	20	2	181	210	8	23	38
150	300	300	280	22	2	212	240	8	23	50

Note:
 • We also manufacture using SUS316L material.

SL-UC type characteristics (Water head loss - Flow rate)





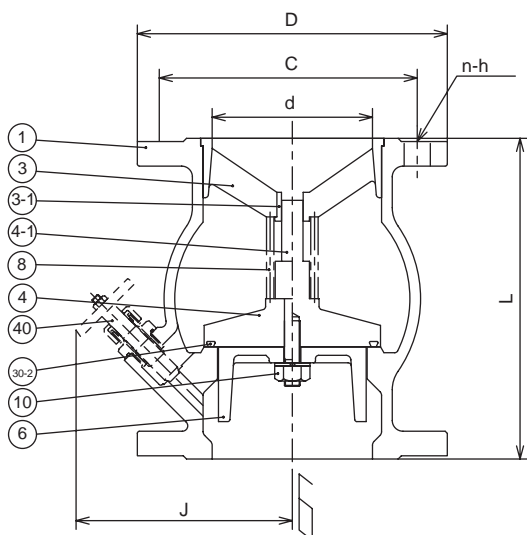
Non-Water Hammer Check Valve

Patented in Japan, U.S.A., other

Bore 40-1500mm
Rated pressure 10-40kgf/cm²

SL-NU (Bore 40-300mm) Lift type

This valve is easy to install, highly reliable and safe, and therefore quite suitable to automatic pumping systems. We also manufacture grease-proof treated products using stainless steel material for pure water lines, and have provided an even cleaner electrolysis-polished Non-Water Hammer Check Valve (SL-UC) for ultra-pure water lines.



Part name	Material code (JIS 10K standard)				
	B	F	G	X, Y	
1 Valve case	FC	FC	FC	SCS	
3 Guide arm	FC	SCS/FC	SCS/FC	SCS	
3-1 Guide bush	C3603	SUS	SUS	SUS	
4 Valve disk	FC	FC	SCS	SCS	
4-1 Valve rod	SUS	SUS	SUS	SUS	
6 Valve guide	CAC406	SCS	SCS	SCS	
7 Valve seat	CAC406	SCS	SCS	-	
8 Coil sleeve	SUS	SUS	SUS	SUS	
10 Nut	SUS	SUS	SUS	SUS	
30-2 Seal ring	CR	CR	NBR	NBR	
40 By-pass valve	(C3603)	(C3603)	(SUS)	(SUS)	

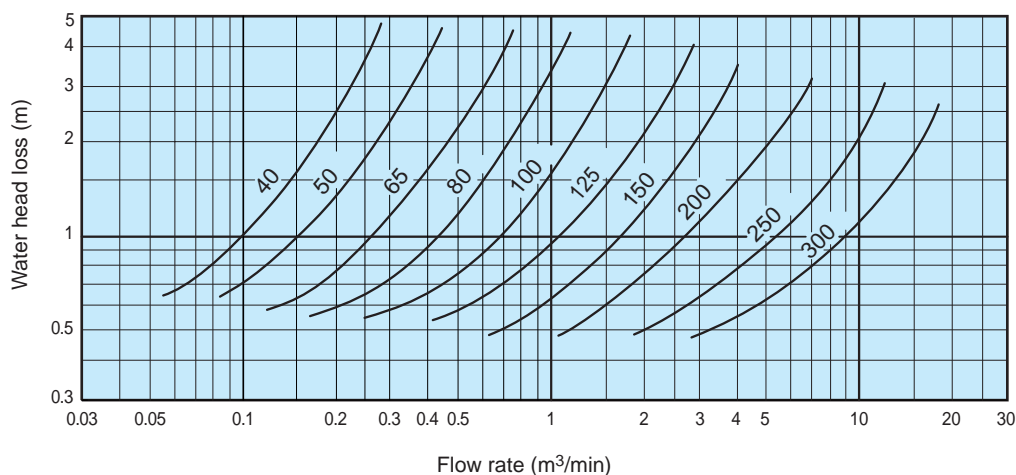
Note:

- Material code X denotes SCS13, material code Y denotes SCS14.
- We also manufacture other materials such as FCD and special duplex type stainless steel.
- Regarding material code B and F, the seal ring is replaced by a valve liner when material of the valve disk is FC.
- The by-pass valve is an optional part.
- The guide arm and the guide bush are integrated for valves with a bore of 125mm or less.
- Material may change according to bore size.
- Please contact us about installation in horizontal piping.
- Applicable liquid temperature : 0-80 deg C
- Please contact us if liquid temperature is more than 80 deg C.
- We also manufacture valves that meet flange standards higher than JIS 20K and waterworks standard (equivalent to JIS B2062).

Unit : mm

Bore d	JIS 10K standard						Weight (kg)
	L	J	D	C	n	h	
40	120	105	140	105	4	19	5
50	140	110	155	120	4	19	7
65	160	120	175	140	4	19	10
80	180	125	185	150	8	19	12
100	210	130	210	175	8	19	17
125	260	185	250	210	8	23	30
150	300	210	280	240	8	23	38
200	380	235	330	290	12	23	75
250	450	285	400	355	12	25	120
300	540	325	445	400	16	25	180

SL-NU type characteristics (Water head loss - Flow rate)



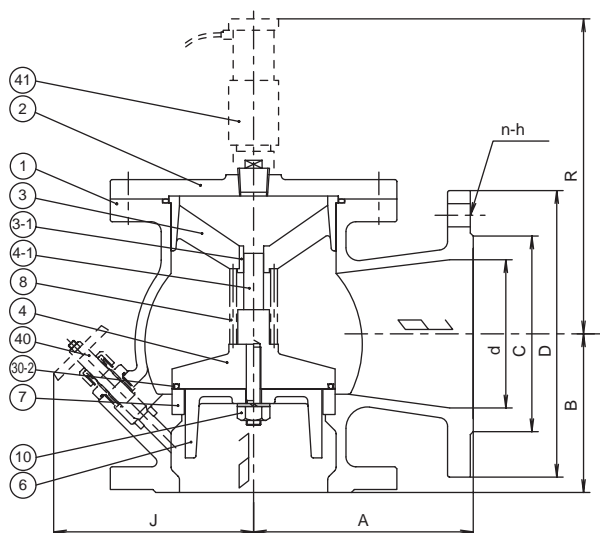
SL-NB

SL-NBP (P denotes that the check valve is equipped with a No-Feed Detector.)

(Bore 40-300mm)

Lift-bend type

Because of its excellent characteristics and convenient design, highly reliable automatic pumping can be easily accomplished.



Part name		Material code (JIS 10K standard)			
		B	F	G	X, Y
1	Valve case	FC	FC	FC	SCS
2	Valve cover	FC	FC	FC	SCS
3	Guide arm	FC	SCS/FC	SCS/FC	SCS
3-1	Guide bush	C3603	SUS	SUS	SUS
4	Valve disk	FC	FC	SCS	SCS
4-1	Valve rod	SUS	SUS	SUS	SUS
6	Valve guide	CAC406	SCS	SCS	SCS
7	Valve seat	CAC406	SCS	SCS	-
8	Coil sleeve	SUS	SUS	SUS	SUS
10	Nut	SUS	SUS	SUS	SUS
30-2	Seal ring	C R	C R	NBR	NBR
40	By-pass valve	(C3603)	(C3603)	(SUS)	(SUS)
41	No-Feed Detector	(C3603)	(C3603)	(SUS)	(SUS)

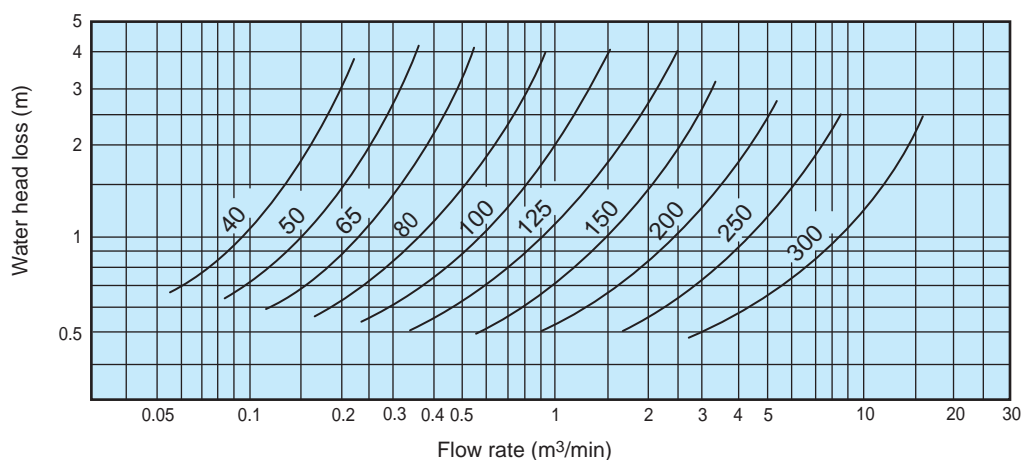
Note:

- Material code X denotes SCS13, material code Y denotes SCS14.
We also manufacture other materials such as FCD and special duplex type stainless steel.
- Regarding material code B and F, the seal ring is replaced by a valve liner when material of the valve disk is FC.
- The by-pass valve and the No-Feed Detector are optional parts.
- The guide arm and the guide bush are integrated for valves with a bore of 125mm or less.
- Material may change according to bore size.
- Applicable liquid temperature: 0-80 deg C
Please contact us if liquid temperature is more than 80 deg C.
- We also manufacture valves that meet flange standards higher than JIS 20K and waterworks standard (equivalent to JIS B2062).

Unit : mm

Bore d	JIS 10K standard							With a No-Feed Detector R	Weight (kg)
	A	B	J	D	C	n	h		
40	100	80	105	140	105	4	19	165	8
50	120	100	110	155	120	4	19	170	10
65	130	110	120	175	140	4	19	180	14
80	150	120	125	185	150	8	19	190	17
100	175	120	130	210	175	8	19	210	23
125	200	150	185	250	210	8	23	265	43
150	215	160	210	280	240	8	23	290	63
200	280	200	235	330	290	12	23	330	100
250	300	235	290	400	355	12	25	370	150
300	380	260	325	445	400	16	25	435	230

SL-NB type characteristics (Water head loss - Flow rate)





Non-Water Hammer Check Valve

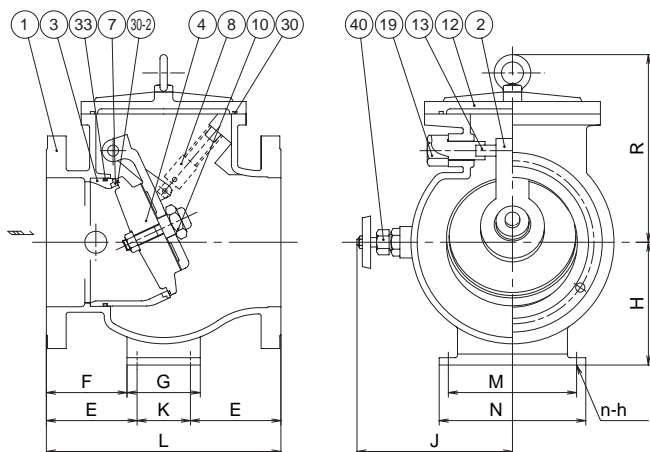
Patented in Japan, U.S.A., other
 Bore 50-1500mm
 Rated pressure 10-40kgf/cm²

SL-SN

SL-SNP (P denotes that the check valve is equipped with a No-Feed Detector.)
 (Bore 50-450mm)

Swing type

This swing type check valve with a built-in counterweight is designed taking into account the inertial moment of the center of gravity of the valve disk. The valve seat is uniquely sloped and the case configuration in front of, and behind the valve seat is designed to facilitate immediate valve closure. Inspection of the interior can be performed easily by removing the valve cover.



Part name		Material code (JIS 10K standard)			
		B	F	G	X,Y
1	Valve case	FC	FC	FC	SCS
2	Valve cover	FC	FC	FC	SCS
3	Seat holder	FC	FC	FC	SCS
4	Valve disk	FC	FC	SUS	SUS
7	Valve seat	CAC406	SUS	SUS	SUS
8	Coil sleeve	(SUS)	(SUS)	(SUS)	(SUS)
10	Valve spindle	SUS	SUS	SUS	SUS
12	Valve arm	SCS	SCS	SCS	SCS
13	Valve arm pin	SUS	SUS	SUS	SUS
19	Pin holder	SUS	SUS	SUS	SUS
30-2	Seal ring	C R	C R	NBR	NBR
33	O-ring	NBR	NBR	NBR	NBR
40	By-pass valve	C3603	C3603	SUS	SUS
41	No-Feed Detector	(C3603)	(C3603)	(SUS)	(SUS)

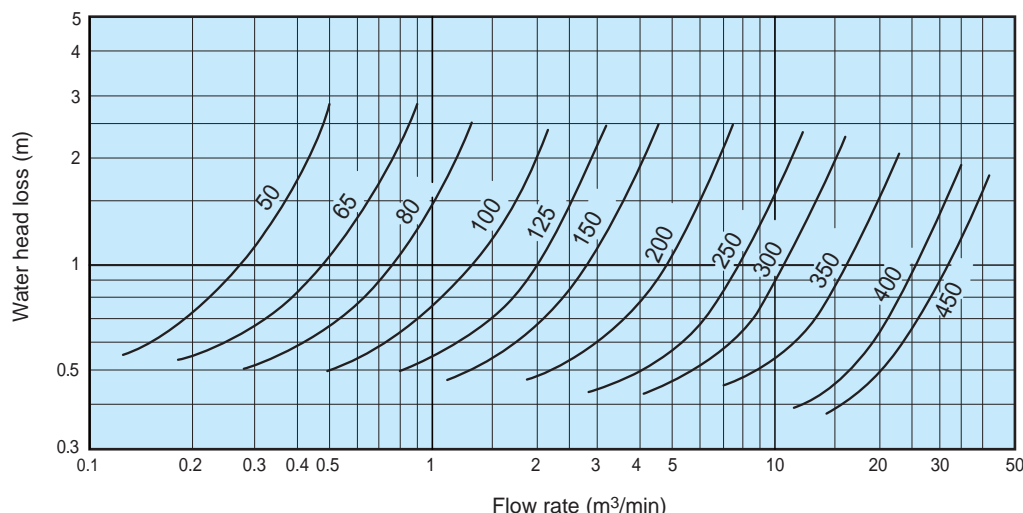
Unit : mm

Bore d	JIS 10K standard											Weight (kg)
	L	R	J	H	E	F	G	K	M	N	n-h	
50	195	148	112	-	-	-	-	-	-	-	-	11
65	210	167	122	-	-	-	-	-	-	-	-	16
80	215	187	122	-	-	-	-	-	-	-	-	18
100	240	197	130	-	-	-	-	-	-	-	-	25
125	270	226	180	-	-	-	-	-	-	-	-	35
150	310	256	190	-	-	-	-	-	-	-	-	60
200	380	316	225	-	-	-	-	-	-	-	-	100
250	430	381	278	255	165	75	150	100	270	320	4-19	171
300	530	413	308	295	200	175	180	130	310	360	4-19	207
350	600	470	332	335	225	200	200	150	350	400	4-19	255
400	700	585	358	375	260	235	230	180	400	450	4-19	448
450	750	600	388	410	275	250	250	200	450	500	4-19	575

Note:

- Material code X denotes SCS13, material code Y denotes SCS14.
- We also manufacture other materials such as FCD and special duplex type stainless steel.
- The coil sleeve and the No-Feed Detector are optional parts.
- The valve arm and the valve disk form the counterweight.
- Regarding material code B and F, the seal ring is replaced by a valve liner when material of the valve disk is FC.
- The seat holder and the valve seat are integrated for valves with a bore of 100mm or less.
- Installation positions of the by-pass valve and the No-Feed Detector are on the right side when viewed from the inlet side. For valves with a bore of 50, 65 or 80mm, the installation position of the by-pass valve is on the bottom.
- Legs can be attached as an option on valves with a bore of 250mm or more.
- We also manufacture valves that meet flange standards higher than JIS 20K and waterworks standard (equivalent to JIS B2062).

SL-SN type characteristics (Water head loss without coil sleeve - Flow rate)



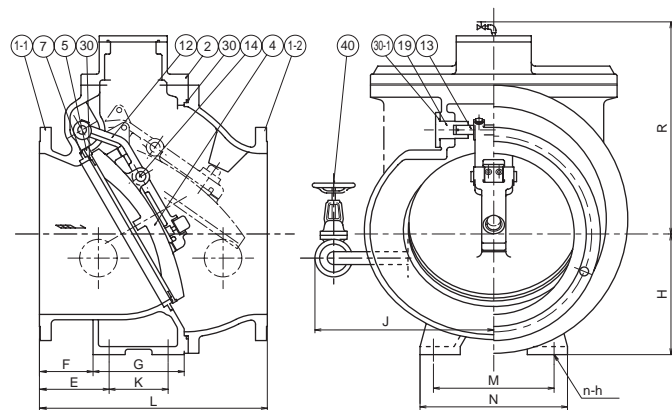
SL-SH

SL-SHP (P denotes that the check valve is equipped with a No-Feed Detector.)

(Bore 500-1500mm)

Swing type

Even the large valves feature simple, single-disk construction (with a built-in counterweight), so highly reliable automatic pumping can be easily accomplished.



Unit : mm

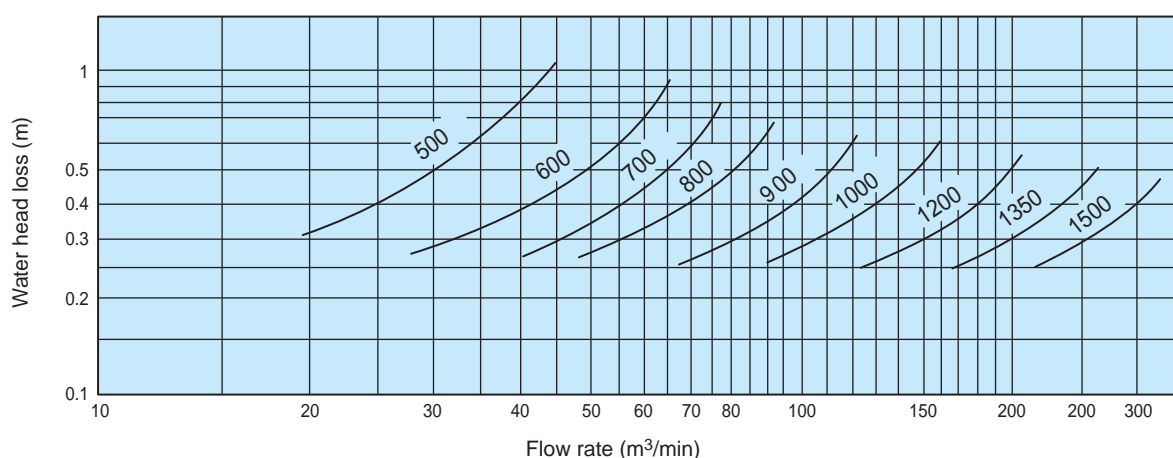
Bore d	JIS 10K standard											Weight (kg)
	L	H	J	R	E	F	G	K	M	N	n-h	
500	800	370	580	750	250	180	340	200	400	500	4-23	800
600	850	450	680	825	260	200	340	220	450	550	4-23	1050
700	950	500	800	980	300	215	420	250	480	600	4-27	1900
800	1050	540	800	980	300	230	420	280	500	600	4-27	2000
900	1250	650	1000	1140	360	260	530	340	800	900	4-27	3000
1000	1300	650	1000	1140	410	310	530	340	800	900	4-27	3200
1200	1650	900	1255	1620	500	325	650	400	950	1050	4-35	4900
1350	1700	900	1255	1620	550	375	650	400	950	1050	4-35	7400
1500	2000	1000	1600	2100	550	400	800	500	1100	1200	4-39	9000

Part name		Material code (JIS 10K, Waterworks standard)			
		B	F	G	X, Y
1-1	Inlet case	FC	FC	FC	SCS
1-2	Outlet case	FC	FC	FC	SCS
2	Valve cover	FC	FC	FC	SCS
4	Valve disk	FC	FC	SCS	SCS
5	Valve liner	SUS	SUS	SUS	SUS
7	Valve seat	SUS	SUS	SUS	SUS
12	Valve arm	SCS	SCS	SCS	SCS
13	Valve arm pin	SUS	SUS	SUS	SUS
14	Valve pin	SUS	SUS	SUS	SUS
19	Pin holder	SCS	SCS	SCS	SCS
30	O-ring	NBR	NBR	NBR	NBR
30-1	O-ring	NBR	NBR	NBR	NBR
30-2	Seal ring	NBR	NBR	NBR	NBR
40	By-pass valve	FC/CAC406	FC/CAC406	FC/SUS	SCS
41	No-Feed Detector	(C3603)	(C3603)	(SUS)	(SUS)

Note:

- Material code X denotes SCS13, material code Y denotes SCS14.
We also manufacture other materials, such as FCD and special duplex type stainless steel.
- The No-Feed Detector is an optional part.
- The valve arm and the valve disk form the counterweight.
- Installation positions of the by-pass valve and the No-Feed Detector are on the right side when viewed from the inlet side.
- May be used in vertical piping, but please pay attention to installation, maintenance and inspection.
- The coil sleeve can be attached as an option.
- Flange dimensions are based on JIS B2239 or waterworks standard (equivalent to JIS B2062).
- We also manufacture valves that meet JIS 20K standard flanges.
Please contact us if a valve with a bore greater than 1500mm is required.

SL-SH type characteristics (Water head loss - Flow rate)





Non-Water Hammer Check Valve

Patented in Japan, U.S.A., other

Bore 40-1500mm
Rated pressure 10-40kgf/cm²

SL-SN-D
SL-SNP-D
(Bore 150-450mm)

SL-SH-D
SL-SHP-D (P denotes that the check valve is equipped with a No-Feed Detector.)
(Bore 500-1500mm
(If a valve with a bore greater than 1500mm is required, please contact us.)

Swing type, Dashpot Type Check Valve (Buffered closing main valve)

A compact dashpot has been built into the YOKOTA Non-Water Hammer Check Valve.

Quiet with no water hammer

There is no delay in the start of valve closure because the valve disk opens and closes in response to the amount of flow. By making full use of the Non-Water Hammer Check Valve features, which prevents water hammer, and by adding the function of the dashpot, shock is completely absorbed even in short pipes with low head.

New dashpot

Based on non-water hammer principle, a unique patented mechanism has been adopted in which the valve disk is connected to the dashpot and buffered closing occurs at a point immediately before valve closure when the flow within the pipe nears a standstill. As a result, the dashpot has been made compact, inexpensive, and operation is reliable.

Built-in counterweight

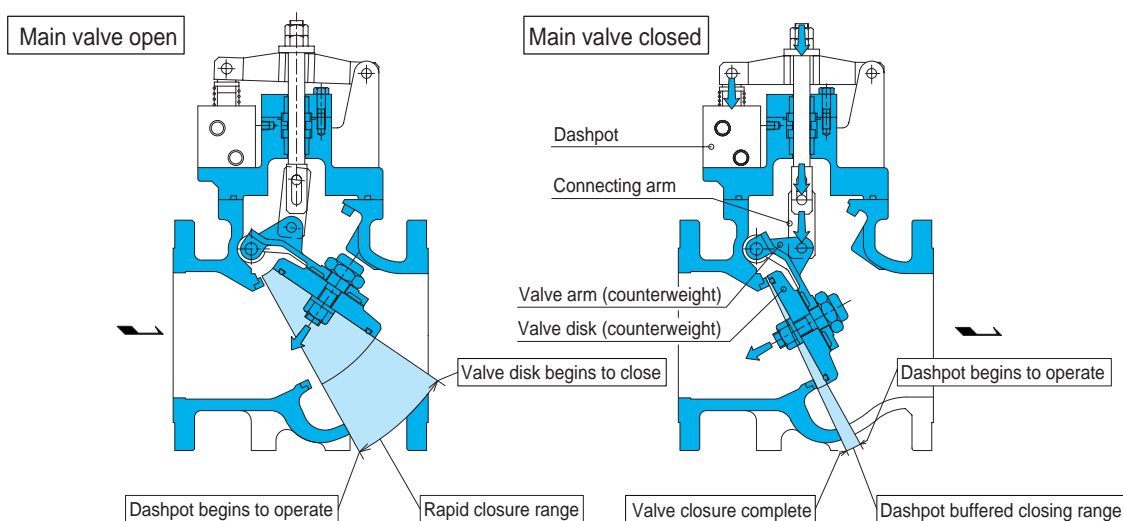
Since the valve arm and the valve disk form the counterweight and the valve seat is designed at an angle to the passage of flow, operation within the range in which the valve disk closes rapidly is smooth and quick.

Buffered closing begins softly

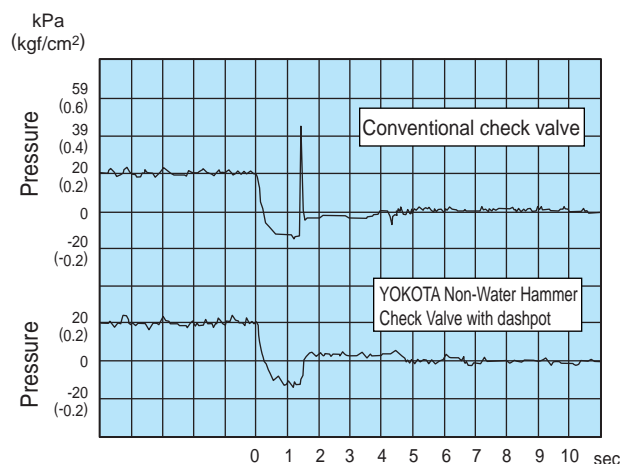
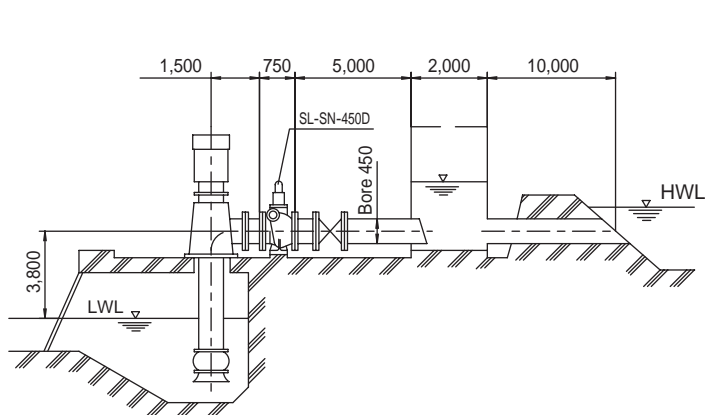
At the point when operation changes from rapid closing to buffered closing, a load begins to bear gradually on the connection pin when the speed of flow nears zero, activating braking by the dashpot. Thus there is no shock to each link and the valve begins to be buffered smoothly.

Easy handling

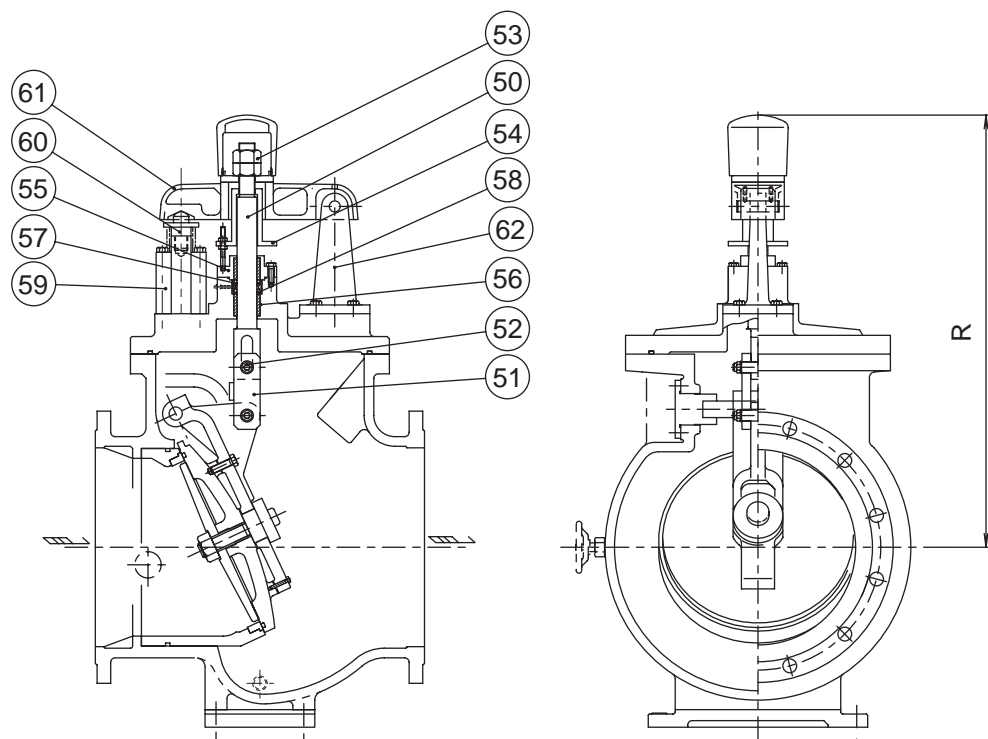
Dashpot buffered closing timing adjustment and maintenance inspections are extremely simple, and maintenance costs can be reduced considerably because of the simple, single-disk construction.



Example of sewage (treatment) plant drainage facility



Outer dimensions



Unit : mm

Bore d	Model No.	Height R
150	SL-SN-150D	450
200	SL-SN-200D	500
250	SL-SN-250D	540
300	SL-SN-300D	700
350	SL-SN-350D	750
400	SL-SN-400D	950
450	SL-SN-450D	950

Unit : mm

Bore d	Model No.	Height R
500	SL-SH- 500D	1200
600	SL-SH- 600D	1250
700	SL-SH- 700D	1550
800	SL-SH- 800D	1550
900	SL-SH- 900D	1750
1000	SL-SH-1000D	1750
1200	SL-SH-1200D	2100
1350	SL-SH-1350D	2300
1500	SL-SH-1500D	2500

As for dimensions not mentioned on this page, please refer to SL-SN type (P.96) and SL-SH type (P.97).

Part name		Material code	
		B,F,G	X,Y
50	Connecting rod	SUS	SUS
51	Connecting arm	SUS	SUS
52	Connecting pin	SUS	SUS
53	Lock nut	SUS	SUS
54	Stopper	CAC406	SUS
55	Packing cover	FC200	SUS
56	Bearing	Submerged bearing	Submerged bearing
57	Packing holder	C3603	SUS
58	U packing	NBR	NBR
59	Dashpot	S45C	S45C
60	Support pivot	SUS	SUS
61	Lever	SUS	SUS
62	Support	SUS	SUS



Non-Water Hammer Check Valve

Patented in Japan, U.S.A., other

Bore 40-1500mm
Rated pressure 10-40kgf/cm²

SL-SN-B
SL-SNP-B
(Bore 150-450mm)

SL-SH-B
SL-SHP-B (P denotes that the check valve is equipped with a No-Feed Detector.)
(Bore 500-1500mm
(If a valve with a bore greater than 1500mm is required, please contact us.)

Swing type, Dashpot Type Check Valve (Buffered closing by-pass valve)

A compact dashpot has been built into the YOKOTA Non-Water Hammer Check Valve.

Ideal design

Based on non-water hammer principle, closure delay of the main valve disk is eliminated and water hammer and shock do not occur. Also, the patented mechanism, including the buffered closing by-pass valve, prevents pressure increase after main valve disk closure. Therefore, the valve is an ideal device that can be used extensively in low to high head specifications.

Easy maintenance

The dashpot is attached at the side of the valve case so adjustment and maintenance are easy to perform.

Easy oil control

The dashpot is small and separate from the passage of the main valve. Therefore oil leaks do not occur and oiling is practically unnecessary.

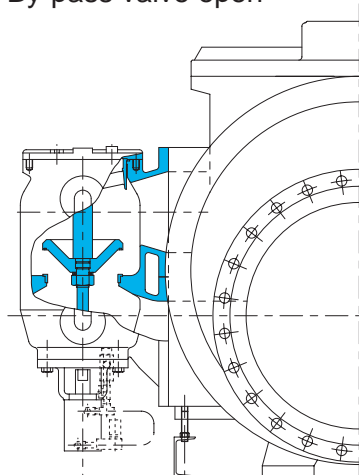
Freely choose between vertical or horizontal installation

This valve can be installed in either vertical or horizontal piping.

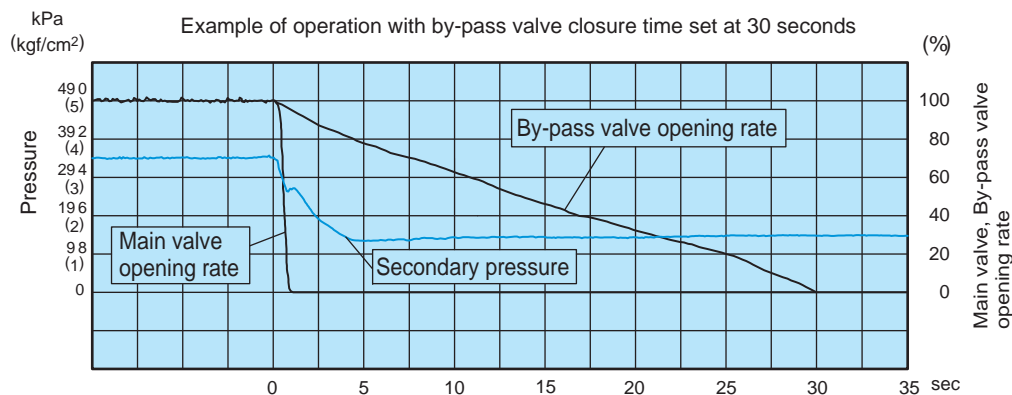
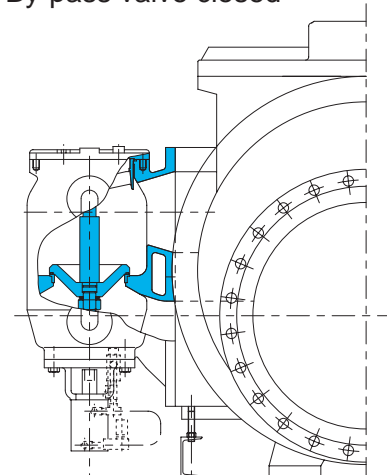
Simple construction

The main valve features an extremely simple, single-disk construction (with a built-in counterweight). Moreover, the valve arm pin of the main valve does not bear torsional load due to the non-water hammer principle, allowing for a compact design and cost reduction.

By-pass valve open

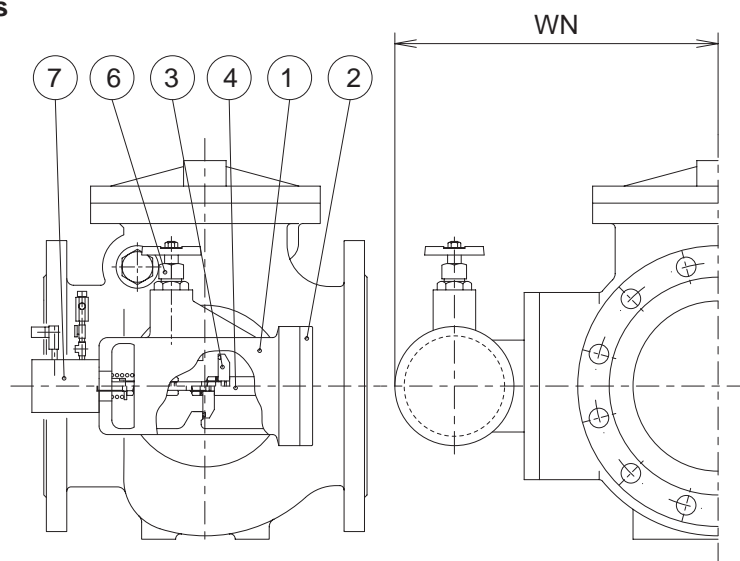


By-pass valve closed

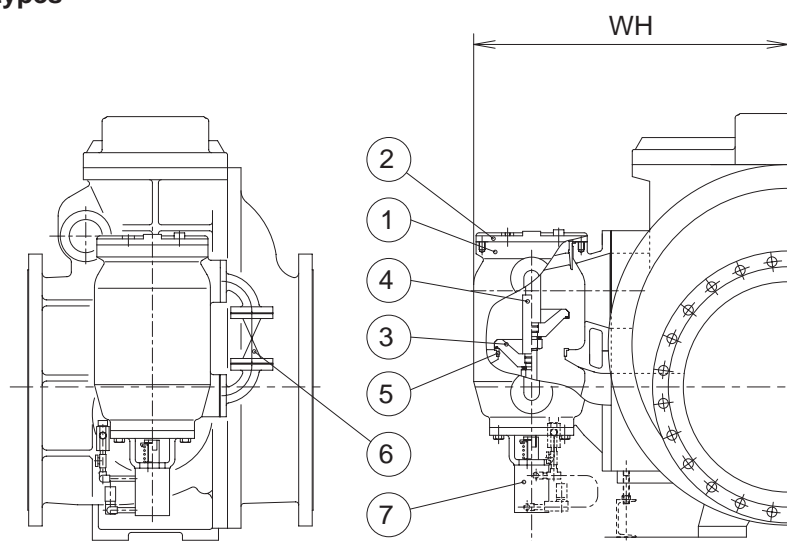


Outer dimensions

SL-SN-B, SL-SNP-B types



SL-SH-B, SL-SHP-B types



Unit : mm		
Bore d	Model No.	Width WH
150	SL-SN-150B	360
200	SL-SN-200B	430
250	SL-SN-250B	580
300	SL-SN-300B	620
350	SL-SN-350B	740
400	SL-SN-400B	860
450	SL-SN-450B	900

Unit : mm		
Bore d	Model No.	Width WH
500	SL-SH- 500B	870
600	SL-SH- 600B	980
700	SL-SH- 700B	1150
800	SL-SH- 800B	1300
900	SL-SH- 900B	1450
1000	SL-SH-1000B	1550
1200	SL-SH-1200B	1800
1350	SL-SH-1350B	1950
1500	SL-SH-1500B	2200

Part name		Material code			
		B	F	G	X,Y
1	Valve case	FC	FC	FC	SCS
2	Valve cover	FC	FC	FC	SCS
3	Valve disk	CAC406	SCS	SCS	SCS
4	Valve rod	SUS	SUS	SUS	SUS
5	Valve seat	CAC406	SCS	SCS	SCS
6	Maintenance by-pass valve	C3603	C3603	SUS	SUS
7	Dashpot	S45C	S45C	S45C	S45C

- Buffered closing by-pass valve type is applicable when actual head is over 10m.
Please inquire if actual head is less than 10m.
- Please specify the level of reverse pressure on the valve and the by-pass valve closure time when making an inquiry.

As for dimensions not mentioned on this page, please refer to SL-SN type (P.96) and SL-SH type (P.97).



Non-Water Hammer Check Valve

Patented in Japan, U.S.A., other

Bore 40-1500mm
Rated pressure 10-40kgf/cm²

No-Feed Detector

For the safest automatic pumping, the No-Feed Detector is recommended.

The YOKOTA No-Feed Detector is a safety device to prevent the pump from dry operation. Reacting to the movement of the check valve, the switch cuts off power automatically when the amount of flow is close to zero. If your pump is equipped with the Non-Water Hammer Check Valve with the No-Feed Detector, there is no need to worry about the occurrence of water hammer even if a high pressure tank is installed near the pump. Your automatic pumping system will operate safely and reliably.

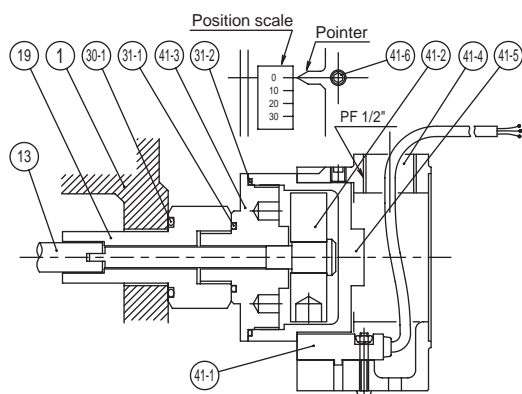


NP model



BP model

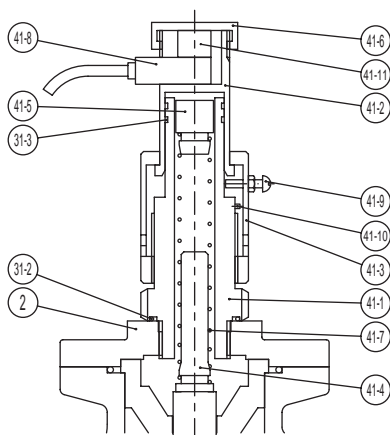
NP model (For SL-SN, SH)



Part name		Part name	
41-1	Proximity switch	31-1	O-ring
41-2	Proximity member	31-2	O-ring
41-3	Case	1	Valve case
41-4	Support ring	13	Valve arm pin
41-5	Cap	19	Pin holder
41-6	Set screw	30-1	O-ring

- Use a flow speed of 0.38m/sec as a guideline for minimum flow rate setting.
However, use 120L/min as a minimum value for SNP-50, and 180L/min as a minimum value for SNP-65, 80.
- When not operating for long periods of time during winter, remove the cap (41-5) and drain the water in the cap (or take measures to prevent the No-Feed Detector from freezing.)

BP model (For SL-NB)



Part name		Part name	
41-1	Case	41-8	Proximity switch
41-2	Cover	41-9	Set screw
41-3	Adjusting nut	41-10	Stopper
41-4	Coil spring retainer	41-11	Retainer
41-5	Proximity tip	31-2	O-ring
41-6	Cap	31-3	O-ring
41-7	Coil spring	2	Top cover

- Use a flow speed of 0.38m/sec as a guideline for minimum flow rate setting.
However, use 100L/min as a minimum value for NBP-40.

Contact protector relay

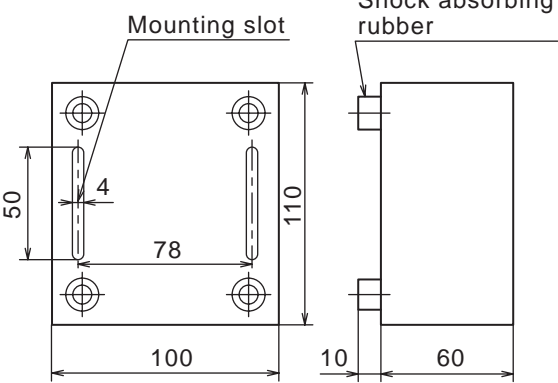
The contact protector relay protects small capacity contacts of the proximity switch. Please install the contact protector relay, using the specifications below, in the control panel for the YOKOTA No-Feed Detector.

Power supply	AC 100V, 200V
Control capacity	AC 7A-250V
	DC 3A-30V

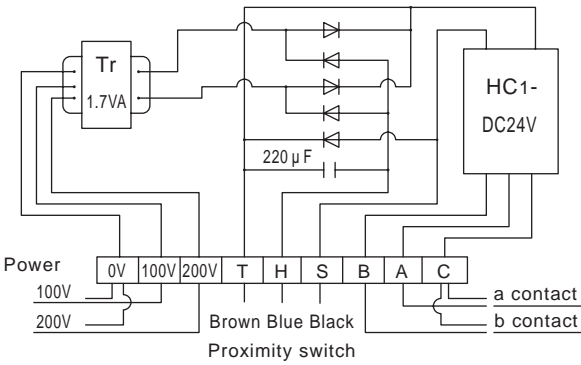
Connection and operation

	Feed condition		No-feed condition	
Proximity switch	ON		OFF	
Contact protector relay	a contact	b contact	a contact	b contact
	ON	OFF	OFF	ON

Outline drawing



Wiring diagram



If voltage is applied to an incorrect connection (parts T, H, and S), the proximity switch will be damaged.