KECKLEY

BULLETIN NO. 8711-6

FLOAT AND LEVER VALVES

Globe or Angle, Screwed or Flanged All Sizes

Bay Port Valve & Fitting, Inc.

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Mulberry, FL. 33860

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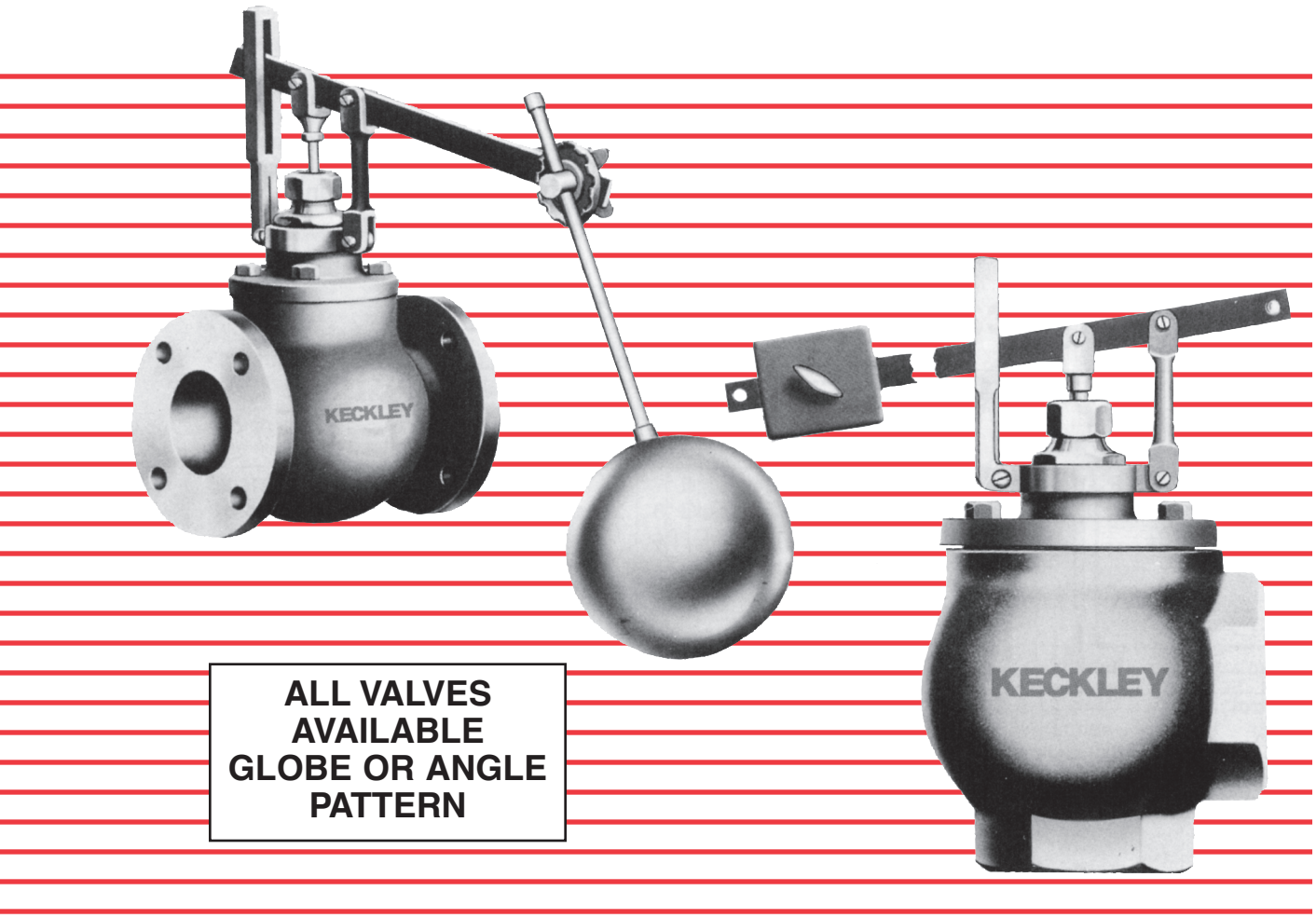
www.bayportvalve.com

NO QUESTION. WE HAVE THE ANSWERS



ALL VALVES AVAILABLE GLOBE OR ANGLE PATTERN

FLOAT & LEVER VALVES

Since 1914, Keckley engineering and manufacturing has been working for industry and commercial building installations worldwide. Keckley Float and Lever Valves excel in their construction and performance.

With the purchase of Klipfel Valves Inc. in 1962, there was a combining of engineering talents and features of both valve companies resulting today in this complete line. Float Valves are actuated Lever Valves designed to control the level of liquids. Lever Valves are designed to control the flow of liquids, gases or steam. This can be done by manual operation, float boxes or mechanisms, electric motors or other actuators through linkage to the lever of the valve.

Typical Applications:

Open or closed storage tanks
Vats
Process tanks
Cooling towers
Basins
Standpipes
Receivers
Feed water heaters
Condensate tanks
Reservoirs
Sprinkler services
Swimming pools

All valves can be used on filling control (close on level rise) or drainage control (open on level rise) applications.

Options:

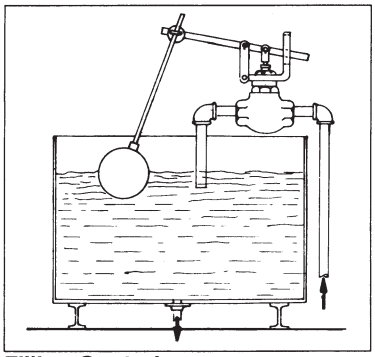
Floats — all materials, sizes and connections
Float Rods — brass, stainless steel or galvanized pipe
Swivel Adaptor — vertical operation of float rod; replaces rosette and joins the lever and float rod
Trim — main valve and seat can be brass or stainless steel
Discs and Cups — Teflon for temperatures exceeding 125° F to maximum of 350°F.

When ordering, specify:

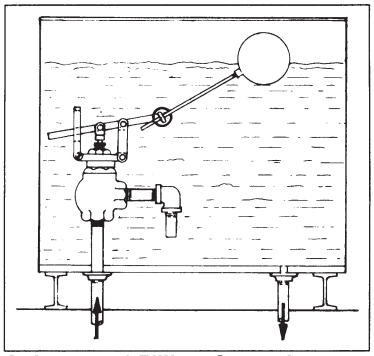
1) Valve size
2) Keckley type number
3) Connections (screwed or flanged)
4) Globe or angle pattern
5) Media
6) Maximum operating pressure
7) Discharge pressure of valve if other than atmosphere
8) Maximum temperature

Any additional information to help us insure a correct selection.

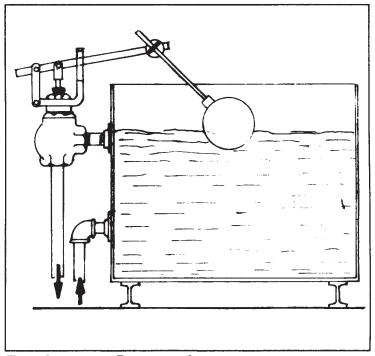
Typical Installations



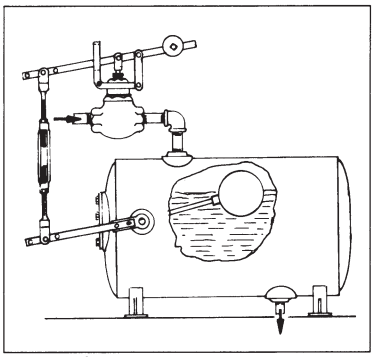
Filling Control



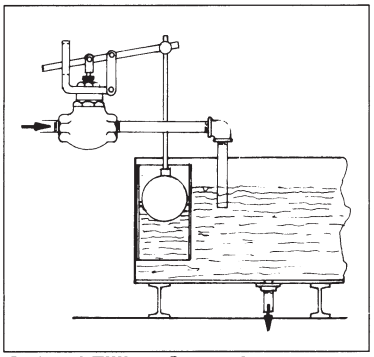
Submerged Filling Control



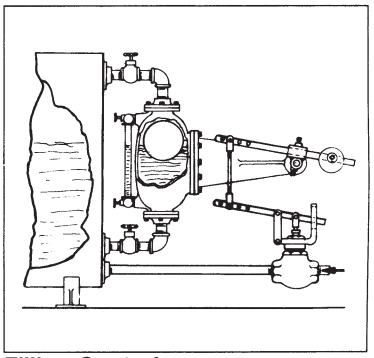
Drainage Control



Filling Control



Guided Filling Control



Filling Control

O.C. KECKLEY COMPANY • 3400 Cleveland Street • P.O. Box 67 • Skokie, Illinois 60076

CONDENSED DESCRIPTION OF FLOAT AND LEVER VALVES
STANDARD CONSTRUCTION

Types **Float Valve** **Lever Valve**	**#27** **#62**	**#7** **#73**	**#77** **#773**	**#427—*428** **#462—*463**	**#777** **#762**	**#177**
Sizes	½" - 12"	½" - 2"	2" - 12"	⅜" - 2"	½" - 4"	2" - 8"
How Operated	Direct	Internal Pilot	Internal Pilot	Direct	Internal Pilot	External Pilot
Double Seated/ Not Tight Closing	X	—	—	—	—	—
Single Seated/ Tight Closing	—	X	X	X	X	X
Inner Valve	Bronze	Neoprene Disc	Neoprene Disc	Stainless Steel Ball *Teflon Plug	Neoprene Disc	Bronze Neoprene Disc
Construction (Body) Standard Special	Bronze ¼" - 1½" Cast Iron 2"—Larger Consult Factory Bronze, Cast Iron, Cast Stainless Steel — Available in Most Sizes					
Connections	Screwed Flanged	½" - 3" 2" & Larger				
Max. Temperature (Std.) **Consult factory for high temperature trim.**	406°F	125°F	125°F	406°F	125°F	200°F
Globe	X	X	X	X	X	X
Angle-side Inlet	X	X	—	—	½" - ¾"	—
Angle-bottom Inlet	—	—	X	X	1" - 4"	X
Float Size Standard Other Float Materials - Consult Factory *Exception No. 427 - See Page 11	½" - 2" Valves 2½" - 4" Valves 5" - 8" Valves 10" - 12" Valves	7" Diameter 8" Diameter 10" Diameter 12" Diameter	Type 304 Stainless Steel Type 304 Stainless Steel Type 304 Stainless Steel Type 304 Stainless Steel			
Allowable Pressure Drop	Low-Med.	Low-Med.	Low-High	Low-Med.	Low-Med.	Low-High
Max. Working Pressure	Varies Per Size	Varies Per Size	250 psi	Varies Per Size	150 psi	250 psi
See Bulletin Page	4-6	7-9	7-9	11	10	14

Level Controllers
Used to Operate the Above Lever Valves

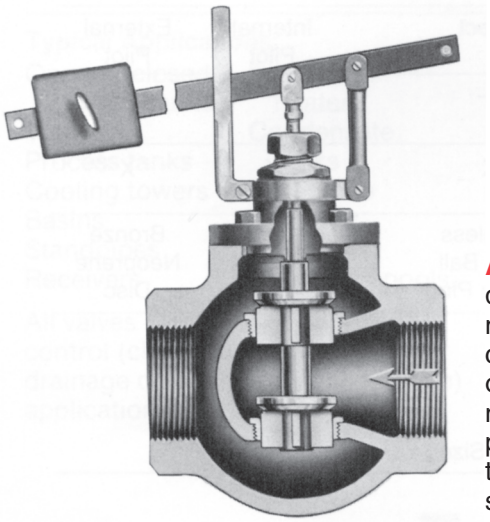
Types				
20 Float Box	For Valve Sizes ½" - 6"	Cast Iron Body	Screwed or Std. Flanged	See Bulletin Page 12
21 Float Box with Switch	For Valve Sizes ½" - 6"	Cast Iron Body	Screwed or Std. Flanged	See Bulletin Page 12
20M Float Mechanism	For Valve Sizes ½" -6"	Bronze	Screwed	See Bulletin Page 13

FLOAT VALVE NO. 27
LEVER VALVE NO. 62

Balanced Double Seated (not tight closing) Globe or Angle

BRONZE ● CAST IRON ● STAINLESS STEEL BODY

NO. 27 GLOBE



NO. 62 GLOBE

Application/Service: The No. 27 double seated float valve is the type most widely used for the automatic control of the supply of liquids to an open tank where dead-end closing is not essential and valve inlet pressures are normal. Many thousands are in use on large and small water, oil and chemical storage tanks in all types of industries.

Where a drop-tight closing float valve, or a valve for higher than ordinary pressure is required, one of the single seated valves, described on the following pages, should be selected. The maximum inlet pressures for the sizes of the No. 27 valve are shown in the table on the opposite page.

The No. 62 lever valve is the same valve minus the float, float rod and rosette. It may be operated by a float inside a closed tank or float cage; by hand or electric solenoid as a quick opening valve; and wherever a double seated sliding stem valve is required.

Construction: These valves are all metal, simple in operation, sturdy in construction and of the best materials and workmanship. A double seated inner valve, as illustrated, is standard. Both angle and globe pattern bodies are available in all the sizes. The standard valve can be adapted to nearly any installation.

The swivel yoke, which supports the lever, can be turned and secured at any angle. The length and angle of the float rod can be adjusted at the rosette so that the valve can be easily adapted to various locations.

Materials: In sizes 1½ inch and smaller, the No. 27 and No. 62 valves have bronze bodies and trim with integral seats. In sizes 2 inches and larger, the standard bodies are cast iron with bronze trim and removable seats. Stainless steel trim can also be supplied. All iron, all bronze and all stainless steel valves can be supplied at extra cost in many sizes.

Operation: As ordinarily assembled and used as a filling controller, the inner valve in the No. 27 rises and opens as the float drops with the water level. With the lever reversed, the float and inner valve move in the same direction so that the valve will open on level rise and can be used as a drainage controller.

In the same manner, the No. 62 valve may be assembled for either direct or reverse movement.

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KECKLEY

FLOAT VALVE NO. 27

Balanced Double Seated (not tight closing) Globe or Angle

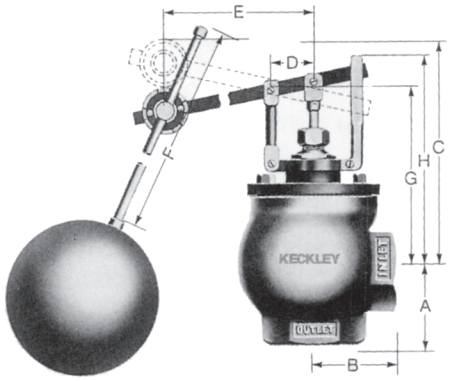
BRONZE ● CAST IRON ● STAINLESS STEEL BODY

NO. 27 GLOBE

Installation: A float valve when used on a water tank installation is best located near the surface of the water with the float where it will be least disturbed by waves. The discharge pipe extending below the surface helps to prevent waves. Where sanitary regulations forbid the use of such a discharge pipe because of the possibility of siphoning out of the tank, the discharge may flow into a funnel and perforated pipe as shown on bulletin page 14. The angle pattern will avoid the need for an elbow.

Note that the inlet of the No. 27 valve is at the side of the angle pattern body.

The valve stem should be vertical to avoid friction and wear on the inner valve sliding on its side. The valve will operate just as well if inverted, but the lever must be reversed. If space limitations require the valve to be installed with stem horizontal in a vertical pipe, a lever bent 90° can be supplied. The valve may be submerged, if desired.



NO. 27 ANGLE
(SIDE INLET)

LIST OF PARTS

Body
Inner Valve
Seat Bushings {upper / lower}
Valve Stem
Stem Clevis
Packing Box
Cover
Swivel Guide Yoke
Guide Arm
Lever
Float
Float Rod
Float Rod Bolt and Nut
Rosette

NO. 27—DIMENSIONS—WEIGHTS (approximate)

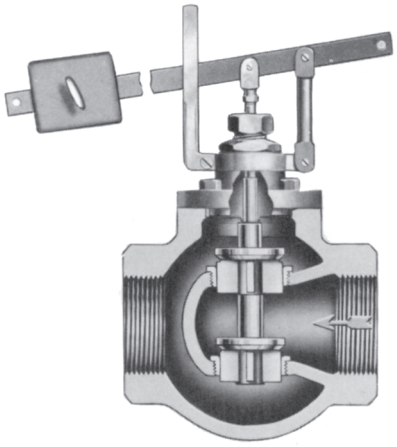
Size Inches	A—Inches Angle Pattern			B—Inches Angle Pattern			Face to Face-Inches Globe Pattern			Angle and Globe Inches					Float Diameter Inches	Shipping Weight-Lbs			Capacity Factor See Page 15	Max. Inlet Pressure
	Std Scr.	Std Flg.	Ex. Hvy. Flg.	Std. Scr.	Std Flg.	Ex. Hvy. Flg.	Std. Scr	Std. Flg.	Ex. Hvy. Flg.	C	D	E	F	G		Std. Scr.	Std. Flg.	Ex. Hvy. Flg.		
½	2	—	—	2	—	—	4⅛	—	—	8⅝	1 15/16	13 11/16	16	5	7	10	—	—	.04	150
¾	2	—	—	2	—	—	4⅛	—	—	8⅝	1 15/16	13 11/16	16	5	7	10	—	—	.15	150
1	2⅛	—	—	2⅛	—	—	4⅜	—	—	8¾	1 15/16	13 11/16	16	5 3/16	7	13	—	—	.24	150
1¼	2¼	—	—	2¼	—	—	4½	—	—	8⅞	1 15/16	13 11/16	16	5¼	7	14	—	—	.40	120
1½	2¼	—	—	2¼	—	—	4½	—	—	8⅞	1 15/16	13 11/16	16	5¼	7	14	—	—	.57	100
2	4¼	4¼	4½	3¼	3¼	3½	6½	6½	7	12¾	2	17⅜	16	8½	7	29	38	42	1.4	75
2½	5¼	5⅞	6 3/16	3 15/16	4 1/16	4⅜	7⅞	8 3/16	8 13/16	13¾	2	17⅜	18	9¼	8	45	65	75	1.7	60
3	5¾	5¾	6⅛	4⅝	4⅝	5	9¼	9¼	10	14¼	2	17⅜	18	9⅝	8	67	86	100	2.3	50
4	—	6 15/16	7¼	—	5⅜	5 11/16	—	10¾	11⅜	14½	2	17⅞	18	10⅝	8	—	120	137	4.4	35
5	—	6⅝	7 1/16	—	6⅝	7 1/16	—	12	12⅞	19	2½	20½	24	12½	10	—	168	190	7.5	30
6	—	8 7/16	8⅞	—	6½	6 15/16	—	13	13⅞	19¾	2½	20½	24	13	10	—	194	229	10.2	25
8	—	8⅜	8⅞	—	8⅜	8⅞	—	16¾	17¾	25⅞	3	28	30	16⅜	10	—	342	409	15.7	20
10	—	10¼	10 15/16	—	10¼	10 15/16	—	20¼	21⅝	29¾	3	41	30	18½	12	—	480	572	25.0	15
12	—	11⅞	12⅝	—	11⅞	12⅝	—	22⅝	24⅛	32	3	41	30	20	12	—	715	853	40.0	12

Certified Dimensional Sheets Available

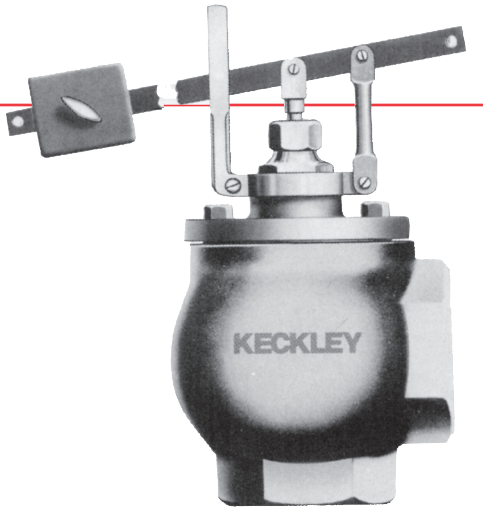
LEVER VALVE NO. 62

Balanced Double Seated (not tight closing) Globe or Angle

BRONZE ● CAST IRON ● STAINLESS STEEL BODY



NO. 62 GLOBE



NO. 62 ANGLE

Application/Service: The No. 62 Lever Valve is adapted for manual control of steam, water and air lines wherever a quick acting double seated valve is required, but where perfectly tight closing is not essential.

It is widely used on feed water heaters and on open and closed tanks and operated by an internal float such as the No. 20 or No. 20M, shown on pages 12 and 13. It may also be operated by an electric solenoid, diaphragm motor, or hydraulic cylinder.

Construction: All sizes are fitted with swivel yokes, so that the lever can be turned to any desired direction. The lever can be reversed to close the valve when the longer end is lifted. The counterweight is used on either end to balance levers or rods which may form part of the operating mechanism. Standard construction includes **double seated inner valve** not designed for tight closing applications.

LIST OF PARTS

Body
Inner Valve
Seat Bushings { upper / lower
Valve Stem
Stem Clevis
Packing Box
Cover
Swivel Guide Yoke
Guide Arm
Lever
Weight

NO. 62—DIMENSIONS—WEIGHTS (approximate)

Size Inches	A—Inches Angle Pattern			Face to Face-Inches Globe Pattern			B—Inches Angle Pattern			Globe and Angle—Inches Note page 5 letter code					Shipping Weight-Lbs.			Capacity Factor	Max.
	Std Scr.	Std Flg.	Ex. Hvy. Flg.	Std. Scr.	Std Flg.	Ex. Hvy. Flg.	Std. Scr	Std. Flg.	Ex. Hvy. Flg.	C	D	E	F	G	Std. Scr.	Std. Flg.	Ex. Hvy. Flg.	See Page 15	Inlet Pressure
½	2	—	—	4⅛	—	—	2	—	—	8⅛	1 15/16	11¾	6 5/16	5	10	—	—	.04	150
¾	2	—	—	4⅛	—	—	2	—	—	8⅛	1 15/16	11¾	6 5/16	5	10	—	—	.15	150
1	2⅛	—	—	4⅜	—	—	2⅛	—	—	8 5/16	1 15/16	11¾	6 5/16	5 3/16	11	—	—	.24	150
1¼	2¼	—	—	4½	—	—	2¼	—	—	8½	1 15/16	11¾	6 5/16	5¼	11	—	—	.40	120
1½	2¼	—	—	4½	—	—	2¼	—	—	8½	1 15/16	11¾	6 5/16	5¼	12	—	—	.57	100
2	4¼	4¼	4½	6½	6½	7	3¼	3¼	3½	13¼	2	15⅜	6⅝	8½	26	36	40	1.40	75
2½	5¼	5⅞	6 3/16	7⅞	8 3/16	8 13/16	3 15/16	4⅛	4⅜	13½	2	15⅜	6⅝	9¼	53	64	70	1.70	60
3	5¾	5¾	6⅛	9¼	9¼	10	4⅝	4⅝	5	14	2	15⅜	6⅝	9⅝	73	83	97	2.30	50
4	—	6 15/16	7¼	—	10¾	11⅜	—	5⅜	5 11/16	14⅛	2	15⅜	6⅝	10⅝	—	117	134	4.40	35
5	—	6⅝	7 1/16	—	12	12⅞	—	6⅝	7 1/16	19½	2½	16¾	9	12½	—	163	185	7.50	30
6	—	8 7/16	8⅞	—	13	13⅞	—	6½	6 15/16	20¼	2½	16¾	9	13	—	188	223	10.20	25
8	—	8⅜	8⅞	—	16¾	17¾	—	8⅜	8⅞	22⅞	3	19	13	16⅜	—	335	402	15.70	20
10	—	10¼	10 15/16	—	20¼	21⅝	—	10¼	10 15/16	24¾	3	19	13	18½	—	472	564	25.00	15
12	—	11⅞	12⅝	—	22⅝	24⅛	—	11⅞	12⅝	26⅝	3	19	13	20	—	708	846	40.00	12

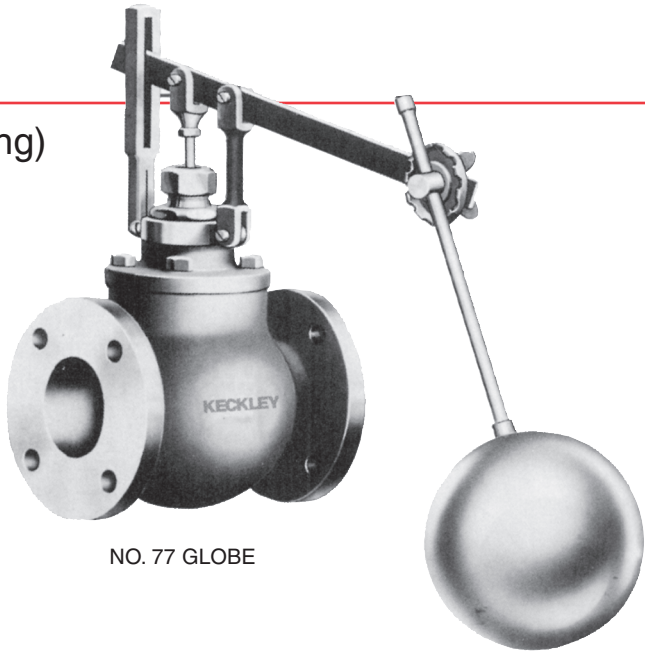
Certified Dimensional Sheets Available

O.C. KECKLEY COMPANY • 3400 Cleveland Street • P.O. Box 67 • Skokie, Illinois 60076

FLOAT VALVE NO. 7
FLOAT VALVE NO. 77

Single Seated, Dead End Service (tight closing) Globe or Angle

BRONZE ● CAST IRON ● STAINLESS STEEL BODY



NO. 77 GLOBE

Application/Service: The No. 7 and 77 pilot controlled float valves are recommended when tight closing is essential. They are commonly used to maintain a water level in an open tank. They are best suited for clean liquids not injurious to neoprene, leather or brass parts. Standard design temperature is 125°F. For higher temperatures up to 350°F, the neoprene disc in the No. 7 or neoprene disc and leather cup in the No. 77 are replaced by teflon parts.

Construction: Referring to the sectional views on page 8, the inner valve consists of a hollow bronze piston, somewhat larger in diameter than the seat bore, and carrying the disc holder. The composition disc may be replaced when worn. The soft disc will accommodate itself to grit and wear and still close tight where a metal to metal construction would leak.

The piston slides in a stationary bronze cylinder attached to the cover or body. The pilot port is opened and closed by the end of the stem which is moved by the lever. A pin through the stem at its lower end permits the inner valve to be lifted by the stem.

The guide yoke, with the lever and float, can be turned and secured at any angle. The angle and length of float rod can be adjusted at the rosette.

Operation: In the No. 7 valve, made in sizes 2 inches and smaller, water from the inlet enters the space above the piston through a small hole in the piston head. While the pilot port is open, this water escapes freely through the hollow valve post to the outlet. The excess pressure under the piston, in relation to the pressure above it, and the weight of the float hold the valve open.

On closing the pilot port, the water pressure above the piston quickly rises to equal and balance the inlet pressure under the piston. Thereupon the inlet pressure above the disc holder closes the valve. No leather cup is required.

The disc closes in the direction of the flow through the No. 7 valve. In the larger valves and for the higher pressures, the “pull” of the water in passing through the valve seat may cause the valve to close suddenly from a nearly closed position. For this reason, this valve is not made in sizes above 2 inches.

In the No. 77 valve, made in sizes 2 inches and larger, the inlet pressure is under the disc. Water enters the chamber above the piston through the strainer and the central and diagonal passages. If the pilot port is open, this water escapes freely to the valve outlet, so that the inlet pressure under the disc opens the valve. When the pilot port is closed, the water pressure above the piston quickly rises to equal the inlet pressure under the disc and, due to the larger piston area, the inner valve is moved toward the seat.

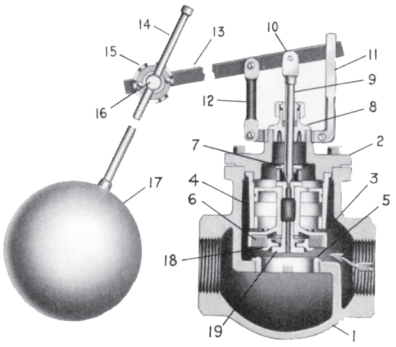
The disc closes against the inlet pressure and sudden closing cannot occur in the No. 77. However, this valve requires the piston to be fitted with a leather cup, the friction of which may cause sluggishness on low inlet pressures.

Maximum inlet pressures for both the No. 7 and No. 77 are shown in the table on the next page.

FLOAT VALVE NO. 7
FLOAT VALVE NO. 77

Internal Pilot Control, Single Seated, Dead End Service, Globe or Angle

BRONZE ● CAST IRON ● STAINLESS STEEL BODY

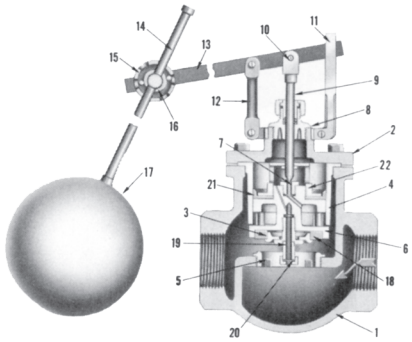


NO. 7 GLOBE

LIST OF PARTS

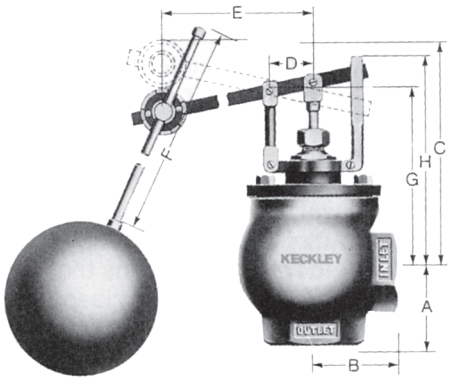
1	— Body	12	— Guide Arm
2	— Cover*	13	— Lever
3	— Inner Valve	14	— Float Rod
4	— Cylinder*	15	— Rosette
5	— Seat Bushing*	16	— Float Rod Bolt
6	— Composition Valve Disc	17	— Float
		18	— Disc Plate
7	— Port Stud*	19	— Disc Plate Screw*
8	— Packing Box	+20	— Strainer*
9	— Valve Stem	+21	— Leather Cup*
10	— Stem Clevis	+22	— Lock Nut*
11	— Swivel Guide Yoke		

***Parts used only in sizes 2" and larger.**
+ Used in No. 77 only.

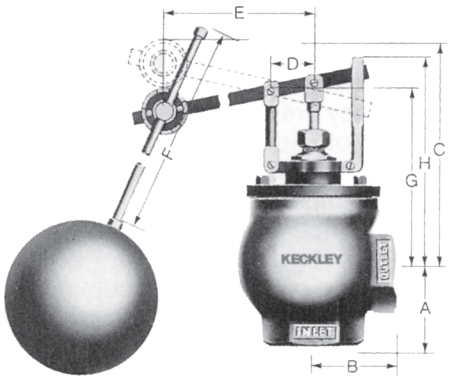


NO. 77 GLOBE

Materials: No. 7 valves in sizes 1½ inch and smaller have bronze bodies and integral seats, screwed ends only. The 2 inch No. 7 and all sizes of the No. 77 have cast iron bodies, with renewable seats, screwed or flanged ends in sizes 2 inch to 3 inch inclusive, flanged ends only above 3 inch. All sizes of both valves have bronze trim and renewable composition discs.



NO. 7 ANGLE
(SIDE INLET)



NO. 77 ANGLE
(BOTTOM INLET)

NOS. 7 and 77—DIMENSIONS—WEIGHTS (approximate)

Size Inches	A or B—Inches Angle Pattern			Face to Face—Inches Globe Pattern			Angle Pattern—Inches						Float Diameter Inches	Shipping Weight-Lbs. Globe Pattern			Capacity Factor Page 15	Max.** Inlet Pressure
	Std Scr.	Std Flg.	Ex. Hvy. Flg.	Std. Scr.	Std Flg.	Ex. Hvy. Flg.	C	D	E	F	G	H		Std. Scr.	Std. Flg.	Ex. Hvy. Flg.		
½ & ¾	2	—	—	4¼	—	—	8 7/16	1 15/16	13 11/16	16	5 3/16	6 5/16	7	11	—	—	.17	130
1	2 1/16	—	—	5	—	—	8¾	1 15/16	13 11/16	16	5½	6⅝	7	13	—	—	.35	100
1¼	2⅛	—	—	5⅛	—	—	8¾	1 15/16	13 11/16	16	5½	6⅝	7	14	—	—	.50	80
1½	2½	—	—	5¼	—	—	9	1 15/16	13 11/16	16	5¾	6⅞	7	14	—	—	.80	65
2	3 7/16	4⅛	4⅜	7 9/16	8¼	8¾	12⅜	1 15/16	17⅜	16	8	10⅛	7	35	45	60	1.6	50
2	3 7/16	4⅛	4⅜	7 9/16	8¼	8¾	12⅜	1 15/16	17⅜	16	8	10⅛	7	35	45	60	1.6	250
2½	3 15/16	4¾	5 1/16	8¾	9½	10⅛	12¾	1 15/16	17⅜	18	8½	10⅝	8	55	68	72	2.5	250
3	4½	5¼	5⅝	9¾	10½	11¼	13⅛	1 15/16	17⅜	18	9⅛	11¼	8	71	80	115	3.5	250
4	—	6⅛	6 7/16	—	12¼	12⅞	13⅝	1 15/16	17⅜	18	9⅜	11½	8	—	140	145	6.5	250
5	—	7¼	7 11/16	—	14½	15⅜	18½	2½	20½	24	11¼	14¼	10	—	235	195	10.0	250
6	—	8⅛	8 5/16	—	16¼	17⅛	19¾	2½	20½	24	12½	15⅝	10	—	235	240	14.0	250
8	—	9⅛	9⅝	—	19⅛	20⅛	25	3	28	30	16¼	21	10	—	395	445	26.0	250
10	globe pattern only		—	—	20⅛	21½	36	5	41	30	29	35	12	—	650	700	41.0	250

****The absolute minimum operating pressure for the #77 Float Valve is 5 psi for sizes 2" through 6" and 10 psi for sizes 8" and 10".**

The neck of the globe body is slightly longer than the neck of the angle body. Therefore dimensions G, H, and C are slightly greater than those shown above. Certified Dimensional Sheets Available.

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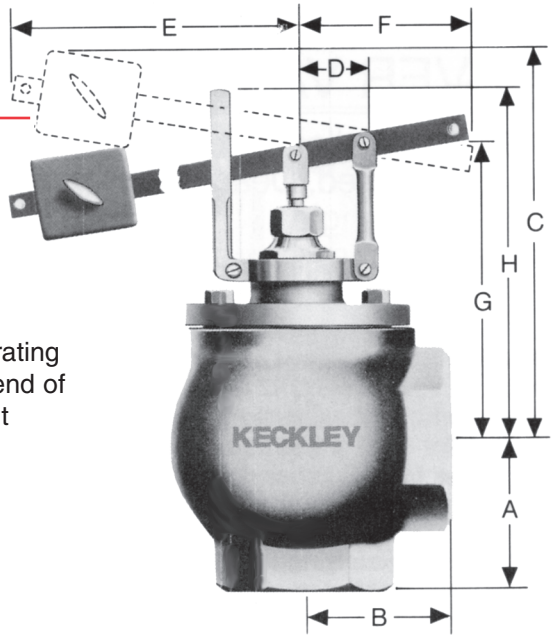
LEVER VALVE NO. 73
LEVER VALVE NO. 773

Internal Pilot Control, Single Seated, Dead End Service, Globe or Angle

BRONZE ● CAST IRON ● STAINLESS STEEL BODY

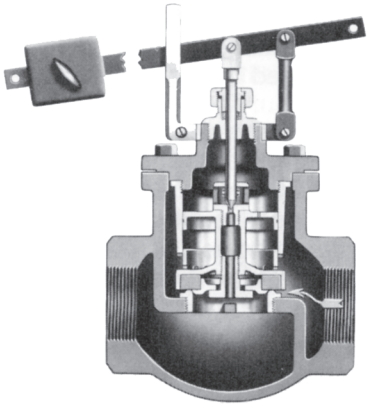


Application/Service: These single seated, internal pilot type lever valves are adapted for operation by an enclosed float (pages 12 & 13) or by hand, solenoid, diaphragm motor, or other means, wherever a tight-closing, quick-acting, easily operated valve is required.

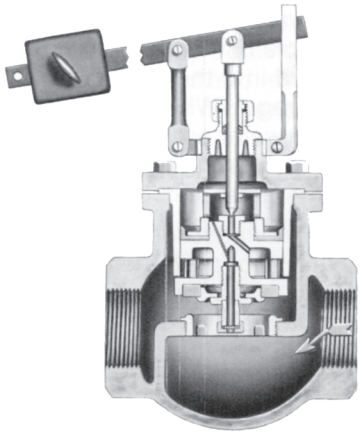
They are suitable for water and other ordinary liquids. The operating rod may be attached to either end of the lever with the counterweight located as required.

Operation: The lever valves on this page have the same internal construction and operate in the same manner as the float valves described on pages 7 and 8. They are also adapted to the same pressure and temperature conditions as the corresponding float valves.

Materials: No. 73 valve in sizes 1½ inch and smaller have bronze bodies and integral seats, screwed ends only. The 2 inch No. 73 and all sizes of the No. 773 have cast iron bodies, with renewable seats, screwed or flanged ends in sizes 2 inch to 3 inch inclusive, flanged ends only above 3 inch. All sizes of both valves have bronze trim and renewable composition discs.



The No. 73 Single Seated Lever Valve is the same as No. 7, shown and described on pages 7 and 8, minus float, float rod and rosette, and plus a counterweight.



The No. 773 Single Seated Lever Valve is the same as No. 77, shown and described on pages 7 and 8, minus float, float rod and rosette, and plus a counterweight.

NOS. 73 and 773—DIMENSIONS—WEIGHTS (approximate)

	Size Inches	A or B—Inches Angle Pattern			Face to Face—Inches Globe Pattern			Angle Pattern—Inches						Shipping Weight-Lbs. Globe Pattern			Capacity Factor Page 15	Max.** Inlet Pressure
		Std Scr.	Std Flg.	Ex. Hvy. Flg.	Std. Scr.	Std Flg.	Ex. Hvy. Flg.	C	D	E	F	G	H	Std. Scr.	Std. Flg.	Ex. Hvy. Flg.		
NO. 73	½ & ¾	2	—	—	4¼	—	—	7 15/16	1 5/16	1 3/4	6 5/16	5 3/16	6 5/16	10	—	—	.17	130
	1	2 1/16	—	—	5	—	—	8¼	1 5/16	1 3/4	6 5/16	5½	6⅝	12	—	—	.35	100
	1¼	2⅛	—	—	5⅛	—	—	8¼	1 5/16	1 3/4	6 5/16	5½	6⅝	13	—	—	.50	80
	1½	2½	—	—	5¼	—	—	8½	1 5/16	1 3/4	6 5/16	5¾	6⅞	14	—	—	.80	65
	2	3 7/16	4⅛	4⅜	7 9/16	8¼	8¾	12	1 5/16	1 5/8	6⅝	8	10 1/8	30	48	56	1.6	50
NO. 773	2	3 7/16	4⅛	4⅜	7 9/16	8¼	8¾	12	1 5/16	1 5/8	6⅝	8	10 1/8	34	48	56	1.6	250
	2½	3 15/16	4¾	5 1/16	8¾	9½	10⅛	12⅜	1 5/16	1 5/8	6⅝	8½	10⅝	53	65	72	2.5	250
	3	4½	5¼	5⅝	9¾	10½	11¼	12¾	1 5/16	1 5/8	6⅝	9⅛	11¼	73	105	110	3.5	250
	4	4¾	6⅛	6 7/16	—	12¼	12⅞	13¼	1 5/16	1 5/8	6⅝	9⅜	11½	—	135	140	6.5	250
	5	—	7¼	7 11/16	—	14½	15⅜	18¾	2½	16¾	8¼	11¼	14¼	—	170	195	10.0	250
	6	—	8⅛	8 9/16	—	16¼	17⅛	20¾	2½	16¾	8¼	12½	15⅝	—	230	240	14.0	250
	8	—	9⅛	9⅝	—	19⅛	20⅛	23	3	19	13	16¼	21	—	395	445	26.0	250
	10	globe pattern only		—	—	20⅛	21½	40	5	41	13½	29	35	—	650	700	41.0	250

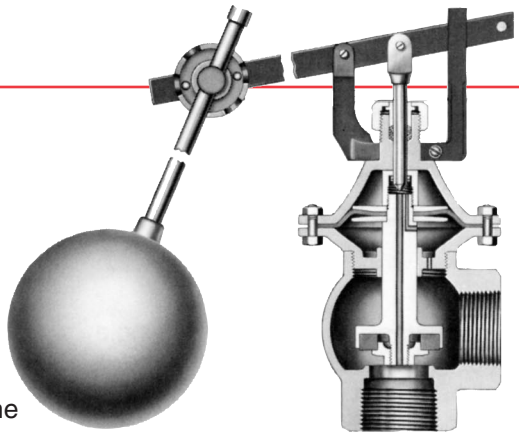
****The absolute minimum operating pressure for the #77 Float Valve is 5 psi for sizes 2" through 6" and 10 psi for sizes 8" and 10".**

The neck of the globe body is slightly longer than the neck of the angle body. Therefore dimensions G, H, and C are slightly greater than those shown above. Certified Dimensional Sheets Available.

FLOAT VALVE NO. 777
LEVER VALVE NO. 762

Pilot Controlled Diaphragm Type
Single Seated, Dead End Service
Globe or Angle

BRONZE ● CAST IRON BODY



NO. 777 or 762 ANGLE
½" and ¾" side inlet
1" and larger bottom inlet

Application/Service: The No. 777 float valve and No. 762 lever valve are recommended as tight closing valves for cold or hot liquids not injurious to the rubber diaphragm or disc, and for pressures up to 150 psi.

Operation: Referring to the No. 777 float valve illustration, the inner valve is held open by the weight of the float when the water level is low. Water from the valve body inlet enters a small hole in the valve post and flows upward into the chamber above the diaphragm. While the pilot port is open, the water escapes freely through the central hole in the post to the valve outlet.

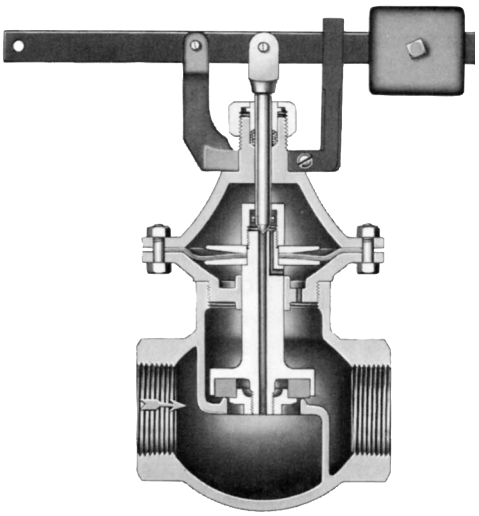
When the valve stem descends and partly closes the pilot port, the water pressure above the diaphragm increases, and moves the disc toward the seat. Since the diaphragm is two or three times as large as the disc, it is always able to control the disc movement and prevent sudden closing.

When the disc reaches the seat, as in the illustration of the No. 762 lever valve, the pilot port also closes; the pressures above and below the diaphragm equalize, and the inlet pressure above the disc holds it tight on the seat.

The opening and closing movements of the valve are produced mainly by the difference between the pressures above and below the diaphragm, determined by the amount of pilot port opening. However, the movement is assisted, if necessary, by the stem which is loosely attached to the inner valve. This feature is an advantage where the water pressure is too low to operate the valve, and in case of diaphragm leakage, the valve can still be operated by the lever.

Materials: Bronze bodies, diaphragm chambers and trim, screwed ends only, in sizes 1½ inches and smaller. Larger sizes have cast iron bodies, screwed or flanged ends (4-inch size has flanged ends only), and bronze trim.

All sizes have composition neoprene discs for tight closing and reinforced diaphragms. The floats are stainless steel. The rubber parts that may need to be replaced are inexpensive and easily accessible without removing the valve from line.



NO. 762 GLOBE

NOS. 777—762—DIMENSIONS—WEIGHTS (approximate)

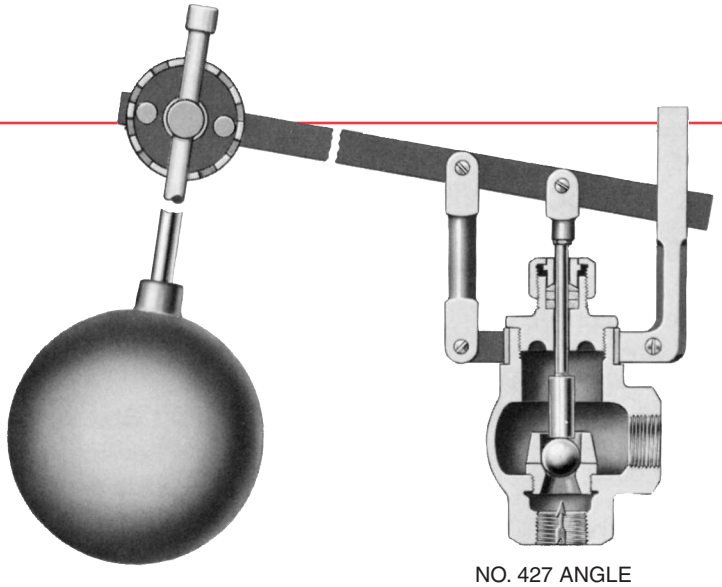
Size Inches	A or B—Inches Angle Pattern			Face to Face—Inches Globe Pattern			See Pages 8 & 9						Valve Lift Inches	Float Diameter Inches	Shipping Weight-Lbs.			Capacity Factor Page 15
	Std Scr.	Std Flg.	Ex. Hvy. Flg.	Std. Scr.	Std Flg.	Ex. Hvy. Flg.	C	D	E	F	G	H			Std. Scr.	Std. Flg.	Ex. Hvy. Flg.	
½ & ¾	2	—	—	4¼	—	—	9 3/16	1 15/16	13 1/16	16	5 15/16	7 1/16	5/16	7	15	—	—	.17
1	2 1/16	—	—	5	—	—	9⅝	1 15/16	13 1/16	16	6⅜	7½	⅜	7	16	—	—	.35
1¼	2⅛	—	—	5⅛	—	—	9⅝	1 15/16	13 1/16	1	6⅜	7½	7/16	7	17	—	—	.50
1½	2½	—	—	5¼	—	—	9⅞	1 15/16	13 1/16	16	6⅝	7¾	½	7	18	—	—	.80
2	3 7/16	4⅛	4⅜	7 9/16	8¼	8¾	17⅝	1 15/16	17⅜	16	13⅛	15⅜	⅝	7	43	52	60	1.6
2½	3 15/16	4¾	5 1/16	8¾	9½	10⅛	18	1 15/16	17⅜	18	13½	15¾	¾	8	53	65	72	2.5
3	4½	5¼	5⅝	9¾	10½	11¼	19	1 15/16	17⅜	18	13⅞	16⅛	1	8	73	85	100	3.5
4	—	6⅛	6 7/16	—	12¼	12⅞	19⅛	1 15/16	17⅜	18	14⅝	16⅞	1⅛	8	—	120	140	6.5

Certified Dimensional Sheets Available.

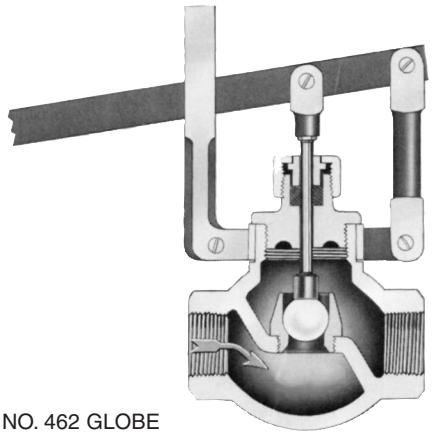
FLOAT VALVE NO. 427
LEVER VALVE NO. 462

Ball Inner Valve, Single Seated Globe or Angle

BRONZE ● CAST IRON BODY



NO. 427 ANGLE
(BOTTOM INLET)



NO. 462 GLOBE

Application/Service: The ball type inner valve which has been used for years with excellent results in other valves is now built into float and lever valves. It provides a simple and durable, tight-closing construction suitable for any ordinary fluid at temperatures up to 406° F.

Construction: The ball is not attached to the stem and always seats perfectly. No tilting, cocking, or binding. The ball turns so that all parts are kept scoured clean by the flow. The rounded form permits high capacity. The tapered seat gives a moderate wedging effect to insure tight closing. The seat can be quickly replaced when necessary.

Pressure Limits: The pressure against which the valve will close is limited by the size of float and the lever ratio. The pressure limits for the float valve as tabulated are based on standard size floats and conveniently obtainable lever ratios. Larger floats and lever ratio can be supplied for higher pressures.

Materials: Standard construction included cast iron bodies in the 2-inch size and bronze bodies in the smaller sizes. The seat and ball inner valve are stainless steel in all sizes and will wear indefinitely.

Nos. 428 and 463 are the same valves as above, equipped with a teflon plug interchangeable with the stainless steel ball, used for air service.

LIST OF PARTS

Body	**Packing Box**	**Stem**	**Float Rod**
Seat	**Packing**	**Stem Clevis**	**Lever**
Ball	**Packing Nut**	**Guide Yoke**	**Guide Arm**
Stop	**Gland**	**Cover/Bonnett**	**Float**

NOS. 427—462—DIMENSIONS—WEIGHTS (approximate)

Size Inches	Style Ends	Globe Face to Face Inches	Angle Center to Face	Float Diameter Inches	Maximum Pressure	Shipping Weight Lbs.	Capacity Factor See Page 15
⅜ — ½	Screwed	3⅜	1½	7	150	18	.03 - .06
¾	Screwed	4	1 15/16	7	60	21	.12
1	Screwed	4½	2 1/16	7	40	21	.18
1¼	Screwed	5⅜	2⅛	8	40	23	.30
1½	Screwed	6¼	2½	8	30	23	.40
2	Screwed	8¼	3 7/16	8	15	45	.60
2	Standard Flg.	8¼	4⅛	8	15	50	.60

Certified Dimensional Sheets Available.

FLOAT BOX NO. 20
FLOAT BOX WITH SWITCH NO. 21

6" or 8" Floats
Cast Iron Body With Ball Bearing Stuffing Box

No. 20 Float Box Application/Service: Float Boxes are used in connection with closed tanks where fluctuation of the liquid level in the tank is the governing factor in the control of the lever valve, signal switch, motor or other equipment. The entire unit is mounted outside the tank where it can be easily installed, adjusted, inspected and serviced.

By placing the Box in the same horizontal plane as the tank liquid level with equalizing connections above and below the level and the valve suitably linked to the Box, the tank level may be automatically maintained whether the flow is into or out of the tank.

Typical applications are with a No. 62, 73, 462, 762 or 773 lever valve used as a level controller for hot or cold water.

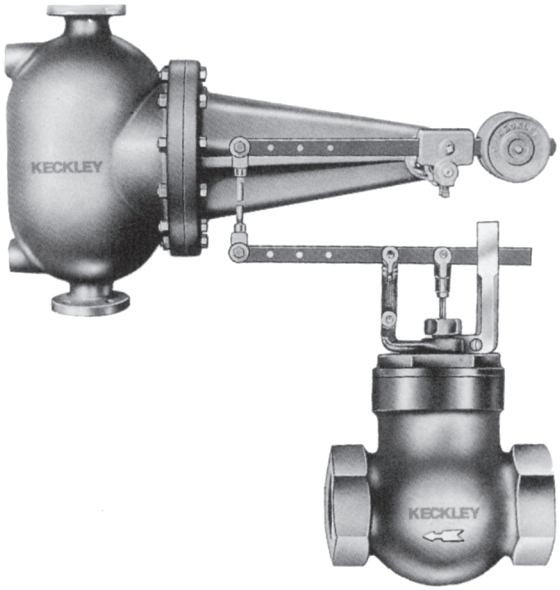
Construction: The packing box has outboard ball bearing with bolted gland reducing friction and wear to a minimum, the rotary stem is stainless steel. The float rod is brass when used with a 6 inch float and galvanized pipe when used with an 8 inch float. A gauge glass and bracketed lever and counterweight completes the Unit.

Equalizing pipe connections are 1" screwed on the Box with the 6" float, 1½" standard flanged or screwed connections on the 8" Box. Cast iron Float Boxes are suitable for pressures up to 250 psi and maximum temperatures of 406°F.

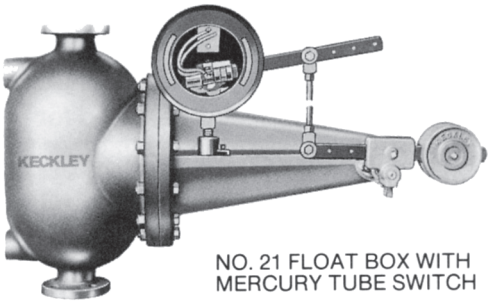
No. 21 Float Box with Switch Application/Service: The operation of an electric switch by means of a fluctuating liquid level within a tank is best accomplished by the use of a Float Box with Switch. Being a self-contained unit on the outside of the tank it is always accessible for inspection, adjustment and servicing.

The switch leverage may be such as to either open or close the circuit as the fluid level goes up or down as desired. The required operation should be specified. A counterweight provides means for balancing the moveable assembly so the float will function properly in fluids of any gravity. A gauge glass shows the position of the level.

When some variation in the level is desired without throwing the switch on or off it may be done by using a lost motion link between the switch and lever. Variations from 2" to 8" may be had, depending upon the size of the Float Box used. If a greater variation is required two boxes must be used, one placed at the high and one at the low level.



NO. 20 FLOAT BOX WITH CONTROL VALVE



NO. 21 FLOAT BOX WITH MERCURY TUBE SWITCH

Various types of switches available are mercury tube switch, single pole snap switch and the explosion proof mercury tube switch. Rating of all switches is 10 amperes at 110 volts or 5 amperes at 220 volts AC or DC.

NO. 20 FLOAT BOX

Size of Lever Valve	½	¾	1	1¼	1½	2	2½	3	4	5	6
Size of Float	6	6	6	6	8	8	8	8	8	8	8
Approximate Shipping Weight	100	100	100	100	190	190	190	190	190	190	190

NO. 21 FLOAT BOX WITH SWITCH

Size of Float	Size Pipe Connections	Type of Switch	Float	Material
6"	1" Screwed	Mercury Tube Switch Snap Action Switch Explosion Proof Switch	Type 304 Stainless Steel	Cast Iron Float Box Ball Bearing Stainless Steel Rotary Stem Gauge Glass
8"	1½" Screwed or Flanged			

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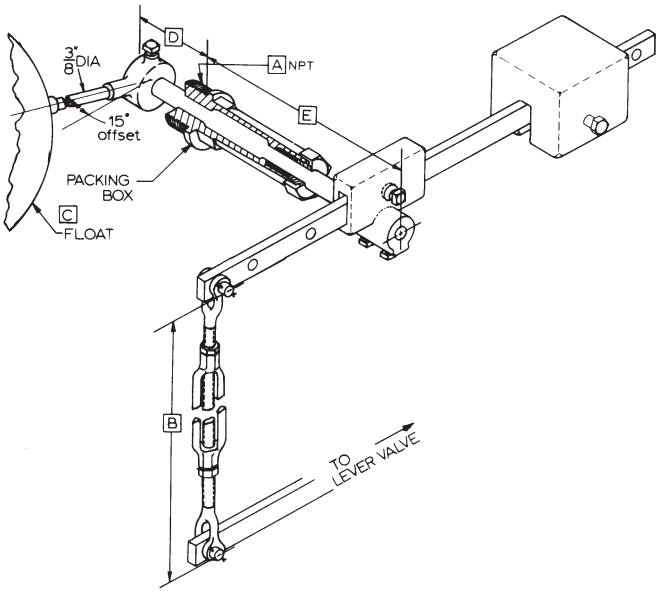
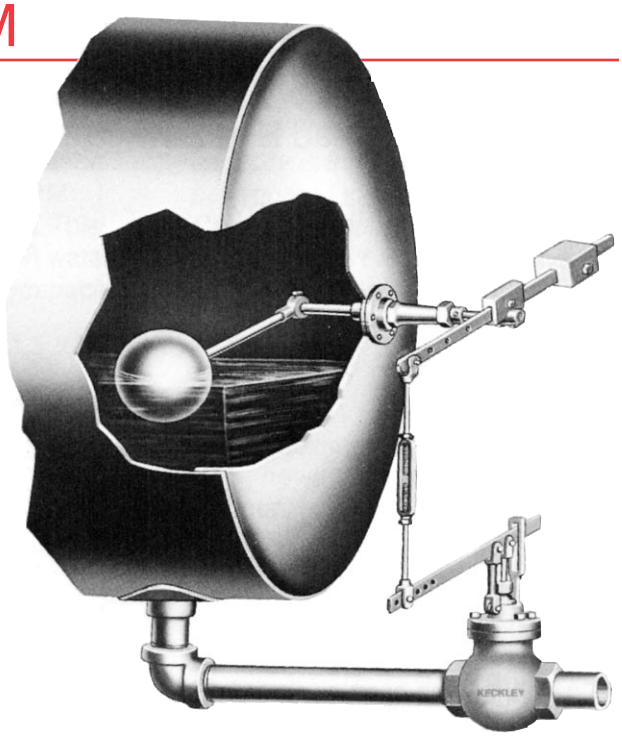
FLOAT MECHANISM NO. 20M

For Operating All Lever Valves
Both Single and Double Seated





Application/Service: The No. 20M float mechanism is designed to operate a lever valve, electric switch, or other equipment, in accordance with changes in liquid level in a closed tank. Typical applications are with a No. 62, 73, 462, 762 or 773 lever valve used as a level controller for hot or cold water.

Where the valve is installed in the outlet from a tank supplying a pump, the lever is reversed so that the equipment works as a drainage controller to prevent emptying the tank and drawing air into the pump.

The No. 20M may be used with a No. 62 lever valve to control the steam supply to a pump which fills or drains the tank.

Construction: The packing box has standard pipe threads at one end to screw into a threaded opening in the tank wall. It is several inches long to provide a rigid bearing for the shaft. A turnbuckle is included for adjustment of the liquid level with the controller.

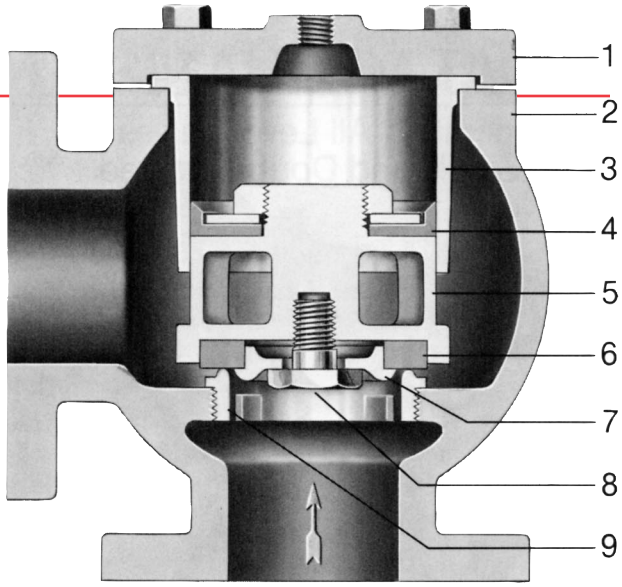
Materials: The packing assembly is bronze with a stainless steel shaft. The parts inside the tank are brass, bronze or stainless steel. The standard float is 304 stainless steel and is suitable for 250 psi tank pressure. Floats for higher pressures are available.

Size of lever valve	Pipe size packing box A	Adj. length B	Diameter of float C	D	E	Shipping Weight including lever valve	
						Standard Screwed	Standard Flanged
½" - ¾"	¾"	8-10	6	2⅜"	5¼"	21	—
1"	¾"	8-10	6	2⅜"	5¼"	22	—
1¼"	¾"	8-10	6	2⅜"	5¼"	23	—
1½"	¾"	8-10	6	2⅜"	5¼"	24	—
2"	1¼"	11-16	8	2⅝"	8⅜"	51	60
2½"	1¼"	11-16	8	2⅝"	8⅜"	70	80
3"	1¼"	11-16	8	2⅝"	8⅜"	88	98
4"	1¼"	11-16	8	2⅝"	8⅜"	115	138
5"	1¼"	11-16	8	2⅝"	8⅜"	168	188
6"	1¼"	11-16	8	2⅝"	8⅜"	198	222

FLOAT VALVE NO. 177

Pilot Controlled
Single Seated, Dead End Service
Globe or Angle

BRONZE ● CAST IRON BODY



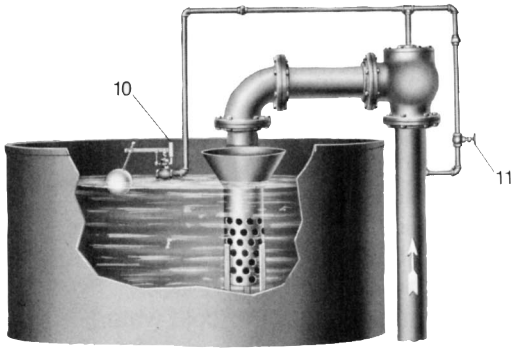
NO. 177 ANGLE

Application/Service: The No. 177 tank float valve is a compact, single seated valve, controlled by an external pilot, for water pressures up to 250 psi. It is suitable for clean water at temperatures below 125°F and especially where tight closing is essential. Since the valve will be operated at a distance from the tank — which may be open or closed — it lends itself to a wide variety of installations.

Construction: The No. 177 valve is similar to the No. 77 with the exception that the pilot control is a separate external valve. It is therefore possible to install the No. 177 at a distance from the tank where it is accessible. A renewable composition disc makes it tight closing, while a leather cup prevents leakage past the piston.

Operation: This valve operates on the same principle as the No. 77, described on pages 7 and 8. The pilot float valve is a ⅜" No. 112 open tank, needle point stem type unit. A lever valve, operated by a float in a closed tank or float cage (shown on pages 12 and 13) may be substituted for the No. 112 pilot at extra cost.

Materials: Valves of standard construction have cast iron bodies and bronze trim.



NO. 177 INCLUDES — NO. 112 PILOT VALVE AND NEEDLE VALVE

LIST OF PARTS

1 — Cover
2 — Body
3 — Cylinder
4 — Leather Cup
5 — Inner Valve
6 — Composition-Rubber Disc
7 — Disc Plate
8 — Disc Screw
9 — Seat
10 — 112 Pilot Valve
11 — Needle Valve

NOS. 177—DIMENSIONS—WEIGHTS (approximate)

Size Inches	Center to Face Angle Pattern			Face to Face—Inches Globe Pattern			Center Line to Top	Valve Lift Inches	Shipping Weight-Lbs.			Capacity Factor
	Std Scr.	Std Flg.	Ex. Hvy. Flg.	Std. Scr.	Std Flg.	Ex. Hvy. Flg.	Angle and Globe		Std. Scr.	Std. Flg.	Ex. Hvy. Flg.	See Page 15
2	3 7/16	4⅛	4⅜	7 9/16	8¼	8¾	5	⅝	40	48	56	1.6
2½	3 15/16	4¾	5 1/16	8¾	9½	10⅛	5⅜	¾	53	65	72	2.5
3	4½	5¼	5⅝	9¾	10½	11¼	5⅝	1	73	85	100	3.5
4	—	6⅛	6 7/16	—	12¼	12⅞	6	1⅛	—	120	140	6.9
5	—	7¼	7 11/16	—	14½	15⅜	7¼	1⅜	—	170	195	10.0
6	—	8⅛	8 7/16	—	16¼	17⅛	8½	1⅝	—	200	235	14.0
8	—	9⅛	9⅝	—	19⅛	20⅛	10½	2⅛	—	395	445	26.0
10	GLOBE ONLY			—	20⅞	21½			—			

Prices include 3/8" No. 112 pilot float valve and one restricting valve.
The absolute minimum operating pressure for the #177 Float Valve is 5 psi for sizes 2" through 6" and 10 psi for sizes 8" and 10".
Certified Dimensional Sheets Available

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SELECTING SIZE OF FLOAT AND LEVER VALVE

The *maximum* capacity of a float or lever valve depends on its size and on the pressure difference — or drop — between the inlet and outlet when the valve is wide open. **It is recommended that a valve be selected having 50% to 100% more capacity than the normal demand.** For example, if the normal requirement is 100 gallons per minute, a valve having 150 to 200 G.P.M. capacity should be selected. This will result in less variation in water level, and provide reserve capacity in case of low water pressure or unusual demand. *The maximum capacity is the product of the flow per square inch of port area (Orifice Capacity) multiplied by the equivalent port area of the valve (Capacity Factor).*

MAXIMUM CAPACITIES OF NOS. 27 FLOAT AND 62 LEVER VALVES U.S. GALLONS PER MINUTE OF WATER

Size Inches	Pressure Drop between Inlet and Outlet in Pounds per Square Inch																	Capacity Factor
	1	3	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100	
½"	1.5	2.6	3	5	6	7	7	8	9	10	10	11	12	13	14	14	15	.04
¾"	5.7	10	13	18	22	25	28	31	34	36	38	40	44	48	51	54	57	.15
1"	9.1	16	20	29	35	40	46	50	54	58	61	64	70	76	81	86	91	.24
1¼"	15	26	34	48	58	68	76	83	90	97	102	108	118	127	136	144	152	.40
1½"	22	38	48	68	83	97	108	118	128	138	145	154	168	181	194	205	216	.57
2"	53	92	119	168	204	236	266	290	314	339	357	377	412	446	447	—	—	1.4
2½"	64	111	144	204	248	287	323	352	382	410	433	458	500	—	—	—	—	1.7
3"	87	150	196	276	335	389	437	476	518	556	586	620	—	—	—	—	—	2.3
4"	167	290	374	528	642	743	846	910	990	—	—	—	—	—	—	—	—	4.4
5"	285	493	637	900	1095	1270	1425	1550	—	—	—	—	—	—	—	—	—	7.5
6"	388	672	867	1225	1490	1725	1940	—	—	—	—	—	—	—	—	—	—	10.2
8"	596	1030	1335	1885	2290	2655	—	—	—	—	—	—	—	—	—	—	—	15.7
10"	950	1645	2125	3000	3650	—	—	—	—	—	—	—	—	—	—	—	—	25
12"	1520	2630	3400	4800	5830	—	—	—	—	—	—	—	Capacities are in U.S. Gallons. The Imperial Gallon = 1.2 U.S. Gallons.					40
1 sq. in. Orifice Capac.	38	66	85	120	147	170	190	208	225	240	255	269	294	318	340	360	380	1

For other liquids divide above G.P.M. by $\sqrt{\text{specific gravity of the liquid.}}$

MAXIMUM CAPACITIES OF NOS. 7, 77 FLOAT AND 73, 773 LEVER VALVES U.S. GALLONS PER MINUTE OF WATER

Size Inches	Pressure Drop between Inlet and Outlet in Pounds per Square Inch																	Capacity Factor
	1	3	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100	
¾"	6.5	11	14	20	25	29	32	35	38	41	43	46	50	54	58	61	65	.17
1"	13	23	30	42	52	50	66	73	79	84	89	94	103	111	119	126	133	.35
1¼"	19	33	42	60	73	85	95	104	112	120	127	134	147	159	170	180	190	.50
1½"	30	53	68	96	118	136	152	166	180	192	204	215	235	254	272	288	304	.80
2"	61	106	136	192	235	272	304	333	360	384	408	430	470	508	544	576	608	1.6
2½"	95	165	212	300	368	425	475	520	562	600	638	672	735	795	850	900	950	2.5
3"	133	231	297	420	514	595	665	728	786	840	892	940	1030	1110	1190	1260	1330	3.5
4"	247	429	552	780	955	1105	1235	1353	1460	1560	1660	1750	1910	2070	2210	2340	2470	6.5
5"	380	660	850	1200	1470	1700	1900	2080	2250	2400	2550	2680	2940	3180	3400	3600	3800	10.0
6"	532	923	1192	1680	2060	2380	2660	2910	3150	3360	3570	3760	4110	4450	4760	5030	5320	14.0
8"	987	1720	2215	3120	3820	4420	4930	5400	5850	6230	6530	6980	7630	8260	8830	9350	9870	26.0
1 sq. in. Orifice Capac.	38	66	85	120	147	170	190	208	225	240	255	269	294	318	340	360	380	

For other liquids divide above G.P.M. by $\sqrt{\text{specific gravity of the liquid.}}$
Capacities are in U.S. Gallons. The Imperial Gallon = 1.2 U.S. Gallons.

Orifice Capacity: Bottom line of tables shows the G.P.M of water which will flow through a standard orifice of 1 sq. in. area at the given pressure drop. These quantities are calculated by the formula:

G.P.M. per Sq. In. = $38\sqrt{\text{Pressure Drop in p.s.i.}}$

= $25\sqrt{\text{Pressure Drop in feet}}$

For other liquids, divide the above G.P.M. by

$\sqrt{\text{specific gravity of liquid.}}$

Capacity Factor: The last column at the right in the tables shows the equivalent square inches of port area of each size of Nos. 27, 62, 7, 77, 73 and 773 valves. These capacity factors are obtained by test, not by measurement of the ports.

Capacity Factors for other types of valves are listed in the last column of each table on the following pages.