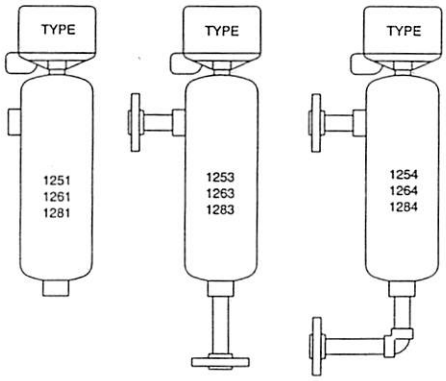
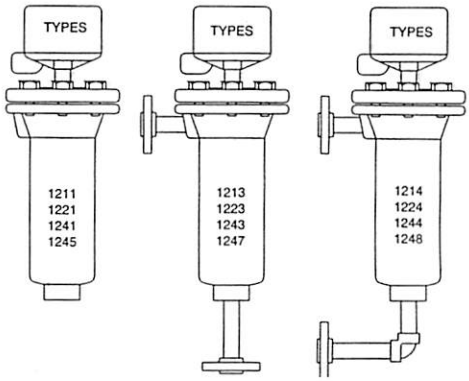
Mercoid®

Bulletin IN-422C

Series 1211, 1213, 1214, 1221, 1223, 1224, 1241, 1243, 1245, 1247 and 1248 - Flanged Steel Float Chamber with Removable S.S. Float Series 1251, 1253, 1254, 1261, 1263, 1264, 1281, 1283, 1284 - Sealed Housing with S.S. Float

Installation and Operating Instructions





Operating Characteristics

When the float rises to the operating point of the lower switch, the switch is actuated by breaking of the mutual attraction between a magnet plunger attached to the float within the float chamber and a magnet attached to the switch operating assembly. On further level rise, the upper switch operates when its magnet is attracted to the magnetic plunger. When the float drops, the magnetic plunger is moved out of the field of the magnet on the upper switch operating assembly and upper switch is returned to its original position. On further drop the lower switch magnet is attracted to the magnetic plunger and the switch is restored to its original position by gravity.

The magnetic plunger attached to the float moves within a tube within the switch enclosure. The switch unit is mounted on the tube singly or in pairs.

Explanation of Type and Code Numbers

Example: TYPE 1261-G4820-C1-60
1261 is the type number of the control; letter 'G" denotes enclosure -4820 designates circuit arrangement; C1 denotes materials of construction; 60 indicates pressure rating and specific gravity.

Enclosures

General Purpose enclosures are identified by the letter 'G' in type number as in 1223G, 1261G.
Weather resistant enclosures are identified by letter 'W' in type number as in 1211W, 1251W.
Explosion-proof enclosures are identified by the letter 'E' in type number as in 1224E, 1254E.
Explosion-proof -- Vapor-proof enclosures are identified by the letter 'EV' in type number as in 1213EV, 1241EV.

Special Features

440 Volt Service for controls. Identified by the digit 5 in circuit specification such as in -5820, 5821. For two-stage operation 440V is limited to SPST in each stage.

Location - Mounting

Select location recommended by equipment manufacturer.
Mount all controls vertically and be sure that control switch mechanism is level.

Wiring

Wire in accordance with local electrical codes and follow equipment manufacturer's instructions.
Align wiring block to face conduit opening and tighten clamp screw of switch assembly. Front right hand screw.
The 3/4" NPT conduit connection (on all types) can be rotated 360° to facilitate wiring.
Do not overload electrically. See rating stamped on nameplate.

Operating Adjustments

Type 1211, 1213, 1214, 1221, 1223, 1224, 1241, 1243, 1244, 1245, 1247, 1248, 1251, 1253, 1254, 1261, 1263, 1264, 1281, 1283 and 1284 - (Single Stage Operation) the switch operating mechanism Must Rest at Bottom of Armature Tube against enclosure base.

Liquid Level Changes in Inches for Switch Operation

Series 1211, 1213, 1214, See Illustration No. 12

Single Stage Operation "A"- Not Adjustable			
Sp. Gr.	"A"	"B"	Code
1.0	5-3/16"	15/16"	
0.4	6-1/2"	5/8"	C1-40

Two Stage Operation Not Adjustable						
Sp. Gr.	"A"	"B"	"C"	"D"	"E"	Code
1.0	5-3/16"	15/16"	6-5/16"	13/16"	1-1/8"	
0.4	6-1/2"	5/8"	7-3/4"	1-1/2"	1-1/8"	C1-40

Series 1221, 1223, 1224 See Illustration No. 12

Single Stage Operation "A"- Not Adjustable			
Sp. Gr.	"A"	"B"	Code
1.0	5-1/2"	7/8"	
0.4	6-7/16"	5/8"	C1-40

Two Stage Operation Not Adjustable						
Sp. Gr.	"A"	"B"	"C"	"D"	"E"	Code
1.0	5-1/2"	7/8"	6-1/2"	1/2"	1"	
0.4	6-7/16"	5/8"	7-9/16"	5/8"	1-1/8"	C1-40

Series 1241, 1243, 1244, 1245, 1247, 1248 See Ill. No. 12

Single Stage Operation "A"- Not Adjustable			
Sp. Gr.	"A"	"B"	Code
1.0	6"	15/16"	
0.6	6-9/16"	1-1/4"	C1-60

Two Stage Operation Not Adjustable						
Sp. Gr.	"A"	"B"	"C"	"D"	"E"	Code
1.0	6"	15/16"	7-1/8"	13/16"	1-1/8"	
0.6	6-9/16"	1-1/4"	7-11/16"	1"	1-1/8"	C1-60

MERCOID DIVISION
DWYER INSTRUMENTS, INC.
P.O. BOX 258 • MICHIGAN CITY, INDIANA 46361 U.S.A.
Phone: 219/879-8000
Fax: 219/872-9057
Lit-by-Fax: 888/891-4963
www.dwyer-inst.com
e-mail: info@dwyer-inst.com

"A" - level at which single (or lower stage) operates on level rise.

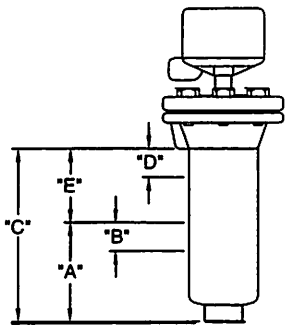
"B" - operating differential single (or lower stage) - drop in level to restore switch to original position.

"C" - level at which upper stage operates on level rise.

"D" - operating differential of upper stage - drop in level to restore switch to original position.

"E" - increase in level above "A" to operate upper stage.

Illustration No. 12



"A" - level at which single (or lower stage) operates on level rise.

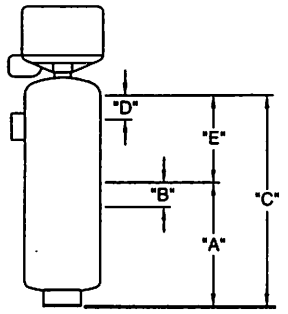
"B" - operating differential single (or lower stage) - drop in level to restore switch to original position.

"C" - level at which upper stage operates on level rise.

"D" - operating differential of upper stage - drop in level to restore switch to original position.

"E" - increase in level above "A" to operate upper stage.

Illustration No. 10



Series 1251, 1253, 1254 See illustration No. 10

Single Stage Operation "A"- Not Adjustable			
Sp. Gr.	"A"	"B"	Code
1.0	5-3/8"	1/2"	C1-40
0.4	6-5/16"	5/8"	

Two Stage Operation Not Adjustable						
Sp. Gr.	"A"	"B"	"C"	"D"	"E"	Code
1.0	5-3/8"	1/2"	7-1/8"	1/2"	1"	C1-40
0.4	6-5/16"	5/8"	7-7/16"	5/8"	1-1/8"	

Series 1261, 1263, 1264 See illustration No. 10

Single Stage Operation "A"- Not Adjustable			
Sp. Gr.	"A"	"B"	Code
1.0	5-1/2"	7/8"	C1-60
0.6	6"	1-1/8"	

Two Stage Operation Not Adjustable						
Sp. Gr.	"A"	"B"	"C"	"D"	"E"	Code
1.0	5-1/2"	7/8"	6-1/4"	7/8"	3/4"	C1-60
0.6	6	1-1/8"	6-7/8"	1-1/8"	7/8"	

Series 1281, 1283, 1284 See illustration No. 10

Single Stage Operation "A"- Not Adjustable			
Sp. Gr.	"A"	"B"	Code
1.0	6-1/2"	1-1/8"	C1-68
0.6	7-5/8"	1-5/8"	

Two Stage Operation Not Adjustable						
Sp. Gr.	"A"	"B"	"C"	"D"	"E"	Code
1.0	6-1/2"	1-1/8"	7-5/8"	1-1/8"	1-1/8"	C1-68
0.68	7-5/8	1-5/8"	9-1/8"	1-5/8"	1-1/2"	

Flange and Float Specifications

Series 1211, 1213, 1214
Type 1211: (1) vertical and (1) horizontal 1" NPT Pipe connection.
Type 1213: (1) flange vertical and (1) flange horizontal 1" RF forged steel.
Type 1214: Both flanges vertical 1" RF forged steel.

Type	Minimum Specific Gravity	Pressure Rating At 100°F	Pressure Rating At 500°F Max.	Flange Class PSI	Code
1211	0.4	450 psi	300 psi	---	C1-40
1213	0.4	275 psi	150 psi	150	C1-140
		450 psi	300 psi	300	C1-340
1214		450 psi	300 psi	600	C1-640

Series 1221, 1223, 1224
Type 1221: (1) vertical and (1) horizontal 1" NPT Pipe connection.
Type 1223: (1) flange vertical and (1) flange horizontal 1" RF forged steel.
Type 1224: Both flanges vertical 1" RF forged steel.

Type	Minimum Specific Gravity	Pressure Rating At 100°F	Pressure Rating At 475°F Max.	Flange Class PSI	Code
1221	0.4	1000 psi	850 psi	---	C1-40
1223	0.4	275 psi	150 psi	150	C1-140
		750 psi	625 psi	300	C1-340
1224		1000 psi	850 psi	600	C1-640

Series 1241, 1243, 1244
Type 1241: (1) vertical and (1) horizontal 1" socket weld Pipe connection.
Type 1243: (1) flange vertical and (1) flange horizontal 1" RF forged steel.
Type 1244: Both flanges vertical 1" RF forged steel.

Type	Minimum Specific Gravity	Pressure Rating At 100°F	Pressure Rating At 475°F Max.	Flange Class PSI	Code
1241	0.60	1440 psi	1275 psi	---	C1-60
1243	0.60	1440 psi	1275 psi	600	C1-660
1244					

Series 1245, 1247, 1248
Type 1245: (1) vertical and (1) horizontal 1" socket weld Pipe connection.
Type 1247: (1) flange vertical and (1) flange horizontal 1" RF forged steel.
Type 1248: Both flanges vertical 1" RF forged steel.

Type	Minimum Specific Gravity	Pressure Rating At 100°F	Pressure Rating At 475°F Max.	Flange Class PSI	Code
1245	0.60	1450 psi	1450 psi	---	C1-60
1247	0.60	1450 psi	1450 psi	900	C1-960
1248					

FLANGES AND FLOAT SPECIFICATIONS

Series 1251, 1253, 1254
Type 1251: (1) vertical and (1) horizontal 1" NPT or 1" socket weld Pipe connection.
Type 1253: (1) flange vertical and (1) flange horizontal 1" RF forged steel.
Type 1254: Both flanges vertical 1" RF forged steel.

Type	Minimum Specific Gravity	Pressure Rating At 100°F	Pressure Rating At 500°F	Flange Class PSI	Code
1251	0.40	1250 psi	1250 psi	---	C1-40
1253 1254	0.40	275 psi	150 psi	150	C1-140
1253 1254	0.40	720 psi	625 psi	300	C1-340
1253 1254	0.40	1250 psi	1250 psi	600	C1-640

Series 1261, 1263, 1264
Type 1261: (1) vertical and (1) horizontal 1" NPT or 1" socket weld Pipe connection.
Type 1263: (1) flange vertical and (1) flange horizontal 1" RF forged steel.
Type 1264: Both flanges vertical 1" RF forged steel.

Type	Minimum Specific Gravity	Pressure Rating At 100°F	Pressure Rating At 500°F	Flange Class PSI	Code
1261	0.60	1750 psi	1650 psi	---	C1-60
1263 1264	0.60	1750 psi	1650 psi	600	C1-660

FLANGES AND FLOAT SPECIFICATIONS

Series 1281, 1283, 1284
Type 1281: (1) vertical and (1) horizontal 1" socket weld Pipe connection.
Type 1283: (1) flange vertical and (1) flange horizontal 1" RF forged steel.
Type 1284: Both flanges vertical 1" RF forged steel.

Type	Minimum Specific Gravity	Pressure Rating At 100°F	Pressure Rating At 650°F	Flange Class PSI	Code
1281	0.68	2000 psi	1400 psi	---	C1-68
1283 1284	0.68	1440 psi	1030 psi	600	C1-668
1283 1284	0.68	2000 psi	1400 psi	900	C1-968

Note: Cold shock or water hammer must be avoided, as this condition may damage the float and prevent proper operation of the control.

DO NOT oil any parts. Never leave cover off the switch operating mechanism.

ELECTRICAL CIRCUITS AND RATING

SWITCH TYPE	SWITCH ACTION	ELECTRICAL RATINGS IN AMPS AC 120V	AC 240V	AC 440V†	DC 125V	DC 250V	ORDERING CODE SINGLE STAGE	TWO STAGE LOWER	TWO STAGE UPPER
Mercury Contacts	SP-ST Open on level FALL	10	5	3†	10	5	-4821	-4821	-21
	SP-ST Open on level RISE	10	5	3†	10	5	-4820	-4820	-20
	SP-DT One Switch	4	2	1†	4	2	-4810	-4810	-10
	SP-DT Two switches E.I.*	10	5	3†	10	5	-4815	-4815	-15
	DP-ST Two switches E.I.* Open on level FALL	10	5	3†	10	5	-4813	-4813	-13
	DP-ST Two switches E.I.* Open on level RISE	10	5	3†	10	5	-4814	-4814	-14
	DP-DT Two SP-DT switches	4	2	1†	4	2	-4806	-4806	-06
Snap-Action Contacts	SP-DT One switch	12	5	3†	0.5**	0.25**	-7810	-7810	-10
	DP-DT Two SP-DT switches	12	5	3†	0.5**	0.25**	-7806	-7806	-06
	DP-DT Two SP-DT switches	10	3	--	10‡	3‡	-9806	-9806	-06
	SP-DT One switch	10	3	--	10‡	3‡	-9810	-9810	-10

*Electrically Independent
‡10 Amp Inductive (Polarized) at 125 V DC
†Available on special order. Change 1st digit in Ordering Code from 4 to 5 or 7 to 8 -- i.e. -4820 becomes -5820; -7810 becomes -8810
** Resistive