

Omnitrol 666/668(C)

Chamber-Mounted Level Switches

For refinery and chemical plant operators, power generation facilities, and process engineers who require high-pressure, high-temperature point level switching with fail-safe mechanical reliability, the Omnitrol 666/668(C) chamber-mounted level switches deliver robust displacer-actuated technology in a compact, pressure-rated welded chamber. These single-point mechanical switches provide precise control in challenging liquids and vapor systems, with standard graphite displacers and 1" NPT connections for external side and bottom mounting.

Unlike competitive products, the 666/668(C) combines a short welded "C" style chamber design optimized for space-constrained installations, broad hazardous-area certifications (UL/CSA approved), and rugged mechanical switching without reliance on electronics—ensuring reliability in extreme environments, low-specific-gravity fluids, and applications requiring completely external sensing without tank penetration. Factory-calibrated to your specific gravity and hydrostatically tested to 1.5 times design pressure, these switches are available in carbon steel, 304SS, or 316SS construction.

Select the 666/668(C) when you need compact size, excellent low-specific-gravity performance, and high-pressure integrity up to 1000 psig at 500°F in a welded chamber format.



Key Features

Compact welded "C" chamber

Provides excellent performance on low-SG liquids and high-pressure services where space is limited for installation.

Mechanical displacer technology

Proven reliability in harsh environments with no electronics required—ideal for safety systems, utilities, and critical applications.

Sealed external design

Full isolation from tank internals ensures safe operation in pressurized or corrosive media without internal penetration.

Hazardous-area approvals

Safe deployment in refineries, chemical plants, and hazardous vapor environments with UL and CSA certified explosion-proof housings.

Multiple housing options

Flexibility for outdoor, classified, and corrosive areas while meeting electrical safety codes for Weather-proof and Explosion-proof configurations.

Fail-safe switching mechanism

Ensures process protection for high/low level alarms, pump shutdown, and safety interlocks through mechanical snap-switch actuation.



Typical Applications



HIGH-PRESSURE VESSELS

Welded chamber and mechanical switch design provides durable, non-electronic solution for reliable shutdown and alarm performance in extreme conditions.



LOW-GRAVITY LIQUIDS

Proven displacer sensitivity ensures accurate and repeatable switching on LPG, NGLs, and solvent applications where standard floats fail.



BOILER SAFETY INTERLOCKS

High-integrity mechanical actuation offers drift-free, fail-safe protection for boilers and steam systems without relying on electronic controls.



CHEMICAL TANKS

External chamber isolation and explosion-proof housing protect switch from corrosive media and hazardous vapors for long service life.



INTERFACE DETECTION

Available for interface service on special order; factory calibration accommodates specific gravity of both liquids for accurate level switching.



PUMP PROTECTION

Independent mechanical trip mechanism provides reliable high or low level alarm for pump shutdown interlocks without PLC dependency.

Benefits



PLC-Independent Safety

Independent mechanical trip mechanism eliminates reliance on PLCs, ensuring safe shutdown even when electronic controls fail in pressurized systems.



Light Hydrocarbon Accuracy

Low-specific-gravity displacer design reliably actuates in light hydrocarbons, overcoming limitations where standard floats cannot detect LPG or solvents.



Compact Space Installation

Short "C" chamber solves challenge of tight piping layouts, allowing chamber-mounted switches to install where full-size chambers will not fit.



Drift-Free Performance

Mechanical measuring principle avoids drift and failure common with electronics in harsh environments, maintaining stable performance over years of service.



Hazardous Zone Compliance

Explosion-proof and vapor-proof housings provide certified protection required in explosion-risk areas, ensuring safe and compliant operation in hazardous environments.



Factory Calibration Assurance

Each unit factory-calibrated to application-specific gravity and hydrostatically tested at 1.5 times design pressure ensures reliable out-of-box performance.



Technical Specifications & Key Features

Design:	Single-point mechanical displacer level switch
Chamber Style:	Short welded "C" body
Service:	Liquid level, high or low alarm / trip
Displacer Material:	Graphite standard; stainless steel optional
Mounting:	External side & bottom connections (1" NPT std; flange/weld options)
Housing Options:	Weather-resistant, Explosion-proof /Vapor Proof/Rain Tight
Pressure / Temp:	Designed for high-pressure / high-temp process service (See specific datasheet for class & limits per model)
Switch Mechanism:	Field-proven magnetic coupling + snap switch output
Actuation:	Single setpoint
Applications:	Level alarm, pump protection, shutdown, interlock

When to Choose the 666/668(C) Model

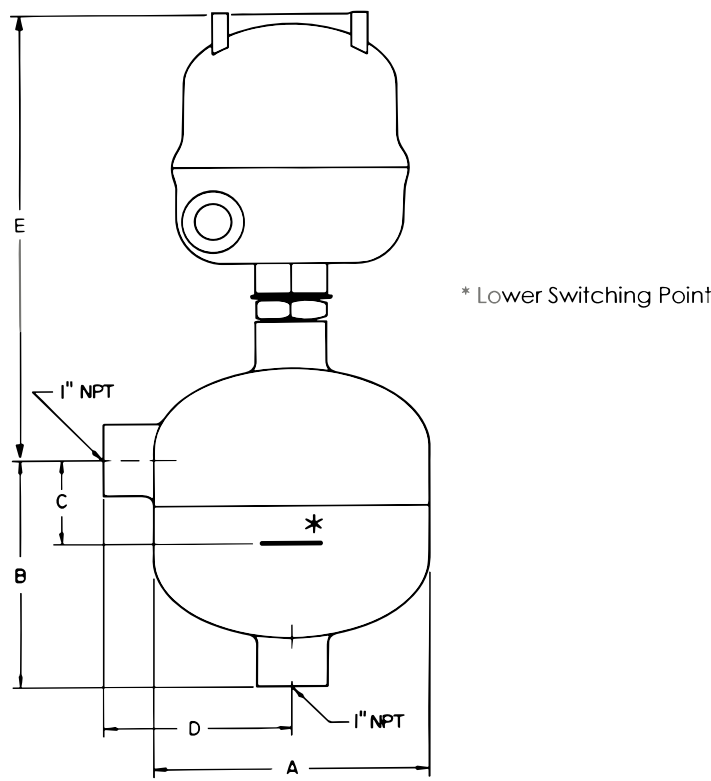
Use this model when

- Space is limited and a compact chamber is required
- Liquids have low specific gravity
- You need single-point protection only
- High-pressure / hazardous area installation required
- Simple, mechanical fail-safe actuation preferred over electronics

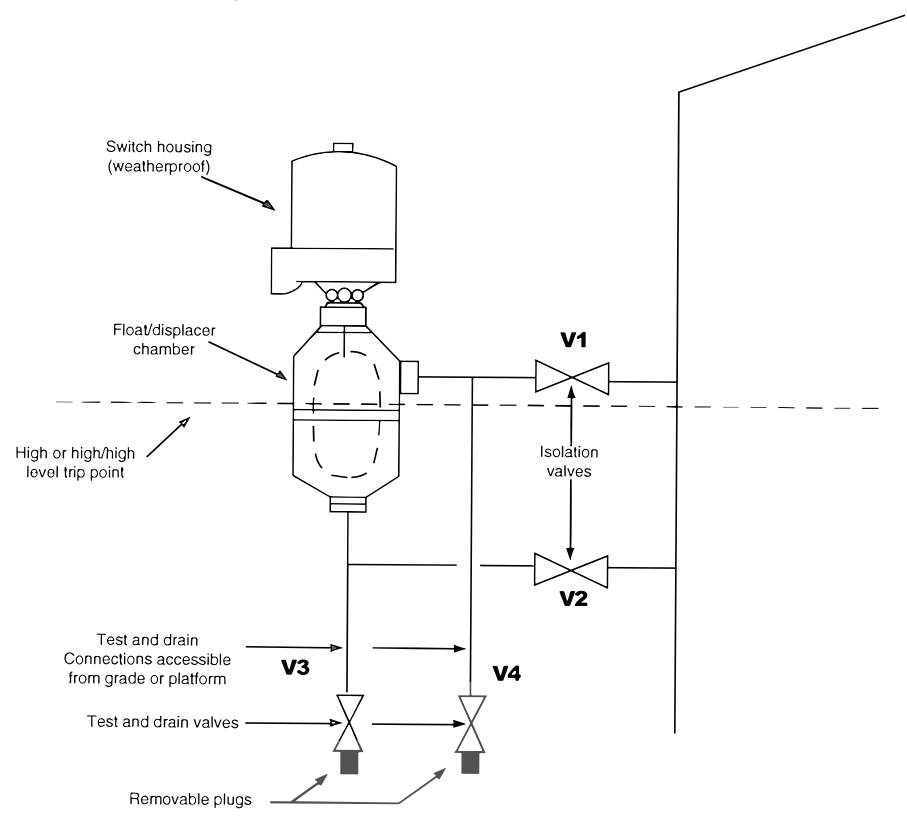
Choose other Omnitrol chamber models if:

- Multiple actuation points needed (use 663W/664W)
- Flanged body required (use 663F/664F/668F)

Dimensions



Typical System Layout





Model Number Selection

The model number will consist of a base number 666/668(C) followed by 9 digits. These digits will represent 10 sets of option tables.

Part Number Structure

OMNITROL A-B-CD-E-F-G-HI-JK-L-MN

Part Prefix OMNITROL

Part Number	A- NUMBER OF ACTUATORS
6	Single
7	Dual
P	Pneumatic

Part Number	B- CONFIGURATION
2	Switch Head
6	Switch with Chamber

Part Number	E- DISPLACER MATERIAL & TYPE
G	Graphite
R	304 Stainless Steel
S	316 Stainless Steel

Part Number	F- SWITCH HOUSING
W	Weather Resistant
V	Explosion & Vapor Proof Group B, C & D
R	Explosion & Vapor Proof/Rain Tight Group C & D

Part Number	G- MAXIMUM WORKING PRESSURE
1	150 PSIG
2	300 PSIG
3	500 PSIG
4	600 PSIG
5	900 PSIG
6	1000 PSIG
7	1500 PSIG

Part Number	HI- CHAMBER PROCESS CONNECTION SIZE
11	1" NPT
12	1" Socket Weld
13	1.5" NPT
14	1.5" Socket Weld
15	2" NPT
16	2" Socket Weld
21	1" 150 Lb. RF
22	1" 300 Lb. RF
23	1" 600 Lb. RF

Part Number	CD- CHAMBER SIZE, TYPE & MATERIAL
3F	Ø3" Chamber - Flanged / Steel
3G	Ø3" Chamber - Flanged / 304SS
3H	Ø3" Chamber - Flanged / 316SS
3W	Ø3" Chamber - Long / Steel
3X	Ø3" Chamber - Long / 304SS
3Y	Ø3" Chamber - Long / 316SS
4C	Ø4" Chamber - Short / Steel
4D	Ø4" Chamber - Short / 304SS
4E	Ø4" Chamber - Short / 316SS
4F	Ø4" Chamber - Flanged / Steel
4G	Ø4" Chamber - Flanged / 304SS
4H	Ø4" Chamber - Flanged / 316SS
4W	Ø4" Chamber - Long / Steel
4X	Ø4" Chamber - Long / 304SS
4Y	Ø4" Chamber - Long / 316SS
6C	Ø6" Chamber - Short / Steel
6D	Ø6" Chamber - Short / 304SS
6E	Ø6" Chamber - Short / 316SS
6F	Ø6" Chamber - Flanged / Steel
6G	Ø6" Chamber - Flanged / 304SS
6H	Ø6" Chamber - Flanged / 316SS
6W	Ø6" Chamber - Long / Steel
6X	Ø6" Chamber - Long / 304SS
6Y	Ø6" Chamber - Long / 316SS
8C	Ø8" Chamber - Short / Steel
8D	Ø8" Chamber - Short / 304SS
8E	Ø8" Chamber - Short / 316SS
8F	Ø8" Chamber - Flanged / Steel
8G	Ø8" Chamber - Flanged / 304SS
8H	Ø8" Chamber - Flanged / 316SS
8W	Ø8" Chamber - Long / Steel
8X	Ø8" Chamber - Long / 304SS
8Y	Ø8" Chamber - Long / 316SS



Part Number	HI- CHAMBER PROCESS CONNECTION SIZE
24	1.5" 150 Lb. RF
25	1.5" 300 Lb. RF
26	1.5" 600 Lb. RF
27	2" 150 Lb. RF
28	2" 300 Lb. RF
29	2" 600 Lb. RF
31	1" 150 Lb. RF
32	1" 300 Lb. RF
33	1" 600 Lb. RF
34	1.5" 150 Lb. RF
35	1.5" 300 Lb. RF
36	1.5" 600 Lb. RF
37	2" 150 Lb. RF
38	2" 300 Lb. RF
39	2" 600 Lb. RF
41	1" 150 Lb. RF
42	1" 300 Lb. RF
43	1" 600 Lb. RF
44	1.5" 150 Lb. RF
45	1.5" 300 Lb. RF
46	1.5" 600 Lb. RF
47	2" 150 Lb. RF
48	2" 300 Lb. RF
49	2" 600 Lb. RF

Part Number	MN- CHAMBER CONNECTION DISTANCE
00	Standard Chamber Length
XX	Specify Chamber Length in Inches

Part Number	JK- SWITCH TYPE
E2	20 Amp SPDT Micro (E2)
E4	20 Amp DPDT Micro (E4)
G2	ECW Gold Contact
H2	10 Amp DC SPDT Micro (H2)
H4	10 Amp DC DPDT Micro (H4)
M2	5 Amp SPDT Micro-Hermetically Sealed (M2)
M4	5 Amp DPDT Micro-Hermetically Sealed (M4)
S2	5 Amp SPDT Micro Environment Proof (S2)
S4	5 Amp DPDT Micro Environment Proof (S4)

Part Number	L- SPECIFIC GRAVITY
A	< .53 (Special)
B	.53 to .57
C	.58 to .62
D	.63 to .67
E	.68 to .72
F	.73 to .77
G	.78 to .82
H	.83 to .87
I	.88 to .92
J	.93 to .97
K	.98 to 1.02
L	1.03 to 1.07
M	1.08 to 1.12
N	1.13 to 1.17
O	> 1.17 (Special)

Summary

The Omnitrol 666/668(C) chamber-mounted level switches deliver rugged mechanical reliability, compact pressure-rated construction, and superior performance in low-SG and hazardous service environments. When safety, simplicity, and durability matter most—especially on pressurized vessels—this switch offers proven protection without electronics, drift, or complexity.

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This document is for information purposes only. All designs subject to change. Certified dimensions, specifications, and performance data available upon request