OEM Equipment

Two Position Sidewall (Horizontal) Mounted Loadbreak Switches

GENERAL

The compact Cooper Power Systems two-position loadbreak/loadmake switch is designed for use in transformer (mineral) oil or R-Temp® fluid-filled "Class 1" pad-mounted transformers or distribution switchgear.

The switch mechanism uses a manually charged over-toggle stored spring assembly, which is independent of operator speed. The spring loaded activating mechanism ensures quick loadbreak or loadmake operation in less than one cycle. The two-position switch incorporates a double "O" ring shaft sealing system and three types of mounting systems, which include a bolt-in place system, weld-in bracket assembly, or an easy to install ring mount system. Also incorporated into the switch mechanism are internal stops which restrict the handle orientation to only two positions.

The two-position switch is hookstick operable and requires minimal input torque to operate. It features tungsten copper contacts to minimize arc erosion and prolong contact life. The switch contacts are factory assembled and gaged to a predetermined spring pressure to ensure uniform contact pressure between the contacts and the blades.

The silver-plated copper blades are securely keyed between the vented rotor halves which ensure proper blade and contact alignment during switching. All of these features make the two-position switch a reliable, no-maintenance switch product.

DESIGN/PRODUCTION TESTS

The two-position switch has been tested to meet the sequential test requirements described by **IEEE Standard C37.71-1984™** and **IEEE Standard C37.72-1987™**. Tests are also conducted on production switches in accordance with Cooper requirements.

- Physical Inspection
- Turn Tested (on/off/on)
- Operation Torque Verification
- Resistance Testing

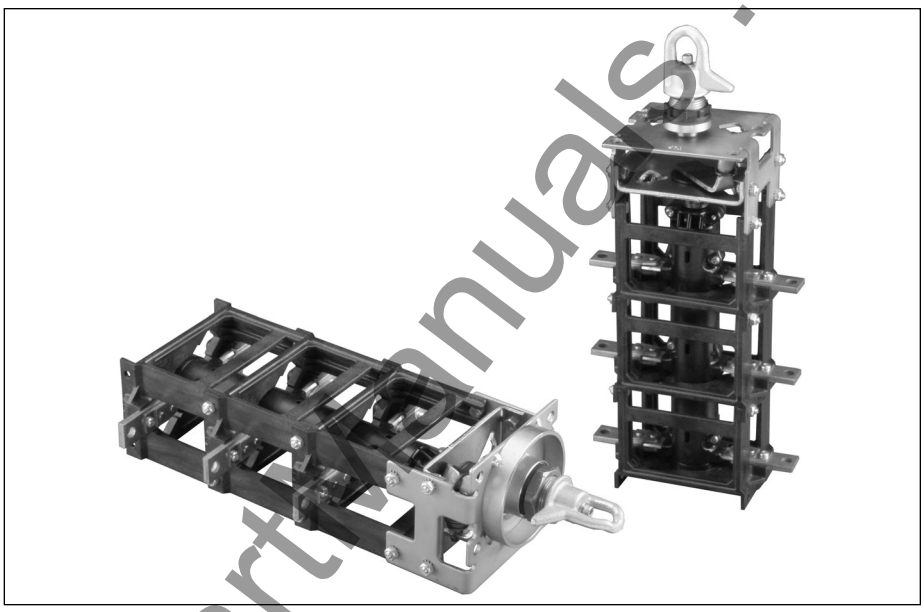

Figure 1.
Two-position loadbreak switch (Bolt-In and Ring Mount designs shown).

TABLE 1
Ratings and Characteristics

Description	Units	Ratings			
Rated Voltage					
Maximum rating phase to phase	kV	15.5	27.6	38	46
Maximum rating phase to ground	kV	8.9	15.6	21.9	26.5
Power Frequency	Hz	60	60	60	60
Current Rating (Continuous)	A	550	400	300	65
Switching Current	A	550	400	300	65
Magnetizing Interrupting Current	A	21	21	10.5	10.5
Cable Charging Current	A	10	25	20	15
Fault Withstand Current (Momentary)					
10 cycle symmetric rms	kA	12	12	12	12
10 cycle asymmetric rms	kA	19.2	19.2	19.2	19.2
45 cycles symmetric rms	kA	16	16	16	16
1 second symmetric rms	kA	12	12	12	12
2 second symmetric rms	kA	8	8	8	8
3 second symmetric rms	kA	7	7	7	7
Fault Close and Latch					
10 cycle symmetric rms	kA		12	12	12
10 cycle asymmetric rms	kA		19.2	19.2	19.2
15 cycle symmetric rms	kA	12			
15 cycle asymmetric rms	kA	19.2			
Impulse Withstand Voltage (1.2/50µs)					
To ground and between phases	kV	200	200	200	200
Across open contacts	kV	235	235	235	235
Power Frequency Withstand (1 minute)					
To ground and between phases	kV	70	70	70	70
Across open contacts	kV	95	95	95	95
DC Withstand (15 minutes)					
To ground, between phases and across Contacts	kV	103	103	103	103
Corona (Extinction)	kV	26	26	26	26
Mechanical Life (Minimum Operations)	2,000	2,000	2,000	2,000	2,000

INSTALLATION

No special tools are required. The switch is sidewall-mounted with the internal components completely immersed under transformer oil or an equivalent approved fluid. All parts should be inspected for damage before using.

Note: For all mounting systems, refer to S800-65-2 for more detailed installation instructions.

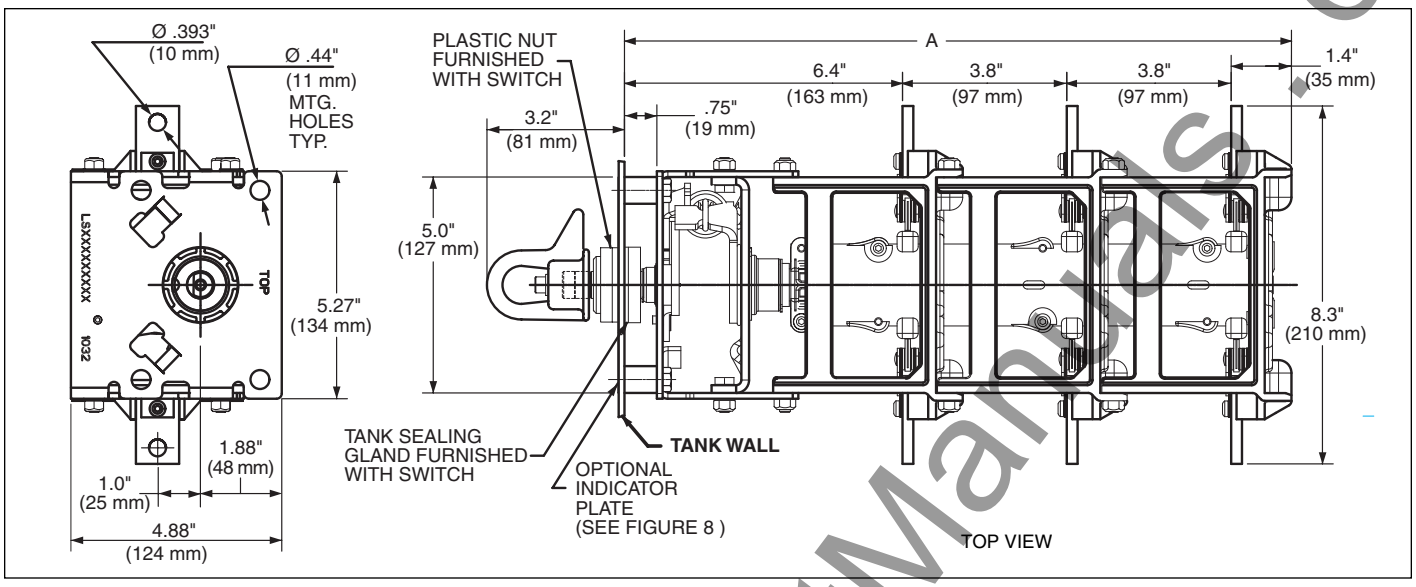

Figure 2.
Line illustration with dimensions of loadbreak switch with "BOLT-IN SYSTEM".

Notes:
1. Dimensions given are for reference only.
2. Switch shown with contacts "CLOSED" and flat of shaft on "BOTTOM" to position cast handle pointer to 9 o'clock when looking at switch with side marked "TOP" up. Handle is rotated approximately 90° CCW when it is in the "OPEN" position.

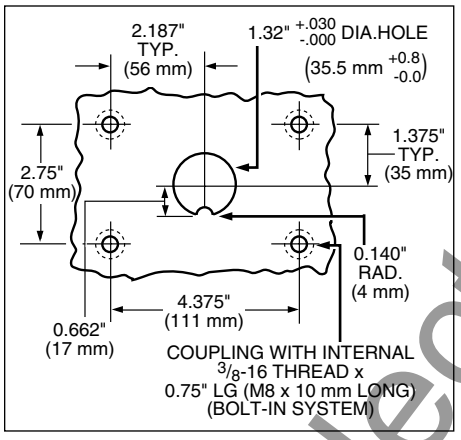

Figure 3.
Hole & Coupling placement detail.

Note: Hole & Coupling placement detail. Couplings not included with switch. Pre-welded coupling plates available. See Table 6.

TABLE 2
Dimensional Information for Figure 2

Number of Decks or Phases	"A" Dimension Inches/(mm)
1	7.83 (199)
2	11.64 (296)
3	15.44 (392)

Note: For catalog (P/N) information see Tables 5 and 6 on page 4 and 5.

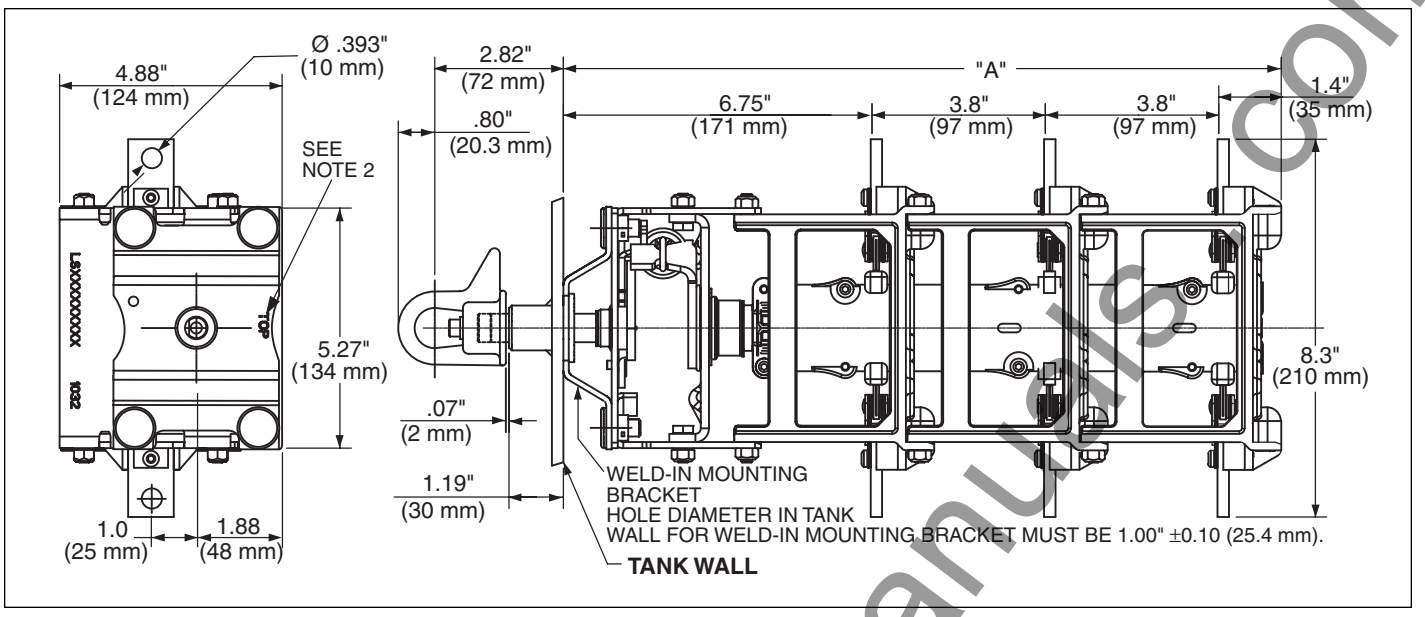

Figure 4.
Line Illustration with dimensions of loadbreak switch with "WELD-IN SYSTEM".

Notes:
1. Dimensions given are for reference only.
2. Switch shown with contacts "CLOSED" and flat of shaft on "BOTTOM" to position cast handle pointer to 9 o'clock when looking at switch with side marked "TOP" up. Handle is rotated approximately 90° CCW when it is in the "OPEN" position.
3. The hole diameter in the tank wall for the mounting bracket must be 1.00" ±0.010" (25.4 mm ±.25 mm).

TABLE 3
Dimensional Information for Figure 4

Number of Decks or Phases	"A" Dimension Inches/(mm)
1	8.14 (207)
2	11.95 (303)
3	15.75 (400)

Note: For catalog (P/N) information see Table 6 on page 5.

TABLE 4
Dimensional Information for Figure 5

Number of Decks or Phases	"A" Dimension Inches/(mm)
1	7.83 (199)
2	11.64 (296)
3	15.44 (392)

Note: For catalog (P/N) information see Table 6 on page 5.

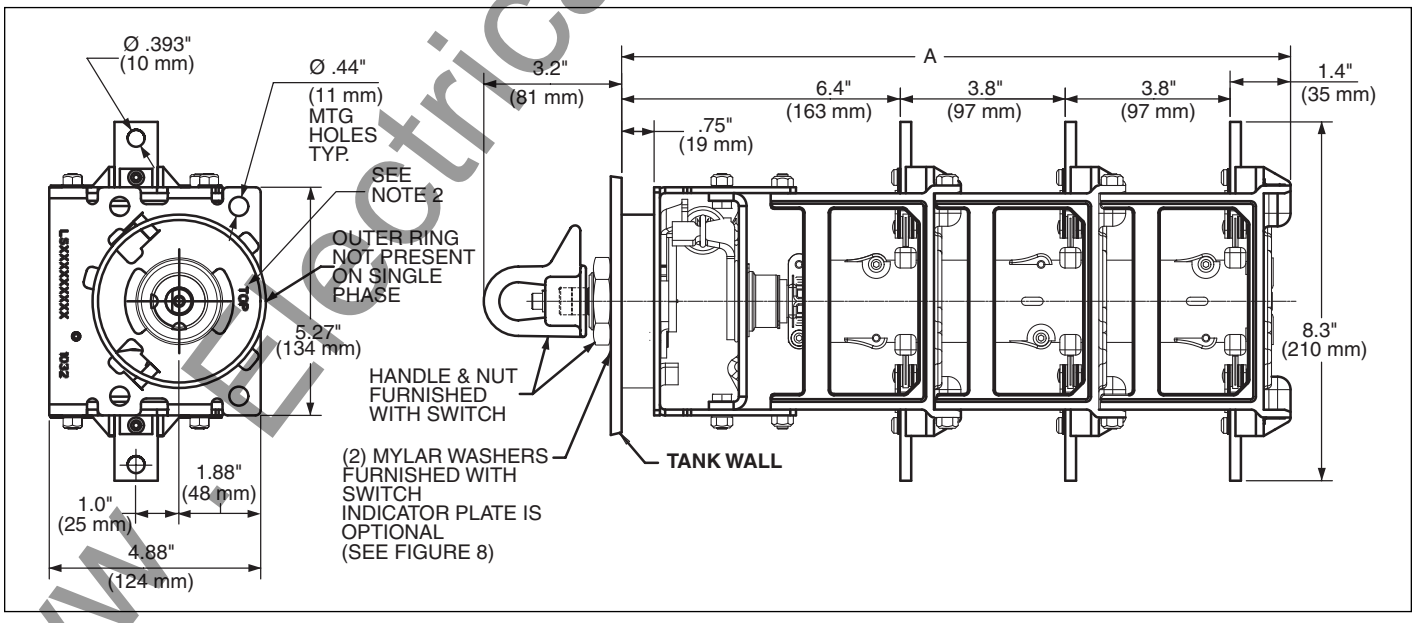

Figure 5.
Line Illustration with dimensions of loadbreak switch with "RING MOUNT SYSTEM".

Notes:
1. Dimensions given are for reference only.
2. Switch shown with contacts "CLOSED" and flat of shaft on "BOTTOM" to position cast handle pointer to 9 o' clock when looking at switch with side marked "TOP" up. Handle is rotated approximately 90° CCW when it is in the "OPEN" position.

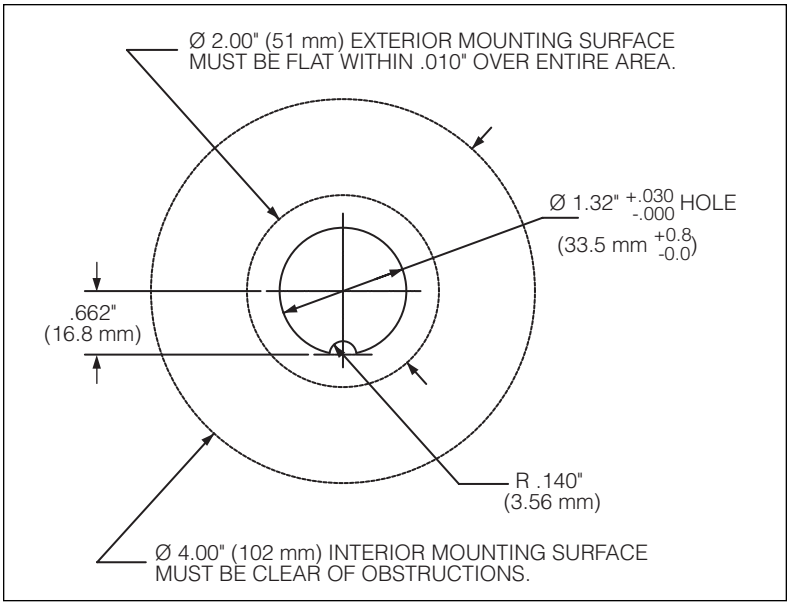

Figure 6.
Hole placement (Ring Mount system).

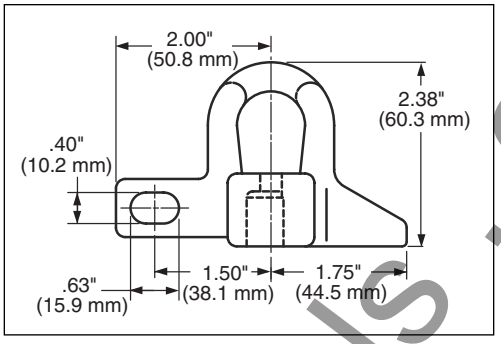

Figure 7.
Padlockable Handle.

TABLE 5
Accessory Parts

Description	Catalog Number	Drawing
*Conversion Mounting Bracket (For Bolt-in System)	2037424C03M	4200738N
Padlockable Handle	2239000B14	4201093N
Indicator Plate	2238709C01	4201192N

*Note: Plate includes hole and couplings.

ORDERING INFORMATION

To order the two-position sidewall (horizontal) mounted loadbreak switch, specify catalog numbers as listed in Table 6.

TABLE 6
Loadbreak Switch Significant Digit Catalog Numbers

1	2	3	4	5	6	7	8	9	10	11	12	13
L	**S**	**2**	**B**	**3**	**3**	**8**	**H**	**3**	**N**	**1**	**A**	**P**

CODE	PRODUCT
L	**LOADBREAK**
S	**SWITCH**
2	**2-POSITION**

CODE	INSTALLATION
B	**BOLT-IN SYSTEM**
R	**RING MOUNT SYSTEM**
W	**WELD-IN SYSTEM**

CODE	POWER RATING
338	**300 A, 38 kV**
427	**400 A, 27 kV**
515	**550 A, 15 kV**
646	**65 A, 46 kV**

CODE	ORIENTATION
H	**HORIZONTAL**

CODE	NUMBER OF PHASES
1	**ONE**
2	**TWO**
3	**THREE**

CODE	STYLE*
N	**NORMAL**
S	**STAINLESS STEEL/ NON-CORROSIVE**

CODE	INDICATOR PLATE
1	**NO INDICATOR PLATE**
2	**WITH OPTIONAL INDICATOR PLATE** (Indicator plate not available for Weld-In system)

CODE	OPTIONAL
P	**SILVER-PLATED TERMINALS** (65 A and 300 A ONLY. 400 A and 550 A already silver-plated)

CODE	HARDWARE KITS
A	**HARDWARE KIT W/BRASS HANDLE**
B	**HARDWARE KIT W/BRASS HANDLE AND SS NUT**
C	**NO HARDWARE KIT**

*__NORMAL__ style switch has all externally located parts built from plated steel, aluminum and brass materials.
__STAINLESS STEEL/NON-CORROSIVE__ style switch has all externally located parts built from stainless steel and brass materials.
__STAINLESS STEEL/NON-CORROSIVE__ style switch should always be matched with a hardware kit having a brass handle and a stainless steel nut.
Digit 12 should always be “B”, if digit 10 is “S”.

Note:
Catalog Number Example shown in Table 6 represents a standard, Bolt-In system, 300 A, 38 kV, Horizontal, 3-phase, standard plated steel external parts, w/o indicator plate, with brass handle hardware kit, 6:00/9:00 positions. (Other handle position options available upon request for 9:00/12:00, 12:00/3:00, and 3:00/6:00 positions. Consult your Cooper Power System sales representative for details.)

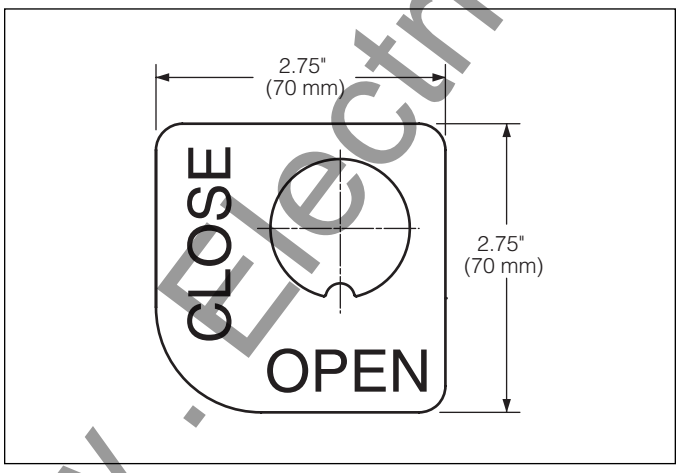

Figure 8.
Index plate (optional).

Note: For different orientations see drawing 4201192N.

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