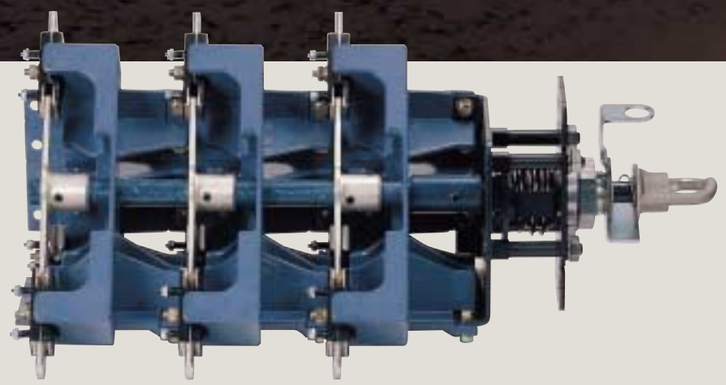
OLBS

Oil Insulated Load Break Switch For Distribuion Transformer



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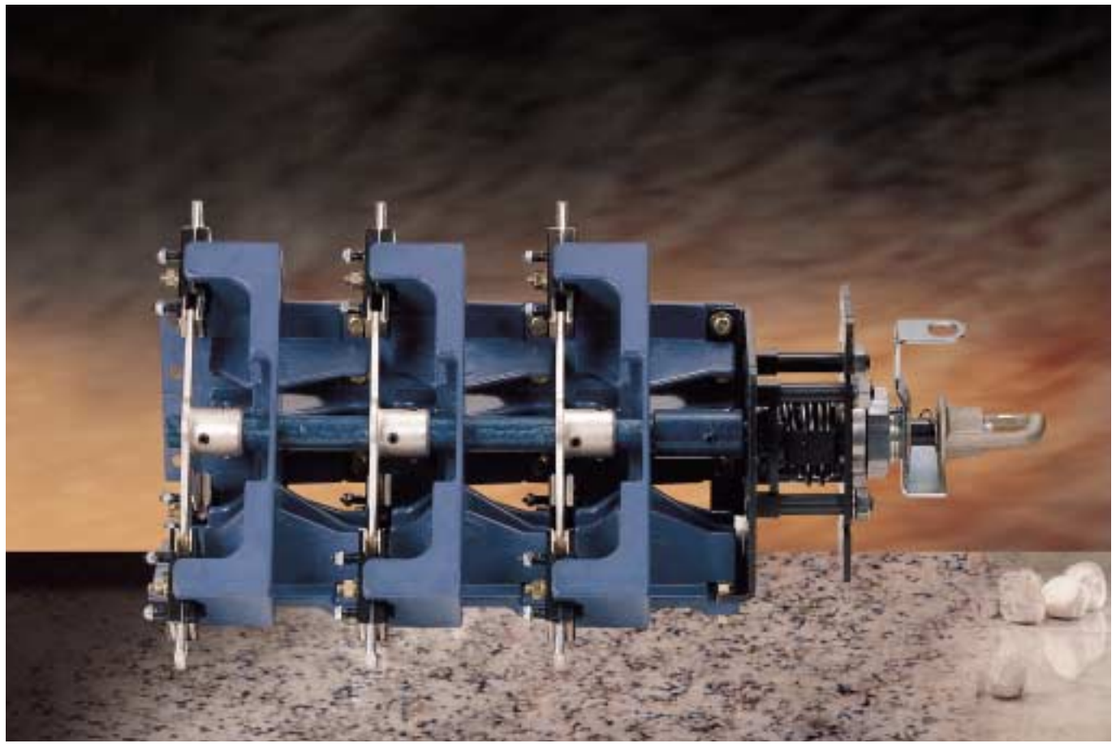
P&A POWER SYSTEMS. INC.

MARKETING BY ARDRY TRADING COMPANY, INC.



GENERALS

OLBS is the oil-insulated load break switch installed on the source side of a distribution transformer(pad-mounted or submersible). The switch is hook stick operable and available in two, three or four positions.

STANDARDS

OLBS is designed and tested in accordance with IEC 60265-1 (1998) and ANSI/IEEE C37.71(1984).

CONSTRUCTION & CHARACTERISTICS

The OLBS is constructed of the highest quality components and manufactured at an ISO-9001 certified facility.
The base components are of a molding material, which supplies good electrical and mechanical properties.
The O-ring gasket installed at the tank interface is of EPR material offering excellent sealing, thermal properties, and gas-proof decomposition properties.
The OLBS is a three phase, gang-operated switch used in distribution and small power transformers for either loop or radial feed switching.
The switch is designed for side wall or cover mounting with the switch fully immersed in the transformer oil.
To maintain proper dielectric a minimum of four inch submersion on all sides should be maintained.
The spring loaded operation of the switch provides quick and secure make/break operations.

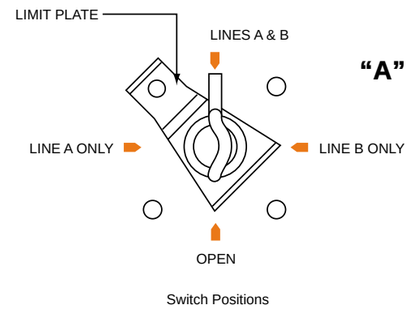
The operating handle is hook stick operable and the switching operation is three phases simultaneously.
The switching speed is constant regardless of operator turning torque of the hot stick. The switch operation rotation is a full 360˚ in either direction for source selection; proper use of the externally installed limiting plate will prevent rotation to positions other than the specific position intended.
The limiting plate is supplied with each switch and is an important safety device.

PERFORMANCE

Rated Voltage		15kV	25.8kV	38kV
Rated Current		630A/400A	400A/300A/200A	400A/300A/200A
Rated Frequency		50/60Hz		
Rated Short-time Current		12.5kArms (32.5kAp)		
Rated Making Current		32.5kAp, 2		
Current Breaking Capacity	Load Current Breaking	630A/30times	300A/30times	200A/30times
		31.5A/20times	15A/20times	10A/20times
	Loop Current Breaking	630A/10times	300A/10times	200A/10times
	Cable Charging Current Breaking	25A/10times	16A/10times	16A/10times
		7.5A/10times	4.8A/10times	4.8A/10times
	Line Charging Current Breaking	1.5A/10times	1.5A/10times	1.5A/10times
	Magnetizing Current Breaking	21A/10times	21A/10times	21A/10times
	Mechanical Strength	1000times		
Power Frequency Withstand Voltage	Type Test	60kV/1min		
	Routine Test	40kV/1min		
Impulse Withstand Voltage (1.2/50μs)		95kV	150kV	150kV
D.C. Withstand Voltage		75kV/15min		
PD Extinction Voltage		19kV		
Operation Method		Manual Type		

OLBS DIMENSIONS

Drawing A - Front of tank



Switch Positions

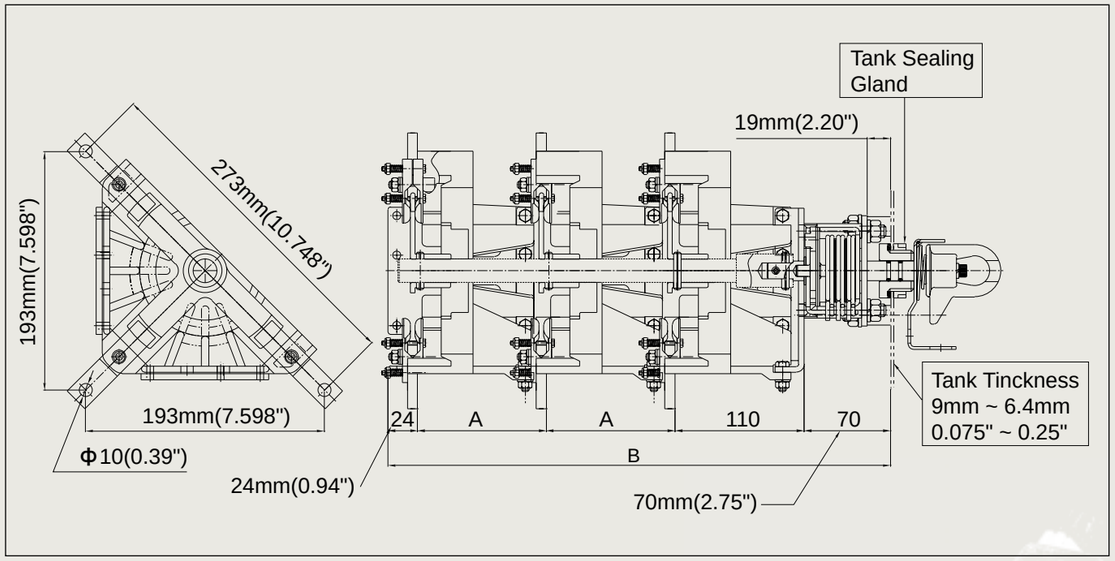
“A” Details

- Operation of switch should be by properly trained personnel in the use of high voltage electrical apparatus.
- Position designation decals are not included with the switch.
- Tank front weld pins are to properly locate limit plate.
- P&A decal (enclosed) should be applied to tank face near the switch operating handle to provide warning to field service personnel.

As illustrated in Drawing D, the V Blade switch has line A only energized. Limit plate is positioned for a counter-clockwise movement to the open position. The limit plate positioned securely as shown prevents incorrect turn rotation or further movement beyond the open position.

OLBS DIMENSIONS

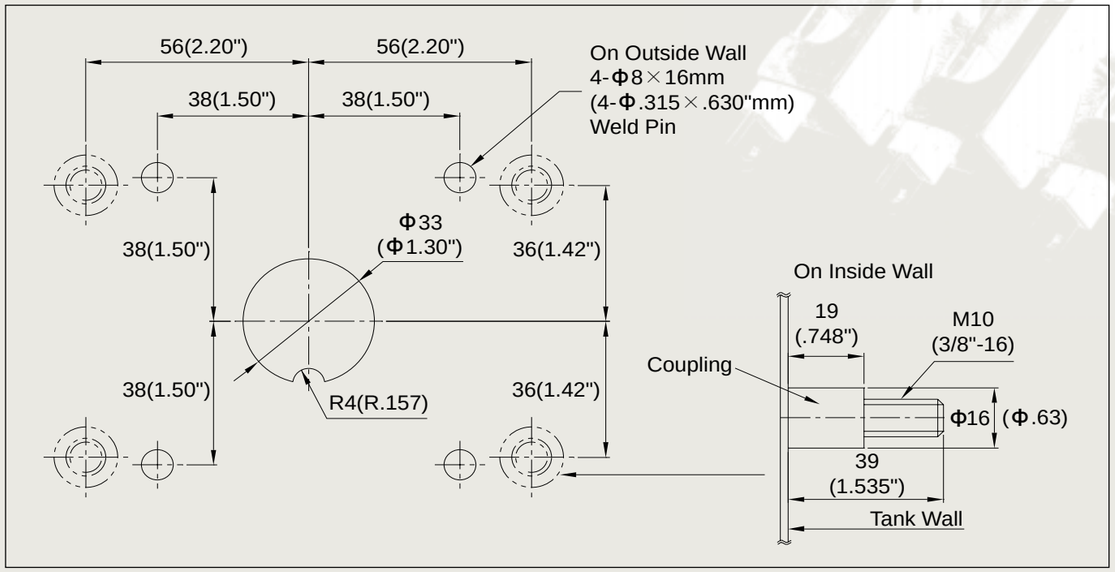
Drawing B - T Blade Design



Switch Dimensions(Sidewall Mount Type) Unit : mm			Remarks
Phase	A	B	
	15kV, 25.8kV, 38kV	15kV, 25.8kV, 38kV	
1	-	175	
2	104	279	
3	104	407	

Drawing A dimensions are for reference only.

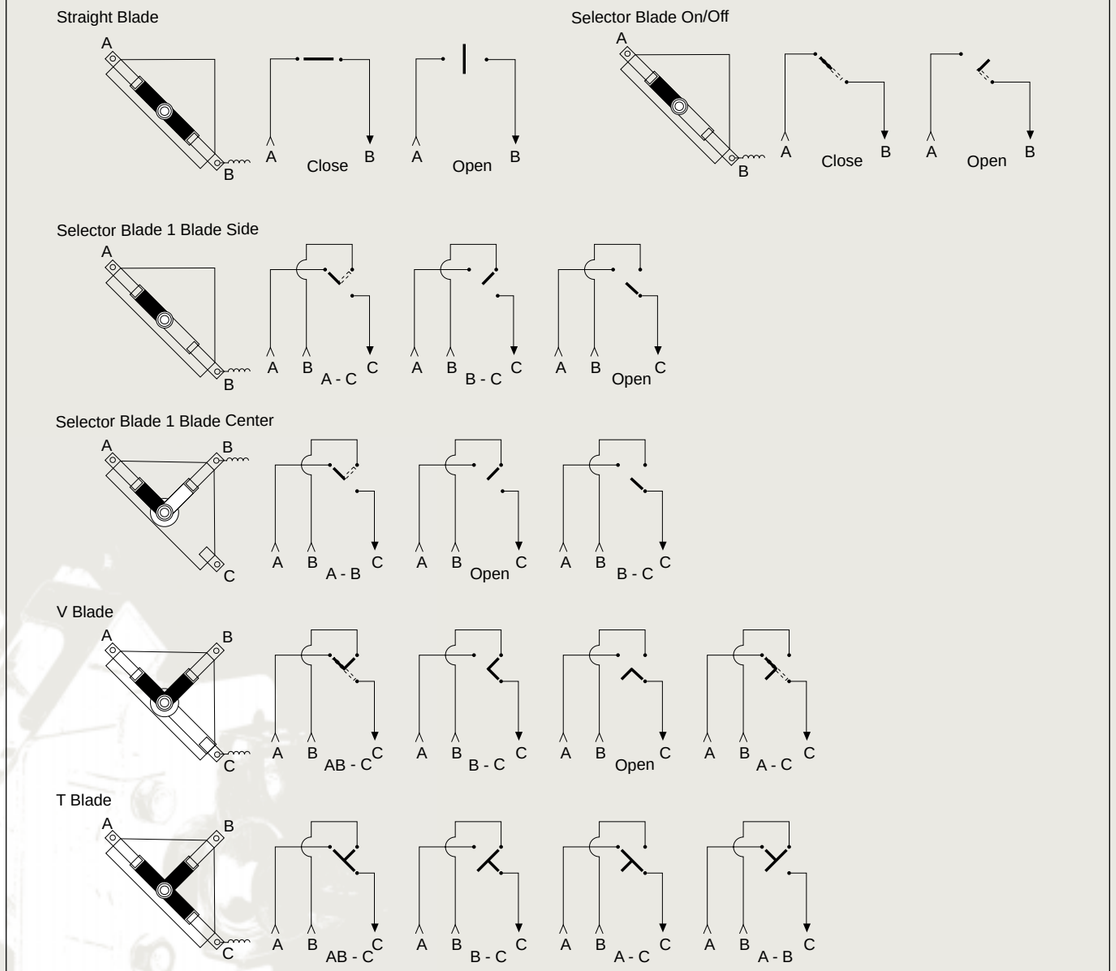
Drawing C - Tank Mounting Design(Hole and Boss Placement)



- Weld pins not included with switch
- Straight pin welding required
- Couplings not included with switch

OLBS POSITIONS

Drawing D



- Black segments of blade rotate
- White segments are stationary

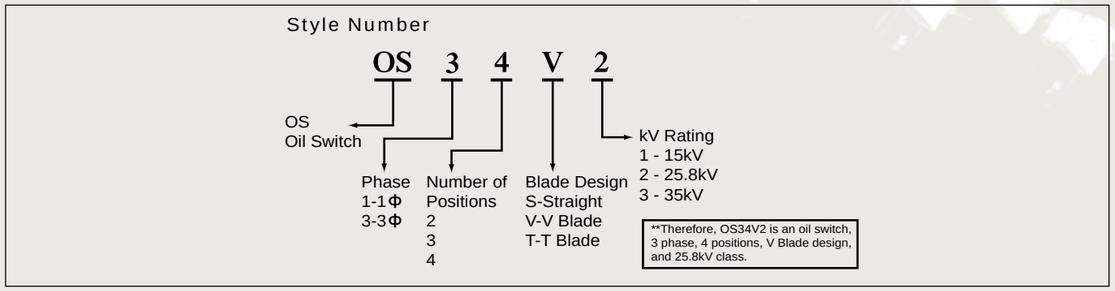
TEST REPORT

The full version test report is available upon request.

ORDERING INFORMATION

Style Number	Rated Voltage (kV)	Rated Current (A)	BIL	Phases	Number of Positions	Switch Type
OS12S1	15	630	95	1	2	Straight
OS14V1	15	630	95	1	4	V Blade
OS14T1	15	630	95	1	4	T Blade
OS22S1	15	630	95	2	2	Straight
OS24V1	15	630	95	2	4	V Blade
OS24T1	15	630	95	2	4	T Blade
OS32S1	15	630	95	3	2	Straight
OS34V1	15	630	95	3	4	V Blade
OS34T1	15	630	95	3	4	T Blade
OS12S2	25.8	300	150	1	2	Straight
OS14V2	25.8	300	150	1	4	V Blade
OS14T2	25.8	300	150	1	4	T Blade
OS22S2	25.8	300	150	2	2	Straight
OS24V2	25.8	300	150	2	4	V Blade
OS24T2	25.8	300	150	2	4	T Blade
OS32S2	25.8	300	150	3	2	Straight
OS34V2	25.8	300	150	3	4	V Blade
OS34T2	25.8	300	150	3	4	T Blade
OS12S3	38	200	150	1	2	Straight
OS14V3	38	200	150	1	4	V Blade
OS14T3	38	200	150	1	4	T Blade
OS22S3	38	200	150	2	2	Straight
OS24V3	38	200	150	2	4	V Blade
OS24T3	38	200	150	2	4	T Blade
OS32S3	38	200	150	3	2	Straight
OS34V3	38	200	150	3	4	V Blade
OS34T3	38	200	150	3	4	T Blade

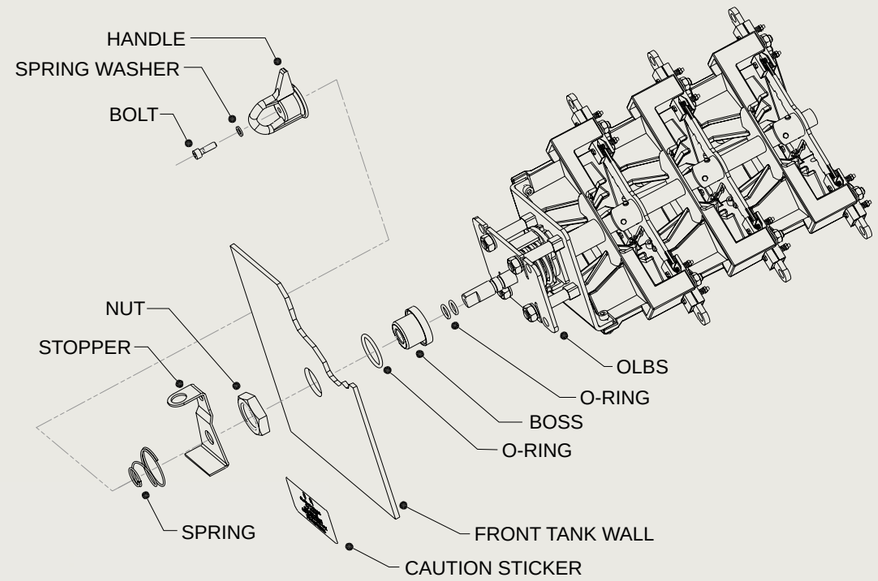
Note) Switch not stipulated in the catalogue can be provided as per customer's order



PACKING INFORMATION

Standard packing is 32 units per pallet.
Each pallet is 42"x 42"x42" (1067mm x 1067mm x 1067mm)
Volume : 43CFT (1.22 CBM) Gross weight : 653.89LBS (296.6 kg) Net weight : 627.87 LBS. (284.8 kg)
Switches are securely packed in heavy duty, individual cardboard boxes, placed 4 rows high (eight per layer) on the pallet and then heat wrapped and strapped with banding. Pallets can be double stacked in transit.

Drawing E - Mounting Information



INSTALLATION INSTRUCTION

Installation of the OLBS should be by experienced personnel with familiarity of torque pressures, mechanical stress, and electrical connections. Instruction for installation

1. Inspect for any shipment damage
2. Remove the operating handle assembly and sealing gland nut

3. Check O-ring gasket for proper fit and placement
4. Insert switch shaft through the tank mounting hole aligning the anti-rotation radius correctly
5. Position weld couplings on switch plate
6. Install bolts to proper torque (70-100 inch pounds)
7. Install tank face nut on seal gland to proper torque (70-120 inch pounds)
8. Install operating handle assembly to switch shaft
9. Confirm handle operation by hook-stick will not be obstructed by other transformer accessories
10. Connect internal leads to switch contact being careful to minimize stress on the contacts and allowing lead positioning not to interfere with switch rotation
11. Confirm oil level will provide a minimum of four inch submersion of switch on all sides
12. Affix safety decal on the tank face surface near switch handle

FACTORY TEST

P&A Power Products is an ISO-9001 certified facility, quality control is monitored at each step of assembly and test stage to insure design compliance. In addition to design test certification from an independent laboratory, factory production test are:

- Opening/closing speed test for mechanical function verification
- Contact alignment check
- 15 cycle operation test
- Impulse withstand voltage test
- Dimension and structure check for all assemblies
- Contact pressure test for force and positioning
- Power frequency withstand voltage test
- Main circuit resistance measurement