DRY-WELL FUSEHOLDER FOR **CURRENT LIMITING FUSES**



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The growth in dead-front pad-I mount transformers requires a method of placing dead-front type current-limiting fuses within the transformer. ERMCO Components' dry-well fuseholder design is suited to both single- and three-phase padmount applications.

With the addition of the loadbreak function, the fuseholder provides an economical combination currentlimiting fuse and loadbreak switch. The design provides the benefit of easy hotstick operability to a single

BEYOND THE STANDA

The trend towards higher system voltage, increased load density, and larger substations has caused I higher fault current potentials on the distrbution system and the need to interrupt those higher currents when a fault exists. Current-limiting fusing provides both a high interrupting current rating and limits the peak value of current and the amount of energy to within acceptable levels for protection of the transformer.

Improved Design

Housing - The dry-well housing consists of filament-wound glass tubing with a resin-rich outer surface. This outer surface serves as the barrier against oil permeation through the tubing wall. (See Figures 2-4 and 6-8).

Dry-well fuseholder location - In padmounted transformer applications, the dry-well fuseholder is mounted on the transformer front plate, below the oil level. Because the current-limiting fuses that these fuse-holders are designed to accept will not function properly if exposed to transformer oil, the interior of the fuseholder must remain oil tight.

Non-loadbreak fuseholders

Non-loadbreak fuseholders for padmounted transformer applications are available at 8.3, 15.2, and 21.1 kV (125 kV BIL), both standard and submersible construction. The 21.1 kV (150 kV BIL) rating is available in standard construction only. The applicable device ratings are listed in Table 1.

For those applications where an interlocked loadbreak switch is not used in conjunction with the non-loadbreak fuseholder, an important feature of the non-loadbreak fuseholder is an integral warning nameplate to warn against operation while energized, and safety support that must be moved to gain access to the fuse (see Figure 35 on page 19). This optional warning nameplate assembly is available from ERMCO Components, Inc.

Loadbreak fuseholders

The ERMCO Components loadbreak currentlimiting fuseholder functions both as a drywell holder and as a loadbreak switch. The rod and bore principle, upon which loadbreak termination operations is based, is the means by which switching is accomplished within the fuseholder. Fuse removal is accomplished by a

The material that provides the arcquenching action is a formulation developed for use in ECI Sure Make terminations. It has superior properties that maximize the number of switching operations while providing excellent thermal stability. Testing resulted in the fuseholder loadbreak ratings listed in Table 2.

ECI also has an 8.3 kV three-phase rated loadbreak fuse tube.



Dry-well Fuseholder Test Report

For more information about the Dry-well Fuseholder, contact your Ermco Components representative or call (877) 267-1855

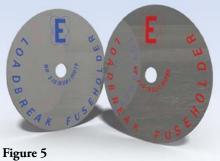
Table 1 Non-Loadbreak - Standard and Submersible						
Line to Ground	8.3 kV 15.2 kV 21.1 kV 21.1 kV**					
Impulse Withstand	95 kV	125 kV BIL	125 kV BIL	150 kV BIL		
Corona Extinction	11 kV	19 kV	26 kV	26 kV		
Momentary Current (without fuse)	10,000 Amps*	10,000 Amps*	10,000 Amps*	10,000 Amps*		
Continuous Current (without fuse)	160 Amps*	160 Amps*	160 Amps*	160 Amps*		
Max Fault Current	EQUAL TO PUCE DATING					
Interrupting Ability		EQUAL TO FUSE RATING				



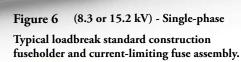
(See pages 10-13 for details)

Table 2 Loadbreak						
Line to Ground	8.3 kV (1Ø)	8.3 / 14.4 kV (3Ø)	15.2 kV (1Ø)			
Impulse Withstand	95 kV BIL 95 kV BIL 125 kV BIL					
Corona Extinction	11 kV 11 kV 19 kV					
Momentary Current (without fuse)	10,000 Amps* 10,000 Amps* 10,000 Amps*					
Continuous Current (without fuse)	160 Amps* 160 Amps* 160 Amps*					
Max Fault Current Interrupting Ability	EQUAL TO FUSE RATING					
Load Make Operations at 200 A, 75% Power Factor	20	20	10			
Load Break Operations at 200 A, 75% Power Factor	20 20 10					
Loadbreak Current	200	150	200			

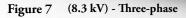
*rms Symmetrical



Cap nameplate: For 1Ø application, designed by blue ink. For 3Ø application, designed by red ink.



- Fuse not included (See pages 14-16 for details)



Typical loadbreak standard construction fuseholder and current-limiting fuse assembly.

- Fuse not included

(See pages 14-16 for details)



fuseholder and current-limiting fuse assembly. - Fuse not included

(See pages 17-18 for details)

Ordering Information and Details

Non-Loadbreak

Aluminum Flange Canister Assembly

Drawout Rod Assembly with Plated or Stainless Steel Cap					
Catalog Number	kV	BIL	Fuseholder Cap	Description	
7559ZC8399	21.1	125 kV	Plated Steel		
7559ZG8399	21.1	125 kV	Stainless Steel		
7559ZC8499	15.2	125 kV	Plated Steel	Typical non-loadbreak standard construction	For more information
7559ZG8499	15.2	125 kV	Stainless Steel Plated Steel fuseholder and current limiting fuse assembly		see pages 6 and 7
7559ZC8599	8.3	95 kV			
7559ZG8599	8.3	95 kV	Stainless Steel		

Note: Aluminum flange canister units listed above replaced the plastic flange canister units effective approximately April 1, 1988. Aluminum flange units are direct replacements for plastic flange units.

Non-Loadbreak

Plastic Flange Canister Assembly

Drawout Rod Assembly with Plated Steel Cap

Catalog Number	kV	BIL	Description	F
7559ZC2599	21.1	150 kV	Typical non-loadbreak standard construction fuseholder and current limiting fuse assembly	see pages 8 and 9

Submersible-Non-Loadbreak

4 Bolt Stainless Steel Flange Canister Assembly

Drawout Rod/Plug Assembly with Stainless Steel Cap

Diawout Rou/Trug	Diawout Road Fag Esseniory with Statistics Steel Cap					
Catalog Number	kV	BIL	End Cap Stud 0.250-20-2B	Description		
7509ZE0199	8.3	95 kV	No			
7509ZE3199	8.3	95 kV	Yes			
7509ZE0299	15.2	125 kV	No	Typical non-loadbreak submersible construction	For more information	
7509ZE3299	15.2	125 kV	Yes	fuseholder and current limiting fuse assembly	see pages 10 and 11	
7509ZE0399	21.1	125 kV	No			
7509ZE3399	21.1	125 kV	Yes			

Submersible-Non-Loadbreak

Stainless Steel Flange Canister Assembly (Welded to Tank) Drawout Rod/Plug Assembly with Stainless Steel Cap

Drawout Rod/Flug	Drawout Rod/Flug Assembly with Stainless Steel Cap					
Catalog Number	kV	BIL	End Cap Stud 0.250-20-2B	Description		
7559ZE1199	8.3	95 kV	No			
7559ZE2199	8.3	95 kV	Yes			
7559ZE1299	15.2	125 kV	No	Typical non-loadbreak standard construction	For more information	
7559ZE2299	15.2	125 kV	Yes	fuseholder and current limiting fuse assembly	see pages 12 and 13	
7559ZE1399	21.1	125 kV	No			
7559ZE2399	21.1	125 kV	Yes			

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Loadbreak						
	Aluminum Flange Canister Assembly Drawout Rod Assembly with Plated Steel Cap					
Catalog Number	kV	BIL	Fuseholder Cap	Description		
7559ZB8299	8.3	95 kV	Plated Steel			
7559ZF8299	8.3	95 kV	Stainless Steel	Single-Phase	For more information see pages 14 - 16	
7559ZB8399	15.2	125 kV	Plated Steel	Typical loadbreak standard construction fuseholder and current limiting fuse assembly		
7559ZF8399	15.2	125 kV	Stainless Steel			
7559ZB8499	8.3	95 kV	Plated Steel	Three-Phase		
7559ZF8499	8.3	95 kV	Stainless Steel	Typical loadbreak standard construction fuseholder and current limiting fuse assembly		

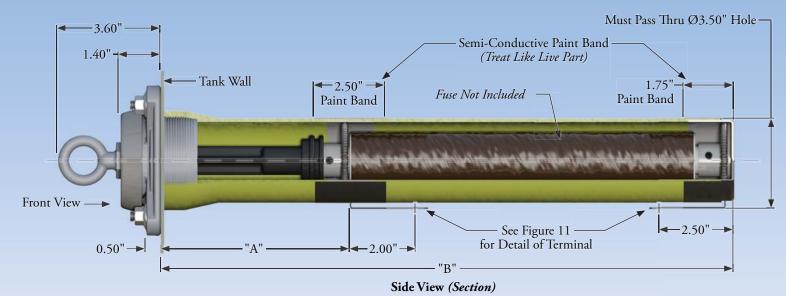
Loadbreak					
Aluminum Flange (Drawout Rod Asser					
Catalog Number	kV	BIL	Description		
7559ZB8899	8.3	95 kV	Parallel Application Typical loadbreak standard construction fuseholder and current limiting fuse assembly	For more information see pages 17 and 18	

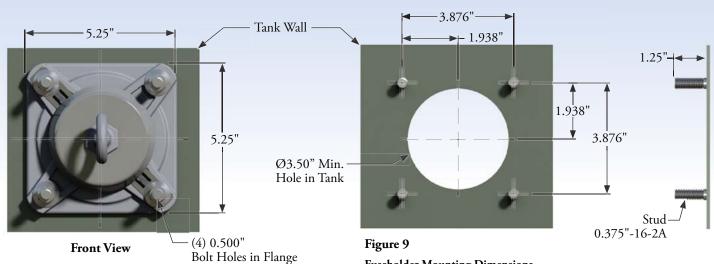
Note: Aluminum flange canister units listed above replaced the plastic flange canister units effective approximately April 1, 1988. Aluminum flange units are direct replacements for plastic flange units.

Accessories		
Catalog Number	Description	
7559ZC2099	W N N	For more information
7559ZC2199	Warning Nameplate	see page 19
7559ZB6099	Fuse Adapter - 8.3 to 23.0 kV	
7559ZB6199	Fuse Adapter - 15.2 to 23.0 kV	For more information see page 20
7559ZB6299	Fuse Adapter - 8.3 to 15.2 kV	



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	Engineering Data					
Fuseholder Cap	Catalog Number					
Plated Steel	7559ZC8399 7559ZC8499 7559ZC859					
Stainless Steel	7559ZG8399	7559ZG8499	7559ZG8599			
"A"	6.68"	6.68"	5.58"			
"B"	22.84"	20.04"	14.44"			
Max Voltage Rating	21.1 kV	15.2 kV	8.3 kV			
BIL	125 kV	125 kV	95 kV			
HIPOT	50 kV	40 kV	34 kV			
Corona Extinction	26 kV	19 kV	11 kV			
Continuous Current Rating (Unfused)	160 A	160 A	160 A			
Momentary Current Rating (Unfused)	10,000 A RMS SYM (10 Cycles)	10,000 A RMS SYM (10 Cycles)	10,000 A RMS SYM (10 Cycles)			
Acceptable Fuses (Cooper or HiTech) (Must Be Ordered Seperately)	23 kV - All Sizes Thru 25 A	15.5 kV - All Sizes Thru 40 A	2.8 & 4.3 kV - All Sizes Thru 100 A 5.5 kV - All Sizes Thur 75 A 8.3 kV - All Sizes Thru 40 A			

Fuseholder Mounting Dimensions

1. For those applications where an interlocked loadbreak switch is not used in conjunction with the non-loadbreak fuseholder. A warning nameplate should be used as a precaution against energized operation of the fuseholder. The optional warning nameplate (w/bracket), shown on page 19, Figure 35, is available from ERMCO Components Inc. (7559ZC2099)

	1	Replacement Parts					
Catalog Number	Drawout Rod	Contact Assembly	Gasket	Grounding Spring			
7559ZC8399	7559ZC1199	_		* 1			
7559ZG8399	7559ZE4299	666	660	*664			
7559ZC8499	7559ZC1199	B3	B4(414			
7559ZG8499	7559ZE4299	Z60	Z6:	22			
7559ZC8599	7559ZC1299	7559ZB3999	7559ZB4099	72857			
7559ZG8599	7559ZC2699			17			

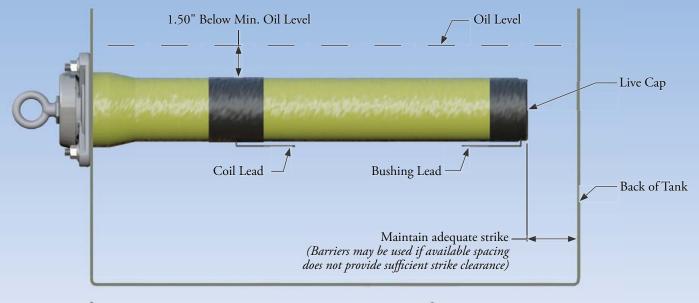




Figure 10 General Fuseholder Application

- 1. Pockets up to 1.50" in depth can be used without adversely affecting impulse withstand.
- If application requires pocket depth in excess of 1.50" care should be taken to avoid adversely affecting impulse withstand.

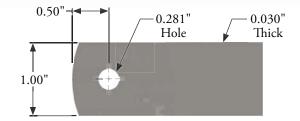


Figure 11
Detail of Terminal

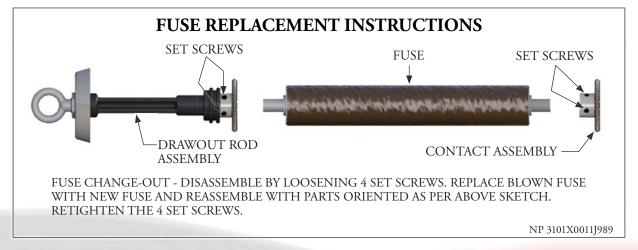
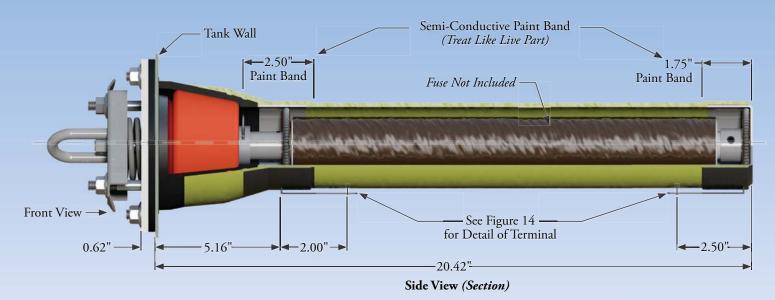
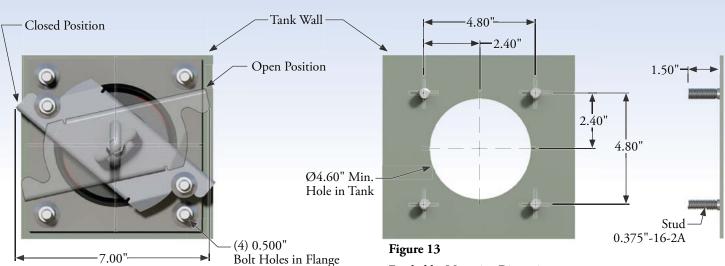


Figure 12
Decal (Standard-Non-Loadbreak)





Engineerii	Engineering Data				
Plastic Flange Canister					
Catalog Number	7559ZC2599				
Max Voltage Rating	21.1 kV (LN/GND)				
Max Voltage Rating	36.6 kV (LN/LN)				
BIL	150 kV				
НІРОТ	50 kV				
Corona Extinction	26 kV				
Continuous Current Rating (Unfused)	160 A				
Momentary Current Rating (Unfused)	10,000 A RMS SYM (10 Cycles)				
Acceptable Fuses (Cooper or HiTech) (Must Be Ordered Seperately)	23 kV - All Sizes Thru 25 A				

Front View

Note:

For those applications where an interlock loadbreak switch is not used in conjunction with the non-loadbreak fuseholder. A warning nameplate should be used as a precaution against energized operation of the fuseholder. The optional warning nameplate (w/bracket), shown on page 19, Figure 35, is available from ERMCO Components Înc. (7559ZC2199).

Fuseholder Mounting Dimensions

Silicon grease should be applied to the drawout rod assembly gasket before installing in the drywell tube.

Catalog Number	Replacement Parts
7539ZB3999	Contact Assembly
7559ZB5399	Plug & Channel Assembly (w/Gasket)
7559ZB5499	Gasket
7559ZB5699	Piston Assembly (w/Spiral & Retaining Springs)
7559ZB5799	Plug, Channel, Gasket, & Flange

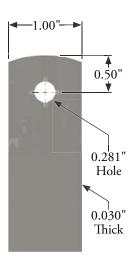
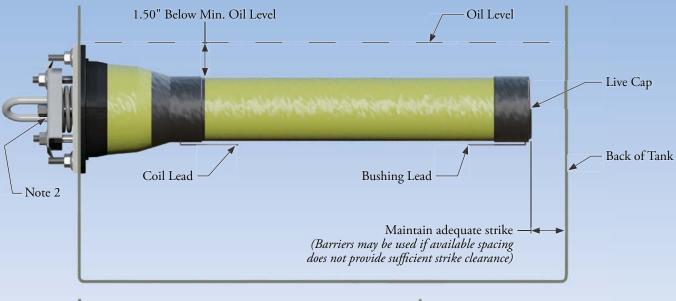


Figure 14 **Detail of Terminal**



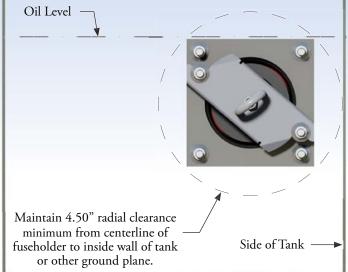


Figure 15 General Fuseholder Application

- If application requires pocket depth in excess of 1.50" care should be taken to avoid adversely affecting impulse withstand.
- With fuseholder fully assembled check for approx. 0.10" clearance between locknut and channel to adjust, tighten, or loosen two locknuts of flange studs.

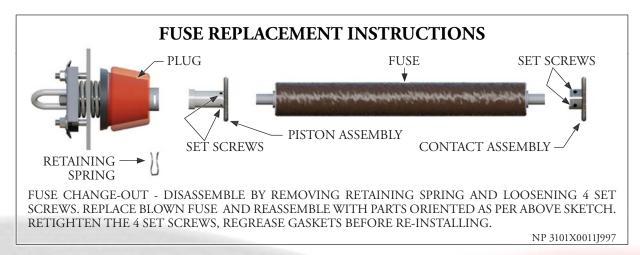
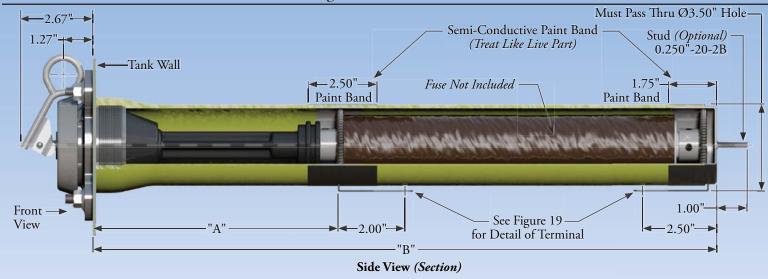
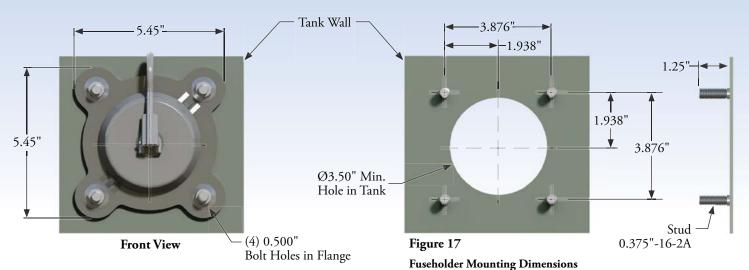


Figure 16
Decal (Dielectric Plug)





Engineering Data			
All Flanges Stainless Steel	Catalog Number		
W/O Stud	7509ZE0199	7509ZE0299	7509ZE0399
With Stud (0.250-20-2B	7509ZE3199	7509ZE3299	7509ZE3399
"A"	8.91"	8.91"	8.91"
"B"	18.27"	22.57"	25.53"
Max Voltage Rating	8.3 kV	15.2 kV	21.1 kV
BIL	95 kV	125 kV	125 kV
НІРОТ	34 kV	40 kV	50 kV
Corona Extinction	11 kV	19 kV	26 kV
Continuous Current Rating (Unfused)	160 A	160 A	160 A
Momentary Current	10,000 A RMS	10,000 A RMS	10,000 A RMS
Rating (Unfused)	SYM (10 Cycles)	SYM (10 Cycles)	SYM (10 Cycles)
Acceptable Fuses (Cooper or HiTech) (Must Be Ordered Seperately)	2.8 & 4.3 kV - All Sizes Thru 100 A 5.5 kV - All Sizes Thur 75 A 8.3 kV - All Sizes Thru 40 A	15.5 kV - All Sizes Thru 40 A	23 kV - All Sizes Thru 25 A

1. For those applications where an interlock loadbreak switch is not used in conjunction with the non-loadbreak fuseholder. A warning nameplate, shown on page 19, Figure 35, should be used as a precaution against energized operation of the fuseholder.

Catalog Number	Replacement Parts
7559ZB3999	Contact Assembly
7559ZB4099	Gasket
7559ZE4099	Drawout Rod Assembly
7559ZE4199	Drawout Rod and Contact Assembly
7285ZA1499*	Grounding Spring

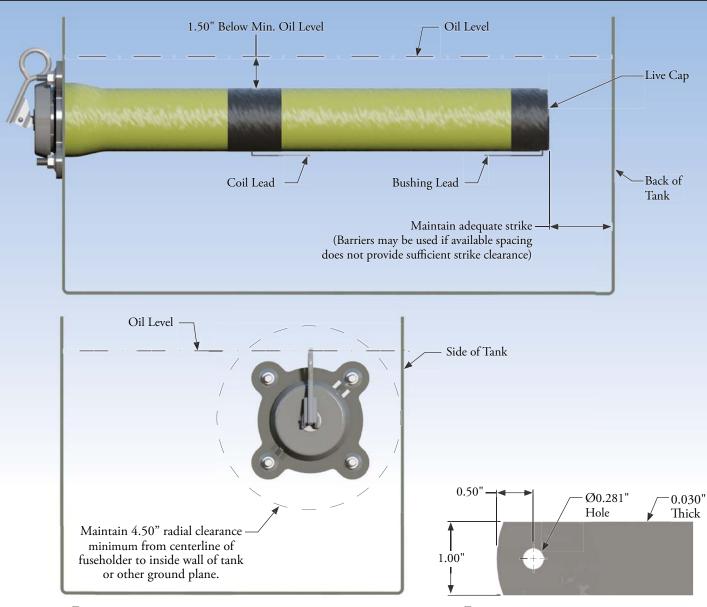


Figure 18 Figure 19
General Fuseholder Application Detail of Terminal (See Figure 22 for Vertical Mounting)

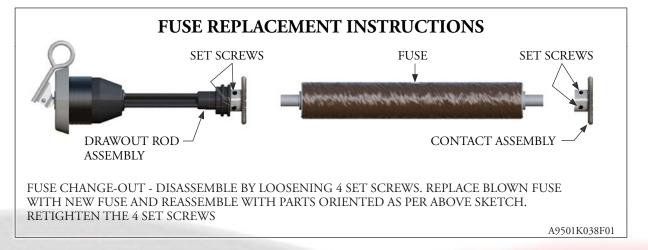
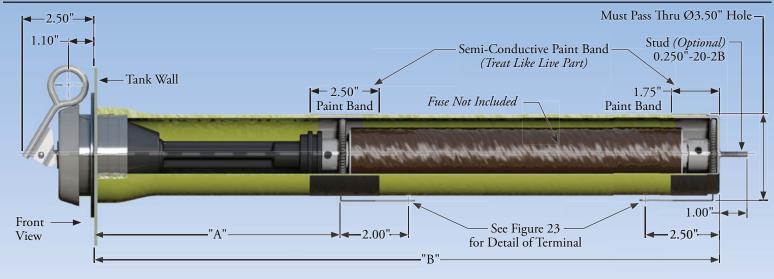
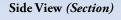
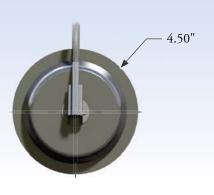


Figure 20
Decal (Submersible-Non-Loadbreak)







Front View

Ø 3.50" Min. Hole in Tank

Figure 21
Fuseholder Mounting Dimensions

Engineering Data			
	Catalog Number		
W/O Stud	7559ZE1199	7559ZE1299	7559ZE1399
With Stud (0.250-20-2B	7559ZE2199	7559ZE2299	7559ZE2399
"A"	8.91"	8.91"	8.91"
"B"	18.27"	22.57"	25.53"
Max Voltage Rating	8.3 kV	15.2 kV	21.1 kV
BIL	95 kV	125 kV	125 kV
HIPOT	34 kV	40 kV	50 kV
Corona Extinction	11 kV	19 kV	26 kV
Continuous Current Rating (Unfused)	160 A	160 A	160 A
Momentary Current Rating (Unfused)	10,000 A RMS SYM (10 Cycles)	10,000 A RMS SYM (10 Cycles)	10,000 A RMS SYM (10 Cycles)
Acceptable Fuses (Cooper or HiTech) (Must Be Ordered Seperately)	2.8 & 4.3 kV - All Sizes Thru 100 A 5.5 kV - All Sizes Thur 75 A 8.3 kV - All Sizes Thru 40 A	15.5 kV - All Sizes Thru 40 A	23 kV - All Sizes Thru 25 A

- 1. For those applications where an interlock loadbreak switch is not used in conjunction with the non-loadbreak fuseholder. A warning nameplate, shown on page 19, Figure 35, should be used as a precaution against energized operation of the fuseholder.
- 2. Use adequate heat sinks when welding to prevent localized hot spots and resulting stress in the drywell.

Catalog Number	Replacement Parts
7559ZB3999	Contact Assembly
7559ZE4099	Drawout Rod Assembly
7559ZE4199	Drawout Rod and Contact Assembly

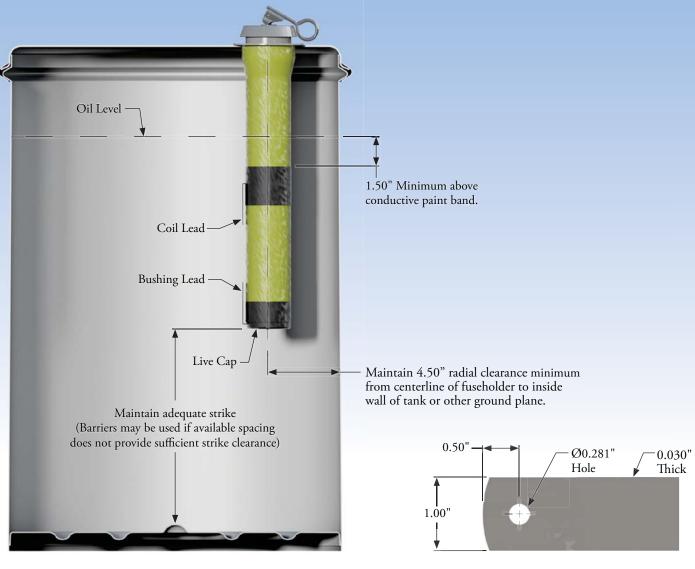


Figure 22

General Fuseholder Application
(See Figure 18 for Horizontal Mounting)

Figure 23

Detail of Terminal

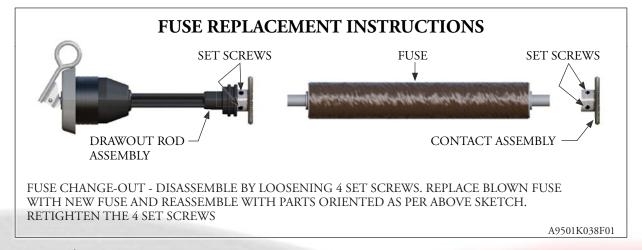
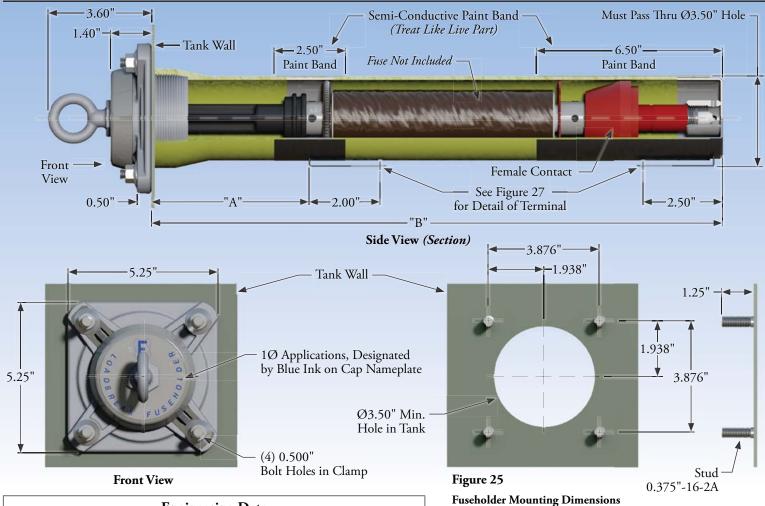


Figure 24

Decal (Submersible-Non-Loadbreak)

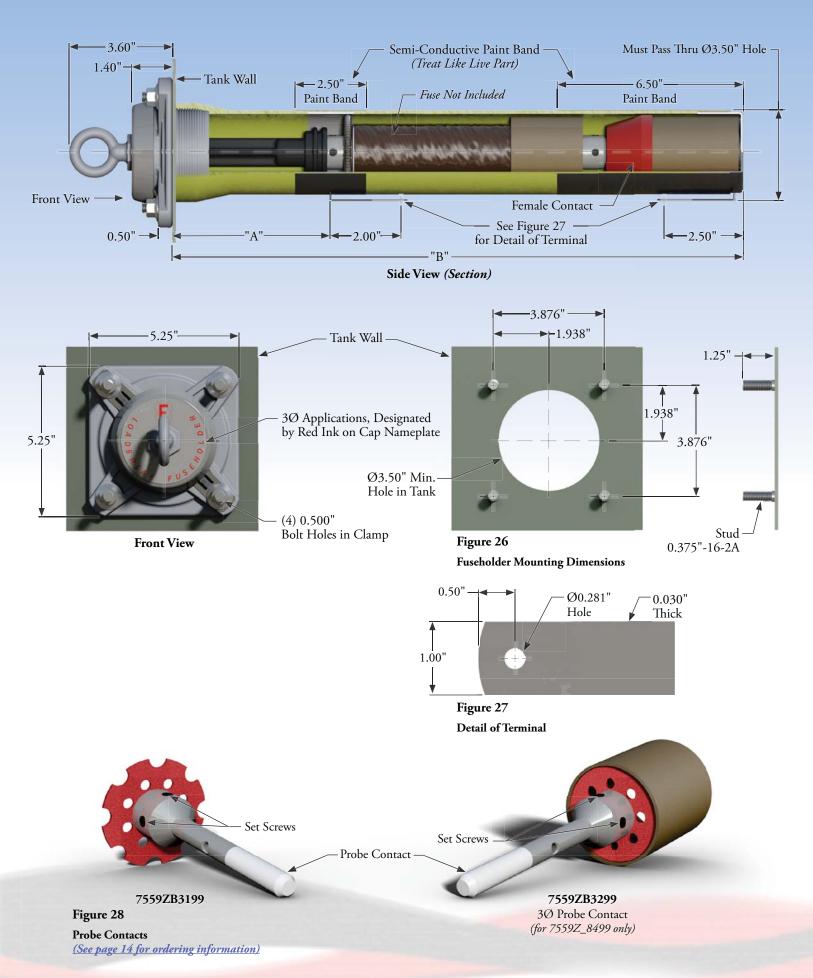


Engineering Data			
Fuseholder Cap	Catalog Number		
Plated Steel	7559ZB8299	7559ZB8399	7559ZB8499
Stainless Steel	7559ZF8299	7559ZF8399	7559ZF8499
"A"	5.59"	6.89"	5.59"
"B"	19.96"	25.64"	19.96"
Max Voltage Rating	8.3 kV	15.2 kV	8.3 kV
BIL	95 kV	125 kV	95 kV
НІРОТ	34 kV	40 kV	34 kV
Corona Extinction	11 kV	19 kV	11 kV
Continuous Current Rating (Unfused)	160 A	160 A	160 A
Momentary Current Rating (Unfused)	10,000 A RMS SYM (10 Cycles)	10,000 A RMS SYM (10 Cycles)	10,000 A RMS SYM (10 Cycles)
Acceptable Fuses (Cooper or HiTech) (Must Be Ordered Seperately)	2.8 & 4.3 kV - All Sizes Thru 100 A 5.5 kV - All Sizes Thur 75 A 8.3 kV - All Sizes Thru 40 A	15.5 kV - All Sizes Thru 40 A	2.8 & 4.3 kV - All Sizes Thru 100 A 5.5 kV - All Sizes Thur 75 A 8.3 kV - All Sizes Thru 40 A
Load Make & Break Rating 1Ø	20 Operations At 200A	10 Operations At 200A	20 Operations At 200A
Load Make & Break Rating 3Ø		See Note #1	10 Operations At 150A (8.3KVL-G/14.4KVL-L)
Fault Close - In (Fused)	10,000 A RMS SYM	10,000 A RMS SYM	10,000 A RMS SYM

1. Fuseholder may be applied as a loadbreak device in 3Ø applications where the line to line voltage will not exceed 15kV.

	Replacement Parts		
Catalog Number	Drawout Rod	Female Contact	Probe Contact
7559ZB8299	7559ZB0999		
7559 ZF82 99	7559ZB5799	75507D1100	7559ZB3199
7559ZB8399	7559ZB1099	7559ZB1199	See Figure 28 for Details Page 15
7559ZF8399	7559ZB5699		_
7559ZB8499	7559ZB4899	75507D4700	7559ZB3299
7559ZF8499	7559ZB5899	7559ZB4799	See Figure 28 for Details Page 15

	Replacement Parts	
Catalog Number	Gasket	Grounding Spring
7559ZB8299		
7559ZF8299		
7559ZB8399	7559ZB4099	7205741/00*
7559ZF8399		7285ZA1499*
7559ZB8499		
7559ZF8499		



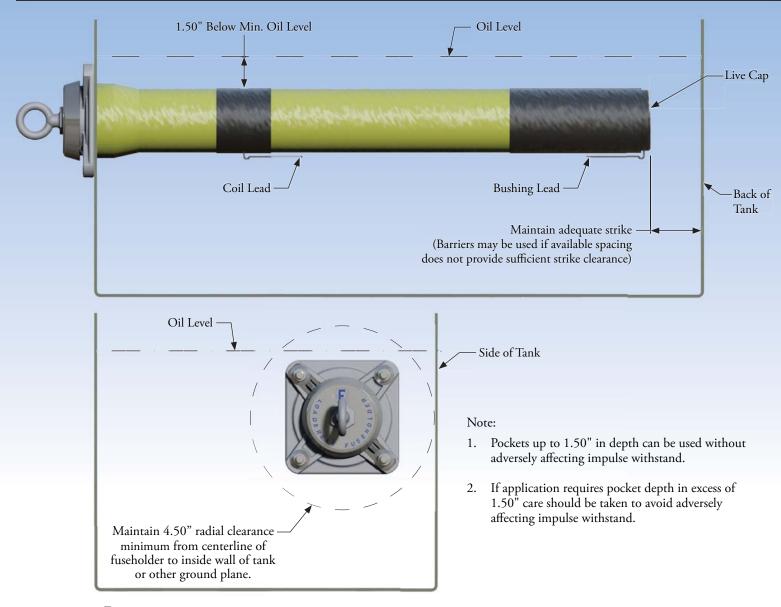


Figure 29 General Fuseholder Application

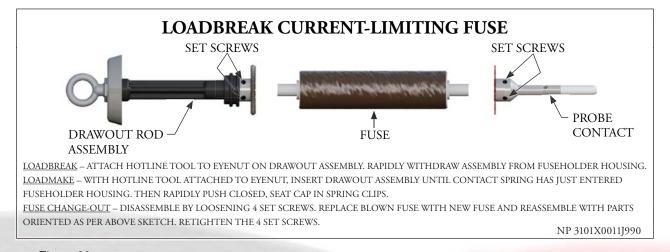
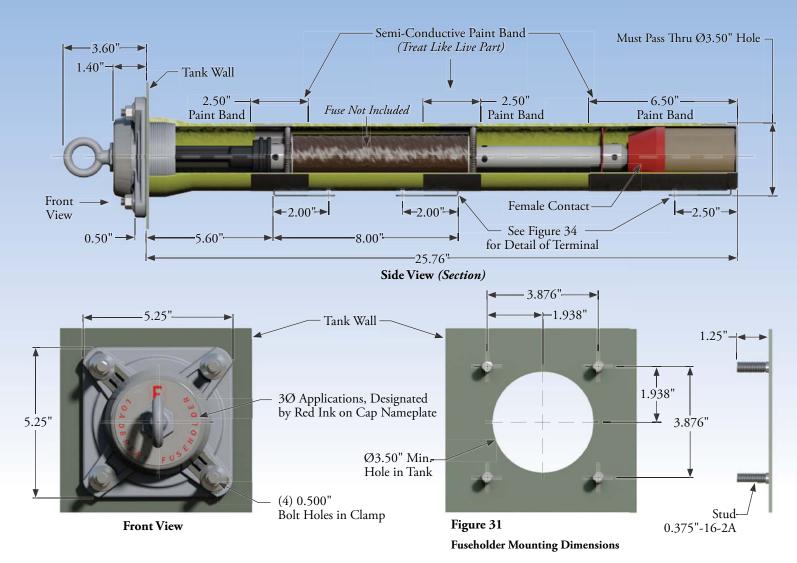
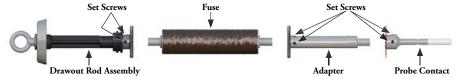


Figure 30
Decal (Standard -Loadbreak)



Engineering Data	
Catalog Number	7559ZB8899
Max Voltage Rating	8.3 kV
BIL	95 kV
НІРОТ	34 kV
Corona Extinction	11 kV
Continuous Current Rating (Unfused)	160 A
Momentary Current Rating (Unfused)	10,000 A RMS SYM (10 Cycles)
Acceptable Fuses (Cooper or HiTech) (Must Be Ordered Seperately)	2.8 & 4.3 kV - All Sizes Thru 100 A 5.5 kV - All Sizes Thur 75 A 8.3 kV - All Sizes Thru 40 A
Load Make & Break Rating 1Ø Load Make & Break Rating 3Ø	10 Operations At 150A 10 Operations At 150A (8.3KVL-G/14.4KVL-L)
Fault Close - In (Fused)	10,000 A RMS SYM

LOADBREAK CURRENT-LIMITING FUSE



<u>LOADBREAK</u> – ATTACH HOT LINE TOOL TO EYENUT ON DRAWOUT ASSEMBLY. RAPIDLY WITHDRAW DRAWOUT ASSEMBLY FROM FUSEHOLDER HOUSING.

<u>LOADMAKE</u> – WITH HOTLINE TOOL ATTACHED TO EYENUT, INSERT DRAWOUT ASSEMBLY UNTIL CONTACT SPRING ON DRAWOUT ROD HAS JUST ENTERED FUSEHOLDER HOUSING. THEN RAPIDLY PUSH CLOSED, CAP SHOULD CONTACT SPRING CLIPS.

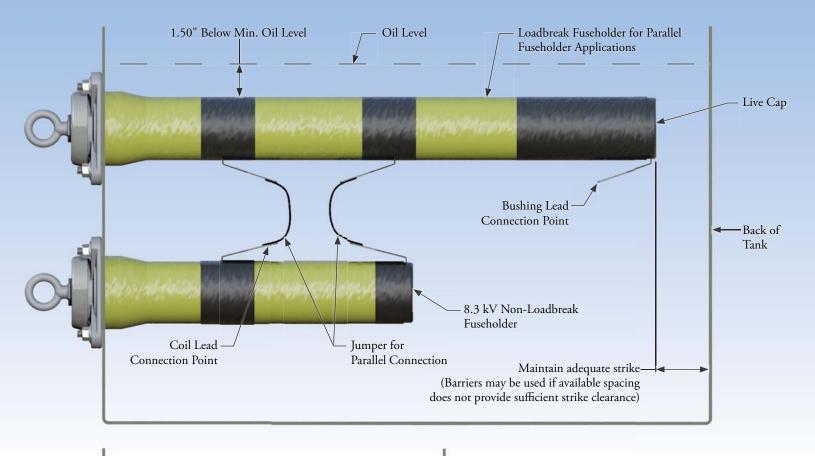
FUSE CHANGE-OUT – DISASSEMBLE BY LOOSENING SET SCREWS IN DRAWOUT ROD ASSEMBLY AND ADAPTER. REPLACE
BLOWN FUSE WITH NEW FUSE AND REASSEMBLE WITH PARTS ORIENTED AS PER ABOVE SKETCH.
RETIGHTEN THE 4 SET SCREWS.

NP 3101X0011H169

Figure 32
Decal (Loadbreak)

Replacement Parts	
Catalog Number Description	
7559ZB4799	Contact Assembly 3Ø
7559ZB4899 Drawout Rod Assembly	
7559ZB4999	Adapter/Contact Assembly

Replacement Parts	
Catalog Number Description	
7559ZB3199	Probe Assembly
7559ZB4099 Gasket	
7285ZA1499*	Grounding Spring



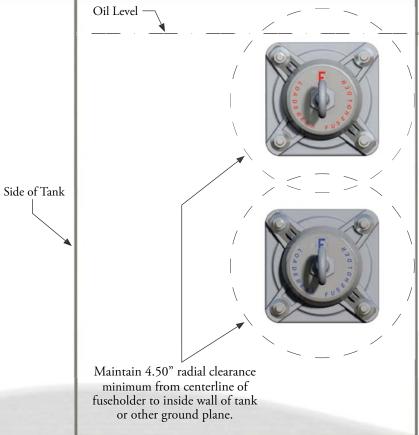
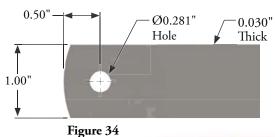


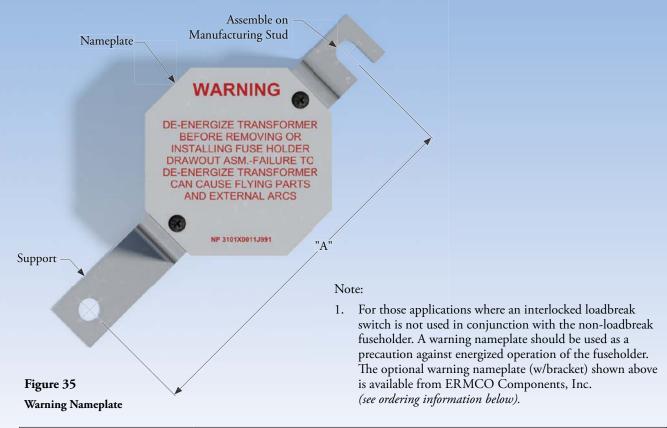
Figure 33 General Fuseholder Application

WARNING

When using this special loadbreak fuseholder connected in parallel with a non-loadbreak fuseholder, the transformer manufacturer must provide a warning nameplate with support arrangement such that the non-loadbreak fuseholder cannot be accessed without first removing the drawout assembly from the loadbreak fuseholder, also, the drawout assembly from the non-loadbreak fuseholder must not be able to be inserted after the drawout assembly for the loadbreak fuseholder has been inserted.



Detail of Terminal



Accessories				
Catalog Number	"A"	Description		
7559ZC2099	5.48"	Warning Nameplate		
7559ZC2199	6.79"			



Figure 36
Grounding Spring

	Replacement Part	
Catalog Number	Description	Material
7285ZA1499	Grounding Spring	Stainless Steel

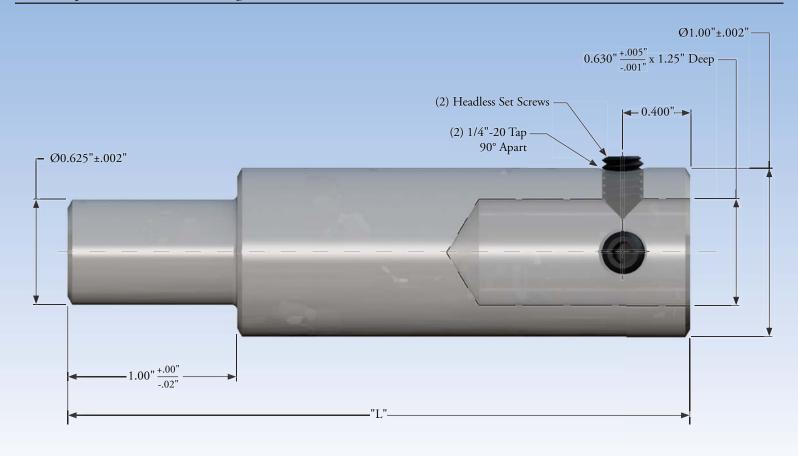
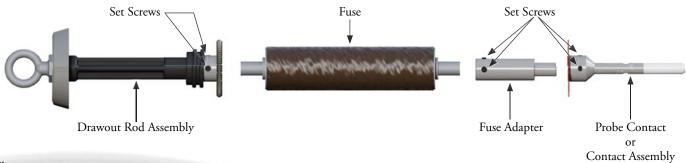


Figure 37
Fuse Adapter

Accessories					
Catalog Number	"L"	Application	Finish		
7559ZB6099	8.00"	8.3 to 23 kV			
7559ZB6199	3.68"	15.2 to 23 kV	None		
7559ZB6299	5.18"	8.3 to 15.2 kV			



- Note:
- 1. Assemble fuse adapter (when required) to bottom of fuse as shown above.
- 2. A vent hole on centerline and perpendicular to the long axis may be added at vendor's option
- 3. Apply Loctite to set screws as necessary.