



HV Bushing Well Catalog Section

INTRODUCTION

Howard Industries molded high-voltage bushing wells are designed for use on fluid-filled pad-mounted distribution transformers, where bushings are mounted indoors or inside a terminal enclosure. Materials used in the design are compatible with commonly used transformer fluids, including mineral oil, R-Temp, silicone oil, and seed-based oils. They were designed to meet the requirements of IEEE Std 385-1995 and will interface with all commonly used inserts built in compliance with this standard.

Four versions have been designed and tested, all accommodating the industry standard 3/8-16 threaded stud. These four versions include a standard round bushing well that requires an external metal clamp and a triangular-shaped version that has a molded-in clamp. Both of these are available in fixed (non-removable) and removable stud versions. All bushing wells are designed for external attachment and allow interchangeability with similarly designed bushings used on many types of pad-mounted transformers. The removable stud is easily removed with a standard 5/32" hex-head Allen wrench.

The design incorporates several features to ease installation and prevent fluid leaks at the tank interface and along the plastic-to-copper insert molded into the wells. The tank wall gasket system features a piloted design to prevent misalignment during installation and a positive stop that provides consistent gasket compression, while preventing over compression. An internal gasket seal between the molded-in copper stud and plastic prevents fluid leaks. Both seals are manufactured from a proprietary compound specifically designed for use in the transformer environment.



Figure 1: Round Bushing Well



Figure 2: Tri-clamp Bushing Well (shown with optional bail tabs)

Thermoplastic high-temperature nylon was chosen as the insulating plastic because of its exceptional mechanical and electrical stability over a wide range of temperature, humidity, and environmental extremes.

It also exhibits good flexibility, allowing conformance to the tank wall during internal pressure changes.

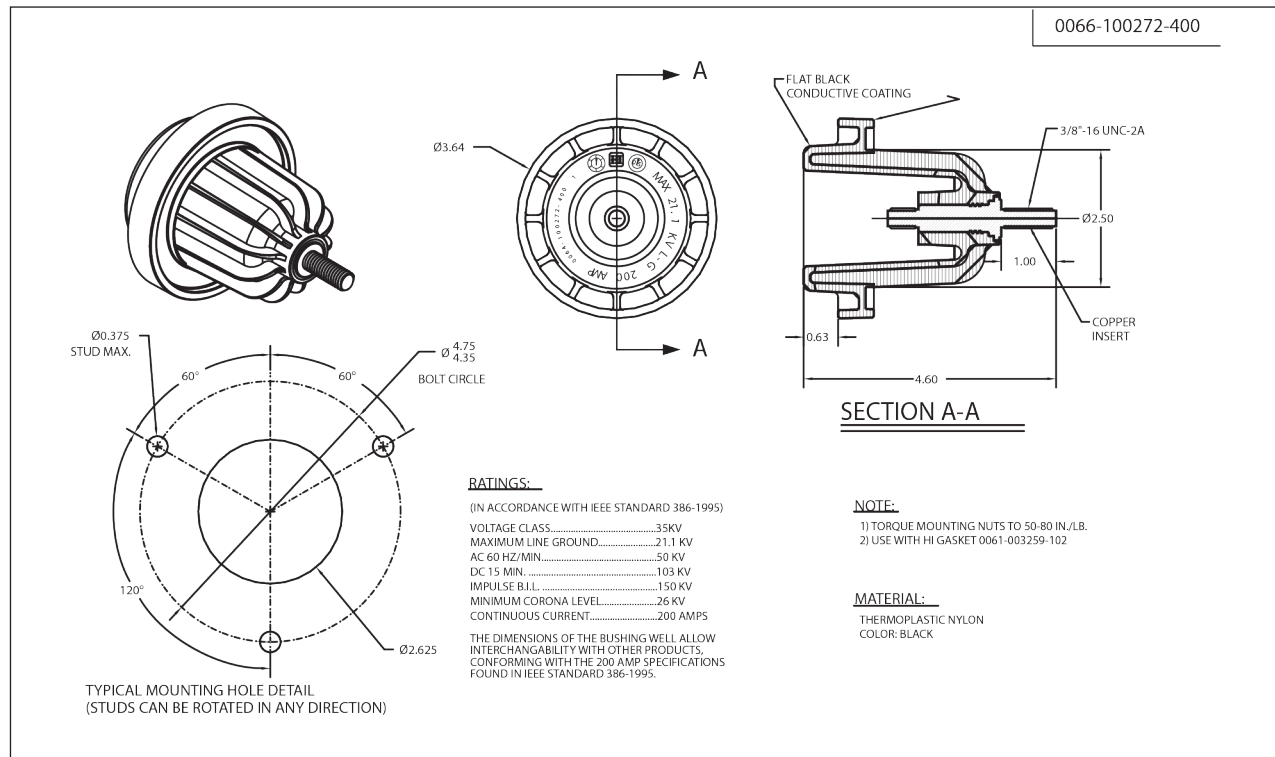


Figure 3 - Round Fixed Stud HV Bushing Well

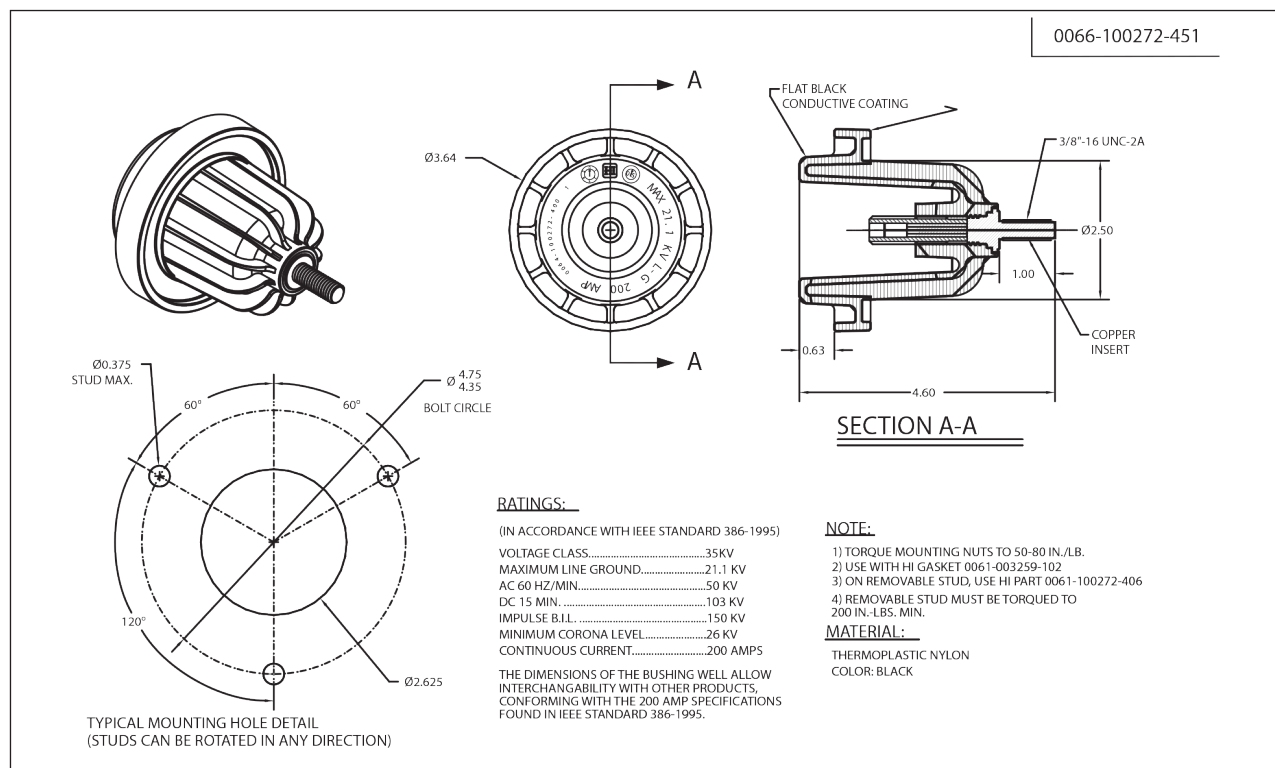


Figure 4 - Round Removable Stud HV Bushing Well

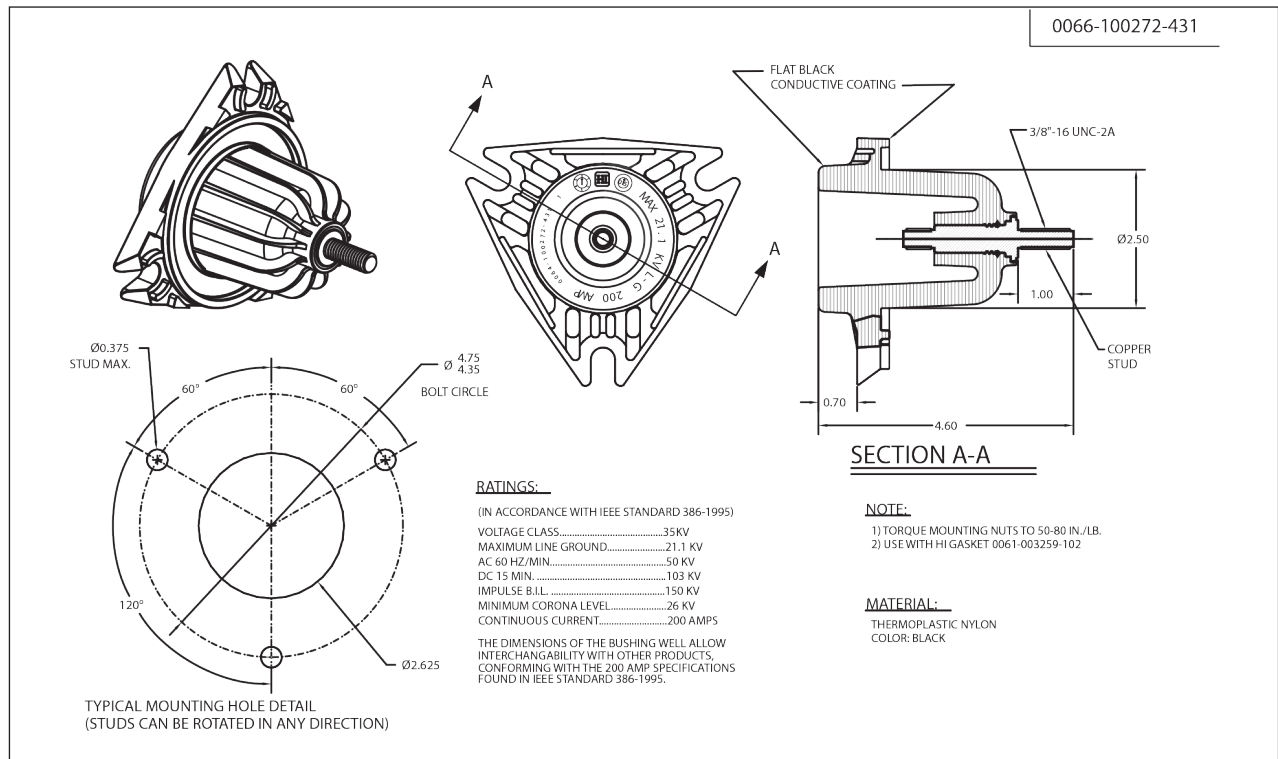


Figure 5 - Tri-Clamp Fixed Stud HV Bushing Well

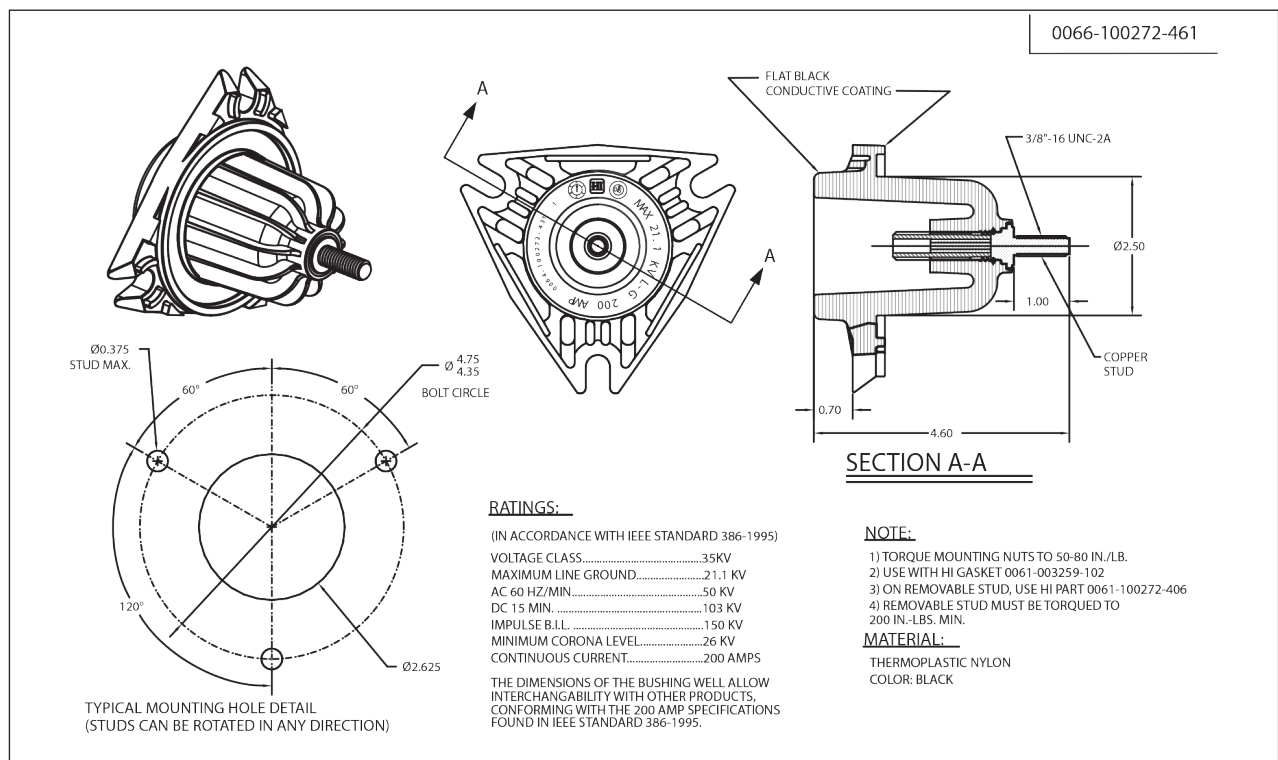


Figure 6 - Tri-Clamp Removable Stud HV Bushing Well

Description	Rating
Voltage class	35 kV
Basic impulse level	150 kV
60 Hz one minute withstand voltage	50 kV
Maximum current	200 A

Table 1 - Electrical Characteristics

Description	Part Number	Figure
Round bushing well with fixed stud	0066-100272-400	3
Round bushing well with removable stud	0066-100272-451	4
Tri-clamp bushing well with fixed stud	0066-100272-431	5
Tri-clamp bushing well with removable stud	0066-100272-461	6
Nitrile gasket (included with bushing well)	0061-003259-102	
Removable stud (included with removable-stud bushing wells)	0061-100272-406	
Metal clamp for round bushing wells, zinc-plated carbon steel	0061-002678-004	
Metal clamp for round bushing wells, stainless steel	0061-002678-005	
Stainless steel bail tab wire for tri-clamp bushing wells	0061-001598-002	
Dust cap (included with bushing well)	0061-002174-709	

Table 2 - Bushing Wells, Gaskets and Accessories

Note: Fixed-stud bushing wells are shipped with dust cap and gasket. Removable-stud bushing wells are shipped with dust cap, gasket, and removable stud.



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