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Ellis Patents Cable Cleat Selection Guide

Emperor and Vulcan cable cleats are recommended for installations where short circuit withstand is required and/or where cables must be restrained axially (e.g. vertical cable runs). Cable cleats are available for single conductor and multi-conductor cables and are applicable for single, dual, trefoil, triplex, quatrifoil (quad) and other bundled cable applications. Ellis Patents cable cleats are independently certified to the International Standard IEC 61914:2009, Cable Cleats for Electrical Installations, §6.4.4, withstanding more than one short circuit (formerly known as 'Category-2'). The IEC 61914:2009 standard requires cable cleats declaring resistance to electromechanical forces during short circuits to be tested under short circuit conditions and to fully protect cables from physical damage without any tearing of the cable jacket. If the cable cleat is declared to withstand one short circuit (§6.4.3), the cables and cable cleats must remain intact and functionally reusable with no missing parts. If the cable cleat is declared to withstand more than one short circuit (§6.4.4), the cables and cable cleats must remain intact and functional with no missing parts at the conclusion of the second short circuit test. Additionally, after the second short circuit test, the cables must successfully pass a voltage withstand (hi-pot) test to prove the cable insulation is undamaged. To protect and cushion cables during extreme duty applications, Ellis Patents cable cleats incorporate integral low smoke and fume, zero halogen liners in their unique patented designs. Recommended fixing methods include one bolt, two bolts, weld stud or framing strut mounting. Optional cable cleat rung mounting adapters are available to mount cable cleats to non-perforated ladder tray rungs.

CRITERIA	EMPEROR	VULCAN
Local US Inventory Available	Yes	No
Frame and Hardware Stainless Steel Grade	Non-magnetic 316L	Non-magnetic 316L
Low Smoke & Fume, Zero Halogen Liner	Yes	Yes
Range Take (Accommodates Cable Manufacturing Tolerances)	Yes	Yes
Tensile Strength	Highest	High
Single Cables	32 - 150mm OD	33 - 170mm OD
Dual (2x1/C) Cables, See Note 1	Available	2x1/C @ 19 - 101mm OD ea
Triplex Cable Assemblies, See Note 2	3x1/C @ 28 - 55mm OD ea	3x1/C @ 28 - 55mm OD ea
Trefoil Cables	3x1/C @ 23 - 128mm OD ea	3x1/C @ 19 - 101mm OD ea
Quad Cables	Available	4x1/C @ 23 - 70mm OD ea
3-Phase, 4-Cable Circuits (3 Phase Cables + Neutral/ Ground Cable)	Consult kVA Strategies	Consult kVA Strategies
Bundled Cables	Consult kVA Strategies	Max Bundle Dia = 170mm
Suitable for Arctic, Desert and Salt-laden Marine Environments	Yes	Yes
Meets Requirements of NFPA-70, National Electrical Code	Yes	Yes
Meets Requirements of C22.1-06, Canadian Electrical Code	Yes	Yes
Meets Requirements of IEEE-45, Shipboard Installations	Yes	Yes
Meets Requirements of CFR 46, Subchapter-J, Marine Installations	Yes	Yes
Meets Requirements of API RP14F and 14FZ, Offshore Installations	Yes	Yes
IEC 61914:2009, §6.4.4 (Withstanding More than One Short Circuit)	Yes	Yes
Short Circuit Withstand	Consult kVA Strategies	Consult kVA Strategies
Ladder Tray/ Cable Tray Rung Mounting Adapters	Available	Available
Ease of Installation	Easy	Easy

Notes:

1. Vulcan cable cleats accommodate 2x1/C (dual) cable arrangements using a "blank" cable segment in the upper trefoil position.