

Clamps, Trunnion, Line Post Insulator



1. Scope

This standard covers the requirements for trunnion clamps used with clamp top line post insulators.

Trunnion clamps consist of a body, a keeper (a metal piece that sandwiches the conductor to the body of the clamp), fastening hardware, and an anti-static spring.

This standard applies to the following Seattle City Light (SCL) stock numbers:

Stock No.	Metal	Conductor Range (in)
695182	Ductile Iron	0.25 – 0.56
695183	"	0.50 – 1.06
695192	Aluminum	0.25 – 0.56
695193	"	0.50 – 1.06
695196	"	0.99 – 1.50
695194	"	1.00 – 1.50
695195	"	1.50 – 2.00

2. Application

Trunnion clamps are intended for use on tangent or shallow angle suspension spans with clamp top horizontal or vertical post insulators.

Aluminum clamps may be used with all aluminum, ACSR, or aluminum alloy conductors.

Ductile iron trunnion clamps are used in copper conductor or ground wire applications.

Aluminum alloy and ductile iron clamps are not interchangeable.

Stock Nos. 695182, 695183, 695192, 695193 and 695196 are typically used with distribution line post insulators.

Stock No. 695195 is typically used for 795 and 954 kcmil aluminum conductors fitted with armor rods or line guards.

3. Industry Standards

Trunnion clamps shall meet the applicable requirements of the following industry standards:

ANSI/NEMA C29.7-2015; American National Standard for Wet-Process Porcelain Insulators—High-Voltage Line-Post Type

ASTM A47 / A47M-99(2009); Standard Specification for Ferritic Malleable Iron Castings

ASTM A153 / A153M-05; Standard Specification for Zinc Coating (Hot Dip) on Iron and Steel Hardware

4. Requirements

Aluminum trunnion clamps and keepers shall be made of 356 T6 cast aluminum alloy or high-strength, heat-treated wrought aluminum alloy.

Ductile iron trunnion clamps and keepers shall be made of ductile iron in accordance to ASTM A47. Iron clamps and keepers shall be galvanized in accordance with ASTM A153.

Trunnion clamps and keepers shall:

- Comply with the dimensions and configurations shown in Table 4 and Figures 4a, 4b or 4c.
- Have smooth surfaces and all edges rounded to prevent formation of a corona or damage to the conductor.
- Be provided with a stainless steel anti-static spring installed in one of the trunnions.
- Be compatible with insulators meeting the applicable requirements of ANSI/NEMA C29.7.
- Have minimum ultimate clamp design strength of 2800 lb
- Be hot stick operable

Fastening hardware shall consist of a 1/2" hex cap screw with a split lock washer.

Fastening hardware shall be galvanized steel coated in accordance with ASTM A153, or stainless steel.

Table 4. Trunnion Clamp Attributes

Stock No.	Metal	Dimensions, Nominal				Maximum Take-Off Angle (degrees)	
		Clamping Range (in)		Length (in)	Width (in)	Horizontal (H)	Vertical (V)
		Min.	Max	A	B		
695182	Iron	0.25	0.56	5-1/8	3-7/8	15	15
695183	"	0.50	1.06	5-1/2	3-7/8	15	15
695192	Aluminum	0.25	0.56	5-1/4	3-7/8	20	20
695193	"	0.50	1.06	5-1/4	3-7/8	20	20
695196	"	0.99	1.50	7	3-7/8	20	20
695194	"	1.00	1.50	5-1/4	3-7/8	20	20
695195	"	1.50	2.00	6-1/2	3-7/8	20	20

Figure 4a. Single-Bolt Trunnion Clamp

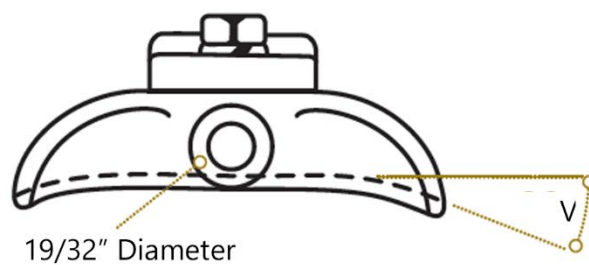
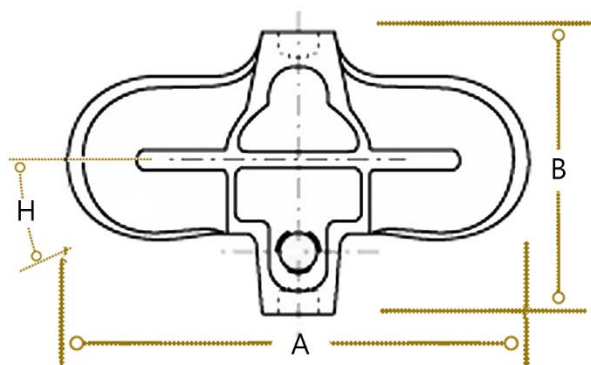


Figure 4b. Two Bolt Trunnion Clamp

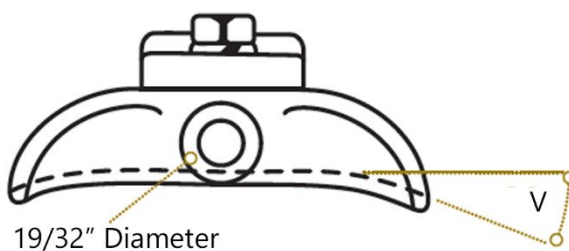
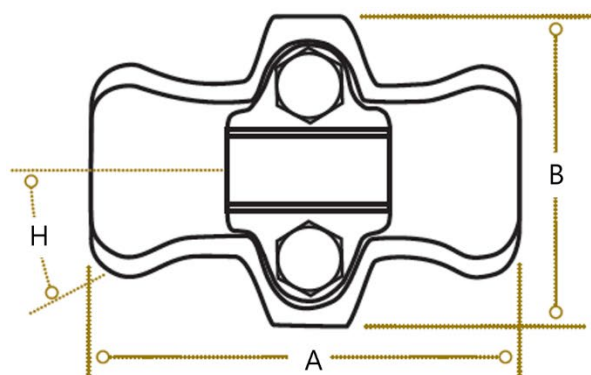
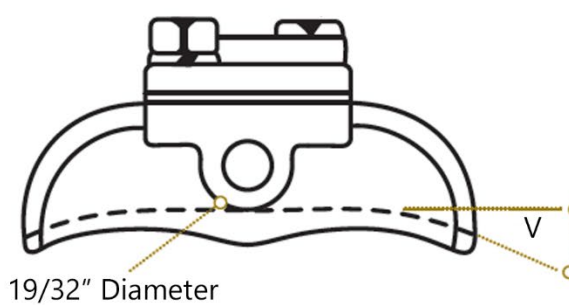
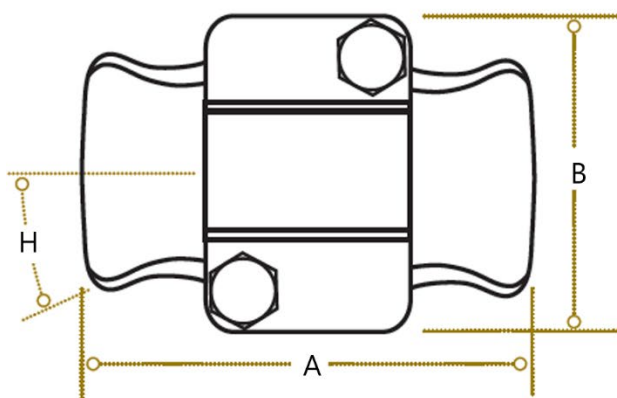


Figure 4c. Two-Bolt Trunnion Clamp with Wide Keeper



5. Marking

Each clamp shall be permanently and legibly marked in raised or stamped letters. Marking shall include but not be limited to the following information:

- Manufacturer name or symbol
- Manufacturer part number
- Clamp ultimate strength

6. Packaging

Product shall be packaged to prevent damage during shipping, handling, and storage.

Standard package quantity shall not exceed 25 per box.

Standard package weight shall not exceed 50 pounds.

Individual packages shall be legibly marked with:

- Manufacturer name
- Manufacturer catalog number
- Product description
- SCL stock number

7. Issuance

Stock Unit: EA

8. Approved Manufacturers

Stock No.	Single Bolt (Figure 4a)		Two Bolt (Figure 4b)		Two-Bolt with Wide Keeper (Figure 4c)	
	Columbia Mfg.	Lindsey	Hubbell Power Systems – Anderson	MacLean Power Systems	Hubbell Power Systems – Anderson	MacLean Power Systems
695182	–	1101-RIV	270650-3001-ARIV	LPS-57-F	–	–
695183	–	–	270651-3001-ARIV	LPS-118-F	–	–
695192	ALPS-57-SE	1100-RIV	TSC-57-ARIV	ACTS-057-SL1	–	–
695193	–	1104-RIV	TSC-106-ARIV	ACTS-118-SL1	–	–
695196	ALPS-150-SE	–	–	–	–	–
695194	–	1108-RIV	TSC-150-ARIV	ACTS-150-SL1	–	–
695195	–	–	–	–	TSC-200-ARIV	ACTS-200-SL1

9. Sources

SCL Material Standard 6901.40; “Insulator, Vertical Line Post, Porcelain, Clamp Top, for Distribution Systems”

SCL Material Standard 6901.60; “Insulator, Horizontal Line Post, Porcelain, Clamp Top, for Distribution Systems”

SCL Material Standard 6951.5 (canceled); “Clamps, Trunnion, Line Post Insulator”

Wang, Quan; SCL Standards Engineer and originator of 6941.15

www.columbiamfgllc.com

www.hubbellpowersystems.com

www.lindsey-usa.com

