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HARDWARE FITTINGS

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LINE AND TOWER HARDWARE

Anderson manufactures a complete line of quality line and tower end hardware to meet all transmission line construction needs. A variety of devices are available to bundle conductors, attach conductors to insulator strings and attach insulator strings to support arms.

Most of our line and tower end hardware is manufactured from ductile iron. Ductile iron castings offer great design flexibility and freedom to utilize design improvements without expensive tooling changes. We also provide a line of forged steel tower end fittings. Steel forgings are often required to provide the necessary ultimate strength when dimensional restrictions are imposed such as with most ball fittings, shackles and links.

Ball and socket fittings are specified under an ANSI class with respect to insulators. We offer two types of ball and socket fittings: Standard fittings (rated 30,000 pounds) for ANSI 52-3 and 52-5 class insulators, and high strength fittings (rated 50,000 pounds) for ANSI 52-8 and 52-11 class insulators.

The ultimate strength rating of our line and tower end hardware indicates the load where rupture can occur. It is a fairly common industry practice to match the ultimate strength of line and tower end hardware to that of the associated insulators. Consequently, the ultimate strengths should not be construed to be a recommended constant tension applied to a fitting. It is expected that the customer will apply suitable safety factors.

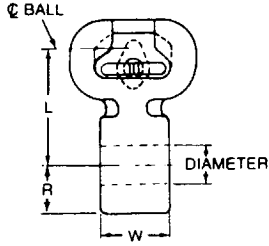
TG-1



HARDWARE FITTINGS

DUCTILE IRON SOCKET EYE

DUCTILE IRON
SA



Socket eyes can be used for connecting conductor clamping devices to ball and socket type insulators.

Material: Body—ductile iron, galvanized
Cotter Pin—stainless steel

CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)				APPROX. WT. EACH LBS. (KG)
		W	R	L	DIA.	
SA04	18,000 (80)	1/2 (12.7)	13/16 (20.6)	2-1/16 (52.4)	11/16 (17.5)	1.25 (.57)
SA049	20,000 (89)	1/2 (12.7)	13/16 (20.6)	3-1/4 (82.6)	9/16 (14.3)	1.28 (.58)
SA05	20,000 (89)	5/8 (15.9)	13/16 (20.6)	2-1/16 (52.4)	11/16 (17.5)	1.25 (.57)
SA06	25,000 (111)	3/4 (19.1)	13/16 (20.6)	2-1/16 (52.4)	11/16 (17.5)	1.30 (.59)
936032000	27,000 (120)	3/4 (19.1)	1 (25.4)	3 (76.2)	13/16 (20.6)	2.2 (1.00)
SA07	30,000 (133)	7/8 (22.2)	13/16 (20.6)	2-1/16 (52.4)	11/16 (17.5)	1.35 (.61)
SA10	30,000 (133)	1 (25.4)	13/16 (20.6)	2-1/16 (52.4)	11/16 (17.5)	1.40 (.64)
SA10054	30,000 (133)	1 (25.4)	13/16 (20.6)	5-1/2 (139.7)	11/16 (17.5)	1.90 (0.86)
SA11	30,000 (133)	1-1/8 (28.6)	13/16 (20.6)	2-1/16 (52.4)	11/16 (17.5)	1.50 (.68)
936062000	30,000 (133)	1-1/4 (31.8)	1 (25.4)	3 (76.2)	1-1/16 (27)	2.3 (1.04)
936063002	30,000 (133)	1-1/4 (31.8)	1 (25.4)	3 (76.2)	1-3/16 (30.2)	2.3 (1.04)
SA13	30,000 (133)	1-3/8 (34.9)	13/16 (20.6)	2-1/16 (52.4)	11/16 (17.5)	1.70 (.77)
SA13054	30,000 (133)	1-3/8 (34.9)	13/16 (20.6)	5-1/2 (139.7)	11/16 (17.5)	2.00 (0.91)
*SA1550	50,000 (222)	1-5/8 (41.3)	1 (25.4)	3-9/32 (83.3)	1-1/16 (27)	3.00 (1.36)
*SA15501	30,000 (133)	1-5/8 (41.3)	1 (25.4)	3-9/32 (83.3)	11/16 (17.5)	3.00 (1.36)
*SA15502	30,000 (133)	3/4 (19.1)	1 (25.4)	3-9/32 (83.3)	11/16 (17.5)	2.75 (1.25)
*SA15503	36,000 (160)	1-5/16 (33.3)	1 (25.4)	3-9/32 (83.3)	13/16 (20.6)	2.90 (1.32)
SA16	30,000 (133)	1-3/4 (44.5)	13/16 (20.6)	2-1/16 (52.4)	11/16 (17.5)	1.80 (.82)
SA20	30,000 (133)	2 (50.8)	13/16 (20.6)	2-1/16 (52.4)	11/16 (17.5)	1.85 (.84)
SA22	30,000 (133)	2-1/4 (57.2)	13/16 (20.6)	2-1/16 (52.4)	11/16 (17.5)	1.85 (.84)
SA1013	30,000 (133)	1 (25.4)	13/16 (20.6)	2-1/16 (52.4)	13/16 (20.6)	1.50 (.68)
SA10.513	30,000 (133)	1-1/16 (27)	13/16 (20.6)	2-1/16 (52.4)	13/16 (20.6)	1.30 (.50)
SA1113	30,000 (133)	1-1/8 (28.6)	13/16 (20.6)	2-1/16 (52.4)	13/16 (20.6)	1.50 (.68)
SA1313	30,000 (133)	1-3/8 (34.9)	13/16 (20.6)	2-1/16 (52.4)	13/16 (20.6)	1.75 (.79)
SA1417	30,000 (133)	1-1/2 (38.1)	1 (25.4)	2-1/2 (63.5)	1-1/16 (27)	1.75 (.79)
SA1613	30,000 (133)	1-3/4 (44.5)	13/16 (20.6)	2-1/16 (52.4)	13/16 (20.6)	1.85 (.84)
SA16054	30,000 (133)	1-3/4 (44.5)	13/16 (20.6)	5-1/2 (139.7)	11/16 (17.5)	2.10 (0.95)
SA2113	30,000 (133)	2-1/8 (54)	13/16 (20.6)	2-1/16 (52.4)	13/16 (20.6)	2.00 (.91)
SA2213	30,000 (133)	2-1/4 (57.2)	13/16 (20.6)	2-1/16 (52.4)	13/16 (20.6)	2.00 (.91)
SA2413	30,000 (133)	2-1/2 (63.5)	13/16 (20.6)	2-1/16 (52.4)	13/16 (20.6)	2.25 (1.02)
SA2613	30,000 (133)	2-3/4 (69.9)	13/16 (20.6)	2-1/16 (52.4)	13/16 (20.6)	2.85 (1.29)
*909662000	50,000 (222)	1-1/16 (27)	1-1/8 (28.6)	5-1/2 (139.7)	1-1/16 (27)	5.8 (2.63)
*909642000	50,000 (222)	1-3/16 (30.2)	1-1/8 (28.6)	5-1/2 (139.7)	13/16 (20.6)	5.3 (2.40)
*909672000	50,000 (222)	1-7/32 (31)	1-1/8 (28.6)	5-1/2 (139.7)	1-3/16 (30.2)	5.6 (2.54)
*909622000	50,000 (222)	1-7/16 (36.5)	1-1/8 (28.6)	5-1/2 (139.7)	1-3/16 (30.2)	5.8 (2.63)
*909612000	50,000 (222)	1-1/2 (38.1)	1-1/8 (28.6)	5-1/2 (139.7)	13/16 (20.6)	6.0 (2.72)

NOTE: (1) For use with class 52-3 and 52-5 insulators per ANSI Spec. C-29.2-71.
*For use with class 52-8 and 52-11 insulators per ANSI Spec. C-29.2-71.

TG-2



HARDWARE FITTINGS

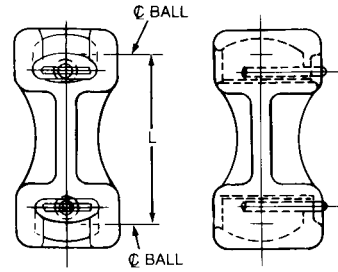
DUCTILE IRON

SOCKET-SOCKET

DUCTILE IRON
SS

Socket-sockets are used to connect ball and socket insulators to associated hardware within an insulator string.

Material: Body—ductile iron, galvanized
Cotter Pin—stainless steel



CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)		APPROX. WT. EACH LBS. (KG)
		L		
SS30	30,000 (133)	3 (76.2)		2.00

Note: For use with class 52-3 and 52-5 insulators per ANSI Spec. C-29.2-71.

TG-3

HARDWARE FITTINGS

DUCTILE IRON

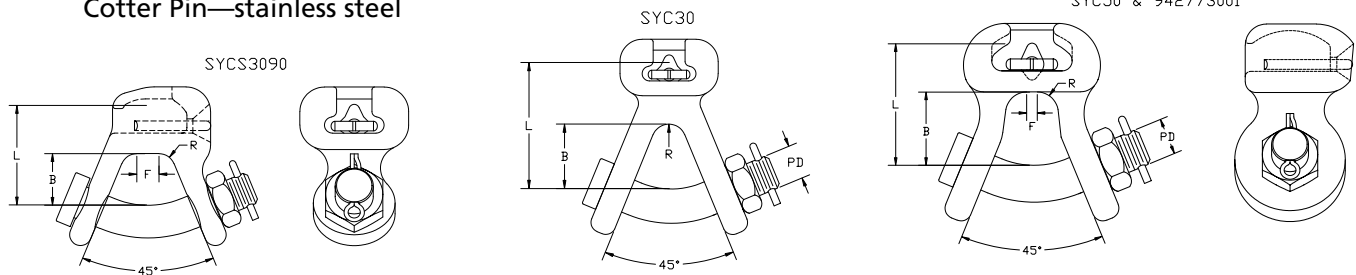
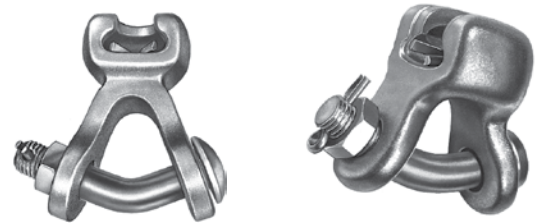
SOCKET Y-CLEVIS

DUCTILE IRON
SYC

Socket Y-clevises are used to connect yoke plates or associated hardware to ball and socket insulators. The bent bolt in the Y-section provides an additional point of articulation within an assembly.

Type SYCS is a short coupling version of Type SYC that offers the same articulation advantages.

Material: Body—ductile iron, galvanized
Hardware—galvanized steel
Cotter Pin—stainless steel



CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)					APPROX. WT. EACH LBS. (KG)
		L	B	R	F	PD	
SYC30	30,000 (133)	2-3/4 (69.9)	1-9/16 (39.7)	7/16 (11.1)	-	3/4 (19.2)	3.0 (1.36)
SYC3090	30,000 (133)	2-9/32 (57.9)	1-3/16 (30.2)	3/8 (9.5)	1/2 (12.7)	3/4 (19.2)	2.5 (1.13)
*SYC50	50,000 (222)	2-7/8 (73)	1 5/8 (41.3)	1/2 (12.7)	1/4 (6.4)	7/8 (22.2)	5.0 (2.27)
*942773001	50,000 (222)	2-15/16 (74.6)	1 5/8 (41.3)	3/8 (9.5)	9/16 (14.3)	7/8 (22.2)	5.0 (2.27)

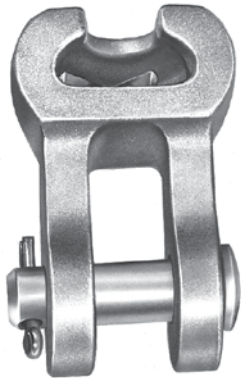
NOTE: For use with class 52-3 and 52-5 insulators per ANSI Spec. C 29.2-71.
*For use with class 52-8 and 52-11 insulators per ANSI Spec. C 29.2-71.
Sphere nut can be supplied by adding suffix "SN" to catalog number. Example: SYC30SN.



HARDWARE FITTINGS

DUCTILE IRON SOCKET CLEVIS

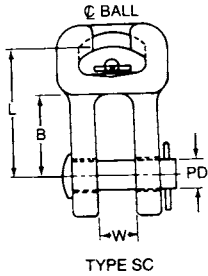
DUCTILE IRON
SC



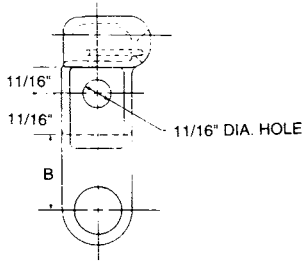
Socket clevises are used primarily for connecting associated hardware to ball and socket type insulators.

Material: Body—ductile iron, galvanized
Clevis Pin—galvanized steel
Cotter Pin—stainless steel

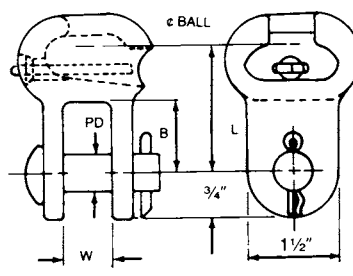
TG-4



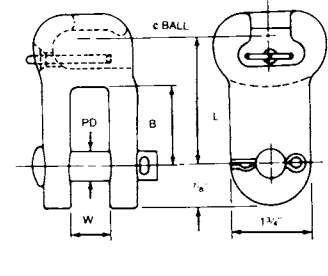
TYPE SC



TYPE SC30AHM



TYPE 115452000



TYPE 876032000

CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)				APPROX. WT. EACH LBS. (KG)
		W	L	B	PD	
876032000	30,000 (133)	13/16 (20.6)	2-5/8 (66.7)	1-5/8 (41.3)	5/8 (15.9)	2.7 (1.22)
SC30	30,000 (133)	7/8 (22.2)	2-5/8 (66.7)	1-11/16 (42.9)	5/8 (15.9)	2.0 (.91)
SC30AHM	30,000 (133)	7/8 (22.2)	4-1/2 (114.3)	1-15/16 (49.2)	5/8 (15.9)	3.5 (1.58)
SC301	30,000 (133)	1-1/8 (28.6)	3-7/8 (98.4)	2-7/8 (72)	5/8 (15.9)	3.0 (1.36)
†115452000	18,000 (80)	13/16 (20.6)	2-1/8 (54)	1-3/16 (30.2)	5/8 (15.9)	1.35 (.61)
*SC501	50,000 (222)	1-1/8 (28.6)	3-9/32 (85.3)	2-1/16 (52.4)	7/8 (22.2)	4.6 (2.09)

NOTE: For use with class 52-3 and 52-5 insulators per ANSI Spec. C-29.2-71.
 *For use with class 52-8 and 52-11 insulators per ANSI Spec. C-29.2-71.
 † For use with class 52-3 insulators only per ANSI Spec. C-29.2-71.
 Bolt and nut may be substituted for clevis pin by adding suffix "BNK" to catalog number.



HARDWARE FITTINGS

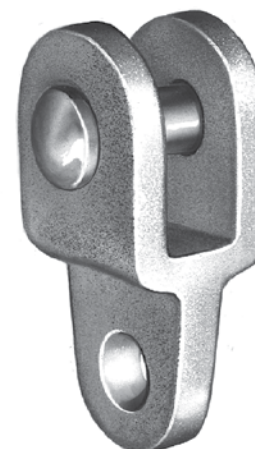
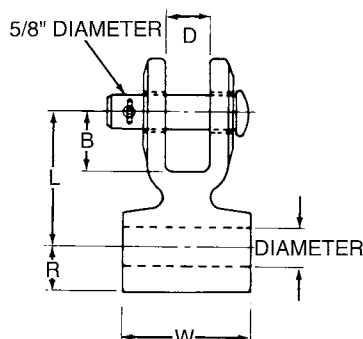
DUCTILE IRON

CLEVIS EYE

DUCTILE IRON
CA

Clevis eyes are used to connect conductor clamping devices to clevis tongue insulators.

Material: Body—ductile iron, galvanized
 Clevis Pin—galvanized steel
 Cotter Pin—stainless steel



TG-5

CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)						APPROX. WT. EACH LBS. (KG)
		R	W	B	D	L	DIA.	
CA04	18,000 (80)	13/16 (20.6)	1/2 (12.7)	1-1/16 (27.1)	7/8 (22.2)	2-1/2 (63.5)	11/16 (17.5)	1.6 (.73)
CA05	20,000 (89)	13/16 (20.6)	5/8 (15.9)	1-1/16 (27.1)	7/8 (22.2)	2-1/2 (63.5)	11/16 (17.5)	1.6 (.73)
CA05033	30,000 (133)	15/16 (23.8)	5/8 (15.9)	1-3/4 (44.5)	7/8 (22.2)	3-3/8 (85.7)	11/16 (17.5)	2.6 (1.18)
CA06	25,000 (111)	13/16 (20.6)	3/4 (19.1)	1-1/16 (27.1)	7/8 (22.2)	2-1/2 (63.5)	11/16 (17.5)	1.7 (.77)
CA101	25,000 (111)	13/16 (20.6)	1 (25.4)	1-1/16 (27.1)	7/8 (22.2)	2-1/2 (63.5)	11/16 (17.5)	1.7 (.77)
CA11	25,000 (111)	13/16 (20.6)	1-1/8 (28.6)	1-1/16 (27.1)	7/8 (22.2)	2-1/2 (63.5)	11/16 (17.5)	1.7 (.77)
CA13	25,000 (111)	13/16 (20.6)	1-3/8 (34.9)	1-1/16 (27.1)	7/8 (22.2)	2-1/2 (63.5)	11/16 (17.5)	1.8 (.82)
CA16	25,000 (111)	13/16 (20.6)	1-3/4 (44.5)	1-1/16 (27.1)	7/8 (22.2)	2-1/2 (63.5)	11/16 (17.5)	2.0 (.91)
CA22	25,000 (111)	13/16 (20.6)	2-1/4 (57.2)	1-1/16 (27.1)	7/8 (22.2)	2-1/2 (63.5)	11/16 (17.5)	2.3 (1.04)
CA1013	25,000 (111)	13/16 (20.6)	1 (25.4)	1-1/16 (27.1)	7/8 (22.2)	2-1/2 (63.5)	13/16 (20.6)	2.0 (.91)
CA1313	25,000 (111)	13/16 (20.6)	1-3/8 (34.9)	1-1/16 (27.1)	7/8 (22.2)	2-1/2 (63.5)	13/16 (20.6)	2.0 (.91)
CA1517033*	30,000 (133)	1-1/32 (26.2)	1-5/8 (41.3)	1-3/4 (44.5)	13/16 (20.6)	3-3/8 (85.7)	1-1/16 (27.1)	2.3 (1.04)

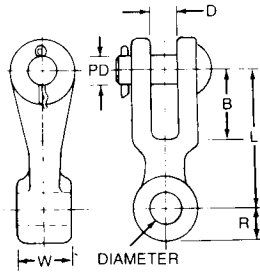
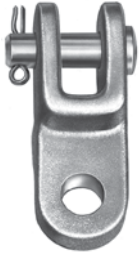
NOTE: *Furnished with 3/4" dia. clevis pin.
 Bolt and nut may be substituted for clevis pin by adding suffix "BNK" to catalog number.



HARDWARE FITTINGS

DUCTILE IRON CLEVIS EYE

DUCTILE IRON
CE



Type CE clevis eyes are used to connect quadrant type deadends to clevis tongue insulators or yoke plates. The eye of type CE is 90° from type CA.

Material: Body—ductile iron, galvanized
Clevis Pin—galvanized steel
Cotter Pin—stainless steel

TG-6

CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)							APPROX. WT. EACH LBS. (KG)
		D	W	L	B	R	PD	DIA.	
CE02504	20,000 (89)	7/8 (22.2)	1/2 (12.7)	2-5/8 (66.7)	1-1/4 (31.8)	13/16 (20.6)	5/8 (15.9)	11/16 (17.5)	1.7 (.77)
CE02506	25,000 (111)	7/8 (22.2)	3/4 (19.1)	2-5/8 (66.7)	1-1/4 (31.8)	13/16 (20.6)	5/8 (15.9)	11/16 (17.5)	1.7 (.77)
CE02513	25,000 (111)	7/8 (22.2)	1-3/8 (34.9)	2-5/8 (66.7)	1-1/4 (31.8)	13/16 (20.6)	5/8 (15.9)	11/16 (17.5)	2.2 (1.00)
CE025504	18,000 (80)	13/16 (20.6)	1/2 (12.7)	2-11/16 (68.3)	1-1/16 (27)	7/8 (22.2)	5/8 (15.9)	11/16 (17.5)	1.7 (.77)
CE03305	30,000 (133)	7/8 (22.2)	5/8 (15.9)	3-3/8 (85.7)	1-9/16 (39.7)	7/8 (22.2)	5/8 (15.9)	11/16 (17.5)	1.8 (.82)
CE03404	20,000 (89)	7/8 (22.2)	1/2 (12.7)	3-1/2 (88.9)	2-1/2 (63.5)	1 (25.4)	5/8 (15.9)	13/16 (20.6)	1.8 (.82)
CE0340611	36,000 (160)	1 (25.4)	3/4 (19.1)	3-1/2 (88.9)	1-1/2 (38.1)	1 (25.4)	3/4 (19.1)	11/16 (17.5)	2.2 (1.00)
CE0340615	36,000 (160)	1 (25.4)	3/4 (19.1)	3-1/2 (88.9)	1-1/2 (38.1)	1 (25.4)	3/4 (19.1)	15/16 (23.8)	2.1 (.95)
CE03410	30,000 (133)	7/8 (22.2)	1 (25.4)	3-1/2 (88.9)	2-1/2 (63.5)	1 (25.4)	5/8 (15.9)	13/16 (20.6)	2.0 (.91)
CE03413	30,000 (133)	7/8 (22.2)	1-3/8 (34.9)	3-1/2 (88.9)	2-1/2 (63.5)	1 (25.4)	5/8 (15.9)	13/16 (20.6)	2.5 (1.13)
CE03415	50,000 (222)	7/8 (22.2)	1-5/8 (41.3)	3-1/2 (88.9)	2-1/2 (63.5)	1 (25.4)	3/4 (19.1)	1-1/16 (27)	2.9 (1.32)
CE03616	25,000 (111)	7/8 (22.2)	1-3/4 (44.5)	3-3/4 (95.3)	2-3/4 (69.9)	1 (25.4)	5/8 (15.9)	11/16 (17.5)	2.7 (1.23)
879002000	36,000 (160)	7/8 (22.2)	3/4 (19.1)	5-1/2 (139.7)	2-1/8 (54)	1-1/4 (31.8)	3/4 (19.1)	13/16 (20.6)	3.9 (1.77)
CE054106	50,000 (222)	7/8 (22.2)	1-1/16 (27)	5-1/2 (139.7)	2-1/8 (54)	1 (25.4)	3/4 (19.1)	13/16 (20.6)	3.0 (1.36)
CE05410	40,000 (178)	1 (25.4)	1 (25.4)	5-1/2 (139.7)	2-1/2 (63.5)	1 (25.4)	3/4 (19.1)	13/16 (20.6)	3.2 (1.45)
CE0541160	60,000 (267)	7/8 (22.2)	1-1/8 (28.6)	5-1/2 (139.7)	2-1/8 (54)	1-1/8 (28.6)	3/4 (19.1)	13/16 (20.6)	3.7 (1.68)
CE054125	30,000 (133)	7/8 (22.2)	1-5/16 (33.3)	5-1/2 (139.7)	2-1/8 (54)	1 (25.4)	5/8 (15.9)	13/16 (20.6)	3.5 (1.59)
CE05414	50,000 (222)	7/8 (22.2)	1-1/2 (38.1)	5-1/2 (139.7)	2-1/8 (54)	1 (25.4)	3/4 (19.1)	1-3/16 (30.2)	3.5 (1.59)
CE05415	50,000 (222)	7/8 (22.2)	1-5/8 (41.3)	5-1/2 (139.7)	2-1/8 (54)	1 (25.4)	3/4 (19.1)	1-1/16 (27)	3.5 (1.59)
CE0541660	60,000 (267)	7/8 (22.2)	1-3/4 (44.5)	5-1/2 (139.7)	2-1/8 (54)	1 (25.4)	7/8 (22.2)	13/16 (20.6)	3.7 (1.68)
CE05420	50,000 (222)	7/8 (22.2)	2 (50.8)	5-1/2 (139.7)	2-1/8 (54)	1 (25.4)	3/4 (19.1)	13/16 (20.6)	3.7 (1.68)

NOTE: Bolt and nut may be substituted for clevis pin by adding suffix "BNK" to catalog number.



HARDWARE FITTINGS

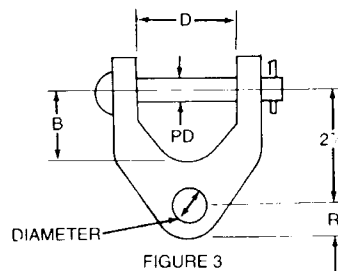
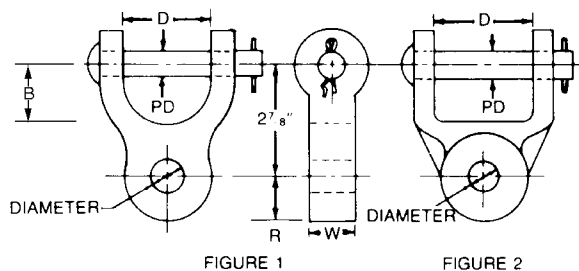
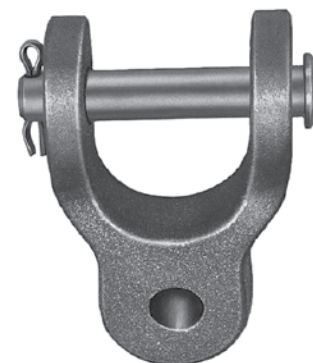
DUCTILE IRON

CLEVIS EYE

DUCTILE IRON
CEW

Wide clevis eyes are used to attach suspension clamps to associated hardware in a single conductor VEE string assembly.

Material: Body—ductile iron, galvanized
Hardware—galvanized steel



TG-7

CATALOG NUMBER	FIG. NO.	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)						APPROX. WT. EACH LBS. (KG)
			W	D	B	PD	R	DIA.	
CEW1030	1	30,000 (133)	1 (25.4)	2-1/4 (57.2)	1-15/16 (49.2)	5/8 (15.9)	1 (25.4)	11/16 (17.5)	2.6 (1.18)
CEW13530	1	30,000 (133)	1-7/16 (36.5)	2 (50.8)	1-13/16 (46)	5/8 (15.9)	1 (25.4)	11/16 (17.5)	2.6 (1.18)
CEW1630	1	30,000 (133)	1-3/4 (44.5)	2 (50.8)	1-13/16 (46)	5/8 (15.9)	1 (25.4)	11/16 (17.5)	2.8 (1.27)
CEW2230	1	30,000 (133)	2-1/4 (57.2)	2 (50.8)	1-13/16 (46)	5/8 (15.9)	1 (25.4)	11/16 (17.5)	3.2 (1.45)
CEW223013	1	30,000 (133)	2-1/4 (57.2)	2 (50.8)	1-13/16 (46)	5/8 (15.9)	1 (25.4)	13/16 (20.6)	3.2 (1.45)
CEW2330	2	30,000 (133)	2-3/8 (60.3)	2-1/4 (57.2)	17/16 (36.5)	5/8 (15.9)	13/16 (20.6)	11/16 (17.5)	3.5 (1.59)

NOTE: Bolt and nut may be substituted for clevis pin by adding suffix "BNK" to catalog number.

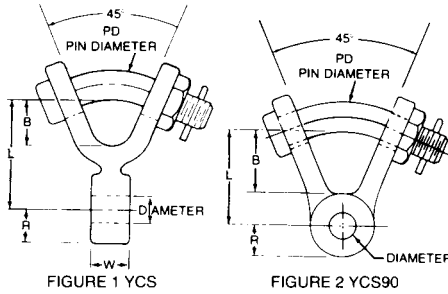
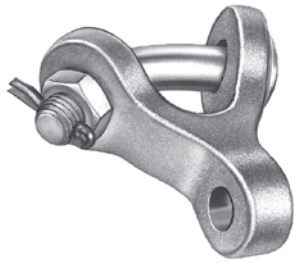


HARDWARE FITTINGS

DUCTILE IRON

Y-CLEVIS EYE

DUCTILE IRON
YCS



Y-clevis eyes are primarily used to attach clamping devices to yoke plates or other associated hardware in a bundle conductor assembly. The bent bolt in the Y-section provides an additional point of articulation within an assembly.

Material: Body—ductile iron or forged steel, galvanized

Hardware—galvanized steel
Cotter Pin—stainless steel

TG-8

CATALOG NUMBER	FIG. NO.	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)						APPROX. WT. EACH LBS. (KG)
			B	L	W	R	PD	DIA.	
YCS04	1	19,000 (85)	1-3/8 (34.9)	2-13/16 (71.4)	1/2 (12.7)	13/16 (20.6)	3/4 (19.1)	11/16 (17.5)	1.75 (.79)
YCS0490	2	19,000 (85)	1-5/8 (41.3)	2-7/16 (62)	1/2 (12.7)	13/16 (20.6)	3/4 (19.1)	11/16 (17.5)	1.75 (.79)
YCS04034	1	19,000 (85)	1-3/4 (44.5)	3-1/2 (88.9)	1/2 (12.7)	13/16 (20.6)	3/4 (19.1)	11/16 (17.5)	2.7 (1.22)
854502000*	1	30,000 (133)	1-1/2 (38.1)	3-3/4 (95.3)	5/8 (15.9)	25/32 (19.8)	3/4 (19.1)	11/16 (17.5)	2.0 (.91)
854512000*	2	30,000 (133)	1-1/2 (38.1)	3-3/4 (95.3)	5/8 (15.9)	25/32 (19.8)	3/4 (19.1)	11/16 (17.5)	2.0 (.91)
YCS05	1	20,000 (89)	1-3/8 (34.9)	2-13/16 (71.4)	5/8 (15.9)	13/16 (20.6)	3/4 (19.1)	11/16 (17.5)	1.85 (.84)
YCS0590	2	20,000 (89)	1-5/8 (41.3)	2-7/16 (62)	5/8 (15.9)	13/16 (20.6)	3/4 (19.1)	11/16 (17.5)	1.85 (.84)
YCS059030	2	30,000 (133)	1-5/8 (41.3)	2-7/16 (62)	5/8 (15.9)	7/8 (22.2)	3/4 (19.1)	11/16 (17.5)	1.85 (.84)
YCS06	1	25,000 (111)	1-3/8 (34.9)	2-13/16 (71.4)	3/4 (19.1)	13/16 (20.6)	3/4 (19.1)	11/16 (17.5)	1.90 (.86)
YCS0690	2	25,000 (111)	1-5/8 (41.3)	2-7/16 (62)	3/4 (19.1)	13/16 (20.6)	3/4 (19.1)	11/16 (17.5)	1.90 (.86)
YCS069040	2	40,000 (178)	2 (50.8)	3-5/16 (84.1)	3/4 (19.1)	1 (25.4)	7/8 (22.2)	11/16 (17.5)	3.4 (1.54)
YCS07	1	30,000 (133)	1-3/8 (34.9)	2-13/16 (71.4)	7/8 (22.2)	13/16 (20.6)	3/4 (19.1)	11/16 (17.5)	1.90 (.86)
YCS10	1	30,000 (133)	1-3/8 (34.9)	2-13/16 (71.4)	1 (25.4)	13/16 (20.6)	3/4 (19.1)	11/16 (17.5)	1.95 (.88)
YCS1090	2	30,000 (133)	1-5/8 (41.3)	2-7/16 (62)	1 (25.4)	13/16 (20.6)	3/4 (19.1)	11/16 (17.5)	1.95 (.88)
YCS10590	2	30,000 (133)	1-5/8 (41.3)	2-7/16 (62)	1-1/16 (27.1)	13/16 (20.6)	3/4 (19.1)	11/16 (17.5)	2.00 (.91)
YCS1059013	2	30,000 (133)	1-5/8 (41.3)	2-7/16 (62)	1-1/16 (27.1)	13/16 (20.6)	3/4 (19.1)	13/16 (20.6)	2.00 (.91)
YCS11	1	30,000 (133)	1-3/8 (34.9)	2-13/16 (71.4)	1-1/8 (28.6)	13/16 (20.6)	3/4 (19.1)	11/16 (17.5)	2.00 (.91)
YCS119045	2	45,000 (200)	1-1/16 (27)	2-9/16 (65.1)	1-1/8 (28.6)	29/32 (23)	7/8 (22.2)	13/16 (20.6)	2.50 (1.13)
YCS1290	2	30,000 (133)	1-5/8 (41.3)	2-7/16 (62)	1-1/4 (31.8)	13/16 (20.6)	3/4 (19.1)	11/16 (17.5)	2.50 (1.13)
YCS129040	2	40,000 (178)	1-9/16 (39.7)	2-3/8 (60.3)	1-1/4 (31.8)	13/16 (20.6)	7/8 (22.2)	13/16 (20.6)	2.50 (1.13)
YCS1390	2	30,000 (133)	1-5/8 (41.3)	2-7/16 (62)	1-3/8 (34.9)	13/16 (20.6)	3/4 (19.1)	11/16 (17.5)	2.25 (1.02)
YCS1690	2	30,000 (133)	1-5/8 (41.3)	2-7/16 (62)	1-3/4 (44.5)	13/16 (20.6)	3/4 (19.1)	11/16 (17.5)	2.30 (1.04)
YCS169040	2	40,000 (178)	1-9/16 (39.7)	2-3/8 (60.3)	1-3/4 (44.5)	13/16 (20.6)	7/8 (22.2)	13/16 (20.6)	2.50 (1.13)
YCS2090	2	30,000 (133)	1-5/8 (41.3)	2-7/16 (62)	2 (50.8)	13/16 (20.6)	3/4 (19.1)	11/16 (17.5)	2.75 (1.25)
YCS209040	2	40,000 (178)	1-9/16 (39.7)	2-3/8 (60.3)	2 (50.8)	13/16 (20.6)	7/8 (22.2)	13/16 (20.6)	3.00 (1.36)
YCS219013	2	30,000 (133)	1-5/8 (41.3)	2-7/16 (62)	2-1/8 (54)	13/16 (20.6)	3/4 (19.1)	13/16 (20.6)	3.00 (1.36)
YCS2290	2	30,000 (133)	1-5/8 (41.3)	2-7/16 (62)	2-1/4 (57.2)	13/16 (20.6)	3/4 (19.1)	11/16 (17.5)	2.75 (1.25)
YCS2490	2	30,000 (133)	1-5/8 (41.3)	2-7/16 (62)	2-1/2 (63.5)	13/16 (20.6)	3/4 (19.1)	11/16 (17.5)	3.00 (1.36)
YCS269040	2	40,000 (178)	1-9/16 (39.7)	2-3/8 (60.3)	2-3/4 (69.9)	13/16 (20.6)	7/8 (22.2)	13/16 (20.6)	3.45 (1.47)

*Forged Steel



HARDWARE FITTINGS

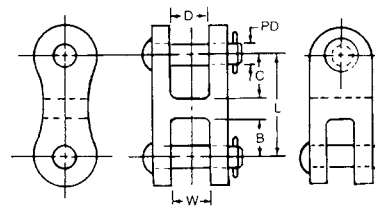
DUCTILE IRON

CLEVIS CLEVIS

DUCTILE IRON
CCC

Clevis clevises are used to attach clevis tongue insulators to various associated hardware within an insulator string.

Material: Body—ductile iron, galvanized
Clevis Pin—galvanized steel
Cotter Pin—stainless steel



TYPE CCC

TYPE CCC90



CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)						APPROX. WT. EACH LBS. (KG)
		L	B	C	W	D	PD	
CCC25	25,000 (111)	3 (76.2)	1-1/16 (27)	1-1/2 (38.1)	11/16 (17.5)	1-3/16 (30.2)	5/8 (15.9)	2.5 (1.13)
CCC30	30,000 (133)	4 (101.6)	1-3/4 (44.5)	1-3/4 (44.5)	7/8 (22.2)	7/8 (22.2)	5/8 (15.9)	2.5 (1.13)
CCC30115	30,000 (133)	4 (101.6)	2 (50.8)	1-1/2 (38.1)	1-3/16 (30.2)	7/8 (22.2)	5/8 (15.9)	3.0 (1.36)
CCC3090	30,000 (133)	3 (76.2)	1-3/8 (34.9)	1-3/8 (34.9)	7/8 (22.2)	7/8 (22.2)	5/8 (15.9)	2.5 (1.13)
CCC309055	30,000 (133)	5-1/2 (139.7)	1-3/4 (44.5)	1-3/4 (44.5)	15/16 (23.8)	15/16 (23.8)	5/8 (15.9)	5.7 (2.59)
CCC40	40,000 (178)	4 (101.6)	1-3/4 (44.5)	1-3/4 (44.5)	7/8 (22.2)	7/8 (22.2)	3/4 (19.1)	3.2 (1.45)
CCC4090	40,000 (178)	3-1/2 (88.9)	1-1/2 (38.1)	1-1/2 (38.1)	7/8 (22.2)	7/8 (22.2)	3/4 (19.1)	3.2 (1.45)
CCC50	50,000 (222)	4-1/2 (114.3)	2 (50.8)	2 (50.8)	1 (25.4)	1 (25.4)	3/4 (19.1)	4.0 (1.81)
CCC5090	50,000 (222)	4-1/2 (114.3)	2 (50.8)	2 (50.8)	1 (25.4)	1 (25.4)	3/4 (19.1)	4.0 (1.81)
CCC80BNK	80,000 (356)	5-1/8 (130.2)	2-1/4 (57.2)	2-1/4 (57.2)	1-5/8 (41.3)	1-1/4 (31.8)	+	6.0 (2.72)

NOTE: +Furnished with bolt, nut and cotter pin; 1" diameter bolt at "D" opening, 1 1/8" diameter bolt at "W" opening. Bolt and nut may be substituted for clevis pin by adding suffix "BNK" to catalog number.

TG-9

HARDWARE FITTINGS

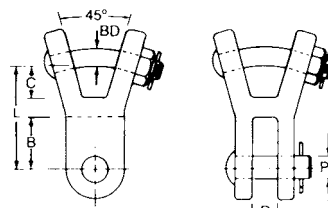
DUCTILE IRON

Y-CLEVIS CLEVIS

DUCTILE IRON
YCC

Y-clevis clevises are used to attach clevis tongue insulators to various associated hardware within an insulator string. The bent bolt in the Y-clevis section provides an additional point of articulation within an assembly.

Material: Body—ductile iron, galvanized
Hardware—galvanized steel



TYPE YCC90

TYPE YCC



CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)						APPROX. WT. EACH LBS. (KG)
		D	L	B	C	PD	BD	
YCC30	30,000 (133)	7/8 (22.2)	3-1/4 (82.6)	1-3/8 (34.9)	1-3/8 (34.9)	5/8 (15.9)	3/4 (19.1)	2.5 (1.13)
YCC3090	30,000 (133)	7/8 (22.2)	3-1/4 (82.6)	1-3/8 (34.9)	1-1/2 (38.1)	5/8 (15.9)	3/4 (19.1)	2.5 (1.13)



HARDWARE FITTINGS

DUCTILE IRON

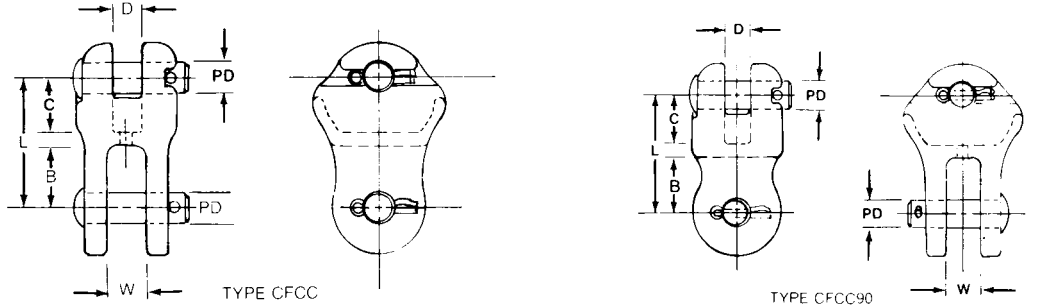
CORONA FREE CLEVIS

DUCTILE IRON
CFCC



Corona free clevis clevises are used at EHV levels to attach clevis tongue insulators to various associated hardware within an insulator string.

Material: Body—ductile iron, galvanized
 Clevis Pin—galvanized steel
 Cotter Pin—stainless steel



TG-10

CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)						APPROX. WT. EACH LBS. (KG)
		L	B	C	W	D	PD	
CFCC30	30,000 (133)	3-1/8 (79.4)	1-19/32 (40.5)	1-7/32 (31)	7/8 (22.2)	11/16 (17.5)	5/8 (15.9)	3.00 (1.36)
CFCC3090	30,000 (133)	3-1/8 (79.4)	1-19/32 (40.5)	1-7/32 (31)	7/8 (22.2)	11/16 (17.5)	5/8 (15.9)	3.00 (1.36)
CFCC40	40,000 (178)	3-1/4 (82.6)	1-3/4 (44.5)	1-3/16 (30.2)	7/8 (22.2)	15/16 (23.8)	3/4 (19.1)	4.75 (2.15)
CFCC4090	40,000 (178)	3-1/4 (82.6)	1-3/4 (44.5)	1-3/16 (30.2)	7/8 (22.2)	15/16 (23.8)	3/4 (19.1)	4.75 (2.15)

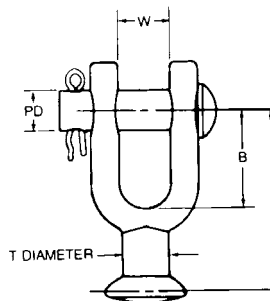


HARDWARE FITTINGS FORGED STEEL BALL CLEVIS

FORGED STEEL
BC

Ball clevises are used to attach ball and socket insulators to other associated tower hardware.

Material: Body—galvanized steel
Clevis Pin—galvanized steel
Cotter Pin—stainless steel



CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)					APPROX. WT. EACH LBS. (KG)
		L	B	W	PD	T DIA.	
BC30	30,000 (133)	2-7/8 (73)	1-9/16 (39.7)	15/16 (23.8)	5/8 (15.9)	23/32 (18.3)	.95 (.43)
*BC50	50,000 (222)	4-5/16 (109.5)	1-15/16 (49.2)	15/16 (23.8)	7/8 (22.2)	57/64 (22.6)	2.3 (1.04)
704882000	30,000 (133)	3-15/16 (100)	2-1/2 (63.5)	13/16 (20.6)	5/8 (15.9)	23/32 (18.3)	1.24 (.56)

NOTE: For use with class 52-3 and 52-5 insulators per ANSI Spec. C-29.2-71.
* For use with class 52-8 and 52-11 insulators per ANSI Spec. C-29.2-71.
Bolt and nut may be substituted for clevis pin by adding suffix "BNK" to catalog number.

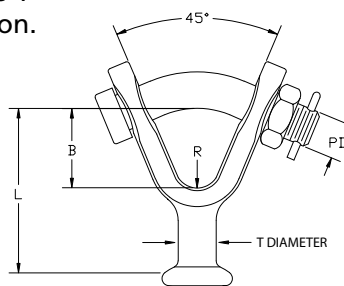
TG-11

HARDWARE FITTINGS FORGED STEEL BALL Y-CLEVIS

FORGED STEEL
YBC

Ball Y-clevises are used to attach ball and socket insulators to other associated hardware. The bent bolt in the Y-clevis section provides an additional point of articulation.

Material: Body—galvanized steel
Clevis Pin—galvanized steel
Cotter Pin—stainless steel



CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)					APPROX. WT. EACH LBS. (KG)
		L	B	R	PD	T DIA.	
YBC30	30,000 (133)	3-3/32 (78.5)	1-1/2 (35.1)	0.406 (13.5)	3/4 (19.1)	23/32 (18.3)	1.90 (.86)
*YBC50	50,000 (222)	3-15/16 (100.2)	1-13/16 (46)	0.531 (10.3)	7/8 (22.2)	57/64 (22.6)	2.80 (1.27)

NOTE: For use with class 52-3 and 52-5 insulators per ANSI Spec. C-29.2-71.
*For use with class 52-8 and 52-11 insulators per ANSI Spec. C-29.2-71.



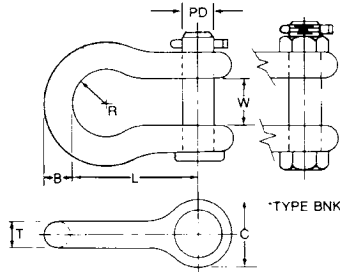
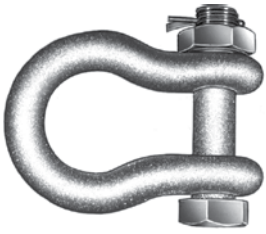
HARDWARE FITTINGS

FORGED STEEL

ANCHOR SHACKLE

FORGED STEEL

AS



Anchor shackles are used to attach hardware to the tower pad. Back to back anchor shackles are commonly used at the tower attachment point to orient the plane of the tower plate and the balance of the insulator hardware.

Material: Body—galvanized steel
Hardware—galvanized steel
Cotter Pin—stainless steel

TG-12

CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)							APPROX. WT. EACH LBS. (KG)
		L	B	W	C	T	R	PD	
AS25	30,000 (133)	2-3/8 (60.3)	5/8 (15.9)	7/8 (22.2)	1-3/8 (34.9)	1/2 (12.7)	11/16 (17.56)	5/8 (15.9)	.74 (.34)
AS25BNK	30,000 (133)	2-3/8 (60.3)	5/8 (15.9)	7/8 (22.2)	1-3/8 (34.9)	1/2 (12.7)	11/16 (17.5)	5/8 (15.9)	.86 (.39)
AS25L	30,000 (133)	2-25/32 (70.6)	5/8 (15.9)	7/8 (22.2)	1-3/8 (34.9)	1/2 (12.7)	21/32 (16.7)	5/8 (15.9)	1.00 (.45)
AS25LBNK	30,000 (133)	2-25/32 (70.6)	5/8 (15.9)	7/8 (22.2)	1-3/8 (34.9)	1/2 (12.7)	21/32 (16.7)	5/8 (15.9)	1.12 (.51)
AS25WBNK	30,000 (133)	3 (76.2)	5/8 (15.9)	1-3/4 (44.5)	1-11/16 (42.9)	5/8 (15.9)	1 (25.4)	5/8 (15.9)	1.65 (.75)
AS35	35,000 (156)	2-25/32 (70.6)	11/16 (17.5)	1-1/16 (27)	1-11/16 (42.9)	5/8 (15.9)	3/4 (19.1)	3/4 (19.1)	1.47 (.67)
AS35BNK	40,000 (178)	2-25/32 (70.6)	11/16 (17.5)	1-1/16 (27)	1-11/16 (42.9)	5/8 (15.9)	3/4 (19.1)	3/4 (19.1)	1.66 (.75)
AS50	50,000 (222)	3-1/2 (88.9)	7/8 (22.2)	7/8 (22.2)	1-7/8 (47.6)	3/4 (19.1)	3/4 (19.1)	3/4 (19.1)	2.25 (1.02)
AS50BNK	60,000 (267)	3-1/2 (88.9)	7/8 (22.2)	7/8 (22.2)	1-7/8 (47.6)	3/4 (19.1)	3/4 (19.1)	3/4 (19.1)	2.44 (1.11)
970303001	60,000 (267)	5 (127)	5/8 (15.9)	1-1/8 (28.6)	1-7/8 (47.6)	3/4 (19.1)	9/16 (14.3)	3/4 (19.1)	2.4 (1.10)
*970303002	60,000 (267)	5 (127)	5/8 (15.9)	1-1/8 (28.6)	1-7/8 (47.6)	3/4 (19.1)	9/16 (14.3)	3/4 (19.1)	2.5 (1.13)
AS50W	50,000 (222)	3-1/2 (88.9)	7/8 (22.2)	1-1/4 (31.8)	1-15/16 (49.2)	3/4 (19.1)	1 (25.4)	7/8 (22.2)	2.25 (1.02)
AS50WBNK	60,000 (267)	3-1/2 (88.9)	7/8 (22.2)	1-1/4 (31.8)	1-15/16 (49.2)	3/4 (19.1)	1 (25.4)	7/8 (22.2)	2.75 (1.25)
AS60BNK	80,000 (356)	3-3/4 (95.3)	7/8 (22.2)	1-7/16 (36.5)	2-1/8 (54)	7/8 (22.2)	1-1/8 (28.6)	1 (25.4)	4.31 (1.96)
AS60875BNK	72,000 (320)	3-3/4 (95.3)	7/8 (22.2)	1-7/16 (36.5)	2-1/8 (54)	7/8 (22.2)	1-1/8 (28.6)	7/8 (22.2)	4.10 (1.86)
*974153001	120,000 (534)	6 (152.4)	1 (25.4)	1-1/2 (38.1)	2-3/8 (60.3)	1 (25.4)	1-1/16 (27)	1-1/8 (28.6)	6.20 (2.81)
974153002	100,000 (445)	6 (152.4)	1 (25.4)	1-1/2 (38.1)	2-3/8 (60.3)	1 (25.4)	1-1/16 (27)	1-1/8 (28.6)	6.00 (2.72)
*976743001	100,000 (445)	4-5/16 (109.5)	1 (25.4)	1-11/16 (42.9)	2-3/8 (60.3)	1 (25.4)	1-11/32 (34.1)	1-1/8 (28.6)	5.90 (2.69)
*946693001	100,000 (445)	4-5/16 (109.5)	1 (25.4)	1-3/16 (30.2)	2-3/8 (60.3)	1 (25.4)	1-11/32 (34.1)	1-1/8 (28.6)	5.70 (2.59)
AS135BNK	150,000 (667)	6 (152.4)	1-1/2 (38.1)	2-1/4 (57.2)	3-3/8 (85.7)	1-3/8 (34.9)	1-13/16 (46)	1-1/2 (38.1)	15.75 (7.14)

NOTE: *These shackles are type BNK.

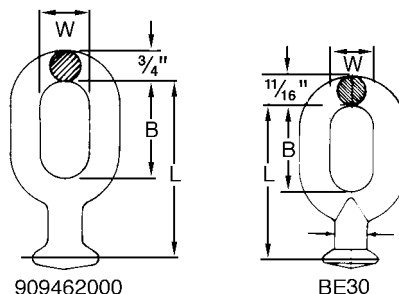


HARDWARE FITTINGS FORGED STEEL BALL CLEVIS

FORGED STEEL
BE

Ball eyes are used to attach ball and socket insulators to other associated hardware. The use of the ball oval eye and an anchor shackle is one of the most common distribution tower attachment combinations.

Material: Galvanized steel



CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)			APPROX. WT. EACH LBS. (KG)
		L	B	W	
**BE30	30,000 (133)	3-23/32 (94.5)	2 (50.8)	1 (25.4)	1.00 (.45)
***909462000	50,000 (222)	4-1/2 (114.3)	2-1/2 (63.5)	1 1/4 (31.8)	1.55 (.70)

NOTE: ** For use with class 52-3 and 52-5 insulators per ANSI Spec. C-29.2-71.
***For use with class 52-8 and 52-11 insulators per ANSI Spec. C-29.2-71.

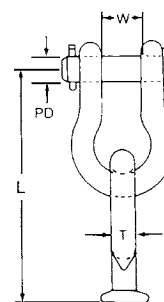
TG-13

HARDWARE FITTINGS FORGED STEEL BALL OVAL-EYE ANCHOR SHACKLE COMBINATION

FORGED STEEL
BEAS

Ball oval-eye anchor shackle combinations are popular combinations which are sold as assemblies to save field assembly time. Contact factory for other pre-assembled combinations.

Material: Body—galvanized steel



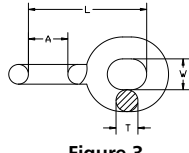
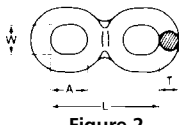
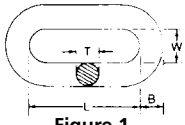
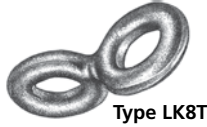
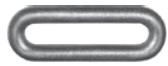
CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)				APPROX. WT. EACH LBS. (KG)
		W	L	T	PD	
BE30AS25	30,000 (133)	7/8 (22.2)	5-29/32 (150)	11/16 (17.5)	5/8 (15.9)	1.74 (.79)
BE30AS35	30,000 (133)	1-1/16 (27)	6-1/2 (165.1)	11/16 (17.5)	3/4 (19.1)	2.47 (1.12)
BE30AS50	30,000 (133)	7/8 (22.2)	7-7/32 (183.4)	11/16 (17.5)	3/4 (19.1)	3.25 (1.47)

NOTE: For use with class 52-3 and 52-5 insulators per ANSI Spec. c-29.2-71.
Other combinations may be used, contact factory for additional information.
Bolt and nut may be substituted for clevis pin by adding suffix "BNK" to catalog number.



HARDWARE FITTINGS FORGED STEEL CHAIN LINK

FORGED STEEL
LK



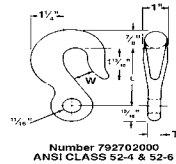
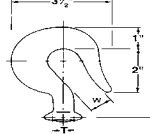
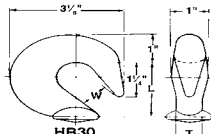
Links are used to maintain proper tower clearance and connect associated hardware within an insulator string.

Material: Galvanized steel

CATALOG NUMBER	FIGURE NO.	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)					APPROX. WT. EACH LBS. (KG)
			L	A	B	W	T	
LK30	1	30,000 (133)	2-1/4 (57.2)	—	1/2 (12.7)	1 (25.4)	1/2 (12.7)	.44 (.20)
LK60	1	60,000 (267)	3-1/2 (88.9)	—	3/4 (19.1)	1 (25.4)	3/4 (19.1)	1.5 (.68)
LK80	1	80,000 (356)	4 (101.6)	—	7/8 (22.2)	1-1/4 (31.8)	7/8 (22.2)	2.15 (.96)
LK150	1	150,000 (667)	5-1/2 (139.7)	—	1-3/8 (34.9)	1-3/4 (44.5)	1-3/8 (34.9)	6.90 (3.13)
LK830	2	30,000 (133)	3-3/8 (85.7)	1-1/8 (28.6)	—	7/8 (22.2)	9/16 (14.3)	.75 (.34)
LK830T	3	30,000 (133)	3-3/8 (85.7)	1-1/8 (28.6)	—	7/8 (22.2)	9/16 (14.3)	.75 (.34)
792722000	1	45,000 (200)	3-1/4 (82.6)	—	11/16 (17.5)	1 (25.4)	11/16 (17.5)	.95 (.43)

TG-14

HARDWARE FITTINGS FORGED STEEL HOOKS



Hooks are used to attach ball and socket or clevis insulators directly to the tower attachment pad. All hooks are of the self-locking design.

CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)			APPROX. WT. EACH LBS. (KG)
		L	W	T	
HB30	30,000 (133)	2 (50.8)	13/16 (20.6)	23.32 (18.3)	1.05 (.48)
HBL30	30,000 (133)	3-1/8 (79.4)	7/8 (22.2)	23.32 (18.3)	1.33 (.60)
792702000	30,000 (133)	3 (76.2)	13/16 (20.6)	1/2 (12.7)	1.30 (.59)

Hooks For Use With Class 52-3 And 52-5 Insulators Per ANSI Spec. C-29.2-71.
792702000 for use with class 52-4 and 52-6 clevis type insulators per ANSI Spec. C-29.2-71.

HARDWARE FITTINGS - STEEL



RIV CLIP
CATALOG NUMBER 941104001

Clevis connections, especially if working under light mechanical load, can develop oxide films on their bearing surfaces. If these films are not fractured by weight and movement, they are subject to puncture by line voltages whose small discharges can create RIV. By establishing a shunt around the clevis joint, by means of RIV clips, the condition is easily remedied. Clips are made of spring stainless steel wire with ends cut flat and sharp to give good point contact. They are held securely by snapping around the Clevis Pin. Clip weight is 0.845 pounds per hundred.



HARDWARE FITTINGS

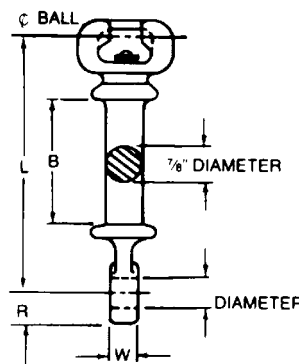
DUCTILE IRON

HOT LINE SOCKET EYE

DUCTILE IRON
HSE

Hot line socket eyes are used to connect ball and socket insulators to other associated hardware. Shoulders are provided to accommodate hot line tools.

Material: Body—ductile iron, galvanized
Cotter Pin—stainless steel



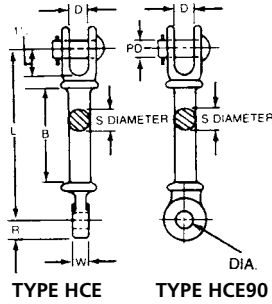
CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)					APPROX. WT. EACH LBS. (KG)
		L	B	W	R	DIA.	
HSE07712	30,000 (133)	7-7/8 (200)	4-1/8 (105)	1-1/4 (31.8)	1 (25.4)	11/16 (17.5)	3.23 (1.47)
HSE10004	19,000 (85)	10 (254)	6-1/4 (159)	1/2 (12.7)	13/16 (20.6)	11/16 (17.5)	2.78 (1.26)
HSE10005	30,000 (133)	10 (254)	6-1/4 (159)	5/8 (15.9)	7/8 (22.2)	11/16 (17.5)	2.87 (1.30)
HSE100055	30,000 (133)	10 (254)	6-1/4 (159)	11/16 (17.5)	7/8 (22.2)	11/16 (17.5)	2.9 (1.32)
HSE10006	30,000 (133)	10 (254)	6-1/4 (159)	3/4 (19.1)	7/8 (22.2)	11/16 (17.5)	2.97 (1.35)
HSE100065	30,000 (133)	10 (254)	6-1/4 (159)	13/16 (20.6)	15/16 (23.8)	13/16 (20.6)	3.00 (1.36)
HSE1000613	30,000 (133)	10 (254)	6-1/4 (159)	3/4 (19.1)	7/8 (22.2)	13/16 (20.6)	2.97 (1.35)
HSE10010	30,000 (133)	10 (254)	6-1/4 (159)	1 (25.4)	1 (25.4)	1-1/16 (27.1)	3.00 (1.36)
HSE100105	30,000 (133)	10 (254)	6-1/4 (159)	1-1/16 (27.1)	1-1/4 (31.8)	1-1/16 (27.1)	3.10 (1.41)
HSE10012	30,000 (133)	10 (254)	6-1/4 (159)	1-1/4 (31.8)	1 (25.4)	1-3/16 (30.2)	3.10 (1.41)
HSE100121116	30,000 (133)	10 (254)	6-1/4 (159)	1-1/4 (31.8)	1 (25.4)	11/16 (17.5)	3.20 (1.45)
HSE10016	30,000 (133)	10 (254)	6-1/4 (159)	1-3/4 (44.5)	13/16 (20.6)	11/16 (17.5)	3.90 (1.77)
HSE12560613	30,000 (133)	12-9/16 (319.1)	8-13/16 (224)	3/4 (19.1)	1 (25.4)	13/16 (20.6)	3.36 (1.52)
*HSE1001550	50,000 (222)	10 (254)	6-1/2 (165)	1-5/8 (41.3)	2 (50.8)	1-1/16 (27.1)	5.15 (2.34)
*HSE10015501	50,000 (222)	10 (254)	6-1/2 (165)	1-11/32 (34.1)	2 (50.8)	1-1/16 (27.1)	4.90 (2.22)

NOTE: *These items for use with ANSI class 52-8 and 52-11 insulators.
Others for use with ANSI class 52-3 and 52-5 insulators.



HARDWARE FITTINGS DUCTILE IRON HOT LINE EXTENSION CLEVIS EYE

DUCTILE IRON
HCE



Hot line clevis eyes are used to connect clevis tongue insulators to various associated hardware. Shoulders are provided to accommodate hotline tools.

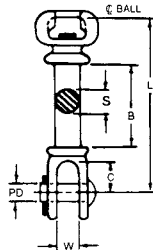
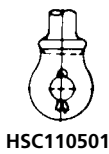
Material: Body—ductile iron, galvanized
Clevis Pin—galvanized steel
Cotter Pin—stainless steel

CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)								APPROX. WT. EACH LBS. (KG)
		L	B	D	W	R	DIA.	PD	S	
HCE0705	30,000 (133)	7 (177.8)	3 (76.2)	13/16 (20.6)	5/8 (15.9)	7/8 (22.2)	11/16 (17.5)	5/8 (15.9)	7/8 (22.2)	2.5 (1.13)
HCE10005	30,000 (133)	10 (254)	6 (152.4)	13/16 (20.6)	5/8 (15.9)	7/8 (22.2)	11/16 (17.5)	5/8 (15.9)	7/8 (22.2)	2.7 (1.22)
HCE1000590	30,000 (133)	10 (254)	6 (152.40)	1 (25.4)	5/8 (15.9)	7/8 (22.2)	11/16 (17.5)	5/8 (15.9)	7/8 (22.2)	2.8 (1.27)
HCE10006	30,000 (133)	10 (254)	6 (152.4)	13/16 (20.6)	3/4 (19.1)	7/8 (22.2)	11/16 (17.5)	5/8 (15.9)	7/8 (22.2)	3.1 (1.41)
HCE1000613	30,000 (133)	10 (254)	6 (152.4)	13/16 (20.6)	3/4 (19.1)	7/8 (22.2)	13/16 (20.6)	5/8 (15.9)	7/8 (22.2)	3.1 (1.41)
HCE1101240	40,000 (178)	11 (279.4)	6 (152.4)	7/8 (22.2)	1-1/4 (31.8)	1-1/4 (31.8)	1-3/16 (30.2)	3/4 (19.1)	1-1/8 (28.6)	3.52 (1.60)

TG-16

DUCTILE IRON
HSC

HARDWARE FITTINGS DUCTILE IRON HOT LINE EXTENSION SOCKET CLEVIS



Hot line socket clevis are used to connect ball and socket insulators to other associated hardware. Shoulders are provided to accommodate hot line tools.

Material: Body—ductile iron, galvanized
Clevis Pin—galvanized steel
Cotter Pin—stainless steel

CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)						APPROX. WT. EACH LBS. (KG)
		L	B	C	W	PD	S	
HSC083	30,000 (133)	8-3/8 (212.7)	4-5/8 (117.5)	1-1/2 (38.1)	1 (25.4)	5/8 (15.9)	7/8 (22.2)	3.0 (1.36)
HSC100	30,000 (133)	10 (254)	6-1/4 (158.8)	1-1/2 (38.1)	1 (25.4)	5/8 (15.9)	7/8 (22.2)	3.5 (1.59)
HSC10035	35,000 (156)	10 (254)	6-3/32 (154.8)	1-5/8 (41.3)	1 (25.4)	3/4 (19.1)	1-1/32 (26.2)	4.5 (2.04)
*HSC110501	50,000 (222)	11 (279.4)	6-13/16 (173)	2 (50.8)	1-5/16 (33.3)	7/8 (22.2)	1-3/16 (30.2)	7.0 (3.18)
*HSC110503	50,000 (222)	11 (279.4)	6-13/16 (173)	2 (50.8)	15/16 (23.8)	7/8 (22.2)	1-3/16 (30.2)	6.6 (3.0)

NOTE: For use with class 52-3 and 52-5 insulators per ANSI Spec. C-29.2-71.
* For use with class 52-8 and 52-11 insulators per ANSI Spec. C-29.2-71.
Bolt and nut may be substituted for clevis pin by adding suffix "BNK" to catalog number.

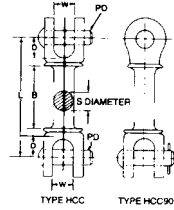


HOT LINE CLEVIS CLEVIS

TYPE HCC

A hot line clevis clevis is used to connect associated hardware within an insulator string. Shoulders are provided to accommodate hot line tools.

Material: Body—ductile iron, galvanized
Clevis Pin—galvanized steel
Cotter Pin—stainless steel



DUCTILE IRON
HCC

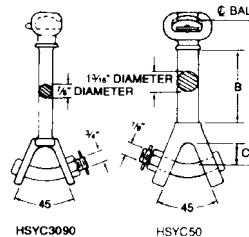
CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS—INCHES (MM)						APPROX. WT. EACH LBS. (KG)
		L	B	W	D	S DIA	PD	
HCC30	30,000 (133)	10 (254)	5-7/8 (149.2)	1 (25.4)	1-5/8 (41.3)	7/8 (22.2)	5/8 (15.9)	3.4 (1.54)
HCC3090	30,000 (133)	10 (254)	6 (152.4)	1 (25.4)	1-5/8 (41.3)	7/8 (22.2)	5/8 (15.9)	3.4 (1.54)
HCC4015	40,000 (178)	15 (381)	9-3/4 (247.6)	1-1/16 (27)	2 (50.8)	1-1/8 (28.6)	3/4 (19.1)	4.5 (2.04)

HOT LINE SOCKET Y-CLEVIS

TYPE HSYC

Hot line socket Y-clevises are used to attach ball and socket insulators to other associated hardware. Shoulders are provided to accommodate hot line tools and the bent bolt in the Y-section provides an additional point of articulation within an assembly.

Material: Body—ductile iron, galvanized
Hardware—galvanized steel
Cotter Pin—stainless steel



DUCTILE IRON
HSYC

TG-17

CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSION—INCHES (MM)			APPROX. WT. EACH LBS. (KG)
		L	B	C	
HSYC30	30,000 (133)	9-11/16 (246.1)	6 (152.4)	1-9/16 (39.7)	3.6 (1.63)
HSYC3090	30,000 (133)	9-11/16 (246.1)	6 (152.4)	1-9/16 (39.7)	3.6 (1.63)
*HSYC50	50,000 (222)	10-5/16 (261.9)	5-29/32 (150)	1-5/8 (41.3)	7.5 (3.40)

NOTE: For use with class 52-3 and 52-5 insulators per ANSI Spec. C-29.2-71.

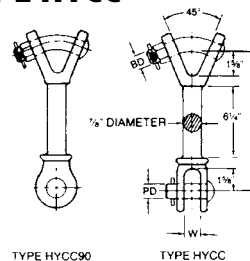
* For use with class 52-8 and 52-11 insulators per ANSI Spec. C-29.2-71.

HOT LINE Y-CLEVIS CLEVIS

TYPE HYCC

Hot line Y-clevis clevises are used to connect associated hardware within an insulator string. Shoulders are provided to accommodate hot line tools and the bent bolts in the Y-clevises provide additional points of articulation within an assembly.

Material: Body—ductile iron, galvanized
Hardware—galvanized steel
Cotter Pin—stainless steel



DUCTILE IRON
HYCC

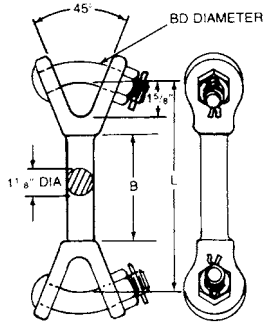
CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS—INCHES (MM)				APPROX. WT. EACH LBS. (KG)
		L	W	PD	BD	
HYCC30	30,000 (133)	10-3/8 (263.5)	1 (25.4)	5/8 (15.9)	3/4 (19.1)	3.5 (1.59)
HYCC3090	30,000 (133)	10-3/8 (263.5)	1 (25.4)	5/8 (15.9)	3/4 (19.1)	3.5 (1.59)

NOTE: Bolt and nut may be substituted for clevis pin by adding suffix "BNK" to catalog number.



HARDWARE FITTINGS DUCTILE IRON HOT LINE Y-Y-CLEVIS

DUCTILE IRON
HYYC



Hot line Y-Y-clevis is used to connect associated hardware within an insulator string or connecting deadend clamps to yoke plates providing clearances for jumper ends. Shoulders are provided to accommodate hot line tools and the bent bolts in the Y-clevises provide additional points of articulation within an assembly.

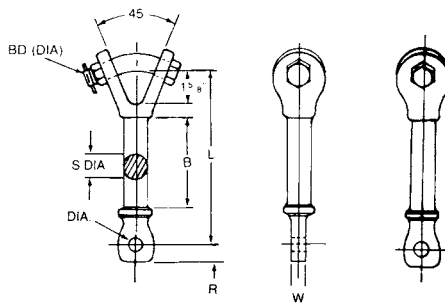
Material: Body—ductile iron, galvanized.
Hardware—galvanized steel
Cotter Pin—stainless steel

CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)				APPROX. WT. EACH LBS. (KG)
		L	B	BD (DIA.)	S DIA.	
HYYC3015	30,000 (133)	15 (381)	10-3/8 (263.7)	3/4 (19.1)	7/8 (22.2)	4.3 (1.98)
HYYC50157	50,000 (222)	15 (381)	10-1/8 (257.2)	7/8 (22.2)	1-1/8 (28.6)	9.0 (4.08)

TG-18

HARDWARE FITTINGS DUCTILE IRON HOT LINE Y-CLEVIS EYE

DUCTILE IRON
HYCE



TYPE HYCE

TYPE HYCE90

Hot line Y-clevis eyes are used to connect associated hardware within an insulator string. Shoulders are provided to accommodate hot line tools. The bent bolt in the Y-section provides an additional point of articulation within an assembly.

Material: Body—ductile iron, galvanized
Hardware—galvanized steel
Cotter Pin—stainless steel

CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)							APPROX. WT. EACH LBS. (KG)
		L	R	S. DIA.	B	DIA.	W	BD	
HYCE157875	15,000 (67)	7-7/8 (200)	15/16 (23.8)	5/8 (15.9)	3-1/4 (82.6)	11/16 (17.5)	1/2 (12.7)	3/4 (19.1)	3.1 (1.41)
HYCE15787590	15,000 (67)	7-7/8 (200)	15/16 (23.8)	5/8 (15.9)	3-1/4 (82.6)	11/16 (17.5)	1/2 (12.7)	3/4 (19.1)	3.1 (1.41)
HYCE1512	15,000 (67)	12 (304.8)	15/16 (23.8)	5/8 (15.9)	7-3/8 (187.3)	11/16 (17.5)	1/2 (12.7)	3/4 (19.1)	3.4 (1.54)
HYCE3011	30,000 (133)	11 (279.4)	15/16 (23.8)	7/8 (22.2)	6-3/8 (161.9)	11/16 (17.5)	5/8 (15.9)	3/4 (19.1)	4.2 (1.91)
HYCE301190	30,000 (133)	11 (279.4)	15/16 (23.8)	15/16 (23.8)	6-3/8 (161.9)	11/16 (17.5)	5/8 (15.9)	3/4 (19.1)	4.57 (2.07)
HYCE301590	30,000 (133)	15 (381)	15/16 (23.8)	15/16 (23.8)	10-3/8 (263.5)	11/16 (17.5)	5/8 (15.9)	3/4 (19.1)	5.09 (2.31)
HYCE401190	40,000 (178)	11 (279.4)	1-1/32 (26.2)	1-1/8 (28.6)	6-5/8 (168.3)	13/16 (20.6)	25/32 (19.8)	7/8 (22.2)	4.87 (2.20)



HARDWARE FITTINGS

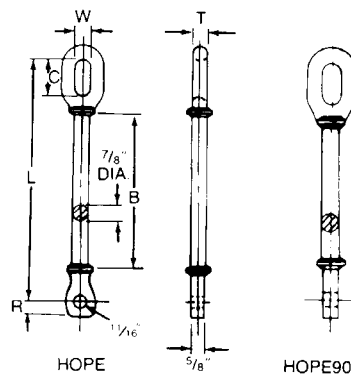
DUCTILE IRON

HOT LINE OVAL EYE PAD EYE

DUCTILE IRON
HOPE

Hot line oval-eye, pad-eye extension link is used to maintain proper tower clearance and can be used to connect clevis tongue insulators to various associated hardware.

Material: Body—ductile iron, galvanized



CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)						APPROX. WT. EACH LBS. (KG)
		L	B	C	R	W	T	
HOPE3012	30,000 (133)	12 (304.8)	7 (177.8)	2 1/8 (54)	15/16 (23.8)	15/16 (23.8)	23/32 (18.3)	2.8 (1.27)
HOPE301290	30,000 (133)	12 (304.8)	7 (177.8)	2 1/8 (54)	15/16 (23.8)	15/16 (23.8)	13/16 (20.6)	2.8 (1.27)

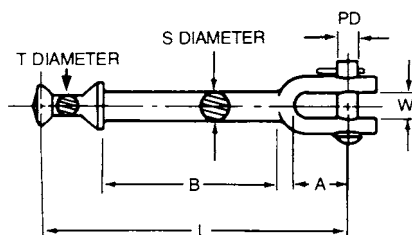
TG-19

HARDWARE FITTINGS

FORGED STEEL

HOT LINE BALL CLEVIS

FORGED STEEL
HBC



Hot line ball clevises are used to attach ball and socket insulators to other associated hardware within an insulator string. Shoulders are provided to accommodate hot line tools. Add "BNK" suffix to specify link with Bolt, Nut and Cotter Key.

Material: Body—galvanized steel
 Clevis Pin—galvanized steel
 Cotter Pin—stainless steel

CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)							APPROX. WT. EACH LBS. (KG)
		A	L	B	W	PD	S DIA	T DIA	
HBC30	30,000 (133)	1-3/4 (44.5)	9-9/16 (242.9)	5-7/8 (149.2)	15/16 (23.8)	5/8 (15.9)	7/8 (22.2)	23/32 (18.3)	2.45 (1.11)
*HBC50	50,000 (222)	1-7/8 (47.6)	10-1/16 (255.6)	5-3/8 (136.5)	15/16 (23.8)	7/8 (22.2)	7/8 (22.2)	57/64 (22.6)	3.50 (1.59)

NOTE: Bolt and nut may be substituted for clevis pin by adding suffix "BNK" to catalog number.



HARDWARE FITTINGS FORGED STEEL HOT LINE Y-CLEVIS BALL

FORGED STEEL
HYBC

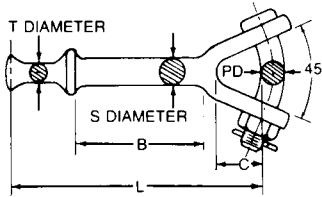


Fig. 1

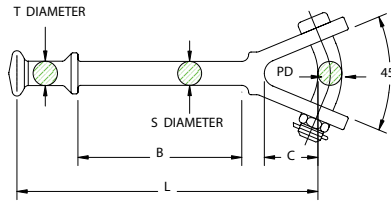


Fig. 2

Hot line Y-clevis balls are used to attach ball and socket insulators to other associated hardware within an insulator string. Shoulders are provided to accommodate hot line tools and the bent bolt in the Y-section provides an additional point of articulation within an assembly.

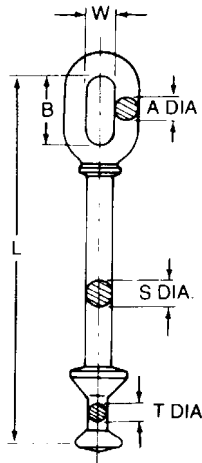
Material: Body—galvanized steel
Clevis Pin—galvanized steel
Cotter Pin—stainless steel

TG-20

CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	Fig	DIMENSIONS INCHES (MM)						APPROX. WT. EACH LBS. (KG)
			L	B	C	PD	S DIA	T DIA	
HYBC30	30,000 (133)	1	9-5/16 (236.5)	5-3/8 (136.5)	1-1/2 (38.1)	3/4 (19.1)	7/8 (22.2)	23/32 (18.3)	2.8 (1.27)
*HYBC5011	50,000 (222)	2	11 (279.4)	6-13/16 (173)	1-11/16 (42.9)	7/8 (22.2)	7/8 (22.2)	57/64 (22.6)	4.42 (2.00)

HARDWARE FITTINGS FORGED STEEL HOT LINE OVAL-EYE BALL

FORGED STEEL
HOEB



Hot line oval-eye ball is used to attach ball and socket insulators to other associated hardware within an insulator string. Shoulders are provided to accommodate hot line tools.

Material: Galvanized steel

CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)						APPROX. WT. EACH LBS. (KG)
		A	B	L	W	S DIA	T DIA	
HOEB30	30,000 (133)	11/16 (17.5)	2 (50.8)	11 (279.4)	1 (25.4)	7/8 (22.2)	23/32 (18.3)	2.31 (1.05)

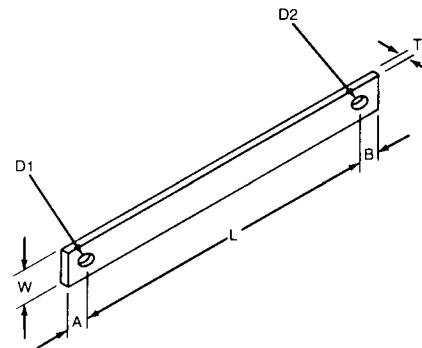
NOTE: For use with class 52-3 and 52-5 insulators per ANSI Spec. C-29.2-71.
* For use with class 52-8 and 52-11 insulators per ANSI Spec. C-29.2-71.



HARDWARE FITTINGS STEEL EXTENSION STRAP

STEEL
ES

Extension straps are used to attach associated hardware and maintain proper tower clearance within a transmission assembly. Because extension straps may be furnished in a variety of lengths, widths, thicknesses, as well as hole spacings, please contact factory for dimensional variations and different ultimate strengths.



Material: Galvanized steel

To specify catalog number, replace "L" with required length in inches. Example: ES40781936 for 40K strap 36" between hole centers.

CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)						APPROX. WT. EACH LBS. (KG)		
		A	B	D1	D2	W	T	L	MIN. L	ADD PER INCH
ES307819L	30,000 (133)	1-1/8 (28.6)	1-1/8 (28.6)	15/16 (23.8)	15/16 (23.8)	2 (50.8)	3/4 (19.1)	MIN. "L"	2.62 (1.19)	.44 (.60)
ES407819L	40,000 (178)	1-1/2 (38.1)	1-1/2 (38.1)	15/16 (23.8)	15/16 (23.8)	2-1/2 (63.5)	3/4 (19.1)		3.67 (1.66)	.55 (.25)
ES607819L	60,000 (267)	2 (50.8)	2 (50.8)	1-1/8 (28.6)	1-1/8 (28.6)	2-1/2 (63.5)	1 (25.4)	4" PLEASE SPECIFY	5.60 (2.54)	.73 (.33)
ES807819L	80,000 (356)	2 (50.8)	2 (50.8)	1-1/4 (31.8)	1-1/4 (31.8)	3 (76.2)	1 (25.4)		6.72 (3.05)	.87 (.39)

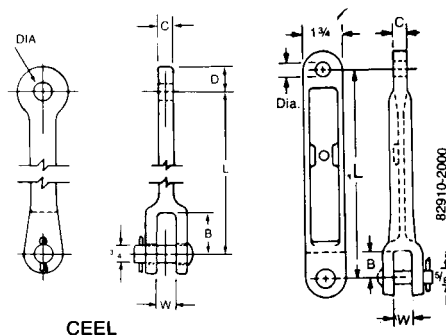
TG-21

HARDWARE FITTINGS DUCTILE IRON CLEVIS EYE EXTENSION LINK

DUCTILE IRON
CEEL

Clevis eyes are used to connect clevis tongue insulators to various associated hardware and maintain conductor spacing in deadend assemblies.

Material: Body—ductile iron, galvanized
Hardware—galvanized steel
Cotter Pin—stainless steel



CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSION INCHES (MM)						APPROX. WT. EACH LBS. (KG)
		L	B	W	C	D	DIA.	
829102000	20,000 (89)	10 (254)	1-1/8 (28.6)	13/16 (20.6)	5/8 (15.9)	7/8 (22.2)	11/16 (17.5)	3.9 (1.77)
CEEL093065	50,000 (222)	9-3/8 (238.1)	6 (152.4)	1 (25.4)	13/16 (20.6)	1-3/8 (34.9)	13/16 (20.6)	6.0 (2.72)
CEEL15506	50,000 (222)	15-5/8 (396.9)	2-1/8 (54)	1 (25.4)	3/4 (19.1)	1-3/8 (34.9)	13/16 (20.6)	7.0 (3.18)

NOTE: Bolt and nut may be substituted for clevis pin by adding suffix "BNK" to catalog number.



HARDWARE FITTINGS

FORGED STEEL

HOT LINE EXTENSION LINKS

FORGED STEEL
H/F

Extension links are forged from high-strength steel and contain no welded joints. Because of the variety of fittings and lengths, links are made only to order. Please specify by catalog number and length required.

Material: Galvanized Steel.

NOTE: Link length available 1/2 in. increments. use letter "D" to represent decimal point in catalog number when applicable. Example: HOO3020D5 for 20-1/2 inch length.

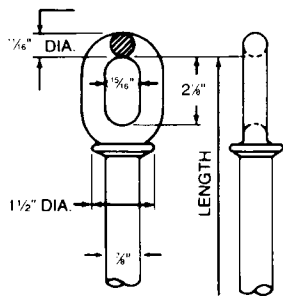
Normal manufacturing tolerances: Up to 50 inches – ±0.5 inch.
Above 50 inches – ±1%.

TG-22

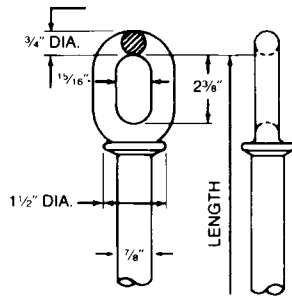
IDENTIFICATION	ULTIMATE STRENGTH LBS. (KN)	SHAPE AND ORIENTATION OF ENDS	CATALOG NUMBER	FIGURE	AVAILABLE RANGE OF LENGTHS		APPROX. PACKED WEIGHT* PER 100 MINIMUM LENGTH POUNDS (KG)	
					MINIMUM INCHES (MM)	MAXIMUM INCHES (MM)		
Chain Eye/Chain Eye	30,000 (133)		HOO30L	1	12 (304.8)	144 (3,658)	383 (174)	
	40,000 (178)		HOO40L		2	12 (304.8)	144 (3,658)	383 (174)
	60,000 (267)		HOO50L	3		13 (330.2)	144 (3,658)	536 (243)
	80,000 (356)		HOO80L		4	14 (355.6)	144 (3,658)	616 (279)
	Clevis Eye	30,000 (133)		FHCE30L		5 & 9	11 (279.4)	144 (3,658)
				FHCE30L90				
	Y-Clevis Eye	30,000 (133)		FHYCE30L	7 & 9	11 (279.4)	144 (3,658)	369 (167)
				FHYCE30L90				
Chain Eye/Eye	30,000 (133)		FOPE30L	2 & 9	11 (279.4)	144 (3,658)	294 (133)	
			FOPE30L90					
Clevis/Clevis	30,000 (133)		FHCC30L	5	12 (304.8)	144 (3,658)	372 (169)	
			FHCC30L90					
Chain Eye/Clevis	30,000 (133)		FHOEC30L	2 & 5	11 (279.4)	144 (3,658)	357 (162)	
			FHOEC30L90					
	50,000 (222)		FHOEC50L	3 & 6	12 (304.8)	144 (3,658)	527 (239)	
		FHOEC50L90						
Chain Eye/Y-Clevis	30,000 (133)		HYCOE30L	2 & 7	11 (279.4)	144 (3,658)	451 (205)	
			HYCOE30L90					
	50,000 (222)		HYCOE50L	3 & 8	14 (355.6)	144 (3,658)	451 (205)	
		HYCOE50L90						
Clevis/Ball	30,000 (133)		HBC30L	5 & 10	10 (254)	144 (3,658)	272 (123)	
Y-Clevis/Ball	30,000 (133)		HYBC30L	7 & 10	11 (279.4)	144 (3,658)	342 (155)	
	50,000 (222)		HYBC50L	8 & 11	11 (279.4)	144 (3,658)	442 (200)	
Chain Eye/Ball	30,000 (133)		HOEB30L	1 & 10	11 (279.4)	144 (3,658)	323 (147)	
	50,000 (222)		HOEB50L	3 & 11	11 (279.4)	144 (3,658)	430 (195)	

* For links longer than minimum length, add to packed weight per 100 pieces, 28 pounds per inch for number HOO80L and HOOT80L. All others, add 17 pounds per inch. Refer to next page for dimensions.

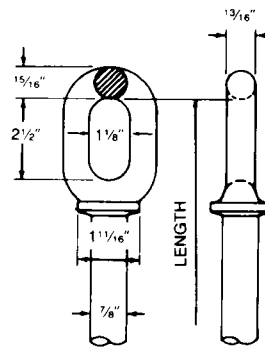
FORGED STEEL



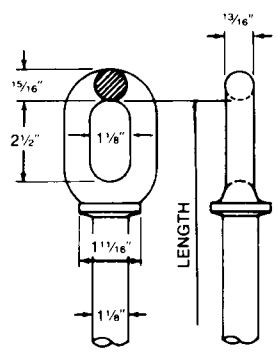
Chain Eye
 Ultimate Strength – 30,000 Lbs.
 FIGURE 1



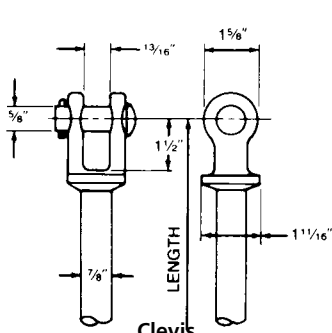
Chain Eye
 Ultimate Strength – 40,000 Lbs.
 FIGURE 2



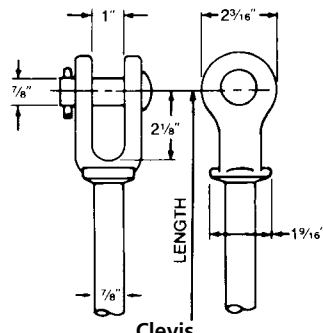
Chain Eye
 Ultimate Strength – 60,000 Lbs.
 FIGURE 3



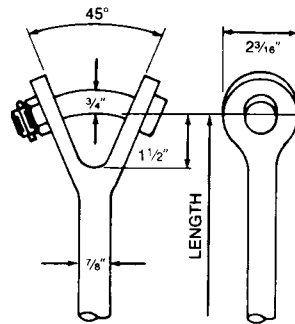
Cham Eye
 Ultimate Strength – 80,000 Lbs.
 FIGURE 4



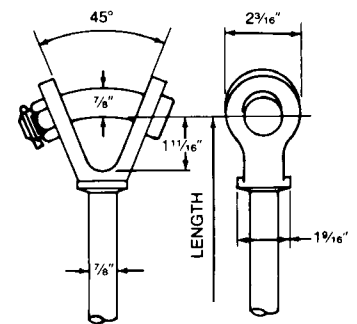
Clevis
 Ultimate Strength – 30,000 Lbs.
 Will connect with ANSI Class
 52-4 and Class 52-6 insulators.
 FIGURE 5



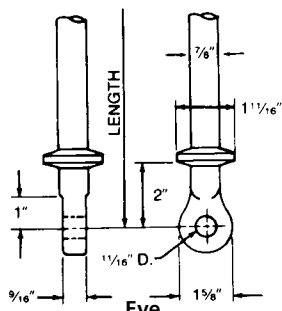
Clevis
 Ultimate Strength – 50,000 Lbs.
 Will connect with ANSI Class
 52-12 insulators.
 FIGURE 6



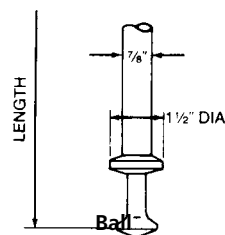
Y-Clevis
 Ultimate Strength – 30,000 Lbs.
 FIGURE 7



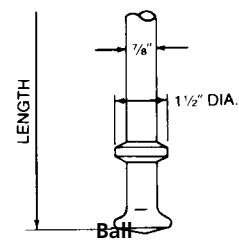
Y-Clevis
 Ultimate Strength – 50,000 Lbs.
 FIGURE 8



Eye
 Ultimate Strength – 30,000 Lbs.
 Will connect with ANSI Class
 52-4 and Class 52-6 insulators.
 FIGURE 9



Ball
 Ultimate Strength – 30,000 Lbs.
 ANSI Class 52-3 and Class 52-5.
 FIGURE 10



Ball
 Ultimate Strength – 50,000 Lbs.
 ANSI Class 52-8 and Class 52-11.
 FIGURE 11

TG-23

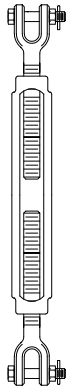


HARDWARE FITTINGS

FORGED STEEL

TURNBUCKLES

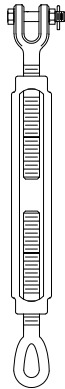
FORGED STEEL
TB



Type JJ



Type EE



Type JE

Turnbuckles are used as adjustable extension links to maintain proper tower clearance on assemblies at tower end.

Jaw ends are supplied with bolt, nut, and humpback cotter pin.

Material: Galvanized forged steel

Note: When ordering replace XX with Type in Cat. No.

Example: TB34JJ6BNK for jaw-jaw end fittings with 6" take up.

Add "LN" suffix if jam nuts are required. (1)

BNK suffix not valid for Type EE turnbuckles.

TG-24

CATALOG NUMBER	DIAMETER & TAKE UP—IN. (MM)	CLOSED COUPLING LENGTH – IN. (MM)			WT. EACH—POUNDS (KG)		
		TYPE JJ	TYPE EE	TYPE JE	EYE-EYE	JAW-EYE	JAW-JAW
TB34XX6BNK	3/4 X 6 (19.1) (152.4)	15.1 (384)	17.2 (437)	16.2 (411)	3.89 (1.75)	3.87 (1.74)	4.11 (1.85)
TB34XX12BNK	12 (304.8)	21.5 (546)	23.6 (599)	22.6 (574)	5.43 (2.44)	5.36 (2.41)	5.65 (2.54)
TB34XX18BNK	18 (457.2)	27.5 (699)	29.6 (752)	28.6 (726)	7.25 (3.26)	7.00 (3.15)	7.00 (3.15)
TB78XX12BNK	7/8 X 12 (22.2) (304.8)	22.7 (577)	24.7 (627)	23.7 (602)	8.1 (3.65)	8.00 (3.6)	8.17 (3.68)
TB78XX18BNK	18 (457.2)	29.1 (739)	31.2 (792)	30.2 (767)	9.25 (4.16)	9.75 (4.39)	9.13 (4.11)
TB1XX6BNK	1 X 6 (25.4) (152.4)	17.8 (452)	20.2 (513)	19.0 (483)	9.33 (4.2)	8.92 (4.01)	9.75 (4.39)
TB1XX12BNK	12 (304.8)	23.8 (605)	26.2 (665)	25.0 (635)	11.93 (5.37)	11.20 (5.04)	12.00 (5.40)
TB1XX18BNK	18 (457.2)	29.8 (757)	32.2 (818)	31.0 (787)	14.00 (6.30)	13.30 (6.00)	14.00 (6.30)
TB1XX24BNK	24 (609.6)	36.4 (925)	38.8 (986)	37.6 (955)	17.25 (7.76)	17.00 (7.65)	17.00 (7.65)
TB114XX12BNK	1-1/4 X 12 (31.8) (304.8)	27.4 (696)	30.1 (765)	28.8 (732)	16.50 (7.43)	20.00 (9.0)	21.50 (9.68)
TB114XX18BNK	18 (457.2)	33.4 (848)	36.1 (917)	34.8 (884)	23.00 (10.35)	24.18 (10.88)	24.25 (10.91)
TB114XX24BNK	24 (609.6)	39.9 (1013)	42.7 (1085)	41.3 (1049)	24.00 (10.80)	28.40 (12.78)	28.00 (12.60)
TB112XX12BNK	1-1/2 X 12 (38.1) (304.8)	28.8 (732)	32.2 (818)	30.5 (775)	27.50 (12.4)	28.99 (13.05)	30.05 (13.52)
TB112XX18BNK	18 (457.2)	37.8 (960)	38.2 (970)	36.5 (927)	31.00 (13.95)	35.00 (15.75)	36.75 (16.54)
TB112XX24BNK	24 (609.6)	41.4 (1052)	44.9 (1140)	43.1 (1095)	37.50 (16.88)	39.18 (17.63)	40.67 (18.36)

(1) Locking Nuts add cost and lead time and may provide no benefit under the typical constant-tension, overhead line, utility application. The torque required to rotate the boss of a turnbuckle under tension can be calculated by the formula:

$$T = 2(kdW/12) \text{ ft-lbs.}$$

Where: k = Friction factor (0.16)

d = Nominal thread diameter (inches)

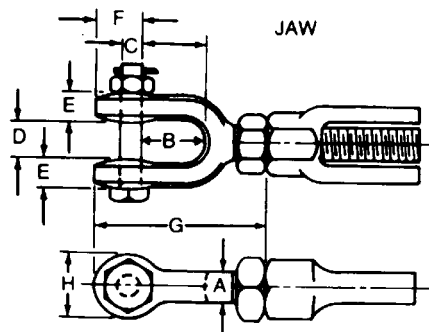
W = Applied tension load (lbs)

Example:

3/4 turnbuckle under 4,000 lb tension

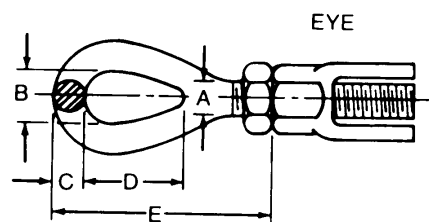
$$T = 2(0.16 \times 0.75 \times 4,000/12) = 80 \text{ ft-lbs.}$$

HARDWARE FITTINGS FORGED STEEL TURNBUCKLES (CONTINUED)



DIMENSIONS INCHES (MM)								ULT. STR. RATING LBS. (KN)
A	B	C	D	E	F	G	H	
3/4 (19.1)	1-1/2 (38.1)	5/8 (15.9)	15/16 (23.8)	9/16 (14.3)	1-9/32 (32.5)	4-1/8 (104.8)	1-5/8 (41.3)	26,000 (116)
7/8 (22.2)	1-3/4 (44.5)	3/4 (19.1)	1-1/8 (28.6)	11/16 (17.5)	1-15/32 (37.3)	4-27/32 (123)	1-7/8 (47.6)	36,000 (160)
1 (25.4)	2-1/16 (52.8)	7/8 (22.2)	1-3/16 (30.2)	25/32 (19.8)	1-21/32 (42.1)	5-17/32 (140.5)	2-1/8 (54)	50,000 (222)
1-1/4 (31.8)	2-13/16 (71.4)	1-1/8 (28.6)	1-3/4 (44.5)	1 (25.4)	2-3/32 (53.2)	7-3/16 (182.6)	2-5/8 (66.7)	76,000 (338)
1-1/2 (38.1)	2-13/16 (71.4)	1-3/8 (34.9)	2-1/16 (52.8)	1-1/16 (27)	2-15/32 (64.3)	7-7/8 (200)	3-1/8 (79.4)	107,000 (476)

TG-25



DIMENSIONS INCHES (MM)					ULT. STR. RATING LBS. (KN)
A	B	C	D	E	
3/4 (19.1)	1 (25.4)	5/8 (15.9)	2-1/8 (54)	4-11/16 (119.1)	26,000 (116)
7/8 (22.2)	1-1/4 (31.8)	3/4 (19.1)	2-3/8 (60.3)	5-1/4 (133.4)	36,000 (160)
1 (25.4)	1-7/16 (36.5)	7/8 (22.2)	3 (76.2)	6-3/8 (161.9)	50,000 (222)
1-1/4 (31.8)	1-13/16 (46)	1-1/8 (28.6)	3-9/16 (90.5)	7-3/4 (196.9)	76,000 (338)
1-1/2 (38.1)	2-1/8 (54)	1-1/4 (31.8)	4-1/8 (104.8)	8-5/8 (219.1)	107,000 (476)

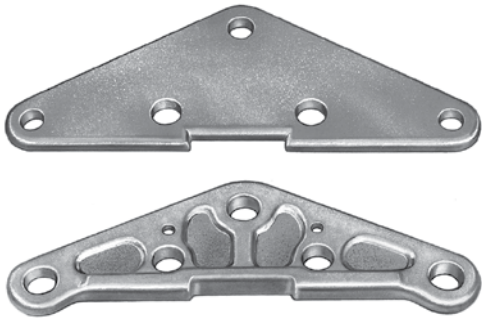


HARDWARE FITTINGS

DUCTILE/STEEL

YOKE PLATE

DUCTILE STEEL
YPD



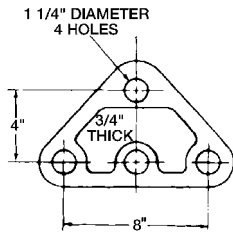
(DELTA CONFIGURATION)

These yoke plates may be used to bundle two conductors in suspension application with a single string of insulators. They also may be used in deadend applications with two strings of insulators and one deadend clamp.

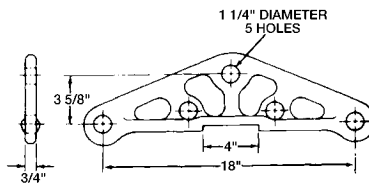
Type YPD may be furnished in a variety of sizes, hole spacings, ultimate strengths. For yokes with corona ring mounting provision, consult factory.

Material: Ductile iron, galvanized or steel galvanized.

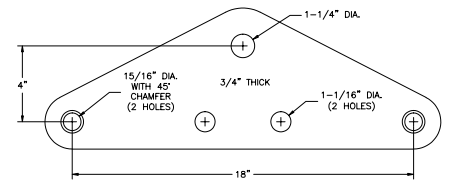
TG-26



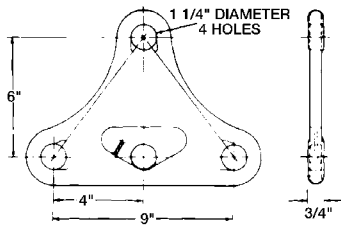
CATALOG NUMBER YPD5024685
ULTIMATE STRENGTH—50,000 LBS. (APEX HOLE)
DUCTILE



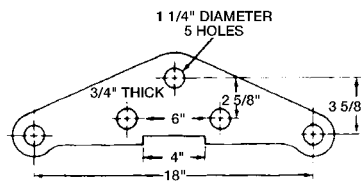
CATALOG NUMBER YPD3018437-3
ULTIMATE STRENGTH—30,000 LBS. (APEX HOLE)
DUCTILE



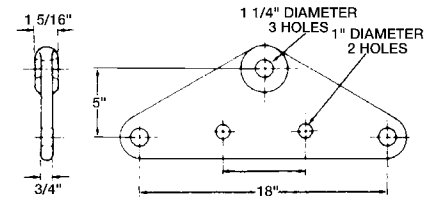
CATALOG NUMBER YPD7211574
ULTIMATE STRENGTH—72,000 LBS. (APEX HOLE)
STEEL



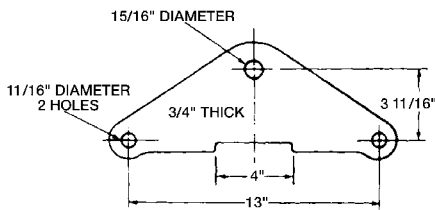
CATALOG NUMBER YPD3015238-2
ULTIMATE STRENGTH—30,000 LBS. (APEX HOLE)
DUCTILE



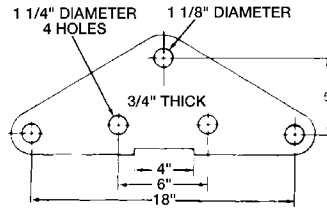
CATALOG NUMBER YPD4018342-4
ULTIMATE STRENGTH—40,000 LBS. (APEX HOLE)
DUCTILE



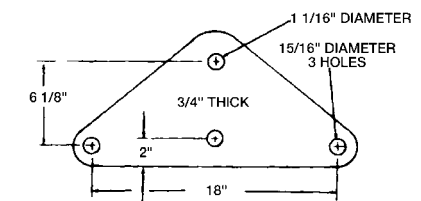
CATALOG NUMBER YPD8018475
ULTIMATE STRENGTH—80,000 LBS. (APEX HOLE)
DUCTILE



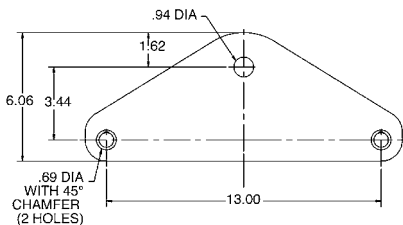
CATALOG NUMBER YPD4024465
ULTIMATE STRENGTH—40,000 LBS. (APEX HOLE)
DUCTILE



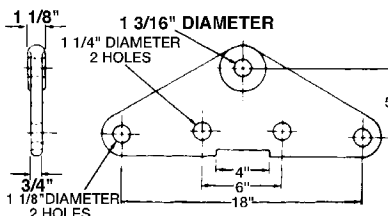
CATALOG NUMBER YPD5018549-1
ULTIMATE STRENGTH—50,000 LBS. (APEX HOLE)
DUCTILE



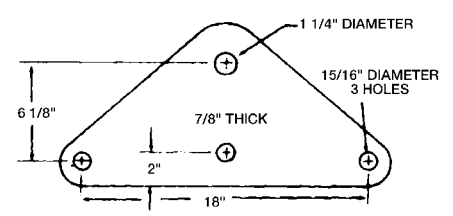
CATALOG NUMBER 947604001
ULTIMATE STRENGTH—90,000 LBS. (APEX HOLE)
STEEL



CATALOG NUMBER 796034001
ULTIMATE STRENGTH—60,000 LBS. (APEX HOLE)
STEEL



CATALOG NUMBER YPD60183771
ULTIMATE STRENGTH—60,000 LBS. (APEX HOLE)
DUCTILE



CATALOG NUMBER 951544001
ULTIMATE STRENGTH—100,000 LBS. (APEX HOLE)
STEEL



HARDWARE FITTINGS

DUCTILE/STEEL

YOKE PLATE

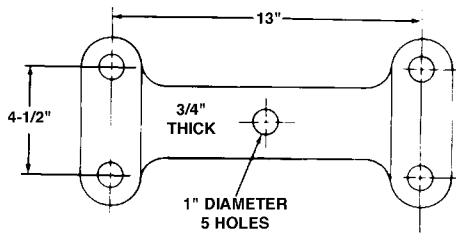
DUCTILE STEEL
YPR

(RECTANGULAR CONFIGURATION)

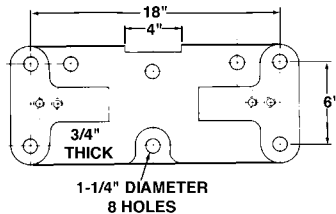
These yoke plates are used with a double string of insulators to deadend a two conductor bundle.

Type YPR yoke plates may be furnished in a variety of sizes, hole spacings, ultimate strengths and provisions for mounting corona rings.

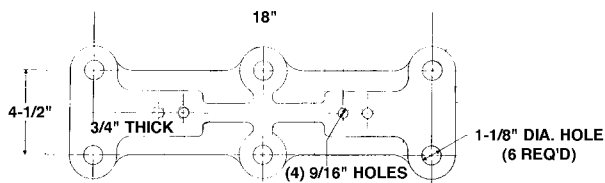
Material: Ductile iron, galvanized or steel galvanized.



Ductile
CATALOG NUMBER YPR3024508
 ULTIMATE STRENGTH – 30,000 LBS.
 PER INSULATOR ATTACHMENT HOLE
 LIFTING HOLE RATING – 10,000 LBS.

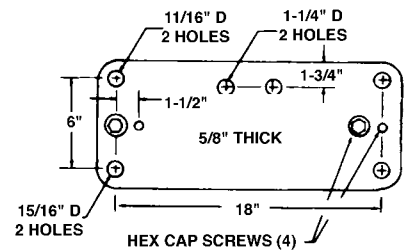


Ductile
CATALOG NUMBER YPR30187221
 ULTIMATE STRENGTH – 30,000 LBS.
 PER INSULATOR ATTACHMENT HOLE
 CONTACT FACTORY FOR LIFTING HOLE RATING

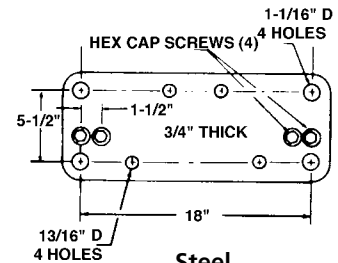


Ductile
CATALOG NUMBER YPR30173512
 ULT. STR. PER ATTACHMENT HOLE – 30,000 LBS.
 LIFTING HOLE RATING – 30,000 LBS.

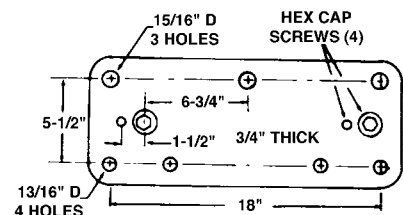
CONTACT FACTORY FOR OTHER SIZES AND VARIATIONS



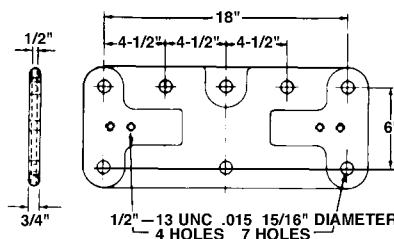
Steel
CATALOG NUMBER 976113002
 ULTIMATE STRENGTH – 30,000 LBS.
 PER INSULATOR ATTACHMENT HOLE



Steel
CATALOG NUMBER 929333002
 ULTIMATE STRENGTH – 40,000 LBS.
 PER INSULATOR ATTACHMENT HOLE



Steel
CATALOG NUMBER 950213002
 ULTIMATE STRENGTH – 50,000 LBS.
 PER INSULATOR ATTACHMENT HOLE



Ductile
CATALOG NUMBER YPR6019401
 ULTIMATE STRENGTH – 60,000 LBS.
 PER INSULATOR ATTACHMENT HOLE
 CONTACT FACTORY FOR LIFTING HOLE RATING

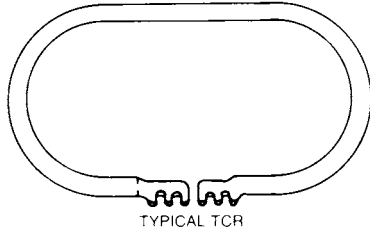


HARDWARE FITTINGS

ALUMINUM

TRANSMISSION CORONA RINGS

ALUMINUM
TCR



Type TCR corona rings are primarily used on deadend assemblies to grade the lower insulators on a string and shield the associated hot line hardware from corona and RIV. Type TCR corona rings are fabricated in a variety of sizes, shapes and mounting angles, depending on the system voltage and deadend assembly type.

Contact factory, with deadend assembly details, for assistance in specifying a specific TCR ring catalog number.

Material: Sandblasted 6061-T1 or 6063-T4 aluminum

TG-28

HARDWARE FITTINGS

DUCTILE/STEEL

YOKE PLATE

(VEE CONFIGURATION)

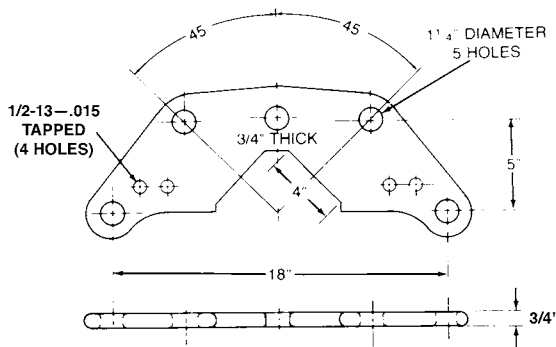
DUCTILE IRON
YPV



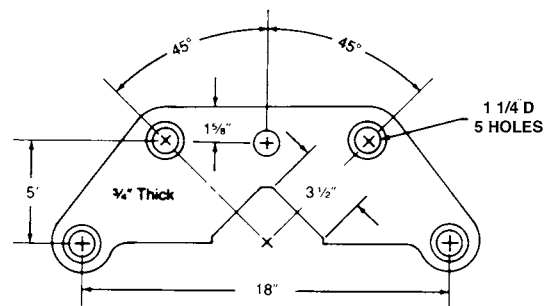
These yoke plates are used with a VEE string of insulators to attach a two conductor bundle.

Type YPV yoke plates may be furnished in a variety of sizes, hole spacing, ultimate strengths, insulator attachment angles and provisions for mounting corona rings.

Material: Ductile iron, galvanized or steel, galvanized.



Ductile
 CATALOG NUMBER YPV30172591
 (with (4) 1/2" - 13 holes)
 CATALOG NUMBER YPV30172592
 (without (4) 1/2" - 13 holes)
 ULTIMATE STRENGTH - 30,000 LBS. PER INSULATOR ATTACHMENT HOLE AT INDICATED ANGLE
 CONTACT FACTORY FOR LIFTING HOLE RATING



Steel
 CATALOG NUMBER 930064004
 ULTIMATE STRENGTH - 40,000 LBS. PER INSULATOR ATTACHMENT HOLE AT INDICATED ANGLE



HARDWARE FITTINGS

DUCTILE STEEL

YOKE PLATE

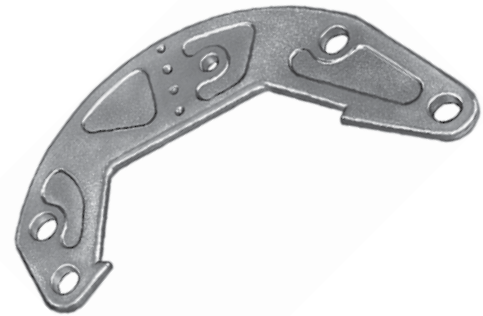
(CRESCENT CONFIGURATION)

DUCTILE STEEL
YPC

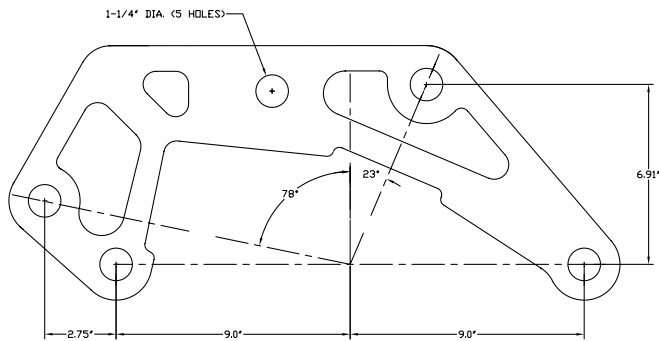
These yoke plates are used to bundle two conductors with a single and v-string, or single string, of insulators and maintain the proper running angle of the line.

Type YPC yoke plates may be furnished in a variety of sizes, hole spacing, ultimate strengths and insulator attachment angles.

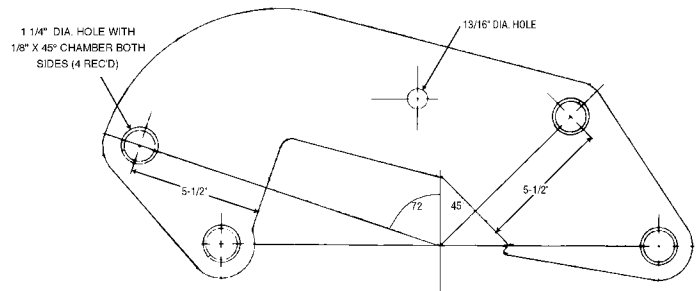
Material: Ductile iron, galvanized or steel, galvanized.



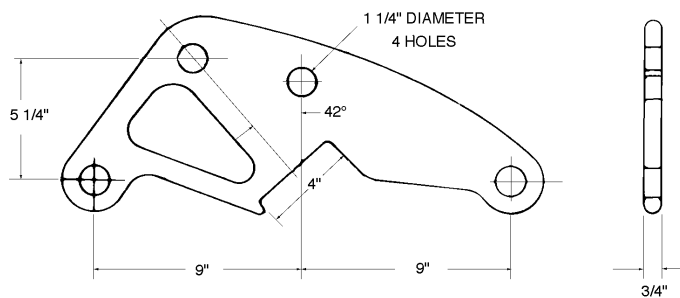
TG-29



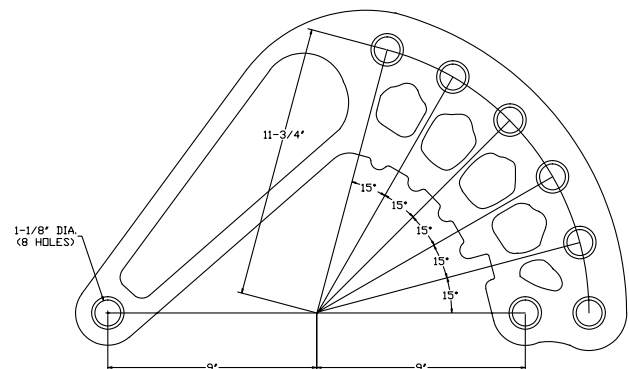
Ductile
CATALOG NUMBER – YPC30174241
 ULTIMATE STRENGTH–30,000 LBS. PER INSULATOR
 ATTACHMENT HOLE AT INDICATED ANGLE
 CONTACT FACTORY FOR LIFTING HOLE RATING



Steel
CATALOG NUMBER – 945834005
 ULTIMATE STRENGTH–50,000 LBS. PER INSULATOR
 ATTACHMENT HOLES AT INDICATED ANGLE
 CONTACT FACTORY FOR LIFTING HOLE RATING



Ductile
CATALOG NUMBER – YPC4024534
 ULTIMATE STRENGTH–40,000 LBS. PER INSULATOR
 ATTACHMENT HOLES AT INDICATED ANGLE
 CONTACT FACTORY FOR LIFTING HOLE RATING



Ductile
CATALOG NUMBER – YPC5026001
 ULTIMATE STRENGTH–50,000 LBS. PER INSULATOR
 ATTACHMENT HOLES AT INDICATED ANGLE
 CONTACT FACTORY FOR LIFTING HOLE RATING



DUCTILE IRON
YPT

HARDWARE FITTINGS

DUCTILE IRON

YOKE PLATE

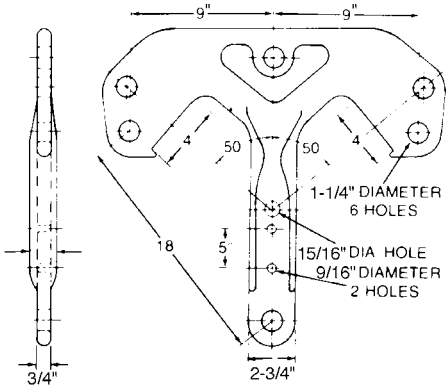
(TEE CONFIGURATION)



These yoke plates are used to bundle three conductors with a VEE string of insulators.

Type YPT yoke plates may be furnished in a variety of sizes, hole spacing, ultimate strengths, and insulator attachment angles.

Material: Ductile iron, galvanized



CATALOG NUMBER — YPT40236673
 ULTIMATE STRENGTH — 40,000 LBS. PER INSULATOR
 ATTACHMENT HOLE AT INDICATED ANGLE
 CONTACT FACTORY FOR LIFTING HOLE RATING

TG-30

HARDWARE FITTINGS

STEEL

YOKE PLATE

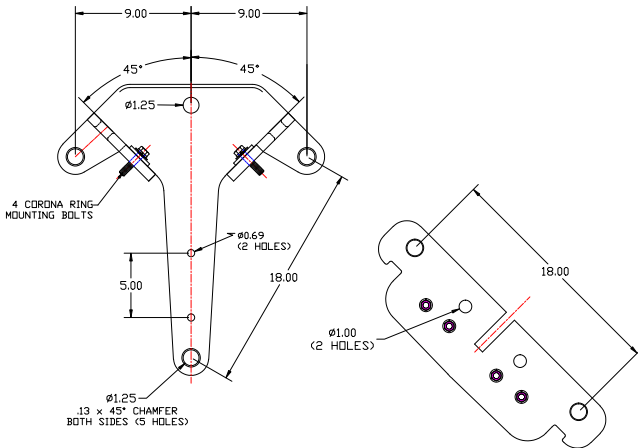
(TEE-BATWING CONFIGURATION)

STEEL
YPTB

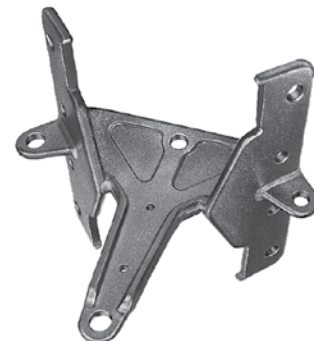
These yoke plates are used to bundle three conductors with a double VEE string of insulators.

Type YPTB yoke plates may be furnished in a variety of sizes, hole spacing, ultimate strengths, and insulator attachment angles.

Material: Galvanized Steel



CATALOG NUMBER — YPTB40114894
 ULTIMATE STRENGTH — 40,000 LBS. PER INSULATOR
 ATTACHMENT HOLE AT INDICATED ANGLE
 CONTACT FACTORY FOR LIFTING HOLE RATING





HARDWARE FITTINGS

DUCTILE IRON

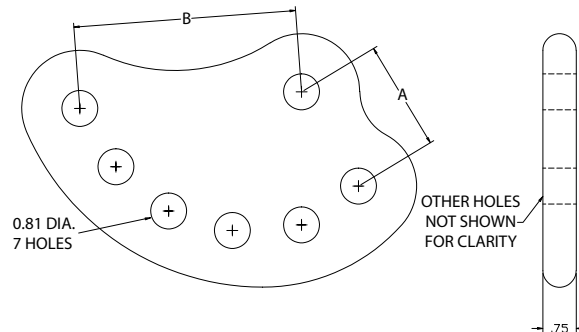
YOKE PLATE

(TENSION-ADJUSTMENT CONFIGURATION)

DUCTILE STEEL
YPTA

Type YPTA tension-adjusting yoke plates are used to attach associated deadend hardware and maintain desired line tension. Adjustments are made by varying the assembly attachment point with the use of a CEEL093065 or similar part.

Material: Ductile iron galvanized



CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)				APPROX. WT. EACH LBS. (KG)
		A	B	TOTAL ADJUSTMENT	STEP	
YPTA4025052	40,000 (178)	2-1/2 (63.5)	5 (127)	2-1/2 (63.5)	1/2 (12.7)	6.9 (3.13)

TG-31

HARDWARE FITTINGS

DUCTILE IRON

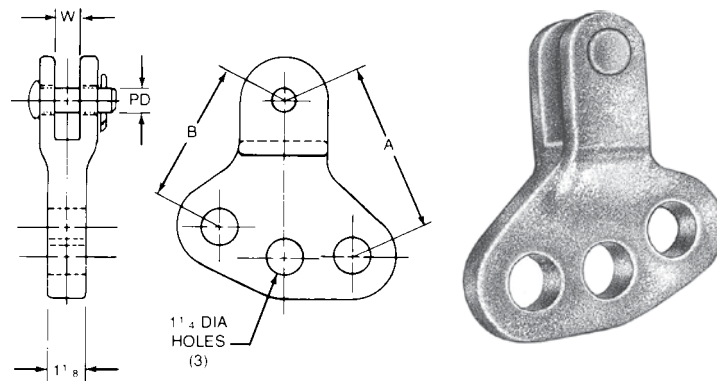
YOKE PLATE

(TENSION-ADJUSTMENT CLEVIS)

DUCTILE STEEL
YPTAC

Type YPTAC tension adjusting yoke plates are used to attach associated deadend hardware and maintain desired line tension. Clevis type deadend clamps attach directly to yoke and can then be attached to associated hardware.

Material: Body—ductile iron
Clevis Pin—galvanized steel
Cotter Pin—stainless steel



CATALOG NUMBER	ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)						TOTAL ADJUSTMENT	STEP	APPROX. WT. EACH LBS. (KG)
		A	B	C	W	PD DIA.				
YPTAC5024658	50,000 (222)	5-1/2 (139.7)	4-1/2 (114.3)	2 (50.8)	1 (25.4)	3/4 (19.1)	1 (25.4)	1/2 (12.7)	7.5 (3.40)	
YPTAC5012927*	50,000 (222)	10-1/4 (260.4)	7-3/4 (196.9)	3-7/16 (87.3)	7/8 (22.2)	3/4 (19.1)	2-1/2 (63.5)	1/2 (12.7)	12.5 (5.68)	

* Yoke has 6 adjustment holes.



HARDWARE FITTINGS

ALUMINUM BUNDLING YOKE

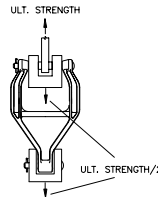
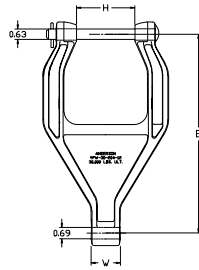
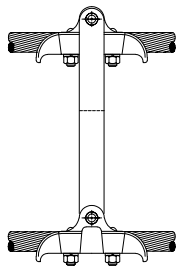
(WISHBONE CONFIGURATION)

ALUMINUM
YPW



Type YPW yokes are used to vertically bundle conductors on new or rebuilt lines...consequently, information as to conductor sizes, types of armor rod, if used, conductor spacing, ultimate strengths and existing clamp details must be given at time of ordering. YPW yokes are designed for use with Anderson clamps. Because YPW yokes may be furnished in a variety of sizes, conductor spacing, and ultimate strengths for both low voltage and EHV application, please contact factory for more details.

Material: Yoke Plate—356-T6 aluminum alloy
Clevis Pin—galvanized steel
Cotter Pin—stainless steel



TG-32

CATALOG NUMBER	SUSPENSION CLAMP (1) CATALOG NUMBER SERIES / SIZE			ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)			APPROX. WT. EACH LBS. (KG)
	HAS	CFS	CFSHT		E	H	W	
YPW121189	118	—	—	12,000 (53)	9 (229)	2.56 (65.1)	1.00 (25.4)	1.9 (.86)
YPW1513912	139	139	—	15,000 (67)	12 (305)	2.63 (69.9)	1.19 (30.2)	1.8 (.82)
YPW1514712	147	—	—	15,000 (67)	12 (305)	2.63 (69.9)	1.18 (30.0)	2.5 (1.1)
YPW1516212	162	—	—	15,000 (67)	12 (305)	2.84 (72.2)	1.63 (41.3)	2.5 (1.1)
YPW1520412	204	204	—	15,000 (67)	12 (305)	3.31 (84.1)	1.75 (44.5)	2.9 (1.3)
YPW3020412	182 & 204	182 & 204	182	30,000 (133)	12 (305)	3.50 (88.9)	1.75 (44.5)	3.2 (1.4)
YPW3021312	213	213 & 227	213	30,000 (133)	12 (305)	4.06 (103)	1.75 (44.5)	3.7 (1.7)
YPW3011818	118	118	—	30,000 (133)	18 (457)	2.63 (66.8)	1.06 (27.0)	4.5 (2.0)
YPW3013912	139 & 147	139	—	30,000 (133)	12 (305)	2.87 (72.9)	1.38 (35.1)	3.5 (1.6)
YPW3013918	139 & 147	139	—	30,000 (133)	18 (457)	2.87 (72.9)	1.38 (35.1)	4.5 (2.0)
YPW3018218	182 & 204	182 & 204	182	30,000 (133)	18 (457)	3.63 (92.1)	1.75 (44.5)	4.2 (1.9)
YPW3021318	213	213 & 227	213	30,000 (133)	18 (457)	4.13 (105)	1.75 (44.5)	4.7 (2.1)
YPW3025218	252	—	—	30,000 (133)	18 (457)	4.24 (108)	2.25 (57.2)	5.0 (2.3)

- NOTES: (1) Refer to catalog section TB for suspension clamp details.
 (2) For vertical bundling yoke designs not covered above, consult factory.
 (3) Add "BNK" suffix to catalog number for Bolt, Nut and cotter Key option.



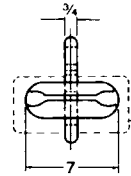
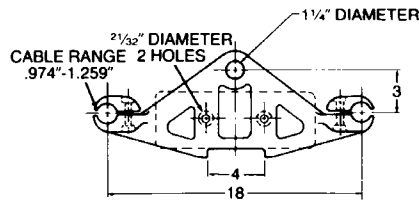
ALUMINUM YOKE PLATE (JUMPER)

ALUMINUM
YPJ

These jumper yokes are used to bundle two, three, or four conductors with a single string of insulators on a deadend tower. All jumper yokes have the provision for adding hold down weights.

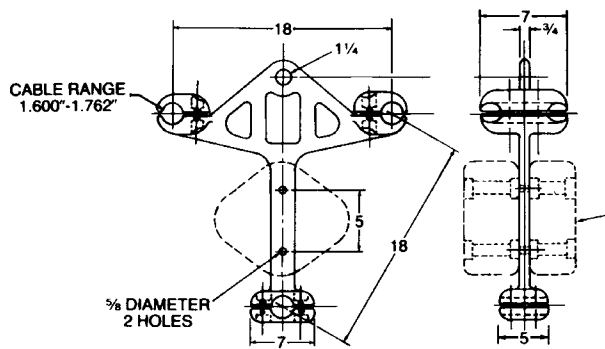
Type YPJ Yoke plates may be furnished in a variety of conductor sizes and configurations.

Material: 356-T6 Aluminum Alloy



FOR HOLD DOWN WEIGHTS SEE NEXT PAGE

CATALOG NUMBER—YPJ21018215
ULTIMATE STRENGTH—10,000 LBS. PER INSULATOR ATTACHMENT HOLE



FOR HOLD DOWN WEIGHTS SEE NEXT PAGE

CATALOG NUMBER—YPJ31024414
ULTIMATE STRENGTH—10,000 LBS. PER INSULATOR ATTACHMENT HOLE

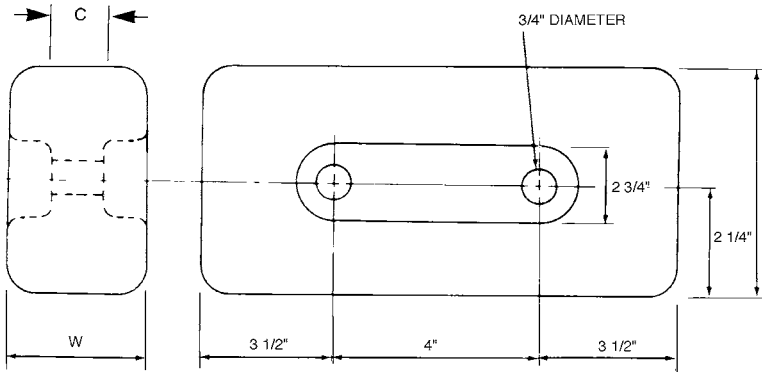
CONTACT FACTORY FOR OTHER SIZES AND VARIATIONS

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HARDWARE FITTINGS CAST IRON HOLD DOWN WEIGHT (RECTANGULAR CONFIGURATION)

CAST IRON
HDWR



Rectangular hold down weights may be attached to jumper yokes to add weight to the jumper assembly in various increments.

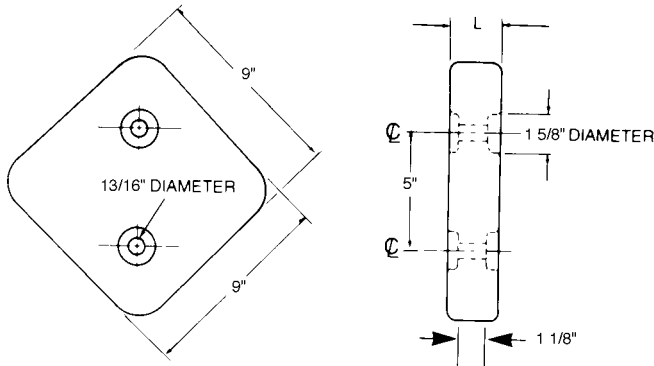
Material: Cast iron, galvanized

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CATALOG NUMBER	DIMENSIONS INCHES (MM)			APPROX. WT. EACH LBS. (KG)
	W	L	C	
HDWR50182041	2-1/2 (63.5)	8-5/8 (219.1)	5/8 (15.9)	50 (22.68)
HDWR75182045	4-3/4 (120.7)	6-7/8 (174.6)	1 (25.4)	75 (34.02)

HARDWARE FITTINGS CAST IRON HOLD DOWN WEIGHT (SQUARE CONFIGURATION)

CAST IRON
HDWS



Square hold down weights may be attached to jumper yokes or three conductor T yokes to add weight to the assembly. Square hold down weights can be used in increments of 50 lbs.

Material: Cast iron, galvanized.

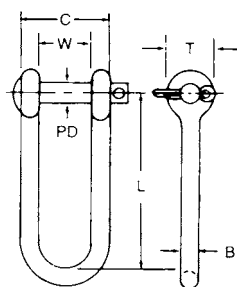
CATALOG NUMBER	DIMENSION INCHES	WT. EACH LBS. (KG)
	L	
HDWS5023648	2-5/8 (66.7)	50 (22.68)

HARDWARE FITTINGS DUCTILE/STEEL HOLD DOWN SHACKLE

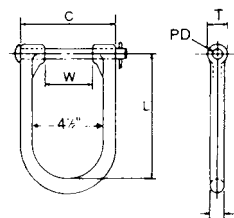
DUCTILE STEEL

Hold down shackles are attached to suspension clamps to provide an attachment point to hook bolt or eye bolt. The HDWC type circular hold down weights can be attached in the desired increments to provide a means of controlling conductor position by preventing excessive uplift and sway.

Material: Ductile iron or forged steel
Clevis pin—galvanized steel
Cotter pin—stainless steel



TYPE 88000—
FORGED STEEL



TYPE HDS—
DUCTILE IRON



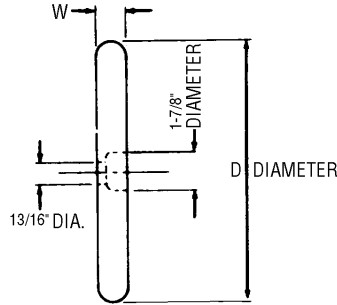
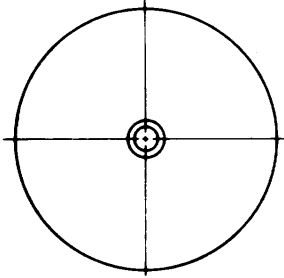
CATALOG NUMBER		ULTIMATE STRENGTH LBS. (KN)	DIMENSIONS INCHES (MM)						APPROX. WT. EACH LBS (KG)
WITH CLEVIS PIN AND COTTER KEY	WITH BOLT, NUT AND COTTER KEY		B	C	L	T	W	PD	
880152000	900112000	10,000 (44)	1/2 (12.7)	3-7/8 (98.4)	5-1/16 (128)	1-1/4 (31.8)	2-7/8 (73)	5/8 (15.9)	1.3 (.59)
HDS1024675	HDS1024675BNK	10,000 (44)	11/16 (17.5)	5-5/16 (134)	7-1/8 (181)	1-3/8 (34.9)	3-1/8 (79.5)	5/8 (15.9)	3.10 (1.41)
880162000	900122000	10,000 (44)	1/2 (12.7)	4-1/4 (108)	6 (152)	1-1/4 (31.8)	3-1/4 (82.6)	5/8 (15.9)	1.4 (0.64)
880172000	900132000	10,000 (44)	1/2 (12.7)	4-5/8 (117)	5-7/8 (149)	1-1/4 (31.8)	3-5/8 (92.1)	5/8 (15.9)	1.4 (0.64)
880182000	900142000	10,000 (44)	1/2 (12.7)	5-1/8 (130)	5-3/4 (146)	1-1/4 (31.8)	4-1/8 (105)	5/8 (15.9)	1.4 (0.64)
880192000	900152000	10,000 (44)	1/2 (12.7)	5-1/2 (140)	6 (152)	1-1/4 (31.8)	4-1/2 (114)	5/8 (15.9)	1.5 (0.68)

SUSPENSION CLAMP (1) CATALOG NUMBER SERIES / SIZE			RECOMMENDED HOLD DOWN SHACKLE	
HAS	CFS	CFSHT	WITH CLEVIS PIN AND COTTER KEY	WITH BOLT, NUT AND COTTER KEY
85 TO 162	118 TO 147	-	880152000	900112000
104 TO 182	118 TO 162	120	HDS1024675	HDS1024675BNK
118 TO 204	139 TO 204	120 TO 139	880162000	900122000
139 TO 227	147 TO 227	139 TO 182	880172000	900132000
204 TO 252	182 TO 227	182 TO 213	880182000	900142000
—	280	252	880192000	900152000



HARDWARE FITTINGS CAST IRON HOLD DOWN WEIGHT (CIRCULAR CONFIGURATION)

CAST IRON
HDWC



Circular hold down weights are suspended below a clamp and used to add weight to a jumper or suspension assembly in 50 lb. increments.

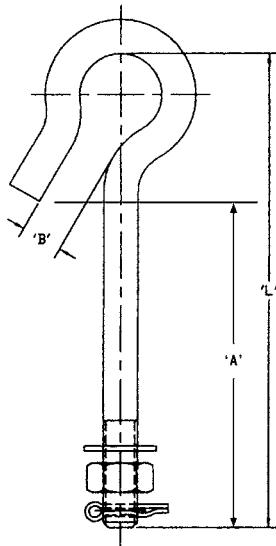
Material: Cast iron, galvanized
Note: For hook bolt see below.

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CATALOG NUMBER	DIMENSIONS INCHES (MM)		APPROX. WT. EACH LBS. (KG)
	W	D	
HDWC5023868	1-3/4 (44.5)	12 (304)	50 (22.68)

HARDWARE FITTINGS STEEL HOOK BOLT

STEEL
HDWH



Hook bolts for attachment of HDWC circular weights to suspension clamp hold down shackle shown above

CATALOG NUMBER	DIMENSIONS INCHES (MM)			MAX. NUMBER OF CAT. NO. HDWC-5023868 WEIGHTS
	A	B	L	
HDWH502	6 (152)	0.75 (19.1)	9.00 (229)	2
HDWH503	7.5 (191)	0.75 (19.1)	10.50 (267)	3
HDWH504	9 (229)	1 (25.4)	12.00 (305)	4
HDWH505	11 (279)	0.75 (19.1)	14.00 (356)	5
HDWH506	12 (305)	1 (25.4)	15.00 (381)	6
HDWH507	14 (356)	0.75 (19.1)	17.00 (432)	7
HDWH508	15.75 (400)	1 (25.4)	18.75 (476)	8



HARDWARE FITTINGS

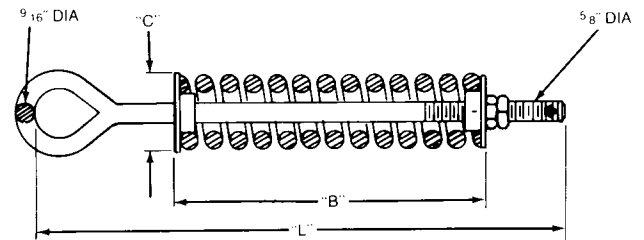
STEEL

SPRING BOLT

STEEL
SBA

Spring bolts are used to maintain controlled tension within a span. Associated hardware can be used to connect the assembly to the insulation string and structure.

Material: Spring—Galvanized steel
 Eyebolt—Galvanized steel
 Bearing Plate—Ductile iron, galvanized
 Nuts—Galvanized steel
 Cotter Pin—Stainless steel



TG-37

CATALOG NUMBER	DIMENSIONS INCHES (MM)			TENSION RANGE	DEFLECTION RATE (LBS)
	L	B	C		
SBA5831725	17-1/4 (438.2)	9 (228.6)	2 1/2 (63.5)	0-3000 LBS	1500# PER INCH
SBA5861725	17-1/4 (438.2)	11-1/4 (285.8)	3-3/4 (95.3)	0-6000 LBS	3000# PER INCH
SBA5862475	24-3/4 (628.7)	11-1/4 (285.8)	3-3/4 (95.3)	0-6000 LBS	3000# PER INCH

CONTACT FACTORY FOR OTHER LENGTHS AND VARIATIONS