Deadbreak Connectors
Catalog Data
CA650054EN

Effective May 2015
Supersedes 600-59 October 2013

COOPER POWER SERIES

600 A 35 kV class bushing adapter for T-OP™ II connector system (combination of LRTP and bushing extender)

General

Eaton's Cooper Power™ series 600 A, 35 kV Class bushing adapter is used to convert a standard 600 A deadbreak interface to a standard 200 A loadbreak interface. It meets all the requirements of IEEE Std 386™-2006 standard, "Separable Insulated Connector Systems".*

The 600 A, 35 kV Class bushing adapter is a factory assembled loadbreak reducing tap plug (LRTP) and bushing extender unit. It is used to convert a 600 A deadbreak interface to a 200 A loadbreak interface*, allowing for convenient testing and grounding. Used with an Eaton's Cooper Power™ series 200 A insulated protective cap, M.O.V.E. arrester, grounding elbow or loadbreak elbow connector, a bushing adapter provides a fully shielded, submersible unit that meets the requirements of IEEE Std 386™-2006 standard.*

The LRTP provides a means for live testing, visibly grounding and separating of 600 A "T" type terminators. Its 200 A interface can also be used as a means of connecting overvoltage arresters for system protection.

The LRTP features an all copper alloy current path. No aluminum components are used. The LRTP's unique captured rotating nut feature provides ease of installation and removal of the connector from the apparatus bushing. This feature allows for one-person clampstick operation for all associated components. The bushing adapter is also available at a 200 kV BIL rating.

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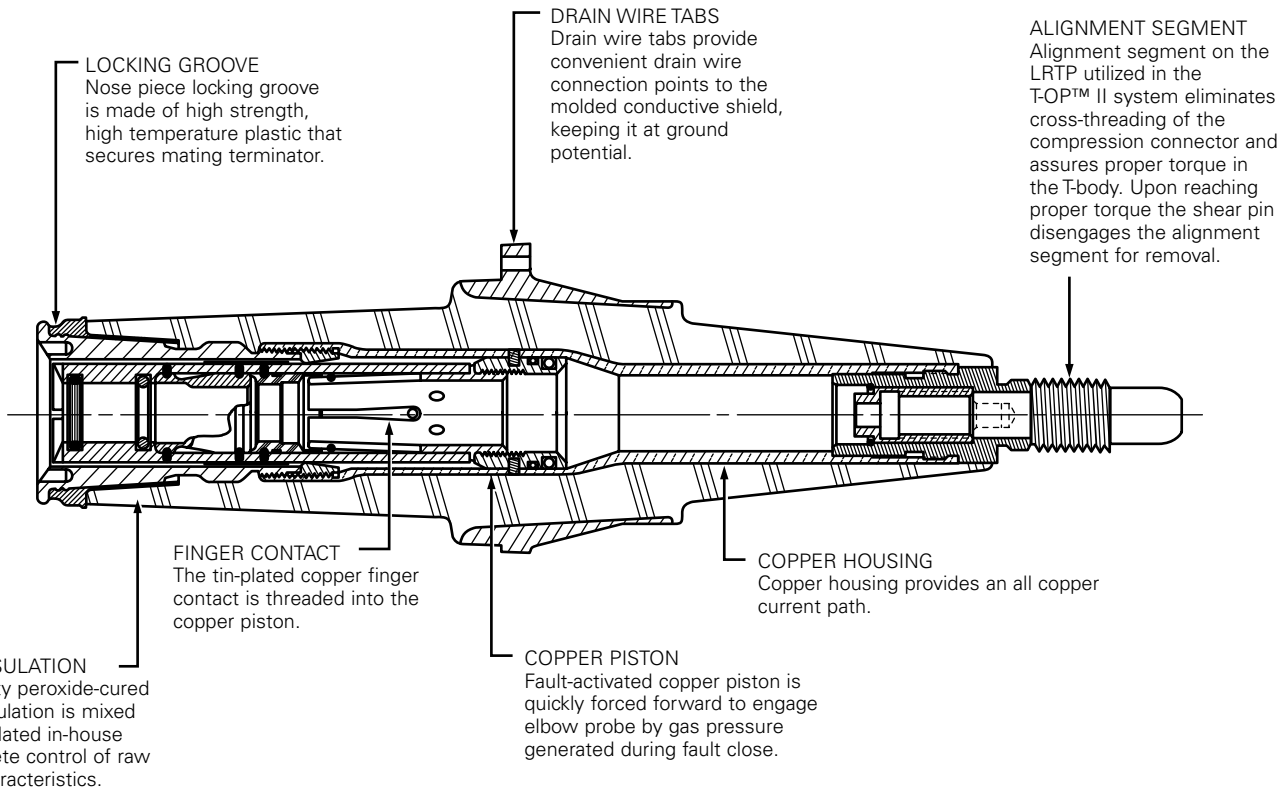


Figure 1. Loadbreak reducing tap plug with 200 A and 600 A interfaces. Field proven, all copper alloy current path ensures the coolest operating temperatures and best reliability.

Note: Dimensions given are for reference only.

Installation

Bushing adapter

The bushing adapter is installed on a de-energized 600 A interface using an installation torque tool. Refer to *Service Information S600-59-1 600 A 15, 25, and 35 kV Class Bushing Adapter Installation Instructions* for details. See Table 4 for tools.

LRTP in a T-Body

When installing into a T-body connector system, the LRTP is threaded into the compression connector, using a 5/16" T-wrench (Figure 5). The alignment segment shears off when proper installation torque has been achieved. The connector assembly is then threaded on to the apparatus bushing. Refer to *Service Information S600-59-1 600 A 15, 25, and 35 kV Class Bushing Adapter Installation Instructions* for complete details.

Table 1. Voltage Ratings and Characteristics

Description	kV
Standard Voltage Class	35
Maximum Rating Phase-to-Phase (LRTP 200 A interface only)	36.6*
Maximum Rating Phase-to-Ground	21.1
ac 60 Hz 1 Minute Withstand	
150 kV BIL Class T-OP II	50
200 kV BIL Class T-OP II	70
dc 15 Minute Withstand	103
BIL and Full Wave Crest	150/200
Minimum Corona Voltage Level	26

Voltage ratings and characteristics are in accordance with IEEE Std 386™-2006 standard.

Production tests

Tests conducted in accordance with IEEE Std 386™-2006 standard:

- ac 60 Hz 1 Minute Withstand
  - 50 kV/70 kV
- Minimum Corona Voltage Level
  - 26 kV

Tests conducted in accordance with Eaton requirements:

- Physical Inspection
- Periodic Dissection
- Periodic Fluoroscopic Analysis

Table 2. Current Ratings and Characteristics

Description	Amperes
600 A Interface	
Continuous	600 A rms
24 Hour Overload	1,000 A rms
Short Time	40,000 A rms symmetrical for 0.20 s 27,000 A rms symmetrical for 4.0 s
200 A Interface*	
Continuous	200 A rms
Switching**	10 operations at 200 A rms at 21.1 kV
Fault Closure	10,000 A rms symmetrical at 36.6 kV for 0.17 s after 10 switching operations
Short time	10,000 A rms symmetrical for 0.17 s 3,500 A rms symmetrical for 3.0 s

Current ratings and characteristics are in accordance with IEEE Std 386™-2006 standard. System design and protection must recognize the ratings of 200 A interface.

Table 3. Bushing Adapter Kits

Description	Catalog Number
Bushing Adapter, 150 kV BIL (Fig. 2)	DBA635
Bushing Adapter, 200 kV BIL	DBA638

Table 4. Tools and Accessories

	Catalog Number	
Description	**150 kV BIL**	**200 kV BIL**
Bushing Extender (Fig. 4)	DBE635	DBE638
Loadbreak Reducing Tap Plug (Fig. 1)	LRTP635	LRTP638
Copper Alloy T-OP II Stud (Fig. 8)	STUD-T	STUD-T
Loadbreak Protective Cap for 200 A interface	LPC235	LPC238
Operating Test Torque Tool (Fig. 6)	OTTQ635	OTTQ635
Installation /Torque Tool (Fig. 7)	TQHD635	TQHD635
T-Wrench (Fig. 5)	TWRENCH	TWRENCH

Ordering information

To order a 35 kV Class Bushing Adapter Kit, See Table 3.

Each Bushing Adapter Kit contains:

- Bushing Adapter (factory assembled LRTP and Bushing Extender)
- Copper Alloy T-OP II Stud (STUD-T)
- Shipping Cap (not for energized operation)
- Silicone Lubricant
- Installation Instruction Sheet

Each LRTP Kit contains:

- Loadbreak Reducing Tap Plug
- Copper Alloy T-OP II Stud (STUD-T)
- Shipping Cap (not for energized operation)
- Silicone Lubricant
- Installation Instruction Sheet

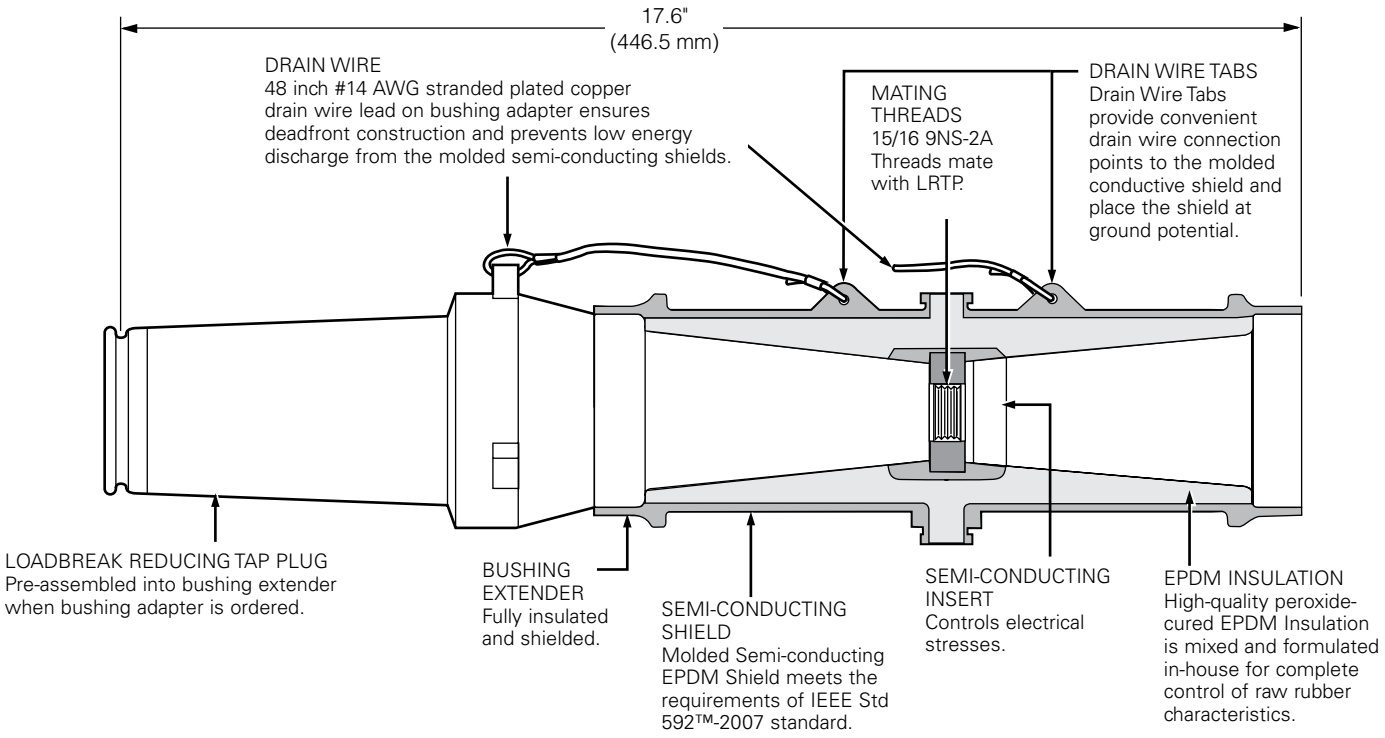
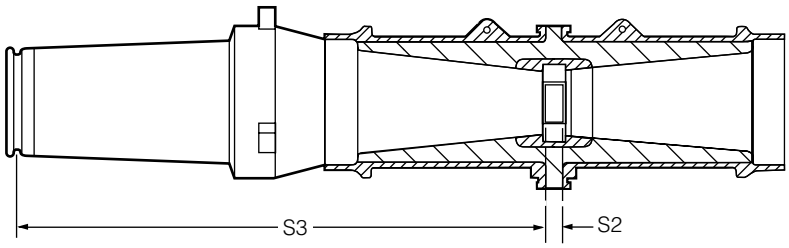


Figure 2. Bushing adapter with 200 A and 600 A interfaces.

Note: Dimensions given are for reference only.



35 kV	
S2	0.5" (13 mm)
S3	12.5" (317 mm)

Figure 3. Bushing assembly stacking dimensions.

Figure 4. Catalog Number DBE635

The twin 600 A interfaces of the bushing extender allow installation on standard de-energized 600 A deadbreak interfaces for coupling reducing tap plugs, connecting plugs and apparatus bushings. When assembled to mating apparatus, it provides a completely submersible, fully shielded unit that meets the requirements of IEEE Std 386™-2006 standard. Refer to *Service Information S600-59-3 600 A 15, 25, and 35 kV Class Bushing Extender Installation Instructions* for details.

Figure 5. Catalog Number TWRENCH

The T-Wrench is used to install LTRP and disengage the alignment segment after assembly into a compression connector.

Figure 6. Catalog Number OTTQ635

The combination operating and test/torque tool is used with a clampstick to test for circuit de-energization and to install and remove a 35 kV Class LRTP equipped connector from an apparatus tap. The standard tool is equipped with a molded EPDM rubber cap and torque limiter to allow proper tool seating and gripping of the T-OP II connector. It also ensures that the connector has been properly torqued into the mating bushing.

Figure 7. Catalog Number TQHD635

The installation torque tool is required to ensure proper torque when installing a 35 kV Class bushing adapter to a 600 A bushing interface. It is precision calibrated and hotstick operable.

Figure 8. Catalog Number STUD-T

The copper alloy stud with its extended length allows for threading into the connector prior to mating the bushing and terminator interfaces. Blunt start threads on the stud help eliminate cross-threading. Stud threads into an industry standard 600 A bushing. STUD-T is included with every LRTP and bushing adapter kit.

600 A 35 kV class bushing adapter for T-OP II connector system

Eaton
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com

Eaton's Cooper Power Systems Division
2300 Badger Drive
Waukesha, WI 53188
United States
Eaton.com/cooperpowerseries

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For Eaton's Cooper Power series T-OP connector product information call 1-877-277-4636 or visit: www.eaton.com/cooperpowerseries.

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