



March, 1982
Supersedes Descriptive Bulletin 36-732
dated March, 1977
Mailed to: E, D, C/1971/DB

Indoor Current Limiting,
Distribution Class, CX Type
2.4 to 15.5 KV
4.5 to 100 C amperes
50/60 Hertz
CXN Type
8.3, 15.5 KV
45C to 300C

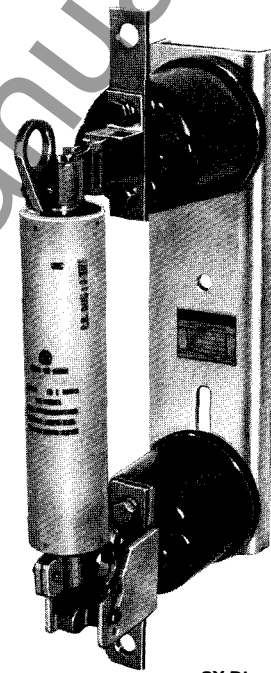
Type CX, CXN High Voltage Power Fuses



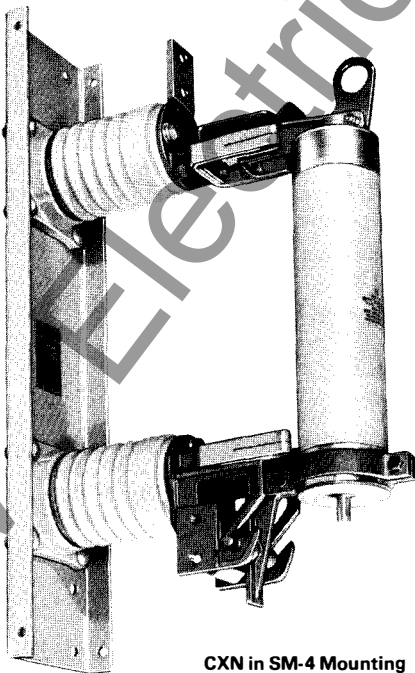
CX Fuses



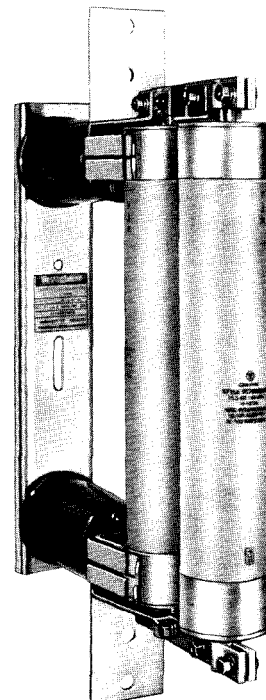
CXN Fuse



CX Disconnect Mounting



CXN in SM-4 Mounting



CXN Parallel Fuses
in Mounting

Application

The CX general purpose current limiting fuse was designed specifically to provide complete fault protection on high capacity indoor and underground distribution systems. A "C" rated fuse, the CX meets or exceeds the requirements of the latest ANSI standards for general purpose distribution current limiting fuses.

Fuse Ratings Available

Voltage	Amperes
2.8/4.3 KV	18 C to 100 C
5.5 KV	10 C to 75 C
8.3 KV	3.5 C to 40 C
15.5 KV	4.0 C to 40 C

CX fuses are applied in:

Padmounted and submersible three-phase and single phase transformers

Padmounted and submersible switch and fuse units

Station service protection

Primary switch and fuse units on mine rectifiers

Advantages

Quiet Safe Operation

A non-indicating fuse, the CX will clear currents from published minimum-melt to its maximum interrupting rating without any external disturbance or expulsion of gases.

Limits Fault Current

The let-through current for a high short circuit current is limited to a value far below the available peak current because the current is forced to zero before the first one-half cycle.

Arc-voltage Protection

CX fuses control the arc-voltage that is produced during current limitation to less than three times the nominal voltage rating.

Maintains Non-Conductance After Interruption

Inorganic core with spaced arc guards prevent internal flash through when rated voltage remains across fuse after interruption.

Fits Many Mountings

The CX fuse can be used in disconnect and non-disconnect mountings, EFD load break switches (through 8.3 KV) and dry well draw-out fuse holders.

Interchangeable

The CX fuse is a direct replacement for, and interchangeable with competitive general purpose distribution class current limiting fuses. Refer to PL 36-731 for replacement chart.

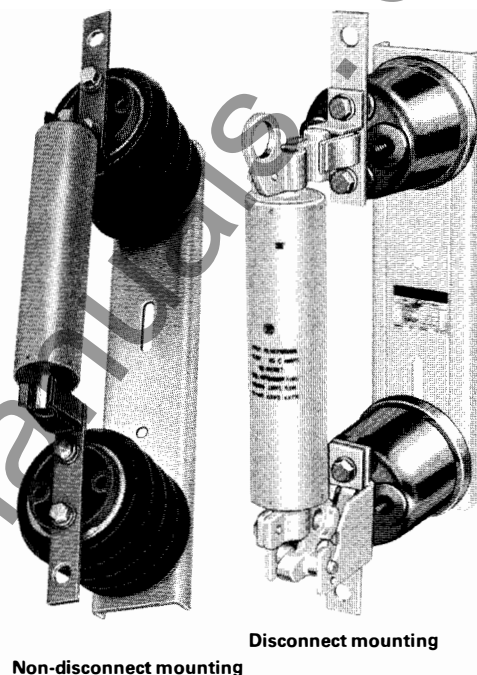
Construction and Operation

Type CX are constructed with pure silver fuse elements, a high-purity silica sand filler, an inorganic core with spaced arc suppressors, and glass melamine or epoxy outer casing.

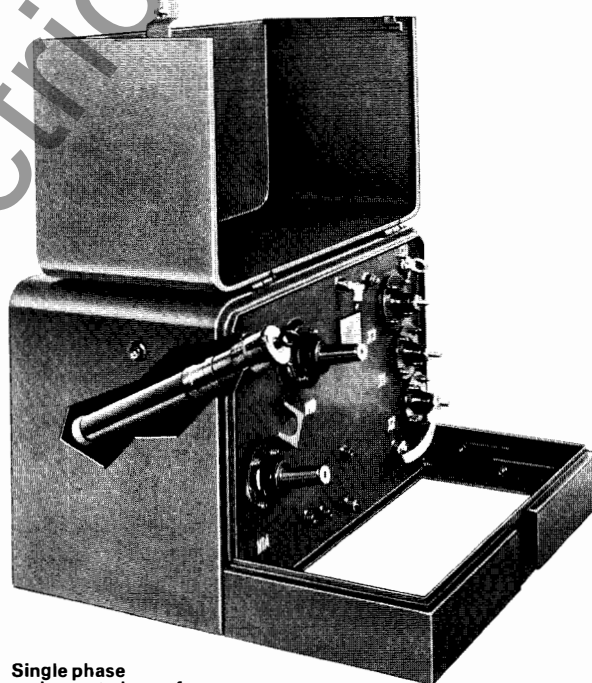
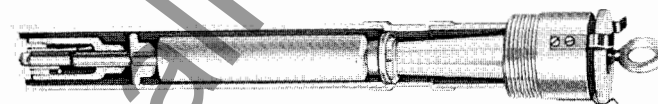
During a high fault current the silver element melts almost instantly losing energy to the surrounding sand. The energy melts the sand forming a glass-like substance called fulgurite. The arc voltage rapidly increases to about three times the fuse voltage rating forcing the current to zero. The fault current is interrupted in one-half cycle or less without noise or expulsion of gases.

Current limiting action occurs only when the current is high enough to melt the silver fuse element before the peak value of current in the first half cycle.

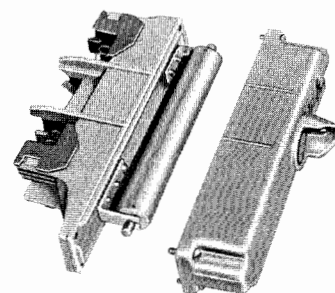
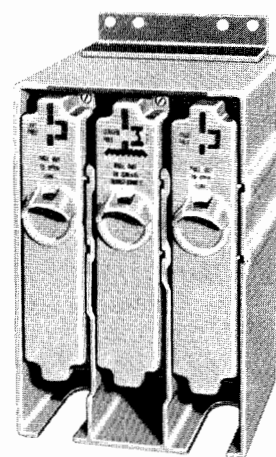
Low level currents are cleared by the melting of a solder drop on the fuse element which melts the silver element. The silver element then burns back until there is sufficient internal gap to interrupt the current. This is called the M-effect and may take several seconds to interrupt the current.



Typical Applications



Single phase padmounted transformer with CV fuse in drywell drawout fuse holder.



EFD fused disconnect with CX fuse



Construction

CXN fuses are constructed with pure silver fuse elements, a high quality silica sand filler, an inorganic core with spaced arc suppressors, and a glass melamine outer casing.

The end studs of the CXN fuses are identical to the CX type, however, CXN fuses have a much higher "C" rating, longer in their physical length and larger in diameter. The diameter can be either a three (3) or four (4) inch, dependent on the voltage and ampere rating.

Application

CXN fuses are applied in:

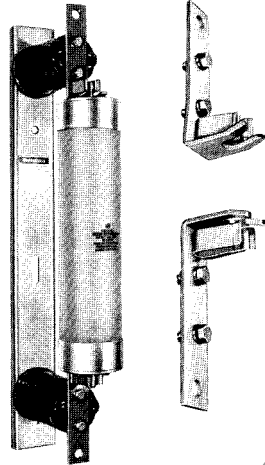
- Power Transformer Protection
- Power Centers
- Load Interrupters
- Feeder Circuit Protection
- Mine Rectifiers

Ratings

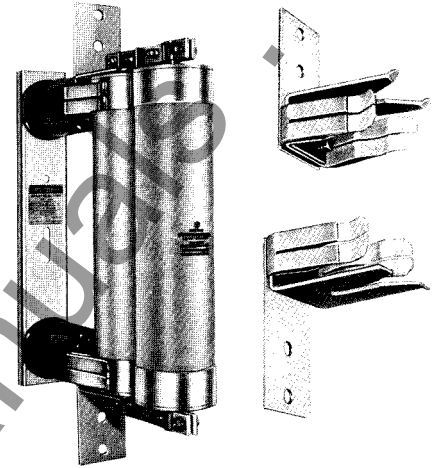
"C" ratings range from 60C to 300C at 8.3 KV with the 300C being achieved by paralleling two (2) 150C single barrel fuses. At 15KV, the ranges are 45C to 175C/200C, with the 120C, 150C and 175C developed by also paralleling single barrel fuses.

In some instances where the "C" ratings exceed the limits of the CX fuses and it is possible to move the live parts to accommodate the longer fuse and where space is no problem, the CXN fuse can be substituted for the CX.

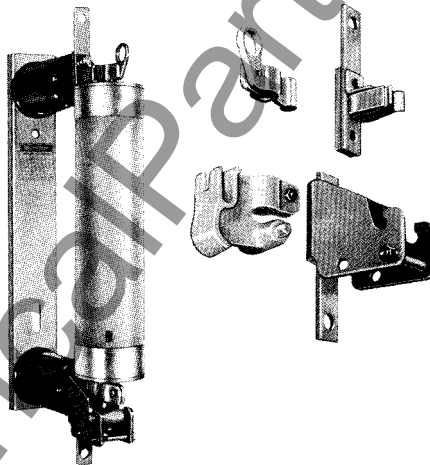
Versatility of the CXN can be further shown where higher interrupting ratings are required with current limiting features or special fuse fittings, the CXN can be retrofitted into an existing 15 KV indoor SM-4 disconnect mounting. The advantage being the use of single barrel fuses from 60C to 250C at 8.3 KV and 45C to 100C at 15.0 KV, interchangeability from Expulsion Type fuse to a Current Limiting Type with minimum amount of effort and cost.



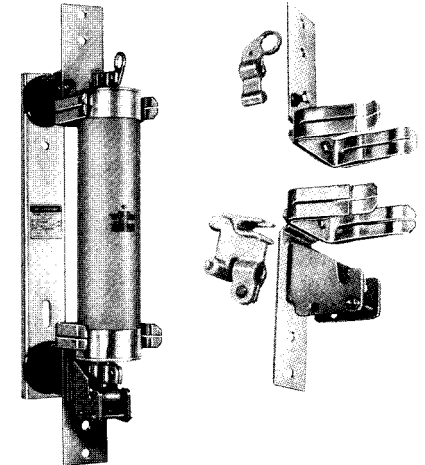
CXN Non-Disconnect
Mounting, 150 Amps



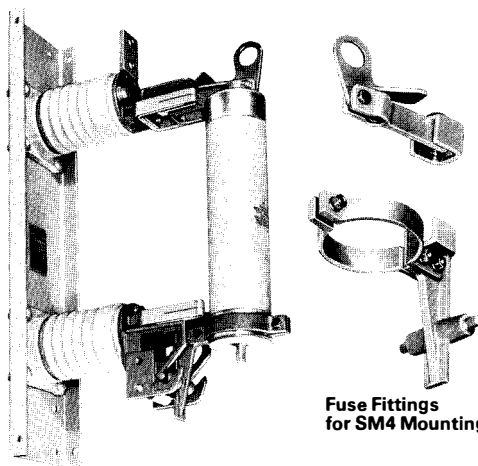
CXN Non-Disconnect
Mounting, 300 Amps



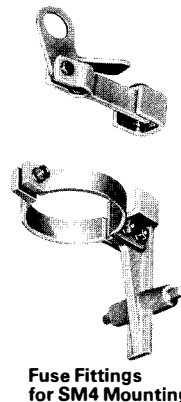
CXN Disconnect
Mounting, 150 Amps



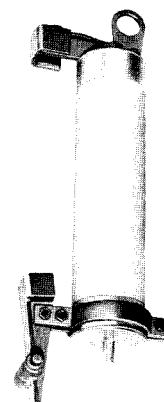
CXN Disconnect
Mounting, 250 Amps



CXN in SM4
Mounting



Fuse Fittings
for SM4 Mounting



CXN with Fuse
Fittings for SM4 Mounting

