

# Semiconductor & Special Protection

## Protistor® Cylindrical fuse-links

### 10x38 gR 690VAC from 1 to 32A

Data Sheet

The 10x38 gR cylindrical is a fast acting, full range fuse used in the protection of inverters, UPS, variable speed drives and other discrete semiconductor devices.

#### Benefits

International 10x38 mm (1-1/2" x 13/32")  
for worldwide acceptance

Extremely fast acting

Eliminate all overloads

Current limiting

Low I<sup>2</sup>t for improved semiconductor protection

Excellent cycling capability

gR Class according to VDE 636-23 and IEC 60269-4

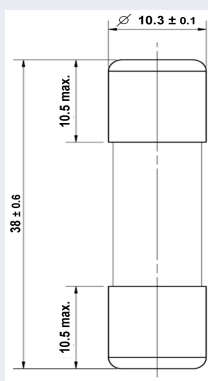
#### Applications

Protection of small inverters,  
UPS systems, motor drives and  
similar 700V or less equipment.



| Rated Voltage (V) | Nominal Current (A) | Class | Catalog Number | Reference Number |
|-------------------|---------------------|-------|----------------|------------------|
| 690               | 1                   | gR    | FR10GR69V1     | L1014563         |
| 690               | 1.25                | gR    | FR10GR69V1.25  | N1014565         |
| 690               | 1.5                 | gR    | FR10GR69V1.5   | P1014566         |
| 690               | 2                   | gR    | FR10GR69V2     | Q1014567         |
| 690               | 2.5                 | gR    | FR10GR69V2.5   | T1014570         |
| 690               | 3                   | gR    | FR10GR69V3     | V1014571         |
| 690               | 4                   | gR    | FR10GR69V4     | W1014572         |
| 690               | 5                   | gR    | FR10GR69V5     | X1014573         |
| 690               | 6                   | gR    | FR10GR69V6     | Y1014574         |
| 690               | 8                   | gR    | FR10GR69V8     | Z1014575         |
| 690               | 10                  | gR    | FR10GR69V10    | A1014576         |
| 690               | 12.5                | gR    | FR10GR69V12.5  | C1014578         |
| 690               | 16                  | gR    | FR10GR69V16    | D1014579         |
| 690               | 20                  | gR    | FR10GR69V20    | E1014580         |
| 690               | 25                  | gR    | FR10GR69V25    | F1014581         |
| 690               | 30                  | gR    | FR10GR69V30    | G1014582         |
| 690               | 32                  | gR    | FR10GR69V32    | H1014583         |

#### Dimensions (mm)



#### Ratings

690VAC IEC 60269-4 and  
700VAC UL Recognized  
500VDC UL Recognized

#### Approvals

UL/CSA Recognized Component  
AC: UL Guide No. E76491  
IEC 60269-4 Compliance  
RoHS Compliant



#### Related products

Fuse-holders: Modulostar® CMS10

Product weight: 10g max.

Packaging: 10 pieces

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#### 10x38 gR fuse-links

| Rated Voltage (V) | Nominal Current (A) | Breaking Capacity @ Rated Voltage (kA) | Pre-arcing I <sup>2</sup> t (A <sup>2</sup> s) | Clearing I <sup>2</sup> t @ Rated Voltage (A <sup>2</sup> s) | Watts Loss @ 100% In (W) | Watts Loss @ 80% In (W) |
|-------------------|---------------------|----------------------------------------|------------------------------------------------|--------------------------------------------------------------|--------------------------|-------------------------|
| 690               | 1                   | 160                                    | 0.17                                           | 0.48                                                         | 0.8                      | 0.4                     |
| 690               | 1.25                | 160                                    | 0.18                                           | 0.55                                                         | 1.5                      | 0.8                     |
| 690               | 1.5                 | 160                                    | 0.31                                           | 0.80                                                         | 1.2                      | 0.6                     |
| 690               | 2                   | 160                                    | 0.94                                           | 2.5                                                          | 1.3                      | 0.7                     |
| 690               | 2.5                 | 160                                    | 1.65                                           | 4.5                                                          | 1.4                      | 0.8                     |
| 690               | 3                   | 160                                    | 2.83                                           | 7.8                                                          | 1.5                      | 0.9                     |
| 690               | 4                   | 160                                    | 6.7                                            | 12                                                           | 1.7                      | 1.0                     |
| 690               | 5                   | 160                                    | 7.5                                            | 30                                                           | 0.9                      | 0.6                     |
| 690               | 6                   | 160                                    | 8.5                                            | 40                                                           | 1.4                      | 0.8                     |
| 690               | 8                   | 160                                    | 5.4                                            | 35                                                           | 1.9                      | 1.1                     |
| 690               | 10                  | 160                                    | 6.7                                            | 55                                                           | 2.1                      | 1.2                     |
| 690               | 12.5                | 160                                    | 11                                             | 90                                                           | 2.8                      | 1.3                     |
| 690               | 16                  | 160                                    | 19                                             | 140                                                          | 3.0                      | 1.7                     |
| 690               | 20                  | 160                                    | 39                                             | 245                                                          | 3.7                      | 2.1                     |
| 690               | 25                  | 160                                    | 69                                             | 425                                                          | 4.3                      | 2.4                     |
| 690               | 30                  | 160                                    | 107                                            | 675                                                          | 4.8                      | 2.7                     |
| 690               | 32                  | 160                                    | 154                                            | 945                                                          | 5.1                      | 2.8                     |

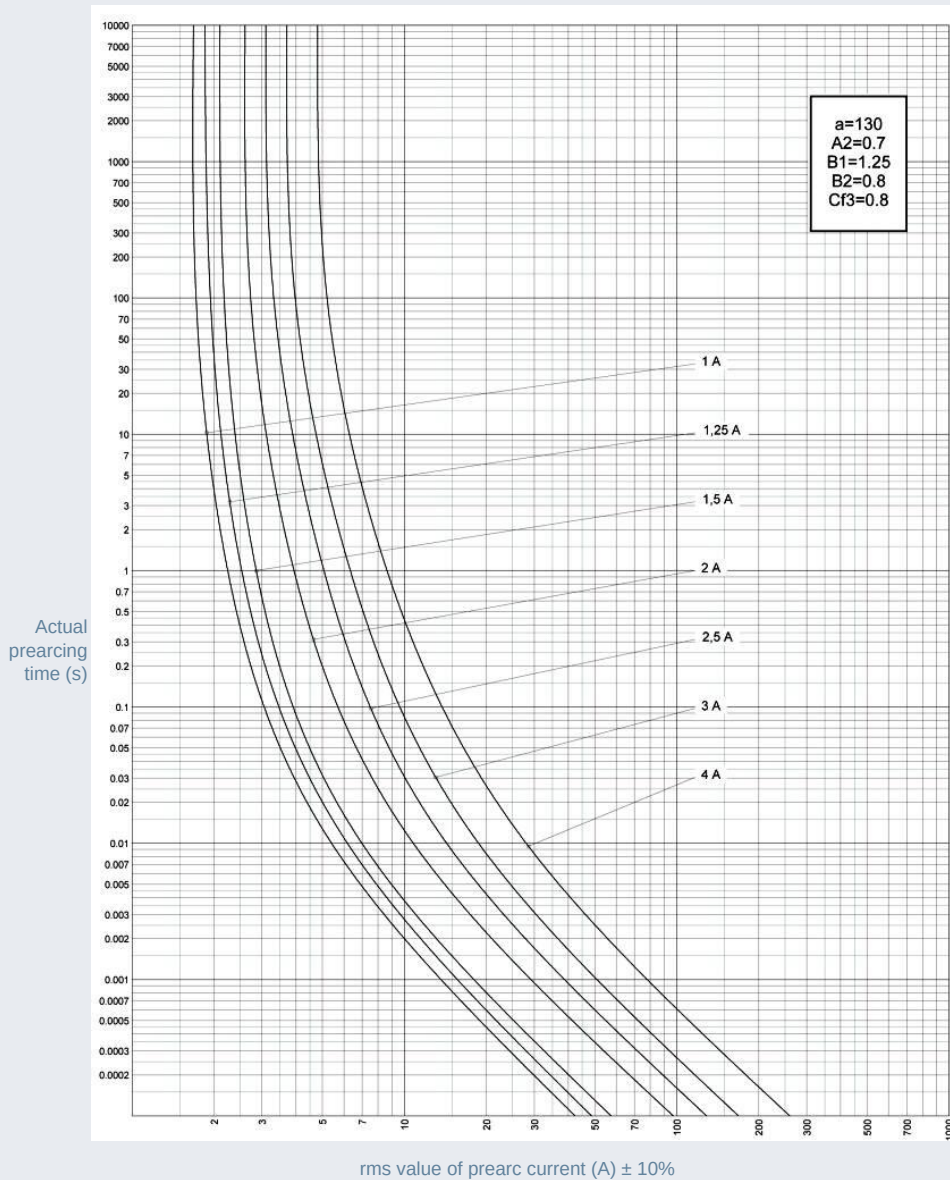
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## Protistor® Cylindrical fuse-links

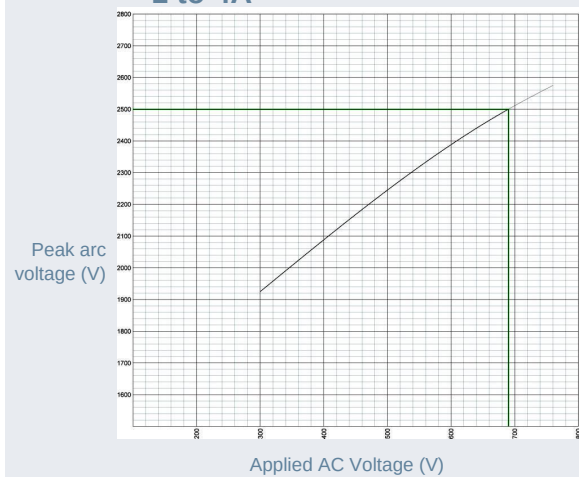
### 10x38 gR 690VAC from 1 to 32A



Time current characteristics  
1 to 4A



Peak arc voltage  
1 to 4A



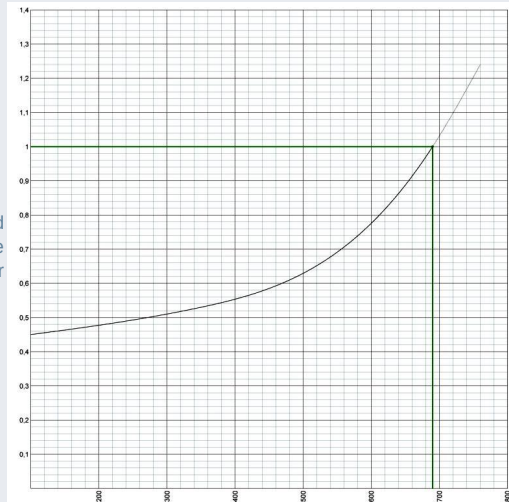
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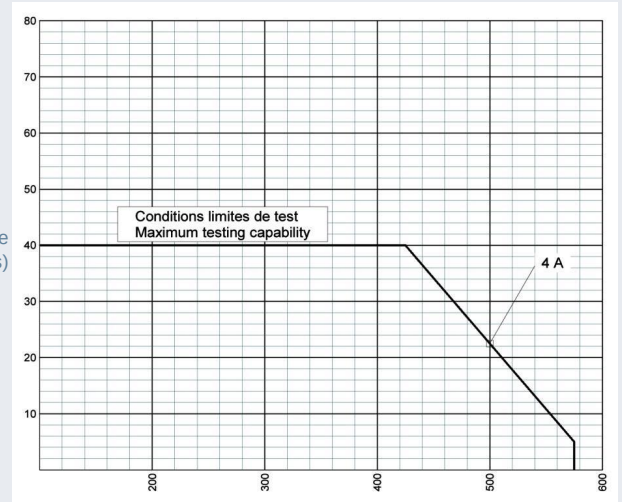
**I<sup>2</sup>t multiplier coefficient  
1 to 4A**



Clearing I<sup>2</sup>t and  
arcing time  
correction factor

Applied AC voltage (V)

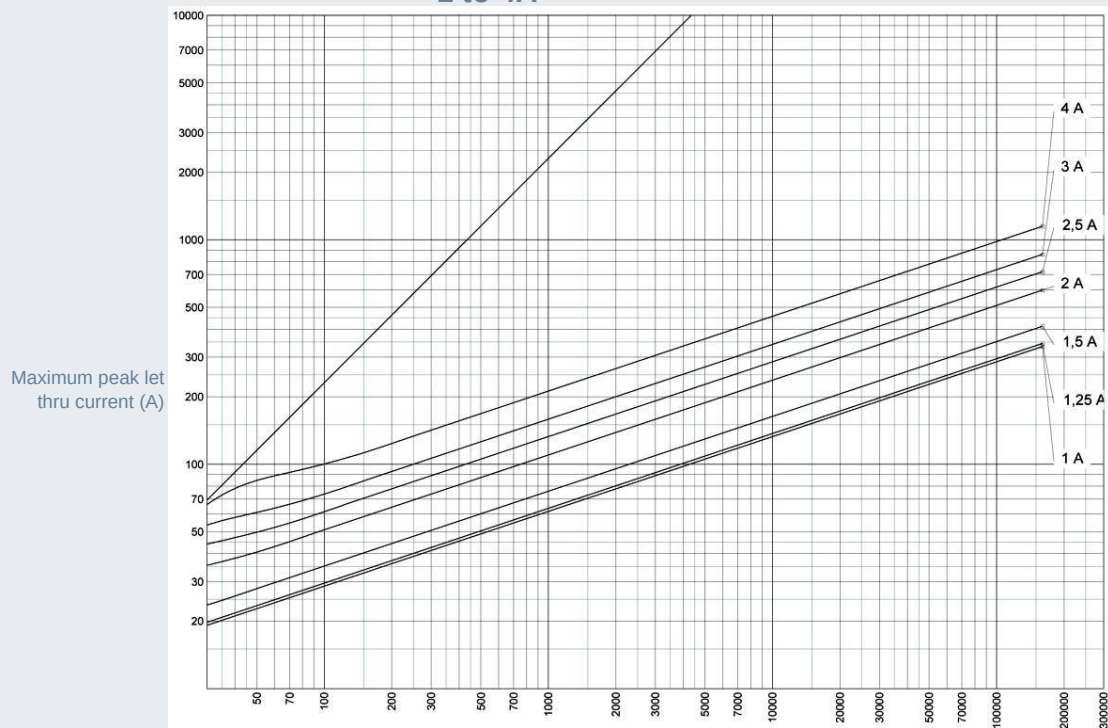
**L/R time constant vs DC voltage capability  
1 to 4A**



L/R time  
constant (ms)

DC voltage capability (V)

**Peak let thru characteristics  
1 to 4A**



Maximum peak let  
thru current (A)

50 Hz rms symmetrical prospective current (I<sub>p</sub>) (A)

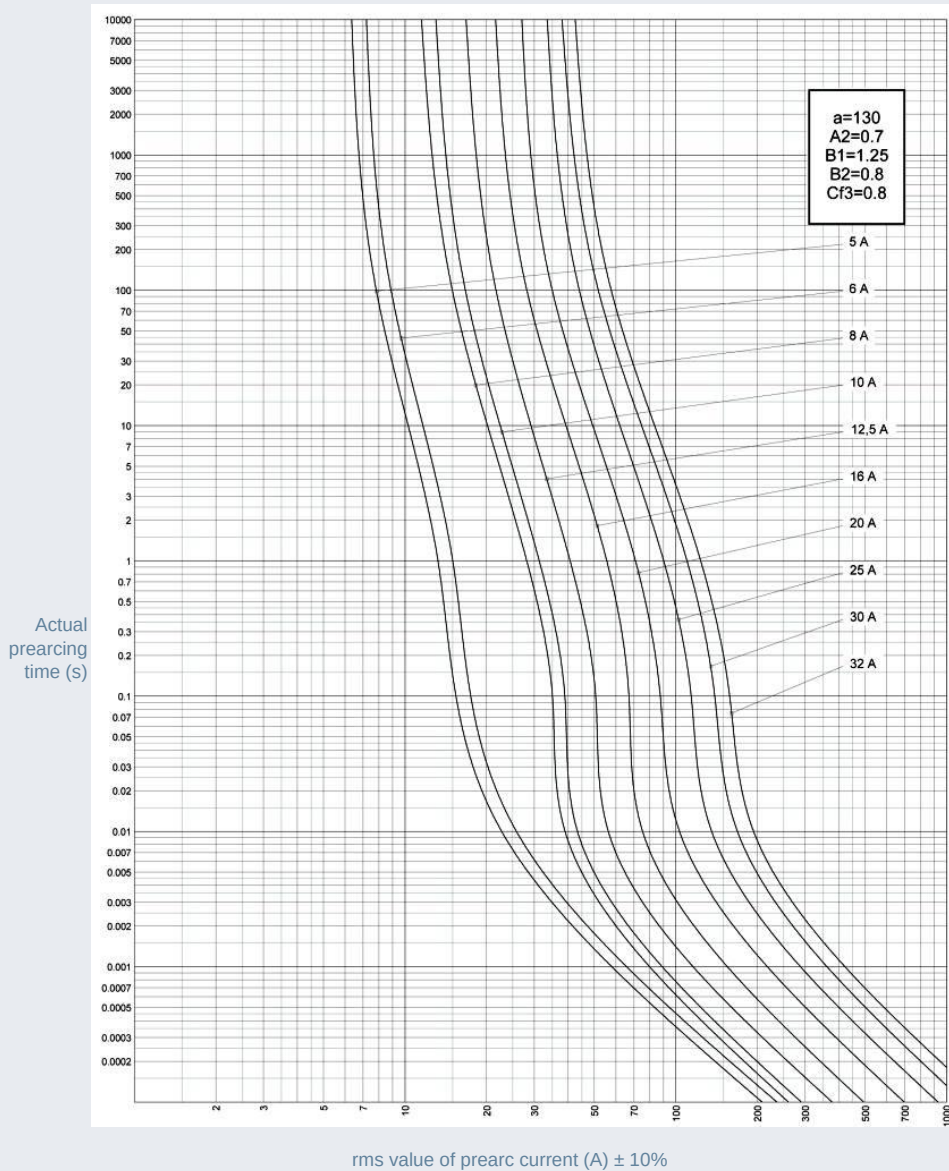
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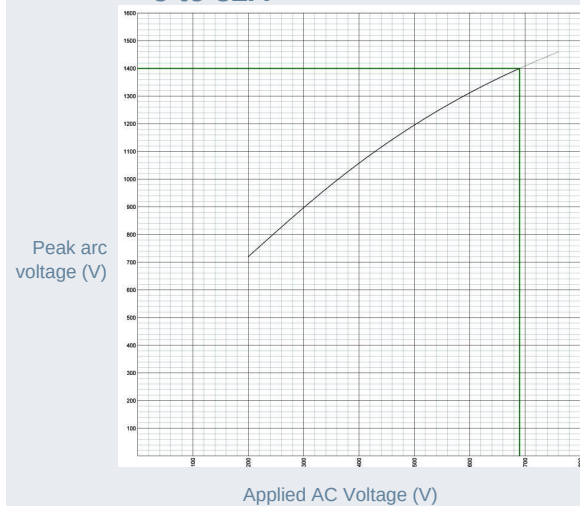
### 10x38 gR 690VAC from 1 to 32A



Time current characteristics  
5 to 32A



Peak arc voltage  
5 to 32A





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### 10x38 gR 690VAC from 1 to 32A



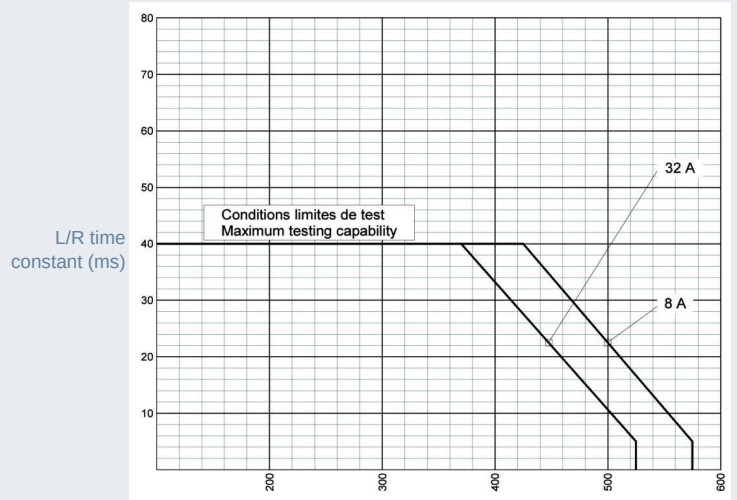
**I<sup>2</sup>t multiplier coefficient  
5 to 32A**



Clearing I<sup>2</sup>t and  
arcing time  
correction factor

Applied AC voltage (V)

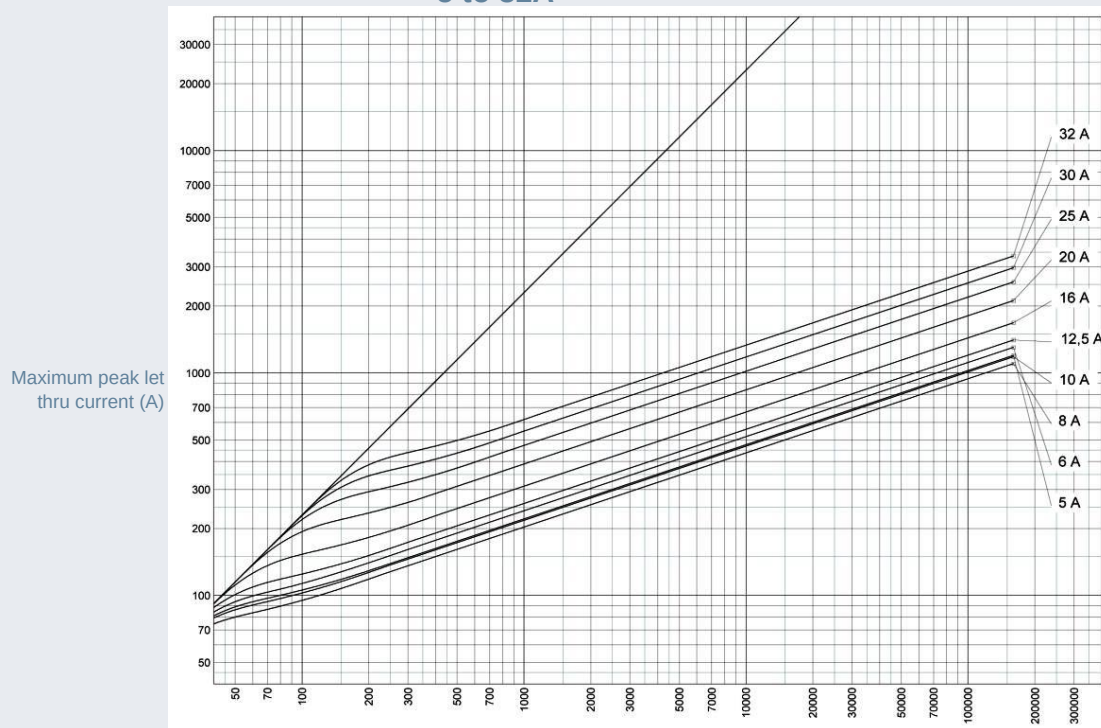
**L/R time constant vs DC voltage capability  
5 to 32A**



L/R time  
constant (ms)

DC voltage capability (V)

**Peak let thru characteristics  
5 to 32A**



Maximum peak let  
thru current (A)

50 Hz rms symmetrical prospective current (I<sub>p</sub>) (A)



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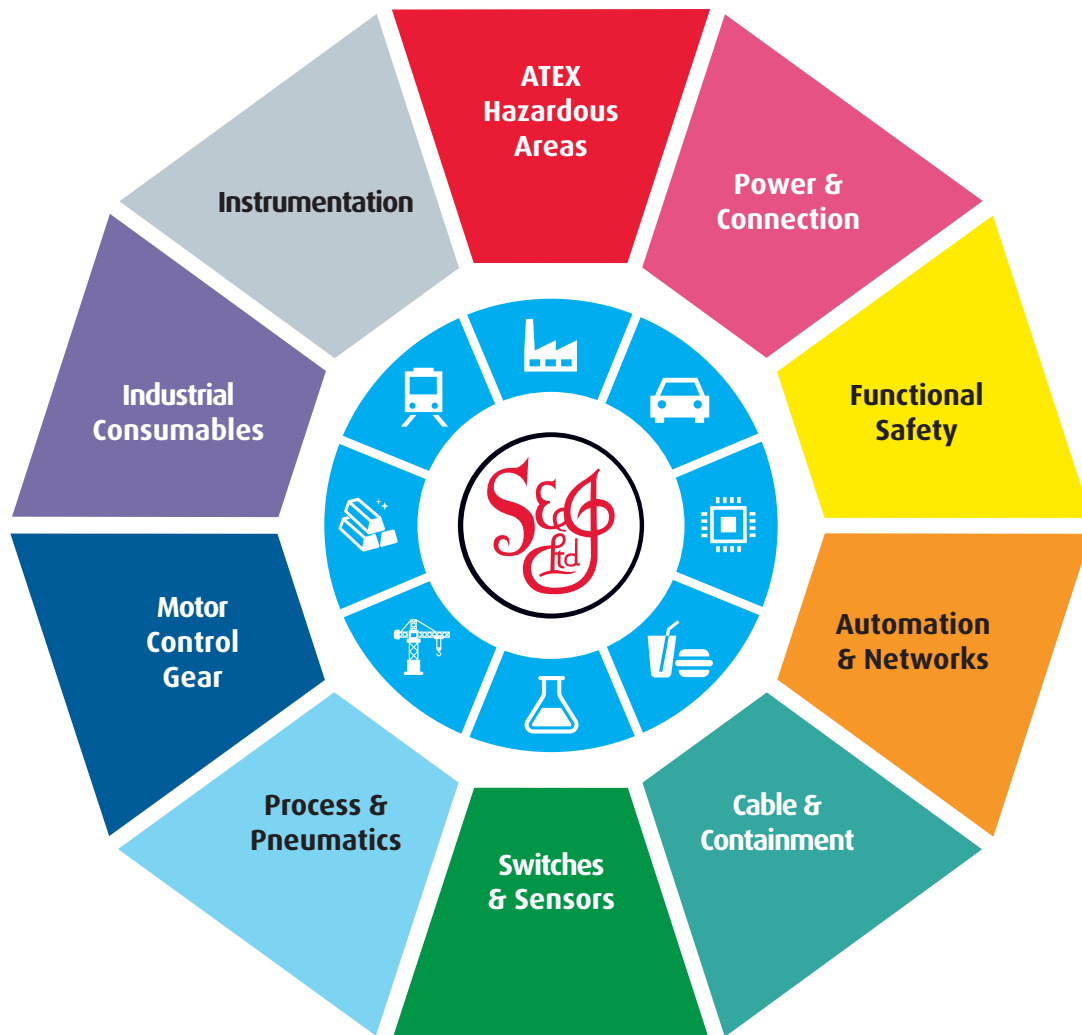
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