

### 218 Series, 5×20 mm, Time-Lag Fuse



#### Agency Approvals

| Agency | Agency File Number                                   | Ampere Range                                   |
|--------|------------------------------------------------------|------------------------------------------------|
|        | Cartridge:<br>NBK090205-E10480A<br>NBK120802-E10480C | 1A – 5A<br>6.3A – 15A                          |
|        | Leaded:<br>NBK090205-E10480B<br>NBK120802-E10480D    | 1A – 5A<br>6.3A – 15A                          |
|        | 2020970207000065                                     | 0.032A – 6.3A                                  |
|        |                                                      |                                                |
|        | SU05001-3005<br>SU05001-2008<br>SU05001-2009         | 0.032A – 0.040A<br>0.050A – 0.800A<br>1A – 10A |
|        | E10480                                               | 0.032A – 16A                                   |
|        | 29862                                                | 0.032A - 10A; 15A                              |
|        | 1620064                                              | 0.032A – 6.3A                                  |
|        | 40013496                                             | 0.032A – 10A                                   |
|        | 40016604                                             | 15A*                                           |
|        | KM41462                                              | 0.080A – 6.3A                                  |
|        | N/A                                                  | 0.032A – 16A                                   |

\* - Approval for Cartridge versions only

#### Description

The 218 series fuse is a 5x20mm time-lag glass body cartridge fuse designed to IEC specification.

#### Features

- Designed to International IEC Standards for use globally
- Meets the IEC 60127-2, Sheet 3 specification for Time-Lag fuses
- Available in cartridge and axial lead form
- RoHS compliant and lead-free

#### Applications

Used as supplementary protection in appliance or utilization equipment to provide individual protection for components or internal circuits.

#### Additional Information



**Datasheet**



**Resources**



**Samples**



**Accessories**

For recommended fuse accessories for this product series, see [‘Recommended Accessories’](#) section.

#### Electrical Characteristics

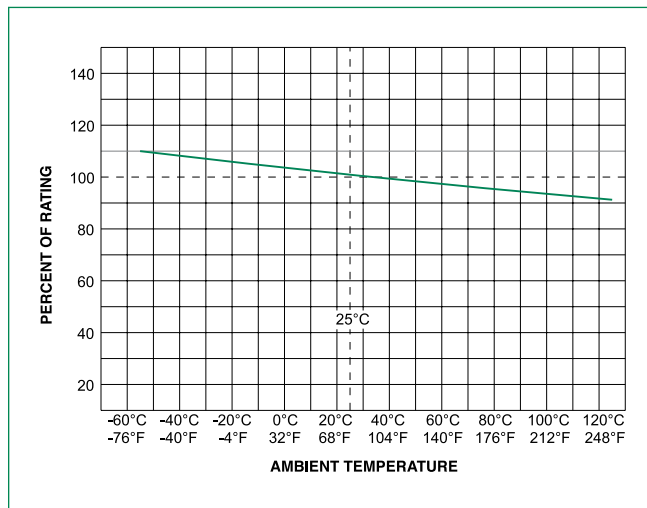
| % of Ampere Rating | Ampere Rating   | Opening Time                |
|--------------------|-----------------|-----------------------------|
| 150%               | 0.032A - 0.100A | 60 minutes, Minimum         |
|                    | 0.125A - 6.3A   | 60 minutes, Minimum         |
|                    | 8A - 16A        | 30 minutes, Minimum         |
| 210%               | 0.032A - 0.100A | 120 sec., Maximum           |
|                    | 0.125A - 6.3A   | 120 sec., Maximum           |
|                    | 8A - 16A        | 120 sec., Maximum           |
| 275%               | 0.032A - 0.100A | 200 ms., Min.; 10 sec. Max. |
|                    | 0.125A - 6.3A   | 600 ms., Min.; 10 sec. Max. |
|                    | 8A - 16A        | 600 ms., Min.; 10 sec. Max. |
| 400%               | 0.032A - 0.100A | 40 ms., Min.; 3 sec. Max.   |
|                    | 0.125A - 6.3A   | 150 ms., Min.; 3 sec. Max.  |
|                    | 8A - 16A        | 150 ms., Min.; 3 sec. Max.  |
| 1000%              | 0.032A - 0.100A | 10 ms., Min.; 300 ms. Max.  |
|                    | 0.125A - 6.3A   | 20 ms., Min.; 300 ms. Max.  |
|                    | 8A - 16A        | 20 ms., Min.; 300 ms. Max.  |

## Electrical Characteristics

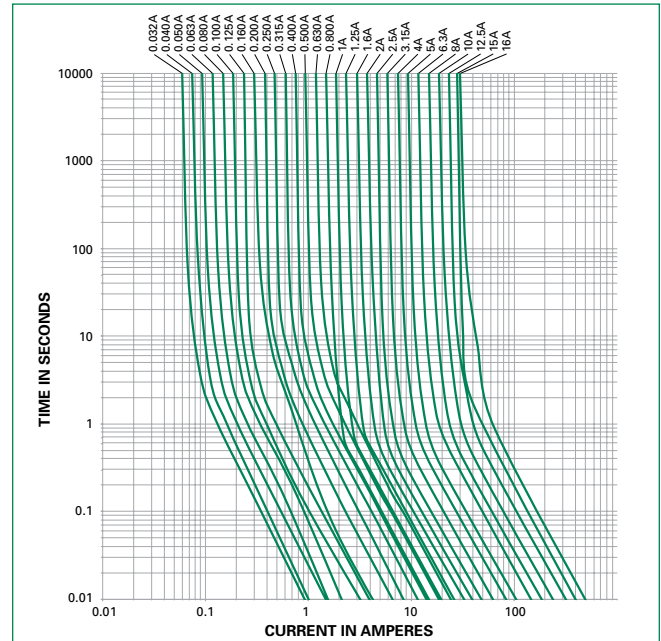
| Amp Code | Amp Rating (A) | Voltage Rating (V) | Interrupting Rating | Nominal Cold Resistance (Ohms) | Nominal Melting P <sub>t</sub> (A <sup>2</sup> sec) | Maximum Voltage Drop at Rated Current (mV) | Maximum Power Dissipation At 1.5I <sub>n</sub> (W) | Agency Approvals                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|----------|----------------|--------------------|---------------------|--------------------------------|-----------------------------------------------------|--------------------------------------------|----------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|          |                |                    |                     |                                |                                                     |                                            |                                                    |  |  |  |  |  |  |  |  |  |
| .032     | 0.032          | 250                | 35 A @ 250 VAC      | 48.258                         | 0.011                                               | 5000                                       | 1.6                                                | -                                                                                   | x                                                                                   | x                                                                                   | -                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .040     | 0.04           | 250                |                     | 31.862                         | 0.011                                               | 4000                                       | 1.6                                                | -                                                                                   | x                                                                                   | x                                                                                   | -                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .050     | 0.05           | 250                |                     | 21.292                         | 0.027                                               | 3500                                       | 1.6                                                | -                                                                                   | x                                                                                   | x                                                                                   | -                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .063     | 0.063          | 250                |                     | 14.268                         | 0.046                                               | 3000                                       | 1.6                                                | -                                                                                   | x                                                                                   | x                                                                                   | -                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .080     | 0.08           | 250                |                     | 9.07                           | 0.075                                               | 2500                                       | 1.6                                                | x                                                                                   | x                                                                                   | x                                                                                   | -                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .100     | 0.1            | 250                |                     | 6.018                          | 0.079                                               | 2000                                       | 1.6                                                | x                                                                                   | x                                                                                   | x                                                                                   | -                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .125     | 0.125          | 250                |                     | 4.2                            | 0.1465                                              | 1900                                       | 1.6                                                | x                                                                                   | x                                                                                   | x                                                                                   | -                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .160     | 0.16           | 250                |                     | 3.7                            | 0.144                                               | 1500                                       | 1.6                                                | x                                                                                   | x                                                                                   | x                                                                                   | -                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .200     | 0.2            | 250                |                     | 1.6                            | 0.341                                               | 1300                                       | 1.6                                                | x                                                                                   | x                                                                                   | x                                                                                   | -                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .250     | 0.25           | 250                |                     | 1.0495                         | 0.5405                                              | 1100                                       | 1.6                                                | x                                                                                   | x                                                                                   | x                                                                                   | -                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .315     | 0.315          | 250                |                     | 0.8475                         | 1.11                                                | 1000                                       | 1.6                                                | x                                                                                   | x                                                                                   | x                                                                                   | -                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .400     | 0.4            | 250                |                     | 0.535                          | 1.325                                               | 900                                        | 1.6                                                | x                                                                                   | x                                                                                   | x                                                                                   | -                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .500     | 0.5            | 250                |                     | 0.37                           | 2.825                                               | 300                                        | 1.6                                                | x                                                                                   | x                                                                                   | x                                                                                   | -                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .630     | 0.63           | 250                |                     | 0.275                          | 4.675                                               | 250                                        | 1.6                                                | x                                                                                   | x                                                                                   | x                                                                                   | -                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| .800     | 0.8            | 250                |                     | 0.0813                         | 3.37                                                | 150                                        | 1.6                                                | x                                                                                   | x                                                                                   | x                                                                                   | -                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 001.     | 1              | 250                |                     | 0.0613                         | 6.73                                                | 150                                        | 1.6                                                | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 1.25     | 1.25           | 250                |                     | 0.0446                         | 12.65                                               | 150                                        | 1.6                                                | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 016      | 1.6            | 250                |                     | 0.0336                         | 23.35                                               | 150                                        | 1.6                                                | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 002.     | 2              | 250                |                     | 0.0293                         | 14.45                                               | 150                                        | 1.6                                                | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 02.5     | 2.5            | 250                |                     | 0.0219                         | 23.25                                               | 120                                        | 1.6                                                | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 3.15     | 3.15           | 250                |                     | 0.0173                         | 38.15                                               | 100                                        | 1.6                                                | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 004.     | 4              | 250                | 40 A @ 250 VAC      | 0.0129                         | 69.1                                                | 100                                        | 1.6                                                | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 005.     | 5              | 250                | 50 A @ 250 VAC      | 0.0104                         | 111.0                                               | 100                                        | 1.6                                                | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 06.3     | 6.3            | 250                | 63 A @ 250 VAC      | 0.0076                         | 198.5                                               | 100                                        | 1.6                                                | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   |
| 008.     | 8              | 250                | 80 A @ 250 VAC      | 0.0059                         | 341.5                                               | 100                                        | 4                                                  | -                                                                                   | x                                                                                   | -                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | -                                                                                   | x                                                                                   | x                                                                                   |
| 010.     | 10             | 250                | 100 A @ 250 VAC     | 0.0045                         | 568.0                                               | 100                                        | 4                                                  | -                                                                                   | x                                                                                   | -                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | -                                                                                   | x                                                                                   | x                                                                                   |
| 12.5     | 12.5           | 250                | 63 A @ 250 VAC      | 0.0034                         | 889.0                                               | 100                                        | 4                                                  | -                                                                                   | -                                                                                   | -                                                                                   | x                                                                                   | x                                                                                   | -                                                                                   | -                                                                                   | x                                                                                   | -                                                                                   |
| 015.     | 15             | 250                | 100 A @ 250 VAC     | 0.0028                         | 1405.00                                             | 100                                        | 4                                                  | -                                                                                   | -                                                                                   | -                                                                                   | x                                                                                   | x                                                                                   | x                                                                                   | -                                                                                   | x                                                                                   | x*                                                                                  |
| 016.     | 16             | 250                | 63 A @ 250 VAC      | 0.0021                         | 1955.00                                             | 100                                        | 4                                                  | -                                                                                   | -                                                                                   | -                                                                                   | -                                                                                   | x                                                                                   | -                                                                                   | -                                                                                   | x                                                                                   | -                                                                                   |

\* - Approval for cartridge versions only

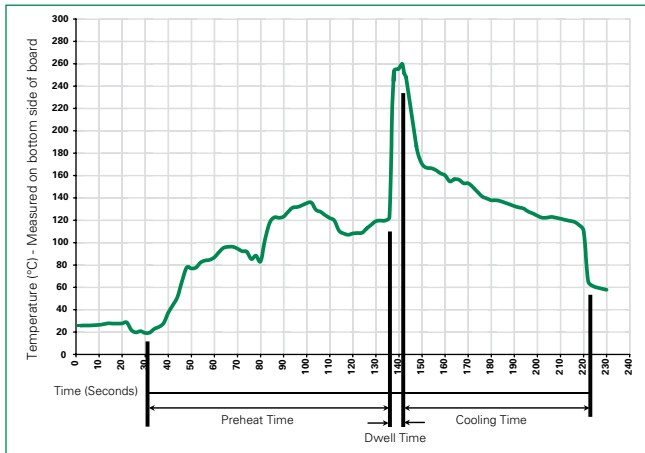
## Temperature Re-rating Curve



## Average Time Current Curves



### Soldering Parameters - Wave Soldering



### Recommended Process Parameters:

| Wave Parameter                                       | Lead-Free Recommendation          |
|------------------------------------------------------|-----------------------------------|
| Preheat:<br>(Depends on Flux Activation Temperature) | (Typical Industry Recommendation) |
| Temperature Minimum:                                 | 100°C                             |
| Temperature Maximum:                                 | 150°C                             |
| Preheat Time:                                        | 60-180 seconds                    |
| Solder Pot Temperature:                              | 260°C Maximum                     |
| Solder Dwell Time:                                   | 2-5 seconds                       |

### Recommended Hand-Solder Parameters:

Solder Iron Temperature: 350°C +/- 5°C Heating Time: 5 seconds max.

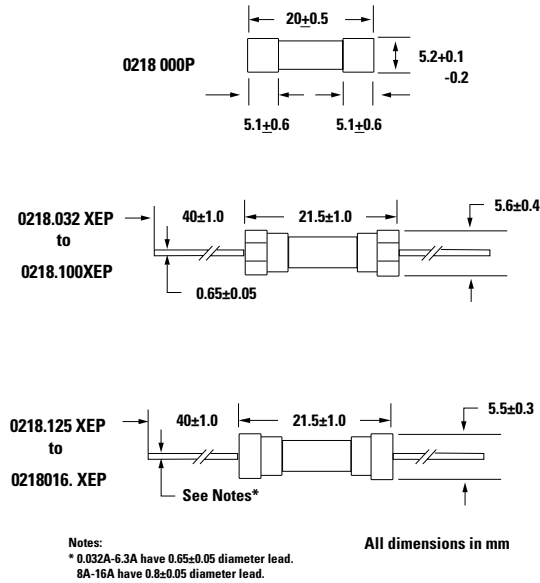
**Note:** These devices are not recommended for IR or Convection Reflow process.

### Product Characteristics

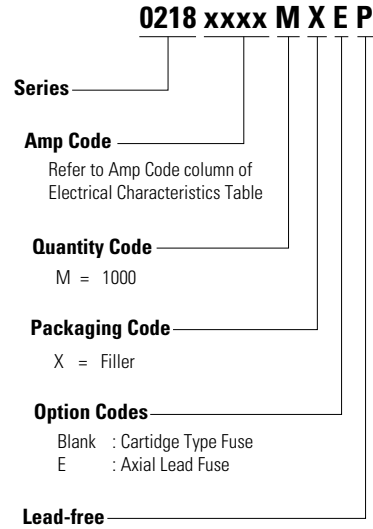
|                          |                                                                                            |
|--------------------------|--------------------------------------------------------------------------------------------|
| <b>Material</b>          | <b>Body:</b> Glass<br><b>Cap:</b> Nickel-plated Brass<br><b>Leads:</b> Tin-plated Copper   |
| <b>Terminal Strength</b> | MIL-STD-202, Method 211, Test Condition A                                                  |
| <b>Solderability</b>     | MIL-STD-202, Method 208                                                                    |
| <b>Product Marking</b>   | <b>Cap1:</b> Brand logo, current and voltage ratings<br><b>Cap2:</b> Agency approval marks |
| <b>Packaging</b>         | Available in Bulk (M=1000 pcs/pkg) or on Tape/Reel (MRET1=1000 pcs/reel)                   |

|                              |                                                                                                         |
|------------------------------|---------------------------------------------------------------------------------------------------------|
| <b>Operating Temperature</b> | -55°C to +125°C                                                                                         |
| <b>Thermal Shock</b>         | MIL-STD-202, Method 107, Test Condition B (5 cycles, -65°C to +125°C)                                   |
| <b>Vibration</b>             | MIL-STD-202, Method 201                                                                                 |
| <b>Humidity</b>              | MIL-STD-202, Method 103, Test Condition A (High RH (95%) and elevated temperature (40°C) for 240 hours) |
| <b>Salt Spray</b>            | MIL-STD-202, Method 101, Test Condition B                                                               |

## Dimensions



## Part Numbering System



## Packaging

| Packaging Option  | Packaging Specification | Quantity | Quantity & Packaging Code | Taping Width     |
|-------------------|-------------------------|----------|---------------------------|------------------|
| <b>218 Series</b> |                         |          |                           |                  |
| Bulk              | N/A                     | 1000     | MX                        | N/A              |
| Bulk              | N/A                     | 1000     | MXE                       | N/A              |
| Reel and Tape     | EIA 296-E               | 1000     | MRET1                     | T1=53mm (2.087") |
| Bulk              | N/A                     | 1000     | MXG                       | N/A              |
| Bulk              | N/A                     | 1000     | MXB                       | N/A              |
| Bulk              | N/A                     | 100      | HX                        | N/A              |

## Recommended Accessories

| Accessory Type | Series                  | Description                                                               | Max Application Voltage | Max Application Amperage |
|----------------|-------------------------|---------------------------------------------------------------------------|-------------------------|--------------------------|
| Holder         | <a href="#">345_ISF</a> | Panel Mount Shock-Safe Fuseholder                                         | 250                     | 20                       |
|                | <a href="#">345</a>     | Shock-Safe Fuseholder with PC Mount, Solder Mount and Panel Mount options |                         | 20                       |
|                | <a href="#">830</a>     | PC Mount Shock-Safe Miniature Fuseholder                                  |                         | 16                       |
| Block          | <a href="#">520</a>     | Metric OMNI-BLOK® Fuse Block                                              |                         | 10                       |
|                | <a href="#">646</a>     | PC Mount Miniature Fuse Block                                             |                         | 6.3                      |
|                | <a href="#">658</a>     | Surface Mount Miniature Fuse Block                                        |                         | 10                       |
| Clip           | <a href="#">520_W</a>   | PC Mount Miniature Fuse Clip                                              |                         | 6.3                      |
|                | <a href="#">111</a>     | PC Board Mount Fuse Clip                                                  |                         | 10                       |
|                | <a href="#">445</a>     | PC Board Mount Fuse Clip                                                  |                         | 10                       |

### Notes:

- Do not use in applications above rating.
- Please refer to fuseholder data sheet for specific re-rating information.
- Please contact factory for applications greater than the max voltage and amperage shown.

# Mouser Electronics

Authorized Distributor

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[Littelfuse:](#)

[02183.15MRET1P](#) [021801.6HXP](#) [0218010.MXP](#) [02181.25MXEP](#) [021806.3MXEP](#) [0218.063MXEP](#) [0218.032HXP](#)  
[02183.15HXP](#) [0218.125HXP](#) [0218.125MXP](#) [0218.032MXP](#) [0218.315MXEP](#) [0218004.MXP](#) [0218005.MXEP](#)  
[0218008.MXEP](#) [0218.800MXEP](#) [0218.100MXP](#) [0218002.HXP](#) [0218.063MXP](#) [0218.400HXP](#) [0218001.MXEP](#)  
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[0218.050HXP](#) [0218010.HXP](#) [02181.25HXP](#) [021802.5HXP](#) [0218.160MXEP](#) [0218.250MXP](#) [0218015.HXP](#)  
[0218.040MXP](#) [0218.500MXP](#) [0218.080MXP](#) [0218.315MXP](#) [0218.400MXP](#) [0218001.MXP](#) [02183.15MXEP](#)  
[0218.500HXP](#) [021806.3MRET1P](#) [021812.5MXEP](#) [021812.5MXP](#) [0218016.MXEP](#) [0218016.MXP](#) [0218.500MRET1P](#)  
[0218.800MXBP](#) [0218004.MRET1P](#) [0218005.MRET1P](#) [02181.25MXBP](#) [02183.15MXBP](#) [0218.315MRET1P](#)  
[0218.080MRET1P](#) [0218.800MRET1P](#) [02181.25MRET1P](#) [0218010.MRET1P](#) [0218002.MRET1P](#) [0218008.MXP](#)  
[0218.100MXEP](#) [0218.315HXP](#) [0218.063HXP](#) [0218.040HXP](#) [0218.200HXP](#) [021801.6MXP](#) [021806.3MXP](#)  
[0218.630MXP](#) [021806.3HXP](#) [0218.500MXEP](#) [0218.050MXEP](#) [0218.040MXEP](#) [0218.200MXEP](#) [0218.100HXP](#)  
[02181.25MXP](#) [0218.160MXP](#) [0218002.MXP](#) [0218015.MXP](#) [0218002.MXEP](#) [0218005.MXP](#) [0218.160HXP](#)  
[0218004.MXEP](#) [0218.800HXP](#) [0218.630MXEP](#) [0218001.HXP](#) [0218008.HXP](#) [0218005.HXP](#) [02183.15MXP](#)  
[021802.5MXEP](#) [0218.400MXEP](#) [0218.125MXEP](#) [0218.250HXP](#) [0218.080MXEP](#) [0218004.HXP](#) [021802.5MXP](#)  
[0218.200MXP](#) [0218010.MXEP](#) [0218.250MXEP](#) [0218010.MXBP](#)