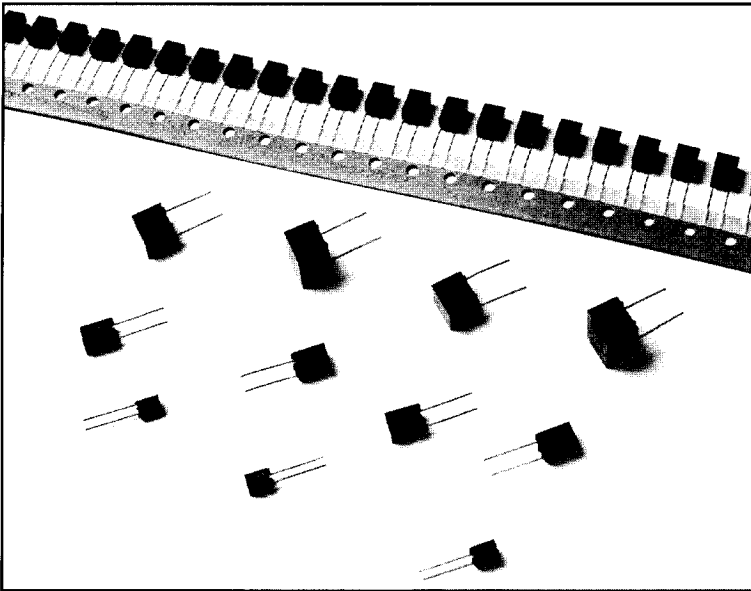




RADIAL MOLDED SOLID TANTALUM CAPACITORS



TYPES

790D

CTS27

FEATURES

Four case sizes precisely molded with a flame retardant epoxy resin
Stand off on all case sizes
Available on tape for automatic insertion equipment (A and B cases)

Extended range available

Wide temperature range -55°C to 125°C

Low leakage current

Low impedance

SPECIFICATIONS



DIN

30201-007 - CTS27

30201-009 - 790D

30201-018 - 790D

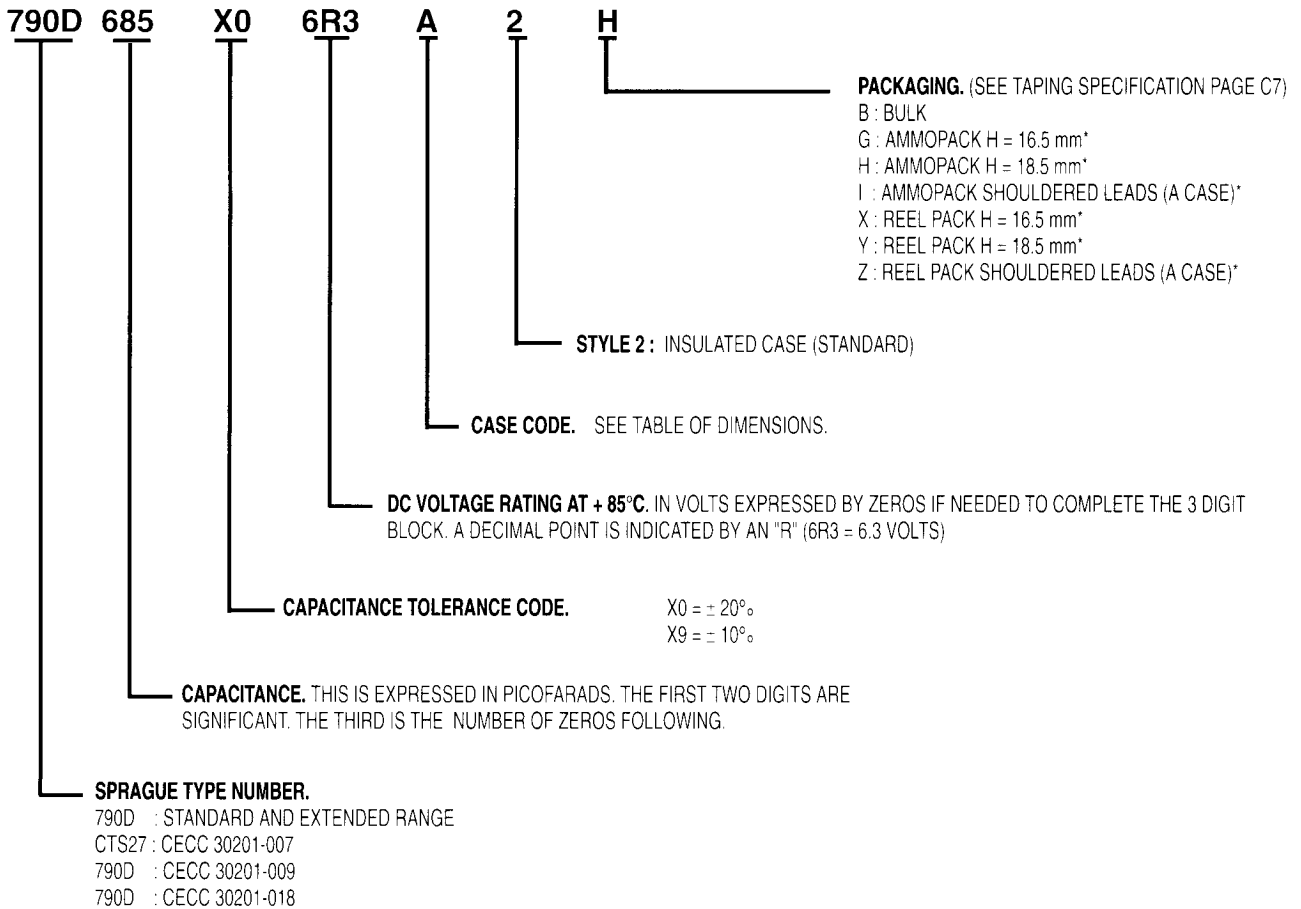
DIN 44350

DIN 44352

SOLID TANTALUM CAPACITORS

790D - CTS27

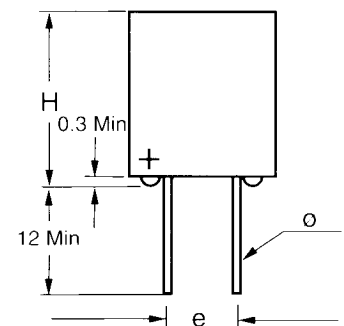
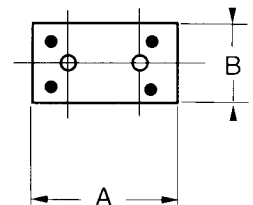
ORDERING INFORMATION



* NON-PREFERRED CONFIGURATION : AVAILABLE ONLY FOR A AND B CASES

DIMENSIONS

| CASE CODE | Dimensions (mm) | | | | |
|-----------|-----------------|-------|-------|----------|------------------|
| | H max | A max | B max | e ± 0.15 | +10% Ø - 0.05 |
| A | 7.3 | 4.7 | 4.2 | 2.54 | 0.5 |
| B | 10.5 | 7.3 | 4.8 | 5.08 | 0.5 |
| C | 10.5 | 12.3 | 7.3 | 10.16 | 0.6 |
| D | 10.5 | 12.3 | 12.3 | 10.16 | 0.6 |



SOLID TANTALUM CAPACITORS

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790D/CTS27 STANDARD RANGE

| C_R μF | RATED VOLTAGE U_R (V) (85°C) | | | | | | |
|------------------|------------------------------------|----------|----------|----------|----------|----------|----------|
| | 6.3 | 10 | 16 | 20 | 25 | 40 | 50 |
| | CATEGORY VOLTAGE U_C (V) (125°C) | | | | | | |
| | 4 | 6.3 | 10 | 13 | 16 | 25 | 32 |
| 0.10 | | | | | | A | A |
| 0.15 | | | | | | A | A |
| 0.22 | | | | | | A | A |
| 0.33 | | | | | | A | A |
| 0.47 | | | | | | A | A |
| 0.68 | | | | | | A | A |
| 1.0 | | | | | | A | A |
| 1.5 | | | | | A | B | B |
| 2.2 | | | A | A | | B | B |
| 3.3 | | | A | | | B | B |
| 4.7 | | A | | | | B | B |
| 6.8 | A | | | | | B | C |
| 10 | | | | | B | C | C |
| 15 | | | B | B | | C | C |
| 22 | | | B | | | C | D |
| 33 | | B | | | C | D | |
| 47 | B | | C | C | | D | |
| 68 | | | C | | D | | |
| 100 | | C | D | D | | | |
| 150 | C | | D | | | | |
| 220 | | D | | | | | |
| 330 | D | | | | | | |

Ratings approved to CECC 30201-007 (CTS27) are in bold characters

790D EXTENDED RANGE

| C_R μF | RATED VOLTAGE U_R (V) (85°C) | | | | | |
|------------------|------------------------------------|----------|----------|----------|----------|----------|
| | 6.3 | 10 | 16 | 20 | 25 | 35 |
| | CATEGORY VOLTAGE U_C (V) (125°C) | | | | | |
| | 4 | 6.3 | 10 | 13 | 16 | 23 |
| 3.3 | | | | | | A |
| 4.7 | | | | | A | |
| 6.8 | | | | A | | |
| 10 | | | A | | | B |
| 15 | | A | | | B | |
| 22 | A | | | B | B | |
| 33 | | | B | | | C |
| 47 | | B | | | C | |
| 68 | B | B | | C | | |
| 100 | | | C | | | |
| 150 | | C | | | | |
| 220 | C | | | | | |

PERFORMANCE CHARACTERISTICS

Operating temperature

-55°C to +85°C with rated voltage (U_R) applied
 +85°C to +125°C with linear voltage derating to category voltage U_C (see page C3) applied.

Capacitance and tolerance

Capacitance measured at 100Hz and +25°C shall be within the specified tolerance limits of the nominal rating.

Reverse voltage

15% of rated voltage at +25°C
 5% of rated voltage at +85°C

Surge voltage

130% of U_R at 85°C
 130% of U_C at 125°C

Impedance at 100 KHz

Measured at 20°C ± 5°C, impedance shall not exceed the values listed page C5.

Life test

2000 hours at +85°C with rated voltage applied.
 2000 hours at +125°C with category voltage applied.
 $\Delta C/C \leq 10\%$ of initial value
 $I_L \leq 1.25$ initial limit
 $DF \leq$ initial limit.

Humidity test

56 days at +40°C, 90% relative humidity
 $\Delta C/C \leq 8\%$ of initial value
 $I_L \leq$ initial limit
 $DF \leq$ initial limit.

Charge and discharge test

1 million cycles at 85°C, 0.5 s charge at U_R .
 0.5 s discharge
 Serie resistance < 0.5 Ω

$\Delta C/C \leq 5\%$ initial value
 $I_L \leq$ initial limit
 $DF \leq$ initial limit.

Stability at low and high temperature

Capacitance change with temperature, dissipation factor and DC leakage current shall not exceed the limits of the following table.

| Temperature | -55°C | +25°C | +85°C | +125°C |
|---|-------|--|--|--|
| Capacitance change | -10% | ----- | +12% | +15% |
| Dissipation factor $C_R U_R \leq 1900$ | 9% | 6% | 9% | 12% |
| $C_R U_R > 1900$ | 11% | 8% | 11% | 14% |
| Leakage current I_L | ----- | 0.01 $C_R U_R$ or 1 μA, whichever is greater | 0.1 $C_R U_R$ or 10 μA, whichever is greater | 0.125 $C_R U_R$ or 12.5 μA, whichever is greater |

SOLID TANTALUM CAPACITORS

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**Maximum impedance (Ω) at 100 KHz and +25°C
790D/CTS27**

| C_R μF | RATED VOLTAGE U_R (V) (85°C) | | | | | | |
|------------------|------------------------------------|-----|-----|-----|-----|-----|-----|
| | 6.3 | 10 | 16 | 20 | 25 | 40 | 50 |
| | CATEGORY VOLTAGE U_C (V) (125°C) | | | | | | |
| | 4 | 6.3 | 10 | 13 | 16 | 25 | 32 |
| 0.10 | | | | | | 30 | 30 |
| 0.15 | | | | | | 24 | 24 |
| 0.22 | | | | | | 18 | 18 |
| 0.33 | | | | | | 14 | 14 |
| 0.47 | | | | | | 11 | 11 |
| 0.68 | | | | | | 8 | 8 |
| 1.0 | | | | | | 6.5 | 6.5 |
| 1.5 | | | | | 6.0 | 5.2 | 5.2 |
| 2.2 | | | 5.5 | 5.5 | | 4.0 | 4.0 |
| 3.3 | | | 4.4 | | | 2.8 | 2.8 |
| 4.7 | | 4.0 | | | | 2.0 | 2.0 |
| 6.8 | 4.0 | | | | | 1.6 | 1.6 |
| 10 | | | | | 1.6 | 1.3 | 1.3 |
| 15 | | | 1.6 | 1.5 | | 1.0 | 1.0 |
| 22 | | | 1.3 | | | 0.8 | 0.8 |
| 33 | | 1.3 | | | 0.8 | 0.6 | |
| 47 | 1.3 | | 0.8 | 0.7 | | 0.5 | |
| 68 | | | 0.6 | | 0.5 | | |
| 100 | | 0.6 | 0.5 | 0.8 | | | |
| 150 | 0.6 | | 0.4 | | | | |
| 220 | | 0.4 | | | | | |
| 330 | 0.4 | | | | | | |

790D EXTENDED RANGE

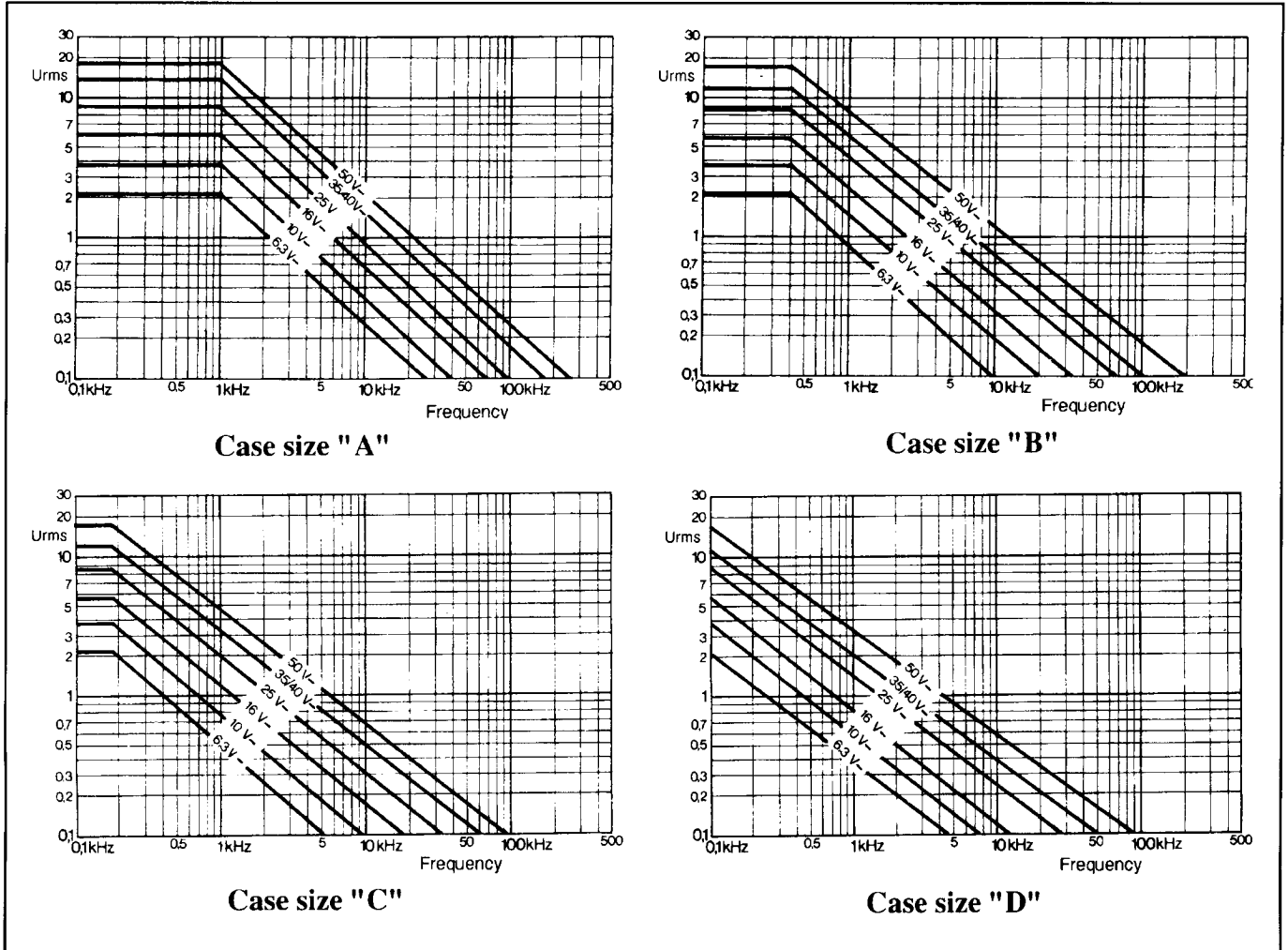
| C_R μF | RATED VOLTAGE U_R (V) (85°C) | | | | | |
|------------------|------------------------------------|-----|-----|-----|-----|-----|
| | 6.3 | 10 | 16 | 20 | 25 | 35 |
| | CATEGORY VOLTAGE U_C (V) (125°C) | | | | | |
| | 4 | 6.3 | 10 | 13 | 16 | 23 |
| 3.3 | | | | | | 6.0 |
| 4.7 | | | | | 4.5 | |
| 6.8 | | | | 3.5 | | |
| 10 | | | 2.7 | | | 2.6 |
| 15 | | 2.5 | | | 2.4 | |
| 22 | 2.1 | | | 2.1 | 2.1 | |
| 33 | | | 1.6 | | | 1.3 |
| 47 | | 1.4 | | | 1.0 | |
| 68 | 1.3 | 1.3 | | 0.8 | | |
| 100 | | | 0.7 | | | |
| 150 | | 0.6 | | | | |
| 220 | 0.6 | | | | | |

SOLID TANTALUM CAPACITORS

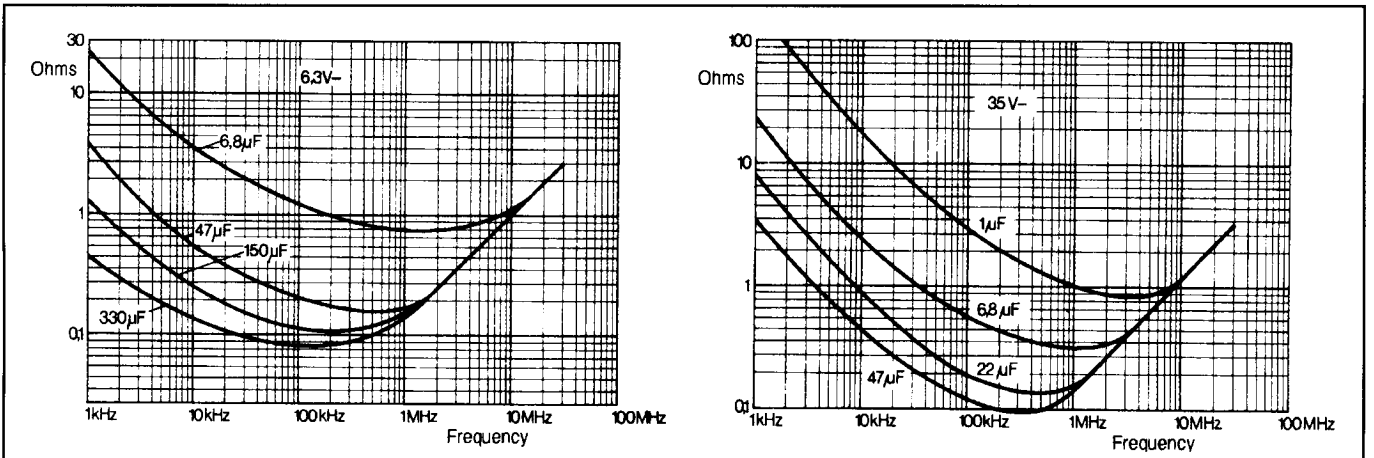
790D - CTS27

PERFORMANCE CHARACTERISTICS (CONT'D)

Maximum permissible ripple voltage at +25°C



Typical curves of impedance vs frequency



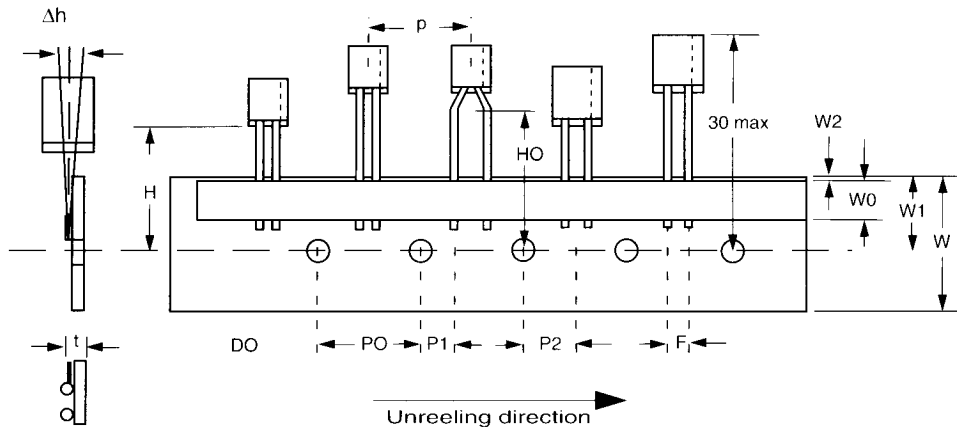
SOLID TANTALUM CAPACITORS

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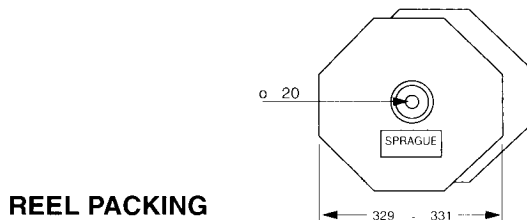
MARKING

Capacitors shall be marked with the types number CTS27/790D rated capacitance, tolerance (if different from 20%), rated DC working voltage, polarity, date code and the Sprague trademark ②.

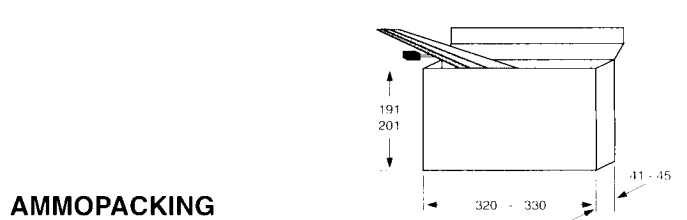
TAPE AND REEL PACKING : A + B cases only (Meets IEC 286-2)



| CASE CODE | TAPE WIDTH | UNITS PER REEL | | |
|---------------------------------|------------|-------------------------------------|-----------------------------------|-----------------------------------|
| Pitch of component | P | 12.7 ± 1.0 | | |
| Feed hole pitch | PO | 12.7 ± 0.3 | | |
| Tape width | W | 18 (+1 / -0.5) | | |
| Hold down tape width | WO | 5.0 mm | | |
| Hole position | W1 | 9 (+0.75 / -0.5) | | |
| Hold down tape position | W2 | 0 (+3 / -0) | | |
| Feed hole diameter | DO | 4.0 ± 0.3 | | |
| Tape thickness | t | 0.5 ± 0.2 | | |
| Component alignment | Δh | 0 ± 2 | | |
| Lead clinch height | HO | 16.0 ± 0.5 | | |
| Hole center to component center | P2 | 6.35 ± 1.3 | | |
| Lead wire spacing | F | Case A | Case A | Case B |
| | | 2.5 ^{-0.1} _{+0.6} | 5 ^{-0.1} _{+0.6} | 5 ^{-0.1} _{+0.6} |
| Feed hole center to wire center | P1 | 5.1 ± 0.7 | 3.85 ± 0.7 | 3.85 ± 0.7 |
| Reel pack options | H = 16.5 | X | | X |
| | H = 18.5 | Y | Z | Y |
| Ammopack options | H = 16.5 | G | | G |
| | H = 18.5 | H | I | H |
| Quantity per reel / box | | 1000 | 1000 | 1000 |



REEL PACKING



AMMOPACKING