

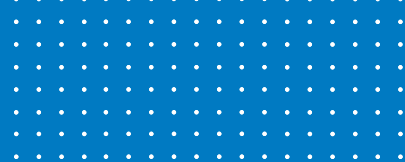
# Contacts

Amphenol



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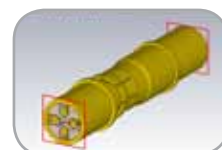
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## DESIGN

Amphenol Socapex drives innovation through products since years. Thanks to our localization in the Arves valley and our integrated organization, Amphenol acquires a strong knowledge on design and manufacturing of contacts. Our team can support customer requests and offer the right design for the right application.



### QUICK FACTS

- ProEngineer software link to a mechanical software analysis
- CST software to characterize high speed contacts
- Engineering laboratory for:
  - Mechanical measurements

## SCREW MACHINING OPERATIONS

Our screw machining operations based in Thyez work independently. They manage both internal requests for Amphenol and demands from outside companies.

### QUICK FACTS

- A park for all series from 1 to 100 000 pieces, and more. Maximal diameter workable: 10mm
- Machined parts with slots, milling, axial holes, radial or eccentric holes, thread, tapping, contacts with wire wrap terminations and winchester.
- Deburring and polishing by tribofinishing or dry sand blasting.
- Heat treatment under controlled atmosphere (beryllium copper). Local induction annealing on contacts.
- Standard metal on stock: beryllium copper, brass, brass for crimping, steel, stainless steel.
- Capability to have a combined project with plating including cadmium plating, electroless nickel-plating, nickel + gold plating, silver plating, tin plating, passivating for stainless steel.
- Quick turn-around: quick delivery for small quantities.



## PLATING CAPABILITIES

Amphenol Socapex provides you with plating services for a wide range of pieces such as connectors, contacts, boxes and accessories.

Our plating services include:

- cadmium plating
- chemical nickel (medium and high phosphorous)
- copper, nickel, silver and gold plating
- passivation of stainless steel
- substitutes treatment plating to ROHS cadmium

These treatments can be done in rack, barrel, vibratory bowl-feeder, reel to reel for stamped and formed contacts.

To guarantee the best quality, we utilize different control methods:

- X-ray measurement for thickness
- binocular microscope for aspect
- salt spray chamber for testing corrosion
- chemical laboratory for the follow-up of the baths and the development of new processes.



Our workshop is accredited by many OEMs such as MBDA, Aératur, Safran...

The plating is made in compliance with environmental norms, our factory is certified ISO 14001.

## PRODUCT DESIGNATION AND DERIVATED PRODUCTS

In this catalog, Amphenol refers only on standard designations for the contacts usages. This page is a guide to help finding all the Amphenol compliant products behind the standard designation



### MIL-DTL-38999 SERIES I

- Amphenol proprietary : LJT series (please refer catalog DOC-000031-ANG)
- Rack & Panel derived product:
  - RNJ series (please refer catalog E115)



### MIL-DTL-38999 SERIES II

- Amphenol proprietary : JT series (please refer catalog E 111 )
- Quick release derived product: SC39LP (please refer DOC-000637-ANG)



### MIL-DTL-38999 SERIES III / EN3645

- Amphenol proprietary: TV / CTV series (please refer DOC-000035-ANG)
- Rack & Panel derived product:
  - RNJLP series (please refer catalog E124 )
  - Quick release derived product: SC39 (please refer DOC-000637-ANG)



## SIGNAL CONTACTS

### CRIMP CONTACTS

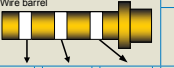
#### MIL-DTL-38999 SERIES I, II, III / EN3645 / EN4165

Amphenol contacts are designed to meet and exceed SAE39029 and EN3155 standards. The following contacts are gold plating over suitable underplate. They withstand 500 and 1500 cycles. The 1500 cycles contacts are dedicated to MIL-DTL-38999 series III classes H and J.



### SAE39029 CONTACTS - US MIL STANDARD

#### 500 CYCLES

| PIN or<br>SOCKET | MILITARY Nb   | CONTACT            |                     | AMPHENOL<br>P/N | Color bands                                                                        |               |     | CONNECTOR |        |        |     |      |
|------------------|---------------|--------------------|---------------------|-----------------|------------------------------------------------------------------------------------|---------------|-----|-----------|--------|--------|-----|------|
|                  |               | Mating end<br>size | Wire barrel<br>size |                 |  | MIL-DTL-38999 |     |           | EN3645 | EN4165 |     |      |
|                  |               |                    |                     |                 |                                                                                    | 1st           | 2nd | 3rd       |        |        | S I | S II |
| P                | M39029/18-177 | 23                 | 22                  | 900049          |                                                                                    |               |     |           |        | X      | X   | X    |
|                  | M39029/58-360 | 22                 | 22D                 | 900004          |                                                                                    |               |     | X         | X      | X      | X   | X    |
|                  | M39029/58-363 | 20                 | 20                  | 900001          |                                                                                    |               |     | X         | X      | X      | X   | X    |
|                  | M39029/58-364 | 16                 | 16                  | 900000          |                                                                                    |               |     | X         | X      | X      | X   | X    |
|                  | M39029/58-365 | 12                 | 12                  | 900005          |                                                                                    |               |     | X         | X      | X      | X   | X    |
| S                | M39029/17-172 | 23                 | 22                  | 900048          |                                                                                    |               |     |           |        | X      | X   |      |
|                  | M39029/56-348 | 22                 | 22D                 | 900044          |                                                                                    |               |     | X         |        | X      | X   |      |
|                  | M39029/57-354 | 22                 | 22D                 | 900014          |                                                                                    |               |     |           | X      |        |     |      |
|                  | M39029/56-351 | 20                 | 20                  | 900041          |                                                                                    |               |     | X         |        | X      | X   |      |
|                  | M39029/57-357 | 20                 | 20                  | 900011          |                                                                                    |               |     |           | X      |        |     |      |
|                  | M39029/56-352 | 16                 | 16                  | 900040          |                                                                                    |               |     | X         |        | X      | X   |      |
|                  | M39029/57-358 | 16                 | 16                  | 900010          |                                                                                    |               |     |           | X      |        |     |      |
|                  | M39029/56-353 | 12                 | 12                  | 900045          |                                                                                    |               |     | X         |        | X      | X   |      |
|                  | M39029/57-359 | 12                 | 12                  | 071315          |                                                                                    |               |     |           | X      |        |     |      |

Contacts size 23 are dedicated to HD38999 Amphenol connectors.

### SAE39029 CONTACTS

#### ENHANCED PERFORMANCES

QUALIFICATION IN PROGRESS

| PIN or<br>SOCKET | MILITARY Nb     | CONTACT            |                     | AMPHENOL<br>P/N | Color bands                                                                          |     |     | CONNECTOR     |      |       |        |        |
|------------------|-----------------|--------------------|---------------------|-----------------|--------------------------------------------------------------------------------------|-----|-----|---------------|------|-------|--------|--------|
|                  |                 | Mating end<br>size | Wire barrel<br>size |                 |  |     |     | MIL-DTL-38999 |      |       | EN3645 | EN4165 |
|                  |                 |                    |                     |                 | 1st                                                                                  | 2nd | 3rd | S I           | S II | S III |        |        |
| P                | AS39029/122-669 | 23                 | 26                  | /               |                                                                                      |     |     |               |      | X     |        |        |
|                  | AS39029/122-670 | 23                 | 22                  | /               |                                                                                      |     |     |               |      | X     |        |        |
|                  | AS39029/122-671 | 22                 | 22D                 | 60088002        |                                                                                      |     |     | X             | X    | X     | X      | X      |
|                  | AS39029/122-672 | 20                 | 20                  | 60088202        |                                                                                      |     |     | X             | X    | X     | X      | X      |
|                  | AS39029/122-673 | 16                 | 16                  | 60088402        |                                                                                      |     |     | X             | X    | X     | X      | X      |
|                  | AS39029/122-674 | 12                 | 12                  | 60088602        |                                                                                      |     |     | X             | X    | X     | X      | X      |
| AS39029/122-675  | 10              | 10                 | 60023302            |                 |                                                                                      |     | X   | X             | X    |       |        |        |
| S                | AS39029/121-662 | 23                 | 26                  | /               |                                                                                      |     |     |               |      | X     |        |        |
|                  | AS39029/121-663 | 23                 | 22                  | /               |                                                                                      |     |     |               |      | X     |        |        |
|                  | AS39029/121-664 | 22                 | 22D                 | 60089002        |                                                                                      |     |     | X             |      | X     | X      |        |
|                  | AS39029/121-665 | 20                 | 20                  | 60089202        |                                                                                      |     |     | X             |      | X     | X      |        |
|                  | AS39029/121-666 | 16                 | 16                  | 60089402        |                                                                                      |     |     | X             |      | X     | X      |        |
|                  | AS39029/121-667 | 12                 | 12                  | 60089602        |                                                                                      |     |     | X             |      | X     | X      |        |
|                  | AS39029/121-668 | 10                 | 10                  | 60020802        |                                                                                      |     |     | X             |      | X     |        |        |

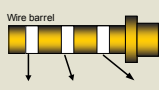
# SIGNAL CONTACTS

## CRIMP CONTACTS

MIL-DTL-38999 SERIES I, II,III / EN3645 / EN4165

## SAE39029 CONTACTS

1500 CYCLES

| PIN or<br>SOCKET | MILITARY Nb    | CONTACT            |                     | AMPHENOL<br>P/N | Color bands                                                                        |     |     | CONNECTOR     |      |       |        |
|------------------|----------------|--------------------|---------------------|-----------------|------------------------------------------------------------------------------------|-----|-----|---------------|------|-------|--------|
|                  |                | Mating end<br>size | Wire barrel<br>size |                 |  |     |     | MIL-DTL-38999 |      |       | EN3645 |
|                  |                |                    |                     |                 | 1st                                                                                | 2nd | 3rd | S I           | S II | S III |        |
|                  |                |                    |                     |                 |                                                                                    |     |     |               |      |       |        |
| P                | M39029/107-620 | 22                 | 22D                 | 900317          |                                                                                    |     |     |               |      | X     | X      |
|                  | M39029/107-621 | 20                 | 20                  | 900318          |                                                                                    |     |     |               |      | X     | X      |
|                  | M39029/107-622 | 16                 | 16                  | 900319          |                                                                                    |     |     |               |      | X     | X      |
|                  | M39029/107-623 | 12                 | 12                  | 900320          |                                                                                    |     |     |               |      | X     | X      |
| S                | M39029/106-614 | 22                 | 22D                 | 900322          |                                                                                    |     |     |               |      | X     | X      |
|                  | M39029/106-615 | 20                 | 20                  | 900323          |                                                                                    |     |     |               |      | X     | X      |
|                  | M39029/106-616 | 16                 | 16                  | 900324          |                                                                                    |     |     |               |      | X     | X      |
|                  | M39029/106-617 | 12                 | 12                  | 900325          |                                                                                    |     |     |               |      | X     | X      |

## SAE39029 WIRE BARREL RANGE AND NOMINAL TEST CURRENT (A)

| Wire barrel size | Wire Size |    |    |    |     |    |    |    |     |
|------------------|-----------|----|----|----|-----|----|----|----|-----|
|                  | 12        | 14 | 16 | 18 | 20  | 22 | 24 | 26 | 28  |
| 22               |           |    |    |    |     | 5  | 3  | 2  | 1.5 |
| 22D              |           |    |    |    |     | 5  | 3  | 2  | 1.5 |
| 20               |           |    |    |    | 7.5 | 5  | 3  |    |     |
| 16               |           |    | 13 | 10 | 7.5 |    |    |    |     |
| 12               | 23        | 17 |    |    |     |    |    |    |     |

### COLOR BAND

|                                                                                     |        |
|-------------------------------------------------------------------------------------|--------|
|  | Orange |
|  | Brown  |
|  | Violet |
|  | Blue   |
|  | Green  |
|  | Black  |
|  | Yellow |
|  | Red    |
|  | Gray   |
|  | White  |

# SIGNAL CONTACTS

## CRIMP CONTACTS

MIL-DTL-38999 SERIES I, II, III / EN3645 / EN4165



## SAE 39029 CRIMPING TOOLS

| PIN or SOCKET | MILITARY Nb   | CONTACT         |                  | Amphenol P/N | Crimping Tool |             |
|---------------|---------------|-----------------|------------------|--------------|---------------|-------------|
|               |               | Mating end size | Wire barrel size |              | Crimping Tool | Positionner |
| P             | M39029/18-177 | 23              | 22               | 900045       | M22520/2-01   | M22520/2-13 |
|               | M39029/58-360 | 22              | 22D              | 900004       | M22520/2-01   | M22520/2-09 |
|               | M39029/58-363 | 20              | 20               | 900001       | M22520/2-01   | M22520/2-10 |
|               | M39029/58-364 | 16              | 16               | 900000       | M22520/1-01   | M22520/1-04 |
|               | M39029/58-365 | 12              | 12               | 900005       | M22520/1-01   | M22520/1-04 |
| S             | M39029/17-172 | 23              | 22               | 900048       | M22520/2-01   | M22520/2-16 |
|               | M39029/56-348 | 22              | 22D              | 900044       | M22520/2-01   | M22520/2-07 |
|               | M39029/57-354 | 22              | 22D              | 900014       | M22520/2-01   | M22520/2-06 |
|               | M39029/56-351 | 20              | 20               | 900041       | M22520/2-01   | M22520/2-10 |
|               | M39029/57-357 | 20              | 20               | 900011       | M22520/1-01   | M22520/1-04 |
|               | M39029/56-352 | 16              | 16               | 900040       | M22520/1-01   | M22520/1-04 |
|               | M39029/57-358 | 16              | 16               | 900010       | M22520/1-01   | M22520/1-04 |
|               | M39029/56-353 | 12              | 12               | 900045       | M22520/1-01   | M22520/1-04 |
|               | M39029/57-359 | 12              | 12               | 071315       | M22520/1-01   | M22520/1-04 |

| PIN or SOCKET | MILITARY Nb     | CONTACT         |                  | Amphenol P/N | Crimping Tool |             |
|---------------|-----------------|-----------------|------------------|--------------|---------------|-------------|
|               |                 | Mating end size | Wire barrel size |              | Crimping Tool | Positionner |
| P             | AS39029/122-669 | 23              | 26               | /            | M22520/2-01   | M22520/2-16 |
|               | AS39029/122-670 | 23              | 22               | /            | M22520/2-01   | M22520/2-16 |
|               | AS39029/122-671 | 22              | 22D              | 60088002     | M22520/2-01   | M22520/2-09 |
|               |                 |                 |                  |              | M22520/7-01   | M22520/7-07 |
|               | AS39029/122-672 | 20              | 20               | 60088202     | M22520/1-01   | M22520/2-10 |
|               |                 |                 |                  |              | M22520/7-01   | M22520/7-08 |
|               |                 |                 |                  |              | M22520/1-01   | M22520/1-04 |
|               | AS39029/122-673 | 16              | 16               | 60088402     | M22520/1-01   | M22520/1-04 |
| S             | AS39029/122-674 | 12              | 12               | 60088602     | M22520/1-01   | M22520/1-04 |
|               | AS39029/122-675 | 10              | 10               | 60023302     | M22520/45-04  | Basic tool  |
|               | AS39029/122-662 | 23              | 26               | /            | M22520/2-01   | M22520/2-16 |
|               | AS39029/122-663 | 23              | 22               | /            | M22520/2-01   | M22520/2-16 |
|               | AS39029/122-664 | 22              | 22D              | 60089002     | M22520/2-01   | M22520/2-07 |
|               |                 |                 |                  |              | M22520/7-01   | M22520/7-05 |
|               | AS39029/122-665 | 20              | 20               | 60089202     | M22520/2-01   | M22520/2-10 |
|               |                 |                 |                  |              | M22520/7-01   | M22520/7-08 |
|               |                 |                 |                  |              | M22520/1-01   | M22520/1-04 |
|               | AS39029/122-666 | 16              | 16               | 60089402     | M22520/1-01   | M22520/1-04 |
|               | AS39029/122-667 | 12              | 12               | 60089602     | M22520/1-01   | M22520/1-04 |
|               | AS39029/122-668 | 10              | 10               | 60020802     | M22520/45-01  | Basic tool  |

QUALIFICATION IN PROGRESS

# SIGNAL CONTACTS

## CRIMP CONTACTS

MIL-DTL-38999 SERIES I, II, III / EN3645 / EN4165

## SAE 39029 CRIMPING TOOLS

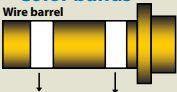
| PIN or<br>SOCKET | MILITARY Nb    | CONTACT            |                     | Crimping Tool |             |
|------------------|----------------|--------------------|---------------------|---------------|-------------|
|                  |                | Mating end<br>size | Wire barrel<br>size | Crimping Tool | Positionner |
| P                | M39029/107-620 | 22                 | 22D                 | M22520/2-01   | M22520/2-13 |
|                  | M39029/107-621 | 20                 | 20                  | M22520/2-01   | M22520/2-10 |
|                  |                |                    |                     | M22520/1-01   | M22520/1-04 |
|                  | M39029/107-622 | 16                 | 16                  | M22520/2-01   | M22520/2-10 |
| S                | M39029/107-623 | 12                 | 12                  | M22520/1-01   | M22520/1-04 |
|                  | M39029/106-614 | 22                 | 22D                 | M22520/1-01   | M22520/1-04 |
|                  | M39029/106-615 | 20                 | 20                  | M22520/2-01   | M22520/2-10 |
|                  |                |                    |                     | M22520/1-01   | M22520/1-04 |
|                  | M39029/106-616 | 16                 | 16                  | M22520/2-01   | M22520/2-16 |
|                  | M39029/106-617 | 12                 | 12                  | M22520/2-01   | M22520/2-07 |

## SIGNAL CONTACTS



### CRIMP CONTACTS MIL-DTL-38999 SERIES I, II, III / EN3645 / EN4165

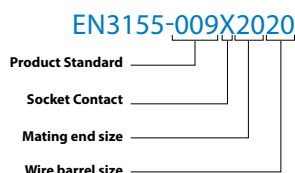
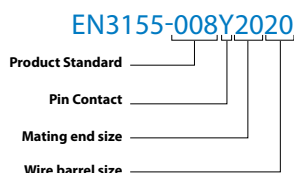
### EN3155 CONTACTS - EUROPEAN STANDARD

| PIN or<br>SOCKET | EN3155     | CONTACT            |                     | AMPHENOL<br>P/N | Color bands                                                                        |     | CONNECTOR     |      |       |        |        |
|------------------|------------|--------------------|---------------------|-----------------|------------------------------------------------------------------------------------|-----|---------------|------|-------|--------|--------|
|                  |            | Mating end<br>size | Wire barrel<br>size |                 |  |     | MIL-DTL-38999 |      |       | EN3645 | EN4165 |
|                  |            |                    |                     |                 | 1st                                                                                | 2st | S I           | S II | S III |        |        |
| P                | EN3155-008 | 22                 | 22                  | 60088001        |                                                                                    |     | X             | X    | X     | X      | X      |
|                  |            | 20                 | 22                  | 60088101        |                                                                                    |     | X             | X    | X     | X      | X      |
|                  |            | 20                 | 20                  | 60088201        |                                                                                    |     | X             | X    | X     | X      | X      |
|                  |            | 20                 | 18                  | 60088301        |                                                                                    |     | X             | X    | X     | X      | X      |
|                  |            | 16                 | 16                  | 60088401        |                                                                                    |     | X             | X    | X     | X      | X      |
|                  |            | 16                 | 14                  | 60088501        |                                                                                    |     | X             | X    | X     | X      | X      |
|                  |            | 12                 | 12                  | 60088601        |                                                                                    |     | X             | X    | X     | X      | X      |
|                  |            | 12                 | 14                  | 60088701        |                                                                                    |     | X             | X    | X     | X      | X      |
| S                | EN3155-003 | 22                 | 22                  | 60087001        |                                                                                    |     |               | X    |       |        | X      |
|                  |            | 20                 | 22                  | 60087101        |                                                                                    |     |               | X    |       |        | X      |
|                  |            | 20                 | 20                  | 60087201        |                                                                                    |     |               | X    |       |        | X      |
|                  |            | 20                 | 18                  | 60087301        |                                                                                    |     |               | X    |       |        | X      |
|                  |            | 16                 | 16                  | 60087401        |                                                                                    |     |               | X    |       |        | X      |
|                  |            | 16                 | 14                  | 60087501        |                                                                                    |     |               | X    |       |        | X      |
|                  |            | 12                 | 12                  | 60087601        |                                                                                    |     |               | X    |       |        | X      |
|                  |            | 12                 | 14                  | 60087701        |                                                                                    |     |               | X    |       |        | X      |
|                  | EN3155-009 | 22                 | 22                  | 60089001        |                                                                                    |     | X             |      | X     | X      |        |
|                  |            | 20                 | 22                  | 60089101        |                                                                                    |     | X             |      | X     | X      |        |
|                  |            | 20                 | 20                  | 60089201        |                                                                                    |     | X             |      | X     | X      |        |
|                  |            | 20                 | 18                  | 60089301        |                                                                                    |     | X             |      | X     | X      |        |
|                  |            | 16                 | 16                  | 60089401        |                                                                                    |     | X             |      | X     | X      |        |
|                  |            | 16                 | 14                  | 60089501        |                                                                                    |     | X             |      | X     | X      |        |
|                  |            | 12                 | 12                  | 60089601        |                                                                                    |     | X             |      | X     | X      |        |
|                  |            | 12                 | 14                  | 60089701        |                                                                                    |     | X             |      | X     | X      |        |

### EN3155 WIRE BARREL RANGE AND NOMINAL TEST CURRENT (A)

| Wire barrel size | Wire Size |    |    |     |     |    |    |    |    |
|------------------|-----------|----|----|-----|-----|----|----|----|----|
|                  | 12        | 14 | 16 | 18  | 20  | 22 | 24 | 26 | 28 |
| 22               |           |    |    |     |     | 5  | 3  | 2  |    |
| 20               |           |    |    |     | 7.5 | 5  | 3  |    |    |
| 18               |           |    |    | 7.5 | 7.5 | 5  | 3  |    |    |
| 16               |           |    | 13 | 10  | 7.5 |    |    |    |    |
| 14               |           | 13 | 13 | 10  | 7.5 |    |    |    |    |
| 12               | 23        | 17 |    |     |     |    |    |    |    |

### HOW TO BUILD EN3155 REFERENCE



# SIGNAL CONTACTS

## CRIMP CONTACTS

MIL-DTL-38999 SERIES I, II,III / EN3645 / EN4165

### EN3155 CRIMPING TOOLS

| PIN or<br>SOCKET | EN3155     | CONTACT            |                     | Amphenol<br>P/N | Crimping Tool |             |
|------------------|------------|--------------------|---------------------|-----------------|---------------|-------------|
|                  |            | Mating end<br>size | Wire barrel<br>size |                 | Crimping Tool | POSITIONNER |
| P                | EN3155-008 | 22                 | 22                  | 60088001        | M22520/2-01   | M22520/2-09 |
|                  |            | 20                 | 22                  | 60088101        | M22520/2-01   | M22520/2-10 |
|                  |            |                    |                     |                 | M22520/1-01   | M22520/1-04 |
|                  |            | 20                 | 20                  | 60088201        | M22520/2-01   | M22520/2-10 |
|                  |            |                    |                     |                 | M22520/1-01   | M22520/1-04 |
|                  |            | 20                 | 18                  | 60088301        | M22520/2-01   | M22520/2-10 |
|                  |            |                    |                     |                 | M22520/1-01   | M22520/1-04 |
|                  |            | 16                 | 16                  | 60088401        | M22520/1-01   | M22520/1-04 |
| S                | EN3155-003 | 16                 | 14                  | 60088501        | M22520/1-01   | M22520/1-04 |
|                  |            | 12                 | 12                  | 60088601        | M22520/1-01   | M22520/1-04 |
|                  |            | 12                 | 14                  | 60088701        | M22520/1-01   | M22520/1-04 |
|                  |            | 22                 | 22                  | 60087001        | M22520/2-01   | M22520/2-06 |
|                  |            | 20                 | 22                  | 60087101        | M22520/2-01   | M22520/2-10 |
|                  |            |                    |                     |                 | M22520/1-01   | M22520/1-04 |
|                  |            | 20                 | 20                  | 60087201        | M22520/2-01   | M22520/2-10 |
|                  |            |                    |                     |                 | M22520/1-01   | M22520/1-04 |
|                  | EN3155-009 | 20                 | 18                  | 60087301        | M22520/2-01   | M22520/2-10 |
|                  |            |                    |                     |                 | M22520/1-01   | M22520/1-04 |
|                  |            | 16                 | 16                  | 60087401        | M22520/1-01   | M22520/1-04 |
|                  |            | 16                 | 14                  | 60087501        | M22520/1-01   | M22520/1-04 |
|                  |            | 12                 | 12                  | 60087601        | M22520/1-01   | M22520/1-04 |
|                  |            | 12                 | 14                  | 60087701        | M22520/1-01   | M22520/1-04 |
|                  |            | 22                 | 22                  | 60089001        | M22520/2-01   | M22520/2-07 |
|                  |            | 20                 | 22                  | 60089101        | M22520/2-01   | M22520/2-10 |
|                  |            |                    |                     |                 | M22520/1-01   | M22520/1-04 |
|                  |            | 20                 | 20                  | 60089201        | M22520/2-01   | M22520/2-10 |
|                  |            |                    |                     |                 | M22520/1-01   | M22520/1-04 |
|                  |            | 20                 | 18                  | 60089301        | M22520/2-01   | M22520/2-10 |
|                  |            |                    |                     |                 | M22520/1-01   | M22520/1-04 |
|                  |            | 16                 | 16                  | 60089401        | M22520/1-01   | M22520/1-04 |
|                  |            | 16                 | 14                  | 60089501        | M22520/1-01   | M22520/1-04 |
|                  |            | 12                 | 12                  | 60089601        | M22520/1-01   | M22520/1-04 |
|                  |            | 12                 | 14                  | 60089701        | M22520/1-01   | M22520/1-04 |

# SIGNAL CONTACTS

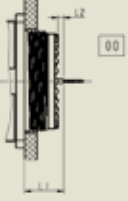
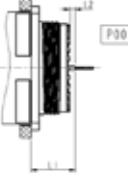
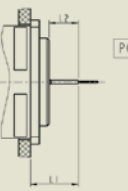
## SIGNAL CONTACTS

### PCB CONTACTS

### MIL-DTL-38999 SERIES I, III / EN3645 / EN4165

| PIN or SOCKET | Mating end size | TYPE | AMPHENOL P/N | TYPE | AMPHENOL P/N |
|---------------|-----------------|------|--------------|------|--------------|
| P             | 23              | CI   | 900458       | LI   | 600867       |
|               | 22D             |      | 900245       |      | 922389       |
|               | 20              |      | 900241       |      | 900243       |
|               | 16              |      | 900240       |      | 900246       |
|               | 12              |      | 900238       |      | 900282       |
| S             | 23              |      | 900459       |      | 600866       |
|               | 22D             |      | 900256       |      | 922390       |
|               | 20              |      | 900251       |      | 900252       |
|               | 16              |      | 900263       |      | 600526       |
|               | 12              |      | 900403       |      |              |

#### Pin 900245, Socket 900256

| Connectors with PCB Contacts                                                        |        | MIL-DTL-38999 series I |             | SJT         |             | MIL-DTL-38999 series II |             |          | MIL-DTL-38999 series III / EN3645 |             |             |             | MIL-DTL-38999 series III / EN3645 composite |             |              |            |
|-------------------------------------------------------------------------------------|--------|------------------------|-------------|-------------|-------------|-------------------------|-------------|----------|-----------------------------------|-------------|-------------|-------------|---------------------------------------------|-------------|--------------|------------|
|  | Sizes  |                        | 9 to 17     | 19 to 25    | 8 to 16     | 18 to 24                | 8 to 18     | 20 to 22 | 24                                | 9 to 11     | 13          | 15 to 17    | 19 to 25                                    | 9 to 11     | 13 to 25     |            |
|                                                                                     | Pin    | L1                     | 8,7 - 9,7   |             | 13,8 - 14,8 |                         | 12,3 - 13,2 |          | 11,6 - 12,6                       |             | 10,1 - 11,1 |             | 10 - 10,9                                   |             | 10,1 - 11,1  | 10 - 10,9  |
|                                                                                     |        | L2                     | 1,1 - 2,1   | 0,7 - 1,7   | 1,2 - 2,4   | 0,4 - 1,6               | 5,1 - 5,9   |          | 3,3 - 4,2                         |             | 1 - 1,9     |             | 1 - 1,8                                     | 1 - 1,9     | (-0,1) - 0,8 |            |
|                                                                                     | Socket | L1                     | 8,5 - 9,5   |             | 13,6 - 14,6 |                         | 12,1 - 13   |          | 11,4 - 12,4                       |             | 9,9 - 10,9  |             | 9,8 - 10,7                                  |             | 9,9 - 10,9   | 9,8 - 10,7 |
|                                                                                     |        | L2                     | 0,9 - 1,9   | 0,5 - 1,5   | 1 - 2,2     | 0,2 - 1,4               | 4,9 - 5,7   |          | 3,1 - 4,0                         |             | 0,8 - 1,7   |             | 0,8 - 1,6                                   | 0,8 - 1,7   | (-0,3) - 0,6 |            |
|  | Sizes  |                        | 9 to 25     |             | 8 to 22     | 24                      | /           |          |                                   | 9 to 25     |             |             | 9 to 19                                     | 21 to 25    |              |            |
|                                                                                     | Pin    | L1                     | 13,7 - 14,6 |             | 13,8 - 14,6 |                         |             |          |                                   | 9,3 - 10,1  |             |             | 9,3 - 10,2                                  | 9,4 - 10,3  |              |            |
|                                                                                     |        | L2                     | 1,6 - 2,6   |             | 1,6 - 2,6   | 0,3 - 1,2               |             |          |                                   | 1 - 2       |             |             | 1 - 1,9                                     |             |              |            |
|                                                                                     | Socket | L1                     | 13,5 - 14,4 |             | 13,6 - 14,4 |                         |             |          |                                   | 9,1 - 9,9   |             |             | 9,1 - 10                                    | 9,2 - 10,1  |              |            |
|                                                                                     |        | L2                     | 1,4 - 2,4   |             | 1,4 - 2,4   | 0,1 - 1                 |             |          |                                   | 0,8 - 1,8   |             |             | 0,8 - 1,7                                   |             |              |            |
|  | Sizes  |                        | 9 to 19     | 21 to 25    | 8 to 22     | 24                      | 8 to 22     |          | 24                                | 9 to 19     |             | 21 to 25    |                                             | 9 to 19     | 21 to 25     |            |
|                                                                                     | Pin    | L1                     | 11,3 - 12,1 | 12,1 - 12,9 | 15,4 - 16,2 | 11,8 - 12,6             | 12,2 - 13   |          |                                   | 11,5 - 12,4 |             | 12,3 - 13,2 |                                             | 12,8 - 13,6 | 13,6 - 14,4  |            |
|                                                                                     |        | L2                     | 1,3 - 2,2   |             | 2,7 - 3,7   | 0 - 0,9                 | 4,6 - 5,5   |          | 3,3 - 4,2                         |             | 1 - 2       |             | 1 - 1,9                                     |             |              |            |
|                                                                                     | Socket | L1                     | 11,1 - 11,9 | 11,9 - 12,7 | 15,2 - 16   | 11,6 - 12,4             | 12 - 12,8   |          |                                   | 11,3 - 12,2 |             | 12,1 - 13   |                                             | 12,6 - 13,4 | 13,4 - 14,2  |            |
|                                                                                     |        | L2                     | 1,1 - 2     |             | 2,5 - 3,5   | 0 - 0,7                 | 4,4 - 5,3   |          | 3,1 - 4                           |             | 0,8 - 1,8   |             | 0,8 - 1,7                                   |             |              |            |
|  | Sizes  |                        | /           |             | 8 to 22     | 24                      | 8 to 24     |          |                                   | 9 to 19     |             | 21 to 25    |                                             | /           |              |            |
|                                                                                     | Pin    | L1                     |             |             | 4,5 - 5,3   | 0,9 - 1,7               | 12,2 - 13   |          | 11,5 - 12,4                       |             | 12,3 - 13,2 |             |                                             |             |              |            |
|                                                                                     |        | L2                     |             |             | 1 - 2       | /                       | 6,8 - 7,8   |          | 6,8 - 7,8                         |             |             |             |                                             |             |              |            |
|                                                                                     | Socket | L1                     |             |             | 4,2 - 5,1   | 0,7 - 1,5               | 12 - 12,8   |          | 11,3 - 12,2                       |             | 12,1 - 13   |             |                                             |             |              |            |
|                                                                                     |        | L2                     |             |             | 0,8 - 1,8   | /                       | 6,6 - 7,6   |          | 6,6 - 7,6                         |             |             |             |                                             |             |              |            |

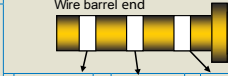
# SIGNAL CONTACTS

## THERMO COUPLE CONTACTS

MIL-DTL-38999 SERIES I, II,III / EN3645 / EN4165

AMPHENOL thermocouples contacts are designed to keep the signal transmission of thermocouples wires. They meet or exceed SAE 39029 standards

## EN3155 BIN CODES

| PIN or<br>SOCKET | AMPHENOL<br>P/N | MILITARY Nb   | CONTACT            |                     | Color bands                                                                          |     |     | CLASS   |
|------------------|-----------------|---------------|--------------------|---------------------|--------------------------------------------------------------------------------------|-----|-----|---------|
|                  |                 |               | Mating end<br>size | Wire barrel<br>size |  |     |     |         |
|                  |                 |               |                    |                     | 1st                                                                                  | 2nd | 3rd |         |
| P                | 072502          | M39029/87-471 | 22                 | 22D                 |                                                                                      |     |     | ALUMEL  |
|                  | 072501          | M39029/87-472 | 22                 | 22D                 |                                                                                      |     |     | CHROMEL |
|                  | 070586          | M39029/87-475 | 20                 | 20                  |                                                                                      |     |     | ALUMEL  |
|                  | 070587          | M39029/87-476 | 20                 | 20                  |                                                                                      |     |     | CHROMEL |
|                  |                 | M39029/87-479 | 16                 | 16                  |                                                                                      |     |     | ALUMEL  |
|                  |                 | M39029/87-480 | 16                 | 16                  |                                                                                      |     |     | CHROMEL |
| S                | 072500          | M39029/88-484 | 22                 | 22D                 |                                                                                      |     |     | CHROMEL |
|                  | 072503          | M39029/88-483 | 22                 | 22D                 |                                                                                      |     |     | ALUMEL  |
|                  | 250711          | M39029/88-488 | 20                 | 20                  |                                                                                      |     |     | CHROMEL |
|                  | 250712          | M39029/88-487 | 20                 | 20                  |                                                                                      |     |     | ALUMEL  |
|                  |                 | M39029/88-492 | 16                 | 16                  |                                                                                      |     |     | CHROMEL |
|                  |                 | M39029/88-491 | 16                 | 16                  |                                                                                      |     |     | ALUMEL  |



For other thermocouple class as Iron or Constantan, please consult us.

## PRINT CIRCUIT BOARD CONTACTS

- Amphenol Socapex can design specific Print Circuit Board pin contacts for thermocouple application. Please consult us.
- Amphenol Socapex has a wide range of thermo-couple contacts.



## POWER CONTACTS

### SIZE 8 CONTACTS

#### MIL-DTL-38999 SERIES III / EN3645 / EN4165

Amphenol has a large experience in power generation contact, and has developed some technologies dedicated to power in order to reduce heating, save space, as well as increasing the durability



| Pin or socket | EN3155     | Contact         |                  | Amphenol P/N | Color bands<br>Wire barrel |     | Crimping Tools | Piggy Back Grommet |
|---------------|------------|-----------------|------------------|--------------|----------------------------|-----|----------------|--------------------|
|               |            | Mating end size | Wire barrel size |              | 1st                        | 2st |                |                    |
| P             | EN3155-065 | 8               | 8                | 600863       |                            |     | See page 17    | 900471             |
|               |            | 8               | 10               | 600864       |                            |     |                | 900472             |
| S             | EN3155-083 | 8               | 8                | 603160       |                            |     |                | 900471             |
|               |            | 8               | 10               | 600865       |                            |     |                | 900472             |



The standard EN3155-066 has been superseded by EN3155-083

| Pin or socket                    | Contact         |                  | Amphenol P/N | Crimping Tool      | Piggy Back Grommet |
|----------------------------------|-----------------|------------------|--------------|--------------------|--------------------|
|                                  | Mating end size | Wire barrel size |              |                    |                    |
| P                                | 8               | 8                | 900197       | M300-BT with SP593 | 900471             |
|                                  |                 |                  | 900198       |                    |                    |
| S                                | 8               | 8                | 900217       |                    |                    |
| M300-BT is supplied by DMC Tools |                 |                  |              |                    |                    |



The contact 900198 is only compliant with 21-48 connector

## CONTACT PERFORMANCES

### MECHANICAL

- Endurance: 500 mating/unmating
- Shock & vibrations: As per EN3645 /MIL-DTL-38999

### ELECTRICAL

- Max Current rating: 46A (8 8); 33A (8 10)

### ENVIRONMENTAL

- Temperature : -65°C +200°C

## POWER CONTACTS

## CRIMPING TOOLS

| Pin or socket | EN3155     | Contact         |                  | Amphenol P/N | Crimping Tool                  |           |                       |          |
|---------------|------------|-----------------|------------------|--------------|--------------------------------|-----------|-----------------------|----------|
|               |            |                 |                  |              | Automatic tool<br>M22520/23-01 |           | Manual tool<br>M300BT |          |
|               |            | Mating end size | Wire barrel size |              | Die Set                        | Locator   | Locator               | Selector |
| P             | EN3155-065 | 8               | 8                | 600863       | WA23-264DA                     | WA23-447L | SP593                 | 4        |
|               |            | 8               | 10               | 600864       |                                |           | SP593                 | 3        |
| S             | EN3155-083 | 8               | 8                | 603160       |                                |           | SP593                 | 4        |
|               |            | 8               | 10               | 600865       |                                |           | SP593                 | 3        |

| Automatic tool                                                                     |                                                                                    |                                                                                    | Manual hand tool                                                                    |                                                                                      |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  |  |  |  |  |
| Crimping tool M22520/23-01                                                         | Die Set                                                                            | Locator                                                                            | Crimping tool M300BT                                                                | Locator                                                                              |

## 38999 TYPE 21-48 - 4X60 AMPS CIRCULAR POWER CONNECTOR

- The Amphenol Socapex power connector 38999 type 21-48 provides 4 size 8 power contacts in a size 21 shell in accordance with the MIL-DTL-38999 Series I standard. This arrangement was originally developed for military applications. Due to the rigidity of the cables used, the front male insulator has been reinforced to maintain a perfect alignment of contacts during mating.
- A header is placed in the backshell to guide each wire and to guarantee tightness even when cables are bent.
- Available in TV-CTV (Mil-DTL-38999 Series III).

Please refer to catalog E117

## 4X100A - CIRCULAR POWER



- This power connector from Amphenol LJT 25-1A was originally developed for military applications. Indeed, it is used in the conditioning of tanks.
- This connector has the particularity to provide 4 size 4 power contacts and 4 size 16 contacts in a size 25 shell in accordance with the MIL-C-38999 Series 1 standard.
- Available in TV-CTV

Please refer to catalog E116

# POWER CONTACTS

## SPECIFIC RANGE OF PRODUCTS

### AMPHENOL RADSOK TECHNOLOGY

The RADSOK® High Amperage Electrical Terminal benefits the user from engineering, quality, and manufacturing viewpoints.

RADSOK® technology is based upon a stamped and formed flat grid, twisted into a hyperbolic shape to provide secure and robust contact to the mating pin's contact surface. Most Pin and Socket technologies rely upon spring (compressive) properties of the contact elements, which may weaken over time. Unlike other Pin and Socket solutions, the RADSOK® also utilizes the tensile strength properties of the flat stamped, copper alloy grid to provide high normal forces with a large socket-to-pin conductive surface area.

This design provides a correspondingly low voltage drop and low temperature rise. Other tensile design products use round wires (instead of flat bands) in the hyperbolic shape, this significantly reduces the contact surface between pin and socket.

Proven by millions of parts in the field, a RADSOK® electrical connection is economical and extremely reliable, with zero reported failures in properly designed applications. RADSOK® technology benefits can be summarized as:

- **HIGH RELIABILITY**

Unique RADSOK® design and construction technology create an electrical contact interface that exceeds typical interconnect requirements. Applications in aerospace, medical, industrial, automotive, mining, offshore, and other harsh environments depend on high reliability of the Amphenol RADSOK® technology.

- **LOW CONTACT ENGAGEMENT/SEPARATION FORCES**

The hyperbolic lamella socket contact construction distributes normal forces over a high percentage of the mating pin surface. This creates a smooth, even engagement effort. This force distribution also contributes to excellent performance in vibration applications with resistance to typical fretting corrosion.

- **LOW CONTACT RESISTANCE**

The large interface area between the socket lamella and pin surface result in very low contact resistance, enabling the RADSOK® contacts' high current ratings compared to traditional power contact designs.

- **HIGH MATING CYCLE DURABILITY**

RADSOK® contacts with typical silver plating finishes have demonstrated survival of 20,000 mating cycles. Specialized plating and contact lubricants can extend cycle life to 200,000 matings or higher. Even with continuous exposure to harsh environmental abuse (salt, sand, and high humidity), RADSOK® contacts have been tested to maintain low contact resistance beyond 10,000 mating cycles.



## Power Contacts

## SHIELDED COAXIAL CONTACT

These contacts are required for high frequency interconnection. High speed Coax contacts within a connector provide the shielding protection in order to eliminate interferences from outside electrical sources, and many cases the RF/Microwave performance needed in the circuitry of many applications.

### FEATURES AND BENEFITS

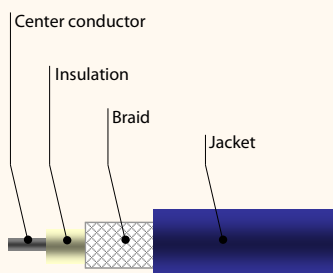
- Large crimping area assures low contact resistance and high tensile strength
- Back insulator provides closed entry for socket inner contact against axial loads
- Front insulator provides closed entry for socket inner contact
- Recessed inner contact is protected
- Outer contact has rugged wall section for durability

### MATERIALS AND FINISH

- Body: Copper alloy
- Finish: Gold over nickel on mating parts
- Insulators: High Performance Fluorocarbon



### TYPICAL COAXIAL CABLE



## ? GUIDELINE TO CHOOSE THE RIGHT COAXIAL CONTACT

### Choose the contact application :

Standard Frequency, High Frequency or very high Frequency

- Standard Frequency: Non Impedance Matched Contacts (VSWR: 1.5:1)
- High Frequency: Impedance Matched Contacts (VSWR: 1.2:1 +.04F (GHz) up to 3GHz)
- Very High Frequency: BMA / BMZ Interface contacts

### Check the cable diameter versus the contact size :

- Sometimes we can use a smaller contact
- Sometimes the wire is bigger than the contact



For more details, please refer contact and cable selection guides at page 56

## SHIELDED COAXIAL CONTACT

MIL-DTL-38999 SERIES II  
EN4165 SERIES

INTERFACE AND QUALIFICATION : SAE AS39029 / 27,28,76,78

| Contact Size | Cable                                                                                                                                                        | Contact Part Number |               |             |               | Crimping Tools                                                                         |                                               |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------|-------------|---------------|----------------------------------------------------------------------------------------|-----------------------------------------------|
|              |                                                                                                                                                              | Pin                 |               | Socket      |               |                                                                                        |                                               |
|              |                                                                                                                                                              | Proprietary         | Standard      | Proprietary | Standard      | Inner contact                                                                          | Crimp ferrule                                 |
| 16           | RG-178B/U, RG-196A/U                                                                                                                                         | 070575              | M39029/76-425 | 070574      | M39029/78-433 | M22520/2-01<br>with Positioner<br>M22520/2-35<br>or with<br>Daniels Positioner<br>K532 | M22520/4-01<br>with Positioner<br>M22520/4-02 |
|              | HAVEG 30-00761, 30-02024,<br>30-02033<br>TENSOLITE<br>24713/A955KK1, 26723/<br>A955KK1                                                                       | 900309              |               | 900310      |               |                                                                                        |                                               |
|              | HAVEG 61-02051                                                                                                                                               | 900186              |               | 900187      |               |                                                                                        |                                               |
|              | RG-174A/U, RG-188A/U,<br>RG-161/U,<br>RG-187A/U, RG-316/U,<br>RG-179B/U,<br>HAVEG 8100207, TIMES<br>(HS-179)<br>AA3248, TELEDYNE 11299,<br>RAYCHEM 7528H1424 | 071094              | M39029/76-424 | 077987      | M39029/78-432 |                                                                                        |                                               |

| Contact Size | Cable                                                                                                                                   | Contact Part Number |               |             |               | Crimping Tools                                                             |                                                                                           |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------|-------------|---------------|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
|              |                                                                                                                                         | Pin                 |               | Socket      |               |                                                                            |                                                                                           |
|              |                                                                                                                                         | Proprietary         | Standard      | Proprietary | Standard      | Inner contact                                                              | Crimp ferrule                                                                             |
| 12           | RG-174A/U, RG-188A/U, RG-161/U, RG-187A/U, RG-316/U, RG-179B/U, Haveg 8100207, Times (HS-179) AA3248, Teledyne 11299, Raychem 7528H1424 | 900340              | M39029/28-211 | 900354      | M39029/27-210 | M22520/2-01 with Positioner<br>M22520/2-34 or with Daniels Positioner K323 | M22520/31-01 with Positioner<br>M22520/31-02 or Daniels GS200 Tool with Positioner G2P330 |
|              | RG-180B/U, RG-195A/U, Raychem 9528A1318                                                                                                 | 900341              | M39029/28-409 | 900286      | M39029/27-402 |                                                                            |                                                                                           |
|              | Raychem 5022E5111                                                                                                                       | 900424              |               | 900425      |               |                                                                            |                                                                                           |
|              | Raychem 9530A5314                                                                                                                       | 900426              |               | 900427      |               |                                                                            |                                                                                           |
|              | Raychem 9527A1318                                                                                                                       | 071954              |               | 900420      |               |                                                                            |                                                                                           |
|              | GORE GWN1159A                                                                                                                           | 900428              |               | 900429      |               |                                                                            |                                                                                           |

## SHIELDED COAXIAL CONTACT

## MIL-DTL-38999 SERIES I, III / EN3645

| Contact Size | Cable                                                                                                                                   | Contact Part Number |               |             |               | Crimping Tools                                                             |                                            |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------|-------------|---------------|----------------------------------------------------------------------------|--------------------------------------------|
|              |                                                                                                                                         | Pin                 |               | Socket      |               | Inner contact                                                              | Crimp ferrule                              |
|              |                                                                                                                                         | Proprietary         | Standard      | Proprietary | Standard      |                                                                            |                                            |
| 16           | RG-178B/U, RG-196A/U                                                                                                                    | 070575              | M39029/76-425 | 071965      | M39029/77-429 | M22520/2-01 with Positioner<br>M22520/2-35 or with Daniels Positioner K532 | M22520/4-01 with Positioner<br>M22520/4-02 |
|              | HAVEG 30-00761, 30-02024, 30-02033 TENSOLITE 24713/A955KK1, 26723/A955KK1                                                               | 900309              |               | 900310      |               |                                                                            |                                            |
|              | HAVEG 61-02051                                                                                                                          | 900186              |               | 603247      |               |                                                                            |                                            |
|              | RG-174A/U, RG-188A/U, RG-161/U, RG-187A/U, RG-316/U, RG-179B/U, HAVEG 8100207, TIMES (HS-179) AA3248, TELEDYNE 11299, Raychem 7528H1424 | 071094              | M39029/76-424 | 070248      | M39029/77-428 |                                                                            |                                            |
|              | KX22A                                                                                                                                   | 900132              |               | 900142      |               |                                                                            |                                            |
|              | KX21A                                                                                                                                   | 900131              |               | 900141      |               |                                                                            |                                            |

| Contact Size | Cable                                                                                                                                   | Contact Part Number |               |             |               | Crimping Tools                                                             |                                                                                            |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------|-------------|---------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
|              |                                                                                                                                         | Pin                 |               | Socket      |               | Inner contact                                                              | Crimp ferrule                                                                              |
|              |                                                                                                                                         | Proprietary         | Standard      | Proprietary | Standard      |                                                                            |                                                                                            |
| 12           | RG-174A/U, RG-188A/U, RG-161/U, RG-187A/U, RG-316/U, RG-179B/U, Haveg 8100207, Times (HS-179) AA3248, Teledyne 11299, Raychem 7528H1424 | 900340              | M39029/28-211 | 900350      | M39029/75-416 | M22520/2-01 with Positioner<br>M22520/2-34 or with Daniels Positioner K323 | M22520/31-01 with Positioner<br>M22520/31-02 or Daniels GS-200 Tool with Positioner G2P330 |
|              | RG-180B/U, RG-195A/U, Raychem 9528A1318                                                                                                 | 900341              | M39029/28-409 | 900351      | M39029/75-417 |                                                                            |                                                                                            |
|              | Raychem 5022E5111                                                                                                                       | 900424              |               | 900421      |               |                                                                            |                                                                                            |
|              | Raychem 9530A5314                                                                                                                       | 900426              |               | 900422      |               |                                                                            |                                                                                            |
|              | Raychem 9527A1318                                                                                                                       | 071954              |               | 900430      |               |                                                                            |                                                                                            |
|              | Gore GWN1159A, Nexans RG179-DT                                                                                                          | 900428              |               | 900075      |               |                                                                            |                                                                                            |

## SHIELDED COAXIAL CONTACT

## MIL-DTL-38999 SERIES I, III / EN3645

| Contact Size | Cable                                                                                                                                    | Contact Part Number |                                        |             |               | Crimping Tools                                               |                                                                                                                                    |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------------------------------------|-------------|---------------|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
|              |                                                                                                                                          | Pin                 |                                        | Socket      |               | Inner contact                                                | Crimp ferrule                                                                                                                      |
|              |                                                                                                                                          | Proprietary         | Standard                               | Proprietary | Standard      |                                                              |                                                                                                                                    |
| 8            | RG-187A/U, RG-179B/U,<br>RG-174A/U,<br>RG-188A/U, RG-316/U,<br>RG-161/U,<br>Haveg 8100201, Times<br>(HS-179)AA3248,<br>Teledyne<br>11299 | 900135              |                                        | 900145      |               | M22520/2-01<br>with Positioner<br>M22520/2-31<br>or solder   | M22520/5-01<br>with die set<br>M22520/5-03<br>(A)<br>or M22520/508<br>(B)<br>or M                                                  |
|              | RG-142B/U, RG-223/U,<br>SF-142 (solder inner<br>conductor)                                                                               | 900136              |                                        | 900146      |               |                                                              | M22520/5-01<br>with die set<br>M22520/5-05<br>(A)<br>or M22520/519<br>(B)<br>or M22520/1001<br>with Die Set<br>M22520/10-07<br>(A) |
|              | Haveg 51-03111, Tensolite<br>28895/2X1                                                                                                   | 600900              |                                        | 600910      |               | M22520/2-01<br>with Positioner<br>M22520/2-31**<br>or solder | M22520/5-01<br>with die set<br>M22520/5-41<br>(B)                                                                                  |
|              | RG-180B/U, RG-195A/U,<br>Raychem 9528A1318                                                                                               | 900130              | M39029/60-367<br>Supersedes<br>MS27536 | 900140      | M39029/59-366 |                                                              |                                                                                                                                    |
|              | RD-316 Double Shield<br>(M17/152-00001)                                                                                                  | 900137              |                                        | 900147      |               | M22520/2-01<br>with Positioner<br>M22520/2-31                | M22520/5-01<br>with die set<br>M22520/5-37<br>(B) or<br>M22520/10-01<br>with die set<br>M22520/10-15<br>(A)                        |
|              | RG-400, ECS3C058A,<br>ECS352001, ECS432101                                                                                               | 900138              |                                        | 900148      |               | M22520/2-01<br>with Positioner<br>M22520/2-10                | M22520/5-01<br>with die set<br>M22520/5-45<br>(A)                                                                                  |
|              | RG-58(M17/155-00001),<br>M17/028-RG-058, RG303,<br>Times LMR-195-UF                                                                      | 600901              |                                        | 600911      |               | Solder                                                       | M22520/5-01<br>with die set<br>M22520/5-05<br>(B)                                                                                  |
|              | 5021D1331-0                                                                                                                              | 600902              |                                        | 600912      |               | M22520/2-01<br>with Positioner<br>M22520/2-31                | M22520/5-01<br>with die set<br>M22520/5-05<br>(B) or<br>M22520/10-01<br>with die set<br>M22520/10-07<br>(B)                        |
|              | 5M2869-001,<br>ESC432101, BMS13-65                                                                                                       | 600903              |                                        | 600913      |               |                                                              |                                                                                                                                    |
|              | 5022A1311-0                                                                                                                              | 600904              |                                        | 600914      |               |                                                              |                                                                                                                                    |

## IMPEDANCE MATCHED COAXIAL CONTACT

### AMPHENOL® MATCHED IMPEDANCE SIZE 12 COAXIAL CONTACTS FOR RF/MICROWAVE, HIGH FREQUENCY AND HIGH PERFORMANCE REQUIREMENTS

The use of this contact is mandatory when the performance of standard Mil or EN contacts is not sufficient to achieve the level of signal transmission required. Below a large range of contacts with the correspondence of cable PN.



### MATCHED IMPEDANCE COAX CONTACT PERFORMANCE

- Contact impedance = 50 ohms nominal
  - Frequency range = 0–3 GHz Operable at higher frequencies depending on cable selection. Consult Amphenol for details.
  - Dielectric withstanding voltage (for a mated pair):  
At sea level = 1000 VRMS  
At 50,000 ft. = 250 VRMS
  - Insulation resistance: 5 gigaohms min. @ 25°C
  - VSWR: 1.20 + .04F (F in GHz) max. up to 3 GHz
  - Insertion Loss: .11 fGHz dB max.
- Environmental Specifications:
- Thermal limits: –55 ° to 200°C
- Mechanical Specifications:
- Mating: slide-on
  - Mounting: conforms to M39029/102 & /103 envelope dimensions

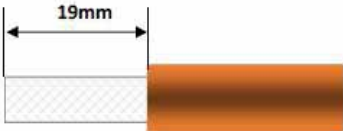
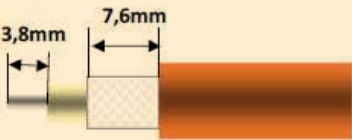
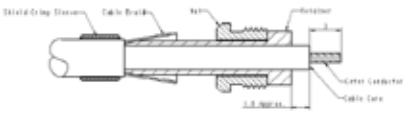
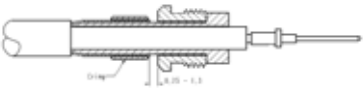
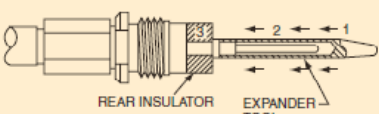
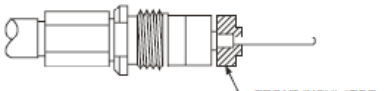
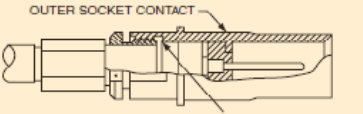
### MIL-DTL-38999 SERIES I, II, III / EN3645 / EN4165

| Contact Size       | Cable                                    | Contact Part Number |                 |             |                 | Crimping Tools       |                                   |
|--------------------|------------------------------------------|---------------------|-----------------|-------------|-----------------|----------------------|-----------------------------------|
|                    |                                          | Pin                 |                 | Socket      |                 | Inner contact        | Crimp ferrule                     |
|                    |                                          | Proprietary         | Standard        | Proprietary | Standard        |                      |                                   |
| 12<br>(Series II)  | RG-316, T-Flex-405                       | 900384              |                 | 600750      |                 | MH992 with K1360 (5) | M22520 5-01 with<br>M225205-03(a) |
|                    | RG178, Gore CXN 340                      | 600907              |                 | 600659      |                 | MH992 with K1360 (4) |                                   |
| 12<br>(Series III) | RD316, Filotex, ET124962, M17/152-00 001 | 900385              | M39029/103 type | 900395      | M39029/102 type | MH992 with K1360 (5) |                                   |
|                    | JN1088WT                                 | 600905              |                 | 600915      |                 | MH992 with K1360 (6) |                                   |
|                    | PAN6422XQ                                | 600906              |                 | 600916      |                 | MH992 with K1360 (5) |                                   |
|                    | RG178, GORE CXN 3403                     | 600907              |                 | 600917      |                 | MH992 with K1360 (4) |                                   |
|                    | SFT-316-TR                               | 600908              |                 | 600918      |                 | MH992 with K1360 (5) |                                   |
|                    | RG316                                    | 900384              |                 | 900394      |                 | MH992 with K1360(5)  |                                   |

MH992 is supplied by DMC Tools

## SHIELDED COAXIAL CONTACT

## TYPICAL COAXIAL CONTACT INSTALLATION INSTRUCTIONS

| Picture                                                                             | Process                                                                                                                                                                           | Check                                                         | Tools                                                                                  |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------------------------------------|
|    | Strip the jacket slide the piggy back grommet and crimping ferule                                                                                                                 | Do not damage the braid                                       | Blade                                                                                  |
|    | Trim shield strip cable core                                                                                                                                                      | Do not damage the inner conductor                             | Blade                                                                                  |
|   | Position nut on retainer as illustrated flare shield and slide nut and retainer assembly under the cable shield until retainer bottoms against braid                              |                                                               |                                                                                        |
|  | Slide inner pin contact over cable center conductor crimp inner conductor                                                                                                         | The inner conductor shall be visible thru the inspection hole | M22520/2-01 with positioner M22520/2-31 (5)                                            |
|  | Slide nut and retainer assembly forward until retainer flush with edge of cable core crimp shield crimp sleeve and observe a 0,25 and 1,3mm dimension                             | Nut must be rotate freely after crimping sleeve               | M22520/5-01 with die M22520/5-37 (B)                                                   |
|  | Slide rear insulator using expander tool. slide tool over inner pin contact. Push rear insulator with push rod until it seats between retainer end and inner pin contact shoulder |                                                               | Expander tool bendix p/n 11-10136 or equivalent rod bendinx p/n 11-10135 or equivalent |
|  | Snap rear insulator behind inner contact shoulder slide front insulator until the inner contact flange                                                                            |                                                               |                                                                                        |
|  | Slide outer socket contact over inner pin assembly and insulator thread nut into rear of outer pin contact tighten nut until metal to metal (0,21 - 0,25N.m)                      | Do not allow the cable to rotate while tightening the nut     |                                                                                        |

SHIELDED COAXIAL CONTACT

MIL-DTL-38999 SERIES I, III / EN3645

PRINT CIRCUIT BOARD CONTACTS

| Contact Size | Tail Length | Contact Part Number |             | Gold | Tin |
|--------------|-------------|---------------------|-------------|------|-----|
|              |             | Pin                 | Socket      |      |     |
|              |             | Proprietary         | Proprietary |      |     |
| 16           | CI          | 900184              | 900405      | X    |     |
|              | CI          | 900179              | 600748      |      | X   |

| Contact Size | Tail Length | Contact Part Number |             | Gold | Tin |
|--------------|-------------|---------------------|-------------|------|-----|
|              |             | Pin                 | Socket      |      |     |
|              |             | Proprietary         | Proprietary |      |     |
| 12           | CI          | 900489              | 600749      | X    |     |
|              | LI          | 900409              | 900412      | X    |     |

IMPEDANCE MATCHED PCB COAXIAL CONTACT 900461 - SIZE 12

MATCHED IMPEDANCE COAX CONTACT PERFORMANCE :

- Contact impedance = 50 ohms nominal
  - Frequency range = 0–3 GHz Operable at higher frequencies depending on cable selection. Consult Amphenol for details.
  - Dielectric withstanding voltage (for a mated pair):  
At sea level = 1000 VRMS  
At 50, 000 ft. = 250 VRMS
- Insulation resistance: 5 gigaohms min. @ 25°C
  - VSWR: 1.20 + .04F (F in GHz) max. up to 3 GHz
  - Insertion Loss: .11 fGHz dB max.

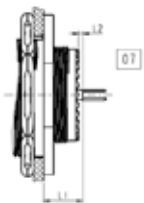
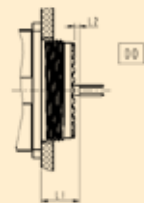
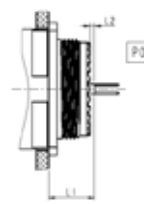
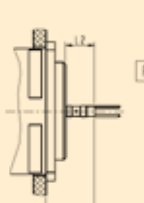
Environmental Specifications:

  - Thermal limits: –55°C to 200°C



## SHIELDED COAXIAL CONTACT

## Pin 900184, Socket 900405

| Connectors with Coax Contacts                                                       |        |    | MIL-DTL-38999 series I |              |             | MIL-DTL-38999 series III / EN3645 |             |           |              | MIL-DTL-38999 series III / EN3645 composite |  |
|-------------------------------------------------------------------------------------|--------|----|------------------------|--------------|-------------|-----------------------------------|-------------|-----------|--------------|---------------------------------------------|--|
|    | Sizes  |    | 9 to 17                | 19 to 25     | 9 to 11     | 13                                | 15 to 17    | 19 to 25  | 9 to 11      | 13 to 25                                    |  |
|                                                                                     | Pin    | L1 | 8,3 - 9,5              |              | 9,7 - 10,9  | 9,6 - 10,8                        |             |           | 9,7 - 10,9   | 9,6 - 10,7                                  |  |
|                                                                                     |        | L2 | 0,7 - 1,9              | 0,3 - 1,5    | 0,6 - 1,8   |                                   | 0,6 - 1,7   | 0,6 - 1,8 | (-0,5) - 0,7 |                                             |  |
|                                                                                     | Socket | L1 | 7,9 - 9,1              |              | 9,3 - 10,5  | 9,2 - 10,4                        |             |           | 9,3 - 10,5   | 9,2 - 10,3                                  |  |
|                                                                                     |        | L2 | 0,3 - 1,5              | (-0,1) - 1,1 |             | 0,2 - 1,4                         |             | 0,2 - 1,3 | 0,2 - 1,4    | (-0,9) - 0,3                                |  |
|   | Sizes  |    | 9 to 25                |              | 9 to 25     |                                   |             |           | 9 to 19      | 21 to 25                                    |  |
|                                                                                     | Pin    | L1 | 13,4 - 14,5            |              | 8,9 - 10    |                                   |             |           | 8,9 - 10,1   | 9 - 10,1                                    |  |
|                                                                                     |        | L2 | 1,2 - 2,5              |              | 0,6 - 1,8   |                                   |             |           | 0,6 - 1,8    |                                             |  |
|                                                                                     | Socket | L1 | 13 - 14,1              |              | 8,5 - 9,6   |                                   |             |           | 8,5 - 9,7    | 8,6 - 9,7                                   |  |
|                                                                                     |        | L2 | 0,8 - 2,1              |              | 0,2 - 1,4   |                                   |             |           | 0,2 - 1,4    |                                             |  |
|  | Sizes  |    | 9 to 19                | 21 to 25     | 9 to 19     |                                   | 21 to 25    |           | 9 to 19      | 21 to 25                                    |  |
|                                                                                     | Pin    | L1 | 10,9 - 12              | 11,7 - 12,8  | 11,2 - 12,3 |                                   | 11,9 - 13   |           | 12,4 - 13,4  | 13,2 - 14,2                                 |  |
|                                                                                     |        | L2 | 0,9 - 2,1              |              | 0,6 - 1,8   |                                   |             |           | 0,6 - 1,8    |                                             |  |
|                                                                                     | Socket | L1 | 10,5 - 11,6            | 11,3 - 12,4  | 10,8 - 11,9 |                                   | 11,5 - 12,6 |           | 12 - 13      | 12,8 - 13,8                                 |  |
|                                                                                     |        | L2 | 0,5 - 1,7              |              | 0,2 - 1,4   |                                   |             |           | 0,2 - 1,4    |                                             |  |
|  | Sizes  |    | /                      |              | 9 to 19     |                                   | 21 to 25    |           | /            |                                             |  |
|                                                                                     | Pin    | L1 |                        |              | 11,2 - 12,3 |                                   | 11,9 - 13   |           |              |                                             |  |
|                                                                                     |        | L2 |                        |              | 6,4 - 7,7   |                                   |             |           |              |                                             |  |
|                                                                                     | Socket | L1 |                        |              | 10,8 - 11,9 |                                   | 11,5 - 12,6 |           |              |                                             |  |
|                                                                                     |        | L2 |                        |              | 6 - 7,3     |                                   |             |           |              |                                             |  |
|                                                                                     |        |    |                        |              |             |                                   |             |           |              |                                             |  |

## RF COAXIAL CONTACT

MIL-DTL-38999 SERIES I, III / EN3645

### FEATURES AND BENEFITS

- The HIGHEST frequency available on the market : up to 65 GHz
- The LARGEST range of size available on the market : 3 sizes - 8, 12 & 16
- Designed for HARSH ENVIRONMENT : resistance to shocks and vibrations
- Unique float mount technology to allow consistant microwave performance



### APPLICATIONS

- Battlefield communications : high frequency applications
- Aerospace
- Telecom : radars, wireless networks (wifi, GSM)

### MATERIALS AND FINISH

#### Body and Sleeve :

Stainless steel per AMS-5640 Alloy UNS S30300 Type 1

#### Ferrule :

Brass per ASTM B16, Alloy UNS C36000

#### Contact & Lock Ring :

Beryllium copper per ASTM B196 Alloy UNS C17300, Td04

#### Insulator :

PTFE per ASTM D1710, Type 1, Grade 1, Class B

#### Spring :

Stainless steel per ASTM A313 Type 631

#### Rear Body & Contacts :

Gold per ASTM B488 Type II, Code C, Class 1.27;  
over Nickel per AMS-QQ-N-290 Class 1 (60μ inches);  
over Copper per MIL-C-14550 (10μ inches)  
Passivated per AMS-2700, Type 2

## RF COAXIAL CONTACT

MIL-DTL-38999 SERIES I, III / EN3645



Contacts size 8    BMZ Interface

## BMZ INTERFACE SPECIFICATIONS

|                              |                             |
|------------------------------|-----------------------------|
| Impedance                    | 50 $\Omega$                 |
| Frequency Range              | DC – 40 GHz                 |
| VSWR                         | 1.07+.01 (freq. GHz)        |
| Insertion Loss               | 0.06 $\sqrt{f}$ (freq. GHz) |
| Contact Resistance (Max.)    |                             |
| center conductor:            | 6.0 m $\Omega$              |
| outer conductor:             | 3.0 m $\Omega$              |
| outer to cable:              | 0.5 m $\Omega$              |
| Insulation Resistance (Min.) | 10,000M $\Omega$            |
| DWV                          | 1,000 VRMS                  |
| RF Leakage                   | -(80-freq. GHz)             |
| Corona Extinction Voltage    | 250 VRMS                    |
| RF High Potential Voltage    | 500 VRMS                    |



Contacts size 8    BMA Interface

## BMA INTERFACE SPECIFICATIONS

|                              |                             |
|------------------------------|-----------------------------|
| Impedance                    | 50 $\Omega$                 |
| Frequency Range              | DC – 26,5 GHz               |
| VSWR                         |                             |
| DC to 18 GHz                 | 1.05 + .005f (GHz)          |
| 18 to 22 GHz                 | 1.05 + .009f (GHz)          |
| Insertion Loss               | 0.3x $\sqrt{f}$ (freq. GHz) |
| Contact Resistance (Max.)    |                             |
| center conductor:            | 2.0 m $\Omega$              |
| outer conductor:             | 2.0 m $\Omega$              |
| Insulation Resistance (Min.) | 5,000M $\Omega$             |
| DWV                          | 1,000 VRMS                  |
| RF Leakage                   | -(90-fGHz)                  |
| Corona Extinction Voltage    | 670 VRMS                    |
| RF High Potential Voltage    | 500 VRMS                    |

# RF COAXIAL CONTACT

## MIL-DTL-38999 SERIES I, III / EN3645

### SMMP INTERFACE SPECIFICATIONS

|                                   |                                                                  |
|-----------------------------------|------------------------------------------------------------------|
| Impedance                         | 50 Ω                                                             |
| Frequency Range                   | DC – 65 GHz                                                      |
| VSWR                              | 1.1:1 DC to 26.5 GHz (typical)<br>1.3:1 26.5 to 65 GHz (typical) |
| Insertion Loss (Adapters)         | .10 dB x $\sqrt{f}$ (where f = GHz) dB                           |
| Insertion Loss (Cable Connectors) | .12 dB x $\sqrt{f}$ (where f = GHz) dB                           |
| Contact Resistance (Max.)         |                                                                  |
| center conductor:                 | 6.0 mΩ                                                           |
| outer conductor:                  | 2.0 mΩ                                                           |
| Insulation Resistance (Min.)      | 5,000MΩ                                                          |
| DWV                               | 325 VRMS                                                         |
| RF Leakage                        | –80 dB from DC to 3 GHz<br>–65 dB from 3 to 65 GHz               |



Contacts size 12 or 16



SMMP Interface

| Contact Size | Interface | Cable             | Frequency | Contact Part Number |        | Piggyback Grommet |
|--------------|-----------|-------------------|-----------|---------------------|--------|-------------------|
|              |           |                   |           | Pin                 | Socket |                   |
| 8            | BMZ       | TFLEX-405         | 40 GHZ    | 600920              | 600925 |                   |
|              |           | TFLEX-405         | 18 GHZ    | 600921              | 600926 |                   |
|              |           | RG-400/<br>RG-142 | 12 GHZ    | 600922              | 600927 | 900471            |
|              |           | TFLEX-402         | 18 GHZ    | 600923              | 600919 | 900472            |
|              | BMA       | TFLEX-405         | 26.5 GHZ  | 600600              | 600580 |                   |
|              |           | TFLEX-402         | 26.5 GHZ  | 600606              | 600581 | 900472            |

| Contact Size | Interface | Cable     | Frequency | Contact Part Number |        | Piggyback Grommet |
|--------------|-----------|-----------|-----------|---------------------|--------|-------------------|
|              |           |           |           | Pin                 | Socket |                   |
| 12           | SMMP      | TFLEX-405 | 65 GHZ    | 600924              | 600928 |                   |

| Contact Size | Interface | Cable              | Frequency | Contact Part Number |        | Piggyback Grommet |
|--------------|-----------|--------------------|-----------|---------------------|--------|-------------------|
|              |           |                    |           | Pin                 | Socket |                   |
| 16           | SMMP      | 0.047 DIA<br>CABLE | 65 GHZ    | 600929              | 600930 |                   |

# 75 OHMS COAXIAL CONTACT

MIL-DTL-38999 SERIES I, III / EN3645



## FEATURES AND BENEFITS

- MIL-DTL-38999 / EN3645 CONNECTORS
- CRIMP AND PCB VERSION AVAILABLE
- MEET 3G-SDI VIDEO FORMAT

## MATERIALS AND FINISH

Sleeve : Stainless steel  
 Contact & Ferrule : Copper Alloy  
 Insulator: PTFE  
 Rear Body & Contacts: Gold over nickel

## SMPTE STANDARDS

SMPTE: Society of Motion and Television Engineers  
 SDI: Serial Digital Interface  
 SD-SDI: Standard Definition SDI (SMPTE 259M)  
 ED-SDI: Enhanced Definition SDI (SMPTE 344M)  
 HD-SDI: High Definition SDI (SMPTE 292M)  
 3G-SDI: (SMPTE 424M)

## 75 OHMS SIZE 6 CONTACTS AND CONNECTORS

| Contact Size | Cable                   | SMPTE  |        |        | Contact Part Number |        | Piggy Back Grommet |
|--------------|-------------------------|--------|--------|--------|---------------------|--------|--------------------|
|              |                         | SD-SDI | HD-SDI | 3G-SDI | PIN                 | SOCKET |                    |
| 6            | RG179B/U                | X      | X      | X      | 600757              | 603180 | 600762             |
|              | DRAKA HD PRO 0.8/3.7 AF | X      | X      | X      | 600813              | 600715 | 600759             |
|              | BELDEN RG59 0.8/3.7     | X      | X      | X      |                     |        |                    |
|              | GRÜN 0.6/3.7            | X      | X      | X      |                     |        |                    |

## SIZE 6 CONTACT CONNECTORS AND ARRANGEMENTS



**SHELL SIZE: 11**  
Please consult us



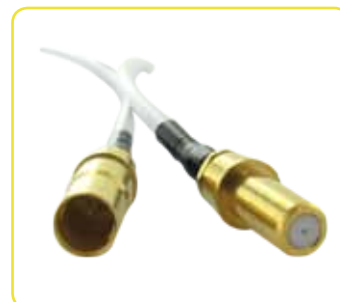
**SHELL SIZE: 19**  
Please consult us

# 75 OHMS COAXIAL CONTACT

MIL-DTL-38999 SERIES I, III / EN3645

## 75 OHMS SIZE 8 PERFORMANCE

IMPEDANCE: 75Ohms  
 FREQUENCY RANGE: 0 – 3GHz . Meet 3G-SDI standard (SMPTE 424M)  
 Insulation resistance: 5GΩ min @ 25°C  
 Dielectric Withstanding Voltage:  
 1300Vrms Rms @ sea level  
 250 VRms @ 50 000ft



| Contact Size | Cable                | SMPTE  |        |        | Contact Part Number |        | Piggy Back Grommet |
|--------------|----------------------|--------|--------|--------|---------------------|--------|--------------------|
|              |                      | SD-SDI | HD-SDI | 3G-SDI | PIN                 | SOCKET |                    |
| 8            | RG179B/U             | X      | X      | X      | 600822              | 600841 | 603161             |
|              | PIC V75268           | X      | X      | X      | 600830              | 600836 | 900472             |
|              | PIC V76261           | X      | X      | X      |                     |        |                    |
|              | PIC 73263            | X      | X      | X      |                     |        |                    |
|              | EMTEQ TFLX125-075-01 | X      | X      | X      |                     |        |                    |

## 75 OHMS SIZE 8 PRINT CIRCUIT BOARD CONTACTS

| Contact Size | Tail Length | SMPTE  |        |        | Contact Part Number |        |
|--------------|-------------|--------|--------|--------|---------------------|--------|
|              |             | SD-SDI | HD-SDI | 3G-SDI | PIN                 | SOCKET |
| 8            | Cl          | X      | X      | X      | 600889              | 600909 |



## TWINAX CONTACTS

Amphenol Twinax contacts were designed for use with twinax cable in data Bus systems.

### FEATURES AND BENEFITS

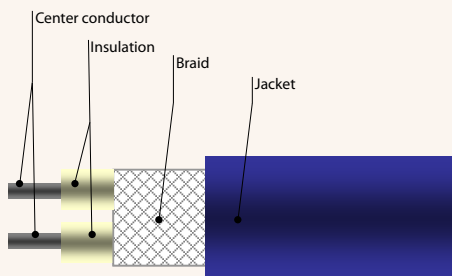
- Protection from magnetic interference
- Protection from electrostatic interference including nuclear electromagnetic pulse
- Meets parameters defined by MIL-STD-1553B
- Maintains shield integrity through a multi-pin circular connector and does not require contact polarization within the insert



### MATERIALS AND FINISH

- Body: Copper alloy
- Finish: Gold over nickel on mating parts
- Insulators: High Performance Fluorocarbon or PEEK

### TYPICAL TWINAXIAL CABLE



### ? DO YOU KNOW BUS1553 AND ARINC429 ?

- **Amphenol size 8 concentric twinax** are designed for use in MIL-STD-1553 data bus. MIL-STD-1553 is a military standard published by the United Department of Defense that defines the mechanical, electrical and functional characteristics of a serial data bus.
- **Amphenol size 8 concentric twinax** are designed for use in ARINC429 or DITS (Data Information Transfer System). ARINC429 is technical standard for the avionics data bus used commercial and transport aircraft.

## TWINAX CONTACTS

MIL-DTL-38999 SERIES I, III / EN3645

INTERFACE AND QUALIFICATION : SAE AS39029 / 90/91/113/114



## FEATURES AND BENEFITS

- 175°C rated and meets performance levels of MIL-DTL-38999 series III connectors
- MIL-C-17/176-00002 cable termination
- Gold plated full crimp termination contacts qualified to M39029/90 & 91

## TYPICAL ELECTRICAL PERFORMANCE:

Voltage Rating: 500 Vrms max. @ sea level

Contact Resistance:

Center @ 1 Amp: 55 millivolts max. voltage drop @ 25°C

Intermediate @ 1 Amp: 55 millivolts max. voltage drop @ 25°C

Outer @ 12 Amps: 75 millivolts max. voltage drop @ 25°C

Operating Frequency: 0–20 MHz

Dielectric Withstanding Voltage:

Center to Intermediate: 1000 VAC Rms @ Sea Level

Intermediate to Outer: 500 VAC Rms @ Sea Level

| Contact Size | Cable         | Contacts Part Number |                |             |                | Comments                       |
|--------------|---------------|----------------------|----------------|-------------|----------------|--------------------------------|
|              |               | PIN                  |                | SOCKET      |                |                                |
|              |               | Proprietary          | Standard       | Proprietary | Standard       |                                |
| 8            | M17/176-00002 | 074834               | M39029/90-529  | 072453      | M39029/91-530  | Supplied with heat shrink seal |
|              | M17/176-00002 | 600850               | M39029/113-625 | 600851      | M39029/114-628 | Supplied with heat shrink seal |

# TWINAX CONTACTS

MIL-DTL-38999 SERIES I, III / EN3645 / EN4165  
INTERFACE AND QUALIFICATION : EN3155-024 -025 & ABS2217

## FEATURES AND BENEFITS

- 200°C rated and meets performance levels of MIL-DTL-38999 series III connectors, EN3645 and EN4165
- Many EN3375 cable termination
- Gold plated full crimp termination contacts qualified to EN3155-024 -025



## TYPICAL ELECTRICAL PERFORMANCE

Voltage Rating: 500 Vrms max. @ sea level  
Contact Resistance:  
Center @ 1 Amp: 55 millivolts max. voltage drop @ 25°C  
Intermediate @ 1 Amp: 55 millivolts max. voltage drop @ 25°C  
Outer @ 12 Amps: 75 millivolts max. voltage drop @ 25°C  
Dielectric Withstanding Voltage:  
Center to Intermediate: 1000 VAC Rms @ Sea Level  
Intermediate to Outer: 500 VAC Rms @ Sea Level

| Contact Size | Cable           | Contact Part Number |                 |             |                 | Crimping Tools                             |                                     |
|--------------|-----------------|---------------------|-----------------|-------------|-----------------|--------------------------------------------|-------------------------------------|
|              |                 | Pin                 |                 | Socket      |                 |                                            |                                     |
|              |                 | Proprietary         | Standard        | Proprietary | Standard        | Inner contact                              | Intermediate Outer                  |
| 8            | EN3375-003 KG24 | 600611              | EN3155-024M08AA | 600614      | EN3155-025F08AA | M22520/2-01 with Daniels positionner K880  | M22520/5-01 with Daniels tools Y832 |
|              | EN3375-004 WJ24 | 600612              | EN3155-024M08BA | 600615      | EN3155-025F08BA |                                            |                                     |
|              | EN3375-005 WV24 | 600613              | EN3155-024M08CA | 600616      | EN3155-025F08CA |                                            |                                     |
|              | EN3375-009 W26  | 600854              | ABS2217P01      | 600855      | ABS2217S01      | M22520/2-01 with Daniels positionner K1815 | M22520/5-01 with Daniels tools Y832 |
|              | EN3375-006 XM24 | 600856              | ABS2217P02      | 600857      | ABS2217S02      |                                            |                                     |
|              | EN3375-004 WJ24 | 600858              | ABS2217P03      | 600859      | ABS2217S03      |                                            |                                     |

# TWINAX CONTACTS

## 1760 INTERFACE

| Contact Size | Cable                                                  | Contact Part Number |              |             |              | Crimping Tools                                  |                                        |
|--------------|--------------------------------------------------------|---------------------|--------------|-------------|--------------|-------------------------------------------------|----------------------------------------|
|              |                                                        | Pin                 |              | Socket      |              | Inner contact                                   | Intermediate Outer                     |
|              |                                                        | Proprietary         | Standard     | Proprietary | Standard     |                                                 |                                        |
| 8            | Raychem 10614<br>EPD44692<br>EPD44695                  | 076590              | 711-1760-101 | 076589      | 711-1760-201 | M22520/2-01<br>with Daniels<br>positionner K880 | M22520/5-01 with<br>Daniels tools Y832 |
|              | PAN6421<br>Raychem 10613                               | 076915              | 711-1760-102 | 076588      | 711-1760-202 |                                                 |                                        |
|              | Raychem 10612<br>M17/176-00002<br>EPD44690<br>EPD44691 | 077517              | 711-1760-104 | 077516      | 711-1760-204 |                                                 |                                        |



Delivered without heat shrink boot or piggy back grommet

# TWINAX CONTACTS FOR ARINC600

## ABS1600 AND ABS1607

ABS1600  
ABS1607  
QUALIFIED

## TYPICAL ELECTRICAL PERFORMANCE

Voltage Rating: 500 Vrms max. @ sea level

Contact Resistance:

Center @ 1 Amp:

Intermediate @ 1 Amp:

Outer @ 12 Amps:

Operating Frequency:

Dielectric Withstanding Voltage:

Center to Intermediate:

Intermediate to Outer:

55 millivolts max. voltage drop @ 25°C

55 millivolts max. voltage drop @ 25°C

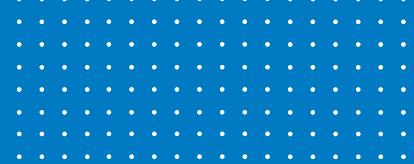
75 millivolts max. voltage drop @ 25°C

0–20 MHz

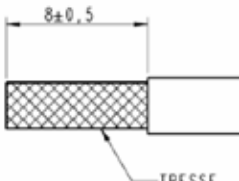
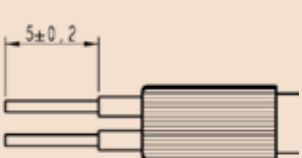
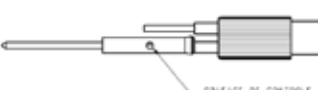
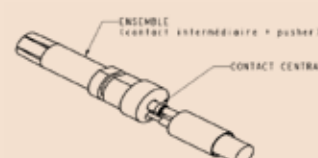
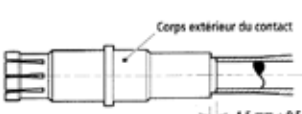
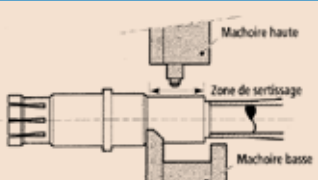
1000 VAC Rms @ Sea Level

500 VAC Rms @ Sea Level

| Contact Size | Cable      | Contact Part Number |             |             |             |
|--------------|------------|---------------------|-------------|-------------|-------------|
|              |            | Pin                 |             | Socket      |             |
|              |            | Proprietary         | Standard    | Proprietary | Standard    |
| 8            | EN3375-004 | 140675              | ABS1600M08A | 140683      | ABS1607F08A |



## TYPICAL CONTACTS INSTALLATION INSTRUCTIONS FOR TWINAX CONTACTS

| PICTURE                                                                             | PROCESS                                                                                                                                            | CHECK                                                         | TOOLS                        |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|------------------------------|
|    | Strip the jacket<br><br>Slide the piggy back grommet and crimping ferule                                                                           | Do not damage the braid                                       | Blade                        |
|   | Open the braid over the crimping ferule                                                                                                            | The braid shall cover equally the crimping ferule             |                              |
|                                                                                     | Strip the inner conductors                                                                                                                         | Do not damage the inner conductors                            | Blade                        |
|  | Insert the white jacket inner conductor into the inner contact and crimp                                                                           | The inner conductor shall be visible thru the inspection hole | M22520/2-01 with positionner |
|  | Insert the crimp inner contact into the center hole and insert the blue inner conductor in the intermediate contact crimp the intermediate contact | The inner conductor shall be visible thru the inspection hole | M22520/5-01 with correct die |
|  | Push the sub assembly into the outer contact when nice installed, cut the additional braid                                                         | Do not damage the crimping ferule                             | Blade                        |
|  | Crimp the outer contact                                                                                                                            |                                                               | M22520/5-01 with correct die |

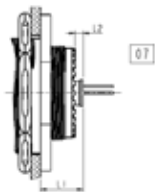
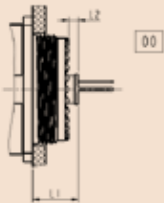
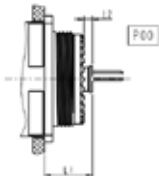
# TWINAX CONTACTS

MIL-DTL-38999 SERIES III / EN3645

PRINT CIRCUIT BOARD CONTACTS AND SPECIFICS

Pin 072265, Socket 600709



| Connectors with Twinax Contacts                                                     |            | MIL-DTL-38999 series III |             |             |             |           | MIL-DTL-38999 series III / EN3645 composite |             |
|-------------------------------------------------------------------------------------|------------|--------------------------|-------------|-------------|-------------|-----------|---------------------------------------------|-------------|
|    | Sizes      |                          | 9 to 11     | 13          | 15 to 17    | 19 to 25  | 9 to 11                                     | 13 to 25    |
|                                                                                     | Pin/Socket | L1                       | 10,4 - 11,6 | 10,2 - 11,4 |             |           | 10,4 - 11,6                                 | 10,2 - 11,4 |
|                                                                                     |            | L2                       | 1,2 - 2,5   |             | 1,2 - 2,3   | 1,2 - 2,5 | 0,1 - 1,4                                   |             |
|   | Sizes      |                          | 9 to 25     |             |             |           | 9 to 19                                     | 21 to 25    |
|                                                                                     | Pin/Socket | L1                       | 9,5 - 10,6  |             |             |           | 9,5 - 10,7                                  | 9,6 - 10,8  |
|                                                                                     |            | L2                       | 1,2 - 2,5   |             |             |           | 1,2 - 2,5                                   |             |
|  | Sizes      |                          | 9 to 19     |             | 21 to 25    |           | 9 to 19                                     | 21 to 25    |
|                                                                                     | Pin/Socket | L1                       | 11,8 - 12,9 |             | 12,5 - 13,7 |           | 13 - 14,1                                   | 13,8 - 14,9 |
|                                                                                     |            | L2                       | 1,2 - 2,5   |             |             |           | 1,2 - 2,5                                   |             |



## INFORMATION

AMPHENOL CAN ALSO PROVIDE SPECIFIC AND CUSTOM TWINAX CONTACT SUCH AS:

- SIZE 10 and 12
- SIZE 8 HOODED
- 90° TWINAX

PLEASE CONSULT US



## DIFFERENTIAL TWINAX CONTACTS

### MIL-DTL-38999 SERIES III / EN3645 / EN4165

#### FEATURES AND BENEFITS

- Offer several advantages for high data transfer rates, low power consumption and excellent EMI compatibility:
- Two strategically spaced inner contacts form two 100 or 150 Ohm matched impedance differential pairs
- Outer contact has rugged wall section for durability
- Available in size 8 crimp termination style
- Also available in size 8 with PC tails
- Requires modification of MIL-DTL-38999 connector to accommodate keyed contacts

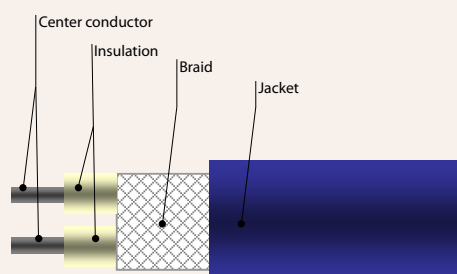


#### MATERIALS AND FINISH

- Body: Copper alloy
- Finish: Gold over nickel on mating parts
- Insulators: High Performance Fluorocarbon or PEEK



#### TYPICAL TWINAXIAL CABLE



#### TYPICAL ELECTRICAL PERFORMANCE

- Bandwidth: Up to 1.25 GHz
- Data Rate: Exceeding 2.5 Gbps
- Voltage Rating: 500 Vrms max. @ sea level
- Dielectric Withstanding Voltage: 1000 VAC rms between all inner contacts @ sea level 500 VAC rms between inner and outer contacts @ sea level

## DIFFERENTIAL TWINAX CONTACTS

## MIL-DTL-38999 SERIES III / EN3645 / EN4165

## CRIMP CONTACTS

| Cable                                                                                                                                                                                                                            | Contact Part Number |        |                  | Crimping Tools                                                            |                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------|------------------|---------------------------------------------------------------------------|------------------------------------------------------------|
|                                                                                                                                                                                                                                  | Pin                 | Socket | Impedance (Ohms) | Inner contact                                                             | Outer contact                                              |
| Tensolite 24463/05099X-8(LD),<br>Thermax MX 100-24, Tensolite<br>24463/9P025X-2(LD), Thermax 12814,<br>ST5M1284-003 (98 Ohm),<br>26463/70460X- 2 (98 Ohm),<br>PIC E10224, Fileca 2709-3,<br>NF24T100-200C<br>(Space), S280W502-1 | 900418              | 900419 | 100              | M22520/2-01 with<br>M22520/2-37 or<br>with Daniels<br>positionner<br>K709 | M22520/5-01 with<br>die<br>set M22520/5-45<br>(Location A) |
| GORE GSC-05-827300-00 Tensolite<br>26453/03184X-2(LD) Thermax 956-626Z                                                                                                                                                           | 600931              | 600932 |                  |                                                                           |                                                            |
| Tensolite 26453/03184X-2(LD), Thermax<br>956-626Z, GORE GSC-05-827300-00<br>ASNE08072003-09                                                                                                                                      | 600933              | 600934 |                  |                                                                           |                                                            |
| 23460/05114X-2(LD), PIC E1024                                                                                                                                                                                                    | 600935              | 600936 |                  |                                                                           |                                                            |
| Raychem 0026A0024, M17/176-00002<br>(77 Ohm)                                                                                                                                                                                     | 600937              | 600938 |                  |                                                                           |                                                            |
| JSFY11-24, Tensolite 24463/03220T-2(LD),<br>Thermax 956-1T200                                                                                                                                                                    | 600939              | 600940 |                  |                                                                           |                                                            |
| S280W502-6, Tensolite 24463/9P026X-2(LD)                                                                                                                                                                                         | 600941              | 600942 |                  |                                                                           |                                                            |
| AXON P509782                                                                                                                                                                                                                     | 600943              | 600944 |                  |                                                                           |                                                            |
| Tensolite 26453/03184X-2(LD)                                                                                                                                                                                                     | 600945              | 600946 |                  |                                                                           |                                                            |
| Gore DXN 2125                                                                                                                                                                                                                    | 600947              | 600948 |                  |                                                                           |                                                            |
| Tensolite 26483/03071X-2(LD)                                                                                                                                                                                                     | 900294              | 900299 | 150              |                                                                           |                                                            |
| Tensolite 26483/03071X-2(LD)                                                                                                                                                                                                     | 600858              | 600899 |                  |                                                                           |                                                            |

# QUADRAX CONTACTS

## MIL-DTL-38999 SERIES III / EN3645 / EN4165

### FEATURES AND BENEFITS

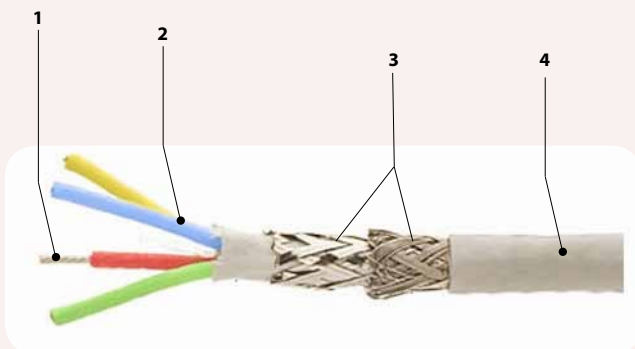
Amphenol® Quadrax Contacts -Offer several advantages for high data transfer rates, low power consumption and excellent EMI compatibility:

- Four strategically spaced inner contacts form two 100 or 150 Ohm matched impedance differential pairs
- Outer contact has rugged wall section for durability
- Available in size 8 crimp termination style
- Also available in size 8 with PC tails
- Requires modification of MIL-DTL-38999 connector to accommodate keyed contacts

### MATERIALS AND FINISH

- Body: Copper alloy
- Finish: Gold over nickel on mating parts
- Insulators: High Performance Fluorocarbon or equivalent

### TYPICAL QUADRAX CABLE



- 1 – 4 Center conductor
- 2 – 4 Insulation
- 3 – Braid
- 4 – Jacket

### TYPICAL QUADRAX CABLE

- Bandwidth: Up to 1.25 GHz
- Data Rate: Exceeding 2.5 Gbps.
- Voltage Rating: 500 Vrms max. @ sea level
- Dielectric Withstanding Voltage:
  - 1000 VAC rms between all inner contacts @ sea level
  - 500 VAC rms between inner and outer contacts @ sea level



# QUADRAX CONTACTS

TV SERIES, MIL-DTL-38999 SERIES III / EN3645 / EN4165

## CRIMP CONTACTS

| Contact Size | Cable                                                                                                                                                                                                                                                                                                      | Contact Part Number                                                                     |        |                  | Inner conductor Gauge | Electrical Protocol                                                       | Crimping Tools                                                             |                                                      |                     |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|--------|------------------|-----------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------|---------------------|
|              |                                                                                                                                                                                                                                                                                                            | Pin                                                                                     | Socket | Impedance (Ohms) |                       |                                                                           | Inner contact                                                              | Outer contact                                        |                     |
| 8            | Draka Fileca F-4703-3, F4704-4, Filotex ET 2PC236, Filotex ET2PF870, PIC Wire E50424, ABS0972, Tensolite 23450/04090X-4(LD) Draka Fileca F-4704-5, ABS1503 KD 24                                                                                                                                           | 900496                                                                                  | 900361 | 100              | 24                    | Ethernet, 1000 Base-T Gigabit Ethernet                                    | M22520/2-01 with Positioner<br>M22520/2-37 or with Daniels Positioner K709 | M22520/5-01 with Die Set<br>M22520/5-45 (Location A) |                     |
|              | Tensolite NF24Q100, NF24Q100-01, 24443/9P025X-4(LD), S280W502-4, 24443/03130X-4(LD), 24443/C20714X-4(LD), 24450/0120X-4(LD), NF24-2Q100, TYCO CECRWC-18664, GORE GSC-01-81869-01, 24443/03166X-4(LD), Thermax T956-4T200, Pic Wire E51424, Thermax MX100Q-24, NF24Q100-01-200C (Space), BMS13-72T03C04G024 | 900330                                                                                  | 900338 |                  |                       |                                                                           |                                                                            |                                                      |                     |
|              | Tensolite NF22Q100, NF22Q100-01, Thermax 956-5, GORE RCN 7688                                                                                                                                                                                                                                              | 900410                                                                                  | 900411 |                  |                       |                                                                           |                                                                            |                                                      |                     |
|              | Tensolite NF26Q100, NF26Q100-01, NF26-2Q100, PIC E51426, Wirenetics W-3714-379                                                                                                                                                                                                                             | 600514                                                                                  | 600516 |                  | 26                    | Ethernet (100 Mbps),<br>1000 Base-T Gigabit Ethernet (1 Gbps)             |                                                                            |                                                      |                     |
|              | S280W502-4/BMS13-72T03C04G024                                                                                                                                                                                                                                                                              | 600953                                                                                  | 600954 |                  | 24                    |                                                                           |                                                                            |                                                      |                     |
|              | Draka Fileca F-4704-6, Gore RCN 8672                                                                                                                                                                                                                                                                       | 600513                                                                                  | 600515 |                  | 26                    | Ethernet (100 Mbps),<br>1000 Base-T Gigabit Ethernet (1 Gbps)             |                                                                            |                                                      |                     |
|              | Gore RCN8513, JSFY18-3                                                                                                                                                                                                                                                                                     |                                                                                         |        |                  | 22                    |                                                                           |                                                                            |                                                      |                     |
|              | Tensolite NF24Q100, NF24Q100-01 for 2.5 Gbps applications                                                                                                                                                                                                                                                  | 600951                                                                                  | 600952 |                  | 24                    | Serial FPD Applications (2.5 Gbps) (Typical app run at 150 Ohms) HDMI 1.3 |                                                                            |                                                      |                     |
|              | Gore 8647                                                                                                                                                                                                                                                                                                  | 600955                                                                                  | 600956 |                  | 24                    |                                                                           |                                                                            |                                                      |                     |
|              | USB2 (28433/02171LX-4)                                                                                                                                                                                                                                                                                     | 600987                                                                                  | 600958 |                  | 90                    | 24                                                                        |                                                                            |                                                      | USB2.0 (480 Mbps)   |
|              | Tensolite 24450/03089X-4(LD) Gore RCN8647                                                                                                                                                                                                                                                                  | 050998                                                                                  | 050999 |                  | 110                   |                                                                           |                                                                            |                                                      | IEEE 1394B Firewire |
|              | JSFY02-1, JSFY18                                                                                                                                                                                                                                                                                           | 600959                                                                                  | 600960 |                  |                       |                                                                           |                                                                            |                                                      | IEEE 1394B Firewire |
|              | Gore RCN8487, JSFY18                                                                                                                                                                                                                                                                                       | 600961                                                                                  | 600962 |                  |                       |                                                                           |                                                                            |                                                      | IEEE 1394B Firewire |
|              |                                                                                                                                                                                                                                                                                                            | Tensolite 26473/02006X-4(LD)/Gore RCN8328 (not for new designs, use 21-033450/1 series) | 900327 | 900337           | 150                   | 26                                                                        |                                                                            |                                                      |                     |

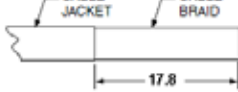
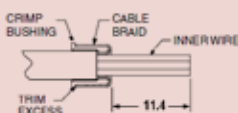
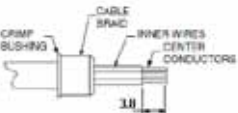
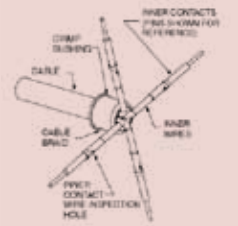
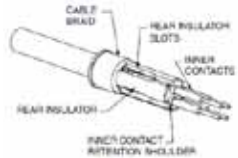
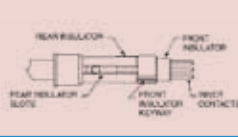
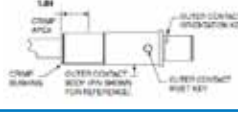
## EN3155-074 AND -075 CRIMP CONTACTS

EN3155  
QUALIFIED

| Contact Size | Cable       | Contact Part Number |               |             |                | Impedance (Ohms) | Inner conductor Gauge | Electrical Protocol                    | Crimping Tools                              |                          |
|--------------|-------------|---------------------|---------------|-------------|----------------|------------------|-----------------------|----------------------------------------|---------------------------------------------|--------------------------|
|              |             | Pin                 |               | Socket      |                |                  |                       |                                        | Inner contact                               | Outer contact            |
|              |             | Proprietary         | Standard      | Proprietary | Standard       |                  |                       |                                        |                                             |                          |
| 8            | ABS1503KD24 | 600963              | EN3155-074M8A | 600964      | EN3155-075F08A | 100              | 24                    | Ethernet, 1000 Base-T Gigabit Ethernet | M22520/2-01 with Positioner                 | M22520/5-01 with Die Set |
|              |             | 603085              | EN3155-074M08 | 603086      | EN3155-075F08  |                  |                       |                                        | M22520/2-37 or with Daniels Positioner K709 | M22520/5-45 (Location B) |

# QUADRAX CONTACTS FOR SUBMINIATURE

## TYPICAL CONTACTS INSTALLATION INSTRUCTIONS FOR QUADRAX CONTACTS

| Picture                                                                             | Process                                                                                  | Check                                                          | Tools                                    |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------|
|    | Strip the jacket<br><br>Slide the piggy back grommet and crimping ferule                 | Do not damage the braid                                        | Blade                                    |
|    | Open the braid over the crimping ferule                                                  | The braid shall cover equally the crimping ferule              | Blade (To Trim Excess Braid)             |
|   | Strip the inner conductors                                                               | Do not damage the inner conductors                             | Blade                                    |
|  | Crimp the inner contacts                                                                 | The inner conductor shall be visible thru the inspection hole  | M22520/2-01 with positionner M22520/2-37 |
|  | Install the rear insulator and respect the circular location for each individual contact | The contact location shall respect circular location           |                                          |
|  | Slide the front insulator over the contact by the front                                  | The keyway orientation shall meet the key way in outer contact |                                          |
|  | Crimp the outer contact                                                                  |                                                                | M22520/5-01 with M22520/5-45(A)          |

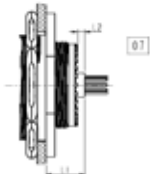
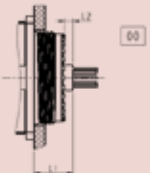
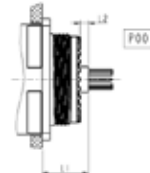
# QUADRAX CONTACTS FOR SUBMINIATURE

## MIL-DTL-38999 SERIES III / EN3645

### PRINT CIRCUIT BOARD CONTACTS

| Contact Size | Release | Type | Contact Part Number |        | Impedance (Ohms) |
|--------------|---------|------|---------------------|--------|------------------|
|              |         |      | PIN                 | SOCKET |                  |
| 8            | Rear    | CI   | 900210              | 600520 | 100              |
|              | Rear    | LI   | 600512              | 600519 |                  |

#### Pin 900210, Socket 600520

| Connectors with<br>Quadrax Contacts                                                 |            | MIL-DTL-38999<br>series III / EN3645 |             |             |             | MIL-DTL-38999<br>series III / EN3645<br>composite |             |             |
|-------------------------------------------------------------------------------------|------------|--------------------------------------|-------------|-------------|-------------|---------------------------------------------------|-------------|-------------|
|  | Sizes      |                                      | 9 to 11     | 13          | 15 to 17    | 19 to 25                                          | 9 to 11     | 13 to 25    |
|                                                                                     | Pin/Socket | L1                                   | 10,4 - 11,6 | 10,2 - 11,4 |             |                                                   | 10,4 - 11,6 | 10,2 - 11,4 |
|                                                                                     |            | L2                                   | 1,2 - 2,5   |             | 1,2 - 2,3   | 1,2 - 2,5                                         | 0,1 - 1,4   |             |
|  | Sizes      |                                      | 9 to 25     |             |             | 9 to 19                                           | 21 to 25    |             |
|                                                                                     | Pin/Socket | L1                                   | 9,5 - 10,6  |             |             | 9,5 - 10,7                                        | 9,6 - 10,8  |             |
|                                                                                     |            | L2                                   | 1,2 - 2,5   |             |             | 1,2 - 2,5                                         |             |             |
|  | Sizes      |                                      | 9 to 19     |             | 21 to 25    | 9 to 19                                           | 21 to 25    |             |
|                                                                                     | Pin/Socket | L1                                   | 11,8 - 12,9 |             | 12,5 - 13,7 | 13 - 14,1                                         | 13,8 - 14,9 |             |
|                                                                                     |            | L2                                   | 1,2 - 2,5   |             |             | 1,2 - 2,5                                         |             |             |

# QUADRAX CONTACTS

## ARINC600, EN3545



## CRIMP CONTACTS

| Contact Size | Cable                                                                                                                                                                                                                                                                                                               | Contact Part Number |        | Impedance (Ohms) | Inner conductor Gauge | Electrical Protocol                                        | Crimping Tools                             |                                                            |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------|------------------|-----------------------|------------------------------------------------------------|--------------------------------------------|------------------------------------------------------------|
|              |                                                                                                                                                                                                                                                                                                                     | Pin                 | Socket |                  |                       |                                                            | Inner contact                              | Outer contact                                              |
| 8            | ABS0972<br>ABS1503KD24                                                                                                                                                                                                                                                                                              | 603113              | 603116 | 100              | 24                    | Ethernet,<br>1000 Base-T,<br>Gigabit Ethernet,<br>ARINC664 | M22520/2-01<br>with<br>positionner<br>K709 | M22520/5-01<br>with Die<br>set M22520/5-45<br>(Location A) |
|              | Tensolite NF24Q100, NF24Q100-01,<br>24443/9P025X-4(LD), S280W502-4,<br>24443/03130X-4(LD),<br>24443/0120X-4(LD),<br>NF24-2Q100, TYCO CECRWC-18664,<br>GORE GSC-01-81869-01,<br>24443/03166X-4(LD), Thermax<br>T956-4T200, Pic Wire E51424,<br>Thermax MX100Q-24, NF24Q100<br>01-200C (Space), BMS13<br>72T03C04G024 | 603210              | 603209 |                  |                       |                                                            |                                            | M22520/5-01<br>with Die set<br>M22520/5-45 (Location B)    |

## PRINT CIRCUIT BOARD CONTACTS

| Contact Size | Release | Contact Part Number |        | Impedance (Ohms) | Connector |        |
|--------------|---------|---------------------|--------|------------------|-----------|--------|
|              |         | Pin                 | Socket |                  | ARINC600  | EN3545 |
| 8            | Front   | 603228              |        | 100              | √         |        |
|              | Rear    | 603177              | 603229 |                  |           | √      |

## ? DO YOU KNOW AFDX AND ARINC664 ?

Amphenol size 8 quadrax contacts are designed for use in ARINC664p7 or AFDX network. AFDX (Avionics Full Duplex Switched Ethernet) and ARINC 664 are a data network based on ethernet technology. AFDX is patented by AIRBUS.

## NOTES

SPLIT PAIR QUADRAX CONTACTS

MIL-DTL-38999 SERIES III / EN3645 / EN4165

FEATURES AND BENEFITS

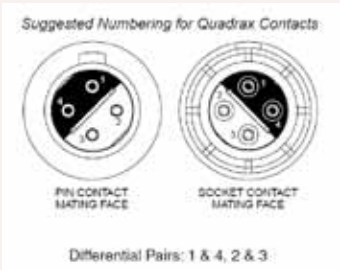
- Overall higher bandwidth than standard CAT5E quadrax
- Enhanced crosstalk performance (compared to standard quadrax) due to compatibility with shielded twisted pair of cables
- Can be used for a variety of high speed applications beyond current quadrax design\*\*
- Four strategically spaced inner contacts form two 100 Ohm matched impedance differential pairs
- Outer contact has rugged wall section for durability
- Available in size 8 crimp termination style
- Also available in size 8 PC tails
- Can be installed into existing quadrax contact connector cavities
- Requires modification of MIL-DTL-38999 connector to accommodate keyed contacts



APPLICATION

For use with, but not limited to, the following electrical protocols :

- 10/100/1000/10GBASE-T Ethernet
- DVI
- USB 2.0, 3.0
- Serial Rapid IO (up to 3.125 Gbps)
- PCI-Express 2.0
- HDMI 1.3a
- SATA 2.0 (up to 3 GHz)



CRIMP CONTACTS

| Contact Size | Cable            | Contact Part Number |        | Inner conductor Gauge | Crimping Tools                            |                                                       |
|--------------|------------------|---------------------|--------|-----------------------|-------------------------------------------|-------------------------------------------------------|
|              |                  | Pin                 | Socket |                       | Inner contact                             | Outer contact                                         |
| 8            | Thermax 1536-224 | 050742              | 050741 | 24                    | DANIELS M22520/2-01 with positioner K1777 | DANIELS M22520/5-01 with die set Y1999 or M22520/5-45 |

PRINT CIRCUIT BOARD CONTACTS

| Contact Size | Release | Type | Contact Part Number |        | Impedance (Ohms) |
|--------------|---------|------|---------------------|--------|------------------|
|              |         |      | Pin                 | Socket |                  |
| 8            | Rear    | CI   | 603250              | 600742 | 100              |
|              | Rear    | LI   | 603251              | 603252 |                  |

\*\* For stick out, please refer to p45

# μCOM-10GB +

## HARSH ENVIRONMENT 10GB ETHERNET MICRO CONNECTORS

μCom Series is a new range of connectors designed to address the latest trends of the industry : miniaturization and high speed, with the highest resistance for use in the harshest environments. μCom-10Gb + is the first product of this new range.



### MAIN FEATURES

- 10Gb+ exceeds 10Gb/s Ethernet following IEEE 802.3an-2006 : 10GBase-T
- Cat.6A connector according to TIA568C.2 and ISO/IEC11801 norms
- Environmental testing based on MIL-DTL-38999 series III military specifications
- Miniature : 15 mm(.59") max external diameter

### FEATURES AND BENEFITS

- 4 pairs totally insulated throughout the connector minimum cross-talk between the four pairs
- Patent pending special interfacial shapes minimum perturbation at the interface of each pair
- Thread coupling mechanism  
2000 mating cycles & high vibration resistance
- Machined Brass shells and RoHS compliant plating shell to shell continuity and 500h salt Spray resistance
- Machined & gold plated Solder and Crimp contacts design & performance according to the innercontact of M39029/77-429#16 M39029/76-425#16 38999 contact
- Solder contact : max AWG24
- Crimp contact : AWG 24 to 26
- IP68 sealing mated and unmated for receptacles
- 1500 Vrms Dielectric Withstanding voltage
- Temperature range : - 55°C / + 125°C

### HOW TO ORDER

| Female In-line receptacles                                                                      | UCOM - 10G+ | L | S | B | G | A |
|-------------------------------------------------------------------------------------------------|-------------|---|---|---|---|---|
| <b>Shell</b><br>L: in line receptacle (push pull or thread)                                     |             |   |   |   |   |   |
| <b>Contacts termination</b><br>C: crimp<br>S: solder                                            |             |   |   |   |   |   |
| <b>Shell plating</b><br>B: black nickel<br>G: olive drab cadmium<br>U: unplated brass           |             |   |   |   |   |   |
| <b>Backshell type</b><br>G: gland<br>B: band                                                    |             |   |   |   |   |   |
| <b>Cable diameter (for gland backshell only)</b><br>A: for cable diam 7.5mm<br>B: to be defined |             |   |   |   |   |   |

| Male plugs                                                                                      | UCOM - 10G+ | P | T | C | B | G | A |
|-------------------------------------------------------------------------------------------------|-------------|---|---|---|---|---|---|
| <b>Shell</b><br>P: plug                                                                         |             |   |   |   |   |   |   |
| <b>Mating (for plugs only)</b><br>T: thread<br>P: push-pull                                     |             |   |   |   |   |   |   |
| <b>Contacts termination</b><br>C: crimp<br>S: solder                                            |             |   |   |   |   |   |   |
| <b>Shell plating</b><br>B: black nickel<br>G: olive drab cadmium<br>U: unplated brass           |             |   |   |   |   |   |   |
| <b>Backshell type</b><br>G: gland<br>B: band                                                    |             |   |   |   |   |   |   |
| <b>Cable diameter (for gland backshell only)</b><br>A: for cable diam 7.5mm<br>B: to be defined |             |   |   |   |   |   |   |

| Female receptacles                                                                    | UCOM - 10G+ | R | P | B |
|---------------------------------------------------------------------------------------|-------------|---|---|---|
| <b>Shell</b><br>R: receptacle (push pull or thread)                                   |             |   |   |   |
| <b>Contacts termination</b><br>P: PCB<br>S: solder<br>C: crimp                        |             |   |   |   |
| <b>Shell plating</b><br>B: black nickel<br>G: olive drab cadmium<br>U: unplated brass |             |   |   |   |

| Cordsets                                                                                                                                                                                                                                                                                                                                                                               | UCOM - 10G+ | C | T | C | B | 015 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---|---|---|---|-----|
| <b>Shell</b><br>C: μCom plug - μCom plug cordset<br>D: μCom plug - RJ45 Cat6A plug cordset<br>E: μCom panel mount receptacle - RJ45 Cat6A plug cordset<br>F: μCom plug - μCom inline receptacle cordset<br>Open versions:<br>G: μCom plug - no connector at the end<br>H: μCom panel mount receptacle - no connector at the end<br>J: μCom inline receptacle - no connector at the end |             |   |   |   |   |     |
| <b>Mating (for plugs only)</b><br>T: thread                                                                                                                                                                                                                                                                                                                                            |             |   |   |   |   |     |
| <b>Contacts termination</b><br>C: crimp<br>S: solder                                                                                                                                                                                                                                                                                                                                   |             |   |   |   |   |     |
| <b>Shell plating</b><br>B: black nickel<br>G: olive drab cadmium<br>U: unplated brass                                                                                                                                                                                                                                                                                                  |             |   |   |   |   |     |
| <b>Total length - For other lengths, please consult us.</b><br>002: 20 cm [7.87]<br>005: 50 cm [19.68]<br>010: 1.0 m [39.37]<br>015: 1.5 m [59.05]<br>020: 2.0 m [78.74]<br>050: 5.0 m [196.85]<br>100: 10.0 m [393.70]                                                                                                                                                                |             |   |   |   |   |     |

For more information on μCom series, thanks to consult our dedicated datasheet

## HIGH-SPEED CORDSETS

Thanks to our large contacts portfolio and expertise on major high speed protocols, Amphenol Socapex is now offering a capability of high-speed cordsets design and manufacturing. All cordsets are fully tested with test such as DWV, resistance and continuity. Other tests could be performed on demand.



38999 connectors to RJ45



USB3 to SPLIT-PAIR QUADRAx



QUADRAx TO DIFFERENTIAL TWINAX

## ASSEMBLY SHOP

A dedicated 400m<sup>2</sup> workshop and team focus on harnesses and cordsets manufacturing. Technical and manufacturing supports are available in France to help you on your definition.



# M29504/4 & /5

## FIBER OPTIC TERMINI

### FEATURES AND BENEFITS



- Precision fiber optic ceramic ferrules
- Pre-radius ferrule design
- Precision “press fit” stainless steel design
- Accurate ferrule alignment system
- Size 16 design (MIL-DTL-38999 compatible)
- Low insertion loss and back reflection
- Designed and manufactured to MIL-PRF-29504/ 4 and /5 specifications

### BENEFITS

- Solid reliable connectivity through a wide range of harsh environmental conditions
- Compatible with all qualified MIL-DTL-38999, Series III connectors.
- Fast termination and polish time
- Reliable, repeatable and durable connections
- Easy to clean

### PRODUCT SPECIFICATIONS

- Solid reliable connectivity through a wide range of harsh environmental conditions
- Compatible with all qualified MIL-DTL-38999, Series III connectors.
- Fast termination and polish time
- Reliable, repeatable and durable connections
- Easy to clean

| Specification         | Measurement/Detail                                                        |
|-----------------------|---------------------------------------------------------------------------|
| Back Reflection       | Better than -40 dB – PC polish<br>Better than -50 dB – enhanced PC polish |
| Insertion Loss        | 0.45 typical (measured with 62.5/<br>125 mm fiber @1310nm)                |
| Operating Temperature | -65°C to +150°C                                                           |
| Temperature Life      | +150°C for 1000 hours                                                     |
| Vibration             | 40 G random                                                               |
| Mechanical Shock      | 500 G                                                                     |
| Mating Durability     | 500 cycles                                                                |
| Salt Spray            | 500 hours                                                                 |
| Cable Retention Force | 25 lbs (dependent on cable construction)                                  |

## M29504/4 &amp; /5

## FIBER OPTIC TERMINI

## ABOUT THE M29504

Amphenol Fiber Systems International's (AFSI) M29504 /4 & /5 Style Fiber optic termini, the M29K1000 and M29L1000 series, provide superior optical and mechanical performance. Designed to fit into MIL-DTL-38999 Series III, pin size 16 connectors, this low-cost, high-precision terminus family is ideal for harsh environment fiber optic interconnections. Available for single mode and multimode applications these termini conform to the rigorous conditions of the MIL-PRF-29504B specification.

The M29K1000 and M29L1000 series termini utilize the highest quality Zirconia ceramic ferrules and split alignment sleeves available. AFSI's tight-tolerance ferrules are optimized for low insertion loss, low back reflection and exceptional durability. All ferrules are available in standard and ultra polished end faces for those tight optical budget applications. In addition, epoxy removal and polishing times are minimized by the ferrule's pre-domed design feature.

The M29L1000's Zirconia split alignment sleeve design ensures accurate physical contact, fiber-to-fiber alignment and guarantees the highest performing connector of its kind for use in a variety of demanding environmental conditions.

The M29K1000 and M29L1000 series fiber optic termination system offers precise, superior and reliable connections over repeated connector mating cycles and through a wide range of harsh environmental conditions.

## M29504/4 FIBER SIZE TABLE

| AFSI Pin Part Number | Fiber Size Core/Cladding | A Diam. (Microns) | Reference Only M29504 /4-XXXX |
|----------------------|--------------------------|-------------------|-------------------------------|
| M29K2000             | 9/125                    | 126               | M29504/4-4209                 |
| M29K1001             | 50/125 & 62.5/125        | 126               | M29504/4-4210                 |
| M29K1000             | 50/125 & 62.5/125        | 127               | M29504/4-4040                 |
| M29K3000             | 100/140                  | 142               | M29504/4-4043                 |
| M29K3001             | 100/140                  | 144               | M29504/4-4044                 |
| M29K5000             | 62.5/125/155 (Polyimide) | 156               | M29504/4-4211                 |
| M29K5001             | 62.5/125/155 (Polyimide) | 157               | M29504/4-4212                 |
| M29K6000             | 100/140/172 (Polyimide)  | 173               | M29504/4-4087                 |
| M29K6001             | 100/140/172 (Polyimide)  | 175               | M29504/4-4213                 |
| M29K8000             | 200/233                  | 236               | M29504/4-4214                 |
| M29K8050             | 200/280                  | 286               | M29504/4-4215                 |
| M29K9000             | 400/440                  | 448               | M29504/4-4216                 |

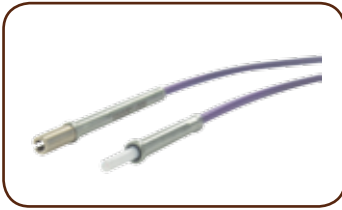
## M29504/5 FIBER SIZE TABLE

| AFSI Pin Part Number | Fiber Size Core/Cladding | A Diam. (Microns) | Reference Only M29504 /4-XXXX |
|----------------------|--------------------------|-------------------|-------------------------------|
| M29L2000             | 9/125                    | 126               | M29504/5-4238                 |
| M29L1001             | 50/125 & 62.5/125        | 126               | M29504/5-4239                 |
| M29L1000             | 50/125 & 62.5/125        | 127               | M29504/5-4046                 |
| M29L3000             | 100/140                  | 142               | M29504/5-4049                 |
| M29L3001             | 100/140                  | 144               | M29504/5-4050                 |
| M29L5000             | 62.5/125/155 (Polyimide) | 156               | M29504/5-4240                 |
| M29L5001             | 62.5/125/155 (Polyimide) | 157               | M29504/5-4241                 |
| M29L6000             | 100/140/172 (Polyimide)  | 173               | M29504/5-4088                 |
| M29L6001             | 100/140/172 (Polyimide)  | 175               | M29504/5-4242                 |
| M29L8000             | 200/233                  | 236               | M29504/5-4243                 |
| M29L8050             | 200/280                  | 286               | M29504/5-4244                 |
| M29L9000             | 400/440                  | 448               | M29504/5-4245                 |

## LUX-BEAM®

## SINGLE EXPANDED BEAM TERMINI

## ABOUT LUX-BEAM®



Lux-beam size 16

The new requirements for Avionics and Field communication systems demand for always higher amount of data, HD video transmission and higher bandwidth to be transmitted. Fiber optic technology is the technology of choice for those requirements.

With over 20 years of production of fiber optics expanded beam solutions, Amphenol introduces the **LUX-BEAM™** Single Expanded beam termini. A solution to upgrade the optical physical contact technology to an optical contactless technology.

LUX-BEAM™ is easy to clean, less sensitive to pollution by dust or debris. The contactless coupling of LUX-BEAM™ is not subject to degradation of performances resulting from friction of optical surfaces as it usual is on traditional butt joint termini. With its patented pin to socket realignment feature, LUX-BEAM™ is compatible with connectors from different suppliers and provides an efficient adjustment to tolerances during mating. Per design, LUX-BEAM™ is as easy to install.

## FEATURES AND BENEFITS

**Expanded Beam technology**

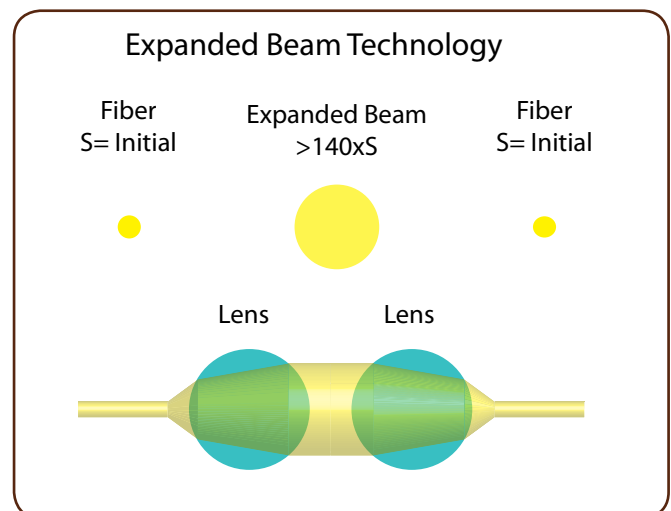
- Surface expanded bundle >140X
- Reduced sensitivity to dust
- No degradation of the optical face
- Easy cleaning
- Low maintenance

**Compatibility**

- Cavity #16
  - MIL-DTL-38999 series III TV/CTV, EN3645
  - EN 4165 (SIM)

**Other benefits technology**

- Easy installation with standard tools
- Possibility to mix with Electrical contact for Hybrid solutions



# LUX-BEAM®

## TECHNICAL DATA

| SPECIFICATION                              | MEASUREMENT DETAILS                                                                                                                                                                                  | STANDARD       | METHOD     |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------|
| Insertion loss                             | 1.5dB max multimode, 850nm<br>1.5dB max multimode, 1300nm                                                                                                                                            | MIL-PRF-29504D | TIA-455-34 |
| Mating durability                          | 500 cycles                                                                                                                                                                                           | MIL-DTL-38999  | TIA-455-21 |
| Operating temperature,<br>temperature life | 125°C 1000H                                                                                                                                                                                          | MIL-PRF-29504D | TIA-455-04 |
| Storage temperature                        | -40°C / +85°C                                                                                                                                                                                        | MIL-PRF-29504D |            |
| Temperature cycling                        | 5 cycles -40°C +70°C                                                                                                                                                                                 | MIL-DTL-38999  | TIA-455-03 |
| Thermal shock                              | 5 cycles -55°C +125°C                                                                                                                                                                                | MIL-PRF-29504D | TIA-455-34 |
| Humidity                                   | 24h at 50°C max 33% hum<br>240H at 40°C 90% RH                                                                                                                                                       | MIL-DTL-38999  | TIA-455-05 |
| Salt spray                                 | 48H                                                                                                                                                                                                  | MIL-PRF-29504D | TIA-455-16 |
| Vibration                                  | Connectors mated<br>Method B: Figure 2, Table 1, level J (1g2/Hz)<br>Duration: 8h / axe – 2 axes longitudinal and perpendicular direction.<br>Duration of micro-discontinuity : < 1µs<br>IL max 2dB. | EN2591-6403    |            |
| Shock                                      | Method A, severity 100<br>Number of shocks: 1 each way for each of the 2 directions (6 shocks in all).<br>Duration of micro-discontinuity : < 1µs                                                    | EN2591-6402    |            |
| Insertion and removal force                | max 22 pounds                                                                                                                                                                                        | MIL-PRF-29504D | 3.6.9      |
| Maintenance aging                          | 10 insertions / removal cycles                                                                                                                                                                       | MIL-PRF-29504D | 3.6.13     |

## HOW TO ORDER

| Designation                                             | LXB | 16 | P  | A | 18X |
|---------------------------------------------------------|-----|----|----|---|-----|
|                                                         | LXB | 16 | S2 | C | 18X |
| <b>Series</b>                                           |     |    |    |   |     |
| LXB : LUX-BEAM, Single expanded beam optical termini    |     |    |    |   |     |
| <b>Cavity size</b>                                      |     |    |    |   |     |
| 16 : size 16 for 38999 series III                       |     |    |    |   |     |
| <b>Type of termini</b>                                  |     |    |    |   |     |
| P : Pin termini                                         |     |    |    |   |     |
| S2 : Socket termini for series II                       |     |    |    |   |     |
| S3 : socket termini for series III                      |     |    |    |   |     |
| <b>Wavelength</b>                                       |     |    |    |   |     |
| A : optimised for wavelength 850nm (Multimode)          |     |    |    |   |     |
| B : optimised for wavelength 1300nm (Multimode)         |     |    |    |   |     |
| C : optimised for wavelength 850nm & 1300nm (Multimode) |     |    |    |   |     |
| <b>Cable</b>                                            |     |    |    |   |     |
| 18X : for cable 1.8mm                                   |     |    |    |   |     |

## LUX-BEAM®

## HOW TO ORDER CABLE ASSEMBLIES WITH LUX-BEAM™

## CABLE ASSEMBLIES WITH LUX-BEAM™ TO OTHER TERMINI

| Designation                                                                                                                                                                    | LXB | 16 | P | A | 1 | D | 1 | L | 0020 | ST2 | 1 | D | 0 | M |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|---|---|---|---|---|---|------|-----|---|---|---|---|
| <b>Type of Termini</b><br>LXB: LUX-BEAM™, Single expanded beam optical termini                                                                                                 |     |    |   |   |   |   |   |   |      |     |   |   |   |   |
| <b>Cavity size</b><br>16: size 16 for 38999 series III                                                                                                                         |     |    |   |   |   |   |   |   |      |     |   |   |   |   |
| <b>Type of termini</b><br>P: pin termini<br>S2: socket termini for series II<br>S3: socket termini for series III                                                              |     |    |   |   |   |   |   |   |      |     |   |   |   |   |
| <b>Wavelength</b><br>A: optimised for wavelength 850nm (Multimode)<br>B: optimised for wavelength 1300nm (Multimode)<br>C: optimised for wavelength 850nm & 1300nm (Multimode) |     |    |   |   |   |   |   |   |      |     |   |   |   |   |
| <b>Termination type</b><br>1: PC Ceramic                                                                                                                                       |     |    |   |   |   |   |   |   |      |     |   |   |   |   |
| <b>Boot form</b><br>D: straight boot                                                                                                                                           |     |    |   |   |   |   |   |   |      |     |   |   |   |   |
| <b>Type of fiber</b><br>1: 50/125 Multimode<br>2: 62.5/125 Multimode                                                                                                           |     |    |   |   |   |   |   |   |      |     |   |   |   |   |
| <b>Type of cable</b><br>L: Simplex cable with buffer 900µm and outer jacket dia. 1.8mm                                                                                         |     |    |   |   |   |   |   |   |      |     |   |   |   |   |
| <b>Length</b><br>XXXX: length in m for L ≥ 10m, ex 0020 for L=20 meters<br>X.XX: length in m for L < 10m, ex 5.00 for L=5.0 meters                                             |     |    |   |   |   |   |   |   |      |     |   |   |   |   |
| <b>Type of Termini</b><br>XXX: pigtail<br>ST2: connector ST2<br>954: connector SC simplex<br>LCS: connector LC simplex<br>ELU: connector ARINC 801 optical termini             |     |    |   |   |   |   |   |   |      |     |   |   |   |   |
| <b>Termination type</b><br>1: PC Ceramic                                                                                                                                       |     |    |   |   |   |   |   |   |      |     |   |   |   |   |
| <b>Boot form</b><br>D: straight boot                                                                                                                                           |     |    |   |   |   |   |   |   |      |     |   |   |   |   |
| <b>Protective Cap</b><br>O: standard protective cap                                                                                                                            |     |    |   |   |   |   |   |   |      |     |   |   |   |   |
| <b>Marking</b><br>: standard marking<br>MX: specific marking                                                                                                                   |     |    |   |   |   |   |   |   |      |     |   |   |   |   |

# LUMIÈRE

## FIBER OPTIC TERMINI

### ABOUT THE LUMIERE

Amphenol Fiber Systems International (AFSI) offers the **Lumière** fiber optic terminus for commercial airframe, avionics and aerospace applications. AFSI's Lumière termini are a direct replacement for ELIO® termini and are compatible with existing ELIO® connectors. This fiber optic contact utilizes a 2.5mm diameter field-proven ceramic ST type ferrule which can be inserted into a size #16 cavity.

The terminus is hermaphroditic allowing the use of the same contact on the receptacle or plug. In addition, the contact is available in both multi-mode and single mode versions and an anti-rotation feature allows PC, UPC and APC polishes. Because the Lumière uses a standard ST type ferrule, well known procedures and readily available tools can be used for termination. Long and short boot versions are available to support multiple connector types.

Amphenol also manufactures a full line of EN 4531 rectangular and cylindrical connectors to house the Lumière termini.

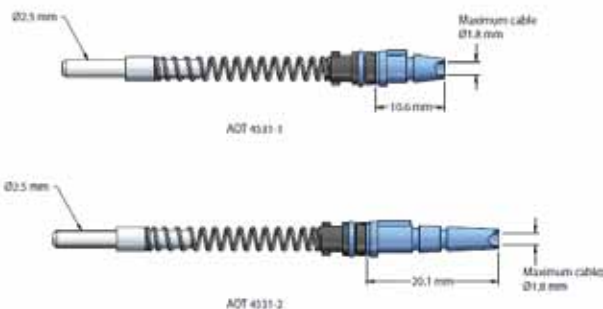
### FEATURES AND BENEFITS

- Hermaphroditic style allows one contact type
- Standard 2.5mm ST type ferrule interface allows the use of standard termination procedures and readily available tools
- Simple access to optical termini facilitates cleaning
- Options available for single mode and multimode fiber
- Pull Proof option allows the use of the terminus in a connector without a backshell
- Supports both tight or loose structure cable



### OPTICAL PERFORMANCE

Typical IL: 0.3dB SM, 0.2dB MM @ 1300nm  
Typical Return Loss: -30dB SM and MM @ 1300nm



| Part Number | Description           |
|-------------|-----------------------|
| AOT 4532-1  | Lumière-S, Short Boot |
| AOT 4531-2  | Lumière-L, Long Boot  |

# ARINC 801

## FIBER OPTIC TERMINI



## ABOUT ARINC 801 TERMINI

Amphenol Fiber Systems International (AFSI) offers the fully-compliant [ARINC 801 fiber optic terminus](#) for aerospace applications. The AFSI ARINC 801 uses a standard 1.25 mm ferrule and sleeve and can be terminated with standard LC termination procedures. The terminus can be inserted, or removed, from the connector with a standard size 16 removal tool.

The terminus is available in both multimode and single mode versions. The fiber optic contact provides low insertion loss (0.3 dB max) and backreflection (-50 dB). In addition to the standard PC end-face option, AFSI's ARINC 801 is offered with an APC end-face for those applications requiring lower backreflection.

The terminus is highly flexible and is used primarily in ARINC 801, 600, 404, 781 and EPXA/B multichannel connectors. The fiber optic contact is offered in an optional pull-proof (allows the use of the contact in a connector without a strain-relief backshell) configuration and an optical disconnect style for tight jacket cable.

## FEATURES AND BENEFITS

- Flexible design for use in multiple connector types
- Genderless terminus allows one contact type
- Standard 1.25 mm LC ferrule interface allows the use of standard termination procedures and widely available tools
- Options available for single mode and multimode fiber in PC or APC polishes
- Pull-proof option allows the use of the terminus in a connector without a backshell
- Works with tight or loose structure cable
- All stainless steel option available

| Specification         | Measurement/Detail                                           |
|-----------------------|--------------------------------------------------------------|
| Insertion Loss        | 0.3 dBmax (multimode)<br>0.5 dBmax (singlemode)              |
| Operating Temperature | -55° C to +85° C                                             |
| Connector Format      | ARINC 600, 404, 781&801;MIL-DTL-82527 type;<br>MIL-DTL-38999 |
| Mating                | 100 mate/demate cycles                                       |
| Cable OD Supported    | 1.55 mm to 2.2 mm                                            |

## ACCESSORIES

Amphenol provides a full range of accessories as:

Sealing plugs: to be mounted behind the crimp contacts

Dummy contacts: to be mounted instead of the contacts

Piggy Back Grommets: To insure back contact sealing when using size 8 power, coax, twinax or quadrax. Those piggy back grommets are only compliant with tower grommet style

### SEALING PLUGS

| Contact size | Proprietary No | Military No  |
|--------------|----------------|--------------|
| 8 power      | 900024         | -            |
| 12           | 900023         | MS27488-12-2 |
| 16           | 900020         | MS27488-16-2 |
| 20           | 900021         | MS27488-20-2 |
| 22D          | 900022         | MS27488-22-2 |
| 23           | 900022         | MS27488-22-2 |

### DUMMY CONTACTS

| Contact size | Dummy contact material      | Proprietary No |
|--------------|-----------------------------|----------------|
| 4            | White plastic               | 900329         |
| 8            | Green plastic               | 900488         |
| 8            | Brass + gold finish         | 900183         |
| 8            | White plastic (recommended) | 900029         |
| 12           | Brass + gold finish         | 900025         |
| 12           | White plastic               | 900186         |
| 16           | Brass + gold finish         | 900028         |
| 16           | Blue plastic                | 900026         |
| 20           | Brass + gold finish         | 900332         |

Metal dummy contacts are recommended for applications requesting EMI protection.

### PIGGY BACK GROMMET

| Type of contact        | Cable OD (mm) | Proprietary No |
|------------------------|---------------|----------------|
| Size 8 power           | 4.4 to 5.2    | 900471         |
| Size 8 twinax and coax | 3 to 4.4      | 900472         |
| Size 8 twinax and coax | 3 to 4.4      | 900476*        |
| Quadrax                | 3 to 4.4      | 603015         |
|                        | 4.4 to 5.2    | 603016         |

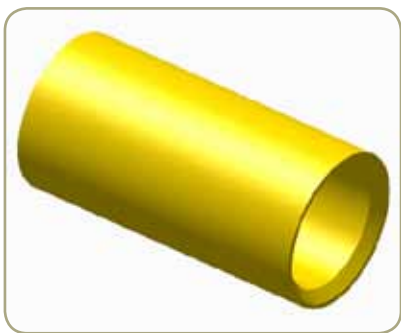
\* to use for arrangements 25-20, 19-17

## ACCESSORIES

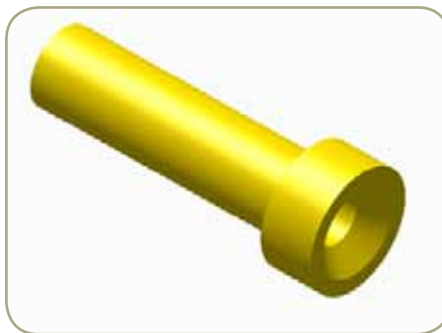
## REDUCING FERRULE

| Reducing ferrule No | Contact size | Wire Gauge | Pin contacts   | Socket contacts | Crimping tool                                  | Selector position | Type |
|---------------------|--------------|------------|----------------|-----------------|------------------------------------------------|-------------------|------|
| 900154              | 8            | 10         | 900197/ 900198 | 900217          | 809872+809873                                  | 6                 | 1    |
| 900092              | 12           | 16         |                |                 | M22520/1-01+<br>M22520/1-04                    | 7                 | 2    |
|                     |              | 18         |                |                 |                                                | 6                 |      |
|                     |              | 20         |                |                 |                                                | 5                 |      |
| 900093              |              | 20         |                |                 |                                                | 6                 | 2    |
|                     |              | 22         |                |                 |                                                | 6                 |      |
|                     |              | 24         |                |                 |                                                | 5                 |      |
| 900091              | 16           | 24         |                |                 |                                                | 4                 | 2    |
|                     |              | 26         |                |                 |                                                | 4                 |      |
|                     |              | 28         |                |                 |                                                | 3                 |      |
| 900090              | 20           | 26         |                |                 |                                                | 2                 | 2    |
|                     |              | 28         |                |                 |                                                | 2                 |      |
| 900099              | 22D          | 30         | 900004         | 900044          | M22520/2-01 +<br>M22520/2-09 or<br>M22520/2-07 | 4                 | 2    |
| 900094              |              | 32         |                |                 |                                                | 5                 | 2    |
|                     |              | 34         |                |                 |                                                | 4                 |      |

The sealing of mated connectors is only guaranteed for the minimum wire outside diameter given in the table page 7



Type 1



Type 2

## GLOSSARY

**INSERTION FORCE:**

It's force resulting when the pin contact get engaged in the socket contact. It's usually given in Newtons

**INSULATOR:**

It's the plastic components located between contacts for multi-part contacts (COAX, TWINAX, QUADRAx). There could be multiple insulators per contacts.

**ELECTRICAL IMPEDANCE (or IMPEDANCE):**

Electrical impedance, or simply "impedance," describes a measure of opposition to alternating current (AC). Electrical impedance extends the concept of resistance to AC circuits, describing not only the relative amplitudes of the voltage and current, but also the relative phases. When the circuit is driven with direct current (DC), there is no distinction between impedance and resistance; the latter can be thought of as impedance with zero phase angle.

**VOLTAGE STANDARD WAVE RATIO (or VSWR):**

It's used to measure the efficiency of a transmission line. The value is expressed as a ratio with 1 (1:1, 2:1, 3:1). A perfect transmission line would be 1:1.

**CRIMPING TOOL:**

The crimping tool is the tool used to crimp the wire into the contact. It's usually used with a additional component called positioner or die sets.

**FREQUENCY RANGE:**

It's define the better range of frequency in utilisation to obtain the better performance of the couple cable + contact.

**INSERTION LOSS:**

It's the difference between the amount of data has been sent versus the data received.

**POSITIONER:**

This complementary component of crimping tool is used to guide, locate the crimping area of the contact during the crimping operation.

**DIE SET:**

This complementary component of crimping tool defines the hexagonal crimping die.

## GLOSSARY

**PIGGY BACK GROMMET:**

The piggy back grommet is an additional device for contact size 8 which provide sealing on the wire and also guiding of the contact in the connector.

**DATA RATE:**

Data rate is the number of “bits” of data transferred per a given unit of time.

**BANDWIDTH:**

Is the difference between the upper and lower frequencies in a continuous set of frequencies.

**DURABILITY:**

Is the number of mating cycle admissible by the contacts.

**RF LEAKAGE:**

Is defined as the amount of energy which "leaks" from the connector and/or component. Although RF Leakage will vary with frequency, it is typically tested at only one frequency. Leakage, like Insertion Loss, is expressed in dB. Very large negative dB values indicate that the device does not radiate much energy.

**DIFFERENTIAL PAIR:**

Differential signaling is a method of transmitting information electrically with two complementary signals sent on two paired wires, called a differential pair.

# CONTACT AND CABLE SELECTION GUIDE

## COAXIAL PIN

| Cable                        | Impedance | Contact Size |   | Standard      | P/N    | Impedance Match | Most Appropriate      |           | Connector     |           |            |        |                 |
|------------------------------|-----------|--------------|---|---------------|--------|-----------------|-----------------------|-----------|---------------|-----------|------------|--------|-----------------|
|                              |           |              |   |               |        |                 | Contact Size vs Cable | Frequency | MIL-DTL-38999 |           |            | EN3645 | EN4165 Standard |
|                              |           |              |   |               |        |                 |                       |           | Series I      | Series II | Series III |        |                 |
| RG-58C/U<br>(M17/028-RG058)  | 50        | 8            |   |               | 600901 |                 |                       |           | X             | X         | X          | X      | X               |
| RG-58<br>(M17/155-00001)     | 50        | 8            |   |               | 600901 |                 |                       |           | X             | X         | X          | X      | X               |
| RG-142B/U<br>(M17/060-RG142) | 50        | 8            |   |               | 900136 |                 |                       |           | X             | X         | X          | X      | X               |
| RG-161/U                     | 70        | 16           | * | M39029/76-424 | 071094 |                 | X                     |           | X             | X         | X          | X      | X               |
|                              |           | 12           |   | M39029/28-211 | 900340 |                 |                       |           | X             | X         | X          | X      | X               |
|                              |           | 8            |   |               | 900135 |                 |                       |           | X             | X         | X          | X      | X               |
| RG-174A/U<br>(M17/119-RG174) | 50        | 16           | * | M39029/76-424 | 071094 |                 | X                     |           | X             | X         | X          | X      | X               |
|                              |           | 12           |   | M39029/28-211 | 900340 |                 |                       |           | X             | X         | X          | X      | X               |
|                              |           | 8            |   |               | 900135 |                 |                       |           | X             | X         | X          | X      | X               |
| RG-178B/U<br>(M17/093-RG178) | 50        | 16           | * | M39029/76-425 | 070247 |                 | X                     |           | X             | X         | X          | X      | X               |
|                              |           | 12           | * |               | 600907 | X               |                       | X         | X             | X         | X          | X      | X               |
| RG-179B/U<br>(M17/094-RG179) | 75        | 16           | * | M39029/76-424 | 071094 |                 | X                     |           | X             | X         | X          | X      | X               |
|                              |           | 12           |   | M39029/28-211 | 900340 | X               |                       |           | X             | X         | X          | X      | X               |
|                              |           | 8            | * |               | 600822 | X (3G-SDI)      |                       | X         | X             | X         | X          | X      | X               |
|                              |           | 8            |   |               | 900135 |                 |                       |           | X             | X         | X          | X      | X               |
| RG-180B/U<br>(M17/095-RG180) | 95        | 6            |   |               | 600757 | X               |                       |           | X             | X         | X          |        |                 |
|                              |           | 12           | * | M39029/28-409 | 900341 |                 | X                     |           | X             | X         | X          | X      | X               |
|                              |           | 8            |   | M39029/60-367 | 900130 |                 |                       |           | X             | X         | X          | X      | X               |
| RG-187A/U<br>(M17/094-RG179) | 75        | 16           | * | M39029/76-424 | 071094 |                 | X                     |           | X             | X         | X          | X      | X               |
|                              |           | 12           |   | M39029/28-211 | 900340 |                 |                       |           | X             | X         | X          | X      | X               |
|                              |           | 8            |   |               | 500135 |                 |                       |           | X             | X         | X          | X      | X               |
| RG-188A/U<br>(M17/113-RG316) | 50        | 16           | * | M39029/76-424 | 071094 |                 | X                     |           | X             | X         | X          | X      | X               |
|                              |           | 12           |   | M39029/28-211 | 900340 |                 |                       |           | X             | X         | X          | X      | X               |
|                              |           | 8            |   |               | 900135 |                 |                       |           | X             | X         | X          | X      | X               |
| RG-195A/U<br>(M17/095-RG180) | 95        | 12           | * | M39029/28-409 | 900341 |                 | X                     |           | X             | X         | X          | X      | X               |
|                              |           | 8            |   |               | 900130 |                 |                       |           | X             | X         | X          | X      | X               |
| RG-196A/U<br>(M17/169-00001) | 50        | 16           | * | M39029/76-425 | 070247 |                 | X                     |           | X             | X         | X          | X      | X               |
| RG-223/U<br>(M17/084-RG223)  | 50        | 8            |   |               | 900136 |                 |                       |           | X             | X         | X          | X      | X               |
| RG-316/U<br>(M17/113-RG316)  | 50        | 16           | * | M39029/76-424 | 071094 |                 |                       |           | X             | X         | X          | X      | X               |
|                              |           | 12           |   | M39029/28-211 | 900340 |                 |                       |           | X             | X         | X          | X      | X               |
|                              |           | 12           | * |               | 900384 | X               |                       | X         | X             | X         | X          | X      | X               |
|                              |           | 8            |   |               | 900135 |                 |                       |           | X             | X         | X          | X      | X               |
| RD-316                       | 50        | 12           | * | M39029/103    | 900385 | X               |                       | X         | X             | X         | X          | X      | X               |
|                              |           | 8            |   |               | 900137 |                 |                       |           | X             | X         | X          | X      | X               |
| (M17/152-00001)              | 50        | 8            | * | M39029/103    | 900385 | X               |                       | X         | X             | X         | X          | X      | X               |
| RG-400<br>(M17/128-RG400)    | 50        | 8            |   |               | 900138 |                 |                       |           | X             | X         | X          | X      | X               |
|                              |           | 8            | * |               | 600922 | 12GHz           |                       | X         | X             | X         | X          | X      | X               |
| TFLEX-402                    | 50        | 8            |   |               | 600923 | 18GHz           |                       |           | X             | X         | X          | X      | X               |
|                              |           | 8            | * |               | 600606 | 26,5GHz         |                       | X         | X             | X         | X          | X      | X               |
| TFLEX-405                    | 50        | 12           | * |               | 600924 | 65GHz           | X                     | X         | X             | X         | X          | X      | X               |
|                              |           | 8            |   |               | 600921 | 18GHz           |                       |           | X             | X         | X          | X      | X               |
|                              |           | 8            |   |               | 600600 | 26,5GHz         |                       |           | X             | X         | X          | X      | X               |
|                              |           | 8            | * |               | 600920 | 40GHz           |                       | X         | X             | X         | X          | X      | X               |
| Filotex ET124962             | 50        | 12           |   | M39029/103    | 900385 | X               |                       |           | X             | X         | X          | X      | X               |
| PAN6422XQ                    | 75        | 12           |   |               | 600906 | X               |                       |           | X             | X         | X          | X      | X               |
| Belden RG59 0,8/3,7          | 75        | 6            |   |               | 600813 | X               |                       |           | X             | X         | X          | X      | X               |
| Draka HD PRO<br>0,8/3,7 AF   | 75        | 6            |   |               | 600813 | X               |                       |           | X             | X         | X          | X      | X               |
| Haveg 61-02051               |           | 16           |   |               | 900186 |                 |                       |           | X             | X         | X          | X      | X               |
| Haveg 8100207                |           | 16           |   | M39029/76-424 | 071094 |                 | X                     |           | X             | X         | X          | X      | X               |
|                              |           | 12           |   | M39029/28-211 | 900340 |                 |                       |           | X             | X         | X          | X      | X               |

## CONTACT AND CABLE SELECTION GUIDE

## COAXIAL PIN

| Cable                  | Impedance | Contact Size | Standard        | P/N    | Impedance Match | Most Appropriate      |           | Connector     |           |            |        |                 |
|------------------------|-----------|--------------|-----------------|--------|-----------------|-----------------------|-----------|---------------|-----------|------------|--------|-----------------|
|                        |           |              |                 |        |                 | Contact Size vs Cable | Frequency | MIL-DTL-38999 |           |            | EN3645 | EN4165 Standard |
|                        |           |              |                 |        |                 |                       |           | Series I      | Series II | Series III |        |                 |
| Grun 0,6/3,7           | 75        | 6            |                 | 600813 |                 |                       |           | X             | X         | X          | X      | X               |
| Gore GWN1159A          |           | 12           |                 | 900428 |                 |                       |           | X             | X         | X          | X      | X               |
| Gore CXN340            |           | 12           |                 | 600907 | X               |                       |           | X             | X         | X          | X      | X               |
| Times AA3248           |           | 16           | * M39029/76-424 | 071094 |                 | X                     |           | X             | X         | X          | X      | X               |
|                        |           | 12           | M39029/28-211   | 900340 |                 |                       |           | X             | X         | X          | X      | X               |
|                        |           | 8            |                 | 900135 |                 |                       |           | X             | X         | X          | X      | X               |
| Times LMR-195-UF       |           | 8            |                 | 600901 |                 |                       |           | X             | X         | X          | X      | X               |
| Teledyne 11299         |           | 16           | * M39029/76-424 | 071094 |                 | X                     |           | X             | X         | X          | X      | X               |
|                        |           | 12           |                 | 900340 |                 |                       |           | X             | X         | X          | X      | X               |
|                        |           | 8            |                 | 900135 |                 |                       |           | X             | X         | X          | X      | X               |
| Raychem 5021D13311-0   | 50        | 8            |                 | 600904 |                 |                       |           | X             | X         | X          | X      | X               |
| Raychem 5021D1331-0    |           | 8            |                 | 600902 |                 |                       |           | X             | X         | X          | X      | X               |
| Raychem 5022E5111      |           | 12           |                 | 900424 |                 |                       |           | X             | X         | X          | X      | X               |
| Raychem 9528A1318      | 75        | 16           | * M39029/76-424 | 071094 |                 | X                     |           | X             | X         | X          | X      | X               |
|                        |           | 12           | M39029/28-409   | 900341 |                 |                       |           | X             | X         | X          | X      | X               |
| Raychem 7528H1424      |           | 12           | M39029/28-211   | 900340 |                 |                       |           | X             | X         | X          | X      | X               |
| Raychem 9528A1318      | 95        | 12           | * M39029/60-367 | 071954 |                 | X                     |           | X             | X         | X          | X      | X               |
|                        |           | 8            |                 | 900130 |                 |                       |           | X             | X         | X          | X      | X               |
| Raychem 9530A5314      | 95        | 12           |                 | 900426 |                 |                       |           | X             | X         | X          | X      | X               |
| Tensolite 28895/2X1    |           | 8            |                 | 600900 |                 |                       |           | X             | X         | X          | X      | X               |
| ESC432101              |           | 8            |                 | 600903 |                 |                       |           | X             | X         | X          | X      | X               |
| ECS3C058A              |           | 8            |                 | 900138 |                 |                       |           | X             | X         | X          | X      | X               |
| ECS352001              |           | 8            |                 | 900138 |                 |                       |           | X             | X         | X          | X      | X               |
| ECS432101              |           | 8            |                 | 900138 |                 |                       |           | X             | X         | X          | X      | X               |
| PIC V75268             | 75        | 8            |                 | 600830 | X               |                       |           | X             | X         | X          | X      | X               |
| PIC V75248             |           | 8            |                 | 600830 | X               |                       |           | X             | X         | X          | X      | X               |
| PIC V75261             | 75        | 8            |                 | 600830 | X               |                       |           | X             | X         | X          | X      | X               |
| PIC V73263             | 75        | 8            |                 | 600830 | X               |                       |           | X             | X         | X          | X      | X               |
| ENTEQ TFLEX 125-075.01 | 75        | 8            |                 | 600830 | X               |                       |           | X             | X         | X          | X      | X               |

\*Mean the best match between cable and contacts

# CONTACT AND CABLE SELECTION GUIDE

## COAXIAL SOCKET

| Cable                        | Impedance | Contact Size |   | Standard      | P/N    | Impedance Match | Most Appropriate      |           | Connector     |           |            |        |          |            |
|------------------------------|-----------|--------------|---|---------------|--------|-----------------|-----------------------|-----------|---------------|-----------|------------|--------|----------|------------|
|                              |           |              |   |               |        |                 | Contact Size vs Cable | Frequency | MIL-DTL-38999 |           |            | EN3645 | EN4165   |            |
|                              |           |              |   |               |        |                 |                       |           | Series I      | Series II | Series III |        | Standard | Series III |
| RG-58C/U<br>(M17/028-RG058)  | 50        | 8            |   |               | 600911 |                 |                       |           | X             |           | X          | X      |          | X          |
| RG-58<br>(M17/155-00001)     | 50        | 8            |   |               | 600911 |                 |                       |           | X             |           | X          | X      |          | X          |
| RG-142B/U<br>(M17/060-RG142) | 50        | 8            |   |               | 900146 |                 |                       |           | X             |           | X          | X      |          | X          |
| RG-161/U                     | 70        | 16           | * | M39029/78-432 | 077987 |                 | X                     |           |               | X         |            |        | X        |            |
|                              |           | 16           | * | M39029/77-428 | 070248 |                 | X                     |           | X             |           | X          | X      |          |            |
|                              |           | 12           |   | M39029/27-210 | 900354 |                 |                       |           |               | X         |            |        | X        |            |
|                              |           | 12           |   | M39209/75-416 | 900350 |                 |                       |           | X             |           | X          | X      |          |            |
|                              |           | 8            |   |               | 900145 |                 |                       |           | X             |           | X          | X      |          | X          |
| RG-174A/U<br>(M17/119-RG174) | 50        | 16           | * | M39029/78-432 | 077987 |                 | X                     |           |               | X         |            |        | X        |            |
|                              |           | 16           | * | M39029/77-428 | 070248 |                 |                       |           | X             |           | X          | X      |          |            |
|                              |           | 12           |   | M39029/27-210 | 900354 |                 |                       |           |               | X         |            |        | X        |            |
|                              |           | 12           |   | M39209/75-416 | 900350 |                 |                       |           | X             |           | X          | X      |          |            |
|                              |           | 8            |   |               | 900145 |                 |                       |           | X             |           | X          | X      |          | X          |
| RG-178B/U<br>(M17/093-RG178) | 50        | 16           | * | M39029/78-433 | 071998 |                 | X                     |           |               | X         |            |        | X        |            |
|                              |           | 12           |   |               | 600659 | X               |                       |           |               |           |            | X      |          |            |
|                              |           | 16           |   | M39029/77-429 | 071965 |                 |                       |           | X             |           | X          | X      |          | X          |
|                              |           | 12           | * |               | 600917 | X               |                       | X         | X             |           | X          | X      |          |            |
| RG-179B/U<br>(M17/094-RG179) | 75        | 16           | * | M39029/78-432 | 077987 |                 | X                     |           |               | X         |            |        | X        |            |
|                              |           | 12           |   | M39029/27-210 | 900354 |                 |                       |           |               | X         |            |        | X        |            |
|                              |           | 12           |   | M39209/75-416 | 900350 |                 |                       |           | X             |           | X          | X      |          |            |
|                              |           | 8            | * |               | 600841 | X (3G-SDI)      |                       | X         | X             |           | X          | X      |          | X          |
|                              |           | 8            |   |               | 900145 |                 |                       |           | X             |           | X          | X      |          | X          |
| RG-180B/U<br>(M17/095-RG180) | 95        | 6            |   |               | 603180 | X               |                       |           | X             |           | X          | X      |          |            |
|                              |           | 12           | * | M39029/27-402 | 900286 |                 | X                     |           |               | X         |            |        | X        |            |
|                              |           | 12           | * | M39029/75-417 | 900351 |                 | X                     |           | X             |           | X          | X      |          |            |
|                              |           | 8            |   | M39029/59-366 | 900140 |                 |                       |           | X             |           | X          | X      |          | X          |
| RG-187A/U<br>(M17/094-RG179) | 74        | 16           | * | M39029/78-432 | 077987 |                 | X                     |           |               | X         |            |        | X        |            |
|                              |           | 16           | * | M39029/77-428 | 070248 |                 | X                     |           | X             |           | X          | X      |          |            |
|                              |           | 12           |   | M39029/27-210 | 900354 |                 |                       |           |               | X         |            |        | X        |            |
|                              |           | 12           |   | M39029/75-417 | 900351 |                 | X                     |           | X             |           | X          | X      |          |            |
|                              |           | 8            |   |               | 900145 |                 |                       |           | X             |           | X          | X      |          | X          |
| RG-188A/U<br>(M17/113-RG316) | 50        | 16           | * | M39029/78-432 | 077987 |                 | X                     |           |               | X         |            |        | X        |            |
|                              |           | 16           | * | M39029/77-428 | 070248 |                 | X                     |           | X             |           | X          | X      |          |            |
|                              |           | 12           |   | M39029/27-210 | 900354 |                 |                       |           |               | X         |            |        | X        |            |
|                              |           | 12           |   | M39029/75-417 | 900351 |                 | X                     |           | X             |           | X          | X      |          |            |
|                              |           | 8            |   |               | 900145 |                 |                       |           | X             |           | X          | X      |          | X          |
| RG-195A/U<br>(M17/095-RG180) | 95        | 12           | * | M39029/27-210 | 900354 |                 |                       |           |               | X         |            |        | X        |            |
|                              |           | 12           | * | M39029/75-417 | 900351 |                 | X                     |           | X             |           | X          | X      |          |            |
|                              |           | 8            |   |               | 900140 |                 |                       |           | X             |           | X          | X      |          | X          |
| RG-196A/U<br>(M17/169-00001) | 50        | 16           |   | M39029/78-433 | 071998 |                 | X                     |           |               | X         |            |        | X        |            |
|                              |           | 16           |   | M39029/77-429 | 071965 |                 |                       |           |               | X         |            |        | X        |            |
| RG-223/U<br>(M17/084-RG223)  | 50        | 8            |   |               | 900146 |                 |                       |           | X             |           | X          | X      |          | X          |
| RG-316/U<br>(M17/113-RG316)  | 50        | 16           | * | M39029/78-432 | 077987 |                 | X                     |           |               | X         |            |        | X        |            |
|                              |           | 16           | * | M39029/77-428 | 070248 |                 | X                     |           | X             |           | X          | X      |          |            |
|                              |           | 12           |   | M39029/27-210 | 900354 |                 |                       |           |               | X         |            |        | X        |            |
|                              |           | 12           |   | M39209/75-416 | 900350 |                 |                       |           | X             |           | X          | X      |          |            |
|                              |           | 12           | * |               | 600750 | X               |                       | X         |               | X         |            |        |          |            |
|                              |           | 8            |   |               | 900145 |                 |                       |           | X             |           | X          | X      |          | X          |
| RD-316                       | 50        | 12           | * | M39029/102    | 900395 | X               |                       | X         | X             |           | X          | X      | X        |            |
|                              |           | 8            |   |               | 900147 |                 |                       |           | X             |           | X          | X      |          | X          |
| (M17/152-00001)              | 50        | 12           | * | M39029/102    | 900395 | X               |                       | X         | X             |           | X          | X      | X        |            |
| RG-400<br>(M17/128-RG400)    | 50        | 8            |   |               | 900148 |                 |                       |           | X             |           | X          | X      |          | X          |
|                              |           | 8            | * |               | 600927 | 12GHz           |                       | X         | X             |           | X          | X      |          | X          |
| TFLEX-402                    | 50        | 8            |   |               | 600919 | 18GHz           |                       |           | X             |           | X          | X      |          | X          |
|                              |           | 8            | * |               | 600581 | 26,5GHz         |                       | X         | X             |           | X          | X      |          | X          |

## CONTACT AND CABLE SELECTION GUIDE

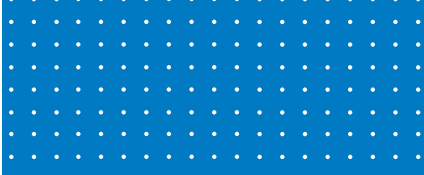
## COAXIAL SOCKET

| Cable                   | Impedance | Contact Size |   | Standard      | P/N    | Impedance Match | Most Appropriate      |           | Connector     |           |            |        |          |            |
|-------------------------|-----------|--------------|---|---------------|--------|-----------------|-----------------------|-----------|---------------|-----------|------------|--------|----------|------------|
|                         |           |              |   |               |        |                 | Contact Size vs Cable | Frequency | MIL-DTL-38999 |           |            | EN3645 | EN4165   |            |
|                         |           |              |   |               |        |                 |                       |           | Series I      | Series II | Series III |        | Standard | Series III |
| TFLEX-405               | 50        | 12           | * |               | 600928 | 65GHz           | X                     | X         | X             | X         | X          | X      | X        |            |
|                         |           | 8            |   |               | 600926 | 18GHz           |                       |           | X             |           | X          | X      |          | X          |
|                         |           | 8            |   |               | 600580 | 26,5GHz         |                       |           | X             |           | X          | X      |          | X          |
|                         |           | 8            | * |               | 600925 | 40GHz           |                       | X         | X             |           | X          | X      |          | X          |
| Filotex ET124962        | 50        | 12           |   | M39029/102    | 900395 | X               |                       |           | X             |           | X          | X      | X        |            |
| PAN6422XQ               | 50        | 12           |   |               | 600916 | X               |                       |           | X             |           | X          | X      | X        |            |
| Belden RG59 0,8/3,7     | 75        | 6            |   |               | 600715 | X               |                       |           | X             | X         | X          | X      |          |            |
| Draka HD PRO 0,8/3,7 AF | 75        | 6            |   |               | 600715 | X               |                       |           | X             | X         | X          | X      |          |            |
| Haveg 61-02051          |           | 16           |   |               | 900187 |                 |                       |           |               | X         |            |        | X        |            |
|                         |           | 16           |   |               | 603247 |                 |                       |           | X             |           | X          | X      |          |            |
| Haveg 8100207           |           | 16           | * | M39029/78-432 | 077987 |                 | X                     |           |               | X         |            |        | X        |            |
|                         |           | 16           | * | M39029/77-428 | 070248 |                 | X                     |           | X             |           | X          | X      |          |            |
|                         |           | 12           |   | M39029/27-210 | 900354 |                 |                       |           | X             |           |            |        | X        |            |
|                         |           | 12           |   | M39209/75-416 | 900350 |                 |                       |           | X             |           | X          | X      |          |            |
| Grun 0,6/3,7            | 75        | 6            |   |               | 600715 |                 |                       |           | X             | X         | X          | X      |          |            |
| Gore GWN1159A           |           | 12           |   |               | 900429 |                 |                       |           |               | X         |            |        | X        |            |
|                         |           | 12           |   |               | 900075 |                 |                       |           | X             |           | X          | X      |          |            |
| Gore CXN3403            |           | 12           |   |               | 600917 | X               |                       |           | X             | X         | X          | X      | X        |            |
| Times AA3248            |           | 16           | * | M39029/78-432 | 077987 |                 | X                     |           |               | X         |            |        | X        |            |
|                         |           | 16           | * | M39029/77-428 | 070248 |                 | X                     |           | X             |           | X          | X      |          |            |
|                         |           | 12           |   | M39029/27-210 | 900354 |                 |                       |           | X             |           | X          | X      |          |            |
|                         |           | 12           |   | M39209/75-416 | 900350 |                 |                       |           | X             |           | X          | X      |          |            |
|                         |           | 8            |   |               | 900145 |                 |                       |           | X             |           | X          | X      |          | X          |
| Times LMR-195-UF        |           | 8            |   |               | 600911 |                 |                       |           | X             |           | X          | X      |          | X          |
| Teledyne 11299          |           | 16           |   | M39029/78-432 | 077987 |                 | X                     |           |               | X         |            |        | X        |            |
|                         |           | 16           |   | M39029/77-428 | 070248 |                 | X                     |           | X             |           | X          | X      |          |            |
|                         |           | 12           |   | M39029/27-210 | 900354 |                 |                       |           | X             |           | X          | X      |          |            |
|                         |           | 12           |   | M39209/75-416 | 900350 |                 |                       |           | X             |           | X          | X      |          |            |
|                         |           | 8            |   |               | 900145 |                 |                       |           | X             |           | X          | X      |          | X          |
| Raychem 5021D13311-0    | 50        | 8            |   |               | 600914 |                 |                       |           | X             |           | X          | X      |          | X          |
| Raychem 5021D1331-0     |           | 8            |   |               | 600912 |                 |                       |           | X             |           | X          | X      |          | X          |
| Raychem 5022E5111       |           | 12           |   |               | 900425 |                 |                       |           |               | X         |            |        | X        |            |
|                         |           | 12           |   |               | 900421 |                 |                       |           | X             |           | X          | X      |          |            |
| Raychem 7527A1318       | 75        | 16           | * | M39029/78-432 | 077587 |                 | X                     |           |               | X         |            |        | X        |            |
|                         |           | 16           | * | M39029/77-428 | 070248 |                 | X                     |           | X             |           | X          | X      |          |            |
|                         |           | 12           |   | M39029/27-210 | 900354 |                 |                       |           | X             |           | X          | X      |          |            |
|                         |           | 12           |   | M39209/75-416 | 900350 |                 |                       |           | X             |           | X          | X      |          |            |
| Raychem 7528H1424       |           | 12           |   | M39029/27-210 | 900354 |                 |                       |           | X             |           | X          | X      |          |            |
|                         |           | 12           |   | M39209/75-416 | 900350 |                 |                       |           | X             |           | X          | X      |          |            |
| Raychem 9528A1318       | 95        | 12           | * |               | 900420 |                 | X                     |           |               | X         |            |        | X        |            |
|                         |           | 12           | * |               | 900430 |                 | X                     |           | X             |           | X          | X      |          |            |
|                         |           | 8            |   | M39029/59-366 | 900140 |                 |                       |           | X             |           | X          | X      |          | X          |
| Raychem 9530A5314       | 95        | 12           |   |               | 900427 |                 |                       |           |               | X         |            |        | X        |            |
|                         |           | 12           |   |               | 900422 |                 |                       |           | X             |           | X          | X      |          | X          |
| Tensolite 28895/2X1     |           | 8            |   |               | 600910 |                 |                       |           | X             |           | X          | X      |          | X          |
| ESC432101               |           | 8            |   |               | 600913 |                 |                       |           | X             |           | X          | X      |          | X          |
| ECS3C058A               |           | 8            |   |               | 900148 |                 |                       |           | X             |           | X          | X      |          | X          |
| ECS352001               |           | 8            |   |               | 900148 |                 |                       |           | X             |           | X          | X      |          | X          |
| ECS432101               |           | 8            |   |               | 900148 |                 |                       |           | X             |           | X          | X      |          | X          |
| PIC V75268              |           | 8            |   |               | 600836 | X               |                       |           | X             |           | X          | X      |          | X          |
| PIC V75248              |           | 8            |   |               | 600836 | X               |                       |           | X             |           | X          | X      |          | X          |
| PIC V75261              |           | 8            |   |               | 600836 | X               |                       |           | X             |           | X          | X      |          | X          |
| PIC V73263              |           | 8            |   |               | 600836 | X               |                       |           | X             |           | X          | X      |          | X          |
| ERTEQ TFLX 125-075-01   |           | 8            |   |               | 600836 | X               |                       |           | X             |           | X          | X      |          | X          |

# CONTACT AND CABLE SELECTION GUIDE

## TWINAX PIN AND SOCKET

| Cable                               | Impedance | Contact Size | Standard        | P/N    |        | Concentric<br>-<br>differential | Protocol                                | Connector       |           |            |        | Sim<br>Connector<br>Series III |
|-------------------------------------|-----------|--------------|-----------------|--------|--------|---------------------------------|-----------------------------------------|-----------------|-----------|------------|--------|--------------------------------|
|                                     |           |              |                 | PIN    | SKT    |                                 |                                         | MIL-DTL-38999   |           |            | EN3645 |                                |
|                                     |           |              |                 |        |        |                                 |                                         | Series I        | Series II | Series III |        |                                |
| M17-176-0002                        | 77        | 8            | AS39029/90-529  | 074834 | 072453 | CONCENTRIC                      | BUS1553                                 | X               |           | X          | X      | X                              |
|                                     |           | 8            | AS39029/113-625 |        |        | CONCENTRIC                      | BUS1553                                 | X               |           | X          | X      | X                              |
|                                     |           | 8            |                 | 900937 | 900938 | DIFFERENTIAL                    |                                         | X               |           | X          | X      | X                              |
|                                     |           | 8            | 711-1760-104    |        |        | CONCENTRIC                      | BUS1553                                 | X               |           | X          | X      | X                              |
| EN3375-003 KG24                     | 77        | 8            | EN3155-024M08AB | 600611 | 600614 | CONCENTRIC                      | BUS1553                                 | X               |           | X          | X      | X                              |
| EN3375-004 WJ24                     | 77        | 8            | EN3155-024M08BB | 600612 | 600615 | CONCENTRIC                      | BUS1553                                 | X               |           | X          | X      | X                              |
|                                     |           |              | ABS2217P03      | 600858 | 600859 | CONCENTRIC                      | BUS1553                                 | X               |           | X          | X      | X                              |
|                                     |           | 8 (ARINC)    | ABS1600M08A     | 140675 | 140683 | CONCENTRIC                      | BUS1553                                 | ARINC CONNECTOR |           |            |        |                                |
| EN3375-005 WV24                     | 77        | 8            | EN3155-024M08CB | 600613 | 600616 | CONCENTRIC                      | BUS1553                                 | X               |           | X          | X      | X                              |
| EN3375-006 XM24                     | 78        | 8            |                 | 600856 | 600857 | CONCENTRIC                      | BUS1553                                 | X               |           | X          | X      | X                              |
| EN3375-009 WS26                     | 120       | 8            | ABS2217P01      | 600854 | 600855 | CONCENTRIC                      |                                         | X               |           | X          | X      | X                              |
| Raychem 10612                       | 77        | 8            | 711-1060-104    |        |        | CONCENTRIC                      | BUS1553                                 | X               |           | X          | X      | X                              |
| Raychem 10613                       | 77        | 8            | 711-1760-102    |        |        | CONCENTRIC                      | BUS1553                                 | X               |           | X          | X      | X                              |
| Raychem 10614                       | 77        | 8            | 711-1760-101    |        |        | CONCENTRIC                      | BUS1553                                 | X               |           | X          | X      | X                              |
| EPD44690                            | 77        | 8            | 711-1760-104    |        |        | CONCENTRIC                      | BUS1553                                 | X               |           | X          | X      | X                              |
| EPD44691                            | 77        | 8            | 711-1760-104    |        |        | CONCENTRIC                      | BUS1553                                 | X               |           | X          | X      | X                              |
| EPD44692                            | 77        | 8            | 711-1760-101    |        |        | CONCENTRIC                      | BUS1553                                 | X               |           | X          | X      | X                              |
| EPD44695                            | 77        | 8            | 711-1760-101    |        |        | CONCENTRIC                      | BUS1553                                 | X               |           | X          | X      | X                              |
| PAN 6421                            | 77        | 8            | 711-1760-102    |        |        | CONCENTRIC                      | BUS1553                                 | X               |           | X          | X      | X                              |
| Mc Donnell<br>Douglas<br>SM2022/003 | 77        | 8            | 711-1760-103    |        |        | CONCENTRIC                      | BUS1553                                 | X               |           | X          | X      | X                              |
| ASNE08072003-09                     | 100       | 8            |                 | 600933 | 600934 | DIFFERENTIAL                    | ETHERNET USB                            | X               |           | X          | X      | X                              |
| AXON P509782                        | 100       | 8            |                 | 600943 | 600944 | DIFFERENTIAL                    |                                         | X               |           | X          | X      | X                              |
| Tensolite<br>24463/05099X-8(LD)     | 100       | 8            |                 | 900418 | 900419 | DIFFERENTIAL                    | ETHERNET USB                            | X               |           | X          | X      | X                              |
| Tensolite<br>24463/9P025X-2(LD)     | 100       | 8            |                 | 900418 | 900419 | DIFFERENTIAL                    | ETHERNET USB                            | X               |           | X          | X      | X                              |
| Tensolite<br>26453/03184X-2(LD)     | 100       | 8            |                 | 600933 | 600934 | DIFFERENTIAL                    | ETHERNET USB                            | X               |           | X          | X      | X                              |
| Tensolite<br>24460/05114X-2(LD)     | 100       | 8            |                 | 600935 | 600934 | DIFFERENTIAL                    | ETHERNET USB                            | X               |           | X          | X      | X                              |
| Tensolite<br>24463/03220T-2 (LD)    | 100       | 8            |                 | 600939 | 600940 | DIFFERENTIAL                    | ETHERNET USB                            | X               |           | X          | X      | X                              |
| Tensolite<br>26453/03184X-2(LD)     | 100       | 8            |                 | 600945 | 600946 | DIFFERENTIAL                    |                                         | X               |           | X          | X      | X                              |
| Tensolite<br>26483/03071X-2(LD)     | 150       | 8            |                 | 900294 | 900299 | DIFFERENTIAL                    |                                         | X               |           | X          | X      | X                              |
|                                     |           |              |                 | 600858 | 600899 | DIFFERENTIAL                    | FIBRE CHANNEL<br>ETHERNET<br>1000BASE-T | X               |           | X          | X      | X                              |
| Thermax MX 100-24                   | 100       | 8            |                 | 900418 | 900419 | DIFFERENTIAL                    | ETHERNET                                | X               |           | X          | X      | X                              |
| Thermax 12814                       | 100       | 8            |                 | 900418 | 900419 | DIFFERENTIAL                    | ETHERNET                                | X               |           | X          | X      | X                              |
| Thermax 956-626Z                    | 100       | 8            |                 | 600933 | 600934 | DIFFERENTIAL                    | ETHERNET USB                            | X               |           | X          | X      | X                              |
| Thermax 956-1T200                   | 100       | 8            |                 | 600931 | 600932 | DIFFERENTIAL                    | ETHERNET USB                            | X               |           | X          | X      | X                              |
| ST5M1284-003                        | 98        | 8            |                 | 900418 | 900419 | DIFFERENTIAL                    | ETHERNET USB                            | X               |           | X          | X      | X                              |
| 26463/70460X-2                      | 98        | 8            |                 | 900418 | 900419 | DIFFERENTIAL                    | ETHERNET USB                            | X               |           | X          | X      | X                              |
| PIC E10224                          | 100       | 8            |                 | 900418 | 900419 | DIFFERENTIAL                    | ETHERNET USB                            | X               |           | X          | X      | X                              |
| PIC E1024                           | 100       | 8            |                 | 600935 | 600936 | DIFFERENTIAL                    | ETHERNET USB                            | X               |           | X          | X      | X                              |
| Draka 2709-3                        | 100       | 8            |                 | 900418 | 900419 | DIFFERENTIAL                    | ETHERNET USB                            | X               |           | X          | X      | X                              |
| NF24T100-200C                       | 100       | 8            |                 | 900418 | 900419 | DIFFERENTIAL                    | ETHERNET USB                            | X               |           | X          | X      | X                              |
| S280W502-1                          | 100       | 8            |                 | 900418 | 900419 | DIFFERENTIAL                    | ETHERNET USB                            | X               |           | X          | X      | X                              |
| S280W502-6                          | 100       | 8            |                 | 600941 | 600942 | DIFFERENTIAL                    | ETHERNET USB                            | X               |           | X          | X      | X                              |
| GORE<br>GSC-05-827300-00            | 100       | 8            |                 | 600931 | 600932 | DIFFERENTIAL                    | ETHERNET USB                            | X               |           | X          | X      | X                              |
| GORE DXN 2125                       | 100       | 8            |                 | 600947 | 600948 | DIFFERENTIAL                    |                                         | X               |           | X          | X      | X                              |
| JSFY11-24                           | 100       | 8            |                 | 600939 | 600940 | DIFFERENTIAL                    | ETHERNET USB                            | X               |           | X          | X      | X                              |



## NOTES

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Contact and  
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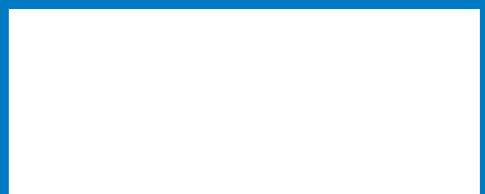


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