# Eighth Edition





AUTOSPORT

# Autosport Interconnection Solutions

#### CONSISTENTLY LEADING THE WAY IN RESEARCH, DEVELOPMENT, INNOVATION, RELIABILITY & SERVICE





Deutsch UK offers unrivalled expertise in the design and manufacture of interconnection solutions for harsh environments. With over 40-years of international experience, Deutsch's products are well proven in the Aerospace, Defence, Industrial Transportation and Autosport markets.

In the early 1990's Deutsch UK were the first to pioneer a range of interconnection solutions specifically for the Autosport industry, enabling them to reach their position as market leader. The AS Series and AS Micro Series radically changed the face of autosport connection technology. Following the success of these products, Deutsch established a dedicated autosport division to attend to the growing needs of the autosport teams and harness houses. A knowledgeable and experienced team of experts, supported with considerable investment in research and backed by an international distribution network, ensures the Deutsch autosport range of connectors continue to meet the constantly evolving technical challenges faced in this dynamic and demanding industry.

Specified across the entire autosport industry from F1, A1GP, IRL and Champcar to World Rally, NASCAR, Moto GP, Le Mans Series and Superbikes, Deutsch's dominance in the autosport industry has been proven many times, with world champions across practically every discipline choosing Deutsch Autosport connectors as the most reliable, light weight and technologically advanced products available.



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## Product Overview

The original Autosport connector – the AS Series – continues to set the standard for the autosport industry. Invented by Deutsch for the 93/94 season, the AS Series has been used by race winning teams throughout autosport ever since.

Deutsch UK continue to push the boundaries of technology and innovation, consistently driving the market forwards with new products that match the ever increasing demands of lower weight, smaller size and better performance. All Deutsch connectors are thermal cycle tested and environmentally sealed to IP67 when mated\*. All Deutsch Autosport connectors also offer:

- Compact design/minimum space envelope
- Interfacial & wire sealing
- Boot termination feature
- PCB option
- Universal option available (not ASC)
- Standard crimp tooling
- Suitable for blind mating
- Visual indication of keyway orientation of connector

- Scoop-proof interface
- Shell-to-shell grounding (not ASC)
- Positive locking coupling mechanism
- No need for backshells or boot termination
- In-line and two hole mounting styles (not ASC)
- Surface finishing options
- Keyway options.

#### \*1 metre for 30 minutes minimum

#### MATERIALS

Shell / coupling ring: High strength aluminium alloy with a conductive black zinc finish\*\* Contacts: Gold plated crimp contacts\* Insulators: Thermoplastic Interface / wire seals: Fluorinated silicone.

- .
- \*\* Except hermetic and ASC connector

#### VIBRATION

All connectors undergo three rigorous tests for vibration and all exceed the following: **Dynamic test** - random on random 60g RMS in 3 axis.

**Endurance test** - random 57g RMS in 2 axis for 8 hours each axis.

Sinusoidal resonance to over 75g.

#### **FLUID RESISTANCE**

All connectors show no damage when exposed to most fluids used in most autosport applications.

#### **AS MICRO HE SERIES**

Developed by Deutsch, the AS Micro HE Series is compact and cost effective, and is available as a 5-way connector in four shell styles. Refer to page 6 for technical specifications.

#### AS MICROLite HE (ASL)

The Micro<sup>Lite</sup> HE is in excess of 30% lighter than the original AS Micro HE and approximately 8mm shorter, whilst still retaining all the critical features including the renowned Deutsch #23 contacts. The AS Micro<sup>Lite</sup> HE is fully intermateable with the AS Micro HE. Refer to page 8 for technical specifications.

#### AS RALLY MICRO (ASR)

An evolution of the AS Micro<sup>ue</sup> HE, the AS Rally Micro has been created with direct input from World Rally Teams. A wider coupling ring and more knurling enables mechanics wearing gloves to get a better grip when connecting and disconnecting in severe environments (snow, ice and mud). Refer to page 10 for technical specifications.

#### AS COMPOSITE (ASC)

Made as one unit, in a military approved, rugged thermoplastic housing, the AS Composite is extremely resistant to vibration. Refer to page 12 for technical specifications.

#### AS ULTRALite HE AND AS MICRO ULTRALITE HE

The AS Ultra<sup>Lite</sup> HE is a 5-way connector offers teams the smallest, lightest package for five wires. The AS Micro Ultra<sup>Lite</sup> HE 3-way is the shortest, lightest AS connector for three wires and offers a solution where space is at its most restrictive. Refer to page 14 for technical specifications.

#### **AS MINI SERIES**

Developed by Deutsch, the AS Mini Series bridges the gap between the existing standard AS Series (Size 8) and the AS Micro range (Size 6), offering 6-way and 3-way connectors in three shell styles. Refer to page 16 for technical specifications.

#### **AS SERIES**

Developed by Deutsch from the MIL-C-38999 Series 1.5 (Eurofighter connector), the AS Series was the first range of high specification connectors designed by Deutsch specifically for the autosport market. The AS Series offers weight and space saving over standard military designs and is available a wide variety of options, with medium and high density arrangements up to 128 ways with four shell styles, and five keyway orientations. Refer to page 18 for technical specifications.

#### AS DOUBLE DENSITY (ASDD)

Next generation connector technology developed by Deutsch, which brings together high density and high performance, inline with racing teams using smaller wire sizes. The AS Double Density range allows almost double the number of contacts to be packaged in the same shell as compared to the standard AS Series. Refer to page 24 for technical specifications.

#### AS MICRO HE HERMETIC

A unique hermetic receptacle developed by Deutsch for transducers, sensors and instrumentation where space and performance is critical. The AS Micro HE Hermetic offers high density, harsh environment sealing as standard and is more compact than any other product currently available on the market. Mounting and ease of termination has also been a major consideration with PCB style contacts and weld mounting (316 St) offered as standard. Refer to page 26 for technical specifications.

#### AS MICRO HE HERMETIC (JAM-NUT)

An evolution of the AS Micro HE Hermetic featuring a jam-nut, this connector is ideally suited to fuel tank applications. Refer to page 27 for technical specifications.

#### AS HERMETIC FUEL TANK

A range of hermetically sealed connectors designed specifically for autosport fuel tank applications. AS Hermetic Fuel Tank provides a high degree of performance where normal resilient connectors would fail, by using glass to metal sealing in place of traditional plastic and elastomer inserts. Connectors are supplied with a Viton<sup>®</sup> O ring to provide a high standard of sealing between the connector and bulkhead. Refer to page 28 for technical specifications.

#### AS MICROLite HE FUEL IMMERSIBLE

An evolution of the AS Micro<sup>ute</sup> connector, the AS Micro<sup>ute</sup> Fuel Immersible contains a unique Deutsch designed fuel resistant elastomer insert which offers excellent resistance to racing fuel. An upgraded hermetic version, including an inline receptacle is also available. Refer to page 30 for technical specifications.

#### AS HEAVY DUTY (ASHD)

A single way power connector designed specifically for autosport high current applications, the Deutsch AS Heavy Duty is ideally suited to battery, alternator and starter motor applications. Specially designed low insertion/extraction force contacts ensure maximum performance in extreme heat and vibration conditions. Refer to page 32 for technical specifications.

#### FILTER AND FIBRE OPTIC SOLUTIONS

Deutsch also offer Fibre Optic and Filter solutions. Refer to page 34 at the back of this brochure for more information.

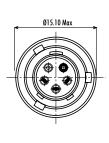
# AS Micro HE Series

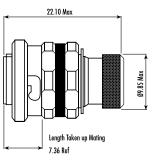


#### **KEY FEATURES**

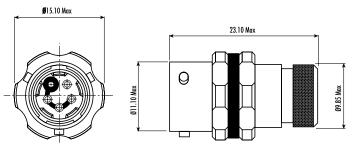
- First unique micro connector for the autosport market
- Cable accommodation 22, 24, 26 and 28 AWG
- Screening braid and boot can both be fitted
- Fully Intermateable with Micro<sup>Lite</sup> HE and Fuel Immersible connectors.

#### PLUG – TYPE 6

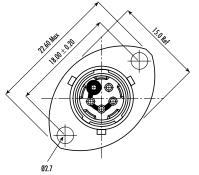


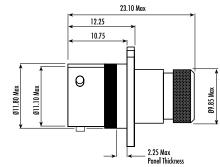


#### **INLINE RECEPTACLE – TYPE 1**

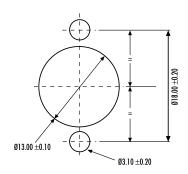


#### **RECEPTACLE – TYPE 0**





#### PANEL CUT-OUT DETAIL



| Contact<br>Size | Shell<br>Size | e (amps) (cycles of engagement |                  | Dielectric<br>Withstanding | No. of Keyway<br>Orientations | Wire Sealing<br>(mm) |      | Temperature<br>(°C)* |      |
|-----------------|---------------|--------------------------------|------------------|----------------------------|-------------------------------|----------------------|------|----------------------|------|
|                 |               |                                | & disengagement) | Voltage (VAC)**            |                               | Min                  | Max  | Min                  | Max  |
| 23              | 6             | 3                              | 500              | 1000                       | 5                             | 0.60                 | 1.37 | -55                  | +170 |

\* The upper limit is the maximum internal hot-spot temperature resulting from the combination of the ambient temperature and heating due to current.

\*\* Current leakage less than 2 milliamps at (VAC)

| CONTACTS & TOOLING PART NUMBERS |           |            |           |             |              |                    |             |                   |                      |  |
|---------------------------------|-----------|------------|-----------|-------------|--------------|--------------------|-------------|-------------------|----------------------|--|
| Socket                          | Pin       | PCB Socket | PCB Pin   | Filler Plug | Ins/Ext Tool | Uncoupling<br>Tool | Crimp Tool  | Pin<br>Positioner | Socket<br>Positioner |  |
| 604935                          | 604927-31 | 604019-LNG | 604023-31 | 600300-22   | M81969/14-01 | AS6HE-UCT          | M22520/2-01 | 604972            | 604973               |  |

#### **ORDERING INFORMATION** AS \* 06 \_ 05 \* \* HE — \* \* \* Range Ref: ⊢ Style 0 = 2-hole flange receptacle 1 = Inline receptacle 2 = 2-hole flange receptacle with PCB contacts 6 = Free plug Shell Size |-Contact Arrangement: **Insert Type:** P = Pin S = Socket ⊢ Shell Keyways: N = Red (standard) A = YellowB = BlueC = OrangeD = Green U = Violet (U = Universal for test harnesses) (Plug type 6 only) For more information on how to order see Harsh Environment: |page 37. Modification Code: |-

#### ACCESSORIES PART NUMBERS

|           | Boot     |           |  |  |  |  |
|-----------|----------|-----------|--|--|--|--|
|           | Straight | 90 Degree |  |  |  |  |
| Raychem   | 202A111  | 222A111   |  |  |  |  |
| Hellerman | 113-4-G  | 1108-4-G  |  |  |  |  |

| Pro        | Сар    | Nut Plate | Gasket |  |
|------------|--------|-----------|--------|--|
| Receptacle | Plug   |           | Gasket |  |
| 604029     | 604027 | ATM396-6  | GV-6   |  |

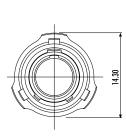
# AS Micro<sup>Lite</sup> HE (ASL)

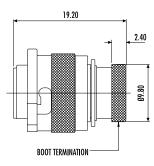


#### **KEY FEATURES**

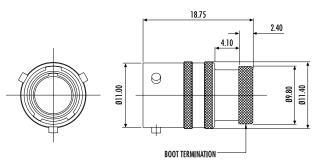
- Most widely used micro connector in autosport
- Cable accommodation 22, 24, 26 and 28 AWG
- Fully intermateable with Micro HE and Micro<sup>Lite</sup> HE Fuel Immersible
- Purpose designed coupling / decoupling tools.

#### PLUG – TYPE 6

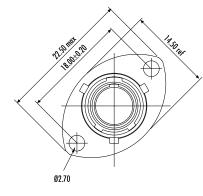


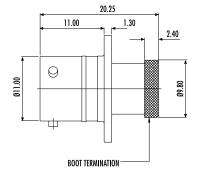


#### **INLINE RECEPTACLE – TYPE 1**

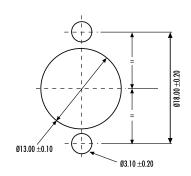


#### **RECEPTACLE – TYPE 0**





#### PANEL CUT-OUT DETAIL

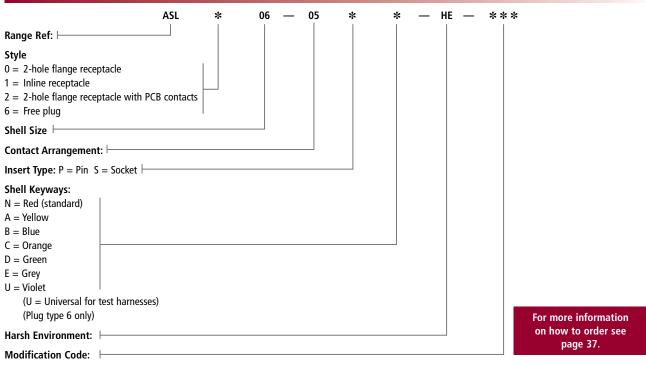


| Contact<br>Size | Shell<br>Size | Max. Current<br>(amps) |     |      | No. of Keyway<br>Orientations | Wire S<br>(m |      | Temperature<br>(°C)* |      |
|-----------------|---------------|------------------------|-----|------|-------------------------------|--------------|------|----------------------|------|
|                 |               |                        |     |      |                               | Min          | Max  | Min                  | Max  |
| 23              | 6             | 3                      | 500 | 1000 | 6                             | 0.60         | 1.37 | -55                  | +170 |

\* The upper limit is the maximum internal hot-spot temperature resulting from the combination of the ambient temperature and heating due to current. \*\* Current leakage less than 2 milliamps at (VAC)

| CONTACTS & TOOLING PART NUMBERS |           |            |           |             |              |                    |             |                   |                      |  |  |
|---------------------------------|-----------|------------|-----------|-------------|--------------|--------------------|-------------|-------------------|----------------------|--|--|
| Socket                          | Pin       | PCB Socket | PCB Pin   | Filler Plug | Ins/Ext Tool | Uncoupling<br>Tool | Crimp Tool  | Pin<br>Positioner | Socket<br>Positioner |  |  |
| 604935                          | 604927-31 | 604019-LNG | 604023-31 | 600300-22   | M81969/14-01 | AS6HE-UCT          | M22520/2-01 | 604972            | 604973               |  |  |

#### ORDERING INFORMATION



#### ACCESSORIES PART NUMBERS

|           | Boot     |           |  |  |  |  |
|-----------|----------|-----------|--|--|--|--|
|           | Straight | 90 Degree |  |  |  |  |
| Raychem   | 204W221  | 224W221   |  |  |  |  |
| Hellerman | 1030-4-G | 1181-AG   |  |  |  |  |

| Pro        | Сар    | Nut Plate | Gasket |  |
|------------|--------|-----------|--------|--|
| Receptacle | Plug   | Nut Plate | Gasket |  |
| 604029     | 604027 | ATM396-6  | GV-6   |  |

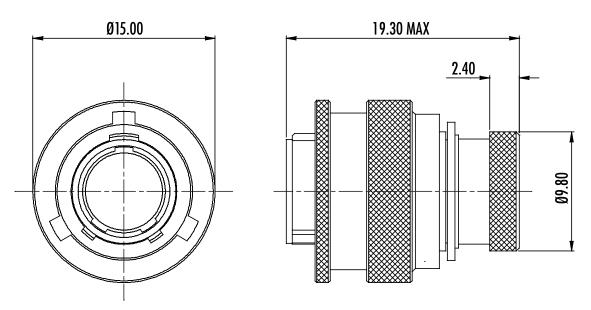
# AS Rally Micro (ASR)



#### **KEY FEATURES**

- Deutsch designed with direct input from WRC team
- Version of ASL plug connector
- Intermateable with standard ASL receptacle
- Suitable for mechanics who wear gloves
- Enhanced coupling ring for easier coupling/uncoupling.

#### PLUG – TYPE 6



| Contact<br>Size |   |   | Durability<br>(cycles of engagement | es of engagement Withstanding |   |      | Wire Sealing<br>(mm) |     | Temperature<br>(°C)* |  |
|-----------------|---|---|-------------------------------------|-------------------------------|---|------|----------------------|-----|----------------------|--|
|                 |   |   | & disengagement)                    | Voltage (VAC)**               |   | Min  | Мах                  | Min | Max                  |  |
| 23              | 6 | 3 | 500                                 | 1000                          | 6 | 0.60 | 1.37                 | -55 | +170                 |  |

\* The upper limit is the maximum internal hot-spot temperature resulting from the combination of the ambient temperature and heating due to current. \*\* Current leakage less than 2 milliamps at (VAC)

| CONTACTS & TOOLING PART NUMBERS |           |             |                 |             |                   |                      |  |  |  |
|---------------------------------|-----------|-------------|-----------------|-------------|-------------------|----------------------|--|--|--|
| Socket                          | Pin       | Filler Plug | Ins/Ext<br>Tool | Crimp Tool  | Pin<br>Positioner | Socket<br>Positioner |  |  |  |
| 604935                          | 604927-31 | 600300-22   | M81969/14-01    | M22520/2-01 | 604972            | 604973               |  |  |  |

| ORDERING INF   | ORMATION                              |      |      |    |   |     |      |       |  |
|--|---------------------------------------|------|------|----|---|-----|------|-------|--|
|  | А                                     | SR 6 | 06 — | 05 | * | * — | HE — | * * * |  |
| Range Ref:   |                                       |      |      |    |   |     |      |       |  |
| Style<br>6 = Free plug ├───  |                                       |      |      |    |   |     |      |       |  |
| Shell Size   |                                       |      |      |    |   |     |      |       |  |
| Contact Arrangement  | :                                     |      |      |    |   |     |      |       |  |
| Insert Type: P = Pin S   | = Socket                              |      |      |    |   |     |      |       |  |
| Shell Keyways:<br>N = Red (standard)<br>A = Yellow<br>B = Blue<br>C = Orange   |                                       |      |      |    |   |     |      |       |  |
| D = Green $E = Grey$ $U = Violet$ $(U = Universal for the second seco$ | test harnesses)                       |      |      |    |   |     |      |       | ASR = Enhanced Plug,<br>for mating Receptacles<br>see ASL page 8 |
| (Plug type 6 only)   | · · · · · · · · · · · · · · · · · · · |      |      |    |   |     |      |       | For more information   |
| Harsh Environment:   | 1                                     |      |      |    |   |     |      |       | on how to order see<br>page 37.                                  |
| Modification Code:   |                                       |      |      |    |   |     |      |       | page 37.   |

| ACCESSORIES PART NUMBERS |                    |          |        |  |  |  |  |  |  |  |
|--------------------------|--------------------|----------|--------|--|--|--|--|--|--|--|
|                          | Во                 | Pro Ca   |        |  |  |  |  |  |  |  |
|                          | Straight 90 Degree |          | rio ca |  |  |  |  |  |  |  |
| Raychem                  | 202A111            | 222A111  | 60402  |  |  |  |  |  |  |  |
| Hellerman                | 113-4-G            | 1108-4-G |        |  |  |  |  |  |  |  |

Pro Cap 604027

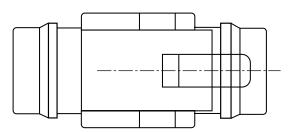
# AS Composite (ASC)

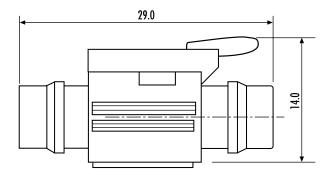


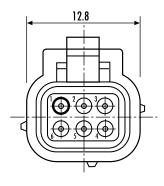
#### **KEY FEATURES**

- Extremely resistant to vibration
- Military approved rugged thermoplastic housing
- 5mm shorter than ASL (mated pair)
- Bondable with suitable adhesive in different configurations
- Cable-tie slot for security and mounting inline connections. Designed to fit Thomas & Betts part no. TY24 or equivalent
- Close stacking possible with locating sides & bottom.

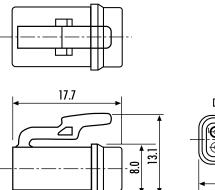
**MATED PAIR** 

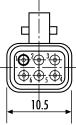




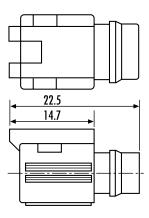


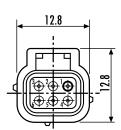
PLUG – TYPE 6





#### **RECEPTACLE – TYPE 1**





| Contact<br>Size | Shell<br>Size | Max. Current<br>(amps) | Durability Dielectric No. of Keyway Wire Sealing<br>(cycles of engagement Withstanding Orientations (mm) |                 |   |      |      | erature<br>2)* |      |
|-----------------|---------------|------------------------|--|-----------------|---|------|------|----------------|------|
|                 |               |                        | & disengagement)   | Voltage (VAC)** |   | Min  | Max  | Min            | Max  |
| 22              | 6             | 5                      | 300  | 1500            | 6 | 0.60 | 1.37 | -55            | +175 |

\* The upper limit is the maximum internal hot-spot temperature resulting from the combination of the ambient temperature and heating due to current.
 \*\* Current leakage less than 2 milliamps at (VAC)

| CONTACTS & TOOLING PART NUMBERS |           |             |                 |             |                   |                      |  |  |  |
|---------------------------------|-----------|-------------|-----------------|-------------|-------------------|----------------------|--|--|--|
| Socket                          | Pin       | Filler Plug | Ins/Ext<br>Tool | Crimp Tool  | Pin<br>Positioner | Socket<br>Positioner |  |  |  |
| 604984                          | 604946-31 | 600300-22   | M81969/14-01    | M22520/2-01 | 605463            | 605464               |  |  |  |

#### **ORDERING INFORMATION** ASC \* 05 \_\_\_ 06 \* \* \* \* \* Range Ref: ⊢ Style 1 = 1 Inline Receptacle Part Numbers: 6 = Free Plug Receptacle: ASC105-06SN Shell Size ⊢ Plug: ASC605-06PN Contact Arrangement: ⊢ Please note: **Insert Type:** P = Pin S = Socket $\vdash$ Plug only available Shell Keyways: in pin arrangement, N = Red (standard) Receptacle only available A = Yellowin socket arrangement. B = BlueC = Orange For more information D = Greenon how to order see E = Greypage 37. Modification Code: |-

#### ACCESSORIES PART NUMBERS

|           | Bo       | ot        |
|-----------|----------|-----------|
|           | Straight | 90 Degree |
| Raychem   | 204W221  | 224W221   |
| Hellerman | 1030-4-G | 1181-4-G  |

# AS Ultra<sup>Lite</sup> HE and AS Micro Ultra<sup>Lite</sup> HE (ASU)

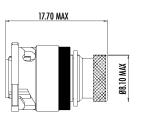


#### **KEY FEATURES**

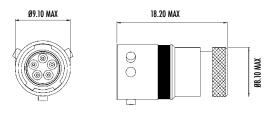
- Unique Deutsch designed product
- Cable accommodation 24-30 AWG (5 way), 22-28 AWG (3 way)
- 17% smaller coupling ring than ASL
- 30% lighter than ASL (mated pair).

#### PLUG – TYPE 6

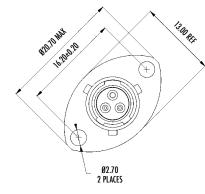


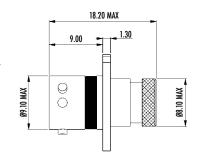


#### **INLINE RECEPTACLE - TYPE 1**

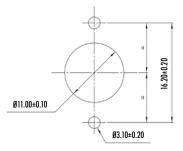


#### **RECEPTACLE - TYPE 0**





#### PANEL CUT-OUT DETAIL



| No. of<br>Ways | Contact<br>Size | Max. Current<br>(amps) | Durability<br>(cycles of engagement<br>& disengagement) |      |   | Wire S<br>(m | m)   | (° <b>(</b> |      |
|----------------|-----------------|------------------------|---|------|---|--------------|------|-------------|------|
|                |                 |                        |   |      |   | Min          | Max  | Min         | Max  |
| 3              | 22              | 5                      | 500   | 1500 | 6 | 0.76         | 1.37 | -55         | +170 |
| 5              | 24              | 3                      | 000   | 1000 | 6 | 0.60         | 0.83 | -55         | +170 |

\* The upper limit is the maximum internal hot-spot temperature resulting from the combination of the ambient temperature and heating due to current. \*\* Current leakage less than 2 milliamps at (VAC)

| CONTACT      | CONTACTS & TOOLING PART NUMBERS |           |            |           |             |              |               |                   |                      |  |  |  |
|--------------|---------------------------------|-----------|------------|-----------|-------------|--------------|---------------|-------------------|----------------------|--|--|--|
| Contact Size | Socket                          | Pin       | PCB Socket | PCB Pin   | Filler Plug | Ins/Ext Tool | Crimp Tool    | Pin<br>Positioner | Socket<br>Positioner |  |  |  |
| 22           | 604984                          | 604946-31 | 605681     | 605679-31 | 600300-22   | M81969/14-01 | M22520/2-01   | 605463            | 605464               |  |  |  |
| 24           | 605704                          | 605705-31 | 605902     | 605900-31 | 600300-24   | 605837       | 10122320/2-01 | 605839            | 605840               |  |  |  |

| ORDERING INFORMATION  |          |   |    |   |    |   |   |       |   |
|---|----------|---|----|---|----|---|---|-------|---|
| A   | SU       | * | 03 | _ | ** | * | * | * * * |   |
| Range Ref:  |          |   |    |   |    |   |   |       |   |
| Style:<br>0 = 2 Hole Flange Receptacle<br>1 = Inline Receptacle<br>2 = 2 Hole Flange Receptacle with PCB<br>6 = Free Plug   | contacts |   |    |   |    |   |   |       |   |
| Shell Size:   |          |   |    |   |    |   |   |       |   |
| Contact Arrangement: 03, 05   |          |   |    |   |    |   |   |       |   |
| Insert Type:<br>P = Pin<br>S = Socket   |          |   |    |   |    |   |   |       |   |
| Shell Keyways:         N = Red (standard)           A = Yellow         B           B = Blue         C           C = Orange         C           D = Green         E           E = Grey         U           U = Violet         Violet |          |   |    |   |    |   |   |       |   |
| (U = Universal for test harnesses)<br>(Plug type 6 only)  |          |   |    |   |    |   |   |       | For more information<br>on how to order see |
| Modification Code:  |          |   |    |   |    |   |   |       | page 37.                                    |

#### ACCESSORIES PART NUMBERS

|           | Boot           |                | Pro        | Сар    |           |        |
|-----------|----------------|----------------|------------|--------|-----------|--------|
|           | Straight       | 90 Degree      | Receptacle | Plug   | Nut Plate | Gasket |
| Raychem   | 204W221-25-G03 | 224W221-25-G03 | 605684     | 605687 | ATM396-3  | GV-3   |
| Hellerman | 1037-4-G       | 1182-4-G       |            |        |           |        |

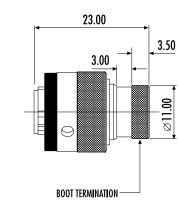
# AS Mini Series



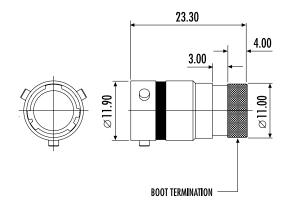
#### **KEY FEATURES**

- Size 7 shell
- 2 planform options
- Integral screen termination
- Cable accommodation 20, 22, 24 and 26 AWG
- Offers size 8 insert arrangement in smaller shell.

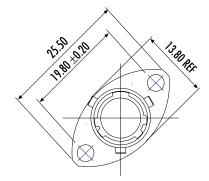
#### PLUG – TYPE 6



#### **INLINE RECEPTACLE - TYPE 1**

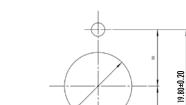


#### **RECEPTACLE - TYPE 0**

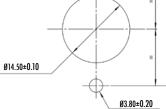


16.00

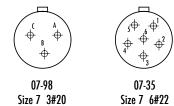
#### 



**PANEL CUT-OUT DETAIL** 



**INSERT ARRANGEMENTS** 

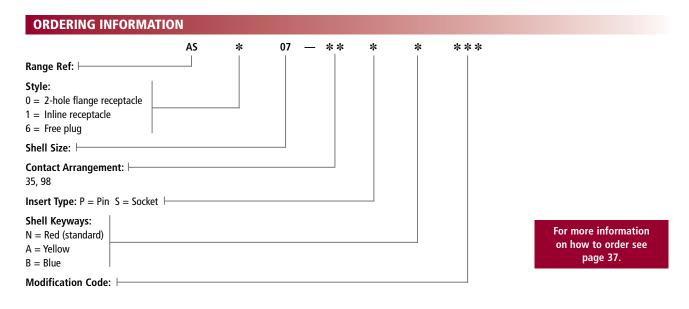


All dimensions are in mm unless otherwise stated.

| Contact<br>Size | Shell<br>Size | Max. Current<br>(amps) | Durability<br>(cycles of engagement | Dielectric<br>Withstanding | No. of Keyway<br>Orientations | Wire S<br>(m |      | Temperature<br>(°C)* |      |
|-----------------|---------------|------------------------|-------------------------------------|----------------------------|-------------------------------|--------------|------|----------------------|------|
|                 |               |                        | & disengagement)                    | Voltage (VAC)**            |                               | Min          | Max  | Min                  | Max  |
| 22              | 7             | 5                      | 500                                 | 1300                       | 2                             | 0.76         | 1.37 | -55                  | +175 |
| 20              |               | 7.5                    | 500                                 | 1800                       | 3                             | 1.02         | 2.11 | -35                  | +1/3 |

\* The upper limit is the maximum internal hot-spot temperature resulting from the combination of the ambient temperature and heating due to current. \*\* Current leakage less than 2 milliamps at (VAC)

| CONTACT      | CONTACTS & TOOLING PART NUMBERS |          |            |         |             |              |             |                   |                      |  |  |
|--------------|---------------------------------|----------|------------|---------|-------------|--------------|-------------|-------------------|----------------------|--|--|
| Contact Size | Socket                          | Pin      | PCB Socket | PCB Pin | Filler Plug | Ins/Ext Tool | Crimp Tool  | Pin<br>Positioner | Socket<br>Positioner |  |  |
| 22           | 604887                          | 38941-22 | 603544     | 603542  | 600300-22   | M81969/14-01 | M22520/2-01 | M22520/2-09       | 605000               |  |  |
| 20           | 6862-201-20278                  | 38941-20 | 603528     | 603526  | 600300-20   | M81969/14-10 |             | M22520/2-10       | M22520/2-10          |  |  |



#### ACCESSORIES PART NUMBERS

|           | Bo       | oot       |   |
|-----------|----------|-----------|---|
|           | Straight | 90 Degree | R |
| Raychem   | 202K121  | 222K121   |   |
| Hellerman | 152-42-G | 1152-4-G  |   |

|   | Pro        | Сар    | Blue Dista | Carlint |
|---|------------|--------|------------|---------|
| 2 | Receptacle | Plug   | Nut Plate  | Gasket  |
|   | AS9-07     | AS8-07 | ATM396-7   | GV-7    |



#### **KEY FEATURES**

- Filter, Hermetic & Fibre Optic options available
- Intermateable with existing LN29729 (Mil-C 38999 Series 11/2) and Pan 6433-2 style connectors
- High density arrangements up to 128 ways
- Integral screen
- Cable accommodation 16, 20 and 22 AWG.

| GENER/          | GENERAL SPECIFICATION |                        |                                     |                               |      |      |                      |      |  |  |  |
|-----------------|-----------------------|------------------------|-------------------------------------|-------------------------------|------|------|----------------------|------|--|--|--|
| Contact<br>Size | Shell<br>Size         | Max. Current<br>(amps) | Durability<br>(cycles of engagement | No. of Keyway<br>Orientations |      |      | Temperature<br>(°C)* |      |  |  |  |
|                 |                       |                        | & disengagement)                    |                               | Min  | Мах  | Min                  | Max  |  |  |  |
| 22              | 8 to 24               | 5                      |                                     | 5                             | 0.76 | 1.37 |                      |      |  |  |  |
| 20              | see                   | 7.5                    | 500                                 |                               | 1.02 | 2.11 | -55                  | +175 |  |  |  |
| 16              | below                 |                        |                                     |                               | 1.65 | 2.77 |                      |      |  |  |  |

\*The upper limit is the maximum internal hot-spot temperature resulting from the combination of the ambient temperature and heating due to current.

| SHELL | CONTACT     | NUMB      | ER OF CON | TACTS   | RATING |
|-------|-------------|-----------|-----------|---------|--------|
| SIZE  | ARRANGEMENT | SIZE 22 D | SIZE 20   | SIZE 16 | **     |
| 08    | -98         |           | 3         |         | I      |
| 08    | -35         | 6         |           |         | М      |
| 10    | -98         |           | 6         |         | I      |
| 10    | -35         | 13        |           |         | М      |
| 10    | -02         |           |           | 2       | I      |
| 10    | -03         |           |           | 3       | I      |
| 12    | -04         |           |           | 4       | I      |
| 12    | -98         |           | 10        |         | I      |
| 12    | -35         | 22        |           |         | М      |
| 14    | -97         |           | 8         | 4       | I      |
| 14    | -19         |           | 19        |         | I      |
| 14    | -35         | 37        |           |         | М      |
| 16    | -08         |           |           | 8       | I      |
| 16    | -26         |           | 26        |         | I      |
| 16    | -35         | 55        |           |         | М      |

| SHELL | CONTACT     | NUMB      | NUMBER OF CONTACTS |         |    |  |
|-------|-------------|-----------|--------------------|---------|----|--|
| SIZE  | ARRANGEMENT | SIZE 22 D | SIZE 20            | SIZE 16 | ** |  |
| 18    | -32         |           | 32                 |         | I  |  |
| 18    | -35         | 66        |                    |         | М  |  |
| 20    | -16         |           |                    | 16      | I  |  |
| 20    | -39         |           | 37                 | 2       | I  |  |
| 20    | -41         |           | 41                 |         | I  |  |
| 20    | -35         | 79        |                    |         | М  |  |
| 22    | -21         |           |                    | 21      | I  |  |
| 22    | -55         |           | 55                 |         | I  |  |
| 22    | -35         | 100       |                    |         | М  |  |
| 24    | -29         |           |                    | 29      | I  |  |
| 24    | -61         |           | 61                 |         | I. |  |
| 24    | -35         | 128       |                    |         | М  |  |

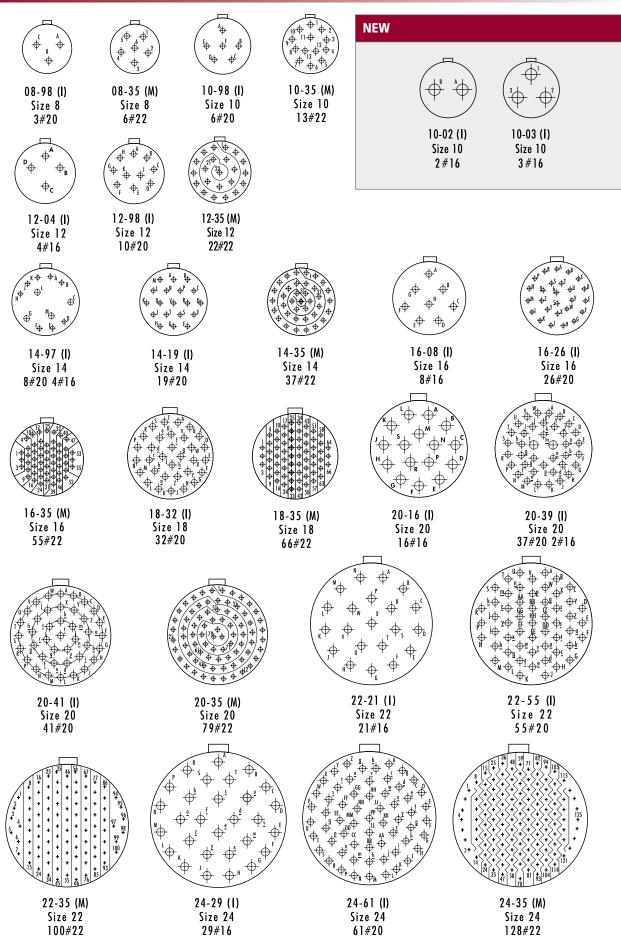
\*\*Ratings M&I define Dielectric Withstand Voltage ratings as follows: I = 1800 volts rms, M = 1300 volts rms, current leakage less than 2 milliamps.

Please note: The contact/insert arrangements shown above are standard layouts. Other combinations of shell sizes and insert arrangements may be available. For details contact the sales office.

| CONTACTS     | CONTACTS & TOOLING PART NUMBERS |          |             |                 |             |                   |                      |  |  |  |  |
|--------------|---------------------------------|----------|-------------|-----------------|-------------|-------------------|----------------------|--|--|--|--|
| Contact Size | Socket                          | Pin      | Filler Plug | lns/Ext<br>Tool | Crimp Tool  | Pin<br>Positioner | Socket<br>Positioner |  |  |  |  |
| 22           | 38943-22                        | 38941-22 | 600300-22   | M81969/14-01    | M22520/2-01 | M22520/2-09       | M22520/2-07          |  |  |  |  |
| 20           | 38943-20                        | 38941-20 | 600300-20   | M81969/14-10    | M22520/2-01 | M22520/2-10       | M22520/2-10          |  |  |  |  |
| 16           | 38943-16                        | 38941-16 | 600300-16   | M81969/14-03    | M22520/1-01 | M22520/1-04       | M22520/1-04          |  |  |  |  |

Please note: PCB versions are ordered with AS2 prefixes and come with contacts.

#### **AS CONTACT / INSERT ARRANGEMENTS**

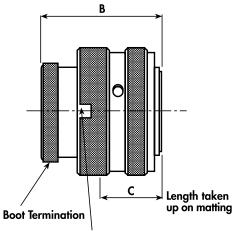


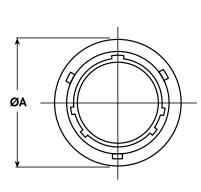
Ratings M&I define Dielectric Withstand Voltage ratings as follows:

 $\mathsf{I}=1800$  volts rms,  $\mathsf{M}=1300$  volts rms, current leakage less than 2 milliamps.

# AS Series continued

#### PLUG – TYPE 6

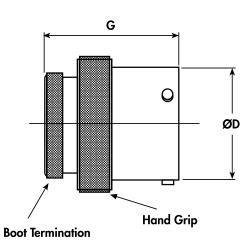


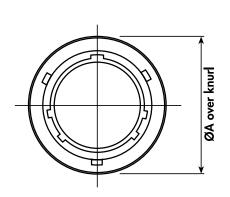


| SHELL<br>SIZE | A     | В     | C     |
|---------------|-------|-------|-------|
|               | MAX   | MAX   | MAX   |
| 08            | 17.70 |       |       |
| 10            | 20.80 |       |       |
| 12            | 25.20 |       |       |
| 14            | 28.40 |       |       |
| 16            | 31.50 | 33.50 | 15.00 |
| 18            | 34.80 |       |       |
| 20            | 38.20 |       |       |
| 22            | 41.30 |       |       |
| 24            | 44.60 |       |       |

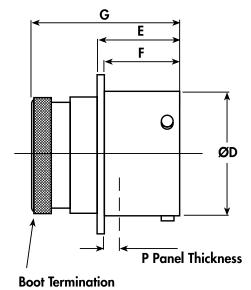
4-slots for coupling/uncoupling tool

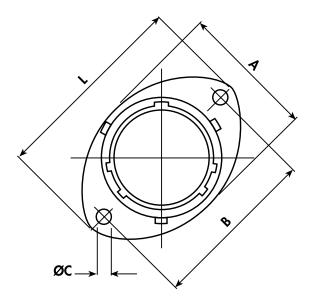
#### **INLINE RECEPTACLE – TYPE 1**





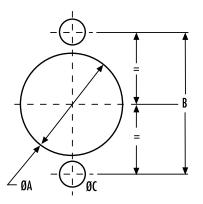
| HELL<br>SIZE | A     | D<br>+ 0 | G     |
|--------------|-------|----------|-------|
|              | MAX   | - 0.13   | МАХ   |
| 08           | 17.70 | 12.00    |       |
| 10           | 20.80 | 15.00    |       |
| 12           | 25.20 | 19.05    |       |
| 14           | 28.40 | 22.22    | 33.50 |
| 16           | 31.50 | 25.40    |       |
| 18           | 34.80 | 28.57    |       |
| 20           | 38.20 | 31.75    |       |
| 22           | 41.30 | 34.92    |       |
| 24           | 44.60 | 38.10    |       |





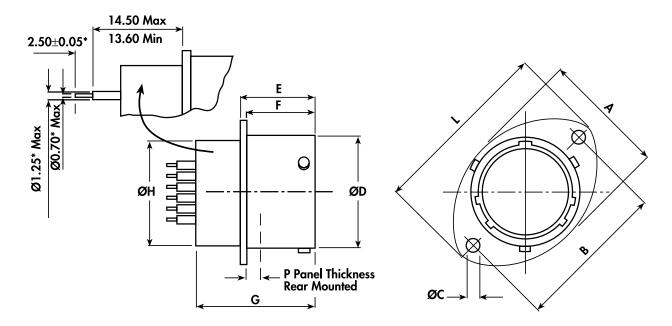
| SHELL<br>SIZE | A<br>Ref | B<br>± 0.2 | C<br>+ 0.1<br>- 0 | D<br>+ 0<br>- 0.13 | E<br>+ 0.15<br>- 0 | F<br>+0<br>- 0.13 | G<br>MAX | L<br>MAX | P<br>MAX |
|---------------|----------|------------|-------------------|--------------------|--------------------|-------------------|----------|----------|----------|
| 08            | 16.50    | 21.35      |                   | 12.00              |                    |                   |          | 27.20    |          |
| 10            | 19.50    | 25.90      |                   | 15.00              |                    |                   |          | 32.00    |          |
| 12            | 24.00    | 29.10      |                   | 19.05              |                    |                   |          | 35.20    |          |
| 14            | 27.00    | 32.50      | 3.20              | 22.22              | 17.21              | 16.05             | 33.50    | 38.40    | 3.00     |
| 16            | 30.30    | 34.80      |                   | 25.40              |                    |                   |          | 41.00    |          |
| 18            | 33.70    | 38.20      |                   | 28.57              |                    |                   |          | 44.70    |          |
| 20            | 37.00    | 41.60      |                   | 31.75              |                    |                   |          | 47.90    |          |
| 22            | 40.00    | 44.95      |                   | 34.92              |                    | 15.29             |          | 51.10    |          |
| 24            | 43.30    | 49.35      | 3.70              | 38.10              |                    |                   |          | 55.80    | 2.26     |

#### PANEL CUT-OUT DETAIL



| SHELL<br>SIZE | A<br>± 0.10 | B<br>± 0.20 | C<br>± 0.20 |
|---------------|-------------|-------------|-------------|
| 08            | 14.50       | 21.40       |             |
| 10            | 17.40       | 25.90       |             |
| 12            | 21.90       | 29.10       |             |
| 14            | 25.00       | 32.50       | 3.6         |
| 16            | 28.20       | 34.80       |             |
| 18            | 31.40       | 38.20       |             |
| 20            | 34.60       | 41.60       |             |
| 22            | 37.80       | 44.90       |             |
| 24            | 41.00       | 49.30       | 4.10        |

#### PCB BOX MOUNTING RECEPTACLE – TYPE 2



\*Dimensions for 20 and 22 contacts shown are for standard parts. Other PCB contacts are available.

| SHELL<br>SIZE | A<br>Ref | B<br>± 0.2 | C<br>+ 0.1<br>– 0 | D<br>+ 0<br>- 0.13 | E<br>+ 0.15<br><i>–</i> 0 | F<br>+0<br>- 0.13 | G<br>MAX | H<br>MAX | L<br>MAX | P<br>MAX |
|---------------|----------|------------|-------------------|--------------------|---------------------------|-------------------|----------|----------|----------|----------|
| 08            | 16.50    | 21.40      |                   | 12.00              |                           |                   |          | 11.10    | 27.20    |          |
| 10            | 19.50    | 25.90      |                   | 15.00              |                           |                   |          | 14.27    | 32.00    |          |
| 12            | 24.00    | 29.10      |                   | 19.05              |                           |                   |          | 17.44    | 35.20    |          |
| 14            | 27.00    | 32.50      | 3.2               | 22.22              | 17.21                     | 16.05             | 27.65    | 20.60    | 38.40    | 3.00     |
| 16            | 30.30    | 34.80      |                   | 25.40              |                           |                   |          | 23.77    | 41.00    |          |
| 18            | 33.70    | 38.20      |                   | 28.57              |                           |                   |          | 26.94    | 44.70    |          |
| 20            | 37.00    | 41.60      |                   | 31.75              |                           |                   |          | 30.11    | 47.90    |          |
| 22            | 40.00    | 44.95      |                   | 34.92              |                           | 15.29             |          | 33.29    | 51.10    |          |
| 24            | 43.30    | 49.35      | 3.7               | 38.10              |                           |                   |          | 36.46    | 55.80    | 2.26     |

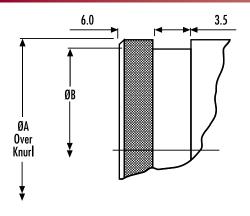
#### **ORDERING INFORMATION**

|  | AS       | * | ** - | - ** | * | * - | - *** |
|--|----------|---|------|------|---|-----|-------|
| Range Ref:                               |          |   |      |      |   |     |       |
| Style                                    |          |   |      |      |   |     |       |
| 0 = 2-hole flange receptacle (front f    | ixing)   |   |      |      |   |     |       |
| 1 = Inline receptacle                    |          |   |      |      |   |     |       |
| 2 = 2-hole flange box mount PCB re       | ceptacle |   |      |      |   |     |       |
| (front fixing or rear fixing)            |          |   |      |      |   |     |       |
| 6 = Free plug                            |          |   |      |      |   |     |       |
| 8 = Cap for plug                         |          |   |      |      |   |     |       |
| 9 = Cap for receptacle                   | I        |   |      |      |   |     |       |
| Shell Size:                              |          |   |      |      |   |     |       |
| Contact Arrangement:                     |          |   |      |      |   |     |       |
| <b>Insert Type:</b> P = Pin S = Socket ⊢ |          |   |      |      |   |     |       |
| Shell Keyways:                           |          |   |      |      |   |     |       |
| N = Red (standard)                       |          |   |      |      |   |     |       |
| A = Yellow                               |          |   |      |      |   |     |       |
| D = Green                                |          |   |      |      |   |     |       |
| B = Blue                                 |          |   |      |      |   |     |       |
| C = Orange                               |          |   |      |      |   |     |       |
| U = Violet                               |          |   |      |      |   |     |       |
| (U = Universal for test harnesses        | 5)       |   |      |      |   |     |       |
| Modification Code:                       |          |   |      |      |   |     |       |

#### ACCESSORIES PART NUMBERS

| SHELL SIZE | NUT PLATE  | GASKET |
|------------|------------|--------|
| 08         | ATM396 -8  | GV-8   |
| 10         | ATM396 -10 | GV-10  |
| 12         | ATM396 -12 | GV-12  |
| 14         | ATM396 -14 | GV-14  |
| 16         | ATM396 -16 | GV-16  |
| 18         | ATM396 -18 | GV-18  |
| 20         | ATM396 -20 | GV-20  |
| 22         | ATM396 -22 | GV-22  |
| 24         | ATM396 -24 | GV-24  |

#### **BOOT TERMINATION DETAIL**



| SHELL SIZE | A ± 0.10 | B ± 0.05 |
|------------|----------|----------|
| 08         | 11.20    | 10.00    |
| 10         | 14.22    | 12.95    |
| 12         | 17.39    | 16.15    |
| 14         | 20.55    | 19.15    |
| 16         | 23.72    | 23.35    |
| 18         | 26.89    | 25.35    |
| 20         | 30.06    | 28.50    |
| 22         | 33.24    | 31.70    |
| 24         | 36.41    | 34.85    |

#### Please note:

The size 8 shell is only available in keyways A, D and N.

For more information on how to order see page 37.

# AS Double Density (ASDD)



#### **KEY FEATURES**

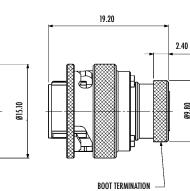
- Next Generation Connector high density and high performance
- Allows for a saving of 2 shell sizes relative to regular Autosport planforms
- Very lightweight
- Almost double the number of contacts compared with the regular Autosport range equivalent shell size.

With the exception of the 9-Way, the ASDD range of connectors uses standard AS metalwork, for the individual dimensions please refer to AS Series section on page 20.

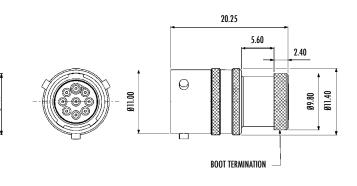
**89.80** 

#### 9-WAY ONLY

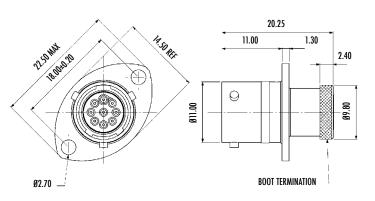
#### **PLUG – TYPE 6**



#### **INLINE RECEPTACLE - TYPE 1**



#### **RECEPTACLE - TYPE 0**



All dimensions are in mm unless otherwise stated.

| Connector | Contact<br>Size | Shell<br>Size | Max. Current<br>(amps) | Durability<br>(cycles of engagement | Dielectric<br>Withstanding | Withstanding Orientations |      | Wire Sealing<br>(mm) |     | Temperature<br>(°C)* |  |
|-----------|-----------------|---------------|------------------------|-------------------------------------|----------------------------|---------------------------|------|----------------------|-----|----------------------|--|
|           |                 |               |                        | & disengagement)                    | Voltage (VAC)**            |                           | Min  | Мах                  | Min | Мах                  |  |
| 9-Way     | 24              | 6             | 3                      | 500                                 | 1000                       | 6                         | 0.60 | 0.83                 | -55 | +170                 |  |
| 8-11      |                 | 8             |                        |                                     | 1000                       | 5                         |      |                      |     |                      |  |
| 10-23     | 24              | 10            | 2                      |                                     |                            |                           | 0.60 | 0.02                 |     | . 175                |  |
| 12-41     | 24              | 12            | 3                      | 500                                 |                            |                           | 0.60 | 0.83                 | -55 | +175                 |  |
| 14-64     |                 | 14            |                        |                                     |                            |                           |      |                      |     |                      |  |

\* The upper limit is the maximum internal hot-spot temperature resulting from the combination of the ambient temperature and heating due to current.
 \*\* Current leakage less than 2 milliamps at (VAC)

#### CONTACTS & TOOLING PART NUMBERS

| Connector | Socket | Pin       | PCB Socket       | PCB Pin           | Ins/Ext Tool | Pin<br>Positioner | Socket<br>Positioner |  |
|-----------|--------|-----------|------------------|-------------------|--------------|-------------------|----------------------|--|
| 9-Way     | 605704 | 605705-31 | 610008           | 610006-31         |              | 605839            | 605840               |  |
| 8-11      |        |           |                  |                   |              |                   |                      |  |
| 10-23     | 605721 | 605710 21 |                  | ordered with AS2  | 605927       | 610396            | 610207               |  |
| 12-41     | 605721 | 605719-31 | prefixes and con | ne with contacts. | 605837       | 610286            | 610287               |  |
| 14-64     |        |           |                  |                   |              |                   |                      |  |

| ORDERING INF   | ORMATION                           |   |   |   |   |   |   |  |
|--|------------------------------------|---|---|---|---|---|---|--|
|  | ASDD                               | * | * | * | * | * | * |  |
| Range Ref:   |                                    |   |   |   |   |   |   |  |
| Style:<br>0 = 2-hole flange rece<br>1 = Inline receptacle<br>2 = 2 hole flange rece<br>6 = Free plug         | ptacle<br>ptacle with PCB contacts |   |   |   |   |   |   |  |
| Shell Size:<br>06, 08, 10, 12, 14  |                                    |   |   |   |   |   |   | <b>Please note:</b><br>The size 8 shell is only available<br>in keyways A, D and N and |
| <b>Contact Arrangemen</b><br>09, 11, 23, 41, 64  | t:                                 |   |   |   |   |   |   | only the 9 way is available as<br>Keyway E.  |
| Insert Type: P = Pin S   | 5 = Socket                         |   |   |   |   |   |   |  |
| <b>Shell Keyways:</b><br>N = Red (standard)<br>A = Yellow<br>D = Green<br>B = Blue<br>C = Orange<br>E = Grey |                                    |   |   |   |   |   |   | For more information<br>on how to order see<br>page 37.                                |
| U = Violet<br>Modification Code:   |                                    |   |   |   |   |   |   |  |
|  |                                    |   |   |   |   |   |   |  |

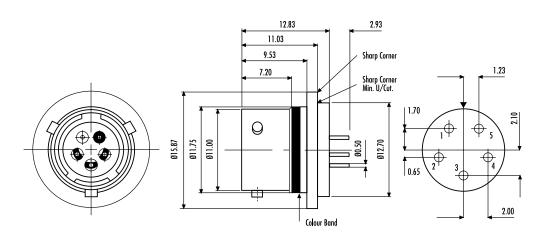
#### ACCESSORIES PART NUMBERS

For information on boots and nut plates please refer to AS series on page 23 or contact the sales office for further information.



#### **KEY FEATURES**

- Weld mount connector
- Filtered Hermetic option also available
- Stainless Steel (316) for ease of mounting and corrosion performance
- Titanium versions for light weight applications also available
- Glass seal can withstand pressure differentials of 1000 PSI without loss of electrical performance or fluid leakage
- Intermateable with AS Micro and ASL.



#### **GENERAL SPECIFICATION**

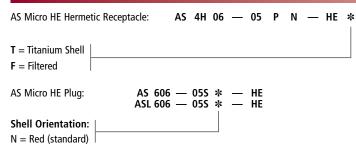
| Contact<br>Size | Shell<br>Size | Max.<br>Current | Durability<br>(cycles of engagement |                 | No. of Keyway<br>Orientations | Ten<br>(°C |     | Materials                      |                | Finish               |                |
|-----------------|---------------|-----------------|-------------------------------------|-----------------|-------------------------------|------------|-----|--------------------------------|----------------|----------------------|----------------|
|                 |               | (amps)          | & disengagement)                    | Voltage (VAC)** |                               | Min        | Min | Shell                          | Contacts       | Shell                | Contacts       |
| 23              | 6             | 3               | 500                                 | 1000            | 5                             | -65        | -65 | Stainless<br>Steel<br>(316)*** | Nickel<br>Iron | Electro-<br>polished | Gold<br>Plated |

\* The upper limit is the maximum internal hot-spot temperature resulting from the combination of the ambient temperature and heating due to current.

\*\* Current leakage less than 2 milliamps at (VAC)

\*\*\* Titanium Shell also available

#### **ORDERING INFORMATION**



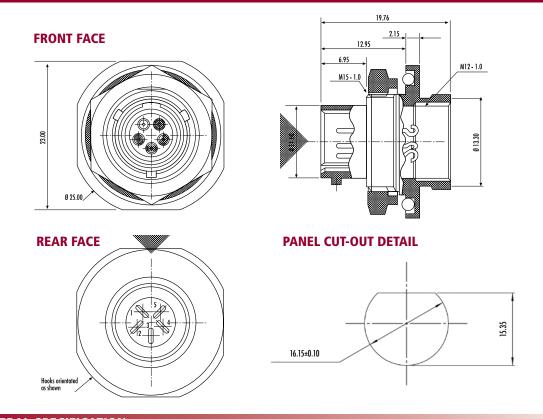
For more information on how to order see page 37.

All dimensions are in mm unless otherwise stated.



#### **KEY FEATURES**

- Unique product for sensor & fuel cell use
- Enlarged backshell for easier contact soldering
- Viton<sup>®</sup> O-ring for enhanced fluid resistance
- Glass seal can withstand pressure differentials of 1000 PSI without loss of electrical performance or fluid leakage
- Fully intermateable with AS Micro HE and Micro<sup>ute</sup>.



| GENER/          | GENERAL SPECIFICATION |                        |                                     |                            |                               |                      |      |  |  |  |  |  |
|-----------------|-----------------------|------------------------|-------------------------------------|----------------------------|-------------------------------|----------------------|------|--|--|--|--|--|
| Contact<br>Size | Shell<br>Size         | Max. Current<br>(amps) | Durability<br>(cycles of engagement | Dielectric<br>Withstanding | No. of Keyway<br>Orientations | Temperature<br>(°C)* |      |  |  |  |  |  |
|                 |                       |                        | & disengagement)                    | Voltage (VAC)**            |                               | Min                  | Max  |  |  |  |  |  |
| 23              | 6                     | 3                      | 500                                 | 1000                       | 1                             | -65                  | +200 |  |  |  |  |  |

\* The upper limit is the maximum internal hot-spot temperature resulting from the combination of the ambient temperature and heating due to current.

\*\* Current leakage less than 2 milliamps at (VAC)

#### **ORDERING INFORMATION**

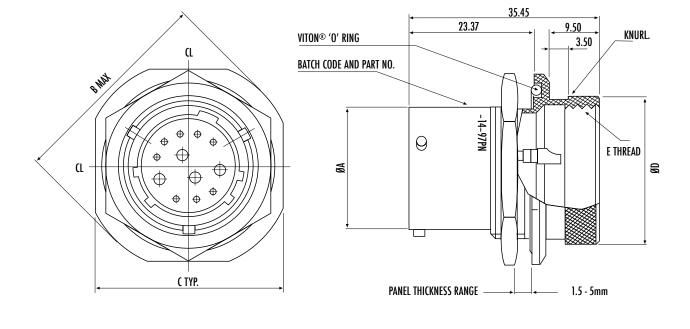
Part No. AS7H06 - 05 PN-HE

# AS Hermetic Fuel Tank



#### **KEY FEATURES**

- Range of connectors designed for fuel cell walls
- Viton<sup>®</sup> O-ring for enhanced fluid resistance
- Integral potting cup, rear accessory thread and external boot termination feature
- Glass seal can withstand pressure differentials of 1000 PSI without loss of electrical performance or fluid leakage.



|               |                |           |          |           |            |          |            |           |     | Ø | <b>IF</b> |
|---------------|----------------|-----------|----------|-----------|------------|----------|------------|-----------|-----|---|-----------|
| Shell<br>Size | Part No.       | ØA<br>Max | B<br>Max | С<br>Тур. | ØD<br>Typ. | E Thread | ØF<br>MIN. | G<br>MAX. |     |   |           |
| 10            | AS07PT-10-**PN | 15.04     | 28.40    | 25.95     | 20.50      | M18x1.0  | 17.70      | 17.00     | 1 1 | / |           |
| 12            | AS07PT-12-**PN | 19.09     | 33.00    | 30.75     | 23.67      | M21x1.0  | 22.70      | 21.10     |     | \ | /         |
| 14            | AS07PT-14-**PN | 22.26     | 36.30    | 33.85     | 26.84      | M24x1.0  | 25.70      | 24.30     |     |   |           |



G

| Contact<br>Size | Max.<br>Current | Sealing                              | Pressure       | Electrical      | Mate           | erials   | Fir      | nish     |
|-----------------|-----------------|--------------------------------------|----------------|-----------------|----------------|----------|----------|----------|
|                 | (amps)          |                                      |                |                 | Shell          | Contacts | Shell    | Contacts |
| 22              | 5               | 1 x 10 <sup>-8</sup> cc/sec @ 15 PSI | 1,000 PSI typ. | IR 5000 Mohms @ | Stainless      | Nickel   | Electro- | Gold     |
| 20              | 7.5             |                                      |                | 500 volt DC     | Steel<br>(303) | Iron     | polished | Plated   |
| 16              | 20              |                                      |                |                 |                |          |          |          |

#### ORDERING INFORMATION

|                   | AS07PT | — | * - * | P | N | Mating Free Plug (see page 18)              |
|-------------------|--------|---|-------|---|---|---|
| Basic P/N         |        |   |       |   |   | Part Nos:                                   |
| Planform          |        |   |       |   |   | AS610-35SN                                  |
| 10-35             |        |   |       |   |   | AS610-98SN                                  |
| 10-98             |        |   |       |   |   | AS612-04SN                                  |
| 12-04             |        |   |       |   |   | AS612-98SN                                  |
| 12-98             |        |   |       |   |   | AS614-97SN                                  |
| 14-97             |        |   |       |   |   | For more information<br>on how to order see |
| Pin Interface     |        |   |       |   |   | page 37.                                    |
| Shell Orientation | ı      |   |       |   |   | page str                                    |

# AS Micro<sup>Lite</sup> HE Fuel Immersible



#### **KEY FEATURES**

- Unique Deutsch designed fuel resistant elastomer insert
- Hermetic option with enlarged backshell for easy contact soldering and integrated potting cup available
- Cable accommodation 22, 24, 26 and 28 AWG
- Fully intermateable with AS Micro HE and AS Micro<sup>III</sup>
- Universal orientation (Plug type 6 only) for testing.

18.75

BOOT TERMINATION

4.10

2.40

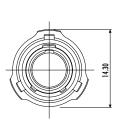
09.80 Ø11.40

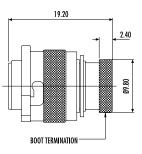
**INLINE RECEPTACLE - TYPE 1** 

0

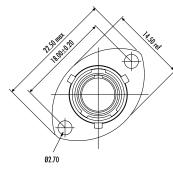
Ø11.00

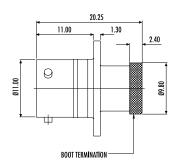
PLUG – TYPE 6



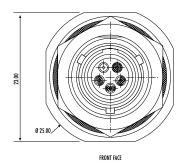


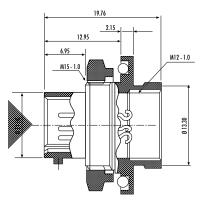
**RECEPTACLE – TYPE 0** 





#### HERMETIC RECEPTACLE





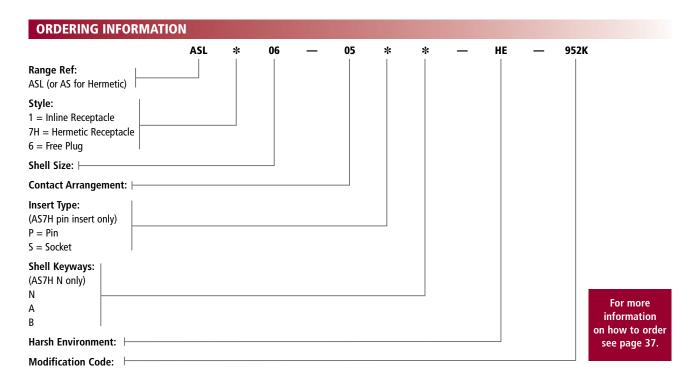
All dimensions are in mm unless otherwise stated.

| Contact<br>Size | Shell<br>Size | Size (amps) (cycles of engagement |                  | Dielectric<br>Withstanding | No. of Keyway<br>Orientations | Wire S<br>(m |      | Temperature<br>(°C)* |      |
|-----------------|---------------|-----------------------------------|------------------|----------------------------|-------------------------------|--------------|------|----------------------|------|
|                 |               |                                   | & disengagement) | Voltage (VAC)**            |                               | Min          | Max  | Min                  | Max  |
| 23              | 6             | 3                                 | 500              | 1000                       | 6                             | 0.60         | 1.37 | -55                  | +170 |

\* The upper limit is the maximum internal hot-spot temperature resulting from the combination of the ambient temperature and heating due to current.
 \*\* Current leakage less than 2 milliamps at (VAC)

For other sizes and arrangements, please call our sales office on +44 (0) 1424 852722 or email autosport@deutsch.net

| CONTACTS | CONTACTS & TOOLING PART NUMBERS |             |              |                    |             |                   |                      |  |  |  |  |  |
|----------|---------------------------------|-------------|--------------|--------------------|-------------|-------------------|----------------------|--|--|--|--|--|
| Socket   | Pin                             | Filler Plug | Ins/Ext Tool | Uncoupling<br>Tool | Crimp Tool  | Pin<br>Positioner | Socket<br>Positioner |  |  |  |  |  |
| 604935   | 604927-31                       | 600300-22   | M81969/14-01 | AS6HE-UCT          | M22520/2-01 | 604972            | 604973               |  |  |  |  |  |



#### ACCESSORIES PART NUMBERS

|           | Bc       | ot        | Pro        | Сар    |           |        |  |
|-----------|----------|-----------|------------|--------|-----------|--------|--|
|           | Straight | 90 Degree | Receptacle | Plug   | Nut Plate | Gasket |  |
| Raychem   | 202A111  | 222A111   | 604029     | 604027 | ATM396-6  | GV-6   |  |
| Hellerman | 113-4-G  | 1108-4-G  |            |        |           |        |  |



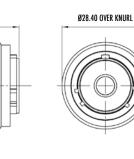
#### **KEY FEATURES**

- Benchmark high current connector for Autosport
- Suitable for alternator and battery solutions
- Cable accommodation 16mm, 25mm and 35mm
- Crimp type solid contacts.

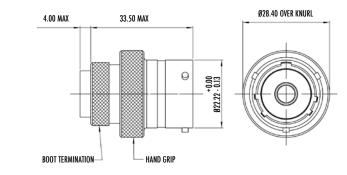
#### PLUG – TYPE 6

33.50 MAX

4.00 MAX



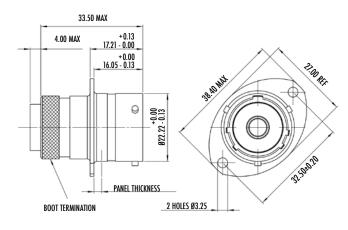
#### **INLINE RECEPTACLE - TYPE 1**

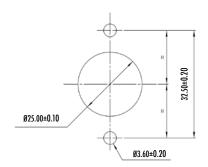


#### **RECEPTACLE - TYPE 0**

**BOOT TERMINATION** 







| Contact<br>Size | Shell Max. Current<br>Size (amps) |      | Durability<br>(cycles of engagement | Dielectric<br>Withstanding | No. of Keyway<br>Orientations | Temperature<br>(°C)** |      |  |
|-----------------|-----------------------------------|------|-------------------------------------|----------------------------|-------------------------------|-----------------------|------|--|
|                 |                                   |      | & disengagement)                    | Voltage (VAC)***           |                               | Min                   | Max  |  |
| 4               | 14                                | 200* | 500                                 | 1500                       | 3                             | -55                   | +150 |  |

\* A 200 Amp contact generating a connector hot spot temperature of approximately 100°C in an environmental ambient of 20°C. It is recommended that all high current conditions are tested by the end user to ensure the environmental application is suitable.

\*\* The upper limit is the maximum internal hot-spot temperature resulting from the combination of the ambient temperature and heating due to current. \*\*\*

Current leakage less than 2 milliamps at (VAC)

#### **CONTACTS & TOOLING PART NUMBERS**

| Wire Size | Socket | Pin    | Ext Tool | Crimp Tool | Jaws   |   |
|-----------|--------|--------|----------|------------|--------|---|
| 16mm      | 605739 | 605734 |          |            | 605774 |   |
| 25mm      | 605654 | 605660 | 610136   | 605773     | 605775 | 1 |
| 35mm      | 605740 | 605735 |          |            | 605776 |   |

#### **Application Note:**

Due to potential high current, we would recommend that the product be suitably insulated with the appropriate materials.

#### **ORDERING INFORMATION**

|  | ASHD  | * | 14 | 1 — | * — | * | *** |
|--|-------|---|----|-----|-----|---|-----|
| Range Ref:   |       |   |    |     |     |   |     |
| Style:<br>0 = 2 Hole Flange Recept<br>1 = Inline Receptacle<br>6 = Free Plug | tacle |   |    |     |     |   |     |
| Shell Size:  |       |   |    |     |     |   |     |
| Contact Arrangement:   |       |   |    |     |     |   |     |
| Insert Type:<br>P = Pin<br>S = Socket  |       |   |    |     |     |   |     |
| Shell Keyways:<br>N = Red (standard)<br>A = Yellow<br>B = Blue               |       |   |    |     |     |   |     |
| Contact Size Code:   |       |   |    |     |     |   |     |
| C25<br>C35   |       |   |    |     |     |   |     |

#### ACCESSORIES PART NUMBERS

|           | Bo       | ot        | Pro        | Сар    |           | <b>.</b> |
|-----------|----------|-----------|------------|--------|-----------|----------|
|           | Straight | 90 Degree | Receptacle | Plug   | Nut Plate | Gasket   |
| Raychem   | 202K142  | 222K142   | AS9-14     | AS8-14 | ATM396-14 | GV-14    |
| Hellerman | 155-42-G | 1155-4-G  |            |        |           |          |

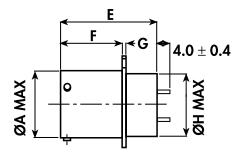


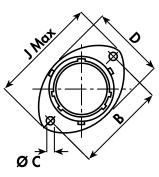
# AS Filter Solutions

With ever increasing systems and equipment sensitivity, unwanted noise created by ignition and communication systems on race cars can cause the 'Black Box' designer a real headache.

The Deutsch AS Filter connector range provides a high performance and space saving solution. By placing the filter elements in the 'skin' of the equipment, the RF window is minimised and RFI / EMI conducted interference is adequately attenuated.

In conjunction with the Autosport industry, two values have been determined for optimum performance, namely 5nF 'LC' and 10nF Piconfiguration. They are available in #10 thru #18 shell sizes incorporating the -35 high-density planforms.





| PART<br>NUMBER    | SHELL<br>SIZE | NO. OF<br>WAYS | FILTER<br>CONFIG | ØA    | В     | Ø C<br>±0.15 | D     | E     | F     | G    | н     | J     |
|-------------------|---------------|----------------|------------------|-------|-------|--------------|-------|-------|-------|------|-------|-------|
| ASLDD210-35PN9767 | 10            | 13             | 5nf LC           | 14.99 | 25.90 | 3.25         | 18.00 | 34.20 | 19.45 | 1.62 | 14.24 | 32.00 |
| ASLDD212-35PN9767 | 12            | 22             | 5nf LC           | 19.04 | 29.10 | 3.25         | 22.50 | 34.20 | 19.45 | 1.62 | 17.41 | 35.20 |
| ASLDD214-35PN9767 | 14            | 37             | 5nf LC           | 22.21 | 32.50 | 3.25         | 25.60 | 34.20 | 19.45 | 1.62 | 20.57 | 38.40 |
| ASLDD216-35PN9767 | 16            | 55             | 5nf LC           | 25.39 | 34.80 | 3.25         | 28.80 | 34.20 | 19.45 | 1.62 | 23.74 | 41.00 |
| ASLDD218-35PN9767 | 18            | 66             | 5nf LC           | 28.56 | 38.20 | 3.25         | 32.00 | 34.20 | 19.45 | 1.62 | 26.91 | 44.70 |
| ASDPE210-35PN9767 | 10            | 13             | 10nF Pi          | 14.99 | 25.90 | 3.25         | 18.00 | 34.20 | 19.45 | 1.62 | 14.24 | 32.00 |
| ASDPE212-35PN9767 | 12            | 22             | 10nF Pi          | 19.04 | 29.10 | 3.25         | 22.50 | 34.20 | 19.45 | 1.62 | 17.41 | 35.20 |
| ASDPE214-35PN9767 | 14            | 37             | 10nF Pi          | 22.21 | 32.50 | 3.25         | 25.60 | 34.20 | 19.45 | 1.62 | 20.57 | 38.40 |
| ASDPE216-35PN9767 | 16            | 55             | 10nF Pi          | 25.39 | 34.80 | 3.25         | 28.80 | 34.20 | 19.45 | 1.62 | 23.74 | 41.00 |
| ASDPE218-35PN9767 | 18            | 66             | 10nF Pi          | 28.56 | 38.20 | 3.25         | 32.00 | 34.20 | 19.45 | 1.62 | 26.91 | 44.70 |

All dimensions are in mm unless otherwise stated.



# AS Fibre Optic Solutions

High quality fibre optic contacts are available for any AS Series connector planform having size 16 contact locations, e.g. 12-04, 14-97, 16-08, 20-16, 20-39, 22-21 and 24-29.

The precision ceramic ferruled fibre optic contacts are available for high quality (Aerospace type specification) optic cables and silica glass fibres, enabling high speed, EMI / RFI immune data transmission. The optical contacts are designed to meet MIL-T-29504/5.

# Termination Boots and Accessories



# Gaskets

Designed specifically for the Deutsch Autosport flanged connectors, these gaskets are available from size 3 through to 24 shells.

Constructed from viton<sup>®</sup> rubber they assist in sealing the connectors to the mounting point and have been manufactured to withstand the temperatures, vibration and fluids found in the modern racing environment.

For part numbers please refer to page 39.



# Nut Plates

Nut Plates are available for all AS two-hole flange mounted connector receptacles.

They are designed to simplify connector-tobulkhead assembly, particularly in confined spaces, by eliminating the need to position loose nuts and washers. Nut plates are also anti-vibration and make assembly quicker and easier.

For part numbers please refer to page 39.

#### **BRAID TERMINATION SYSTEMS**

The Micro Band System from Glenair is ideal for termination of screen braid. We recommend Hand Micro Banding Tool No: 600-061 for all Micro Bands. Micro Bands and the Banding Tool are available through our distributors.

| Shell Size | Micro Band Product Code |
|------------|-------------------------|
| Up to #16. | 600-057                 |
| Over #16.  | 600-083                 |

For more information on how to order see page 37.

# Special Contacts



To complement our market leading range of harsh environment connectors, Deutsch's Autosport team are able to offer special contacts for special situations.

#### **THERMOCOUPLE CONTACTS**

- Available in #22 for Autosport Range
- Available in #23 for MicroLite
- Engineered in Chromel and Alumel
- Extensively tested and approved
- Thermal cycle tested
- Vibration tested
- Crimp type solid contacts
- Designed exclusively for Deutsch connectors.

#### THERMOCOUPLE #22 FOR AUTOSPORT RANGE

| Description    | Part No. |
|----------------|----------|
| Chromel pin    | 605346   |
| Chromel socket | 605347   |
| Alumel pin     | 605348   |
| Alumel socket  | 605349   |

#### THERMOCOUPLE #23 FOR MICROLite

| Description    | Part No.  |
|----------------|-----------|
| Chromel pin    | 605378-CR |
| Chromel socket | 605380-CR |
| Alumel pin     | 605378-AL |
| Alumel socket  | 605380-AL |

#### **CUSTOM MADE CONTACTS**

In addition to Thermocouple contacts, we are able to engineer special solutions for different wire sizes on our regular contact range.

For more information and ordering details please call our sales office on +44 (0) 1424 852722 or email autosport@deutsch.net

# How to Order

#### **ORDERING INFORMATION**

|   |                  |          | 4        | 5 | 6   |        | 7     |
|---|------------------|----------|----------|---|-----|--------|-------|
|   | ASL              | * 06<br> | — 05<br> | * | * — | - HE — | * * * |
| Style         0 = 2-hole flange receptacle         1 = Inline receptacle         2 = 2-hole flange receptacle w         6 = Free plug | ith PCB contacts |          |          |   |     |        |       |
| Shell Size  |                  |          |          |   |     |        |       |
| Contact Arrangement:  |                  |          |          |   |     |        |       |
| Insert Type: P = Pin S = Sock   | et               |          |          |   |     |        |       |
| Shell Keyways:N = Red (standard)A = YellowB = BlueC = OrangeD = GreenE = Grey   |                  |          |          |   |     |        |       |
| Harsh Environment:  |                  |          |          |   |     |        |       |
| Modification Code:  |                  |          |          |   |     |        |       |

#### All Deutsch Autosport part numbers work to the same principles. The part number is broken down into sections as follows:

- 'AS' indicates that it is an Autosport Connector all Deutsch Autosport connectors start like this. There may be another letter after the AS this designates a particular series. For example ASL = MicroLite, ASDD = Double Density.
- 2. The next major element is the connector style.
  - 0 = 2 hole flanged receptacle
  - 1 = Inline receptacle
  - 2 = 2 hole flanged receptacle with fixed PCB contacts
  - 4 = Weld mounting
  - 7 = Jam-nut mounting
  - 8 = Protective cap for plug
  - 9 = Protective cap for receptacle

Please note: not all of these options are available on all products; the relevant product pages will give you this information.

- 3. Relates to the required shell size. This will range from 03 (small) to 24 (large).
- 4. Is the planoforms detail (number of contacts).
- 5. Indicates the gender of a plug or receptacle. 'P' for pin or 'S' for socket.
- 6. Designates a keyway. Only connectors of the same keyway can mate. The options are: N, A, B, C, D, E or U for universal or no keyway option. The 'U' option should only be selected for test harnesses and not for racing applications.
- After all these elements there may be a 4-character code, which designates a special modification. For instance this can be a special contact length or a non-standard plating finish. For more information on modification codes please contact the sales office on +44 (0) 1424 852722 or email autosport@deutsch.net

For details of the ordering procedure for your area, please contact the relevant local distributor. A list of these can be found on the reverse of this brochure or on our website **www.deutsch.net** 

# Reference Guide

#### CONTACT TYPE

| CONTACT SIZE           | PART NO.       | P/S | WIRE<br>RANGE | COLOUR<br>BAND       | MAX<br>CURRENT     | CRIMP TOOL         | POSITIONER  |   | PLASTIC TOOLS<br>INSERT/REMOVAL |
|------------------------|----------------|-----|---------------|----------------------|--------------------|--------------------|-------------|---|---------------------------------|
| Size 24                | 605719-31      | Р   | 24.20         |                      | 2.4                | M22520/2 04        | 610286      | Р | 605837                          |
| (ASDD excluding 9-Way) | 605721         | S   | 24-30         | None                 | 3 Amps M22520/2-01 |                    | 610287      | S | Orange/White                    |
| Size 24 (ASDD 9        | 605705-31      | Р   | 24.20         | Nama                 | 2 4                | M22520/2 01        | 605839      | Р | 605837                          |
| Way & ASU 5-Way)       | 605704         | S   | 24-30         | None                 | 3 Amps             | M22520/2-01        | 605840      | S | Orange/White                    |
| Size 23                | 604927-31      | Р   | 22-28         | None                 | 2 Amma             | M22520/2-01        | 604972      | Р | M81969/14-01                    |
| 5128 23                | 604935         | S   | 22-28         | None                 | 3 Amps             | IVIZZ5Z0/Z-01      | 604973      | S | Green/White                     |
| Size 22                | 38941-22       | Р   | 22-26         | Orange, Blue, Black  | E Amor             | 5 Amps M22520/2-01 |             | Р | M81969/14-01                    |
| 5128 22                | 38943-22       | S   | 22-20         | Orange, Yellow, Grey | 5 Amps             | 10122520/2-01      | M22520/2-07 | S | Green/White                     |
| Size 20                | 38941-20       | Р   | 20-24         | Orange, Blue, Orange | 7 E Amno           | M22520/2-01        | M22520/2-10 | Р | M81969/14-10                    |
| 5128 20                | 38943-20       | S   | 20-24         | Orange, Green, Brown | 7.5 Amps           | 10122320/2-01      | M22520/2-10 | S | Red/Orange                      |
| Size 16                | 38941-16       | Р   | 16-20         | Orange, Blue, Yellow | 20 Amps            | M22520/1-01        | M22520/1-04 | Р | M81969/14-03                    |
| 5120 10                | 38943-16       | S   | 10-20         | Orange, Green, Red   | 20 Amps            | 10122320/1-01      | M22520/1-04 | S | Blue/White                      |
| AS Mini Size 22        | 38941-22       | Р   | 22-26         | Orange, Blue, Black  | 5 Ampc             | M22520/2-01        | M22520/2-09 | Р | M81969/14-01                    |
| AS WITH SIZE ZZ        | 604887         | S   | 22-20         | None                 | 5 Amps             | 10122320/2-01      | 605000      | S | Green/White                     |
| AS Mini Size 20        | 38941-20       | Р   | 20-24         | Orange, Blue, Orange | 7.5 Amps           | M22520/2-01        | M22520/2-10 | Р | M81969/14-10                    |
| AS WITH SIZE ZU        | 6862-201-20278 | S   | 20-24         | None                 | 7.5 Amps           | 10122320/2-01      | M22520/2-10 | S | Red/Orange                      |
| AS Composite/          | 604946-31      | Р   | 22-28         | None                 | 5 Amps             | M22520/2-01        | 605463      | Р | M81969/14-01                    |
| ASU 3-Way              | 604984         | S   | 22-28         | None                 | 5 Amps             | IVIZZ5ZU/Z-U1      | 605464      | S | Green/White                     |

#### **BOOT INFORMATION**

|                          | STRAIGH        | T BOOT    | 90 DEGRE       | E BOOT    |  |
|--------------------------|----------------|-----------|----------------|-----------|--|
| SHELL SIZE               | RAYCHEM        | HELLERMAN | RAYCHEM        | HELLERMAN |  |
| ASU (Size 3)             | 204W221-25-G03 | 1037-4-G  | 224W221-25-G03 | 1182-4-G  |  |
| AS Composite             | 204W221        | 1030-4-G  | 224W221        | 1181-4-G  |  |
| AS Micro <sup>lite</sup> | 204W221        | 1030-4-G  | 224W221        | 1181-4-G  |  |
| AS Micro                 | 202A111        | 113-4-G   | 222A111        | 1108-4-G  |  |
| AS Mini                  | 202K121        | 152-42-G  | 222K121        | 1152-4-G  |  |
| 08                       | 202K121        | 152-42-G  | 222K121        | 1152-4-G  |  |
| 10                       | 202K132        | 152-42-G  | 222K121        | 1152-4-G  |  |
| 12                       | 202K142        | 154-42-G  | 222K132        | 1154-4-G  |  |
| 14                       | 202K142        | 155-42-G  | 222K142        | 1155-4-G  |  |
| 16                       | 202K153        | 156-42-G  | 222K152        | 1156-4-G  |  |
| 18                       | 202K153        | 156-42-G  | 222K152        | 1156-4-G  |  |
| 20                       | 202K163        | 157-43-G  | 222K163        | 1157-4-G  |  |
| 22                       | 202K163        | 157-43-G  | 222K163        | 1157-4-G  |  |
| 24                       | 202K174        | 157-43-G  | 222K174        | 1157-4-G  |  |

#### ACCESSORIES

| SHELL SIZE | NUTPLATE  | GASKET | PLUG /<br>RECEPTACLE | PROTECTIVE<br>CAP |
|------------|-----------|--------|----------------------|-------------------|
|            | 4714206 2 | 012    | Plug                 | 605687            |
| 3/5 (ASU)  | ATM396-3  | GV-3   | Receptacle           | 605684            |
| C (ACI)    | ATM396-6  | GV-6   | Plug                 | 604027            |
| 6 (ASL)    | ATW390-0  | GV-0   | Receptacle           | 604029            |
| 7 (Mini)   | ATM396-7  | GV-7   | Plug                 | AS8-07            |
| 7 (Mini)   | ATW396-7  | GV-7   | Receptacle           | AS9-07            |
| 08         | 4714206 0 | C) / 0 | Plug                 | AS8-08            |
| 08         | ATM396-8  | GV-8   | Receptacle           | AS9-08            |
| 10         | ATM396-10 | GV-10  | Plug                 | AS8-10            |
| 10         | ATW390-10 | GV-10  | Receptacle           | AS9-10            |
| 12         | ATM396-12 | GV-12  | Plug                 | AS8-12            |
| 12         | ATW390-12 | GV-12  | Receptacle           | AS9-12            |
| 14         | ATM396-14 | GV-14  | Plug                 | AS8-14            |
| 14         | ATW390-14 | GV-14  | Receptacle           | AS9-14            |
| 16         | ATM396-16 | GV-16  | Plug                 | AS8-16            |
| 10         | ATW390-10 | GV-10  | Receptacle           | AS9-16            |
| 18         | ATM396-18 | GV-18  | Plug                 | AS8-18            |
| 10         | ATW390-18 | GV-18  | Receptacle           | AS9-18            |
| 20         | ATM396-20 | GV-20  | Plug                 | AS8-20            |
| 20         | ATW396-20 | GV-20  | Receptacle           | AS9-20            |
| 22         |           | GV-22  | Plug                 | AS8-22            |
| 22         | ATM396-22 | GV-22  | Receptacle           | AS9-22            |
| 24         | ATM396-24 | GV-24  | Plug                 | AS8-24            |
| 24         | ATW590-24 | 07-24  | Receptacle           | AS9-24            |

#### WIRE SIZES AND DIAMETERS

| AUTOSPORT SI | ZE          | FINISHED WIRE DIMENSIONS |         |            |         |  |  |  |
|--------------|-------------|--------------------------|---------|------------|---------|--|--|--|
| CONTACT      | WIRE SIZE   | CONDU                    | UCTOR   | INSULATION |         |  |  |  |
| SIZE         | (AWG)       | MIN                      | MAX     | MIN        | MAX     |  |  |  |
| 24           | 30,28,26,24 | 0.254mm                  | 0.511mm | 0.56mm     | 1.02mm  |  |  |  |
| 24           | 50,20,20,24 | 0.010in                  | 0.02in  | 0.22in     | 0.040in |  |  |  |
| 22           | 20 26 24 22 | 0.321mm                  | 0.790mm | 0.60mm     | 1.37mm  |  |  |  |
| 23           | 28,26,24,22 | .012in                   | .031in  | .023in     | .054in  |  |  |  |
| 22           | 26.24.22    | 0.405mm                  | 0.790mm | 0.76mm     | 1.37mm  |  |  |  |
| 22           | 26,24,22    | .015in                   | .031in  | .030in     | .054in  |  |  |  |
| 20           | 24 22 20    | 0.511mm                  | 0.970mm | 1.02mm     | 2.11mm  |  |  |  |
| 20           | 24,22,20    | .02in                    | .038in  | .040in     | .083in  |  |  |  |
| 16           | 20.19.16    | 0.812mm                  | 1.530mm | 1.65mm     | 2.77mm  |  |  |  |
| 10           | 20,18,16    | .031in                   | .60in   | .65in      | .109in  |  |  |  |

#### **FILLER PLUGS**

| CONTACT<br>SIZE | PART<br>NUMBER |
|-----------------|----------------|
| 24              | 600300-24      |
| 23              | 600300-22      |
| 22              | 600300-22      |
| 20              | 600300-20      |
| 16              | 600300-16      |





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