

Automotive Products

Edition 2009



HUBER+SUHNER AUTOMOTIVE PRODUCTS OVERVIEW

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OUR COMPANY

THE HUBER+SUHNER GROUP is a leading global supplier of components and systems for electrical and optical connectivity. Our customers in telecommunications, industrial applications and transportation appreciate that we are specialists with detailed knowledge of practical applications. We offer technical expertise in radio frequency technology, fiberoptics, cables and polymers under one roof, thus providing a unique basis for continual innovation focused on the needs of our customers all over the world.

Our motto is: «EXCELLENCE IN CONNECTIVITY SOLUTIONS». At the heart of our offering is a broad range of products that can be relied on to meet high quality standards, backed up by flexible, dependable services with fast response times worldwide. We concentrate on complex applications that allow us to stand out by adding value with special product features, customer-specific innovations, engineering and other services.

COMMUNICATION



Connections that enrich our lives

With a broad range of products and services we are making significant contributions to the establishment and growth of mobile and landline telephony around the world. High-quality components and customer-specific solutions make for impeccable switching performance – electrical, optical and wireless. We are also counted among the world's leading suppliers of components for base stations and lightning protection components.



TRANSPORTATION



Connections that get us moving

We are Europe's leading supplier of cables and cable systems for railways and guarantee faultless energy and signal transmission in rolling stock. Our radio frequency and fiber optic components and antennas help satisfy the growing demand for in-vehicle data transmission. The automotive industry uses our special cables for sophisticated applications, while our radio frequency products help in-vehicle infotainment systems become ever more popular.



INDUSTRY



Connections that add value

This market segment includes space and defense, instrumentation and industrial wiring. Such wide-ranging applications represent quite a design challenge, with different applications making demands on transmission capacity, ease of installation, heat resistance, fire resistance, current capacity, robustness or compactness of overall size.





GLOBAL, ACTIVE PRESENCE

With group companies in all major countries, with about 100 representatives and with two cable production and several cable assembly sites, HUBER+SUHNER is always close to you - worldwide.



QUALITY- MANAGEMENT

Our global management system offers the assurance that we will supply consistently high quality. This is confirmed by our longstanding certification according to ISO 9001 and ISO 14001. Our automotive cables production facility has also been QS-9000 certified since early 2002. Since 2003 we are additionally certified to ISO/TS 16949.

All our products fully comply with the European directive 2002/95/EC (RoHS).

HUBER+SUHNER AUTOMOTIVE – FROM START TO FINISH ALL FROM ONE SOURCE

Demanding applications in the fields of electronic monitoring, sensor technology, security, comfort and passenger entertainment require components which, with low weight, tight space conditions and under extreme

operation conditions, guarantee the greatest reliability and safety. HUBER+SUHNER provides for the most modern technologies a wide range of solutions able to meet such demands – today and in the future.



Power train applications

Entertainment systems

Sensor technology applications

Telematic applications

System solutions

Polymer components

ADDITIONAL NOTES

AUTOMOTIVE WIRES AND CABLES (AWC)

Increasing engine efficiency, lower power consumption and smaller space restrictions gave rise to higher temperature in the engine compartment and an increase in cable quantity. In addition, vehicle electronic systems play an ever increasing role in the safety and performance of today's car. ABS/DSC, tyre pressure monitoring, rim friction factor detection, vehicle movement dynamics control, driver assistance, distance control, power supply for hybrid cars, etc. create high demands.

Ambient temperatures of -70°C to $+200^{\circ}\text{C}$ (3000 h) are commonplace. The wiring is exposed to various fluids, such as diesel, oils, battery acids, salt water,

cleaning agents and humidity in everyday service. Reduced cable diameter within a small tolerance call for high performance cables to provide accurate connections in overmoulding processing. Optimized designs and material selections result in significant weight reductions.

HUBER+SUHNER offers the perfect solution for these special requirements: With the well-known RADOX® range of cables in power train applications, but also for electronic systems.

Our AWC portfolio includes single core cables, battery cables, sensor cables and databus cables.



WIRES AND CABLES (AWC)

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| RADOX® Single Core Cables (155S FLR, 155S RW, ETFE, Anticapillary) | 11 - 20 |
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WHAT IS RADOX®



RADOX® are electron beam crosslinked insulating materials developed by HUBER+SUHNER. The RADOX® insulations offer excellent resistance to thermal, chemical, electrical and mechanical loads. Thanks to reduced wall thicknesses, it also saves weight and space. RADOX® materials enable solutions to be customized to specific applications.

Environmental statements:

HUBER+SUHNER RADOX® cables comply with the following EU Directives:

- 2002/95/EC - Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS)
- 2002/96/EC - on Waste Electrical and Electronic Equipment
- 2000/53/EC - on end-of-life vehicles

RADOX® AUTOMOTIVE SINGLE CORE CABLES

Low voltage cable for road vehicles, Class D according to ISO 6722, temperature rating -40°C to +150°C

A growing demand of sensors, higher operating temperatures and restricted space are typical in today's motor compartments. These cables have been developed with these specific requirements in mind.

These cables are Class D temperature range cables with reduced outer diameter. They have superb resistance to motor oils, fluids and hydrolysis.

Thanks to their electron beam crosslinked RADOX® insulation, these cables have excellent resistance to extremes of temperature and abrasion even with reduced outer diameter. Furthermore these RADOX® cables have outstanding electrical characteristics.

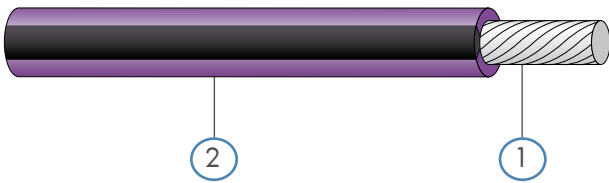
The characteristics of these RADOX® cables make them ideal for use in a wide range of applications where space is at a premium and where cables are subjected to high temperatures. Even high humidity levels and motor vehicle fluids do not negatively affect the lifetime of the cables.

- Operating temperature range -40°C to +150°C
- Reduced outer diameter
- Resistant to motor fluids, fuels
- Hydrolysis resistant
- Resistant to pressure at high temperatures
- High abrasion resistance
- Excellent electrical characteristics



RADOX® 155S FLR

| | |
|----------------------|-------------------------------------|
| Number of conductors | 1 |
| Cross section | 0.35 - 6 mm ² |
| Voltage rating | 60 / 600 V DC |
| Temperature range | (-55 °C) -40 °C to +150 °C (3000 h) |
| Min. bending radius | 3 x cable dia. |



Composition of cable

| | |
|---------------|--|
| 1. Conductor | stranded tinned or bare copper |
| 2. Insulation | RADOX® 155S, extruded radiation cross-linked polyolefin, various colours |

Characteristics and specialities

- high and low temperature resistance
- ozone and weathering resistance
- resistant to pressure at high temperature
- resistant to motor oils, fuels and hydrolysis
- flame retardant
- high abrasion resistance
- easy to strip and process

Application

Low voltage cable for use in road vehicle applications, such as motor wiring, fan motor or sensor applications.

Standards

| Conductor | General |
|----------------------------------|-----------------------------|
| DIN 72551 part 6 | ISO 6722 class D, thin wall |
| ISO 6722 | DIN 72551 part 5 (1993) |
| DIN EN 13602, Cu-ETP1-A (CW003A) | LV 112 |

For further technical details please refer to our data sheet.

RADOX® 155S FLR

Extract from our delivery programme

Dimensions according to DIN 72551 part 6 type A

| Cross-section mm ² | Conductor | | Conductor resistance @ 20 °C max. Ω/km | | Core | | Weight kg/100 m nom. |
|----------------------------------|-------------------------|---------------------|---|------|---------------------------|----------------|----------------------------|
| | construction* n x mm | Diameter max. mm | tinned | bare | wall thickness min. mm | Diameter mm | |
| 0.35 | 7 x 0.26 | 0.8 | 54.5 | 52.0 | 0.20 | 1.25 ± 0.05 | 0.4 |
| 0.5 | 19 x 0.19 | 1.0 | 38.2 | 37.1 | 0.22 | 1.50 ± 0.10 | 0.6 |
| 0.75 | 19 x 0.23 | 1.2 | 25.4 | 24.7 | 0.24 | 1.80 ± 0.10 | 0.9 |
| 1.0 | 19 x 0.26 | 1.35 | 19.1 | 18.5 | 0.24 | 2.00 ± 0.10 | 1.1 |
| 1.5 | 19 x 0.32 | 1.7 | 13.0 | 12.7 | 0.24 | 2.30 ± 0.10 | 1.6 |
| 2.5 | 19 x 0.41 | 2.2 | 7.8 | 7.6 | 0.28 | 2.85 ± 0.15 | 2.6 |

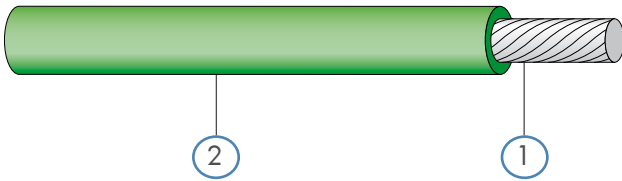
Dimensions according to DIN 72551 part 6 type B

| Cross-section mm ² | Conductor | | Conductor resistance @ 20 °C max. Ω/km | | Core | | Weight kg/100 m nom. |
|----------------------------------|-------------------------|---------------------|---|------|---------------------------|----------------|----------------------------|
| | construction* n x mm | Diameter max. mm | tinned | bare | wall thickness min. mm | Diameter mm | |
| 0.75 | 24 x 0.21 | 1.2 | 25.4 | 24.7 | 0.24 | 1.80 ± 0.10 | 0.9 |
| 1.0 | 32 x 0.21 | 1.35 | 19.1 | 18.5 | 0.24 | 2.00 ± 0.10 | 1.1 |
| 1.5 | 30 x 0.26 | 1.7 | 13.0 | 12.7 | 0.24 | 2.30 ± 0.10 | 1.6 |
| 2.5 | 50 x 0.26 | 2.2 | 7.8 | 7.6 | 0.28 | 2.85 ± 0.15 | 2.6 |
| 4.0 | 56 x 0.31 | 2.75 | 4.8 | 4.7 | 0.32 | 3.55 ± 0.15 | 4.2 |
| 6.0 | 84 x 0.31 | 3.3 | 3.2 | 3.1 | 0.32 | 4.15 ± 0.15 | 6.1 |

* typical value x max. single wire diameter

RADOX® 155S RW

| | |
|----------------------|-------------------------------------|
| Number of conductors | 1 |
| Cross section | 0.14 - 1 mm ² |
| Voltage rating | 60 / 600 V DC |
| Temperature range | (-55 °C) -40 °C to +150 °C (3000 h) |
| Min. bending radius | 3 x cable dia. |



Composition of cable

| | |
|---------------|--|
| 1. Conductor | stranded, tin plated |
| 2. Insulation | RADOX® 155S, extruded radiation cross-linked polyolefin, various colours |

Characteristics and specialities

- high and low temperature resistance
- ozone and weathering resistance
- resistant to pressure at high temperature
- resistant to motor oils, fuels and hydrolysis
- flame retardant
- high abrasion resistance
- easy to strip and process

Application

Low voltage cable for use in road vehicle applications, such as motor wiring, fan motor or sensor applications.

Standards

| Conductor | General |
|----------------------------------|-----------------------------------|
| DIN 72551 part 6 | ISO 6722 class D, ultra thin wall |
| ISO 6722 | |
| DIN EN 13602, Cu-ETP1-A (CW003A) | |

For further technical details please refer to our data sheet.

RADOX® 155S RW

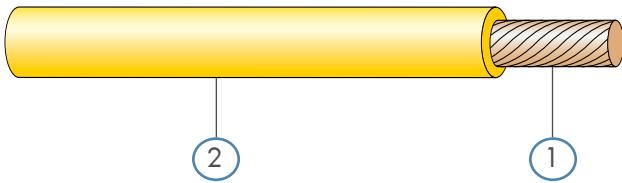
Extract from our delivery programme

| Cross-section mm ² | Conductor | | | Core | | Weight kg/100 m nom. |
|----------------------------------|-------------------------|---------------------|---------------------------------|---------------------------|----------------|----------------------------|
| | construction* n x mm | Diameter max. mm | resistance @ 20 °C max. Ω/km | wall thickness min. mm | Diameter mm | |
| 0.14 | 19 x 0.10 | 0.51 | 135.5 | 0.16 | 0.95 ± 0.05 | 0.3 |
| 0.25 | 19 x 0.13 | 0.61 | 86.0 | 0.16 | 1.10 ± 0.05 | 0.3 |
| 0.35 | 19 x 0.15 | 0.80 | 54.5 | 0.16 | 1.25 ± 0.05 | 0.4 |
| 0.50 | 19 x 0.18 | 0.91 | 38.2 | 0.16 | 1.40 ± 0.05 | 0.6 |
| 0.75 | 19 x 0.22 | 1.12 | 25.4 | 0.16 | 1.65 ± 0.05 | 0.8 |
| 1.0 | 19 x 0.26 | 1.26 | 19.1 | 0.16 | 1.80 ± 0.05 | 1.0 |

* typical value x max. single wire diameter

ETFE

| | |
|----------------------|-------------------------------------|
| Number of conductors | 1 |
| Cross section | 0.14 - 6 mm ² |
| Voltage rating | 60 / 600 V DC |
| Temperature range | (-55 °C) -40 °C to +200 °C (3000 h) |
| Min. bending radius | 3 x cable dia. |



Composition of cable

| | |
|---------------|---|
| 1. Conductor | stranded bare copper |
| 2. Insulation | ETFE, extruded fluoropolymer, various colours |

Characteristics and specialities

- high and low temperature resistance
- ozone and weathering resistance
- resistant to pressure at high temperature
- resistant to hot motor oils, fuels and hydrolysis
- flame retardant
- high abrasion resistance
- easy to strip and process

Application

Low voltage cable for use in road vehicle applications, where constant hot oil immersion is required.

Standards

| Conductor | General |
|----------------------------------|---|
| DIN 72551 part 6 | ISO 6722 class F, thin wall and ultra thin wall |
| ISO 6722 | |
| DIN EN 13602, Cu-ETP1-A (CW003A) | |

For further technical details please refer to our data sheet.

ETFE

Extract from our delivery programme

Dimensions according to DIN 72551 part 6 type A and B

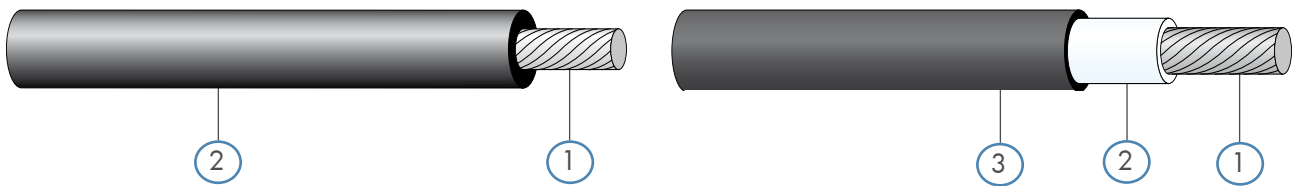
| Cross-section mm ² | Conductor | | Conductor resistance @ 20 °C, max. Ω/km bare | Core | | Weight kg/100 m nom. |
|----------------------------------|-------------------------|---------------------|--|---------------------------|----------------|----------------------------|
| | construction* n x mm | Diameter max. mm | | wall thickness min. mm | Diameter mm | |
| 0.35 | 7 x 0.26 | 0.8 | 52.0 | 0.20 | 1.25 ± 0.05 | 0.4 |
| 0.5 | 19 x 0.19 | 1.0 | 37.1 | 0.22 | 1.50 ± 0.10 | 0.6 |
| 0.75 | 19 x 0.23 | 1.2 | 24.7 | 0.24 | 1.80 ± 0.10 | 1.0 |
| 1.0 | 19 x 0.26 | 1.35 | 18.5 | 0.24 | 2.00 ± 0.10 | 1.2 |
| 1.5 | 19 x 0.32 | 1.7 | 12.7 | 0.24 | 2.30 ± 0.10 | 1.7 |
| 2.5 | 50 x 0.26 | 2.0 | 7.6 | 0.28 | 2.85 ± 0.15 | 2.7 |
| 4.0 | 56 x 0.31 | 2.75 | 4.7 | 0.32 | 3.55 ± 0.15 | 4.3 |
| 6.0 | 84 x 0.31 | 3.3 | 3.1 | 0.32 | 4.15 ± 0.15 | 6.2 |

ultra thin wall designs on request

* typical value x max. single wire diameter

RADOX® ANTICAPILLARY

| | |
|----------------------|-------------------------------------|
| Number of conductors | 1 |
| Cross section | 0.35 - 6 mm ² |
| Voltage rating | 60 / 600 V DC |
| Temperature range | (-55 °C) -40 °C to +150 °C (3000 h) |
| Min. bending radius | 3 x cable dia. |



Composition of cable

| | |
|---------------|--|
| 1. Conductor | stranded tinned or bare copper, special coating |
| 2. Insulation | RADOX® 155S, extruded radiation cross-linked polyolefin, various colours |
| 3. Insulation | extruded fluoropolymer, various colours, for hot oil applications |

Characteristics and specialities

- barrier sealed, avoids penetration of fluids along conductor
- high and low temperature resistance
- ozone and weathering resistance
- resistant to pressure at high temperature
- resistant to motor oils, fuels and hydrolysis
- flame retardant
- high abrasion resistance
- easy to strip and process

Application

Low voltage cable with anticapillary properties for use in road vehicle applications.

Standards

| Conductor | General |
|----------------------------------|-----------------------------|
| DIN 72551 part 6 | ISO 6722 class D, thin wall |
| ISO 6722 | DIN 72551 part 5 (1993) |
| DIN EN 13602, Cu-ETP1-A (CW003A) | LV 112 |

For further technical details please refer to our data sheet.

RADOX® ANTICAPILLARY

Extract from our delivery programme

Dimensions according to DIN 72551 part 6 type A

| Cross-section mm ² | Conductor | | Conductor resistance @ 20 °C max. Ω/km | | Core | | Weight kg/100 m nom. |
|----------------------------------|-------------------------|---------------------|---|------|---------------------------|----------------|----------------------------|
| | construction* n x mm | Diameter max. mm | tinned | bare | wall thickness min. mm | Diameter mm | |
| 0.35 | 7 x 0.26 | 0.8 | 54.5 | 52.0 | 0.20 | 1.25 ± 0.05 | 0.4 |
| 0.5 | 19 x 0.19 | 1.0 | 38.2 | 37.1 | 0.22 | 1.50 ± 0.10 | 0.6 |
| 0.75 | 19 x 0.23 | 1.2 | 25.4 | 24.7 | 0.24 | 1.80 ± 0.10 | 0.9 |
| 1.0 | 19 x 0.26 | 1.35 | 19.1 | 18.5 | 0.24 | 2.00 ± 0.10 | 1.1 |
| 1.5 | 19 x 0.32 | 1.7 | 13.0 | 12.7 | 0.24 | 2.30 ± 0.10 | 1.6 |
| 2.5 | 19 x 0.41 | 2.2 | 7.8 | 7.6 | 0.28 | 2.85 ± 0.15 | 2.6 |

Dimensions according to DIN 72551 part 6 type B

| Cross-section mm ² | Conductor | | Conductor resistance @ 20 °C max. Ω/km | | Core | | Weight kg/100 m nom. |
|----------------------------------|-------------------------|---------------------|---|------|---------------------------|----------------|----------------------------|
| | construction* n x mm | Diameter max. mm | tinned | bare | wall thickness min. mm | Diameter mm | |
| 0.75 | 24 x 0.21 | 1.2 | 25.4 | 24.7 | 0.24 | 1.80 ± 0.10 | 0.9 |
| 1.0 | 32 x 0.21 | 1.35 | 19.1 | 18.5 | 0.24 | 2.00 ± 0.10 | 1.1 |
| 1.5 | 30 x 0.26 | 1.7 | 13.0 | 12.7 | 0.24 | 2.30 ± 0.10 | 1.6 |
| 2.5 | 50 x 0.26 | 2.2 | 7.8 | 7.6 | 0.28 | 2.85 ± 0.15 | 2.6 |
| 4.0 | 56 x 0.31 | 2.75 | 4.8 | 4.7 | 0.32 | 3.55 ± 0.15 | 4.2 |
| 6.0 | 84 x 0.31 | 3.3 | 3.2 | 3.1 | 0.32 | 4.15 ± 0.15 | 6.1 |

* typical value x max. single wire diameter

ADDITIONAL NOTES

RADOX® BATTERY CABLES

THINWALL, FLEXIBLE

Power cables for road vehicles, Class C or D according to ISO 6722

Operating temperature -40°C to +125°C or +150°C

RADOX® battery cables are high temperature resistant products with a reduced outer diameter. They are available with three different jacket materials.

The cable is highly resistant to temperature, ozone, weathering, hydrolysis and has excellent resistance to battery acid and cooling agents. It is also resistant against oils, fuels and other fluids used inside and outside of the motor compartment.

Thanks to its electron beam crosslinked RADOX® insulation, the cable has, despite the reduced outer diameter,

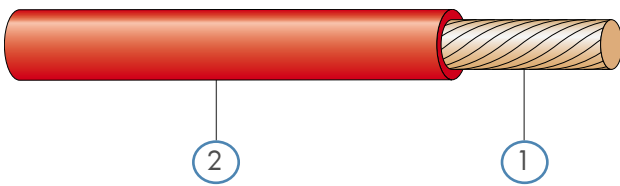
excellent resistance to heat pressure and abrasion. In addition, the RADOX® battery cable has outstanding dielectric properties. The flame retardant insulation does not melt or flow at high temperatures and is easy to strip.

- Operating temperature -40°C to +150°C
- Outstanding flexibility
- Reduced outer diameter
- Resistant to motor oils, battery acid and fuels
- High resistance to heat pressure
- Excellent abrasion resistance



RADOX® ELASTOMER S BATTERY CABLE

| | |
|----------------------|----------------------------------|
| Number of conductors | 1 |
| Cross section | 4 - 95 mm ² |
| Voltage rating | 600 / 1000 V AC |
| Temperature range | (-70°C) -40°C to +150°C (3000 h) |
| Min. bending radius | 3 x cable dia. |



Composition of cable

| | |
|---------------|---|
| 1. Conductor | stranded bare copper |
| 2. Insulation | RADOX® Elastomer S (REMS), extruded radiation cross-linked copolymer, various colours |

Characteristics and specialities

- excellent high and low temperature resistance
- very flexible
- ozone and weathering resistance
- outstanding resistance against battery acids, diesel, various oils, engine coolant and window washer fluids
- resistance against humidity, petrol and brake fluids
- flame retardant
- easy to strip and process

Application

Battery or power cable for use in road vehicle applications.

Standards

| Conductor | General |
|----------------------------------|-----------------------------|
| ISO 6722 | ISO 6722 class D, thin wall |
| DIN EN 13602, Cu-ETP1-A (CW003A) | |

For further technical details please refer to our data sheet.

RADOX® ELASTOMER S BATTERY CABLE

Extract from our delivery programme

| Cross-section mm ² | Conductor | | | Core | | Weight kg/100 m nom. |
|----------------------------------|-------------------------|---------------------|---------------------------------|---------------------------|----------------|----------------------------|
| | construction* n x mm | Diameter max. mm | resistance @ 20 °C max. Ω/km | wall thickness min. mm | Diameter mm | |
| 4 | 56 x 0.31 | 2.75 | 4.71 | 0.32 | 3.55 ± 0.15 | 4.15 |
| 6 | 84 x 0.31 | 3.3 | 3.14 | 0.32 | 4.15 ± 0.15 | 6.10 |
| 10 | 78 x 0.41 | 4.3 | 1.82 | 0.57 | 5.75 ± 0.15 | 10.40 |
| 16 | 126 x 0.41 | 5.5 | 1.16 | 0.60 | 6.90 ± 0.15 | 16.40 |
| 25 | 189 x 0.41 | 6.7 | 0.743 | 0.60 | 8.20 ± 0.15 | 24.20 |
| 35 | 273 x 0.41 | 7.9 | 0.527 | 0.70 | 9.70 ± 0.20 | 34.50 |
| 50 | 385 x 0.41 | 9.4 | 0.368 | 0.80 | 11.5 ± 0.20 | 48.60 |
| 70 | 360 x 0.51 | 11.6 | 0.259 | 0.80 | 13.7 ± 0.25 | 68.90 |
| 95 | 468 x 0.51 | 13.7 | 0.196 | 0.90 | 16.0 ± 0.25 | 89.50 |

* typical value x max. single wire diameter

RADOX® 155 BATTERY CABLE

| | |
|----------------------|-------------------------------------|
| Number of conductors | 1 |
| Cross section | 4 - 95 mm ² |
| Voltage rating | 600 / 1000 V AC |
| Temperature range | (-55 °C) -40 °C to +150 °C (3000 h) |
| Min. bending radius | 3 x cable dia. |



Composition of cable

| | |
|---------------|---|
| 1. Conductor | stranded bare copper |
| 2. Insulation | RADOX® 155, extruded radiation cross-linked polyolefin, various colours |

Characteristics and specialities

- excellent high and low temperature resistance
- ozone, weathering and hydrolysis resistance
- outstanding resistance against battery acids, humidity, petrol, brake fluids, engine coolant, window washer fluids, diesel and various oils
- flame retardant
- easy to strip and process

Application

Battery or power cable for use in road vehicle applications.

Standards

| Conductor | General |
|----------------------------------|-----------------------------|
| ISO 6722 | ISO 6722 class D, thin wall |
| DIN EN 13602, Cu-ETP1-A (CW003A) | LV112 |

For further technical details please refer to our data sheet.

RADOX® 155 BATTERY CABLE

Extract from our delivery programme

| Cross-section | Conductor | | | Core | | Weight |
|---------------|-----------------|-------------------------|---------------------|---------------------------------|---------------------------|--------|
| | mm ² | construction* n x mm | Diameter max. mm | resistance @ 20 °C max. Ω/km | wall thickness min. mm | |
| 4 | 56 x 0.31 | 2.5 | 4.71 | 0.32 | 3.55 ± 0.15 | 4.07 |
| 6 | 84 x 0.31 | 3.0 | 3.14 | 0.32 | 4.15 ± 0.15 | 6.00 |
| 10 | 78 x 0.41 | 4.3 | 1.82 | 0.57 | 5.75 ± 0.15 | 10.40 |
| 16 | 126 x 0.41 | 5.5 | 1.16 | 0.60 | 6.90 ± 0.15 | 16.00 |
| 25 | 189 x 0.41 | 6.7 | 0.743 | 0.60 | 8.20 ± 0.15 | 23.70 |
| 35 | 273 x 0.41 | 7.9 | 0.527 | 0.70 | 9.70 ± 0.20 | 34.00 |
| 50 | 385 x 0.41 | 9.4 | 0.368 | 0.80 | 11.5 ± 0.20 | 48.10 |
| 70 | 360 x 0.51 | 11.6 | 0.259 | 0.80 | 13.7 ± 0.25 | 68.30 |
| 95 | 468 x 0.51 | 13.7 | 0.196 | 0.90 | 16.0 ± 0.25 | 88.60 |

* typical value x max. single wire diameter

RADOX® 125 M

| | |
|----------------------|----------------------------|
| Number of conductors | 1 |
| Cross section | 4 - 95 mm ² |
| Voltage rating | 600 / 1000 V AC |
| Temperature range | -40 °C to +125 °C (3000 h) |
| Min. bending radius | 3 x cable dia. |



Composition of cable

| | |
|---------------|---|
| 1. Conductor | stranded bare copper |
| 2. Insulation | RADOX® 125, extruded radiation cross-linked polyolefin, various colours |

Characteristics and specialities

- halogen free
- excellent high and low temperature resistance
- ozone, weathering and hydrolysis resistance
- outstanding resistance against battery acids, humidity, petrol, brake fluids, engine coolant, window washer fluids, diesel and various oils
- flame retardant
- easy to strip and process

Application

Battery or power cable for use in road vehicle applications.

Standards

| Conductor | General |
|----------------------------------|-----------------------------|
| ISO 6722 | ISO 6722 class C, thin wall |
| DIN EN 13602, Cu-ETP1-A (CW003A) | |

For further technical details please refer to our data sheet.

RADOX® 125 M

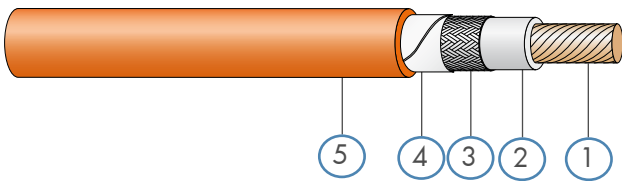
Extract from our delivery programme

| Cross-section mm ² | Conductor | | | Core | | Weight kg/100 m nom. |
|----------------------------------|-------------------------|---------------------|---------------------------------|---------------------------|----------------|----------------------------|
| | construction* n x mm | Diameter max. mm | resistance @ 20 °C max. Ω/km | wall thickness min. mm | Diameter mm | |
| 4 | 56 x 0.31 | 2.5 | 4.71 | 0.32 | 3.55 ± 0.15 | 4.07 |
| 6 | 84 x 0.31 | 3.0 | 3.14 | 0.32 | 4.15 ± 0.15 | 6.00 |
| 10 | 78 x 0.41 | 4.3 | 1.82 | 0.57 | 5.75 ± 0.15 | 10.40 |
| 16 | 126 x 0.41 | 5.5 | 1.16 | 0.60 | 6.90 ± 0.15 | 16.00 |
| 25 | 189 x 0.41 | 6.7 | 0.743 | 0.60 | 8.20 ± 0.15 | 23.70 |
| 35 | 273 x 0.41 | 7.9 | 0.527 | 0.70 | 9.70 ± 0.20 | 34.00 |
| 50 | 385 x 0.41 | 9.4 | 0.368 | 0.80 | 11.5 ± 0.20 | 48.10 |
| 70 | 360 x 0.51 | 11.6 | 0.259 | 0.80 | 13.7 ± 0.25 | 68.30 |
| 95 | 468 x 0.51 | 13.7 | 0.196 | 0.90 | 16.0 ± 0.25 | 88.60 |

* typical value x max. single wire diameter

RADOX® SCREENED BATTERY CABLE

| | |
|----------------------|---------------------------------------|
| Number of conductors | 1 (also available as multicore cable) |
| Cross section | 2.5 - 120 mm ² |
| Voltage rating | 600 / 1000 V AC |
| Temperature range | (-70°C) -40°C to +150°C (3000 h) |
| Min. bending radius | 4 x cable dia. |



Composition of cable

| | |
|---------------|--|
| 1. Conductor | stranded bare copper |
| 2. Insulation | RADOX® 155S for 2.5, 4.0, 6.0 mm ² ; RADOX® Elastomer S for > 6 mm ² |
| 3. EMC-Screen | Tin plated copper braid optimised |
| 4. Tape | Plastic |
| 5. Sheath | RADOX® Elastomer S, colour: orange |

Characteristics and specialities

- excellent high and low temperature resistance
- ozone and weathering resistance
- outstanding resistance against battery acid, diesel, various oils, engine coolant and window washer fluids
- resistance against humidity, petrol and brake fluids
- flame retardant
- soldering iron resistant
- easy to strip and process

Application

Screened power cable for use in hybrid vehicles.

Standards

| Conductor | General |
|----------------------------------|-----------------------------|
| ISO 6722 | ISO 6722 class D, thin wall |
| DIN EN 13602, Cu-ETP1-A (CW003A) | |

For further technical details please refer to our data sheet.

RADOX® SCREENED BATTERY CABLE

Extract from our delivery programme

| Cross-section mm ² | Conductor | | | Core | | | | Weight kg/100 m nom. |
|----------------------------------|-------------------------|---------------------|------------------------------------|--------------------------------------|----------------------------------|-----------------------------|---------------------------------------|----------------------------|
| | construction* n x mm | Diameter max. mm | resistance @ 20 °C max. Ω/km | Diameter of insulation nom. mm | Diameter of screen max. mm | Overall-Diameter nom. mm | Z _T @ <30MHz nom. m Ω/m | |
| 2.5 | 50 x 0.26 | 2.2 | 7.6 | 2.85 | 3.3 | 5.0 ± 0.3 | 100 | 4.8 |
| 4 | 56 x 0.31 | 2.75 | 4.71 | 3.55 | 4.0 | 5.8 ± 0.3 | 80 | 7.1 |
| 6 | 84 x 0.31 | 3.3 | 3.14 | 4.15 | 4.7 | 6.6 ± 0.3 | 70 | 10.0 |
| 10 | 78 x 0.41 | 4.3 | 1.82 | 5.75 | 6.3 | 8.4 ± 0.3 | 70 | 15.6 |
| 16 | 126 x 0.41 | 5.5 | 1.16 | 6.90 | 7.5 | 9.8 ± 0.3 | 50 | 23.0 |
| 25 | 189 x 0.41 | 6.7 | 0.743 | 8.20 | 8.9 | 11.2 ± 0.3 | 50 | 33.0 |
| 35 | 273 x 0.41 | 7.9 | 0.527 | 9.70 | 10.4 | 12.7 ± 0.3 | 30 | 44.5 |
| 50 | 385 x 0.41 | 9.4 | 0.368 | 11.5 | 12.6 | 14.9 ± 0.3 | 30 | 61.0 |
| 70 | 360 x 0.51 | 11.6 | 0.259 | 13.7 | 14.5 | 17.0 ± 0.3 | 20 | 85.0 |
| 95 | 468 x 0.51 | 13.7 | 0.196 | 16.0 | 17.1 | 19.6 ± 0.4 | 20 | 109 |

multicore cable designs on request

* typical value x max. single wire diameter

ADDITIONAL NOTES

RADOX® SENSOR CABLES

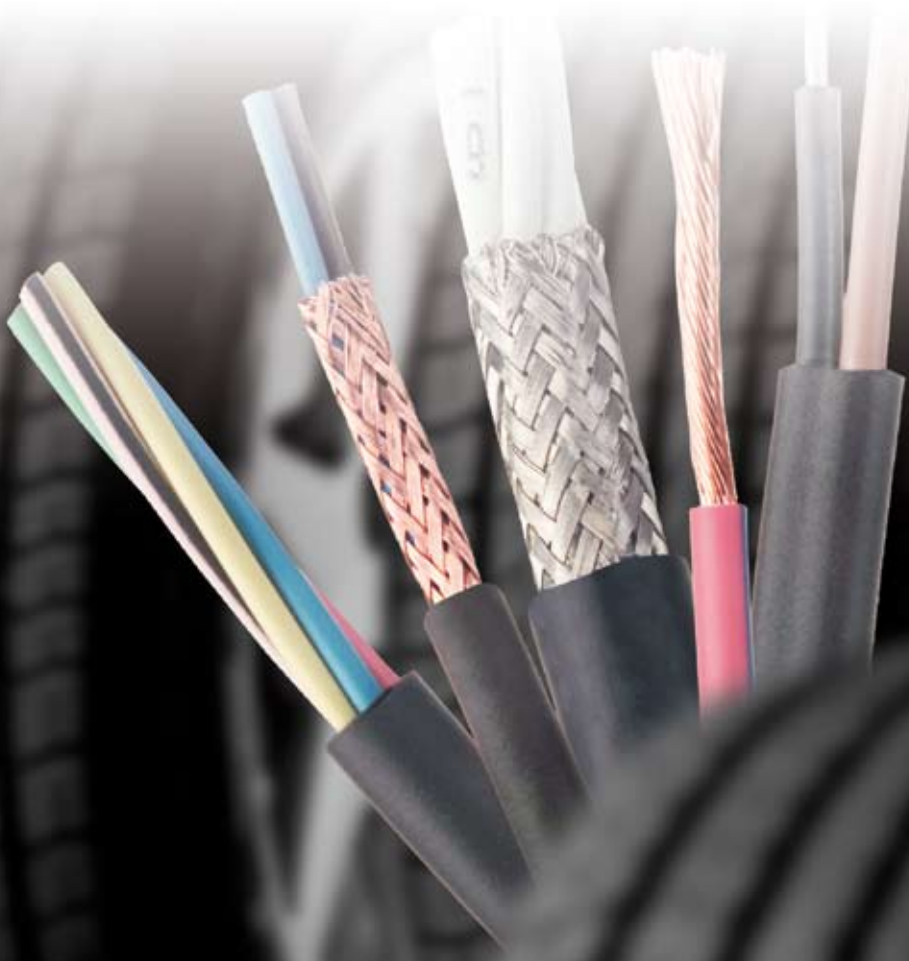
Sensor cables for road vehicles: Resistant to low and high temperatures, flame retardant, flexible and media resistant, customer specific designs.

Pressure, knock and temperature sensors are standard today, and sensors for seatbelt tighteners, automatic transmissions, diesel pumps, ABS/EPS systems, speed monitoring plus other applications are an increasing demand. It must be ensured that critical electrical circuits will perform faultlessly under the most adverse conditions.

Electrical systems for fan motors, water pumps, power steering, brakes and accelerators are increasingly replacing V-belts, various hydraulic motors and mecha-

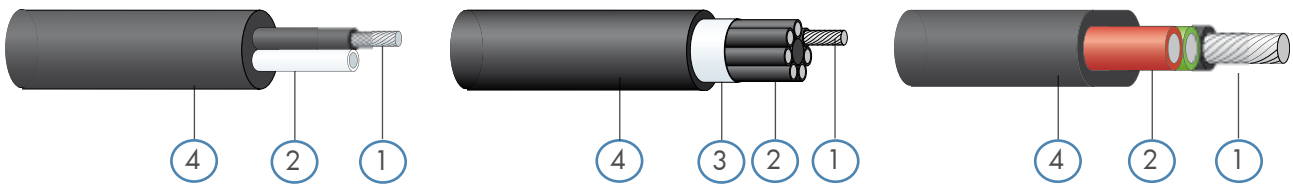
nical actuators. Sensor cables serve for controlling the electronics and supplying power to the electric motors.

- Temperature range -40°C to +150°C
- Resistant to motor oils, fuels, hydrolysis
- Electron beam crosslinked RADOX® insulation does not melt or flow at high temperatures
- Usable in automated processing
- Resistant to potting or overmoulding
- Compact and flexible



RADOX® SENSOR CABLES

| | |
|----------------------|-------------------------------------|
| Number of conductors | 1 to 50 |
| Cross section | 0.14 to 6 mm ² |
| Voltage rating | 60 to 600 V DC |
| Temperature range | (-55 °C) -40 °C to +150 °C (3000 h) |



Composition of cable

| | |
|---------------|---------------------------------------|
| 1. Conductor | stranded tinned or bare copper |
| 2. Insulation | various RADOX®, fluoropolymers |
| 3. EMC screen | copper braiding or aluminium tape |
| 4. Jacket | various RADOX®, TPU or fluoropolymers |

Characteristics and specialities

- high and low temperature resistance
- ozone and weathering resistance
- resistant to pressure at high temperature
- resistant to motor oils, fuels and hydrolysis
- flame retardant
- high abrasion resistance
- easy to strip and process

Application

Sensor cables for use in road vehicle applications.

Standards

| Conductor | General |
|----------------------------------|------------------------|
| DIN 72551 part 6 | ISO 6722 class C and D |
| ISO 6722 | ISO 14572 |
| DIN EN 13602, Cu-ETP1-A (CW003A) | ADR TÜV Approval |

For further technical details please refer to our data sheet.

RADOX® SENSOR CABLES

Customized cables to your requirements

- Round or flat cable?
- EMC shielding necessary?
- What degree of flexibility is required?
- Special temperature requirements?
- Special requirements for voltage rating, impedance, attenuation?
- Special chemical or environmental concerns?
- Potting or overmoulding?
- Special requirements on processing (crimping, welding, ultrasonic welding, etc.)?
- Approvals?

Our leads



single- or two-coloured

| Lead Type | Temperature Range | Cross-section | Designation |
|-----------------|-------------------|-----------------|---|
| | 3000 h | mm ² | |
| RADOX® 155S RW | -55 °C to +150 °C | 0.14 to 1 | Following "Ultra Thin Wall" according to ISO 6722, excellent media resistance, for applications where a small diameter is required. |
| RADOX® 155S FLR | -55 °C to +150 °C | 0.35 to 6 | "Thin Wall" according to ISO 6722, excellent media resistance, for standard applications. |
| PEX | -40 °C to +125 °C | 0.35 to 1 | Databus cable with 110/120 Ω impedance. |
| ETFE FLR | -55 °C to +200 °C | 0.35 to 6 | "Thin Wall" according to ISO 6722, excellent media resistance, such as hot oil. |

Our jacket materials

| Jacket Material | Temperature Range | Electron Beam Crosslinked | Mechanical Resistance | Flexibility | Media Resistance |
|--------------------|-------------------|---------------------------|-----------------------|-------------|------------------|
| | 3000 h | | | | |
| RADOX® Elastomer S | -70 °C to +150 °C | Yes | Very Good | Excellent | Excellent |
| RADOX® 155 | -55 °C to +150 °C | Yes | Good | Good | Good |
| RADOX® 125M | -40 °C to +150 °C | Yes | Good | Very good | Good |
| TPU | -40 °C to +125 °C | No | Very Good | Excellent | Good |

ADDITIONAL NOTES



RADOX® DATABUS CABLES

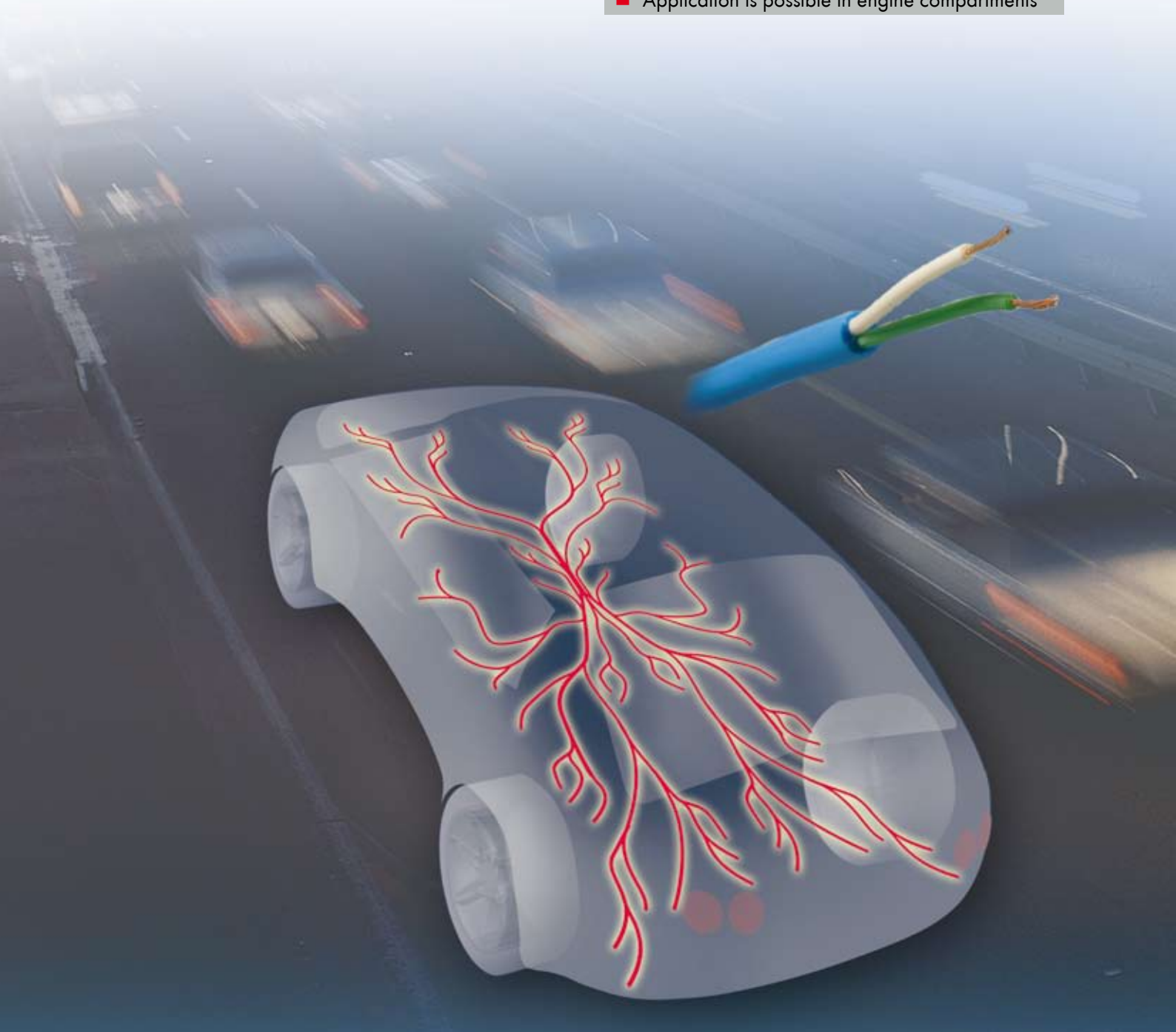
Optimum protection of sensitive data with RADOX®

The continuous growth in the application of electronic systems in road vehicles requires reliable databus cables for transmitting information at high frequencies. CAN, LIN, MOST, FlexRay and other applications have become part of the modern on-board network structures inside vehicles.

HUBER+SUHNER combines its know-how in data communications with electron beam crosslinked materials technology to offer cables meeting specifications such as SAE J1939-11, -15 or ISO 11898-2 (CAN).

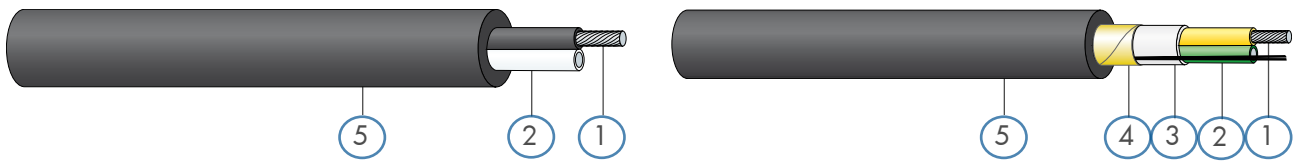
Using their electron beam crosslinked RADOX® insulation, the cables offer high thermal pressure resistance, resistance to fluids and good abrasion resistance, and they can be applied across a wide temperature range.

- Excellent dielectric performance
- Flame retardant insulation, neither melting nor flowing when exposed to high temperatures
- Operating temperature -40°C to +150°C
- Outstanding data transmission performance
- Optimal protection using RADOX® insulation
- Application is possible in engine compartments



RADOX® DATABUS CABLES

| | |
|----------------------|---|
| Number of conductors | 2 |
| Cross section | 0.35 - 0.75 mm ² |
| Voltage rating | 60 V DC |
| Temperature range | (-55°C) -40°C to +125°C (+150°C) (3000 h) |
| Min. bending radius | 4 x cable dia. |



Composition of cable

| | |
|------------------------------------|---|
| 1. Conductor | stranded tinned or bare copper |
| 2. Insulation | various RADOX® insulation materials or PE-X |
| 3. Sheath | various RADOX® jacket materials |
| 4. Aluminium screen and drain wire | plastic laminated aluminium tape |
| 5. Sheath | various RADOX® jacket materials or TPU |

Characteristics and specialities

- excellent dielectric performance
- outstanding data transmission performance
- possible application in engine compartments
- high and low temperature resistance
- flame retardant

Application

Databus cable for transmitting information at high frequencies in road vehicles.

Standards

| Conductor | General |
|----------------------------------|------------------------|
| DIN 72551 part 6 | ISO 6722 class C and D |
| ISO 6722 | ISO 14572 |
| DIN EN 13602, Cu-ETP1-A (CW003A) | SAE J1939-11 /-15 |

For further technical details please refer to our data sheet.

RADOX® DATABUS CABLES

Extract from our delivery programme

Cable types

| Cross-section mm ² | Conductor | | | Core | | Screen | Outside diameter |
|----------------------------------|-------------------------|---------------------|---------------------------------|---------------------------|----------------|-------------------|------------------|
| | construction* n x mm | Diameter max. mm | resistance @ 20 °C max. Ω/km | wall thickness min. mm | Diameter mm | aluminium tape | mm |
| 2 x 0.35 | 7 x 0.26 | 0.77 | 52.0 | 0.66 | 2.1 | No | 5.6 |
| 2 x 0.50 | 19 x 0.18 | 0.89 | 37.1 | 0.80 | 2.5 | No | 6.2 |
| 2 x 0.75 | 19 x 0.22 | 1.10 | 24.7 | 0.95 | 3.0 | No | 7.2 |
| 2 x 0.35 | 7 x 0.26 | 0.77 | 52.0 | 0.66 | 2.1 | Yes | 8.0 |
| 2 x 0.50 | 19 x 0.18 | 0.89 | 37.1 | 0.80 | 2.5 | Yes | 8.3 |
| 2 x 0.75 | 19 x 0.22 | 1.10 | 24.7 | 0.95 | 3.0 | Yes | 10.7 |

* typical value x max. single wire diameter

Jacket materials

| Jacket material | Temperature Range | Electron Beam Crosslinked | Flexibility | Media Resistance |
|--------------------|-------------------|------------------------------|-------------|------------------|
| | 3000 h | | | |
| RADOX® Elastomer S | -70 °C to +150 °C | Yes | Excellent | Excellent |
| RADOX® 155 | -55 °C to +150 °C | Yes | Good | Good |
| TPU | -40 °C to +125 °C | No | Excellent | Good |

AUTOMOTIVE CABLE SYSTEMS (ACS)

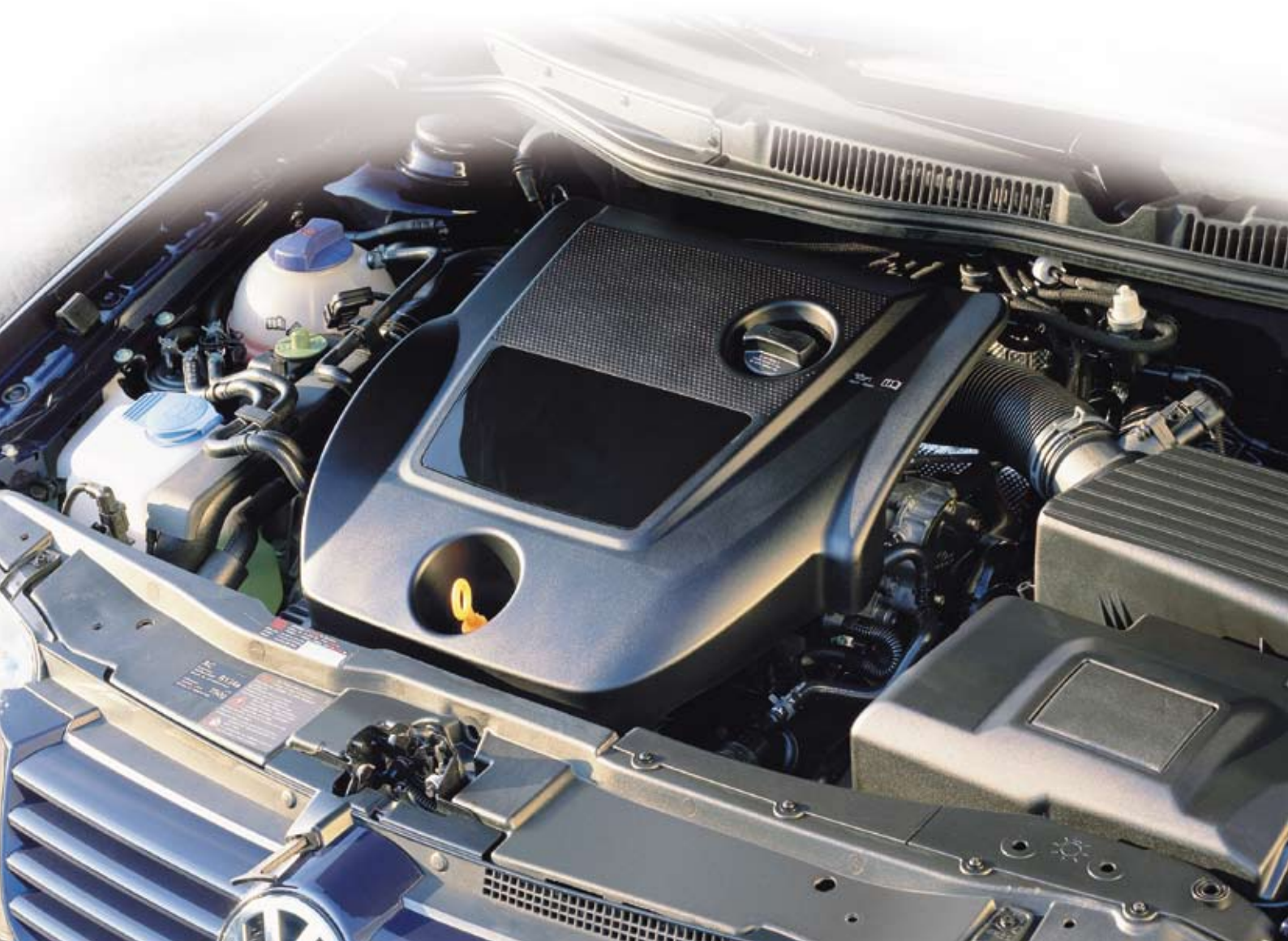
High resistance of cables against fluids and high temperatures are increasingly required for applications in the field of Automotive.

HUBER+SUHNER offers complete cable system solutions for Automotive, customized to your requirements. HUBER+SUHNER is your professional partner for the development and manufacture of harnesses and sophisticated cable systems, as well as for the according processing.

Our engineers support you from A to Z, already in the design phase of your project by developing your complex cable system solutions from scratch, and then in the manufacturing of small series as well as high volume production.

We are able to offer our customers turnkey system solutions from one source, as well as operational flexibility, due to various production sites in different parts of the world.

- Development of cable systems
- Injection moulding for cables
- Injection moulding for connectors
- Barrier sealed and waterproof system solutions



AUTOMOTIVE CABLE SYSTEMS (ACS)



Cable design and processing

- Customer-specific cable design and processing
- Process reliability through early involvement in the development of the product
- Different cable types, from single core to multi core, various RADOX® insulations, barrier sealed, etc.



Cable system solutions

- Development of complex, customer-specific cable systems
- Injection moulding for cables and connectors
- Waterproof system solutions
- Longitudinal water tightness
- Modules with integrated circuit boards, resistors, etc.
- Injection moulded terminals



High voltage junction boxes with high voltage wiring system

- Design, development and manufacturing of high voltage junction boxes including high voltage wiring system
- Customer-specific solutions for hybrid- and electric vehicles
- Analysis of available space for adapted systems
- Laboratory-validation to guarantee series-capability

ADDITIONAL NOTES

ADDITIONAL INFORMATION AWC

Technical and delivery information

In this chapter you find the following, additional and useful information about Automotive Wire+Cable:

- RADOX®: details and advantages
- Temperature classes
- Current carrying capacity
- Reels, coils and packaging



RADOX®: DETAILS AND ADVANTAGES

RADOX® does not melt!

Thermoplastic insulation materials are sometimes used for automotive wiring. Products such as PVC, PP, PE, PA, TPE and Fluoropolymers are used. These materials all have a melting point and at certain temperature peaks in specific applications they eventually melt with the risk of creating a short circuit. RADOX® does not melt and therefore provides an extra safety margin for automotive applications.

RADOX® withstands temperature peaks!

Since RADOX® is not melting, it will withstand temperature peaks above the defined temperature range. A typical Automotive RADOX® cable is specified for applications between -40 and +150°C based on a lifetime of 3000 h. Higher temperature peaks are possible, RADOX® does not melt. There is a rule of thumb that states, +10°C temperature increase reduces lifetime by half (160°C/1500 h, 170°C/750 h, etc.), the converse also applies.

RADOX® extends lifetime at lower temperature!

In general automotive cables are defined with different temperature ratings based on 3000 h. This makes sense in most of the cases since 3000 h corresponds to 150'000 km lifetime for a car (at 50km/h average speed). If any application asks for a longer lifetime, especially with trucks and buses, RADOX® is the choice. By using a 150°C rated RADOX® cable at 120°C, this will extend lifetime to 24,000 h or 1,200,000 km.

RADOX® withstands low temperatures!

Automotive specifications define clear temperature ranges. These ranges often start at -40°C and go up to 100, 125, 150, 175°C, etc. The range is described as class B, C, D or T2, T3 and T4 and so on. RADOX® can do better than that! REMS will withstand -70°C, RADOX 155S and 155 at least -55°C. This creates other possibilities where for example a standard PVC will not do the job.

TEMPERATURE CLASSES

Temperature classes for cables

Automotive specifications define clear temperature ranges. These ranges often start at -40°C and go up to 80°C, 100°C, 125°C, 150°C, 175°C, etc. The range is described as class A, B, C, D, E, F, G and H or T1, T2, T3, T4, T5 and T6. These temperature classes are defined according to ISO 6722, the ratings are valid for 3000 hours.

| Class Rating | Temperature | Materials |
|--------------|-----------------|------------------------------------|
| H | -40°C to +250°C | Fluoropolymers |
| G | -40°C to +225°C | Fluoropolymers |
| F (6) | -40°C to +200°C | Fluoropolymers, Silicone |
| E (5) | -40°C to +175°C | Fluoropolymers, Silicone |
| D (4) | -40°C to +150°C | Fluoropolymers, Polyesters, RADOX® |
| C (3) | -40°C to +125°C | PE-X, TPE, PVC-X, RADOX® |
| B (2) | -40°C to +100°C | PE-X, TPE, PVC |
| A (1) | -40°C to +85°C | PVC |

CURRENT CARRYING CAPACITY

of RADOX® 155 and REMS battery cables and RADOX® 155 SFLR single core cables

Scope

This document provides guidelines for the selection of cable cross-sections with regard to the current rating for continuous operation.

Definitions

| | |
|-----------------------------------|---|
| Current load | current passed through the cable during operation |
| Continuous operation | an operation with constant current whose duration is at least long enough to allow the system to reach thermal equilibrium, but may then go on indefinitely |
| Current rating | maximum permissible current under determined operating |
| Permissible operating temperature | maximum permissible temperature on the conductor in continuous operation |

General remarks

The current carrying capacity of cables depends on:

- Conductor material (copper, copper alloy, aluminium, steel)
- Surface treatment of the conductor (plain, tinned, silver plated, nickel plated)
- Conductor cross section
- Thermal capacity of the insulation material
- Ambient temperature
- Installation mode (free in the air, in cable trays, in earth)
- Accumulation (single core, several cores spaced, bundles)
- Other ambient effects (sun-radiation, UV)

The conductor cross section has to be selected in such a way that the actual current load does not exceed the current rating, i.e. the conductor temperature does not exceed the permissible operating temperature. The determining factor is the appropriate, most unfavourable operating condition, encountered during operation over the whole length of the cable.

Current rating under service conditions

$$I = I_N \cdot f_1 \cdot f_2 \cdot f_3$$

I [A] Current rating for continuous operation under service conditions

I_N [A] Current rating for continuous operation under standard conditions

f_1 Reduction factor for increased ambient temperature

f_2 Conversion factor for deviated conductor temperature

f_3 Reduction factor for multicore cables

Standard conditions for current rating

The tabled values for the current rating were calculated according to IEC 60287 for the following standard conditions:

- continuous operation
- single circuit for 3-phase current, single conductor for 1-phase current
- 30 °C ambient temperature and sufficiently large and ventilated spaces, whose ambient temperature is not appreciably increased by the heat coming from the cables.
- 150 °C conductor temperature
- ISO 6722: 3'000 h / 150 °C winding test
- frequency from 0 Hz (DC) up to 200 Hz (AC)

CURRENT CARRYING CAPACITY

of RADOX® 155 and REMS battery cables and RADOX® 155 SFLR single core cables

Installation in air, unrestricted heat dissipation, means that the following installation conditions are observed:

- distance of the cables from the wall, from the floor, from the ceiling \geq cable diameter
- distance between two adjacent power circuits $\geq 2 \times$ cable diameter
- vertical distance between power circuits laid one upon another for individual cables $\geq 2 \times$ cable diameter
for layers of cables > 200 mm
- perforated tray with a perforation $> 30 \%$ of the total surface

Open trays are continuous supports with vertical sides, but without cover. A possible perforation accounts for $\leq 30\%$ of the total surface.

Closed ducts are entirely closed. Pipes belong to this category also. The max. filling degree is 70%.

Reduction factors for increased ambient temperature

| | | | | | | | | | | | | | | | | | | |
|--|----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ambient temp. [°C] | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 | 95 | 100 | 105 | 110 | 115 |
| Reduction factor f_1 | 1 | 0.97 | 0.94 | 0.91 | 0.88 | 0.85 | 0.82 | 0.78 | 0.75 | 0.71 | 0.67 | 0.62 | 0.58 | 0.53 | 0.47 | 0.41 | 0.33 | 0.22 |

Reduction factors for different permissible conductor temperature

| | | | | | | |
|--|-----|------|------|------|------|------|
| Conductor temp. [°C] | 150 | 140 | 130 | 120 | 110 | 100 |
| Reduction factor f_2 | 1 | 0.96 | 0.91 | 0.85 | 0.79 | 0.72 |

Life time expectation

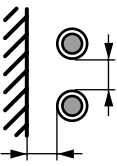

If crosslinked wires are used at higher temperatures than indicated by the temperature rating in ISO 6722, the life time is reduced accordingly. Analogical, the life time will increase at lower temperature. RADOX® 155 for example has a life span of 3'000 h at a conductor temperature of +150 °C. If it is used at another temperature, life time expectations are as follows:

Example on basis RADOX® 155, REMS and RADOX® 155 SFLR

| | |
|---------------|----------------|
| 180 °C | 375 h |
| 170 °C | 750 h |
| 160 °C | 1500 h |
| 150 °C | 3000 h |
| 140 °C | 6000 h |
| 130 °C | 12000 h |
| 120 °C | 24000 h |

CURRENT CARRYING CAPACITY

of RADOX® 155 and REMS battery cables and RADOX® 155 SFLR single core cables

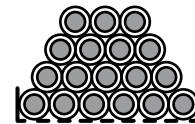
| Installation method | Connecting lead in free air or perforated tray | | | | | | | | | | | |
|---|---|--|------|------|------|------|------|------|------|------|------|--|
| Number of simultaneous loaded conductors on each tray |  |  | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 6 | 8 | 10 | 16 | 20 | 4 | 6 | |
| Reduction factor f_3 | 1 | 0.87 | 0.81 | 0.78 | 0.75 | 0.74 | 0.73 | 0.72 | 0.71 | 0.71 | 0.62 | |
| Copper conductor cross section mm^2 | Current carrying capacity in [A] | | | | | | | | | | | |
| 0.35 | 16 | 13.9 | 13.0 | 12.5 | 12.0 | 11.8 | 11.7 | 11.5 | 11.4 | 11.4 | 9.9 | |
| 0.50 | 21 | 18.3 | 17.0 | 16.4 | 15.8 | 15.5 | 15.3 | 15.1 | 14.9 | 14.9 | 13.0 | |
| 0.75 | 27 | 24 | 22 | 22 | 21 | 20 | 20 | 20 | 20 | 20 | 17 | |
| 1 | 32 | 28 | 26 | 25 | 24 | 24 | 24 | 24 | 23 | 23 | 20 | |
| 1.5 | 41 | 36 | 34 | 32 | 31 | 31 | 30 | 30 | 30 | 30 | 26 | |
| 2.5 | 56 | 49 | 46 | 44 | 42 | 42 | 41 | 41 | 40 | 40 | 35 | |
| 4 | 76 | 67 | 62 | 60 | 57 | 57 | 56 | 55 | 54 | 54 | 48 | |
| 6 | 98 | 86 | 80 | 77 | 74 | 73 | 72 | 71 | 70 | 70 | 61 | |
| 10 | 143 | 125 | 116 | 112 | 108 | 106 | 105 | 103 | 102 | 102 | 89 | |
| 16 | 192 | 168 | 156 | 150 | 144 | 143 | 141 | 139 | 137 | 137 | 120 | |
| 25 | 255 | 222 | 207 | 199 | 192 | 189 | 187 | 184 | 182 | 182 | 159 | |
| 35 | 320 | 279 | 260 | 250 | 240 | 237 | 234 | 231 | 228 | 228 | 199 | |
| 50 | 408 | 355 | 331 | 319 | 306 | 302 | 298 | 294 | 290 | 290 | 253 | |
| 70 | 513 | 447 | 416 | 401 | 385 | 380 | 375 | 370 | 365 | 365 | 319 | |
| 95 | 623 | 543 | 505 | 486 | 468 | 462 | 455 | 449 | 443 | 443 | 387 | |

CURRENT CARRYING CAPACITY

of RADOX® 155 and REMS battery cables and RADOX® 155 SFLR single core cables

Continuous current rating

conductor temperature +150 °C, ambient temperature +30 °C

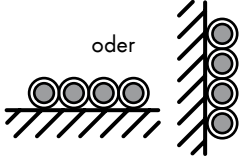
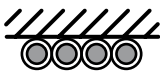


| | | | | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 8 | 10 | 16 | 20 | 4 | 6 | 8 | 10 | 16 | 20 | 4 | 6 | 8 | 10 | 16 | 20 |
| 0.57 | 0.53 | 0.47 | 0.45 | 0.67 | 0.59 | 0.54 | 0.50 | 0.45 | 0.43 | 0.71 | 0.58 | 0.52 | 0.48 | 0.41 | 0.38 |

| | | | | | | | | | | | | | | | |
|------|------|-----|-----|------|------|------|------|-----|-----|------|------|------|------|-----|-----|
| 9.1 | 8.5 | 7.5 | 7.2 | 10.7 | 9.4 | 8.6 | 8.0 | 7.2 | 6.9 | 11.4 | 9.3 | 8.3 | 7.7 | 6.6 | 6.1 |
| 12.0 | 11.1 | 9.9 | 9.5 | 14.1 | 12.4 | 11.3 | 10.5 | 9.5 | 9.0 | 14.9 | 12.2 | 10.9 | 10.1 | 8.6 | 8.0 |
| 16 | 15 | 13 | 13 | 19 | 16 | 15 | 14 | 13 | 12 | 20 | 16 | 15 | 13 | 12 | 11 |
| 19 | 17 | 16 | 15 | 22 | 19 | 18 | 16 | 15 | 14 | 23 | 19 | 17 | 16 | 14 | 13 |
| 24 | 22 | 20 | 19 | 28 | 25 | 23 | 21 | 19 | 18 | 30 | 24 | 22 | 20 | 17 | 16 |
| 32 | 30 | 27 | 26 | 38 | 34 | 31 | 28 | 26 | 25 | 40 | 33 | 30 | 27 | 23 | 22 |
| 44 | 41 | 36 | 35 | 51 | 45 | 42 | 38 | 35 | 33 | 54 | 45 | 40 | 37 | 32 | 29 |
| 56 | 52 | 47 | 45 | 66 | 58 | 53 | 49 | 45 | 43 | 70 | 57 | 51 | 48 | 41 | 38 |
| 82 | 76 | 68 | 65 | 96 | 85 | 78 | 72 | 65 | 62 | 102 | 83 | 75 | 69 | 59 | 55 |
| 110 | 102 | 91 | 87 | 129 | 114 | 104 | 96 | 87 | 83 | 137 | 112 | 100 | 93 | 79 | 73 |
| 146 | 136 | 120 | 115 | 171 | 151 | 138 | 128 | 115 | 110 | 182 | 148 | 133 | 123 | 105 | 97 |
| 183 | 170 | 151 | 144 | 215 | 189 | 173 | 160 | 144 | 138 | 228 | 186 | 167 | 154 | 132 | 122 |
| 233 | 217 | 192 | 184 | 274 | 241 | 221 | 204 | 184 | 176 | 290 | 237 | 213 | 196 | 168 | 156 |
| 293 | 272 | 242 | 231 | 344 | 303 | 278 | 257 | 231 | 221 | 365 | 298 | 267 | 247 | 211 | 195 |
| 356 | 331 | 293 | 281 | 418 | 368 | 337 | 312 | 281 | 268 | 443 | 362 | 324 | 300 | 256 | 237 |

CURRENT CARRYING CAPACITY

of RADOX® 155 and REMS battery cables and RADOX® 155 SFLR single core cables

| Installation method | on floor or wall | | | | fixed on a ceiling or under floor | | | | | | | |
|---|---|------|------|------|---|------|------|------|------|------|------|------|
| Number of simultaneous loaded conductors on each tray |  | | | |  | | | | | | | |
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Reduction factor f_3 | 1 | 0.85 | 0.79 | 0.75 | 0.95 | 0.81 | 0.72 | 0.68 | 0.66 | 0.64 | 0.63 | 0.62 |
| Copper conductor cross section mm^2 | Current carrying capacity in [A] | | | | | | | | | | | |
| 0.35 | 13 | 11.1 | 10.3 | 9.8 | 12.4 | 10.5 | 9.4 | 8.8 | 8.6 | 8.3 | 8.2 | 8.1 |
| 0.50 | 17 | 14.5 | 13.4 | 12.8 | 16.2 | 13.8 | 12.2 | 11.6 | 11.2 | 10.9 | 10.7 | 10.5 |
| 0.75 | 23 | 20 | 19 | 18 | 22 | 19 | 17 | 16 | 16 | 15 | 15 | 15 |
| 1 | 27 | 23 | 22 | 21 | 26 | 22 | 20 | 19 | 18 | 18 | 18 | 17 |
| 1.5 | 34 | 29 | 27 | 26 | 33 | 28 | 25 | 24 | 23 | 22 | 22 | 22 |
| 2.5 | 48 | 41 | 38 | 36 | 46 | 39 | 35 | 33 | 32 | 31 | 31 | 30 |
| 4 | 68 | 58 | 54 | 51 | 65 | 56 | 49 | 47 | 45 | 44 | 43 | 43 |
| 6 | 87 | 74 | 69 | 66 | 83 | 71 | 63 | 60 | 58 | 56 | 55 | 54 |
| 10 | 128 | 109 | 102 | 96 | 122 | 104 | 93 | 88 | 85 | 82 | 81 | 80 |
| 16 | 173 | 148 | 137 | 130 | 165 | 141 | 125 | 118 | 115 | 111 | 109 | 108 |
| 25 | 231 | 197 | 183 | 174 | 220 | 188 | 167 | 158 | 153 | 148 | 146 | 144 |
| 35 | 292 | 249 | 231 | 219 | 278 | 237 | 211 | 199 | 193 | 187 | 184 | 182 |
| 50 | 373 | 318 | 295 | 280 | 355 | 303 | 269 | 254 | 247 | 239 | 235 | 232 |
| 70 | 471 | 401 | 373 | 354 | 448 | 382 | 340 | 321 | 311 | 302 | 297 | 293 |
| 95 | 573 | 488 | 453 | 430 | 545 | 465 | 413 | 390 | 379 | 367 | 361 | 356 |

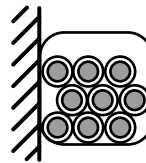
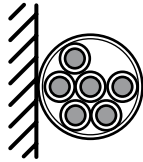
CURRENT CARRYING CAPACITY

of RADOX® 155 and REMS battery cables and RADOX® 155 SFLR single core cables

Continuous current rating

conductor temperature +150 °C, ambient temperature +30 °C

in conduit, in a void or in a pipe



| | | | | | | | | | | | | | | |
|------|---|------|------|------|------|------|------|------|------|------|------|------|------|------|
| ≥ 9 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 14 | 16 | 20 |
| 0.61 | 1 | 0.80 | 0.70 | 0.65 | 0.60 | 0.57 | 0.54 | 0.52 | 0.50 | 0.48 | 0.45 | 0.43 | 0.41 | 0.38 |

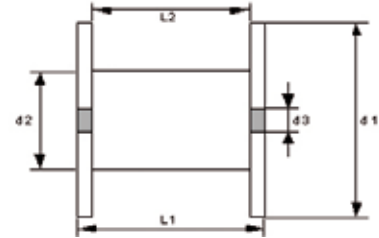
| | | | | | | | | | | | | | | |
|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 7.9 | 10.0 | 8.0 | 7.0 | 6.5 | 6.0 | 5.7 | 5.4 | 5.2 | 5.0 | 4.8 | 4.5 | 4.3 | 4.1 | 3.8 |
| 10.4 | 15.0 | 12.0 | 10.5 | 9.8 | 9.0 | 8.6 | 8.1 | 7.8 | 7.5 | 7.2 | 6.8 | 6.5 | 6.2 | 5.7 |
| 15 | 20 | 16 | 14 | 13 | 12 | 12 | 11 | 11 | 10 | 10 | 9 | 9 | 9 | 8 |
| 17 | 24 | 20 | 17 | 16 | 15 | 14 | 13 | 13 | 12 | 12 | 11 | 11 | 10 | 10 |
| 21 | 30 | 24 | 21 | 20 | 18 | 18 | 17 | 16 | 15 | 15 | 14 | 13 | 13 | 12 |
| 30 | 39 | 32 | 28 | 26 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 |
| 42 | 54 | 44 | 38 | 36 | 33 | 31 | 30 | 29 | 27 | 26 | 25 | 24 | 23 | 21 |
| 54 | 70 | 56 | 49 | 46 | 42 | 40 | 38 | 37 | 35 | 34 | 32 | 31 | 29 | 27 |
| 79 | 95 | 76 | 67 | 62 | 57 | 55 | 52 | 50 | 48 | 46 | 43 | 41 | 39 | 37 |
| 106 | 131 | 105 | 92 | 86 | 79 | 75 | 71 | 69 | 66 | 63 | 59 | 57 | 54 | 50 |
| 141 | 175 | 140 | 123 | 114 | 105 | 100 | 95 | 91 | 88 | 84 | 79 | 76 | 72 | 67 |
| 179 | 217 | 174 | 152 | 142 | 131 | 124 | 118 | 113 | 109 | 105 | 98 | 94 | 89 | 83 |
| 228 | 273 | 219 | 192 | 178 | 164 | 156 | 148 | 142 | 137 | 132 | 123 | 118 | 112 | 104 |
| 288 | 342 | 274 | 240 | 223 | 206 | 195 | 185 | 178 | 171 | 165 | 154 | 148 | 141 | 130 |
| 350 | 424 | 340 | 297 | 276 | 255 | 242 | 229 | 221 | 212 | 204 | 191 | 183 | 174 | 162 |











REELS, COILS AND PACKAGING

Theoretical Capacity for Delivery on Reels

Legend

- d1 = Flange diameter (mm)
- d2 = Core diameter (mm)
- d3 = Borehole diameter (mm)
- L1 = Outside width (mm)
- L2 = Winding width (mm)



| Reel Type | Plastic reel No. 7 | Plastic reel DIN 250 | Plastic reel L355 | Plywood reel L450 | Plywood reel L500 | Plywood reel LHL710 | Wooden reel LHL 900 | Wooden reel LHL 1050 | Reusable NPS coil 250x400 (CK2) | Reusable NPS coil 400x400 (CK4) |
|----------------------------|---|---|---|---|---|---|--|---|---|---|
| |  |  |  |  |  |  |  |  |  |  |
| d1 (mm) | 170 | 250 | 355 | 450 | 500 | 710 | 900 | 1050 | 400 | 400 |
| d2 (mm) | 65 | 160 | 180 | 200 | 250 | 360 | 450 | 550 | 208 - 260 | 176 - 260 |
| L1 (mm) | 135.3 | 200 | 167 | 244 | 321 | 430 | 545 | 698 | 313 | 463 |
| L2 (mm) | 130 | 160 | 142 | 228 | 305 | 400 | 450 | 600 | 250 | 400 |
| d3 (mm) | 60 | 22 | 36 | 50 | 50 | 82 | 82 | 82 | 80 | 80 |
| Tara (kg) | 0.1507 | 0.71 | 1.04 | 2.48 | 3.16 | 10 | 36 | 53 | 2.4 | 2.7 |
| Cable diameter (mm) | Cable length per delivery reel (m) | | | | | | | | | |
| 1 | 2000 | 3700 | 7200 | | | | | | | |
| 2 | 500 | 920 | 1800 | 5600 | | | | | | |
| 4 | 130 | 230 | 460 | 1400 | 2200 | 6400 | | | | |
| 6 | | 100 | 210 | 650 | 1000 | 2800 | 4700 | 8000 | | |
| 8 | | | 120 | 350 | 550 | 1600 | 2600 | 4500 | | |
| 10 | | | | 240 | 360 | 1050 | 1700 | 3000 | | |
| 12 | | | | 150 | 250 | 720 | 1200 | 2000 | | |
| 14 | | | | 120 | 180 | 640 | 880 | 1500 | | |
| 16 | | | | | 140 | 420 | 660 | 1150 | | |
| 18 | | | | | 110 | 330 | 530 | 910 | | |
| 20 | | | | | | 260 | 420 | 760 | | |

For details about length, instruction manual and accessories ask for separate documentation.

ADDITIONAL NOTES

AUTOMOTIVE RADIO FREQUENCY COMPONENTS (ARC)

Modern communication technologies are being exploited and stretched by a variety of current and future automotive applications such as navigation systems, congestion and road toll charging systems, breakdown calls, remote start, traffic information, mobile communications and cutting-edge audio systems.

The ARC connector series meets exactly this requirements of automotive electronics in the fields of multimedia, telematics, safety and security.

ARC connectors are compatible with the international ISO 20860, the North American SAE/USCAR 17/18 and the German DIN 72594 (FAKRA) standard.

Our RF portfolio also includes a wide range of SMB and micro coax connectors (Series MMBX, MMCX and MCX) as well as RF cables and adaptors.

HUBER+SUHNER has over 60 years of knowledge in the design and manufacturing of RF connectors.

We provide our customers with optimised solutions. We use several different types of technologies, including metal cutting, die-casting, stamping and bending, injection moulding and galvanic surface plating.

Our core metal cutting technology produces a consistent high quality, high precision and flexible design.



RF COMPONENTS (ARC)

| | |
|---|----------------|
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| Connector Families | |
| Modular ARC Straight Connectors (FAKRA) | 59 - 76 |
| ARC Angled Connectors | 77 - 82 |
| ARC Chassis Connectors | 83 - 86 |
| ARC PCB Connectors | 87 - 94 |
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| Mounting Holes | 108 - 110 |
| Cable Dimensions Overview | 111 |

INTRODUCTION ARC

Today's Automotive market demands more environmentally friendly materials, smaller and lighter weight products, less expensive solutions that are engineered to maximize driver safety.

Applications

The ARC series (Automotive Radio Frequency Components) is a range of RF connectors, which has been specially developed for telematics, multimedia, safety and security applications in cars and heavy duty vehicles, such as global positioning systems (GPS), AM/FM and digital satellite radio, navigation systems, cellular phones, vehicular internet access, mobile television, etc.



14 mechanical and colour codings

The design of the connector interface is based on the proven SMB connector series to IEC 169-10, but includes an additional plastic housing. This housing contains a mechanical locking device which prevents disconnecting in high vibration environments.

Our connectors are space- and weight-saving, and they offer 14 mechanical and colour codings which virtually rule out confusions during connection.

| A | B | C | D | E | F | G | H | I | K | L | M | N | Z |
|-------|-------------|------|----------|-------|-------|------|---------|-------|-------|-------------|---------------|--------------|------------|
| Black | Cream white | Blue | Bordeaux | Green | Brown | Grey | Violett | Beige | Curry | Carmine red | Pastel orange | Pastel green | Water blue |
| 9005 | 9001 | 5005 | 4004 | 6002 | 8011 | 7031 | 4003 | 1001 | 1027 | 3002 | 2003 | 6019 | 5021 |
| | | | | | | | | | | | | | |

Two locks for twice the security

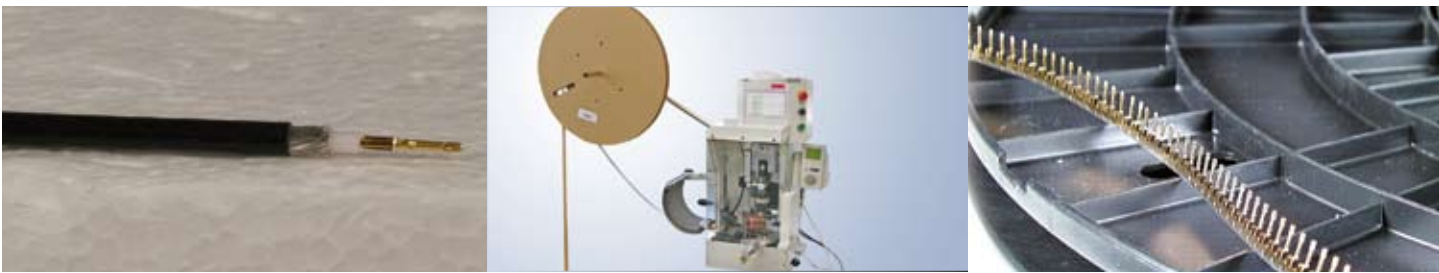
HUBER+SUHNER FAKRA ARC connectors feature two latches – one to secure the interface in the correct reference plane and one to provide extra support to increase the pull out force. Both latches can be quickly unlocked in order to remove the plastic housing.

Suitable cables

HUBER+SUHNER cable connectors can be processed with the most common automotive 50 and 75 Ω cables, e.g. RG_178, RG_174, low loss, RG_58, etc. Dimensions see page 111. Other dimensions on request.

Automated center pin crimping

Based on stamp and bend technology, HUBER+SUHNER straight inline cable connectors feature a B-crimp centre pin. Unlike square crimp centre pins, the B-crimp centre pins are delivered on reels for higher automation through the use of a semi-automatic machine.



Definition of PLUG and JACK

A plug/male is a connector featuring the active mating part (plastic latch and metal socket).

A jack/female is a connector featuring the passive mating part (plastic nose and metal pin). **This definition is not consistent among other suppliers, where the inner conductor is defining the sex.**

Chamber compatibility (according to VW-definition)

The interface dimensions of chamber compatible cable connectors are also compliant to the ISO 20860, DIN 72594 (FAKRA) and SAE/USCAR 17/18 standard. These connectors feature a standardised (VW-defined) metal body outer contour which fits a certain design of a plastic housing.

DIN (FAKRA) / SAE / USCAR / ISO

These standards regulate the design, technical properties and use of RF connectors in road vehicles. As a permanent member of the FAKRA Committee (Automotive Standards Committee of DIN) HUBER+SUHNER is always up to date with discussions on standards.

Environmental statements:

HUBER+SUHNER ARC connectors comply with the following EU Directives:

- 2002/95/EC - Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS)
- 2002/96/EC - on Waste Electrical and Electronic Equipment
- 2000/53/EC - on end-of-life vehicles

TECHNICAL DATA / SERIES ARC

| General information | |
|---------------------------|--------------------|
| Interface compatible with | DIN 72594 (FAKRA)* |
| | SAE/USCAR 17/18 |
| | ISO 20860 |

| Electrical information (initial) | |
|--|--|
| Impedance | 50 Ω (75 Ω) |
| Frequency range | DC ... 6 GHz |
| Screening effectiveness | ≥ 65 dB up to 1 GHz |
| Dielectric withstanding voltage (at sea level) | ≥ 800 Vrms, 50 Hz (depending on cable) |
| Insulation resistance | > 1000 MΩ |
| Contact resistance | ≤ 5 mΩ |
| Working current | 1.0 A DC |

| Mechanical information | |
|------------------------------|------------------------------|
| Durability (matings) | ≥ 25 |
| Engagement force | 25 N max. |
| Disengagement force | 2 N min. |
| Outer contact pull out force | ≥ 110 N (depending on cable) |

| Environmental information | |
|---------------------------|--|
| Temperature range | -40 °C to +105 °C |
| Temperature shock | Design verification test plan HUBER+SUHNER |
| Corrosion | Design verification test plan HUBER+SUHNER |
| Vibration | Design verification test plan HUBER+SUHNER |

Design verification test plan HUBER+SUHNER is in accordance with DIN 72594-2, SAE/USCAR-17 and ISO 20860-2

| Material data | | |
|------------------|--|----------------------|
| | Material | Plating |
| Bodies | brass | nickel, gold, silver |
| Centre contact | brass, spring bronze, beryllium-copper | SUCOPRO, gold |
| Crimp ferrule | copper | nickel |
| Insulator | PPE, PTFE, PFA, POM or PA | |
| Springs | beryllium-copper, hardenend | |
| Plastic housings | PPE, POM, PBT or PA | |

* FAKRA = Normausschuss Kraftfahrzeuge (DIN)

Some connectors may have a specification that differs from the above mentioned data.

The products are designed and guaranteed to pass the above mentioned test procedures. Any additional or different requirement arising from specific applications or environmental conditions which is not covered by these test procedures is subject to request.

ADDITIONAL NOTES



ADDITIONAL NOTES

RF Components (ARC)

MODULAR ARC STRAIGHT CONNECTORS (FAKRA)

Economies of scale and optimised modularity

The modular ARC straight connector offers customers full modularity. The combination of stamping and bending, injection moulding and milling technology makes this possible.

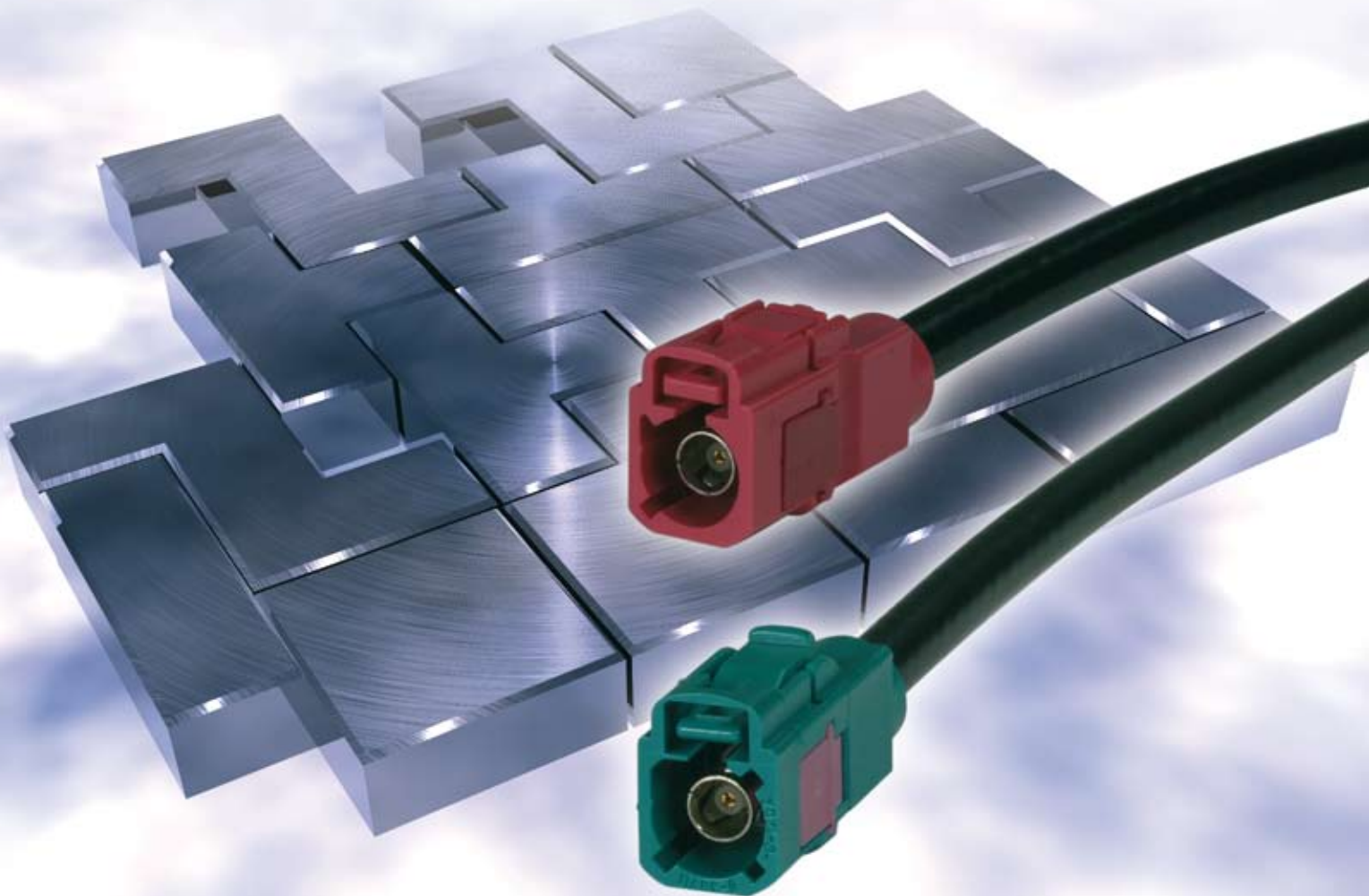
Taking advantage of economies of scale in making standardised or functionally identical parts and of the flexibility of milling in producing non-standardised con-

connector parts, HUBER+SUHNER can offer a wide range of customer-specific, high performance products at a very competitive cost.

Connectors for special requirements

ARC straight connectors are high performance RF connectors for applications up to 6 GHz.

The ARC series offers different shapes of plastic housings for various clip fixing systems in vehicles.

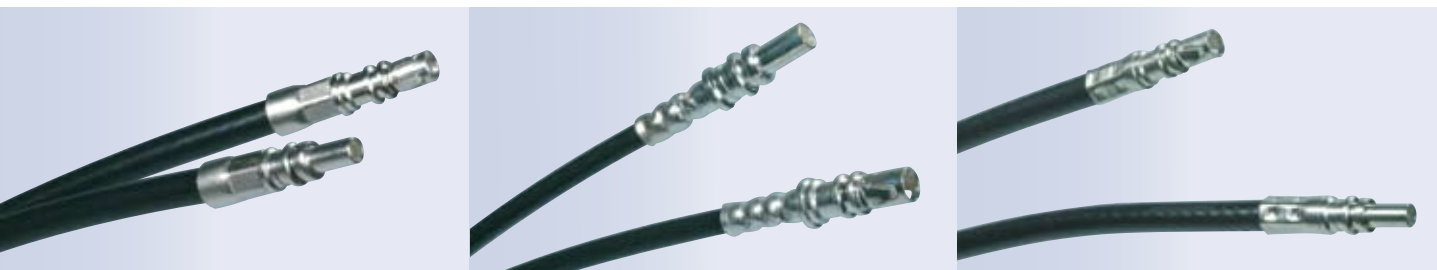


MODULAR ARC STRAIGHT CONNECTORS: DETAILS

The newly designed inline connectors ensure the quality of ARC connectors on the basis of various standards such as DIN 72594 / ISO 20860 / USCAR 18 and different OEM needs.

A new outer contact, which is identical for all three termination processes, guarantees better guidance and higher contact reliability. Clear stops and substantially reduced mating forces for the inner conductor simplify the cable assembly process.

The RF performance of the new ARC Series is similar to or better than that of current HUBER+SUHNER ARC connectors.



Hexagonal crimp

Direct jacket crimp connection

Supporting sleeve connection

Hexagonal crimp

(conventional connection with crimp ferrule)

- Classical high end solution for mainly manual termination

Direct jacket crimp connection

- Reduced number of piece parts
- Optimised for manual and semi-automated termination

Supporting sleeve connection

- No separate braid preparation
- Identical cable preparation for male and female
- Performance as hexagonal crimp
- Optimised for manual, semi-automated and fully automated termination

All three termination technologies are applicable for both, male and female connectors.

Maximum flexibility

All three termination technologies comply with the different cable standards and the current housing standards. Can be combined as required (examples):

| Various cables | Three termination technologies | Various housings |
|----------------|--------------------------------|--|
| RG 174 | Hexagonal crimp | Chamber compatible female |
| RG 58 | Jacket crimp | Chamber compatible male |
| 75 Ω | Supporting sleeve | H+S Design with or without secondary latch |
| Low loss | | |
| etc. | | |

ADDITIONAL NOTES



MODULAR ARC STRAIGHT CONNECTORS

Chamber Standardized Cable Connectors for Hexagonal Crimp



Outer Contact



B-Crimp Inner Conductor



Crimp Ferrule



| HUBER+SUHNER Type | Cable | Outline-Drawing/ Assembling/ Instruction | Order Level | | | |
|-------------------|-----------|--|-------------------------|-----------------|----------|----------------|
| | | | Description | Order-Type | Art.-No. | Packaging Size |
| 11_ARC-50-2-20 | RG_174/U | DOU-00084308/ DOC-0000242034 | Outer Contact | 73_ARC-50-2-630 | 84026854 | 500 |
| | | | B-Crimp Inner Conductor | 73_ARC-0-0-649 | 84026904 | 500 |
| | | | Crimp Ferrule | 73_Z-0-0-418 | 84026905 | 20000 |
| 11_ARC-50-2-21 | S_02132 B | DOU-00084550/ DOC-0000242034 | Outer Contact | 73_ARC-50-2-632 | 84026855 | 500 |
| | | | B-Crimp Inner Conductor | 73_ARC-0-0-650 | 84026907 | 500 |
| | | | Crimp Ferrule | 73_Z-0-0-487 | 84026908 | 20000 |
| 11_ARC-50-3-13 | RG_58C/U | DOU-00084509/ DOC-0000242034 | Outer Contact | 73_ARC-50-3-634 | 84026857 | 500 |
| | | | B-Crimp Inner Conductor | 73_ARC-0-0-650 | 84026907 | 500 |
| | | | Crimp Ferrule | 73_Z-0-0-419 | 84026908 | 20000 |
| | | | Crimp Ferrule | 73_Z-0-0-419 | 23019238 | 500 |

Compatible Housings see pages 63 - 65.

MODULAR ARC STRAIGHT CONNECTORS

Plastic Housings for Chamber Standardized Cable Connectors



| HUBER+SUHNER Type (Coding A ... Z) | Outline-Drawing / Assembling | Mounting hole | Art.-No. | Packaging Size |
|---------------------------------------|---------------------------------|--------------------------|----------|----------------|
| 11_ARC-0-0-1A11/-_Y | DOU-00104643 | ML 149 (see page 109) | 84058304 | 500 |
| 11_ARC-0-0-1B11/-_Y | | | 84058305 | 500 |
| 11_ARC-0-0-1C11/-_Y | | | 84058306 | 500 |
| 11_ARC-0-0-1D11/-_Y | | | 84058307 | 500 |
| 11_ARC-0-0-1E11/-_Y | | | 84058308 | 500 |
| 11_ARC-0-0-1F11/-_Y | | | 84058309 | 500 |
| 11_ARC-0-0-1G11/-_Y | | | 84058310 | 500 |
| 11_ARC-0-0-1H11/-_Y | | | 84058311 | 500 |
| 11_ARC-0-0-1I11/-_Y | | | 84058312 | 500 |
| 11_ARC-0-0-1K11/-_Y | | | 84058313 | 500 |
| 11_ARC-0-0-1L11/-_Y | | | 84058314 | 500 |
| 11_ARC-0-0-1M11/-_Y | | | 84058315 | 500 |
| 11_ARC-0-0-1N11/-_Y | | | 84058316 | 500 |
| 11_ARC-0-0-1Z11/-_Y | | | 84058317 | 500 |

MODULAR ARC STRAIGHT CONNECTORS

Plastic Housings for Chamber Standardized Cable Connectors



| HUBER+SUHNER Type (Coding A ... Z) | Outline-Drawing / Assembling | Mounting hole | Pitch Distance | Art.-No. | Packaging Size |
|---------------------------------------|---------------------------------|--------------------------|----------------|----------|----------------|
| 11_ARC-0-0-2A1/-_Y | DOU-00005803 | ML 152 (see page 109) | 8 mm * | 23024172 | 500 |
| 11_ARC-0-0-2B1/-_Y | | | | 23024173 | 500 |
| 11_ARC-0-0-2C1/-_Y | | | | 23024174 | 500 |
| 11_ARC-0-0-2D1/-_Y | | | | 23024175 | 500 |
| 11_ARC-0-0-2E1/-_Y | | | | 23024176 | 500 |
| 11_ARC-0-0-2F1/-_Y | | | | 23024177 | 500 |
| 11_ARC-0-0-2G1/-_Y | | | | 23024178 | 500 |
| 11_ARC-0-0-2H1/-_Y | | | | 23024179 | 500 |
| 11_ARC-0-0-2I1 /-_Y | | | | 23024180 | 500 |
| 11_ARC-0-0-2K1/-_Y | | | | 23024181 | 500 |
| 11_ARC-0-0-2Z1/-_Y | | | | 23024182 | 500 |

* 12.7 mm on request

MODULAR ARC STRAIGHT CONNECTORS

Clip Track Plastic Housings for Chamber Standardized Cable Connectors

Benefits

- easy fixing of FAKRA connectors
- allows customers to integrate standard retainers or fixing-clips
- same inserts for the standard connector



| HUBER+SUHNER Type (Coding A ... Z) | Outline-Drawing | Mounting hole | Art.-No. | Packaging Size |
|---------------------------------------|-----------------|--------------------------|----------|----------------|
| 11_ARC-0-0-1A9 / --Y | DOU-00095197 | ML 171 (see page 110) | 84042920 | 500 |
| 11_ARC-0-0-1B9 / --Y | | | 84042921 | 500 |
| 11_ARC-0-0-1C9 / --Y | | | 84042922 | 500 |
| 11_ARC-0-0-1D9 / --Y | | | 84042923 | 500 |
| 11_ARC-0-0-1E9 / --Y | | | 84042924 | 500 |
| 11_ARC-0-0-1F9 / --Y | | | 84042925 | 500 |
| 11_ARC-0-0-1G9 / --Y | | | 84042926 | 500 |
| 11_ARC-0-0-1H9 / --Y | | | 84042927 | 500 |
| 11_ARC-0-0-1I9 / --Y | | | 84042928 | 500 |
| 11_ARC-0-0-1K9 / --Y | | | 84042929 | 500 |
| 11_ARC-0-0-1L9 / --Y | | | 84042930 | 500 |
| 11_ARC-0-0-1M9 / --Y | | | 84042931 | 500 |
| 11_ARC-0-0-1N9 / --Y | | | 84042932 | 500 |
| 11_ARC-0-0-1Z9 / --Y | | | 84042933 | 500 |

MODULAR ARC STRAIGHT CONNECTORS

Cable Connectors for Direct Jacket Crimp



Outer Contact



B-Crimp Inner Conductor



| HUBER+SUHNER Type | Cable | Outline-Drawing / Assembling | Order Level | | | |
|-------------------|-------------|-------------------------------|-------------------------|-----------------|----------|----------------|
| | | | Description | Order-Type | Art.-No. | Packaging Size |
| 11_ARC-50-2-24 | RG_174/U | DOU-00024584 / DOC-0000250118 | Outer Contact | 73_ARC-50-2-1 | 84036039 | 500 |
| | | | B-Crimp Inner Conductor | 73_ARC-0-0-649 | 84026904 | 500 |
| 11_ARC-50-3-17 | RG_58C/U | DOU-00096949 / DOC-0000250118 | B-Crimp Inner Conductor | 73_ARC-0-0-650 | 84026905 | 20 000 |
| | | | Outer Contact | 73_ARC-50-3-636 | 84026872 | 500 |
| 11_ARC-50-3-14 | 75 Ω Type M | DOU-00084716 / DOC-0000250080 | B-Crimp Inner Conductor | 73_ARC-0-0-649 | 84026907 | 500 |
| | | | Outer Contact | 73_ARC-50-3-636 | 84026908 | 20 000 |
| 11_ARC-50-3-14 | 75 Ω Type M | DOU-00084716 / DOC-0000250080 | B-Crimp Inner Conductor | 73_ARC-0-0-649 | 84026872 | 500 |
| | | | Outer Contact | 73_ARC-50-3-636 | 84026904 | 500 |
| 11_ARC-50-3-14 | 75 Ω Type M | DOU-00084716 / DOC-0000250080 | B-Crimp Inner Conductor | 73_ARC-0-0-649 | 84026905 | 20 000 |
| | | | Outer Contact | 73_ARC-50-3-636 | 84026872 | 500 |

Compatible Housings see pages 66 - 67.

Plastic Housings for Cable Connectors without Secondary Latch



| HUBER+SUHNER Type (Coding A ... Z) | Outline-Drawing / Assembling | Mounting hole | Art.-No. | Packaging Size |
|------------------------------------|------------------------------|--------------------------|----------|----------------|
| 11_ARC-0-0-1A6/-_Y | DOU-00001106 | ML 149 (see page 109) | 23038373 | 5000 |
| 11_ARC-0-0-1B6/-_Y | | | 23038374 | 5000 |
| 11_ARC-0-0-1C6/-_Y | | | 23038375 | 5000 |
| 11_ARC-0-0-1D6/-_Y | | | 23038376 | 5000 |
| 11_ARC-0-0-1E6/-_Y | | | 23038377 | 5000 |
| 11_ARC-0-0-1F6/-_Y | | | 23038378 | 5000 |
| 11_ARC-0-0-1G6/-_Y | | | 23038379 | 5000 |
| 11_ARC-0-0-1H6/-_Y | | | 23038380 | 5000 |
| 11_ARC-0-0-1I6/-_Y | | | 23038381 | 5000 |
| 11_ARC-0-0-1K6/-_Y | | | 23038382 | 5000 |
| 11_ARC-0-0-1Z6/-_Y | | | 23038383 | 5000 |

Available on request: Housings including secondary latch

MODULAR ARC STRAIGHT CONNECTORS

Plastic Housings for Cable Connectors without Secondary Latch



| HUBER+SUHNER Type (Coding A ... Z) | Outline-Drawing / Assembling | Mounting hole | Pitch Distance | Art.-No. | Packaging Size |
|---------------------------------------|---------------------------------|--------------------------|----------------|----------|----------------|
| 11_ARC-0-0-2C2/-_Y | DOU-00015880 | ML 152 (see page 109) | 8 mm * | 84005143 | 2500 |
| 11_ARC-0-0-2D2/-_Y | | | | 84005153 | 2500 |

* 12.7 mm on request

Available on request: Additional codings or housings including secondary latch

Chamber Standardized Cable Connectors for Direct Jacket Crimp



Outer Contact



B-Crimp Inner Conductor



| HUBER+SUHNER Type | Cable | Outline-Drawing / Assembling | Order Level | | | |
|----------------------|-----------|----------------------------------|----------------------------|-----------------|----------|----------------|
| | | | Description | Order-Type | Art.-No. | Packaging Size |
| 11_ARC-50-2-22 | S_02132 B | DOU-00084685 / DOC-0000242033 | Outer Contact | 73_ARC-50-2-638 | 84026874 | 500 |
| | | | B-Crimp Inner Conductor | 73_ARC-0-0-650 | 84026907 | 500 |
| | | | | | 84026908 | 20000 |

Compatible Housings see pages 63 - 65.

MODULAR ARC STRAIGHT CONNECTORS

Cable Connectors for Supporting Sleeve Crimp



Outer Contact



B-Crimp Inner Conductor



Supporting Sleeve



| HUBER+SUHNER Type | Cable | Outline-Drawing/ Assembling/ Instruction | Order Level | | | |
|-------------------|--------------|--|-------------------------|-----------------|----------|----------------|
| | | | Description | Order-Type | Art.-No. | Packaging Size |
| 11_ARC-50-2-25 | RG_174 A/U | DOU-00092268 / DOC-000237780 | Outer Contact | 73_ARC-50-2-668 | 84033868 | 500 |
| | | | B-Crimp Inner Conductor | 73_ARC-0-0-649 | 84026904 | 500 |
| | | | | | 84026905 | 20000 |
| Supporting Sleeve | 73_Z-0-0-670 | 84033866 | 18000 | | | |
| 11_ARC-50-2-18 | S_02132 B | DOU-00084589 / DOC-000237780 | Outer Contact | 73_ARC-50-2-641 | 84026881 | 500 |
| | | | B-Crimp Inner Conductor | 73_ARC-0-0-650 | 84026907 | 500 |
| | | | | | 84026908 | 20000 |
| Supporting Sleeve | 73_Z-0-0-651 | 84027350 | 10000 | | | |
| 11_ARC-50-3-9 | RG_58C/U | DOU-00084609 / DOC-000237780 | Outer Contact | 73_ARC-50-3-644 | 84026885 | 500 |
| | | | B-Crimp Inner Conductor | 73_ARC-0-0-650 | 84026907 | 500 |
| | | | | | 84026908 | 20000 |
| Supporting Sleeve | 73_Z-0-0-652 | 84027351 | 10000 | | | |
| 11_ARC-50-3-11 | 75 Ω Type A | DOU-00084613 / DOC-000237780 | Outer Contact | 73_ARC-50-3-647 | 84026888 | 500 |
| | | | B-Crimp Inner Conductor | 73_ARC-0-0-649 | 84026904 | 500 |
| | | | | | 84026905 | 20000 |
| Supporting Sleeve | 73_Z-0-0-652 | 84027351 | 10000 | | | |

Compatible Housings see pages 66 - 67.

MODULAR ARC STRAIGHT CONNECTORS

Chamber Standardized Cable Connectors for Supporting Sleeve Crimp



Outer Contact



B-Crimp Inner Conductor



Supporting Sleeve



| HUBER+SUHNER Type | Cable | Outline-Drawing/ Assembling/ Instruction | Order Level | | | |
|-------------------|--------------|--|-------------------------|-----------------|----------|----------------|
| | | | Description | Order-Type | Art.-No. | Packaging Size |
| 11_ARC-50-2-32 | RG_174 A/U | DOU-00101107 / DOC-000237780 | Outer Contact | 73_ARC-50-2-670 | 84042020 | 500 |
| | | | B-Crimp Inner Conductor | 73_ARC-0-0-649 | 84026904 | 500 |
| | | | | | 84026905 | 20000 |
| Supporting Sleeve | 73_Z-0-0-670 | 84033866 | 18000 | | | |
| 11_ARC-50-2-19 | S_02132 B | DOU-00084570 / DOC-000237780 | Outer Contact | 73_ARC-50-2-640 | 84026878 | 500 |
| | | | B-Crimp Inner Conductor | 73_ARC-0-0-650 | 84026907 | 500 |
| | | | | | 84026908 | 20000 |
| Supporting Sleeve | 73_Z-0-0-651 | 84027350 | 10000 | | | |
| 11_ARC-50-3-10 | RG_58C/U | DOU-00084585 / DOC-000237780 | Outer Contact | 73_ARC-50-3-643 | 84026883 | 500 |
| | | | B-Crimp Inner Conductor | 73_ARC-0-0-650 | 84026907 | 500 |
| | | | | | 84026908 | 20000 |
| Supporting Sleeve | 73_Z-0-0-652 | 84027351 | 10000 | | | |
| 11_ARC-50-3-12 | 75 Ω Type A | DOU-00083753 / DOC-000237780 | Outer Contact | 73_ARC-50-3-646 | 84026887 | 500 |
| | | | B-Crimp Inner Conductor | 73_ARC-0-0-649 | 84026904 | 500 |
| | | | | | 84026905 | 20000 |
| Supporting Sleeve | 73_Z-0-0-652 | 84027351 | 10000 | | | |

Compatible Housings see pages 63 - 65.

MODULAR ARC STRAIGHT CONNECTORS

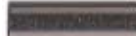
Chamber Standardized Cable Connectors for Hexagonal Crimp



Outer Contact



B-Crimp Inner Conductor



Crimp Ferrule



| HUBER+SUHNER Type | Cable | Outline-Drawing/ Assembling/ Instruction | Order Level | | | |
|-------------------|-----------|--|-------------------------|-----------------|----------|----------------|
| | | | Description | Order-Type | Art.-No. | Packaging Size |
| 21_ARC-50-2-19 | RG_174/U | DOU-00083801/ DOC-0000250072 | Outer Contact | 73_ARC-50-2-631 | 84026860 | 500 |
| | | | B-Crimp Inner Conductor | 73_ARC-0-0-662 | 84029813 | 500 |
| | | | Crimp Ferrule | 73_Z-0-0-418 | 23019228 | 500 |
| 21_ARC-50-2-20 | S_02132 B | DOU-00084644/ DOC-0000250072 | Outer Contact | 73_ARC-50-2-633 | 84026862 | 500 |
| | | | B-Crimp Inner Conductor | 73_ARC-0-0-663 | 84029815 | 500 |
| | | | Crimp Ferrule | 73_Z-0-0-487 | 23032606 | 500 |
| 21_ARC-50-3-11 | RG_58C/U | DOU-00084675/ DOC-0000250072 | Outer Contact | 73_ARC-50-3-635 | 84026868 | 500 |
| | | | B-Crimp Inner Conductor | 73_ARC-0-0-663 | 84029815 | 500 |
| | | | Crimp Ferrule | 73_Z-0-0-419 | 23019238 | 500 |

Compatible Housings see pages 71 - 74.

MODULAR ARC STRAIGHT CONNECTORS

Plastic Housings for Chamber Standardized Cable Connectors



| HUBER+SUHNER Type (Coding A ... Z) | Outline-Drawing / Assembling | Mounting hole | Art.-No. | Packaging Size |
|---------------------------------------|---------------------------------|--------------------------|----------|----------------|
| 21_ARC-0-0-1A4/-_Y | DOU-00104582 | ML 148 (see page 109) | 84064776 | 500 |
| 21_ARC-0-0-1B4/-_Y | | | 84064777 | 500 |
| 21_ARC-0-0-1C4/-_Y | | | 84064778 | 500 |
| 21_ARC-0-0-1D4/-_Y | | | 84064779 | 500 |
| 21_ARC-0-0-1E4/-_Y | | | 84064780 | 500 |
| 21_ARC-0-0-1F4/-_Y | | | 84064781 | 500 |
| 21_ARC-0-0-1G4/-_Y | | | 84064782 | 500 |
| 21_ARC-0-0-1H4/-_Y | | | 84064783 | 500 |
| 21_ARC-0-0-1I4/-_Y | | | 84064784 | 500 |
| 21_ARC-0-0-1K4/-_Y | | | 84064785 | 500 |
| 21_ARC-0-0-1L4/-_Y | | | 84064786 | 500 |
| 21_ARC-0-0-1M4/-_Y | | | 84064787 | 500 |
| 21_ARC-0-0-1N4/-_Y | | | 84064788 | 500 |
| 21_ARC-0-0-1Z4/-_Y | | | 84064789 | 500 |

MODULAR ARC STRAIGHT CONNECTORS

Plastic Housings for Chamber Standardized Cable Connectors



| HUBER+SUHNER Type (Coding A ... Z) | Outline-Drawing / Assembling | Mounting hole | Pitch Distance | Art.-No. | Packaging Size |
|---------------------------------------|---------------------------------|--------------------------|----------------|----------|----------------|
| 21_ARC-0-0-2A1/-_Y | DOU-00006269 | ML 151 (see page 109) | 8 mm * | 23024183 | 500 |
| 21_ARC-0-0-2B1/-_Y | | | | 23024184 | 500 |
| 21_ARC-0-0-2C1/-_Y | | | | 23024185 | 500 |
| 21_ARC-0-0-2D1/-_Y | | | | 23024186 | 500 |
| 21_ARC-0-0-2E1/-_Y | | | | 23024187 | 500 |
| 21_ARC-0-0-2F1/-_Y | | | | 23024188 | 500 |
| 21_ARC-0-0-2G1/-_Y | | | | 23024189 | 500 |
| 21_ARC-0-0-2H1/-_Y | | | | 23024190 | 500 |
| 21_ARC-0-0-2I1/-_Y | | | | 23024191 | 500 |
| 21_ARC-0-0-2K1/-_Y | | | | 23024192 | 500 |
| 21_ARC-0-0-2Z1/-_Y | | | | 23024193 | 500 |

* 12.7 mm on request

MODULAR ARC STRAIGHT CONNECTORS

Clip Track Plastic Housings for Chamber Standardized Cable Connectors

Benefits

- easy fixing of FAKRA connectors
- allows customers to integrate standard retainers or fixing-clips
- same inserts for the standard connector



| HUBER+SUHNER Type (Coding A ... Z) | Outline-Drawing | Mounting hole | Art.-No. | Packaging Size |
|---------------------------------------|-----------------|--------------------------|----------|----------------|
| 21_ARC-0-0-1A3 / --Y | DOU-00098308 | ML 172 (see page 110) | 84039351 | 500 |
| 21_ARC-0-0-1B3 / --Y | | | 84039352 | 500 |
| 21_ARC-0-0-1C3 / --Y | | | 84039353 | 500 |
| 21_ARC-0-0-1D3 / --Y | | | 84039354 | 500 |
| 21_ARC-0-0-1E3 / --Y | | | 84039355 | 500 |
| 21_ARC-0-0-1F3 / --Y | | | 84039356 | 500 |
| 21_ARC-0-0-1G3 / --Y | | | 84039357 | 500 |
| 21_ARC-0-0-1H3 / --Y | | | 84039358 | 500 |
| 21_ARC-0-0-1I3 / --Y | | | 84039359 | 500 |
| 21_ARC-0-0-1K3 / --Y | | | 84039360 | 500 |
| 21_ARC-0-0-1L3 / --Y | | | 84039361 | 500 |
| 21_ARC-0-0-1M3 / --Y | | | 84039362 | 500 |
| 21_ARC-0-0-1N3 / --Y | | | 84039363 | 500 |
| 21_ARC-0-0-1Z3 / --Y | | | 84039364 | 500 |

MODULAR ARC STRAIGHT CONNECTORS

Clip Track Plastic Housings for Chamber Standardized Cable Connectors

Benefits

- easy fixing of FAKRA connectors
- allows customers to integrate standard retainers or fixing-clips
- same inserts for the standard connector



| HUBER+SUHNER Type (Coding A ... Z) | Outline-Drawing / Assembling | Mounting hole | Pitch Distance | Art.-No. | Packaging Size |
|------------------------------------|------------------------------|--------------------------|----------------|----------|----------------|
| 21_ARC-0-0-2A2/-_Y | DOU-00005764 | ML 153 (see page 109) | 8 mm * | 23036780 | 500 |
| 21_ARC-0-0-2B2/-_Y | | | | 23036781 | 500 |
| 21_ARC-0-0-2C2/-_Y | | | | 23036782 | 500 |
| 21_ARC-0-0-2D2/-_Y | | | | 23036783 | 500 |
| 21_ARC-0-0-2E2/-_Y | | | | 23036784 | 500 |
| 21_ARC-0-0-2F2/-_Y | | | | 23036785 | 500 |
| 21_ARC-0-0-2G2/-_Y | | | | 23036786 | 500 |
| 21_ARC-0-0-2H2/-_Y | | | | 23036787 | 500 |
| 21_ARC-0-0-2I2/-_Y | | | | 23036788 | 500 |
| 21_ARC-0-0-2K2/-_Y | | | | 23036789 | 500 |
| 21_ARC-0-0-2Z2/-_Y | | | | 23036790 | 500 |

* 12.7 mm on request

Chamber Standardized Cable Connectors for Direct Jacket Crimp



Outer Contact



B-Crimp Inner Conductor



| HUBER+SUHNER Type | Cable | Outline-Drawing / Assembling | Order Level | | | |
|-------------------|-------------|-------------------------------|-------------------------|-----------------|----------|----------------|
| | | | Description | Order-Type | Art.-No. | Packaging Size |
| 21_ARC 50-2-27 | RG_174/U | DOU-00097003 / DOC-0000250119 | Outer Contact | 73_ARC-50-2-2 | 84042651 | 500 |
| | | | B-Crimp Inner Conductor | 73_ARC-0-0-662 | 84029813 | 500 |
| 21_ARC 50-2-21 | S_02132 B | DOU-00084728 / DOC-0000250119 | Outer Contact | 73_ARC-50-2-639 | 84026875 | 500 |
| | | | B-Crimp Inner Conductor | 73_ARC-0-0-663 | 84029815 | 500 |
| | | | | | 84029814 | 20000 |
| 21_ARC 50-3-15 | RG_58C/U | DOU-00096956 / DOC-0000250119 | Outer Contact | 73_ARC-50-3-1 | 84042652 | 500 |
| | | | B-Crimp Inner Conductor | 73_ARC-0-0-663 | 84029815 | 500 |
| | | | | | 84029814 | 20000 |
| 21_ARC 50-3-12 | 75 Ω Type M | DOU-00084126 / DOC-0000250139 | Outer Contact | 73_ARC-50-3-637 | 84026876 | 500 |
| | | | B-Crimp Inner Conductor | 73_ARC-0-0-662 | 84029813 | 500 |
| | | | | | 84029812 | 20000 |

Compatible Housings see pages 71 - 74.

MODULAR ARC STRAIGHT CONNECTORS

Chamber Standardized Cable Connectors for Supporting Sleeve Crimp



Outer Contact



B-Crimp Inner Conductor



Supporting Sleeve



| HUBER+SUHNER Type | Cable | Outline-Drawing/ Assembling/ Instruction | Order Level | | | |
|-------------------|--------------|--|-------------------------|-----------------|----------|----------------|
| | | | Description | Order-Type | Art.-No. | Packaging Size |
| 21_ARC 50-2-25 | RG_174 A/U | DOU-00092264 / DOC-000237780 | Outer Contact | 73_ARC-50-2-669 | 84033871 | 500 |
| | | | B-Crimp Inner Conductor | 73_ARC-0-0-662 | 84029813 | 500 |
| | | | | | 84029812 | 20000 |
| Supporting Sleeve | 73_Z-0-0-670 | 84033866 | 18000 | | | |
| 21_ARC 50-2-18 | S_02132 B | DOU-00084465 / DOC-000237780 | Outer Contact | 73_ARC-50-2-642 | 84026882 | 500 |
| | | | B-Crimp Inner Conductor | 73_ARC-0-0-663 | 84029815 | 500 |
| | | | | | 84029814 | 20000 |
| Supporting Sleeve | 73_Z-0-0-651 | 84027350 | 10000 | | | |
| 21_ARC 50-3-9 | RG_58C/U | DOU-00084484 / DOC-000237780 | Outer Contact | 73_ARC-50-3-645 | 84026886 | 500 |
| | | | B-Crimp Inner Conductor | 73_ARC-0-0-663 | 84029815 | 500 |
| | | | | | 84029814 | 20000 |
| Supporting Sleeve | 73_Z-0-0-652 | 84027351 | 10000 | | | |
| 21_ARC 50-3-10 | 75 Ω Type A | DOU-00084540 / DOC-000237780 | Outer Contact | 73_ARC-50-3-648 | 84026889 | 500 |
| | | | B-Crimp Inner Conductor | 73_ARC-0-0-662 | 84029813 | 500 |
| | | | | | 84029812 | 20000 |
| Supporting Sleeve | 73_Z-0-0-652 | 84027351 | 10000 | | | |

Compatible Housings see pages 71 - 74.

ADDITIONAL NOTES

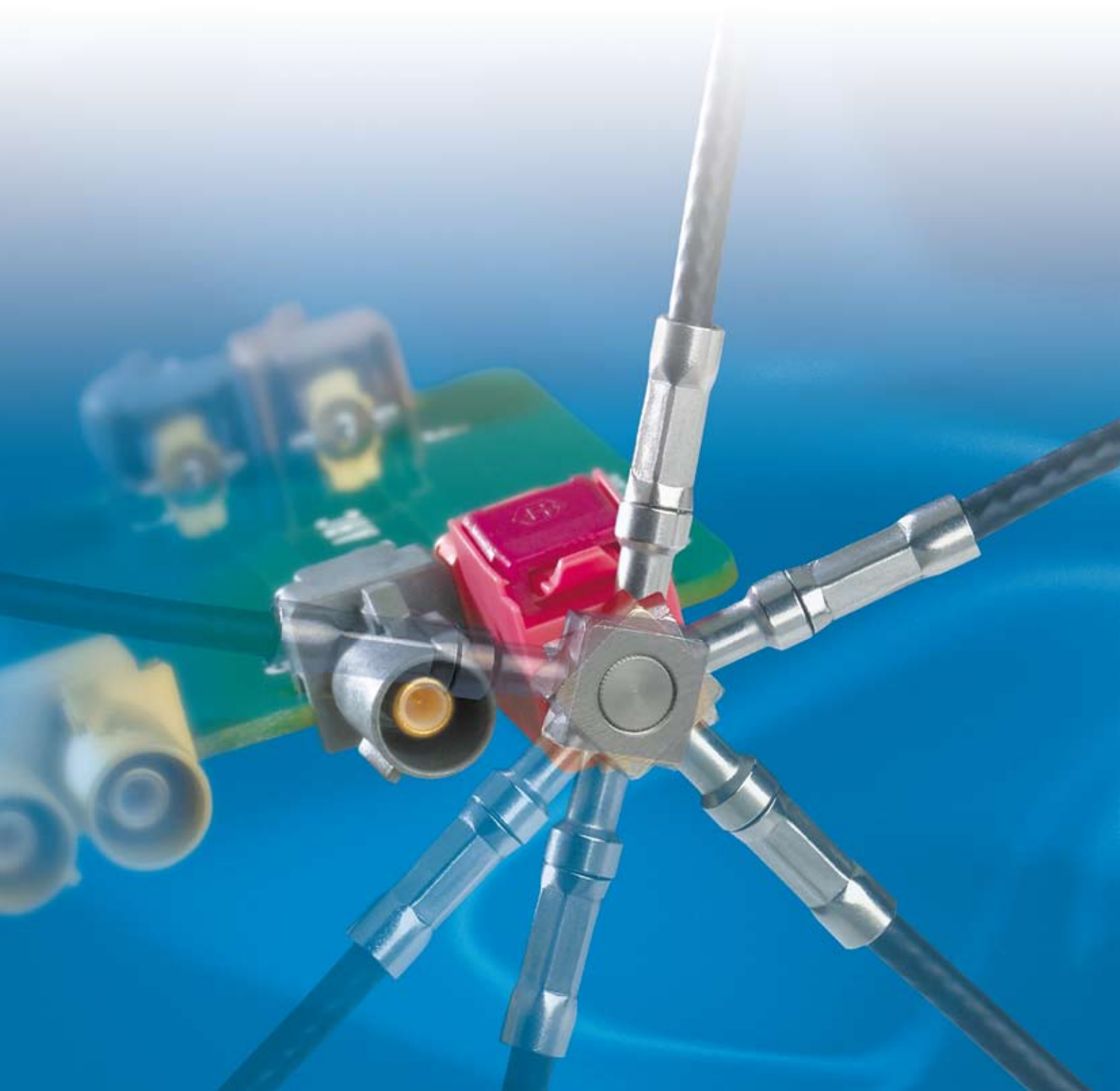
ARC ANGLED CONNECTORS

Free rotating

Rotate your cable connector rather than your PCB. The ARC series offers a range of angled connectors which allow free positioning of the cable. These connections are axially rotatable and thus avoid torsion on the PCB connectors.

Fixed position

The right angle plug design serves for different applications. Using the same housing, coaxial lines may be led in three different directions. Moreover, an optimized purchasing and logistic process leads to reduced administration cost.



ARC ANGLED CONNECTORS

Right Angled Connector 360° Free Rotatable



Outer Contact



Inner Conductor



Crimp Ferrule



| HUBER+SUHNER Type | Cable | Outline-Drawing/ Assembling/ Instruction | Order Level | | | |
|-------------------|-------------|--|-----------------|---------------|----------|----------------|
| | | | Description | Order-Type | Art.-No. | Packaging Size |
| 16_ARC-50-1-1 | RG_178 B/U | DOU-00005770 / DOC-0000183197 | Insert Complete | 16_ARC-50-1-1 | 23030091 | 1000 |
| 16_ARC-50-2-11 | RG_174/U | DOU-00100563 / DOC-0000254131 | Outer Contact | 73_ARC-50-2-7 | 84040086 | 500 |
| | | | Inner Conductor | 73_Z-0-383 | 23017384 | 5000 |
| | | | Crimp Ferrule | 73_Z-0-418 | 23019228 | 500 |
| 16_ARC-50-2-12 | S_02132 B | DOU-00100554 / DOC-0000254131 | Outer Contact | 73_ARC-50-2-8 | 84040277 | 500 |
| | | | Inner Conductor | 73_Z-0-388 | 23018717 | 5000 |
| | | | Crimp Ferrule | 73_Z-0-487 | 23032606 | 500 |
| 16_ARC-50-3-7 | RG_58C/U | DOU-00100541 / DOC-0000254131 | Outer Contact | 73_ARC-50-3-8 | 84040091 | 500 |
| | | | Inner Conductor | 73_Z-0-428 | 23022894 | 5000 |
| | | | Crimp Ferrule | 73_Z-0-419 | 23019238 | 500 |
| 16_ARC-50-3-8 | 75 Ω Type M | DOU-00100536 / DOC-0000254126 | Outer Contact | 73_ARC-50-3-9 | 84040092 | 500 |
| | | | Inner Conductor | 73_Z-0-573 | 84002160 | 5000 |
| | | | Crimp Ferrule | 73_Z-0-419 | 23019238 | 500 |

ARC ANGLED CONNECTORS

Plastic Housings for Right Angled Connector 360° Free Rotatable



| HUBER+SUHNER Type (Coding A ... Z) | Outline-Drawing | Mounting hole | Art.-No. | Packaging Size |
|---------------------------------------|-----------------|--------------------------|----------|----------------|
| 16_ARC-0-0-1A2/_-Y | DOU-00105299 | ML 150 (see page 109) | 23023053 | 500 |
| 16_ARC-0-0-1B2/_-Y | | | 23023055 | 500 |
| 16_ARC-0-0-1C2/_-Y | | | 23023056 | 500 |
| 16_ARC-0-0-1D2/_-Y | | | 23023057 | 500 |
| 16_ARC-0-0-1E2/_-Y | | | 23023058 | 500 |
| 16_ARC-0-0-1F2/_-Y | | | 23023059 | 500 |
| 16_ARC-0-0-1G2/_-Y | | | 23023060 | 500 |
| 16_ARC-0-0-1H2/_-Y | | | 23023061 | 500 |
| 16_ARC-0-0-1I2/_-Y | | | 23023063 | 500 |
| 16_ARC-0-0-1K2/_-Y | | | 23023064 | 500 |
| 16_ARC-0-0-1L2/_-Y | | | 84035759 | 500 |
| 16_ARC-0-0-1M2/_-Y | | | 84038063 | 500 |
| 16_ARC-0-0-1N2/_-Y | | | 84035758 | 500 |
| 16_ARC-0-0-1Z2/_-Y | | | 23023065 | 500 |

ARC ANGLED CONNECTORS

Right Angled Connector 3 x 90° Fixed Position



Outer Contact



Inner Conductor



Crimp Ferrule



| HUBER+SUHNER Type | Cable | Outline-Drawing/ Assembling/ Instruction | Order Level | | | |
|-------------------|-------------|--|-----------------|----------------|----------|----------------|
| | | | Description | Order-Type | Art.-No. | Packaging Size |
| 16_ARC-50-2-13 | RG_174/U | DOU-00100525 / DOC-0000254174 | Outer Contact | 73_ARC-50-2-9 | 84040083 | 500 |
| | | | Inner Conductor | 73_Z-0-0-383 | 23017384 | 5000 |
| | | | Crimp Ferrule | 73_Z-0-0-418 | 23019228 | 500 |
| 16_ARC-50-2-14 | S_02132 B | DOU-00100520 / DOC-0000254174 | Outer Contact | 73_ARC-50-2-10 | 84040278 | 500 |
| | | | Inner Conductor | 73_Z-0-0-388 | 23018717 | 5000 |
| | | | Crimp Ferrule | 73_Z-0-0-487 | 23032606 | 500 |
| 16_ARC-50-3-9 | RG_58C/U | DOU-00100511 / DOC-0000254174 | Outer Contact | 73_ARC-50-3-10 | 84040093 | 500 |
| | | | Inner Conductor | 73_Z-0-0-391 | 23018728 | 5000 |
| | | | Crimp Ferrule | 73_Z-0-0-419 | 23019238 | 500 |
| 16_ARC-50-3-10 | 75 Ω Type M | DOU-00100460 / DOC-0000254157 | Outer Contact | 73_ARC-50-3-11 | 84040084 | 500 |
| | | | Inner Conductor | 73_Z-0-0-383 | 23017384 | 5000 |
| | | | Crimp Ferrule | 73_Z-0-0-419 | 23019238 | 500 |

ARC ANGLED CONNECTORS

Plastic Housings for Right Angled Connector 3 x 90° Fixed Position



| HUBER+SUHNER Type (Coding A ... Z) | Outline-Drawing | Mounting hole | Art.-No. | Packaging Size |
|---------------------------------------|-----------------|--------------------------|----------|----------------|
| 16_ARC-0-0-1A1/_-Y | DOU-00075436 | ML 150 (see page 109) | 23018901 | 500 |
| 16_ARC-0-0-1B1/_-Y | | | 23018902 | 500 |
| 16_ARC-0-0-1C1/_-Y | | | 23018903 | 500 |
| 16_ARC-0-0-1D1/_-Y | | | 23018904 | 500 |
| 16_ARC-0-0-1E1/_-Y | | | 23018905 | 500 |
| 16_ARC-0-0-1F1/_-Y | | | 23018906 | 500 |
| 16_ARC-0-0-1G1/_-Y | | | 23018907 | 500 |
| 16_ARC-0-0-1H1/_-Y | | | 23018908 | 500 |
| 16_ARC-0-0-1I1/_-Y | | | 23018909 | 500 |
| 16_ARC-0-0-1K1/_-Y | | | 23018910 | 500 |
| 16_ARC-0-0-1L1/_-Y | | | 84038033 | 500 |
| 16_ARC-0-0-1M1/_-Y | | | 84038034 | 500 |
| 16_ARC-0-0-1N1/_-Y | | | 84038035 | 500 |
| 16_ARC-0-0-1Z1/_-Y | | | 23018911 | 500 |

ADDITIONAL NOTES

ARC CHASSIS CONNECTORS

The benefit of the ARC chassis connectors is the easy and time saving mounting and demounting process, for example on panels.

The simple handling is possible due to a unique snap ring design. There is no tool required for the mounting procedure.



ARC CHASSIS CONNECTORS

Straight Panel Bulkhead Cable Jacks (Female), Full Crimp Types



| HUBER+SUHNER Type (Coding A ... Z) | Cable | Outline-Drawing / Assembling Instruction | Mounting hole | Art.-No. | Packaging Size |
|---------------------------------------|----------|---|------------------------|----------|----------------|
| 24_ARC-I50-2-1A03/12_NH | RG_174/U | DOU-00008740 / DOC-0000184796 (Assembly tool see page 105) | ML 3 (see page 108) | 23030800 | 500 |
| 24_ARC-I50-2-1B03/12_NH | | | | 23030801 | 500 |
| 24_ARC-I50-2-1C03/12_NH | | | | 23030802 | 500 |
| 24_ARC-I50-2-1D03/12_NH | | | | 23030803 | 500 |
| 24_ARC-I50-2-1E03/12_NH | | | | 23030804 | 500 |
| 24_ARC-I50-2-1F03/12_NH | | | | 23030805 | 500 |
| 24_ARC-I50-2-1G03/12_NH | | | | 23030806 | 500 |
| 24_ARC-I50-2-1H03/12_NH | | | | 23030807 | 500 |
| 24_ARC-I50-2-1I03/12_NH | | | | 23030808 | 500 |
| 24_ARC-I50-2-1K03/12_NH | | | | 23030809 | 500 |
| 24_ARC-I50-2-1L03/12_NH | | | | 84030419 | 500 |
| 24_ARC-I50-2-1M03/12_NH | | | | 84030421 | 500 |
| 24_ARC-I50-2-1N03/12_NH | | | | 84030422 | 500 |
| 24_ARC-I50-2-1Z03/12_NH | | | | 23030810 | 500 |

ADDITIONAL NOTES



ADDITIONAL NOTES



RF Components (ARC)

ARC PRINTED CIRCUIT BOARD (PCB) CONNECTORS

Modern infotainment devices are expected to satisfy a number of important requirements: Less lead content, smaller size and fully automated processes.

Applications

The ARC PCB Connectors have been developed for applications in diversity box, AM/FM and digital satellite radio, navigation systems, security systems, telephony, etc.

Requirements for the PCB Components

HUBER+SUHNER PCB Connectors are designed to withstand 280°C for 45 seconds. The connectors already meet further requirements for lead free soldering processes.

Solder Technology

Our portfolio consists of SMT (Surface Mount Technology) and THR (Through Hole Reflow) connectors. Most of them are calling for the reflow soldering process. Some designs maintain the flow soldering as well.

Reflow Soldering

Pin in Paste technology is the basis for applying Through Hole Reflow connectors. In this process, the connection pins are fed into through plated holes filled with soldering paste and soldered in a reflow oven. Through Hole Reflow connectors and Surface Mount Devices (SMD) can be simultaneously processed with the same equipment, same procedures and under identical conditions.

Flow (Wave) Soldering

The pre-assembled boards are soldered on their underside using a liquid wave in the soldering bath.

Packaging

HUBER+SUHNER PCB connectors are supplied in a Tape and Reel packaging for Pick and Place assembly systems.

- Fully automatic Pick and Place capability
- Wave or reflow solutions available
- Can be used for lead-free soldering
- Temperature resistant up to 280°C for 45 sec
- Reduced process costs
- High process control reliability
- Will not tip
- Good mechanical resistance
- Low profile height
- Flexible nose orientation



ARC PCB CONNECTORS

Straight PCB Jacks (Female) – Ground THT – Signal Pin SMT



| HUBER+SUHNER Type (Coding A ... Z) | PCB Thickness | Nose Position | Outline-Drawing | Mounting hole | Art.-No. | Packaging Size |
|---------------------------------------|----------------------------|----------------|-----------------|--------------------------|----------|----------------|
| 96_ARC-I50-0-1A01/11-_NM | 1.60 mm (optional 1 mm) | 00:00 06:00 | DOU-00012571 | ML 144 (see page 108) | 23037540 | 200 |
| 96_ARC-I50-0-1B01/11-_NM | | | | | 23037541 | 200 |
| 96_ARC-I50-0-1C01/11-_NM | | | | | 23037542 | 200 |
| 96_ARC-I50-0-1D01/11-_NM | | | | | 23037543 | 200 |
| 96_ARC-I50-0-1E01/11-_NM | | | | | 23037546 | 200 |
| 96_ARC-I50-0-1F01/11-_NM | | | | | 23037547 | 200 |
| 96_ARC-I50-0-1G01/11-_NM | | | | | 23037548 | 200 |
| 96_ARC-I50-0-1H01/11-_NM | | | | | 23037549 | 200 |
| 96_ARC-I50-0-1I01/11-_NM | | | | | 23037550 | 200 |
| 96_ARC-I50-0-1K01/11-_NM | | | | | 23037551 | 200 |
| 96_ARC-I50-0-1Z01/11-_NM | | | | | 23037552 | 200 |

Also available with SMT ground and signal pin.

Straight PCB Jacks (Female) – Ground THT – Signal Pin SMT



| HUBER+SUHNER Type (Coding A ... Z) | PCB Thickness | Nose Position | Outline-Drawing | Mounting hole | Art.-No. | Packaging Size |
|---------------------------------------|---------------------------|----------------|-----------------|--------------------------|----------|----------------|
| 96_ARC-I50-0-1A03/11-_NM | 1.60 mm (optional 1mm) | 03:00 09:00 | DOU-00012566 | ML 144 (see page 108) | 23037553 | 200 |
| 96_ARC-I50-0-1B03/11-_NM | | | | | 23037554 | 200 |
| 96_ARC-I50-0-1C03/11-_NM | | | | | 23037555 | 200 |
| 96_ARC-I50-0-1D03/11-_NM | | | | | 23037556 | 200 |
| 96_ARC-I50-0-1E03/11-_NM | | | | | 23037557 | 200 |
| 96_ARC-I50-0-1F03/11-_NM | | | | | 23037558 | 200 |
| 96_ARC-I50-0-1G03/11-_NM | | | | | 23037559 | 200 |
| 96_ARC-I50-0-1H03/11-_NM | | | | | 23037560 | 200 |
| 96_ARC-I50-0-1I03/11-_NM | | | | | 23037562 | 200 |
| 96_ARC-I50-0-1K03/11-_NM | | | | | 23037563 | 200 |
| 96_ARC-I50-0-1Z03/11-_NM | | | | | 23037564 | 200 |

Also available with SMT ground and signal pin.

ARC PCB CONNECTORS

Straight PCB Jacks (Female) – Ground and Signal Pin THT



| HUBER+SUHNER Type (Coding A ... Z) | PCB Thickness | Nose Position | Outline-Drawing | Mounting hole | Art.-No. | Packaging Size |
|---------------------------------------|---------------|----------------|-----------------|--------------------------|----------|----------------|
| 82_ARC-I50-0-1A01/11-_NM | 1.60 mm | 00:00 06:00 | DOU-00013060 | ML 145 (see page 108) | 23037587 | 200 |
| 82_ARC-I50-0-1B01/11-_NM | | | | | 23037588 | 200 |
| 82_ARC-I50-0-1C01/11-_NM | | | | | 23037589 | 200 |
| 82_ARC-I50-0-1D01/11-_NM | | | | | 23037590 | 200 |
| 82_ARC-I50-0-1E01/11-_NM | | | | | 23037591 | 200 |
| 82_ARC-I50-0-1F01/11-_NM | | | | | 23037592 | 200 |
| 82_ARC-I50-0-1G01/11-_NM | | | | | 23037593 | 200 |
| 82_ARC-I50-0-1H01/11-_NM | | | | | 23037594 | 200 |
| 82_ARC-I50-0-1I01/11-_NM | | | | | 23037595 | 200 |
| 82_ARC-I50-0-1K01/11-_NM | | | | | 23037596 | 200 |
| 82_ARC-I50-0-1M01/11-_NM | | | | | 84015028 | 200 |
| 82_ARC-I50-0-1Z01/11-_NM | | | | | 23037597 | 200 |

Straight PCB Jacks (Female) – Ground and Signal Pin THT



| HUBER+SUHNER Type (Coding A ... Z) | PCB Thickness | Nose Position | Outline-Drawing | Mounting hole | Art.-No. | Packaging Size |
|---------------------------------------|---------------|----------------|-----------------|--------------------------|----------|----------------|
| 82_ARC-I50-0-1A03/11-_NM | 1.60 mm | 03:00 09:00 | DOU-00013063 | ML 145 (see page 108) | 23037598 | 200 |
| 82_ARC-I50-0-1B03/11-_NM | | | | | 23037599 | 200 |
| 82_ARC-I50-0-1C03/11-_NM | | | | | 23037600 | 200 |
| 82_ARC-I50-0-1D03/11-_NM | | | | | 23037601 | 200 |
| 82_ARC-I50-0-1E03/11-_NM | | | | | 23037602 | 200 |
| 82_ARC-I50-0-1F03/11-_NM | | | | | 23037603 | 200 |
| 82_ARC-I50-0-1G03/11-_NM | | | | | 23037604 | 200 |
| 82_ARC-I50-0-1H03/11-_NM | | | | | 23037605 | 200 |
| 82_ARC-I50-0-1I03/11-_NM | | | | | 23037606 | 200 |
| 82_ARC-I50-0-1K03/11-_NM | | | | | 23037607 | 200 |
| 82_ARC-I50-0-1Z03/11-_NM | | | | | 23037608 | 200 |

ARC PCB CONNECTORS

Right Angle PCB Jacks (Female) – Ground and Signal Pin THT



| HUBER+SUHNER Type (Coding A ... Z) | PCB Thickness | Nose Position | Outline-Drawing | Mounting hole | Art.-No. | Packaging Size |
|---------------------------------------|---------------|---------------|-----------------|--------------------------|----------|----------------|
| 85_ARC-I50-0-1C04/111_NM | 1.60 mm | 00:00 | DOU-00012637 | ML 142 (see page 108) | 84048320 | 200 |
| 85_ARC-I50-0-1D04/111_NM | | | | | 84048319 | 200 |
| 85_ARC-I50-0-1C05/111_NM | 1.60 mm | 06:00 | DOU-00012637 | | 23022105 | 200 |
| 85_ARC-I50-0-1D05/111_NM | | | | | 23022106 | 200 |

Right Angle PCB Jacks (Female) – Ground and Signal Pin THT



| HUBER+SUHNER Type (Coding A ... Z) | PCB Thickness | Nose Position | Outline-Drawing | Mounting hole | Art.-No. | Packaging Size |
|---------------------------------------|---------------|---------------|-----------------|--------------------------|----------|----------------|
| 85_ARC-I50-0-1A12 | 1.50 mm | 00:00 | DOU-00081035 | ML 163 (see page 110) | 84026926 | 450 |
| 85_ARC-I50-0-1C12 | | | | | 84026928 | 450 |
| 85_ARC-I50-0-1D12 | | | | | 84026929 | 450 |
| 85_ARC-I50-0-1I12 | | | | | 84026934 | 450 |
| 85_ARC-I50-0-1K12 | | | | | 84026935 | 450 |
| 85_ARC-I50-0-1A13 | 1.50 mm | 09:00 | DOU-00085769 | | 84027183 | 450 |
| 85_ARC-I50-0-1K13 | | | | | 84027182 | 450 |
| 85_ARC-I50-0-1A14 | 1.50 mm | 03:00 | DOU-00086750 | | 84028182 | 450 |
| 85_ARC-I50-0-1K14 | | | | | 84028191 | 450 |
| 85_ARC-I50-0-1?15* | 1.50 mm | 06:00 | DOU-00105963 | | * | 450 |

* on request

ARC PCB CONNECTORS

Right Angle PCB Jacks (Female) – Ground THT – Signal Pin SMT



| HUBER+SUHNER Type (Coding A ... Z) | PCB Thickness | Nose Position | Outline-Drawing | Mounting hole | Art.-No. | Packaging Size |
|---------------------------------------|----------------------------|---------------|-----------------|--------------------------|----------|----------------|
| 94_ARC-I50-0-1A11/11-_NM | 1.60 mm (optional 1 mm) | 00:00 | DOU-00012576 | ML 140 (see page 108) | 23036430 | 390 |
| 94_ARC-I50-0-1B11/11-_NM | | | | | 23036431 | 390 |
| 94_ARC-I50-0-1C11/11-_NM | | | | | 23036432 | 390 |
| 94_ARC-I50-0-1D11/11-_NM | | | | | 23036433 | 390 |
| 94_ARC-I50-0-1E11/11-_NM | | | | | 23036434 | 390 |
| 94_ARC-I50-0-1F11/11-_NM | | | | | 23036435 | 390 |
| 94_ARC-I50-0-1G11/11-_NM | | | | | 23036436 | 390 |
| 94_ARC-I50-0-1H11/11-_NM | | | | | 23036437 | 390 |
| 94_ARC-I50-0-1I11/11-_NM | | | | | 23036438 | 390 |
| 94_ARC-I50-0-1K11/11-_NM | | | | | 23036439 | 390 |
| 94_ARC-I50-0-1L11/11-_NM | | | | | 84004258 | 390 |
| 94_ARC-I50-0-1M11/11-_NM | | | | | 84025820 | 390 |
| 94_ARC-I50-0-1Z11/11-_NM | | | | | 23036440 | 390 |

Optional other length of legs on request

ARC PCB CONNECTORS

Right Angle PCB Jacks (Female) – Ground THT – Signal Pin SMT



| HUBER+SUHNER Type (Coding A ... Z) | PCB Thickness | Nose Position | Outline-Drawing | Mounting hole | Art.-No. | Packaging Size |
|---------------------------------------|----------------------------|---------------|-----------------|--------------------------|----------|----------------|
| 94_ARC-I50-0-1A12/11-_NM | 1.60 mm (optional 1 mm) | 06:00 | DOU-00012573 | ML 140 (see page 108) | 23036196 | 230 |
| 94_ARC-I50-0-1B12/11-_NM | | | | | 23036199 | 230 |
| 94_ARC-I50-0-1C12/11-_NM | | | | | 23036200 | 230 |
| 94_ARC-I50-0-1D12/11-_NM | | | | | 23036201 | 230 |
| 94_ARC-I50-0-1E12/11-_NM | | | | | 23036202 | 230 |
| 94_ARC-I50-0-1F12/11-_NM | | | | | 23036203 | 230 |
| 94_ARC-I50-0-1G12/11-_NM | | | | | 23036204 | 230 |
| 94_ARC-I50-0-1H12/11-_NM | | | | | 23036206 | 230 |
| 94_ARC-I50-0-1I12/11-_NM | | | | | 23036208 | 230 |
| 94_ARC-I50-0-1K12/11-_NM | | | | | 23036209 | 230 |
| 94_ARC-I50-0-1Z12/11-_NM | | | | | 23036210 | 230 |

Optional other length of legs on request

Right Angle PCB Jacks (Female) – Ground THT – Signal Pin SMT



| HUBER+SUHNER Type (Coding A ... Z) | PCB Thickness | Nose Position | Outline-Drawing | Mounting hole | Art.-No. | Packaging Size |
|---------------------------------------|----------------------------|---------------|-----------------|--------------------------|----------|----------------|
| 94_ARC-I50-0-1A13/11-_NM | 1.60 mm (optional 1 mm) | 03:00 | DOU-00072885 | ML 140 (see page 108) | 23036870 | 230 |
| 94_ARC-I50-0-1B13/11-_NM | | | | | 23036871 | 230 |
| 94_ARC-I50-0-1C13/11-_NM | | | | | 23036872 | 230 |
| 94_ARC-I50-0-1D13/11-_NM | | | | | 23036873 | 230 |
| 94_ARC-I50-0-1E13/11-_NM | | | | | 23036874 | 230 |
| 94_ARC-I50-0-1F13/11-_NM | | | | | 23036875 | 230 |
| 94_ARC-I50-0-1G13/11-_NM | | | | | 23036876 | 230 |
| 94_ARC-I50-0-1H13/11-_NM | | | | | 23036877 | 230 |
| 94_ARC-I50-0-1I13/11-_NM | | | | | 23036878 | 230 |
| 94_ARC-I50-0-1K13/11-_NM | | | | | 23036879 | 230 |
| 94_ARC-I50-0-1Z13/11-_NM | | | | | 23036880 | 230 |

Optional other length of legs on request

ARC PCB CONNECTORS

Right Angle PCB Jacks (Female) – Ground THT – Signal Pin SMT



| HUBER+SUHNER Type (Coding A ... Z) | PCB Thickness | Nose Position | Outline-Drawing | Mounting hole | Art.-No. | Packaging Size |
|---------------------------------------|----------------------------|---------------|-----------------|--------------------------|----------|----------------|
| 94_ARC-I50-0-1A14/11-_NM | 1.60 mm (optional 1 mm) | 09:00 | DOU-00012374 | ML 140 (see page 108) | 23036881 | 230 |
| 94_ARC-I50-0-1B14/11-_NM | | | | | 23036882 | 230 |
| 94_ARC-I50-0-1C14/11-_NM | | | | | 23036883 | 230 |
| 94_ARC-I50-0-1D14/11-_NM | | | | | 23036884 | 230 |
| 94_ARC-I50-0-1E14/11-_NM | | | | | 23036885 | 230 |
| 94_ARC-I50-0-1F14/11-_NM | | | | | 23036886 | 230 |
| 94_ARC-I50-0-1G14/11-_NM | | | | | 23036887 | 230 |
| 94_ARC-I50-0-1H14/11-_NM | | | | | 23036888 | 230 |
| 94_ARC-I50-0-1I14/11-_NM | | | | | 23036889 | 230 |
| 94_ARC-I50-0-1K14/11-_NM | | | | | 23036890 | 230 |
| 94_ARC-I50-0-1Z14/11-_NM | | | | | 23036891 | 230 |

Optional other length of legs on request

Right Angle PCB Jacks (Female) – Ground THT – Signal Pin SMT



| HUBER+SUHNER Type (Coding A ... Z) | PCB Thickness | Nose Position | Outline-Drawing | Mounting hole | Art.-No. | Packaging Size |
|---------------------------------------|----------------------------|---------------|-----------------|--------------------------|----------|----------------|
| 94_ARC-I50-0-2A11/11-_NM | 1.60 mm (optional 1 mm) | 00:00 | DOU-00013065 | ML 141 (see page 108) | 23038711 | 200 |
| 94_ARC-I50-0-2B11/11-_NM | | | | | 23038712 | 200 |
| 94_ARC-I50-0-2C11/11-_NM | | | | | 23038713 | 200 |
| 94_ARC-I50-0-2D11/11-_NM | | | | | 23038714 | 200 |
| 94_ARC-I50-0-2E11/11-_NM | | | | | 23038715 | 200 |
| 94_ARC-I50-0-2F11/11-_NM | | | | | 23038716 | 200 |
| 94_ARC-I50-0-2G11/11-_NM | | | | | 23038717 | 200 |
| 94_ARC-I50-0-2H11/11-_NM | | | | | 23038718 | 200 |
| 94_ARC-I50-0-2I11/11-_NM | | | | | 23038719 | 200 |
| 94_ARC-I50-0-2K11/11-_NM | | | | | 23038720 | 200 |
| 94_ARC-I50-0-2Z11/11-_NM | | | | | 23038721 | 200 |

Optional other length of legs on request

ADDITIONAL NOTES



RF Components (ARC)

TEST AND MEASUREMENT SERIES ARC

Test and Measurement Series ARC

The ARC Series allows a simplified automotive test- and measurement procedure, with the following benefits:

- One adaptor for different T+M applications
- Reliable connection up to 6 GHz
- 3000 matings thanks to specially adapted ARC interface



TEST AND MEASUREMENT SERIES ARC

Adaptor without Locking Mechanism on the Plastic Housing



| HUBER+SUHNER Type | Outline-Drawing | Interface | Art.-No. | Packaging Size |
|-----------------------------|-----------------|--|----------|----------------|
| 33_ARC-SMA-I50-1C01/11_-NE | DOU-00006706 | ARC = plug (male) SMA = jack (female) | 23037322 | 1 |
| 33_ARC-SMA-I50-1D01/11_-NE | | | 23037323 | 1 |
| 33_ARC-SMA-I50-1E01/11_-NE | | | 23037324 | 1 |
| 33_ARC-SMA-I50-1K01/11_-NE | | | 23037329 | 1 |
| 33_ARC-SMA-I50-1Z01/111_-NE | | | 23037330 | 1 |

Adaptor with Plastic Housing



| HUBER+SUHNER Type | Outline-Drawing | Interface | Art.-No. | Packaging Size |
|----------------------------|-----------------|--|----------|----------------|
| 31_ARC-SMA-I50-1C01/11_-NE | DOU-00013912 | ARC = jack (female) SMA = jack (female) | 23034828 | 1 |
| 31_ARC-SMA-I50-1Z01/11_-NE | | | 23032646 | 1 |

ADDITIONAL NOTES



RF Components (ARC)

ADDITIONAL NOTES

ARC TOOLS AND ACCESSORIES

An economic and secure assembly process requires high grade tools and accessories. Thanks to the HUBER+SÜHNER production know-how our products meet in particular the following requirements:

- Easy handling
- Ergonomic design
- Precise dimensions
- Low weight



ARC TOOLS AND ACCESSORIES

Crimp Tool without Inserts



| HUBER+SUHNER Tool Type | Remarks | Art.-No. |
|------------------------|---|----------|
| 75_Z-0-1 | For square crimp centre and hexagonal outer contact crimp. Suitable crimp inserts see following pages. | 22543157 |

Table Press without Inserts



| HUBER+SUHNER Tool Type | Remarks | Art.-No. |
|------------------------|---|----------|
| 75_Z-0-2 | For square crimp centre and hexagonal outer contact crimp. Suitable crimp inserts see following pages. | 22543158 |

ARC TOOLS AND ACCESSORIES

Overview



| HUBER+SUHNER Type | Cable | Outer Contact | Centre Contact | Crimp Inserts | Hand Tool | Serie Tool |
|-------------------|------------|---------------|----------------|---------------|-------------|-------------|
| | | | | Tool Type | Tool Type | Tool Type |
| | | | | Art.-No. | Art.-No. | Art.-No. |
| 11_ARC-50-2-18 | S_02132_B | X | | 76_Z-0-2-29 | 75_Z-0-2-17 | |
| | | | | 84042649 | 84042647 | |
| | | | X | | 75_Z-0-2-14 | 75_Z-0-3-10 |
| | | | | | 23016715 | 84042590 |
| 11_ARC-50-2-19 | S_02132_B | X | | 76_Z-0-2-29 | 75_Z-0-2-17 | |
| | | | | 84042649 | 84042647 | |
| | | | X | | 75_Z-0-2-14 | 75_Z-0-3-10 |
| | | | | | 23016715 | 84042590 |
| 11_ARC-50-2-20 | RG_174_U | X | | 76_Z-0-2-1 | | |
| | | | | 22543181 | | |
| | | | X | | 75_Z-0-2-13 | 75_Z-0-2-7 |
| | | | | | 23016714 | 23028650 |
| 11_ARC-50-2-21 | S_02132_B | X | | 76_Z-0-2-25 | | |
| | | | | 23032632 | | |
| | | | X | | 75_Z-0-2-14 | 75_Z-0-3-7 |
| | | | | | 23016715 | 23028651 |
| 11_ARC-50-2-22 | S_02132_B | X | | 76_Z-0-2-32 | | |
| | | | | 84042889 | | |
| | | | X | | 75_Z-0-2-14 | 75_Z-0-3-7 |
| | | | | | 23016715 | 23028651 |
| 11_ARC-50-2-24 | RG_174_U | X | | 76_Z-0-2-26 | | |
| | | | | 84002635 | | |
| | | | X | | 75_Z-0-2-13 | 75_Z-0-2-7 |
| | | | | | 23016714 | 23028650 |
| 11_ARC-50-2-25 | RG_174_A/U | X | | 76_Z-0-2-29 | 75_Z-0-2-16 | |
| | | | | 84042649 | 84042646 | |
| | | | X | | 75_Z-0-2-13 | 75_Z-0-2-15 |
| | | | | | 23016714 | 84042588 |
| 11_ARC-50-2-32 | RG_174_A/U | X | | 76_Z-0-2-29 | 75_Z-0-2-16 | |
| | | | | 84042649 | 84042646 | |
| | | | X | | 75_Z-0-2-13 | 75_Z-0-2-15 |
| | | | | | 23016714 | 84042588 |

ARC TOOLS AND ACCESSORIES

Overview



| HUBER+SUHNER Type | Cable | Outer Contact | Centre Contact | Crimp Inserts | Hand Tool | Serie Tool |
|-------------------|-------------|---------------|----------------|---------------|-------------|-------------|
| | | | | Tool Type | Tool Type | Tool Type |
| | | | | Art.-No. | Art.-No. | Art.-No. |
| 11_ARC-50-3-9 | RG_58_C/U | X | | 76_Z-0-3-21 | 75_Z-0-3-12 | |
| | | | | 84042650 | 84042648 | |
| | | | X | | 75_Z-0-3-6 | 75_Z-0-3-10 |
| | | | | | 23030370 | 84042590 |
| 11_ARC-50-3-10 | RG_58_C/U | X | | 76_Z-0-3-21 | 75_Z-0-3-12 | |
| | | | | 84042650 | 84042648 | |
| | | | X | | 75_Z-0-3-6 | 75_Z-0-3-10 |
| | | | | | 23030370 | 84042590 |
| 11_ARC-50-3-11 | 75 Ω Type A | X | | 76_Z-0-3-21 | 75_Z-0-3-12 | |
| | | | | 84042650 | 84042648 | |
| | | | X | | 75_Z-0-3-9 | 75_Z-0-3-11 |
| | | | | | 84041361 | 84042586 |
| 11_ARC-50-3-12 | 75 Ω Type A | X | | 76_Z-0-3-21 | 75_Z-0-3-12 | |
| | | | | 84042650 | 84042648 | |
| | | | X | | 75_Z-0-3-9 | 75_Z-0-3-11 |
| | | | | | 84041361 | 84042586 |
| 11_ARC-50-3-13 | RG_58_C/U | X | | 76_Z-0-3-1 | | |
| | | | | 22543185 | | |
| | | | X | | 75_Z-0-3-6 | 75_Z-0-3-7 |
| | | | | | 23030370 | 23028651 |
| 11_ARC-50-3-14 | 75 Ω Type M | X | | 76_Z-0-3-18 | | |
| | | | | 23041320 | | |
| | | | X | | 75_Z-0-3-9 | 75_Z-0-2-7 |
| | | | | | 84041361 | 23028650 |
| 11_ARC-50-3-17 | RG_58_C/U | X | | 76_Z-0-3-19 | | |
| | | | | 84000592 | | |
| | | | X | | 75_Z-0-3-6 | 75_Z-0-3-7 |
| | | | | | 23030370 | 23028651 |

ARC TOOLS AND ACCESSORIES

Overview



| HUBER+SUHNER Type | Cable | Outer Contact | Centre Contact | Crimp Inserts | Hand Tool | Serie Tool |
|-------------------|-------------|---------------|----------------|---------------|-----------|------------|
| | | | | Tool Type | Tool Type | Tool Type |
| | | | | Art.-No. | Art.-No. | Art.-No. |
| 16_ARC-50-1-1 | RG_174_U | X | | 76_Z-0-2-1 | | |
| | | | | 22543181 | | |
| | | | X | soldered | | |
| 16_ARC-50-2-11 | RG_174_U | X | X | 76_Z-0-2-1 | | |
| 16_ARC-50-2-13 | | | | 22543181 | | |
| 16_ARC-50-2-12 | S_02132_B | X | X | 76_Z-0-2-25 | | |
| 16_ARC-50-2-14 | | | | 23032632 | | |
| 16_ARC-50-3-7 | RG_58_C/U | X | X | 76_Z-0-3-16 | | |
| 16_ARC-50-3-9 | | | | 22652081 | | |
| 16_ARC-50-3-10 | 75 Ω Type M | X | X | 76_Z-0-3-20 | | |
| 16_ARC-50-3-8 | | | | 84009543 | | |

ARC TOOLS AND ACCESSORIES

Overview



| HUBER+SUHNER Type | Cable | Outer Contact | Centre Contact | Crimp Inserts | Hand Tool | Serie Tool |
|-------------------|-------------|---------------|----------------|---------------|-------------|-------------|
| | | | | Tool Type | Tool Type | Tool Type |
| | | | | Art.-No. | Art.-No. | Art.-No. |
| 21_ARC-50-2-18 | S_02132_B | X | | 76_Z-0-2-29 | 75_Z-0-2-17 | |
| | | | | 84042649 | 84042647 | |
| | | | X | | 75_Z-0-2-14 | 75_Z-0-3-10 |
| | | | | | 23016715 | 84042590 |
| 21_ARC-50-2-19 | RG_174_U | X | | 76_Z-0-2-1 | | |
| | | | | 22543181 | | |
| | | | X | | 75_Z-0-2-13 | 75_Z-0-2-7 |
| | | | | | 23016714 | 23028650 |
| 21_ARC-50-2-20 | S_02132_B | X | | 76_Z-0-2-25 | | |
| | | | | 23032632 | | |
| | | | X | | 75_Z-0-2-14 | 75_Z-0-3-7 |
| | | | | | 23016715 | 23028651 |
| 21_ARC-50-2-21 | S_02132_B | X | | 76_Z-0-2-32 | | |
| | | | | 84042889 | | |
| | | | X | | 75_Z-0-2-14 | 75_Z-0-3-7 |
| | | | | | 23016715 | 23028651 |
| 21_ARC-50-2-25 | RG_174_A/U | X | | 76_Z-0-2-29 | 75_Z-0-2-16 | |
| | | | | 84042649 | 84042646 | |
| | | | X | | 75_Z-0-2-13 | 75_Z-0-2-15 |
| | | | | | 23016714 | 84042588 |
| 21_ARC-50-2-27 | RG_174_U | X | | 76_Z-0-2-26 | | |
| | | | | 84002635 | | |
| | | | X | | 75_Z-0-2-13 | 75_Z-0-2-7 |
| | | | | | 23016714 | 23028650 |
| 21_ARC-50-3-9 | RG_58_C/U | X | | 76_Z-0-3-21 | 75_Z-0-3-12 | |
| | | | | 84042650 | 84042648 | |
| | | | X | | 75_Z-0-3-6 | 75_Z-0-3-10 |
| | | | | | 23030370 | 84042590 |
| 21_ARC-50-3-10 | 75 Ω Type A | X | | 76_Z-0-3-21 | 75_Z-0-3-12 | |
| | | | | 84042650 | 84042648 | |
| | | | X | | 75_Z-0-3-9 | 75_Z-0-3-11 |
| | | | | | 84041361 | 84042586 |

ARC TOOLS AND ACCESSORIES

Overview



| HUBER+SUHNER Type | Cable | Outer Contact | Centre Contact | Crimp Inserts | Hand Tool | Serie Tool |
|-------------------|-------------|---------------|----------------|---------------|-------------|------------|
| | | | | Tool Type | Tool Type | Tool Type |
| | | | | Art.-No. | Art.-No. | Art.-No. |
| 21_ARC-50-3-11 | RG_58_C/U | X | | 76_Z-0-3-1 | | |
| | | | | 22543185 | | |
| | | | X | | 75_Z-0-3-6 | 75_Z_0-3-7 |
| | | | | | 23030370 | 23028651 |
| 21_ARC-50-3-12 | 75 Ω Type M | X | | 76_Z-0-3-18 | | |
| | | | | 23041320 | | |
| | | | X | | 75_Z-0-3-9 | 75_Z_0-2-7 |
| | | | | | 84041361 | 23028650 |
| 21_ARC-50-3-15 | RG_58_C/U | X | | 76_Z-0-3-19 | | |
| | | | | 84000592 | | |
| | | | X | | 75_Z-0-3-6 | 75_Z_0-3-7 |
| | | | | | 23030370 | 23028651 |
| 24_ARC-150-2-1&03 | RG_174_U | X | | 76_Z-0-2-1 | | |
| | | | | 22543181 | | |
| | | | X | | 76_Z-0-3-16 | |
| | | | | | 22652081 | |

NON FAKRA CONNECTORS

HUBER+SUHNER also offers a selection of standard RF connectors used in the automotive industry, such as

subminiature connectors SMB or micro coax connector series like MMCX, MMBX oder MCX.



NON FAKRA CONNECTORS



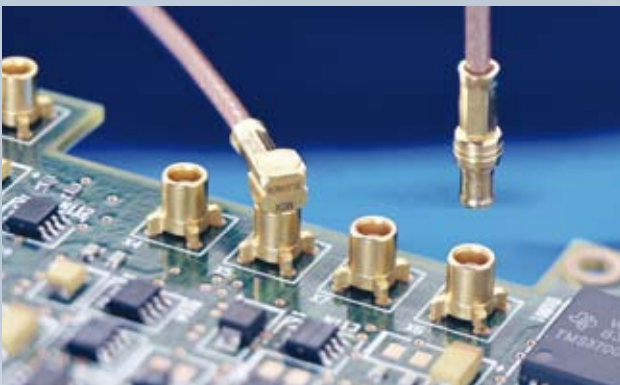
HUBER+SUHNER MMCX

- Low RF-leakage due to its non-slotted outer contact
- Snap-on coupling mechanism for consistent electrical performance
- High quality of a traditional PCB connector
- Outstanding mechanical characteristics due to the superior MMCX snap-on mechanism
- Wide MMCX product range to choose from



HUBER+SUHNER MMBX - the must for:

- Direct board-to-board interconnection
- Lowest space requirement
- SMT and through hole technology
- Misalignments without dynamic effect on signal transmission
- Excellent solderability thanks to new plating
- Flexible connection



HUBER+SUHNER MCX - easy mateable

- First class electrical and mechanical properties
- Maximum and constant quality due to the use of modern production technologies
- Simple and safe to assemble
- Industrial quantities available in tape & reel packaging
- MCX test kit as reference standard available from HUBER+SUHNER only

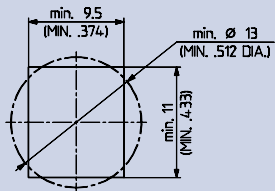


HUBER+SUHNER SMB

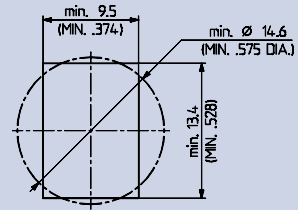
- Subminiature cable connectors
- Frequency from DC up to 4 GHz
- Fast and reliable connection thanks to snap-on locking mechanism

For more detailed information about RF connectors please see our Coaxial Connectors General Catalogue.

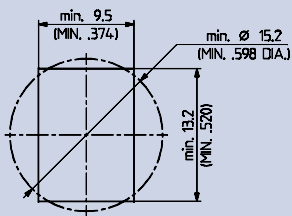
MOUNTING HOLES / THROUGH HOLES / SERIES ARC



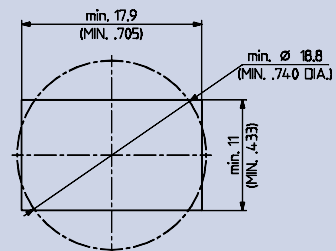
ML 148



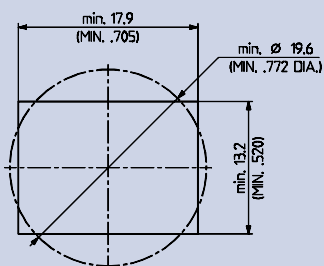
ML 149



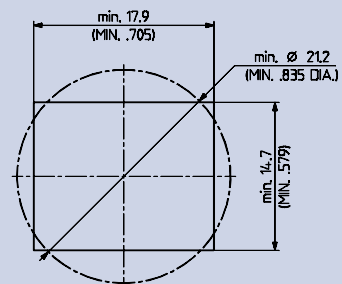
ML 150



ML 151

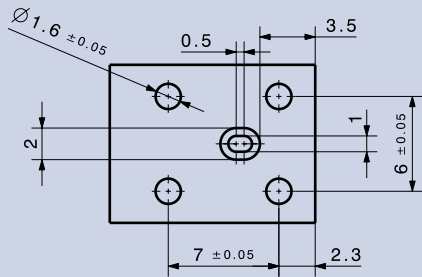


ML 152

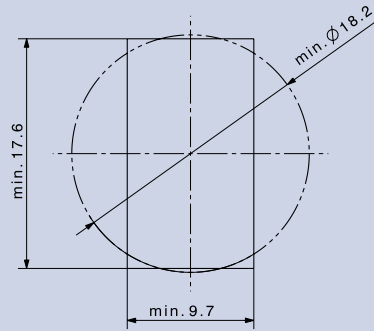


ML 153

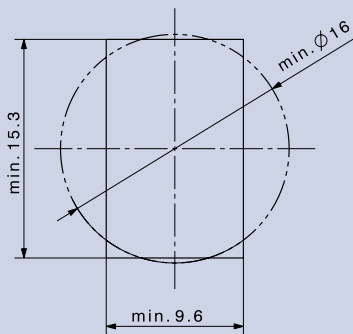
MOUNTING HOLES / THROUGH HOLES / SERIES ARC



ML 163



ML 171



ML 172

CABLE DIMENSIONS OVERVIEW



| Description | Supplier | Impedance | Centre conductor | Strand | Dielectric | Outer conductor | Jacket |
|--------------------|------------|------------|-------------------|-----------|-------------------|-----------------|-------------------|
| | | Ω | mm | n x mm | mm | mm | mm |
| RG_174_/U | H+S | 50 ± 2 | $0,48 \pm 0,025$ | 7 x 0,16 | 1,48 | 2,00 | 2,55 |
| RG_174_A/U | H+S | 50 ± 2 | $0,48 \pm 0,025$ | 7 x 0,16 | 1,48 | 2,00 | 2,80 |
| S_02132_B | H+S | 50 ± 3 | $0,8 \pm 0,02$ | 7 x 0,27 | $2,1 \pm 0,03$ | 2,55 | $3,2 \pm 0,1$ |
| K031 | Leoni (RT) | 50 ± 3 | 0,8 | 7 x 0,27 | $2,1 \pm 0,05$ | 2,60 | $3,2 \pm 0,1$ |
| FL02YHB CY 90°C | G+G | 50 ± 5 | max. 0,8 | 7 x 0,26 | $2,1 \pm 0,1$ | 2,60 ? | $3,2 \pm 0,2$ |
| FL09YHBCYW 105°C | G+G | 50 ± 5 | max. 0,8 | 7 x 0,26 | $2,1 \pm 0,1$ | 2,60 ? | $3,2 \pm 0,2$ |
| RG_58_C/U | H+S | 50 ± 2 | $0,902 \pm 0,051$ | 19 x 0,18 | $2,946 \pm 0,102$ | 3,60 | $4,953 \pm 0,102$ |
| 75 Ω Type A | | 75 ± 5 | 0,45 | 7 x 0,15 | $2,90 \pm 0,1$ | 3,35 | $4,80 \pm 0,1$ |
| 75 Ω Type M | | $75 \pm ?$ | $0,5 \pm 0,005$ | wire | $3,25 \pm 0,1$ | 3,65 | $4,90 \pm 0,2$ |

POLYMER COMPONENTS

High-precision plastic parts are used in every vehicle. HUBER+SUHNER's many years of experience in injection moulding provide solutions for every application - in cooperation with and at the request of custo-

mers. For example, various vehicle models use the HUBER+SUHNER stopper as a part component for the immobilizer in the steering column.

- Customer-specific injection moulded components
- Precision moulded functional parts
- Assemblies

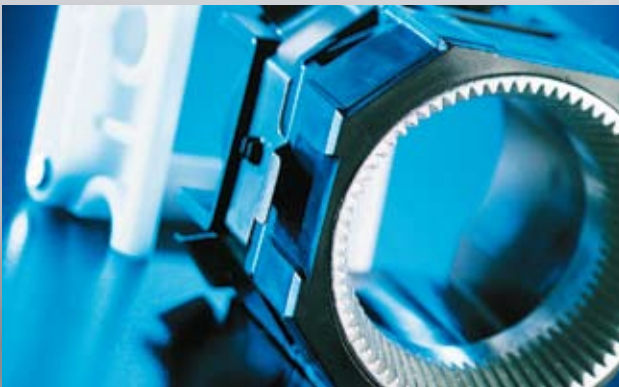


POLYMER COMPONENTS



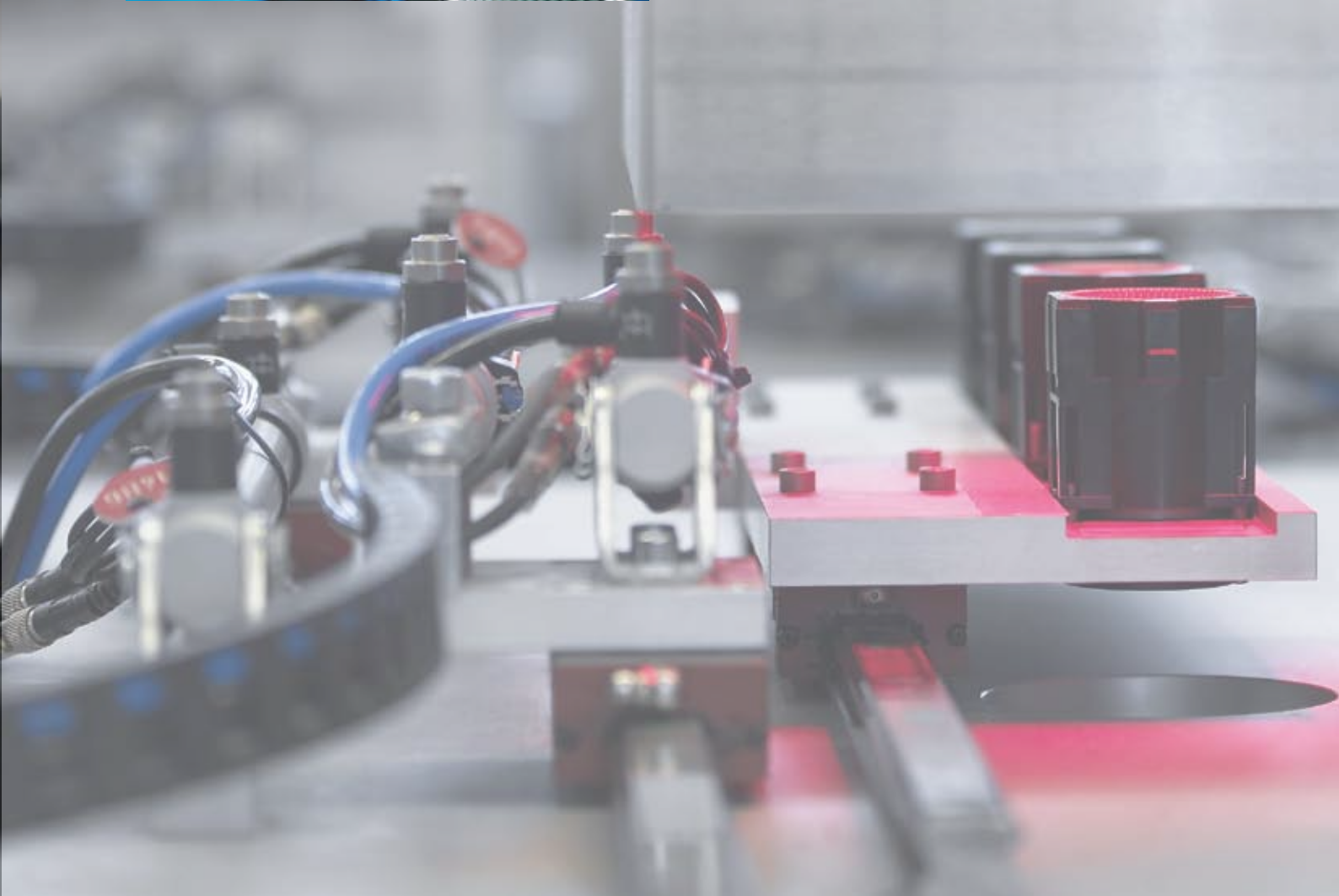
Functional parts in precision injection moulding

- Processing of high-performance plastics such as PEEK, PFA, PEI, LCP, PPS and PPA
- Multiple moulds
- Closest tolerances
- Modern machinery with peripheral devices
- 3D coordinate measuring machine for sample measurements



Injection moulding modules

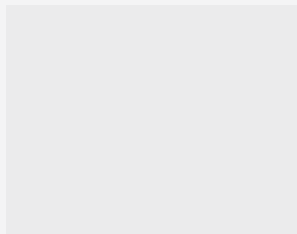
- Injection moulding with inserts
- Assembly and fabrication facilities
- Ultra-sound and high frequency welding



HUBER+SUHNER is certified according to
ISO 9001, ISO 14001, ISO/TS 16949 and IRIS.

WAIVER

It is exclusively in written agreements that we provide our customers with warrants and representations as to the technical specifications and/or the fitness for any particular purpose. The facts and figures contained herein are carefully compiled to the best of our knowledge, but they are intended for general informational purposes only.



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84060241/11.2008

