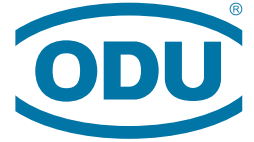


A PERFECT ALLIANCE.



ODU SINGLE CONTACTS

Contact technologies for the most demanding of requirements.
Up to 1,700 A, 100,000 mating cycles and more.

ODU SPRINGTAC®

ODU LAMTAC®



ODU SINGLE CONTACTS

ODU TURNTAC®

ODU SINGLE CONTACTS WITH SPRINGWIRE AND LAMELLA TECHNOLOGY

FEATURES

- Contact diameter 0.76 mm to 60 mm
- High current-carrying capacity
- Vibration resistance
- High contact reliability
- High mating cycles (up to 1 Million)

APPLICATIONS

- Energy
- eMobility
- Industrial
- Measuring and testing
- Medical
- Military and security



All shown connectors are according to IEC 61984:2008 (VDE 0627:2009); connectors without breaking capacity (COC).

All dimensions in mm.
Most of the pictures are illustrations.
All data and specifications subject to change without notice.

Issue: 2017-01

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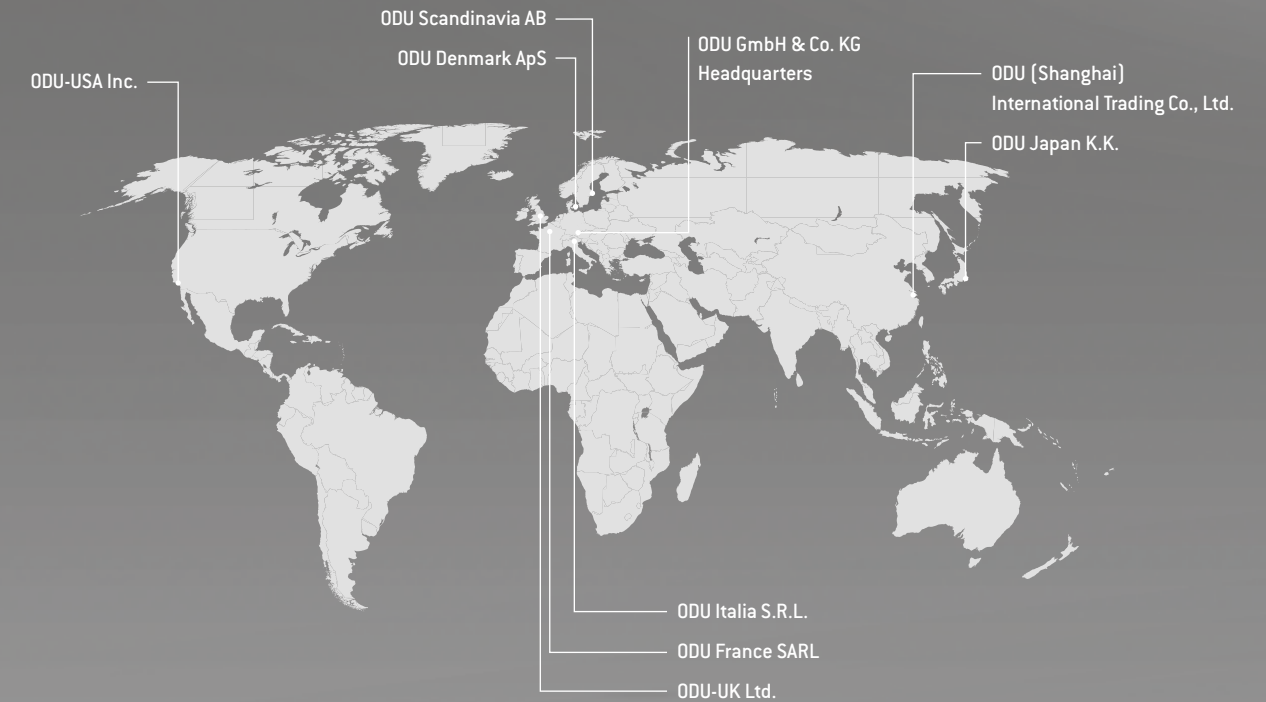
A PERFECT ALLIANCE.

CREATING CONNECTIONS, BUILDING ALLIANCES, COLLABORATING INTO THE FUTURE: WHETHER TWO TECHNICAL COMPONENTS COME TOGETHER TO FORM A UNIT OR PEOPLE COME TOGETHER TO STRIVE FOR GREAT RESULTS – THE KEY IS TO ASPIRE IN ACHIEVING SUPERB RESULTS. THIS GOAL DRIVES OUR WORK. **PERFECT CONNECTIONS THAT INSPIRE AND DELIVER ON THE PROMISES.**



A PERFECT ALLIANCE.

ODU WORLDWIDE



ODU GROUP OVERVIEW

- More than 70 years of connector experience
- €146 million* in turnover
- Over 1,650 employees worldwide
- 9 sales subsidiaries: China, Denmark, France, Germany, Italy, Japan, Sweden, the UK and the US
- All technologies under one roof: Design and development, machine tool and special machine construction, injection, stamping, turning, surface technology, assembly and cable assembly

*As of February 2016

CERTIFIED QUALITY

- DIN EN ISO 9001
- ISO/TS 16949
- DIN EN ISO 14001
- ISO 13485
- Wide range of UL, CSA, VG and DVA licenses
- UL-certified cable assembly

For a complete list of our certifications, please visit our website.

INGENIOUS IDEAS PERFECT SOLUTIONS

ODU'S PRODUCT PORTFOLIO.

+ Versatile connector solutions for transmission of power, signals, data, or media – ODU never fails to offer the right interface when quality and absolute reliability are the top priorities.



COMPACT MODULAR CONNECTOR SOLUTIONS

- Application-specific hybrid interface
- For manual mating and automatic docking
- The highest packing density
- Flexible modular construction
- Multitude of data transmission modules
- Variety of locking options available
- For the transmission of signals, power, high current, high voltage, coax, high-speed data, fiber optics and other media such as air or fluid.
- Mating cycles scalable as required from 10,000 to over 100,000 (1 million)



PUSH-PULL CIRCULAR CONNECTORS

- Circular connector series in robust metal or plastic housing
- Contacts for soldering, crimping and PCB termination
- With Push-Pull locking mechanism for a secure connector
- 2 up to 55 contacts
- IP 50 to IP 69
- Autoclavable for medical applications



SINGLE CONTACTS

- Versatile connector technologies
- Outstanding reliability, lifetime and durability
- Up to 1 million mating cycles
- Current-carrying capacity of up to 2,400 amperes and more
- Rugged contact systems, suitable even for harsh environment
- Economical solutions for automatic processing



HEAVY-DUTY & DOCKING AND ROBOTIC CONNECTOR SOLUTIONS

- Extremely durable even under extreme / harsh environments
- Interference-free and secure connection, even under vibration
- Up to 500 A (higher currents upon request)
- High contact security due to the springwire technology
- High pin density due to a minimum contact diameter
- Low contact resistance



APPLICATION AND CUSTOMER-SPECIFIC SOLUTIONS

- Contacts, connectors and assemblies for the highest technical requirements as well as special applications
- First-class implementation expertise
- High level of vertical manufacturing – all competences and key technologies under one roof
- Expert advice based on mutual partnership
- Fast development and production



CABLE ASSEMBLY

- Complete systems from a single source based on years of assembly expertise
- State-of-the-art production facilities with 100% end testing, high-voltage testing, component testing and pressure testing up to 100 bar
- Cleanroom production
- Hot-melt and high-pressure injection molding
- Customer-specific labeling
- Rapid prototyping of samples

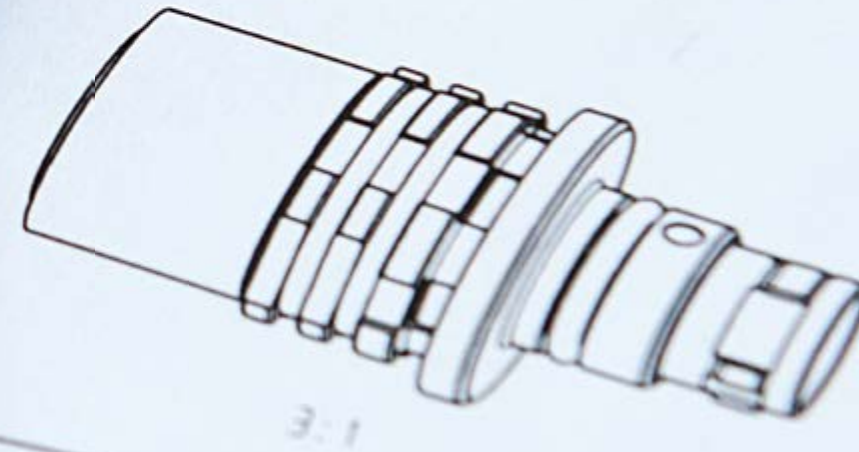
MORE THAN A CONNECTION

OUR KNOW-HOW FOR YOUR SUCCESS.

All shown connectors are according to DIN EN 61984:2009 connectors without breaking capacity (COC)!

General tolerances to DIN ISO 2768-mK
Tolerance to DIN ISO 8015

prep.	date	name
2013	11.06	Unterblum
app.	norm.	designation
		Break-A



MEDICAL

MEASUREMENT AND TESTING

MILITARY AND SECURITY

INDUSTRIAL

ENERGY

E-MOBILITY

HIGH PERFORMANCE CONNECTOR TECHNOLOGY FOR DEMANDING KEY MARKETS

Customers rely on ODU technology wherever first-class, high-performance connector solutions are required. All our skills go into our products to ensure your success. In addition to the top quality, reliable stability and maximum flexibility in customer-specific requirements, our products also stand for dynamics, reliability, safety, precision, efficiency and sustainability. And they guarantee unrestricted functionality for the final product due to our high quality connectors. ODU – A PERFECT ALLIANCE.

APPLICATION-SPECIFIC SOLUTIONS

Demands that can't be pigeon-holed call for creative specialists who think outside the box. ODU offers the type of expertise that focuses solely on the specific requirements of our customers. For every development order we get, we not only perform a thorough check to make sure it's feasible, we intensively incorporate our customers in the ongoing design process. This guarantees an impressive, custom-fit final result. Our solutions are frequently based on the modifications of our products, especially for the ODU MINI-SNAP and ODU-MAC connectors.

HIGH LEVEL OF VERTICAL INTEGRATION

ODU combines all the competences and key technologies for the connector manufacturing. These include design and development, machine tool and special machine construction, injection, stamping, turning, surface technology, assembly and cable assembly and our own test laboratory.

INDIVIDUAL CABLE ASSEMBLY

Our production skills together with our cutting edge production facilities from Europe, China and the USA enable us to deliver to our customers local tested assemblies and also global ones.



PRODUCT INFORMATION

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ODU SINGLE CONTACTS

CONTACT TECHNOLOGIES FOR A WIDE VARIETY OF SPECIFICATIONS

ODU's extensive product portfolio offers highly specialized contact types. The functionality and properties of each contact system have been precisely geared to each specific application. They are available in a wide range of dimensions and termination types.

+ THE MARATHON RUNNER:

Outstanding reliability, lifetime and durability with up to 1 million mating cycles

- Contact with springwire technology
- Very high contact security
- Low mating and demating forces
- Very high vibration resistance
- Low contact resistance
- High current-carrying capacity



ODU SPRINGTAC®



ODU TURNTAC®

+ THE RUGGED ONE:

Suitable even for harsh environments

- Turned, slotted contacts
- > 10,000 mating cycles
- Low and stable mating and demating forces
- Tiniest dimensions possible, down to 0.3 mm contact diameter
- Mating possible at an angle of up to 5°

+ THE HIGH VOLUME CONTACT:

Economical contact system for automatic processing

- Stamped contacts
- > 10,000 mating cycles
- Standard contacts for use in charging plugs (IP 67)
- Cost-efficient alternative for high volumes

+ THE HIGH PERFORMANCE CONTACT:

Maximum current-carrying capability and temperature resistance of up to 180°C

- Contact with lamella technology
- Current-carrying capacity of up to 2,400 amperes
- > 10,000 mating cycles
- High vibration resistance
- Low contact resistance
- Automated lamella assembly
- High contact security



ODU LAMTAC®



ODU STAMPTAC®

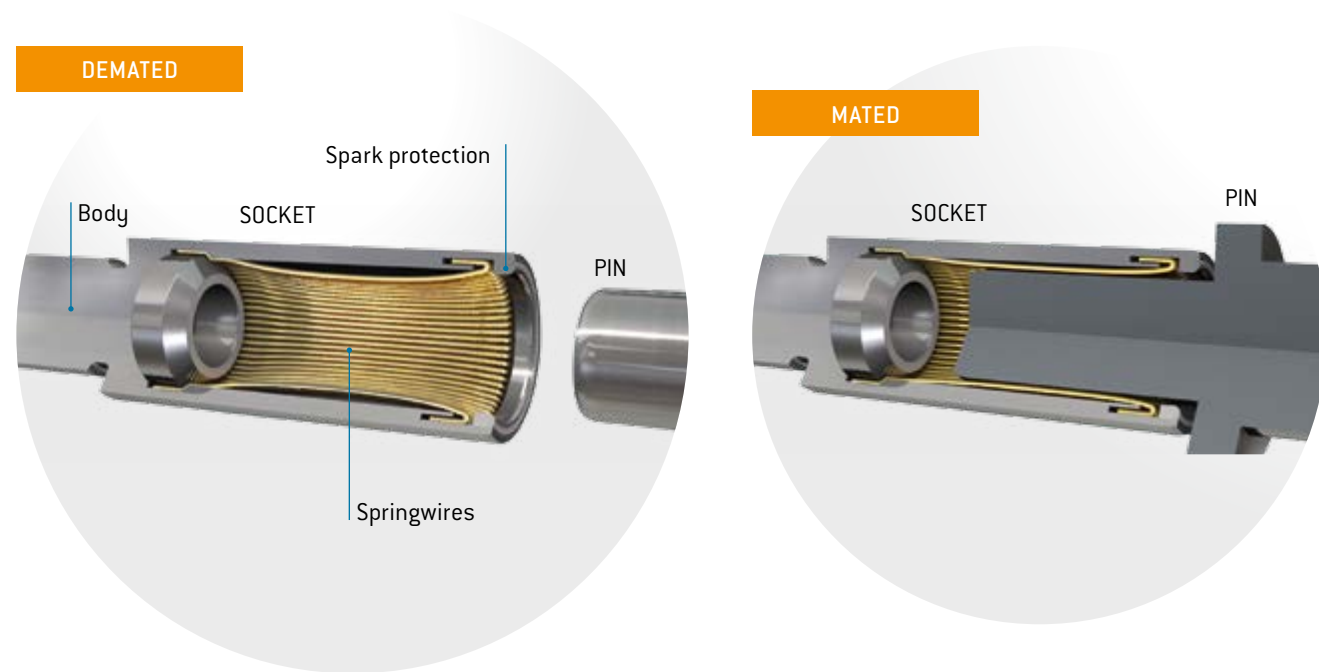
BEST CONNECTIONS – THE CONTACT PRINCIPLE

ODU contacts meet the highest quality standards and enable safe, reliable connections. ODU provides high-performance contact technologies. In the turned contact category, we essentially distinguish between lamella, springwire and slotted contacts. Several socket pieces are available. The pins, which are identical, are always made of solid metal.

ODU SPRINGTAC®

Contacts with springwire technology

The ODU SPRINGTAC is the most effective contact system on the market. It offers maximum reliability and an exceptionally long durability. Due to the many independent wire springs, a constant transmission is provided at all times. Even the smallest contact, at 0.76 mm in diameter, contains 15 individual springs. In other words, 15 contact surfaces are present in this tiny contact area.



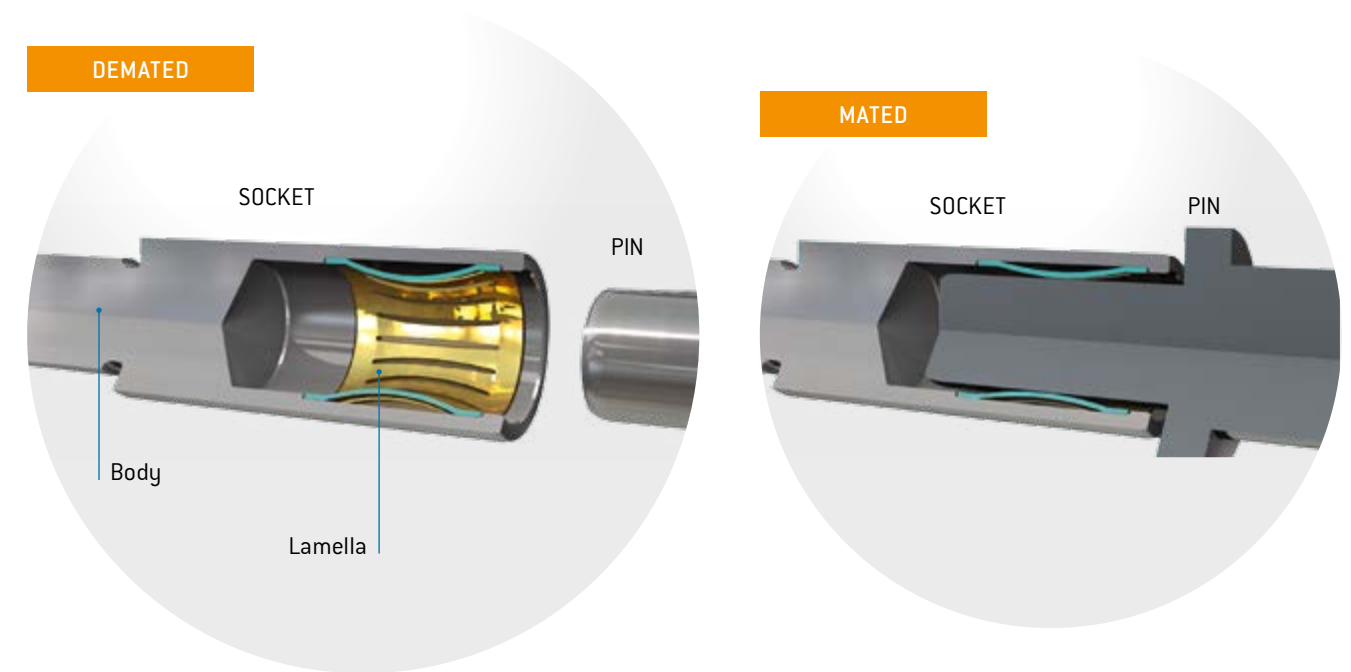
BENEFITS

- Outstanding reliability, lifetime and durability with up to 1 million mating cycles
- Very high contact security
- Low mating and demating forces
- Very high vibration resistance
- Low contact resistance
- High current-carrying capacity

ODU LAMTAC®

Contacts with lamella technology

The ODU LAMTAC is a high-performance contact system with lamella technology. It possesses high current-carrying capacity and can be used at temperatures of up to 180 °C. It consists of a turned carrier containing one or several stamped lamella belts. The lamella's individual slats make for a multitude of contact points, thereby guaranteeing a high level of contact security and ease of connecting.



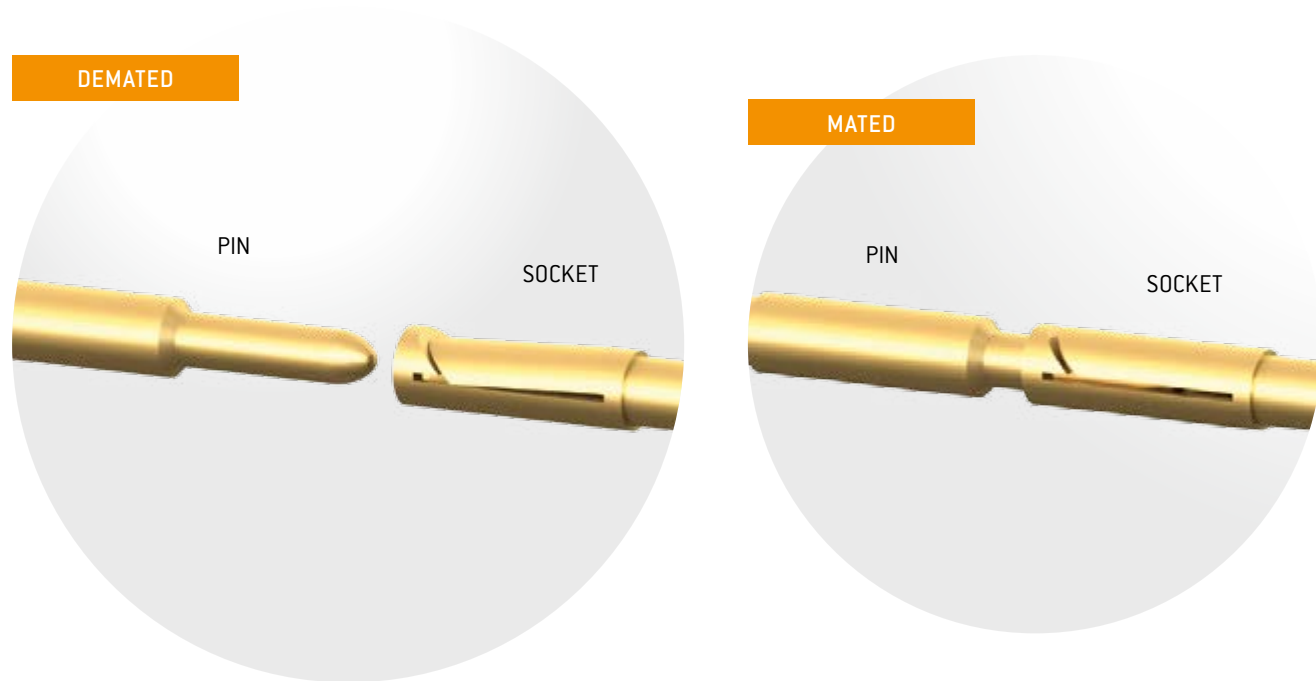
BENEFITS

- Current-carrying capacity of up to 2,400 amperes
- > 10,000 mating cycles
- High vibration resistance
- Low contact resistance
- Automated lamella assembly
- High contact security

ODU TURNTAC®

Slotted contacts

The universal ODU TURNTAC contact system combines the very best contact properties and high quality with economic prices. It has stood the test of even the toughest application areas. The contact principle can even be used in dimensions as tiny as 0.3 mm in diameter. Depending on the variety of slotted contact, the connector systems offers two or four contact areas.



BENEFITS

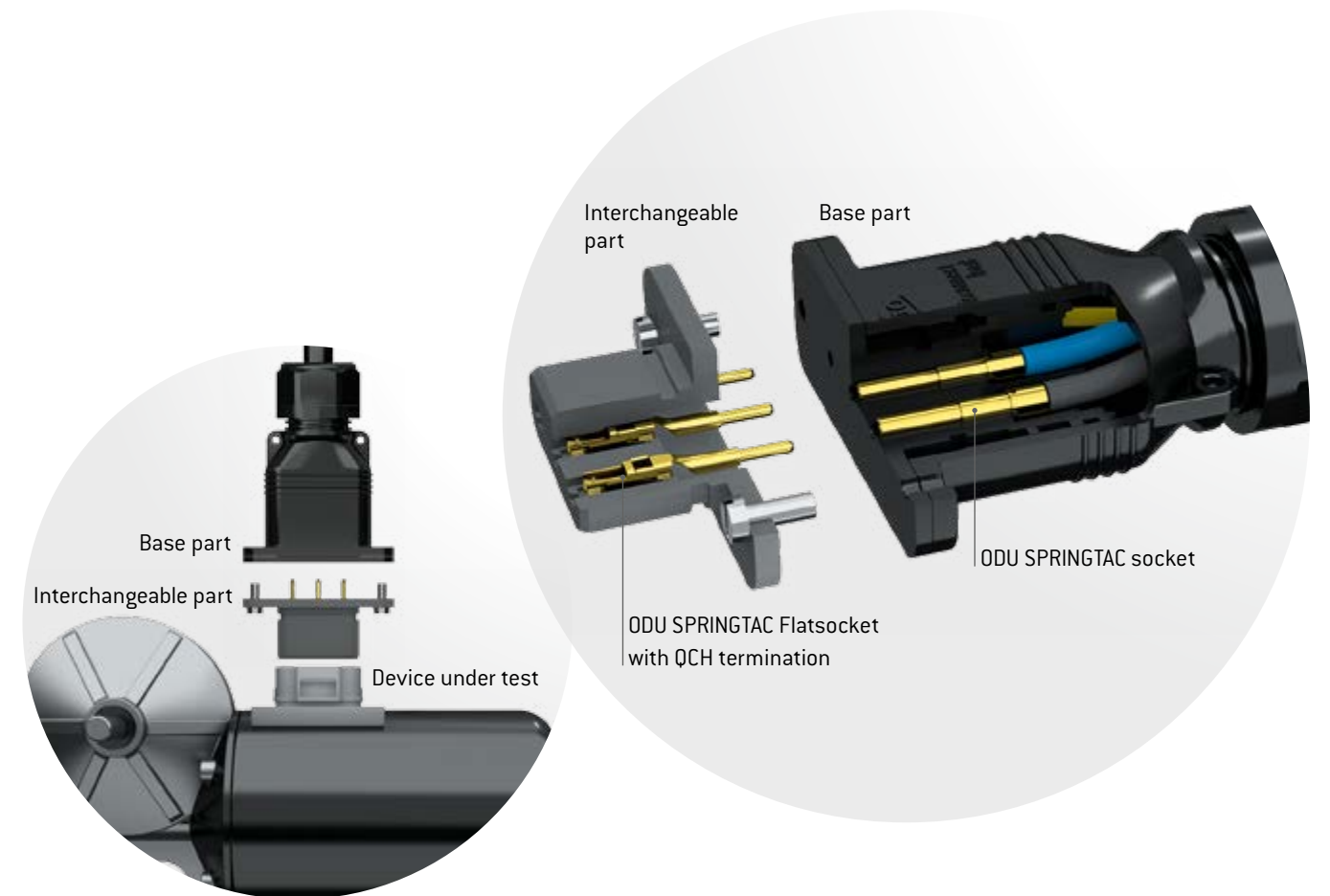
- Turned, slotted contacts
- Rugged contact system, suitable even for harsh environment
- > 10,000 mating cycles
- Low and stable mating and demating forces
- Tiniest dimensions possible, down to 0.3 mm contact diameter
- Mating possible at an angle of up to a 5°



Simply scan QR-Code for download of the brochure ODU TURNTAC.

THE ODU QCH QUICK-CHANGE HEAD (CONNECTOR SAVER) PRINCIPLE

With the ODU QCH quick-change head (connector saver) principle, the socket has a contact pin termination instead of a conventional cable termination. The contact pin can be mated with an ODU SPRINGTAC or ODU LAMTAC socket installed in an assembled connector (base part). Sockets with a QCH termination are integrated in an insulator (interchangeable part) which can be front-mounted to the connector. This way, you can quickly and easily exchange the test adapter without any further assembly. The use of a wide variety of interchangeable parts provides you with a maximum amount of flexibility for your production.



PROGRESS IN TESTING TECHNOLOGY

Stamped flat contacts (pins) are widely used in automotive electronics and equipment engineering. In standard series connectors, the counterpart consists of stamped sockets crimped to the cables and locked into the insulator. These stamped socket contacts typically allow for only a few mating cycles and are practically unsuitable for testing. This is also because of their often strong mating and demating forces.

ODU SPRINGTAC Flatsockets have been specifically developed for measuring and testing technology. They allow for over 50,000 mating cycles and reliably transmit even very high

test currents. Combined with the ODU QCH quick-change head (connector saver) principle, many million mating cycles can be achieved.

For customer-specific versions not covered by our standard portfolio, please contact us directly.

FOR MORE INFORMATION, GO TO PAGE 32


OVERVIEW ODU SINGLE CONTACTS







ODU Single contacts create perfect connections. From simple applications to complex specifications and even in the toughest environmental conditions – our contacts offer ideal solutions. Including the highest level of contact safety and reliability.

Our portfolio includes universal contact varieties with a practical crimp terminal as well as a solder/screw terminal. Our sockets with an external thread allow you to integrate our time-tested contact technology even in the tightest of installation spaces.

Our sockets are ideally complemented with our ODU contact pins for a maximum service life and perfect contacts.

ODU SPRINGTAC® SOCKETS AND PINS S. 24




-  ODU SPRINGTAC socket
Solder/screw termination
-  ODU SPRINGTAC socket
Crimp termination
-  ODU SPRINGTAC socket
Outer thread
-  ODU contact pin
Solder/screw termination
-  ODU contact pin
Crimp termination
-  Externally flexed contact pin
Solder/screw termination







ODU SPRINGTAC® FLATSOCKETS S. 32



-  ODU SPRINGTAC Flatsocket
Crimp termination
-  ODU SPRINGTAC Flatsocket
QCH quick-change head
(connector saver)
-  ODU SPRINGTAC Flatsocket
Solder termination

ODU LAMTAC® SOCKETS AND PINS S. 38



-  ODU LAMTAC socket
Solder/screw termination
-  ODU LAMTAC socket
Crimp termination
-  ODU LAMTAC socket
Outer thread
-  ODU LAMTAC socket
Outer thread
-  ODU contact pin
Solder/screw termination
-  ODU contact pin
Crimp termination

APPLICATION-SPECIFIC SOLUTIONS

When standard solutions reach their limits, it's time to bring in the specialists who can think outside the box to find creative solutions. ODU has experts like this – and they'll put all their focus on your specific needs. We do more than simply carry out a feasibility test for each development contract. We also closely collaborate with our customers throughout the design process. This way, we can guarantee impressive customized results. Our custom solutions are often based on modifications of standard solutions.

CUSTOMIZED CONNECTORS

The angled ODU pin contact connects a ODU LAMTAC socket, which connects the module block with a battery storage system. The ODU product, which we manufacture right down to the cable assembly, guarantees easy installation, proven current-carrying capability in its lamella technology and touch protection. And provides perfect connections.

Benefits

- Complete solution from one source
- Over 10,000 mating cycles



RECTANGULAR CONNECTOR

A complex 90° connector including the ODU LAMTAC technology is used for stackable module current supply in lasers. The highly flexible conductor decouples vibrations.

Benefits

- 90° angular outlet
- Very high current-carrying capacity
- Intelligent termination technology
- Highly flexible braid



1 MILLION MATING CYCLES

Our ODU SPRINGTAC offers top performance for welding current transmission in a tool-changing system. An intelligent crimp termination system ensures maximum flexibility in the tiniest of installation spaces – as well as one million mating cycles.



HIGH CURRENT-CARRYING CAPACITY COMBINED WITH HIGH TEMPERATURE RESISTANCE

The time-tested ODU LAMTAC series has been combined with a stamped contact body.

Benefits

- Efficient stamping technique
- Automated assembly
- 100 % final check

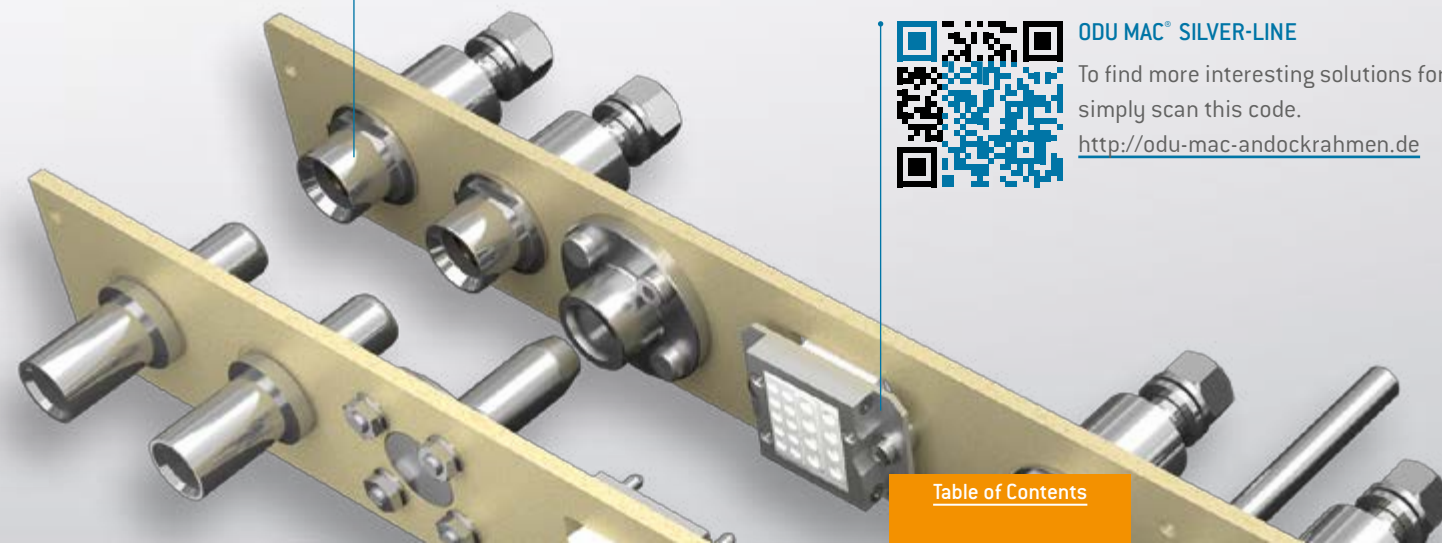


ODU LAMTAC® ON THE TEST BENCH

The reliable transmission of high performance under climate changing conditions demand high requirements to the contact system and connection technology. ODU LAMTAC combines this in this docking solution in an extraordinary way.

Benefits

- System solution from a single source
- Low coupling forces
- Temperature stable termination technology



ODU MAC® SILVER-LINE

To find more interesting solutions for docking, simply scan this code.

<http://odu-mac-andockrahmen.de>



ODU SPRINGTAC®

ODU SPRINGTAC socket with solder/screw termination	24
ODU SPRINGTAC socket with crimp termination	25
ODU SPRINGTAC socket with outer thread	26
ODU contact pin with solder/screw termination	27
ODU contact pin with crimp termination	28
ODU SPRINGTAC externally flexed contact pin with solder/screw termination	29

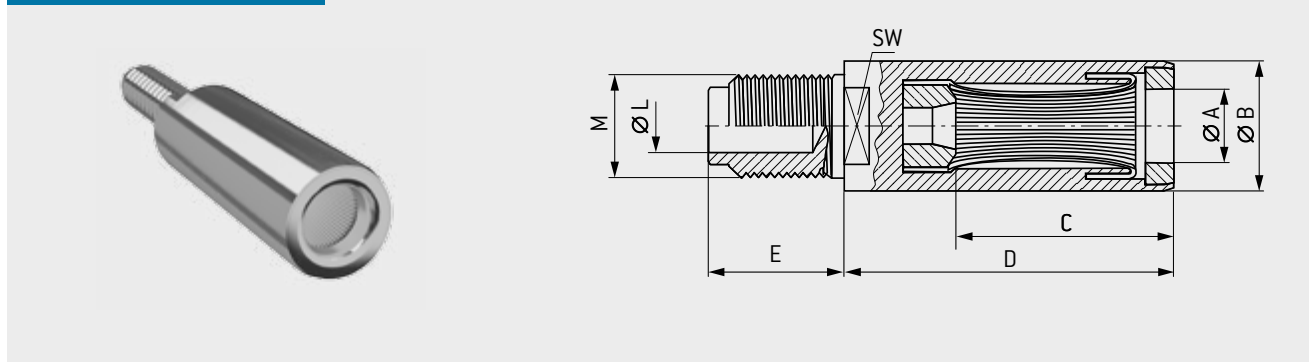
ODU SINGLE CONTACTS

ODU SPRINGTAC® SOCKET



Contact with springwire technology

SOLDER/SCREW TERMINATION



Part number	Dimensions								Mechanical data ¹		Electrical data ¹			
	Ø A	Ø B	C	D	SW	E	M	Ø L	Mating force	Demating force	Nominal current	Max. continuous current	Surge current	Contact resistance
	mm	mm	mm	mm	mm	mm	Thread	mm	N	N	A	A	kA	µΩ
170.106.100.201.000	1.5	4	12	15.5	–	12.5	M2.6	1.25	5	3	25	35	1.5	500
170.107.100.201.000	2	4	12	15.5	–	12.5	M3	1.8	6	4	30	40	2.5	400
170.109.100.201.000	2.5	6	12	15.5	5	12.5	M3	1.8	8	5	30	45	3	300
170.110.100.201.000	3	7	15	22.5	5	15	M4	2.3	10	7	35	50	4	250
170.111.100.201.000	4	8	15	22.5	6	19	M5	3	15	10	55	80	7	210
170.112.100.201.000	5	9	15	22.5	7	19	M5	3	18	12	85	110	10	200
170.113.100.201.000	6	11	24	33.5	8	22	M6	3.6	20	13	95	140	13	180
170.115.100.201.000	8	14	24	33.5	11	26	M8	4.8	25	15	140	210	18	160
170.117.100.201.000	10	16	24	33.5	12	30	M10	6.2	30	20	175	275	25	150
170.119.100.201.000	12	18	36	47	14	34	M12 × 1.5	7.6	35	25	230	340	34	140
170.121.100.201.000	16	23	36	47	19	42	M16 × 1.5	11.5	45	35	340	460	50	130
170.123.100.201.000	20	27	48	66	22	50	M20 × 2	14.5	55	45	450	600	70	115
170.125.100.201.000	24	32	48	66	27	58	M24 × 2	17.8	70	55	500	700	90	105
170.127.100.201.000	28	36	48	66	32	62	M32 × 2	25	90	65	650	850	110	90
170.128.100.201.000	30	38	48	66	32	62	M32 × 2	25	100	70	720	950	120	80

Other variants, sizes and finishes available on request.
¹ See "Technical Information" starting on page 55.

TECHNICAL DATA

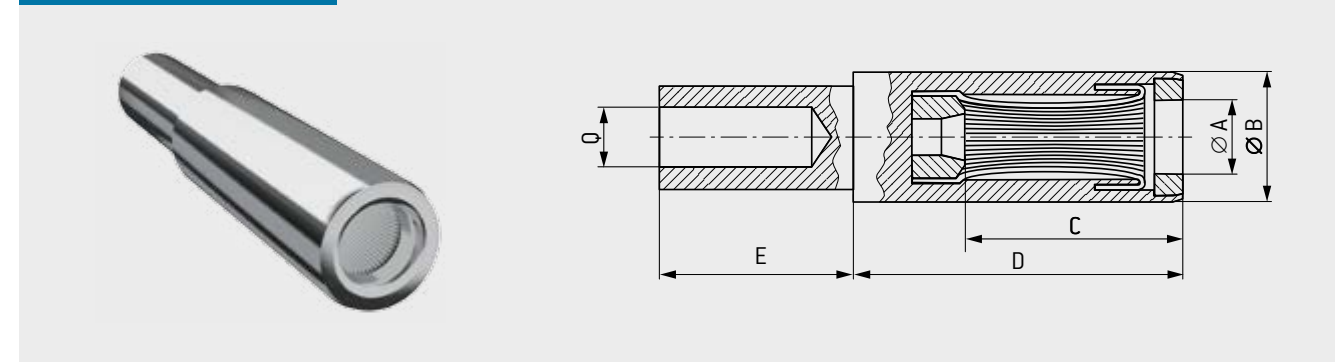
- Suitable for contact pins (page 27 and 28)
- Suitable for screwing to power busbars, backplanes and contact blocks
- Cables with lugs can be easily connected
- Cables can be soldered into the solder hole

ODU SPRINGTAC® SOCKET



Contact with springwire technology

CRIMP TERMINATION



Part number	Dimensions						Mechanical data ¹		Electrical data ¹			
	Ø A	Ø B	C	D	E	Ø	Mating force	Demating force	Nominal current	Max. continuous current	Surge current	Contact resistance
	mm	mm	mm	mm	mm	mm ²	N	N	A	A	kA	µΩ
170.361.700.207.000	0.76	1.58	7	9.8	5	0.38	1.5	1	10	15	0.7	3 000
170.362.700.207.000	1.02	1.98	7	9.8	5	0.5	2	1.5	12	18	1	2 000
171.606.100.201.000	1.5	4	12	15.5	6.5	1.5	5	3	25	35	1.5	500
171.607.100.201.000	2	4	12	15.5	6.5	2.5	6	4	30	40	2.5	400
171.609.100.201.000	2.5	6	12	15.5	6.5	2.5	8	5	30	45	3	250
170.610.100.201.000	3	5.5	15	22.5	6.5	2.5	10	7	30	45	4	220
171.610.100.201.000	3	7	15	22.5	6.5	4	10	7	35	50	4	220
170.611.100.201.000	4	8	15	22.5	12.5	4	15	10	35	50	4	210
171.611.100.201.000	4	8	15	22.5	12.5	6	15	10	55	80	7	210
171.612.100.201.000	5	9	15	22.5	17.5	10	18	12	85	110	10	200
171.613.100.201.000	6	11	24	33.5	22.5	16	20	13	95	140	13	180
171.615.100.201.000	8	14	24	33.5	22.5	25	25	15	140	210	18	160
171.617.100.201.000	10	16	24	33.5	22.5	35	30	20	175	275	25	150
171.619.100.201.000	12	18	36	47	28	50	35	25	230	340	34	140
171.621.100.201.000	16	23	36	47	28	95	45	35	340	460	50	130

Other variants, sizes and finishes available on request.
¹ See "Technical Information" starting on page 55.

TECHNICAL DATA

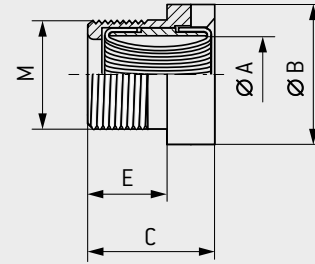
- Suitable for contact pins (page 27 and 28)
- Easy and quick connection by crimping (crimp information starting on page 46)
- Suitable for connecting harmonized cables
- Part number crimping tool see table on page 49

ODU SPRINGTAC® SOCKET

Socket with through-hole
Contact with springwire technology



OUTER THREAD



Part number	Dimensions					Mechanical data ¹			Electrical data ¹			
	Ø A	Ø B	C	E	M	Mating force	Demating force	Tightening torque	Nominal current	Max. continuous current	Surge current	Contact resistance
	mm	mm	mm	mm	Thread	N	N	N	A	A	kA	µΩ
174.011.000.201.000	4	9	8	5	M7 × 0,5	15	10	1.2	45	80	7	320

Other variants, sizes and finishes available on request.
¹ See "Technical Information" starting on page 55.

TECHNICAL DATA

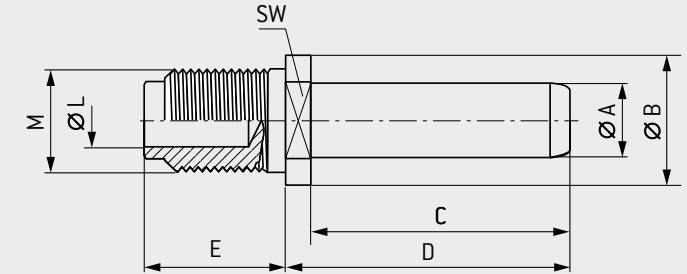
- Suitable for contact pins (page 27 and 28)
- Suitable for screwing to power busbars, backplanes and contact blocks
- Can be connected at both ends

ODU CONTACT PIN

For all ODU SPRINGTAC® sockets



SOLDER/SCREW TERMINATION



Part number	Dimensions								
	Ø A	x ¹	Ø B	C	D	SW	E	M	Ø L
	mm	mm	mm	mm	mm	mm	mm	Thread	mm
181.106.000.301.000	1.5	-0.03	4	10	11.5	3	10	M2.6	1.25
181.107.000.301.000	2	-0.03	5	10	11.5	4	12.5	M3	1.8
181.109.000.301.000	2.5	-0.03	5	10	11.5	4	12.5	M3	1.8
181.110.000.301.000	3	-0.03	6	14	15.5	5	15	M4	2.3
181.111.000.301.000	4	-0.03	7	14	16	6	19	M5	3
181.112.000.301.000	5	-0.03	7	14	16	6	19	M5	3
181.113.000.301.000	6	-0.03	8	23	26	7	22	M6	3.6
181.213.000.301.000	6	-0.03	11	23	26	8	22	M8	4.8
181.115.000.301.000	8	-0.03	11	23	26	9	26	M8	4.8
181.215.000.301.000	8	-0.03	14	23	26	11	26	M10	6.2
181.117.000.301.000	10	-0.04	16	23	26	12	30	M10	6.2
181.217.000.301.000	10	-0.04	16	23	26	12	30	M12 × 1.5	7.6
181.119.000.301.000	12	-0.04	16	34	38	14	34	M12 × 1.5	7.6
181.121.000.301.000	16	-0.04	20	34	38	17	42	M16 × 1.5	11.5
181.123.000.301.000	20	-0.04	25	46	51	22	50	M20 × 2	14.5
181.125.000.301.000	24	-0.04	30	46	51	27	58	M24 × 2	17.8
181.127.000.301.000	28	-0.04	36	46	52	32	62	M32 × 2	25
181.128.000.301.000	30	-0.04	38	46	52	32	62	M32 × 2	25

Other variants, sizes and finishes available on request.
¹ Tolerance diameter A.

TECHNICAL DATA

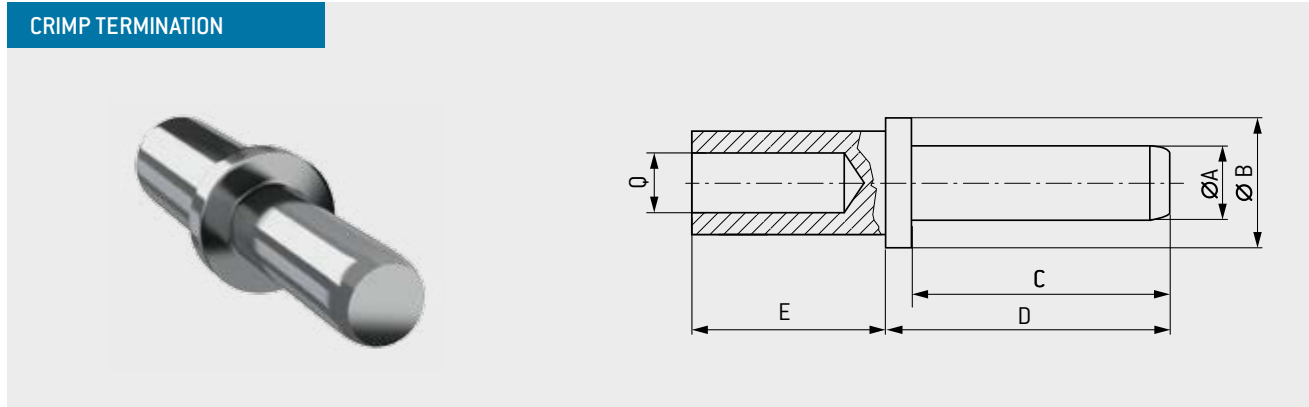
- Suitable for all round ODU SPRINGTAC sockets
- Suitable for screwing to power busbars, backplanes and contact blocks
- Cables with lugs can be easily connected
- Cables can be soldered into the solder hole

ODU CONTACT PIN

For all ODU SPRINGTAC® sockets



CRIMP TERMINATION



Part number	Dimensions						
	Ø A	x ¹	Ø B	C	D	E	Q
	mm	mm	mm	mm	mm	mm	mm ²
180.361.000.307.000	0.765	-0.015	1.57	7	16.9	4.9	0.38
180.362.000.307.000	1.02	-0.03	2.1	7	16.9	4.9	0.5
181.606.000.301.000	1.5	-0.03	4	10	11.5	6.5	1.5
181.607.000.301.000	2	-0.03	4	10	11.5	6.5	2.5
181.609.000.301.000	2.5	-0.03	6	10	11.5	6.5	2.5
181.610.000.301.000	3	-0.03	7	14	16	6.5	4
181.611.000.301.000	4	-0.03	8	14	16	12.5	6
181.612.000.301.000	5	-0.03	9	14	16	17.5	10
181.613.000.301.000	6	-0.03	11	23	26	22.5	16
181.713.000.301.000	6	-0.03	11	23	26	22.5	25
181.615.000.301.000	8	-0.03	14	23	26	22.5	25
181.715.000.301.000	8	-0.03	14	23	26	22.5	35
181.617.000.301.000	10	-0.04	16	23	26	22.5	35
181.717.000.301.000	10	-0.04	16	23	26	22.5	50
181.619.000.301.000	12	-0.04	18	34	38	28	50
181.621.000.301.000	16	-0.04	23	34	38	28	95

Other variants, sizes and finishes available on request.
¹ Tolerance diameter A.

TECHNICAL DATA

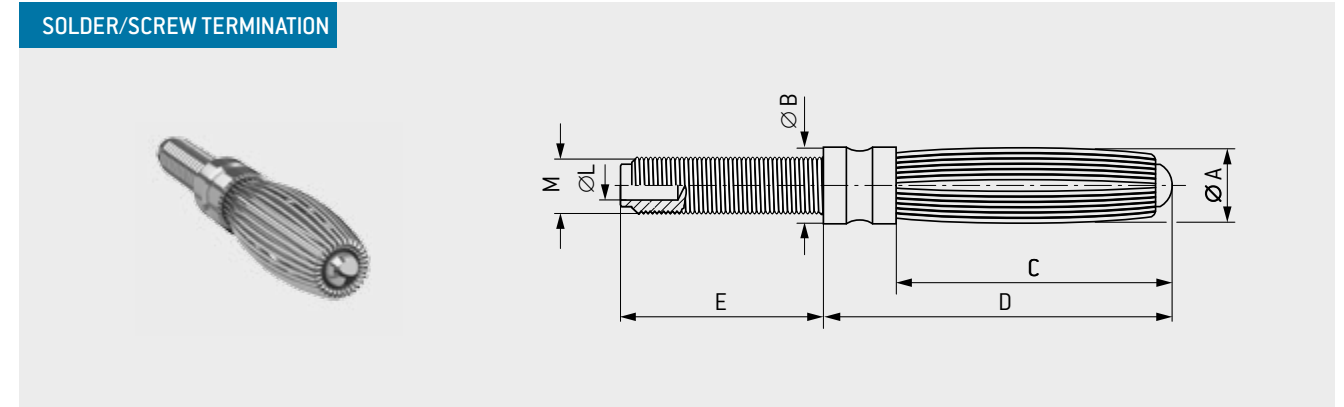
- Suitable for all round ODU SPRINGTAC sockets
- Easy and quick termination by crimping (crimp information starting on page 46)
- Suitable for connecting harmonized cables
- Part number crimping tool see table on page 49

EXTERNALLY FLEXED CONTACT PIN

For solder/screw termination



SOLDER/SCREW TERMINATION



Part number	Dimensions							Mechanical data ¹		Electrical data ¹		
	Ø A	Ø B	C	D	E	M	Ø L	Mating force	Demating force	Nominal current	Max. continuous current	Contact resistance
	mm	mm	mm	mm	mm	Thread	mm	N	N	A	A	µΩ
150.001.100.201.000	1.5	3	6	11	8	M2.3	1.25	2	2	10	15	800
150.002.100.201.000	2	3	9	14	9	M2.3	1.25	4	3	15	18	675
150.005.100.201.000	3	3.5	13	18.5	11.5	M2.6	1.4	6	5	25	35	600
150.006.100.201.000	4	5	20.5	26	13	M3	1.8	10	8	36	50	525
150.007.100.201.000	5	6	20.5	26	15	M4	2.4	15	12	45	65	475
150.008.100.201.000	6	7	22	29	17	M5	3.2	19	14	55	80	425
150.009.100.201.000	7	8	22	29	17	M6	4	21	16	65	100	375
150.010.100.201.000	8	9	33	41.5	19	M6	4	24	18	78	130	325
150.011.100.201.000	9	10.5	33	41.5	20.5	M8	5.2	28	22	90	150	275
150.012.100.201.000	10	11.5	33	41.5	22	M8	5.2	32	25	104	175	250
150.013.100.201.000	12	14	33	41.5	25	M10	6.5	38	30	135	215	200
150.015.100.201.000	16	18	45	59	32	M14 × 1.5	9.5	50	40	175	270	165

Other variants, sizes and finishes available on request.
¹ See "Technical Information" starting on page 55.

TECHNICAL DATA

- Suitable for contact holes ØA H9
- Cables with lugs can be easily connected
- Cables can be soldered into the solder hole



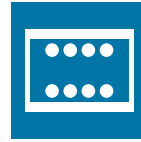
ODU SPRINGTAC® FLATSOCKETS

ODU SPRINGTAC Flatsocket for 2-point measurement, with crimp termination	32
ODU SPRINGTAC Flatsocket for 2-point measurement, QCH quick-change head (connector saver)	33
ODU SPRINGTAC Flatsocket for 4-point measurement (Kelvin measurement), with solder termination	34

ODU SINGLE CONTACTS

ODU SPRINGTAC® FLATSOCKET

For 2-point measurement
Flatsocket with springwire technology



CRIMP TERMINATION

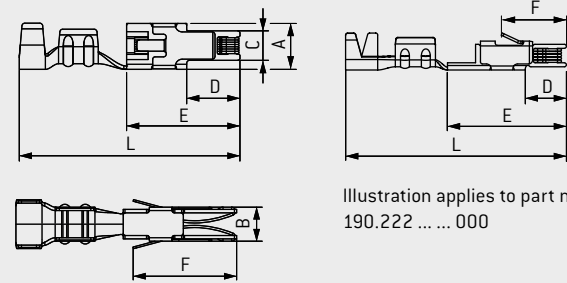
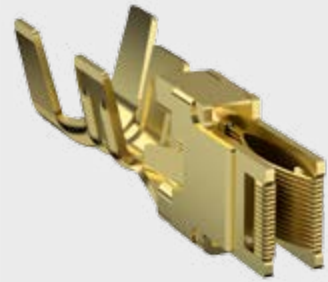


Illustration applies to part number 190.222 ... 000

Part number	Surface	For pin	Termination in mm ²	Dimensions								Mechanical data ¹		Electrical data ¹		
				A	B	C	D	E	F	L	Mating force	Demating force	Nominal current	Max. continuous current	Contact resistance	
190.222.700.201.000	Ag	0.64 × 0.64	0.25 – 0.5	1.8	1.85	1.4	2	5.6	4	13.7	1.5 ± 1	1 ± 0.6	7	9	7.5	
190.222.700.207.000	Au	0.64 × 0.64	0.25 – 0.5	1.8	1.85	1.4	2	5.6	4	13.7	1.5 ± 1	1 ± 0.6	7	9	7.5	
190.218.100.201.000	Ag	1.6 × 0.6	0.5 – 1	2.6	2.2	1.35	4.3	10	8.3	19.5	2 ± 1.5	1.5 ± 1	13	18	2.7	
190.218.700.207.000	Au	1.6 × 0.8		2.6	2.2	1.35	4.3	10	8.3	19.5	2 ± 1.5	1.5 ± 1	13	18	2.7	
190.214.100.201.000	Ag	2.8 × 0.8	1 – 1.5	4	3	2.6	4.7	10	9.2	19.5	4 ± 2	3 ± 2	16	22	2	
190.214.700.207.000	Au	2.8 × 0.8		4	3	2.6	4.7	10	9.2	19.5	4 ± 2	3 ± 2	16	22	2	
190.215.100.201.000	Ag	4.8 × 0.8	1.5 – 2.5	6.8	3	4.8	6	11	10.5	20.5	6 ± 2	5 ± 2	22	30	1.3	
190.215.700.207.000	Au	6.3 × 0.8		6.8	3	4.8	6	11	10.5	20.5	6 ± 2	5 ± 2	22	30	1.3	
190.216.100.201.000	Ag	4.8 × 0.8	4	6.8	3	4.8	6	11	10.5	24.5	6 ± 2	5 ± 2	27	36	1.3	
190.216.700.207.000	Au	6.3 × 0.8		6.8	3	4.8	6	11	10.5	24.5	6 ± 2	5 ± 2	27	36	1.3	

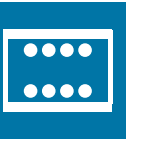
Other variants, sizes and finishes available on request.
¹ See "Technical Information" starting on page 55

TECHNICAL DATA

- High current-carrying capacity
- Ideal for test adapters
- > 50.000 mating cycles
- Material: CuZn-alloy
- Part number crimping tool see table on page 51
- Chamber dimensions on page 62

ODU SPRINGTAC® FLATSOCKET

For 2-point measurement
Flatsocket with springwire technology



QCH (QUICK CHANGE HEAD)

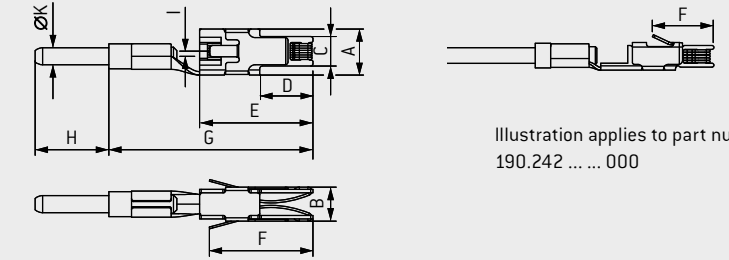


Illustration applies to part number 190.242 ... 000

Part number	Surface	For pin	Dimensions											Mechanical data ¹		Electrical data ¹		
			A	B	C	D	E	F	G	H	I	ØK	Mating force	Demating force	Nominal current	Max. continuous current	Contact resistance	
190.242.700.201.000	Ag	0.64 × 0.64	1.8	1.85	1.4	2	5.6	4	11.5	6.5	0 ± 0.15	1.02	1.5 ± 1	1 ± 0.6	7	9	7.5	
190.242.700.207.000	Au		1.8	1.85	1.4	2	5.6	4	11.5	6.5	0 ± 0.15	1.02	1.5 ± 1	1 ± 0.6	7	9	7.5	
190.238.100.201.000	Ag	1.6 × 0.6	2.6	2.2	1.35	4.3	10	8.3	18	6.5	0 ± 0.3	1.02	2 ± 1.5	1.5 ± 1	11	16	2.7	
190.238.700.207.000	Au	1.6 × 0.8																
190.234.100.201.000	Ag	2.8 × 0.8	4	3	2.6	4.7	10	9.2	18	6.5	1 ± 0.5	1.5	4 ± 2	3 ± 2	16	22	2	
190.234.700.207.000	Au																	
190.235.100.201.000	Ag	4.8 × 0.8	6.8	3	4.8	6	11	10.5	20.5	6.5	1 ± 0.5	3	6 ± 2	5 ± 2	27	36	1.3	
190.235.700.207.000	Au	6.3 × 0.8																

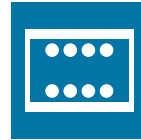
Other variants, sizes and finishes available on request.
¹ See "Technical Information" starting on page 55.

TECHNICAL DATA

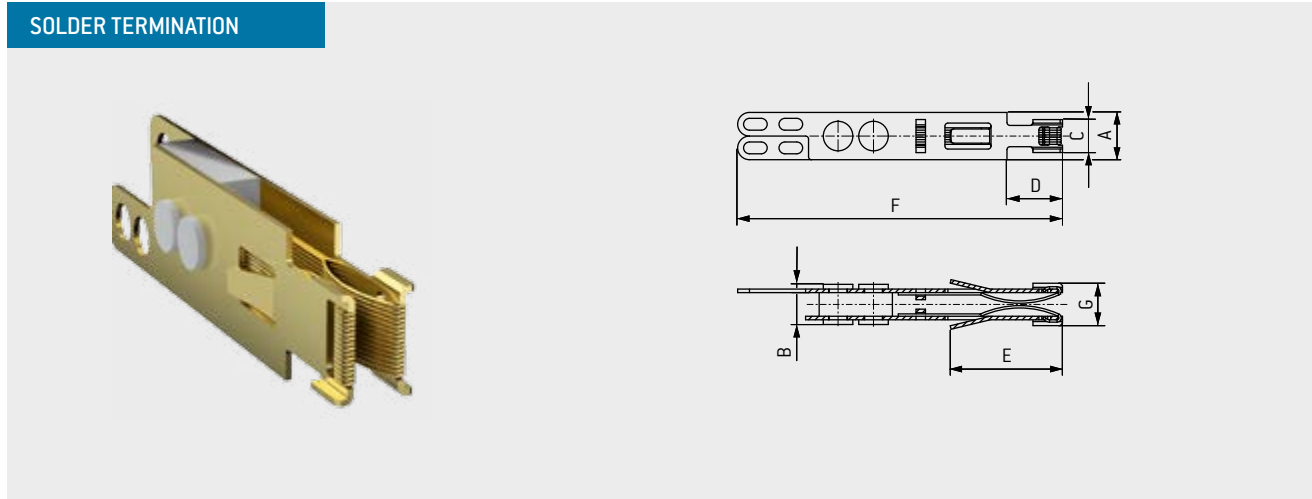
- With circular termination pin, suitable for ODU SPRINGTAC and ODU LAMTAC sockets
- Ideal for test adapters
- > 50,000 mating cycles
- Material: CuZn alloy
- Chamber dimensions on page 62

ODU SPRINGTAC® FLATSOCKET

For 4-point measurement (Kelvin measurement)
Flat contact with springwire technology



SOLDER TERMINATION



Part number	Surface	Size	For pin	Termination mm ²	Dimensions							Mechanical data ¹		Electrical data ¹		
					A	B	C	D	E	F	G	Mating force N	Demating force N	Nominal current A	Max. continuous current A	Contact resistance mΩ
190.224.100.201.000	Ag	1	2.8 × 0.8	Löt 1.5	4	3.4	2.6	4.7	9.5	27.5	3.6	4 ± 2	3 ± 2	7	12	2
190.224.700.207.000	Au															
190.225.100.201.000	Ag	2	4.8 × 0.8	Löt 2.5	6.8	3.4	4.8	6	10.5	27.5	3.6	6 ± 2	5 ± 2	12	17	2
190.225.700.207.000	Au		6.3 × 0.8													

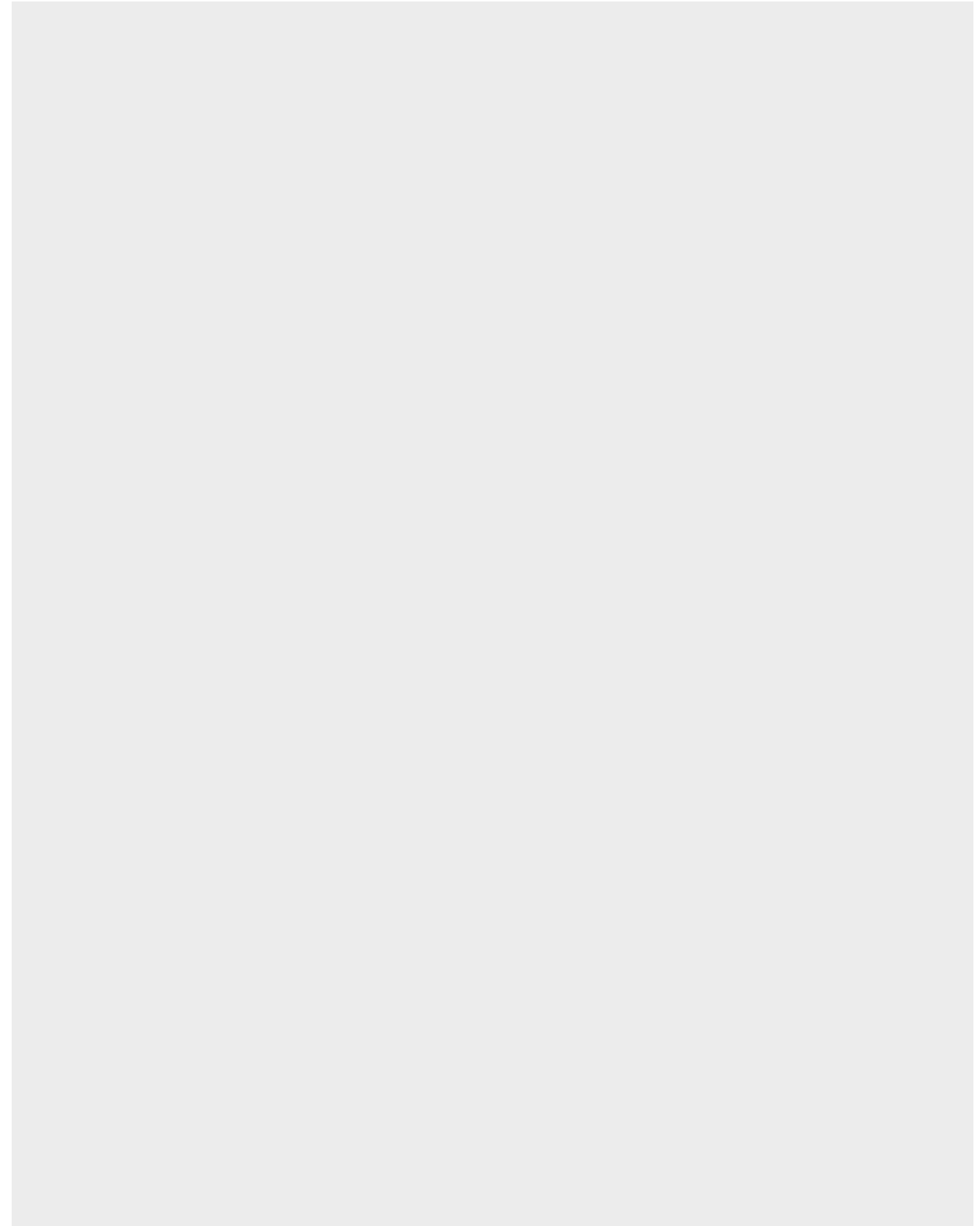
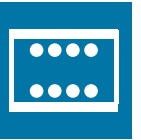
Other variants, sizes and finishes available on request.

¹ See "Technical Information" starting on page 55.

TECHNICAL DATA

- For precise measuring of low electric resistances
- Mutually insulated termination for current and voltage path
- Ideal for test adapters
- > 50,000 mating cycles
- Material: CuZn alloy
- Chamber dimensions on page 62

FOR YOUR NOTES





ODU LAMTAC®

ODU LAMTAC socket with solder/screw termination	38
ODU LAMTAC socket with crimp termination	39
ODU LAMTAC socket with outer thread	40
ODU contact pin with solder/screw termination	42
ODU contact pin with crimp termination	43

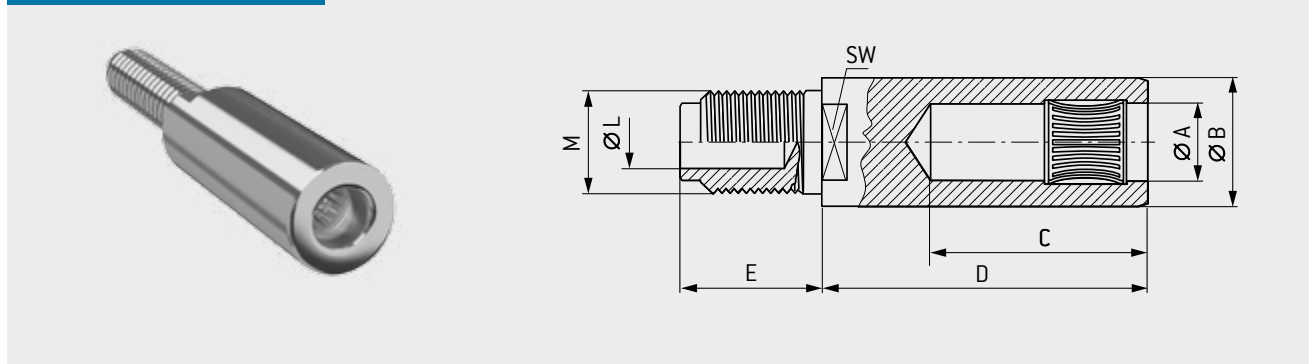
ODU SINGLE CONTACTS

ODU LAMTAC® SOCKET



Contact with lamella technology

SOLDER/SCREW TERMINATION



Part number	Dimensions							Mechanical data ¹		Electrical data ¹				
	Ø A	Ø B	C	D	SW	E	M	Ø L	Mating force	Demating force	Nominal current	Max. continuous current	Surge current	Contact resistance
	mm	mm	mm	mm	mm	mm	Thread	mm	N	N	A	A	kA	µΩ
178.106.100.201.000	1.5	4	10.5	15.5	–	12.5	M2.6	1.25	4	3	20	40	2	450
178.107.100.201.000	2	4	10.5	15.5	–	12.5	M3	1.8	6	5	25	45	2,5	400
178.110.100.201.000	3	7	15	22.5	5	15	M4	2.3	8	8	35	65	5	350
178.111.100.201.000	4	8	15	22.5	6	19	M5	3	10	10	55	95	8	300
178.112.100.201.000	5	9	18.5	22.5	7	19	M5	3	15	13	70	125	12	250
178.113.100.201.000	6	11	24	33.5	8	22	M6	3.6	20	15	105	190	19	170
178.213.100.201.000	6	11	24	33.5	8	26	M8	4.8	20	15	130	225	19	170
178.115.100.201.000	8	14	24	33.5	11	26	M8	4.8	25	20	140	250	26	120
178.215.100.201.000	8	14	24	33.5	11	30	M10	6.2	25	20	160	290	26	120
178.117.100.201.000	10	16	24	33.5	12	30	M10	6.2	30	25	175	300	27	100
178.217.100.201.000	10	16	24	33.5	12	34	M12 × 1.5	7.6	30	25	185	310	27	100
178.119.100.201.000	12	18	36	47	14	34	M12 × 1.5	7.6	30	25	190	340	35	80
178.121.100.201.000	16	23	36	47	19	42	M16 × 1.5	11.5	35	30	340	550	48	70
178.123.100.201.000	20	27	48	66	22	50	M20 × 2	14.5	40	35	450	700	56	50
178.125.100.201.000	24	32	48	66	27	58	M24 × 2	17.8	45	40	510	900	62	40
178.127.100.201.000	28	36	48	66	32	62	M32 × 2	25	50	45	840	1,450	68	30
178.128.100.201.000	30	38	48	66	32	62	M32 × 2	25	55	50	910	1,570	70	25

Other variants, sizes and finishes available on request.

¹ See "Technical Information" starting on page 55

TECHNICAL DATA

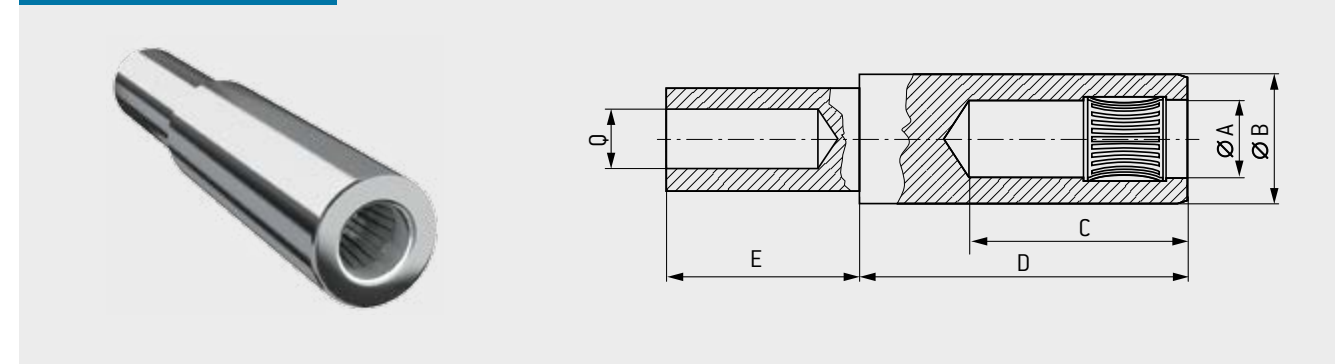
- Suitable for contact pins (page 42 and 43)
- Suitable for screwing to power busbars, backplanes and contact blocks
- Cables with lugs can be easily connected
- Cables can be soldered into the solder hole

ODU LAMTAC® SOCKET



Contact with lamella technology

CRIMP TERMINATION



Part number	Dimensions						Mechanical data ¹		Electrical data ¹			
	Ø A	Ø B	C	D	E	Ø	Mating force	Demating force	Nominal current	Max. continuous current	Surge current	Contact resistance
	mm	mm	mm	mm	mm	mm ²	N	N	A	A	kA	µΩ
178.606.100.201.000	1.5	4	10.5	15.5	6.5	1.5	4	3	20	40	2	450
178.607.100.201.000	2	4	10.5	15.5	6.5	2.5	6	5	25	45	2,5	400
178.610.100.201.000	3	7	15	22.5	6.5	4	8	8	35	65	5	350
178.611.100.201.000	4	8	15	22.5	12.5	6	10	10	55	95	8	300
178.612.100.201.000	5	9	18.5	22.5	17.5	10	15	13	70	125	12	250
178.613.100.201.000	6	11	24	33.5	22.5	16	20	15	105	190	19	170
178.713.100.201.000	6	11	24	33.5	22.5	25	20	15	130	225	19	170
178.615.100.201.000	8	14	24	33.5	22.5	25	25	20	140	250	26	120
178.715.100.201.000	8	14	24	33.5	22.5	35	25	20	160	290	26	120
178.617.100.201.000	10	16	24	33.5	22.5	35	30	25	175	300	27	100
178.717.100.201.000	10	16	24	33.5	22.5	50	30	25	185	310	27	100
178.619.100.201.000	12	18	36	47	28	50	30	25	190	340	35	80
178.621.100.201.000	16	23	36	47	28	95	35	30	340	550	48	70

Other variants, sizes and finishes available on request.

¹ See "Technical Information" starting on page 55.

TECHNICAL DATA

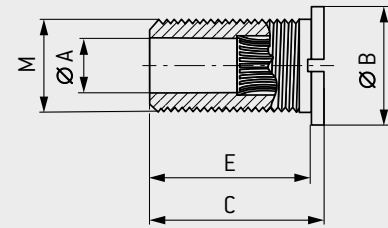
- Suitable for contact pins (page 42 and 43)
- Easy and quick termination by crimping (crimp information see page 46)
- Suitable for connecting harmonized cables
- Part number crimping tool see table on page 49

ODU LAMTAC® SOCKET

Contact with lamella technology



OUTER THREAD



Part number	Dimensions					Mechanical data ¹			Electrical data ¹			
	Ø A mm	Ø B mm	C mm	E mm	M Thread	Mating force N	Demating force N	Tightening torque Nm	Nominal current A	Max. continuous current A	Source current kA	Contact resistance µΩ
178.346.100.201.000	1.5	7	7	5.5	M4	4	3	0.5	20	40	2	350
178.347.100.201.000	2	8	7	5.5	M5	6	5	0.5	25	45	2.5	300
178.350.100.201.000	3	10	12	10	M7 × 0.5	8	8	1.2	35	65	5	190
178.351.100.201.000	4	11	13	10	M8 × 1	10	10	1.2	55	95	8	170
178.352.100.201.000	5	13	13	10	M10	15	13	3	70	125	12	150
178.355.100.201.000	6	16	19	16	M12 × 1.5	20	15	6	105	190	19	110
178.356.100.201.000	8	18	19	16	M14 × 1.5	25	20	6	140	250	26	80
178.358.100.201.000	10	22	19	16	M18 × 1.5	30	25	10	175	300	27	60

Other variants, sizes and finishes available on request.
¹ See "Technical Information" starting on page 55.

TECHNICAL DATA

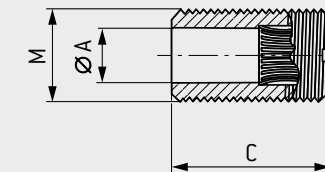
- Suitable for contact pins (page 42 and 43)
- Suitable for screwing to power busbars, backplanes and contact blocks

ODU LAMTAC® SOCKET

Contact with lamella technology



OUTER THREAD



Part number	Dimensions			Mechanical data ¹			Electrical data ¹			
	Ø A mm	C mm	M Thread	Mating force N	Demating force N	Tightening torque Nm	Nominal current A	Max. continuous current A	Source current kA	Contact resistance µΩ
178.306.100.201.000	1.5	7	M4	4	3	0.5	20	40	2	350
178.307.100.201.000	2	7	M5	6	5	0.5	25	45	2.5	300
178.310.100.201.000	3	12	M7 × 0.5	8	8	1.2	35	65	5	190
178.311.100.201.000	4	13	M8 × 1	10	10	1.2	55	95	8	170
178.312.100.201.000	5	13	M10	15	13	3	70	125	12	150
178.314.100.201.000	6	19	M12 × 1.5	20	15	6	105	190	19	110
178.315.100.201.000	8	19	M14 × 1.5	25	20	6	140	250	26	80
178.318.100.201.000	10	19	M18 × 1.5	30	25	10	175	300	27	60

Other variants, sizes and finishes available on request.
¹ See "Technical Information" starting on page 55.

TECHNICAL DATA

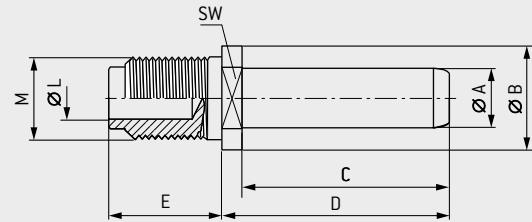
- Suitable for contact pins (page 42 and 43)
- Suitable for screwing to power busbars, backplanes and contact blocks

ODU CONTACT PIN

For all ODU LAMTAC® sockets



SOLDER/SCREW TERMINATION



Part number	Dimensions								
	Ø A	x ¹	Ø B	C	D	SW	E	M	Ø L
	mm	mm	mm	mm	mm	mm	mm	Thread	mm
181.106.000.301.000	1.5	-0.03	4	10	11.5	3	10	M2.6	1.25
181.107.000.301.000	2	-0.03	5	10	11.5	4	12.5	M3	1.8
181.109.000.301.000	2.5	-0.03	5	10	11.5	4	12.5	M3	1.8
181.110.000.301.000	3	-0.03	6	14	15.5	5	15	M4	2.3
181.111.000.301.000	4	-0.03	7	14	16	6	19	M5	3
181.212.000.301.000	5	-0.03	7	17.5	19.5	6	19	M5	3
181.113.000.301.000	6	-0.03	8	23	26	7	22	M6	3.6
181.213.000.301.000	6	-0.03	11	23	26	8	22	M8	4.8
181.115.000.301.000	8	-0.03	11	23	26	9	26	M8	4.8
181.215.000.301.000	8	-0.03	14	23	26	11	26	M10	6.2
181.117.000.301.000	10	-0.04	16	23	26	12	30	M10	6.2
181.217.000.301.000	10	-0.04	16	23	26	12	30	M12 × 1.5	7.6
181.119.000.301.000	12	-0.04	16	34	38	14	34	M12 × 1.5	7.6
181.121.000.301.000	16	-0.04	20	34	38	17	42	M16 × 1.5	11.5
181.123.000.301.000	20	-0.04	25	46	51	22	50	M20 × 2	14.5
181.125.000.301.000	24	-0.04	30	46	51	27	58	M24 × 2	17.8
181.127.000.301.000	28	-0.04	36	46	52	32	62	M32 × 2	25
181.128.000.301.000	30	-0.04	38	46	52	32	62	M32 × 2	25

Other variants, sizes and finishes available on request.
¹ Tolerance diameter A.

TECHNICAL DATA

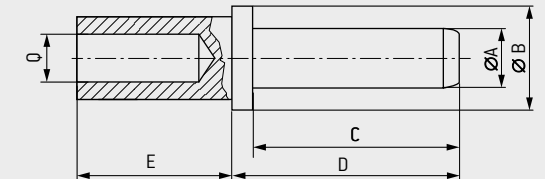
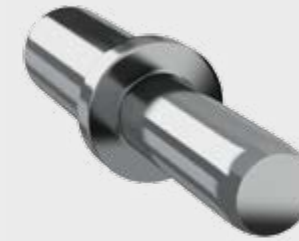
- Suitable for all round ODU LAMTAC sockets
- Suitable for screwing to power busbars, backplanes and contact blocks
- Cables with lugs can be easily connected
- Cables can be soldered into the solder hole

ODU CONTACT PIN

For all ODU LAMTAC® sockets



CRIMP TERMINATION



Part number	Dimensions						
	Ø A	x ¹	Ø B	C	D	E	Q
	mm	mm	mm	mm	mm	mm	mm ²
181.606.000.301.000	1.5	-0.03	4	10	11.5	6.5	1.5
181.607.000.301.000	2	-0.03	4	10	11.5	6.5	2.5
181.609.000.301.000	2.5	-0.03	6	10	11.5	6.5	2.5
181.610.000.301.000	3	-0.03	7	14	16	6.5	4
181.611.000.301.000	4	-0.03	8	14	16	12.5	6
181.712.000.301.000	5	-0.03	9	17.5	19.5	17.5	10
181.613.000.301.000	6	-0.03	11	23	26	22.5	16
181.713.000.301.000	6	-0.03	11	23	26	22.5	25
181.615.000.301.000	8	-0.03	14	23	26	22.5	25
181.715.000.301.000	8	-0.03	14	23	26	22.5	35
181.617.000.301.000	10	-0.04	16	23	26	22.5	35
181.717.000.301.000	10	-0.04	16	23	26	22.5	50
181.619.000.301.000	12	-0.04	18	34	38	28	50
181.621.000.301.000	16	-0.04	23	34	38	28	95

Other variants, sizes and finishes available on request.
¹ Tolerance diameter A.

TECHNICAL DATA

- Suitable for all round ODU LAMTAC sockets
- Easy and quick termination by crimping (crimp information see page 46)
- Suitable for connecting harmonized cables
- Part number crimping tool see table on page 49



TOOLS AND ACCESSORIES

Termination technology	46
Crimping tools	48
Maintenance kit	52

ODU SINGLE CONTACTS

TERMINATION TECHNOLOGY



ODU offers three different contact termination technologies for the single contacts:

- Crimp
- Solder
- Screw

CRIMP TERMINATION

Using contacts to establish connecting lines through crimping creates a permanent, secure and corrosion-free connection. Even for lay persons, crimping is easy and quick to carry out.

Through crimping, the conductor and contact materials in the compressed areas become so dense as to create a connection which is nearly gas-tight, and with a tensile strength befitting the conductor material.

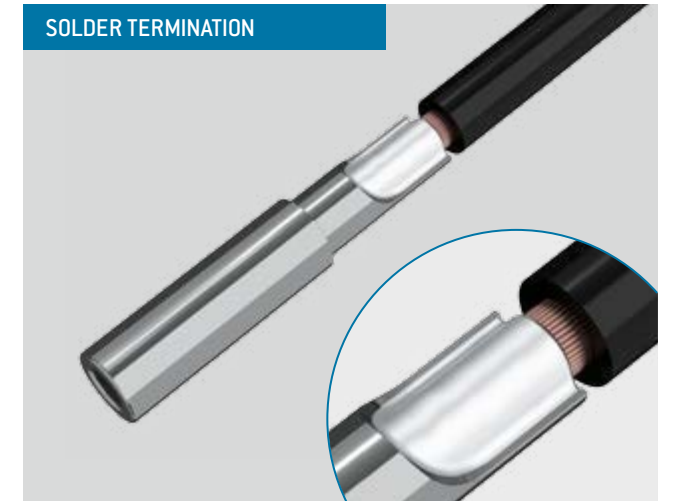
Crimping can be carried out in the tiniest of diameters as well as in larger diameters. For small diameters (0.5–2.5 mm²), eight-point crimp tools are used; six-point crimp tools are used for larger dimensions. The corner measurement of the crimping is never larger than the original diameter. The cable insulation is not damaged in the process and can be directly attached to the connector end.

For error-free crimping, the bore diameter must be perfectly fitted to the cable. Such error-free crimping is only guaranteed if using ODU-recommended crimping tools. In order to correctly advise you, we need to know your cable type and profile, preferably by means of a sample and corresponding data sheet.



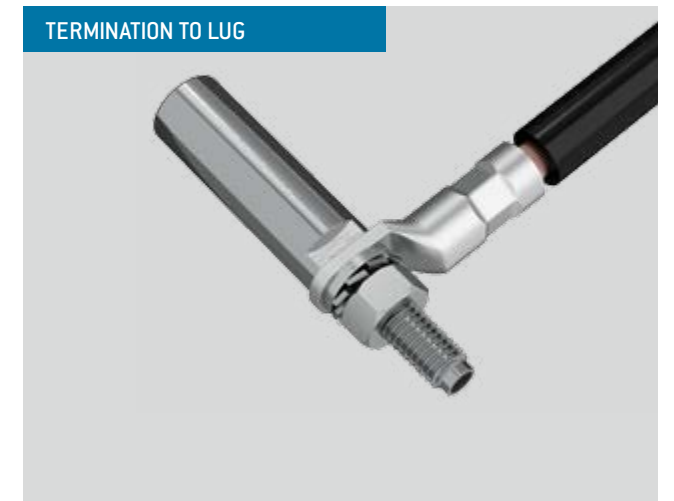
SOLDER TERMINATION

Termination technology in which a molten additional metal (solder) with a lower melting point than the base materials to be connected is used to attach two metallic materials to one another. In contrast to crimping, the wire to be soldered can also be considerably smaller than the intended solder hole. Warning: avoid unacceptable temperature increases in sockets.



SCREW TERMINATION

This connection is established through lugs with lamellar disks and nuts. Disks and nuts are not included in standard deliveries (are available upon request).



CRIMPING TOOLS

Suitable for all round ODU SPRINGTAC® and ODU LAMTAC® contact pins
 For more crimping information, see table on page 49



8-POINT CRIMPING TOOL FOR CROSS-SECTIONS FROM 0.08 TO 2.5 MM²



PART NUMBER: 080.000.051.000.000

Hand crimping tool with user-friendly digital display and ergonomical design.

HEXAGONAL CRIMPING TOOL FOR CROSS-SECTIONS FROM 2.5 TO 6 MM²



PART NUMBER: 080.000.062.000.000

Reliable hand crimping tool with optimized power transmission and an ergonomic design for easy handling.

HEXAGONAL CRIMPING TOOL FOR CROSS-SECTIONS FROM 10 TO 50 MM²



PART NUMBER: 080.000.064.000.000

High pressing force for weaker hands due to precision mechanics. The folding head facilitates work with bulky connector forms and changing crimp inserts.

FOR CRIMPING JAWS, GO TO PAGE 49.

Crimping jaws must be ordered separately.

HEXAGONAL CRIMPING TOOL FOR CROSS-SECTIONS FROM 70 TO 500 MM²



PART NUMBER: 080.000.017.000.000

Very high pressing force for weaker hands due to hydraulics.

FOR CRIMPING JAWS, GO TO PAGE 49.

Crimping jaws must be ordered separately.

CRIMPING INFORMATION

Tools for round ODU SPRINGTAC® and ODU LAMTAC® contacts



Termination cross-section	Stripping length	8-pt crimping tool	Hexagonal crimping tool	Mechanical hexagonal crimping tool ¹	Hydraulic hexagonal crimping tool ¹
mm ²	mm	080.000.051.000.000	080.000.062.000.000	080.000.064.000.000	080.000.017.000.000
0.38	4.5	> 0.65 < 0.70			
0.5	4.5	> 0.90 < 0.95			
1.50	7		Profile no. 1		
2.5	7		Profile no. 2		
4	7		Profile no. 3		
6	7		Profile no. 3		
10	10			080.000.064.110.000	
16	10			080.000.064.116.000	
25	18			080.000.064.125.000	
35	18			080.000.064.135.000	
50	18			080.000.064.150.000	
70	22				921.000.005.000.009
95	25				921.000.005.000.011
120	30				921.000.005.000.013
150	30				921.000.005.000.014
185	30				921.000.005.000.015
240	50				921.000.005.000.016
300	66				921.000.005.000.017
400	66				921.000.005.000.019
500	66				921.000.005.000.020

¹ Crimp inserts must be ordered separately.

CRIMPING TOOLS

For ODU SPRINGTAC® Flatsockets



B-PROFILE CRIMPING TOOL FOR CROSS-SECTIONS FROM 0.25 TO 0.5 MM²



PART NUMBER: 080.000.050.000.000

Manual crimping tool with locking system for reliable crimping.

B-PROFIL CRIMPING TOOL FOR CROSS-SECTIONS FROM 0.5 TO 4 MM²



PART NUMBER: 080.000.054.000.000

Manual crimping tool with locking system for reliable crimping.

CRIMPING TOOLS

Tools for ODU SPRINGTAC® Flatsockets



Size	Termination cross-section	Crimping tool	Crimping tool
mm	mm ²	080.000.050.000.000	080.000.054.000.000
0.64 × 0.64	0.25	Profile 0,25 / position 1	
0.64 × 0.64	0.35	Profile 0,35 / position 1	
0.64 × 0.64	0.5	Profile 0,5 / position 1	
1.6 × 0.6 / 0.8	0.5–1		Profile 4
2.8 × 0.8	1–1.5		Profile 1
4.8 × 0.8	1.5–2.5		Profile 2
6.3 × 0.8	4		Profile 3

Screw termination

Connection thread	Tightening torque (maximum) Nm
M2.6	0.2
M3	0.5
M4	1.2
M5	2
M6	3
M8	6
M10	10
M12 × 1.5	16
M14 × 1.5	22
M16 × 1.5	30
M20 × 2	50
M24 × 2	80
M32 × 2	200

Maximum tightening torque with solid screw termination and standard material (brass).

MAINTENANCE KIT FOR ODU SPRINGTAC® AND ODU LAMTAC® CONTACTS



Contact lubrication improves the mechanical properties of contact systems. Cleaning the contact surfaces prior to lubrication is also recommended in order to remove pollution. With appropriate care, wear due to high mating frequency can be significantly minimised and the mating and demating forces reduced. The cleaning and lubricating interval must be individually adapted to circumstances and should only be carried out with products recommended by the contact manufacturer.

ODU has put together a maintenance package to this purpose, so that lubrication can be carried out directly on location. A cleaning brush and a special cleaning cloth, as well as precise instructions allow optimal care of the contacts. In the absence of other specifications, the maintenance package can be used for all ODU contacts and connections.

PART NUMBER: 170.000.000.000.100

For technical properties of the maintenance package please refer our website: www.odu-connectors.com/downloads.

CLEANING INFORMATION

Maintenance instruction 003.170.000.000.000

FURTHER INFORMATION

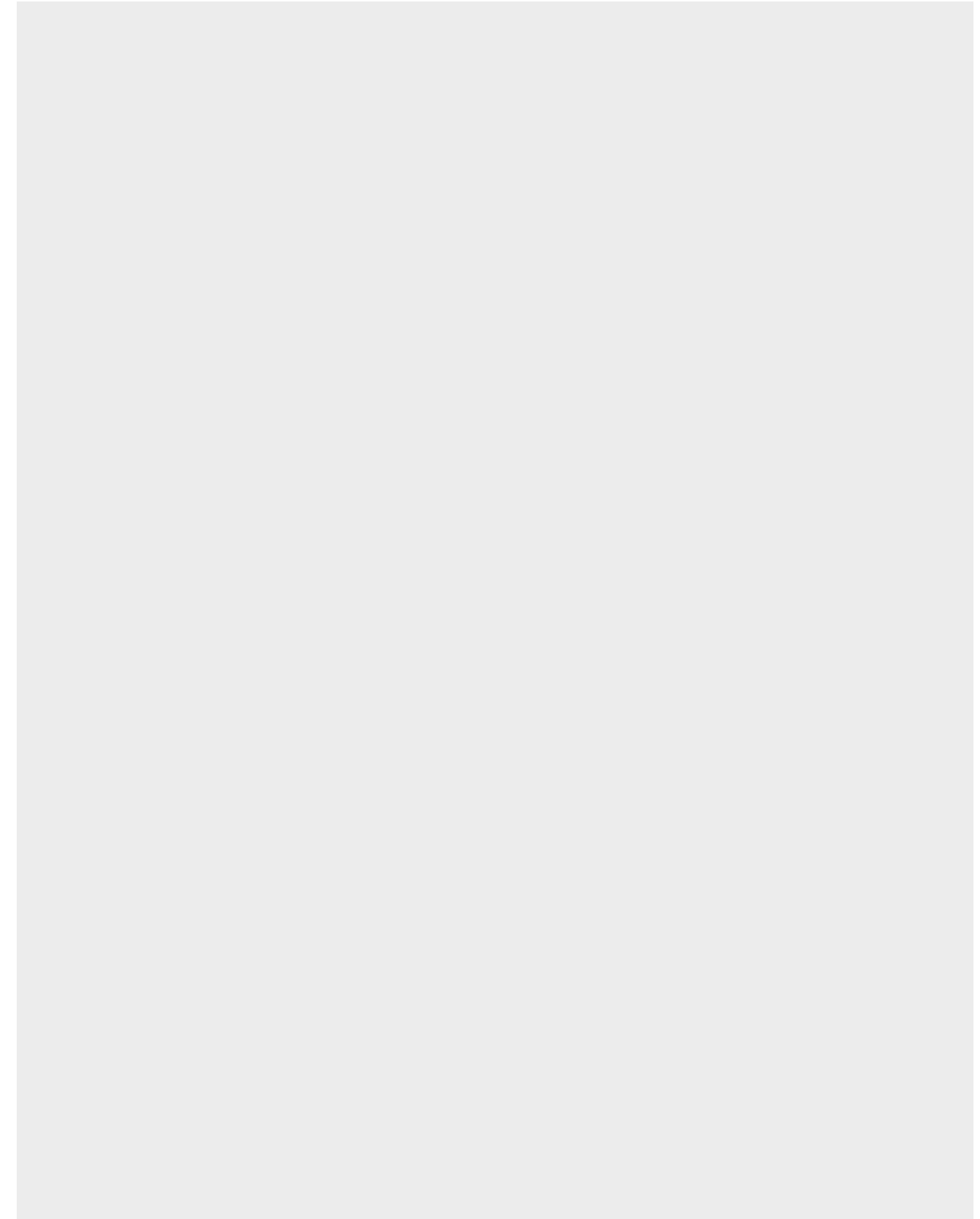
Never submerge the connector in liquid. The connector may only be put back into operation again when it has been assured that it is completely dry.

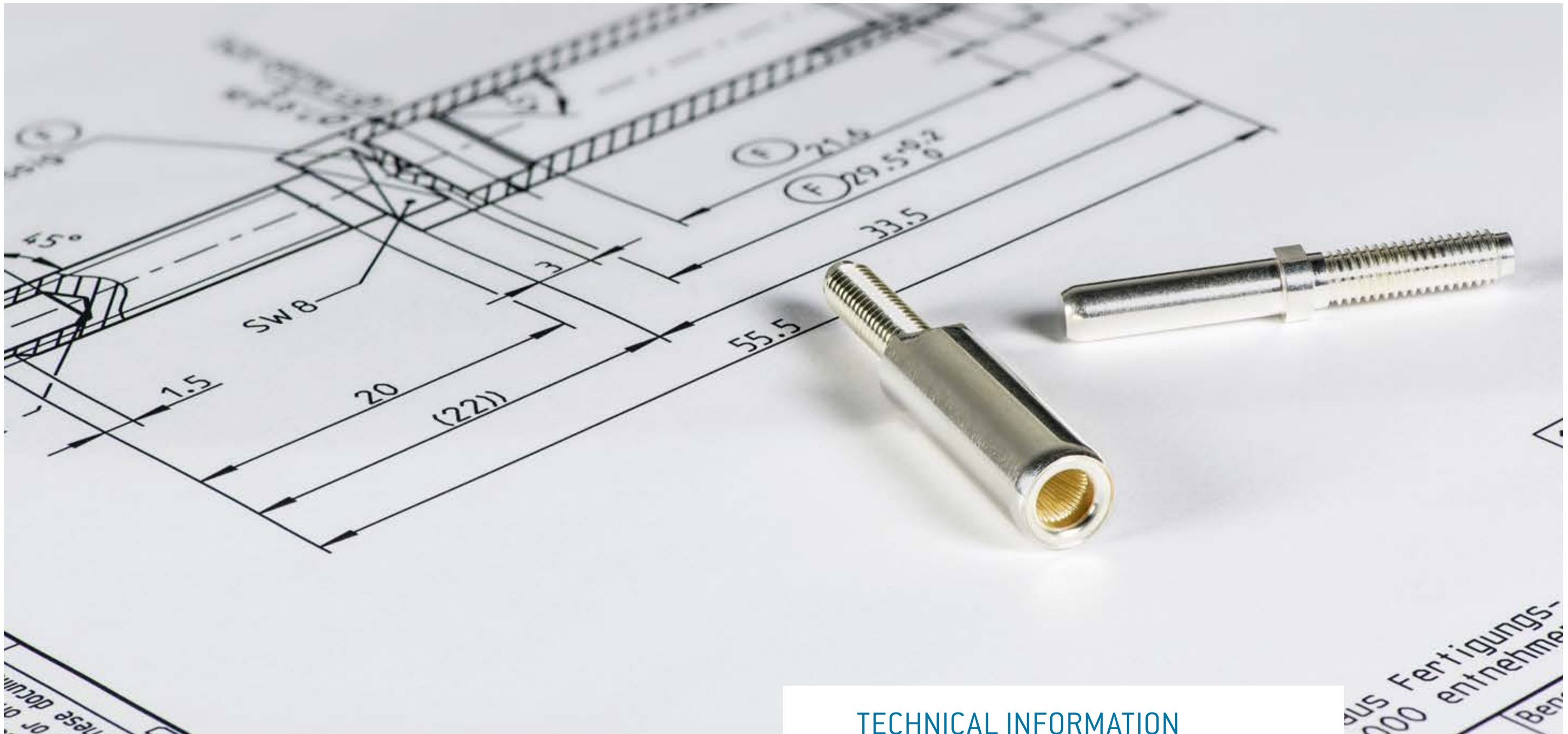
Ensure that contact pins are not bent or otherwise damaged. The connector may no longer be used when damage or other signs of wear are detected. Clean with maximum 2.5 bar compressed air to avoid contact damage. A slight blackening of the contact points may occur over the course of the service life and represents no impairment of the electrical properties.

Recommended cleaning agent

Soap: liquid soaps on sodium bicarbonate or potassium base.
Alcohol: ethanol 70 %, isopropyl alcohol 70 %.

FOR YOUR NOTES





TECHNICAL INFORMATION

Current-carrying capacity	56
Installation instruction	60
Conversions/AWG	61
Chamber dimensions for ODU SPRINGTAC Flatsockets	62
Technical terms	64

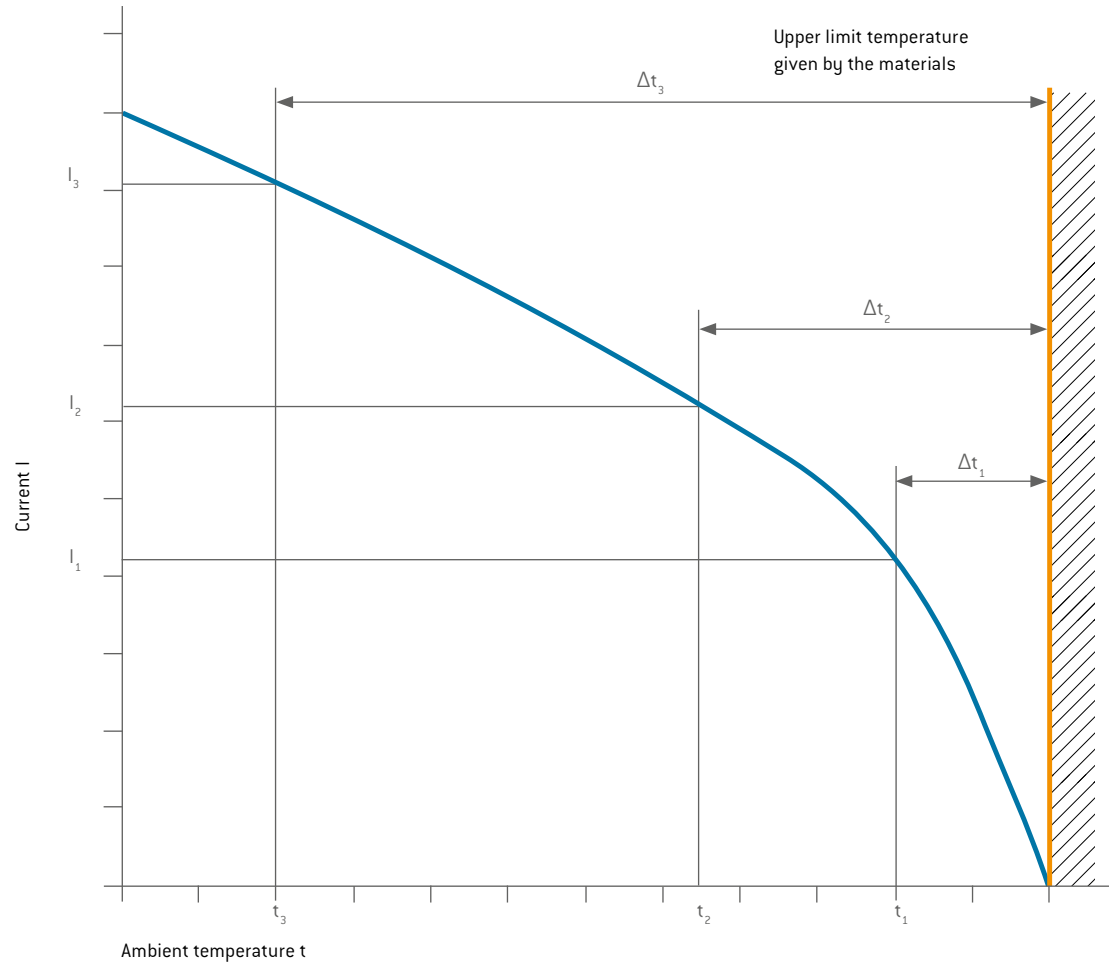
ODU SINGLE CONTACTS

BASE FOR CURRENT-CARRYING CAPACITY



Derating measurement procedure IEC 60512-5-2:2002 (DIN EN 60512-5-2:2003)

STRUCTURE OF THE BASIS CURRENT CARRYING CAPACITY CURVE



A connector's current carrying capacity is determined by measurement. It is determined by taking into account the self-heating due to Joule heat and the ambient temperature, and is limited by the thermal properties of the contact materials used; the upper limit temperatures of these materials should not be exceeded.

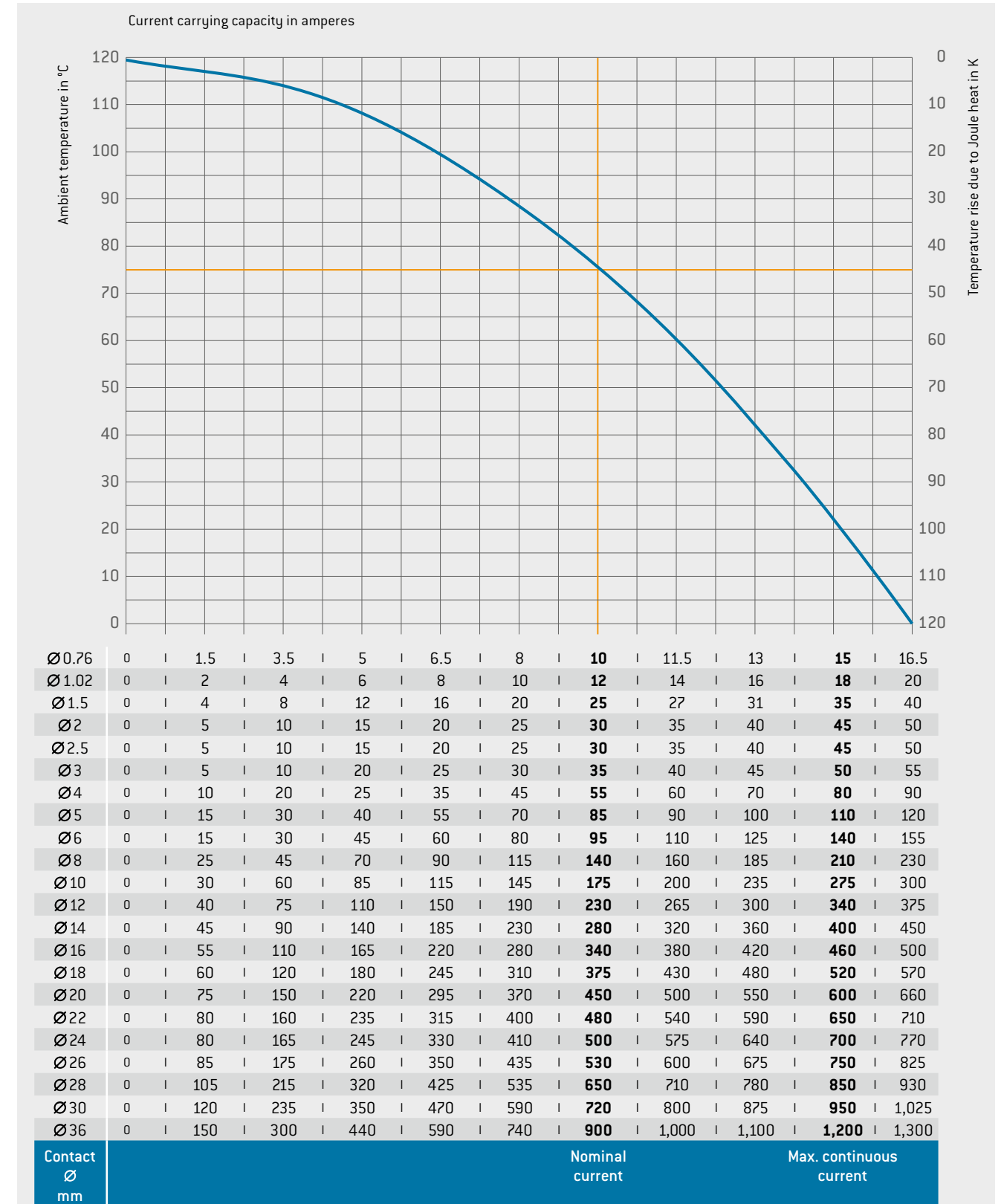
The relationship between current, the temperature increase caused as a result of the power dissipation at the contact resistor and the ambient temperature is depicted in a curve. The curve is drawn in a linear coordinate system with the current "I" as the ordinate and the temperature "t" as the abscissa.

The upper limit temperature is used as a limit for the diagram.

In three measurements, the temperature rise due to Joule heat (Δt) is determined at different currents in at least three connectors and the points determined in this process are connected into a parabolic basis curve.

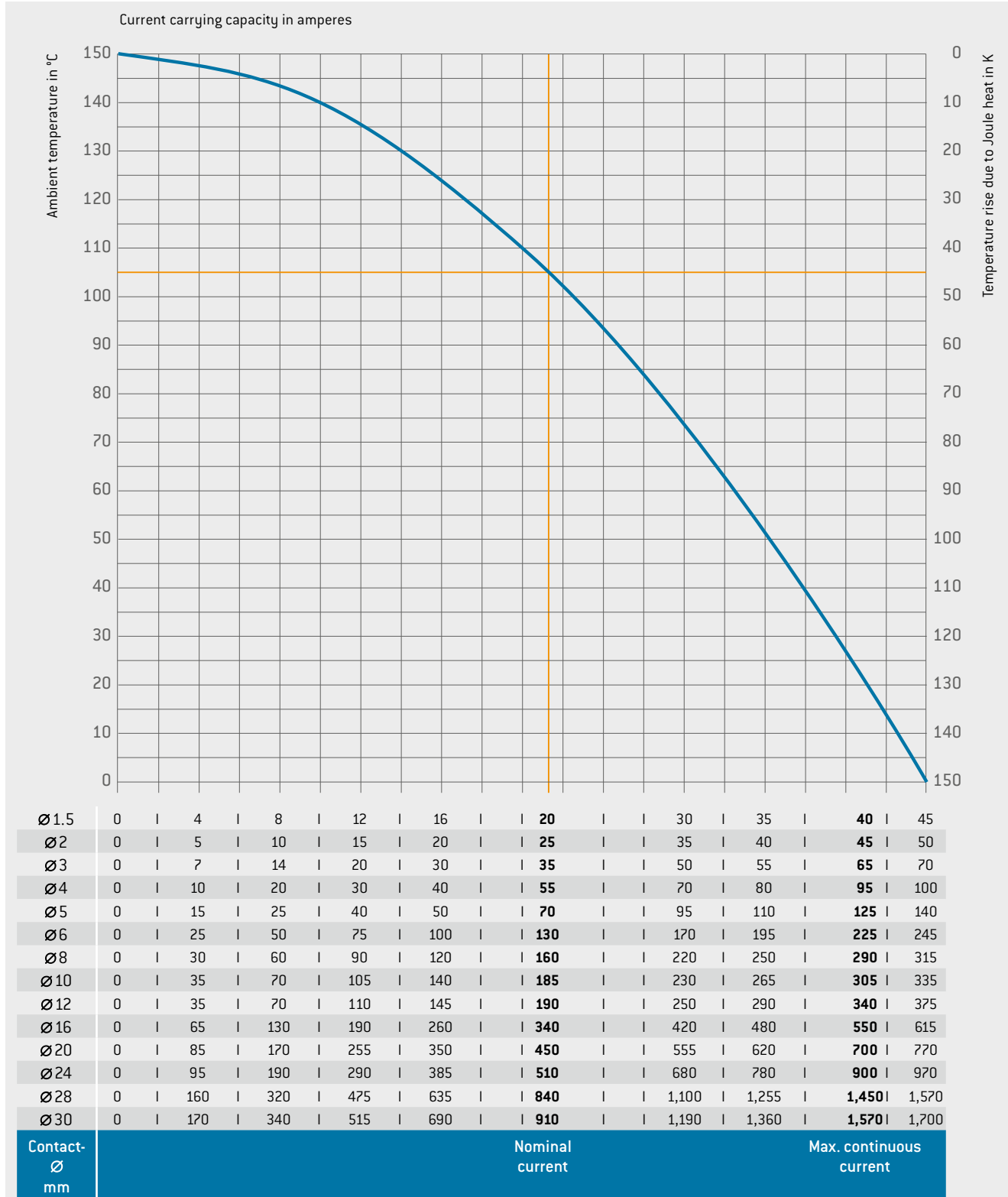
The corrected current carrying capacity curve (derating curve) can be derived from the basis curve. The safety factor ($0.8 \times I_n$) can be used to give consideration to such values as manufacturing tolerances as well as to uncertainties in the temperature measurement and in the measurement setup.

CURRENT-CARRYING CAPACITY DIAGRAM ODU SPRINGTAC®



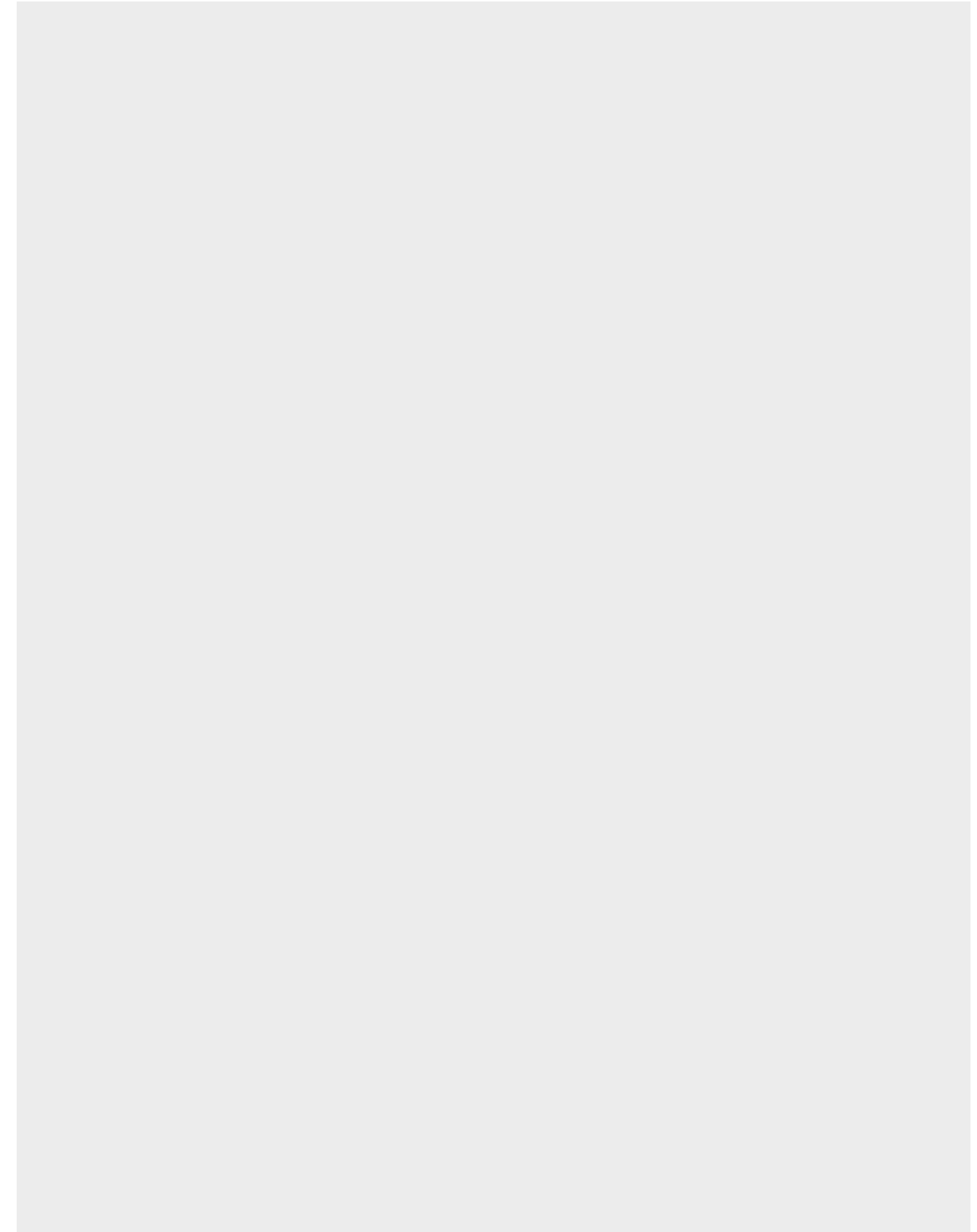
Measurement according to IEC 60512-5-2:2002 (DIN EN 60512-5-2:2003) (basis curve is shown).
Upper limit temperature +120 °C. Connection with the largest specified nominal cross-section.

CURRENT-CARRYING CAPACITY DIAGRAM ODU LAMTAC®



Measurement according to IEC 60512-5-2:2002 (DIN EN 60512-5-2:2003) (basis curve is shown).
Upper limit temperature +150 °C. Connection with the largest specified nominal cross-section.

FOR YOUR NOTES

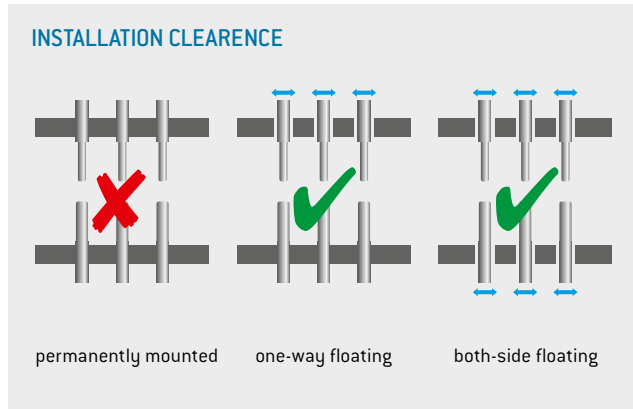


INSTALLATION INSTRUCTION



ODU contact systems are used both as single contacts and in multi-pin connectors. One side (pin or socket side) or both sides should always have a “floating” mounting in order to compensate for manufacturing and assembly tolerances of the individual system components.

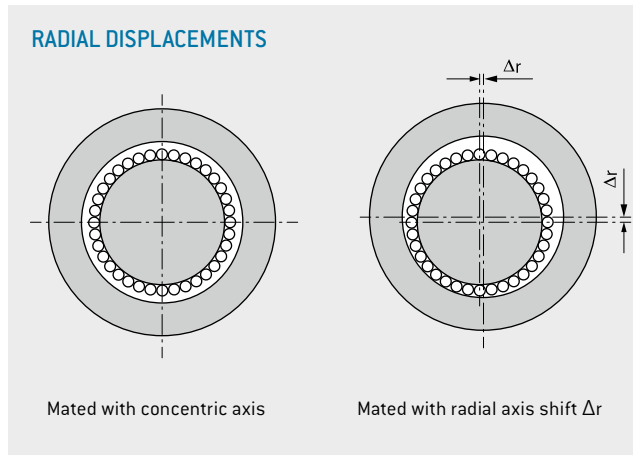
ODU contact systems are not suitable for guiding a plug-in system. Components should be separately provided in order to implement a preliminary guidance piece. Preliminary guidance pieces are always recommended.



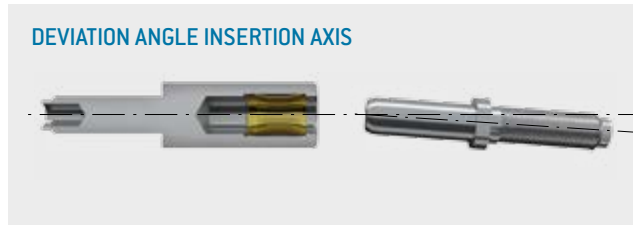
Our ODU SPRINGTAC and ODU LAMTAC contact series are able to compensate for the radial displacements of the insertion axis. The figure shows a cross-section through a mated contact pair with a radial axis shift.

Nominal contact diameter mm	Max. Δr mm
$\leq \varnothing 2$	0.02
$\leq \varnothing 4$	0.05
$\leq \varnothing 14$	0.1
$\leq \varnothing 30$	0.2

The contact springs or contact bars are still on the mating surfaces and consequently continue to ensure full contact reliability.



The deviation angle α of the insertion axis of the pin and socket should be max. $\pm 1^\circ$. It is especially important to consider this when implementing a “floating” assembly position.



CONVERSIONS/AWG (AMERICAN WIRE GAUGE)



AWG	Circular wire		Cross-section mm ²	Weight kg/km	Max. resistance Ω/km
	Diameter Inch	Diameter mm			
10 (1)	0.1020	2.5900	5.2700	47.000	3.45
10 (37/26)	0.1109	2.7500	4.5300	43.600	4.13
12 (1)	0.0808	2.0500	3.3100	29.500	5.45
12 (19/25)	0.0895	2.2500	3.0800	28.600	6.14
12 (37/28)	0.0858	2.1800	2.9700	26.300	6.36
14 (1)	0.0641	1.6300	2.0800	18.500	8.79
14 (19/27)	0.0670	1.7000	1.9400	18.000	9.94
14 (37/30)	0.0673	1.7100	1.8700	17.400	10.50
16 (1)	0.0508	1.2900	1.3100	11.600	13.94
16 (19/29)	0.0551	1.4000	1.2300	11.000	15.70
18 (1)	0.0403	1.0200	0.8200	7.320	22.18
18 (19/30)	0.0480	1.2200	0.9600	8.840	20.40
20 (1)	0.0320	0.8130	0.5200	4.610	35.10
20 (7/28)	0.0366	0.9300	0.5600	5.150	34.10
20 (19/32)	0.0384	0.9800	0.6200	5.450	32.00
22 (1)	0.0252	0.6400	0.3240	2.890	57.70
22 (7/30)	0.0288	0.7310	0.3540	3.240	54.80
22 (19/34)	0.0307	0.7800	0.3820	3.410	51.80
24 (1)	0.0197	0.5000	0.1960	1.830	91.20
24 (7/32)	0.0230	0.5850	0.2270	2.080	86.00
24 (19/36)	0.0252	0.6400	0.2400	2.160	83.30
26 (1)	0.1570	0.4000	0.1220	1.140	147.00
26 (7/34)	0.0189	0.4800	0.1400	1.290	140.00
26 (19/38)	0.0192	0.4870	0.1500	1.400	131.00
28 (1)	0.0126	0.3200	0.0800	0.716	231.00
28 (7/36)	0.0150	0.3810	0.0890	0.813	224.00
28 (19/40)	0.0151	0.3850	0.0950	0.931	207.00
30 (1)	0.0098	0.2500	0.0506	0.451	374.00
30 (7/38)	0.0115	0.2930	0.0550	0.519	354.00
30 (19/42)	0.0123	0.3120	0.0720	0.622	310.00
32 (1)	0.0080	0.2030	0.0320	0.289	561.00
32 (7/40)	0.0094	0.2400	0.0350	0.340	597.10
32 (19/44)	0.0100	0.2540	0.0440	0.356	492.00
34 (1)	0.0063	0.1600	0.0201	0.179	951.00
34 (7/42)	0.0083	0.2110	0.0266	0.113	1,491.00
36 (1)	0.0050	0.1270	0.0127	0.072	1,519.00
36 (7/44)	0.0064	0.1630	0.0161	0.130	1,322.00
38 (1)	0.0040	0.1000	0.0078	0.072	2,402.00
40 (1)	0.0031	0.0800	0.0050	0.043	3,878.60
42 (1)	0.0028	0.0700	0.0038	0.028	5,964.00
44 (1)	0.0021	0.0540	0.0023	0.018	8,660.00

The American Wire Gauge (AWG) is based on the principle that the cross-section of the wire changes by 26 % from one gauge number to the next. The AWG numbers decrease as the wire diameter increases, while the AWG numbers increase as the wire diameter decreases. This only applies to solid wire.

However, stranded wire is predominately used in practice. This has the advantage of a longer service life under bending and vibration as well as greater flexibility in comparison with solid wire.

Stranded wires are made of multiple, smaller-gauge wires (higher AWG number). The stranded wire then receives the AWG numbers of a solid wire with the next closest cross-section to that of the stranded wire. In this case, the cross-section of the stranded wire refers to the sum of the copper cross-sections of the individual wires.

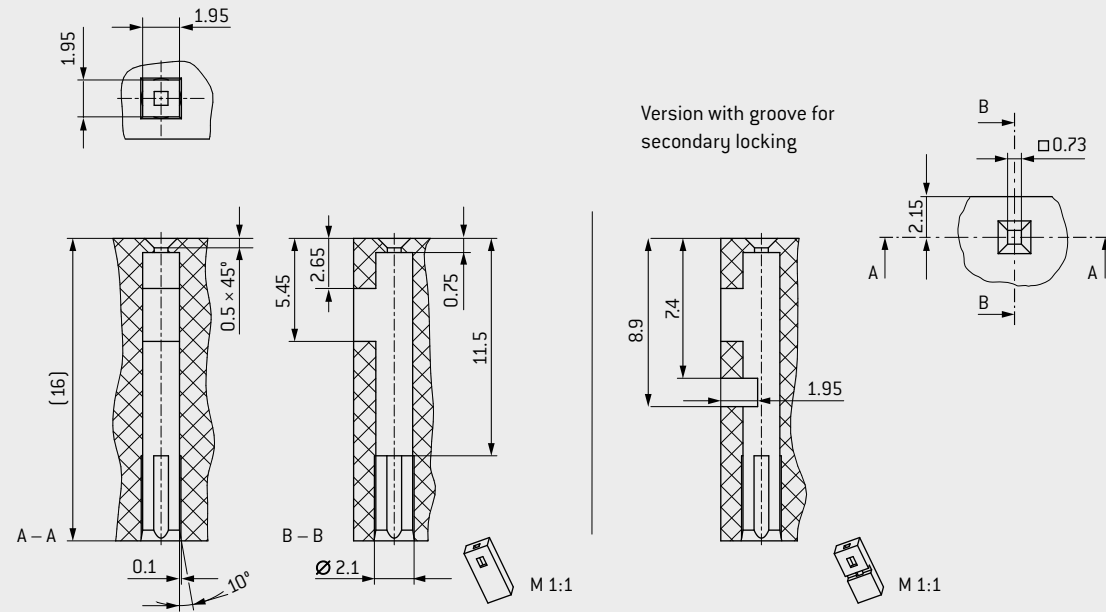
Accordingly, strands with the same AWG number but different numbers of wires differ in cross-section. For instance, an AWG 20 strand of 7 AWG 28 wires has a cross-section of 0.563 mm², while an AWG 20 strand of 19 AWG 32 wires has a cross-section of 0.616 mm².

Source: Gore & Associates, Plainfield

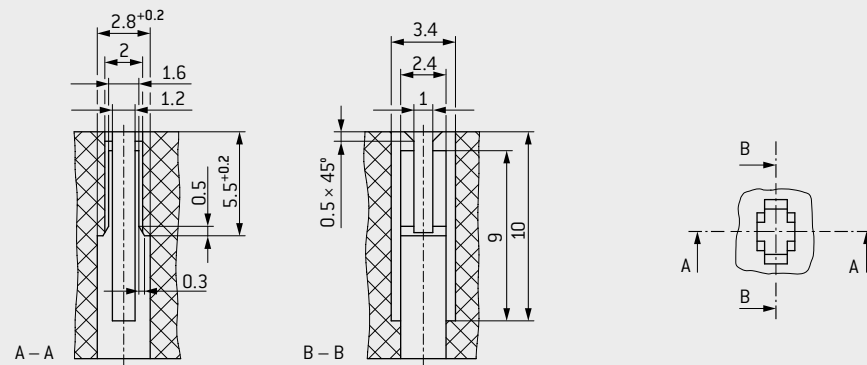
ODU SPRINGTAC® FLATSOCKETS



CHAMBER DIMENSIONS FOR 0.64 × 0.64 MM



CHAMBER DIMENSIONS FOR 1.6 × 0.6 / 0.8 MM

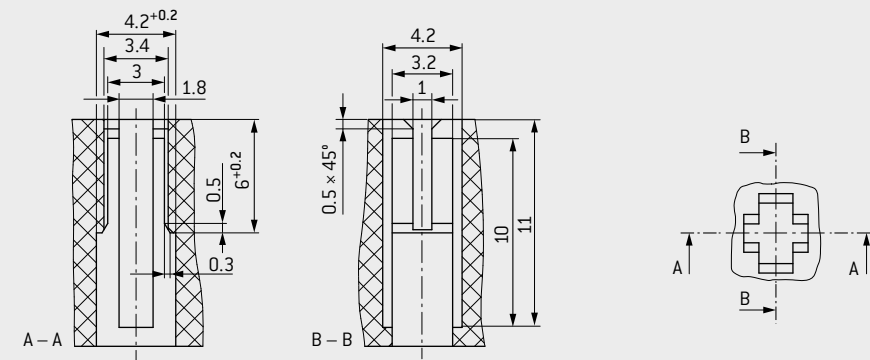


Dimensions without tolerance statement according to ISO 2768:1989 (DIN ISO 2768:1991) fine.

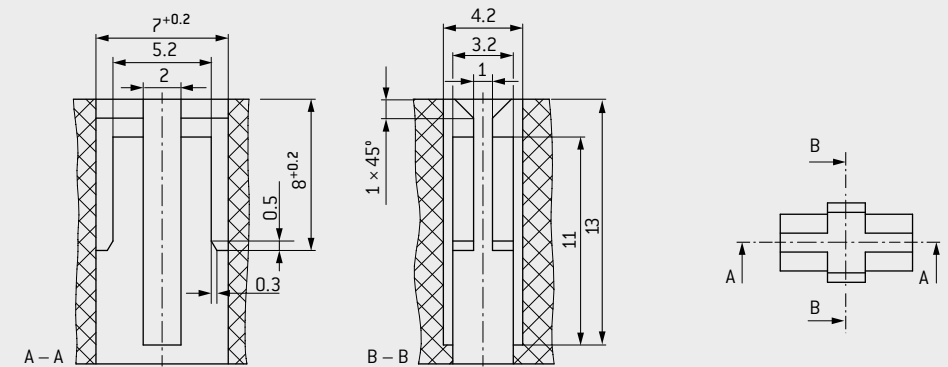
ODU SPRINGTAC® FLATSOCKETS



CHAMBER DIMENSIONS FOR 2.8 × 0.8 MM¹



CHAMBER DIMENSIONS FOR 6.3 × 0.8 (4.8 × 0.8)¹



Dimensions without tolerance statement according to ISO 2768:1989 (DIN ISO 2768:1991) fine.

¹ Slightly increased mating and demating forces result for the articles 190.224 ... 000 and 190.225 ... 000.

TECHNICAL TERMS



AMBIENT TEMPERATURE

Temperature of the air or other medium in which a piece of equipment is intended to be used in [IEC 44/709/CDV:2014 (VDE 0113-1:2014)].

AWG

American Wire Gauge [see page 61].

BASIS CURVE

Metrologically established current carrying capacity curve for connectors according to the measurement procedure described in IEC 60512-5-2:2002 (DIN EN 60512-5-2:2003) depending on the permissible limit temperature of the materials [see page 56].

CONNECTORS

Also known as connectors without contact rating (COC): [IEC 61984:2008 (VDE 0627:2009)]. An element which enables electrical conductors to be connected and is intended to create and/or separate connections with a suitable counterpart.

CONNECTORS WITH BREAKING CAPACITY (CBC) (PLUG DEVICE)

A connector which, when used correctly, may be mated or demated when live or under load.

CONTACT RESISTANCE

Total resistance value measured from terminal to terminal. In this case, the resistance is significantly lower than the contact resistance. The specifications are average values.

CORES

Electrical conductor, solid wire or multi-wire strand, with insulation as well as any conductive layers. Cables or leads may have one or more cores.

CRIMPING AREA

The specified area of the crimp barrel in which the crimp termination is executed by means of deforming or shaping the barrel under pressure around the conductor.

CRIMP BARREL

A terminal sleeve which can accommodate one or more conductor and be crimped by a crimping tool.

CRIMP CONNECTION (CRIMP TERMINATION)

The permanent, non-detachable and solder-free mounting of a contact to a conductor via deforming or shaping under pressure to make a good electrical and mechanical connection. Executed with crimping tool, press or automatic crimping machine [see page 46].

CURRENT-CARRYING CAPACITY (NOMINAL CURRENT AND MAXIMUM CONTINUOUS CURRENT)

The data relates to adequately dimensioned connection cable in accordance with IEC 60228:2004 (VDE 0295:2005; class 5), so that no significant temperature increase here. The indicated temperature increase takes place through the contact. The specifications are average values.

DERATING CURVE

The corrected current-carrying capacity curve, derived from the base curve determined ($0.8 \times$ measured current). It factors in manufacturing tolerances as well as uncertainties in temperature measurement and measurement arrangement [see derating measurement method].

DERATING-MEASUREMENT METHOD IEC 60512-5-2:2002 (DIN EN 60512-5-2:2003)

Measurement method to determine the current-carrying capacity of connectors in consideration of the maximum permissible limit temperature [see page 56].

LOWERMOST LIMIT TEMPERATURE

The lowest permissible temperature at which a connector may be operated. At ODU Single contacts, it amounts to -40°C .

LUBRICATION

All standard contacts are lubricated at the factory. We recommend the ODU maintenance package for subsequent lubrication [see page 52].

MATERIALS (STANDARD DESIGN)

Pins and carriers of the sockets are manufactured from a CuZn alloy and silver or gold-plated. The lamellas consist of a CuBe alloy and are also silver or gold-plated. The springwire contact wires consist of a CuSn alloy and are also silver or gold-plated.

TECHNICAL TERMS



MATING AND DEMATING FORCE

The force required to fully insert or withdraw plugable elements without the influence of a coupling or locking device. The higher value of the mating force is caused by the "attachment peak". Subsequently, only the pure sliding force has an effect. In the case of lamella contacts, the data refers to contacts in the lubricated state (status at delivery) and after approx. 30 mating cycles. The forces are/may be higher in new condition (lubricated). In the case of springwire contacts, the data refers to contacts in new condition. The data represents average values with a potential fluctuation of $\pm 50\%$.

MATING CYCLES

Mechanical actuation of connectors and plug devices via push and pull action. A mating cycle consists of one insertion and withdrawal action. ODU's standard value for the ODU TURNTAC 5,000 mating cycles, for ODU LAMTAC 10,000, for ODU SPRINGTAC Flatsocket 50,000 and for ODU SPRINGTAC 100,000 mating cycles. These values only apply to the following conditions: a clean environment, appropriate radial guidance and flawless counterparts.

MAX. CONTINUOUS CURRENT

The metrologically determined amperage at room temperature (approx. 20°C) which increases the contact temperature to the limit temperature. The values specified in the catalog apply to either individual contacts or completely assembled inserts / modules, as indicated.

NOMINAL CURRENT IEC 60512-5-2:2002 (DIN EN 60512-5-2:2003)

See rated current.

OPERATING TEMPERATURE

Range between the uppermost and lowermost temperature limits.

ODU SPRINGTAC: -40°C to $+120^\circ\text{C}$

ODU LAMTAC: -40°C to $+150^\circ\text{C}$

RATED CURRENT (NOMINAL CURRENT)

The metrologically determined current which is permitted to flow continuously through all contacts at the same time and will increase the contact temperature by 45 Kelvin. The amperage is determined according to the derating measurement method [IEC 60512-5-2:2002 (DIN EN 60512-5-2:2003)] and derived from the derating curve.

SOLDER CONNECTION (SOLDER TERMINATION)

Termination technology in which a molten additional metal (solder) with a lower melting point than the base materials to be connected is used to attach two metallic materials to one another.

SURGE CURRENT

One-time impulse current with a 10 ms load duration.

TERMINATION CROSS-SECTION

The specified cross-sections correspond to a "fine-wire" conductor structure pursuant to IEC 60228:2004 (VDE 0295:2005; class 5) or a "fine-wire" conductor structure (7/19 wire) according to AWG (ASTM B258-14).

TERMINATION TECHNOLOGIES

Methods for connecting the leads to the electro-mechanical element, such as solder-free connections pursuant to IEC 60352 (DIN EN 60352): crimp, screw connection etc. or soldering connection [see page 46].

UPPERMOST LIMIT TEMPERATURE

The maximum permissible temperature at which a connector may be operated. It includes contact heating through current-carrying capacity. With ODU Standard SPRINGTAC contacts, it amounts to $+120^\circ\text{C}$, with ODU Standard LAMTAC contacts $+150^\circ\text{C}$. Please consult ODU for high-temperature applications.

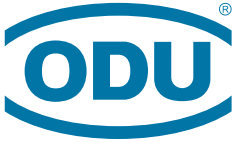
WIRE

Wires (solid conductors) are available with an insulator sleeve and/or electrical shielding. Cables or conductors may be made up of one or more wires.

GENERAL NOTE

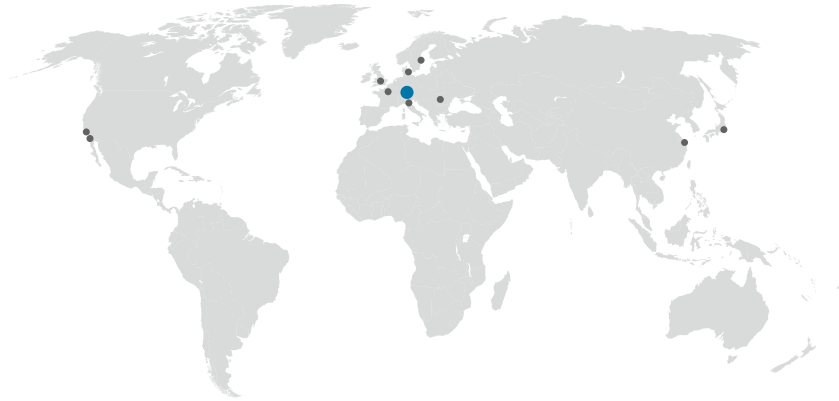
The connectors listed in this catalogue are intended for use in high voltage and frequency ranges. Suitable precautionary measures must be taken to ensure that people do not come into contact with live conductors during installation and operation.

All entries in this catalogue were thoroughly reviewed before printing. ODU reserves the right to make changes based on the current state of knowledge without prior notice without being obliged to provide replacement deliveries or refinements of older designs.



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