ODU THREADED CONNECTOR TECHNOLOGY

Advanced Connectors For Harsh Environments

HIGH RELIABILITY

A PERFECT ALLIANCE.

A PERFECT ALLIANCE.

ODU GROUP OVERVIEW

- More than 75 years of experience in connector technology
- Over 1,900 employees worldwide
- 9 sales subsidiaries in China, Denmark, France, Germany, Italy, Japan, Sweden, the UK and the US as well as 5 production and logistics sites
- All technologies under one roof: Design and development, machine tool and special machine construction, injection, stamping, turning, surface technology, assembly and cable assembly
- We operate in the following markets: medical, military and security, test & measurement, industrial, energy, and emobility

As of February 2018

CUSTOMER-SPECIFIC SOLUTIONS

Contacts, connectors and integrated cable assembly solutions meeting the most demanding technical market requirements – ODU's connector solutions and value-added services are characterized by their exclusive focus on meeting the customer's needs.

- Precise implementation of application-specific requirements regarding design, functionality, cost and exclusivity
- Custom connector solutions derived from standard products
- One-to-one local expertise and fair, friendly consulting
- Quick prototyping and production turnaround

CERTIFIED QUALITY

- DIN EN ISO 9001
- IATF 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.

CREATING CONNECTIONS, BUILDING ALLIANCES, COLLABORATING INTO THE FUTURE

TECHNOLOGY THAT UNITES – CONNECTIONS THAT INSPIRE

For over 75 years, this commitment has enabled us to innovate and provide solutions that respond to continuously changing market needs. We provide high-quality electrical connectors that create added value for our customers and any market player seeking a reliable connector solution to enable the transmission of power, signals, media and data transmission.

A PERFECT ALLIANCE is our guiding principle. It represents the synergy between our high-quality connector solutions and the strong partnerships we build with our staff and business partners across the globe –
partnerships based on trust, reliability and mutual respect.

ODU is one of the world's leading suppliers of connector systems today, employing over 1,900 people worldwide and generating approximately €170 million in sales. To ensure the very highest quality standards in our cutting-edge products, we continuously invest in their development and production – and ultimately, in our very unique expertise. Over the past few years, our development of customer- and application-specific connectors has led to the sustained growth of our standard product range so that today, we cover a broad range of application areas. A balance between project-specific business, including customized developments, and standard connector design will continue to shape our business into the future. This holds true for emerging and future markets, such as medical, military and security, and energy, as well as for the special requirements of measurement and testing, eMobility and industrial electronics.

A PERFECT ALLIANCE – The future of ODU will continue to find solid ground for growth: in our focus on providing reliable connector solutions for a variety of challenging applications and in our commitment to continuously expanding our technology portfolio. It's what we do and who we are – around the globe. This brochure is an invitation for you to become even better acquainted with ODU, an internationally active technology company devoted to creating high-quality customized connector solutions.

We are actively shaping the future of our company with creativity, imagination and innovation in order to serve our valued customers around the world.

ODU – A PERFECT ALLIANCE.

The Managing Directors:
Dr.-Ing. Kurt Woelfl and **Denis Giba**

ADVANCED CONNECTOR SOLUTIONS

THREADED CONNECTOR TECHNOLOGY

THREADED CONNECTORS

ODU offers a wide variety of robust technologies for applications in harsh environments. ODU's Threaded Connector technologies are especially favored for applications requiring an additional degree of security, or where environmental conditions including temperature, pressure or vibration would be problematic for other interconnect products.

KEY FEATURES AND CUSTOMER BENEFITS

- Lightweight, small and easy handling
- Wide temperatures range
- Various standard inserts available
- Individual contact configuration:
  - Signals, low/high voltage transmission, coax/triax, inserts available on request
- Reliable data transmission and excellent shielding performance
- System solution – cable assembly and overmolding

A LEGACY OF **EXCELLENCE**...

⊕ Leakage rate:
1 x 10-8 mbar x l / s (Helium)
⊕ Stainless steel

⊕ Hydrostatic pressure:
up to 500 bar
⊕ High corrosion resistant

⊕ IP 68 mated
⊕ >1000 mating cycles

ODU THREADED CONNECTOR
TECHNOLOGY AT A GLANCE

Tested according
MIL Standards

High Vibration
Resistant

EMI
Shielded

Rachet Mechanism
half turn locking

Watertight

Rugged
solid construction

Triple start
Threaded

More
Mate cyles
than MIL spec. connectors

Full Mate
indicator

Compact
design

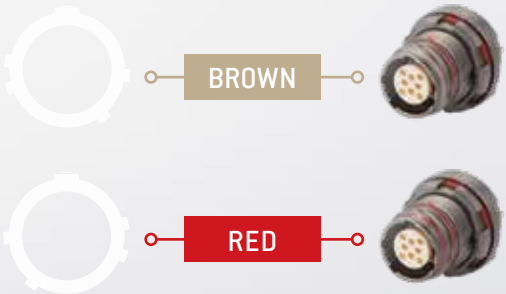
Mechanical Keying
with matched color code

2 SHELL SIZES

SIZE 1.5
- From 8-19 contacts
- Small size
- Ethernet[1] ready

SIZE 3
- From 4-26 contacts
- High power
- Combo inserts available

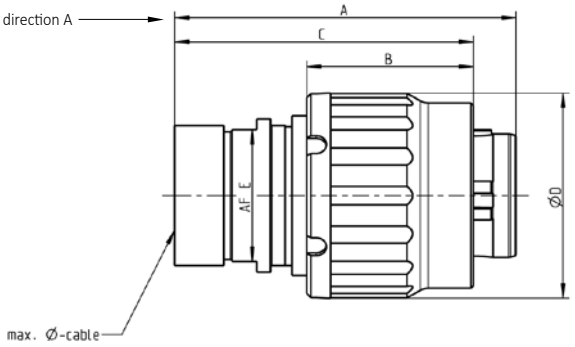
2 MECHANICAL (COLOR) CODINGS



[1]*These ODU specific connectors can transmit common data transmission protocols such as Ethernet, but they are not Ethernet- standard connectors.*

ODU THREADED BODY STYLES - DIMENSIONS AND DETAILS

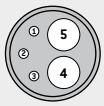
PLUG - SOLDER CUP



SIZE	A	B	C	ØD	AF E	MAX. Ø-CABLE
1.5	34.1	15.7	31.1	17.5	11	8.5
3	41.6	20.3	36.4	24.9	16	12.8

Available codings: brown and red

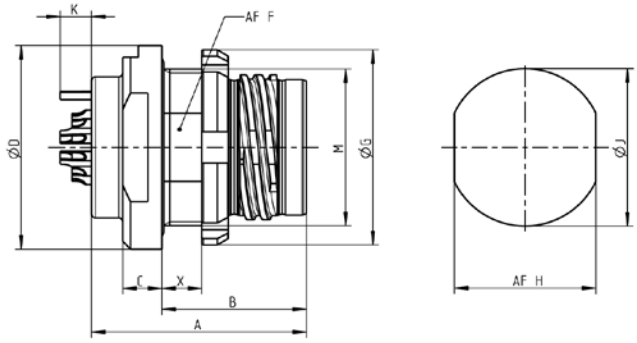
CONTACT CONFIGURATIONS:

SIZE	LAYOUT VIEWED FROM DIRECTION A	NUMBER OF SOLDER CONTACTS	MAX. CURRENT (AMPS) SINGLE CONTACT LOAD	DWV VOLTAGE* (VAC)	MAX. WIRE SIZE SOLDER CUP	SUITABLE FOR
SIZE 1.5		10X PIN	5	1200	10X AWG 22	SIGNAL
		19X PIN	2	1000	19X AWG 26	SIGNAL
		8X PIN	2	1000	19X AWG 26	CAT 5[1] GIGABIT ETHERNET[1]
SIZE 3.0		4X SOCKET	5	1200	8X AWG 22	POWER
		5 — 2X SOCKET	30	1350	2X AWG 12	POWER
		5 — 3X PIN	5	1350	3X AWG 22	SIGNAL
		18X PIN	7	1200	18X AWG 20	SIGNAL
		26X PIN	5	1000	26X AWG 22	SIGNAL

***Notes**: Consult factory for availability. For various applications, the safety requirement regarding the operating voltage is even more severe. This must be evaluated during the time of equipment engineering.*
**Consult factory for additional information and options.*
[1]These ODU specific connectors can transmit common data transmission protocols such as Ethernet and CAT5, but they are not Ethernet- or CAT5- standard connectors.

RECEPTACLE STYLE 8 - SOLDER CUP

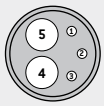
View in direction A →



SIZE	A	B	C	ØD	AF F	ØG	AF H	ØJ	K	M	X MAX.
1.5	20.5	14	4	18.9	13	17.9	13.1	14.1	3.5	M14X0.75	4
3	27.5	18.5	5	26	18	24.9	18.1	20.1	4	M20X1	5.1

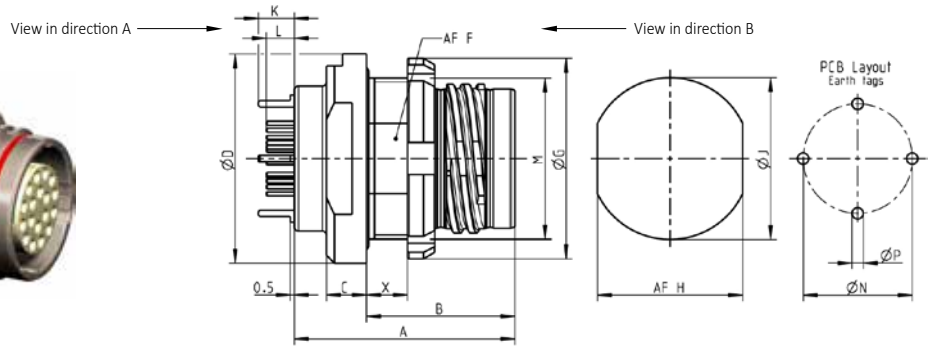
Available codings: brown and red

CONTACT CONFIGURATIONS:

SIZE	LAYOUT VIEWED FROM DIRECTION A	NUMBER OF SOLDER CONTACTS	MAX. CURRENT (AMPS) SINGLE CONTACT LOAD	DWV VOLTAGE* (VAC)	MAX. WIRE SIZE SOLDERCUP	SUITABLE FOR
SIZE 1.5		10X SOCKET	5	1200	10X AWG 22	SIGNAL
		19X SOCKET	2	1000	19X AWG 26	SIGNAL
		8X SOCKET	5	1200	8X AWG 22	CAT 5[1] GIGABIT ETHERNET[1]
SIZE 3.0		4X PIN	20	1650	4X AWG 14	POWER
		5 — 2X PIN	30	1350	2X AWG 12	POWER
		5 — 3X SOCKET	5	1350	3X AWG 22	SIGNAL
		18X SOCKET	7	1200	18X AWG 20	SIGNAL
		26X SOCKET	5	1000	26X AWG 22	SIGNAL

***Notes**: Consult factory for availability. For various applications, the safety requirement regarding the operating voltage is even more severe. This must be evaluated during the time of equipment engineering.*
**Consult factory for additional information and options.*
[1]These ODU specific connectors can transmit common data transmission protocols such as Ethernet and CAT5, but they are not Ethernet- or CAT5- standard connectors.

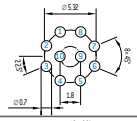
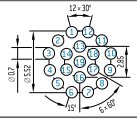
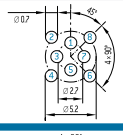
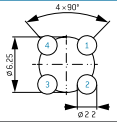
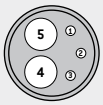
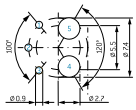
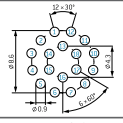
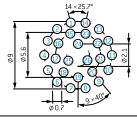
RECEPTACLE STYLE 8 – PCB



SIZE	A	B	C	ØD	AF F	ØG	AF H	ØJ	K	L	M	ØN	ØP	X MAX.
1.5	20.5	14	4	18.9	13	17.9	13.1	14.1	3.5	2.2	M14X0.75	9.7	1.2	4
3	27.5	18.5	5	26	18	24.9	18.1	20.1	4.5	4.2	M20X1	13.6	1.4	5.1

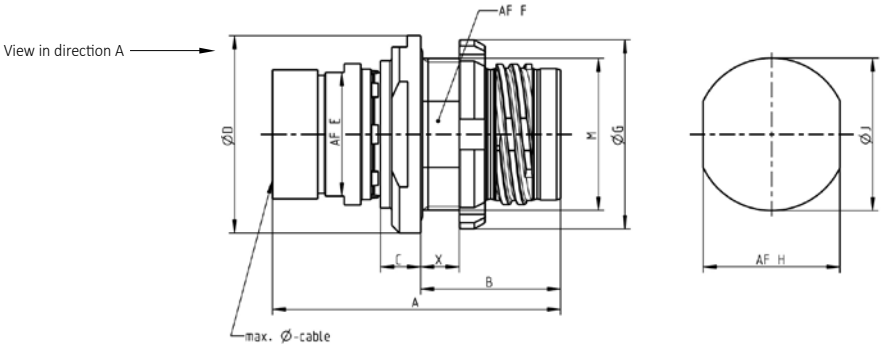
Available codings: brown and red

CONTACT CONFIGURATIONS:

SIZE	LAYOUT VIEWED FROM DIRECTION A	NUMBER OF PCB CONTACTS	MAX. CURRENT (AMPS) SINGLE CONTACT LOAD	DWV VOLTAGE* (VAC)	SUITABLE FOR	PCB LAYOUT ONLY CONTACTS VIEWED FROM DIRECTION B
SIZE 1.5		10X SOCKET	5	1200	SIGNAL	
		19X SOCKET	2	1000	SIGNAL	
		8X SOCKET	5	1200	CAT 5[1] GIGABIT ETHERNET[1]	
SIZE 3.0		4X PIN	20	1650	POWER	
		5 2X PIN	30	1350	POWER	
		3X SOCKET	5	1350	SIGNAL	
		18X SOCKET	7	1200	SIGNAL	
		26X SOCKET	5	1000	SIGNAL	

***Notes**: Consult factory for availability. For various applications, the safety requirement regarding the operating voltage is even more severe. This must be evaluated during the time of equipment engineering.*
**Consult factory for additional information and options.*
[1]These ODU specific connectors can transmit common data transmission protocols such as Ethernet and CAT5, but they are not Ethernet- or CAT5- standard connectors.

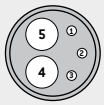
RECEPTACLE STYLE 6 – SOLDER CUP



SIZE	A	B	C	ØD	AF E	AF F	ØG	AF H	ØJ	M	X MAX.	MAX. Ø-CABLE
1.5	30.3	13	4	18.9	11	13	17.9	13.1	14.1	M14X0.75	3	8.5
3	38.1	18.5	5.3	26	16	18	24.9	18.1	20.1	20X1	5.1	12.5

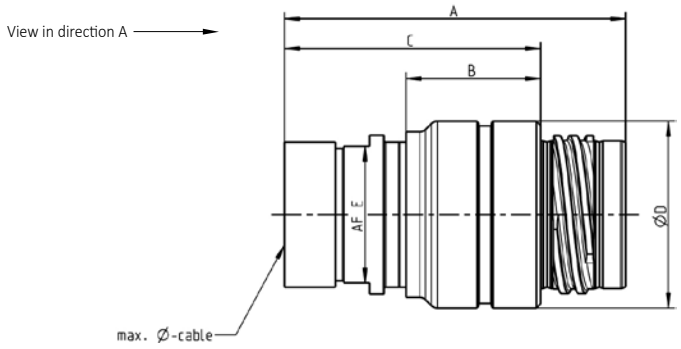
Available codings: brown and red

CONTACT CONFIGURATIONS:

SIZE	LAYOUT VIEWED FROM DIRECTION A	NUMBER OF SOLDER CONTACTS	MAX. CURRENT (AMPS) SINGLE CONTACT LOAD	DWV VOLTAGE* (VAC)	MAX. WIRE SIZE SOLDERCUP	SUITABLE FOR
SIZE 1.5		10X SOCKET	5	1200	10X AWG 22	SIGNAL
		19X SOCKET	2	1000	19X AWG 26	SIGNAL
		8X SOCKET	5	1200	8X AWG 22	CAT 5[1] GIGABIT ETHERNET[1]
SIZE 3.0		4X PIN	20	1650	4X AWG 14	POWER
		5 — 2X PIN	30	1350	2X AWG 12	POWER
		5 — 3X SOCKET	5	1350	3X AWG 22	SIGNAL
		18X SOCKET	7	1200	18X AWG 20	SIGNAL
		26X SOCKET	5	1000	26X AWG 22	SIGNAL

***Notes**: Consult factory for availability. For various applications, the safety requirement regarding the operating voltage is even more severe. This must be evaluated during the time of equipment engineering.*
**Consult factory for additional information and options.*
[1]These ODU specific connectors can transmit common data transmission protocols such as Ethernet and CAT5, but they are not Ethernet- or CAT5- standard connectors.

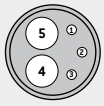
IN-LINE RECEPTACLE – SOLDER CUP



SIZE	A	B	C	ØD	AF E	MAX. Ø-CABLE
1.5	32.3	12	25.3	15.6	11	8.5
3	40.1	15.8	30.1	21.9	16	12.8

Available codings: brown and red

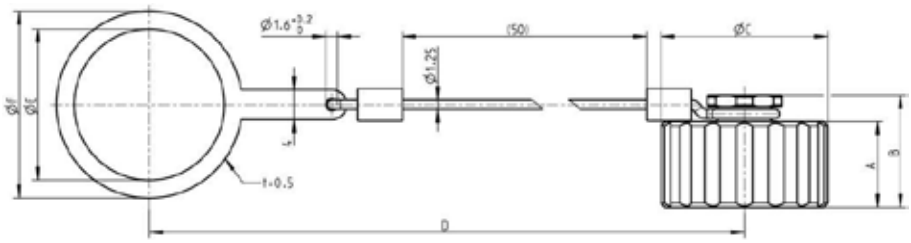
CONTACT CONFIGURATIONS:

SIZE	LAYOUT VIEWED FROM DIRECTION A	NUMBER OF SOLDER CONTACTS	MAX. CURRENT (AMPS) SINGLE CONTACT LOAD	DWV VOLTAGE* (VAC)	MAX. WIRE SIZE SOLDERCUP	SUITABLE FOR
SIZE 1.5		10X SOCKET	5	1200	10X AWG 22	SIGNAL
		19X SOCKET	2	1000	19X AWG 26	SIGNAL
		8X SOCKET	5	1200	8X AWG 22	CAT 5[1] GIGABIT ETHERNET[1]
SIZE 3.0		4X PIN	20	1650	8X AWG 22	POWER
		5 — 2X PIN	30	1350	2X AWG 12	POWER
		5 — 3X SOCKET	5	1350	3X AWG 22	SIGNAL
		18X SOCKET	7	1200	18X AWG 20	SIGNAL
		26X SOCKET	5	1000	26X AWG 22	SIGNAL

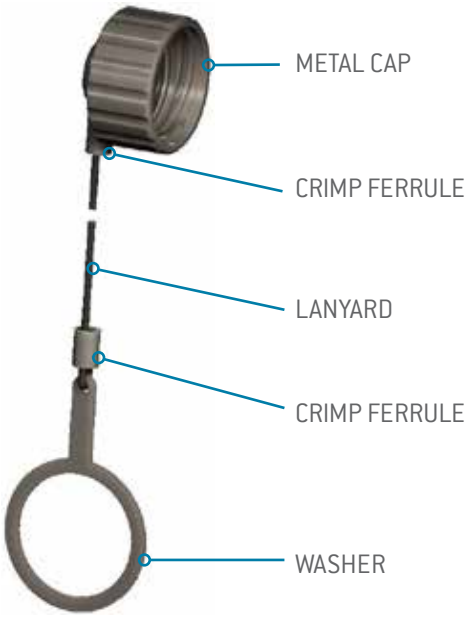
***Notes**: Consult factory for availability. For various applications, the safety requirement regarding the operating voltage is even more severe. This must be evaluated during the time of equipment engineering.*
**Consult factory for additional information and options.*
[1]These ODU specific connectors can transmit common data transmission protocols such as Ethernet and CAT5, but they are not Ethernet- or CAT5- standard connectors.

PROTECTIVE CAPS

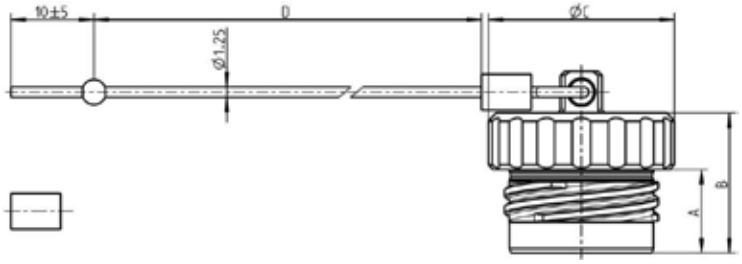
FOR THREADED CONNECTOR RECEPTACLES



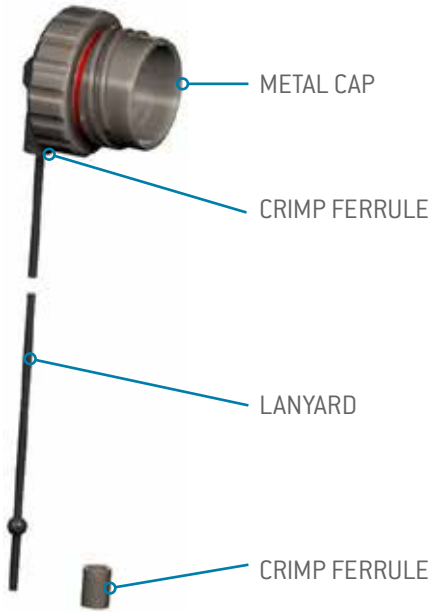
SIZE	A	B	ØC	ØD	ØE	ØF
1.5	8.5	12	16	90	14.1	18
3	11.5	15	22.5	100	20.2	25



FOR THREADED CONNECTOR PLUGS



SIZE	A	B	ØC	ØD
1.5	13	18	16	200
3	16.8	21.8	22.5	200



MATERIALS AND SURFACES

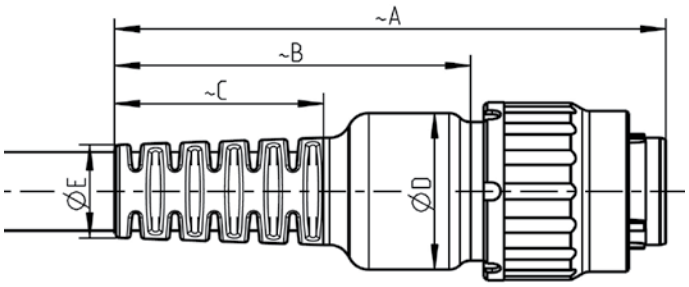
PART	MATERIAL/SURFACE
Cap	Aluminum / Antracite Sn-Ni over electroless Ni
Lanyard	Aramid / black
Crimp ferrule	Brass, copper / Zn-Ni, black
Washer	Brass, copper / Antracite Sn-Ni over electroless Ni

ENVIRONMENTAL CHARACTERISTICS

TYPE	PERFORMANCE
Tightness	IP68 (1m / 120min)
Operating temperature	-51°C up to +125°C

CABLE ASSEMBLY CAPABILITIES

OVERMOLDING DIMENSIONS



SIZE	A	B	C	ØD	ØE	MAX. Ø-CABLE
1.5	60	39	21.5	15	10	8.5
3.0	82	54	29	21.9	13	<11
					17.5	11-12.8

The ODU Threaded Connectors are designed for overmolding. A straight overmolding is available. If you need special overmoldings, please consult the factory for additional information about customized solutions (e.g. 90 degree).
A heatshrinkable bend relief is also possible.

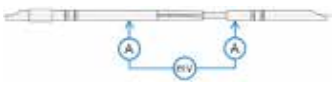
TYPICAL THREADED CONNECTOR PERFORMANCE ATTRIBUTES

ENVIRONMENTAL

TYPE	PERFORMANCE	STANDARD
Waterproofness	1m / 120 min	MIL-STD-810G 512.5
Sand and dust	Blowing sand and dust, settling dust	MIL-STD-810G 510.4/5 Procedure I/II
Operating temperature	-51°C up to +125°C	MIL-STD-810G 501.5 Procedure III
Humidity cyclic	85% up to 95% 28°C up to 71°C	
Corrosion resistance	96h salt mist, 5% salt solution, 35°C	MIL-STD-810G 509.5 Procedure I
Fungus	European and American fungus	MIL-STD-810G 508.6
Solar radiation (sunshine)	Temperature after categories A1	MIL-STD-810G 505.5 Procedure I
Contamination by fluids	Several substances [1]	MIL-STD-810G 504.1 Procedure I

[1] Substances listed at ODU datasheet 009.410.281.001.000

FIG 1



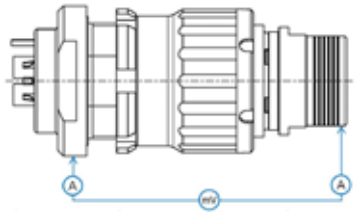
MECHANICAL

TYPE	PERFORMANCE	STANDARD
Mechanical durability	2.000 mating cycles	IEC 60512-5-9-a/ EIA-364-09C

ELECTRICAL

TYPE	PERFORMANCE	STANDARD
Contact resistance (Fig 1)	Contact-ø/resistance Ø0.5mm <5mOhm Ø0.7mm <4mOhm Ø0.9mm <4mOhm Ø1.3mm <3mOhm Ø2.0mm <3mOhm	IEC-60512-2-1
Shell resistance (Fig 2)	<10mOhm	IEC-60512-2-1
Insulation resistance	>2000MOhm	IEC-60512-3-1

FIG 2



MATERIAL AND SURFACE TREATMENTS

	MATERIAL	STANDARD EU	STANDARD US	SURFACE	STANDARD	FLAMMABILITY
Housing / nut	Aluminum AlMgSiSn1Bi	EN-AW 6023		Antracite Sn-Ni over electroless Ni		
Backshell	Aluminum AlMgSiSn1Bi	EN-AW 6023		Electroless Ni	SAE-AMS2404	
EMI -locking ring	Copper alloy			Electrodeposited Ni		
Crimp sleeve	CuZn38Pb1.5	CW608N (2.0371)	C35300	Electrodeposited Ni		
Grounding ring	CuZn39Pb3	CW614N (2.0401)	C38500	Sn over electroless Ni		
Potting sleeve	PC					
Insulator	PEEK					UL94 (V0)
Pin contact	CuZn39Pb3	CW614N (2.0401)	C38500	1.27 µm Gold over electrodeposited Ni	MIL-G-45204D	
Socket contact	CuZn39Pb3	CW614N (2.0401)	C38500	1.27 µm Gold over electrodeposited Ni	MIL-G-45204D	
Socket contacts (Power socket contact 5 way size 3)	CuZn39Pb3 (contact body)	CW614N (2.0401)	C38500	1.27 µm Gold over electrodeposited Ni	MIL-G-45204D	
	CuBe2 (lamella)	CW102C (2.1248)	C17300	1.27 µm Gold over electrodeposited Ni	MIL-G-45204D	
Wave spring	Stainless steel	EN 10270 -3 (1.4568)	S17700			
Ratchet ring	PEEK					UL94 (V0)
O-rings	FVMQ (floursilikon)					
Potting	potting compound					UL94 (V0)
Overmoulding material	TPU					UL94 (HB)
Shrink boots	Polyester-elastomer					acc. to VG95343

ODU CAPABILITY PORTFOLIO

INGRESS PROTECTION

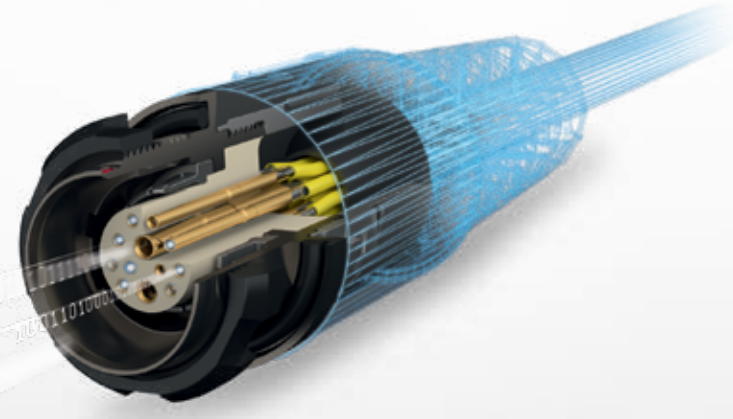
ODU has the expertise to develop and manufacture interconnect products that satisfy stringent ingress protection requirements. Our knowledge of materials, sealing methods and techniques, supported by FEM simulation, allow our products to go places others cannot.


WATER MANAGEMENT


OIL INDUSTRY

HIGH-SPEED DATA TECHNOLOGY

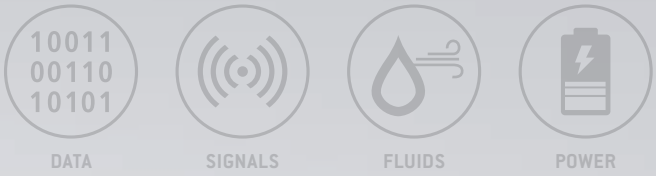
The volume of data to be transmitted and the electro mechanical requirements of data transmission connectors are growing exponentially. When it comes to high-speed data transfer, these requirements of high-frequency transmission need to be combined in a connector – so the optimal signal integrity has to be ensured throughout the entire product life cycle.




RAILWAY TECHNOLOGY


MILITARY TECHNOLOGY

HYBRID CAPABILITIES



HYBRID CONNECTORS
VERSATILE AND EASY TO USE

ODU provides a wide range of custom connector solutions that can accommodate multiple pin-counts and contact combinations. ODU's customer-orientated connector systems ensure a reliable transmission of power, signal, data and media for a large variety of demanding applications. We provide all relevant areas of expertise and key technologies including design and development, machine tool and special machine construction, injection, stamping, turning, surface technology, assembly and cable assembly.

The trends that are driving further development of connector technology include:

- Combined transmission of various media in one interface:
  electrical (signals, power, data)
  physical (liquids, gases)
- Low total cost of ownership
- Optimized use of space
- Ease of installation
- High mating cycles
- Small form factor

Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Курган (3522)50-90-47
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Саранск (8342)22-96-24
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35
Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93

Россия +7(495)268-04-70 **Казахстан** +7(7172)727-132 **Киргизия** +996(312)96-26-47

https://odu.nt-rt.ru || oud@nt-rt.ru