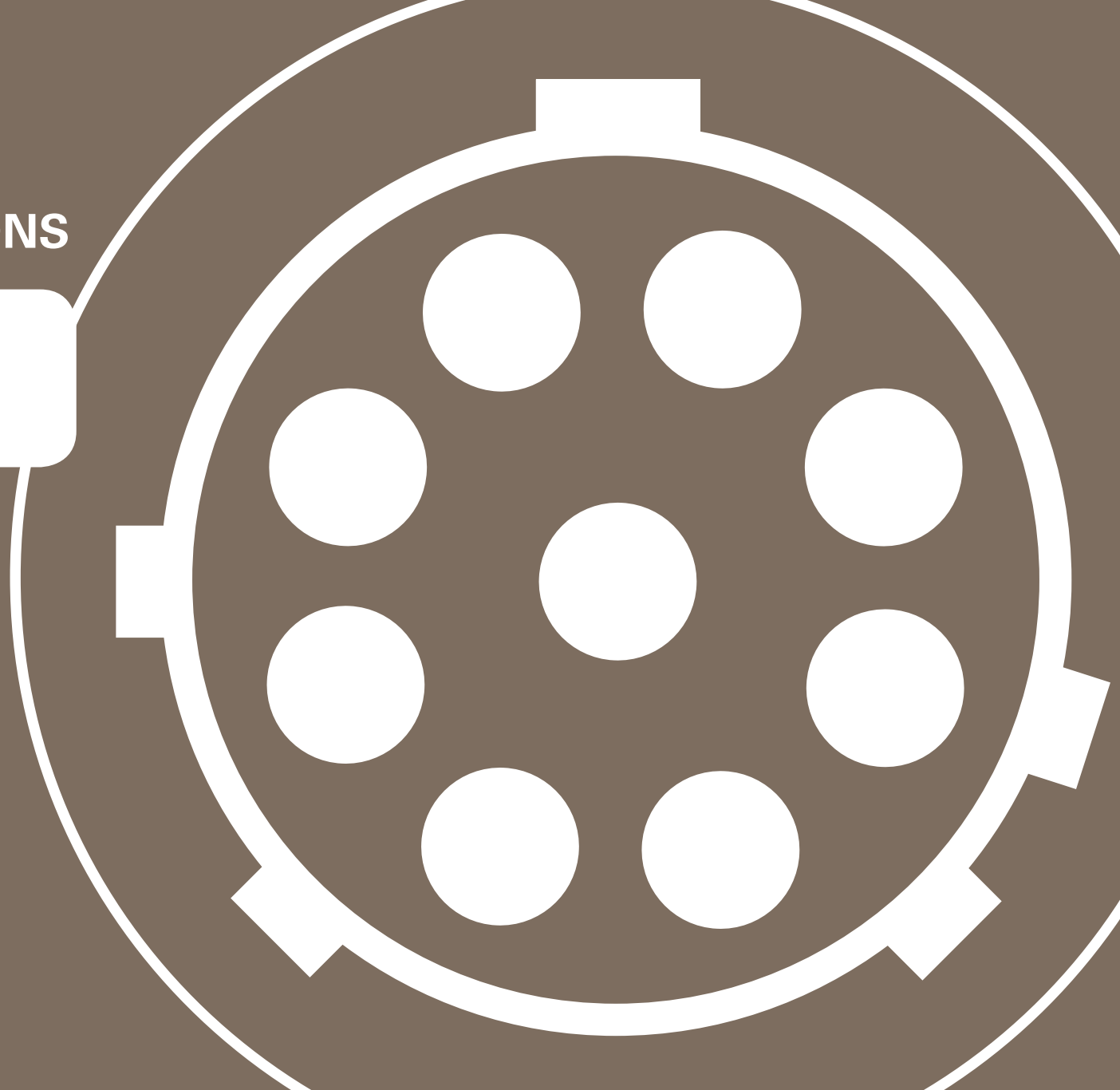


TECHNICAL SPECIFICATIONS

FISCHER **ULTIMATE™** SERIES





KEY FEATURES



The Fischer UltiMate™ Series offers rugged, compact, lightweight, sealed connectors and cable assembly solutions ideally suited to withstand a variety of severe environmental, industrial and chemical conditions.

This circular push-pull connector features excellent 360° EMC shielding, extremely robust keying, and IP68/69 sealing even unmated.

DURABILITY

- Sealing IP68/IP69 even unmated
- Hermetic
- Extremely robust mechanical keying
- 10,000 mating cycles

PERFORMANCE

- 360° EMC shielding
- Grounding contact ring
- Easy cable assembly solutions

PERSONALIZED

- Wide range of configurations
- Miniature & ultralight design
- Color overmolding available
- Crimp and solder contacts

RUGGED

- High shock and vibration resistance
- Operating temperature: -55°C to +135°C
- High corrosion resistance
- Blind mating

FISCHER
ULTIMATE™
SERIES





RUGGED | COMPACT | LIGHTWEIGHT

Ideally suited for harsh environments:
Industrial | Transportation | Energy | Defense and security

FISCHER **ULTIMATE™** SERIES

Body style selection	H 4
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Accessories	H 17
Technical information	H 20
Tooling	H 22



PLUGS

CABLE MOUNTED



BODY STYLES

UP01-L

UP01-Q

Locking system

Push-pull

Quick-release

Sealing

IP68/69

IP68/69

Design

Short/Overmolding

Short/Overmolding

PANEL FRONT MOUNTED



BODY STYLE

UP50

Locking system

Non-locking

Sealing

IP68/69

Design

Front-projecting

RECEPTACLES

CABLE MOUNTED



BODY STYLE

UR50

Sealing

IP68/69

Design

Short/Overmolding

PANEL FRONT MOUNTED



BODY STYLE

UR03

Sealing

IP68/69 | Hermetic

Design

Front-projecting

PANEL REAR MOUNTED



BODY STYLES

UR01

UR02

Sealing

IP68/69 | Hermetic

IP68/69 | Hermetic

Design

Front-projecting

Rear-projecting

Size overview

FISCHER ULTIMATE™ SERIES



AVAILABLES SIZES



Images of available sizes are on 1:1 scale when printed full size on A4 paper.



Size	Pin layout	Number of contacts	Contact diameter (mm)	Wire size ³⁾		PCB contacts	Current rating [A]	Rated voltage r.m.s [V]	Test voltage [kV] in mated position			
				Solder contacts ¹⁾	Crimp contacts ²⁾				IEC 60512-4-1 Test 4a		DC	
						Pin diameter (mm)	IEC 60512-5-2-5b ⁴⁾	IEC 60664-1 ⁵⁾	AC r.m.s.		DC	
Contact to body	Contact to contact	Contact to body	Contact to contact									
07		2	0.9	max ø0.79mm AWG21 [1] AWG22 [7/30]	max ø0.83mm ⁶⁾ min ø0.48mm AWG22-26	0.63	9.2	≤ 250	1.3	1.7	1.8	2.4
		3	0.9	max ø0.79mm AWG21 [1] AWG22 [7/30]	-	0.63	8.2	≤ 250	1.3	1.3	1.8	1.6
		4	0.7	max ø0.79mm AWG21 [1] AWG22 [7/30]	max ø0.62mm min ø0.38mm AWG24-28	0.50	5.5	≤ 200	1.2	1.2	1.7	1.8
		5	0.7	max ø0.79mm AWG21 [1] AWG22 [7/30]	max ø0.62mm min ø0.38mm AWG24-28	0.50	5.2	≤ 160	0.8	1.0	1.3	1.8
		7	0.5	max ø0.43mm AWG26 [1] AWG28 [19/40]	max ø0.43mm min ø0.20mm AWG28-32	0.40	2.0	≤ 160	0.8	1.0	1.3	1.8
		9	0.5	max ø0.43mm AWG26 [1] AWG28 [19/40]	-	0.40	1.7	≤ 160	0.8	1.1	1.2	1.8
		10	0.5	max ø0.43mm AWG26 [1] AWG28 [19/40]	-	0.40	1.7	≤ 160	0.8	0.9	1.2	1.3

¹⁾ Stranding values are in brackets.

²⁾ See dedicated crimping instructions document for further information.

³⁾ For a given AWG, the diameter of some stranded conductor designs could exceptionally be larger than the hole diameter of the barrel. Testing may be required.

⁴⁾ Recommended max. operating current per contact at 40°C temperature rise.

⁵⁾ Recommended operating voltage at sea level. This rated voltage is a general purpose guideline where no other electrical safety standard applies.

In cases where other standards define a specific use of the connector, the application-specific safety criteria shall be considered first. This must be evaluated in the framework of equipment engineering.

⁶⁾ Standard polarity only.



Size	Pin layout	Number of contacts	Contact diameter [mm]	Wire size ³⁾		PCB contacts	Current rating [A]	Rated voltage r.m.s [V]	Test voltage [kV] in mated position			
				Solder contacts ¹⁾	Crimp contacts ²⁾				IEC 60512-4-1 Test 4a		DC	
						Pin diameter [mm]	IEC 60512-5-2-5b ⁴⁾	IEC 60664-1 ⁵⁾	AC r.m.s.		DC	
Contact to body	Contact to contact	Contact to body	Contact to contact									
08		2	0.9	max ø0.79mm AWG21 [1] AWG22 [7/30]	-	0.70	9.2	≤ 250	1.3	1.7	1.8	2.4
		3	0.9	max ø0.79mm AWG21 [1] AWG22 [7/30]	-	0.70	8.2	≤ 250	1.3	1.3	1.8	1.6
		4	0.7	max ø0.79mm AWG21 [1] AWG22 [7/30]	max ø0.62mm min ø0.38mm AWG24-28	0.50	5.5	≤ 200	1.2	1.2	1.7	1.8
		5	0.7	max ø0.79mm AWG21 [1] AWG22 [7/30]	max ø0.62mm min ø0.38mm AWG24-28	0.50	5.2	≤ 160	0.8	1.0	1.3	1.8
		7	0.5	max ø0.43mm AWG26 [1] AWG28 [19/40]	-	0.40	2.0	≤ 160	0.8	1.0	1.3	1.8
		9	0.5	max ø0.43mm AWG26 [1] AWG28 [19/40]	-	0.40	1.7	≤ 160	0.8	1.1	1.2	1.8

¹⁾ Stranding values are in brackets.

²⁾ See dedicated crimping instructions document for further information.

³⁾ For a given AWG, the diameter of some stranded conductor designs could exceptionally be larger than the hole diameter of the barrel. Testing may be required.

⁴⁾ Recommended max. operating current per contact at 40°C temperature rise.

⁵⁾ Recommended operating voltage at sea level. This rated voltage is a general purpose guideline where no other electrical safety standard applies.

In cases where other standards define a specific use of the connector, the application-specific safety criteria shall be considered first. This must be evaluated in the framework of equipment engineering.



Size	Pin layout	Number of contacts	Contact diameter [mm]	Wire size ³⁾		PCB contacts	Current rating [A]	Rated voltage r.m.s [V]	Test voltage [kV] in mated position			
				Solder contacts ¹⁾	Crimp contacts ²⁾				Pin diameter [mm]	IEC 60512-5-2-5b ⁴⁾	IEC 60664-1 ⁵⁾	AC r.m.s.
						Contact to body	Contact to contact	Contact to body				Contact to contact
11		8 ^{7) 8)}	0.7	max ø0.79mm AWG21 [1] AWG22 [7/30]	max ø0.62mm min ø0.38mm AWG24-28	0.50	4.2	≤ 250	1.7	1.8	3.1	2.6
		12	0.7	max ø0.79mm AWG21 [1] AWG22 [7/30]	^{7) 8)} max ø0.62mm min ø0.38mm AWG24-28	0.50	4.2	≤ 250	1.6	1.6	2.6	2.3
		16	0.5	max ø0.43mm AWG26 [1] AWG28 [19/40]	-	0.40 ⁷⁾	2.7	≤ 250	1.2	0.9	2.0	1.5
		19	0.5	max ø0.43mm AWG26 [1] AWG28 [19/40]	-	0.40 ⁷⁾	2.5	≤ 250	1.2	0.9	2.0	1.5
13		27	0.5	⁸⁾ max ø0.43mm AWG26 [1] AWG28 [19/40]	⁹⁾ max ø0.43mm min ø0.20mm AWG28-32	0.40 ⁸⁾	2.0	≤ 200	1.2	0.5	1.8	0.5
18		42 ⁶⁾	0.7	-	max ø0.62mm min ø0.38mm AWG24-28	0.50	3.0	≤ 250	1.5	1.5	2.4	2.5

¹⁾Stranding values are in brackets.

²⁾See dedicated wire gauge crimping instructions document for further information.

³⁾For a given AWG, the diameter of some stranded conductor designs could exceptionally be larger than the hole diameter of the barrel. Testing may be required.

⁴⁾Recommended max. operating current per contact at 40°C temperature rise.

⁵⁾Recommended operating voltage at sea level. This rated voltage is a general purpose guideline where no other electrical safety standard applies.

In cases where other standards define a specific use of the connector, the application-specific safety criteria shall be considered first. This must be evaluated in the framework of equipment engineering.

⁶⁾Standard polarity only.

⁷⁾Not valid for UP50.

⁸⁾UR0x: standard polarity only.

⁹⁾Only valid for UP01, UR50.

Mechanical coding



PLUGS	Size	Code 1	Code 2	Code 3	Code 4
	07				
	08				
	11				
	13				
	18				
Visual coding		●	▼	■	✕

RECEPTACLES	Size	Code 1	Code 2	Code 3	Code 4
	07				
	08				
	11				
	13				
	18				
Visual coding		●	▼	■	✕

All dimensions and images shown are in millimeters and are for reference only.

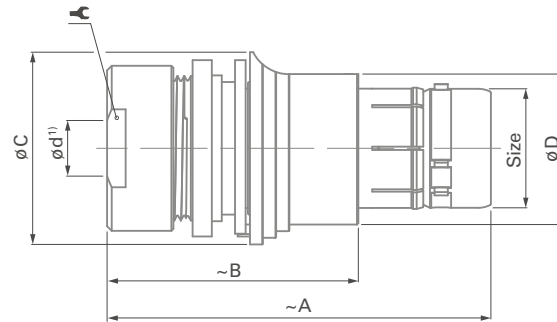


PLUGS

CABLE MOUNTED

UP01

BODY STYLE



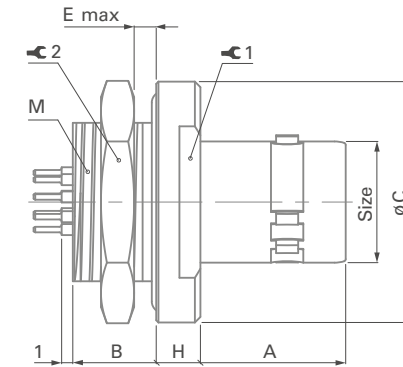
Size	A	B	øC	øD	ød max	☛	Torque
07	28.0	18.0	12.0	9.0	4.5	8	1.5 Nm
08	39.0	25.0	15.0	10.5	4.5	10	2.5 Nm
11	39.5	26.0	18.5	13.7	7.1	14	3.0 Nm
13	50.0	34.0	21.7	16.0	8.7	17	3.5 Nm
18	58.0	38.0	29.0	22.7	13.7	22	6.0 Nm

¹¹Max. cable diameter below shield.

PANEL FRONT MOUNTED

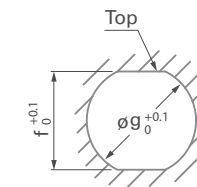
UP50

BODY STYLE



Size	A	B	øC	E	H	M	☛1	☛2	Torque
07	10.0	5.2	13.0	2.5	3.0	9x0.5	9	11	1.3 Nm
11	13.2	7.6	21.8	4.5	4.0	16x1	17	19	4.5 Nm

Size	f	øg
07	8.0	9.1
11	14.5	16.1



PANEL CUT-OUT

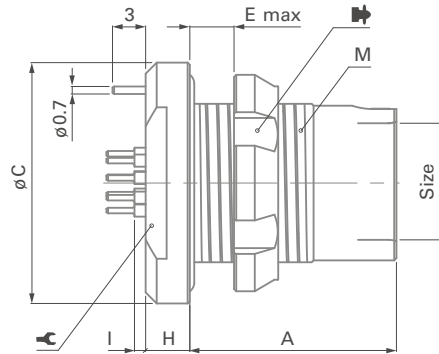


RECEPTACLES

PANEL REAR MOUNTED*

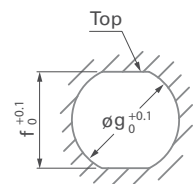
UR01

BODY STYLE



Size	A	øC	E	H	I	M	⌋	⌋	Torque
07	14.2	14.0	4.5	3.0	0.7	10x0.5	11	TC00.007	1.5 Nm
08	18.7	16.9	5.0	4.0	1.0	12x1	15	TF00.001	2.5 Nm
11	18.7	21.8	7.0	4.0	1.0	16x1	17	TK00.002	4.5 Nm
13	22.5	23.8	5.5	4.0	1.0	18x1	20	TP00.011	6.0 Nm
18	29.3	31.8	7.5	4.0	1.0	25x1	27	TQ00.005	10.0 Nm

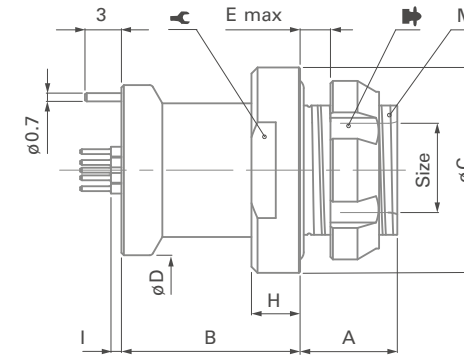
Size	f	øg
07	9.2	10.1
08	10.9	12.1
11	14.5	16.1
13	16.5	18.1
18	23.2	25.1



PANEL CUT-OUT

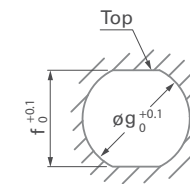
UR02

BODY STYLE



Size	A	B	øC	øD	E	H	I	M	⌋	⌋	Torque
07	6.5	10.7	14.0	13.0	3.5	3.5	0.7	9x0.5	11	TC00.000	1.3 Nm
08	8.0	14.7	16.9	14.0	4.0	4.0	1.0	12x1	15	TF00.001	2.5 Nm
11	8.0	14.7	21.8	18.8	4.0	4.0	1.0	16x1	17	TK00.002	4.5 Nm
13	10.5	16.0	23.8	20.0	5.0	4.0	1.0	18x1	20	TP00.011	6.0 Nm
18	11.0	22.3	31.8	26.0	5.0	4.0	1.0	25x1	27	TQ00.005	10.0 Nm

Size	f	øg
07	8.0	9.1
08	10.9	12.1
11	14.5	16.1
13	16.5	18.1
18	23.2	25.1



PANEL CUT-OUT

* Standard version with PCB contacts and grounding pin. For solder contact version, a special solder ground contact pin is included.

All dimensions and images shown are in millimeters and are for reference only.

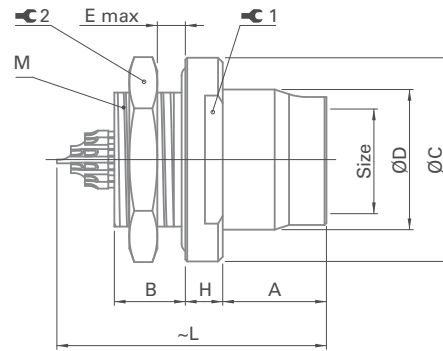


RECEPTACLES

PANEL FRONT MOUNTED*

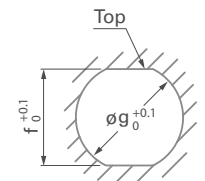
UR03

BODY STYLE



Size	A	B	øC	øD	E	H	L	M	1	2	Torque
07	7.7	6.4	14.0	10.0	3.5	2.5	20	9x0.5	11	11	1.3 Nm
08	11.7	7.0	16.9	11.5	4.0	4.0	27	12x1	15	14	2.5 Nm
11	11.1	7.6	21.8	15.0	4.6	4.0	29	16x1	17	19	4.5 Nm

Size	f	øg
07	8.0	9.1
08	10.9	12.1
11	14.5	16.1



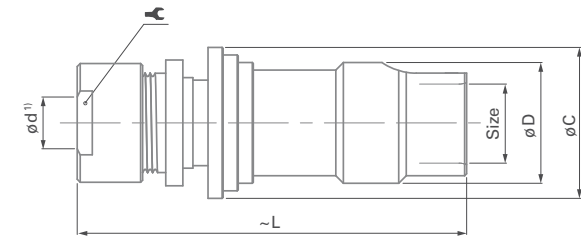
PANEL CUT-OUT

* Standard version with solder contacts.

CABLE MOUNTED

UR50

BODY STYLE



Size	øC	øD	ø dmax	L	1	Torque
07	12.0	10.0	4.5	27	8	1.5 Nm
08	15.0	12.0	4.5	39	10	2.5 Nm
11	18.5	15.5	7.1	39	14	3.0 Nm
13	21.7	17.9	8.7	50	17	3.5 Nm

¹) Max. cable diameter below shield.

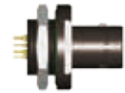
PCB hole layout



BODY STYLES

UP01

UP50



UR01

UR02



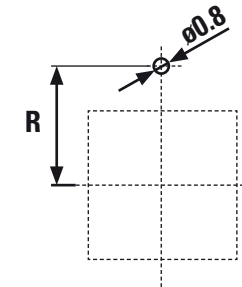
UR03

UR50



Position of optional ground pin

Size	R	
	UR01	UR02
07	5.5	
08	6.0	
11	8.4	
13	9.0	
18	12.0	



View from F¹⁾

Size	Polarity ²⁾	Number of contacts						
		2	3	4	5	7	9	10
07	Standard							
	Inverted							

¹⁾ Recommended PCB hole dimensions may be adjusted to application.

²⁾ Standard polarity: male contacts on plug / female contacts on receptacle. Inverted polarity: female contacts on plug / male contacts on receptacle.

All dimensions and images shown are in millimeters and are for reference only.



View from F¹⁾

Size	Polarity ²⁾	Number of contacts					
		2	3	4	5	7	9
08	Standard						
	Inverted						

Size	Polarity ²⁾	Number of contacts			
		8	12	16	19
11	Standard				
	Inverted				

¹⁾ Recommended PCB hole dimensions may be adjusted to application.

²⁾ Standard polarity: male contacts on plug / female contacts on receptacle. Inverted polarity: female contacts on plug / male contacts on receptacle.



View from F¹⁾

Size	Polarity ²⁾	Number of contacts	Size	Polarity ²⁾	Number of contacts
		27			42
13	Standard		18	Standard	
	Inverted			Inverted	

¹⁾ Recommended PCB hole dimensions may be adjusted to application.

²⁾ Standard polarity: male contacts on plug / female contacts on receptacle. Inverted polarity: female contacts on plug / male contacts on receptacle.

All dimensions and images shown are in millimeters and are for reference only.



Example:

Connector Design				Contact Block			Housing		Standard options			
UP01		L	07	M	010	S	BK	1	Z	2	Z	B
UR01	W		11	F	012	S	BK	2	E	1	A	A

Body style

UltiMate Plug = UP

- **UP01** = Cable mounted plug
- **UP50** = Panel mounted plug

UltiMate Receptacle = UR

- **UR01** = Panel rear mounted low profile
- **UR02** = Panel rear mounted
- **UR03** = Panel front mounted low profile
- **UR50** = Cable mounted

Sealing level

Panel mounted:

- **V** = Vacuum sealing
- **W** = Water sealing
- **N** = Non sealing

Cable mounted:

- Not applicable = Nothing

Locking system

Cable mounted plug:

- **L** = Push-pull locking
- **Q** = Quick release

Cable mounted receptacle:

- **Z** = Not applicable

Panel mounted:

- No locking = Nothing

Connector size

- **07** = Size 07
- **08** = Size 08
- **11** = Size 11
- **13** = Size 13
- **18** = Size 18

Housing Material

- **A** = ALUMINUM
- **B** = BRASS (Standard)

Grounding

Panel mounted:

- **A** = Grounding pin (available for UR01/UR02)
- **B** = Grounding tag
- **N** = None (on all UR03/UP50)

Cable mounted:

- **Z** = Not applicable

Insulator Material

- **1** = PBT, Size 08/11/13/18
- **2** = PEEK. Size 07 only

O-ring material

Receptacle:

- O-ring at plug interface
- **E** = Standard (FVMQ)

Plug:

- **Z** = Not applicable

Keying code

- **Code 1** = ●
 - **Code 2** = ▼
 - **Code 3** = ■
 - **Code 4** = ✕
- Standard keying = Code 1 Standard guide mark = White

Housing color

- **BK** = Standard (Anthracite)

Contact Type

- **S** = Solder
- **P** = PCB
- **C** = Crimp

Number of contacts

002 to 042

Available contacts per size:

- **Size 07:** 002, 003, 004, 005, 007, 009, 010
- **Size 08:** 002, 003, 004, 005, 007, 009
- **Size 11:** 008, 012, 016, 019
- **Size 13:** 027
- **Size 18:** 042

Polarity contacts

- **M** = Male contacts
- **F** = Female contacts

Standard polarity:

male contacts in plug, female contacts in receptacle



BEND RELIEF

Top performance, no hassle

- No tool required: 5 steps to assemble
- Clean cut: perfectly adjust the bend relief to your cable diameter with a simple blade

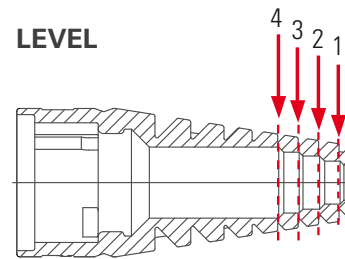
Long lasting

- Resists 10,000 flexes at a 90° angle
- Operating temperature -55°C to +135°C
- UV resistant



CUTTING DIAMETERS

Size	Uncut	Level 1	Level 2	Level 3	Level 4	Part Number
07	ø1.9	ø2.9	ø3.9	ø4.9	-	UB07 A1BK
08	ø2.5	ø3.7	ø5.7	ø7.5	-	UB08 A1BK
11	ø3.9	ø5.4	ø6.9	ø8.9	-	UB11 A1BK
13	ø6.9	ø8.9	ø10.9	ø12.9	-	UB13 A1BK
18	ø6.9	ø8.4	ø10.4	ø11.9	ø13.9	UB18 A1BK





SOFT CAPS - LANYARD WITH CORD

FIGURE 1

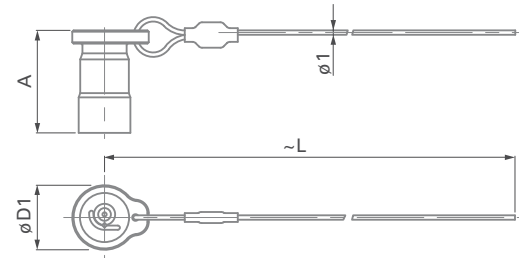
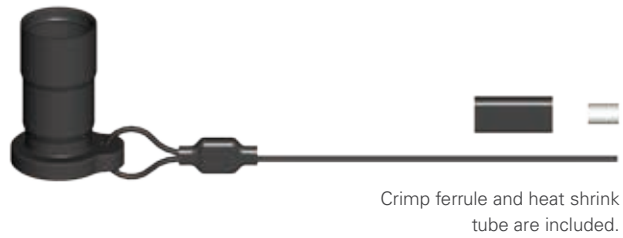


FIGURE 2

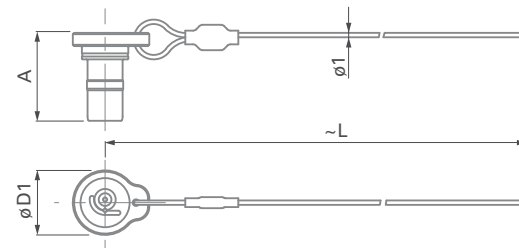
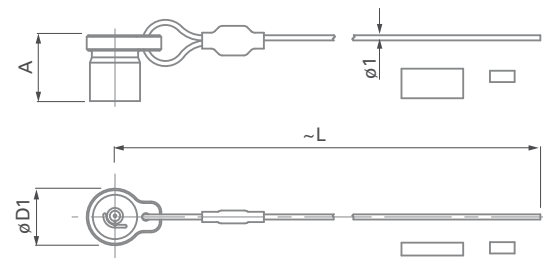


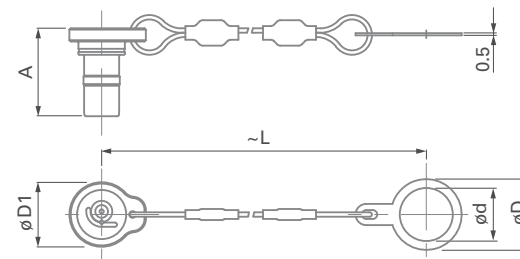
FIGURE 3





SOFT CAPS - LANYARD WITH CORD

FIGURE 4



Size	Plug		Receptacle				A	D1	L	d	D	Part number	Fig.
	UP01	UP50	UR01	UR02	UR03	UR50							
07	●						18.5	11.0	200	-	-	UCP07C 1A1 A200	1
			○	○	●	●	16.0	11.0	200	-	-	UCR07C 1A1 A200	2
		●					12.8	11.0	200	-	-	UCP07P 1A1 A200	3
			●	●			16.0	11.0	95	10	14	UCR07P 1A1 A095	4
08	●						23.2	14.6	200	-	-	UCP08C 1A1 A200	1
			○	○	●	●	19.9	14.6	200	-	-	UCR08C 1A1 A200	2
			●	●			19.9	14.6	95	12	16	UCR08P 1A1 A095	4
11	●						22.0	17.6	200	-	-	UCP11C 1A1 A200	1
			○	○	●	●	19.2	17.6	200	-	-	UCR11C 1A1 A200	2
			●	●			19.2	17.6	95	16	21	UCR11P 1A1 A095	4
13	●						25.0	20.7	200	-	-	UCP13C 1A1 A200	1
			○	○	●	●	22.5	20.7	200	-	-	UCR13C 1A1 A200	2
			●	●			22.5	20.7	95	18	23	UCR13P 1A1 A095	4
18	●						29.5	28.7	200	-	-	UCP18C 1A1 A200	1
			●	●			25.0	28.7	95	25	29	UCR18P 1A1 A095	4

● Recommended for optimal sealing.

○ Compatible but not recommended for optimal sealing.

All dimensions and images shown are in millimeters and are for reference only.



ENVIRONMENTAL & MECHANICAL DATA

Characteristic	Performance and standard
Sealing performance mated and unmated	IP68/IP69 2m submersion for 24h ¹⁾ ; IEC 60529
	"V" sealing level: Hermetic: Tested: <10-8 mbar l/sec.; IEC 60068-2-17 Test Qk, Method 3
Sealing performance soft caps	IP68: 2m/24h; IEC 60529
Operating temperature range	-55°C to +135°C ²⁾ ; IEC 60512-6-11 i+j; IEC 60068-2-14-Nb
Corrosion resistance ³⁾	Salt mist, 1,000 hours, 5% salt solution, 35°C; IEC 60068-2-11 Test Ka; MIL-STD-202 Method 101; EIA-364-26
Endurance	10,000 mating cycles IEC 60512-5-9a; EIA-364-09
Vibration, random (Size 08, 11, 13, 18)	37.80 Grms, MIL-STD-202 Method 214A Condition I; EIA-364-28 Condition V
Vibration (Size 07)	10 to 2000 Hz, 1.5 mm or 15g, 12 sweep cycles per axis, 20 minutes per 10-2000-10 Hz sweep cycle, no discontinuity > 1us; MIL-STD-202 Method 204 Condition B
Shock	300g amplitude, half sine pulse of 3ms, no discontinuity > 1µs MIL-STD-202 Method 213; EIA-364-27

¹⁾ 120m/24h or other depth/duration requirements available on request, please contact your local sales office.

²⁾ Temperature range of -40°C to +125°C for cable connectors overmolded with TPU material. Max temperature of +85°C for Soft Caps.

³⁾ Plug and receptacle in mated position or with cap when unmated. For Brass connectors only.
Aluminum version not recommended for Marine use. Preserved mechanical and electrical functionality. Visual aspect might be altered.

ELECTRICAL DATA

Characteristic	Contact size	Performance and standard
Contact resistance over 10,000 mating cycles	Ø 0.5 mm	5 mΩ IEC 60512-2-1-2a
	Ø 0.7 mm	5 mΩ IEC 60512-2-2-2b
	Ø 0.9 mm	4 mΩ
Shell resistance ⁴⁾		< 5 mΩ IEC 60512-2-6-2f
Insulation resistance		> 10 ¹⁰ Ω IEC 60512-3-1-3a
Shielding effectiveness ⁵⁾		> 55 dB up to 1 GHz, IEC 60512-23-3

⁴⁾ Measurement points on figure 1.

⁵⁾ Size 08 connector pair.

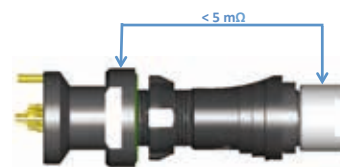





Figure 1

DATA TRANSMISSION

Protocol	Number of contacts required	UltiMate
USB 2.0 	4	yes
USB 3.0 	9	application dependent
Ethernet Cat 5e (1Gb/s) 	8	yes
HDMI	19	yes

The data transmission performance of the Fischer UltiMate™ Series has been tested for most popular protocols that are used in a variety of applications today.



MATERIAL & SURFACE TREATMENTS

Metal parts	Material		Finish	
	Designation ISO	Standard	Designation	Standard
Spring sleeve (plug), shell (plug), Mounting nut (receptacle)¹⁾, bodies (all)	Aluminium AlMgSiSn1Bi	EN-AW-6023	Anthracite Nickel	SAE-AMS-QQ-N-290 SAE-AMS 2404
	Brass CuZn39Pb3	CW614N UNS C 38500		
Back nut (plug & cable mounted receptacle), Mounting nut (receptacle)²⁾	Aluminium AlMgSiSn1Bi	EN-AW-6023	Nickel	SAE-AMS-QQ-N-290 SAE-AMS 2404
	Brass CuZn39Pb3	CW614N UNS C 38500		
Ground contact	Brass CuZn39Pb3	CW614N UNS C 38500	Nickel	SAE-AMS-QQ-N-290 SAE-AMS 2404
Contacts	- Male, ground pin - Female	Brass ; CuZn39Pb3 Bronze ; CuSn4Zn4Pb4	CW614N ; UNS C 38500 CW456K ; ASTM B 139 UNS C 54400	1µm Gold over Nickel MIL-DTL-45204D Type I ; ASTM B488

Insulator and sealing		International symbol	Flammability
Insulator	- Molded	PBT, PEEK ³⁾	UL 94 V-0
Inner sleeve	- Cable connectors	POM	UL 94 HB
Sealant materials	- «V» Vacuum sealed connectors	Bi-component epoxy	UL 94 HB
	- «W» Water sealed connectors	Silicon compound	UL 94 V-0
Bend relief	- Cable connectors	Santoprene™ TPV 101-64	UL 94 HB

Soft caps		Material	Flammability
Cap		TPV (Santoprene™)	UL 94 HB
Cord		Nylon	-
Fixing lug		Black Chrome plated brass (ISO CuZn37)	-
Crimp ferrule		Nickel plated copper	-

O-rings	International symbol	Chemical name
General	FPM (Viton)	Fluoro elastomer
Interface	FVMQ	Fluorosilicone rubber

¹⁾ For UR01 & UR02.

²⁾ For UR03 & UP50.

³⁾ PBT for Size 08, 11, 13 and 18 only. PEEK for Size 07 only.



SPANNER & NUT DRIVER

DOUBLE-END OPEN SPANNER EXTRA THIN



Part number	Opening across flats	Length	Fork thickness
TX00.008	8	96	2.3
TX00.009	9	102	2.5
TX00.010	10	104	2.5
TX00.011	11	114	2.5
TX00.014	14	130	3.0

Material – Chrome Alloy Steel, Chrome plated, Fork Angles – 15° and 75°

OPEN-END SPANNER EXTRA THIN



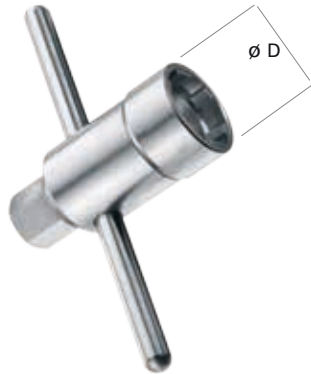
Part number	Opening across flats	Length	Fork thickness
TX00.015	15	145	5.2
TX00.017	17	160	5.5
TX00.019	19	175	6.0
TX00.020	20	175	6.0
TX00.022	22	196	6.5
TX00.027	27	240	9.5

Material – Chrome Vanadium Steel, Chrome plated, Fork Angle – 15°



SPANNER & NUT DRIVER

NUT DRIVER WITH T-HANDLE AND HEX DRIVE ➡



Part number	Thread size	Nut outer dia.	D	Hex drive
TC00.000	M9 x 0.5	12	15	7
TC00.007	M10 x 0.5	13	16	7
TF00.001	M12 x 1	15	18	10
TK00.002	M16 x 1	20	23	12
TP00.011	M18 x 1	23	26	12
TP00.005	M20 x 1	25	28	12

Material – Hardened Tool Steel, Nickel plated

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