H

CHAPTER

FISCHER ULTIMATE™ SERIES

RUGGED | COMPACT | LIGHTWEIGHT

KEY FEATURES

- IP68 2m/24h / Hermetic
- 360° EMC shielding
- High corrosion resistance
- Up to 10,000 mating cycles

H-2 / H-32

ULTIMATE

Table of contents

This catalog covers our standard connector solutions. For specific requests, including hybrid or custom connectors, please contact your local sales representative.

AVAILABLE SIZES

CONNECTOR SIZE
VERSUS
CABLE DIAMETER

Size	Min cable ø	Max cable ø	Number of contacts
07	1.9	4.8	2-10
08	2.5	5.2	2-9
11	3.9	7.8	8-19
13	6.9	9.8	5-27
15	6.9	11.3	2-27
18	6.9	14.8	42

Min cable ø compatible with bend relief (accessory).
Images of available sizes are on 1:1 scale when printed full size on A4 paper.

PLUGS

CABLE MOUNTED

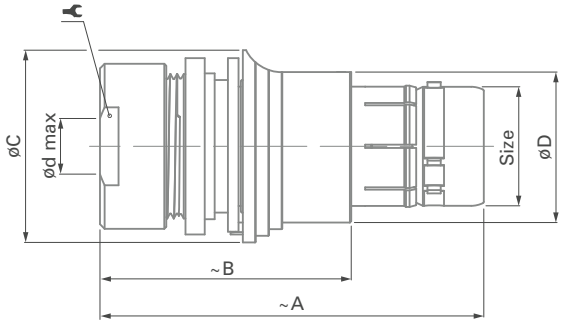
Body style		UP01	UP02	References to detailed information
Protection	Sealed up to IP68	●	●	Sealing categories, page A-6
	Hermetic			
Locking system	Push-pull	●		Locking systems, page A-5
	Quick-release	●		
	RLS (Ratchet Locking System)		●	
Termination	Crimp contact			Electrical & contact configurations, pages H-13 to H-18
	Solder contact	●	●	
Housing material	Brass	●		Part numbering, page H-26
	Aluminum	●	●	
Housing color	Anthracite	●		Part numbering, page H-26
	Black		●	
Design	Shortened body	●	●	Body styles, chapter H
	Straight	●	●	
	Right-angle	●		
Cabling	Cable clamp sets			
	Overmoldable	●	●	
	Heat shrinkable	●	●	
Accessories	Cable bend reliefs	●	●	Accessories, page H-27
	Protective sleeves			
	Sealing caps	●	●	
Size	07	●		Technical dimensions, page H-5 For more information visit our website **www.fischerconnectors.com/technical**
	08	●		
	11	●		
	13	●		
	15	●	●	
	18	●		

PLUGS

CABLE
MOUNTED

UP01

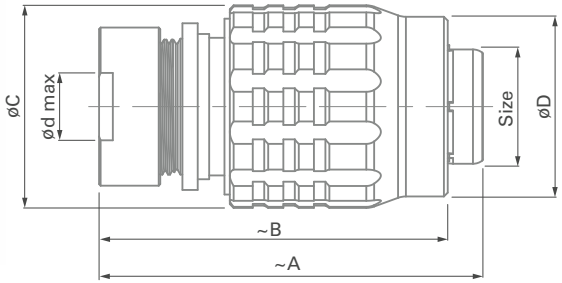
BODY STYLE



Size	A	B	øC	øD	ød max		Torque
07	28.0	18.0	12.0	9.0	4.8	8	1.5 Nm
08	39.0	25.0	15.0	10.5	5.2	10	2.5 Nm
11	39.5	26.0	18.5	13.7	7.8	14	3.0 Nm
13	50.0	34.0	21.7	16.0	9.8	17	3.5 Nm
15	50.2	33.6	23.7	18.0	11.3	19	4.0 Nm
18	58.0	38.0	29.0	22.7	14.8	22	6.0 Nm

UP02

BODY STYLE



Size	A	B	øC	øD	ød max		Torque
15 RLS (Ratchet Locking System)	50.0	45.5	26.5	23.5	11.3	19	4.0 Nm

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

PLUGS

PANEL FRONT MOUNTED

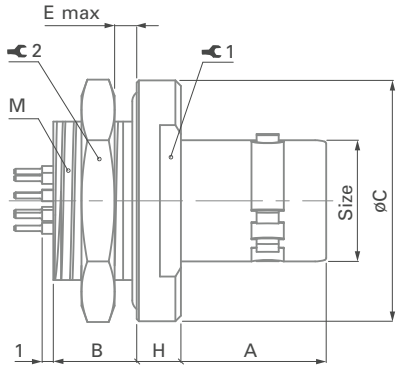
Body style		UP50	References to detailed information
Protection	**Sealed up to IP68**	●	Sealing categories, page A-6
	Hermetic		
Locking system	**Friction**	●	Locking systems, page A-5
	Push-pull		
	Quick-release		
	Lanyard		
	Tamperproof		
Termination	**Crimp contact**		Electrical & contact configurations, pages H-13 and H-15
	Solder contact	●	
Housing material	**Brass**	●	Part numbering, page H-26
	Aluminum	●	
Housing color	**Anthracite**	●	Part numbering, page H-26
Design	**Shortened body**		Body styles, chapter H
	Straight	●	
	Right-angle		
Assembly	**Front-mounting**	●	
	Rear-mounting		
Accessories	**Cable bend reliefs**		Accessories, page H-27
	Protective sleeves		
	Sealing caps	●	
Size	**07**	●	Technical dimensions, page H-7 For more information visit our website **www.fischerconnectors.com/technical**
	11	●	

PLUGS

PANEL FRONT
MOUNTED

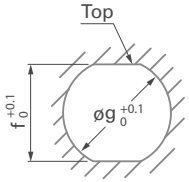
UP50

BODY STYLE



Size	A	B	øC	E max	H	M	1	2	Torque
07	10.0	5.2	13.0	2.5	3.0	M9x0.5	9	11	1.3 Nm
11	13.2	7.6	21.8	4.5	4.0	M16x1	17	19	4.5 Nm

Size	f	øg
07	8.0	9.1
11	14.5	16.1



PANEL CUT-OUT

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

RECEPTACLES

CABLE MOUNTED

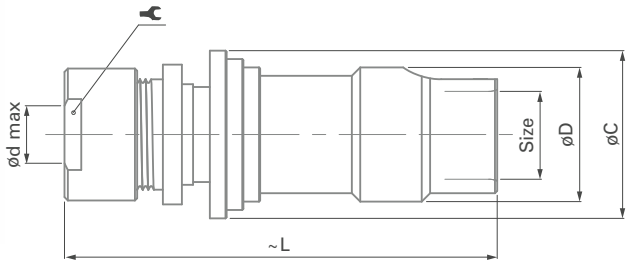
Body style		UR50	References to detailed information
Protection	Sealed up to IP68	●	Sealing categories, page A-6
	Hermetic		
Termination	Crimp contact	●	Electrical & contact configurations, pages H-13 to H-16
	Solder contact	●	
Housing material	Brass	●	Part numbering, page H-26
	Aluminum	●	
Housing color	Anthracite	●	Part numbering, page H-26
Design	Shortened body		Body styles, chapter H
	Straight	●	
	Right-angle	●	
Cabling	Cable clamp sets		
	Overmoldable	●	
	Heat shrinkable	●	
Accessories	Cable bend reliefs	●	Accessories, page H-27
	Protective sleeves		
	Sealing caps	●	
Size	07	●	Technical dimensions, page H-9 For more information visit our website **www.fischerconnectors.com/technical**
	08	●	
	11	●	
	13	●	

RECEPTACLES

CABLE
MOUNTED

UR50

BODY STYLE



Size	øC	øD	ød max	L		Torque
07	12.0	10.0	4.8	27	8	1.5 Nm
08	15.0	12.0	5.2	39	10	2.5 Nm
11	18.5	15.5	7.8	39	14	3.0 Nm
13	21.7	17.9	9.8	50	17	3.5 Nm

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

RECEPTACLES

PANEL MOUNTED



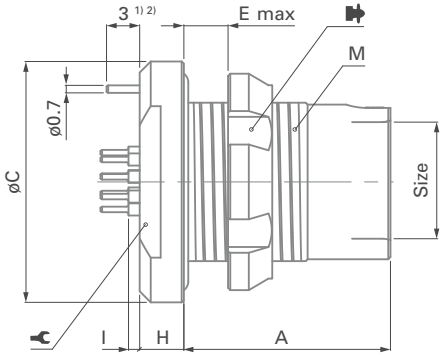

Body style		UR01	UR02	UR03	UR04	References to detailed information
Protection	Sealed up to IP68	●	●	●	●	Sealing categories, page A-6
	Hermetic	●	●	●	●	
Termination	Crimp contact					Electrical & contact configurations, page H-13 to H-18
	Solder contact	●	●	●	●	
	PCB contact	●	●	●	●	
Housing material	Brass	●	●	●		Part numbering, page H-26
	Aluminum	●	●	●	●	
Housing color	Anthracite	●	●	●		Part numbering, page H-26
	Black				●	
Design	Right-angle					Body styles, chapter H
	Flush		●			
	Front-projecting	●		●	●	
	Bulkhead feedthrough					
Assembly	Front-mounting			●		
	Rear-mounting	●	●		●	
Accessories	Sealing caps	●	●	●	●	Accessories, page H-27
	Spacers					
	Color-coded washers					
	Grounding washers					
	Locking washers					
Size	07	●	●	●		Technical dimensions, page H-11 and H-12 For more information visit our website **www.fischerconnectors.com/technical**
	08	●	●	●		
	11	●	●	●		
	13	●	●			
	15	●	●		●	
	18	●	●			

RECEPTACLES

PANEL REAR MOUNTED*

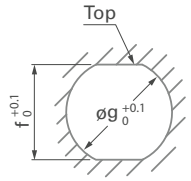
UR01

BODY STYLE



Size	A	øC	E max	H	I	M			Torque
07	14.2	14.0	4.5	3.0	0.7	M10x0.5	11	TC00.007	1.5 Nm
08	18.7	16.9	5.0	4.0	1.0	M12x1	15	TF00.001	2.5 Nm
11	18.7	21.8	7.0	4.0	1.0	M16x1	17	TK00.002	4.5 Nm
13	22.5	23.8	5.5	4.0	1.0	M18x1	20	TP00.011	6.0 Nm
15	27.7	25.8	9.0	4.0	1.0	M20x1	20	TP00.013	6.5 Nm
18	29.3	31.8	7.5	4.0	1.0	M25x1	27	TQ00.005	10.0 Nm

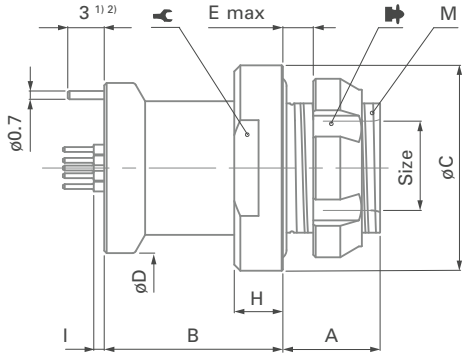
Size	f	øg
07	9.2	10.1
08	10.9	12.1
11	14.5	16.1
13	16.5	18.1
15	18.5	20.1
18	23.2	25.1



PANEL CUT-OUT

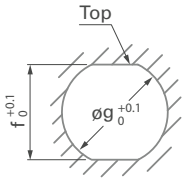
UR02

BODY STYLE



Size	A	B	øC	øD	E max	H	I	M			Torque
07	6.5	10.7	14.0	13.0	3.5	3.5	0.7	M9x0.5	11	TC00.000	1.3 Nm
08	8.0	14.7	16.9	14.0	4.0	4.0	1.0	M12x1	15	TF00.001	2.5 Nm
11	8.0	14.7	21.8	18.8	4.0	4.0	1.0	M16x1	17	TK00.002	4.5 Nm
13	10.5	16.0	23.8	20.0	5.0	4.0	1.0	M18x1	20	TP00.011	6.0 Nm
15	10.5	21.2	25.8	22.0	5.0	4.0	1.0	M20x1	20	TP00.013	6.5 Nm
18	11.0	22.3	31.8	26.0	5.0	4.0	1.0	M25x1	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
15	18.5	20.1
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 for AWG22[7/30].

[1] Solder & PCB ground pins are always equal or larger than the largest contact of corresponding contact bloc layout (except size 13 config. 203 AWG12 [7/20])

[2] 3.6 mm for size 15

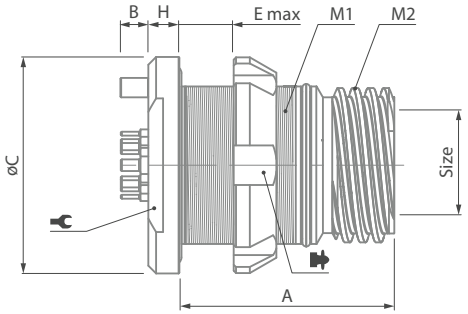
All dimensions and images shown are in millimeters and are for reference only.

RECEPTACLES

PANEL REAR MOUNTED

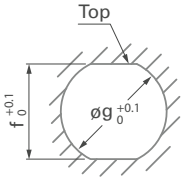
UR04

BODY STYLE



Size	A	B	øC	E max	H	M1	M2			Torque
15	27.7	3.6	25.8	9.0	4.0	M22x1	TR20x6 (P2)	22	TR00.004	8.0 Nm

Size	f	øg
15	20.5	22.1

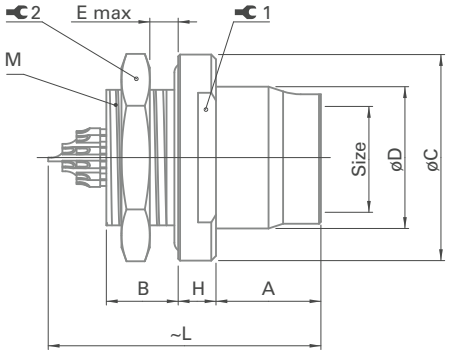


PANEL CUT-OUT

PANEL FRONT MOUNTED*

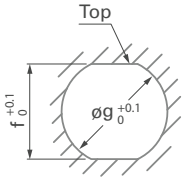
UR03

BODY STYLE



Size	A	B	øC	øD	E max	H	L	M	1	2	Torque
07	7.7	6.4	14.0	10.0	3.5	2.5	20	M9x0.5	11	11	1.3 Nm
08	11.7	7.0	16.9	11.5	4.0	4.0	27	M12x1	15	14	2.5 Nm
11	11.1	7.6	21.8	15.0	4.6	4.0	29	M16x1	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.

SIZE 07

Size	Pin layout	Layout reference	Number of contacts	Contact diameter *[mm]*	Wire size [3]		PCB contacts *[mm]*		Current rating *[A]*	Rated voltage r.m.s *[V]*	Test voltage *[kV] in mated position*			
											IEC 60512-4-1 Test 4a			
											AC r.m.s.		DC	
					Solder contacts [1]	Crimp contacts [2]	Pin ø	Ground pin ø	IEC 60512-5-2-5b [4]	IEC 60664-1 [5]	Contact to body	Contact to contact	Contact to body	Contact to contact
07		002	2	0.9	max ø0.79 mm AWG21 [1] AWG22 [7/30]	max ø0.83 mm [6] min ø0.48 mm AWG22-26	0.63	0.7	9.2	≤ 250	1.3	1.7	1.8	2.4
	 [7]	0S2	2	0.5	max ø0.88 mm [6] AWG21 [1] AWG22 [7/30]	-	0.4	0.7	7.0	≤ 250	1.2	1.8	1.8	3.4
		003	3	0.9	max ø0.79 mm AWG21 [1] AWG22 [7/30]	-	0.63	0.7	8.2	≤ 250	1.3	1.3	1.8	1.6
		004	4	0.7	max ø0.79 mm AWG21 [1] AWG22 [7/30]	max ø0.62 mm min ø0.38 mm AWG24-28	0.50	0.7	5.5	≤ 200	1.2	1.2	1.7	1.8
		005	5	0.7	max ø0.79 mm AWG21 [1] AWG22 [7/30]	max ø0.62 mm min ø0.38 mm AWG24-28	0.50	0.7	5.2	≤ 160	0.8	1.0	1.3	1.8
		007	7	0.5	max ø0.43 mm AWG26 [1] AWG28 [19/40]	max ø0.43 mm min ø0.20 mm AWG28-32	0.40	0.7	4.0	≤ 160	0.8	1.0	1.3	1.8
		009	9	0.5	max ø0.43 mm AWG26 [1] AWG28 [19/40]	-	0.40	0.7	3.1	≤ 160	0.8	1.1	1.2	1.8
		010	10	0.5	max ø0.43 mm AWG26 [1] AWG28 [19/40]	-	0.40	0.7	3.1	≤ 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 cable designs could be larger than the hole diameter of the barrel. Testing may be required.

[4] Current per contact at 40 °C temperature rise measured on the basic curve according to IEC 60512-5-2-5b. For maximum operating current, a reduction factor must be used and limitations due to the size of the wires and the permissible upper temperature limit of the materials employed must be taken into account. See page A-12 for details.

[5] Recommended operating voltage at sea level. This rated voltage is a general guideline where no other electrical safety standard applies. In cases where other standards rule 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] Layout dedicated to SPE data protocol 1 Gbit/s

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

SIZE 08

Size	Pin layout	Layout reference	Number of contacts	Contact diameter *[mm]*	Wire size [3]		PCB contacts *[mm]*		Current rating *[A]*	Rated voltage r.m.s *[V]*	Test voltage *[kV] in mated position*			
											IEC 60512-4-1 Test 4a			
											AC r.m.s.		DC	
					Solder contacts [1]	Crimp contacts [2]	Pin ø	Ground pin ø	IEC 60512-5-2-5b [4]	IEC 60664-1 [5]	Contact to body	Contact to contact	Contact to body	Contact to contact
08		002	2	0.9	max ø0.79 mm AWG21 [1] AWG22 [7/30]	-	0.70	0.7	9.2	≤ 250	1.3	1.7	1.8	2.4
		003	3	0.9	max ø0.79 mm AWG21 [1] AWG22 [7/30]	-	0.70	0.7	8.2	≤ 250	1.3	1.3	1.8	1.6
		004	4	0.7	max ø0.79 mm AWG21 [1] AWG22 [7/30]	max ø0.62 mm min ø0.38 mm AWG24-28	0.50	0.7	5.5	≤ 200	1.2	1.2	1.7	1.8
		005	5	0.7	max ø0.79 mm AWG21 [1] AWG22 [7/30]	max ø0.62 mm min ø0.38 mm AWG24-28	0.50	0.7	5.2	≤ 160	0.8	1.0	1.3	1.8
		007	7	0.5	max ø0.43 mm AWG26 [1] AWG28 [19/40]	-	0.40	0.7	4.0	≤ 160	0.8	1.0	1.3	1.8
		009	9	0.5	max ø0.43 mm AWG26 [1] AWG28 [19/40]	-	0.40	0.7	3.1	≤ 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 cable designs could be larger than the hole diameter of the barrel. Testing may be required.

[4] Current per contact at 40 °C temperature rise measured on the basic curve according to IEC 60512-5-2-5b. For maximum operating current, a reduction factor must be used and limitations due to the size of the wires and the permissible upper temperature limit of the materials employed must be taken into account. See page A-12 for details.

[5] Recommended operating voltage at sea level. This rated voltage is a general guideline where no other electrical safety standard applies. In cases where other standards rule 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 11

Size	Pin layout	Layout reference	Number of contacts	Contact diameter *[mm]*	Wire size [3]		PCB contacts *[mm]*		Current rating *[A]*	Rated voltage r.m.s *[V]*	Test voltage *[kV] in mated position*			
											IEC 60512-4-1 Test 4a			
											AC r.m.s.		DC	
					Solder contacts [1]	Crimp contacts [2]	Pin ø	Ground pin ø	IEC 60512-5-2-5b [4]	IEC 60664-1 [5]	Contact to body	Contact to contact	Contact to body	Contact to contact
11		008	8	0.7	max ø0.79 mm AWG21 [1] AWG22 [7/30]	max ø0.62 mm min ø0.38 mm AWG24-28	0.50	0.7	4.2	≤ 250	1.7	1.8	3.1	2.6
	[8]  USB 3.2	207	2	0.7	max ø0.79 mm AWG21 [1] AWG22 [7/30]	-	0.40	0.7	9.0	≤ 250	1.3	1.6	1.9	2.2
			6	0.5	max ø0.43 mm AWG26 [1] AWG28 [19/40]	-	0.40		1.0	≤ 250	1.2	1.2	1.7	1.8
			1	0.5	max ø0.63 mm AWG24 [1] AWG26 [19/38]	-	0.40		1.0	≤ 250	1.2	1.2	1.7	1.8
		012	12	0.7	max ø0.79 mm AWG21 [1] AWG22 [7/30]	[6] [7] max ø0.62 mm min ø0.38 mm AWG24-28	0.50	0.7	4.2	≤ 250	1.6	1.6	2.6	2.3
		016	16	0.5	max ø0.43 mm AWG26 [1] AWG28 [19/40]	-	0.40 [6]	0.7	2.7	≤ 250	1.2	0.9	2.0	1.5
		019	19	0.5	max ø0.43 mm AWG26 [1] AWG28 [19/40]	-	0.40 [6]	0.7	2.5	≤ 250	1.2	0.9	2.0	1.5

[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 cable designs could be larger than the hole diameter of the barrel. Testing may be required.

[4] Current per contact at 40 °C temperature rise measured on the basic curve according to IEC 60512-5-2-5b. For maximum operating current, a reduction factor must be used and limitations due to the size of the wires and the permissible upper temperature limit of the materials employed must be taken into account. See page A-12 for details.

[5] Recommended operating voltage at sea level. This rated voltage is a general guideline where no other electrical safety standard applies. In cases where other standards rule 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] Not valid for UP50.

[7] UR0x: standard polarity only.

[8] Layout dedicated to protocol USB 3.2 Gen 2 (10 Gbit/s)

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

SIZE 13

Size	Pin layout	Layout reference	Number of contacts	Contact diameter *[mm]*	Wire size [3]		PCB contacts *[mm]*		Current rating *[A]*	Rated voltage r.m.s *[V]*	Test voltage *[kV] in mated position*			
											IEC 60512-4-1 Test 4a			
											AC r.m.s.		DC	
					Solder contacts [1]	Crimp contacts [2]	Pin ø	Ground pin ø	IEC 60512-5-2-5b [4]	IEC 60664-1 [5]	Contact to body	Contact to contact	Contact to body	Contact to contact
13		203 [9]	2 [8]	2.3	max ø3.28 mm AWG9 [19/22]	-	1.8	1.8	26	≤ 320	2.2	1.7	3.7	2.4
			3	0.7	max ø0.79 mm AWG21 [1] AWG22 [7/30]	-	0.5		1	≤ 320	2.1		3.7	
		303	3 [8]	1.6	max ø1.86 mm AWG13 [1] AWG14 [7/22]	-	1.5	1.5	16	≤ 320	2.6	1.6	3.6	2.4
			3	0.7	max ø0.79 mm AWG21 [1] AWG22 [7/30]	-	0.5		1	≤ 320	2.6		3.6	
		027	27	0.5	[6] max ø0.43 mm AWG26 [1] AWG28 [19/40]	[7] max ø0.43 mm min ø0.20 mm AWG28-32	0.40 [6]	0.7	2.0	≤ 200	1.2	0.5	1.8	0.5

[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] Current per contact at 40 °C temperature rise measured on the basic curve according to IEC 60512-5-2-5b. For the max. operating current a reduction factor must be used and limitations due to the size of the wires and the permissible upper temperature limit of the materials employed must be taken into account. See page A-12 for details.

[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 rule 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] UR0x: standard polarity only.

[7] Only valid for UP01.

[8] Contact block with male contacts comes standard with advanced power contacts.

[9] UR0x: only available in "V" (Vacuum sealing) version, not in "W" (Water sealing) nor in "N" (Non sealing) versions.

SIZE 15

Size	Pin layout	Layout reference	Number of contacts	Contact diameter *[mm]*	Wire size [2]		PCB contacts *[mm]*		Current rating *[A]*	Rated voltage r.m.s *[V]*	Test voltage *[kV] in mated position* IEC 60512-4-1 Test 4a			
					Solder contacts [1]	Crimp contacts [2]	Pin ø	Ground pin ø	IEC 60512-5-2-5b [3]	IEC 60664-1 [4]	AC r.m.s.		DC	
											Contact to body	Contact to contact	Contact to body	Contact to contact
15		002 [9]	2	3.0	max ø3.13 mm AWG9 [1] AWG10 [105/30]	-	2.5	2.5	30	≤ 400	1.2	1.6	2.3	3.0
		004 [9]	4	2.0	max ø2.03 mm AWG13 [1] AWG14 [7/22]	-	1.5	2.5	20	≤ 320	1.8	1.8	2.6	2.6
		204H [8]	4 [5]	1.3	max ø1.18 mm AWG17 [1] AWG18 [16/30]	-	-	-	12	≤ 320	1.5	2.3	2.8	3.5
			2 [5]	coax	-	[7]	-	-	[7]	[7]	[7]	-	[7]	-
		008	8	1.3	max ø1.18 mm AWG17 [1] AWG18 [16/30]	-	1.0	1.0	10	≤ 320	1.7	2.0	2.5	2.8
		412 [6]	4	1.6	max ø1.86 mm AWG13 [1] AWG14 [7/22]	-	1.5	2.5	14	≤ 250	1.6	1.3	2.8	2.1
			12	0.7	max ø0.79 mm AWG21 [1] AWG22 [7/30]	-	0.5		1.0		1.0	1.2	1.5	2.0
		027	27	0.7	max ø0.79 mm AWG21 [1] AWG22 [7/30]	-	0.5	1.0	3.0	≤ 250	1.2	1.5	1.5	2.0

[1] Stranding values are in brackets.

[2] 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.

[3] Current per contact at 40 °C temperature rise measured on the basic curve according to IEC 60512-5-2-5b. For the max. operating current a reduction factor must be used and limitations due to the size of the wires and the permissible upper temperature limit of the materials employed must be taken into account. See page A-12 for details.

[4] 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 rule 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.

[5] Standard polarity only.

[6] Contacts dia. 1.6 are positioned to make contact first and break last.

[7] Please refer to https://fischerconnectors.com/en/download-center/ for technical specification of coax insert.

[8] Max 500 mating cycles due to coax insert characteristics. Coax contacts not included, must be purchased separately.

[9] UR0x: only available in "V" (Vacuum sealing) version, not in "W" (Water sealing) nor in "N" (Non sealing) versions.

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

SIZE 18

Size	Pin layout	Layout reference	Number of contacts	Contact diameter *[mm]*	Wire size [3]		PCB contacts *[mm]*		Current rating *[A]*	Rated voltage r.m.s *[V]*	Test voltage *[kV] in mated position*			
											IEC 60512-4-1 Test 4a			
											AC r.m.s.		DC	
					Solder contacts [1]	Crimp contacts [2]	Pin ø	Ground pin ø	IEC 60512-5-2-5b [4]	IEC 60664-1 [5]	Contact to body	Contact to contact	Contact to body	Contact to contact
18		042	42 [6]	0.7	-	max ø0.62 mm min ø0.38 mm AWG24-28	0.50	0.70	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.

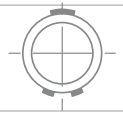
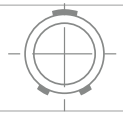
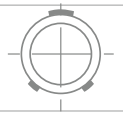
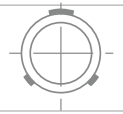
[3] For a given AWG, the diameter of some stranded cable designs could be larger than the hole diameter of the barrel. Testing may be required.

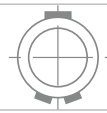
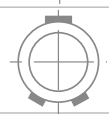
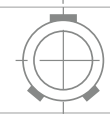
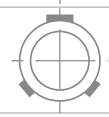
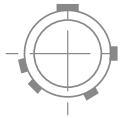
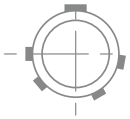
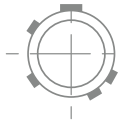
[4] Current per contact at 40 °C temperature rise measured on the basic curve according to IEC 60512-5-2-5b. For maximum operating current, a reduction factor must be used and limitations due to the size of the wires and the permissible upper temperature limit of the materials employed must be taken into account. See page A-12 for details.

[5] Recommended operating voltage at sea level. This rated voltage is a general guideline where no other electrical safety standard applies.
In cases where other standards rule 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.

MECHANICAL CODING

	Size	Code 1	Code 2	Code 3	Code 4
PLUGS	07				
	08				
	11				
	13				
	15				
	18				
Visual coding		●	▼	■	✖

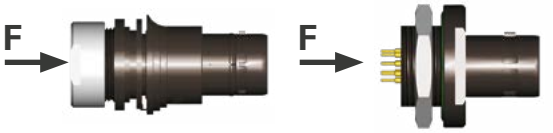
	Size	Code 1	Code 2	Code 3	Code 4
RECEPTACLES	07				
	08				
	11				
	13				
	15				
	18				
Visual coding		●	▼	■	✖

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

POLARITY

BODY STYLES

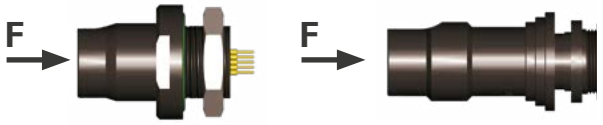
UP01 **UP50**



UR01 **UR02**

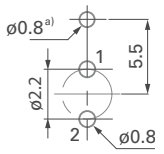
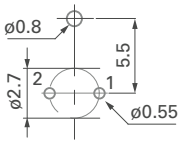
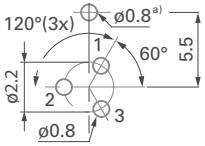
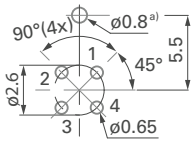
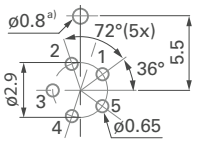
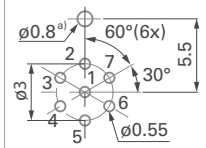
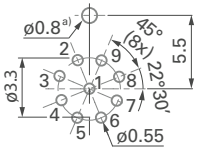
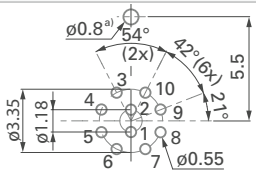
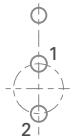
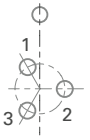
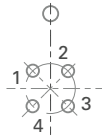
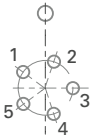
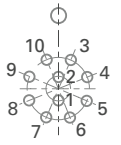
POLARITY
Standard polarity: male contacts on plug / female contacts on receptacle
Inverted polarity: female contacts on plug / male contacts on receptacle.
WARNING: for high-current applications, make sure to choose the correct polarity (female contacts on device that is supplying the power).

UR03 **UR50**



PCB / PIN LAYOUT

View from F[1)]

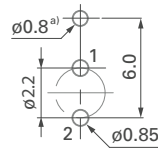
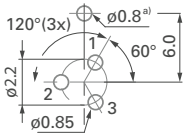
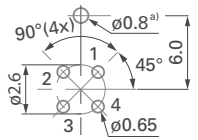
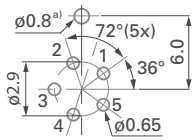
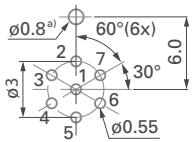
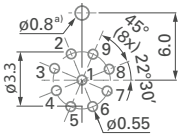
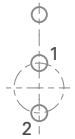
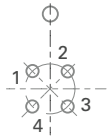
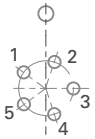
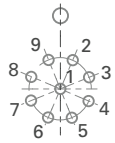
Size	Polarity	Number of contacts (layout reference)							
		2 (002)	**2 (0S2)**	**3 (003)**	**4 (004)**	**5 (005)**	**7 (007)**	**9 (009)**	**10 (010)**
07	Standard								
	Inverted								

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

[a)] For optional ground pin.

PCB / PIN LAYOUT

View from F[1)]

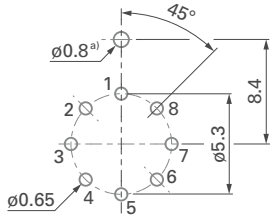
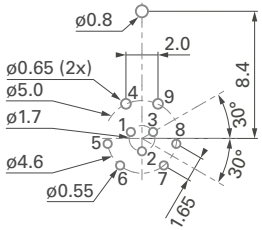
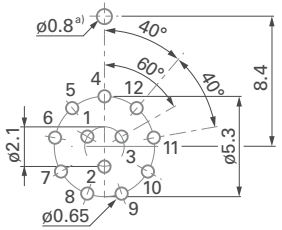
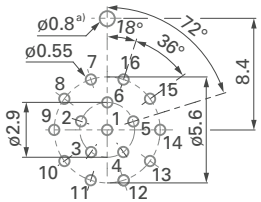
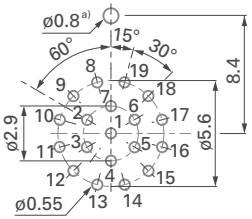
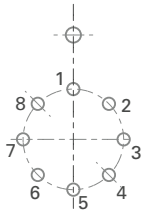
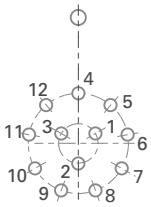
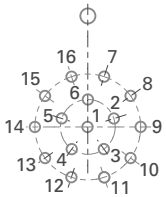
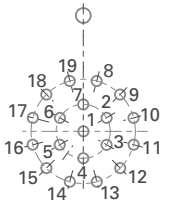
Size	Polarity	Number of contacts (layout reference)					
		2 (002)	3 (003)	4 (004)	5 (005)	7 (007)	9 (009)
08	Standard						
	Inverted						

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

[a)] For optional ground pin.

PCB / PIN LAYOUT

View from F[1)]

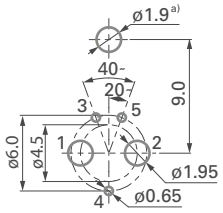
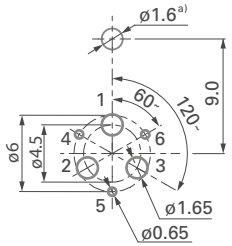
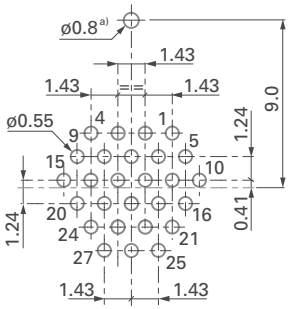
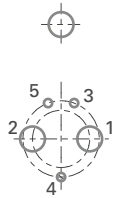
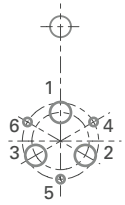
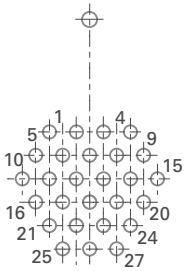
Size	Polarity	Number of contacts (layout reference)				
		8 (008)	9 (207)	12 (012)	16 (016)	19 (019)
11	Standard					
	Inverted		-			

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

[a)] For optional ground pin.

PCB / PIN LAYOUT

View from F[1)]

Size	Polarity	Number of contacts (layout reference)		
		2+3 (203)	3+3 (303)	27 (027)
13	Standard			
	Inverted			

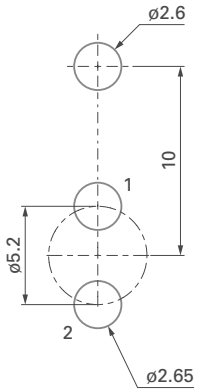
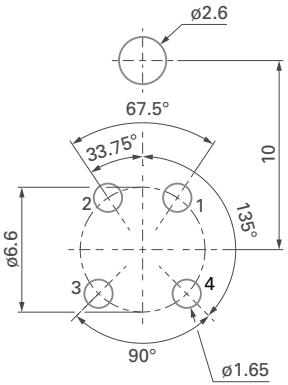
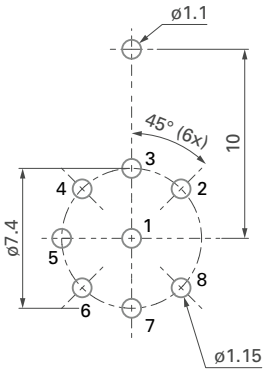
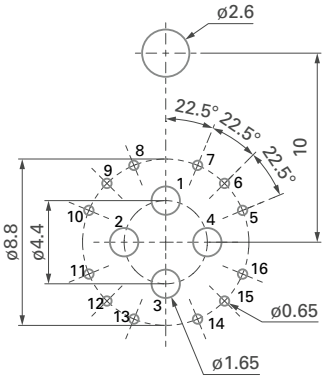
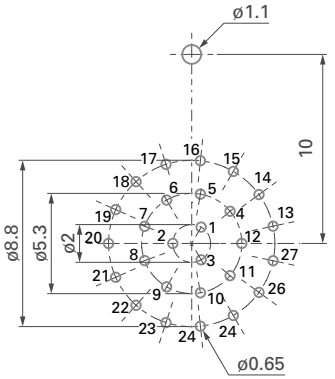
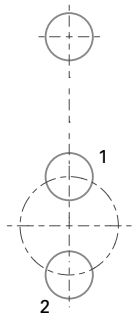
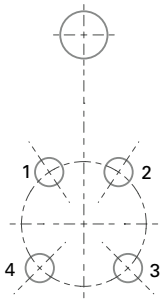
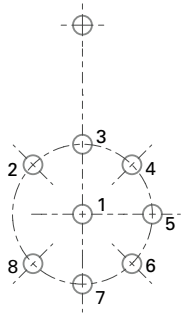
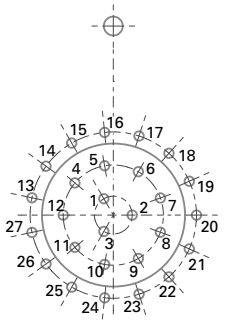
[1)] Recommended PCB hole dimensions may be adjusted to application.

[a)] For optional ground pin.

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

PCB / PIN LAYOUT

View from F[1) 2)]

Size	Polarity	Number of contacts (layout reference)				
		2 (002)	4 (004)	8 (008)	4+12 (412)	27 (027)
15	Standard					
	Inverted					

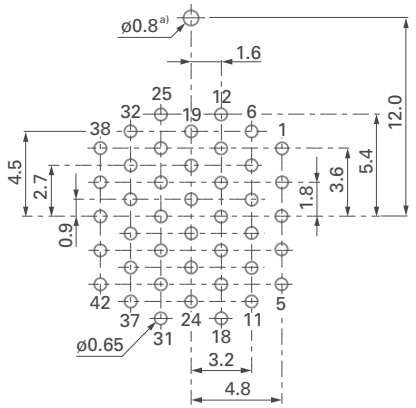
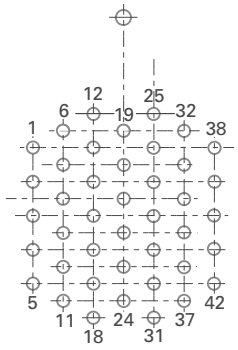
[1)] Recommended PCB hole dimensions may be adjusted to application.

[2)] N/A for pin layout 204H.

[a)] For optional ground pin.

PCB / PIN LAYOUT

View from F[1)]

Size	Polarity	Number of contacts (layout reference)
		42 (042)
18	Standard	
	Inverted	

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

[a)] For optional ground pin.

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

PLUGS & RECEPTACLES

	Connector Design				Contact Block			Housing		Standard options			
Example:	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
- **UP02** = Cable mounted (RLS Ratchet Locking System)
- **UP50** = Panel mounted

UltiMate Receptacle = UR
- **UR01** = Panel rear mounted low profile
- **UR02** = Panel rear mounted
- **UR03** = Panel front mounted low profile
- **UR04** = Panel rear mounted low profile (RLS Ratchet Locking System)
- **UR50** = Cable mounted

Sealing level

Panel mounted:
- **V** = Vacuum sealing [1]
- **W** (IP68) = Water sealing
- **N** = Non sealing [2]

Cable mounted:
- Not applicable = Nothing

Locking system

Cable mounted plug:
- **L** = Push-pull locking
- **Q** = Quick release
- **R** = RLS (Ratchet Locking System) [3]

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
- **15** = Size 15
- **18** = Size 18

Housing Material

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

Grounding

Panel mounted:
- **A** = Grounding pin (for UR01/UR02/UR04))
- **N** = None (for UR03/UP50)

Cable mounted:
- **Z** = Not applicable

Insulator Material

- **1** = PBT
- **2** = PEEK

O-ring material

Receptacle:
O-ring at plug interface
- **E** = FVMQ (Fluorosilicone)

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, nickel anthracite
- **BB** = Nickel black (RLS Ratchet Locking System))

Contact Type

- **S** = Solder
- **P** = PCB
- **C** = Crimp [5]
- **H** = Hybrid

Layout references

- **Size 07:** 002, 0S2, 003, 004, 005,007, 009, 010
- **Size 08:** 002, 003, 004, 005, 007, 009
- **Size 11:** 008, 207, 012, 016, 019
- **Size 13:** 203, 303, 027
- **Size 15:** 002, 004, 204 [4], 008, 412, 027
- **Size 18:** 042

Polarity of contacts

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

Standard polarity: Male contacts in plug, female contacts in receptacle

[1] Reference 203 in size 13 & references 002, 004 in size 15 are only availablein "V" version for panel receptacles.
[2] Only option for pin layout 204H.
[3] Only with body styles UP02 and UR04.
[4] Coax contacts must be ordered separately. Please refer to www.fischerconnectors.com/technical for Coax inserts details.
[5] On request for panel receptacles

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

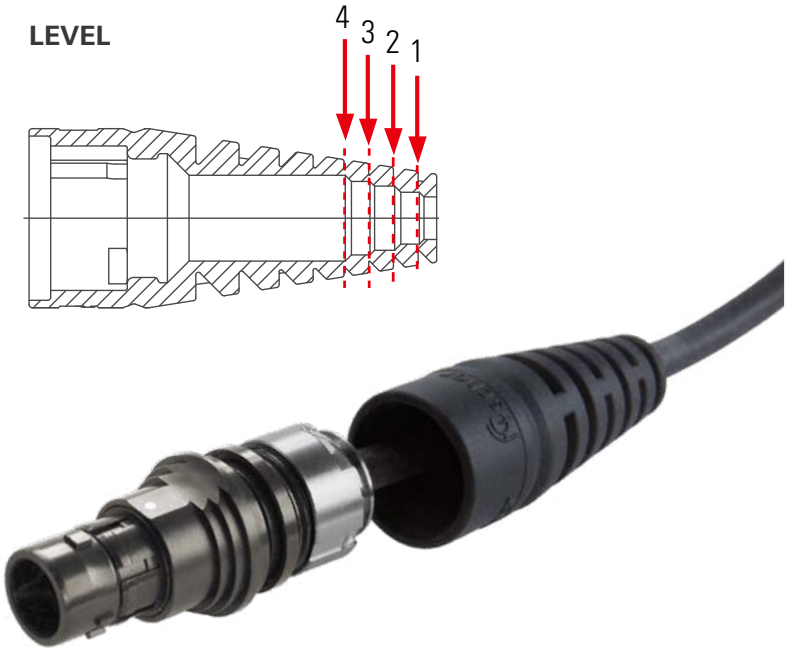
- Resists 10,000 flex cycles at a 90° angle
- Operating temperature-55 °C to +135 °C
- UV resistant

Standard color is black (BK)
Also available in grey (GY), blue (BL), yellow (YL), green (GN), violet (VT) upon request.

Please contact your Fischer Connectors sales representative.

CUTTING DIAMETERS

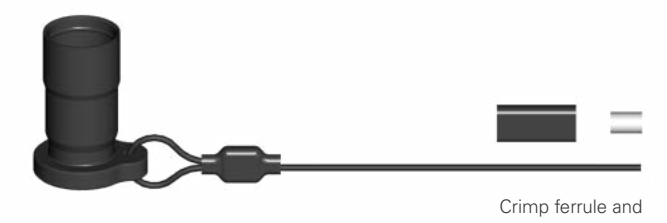
Size	Uncut	Level 1	Level 2	Level 3	Level 4	Part Number
07	ø1.9	ø2.9	ø3.9	ø4.9	-	UB07 A1BK
08	ø2.5	ø3.7	ø5.7	ø7.5	-	UB08 A1BK
11	ø3.9	ø5.4	ø6.9	ø8.9	-	UB11 A1BK
13	ø6.9	ø8.9	ø10.9	ø12.9	-	UB13 A1BK
15	ø6.9	ø8.6	ø10.1	ø11.8	-	UB15 A1BK
18	ø6.9	ø8.4	ø10.4	ø11.9	ø13.9	UB18 A1BK



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

SOFT CAPS - LANYARD WITH POLYESTER CORD

FIGURE 1



Crimp ferrule and
heat shrink tube are included.

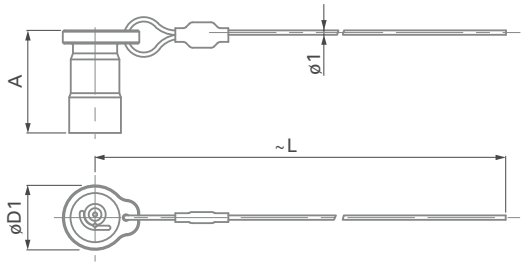
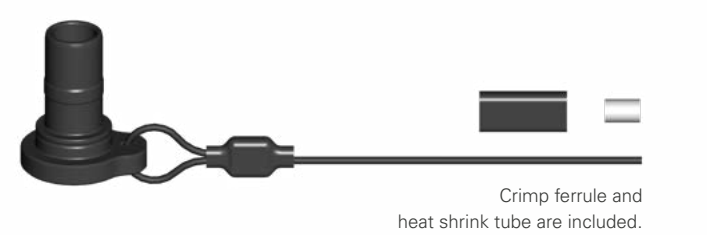


FIGURE 2



Crimp ferrule and
heat shrink tube are included.

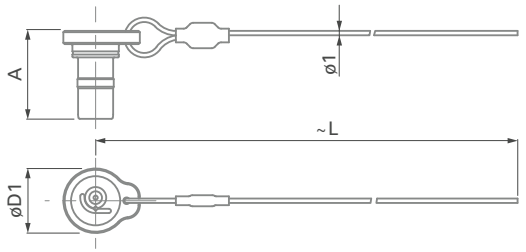
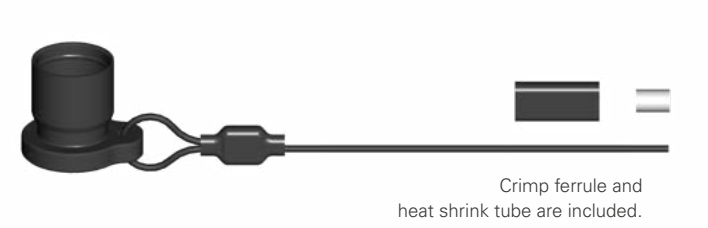
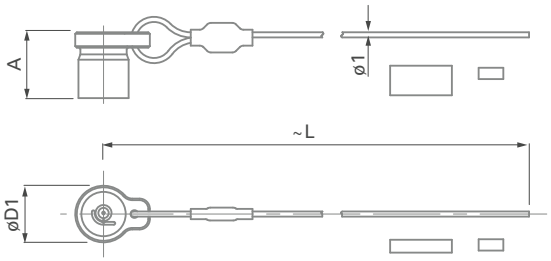


FIGURE 3

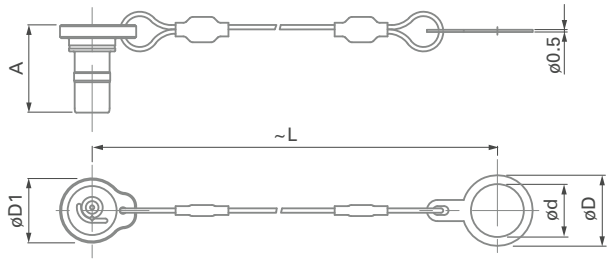


Crimp ferrule and
heat shrink tube are included.



SOFT CAPS - LANYARD WITH POLYESTER CORD

FIGURE 4



Size	Plug		Receptacle				A	øD1	L	ød	øD	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
15	●						25.0	20.7	200	-	-	UCP15C 1A1 A200	1
			●	●			22.5	20.5	95	20	25	UCR15P 1A1 A095	4
18	●						29.5	28.7	200	-	-	UCP18C 1A1 A200	1
			●	●			25.0	28.7	95	25	29	UCR18P 1A1 A095	4

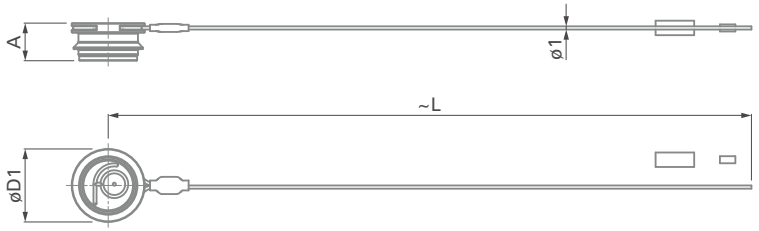
● Recommended for optimal sealing.

○ Compatible but not recommended for optimal sealing.

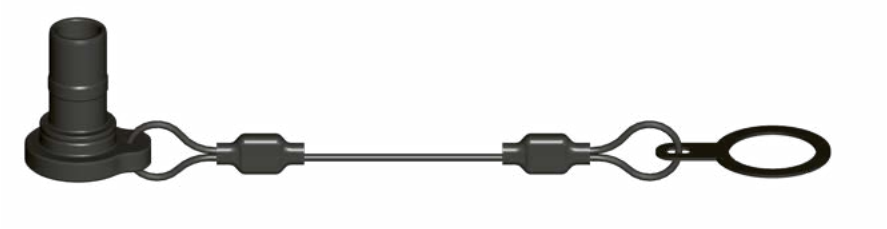
All dimensions and images shown are in millimeters and are for reference only.

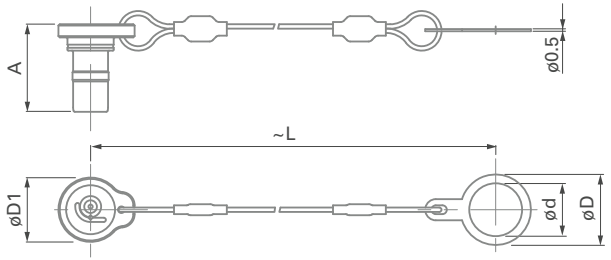
CAPS - LANYARD WITH POLYESTER CORD

SOFT CAP PLUG

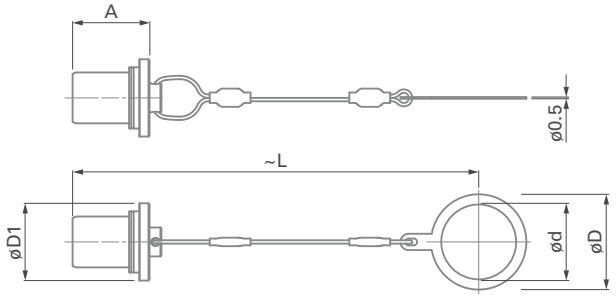


SOFT CAP RECEPTACLE





METAL CAP RECEPTACLE



Size	Plug	Receptacle		A	øD1	L	ød	øD	Part number
	UP02 (soft)	UR04 (soft)	UR04 (metal)						
15	●			11.7	22.7	200	-	-	UPC15C 1A2 A200
		●		22.5	20.5	95	22	28	UCR15P 1A1 A095 C
			●	22.6	22.7	95	22	28	UCR15P 4BKA3 A095

[1] Crimp ferrule and heat shrink tube are included.

SPANNER & NUT DRIVER

DOUBLE-ENDED 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 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	7.4

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

NUT DRIVER WITH T-HANDLE
AND HEX DRIVE

Part number	Thread size	Nut outer dia.	øD	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
TP00.013	M20 x 1	25	28	12
TQ00.005	M25 x 1	31	35	17

Material – Hardened Tool Steel, Nickel plated.

RLS (RATCHET LOCKING SYSTEM)

Part number	Opening across flats	Length	Fork thickness
TX00.022	22	196	6.5

Part number	Thread size	Nut outer dia.	øD	Hex drive
TR00.004	M24 x 1	28	32	12

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

MATERIAL & SURFACE FINISH

Components		Material		Finish	
		Designation ISO	Standard	Designation	Standard
Push-pull locking and Quick release	Spring sleeve (plug), shell (plug), Mounting nut (receptacle UR01 and UR02), Bodies (all)	Aluminum 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]	Aluminum AlMgSiSn1Bi	EN-AW-6023	Nickel	SAE-AMS-QQ-N-290 SAE-AMS 2404
		Brass CuZn39Pb3	CW614N UNS C 38500		
RLS (Ratchet Locking System)	Bodies (all) , mounting nut (receptacle UR04)	Aluminum AlMg1SiCu	EN-AW-6061	Black Nickel	SAE-AMS-QQ-N-290 SAE-AMS 2404
	Shell (plug)	Aluminum AlMg1SiCu	EN-AW-6061	Hard Anodizing Black Teflon Impregnation	MIL-A-63576 Type I
	Back nut (plug)	Aluminum AlMgSiSn1Bi	EN-AW-6023	Nickel	SAE-AMS-QQ-N-290 SAE-AMS 2404
	Slotted ring, ground contact	Brass CuZn39Pb3	CW614N UNS C 38500	Nickel	SAE-AMS-QQ-N-290 SAE-AMS 2404
	Ratchet ring	Carbon PEEK		-	-
	Compression spring	316 stainless steel		-	-
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	1 µm Gold over Nickel	MIL-DTL-45204D Type I; ASTM B488

Insulator and sealing		International symbol	Flammability
Insulator		PBT, PEEK[1]	UL 94 V-0
Inner sleeve	- Cable connectors	POM	UL 94 HB
Sealant materials	- «V» Vacuum sealed connectors	Bi-component Epoxy compound	UL 94 HB
	- «W» Water sealed connectors	Silicon compound	UL 94 V-0
Bend relief	- Cable connectors	Santoprene™ TPV 101-64	UL 94 HB

O-rings	International symbol	Chemical name
General	FPM (Viton®)	Fluoro elastomer
Interface and locking o-ring (Ratchet Locking System)	FVMQ	Fluorosilicone rubber

[1] PBT for size 08, 11, 13 and 18, PEEK for size 07, 15 and layout 207 for size 11 (USB 3.2 gen 2)

MATERIAL & SURFACE FINISH

Caps	Material	Flammability
Cap (soft)	TPV (Santoprene™)	UL 94 HB
Cap (metal)	Aluminum AlMg1SiCu	
Cord (soft and metal)	Polyester	-
Fixing lug	Anthracite plated brass (ISO CuZn37)	-
Crimp ferrule	Nickel plated copper	-

ENVIRONMENTAL & MECHANICAL DATA (PUSH-PULL LOCKING & QUICK RELEASE)

Characteristic	Performance	Standard
Sealing performance mated and unmated [3]	Plug: IP68 2 m submersion for 24 hours	IEC 60529
	Receptacle "W": IP68 2 m submersion for 24 hours	IEC 60529
	Receptacle "V": Hermetic, tested <10-8 mbar l/s	IEC 60068-2-17 Test Qk, Method 3
Sealing performance soft caps	IP68 2 m submersion for 24 hours	IEC 60529
Operating temperature range	-55 °C to +135 °C [1]	IEC 60068-2-14-Nb
Corrosion resistance [2]	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 [4]	IEC 60512-9-1; EIA-364-09
Vibration, random (Size 08, 11, 13, 15, 18)	37.8 Grms, 50-2000Hz, 3x4hrs, no discontinuity > 1 µs	MIL-STD-202 Method 214A Condition I; EIA-364-28 Condition V
Vibration (Size 07)	10 to 2,000 Hz, 1.5 mm or 15 g, 12 sweep cycles per axis, 20 minutes per 10-2,000-10 Hz sweep cycle, no discontinuity > 1 us;	MIL-STD-202 Method 204 Condition B
Shock	300g amplitude, half sine pulse of 3 ms, no discontinuity > 1 µs	MIL-STD-202 Method 213; EIA-364-27

[1] Temperature range of -40 °C to +125 °C for cable connectors overmolded with TPU material. Max. temperature of +85 °C for soft caps.

[2] 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.

[3] Sealing performance of pin layout 204H valid only in mated condition due to coax insert.

[4] 500 mating cycles for pin layout 204H due to coax insert.

ENVIRONMENTAL & MECHANICAL DATA (RLS - RATCHET LOCKING SYSTEM)

Characteristic	Performance	Standard
Sealing performance [1] plug (mated and unmated)	IP68 2 m submersion for 24 hours	IEC60529
Sealing performance [1] receptacle	"W" sealing level: IP68 2 m submersion for 24 hours	IEC60529
	"V" sealing level: Hermetic : Tested: $<10^{-8}$ mbar l/s	IEC60068-2-17 Test Qk, Method 3
Sealing performance (soft and metal caps)	IP68 2 m submersion for 24 hours	IEC 60529
Operating temperature range	-55 °C to +135 °C [2]	IEC 60068-2-14-Nb
Corrosion resistance	Salt mist, 250 hours, 5% salt solution, 35 °C	IEC 60068-2-11 Test Ka; MIL-STD-202 Method 101 ; EIA-364-26
Endurance	3,000 mating cycles [3]	IEC 60512-9-1; EIA-364-09
Vibration, random	37.8 Grms, 50-2000Hz, 3x4hrs, no discontinuity > 1 µs	MIL-STD-202H, Method 214, condition I , Letter J EIA-364-28 Condition V
Vibration, sinus	30g, 10-2000Hz, 3x4hrs, no discontinuity > 1 µs	MIL-STD-202H Method 204 Condition G
Shock	300g amplitude, half sine pulse of 3 ms, no discontinuity > 1 µs	MIL-STD-202H Method 213 ; EIA-364-27

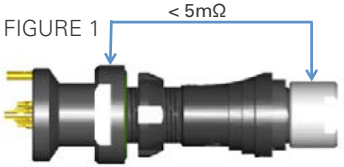
[1] Sealing performance of pin layout 204H valid only in mated condition due to coax insert.
[2] Temperature range of -40° C to + 125 °C for cable connectors overmolded with TPU material. Maximum temperature of +85 °C for soft caps.
[3] 500 mating cycles for pin layout 204H due to coax insert

ELECTRICAL DATA [3]

Characteristic	Contact size	Typical values	Standard
Contact resistance over 10,000 mating cycles	ø0.5 mm ø0.7 mm ø0.9 mm ø1.6 mm ø2.3 mm	5.0 mΩ 5.0 mΩ 4.0 mΩ 2.5 mΩ 2.5 mΩ	IEC 60512-2-1-2a IEC 60512-2-2-2b
Shell resistance [1] (Push-pull locking and quick-release)		< 5.0 mΩ	IEC 60512-2-6-2f
Shell resistance [1] (RLS Ratchet Locking System)		< 10.0 mΩ	IEC 60512-2-6-2f
Insulation resistance		> 10^{10} Ω	IEC 60512-3-1-3a Method C
Shielding effectiveness [2]		> 54 dB	up to 1 GHz, IEC 60512-23-3

[1] Measurement points on Figure 1.
[2] Size 08 connector pair.
[3] Please refer to www.fischerconnectors.com/technical for technical specification of coax insert.

FIGURE 1



DATA TRANSMISSION

USB 2.0	USB 3.2	ETHERNET	SINGLE PAIR ETHERNET	AUDIO/VIDEO
480 Mbit/s	10 Gbit/s	1 Gbit/s	1 Gbit/s	10.2 Gbit/s
Size 07 004	Size 11 207	Size 07 009	Size 07 0S2	Size 11 019

H-35 / H-46

ULTIMATE USB-C

PLUGS

PRE-CABLED SOLUTION

RECEPTACLES

PRE-CABLED SOLUTION

FOR ULTIMATE USB-C

This catalog covers our standard connector solutions. For specific requests, including hybrid or custom connectors, please contact your local sales representative.

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

PLUGS

PRE-CABLED

Body style		UP02 (to USB-C)	UP02 (to UP02)	References to detailed information
Protection	**Sealed up to IP68** [2]	●	●	Sealing categories, page A-6
Locking system	**RLS Ratchet Locking System**	●	●	Locking systems, page A-5
Termination	**Cabled to**	USB-C	UP02R15	
Housing material	**Aluminum**	●	●	Part numbering, page H-42
Housing color	**Black** [1]	●	●	
Design	**Straight**	●	●	Body styles, page H-37
	Right-angle			
Cabling	**Overmolded**	●	●	
Accessories	**Sealing caps**	●	●	Accessories, page H-43
Size	**15**	●	●	Technical dimensions, page H-37

[1] Due to surface treatment process, color may slightly differ from one product to another without impacting technical specifications or product properties.

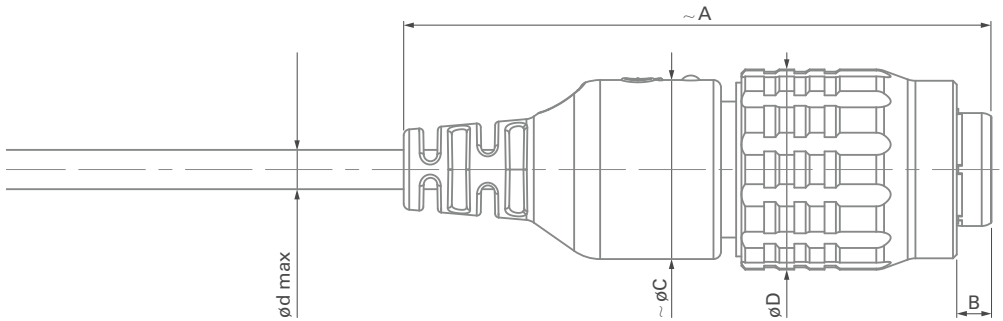
[2] UP02 is IP68 mated or with sealing cap.

PLUGS

PRE-CABLED
SOLUTION

UP02

BODY STYLE



Size	A	B	C	øD	ød max
15	78.0	4.5	23.8	26.5	5.0

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

RECEPTACLES

PRE-CABLED

Body style		UR04	References to detailed information
Protection	Sealed up to IP68 [1]	●	Sealing categories, page A-6
	Hermetic	●	
Termination	Flex [2]	●	
Housing material	Aluminum	●	Part numbering, page H-42
Housing color	Black [3]	●	
Design	Straight	●	Body styles, page H-39
	Right-angle		
	Flush		
Assembly	Rear-mounting	●	
Cabling	Overmolded		
Accessories	Sealing caps	●	Accessories, page H-43
Size	15	●	Technical dimensions, page H-39

[1] IP68 mated or with sealing cap.

[2] Flex terminated with connector Hirose BM24-24DP/2-0.35V, mate with connector Hirose BM24-24DS/2-0.35V.

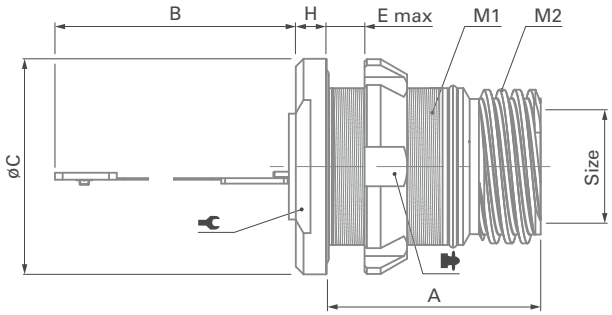
[3] Due to surface treatment process, color may slightly differ from one product to another without impacting technical specifications or product properties.

RECEPTACLES

PRE-CABLED SOLUTION

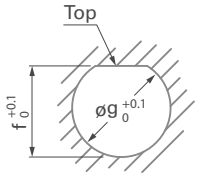
UR04

BODY STYLE



Size	A	B	øC	E max	H	M1	M2			Torque
15	27.7	60.0	28.0	9.0	4.0	M22x1	TR20x6 (P2)	22	TR00.004	8 Nm

Size	f	øg
15	20.5	22.1



PANEL CUT-OUT

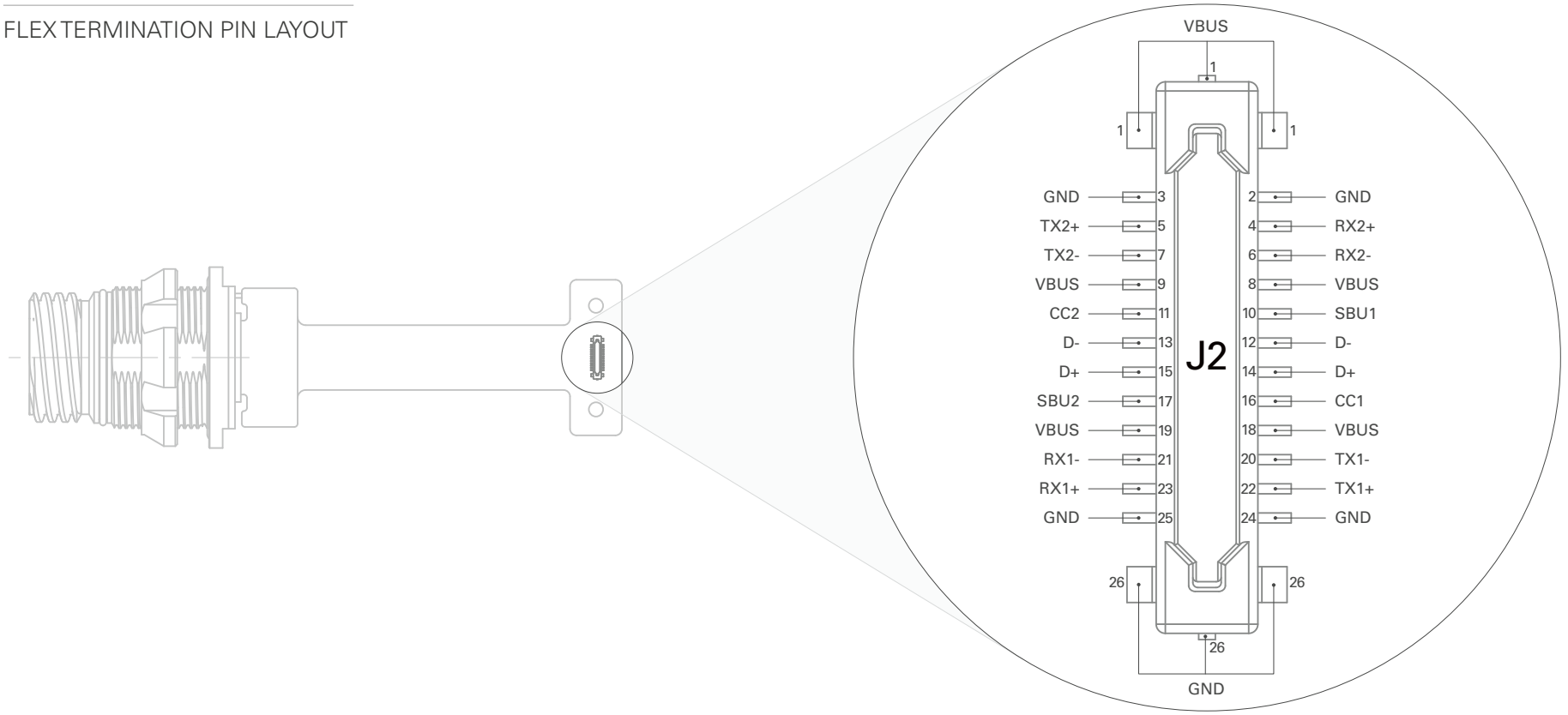
All dimensions and images shown are in millimeters and are for reference only.

RECEPTACLES

PRE-CABLED
SOLUTION

UR04

FLEX TERMINATION PIN LAYOUT



CABLE SPECIFICATION

- **Differential Impedance:** 85 +/- 10 Ohms
- **Breaking strength:** 300N
- **Working temperature:** -30 °C to +85 °C
- **Overall diameter:** nominal 4.6 mm +/- 0.20 mm

PRE-CABLED PLUG SOLUTION
UP02 TO UP02

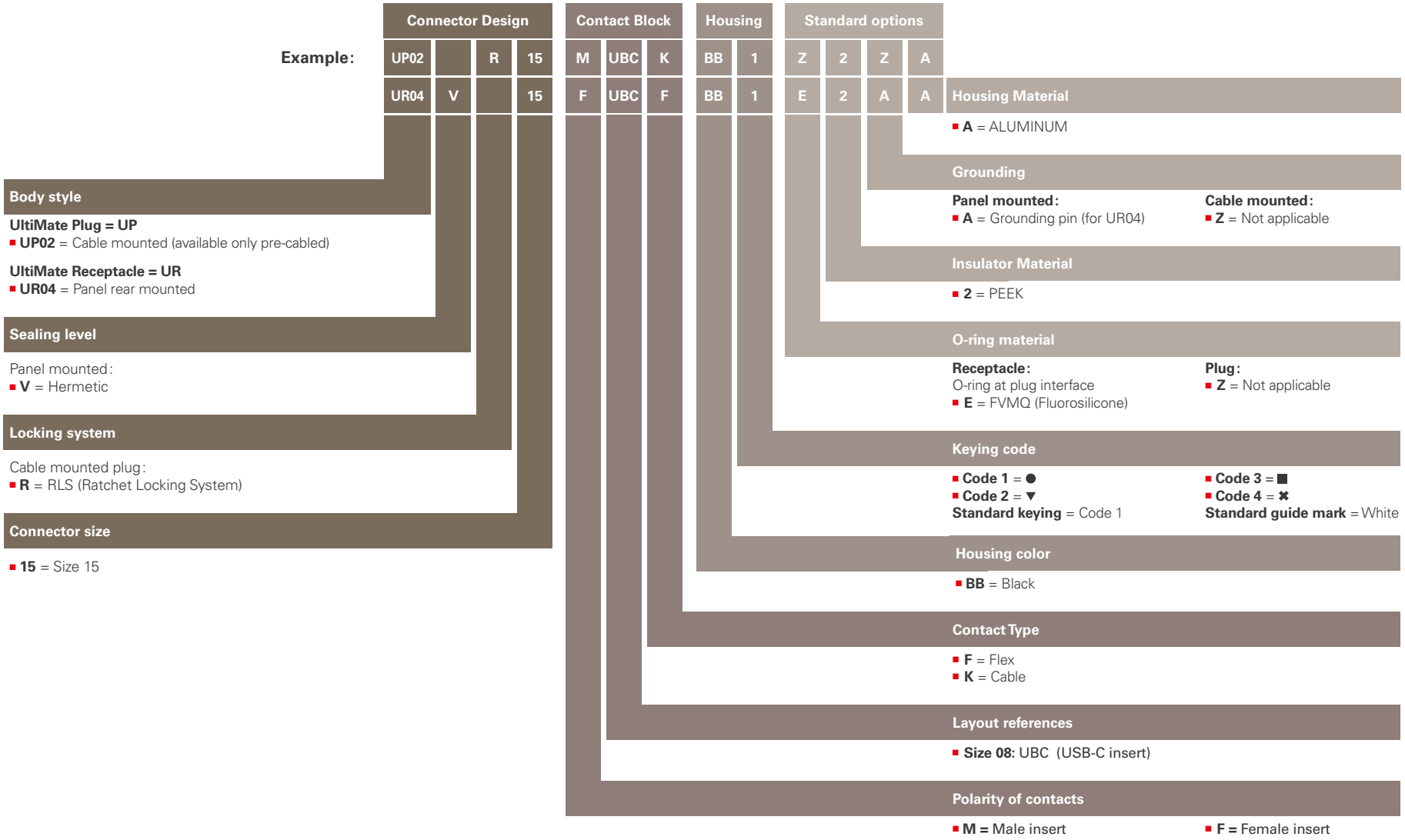
STANDARD REFERENCE	Termination 1 UP02R15	Overall length = 0.8m	Termination 2 UP02R15
143139 CA D 16XLV UP02R15/UP02R15 TPE BK 0.8M			

PRE-CABLED PLUG SOLUTION
UP02 TO USB-C

STANDARD REFERENCE	Termination 1 UP02R15	Overall length 0.8m	Termination 2 USB-C
143140 CA D 16XLV UP02R15/USB-C TPE BK 0.8M			

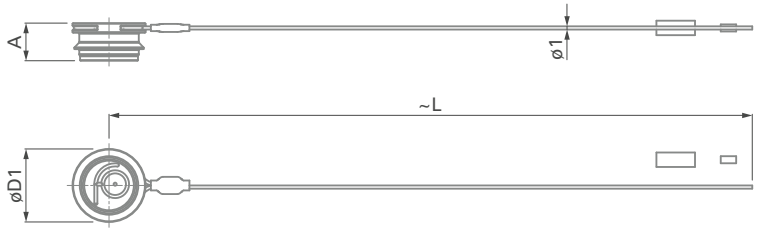
All dimensions and images shown are in millimeters and are for reference only.

PLUGS & RECEPTACLES

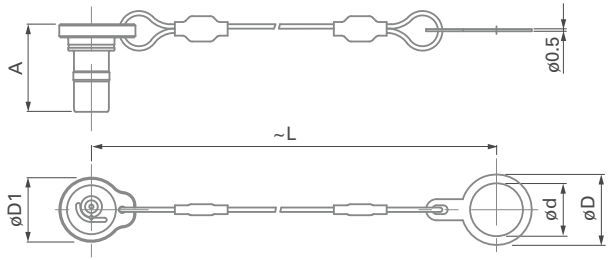


CAPS - LANYARD WITH POLYESTER CORD

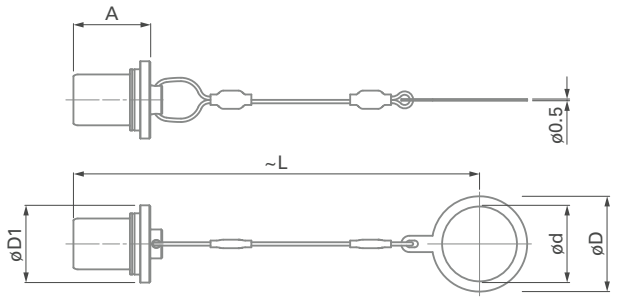
SOFT CAP PLUG



SOFT CAP RECEPTACLE



METAL CAP RECEPTACLE



Size	Plug	Receptacle		A	øD1	L	ød	øD	Part number
	UP02 (soft)	UR04 (soft)	UR04 (metal)						
15	●			11.7	22.7	200	-	-	UPC15C 1A2 A200
		●		22.5	20.5	95	22	28	UCR15P 1A1 A095 C
			●	22.6	22.7	95	22	28	UCR15P 4BKA3 A095

[1] Crimp ferrule and heat shrink tube are included.

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

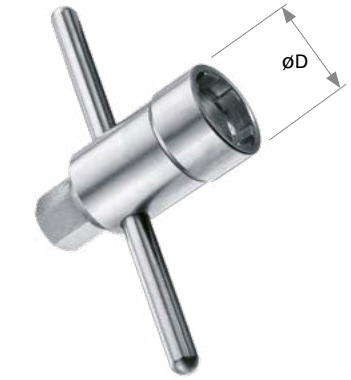
SPANNER & NUT DRIVER

OPEN SPANNER
EXTRA THIN

Part number	Opening across flats	Length	Fork thickness
TX00.022	22	196	6.5

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

NUT DRIVER WITH T-HANDLE
AND HEX DRIVE



Part number	Thread size	Nut outer dia.	øD	Hex drive
TR00.004	M24 x 1	28	32	12

Material – Hardened Tool Steel, Nickel plated.

MATERIAL & SURFACE FINISH

Components		Material		Finish	
		Designation ISO	Standard	Designation	Standard
Bodies (all), mounting nut (receptacle UR04)		Aluminum AlMg1SiCu	EN-AW-6061	Black Nickel	SAE-AMS-QQ-N-290 SAE-AMS 2404
Shell (plug)		Aluminum AlMg1SiCu	EN-AW-6061	Hard Anodizing Black Teflon Impregnation	MIL-A-63576 TYPE I
Back nut (plug)		Aluminum AlMgSiSn1Bi	EN-AW-6023	Nickel	SAE-AMS-QQ-N-290 SAE-AMS 2404
Slotted ring, ground contact		Brass CuZn39Pb3	CW614N UNS C 38500	Nickel	SAE-AMS-QQ-N-290 SAE-AMS 2404
Ratchet ring		Carbon PEEK	-	-	-
Compression ring		316 stainless-steel	EN1.4401 UNS S31600	-	-
Contacts	**- Male, ground pin**	Brass; CuZn39Pb3	CW614N; UNS C 38500	1 µm Gold over Nickel	MIL-DTL-45204D
Flex PCB		FR4 + Polyimide (UL 94 V-0)	-	-	-

Insulator and sealing		International symbol	Flammability
Insulator		PEEK	UL 94 V-0
Inner sleeve		POM	UL 94 HB
Sealant materials	**- Receptacle**	Bi-component Epoxy compound	UL 94 HB
	- Plug	Bi-component Polyurethane compound	UL 94 V-0

Caps	Material	Flammability
Cap (soft)	TPV (Santoprene™)	UL 94 HB
Cap (metal)	Aluminum [1)] AlMgSiSn1Bi	-
Cord	Polyester	-
Fixing lug	Anthracite plated brass (ISO CuZn37)	-
Crimp ferrule	Nickel plated copper	-

O-rings	International symbol	Chemical name
General	FPM (Viton®)	Fluoro elastomer
Interface and locking o-ring (RLS Ratchet Locking System)	FVMQ	Fluorosilicone rubber

[1)] Material standard: EN-AW-6061. Finish: Black Nickel. Standard: SAE-AMS-QQ-N-290, SAE-AMS 2404.

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ENVIRONMENTAL & MECHANICAL DATA

Characteristic	Performance	Standard
Sealing performance	Plug (mated or with cap): IP68 2 m submersion for 24 hours Plug (unmated): IP50	IEC 60529
	Receptacle (mated and unmated): IP68 2 m submersion for 24 hours, Hermetic : Tested: <10-8 mbar l/s	IEC 60529 IEC 60068-2-17 Test Qk, Method 3
Sealing performance caps	IP68, 2 m submersion for 24 hours	IEC 60529
Operating temperature range	-30 °C to +80°C	IEC 60068-2-14-Nb
Corrosion resistance (mated)	Salt mist, 250 hours, 5% salt solution, 35 °C	IEC 60068-2-11 Test Ka; MIL-STD-202 Method 101; EIA-364-26
Endurance	3,000 mating cycles [1)]	IEC 60512-9-1; EIA-364-09
Vibration, random	5.35 Grms, 50-2000Hz, 3x1.5hrs, no discontinuity > 1 µs	MIL-STD-202 Method 214A Condition I; Letter A
Vibration, sinus	10g, 10-500Hz, 3x3hrs, no discontinuity > 1 µs	MIL-STD-202 Method 204 Condition A
Shock	100 g peak, half sine pulse of 6 ms, no discontinuity > 1 µs	MIL-STD-202 Method 213

[1)] Flex PCB connector from Hirose on panel receptacle limited to 10 mating cycles.

H-47 / H-62

ULTIMATE 80

Table of contents

This catalog covers our standard connector solutions. For specific requests, including hybrid or custom connectors, please contact your local sales representative.

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

PLUGS

		PRE-CABLED	CONNECTOR	PANEL PLUG	
					
Body style		**UP81**	**UP81**	**UP80**	**References to detailed information**
Protection	**Sealed up to IP68**	●		●	Sealing categories, page A-6
Locking system	**Quick-release**	●	●	●	
Termination	**Crimp contact**	●	●		Electrical & contact configurations, page H-54
	Solder			●	
	PCB			●	
Housing material	**Aluminum**	●	●	●	Part numbering, page H-56
Housing color	**Black** [1]	●	●	●	Part numbering, page H-56
Design	**Straight**	●		●	Body styles, page H-49
	Right-angle				
Cabling	**Overmolded**	●			
Accessories	**Sealing caps**	●	●	●	Accessories, page H-59
Size	**08**	●	●	●	Technical dimensions, page H-49

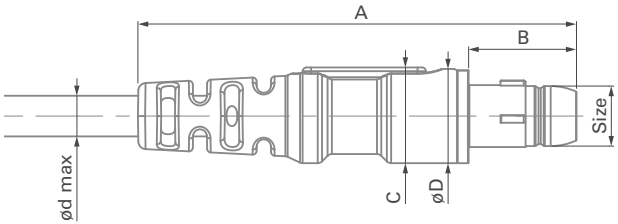
[1] Due to surface treatment process, color may slightly differ from one product to another without impacting technical specifications or product properties.

PLUGS

PRE-CABLED

UP81

BODY STYLE

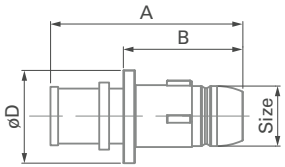


Size	A	B	C	øD	ød max
08	58.0	14.2	12.6	12.4	5.5

CONNECTOR

UP81

BODY STYLE



Size	A	B	øD
08	25.2	15.7	12.4

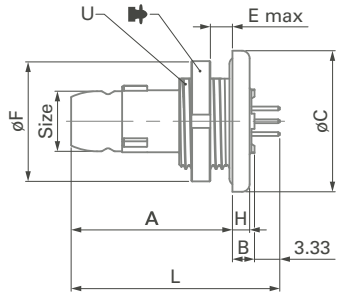
All dimensions and images shown are in millimeters and are for reference only.

PLUGS

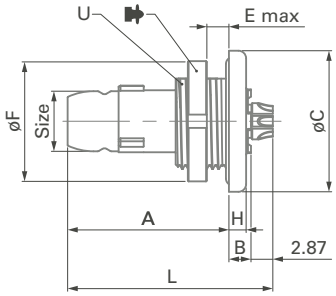
PANEL REAR MOUNTED

UP80

BODY STYLE



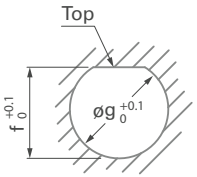
PCB



SOLDER

Size	Termination	A	B	øC	U	øF	E max	L	➡	Torque
08	**PCB**	21.2	2.9	18.54	1/2-32UN-2A	15.9	3.2	27.43	TX00.401	2.5 Nm
	Solder	21.2	2.9	18.54	1/2-32UN-2A	15.9	3.2	26.97	TX00.401	2.5 Nm

Size	f	øg
08	12.05	12.8



PANEL CUT-OUT

RECEPTACLES

		PRE-CABLED SOLUTION	CONNECTORS		
			PANEL MOUNTED 	CABLE MOUNTED 	
Body style		**UR80**	**UR81**	**UR80**	**References to detailed information**
Protection	**Sealed up to IP68**	●	●		Sealing categories, page A-6
Termination	**Crimp contact**	●		●	Electrical & contact configurations, page H-54
	Solder contact		●		
	PCB contact		●		
Housing material	**Aluminum**	●	●	●	Part numbering, page H-56
Housing color	**Black** [2]	●	●	●	Part numbering, page H-56
Design	**Straight**	●	●		Body styles, page H-51
	Right-angle				
	Flush		●		
Assembly	**Rear-mounting**		●		
Cabling	**Overmolded**	●			
Accessories	**Sealing caps**	●	●	●	Accessories, page H-59
Size	**08**	●	●	●	Technical dimensions, page H-52

[1] KIT is delivered with receptacle body, contact block, crimp contacts and crimp shield ferule. SAP 139351

[2] Due to surface treatment process, color may slightly differ from one product to another without impacting technical specifications or product properties.

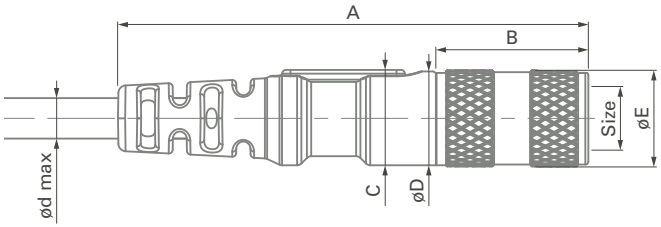
All dimensions and images shown are in millimeters and are for reference only.

RECEPTACLES

PRE-CABLED SOLUTION

UR80

BODY STYLE

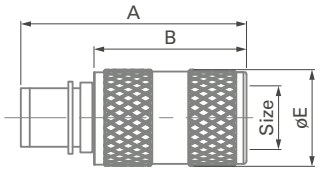


Size	A	B	C	øD	øE	ød max
08	62.2	20.2	12.6	12.4	12.8	5.5

CONNECTORS

UR80

BODY STYLE



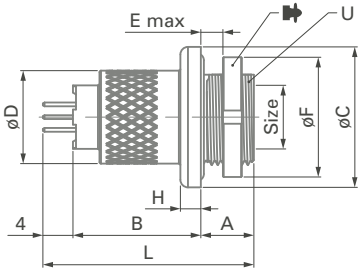
Size	A	B	øE
08	29.6	20.2	12.8

RECEPTACLES

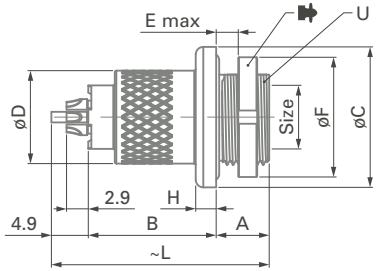
PANEL REAR MOUNTED

UR81

BODY STYLE



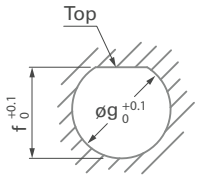
PCB



SOLDER

Size	Termination	A	B	øC	øD	U	øF	H	E max	L		Torque
08	PCB	7.0	16.9	18.6	12.3	1/2-32 UN-2A	15.9	2.8	3.2	27.9	TX00.401	2.5 Nm
	Solder	7.0	16.9	18.6	12.3	1/2-32 UN-2A	15.9	2.8	3.2	28.8	TX00.401	2.5 Nm

Size	f	øg
08	12.05	12.8



PANEL CUT-OUT

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

ELECTRICAL & CONTACT CONFIGURATIONS

Size	Pin layout	Layout reference	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			
										IEC 60512-4-1 Test 4a			
										AC r.m.s.		DC	
					Solder contacts [2]	Crimp contacts	Pin diameter [mm]	IEC 60512-5-2-5b [4]	IEC 60664-1 [5]	Contact to body	Contact to contact	Contact to body	Contact to contact
08		006 /105 [1]	6	0.7	max ø1.02 mm AWG19 [1] AWG20 [26/34]	max ø0.85 mm min ø0.48 mm AWG22-28	0.5	2x 9 [6] 2x 2 2x 0.02	≤ 200	0.8	1.3	1.5	2.3
		007 /106 [1]	7	0.7	max ø1.02 mm AWG19 [1] AWG20 [26/34]	max ø0.85 mm min ø0.48 mm AWG22-28	0.5	2x 9 [6] 3x 2 2x 0.02	≤ 200	0.8	1.3	1.5	2.3

[1] First digit indicates the number of first mate last break (FMLB) contacts.

[2] Solder contacts option only for UR81 and UP80 in replacement of the standard PCB contacts.

[3] For a given AWG, the diameter of some stranded cable designs could be larger than the hole diameter of the barrel. Testing may be required.

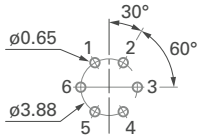
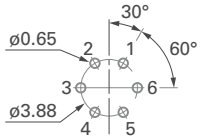
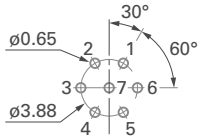
[4] Current per contact at 40 °C temperature rise measured on the basic curve according to IEC 60512-5-2-5b. For maximum operating current, a reduction factor must be used and limitations due to the size of the wires and the permissible upper temperature limit of the materials employed must be taken into account. See page A-12 for details.

[5] Recommended operating voltage at sea level. This rated voltage is a general guideline where no other electrical safety standard applies. In cases where other standards rule 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] Alternatively, only 2 contacts loaded : 2x 10 A

PCB / PIN LAYOUT

View from the front of the plug / receptacle [1)]

Size	Type	Number of contacts (layout reference)	
		006 / 105	007 / 106
08	Plug		
	Receptacle		

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

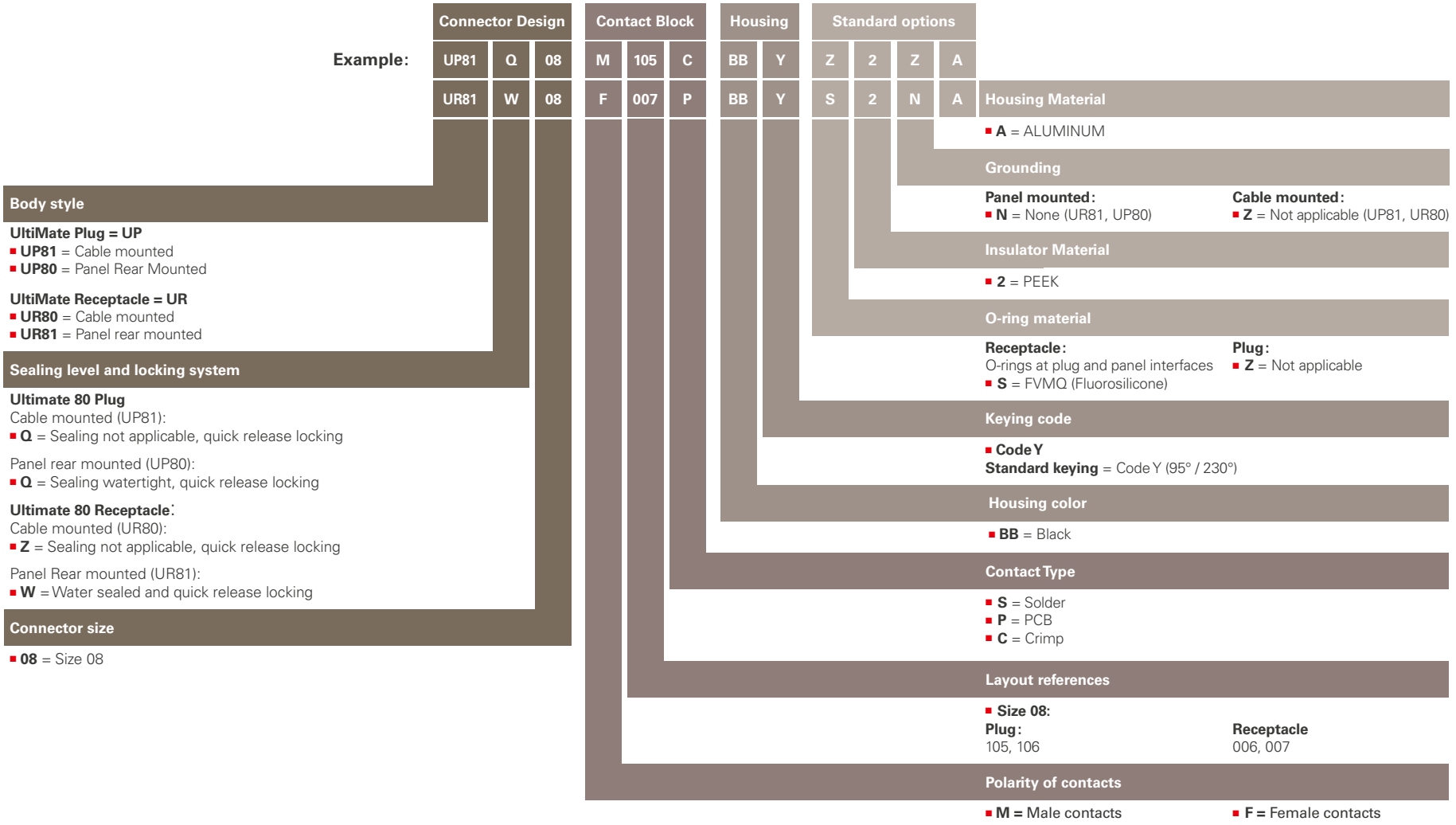
MECHANICAL CODING [2)]

PLUGS	Code Y
	

RECEPTACLES	Code Y
	

[2)] View from front of connectors. For further details see part numbering.

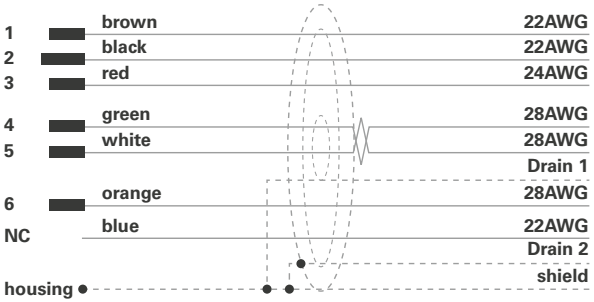
PLUGS & RECEPTACLES



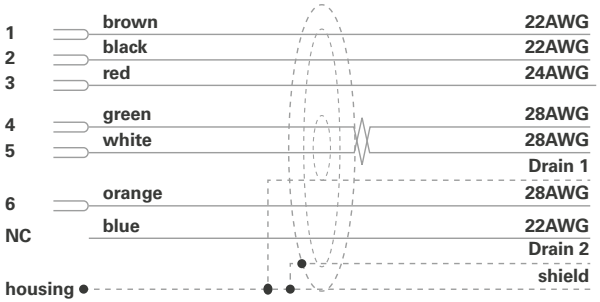
CABLE SPECIFICATION FOR PRE-CABLED 6 CONTACTS

- PUR halogen free, flame retardant outer sheath, nominal thickness 0.55 mm, TAN (RAL 7002 matt) / BLACK (RAL 9005 matt)
- Working voltage: 300 V
- Weight: 52 kg/km
- Breaking strength: 800 N (Vectran central strength member)
- Minimum bending radius: 27 mm static / 60 mm dynamic
- Working temperature:-40 °C to +90 °C
- Overall diameter: nominal 5.40 mm +/-0.20 mm

Pre-cabled plug 6 contacts (UP81)



Pre-cabled receptacle 6 contacts (UR80)



AWG22
Tinned copper conductor 19x0.16 mm / FEP insulation, nominal diameter 1.20 mm, color blue, brown, black

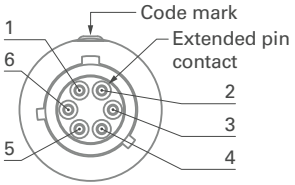
AWG24
Tinned copper conductor 19x0.13 mm / FEP insulation, nominal diameter 0.86 mm, color red

AWG28
Tinned copper conductor 7x0.13 mm / FEP insulation, nominal diameter 0.90 mm, color white, green / Cores twisted in a pair 90 ohm / Screen of aluminium/polyester tape, tinned copper drain wire 7x0.13 mm, polyester tape

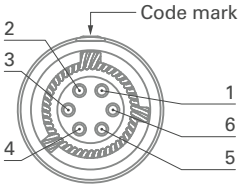
Shield
Overall screen of aluminium/polyester tape, tinned copper drain wire 7x0.13 mm / Overall tinned copper shield, nominal coverage >= 90%

WIRING DIAGRAM FOR STANDARD PRE-CABLED 6 CONTACTS

View from front



Pre-cabled plug



Pre-cabled receptacle

WIRE	PRE-CABLED PLUG SOLUTION 1 m, open end
	Pin number
AWG22 brown	1
AWG22 black	2 Extended pin
AWG24 red	3
AWG28 green	4
AWG28 white	5
AWG28 orange	6
AWG22 blue	Not connected
Part number	**140599** CA S 06 UP81Q08BBYA/OE PUR TN 1.0M
	140608 CA S 06 UP81Q08BBYA/OE PUR BK 1.0M

WIRE	PRE-CABLED RECEPTACLE SOLUTION 1 m, open end
	Pin number
AWG22 brown	1
AWG22 black	2
AWG24 red	3
AWG28 green	4
AWG28 white	5
AWG28 orange	6
AWG22 blue	Not connected
Part number	**140601** CA S 06 UR80Z08BBYA/OE PUR TN 1.0M
	140610 CA S 06 UR80Z08BBYA/OE PUR BK 1.0M

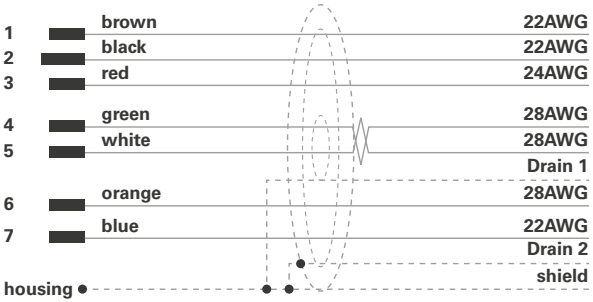
REMARK: Pin No. can be assigned according to NATO AEP-4851 & NATO AEP-4695.

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

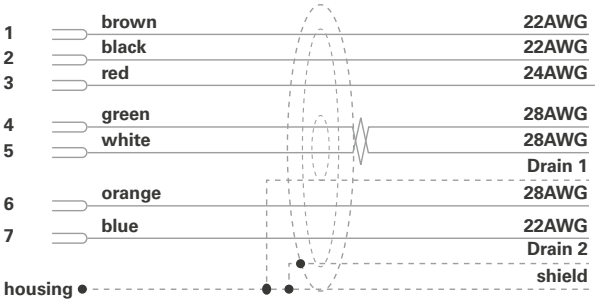
CABLE SPECIFICATION FOR PRE-CABLED 7 CONTACTS

- PUR halogen free, flame retardant outer sheath, nominal thickness 0.55 mm, TAN (RAL 7002 matt) / BLACK (RAL 9005 matt)
- Working voltage: 300 V
- Weight: 52 kg/km
- Breaking strength: 800 N (Vectran central strength member)
- Minimum bending radius: 27 mm static / 60 mm dynamic
- Working temperature: -40 °C to +90 °C
- Overall diameter: nominal 5.40 mm +/-0.20 mm

Pre-cabled plug 6 contacts (UP81)



Pre-cabled receptacle 6 contacts (UR80)



AWG22
Tinned copper conductor 19x0.16 mm / FEP insulation, nominal diameter 1.20 mm, color blue, brown, black

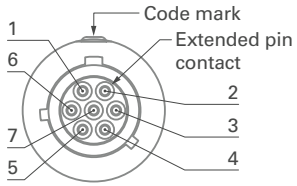
AWG24
Tinned copper conductor 19x0.13 mm / FEP insulation, nominal diameter 0.86 mm, color red

AWG28
Tinned copper conductor 7x0.13 mm / FEP insulation, nominal diameter 0.90 mm, color white, green / Cores twisted in a pair 90 ohm / Screen of aluminium/polyester tape, tinned copper drain wire 7x0.13 mm, polyester tape

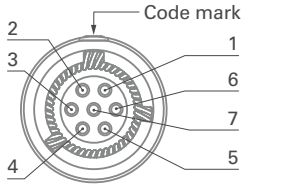
Shield
Overall screen of aluminium/polyester tape, tinned copper drain wire 7x0.13 mm / Overall tinned copper shield, nominal coverage >= 90%

WIRING DIAGRAM FOR STANDARD PRE-CABLED 7 CONTACTS

View from front



Pre-cabled plug

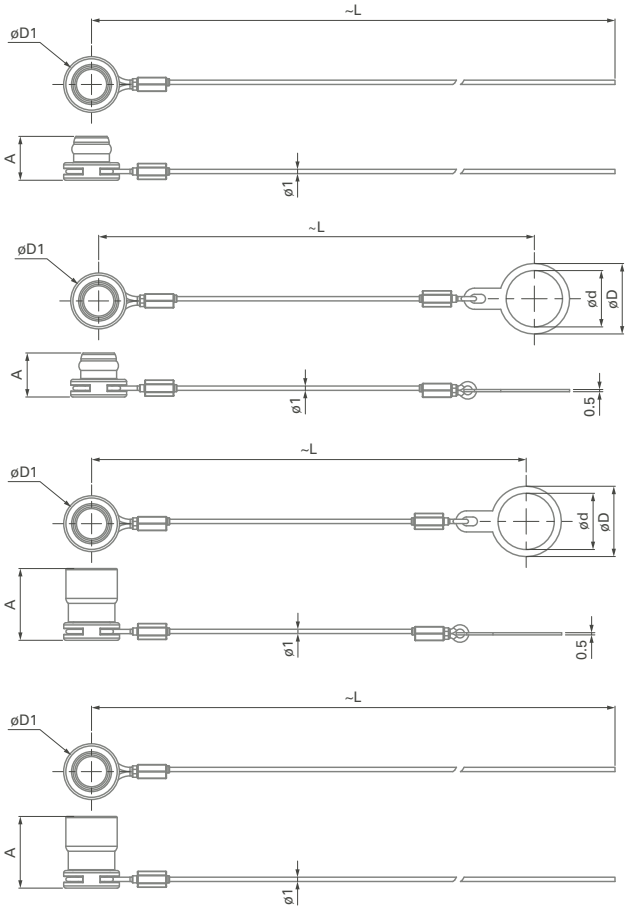


Pre-cabled receptacle

WIRE	PRE-CABLED PLUG SOLUTION 1 m, open end
	Pin number
AWG22 brown	1
AWG22 black	2 Extended pin
AWG24 red	3
AWG28 green	4
AWG28 white	5
AWG28 orange	6
AWG22 blue	7
Part number	**140600** CA S 07 UP81Q08BBYA/OE PUR TN 1.0M
	140609 CA S 07 UP81Q08BBYA/OE PUR BK 1.0M

WIRE	PRE-CABLED RECEPTACLE SOLUTION 1 m, open end
	Pin number
AWG22 brown	1
AWG22 black	2
AWG24 red	3
AWG28 green	4
AWG28 white	5
AWG28 orange	6
AWG22 blue	7
Part number	**140602** CA S 07 UR80Z08BBYA/OE PUR TN 1.0M
	140611 CA S 07 UR80Z08BBYA/OE PUR BK 1.0M

SOFT CAPS - LANYARD WITH STAINLESS STEEL CABLE



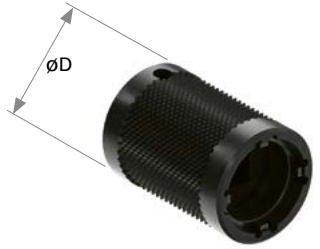
Size	Plug		Receptacle		A	øD1	L	ød	øD	Part number
	UP80	UP81	UR80[1]	UR81						
08			●		10.0	12.7	200	-	-	UCR80C 1B2 A200
				●	10.0	12.7	95	12.8	16	UCR80P 1B2 A095
	●				16.9	12.7	95	12.8	16	UCP80P 1B2 A095 AA
		●			16.9	12.7	200	-	-	UCP80C 1B2 A200 AA

[1] Crimp ferrule and heat shrink tube are included.

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

NUT DRIVER (FOR UR81)

NUT DRIVER
WITH SQUARE SOCKET*



* For use with torque wrenches ¼" (6.4 mm).

Part number	Nut thread size	Nut outer dia.	øD
TX00.401	1/2-32 UN	16	20

Material – PA

ENVIRONMENTAL & MECHANICAL DATA

Characteristic	Performance	Standard
Sealing performance mated and unmated	IP68 2m/24h	IEC 60529; MIL-STD-810 Method 512.6
Operating temperature range	-55 °C to +135 °C	MIL-STD-810 Method 501.6 and 502.6
Corrosion resistance	Salt mist, 500 hours [1) 2)], 5% salt solution, 35 °C ;	MIL-STD-810 Method 509.6
Endurance	10.000 mating cycles (plug), 5.000 mating cycles (receptacle) [3)]	IEC 60512-9-1
Vibration, random	7.7 Grms	MIL-STD-810 Method 514.7
Unmating force	Typical 55 ± 15 N	IEC 60512-13-1
Shock	100g half sine pulse amplitude 6 ms duration, no discontinuity > 1 µs	MIL-STD-810 Method 516.7 Condition I

[1)] Corrosion resistance dependent on body style. 400h for UR81 and UP80 (panel rear mounted plug and receptacle).

[2)] Cosmetic changes may appear over time without impacting mechanical or electrical functions.

[3)] Preserved mechanical and electrical functionality. Normal wear could appear.

ELECTRICAL DATA

Characteristic	Performance	Standard
Contact resistance (typical value)	< 10 mΩ (typical value)	MIL-STD-202 Method 307
Shell resistance (typical value)	< 50 mΩ (cabled; new condition)	MIL-STD-202 Method 307
Insulation resistance	> 10^{10} Ω	MIL-STD-883 Method 1003 MIL-STD-202 Method 302
Shielding effectiveness	360° shielded. The equipment under test, with two different Fischer Connectors systems that use both UltiMate 80 plug and receptacle, is compliant according to limits of MIL-Standard.	MIL-STD-461G (CE101, CE102, CS101, RE101, RE102, RS101, RS102)

MATERIAL & SURFACE FINISH

Components		Material		Finish	
		Designation ISO	Standard	Designation	Standard
Housing, nut		Aluminum AlMg1SiCu	EN-AW-6061	Black Nickel	SAE-AMS-QQ-N-290 SAE-AMS 2404
Locking spring (receptacles)		Stainless steel X5CrNiMo18-10	316/1.4401	0.64 µm Gold over Copper	-
Crimping ring (cable connectors)		Brass CuZn39Pb3	CW614N UNS C 38500	-	-
Contacts	- Male or Female (Crimp) - Male or Female (Solder or PCB)	CuNi1Pb1P	UNS C 19160 ASTM C 19160	1 µm Gold over Nickel	MIL-DTL-45204D Type I ; ASTM B488

Insulator and sealing		International symbol	Flammability
Insulator	- Molded	PEEK[1)]	UL 94 V-0
Sealant materials	- Cable connectors	Bi-component Epoxy compound	-
	- Panel connectors	Silicone compound	UL 94 V-0

O-rings & seals	International symbol	Chemical name
O-rings	FVMQ	Fluorosilicone rubber
Interfacial seal (plug)	FVMQ	Fluorosilicone rubber

Pre-cabled solutions	Material	Flammability
Overmolding	TPU (Estane®)	UL94 V-0
Cable jacket	PUR	UL94 V-2

Soft caps	Material	Flammability
Cap	TPV (Santoprene™)	UL 94 HB
Cable	FEP coated stainless steel	-
Fixing lug	Anthracite plated brass (ISO CuZn37)	-
Crimp ferrule	Aluminum	-
Heat shrink tube	Polyolefin	-

[1)] Or any material in the PAEK family that provides equal or better overall performances.