

BALLUFF

sensors worldwide

High Durability Cables

Cordsets for use in extreme conditions in manufacturing



High Durability Cables

Every manufacturer has challenges, but typically one of the most frustrating problems is when a connector or a cable causes downtime. In addition, cable failures can be difficult to diagnose due to their installation and finding the exact failure. This can cause extended downtime due to replacement of long cable runs through cable trays and rafters. Sometimes cable failures just cause short repetitive downtime with constant replacement.

In the most extreme conditions in manufacturing, downtime is usually caused by one of these situations:



Physical

- Constant contact with loaded components causes physical failure
- Buildup of excess material can physically tear the connector apart



Washdown

- Cleaning chemicals can eat through standard materials
- High pressure washdown can destroy components



Temperature

- Extreme swings in temperature age materials prematurely
- Constant high-temperatures can melt standard materials



Weld Slag

- Hot weld sparks burn, melt and destroy cables and connectors
- Buildup of damage over time can cause shorts and failures

Physical Problems

- Constant contact with loaded components causes physical failure
- Buildup of excess material can physically tear the connector apart

Solution

- Abrasion resistant
- High mechanical durability



Solution

- Crush resistant
- High mechanical durability

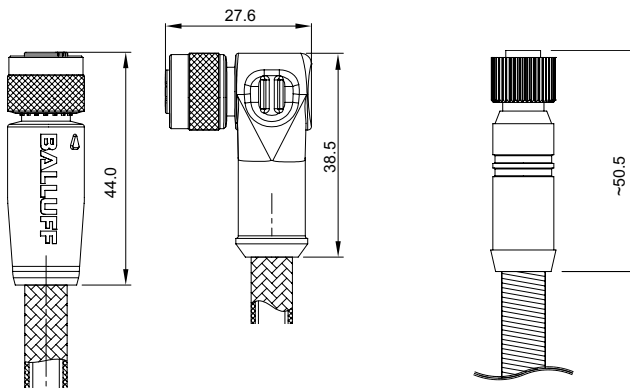


Type	Stainless Steel Braid	PVC Coated Steel Armor
Jacket Temperature	-25...80 °C	-40...105 °C
Operational Temperature Fixed	-50...80 °C	-40...105 °C
Operational Temperature Moving	-25...80 °C	
Voltage Rating	250 V	300 V
Amperage	4 A	4 A
Single-Ended		
M12 Female, 4-wire, Straight		BCC M415-0000-1A-003-MX04T2-__
7/8" Female, 4-wire, Straight		BCC A314-0000-10-072-MX04W6-__
M12 Double-Ended		
M12 Female Straight - M12 Male Straight, 4 wire	BCC W415-W414-3A-304-MW8434-__	BCC M415-M414-3A-304-MX04T2-__
M12 Female Right Angle - M12 Male Straight, 4 wire	BCC W425-W414-3A-304-MW8434-__	
7/8" Double-Ended		
7/8" Female Straight - 7/8" Male Straight, 4 wire	BCC B314-B314-30-304-MW8434-__	BCC A314-A314-30-346-MX04W6-__
7/8" Female Right Angle - 7/8" Male Straight, 4 wire	BCC B324-B314-30-304-MW8434-__	

Note: M8 versions not possible

Single-ended
Standard Lengths Available:
010 = 1 m
020 = 2 m
050 = 5 m
100 = 10 m

Double-ended
Standard Lengths Available:
003 = 0.3 m
006 = 0.6 m
010 = 1 m
020 = 2 m



Washdown Problems

- Cleaning chemicals can eat through standard materials
- High-pressure washdown can destroy components

Solution

- Survived ECOLAB tests
- Caustic resistant

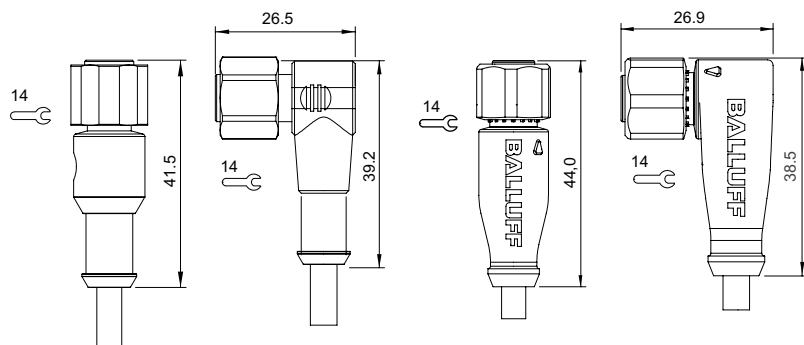


Solution

- Washdown rated
- Withstands high-pressure steam cleaning



Type	ECOLAB, Stainless	IP69K Rated, 1.4404 Stainless
Configuration	Stainless Nut, PUR Cable	Stainless Nut, PVC Cable
Operational Temperature	-25...80 °C	-5...105 °C (PVC)
Voltage Rating	60 V (M8 3-wire), 30 V (M8 4-wire), 250 V (M12)	60 V (M8 3-wire), 30 V (M8 4-wire), 250 V (M12)
Amperage	4 A	4 A
M8 Single-Ended		
M8 Female, 3-wire, Right Angle	BCC S323-0000-10-001-PX8334-__-C002	BCC S323-0000-10-001-VX43T2-__-__
M8 Female, 4-wire, Right Angle	BCC S324-0000-10-003-PX8434-__-C002	BCC S324-0000-10-003-VX44T2-__-__
M12 Single-Ended		
M12 Female, 4-wire, Straight	BCC S415-0000-10-003-PX8434-__-C002	BCC S415-0000-1A-003-__-__-__-__
M12 Female, 4-wire, Right Angle	BCC S425-0000-10-003-PX8434-__-C002	BCC S425-0000-1A-003-__-__-__-__
M12 Female, 5-wire, Straight	BCC S415-0000-10-017-PX8534-__-C002	
M12 Female, 5-wire, Right Angle	BCC S425-0000-10-017-PX8534-__-C002	
M12 Female, 5-wire, Straight, Braided Shield	BCC S415-0000-10-017-PS8534-__-C002	
M12 Female, 5-wire, Right Angle, Braided Shield	BCC S425-0000-10-017-PS8534-__-C002	
M12 Female, 8-wire, Straight, Braided Shield	BCC S418-0000-10-069-PS8834-__-C002	
M12 Double-Ended		
M12 Female Straight - M12 Male Straight, 4-wire	BCC S415-S414-3A-304-PX8434-__-C002	BCC S415-S414-3A-304-__-__-__-__
M12 Female Right Angle - M12 Male Straight, 4-wire	BCC S425-S414-3A-304-PX8434-__-C002	BCC S425-S414-3A-304-__-__-__-__
M12 Female Straight - M12 Male Right Angle, 4-wire		BCC S415-S424-3A-304-__-__-__-__
M12 Female Right Angle - M12 Male Right Angle, 4-wire		BCC S425-S424-3A-304-__-__-__-__



Standard Lengths Available:
100 = 10 m
200 = 20 m
250 = 25 m

Jacket Materials:
Yellow PVC = VX44T2
Grey PVC = VX8434
Black PUR = PX0434

Standard Lengths Available:
020 = 2 m
050 = 5 m
100 = 10 m

Temperature Problems

- Extreme swings in temperature ages materials prematurely
- Constant high temperatures can melt standard materials

Solution

- High temperature jacket
- Non-flammable, nonfraying



Solution

- Good for basic applications
- UV, ozone, and thermal shock resistant



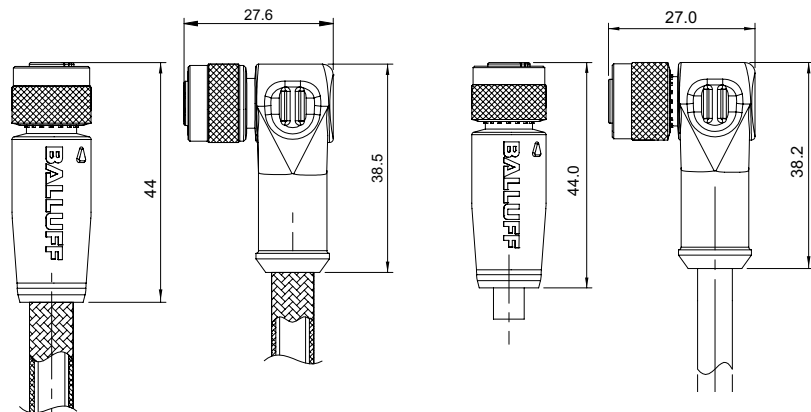
Type	Fiberglass Jacket Cable	Thermoplast
Jacket Temperature	-60...400 °C	
Operational Temperature Fixed	-50...80 °C	-50...130 °C
Operational Temperature Moving	-25...80 °C	-40...125 °C
Voltage Rating	250 V	250 V
Amperage	4 A	4 A
M12 Single-Ended		
M12 Female, 4-wire, Straight	BCC W415-0000-1A-003-FW9434-__	BCC W415-0000-1A-003-BW8434-__
M12 Female, 4-wire, Right Angle	BCC W425-0000-1A-003-FW9434-__	BCC W425-0000-1A-003-BW8434-__
M8 - M12 Double-Ended		
M8 Female Straight - M12 Male Straight, 3 wire	BCC W313-W413-3E-300-FW9334-__	BCC W313-W413-3E-300-BW8334-__
M12 Double-Ended		
M12 Female Straight - M12 Male Straight, 4 wire	BCC W415-W414-3A-304-FW9434-__	BCC W415-W414-3A-304-BW8434-__
M12 Female Right Angle - M12 Male Straight, 4 wire	BCC W425-W414-3A-304-FW9434-__	BCC W425-W414-3A-304-BW8434-__
M12 Splitters		
M12 Male Straight - 2 x M12 Female Straight	BCC W414-W415-W415-U2045-__	BCC W414-W415-W415-U2044-__
M12 Male Straight - 2 x M12 Female Right Angle	BCC W414-W425-W425-U2045-__	BCC W414-W425-W425-U2044-__

Note: More versions available

Single-ended
Standard Lengths Available:
006 = 0.6 m
010 = 1 m
020 = 2 m

Double-ended
Standard Lengths Available:
003 = 0.3 m
006 = 0.6 m
010 = 1 m
015 = 1.5 m
020 = 2 m

Splitter
Standard Lengths Available:
003 = 0.3 m
006 = 0.6 m



Weld Slag Problems

- Hot weld sparks burn, melt and destroy cable and connector
- Buildup of damage over time can cause shorts and failures

Solution

- Abrasion and mechanical resistant
- Thermal shock resistant



Solution

- Sealed tube, resistant to ingress
- Slag resistance on nut



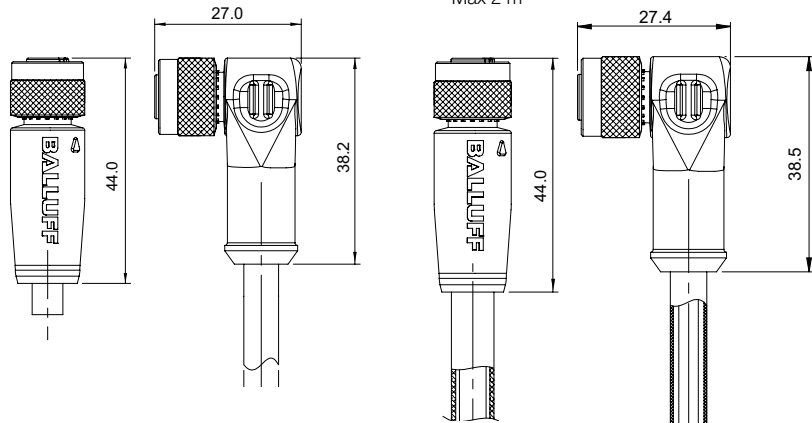
Type	Silicone Cable	Molded silicone tube	
Jacket Temperature		-60...180 °C	
Operational Temperature Fixed	-40...200 °C	-50...80 °C	
Operational Temperature Moving	-25...200 °C	-25...80 °C	
Voltage Rating	250 V	250 V	
Amperage	4 A	4 A	
M12 Single-Ended			
M12 Female, 4-wire, Straight	BCC W415-0000-1A-003-SW0434-__	BCC W415-0000-1A-003-NW0434-__	
M12 Female, 4-wire, Right Angle	BCC W425-0000-1A-003-SW0434-__	BCC W425-0000-1A-003-NW0434-__	
M8 Double-Ended			
M8 Female Straight - M8 Male Straight, 4 wire	BCC W314-W314-30-304-SW0434-__		
M8 Female Straight - M12 Male Straight, 3 wire	BCC W313-W413-3E-300-SW0334-__		
M8 Female Straight - M12 Male Straight, 4 wire	BCC W314-W414-3E-304-SW0434-__		
M12 Double-Ended			
M12 Female Straight - M12 Male Straight, 4 wire	BCC W415-W414-3A-304-SW0434-__	BCC W415-W414-3A-304-NW0434-__	
M12 Female Right Angle - M12 Male Straight, 4 wire	BCC W425-W415-3A-304-SW0434-__	BCC W425-W414-3A-304-NW0434-__	
M12 Splitters			
M12 Male Straight - 2 x M12 Female Straight	BCC W414-W415-W415-U2046-__		
M12 Male Straight - 2 x M12 Female, Right Angle	BCC W414-W425-W425-U2046-__		

Double-ended
Standard Lengths Available:
003 = 0.3 m
006 = 0.6 m
010 = 1 m
015 = 1.5 m
020 = 2 m
050 = 5 m

Single-ended
Standard Lengths Available:
003 = 0.3 m
006 = 0.6 m
010 = 1 m
015 = 1.5 m
020 = 2 m
050 = 5 m

Splitter
Standard Lengths Available:
003 = 0.3 m
006 = 0.6 m

Note: M8 versions not possible
Max 2 m



Solution

- Low friction, high temperature
- Resistant to caustic agents



PTFE	
-65...200 °C	
-65...200 °C	
250 V	
4 A	
BCC W415-0000-1A-003-TW0434-__	
BCC W425-0000-1A-003-TW0434-__	
	BCC M314-M314-30-304-EX44T2-__-C008
BCC W313-W413-3E-300-TW0334-__	BCC M313-M413-3E-300-EX43T2-__-C008
	BCC M314-M414-3E-304-EX44T2-__-C008
BCC W415-W414-3A-304-TW0434-__	BCC M415-M414-3A-304-EX44T2-030-C008
BCC W425-W414-3A-304-TW0434-__	BCC M425-M414-3A-304-EX44T2-030-C008
BCC W414-W415-W415-U2048-__	BCC M414-M415-M415-U2002-__-C008
BCC W414-W425-W425-U2048-__	

Solution

- M8 and 3 meter versions
- Protection over the overmold



Extended silicone Tube	
-60...260 °C	
-50...105 °C	
-40...105 °C	
125 V	
4 A	
BCC M314-M314-30-304-EX44T2-__-C008	
BCC M313-M413-3E-300-EX43T2-__-C008	
BCC M314-M414-3E-304-EX44T2-__-C008	
BCC M415-M414-3A-304-EX44T2-030-C008	
BCC M425-M414-3A-304-EX44T2-030-C008	
BCC M414-M415-M415-U2002-__-C008	

Solution

- Repair damaged cables
- Strengthen vulnerable areas



WeldRepel® Silicone Wrap

BAM0183	1" wide x 12 ft Clear wrap
BAM0182	2" wide x 36 ft Clear wrap

Solution

- Protect wider areas from damage
- Protect manifolds, I/O and terminations



WeldRepel® Silicone Area Protection

BAM0179	3 ft x custom length in ft
BAM017A	3 ft x 3 ft sheet

Solution

- Protect hydraulic and pneumatic lines
- Protect standard sensor cables

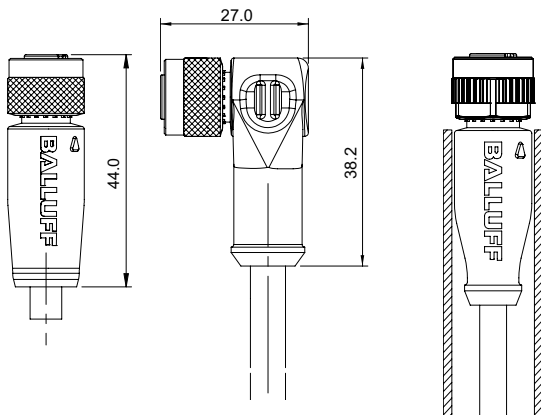



WeldRepel® Silicone Jacket

		M8	M12
BAM017E	Clear tubing, 1/4" dia. x 50 ft (15 m)		
BAM017H	Clear tubing, 3/8" dia. x 50 ft (15 m)	SE*	
BAM017L	Clear tubing, 1/2" dia. x 50 ft (15 m)	DE**	SE*
BAM017N	Clear tubing, 5/8" dia. x 50 ft (15 m)		DE**
BAM017R	Clear tubing, 3/4" dia. x 50 ft (15 m)		
BAM017U	Clear tubing, 1.5" dia. x 25 ft (7.5 m)		
BAM017Z	Clear tubing, 2" dia. x 25 ft (7.5 m)		

* Recommended for single-ended cables

** Recommended for double-ended cables




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