# Connecting cables

**FESTO**

## Cable properties

The cable properties indicate the resistance of the connecting cable to the mechanical load.

There are four qualities:
- For static applications
- Standard
- Suitable for energy chains
- Suitable for robot applications

The connecting cables NEBB are simple lines with a PVC cable sheath.

Connecting cables NEBB match the cable properties for static applications.

## Cable properties for static applications
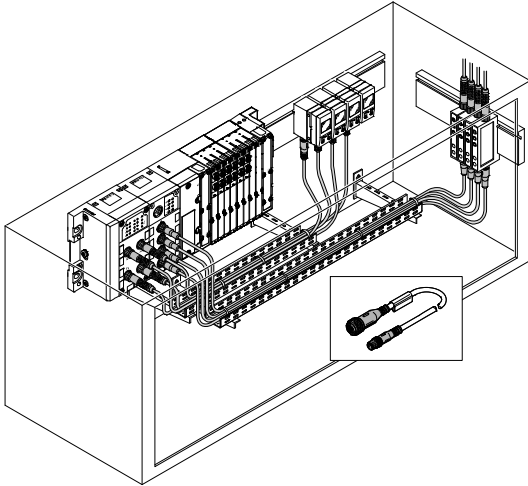


Static applications are characterised by fixed cable installation with no mechanical loads.
The connecting cable is not constantly moving (kinked or twisted).
The cable sheath for the connecting cables is usually made of PVC.

## Connection technology version

The version of the plug connectors on the connecting cable (e.g. angled or straight) can be selected.

# Connecting cables

Product range overview

| Function | Version | Type | Connection technology (Electrical connection 2) | Cable properties | Length | → Page/ Internet |
|---|---|---|---|---|---|---|
| **Electrical connecting cable** | **Electrical connection 1 socket M8** | | | | | |
| | 3-pin | NEBB-M8G3 NEBB-M8W3 | Open cable end | For static applications | 2.5 m 5 m 10 m | 5 |
| | 4-pin | NEBB-M8G4 NEBB-M8W4 | Open cable end | For static applications | 2.5 m 5 m 10 m | 8 |
| | | | | | | |
| | **Electrical connection 1 socket M12** | | | | | |
| | 5-pin | NEBB-M12G5 NEBB-M12W5 | Open cable end | For static applications | 2.5 m 5 m 10 m | 11 |

# Connecting cables

Type codes

NEBB – □□□ – P – □ – LE □

**Function**

| NEBB | Connecting cable |
|------|------------------|

**Connection technology, on the left**

| M8 | Socket with connecting thread M8 |
|-----|----------------------------------|
| M12 | Socket with connecting thread M12 |

**Connection technology version, on the left**

| G | Straight |
|---|----------|
| W | Angled |

**Number of pins/wires (on the left)**

| 3 | 3-pin |
|---|-------|
| 4 | 4-pin |
| 5 | 5-pin |

**Cable properties**

| P | Basic |
|---|-------|

**Cable length**

| 2.5 | 2.5 m |
|-----|-------|
| 5 | 5 m |
| 10 | 10 m |

**Connection technology, on the right**

| LE | Open cable end |
|----|----------------|

**Number of pins/wires (on the right)**

| 3 | 3-wire |
|---|--------|
| 4 | 4-wire |
| 5 | 5-wire |

→ Internet: www.festo.com/catalogue/... Subject to change – 2019/01

# Connecting cables M8x1, 3-pin

Technical data

**FESTO**

**Connecting cable
NEBB-M8**

- Connecting cable for connecting sensors and actuators
- Pre-assembled
- Cable lengths: 2.5 m, 5 m and 10 m
- 3 wires
- M8

| General technical data | |
|---|---|
| Conforms to | Wire colours and connection numbers to EN 60947-5-2 |
| | EN 61076-2-104 |
| Cable identification | With inscription label holder |
| Degree of protection | IP65, IP68, IP69K |
| Note on degree of protection | In mounted state |

| Technical data – Electrical connection 1 | |
|---|---|
| Function | Field device side |
| Design | Round |
| Connection type | Socket |
| Cable outlet | Straight, angled |
| Connection technology | M8x1, A-coded to EN 61076-2-104 |
| Number of pins/wires | 3 |
| Assigned pins/wires | 3 |
| Type of mounting | Screw lock with A/F9 |

| Technical data – Electrical | | |
|---|---|---|
| Operating voltage range | [V DC] | 0 … 60 |
| | [V AC] | 0 … 60 |
| Surge resistance | [kV] | 1.5 |
| Current rating at 40 °C | [A] | 4 |

| Technical data – Cables | | |
|---|---|---|
| Cable properties | | For static applications |
| Cable test conditions | | Test conditions on request |
| Bending radius, fixed cable installation | [mm] | ≥12 |
| Cable diameter | [mm] | 3.8 |
| Cable design | [mm$^2$] | 3 x 0.25 |
| Nominal conductor cross section | [mm$^2$] | 0.25 |

| Technical data – Electrical connection 2 | |
|---|---|
| Function | Controller side |
| Connection type | Cable |
| Connection technology | Open end |
| Number of pins/wires | 3 |
| Assigned pins/wires | 3 |
| Wire ends | Sheath removed, cut off bluntly |

# Connecting cables M8x1, 3-pin

Technical data

**Materials**

| Housing | TPE-U(PU) |
|---|---|
| Housing colour | Black |
| Cable sheath | PVC |
| Cable sheath colour | Grey |
| Insulating sheath | PVC |
| Screw lock | Nickel-plated brass |
| Seals | NBR |
| Pin contacts | Gold-plated copper base alloy |
| Note on materials | RoHS compliant |
| | Free of copper and PTFE |

**Operating and environmental conditions**

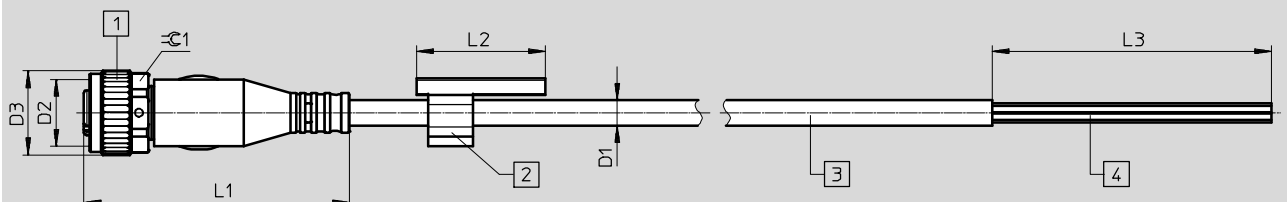| Ambient temperature [°C] | −25 … +70 |
|---|---|
| Corrosion resistance class CRC[1] | 2 |
| CE marking (see declaration of conformity)[2] | To EU Low Voltage Directive |
| Contamination level | 3 |

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
   Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.
2) Additional information www.festo.com/sp ➔ Certificates.

**Circuitry (socket view)**

| Electrical connection 1 | Pin | Wire colour[1] | Pin | Electrical connection 2 |
|---|---|---|---|---|
|  | 1 | BN | – | – |
| | 3 | BU | – | |
| | 4 | BK | – | |

1) To IEC 757

**Dimensions**  Download CAD data ➔ **www.festo.com**

Cable outlet straight



| 1 | Socket M8x1 | 3 | Cable, length 2.5 m, 5 m or 10 m depending on order | 4 | Wire ends cut off bluntly |
|---|---|---|---|---|---|
| 2 | Inscription label holder | | | | |

| Type | D1 ∅ | D2 | D3 ∅ | L1 | L2 | L3 | ⌇1 |
|---|---|---|---|---|---|---|---|
| NEBB-M8G3 | 3.8 | M8x1 | 10 | 34.6 | 23 | 50 | 9 |

# Connecting cables M8x1, 3-pin

Technical data
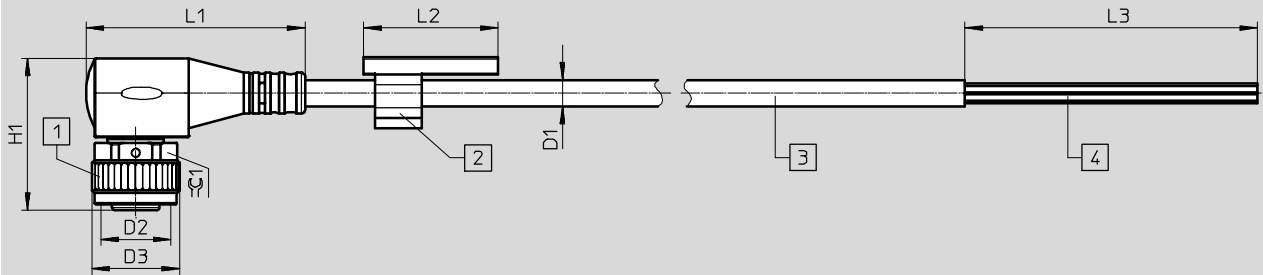
| Dimensions | Download CAD data → **www.festo.com** |
|---|---|
| Cable outlet angled | |



| | 1 | Socket M8x1 | 3 | Cable, length 2.5 m, 5 m or 10 m depending on order | 4 | Wire ends cut off bluntly |
| | 2 | Inscription label holder | | | | |

| Type | D1 ∅ | D2 | D3 ∅ | H1 | L1 | L2 | L3 | ⌒ 1 |
|---|---|---|---|---|---|---|---|---|
| NEBB-M8W3 | 3.8 | M8x1 | 10 | 17 | 26.9 | 23 | 50 | 9 |

## Ordering data

| | | Cable length [m] | Part No. | Type |
|---|---|---|---|---|
| **Open cable end, 3-wire** | | | | |
| | Cable outlet straight | 2.5 | **8066658** | **NEBB-M8G3-P-2.5-LE3** |
| | | 5 | **8066659** | **NEBB-M8G3-P-5-LE3** |
| | | 10 | **8066660** | **NEBB-M8G3-P-10-LE3** |
| | Cable outlet angled | 2.5 | **8066664** | **NEBB-M8W3-P-2.5-LE3** |
| | | 5 | **8066665** | **NEBB-M8W3-P-5-LE3** |
| | | 10 | **8066666** | **NEBB-M8W3-P-10-LE3** |

## Ordering data – Accessories

| Designation | | Part No. | Type |
|---|---|---|---|
| **Plug connectors** | | | |
| | Plug connectors for self-assembly | – | → Internet: necu |
| | | – | → Internet: sea |
| **Inscription labels** | | | |
| | Inscription labels 23 mm for inscription label holder, 34 pieces, in frames | 541598 | **ASLR-L-423** |

# Connecting cables M8x1, 4-pin

Technical data

FESTO

**Connecting cable**
**NEBB-M8**

- Connecting cable for connecting sensors and actuators
- Pre-assembled
- Cable lengths: 2.5 m, 5 m and 10 m
- 4 wires
- M8

| General technical data | |
|---|---|
| Conforms to | Wire colours and connection numbers to EN 60947-5-2 |
| | EN 61076-2-104 |
| Cable identification | With inscription label holder |
| Degree of protection | IP65, IP68, IP69K |
| Note on degree of protection | In mounted state |

| Technical data – Electrical connection 1 | |
|---|---|
| Function | Field device side |
| Design | Round |
| Connection type | Socket |
| Cable outlet | Straight, angled |
| Connection technology | M8x1, A-coded to EN 61076-2-104 |
| Number of pins/wires | 4 |
| Assigned pins/wires | 4 |
| Type of mounting | Screw lock with A/F9 |

| Technical data – Electrical | | |
|---|---|---|
| Operating voltage range | [V DC] | 0 … 30 |
| | [V AC] | 0 … 30 |
| Surge resistance | [kV] | 0.8 |
| Current rating at 40 °C | [A] | 4 |

| Technical data – Cables | | |
|---|---|---|
| Cable properties | | For static applications |
| Cable test conditions | | Test conditions on request |
| Bending radius, fixed cable installation | [mm] | ≥14 |
| Cable diameter | [mm] | 4.5 |
| Cable design | [mm$^2$] | 4 x 0.25 |
| Nominal conductor cross section | [mm$^2$] | 0.25 |

| Technical data – Electrical connection 2 | |
|---|---|
| Function | Controller side |
| Connection type | Cable |
| Connection technology | Open end |
| Number of pins/wires | 4 |
| Assigned pins/wires | 4 |
| Wire ends | Sheath removed, cut off bluntly |
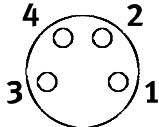
8    → Internet: www.festo.com/catalogue/...    Subject to change – 2019/01


# Connecting cables M8x1, 4-pin

Technical data

| Materials | |
|---|---|
| Housing | TPE-U(PU) |
| Housing colour | Black |
| Cable sheath | PVC |
| Cable sheath colour | Grey |
| Insulating sheath | PVC |
| Screw lock | Nickel-plated brass |
| Seals | NBR |
| Pin contacts | Gold-plated copper base alloy |
| Note on materials | RoHS compliant |
| | Free of copper and PTFE |

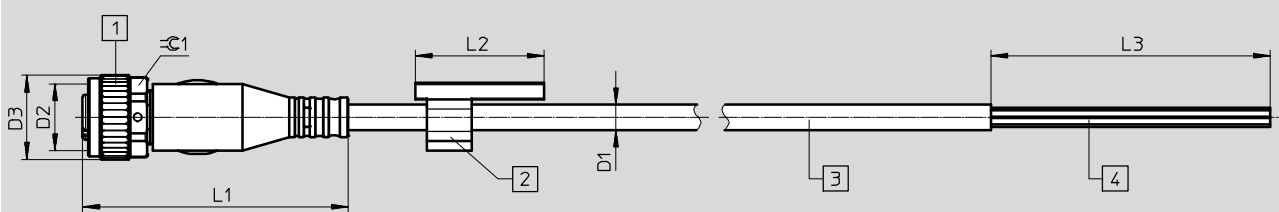| Operating and environmental conditions | | |
|---|---|---|
| Ambient temperature | [°C] | −25 … +70 |
| Corrosion resistance class CRC[1] | | 2 |
| Contamination level | | 3 |

[1] Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

| Circuitry (socket view) | | | | |
|---|---|---|---|---|
| Socket | Pin | Wire colour[1] | Pin | Plug connector |
| Electrical connection, socket, 4-pin, M8 – open cable end | | | | |
| | 1 | BN | – | |
| | 2 | WH | – | |
| | 3 | BU | – | – |
| | 4 | BK | – | |

[1] To IEC 757

| Dimensions | Download CAD data → **www.festo.com** |
|---|---|

Cable outlet straight



| 1 | Socket M8x1 | 3 | Cable, length 2.5 m, 5 m or | 4 | Wire ends cut off bluntly |
| 2 | Inscription label holder | | 10 m depending on order | | |

| Type | D1 ∅ | D2 | D3 ∅ | L1 | L2 | L3 | ⌇1 |
|---|---|---|---|---|---|---|---|
| NEBB-M8G4 | 4.5 | M8x1 | 10 | 34.6 | 23 | 50 | 9 |

# Connecting cables M8x1, 4-pin

Technical data

## Dimensions

Download CAD data ➔ **www.festo.com**

Cable outlet angled



| 1 | Socket M8x1 | 3 | Cable, length 2.5 m, 5 m or 10 m depending on order | 4 | Wire ends cut off bluntly |
|---|---|---|---|---|---|
| 2 | Inscription label holder | | | | |

| Type | D1 ⌀ | D2 | D3 ⌀ | H1 | L1 | L2 | L3 | ⌐C 1 |
|---|---|---|---|---|---|---|---|---|
| NEBB-M8W4 | 4.5 | M8x1 | 10 | 17 | 26.9 | 23 | 50 | 9 |

## Ordering data

| | | Cable length [m] | Part No. | Type |
|---|---|---|---|---|
| **Open cable end, 4-wire** | | | | |
| | Cable outlet straight | 2.5 | **8066661** | **NEBB-M8G4-P-2.5-LE4** |
| | | 5 | **8066662** | **NEBB-M8G4-P-5-LE4** |
| | | 10 | **8066663** | **NEBB-M8G4-P-10-LE4** |
| | Cable outlet angled | 2.5 | **8066667** | **NEBB-M8W4-P-2.5-LE4** |
| | | 5 | **8066668** | **NEBB-M8W4-P-5-LE4** |
| | | 10 | **8066669** | **NEBB-M8W4-P-10-LE4** |

## Ordering data – Accessories

| Designation | | Part No. | Type |
|---|---|---|---|
| **Plug connectors** | | | |
| | Plug connectors for self-assembly | – | ➔ Internet: necu |
| | | – | ➔ Internet: sea |
| | | | |
| **Inscription labels** | | | |
| | Inscription labels 23 mm for inscription label holder, 34 pieces, in frames | 541598 | **ASLR-L-423** |

# Connecting cables M12x1, 5-pin

Technical data

**Connecting cable
NEBB-M12**

- Connecting cable for connecting sensors and actuators
- Pre-assembled
- Cable lengths: 2.5 m, 5 m and 10 m
- 3, 4 or 5 wires
- M12x1, 5-pin
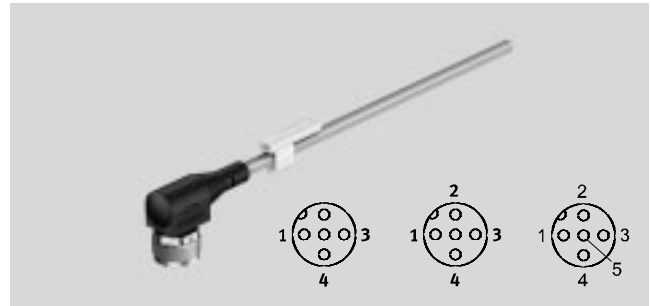


| General technical data | |
|---|---|
| Conforms to | Wire colours and connection numbers to EN 60947-5-2 |
| | EN 61076-2-101 |
| Cable identification | With inscription label holder |
| Degree of protection | IP65, IP68, IP69K |
| Note on degree of protection | In mounted state |

| Technical data – Electrical connection 1 | | | |
|---|---|---|---|
| Function | Field device side | | |
| Design | Round | | |
| Connection type | Socket | | |
| Cable outlet | Straight, angled | | |
| Connection technology | M12x1, A-coded, to EN 61076-2-101 | | |
| Number of pins/wires | 5 | | |
| Assigned pins/wires | 3 | 4 | 5 |
| Type of mounting | Screw lock with A/F13 | | |

| Technical data – Electrical | | | | |
|---|---|---|---|---|
| Assigned pins/wires | | 3 | 4 | 5 |
| Operating voltage range | [V DC] | 0 … 250 | 0 … 250 | 0 … 60 |
| | [V AC] | 0 … 250 | 0 … 250 | 0 … 60 |
| Surge resistance | [kV] | 2.5 | 2.5 | 1.5 |
| Current rating at 40 °C | [A] | 4 | 4 | 4 |

| Technical data – Cables | | | | |
|---|---|---|---|---|
| Assigned pins/wires | | 3 | 4 | 5 |
| Cable properties | | For static applications | | |
| Cable test conditions | | Test conditions on request | | |
| Bending radius, fixed cable installation | [mm] | ≥12 | ≥14 | ≥14 |
| Cable diameter | [mm] | 3.8 | 4.5 | 4.5 |
| Cable design | [mm$^2$] | 3 x 0.25 | 4 x 0.25 | 5 x 0.25 |
| Nominal conductor cross section | [mm$^2$] | 0.25 | 0.25 | 0.25 |

| Technical data – Electrical connection 2 | | | |
|---|---|---|---|
| Assigned pins/wires | 3 | 4 | 5 |
| Function | Controller side | | |
| Connection type | Cable | | |
| Connection technology | Open end | | |
| Number of pins/wires | 3 | 4 | 5 |
| Assigned pins/wires | 3 | 4 | 5 |
| Wire ends | Sheath removed, cut off bluntly | | |

# Connecting cables M12x1, 5-pin

Technical data

| Materials | |
|---|---|
| Housing | TPE-U(PU) |
| Housing colour | Black |
| Cable sheath | PVC |
| Cable sheath colour | Grey |
| Insulating sheath | PVC |
| Screw lock | Nickel-plated brass |
| Seals | NBR |
| Pin contacts | Gold-plated copper base alloy |
| Note on materials | RoHS compliant |
| | Free of copper and PTFE |

| Operating and environmental conditions | |
|---|---|
| Ambient temperature                [°C] | −25 … +70 |
| Corrosion resistance class CRC[1] | 2 |
| CE marking (see declaration of conformity)[2] | To EU Low Voltage Directive |
| Contamination level | 3 |

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
   Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmo-
   sphere typical for industrial applications.
2) Additional information www.festo.com/sp ➔ Certificates.

| Circuitry (socket view) | | | | |
|---|---|---|---|---|
| Electrical connection 1 | Pin | Wire colour[1] | Pin | Electrical connection 2 |
| Electrical connection 2: open cable end, 3-wire | | | | |
|  | 1 | BN | – | – |
| | 3 | BU | – | |
| | 4 | BK | – | |
| Electrical connection 2: open cable end, 4-wire | | | | |
|  | 1 | BN | – | – |
| | 2 | WH | – | |
| | 3 | BU | – | |
| | 4 | BK | – | |
| Electrical connection 2: open cable end, 5-wire | | | | |
|  | 1 | BN | – | – |
| | 2 | WH | – | |
| | 3 | BU | – | |
| | 4 | BK | – | |
| | 5 | GY | – | |

1) To IEC 757

# Connecting cables M12x1, 5-pin

Technical data

| **Dimensions** | | Download CAD data ➜ **www.festo.com** |
| --- | --- | --- |

**Cable outlet straight**
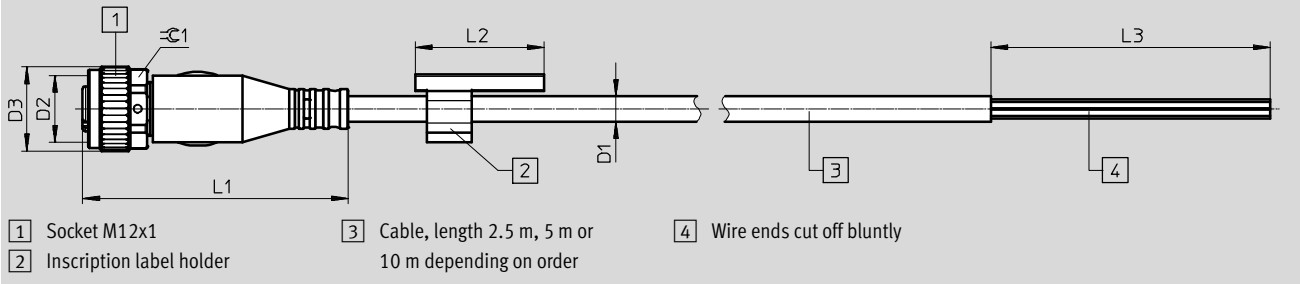


| | | |
| --- | --- | --- |
| 1 Socket M12x1 | 3 Cable, length 2.5 m, 5 m or | 4 Wire ends cut off bluntly |
| 2 Inscription label holder | 10 m depending on order | |

| Type | D1 ∅ | D2 | D3 ∅ | L1 | L2 | L3 | ⌐C 1 |
| --- | --- | --- | --- | --- | --- | --- | --- |
| NEBB-M12G5-…-LE3 | 3.8 | M12x1 | 15 | 47.5 | 23 | 50 | 13 |
| NEBB-M12G5-…-LE4 | 4.5 | M12x1 | 15 | 47.5 | 23 | 50 | 13 |
| NEBB-M12G5-…-LE5 | 4.5 | M12x1 | 15 | 47.5 | 23 | 50 | 13 |

**Cable outlet angled**
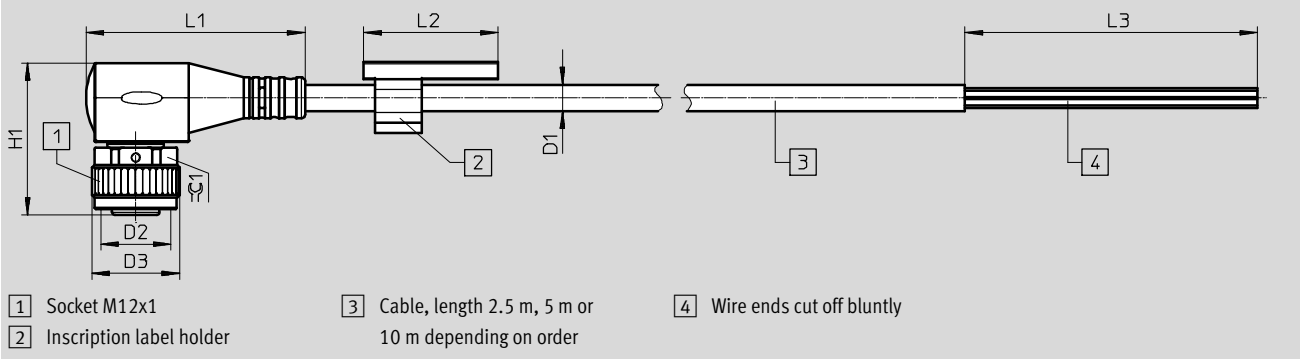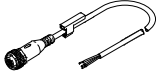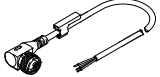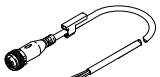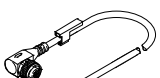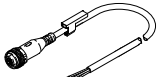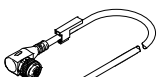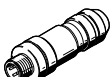


| | | |
| --- | --- | --- |
| 1 Socket M12x1 | 3 Cable, length 2.5 m, 5 m or | 4 Wire ends cut off bluntly |
| 2 Inscription label holder | 10 m depending on order | |

| Type | D1 ∅ | D2 | D3 ∅ | H1 | L1 | L2 | L3 | ⌐C 1 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NEBB-M12W5-…-LE3 | 3.8 | M12x1 | 15 | 26 | 37.5 | 23 | 50 | 13 |
| NEBB-M12W5-…-LE4 | 4.5 | M12x1 | 15 | 26 | 37.5 | 23 | 50 | 13 |
| NEBB-M12W5-…-LE5 | 4.5 | M12x1 | 15 | 26 | 37.5 | 23 | 50 | 13 |

# Connecting cables M12x1, 5-pin

**FESTO**

| Ordering data | | Cable length [m] | Part No. | Type |
|---|---|---|---|---|
| **Open cable end, 3-wire** | | | | |
|  | Cable outlet straight | 2.5 | **8066670** | **NEBB-M12G5-P-2.5-LE3** |
| | | 5 | **8066671** | **NEBB-M12G5-P-5-LE3** |
| | | 10 | **8066672** | **NEBB-M12G5-P-10-LE3** |
|  | Cable outlet angled | 2.5 | **8066679** | **NEBB-M12W5-P-2.5-LE3** |
| | | 5 | **8066680** | **NEBB-M12W5-P-5-LE3** |
| | | 10 | **8066681** | **NEBB-M12W5-P-10-LE3** |
| | | | | |
| **Open cable end, 4-wire** | | | | |
|  | Cable outlet straight | 2.5 | **8066673** | **NEBB-M12G5-P-2.5-LE4** |
| | | 5 | **8066674** | **NEBB-M12G5-P-5-LE4** |
| | | 10 | **8066675** | **NEBB-M12G5-P-10-LE4** |
|  | Cable outlet angled | 2.5 | **8066682** | **NEBB-M12W5-P-2.5-LE4** |
| | | 5 | **8066683** | **NEBB-M12W5-P-5-LE4** |
| | | 10 | **8066684** | **NEBB-M12W5-P-10-LE4** |
| | | | | |
| **Open cable end, 5-wire** | | | | |
|  | Cable outlet straight | 2.5 | **8066676** | **NEBB-M12G5-P-2.5-LE5** |
| | | 5 | **8066677** | **NEBB-M12G5-P-5-LE5** |
| | | 10 | **8066678** | **NEBB-M12G5-P-10-LE5** |
|  | Cable outlet angled | 2.5 | **8066685** | **NEBB-M12W5-P-2.5-LE5** |
| | | 5 | **8066686** | **NEBB-M12W5-P-5-LE5** |
| | | 10 | **8066687** | **NEBB-M12W5-P-10-LE5** |

| Ordering data – Accessories | | | |
|---|---|---|---|
| **Designation** | | Part No. | Type |
| **Plug connectors** | | | |
|  | Plug connectors for self-assembly | – | ➔ Internet: necu |
| | | – | ➔ Internet: sea |
| | | | |
| **Inscription labels** | | | |
|  | Inscription labels 23 mm for inscription label holder, 34 pieces, in frames | **541598** | **ASLR-L-423** |