PFISTERER

# 2DIREKT

Safe and simple cable connection
for transformers and busbars

www.pfisterer.com

# 2DIREKT

## Simple, safe, versatile

In modern substation engineering, cable connections are increasingly implemented using screw technology. The 2DIREKT terminal clamp by PFISTERER is a solution for connections to transformers and busbars. 2DIREKT combines simple installation with a compact, cost-effective design.

### Connects directly to transformer bushing or busbar

The 2DIREKT clamp is connected directly to the distribution transformer. It screws onto the transformer bushing and is secured via a clamping groove and clamping screw. This reduces the amount of installation work and the risk of connection errors. No cable lugs have to pressed on, and no wire-end ferrules have to be fitted. There are fewer points of contact and transition resistance is minimised.

The 2DIREKT A version allows cables to be connected directly to busbars. Fine grooves on the underside of the clamp enables connection without additional components directly on the busbar.

### One clamp for all cross-sections

The 2DIREKT clamp can be used for multiple cross-sections. Various versions are available for cross-sections of 16-95 mm², 35-240 mm² and 185-400 mm². All forms of class 1, 2 and 5 copper conductors as well as class 1 and 2 aluminium conductors can be connected.

This makes the 2DIREKT not only practical but also cost-effective. The right clamp is always available on site, and stockkeeping is much simpler.

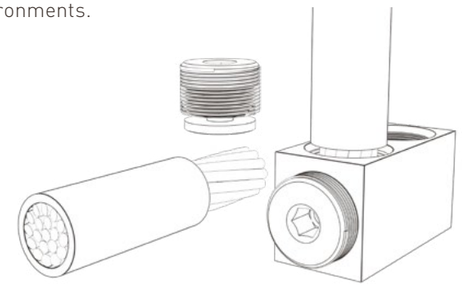
2DIREKT clamps are electrically type-tested in accordance with IEC 61238-1 class A.

### Safety during installation and operation

The patented conductor connection system eliminates damage to the conductor during installation. A rotating plate on the base of the clamping bolt prevents individual fine-wire conductors from being damaged or even cut off. During operation, the plate functions like a spring and ensures constant contact pressure.

### Compact, sophisticated design

2DIREKT offers two cable outlet directions in one body. The clamping channel and the threaded hole for the clamping screw are identical, so the conductor can be connected at a 90° angle if required. This ensures easy installation even in confined environments.



Product website

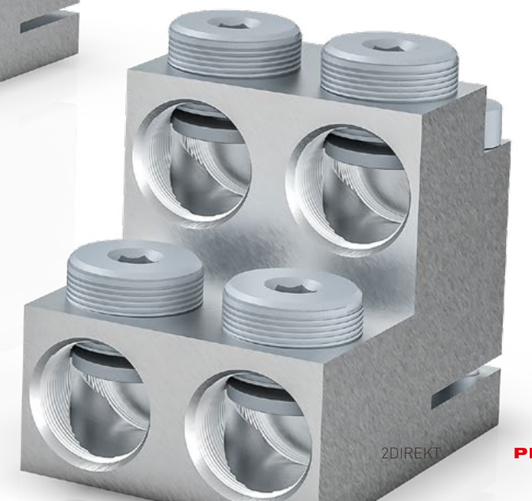
The 2DIREKT is connected directly to the distribution transformer, making palm terminals, cable lugs, sleeves and nuts redundant.

**Benefits**

- Conductors can be connected vertically and/or horizontally
- Connection without wire-end ferrule or cable lug
- Individual strands are not damaged
- Reduced space requirements
- Removable connection
- Installation with standard tools, no compression required
- Range-taking: fewer different types means simpler stockkeeping

**2DIREKT facts**

- Voltage: up to 1 kV
- Current: up to 4 kA
- Conductor class according to EN 60228: aluminium class 1 and 2, copper class 1, 2 and 5 (fine wire)
- Conductor cross-section: 16 to 400 mm²
- Transformerclamp for bushings per DIN EN 50386



# 2DIREKT

| Conductor cross-section [mm²]* | Bolt connection d [mm] | Dimensions l | w [mm] | h | Suitable covers Indoor use | Indoor & outdoor use | Article no. |
|---|---|---|---|---|---|---|---|
| **2DIREKT S** | | | | | | | |
| **Two-conductor clamp** | | | | | | | |
| 16 – 95 | M12 | 54 | 44 | 26 | – | – | 331 756 020 |
| 16 – 95 | M20 | 54 | 44 | 26 | – | – | 331 756 022 |
| **Two-conductor clamp** | | | | | | | |
| 16 – 95 | M8 | 68 | 24 | 57 | – | – | 331 756 004 |
| 16 – 95 | M12 | 68 | 24 | 57 | – | – | 331 756 001 |
| 16 – 95 | M16 | 68 | 24 | 57 | – | – | 331 756 002 |
| 16 – 95 | M20 | 68 | 24 | 57 | – | – | 331 756 003 |
| **Four-conductor clamp** | | | | | | | |
| 16 – 95 | M12 | 68 | 44 | 57 | – | – | 331 756 010 |
| 16 – 95 | M16 | 68 | 44 | 57 | – | – | 331 756 011 |
| 16 – 95 | M20 | 68 | 44 | 57 | – | – | 331 756 012 |
| **2DIREKT** | | | | | | | |
| **Single-conductor clamp** | | | | | | | |
| 35 – 240 | M12 | 64 | 30 | 34 | 331 345 001 | 331 345 002 | 331 745 001 |
| 35 – 240 | M16 | 64 | 30 | 34 | 331 345 001 | 331 345 002 | 331 745 003 |
| 35 – 240 | M20 | 64 | 30 | 34 | 331 345 001 | 331 345 002 | 331 745 002 |
| 35 – 240 | M12 | 64 | 30 | 34 | 331 345 001 | 331 345 002 | 331 745 012 |
| 35 – 240 | M16 | 64 | 30 | 34 | 331 345 001 | 331 345 002 | 331 745 011 |
| 35 – 240 | M20 | 64 | 30 | 34 | 331 345 001 | 331 345 002 | 331 745 010 |
| **Two-conductor clamp** | | | | | | | |
| 35 – 240 | M12 | 70 | 64 | 34 | 331 346 003 | 331 346 004 | 331 746 004 |
| 35 – 240 | M16 | 70 | 64 | 34 | 331 346 001 | 331 346 002 | 331 746 006 |
| 35 – 240 | M20 | 70 | 64 | 34 | 331 346 001 | 331 346 002 | 331 746 003 |
| 35 – 240 | M20 x 1,5 | 70 | 64 | 34 | 331 346 001 | 331 346 002 | 331 746 007 |
| 35 – 240 | M30 x 2 | 70 | 64 | 34 | 331 346 001 | 331 346 002 | 331 746 002 |
| 35 – 240 | M42 x 3 | 84 | 64 | 34 | 331 347 001 | 331 347 002 | 331 746 008 |
| 35 – 240 | M20 | 84 | 36 | 74 | 136 313 001 \| 136 313 002** | 136 313 001 | 331 748 203 |
| 35 – 240 | M12 | 84 | 36 | 74 | 136 313 001 \| 136 313 002** | 136 313 001 | 331 748 204 |
| 35 – 240 | M24 | 84 | 36 | 74 | 136 313 001 \| 136 313 002** | 136 313 001 | 331 748 202 |
| 35 – 240 | M30 x 2 | 84 | 36 | 74 | 136 313 001 \| 136 313 002** | 136 313 001 | 331 748 201 |
| **Four-conductor clamp** | | | | | | | |
| 35 – 240 | M12 | 84 | 64 | 74 | 331 347 003 | 331 347 004 | 331 747 005 |
| 35 – 240 | M20 | 84 | 64 | 74 | 331 347 001 | 331 347 002 | 331 747 004 |
| 35 – 240 | M30 x 2 | 84 | 64 | 74 | 331 347 001 | 331 347 002 | 331 747 001 |
| 35 – 240 | M33 x 3 | 84 | 64 | 74 | 331 347 001 | 331 347 002 | 331 747 007 |
| 35 – 240 | M42 x 3 | 84 | 64 | 74 | 331 347 001 | 331 347 002 | 331 747 002 |
| 35 – 240 | M48 x 3 | 84 | 64 | 74 | – | – | 331 747 003 |
| **Six-conductor clamp** | | | | | | | |
| 35 – 240 | M30 x 2 | 84 | 100 | 74 | 331 348 002 \| 614 556 004 | 331 348 002 \| 614 556 004 | 331 749 010 |
| 35 – 240 | M42 x 3 | 84 | 100 | 74 | 331 348 002 \| 614 556 004 | 331 348 002 \| 614 556 004 | 331 749 011 |
| 35 – 240 | M48 x 3 | 84 | 100 | 74 | 331 348 002 \| 614 556 004 | 331 348 002 \| 614 556 004 | 331 749 012 |
| **Eight-conductor clamp** | | | | | | | |
| 35 – 240 | M16 | 84 | 132 | 74 | 331 348 002 \| 614 556 002 | 331 348 002 \| 614 556 002 | 331 754 003 |
| 35 – 240 | M42 x 3 | 84 | 132 | 74 | 331 348 002 \| 614 556 002 | 331 348 002 \| 614 556 002 | 331 754 001 |
| 35 – 240 | M48 x 3 | 84 | 132 | 74 | 331 348 002 \| 614 556 002 | 331 348 002 \| 614 556 002 | 331 754 002 |
| **2DIREKT XL** | | | | | | | |
| **Two-conductor clamp** | | | | | | | |
| 185 – 400 | M20 | 118 | 50 | 112 | - | - | 331 752 221 |
| **Four-conductor clamp** | | | | | | | |
| 185 - 400 | M30 x 2 | 118 | 89 | 112 | 331 348 002 \| 614 556 003 | 331 348 002 \| 614 556 003 | 331 752 001 |
| 185 – 400 | M42 x 3 | 118 | 89 | 112 | 331 348 002 \| 614 556 003 | 331 348 002 \| 614 556 003 | 331 752 002 |
| 185 – 400 | M48 x 3 | 118 | 89 | 112 | 331 348 002 \| 614 556 003 | 331 348 002 \| 614 556 003 | 331 752 003 |
| **Six-conductor clamp** | | | | | | | |
| 185 – 400 | M42 x 3 | 118 | 127 | 112 | 331 348 002 | 331 348 002 | 331 753 001 |
| 185 – 400 | M48 x 3 | 118 | 127 | 112 | 331 348 002 | 331 348 002 | 331 753 002 |
| 185 – 400 | M55 x 3 | 118 | 127 | 112 | - | - | 331 753 003 |

* Aluminium conductors class 1 and 2, copper conductors class 1, 2 and 5 (fine wire)
** 136313001 only horizontal, 136313002 only vertical cable outlet possible

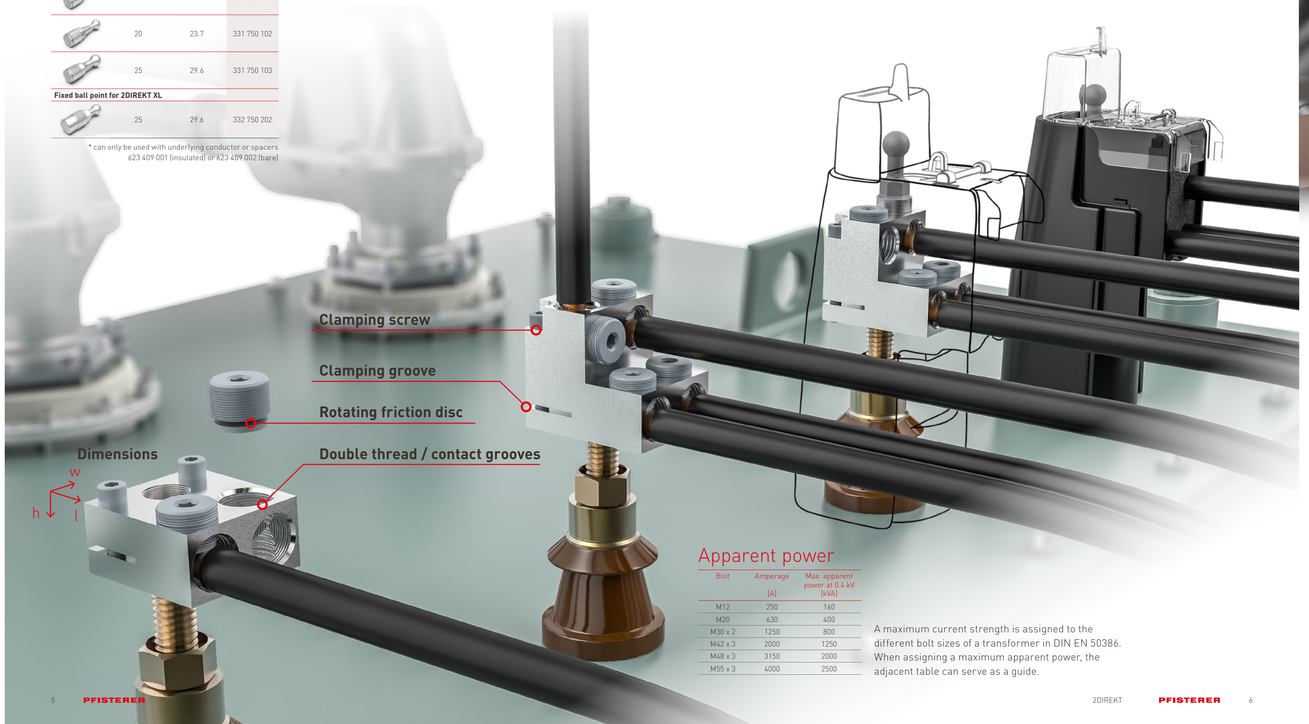


## Fixed ball points

| | Fixed ball point diameter [mm] | Max. short-circuit current I_k [kA] | Article no. |
|---|---|---|---|
| **Fixed ball point with pressure screw for 2DIREKT** | | | |
| | 20 | 23.7 | 331 750 100* |
| | 25 | 29.6 | 331 750 101* |
| | 20 | 23.7 | 331 750 102 |
| | 25 | 29.6 | 331 750 103 |
| **Fixed ball point for 2DIREKT XL** | | | |
| | 25 | 29.6 | 332 750 202 |

* can only be used with underlying conductor or spacers 623 409 001 (insulated) or 623 409 002 (bare)

PFISTERER offers fixed ball points for 2DIREKT and 2DIREKT XL suitable for connecting earthing and short-circuiting devices. Fixed ball points with pressure screw can be used both in a free conductor channel on the 2DIREKT and to secure a conductor. Fixed ball points without pressure screw can only be used in free clamping channels.






## Covers with testing option

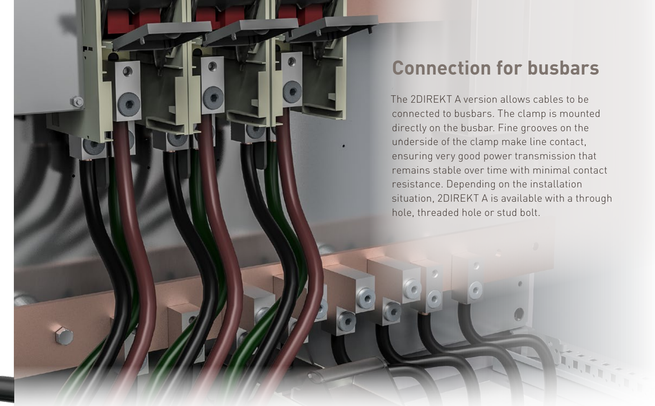
Specially designed covers ensure comprehensive personal safety and operational reliability. They are available for indoor and outdoor applications. They make the connection touch-safe, keep out dirt, and protect the connection from weathering. All versions meet the requirements of protection class IP2X. The cover for indoor use has a flip-back top for connecting earthing and short-circuiting devices.

## Apparent power

| Bolt | Amperage [A] | Max. apparent power at 0.4 kV [kVA] |
|---|---|---|
| M12 | 250 | 160 |
| M20 | 630 | 400 |
| M30 x 2 | 1250 | 800 |
| M42 x 3 | 2000 | 1250 |
| M48 x 3 | 3150 | 2000 |
| M55 x 3 | 4000 | 2500 |

A maximum current strength is assigned to the different bolt sizes of a transformer in DIN EN 50386. When assigning a maximum apparent power, the adjacent table can serve as a guide.





## Connection for busbars

The 2DIREKT A version allows cables to be connected to busbars. The clamp is mounted directly on the busbar. Fine grooves on the underside of the clamp make line contact, ensuring very good power transmission that remains stable over time with minimal contact resistance. Depending on the installation situation, 2DIREKT A is available with a through hole, threaded hole or stud bolt.

# 2DIREKT A

| Conductor cross-section [mm²]* | Conductor channel bore [mm] | Connection Type | Size d | Dimensions l | w [mm] | h | Assembly Tool | Tightening torque [Nm] | Article no. |
|---|---|---|---|---|---|---|---|---|---|
| **2DIREKT A** | | | | | | | | | |
| **Single-conductor clamp** | | | | | | | | | |
| 35 – 240 | Ø 24.4 | Drilling | Ø11 mm | 64 | 30 | 34 | SW8 | 55 | 331 745 004 |
| 35 – 240 | Ø 24.4 | Drilling | Ø13.5 mm | 64 | 30 | 34 | SW8 | 55 | 331 745 005 |
| 35 – 240 | Ø 24.4 | Drilling | M10 | 64 | 30 | 34 | SW8 | 55 | 331 745 006 |
| **Two-conductor clamp** | | | | | | | | | |
| 35 – 240 | Ø 24.4 | Drilling / Thread | Ø17.5 mm / 2*M10 | 70 | 64 | 34 | SW8 | 55 | 331 748 002 |
| **Two-conductor clamp (L-shaped)** | | | | | | | | | |
| 35 – 240 | Ø 24.4 | Thread | M16 | 84 | 30 | 74 | SW8 | 55 | 331 748 100 |
| 35 – 240 | Ø 24.4 | Stud | M16 | 84 | 30 | 74 | SW8 | 55 | 331 748 101 |
| 35 – 240 | Ø 24.4 | Thread | M12 | 84 | 30 | 74 | SW8 | 55 | 331 748 102 |
| 35 – 240 | Ø 24.4 | Stud | M12 | 84 | 30 | 74 | SW8 | 55 | 331 748 103 |
| **Four-conductor clamp** | | | | | | | | | |
| 35 – 240 | Ø 24.4 | Stud | M16 | 84 | 64 | 74 | SW8 | 55 | 331 747 401 |
| **2DIREKT A XL** | | | | | | | | | |
| **Two-conductor clamp (L-shaped)** | | | | | | | | | |
| 185 - 400 | Ø 33.4 | Thread | M16 | 118 | 44 | 112 | SW8 | 80 | 331 752 210 |

*Aluminium conductors class 1 and 2, copper conductors class 1, 2 and 5 (fine wire)

PFISTERER

PFISTERER Holding AG

Rosenstraße 44
73650 Winterbach
Deutschland
Tel.: +49 7181 7005 0
Fax: +49 7181 7005 565
info@pfisterer.com
www.pfisterer.com


In 1921, Karl Pfisterer founded his factory in Stuttgart for special electrical products with the aim of improving the world of power transmission. The PFISTERER Group has pursued this goal of quality and technological leadership for more than 100 years. Today, PFISTERER is one of the world's leading specialists and system suppliers for energy infrastructure – with a complete range of cable accessories, overhead line technology and components along the entire transmission chain from power generation to consumption. With state-of-the-art manufacturing processes and 1,200 employees at 18 international locations, PFISTERER not only connects the power grids of today and tomorrow, but also makes an important contribution to a sustainable and secure energy supply.