

CATALOGUE



**FTTx
PASSIVE COMPONENTS FOR
TELECOMS APPLICATIONS**



WORLDWIDE NETWORK TO RESPOND AND ACT QUICKLY

Established in 1964, the Camozzi Group is the leading Italian multinational enterprise, producing components and systems for industrial automation. It also operates in various other sectors, from advanced machine tools to textile machines, to the processing of raw materials. The vision of the group is global with all product development being driven by customer requirements and international standards. Product certification for each target market is at the forefront of our minds throughout every stage of development. All levels of assistance and technical support are designed to be efficient and fast across a network which is spread throughout the world.



| | | | | |
|--|--|--|-----------------------------------|---------------------------------|
| 5 DIVISIONS | | 11 COMPANIES | | |
| Automation Division | Camozi Automation Solutions for Industrial automation | Camozi Technopolymers Plastic materials moulding | | |
| Machine Tools Division | Innse-Berardi Machine tools with hydrostatic technology and mechanical engineering | Ingersoll Advanced machine tools with mechanical technology, 3D printing and composites | | |
| Textile Engineering Division | Marzoli Advanced engineering for textile machines | | | |
| Manufacturing Division | Fonderie Mora Gavardo Cast iron, aluminium foundry and mechanical processing | Camozi Advanced Manufacturing Specialised machining and 3D moulding of composite materials | Newton Metal processing | Compres Brass forging |
| Digital & Mechatronics Division | Camozi Digital & Mechatronics Digital innovation and IIoT solutions | | | |



Research activities for continuous innovation in all divisions

FTTx METAL-FREE STRAIGHT PUSH-IN CONNECTORS, REDUCING CONNECTORS AND ENDSTOP CONNECTORS



The increasing demand for high data volumes and short latencies all over the world is driving the continuous expansion of passive infrastructure for telecommunications, to bring glass fibre to consumers. The main requirements for infrastructure components are quality and reliability, which will ensure a long service life. Camozzi's experience goes back more than 50 years and represents continuous innovation and success in many industry sectors. It provides a guarantee for customers of the FTTx Business Unit, which specialises in the production of passive technology components for telecommunications.

Camozzi's wide range of connectors and fittings along with its production expertise has enabled the development of a high-quality range of connectors, that meets all CEI EN50411-2-8 requirements. These connectors are distinguished by their long life and ease of use.



- Full plastic design (metal-free)
- Transparent body
- Easy "push-in" connection
- Suitable for use in Direct Buried (DB) applications

SECTORS



FTTx Network Infrastructure



Fibre to the Antenna



Indoor fibre connections



FTTx MICRODUCT CONNECTORS

External diameters: 3, 4, 5, 7, 8, 8.5, 10, 12, 12.7, 14, 16, 18, 20 mm;
Versions: Standard, Direct Buried (DB), Reducing, Endstop

These connectors were developed to connect microducts with each other. Our system enables an easy, fast connection and disconnection of the microduct.

The connectors are made in accordance with Standard CEI EN 50411-2-8. In addition, uniformity of production is ensured by TÜV Süd*, the externally recognised quality assurance programme. Besides

production uniformity, TÜV Süd* also tests the tightness, any pressure drop during tests, the tensile strength of the microduct as well as the (cyclic) temperature change, waterproofness and resistance to stress cracking solvents. Further, the connectors are subjected to visual inspection and a salt spray test.

*pending for V4000 PLUS

FTTx MICRODUCT CONNECTORS

Series V4000



The robust construction of the V4000 Series connectors features IP68 protection against water ingress protection and resistance to high-pressure forces, making them suitable for direct buried (DB) applications. The connectors feature a transparent body made of polyamide, allowing for easy visual inspection of the cable within. The straight push-in and endstop connectors have a fully plastic design, utilising non-conductive parts only and are also free from metal components.

Series V4000 PLUS



The Series V4000 PLUS is designed with a new transparent body made of polycarbonate to improve thermal stability of the connector and to provide outstanding impact resistance. With its easy connection and disconnection capability, robust and compact design as well as the rugged materials used in its construction, the Series V4000 PLUS easy PUSH-IN connectors are ideal for the most challenging environments in STD Direct (DI) or Direct Buried (DB) applications for telecommunication network deployment.

- Increased impact resistance (DB version) > 15 Joules
- Improved body transparency
- Improved temperature stability

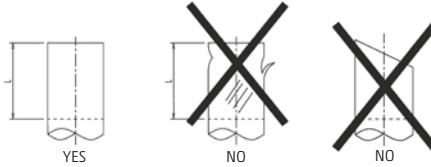
| GENERAL DATA | SERIES V4000 | SERIES V4000 PLUS | OPERATING SCHEME |
|---------------------------|--|------------------------|------------------|
| Materials | 1 = body Polyamide | 1 = body Polycarbonate | |
| | 2 = seal NBR 3 = washer Polyacetal 4 = collet Polyacetal 5 = safety clip Polyacetal | | |
| Operating pressure | 20 bar used for blowing system | | |
| Operating temperature | from -20 to 50°C | from -20 to 70°C | |
| Fluid | Compressed air with blowing system | | |
| Microduct to connect | Polyethylene HDPE | | |
| Microduct outer diameters | 3, 4, 5, 7, 8, 8.5, 10, 12, 12.7, 14, 16, 18, 20 mm | | |
| Estimated life | 25 years | | |
| Standards | CEI EN 50411-2-8 Rohs CEI EN 61386-24 | | |
| Patent | Connectors patent | | |
| Protection class | IP68 | | |

| | |
|-------------------------------|---|
| DIRECT BURIED (DB) USE | CV4580-V4580 - CV4581-V4581 - CV4582-V4582 - CV4750-V4750 models can be used in direct buried installation. We don't recommend the burying of thin microduct which can fail in DB conditions while the connector will perform correctly |
| WARNING | Not to be used in sealed closures without an over pressure safety system |
| CONFLICT OF SUBSTANCES | No liquids may be introduced into the infrastructure except for water-based lubricants specifically designed for optical fibers and compatible with polycarbonate |
| STORAGE CONDITIONS | Store in a dry environment, in the absence of dirt and dust, away from direct sunlight and heat sources |

Installation guidelines

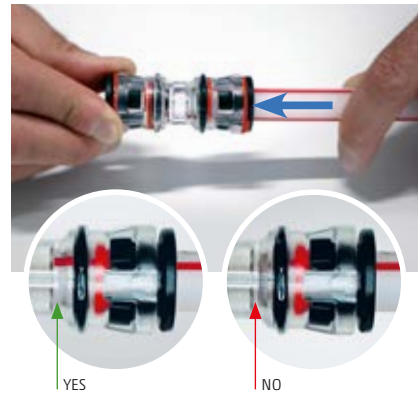
1. Preparing the microduct to be connected

Take the microduct to be connected, clean it, check its dimension and ovality. The microduct should be clean and free from burrs, cuts, scratches or any other damage before it is inserted into the connector. To ensure a proper connection the microduct should have a round profile. Microducts with oval profiles should not be used. Cut the microduct (recommended cut with Camozzi tube cutters Mod. PNZ-25 or Mod. PNZP-12) at an angle of $90^\circ (\pm 3^\circ)$ and remove any burrs due to the cut by trimming the edges of the microduct with a bevel tool.



2. Installing the connector

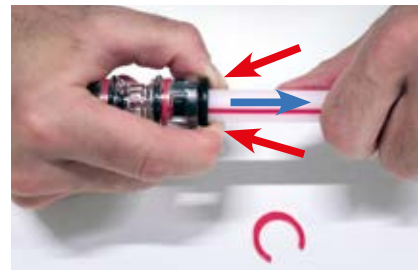
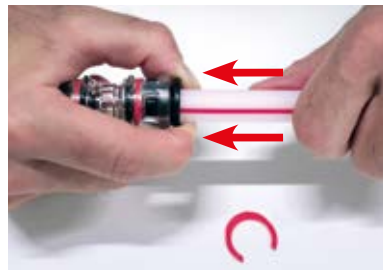
With the microduct properly prepared, insert the push-fit connector (removal of safety clip is not required) up to the internal register which indicates the correct position for the microduct in the connector.



3. Releasing the connector

Make sure the system is depressurised before removing the microduct from the connector. If present, remove the safety clip and press the collet towards the inside of the connector. The connector can be pulled along the installation axis. When pulling, avoid twisting and rotating the connector around the microduct as this could damage the design of the collets and render the connector unusable.

If the connector was released by twisting and rotating don't use the same connector for new installations or reinstallation. Using the correct procedure, the connector can be released and installed up to 5 times. For interventions after years of installation, during which time maintenance and / or disconnection of the microduct from the connectors has occurred, we recommend the use of a Protection cap Mod. 4708.



4. Position of the connector in the infrastructure

Straight connectors CV4580-V4580 CV4581-V4581 and Reducing Straight connectors CV4582-V4582 are designed to work parallel to the axis of installation of the connected microducts. For this reason, it is necessary to allow at least 200 mm overlap of the microduct on each side of the connector.

5. Reinstalling the connector

To reinstall the connector on the infrastructure please refer to point 1 and point 4. Cutting the used ends of the microduct may be necessary and is certainly advisable.

6. Direct Buried (DB) installation

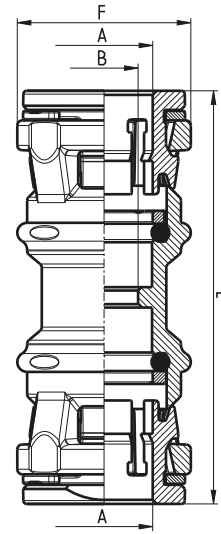
Although the Series V4000 can be direct buried we recommend a protective cap is placed on the connector before the microduct is inserted, especially in very challenging environmental conditions. The protective cap prevents waste, soil, stones or sand from entering the connector during disconnection.



Serie V4000

Straight connector Mod. CV4580

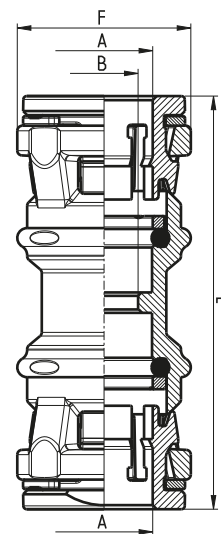
Standard connector for DI (Direct Installation)
sizes of microduct
Compatible for eventual DB (Direct Buried) use



| DIMENSIONS | | | | | | |
|----------------|------|-----|------|------|------------|------------------|
| Mod. | A | B | F | L | Weight (g) | Package (pieces) |
| CV4580 3/2,1 | 3 | 2.1 | 10 | 30 | 2 | 100 |
| CV4580 4/2,1 | 4 | 2.1 | 10 | 30 | 2 | 100 |
| CV4580 4/2,5 | 4 | 2.5 | 10 | 30 | 2 | 100 |
| CV4580 5/3,5 | 5 | 3.5 | 12.5 | 39 | 4 | 100 |
| CV4580 7/5,5 | 7 | 5.5 | 16.5 | 41.5 | 6.5 | 100 |
| CV4580 8/6 | 8 | 6 | 17.5 | 43 | 7 | 100 |
| CV4580 8,5/6 | 8.5 | 6 | 17.5 | 43 | 7 | 100 |
| CV4580 10/8 | 10 | 8 | 20.5 | 48 | 9 | 100 |
| CV4580 12/10 | 12 | 10 | 23 | 52 | 12 | 100 |
| CV4580 12,7/10 | 12.7 | 10 | 23 | 52 | 12 | 100 |
| CV4580 14/12 | 14 | 12 | 25.5 | 59 | 16 | 100 |
| CV4580 18/15 | 18 | 15 | 33.5 | 77 | 37 | 50 |

Straight connector Mod. CV4581

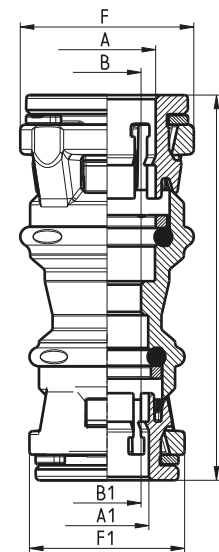
Connector for DB (Direct Buried)
sizes of microduct



| DIMENSIONS | | | | | | |
|---------------|----|-----|------|------|------------|------------------|
| Mod. | A | B | F | L | Weight (g) | Package (pieces) |
| CV4581 7/3,5 | 7 | 3.5 | 16.5 | 41.5 | 6.5 | 100 |
| CV4581 7/4 | 7 | 4 | 16.5 | 41.5 | 6.5 | 100 |
| CV4581 8/4 | 8 | 4 | 17.5 | 43 | 7.5 | 100 |
| CV4581 8/4,5 | 8 | 4.5 | 17.5 | 43 | 7.5 | 100 |
| CV4581 8/5 | 8 | 5 | 17.5 | 43 | 7.5 | 100 |
| CV4581 10/5,5 | 10 | 5.5 | 20.5 | 48 | 10 | 100 |
| CV4581 10/6 | 10 | 6 | 20.5 | 48 | 10 | 100 |
| CV4581 10/7 | 10 | 7 | 20.5 | 48 | 10 | 100 |
| CV4581 12/8 | 12 | 8 | 23 | 52 | 12 | 100 |
| CV4581 14/10 | 14 | 10 | 25.5 | 59 | 16 | 100 |
| CV4581 16/10 | 16 | 10 | 30 | 66 | 26 | 50 |
| CV4581 16/12 | 16 | 12 | 30 | 66 | 26 | 50 |
| CV4581 16/13 | 16 | 13 | 30 | 66 | 26 | 50 |
| CV4581 18/12 | 18 | 12 | 33.5 | 77 | 37 | 50 |
| CV4581 18/14 | 18 | 14 | 33.5 | 77 | 37 | 50 |
| CV4581 20/15 | 20 | 15 | 37.5 | 81.5 | 45 | 50 |
| CV4581 20/16 | 20 | 16 | 37.5 | 81.5 | 45 | 50 |

Reducing straight connector Mod. CV4582

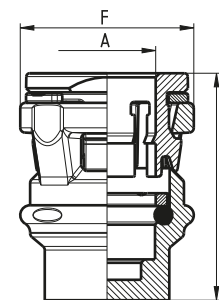
Reducing connector for DI (Direct Installation)
and DB (Direct Buried) different sizes of microduct
Compatible for DB (Direct Buried) use



| DIMENSIONS | | | | | | | | | |
|--------------------|----|----|-----|-----|------|------|------|------------|------------------|
| Mod. | A | A1 | B | B1 | F | F1 | L | Weight (g) | Package (pieces) |
| CV4582 5/3,5-3/2,1 | 5 | 3 | 3.5 | 2.1 | 16.5 | 10 | 35 | 4 | 100 |
| CV4582 7/4-4/2,1 | 7 | 4 | 4 | 2.1 | 16.5 | 12.5 | 40 | 4.5 | 100 |
| CV4582 7-5/3,5 | 7 | 5 | 3.5 | 3.5 | 16.5 | 12.5 | 40 | 4.5 | 100 |
| CV4582 7/4-5/3,5 | 7 | 5 | 4 | 3.5 | 16.5 | 12.5 | 40 | 4.5 | 100 |
| CV4582 10/5,5-7/4 | 10 | 7 | 5.5 | 4 | 20.5 | 16.5 | 44.5 | 6 | 100 |
| CV4582 10-7/5,5 | 10 | 7 | 5.5 | 5.5 | 20.5 | 16.5 | 44.5 | 6 | 100 |
| CV4582 10/5,5-8/5 | 10 | 8 | 5.5 | 5 | 20.5 | 17.5 | 45.5 | 5 | 100 |
| CV4582 10/6-7/4 | 10 | 7 | 6 | 4 | 20.5 | 16.5 | 44.5 | 6 | 100 |
| CV4582 10/8-7/4 | 10 | 7 | 8 | 4 | 20.5 | 16.5 | 44.5 | 6 | 100 |
| CV4582 12-10/8 | 12 | 10 | 8 | 8 | 23 | 20.5 | 50 | 10 | 100 |
| CV4582 14-12/10 | 14 | 12 | 10 | 10 | 25.5 | 23 | 55.5 | 14 | 100 |
| CV4582 16/12-14/10 | 16 | 14 | 12 | 10 | 30 | 25.5 | 55.5 | 15 | 50 |
| CV4582 20/15-14/10 | 20 | 14 | 15 | 10 | 37.5 | 25.5 | 74 | 25 | 50 |
| CV4582 20/16-14/10 | 20 | 14 | 16 | 10 | 37.5 | 25.5 | 74 | 25 | 50 |

Endstop connector Mod. CV4750

Endstop connector for DI (Direct Installation)
and DB (Direct Buried) sizes of microduct
Compatible for DB (Direct Buried) use



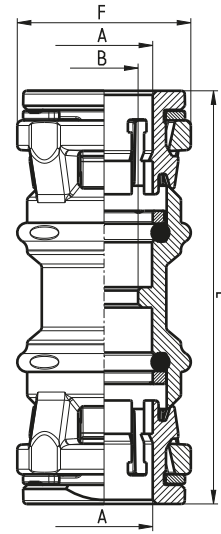
| DIMENSIONS | | | | | |
|------------|----|------|------|------------|------------------|
| Mod. | A | F | L | Weight (g) | Package (pieces) |
| CV4750 3 | 3 | 10 | 16.5 | 1.5 | 100 |
| CV4750 4 | 4 | 10 | 16.5 | 1.5 | 100 |
| CV4750 5 | 5 | 12.5 | 21.5 | 2.5 | 100 |
| CV4750 7 | 7 | 16.5 | 22.5 | 3.5 | 100 |
| CV4750 8 | 8 | 17.5 | 23.5 | 3.5 | 100 |
| CV4750 10 | 10 | 20.5 | 26 | 5 | 100 |
| CV4750 12 | 12 | 23 | 28 | 7 | 100 |
| CV4750 14 | 14 | 25.5 | 32.5 | 9 | 100 |
| CV4750 16 | 16 | 30 | 36 | 13.5 | 50 |
| CV4750 18 | 18 | 33.5 | 42 | 19 | 50 |
| CV4750 20 | 20 | 37.5 | 45.5 | 25 | 50 |

Serie V4000 PLUS

■ Straight connector Mod. CV4580 PLUS



Standard connector for DI (Direct Installation)
sizes of microduct
Compatible for eventual DB (Direct Buried) use

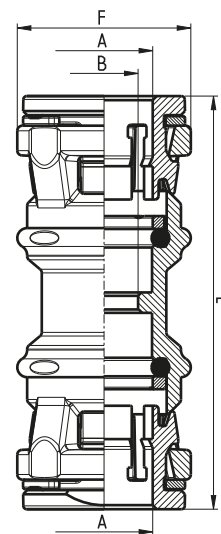


| DIMENSIONS | | | | | | |
|---------------------|------|-----|------|----|------------|------------------|
| Mod. | A | B | F | L | Weight (g) | Package (pieces) |
| CV4580 PLUS 3/2,1 | 3 | 2.1 | 10 | 30 | 2 | 100 |
| CV4580 PLUS 4/2,1 | 4 | 2.1 | 10 | 30 | 2 | 100 |
| CV4580 PLUS 5/3,5 | 5 | 3.5 | 12.5 | 39 | 4 | 100 |
| CV4580 PLUS 8/6 | 8 | 6 | 17.5 | 43 | 7 | 100 |
| CV4580 PLUS 8,5/6 | 8.5 | 6 | 17.5 | 43 | 7 | 100 |
| CV4580 PLUS 10/8 | 10 | 8 | 20.5 | 48 | 9 | 100 |
| CV4580 PLUS 12/10 | 12 | 10 | 23 | 52 | 12 | 100 |
| CV4580 PLUS 12,7/10 | 12.7 | 10 | 23 | 52 | 12 | 100 |
| CV4580 PLUS 14/12 | 14 | 12 | 25.5 | 59 | 16 | 100 |

■ Straight connector Mod. CV4581 PLUS



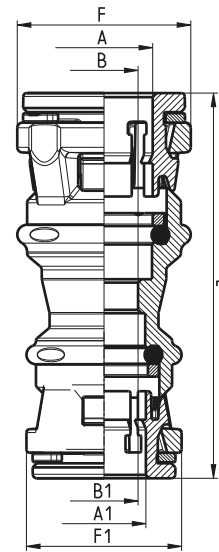
Connector for DB (Direct Buried)
sizes of microduct



| DIMENSIONS | | | | | | |
|-------------------|----|-----|------|------|------------|------------------|
| Mod. | A | B | F | L | Weight (g) | Package (pieces) |
| CV4581 PLUS 7/3,5 | 7 | 3.5 | 16.5 | 41.5 | 6.5 | 100 |
| CV4581 PLUS 7/4 | 7 | 4 | 16.5 | 41.5 | 6.5 | 100 |
| CV4581 PLUS 8/4 | 8 | 4 | 17.5 | 43 | 7.5 | 100 |
| CV4581 PLUS 8/5 | 8 | 5 | 17.5 | 43 | 7.5 | 100 |
| CV4581 PLUS 10/6 | 10 | 6 | 20.5 | 48 | 10 | 100 |
| CV4581 PLUS 10/7 | 10 | 7 | 20.5 | 48 | 10 | 100 |
| CV4581 PLUS 12/8 | 12 | 8 | 23 | 52 | 12 | 100 |
| CV4581 PLUS 14/10 | 14 | 10 | 25.5 | 59 | 16 | 100 |
| CV4581 PLUS 16/10 | 16 | 10 | 30 | 66 | 26 | 50 |
| CV4581 PLUS 16/12 | 16 | 12 | 30 | 66 | 26 | 50 |
| CV4581 PLUS 16/13 | 16 | 13 | 30 | 66 | 26 | 50 |
| CV4581 PLUS 18/12 | 18 | 12 | 33.5 | 77 | 37 | 50 |
| CV4581 PLUS 18/14 | 18 | 14 | 33.5 | 77 | 37 | 50 |
| CV4581 PLUS 20/15 | 20 | 15 | 37.5 | 81.5 | 45 | 50 |
| CV4581 PLUS 20/16 | 20 | 16 | 37.5 | 81.5 | 45 | 50 |

Reducing straight connector Mod. CV4582 PLUS

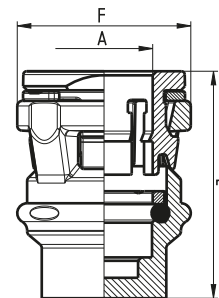
Reducing connector for DI (Direct Installation)
and DB (Direct Buried) different sizes of microduct
Compatible for DB (Direct Buried) use



| DIMENSIONS | | | | | | | | | | |
|-------------------------|----|----|-----|-----|------|------|------|------------|------------------|--|
| Mod. | A | A1 | B | B1 | F | F1 | L | Weight (g) | Package (pieces) | |
| CV4582 PLUS 5/3,5-3/2,1 | 5 | 3 | 3,5 | 2,1 | 16,5 | 10 | 35 | 4 | 100 | |
| CV4582 PLUS 7/4-4/2,1 | 7 | 4 | 4 | 2,1 | 16,5 | 10 | 57 | 4 | 100 | |
| CV4582 PLUS 7-5/3,5 | 7 | 5 | 3,5 | 3,5 | 16,5 | 12,5 | 40 | 4,5 | 100 | |
| CV4582 PLUS 7/4-5/3,5 | 7 | 5 | 4 | 3,5 | 16,5 | 12,5 | 40 | 4,5 | 100 | |
| CV4582 PLUS 10/6-7/4 | 10 | 7 | 6 | 4 | 20,5 | 16,5 | 44,5 | 6 | 100 | |
| CV4582 PLUS 10-7/5,5 | 10 | 7 | 5,5 | 5,5 | 20,5 | 16,5 | 44,5 | 6 | 100 | |
| CV4582 PLUS 10/6-7/4 | 10 | 7 | 6 | 4 | 20,5 | 16,5 | 44,5 | 6 | 100 | |
| CV4582 PLUS 12-10/8 | 12 | 10 | 8 | 8 | 23 | 20,5 | 50 | 10 | 100 | |
| CV4582 PLUS 14-12/10 | 14 | 12 | 10 | 10 | 25,5 | 23 | 55,5 | 14 | 100 | |
| CV4582 PLUS 16/12-14/10 | 16 | 14 | 12 | 10 | 30 | 25,5 | 55,5 | 15 | 50 | |
| CV4582 PLUS 20/15-14/10 | 20 | 14 | 15 | 10 | 37,5 | 25,5 | 74 | 25 | 50 | |
| CV4582 PLUS 20/16-14/10 | 20 | 14 | 16 | 10 | 37,5 | 25,5 | 74 | 25 | 50 | |

Endstop connector Mod. CV4750 PLUS

Endstop connector for DI (Direct Installation)
and DB (Direct Buried) sizes of microduct
Compatible for DB (Direct Buried) use



| DIMENSIONS | | | | | |
|------------------|------|------|------|------------|------------------|
| Mod. | A | F | L | Weight (g) | Package (pieces) |
| CV4750 PLUS 3 | 3 | 10 | 16,5 | 1,5 | 100 |
| CV4750 PLUS 4 | 4 | 10 | 16,5 | 1,5 | 100 |
| CV4750 PLUS 5 | 5 | 12,5 | 21,5 | 2,5 | 100 |
| CV4750 PLUS 7 | 7 | 16,5 | 22,5 | 3,5 | 100 |
| CV4750 PLUS 8 | 8 | 17,5 | 23,5 | 3,5 | 100 |
| CV4750 PLUS 8,5 | 8,5 | 17,5 | 23,5 | 3,5 | 100 |
| CV4750 PLUS 10 | 10 | 20,5 | 26 | 5 | 100 |
| CV4750 PLUS 12 | 12 | 23 | 28 | 7 | 100 |
| CV4750 PLUS 12,7 | 12,7 | 23 | 28 | 7 | 100 |
| CV4750 PLUS 14 | 14 | 25,5 | 32,5 | 9 | 100 |
| CV4750 PLUS 16 | 16 | 30 | 36 | 13,5 | 50 |
| CV4750 PLUS 18 | 18 | 33,5 | 42 | 19 | 50 |
| CV4750 PLUS 20 | 20 | 37,5 | 45,5 | 25 | 50 |

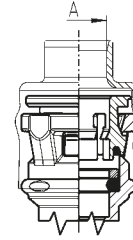
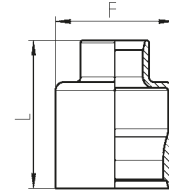
Accessories

Series V4000 - protection cap Mod. 4708



The PROTECTION CAP (Mod. 4708) for Direct Buried (DB) applications is inserted on the connector to protect it from water and waste (soil, stones, sand, etc.)

Material: thermoplastic rubber
Colour: black



| DIMENSIONS | | | | | |
|------------|----|------|------|------------|------------------|
| Mod. | A | F | L | Weight (g) | Package (pieces) |
| 4708 5 | 5 | 14.5 | 23.5 | 1.5 | 25 |
| 4708 7 | 7 | 18 | 25 | 2 | 25 |
| 4708 8 | 8 | 19 | 25.5 | 2 | 25 |
| 4708 10 | 10 | 21.5 | 28 | 3 | 25 |
| 4708 12 | 12 | 24 | 29.5 | 4 | 25 |
| 4708 14 | 14 | 26.6 | 33.2 | 5 | 25 |
| 4708 15 | 15 | 28.4 | 34 | 5 | 25 |
| 4708 16 | 16 | 31 | 37 | 6 | 25 |

SERIES V4000

Tube cutter Mod. PNZ



| CHARACTERISTICS | | |
|-----------------|-------------------------------------|------------------|
| Mod. | | Package (pieces) |
| PNZ-12 | for tubes \varnothing up to 12 mm | 1 |
| PNZ-25 | for tubes \varnothing up to 25 mm | 1 |

Microducts cutter Mod. PNZP



| CHARACTERISTICS | | |
|-----------------|-------------------------------------|------------------|
| Mod. | | Package (pieces) |
| PNZP-12 | for tubes \varnothing up to 12 mm | 1 |

COMMITTED TO A FUTURE OF INNOVATION AND SUSTAINABILITY

For almost **60 years** we have been working daily to contribute to the progress and development of advanced technological solutions that not only meet the needs of our customers, but also for society as a whole.

For Camozzi, sustainability is both **a natural consequence of innovation**, which stands as a tool to be used for the benefit of the environment and people, and as a **driver of further innovative development**.

We undertake to promote production that is increasingly **responsible towards the planet and people, focusing on the:**

- **Development of new biocompatible materials**
- **Up-cycling of process waste**
- **Exploitation and enhancement of wasted energy**



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