ELITEX GMBH

Video Installation

Size 750/1500mm DuctShell

Installation Instruction

Application

To improve and secure the joint of micro ducts and micro duct bundles the DuctShell® was developed. For connection of micro duct at a joint, usually used connectors have a tensile force to keep ducts in place and tight. Since the micro ducts in a joint have different lengths, the entire tensile load will appear on the shortest ones if the whole micro duct bundle would be lifted or moved. Those shortest micro duct will slide out of the connector. The DuctShell® has a strain relief fort the micro duct bundles which keeps extra load away from connectors and thus prevent micro ducts from sliding out of the connectors. Due to high compressive strength of the DuctShell®, it also protects micro ducts and connectors from mechanical stress applied by stones or rocks after back fill. The connectors are evenly distributed within the DuctShell® by integrated recesses inside of shell. Also the whole joint of micro ducts keeps straight and ensure max range of cable jet in.

Important instructions

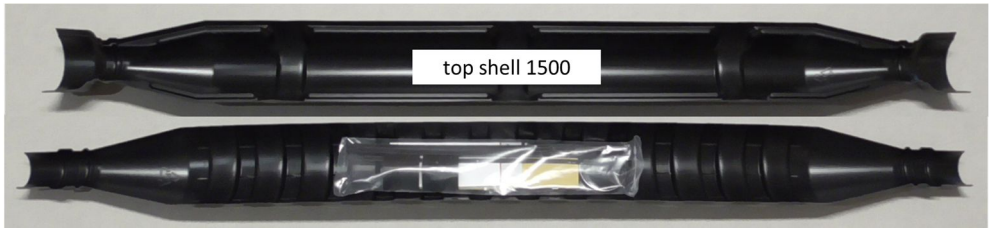
For a correct installation of a DuctShell, it is mandatory that a proper training in connecting of micro ducts with connectors has taken place.

- Before starting installation, check if the end of the micro duct is clean of any kind of dirt pollution and lubricants. Also check carefully inside of micro duct on such contamination to avoid application problems later.

- The end of a micro duct need a straight, vertical, clean cut with a tool recommended by duct manufacture.

Scope of delivery

4 piece cable ties, (5 piece for size 1500mm)
2 piece rubber stripe self-adhesive,
2 piece clamp shell
2 piece hose clamp
Installation instruction



DuctShell consisting of top and bottom shell.

Technical Data:

Attribute	Value
Application	installation in soil class 1-5, lifetime ≥ 20 years
Temperature range	Operating: -40°C to +60°C Installation: +5°C to +35°C
Compressive strength	> 250 kg installed DuctShell applied over whole length
Tensile force	2000N installed strain relief
Protection class	Protection against solid objects over 1mm according to IP40, Protection against mechanical impact IK09 (5kg/20cm 10J)
Size	∅ inside 110mm, ∅ outside 130mm, length 750/1500mm
Weight	750mm 0,9kg, 1500mm 1,8kg
Material DuctShell	Top and bottom shell made from PP (Polypropylene) (colure black) UV- and weather resistant
Material sealing	Rubber stripe self-adhesive CR rubber (Chloroprene)
Material accessory	Cable tie PA 6.6 (Polyamide), length 45cm (colure black) Hose clamp W4 stainless steel V2A Clamp shell made from PUR rigid foam (colure black)
Recycling	All materials are recyclable
Order No. 750mm	01-005-09 A
1500mm	01-001-09 A

Tolerances shall apply for micro ducts according to DIN EN 50411-6-1 und DIN EN 60794-5-ff
Listed values apply for properly installed product according to installation instruction

Tool for micro duct bundles

For safe opening of the outer jacket from micro duct bundle, this jacket/sheet stripper with safety blade is available. The shape of the safety blade enable cutting into the jacket of a continuous bundle without access to an open end. The skate at bottom side of the blade avoid cutting into micro ducts. The safety blade can cut front and backwards and can be rotated during cutting for radial cuts. Thus, you can cut a window in the sheath of a continuous micro duct bundle. Due to the particular shape of the safety blade risk of injury for installer will minimize. The tool is suitable for tight and loose coatings of micro duct bundles.

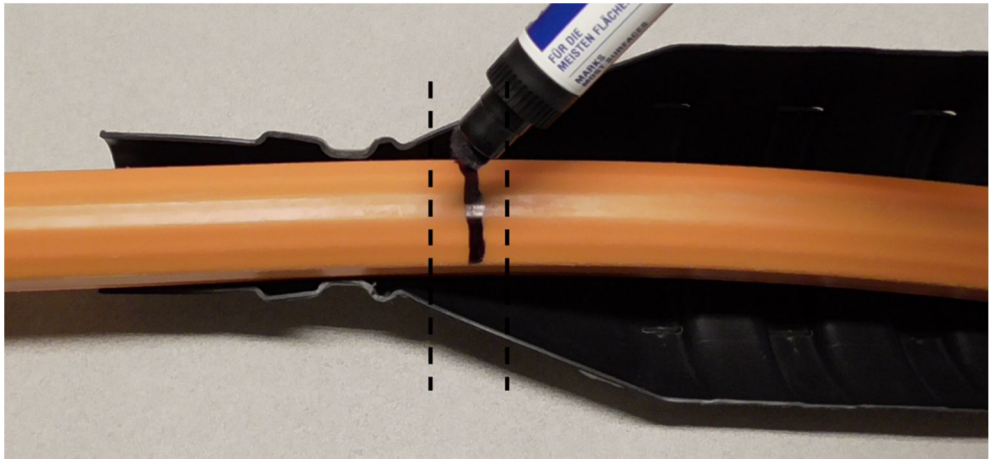
Item	Order No
Safety jacket stripper	01-010-05 A
Spare blade	01-013-01 A

For installation following tools are necessary:
Jacket stripper, side cutter, 7mm socket with ratchet, micro duct cutter

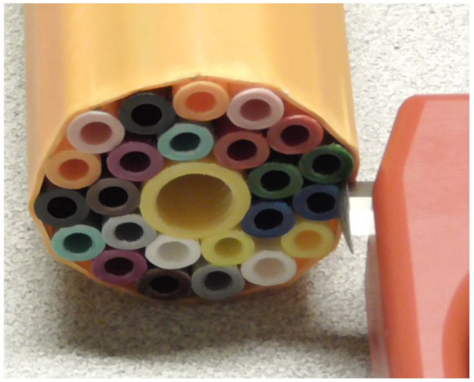
1. Installation DuctShell 750 und 1500 with strain relief

Capacity of DuctShell and indication of micro duct and bundle see tables from page 7 on.

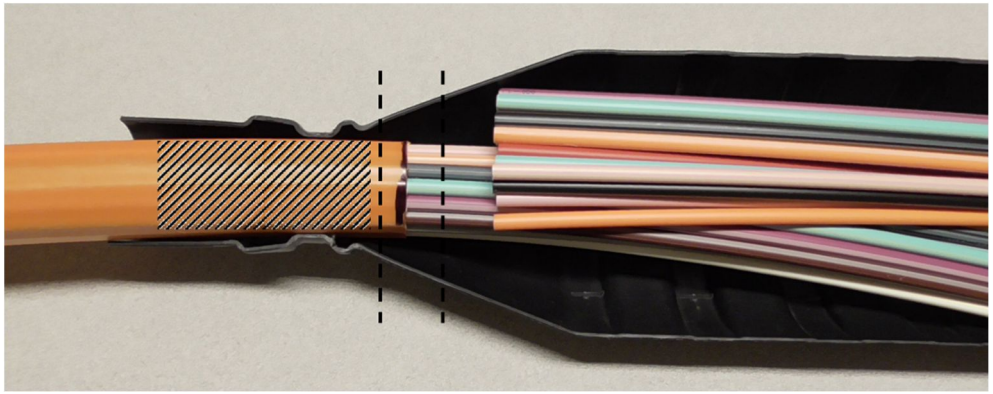
1.1 The micro duct bundles must overlap at least over the inner space of DuctShell. Just in this case a graded distribution of connectors over the inner space of DuctShell takes place



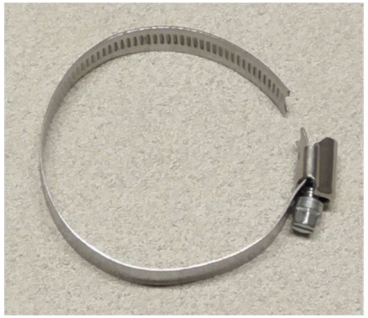
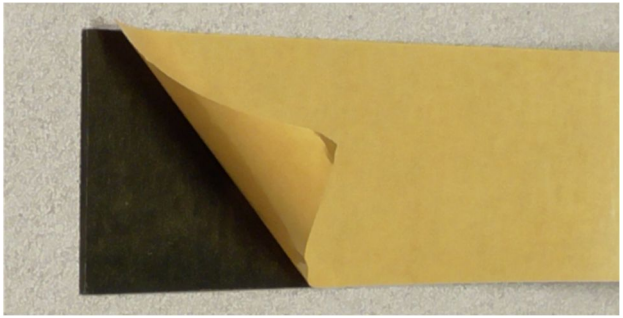
1.2 Insert duct bundles into bottom shell and mark both sides with a permanent marker at indicated position. Duct bundles have to be clean from dirt inside DuctShell.



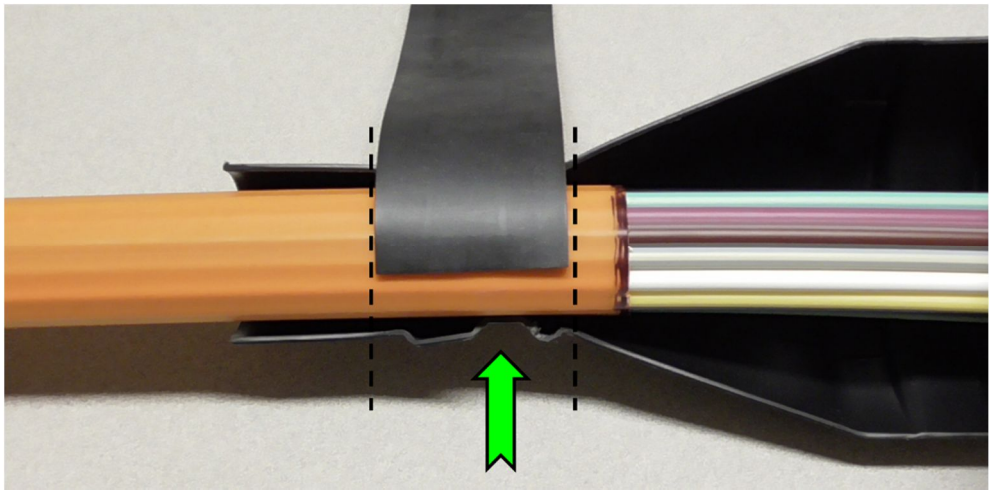
1.3 Dismantle duct bundle from jacket/sheet up to marked position. Use for this operation a tool recommended by duct manufacture. If no special tool is required, the safety jacket stripper from Elitex is recommended.



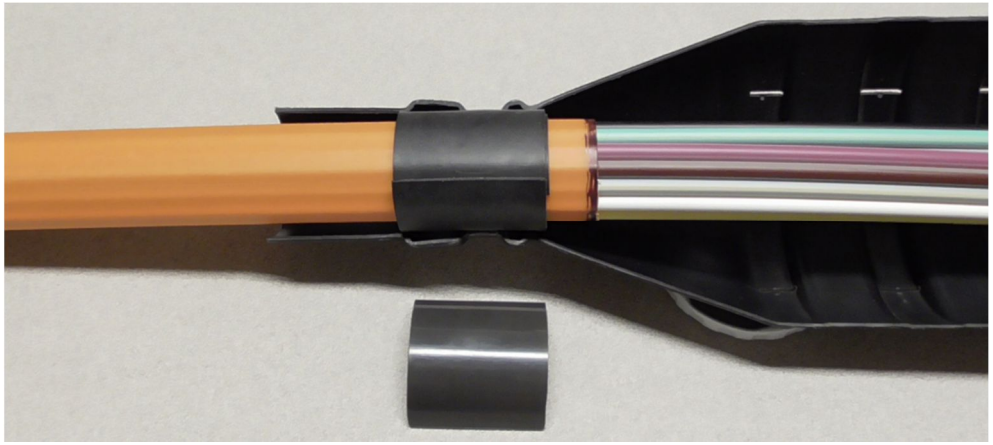
1.4 Insert duct bundle back into bottom shell. Edge of duct bundle jacket must be in tapered area of bottom shell, which means between indicated lines.
Jacket of bundle has to be clean from dirt and lubricant in hatched area of strain relief.

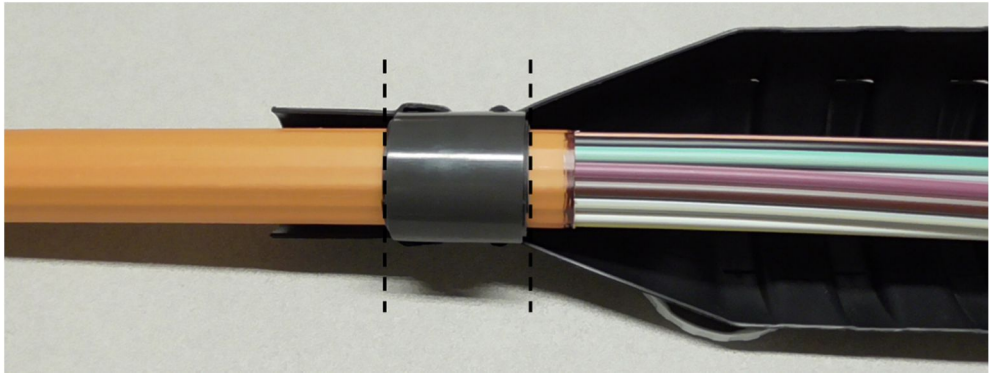
1.5 Open hose clamp entirely. Prepare self-adhesive rubber stripe. Strip protective film just at beginning of rubber stripe to keep self-adhesive film clean till final wrap.



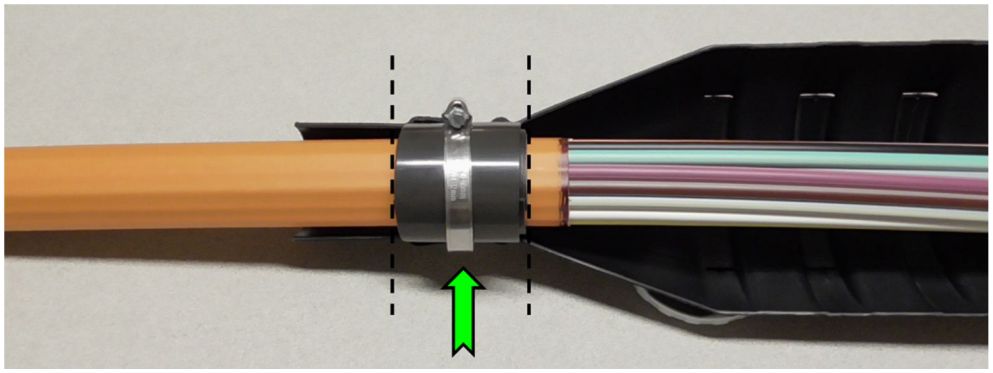
1.6 Position rubber stripe between indicated lines. Wrap rubber stripe tight around duct bundle while pulling away protective film. Duct bundle must be clean in marked area for max strain relief. Recess marked by green arrow is dedicated for hose clamp.



1.7 Position clamp shell on rubber stripe like in picture.

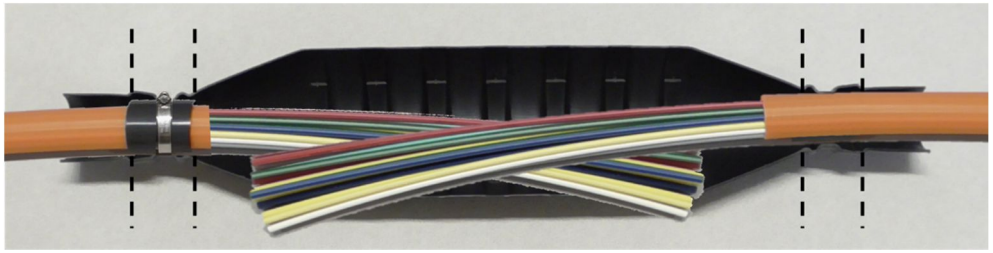


1.8 Clamp shell must be in recess area of bottom shell, which means between indicated lines.

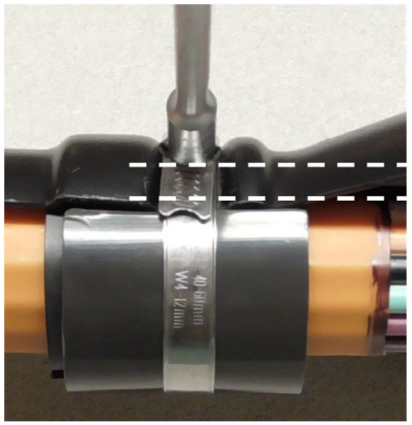


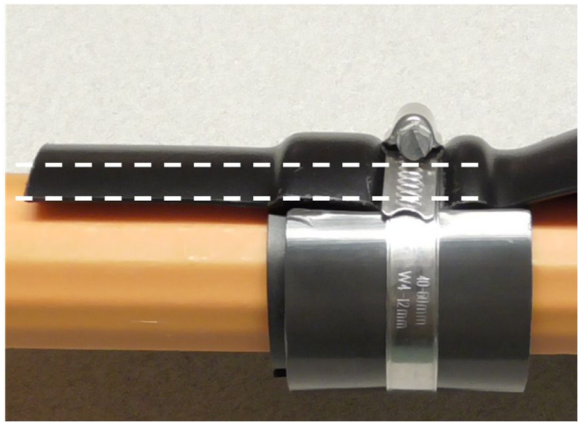
1.9 Position open hose clamp around clamp shell and bottom shell so hose clamp will fix with clamp shell the duct bundle in rubber stripe area.

Note: hose clamp must be positioned in recess of bottom shell indicated by green arrow. Just in this case full strain relief will apply.

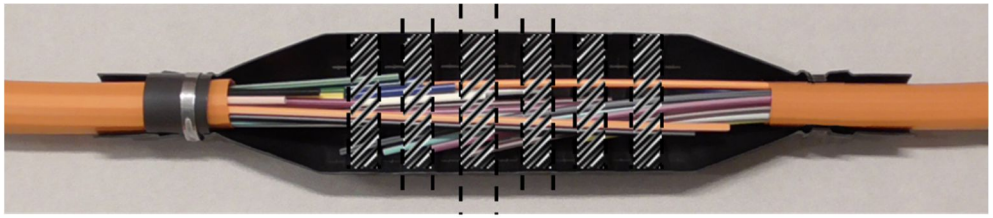


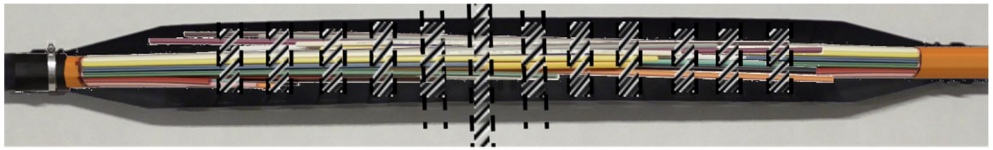
1.10 Following insert second duct bundle into bottom shell at opposite side. Fixation just takes place after connection of micro ducts.





1.11 Position screw head of hose clamp 20mm below edge of bottom shell, so top shell can fit well later on. Tighten hose clamp till screw skip once. This ensure compress force of 10 Nm and thus a well installed strain relief.

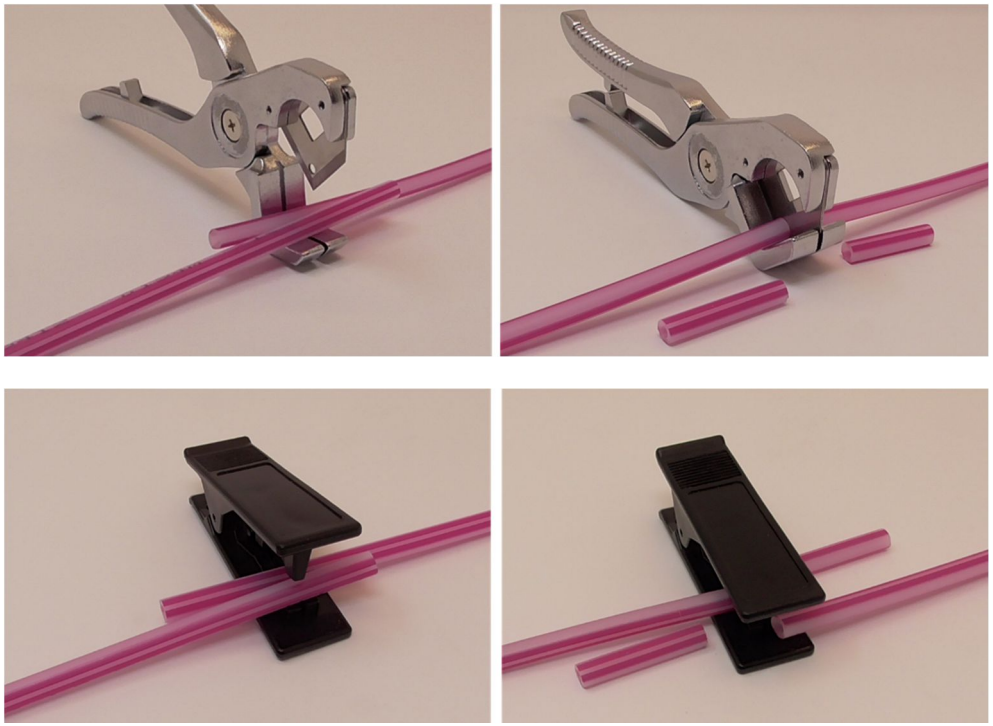




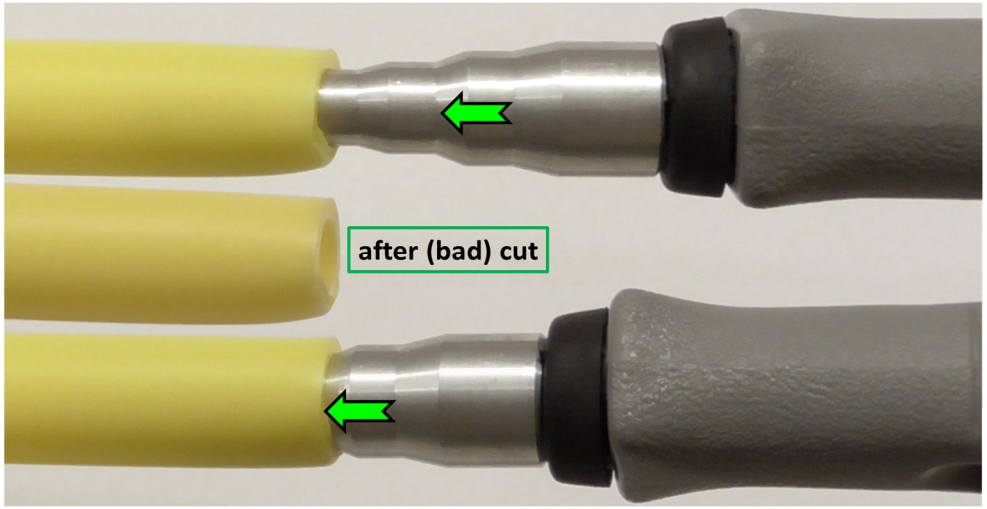
1.12 The connectors for joint of micro ducts have to be distribute graded over the inner space of DuctShell. This ensure max capacity and prevent cable stops during jet in. In order to do so, connect micro ducts according to customers colure code.

Following procedure is recommended:

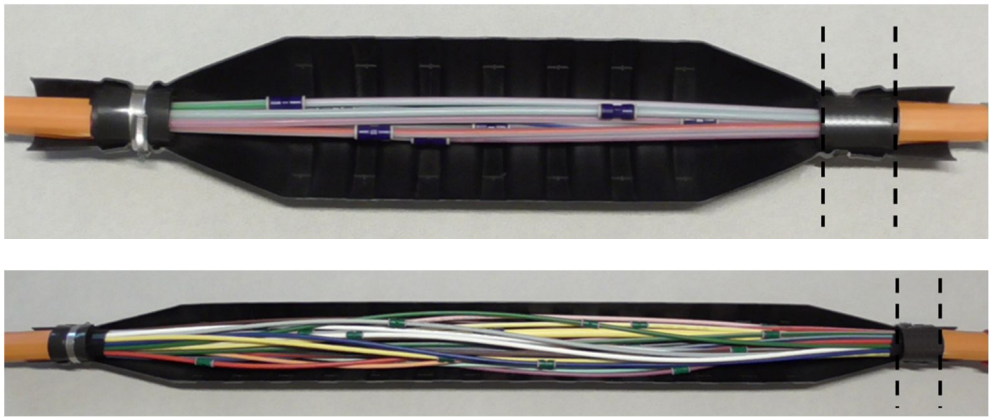
If a central micro duct is present, connect this one first in area of middle rip (hatched area) of bottom shell (size 1500 indicated by 2 rill marks). Afterwards connect micro ducts one after another starting with fixed duct bundle from middle position. Distribute connections left and right over the rips (hatched area) in bottom shell in a manner, connections get evenly and graded positioned over entire length of DuctShell.



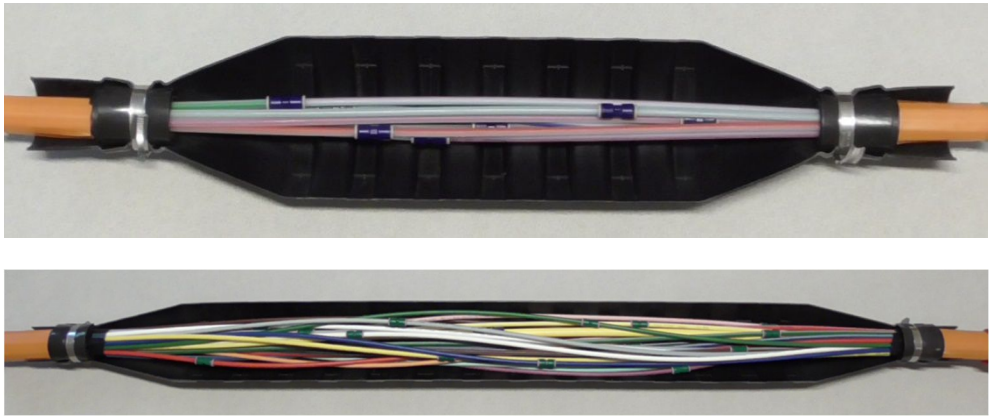
1.13 Insert dedicated micro ducts for connection into your cutter tool. Cut excess length rectangular. Use tools which are recommended by duct manufacture.



1.14 Micro ducts may change in cross section due to cutting (especially with blunt tools). Hence, they should get calibrated to prevent cable stop during jet in process.

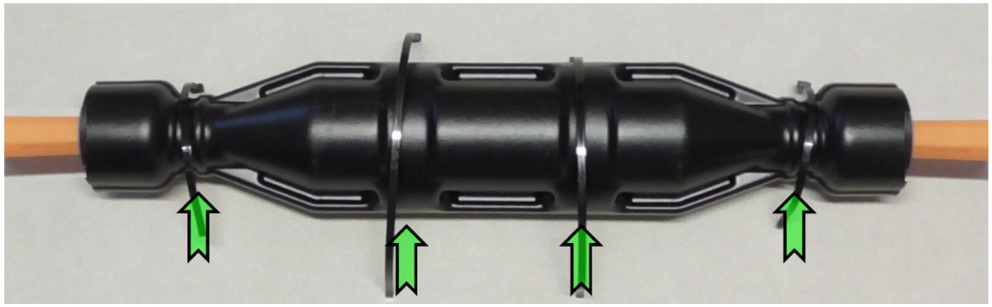


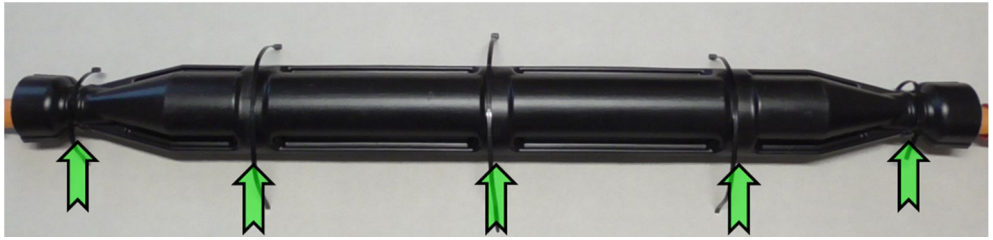
1.15 After all micro ducts have been connected, still loose side of micro duct bundle need to be fixed. Install rubber stripe and duct bundle strain release as described under chapter 1.6 and following. Before fixing of hose clamp, check again if rubber stripe and clamp shell are in right position. Right position is mandatory for full strength of strain relief. Afterwards tighten hose clamp like described under chapter 1.9.



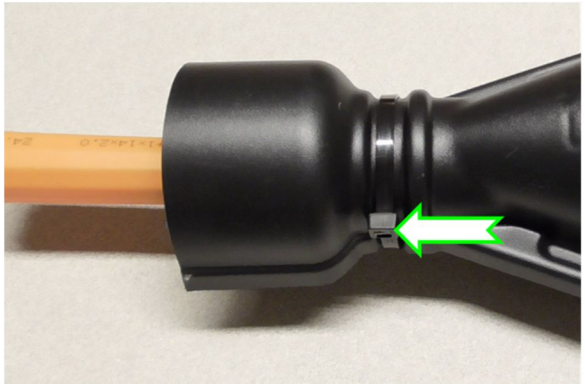
1.16 The pictures show finished installed DuctShells size 750 (top) and 1500 with both sides strain relief mounted.

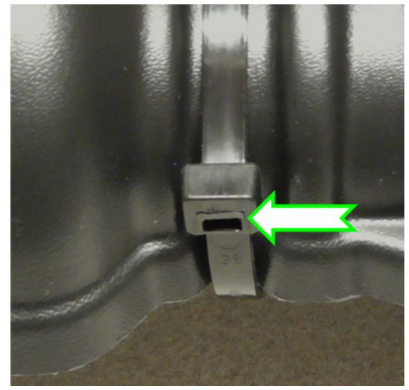
1.17 Position top shell onto bottom shell in a manner, bottom shell slides into groove at top shell.





1.18 Tighten delivered cable ties around bottom and top shell. Position cable ties in the four / five (size 1500) recess indicated by green arrows.

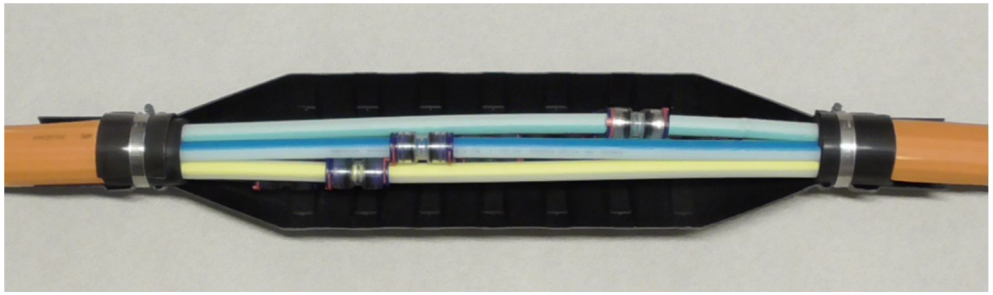




1.19 Cut cable ties flush with a side cutter. (No risk of injury caused by sharp edges)

1.20 Finished installed DuctShells size 750 (top) and 1500.

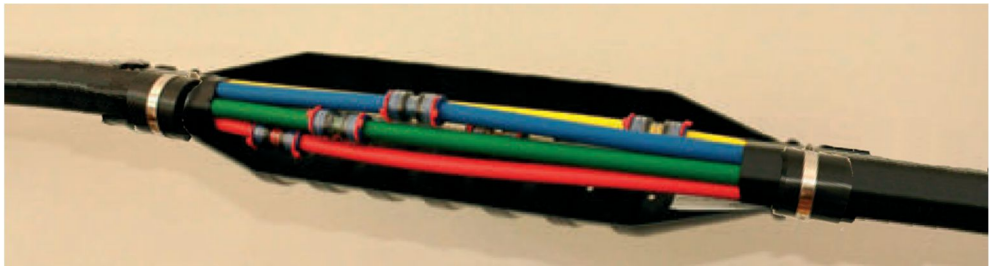
2. Installation of DuctShell size 750 with duct bundle RV6 to RV6



The pictures show finished installed DuctShell with both sides strain relief mounted.

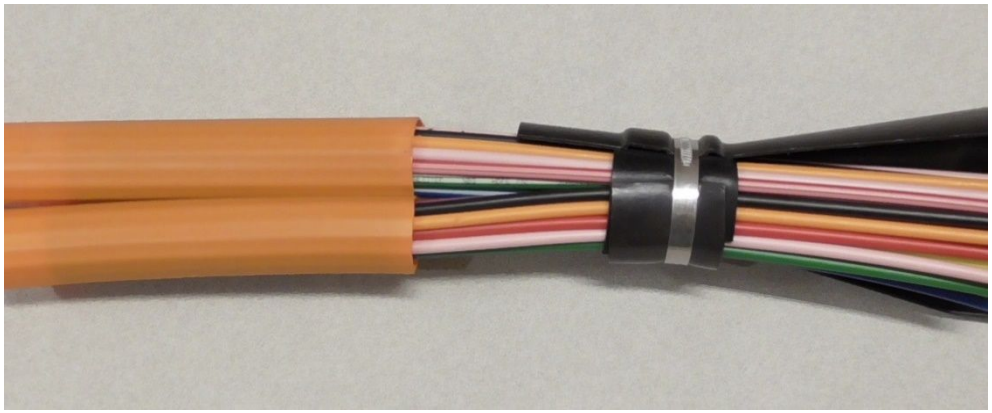
3. Installation of DuctShell size 750 with duct bundle RV6 to 2x RV3

Indication of micro duct bundles see tables chapter 4 and 5.



3.1 The picture shows finished installed DuctShell with duct bundle RV6 one side and 2x RV3 in one strain relief mounted.

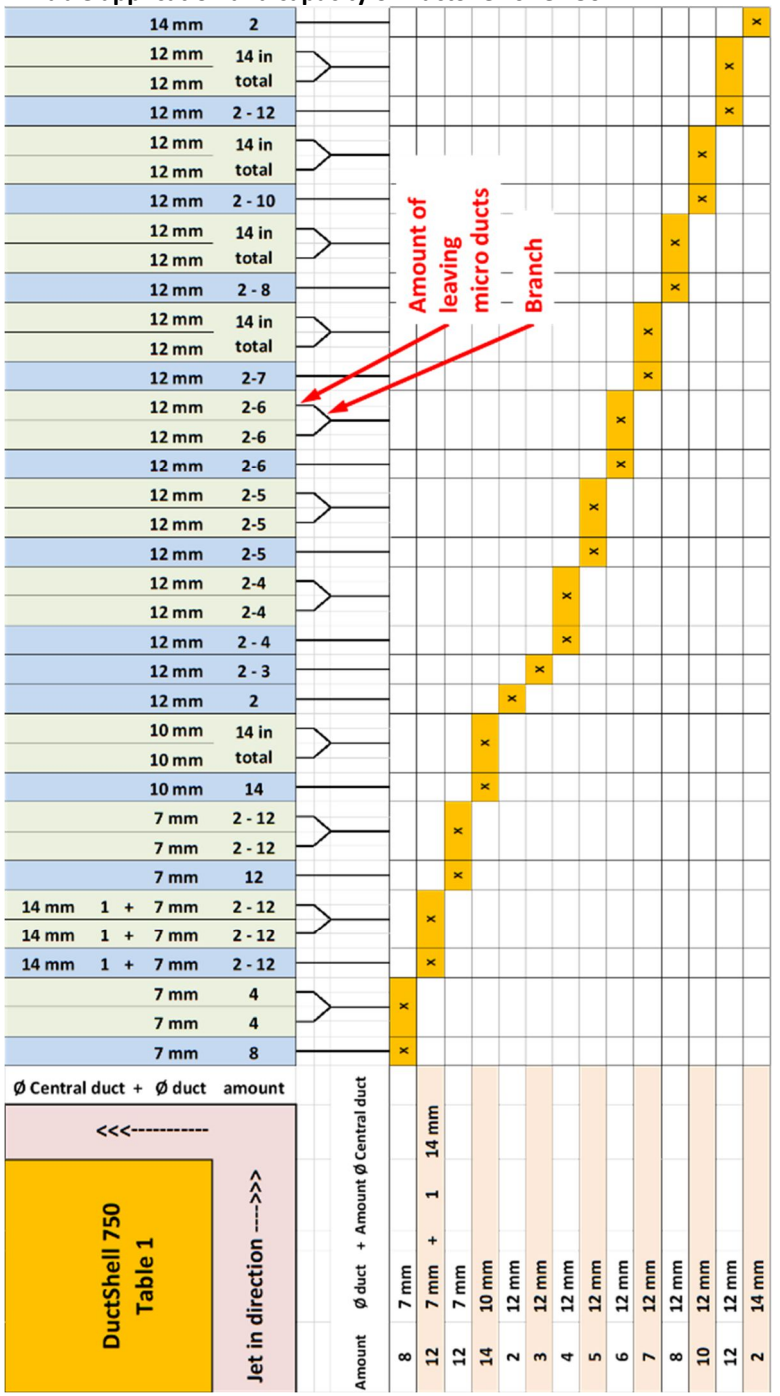
Important: To achieve a correct installation, jacket/sheet of both duct bundle RV3 have to be stripped outside of DuctShell (similar like displayed in picture 3.2).

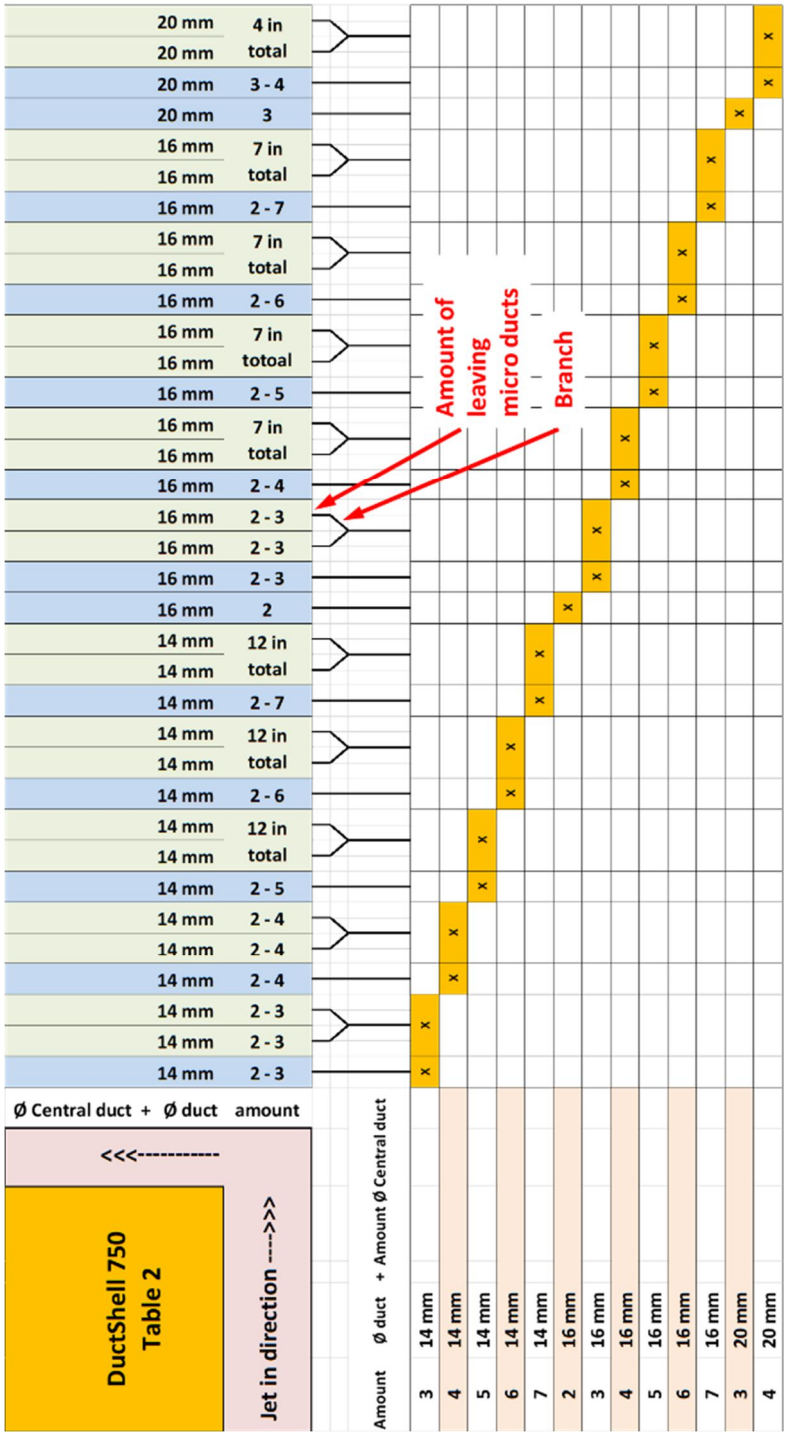


3.2 Entry of two micro duct bundle (branch) into same strain relief. Picture displays micro duct bundle 24x 7mm micro ducts plus one 14x2mm central micro duct, entering together in same entry with a micro duct bundle 12x 7mm micro ducts plus one 14x2mm central micro duct. This is max capacity of entry into a DuctShell.

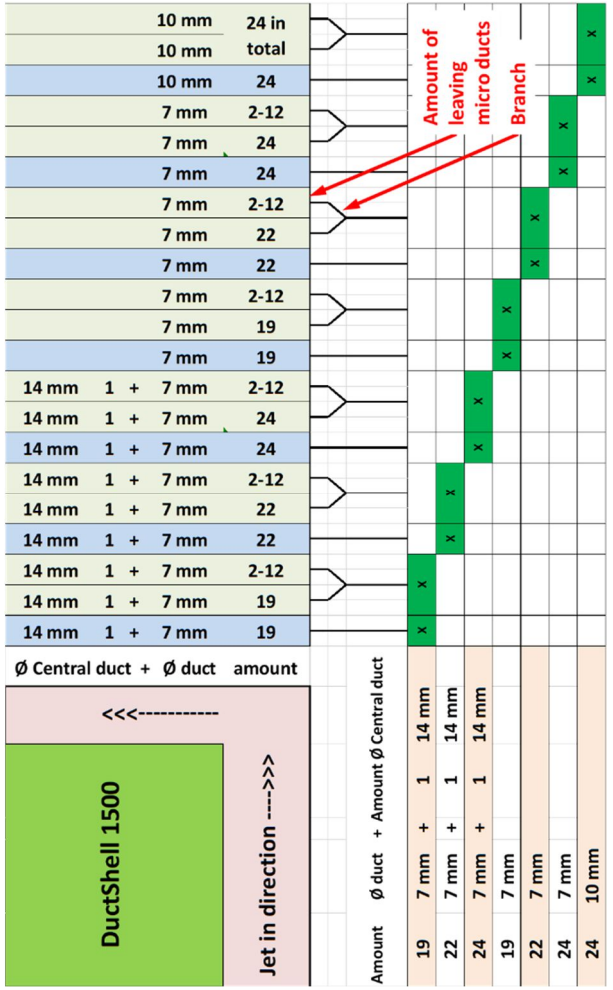
To realize this capacity, the jacket/sheet of both duct bundles have to be stripped outside of DuctShell. Afterwards micro ducts of both bundle have to be combined to one bundle and then inserted into entry of DuctShell.

4. Table application and capacity of DuctShell size 750





5. Table 1 application and capacity of DuctShell size 1500



Technical Datasheet

Elitex GmbH
Agricolastraße 3a
D-85247 Schwabhausen
Mail: office@elitex-gmbh.de
www.elitex-gmbh.de

 Version 1.0