Service Providers

Tyco Electronics

Our commitment. Your advantage.

Commitment to quality

A growing number of companies now realize that investing in quality is one of the most important commitments they can make for their future.

Various quality standards have existed in Europe for many years, each focusing on a particular industry sector or market segment.

In 1985 the International Standards Organisation (ISO) brought these standards together to form the ISO 9000 series of norms, which were adopted by the European Commission as general guidelines for all companies in the member countries of the European Union.

In common with other companies Tyco Electronics - therefore has made the commitment to invest in quality for its future and has achieved ISO 9001 certification - the most comprehensive norm of the ISO 9000 series.

This is an on-going process which guarantees the consistent quality of our products to our customers. We, at Tyco Electronics, are not content to stop there and we will continue to strive for even higher quality standards.

CERTIFICATE OF APPROVAL

This is to certify that the Quality Management System of:

Tyco Electronics Telecom Outside Plant & Netconnect
Kessel-Lo
Belgium

has been approved by Lloyd's Register Quality Assurance
to the following Quality Management System Standards:

ISO 9001:2008

The Quality Management System is applicable to:

Sales, design, manufacture, service and marketing products for copper, fibre and wireless telecommunication networks. Design, development and manufacture of components and products for voice and data premises cabling systems.

This certificate is valid only in association with the certificate schedule bearing the same number on which the locations applicable to this approval are listed.

Approval
Certificate No: LRQ 0890986

Original Approval: 10 April 1990

Current Certificate: 19 November 2009

Certificate Expiry: 31 March 2011

Issued by: Lloyd's Register Quality Assurance Limited

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Tyco Electronics is an international company with nearly 100 000 employees in over 50 countries. The company develops, manufactures and markets high performance products using specialized materials for electronic, energy, industrial and telecommunications applications.

The Telecommunication group operates facilities throughout the world, including Europe. The headquarters for the Telecom Outside Plant division are in Kessel-Lo, Belgium, just outside the city of Leuven. This is a fully integrated site, including research and development, manufacturing, sales and marketing. It serves all of Europe, Africa, the Middle East and supports the Far East and the Americas.

Tyco Electronics offers a variety of products that seal, connect and protect the outside plant telephone network, including copper cable closures, environmentally sealed terminals and fiber optic cable closures. The Telecommunications group also offers a family of copper transmission enhancement systems, and a range of fiber optic management systems for the access network.

We are committed to provide

- product and service quality
- rapid market response
- timely delivery
- leading-edge product technology.

Other literature is available which provides in more detail the specifications and characteristics of our complete product range for the telecommunications, electronics, energy and process industries.

The products presented in this catalogue are mostly standard products for the telecommunications and energy industries.

Heat-shrinkable products crosslinking through radiation chemistry

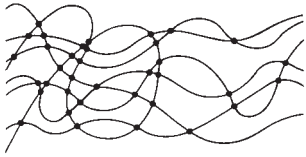


Figure 1

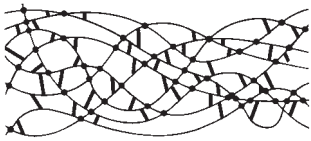


Figure 2

Thermoplastic materials are composed of extremely long, very thin molecules in a random arrangement. The strength of such materials depends upon the distance between its molecules and the crystalline nature of its molecular structure. Figure 1 schematically illustrates the molecular structure of a thermoplastic material.

The crystals formed where the molecules come closer together are represented by dots. It is these crystals which provide most of the strength of the material.

As the material is heated, the crystals disappear. The molecules can then slip past each other easily and the material flows. While in this heated condition, the material may be formed into almost any desired shape. Then, when the material subsequently is allowed to cool, the crystals reform and again provide substantial strength to retain the plastic in the shape in which it has been formed.

With the advent of atomic energy, the important discovery was made that the exposure of some plastic materials to high-energy penetrating radiation can cause the permanent crosslinking or intermolecular joining of adjacent molecules. This crosslinking results in the chemical bonding of the plastic structure into a new three-dimensional network.

Figure 2 illustrates the molecular structure of such a system after exposure to radiation, with the crosslinks shown as heavy lines.

Once the material has been crosslinked, it will not flow at any temperature. When the material is heated, the crystals still disappear as before, but it will no longer flow or change shape because the crosslinks act as ties between the molecules. The crosslinked structure, however, is elastic. Thus when it is heated to a temperature where the crystals have melted, the material behaves like rubber.

The unique heat-shrinkable properties of Tyco Electronics products is obtained through the exposure of special thermoplastic formulations to radiation. Because of the resultant crosslinking, such products have good elastic memory. These products are supplied in a deformed or expanded condition to cover the object around which they have been placed. They are ideal for covering a variety of electrical and electronic components, as well as wires, lugs, terminals and connectors.

In manufacturing these products, Tyco Electronics fabricates its compounds into their final form and then subjects them to high energy radiation, thus permanently "freezing" them into the desired shape. The following illustrations demonstrate what happens to the molecular structure during subsequent stages of manufacture and during application. Next to each illustration is an end-view of a piece of heat-shrinkable tubing.

Heat-shrinkable products crosslinking through radiation chemistry

Figure 3 is an enlarged schematic view of a very small crosslinked section of extremely long molecules.

Figure 3

Once the tubing has been crosslinked, the next step in imparting elastic memory is to heat the compound above its crystalline melting point. The molecules are then tied together only by the crosslinks as shown in Figure 4.

Figure 4

While hot, the tubing is deformed by applying pressure, thus stretching the crosslinked molecule, see Figure 5.

Figure 5

While in this deformed shape, the tubing is cooled, the crystals then reappear, thereby locking the structure together permanently in this deformed condition. This is the form in which tubing is supplied to customers. (Figure 6)

Figure 6

The customer then heats the tubing, melting the crystals. The crosslinks allow the material to return to its original shape as shown in Figure 7 below. This is the good elastic memory of such tubing.

Figure 7

After cooling, the crystals re-form and the tubing is locked in its recovered form, as shown in Figure 8.

Figure 8

Upon subsequent reheating no further change in shape will take place unless mechanical force is applied.

Unpressurized cable accessories

Pressurized cable accessories

Duct seals/cable feedthrough

Copper connect

Splicing systems

Network interface devices

CATV/COAX

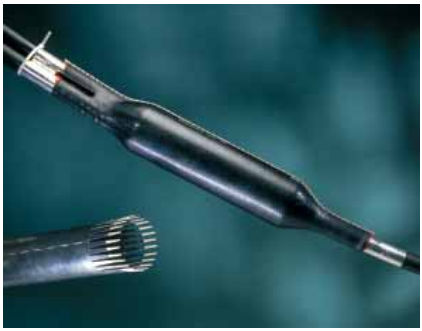
Fiber optics

Miscellaneous products and informations

Unpressurized cable accessories

XAGA 500/550/530

Joint closure system for unpressurized copper networks



XAGA 500 joint closures are heat-shrinkable closures available for the protection of cable joints in a copper network.

Based on the Tyco Electronics technology of heat-shrinkable composite materials, XAGA 500 closures have an excellent split resistance and are very craft-friendly. The fiber composite structure of the RayFort wraparound sleeve offers excellent resistance to mechanical abuse both during and after installation. An integral metal layer which shrinks with the sleeve protects the joint from moisture vapour transmission.

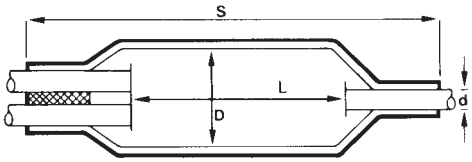
XAGA 500 joint closures are available in an extended size range having a joint capacity up to 800 pairs. The kit includes a variable liner, which insulates, shapes and compacts the joint bundle, and the unique three-finger clip with hot melt adhesive, which allows up to three cables at each end.

The XAGA 550 range of joint closures uses the same composite heat-shrinkable sleeve as the XAGA 500 range and utilizes a metal canister having a joint capacity up to 3600 pairs.

Both kits are suitable for unpressurized cables, aerial, buried or ducted, non-filled or jelly-filled, with metal or polyethylene sheaths.

The XAGA 530 closure has been developed to perform under severe tropical conditions of high temperature and humidity. Dimensions and service are similar to those of the XAGA 500 series.

XAGA 500/550/530



BOKT-5S-43/8-75/15	Branch-off kit with small clip
BOKT-5M-92/25-125/30	Branch-off kit with medium clip
BOKT-5L-160/42-200/50	Branch-off kit with large clip

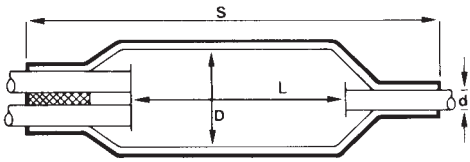
Dimensions (in mm)

Description	Splice bundle dia. D max	Cable dia. d min.	Max. Joint gap L	Branch-off clip
XAGA 500- 43/ 8-150	43	8	150	Small
XAGA 500- 43/ 8-300	43	8	300	Small
XAGA 500- 55/12-150	55	12	150	Small
XAGA 500- 55/12-300	55	12	300	Small
XAGA 500- 75/15-240	75	15	240	Small
XAGA 500- 75/15-300	75	15	300	Small
XAGA 500- 75/15-400	75	15	400	Small
XAGA 500- 75/15-500	75	15	500	Small
XAGA 500-100/25-260	100	25	260	Medium
XAGA 500-100/25-460	100	25	460	Medium
XAGA 500-100/25-500	100	25	500	Medium
XAGA 500-125/30-265	125	30	265	Medium
XAGA 500-125/30-460	125	30	460	Medium

Description	Splice bundle dia. D max	Cable dia. d min.	Max. joint gap L	Branch-off clip
XAGA 550- 43/ 8-200	43	8	200	Small
XAGA 550- 43/ 8-350	43	8	350	Small
XAGA 550- 43/ 8-500	43	8	500	Small
XAGA 550- 75/15-250	75	15	250	Small
XAGA 550- 75/15-500	75	15	500	Small
XAGA 550- 75/15-650	75	15	650	Small
XAGA 550- 92/25-300	92	25	300	Medium
XAGA 550- 92/25-500	92	25	500	Medium
XAGA 550- 92/25-650	92	25	650	Medium
XAGA 550-122/30-300	122	30	300	Medium
XAGA 550-122/30-500	122	30	500	Medium
XAGA 550-122/30-650	122	30	650	Medium
XAGA 550-160/42-500	160	42	500	Large
XAGA 550-160/42-720	160	42	720	Large
XAGA 550-200/50-500	200	50	500	Large
XAGA 550-200/50-720	200	50	720	Large

Each kit contains one branch-off kit.

XAGA 500/550/530



Dimensions (in mm)				
Description	Splice bundle dia. D max	Cable dia. d min	Max. Joint Gap L	Branch-off clip
XAGA 530- 43/ 8-150	43	8	150	Small
XAGA 530- 43/ 8-300	43	8	300	Small
XAGA 530- 55/12-150	55	12	150	Small
XAGA 530- 55/12-300	55	12	300	Small
XAGA 530- 75/15-240	75	15	240	Small
XAGA 530- 75/15-300	75	15	300	Small
XAGA 530- 75/15-400	75	15	400	Small
XAGA 530- 75/15-450	75	15	450	Small
XAGA 530-100/25-250	100	25	250	Medium
XAGA 530-100/25-450	100	25	450	Medium
XAGA 530-100/25-600	100	25	600	Medium
XAGA 530-125/30-250	125	30	250	Medium
XAGA 530-125/30-450	125	30	450	Medium

Each kit contains one branch-off kit.

Note: for filled joints (optional)

For filled joints, special RSS filling kits are available.

Double jacketed cables require special or extra components due to their specific construction.

CWST

Heat-shrinkable wraparound repair sleeve

Tyco Electronics CWST is a RayFort wraparound sleeve, closed by a slide-on metal channel. The sleeve with its hot melt adhesive ensures a permanent, reliable seal.
CWST repair sleeves are based on the RayFort technology of heat-shrinkable composite materials.

CWST repair sleeves are suitable for all types of unpressurized cables in direct buried, ducted or aerial applications.
Wraparound repair sleeves are ideally suited for repairing any kind of sheath opening or sheath damage. Examples are: ring cuts, trouble openings, fire and steam damage, cable bend cracks and corrosion.
CWST is installed using a standard jointer's torch. The sleeves are coated with heat-sensitive paint which changes color when sufficient heat is applied indicating that the adhesive has been activated.

Dimensions (in mm)			
Description	Max. cable dia.	Min. cable dia.	Lengths supplied
CWST 43/ 8	43	8	1500, 1000, 750, 500, 250
CWST 55/12	55	12	1500, 1000, 750, 500, 250
CWST 75/15	75	15	1500, 1000, 750, 500, 250
CWST 100/25	100	25	1500, 1000, 750, 500, 250
CWST 125/30	125	30	1500, 1000, 750, 500, 250
CWST 164/42	164	42	1500, 1000, 750, 500, 250
CWST 200/50	200	50	1500, 1000, 750, 500, 250

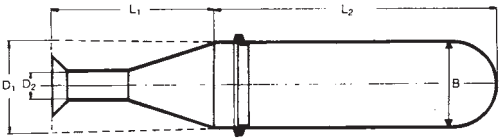
Ordering example
CWST 75/15 - XXX/239
(XXX = selected standard length)

RABC

Ready access butt closure

RABC is a fully sealed closure combining a mechanical dome with reliable heat-shrinkable sealing for the cables. It is suitable for use as an aerial or underground joint closure in both new construction and maintenance applications in the distribution network, typically in the rehabilitation of expanding plugs, tape and 31A type resin joints.

RABC is of rugged design to withstand mechanical abuse and can be installed using a standard jointer's torch. The product is supplied fully kitted and can accommodate up to 4 cables.



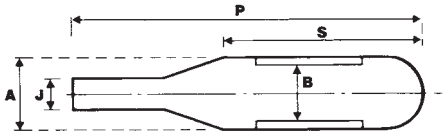
Dimensions (in mm)					
Description	Max. Joint dia. B	Max. dia. D1	Min. dia. D2	Sleeve length	
				L1	L2
RABC 100	53	70	25	140	380
RABC 200	100	125	43	190	480
RABC 300	135	155	60	220	580

Each kit contains 1 branch-off clip.

For more than 2 cables, additional branch-off kits are available.

PEDCAP

Butt closure



PEDCAP is a general purpose single-ended closure designed for a variety of applications in a distribution network. It is suitable for use as an aerial or underground joint closure in both new construction and maintenance applications, typically in the rehabilitation of tape and plug expanding joints.

PEDCAP is of rugged design to withstand mechanical abuse and can easily be installed using only a standard jointer's torch.

PEDCAP is supplied fully kitted for use on cable sizes in the range 2 to 200 pairs.

Cables may be added to the joint and the joint re-closed using another PEDCAP.

Jointing information (dimensions in mm)			
Description	Joint length max.(S)	Joint bundle max. diam.(B)	Max. number of cables
PED-CAP-R-2-INT	200	50	3
PED-CAP-R-3-INT	120	57	4
PED-CAP-R-4S-INT	250	84	4
PED-CAP-R-4L-INT	350	84	6

Sizing information (dimensions in mm)			
Description	Max. cable bundle diam.without SCOP(A)	Min. cable bundle diam. without SCOP(J)	Max. looped cable diam.
PED-CAP-R-2-INT	30	16	2 x 18
PED-CAP-R-3-INT	40	11	2 x 23
PED-CAP-R-4S-INT	60	25	2 x 28
PED-CAP-R-4L-INT	60	25	2 x 28

Each kit contains 3 or 4 SCOPs (depending the size) to accomodate 2 main cables and 4 small drop cables.

Ordering example: PED-CAP-R-4S-INT

TTRC

Toolless torchless re-usable closure system

The TTRC closure has been developed for the environmental protection of aerial telecommunication joints up to 600 pairs. The product consists of two sealing units and a central body, which mechanically protects the joint.

The sealing on both the closure body and a multiple of cables is performed by compressing Tyco Electronics gel material between two plastic flanges. Compression is activated by a built-in tensioning mechanism. The TTRC closure system can be installed in a minimum of time without any special tools. This revolutionary sealing system used in the outside plant telephone network allows closure re-entry, cable additions and cable re-arrangements. Flexibility is built-in and additional parts are not required.

All components are fully wraparound, accommodating installations in new construction and network maintenance. Multiple cable branching is possible with up to 4 cables at each end.

Dimensions (in mm)						
Description	Max. splice capacity	Cable ports each side	Cable Ø min.	Cable Ø max.	Sheath opening	Splice Ø
TTRC 50	25pr	4	10	19	260	72
TTRC 100	100pr	4	10	19	380	72
TTRC 200	300pr	2	10	21	510	92
		2	10	28		
TTRC 250	300pr	1	26	42	510	92
		2	10	19		
TTRC 300	600pr	2	10	26	510	125
		2	26	42		

T2C

Cold applied re-usable closure system

- Watertight in-line splice closure seals aerial, underground and direct buried splices in unpressurized copper networks.
- Versatile gel closure brings new levels of installation convenience and application flexibility.
- Easy re-entry and re-closure.
- Cable configuration changes possible with a minimum of extra accessories.
- One size for applications up to 300 pairs and cable diameters up to 40 mm.
- No special installation tools required.
- Innovative cut-to-fix axial pull tapes provide mechanical cable retention.
- Integrated mounting brackets for aerial installations.
- Robust construction with high mechanical strength.
- Unlimited shelf life.

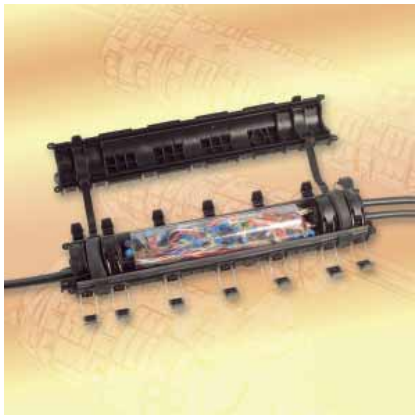
Kit content

- Central part: top and bottom delivered as one part
- 4 gel-profiles
- 2 O-ring
- One 4-out cable separator (large size only)
- Plugs for unused cable ports
- Axial pull tapes + tie wraps
- Gel sealing tape
- Cleaning tissue
- Bolts and washers
- Measuring tape
- Installation instructions.

Dimensions (in mm)						
Description	Max. splice dia.	Max. sheath opening	Cable configu-rations	Cables IN max. dia.	Cables OUT max. dia.	Typical splice capacity
T2C-100-450-2/4-INTO1	100	450	2 in – 4 out	2 x 40	4 x 40	300p

MJC

Mechanical joint closure



- Watertight splice closure for aerial, underground and direct buried splices in the unpressurized copper telecommunication network.
- Robust construction with high mechanical strength.
- Proven gel sealing system
  - Easy to handle at all temperatures,
  - Easy to re-enter.
- Innovative cable fixation system.
- No special tools needed for installations or re-entry.
- Closure uses overcentering 'ski boot' type latches.
- Flexible branching plug system allowing installation of cables from 5pair .5 to 100pair .5.
- Integrated mounting brackets for aerial and wall installation.
- Reduced inventory as fewer size closures needed to cover a wide range of applications up to 100 pairs.
- Both dome-ended and in-line closures are available.
- Cable configuration changes possible with a minimum of extra accessories.
- No shelf life.

Sizing/ordering information (Dimensions in mm)

Cable diameter range: from Ø 7 mm till Ø 28 mm

Description	Closure type	Max. number of branching plugs	Typical splice volume	Max. splice diameter	Total internal length
MJC-10/20PR-CE	Cap-ended	1	10/20 pair	50	185
MJC-10/20PR-INL	Inline	1 in/1 out	10/20 pair	50	240
MJC-50/100PR-CE	Cap-ended	4	50/100 pair	120	185
MJC-50/100PR-INL	Inline	2 in/2 out	50/100 pair	90x60	370

Installation steps

Gelsnap

Cold applied splice protection system

Three sizes of Gelsnap are available for the protection of paper/lead or plastic cable joints of up to 30 pairs. The product is quick to install and easy to use. No special tools are required. The use of non-flowing gel under permanent pressure prevents water ingress. It is robust and reliable under a wide variety of environmental conditions. Many connector types can be accommodated. Butt, in-line, and branch configurations are possible. Re-entry is easy and clean.

Dimensions (in mm)						
Description	Max. cable Ø	Min. cable Ø	Max. splice opening	Number connectors (max.)**	Splice type	Branching
Gelsnap-A-10/5-80	10	5	80	6	Butt	Max. 2 cables
Gelsnap-B-14/5-130	14	5	130	20	Butt/in-line at each end	Max. 2 cables
Gelsnap-C-18/5-180	18	5	180	60	Butt/in-line at each end	Max. 2 cables

**Figures given are for most commercially used connector types. Consult Tyco Electronics for more detailed information. Capacity may vary depending on local splicing practice.

TRAC

Toolless mechanical aerial closure

Tyco Electronics TRAC aerial closure system is designed for free-breathing aerial applications. No tools are required to perform the installation.

The unique convoluted design of the TRAC closure system provides both mechanical and environmental protection around the splice.
The end-pieces use Tyco Electronics innovative gel material, which provides effective protection against water entry, without tapes, mastic, clamps or special tools.

The TRAC system performs both venting and draining functions without additional components.

TRAC is fast and easy to install, requiring only three parts for completion. After splice preparation and bonding, two closure end-pieces are placed over the cable. The central body is then fitted over the end-pieces and splice to provide a secure cover. The cover is locked in position by simple snaps or metal latches.
The aerial closure is designed to handle straight and branch configurations. It is easily re-enterable and is recommended for use on polyethylene insulated cable jackets.
The TRACE extension kit accommodates long-length applications by providing a single part for both maintenance and rehabilitation.

Dimensions (in mm)

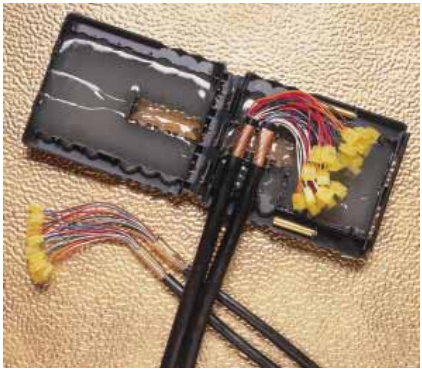
Description	Splice bundle max. Ø	Sheath opening	Max. cable configuration	Main cable Ø min.	Main cable Ø max.	Branch cable max. Ø branch 1	Branch cable max. Ø branch 2
TRAC-AA-1	50	400	1 in, 1 out	7	29	-	-
TRAC-AA	50	250	2 in, 2 out	7	19	13	-
		400	2 in, 2 out	7	19	13	-
TRAC-A	75	300	2 in, 2 out	12	32	25	-
		450	2 in, 2 out	12	32	25	-
TRAC-B	125	500	2 in, 2 out	32	48	38	-
		650	2 in, 2 out	32	48	38	-
TRAC-B+	175	650	2 in, 2 out	32	65	65	-
		650	3 in, 3 out	32	48	30	30
TRAC-C	225	650	3 in, 3 out	36	83	50	38

Ordering example

KL-TRAC-50-250B

CERTI-SEAL buried

2 through 12-pair buried service wire closures



The CERTI-SEAL buried service wire closures bond and protect butt and in-line splices from 2 through 12 pair buried service wires.

Advantages

- Reliable: integral bonding system applies constant pressure on service wire shield for long-term reliability; gel- filled construction seals environmentaly and will not leak.
- Easy to install: one-piece, snap- together latching system; pre-installed gel sealant eliminates special handling.
- Designed to meet Telcordia specification TR-NWT-000251.

Applications

- Splice protection
- Demarcation points

Product overview

2-6 pair CERTI-SEAL buried
6-12 pair CERTI-SEAL buried
2-6 pair LG CERTI-SEAL buried

Ordering description

0569579-1
1217159-1
1116449-1

CERTI-SEAL 2 pair aerial

Drop wire gel closure

The CERTI-SEAL 2-pair aerial drop wire gel closure and 2 or 6 pair provide aerial termination of telephone cable in non-tension drip loop and sheath repair applications.

Advantages

- Reliable: high-compression, high-impact housing provides maximum durability
- Easy to install: one-piece, snap-together latching system; pre-installed gel sealant eliminates special handling
- Flexible: accommodates AMP Tel-Splice or other industry-standard wire splices
- Compliant: designed to meet Telcordia specification TR-NWT-000975.14-day immersion and Bell PUP 55004 section 5.42A,compression and impact

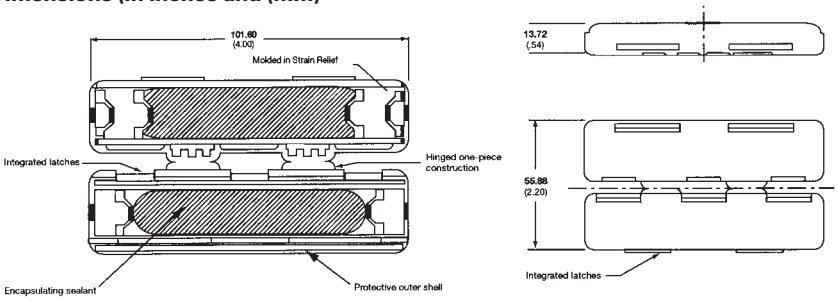
Applications

- Splice protection
- Aerial pole
- Pedestal
- Demarcation points

Ordering information

1116542-1 (2 pr drop wire)
1217204-1 (2-6 pr drop wire)

Dimensions (in inches and (mm)



For splice protection and sheath repair*of 2-pair drop wire telephone cable.

*For sheath repair applications, please contact your Tyco Electronics sales representative.

Rayblock

Small joint closure and water block for up to 5 pair cable

Tyco Electronics Rayblock is a fast, simple and reliable way of jointing and blocking up to 5 pair unfilled or partially filled cables. It is quickly installed and its low temperature shrinkage properties ensure lack of craft sensitivity in the most congested situations.

Rayblock is the answer to those problem areas where older suspect cables cannot be jointed without danger of joint failure due to moisture transmission.

Features

Suits all conductor sizes up to 0.9 mm. Low recovery temperature tubing and low viscosity adhesive for heat sensitive cables. Reliable blocking achieved in a few seconds using a standard jointer's torch or hot air gun.

Sizing/ordering information

Dimensions (in mm)				
Description	Max. supplied diameter	Min. recovered diameter	Supplied length*	Cable size range
Rayblock 100	20	6	250 or 1200	2 & 5 pair

* Other lengths are available on request.

MWTM

Medium wall heat-shrinkable tubing

MWTM heat-shrinkable tubing is made from high performance, crosslinked polyolefin for general use in the telecommunications and energy industries.
When heated with a standard gas torch or similar heat source, the tubing shrinks to follow the shape of the object to be protected.
MWTM tubing is particulary flexible in use and installation due to its high shrink ratio.
Various diameters and lengths are available as standard products.

Dimensions (in mm)		
Description	Ha	Hb
MWTM 10/ 3	10	3
MWTM 25/ 8	25	8
MWTM 35/ 12	35	12
MWTM 50/ 16	50	16
MWTM 70/ 26	70	26
MWTM 90/ 36	90	36
MWTM 120/ 54	120	54
MWTM 164/ 80	164	80
MWTM 195/102	195	102

Standard lengths

250	500	750	1000	1500

Notes

1. Dimensions
   a = as supplied
   b = after unrestricted recovery
2. Ordering example
   MWTM 164/80-XXX/S (Sxx)
   s = hot melt coating.
   u = uncoated
   XXX = selected standard length

(Sxx) = minimum pack quantity

XCSM

Thick wall heat-shrinkable tubing

Rugged heavy wall XCSM heat-shrinkable tubular sleeves are designed for use where maximum reliability, product performance and simplified installations are required. These heat-shrinkable sleeves are ideal for submersible, direct buried installations or when maximum protection is needed.

XCSM's high expansion ratio allows it to accommodate different cable diameters. No special skills or equipment are necessary for installation. The product resists abuse during handling and backfilling.

Dimensions (in mm)		
Description	Ha	Hb
XCSM 23/ 6	23	6
XCSM 30/ 8	30	8
XCSM 44/12	44	12
XCSM 55/18	55	18
XCSM 85/22	85	22
XCSM 115/30	115	30
XCSM 130/41	130	41
XCSM 160/55	160	55
XCSM 178/60	178	60

Standard lengths

250	500	750	1000	1500

Notes

a = as supplied

b = after unrestricted recovery

Ordering example

XCSM 115/30-XXX/S (Sxx)

s = hot melt coating

u = uncoated

(XXX = selected standard length)

(Sxx) = minimum pack quantity

L CAPS

End seal caps for unpressurized cables

Tyco Electronics heat-shrinkable caps ensure that cable ends are waterproof and permit long-term storage without the risk of moisture penetration.

102L is Tyco Electronics standard end cap for sealing cable ends in unpressurized or low performance pressurized applications. It is a medium-wall moulded cap internally coated with an adhesive (an integrated valve is optionally available).

Installing Tyco Electronics caps is simple. The cap is centered over the ends of the cable and heat shrunk to form a reliable seal.

Dimensions (in mm)				
Description with ø printing	Description without ø printing*	Cable dia. max.	Cable dia. min.	Length min.
102L 011/S (S100)	102L 011-R05/S (S100)	8	4	38
102L 022/S (S100)	102L 022-R05/S (S100)	17	8	55
-	102L 027-R05/S (S100)	25	13	93
102L 033/S (S100)	102L 033-R05/S (S100)	30	15	90
102L 044/S (S50)	102L 044-R05/S (S50)	50	25	143
102L 048/S (S25)	102L 048-R05/S (S25)	70	35	150
-	102L 050-R05/S (S25)	88	38	142
102L 055/S (S10)	102L 055-R05/S (S10)	95	45	162
102L 066/S (S10)	102L 066-R05/S (S10)	105	70	145

Ordering example

102L 022/S (S100) (packed per minimum quantity of 100 pcs.) no diameter printing on the caps.

* Diameter before and after free recovery

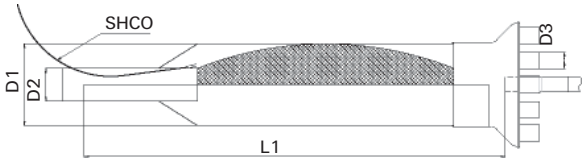
VCKT

Vault closure

The VCKT closure system is used for distribution of telecommunication cables in telephone exchanges. A heat-shrinkable RayFort sleeve, used in conjunction with a metal canister and a multiple break-out part protects the splice.

Characteristics

- Metal canister provides extremely high mechanical load bearing capacity.
- Hot melt adhesive reliably seals the splice against humidity.
- Vertical installation.
- No filling required.
- Only 4 sizes are needed for any type of cable; capacity up to 2400 pairs.
- Reopening of the splice area for testing and measuring is possible.
- No special tools required.



Ordering information (dimensions in mm)				
VCKT size	Joint length max. L1	Outer dia. splice protection max. D1	Cable dia. min. D2	Sleeve length
90-3	510	85	25	800
125-9	740	120	30	950
160-12	740	158	42	950
200-24	740	196	50	950

Table for MDF Cables			
VCKT size	MDF cable outlets number	Cable dia. D3 min.	max.
90- 3	3	12	36
125- 9	9	12	36
160-12	12	12	36
200-24	24	12	36

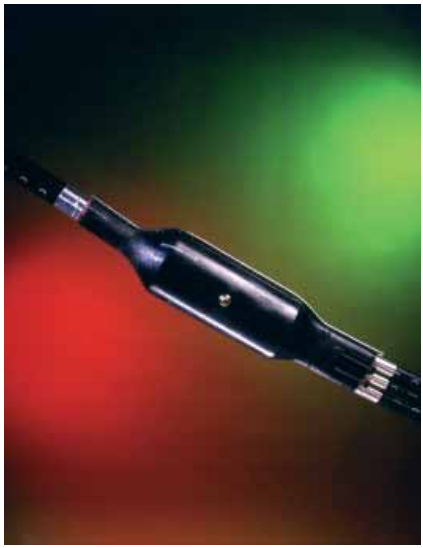
Ordering example

VCKT-160-12-INT

Pressurized cable accessories

XAGA 1000

Joint closure system for pressurized copper networks

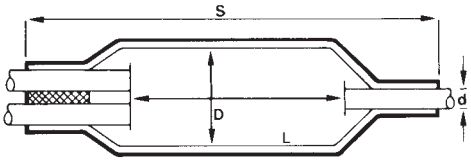


- Glass fibre composite structure gives high split resistance.
- Few components, fast and easy installation.
- High “craft friendliness” enhanced by visual indicators for optimum installation.
- Approval for 4 cables in or out.
- Interchangeable air valve, air connector or low profile blanking screw.
- Lead or polyethylene jacketed cables.
- Can be used on single and double sheathed cables.
- Range of closures to suit all cable sizes.
- Hot-melt adhesive designed specifically for pressurized closure applications.

XAGA 1000 is a pressurized closure system based on a unique fiber reinforced heat-shrinkable composite material. This new revolutionary material offers extraordinary mechanical and environmental protection. Its reinforced material structure has an excellent split resistance during installation and superior mechanical toughness. The closures have built-in visual indicators to ensure optimum installation under the most severe conditions.

The XAGA 1000 is quick and easy to install using only a standard gas torch. The closure is completely wraparound allowing it to be used for both new construction and maintenance on ducted or direct buried cables with polyethylene, lead and aluminium sheathing, up to 4800 pairs. Tyco Electronics three-fingered clips allow branching of up to four cables at each end. The kit also contains a range of fully interchangeable air fittings which can be incorporated in the closure. These include a reversible valve, an air connector and a low profile blanking plug to reduce accidental damage.

XAGA 1000



Dimensions (in mm)								
Description	Splice bundle max. D	Single cable dia min. d	Sheath opening nom. L	Max. recommended sum of branch cable dia. 2 out	3 out	4 out	Overall length S	Branch-off kit
XAGA 1000C-45/8-350	45	8	350	35			670	BOKT-1000-05
XAGA 1000C-62/15-250	62	15	250	52	40		600	BOKT-1000-6
XAGA 1000C-62/15-350	62	15	350	52	40		690	BOKT-1000-6
XAGA 1000C-62/15-500	62	15	500	52	40		850	BOKT-1000-6
XAGA 1000C-62/15-650	62	15	650	52	40		1000	BOKT-1000-6
XAGA 1000C-92/30-350	92	30	350	82	70	58	690	BOKT-1000-6
XAGA 1000C-92/30-500	92	30	500	82	70	58	850	BOKT-1000-6
XAGA 1000C-92/30-650	92	30	650	82	70	58	1000	BOKT-1000-6
XAGA 1000 122/38-300	122	38	300	112	100	88	690	BOKT-1000-6
XAGA 1000 122/38-500	122	38	500	112	100	88	870	BOKT-1000-6
XAGA 1000 122/38-650	122	38	650	112	100	88	1020	BOKT-1000-6
XAGA 1000 122/38-900	122	38	900	112	100	88	1280	BOKT-1000-6
XAGA 1000 160/55-300	160	55	300	142	130	118	790	BOKT-1000-7
XAGA 1000 160/55-500	160	55	500	142	130	118	970	BOKT-1000-7
XAGA 1000 160/55-650	160	55	650	142	130	118	1050	BOKT-1000-7
XAGA 1000 160/55-720	160	55	720	142	130	118	1150	BOKT-1000-7
XAGA 1000 160/55-900	160	55	900	142	130	118	1380	BOKT-1000-7
XAGA 1000 200/65-500	200	65	500	172	160	148	970	BOKT-1000-7
XAGA 1000 200/65-720	200	65	720	172	160	148	1150	BOKT-1000-7
XAGA 1000 200/65-900	200	65	900	172	160	148	1380	BOKT-1000-7

Branch-off kits BOKT-1000-05, BOKT-1000-6 and BOKT-1000-7 must be ordered separately.

RWPS

Heat-shrinkable wraparound sleeve for pressure feeding

The RWPS system is a unique wraparound product for the rapid installation of pressure feed and test points for all main cables. It incorporates fiber reinforced material, ensuring excellent product performance and simple installation.

The reinforced area around the valve ensures reliability. Complete installation and testing takes only a few minutes using a standard propane torch. The RWPS system can be used with absolute confidence in cable chambers, adjacent to cabinets, and at intermediate points in main underground or overhead networks.

Features

Sleeve available with valve, connector or other options.

Three sizes cover all cables from 15 to 95 mm diameter. Installed and tested in less than 45 minutes, occupying less space than other systems.

Dimensions (in mm)			
Description	Cable dia.	Cable dia.	Sleeve length
	max.	min.	nom.
RWPS-C-45/15-250	45	15	250
RWPS-C-65/20-250	65	20	250
RWPS-C-95/30-250	95	30	250

RCRS

RayFort repair kit for pressurized cable without the need for depressurization

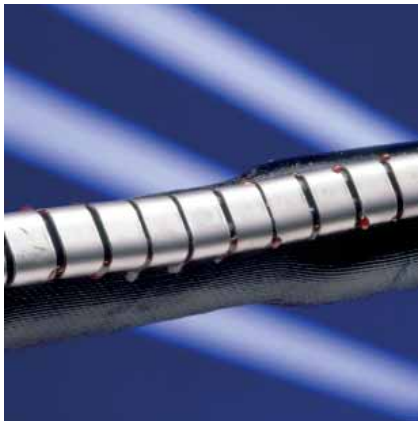
Tyco Electronics RCRS repair kit is designed to repair damaged pressurized cables. However, it is not necessary to remove the pressure from the cable during the repair operation when using the kit.

The RCRS product incorporates fiber reinforced material, ensuring excellent product performance and simple installation.
The sleeve is fitted with a low profile valve to allow pressure bleeding during installation. After installation the bleed valve is screw capped. Special adapters are available to facilitate subsequent pressure testing.
The RCRS system is suitable for use with both polyethylene and lead sheathed telephone cables. If conductor repairs are necessary the composite wraparound sleeve may be installed over the trouble-bundle, using an insulation layer included in the kit.

Dimensions (in mm)				
Description	Cable dia. max.	Cable dia. min.	Sheath opening max.	Sleeve length nom.
RCRS-C-45/15-330	40	15	100	330
RCRS-C-45/15-500	40	15	250	500
RCRS-C-45/15-700	40	15	500	700
RCRS-C-65/20-330	60	20	100	330
RCRS-C-65/20-500	60	20	250	500
RCRS-C-65/20-700	60	20	500	700
RCRS-C-95/30-330	90	30	100	330
RCRS-C-95/30-500	90	30	250	500
RCRS-C-95/30-700	90	30	500	700

RDRK

Heat-shrinkable wraparound repair system for pressurized telephone cables



Tyco Electronics RDRK system is a glass fibre reinforced wraparound sleeve system designed for the repair of pressurized telephone cables and offers superior resistance to mechanical abuse.

During installation it is necessary to depressurize the cable. After installation the pressure may be restored.

The RDRK depressurized telephone cable repair kit is a wraparound heat-shrinkable sleeve coated with Tyco Electronics specially formulated hot melt adhesive for use in pressurized cable applications. This red adhesive ensures a permanent bond between the heat-shrinkable sleeve and the cable sheath, providing a reliable seal against pressure loss.

The product may be used with both polyethylene and lead sheathed telephone cables. If conductor repairs are necessary the RayFort sleeve may be installed over the trouble-bundle using an insulation layer included in the kit.

Dimensions (in mm)				
Description	Cable dia. max.	Cable dia. min.	Sheath opening max.	Sleeve length nom.
RDRK-C-45/15-330	40	15	100	330
RDRK-C-45/15-500	40	15	250	500
RDRK-C-45/15-700	40	15	500	700
RDRK-C-65/20-330	60	20	100	330
RDRK-C-65/20-500	60	20	250	500
RDRK-C-65/20-700	60	20	500	700
RDRK-C-95/30-330	90	30	100	330
RDRK-C-95/30-500	90	30	250	500
RDRK-C-95/30-700	90	30	500	700

RLSS

Heat-shrinkable wraparound auxiliary sleeve

The RLSS auxiliary sleeve is a high performance heat-shrinkable wraparound sleeve which provides a permanent bond between plastic cable jackets and auxiliary lead sleeves used on lead splice closures.

The product is suitable for buried and ducted applications. The composite material provides high mechanical strength and ease of installation in confined spaces. The adhesive coating is suitable for both lead and polyethylene substrates.

The sleeve is available in 4 sizes to suit all applications. Installation is effected using a standard jointer's torch.

Dimensions (in mm)			
Description	Min.cable dia.	Max.lead dia.	Sleeve length
RLSS-45/10	10	45	210
RLSS-65/20	20	65	250
RLSS-95/30	30	95	250
RLSS-125/40	40	125	330

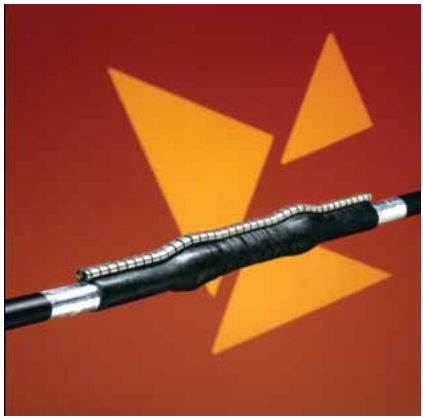
Notes

1 The auxiliary lead pipe outer diameter should be a maximum of 20 mm larger than the cable diameter.

2 The kit contains components to seal one end of a joint only.

RPBS

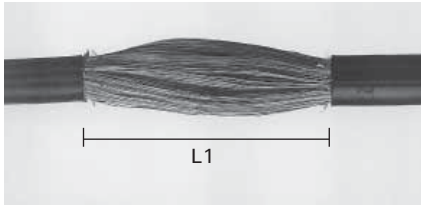
Heat-shrinkable wraparound delivery system for air blocking of pressurized telephone cables

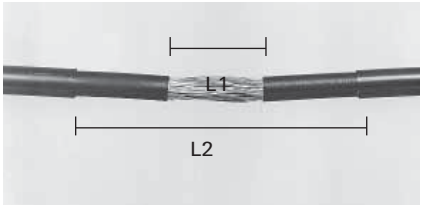


The RPBS system combines an improved application method for standard resin blocking compounds with the advantages of the wrap-around heat-shrinkable sleeve. Used with suitable commercially available resins, the RPBS system forms a pressure block for the whole pressurized cable range. The sleeve incorporates fiber reinforced material ensuring high mechanical strength and simple installation. The inside of the RPBS sleeve is coated with a high-performance hot melt adhesive which offers pressure tightness and additional mechanical protection. The product can be used on polyethylene or lead sheathed cables.

Dimensions (in mm)			
RPBS-I: selection chart for single sheathed cable.			
Description	Cable dia. max.	Cable dia. min.	Sheath opening nom. L1
RPBS-C-I- 25/15-100	25	15	100
RPBS-C-I- 50/25-150	50	25	150
RPBS-C-I- 70/50-200	70	50	200
RPBS-C-I-100/70-250	100	70	250

RPBS-II: selection chart for double sheathed cable.				
Description	Cable dia. max.	Cable dia. min.	Outer sheath and shield opening (L2)	Inner sheath opening (L1)
RPBS-C-II- 25/15-100	25	15	400	100
RPBS-C-II- 50/25-150	50	25	450	150
RPBS-C-II- 70/50-200	70	50	500	200
RPBS-C-II-100/70-250	100	70	550	250





Note: blocking compound and accessories are optional.

ACBS

Air and water blocking system

The ACBS product is a unique adhesive cable blocking system providing a water and pressure block for air-core cables up to 400 pairs. The system consists of heat-shrinkable thick-wall tubing (for new constructions) or RayFort wraparound sleeves (for maintenance) covered with thermo-indicating paint and pre-assembled bags containing a specific amount of specially developed adhesive granules.

During the recovery of the heat-shrinkable sleeves, the heat makes the adhesive melt at low temperature and flow into the cable core. A curing package incorporated in the adhesive system provides a firm and reliable block. The product can be used on polyethylene or PVC jacketed cables in either direct buried or ducted environments. The product is designed to be installed on cables with solid insulated conductors. Installation, both vertically and horizontally, takes a very short time using only a standard jointer's torch.

Tubular and wraparound versions of the product are fully kitted with all components needed to make a perfect installation every time.

Dimensions (in mm)

ACBS-T: selection chart for TUBULAR version

	Cable diameter*	
Description	maximum	minimum
ACBS-T-18/12	18	12
ACBS-T-24/18	24	18
ACBS-T-30/22	30	22
ACBS-T-40/30	40	30
ACBS-T-45/40	45	40

ACBS-W: selection chart for WRAPAROUND version

	Cable diameter*	
Description	maximum	minimum
ACBS-W-18/12	18	12
ACBS-W-24/18	24	18
ACBS-W-30/22	30	22
ACBS-W-40/30	40	30
ACBS-W-45/40	45	40

*Note: for double jacketed cable the cable dimensions refer to the inner jacket dimensions.

CBSM

Blocking system for small cables

The CBSM system is a heat-shrinkable sleeve specifically designed to act as an air pressure or water block on low pair count cables.

It consists of a heat-shrinkable sleeve internally coated with an adhesive designed to flow between the cable pairs and form an air/water block.

The product may be used on polyethylene or PVC jacketed cables and accommodates 10 and 20 pair cables. The sleeve can be installed easily using only a standard jointer's torch.

The product is supplied fully kitted with aluminium foil, cleaning tissue and abrasive strip.

Dimensions (in mm)					
Description	Cable dia. min.	Cable dia. max.	Approx. cable capacity	Jacket opening	Sleeve length
CBSM 110 kit	7	12	10 pair	30	135
CBSM 210 kit	10	18	20 pair	40	135

K CAPS

End seal caps for pressurized cables

Tyco Electronics 102 K heat-shrinkable end cap has been specially developed for use on pressurized cables. It is a rigid heavy-wall polyolefin moulded part internally coated with an adhesive which bonds to polyethylene and metal cable jackets.

Available with or without valve, this cap seals pressurized cables.

The cap is supplied in its expanded state and reduces to a predetermined size on application of heat in excess of 125°C. Additionally, the internal adhesive ensures complete protection, keeping pressure in and water out.

Specified by many telecommunications authorities, the 102 K cap is well accepted by many similar organisations for its reliability in service and ease of installation.

Dimensions (in mm)			
Description	Cable dia. max.	Cable dia. min.	Length
102 K 011-37/123 (S50)	16	9	60
102 K 022-37/123 (S10)	26	16	85
102 K 033-37/123 (S10)	44	26	95
102 K 049-37/123 (S5)	71	44	125
102 K 050-37/123 (S5)	90	71	150

Ordering examples

102 K 033-37/123 (S10) (without valve)

102 K 033-37-01/123 (S10) (with valve)

Duct seals / cable feedthrough

TDUX

Inflatable sealing system for telephone cable ducts

TDUX is a unique inflatable wraparound duct sealing system for permanently sealing telephone cable ducts in order to prevent the leakage of water from the duct into exchange vaults or manholes. It has been developed for use with plastic, concrete or steel ducting wall-feedthrough systems. It can be used with polyethylene or lead-jacketed cables.

Features

- Fast and easy to install, even in congested enclosures.
- Very flexible and reliable wraparound sealing system.
- Can be installed even if cable or duct is oval.
- Wide application cable range for each size.
- Seals vacant ducts and ducts with one or two cables. A clip is available to seal multiple cables.
- Can be installed while water is flowing out of the duct.
- Water- and airtight up to 50 kPa.
- Environmentally friendly and non-toxic.
- Resistant to chemicals and bacteria.
- Easy and fast removal.
- Various sizes available for sealing a wide range of ducts and cables.

TDUX

Sizing/ordering information
(Dimensions in mm)

Maximum cable diameter for duct with 1 cable or sum of 2 cables.
Each TDUX size will seal vacant ducts for the duct range shown in the table.

To seal 3 or more cables, use TDUX-CL clip (*)

Product description / Duct Inside ø	TDUX-35	TDUX-45	TDUX-60	TDUX-75	TDUX-90	TDUX-100	TDUX-125	TDUX-CL clip size
125							103	TDUX-CL-80
120							95	
115							91	
110						90	83	
105						85		
100					83	80		TDUX-CL-60
95					76	74		
90					70	66		
85					62	60		
80					54	52		
75				56	50	45		TDUX-CL-40
70				46	42			
65				40	30			
60			45	30	22			
55			38	28				
50			30					TDUX-CL-20
45		32	18					
40		27						
35	25	18						
30	19							
25	12							

(*) If 3 or more cables are to be sealed, the cable bundle diameter needs to be determined. Deduct 5 mm for each clip used from the max. cable diameter shown in the table to determine the max. cable bundle diameter. TDUX-clips must be ordered as a separate item.

Packaging
TDUX-45 and larger: 10pcs/box including 1 lubricant dispenser and 1 installation instruction.
TDUX-35: 25 pcs/box including 1 lubricant dispenser and 1 installation instruction.
TDUX-clips: 5 pcs/box.

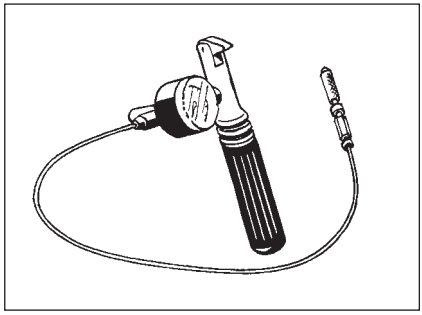
TDUX

Installation tools

TDUX duct seals can be installed with a wide variety of inflation tools, having the capability to inflate TDUX to a pressure of 3.0 ± 0.2 Bar. The following tools are available from Tyco Electronics.

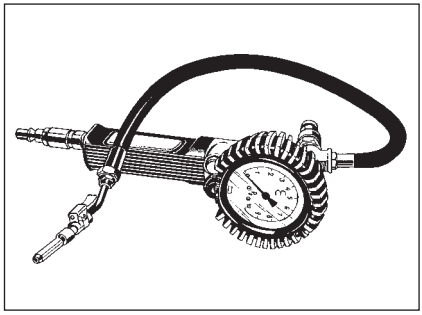
TDUX-IT-16

An inflation tool using CO^2 gas cylinders.
The CO^2 gas cylinders contain 16 g of CO^2 and can inflate a minimum of 3 TDUX-100 duct seals in vacant ducts.
The tool has an ON/OFF switch and an automatic pressure monitoring system to guarantee the required inflation pressure of 3.0 ± 0.2 Bar.



TDUX-IG-SR-AS

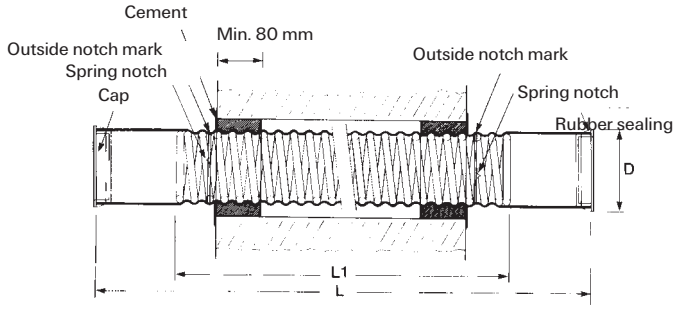
An inflation gun for connecting to a pressurized-air bottle, pump or compressor, having an outlet pressure of 4 to 10 Bar to feed the inflation gun.
The inflation gun has a safety relief valve and audio signal device to help in the installation.



EPAF

Heat-shrinkable wall feedthrough system

The EPAF wall feedthrough system consists of a heat-shrinkable tube on a steel spring.
Both ends of the tube are internally coated to provide a gas- and watertight seal when installed on a cable or pipe.
In addition, an external coating ensures a reliable permanent adhesion to concrete and similar construction materials.
The wall feedthrough is supplied fitted with sealing caps at each end to allow pre-installation in new construction applications.



Dimensions (in mm)						
Description	Application range	Useful cable diameter range		Required wall aperture D	Length	
		Min.	Min.		L	L1
EPAF 2004	8-14	16	8	23	700	520
EPAF 2008	12-25	28	10	36	700	520
EPAF 2010	18-36	41	16	50	800	620
EPAF 2020	29-56	59	26	70	700	520
EPAF 2030	55-98	106	54	120	760	530

Blank plug

Duct sealing plug for sealing empty ducts

Blank plugs from the JACKMOON range for sealing duct and cable entries.

- All plastic construction - corrosion proof
- Pull-rope attachment
- Water tight
- Simple to install
- Removable and re-usable
- Chemically resistant
- No special tools required on installation.

Networks from the exchange/head-end to the subscriber premises need to be protected so the future installation of cable or inner ducts is made easy by making sure the duct is clear and free of any water, sediment, unwanted objects and nesting animals.

Refer to your local agent for more information.

Special sizes available on request.
Sizes available: 18 - 210mm.

Triplex plug

Duct sealing plug with 3 ports

Triplex plugs from the JACKMOON range for sealing cables (and inner-ducts) in duct networks.

- Plastic construction with stainless steel metals parts - corrosion proof
- Water tight
- Simple to install
- Removable and re-usable
- Chemically resistant
- No special tools required on installation
- Protects cable from sharp corners at the duct entry
- Can be installed in ANY type of duct including
  - PVC, HDPE
  - Steel
  - Core drilled concrete

Cable and duct networks from the exchange/ head-end to the subscriber premises need to be protected to increase their service life by making sure the duct and cable is clear and free of any water, sediment, unwanted objects and nesting animals.

Refer to your local agent for more information.

Special sizes available on request.
Sizes available: 50mm - 252mm.

Quadplex duct

Duct sealing plug with 4 ports

Quadplex ducts from the JACKMOON range for sealing cables (and inner-ducts) in duct networks.

- Plastic construction with stainless steel metals parts - corrosion proof
- Water tight
- Simple to install
- Removable and re-usable
- Chemically resistant
- No special tools required on installation
- Protects cable from sharp corners at the duct entry
- Can be installed in ANY type of duct including;
  - PVC, HDPE
  - Steel
  - Core drilled concrete

Cable and duct networks from the exchange/ head-end to the subscriber premises need to be protected to increase their service life by making sure the duct and cable is clear and free of any water, sediment, unwanted objects and nesting animals.

Refer to your local agent for more information.

Special sizes available on request.
Sizes available: 82 - 207mm.

Bushing sleeves and hole plugs

Accessories for duct sealing plugs

Bushing sleeves

Bushing sleeves are used to adjust the port size of JACKMOON sealing plugs to accommodate the cable (or inner-duct) specified.

JACKMOON plugs are made using 'standard' size ports. Where the diameter of the cable (or inner-duct) is smaller than the port - a bushing sleeve may be required.

Many Simplex, Quadplex and Triplex plugs listed in the tables have a Bushing series listing. For these plugs, refer to the table and select the correct Bushing sleeve series and then select the correct bushing sleeve to suit the cable diameter.
Bushing sleeves can also be used in custom size plugs.

Hole plugs

Hole plugs are used to block off an unused port in a sealing plug. Hole plugs can be removed for future cabling requirements.
Many Simplex, Quadplex and Triplex plugs listed in the tables have a Bushing series listing. For these plugs, refer to the table and select the correct Bushing sleeve series and then select the correct hole plug.

Other hole plugs are available for use with Mini-Simplex sealing plugs, to temporarily seal the plug before cable pulling.

Refer to your local agent for more information.

F.O. Simplex plug

Sealing plug for small diameter ducts

F.O. Simplex plugs from the JACKMOON range for sealing cables (and small inner-ducts) in duct networks.

- All plastic construction - corrosion proof.
- Water tight.
- Simple to install.
- Removable and re-usable.
- Chemically resistant.
- No special tools required on installation.
- Protects cable from sharp corners at the duct entry.

Cable and duct networks from the exchange/ head-end to the subscriber premises need to be protected to increase their service life by making sure the duct and cable is clear and free of any water, sediment, unwanted objects and nesting animals.

Refer to your local agent for more information.

Special sizes available on request.
Sizes available: 7 - 56.5mm.

Minitube sealing system

Sealing devices for minitube installation in duct networks

Minitube sealing plugs

The Minitube sealing system offers a range of sealing plugs for sealing Minitubes in duct networks.

Minitubes in duct networks entering subscriber premises and cabinets need to be protected to increase their service life by making sure the Minitubes and ducts are clear and free of any water, sediment or nesting animals.

- Plastic construction with stainless steel parts - corrosion proof
- Fully split for installation on continuous Minitubes - no need to cut the Minitubes
- Simple to install
- Removable and reusable
- Chemically resistant
- No special tools required on installation
- Protects Minitube from sharp corners at the duct entry

Biplex sealing system

Sealing devices duct networks

- All plastic construction - corrosion proof
- Water-tight
- Simple to install
- Removable and reusable
- Chemically resistant
- No special tools required on installation
- Protects cable from sharp corners at the duct entry

Tyco Electronics' Biplex plugs seal one or two cables in a (nominal) 50mm O.D. (with 4.6mm wall) duct.

Cable and duct networks from the exchange head-end to the subscriber premises need to be protected to increase their service life by making sure the duct and cable are clear and free of any water, sediment, unwanted objects, and nesting animals. Protect your underground investment and seal it for future use.

Contact your local sales representative for custom sizes.

TUFF-Link system

Coupling system for PE duct

TUFF-link coupler

TUFF-Link duct couplers from the JACKMOON duct coupling range.

For use with smooth walled and ribbed HDPE duct and inner duct.

These couplers have reverse threads and concentric barbs for both thread-on and presson applications.
The TUFF-Link provides an airtight seal suitable for pressurized cable propulsion systems.

It is preferable to install these couplers with the hydraulic coupling press.

- All plastic corrosion roof.
- No 'moving' parts.
- Low profile.
- Requires no additional sealants.
- Suitable for direct burying.

Size available 33 - 60mm.

Hydraulic coupling press and die-sets

Use the hydraulic press to install couplers that are 'pressed-on' the duct.

- Portable, light weight - 11kg (25lbs), compact size.
- Durable.
- Mounting plates to secure press if required.

Die sets

Die sets are available for all TUFF-Link sizes available. Refer to the table for the correct die set. All Die Sets are secured with a bolt and are removable and reusable.

Refer to your local agent for more information.

Aluminum couplers

Anodized aluminum duct couplers

- Reversed-threaded or barbed
- Color-coded sizing
- Anodized
- Designed for all types of polyethylene

An anodized coating that is color coded by size protects these couplers and connectors, increasing their durability in the field. Designed for all types of polyethylene ducts, these products feature a ribbed external surface that provides excellent non-slip gripping during installation. Their low profile allows the couplers to pass easily through plowchutes.

Revers-threaded couplers

These couplers are reversed-threaded and tapered to accommodate the wide range of size and diameters common in the telecom industry today. Each coupler can be used with all ducts of the same nominal size, eliminating the problem of determining specific outside diameters. The buttressed threads provide excellent mechanical hold.

Barbed couplers

These couplers feature concentric air-tight barbs instead of spiral threads for maximum pullout resistance. The barbs are more effective under high-pressure airflow during cable propulsion. Install these couplers with the use of a coupling press. Refer to the hydraulic coupling press data sheet for more details.

S-threaded couplers

These couplers are reverse threaded and straight to accommodate one size only. Provides tighter seal and more thread engagement on standard size duct.

Best-Link couplers

High compression duct couplers

- All plastic construction
- Corrosion proof
- Simple to install
- No disassembly required
- Light-weight, low profile and low cost

Best-Link couplers are non-metallic high pressure rated air-tight couplings for polyethylene or PVC conduit and innerduct.

Best-Link couplers feature a patented dual-action dealing system that stops air flow in two places at the coupling joint: on the ends of the ducts and along their exterior to single gasket couplings and provides for a greater range of application per nominal size, reducing mismatching of products in the field.

Air-tight and water-tight coupling or splicing of conduits and innerducts reduces cable pulling and blowing resistance. As a result, state-of-the-art cable placement technologies such as high-pressure cable propulsion can be deployed when using Best-Link couplers.

Termination connector

Female-to-male threaded connectors

These female-to-male threaded connector are designed to secure inner ducts to cabinets and junction boxes. They consist of a universal threaded coupling end and a nipple end with locking washers and gaskets. The connectors attach to standard knockout sizes in panels and racking for maximum security to premises cabling, eliminating cable kink at these transitions.

- Rugged construction
- Color-coded sizing
- Toolless installation
- Eliminates cable kink at pull-box or cabinets
- Aircraft grade AA 6061 aluminum

Custom duct plugs

- Custom configurations available
- Application specific multi-port entrance plugs

Custom duct plugs can be designed to accommodate a specific customer requirement to effectively seal conduits, reducing the cost of cable placement and maintenance in underground construction projects and routine work. The custom size plugs feature a split design for sealing around, organizing and supporting subducts, pipes or cables.

Custom plugs provide effective long term watertight and air-tight seals to prevent the flow of water and the costly sedimentation of duct banks and conduit systems. The service life of cables, splices, manhole hardware and electronics can be increased when contact with moisture is reduced.

Note: for sealing around subducts or cables with diameters smaller than those specified, use bushing sleeves. A wide variety of bushings are available from stock. Contact Tyco Electronics representative for more information.

Copper connect

VX-PM

Plug-in modules

These are used in the VX product family blocks to provide interchangeable continuity, protection or a variety of other functions.

The plug-in modules are easily removed and reinserted by hand using a knob, and have the option of two access holes in the top for electrical testing using either pins or crocodile clips.

During testing the circuit is unaffected.

The modules consist of a casing of plastic material inside which there are two, three or five terminals, depending on the module. They are designed to provide continuity and house protection or control devices as required.

They are filled with gel which is also used in test access holes if they are present. The modules are available in colours which indicate their function, e.g. continuity modules are grey and overvoltage protected modules are red.

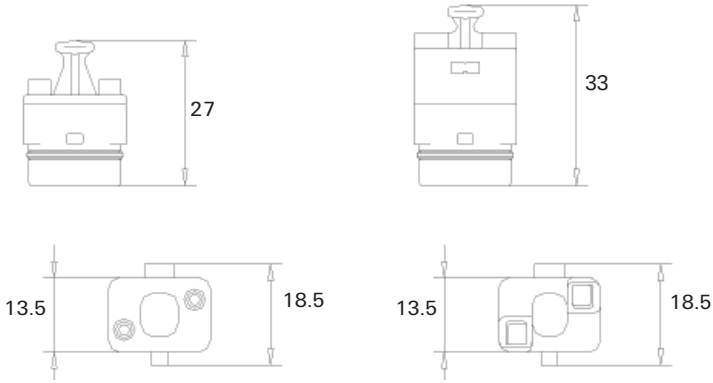
The modules incorporate an O-ring in the body which serves to seal off the central contacts of the base unit after plugging in.

Ordering information		
Description	Internal configuration	Plug-in module test access type
VX-PM-P	Continuity	Pins
VX-PM-CG04	230 V GDT	Crocodile
VX-PM-XRF	RF filter*	None

* Medium wave: 300 to 1600 kHz

For other configurations, please consult your local sales engineer.

Dimensions



VX-MD

Five-point connection module

The connection modules are designed for mounting on a standard DIN rail and can therefore be mounted in a variety of housings in whatever quantities are required.

The small footprint (2 cm wide) ensures a compact product.

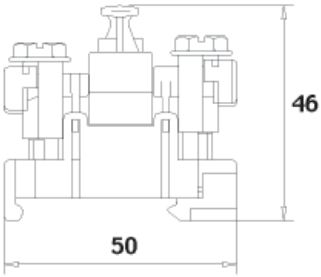
The central body of the module houses 4 contacts which are connected into two circuits by installing the continuity plug. Crocodile clip electrical testing is possible on these contacts with the plug removed. An O-ring renders this area watertight when the plug is in place.

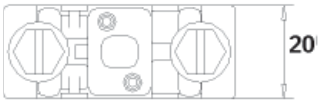
A fifth (central) terminal provides continuity via a plate to the securing profile so that grounding is available when electrical protection or filtering is required.

Ordering information		
Description	Plug-in module configuration	Plug-in module test access type
VX-MD-P	Continuity	Pins
VX-MD-CG04	230 V GDT	Crocodile

For other configurations, please consult your local sales engineer.

Dimensions (max.)





VX-DR

Modular connection block

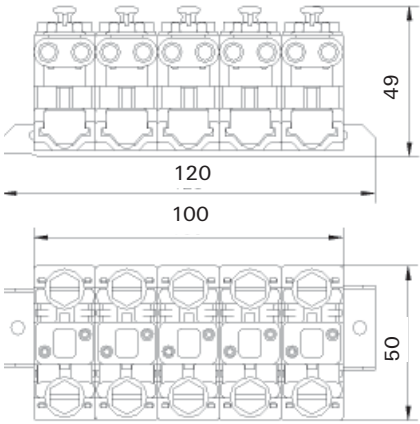
This block is designed for use in terminal boxes that are used in cabinets and inspection units in housing developments.

The distribution block is available from 5 pairs upwards in increments of 5. Each set of five is mounted on a length of stainless steel DIN railing.

Ordering information		
Description	Plug-in module configuration	Plug-in module test access type
VX-DR-05-P	Continuity	Pins
VX-DR-05-CG04	230 V GDT	Crocodile

For other configurations, please consult your local sales engineer.

Dimensions (max.)



VX-SB

Subscriber connector unit

The subscriber connector unit is used for the connection of an outdoor to an indoor drop wire. It consists of a rectangular box base with a cover and a five-pole connection module secured to the base.

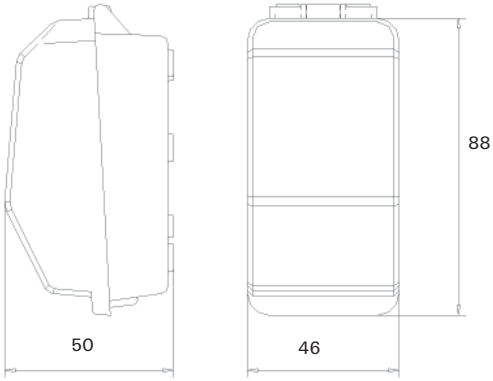
The top and base are hinged together, and the top is easily removable to facilitate working in cramped conditions. The cable grommets for wire entry and exit may be adjusted to conductor size and are also removable.

A metal screw is provided in the wire housing recesses to secure the wires.

Ordering information		
Description	Plug-in module configuration	Plug-in module test access type
VX-SB-01-P	Continuity	Pins
VX-SB-01-PG04	230 V GDT	Pins

For other configurations, please consult your local sales engineer.

Dimensions



VX-SB-02

2-Pair subscriber connector unit

Use

The subscriber connector unit is used for the connection of an outdoor to an indoor drop wire. It allows for circuit testing in both network directions.

The box provides environmental protection and is especially recommended for

- aggressive environmental conditions,
- terminations where future requirements may include different types of protection.

Description

The subscriber connector unit consists of a rectangular box base with a cover and two five-pole connection modules secured in a stainless steel plate.

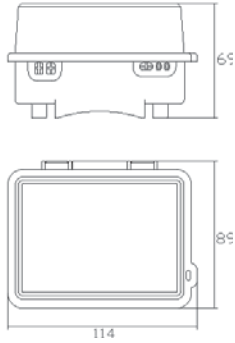
The top and base are hinged together, and the top is easily removable to facilitate working in cramped conditions.

The cable grommets for wire entry and exit may be adjusted to conductor size and are also removable.

A metal screw is provided in the wire housing recesses to secure the grounding wire.

Ordering information				
Description	Number of pairs configuration	Plug-in module test access type	Plug-in module	Order number
VX-SB-02-P	2	Continuity	Pins	737072-000

For other configurations, please consult your local Tyco Electronics sales engineer.



VX-TB

Terminal box with optional protection

This is used in terminating cables of secondary telephone networks to the cable pairs of subscriber lines. It consists of a body and cover which house a VX stubbed block.

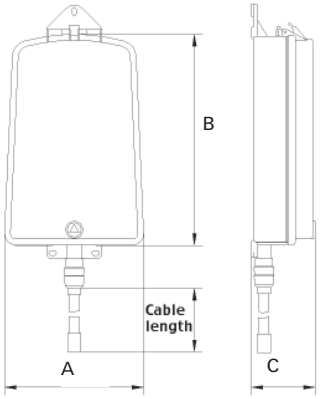
The box is designed for wall mounting. The lid has various opening positions, which can be selected according to the amount of working space available, and is also fitted with a seal to limit water entry. Grommets are provided for dropwire access. The box locking mechanism is mounted through the cable stub and is effective on closing the box; to open the box again a special key or a screwdriver is required depending upon the lock type.

The ground terminals of each pair are electrically connected to the cable shielding and to an external ground terminal. The unit is sealed with resin and the cable-block connection is sealed with heat-shrinkable tubing.

Ordering information				
Description	Number of pairs	Plug-in module configuration	Plug-in module test access type	Stub cable length (m)
VX-TB-11-P-028	10 + talk pair	Continuity	Pins	2.8
VX-TB-11-PG04-028	10 + talk pair	230 V GDT	Pins	2.8
VX-TB-21-P-028	20 + talk pair	Continuity	Pins	2.8

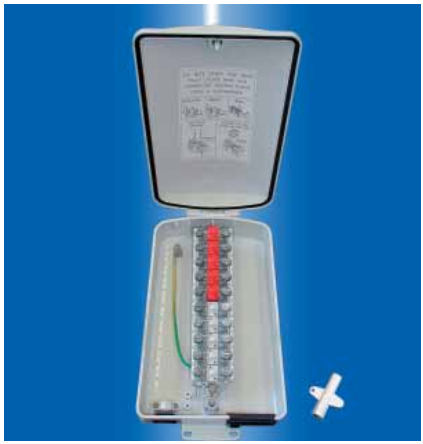
For other configurations, please consult your local sales engineer.

Dimensions			
	"A"	"B"	"C"
5 P.	155	195	64
10 P.	155	195	64
15 P.	155	195	64
20 P.	180	269	64



VX-TBL

In-line terminal box with optional protection



It is especially recommended for:

- outdoor connections where the environmental conditions are extremely aggressive,
- terminations where user development characteristics require future flexibility in terms of the type of protection or filtering capabilities.

Use

This is used in terminating cables of secondary telephone networks to the cable pairs of subscriber lines.

The VX-connection module provides a connection point between an exchange-side cable pair and a distribution pair. It incorporates a 5-point plug-in module to provide continuity and a range of other options. Removal of the plug-in module does not disturb wire connections but makes contacts to them available for testing to both sides of the network.

Description

The box consists of a body and cover which house VX Modules in a DIN rail.

Provision for wall mounting is incorporated in the body of the box.

The lid has various opening positions, which can be selected according to the amount of working space available, and is also fitted with a seal to limit water entry.

Grommets are provided for drop wire and pair access.

The box locking mechanism is mounted in the base and is effective on closing the box; to open the box again a special key or a screwdriver is required depending upon the lock type.

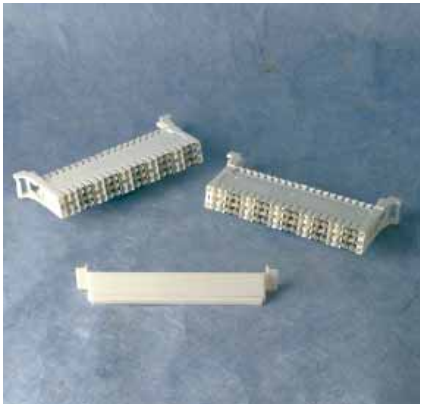
The connection modules are designed for mounting on a standard DIN rail and can therefore be mounted in a variety of housings in whatever quantities are required. The small footprint (2 cm wide) ensures a compact product.

Dimensions

Ordering information			
Description	Number of pairs	Plug- in module configuration	Plug- in module test access type
VX-TBL-10-P	10	Continuity	Pins
VX-TBL-10-CG04	10	230 V GDT	Crocodile

QDF-E

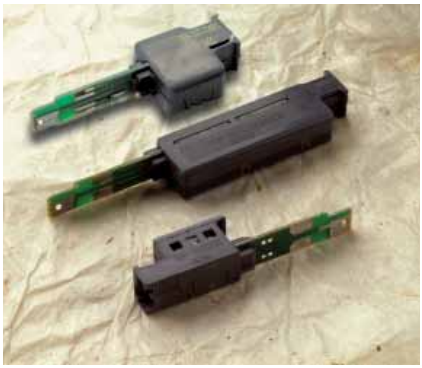
Termination magazine



The QDF (Quick-Connect Distribution Frame) family of products provides a reliable, quick and easy to use system for wire management.
The QDF-E magazine is a 10-pair magazine designed for applications in which there is or will be a need for protecting, testing or breaking the circuits. This includes distribution frames and on customer premises, as well as in outside plant installations.
It's design provides built-in break-access jacks which can be separated for testing in both directions on protected as well as unprotected circuits, for monitoring circuit performance or for circuit disconnection. The break-access jacks also accept individual protector modules. The "make-before-break" design of the break-access jacks enables testing and patching without any loss of signal; a substitute circuit is established through the tip of the plug before it breaks the original circuit.
The IDC contacts are housed in a thermoplastic termination block incorporating an integrated earthing strip which automatically connects to the metal mounting bracket when the magazine is installed.
A wide range of protection options is available, as is a broad selection of accessories, such as patch-cords, designation covers and wings, circuit markers and line-opening and line-grounding plugs.

QDF-E

Line protectors



A wide range of protection is offered as an important part of the QDF product line. Solid state as well as gas tube overvoltage protection is available and overcurrent protection is also provided in the 5-point protectors. All the QDF protectors fit into the QDF-E 10-pair magazines.

3-Point overvoltage protection

The QDF-PR-3GT-XXX type, formerly QDF-3CGS-XXX contains a heavy-duty 3-electrode gas discharge tube. They are used when many large lightning induced voltages are expected on the telecom pairs.

5-Point overvoltage and overcurrent protection

The QDF-PR-5GT-XXX type, formerly QDF-5CSS-XXX is a solid state protector designed for use in applications that demand extremely fast operation and low operating voltage that only solid state protectors can provide.

There are other different types under request to cover the majority of customer requirements.

Overcurrent protection has been added to all of these 5-point protectors as 2 PTCRs.

The overcurrent devices are fast-acting, have low room temperature resistance and are completely self-restoring when the fault current source is removed from the line.

All QDF protectors are equipped with a heat-operated fail-safe (shorting) mechanism. Sustained operation of the protector, because of contact with or induction from power lines, will cause operation of the fail-short device.

The default current may continue to flow, but the heat-generating protector has been bypassed by the fail-safe shunt.

They have an intermediate position to which they can be temporarily withdrawn to remove protection from the equipment. This is a partial withdrawal which maintains contact on the cable side.

Testing can then be performed using the 4-wire retractable test/patch cord inserted into the top of the protector.

Non-intrusive testing may be carried out by using the same cord inserted into the top of the protector while it is in the fully inserted position.

QDF

Accessories

Break plug

This is a plastic device which breaks the circuit when inserted into the access slot of a QDF-E magazine. It can be used for cutovers and office conversions.
Order (packs of 100)
QDF-1BBL (black)
QDF-1BR (red)

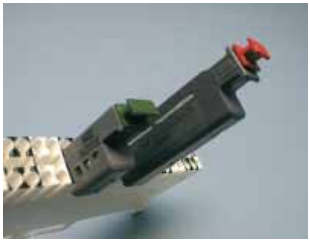
Dummy plug

he dummy plug is a plastic device which denies access of test or break plugs to the circuit when inserted into the access slot of a QDF-E magazine. It can be used for marking special circuits and for preventing accidental interruption of designated lines.
Order (packs of 100)
QDF-DB (black)
QDF-DR (red)

Marker plug

The marker plug is a plastic cap which slides into the wire retention slot to identify special circuits.
Order (packs of 100)
QDF-MB (black)
QDF-MG (green)
QDF-MR (red)

Protector marker



The protector marker is a plastic cap which slides into the top of a protector module to mark special circuits. It also denies test access.
Order (packs of 100)
QDF-PMB (black)
QDF-PMR (red)
QDF-PMG (green)

Designation wings

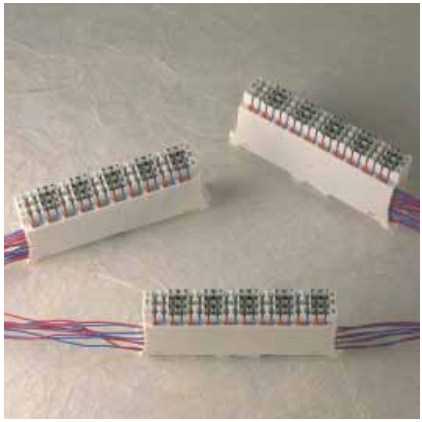
These plastic parts attach to either side of a QDF-E magazine to identify circuits.
Two widths are available:

- the narrow wing is typically used on individual magazines and
- the wide wing is used for blocks of magazines.

The flat surface may be written on or used for a label.
Order (packs of 100)
QDF-EDW (narrow, white)
QDF-EDW-G (wide, grey)

QDF-E

Wire guides and covers



Wire guides for jumper wires are optionally available. These facilitate wire management by guiding the wires through access slots straight to their contact and finishing positions.

The effective administration and management of cross-connect jumper wiring is an important consideration in any installation.

The QDF-E wire guides address the variations possible in frame configuration and density and offer the ability to adminster, identify, trace and re-route circuits effectively and quickly.

Three types of guide are available

- a left wire guide which routes ten pairs from the left side,
- a right wire guide which routes ten pairs from the right side,
- a dual wire guide, which routes 5 pairs from each side.

Designation covers are also available.

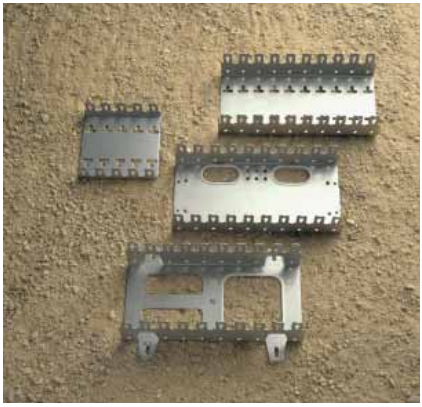
These are very useful accessories for easy pair identification. Space for writing or labelling is provided on both sides of the cover and on wings at the ends of the fixed portion of the cover assembly.

They are easily fitted and removed and also provide protection against accidental contacts.

Ordering information		
Description	Product name	Minimum quantity
Dual wire guide	QDF-DWGW	25
Left wire guide	QDF-LWGW	25
Right wire guide	QDF-RWGW	25
Designation cover, white	QDF-ED	100
Desgination cover, grey	QDF-EDG	100

QDF

Mounting brackets



The QDF wire management system features the exclusive mounting bracket. This is designed expressly for the QDF-magazines to ensure smooth, reliable installation.

The mounting tab features a recessed area which provides an alignment guide for positive positioning and smooth installation of the magazines. The mounting latches of the magazine slide down the tab and snap into position in the mounting slots provided.

The stainless steel mounting brackets are available in standard lengths identified by the number of mounting positions: 5 or 10. They are also supplied in a range of depths to satisfy a variety of cable management requirements.

Other features include

- Elongated "t"-shaped mounting holes which offer flexible mounting capability (standard version only).
- Holes on both sides of the bracket for cable tie mounting and efficient wire management.
- Chamfered edges minimise risk of injury and damage.

Three designs of mounting bracket are available: a standard version with variants for MDF and cabinet applications.

Ordering Information			
Positions	Storage space (mm)	Length (mm)	Catalogue number
Standard brackets			
5	11	110	QDF-11-05A
10	11	222.5	QDF-11-10A
5	30	110	QDF-30-05A
10	30	222.5	QDF-30-10A
10	50	222.5	QDF-50-10A
MDF mounting brackets			
10	30	225	QDF-30-10A-MDF
62	30	1395	QDF-30-62A-MDF
Cabinet mounting brackets			
Not available separately. Supplied already fitted in street cabinets. Also available as part of a cabinet block kit. This also contains: ten 10-pair QDF-E magazines, 4 mounting screws and washers, one designation cover, two cover labels and one tie-wrap.			
10	40	222.5	QDF-100-CB

QDF

Installation tools

QDF Impact tool

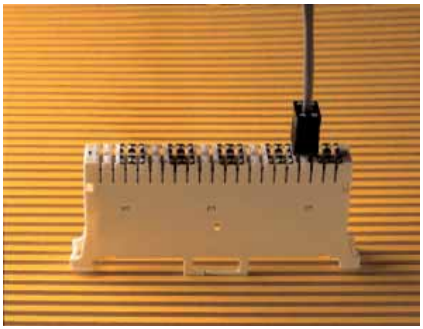
The QDF installation tools provide fast and reliable installation of wires.
A non-orienting tip allows for rapid alignment with the split cylinder contacts. As the wire is cut by the split cylinder and not the tool, there is no cutting edge to dull or scissor mechanism to fail.

QDF impact installation tool

The QDF impact installation tool is spring loaded and automatically generates the force required for correct wire installation. It features a built-in wire removal hook for removing terminated wires.
A magazine removal tool for releasing the QDF-E magazine from their mounting bracket is also incorporated.
Three lengths are available, depending upon customer requirements.

QDF Test/Patch cords

2 and 4-wire test/patch cords



The QDF 2 and 4-wire test/patch cords provide access to circuits for testing, monitoring, and temporary or permanent patching.
Both are available in a variety of configurations to accommodate all testing and patching applications.

Ordering information
QDF-2A1-1
QDF-4A1-1

4-wire retractable test/patch cords

The 4-wire retractable test/patch cord consists of a plastic plug assembly containing a moulded printed circuit board which can be extended from or retracted into the housing assembly. This unique design enables access for testing or monitoring circuits on the QDF-E termination magazine both with or without installed protectors.

Ordering information
QDF-4RT1-2 is a 2 m long test cord with one plug and one open end.

2-wire monitor/patch cords

Plug detail
The 2-wire monitor cord is used to bridge/tap (no circuit interruption) onto a 2-wire circuit which will allow passive monitoring of that circuit; the patch cord provides a means to connect 2-wire circuits together in parallel.
The plug on the cord is half black and half white to assure correct circuit polarity when installed on the QDF magazines.

Ordering Information
QDF-2T1-2 is a 2 m long 2-wire monitor cord.

C5C

Disconnection magazine

C5C is the latest addition to the Tyco Electronics family of digital transmission quality IDC connectors. Magazine removal is effected without the need of a tool.

It uses proven high performance Tyco Electronics' gel to achieve

- Low attenuation.
- High insulation resistance.
- High SNR (signal to noise ratio).
- Maximum bit-rate throughput up to CAT5 requirements.

Order information

C5C-MZ-10-W-T-D (magazine, dry version).

C5C-MZ-10-W-T-G (magazine, filled version).

Protectors 3 & 5 point

A wide range of protection products are offered which are an important part of the C5C product line. Gas tube over voltage protection is available, and over current protection is also provided in 5-point protectors. Both, 3 & 5-point are available in dry and sealed versions.

Order information

C5C-PR-5-GT-230-R-D (GDT 230 V + overcurrent, filled version).

C5C-PR-5-GT-230-R-D (GDT 230 V + overcurrent, filled version).

Cords

Test cord, 4-wire

The C5C 2 and 4 wire test/monitor cords, provide access to circuits for testing and monitoring. Available in 2-4 meters and different end, Plug-Banana (P/B), Plug-Plug (P/P), Plug-Wire (P/W).

Order information

C5C-CO-M2-2-P/B (Monitor cord, 2 meters, Plug/Banana end).

C5C-CO-M2-2-P/P (Monitor cord, 2 meters, Plug/Plug end).

C5C-CO-M2-2-P/W (Monitor cord, 2 meters, Plug/Wire end).

C5C-CO-M2-4-P/B (Monitor cord, 4 meters, Plug/Banana end).

C5C-CO-M2-4-P/P (Monitor cord, 4 meters, Plug/Plug end).

C5C-CO-M2-4-P/W (Monitor cord, 4 meters, Plug/Wire end).

C5C-CO-T4-2-P/B (Test cord, 2 meters, Plug/Banana end).

C5C-CO-T4-2-P/P (Test cord, 2 meters, Plug/Plug end).

C5C-CO-T4-2-P/W (Test cord, 2 meters, Plug/Wire end).

C5C-CO-T4-4-P/B (Test cord, 4 meters, Plug/Banana end).

C5C-CO-T4-4-P/P (Test cord, 4 meters, Plug/Plug end).

C5C-CO-T4-4-P/W (Wire cord, 4 meters, Plug/Wire end).

C5C
Accessories

Plugs and markers

Break plug

This is a plastic device which breaks the circuit when inserted into the access slot of a C5C magazine. It can be used for cutover and office conversions.

Order information (packs of 100)

C5C-AC-BP-B (black).
C5C-AC-BP-R (red).
C5C-AC-BP-W (white).

Marking plug

The dummy plug is a plastic device which denies access of test or break plugs to the circuit when inserted into the access slot of a UCS-DM & UCS-CM magazine. It can be used for marking special circuits and for preventing accidental interruption of designated lines.

Order information (packs of 100)

C5C-ACX-MP-B (black).
C5C-ACX-MP-R (red).
C5C-ACX-MP-W (white).

Designation accessories hinged label holder

This plastic accessory attaches to either side of a C5C magazine to identify groups. It is typically used on Cross Connect Cabinets and BET's.

Order information

C5C-AC-HLH-W (white).
C5C-AC-HLH-G (grey).

Numbering set

These plastic parts attach to either side of a C5C magazine to identify circuits. They are typically used on individual magazines and for magazines blocks. **They are included with the magazines.**

C5C
Tools

Installation tool

The installation tool provides fast and reliable installation of wires.
As the wire is cut by the terminal and not the tool, there is no cutting edge to dull or scissor mechanism to fail.

Order information

C5C-AC-ITS (Installation tool, short version).
C5C-AC-ITL (Installation tool, long version).

Disposable tool

The disposable tool is not intended for use during first-time installations, but for subsequent minor operations, such as adding new jumpers. One disposable tool is included in each box.

Order information

C5C-AC-DT (box of 50 units).

C5C tool-less

Magazines

"DSL transmission on your outside plant copper network requires reliable, sealed contacts. C5C sealed, IDC contacts will optimize contact resistance and insulation resistance, reducing bit error rates. This superior connector will allow you to transmit at higher speeds over longer local loops".

Tyco-C5C is the latest addition to the Tyco Electronics' family of magazines for digital transmission quality connectors. It is available in both dry and gel filled version. It is an evolution from standard C5C technology for achieving:

- Low attenuation
- High insulation resistance
- High SNR (Signal to Noise Ratio)
- Maximum bit-rate throughout up to CAT5 requirements.
- Tool-less. No need of additional tool. Reduction of breakdowns due to usage of incorrect tools.

It uses proven high performance Tyco Electronics' gel to achieve all of the above, in the outside plant environment, where weather and pollution elements play a major role in degradation of the digital signal as a result of connectivity deterioration in non-sealed connectors. There is a dry version thought for applications in controlled environments, where sealing is not required.

The tool-less feature reduces breakdowns due to the usage of incorrect tools by means of two inserters; the left one terminates the jumper side and the right one terminates the cable side.

The operator's push-on force will punch the wire into the IDC's and automatically cut off excess wire at the cut-off blade of the terminal. Since the wire is cut by the contact, not the tool, there is no problem of tool blunting which occurs with other systems.

It mounts in mounting brackets with a vertical pitch of 22.5 mm. Magazine removal from mounting bracket is effected by hand without the need of a tool.

Tyco-C5C-MZT is particularly suited to use in cross-connect cabinets, terminal boxes and building entrance terminals.

If the conductor of the drop wire is 0.6 mm or less, the C5C tool-less can be used as a compact and environmentally protected distribution point.

The CAT5, compact, tool-less, environmentally sealed IDC magazine from Tyco Electronics.

DTERMINATOR 2 - PMT/PMP/PMX

Pole-mounted terminal

The DTerminator 2 PMT system is used for pole-mounted terminal applications and features side-entry grommets to improve the ease and speed of wire installation. The housing is anodized to minimize corrosion. The protected DTerminator 2 PMP system offers all the advantages of the DTerminator 2 PMT system plus environmentally sealed protectors for electrical surge protection. The DTerminator 2 PMX upgradable block includes a grounding strip. Although it is an unprotected model, the PMX block's driver modules can easily be replaced in the field by protected driver modules, creating a protected unit.

Product types

DT2-PMT	Pole-Mounted Terminal
DT2-PMP	Pole-Mounted Terminal Protected (fail safe only)
DT2-PMX	Pole-Mounted Terminal upgradable
DT2-PTP	Pole-Mounted Terminal Protected (Bellcore 1305)

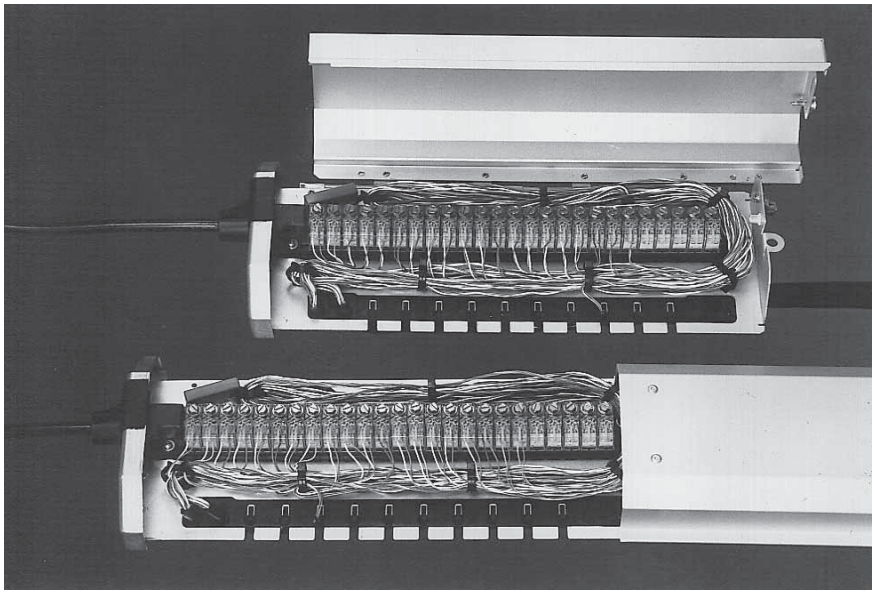
Pair counts: 10, 12, 15, 20, 25 and 50-pair blocks available.

Cable types: aircore shielded.

Stub length: 3.60 and 7.50 m stubs available.

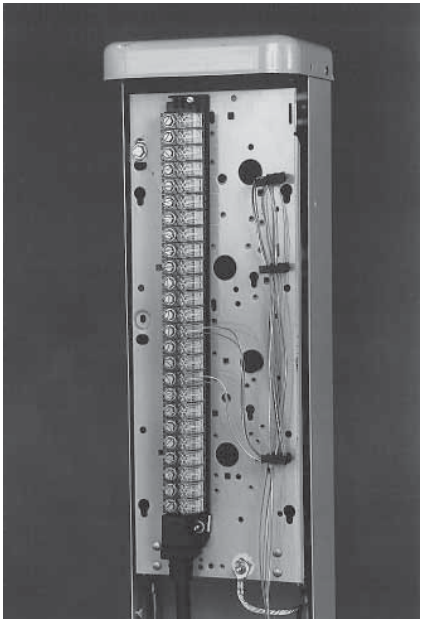
Housing types: Aluminium slide-down, aluminium swing-out.

Other configurations may be available upon request.



DTERMINATOR 2 - PTB/PTP/PTX

Pedestal terminal block



The DTerminator 2 PTB pedestal-mounted terminal system utilizes Tyco Electronics GelGuard technology for environmental protection of the wire connections. The PTB block offers enhanced characteristics, with a versatile mounting system suitable for attachment to any pedestal faceplate. The DTerminator 2 PTP protected terminal block contains driver modules with environmentally sealed circuit protectors. The DTerminator 2 PTX upgradable block includes a grounding strip and can be upgraded to a protected unit.

Product types

DT2-PTB	Pedestal Terminal Block
DT2-PTP	Pedestal Terminal Block Protected (fail safe only)
DT2-PTX	Pedestal Terminal Block upgradable
DT2-PTP	Pedestal Terminal Block Protected (Bellcore 1305)

Pair counts: 5, 6, 10, 12 and 25-pair blocks available.

Cable types: aircore shielded and unshielded, filled shielded and unshielded. Availability varies by pair count.

Stub length: 1.20, 3.60 and 7.50 m stubs available.

Standard package quantity: 5 units per package.

TERMSEAL

Terminal lug cap

Tyco Electronics TERMSEAL terminal lug cap is a re-enterable sealing device that protects the terminal block binding post against damage from high humidity, corrosion and many other environmental influences. This fast and easy method of encapsulation delivers exceptional performance even in severe environments.

TERMSEAL caps feature Tyco Electronics revolutionary GelGuard technology for encapsulating the terminal post and the drop wire termination.

TERMSEAL caps are designed for use on wired or unwired lugs of raised terminals, flat faceplate terminals, house protectors and network interface devices.

TERMSEAL caps are available in four sizes:

- TLC-AA
- TLC-B
- TLC-A/D
- TLC-CP800

Each is available in two colors: red to mark special circuits and black for common circuits.

Splicing systems

Tel-Splice

Telephone cable splice connectors

Tel-Splice connectors provide and economical and reliable means of splicing telephone cable conductors.

Advantages

- Durable - highly resistant to moisture and chemical attack; flame retardant models available.
- Economical - lower applied cost; IDC (installation displacement connectors), gas tight connections, no pre-stripping required.
- Versatile - available in either 2-wire or 3-wire, half tap and clear and cap in loose piece or cartridge.

Applications

- Load coils
- Stub cables
- Ready access terminals
- Trunk and tool cables.

Technical specifications

- 108-6021 all 2-wire, 3-wire, and 1/2 tap versions, except flame retardant
- 108-6042 all flame retardant versions
- 108-6075 clear and cap

MSDS for filled product 125-6332.

Tel-Splice

Telephone cable splice connectors

Operating temperature for TUS Tel-Splice 2-wire, 3-wire, and 1/2 tap is -40°C to 90˚C except for flame retardant (F/R) versions which have a range of -40˚C to 100˚C
Conductor range is 19 AWG - 26 AWG. Maximum insulation O.D. for TUS Tel-Splice is 0.080˝/2.03mm

Economy (ET) tool
790162-1

Crimp handle gauge
230495-1

Tel-Splice connector applicator
2-wire, 1/2 tap sticks:
1490017-1
3-wire sticks:
1490018-1

Welded Tel-Splice

Pro-crimper
58610-1

PICABOND

Connectors

PICABOND connectors provide an economical and reliable method for splicing multiconductor telephone cable.

AMP PICABOND connectors are manufactured from tin-plated phosphor bronze and tin-plated brass with bonded polyester insulation. Color coding of the insulation is provided to denote wire size and weather-resistant type. Any solid core wire, 28 to 19 AWG (0.32 –0.90 mm), with pulp, paper or plastic insulation can be spliced.

Lightweight and compact, PICABOND splices reduce the space required over other splicing techniques by up to 33%. In-line, butt, tap, and bridge splices can be made with these connectors.

Advantages

- Saves time: no pre-stripping or cutting required, can tap without service interruptions, eliminates "turndowns "
- Versatile: color-coded to indicate size and type of wire; used for butt, in-line, bridge and half-tap applications
- Economical: lower applied cost, minimum training required, higher application rates

Applications

- Splicing
- Central office
- Manhole
- Aerial Pole
- CEV
- Pedestal
- Demarcation Points.

Ordering information

Please contact your Tyco Electronics sales representative for more details.

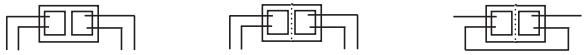
PICABOND

Connectors

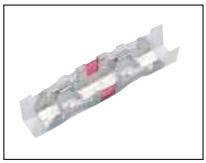
Standard connectors

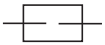
Typical splicing applications

Standard connector



Load coil standard connector





Mini connector

PICABOND tooling selection guide

For standard and load coil connectors

VS-BA
VS-3
MA-6U
MA-6B
MR-1
MA-10
MVS-3

For Mini Connectors

MA-10
MVS-3

PICABOND

Connectors

PICABOND tools and accessories

VS-3 and VS-3A hand tool and tool holder (to be used with loose-piece standard and load coil connectors)

MVS-3 and VS-3A hand tool (to be used with loose-piece mini connectors)

These tools feature ratchet control which provides positive crimping action. The cycle must be completed before the handles are released.

The VS-3 VS-3A and tool will accept all loose-piece standard and load coil connectors. The MVS-3 tool will accept all loose-piece mini connectors.

The tool holder for use with VS-3,VS-3A, and MVS-3 hand tools is specifically designed to clamp directly onto the strand allowing the craftsman free use of both hands for tool operation. The holder is supplied with an adjustable locking device which provides total insulation between the strand and tool. In addition to aerial applications, it can be used for buried and underground installations.

Refer to PICABOND tooling selection guide.

MA-6 applicator kit (to be used with loose-piece standard and load coil connectors)

MA-6B applicator kit (to be used with loose-piece standard and load coil connectors)

MA-6U applicator kit (to be used with strip or loose-piece standard and load coil connectors).

These applicators are ideally suited for all large count (in-line or butt) bridging and tapping operations using standard strip foam and load coil PICABOND connectors.

Half-tap splicing can also be done with no interruption of service. The tool can be mounted conveniently on all cable (aerial, buried, vault, or underground). These applications also feature ratchet control.

MR-1 (MR-1U) hand tool and holder (to be used with loose-piece standard and load coil connectors).

This tool is designed to crimp PICABOND connectors in through, tapping and bridging operations. The tool can be hand-held or it can be used in the tool holder. The tool features two wire supports, a set of dies (anvils and crimpers),a wire cutter and a handle assembly.

MA-10 applicator kit (to be used with strip mini connectors).

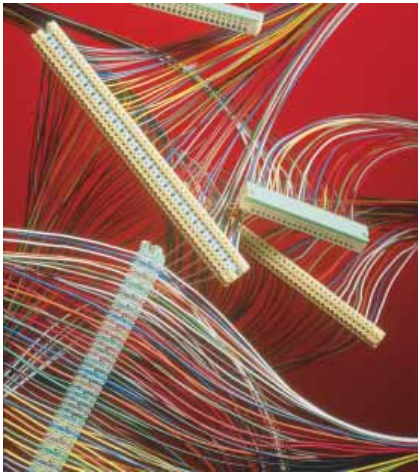
This applicator provides high-speed reliable straight splicing, a pair at a time. One complete revolution of the handle accomplishes all required operations: wire cutting, crimping, and indexing the next two connectors into position for the following pair. This tool can be used for all aerial, buried, vault, and underground applications.

PICABOND tooling accessory items

Wire support
Replacement kit
Extension bar
Crimp height gage
Cleaning kit
Cleaner-lubrication
Shear pin kit
Cutter blade kit
Carry case
Wire hold back

AMP STACK III

Modular connection system



The AMP STACK MARK III 25 pair connectors are designed to mass terminate communication cables of solid copper or aluminum conductor wires ranging from 0.32 to 0.8 mm of diameter, (28 to 20 AWG).

The connectors are equipped with insulation displacement tin plated contacts that provide a gas-tight termination and cover different insulation types like pulp, paper or plastic up to 1.65 mm. external diameter. The product line includes dry testing, and pre-sealed versions.

Product features

- Connectors for straight splicing and tapping of communication cables.
- Pluggable/bridge module to connect/ disconnect modules.
- Dry testing versions available for simultaneous electrical testing during application.
- Pre-sealed versions with sealing gel for environmentally protected connections.
- Plastic adapter to correctly place the connector in the crimping tool is included in the packaging.

Materials

- Housing, cover and base: polycarbonate.
- Contacts: phosphor bronze, tin plated.
- Cut-of blade: stainless steel.
- Application tooling plastic adapter: ABS.

AMP STACK III

Modular connection system

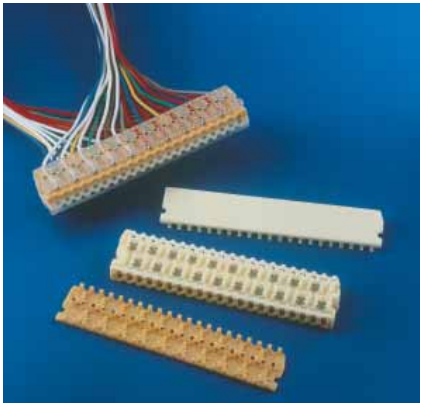
	Module type	Kit components	Color
25-pair connectors Dry and retardant	Splicing	Base, body assembly and cover	Gold, gold-ivory an ivory Transparent, gold-ivory and transparent
	Pluggable/ bridge	Protector/body assembly and cover	Red/light blue-ivory and ivory Red/light blue-ivory and transparent
	Half-tap	Base, Body assembly and cover	Green, green-ivory and ivory Green, green-ivory and transparent
25-pair pre-sealed connectors	Splicing	Base, body assembly and cover	Gold, gold-ivory and ivory Transparent, gold-ivory and transparent
	Pluggable/ bridge	Protector/body assembly and cover	Red/light blue-ivory and ivory Red/light blue-ivory and transparent
	Half-tap	Base, body assembly and cover	Green, green-ivory and ivory Transparent, green-ivory and transparent

Ordering information

Please contact your Tyco Electronics sales representative for more details.

AMP STACK IV

Modular connection system



The AMP STACK MARK IV connector family is designed to mass terminate communication cables of solid copper or aluminum conductors ranging from 0.4 to 0.9 mm or diameter (26 to 19 AWG).

The connectors are equipped with insulation displacement tin plated contacts that provide a gas-tight termination and cover different insulation types like pulp, paper or plastic up to 1.95 mm. external diameter.
Mark IV products include dry, and pre-sealed versions in 10 pair modules.

Product features

- 10-pair modules for straight splicing and tapping of communication cables.
- Built-in wire retainer to protect against axial pulling and to avoid wire pop outs during reparations.
- Sealing gel protects from the environment.

Materials

- Body housing, cover and base: polycarbonate.
- Contacts: phosphor bronze, tin plated.
- Cut-off blade: stainless steel.

	Module Type	Kit components	Color
10-pair connectors Dry	Splicing	Base, body assembly and cover	Gold, gold-ivory and ivory Transparent, gold-ivory and transparent
	Half-tap	Base, body assembly and cover	Green, green-ivory and ivory Transparent, green-ivory and transparent
10 Pair pre-sealed connectors	Splicing	Base, body assembly and cover	Gold, gold-ivory and ivory Transparent, gold-ivory and transparent
	Half-tap	Base, body assembly and cover	Green, green-ivory and ivory Transparent, green-ivory and transparent

AMP STACK

Assorted tooling kits

AMP STACK Mark III tooling kit
Terminates AMP Stack Mark III 25-pair connectors.

- Carrying case
- Hand tool
- Splicing head
- Single insert tool
- Check comb
- T-pedestal
- Double point tester connector
- Instruction sheet.

There are several clamps for different needs. See the clamp section of this document for specifications and compatibility.

AMP STACK Mark IV
Terminates AMP Stack Mark IV 10-pair connectors.
Standard tooling kit

- Carrying case
- Hand tool
- Splicing head with fix T-pedestal (only standard)
- Splicing head without T-pedestal (only universal)
- Single insert tool
- Check comb
- 10-pairs separating tool
- Double point tester connector
- Insulation sheet.

AMP STACK Mark IV
Terminates AMP Stack Mark IV 10-pair connectors.
Universal tooling kit

- Carrying case
- Hand tool
- Splicing head without T-pedestal
- Single insert tool
- Check comb
- 10-pairs separating tool
- Double point tester connector
- Instruction sheet.

To use jointly with the universal clamp bar Assembly 1-525421-2.

AMP STACK

Assorted tooling kits

AMP STACK Mark IV
Universal tooling kit

Terminates AMP Stack Mark IV 10-pair connectors.

- Carrying case
- Hand tool
- Splicing head without T-Pedestal
- Single insert tool
- Check comb
- Double point tester connector
- Holder bar
- Instruction sheet.

Holder bar recommended for small cables. All AMP STACK Mark IV universal tooling kits are compatible with the 10-pair piece-out fixture (see AMPSTACK application tooling accessories).

AMP STACK Mark IV
Economy tool

AMP STACK

Assorted tooling kits and accessories

AMP STACK application tooling accessories

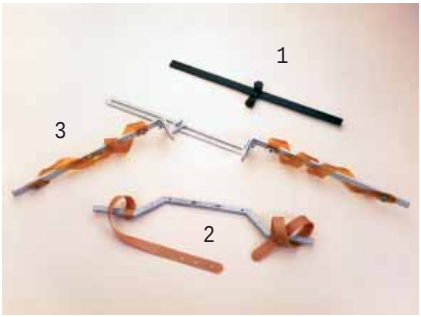
T-Pedestal

Single separation tool

AMP STACK

Assorted tooling kits and accessories

Clamps for AMP STACK application tooling



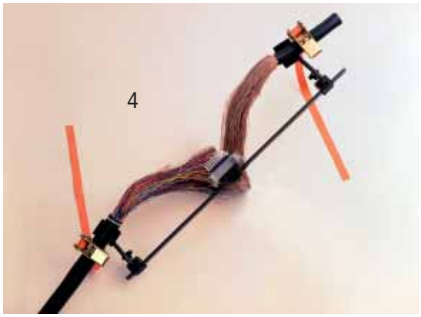


Figure	Clamp	Mark III	Mark IV Standard	Mark IV Universal	Length (mm)	Remarks
1	Bar clamp	·	·	(1)	515	Low cost. Rubber strap not included
2	Holder bar	·		(2)	545	Low cost. Narrow working spaces
3	Holder bar adjustable	(2)		(3)	max.1.330	Adjustable to angled cables
4	Universal assembly	·	·	(1)	590-960	Adaptable to environment.
5*	Picabond clamp	·	·	(1)	457/762	Must use adapter (Part number 356152-1)

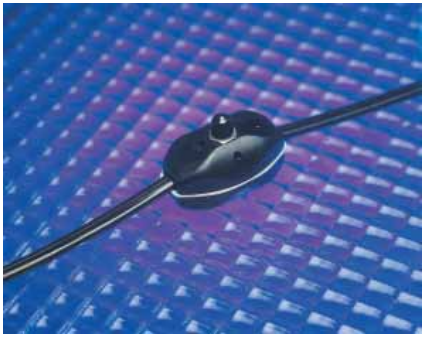
(1) Requires T-pedestal (P/N 790136-1)
(2) Double splicing
(3) Four splicing heads Mark IV
*Not pictured
· Clamp compatible with corresponding application tooling kit

Ordering information

Please contact your Tyco Electronics sales representative for more details.

AMP Mini-Drop

Wire splice



The AMP Mini-Drop wire splice provides a compact, waterproof drop wire splice.

Advantages

- Easy to install: IDC contacts: no special tools or wire stripping required.
- Reliable: self-contained design and rugged construction help eliminate line noise and splice failure.
- Economical: waterproof design eliminates costly taping; no need to install new drop.

Applications

- Splicing
- Aerial pole
- Pedestal

Product overview

- Splice
- Splice and installation wrench kit
- Installation wrench
- Bolt cap

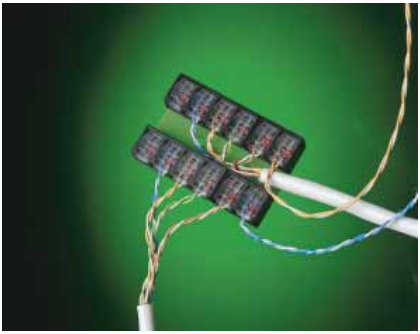
Ordering information

Please contact your Tyco Electronics sales representative for more details.

Network interface devices

Commoning block

One and two-line commoning block



AMP one- and two-Line Commoning blocks are designed to provide multiple pair outputs for each input pair.

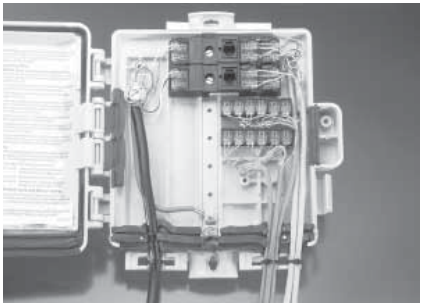
Advantages

- Easy to install: toolless insulation displacement using AMP pivot connectors; terminate by hand; no wire stripping necessary.
- Maximizes space requirements: low profile design fits into applications where space is limited; increases typical subscriber line terminations from 4 to 8.
- Versatile: designed for signal and low-power applications; screwdriver slot for even easier termination on tough insulations; can be re-used thousands of times; accommodates 22 to 24 AWG solid copper (.65 mm - .51 mm).
- High performance - category 5 complient transmission.
- UL listed.

Applications

- Termination
- Demarcation points

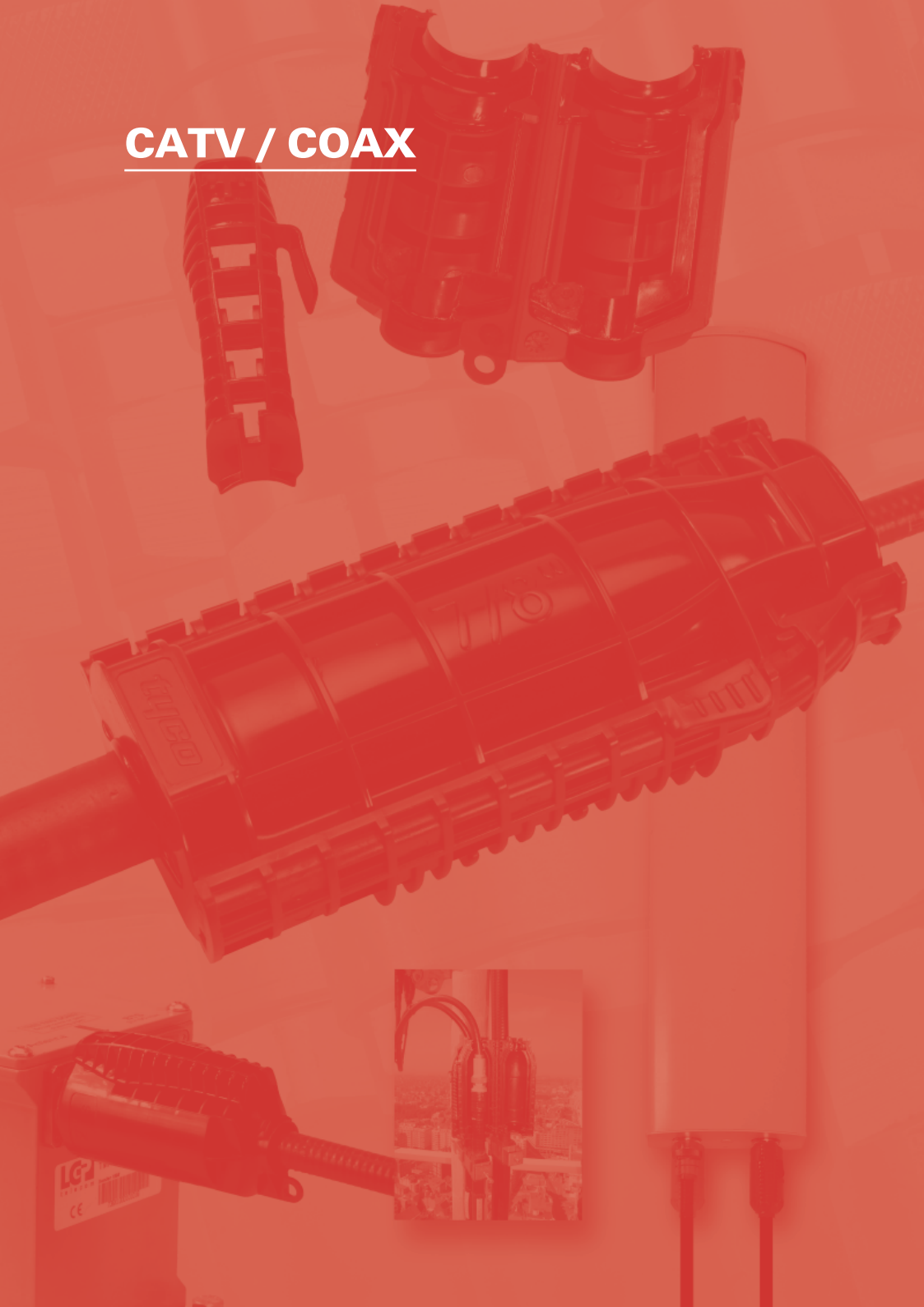
Product overview



- One-line Commoning block
  One line in, 11 lines out.
- Two-line Commoning block
  Two lines in, five lines out.

Pre-sealed version is also available.

CATV / COAX



GSIC

Gel seal for in-line and antenna connectors

The GSIC gel closure is a weatherproofing system sealing jumper-to-feeder and jumper-to- antenna connectors, exposed to the outside environment.

The housing contains an innovative gel material and provides an efficient moisture block.

The ease of installation and the long term protection makes it a reliable and cost effective solution.

- Sealing properties of the gel provide a reliable protection over a wide temperature range (-30°C/+ 60°C).
- Wraparound and no disconnection of the connector.
- Quick and easy to install.
- Easy removable and re-usable.
- Gel material provides an effective barrier against ingress of water and other contaminant's - IP rating 68.
- No tape, no mastics or tools required for installation and removal.
- Available for several cable sizes.

In-line transitions (dimensions in mm)				
Product description	Cable range			Maximum connector dimensions
	Jumper	Feeder	Length	Diameter
GSIC-1/2-7/8	13-17	27-29	147	43
GSIC-1/2-1 1/4	13-17	38-40	187	56
GSIC-1/2-1 5/8	13-17	49,5-52	208	68

Antenna transitions (dimensions in mm)					
Product description	Cable range	Maximum connector dimensions			
	Jumper	Length	Diameter	Nut diameter (hex/circular)	Nut height
GSIC-1/2-ANT-S	13-17	60	26,6	32	12,5-16
GSIC-1/2-ANT-L	13-17	117	26	32	16-23,5

TCS2

Heat-shrinkable tubular sleeve for CATV network

Tyco Electronics TCS2 is a crosslinked, heat-shrinkable polyolefin tubing for insulating and sealing underground and aerial connections in CATV plants. Such cable connections include splices, trunk amplifiers, line extenders, splitters, ground blocks, and tap offs. TCS2 can also be used in low voltage (600V) electrical power distribution applications.

TCS2 is pre-coated with a special Tyco Electronics sealant that flows when heated. This sealant is water insoluble and will adhere to virtually all substrate surfaces, providing an environmental seal and protection against moisture and water penetration. In addition, TCS2 is thermally stable and resistant to ultraviolet light and weathering.

TCS2 can be installed in minutes by just one person. Proper installation is assured since TCS2 is painted with green thermochromic strips that turn brown when sufficient heat has been applied.

TCS2 tubular sleeves are designed so that a few sizes can fit all common cable sizes. Their wide shrinkage range makes them easy to apply when there are large diameter differences between the cable and the connector.

TCS2 offers reliable, long-term performance, proven by its material properties, system performance and field tests.

Dimensions (in mm) / ordering information

Description	Min. expanded internal dia.	Max. recovered internal dia.	Nominal wall thickness	Standard lengths
TCS2-07-48	19.0	5.6	2.0	1200
TCS2-13-48	33.0	9.5	2.0	1200
TCS2-17-48	43.0	12.7	2.0	1200
TCS2-20-48	50.0	19.0	2.0	1200
TCS2-27-48	69.0	22.9	2.0	1200

CERTI-SEAL

Coax coupling closures

The CERTI-SEAL coax coupling closure is designed for direct buried splicing of Series 59 and 6 and Series 7 and 11 coaxial cable.

Advantages

- Economical: permits quick, low cost repair of damaged cable.
- Reliable: gel-filled construction seals out environment, withstands 14 days immersion without signal degradation; withstands extreme temperatures.
- Easy to install: one-piece housing snaps on over coax connection; no special tools required for installation or repair.
- Flexible: accommodates a variety of cables, including series 59 through 11, coaxial cables, long-body F-81 and sealed connectors.
- Compliant: designed to meet Telcordia specification TR-NWT-000975.

Applications

- Splice protection
- Demarcation points

CERTI-SEAL

Coax coupling closures

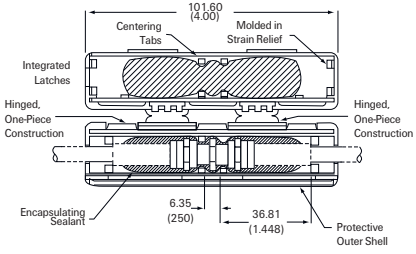
Product overview

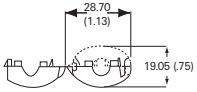
Series 59 & 6

Long connector closure for direct buried splicing of series 59 and 6 coaxial cables.

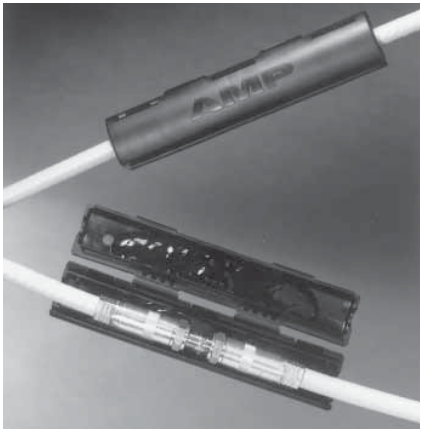
Ordering information

569224-1





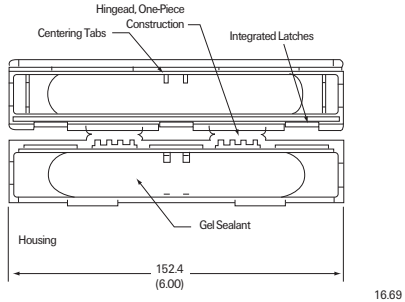
Series 7 & 11

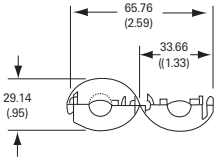


For direct buried splicing of series 7 and 11 coaxial cables, long body F-81 and sealed connectors.

Ordering information

569661-1





VST

Gel closure for sealing F connectors

The VST gel closure system provides a corrosion-resistant sealing of an F-connector exposed to the outside environment. The housing contains Tyco Electronics innovative gel material and provides an efficient moisture block. The ease of installation together with the long-term protection makes VST a cost effective solution.

Product features

- Long-term environmental protection.
- Reduces unnecessary trouble calls.
- One step, easy installation.
- No mixing, tapes, mastic or tools are required.
- One size fits cable diameters from 4 to 7 mm.
- Re-usable up to 20 times.

Ordering information

To order simply specify "VST-02/1 ".

RPF

Return path filter

This high pass filter rejects the upstream frequency band. Its purpose is to block ingress from the subscriber side in case of unidirectional (downstream) signal distribution. Cable operators install it mostly at the output of taps.

Due to exclusive use of SMD technology, 3 objectives are achieved:

- extreme size reduction
- integration of different functions
- very stable production specifications

Other bandwidth (cut-off frequencies) solutions are possible.

The product is coated to withstand aggressive corrosive conditions.

It is also completely sealed against water instrusion.

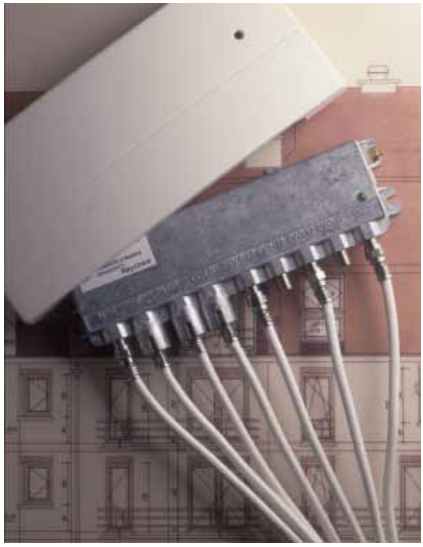
	65/88 MHz	25/47 MHz
Housing	nickel plated brass	nickel plated brass
Bandwidth (HP-specifications)		
passband	88-860 MHz	47-860 MHz
blocked frequency band	5-65 MHz	5-25 MHz
Insertion loss	<1.2 dB (88-93 MHz)	<1.0 dB
	<1.0 dB (93-860 MHz)	(47-860 MHz)
Upstream attenuation	>40 dB (60-65 MHz)	>50 dB
	>50 dB (5-60 MHz)	(5-25 MHz)
Return loss	>18 dB	>18 dB
Connectors	Type F (M/F)	Type F (M/F)
Dimensions	41 mm,Ø 17 mm	41 mm,Ø 17 mm

Ordering information

Please contact your Tyco Electronics sales representative for more details.

NIU

Network interface unit



The NIU is designed especially for high quality two way cable TV networks.
The NIU can be used as a separation between the network of the cable operator and the in-house network.
There are 4 (2-way) TV outlets; 2 with 4 dB gain to access further located TV sets.

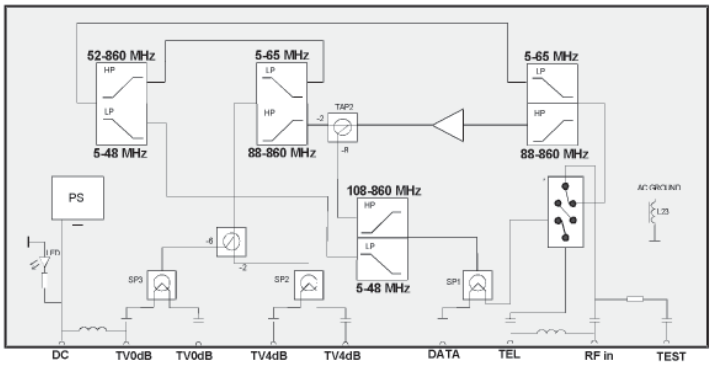
Data and telephone outlet have a separate returnband compared to the TV returnband. In this way interference of ingress from one to another is avoided.
In case of power failure, input and telephone output are directly connected with the aid of relays. This ensures life line functionality of telephone services.

A power feedthrough from RF input to telephone output makes it possible to power the telephone equipment from the cable network.
The NIU itself has a separate input for powering (DC). It can also be powered via a 0 dB TV outlet with the aid of a power inserter. In this way the NIU can be powered remotely.
All outputs have a minimum of 20 dB isolation between each other. A 30 dB testpoint at the input makes it possible to check input signal to distinguish signal failure against NIU failure without disconnecting equipment.

All signal input and outputs can withstand 1500V impulse voltage.

NIU

Network interface unit



	NIU 25/47	NIU 65/88
Bandwidth downstream		
TV	47-860 MHz	88-860 MHz
Data/telefony	108-860 MHz	108-860 MHz
Bandwidth upstream		
TV	5-12 MHz	52-65 MHz
Data/telefony	15-25 MHz	5-48 MHz
Gain downstream		
TV0dB	0 dB	0 dB
TV 4dB	4 dB	4 dB
Data	0 dB	0 dB
Telefony	0 dB	0 dB
Attenuation upstream		
TV 4d	8 dB	8 dB
TV 0dB	12 dB	12 dB
Data/Telefony	6 dB	6 dB
Intermodulation		
Cenelec 42 channels		
Vin : 16 dBmV flat		
CTB	> 60 dB	> 60 dB
CSO	> 60 dB	> 60 dB

NIU

Network interface unit

	NIU 25/47	NIU 65/88
Flatness		
All frequency bands	<± 1,5 dB	<± 1,5 dB
Reflexion attenuation	>16 dB	> 16 dB
Noise	< 7,5 dB	< 7,5 dB
RFI-Isolation	>85 dB	> 85 dB
Cenelec EN50083-2		
Propagation time downstream	< 20 nsec	< 20 nsec
Insulation between ports	>20 dB	> 20 db
Connectors	F-connector	F-connector
Body material	Zamac	Zamac
Dimensions	L240, H100, D40 (Plastic cover)	L240, H100, D40 (Plastic cover)

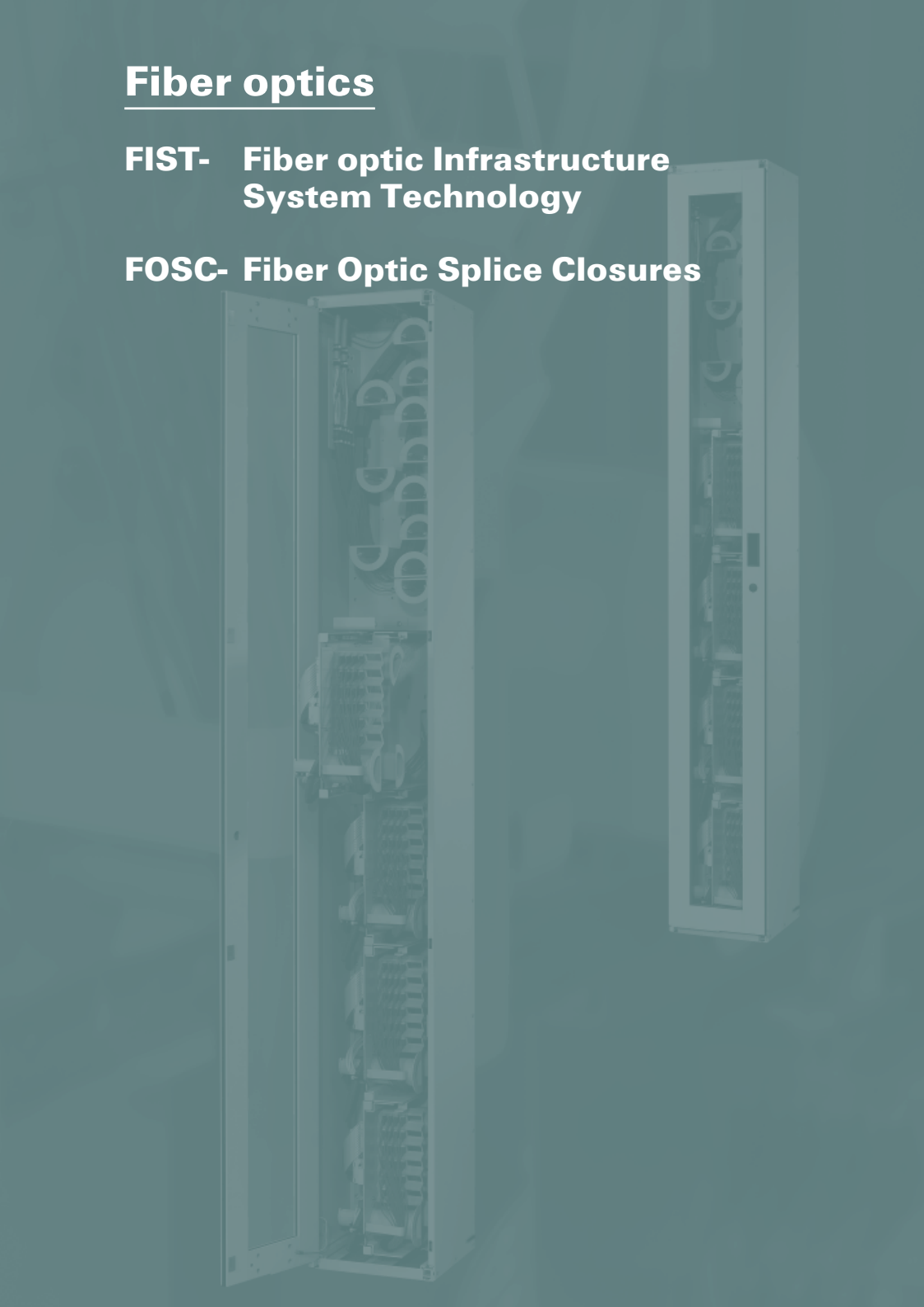
Ordering information

Please contact your Tyco Electronics sales representative for more details.

Fiber optics

FIST- Fiber optic Infrastructure System Technology

FOSC- Fiber Optic Splice Closures



FIST and FOSC

Fiber optic infrastructure system technology

In the early 80's Tyco Electronics pioneered the first integrated fiber management and enclosure system for fiber trunk networks under the family name of FOSC.

In the 90's Tyco Electronics introduced a modular, end-to-end fiber infrastructure system for metro and access networks using the family name of FIST. It expanded the application range from outside plant to exchanges, head-ends, street cabinets and customer premises sites. In addition it expanded the fiber management capability from mass storage to single cable element and single circuit.

Over the past two decades many new capabilities and features, including the integration of passive devices alike connectors, splitters and WDM's have been added to both product families in response to customer needs around the world.

FIST and FOSC products have been installed in large volumes on all continents.
The efficiency and reliability of the products have made Tyco Electronics a synonym for high quality and cost-effective fiber infrastructure.

FIST-SOSA2

Splice only sub-assembly

At the heart of the FIST system lies the unique sub-assembly concept. Splicing sub-assemblies are the essential building blocks that allow the user to build a variety of networks.

A SOSA2 sub-assembly consists of the following parts

- Organizer trays, designed to store fiber and splices.
- A "wraparound" groove plate designed with slots for routing fiber to and from the organizer trays.

Different types are designed to allow for

- Single element management: fibers may be spliced according to their cable construction.
- Single circuit management: The unique and essential ability to manage fibers in a single circuit fashion.
- Single ribbon fiber management.

The flexible unit has the following features

- Total fiber management.
  - Full fiber containment.
  - Full bend radius control.
  - Physical protection.
- Independent of any cable construction.
- Compliant with most splice types.
- Loop-back facility allowing for single circuit uncut looped fiber storage on the tray.

FIST-GR3

FIST blue label rack

FIST is a fiber infrastructure system technology.

The FIST-GR3 is an all purpose, easy to install, metal rack designed to accommodate the FIST fiber management system in an exchange, head-end or customer premises environment.

FIST-GR3 is typically used to house connector panels and separate shelves for splicing, patching, equipment and devices.

The rack is designed to allow proper management and storage of overlengths of pigtails and patch cords.

Features

- Less packaging wastage
- Easy to transport, store, handle and install thanks to compact design
- Universal installation manual (drawings/no wording)
- Compatible with Tyco Electronics FIST-GR2 and FIST-GSS2/GPS2 range
- Available from stock
- Depth and width in accordance with ETSI
- ETSI mounting profiles with cage nuts for shelf mounting are provided at the rear of the rack, allowing optimal access from the front
- Possible horizontal and vertical patch cord management (HPM and VPM) for storage of functional patch cord overlength
- Possible horizontal and vertical patch cord storage (HPS and VPS) for excess patch cord overlength between the shelves and either the equipment or adjacent racks
- Bend control on all fiber routing
- A structured division and distribution of the cable elements
- A wide variety of options
  - Cable attachment plates are integrated in the top/bottom of the side duct
  - Easy access to cables, pigtails and jumpers during installation, maintenance and upgrade
  - Easy adaptation to specific applications by variation of the rack configuration, the shelf configuration and routings of pigtails and jumpers
- Various mounting options
  - Wall mounting: stand alone or multiple side-to-side mounting (optional kit)
  - Back-to-back mounting

For sizes and dimensions: see ordering guide.

FIST-UR

FIST universal rack

The universal rack, FIST-UR is an all-purpose metal rack to accommodate the FIST fiber management system in an exchange, head-end or customer premises environment.

FIST-UR is typically used to accommodate splicing and patching shelves and other equipment shelves.

The unit has the following features

- A solid, 400 mm deep rack.
- Height is 2.2 m and width 1.0 m
- Its unique sliding mechanism allows easy reconfiguration.
  - to accommodate metric, 19" as well as 23"shelves,
  - to adapt the available space left and right from the shelves.
- Horizontal and vertical pigtail management (HPM and VPM) for storage of patch cord overlength allowing patching within a single rack without uncontrolled overlengths.
- Horizontal and vertical pigtail storage (HPS and VPS) for excess patch cord length.
- Bend control on all fiber routing.
- A structured division and distribution of the cable loose tubes.
- A wide variety of options
  - cable attachment plates,
  - drum plate enlargers,
  - equipment mounting brackets.
- Easy access to cables and patch cords during installation, maintenance and upgrade.
- Easy adaptation to specific applications by variation of the rack configuration, the shelf configuration and routings of patch cords.
- Various mounting options
  - stand alone,
  - wall mounting,
  - back-to-back mounting,
  - multiple side-to-side mounting.

FIST-SODF2

FIST small optical distribution frame

FIST-SODF2 is a metal rack designed to serve as small optical distribution frame in an exchange, head-end or customer premises environment.

The small ODF accommodates FIST modules that provide the functions of splicing and patching.

The unit has the following features

- Slim footprint: 300 mm wide, 300 mm deep.
- Modular concept: basic rack that accepts up to 4 modules for the splicing and patching function.
- Up to 144 fibers can be terminated to push-pull connectors having splices organized in a single circuit way. The capacity is limited to 96 terminations for other connector types.
- Cable attachment provision and patch cord management system included in the rack.
- Cable entrance and patch cord outlet possible both in the top or both in the bottom of the rack.
- Bend control on all fiber routing.
- Transparent plexi door.

FIST-WR2

FIST wall mountable rack

The FIST wall-mountable rack is a unique sealed physical fiber management system that is designed to be used in an exchange, head-end or customer premises environment. It is typically used in vault applications to splice outdoor cable to indoor cable, but it can as well be used as ODF for limited fiber counts.

The unit has the following features

- Accommodates FIST splicing and patching sub-racks and horizontal patch cord management modules.
- Metal compact housing with 2 front doors and swing handle with lock and key.
- Field adaptive mounting profiles to 19" or ETSI width.
- Extensive cable inlet/outlet possibilities on top and bottom left and right: breakout ports for cable and pigtail seals.
- Cable attachment plate with C-profile included.
- Installer friendly wall attachment kit.
- Offers dust-proof, environmental and mechanical protection for the fiber management functions.
- Integrated fiber, pigtail and cable management.

FIST-GSS2

FIST generic splicing shelf

The Generic Splicing Shelf, FIST-GSS2 is a multi-purpose mechanical shelf assembly for the FIST fiber management system in a rack environment.

The product is typically used

- to store splices of external to external/ indoor cable.
- to store splices of external/indoor cable to pigtails.
- to store splices of pigtails to pigtails.

The unit has the following features

- Can be installed in Tyco Electronics FIST racks and other 19" or metric (ETSI) rack sizes.
- Accessories are available for termination of most common cable types e.g. loose tube, central core, ribbon fiber.
- The UMS (Universal Mounting System) profiles provide the foundation for mounting combinations of SOSA2 (Splice Only Sub-Assembly) and/or SASA2 (Splitter Array Sub-Assembly) modules, which consist of a modular groove plate and trays.
- Kevlar Termination Units (KTU's) can be mounted in the shelf to provide the necessary strain relief when terminating common pigtail types.
- Factory installed fiber-guiding tubes and bend controls allow for easy but controlled access to fibers and splices.
- Wraparound side panel and pigtail guide for easy addition of pigtails.

FIST-GPS2

FIST generic splice/patch shelf

The Generic Splice/Patch Shelf FIST-GPS2 is a mechanical shelf assembly for the FIST fiber management system in a rack environment.

FIST-GPS2 is typically used in conjunction with FIST splice and patch trays (FIST-GPST-12).

- ***To patch***
  - Between patch cords.
  - Pre-connectorized break-out cable to patch cords
  - Pre-connecto.rized intrafacility cable to patch cords.
  - Ribbon pigtail to patch cords.
- ***To splice***
  - Loose tube cable to pigtails and patch these pigtails to patch cords.
  - On pre-connectorized intrafacility cable to pigtails and patch these pigtails to patch cords.
  - Non pre-connectorized break-out cable to pigtails and patch these pigtails to patch cords.

The unit has the following features

- Can be installed in Tyco Electronics FIST racks and other 19" or metric (ETSI) racks
- Available in different heights and capacities
  - 167 mm high version: max. 8 trays
  - 125 mm high version: max. 6 trays
  - 88 mm high version: max. 4 trays
  - 44 mm high version: max. 2 trays

  Each tray can accommodate 12 standard or 24 small form factor connectors.
- Full patching capability on the tray and between the trays of one shelf. Patching trays are used instead of front patch panels:
  - Patch cords are better managed in a horizontal plane.
  - Full access at both sides of the connection.
  - Re-connection to other positions in the same tray or shelf does not result in uncontrolled overlengths.
- The 88, 125 and 167 mm version has a wraparound side panel and patch cord guide for improved access.
- Various connector adapters can be located in the patching area.
- Kits to attach cables at the side or the back of the shelf are available.
- Optional jumper overlength storage facility.

FIST-GPST-12

FIST generic patching shelf tray

The Generic Splice/Patch Shelf Tray FIST-GPST-12 is a mechanical tray assembly for the FIST fiber management system in a rack environment.

FIST-GPST-12's are typically used in conjunction with a FIST splice and patch shelf (FIST-GPS2)

- ***To patch***
  - Between patch cords.
  - Pre-connectorized break-out cable to patch cords.
  - Pre-connectorized intrafacility cable to patch cords.
  - Ribbon pigtail to patch cords.

- ***To splice***
  - Loose tube cable to pigtails and patch these pigtails to patch cords
  - Non pre-connectorized intrafacility cable to pigtails and patch these pigtails to patch cords
  - Non pre-connectorized break-out cable to pigtails and patch these pigtails to patch cords

The unit has the following features

- Full patching capability on the tray and between the trays of one shelf.
- Patching trays are used instead of front patch panels:
  - Patch cords are better managed in a horizontal plane.
  - Full access at both sides of the connection.
  - Reconnection to other positions in the same tray or shelf does not result in uncontrolled overlengths.
- Various connector adapters can be located in the patching area (to accommodate 12 standard or 24 small form factor connectors per tray).
- Bend controls guide and protect the pigtail cable and ensure controlled cable bending.

FPS-1HU/2HU

Front patching shelf with or without patch cord storage provision

The front patching shelf FPS-1HU/2HU is a multi-purpose mechanical shelf assembly for a fiber management system in a rack environment. It is typically designed for use in 19″ equipment racks.

Two versions are available.

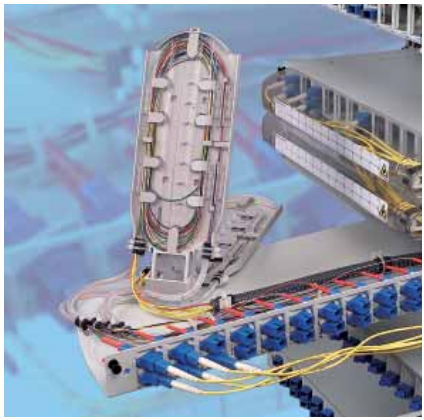
- The 1HU for splicing cable and terminating it on a front patch panel.
- The 2 HU including the 1HU front patch subrack and underneath a patch cord storage basket.

The unit has the following features

- 19″ size: suitable for any 19″ electronic equipment rack.
- Accommodates up to 24 standard or 48 small form factor connectors on the shelf front. Different connector types can be mixed in the same shelf.
- The storage basket of the 2HU version eliminates patch cord management problems in equipment racks. It includes 12 separate storage compartments.
- Mounting brackets can be installed at different positions to result in back or front mounting or somewhere in between.
- Proven FOSC tray splicing concept ensures bend radius protection and solutions for all types of fibers and splice protectors (SMOUV-ANT).
- Shelf can be delivered with pigtails and connector adapters in the kit.

FOMS-FPS

Front patching/splicing shelf



The front patching/splicing shelf, FOMS-FPS, is a multi-purpose mechanical shelf assembly for a fiber management system in a rack environment. Its compact design and high-density capacity allow the FOMS-FPS to deliver carrier-class fiber management to central offices, POPs, FTTx, mobile systems and LANs.

Two versions are available.

- Patching only.
- Patching & splicing to terminate loose tube, central core, IFC and ribbon cables.

The unit has the following features

- 19" size: suitable for any 19" electronic equipment rack (also compatible with ETSI, 23" or Tyco GR2 and UR using adaptation brackets).
- Accommodates up to 24 standard or 48 small form factor connectors on the shelf front. Different connector types can be mixed in the same shelf.
- A 1HU version for 48 SC adapters and a 2HU version for 96 SC adapters are available in pre-fibered version (includes adapters and pigtails).
- Pivoting tray allows easy access to the interior of the shelf, even when equipment jumpers have been installed.
- Angled connector patch panel reduces the risk of eye damage and ensures a positive fiber management for the equipment jumpers.
- Restricted depth guarantees optimum access to the back for cable termination.
- Repair facility when terminating IFC cable.
- Mounting brackets can be installed at the front or back of the shelf.
- Trumpet to protect the incoming pigtails at the side or the back of the shelf.
- Proven FOSC tray splicing concept ensures bend radius protection and solutions for all types of fibers and splice protectors (SMOUV/ANT).
- Shelf can be delivered with pigtails and connector adapters in the kit.
- Shelves with integrated passive components (splitters, WDMs,...) available on request.

FIST-GMS2

FIST generic mixed shelf

The Generic Mixed Shelf, FIST-GMS2 is a multi-purpose mechanical shelf assembly for the FIST fiber management system in a rack environment.

The product is typically used to store splices of external/indoor cable to pigtails. These shelves combine splice storage and patching functions.

The unit has the following features:

- Can be installed in Tyco Electronics FIST racks and other 19" or metric (ETSI) rack sizes
- Accessories are available for termination of most common cable types e.g. loose tube, central core, ribbon fiber.
- The UMS (Universal Mounting System) profiles provide the foundation for mounting combinations of SOSA2 (Splice Only Sub-Assembly) and/or SASA2 (Splitter Array Sub-Assembly) modules, which consist of a modular groove plate and trays.
- A 24 unit patch panel is provided which can accommodate
  - connector adapters for all common connector types,
  - Kevlar termination units (KTU's) to provide the necessary strain relief when terminating common pigtail types
  - a mix of connector adapters and KTU's
- Factory installed fiber guiding tubes and bend controls allow for easy but controlled access to fibers and splices.

FIST-SPX

FIST single patch cord storage shelf

The Single Patch cord Storage shelf, FIST-SPX is a mechanical shelf assembly for the FIST fiber management system in a rack environment.
The shelf is typically used to store random overlength of active patch cords in ODF installations without prior patch cord management.

The unit has the following features:

- Can be installed in Tyco Electronics FIST racks and other 19" or metric (ETSI) rack sizes.
- Allows the individual storage of up to 24 patch cords (with connector) in wrap-around transparent cassettes.
- Patch cords can enter the shelf left or right and exit the same way out or via the top of the shelf.

FOMS-STORAGE

Patch cord storage shelf

The patch cord storage shelf is a mechanical shelf assembly for patch cord management in a rack environment.

The product has been designed to store overlength of patch cords in 19" equipment racks. Two versions are available: with or without roof.

The unit has the following features.

- 19" wide, 44 mm high (1U).
- ETSI mounting brackets are available as option.
- Front or back mounting.
- Front entrance and exit at the left and/or right.
- Accommodates up to 24 patch cords of 3 m or 48 patch cords of 1.5 m.
- Perforated roof and bottom tray to allow ventilation of active equipment.
- Drums to ensure bend radius protection.

FIST-GCO2

FIST generic closure organizer

The generic closure FIST-GCO2 is the environmentally sealed enclosure for the fiber management system that provides the functions of splice and passive component integration in the external network.

The **FIST-GCO2** has the following functions and features.

- Single-ended design.
- Base and dome are sealed with a clamp and O-ring system.
- 6 or 16 round entry/exit ports for drop cables and 1 oval port for looped cable.
- The UMS (Universal Mounting System) profiles provide the foundation for mounting combinations of SOSA2 (Splice Only Sub-Assembly) and/or SASA2 (Splitter Array Sub-Assembly) modules, which consist of a modular groove plate and trays.
- Compatible with most common cable types: e.g. loose tube, central core, ribbon fiber.
- Uncut fibers can be stored as single circuits in trays and/or as cable elements in the storage space between the profiles. Storage baskets are available for mass storage of fibers of central core cable constructions.

The **FIST-GCO2-F:** flat version

- Sealed with latches and O-ring system
- 6 round + 1 oval port (loop)
- Or 8 round ports
- No storage baskets

FIST-GCOG2

FIST gel sealed generic closure organizer

The generic gel closure FIST-GCOG2 is the environmentally sealed, fully mechanical enclosure for the fiber management system that provides the functions of splicing and passive component integration in the external network.

The FIST-GCOG2 has the following functions and features:

- Single-ended design.
- Base and dome are sealed with a clamp and O-ring system.
- 6 round cable ports are provided in a wrap-around block with pre-installed gel profile for cable sealing. This block can be opened and closed repeatedly without the need to remove or replace the gel.
- The UMS (Universal Mounting System) profiles provide the foundation for mounting combinations of SOSA2 (Splice Only Sub-Assembly) and/or SASA2 (Splitter Array Sub-Assembly) modules, which consist of a modular groove plate and trays.
- Compatible with most common cable types: e.g. loose tube, central core, slotted core.
- Uncut fibers can be stored as single circuits in trays and/or as cable elements in the storage space between the profiles. Storage baskets are available for mass storage of fibers of central core cable constructions.

FIST-SCO2

FIST sewage closure organizer

The Sewage Closure Organizer, FIST-SCO2 is the environmentally sealed enclosure for the fiber management system that provides the functions of splicing and passive component integration in the external network.

This slim metal closure is specially designed to fit in small sewage canal systems and is therefore resistant to very aggressive environments.

The FIST-SCO2 has the following functions and features:

- Single ended design.
- Base and dome are made in AISI 316L stainless steel and are sealed with an O-ring under controlled compression.
- Base and dome contain fixation holes to mount the closure against the wall.
- 6 or 10 round entry/exit ports for drop cables and 1 oval port for looped (uncut) cable.
- Heat-shrinkable cable seals.
- The base has an earthing provision and a 'flash test 'valve.
- The UMS (Universal Mounting System) profiles provide the foundation for mounting combinations of SOSA2 (Splicing Only Sub-Assembly) and/or SASA2 (Splitter Array Sub-Assembly) modules, which consist of a modular groove plate and trays.
- The FIST MK2 organizer system allows fiber management in a single circuit or single element way.
- Uncut fibers can be stored as single circuits in SC trays, as single element in SE trays or as loose buffer tubes at the back side of the UMS profile.
- FIST-SCO2 with 10 ports specifically developed for loose tube cable, whereas the FIST-SCO2 with 6 ports is compatible with most common cable types:e.g.loose tube, central core, micro-sheath cable.

FOSC-400

Fiber optic splice closures

FOSC 400 closures combine proven fiber management hardware from the earlier FOSC 100 closures with a completely new sealing system.

Base-to-dome seals on FOSC 400 are mechanical for ease of installation and re-entry. Cable seals able a new Tyco Electronics heat-shrink sleeve and hot melt adhesive system that is installed with a hot-air gun. Common materials, accessories and practices are used throughout the product line to simplify training, reduce inventory and enhance productivity.

The FOSC name is synonymous with excellence in sealing, fiber management, ease of use and design flexibility. The original FOSC 100 was introduced in 1986.

FOSC closures are engineered specially for fiber-optic applications.

FOSC clients ask for and get high quality standards.

FOSC 400 fiber-optic splice closures are available in three sizes:

- FOSC 400 A,
- FOSC 400 B
- FOSC 400 D.

All sizes are designed for use with any cable construction (loose buffer tube, central core tube, loose fiber, ribbon), in any environment (aerial, pedestal, buried, handhole, manhole) and for numerous splice applications (expressed, tap-off, branch and repair).

	Splices fiber storage capacity			Slack storage capacity		
Closure	Single fusion	Single mechanical	Mass fusion	Buffer tubes	Stranded fibers	12 fiber ribbons
FOSC 400 A4	72 (1)	24 (2)	24	8	96	6
FOSC 400 A8	96	32	24	8	96	6
FOSC 400 AS	72 (1)	-	-	-	-	-
FOSC 400 B2, B4	144	48	288	6	96	24
FOSC 400 D5	768	288	1152	18	96	96

(1) Only recommended with Tyco Electronics 45 mm SMOUV fusion splice protectors.

(2) Varies with splice type. Capacity is 16 for most commonly used mechanical splices.

FOSC-400

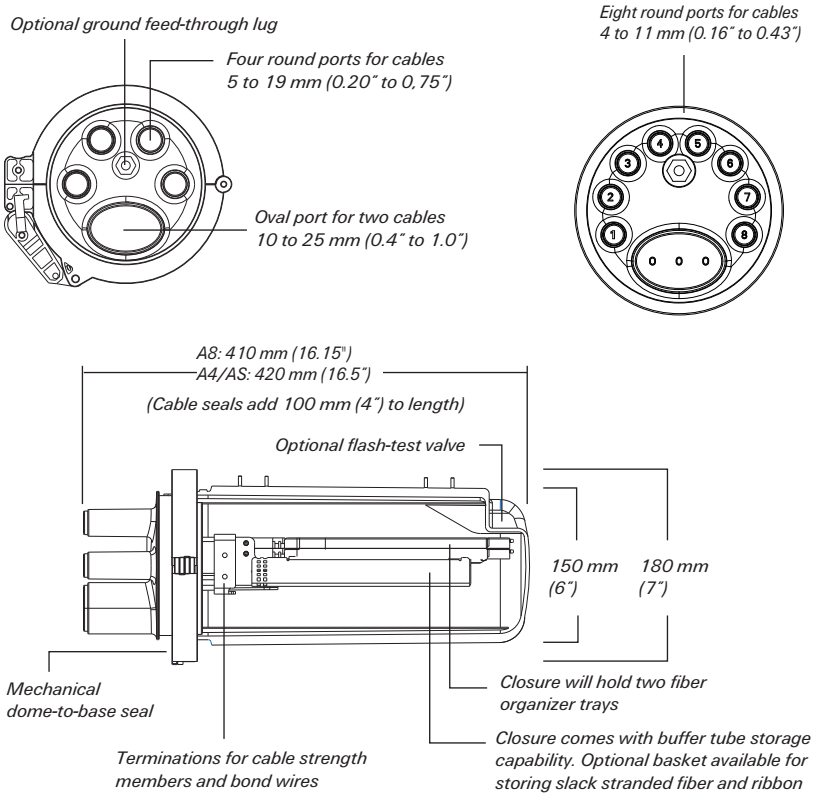
FOSC 400 A4/A8/AS closure

The FOSC 400 A4/A8 closure is the smallest in the FOSC 400 series.

It is intended for low fiber-count cable splices and "tap-off" splices. Tap-off splices are those where most of the fibers in a cable are 'expressed' uncut through the closure.

Only a few fibers are cut and re-spliced to feed a building or Optical Network Unit (ONU).

The FOSC 400 A4/A8 closure comes ready to store expressed loose buffer tubes. An optical slack storage basket is available for expressed stranded fiber and ribbon fiber. As with all FOSC 400 closures, the slack storage and splice capacity of the FOSC 400 A4/A8 depends on factors such as cable construction, splice type and slack fiber lengths. Refer to the closure capabilities chart for more details.



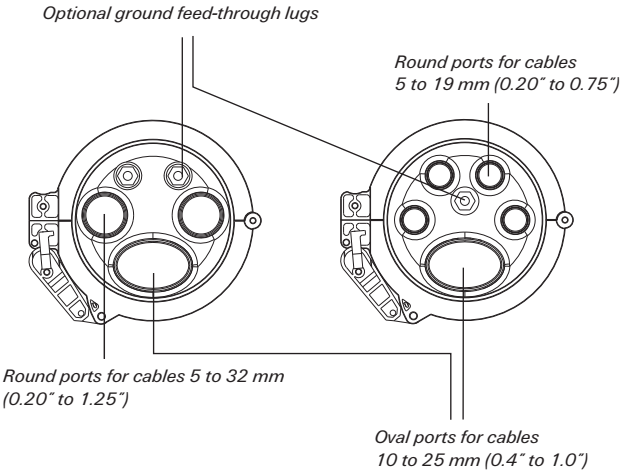
FOSC-400

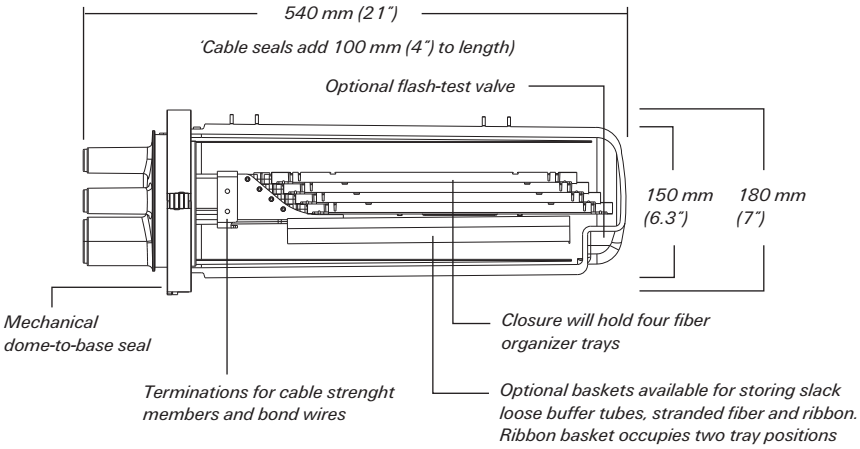
FOSC 400 B2/B4 closure

FOSC 400 B2 and FOSC 400 B4 closures are identical except for their end cable port configurations.

In addition to a large oval port for the main distribution cable, the B2 closure has two large round ports for branch cable splices while the B4 closure has four small round ports for multiple drop applications.

The FOSC 400 closure cable sealing system provides a great deal of flexibility. For example, with the use of branch-off clips four small cables can be terminated in two round ports of a B2 closure.





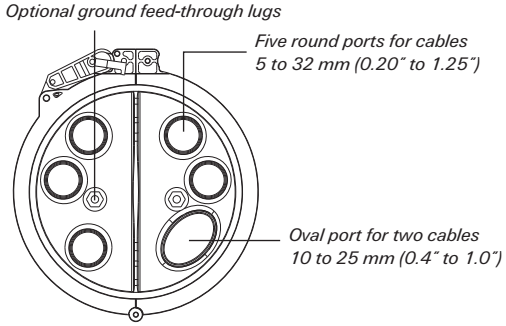
FOSC-400

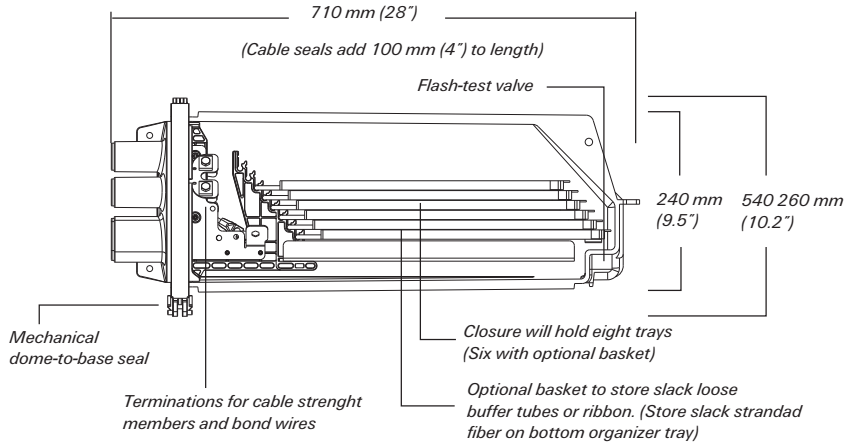
FOSC 400 D5 closure

The FOSC 400 D5 closure is the largest in the FOSC 400 series.

It can terminate seven cables (or up to twelve cables with the use of branch-off clips), through one oval port and five large round ports.

The splice capacity is 288 single mechanical, 768 single fusion or 1152 mass-fusion (12) fibers. Ribbon fiber can be stored directly on the trays or in the versatile slack basket that also holds expressed or uncut loose buffer tubes.





FOSC-450

Fiber optic gel closure

The industry leading FOSC 400 family of fiber optic splice closures is now available with gel seal technology for cable terminations.

The FOSC 450 family can be used in any environment (aerial, pedestal, buried, underground) and for numerous splice applications (expressed, tap-off, branch and repair).

FOSC 450 gel splice closures have the same splice capacity as FOSC 400 closures and feature the same reliable and easy-to-use dome-to-base clamping system. The big difference with FOSC 400 gel closures is that the cable sealing terminations use gel-sealing technology instead of heat shrink. Gel seal cable terminations automatically adjust to cable size and shape, and they require no special tools, tapes or mastics to install. It is also easy to remove cables, and gel seals are completely re-usable.

FOSC 450 has the following functions and features

- Single-ended design
- Available in four sizes (A, BS, B and D)
- Base and dome are sealed with a clamp and O-ring system
- 4/6 round cable ports are provided in a wrap-around block with pre-installed gel profile for cable sealing. With the use of special kits, multiple cables per port can be installed.
- FOSC splice trays are hinged for access to any splice without disturbing other trays
- Compatible with most common cable types: e.g. loose tube, central core, slotted core, ribbon fiber
- Uncut or expressed loose tubes can be stored in storage baskets

FOSC-500AA

FOSC Slim in-line closure

The in-line closure FOSC-500AA is the environmentally sealed enclosure for fiber management in the outside plant network for aerial, underground or direct buried applications.

It is a cold applied re-usable closure housing with one mass splicing tray and cable attachment units. They fit perfectly well as a customer drop, tap-off or in-line splice closure in the low fiber count part of the network.

The FOSC-500AA has the following features:

- Slim, elegant, compact in-line design.
- Easy re-entry and re-closure mechanism with hinge and latches.
- 2 cable ports are provided at each side of the closure.
- Cold applied cable sealing based on gel technology (2 knobs for gel compression).
- Integrated cable jacket gripping devices.
- Compatible with most existing cable constructions (loose tube, central core, slotted core).

FOSC-300/350

In-line fiber optic splice closure

FOSC-300C in-line closure is an environmentally sealed enclosure for fiber management in the outside plant network for aerial, underground or direct buried application.

It is a cold applied re-enterable closure housing with maximum 4 mass splicing tray and cable attachment unit. They fit perfectly well as a customer drop, tap-off or in-line splice closure in the low or middle fiber count part of the network.

Features

- Slim, elegant, compact inline design
- Easy closing mechanism with hinge and latches
- Suitable for construction and maintenance, aerial, ducted underground network
- No special tools, non-heat shrinkable, no screws or nuts
- Compatible with most existing cable constructions

FOSC-600

Fiber optic splice closure

- Up to sixteen separate cable ports
- Sized for cables up to 35 mm in diameter and 1728 fibers
- Field configurable for butt or in-line splicing
- All internal parts can be removed for reconfiguration
- Storage basket included with all closures can be extended in length or repositioned vertically depending on application
- Slack ribbon storage on the same tray as mass fusion splices is now possible with a new ribbon tray.

The FOSC-600 C and D closures are more than just fiber optic splice closures. They are rugged and versatile platforms that can be deployed anywhere in the outside plant for a multitude of functions including the splicing of any type and size of cable, the housing of connectorized distribution and demarcation points, and the deployment of optical passives.

The sealing system for FOSC-600 closures builds on the proven reliability of FOSC- 400 closures and features the versa-tile and popular gel seal technology for terminating cables and a unique latching system for quickly opening and closing the body.

Other features include

FOSC-DMARC

Outside plant demarcation point

The FOSC-DMARC closure is the environmentally sealed enclosure for the fiber management system that provides the functions of fiber splicing and patching in the external network.

The single-element design makes the FOSC-DMARC the ideal solution for a flexible carrier demarcation point with a capacity of up to 4 carriers of 12 fibers each. Extra carriers/customers can be connected to the backbone side of the network without disturbing other, already connected carriers/customers.

FOSC-DMARC has the following functions and features.

- Single-ended design.
- Base and dome are made of a thermoplastic material and are sealed with a clamp and O-ring system.
- 5 round entry/exit ports for drop cables and 1 oval port for 2 cables are included in the base.
- Cable seals are manufactured from heat-shrinkable material.
- Splicing and patching area are separated by 2 hingeable doors with individual integrated lock.
- Carrier side: pigtail strain relief panel (48 pigtails). Backbone side: 48 connector patch panel, suitable for all connector adapter types.
- Pigtail or jumper overlength storage area.
- Factory-installed transportation tubes allow a fast and easy installation.
- Pre-fibering of pigtails at backbone side and/or carrier side is possible.
- Closures are standard equipped with ground feed-through and pressure relief valve.

FOSC-OPGW

FOSC optical grounding wire closure

The FOSC-OPGW is a single-ended closure system specially developed for use on the optical grounding wires of overhead electrical power lines.

The closure is suitable for use above ground; it can be attached to high voltage towers, poles, walls or other support structures.
One model can be used for track and spur joint applications.

The FOSC-OPGW closure system has the following functions and features.

- Single-ended design with valve.
- A galvanized steel mounting frame holds the thermoplastic dome and base and the OPGW cable clamps.
- A pole mounting kit is included which allows the closure to be mounted on a traverse strut of a high voltage tower without the need to drill holes in the metal construction.
- A stainless steel shot-gun protection enclosure is optionally available.

It permits the termination and sealing of

- 2/4 OPGW cables,
- 2 ADSS or conventional buried fiber optic cables,
- cable seals are manufactured from heat shrinkable material,
- internal storage utilizes FOSC splice trays which are hinged for access to any splice without disturbing other trays.

OFDC-B8

Outdoor fiber distribution closure

The gel sealed outdoor distribution closure is used to break out fibers from a looped cable to connect business customers, MDU's or single living units.
The closure can be used as well in aerial, pedestal and underground (up to 2 meters) environment.

The gel, used for both, closure and cable seals, allows easy access and is fully re-useable.

Features

- Single ended design
- Compact enclosure (163 x 326 x 102 mm)
- Gel block with spring loading for the cable seal
- Not required to cut loop-through fiber of the feeding cable
- Organizer can be removed from closure body
- Compatible with RECORDsplice, SMOUV and ANT splice protectors
- Transient free customer provisioning
- Drop cables are terminated individually
- Separate storage of un-connected fibers from spliced drop fibers
- Possibility to integrate PON splitters
- Main cable up to 18 mm diameter
  Drop cable up to 6 mm diameter
- Easy drop cable termination on strain relief device
- Compatible with Xpres-drop LC and SC.

OFDR

Outdoor fiber drop repair closure

The gel sealed drop repair closure is used as a repair splice for fiber only or hybrid drop cables

The closure can be used as well in aerial, pedestal and underground (up to 2 meters) environment.
The gel, used for both, closure and cable seals, allows easy access and is fully re-useable.

Features

- Single ended or in-line design
- Compact enclosure
  In-line: 415(L) X 76(W) X 71(H) mm
  Butt: 297(L) X 76(W) X 71(H) mm
- Cable seal with gel plug
- Organizer can be removed from closure body
- Compatible with RECORDsplice, SMOUV and ANT splice protectors
- Round cable 7-9 mm diameter
- Fiber bend radius of 20 mm
- Closure with overcentering “ski boot” type of latches
- Integrated mounting brackets

FIST-CAB5

FIST flexibility cabinet

The FIST street cabinet, FIST-CAB5, is an all purpose metal outdoor cabinet designed to accommodate the FIST generic shelf family.
It offers dust-proof, environmental and me-chanical protection for the fiber management functions of splicing, patching and passive component integration.

The inside can be configured in a flexible way to serve customer-specific needs.

A few examples:

- splitter cabinet configuration - connectorized
- splitter cabinet configuration - direct spliced
- cross-connect cabinet
- interconnect configuration
- any combination of the above

FIST-CAB5 is designed for outdoor applications (IP55) and needs to be placed on an in-ground root (optional) or concrete soccle.

The 'motorhood' design and side doors offer excellent accessibility to the fiber management shelves inside the cabinet. Making reconfigurations, adding cables or passive optical components becomes an easy task.
The hood can be opened in two positions (under two different angles) and creates a comfortable working area with limited weather protection.
The 19" profiles inside the cabinet allow for maximum flexibility and future technology upgrades. Any architecture or cable construction can be supported.
Optional drums can be provided to further enhance the fiber management.

The cabinet comes standard with a 300 mm high base to allow easy entry, fixation, identification and sealing of the cables. Cable termination plates are provided inside the cabinet to ensure the cable strain-relief required in outside plant applications.
A swing handle with half cylinder lock and 3-point latch system prevents unauthorized access.
The cabinet has a powder coated finish (RAL7035).

FIST-GB2

FIST generic box

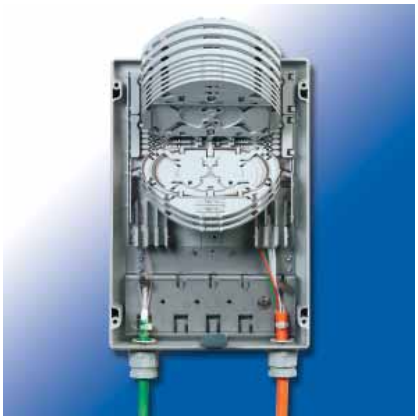
The Generic Box GB2 provides a wall mountable environmental and mechanical protection for the FIST fiber management system that includes the functions of splicing, patching and passive component integration. The product is typically used on a wall inside or outside the customers premises and in street cabinets.

The unit has the following features.

- The box comprises a base and lid assembly.
- The base plate includes the cable entry/ exit ports and a UMS (Universal Mounting System) profile to accommodate the different types of sub-assemblies.
- Accessories are available for termination of most common cable types e.g. loose tube, central core, ribbon fiber.
- The FIST-GB2 provides a cable loop-through function allowing uncut loops to be stored in a controlled manner per single circuit, ribbon or cable element. For central core applications, a basket is available to store the uncut fibers.
- The GB2 can be equipped with a patch panel which can accommodate:
  - connector adapters for all common connector types.
  - Kevlar Termination Units (KTU's) to provide the necessary strain relief when terminating common pigtail types.
  - A mix of connector adapters and KTU's.
- Fiber splices can be managed in a single circuit or single element way.

FIST-MB2

FIST medium fiber termination box



FIST-MB2-S

FIST-MB2-T

The FIST-MB2 provides a wall-mountable environmental and mechanical protection for the FIST fiber management system that includes the functions of splicing, (+ patching for the T-version) and passive component integration.

The box is typically used on a wall inside or outside the customer's premises in the termination part of the access network.

The unit has the following features:

- The box comprises a base and cover assembly.
- High seal rate: IP55.
- UV resistant and low smoke zero halogen housing
- The base plate includes the cable entry/exit ports and a UMS (Universal Mounting System) profile to accommodate the different types of sub-assemblies.
- Fiber splices can be managed in a single circuit or single element way.
- Accessories are available for the termination of single fiber and ribbon of loose tube or slotted core cable types.

Only for the FIST-MB2-T version

- A patch panel can accommodate
  - connector adapters for all common connector types,
  - Kevlar termination units (KTU's) to provide the necessary strain relief when terminating common pigtail types,
  - a mix of connector adapters and KTU's.

FIST-SB2-8

FIST small termination box

The FIST-SB2-8 is a small wall-mountable customer fiber termination box, offering the functions of splicing fiber-to-fiber, splicing fiber-to-pigtail and connector patching.

The FIST-SB2-8 provides mechanical and environmental protection for both the fiber and its components and permits appropriate access while maintaining the highest standards of fiber management.
The product is typically located on the customer's premises, but can also be used outdoors in above-ground applications or in street cabinets.
The unit has the following features:

- Compact and modular wall-mountable customer termination box for up to 8 connectors.
- Suitable for splicing cable-to-cable and cable-to-pigtails or a combination of both.
- Pre-determined loose tubes and fiber routing.
- Fiber splices can be managed in single circuits using the FIST-MK2 organizing system.
- The patch panel can accommodate
  - connector dapaters with retainers for most common connector types,
  - Kevlar termination units (KTU's) to provide the necessary strain relief when using pigtails with connectors outside the box.
- Cable entry/exit possible from bottom, top and side.
- Unique wraparound pigtail seal.
- High seal rate (minimum IP55).
- UV resistant and low smoke zero halogen housing.

FIST-CTB2-4

FIST compact termination box

The FIST-CTB2-4 is a very compact, modular wall-mountable customer termination box for up to 4 connectors.

The box provides mechanical and environmental protection for both the fiber and its components and permits appropriate access to the connectors while maintaining the highest standards of fiber management.

The box is typically used on the customer's premises in the termination part of the access network.

The unit has the following features.

- Easy and structured access.
- Pre-installed splicing tray, fiber protection tube and fixtures and patch panel for 4 connectors.
- Pre-determined loose tubes and fiber routing.
- The patch panel can accommodate
  - connector adapters with retainers for most common connector types,
  - Kevlar termination units (KTU's) to provide the necessary strain relief when using pigtails with connectors outside the box.
- The box is also available with pre-installed pigtails and connector mating adapters.
- Pigtail exit ports at the top or bottom.
- Cable and pigtail seal glands are included in the kit.
- Unique wraparound and easy accessible pigtail seal.
- High seal rate (minimum IP55).
- Few components and minimum tools required.
- UV resistant and low smoke zero halogen housing.

FTUO

Fiber Termination Unit Outdoor

This box is typically used as a transition point where the OSP cable is spliced to an indoor cable.

Features

- Compact enclosure (168 x 132 x 33 mm)
- The box allows the installation of fibers with a minimum bend radius of 25 mm over a length of 2m.
- In-line and butt configuration possible for main cable
- Universal splice holder for 8 splices: SMOUV, ANT, RECORDsplice.
- Ready for Tyco Electronics OCC1 splitter installation.
- Cable inlet is provided at the bottom left side. Optionally the main cable can continue at the top left side. (wraparound pass-through)
- Cable outlet ports (max. 2 cables) are provided at 5 sides: left, right, top, bottom, back.
- IP rating, vertically mounted: IP43 (not for inline application: IP40).
- Impact rating: IK08.
- UV resistant housing.
- Standard colour: RAL7035 grey
- Gasventing provided.
- Locking with screw, optionally security seal.
- Main cable up to 12 mm diameter
- Drop cable up to 5 mm diameter

IFDB-M

Indoor Fiber Distribution Box

The IFDB-M is an enclosure to break out fibers from an indoor riser cable into individual drops to the living units of an MDU. These drops provide a fiber optic connection to the living units.

The IFDB-M allows to break-out fiber from certain riser cables by making a window cut not larger than 70 mm without interrupting the strength member.

To connect the drop to the raiser fibers splices or Xpres-drop connectors can be used.

Features

- Compact enclosure (126 x 200 x 50 mm)
- Free breathing enclosure for indoor use
- In-line and butt configuration possible for main cable
- Wrap around cable seals for main cable and drops
- Not required to cut loop-through fibers from riser cable
- Window cuts as small as 70 mm possible with certain cable constructions
- Compatible with RECORDsplice, SMOUV and ANT splice protectors
- Low smoke zero halogen enclosure material
- Transient free customer provisioning
- Drop cables are terminated individually
- Separate storage of un-connected fibers from spliced drop fibers
- Possibility to integrate PON splitters
- Main cable up to 11 mm diameter
- Drop cable up to 6 mm diameter
- Easy drop cable termination on strain relief device.

IFDB-S

Indoor fiber distribution box

The IFDB-S is a small size indoor fiber distribution box to allow to break out fibers from a riser cable to individual drops that bring the fiber from this point to the living units of an MDU.

The IFDB-S is designed for riser cables that allow access through a small window cut or incision. For cable constructions that require larger window cuts, fiber overlength can be stored in the base module.

To connect the drop fibers to the riser fibers both splices and connector can be used.

The splice capacity of the IFDB-S splice module is 4 splices.

Features

- Very compact enclosure with dimensions (WxHxD): 80mm x 80mm x 35mm for integration into small sized floor boxes
- Window cuts as small as 50mm possible with specific cable constructions such as the TE Mini-breakout cable
- Drop cables can be directed to 4 different sides by rotating the splice module on the base module
- Free breathing enclosure for indoor use
- Flame retardant LSZH material
- Front accessible
- Wrap around riser cable installation
- Not required to cut loop-through fibers from riser cable
- Can hold 4 LC connectors or 2 SC connectors
- Compatible with RECORDsplice, SMOUV and ANT splice protectors in the same splice holder
- Drop cable diameter up to 5mm
- Main cable diameter up to 10,5mm

YPSO

Tap-off enclosure for Mini-Breakout riser cable

YPSO is an enclosure to cover the incision in the Tyco Electronics Mini-Breakout cable with 12 and 24 fibers. This cable is an individual fiber reinforced cable developed for riser applications in MDU environments.

This cable allows to retract specific fibers from the cable at each floor access point.
This enclosure is integrally part of the Tyco Electronics MDU system solution.
This YPSO device allows tapping off individual fibers from this riser cable and protects the transition into a protective tube that protects the retracted fiber from the riser cable up to the splice extension (SPLX product) or the horizontal duct.

Features

- Very compact size: dimension 80mm x 30mm diameter for integration into small sized floor boxes
- Capacity to tap off at least 6 fibers (3left/3right)
- Restores the integrity of the Tyco Electronics Mini-Breakout cable after making an incision for fiber access.
- Mini-Breakout cable incision of only 55 mm
- Designed for indoor use
- Flame retardant LSZH material
- Front accessible

SPLX

Splice extension

The SPLX, splice extension, is a two-shell splice holder for heat shrinkable splice protectors and RECORDsplice. This device allows to make a splice and next glide the SPLX shells towards the splice protector.
With a simple snap both identical shells lock together, hold the splice and protect the in and output fibers.
This SPLX is designed to be compatible with the YPSO and Mini- and Pico-breakout cable solution.

Features

- Small dimensions: (LxD) 70 mm x 7 mm diameter
- Designed for indoor use
- Flame retardant LSZH material
- Allows access to splice and fiber

CPWO

Customer premises wall outlet

The CPWO is a very compact wall outlet for maximum 2 FO connectors and 1 RJ-45 or RJ-11 Cu connector.

The box provides mechanical protection for the fiber and permits appropriate access while maintaining the highest standards of fiber management.

The box is typically used at the customer premises in the termination part of the access network.

The unit has the following features.

- Can be used flush mount or surface mount
- Compatible with almost any standard electricity box
- Compatible with 250 micron and 900 micron fiber types
- Innovative, removable fiber organizer system facilitates an easy installation in the field
- Fiber can be terminated using field installable connectors, fusion splices, or Tyco Electronics RECORDsplice
- Guaranteed minimum bending radius of 20mm
- One SC or duplex LC connector footprint
- Shuttered version available
- Splice-through function allows moving the FO access point to any other point in the premise
- Provide a clean upgrade path for your indoor wiring by starting off with Cu and use the wall plug in combination with indoor Fi/Cu cabling
- Environmental friendly materials, low smoke zero halogen
- Cable entry points: back, bottom, side

HFTP

Customer premises wall outlet

The HFTP is a compact fiber terminal for use at the final fiber termination point in the customer premises.

The HFTP provides mechanical protection and managed fiber control in an attractive format suitable for use inside customer premises. A variety of possible fiber termination techniques are accommodated.

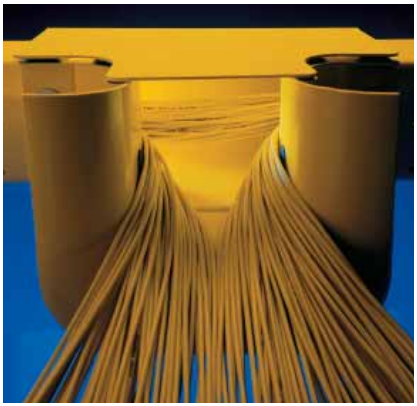
HFTP

Customer premises wall outlet

- Splicing to factory terminated pigtails
- Positive fiber management
- Direct termination with field installable connectors
- Attractive design for indoor use
- Can hold up to 4 mechanical splices (RECORDsplice) and fusion splice protectors (SMOUV and ANT) and mechanical SC connectors can be integrated as well
- Splice cable to cable
- Compatible with 2 SC Simplex adaptors
- Multiple cable entry points (cable diameter ≤ 6mm)
- Can be wall mounted and mounted on wall boxes with fixation points of 60mm
- Laser safe with individual shutters

LIGHTRAX

Fiber optic raceway system



The LIGHTRAX fiber optic raceway system is a fully enclosed ducting system that segregates, routes and protects fiber optic cables and jumpers from building entry point to fiber termination and distribution equipment. With the raceway system, fiber is easily traced and accessed through its convenient fully wrap-around lay-in design. It also maintains complete separation from twisted pair and coax cable.

Straight channels and curved fittings are specifically designed to prevent fibers from violating a minimum bend radius requirement and protects fibers from snagging, crimping and stress.

The system's modular design and extensive mounting kit selection enable the project engineer to meet cable capacity requirements and future expansion needs using existing superstructure, cable racking and/or equipment racking. The flexibility and simplicity of the LIGHTRAX system ensure cost-effective installations for new or existing cable routes in central offices, head ends, remote offices, data centers and wiring closets.

Features

- All exposed surfaces are textured
- Robust design
- Hardware-free covers on all components
- Versatile mounting kits
- Comprehensive range of non-intrusive over-the-top exits
- ACAD LT library available
- Material: LSZH (low smoke zero halogen) UL94VO thermoplastic.

RECORDsplice

Fiber splicing system

An innovative fiber splicing system, focusing outdoor and indoor access networks, especially FTTH (fiber-to-the-home).

The system consists of a splice and an integrated cleaving and installation tool. It is the basis of a series of passive fiber network elements that make FTTH applications more cost-effective and more reliable, as well as easier and faster to install.

Tool features

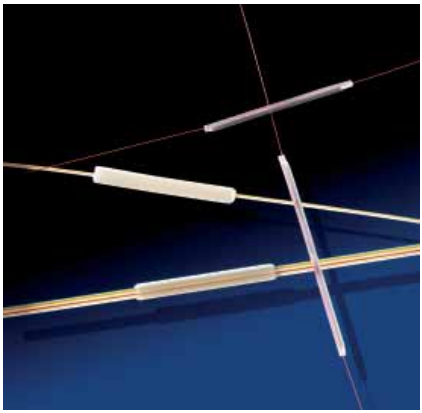
- A quality cleaver with a cutting angle of 8 degrees.
- A capacity of 20000 cleaves.
- An integrated storage system for fiber cut-offs.
- Tool-controlled positioning of the cleaved fibers into the splice.
- Fully mechanical - no power or batteries.
- Maintenance-free and no field adjustments required.
- Operates in uncontrolled environments.
- Robust, compact and light.
- Operates with very short fiber lengths.
- Designed for right-handed and left-handed installers.

Splice features

- Single mode and multi-mode.
- Any combination of 250 µ and 900 µ fiber.
- Optical performance comparable with cladding alignment based fusion splices.
- A reliable solution designed to meet Telcordia, ITU, IEC, ETSI and other international standards.

SMOUV

Fiber optic fusion splice protector



SMOUV-1120 splice protector sleeves provide mechanical and environmental protection for fusion splices of single and ribbonized fiber.

The SMOUV-1120 sleeve consists of

- a clear outer heatshrink material
- a low temperature hot melt adhesive to encapsulate the splice
- a stainless steel rod for single fiber splices and a ceramic rod for ribbonized fiber splices to ensure proper alignment and rigidity.

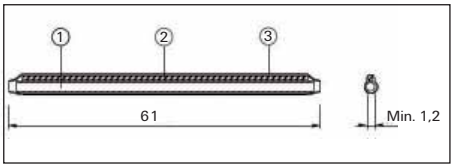
SMOUV-1120 sleeves for single fibers are ideal for protecting single fusion splices of primary and secondary tight or semi-tight coated fibers.

SMOUV-1120 sleeves for multiple fibers are ideal for protecting mass fusion splices of ribbons with two to twelve fibers.
All SMOUV-1120 sleeves are guaranteed to be compatible with the full range of fiber management systems and organizers.

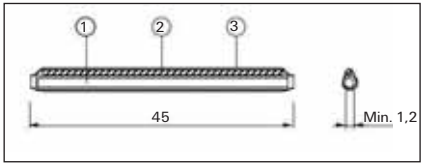
SMOUV

Dimensions and ordering information

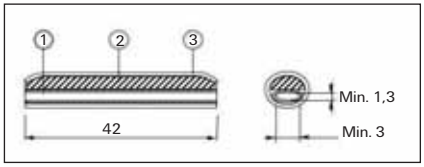
Dimensions in mm



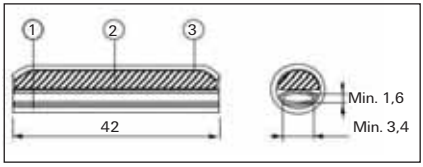
SMOUV-1120-01
Universal type of SMOUV



SMOUV-1120-02
Recommended for the FOSC high capacity organizer trays and the FIST organizer trays.



SMOUV-1120-R1/8-02
Multiple fiber splice protector for 1 up to 8 fiber ribbons



SMOUV-1120-R2/12-02
Multiple fiber splice protector for 2 up to 12 fiber ribbons.

1. Hot melt adhesive
2. Stainless steel rod (ceramic rod for SMOUV-1120-R2/12-02 and 1120-R1/8-PK)
3. Heat-shrinkable tube

The SMOUV installation has to occur in an appropriate oven.

Product Name	Unit of measure	Quantity of SMOUV in 1 pack
SMOUV-1120-01-PK	pack	100
SMOUV-1120-02-PK	pack	100
SMOUV-1120-R1/8-PK	pack	50
SMOUV-1120-R2/12-02-PK	pack	50

Pigtails, jumpers and adapters

Single mode connectorized single fiber cables

Connectorized single fiber cables (pigtails and jumpers) are used in almost all products for cable termination of the FIST system.

Tyco offers 3 ranges of cable assemblies:

- standard,
- low loss,
- consumer grade.

Pigtails are single fiber cables pre-assembled with a connector at one end. They are typically used to terminate primary coated fiber to an optical distribution frame.

Jumpers are single fiber cables pre-assembled with a connector at both ends.

They are typically used to cross-connect patch panel to patch panel and to inter-connect patch panels to optical equipment.

For special applications (such as in FIST-boxes) pigtails are available which are factory stripped up to the secondary coating and have a pre-installed length of FOPT transportation tube. The FOPT transportation tube can be cut to length to suit the precise distance from the patch panel or optical equipment to the corresponding single element tray.

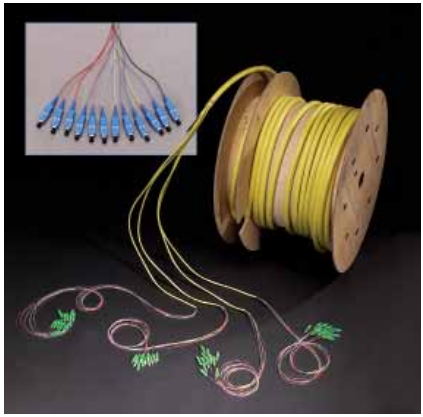
For all connectors used on the pigtails and jumpers the matching connector mating adapters are available and can be ordered separately.

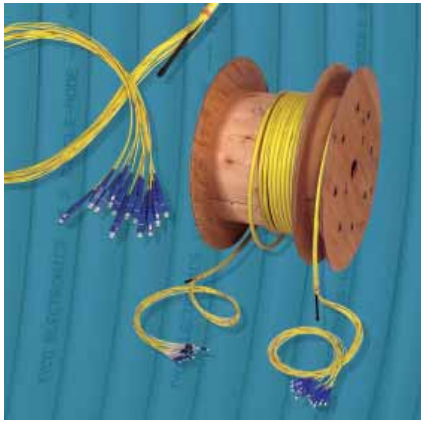
Connector types supported

SC/UPC MT-RJ
SC/APC E2000
FC/UPC
FC/APC
LC/UPC
LC/APC

Intra-facility and break-out cable

Single mode connectorized cable assemblies





Single mode cable assemblies are designed for use in telecommunications, CATV, data communications and wide area network applications. Connectorized fiber cables are used in almost all TOSP fiber products for cable termination of the FIST system.

Intra-facility cable (IFC) consists out of one or more sub-units, which contain each twelve 900µ fibers. IFC is typically used indoors between an optical distribution frame and the cable vault, or to connect optical distribution frames or to connect patching to splicing sub-racks inside an optical distribution frame.

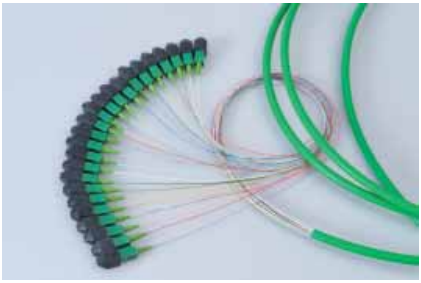
Break-out cable contains individual fibers (each with Kevlar and individual jacketing) together with a strength member which are bundled in an outer jacket. Break-out cable is typically used indoors to connect an optical distribution frame to an electronic equipment rack or to connect electronic equipment racks.

Both cable types offer the following features:

- Delivered on a drum to facilitate a fast, safe and easy installation.
- Eliminate the need for a fiber-optic ducting system.
- Connectorized at one or both ends.
- Available with a wide variety of fiber counts and connector types.

Mini-Breakout cable

Riser cabling solution



The Tyco Electronics Mini-Breakout cables are developed to be a very compact cabling solution for riser applications in MDU's. With the cable strength elements integrated in the individual fiber elements, Pico-Breakout, the cable becomes very small in diameter and very flexible to be pulled vertically through the riser.

As the individual fibers, Pico-Breakouts, are reinforced they can be pulled back easily in a secure way to be connected to the horizontal fiber linking to the living unit of the MDU.

The Mini-Breakout cables can be preterminated with connectors for fast installation in building distributors such as the GB2, ...

Also the Pico-Breakouts can be terminated with a connector such it can be pulled from the premises to the riser to be connected to the riser fiber. In this case the Pico-Breakout is the horizontal drop cable.

Features

- Very compact and flexible riser cable construction for fast installation and installation in existing building conduits
- Cable diameter of 8mm only
- G657A Bend optimized fibers
- Individually reinforced fibers for secure extraction and pulling
- PICO fibers can be pulled through ducts without overtubing the fiber
- Designed for indoor use
- -30/+60°C temperature range
- Individually identifiable Pico-Breakout
- Connectors terminated to Pico-Breakout in a robust way

Connector types can be both SC and LC or others on request. Connector specification according to IEC61755-1 Grade C.

Xpres-drop

FTTH connectorized drop cable solution

Xpres-drop is a range of factory terminated drop cables to connect customers to the FTTH access networks in a fast plug and play methodology.

Every connector comes with a sealed, protective cap to prevent damage during transportation, storage, pulling and installation. The cap has an integrated pulling eye to facilitate the installation. Due to the small size, these cable assemblies can be pulled through ducts with an inner diameter as small as 20 mm and a 90° bend with an inner radius of 100mm.

On installation, the protective cap is removed such the LC and SC based termination, PC or APC, can be installed in the EnLighten enclosures (OFDC and IFDB-M) in a very dense stack.

The cable for installation through ducts has a black LSZH outer sheet (UV resistant) such it can also be used for indoor wiring.

Cable assemblies can be ordered with bend insensitive fiber conforming G657A ITU recommendations.

Coupler/Splitter components

Single mode wideband couplers/splitters are branching devices available in a wide range of styles and sizes to split and combine light. Two types, based on different technologies are now available:

The OCC1A product range consists of splitters based on Fused Biconic Tapered technology. The splitters are available in light duty (250 micron fibers), medium duty (900 micron fibers) or heavy duty (2.0 mm) versions.

Advantages

- Consistent performance.
- Low loss.
- Low polarization sensitivity.
- Excellent mechanical and environmental characteristics.

Applications

- Combining and splitting light signals.
- Central office/headend.
- Aerial Pole.
- LAN.
- Network monitoring.

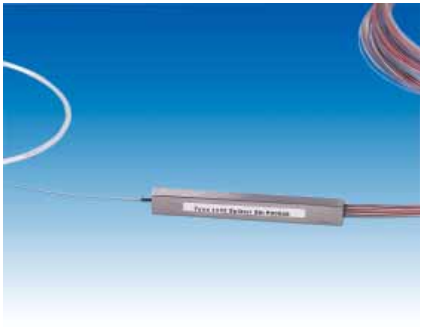
The OCC1P product range consists of splitters based on Planar technology. The splitters are packaged in a compact housing and can be connectorized when required. The Tyco Electronics wideband planar splitters have been designed to meet Telcordia GR-1209 and GR-1221 environmental requirements. All in-and output fibers have a Telcordia color coding.

Advantages

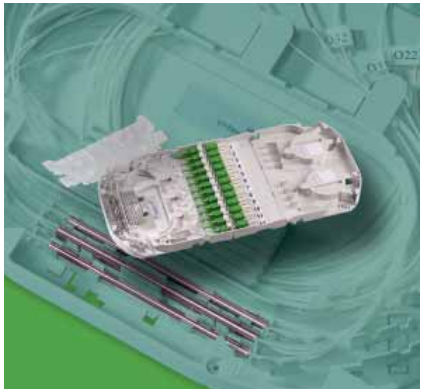
- Consistent performance.
- Low loss.
- Small footprint.
- Excellent uniformity.
- Ribbon fiber outputs.

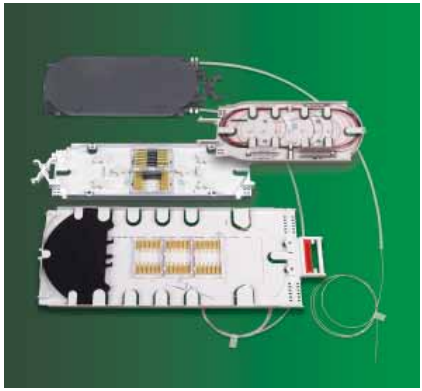
Applications

- Telecommunications.
- Datacommunications.
- Cable TV.



Integrated Couplers/Splitters





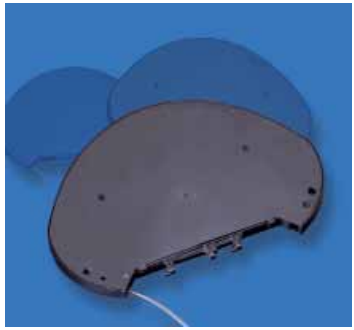
Couplers/splitters are designed for use in telecommunications, CATV, data communications and wide area network applications to split and combine light. They are integrated into the main building blocks which can then easily be integrated into closures, wall-mounted boxes or ODF's.

Several types of building blocks with integrated splitter(s) are available:

- The field installable splitter for FIST systems (FIST-FSASA2).
- The splice/patch tray (FIST-OC-G) that fits into the FIST-GPS2 subrack and that houses one or more connectorized splitters.
- The FOSC splitter tray (FOSC-OC), available in three different sizes to fit in any enclosure, box or subrack that accepts FOSC trays.
- LGX compatible splitters (OCM).
- Customized solutions (OCM).

Features

- Symmetric and asymmetric splitters.
- Variety of input/output configurations.
- Consistent performance.
- Low optical loss.
- Low polarisation sensitivity.
- Excellent mechanical and environmental characteristics.
- Fast installation.



FPS-OCM

Front patching shelf for optical component module

The FPS-OCM is a mechanical shelf assembly that accommodates LGX type of modules in a rack environment.
The shelf is typically used in 19″ active racks or data racks, but is also compatible with Tyco Electronics FIST racks.
All shelves have front access to the LGX modules, the patch cords enter and leave via the front.
The shelves are painted (powder coated) in light grey (RAL 7035).
They can be front- or backmounted in the rack.

The units have the following features, depending on the shelf dimensions (height unit)

1HU

- Mounting bracket with slotted hole enables any recessed rack mounting
- Compatible with OCM1 and high density OCMF modules.

3HU

- High density shelf for OCMF and compatible with OCM1, 2 and 3.

4HU/5HU

- A plastic transparent cover including identification label is provided
- A storage basket for patch cord overlength storage is optional available. It occupies 1 height unit (19″ standard) and can be mounted under the FPS-OCM
- Shelf for LGX modules and compatible with OCMF when the optional OCMF frame is installed.

OCFPS

Wideband couplers/splitters in front patching shelf

Single-mode wideband couplers/splitters are branching devices available in a wide range of styles and sizes to split and combine light. These devices are integrated into the Tyco Electronics range of front patching shelves. This allows easy integration in outdoor cabinets, wall-mount boxes or rack mount applications.

Advantages

- Consistent performance.
- Low optical loss.
- Low polarization sensitivity.
- Excellent mechanical and environmental characteristics.
- Fast installation and commissioning.
- Front or back mounting.
- ID card.
- Repair slice capacity.

Applications

- Combining and splitting light signals.
- Central office/headend.
- LAN.
- Network monitoring.

OCM5

Modular wideband couplers/splitters for CSX-2 splitter cabinets

Single mode wideband couplers/splitters are passive optical devices that split and combine light in fiber networks. The OCM modular packaging provides a robust and simple method for integrating these devices into your CSX-2 range for splitter cabinets or OCSH shelves (CAB5). A wide selection of split ratios and connector types ensure long lasting compatibility.

Advantages

- Reliable performance.
- Low loss.
- Low polarization sensitivity.
- Excellent mechanical protection.
- Fast and simple installation.
- Clean connector storage for unused ports.

The splitter components are based on FBT (fused biconic tapered) technology for low splitratio's.
For higher split ratio's, planar waveguide technology is used.

FOSC-OC-XC

Coarse wavelength division multiplexing in FOSC trays

The coarse wavelength division multiplexing technique combines (or multiplexes) two or more signals with different wavelengths in one common fiber. The same components can also be used to separate the wavelengths (de-multiplexing) at the remote location. These devices are integrated into the Tyco Electronics FOSC range of fiber-optic splicing trays. This allows for easy integration in enclosures, wall-mount boxes, or ODFs.

Advantages

- Consistent performance.
- Low optical loss.
- Low polarization sensitivity.
- Excellent mechanical and environmental characteristics.
- Fast installation and commissioning.

Applications

- CWDM upgrades in metro networks.
- Increase the capacity between the central office and the headend in HFC networks.
- CWDM overlay in PON architectures.
- LAN.

The CWDM components are based on TFF (thin-film-filter) technology.

Miscellaneous products and information

Heat-shrinkable tubing

Tyco Electronics, the pioneer in the development of heat-shrinkable products, has been responsible for the creation of new types of improved polymeric and elastomeric materials which possess unique properties through the modification of the raw material by the application of radiation chemistry.
Such polymers, subjected to high energy electron radiation possess characteristics which go far beyond the normal physical limits of untreated plastics.

Typical advantages derived from this technology include

- Cold flow resistance.
- High temperature stability.
- High mechanical strength.
- Chemical resistance.
- High flexibility.
- Flame resistance.
- Abrasion resistance.
- High dielectric strength.

Supplied to a customer in the expanded form, ranging in diameter from 0.5 mm to 102 mm, these non-melting polymer materials shrink when heated, fitting tightly over uniform or irregularly shaped objects, ensuring electrical and mechanical protection.
Careful synthesis provides materials which can selectively perform for specific applications. The addition of adhesives, fibre and fabric materials mean they can be used in the most difficult situations.

Typical use of the range of tubings include

- Primary electrical insulation.
- Cable jacketing and repair.
- Strain relief.
- Component encapsulation.
- Waterproofing.
- Identification by color coding.
- Packaging.
- Corrosion protection.
- Environmental/mechanical protection.

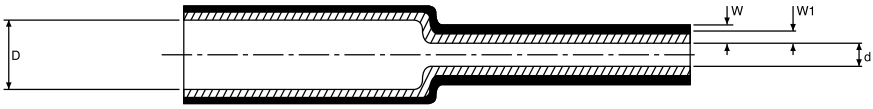
Ordering information

Please contact your Tyco Electronics sales representative for more details.

ATUM

Semi-flexible, dual wall, heat-shrinkable tubing

ATUM is a semi-flexible, heat-shrinkable tubing with an integrally bonded meltable adhesive inner lining designed to provide moisture-proof encapsulation to a wide variety of substrates, such as electrical wire splices, cable jackets, wire breakouts and electrical components.



Dimensions (in mm)

Ordering size		Inside diameter D		d (max.)		Recovered wall thickness			
		Expanded as supplied		Recovered after heating		W (nom.) Total wall		W1 (nom.) Meltable wall	
3:1	4:1	3:1	4:1	3:1	4:1	3:1	4:1	3:1	4:1
3/ 1	4/ 1	3	4	1	1	1.00	1.00	0.5	0.5
6/ 2	8/ 2	6	8	2	2	1.00	1.00	0.5	0.5
9/ 3	12/ 3	9	12	3	3	1.40	1.40	0.6	0.6
12/ 4	16/ 4	12	16	4	4	1.75	1.75	0.7	0.7
19/ 6	24/ 6	19	24	6	6	2.00	2.25	0.8	0.8
24/ 8	32/ 8	24	32	8	8	2.50	2.50	1.0	1.0
40/13	52/13	40	52	13	13	2.50	2.50	1.0	1.0

Typical ordering data:
Black Atum 3:1 tubing with an expanded inside diameter of 24 mm: ATUM 24/8-0.

Ordering information

The largest size which will recover snugly over the component to be covered should be ordered. The wall thickness of the tubing will be less than specified if recovery is restricted during shrinkage.

Standard length 1.2 metres
Standard color Black-o
Other lengths and sizes are available

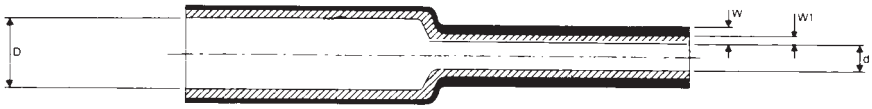
SCL

Semi-rigid selectively cross-linked heat-shrinkable encapsulation tubing

SCL is a semi-rigid heat-shrinkable tubing with a meltable inner wall, designed to provide one-step moisture-proof encapsulation to a wide variety of electrical parts including wire splices, breakouts and electronic components. When cooled, the entire mass becomes a rigid, tough, homogeneous covering with a controlled wall thickness.

SCL

Semi-rigid selectively cross-linked heat-shrinkable encapsulation tubing



Dimensions (in mm)				
Ordering size	Inside diameter		Recovered wall thickness	
	D (min)	D (max.)		
	Expanded as supplied	Recovering after heating	W (nom.) Total wall	W1 (nom.) Meltable wall
3/16	4.8	1.5	1.09	0.64
1/ 4	6.4	2.0	1.19	0.68
NR300	7.6	1.3	2.54	1.65
3/8	9.5	3.4	1.27	0.76
1/2	12.7	5.0	1.39	0.88
3/4	19.0	8.0	1.65	1.01
1	25.4	10.2	1.78	1.01

Typical ordering data

Black SCL tubing with expanded inside diameter of 4.8 mm black: SCL 3/16-0

Ordering information

The largest size which will recover snugly over the component to be covered should be ordered.

The wall thickness of the tubing will be less than specified if recovery is restricted during shrinkage.

Standard length 1.2 meters

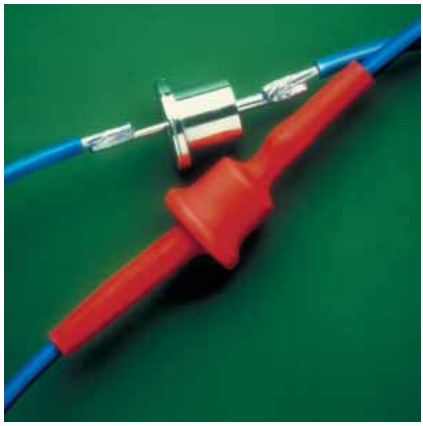
Standard color Black-0

Other lengths and sizes are available: subject to special order.

SCL is available in special UL approved constructions.

RNF-3000

General purpose, flexible, 3:1 heat-shrinkable tubing



Thermofit RNF-3000 is a thin-wall, highly flame retarded, general purpose tubing with a 3:1 shrink ratio. Its unique blend of electrical, physical and chemical properties makes it suitable for a wide range of applications including insulation, strain relief, identification of wires, cables, terminations, pipes and electrical and electronic components.

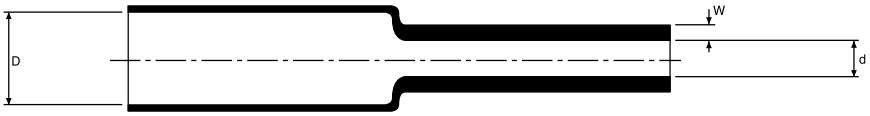
Ordering information

The largest size which will recover snugly over the component to be covered should be ordered. The wall thickness of the tubing will be less than specified if recovery is restricted during shrinkage.

Product description system	RNF-3000	24/8 Size:(see dimensions) minimum supplied internal diameter 24 mm/maximum recovered internal diameter 8 mm	-0 Color code (see below-standard colors)
Standard lengths	1.2 metres and on spool		
Standard colors	Type 1-black-0, yellow-4, white-9, Red-2, blue-6 Type 2-clear-X		

Other colours and lengths are available: subject to special order.

RNF-3000



Dimensions (in mm)			
Ordering size	Inside diameter D (min) Expanded as supplied	d (max) Recovered after heating	Wall thickness W (nom) Recovered after heating
1.5/0.5	1.5	0.5	0.45
3/ 1	3.0	1.0	0.55
6/ 2	6.0	2.0	0.65
9/ 3	9.0	3.0	0.75
12/ 4	12.0	4.0	0.75
18/ 6	18.0	6.0	0.85
24/ 8	24.0	8.0	1.00
39/13	39.0	13.0	1.15

Typical ordering data

Black RNF-3000 tubing with expanded inside diameter of 6 mm: RNF-3000 6/2-0.

KMS-K

Cable sheath cutter

- One cutter for all plastic cable sheath diameters.
- Cuts at any point in the cable.
- Adjustable cutting depth control.
- Small and handy.
- Accident-proof.
- Easy knife replacement.
- Maintenance-free.

The KMS-K sheath cutter is a simple, easy-to-use device that gives effortless slitting, with no sideslip, on any diameter of plastic cable at any point.
It comes in a handy plastic case with two attachments for small-diameter cable slitting and an Allen key to remove the cutter socket retention cap.

Kit content

- Cable sheath cutter.
- Adapter for cables up to Ø 25 mm (grey).
- Adapter for fiber optic cables (yellow).
- Operation instruction.
- Allen key.

Spare parts

- Spare blades (min. order qty: 5 pcs) (to be ordered separately).

Ordering information

KMS-K-INT	(synthetic version)
KMS-INT	(metal version)
KMS-Ersatzmesser	(spare blades)

CV-1981MK2/CV1983

Portable hot air heater

The CV-1981-MK2 and the CV-1983 Thermoguns are robust, double insulated, heavy duty hot air tools.

A motor driven fan forces air through the heating element which is enclosed in a stainless steel barrel and safety guard. The thermoguns are fitted with a Triac Power Control which varies power to the element by means of a control knob situated at the rear of the gun. Hence output temperature is adjusted in this way. Output wattage is therefore variable. An integral stand allows the CV-1981-MK2, and the CV-1983 to be used as a bench mounted tool. The thermogun is available in a variety of models, and is suited to a wide range of heat shrink applications.

The various push on reflectors of the PR series are easily and quickly attached to the gun, allowing use with a wide range of heat shrink products. These reflectors can be found on flier ref: TFAE0039. The CV-1983 has a bigger wattage element, and so a larger barrel. It therefore pushes through more air, as larger diameter results in greater airflow. The same temperatures are reached as the CV-1981-MK2. The CV-1983 would be used for larger tubing and moulded parts. To use the PR range of reflectors with the CV-1983 it is necessary to order a barrel adaptor.

Technical specification	
Electrical Supply-CV-1981-MK2/CV-1983	230 V 120V
Power Consumption-CV-1981-MK2 Power Consumption-CV-1983	1600W 2260W/3060W
Total System Noise-CV-1981-MK2 Total System Noise-CV-1983	65dB 65dB
Length-CV-1981-MK2 Length-CV-1983	340mm 320mm
Weight-CV-1981-MK2 Weight-CV-1983	1.3 kg 1.5 kg
Air Flow-CV-1981-MK2 Air Flow-CV-1983	Max 230 l/min Max 500 l/min

CV-1981MK2/CV1983

Portable hot air heater

Product range

All dual wall, single wall and moulded parts products.

Various devices products.

For other Tyco Electronics products discuss with product management.

Ordering information		
	Description	Tyco Electronics PCN
Equipment		
CV-1981-MK2	CV-1981-120V1600W-CANMK2	A42716-000
	CV-1981-120V1600W-UKMK2	E95798-000
	CV-1981-230V1600WMK2	813914-000
	CV-1981-230V1600W-SEVMK2	F25836-000
	CV-1981-230V1600W-UKMK2	340970-000
CV-1983	CV-1983-110V-2260W-UK	441753-000
	CV-1983-220V-2260W	773898-000
	CV-1983-220V-2260W-UK	985426-000
	CV-1983-220V-3060W	538361-000
	CV-1983-220V-3060W-UK	231866-000
CV-1983 Barrel Adaptor	AD-1962	989172-000

Reflector selection guide		
Product range/ordering information	Description	PCN
Tubing from 6 mm to 25 mm diameter	PR-12	991973-00
Tubing up to 6 mm diameter	PR-13	991963-000
Large Solder Sleeve terminations	PR-13C	991974-000
Long lengths of tubing up to 25 mm diameter	PR-21	991984-000
Small moulded parts and tubing from 25 mm to 35 mm diameter	PR-24	991964-000
Moulded parts and tubing from 35 mm to 60 mm diameter	PR-24A	001989-000
Solder Sleeve terminations up to 7 mm diameter	PR-25	991965-000
Large Solder Sleeve terminations From 7 mm to 13 mm	PR-25D	989523-000
Miniature Solder Sleeve terminations and small products	PR-26	991967-000
Solder Sleeve terminations from 20 mm to 27 mm diameter	PR-33	997768-000
Solder Sleeve terminations from 12 mm to 20 mm diameter	PR-34	989111-000
Special narrow reflector for moulded part transitions (21.5 x 3.5 mm nozzle)	PR-51	113069-000

HL2010E

Low cost hand held heater

The HL2010E hot air heater is designed to work with a standard line voltage (230V) on a wide variety of Tyco Electronics heat-shrinkable products. This tool is suitable for occasional use and is not recommended for applications requiring high duty cycles.

The tool supplies forced hot air with an adjustable heat setting to meet the requirements of many different installation situations. A three-position switch controls the air flow (150/300/500 l/min).

The HL2010E tool is switched on and off at the three-stage switch and the temperature can be continuously adjusted over a range of 50°C - -630°C by the pushbuttons. The temperature can be increased or reduced by 10°C steps. An LCD display shows the actual temperature.

Furthermore it requires only two reflectors to cover most applications of heat-shrinkable tubing and SolderSleeve terminations.

There is an adaptor available, which allows the use of PR type reflectors.

Technical specifications

Voltage	230V AC
Power	2000W
Air flow	150-500 l/min
Weight	920g
Length	280mm
Noise	<70dB

Ordering information		
Product	Description	PCN
HL2010E-230V tool	HL2010E-230V-Euro	C99451-000
	HL2010E-230V-UK	A22932-000
	HL2010E-Kit-230V-Euro	A23120-000

Reflector selection guide	
HL1802E-074616-SolderSleeve terminators reflector	832011-000
HL1802E-070519-heat-shrinkable tubings reflector	022611-000
HL1802E-070618, 9mm adaptor	930321-000
HL1802E-070717, 14mm reduction nozzle	868259-000
HL1802E-070816, 20mm reduction nozzle	613361-000
HL1802E-ADAPT-PR-adaptor for PR series reflector	444817-000
HL1802E-bench-std	717083-000

FH-T001 & FH-1630-PIE

Torches

General

Tyco Electronics torches have a common handle which can be equipped with two different burner heads. Each burner head has a different nozzle; the 30 mm nozzle produces a bigger flame than the 20 mm nozzle. To connect the torch to the gas bottle, a hose, equipped with fittings on both sides, is screwed on.

References

Handle	FH-T001-0005
Burner head (nozzle of 20 mm)	FH-T001-0020
Burner head (nozzle of 30 mm)	FH-T001-0030
Torch hose (3 m long with fittings)	FH-T001-0300

Burner selection per product

Product	Size	Burner
XAGA 500	up to 75/15	FH-T001-0020
XAGA 500	up to 125/30	FH-T001-0030
XAGA 550	up to 92/30	FH-T001-0020
XAGA 550	up to 200/50	FH-T001-0030
XAGA 1000C	up to 92/30	FH-T001-0020
XAGA 1000	up to 200/65	FH-T001-0030
CWST	up to 75/15	FH-T001-0020
CWST	up to 200/50	FH-T001-0030
RTSM	up to 75/15	FH-T001-0020
RTSM	up to 200/50	FH-T001-0030
RWPS	all sizes	FH-T001-0020
RCRS	all sizes	FH-T001-0020
RDRK	all sizes	FH-T001-0020
RPBS	all sizes	FH-T001-0020
RLSS	all sizes	FH-T001-0020
K-CAP/L-CAP	all sizes	FH-T001-0020
XCSM/MWTM	all sizes	FH-T001-0020
CBSM	all sizes	FH-T001-0020
PEDCAP	all sizes	FH-T001-0020

Characteristics of the torch

Handle

- Allows propane and/or butane.
- Progressive regulation, stable flow rate.
- Flexible connection of gas tube to the handle to allow easy manipulation.

Burner

- Air regulator to obtain the right flame blue/yellow.

Flame setting

To obtain a perfect result it is recommended to set the air regulator on the burner head such that following type of flame is produced: total flame length 250-300 mm, blue section 2/3 of flame length with 1/3 yellow tip.

FH-T001 & FH-1630-PIE

Torches

Tool kits

Tool-KIT-1

- 1 pc FH-T001-0005 torch handle
- 1 pc FH-T001-0020 (nozzle 20 mm)
- 1 pc FH-T001-0030 (nozzle 30 mm)
- 1 pc FH-T001-0400-HOSE-4m
- 1 pc FH-T001-WRENGE
- 1 pc FH-T001-Regul.-R-2121 (without gas flow control feature)

Tool-KIT-2

- 1 pc FH-T001-0005 torch handle
- 1 pc FH-T001-0020 (nozzle 20 mm)
- 1 pc FH-T001-0030 (nozzle 30 mm)
- 1 pc FH-T001-0400-HOSE-4m
- 1 pc FH-T001-WRENGE
- 1 pc FH-T001-Regul.-R-2321 (with gas flow control feature)

Other available accessories

FH-1630-PIE torch handle

Torch handle with Piezo automatic ignition.
Gas flow with pressed trigger only.
Nozzle connection: bayonet socking.
Hose connection thread R3/8", left.

Nozzles for FH-1630-PIE handle		
Description	Nozzle Ø (mm)	Gas consumption max. (kg/h)
FH 1630-PIE-BN28	28	0,46
FH 1630-PIE-BN38	38	0,90
FH 1630-PIE-BN50	50	2,00

Other accessories		
FH 1630-PIE-LGS	Safety regulator	
FH 1630-PIE-R1	Regulator 3/8"	
FH 1630-PIE-SW10	Hoze 10 meter	
FH 1630-PIE-SW5	Hoze 5 meter	
FH-T001-NOZZLE-PP 14	14	0,055
(recommended for shrinking on outlets: e.g. VCKT, fiber products).		

Selection table for XAGA (indicative)

		AMP PICABOND			TELSPLICE, SCOTCHLOK UY-UR		
Pair count	Gauge	XAGA 1000	XAGA 500	XAGA 550	XAGA 1000	XAGA 500	XAGA 550
5	.4 .5 .6			48/3-100			43/8-100
10	.4 .5 .6						
20	.4 .5 .6					43/8-150	43/8-200
25	.4 .5 .6		43/8-150	43/8-200			
30	.4 .5 .6						43/8-300
50	.4 .5 .6		43/8-300	43/8-300		55/12-300	55/12-300
100	.4 .5 .6		55/12-300				75/15-250
150	.4 .5 .6	62/15-350		75/15-250	62/15-500	75/15-400	75/15-500
200	.4 .5 .6		75/15-300				
300	.4 .5 .6				92/30-350		95/25-500
400	.4 .5 .6	92/30-500	100/25-460	75/15-300		100/25-400	
500	.4 .5 .6			92/50-500	92/30-500		122/30-500
600	.4 .5 .6						
800	.4 .5 .6		125/30-460			125/30-460	122/30-650
900	.4 .5 .6	122/38-650		122/30-650	122/38-500		
1200	.4 .5 .6						160/42-720
1500	.4 .5	160/55-650		160/42-650	160/55-500		
1800	.4						
2400	.4	160/55-650		160/42-720	160/55-650		

Selection table for XAGA (indicative)

<table>
<tr><td></td><td></td><td colspan="3">AMPSTACK, MS2 (25 PR.)</td></tr>
<tr><td>Pair count</td><td>Gauge</td><td>XAGA 1000</td><td>XAGA 500</td><td>XAGA 550</td></tr>
<tr><td>5</td><td>.4
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.6</td><td rowspan="8"></td><td rowspan="8"></td><td rowspan="8"></td></tr>
<tr><td>10</td><td>.4
.5
.6</td></tr>
<tr><td>20</td><td>.4
.5
.6</td></tr>
<tr><td>25</td><td>.4
.5
.6</td></tr>
<tr><td>30</td><td>.4
.5
.6</td></tr>
<tr><td>50</td><td>.4
.5
.6</td><td rowspan="3">75/15-240</td><td rowspan="3">75/15-250</td></tr>
<tr><td>100</td><td>.4
.5
.6</td><td rowspan="3">62/15-350</td></tr>
<tr><td>150</td><td>.4
.5
.6</td></tr>
<tr><td>200</td><td>.4
.5
.6</td><td rowspan="3">100/25-260</td><td rowspan="3">92/25-300</td></tr>
<tr><td>300</td><td>.4
.5
.6</td><td rowspan="3">92/30-350</td></tr>
<tr><td>400</td><td>.4
.5
.6</td><td rowspan="3">122/30-300</td></tr>
<tr><td>500</td><td>.4
.5
.6</td><td rowspan="3">92/30-500</td><td rowspan="3">125/30-460</td></tr>
<tr><td>600</td><td>.4
.5
.6</td></tr>
<tr><td>800</td><td>.4
.5
.6</td><td rowspan="3">122/30-500</td></tr>
<tr><td>900</td><td>.4
.5
.6</td><td rowspan="3">122/38-500</td></tr>
<tr><td>1200</td><td>.4
.5
.6</td><td rowspan="3">160/42-500</td><td rowspan="3"></td></tr>
<tr><td>1500</td><td>.4
.5</td><td rowspan="2">160/55-500</td></tr>
<tr><td>1800</td><td>.4</td></tr>
<tr><td>2400</td><td>.4</td><td>200/65-500</td><td></td><td>200/50-500</td></tr>
</table>

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