

Ordering Guide of the Generic Fiber Termination Box (FIST-GB2)



This document provides assistance with the selection of boxes for use in FIST cable termination applications. It includes the following sections:

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1 Product description

The Generic Box (FIST-GB2) provides a wall-mountable environmental and mechanical protection for the fiber management system that includes the functions of splicing, patching and passive component integration.

The box comprises a base and lid assembly. The product can be tailored to almost any required configuration and capacity by adding splicing, passive device and/or connector patching sub-assemblies.

The box can be mounted on a wall inside the customer's premises, outdoor above ground and in street cabinets. IP rating: IP55

The product has provision for cable termination and sealing requirements.

The base plate includes the cable entry/exit ports and a UMS (Universal Mounting System) profile to accommodate the different types of sub-assemblies.

The outer cover can be provided with or without a lock. A rubber gasket provides the sealing between base and cover.

The box is available in four different dimensions.

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 loose tube ribbon and central core cable applications, a basket is available to store the uncut fibers.

The splice/patch version of the box includes labels for identification.



GB-2DS.JPG

FIST-GB2-48-AT

2 Ordering information

2.1 How to order this product ?

Order one of the application kits

Some application kits have been identified for an easy product selection and ordering. These kits contain all necessary accessories for a certain application and fiber count. The information can be found in paragraph 2.2.

Order the box and its accessories separately

For maximum flexibility, the box and the accessories can be ordered as separate items. The information can be found in paragraphs 2.3 and 2.4.

This is recommended when:

- the box is not completely filled up (e.g. when future extensions are planned)
- the required configuration is not covered by the standard application kits (e.g. ANT splice holders,....)
- when the cable configuration is not loose tube or central core
- a mix of cable configurations (e.g. single fiber and Ribbon) has to be spliced in the same closure
- other quantities and types of cable seal kits are necessary
- an extension of an application kit or installed box is needed.

2.2 Application kits

The following selection has to be made:

- Define the fiber type: single fiber, Ribbon4/8 or Ribbon12
- Define the cable construction: loose tube or central core cable
- Define the application: 'cable to cable' or 'cable to pigtails'
- When selecting 'cable to pigtail', the connector type (or KTU) has to be defined. Pigtail \varnothing range for KTU is 1.6 to 3.1 mm.

Standard application kits include:

- The box
- The necessary SOSA2's – groove plates are pre-installed
- Patch panel (for 'cable to pigtail' applications) and identification labels
- Seal kits
- Connector adapters and pigtails (for 'cable to pigtail' applications)

Ordering code: **FIST-GB2-KITXXX**

Notes:

- when ordering a kit for a 'central core cable to pigtail' application, a dummy cable stub is provided to ensure a proper sealing in the oval port.

For the detailed kit contents, please refer to Addendum 1.

2.2.1 Single fiber - loose tube cable

Application	Fiber count			
Cable to cable:	24F	48F	72F	96F
	KIT001 (GB2-12)	KIT002 (GB2-24)	KIT003 (GB2-36)	KIT004 (GB2-48)
Cable to pigtails:	12F	24F	36F	48F
- KTU's	KIT005 (GB2-12)	KIT006 (GB2-24)	KIT007 (GB2-36)	KIT008 (GB2-36)
- SC/UPC	KIT009 (GB2-12)	KIT010 (GB2-24)	KIT011 (GB2-36)	KIT012 (GB2-48)
- SC/APC	KIT013 (GB2-12)	KIT014 (GB2-24)	KIT015 (GB2-36)	KIT016 (GB2-48)

2.2.2 Single fiber - central core

Application	Fiber count			
Cable to cable:	24F	48F	72F	96F
	KIT017 (GB2-12)	KIT018 (GB2-24)	KIT019 (GB2-36)	KIT020 (GB2-48)
Cable to pigtails:	12F	24F	36F	48F
- KTU's	KIT021 (GB2-12)	KIT022 (GB2-24)	KIT023 (GB2-36)	KIT024 (GB2-36)
- SC/UPC	KIT025 (GB2-12)	KIT026 (GB2-24)	KIT027 (GB2-36)	KIT028 (GB2-48)
- SC/APC	KIT029 (GB2-12)	KIT030 (GB2-24)	KIT031 (GB2-36)	KIT032 (GB2-48)

2.2.3 Ribbon 4 - loose tube

Application	Fiber count			
Cable to cable:	24F	48F	72F	96F
	KIT033 (GB2-12)	KIT034 (GB2-12)	KIT035 (GB2-12)	KIT036 (GB2-24)
Cable to pigtails:	12F	24F	36F	48F
- KTU's	N/A	N/A	N/A	N/A
- SC/UPC	KIT041 (GB2-12)	KIT042 (GB2-24)	KIT043 (GB2-36)	KIT044 (GB2-48)
- SC/APC	KIT045 (GB2-12)	KIT046 (GB2-24)	KIT047 (GB2-36)	KIT048 (GB2-48)

2.2.4 Ribbon 4 - central core

Application	Fiber count			
Cable to cable:	24F	48F	72F	96F
	KIT049 (GB2-12)	KIT050 (GB2-12)	KIT051 (GB2-12)	KIT052 (GB2-24)
Cable to pigtails:	12F	24F	36F	48F
- KTU's	N/A	N/A	N/A	N/A
- SC/UPC	KIT057 (GB2-12)	KIT058 (GB2-24)	KIT059 (GB2-36)	KIT060 (GB2-48)
- SC/APC	KIT061 (GB2-12)	KIT062 (GB2-24)	KIT063 (GB2-36)	KIT064 (GB2-48)

2.2.5 Ribbon 8 - loose tube

Application	Fiber count			
Cable to cable:	24F	48F	72F	96F
	KIT033 (GB2-12)	KIT034 (GB2-12)	KIT035 (GB2-12)	KIT036 (GB2-24)
Cable to pigtails:	8F	24F	32F	48F
- KTU's	N/A	N/A	N/A	N/A
- SC/UPC	KIT069 (GB2-12)	KIT070 (GB2-24)	KIT071 (GB2-36)	KIT072 (GB2-48)
- SC/APC	KIT073 (GB2-12)	KIT074 (GB2-24)	KIT075 (GB2-36)	KIT076 (GB2-48)

2.2.6 Ribbon 8 - central core

Application	Fiber count			
Cable to cable:	24F	48F	72F	96F
	KIT049 (GB2-12)	KIT050 (GB2-12)	KIT051 (GB2-12)	KIT052 (GB2-24)
Cable to pigtails:	8F	24F	32F	48F
- KTU's	N/A	N/A	N/A	N/A
- SC/UPC	KIT081 (GB2-12)	KIT082 (GB2-24)	KIT083 (GB2-36)	KIT084 (GB2-48)
- SC/APC	KIT085 (GB2-12)	KIT086 (GB2-24)	KIT087 (GB2-36)	KIT088 (GB2-48)

2.2.7 Ribbon 12 - loose tube

Application	Fiber count			
Cable to cable:	24F	48F	72F	96F
	KIT089 (GB2-12)	KIT090 (GB2-12)	KIT091 (GB2-12)	KIT092 (GB2-24)
Cable to pigtails:	12F	24F	36F	48F
- KTU's	N/A	N/A	N/A	N/A
- SC/UPC	KIT097 (GB2-12)	KIT098 (GB2-24)	KIT099 (GB2-36)	KIT100 (GB2-48)
- SC/APC	KIT101 (GB2-12)	KIT102 (GB2-24)	KIT103 (GB2-36)	KIT104 (GB2-48)

2.2.8 Ribbon 12 - central core

Application	Fiber count			
Cable to cable:	24F	48F	72F	96F
	KIT105 (GB2-12)	KIT106 (GB2-12)	KIT107 (GB2-12)	KIT108 (GB2-24)
Cable to pigtails:	12F	24F	36F	48F
- KTU's	N/A	N/A	N/A	N/A
- SC/UPC	KIT113 (GB2-12)	KIT114 (GB2-24)	KIT115 (GB2-36)	KIT116 (GB2-48)
- SC/APC	KIT117 (GB2-12)	KIT118 (GB2-24)	KIT119 (GB2-36)	KIT120 (GB2-48)

2.3 Box name string

FIST-GB2-XX-X X

Box size

- 12** Typical capacity of 12 connectors
- 24** Typical capacity of 24 connectors
- 36** Typical capacity of 36 connectors
- 48** Typical capacity of 48 connectors

(For options C & E consult your local sales engineer)

Outer cover locking options

- A** No lock (i.e. only quarter turn screws)
- B** Tyco lock and key no.1
- C** Tyco lock with specific customer key number
- D** No lock but with hole for Tyco lock
- E** Customer specific lock or hole

(For options C & E consult your local sales engineer)

Application

- S** Splicing cable to cable only
- T** Terminating cable to pigtails

Note:

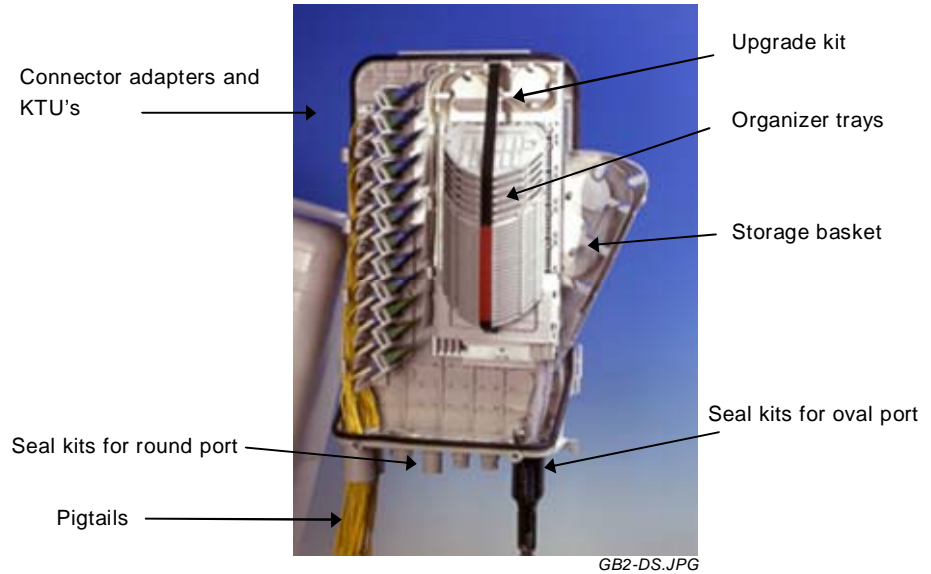
*If an outer cover is selected with a Tyco lock with a specific customer key number, the description becomes: FIST-GB2-XX-XX-YY
Where YY indicates the 2 digits of the key number for the outer cover.*

The basic kit contains

- The box base
- The cover
- 3 mounting bolts with seals for wall mounting
- Mounting plate and UMS profile
- FAS routing block and cap including tube holder(s) and retainers
- Traylid + fiber guiding pin
- Velcro strip
- Tray wedge
- Pigtail routing block and pigtail duct (only for the **T** 'cable to pigtail' applications)
- Patch panel for maximum capacity (only for the **T** 'cable to pigtail' applications) and identification labels
- Installation Instruction

2.4 Accessories

Accessories are ordered in addition to the basic box to suit specific applications. Refer to section 3.1 for a detailed product description.



2.4.1 Cable seal kits for the oval port

Name	Qty/Pk	Description
FIST-GB2-OSK-LTS01	1 pc	Oval port seal kit for loose tube - single fiber cable (plastic strength member fixation)
FIST-GB2-OSK-LTS02	1 pc	Oval port seal kit for loose tube - single fiber cable (metal strength member fixation - alternatif for -LTS01)
FIST-GB2-OSK-LTR	1 pc	Oval port seal kit for loose tube - ribbon cable
FIST-GB2-OSK-CC	1 pc	Oval port seal kit for central core cable (both single fiber and ribbon)

2.4.2 Cable seal kits for the round port

Name	Qty/Pk	Description
FIST-GB-DRCHS-01	1 pc	Drop cable seal kit (heat-shrink)
FIST-GB-PTS24-01	1 pc	Pigtail seal gland PG29 – seals up to 24 pigtails (Ø 0-3.0 mm)
FIST-GB-PTS6X4-PG21-01	1 pc	Pigtail seal gland PG21 – seals up to 6 pigtails (Ø 0-4.0 mm)
FIST-GB-GLD16-PT4	10 pc	Pigtail seal gland PG16 – seals up to 4 pigtails (Ø 0-2.4 mm)
FIST-GB-GLD16-4X4MM	10 pc	Cable seal gland PG16 – seals up to 4 cables (Ø ≤ 4 mm)
FIST-GB-GLD21-4X6MM	10 pc	Cable seal gland PG21 – seals up to 4 cables (Ø ≤ 6 mm)
FIST-GB-GLD21-4X7MM	10 pc	Cable seal gland PG21 – seals up to 4 cables (Ø ≤ 7 mm)
FIST-GB-GLD21-6X5MM	10 pc	Cable seal gland PG21 – seals up to 6 cables (Ø ≤ 5 mm)
FIST-GB-GLD21-8X4MM-10	10 pc	Cable seal gland PG21 – seals up to 8 cables (Ø ≤ 4 mm)
FIST-GB-GLD29-8X5.5MM	10 pc	Cable seal gland PG29 – seals up to 8 cables (Ø ≤ 5.5 mm)
FIST-GB-GLD16-01	10 pc	Cable gland PG 16 (cable range: 6 - 14 mm)
FIST-GB-GLD21-01	10 pc	Cable gland PG 21 (cable range: 9 - 18 mm)
FIST-GB-GLD21/16-01	10 pc	Cable gland PG 21/16 (cable range: 6 - 14 mm)
FIST-GB-GLD29-01	10 pc	Cable gland PG 29 (cable range: 15 - 26 mm)
FIST-GB-GLD36-01	10 pc	Cable gland PG 36 (cable range: 24 - 32 mm)
FIST-GB-GLD42-01	10 pc	Cable gland PG 42 (cable range: 30 - 38 mm)
FIST-GB-GLD16-17-FLEX2	10 pc	Flex tube gland PG 16 for tube inside Ø of 17 mm

Name	Qty/Pk	Description
FIST-GB-GLD16-10-FLEX2	10 pc	Flex tube gland PG 16 for tube inside Ø of 10 mm
FIST-GS-FLEX-17-50-S5027	50 m	Flexible tubing (inside Ø 17 mm)
FIST-GS-FLEX-10-50-S5027	50 m	Flexible tubing (inside Ø 10 mm)
FIST-GB-STRBR-01	1 pc	Strain relief bracket for 2 cables - to be used with FIST-GB-GLD and FIST-GB-DRCHS

2.4.3 Copper termination accessories

Name	Qty/Pk	Description
FIST-GB-LSA-2/8-01	1 pc	IDC copper termination block for 8 pairs
FIST-GB-LSA-2/10-01	1 pc	IDC copper termination block for 10 pairs

2.4.4 Organizer trays

Name	Qty/Pk	Description
Organizer trays		See the FIST-SOSA2 ordering guide

2.4.5 Connector adapters and KTU's

Name	Qty/Pk	Description
Connector adapters		See the 'Cable assemblies' ordering guide
FSA-ADK-H1-4	1 pc	Kit including 1 retainer and 2 wraparound KTU's for 2 single fiber pigtails (Ø range: 1.6 to 3.1 mm) or 1 ribbon 4, 8 or 12.
FIST-KTU2	50 pc	Wraparound KTU for 2 single fiber pigtails (Ø range: 1.6 to 3.1 mm) or 1 ribbon 4, 8 or 12.

2.4.6 Pigtails

See the Cable assemblies ordering guide.

We advice 2,5 m pigtails to provide sufficient fiber length in the trays for re-splicing.

2.4.7 Storage baskets

Name	Qty/Pk	Description
FIST-BASKET-A	1 pc	Storage basket for uncut central core cable (size GB2-24)
FIST-BASKET-B	1 pc	Storage basket for uncut central core cable (size GB2-36 and GB2-48)

2.4.8 Upgrade kits

Name	Qty/Pk	Description
FIST-GB2-TKIT-01	1 pc	Kit to convert a splicing box into a termination box. Includes 1 pigtail routing block, 1 patch panel for 12 connectors and bend controls.
FIST-GB2-TKIT-02	1 pc	Additional kit including 1 patch panel for 12 connectors, bend controls and 1 pigtail duct.

2.4.9 Wraparound pigtail protection

Name	Qty/Pk	Description
FIST-GB-PTS24-FLEXWRAP-01	1 set	Kit with fixation devices to hold the flexible wraparound protection tubing to the pigtail seal (FIST-GB-PTS24-01).
FIST-WAFLEX-23-50	50 m	Dual wall flexible wraparound tube (dia. (25 mm) to fit a PG29)
FIST-WAFLEX-23-10	10 m	Dual wall flexible wraparound tube (dia. (25 mm) to fit a PG29)
FIST-GB-PTS24-FLEXCLIP-10	10 pc	Kit with wall mountable clips to hold the flexible tube.(FIST-WAFLEX-23-...)

2.4.10 Inner cover

Name	Qty/Pk	Description
FIST-GB2-12-INCO	1 pc	Inner cover kit for FIST-GB2-12
FIST-GB2-24-INCO	1 pc	Inner cover kit for FIST-GB2-24
FIST-GB2-36-INCO	1 pc	Inner cover kit for FIST-GB2-36
FIST-GB2-48-INCO	1 pc	Inner cover kit for FIST-GB2-48

2.4.11 Miscellaneous

Name	Qty/Pk	Description
FIST-GB-BCTRL-01	1 pc	2 x 90° bend control
FIST-GB-BCTRL-02	1 pc	Pigtail storage inside GB box (1 x 360°)
FIST-GB-BCTRL-03	1 pc	Pigtail guide (1 x 180° + 1 x 360°)
FIST-GB-BCTRL-04	1 pc	Bend control (1 x 90° + 1 x 360°)
FIST-GB-GRND-01	1 pc	Grounding bar
FIST-GB-GRND-02	1 pc	Grounding feed-through kit
FIST-GB-PSTMO-03	1 pc	Individual pigtail storage outside GB box
FIST-GB-PSTMO-04	1 pc	Pigtail bundle storage outside GB box
FIST-GB2-LABEL-12	1 pc	Identification labels - nrs 1 up to 12
FIST-GB2-LABEL-24	1 pc	Identification labels - nrs 1 up to 24
FIST-GB2-LABEL-36	1 pc	Identification labels - nrs 1 up to 36
FIST-GB2-LABEL-48	1 pc	Identification labels - nrs 1 up to 48
FIST-GB2-PRCLIP-10	10 pc	Pigtail clip retainer

2.5 Installation tools

Name	Qty/Pk	Description
FIST-GB-CUT-TOOL-PG16	1 pc	Cable port cutting tool for gland size PG16
FIST-GB-TORX-SD-SET	2 pc	Screw driver set with TORX head (T10+T20)
FISTV-LCIT	1 pc	Looped tube insertion tool for oval outlet (loose tube cable)
FACC-HEAT-GUN-220V	1 pc	1460W, hot air gun to shrink the cable seals
FACC-HEAT-GUN-110V	1 pc	1460W, hot air gun to shrink the cable seals
FACC-S-HOT-AIR-TORCH	1 pc	Flameless gas torch that can be used instead of a heat gun
FACC-TUBE-STRIPPER-02	1 pc	Tube stripper OPTI-STRIP

3 Product guide

3.1 Product description



GB20G01.JPG

Base and cover

The FIST-GB2 consists of a base and a cover made from an engineering polymer.

The cover is secured to the base by two quarter turn screws and can be provided with a lock and key.

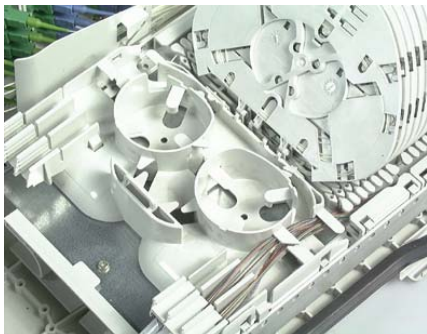
A rubber gasket seals the cover to the base.



GB20G03.JPG

UMS profile

On the UMS profiles, the wraparound groove plates of the SOSA's can be clicked. The capacity of the UMS profile is defined by the box size; Different sizes of groove plates are available for single fiber and ribbon fiber (R4/8 and R12). See SOSA2 ordering guide for more details.



GB20G04.JPG

FAS block

A FAS block routes fiber in a controlled way to the appropriate splicing trays.

Two different types are available:

- In the GB2-12, a small FAS block is installed. This block does not allow fiber routing from the left side to the right side.
- In the other sizes a larger FAS block is installed, allowing for additional flexibility. (see picture)

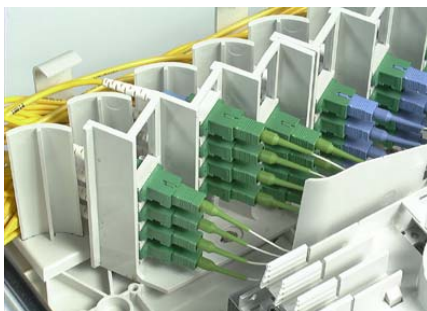


GC020G28.JPG

FAS cap

A FAS cap protects mechanically the fibers on the FAS block.

Provision has been made to store the tray wedge.

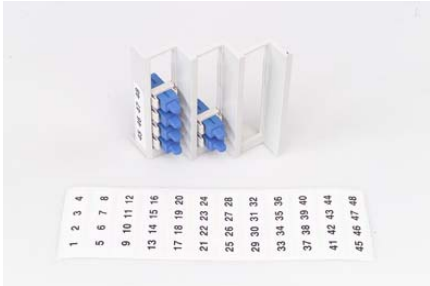


GB20G05.JPG

Patch panel

The patch panel can accept different optical connector types for patch cords (e.g. SC/PC) or pigtail strain relief devices (KTUs). The patch panel is installed in the T versions (cable to pigtail) only. A pigtail duct guides the secondary coated pigtail from the patch panel to the pigtail routing block.

Upgrade kits are available to convert a S (cable-cable) to a T (cable-pigtail) version. (see paragraph 3.4.7)



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Identification labels for patch panel

Labels for adapter identification on the patch panels are included in the kit.

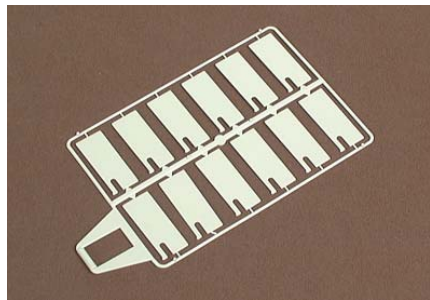


GB20G06.JPG

Tube holders

On every side of the FAS block, a tube holder is provided to keep tubes coming from the cables in place. Twelve cavities provide a neat organization of the fibers. The total capacity depends on the tube diameter (see paragraph 3.3.1).

In the GB2-12, only one tube holder is installed.



GC020G29.JPG

Retainers for tube holders

The retainers have to be slid into the tube holders. They are delivered in a set of 12.



GB20G07.JPG

Oval port

The FIST-GB2 provides a cable loop-through function allowing uncut loops of loose buffer tubes to be stored in a controlled manner or single circuits, ribbons or cable elements to be stored in the organizer trays.

Looped cable entry is via an oval port sealed with a heat-shrink tubing kit. Different oval port heat shrink seal kits are available to accommodate different cable types (see paragraph 2.4.1)



GB20G08.JPG

Round ports

The single cable entries/exits can accommodate circular compression glands, heat-shrink cable seals for loose tube cables, or pigtail seals. Please refer to paragraph 2.4.2.



GB2OG09.JPG

Pigtail routing block

The pigtail routing block guides the pigtails from the trays to the pigtail duct and patch panel.

3.2 Box dimensions

Dimensions in mm	FIST-GB2-12	FIST-GB2-24	FIST-GB2-36	FIST-GB2-48
Width	372	372	372	372
Height	387	455	530	600
Depth	176	176	176	176

3.3 Box capacity

3.3.1 General

Product size	GB2-12		GB2-24		GB2-36		GB2-48	
	S	T	S	T	S	T	S	T
Application	S	T	S	T	S	T	S	T
Connector - KTU capacity	0	12	0	24	0	36	0	48
UMS profile length (units) ^(a)	20	8	26	14	38	26	50	38
FAS block type	small		large		large		large	
Number of tube holders	1		2		2		2	
Cavities per tube holder	12		12		12		12	
Capacity per tube holder								
- FOPT-SF (1.8 mm)	48		48		48		48	
- Tubes of 2.2 mm	48		48		48		48	
- Tubes of 2.9 mm	36		36		36		36	
- Tubes of 3.1 mm	24		24		24		24	
- FOPT tubes of 5.0 mm	12		12		12		12	
- Spiral tube of 6.8 mm	6		6		6		6	
- Spiral tube of 8.8 mm	3		3		3		3	
Cable looping capacity								
- Single fiber loose tube	(b)		(b)		(b)		(b)	
- R4 (stored in basket)	NA		25 + 4.8 m		25 + 5.3 m		25 + 5.4 m	
- R8 (stored in basket)	NA		18		24+		24+	
- R12 (stored in basket)	NA		15		15		15	

(a) The number indicated is the space that can be occupied by trays. A single circuit tray occupies 1 unit; a single element or R4/8 tray occupies 2 units; a R12 tray needs 3 units. One UMS profile length unit equals 6 mm.

(b) See section 3.3.2.

3.3.2 Single fiber cable looping capacity

		Loose tube Ø in mm			
		Ø 2 mm	Ø 2.5 mm	Ø 3 mm	Ø 3.5 mm
GB2-12	Total length capacity (m)	50,4	43,2	18	14,4
	# tubes with 3.2 m loop	14	12	5	4
GB2-24	Total length capacity (m)	83,6	53,2	30,4	26,6
	# tubes with 3.4 m loop	22	14	8	7
GB2-36	Total length capacity (m)	90	75,6	36	32,4
	# tubes with 3.4 m loop	25	21	10	9
GB2-48	Total length capacity (m)	114	95	41,8	38
	# tubes with 3.6 m loop	30	25	11	10

Note: The numbers in the tables are guide values. The real capacity depends on different factors. At request the capacity can be specified for a specific case.

3.3.3 Splicing cable to cable only - primary coated fibers

	GB2-12-S		GB2-24-S		GB2-36-S		GB2-48-S	
	Fibers	Trays	Fibers	Trays	Fibers	Trays	Fibers	Trays
Single circuit splicing capacity								
- 2 primary coated fibers – SC	40	20	48	24 (a)	72	36 (a)	96	48 (a)
Single element splicing capacity								
- 4 primary coated fibers - SC	80	20	96	24 (a)	144	36 (a)	192	48 (a)
- 8 primary coated fibers - SE	80	10	96	12 (a)	144	18 (a)	192	24 (a)
- 12 primary coated fibers - SE	120	10	144	12 (a)	216	18 (a)	288	24 (a)
- R4 cable: 2xR4 per tray	80	10	104	13	152	19	200	25
- R8 cable: R8 tray	80	10	104	13	152	19	200	25
- R12 cable: R12 tray	72	6	96	8 (b)	144	12 (b)	192	16 (b)

(a) UMS profile is not completely filled up. Wraparound groove plates are only available in multiples of 4 UMS units (2 SE trays - 4 SC trays).

(b) UMS profile is not completely filled up. Wraparound groove plates are only available in multiples of 6 UMS units (2 R12 trays).

Note: Capacities indicated above are applicable for heat-shrinkable protectors. The same capacities are applicable for ANT and QPAK splice protectors in SC and SE trays.

3.3.4 Splicing cable to pigtails using pigtail strain relief devices (KTU) inside the box - secondary coated fibers

	GB2-12-T		GB2-24-T		GB2-36-T		GB2-48-T	
	Fibers	Trays	Fibers	Trays	Fibers	Trays	Fibers	Trays
Single circuit splicing capacity								
- 2 primary coated fibers – SC	16	8	24	12	48	24	72(a)	36
Single element splicing capacity								
- 4 primary coated fibers – SE	16	4	24	6	48	12	72 (a)	18
- R4 cable: 2xR4 per tray (b)	32	4	56	7	104	13	152	19
- R8 cable: R8 tray (b)	32	4	56	7	104	13	152	19
- R12 cable: R12 tray (b)	24	2	48	4	96	8	144	12

(a) extra pigtail seals can be installed in port 5 and/or 7. Install an extra bend control (FIST-GB-BCTRL-03) for proper pigtail management.

(b) the pigtail seal FIST-GB-PTS24 cannot be used to seal ribbon pigtails. The wraparound flextube has to be used in this case. (see paragraph 3.4.8)

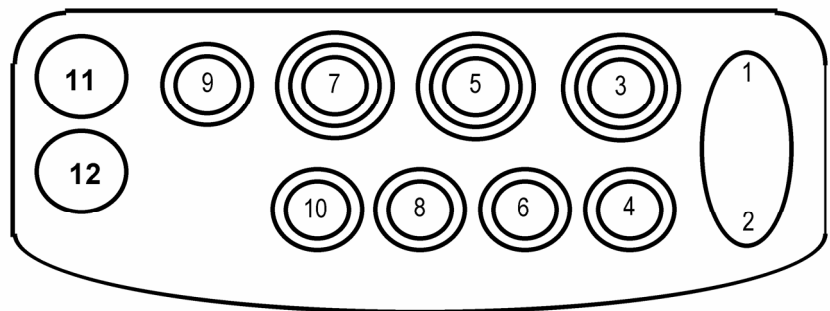
Note: Capacities indicated above are applicable for heat-shrinkable protectors. The same capacities are applicable for ANT and QPAK splice protectors in SC and SE trays.

3.3.5 Splicing cable to pigtails using connectors inside the box - secondary coated fibers

	GB2-12-T		GB2-24-T		GB2-36-T		GB2-48-T	
	Fibers	Trays	Fibers	Trays	Fibers	Trays	Fibers	Trays
Single circuit splicing capacity								
- 2 primary coated fibers – SC	12	6	24	12	36	18	48	24
Single element splicing capacity								
- 4 secondary coated fibers - SE	12	3	24	6	36	9	48	12

Note: Capacities indicated above are applicable for Heat Shrinkable protectors. The same capacities are applicable for ANT and QPAK splice protectors in SC and SE trays.

3.3.6 Cable ports



Generic box cable entry/exit ports (view from inside)

Port	Usage	Cable range mm	Seal to be used Description	Ordering reference
1-2	Looped cable	12 - 25	Oval port seal	FIST-GB2-OSK-...
11,12	Pigtail / Patchcord	0 - 3 max. 24 pigtails	Pigtail drop	FIST-GB-PTS24-01
	Any cable		gland	any PG29 gland
3,5,7	Drop cable	6 - 26	Gland 16 (6-14) Gland 21 (9-18) Gland 29 (15-26)	FIST-GB-GLD16-01 FIST-GB-GLD21-01 FIST-GB-GLD29-01
		8 – 21	Heat-shrink seal	FIST-GB-DRCHS-01
	Any cable		gland	any PG16-21-29 gland
	Pigtail or patchcord	0 – 4 (max. 6 pt) 0 – 2.4 (max. 4)	Pigtail drop	FIST-GB-PTS6X4-PG21-01 FIST-GB-GLD16-PT4
4,6,8, 9,10	Drop cable	6 - 18	Gland 16 (6-14) Gland 21 (9-18) Heat-shrink seal	FIST-GB-GLD16-01 FIST-GB-GLD21-01 FIST-GB-DRCHS-01
	Any cable		gland	any PG16-21 gland

The 'small' FAS block (used in GB2-12) has one tube holder at the right side.

The 'large' FAS block (used in all the other sizes) has two tube holders: one at the left side and one at the right side.

- The tube holder at the right side can be accessed via cable ports 1,2,3,4,5,6.
- The tube holder at the left side can be accessed via cable ports 3,4,5,6,7,8,9 or 10.

3.4 Accessories

The following accessories are ordered separately for field installation.

IMPORTANT NOTE: for quantities/pack see section 2

3.4.1 Cable seal kits for the oval port



GB20G15.JPG

Oval port seal kit for loose tube - single fiber cable

FIST-GB2-OSK-LTS01

Cable seal kit to seal two cables having a diameter range of 12-25 mm through the oval outlet port (numbered 1-2) of the FIST-GB2. Includes a plastic strain relief bracket for the fixation of the central strength member of the cable.



GB20G16.JPG

Oval port seal kit for loose tube - single fiber cable

FIST-GB2-OSK-LTS02

Cable seal kit to seal two cables having a diameter range of 12-25 mm through the oval outlet port (numbered 1-2) of the FIST-GB2. Includes a metal bracket for the fixation of both the central strength member and the cable.

This kit is recommended when:

- a large number of cable tubes has to be handled
- the cable jacket has to be mechanically fixed before insertion of the cable in the base of the box.



GB20G18.JPG

Oval port seal kit for loose tube - ribbon cable

FIST-GB2-OSK-LTR

Cable seal kit to seal two cables having a diameter range of 12-25 mm through the oval outlet port (numbered 1-2) of the FIST-GB2.



GB20G17.JPG

Oval port seal kit for central core cable

FIST-GB2-OSK-CC

Cable seal kit to seal two central core cables having a diameter range of 12-25 mm through the oval outlet port (numbered 1-2) of the FIST-GB2.

3.4.2 Cable seal kits for the round port



BOX023.JPG

Heat-shrink gland FIST-GB-DRCHS-01

Drop cable heat-shrink seal kit for a single cable in a round port.
Cable range: 8 – 21 mm



BIGB003.JPG

Pigtail seal – 24 pigtails FIST-GB-PTS24-01

Pigtail seal PG29 to seal 1 up to 24 single fiber pigtails with a diameter range of 0 - 3.0 mm.



7N3K1042.JPG

Pigtail seal – 6 pigtails FIST-GB-PTS6X4-PG21-01 (=1 pc)

Pigtail seal PG 21 to seal 1 up to 6 single fiber pigtails with a diameter range of 0 – 4.0 mm.

Pigtail seal – 4 pigtails FIST-GB-GLD16-PT4 (= 10 pcs)

Pigtail seal PG 16 to seal 1 up to 4 single fiber pigtails with a diameter range of 0 – 2.4 mm.



FSBV2005.JPG

Cable seal – multiple cables (BOC, IFC, ...)

FIST-GB-GLD16-4X4MM (= 10pc)

Cable seal PG16 to seal up to 4 cables with a diameter of max. 4 mm.

FIST-GB-GLD21-4X6MM (= 10pc)

Cable seal PG21 to seal up to 4 cables with a diameter of max. 6 mm.

FIST-GB-GLD21-4X7MM (= 10pc)

Cable seal PG21 to seal up to 4 cables with a diameter of max. 7 mm.

FIST-GB-GLD21-6X5MM (= 10pc)

Cable seal PG21 to seal up to 6 cables with a diameter of max. 5 mm.

FIST-GB-GLD21-8X4MM-10 (= 10pc)

Cable seal PG21 to seal up to 8 cables with a diameter of max. 4 mm.

FIST-GB-GLD29-8X5.5MM (= 10pc)

Cable seal PG29 to seal up to 8 cables with a diameter of max. 5.5 mm.

Note: each kit contains (N-1) dummy rods (per gland) to fill up unused ports



FSBV2007.JPG

Flex tube gland FIST-GB-GLD16-17-FLEX2 (= 10pc)

Flex tube gland PG16 for tube with inside diameter 17 mm (FIST-GS-FLEX-17-50-S5027)



FSBV2068.JPG

Flex tube gland

FIST-GB-GLD16-10-FLEX2 (= 10pc)

Flex tube gland PG16 for tube with inside diameter 10 mm (FIST-GS-FLEX-10-50-S5027)



BOX014.JPG

Cable gland

FIST-GB-GLDXX-01

Cable gland size ranges:

PG 16 - 6 to 14 mm

PG 21 - 9 to 18 mm

PG 29 - 15 to 26 mm

PG 36 - 24 to 32 mm (can not be used in standard FIST-GB2)

PG 42 - 30 to 38mm (can not be used in standard FIST-GB2)

XX = cable gland size



7N3K297NA

Cable gland

FIST-GB-GLD21/16-01

Cable gland PG16 for cable range 6-14 mm, including conversion ring to PG21



BOX026.JPG

Strain relief bracket

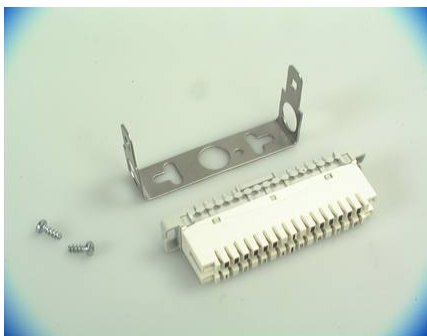
FIST-GB-STRBR-01

Strain relief bracket for the central strength member of 2 loose tube cables.

Can be used to attach Kevlar too

A total of four strain relief brackets (each for 2 cables) can be installed in each box.

3.4.3 Copper termination accessories



BOX030.JPG

FIST-GB-LSA-2/8-01

IDC copper termination block for 8 pairs.

The installation of an IDC block will reduce the total box capacity for the strain-relief brackets by 1 bracket.

FIST-GB-LSA-2/10-01

IDC copper termination block for 10 pairs.

The installation of an IDC block will reduce the total box capacity for the strain-relief brackets by 1 bracket.

For connection requirements of more than 10 copper pairs consult your local sales engineer.

3.4.4 Connector adapters and KTUs

Connector adapters

For maximum flexibility, Connector Adapters can be installed in the patch panel. To define your type, please consult the cable assemblies ordering guide.

Always select simplex connector adapters with retainers, without clip/shutter, without strap, with ceramic sleeve:

OC-ADK-XX-XX-NNCS



BOX025.JPG

1 retainer and 2 KTU's

FSA-ADK-H1-4

When pigtailed are routed out of the box without a patching requirement a Kevlar strain relief device (KTU) is fitted in the patch panel which can provide strain relief.

Each KTU can accommodate:

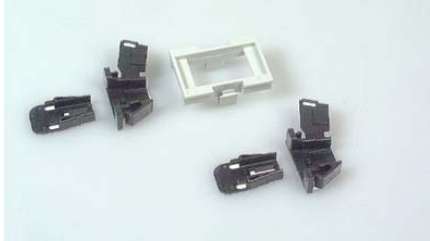
- 2 individual pigtailed (single fiber)- max. diameter 3.1 mm or
- 1 Ribbon4 pigtail or
- 1 Ribbon8 pigtail or
- 1 Ribbon12 pigtail

Maximum 9 retainers (thus 18 KTU's) can be placed in 1 connector patch panel.

FIST-KTU2 (50pcs)

Wraparound KTU. The KTU can accommodate:

- 2 single fiber pigtailed with a maximum diameter of 3.1 mm or
- one Ribbon4 pigtail or
- one Ribbon8 pigtail or
- one Ribbon12 pigtail



GSS20G020.JPG



GSS20G10.JPG

3.4.5 Pigtailed

For more information, please refer to the cable assemblies ordering guide.

Select the following when connector adapters are used:

- a pigtail to go from the patch panel to the organizer trays. Select cable type ASEN (secondary coated fiber - semi-tight) and cable length 25D (2,5 meters)

Example: OCP-T-S0-25DASEE-XX (1 SC/PC pigtail)

- a jumper to make the connection between the electronics and the box.

Select the following when KTU's are used:

- a pigtail to go directly from the electronics, via the KTU to the organizer trays.



7N3K8702.JPG

3.4.6 Storage baskets

Storage basket for FIST-GB2-24

FIST- BASKET-A

Storage basket to store the uncut fibers of a central core cable. Model designed for size GB2-24



GC20G026.JPG



GC2OG027.JPG

Storage basket for FIST-GB2-36 and -48

FIST – BASKET - B

Storage basket to store the uncut fibers of a central core cable. Model designed for size GB2-36 and GB2-48.

Note: there is no basket available for the FIST-GB2-12.

3.4.7 Upgrade kits



GB2OG12.JPG

FIST-GB2-TKIT01

Kit to 'upgrade' a GB2-xx-S to a GB2-xx-T. Includes a pigtail routing block, one 12-unit patch panel and bend controls. The UMS capacity will decrease with 12 units because of the pigtail routing block.

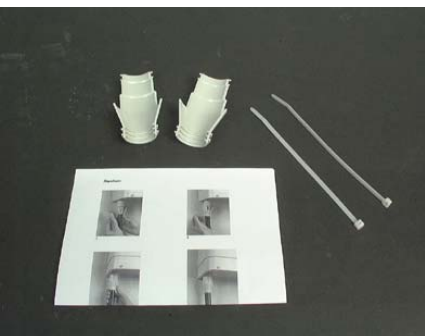


GB2OG13.JPG

FIST-GB2-TKIT02

Additional pigtail duct, one 12 unit patch panel and bend controls when the FIST-GB2-TKIT01 has already been installed.

3.4.8 Wraparound pigtail protection



GBFW011.JPG

FIST-GB-PTS24-FLEXWRAP-01

Kit with 2 half shells to hold the flexible wraparound protection tubing on the pigtail seal FIST-GB-PTS24-01.



GBFW010.JPG

Wraparound tubing**FIST-WAFLEX-23-50 (50 m)****FIST-WAFLEX-23-10 (10 m)**

Dual wall, flexible wraparound tube (dia. approx. 25mm) to enter in a FIST-GB-PTS24-FLEXWRAP-01 (see above).



DSC00013.JPG

Clips for flextube**FIST-GB-PTS24-FLEXCLIP-10 (= 10pc)**

Kit with wall mountable clips (including plugs and screws) to hold the wraparound flexible tube. (FIST-WAFLEX-23-...)

3.4.9 Inner cover**Inner cover kit****FIST-GB2-XX-INCO** (XX indicates box size: 12, 24, 36 or 48)

An inner cover to isolate the splicing from the patching area (demarcation point) can be ordered separately.

The kit contains an inner cover with lock and key nr 2, a metal bracket for lock latch and installation instructions.



7N3K3425.JPG

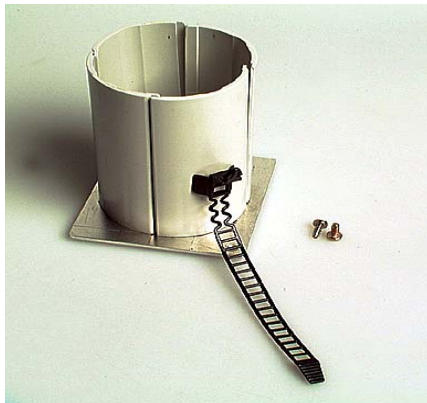
3.4.10 Miscellaneous



FIBOT004.JPG

FIST-GB-BCTRL-01

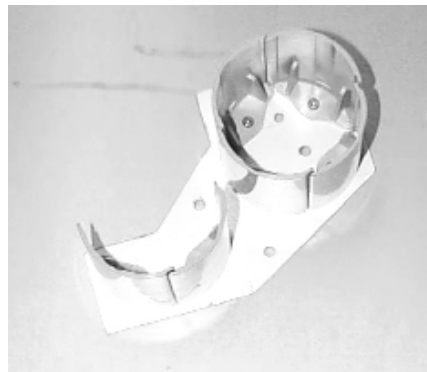
Pigtail bend control (2 x 90°)



BIO20.JPG

FIST-GB-BCTRL-02

Allows the storage of a pigtail bundle of max. 30 m inside the FIST-GB box.



BCTRL03.JPG

FIST-GB-BCTRL-03

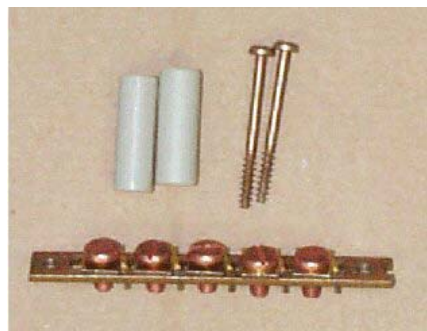
Pigtail guide to allow the interconnection or in-line patching of a fiber ring. (1 x 180° and 1 x 360°)



DSC00039.JPG

FIST-GB-BCTRL-04

Pigtail bend control (1 x 90(+ 1 x 360°)



GROUND.JPG

FIST-GB-GRND-01

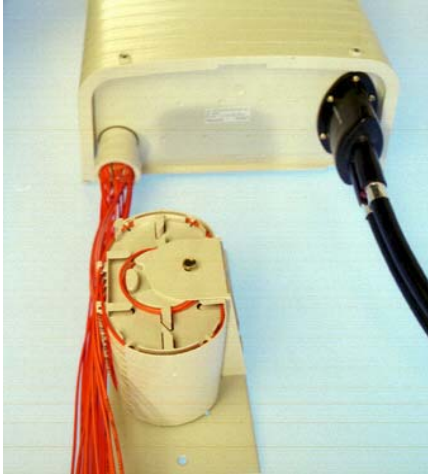
Grounding bar for installation inside the box.



DSC00016.JPG

FIST-GB-GRND-02

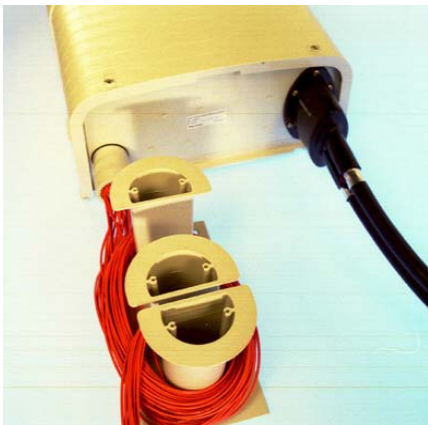
Grounding feed-through kit. (Internal and external grounding wire not included.)



PIST02.JPG

FIST-GB-PSTMO-03

Allows the storage of pigtails
(12 x 2 m) on individual trays outside the FIST-GB box.



PIST01.JPG

FIST-GB-PSTMO-04

Allows the storage of a pigtail bundle of max. 120 m outside the FIST-GB box.



7N759901.JPG

FIST-GB2-PRCLIP-10 (10 pcs)

Pigtail retainer clip, to retain fibers. Standard 1 piece is delivered with every .T-version (terminating cable to pigtails) box or equivalent FIST-GB2-KITxxx.

3.5 Tools



BOX017.JPG

Cable port cutting tool
FIST-GB-CUT-TOOL-PG16
 Cable port cutting tool for PG16 gland



TORX.JPG

Torx screw drivers
FIST-GB-TORX-SD-SET
 A set of 2 screw drivers with special TORX heads (size T10 + T20) to facilitate the mounting of the FIST-GB2 Accessories.



I&C030.JPG

Looped cable insertion tool
FISTV-LCIT
 A tool to help feed the uncut loose buffer tubes through the oval outlet port in a controlled manner.



T026.JPG

Heat gun
FACC-HEAT-GUN-220V
 A 1460W, 220V heat gun to shrink the cable seals as recommended.

FACC-HEAT-GUN-110V
 A 1460W, 110V heat gun to shrink the cable seals as recommended.



T011.JPG

Gas torch
FACC-S-HOT-AIR-TORCH
 A flameless gas torch that can be used to shrink the cable seals if no 1500W power source is available.



T017.JPG

Tube stripper
FACC-TUBE-STRIPPER-02
 Tube stripper OPTI-STRIP to cut the loose buffer tubes of the fiber cable in confined spaces.

Kit content	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
FIST-GB2-12-AS									1	1	1									
FIST-GB2-12-AT	1				1												1			
FIST-GB2-24-AS												1								
FIST-GB2-24-AT		1				1												1		
FIST-GB2-36-AS																				
FIST-GB2-36-AT			1				1													1
FIST-GB2-48-AS																				
FIST-GB2-48-AT				1				1												1
FIST-SOSA2-2R4/8-S									2	3	2	1								
FIST-SOSA2-5R4/8-S											1	2								
FIST-SOSA2-2R12-S																				
FIST-GB2-FOR04-S1-2	1	3	4	6													1	3	4	6
FIST-GB2-FOR04-S1-1	1		1														1		1	
FIST-GB2-FOR04-S2-2					1	3	4	6												
FIST-GB2-FOR04-S2-1					1		1													
SMOUV-1120-02 (pc)																				
SMOUV-1120-R2/12-02	4	8	12	12	4	8	12	12	8	12	20	24					4	8	12	12
FIST-GB2-OSK-LTS02																				
FIST-GB2-OSK-LTR																				
FIST-GB2-OSK-CC									1	1	1	1					1	1	1	1
FIST-GB-GLD21-01	1	1	1	1	1	1	1	1												
FIST-GB-STRBR-01	1	1	1	1	1	1	1	1												
FIST-GB-PTS24-01	1	1	2	2	1	1	2	2									1	1	2	2
OC-ADK-S1-S1-NNCS	12	24	36	48													12	24	36	48
OC-ADK-S2-S2-NNCS					12	24	36	48												
OCP-S1-25DASEN-XX																	12	24	36	48
OCP-S2-25DASEN-XX																				

Kit content	61	62	63	64					69	70	71	72	73	74	75	76
FIST-GB2-12-AS																
FIST-GB2-12-AT	1								1				1			
FIST-GB2-24-AS																
FIST-GB2-24-AT		1								1				1		
FIST-GB2-36-AS																
FIST-GB2-36-AT			1								1			1		
FIST-GB2-48-AS																
FIST-GB2-48-AT				1								1			1	
FIST-GB2-FOR04-S2-2	1	3	4	6												
FIST-GB2-FOR04-S2-1	1		1													
FIST-GB2-FOR08-S1-2										1	2	3				
FIST-GB2-FOR08-S1-1									1	1						
FIST-GB2-FOR08-S2-2														1	2	3
FIST-GB2-FOR08-S2-1													1	1		
SMOUV-1120-02 (pc)																
SMOUV-1120-R2/12-02	4	8	12	12					4	4	4	8	4	4	8	8
FIST-GB2-OSK-LTS02																
FIST-GB2-OSK-LTR																
FIST-GB2-OSK-CC	1	1	1	1												
FIST-GB-GLD21-01									1	1	1	1	1	1	1	1
FIST-GB-STRBR-01									1	1	1	1	1	1	1	1
FIST-GB-PTS24-01	1	1	2	2					1	1	2	2	1	1	2	2
OC-ADK-S1-S1-NNCS									8	24	32	48				8
OC-ADK-S2-S2-NNCS	12	24	36	48									8	24	32	48

Kit content	81	82	83	84	85	86	87	88	89	90	91	92	97	98	99	100
FIST-GB2-12-AS									1	1	1					
FIST-GB2-12-AT	1				1								1			
FIST-GB2-24-AS												1				
FIST-GB2-24-AT		1				1								1		
FIST-GB2-36-AS																
FIST-GB2-36-AT			1				1								1	
FIST-GB2-48-AS																
FIST-GB2-48-AT				1				1								1
FIST-SOSA2-2R12-S									1	2	3	4				
FIST-GB2-FOR08-S1-2		1	2	3												
FIST-GB2-FOR08-S1-1	1	1														
FIST-GB2-FOR08-S2-2						1	2	3								
FIST-GB2-FOR08-S2-1					1	1										
FIST-GB2-FOR12-S1-1													1	2	3	4
FIST-GB2-FOR12-S2-1																
SMOUV-1120-R2/12-02	4	4	4	8	4	4	8	8	4	4	8	8		4	4	4
FIST-GB2-OSK-LTS02																
FIST-GB2-OSK-LTR									1	1	1	1		1	1	1
FIST-GB2-OSK-CC	1	1	1	1	1	1	1	1								
FIST-GB-GLD21-01																
FIST-GB-STRBR-01																
FIST-GB-PTS24-01	1	1	2	2	1	1	2	2						1	1	2
OC-ADK-S1-S1-NNCS	8	24	32	48				8						12	24	36
OC-ADK-S2-S2-NNCS					8	24	32	48								

Kit content	101	102	103	104	105	106	107	108	113	114	115	116	117	118	119	120
FIST-GB2-12-AS					1	1	1									
FIST-GB2-12-AT	1									1				1		
FIST-GB2-24-AS								1								
FIST-GB2-24-AT		1								1				1		
FIST-GB2-36-AS																
FIST-GB2-36-AT			1								1				1	
FIST-GB2-48-AS																
FIST-GB2-48-AT				1								1				1
FIST-SOSA2-2R12-S					1	2	3	4								
FIST-GB2-FOR12-S1-1										1	2	3	4			
FIST-GB2-FOR12-S2-1	1	2	3	4										1	2	3
SMOUV-1120-R2/12-02	4	4	4	4	4	4	8	8		4	4	4	4	4	4	4
FIST-GB2-OSK-LTS02																
FIST-GB2-OSK-LTR	1	1	1	1												
FIST-GB2-OSK-CC					1	1	1	1		1	1	1	1	1	1	1
FIST-GB-GLD21-01																
FIST-GB-STRBR-01																
FIST-GB-PTS24-01	1	1	2	2						1	1	2	2	1	1	2
OC-ADK-S1-S1-NNCS										12	24	36	48			
OC-ADK-S2-S2-NNCS	12	24	36	48										12	24	36

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RPR Leuven ING 330-0816041-34

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