

Ordering Guide of the FIST Generic Racks (FIST-GR2)



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

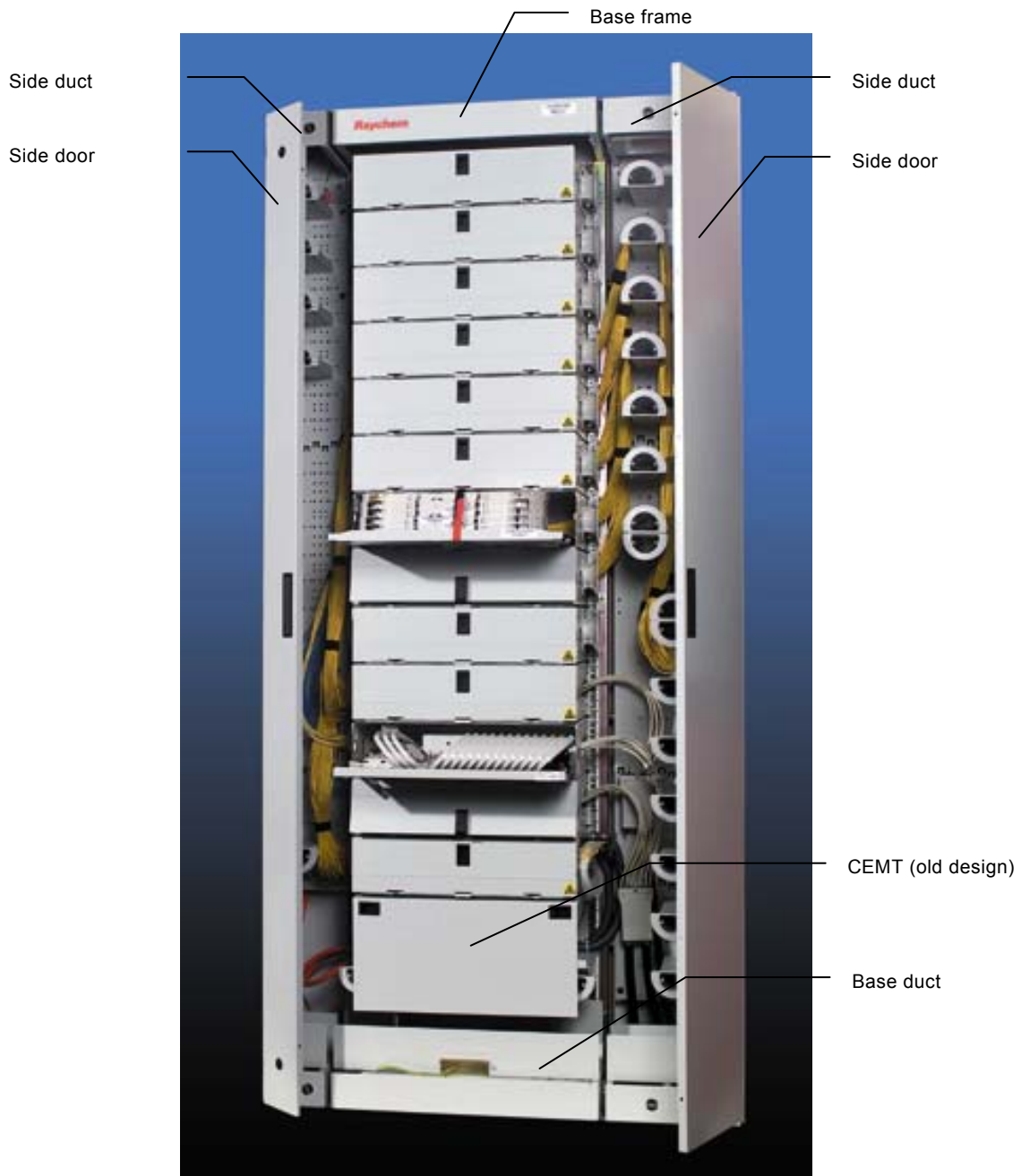
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1 Product description

The FIST Generic Rack, FIST-GR2, is an all-purpose metal rack designed to accommodate FIST shelves.

FIST-GR2 complies with metric ETSI specifications.

FIST-GR2 is built around 2 modular units: base frame and side duct, which can be combined to create different lay-outs. Two side duct widths are available (150 mm and 300 mm) to accommodate different patch cord and cable densities.



GR2558DS.JPG

Fully loaded FIST-GR2-20-SP

2 Ordering information

2.1 Order quantity / lead time

Products and accessories are grouped in three classes.

- Class A standard products, small MOQ
- Class B standard products, standard MOQ
- Class C special products, higher MOQ, longer lead times, due to the lead time of the specific components in those products

The class of a component or accessory provides additional information on:

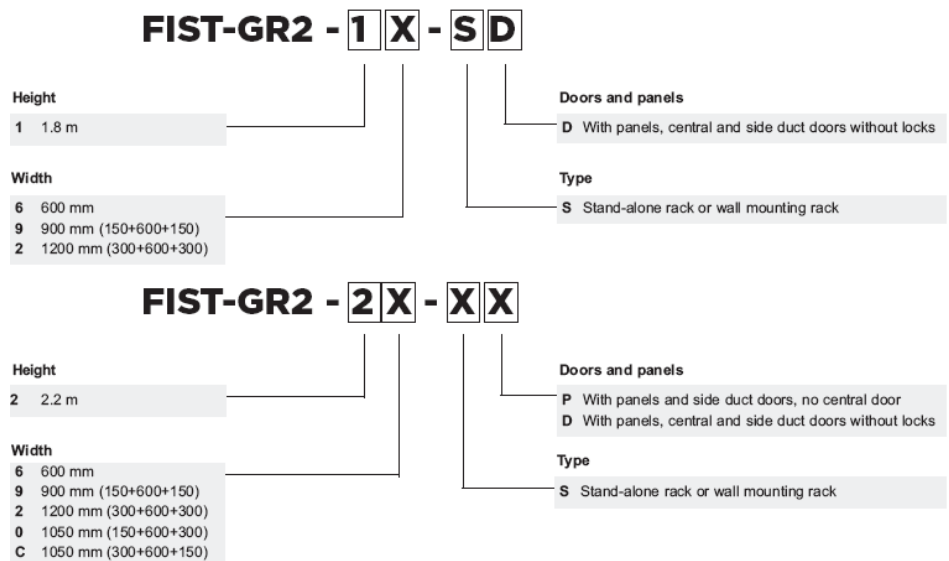
- MOQ Minimum Order Quantity
- SPQ Standard Packaging Quantity

MOQ and SPQ are used to calculate the correct order quantity of the desired component and/or accessory:

$$\text{Order quantity} = \text{MOQ} + n \times \text{SPQ} \quad (n \geq 0)$$

2.2 Generic rack

Refer to Section 3 for full product descriptions.



* Door locks to be ordered separately (see accessories)

Standard rack kit content

- Base frame with ETSI mounting profiles and Tyco logo
- Base duct
- Wall connection kit
- Earthing facility (connection of the metal parts to each other and a connection point to the building earthing)
- Adjustable feet
- Identification strips on the mounting profiles
- Installation instructions
- Packed in a reinforced box (300 mm for rack widths up to 900 mm, about 600 mm thick for rack widths above 900 mm)
- Cable shield grounding facility
- Depending on the configuration 'height and width', the items listed below are included. Check the drawings in section 3.1.1 for layout and quantities.
 - Side ducts (including doors)
 - Pre-mounted drums on drum plates and drum plate enlargers
 - Cable attachment plate with C-profile provided with cable clamps and strength member fixations
(CAP 150 for 5 cables \varnothing 12-16 mm, CAP 300 for 11 cables \varnothing 12-16 mm).
 - Drum plate enlargers on remaining positions of the drum plate(s)

2.3 Accessories

Accessories are ordered in addition to the basic rack to suit specific applications. Refer to section 3.3 for a complete product description and pictures.

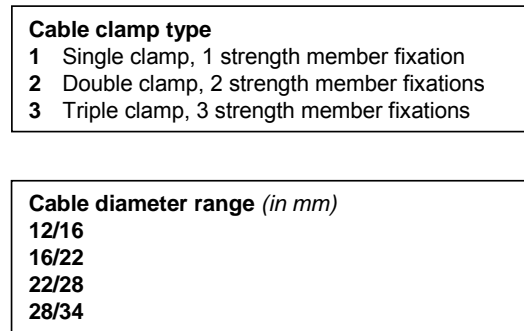
2.3.1 Cable installation

Name	Qty/Pk	Description
FIST-GR2-CAP-150	1 pc	Extra cable attachment plate with C-profile for 150 mm side duct
FIST-GR2-CAP-300	1 pc	Extra cable attachment plate with C-profile for 300 mm side duct
Cable attachment accessories (FSIT-GR2-CAA kits)		Kits including 1 cable clamp (single, double or triple) and 1 (resp. 2 or 3) strength member fixations. See section 2.3.2
FIST-GR2-CAP-150-INT	1 pc	Extra CAP plate (150 mm wide) to attach IFC or breakout cable. Kit includes spacers and screws to mount it onto another CAP (no C-profile, no CSM)
FIST-GR2-CAP-300-INT	1 pc	Extra CAP plate (300 mm wide) without C-profile to attach IFC or breakout cable. Kit includes spacers and screws to mount it onto another CAP (no C-profile, no CSM)
FIST-GR2-UCT-12	12 pc	Extra cable strength member fixations and mini Allen key
FIST-GR2-CEMT-I	1 pc	
FIST-GR2-CEMT-M	1 pc	
FIST-GS-FLEX-17-50-S5027	50 m	19" cable element management tray
FISTV-FTC	10 pcs	ETSI cable element management tray
FISTV-TW-NN-188	100 pcs	Flexible tubing (ID 17 mm) Clip-on flexible tubing clamps Tie wrap, standard, not re-openable, 188 mm long.

2.3.2 Cable attachment accessories

Cable attachment accessories are included in the standard rack kit (not for 600 mm wide). Cable attachment accessories for different cable diameter ranges are listed underneath. They include a cable clamp (single, double or triple) and according strength member connector quantities. For CAP capacities, check the FIST-GR2 CAP application guide.

FIST-GR2-CAA-X-XX/XX



2.3.3 Pigtail management

Name	Qty/Pk	Description
FIST-GR2-HPM-I	1 pc	19" HPM (Horizontal Pigtail Management) with 6 drums and mounting bracket adapters for symmetrical mounting between ETSI profiles (*)
FIST-GR2-HPM-M	1 pc	ETSI HPM (Horizontal Pigtail Management)
FIST-GR2-HPS-I	1 pc	19" HPS (Horizontal Pigtail Storage) with 5 drums and mounting bracket adapters for symmetrical mounting between ETSI profiles (*)
FIST-GR2-HPS-M	1 pc	ETSI HPS (Horizontal Pigtail Storage)
FIST-GR2-POM-I	1 pc	19" POM (Pigtail Orientation Module) with mounting bracket adapters for symmetrical mounting between ETSI profiles (*)
FIST-GR2-POM-M	1 pc	ETSI POM (Pigtail Orientation Module)
FIST-GR2-DPE-150	1 pc	Drum plate enlarger for 150 mm side duct
FIST-GR2-DPE-300	1 pc	Drum plate enlarger for 300 mm side duct
FIST-GR2-DRM	10 pcs	Bag of drums + mounting screws + nuts
FIST-GR2-PCBR-10	10 pcs	Bag of pigtail containment brackets

* For asymmetrical mounting brackets, see section 2.3.4.

2.3.4 Other accessories

Name	Qty/Pk	Description
FIST-MB-M-AS	1 pc	Mounting bracket adapter for asymmetrical mounting of 19" shelves between ETSI profiles
FIST-GR2-STC	1 pc	Rack connection kit for side-to-side connection.
FIST-GR2-BTB	1 pc	Rack connection kit for back-to-back connection.
FIST-GR2-DL3-00	3 pc	1 door lock for the central door and 2 for the side doors using the same key + 2 keys 00 for lock with standard key
FISTV-E7187-6316	25 m	Velcro roll

2.4 Tools

Name	Qty/Pk	Description
FACC-ALLEN-KEY-5-350	1 pc	Allen key, diameter 5 mm, length 350 mm for back-mounting of shelves in rack
FACC-CAGE-NUT-TOOL	1 pc	Tool to install cage nuts in the rack

3 Product guide

3.1 Rack description

A rack consists of a base frame, side duct(s) and a base duct.

For rack layouts see section 3.1.1.

Base frame

The base frame consists of a metal bottom, back and top panel (for side panels and doors see section 3.1.2). Color RAL 7035, with Tyco logo and ETSI mounting profiles for shelf back mounting. In case of 19" shelves extension brackets 19" to ETSI should be used for mounting the shelves on the ETSI mounting profiles.

Side duct

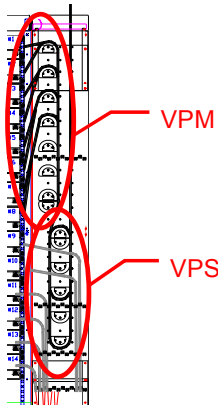
A side duct consists of a bottom, a back, a top and includes a drum plate (explained underneath) (for side panels and doors see section 3.1.2).

It is or shall be attached to the base frame.

It is used to manage and house cables, pigtails and patch cords that are routed from the rack entry points to the shelves.

Depending on the rack width, side duct(s) are included as follows:

Order ref. FIST-GR2-XX-XX	Rack width	Rack layout		
	Total width	Left side duct	Base frame	Right side duct
6	600	-	600	-
9	900	150	600	150
0	1050	150	600	300
C	1050	300	600	150
2	1200	300	600	300



Drum plate

A drum plate is pre-mounted in a side duct and has pre-installed drums for patch cord routing. (for position of drums in standard FIST-GR2 rack layouts: see section 3.1.1).

- The VPM (Vertical Pigtail Management system) allows for functional overlength storage of patch cords, in order to be able to reach all adapter positions without the need to take the patch cord out of the base duct.
- The VPS (Vertical Pigtail Storage) allows for random overlength storage inside the rack (to absorb jumper overlength between ODF and electronics).



DSC00078.jpg

The drum plate has extension brackets at both ends to accommodate either a drum plate enlarger or a cable attachment plate.



DSC00077.jpg

DSC00076.jpg

Drum plate enlarger

The drum plate enlarger allows the installation of additional drums. It exists in 150 mm and 300 mm width.

The standard rack (configurations with side ducts) mostly includes drums on the drum plate enlarger for the purpose of the VPM and VPS. (See section 3.1.1).



7N3K5907.jpg

Cable attachment plate

Cables enter the rack through the rack top or bottom openings and the cable strength members and cable outer jackets are attached to the cable attachment plate.

In the standard kit the cable attachment plate is provided with single cable clamps (for cable \varnothing 12-16 mm) and strength member fixations for 5 cables (CAP150) or 11 cables (CAP300). Section 3.1.1 shows which side duct has a CAP for each configuration.

Note: no CAP nor clamps or strength member fixations included in the kit of a 600 mm rack. Check the FIST-GR2 CAP capacity guide for more information.



Base duct

The bottom of the base frame contains a pigtail duct system that is used to carry patchcords from one rack side to the other, or from one rack to another in a back-to-back or side-to-side configuration.

Height occupancy: 8 ETSI HU

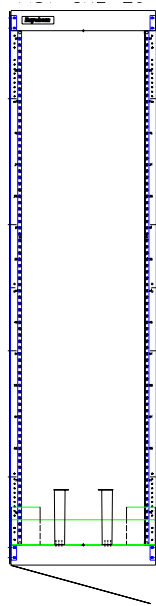
3.1.1 Layout of different rack configurations

Drawings of all the offered layouts of the 2.2 m racks are presented underneath. They show where the CAP is initially installed and the number and position of drums and pigtail containment brackets in the standard rack.

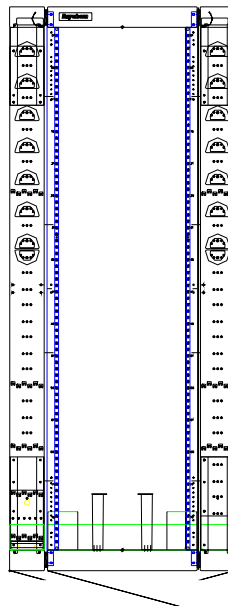
Some of these layouts are also available for the 1.8 m rack. The only difference is the number of drums per VPM and VPS:

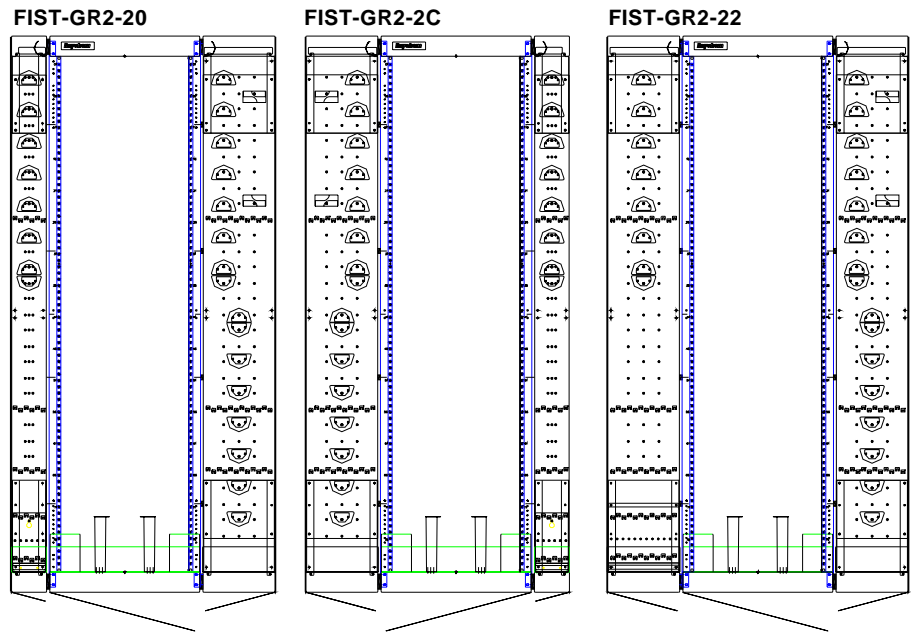
Rack height	VPM	VPS
1.8 m	7 drums	6 drums
2.2 m	8 drums	8 drums

FIST-GR2-26



FIST-GR2-29





3.1.2 Doors and panels

The back, left and right side of the rack is provided with panels.

The front of the base frame and the side ducts can be provided with metal doors.

Following options are available:

- P** With panels and side duct doors, no door on the base frame (for 2.2 m high only)
- D** With panels and doors on the side ducts and the base frame

Doors with standard lock on the side ducts and the base frame can not be ordered anymore. Please order the door lock kit (FIST-GR2-DL3-00, see section 2.2.4) separately

** Note: For a line-up of multiple FIST-GR2's, order 1 rack with panels (options P, D) and leave the panels of the adjacent racks off. .*

3.1.3 Other rack characteristics

Packing

The rack is shipped in a reinforced cardboard crate, mounted horizontally on a wooden pallet. A rectangular crate is used for racks up to 900 mm wide, whereas a square crate (600 mm high) is used for racks > 900 mm wide.

Wall connection kit

This kit is included to attach the rack to the wall.



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3.2 Rack dimensions and capacity

	FIST-GR2-1XXX	FIST-GR2-2XXX
Dimensions		
Height	1.8 m	2.2 m
Depth	300 mm	300 mm
Capacity (in ETSI HU's)		
Total available ETSI HU's (25 mm pitch) (base duct occupies 8 HU's and is standard included in the rack)	64-8=56	80-8=72
Capacity (in # FIST 125 mm shelves)	11	14

3.2.1 Height occupancy of FIST systems:

FIST System	Height occupancy (ETSI HU's)
Base duct	8
CEMT with cover	5
Base duct with CEMT and cover	13
HPM, HPS	7
POM, Tyco Electronics standard shelves	5
Tyco Electronics 44 mm high shelves	2
Tyco Electronics 88 mm high shelves	4
Tyco Electronics 167 mm high shelves	

3.2.2 Pigtail capacity of side ducts, base duct and pigtail management shelves

FIST-HPM, -HPS and -POM are designed to handle 288 pigtails of \varnothing 3 mm.

For side and base duct capacities, see also the FIST-GR2 capacity guide.

150 mm side duct: VPM only

VPM + 1 drum for cross-connect

VPS only

300 mm side duct: VPM can be combined with VPS in 1 side duct

base duct: 1008 pigtails of \varnothing 2.4 mm

3.3 Accessories description

3.3.1 Cable installation

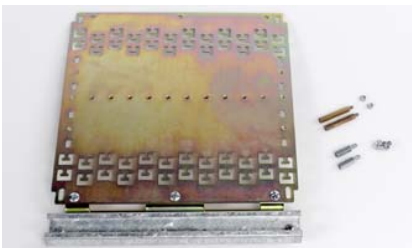
Cable attachment plate with C-profile

FIST-GR2-CAP-150 (150 mm wide)

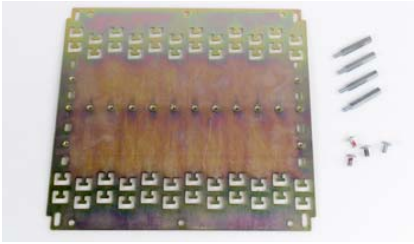
FIST-GR2-CAP-300 (300 mm wide) (picture)

This kit contains an extra cable attachment plate with C-profile. Screws to mount it in the side-duct are included.

Cable attachment accessories should be ordered separately.



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7N3K6731.JPG

Cable attachment plate without C-profile

FIST-GR2-CAP-150-INT (150 mm wide)

FIST-GR2-CAP-300-INT (300 mm wide) (picture)

This kit contains an extra cable attachment plate without C-profile for fixation of flexible cable. Spacers and accessories to mount it onto another CAP are included. Max. 2 (resp. 3) plates can be mounted on top of each other in the bottom (resp. top) of the rack. Cable attachment accessories should be ordered separately.



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Cable attachment accessories with single cable clamps

FIST-GR2-CAA-1-XX/XX

XX/XX = cable Ø range in mm

(12/16, 16/22, 22/28 or 28/34)

Kit includes 1 single clamp + 1 CSM (central strength member) fixation + 1 mini Allen key (not shown).



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Cable attachment accessories with double cable clamps

FIST-GR2-CAA-2-XX/XX

XX/XX = cable Ø range in mm

(12/16, 16/22, 22/28 or 28/34)

Kit includes 1 double cable clamp and 2 CSM (central strength member) fixations + 1 mini Allen key (not shown).



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Cable attachment accessories with triple cable clamps

FIST-GR2-CAA-3-XX/XX

XX/XX = cable Ø range in mm

(12/16, 16/22, 22/28 or 28/34)

Kit includes 1 triple cable clamp and 3 CSM (central strength member) fixations + 1 mini Allen key (not shown)



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Cable strength member fixation

FIST-GR2-UCT-12

This kit contains 12 extra cable strength member fixations and 1 mini Allen key.



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Cable element management tray

FIST-GR2-CEMT-M (ETSI)

A cable element management tray can be put in the bottom of the rack above the base duct. It facilitates the routing of cable elements to the shelves.

A cover is included.

Height occupancy: 5 ETSI HU

FIST-GR2-CEMT-I (19")

A 19" CEMT with mounting bracket adapters for installation on ETSI mounting profiles.



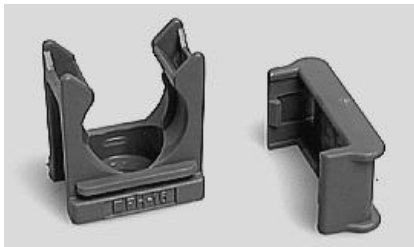
RA11.JPG

Flexible tubing

FIST-GS-FLEX-17-50-S5027

When guiding loose tubes from the cable termination in the rack to the entrance of the shelf, flexible tubing is used to protect the loose tubes and to control the bend radius.

The flexible tubing has a minimum inner diameter of 17 mm and a capacity of up to 8 loose tubes.



FTC.JPG

Flexible tube clamps

FISTV-FTC

A set of 10 plastic clamps to be used instead of tie-wraps to secure flexible tubes onto the cable element management tray or other locations. (Screws are included in the kit).



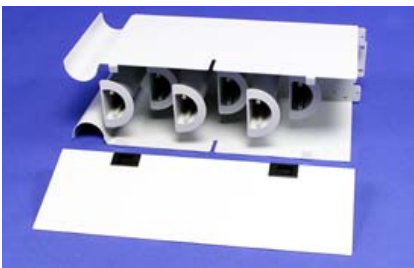
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Tie wraps

FISTV-TW-NN-188

188 mm long tie wraps are used for fixing the cable and flexible tubing to the rack.

3.3.2 Pigtail management



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Horizontal pigtail management

Height occupancy: 175 mm (7 ETSI HU)

Pigtail capacity: see section 0.

FIST-GR2-HPM-M (ETSI)

A horizontal pigtail management system can be fitted to store functional overlength of patchcords for patching within the same rack (though VPM has higher capacity).

Six half round drums are used to guide patchcords entering from the left or from the right side duct. The system can be fitted in the rack for either left or right patchcord entrance by simply turning it upside down.

FIST-GR2-HPM-I (19")

A 19" HPM with mounting bracket adapters for symmetrical installation between ETSI mounting profiles.



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Horizontal pigtail storage

Height occupancy: 175 mm (7 ETSI HU)

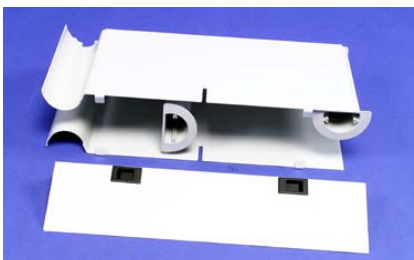
Pigtail capacity: see section 0

FIST-GR2-HPS-M (ETSI)

A horizontal pigtail storage system can be fitted to store random patchcord overlengths in a controlled way (though VPS has higher capacity). The system contains 6 drums and can be fitted in the rack for either left or right patchcord entrance by simply turning it upside down.

FIST-GR2-HPS-I (19")

A 19" HPS with mounting bracket adapters for symmetrical installation on ETSI mounting profiles.



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Pigtail orientation module

Height occupancy: 5 ETSI HU (125 mm)

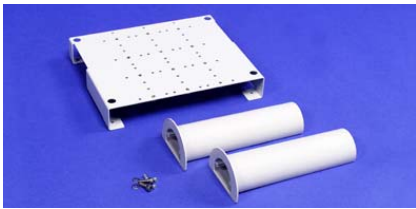
Pigtail capacity: see section 0

FIST-GR2-POM-M (ETSI)

This module can be inserted in a rack to redirect or branch a pigtail bundle. It can be fitted in the rack for either left or right patchcord entrance by simply turning it upside down. Make sure that the drum at the patchcord entrance is always in the correct position (i.e. guiding the patchcords that are entering the shelf).

FIST-GR2-POM-I (19")

A 19" POM with mounting bracket adapters for symmetrical installation on ETSI mounting profiles.



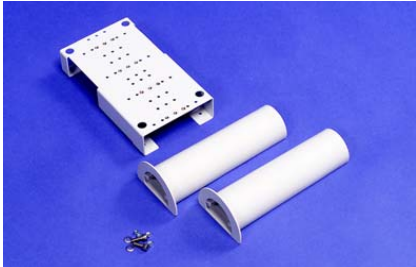
7N3K1095.jpg

Drum plate enlarger

FIST-GR2-DPE-150 (for 150 mm side duct)

FIST-GR2-DPE-300 (for 300 mm side duct)

In case shelves are positioned in the bottom or top of the rack, an extra drum beside those shelves might be required. The drum plate enlarger will be mounted in such case on the bottom or top extension brackets of the drum plate. Drums are included in the kit (but not pre-mounted).



7N3K1096.jpg



RACA045.jpg

Bag of drums

FIST-GR2-DRM

Kit of 10 drums with screws and nuts to fix them to a drum plate.



7N3K7042.jpg

Bag of pigtail containment brackets

FIST-GR2-PCBR-10

Kit of 10 brackets with according fixing hardware.

3.3.3 Other accessories



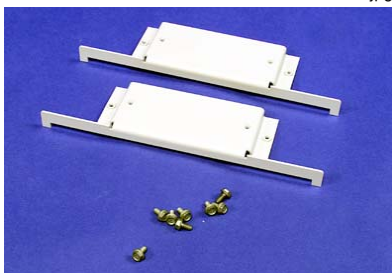
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19"-ETSI asymmetrical mounting bracket adapter

FIST-MB-M-AS

Mounting bracket adapter for asymmetrical mounting of 19" HPM, HPS or POM shelves between ETSI profiles.

For the other shelves, refer to the shelves ordering guides.



7N3K1097.jpg

Rack connection kit Side-To-Side

FIST-GR2-STs

This kit provides the accessories to mount a 300 mm deep rack side-to-side with another 300 mm deep rack.



7N3K6751.jpg

Rack connection kit Back-To-Back**FIST-GR2-BTB**

This kit provides the accessories to mount 2 racks back-to-back.



FRWR044.jpg

Lock(s) and 2 keys for door(s)**FIST-GR2-DL3-00 (central door + 2 side doors)****Velcro roll****FISTV-E7187-6316**

Velcro to segment or secure pigtails. Supplied on a roll 25 m long (width 25 mm) to be cut to length as required.

3.4 Tools description



T004.jpg

Allen key**FACC-ALLEN-KEY-5-350**

Allen Key, diameter 5 mm, length 350 mm for back-mounting of shelves in rack.



T023.jpg

Cage nut tool**FACC-CAGE-NUT-TOOL**

Tool to install cage nuts in the rack.

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