



TYPE TESTED



ADAPTABLE



PROVEN



MMX Withdrawable has been designed to enable Enclosure and System manufacturers the opportunity to supply withdrawable equipment in a package that retains their own identity.

By designing MMX from the 'inside out' the enclosure remains the prominent article. All important features such as finish, appearance, personal preferences, etc., can all be retained because MMX fits inside the casework.

The busbar system incorporates the MX insulator and is fully integrated with Master Frame so as to enable ASTA tested arrangements to be accommodated. Great care has been taken to ensure that features affecting operator safety have been incorporated with close attention to earthing and interlocks.

Principle designs accommodate the Holec Q-Quick range of Fuse Switch and reflect the serious approach Ter-mate, an ISO9001 QA assessed Company, has taken with this product.

FITTING MMX INTO YOUR CUBICLE

By following a few simple rules MMX Withdrawable modules may be fitted into any cubicle.

You determine the cabinet layout, design and colour. Incorporate these notes on fitting MMX and your peace of mind is assured.

FIG 1.1 Enclosure opening dimensions

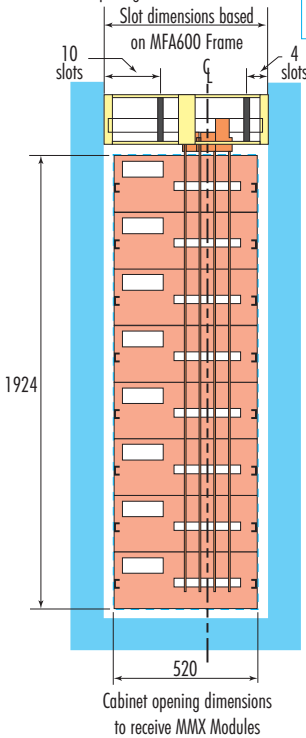
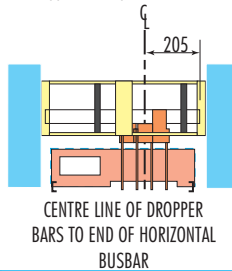
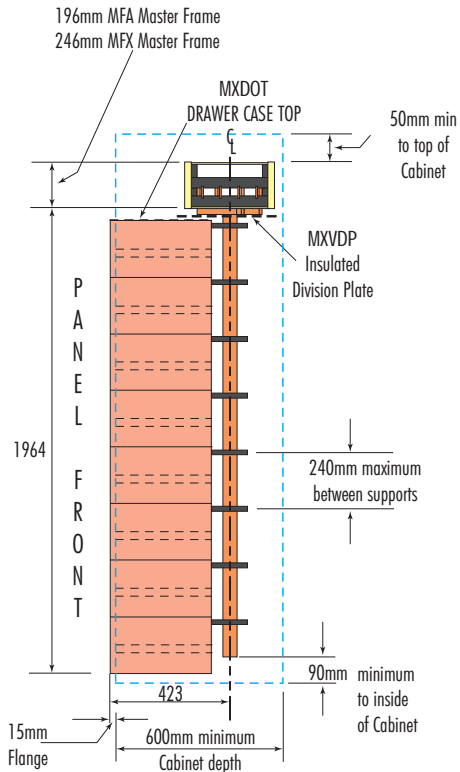


FIG 1.2 Dropper centre position



Cubicle design based on 2mm sheet steel. Case opening tolerance to accept MMX is $-0\text{mm}/+0.5\text{mm}$. For Master Frame cut-outs and Earth Bar fitting please see the Master Frame section in our Products Catalogue.

FIG 1.3 MMX positioned relevant to Mater Frame horizontal busbars



These views depict MMX module interiors as positioned and connected to the Master Frame busbar system for 50kA 1 sec short circuit and through fault test.

The maximum tested arrangement allows for 12 - MMX160 modules in a vertical tier and standard dropper bars are sized accordingly.

DRAWER MODULES

Each complete drawer unit comprises outer case with drawer unit, slide rails, shutter assembly and drawer contact mounting rails.

Fully withdrawable units are available in four sizes; 160mm, 240mm, 320mm and 480mm. Each unit is attached to the cabinet casing by self tapping screws.

Gasketing is supplied for sealing between cases and around doors. The Degree of Protection depends largely on cabinet construction and, because MMX units fit within the front flange of the cabinet, protection up to IP65 can be achieved. The standard MMX module provides protection of IP42 using the gaskets supplied.

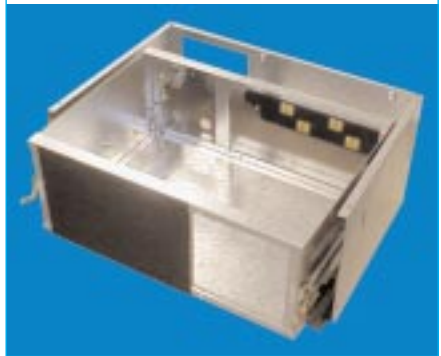
There are no restrictions as to the type and manufacture of control gear fitted and the designer is free to install components within the space available. Guidance on power ratings will be found on Page 6. Standard fitting points and slotted cut-outs are provided for the accommodation of Holec Q-Quick fuse switches.

All MMX Withdrawable modules are supplied with cut-outs for 1 outgoing plug/terminal assembly. Provision for additional plug/terminals as required for Star/Delta circuits can be provided in 320 and 480 modules.

Fixed modules, without drawout facility, are available in sizes from 160 to 960mm, detailed on Page 8.

A maintenance safety device, for use when the drawer has been removed, detailed on Page 8.

FIG 1.4 The complete MMX240 Case and Drawer Unit



SHUTTER ASSEMBLY

These unique twin blade snap action shutters ensure that accidental contact with the busbars is eliminated. The shutters are only open in the service position and, when closed, access is limited to IP3X.

FIG 1.6 Shutter Assembly



FIG 1.5 Side of drawer showing Slide Rail and Interlocks



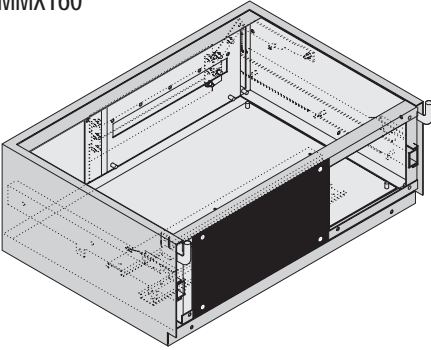
SLIDE RAILS

These rails have been purpose designed to ensure smooth insertion and removal. Latched positions are provided in test, maintenance and removal positions with the drawer locked in the service position. A simple drawer release lever is provided to unlock the drawer and accidental over-run is minimised on removal.

Rails are positively earthed to the cabinet by means of Phosphor Bronze contacts which ensure earth continuity in service, test and maintenance positions.

THE WITHDRAWABLE UNITS

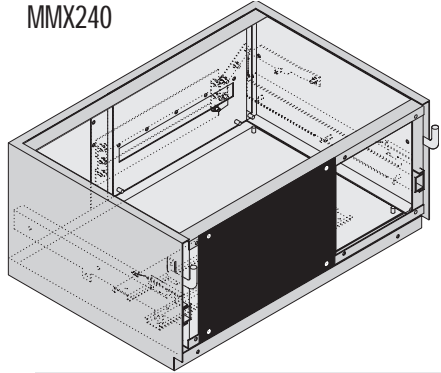
MMX160



DIMENSIONS: 160 x 520 x 365mm deep
RATING LIMITS: Incoming 63A
Outgoing 160A
Max. DOL 15kW

No ASD Facility
5 Way Operator Module

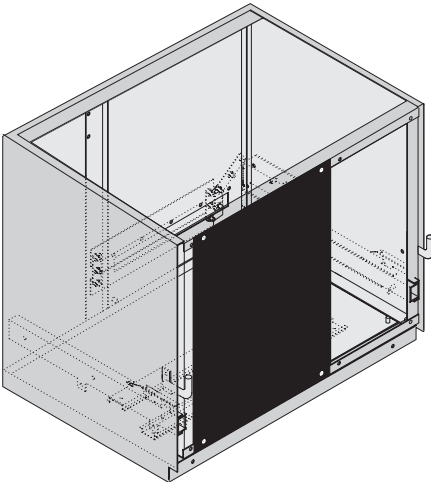
MMX240



DIMENSIONS: 240 x 520 x 365mm deep
RATING LIMITS: Incoming 160A
Outgoing 160A
Max. DOL 32kW

No ASD Facility
5 or 10 Way Operator Module

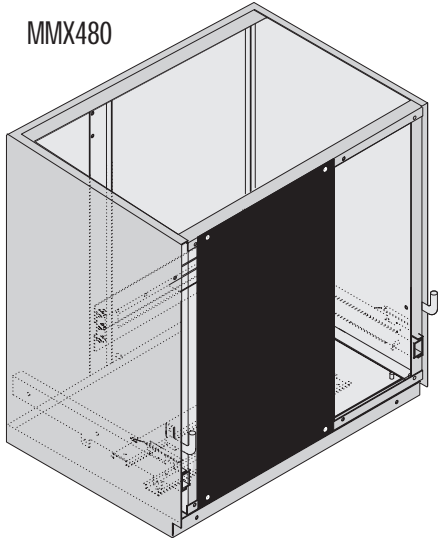
MMX320



DIMENSIONS: 320 x 520 x 365mm deep
RATING LIMITS: Incoming 160A
Outgoing 160A
Max. DOL 45kW
Max. ASD 37kW

5 or 10 Way Operator Module

MMX480



DIMENSIONS: 480 x 520 x 365mm deep
RATING LIMITS: Incoming 400A
Outgoing 400A
Max. DOL 75kW
Max. ASD 75kW

5 or 10 Way Operator Module

THE BUSBARS

The MX Range of busbar supports has been purpose designed for the plug-in market.

Conductor centres are set at 60mm for plug-in and 65mm for standard Master Frame applications. Master frame has been designed into MMX Withdrawable in order to provide a tested horizontal busbar arrangement rated up to 3200 Amps.

A set of unique angled connections turn the bars through 90° to present the edge for plugging in. These connections enable the following horizontal to vertical conductor combinations to be installed:-

- Horizontal - 1 or 2 bars/pole 6.35mm thick
- 1 bar/pole 10mm thick
- Vertical - 1 bar/pole 6.0 - 6.35mm thick

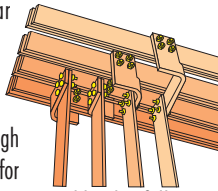
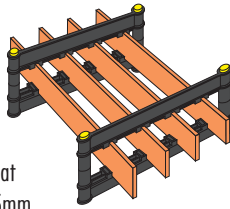


Fig. 1.7 The vertical MMX busbars showing Horizontal Master Frame



THE CONNECTIONS

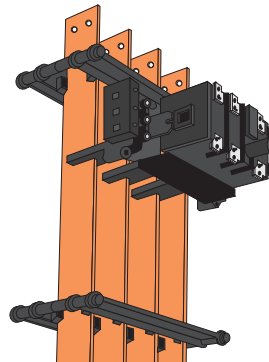
By plugging the fuse switch directly onto the busbar the 'fault free zone' is removed.



This arrangement therefore eliminates cable take offs, holes in the bars for conductor connections or inaccessible screw connections.

The choice of fuse switch is therefore important not only to give peace of mind to the Customer as to quality and reliability but also to offer flexibility in design application. The MMX Withdrawable system incorporates the Holec Q-Quick range of fuse switch. They have been chosen for their superior switching capability and reliability coupled with various terminal configurations.

Fig. 1.8 Holec Q-Quick fuse switch fitted with MXB6014 supports



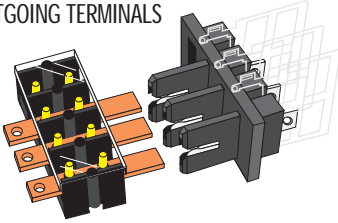
All sizes are available in 3 or 4 pole versions. Full interlocking is provided by both door handle interlock and switch drawer interlock. The switch drawer interlock serves a dual purpose by both preventing the switch being closed in the test position and barring the drawer from insertion when switched on.

ASTA TESTED

MMX Withdrawable has been ASTA Tested and Certified at 50kA for 1 second on the main horizontal and vertical busbars. Through fault tests at 50kA have been carried out on Holec Q-Quick fuse switches fitted with 63, 160 and 315 Amp HRC fuses.

COMPLEMENTARY PARTS & TECHNICAL DATA

MAIN OUTGOING TERMINALS



These plug/terminal units are available in 3 or 4 pole versions and rated for 160 Amps. Terminals will accept 2 x 50mm² cable lugs per pole.

OPERATOR MODULES

Two sizes of module enable a variation of pushbutton components or instruments to be fitted. MMX160 drawer units will accept the 5 way module, part no. MMXOM60. MMX240 to MMX480 drawer units will accept either the 5 way module, as above, or 10 way module which is Part No. MMXOM140.



AUXILIARY DRAWER CONTACTS

Pre-fitted mounting rails allow a maximum of 38 contacts to be installed. For best draw-out we recommend up to 16 contacts. Drawer contacts can be obtained for operation in service or test positions and are rated at 10 Amps AC11, 380 Volts.

FIXED MODULES

Similar in design to the drawer modules these fixed units are attached to the cabinet with self tapping screws. A pre-galvanised gear plate is fitted which is either slotted to receive a plug-in fuse switch or plain. Slide rails and shutter assembly are not fitted.

Sizes of 160mm, 240mm, 320mm and 480mm are available to match the drawer modules together with 640mm, 720mm, 800mm and 960mm.

MAINTENANCE/SAFETY DEVICE

This is a simple slide in device which prevents the re-insertion of a drawer which has been removed either for safety or maintenance. It protects the operator from accidental contact with the busbars and is capable of being padlocked in position.

PRINCIPLE PART NUMBERS

160mm Case & Drawer Unit	MMX160
240mm Case & Drawer Unit	MMX240
320mm Case & Drawer Unit	MMX320
480mm Case & Drawer Unit	MMX480
63A TP Fuse Switch	MMXF0/63/3
160A TP Fuse Switch	MMXF1/160/3
315A TP Fuse Switch	MMXF2/315/3
160A TP Outgoing Plug/Terminal Assy.	MMXPS160/3
10A Drawer Contacts	STANDARD TEST
Drawer Contact Fixing Kit	MXDA2 MXDA4 MMXDA3
5 Way Operator Module	MMXOM60
10 Way Operator Module	MMXOM140
820A Vertical Bar Assembly	MMX/50x6.3/1V
Shutter Assembly (supplied loose)	MMXC
Drawer Slide Rail (supplied loose)	MMXDR

TECHNICAL DATA

ASTA Certificate Nos.13100 & 14130

Certificate of Type Tests No.14130

Support Material : Glass Reinforced Polyamide 66

Busbar Material : HDHC Copper BS1432/C101

Outgoing Plug Material : Glass Reinforced Polyamide 66

Drawer Case Material : 1.6mm pre-galvanised steel

Drawer Material : 1.5mm CR4 sheet plated steel

Operator Modules : Glass Reinforced Polyester

Tightening Torques : 23-25Nm - M8 Busbar Joints

8-10Nm - M8 Support Assembly

Rated Insulation Voltage : 1000V

Thermal Rating : 820 Amps using 50.8 x 6.35mm copper assuming a rise of 50 °C over an average ambient of 35 °C in still but unconfined air.

Tinned conductors (when requested) : To BS1872

The use of Unial jointing paste is recommended to prevent oxidation and ensures a clean, low resistance joint.

