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people on power solutions



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OVERVIEW

Presentation

The IA780 product range corresponds to a load break switch-disconnectors in SF6 insulation designed for outdoor installation in medium voltage overhead lines either on supports of concrete, lattice or studs.

Standards

The equipment manufacturing follows a program of quality management according to international standard ISO 9001.

Development and manufacturing of the equipment are done in compliance with the standards detailed below:

- IEC 62271-1 (IEC 60694): High voltage switchgear. Part 1: Common specifications.
- IEC / UNE 62271-102 (IEC 60129): High voltage switchgear. Part 102: disconnectors and earthing AC.
- IEC / UNE 62271-103 (IEC 60265-1): *High voltage switches. Part 1: High voltage switches for rated voltages above 1kV and less than 52kV.*
- IEC / UNE 62271-200 (IEC 60298): Metal-enclosed switchgear for AC voltages above 1kV and less than or equal to 52kV.

Functional Characteristics

It is defined as a network switching element with the following features

- Manieuver in rated active load
- Short-circuit breaker
- Effective switching in accordance to IEC / UNE 62271-102

Components

The supplied equipment consist of the following elements:

- Switch-disconnector with support for fixing support
- Manual command on the base with drive tube
- Surge arresters (optional)
- Transmission and union tubes



STRUCTURAL CHARACTERISTICS

SF6 Switch disconnectors IA 780 are designed to fit properly in the environment; compact, small, with an anti-bird protection system, etc.

These equipments have a stainless steel enclosure filled in with SF6 gas.

Inside the envelope is located the breaking switch chambers, as the busbar and drive mechanism. Thus these elements are protected from bad weather and environmental conditions such as corrosion, wind, industrial pollution, etc.

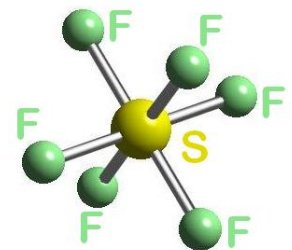
During the IA780 manufacturing, Iberica de aparellajes use processes and materials that ensure minimal leakage rate (sealed for life).

Operating mechanism

The opening and closing mechanism of the switch-disconnector is composed by:

- *A self-extinguishing insulating material chamber.*

It consists of a rotating copper contact and two fixed contacts for each phase (also copper coated with silver to provide electrical conductivity). The cut is made in two points simultaneously.



- *Drive mechanism*

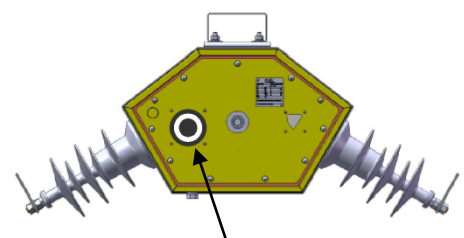
Switch actuation is performed by a single spring mechanism, which performs the maneuver regardless of the operator speed. The spring is loaded and unloaded by turning the lever in either direction. The mechanism has two positions (open or closed).

- *Command*

The aforementioned spring, is activated by a rotating shaft attached to the switch-disconnector. The maneuver can be done by:

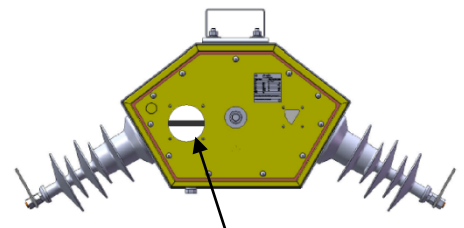
- Isolated rod (not supplied)
- Lever and rotating tube transmission
- IA74 command pivoting type

The drive mechanism and open-closed, status messages are housed inside a stainless steel painted and sealed by a gasket.



POSITION INDICATOR

OPEN



POSITION INDICATOR

CLOSED

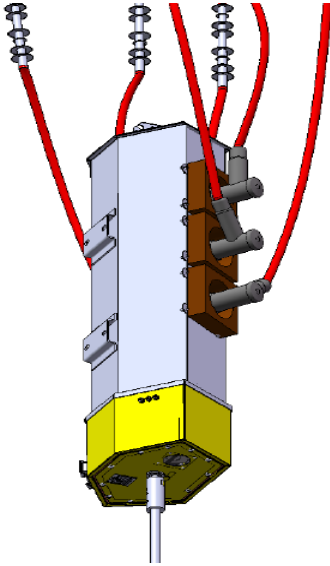
A linked to the movement of the switch contacts assures its position indicator: open or closed. This is perfectly visible from the base of support where the device is located.

STRUCTURAL CHARACTERISTICS

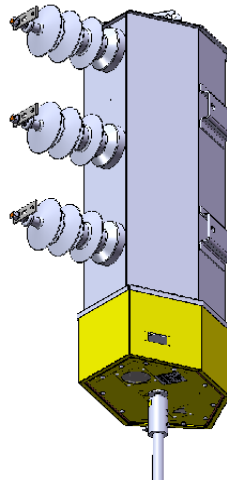
MV Connections

The switch-disconnector can be equipped with:

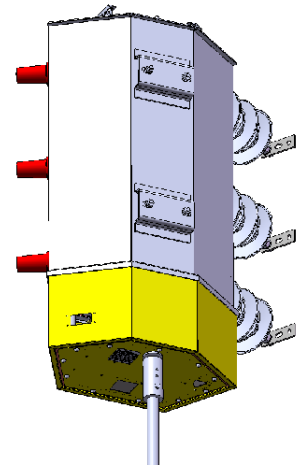
Bushing type C



Silicone terminals



A combination of bushing type C and silicone terminals



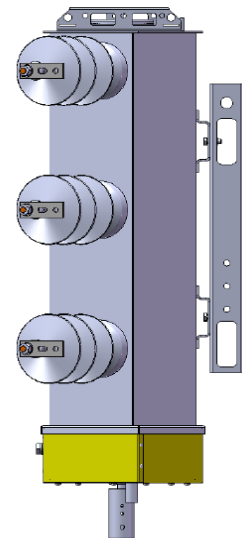
Anchorage

The equipment includes support to the tower where it is installed.

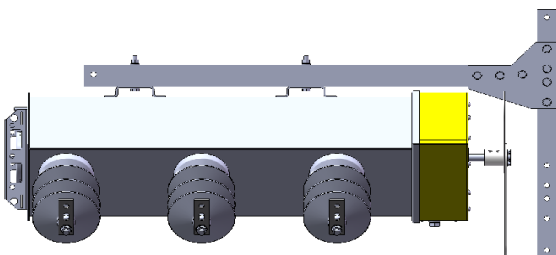
This support is universal type for all kinds of support, both concrete and metal lattice.

The equipment can be mounted both vertically and horizontally.

For special fittings, consult Iberica de Aparellajes



Vertical support



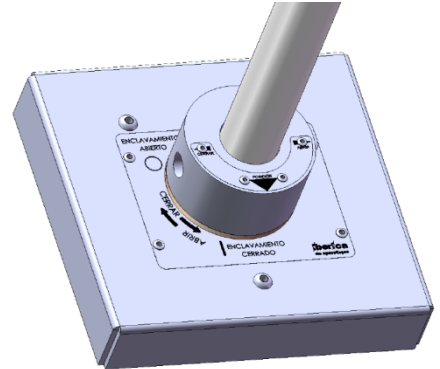
Horizontal support

STRUCTURAL CHARACTERISTICS

Vertical mounting: manual control on the base

The switch equipment is operated locally from the base of support where it is installed via rotary tube and lever.

The system includes a manual command on the base of the tower operated by a lever, and with the possibility to lock it by a padlock. The equipment and the control hand are physically connected by pipe 1".



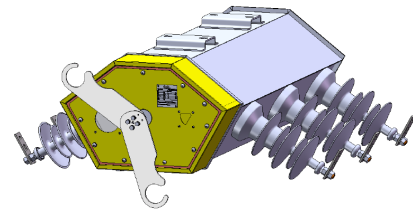
The command base has two positions:

- OPEN and locked
- CLOSED and locked

Horizontal mounting: manually operated by rod

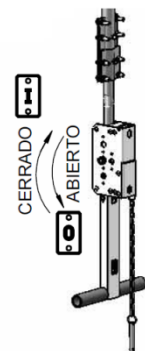
The disconnect device is operated locally from the base of support through an isolated rod (not included).

In option it is possible to lock both positions.



Horizontal mounting: manually operated with IA74 command

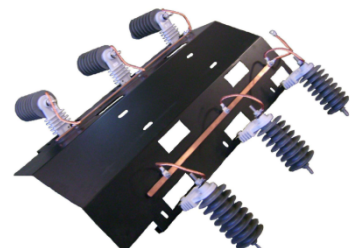
The horizontal switch-disconnector equipment is operated locally from the base of support through a IA74 type command. This manually operated command, is physically connected to the equipment through a tube 1."



OPTIONAL EQUIPMENT

Surge arresters

There is the possibility of including a lightning rod set on the equipment. This item does not require assembly, as it is already built in factory ensuring a correct assembly. The set of 3 or 6 arrester is mounted on a support which is fixed to the equipment.



Joint Support + 6 lightning rod

ELECTRICAL CHARACTERISTICS

Table of electrical characteristics

RATED VOLTAGE	Ur	kV	24	36
RATED FREQUENCY	Fr	Hz	50	50

ISOLATION LEVEL			GROUND	ISOLATING	GROUND	ISOLATING
Impulse 1.2 / 50 us	Up	kVpk	125	145	170	195
Indus. power frequency 50 Hz 1min	Ud	kV	50	60	70	80

CURRENT ASSIGNED	Ir	A	400/630	400
Short time current	Ik	kA	05/12/16	12.5 / 16
Peak current	Ip	kApk	31.5 / 40	31.5 / 40
Time of short circuit	tk	s	One	One
Rated mainly active load breaking current	I load	A	400/630	400
Rated closed-loop breaking current	I loop	A	400/630	400
Rated cable-charging breaking current	I cc	A	16	16
Rated line-charging breaking current	I 1c	A	1.5	1.5
Breaking current earth fault	I ef1	A	50	50
Breaking current when cable or line blank if earth fault	I EF2	A	16	16
Breaking current in short- circuit (5 latch)	I ma	kA	31.5 / 40	31.5 / 40

ALLOWABLE TEMPERATURE	T	°C	-25 / + 50	-25 / + 50
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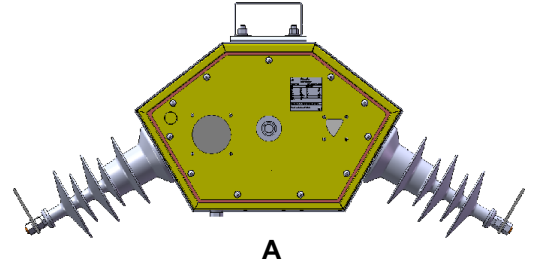
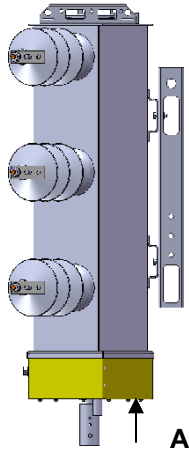
CLASS BY IEC 62271-103	M1E3 *	M1E3 *
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CREEPAGE DISTANCE	LF	mm	(III) - 780 (IV) - 1055	1055
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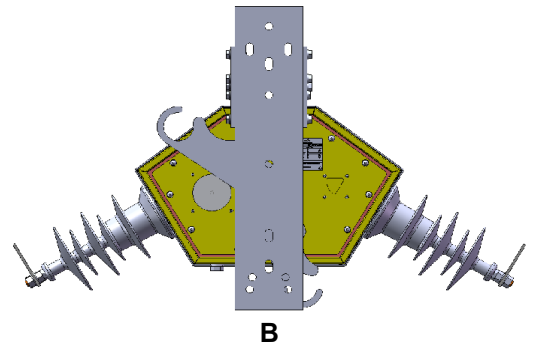
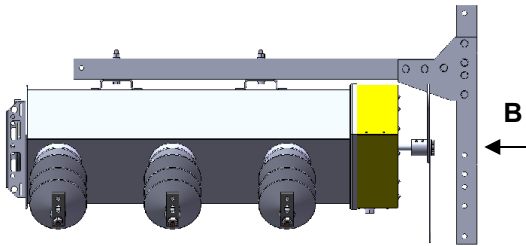
* Other values refer

MOUNTING POSSIBILITIES

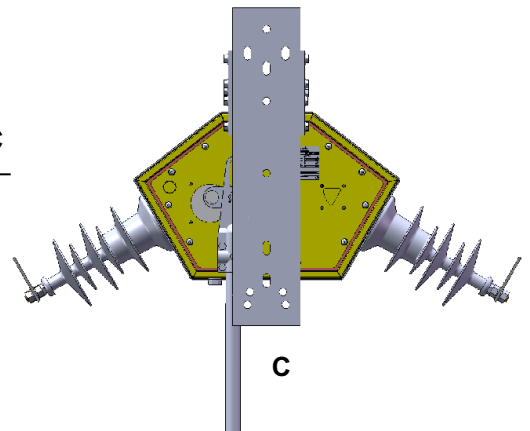
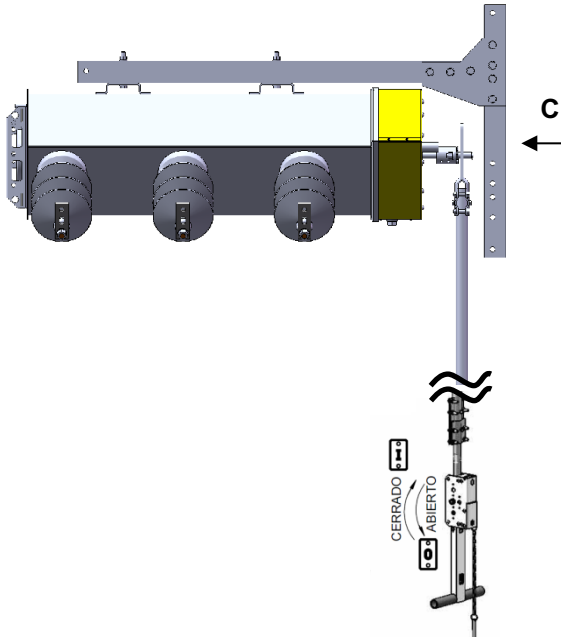
Vertical mounting (IA780VT0)



Horizontal mounting with drive through rod (IA780HT0)

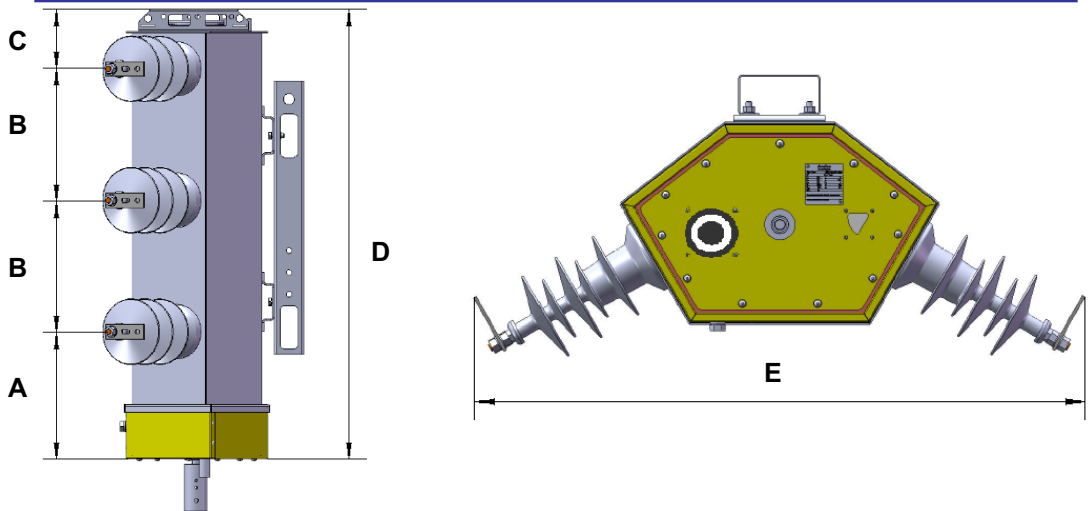


Horizontal mounting operated via IA74 command (IA780HT0B)



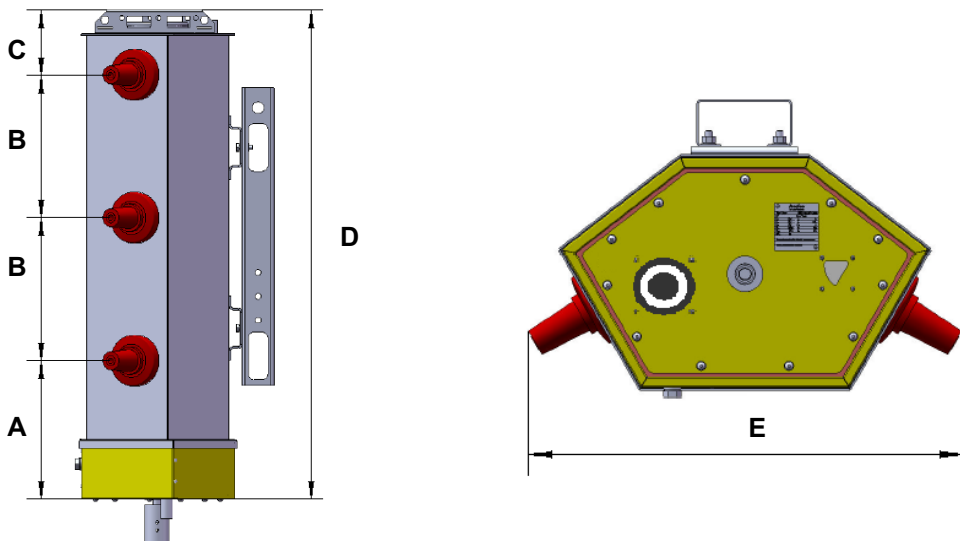
DIMENSIONS

SILICONE TERMINALS CONNECTION (*aerial connection*)



	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
IA780 / 24/400	348	360	163	1231	1202
IA780 / 36/400	530	360	346	1596	1306

BUSHING TYPE C CONNECTION (*plug-in terminal connection*)



	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
IA780 / 24/400	348	360	163	1231	731
IA780 / 36/400	530	227	346	1337	689

ORDERS

HOW TO ORDER?

When placing an order please specify the characteristics that are desired. Here is how to make the order described:

IA 780	to	b	c	d	and	F	/	Ur	g	h	/	Go
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Rated current
 A 400/630 (12/24 kV)
 400 A (36 kV)

0: without gauge.
-: with manometer

Rated short time current (Ith)
A= 12'5kA
B= 16kA
C= 20kA

Rated voltage (12/24 / 36kV)

X: Equipment specially adapted to **high pollution environment** (AISI-316)
 If normal environment, do not include this index

S: With interlocking (only control by rod). Interlocking included in the other models.

B: Command through IA74 command control devices in horizontal mounting
 If control rod does not include this index

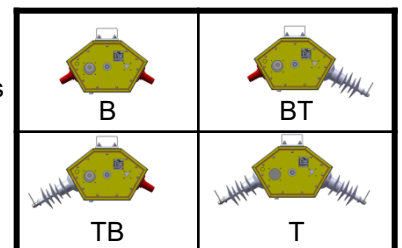
M: Auxiliary drive by electric motor (for equipment with remote control and remote operation consult Iberica de Aparellajes)

0: No drive by motor (manual only)

B: Switch-disconnector with bushing type C
T: Switch-disconnector with silicon terminals
BT: Bushing type C and silicon terminals
TB: Silicon terminals and bushing type C

HHorizontal mounting

VVertical mounting and rotating mechanical control



Example:

IA780HBT0B / 24C0 / 630

Horizontal switch with plug connectors and terminals, maneuvered by remote IA74, without auxiliary motor drive. Rated voltage of 24kV, Ith = 20 kA without gauge incorporated and rated current of 630 A.

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