



PIX

Metal-clad switchgear up to 24kV



Vacuum version

**Technical
Specifications**



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General presentation

The PIX system has been designed in accordance with international (IEC) standards, and gives an optimal solution to satisfy the requirements for MV electrical networks, in:

- > Power stations
- > HV/MV & MV/MV substations
- > Industry
- > Infrastructure
- > Marine

PIX is available in a wide range of ratings:

- > Rated Voltages: 12 kV, 17.5 kV, 24 kV.
- > Rated current: up to 4000 A
- > Rated short time withstand current up to 40 kA
- > Rated peak withstand current up to 100 kA.

The indoor metal-clad PIX system is internal arc resistant and fitted with a withdrawable module which can be isolated with the door closed. The units are of a robust prefabricated construction using galvanised materials giving high corrosion resistance.

The front and end panels are painted in light beige colour

(RAL 9001) with operating areas in blue (RAL 5023) and yellow for earthing switch operation.

The PIX system offers you the choice of two switching technologies, SF6 & vacuum, for both circuit breakers and contactors.

PIX cubicles incorporate all necessary user-friendly, ALSTOM digital control and protection relays for flexible system configuration, based on customer requirements.



Standard AREVA solution for fully integrated, digital control + monitoring (DCX) or one box for protection and control can be used.

PIX, with these features, meets user requirements in the fields of:

- Personnel safety
- Easy operation and maintenance
- Easy installation and access

Our development has been driven by these criterias, to design a PIX system incorporating the following features.

Personal safety

- > All operations are carried out with the panels and doors closed.
- > The earthing switch, with its faults-making capability, is visible through an inspection window.
- > Operation of the earthing switch uses an anti-reflex system.
- > The electrical interlocks of the DCX in conjunction with the mechanical locking devices prevent ensafe operation.

> PIX gives an effective internal arc withstand, tested in accordance with the recommendations of IEC 60298, Appendix AA, Criteria 1 to 6, Class A.

> Over-pressure release is at the top of the unit.

> Metallic shutters closed when withdrawable module is in the disconnected position or removed.

> Cable voltage indication.



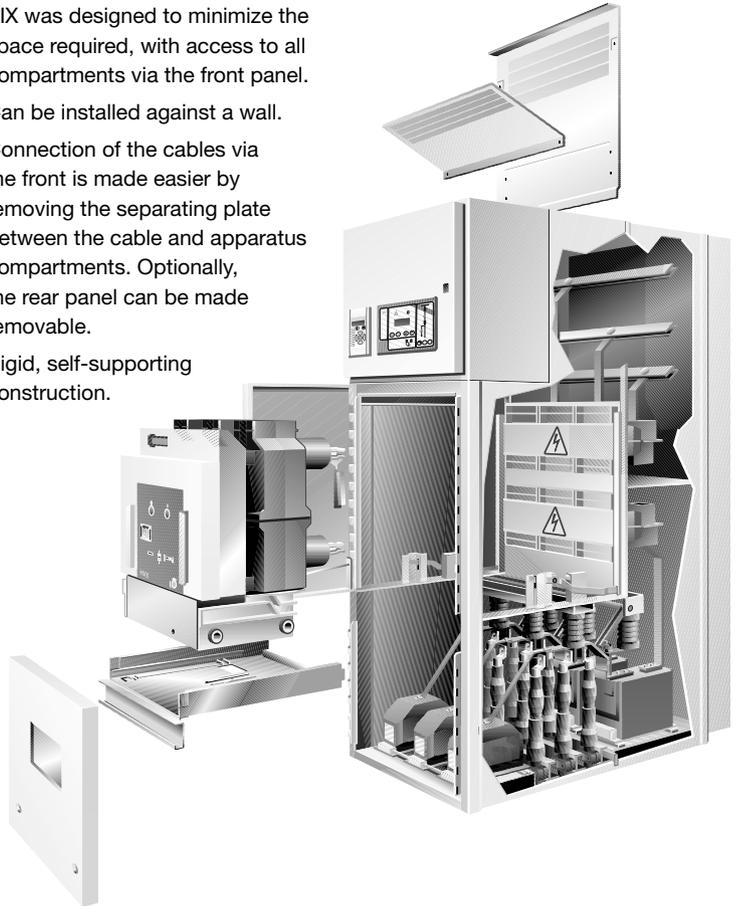
Easy operation and maintenance

- > Operation is simple and logical, with clear status indicators for all functions.
- > Manual or electrical control
- > Modifications to the control and automation configurations are easy and quick to apply, on site, using the DCX (settable digital controller).
- > The use of digital control and protection equipment with self-testing and monitoring procedures.



Easy installation and access

- > PIX was designed to minimize the space required, with access to all compartments via the front panel.
- > Can be installed against a wall.
- > Connection of the cables via the front is made easier by removing the separating plate between the cable and apparatus compartments. Optionally, the rear panel can be made removable.
- > Rigid, self-supporting construction.



Environment

PIX system has been conceived with due consideration of its impact on the environment:

- > In a factory certified to ISO 14001
- > With a construction allowing maximum recyclable components at the end of life.





Technical description

The PIX metal-clad switchboards are extensible on both sides and consist of modular functional units, linked by a busbar, and connected to the substation earth via an earthing bus.

The cubicles are subdivided by metal partitions into four separate compartments, including a low voltage compartment for the control and monitoring equipment.

The three Medium Voltage compartments; bus bar, equipment & cables, are fitted with an overpressure release system, oriented towards the top of the unit inside of cubicle volume.

The fused switch-disconnectors are fixed type in the compartmented unit.

Main module compartment

Closed off by a door, this compartment contains:

- > A withdrawable module, fitted with a circuit breaker or contactor, which has two positions, "plugged in" or "disconnected/test".

All operations of the withdrawable module and its associated equipment can be carried out with the compartment door closed.

For modules fitted with vacuum circuit breakers, the movement can be motorised.

Withdrawable modules of the same type are interchangeable.



Main module compartment.

The connection between the withdrawable module, the busbar and the cable branches is made by means of withdrawable silver plated contacts.

A 64-pin plug (Max.) connects the auxiliary circuits of the withdrawable module to the low voltage compartment.

- > For personnel safety, there are metallic shutters (1), installed in front of the spouts of the fixed "plug-in" contacts (2), which prevent access to the primary circuit, thus ensuring a protection when the withdrawable module is either in the "disconnected/test" position or removed from the compartment.

Once the withdrawable module has been removed, each shutter can be padlocked individually.

With the interlocking shutters option, the independant opening of the upper or lower shutter is only possible using a special tool (optionally supplied).

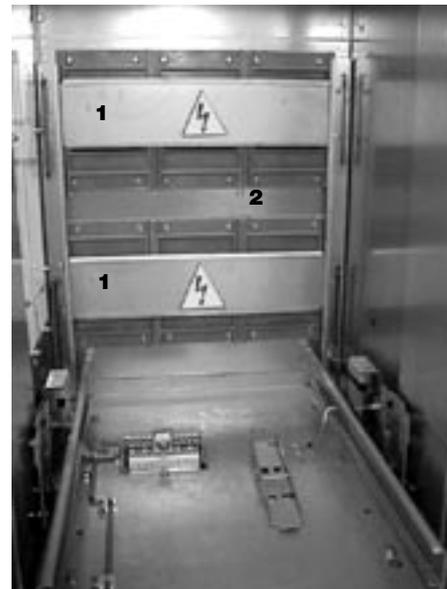
- > An earthing device for the removable module, to the IEC standards, ensures earthing continuity during removal, either through rullers or through an optional plug.

An inspection window on the door, allows the position of the withdrawable module to be clearly seen within the compartment. Its position is also shown on the mimic diagram on the DCX control unit.

The PIX system also offers, amongst the range of withdrawable modules, the functions of disconnecting link, voltage transformers and busbar earthing switch.

This compartment is fitted with mechanical locking devices in accordance with IEC standards, which are necessary to avoid any unsafe operations.

(For details, see the chapter on locks).



Main module compartment.

Cable compartment

Normally closed with a bolted panel, accessible from the front panel, and with a removable horizontal panel between the cable & main module compartment, this design is made for ease of assembly and on-site testing of cables and accessories.



Cable compartment.

As an option, and depending on the installation of switchboard chosen, the rear panel can be made removable, to further improve access.

This compartment contains:

- > The connections to the power cables, up to 6 x 630 mm² per phase, with a choice of bottom plate (for details, see chapter on cable connections).
- > The cable earthing switch is operated from the front of the cubicle by means of a removable lever.

Its position is visible from the front panel, through the inspection window in the cable panel.

- > Current transformers, with DIN dimensions, are fitted at the rear of the cubicle.
- > The voltage transformers, fitted at the front of the compartment, are either fixed - with or without fuses, or removable with fuses.



Cable compartment.

- > A metallic cable duct, located on the right-hand lateral part, guides the low voltage conductors into the control/command compartment safely.

At the front, upper section of this compartment, is the access to the earthing switch controls, along with its mimic diagram and VPIS type voltage indicators (IEC 61958). VDS type voltage indicators (IEC 612345) can be offered as an option.

Details of the interlocks are given in the next chapter.

Busbar compartment

Located in the upper, rear of the unit, this compartment is accessible via the top or front panel of the cubicle, after removing the partitions, which separate it from the switchgear compartment.



Busbar compartment

The bus bar consists of flat copper with rounded edges. The rated current will determine the number of bars to be mounted in parallel.

The bus bar is linked and supported by solid connections to the spouts.

Optionally, this compartment can be fitted with:

- > Segregations made of insulating materials, resistant to pressure, mounted between each cubicle.
- > Encapsulation of the bus bars and branch connections.
- > Fixed voltage transformers, without fuses.
- > An earthing switch.



LV compartment standard.

Low voltage compartment

This compartment contains all the secondary circuit functions for control, measurement, protection, monitoring, communication and other associated systems.

This independent compartment, is a separate assembly, supplied fully assembled and tested.

Locks

The operation of PIX is designed to be completely safe. All the operations listed below are carried out from the front panel, with the door and panels closed.

- > Connect or disconnect the withdrawable module.
- > Re-load the spring mechanism.
- > Mechanically close or open the circuit breaker or switch-disconnector.

- > Open or close the earthing switch. Access to the withdrawable module compartment requires the use of a specialised handle and key.

The interlocks were designed with this operational ideology in mind and add to the security of the system by making it impossible to make unsafe operations.



Actions	Status of elements involved	
	Basic locking devices	Optional locking devices
Plugging in the module	<ul style="list-style-type: none"> - LV socket connected - Circuit breaker open - Earthing switch open 	<ul style="list-style-type: none"> - Module compartment access door closed
Closing the circuit breaker/contactors	<ul style="list-style-type: none"> - Module completely plugged in, or plugged out/test position - Plug-in lever removed 	
Closing the earthing switch	<ul style="list-style-type: none"> - Module in plugged out/test position or removed 	
Access to the cable compartment		<ul style="list-style-type: none"> - Earthing switch closed
Opening of the earthing switch		<ul style="list-style-type: none"> - Cable compartment panel closed
Access to the withdrawable module compartment	(Reminder: requires the use of a specific key and handle)	<ul style="list-style-type: none"> - Module in disconnected plugged-out/test
Partial re-opening of the earthing switch for cable testing		<ul style="list-style-type: none"> - Is not possible to put it the panel again when earthing switch is in this position
Opening of the shutters		<ul style="list-style-type: none"> - By the withdrawable module action - With specific tool.

Other safety equipment

	Basic locking devices	Optional locking devices
Locking device using padlocks	<ul style="list-style-type: none"> - Shutters - Earthing switch access (in open or closed position) - No access to operate the drawout module 	
Locking devices (specific)		<ul style="list-style-type: none"> - ON/OFF Buttons - Circuit breaker
Locking device using fixed locks		<ul style="list-style-type: none"> - The door of the withdrawable module - Earthing switch, either in open or closed position - Module in plugged out position
Locking device by electromagnetic coil		<ul style="list-style-type: none"> - Earthing switch, in open position - Disconnect link module (UTX)



Standards

Safety has been certified by testing

PIX cubicles have been designed to meet the requirements of International standards (IEC) and validated by type tests, carried out by independent laboratories.



Reference	Description
IEC 60298 Appendix AA	- Metal enclosed switchgear and control gear, from 1 kV to 52 kV
IEC 60694	- Common standards for HV equipment
IEC 60056	- HV AC Circuit breakers
IEC 60129	- AC disconnect and earthing switch
IEC 61958	- Voltage presence indicator system
IEC 612345	- Voltage detector system
IEC 60529	- Degree of protection of the enclosures
IEC 60470	- HV Contactors
IEC 60265	- HV Load Break Switch
IEC 60420	- HV Fused load break switch
IEC 602821	- HV Fuses

Operating conditions

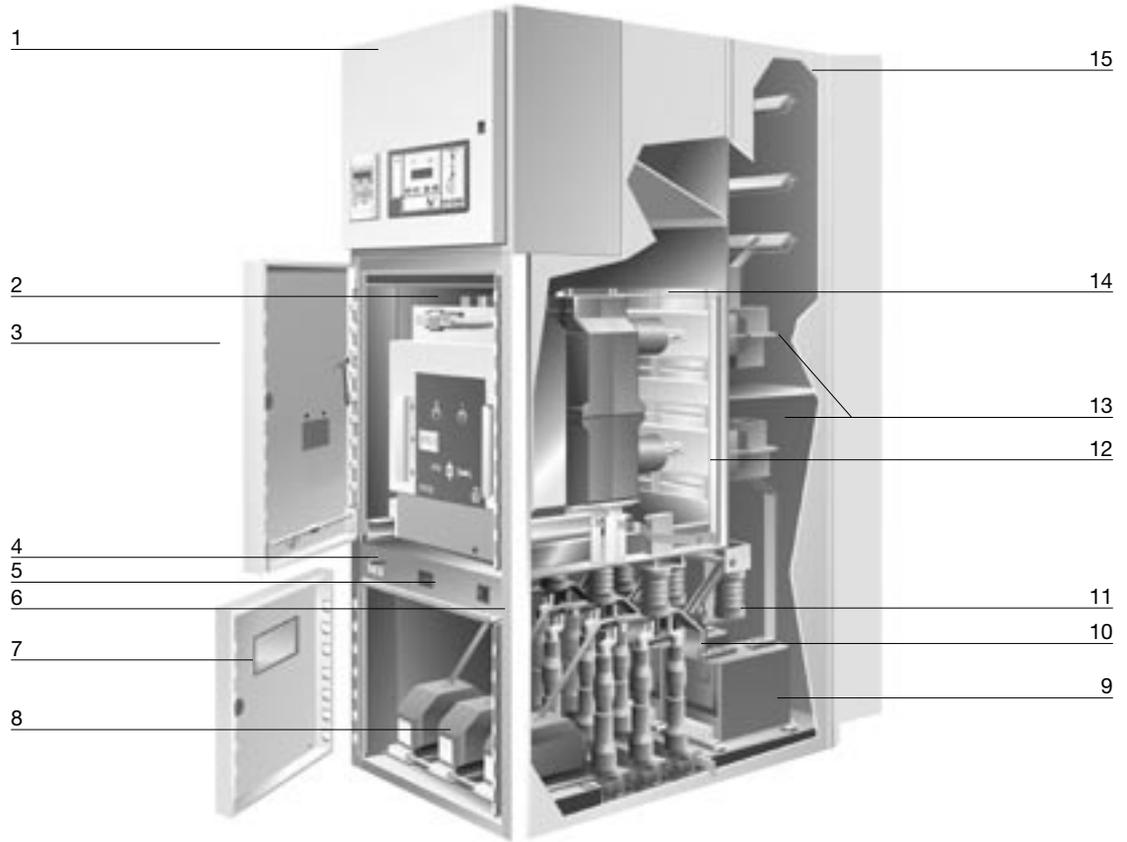
Operating conditions for interior use, in accordance with IEC 60694	
Ambient temperature:	- + 40°C - maxi + 55°C with corresponding under-rating current - + 35°C on average over a 24 hour period - - 5°C minimum
Ambient air:	- No impurities due to dust, flammable/corrosive gases & vapours, smoke or salt.
Humidity:	- Average relative humidity over a 24 hour period: 95% - Average steam pressure over a 24 hour period: Max. 2.2 kPa - Average relative humidity over a 1 month period: 90% - Average steam pressure over a 1 month period: Max. 1.8 kPa
Altitude:	- Up to 1,000 m above sea level, corresponding to atmospheric conditions of: 1013 hPa, + 20 °C, 11g/m3 water. - Above 1,000 m, a derating factor is applied, please contact us for details.
Vibration:	- Negligible - For particular conditions, please contact us.

Protection degree

Standard degree of protection of the external enclosure: IP 3X Optionally, there is the possibility of various IP, ratings in accordance with the table below.	Meaning for the protection of equipment		Meaning for the protection of people
Elements of code IP	1st element	2nd element	Additional element
Protection against water ingress with harmful effects	2 >=12.5 mm 3 >=2.5 mm 4 >=1 mm X Not defined		Not used element covered by 1 st element
		0 Not protected 1 Vertical dripping water 2 Dripping water with 15° inclinaison X Not defined	
Protection against access to the dangerous parts by means of tools			C D=2.5 mm L=10 mm D D=1 mm L=100 mm X Not defined



PIX in detail



4 | 5 | 6 |
» MMI standard

- 1 LV compartment standard
- 2 Circuit breaker
- 3 Switchgear compartment door
- 4 Earthing switch operating mechanism
- 5 Voltage presence indicator
- 6 E.S. mimic digram
- 7 Cable compartment panel
- 8 Voltage transformer
- 9 Current transformer
- 10 Cable connection
- 11 Earthing switch
- 12 Metal shutter for cable
- 13 Spouts
- 14 Metal shutter for busbar
- 15 Busbar



Technical data

Functional unit

Designation		PIX 12	PIX 17	PIX 24
Reference standards		IEC 60298	IEC 60298	IEC 60298
Rated voltage (kV)	kV rms	12	17.5	24
Power frequency withstand voltage 50 Hz 1 min to earth and between phases on the isolating distance	kV rms	28	38	50
	kV rms	32	45	60
Impulse withstand voltage 1,2 / 50 micro sec to earth and between phases on the isolating distance	kV peak	75	95	125
	kV peak	85	110	145
Rated frequency	Hz	50 / 60	50 / 60	50 / 60
Short time current	1 sec withstand ⁽²⁾	kA rms	25 / 31.5 / 40	16 / 25 / 31.5
	3 sec withstand ^{(2) (1)}	kA rms	25 / 31.5 / 40	16 / 25 / 31.5
	Peak withstand	kA rms	63 / 80 / 100	40 / 63 / 80
Rated current	Busbar with natural ventilation	A	Up to 3150	Up to 2500
	Busbar with forced ventilation	A	Up to 4000	Up to 4000
	Functions Disconnect link	A	Up to 3150	Up to 2500
	Functions CB with natural ventilation	A rms	Up to 3150	Up to 2500
	Functions CB with forced ventilation	A rms	Up to 4000	Up to 4000
	Functions SWD	A rms	630	630
	Functions Air SWD + fuses	A rms	400	400
	Functions Contactor	A rms	200-400	
Internal arc withstand	kA	Up to 40 kA - 1 sec	Up to 40 kA - 1sec	Up to 31.5 kA - 1sec
Earthing switch making capacity ⁽²⁾	kA peak	63 / 80 / 100	63 / 80 / 100	40 / 63 / 80
Earthing switch endurance	number of making operation mechanical (C/O)		2	2
			1000	1000
Degree of protection	external enclosure standard		IP 3X	IP 3X
	open door without withdrawable module		IP 2X	IP 2X
Approximate heat dissipation				
Functions CB Ir=800 A	W	650	650	650
Force on floor (without cubicle weight)				
Functions CB	daN	750	750	750
⁽¹⁾ Earthing switch limited 40 kA - 1sec				
⁽²⁾ For SWD and SWD + fuses functions				
Short time current	1 sec withstand	kA rms	16 / 25	16 / 25
	peak withstand	kA peak	40 / 63	40 / 63
Earthing switch making capacity	kA peak	40 / 63	40 / 63	40 / 63

For 50 kA, 5000 A, please refer to PIX-H documentation or contact us.

HVX drawout circuit breaker module
Characteristics

For the cubicles		PIX 12	PIX 17	PIX 24
Designation		HVX 12	HVX 17	HVX 24
Reference standards		IEC	IEC	IEC
Rated voltage	kV	12	17.5	24
Rated current	A rms	Up to 3150	Up to 3150	Up to 2500
Rated breaking capacity				
short circuit current	kA rms	16/25/31.5/40	25/31.5/40	16/25/31.5
cable charging current	A	25	31.5	31.5
line charging current	A	10	10	
single capacitor bank	A	400	400	
no load transformer	A	10	10	
Rated making capacity	kA peak	40/63/80/100	63/80/100	40/63/80
Rated operating time				
opening	ms	40-47	40-47	40-47
breaking	ms	55-62	55-62	55-62
arcing	ms	2-15	2-15	2-15
closing	ms	50-58	50-58	50-58
Rated operating sequence		O-3min-CO-3min-CO CO-15s-CO O-0.3s-CO-3min-CO O-0.3s-CO-15s-CO	O-3min-CO-3min-CO CO-15s-CO O-0.3s-CO-3min-CO O-0.3s-CO-15s-CO	O-3min-CO-3min-CO CO-15s-CO O-0.3s-CO-3min-CO O-0.3s-CO-15s-CO
Endurance				
mechanical (C/O) for switching chamber		30 000	30 000	30 000
mechanical (C/O) for mechanism		10 000	10 000	10 000
electrical (C/O at In)		10 000	10 000	10 000

HVX spring operating mechanism

Designation		FH2-01 (hand) / FK2-01 (motor)	
Reference standards		IEC	IEC
		DC	AC
Rated supply voltage ⁽¹⁾	V	24-48-60-110-125-220	120-230
Rated frequency	Hz		50/60
Reset motor			
Voltage variation range	% of Un	85 to 110	85 to 110
Power consumption (maxi)	W / VA	100	100
Starting current	A		
Reset time	s	8-12	8-12
Shunt opening coil			
Voltage variation range	% of Un	70 to 110	70 to 110
Power consumption (maxi)	W / VA	≤ 250	≤ 250
Minimum impulse duration	ms	50	50
Under voltage opening coil			
Voltage range for closing	% of Un	>85	>85
Voltage range for tripping	% of Un	35 to 0	35 to 0
Power consumption (maxi)	W/VA	10	10
Shunt closing coil			
Rated current	% of Un	85 to 110	85 to 110
Power consumption maxi	W/VA	≤250	≤250
CT operated coil			
Rated current	A		0.5 - 1 - 5
Current variation range	% Ir		90 à 110
Auxiliary contacts			
Rated current	A	15à	15
Breaking capacity 48V (L/R 10ms)	A	10	-
Breaking capacity 125V (L/R 10ms)	A	3.8	-
Breaking capacity 220V (L/R 10ms)	A	2	-
Breaking capacity 120 or 230 Vdc	A	-	10

(1) No 125 Vdc for reset motor - No 220 Vdc and 120 Vac for under voltage opening coil.

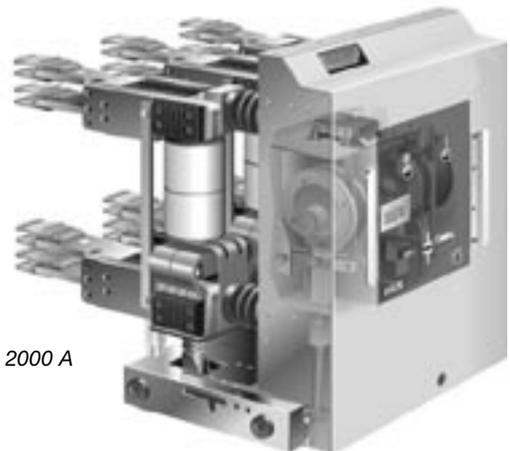
Equipment

	FH2-01 (hand)		FK2-01 (motor)	
	Basic	Optional	Basic	Optional
Manual opening and closing	●		●	
CB Position indicators	●		●	
Spring charging motor			●	
Spring position indicator	●		●	
Shunt trip coil		●	●	
Second shunt trip coil		●		●
CT operated release		●		●
Undervoltage shunt tripping coil		●		●
Closing coil			●	
Operation counter	●		●	
Anti-pumping relay		●		●
Free auxiliary contacts				
CB position 2NO / 2NC	●		●	
3NO / 4 NC		●		●
Spring charged position 2NO / 1NC	●		●	

For more information refer to HVX documentation t&d bprob/hvxb-24 kv/uke/pdb/04.01/ger/2854



HVX up to 2000 A



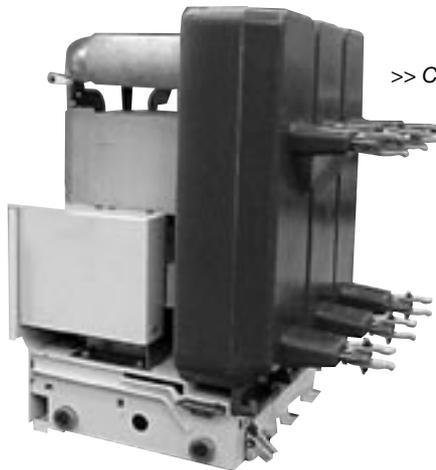
HVX > 2000 A

CVX drawout contactor module
Characteristics

For the cubicles		PIX 12	PIX 12
Designation		CVX 07	CVX 12
Contacteur designation		CBX	CBX
Reference standards		IEC	IEC
Category		AC3 - AC4	AC3 - AC4
Rated voltage	kV	7.2	12
Rated current	A rms	400	400
Maximum motor rated current	A	320	320
Rated breaking capacity			
short circuit current with fuses	kA rms	40	40
short circuit current without fuses	kA rms	6	4
single capacitor bank	A	280	280
Rated making capacity with fuses	kA peak	100	100
Rated making capacity without fuses	kA peak	15	10
Rated operating time			
opening with d.c. magnetic holding control	ms	60 to 100	60 to 100
opening with a.c. magnetic holding control	ms	90 to 120	90 to 120
opening with mechanical latch control	ms	20 to 30	20 to 30
closing	ms	60 to 100	60 to 100
Rated operating sequence number	per hour	1200	1200
Endurance			
mechanical with magnetic holding (C/O)		3 000 000	3 000 000
electrical with mechanical latch (C/O)		200 000	200 000
electrical (C/O at 400 A)		500 000	500 000
electrical (C/O at 250 A)		1 000 000	1 000 000
electrical (breaking at Icc 3.2 kA)		25	25
electrical (making at Icc 4 kA)		100	100

CBX electromagnetic operating mechanisms

Designation			
Reference standards		IEC	IEC
		DC	AC
Rated supply voltage	V	24-48-60-110-125-220	120-230
Rated frequency	Hz		50/60
Magnetic holding control circuit			
Voltage range for closing	% of Un	> 85	> 85
Voltage range for opening	% of Un	75 to 10	75 to 10
Power consumption on closing	W / VA	615	615
Power consumption on holding	W / VA	150	150
Mechanical latch control circuit			
Voltage variation range	% of Un	70 to 110	85 to 110
Power consumption on closing	W / VA	615	615
Power consumption on opening	W	240	240
Minimum impulse duration	ms	20	20
Auxiliary contacts:			
Rated current	A	15	15
Breaking capacity 48 Vdc (L/R 10 ms)			
Breaking capacity 220Vdc (L/R 20 ms)			



>> CVX drawout contactor module



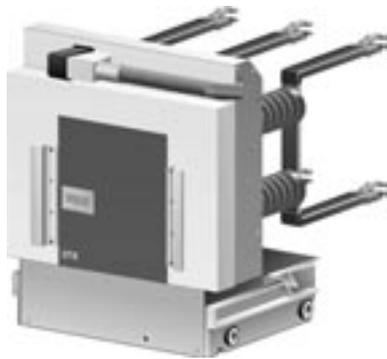
>> CVX drawout contactor module

Equipment

Operating mechanism	Magnetic holding	Mechanical latch
Manual opening		●
Contactors Position indicators	●	●
Magnetic holding coil	●	
Shunt trip coil		●
Closing coil		●
Operation counter	●	●
Anti-pumping relay	●	●
Free auxiliary contacts		
Contactors position 3 NO / 3 NC	●	●
Fuse position 1 O/C	●	●

For more information refer to CBX documentation.

UTX drawout disconnect link module



>> Disconnect link 12 kV



>> Disconnect link 24 kV

Auxiliary contacts for withdrawable module

Position	HVX - UTX - MTX		CVX	
	Basic	Optional	Basic	Optional
Plugged in and test/unplugged				
1 O/C (reverse)	●			
4 O/C (reverse)				●
Plugged in				
1 N/C	●			
1 N/C + 1 N/O		●		
2 N/C			●	
Unplugged/test				
1 NC	●			
1 N/C + 1 N/O		●		
2 N/C			●	

Auxiliary contacts for earthing switch

Position	Basic	Optional
Close/Open 1 O/C (reverse)	●	
Closed 3 N/C		●
Opened 3 N/C		●

MTX drawout VT's module

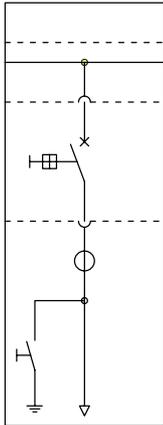


LTRI air switch-disconnector

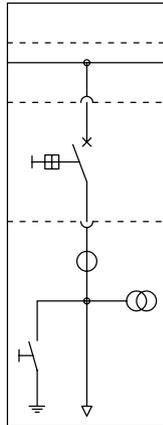




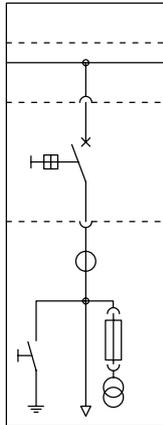
Product range



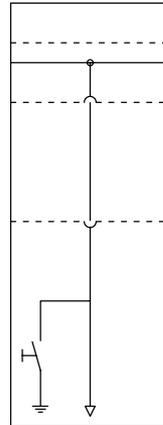
Incoming/Outgoing with circuit breaker



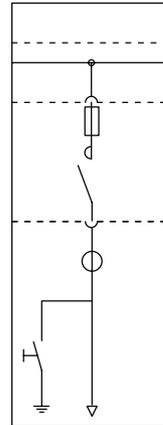
Incoming/Outgoing with circuit breaker + fixed VT's



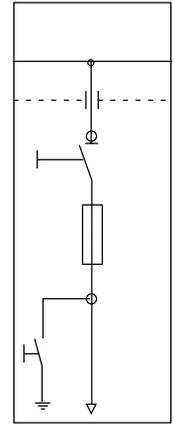
Incoming/Outgoing with circuit breaker withdrawable cable VT's with removable fuses



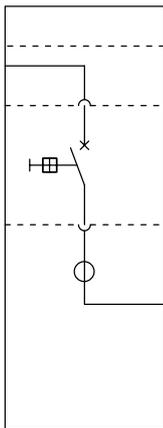
Outgoing with disconnect link



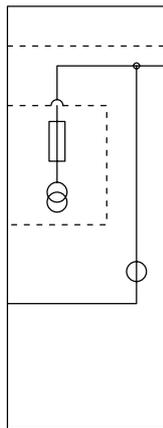
Contactor outgoing



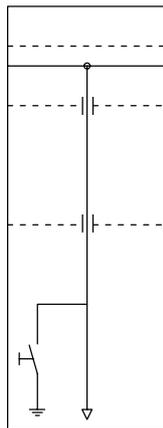
Switch disconnect and fuses outgoing



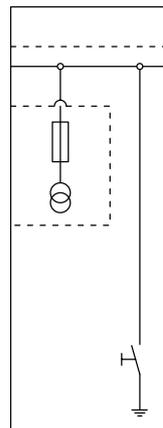
Busbar section with circuit breaker



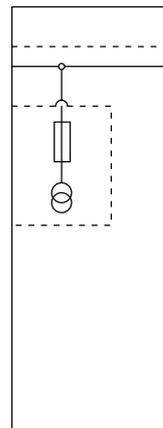
Busbar riser with transformers



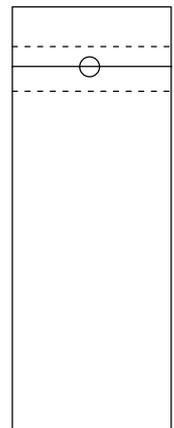
Direct incoming



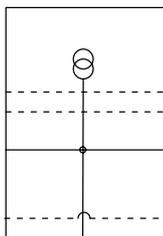
Busbar voltage metering with earthing switch



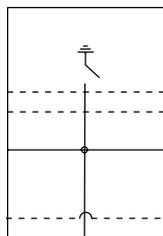
Busbar voltage metering



Busbar current metering



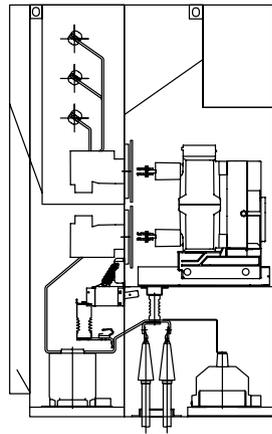
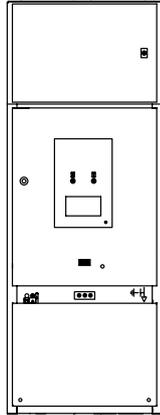
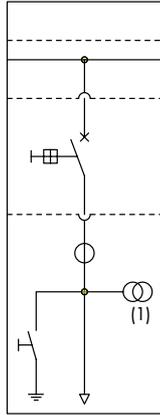
Busbar with voltage transformer on the top



Busbar with earthing switch on the top



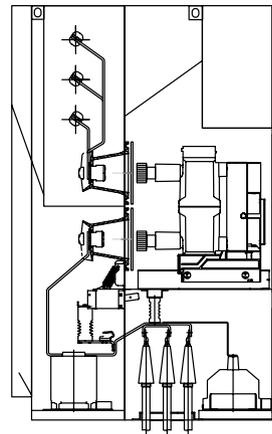
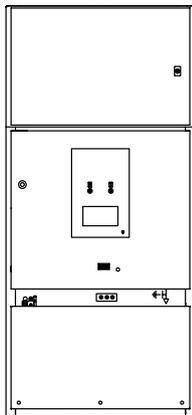
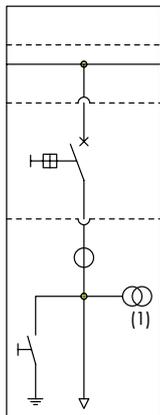
Equipment range



> Incoming or outgoing unit with circuit breaker up to 2000 A.

On request:

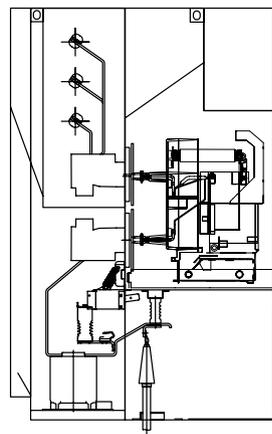
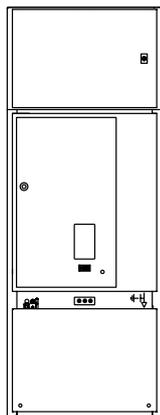
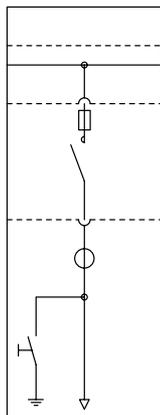
- VT's with fuses
- Withdrawable cable VT's with removable fuses
- Fixed VT's without fuses ⁽¹⁾
- Surge arresters



> Incoming or outgoing unit with circuit breaker 2500 to 3150 A.

On request:

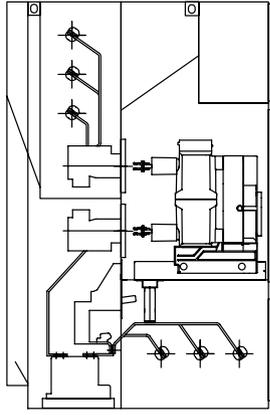
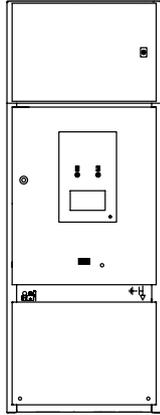
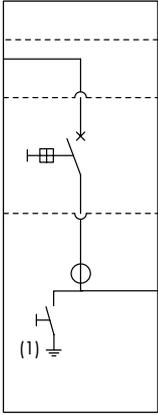
- VT's with fuses
- Withdrawable cable VT's with removable fuses
- Fixed VT's without fuses ⁽¹⁾
- Surge arresters



> Outgoing unit with contactor and fuses 200, 400 A.

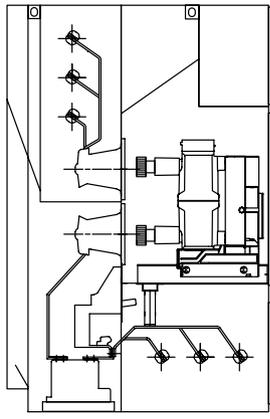
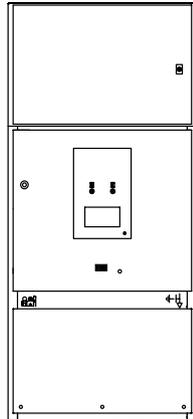
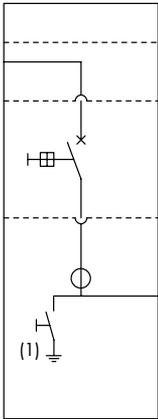
On request:

- Surge arresters



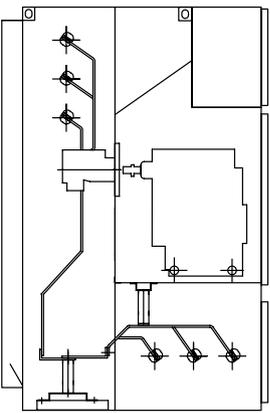
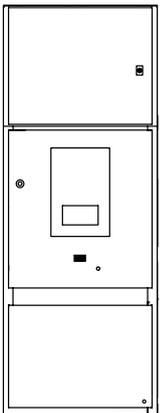
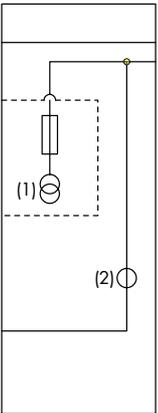
> Bus section unit with circuit breaker up to 2000 A

On request:
- Busbar earthing switch⁽¹⁾



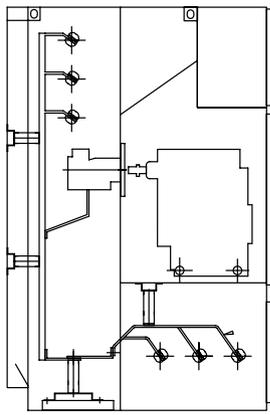
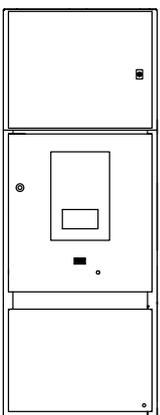
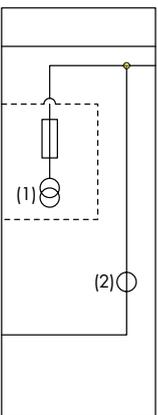
> Bus section unit circuit breaker 2500 to 3150 A

On request:
- Busbar earthing switch⁽¹⁾



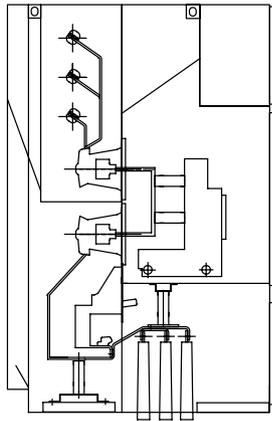
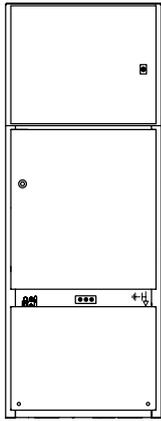
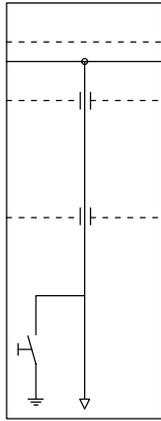
> Bus riser unit up to 2000 A.

On request:
- Withdrawable VT's module with fuses ⁽¹⁾.
- Current transformers⁽²⁾



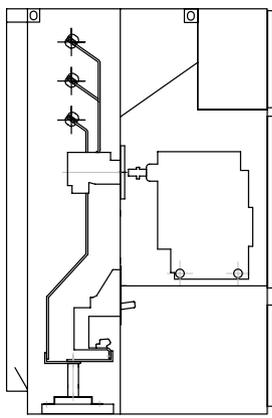
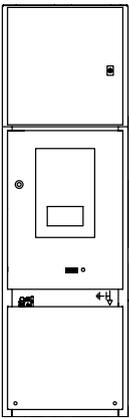
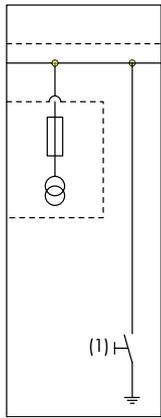
> Bus riser unit 2500 A to 3150 A.

On request:
- Withdrawable VT's module with fuses ⁽¹⁾.
- Current transformers⁽²⁾



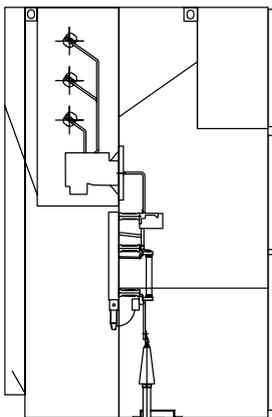
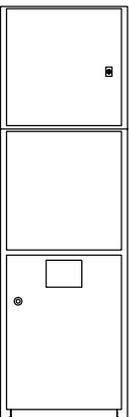
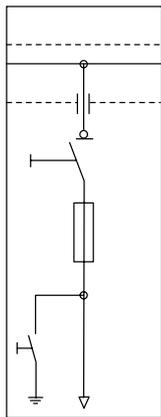
> Direct incoming unit up to 3150 A.

- On request:
- Surge arresters
 - Fixed VT's with fuses
 - Fixed VT's without fuses
 - VT's removable fuses.



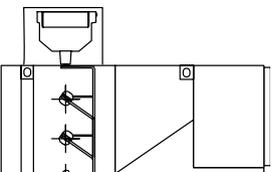
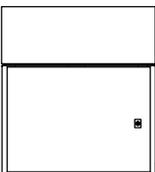
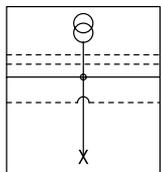
> Busbar voltage metering

- On request:
- Busbar earthing switch ⁽¹⁾

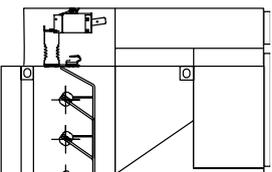
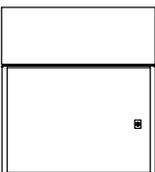
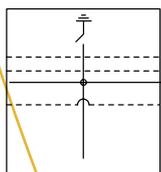


> Outgoing unit with switch disconnector and fuses

- On request:
- Current transformers



> Busbar voltage transformers without fuses on the top

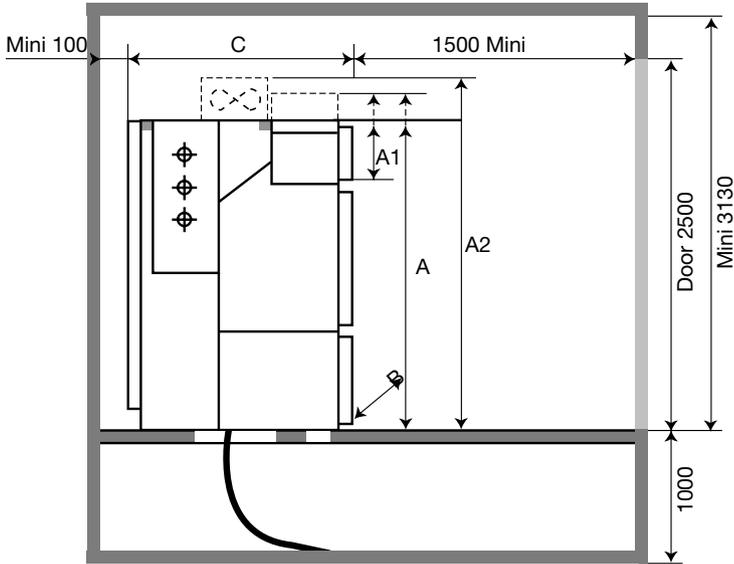


> Busbar earthing switch on the top

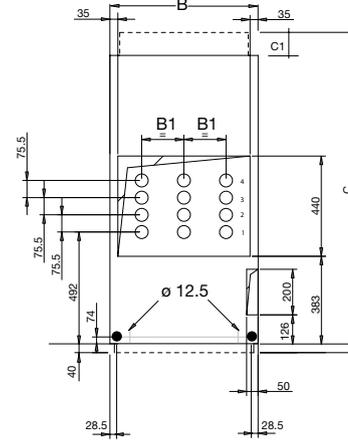


Dimensions and layout

PIX 12

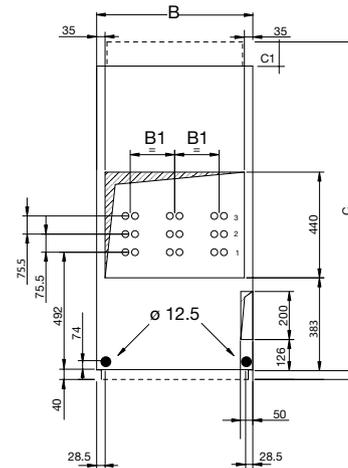


Width 650 - 800 mm
B = 185 - 210



Functions		PIX 12 up to 40 kA 4000A		
	I _{cc} (kA)	≤31.5	40	
	In (A)	B (width)		Approximate weight (kg)
Incoming or outgoing				
CB	≤1250	650	800	720
Disconnect link			650 ⁽¹⁾	
Bus section	1600	800	800	770
	2000	1000	1000	770
	≥2500	1000	1000	820
Direct incoming	≤1250	650	800	650
			650 ⁽¹⁾	
	1600	800	800	700
	2000	800	800	750
	≥2500	1000	1000	750
Bus riser	1250	650	650	600
Bus riser disconnect link	1600	800	800	650
	2000	800	800	700
	≥2500	1000	1000	700
Busbar voltage metering		650	650	600
Switch disconnecter and fuses outgoing		650	-	600
Contactor		650	650	700

Width 1000 mm
B1 = 254



- A : 2130 2230 2330
- A1 : 530 630 730
- A2 : 2730*
- C : 1405/1605^{(1) (2)}
- C1 : 100/300

* Height with forced cooling or duct for gas evacuation.

Dimensions in mm. - (1) Depth 1605 for internal arc withstand 40 kA with width 650 mm

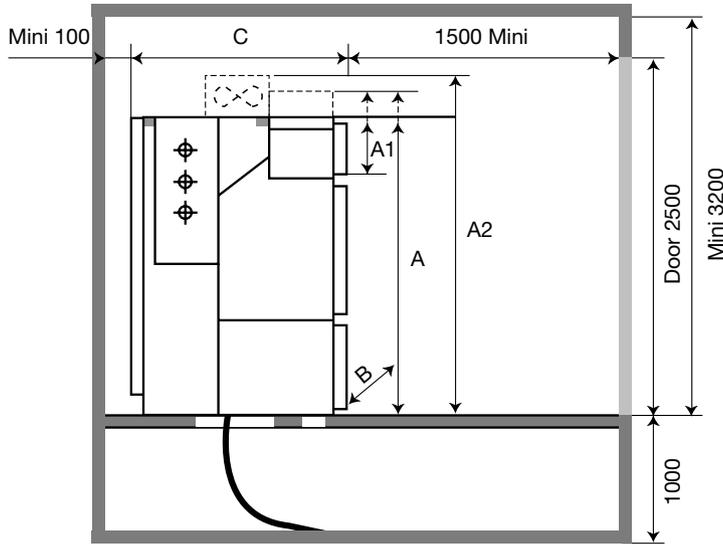
Dimensions in mm. - (2) Depth 1605 for 2 CT/phase

For seismic and arrangement on skid please contact us.

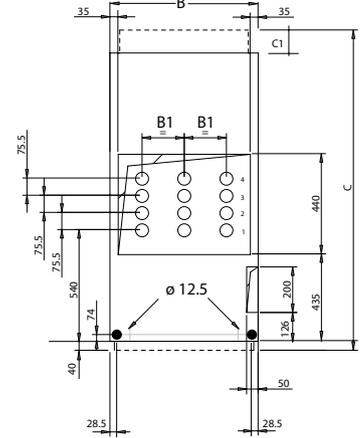


Dimensions and layout

PIX 17

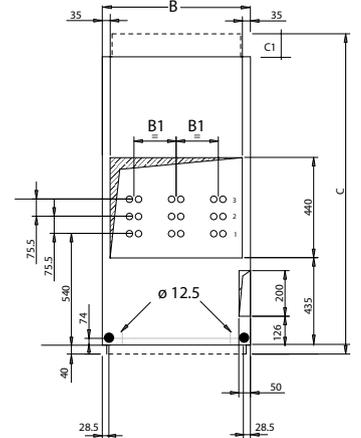


Width 750 mm
B = 210



Functions	PIX 17 up to 40 kA 4000A				
	Isc (kA)	≤25	31.5-40		
	In (A)	B (width)		Approximate weight (kg)	
Incoming or outgoing					
CB	≤1600	750	750 ⁽¹⁾	800	
Disconnect link	2000	750	750 ⁽¹⁾	850	
Bus section	≥2500	1000	1000	850	
Direct incoming	≤1600	750	750 ⁽¹⁾	730	
	2000	750	750 ⁽¹⁾	780	
	≥2500	1000	1000	780	
Bus riser					
	Bus riser disconnect link	≤1600	750	750	680
		2000	750	750	730
	≥2500	1000	1000	730	
Busbar voltage metering		750	750	650	
Switch disconnect and fuses outgoing		750	-	650	

Width 1000 mm
B1 = 254



Dimensions in mm. - (1) Depth 1605 for internal arc withstand 40 kA
Dimensions in mm. - (2) Depth 1605 for 2 CT/phase
For seismic and arrangement on skid please contact us.

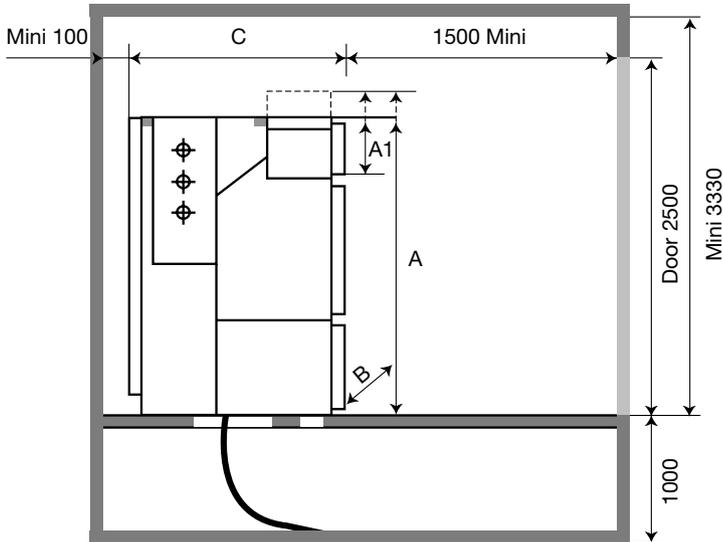
A :	2200	2300	2400
A1 :	600	700	800
A2 :	2800*		
C :	1505/1605 ^{(1) (2)}		
C1 :	100/200		

* Up to 2800 with forced cooling or duct for gas evacuation.

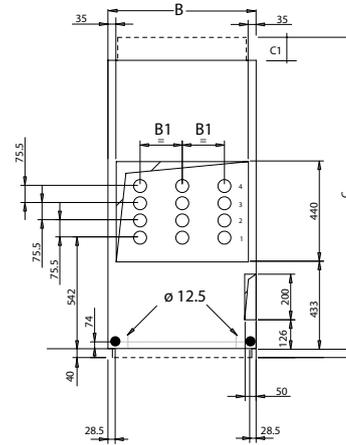


Dimensions and layout

PIX 24

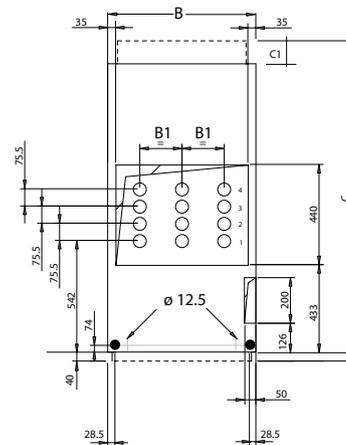


Width 800 mm
B = 210



Functions		PIX 24 up to 31.5 kA 2500A		
	Isc (kA)	≤25	31.5	
	In (A)	B (width)		Approximate weight (kg)
Incoming or outgoing				
CB	≤1600	800	800	820
Disconnect link	2000	1000	1000	870
Bus section	2500	1000	1000	870
Direct incoming	≤1600	800	800	750
	2000	800	800	800
	2500	1000	1000	800
Bus riser	≤1600	800	800	700
	2000	1000	1000	750
	2500	1000	1000	750
Busbar voltage metering		800	800	700
Switch disconnect and fuses outgoing		800	-	750

Width 1000 mm
B1 = 254



A : 2330 2430 2530*
A1 : 530 630 730
C : 1605
C1 : 100

Dimensions in mm

For seismic and arrangement on skid please contact us.

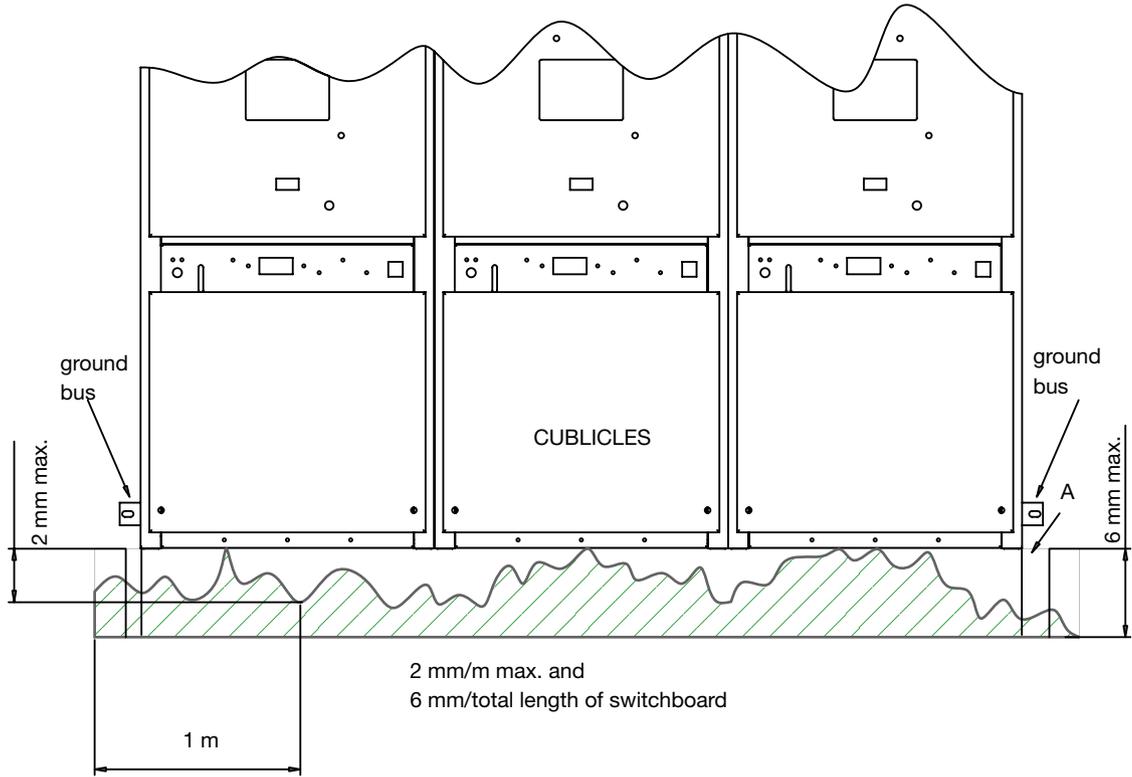
* Height:

- 2730 with duct for gas evacuation.

- 2890 with deflectors for internal arc withstanding.

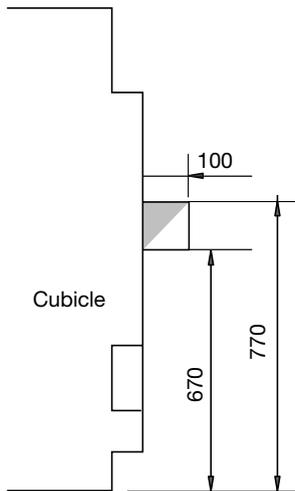


Floor Plan



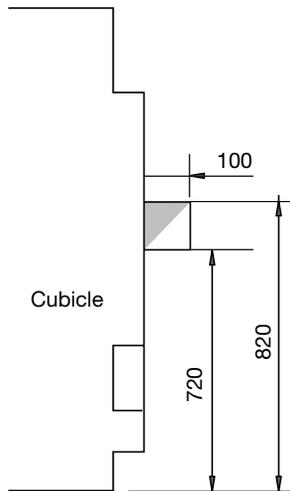
Detail A

PIX12



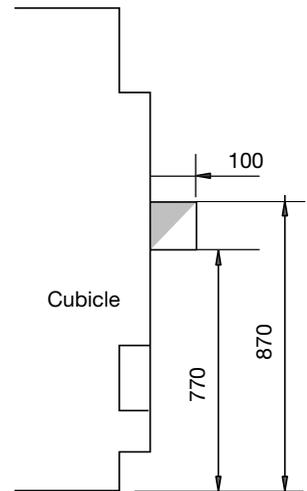
Front face

PIX17



Front face

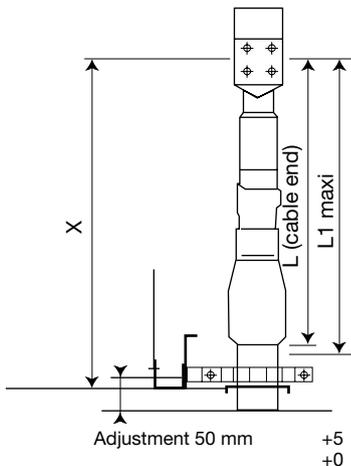
PIX 24



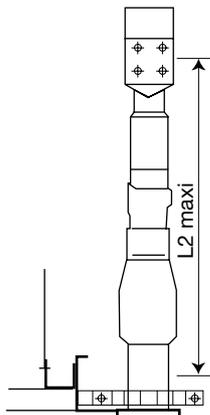
Front face

Cable connections

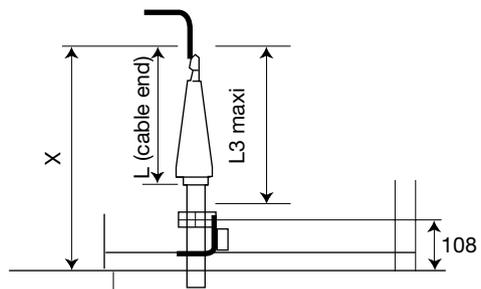
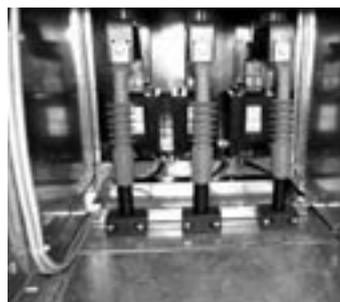
The manufacturer's instructions for the ends of the cables must be followed.



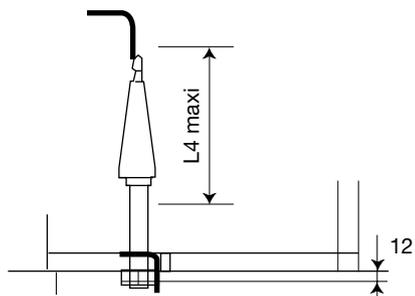
Cable glands in upper position



Cable glands in lower position



Assembly with DIN clamps
Cable 95 mm²

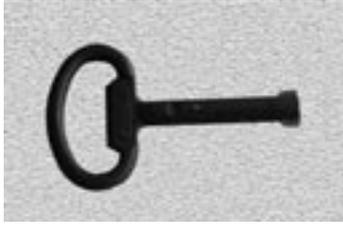


Assembly with DIN clamps
Cables 300 mm² - 630 mm²

	PIX 12	PIX 17	PIX 24
X	430	460	555
L1	390	420	515
L2	440	470	565
L3	290	320	415
L4	410	440	495



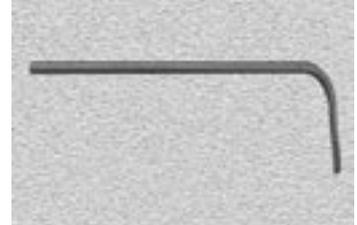
Accessories



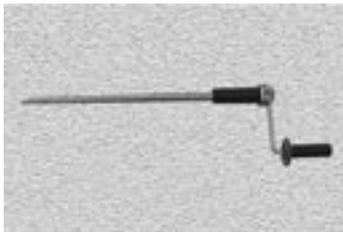
Door locking key



Handle switching compartment



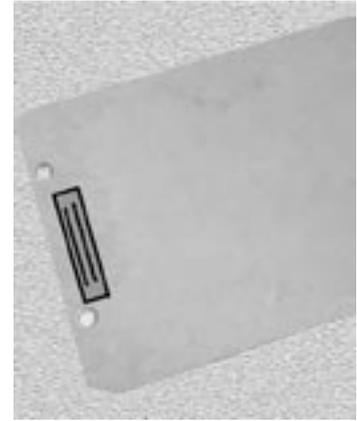
Earthing switch operating lever



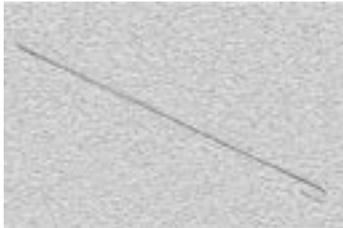
Plug in handle



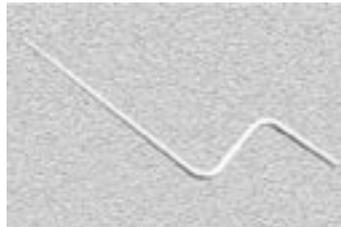
Handling trolley



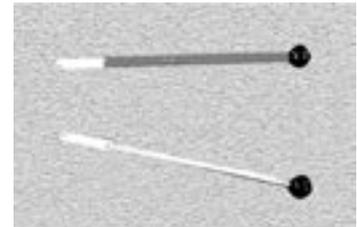
LTRI red isolating sheet



Circuit breaker operating lever



Circuit breaker mechanism reset handle



LTRI operating lever



Delivery - Packaging

Delivery

The cubicles, which make up the switchboard are delivered individually, ready for assembly. The connection should be carried out on-site.

Packaging

- For transportation by lorry :
The product is fixed to a wooden pallet and protected by plastic cover.
The front panel is protected by polystyrene panels.
- For transportation by sea :
The product is covered with a plastic heat welded cover, with desiccant materials, then installed into a wooden case.
- For transportation by air :
The product is covered with a plastic heat welded cover, with desiccant materials, then installed into a wooden case.

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AREVA T&D
T&D Worldwide Contact Centre
contact.centre@areva-td.com
www.areva-td.com