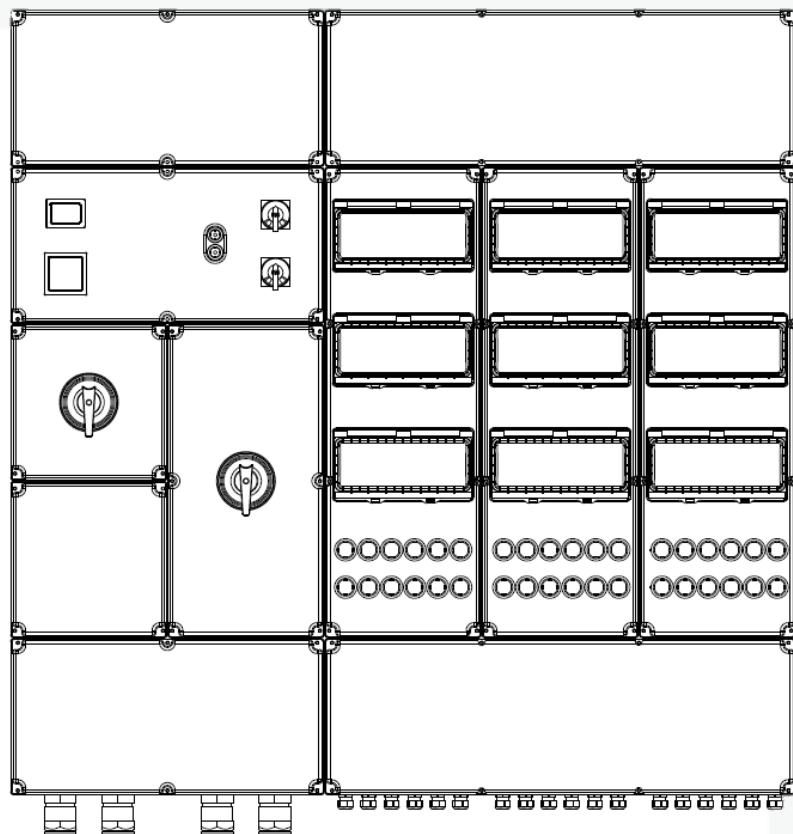


## **Energy distribution, Switching and control assembly, Model AGP17 Series**



*Powering Business Worldwide*

## 1 Technical data

### 1.1 Complete distribution

ATEX type examination certificate:	SEV 21 ATEX 0559 X
ATEX Ex-Marking:	 II2 G Ex db eb ia/ib mb [ia/ib] IIC T4~T6 Gb II2 D Ex tb IIIC T80°C Db IP66 Limited selection
IECEx type examination certificate:	IECEx NEP 18.0001X Ex db eb ia/ib mb [ia/ib] IIC T4~T6 Gb
IECEx Ex-Marking:	Ex tb IIIC T80°C Db IP66 Limited selection
Rated voltage:	up to max. 690 V
Rated current:	Max.315A
Permissible ambient temperature:	-40°C ~ +55°C Limited selection
Pera.storage temperature in original packing:	-20°C to +40°C
Degree of protection:	IP 66
Cable entries:	In acc. with specification
test torques:	
Cover screws	2.5 N.m
Enclosure connection screws	2.0 N.m

### 1.2 GHG75&CPD163 Bus-bar system up to max. 315A

Rated voltage:	up to 690 V
Rated current:	up to 315A

Observe the data and notes in the operating instruction bus-bar, enclosed separately.

### 1.3 GHG62 Main Circuit breaker

	Main contact	Aux. Contact
Rated voltage:	up to 690 V AC	up to 690 V AC
	Main contact	Aux./Single contact
Rated current:	Up to 250A	up to 5A
Main contact terminal:	1.5~185mm <sup>2</sup> /3N.m	
Aux. contact terminal:	1.5~4 mm <sup>2</sup> /1.5N.m	

### 1.4 CPD161 components-Circuit breaker, RCD, RCBO, Contactor.....

	Main contact	Aux. Contact
Rated voltage:	up to 440 V AC	up to 250 V AC
	Main contact	Aux./Single contact
Rated current:	0.5A to 63A	up to 5A
Main contact terminal:	1.5~25 mm <sup>2</sup> /3N.m	
Aux. contact terminal:	1.5~4 mm <sup>2</sup> /1.5N.m	

### 1.5. GHG61 components Motor starter, relay, arrester.....

	Main contact	Aux. Contact
Rated voltage:	up to 690 V AC	up to 250 V AC
	Main contact	Aux./Single contact
Rated current:	0.5A to 40A	up to 5A
Main contact terminal:	1.5~16 mm <sup>2</sup> /3N.m	
Aux. contact terminal:	1.5~4 mm <sup>2</sup> /1.5N.m	

## 1.6 NH 00 main fuse

Rated voltage:

Main contacts: up to max. 690 V AC/440V DC

Pilot contact: up to max. 250 V AC

Rated Current

Main contacts: Up to 125A

Pilot contact: Up to 5A

Terminal cross section

Main contacts: 4.0-95 mm<sup>2</sup>

Pilot contact: 0.5-2.5mm<sup>2</sup>

## 1.7 Switch base type GHG26----40A, 80A, 125A and 180A

Rated voltage: up to max. 690 V AC

Switch	40A	80A	125A	180A
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Rated current:	80A	160A	200A	250A
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Back-up fuse, Max.	40A	80A	125A	180A
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Switching capacity AC 3 230V:	40A	80A	125A	180A
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Switching capacity AC 3 400V:	40A	80A	125A	180A
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Switching capacity AC 3 500V:	40A	80A	125A	150A
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Switching capacity AC 3 690V:	32A	63A	125A	125A
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Terminal cross section

Switch 40A	2.5N.m	2 x 4-16 mm <sup>2</sup>
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Switch 80A	3.5N.m	2 x 4-25 mm <sup>2</sup> (with cable lug 1X35mm <sup>2</sup> )
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Switch 125A	6.0N.m	2 x 4-70 mm <sup>2</sup> (with cable lug 1X120mm <sup>2</sup> )
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Switch 180A	6.5N.m	1 x 50-150 mm <sup>2</sup>
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Aux contact	2.5N.m	2 x 1.5-4.0 mm <sup>2</sup>
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**While apply IS components, need comply with the requirement of IECEx certificate. Supply circuit, type of protection intrinsic safety, only for connection to certified intrinsically safe circuits :Maximum values:  $Ui=30V$  DC,  $Li=120mA$ ,  $Pi=750mW$ ,  $Ci \approx 0$ ,  $Li \approx 0$  ;**

## 1.8 Switch base type GHG2 - Ex28 control switch:

Rated voltage: up to max. 500V

Rated current: Up to 20A(up>12A wiring  $\geq 2.5mm^2$ )

Switching capacity acc. To AC15:	230V/8A	400V/6.0A
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Switching capacity acc. To DC13:	24V/6A	230V/0.4A
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Perm. Short-circuit back-up fuse:	25A/gL at 500V
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Design with gold-tipped contacts:	max. 400mA
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Supply terminal/Test torques:	2 x 0.5 - 4.0 mm <sup>2</sup> 1X1.0-6.0mm <sup>2</sup> /2.5Nm
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**While apply IS components, need comply with the requirement of IECEx certificate Supply circuit, type of protection intrinsic safety, only for connection to certified intrinsically safe circuits :**

**Maximum values:  $Ui=30V$  DC,  $Li=120mA$ ,  $Pi=750mW$ ,  $Ci \approx 0$ ,  $Li \approx 0$  ;**

## 1.9 Switch base type GHG238- Ex23 control switch:

Rated voltage: up to max. 500V

Rated current: 10A

Switching capacity acc. To AC15:	230V/6A	400V/4.0A
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Switching capacity acc. To DC13:	24V/2A	230V/0.5A
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Perm. Short-circuit back-up fuse:	16A/gL at 500V
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Design with gold-tipped contacts:	max. 400mA
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Supply terminal/Test torques:	2 x 0.5 - 2.5 mm <sup>2</sup> /2.5Nm
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**While apply IS components, need comply with the requirement of IECEx certificate Supply circuit, type of protection intrinsic safety, only for connection to certified intrinsically safe circuits :Maximum values:  $Ui=30V$  DC,  $Li=120mA$ ,  $Pi=750mW$ ,  $Ci \approx 0$ ,  $Li \approx 0$  ;**

### 1.10 GHG41 Control switch block (Push button and switch etc.)

Rated voltage:	up to max. 500 V AC/DC
Rated current:	Max.16A
Switching capacity acc. To AC 15:	250V/6A 500V/4.0A
Switching capacity acc. To DC 13:	24V/6A 60V/0.8A 110V/0.5A
with gold-tipped contacts:	Max. 400mA
Supply terminal/Test torques:	2 x 1,0 - 2,5 mm <sup>2</sup> /2.5Nm

### 1.11 GHG41 Signal lamp

Rated voltage LLD:	12V up to 240V (AC) /12V up to 110V (DC)
Rated voltage LED:	20 V up to 250 V (AC/DC)
Inout current I <sub>E</sub> LED:	up to approx. 10.5mA (AC) /4.5mA (DC)
Supply terminal/Test torques:	2 x 1,0 - 2,5 mm <sup>2</sup> /2.5Nm



***Supply circuit, type of protection intrinsic safety, only for connection to certified intrinsically safe circuits :***

***Maximum values: U<sub>i</sub>=30V DC, I<sub>i</sub>=120mA, P<sub>i</sub>=750mW, C<sub>i</sub>≈0, L<sub>i</sub>≈0 ;***

### 1.12 GHG41 Potentiometer

Rated voltage:	up to 250V
Turning range	270°
Scale:	0 - 100%
Supply terminal/Test torques:	2 x 1.0 - 2.5 mm <sup>2</sup> /2.5Nm

### 1.13 AM45/AM72 measuring instrument

Movement:	Moving iron
Measuring accuracy:	Class 2.5
Overload range:	10-fold at 25 sec. 25-fold at 4 sec. 50-fold at 1 sec. telltale 1:1.5
Supply terminal/Test torques:	2 x 1.5 - 4 mm <sup>2</sup> /2.5Nm
Max. safe voltage U <sub>m</sub> :	690V <sub>eff</sub> AM72 433V <sub>eff</sub> AM45 Safe galvanic isolation from all other circuits and earth

## 2 Safety



***The operations must be carried out by electrical suitably trained in hazardous area with knowledge of increase safety explosion protection.***

***IEC 60079-14***

***The distributions panel AGP17 are not suited for use in Zone 0 and Zone 20.***

***The temperature class and type of protection stated on the apparatus shall be observed.***

***The requirements of the IEC/EN 60079-31 regarding excessive dust deposits and temperature to be considered from the user.***

***The permissible ambient temperature, the terminal cross section and the self-heating of the apparatus that is mainly caused by the power dissipation are to be observe to ensure that the temperature class stated on the type label of the apparatus is maintained. (Test criterion for the self-heating is an overload of 10%).***

*The apparatus shall be used for the intended purpose and shall be in a perfect and clean state.*

*Prior to being put into operation, the distributions panel shall be checked in accordance with the instruction as per section 6.*

*Before opening the enclosures, it is necessary to ensure that the distributions are isolated from the voltage supply or take the appropriate protective measures.*

*The minimum terminal cross sections of the flameproof components shall be observed during connection in acc. with EN 60204-1:2005.*

*When using a bus-bar system, it is necessary to ensure that the surge short-circuit current of the mains supply does not exceed the value  $I_S = 47\text{kA}$ .*

*The minimum degree of protection IP 54 is no longer guaranteed when the MCB is open.*

*The national safety rules and regulations for the prevention of accidents, as well as the safety instructions included in these operating instructions, that, like this text, are set in italics, shall be observed.*

*Modification or changes to be the components are not permitted.*

*They shall be used for their intended purpose and shall be in a perfect and clean state.*

*Only original EATON CROUSE-HINDS parts may be used as replacements and for repairs.*

*Repairs that affect the explosion protection may only be carried out by EATON CROUSE-HINDS or by a qualified electrician in compliance with the respective national regulations.*

*Before initial operation, any foreign matter shall be removed from the apparatus.*

*The national safety rules and regulations for the prevention of accidents, as well as the safety instruction included in these operating instructions, that, like this text, are set in italics, shall be observed!*

### **3 Conformity with standards**

They have been designed, manufactured and tested according to the state of the art and to

- EN IEC 60079-0:2018/IEC 60079-0:2017
- EN 60079-1:2014/IEC 60079-1:2014
- EN IEC 60079-7:2015/A1:2018 /IEC 60079-7:2015
- EN 60079-11:2012/IEC 60079-11: 2011
- EN 60079-18:2014/IEC 60079-18:2014
- EN 60079-31:2014/IEC 60079-31:2013

The apparatus are conform to the standards specified in the EU-Declaration of conformity, enclosed separately.

### **4 Field of application**

The distribution panel are intended for use in potentially explosive atmospheres in zones 1,2 and 21,22 in accordance with IEC 60079-10 and IEC 60079-14.

The enclosure material used, including any external metal parts, are high quality materials that ensure a corrosion resistance and resistance to chemical substances according to the requirement for use in a "normal industrial atmosphere"

### **5 Application/properties**

The distributions are used for safeguarding, controlling, switching and distributing electric power, e.g. main, lighting, heating, control and intrinsically safe circuits, etc. (See Technical Data for temperature classes, explosion groups, permissible ambient temperatures.)

For controlling electric machines and installations in potentially explosive atmospheres, the enclosures can be fitted with control and indicating components that have been certified for this purpose within the scope of the approvals. Specially marked control unit components can be operated in "intrinsically safe circuits".

***The electrical limiting values that are decisive for the intrinsic safety shall be observed.***

The function of circuit breakers and RCDs with circuit breakers shall be checked after several short circuits. A RCD does not prevent the sensation caused by an electric shock, but it limits the duration of the current flow through the human body to such a short time that the probability of a fatal effect is reduced to a negligible amount. Once the cause for the tripping of the RCD has been eliminated, it is reset by switching the toggle to the "ON" position. By cutting out the switch collar in the respective locking position, the small control switches can be locked with a padlocking facility.

The front actuators of the Ex 23 control switches feature a drilled hole, Ø 5.5mm, in the respective locking position on the switch collar and can, therefore, be locked with a padlocking facility of the type mentioned above.

When required, the Ex 28 control switches are provided with a locking facility that also allows them to be locked with a padlock. Details of the electric contacts are given on the base of the component. The version with gold-tipped contacts is marked with a "G" or with colour (see Technical Data, for max. current load). To ensure reliable isolation, the normally closed contacts are designed as forced break contacts (optional Ex 28 with forced make contacts).

The measuring instruments AM 72 and AM 45 are used for the local indication of electrical values. (See Technical Data, for the type of movement, accuracy and connections).

***Information on the safe use of third-party products, unless non specified in these operating instructions, have to be requested from the respective manufacturer of the equipment.***

***The data according to sections 3 and 4 shall be taken into account during use. Applications other than those described are not permissible without a written declaration of consent from the manufacturer. During operation the instructions stated in section 7 of the operating instructions shall be observed. These operating instructions also apply as instructions for the replacement or addition to individual flameproof components. The sole responsibility with respect to the suitability and proper use of these boxes lies with the operator.***

## **6 Installation**

The relevant national regulations, the generally recognized rules of engineering and the IEC/EN 60079-14 apply for the installation and operation.

### **6.1 Mounting**

The distribution enclosures can be mounted without opening the cover.

When the boxes are mounted directly onto the wall, they shall rest evenly only on the fastening points provided for this purpose, and they shall be fixed in such a way that they cannot twist or turn.

The screw used shall match the fixing hole and must not damage the opening (e.g. use of a washer).

Distributions in the sizes 1 + 2 shall be fixed with a minimum of two diagonally opposed screws.

Distributions in the sizes 3 + 4 shall be fixed with a minimum of 4 screws.

***Excessive tightening can result in damage to the flameproof enclosure or the terminal or bus bar box.***

### **6.2 Cable and gland Selection**

The Cable should choose the temperature resistant grade not less 90°C ;

Gland size: M16~M63.

### **6.3 Terminal wiring**

Wire conductor insulation stripping is no more than 10mm to make sure all the conductors are only inside of the connections.

**6.3 Opening apparatus/Electrical connection** Before opening the distribution enclosure, it is necessary to ensure that the distributions are isolated from the voltage supply. The electrical connection of the apparatus must be carried out by electrical suitably trained in hazardous area with knowledge of increased safety explosion protection and IEC/EN 60079-14.

The properly bared conductors of cables shall be connected with due regard to the respective regulations. To maintain the explosion protection, conductors shall be connected with special care.

***The insulation shall reach up to the terminal. The conductor itself must not be damaged.***

The minimum and maximum connectable conductor cross sections are to be observed.

**I** In the case of building up the electrical equipment in the "protective insulation" version, appropriate sticker

**I** If the inserted terminal rail is not equipped completely with line-up terminals, the terminal rail must be included in the equipotential earth connection also.

The test torques are specified by the manufacturer in cap. 10 have to be observed.

All screws and/or nuts of the connection terminals, including those not in use, shall be tightened down securely.

The built-in standard terminal is designed for the direct connection of conductors with copper wires.

DIN cable lugs shall be used to connect the built-in bus bars and bolt terminals.

***Warning: The cable lugs shall be crimped onto the cable in a workmanlike manner. It is necessary to ensure that the minimum required clearances are maintained (<12 mm for 690 V).***

***In the case of mixed Ex-e / Ex-i installations, the required minimum clearances shall be maintained (see, for example, IEC/EN 60079-11).***

***The instructions for the installation of intrinsically safe electrical apparatus shall be observed.***

***It is necessary to ensure that the permissible external capacitance and inductance for the specific intrinsically safe circuit are not exceeded.***

***When the apparatus is open, it is necessary to ensure (isolate voltage) that there is no voltage transmission to the connected intrinsically safe circuits.***

When using multi- or fine-wire connection cables, the wire ends shall be treated in accordance with the valid national and international regulations (e.g. use of cable end sleeves).

To ensure that the distribution enclosure closes properly and to avoid damage, switching at the switch shafts of the switch inserts is prohibited when the apparatus is open or the cover is only replaced loosely.

If a flameproof component is disassembled, before it is connected to the electric power supply, it is necessary to ensure that the components are put back into the distribution enclosure correctly.

For actuating the flameproof protective components (circuit breakers / RCDs), the actuating flap may also be opened while the circuit is live.

***Overtightening can damage the enclosure or impair the sealing effect.***

**6.4 Cable entries; blanking plugs** Generally only certified cable entries and blanking plugs may be used.

***Trumpet-shaped cable glands or other suitable entries with additional pull relief shall be used for flexible cables .***

***The relevant mounting directives for the built-in cables entries shall be observed.***

When using cable entries with a degree of protection that is lower than the IP protection of the apparatus , the degree of IP protection for the complete unit is reduced.

The colour coded (light blue) cable entries shall be used for leading-in the intrinsically safe circuits.

In order to ensure the minimum degree of protection, any unused entry holes shall be sealed with certified blanking plugs.

**I** When fitting cable entries, it is necessary to ensure that the sealing inserts used are suitable for the cable diameter. When using apparatus or cable entries for the connection to or into the apparatus, when applicable, the relevant special conditions for safe use given in the individual certificates shall be considered.

In the case of sealing inserts that are cut to size, it is necessary to ensure that the insert is properly adapted to the cable diameter.

In order to ensure the required minimum degree of protection, the cable entries shall be tightened down securely.

#### ***Overtightening can impair the degree of protection.***

Metal cable glands have to screw in with the relevant test torque in cap 11.

**Warning:** *When tightening the cap nut of the metal cable entry (e.g. type ADE/e), a suitable tool shall be used to stop the gland from twisting.*

- 1)*"Warning-DO NOT OPEN WHEN ENERGIZED" for Ex e product ;*
- 2)*"Warning-Do not open when an explosive dust atmosphere is present" for Ex tb product ;*

#### **6.5 Closing apparatus**

***Any foreign matter shall be removed from the apparatus.***

***When replacing the enclosure cover, it is necessary to ensure that the switch shafts of the switch inserts are fitted correctly into the carrier openings of the switch handles. In addition to this, it is also necessary to ensure that the front actuator elements match the built-in components.***

To ensure the minimum protection category, the cover screws shall be tightened down securely.

#### ***Overtightening can impair the degree of protection.***

**Warning:**

***To ensure the minimum protection category, the window shall be closed correctly (Marking of lock position indicator shall be set to Closed)***

#### **6.6 Putting into operation**

Before putting the apparatus into operation, the tests specified in the individual national regulations shall be performed.

In addition to this, before being put into operation, the correct functioning of the apparatus and of the built-in components (measuring instruments, signal lamps, pushbuttons, etc.) shall be checked in accordance with these operating instructions and other applicable regulations.

***At temperatures below -40°C , it is important to make sure that there is no explosive atmosphere in the surrounding of the distributions. Observe relevant labels on the distributions. For distributions with internal heating, the switch on standby is signaled by the thermostat.***

The zero setting of the measuring instrument needle shall be checked before putting it into operation. If necessary, the measuring instrument needle shall be set to zero using the adjustment screw.

***The incorrect installation and operation of distributions can result in the invalidation of the guarantee.***

## 7 Maintenance / Servicing

***The valid regulations EN/IEC 60079-17 for the servicing / maintenance of electrical apparatus for use in potentially explosive atmospheres shall be observed.***

***Prior to opening the enclosure, it is necessary to ensure that the voltage supply has been isolated or to take suitable protective measures.***

In the case of intrinsically safe circuits, it is permissible to carry out work while the circuit is live.

***The user is responsible for stipulating the necessary maintenance intervals specific to the application depending on the conditions of use, national directives and standards. Should the maintenance interval for the function test of an RCB not be defined, the manufacturer of the ECD recommends to test the function by the test button twice yearly. The RCD shall release when the test button is actuated. If this is not the case, the protective function is no longer guaranteed and the RCD shall be replaced.***

During servicing, above all the correct working order of parts on which the explosion protection depends, (e.g. intactness and efficiency of the flameproof components, the enclosure, the seals and cable entries), and the switch mechanism function of the control switches shall be checked.

If, in the course of servicing, it is ascertained, that repairs are necessary, section 8 of these operating instructions shall be observed.

## 8 Repairs / Modifications

***Only original EATON Crouse-Hinds parts shall be used for carrying out repairs. In the event of damage to the flameproof encapsulation, replacement of the respective components is mandatory. In case of doubt, the respective apparatus shall be sent back to the manufacturer for repair.***

***Repairs that affect the explosion protection may only be carried out by EATON Crouse-Hinds or by a qualified electrician in compliance with the respective national regulations (EN/IEC 60079-19).***

Ex-d components in Ex-e distribution boxes may only be replaced by components of the same type (electrical ratings and mechanical size).

When replacing these individual built-in components (flameproof circuit breakers, contactors, measuring instruments, pushbuttons, etc.), section 6.2 "Opening apparatus / Electrical connection" shall be observed.

Apparatus modifications or design changes are not permitted; excepted from this are the fitting of additional cable entries and the installation of connection terminals within the scope of the approvals for the respective apparatus or according to details laid down by the manufacturer.

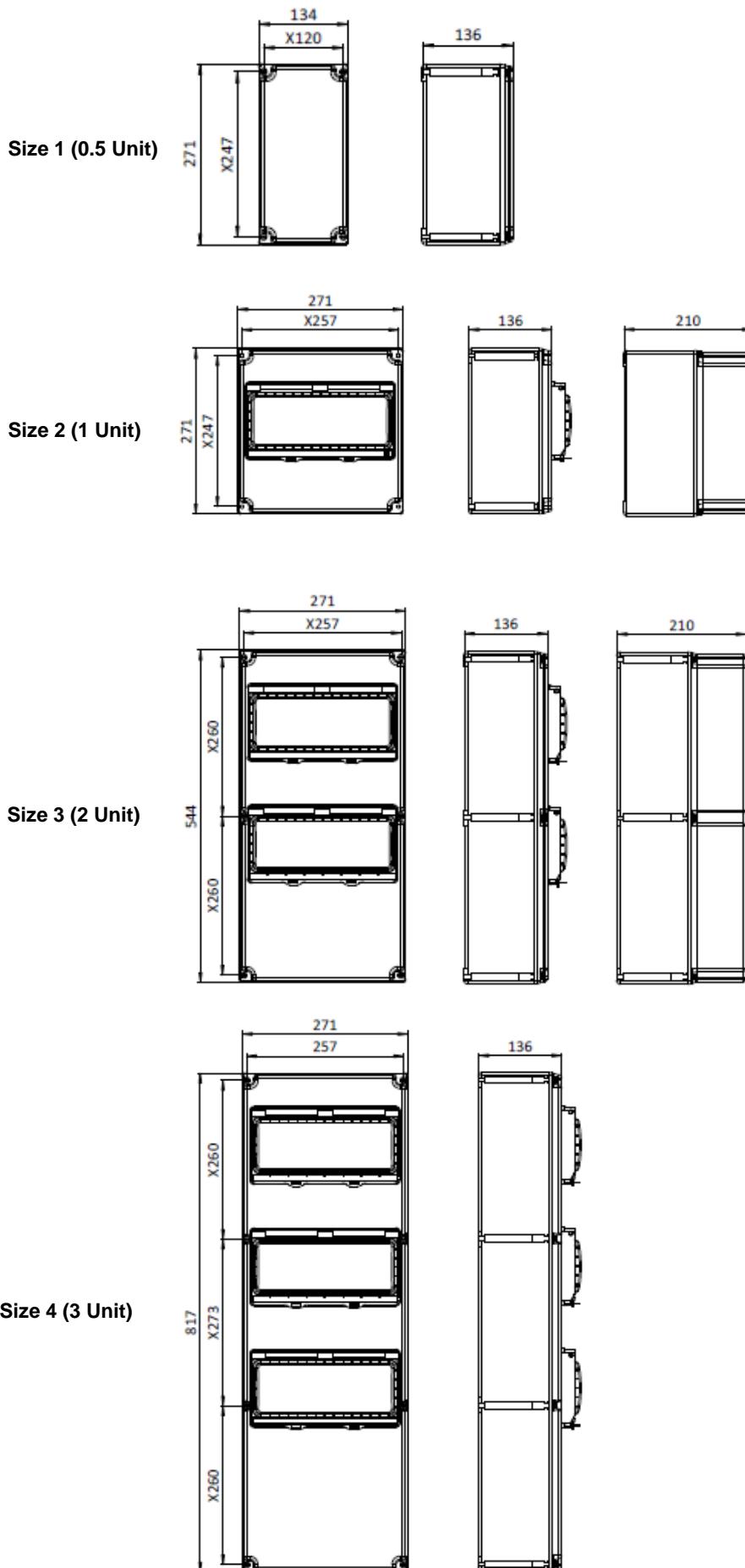
## 9 Disposal / Recycling

The respective valid national regulations for waste disposal shall be observed when disposing of apparatus.

To facilitate recycling of individual parts, parts made of moulded plastic shall bear the marking for the type of plastic used.

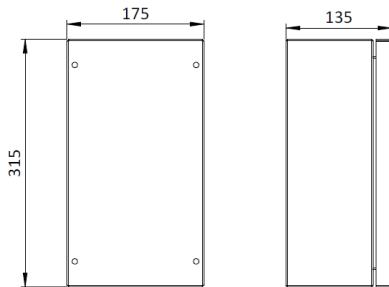
The product range is subject to changes and additions

## 10 Enclosures Dimension / Drawings(GRP)

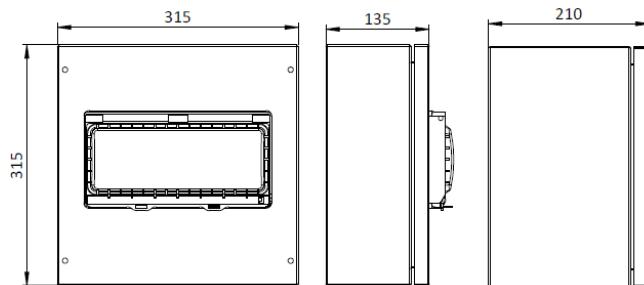


## 10 Enclosures Dimension / Drawings(SST)

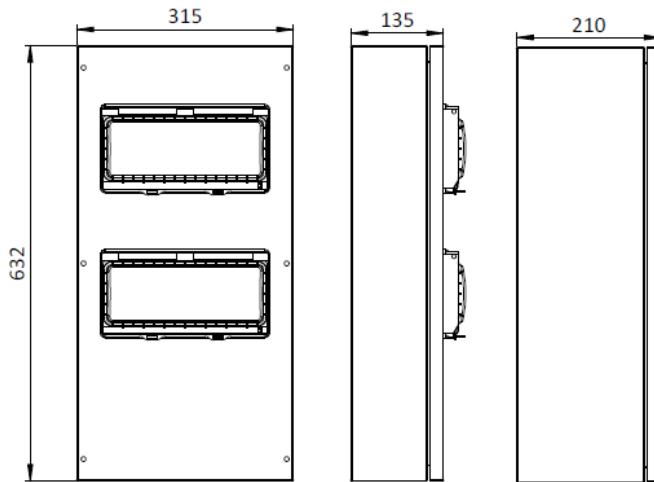
**Size 1 (0.5 Unit)**



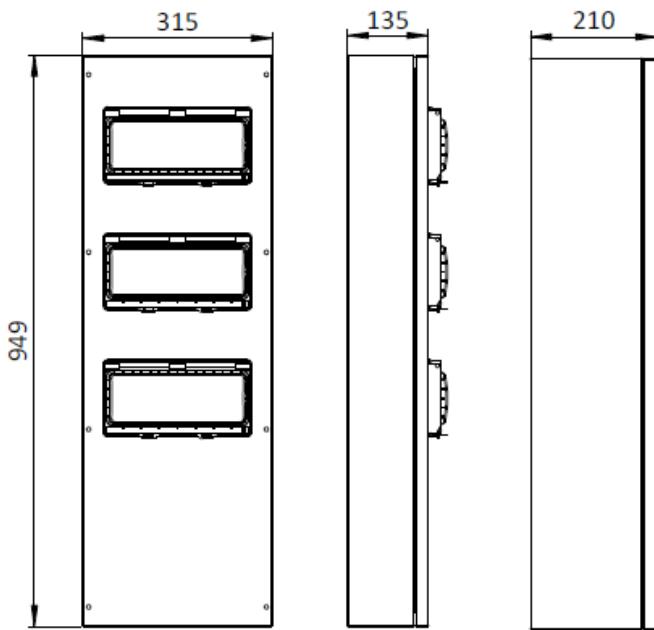
**Size 2 (1 Unit)**



**Size 3 (2 Unit)**



**Size 4 (3 Unit)**



MANUAL



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