

# Circuit Breaker Enclosures and Busbar Chamber



safety...  
durability

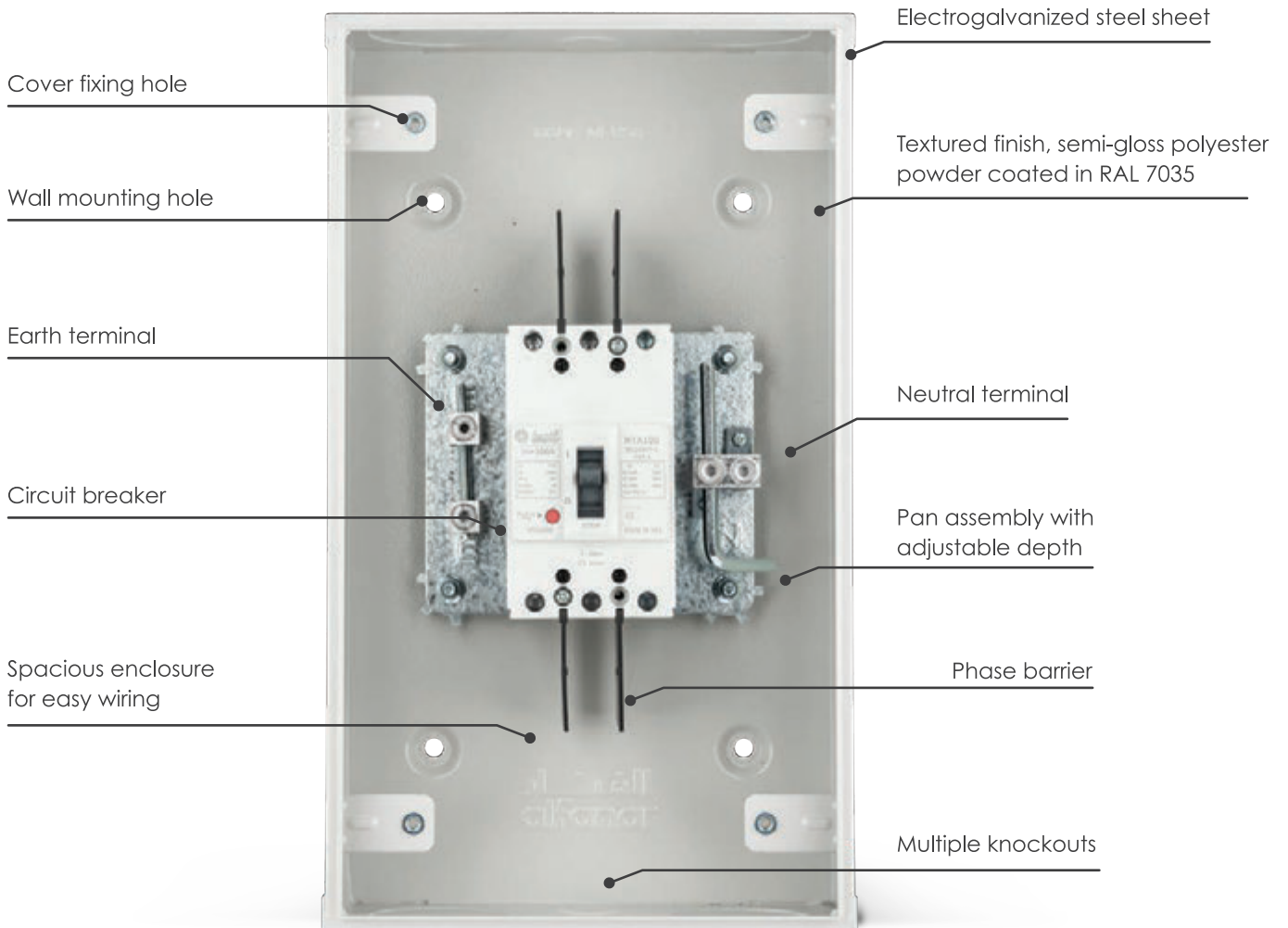


# Contents

<b>CIRCUIT BREAKER ENCLOSURE</b>	
<b>PRODUCT INTRODUCTION</b>	<b>4</b>
<b>FEATURES</b>	<b>5</b>
<b>1. Design</b>	<b>5</b>
a. Aesthetics	5
b. Color	5
<b>2. Safety</b>	<b>5</b>
a. Protection against electric shock	5
b. Dead front cover	5
<b>3. Performance</b>	<b>6</b>
a. Thermal stability	6
b. Mechanical impact	6
c. Altitude	6
<b>4. Reliability</b>	<b>6</b>
a. High corrosion resistant	6
b. Ingress protection	7
<b>5. Installation</b>	<b>7</b>
a. Ample wiring space	7
b. Knockouts	7
c. Pan assembly depth adjustability	8
d. Earth and neutral terminals	8
e. Cement guard	8
<b>6. Environment</b>	<b>9</b>
<b>7. Testing</b>	<b>9</b>
<b>TECHNICAL SPECIFICATIONS</b>	<b>10</b>
<b>KNOCKOUT DIMENSIONS</b>	<b>11</b>
<b>PRODUCT VARIETIES AND DIMENSIONS</b>	<b>12</b>
<b>AZM MAIN BREAKER DETAILS</b>	<b>14</b>
<b>AF SERIES MAIN BREAKER DETAILS</b>	<b>18</b>
<b>BUSBAR CHAMBER</b>	
<b>APPLICATIONS</b>	<b>25</b>
<b>FEATURES</b>	<b>25</b>
<b>SPECIFICATIONS</b>	<b>26</b>
<b>PRODUCT VARIETIES AND DIMENSIONS</b>	<b>26</b>
<b>TESTING</b>	<b>26</b>

# INTRODUCTION

**alfanar** Circuit Breaker Enclosure is designed to be a safe and reliable switching device for use in residential, commercial, and industrial premises. It protects the circuits under overload or short circuit conditions. The alfanar CBE is suitable for indoor and outdoor applications and has an ingress protection rating of IP55 to ensure protection against harsh weather conditions.



# PRODUCT FEATURES

## 1. DESIGN

### a. Aesthetics

Circuit breaker enclosure's design is elegant, modern and fits attractively inside or outside your home.

### b. Color

Fresh color scheme was chosen to blend in with the wall colors for indoor and outdoor applications.



## 2. SAFETY

### a. Protection against electric shock

Effective earth continuity is ensured to protect operators against any possible electrical shock when they touch the enclosure.

### b. Dead front cover

A dead front cover is installed to eliminate the possibility of people touching any of the live parts inside the panel during operation.



## 3. PERFORMANCE

### a. Thermal stability

Thermal stability of our circuit breaker enclosure is validated and ensured through a temperature rise test performed as per SASO IEC 61439-3. This ensures that the product will keep functioning normally all day long at a steady temperature state.

### b. Mechanical impact

The circuit breaker enclosure is tested to withstand the impact load as per the International Standard SASO IEC 61439-3 to ensure the strength requirement of the application.

### c. Altitude

Regardless of the mounting location and the height of installation, the alfanar circuit breaker enclosure is rated for an altitude of 2000 m without any derating to ensure the required performance.

## 4. RELIABILITY

### a. High corrosion resistant enclosure and internal parts

Double protection against corrosion is achieved by using an electrogalvanized steel sheet as the base material and powder coated with polyester powder.

This process has been validated using salt spray test as per Standard SASO IEC 61439-3. This ensures the functionality of the circuit breaker enclosure under the worst atmospheric and corrosive conditions.



### b. Ingress protection

alfanar Circuit Breaker Enclosures are tested for IP55 to ensure the ingress protection against solids and water in indoor and outdoor applications.



## 5. INSTALLATION

### a. Ample wiring space

Spacious enclosure design provides more space for easier wiring of the incoming and outgoing cables.



### b. Knockouts

Knockouts are designed to handle multiple sized conduits and glands of international standards. The knockouts can be opened easily and do not have sharp edges that might damage the conduits, wires, or injure the user.



### c. Pan assembly depth adjustability

Pan assembly depth is adjustable to ensure the breaker is not recessed into the box and eliminates the gaps between the cover and the breaker after the installation of the door.



### d. Cement guard

Protects the product from cement deposit during installation and keeps the box clean for the installation of the pan assembly.



### e. Phase barriers

alfanar Circuit Breaker Enclosures have phase barriers installed at the main breaker terminals to increase the creepage distance and avoid the possibility of electrical faults.



## 6. ENVIRONMENT

All components used in alfanar Circuit Breaker Enclosures are environmentally friendly.



## 7. TESTING

Extensive care is taken during the design and manufacture stages of the alfanar Circuit Breaker Enclosures to ensure the safety of the end user.

alfanar Circuit Breaker Enclosures comply with SASO and International Standards. Each of our products undergoes a strict quality control check as per routine verification mentioned in the standard such as:



- o Dielectric Test: A high voltage routine test
- o Electrical Continuity Test: To confirm correct assembly and operation
- o Insulation Resistance Test: To ensure high insulation resistance
- o Ingress protection Test (IP): To ensure meeting of IP requirements
- o Overload tripping tests
- o Short circuit tripping tests
- o Other tests

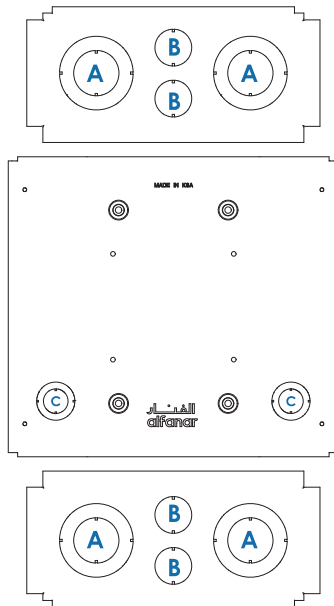
## TECHNICAL SPECIFICATIONS

Technical Data		
Standard	SASO IEC 61439-3	
Regulation	SBC 401	
Installation	Intended for Ordinary persons	
Electrical		
Varieties	100A with MCCB main	200A with MCCB main
Rated current	30,40,50,60,70,75,80 & 100A	125, 150, 160, 175, & 200
Main breaker (Incomer)	HTA100 MCCB, 3Pole	HTB200 MCCB, 3Pole
Voltage range	240/415 V AC	
Frequency	50/60 Hz	
Type	Indoor/Outdoor	
Degree of protection	IP55	
Degree of pollution	3	
Mechanical impact	IK08	
Type of mounting	Flush/Surface	
Terminal Capacity (Cable Size)		
Main MCCB frame size	50 sq. mm	120 sq.mm
Neutral terminal bar	50 sq. mm	120 sq.mm
Earth terminal bar	50 sq. mm	50 sq.mm
Environmental/General		
Average ambient temperature	35 °C	
Operational temperature range	-5 °C to 40 °C (without derating as per the standard IEC 61439-3)	
Construction Features		
Door lock	Pad lockable quarter turn lock – RAL7004	
Enclosure material	Electro-galvanized steel sheet (Corrosion resistant)	
Steel thickness	1.0 mm	
Knockout sizes for flush type	A- 4 No. Ø65/Ø40 Double Knockout B- 4 No. Ø32.5 Knockout Center C- 2 No. Ø50.5/Ø32.5 Double Knockout	A- 4 No. Ø77/Ø52 Double Knockout B- 4 No. Ø32.5 Knockout Center C- 2 No. Ø50.5/Ø32.5 Double Knockout
Knockout sizes for surface type	A- 2 No. Ø65/Ø40 Double Knockout B- 2 No. Ø32.5 Knockout Center	A- 2 No. Ø77/Ø52 Double Knockout B- 2 No. Ø32.5 Knockout Center
Enclosure color	Polyester powder coated in RAL-7035 (light grey)	
Dimensions	Refer to page 12	

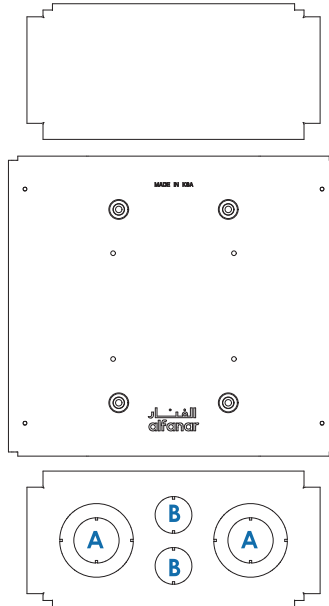
# KNOCKOUT DIMENSIONS

Flush Type	Surface Type
<b>KNOCKOUTS FOR 100 A</b>	<b>KNOCKOUTS FOR 100 A</b>
A: KNOCKOUT $\varnothing 65/\varnothing 40$	A: KNOCKOUT $\varnothing 65/\varnothing 40$
B: KNOCKOUT $\varnothing 32.5$	B: KNOCKOUT $\varnothing 32.5$
C: KNOCKOUT $\varnothing 50.5/\varnothing 32.5$	
<b>KNOCKOUTS FOR 200 A</b>	<b>KNOCKOUTS FOR 200 A</b>
A: KNOCKOUT $\varnothing 77/\varnothing 52$	A: KNOCKOUT $\varnothing 77/\varnothing 52$
B: KNOCKOUT $\varnothing 32.5$	B: KNOCKOUT $\varnothing 32.5$
C: KNOCKOUT $\varnothing 50.5/\varnothing 32.5$	

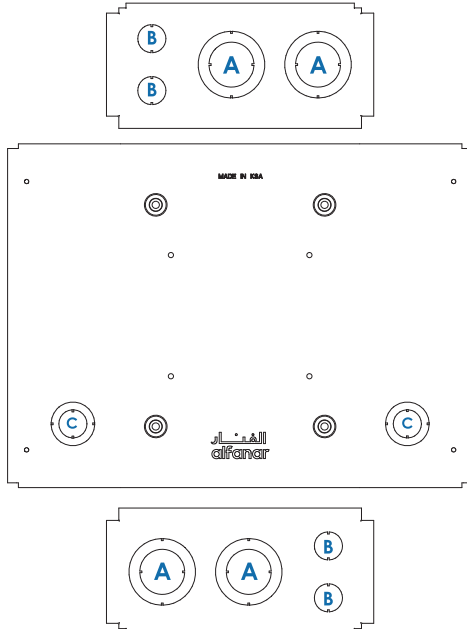
**Flush Type (100A)**



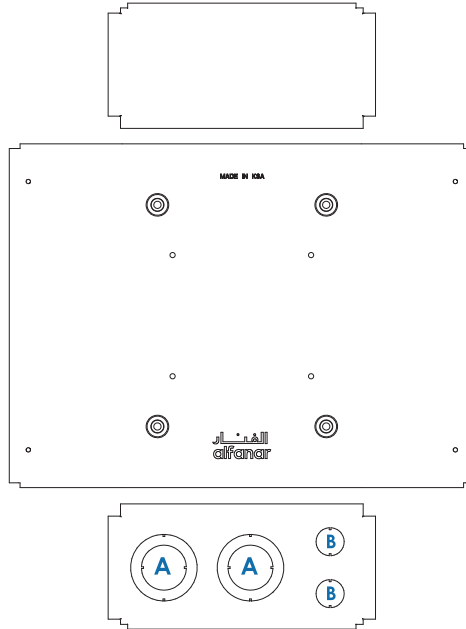
**Surface Type (100A)**



**Flush Type (200A)**



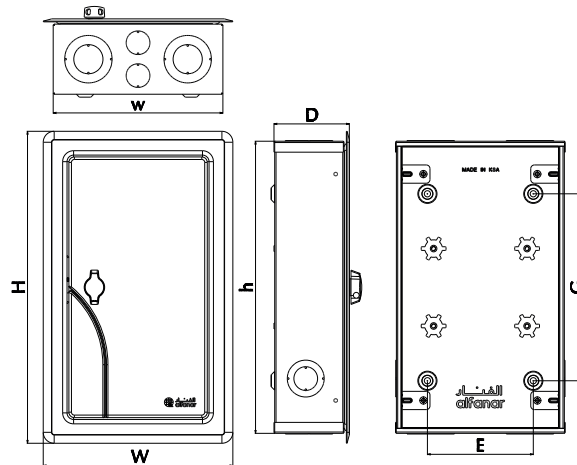
**Surface Type (200A)**



# NOMENCLATURE

CBE	100	F
Circuit Breaker Enclosure	030 : 30A	F : Flush S : Surface
	040 : 40A	
	050 : 50A	
	060 : 60A	
	070 : 70A	
	075 : 75A	
	080 : 80A	
	100 : 100A	
	125 : 125A	
	150 : 150A	
	160 : 160A	
	175 : 175A	
200 : 200A		

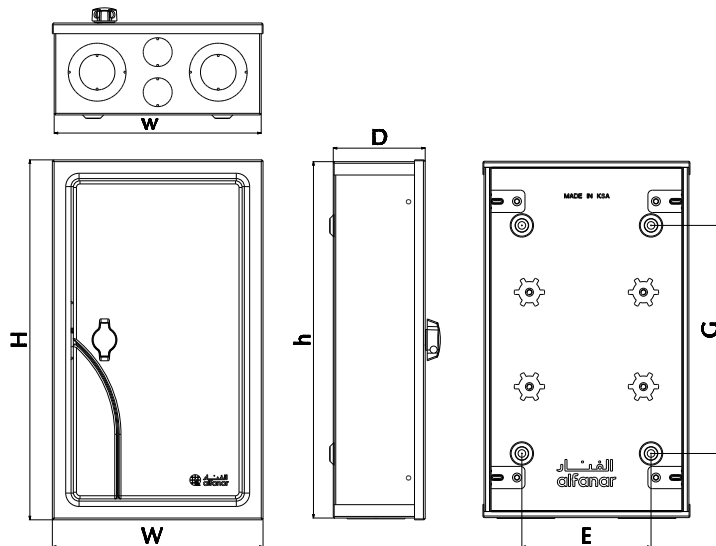
## PRODUCT VARIETIES AND DIMENSIONS (MM) FLUSH TYPE



RATING	TYPE	W	H	E	w	G	h	D	Item Code
<b>MCCB HTA100 MAIN</b>									
30	MCCB	260	427	145	232	256	400	106.6	CBE030F
40	MCCB	260	427	145	232	256	400	106.6	CBE040F
50	MCCB	260	427	145	232	256	400	106.6	CBE050F
60	MCCB	260	427	145	232	256	400	106.6	CBE060F
70	MCCB	260	427	145	232	256	400	106.6	CBE070F
75	MCCB	260	427	145	232	256	400	106.6	CBE075F
80	MCCB	260	427	145	232	256	400	106.6	CBE080F
100	MCCB	260	427	145	232	256	400	106.6	CBE100F
<b>MCCB HTB200 MAIN</b>									
125	MCCB	310	427	195	282	256	400	131.6	CBE125F
150	MCCB	310	427	195	282	256	400	131.6	CBE150F
160	MCCB	310	427	195	282	256	400	131.6	CBE160F
175	MCCB	310	427	195	282	256	400	131.6	CBE175F
200	MCCB	310	427	195	282	256	400	131.6	CBE200F

# PRODUCT VARIETIES AND DIMENSIONS (MM)

## SURFACE TYPE



RATING	TYPE	W	H	E	w	G	h	D	Item Code
<b>MCCB HTA100 MAIN</b>									
30	MCCB	236.5	404	145	232	256	400	106.6	CBE030S
40	MCCB	236.5	404	145	232	256	400	106.6	CBE040S
50	MCCB	236.5	404	145	232	256	400	106.6	CBE050S
60	MCCB	236.5	404	145	232	256	400	106.6	CBE060S
70	MCCB	236.5	404	145	232	256	400	106.6	CBE070S
75	MCCB	236.5	404	145	232	256	400	106.6	CBE075S
80	MCCB	236.5	404	145	232	256	400	106.6	CBE080S
100	MCCB	236.5	404	145	232	256	400	106.6	CBE100S
<b>MCCB HTB200 MAIN</b>									
125	MCCB	286.5	404	195	282	256	400	131.6	CBE125S
150	MCCB	286.5	404	195	282	256	400	131.6	CBE150S
160	MCCB	286.5	404	195	282	256	400	131.6	CBE160S
175	MCCB	286.5	404	195	282	256	400	131.6	CBE175S
200	MCCB	286.5	404	195	282	256	400	131.6	CBE200S

## HTA100/HTB200 SERIES CIRCUIT BREAKER, TYPE MCCB

alfanar HTA100/HTB200 series of molded case circuit breakers are designed for circuit protection of low voltage distribution systems.

Available in 3 poles of various frame sizes and interrupting ratings for voltages rated up to 415 V and rated for currents up to 200 A.

HTA100/HTB200 molded case circuit breakers protect electrical feeders, circuits and connected devices against overloads and short circuit.



## FEATURES


- 1 - Handle is protected for IP40 protection where >1 mm wires are unable to enter inside the breaker and touch live parts.
- 2 - MCCB can be easily identified for "OFF", "ON" and "Tripped" positions.
- 3 - Trip Free Mechanism – The breaker trips in case of fault and ensures safety even if a padlock is used to hold the handle in the ON position.
- 4 - All positions of circuit breakers are suitable for isolation as defined in IEC standard 60947-2.
- 5 - MCCB arc chamber is specially designed to improve the capability of extinguishing the arc and reducing the arc distance.
- 6 - Arc chutes are designed for efficient and faster arc quenching.
- 7 - Optimized arc runner profile for effective arc pulling.
- 8 - Accelerated movable contact speed by arcing extinguishing gas generated from the special resin located close to movable contact.
- 9 - Line Load Reversibility – Incoming supply can be connected to both upper and lower side and load to the opposite side without compromising the breaking capacity and isolation.
- 10 - Current Limiting Breaker - Low let through energy.
- 11 - MCCB's are designed for easy installation in the various types of switchboards. They can be mounted vertically, horizontally, or flat on their back without any de-rating of characteristics.
- 12 - Box clamps made of higher strength material than the standard specification, to withstand higher torque values.
- 13 - 100 A and 200 A MCCB grub screw fitted with box clamp assembly ensures the screw can't get lost.
- 14 - Higher electrical and mechanical life than specified in the standard.
- 15 - Low watt loss through optimally designed current carrying path.

## TECHNICAL SPECIFICATIONS FOR HTA100 SERIES MCCB

HTA100	
Product standard	IEC 60947-2
Frame size (AF)	HTA100
Rated current range (A)	20, 30, 40, 50, 60, 70, 75, 80, 100
Number of poles	3P
Rated operational voltage (Ue) V	415
Rated insulation voltage (Ui) V AC	1000
Rated impulse voltage (Uimp) kV	8
Ambient temperature (°C)	55
Rated frequency (Hz)	50/60
Utilization category	Cat. A
Pollution degree	3
Rated ultimate short circuit breaking capacity Icu (kA):	
@ 400 V	20
@ 230 V	40
Rated service short circuit breaking capacity Ics (% Icu):	
@ 400 V	75% Icu
@ 230 V	75% Icu
Trip release type	Fixed - Thermal & Magnetic
Magnetic release setting (In)	12In ± 20%, (15In± 20% for 20A)
Electrical endurance life (No. of operations cycles)	4000
Mechanical endurance life (No. of operations cycles)	10000
Phase barrier	Yes
Operating temperature range (without de-rating)	- 5 °C to + 55 °C
Storage temperature range	- 5 °C to + 75 °C
Method of connection	Cables / Busbar
Box clamp screw size (mm)/ Tightening torque (N.m)	Allen key 4 / 6 (40A to 100A)
	Allen key 4 / 3 (20A to 30A)
Maximum terminal capacity - Copper cable (mm <sup>2</sup> )	50
Weight of the breaker (kg)	0.9 Approx.
Dimensions (W × H × D) (mm) (max.)	75 x 130 x 82

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

CB TEST CERTIFICATE

Product	Moulded-Case Circuit-Breaker
Name and address of the applicant	alfanar electrical systems P.O. Box No. 564, 3rd Industrial City, Riyadh, 11383 Saudi Arabia
Name and address of the manufacturer	alfanar electrical systems P.O. Box No. 564, 3rd Industrial City, Riyadh, 11383 Saudi Arabia
Name and address of the factory	alfanar electrical systems P.O. Box No. 564, 3rd Industrial City, Riyadh, 11383 Saudi Arabia
Note: When more than one factory, please report on page 2	<input type="checkbox"/> Additional information on page 2
Ratings and principal characteristics	Ue: 230 Vac / 240 Vac / 380 Vac / 400 Vac / 415 Vac, 50 / 60 Hz Ui: 1000 V, Uimp: 8 kV, 3P In: 20 A, 30 A, 40 A, 50 A, 60 A, 70 A, 75 A, 80 A, 100 A Reference temperature: 30 °C or 55 °C Icu: HTA100: 20 kA at 380 Vac / 400 Vac / 415 Vac, 40 kA at 230 Vac / 240 Vac HSA100: 15 kA at 380 Vac / 400 Vac / 415 Vac, 30 kA at 230 Vac / 240 Vac Ics: HTA100: 75% Icu HSA100: 100% Icu See annex for further ratings
Trademark / Brand (if any)	 alfanar, Contactum and Kopp
Customer's Testing Facility (CTF) Stage used	
Model / Type Ref.	HTA100 and HSA100
Additional information (if necessary may also be reported on page 2)	<input type="checkbox"/> Additional information on page 2
A sample of the product was tested and found to be in conformity with	IEC 60947-2:2016, IEC 60947-2:2016/AMD1:2019 National differences: SA
As shown in the Test Report Ref. No. which forms part of this Certificate	3326179.50

This CB Test Certificate is issued by the National Certification Body



## TECHNICAL SPECIFICATIONS FOR HTB200 SERIES MCCB

HTB200	
Product standard	IEC 60947-2
Frame size (AF)	HTB200
Rated current range (A)	125, 150, 160, 175, 200
Number of poles	3P
Rated operational voltage (Ue) V	415
Rated insulation voltage (Ui) V AC	1000
Rated impulse voltage (Uimp) kV	8
Ambient temperature (°C)	55
Rated frequency (Hz)	50/60
Utilization category	Cat. A
Pollution degree	3
Rated ultimate short circuit breaking capacity Icu (kA):	
@ 400 V	20
@ 230 V	36
Rated service short circuit breaking capacity Ics (% Icu)	
@ 400 V	100% Icu
@ 230 V	100% Icu
Trip release type	Fixed - Thermal & Magnetic
Magnetic release setting (In)	12In ± 20%
Electrical endurance life (No. of operations cycles)	2000
Mechanical endurance life (No. of operations cycles)	10000
Phase barrier	Yes
Operating temperature range (without de-rating)	- 5 °C to + 55 °C
Storage temperature range	- 5 °C to + 75 °C
Method of connection	Cables
Box clamp screw size (mm) / Tightening torque (N.m)	Allen key 5 / 12
Maximum terminal capacity - Copper cable (mm²)	120
Weight of the breaker (kg)	1.9 Approx.
Dimensions (W × H × D) (mm) (max.)	105 x 165 x 101



Ref. Certif. No.

NL-85379

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

CB TEST CERTIFICATE

Product

Name and address of the applicant

Name and address of the manufacturer

Name and address of the factory

Note: When more than one factory, please report on page 2

Ratings and principal characteristics

Trademark / Brand (if any)

Customer's Testing Facility (CTF) Stage used

Model / Type Ref.

Additional information (if necessary may also be reported on page 2)

A sample of the product was tested and found to be in conformity with

As shown in the Test Report Ref. No. which forms part of this Certificate

Moulded-Case Circuit-Breaker

alfanar electrical systems  
P.O. Box No. 564, 3rd Industrial City, Riyadh, 11383  
Saudi Arabia

alfanar electrical systems  
P.O. Box No. 564, 3rd Industrial City, Riyadh, 11383  
Saudi Arabia

alfanar electrical systems  
P.O. Box No. 564, 3rd Industrial City, Riyadh, 11383  
Saudi Arabia

Additional information on page 2

Ue: 230 Vac / 240 Vac / 380 Vac / 400 Vac / 415 Vac, 50 / 60 Hz  
Ui: 1000 V, Uimp: 8 kV, 3P  
In: 125 A, 150 A, 160 A, 175 A, 200 A  
Reference temperature: 30 °C or 55 °C  
Icu:  
HUB200: 25 kA at 380 Vac / 400 Vac / 415 Vac, 50 kA at 230 Vac / 240 Vac  
HTB100: 20 kA at 380 Vac / 400 Vac / 415 Vac, 36 kA at 230 Vac / 240 Vac  
Ics:  
HUB200: 75% Icu  
HTB200: 100% Icu  
See annex for further ratings



alfanar, Contactum and Kopp

HUB200 and HTB200

Additional information on page 2

IEC 60947-2:2016, IEC 60947-2:2016/AMD1:2019

National differences:  
SA

3326180.50

This CB Test Certificate is issued by the National Certification Body

DEKRA Certification B.V.  
Meander 1051  
Arnhem, 6825 MJ  
Netherlands

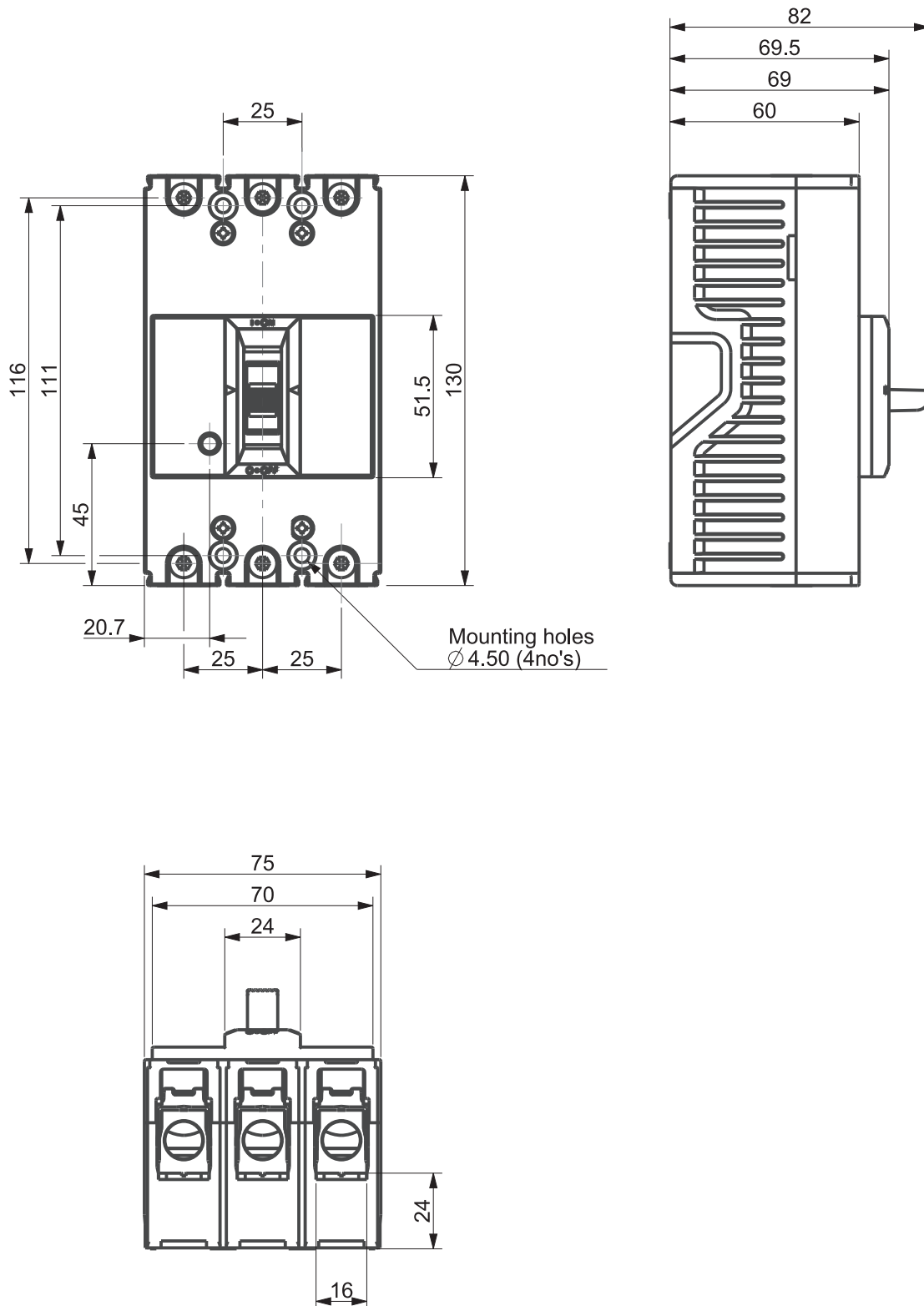


Date: 2023-01-17

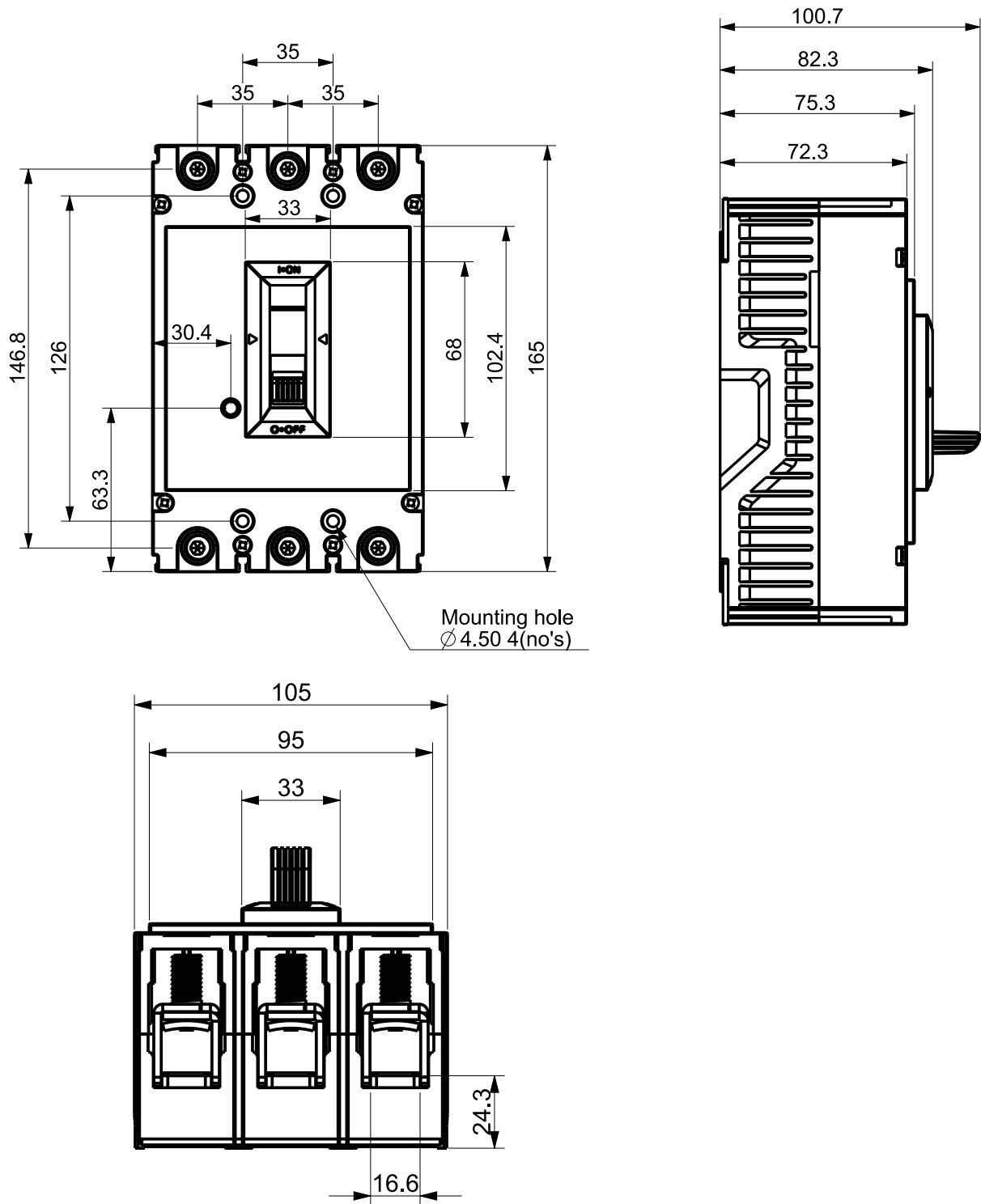
Signature: H.L. Schendstok

# DIMENSION DRAWINGS FOR HTA100 SERIES MCCB

## HTA100 DIMENSIONS



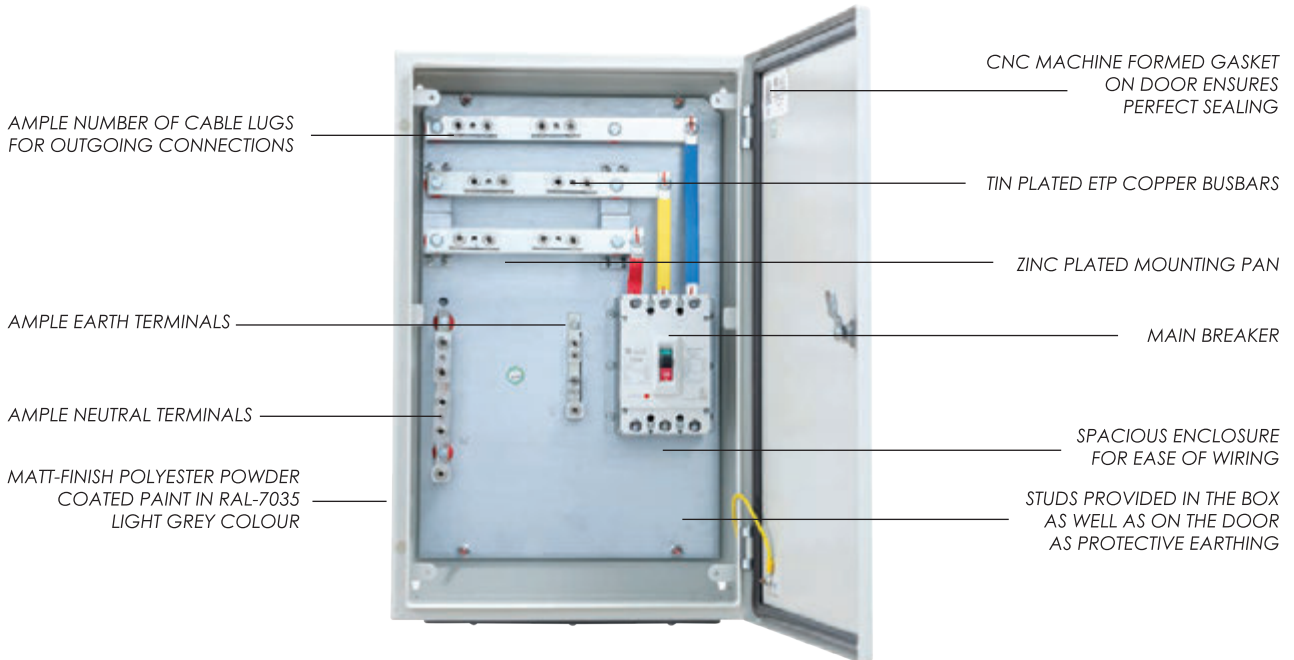
## HTB200 DIMENSIONS



# BUSBAR CHAMBERS

## APPLICATIONS

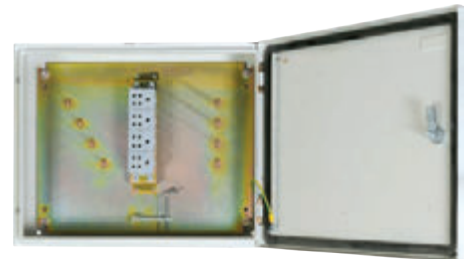
ELETRA Busbar Chamber is designed for safe and reliable distribution of electrical power. It facilitates ease and flexibility in connecting cables, allowing up to four outgoing connections.



# BUSBAR CHAMBERS

## FEATURES

- Made of high quality Electro-galvanized steel sheet
- Matt- finish polyester powder coated in RAL-7035 light grey colour (other colours available on request)
- CNC Machine formed polyurethane door gasket ensures better sealing
- CNC Corner formed door with smooth finish
- Earthing studs are provided on both the enclosure and the door
- Provided with neutral and earth terminals Shrouded Busbar Chamber
- Safety dead front cover is provided to avoid accidental contact Figure 9 with live part (busbar chamber only)
- Tin plated ETP Copper Busbar with 1.5A/mm<sup>2</sup> current density (busbar chamber only)
- Provided with brass terminal (shrouded busbar chamber only)
- Flame retardant polycarbonate shroud material (shrouded busbar chamber only)



Shrouded Busbar Chamber  
Figure - 9

### Shrouded Busbar Chamber ( Technical Data )

SL.NO.	DESCRIPTION	100A	225A
1	No of outgoing per ease phase & neutral	4nos	4nos
2	Outgoing terminal size	25mm <sup>2</sup>	50mm <sup>2</sup>
3	Incoming Terminal size	50mm <sup>2</sup>	120mm <sup>2</sup>

# BUSBAR CHAMBERS

## SPECIFICATIONS

Rated Voltage	: 415/240/120V AC
Rated Insulation Voltage	: 600VAC
Frequency	: 50/60 Hz
Ambient Temperature	: 50 °C
Standard	: IEC 61439-2 & NEMA
Degree of Protection	: IP54/NEMA-3R



## PRODUCT VARIETIES AND DIMENSIONS

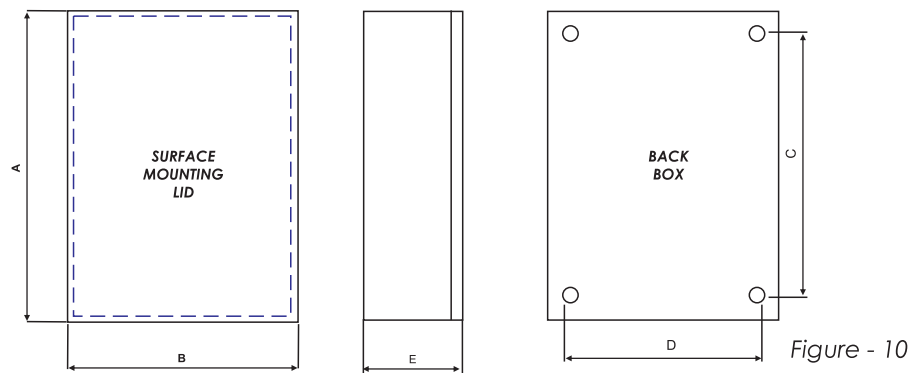


Figure - 10

Outdoor Busbar Chamber								
DESCRIPTION	RATING	MAIN TYPE	A	B	C	D	E	ITEM CODE
Busbar Chamber	30-100A	3P MCCB100AF	555	355	484	304	175	32-L33100D
Busbar Chamber*	100A	Lugs Only	400	500	351	451	150	35-33100D
Busbar Chamber	125-225A	3P MCCB 225AF	665	425	595	388	165	32-L33225D
Busbar Chamber*	225A	Lugs Only	500	600	451	551	200	35-33250D
Busbar Chamber	250A	3P MCCB 250AF	745	425	675	385	190	32-33250D
Busbar Chamber	300-400A	3P MCCB 400AF	915	515	855	465	185	32-L33400D
Busbar Chamber	500-600A	3P MCCB 600AF	1000	600	951	551	250	32-33600D

\* Shrouded busbar chamber

Change last three numbers for required ratings

For example:

32-L33100D Represents outdoor bus bar chamber with 100A MCCB main

32-L33400D Represents outdoor busbar chamber with 400A MCCB main

35-33225D Represents outdoor shrouded busbar chamber 225A

## TESTING

Each of our products undergo strict quality control check and is routinely checked for:

Dielectric Test : A high voltage routine test

Electrical Continuity Test Insulation : To confirm correct assembly and operation

Resistance Test : To ensure high insulation resistance

# Free Maintenance Service at Home for alfanar Products

Switches, Sockets, Distribution Boards, & Circuit Breakers



In 2023 **97%** Customer Satisfaction Rate  
on services delivered by our Technical Support Team

Customer Service  
**800-124-1333**

Scan the QR code  
to learn more about our  
free maintenance service







## Notes

A series of horizontal dotted lines for taking notes, spanning the width of the page.







Scan the QR to download the catalogue

173391\_June.2024