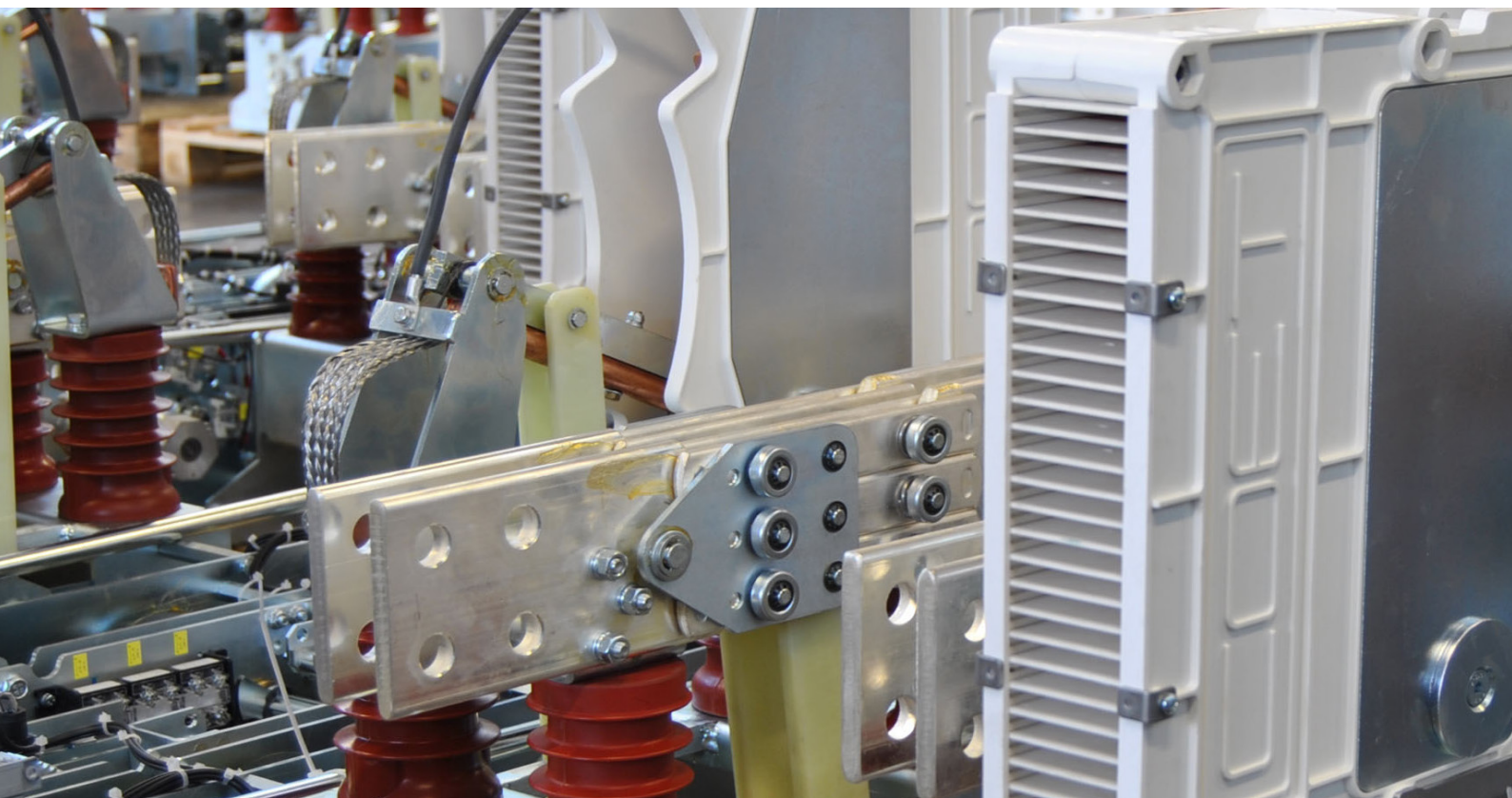




LB-LBS-LBSH

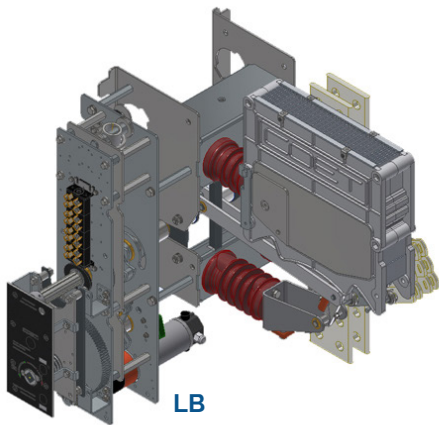
DC SWITCH DISCONNECTORS

INTERRUTTORI DI MANOVRA-SEZIONATORI

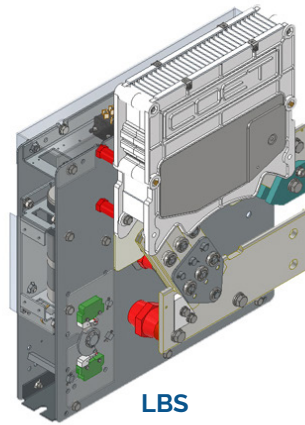


DC SWITCH DISCONNECTORS

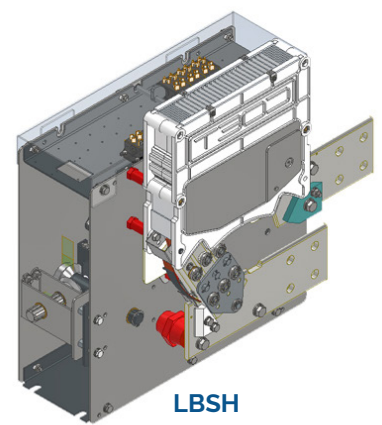
INTERRUTTORI DI MANOVRA-SEZIONATORI



For heavy traction applications /
Per trazione pesante



For light rail applications /
Per trazione leggera



A DC Load Break Switch is normally used as main and/or bypass on-load disconnecter in DC Power Supply systems for:

- isolating a line for safety or maintenance purpose
- connecting two adjacent sections of the same line in the event of failure of one or more feeders
- switching a line from one feeder to the other in case of failure of one of them

On-load operation guarantees a very high level of service continuity as requested by the modern substations design. A switch disconnecter can be of two types:

- motor driven type;
- manual type;

Two Lines of load break switch are available:

- LB: for heavy traction applications
- LBS / LBSH: for light rail applications

L'interruttore di manovra-sezionatore è normalmente utilizzato in impianti in corrente continua come sezionamento della linea principale e/o come apparecchio di by-pass per:

- isolare la linea per ragioni di sicurezza o manutenzione
- collegare due sezioni adiacenti della stessa linea in caso di fuori servizio di uno o più alimentatori.
- commutare fra due alimentazioni in caso di guasto di una di essa.

La manovrabilità sottocarico garantisce un elevato livello di continuità di servizio come richiesto dalla moderna tecnica delle sottostazioni.

L'interruttore di manovra-sezionatore (IMS) può essere di due tipi:

- tipo motorizzato;
- tipo manuale;

Sono disponibili due linee di interruttori di manovra sezionatori:

- LB: per trazione pesante
- LBS / LBSH: per trazione leggera

MAIN TECHNICAL DATA

DATI TECNICI PRINCIPALI

Reference standards
Standard di riferimento

EN 50122-1/2
EN 50123-1/2/3/5/6/7
EN 50124-1/2
EN 50163
EN 60529

	750 V	1500 V	3000 V
Nominal voltage Tensione nominale (U_n)	750 V	1500 V	3000 V
Highest permanent voltage Tensione permanente massima (U_{max1})	900 V	1800 V	3600 V
Highest non-permanent voltage Tensione non permanente massima (U_{max2})	1 kV	1,95 kV	3,9kV
Rated insulation voltage Tensione di isolamento di targa (U_{Nm})	1,8kV	3kV	4,8kV
Rated impulse voltage Tensione di tenuta ad impulso (U_{NI}):			
- to earth and between the poles verso terra e tra i poli	15kV	20kV	40kV
- across the isolating distance sulla distanza di sezionamento	18kV	24kV	48kV
Power frequency withstand voltage level Tensione a frequenza industriale (U_a):			
- to earth and between poles verso terra e tra i poli	6,9kV	9,2kV	18,5kV
- across the isolating distance sulla distanza di sezionamento	8,3kV	11kV	22,2kV
- auxiliary circuits circuiti ausiliari	2kV	2kV	2kV
Nominal current Corrente nominale (I_n)	2000 A - 4000 A - 6000 A - 8000 A		
Short-time withstand current Corrente ammissibile di breve durata ($I_{ncw} 0,25s$)	up to 140kA	up to 140kA	up to 140kA
Short-circuit current peak Valore di picco della corrente di corto circuito (i_{ss})	up to 200kA	up to 200kA	up to 200kA
Operation Type Tipo di comando	Manual/Manuale Motorised/Motorizzato		
Coil characteristics Caratteristiche della bobina	Under voltage coil /Bobina di sgancio minima tensione Shunt trip coil/Bobina a lancio corrente		
Power Supply Tensione di alimentazione ausiliaria	24 Vdc - 48 Vdc - 60 Vdc- 110 Vdc- 125 Vdc - 132 Vdc 220/230Vdc- 220 Vdc		
Number of Poles Numero di Poli	1 2		

TECHNICAL NOTE (CEI EN 50123-3)

NOTA TECNICA (CEI EN 50123-3)

COET produces DISCONNECTORS and LOAD BREAK SWITCHES in according to following table
COET produce SEZIONATORI e SEZIONATORI SOTTO CARICO secondo la seguente tabella

Category Categoria	Making Chiusura	Breaking Apertura	Short-time withstand current Corrente ammissibile di breve durata	Duration Durata
I: Disconnectors Sezionatori	0	0	INcw / INcwe	0.25 s
II: ON-LOAD Disconnectors Sezionatori sotto carico	0	INe	INcw	0.25 s
III: ON-LOAD Disconnectors Sezionatori sotto carico	INe	INe	INcw	0.25 s
IV: ON-LOAD Disconnectors Sezionatori sotto carico	3 INe	3 INe	INcw	0.25 s
V: Disconnectors Sezionatori	INss	0	INcw / INcwe	0.25 s
VI: ON-LOAD Disconnectors Sezionatori sotto carico	INss	3 INe	INcw	0.25 s

MAIN FEATURES

CARATTERISTICHE PRINCIPALI

- The LB switch includes a robust metal frame also available in the withdrawable execution. Active parts are mounted on epoxy resin insulators with increased creepage distance. The incoming and outgoing terminals are properly sized to carry the nominal current
 - The control device has been designed for a high mechanical endurance and an easy maintenance.
 - The motor operated version includes the manual emergency operation with key locks.
 - Each pole is composed of one (or more) main contact sized to the nominal current and one breaking contact (or two connected in series). Breaking contact includes the arc chute with magnetic blow out system for arc extinguishing.
- The arc chute, with compact and sturdy design, it can be easily replaced without any specific tools.

- L'interruttore LB include un robusto telaio metallico disponibile anche nell'esecuzione estraibile. Le parti attive sono montate su isolatori in resina epossidica con una linea di fuga maggiorata. I terminali di ingresso e di uscita sono dimensionati correttamente per il valore della corrente nominale d'impiego.
- Il dispositivo di manovra è stato progettato con un'elevata resistenza meccanica e una facile manutenzione.
- La versione motorizzata include l'operazione manuale di emergenza con serrature a chiave.
- Ogni polo principale è composto da uno o più contatti del circuito principale dimensionati per la corrente nominale, e il contatto d'arco formato da uno o due contatti in serie. Il contatto d'arco comprende la rampa d'arco con sistema di soffaggio magnetico per l'estinzione dell'arco.

La camera ad arco, dal design compatto e robusto, può essere facilmente sostituita senza attrezzi specifici.

LB CONFIGURATIONS

CONFIGURAZIONI LB

- I_{th} : Conventional free-air thermal current [A] / Corrente convenzionale termica in aria libera [A]
- I_{int} : Highest breaking current [kA] / Max corrente di interruzione [kA]
- $\hat{I}_{ch}$: Highest peak making current [kA] / Max corrente di picco di chiusura [kA]
- I_{Ne} : Rated service current [A] / Corrente nominale di impiego [A]
- I_{NSS} : Rated short circuit current [kA] / Corrente di cortocircuito di targa
- I_{NCW} : Rated short-time withstand current (0,25s) [kA] / Corrente di breve durata (0,25s) [kA]
- $\hat{I}_{NCW}$: Peak value of I_{NCW} [kA] / Valore di picco della I_{NCW} [kA]

750 Vdc

Type Tipo	Main Poles Poli Principali	Breaking poles Poli di interruzione	I_{th} [A] I_{Ne} [A]	I_{int} [kA]	$\hat{I}_{ch}$ [kA]	I_{NSS} [kA]	I_{NCW} [kA]	$\hat{I}_{NCW}$ [kA]	Category Categoria
LB120n	1	1	2000	12	70	50	85	120	VI
LB122n	2	2	2000	24	70	50	85	120	VI
LB130n	1	1	3000	12	100	70	100	142	VI
LB132n	2	2	3000	24	100	70	100	142	VI
LB140n	1	1	4000	12	125	88	120	170	VI
LB142n	2	2	4000	24	125	88	120	170	VI
LB160n	1	1	6000	18	142	100	140	200	VI
LB161n	1	2	6000	24	142	100	140	200	VI

1500 Vdc

Type Tipo	Main Poles Poli Principali	Breaking poles Poli di interruzione	I_{th} [A] I_{Ne} [A]	I_{int} [kA]	$\hat{I}_{ch}$ [kA]	I_{Nss} [kA]	I_{NCW} [kA]	$\hat{I}_{NCW}$ [kA]	Category Categoria
LB220c	1	1	2000	12	50	35	85	120	VI
LB222c	2	2	2000	18	50	35	85	120	VI
LB230c	1	1	3000	12	100	70	100	142	VI
LB232c	2	2	3000	18	100	70	100	142	VI
LB240c	1	1	4000	12	125	88	120	70	VI
LB242c	2	2	4000	18	125	88	120	170	VI
LB260c	1	1	6000	12	142	100	140	200	III
LB261c	1	2	6000	18	142	100	140	200	VI

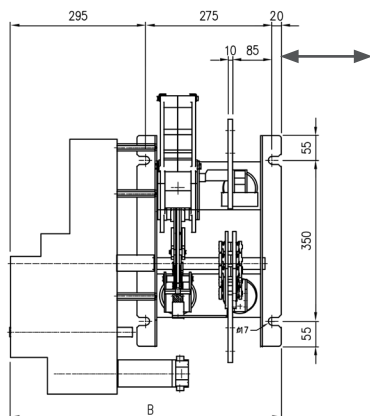
3000 Vdc

Type Tipo	Main Poles Poli Principali	Breaking poles Poli di interruzione	I_{th} [A] I_{Ne} [A]	I_{int} [kA]	$\hat{I}_{ch}$ [kA]	I_{Nss} [kA]	I_{NCW} [kA]	$\hat{I}_{NCW}$ [kA]	Category Categoria
LB320c	1	1	2000	4	50	35	85	120	III
LB321c	1	2	2000	9	50	35	85	120	VI
LB322c	2	2	2000	9	50	35	85	120	VI
LB330c	1	1	3000	4	100	70	100	142	III
LB331c	1	2	3000	9	100	70	100	142	VI
LB332c	2	2	3000	9	100	70	100	142	VI
LB340c	1	1	4000	4	100	70	120	170	III
LB341c	1	2	4000	9	100	70	120	170	III
LB342c	2	2	4000	9	100	70	120	170	III
LB361c	1	2	6000	9	142	100	140	200	III

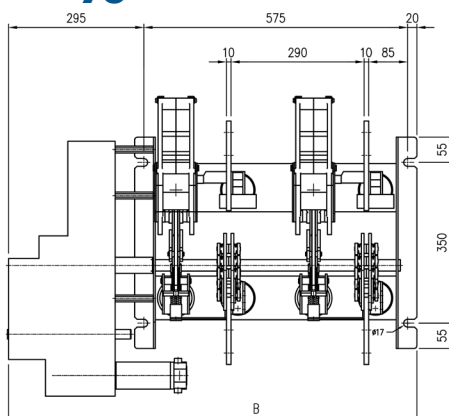
LB OVERALL DIMENSIONS

DIMENSIONI PRINCIPALI LB

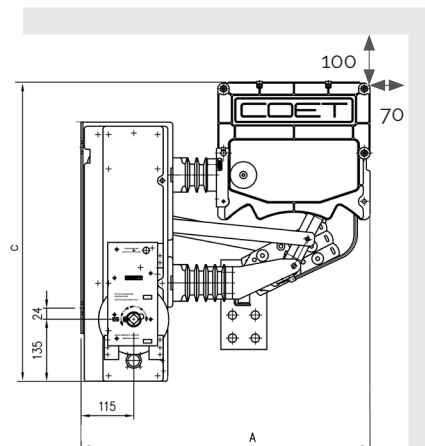
750 Vdc - 2000 A



LB120n
One pole
Unipolare



LB122n
Two poles
Bipolare

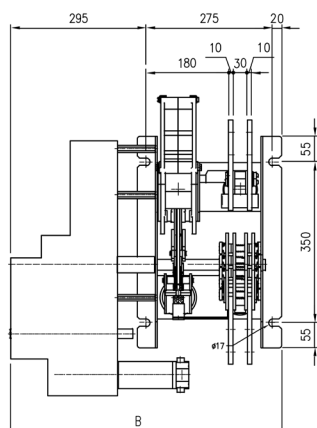


Front view / Vista frontale +
Minimum distances from walls to ground /
Minime distanze da pareti a massa

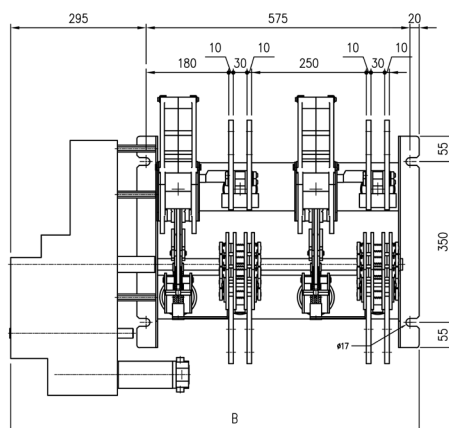
Type / Tipo

Type / Tipo	A	B	C
LB120n	630	590	649
LB122n	630	890	649
LB130n	630	590	649
LB132n	630	890	649

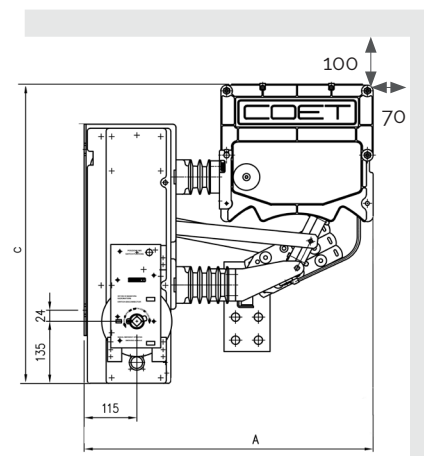
750 Vdc - 3000 A



LB130n
One pole
Unipolare

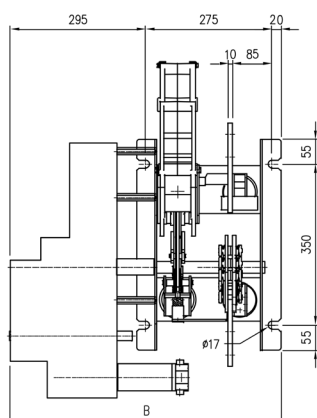


LB132n
Two poles
Bipolare

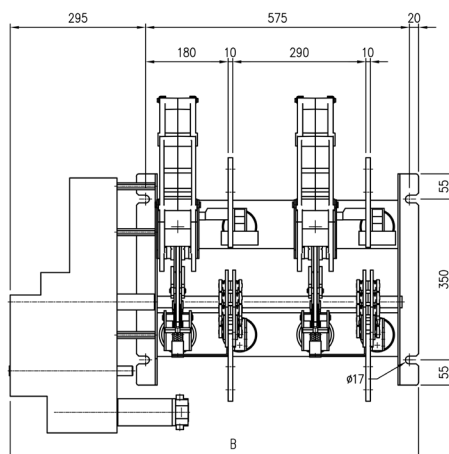


Front view / Vista frontale +
Minimum distances from walls to ground /
Minime distanze da pareti a massa

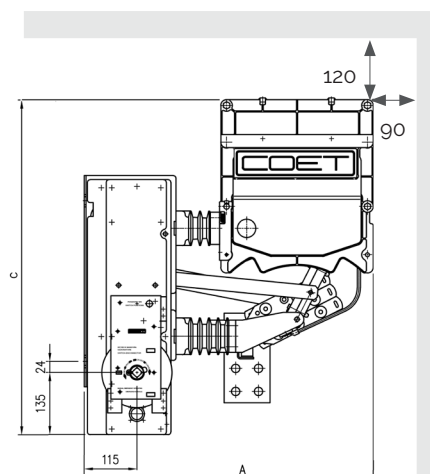
1500 Vdc - 2000 A



LB220c
One pole
Unipolare



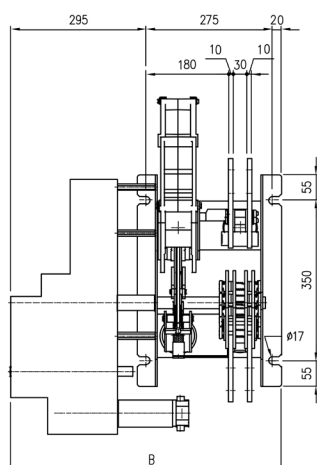
LB222c
Two poles
Bipolare



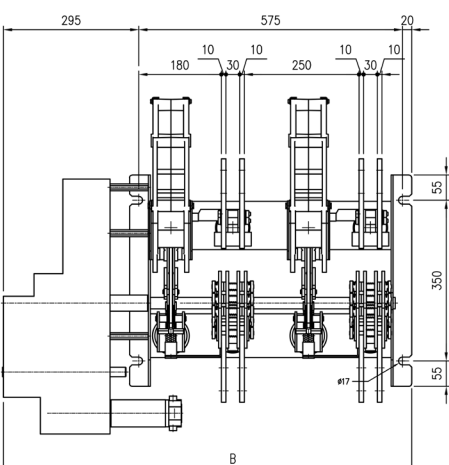
Front view / Vista frontale +
Minimum distances from walls to ground /
Minime distanze da pareti a massa

Type / Tipo	A	B	C
LB220c	630	590	729
LB222c	630	890	729
LB230c	630	590	729
LB232c	630	890	729

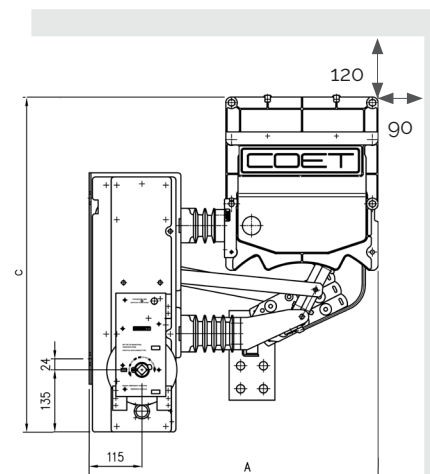
1500 Vdc - 3000 A



LB230c
One pole
Unipolare

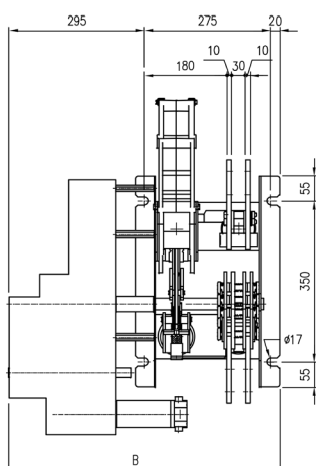


LB232c
Two poles
Bipolare

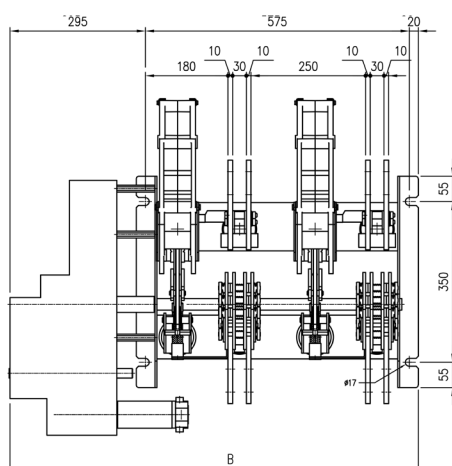


Front view / Vista frontale +
Minimum distances from walls to ground /
Minime distanze da pareti a massa

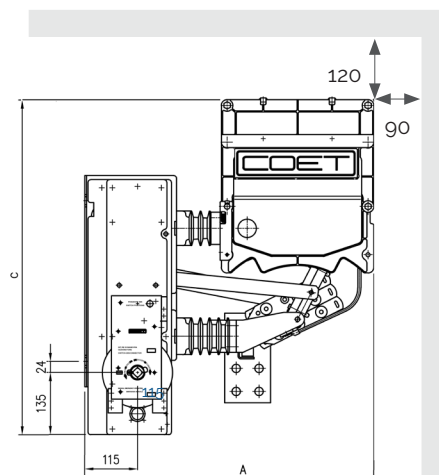
1500 Vdc - 4000 A



LB240c
One pole
Unipolare



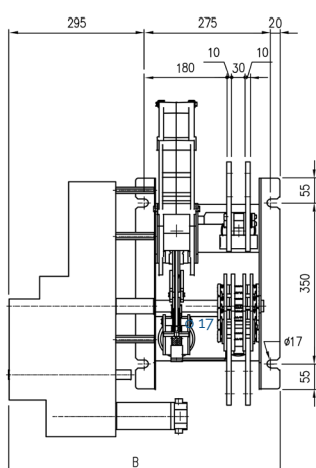
LB242c
Two poles
Bipolare



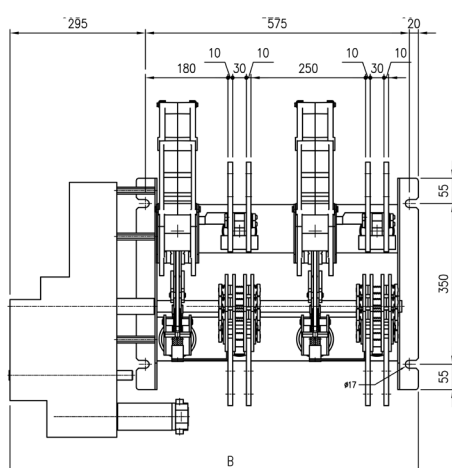
Front view / Vista frontale +
Minimum distances from walls to ground /
Minime distanze da pareti a massa

Type / Tipo	A	B	C
LB240c	630	590	729
LB242c	630	890	729
LB260c	630	665	729
LB261c	690	765	774

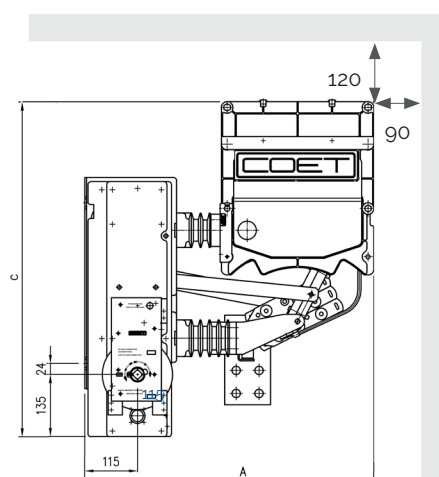
1500 Vdc - 6000 A



LB260c
One pole
Unipolare

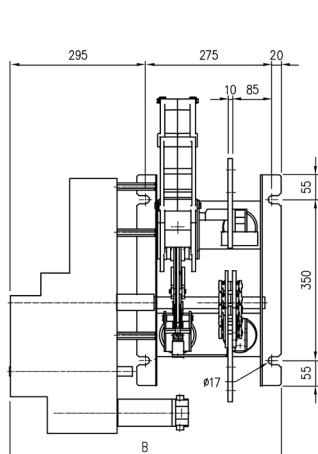


LB261c
One main pole with two
breaking poles /
Unipolare
doppia interruzione

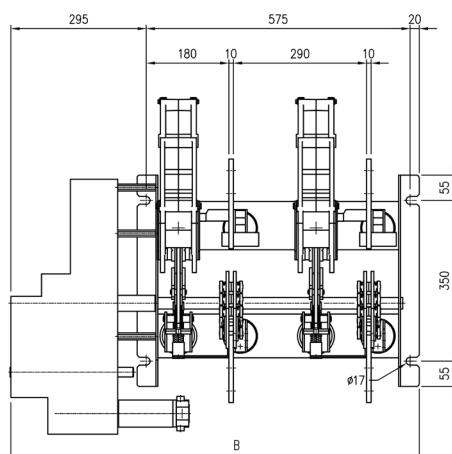


Front view / Vista frontale +
Minimum distances from walls to ground /
Minime distanze da pareti a massa

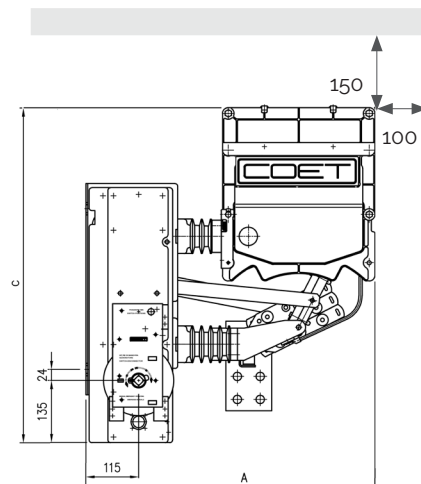
3000 Vdc - 2000 A



LB320c
One pole
Unipolare



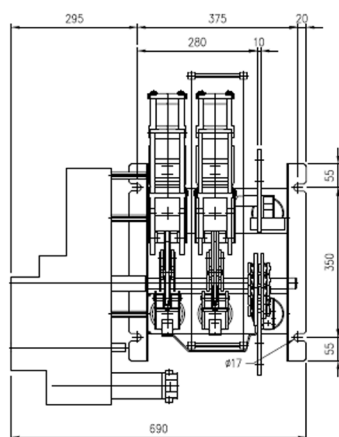
LB322c
Two poles
Bipolare



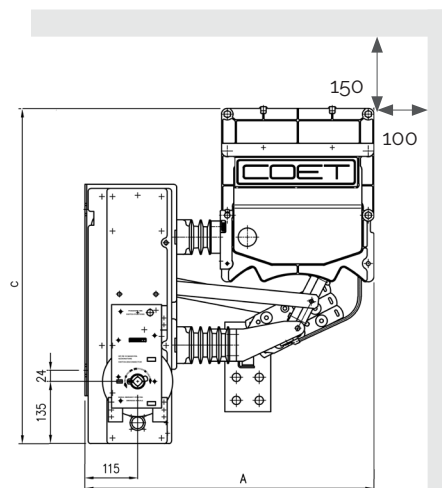
Front view / Vista frontale +
Minimum distances from walls to ground /
Minime distanze da pareti a massa

Type / Tipo

Type / Tipo	A	B	C
LB320c	630	590	729
LB321c (Unipolare doppia interruzione/Single pole double breaking)	690	690	774
LB322c	630	890	729

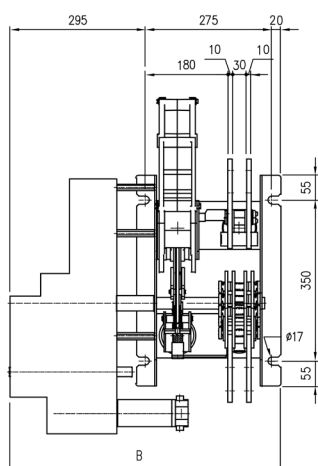


LB321c
One main pole with two
breaking poles /
Unipolare
doppia interruzione

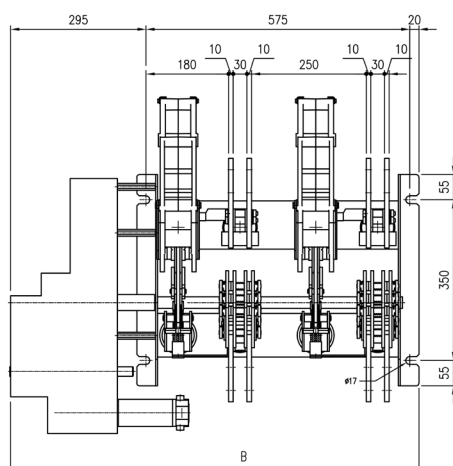


Front view / Vista frontale +
Minimum distances from walls to ground /
Minime distanze da pareti a massa

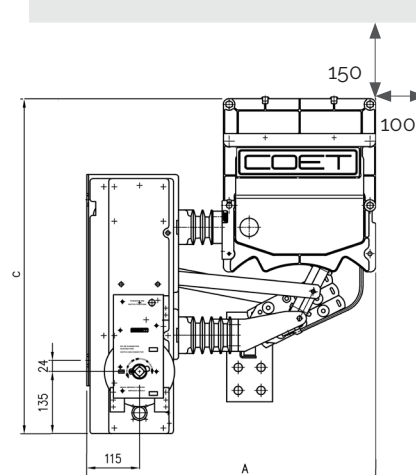
3000 Vdc - 3000 A



LB330c
One pole
Unipolare

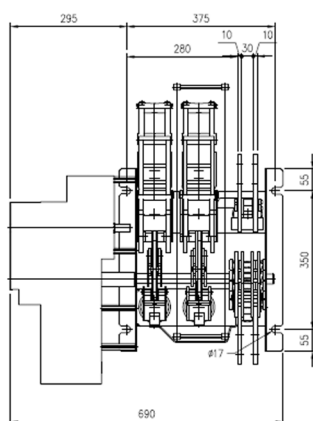


LB332c
Two poles
Bipolare

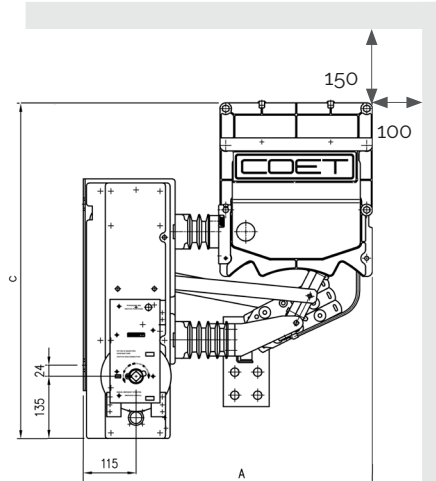


Front view / Vista frontale +
Minimum distances from walls to ground /
Minime distanze da pareti a massa

Type / Tipo	A	B	C
LB330c	630	590	729
LB331c (Unipolare doppia interruzione/Single pole double breaking)	690	690	774
LB332c	630	890	729

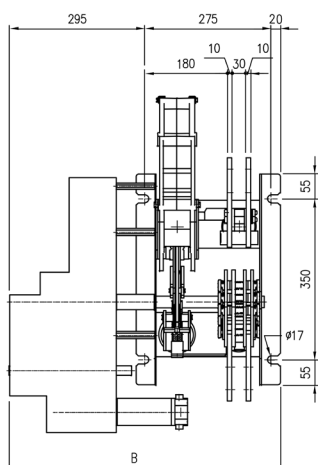


LB331c
One main pole with two
breaking poles /
Unipolare
doppia interruzione

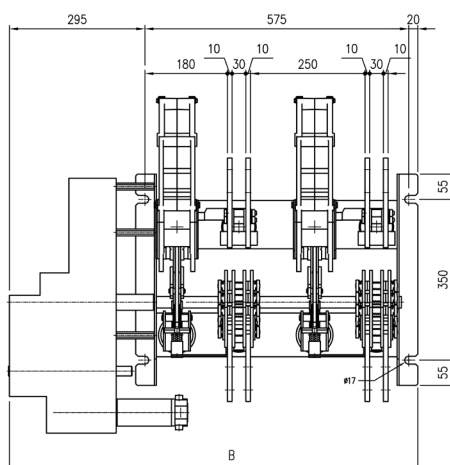


Front view / Vista frontale +
Minimum distances from walls to ground /
Minime distanze da pareti a massa

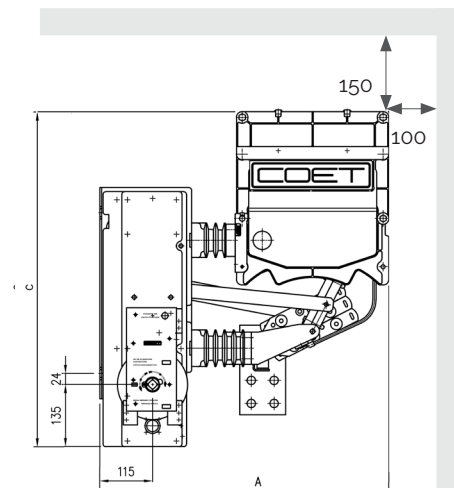
3000 Vdc - 4000 A



LB340c
One pole
Unipolare

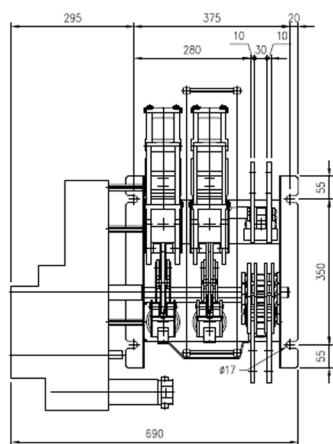


LB342c
Two poles
Bipolare

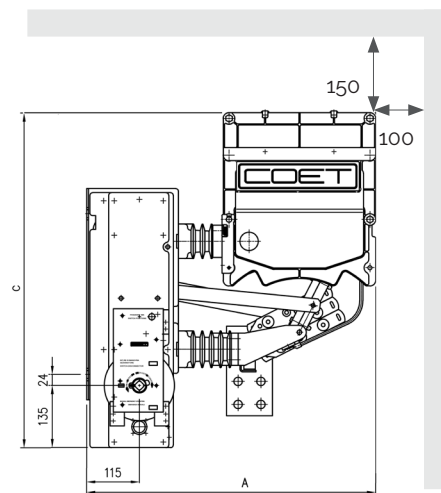


Front view / Vista frontale +
Minimum distances from walls to ground /
Minime distanze da pareti a massa

Type / Tipo	A	B	C
LB340c	630	590	729
LB341c (Unipolare doppia interruzione/Single pole double breaking)	690	690	774
LB342c	630	890	729

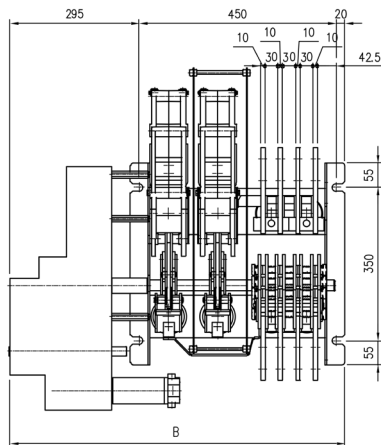


LB341c
One main pole with two
breaking poles /
Unipolare
doppia interruzione

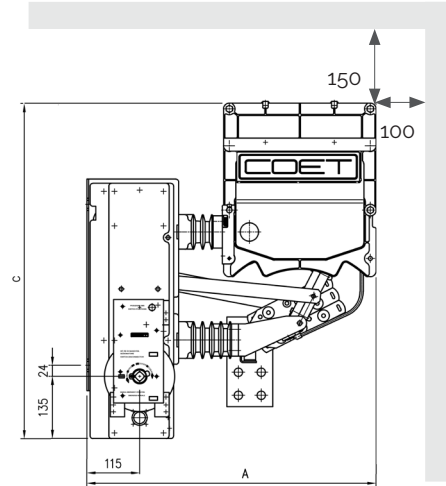


Front view / Vista frontale +
Minimum distances from walls to ground /
Minime distanze da pareti a massa

3000 Vdc - 6000 A



LB361c
One main pole with two
breaking poles /
Unipolare
doppia interruzione



Front view / Vista frontale +
Minimum distances from walls to ground /
Minime distanze da pareti a massa

Type / Tipo	A	B	C
LB361c (Unipolare doppia interruzione/Single pole double breaking)	690	765	774

LBS CONFIGURATIONS

CONFIGURAZIONI LBS

- I_{th} : Conventional free-air thermal current [A] / Corrente convenzionale termica in aria libera [A]
- I_{int} : Highest breaking current [kA] / Max corrente di interruzione [kA]
- $\hat{I}_{ch}$: Highest peak making current [kA] / Max corrente di picco di chiusura [kA]
- I_{Ne} : Rated service current [A] / Corrente nominale di impiego [A]
- I_{Nss} : Rated short circuit current [kA] / Corrente di cortocircuito di targa
- I_{NCW} : Rated short-time withstand current (0,25s) [kA] / Corrente di breve durata (0,25s) [kA]
- $\hat{I}_{NCW}$: Peak value of I_{NCW} [kA] / Valore di picco della I_{NCW} [kA]

750 Vdc

Type Tipo	Main Poles Poli Principali	I_{th} [A] I_{Ne} [A]	I_{int} [kA]	$\hat{I}_{ch}$ [kA]	I_{Nss} [kA]	I_{NCW} [kA]	$\hat{I}_{NCW}$ [kA]	Category Categoria
LBS120n	1	2000	6	50	35	50	70	VI
LBS122n	2	2000	12	50	35	50	70	VI
LBS130n	1	3000	9	70	50	70	100	VI
LBS132n	2	3000	12	70	50	70	100	VI
LBS140n	1	4000	12	80	56	85	120	VI
LBS142n	2	4000	18	80	56	85	120	VI
LBS161h	1* with n.2 poles connected in parallel con n.2 poli collegati in parallelo	6000	12	120	85	100	142	III

1500 Vdc

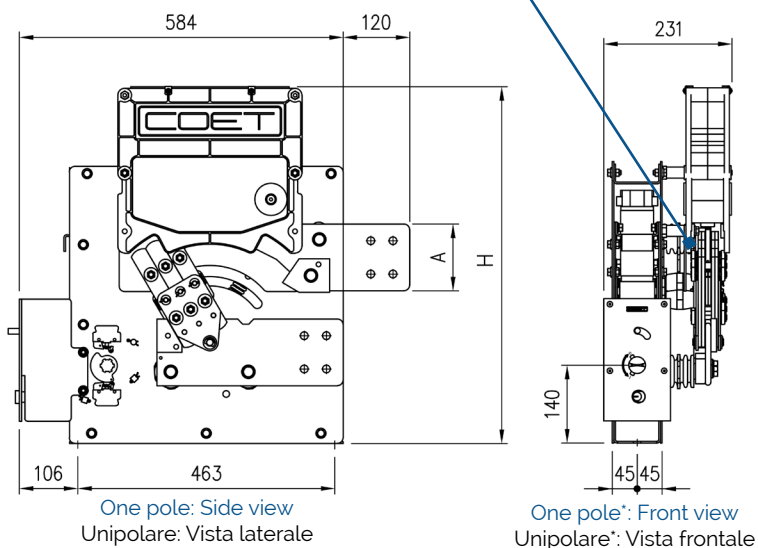
Type Tipo	Main Poles Poli Principali	I_{th} [A] I_{Ne} [A]	I_{int} [kA]	$\hat{I}_{ch}$ [kA]	I_{Nss} [kA]	I_{NCW} [kA]	$\hat{I}_{NCW}$ [kA]	Category Categoria
LBS220c	1	2000	6	50	35	50	70	VI
LBS222c	2	2000	9	50	35	50	70	VI
LBS230c	1	3000	9	70	50	70	100	VI
LBS232c	2	3000	12	70	50	70	100	VI
LBS240c	1	4000	9	80	50	85	120	III
LBS242c	2	4000	12	80	50	85	120	VI
LBS261c	1* with n.2 poles connected in parallel con n.2 poli collegati in parallelo	6000	9	120	85	100	142	III

LBS OVERALL DIMENSIONS

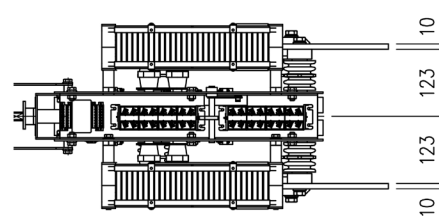
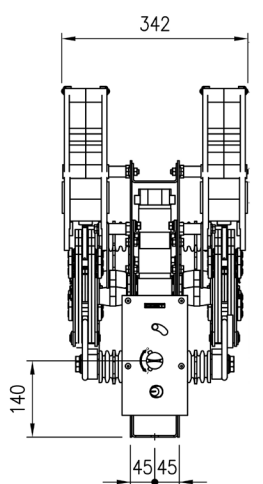
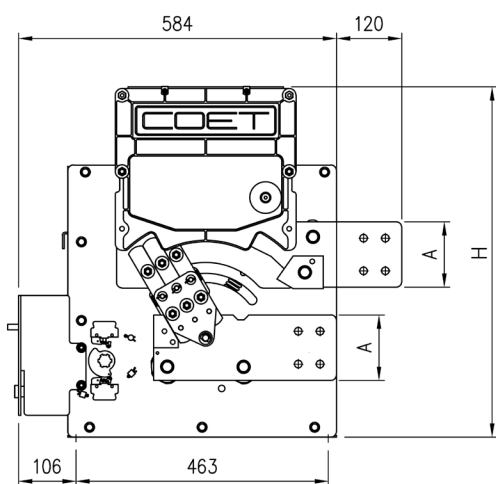
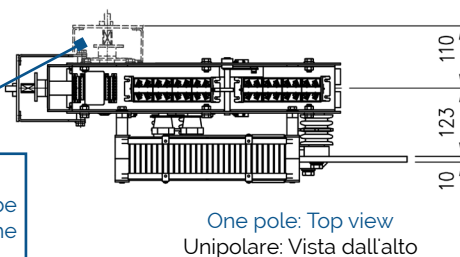
DIMENSIONI PRINCIPALI LBS

Type Tipo	A	H
LBS120n	100x10	650
LBS122n	100x10	650
LBS130n	120 x 10	650
LBS132n	120 x 10	650
LBS140n	150 x 10	650
LBS142n	150 x 10	650
LBS161h	120 x 10	650
LBS220c	100x10	730
LBS222c	100x10	730
LBS230c	120 x 10	730
LBS232c	120 x 10	730
LBS240c	150 x 10	730
LBS242c	150 x 10	730
LBS261c	120 x 10	730

*On request the pole can be provided on the left side
*A richiesta il polo può essere previsto sul lato sinistro



*On request manual control can be provided on the side opposite to the pole
*A richiesta il comando manuale può essere montato sul lato opposto al polo



Auxiliary Contacts
Contatti Ausiliari

Max (4NO+4NC) Open Position - Posizione di aperto
(4NO+4NC) Closed position - Posizione di chiuso

LBSH CONFIGURATIONS

CONFIGURAZIONI LBSH

- I_{th} : Conventional free-air thermal current [A] / Corrente convenzionale termica in aria libera [A]
- I_{int} : Highest breaking current [kA] / Max corrente di interruzione [kA]
- $\hat{I}_{ch}$: Highest peak making current [kA] / Max corrente di picco di chiusura [kA]
- I_{Ne} : Rated service current [A] / Corrente nominale di impiego [A]
- I_{Nss} : Rated short circuit current [kA] / Corrente di cortocircuito di targa
- I_{NCW} : Rated short-time withstand current (0,25s) [kA] / Corrente di breve durata (0,25s) [kA]
- $\hat{I}_{NCW}$: Peak value of I_{NCW} [kA] / Valore di picco della I_{NCW} [kA]

750 Vdc

Type Tipo	Main Poles Poli Principali	I_{th} [A] I_{Ne} [A]	I_{int} [kA]	$\hat{I}_{ch}$ [kA]	I_{Nss} [kA]	I_{NCW} [kA]	$\hat{I}_{NCW}$ [kA]	Category Categoria
LBSH120n	1	2000	6	80	55	70	100	VI
LBSH122n	2	2000	12	80	55	70	100	VI
LBSH130n	1	3000	9	80	55	100	142	VI
LBSH132n	2	3000	12	80	55	100	142	VI
LBSH140n	1	4000	12	100	70	100	142	VI
LBSH142n	2	4000	18	100	70	100	142	VI
LBSH160n	1* with n.2 poles connected in parallel con n.2 poli collegati in parallelo	6000	12	120	85	125	180	III

1500 Vdc

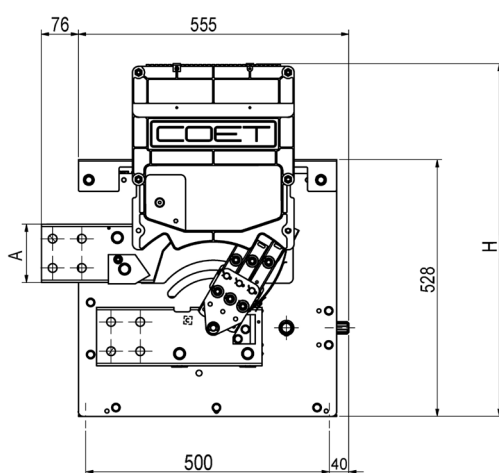
Type Tipo	Main Poles Poli Principali	I_{th} [A] I_{Ne} [A]	I_{int} [kA]	$\hat{I}_{ch}$ [kA]	I_{Nss} [kA]	I_{NCW} [kA]	$\hat{I}_{NCW}$ [kA]	Category Categoria
LBSH220c	1	2000	6	80	55	70	100	VI
LBSH222c	2	2000	9	80	55	70	100	VI
LBSH230c	1	3000	9	80	55	100	142	VI
LBSH232c	2	3000	12	80	55	100	142	VI
LBSH240c	1	4000	9	100	70	100	142	III
LBSH242c	2	4000	12	100	70	100	142	VI
LBSH261c	1* with n.2 poles connected in parallel con n.2 poli collegati in parallelo	6000	9	120	85	125	180	III

LBSH OVERALL DIMENSIONS

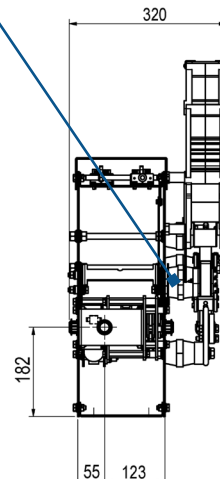
DIMENSIONI PRINCIPALI LBSH

Type Tipo	A	H
LBSH120n	100x10	650
LBSH122n	100x10	650
LBSH130n	120 x 10	650
LBSH132n	120 x 10	650
LBSH140n	150 x 10	650
LBSH142n	150 x 10	650
LBSH160n	120 x 10	650
LBSH220c	100x10	730
LBSH222c	100x10	730
LBSH230c	120 x 10	730
LBSH232c	120 x 10	730
LBSH240c	150 x 10	730
LBSH242c	150 x 10	730
LBSH261c	120 x 10	730

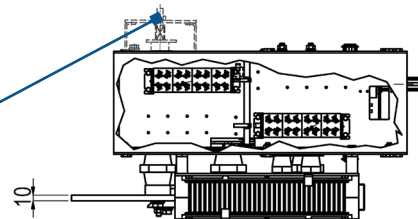
*On request the pole can be provided on the left side
*A richiesta il polo può essere previsto sul lato sinistro



One pole: Side view
Unipolare: Vista laterale

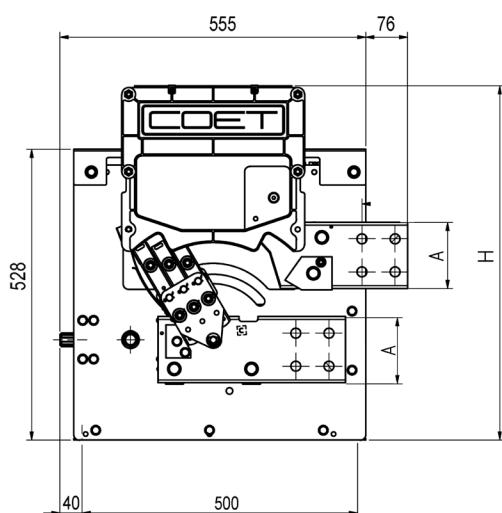


One pole*: Front view
Unipolare*: Vista frontale

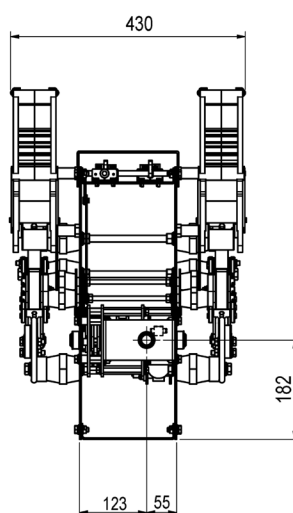


One pole: Top view
Unipolare: Vista dall'alto

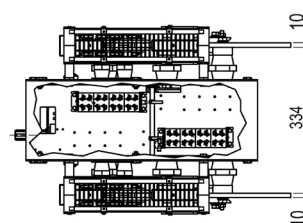
*On request manual control can be provided on the side opposite to the pole
*A richiesta il comando manuale può essere montato sul lato opposto al polo



Two poles: Side view
Bipolare: Vista laterale



Two poles: Front view
Bipolare: Vista frontale



Two poles: Top view
Bipolare: Vista dall'alto

Auxiliary Contacts
Contatti Ausiliari

Max (4NO+4NC) Open Position - Posizione di aperto
(4NO+4NC) Closed position - Posizione di chiuso



COET S.p.A.

 +39 02 842934

 www.coet.it

 coet@coet.it

 Via Civesio, 12 - 20097 San Donato Milanese (MI) - Italia

