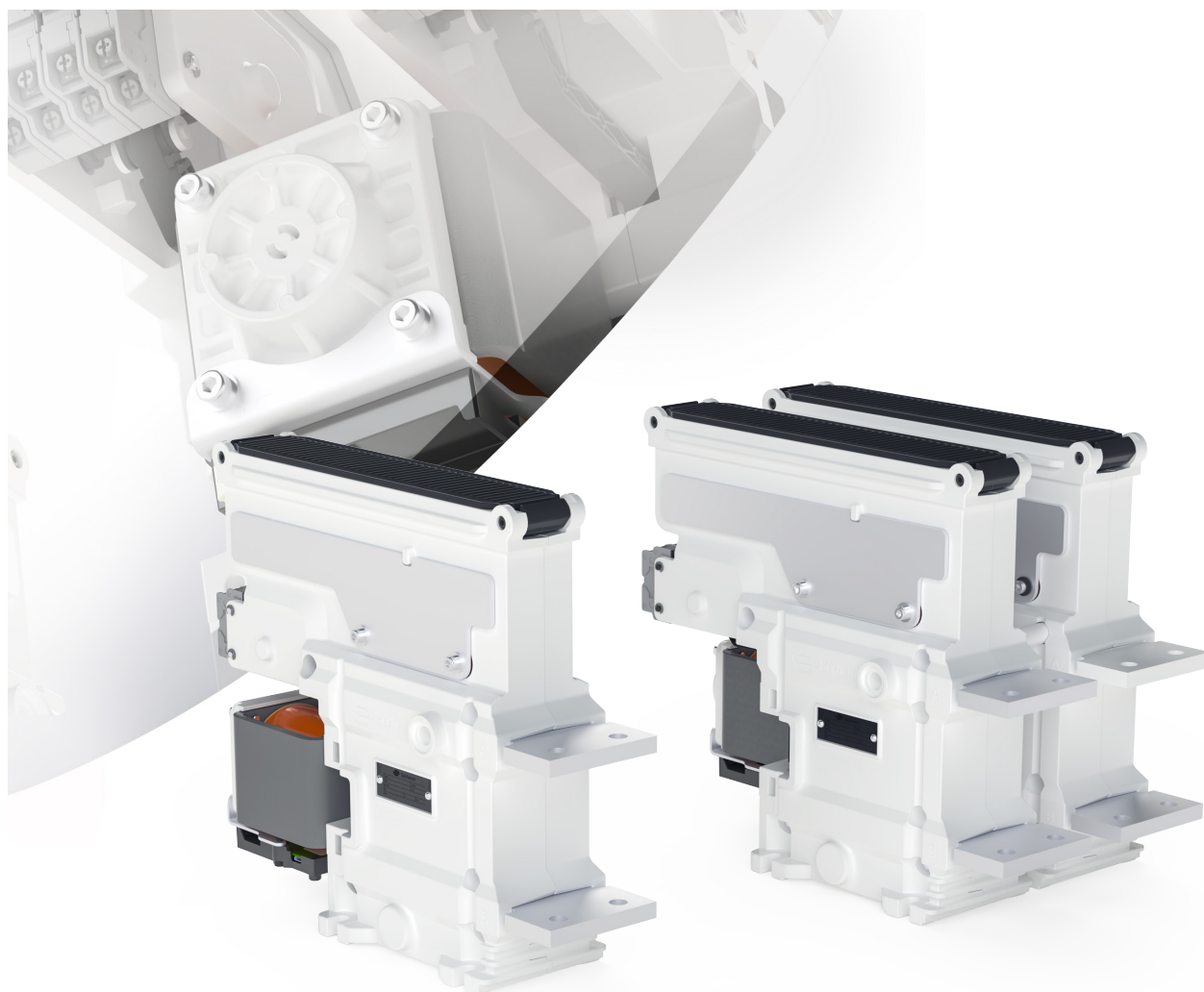


CONTACTORS

Type **BMSH 09.15**
AC and Bidirectional DC Contactors Range

ELECTRIC TRANSPORT VEHICLES / FIXED INSTALLATIONS



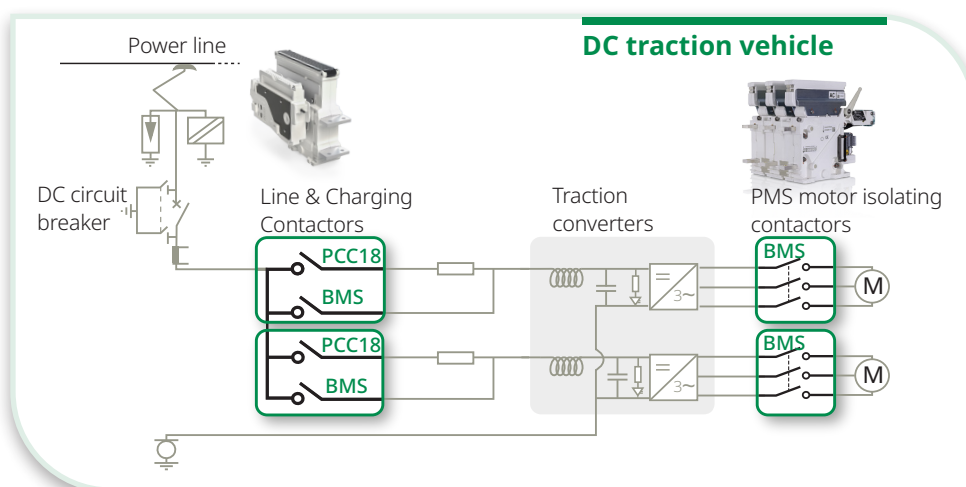
GENERAL INFORMATION

The **BMSH 09.15** is a compact high-power contactor designed to deliver an effective and versatile solution for demanding applications with limited installation space. Based on the proven architecture of Sécheron's BMS platform, it provides bidirectional breaking capability for both AC and DC currents and is available in 1-pole and 2-pole configurations.

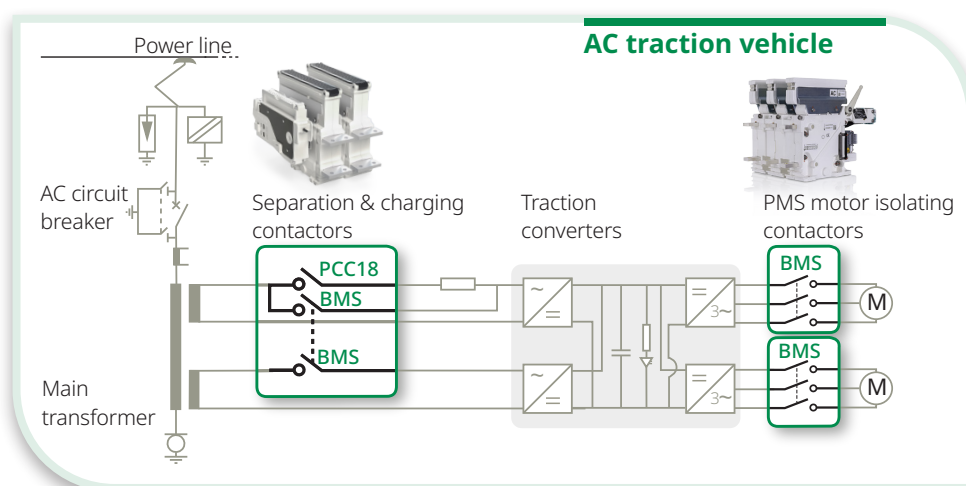
High-voltage terminals can be customized on request, enabling seamless integration into a wide range of new installations as well as retrofit projects. Its outstanding reliability and low maintenance requirements contribute to a minimized total cost of ownership.

APPLICATIONS, TYPICAL EXAMPLES

- Line contactors for DC vehicles.



- Separation/line contactors for AC vehicles.



- Other applications for locomotives, trains, EMUs, tramways/light rail vehicles, including dual mode rail vehicles with battery.
- Contactors for DC traction power substations and other industrial fields.

MAIN FEATURES

- Compact and reliable solution based on tried and tested BMS technology
- Rated voltage up to 900 Vdc / 1800 Vac 50-60 Hz
- Conventional free air thermal current 1500 A
- Reduced auxiliary power consumption
- Available in 1 and 2 pole version
- Suitable for ambient temperature from -40°C to +70°C.
- Reference standards: EN/IEC 60077-1/-2, EN/IEC 61373, EN 45545, EN 50657.

MAIN BENEFITS

- ✓ AC and DC Bidirectional current breaking
- ✓ High level of Short Time Withstand Current (STWC).
- ✓ High insulation level against pollution PD3A class.
- ✓ Compact size for effective integration
- ✓ Reduced insulation clearances required for installation
- ✓ Up to 4 NO + 4 NC auxiliary contacts per pole
- ✓ High mechanical and electrical durability
- ✓ Horizontal or vertical mounting to match tight installation constraint.
- ✓ Customized terminals on request.
- ✓ Low power consumption
- ✓ Reduced maintenance schedule leading to reduced TCO.

DATA FOR PRODUCT SELECTION

Symbol	Unit	BMSH 09.15
MAIN HIGH VOLTAGE CIRCUIT		
Pole quantity		1, 2
Component category		A2
Type of main contacts		Normally Open
Rated operational voltage		
- DC voltage	U_e / U_r [V]	900
- AC voltage (16.7, 25, 50/60, ...Hz ⁽¹⁾)	[V]	2,000
Rated insulation voltage	U_i / U_{Nm} [V _{DC}] [V _{AC}]	2,300 2,000
Conventional free air thermal current ⁽¹⁾	I_{th} [A]	
- DC voltage & AC voltage (16.7, 25, 50/60 Hz)		1500
Rated operational current/operational frequency		
-DC	I_e / I_r [A]	800 / C1 / 500 / C2
-AC	I_e / I_r [A]	1,500 / C3
Maximum breaking capacity		800 A 15 ms @ 1800 V _{DC}
- DC current, $\tau = 15$ ms	I_{bc} [A]	3,200
- AC current, $\cos \Phi = 0.8$ (16.7, 25 & 50/60 Hz)	I_{bc} [A]	4,200
Maximum making capacity		
- DC current, $\tau = 15$ ms	I_{mc} [A]	10,000
- AC current, $\cos \Phi = 0.8$ (16.7, 25 & 50/60 Hz)	I_{bc} [A]	7,000
Rated short-time withstand current	I_{cw} / t [kA]/[ms]	15 / 100
Peak short-time withstand current	$\hat{I}_{cw}$ [kA]	20
Rated power-frequency withstand voltage (50 Hz / 1min)		
- Between main contacts (open)	U_{50} / U_a [kV _{AC}]	7.5
- Main circuit (closed) to earth	U_{50} / U_a [kV _{AC}]	9.5

⁽¹⁾ At Tamb = +40°C for DC and AC voltage up to 60 Hz and tested with HV connections with current density 1.7A/mm². ⁽²⁾ For higher values, please contact Sécheron.

LOW VOLTAGE CIRCUIT

Control circuit

Nominal supply voltage	U_n [V _{DC}]	[24-36], [48-110] ⁽¹⁾
Range of voltage		[0.7 - 1.25] U_n
Typical mechanical closing time ⁽²⁾	t_{cc} [ms]	100
Typical mechanical opening time ⁽²⁾	t_{co} [ms]	30

⁽¹⁾ For other voltage, please contact sécheron. ⁽²⁾ At U_n and $T_{amb} = +20^\circ\text{C}$.

Auxiliary contacts

Type of contacts		Dual break type
Rated voltage	[V _{DC}]	24 to 110
Conventional thermal current	I_{th} [A]	6 or 10 A depending from the type
Utilization category according to EN60947		
- AC-15 230 V _{AC}		1.0 A
- DC-13 110 V _{DC}		0.5 A
Minimum let-through current at 24 Vdc ⁽⁴⁾	[mA]	≥ 10 (silver contacts) or $4 \leq I \leq 10$ (gold contacts)

⁽⁴⁾ For a dry and clean environment.

Low voltage interface

Control circuit	WAGO 734 2-poles cage-clamp connector (standard)
Auxiliary switches	Direct connection (standard) Wired on WAGO 734 20-poles cage-clamp connector (option)

Insulation

Power-frequency test voltage (50 Hz / 1min)	U_a [kV]	1.5
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OPERATING CONDITIONS

Installation		Indoor
Altitude	[m]	$\leq 2,000$
Working ambient temperature	T_{amb} [°C]	-40 to +70
Humidity		95% at + 40°C
Pollution degree		PD3A
Minimum mechanical durability	N Operations	≥ 2 millions

PRODUCT INTEGRATION

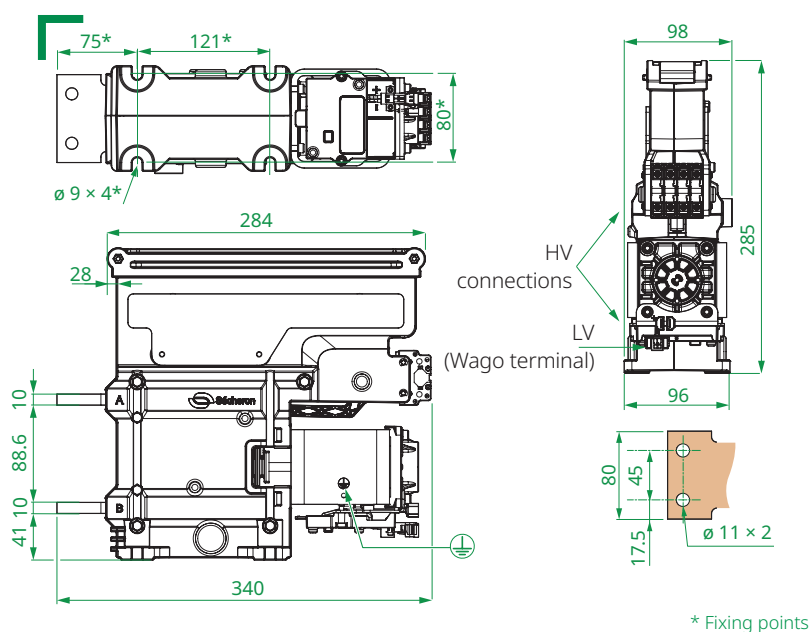
MAIN DIMENSIONS

HV connections	M10 screws
Earth connections	M5 screw
LV Connections (standard)	Control: WAGO 734 (2 poles)
	Auxiliary switches: M3 screws
	WAGO 734 (20 poles) as option
Fixing points	M8 screws

Dimensions without tolerances are indicative. All dimensions are in mm. The maximum allowed flatness deviation of the support frame is 0.5 mm.

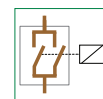
* Based on product configuration

/// BMSH 09.15

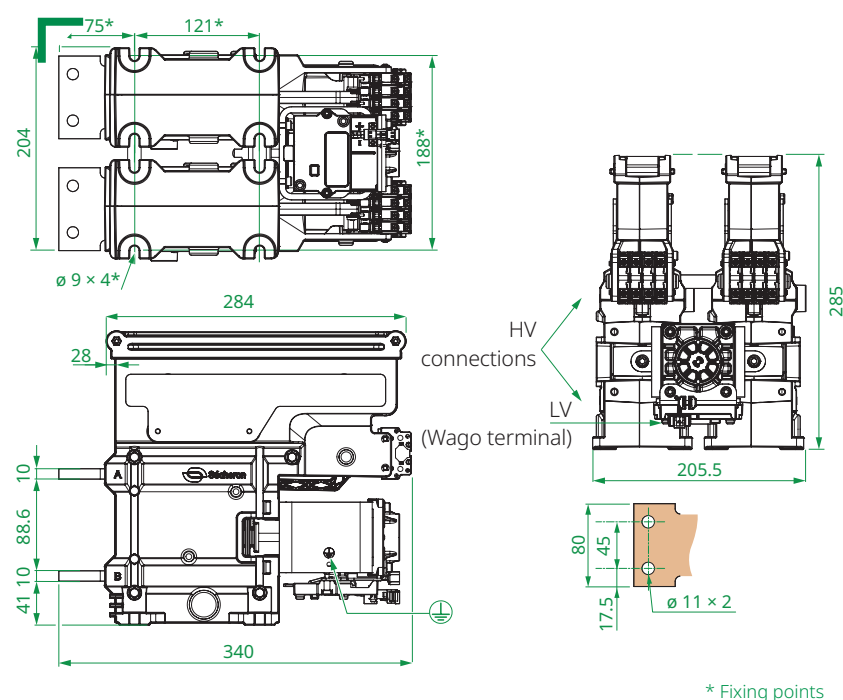


BMSH 09.15

1-POLE
Horizontal/Vertical
installation

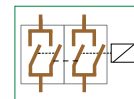


* Fixing points



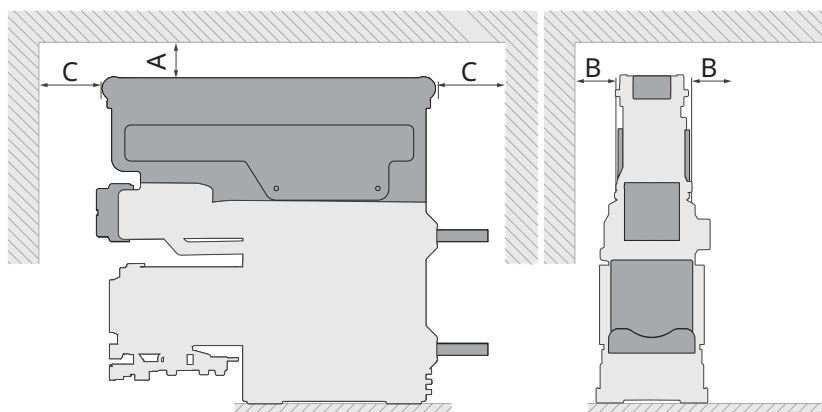
BMSH 09.15

2-POLES
Horizontal/Vertical
installation



* Fixing points

INSULATION DISTANCES AND WEIGHTS

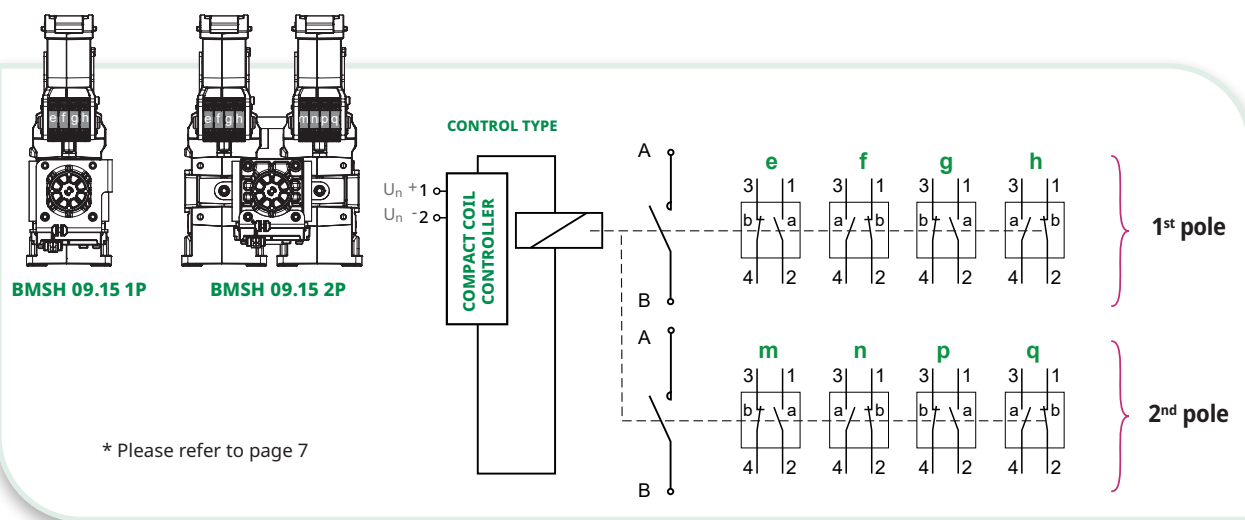


BMSH contactors have been homologated according to IEC60077-2 with the following insulation distances.

contactor type	Insulating distance [mm]*						Arc chute removal distance [mm]*	Weight: ± 0.5 kg [kg]*	
	To earthed wall			To insulating wall				1 Pole	2 Poles
	A	B	C	A	B	C			
BMSH 09.15	40	60	90	30	50	80	40	12.5	20

(*) Preliminary figures.

AUXILIARY CONTACTS CONFIGURATION



AUXILIARY SWITCH, SWITCH POSITION PER POLES

As a function of the selected quantity of poles and auxiliary switches per pole, the location of the switches will be as follows:

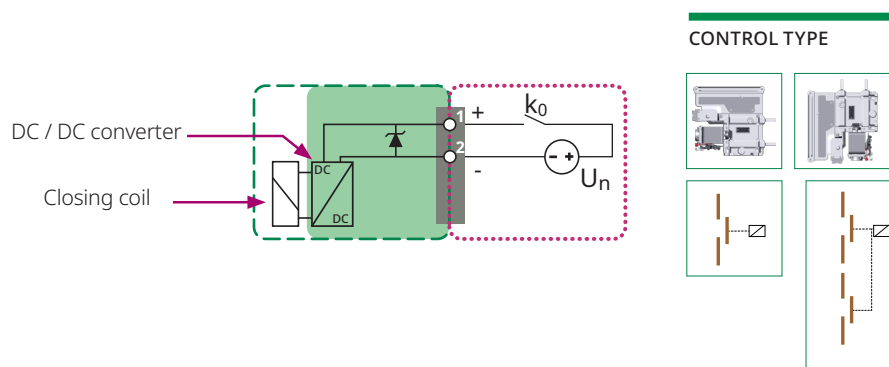
BMSH

			1 st pole	2 nd pole
1 switch	/	pole	g	p
2 switches	/	pole	f g	n p
3 switches	/	pole	e f g	m n p
4 switches	/	pole	e f g h	m n p q

LOW VOLTAGE CONTROL DIAGRAM

CONTACTOR CONFIGURATION ⁽¹⁾		Nominal supply voltage U_n [V _{dc}]	Closing power (P_c) / Holding power (P_h) [W] / [W]
BMSH 09.15	1 pole	[24-36], [48-110]	P_c (RMS, < 500 ms) $\leq$ 65 W $P_h = 5W$
	2 pole	[24-36], [48-110]	P_c (RMS, < 500 ms) $\leq$ 155 W $P_h = 5W$

⁽¹⁾ For details refer to pages 6.

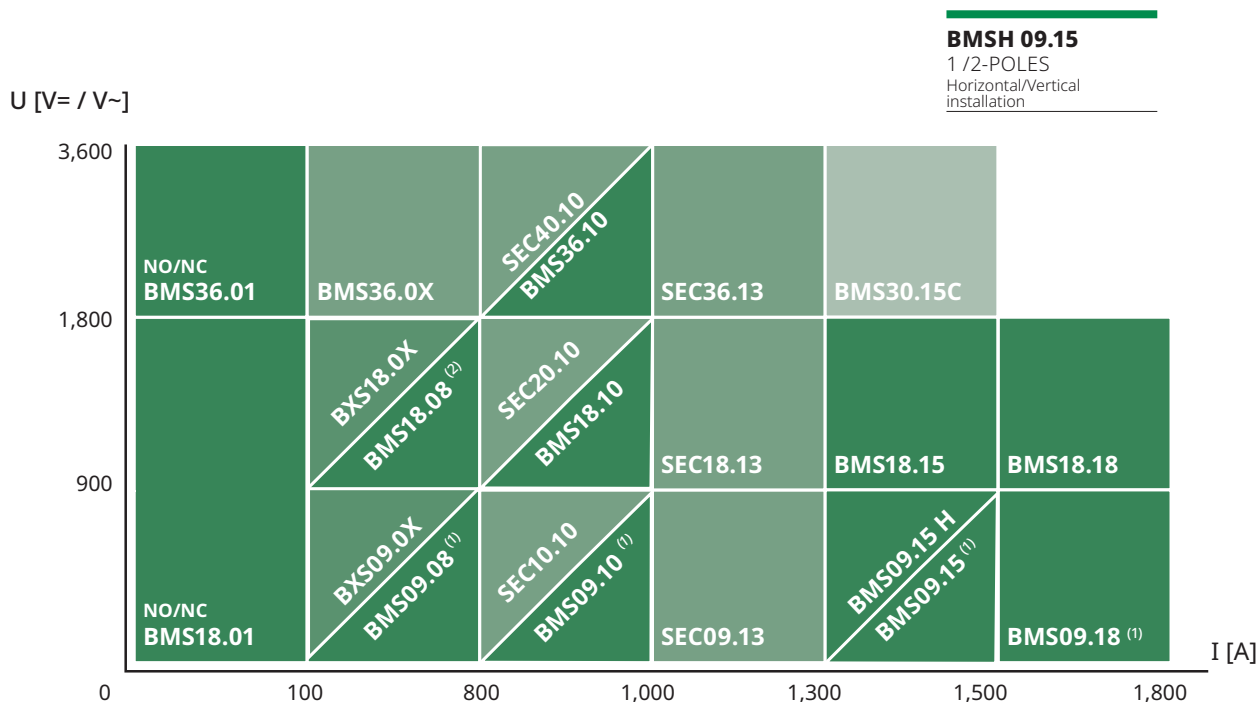


--- Sécheron's scope
..... Customer's scope

Low voltage interface
Coil controller

U_n : DC power supply
 k_0 : Supply relay

SECHERON CONTACTORS RANGE



BMS15.002 and **HS** contactors are still available for delivery on repeat order or as spares.

⁽¹⁾ **BMS09...** can be used for rated voltages up to 2,000 V_{AC}

⁽²⁾ A specific version of **BMS18.08** can also be used for rated voltage up to 4,000 V_{AC}

DESIGNATION CODE FOR ORDERING

- Be sure to establish the designation code from the latest version of our brochure by downloading it from the website: www.secheron.com.
- Be careful to write down the complete alphanumerical designation code with 16 characters when placing your order.
- For technical reasons some variants and options indicated in the designation code might not be combined, therefore validate your configuration with Sécheron before ordering.
- For other configurations not described in the brochure, please contact Sécheron.

Example of customer's choice:	BMSH	09	15	Z	1	Z	Z	E	A	Z	Z
Line:	10	11	12	13	14	15	16	17	18	19	20

The bold characters of the designation code define the device type.

Note: some combinations may not be possible, therefore validate your configuration with Sécheron before ordering

DESIGNATION CODE

Line	Description	Designation		Customer's
		Standard	Options	choice
10	Product type	BMSH	BMSH	BMSH
11	Rated operational voltage	900 Vdc / 1,800 Vac	09	09
12	Rated conventional free air thermal current	1,500 A	15	15
13	Spare digit	Z		
14	Number of poles	1 pole 2 poles	1 2	
15	Spare digit	Z		
16	Spare digit	Z		
17	Nominal supply voltage	24-36 V _{DC} 48-110 V _{DC}	A E	
18	Auxiliary contact per pole	1NO+1NC - (switch PF) - silver type 1NO+1NC - (switch PF) - gold type 2NO+2NC - (switch PF) - silver type 2NO+2NC - (switch PF) - gold type 3NO+3NC - (switch PF) - silver type 3NO+3NC - (switch PF) - gold type 4NO+4NC - (switch PF) - silver type 4NO+4NC - (switch PF) - gold type	A C E H K M O P	
19	Pre-Charge Contactor	No Precharge Yes - PCC18 Yes - PCC18 Yes - PCC18 Yes - PCC18	Z 1 2 3 4	
20	Spare digit		Z	

Signature:

Name:

Place and date:



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