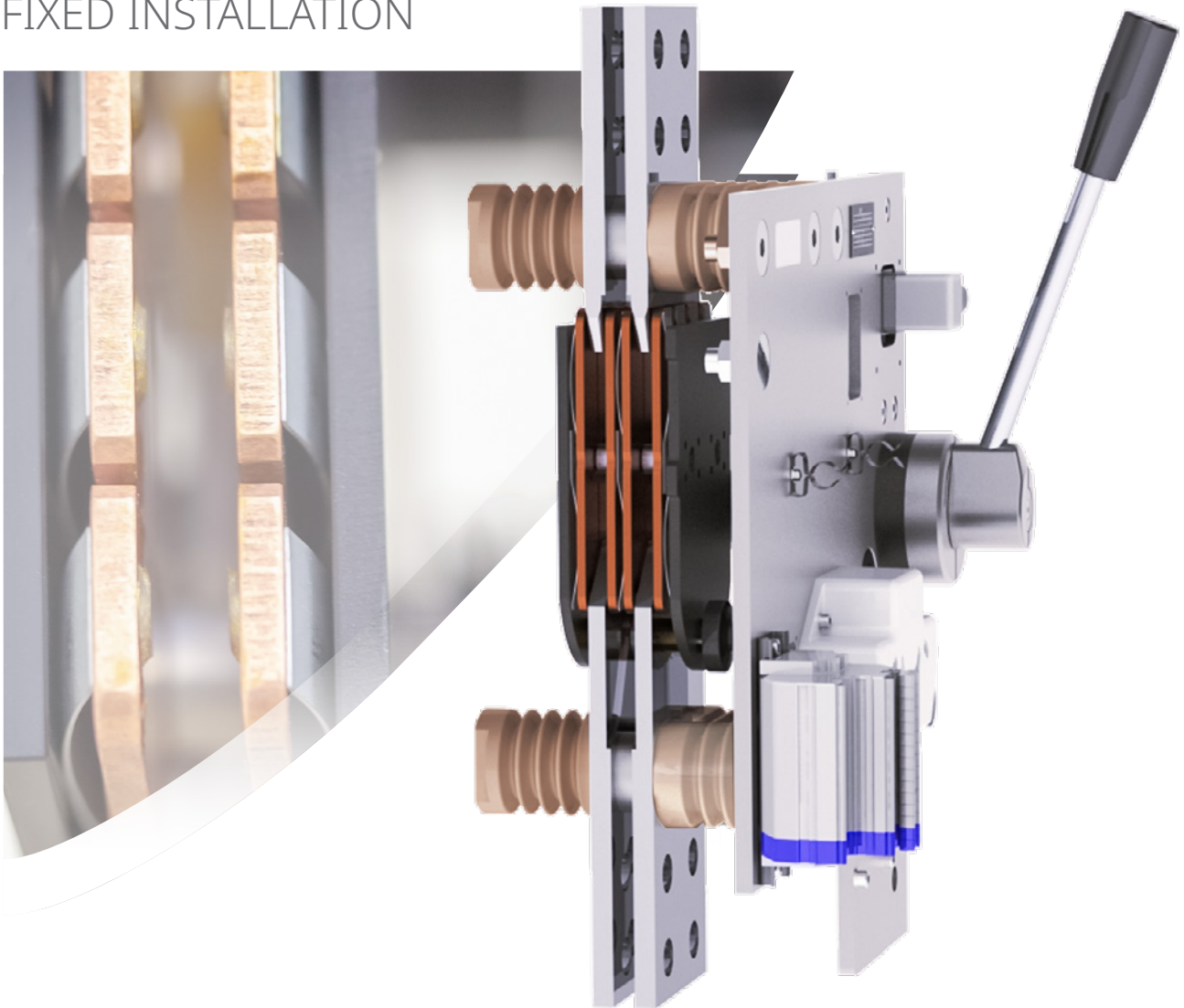


DISCONNECTOR

Type **SWx18... R23**

FIXED INSTALLATION

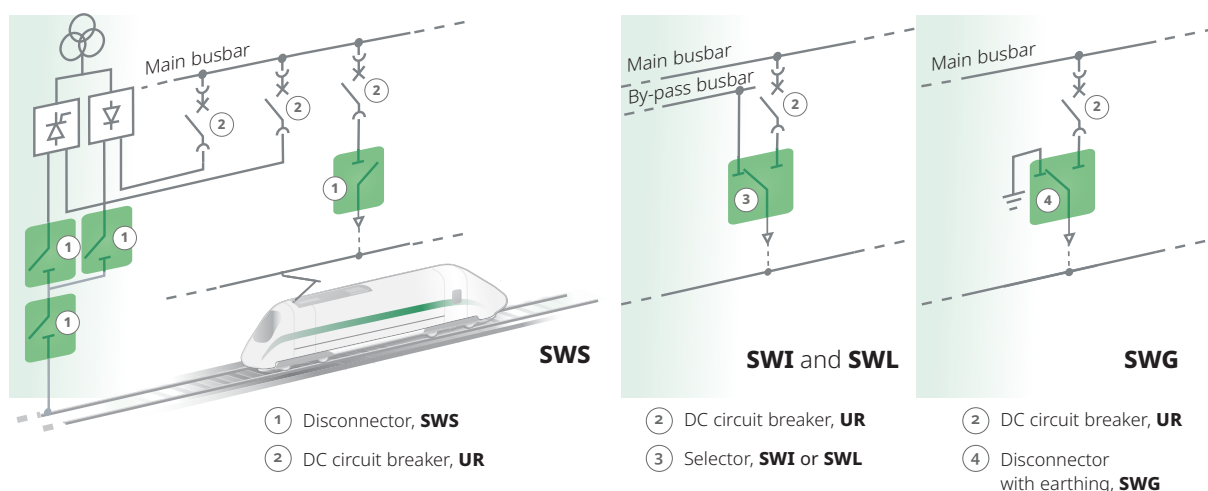


GENERAL INFORMATION

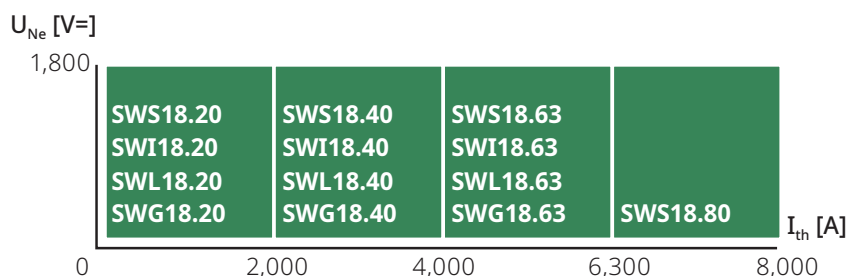
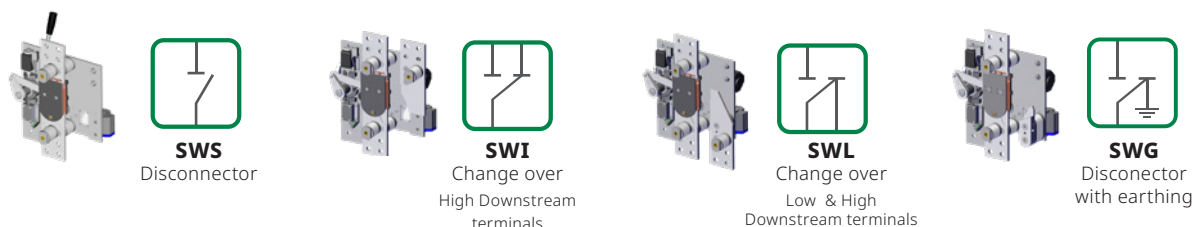
The **SW** off-load disconnector is a complete range designed to cover all the applications to be met in DC traction power substations and other industrial applications. Its modular concept enables to build single pole or double pole **SWS** disconnectors, **SWI**, **SWL** selectors or **SWG** earthing disconnectors, for rated operational voltage 1,800 V and rated currents from 2,000 to 8,000 A.

Installed inside cubicles, the **SW** disconnector can be operated either manually or electrically, and the customer can select among standard options safety interlockings made via key locks and/or electromagnets. The severe testing procedures applied for the type testing as well as for the serial testing make the **SW** disconnector a safe component with an extreme modularity and a high level of reliability.

APPLICATIONS, TYPICAL EXAMPLES



PRODUCT RANGE



The selection of the appropriate current rating is function of the load cycle. Please refer to Overload capacity table page 5.

All products are available in 1 pole or 2 poles, except the following one which are only available in one pole: **SWS18.80**.

MAIN FEATURES

- Rated operational voltage up to 1,800 V_{DC}
- Conventional free-air thermal current from 2,000 A to 8,000 A
- Safe with a high rated insulation voltage 3,000 V_{DC}
- 1 or 2 pole versions
- Reference standards: EN 50123-1/-3 except SWS18.80

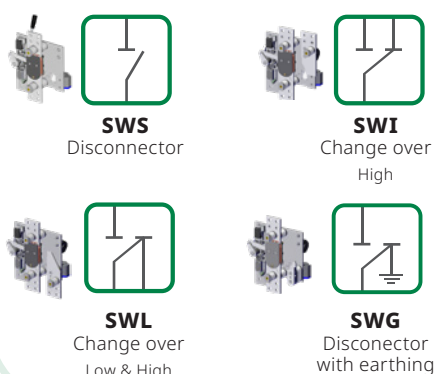
MAIN BENEFITS

- ✓ Compact size.
- ✓ High rated short-time withstand current value.
- ✓ Safe with the high voltage circuit separated from the low voltage circuit.
- ✓ Silver-plated high voltage connections.
- ✓ Optional locking of the main contacts available with either key and/or electromagnet.
- ✓ High mechanical durability: 20,000 cycles minimum.
- ✓ Self cleaning contacts.
- ✓ High modularity to cover all necessary variants and options.
- ✓ Simple design with reduced number of parts.

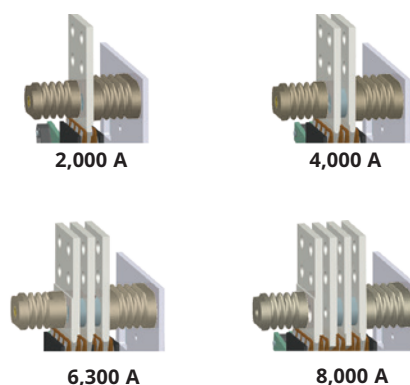
HIGH MODULARITY

The belows figures show the modularity of the industrialized designs of SWx range regarding operations, applications, poles number and rated thermal currents

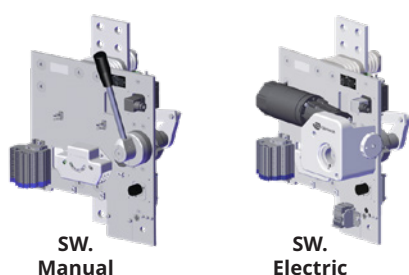
APPLICATION



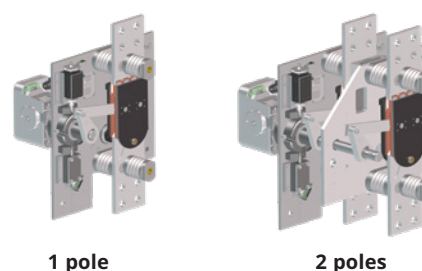
RATED THERMAL CURRENT



OPERATION



POLE NUMBER



DATA FOR PRODUCT SELECTION

	Symbol	Unit	SW...20	SW...40	SW...63	SW...80
MAIN HIGH VOLTAGE CIRCUIT						
Rated operational voltage	U_{Ne}	[V _{DC}]	1,800			
Rated insulation voltage	U_{NM}	[V]	3,000			
Rated service current	I_{Ne}	[A]	2,000	4,000	6,300	8,000
Conventional free air thermal current ⁽¹⁾	I_{th}	[A]	2,000	4,000	6,300	8,000
Peak and rated short-time withstand current ⁽²⁾						
SWS and SWI, SWG and SWL main contacts only	$\hat{I}_{NCW}/I_{NCW}/t$	[kA]/[kA]/[s]	178/125/0.25			
SWG grounding contact			20/14/0.25		40/28/0.25	
SWL lower contact	$\hat{I}_{NCW}/I_{NCW}/t$	[kA]/[kA]/[s]	60/40/0.25			
Overvoltage category			OV4			
Rated power-frequency withstand voltage ⁽³⁾						
- Pole - Pole	U_a	[kV]	11.0			
- Pole - Earth	U_a	[kV]	9.2			
Rated impulse withstand voltage (1.2/50 μs)						
- Pole - Pole	U_{Ni}	[kV]	24.0			
- Pole - Earth	U_{Ni}	[kV]	20.0			
⁽¹⁾ At Tamb = +40°C and tested with high voltage connections according to standard IEC/EN 60943. • ⁽²⁾ For specific values of the SWG earthing pole, refer to the figure and table of the page 5 • ⁽³⁾ At 50 Hz and during 1 minute						
LOW VOLTAGE AUXILIARY CIRCUIT						
Control circuit (motor and optional electromagnet lock)						
Nominal voltage	U_n	[V _{DC}] [V _{AC}]	24, 48, 60, 110, 125, 220 127 (50/60 Hz), 230 (50/60 Hz)			
Range of voltage			[0.8-1.1] U_n			
Motor nominal closing/opening power:						
- DC only		[W]	125			
- AC only		[W]	90			
Mechanical switching time ⁽⁵⁾	t_c	[S]	< 3 (SW... with DC motor) < 5 (SW... with AC motor)			
Electromagnet nominal power (DC and AC)		[W]	~14			
⁽⁵⁾ For motorized version, at nominal control voltage = U_n and Tamb = +20°C.						
Auxiliary contacts for main circuit and optional locks						
Type of contacts (refer to definition page 10)			Changeover (CO)			
Rated voltage		[V _{DC}] [V _{AC}]	24 to 220 230			
Conventional thermal current	I_{th}	[A]	10			
Maximum breaking capacity at 110 V _{DC} and t=5 ms		[A]	0.75			
Minimum let-through current at 24 V _{DC} ⁽⁶⁾		[mA]	10 (silver contacts)			
⁽⁶⁾ For a dry and clean environment.						
Low voltage interface						
Type of connection			Terminal block			
Insulation						
Rated power-frequency withstand voltage ⁽⁷⁾	U_a	[kV _{rms}]	2			
⁽⁷⁾ At 50 Hz and during 1 minute.						
OPERATING CONDITIONS						
Installation			Indoors			
Altitude		[m]	≤ 2,000			
Working ambient temperature	T_{amb}	[°C]	- 25 to +40			
Humidity			Class 5k2			
Pollution degree			PD4			
Minimum mechanical durability	N	Cycles	20,000			

OVERLOAD CAPACITY

		SW...20	SW...40	SW...63	SW...80
Application Duty Class - I_{Bd} [A] EN 50328 / IEC 62590	Class I	2,000	4,000	6,300	8,000
	Class V, VI, VII	2,000	3,000	4,200	—
	Class VIII	1,600	3,000	4,200	—

I_{Bd} : basic direct current

Class I	1 x I_{Bd}	continuously
Class V	a) 1 x I_{Bd} b) 1.5 x I_{Bd} c) 2.0 x I_{Bd}	continuously 2 hours - after a) 1 min - after a)
Class VI	a) 1 x I_{Bd} b) 1.5 x I_{Bd} c) 3.0 x I_{Bd}	continuously 2 hours - after a) 1 min - after a)
Class VII	a) 1 x I_{Bd} b) 1.5 x I_{Bd} c) 4.5 x I_{Bd}	continuously 2 hours - after a) 15 s - after a)
Class VIII	a) 1 x I_{Bd} b) 1.5 x I_{Bd} c) 2.0 x I_{Bd}	continuously 2 hours - after a) 1 min - after b)

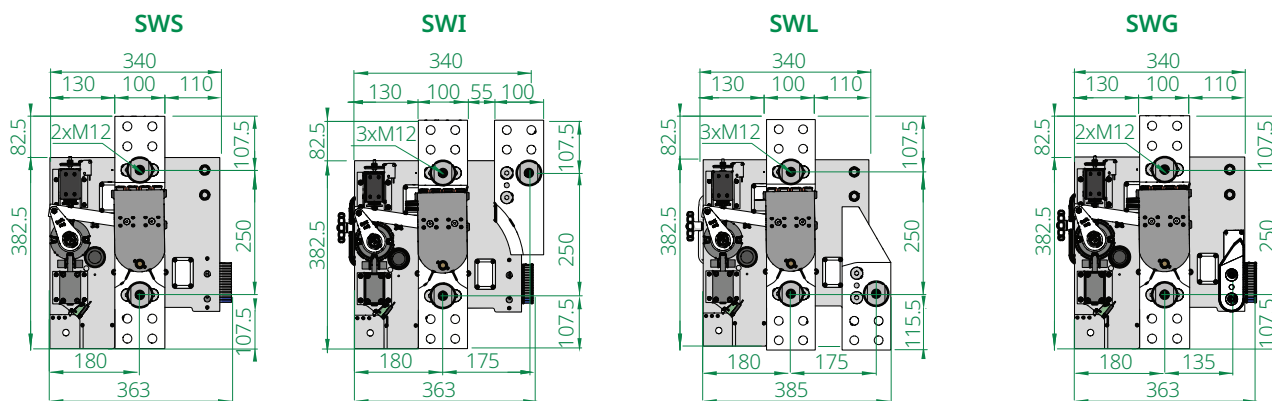
INFORMATION FOR PRODUCT INTEGRATION

MAIN DIMENSION

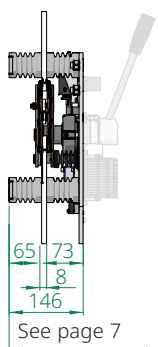
The DIN-ISO 2768-1 coarse tolerances are applied to these dimensions.
All dimensions are in mm.

Note: Each SW can be equipped with manual or motorized (DC or AC) operation.

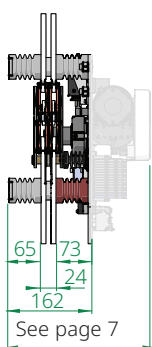
SW.18...



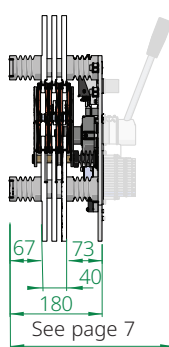
SW.18.20



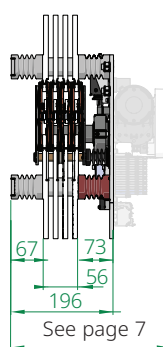
SW.18.40



SW.18.63

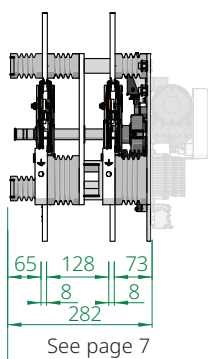


SW.18.80

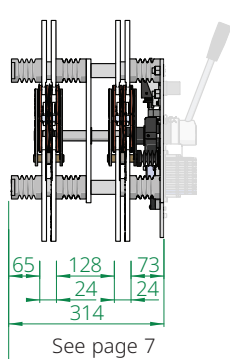


SW.18...
1-POLE
configurations

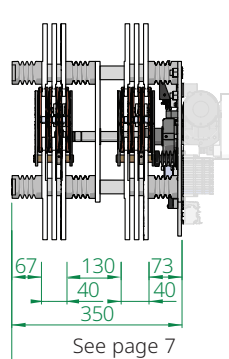
SW.18.20



SW.18.40



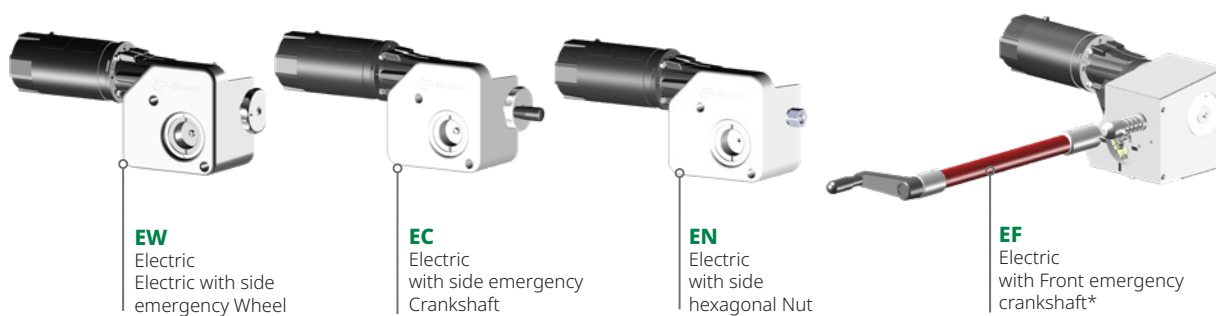
SW.18.63



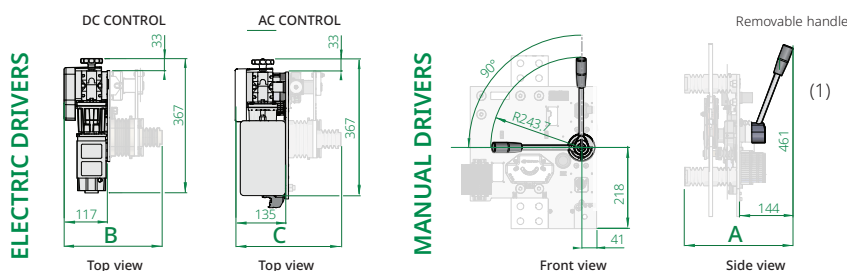
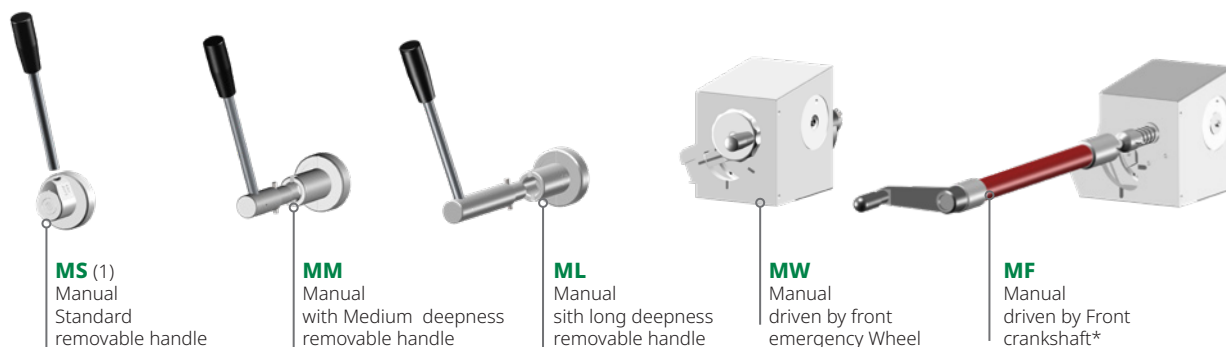
SW.18...
2-POLES
configurations

OPERATION DEVICES

ELECTRIC DRIVERS



MANUAL DRIVERS



*Front crankshaft to be ordered separately

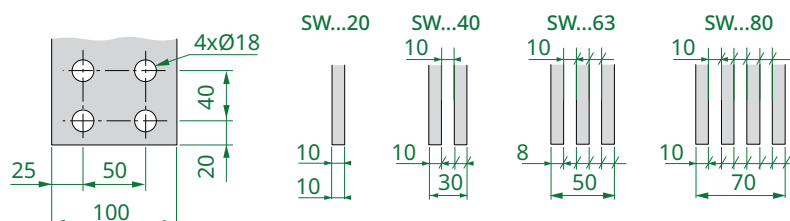
These schemes are valid for EW, EC and EN.

For other configuration contact Sécheron.

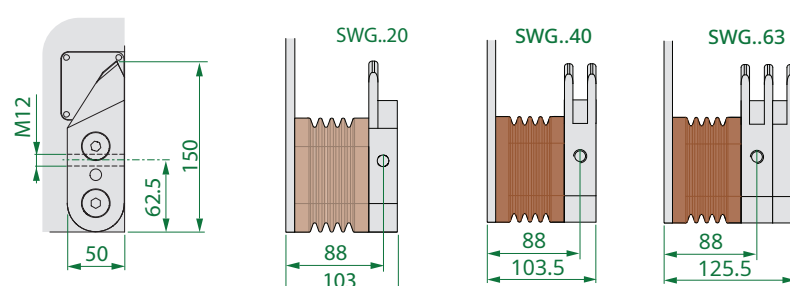
(1) MS configuration, other on demand.

DIMENSIONS		A	B	C
SW.18.20	- 1 pole / 2 poles	290 / 426	263 / 399	281 / 417
SW.18.40	- 1 pole / 2 poles	306 / 458	279 / 431	297 / 449
SW.18.63	- 1 pole / 2 poles	324 / 494	297 / 467	315 / 485
SW.18.80	- 1 pole	340	313	331

The busbars or cables must be mechanically fixed outside the SW disconnector, and their contact surface must be parallel to the HV connections:

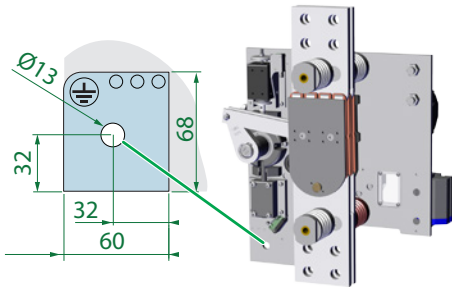


FOR ALL DEVICES



SWG EARTHING POLE

/// DETAILS OF THE EARTH CONNECTION ON THE BASE PLATE



* On request

/// WEIGHTS

SWS	1 pole				2 poles		
	18.20	18.40	18.63	18.80	18.20	18.40	18.63
MA [kg]: ± 1 kg	12	16	20	24	20	28	36
MO [kg]: ± 1 kg	18	22	26	30	26	34	42

SWG	1 pole			2 poles		
	18.20	18.40	18.63	18.20	18.40	18.63
MA [kg]: ± 1 kg	13	19	28	24	36	48
MO [kg]: ± 1 kg	19	25	31	30	42	54

SWI / SWL	1 pole			2 poles		
	18.20	18.40	18.63	18.20	18.40	18.63
MA [kg]: ± 1 kg	16	22	28	26	38	50
MO [kg]: ± 1 kg	22	28	34	32	44	56

Additional info.

MA : manual operation
MO: electric operation

The given weight corresponds to the heaviest AC motor configuration.

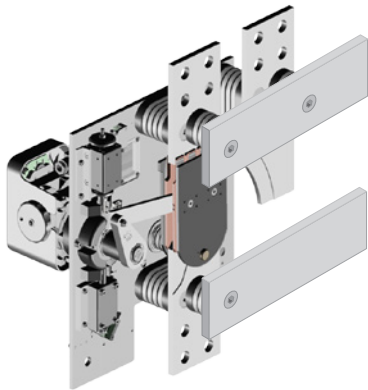
For DC motor, weights are slightly lower.

Weight may be different depending on product configuration with options.

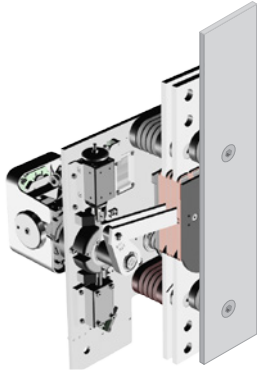
SW FIXATION

/// EXAMPLE OF EXECUTIONS

SWI

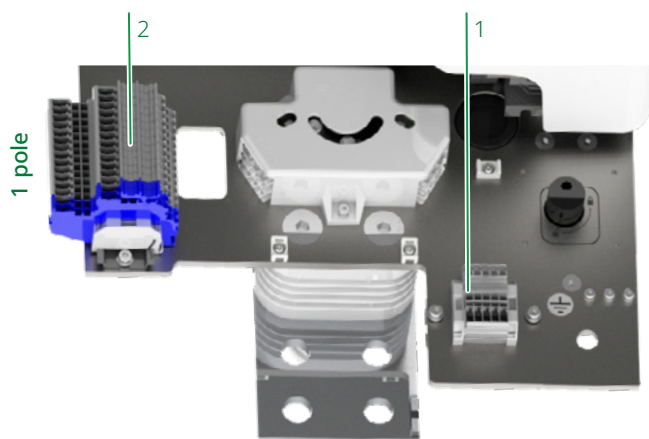


SWS-SWG



The SW series switches are fixed vertically as shown here by means of M12 screws.

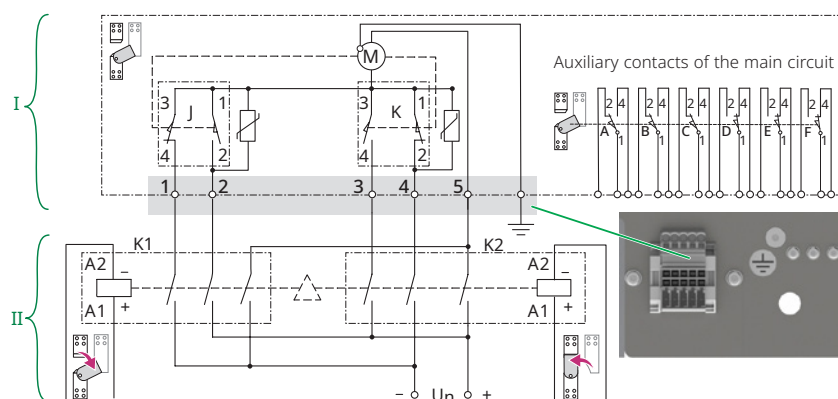
LOW VOLTAGE CONTROL AND INTERFACES



Legend of the schemes:

1. Terminal block for motor control only.
2. Terminal block to connect the auxiliary switches of each pole for SW open/close status (two poles version).

CONTROL DIAGRAM FOR DC VOLTAGE MOTOR



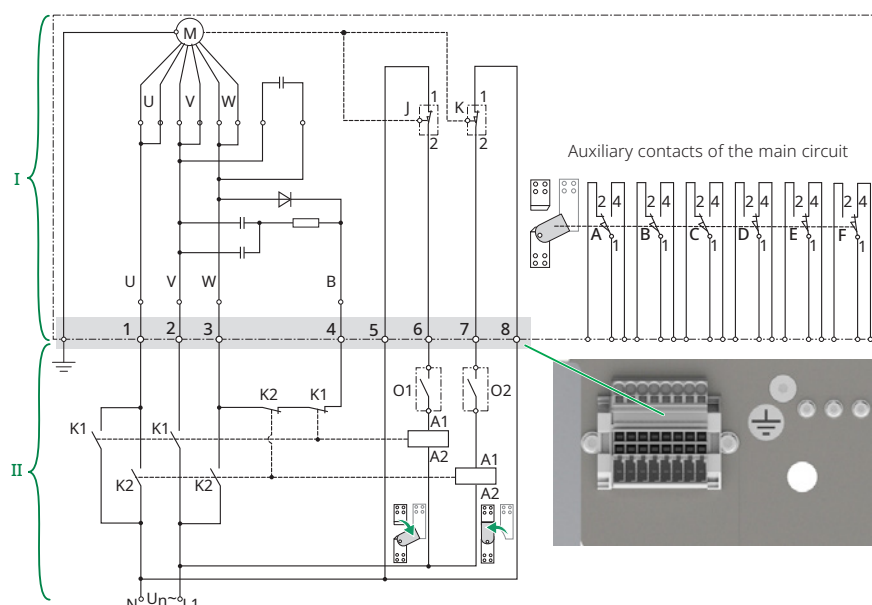
Control scheme valid for all SW...

As the motor needs to be dynamically braked, make the external circuit (II) as shown on this diagram:

Legend of the schemes:

- I. SW scope.
- II. Customer scope.
Both contactors K1 and K2 must be mechanically interlocked to avoid them to be triggered at the same time; and each of them must have three NO contacts.

CONTROL DIAGRAM FOR AC VOLTAGE MOTOR



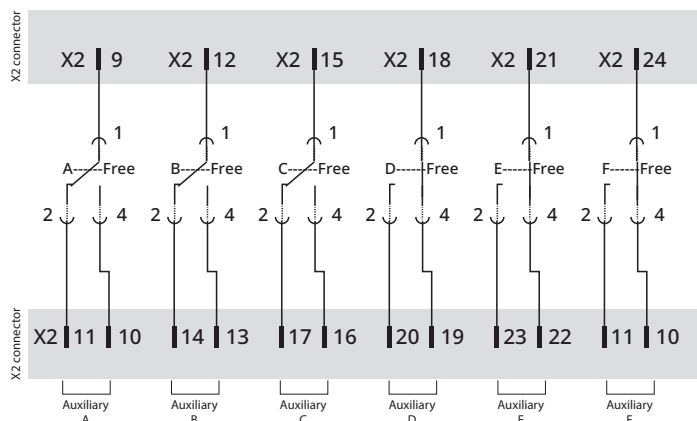
As the motor needs to be dynamically braked, make the external circuit (II) as shown on this diagram:

Legend of the schemes:

- I. SW scope.
- II. Customer scope.
Each of the K1 and K2 contactors must have two NO and one NC contacts.

This interface is for SWX only - it is a typical example.
For other configuration please contact Sécheron.

WAGO - AUXILIARY CONNECTION



LOW VOLTAGE MOBILE CONNECTOR (DESIGNATION CODE FOR SEPARATELY ORDERED ITEMS)

Wago mobile connector		
Function	Modules	Wago number
Auxiliary switches	14	2022-114*
Electromagnet	2	2022-102
DC drive unit	5	2022-105
AC drive unit	8	2022-108

Please contact Sécheron
to define item number

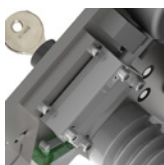
* the 2022-114 is required twice. Other as
needed.

LOCKING SYSTEMS

GENERAL COMMENTS

- ✓ Lock is preventing the switching by hazard.
- ✓ Lock of standard and alternative position is mandatory for manual SWx only
- ✓ Each lock is equipped with a Change Over Auxiliary Switch indicating the Open Status of the lock
- ✓ For electrical SWx, the Change Over Auxiliary Switch should be monitored to authorize device switching
- ✓ A lock can lock standard position or alternative position or both position

KEY LOCK / LOCK W/O CYLINDER



- ✓ Key is removable only when Lock is blocking SWx position.
- ✓ Random key Lock is delivered with a key and associated cylinder having a unique code.
- ✓ Lock W/O cylinder is delivered without cylinder and key, these have to be ordered separately. It allows to customer to order RONIS cylinder and key with specified code.

PADLOCK LOCK

- ✓ PADLOCK LOCK authorized installation of a padlock blocking SWx position.
- ✓ Padlock itself is not provided with SWx device
- ✓ PADLOCK LOCK design authorized use of Padlock multiplier.



EMAG



- ✓ EMAG consists of locking by use of Electromagnet Lock.
- ✓ To change SWx main position, EMAG has to be unlock and for this energized.

MANUAL LOCK

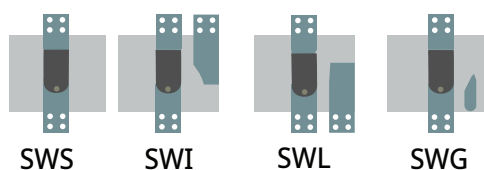
- ✓ Manual lock has to be selected for manual SWx only and only if there is one position or both having no other Lock.



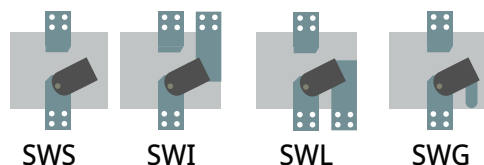
LOCKING SYSTEM CONFIGURATIONS

LOCKED POSITION OF MOVIG CONTACT

These schematics are rear view of the SWs



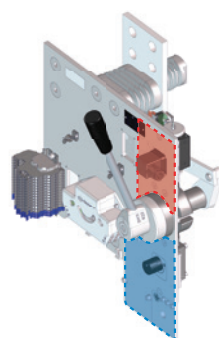
Standard position



Alternative position

LOCKING SYSTEM POSITIONS

The standard lock system is located on the lower position. If a second lock system is requested, it will be located on upper position.



Upper position

Optional second lock location

Lower position

Standard lock position

CONFIGURATION TABLE

Standard position Locked	Alternative position Locked	Standard	option
—	—	00 ⁽¹⁾	
Manual lock		MM ⁽²⁾	
—	Lock w/o cylinder		0C ⁽¹⁾
—	EMAG		0E ⁽¹⁾
—	Random keylock		0K ⁽¹⁾
Lock w/o cylinder			CC
Lock w/o cylinder	—		C0 ⁽¹⁾
Lock w/o cylinder	Lock w/o cylinder		CD ⁽²⁾
EMAG			EE
EMAG	—		E0 ⁽¹⁾
EMAG	Lock w/o cylinder		FC
EMAG & Lock w/o cylinder			GG
Random keylock			KK
Random keylock	—		K0 ⁽¹⁾
Random keylock	Manual Lock		KN ⁽²⁾
Manual Lock	Lock w/o cylinder		NC ⁽²⁾
Manual lock	EMAG		NE
Manual lock	Random keylock		NK ⁽²⁾
Random keylock	Random keylock		LK ⁽²⁾

⁽¹⁾ Electric version only

⁽²⁾ Manual version only

■ Upper position

■ Lower position

Other locking options, please contact Sécheron

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 13 characters when placing your order.
- For technical reasons some variants and options indicated in the designation code might not be combined.
- For other configurations not described in the brochure, please contact Secheron.
- The bold characters of the designation code define the device type.

Example of customer's choice:	SW	I	18	40	EW	1	24	00	Z	Z
Line:	10	11	12	13	14	15	16	17	18	19

DESIGNATION CODE*

(*) Options are subject to additional costs

Line	Description	Designation	standard	Options	Customer's choice
10	Product type	Indoor disconnecter	SW		SW
11	Application	Disconnecter Grounding Disconnecter Change Over (2 terminals on top) Change Over (2 terminals on bottom)	S	G I L	
12	Rated operational voltage	1,800 V	18		
13	Conventional free-air thermal current ⁽¹⁾	2,000 A 4,000 A 6,300 A 8,000 A	20 40 63 80		
14	Operation	Electric, with side emergency Wheel Manual, driven by front Standard length handle, 150 mm Manual, driven by front Medium length handle, 180 mm Manual, driven by front Long length handle, 350 mm Manual, driven by front emergency Wheel Manual, driven by Front crankshaft Electric, with side emergency Crankshaft Electric, with side hexagonal Nut Electric, with Front emergency crankshaft	EW MS	MM ML MW MF EC EN EF	
15	Number of pole	1 pole 2 poles ⁽²⁾	1	2	
16	Nominal supply voltage	None 24 V _{DC} 48 V _{DC} 60 V _{DC} 110 V _{DC} 125 V _{DC} 220 V _{DC} 230 V _{AC} - 50/60 Hz 127 V _{AC} - 50/60 Hz	ZZ 11 23	24 48 60 12 22 17	
17	Locking of main positions Z and Y and lock position on front plate ⁽³⁾	No lock Both positions locked with Manual lock positioned on bottom Both positions locked with Lock w/o Cylinder positioned on bottom Both positions locked with EMAG positioned on bottom Both positions locked with EMAG positioned on upper and Lock w/o Cylinder on bottom For other locking configuration, Please refer to page 11	00 ⁽⁴⁾ MM ⁽⁵⁾	CC EE GG	
18	Spare digit	No customization	Z		
19	Customization	No customization	Z		

⁽¹⁾ The selection of the appropriate current rating is function of the load cycle. Check with Sécheron that your selection is consistent with the application load cycle. Please refer to overload capacity table page 5. ⁽²⁾ Prohibited for 8,000 A. ⁽³⁾ For manual devices, all positions not locked with lock or EMAG will be locked by manual locking lever. ⁽⁴⁾ Electrical version only. ⁽⁵⁾ Manual version only.



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