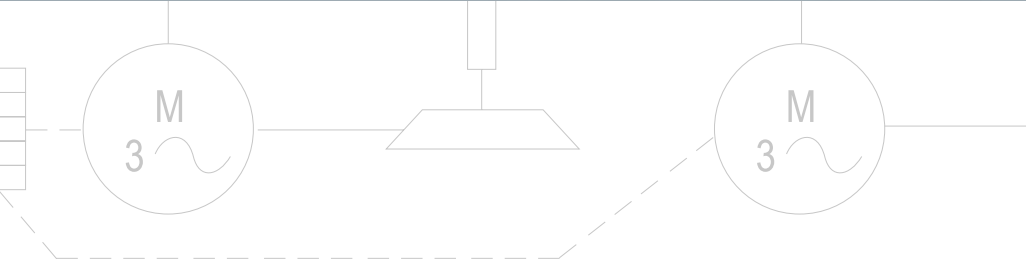
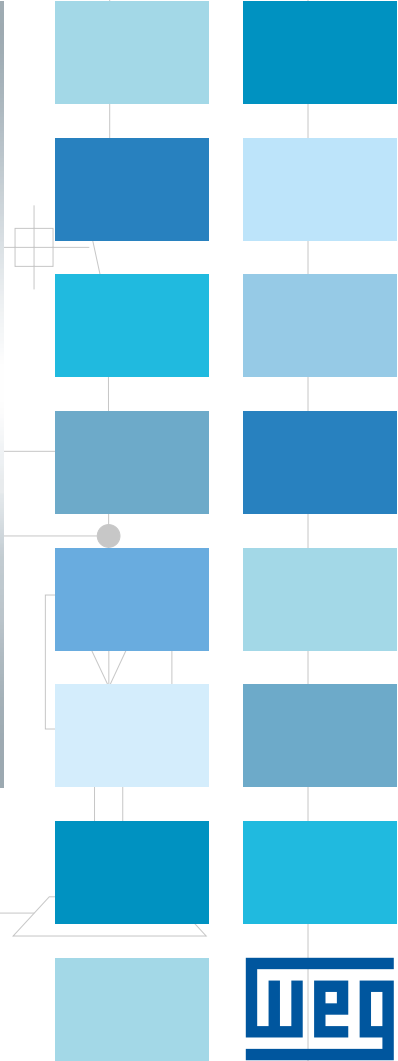
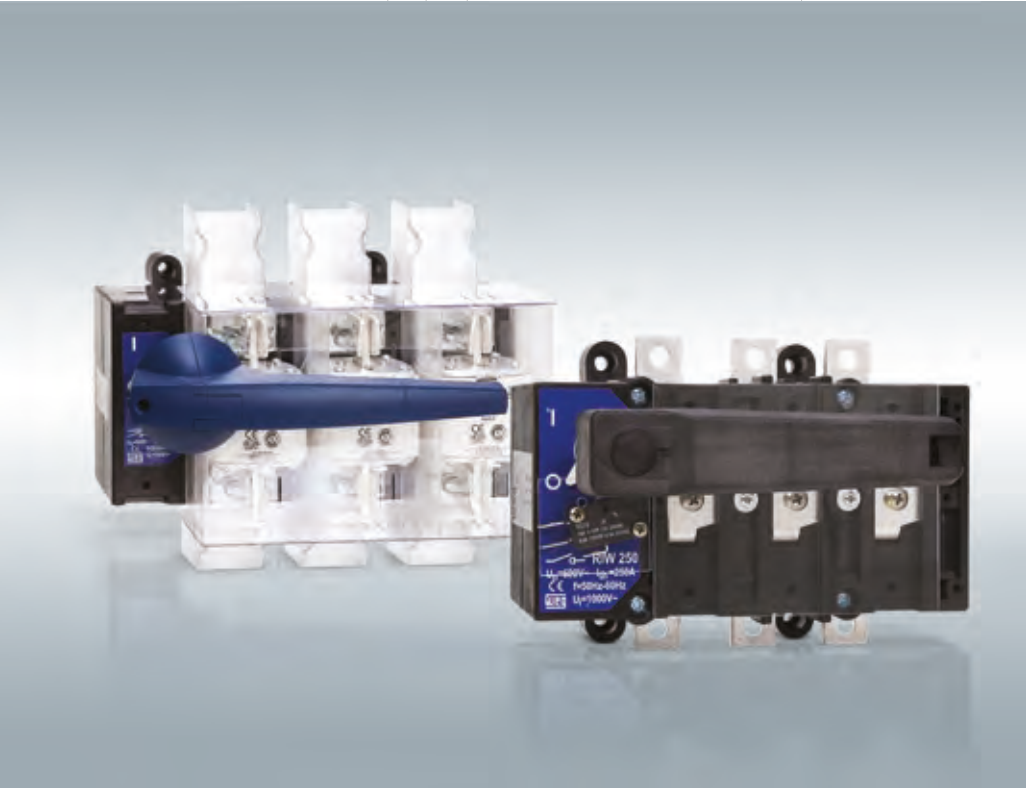
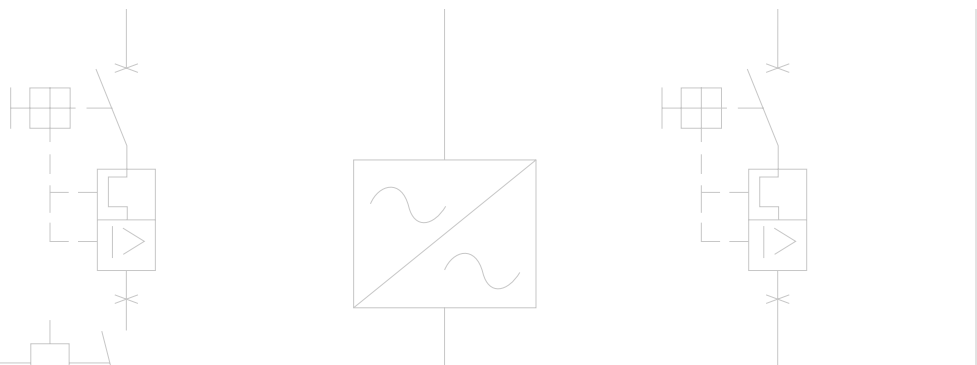
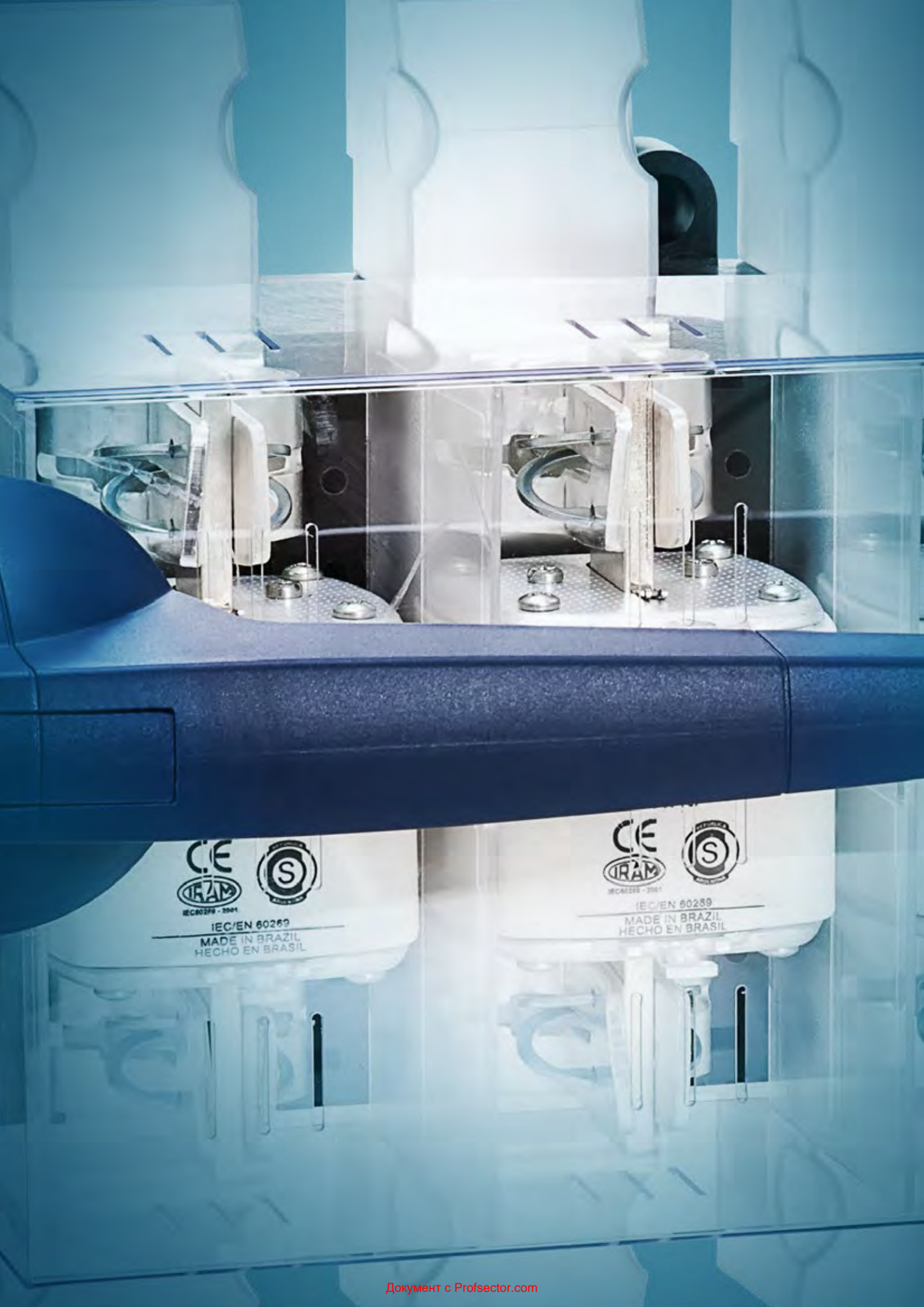


Automation

RFW and RIW Switch-Disconnectors





IEC/EN 60269
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Switch-Disconnectors RFW and RIW

Summary

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Features	05
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Sizing the Switch-Disconnector	07
RFW and RIW	09
Accessories	10
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Switch-disconnecting with safety and efficiency

RFW



WEG switch-disconnector-fuses RFW and switch-disconnectors RIW are designed according to IEC 60947-3 and IEC 60947-1 international performance standards for on load distribution circuits, making and braking currents on a grid and for general electrical equipment applications. On the RFW series, it is also possible to mention the protection of electrical equipment against short-circuits and overloads with “NH” blade contact fuses.

Both switch-disconnector lines are available on currents of 100 A, 160 A, 250 A, 400 A and 630 A models. There is also a 1,250 A model on the RIW series.

The switch-disconnector-fuses RFW include bases for NH blade contact fuses with sizes of: 000, 00, 1, 2 and 3. These blade contact fuse dimensions are established by the DIN 43620 standard.

RIW and RFW drives are rotary, made through direct frontal handle or by panel door mounting handle, which is provided as accessory. The door mounting handles allow locking by padlocks in off position.



RIW

RFW and RIW Features

RFW and RIW characteristics that guarantee safety, performance and easy operation:

- Self-extinguishing thermoplastics (V0 flammability class)
- High electrical and mechanical endurance
- Transparent front cover that allows fuses visualization and their status (RFW series only)
- Easy fuse replacements (RFW series only)
- Manually operated drive (spring powered)
- Built-in auxiliary contact
- Silver plated parts of current circuits
- Safety of service and switching
- Easy installation
- Self-tightening and self-cleaning contacts
- Wide range of accessories
- Complete isolation of fuse links in “off” position (RFW series only)
- High short-circuit making and breaking capacity (RFW series only)
- Double insulation, safe clearance between open contacts

Applications

WEG RFW and RIW switch-disconnectors were developed to guarantee safety and efficiency on grids and equipments during "on load" manual switching, being able to make and break currents, including to support short-circuit currents for a specific period. Besides all of these characteristics, the RFW series saves physical space as it is applied along the NH blade contact fuses.

Food & Beverages

OEM

Pulp & Paper

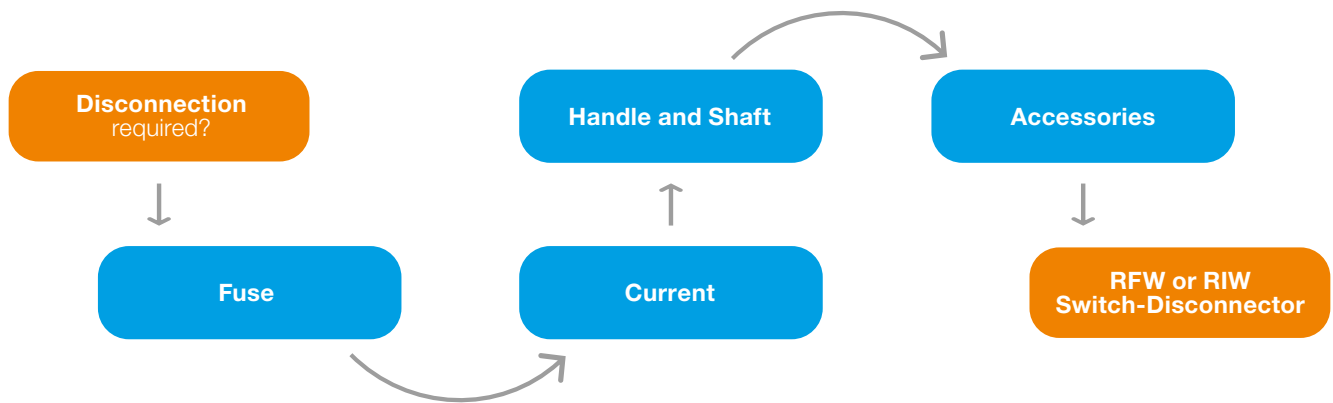
Mining

Industrial General Applications

Building Technologies



Sizing the Switch-Disconnecter



1 - Fuse

The application will demand or not a RFW switch-disconnector-fuses depending on space savings (fuses would be already installed inside the switch-disconnector). Regarding the fuse class, it is indicated the aR fuse if the application requires only a short-circuit protection like a Soft-Starter or a Variable Speed Drive, or in case the protection should be for short-circuit and overload, gLgG fuses are an option.

The RFW switch-disconnector-fuses size is directly linked to the dimensioned NH type fuse with blade contacts size established by standard DIN 43620 (000 up to 3). Based on the fuse size definition, it is possible to select the frame of the switch-disconnector-fuses (refer to the chart at page 9).

At those cases where it is necessary just circuit disconnection, the RIW model is the right choice. For applications or machines that demands smaller currents there is also the MSW switch-disconnector in WEG's product portfolio.

2 - Current

Secondly, it must be checked if the RFW or RIW is capable to carry the circuit rated current (the maximum values are presented on page 9).

At last, the rated current of the fuse can be higher than the switch-disconnector one, due to criteria of fuse dimensioning.

3 - Handle and Shaft

The RFW and RIW already come with a direct frontal handle. But in case it is required an external handle for panel door mounting, this accessory is easily attainable. For the door mounting application, it is also necessary to use a shaft, which must have a length equal to or longer than the distance required between the switch-disconnector and the handle.

With these characteristics, it is possible to define a standard switch-disconnector, but WEG offers other accessories that may be required for each application.

4 - Accessories

Besides the wide range of handles and shafts for panel door mounting, there are other accessories to mention:

4.a - Terminal Cover

Aiming at enhancing the safety of machinery and equipment, the RFW and RIW series provide terminal covers that reduce the risk of inadvertent contact with the terminals. This accessory must cover all the poles with live conductors.

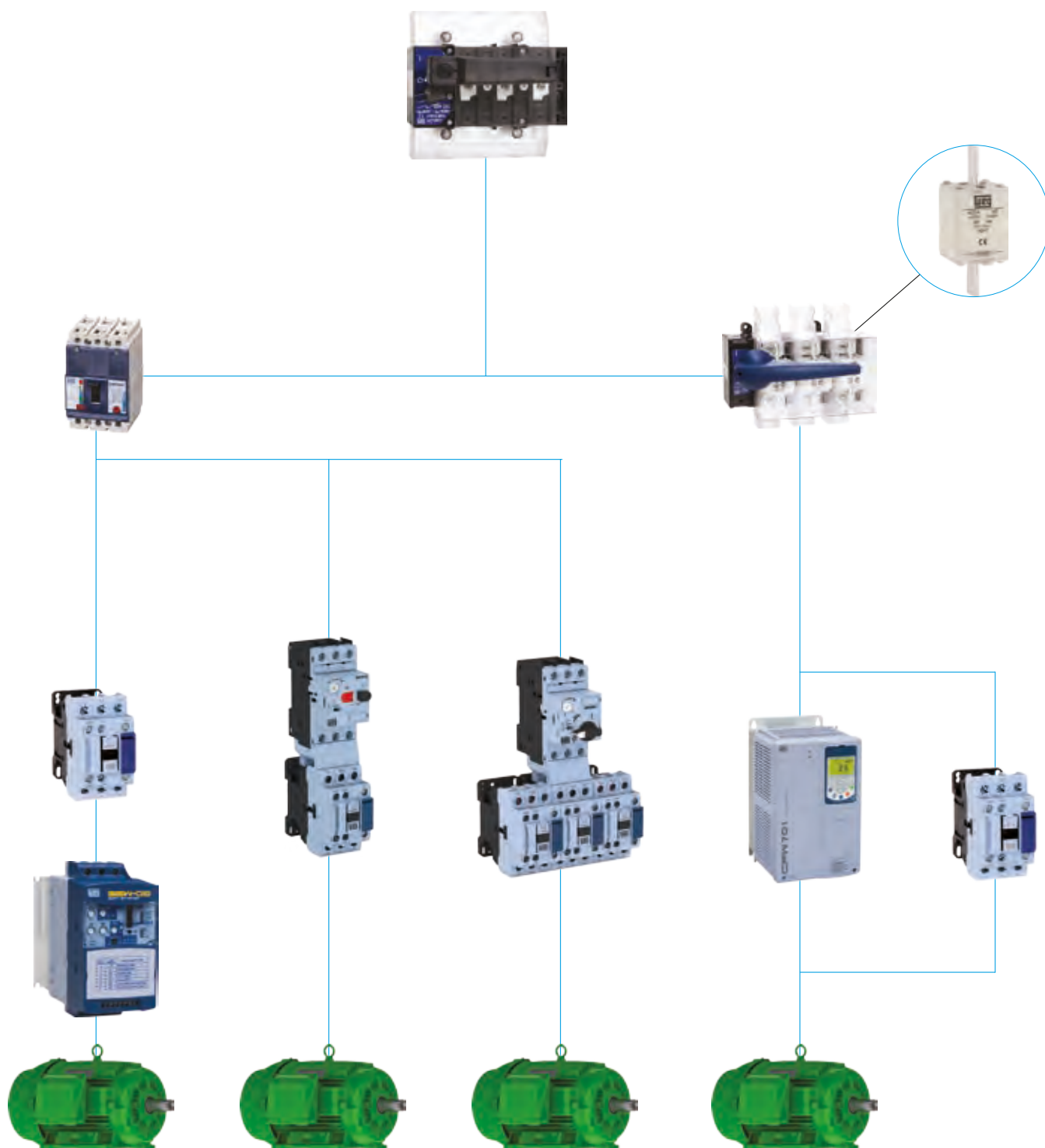
4.b - Fuse Link Cover

The RFW switch-disconnector is supplied with the fuse links cover, but it can be purchased separately as a spare part.

Note: 1) WEG also offers solutions on Fuses-Switch-Disconnectors, that has also the possibility to install NH blade contact fuses. In case of interest, please refer to the FSW series catalog.



Sizing the Switch-Disconnecter



Operating Conditions

- To be installed in a room free of aggressive or explosive gases
- Ambient temperature from -25 °C to +55 °C
- Altitude up to 2,000 meters above sea level
- For outdoor applications, it should be installed in cabinets with protection degree higher than IP34

Sizing the Switch-Disconnecter

Main Applications

- Main switch-disconnector in distribution panels
- Switch-disconnector with control and protection for electrical circuits and motors

Installation

RFW switch-disconnectors-fuses and RIW switch-disconnectors are designed for operation in horizontal or vertical position with permissible deviation of 30 degrees, in any direction.

RFW and RIW

RFW Switch-Disconnecter-Fuses

Reference	Current (A)	NH blade-contact fuse size	Poles
RFW100-3 H	100	000	3
RFW160-3 H	160	00	
RFW250-3 H	250	1	
RFW400-3 H	400	2	
RFW630-3 H	630	3	

Note: all RFW switch-disconnector-fuses include direct frontal handle.



RIW Switch-Disconnecter

Reference	Current (A)	Poles
RIW100-3 H	100	3
RIW160-3 H	160	
RIW250-3 H	250	
RIW400-3 H	400	
RIW630-3 H	630	
RIW1250-3 H	1,250	

Note: all RIW switch-disconnector include direct frontal handle.





Accessories

Rotary Handle for Panel Door Mounting

- Possibility of panel door opening only with the switch-disconnector in OFF position
- Total locking of the system (switch-disconnector and panel door) with up to three padlocks in OFF position
- Door interlock with release mechanism for opening in ON position for panel tests
- Different shaft lengths
- IP55 protection degree

Reference	RFW	RIW	Handle (mm)	Color
RIF H-65-B	RFW100	RIW100	65	Black
RIF H-65-R	RFW100	RIW100	65	Red
RIF H-95-B	RFW160	RIW160/250	95	Black
RIF H-95-R	RFW160	RIW160/250	95	Red
RIF H-125-B	RFW250/RFW400	RIW400/630	125	Black
RIF H-125-R	RFW250/RFW400	RIW400/630	125	Red
RIF H-145-B	RFW630	-	145	Black
RIF H-145-R	RFW630	-	145	Red
RIF H-175-B	RFW630	RIW1250	175	Black
RIF H-175-R	RFW630	RIW1250	175	Red



Shaft for Panel Door Mounting Rotary Drive Handle

Reference	RFW	RIW	Length (mm)	Width x Height (mm)
RIF SE 100-8	RFW100	RIW100	100	8x8
RIF SE 200-8	RFW100	RIW100	200	8x8
RIF SE 400-8	RFW100	RIW100	400	8x8
RIF SE 600-8	RFW100	RIW100	600	8x8
RIF SE 100-10	RFW160	RIW160/250	100	10x10
RIF SE 200-10	RFW160	RIW160/250	200	10x10
RIF SE 400-10	RFW160	RIW160/250	400	10x10
RIF SE 600-10	RFW160	RIW160/250	600	10x10
RIF SE 100-12	RFW250/RFW400/RFW630	RIW400/630/1250	100	12x12
RIF SE 200-12	RFW250/RFW400/RFW630	RIW400/630/1250	200	12x12
RIF SE 400-12	RFW250/RFW400/RFW630	RIW400/630/1250	400	12x12
RIF SE 600-12	RFW250/RFW400/RFW630	RIW400/630/1250	600	12x12



Note: shaft accessories shown above include a respective coupling mechanism.



Accessories

Terminal Cover

- Cover for 3 terminals
- Possibility to install up to 2 terminal covers per switch-disconnector
- Directly fits to switch-disconnector body

Reference	RFW	RIW	Number of protected poles
RIF TS-100	RFW100	RIW100	3
RIF TS-250	RFW160	RIW160/250	3
RIF TS-630	RFW250/RFW400/RFW630	RIW400/630	3



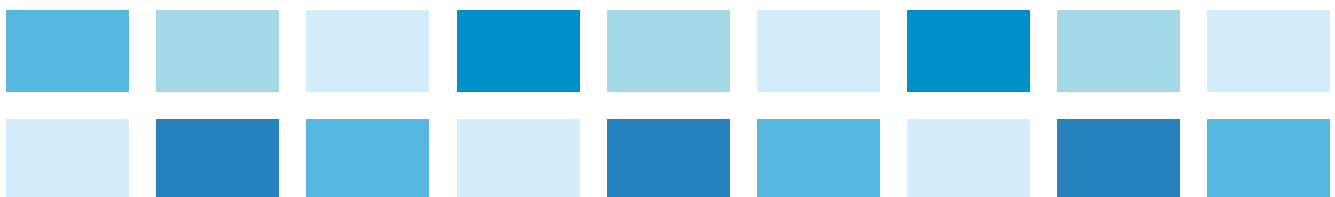
Fuse Link Cover

- Cover for 3 fuse links
- Transparent material, allowing fuse links visualization
- Easy-fitting and tool-less handling

Reference	RFW	Color
RFW FS-100	RFW100	Transparent
RFW FS-160	RFW160	
RFW FS-400	RFW250/RFW400	
RFW FS-630	RFW630	



Note: the fuse link cover is already included on the standard RFW switch-disconnectors, but it is also available as a spare part.



Technical Data

RFW Switch-Disconnecter-Fuse

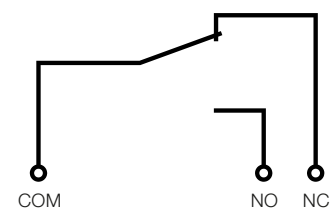
Reference code		RFW 100	RFW 160	RFW 250	RFW 400	RFW 630	
Standards		IEC 60947-3					
Rated operating voltage Ue	V	690					
Rated insulation voltage Ui	V	1,000					
Rated impulse withstand voltage Uimp	kV	8					
Rated thermal current Ith	A	100	160	250	400	630	
Rated frequency	Hz	50/60					
Rated operating current: alternate current							
AC-21A	690 V	A	100	125	250	400	-
AC-21B	500 V	A	100	160	250	400	630
AC-22A	690 V	A	100	125	250	400	-
AC-22B	690 V	A	100	125	250	400	630
AC-23A	415 V	A	40	160	250	400	630
Rated power dissipation	W	7.5	12	32	45	60	
Rated short-time short circuit withstand current - Icw (1s)	kA	2.5	8	15	15	18	
Mechanical durability	Number of cycles	10,000	8,000	8,000	5,000	5,000	
Electrical durability in AC-22A	Number of cycles	1,500	1,000	1,000	1,000	1,000	
Ambient temperature	°C	-25 up to +55					
Altitude	m	2,000					
Connections							
Cable with terminal	mm ²	35	120	240	2x185	-	
Busbar	mm ²	15x2	25x4	2x25x4	2x30x5	2x40x60	
Terminal screw		M6	M8	M10	M10	M12	
Tightening torque	Nm	7	14	24	24	38	
Weight	kg	1.05	2.0	3.65	4.2	7.5	



RFW Built-In Auxiliary Contact Block

Reference code		RFW
Switching capacity	A	10 A 125 V ac or 250 V ac
Rated operating voltage Ue	AC-15	400
Rated insulation voltage Ui	V	1,000
Rated frequency	Hz	50/60
Mechanical durability	Number of cycles	1,000,000
Electrical durability	Number of cycles	100,000
Protection degree of the body	IP	40
Protection degree of the terminals	IP	00
Contact cross section	mm	6.3x0.8
Ambient temperature	°C	-40... +85

Diagram



Technical Data

RIW Switch-Disconnecter

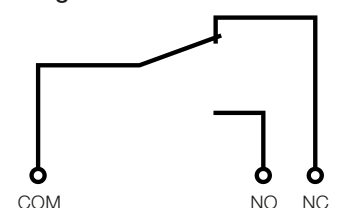
Reference code		RIW100	RIW160	RIW250	RIW400	RIW630	RIW1250	
Standards		IEC 60947-3						
Rated operating voltage Ue	V	690						
Rated insulation voltage Ui	V	1,000						
Rated impulse withstand voltage Uimp	kV	8						
Rated thermal current Ith	A	100	160	250	400	630	1,250	
Rated frequency	Hz	50 / 60						
Rated operating current: alternate current								
AC-22A	690 V	A	100	125	125	250	400	-
AC-22B	690 V	A	100	160	225	400	630	-
AC-22A	500 V	A	100	160	250	400	630	1,250
AC-22B	415 V	A	100	160	250	400	630	1,250
Rated short-time short circuit withstand current - Icw (1s)	kA	2.5	8	15	15	18	50	
Mechanical durability	Number of cycles	10,000	8,000	8,000	5,000	5,000	3,000	
Electrical durability in AC-22A	Number of cycles	1,500	1,000	1,000	1,000	1,000	500	
Ambient temperature	°C	-25 up to +55						
Altitude	m	2,000						
Connections								
Cable with terminal	mm ²	35	120	240	2x185	-	-	
Busbar	mm ²	15x2	25x4	2x25x4	2x30x5	2x40x60	60x10	
Terminal screw		M6	M8	M10	M10	M12	M12	
Tightening torque	Nm	7	14	24	24	38	38	
Weight	kg	1.05	2.0	3.65	4.2	7.5	12,5	



RIW Built-In Auxiliary Contact Block

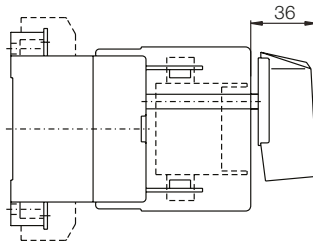
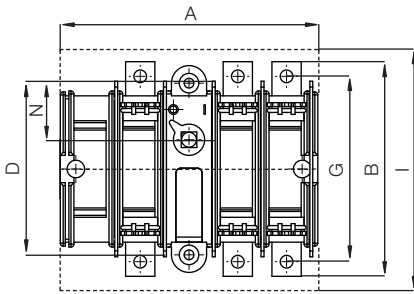
Reference code		RIW
Switching capacity	A	10A 125 V ac ou 250 V ac
Rated operating voltage Ue	AC-15	400
Rated insulation voltage Ui	V	1,000
Rated frequency	Hz	50/60
Mechanical durability	Number of cycles	1,000,000
Electrical durability	Number of cycles	100,000
Protection degree of the body	IP	40
Protection degree of the terminals	IP	00
Contact cross section	mm	6.3x0.8
Ambient temperature	°C	-40... +85

Diagram

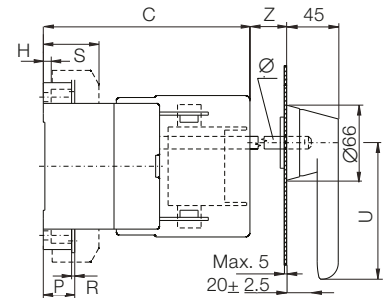


Dimensions (mm)

RFW 100



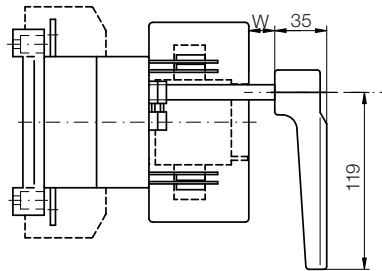
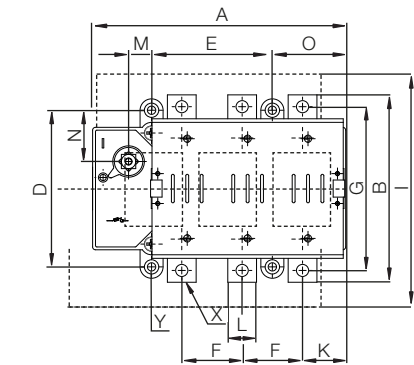
Version with internal mounted handle



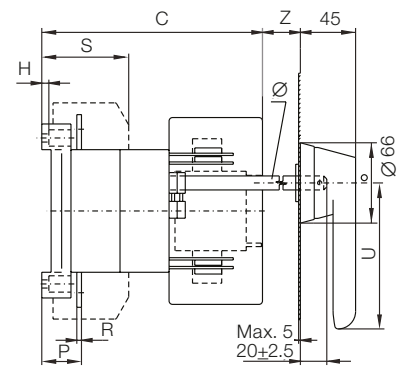
Version with panel door mounted handle

Dimensions	A	B	C	D	E	F	G	H	I	K	L	M	N	O	P	R	S	U	X	Y	Z	Ø	W
RFW 100	132	110	74	88	-	25	95	5	150	16	15	-	29	-	20	2	50	65	6.5	5.8	48	8	-

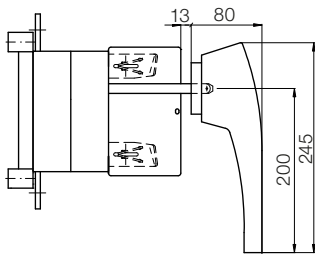
RFW 160, RFW 250, RFW 400, RFW 630



RFW 160...400 Version with internal mounted handle

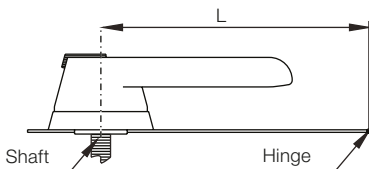


Version with panel door mounted handle

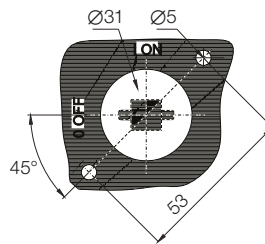


RFW 630 Version with internal mounted handle

Dimensions	A	B	C	D	E	F	G	H	I	K	L	M	N	O	P	R	S	U	X	Y	Z	Ø	W
RFW 160	176	132	150	110	84	42	115	5	170	30	20	16	36	51	26	3.5	61	95	8.5	5.8	15	10	20
RFW 250	250	174	189	125	130	65	149	8	225	40	25	20	38.5	67.5	34	4	86	125	11	7	15	12	25
RFW 400															30	5							
RFW 630	300	240	215	170	160	80	200	8	270	45.5	40	19	56.5	83	40	6	97	145	13	7	20	12	-



L – Minimum distance between shaft and the hinge of the panel door

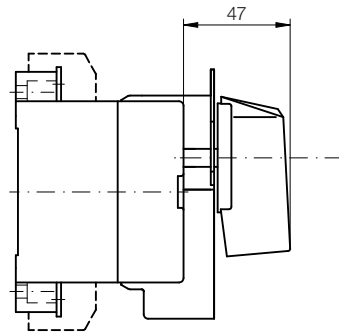
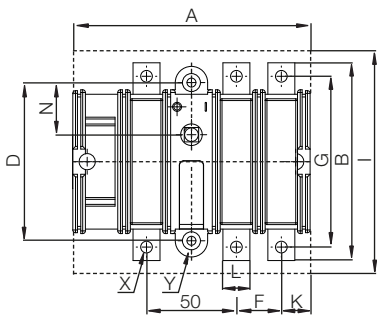


Hole for handle fixing

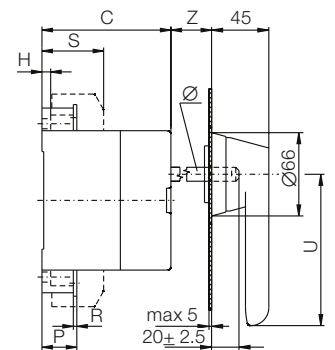
Switch-disconnector	L
RFW100	80
RFW160	120
RFW250/400/630	150

Dimensions (mm)

RIW 100



Version with internal mounted handle



Version with panel door mounted handle

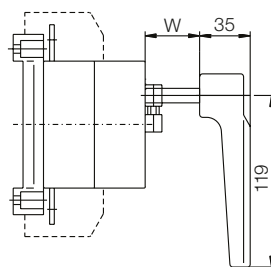
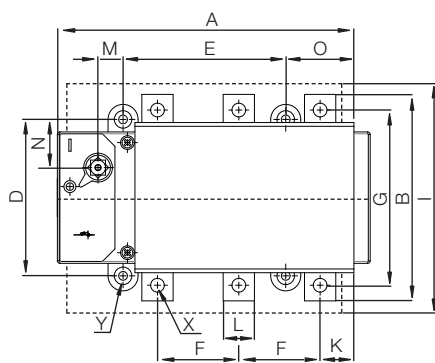
Dimensions	A	B	C	D	E	F	G	H	I	K	L	M	N	O	P	R	S	U	X	Y	Z	Ø	W
RIW 100	132	110	74	88	-	25	95	5	150	16	15	-	29	-	20	2	50	65	6.5	5.8	48	8	-



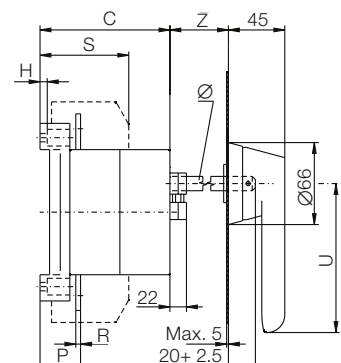


Dimensions (mm)

RIW 160, RIW 250, RIW 400, RIW 630



Version with internal mounted handle



Version with panel door mounted handle

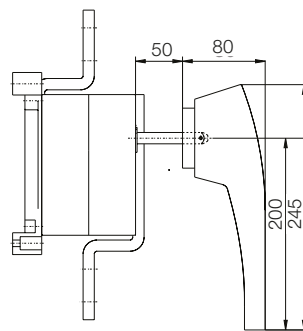
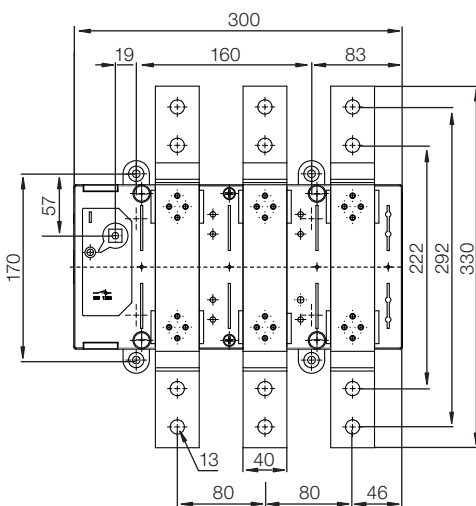
Dimensions	A	B	C	D	E	F	G	H	I	K	L	M	N	O	P	R	S	U	X	Y	Z	Ø	W
RIW 160	176	132	88	110	84	42	115	5	170	30	20	16	36	51	26	3	61	95	8.8	5.8	43	10	32
RIW 250																3.5							
RIW 400	250	174	109	125	130	65	149	8	225	40	25	20	38.5	67.5	34	4	86	125	11	7	47	12	32
RIW 630															30	5							



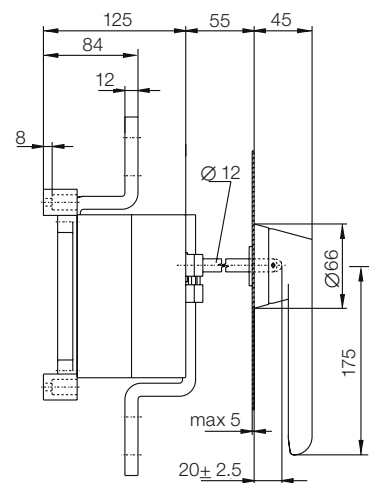


Dimensions (mm)

RIW 1250



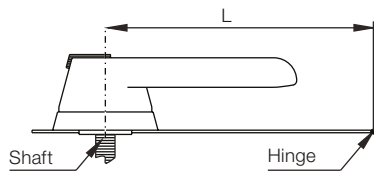
Version with internal mounted handle



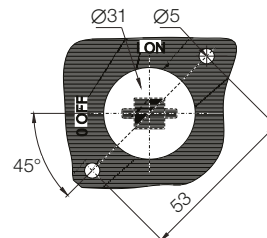
Version with panel door mounted handle

Important note:

It is possible to lengthen the switch-disconnectors shafts using the shaft accessory (refer to the accessories page).



L - Minimum distance between shaft and the hinge of the panel door



Hole for handle fixing

Switch-disconnector	L
RIW100	80
RIW160/250	120
RIW400/630	150
RIW1250	200



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- Modular contactors up to 800 A (AC-3)
- Compact contactors up to 22 A (AC-3)
- Control relays
- Motor protective circuit breakers up to 100 A
- Enclosed starters (plastic or metallic enclosures)
- Customized starters for OEM applications
- Overload relays

Electrical Circuit Protection

- Miniature circuit breakers up to 100 A
- Molded case circuit breakers up to 1,600 A (3P and 4P)
- Air circuit breakers up to 6,300 A
- D and NH gL-gG fuses
- Flush end and blade contact NH aR fuses (for semiconductor protection)
- Switch-disconnectors for door or base mounting

Capacitors

- Power factor compensation
- Lighting
- Motor-run

Electrical Connections

- Terminal blocks with screw type connection
- Terminal block with spring type connection
- Terminal blocks for fuses
- Busbar and busbar connectors
- Identifiers for terminals and cables
- Printing system

Pushbuttons and Pilot Lights

- IP66 pushbuttons and pilot lights
- Flush, guarded, extended or mushroom illuminated or non illuminated pushbuttons
- Selector switches lever or knob illuminated or non illuminated or with key
- Emergency pushbuttons (according EN 418)
- Contact blocks with "positive Break" system
- Double pushbutton
- Pilot lights with LED technology
- Customized descriptions
- Decentralized control stations - PBW

Electronic Relays

- Timing, monitoring, protection and level relays 22.5 mm width frame
- LED for status indication
- Multifunction three-phase monitoring relays and timer relays

Smart Relay

- Low voltage electric motor management system
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- Full motor protection and monitoring through current and voltage measurements
- Multiple operating modes including PLC functions
- Easy network module change via exclusive drawer system (Modbus, DeviceNet, Profibus modules)
- USB communication
- Free WLP programming software

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