MPW Manual Motor Protectors - Technical Data

Models		MPW18	MPW40
Maximum rated current Inmax (Ie)		18 A	40 A
Number of poles		3	3
Short-circuit release		13xIe$_{max}$	13xIe$_{max}$
Rated operational voltage Ue		690 V[1)]	690 V[1)]
Rated frequency		50/60 Hz	50/60 Hz
Rated insulation voltage Ui		690 V	690 V
Rated impulse withstand voltage Uimp		6 kV	6 kV
Use category	IEC 60947-2 (circuit breaker)	A	A
	IEC 60947-4-1 (motor starter)	AC-3	AC-3
Tripping test		Yes	Yes
Overload protection		Yes	Yes
Phase failure sensitivity (IEC 60947-4-1)		Yes	Yes
Tripping indication		No	Yes
Tripping class (IEC 60947-4-1)		10	10
Maximum operation per hour	Operations/hour	15	15
Altitude (m)		2000	2000
Degree of protection (IEC 60529)		IP20	IP20
Mechanical life	Number of operations	100000	100000
Electrical life	Number of operations	100000	100000
Permissible ambient temperature			
Transport and storage		-50...+80 °C	-50...+80 °C
Operation[2)]		-20...+70 °C	-20...+70 °C
Temperature compensation (IEC 60947-4-1)		-20...+60 °C	-20...+60 °C
Power dissipation per circuit breaker			
Maximum rated currents In	≤10 A	7 W	7 W
	≤12 A[3)]	7 W	--
	≤16 A	8 W	8 W
	≤18 A	7 W	--
	≤20 A	--	9 W
	≤25 A	--	15 W
	≤32 A	--	15 W
	≤40 A	--	15 W
Resistance to impact (IEC 60068-2-27)		15 g	15 g
Standards			
IEC 60947-1		Yes	
IEC 60947-2		Yes	
IEC 60947-4-1		Yes	
Connection			
Type of terminal		Spring	Screws Phillips (Nº 2)	Screws Phillips (Nº 2)
Tightening torque	N.m	-	1.2...1.7	2...2.5
	lb.in	-	11...16	18...22
Dimensions				
Width (mm)		45	45	
Height (mm)		100	90	
Depth (mm)		77	77	

Notes: 1) 500 V with plastic enclosure.
2) Reduce current for temperatures exceeding +60 °C (87% to 70 °C).
3) Only available with spring terminal.

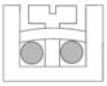
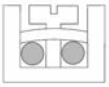
Altitude - Correction Factor

The MPW motor protective circuit breakers do not undergo any change to their specifed performance when applied at an altitude of up to 2000 meters above sea level.
However, as the altitude increases, the atmospheric properties vary in terms of dielectric rigidness and pressure. Therefore, current and voltage correction factors must be applied for altitudes exceeding 2000 meters, as shown in the following table:

Altitude (above sea level) - h	Rated operational voltage Ue	Current correction factor Iu
h ≤2000 m	690 V	1 x I_n
2000< h ≤3000 m	550 V	0.96 x I_n
3000< h ≤4000 m	480 V	0.93 x I_n
4000< h ≤5000 m	420 V	0.90 x I_n

MPW Manual Motor Protectors - Technical Data

Main Terminal Capacity

Models	Type	Number of conductors	Cross-section
MPW18	Rigid or flexible cable	 1 or 2	1...4 mm² 18...12 AWG
MPW40	Rigid or flexible cable	 1 or 2	1...2.5 mm² 2.5...6 mm² 14...8 AWG[2)]

Auxiliary Contact Blocks - ACB

Reference	ACBF-11			ACBS- _ _ , TSB			
For use with	MPW18 & MPW40						
Rated insulation voltage Ui	250 V			690 V			
Utilization category	24 Vac		220-230 Vac	24 V ac	230 V ac	400 V ac	690 V ac
AC-15	2 A		0.5 A	6 A	6 A	3 A	1 A
AC-12	2.5 A		2.5 A	10 A	10 A	10 A	10 A
DC-13	24 V d	48 V dc	60 V dc	24 V dc	110 V dc	220 V dc	440 V dc
	1 A	0.3 A	0.15 A	2 A	0.5 A	0.25 A	0.1 A
Type of terminal	Flat		Spring	Flat			Spring
Type of screw	Phillips (Nº 2)		-	Phillips (Nº 2)			-
Tightening torque	1...1.5 N.m (7...10 lb.in)		-	1...1.5 N.m (7...10 lb.in)			-
Rigid cable	1 or 2 x (0.5...1.5 mm²) 1 or 2 x (0.75...2.5 mm²) 1 or 2 x (18...14 AWG)		1 or 2 x (1...1.5 mm²) 1 or 2 x (18...16 AWG)	1 or 2 x (0.5...1.5 mm²) 1 or 2 x (0.75...2.5 mm²) 1 or 2 x (18...14 AWG)			1 or 2 x (1...1.5 mm²) 1 or 2 x (18...16 AWG)
Flexible cable			-				-
Finely stranded with end sleeve[1)]			1 or 2 x (1 mm²) 1 or 2 x (18 AWG)				1 or 2 x (1 mm²) 1 or 2 x (18 AWG)
Backup fuses gL/gG	10 A						

Undervoltage Release - URMP

Reference	URMP
For use with	MPW18 & MPW40
Rated insulation voltage Ui	690 V
Operating voltage (enables cir. breaker switch ON)	0.85...1.1 x Ue
Non-operating voltage (guarantees circuit breaker switch OFF)	0.35...0.7 x Ue
Energization consumption	20.2 VA / 13 W
Consumption	7.2 VA / 2.4 W
Max. opening time	20 ms
Type of terminal	Flat
Type of screws	Phillips (Nº 2)
Tightening torque	1...1.5 N.m (7...10 lb.in)
Rigid cable	1 or 2 x (0.5...1.5 mm²) 1 or 2 x (0.75...2.5 mm²) 1 or 2 x (18...14 AWG)
Flexible cable	
Backup fuses gL/gG	10 A

Notes: 1) Mandatory use (finely stranded cable without end sleeve is not allowed).
2) 8 AWG for flexible cable only.

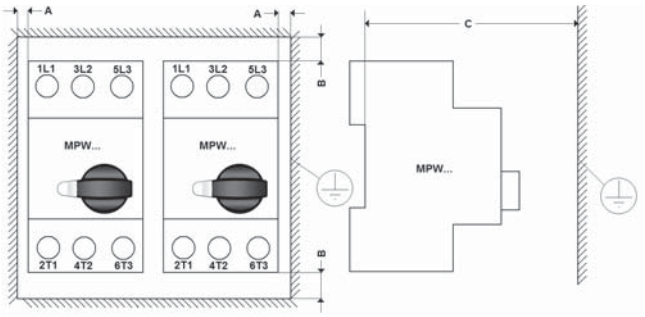
MPW Manual Motor Protectors - Technical Data

Shunt Release - SRMP

Reference codes	SRMP
For use with	MPW18 & MPW40
Rated insulation voltage Ui	690 V
Operating voltage (guarantee cir. breaker switch OFF)	0.7...1.1 x Ue
Energization consumption	20.2 VA / 13 W
Max. opening time	20 ms
Type of terminal	Flat
Type of screws	Phillips (Nº 2)
Tightening torque	1...1.5 N.m (7...10 lb.in)
Rigid cable	1 or 2 x (0.5...1.5 mm²) 1 or 2 x (0.75...2.5 mm²) 1 or 2 x (18...14 AWG)
Flexible cable	
Backup fuses gL/gG	10 A

Mounting Configurations for MPW Motor Protective Circuit Breaker

Live or grounded parts distance to the circuit breaker				
Model	Ue	Minimum distance between the circuit breaker and live or grounded parts (mm)		
		B	C	A
MPW18	Up to 690 V	20	75	9
MPW40	Up to 500 V	30	95	9
	Up to 690 V	50	95	30



The motor protective circuit breaker can be mounted in any position, but according to IEC 60447 standard, the "On - I" indicator must be to the right, or up.

MPW Manual Motor Protectors - Rated Short-Circuit Breaking Capacity (IEC 60947-2)

MPW18 & MPW40

Models	Setting overload release (A)	220-230 V ac		380-415 V ac		440 V ac		460-500 V ac		630-690 V ac	
		Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics
		kA	kA	kA	kA	kA	kA	kA	kA	kA	kA
MPW12...18	0.10...0.16	100	100	100	100	100	100	100	100	10	10
	0.16...0.25	100	100	100	100	100	100	100	100	10	10
	0.25...0.4	100	100	100	100	100	100	100	100	10	10
	0.4...0.63	100	100	100	100	100	100	100	100	10	10
	0.63...1	100	100	100	100	100	100	100	100	10	10
	1...1.6	100	100	100	100	100	100	100	100	10	10
	1.6...2.5	100	100	100	100	100	100	100	100	8	8
	2.5...4	100	100	100	100	100	100	100	100	8	8
	4...6.3	100	100	100	100	100	100	100	100	8	8
	6.3...10	100	100	50	10	50	10	10	10	5	5
	10...16	100	100	10	10	10	10	10	8	4	3
	12...18	100	100	10	10	10	10	10	8	4	3
MPW40	0.10...0.16	100	100	100	100	100	100	100	100	100	100
	0.16...0.25	100	100	100	100	100	100	100	100	100	100
	0.25...0.4	100	100	100	100	100	100	100	100	100	100
	0.4...0.63	100	100	100	100	100	100	100	100	100	100
	0.63...1	100	100	100	100	100	100	100	100	100	100
	1...1.6	100	100	100	100	100	100	100	100	100	100
	1.6...2.5	100	100	100	100	100	100	100	100	8	8
	2.5...4	100	100	100	100	100	100	100	100	8	8
	4...6.3	100	100	100	100	100	100	100	100	8	8
	6.3...10	100	100	100	100	50	25	42	21	8	8
	10...16	100	100	50	25	50	15	10	8	5	5
	16...20	100	100	50	25	50	15	10	8	5	5
	20...25	100	100	50	25	50	15	10	8	5	5
	25...32	100	100	50	25	25	15	10	8	5	5
	32...40	100	100	30	15	20	10	10	5	5	2

MPW Manual Motor Protectors + CLT32 Current Limiter Rated Short-Circuit Breaking Capacity (IEC 60947-2)

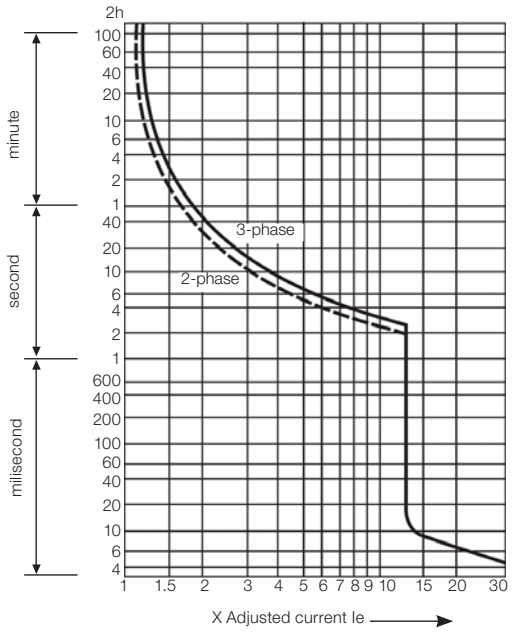
MPW40+CLT32 MPW40

Model	Setting overload release (A)	380-415 V ac		440 V ac		460-500 V ac		630-690 V ac	
		Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics
		kA	kA	kA	kA	kA	kA	kA	kA
MPW40 +CLT32 MPW40	0.10...0.16	♦	♦	♦	♦	♦	♦	♦	♦
	0.16...0.25	♦	♦	♦	♦	♦	♦	♦	♦
	0.25...0.4	♦	♦	♦	♦	♦	♦	♦	♦
	0.4...0.63	♦	♦	♦	♦	♦	♦	♦	♦
	0.63...1	♦	♦	♦	♦	♦	♦	♦	♦
	1...1.6	♦	♦	♦	♦	♦	♦	♦	♦
	1.6...2.5	♦	♦	♦	♦	♦	♦	50	50
	2.5...4	♦	♦	♦	♦	♦	♦	50	50
	4...6.3	♦	♦	♦	♦	♦	♦	50	50
	6.3...10	♦	♦	100	100	100	100	50	50
	10...16	100	100	100	100	100	100	50	50
	16...20	100	100	100	100	100	100	50	50
	20...25	100	100	100	100	100	100	10	10
	25...32	100	100	100	100	100	100	10	10

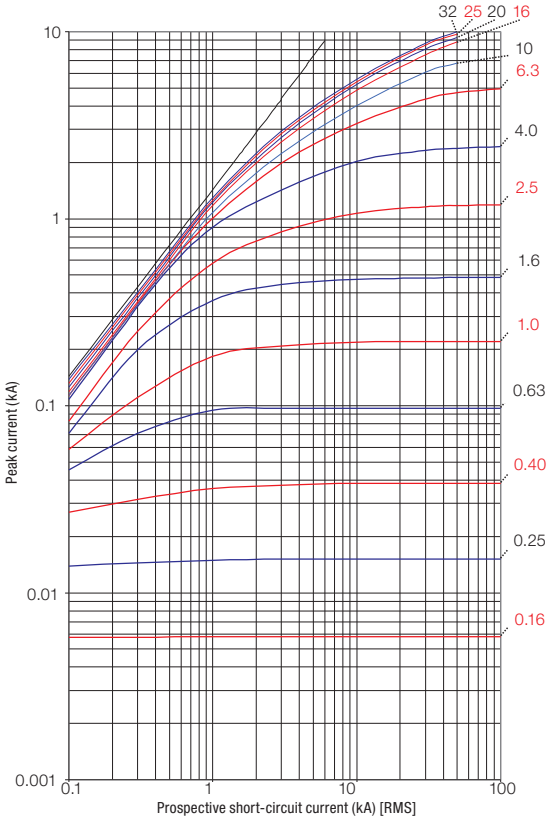
MPW Manual Motor Protectors - Characteristics Curves

The tripping characteristic shows the motor circuit breaker trip time in relation to the rated current.
The curves show average tolerance range values for an ambient temperature of 20 °C, starting in cold state. Thermal trip time when working in operating temperature is reduced to around 25% of the presented values. Under normal operating conditions, all 3 circuit breaker phases must be conducting.

MPW18 & MPW40

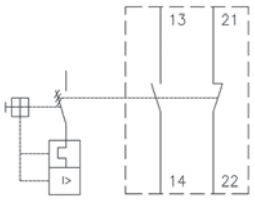
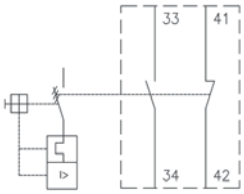
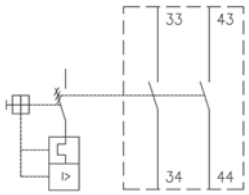


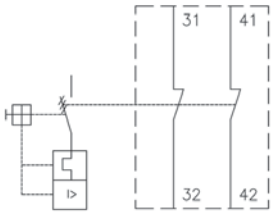
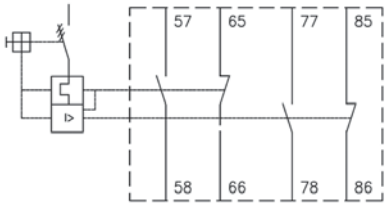
Short-Circuit Current Limitation Curve at 440 V - MPW40

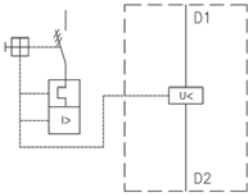
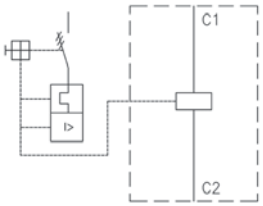


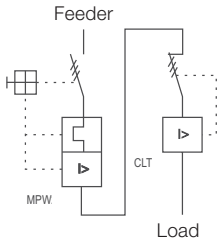
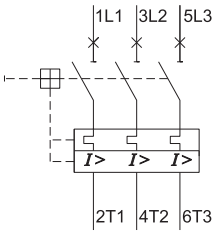
MPW - Diagrams and Typical Circuits

Diagrams

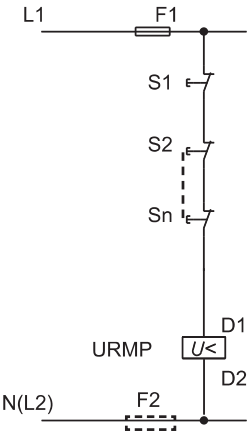
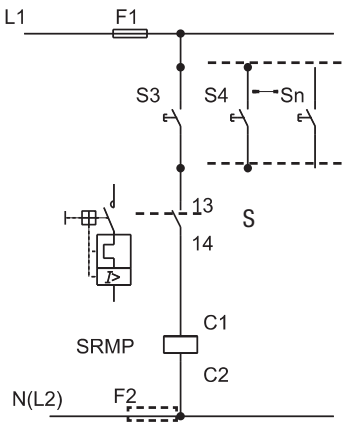
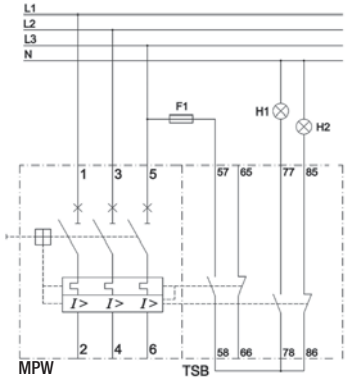
ACBF-11-B	ACBS-11-B	ACBS-20-B
		

ACBS-02-B	TSB-22-B
	

URMP. . .	SRMP. . .
	

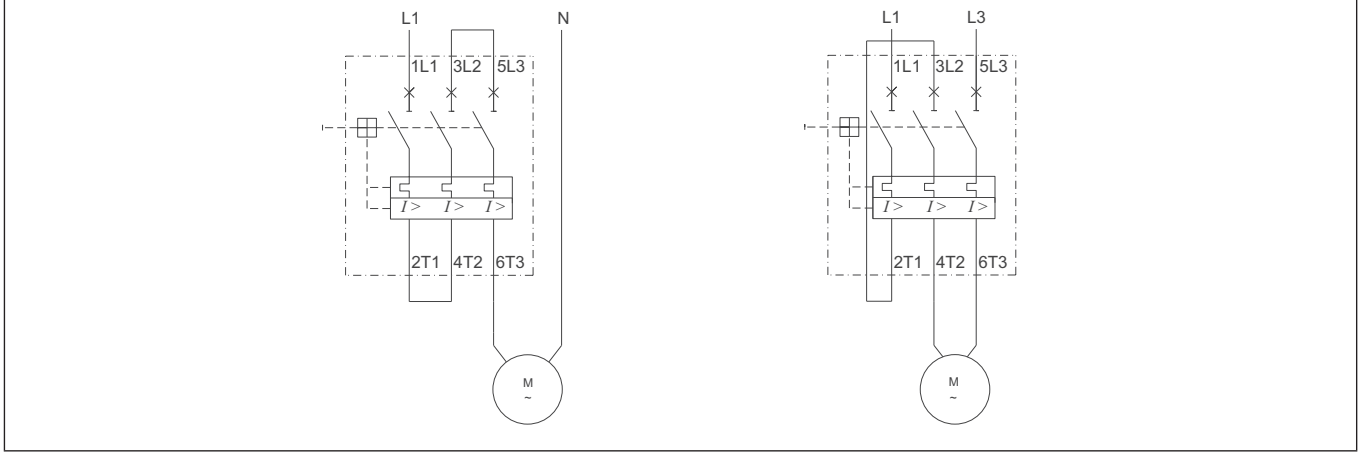
MPW40 + CLT32 MPW40	MPW40
	

Typical Circuits

Undervoltage release URMP	Shunt release SRMP	Trip signalling block TSB
		
S0...Sn - Buttons in the plant (NC) URMP - Undervoltage release	S0...Sn - Buttons in the plant (NO) S - MPW auxiliary contact	H1 - Short-circuit trip signalling H2 - Overcurrent trip signalling MPW - Motor protective circuit breaker thermomagnetic (MPW12...40)

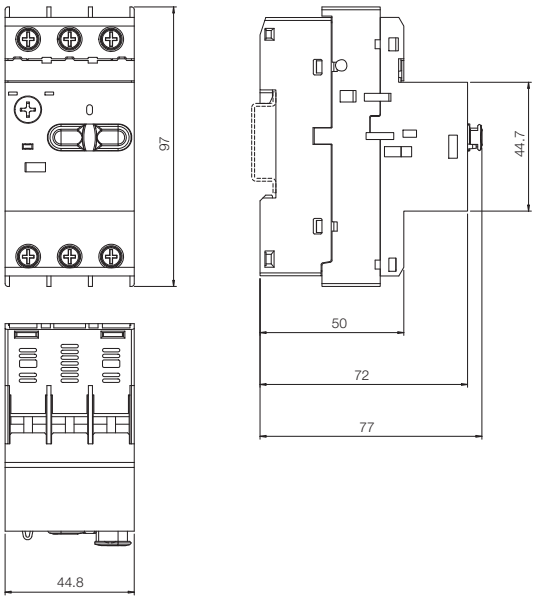
MPW - Diagrams and Typical Circuits

Single-phase or two-phase motor connection with MPW

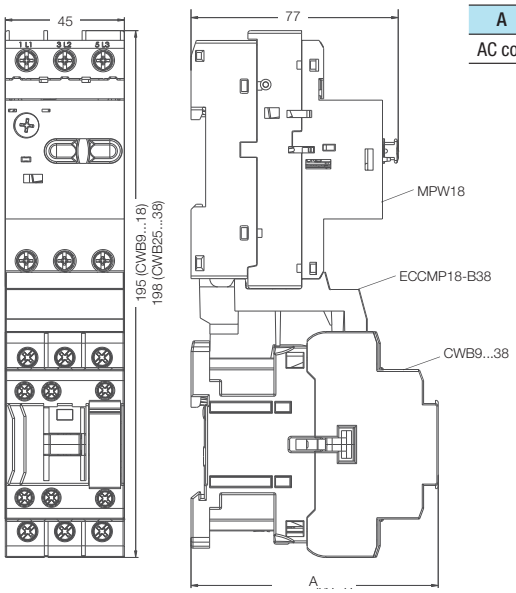


MPW - Dimensions (mm)

MPW18

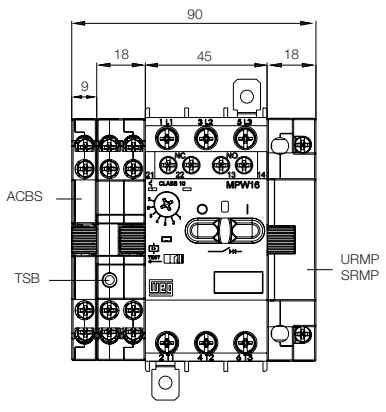


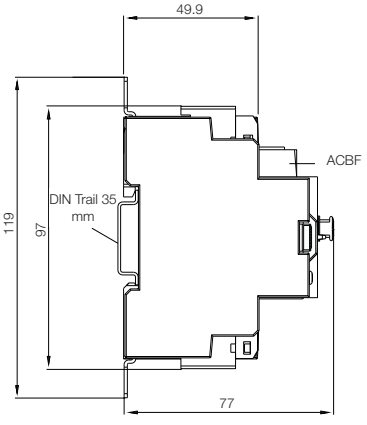
MPW18 + CWB9...18 / CWB25...38

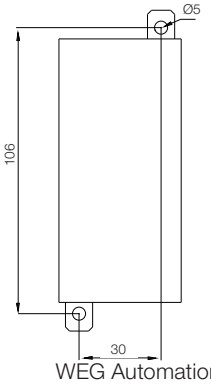


A	CWB9...18	CWB25...38
AC coil	89.5	93

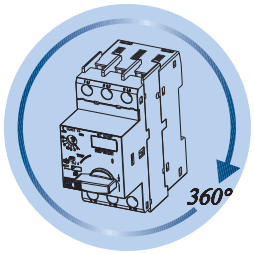
MPW18 + Accessories





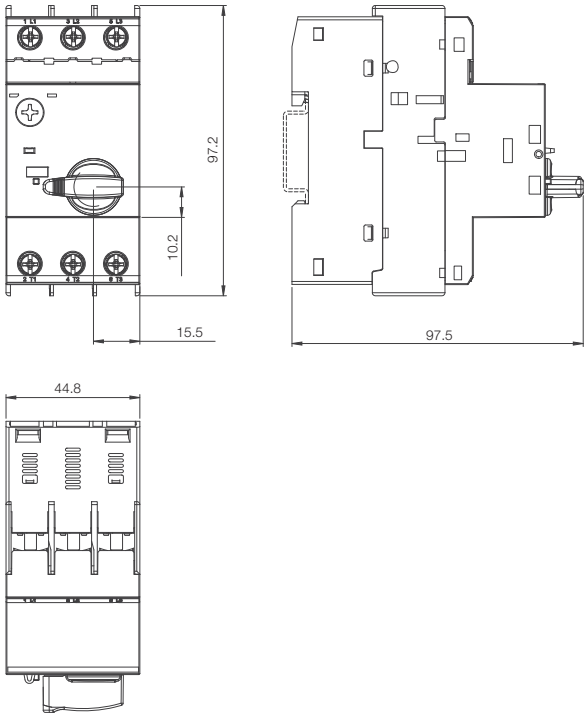


Mounting Position

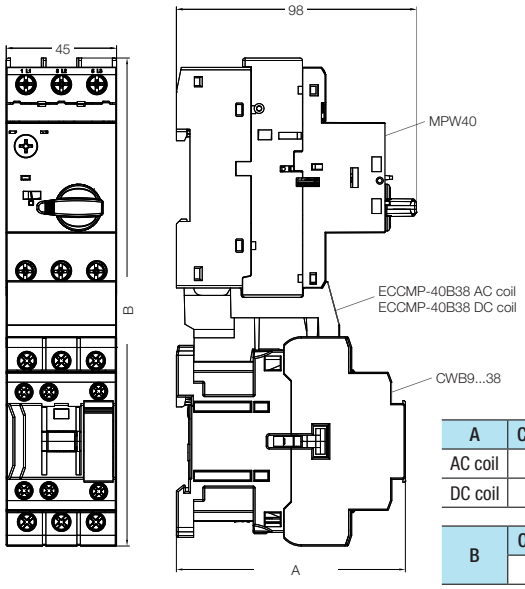


MPW - Dimensions (mm)

MPW40



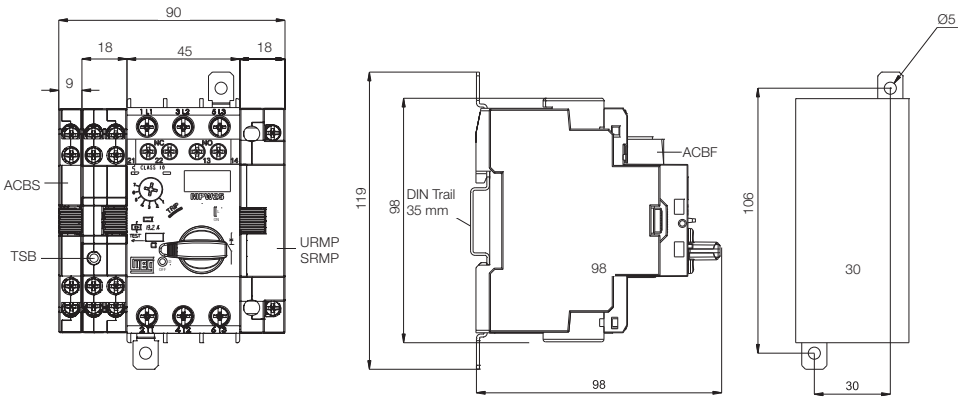
MPW40 + CWB9...18 / CWB25...38



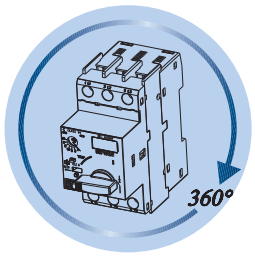
A	CWB9...18	CWB25...38
AC coil	89.5	93
DC coil	95.7	102.2

B	CWB9...18	CWB25...38
	196	199

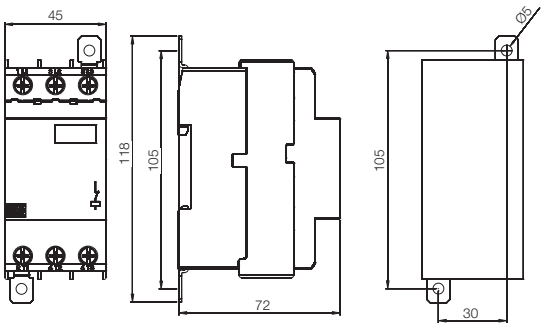
MPW40 + Accessories



Mounting Position

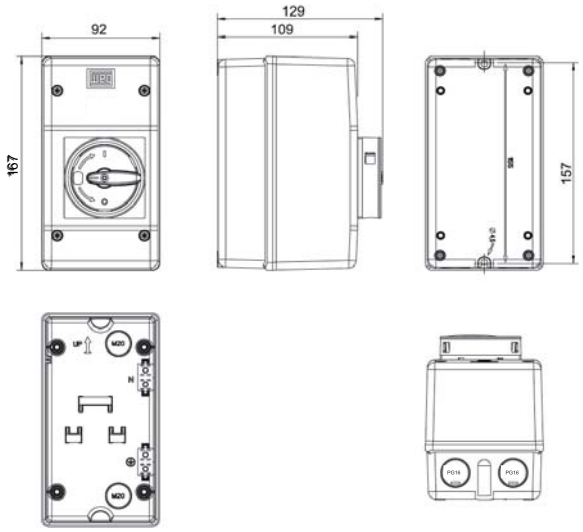


Current Limiter - CLT32 MPW40

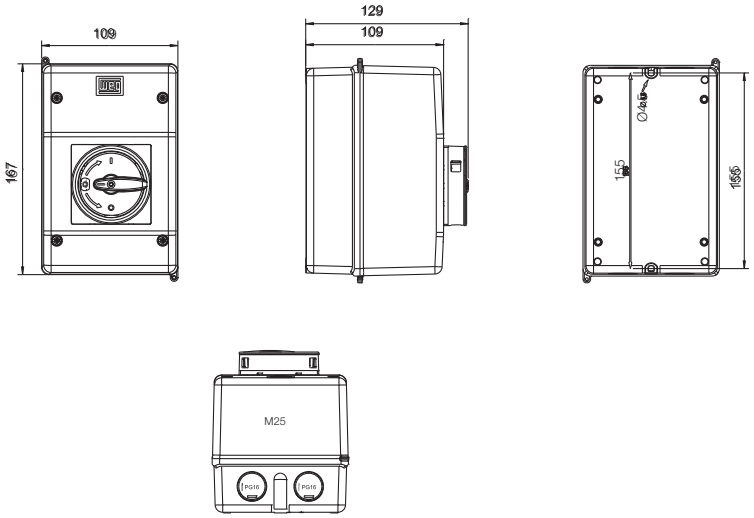


MPW - Dimensions (mm)

Insulated Enclosure - PE55GN(E)

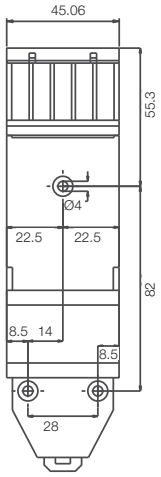


Insulated Enclosure - LPE55GN(E)

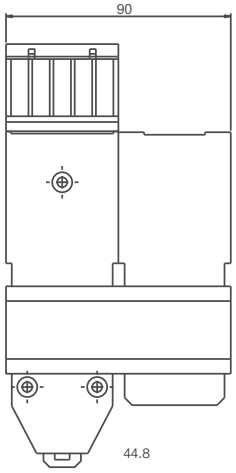


Manual Motor Protector Mounting Adapter Plates

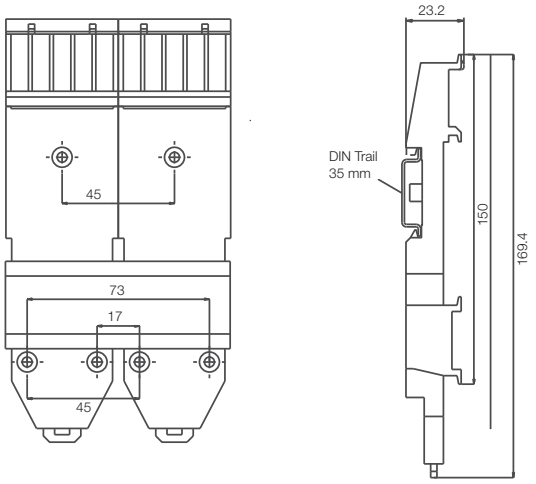
MA45DOL



MA90RVS

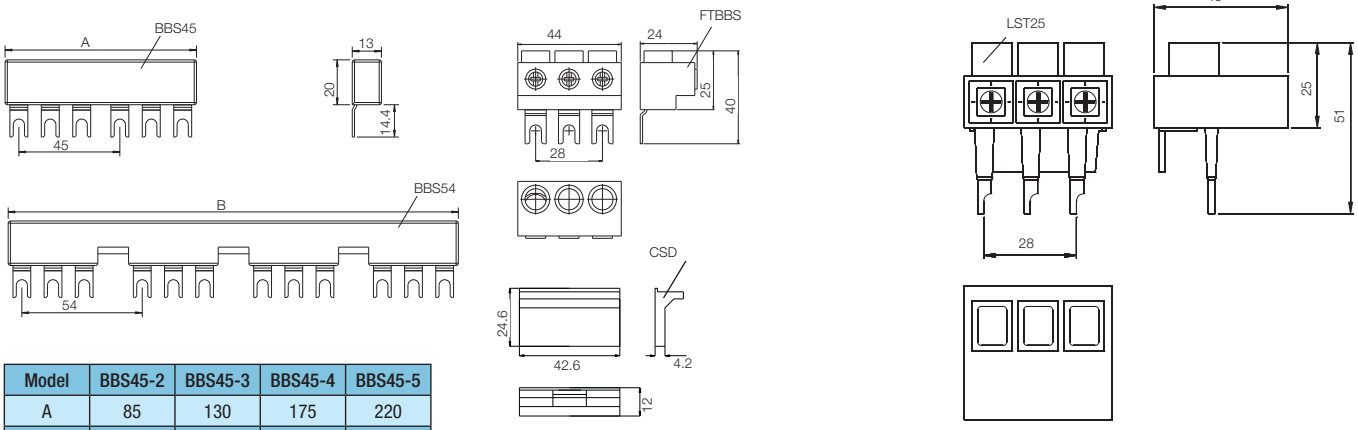


MA90SDS

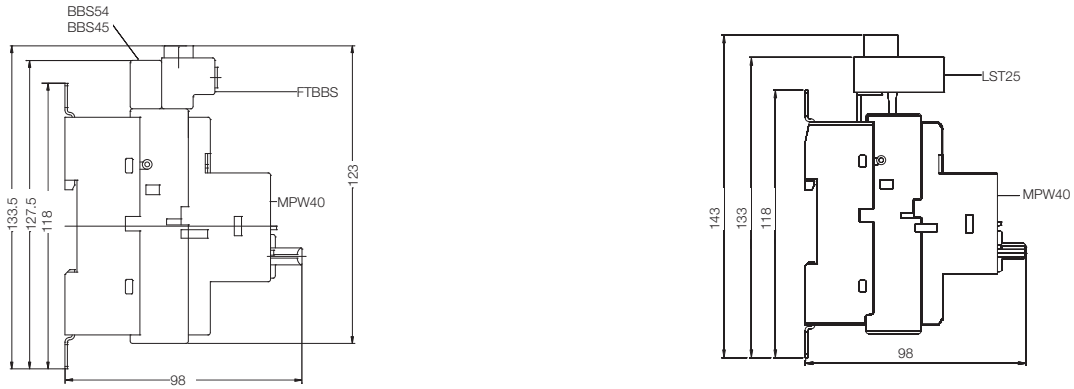


MPW - Dimensions (mm)

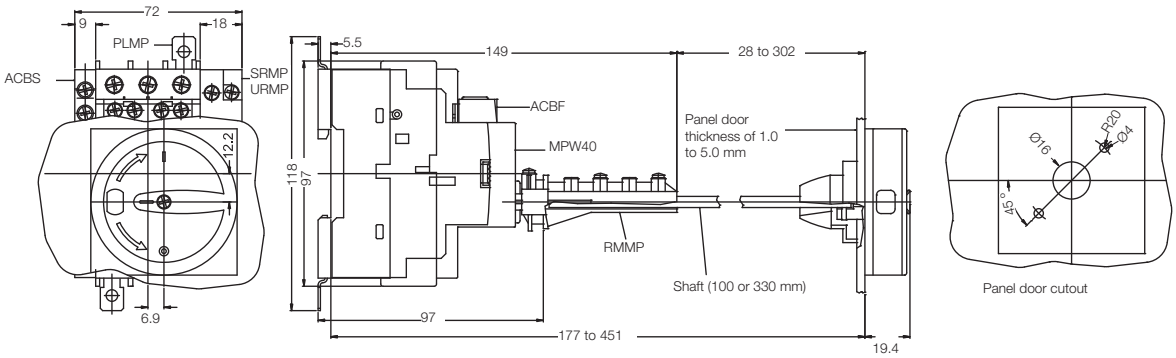
Accessories: BBS45, BBS54, FTBBS, CSD, LST25



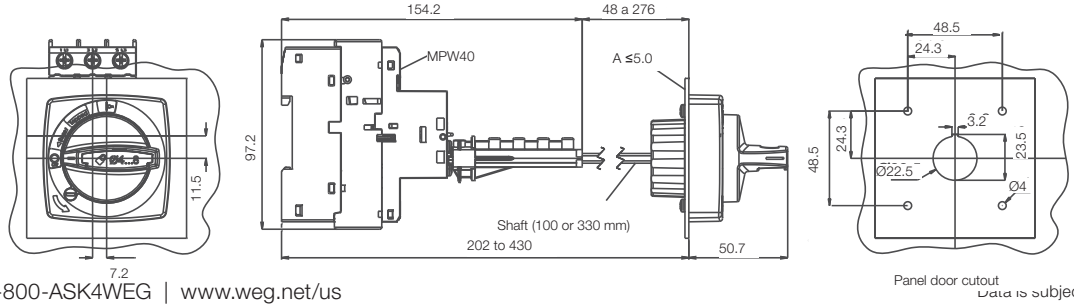
Model	BBS45-2	BBS45-3	BBS45-4	BBS45-5
A	85	130	175	220
Model	BBS54-2	BBS54-3	BBS54-4	BBS54-5
B	94	149	202	256



Rotary Handle - RMMP



Rotary Handle - MRX



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