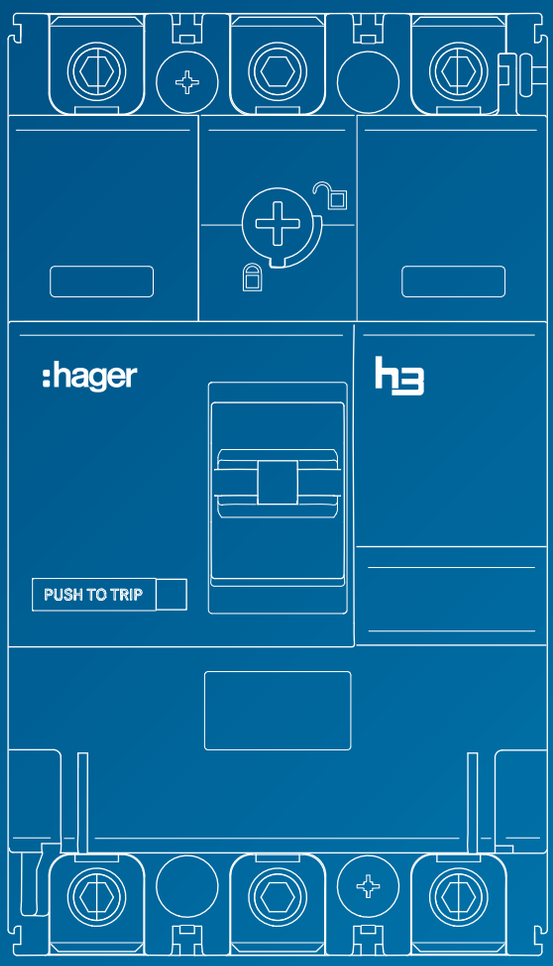
Technical catalogue

h3

Moulded Case Circuit breakers
from 16 to 1600A



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The reliable partner for intelligent solutions.

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MCCBs and trip-free switches
16 to 1600 A

Easy mounting and safety

The new range of MCCBs provides safe and easy solutions for low voltage electrical circuits protection. The state of the art circuit breakers offers both designers and installers wide range of features and benefits.
Special attention has been given to ergonomics, especially with the integration of these devices in the TP&N and panelboard.

Your benefits:

- Easy to install
- Quick, easy and safety mounting of accessories
- Wide range of rated current ratings and breaking capacities
- Calibrated at 50 Deg centigrade
- Trip-free switches

Technical data :

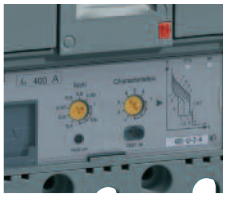
- Comply with IEC 60947-2
- 6 frame sizes: x160, x250, h250, h630, h1000, h1600
- Breaking capacity: 18, 25, 40, 50, 65, 70 kA
- Thermal magnetic and electronic trip units
- 1 pole to 4 poles
- Current limiting type
- Complete range of accessories
- International certification and approvals

Expert tips

1

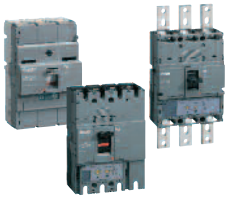
Design by Hager
In harmony with Hager enclosures and modular products.

2



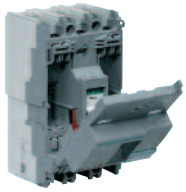
Electronic trip unit (LSI)
Is permitting total selectivity and generator protection.

3



Breaking capacity
18 to 70kA, Icu 415V AC, covers all applications.

4

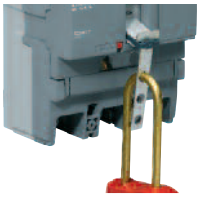


Easy mounting of auxiliaries
Easy opening of secondary cover, clip-on type auxiliaries.

5

Visibility of auxiliaries fitted
Indicates type of auxiliary mounted in breaker.

6



Integrated padlocking facility
Nice solution for maintenance.

7

Complete range of accessories
Rotary handles, padlocks, motors, terminal covers.

8

Flexible connection
Collar terminals, front and rear connections, straight connections, spreaders ...

Frame			x160				x250			h250 TM			h250 TM+	
□□□□□□□			Switch	MCCB			Switch	MCCB		MCCB			MCCB	
□□□□□□□□□			HCA	HDA	HHA	HNA	HCB	HHB	HNB	HHG	HNG	HEG	HNH	HEH
□□ □□□□□□□□□		□□□	3-4	1-2-3-4	1-2-3-4	3-4	3-4			3-4			3-4	
Electrical characteristics														
Rated current	In	[A]	160				250			250			250	
Current rated range		[A]	125-160	16-125 (1P), 16-160 (2,3,4P)			250	100-250		12,5-250			12,5-250	
Rated service voltage, (AC)	Ue	[V]	220-440				220-440			220-690			220-690	
Frequency	f	[Hz]	50/60				50/60			50/60			50/60	
Rated insulation voltage	Ui	[V]	690				800			800			800	
Rated impulse withstand voltage	Uimp	[kV]	8				8			8			8	
Rated ultimate short-circuit breaking capacity, (Icu)														
(AC) 50-60 Hz 220/230 V	Icu	[kA]	-	25	35	85	-	35	85	35	85	85	85	100
(AC) 50-60 Hz 380/415 V	**Icu**	**[kA]**	**-**	**18**	**25**	**40**	**-**	**25**	**40**	**25**	**50**	**65**	**50**	**70**
(AC) 50-60 Hz 480/500/525 V	Icu	[kA]	-	6	7.5	12.5	-	-	10	10	25	25	30	45
(AC) 50-60 Hz 660/690 V	Icu	[kA]	-	-	-	6	-	-	4	-	7,5	7,5	20	20
(DC) 250 V - 2 poles in series	Icu	[kA]	-	12.5	20	25	-	25	25	25	40	40	40	40
Rated service short-circuit breaking capacity, (Ics)														
(AC) 50-60 Hz 220/230 V	Ics	[kA]	-	25	25	40	-	25	40	27	65	85	85	100
(AC) 50-60 Hz 380/415 V	**Ics**	**[kA]**	**-**	**18**	**20**	**25**	**-**	**20**	**20**	**19**	**25**	**36**	**50**	**70**
(AC) 50-60 Hz 480/500/525 V	Ics	[kA]	-	3	4	7.5		-	7.5	7.5	25	25	30	45
(AC) 50-60 Hz 660/690 V	Ics	[kA]	-	-	-	3	-	-	2	-	7.5	7.5	15	15
(DC) 250 V - 2 poles in series	Ics	[kA]	-	7	10	13	-	13	13	19	40	40	40	40
Rated short-circuit making capacity	Icm	[kA]	2,8	-	-	-	6	-	-	-			-	-
Rated short-time withstand current for 1s	Icw	[kA]	2	-	-	-	3	-	-	-			-	-
Category of use (EN 60947-2)			-	A			-	A		A			A	
Calibration temperature			-	50°C			-	50°C		50°C			50°C	
Derating 40°C			-	100%			-	100%		100%			100%	
	50°C		-	100%			-	100%		100%			100%	
	55°C		-	95%			-	94%		94%			94%	
	60°C		-	93%			-	91%		91%			91%	
	65°C		-	90%			-	88%		88%			88%	
Suitability for isolation			ok				ok			ok			ok	
Electric endurance in number of cycles			10000				10000			10000			10000	
Mechanical endurance in number of operations			20000				20000			30000			30000	
Operating temperature			-25 to +70°C				-25 to +70°C			-25 to +70°C			-25 to +70°C	
Storage temperature			-35 to +70°C				-35 to +70°C			-35 to +70°C			-35 to +70°C	
Power loss (at In for 3P)		[W]	39				60			65			68	
Reference standard			IEC 60947-3	IEC 60947-2			IEC 60947-3	IEC 60947-2		IEC 60947-2			IEC 60947-2	
Releases: switch			ok	-			ok	-		-			-	
Releases: TM (thermomagnetic)			-	ok			-	ok		ok			ok	
T fixed, M fixed			-	ok			-	ok		-			-	
T adjustable, M fixed			-	ok			-	-		-			-	
T adjustable, M adjustable			-	-			-	ok		ok			ok	
Thermal adjustment value			-	0,63 to 1 x In			-	0,63 to 1 x In		0,63 to 1 x In			0,63 to 1 x In	
Magnetic adjustment value			-	-			-	6-8-10-13 x In (200A) 5-7-9-11 In (250A)		6-8-10-13 x In			6-8-10-13 x In	
Releases: LSI (electronic)			-	-			-	-		-			-	
Long delay			-	-			-	-		-			-	
Short delay			-	-			-	-		-			-	
Time delay			-	-			-	-		-			-	
Terminations														
Standard terminal type			lugs				lugs			lugs			lugs	
Maximum terminal capacity			95 mm²				185 mm² (cage)			120 mm² (cage)			120 mm² (cage)	
Terminal width		mm	17.2				25			25			25	
Terminal shields			ok				ok			ok			ok	
Cage terminal			Z version				ok			ok			ok	
Extended connections			ok				ok			ok			ok	
Rear connections			no				ok			ok			ok	
Dimensions														
Height		mm	130				165			165			165	
Width	1P	mm	-	25		-	-			-			-	
	2P	mm	-	50		-	-			-			-	
	3P	mm	75				105			105			105	
	4P	mm	100				140			140			140	
Depth		mm	68				68			68			97	
Weight	1P	kg	-	0,29		-	-			-			-	
	2P	kg	-	0,48		-	-			-			-	
	3P	kg	0,715				1,3			1,5			2,4	
	4P	kg	0,95				1,6			1,9			3,2	

	h250 LSI		h400 TM			h630 LSI			h800 TM		h1000 LSI			h1600 LSI		
	MCCB		MCCB			Switch	MCCB		MCCB		Switch	MCCB		Switch	MCCB	
	HNC	HEC	HHD	HND	HKD	HCD	HND	HED	HNK	HEK	HCE	HNE	HEE	HCF	HNF	HEF
	3-4		3-4			3-4			3-4		3-4			3-4		
	250		400			630			800		1000			1600		
	40-125-250		250-400			400-630	250-400-630		630-800		630-800-1000			1250-1600		
	220-690		220-690			220-690			220-690		220-690			220-690		
	50/60		50/60			50/60			50/60		50/60			50/60		
	800		800			800			800		800			800		
	8		8			8			8		8			8		
	85	100	35	85	100	-	85	100	85	100	-	85 (800A) 75 (1000A)	100	-	100	100
	50	**70**	**25**	**50**	**70**	**-**	**50**	**70**	**50**	**70**	**-**	**50**	**70**	**-**	**50**	**70**
	25	45	10	30		-	30	30	30	30	-	30	30	-	45	65
	7,5	20	7,5	20		-	20	20	20	20	-	20	20	-	25	45
	-	-	25	40		-			50	50	-	-	-	-	-	-
	85	100	35	85		-	85	85	85	75	-	85 (800A) 75 (1000A)	100 (800A) 75 (1000A)	-	75	75
	25	**70**	**25**	**50**	**50**	**-**	**50**	**50**	**50**	**50**	**-**	**50**	**50**	**-**	**50**	**50**
	25	45	10	30		-	30	30	30	30	-	30	30	-	45	50
	7,5	15	7,5	15		-	15	15	20	20	-	20	20	-	25	34
	-	-	25	40		-			50	50	-	-	-	-	-	-
	-		-	-		9	-	-	-	-	20	-	-	45	-	-
	-		-	-		5 (0,3s)	-	-	-	-	10 (0,3s)	-	-	20 (0,3s)	-	-
	A		A			-	B(250-400A) - A(630A)		A		-	B(800A) - A(1000A)		-	B	
	40/50°C		50°C			-	40/50°C		40°C		-	40/50°C		-	40/50°C	
	100%		100%			-	100%		100%		-	100%		-	100%	
	95%		100%			-	95%		100%		-	95%		-	95%	
	90%		95%			-	90%		95%		-	90%		-	90%	
	80%		92%			-	80%		92%		-	80%		-	80%	
	80%		89%			-	80%		89%		-	80%		-	80%	
	ok		ok			ok			ok		ok			ok		
	10000		4500			4500			4500		4500			4500		
	30000		15000			15000			15000		15000			15000		
	-25 to +70°C		-25 to +70°C			-25 to +70°C			-25 to +70°C		-25 to +70°C			-25 to +70°C		
	-35 to +70°C		-35 to +70°C			-35 to +70°C			-35 to +70°C		-35 to +70°C			-35 to +70°C		
	75		75			150			150		150			170		
	IEC 60947-2		IEC 60947-2			IEC60947-3	IEC 60947-2		IEC 60947-2		IEC60947-3	IEC 60947-2		IEC60947-3	IEC 60947-2	
	-		-			ok	-		-		ok	-		ok	-	
	-		ok			-			ok		-			-		
	-		-			-			-		-			-		
	-		-			-			-		-			-		
	-		ok			-			ok		-			-		
	-		0,63 to 1 x In			-			0,63 to 1 x In		-			-		
	-		6-8-10-12 x In			-			5 to 10 x In		-			-		
	-		-			-	ok		-		-	ok		-	ok	
	0,4 to 1 x Ir		-			-	0,4 to 1 x Ir		-		-	0,4 to 1 x Ir		-	0,4 to 1 x In	
	2,5 to 10 x Ir		-			-	2,5 to 10 x Ir (250-400A) 2,5 to 8 x Ir (630A)		-		-	2,5 to 10 x Ir (800A) 2,5 to 8 x Ir (1000A)		-	2,5 to 10 x Ir	
	0,1 - 0,2s		-			-	0,1 - 0,2s		-		-	0,1 - 0,2s		-	0,1 - 0,2s	
	lugs		lugs			lugs			lugs		lugs			lugs		
	120 mm² (cage)		240 mm² (cage)			-			-		-			-		
	25		30			30			45		45			45		
	ok		ok			ok			ok		ok			ok		
	ok		ok			-			-		-			-		
	ok		ok			integrated			integrated		integrated			integrated		
	ok		ok			ok			ok		ok			ok		
	165		260			260			273/433		273/433			370/570		
	-		-			-			-		-			-		
	-		-			-			-		-			-		
	105		140			140			210		210			210		
	140		185			185			280		280			280		
	97		97			97			99,5		99,5			140		
	-		-			-			-		-			-		
	-		-			-			-		-			-		
	2,5		4,2			4,3			8,5		11			27		
	3,3		5,6			5,7			11,5		14,8			31		

Product		Add-on blocks h3	
Frame		**x250**	**h630**
Number of poles		4	4
Tripping access		mechanical	mechanical
Standards CEI/EN 60947-2 appendix B		ok	ok
Electrical characteristics			
Max rated current (40°) In A	In	160 - 250A	400A - 500A
Rated service voltage Ue V AC (50/60Hz)	Ue	240-415V	240-415V
Mechanical characteristics			
Top and bottom supply		ok	ok
For tripping, no additional external electrical sources		ok	ok
Possible operating with 2 active phases		ok	ok
Settings			
Sensitivity IΔn	IΔn (A)	0.03, 0.1, 0.3, 1, 3, 6A	0.03, 0.1, 0.3, 1, 3, 6A
Time delay Δt	Δt (s)	inst., 0.06, 0.15, 0.3, 0.5, 1	inst., 0.06, 0.15, 0.3, 0.5, 1
Max. opening time	ms	10	10
Delay add-on block is not possible if IΔn = 30mA		ok	ok
Selective product		ok	ok
Mechanical test button		ok	ok
Isolating test without cable removal		ok	ok
Electrical test button		ok	ok
Reset button		ok	ok
Sealable setting button		ok	ok
Isolation level signaling by led 25 and 50%		ok	ok
In running signalisation by led		ok	ok
Residual default signaling contact		ok	ok
Signaling contact 50% Idn		ok	ok
Anti-transient	type AC	ok	ok
Pulsating current	type A	ok	ok
High immunity	type HI	yes	yes
-25°C		ok	ok
Accessories and connection			
Steel terminal cage (x3/x4)		accessories	accessories
Connection by lugs		ok	ok
Extended connections (x4)		ok	ok
Spreaders (x4)		ok	ok
Terminal covers (3P/4P)		ok	ok
Interphase barriers (x3)		ok	ok
Rigid cables connection capacity mm²		35-185	35-240
Flexible cables connection capacity mm² (with terminal)		35-150	35-185
Tightening torque Nm		12	22
Copper bar (width) in mm		25	30
Mounting			
Clips on DIN rail		no	no
Fixed on mounting plate		ok	ok
Fixation type		bottom	bottom
Mounting by customer		ok	ok
Dimensions and weight			
Dimensions (LxHxD) in mm	L	140	184
Side mounted 4P	H	107,5	133
	D	85	110
Weight	3P	/	/
	4P	1,2	2,4

			Serie	HDx	HHx	HNx	HNx	HEx
	Pole	Trip unit	In A	18kA	25kA	40kA	30KA - 50kA	65kA* - 70kA
x160	1P	TM fix/fix	16	HDA014Z	HHA014Z			
			20	HDA018Z	HHA018Z			
			25	HDA023Z	HHA023Z			
			32	HDA030Z	HHA030Z			
			40	HDA038Z	HHA038Z			
			50	HDA048Z	HHA048Z			
			63	HDA061Z	HHA061Z			
			80	HDA078Z	HHA078Z			
			100	HDA098Z	HHA098Z			
			125	HDA123Z	HHA123Z			
	2P	TM fix/fix	16	HDA015P	HHA015P			
			20	HDA019P	HHA019P			
			25	HDA024P	HHA024P			
			32	HDA031P	HHA031P			
			40	HDA039P	HHA039P			
			50	HDA049P	HHA049P			
			63	HDA062P	HHA062P			
			80	HDA079P	HHA079P			
			100	HDA099P	HHA099P			
			125	HDA124P	HHA124P			
			160	HDA159P	HHA159P			
	3P	TM fix/fix	16	HDA016P	HHA016P	HNA016P		
			20	HDA020P	HHA020P	HNA020P		
			25	HDA025P	HHA025P	HNA025P		
			32	HDA032P	HHA032P	HNA032P		
			40	HDA040P	HHA040P	HNA040P		
			50	HDA050P	HHA050P	HNA050P		
			63	HDA063P	HHA063P	HNA063P		
			80	HDA080P	HHA080P	HNA080P		
			100	HDA100P	HHA100P	HNA100P		
			125	HDA125P	HHA125P	HNA125P		
			160	HDA160P	HHA160P	HNA160P		
		TM adj/fix	16-20-25	HDA025S	HHA025S	HNA025S		
			25-32-40	HDA040S	HHA040S	HNA040S		
			40-50-63	HDA063S	HHA063S	HNA063S		
			50-63-80	HDA080S	HHA080S	HNA080S		
			63-80-100	HDA100S	HHA100S	HNA100S		
			80-100-125	HDA125S	HHA125S	HNA125S		
			100-125-160	HDA160S	HHA160S	HNA160S		
	4P 100%	TM fix/fix	16	HDA017P	HHA017P	HNA017P		
			20	HDA021P	HHA021P	HNA021P		
			25	HDA026P	HHA026P	HNA026P		
			32	HDA033P	HHA033P	HNA033P		
			40	HDA041P	HHA041P	HNA041P		
			50	HDA051P	HHA051P	HNA051P		
			63	HDA064P	HHA064P	HNA064P		
			80	HDA081P	HHA081P	HNA081P		
			100	HDA101P	HHA101P	HNA101P		
			125	HDA126P	HHA126P	HNA126P		
			160	HDA161P	HHA161P	HNA161P		
		TM adj/fix	16-20-25	HDA026S	HHA026S	HNA026S		
			25-32-40	HDA041S	HHA041S	HNA041S		
			40-50-63	HDA064S	HHA064S	HNA064S		
			50-63-80	HDA081S	HHA081S	HNA081S		
			63-80-100	HDA101S	HHA101S	HNA101S		
			80-100-125	HDA126S	HHA126S	HNA126S		
			100-125-160	HDA161S	HHA161S	HNA161S		
x250	3P	TM fix/fix	100		HHB100Z	HNB100Z		
			125		HHB125Z	HNB125Z		
			160		HHB160Z	HNB160Z		
			200		HHB200Z	HNB200Z		
			250		HHB250Z	HNB250Z		
		TM adj/adj	63-80-100			HNB100U		
			80-100-125			HNB125U		
			100-125-160			HNB160U		
			125-160-200			HNB200U		
			160-200-250			HNB250U		
	4P 0% - 4P 100%	TM fix/fix	100		HHB101Z	HNB101Z		
			125		HHB126Z	HNB126Z		
			160		HHB161Z	HNB161Z		
			200		HHB201Z	HNB201Z		
			250		HHB251Z	HNB251Z		
		TM adj/adj	63-80-100			HNB101U		
			80-100-125			HNB126U		
			100-125-160			HNB161U		
			125-160-200			HNB201U		
			160-200-250			HNB251U		

			Serie	HDx	HHx	HNx	HNx	HEx	
h1000	3P	TM	630				HNK630U	HEK630U	
			800				HNK800U	HEK800U	
		LSI	630				HNE630U		
			800				HNE800U	HEE800U	
			1000				HNE970U	HEE970U	
	4P	TM	630				HNK631U	HEK631U	
			800				HNK801U	HEK801U	
	4P 0% - 50% - 100%	LSI	630				HNE631U		
			800				HNE801U	HEE801U	
			1000				HNE971U	HEE971U	
h1600	3P	LSI	1250				HNF980U	HEF980U	
			1600				HNF990U	HEF990U	
	4P 0% - 50% - 100%	LSI	1250				HNF981U	HEF981U	
			1600				HNF991U	HEF991U	

Trip-free switches and add-on blocks for h3 references guide

:hager

Serie				x160	x250	h630	h1000	h1600
Product	Version	Poles	In A					
Trip-free switches		3 poles	125	HCA125Z				
			160	HCA160Z				
		4 poles	125	HCA126Z				
			160	HCA161Z				
		3 poles	250		HCB250Z			
		4 poles	250		HCB251Z			
		3 poles	400			HCD400U		
			630			HCD630U		
		4 poles	400			HCD401U		
			630			HCD631U		
		3 poles	800				HCE800U	
			1000				HCE970U	
		4 poles	800				HCE801U	
			1000				HCE971U	
		3 poles	1250					HCF980U
			1600					HCF990U
		4 poles	1250					HCF981U
			1600					HCF991U
Add-on blocks	Bottom mounted	4 poles	160 adjustable		HBB161H			
			250 adjustable		HBB251H			
			400 adjustable			HBD401H		
			500 adjustable			HBD631H		

Switches and accessories for h3 references guide

				Switches and accessories					
Products	Version	pole	In A / Ue V	**x160**	**x250**	**h250**	**h400-h630**	**h1000**	**h1600**
Auxiliaries	Shunt trip release	3/4P	24V DC	HXA001H		HXC001H			
			48V DC	HXA002H		HXC002H			
			110V DC	-		HXC008H			
			100-120V AC	HXA003H		HXC003H			
			200-240V AC	HXA004H		HXC004H			
			380-450V AC	HXA005H		HXC005H			
	Undervoltage release	3/4P	24V DC	HXA011H		HXC011H		HXE011H	
			100-120V DC	-		HXC018H		HXE018H	
			200-240V DC	-		HXC019H		HXE019H	
			100-120V AC	HXA013H		HXC013H		HXE013H	
			200-240V AC	HXA014H		HXC014H		HXE014H	
			380-450V AC	HXA015H		HXC015H		HXE015H	
	Delayed undervoltage release	3/4P	24V DC	HXA051H		HXC051H	HXD051H	HXE051H	HXF051H
		3/4P	110-120V AC	HXA053H		HXC053H	HXD053H	HXE053H	HXF053H
		3/4P	220-240V AC	HXA054H		HXC054H	HXD054H	HXE054H	HXF054H
		3/4P	380-415V AC	HXA055H		HXC055H	HXD055H	HXE055H	HXF055H
	Auxiliary contact	3/4P	1NO+1NC	HXA021H		HXC021H			
	Alarm contact	3/4P	1NO+1NC	HXA024H		HXC024H			
	Auxiliary contact - low level	3/4P	1NO+1NC	HXA025H		HXC025H			
	Alarm contact - low level	3/4P	1NO+1NC	HXA026H		HXC026H			
	Direct rotary handle			HXA030H	HXB030H	HXC030H	HXD030H	HXE030H	HXF030H
	Extended rotary handle			HXA031H	HXB031H	HXC031H	HXD031H	HXE031H	HXF031H
	Padlock			HXA039H HXA037H*	HXA039H	HXC039H	HXD039H		HXF039H
	Motor operator	3/4P	24-48V DC	-	HXB040H	HXC040H	HXD040H	HXE040H	HXF040H
			200-240V AC	-	HXB042H	HXC042H	HXD042H	HXE042H	HXF042H
	Interlocking wire type (kit)	3/4P		-	HXB065H	HXC065H	HXD065H	HXE065H	-
	Interlocking wire type (unit)			-	HXB066H	HXC066H	HXD066H	HXE066H	-
	Cable for interlock wire 1 m			-	HXB070H				-
	Cable for interlock wire 1,5 m			-	HXB071H				-
	Electrical interlock for motor type A	3/4P		-	HXB068H		HXD068H		-
	Electrical interlock for motor type B	3/4P		-	HXB069H (between HXB04xH or HXC04xH and HXD04xH or HXE04xH.)				-

* for HxAxxxP references - standard version handle

				Switches and accessories					
Products	Version	pole	In A / Ue V	x160	x250	h250	h400-h630	h1000	h1600
Connections	Collar terminal - copper	3P		-	-	HYC003H	HYD003H (250-400A)	-	-
		4P		-	-	HYC004H	HYD004H (250-400A)	-	-
	Collar terminal - aluminium / copper 185 mm²	3P		-	HYB001H	-	-	-	-
		4P		-	HYB002H	-	-	-	-
	Collar terminal - aluminium / copper 240 mm²	3P		-	HYB005H	-	HYD005H	-	-
		4P		-	HYB006H	-	HYD006H	-	-
	Collar terminal multiple - aluminium / copper 240 mm²	3P		-	-	-	HYD007H	HYE007H (to 800)	-
		4P		-	-	-	HYD008H	HYE008H (to 800)	-
	Extended straight connection	3/4P		HYA010H	HYB010H	HYC010H	HYD010H (250-400A) HYD013H (630A integrated)	included	included
	Extended spreader connection	3P		HYA011H	HYB011H	HYC011H	HYD011H (250-400A) HYD014H (630A)	-	-
		4P		HYA012H	HYB012H		HYD012H (250-400A) HYD015H (630A)	-	-
	Interphase barrier	3/4P	short	HYA019H		-	-	-	-
			long	HYB019H		included / HYC019 (LSI/TM+) HYB019 (TM)	included / HYD019H		
	Terminal cover for extended straight connections	3P		HYA021H	HYB021H	HYC021H (LSI / TM+) HYG021H (TM)	HYD021H	HYE021H	-
		4P		HYA022H	HYB022H	HYC022H (LSI / TM+) HYG022H (TM)	HYD022H	HYE022H	-
	Terminal cover large for spreader connection	3P		HYA023H	HYB023H	-	HYD023H	-	-
		4P		HYA024H	HYB024H	-	HYD024H	-	-
	Terminal cover short for rear connections	3P		HYA025H	HYB025H	HYC025H (LSI / TM+)	HYD025H	HYE025H	-
		4P		HYA026H	HYB026H	HYC026H (LSI / TM+)	HYD026H	HYE026H	-
	Terminal cover for collar terminal	3P		HYA027H	HYB027H	HYC027H	HYD027H	-	-
		4P		HYA028H	HYB028H	HYC028H	HYD028H	-	-
	Rear connections	3P		HYA031H (16-50A) HYA131H (63-160A) for S version	HYB031H	HYC031H (LSI / TM+) HYG031H (TM)	HYD031H (250-400A) HYD033H (630A)	HYE031H (630-800A) HYE033H (1000A)	-
		4P		HYA032H (16-50A) HYA132H (63-160A) for S version	HYB032H	HYC032H (LSI / TM+) HYG032H (TM)	HYD032H (250-400A) HYD034H (630A)	HYE032H (630-800A) HYE034H (1000A)	-
	DIN rail adaptor	3/4P		HYA033H	-	-	-	-	-
	Connecting kit (0,75mm²)	3/4P		HYA035H					
	Rail Din raiser	3/4P		HYA036H	-	-	-	-	-
	OCR sealing cover			-	-	HYC041H (LSI) HYG041H (TM)	-	-	-
	Compact lugs 16mm² D:8,5	3/4P		HYA086H	-	-	-	-	-
	Compact lugs 25mm² D:8,5	3/4P		HYA087H	-	-	-	-	-
	Compact lugs 35mm² D:8,5	3/4P		HYA088H		-	-	-	-
	Compact lugs 50mm² D:8,5	3/4P		HYA089H		-	-	-	-
	Compact lugs 70mm² D:8,5	3/4P		HYA090H		-	-	-	-
	Compact lugs 95mm² D:8,5	3/4P		HYA091H		-	-	-	-
	Compact lugs 120mm² D:8,5	3/4P		-	HYB092H	-	-	-	-
	Compact lugs 120mm² D:10	3/4P		-	-	-	HYD093H	-	-
	Compact lugs 150mm² D:8,5	3/4P		-	HYB094H	-	-	-	-
	Compact lugs 150mm² D:10,5	3/4P		-	-	-	HYD095H	-	-
	Compact lugs 185mm² D:10,5	3/4P		-	-	-	HYD096H	-	-
	Compact lugs 185mm² D:12,8	3/4P		-	-	-	HYD097H*	-	-
	Compact lugs 240mm² D:12,8	3/4P		-	-	-	HYD098H*	-	-

* with spreaders

Moulded case circuit breakers x160
Thermal magnetic trip unit, 2 versions:
- Z version: fixed thermal and fixed magnetic, collar terminal
- S version: adjustable thermal and fixed magnetic, cable lug terminal
- P version: fixed thermal and fixed magnetic, cable lug terminal

1P, 2P, 3P and 4P
Mechanical test button, lockable settings,
integrated padlocking handle Ø 4mm (S version),
needs accessory for DIN rail mounting.

Connection capacity
95 mm² rigid cables
70 mm² flexible cables

Comply with IEC 60 947-2.

Trip-free switches
Allows tripping at distance using a voltmetrical trip unit (optional) AC 22/23A.

Comply with IEC 60 947-3.


HDA125P


HDA161S

Designation	In	Cat. ref. 1P	2P	3P	4P
MCCBs x160 18kA breaking capacity Ics : 18 kA (400/415 V AC) fixed thermal 1x In fixed magnetic > 10 x In	16A		**HDA015P**	**HDA016P**	**HDA017P**
	20A		**HDA019P**	**HDA020P**	**HDA021P**
	25A		**HDA024P**	**HDA025P**	**HDA026P**
	32A		**HDA031P**	**HDA032P**	**HDA033P**
	40A		**HDA039P**	**HDA040P**	**HDA041P**
	50A		**HDA049P**	**HDA050P**	**HDA051P**
	63A		**HDA062P**	**HDA063P**	**HDA064P**
	80A		**HDA079P**	**HDA080P**	**HDA081P**
	100A		**HDA099P**	**HDA100P**	**HDA101P**
	125A		**HDA124P**	**HDA125P**	**HDA126P**
	160A		**HDA159P**	**HDA160P**	**HDA161P**
adjustable thermal 0,63 - 0,8 - 1 x In fixed magnetic > 10 x In	25A		-	**HDA025S**	**HDA026S**
	40A		-	**HDA040S**	**HDA041S**
	63A		-	**HDA063S**	**HDA064S**
	80A		-	**HDA080S**	**HDA081S**
	100A		-	**HDA100S**	**HDA101S**
	125A		-	**HDA125S**	**HDA126S**
	160A		-	**HDA160S**	**HDA161S**
MCCBs x160 25kA breaking capacity Ics : 20 kA (400/415 V AC) fixed thermal 1x In fixed magnetic > 10 x In	16A		**HHA015P**	**HHA016P**	**HHA017P**
	20A		**HHA019P**	**HHA020P**	**HHA021P**
	25A		**HHA024P**	**HHA025P**	**HHA026P**
	32A		**HHA031P**	**HHA032P**	**HHA033P**
	40A		**HHA039P**	**HHA040P**	**HHA041P**
	50A		**HHA049P**	**HHA050P**	**HHA051P**
	63A		**HHA062P**	**HHA063P**	**HHA064P**
	80A		**HHA079P**	**HHA080P**	**HHA081P**
	100A		**HHA099P**	**HHA100P**	**HHA101P**
	125A		**HHA124P**	**HHA125P**	**HHA126P**
	160A		**HHA159P**	**HHA160P**	**HHA161P**
adjustable thermal 0,63 - 0,8 - 1 x In fixed magnetic > 10 x In	25A		-	**HHA025S**	**HHA026S**
	40A		-	**HHA040S**	**HHA041S**
	63A		-	**HHA063S**	**HHA064S**
	80A		-	**HHA080S**	**HHA081S**
	100A		-	**HHA100S**	**HHA101S**
	125A		-	**HHA125S**	**HHA126S**
	160A		-	**HHA160S**	**HHA161S**

HNA125P

Designation	In	Cat. ref.			
		1P	2P	3P	4P
MCCBs x160 40kA	16A	-	-	**HNA016P**	**HNA017P**
breaking capacity	20A	-	-	**HNA020P**	**HNA021P**
Ics : 20 kA	25A	-	-	**HNA025P**	**HNA026P**
(400/415 V AC)	32A	-	-	**HNA032P**	**HNA033P**
	40A	-	-	**HNA040P**	**HNA041P**
fixed thermal	50A	-	-	**HNA050P**	**HNA051P**
1 x In	63A	-	-	**HNA063P**	**HNA064P**
fixed magnetic	80A	-	-	**HNA080P**	**HNA081P**
> 10 x In	100A	-	-	**HNA100P**	**HNA101P**
	125A	-	-	**HNA125P**	**HNA126P**
	160A	-	-	**HNA160P**	**HNA161P**
adjustable thermal	25A	-	-	**HNA025S**	**HNA026S**
0,63 - 0,8 - 1 x In	40A	-	-	**HNA040S**	**HNA041S**
fixed magnetic	63A	-	-	**HNA063S**	**HNA064S**
> 10 x In	80A	-	-	**HNA080S**	**HNA081S**
	100A	-	-	**HNA100S**	**HNA101S**
	125A	-	-	**HNA125S**	**HNA126S**
	160A	-	-	**HNA160S**	**HNA161S**
Trip-free switches x160	125A	-	-	**HCA125P**	**HCA126P**
suitable for	160A	-	-	**HCA160P**	**HCA161P**
AC22A / AC 23A					
Ue: 415 V AC					
Icw (1s): 2 kA					

Indication contacts
- 1 changeover switch (ON/OFF): indicates the position of the MCCB is “open” or “close”.
- 1 changeover alarm contact: indicates MCCB tripping.

Coil connection
Connection capacity:
0,75 mm² flexible or rigid cables
Optional connection cables.
The cable capacity of the terminals is 0,5 to 1,25 mm².

Shunt trip
Remotes tripping of MCCBs or trip-free switches.
Operating voltage: 0,7 to 1,1 x Un

Under voltage release
Allows the tripping of MCCBs or trip-free switches when voltage level drop between 35 and 70% of Un. Pick up voltage 0,85 x Un

Direct rotary handle
- padlockable
- equipped with front cover and handle
- fixing without any additional screw.

Extended rotary handle
- IP 55
- supplied complete with shaft and handle.


HXA021H


HXA024H

HXA014H

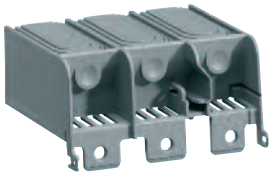
Designation	Characteristics	Cat. ref.
Auxiliary contacts **AX** **AL**	1 changeover contact (ON/OFF) 250 V AC / 3A 125 V DC / 0,4A 1 NO + 1 NC	**HXA021H**
	1 changeover alarm contact 250 V AC / 3A 125 V DC / 0,4A 1 NO + 1 NC	**HXA024H**
	Low level contact (ON/OFF) 125 V AC 1 NO + 1 NC	**HXA025H**
	Low level alarm contact 125 V AC 1 NO + 1 NC	**HXA026H**
Shunt trips **SH**	24 V DC	**HXA001H**
	48 V DC	**HXA002H**
	100 - 120 V AC	**HXA003H**
	200 - 240 V AC	**HXA004H**
	380 - 450 V AC	**HXA005H**
Undervoltage releases **UV**	24 V DC	**HXA011H**
	100 - 120 V AC	**HXA013H**
	200 - 240 V AC	**HXA014H**
	380 - 450 V AC	**HXA015H**
Delayed undervoltage releases **DUVR**	24 V DC	**HXA051H**
	110 - 120 V AC	**HXA053H**
	220 - 240 V AC	**HXA054H**
	380 - 415 V AC	**HXA055H**

HXA030H

HXA031H

HYA021H

HYA023H

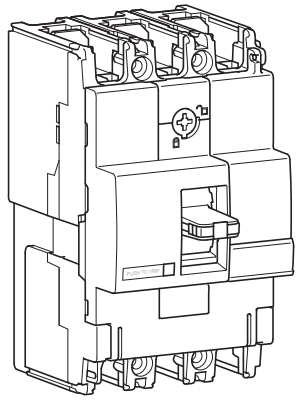


HYA027H

Designation	Characteristics	Cat. ref. 3P	Cat. ref. 4P
Direct rotary handle	padlockable handle max Ø 6 mm	**HXA030H**	**HXA030H**
Extended rotary handle	padlockable handle max Ø 8 mm	**HXA031H**	**HXA031H**
Padlock	for padlock integrated handle to mount on MCCB for handle locking for 3 padlock max Ø 8 mm	**HXA039H**	**HXA039H**
	for HxAxxxP references standard version handle	**HXA037H**	**HXA037H**
Extended connections	set of 4 straight connections	**HYA010H**	**HYA010H**
	set of 3 or 4 spreader connections	**HYA011H**	**HYA012H**
Interphase barriers	set of 3, height: 50 mm	**HYA019H**	**HYA019H**
	set of 3, height: 97 mm	**HYB019H**	**HYB019H**
Terminal covers	for extended straight connections	**HYA021H**	**HYA022H**
	for extended spreader connections	**HYA023H**	**HYA024H**
	for collar terminal	**HYA027H**	**HYA028H**
Din rail adaptor		**HYA033H**	**HYA033H**
Rear connections	16 to 50A	**HYA031H**	**HYA032H**
	63 to 160A	**HYA131H**	**HYA132H**
Connecting kit	0,75 mm^2 set of 3 x 2 wires length: 1,30m	**HYA035H**	**HYA035H**
Rail Din raiser		**HYA036H**	**HYA036H**

Designation	Characteristics	Cat. ref.
Ring lugs	compact lugs 16 mm^2 Ø8,5	**HYA086H**
	compact lugs 25 mm^2 Ø8,5	**HYA087H**
	compact lugs 35 mm^2 Ø8,5	**HYA088H**
	compact lugs 50 mm^2 Ø8,5	**HYA089H**
	compact lugs 70 mm^2 Ø8,5	**HYA090H**
	compact lugs 95 mm^2 Ø8,5	**HYA091H**

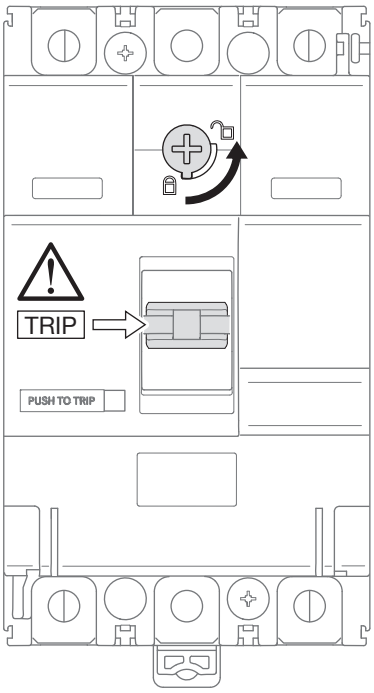
MCCBs



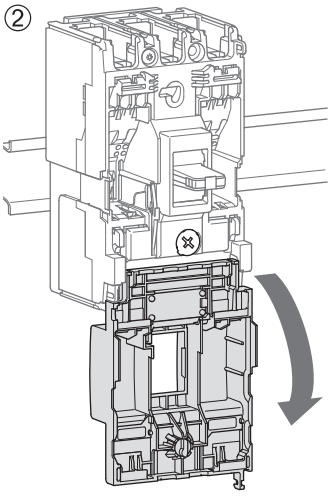
		220/240V AC IEC 60 947-2	380/415V AC IEC 60 947-2
HDA	Icu	25 kA	18 kA
	Ics	25 kA	18 kA
HHA	Icu	35 kA	25 kA
	Ics	25 kA	20 kA
HNA	Icu	85 kA	40 kA
	Ics	30 kA	25 kA
HCA	Icm	-	2,8 kA
	Icw	-	2 kA - 1s

Magnetic and thermal settings

①

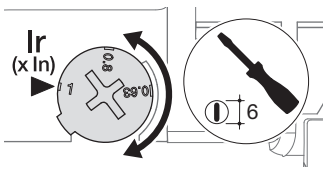


②



For DIN rail mounting, use HYA033H.

③



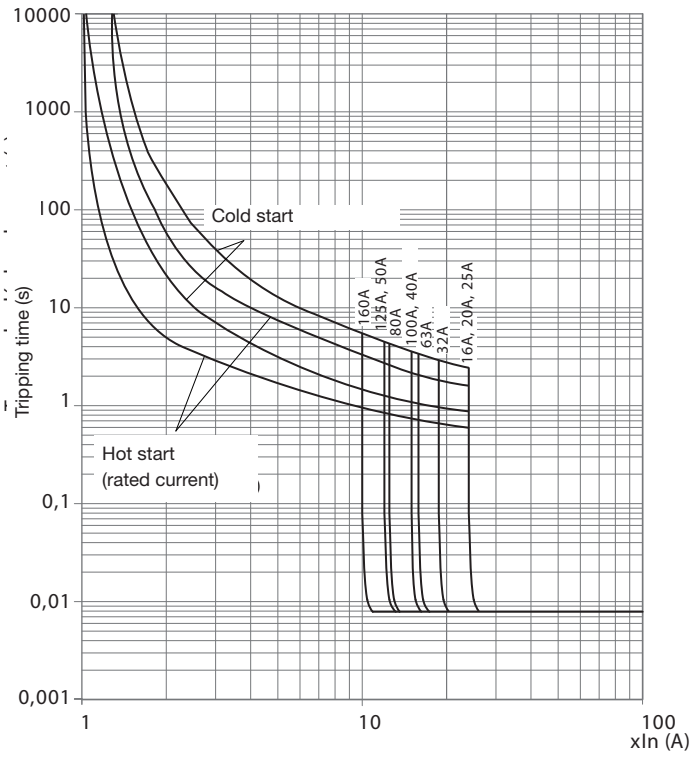
Thermal adjustment from 0,63 to 1 x In

Magnetic adjustment fixed > 10 x In

In	15 - 50 A	63 - 80 A	100 - 125 A	160 A
Imag	600 A	1000 A	1500 A	1600 A

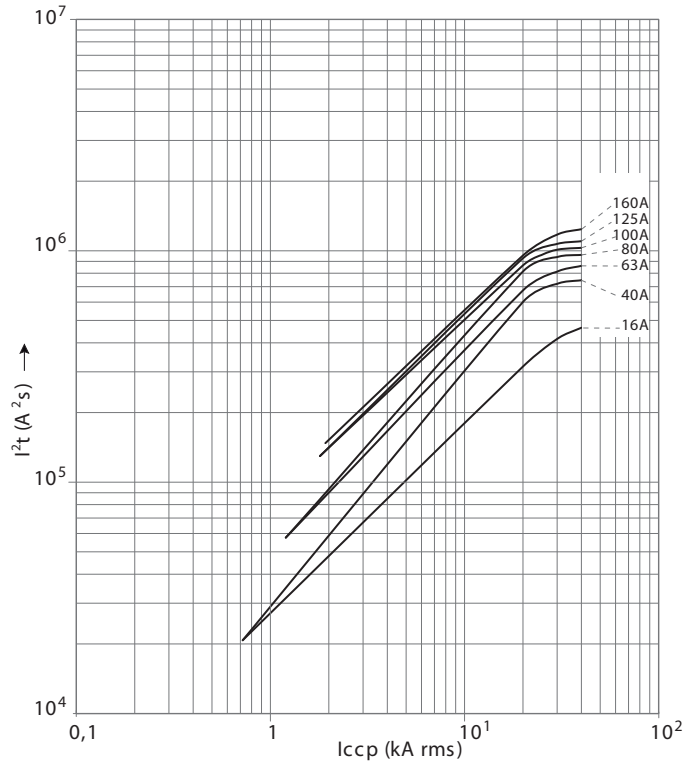
Tripping curve

MCCB x160



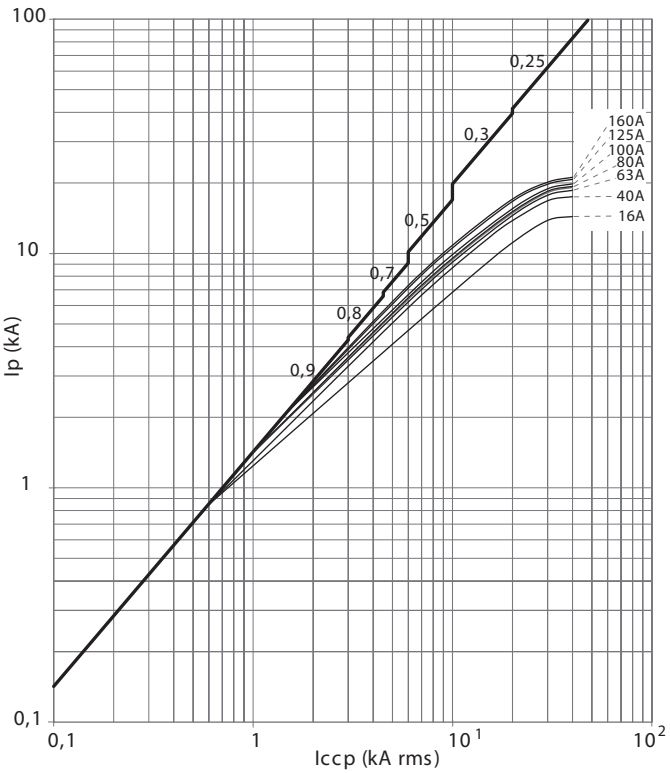
Thermal constraint curve at 400V (Let-through energy)

MCCB x160



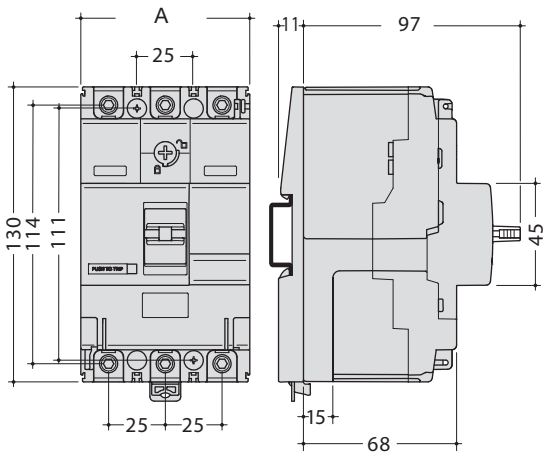
Current limiting curve at 400V(Let-through peak current)

MCCB x160



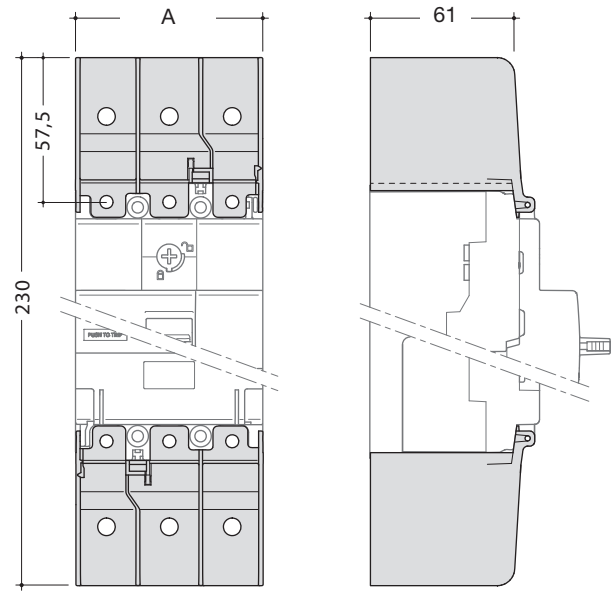
Dimensions

MCCB x160



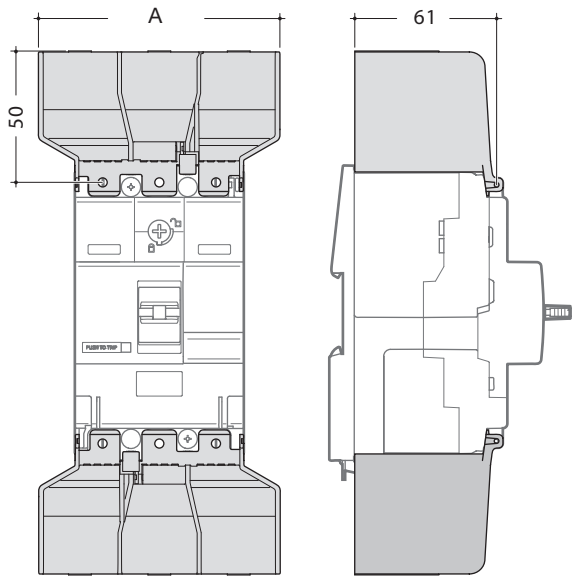
	A (mm)
1P	24,8
2P	49,5
3P	74,5
4P	99,5

Terminal covers for extended straight connections



	A (mm)
1P	24,4
2P	49,5
3P	74,5
4P	99,5

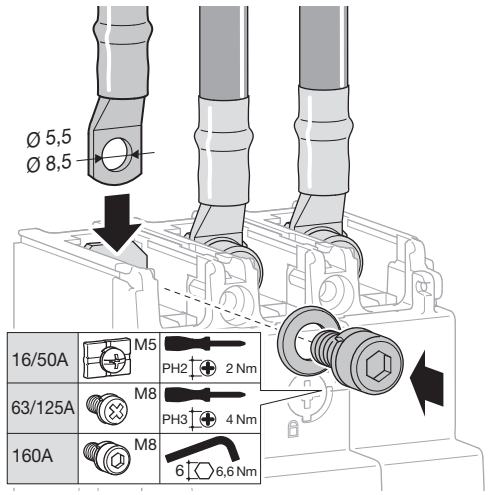
Terminal cover for extended spreader connections

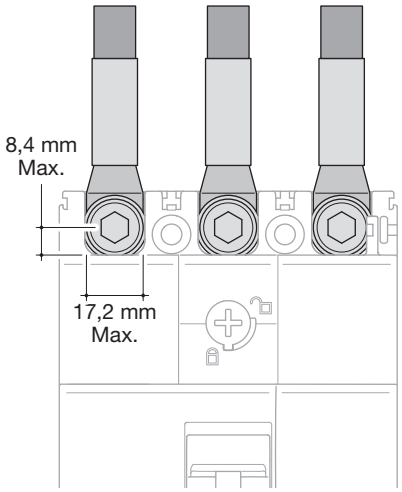


	A (mm)
3P	106,5
4P	141,5

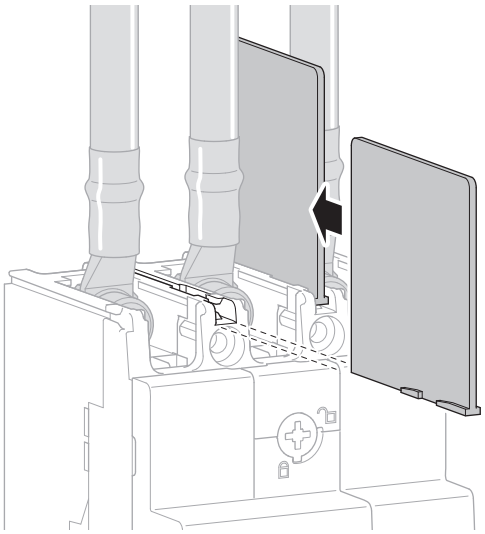
Connection

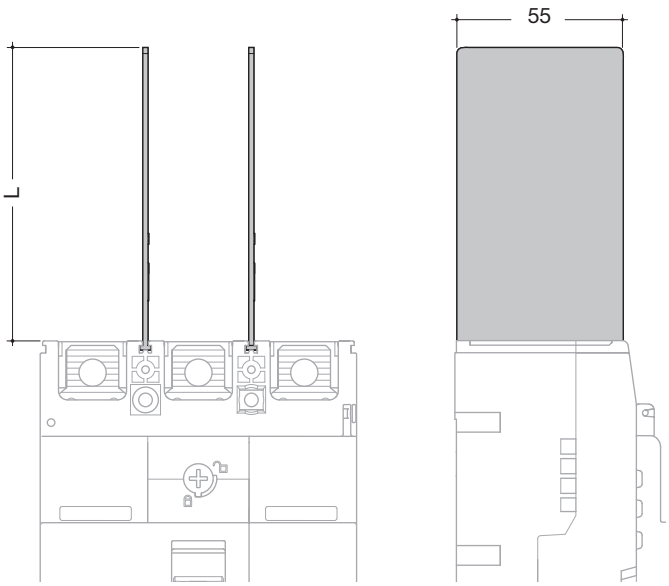
Connection with cable lugs





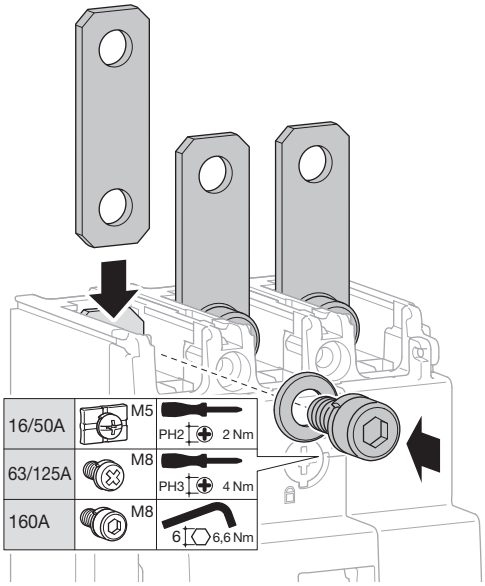
Interphase barriers

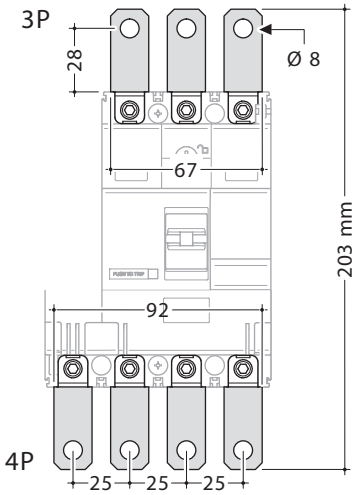




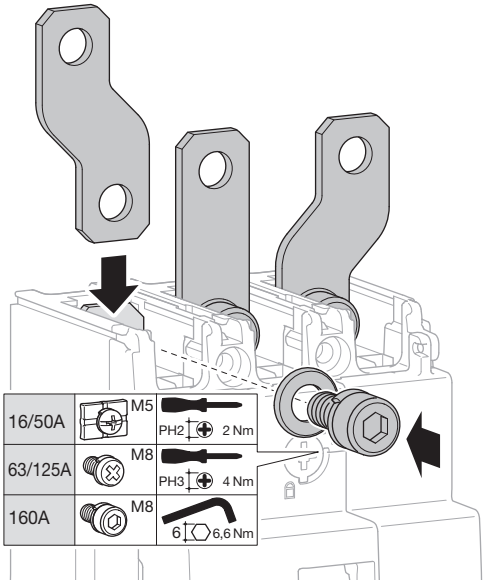
	L (mm)
HYA019H	50
HYB019H	97

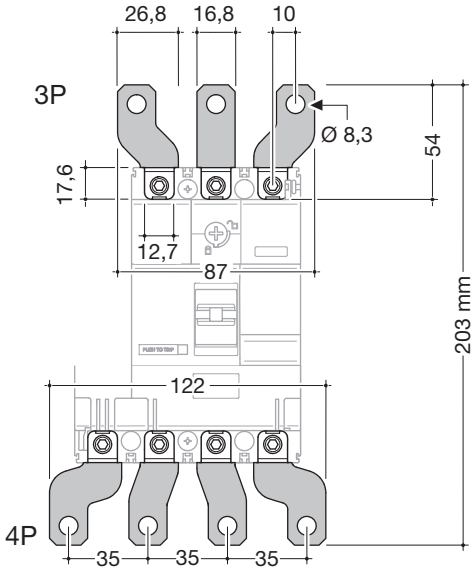
Extended straight connections



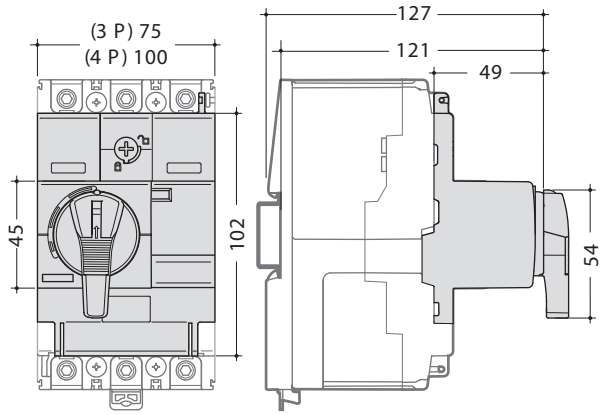


Extended spreader connections

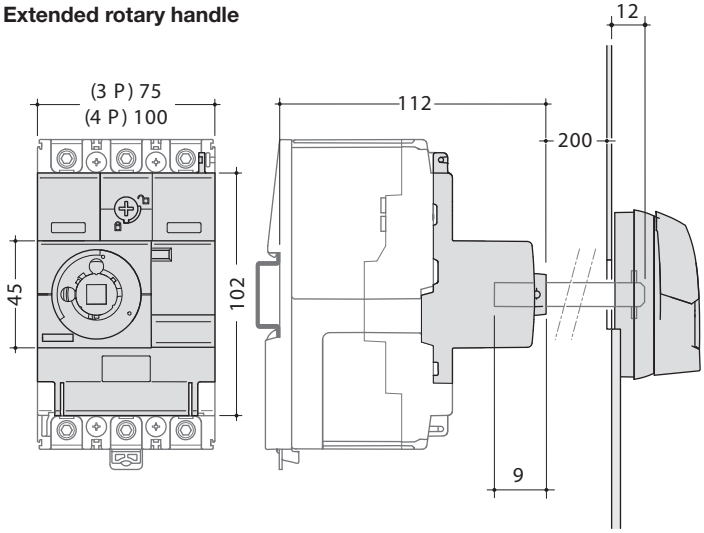




Direct rotary handle

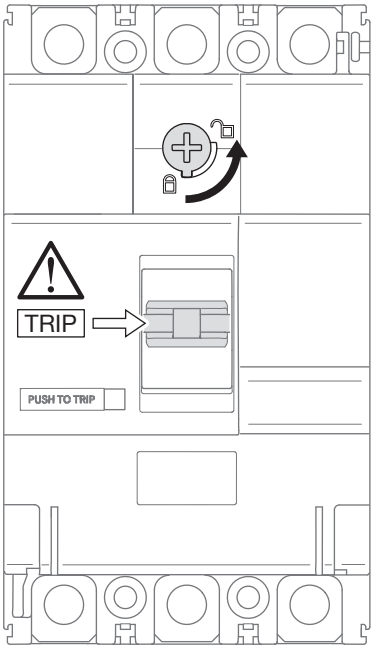


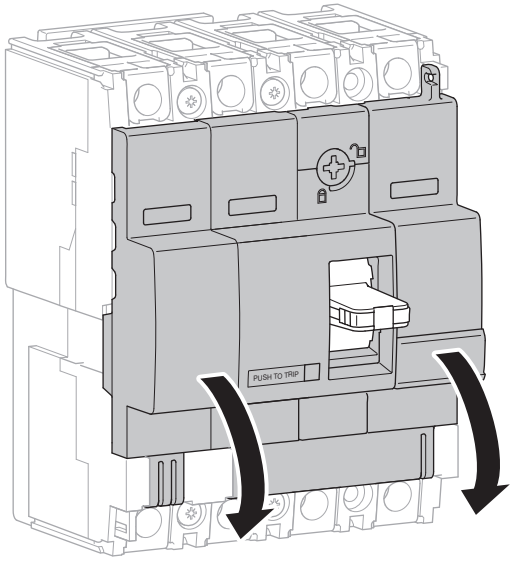
Extended rotary handle



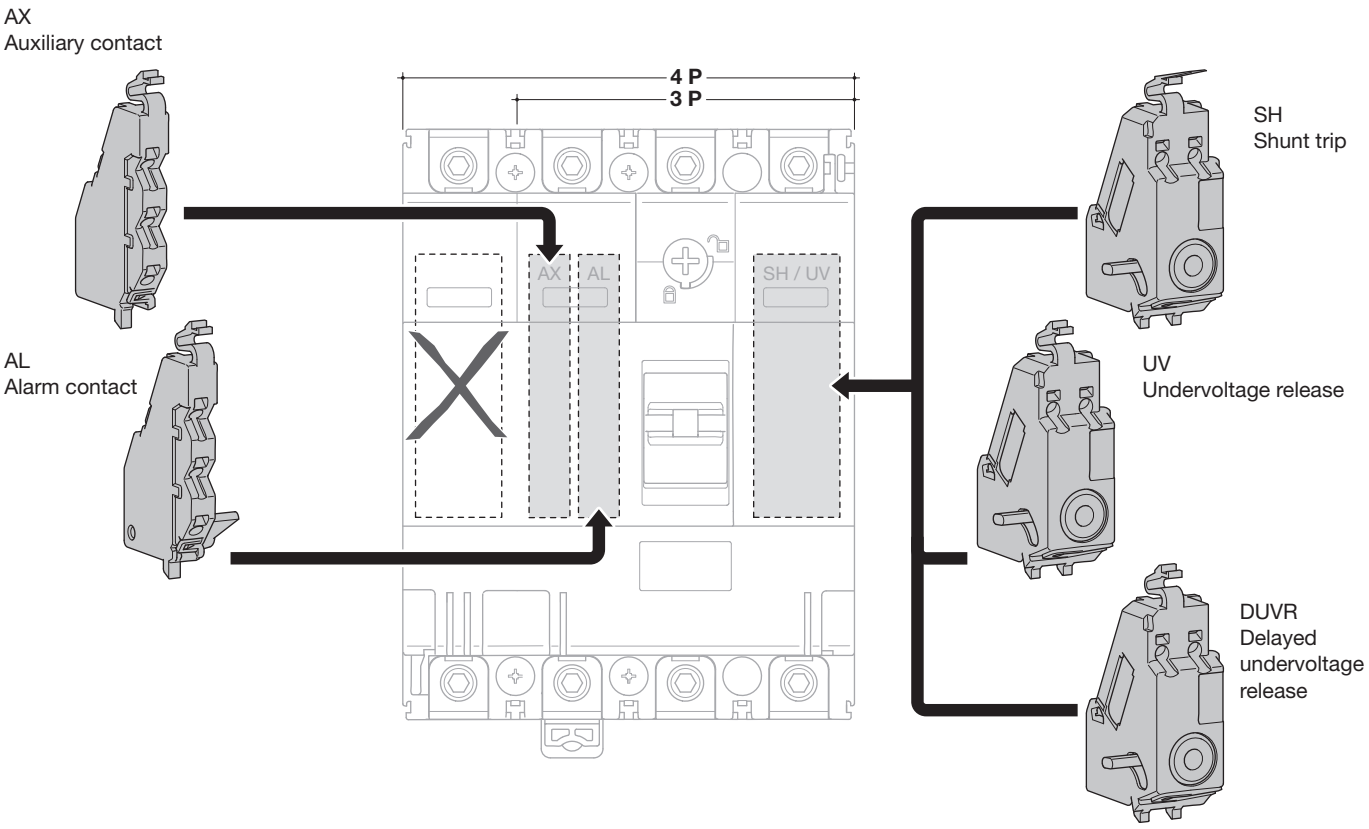
Auxiliaries

Auxiliaries for MCCBs and trip-free switches





Mounting combination for auxiliaries and releases



Moulded case circuit breakers x250,
2 versions of trip unit:
- Z version: fixed thermal and magnetic
- U version: adjustable thermal and magnetic

3P and 4P
Mechanical test button, lockable settings, integrated padlocking handle Ø 4mm.
Comply with IEC 60 947-2.

Connection:
Directly on copper cable terminal, with end lug max. width: 25 mm
Connection capacity: 185 mm^2 rigid cables

Comply with IEC 60 947-2.
Collar terminals

Trip-free switches
Allows tripping at distance using a voltmetrical trip unit (optional)
Complies with IEC 60 947-3
AC 22/23A

Add-on blocks for x250 devices
These devices are intended to be fixed at the bottom of the devices.

Type A ~ and HI
for fault component dc pulsating current and the products with "reinforced immunity".
Adjustable sensitivity and tripping.
Test button for differential functioning check.
Mechanical test button
LED or at distance signal for tripping or advance warning (25 - 50% IΔn).

Comply with IEC 60 947-2 annexe B


HNB250Z


HNB100U


HBB251H

Designation	Designation	In	Cat. ref. 3P	Cat. ref. 4P
MCCBs x250 25kA	breaking capacity Icu : 25 kA (400/415 V AC) Ics: 20kA fixed thermal 1 x In fixed magnetic ≥10 x In	100A	**HHB100Z**	**HHB101Z**
		125A	**HHB125Z**	**HHB126Z**
		160A	**HHB160Z**	**HHB161Z**
		200A	**HHB200Z**	**HHB201Z**
		250A	**HHB250Z**	**HHB251Z**
MCCBs x250 40kA	breaking capacity Icu : 40 kA (400/415 V AC) Ics: 20 kA fixed thermal 1 x In fixed magnetic ≥10 x In	100A	**HNB100Z**	**HNB101Z**
		125A	**HNB125Z**	**HNB126Z**
		160A	**HNB160Z**	**HNB161Z**
		200A	**HNB200Z**	**HNB201Z**
		250A	**HNB250Z**	**HNB251Z**
	adjustable thermal 0,63 - 0,8 - 1x In adjustable magnetic 6 - 8 - 10 - 13 x In (100 - 200A) 5 - 7 - 9 - 11 x In (250A) 3P, 3 trip units 4P, neutral setting: 0 or 100%	100A	**HNB100U**	**HNB101U**
		125A	**HNB125U**	**HNB126U**
		160A	**HNB160U**	**HNB161U**
		200A	**HNB200U**	**HNB201U**
		250A	**HNB250U**	**HNB251U**
Trip-free switches x250	capacity suitable for AC 22/23A Icw (1s): 3 kA	250A	**HCB250Z**	**HCB251Z**
Add-on blocks	adjustable sensitivity IΔn: 0,03 - 0,1 - 0,3 - 1 - 3 - 6A adjustable tripping: - instantaneous - time delay: 0,06 - 0,15 - 0,3 - 0,5 - 1 sec	160A	-	**HBB161H**
		250A	-	**HBB251H**

Indication contacts
- 1 changeover switch (ON/OFF): indicates the position of the MCCB is “open” or “closed”.
- 1 changeover alarm contact: indicates MCCB tripping.

Coil connection
Connection capacity:
0,75 mm² flexible or rigid cables
Optional connection cables.
The cable capacity of the terminals is 0,5 to 1,25 mm².

Shunt trip
Remotes tripping of MCCBs or trip-free switches.
Operating voltage: 0,7 to 1,1 x Un

Under voltage release
Allows the tripping of MCCBs or trip-free switches when voltage level drop between 35 and 70% of Un. Pick up voltage 0,85 x Un

Direct rotary handle
- padlockable
- equipped with front cover and handle
- fixing without any additional screw.

Extended rotary handle
- IP 55
- supplied complete with shaft and handle.

HXA021H

HXA024H

Designation	Characteristics	Cat. ref.
Auxiliary contacts **AX** **AL**	1 changeover contact 250 V AC / 3A 125 V DC / 0,4A 1 NO + 1 NC	**HXA021H**
	1 changeover alarm contact 250 V AC / 3A 125 V DC / 0,4A 1 NO + 1 NC	**HXA024H**
	low level contact (ON/OFF) 125 V AC 1 NO + 1 NC	**HXA025H**
	low level alarm contact 125 V AC 1 NO + 1 NC	**HXA026H**
Shunt trips **SH**	24 V DC	**HXA001H**
	48 V DC	**HXA002H**
	100 - 120 V AC	**HXA003H**
	200 - 240 V AC	**HXA004H**
	380 - 450 V AC	**HXA005H**
Undervoltage releases UV	24 V DC	**HXA011H**
	100 - 120 V AC	**HXA013H**
	200 - 240 V AC	**HXA014H**
	380 - 450 V AC	**HXA015H**
Delayed undervoltage releases **DUVR**	24 V DC	**HXA051H**
	110 - 120 V AC	**HXA053H**
	200 - 240 V AC	**HXA054H**
	380 - 415 V AC	**HXA055H**
Direct rotary handles	padlockable handle max Ø 6 mm	**HXB030H**
Extended rotary handles	padlockable handle max Ø 8 mm	**HXB031H**
Padlocks	to mount on MCCBs for handle locking for 3 padlocks max Ø 8 mm	**HXA039H**
Motor operators	24 V DC	**HXB040H**
	230 - 240V AC	**HXB042H**
Electrical interlock	for motor type A (between 2 250A)	**HXB068H**
	for motor type B (between 250A and other sizes)	**HXB069H**

HXA014H


HXB042H


HYB010H


HYB002H


HYB012H


HYB022H

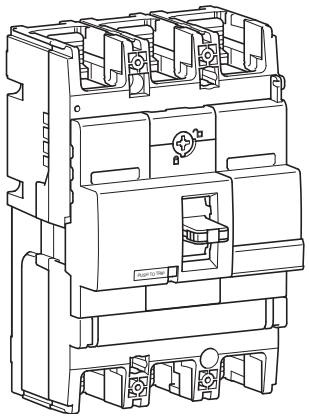

HYB024H


HYB031H

Designation	Characteristics	Cat. ref. 3P	Cat. ref. 4P
Interlocking kit	wire type set of 2 pieces and cable	**HXB065H**	**HXB065H**
Interlocking unit	wire type	**HXB066H**	**HXB066H**
Interlocking mechanical cable	1 m	**HXB070H**	**HXB070H**
	1,5 m	**HXB071H**	**HXB071H**
Collar terminals	aluminium / copper conductors 150 mm² rigid cables 120 mm² flexible cables	**HYB001H**	**HYB002H**
Collar terminals 240 mm²	aluminium / copper conductors	**HYB005H**	**HYB006H**
Extended connections	set of 4 pieces for straight connections	**HYB010H**	**HYB010H**
	spreader connections	**HYB011H**	**HYB012H**
Interphase barriers	set of 3, height: 97 mm	**HYB019H**	**HYB019H**
Terminal covers	for extended straight connections	**HYB021H**	**HYB022H**
	for extended spreader connections	**HYB023H**	**HYB024H**
	for rear connections	**HYB025H**	**HYB026H**
	for collar terminals	**HYB027H**	**HYB028H**
Rear connections	set of 3 or 4 pieces	**HYB031H**	**HYB032H**
Connecting kit	0,75 mm² set of 3 x 2 wires length: 1,30m	**HYA035H**	**HYA035H**

Designation	Characteristics	Cat. ref.
Ring lugs	compact lugs 35 mm² Ø8,5	**HYA088H**
	compact lugs 50 mm² Ø8,5	**HYA089H**
	compact lugs 70 mm² Ø8,5	**HYA090H**
	compact lugs 95 mm² Ø8,5	**HYA091H**
	compact lugs 120 mm² Ø8,5	**HYB092H**
	compact lugs 150 mm² Ø8,5	**HYB094H**

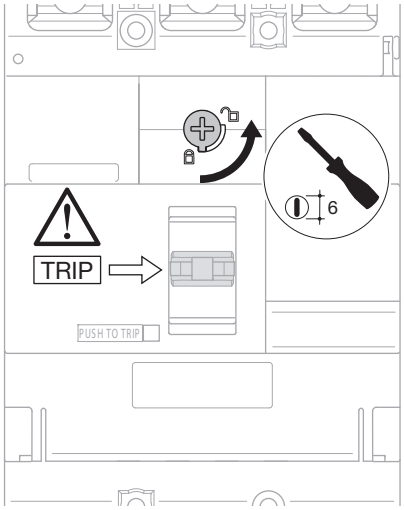
MCCBs



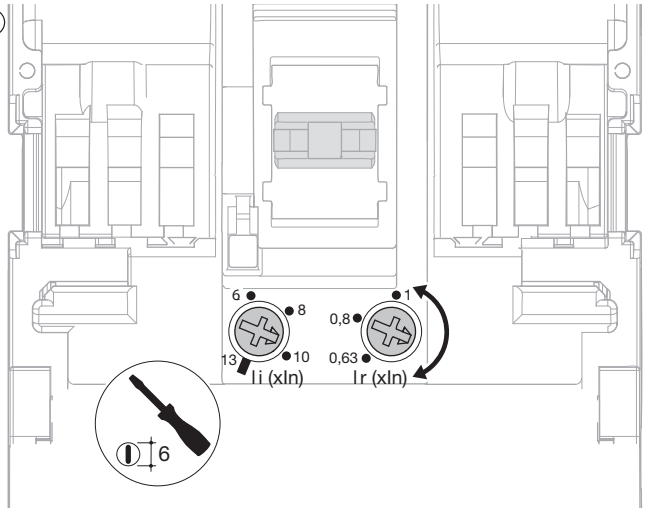
		220/240V AC IEC 60 947-2	380/415V AC IEC 60 947-2
HHB	Icu	35 kA	25 kA
	Ics	25 kA	20 kA
HNB	Icu	85 kA	40 kA
	Ics	40 kA	20 kA
HCB	Icm	-	9 kA
	Icw	-	3 kA - 1s

Magnetic and thermal settings

①



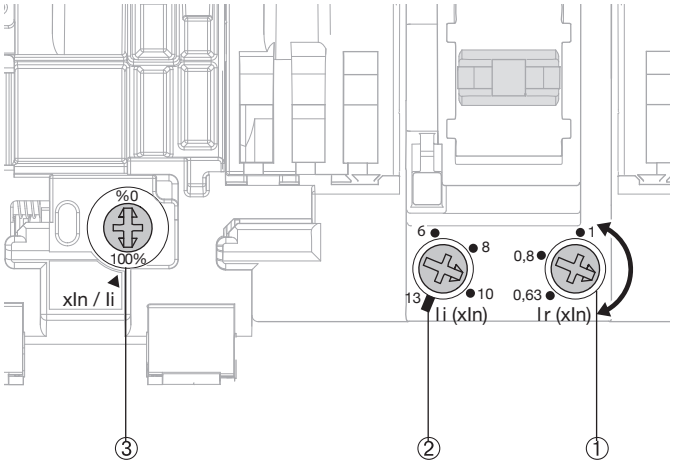
②



Thermal adjustment from 0,63 to 1 x In

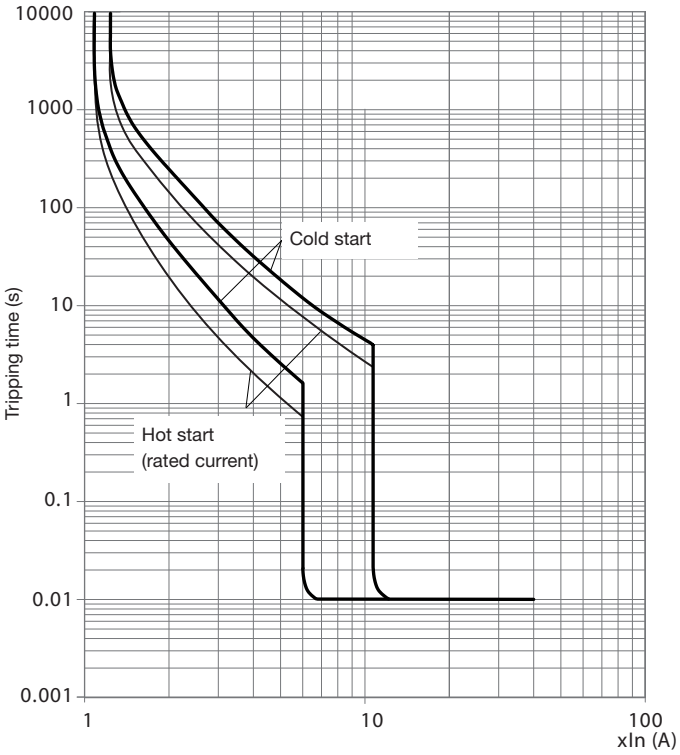
Magnetic adjustment from 6 to 13 x In (100 - 200A)
from 5 to 11 x In (250A)

	100 - 200A	250A
Ir (x In) ①	0,63 - 0,8 - 1 x In	
Ii (x In) ②	6 - 8 - 10 - 13 x In	5 - 7 - 9 - 11 x In
x In/Ii ③	0 - 100%	
	0 - 60%	



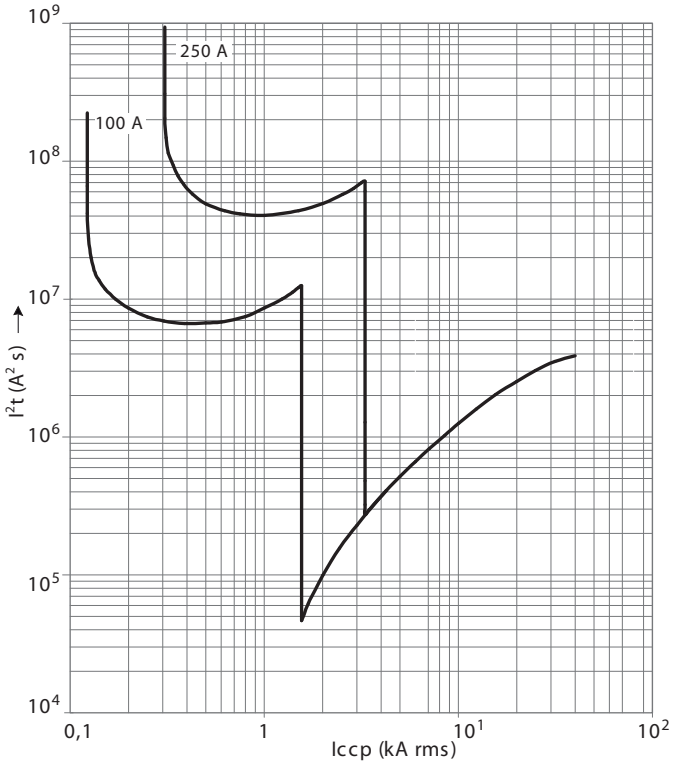
Tripping curve

MCCB x250



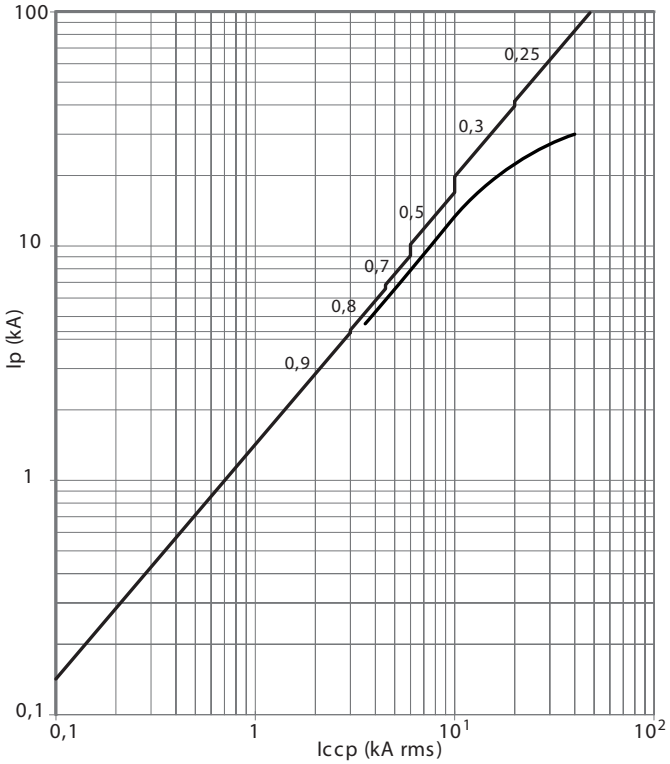
Thermal constraint curve at 400V (Let-through energy)

MCCB x250



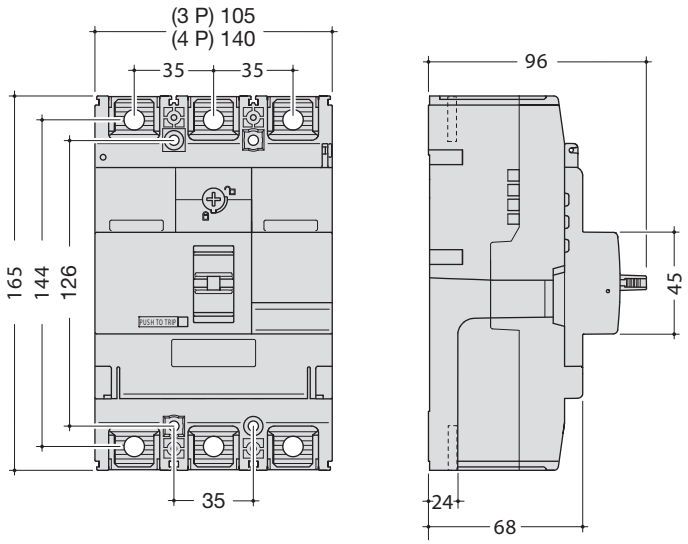
Current limiting curve at 400V (Let-through peak current)

MCCB x250

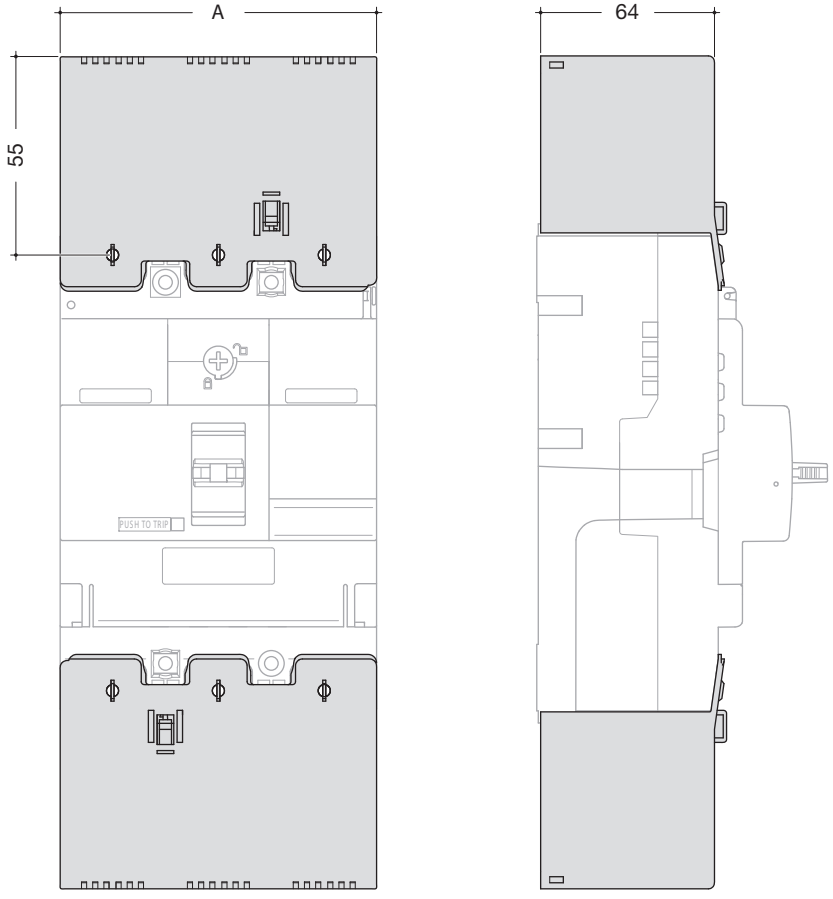


Dimensions

MCCB x250



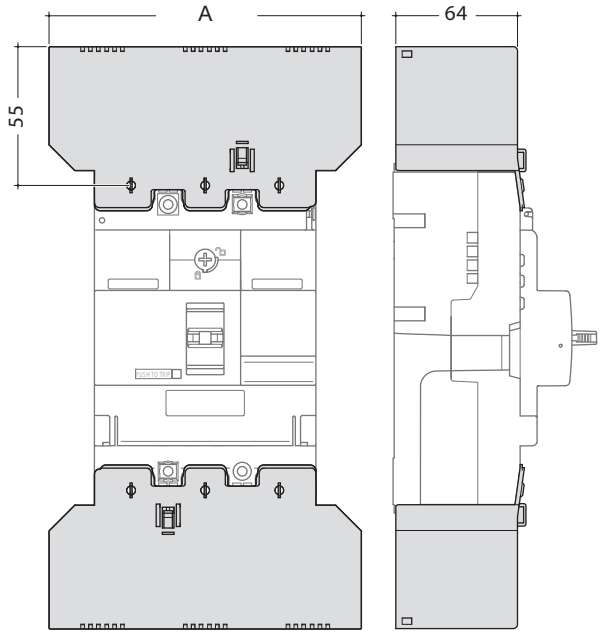
Terminal covers for extended straight connections



	A (mm)
3P	105
4P	140

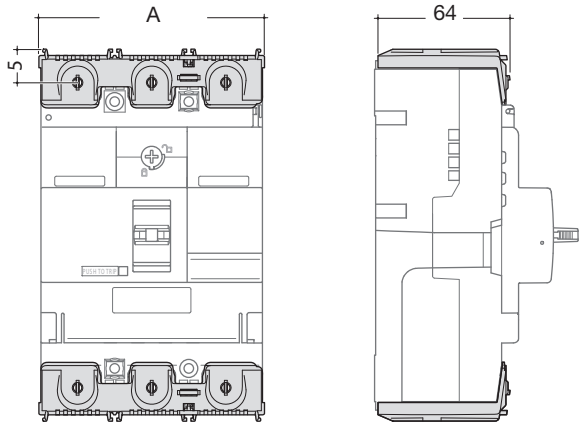
Accessories

Terminal cover for extended spreader connections



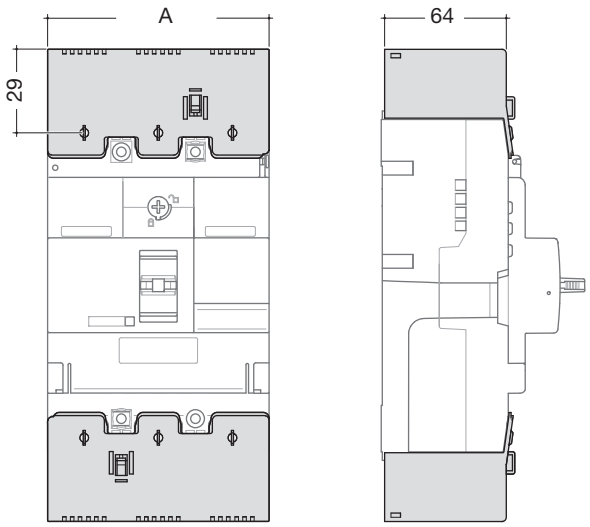
	A (mm)	**B** (mm)	**C** (mm)
3P	147,5	54,5	64
4P	196	54,5	64

Terminal cover for rear connections



	A (mm)
3P	105
4P	140

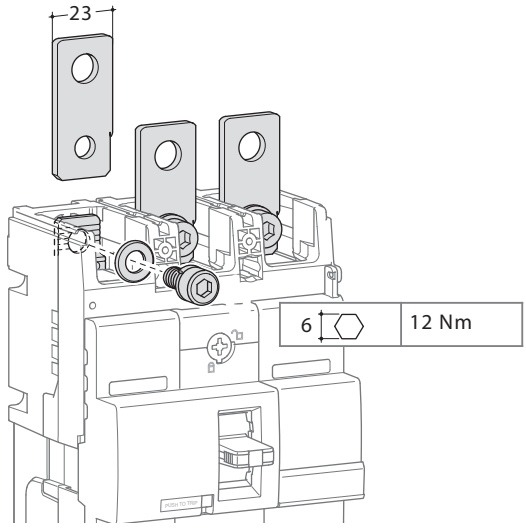
Terminal covers for collar terminals

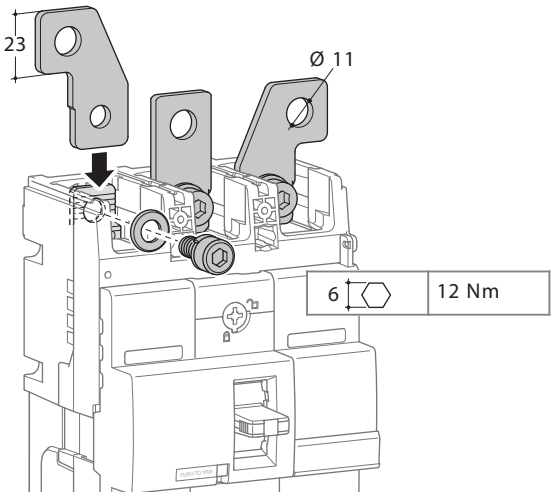


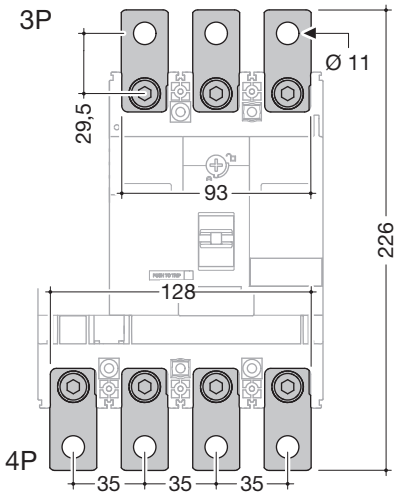
	A (mm)
3P	105
4P	140

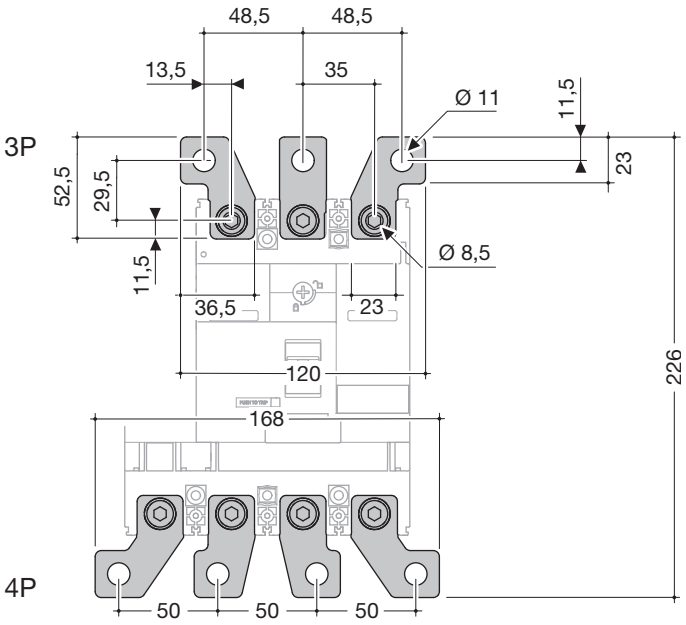
Connection

Extended straight and spreader connections

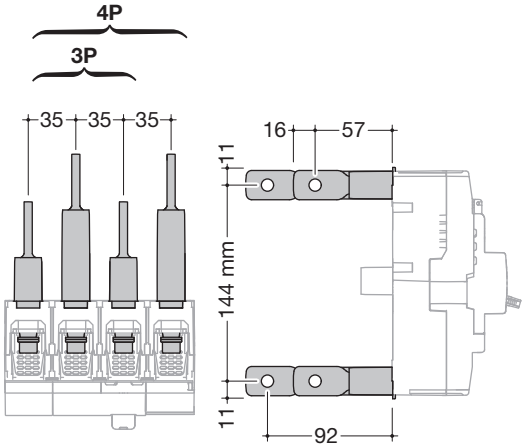


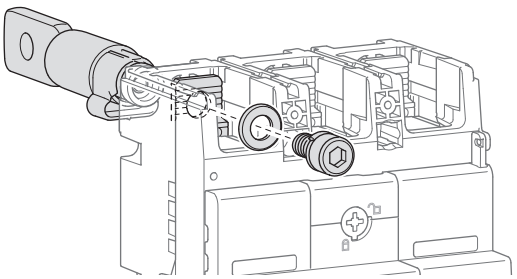


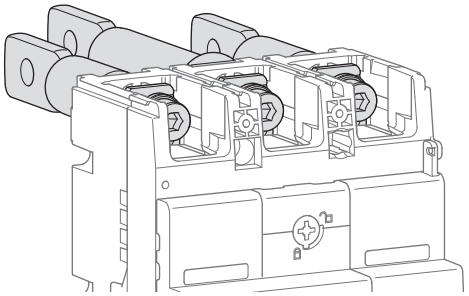




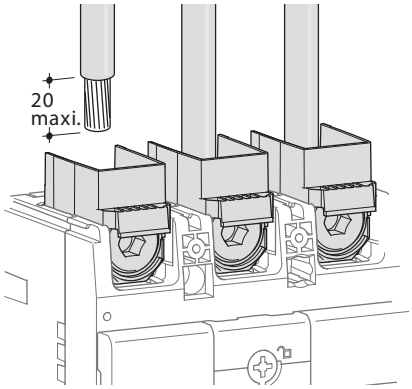
Rear connections





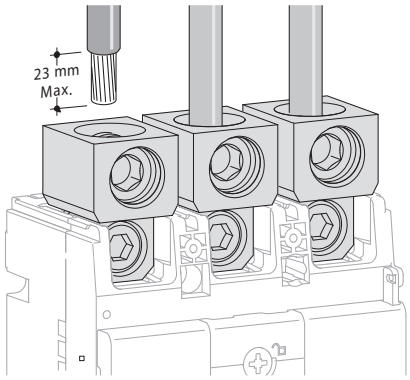


Connection by collar



Terminals for aluminium / copper conductors (accessory)
HYB001H, HYB002H

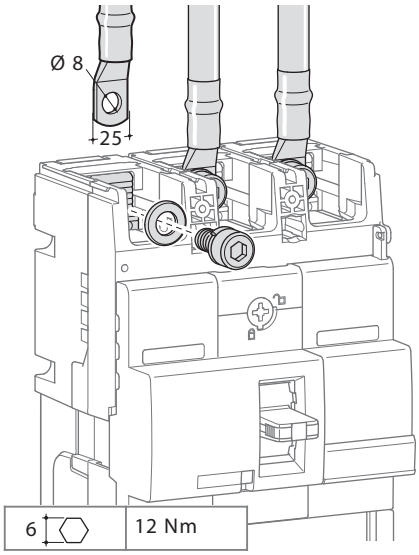
	min. 35 mm²	max. 150 mm²
	min. 35 mm²	max. 185 mm²
8	35 mm² to 50 mm² = 25 Nm 60 mm² to 185 mm² = 25 Nm	

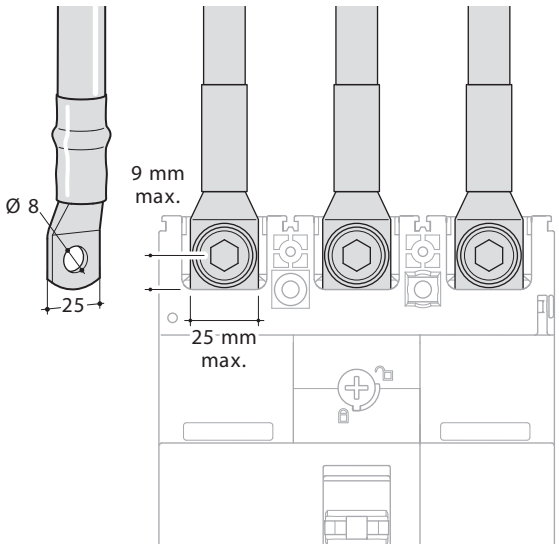


Terminals for aluminium / copper conductors (accessory)
HYB005H, HYB006H

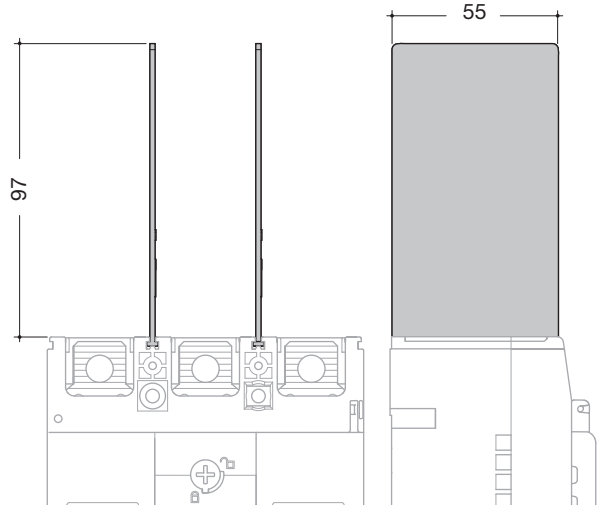
	min. 95 mm²	max. 240 mm²
10	95 mm² to 240 mm² = 25 Nm	

Connection with end lugs



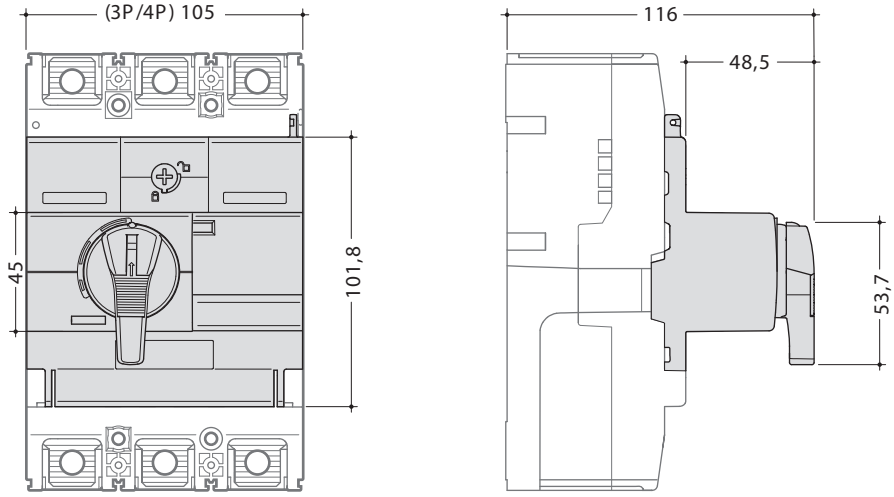


Interphase barriers

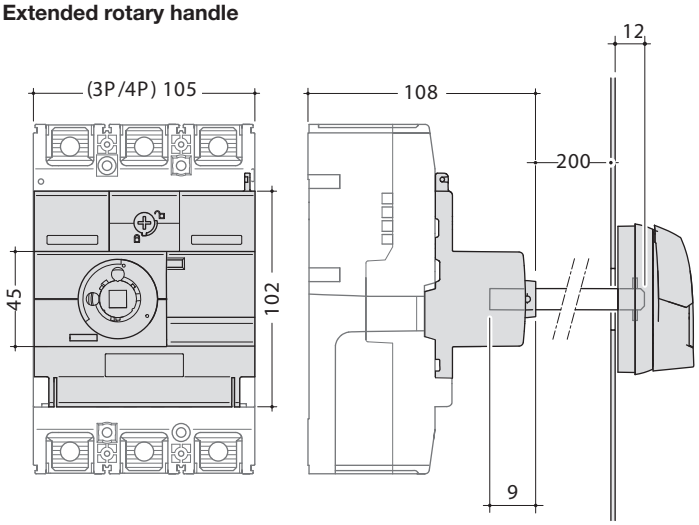


Accessories

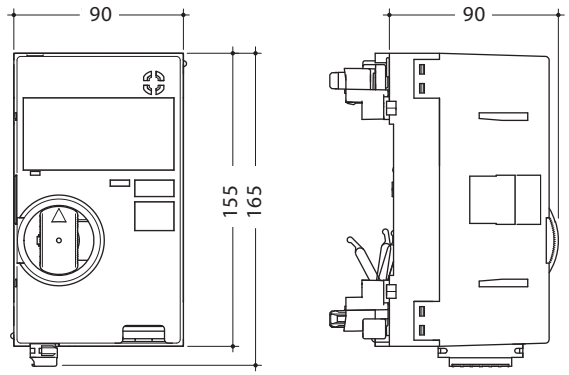
Rotary handle



Extended rotary handle

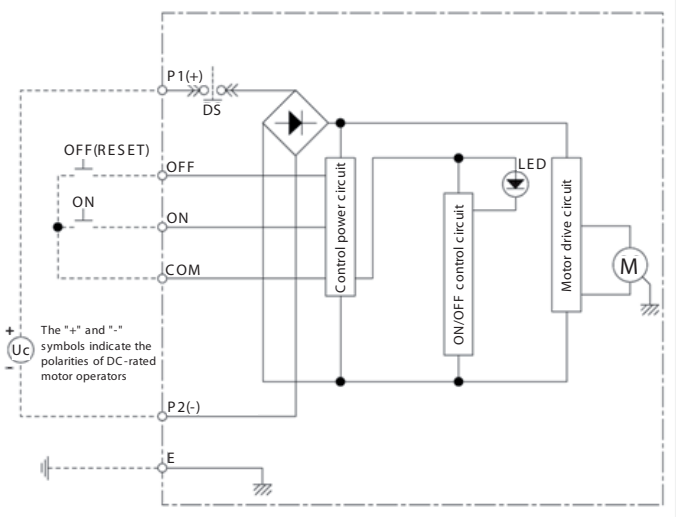


Motor operator



		HXB040H	HXB042H
Operating voltage		24V DC	230-240V AC
Operating current / starting current peak value (A)	24V DC	18/26	-
	230-240V AC	-	3,5/7
Operating time (s)	(ON)	0,1s	
	(OFF)	0,1s	
	(RESET)	0,1s	
Power supply required		300VA min.	
Dielectric properties (1 min)		1000V AC	1500V AC

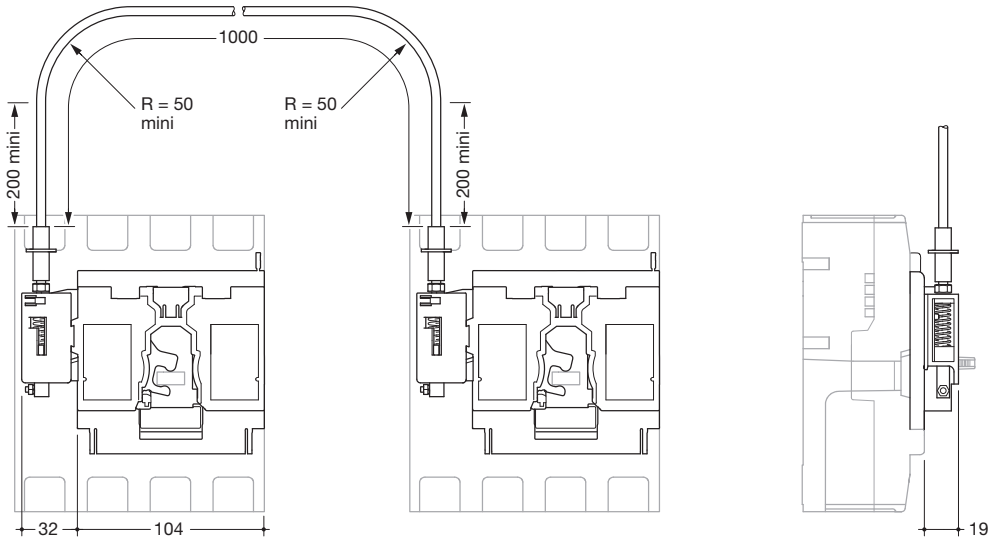
Wiring diagram



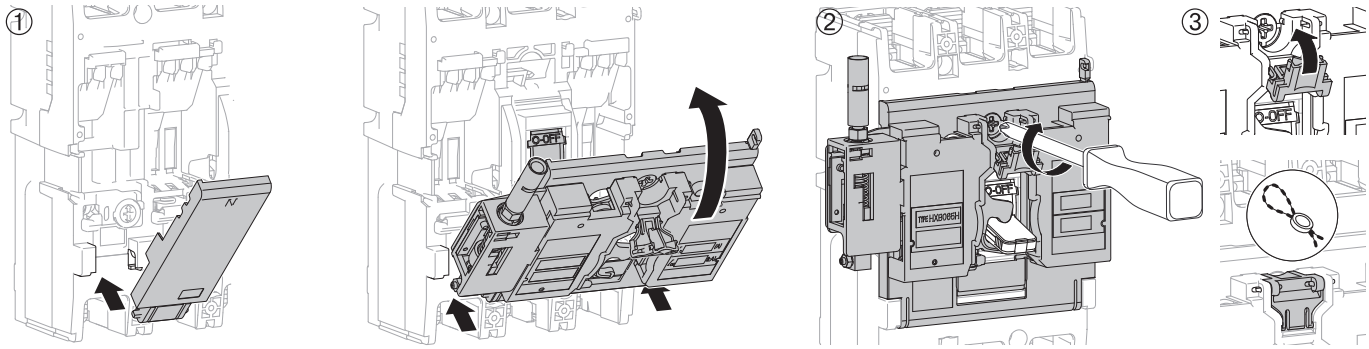
Interlocking system

Suitable with motor operator HXB04xH.
With electrical interlock for motor operator HXB068H (for 250A) or HXB069H (for 630/1000A).

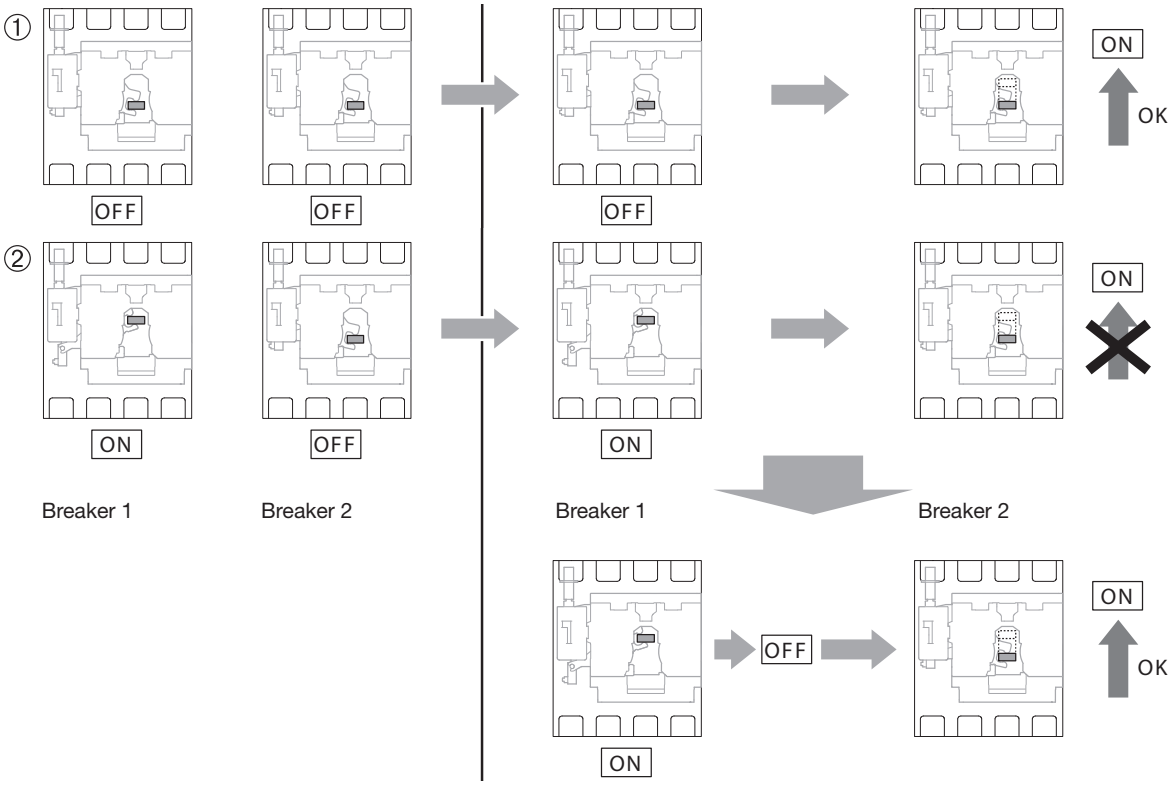
- Length HXB068H: 1500 mm
- Length HXB069H: 2100 mm



Mounting

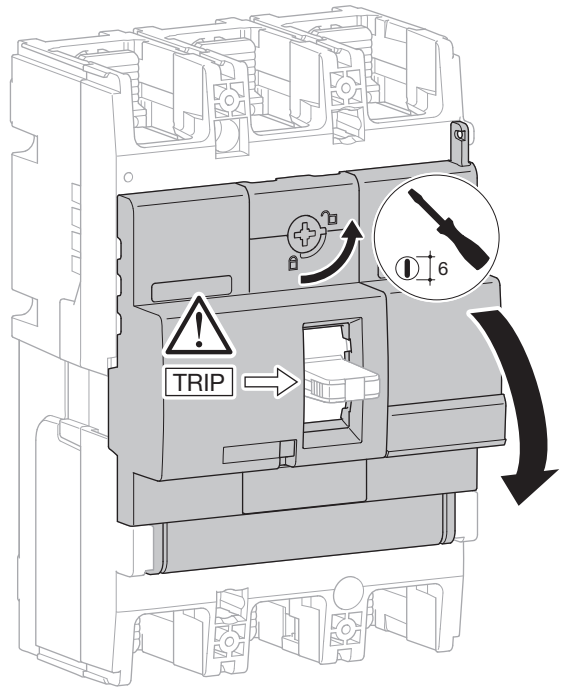


Checking the correct assembly

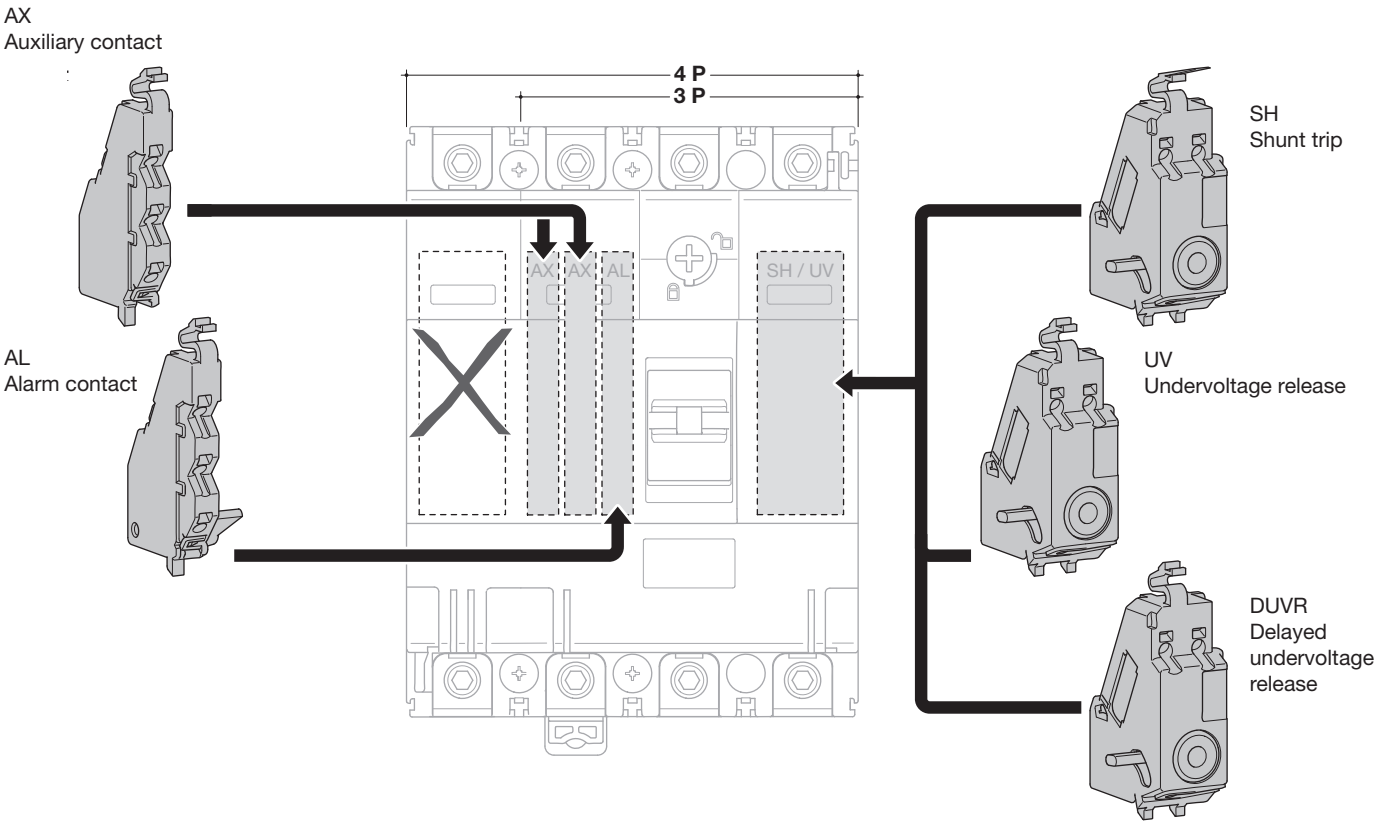


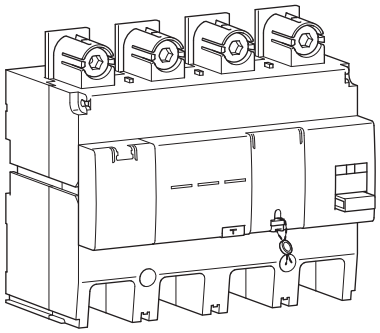
Auxiliaries

Auxiliaries for MCCBs and trip-free switches



Mounting combination for auxiliaries and releases





When associated with MCCB, the add-on block provides an earth fault protection and protects against electrical shocks by direct or indirect contacts.

The add-on blocks are protected against nuisance tripping caused by transient voltages. It's able to detect sinusoidal alternating currents and residual pulsating direct currents (A type). It also avoids miss tripping (HI type - High Immunity).

Characteristics

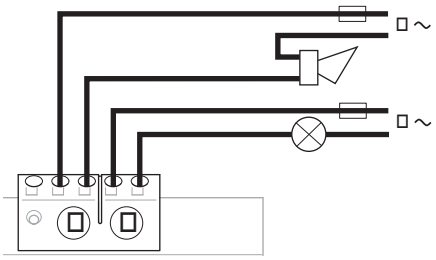
Reset button :
Signals add-on block tripping and must be acknowledged before switching on the installation.

Test button for differential operating :
Allows to check the electrical operating of the MCCB / Add-on block association.

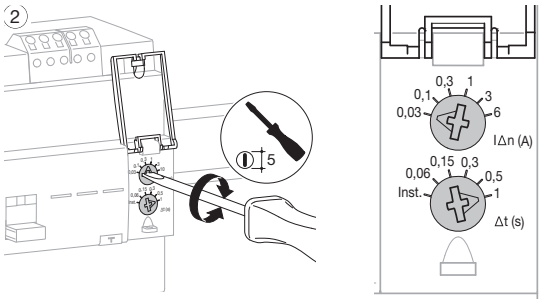
Mechanical test button :
Allows to check the mechanical operating of the MCCB / Add-on block association.

LED signaling default current level in the installation:
25% (orange) and 50% (red) IΔn; green light to signal correct operating.

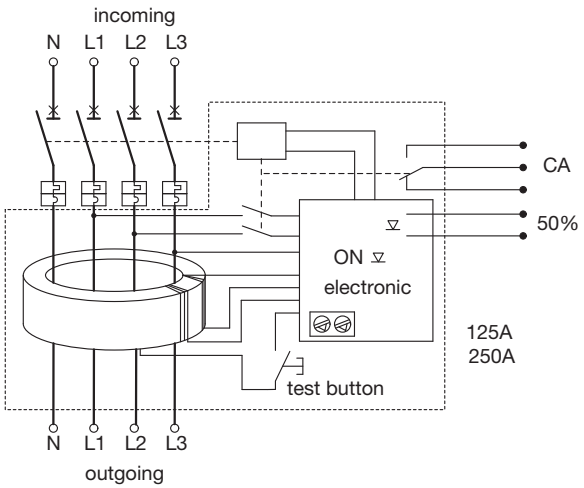
Remote tripping and advanced warning (50% IΔn) signaling thanks to these contacts:



Earth leakage current (IΔn) and delay (Δt) setting

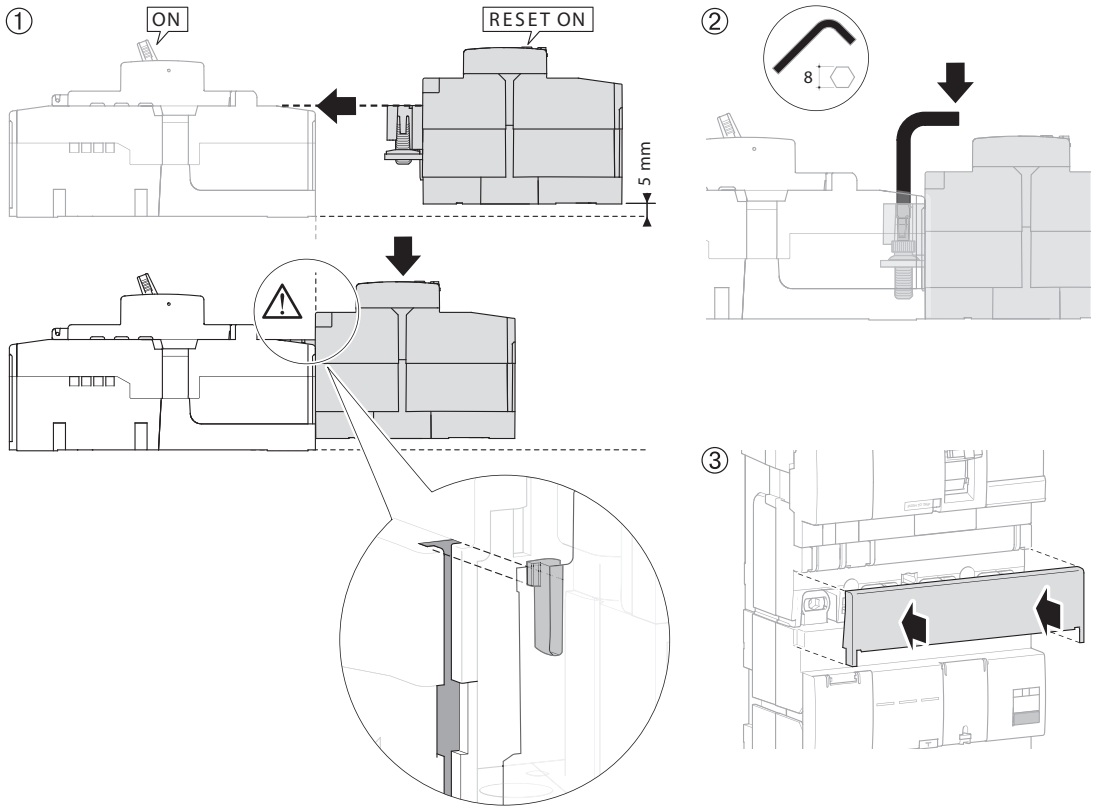


Add-on block operating

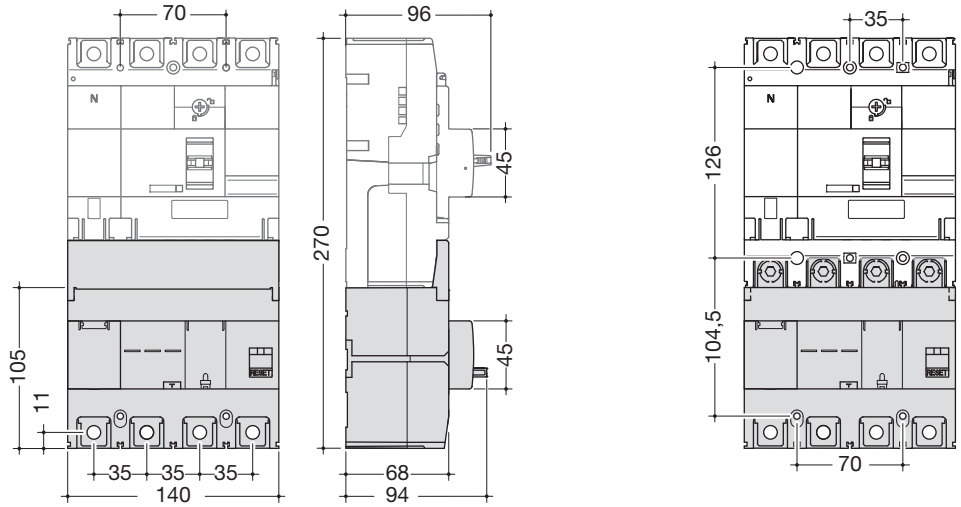


S (Δt)	A (IΔn)						
		0,03	0,1	0,3	1	3	6
	Inst.	OK	OK	OK	OK	OK	OK
	0,06	no	OK	OK	OK	OK	OK
	0,15	no	OK	OK	OK	OK	OK
	0,3	no	OK	OK	OK	OK	OK
	0,5	no	OK	OK	OK	OK	OK
	1	no	OK	OK	OK	OK	OK

Add-on block mounting



Dimensions



Moulded case circuit breakers h800
Thermal magnetic trip unit TM:
- thermal adjustment:
from 0.63 to 1 x In
- magnetic adjustment:
from 5 to 10 x In

Connection:
Directly on copper cable terminal,
with end lug max. width: 30 mm

Comply with IEC 60 947-2.

Moulded case circuit breakers h1000
Electronic trip unit LSI:
- long delay (thermal equivalent) adjustable:
Ir= 0,4 to 1 x In
- short delay (magnetic equivalent) adjustable:
2,5 to 10 x Ir (630-800A)
and 2,5 to 8 x Ir (1000A)
- time delay: 0,1-0,2 s

3P & 4P (adjustable neutral 0 - 50% - 100%).
Mechanical test button, lockable settings.

Connection:
Directly on copper cable terminal,
with end lug max. width: 50 mm

Comply with IEC 60 947-2.

Trip-free switches
Allows tripping at distance using a voltmetrical trip unit (optional)

Comply with IEC 60 947-3.
AC 23A / DC 22A

Designation	Characteristics	In	Cat. ref. 3P	Cat. ref. 4P
MCCBs h800 50kA TM	breaking capacity Icu : 50 kA (400/415 V AC) Ics: 50 kA adjustable thermal 0.63 to 1 x In adjustable magnetic 5 to 10 x In	630A	**HNK630H**	**HNK631H**
		800A	**HNK800H**	**HNK801H**
MCCBs h800 70kA TM	breaking capacity Icu : 70 kA (400/415 V AC) Ics: 50 kA adjustable thermal 0.63 to 1 x In adjustable magnetic 5 to 10 x In	630A	**HEK630H**	**HEK631H**
		800A	**HEK800H**	**HEK801H**
MCCBs h1000 50kA LSI	breaking capacity Icu : 50 kA (400/415 V AC) Ics: 50 kA adjustable thermal Ir = 0,4 to 1 x In adjustable magnetic 2,5 to 10 x Ir (630 - 800A) 2,5 to 8 x Ir (1000A) time delay: 0,1-0,2 s neutral setting from 0-50 to 100%	630A	**HNE630H**	**HNE631H**
		800A	**HNE800H**	**HNE801H**
		1000A	**HNE970H**	**HNE971H**
MCCBs h1000 70kA LSI	breaking capacity Icu : 70 kA (400/415 V AC) Ics: 50 kA adjustable thermal Ir = 0,4 to 1 x In adjustable magnetic 2,5 to 10 x Ir (800A) 2,5 to 8 x Ir (1000A) time delay: 0,1-0,2 s neutral setting from 0-50 to 100%	800A	**HEE800H**	**HEE801H**
		1000A	**HEE970H**	**HEE971H**
Trip-free switches	suitable for AC 22A / AC 23A Ue : 415 V AC Icw (0,3 s) = 10 kA	800A	**HCE800H**	**HCE801H**
		1000A	**HCE970H**	**HCE971H**

HNE970U

Indication contacts
- 1 changeover switch (ON/OFF): indicates the position of the MCCB is “open” or “close”.
- 1 changeover alarm contact: indicates MCCB tripping.

Coil connection
Connection capacity:
0,75 mm² flexible or rigid cables
Optional connection cables.
The cable capacity of the terminals is 0,5 to 1,25 mm².

Shunt trip
Remotes tripping of MCCBs or trip-free switches.
Operating voltage:
0,7 to 1,1 x Un

Under voltage release
Allows the tripping of MCCBs or trip-free switches when voltage level drop between 35 and 70% of Un. Pick up voltage 0,85 x Un


HXC021H


HXC024H


HXC004H

HXE014H

Designation	Characteristics	Cat. ref.
Auxiliary contacts AX AL	1 changeover contact 250 V AC / 3A 125 V DC / 0,4A 1 NO + 1 NC	**HXC021H**
	1 changeover alarm contact 250 V AC / 3A 125 V DC / 0,4A 1 NO + 1 NC	**HXC024H**
	low level contact (ON/OFF) 125 V AC 1 NO + 1 NC	**HXC025H**
	low level alarm contact 125 V AC 1 NO + 1 NC	**HXC026H**
Shunt trips SH	24 V DC	**HXC001H**
	48 V DC	**HXC002H**
	110 V DC	**HXC008H**
	100 - 120 V AC	**HXC003H**
	200 - 240 V AC	**HXC004H**
	380 - 450 V AC	**HXC005H**
Undervoltage releases UV	24 V DC	**HXE011H**
	100 - 120 V DC	**HXE018H**
	200 - 240 V DC	**HXE019H**
	110 - 120 V AC	**HXE013H**
	220 - 240 V AC	**HXE014H**
	380 - 415 V AC	**HXE015H**
Delayed undervoltage releases DUVR	24 V DC	**HXE051H**
	110 - 120 V AC	**HXE053H**
	220 - 240 V AC	**HXE054H**
	380 - 415 V AC	**HXE055H**

Direct rotary handle
- padlockable
- equipped with front cover and handle
- fixing without any additional screw.

Extended rotary handle
- IP 55
- supplied complete with shaft and handle.

Designation	Characteristics	In	Cat. ref. 3P	Cat. ref. 4P
Electrical interlock	for motor type A (between 2 630/1000A)		**HXD068H**	**HXD068H**
	for motor type B (between 1000A and 250A)		**HXB069H**	**HXB069H**
Collar terminals	Terminals for aluminium / copper conductors 4 x 35 - 240 mm²	630-800A	**HYE007H**	**HYE008H**
Connecting kits	0,75 mm² set of 3 x 2 wires length: 1,30m		**HYA035H**	**HYA035H**
Interphase barrier	set of 4 pieces		**HYD019H**	**HYD019H**
Terminal covers	for extended connections		**HYE021H**	**HYE022H**
	for rear connections		**HYE025H**	**HYE026H**
Rear connections		630-800A	**HYE031H**	**HYE032H**
		1000A	**HYE033H**	**HYE034H**

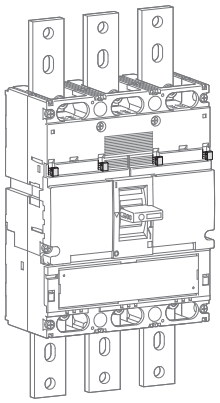

HYE031H

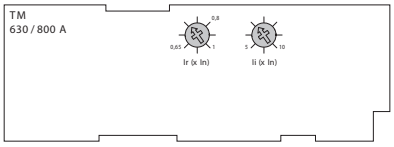
Designation	Characteristics	Cat. ref.
Direct rotary handles	padlockable handle	**HXE030H**
Extended rotary handles	padlockable handle	**HXE031H**
Padlocks	to mount on MCCB for handle locking for 3 padlocks max Ø 8 mm	**HXD039H**
Motor operators	24 - 48V DC	**HXE040H**
	100 - 240V AC	**HXE042H**
Interlocking kit	wire type set of 2 pieces and cable	**HXE065H**
Interlocking unit	wire type	**HXE066H**
Interlocking mechanical cable	1 m	**HXB070H**
	1,5 m	**HXB071H**


HXE030H


HXD039H

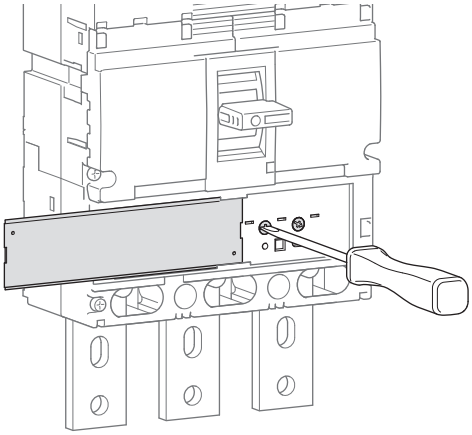
MCCBs

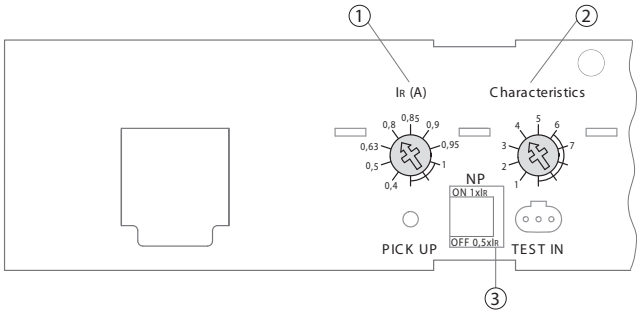




		220/240 V AC		380/415 V AC	660/690 V AC
		630 / 800A	1000A	630 / 800 / 1000A	630 / 800 / 1000A
LSI **HNE**	Icu (kA)	85	75	50	20
	Ics (kA)	85	75	50	20
LSI **HEE**	Icu (kA)	100	100	70	20
	Ics (kA)	100	75	50	20
TM **HNK**	Icu (kA)	85	-	50	20
	Ics (kA)	85	-	50	20
TM **HEK**	Icu (kA)	100	-	70	20
	Ics (kA)	75	-	50	20
HCE	Icm (kA)	-	-	17	-
	Icw (kA)	-	-	10kA - 0,3s	-

Electronic trip unit settings (LSI)

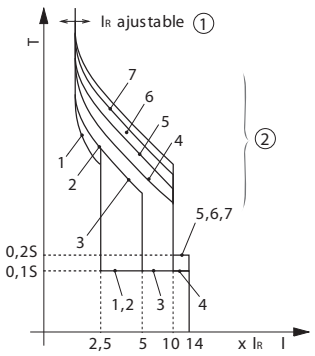




L - Long delay - protection against overloads: Ir and tr settings

S - Short delay - protection against short circuits: Isd and tsd settings

I - Instantaneous - max. instantaneous threshold (< 10 ms) in case of short circuit: 2,5 to 10 x Ir (630-800A) and 2,5 to 8 x Ir (1000A).

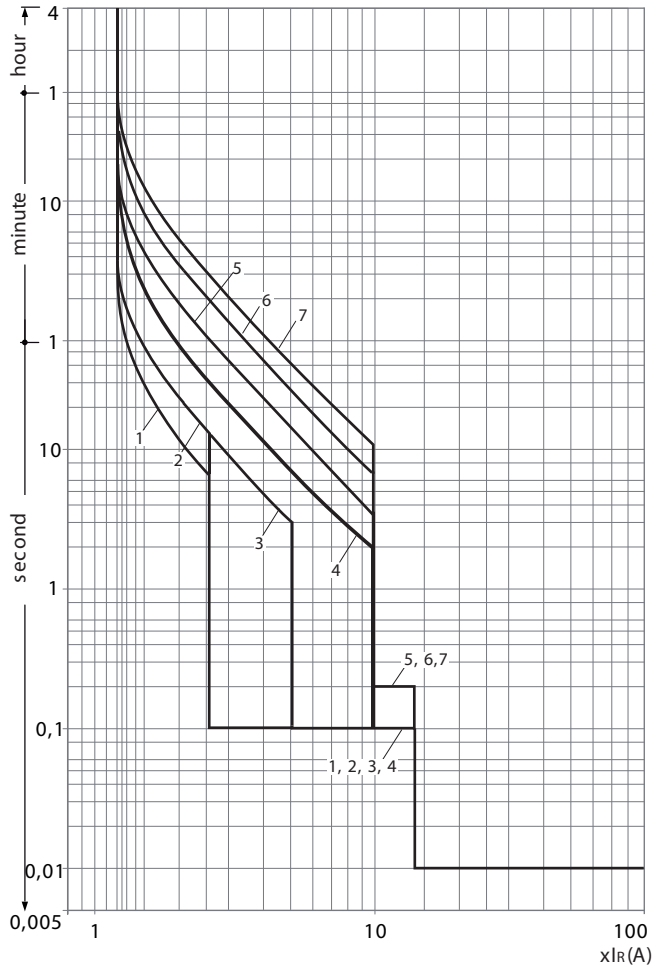


LSI		In A									
		630-800 A					1000 A				
		Long Time Delay		Short Time Delay		Inst	Long Time Delay		Short Time Delay		Inst
		Ir (x In)	tr (s)	isd (xIr)	tsd (s)	Ii (xIr)	Ir (x In)	tr (s)	isd (xIr)	tsd (s)	Ii (xIr)
① Ir (x In)	**0,4**	OK					OK				
	0,5	OK					OK				
	0,63	OK					OK				
	0,8	OK					OK				
	0,9	OK					OK				
	0,95	OK					OK				
	1	OK					OK				
② Characteristics*	**1**		11s at 2 xIr	2,5	0,1	14 (max 12 x In)		11s at 2 xIr	2,5	0,1	14 (max 10 x In)
	2		21s at 2 xIr					21s at 2 xIr			
	3			5					5		
	4		5 s at 6 xIr	10				5 s at 6 xIr	8		
	5		10 s at 6 xIr		0,2			10 s at 6 xIr		0,2	
	6		19 s at 6 xIr					16 s at 6 xIr			
	7		29 s at 6 xIr					–		–	–
③ Neutral protection	0% 50% 100%										

(*) Characteristic 1 : use for generators protection.
Characteristic 2 to 4 - standard protection : options allow coordination optimisation with other products.
Characteristic 5 to 7 - motor protection: use positions according to motor starting characteristics.

Tripping curve

MCCB h1000 LSI (630-800A)



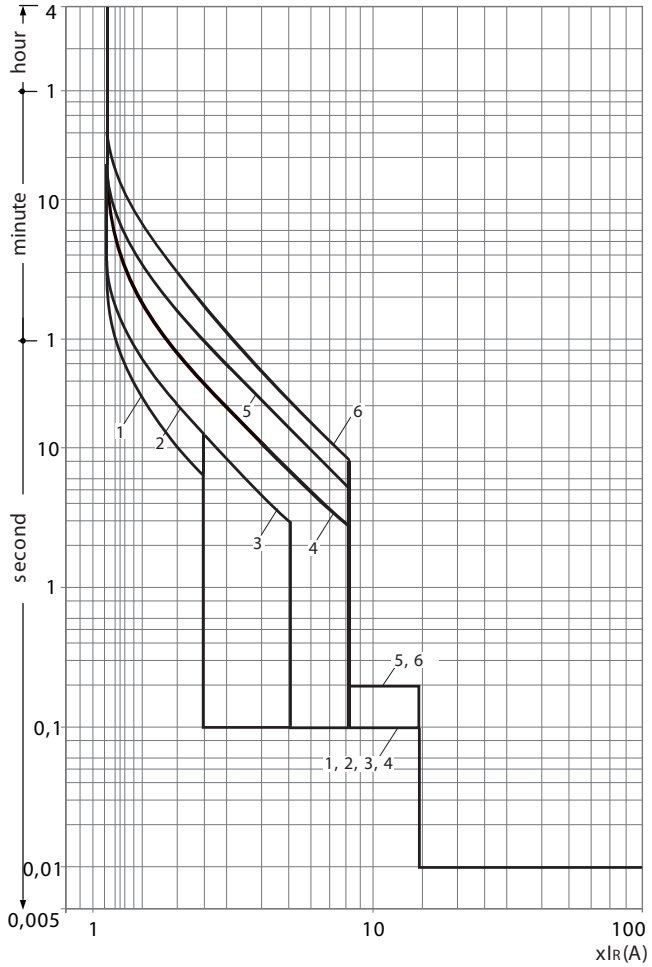
Electronic trip unit setting (LSI)

MCCBs 630-800A electronic

I_R (A)										
LTD Pick-up current		**I_R**	x In	0,4	0,5	0,63	0,8	0,9	0,95	1
Characteristics			No.	1	2	3	4	5	6	7
Standard	**LTD**	**t_R**	(s)	11	21	21	5	10	19	29
				200% x I_R			600% x I_R			
	STD	**Isd**	x I_R	2,5		5	10			
		tsd	(s)	0,1				0,2		
	INST	**Ii**	x I_R	14 (max : 12 x In)						
Optional	**NP**	**I_N**	x In	0 - 0,5 - 1						
		t_N	(s)	I_N=t_R						

Tripping curve

MCCB h1000 LSI (1000A)



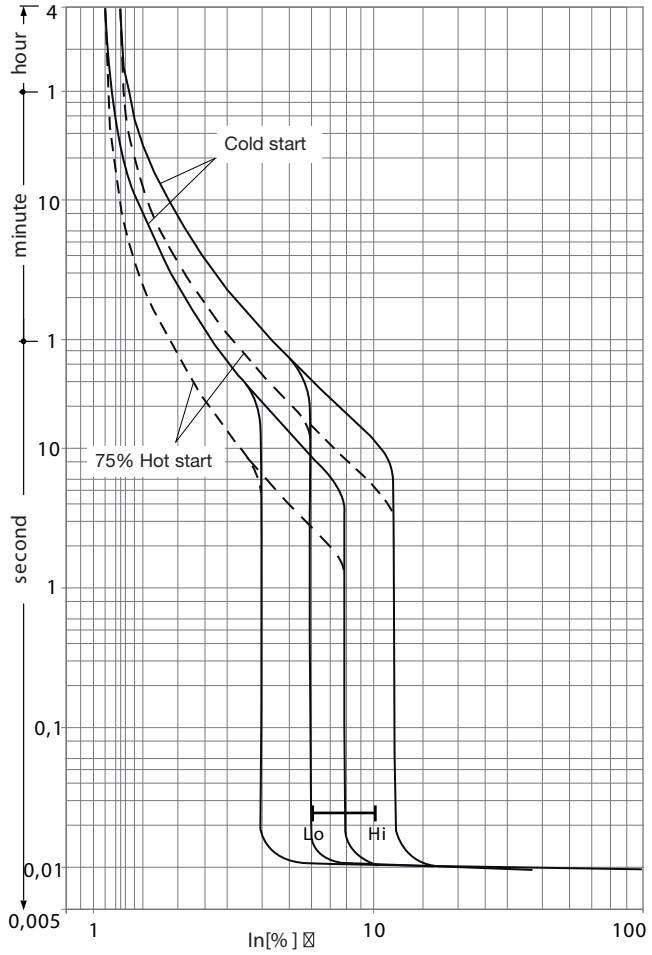
Electronic trip unit setting (LSI)

MCCBs 1000A electronic

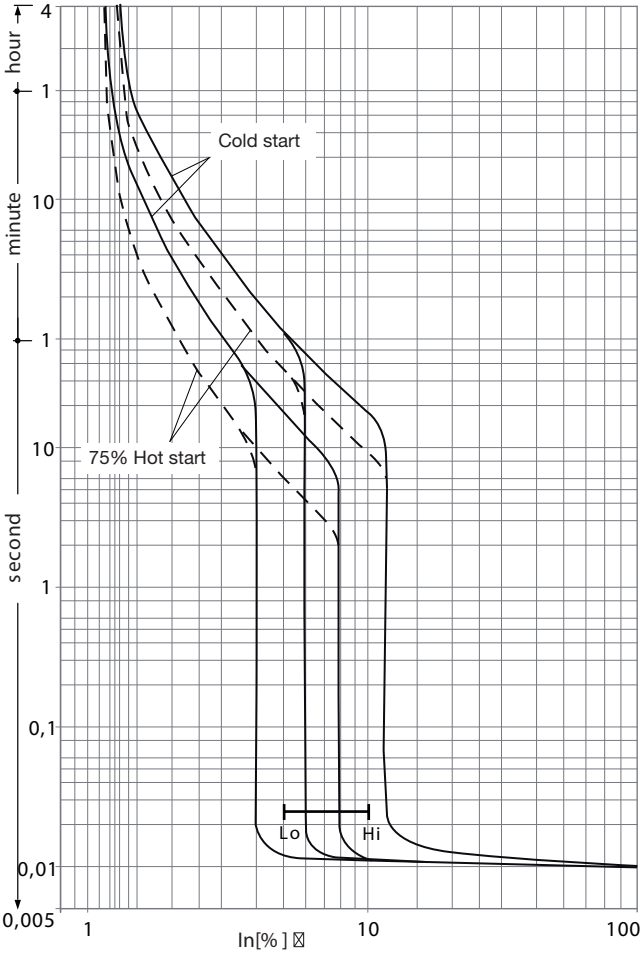
I_R (A)												
LTD Pick-up current		**I_R**	x In	0,4	0,5	0,63	0,8	0,9	0,95	1		
Characteristics			No.	1	2	3	4	5	6			
Standard	**LTD**	**t_R**	(s)	11	21	21	5	10	16			
				200% x I_R			600% x I_R					
	STD	**Isd**	x I_R	2,5		5	8					
		tsd	(s)	0,1				0,2				
	INST	**Ii**	x I_R	14 (max : 10 x In)								
Optional	**NP**	**I_N**	x In	0 - 0,5 - 1								
		t_N	(s)	I_N=t_R								

Tripping curve

MCCB h800 TM (630A)

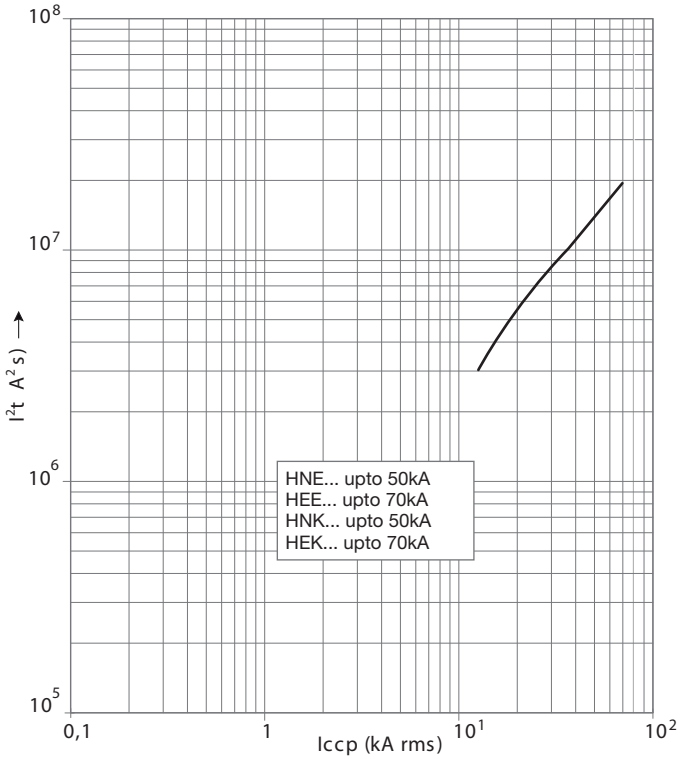


MCCB h800 TM (800A)



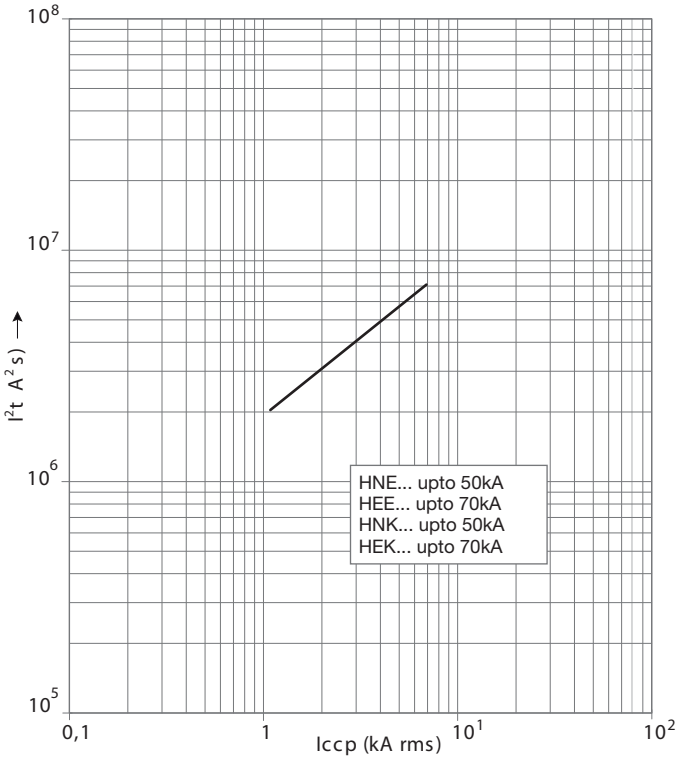
Thermal constraint curve at 400V (Let-through energy)

MCCB h1000



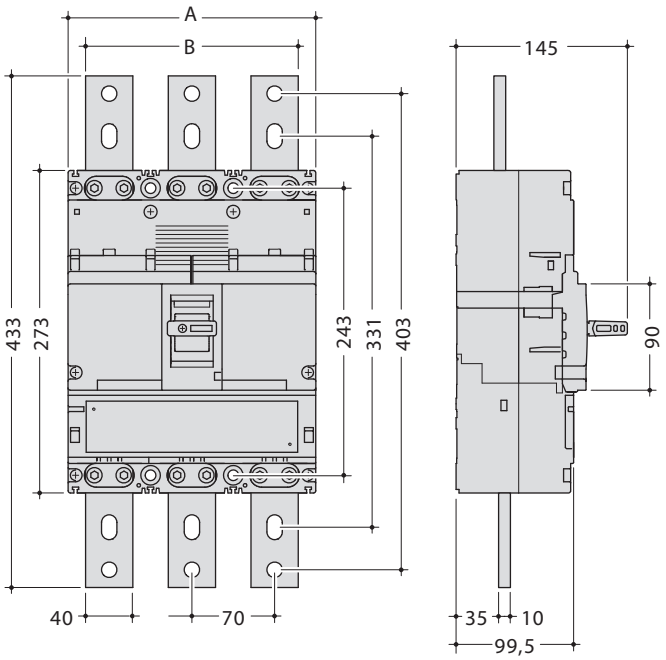
Current limiting curve at 400V (Let-through peak current)

MCCB h1000



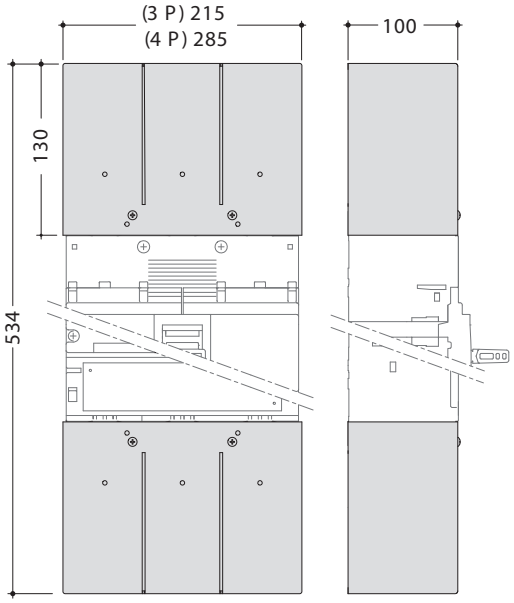
Dimensions

MCCBs

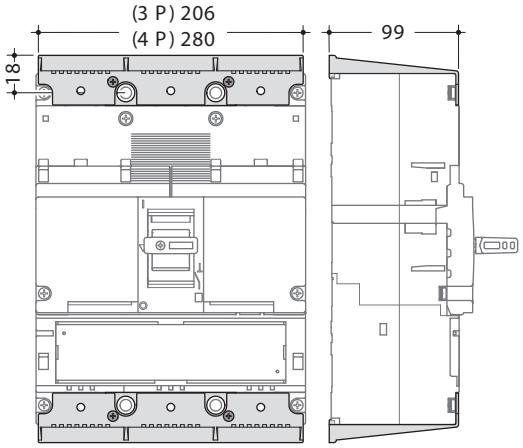


	A (mm)	**B** (mm)
3P	210	180
4P	280	250

Terminal covers for extended straight connections

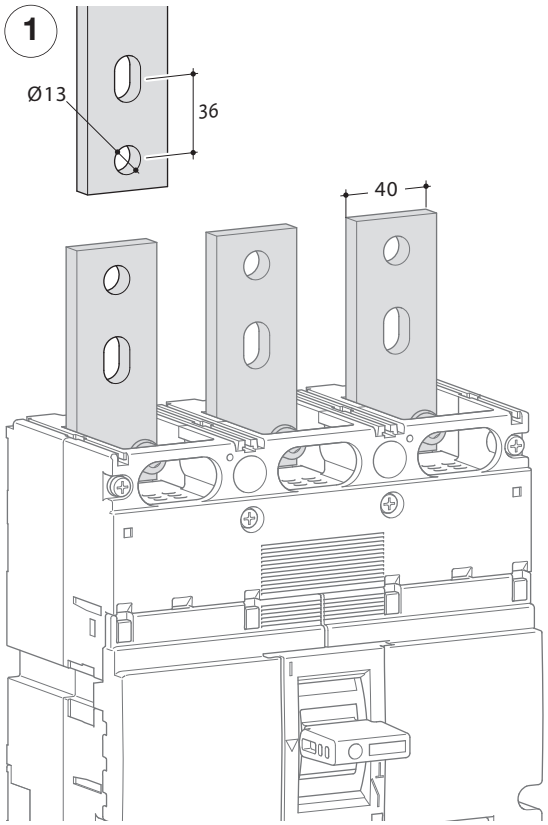


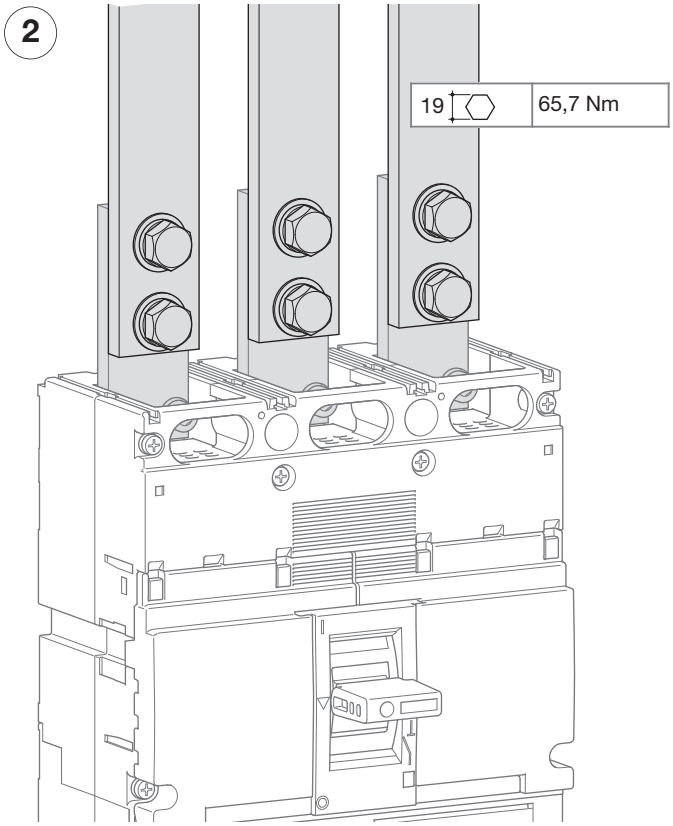
Terminal covers for rear connections



Connection

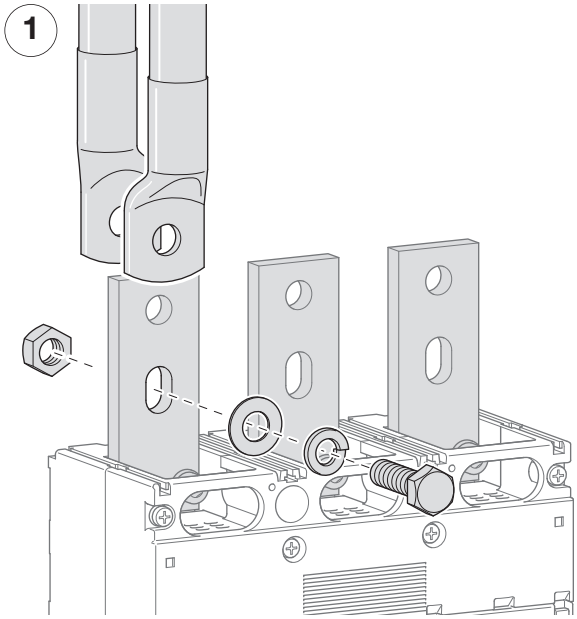
Extended straight connections

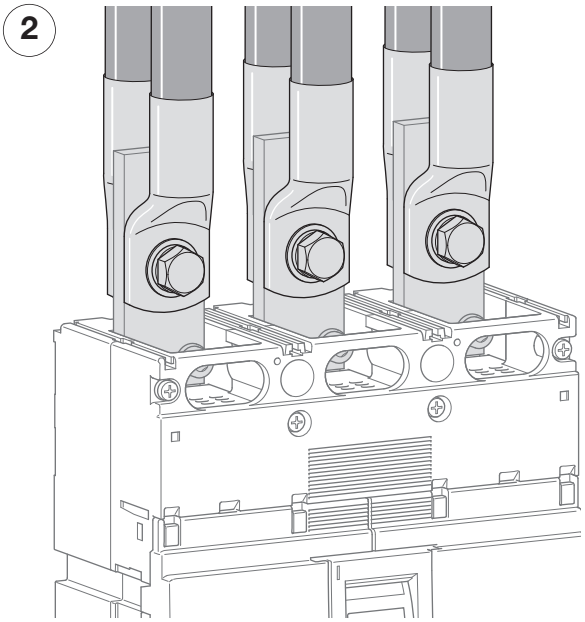




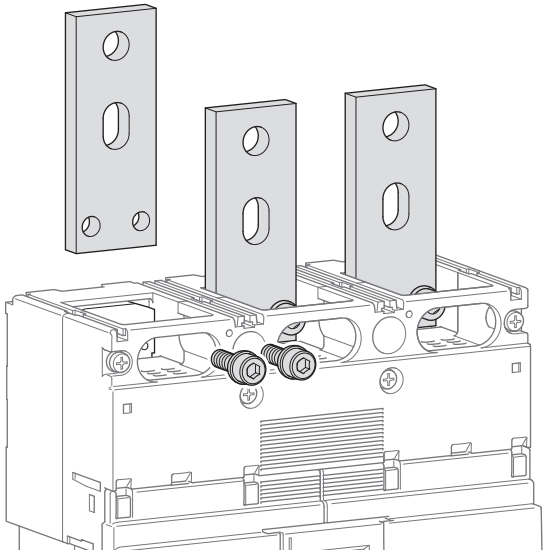
Direct cable connection on terminal
Copper with conductor max. width: 50 mm

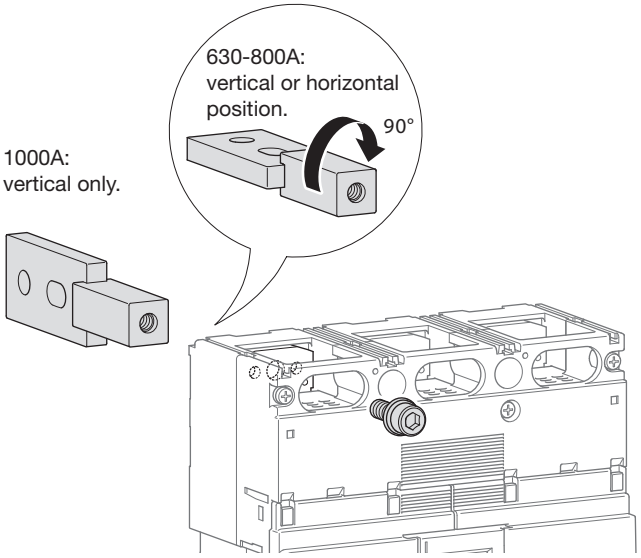
Connection with end lugs

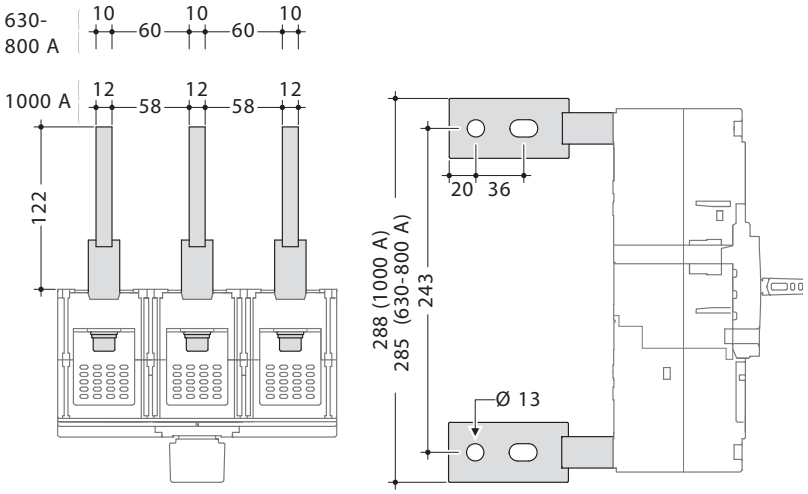




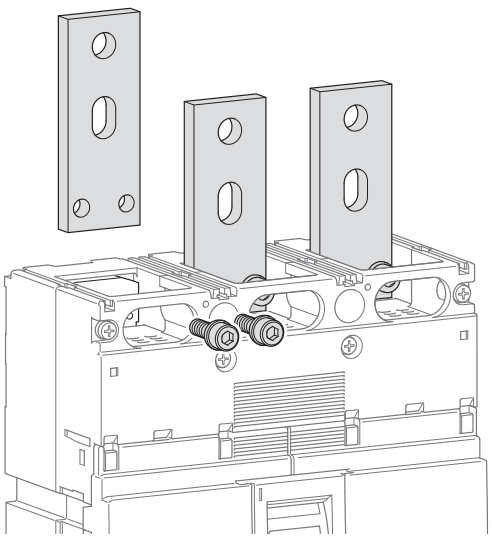
Rear connections



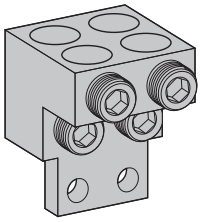


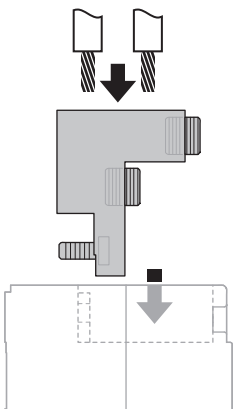


Connection for aluminium / copper conductors (h1000)



HYE007 (3P) - HYE008H (4P)

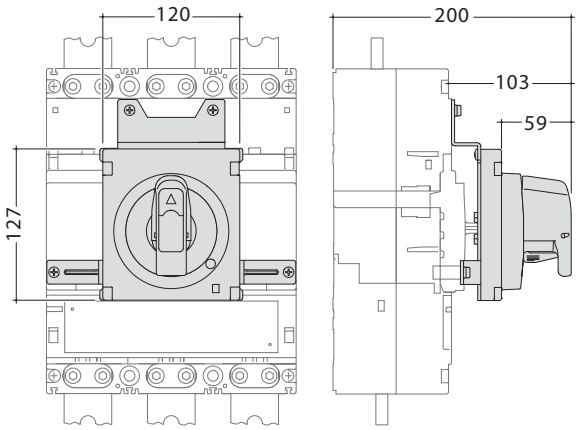




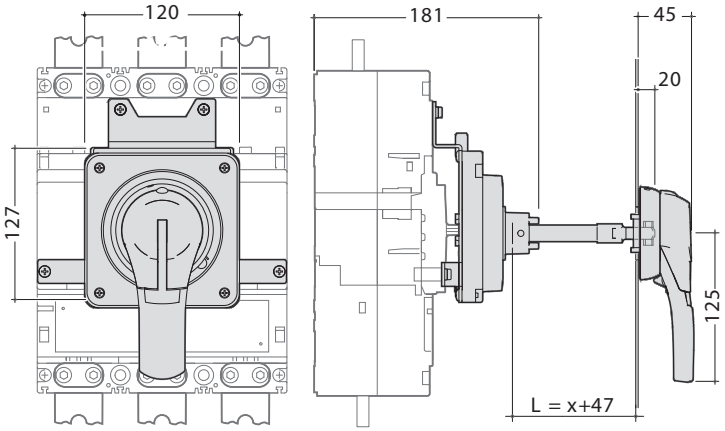
	max. 4x240 mm²
10	25 Nm

Accessories

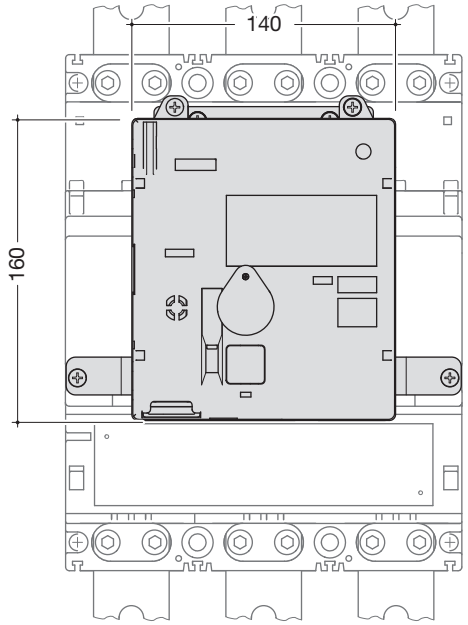
Direct rotary handle

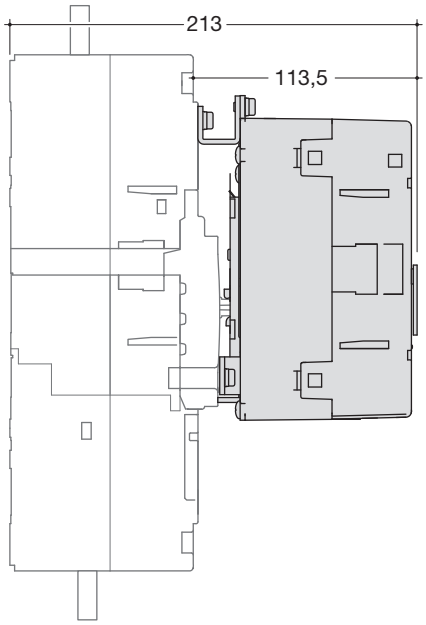


Extended rotary handle



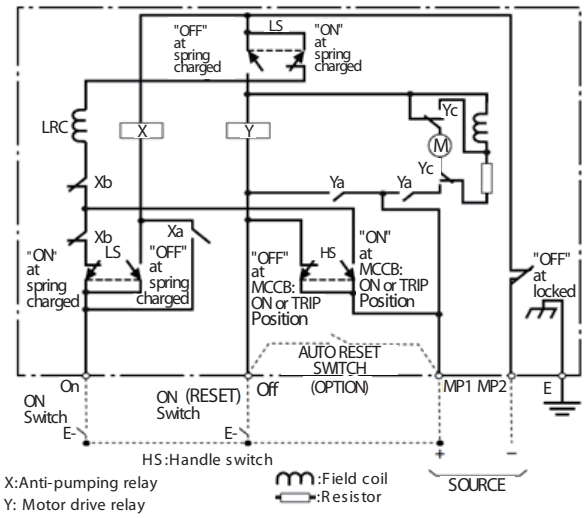
Motor operator





		HXE040H	HXE042H
Operating voltage		24-48V DC	100-240V AC
Operating current/starting current peak value (A)	24V DC	-/12 (ON) 6/11,5 (OFF, RESET)	-
	48V DC	-/7 (ON) 3,2/6,5 (OFF, RESET)	-
	100-110V AC	-	-/2,2 (ON) 1,7/3,5 (OFF, RESET)
	200-240V AC	-	-/2,2 (ON) 1,3/3,5 (OFF, RESET)
Operating time (s)	(ON)	0,1s	
	(OFF)	1,5 s	
	(RESET)	1,5 s	
Power supply required		300VA min.	
Dielectric properties (1 min)		1000V AC	1500V AC

Wiring diagram

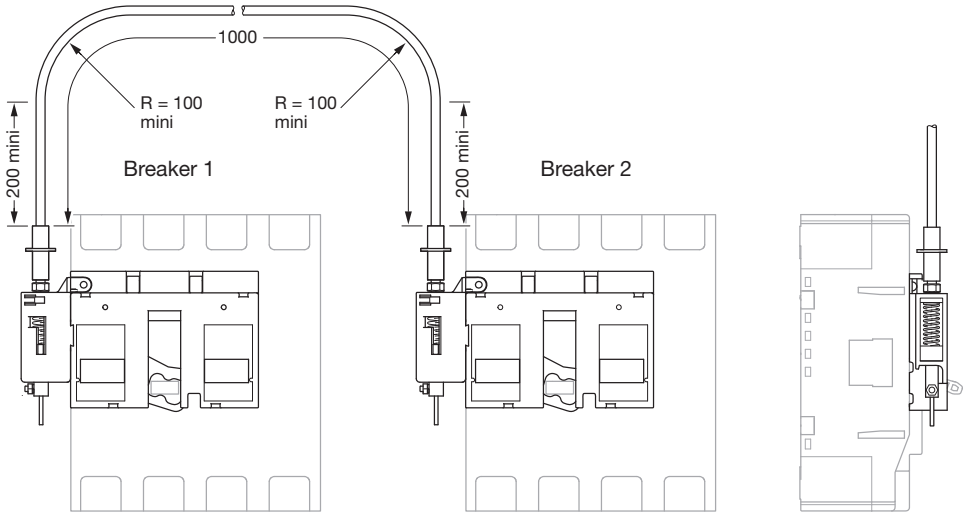


X:Anti-pumping relay
Y: Motor drive relay
LRC:Latch release coil (closing coil)
M:Motor

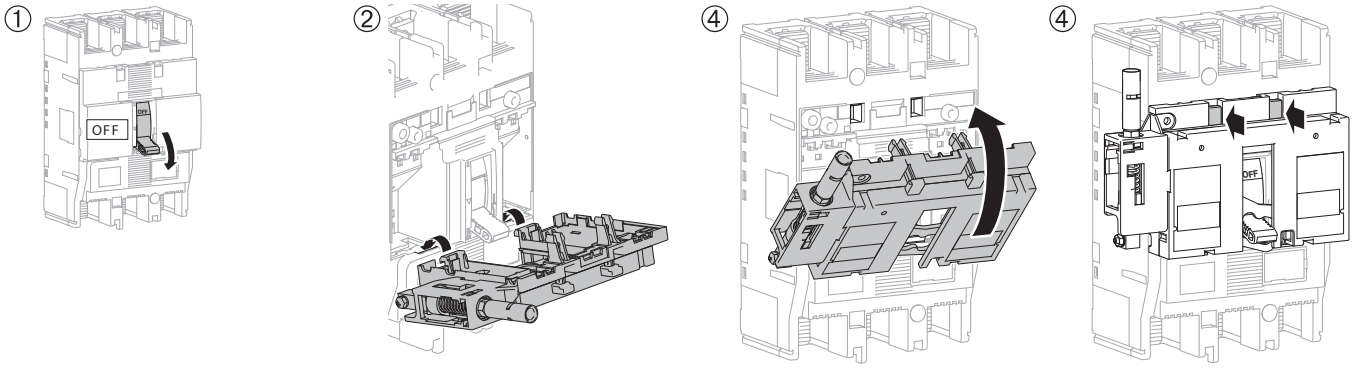
Interlocking system

Suitable with motor operator HXE04xH.
With electrical interlock for motor operator HXD068H (for 630/1000A) or HXB069H (for 250A).

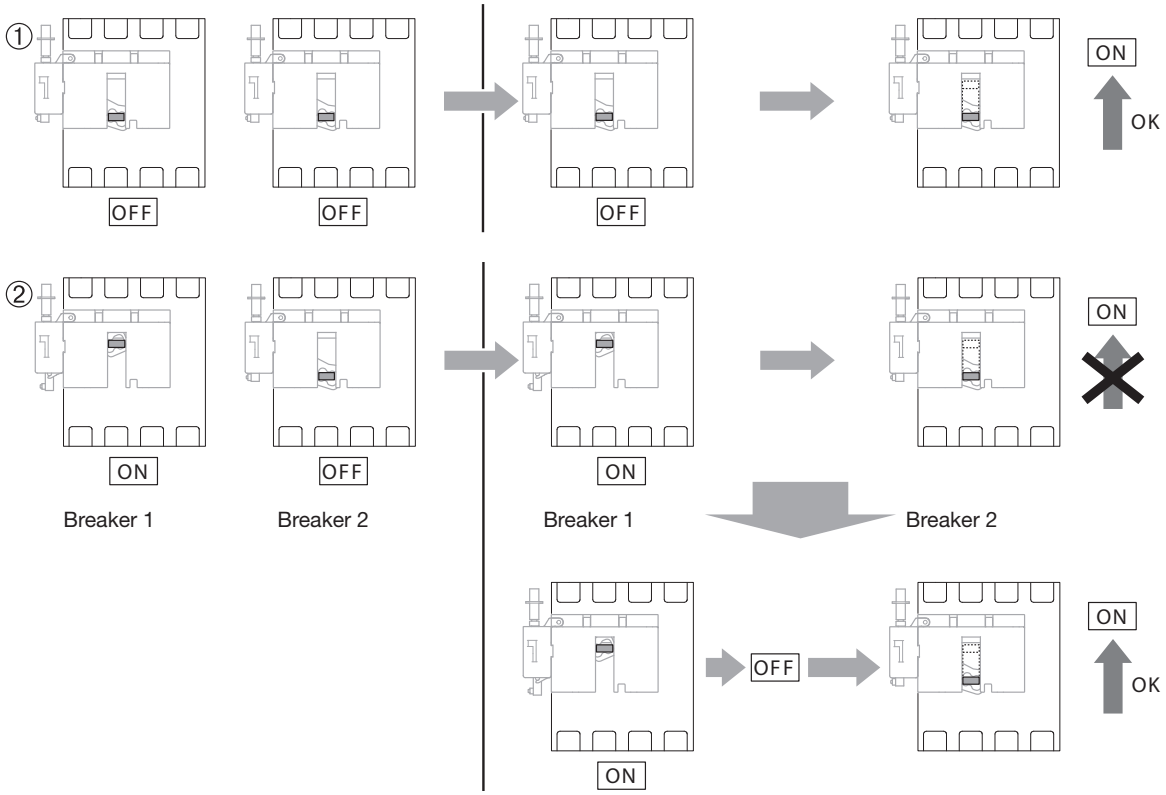
- Length HXD068H: 2100 mm
- Length HXB069H: 2100 mm



Mounting

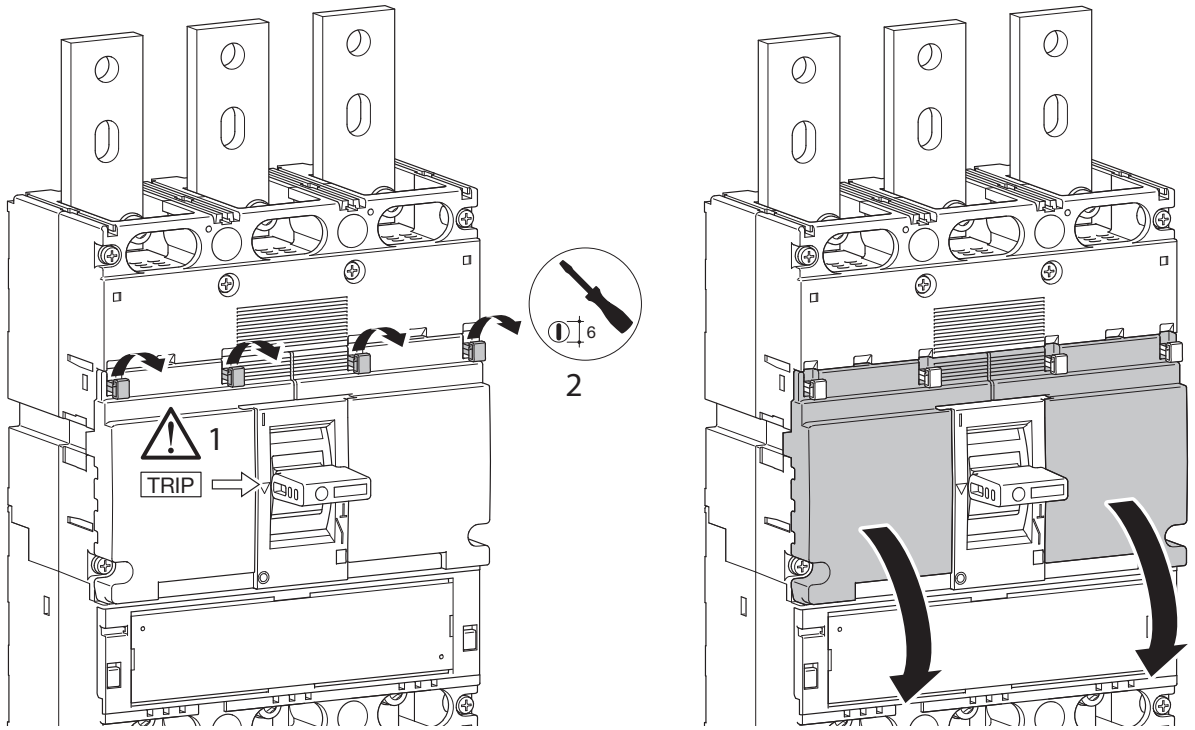


Checking the correct assembly

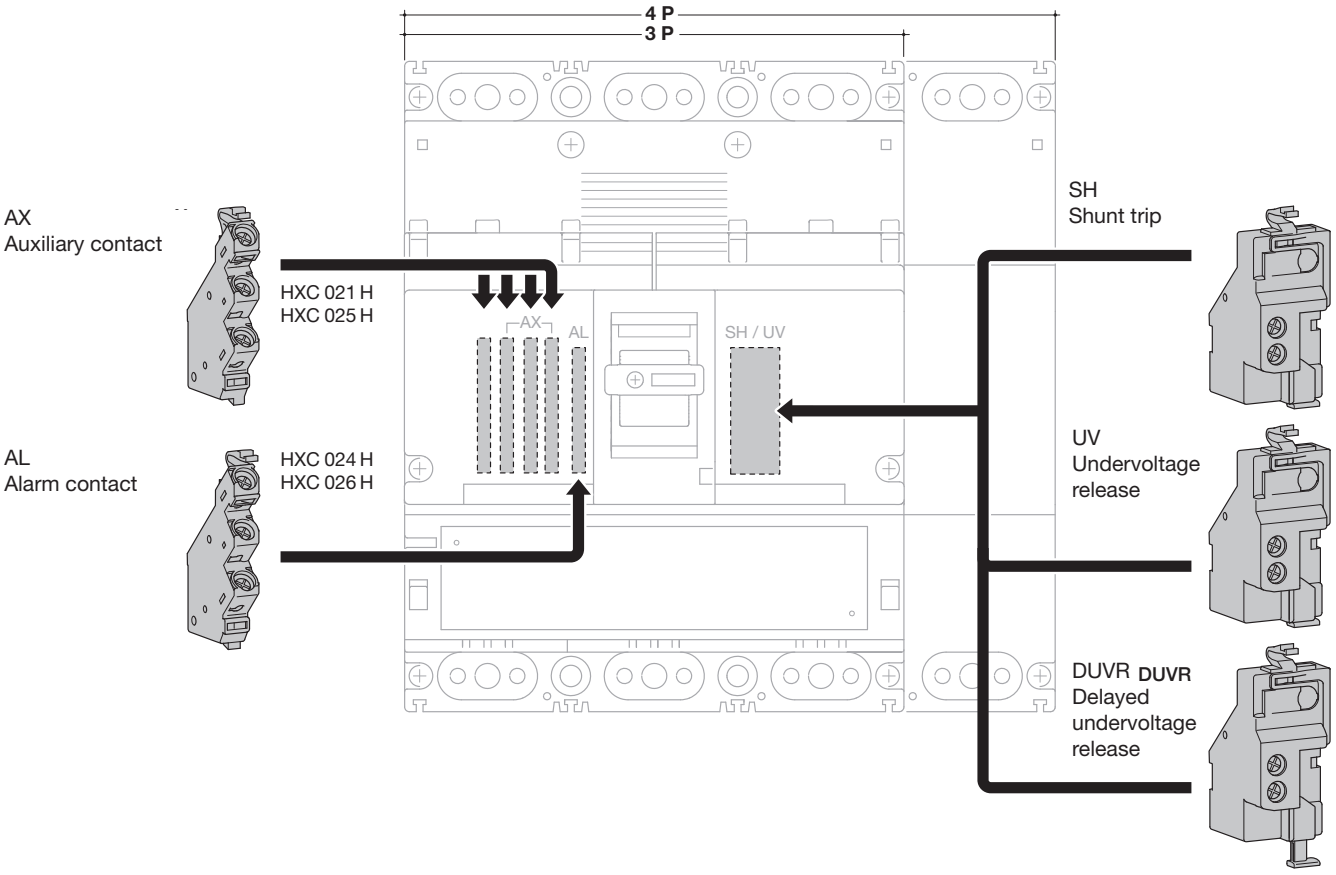


Auxiliaries

Auxiliaries for MCCBs and free tripping switches



Mounting combination for auxiliaries and releases



Moulded case circuit breakers h1600, selection and protection
Electronic trip unit LSI
- Long delay (thermal equivalent) adjustable:
Ir = 0,4 to 1 x In
- short delay (magnetic equivalent) adjustable:
2,5 to 10 x Ir
- time delay: 0,1-0,2 s

3 pole, 3 trip units,
4 pole, 4 trip units,
adjustable neutral 0 - 50% - 100%

Mechanical test button, lockable settings.

Connection:
Directly on copper cable terminal,
with end lug max. width: 60 mm

Comply with IEC 60 947-2.

Trip-free switches
Allows tripping at distance using a voltmetrical trip unit (optional)

Comply with IEC 60 947-3.
AC 23A / DC 22A


HNF990U

Designation	Characteristics	In	Cat. ref. 3P	Cat. ref. 4P
MCCBs h1600 50kA LSI	breaking capacity Icu : 50 kA (400/415 V AC) Ics: 50 kA adjustable thermal Ir = 0,4 to 1 x In adjustable magnetic 2,5 to 10 x Ir time delay: 0,1-0,2 s neutral setting 0, 50, 100%	1250A 1600A	**HNF980H** **HNF990H**	**HNF981H** **HNF991H**
MCCBs h1600 70kA LSI	breaking capacity Icu : 70 kA (400/415 V AC) Ics: 50 kA adjustable thermal Ir = 0,4 to 1 x In adjustable magnetic 2,5 to 10 x Ir time delay: 0,1-0,2 s neutral setting from 0, 50, 100%	1250A 1600A	**HEF980H** **HEF990H**	**HEF981H** **HEF991H**
Trip-free switches	suitable for AC 22A / AC 23A Ue : 415 V AC Icw (0,3 s) = 20 kA	1250A 1600A	**HCF980H** **HCF990H**	**HCF981H** **HCF991H**

Indication contacts
- 1 changeover switch (ON/OFF): indicates the position of the MCCB is “open” or “close”.
- 1 changeover alarm contact: indicates MCCB tripping.

Coil connection
Connection capacity:
0,75 mm² flexible or rigid cables
Optional connection cables.
The cable capacity of the terminals is 0,5 to 1,25 mm².

Shunt trip
Remotes tripping of MCCBs or trip-free switches.
Operating voltage:
0,7 to 1,1 x Un

Under voltage release
Allows the tripping of MCCBs or trip-free switches when voltage level drop between 35 and 70% of Un. Pick up voltage 0,85 x Un

Direct rotary handle
- padlockable
- equipped with front cover and handle
- fixing without any additional screw.

Extended rotary handle
- IP 55
- supplied complete with shaft and handle.

Rear connection: included


HXC 021H

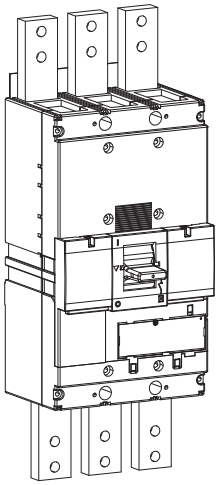

HXC 024H


HXC 004H

HXC 014H

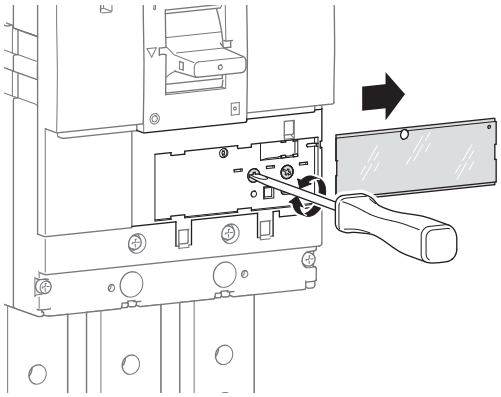
Designation	Characteristics	Cat. ref.
Auxiliary contacts **AX** **AL**	1 changeover contact 250 V AC / 3A 125 V DC / 0,4A 1 NO + 1 NC	HXC021H
	1 changeover alarm contact 250 V AC / 3A 125 V DC / 0,4A 1 NO + 1 NC	HXC024H
	low level contact (ON/OFF) 125 V AC 1 NO + 1 NC	HXC025H
	low level alarm contact 125 V AC 1 NO + 1 NC	HXC026H
Shunt trips **SH**	24 V DC	HXC001H
	48 V DC	HXC002H
	110 V DC	HXC008H
	100 - 120 V AC	HXC003H
	200 - 240 V AC	HXC004H
	380 - 450 V AC	HXC005H
Undervoltage releases **UV**	24 V DC	HXE011H
	100 - 120 V DC	HXE018H
	200 - 240 V DC	HXE019H
	110 - 120 V AC	HXE013H
	220 - 240 V AC	HXE014H
	380 - 415 V AC	HXE015H
Delayed undervoltage releases **DUVR**	24 V DC	HXF051H
	110 - 120 V AC	HXF053H
	220 - 240 V AC	HXF054H
	380 - 415 V AC	HXF055H
Direct rotary handle	padlockable handle, max Ø 8 mm	HXF030H
Extended rotary handle	padlockable handle, max Ø 8 mm	HXF031H
Padlock	to mount on MCCB for handle locking for 3 padlocks max Ø 8 mm	HXF039H
Motor operators	24 V DC	HXF040H
	200 - 230 V AC	HXF042H
Interphase barriers	set of 4 pieces	HYD019H
Connection kit	0,75 mm² set of 3 x 2 wires length: 1,30m	HYA035H

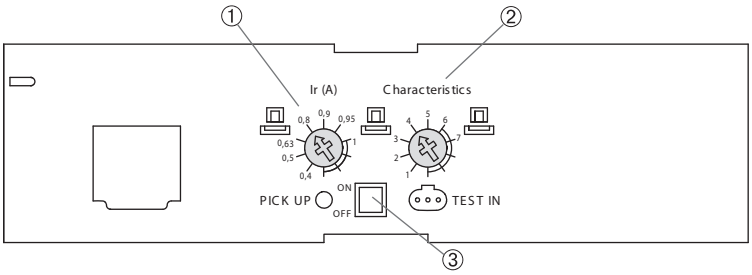
MCCBs



		220/240 V AC	380/415 V AC	660/690 V AC
HNF	Icu (kA)	100	50	25
	Ics (kA)	75	50	25
HEF	Icu (kA)	100	70	45
	Ics (kA)	75	50	34
HCF	Icm (kA)	-	45	-
	Icw (kA)	-	20 kA-0,3 s	-

Electronic trip unit settings (LSI)

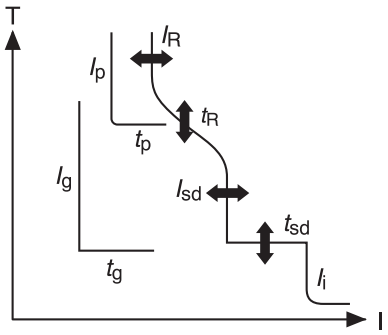




L - Long delay - protection against overloads: Ir and tr settings

S - Short delay - protection against short circuits: Isd and tsd settings

I - Instantaneous - max. instantaneous threshold (< 10 ms) in case of short circuit: 2,5 to 10 x Ir.



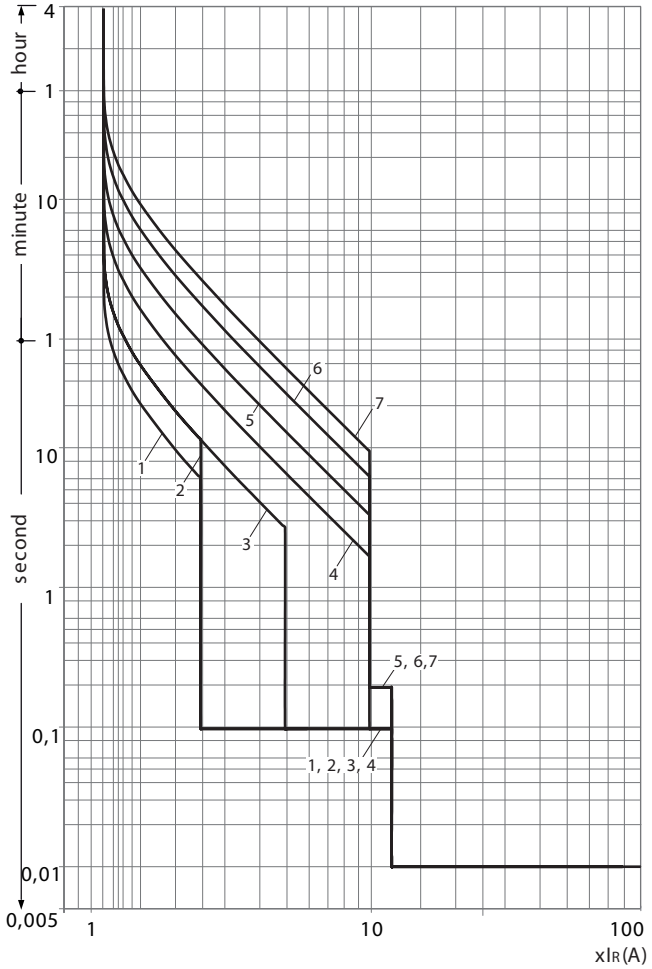
		LSI	In A				
			1250 - 1600 A				
			Long Time Delay		Short Time Delay		Inst
			Ir (x In)	tr (s)	isd (xIr)	tsd (s)	Ii (xIr)
① Ir (x In)	**0,4**	OK					
	0,5	OK					
	0,63	OK					
	0,8	OK					
	0,9	OK					
	0,95	OK					
	1	OK					
② Characteristics*	**1**			11s at 2 xIr	2,5	0,1	14 (max 12 x In)
	2			21s at 2 xIr			
	3				5		
	4			5 s at 6 xIr	10		
	5			10 s at 6 xIr		0,2	
	6			19 s at 6 xIr			
	7			29 s at 6 xIr			
③ Neutral protection	0% 50% 100%						

	① Ir(A)	② Im	③ N
LSI	0,4 - 1 In	2,5 - 10 Ir	0% 50% 100 %

(*) Characteristic 1 : use for generators protection.
Characteristic 2 to 4 - standard protection : options allow coordination optimisation with other products.
Characteristic 5 to 7 - motor protection: use positions according to motor starting characteristics.

Tripping curve

MCCB h1600 LSI



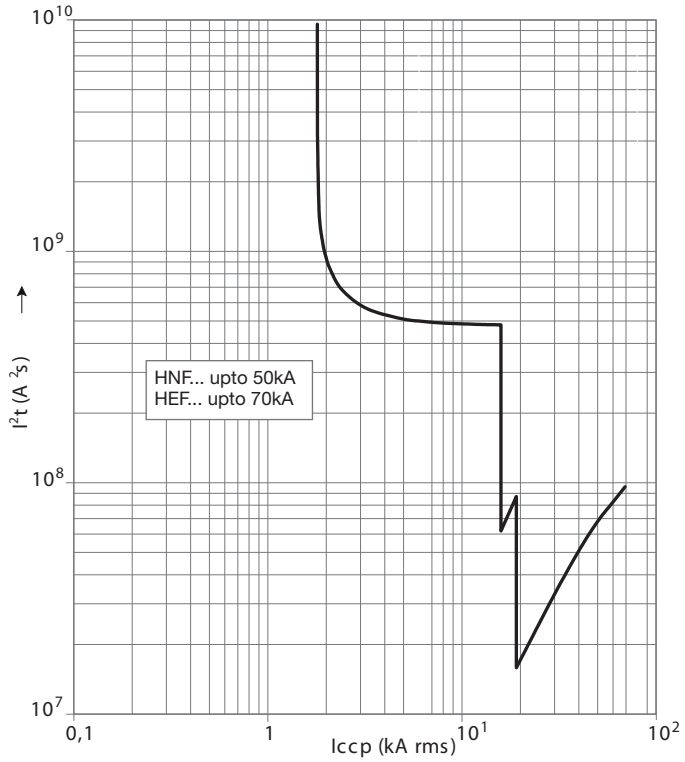
Electronic trip unit setting (LSI)

MCCBs 1250A and 1600A electronic

I_R (A)										
LTD Pick-up current		**I_R**	x In	0,4	0,5	0,63	0,8	0,9	0,95	1
Characteristics			No.	1	2	3	4	5	6	7
Standard	**LTD**	**t_R**	(s)	11	21	21	5	10	19	29
				200% x I_R			600% x I_R			
	STD	**Isd**	x I_R	2,5		5	10			
		tsd	(s)	0,1				0,2		
	INST	**Ii**	x I_R	14 (max : 12 x In)						
Optional	**NP**	**I_N**	x In	0 - 0,5 - 1						
		t_N	(s)	I_N=t_R						

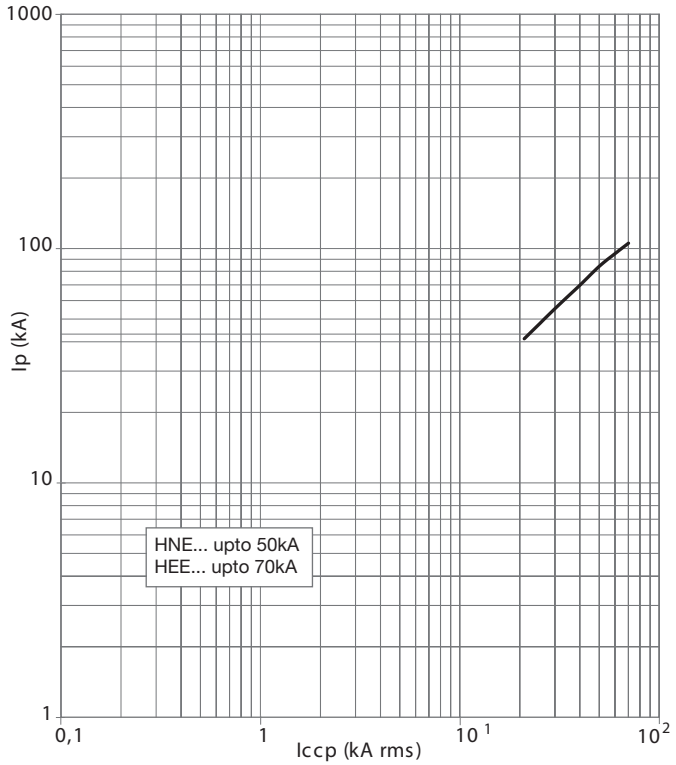
Thermal constraint curve at 400V (Let-through energy)

MCCB h1600



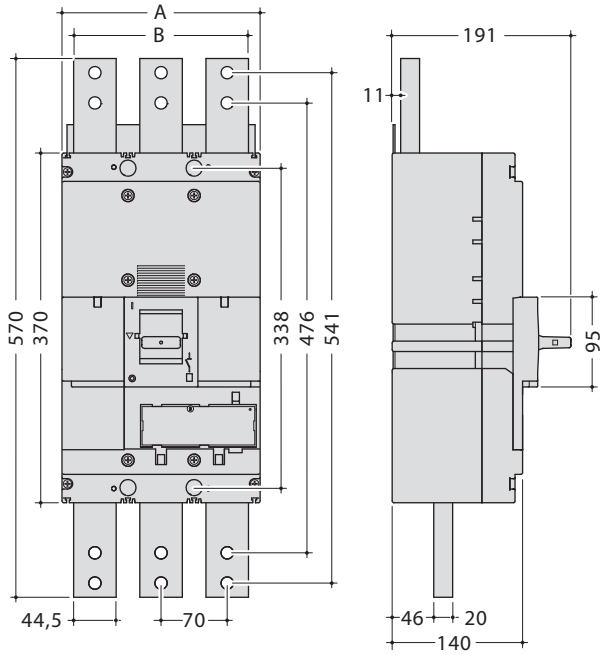
Current limiting curve at 400V (Let-through peak current)

MCCB h1600



Dimensions

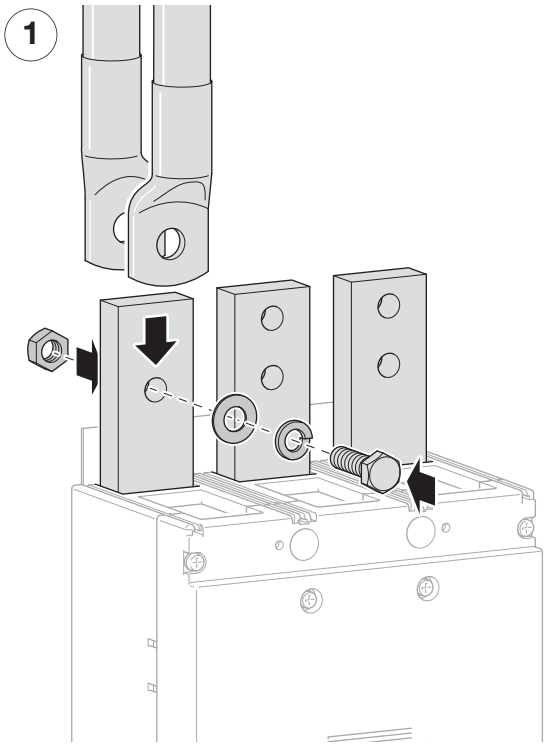
MCCBs

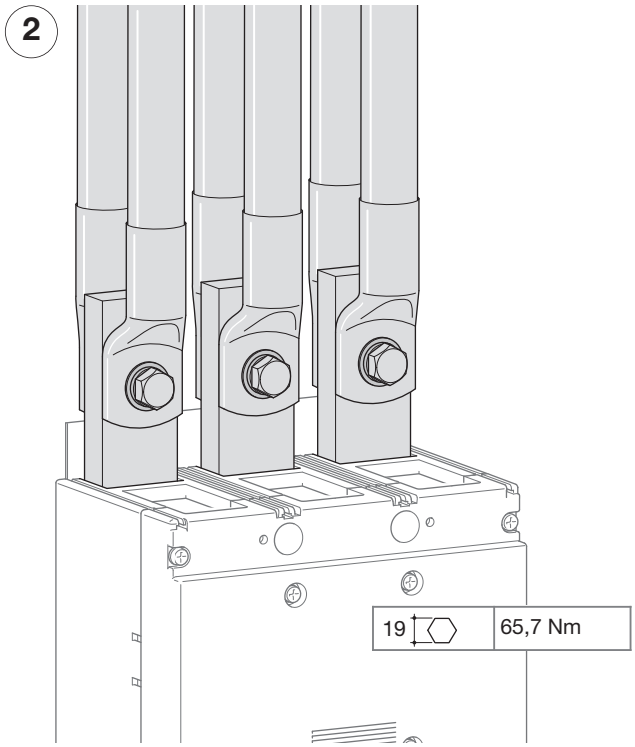


	A (mm)	**B** (mm)
3P	210	185
4P	280	255

Connection

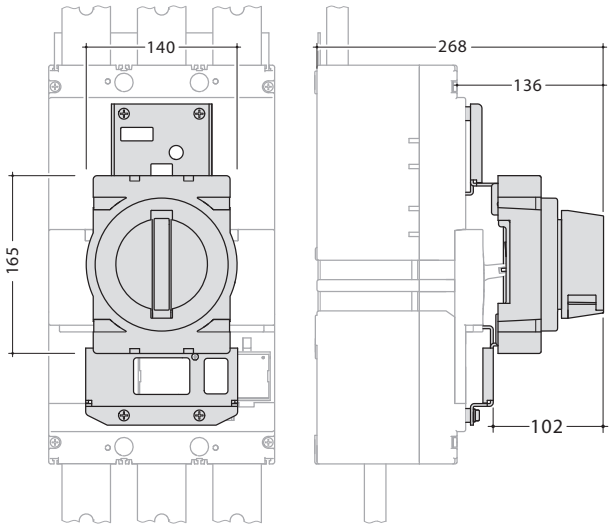
Connection with end lugs



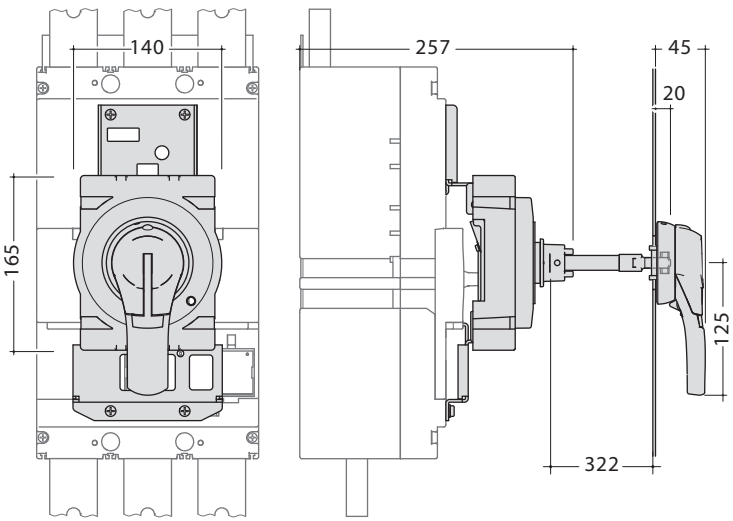


Accessories

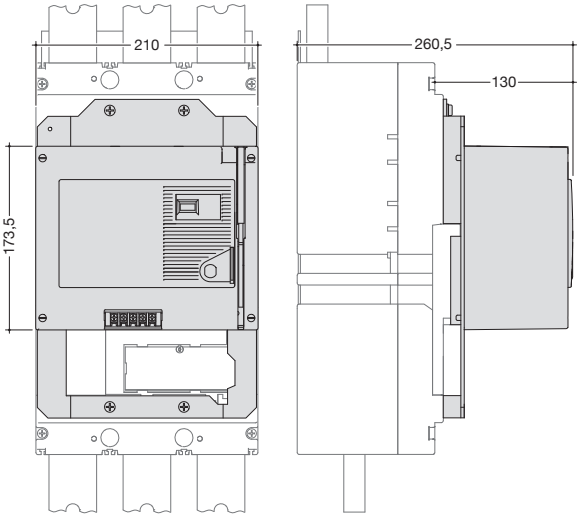
Direct rotary handle



Extended rotary handle

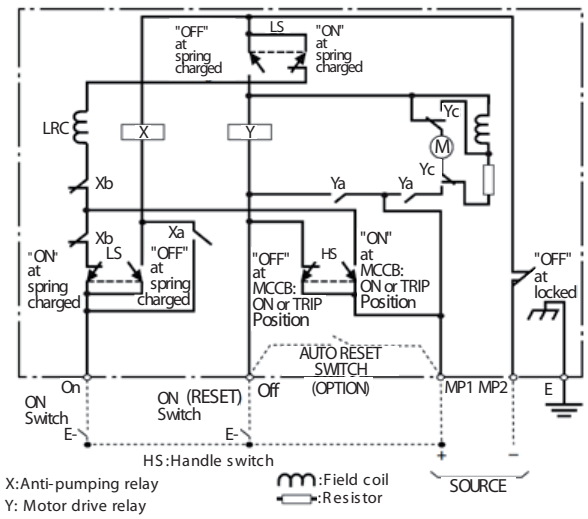


Motor operator



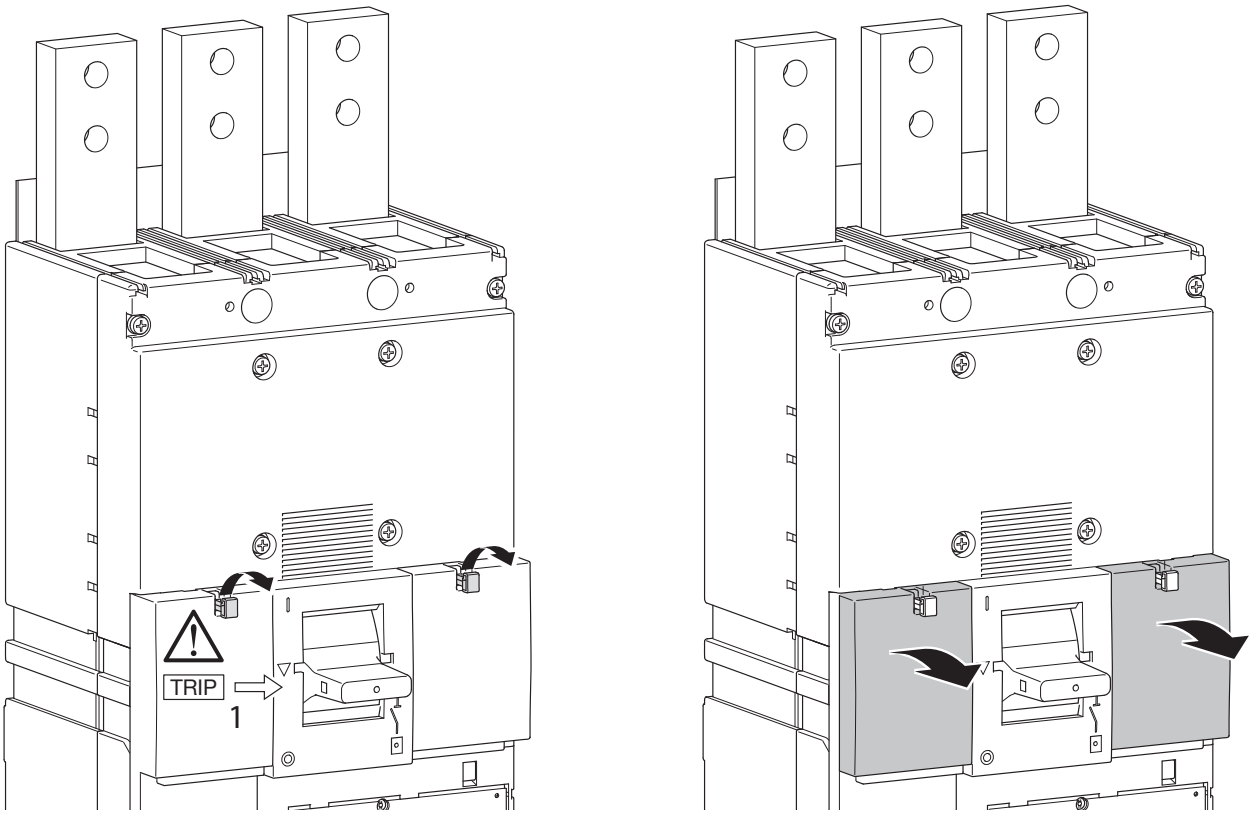
		HXF040H	HXF042H
Operating voltage		24V DC	200-230V AC
Operating current / starting current peak value (A)	24V DC	-/4,5 (ON) 4,0/12,0 (OFF, RESET)	-
	200-230V AC	-	-/1,2 (ON) 1,0/3,2 (OFF, RESET)
Operating time (s)	(ON)	0,06s	
	(OFF)	3s	
	(RESET)	3s	
Power supply required		300VA min.	
Dielectric properties (1 min)		500V AC	1500V AC

Wiring diagram

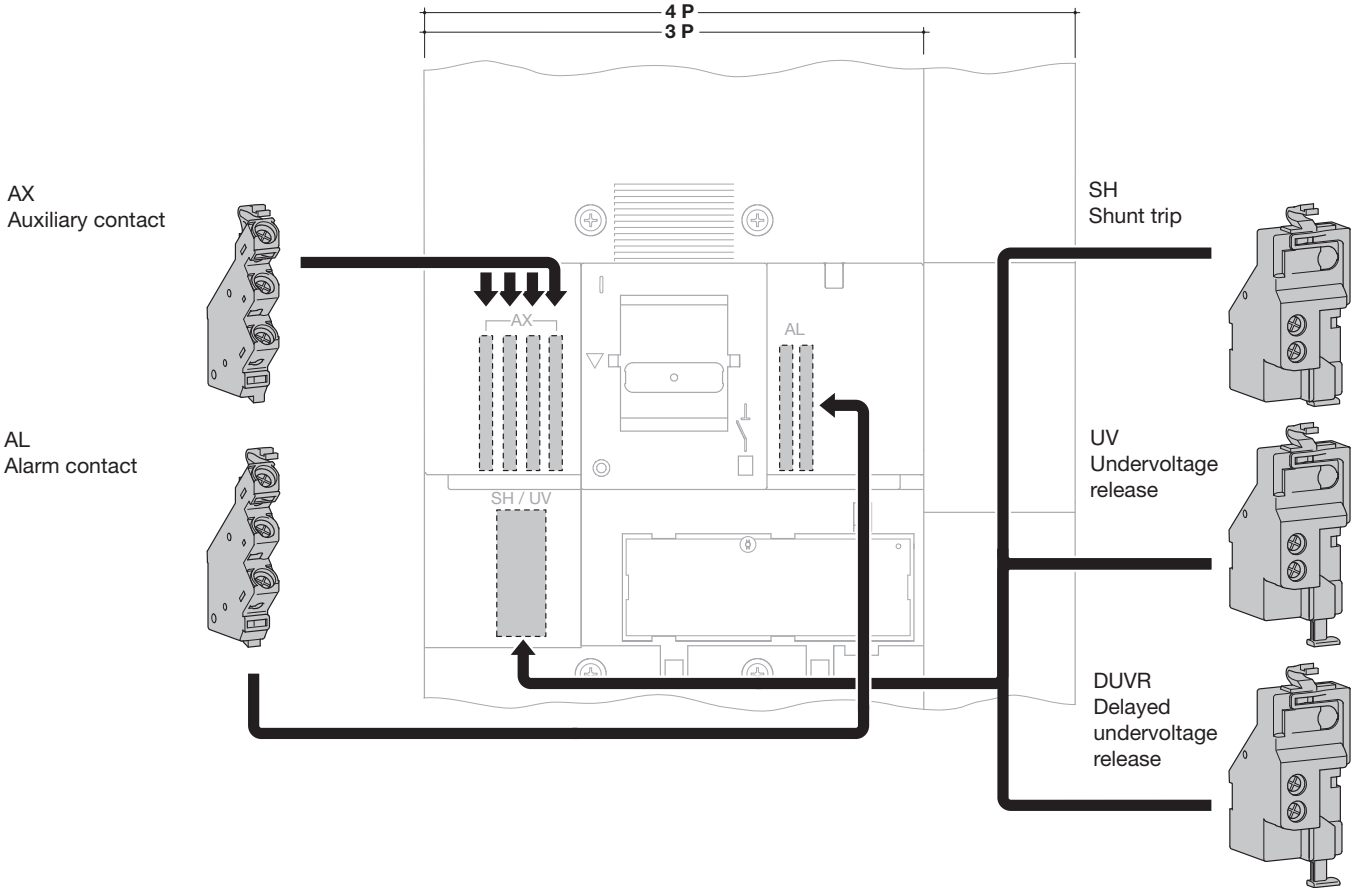


Auxiliaries

Auxiliaries for MCCBs and free tripping switches



Mounting combination for auxiliaries and releases



Max. cascading value in kA rms according to IEC 947-2 Network: 3 phases + neutral 220/380 - 240/415 VAC

				Upstream									
				x160 TM			**x250 TM**		**h250 TM**			**h250 TM+**	
				HDA	**HHA**	**HNA**	**HHB**	**HNB**	**HHG**	**HNG**	**HEG**	**HNH**	**HEH**
			IEC 60947-2	18 kA	25 kA	40 kA	25 kA	40 kA	25 kA	50 kA	65 kA	50 kA	70 kA
Downstream	**x160 TM**	**HDA**	18 kA	18	25	40	25	40	25	40	40	50	70
		HHA	25 kA	-	25	40	25	40	25	50	65	50	70
		HNA	40 kA	-	-	40	25	40	25	50	65	50	70
	x250 TM	**HHB**	25 kA	-	-	-	25	40	25	50	65	50	70
		HNB	40 kA	-	-	-	-	40	-	50	65	50	70
	h250 TM	**HHG**	25 kA	-	-	-	25	40	25	50	65	50	70
		HNG	50 kA	-	-	-	-	-	-	50	65	50	70
		HEG	65 kA	-	-	-	25	40	25	50	65	50	70
	h250 TM+	**HNH**	50 kA	-	-	-	-	-	-	50	65	50	70
		HEH	70 kA	-	-	-	-	-	-	-	65	-	70
	h250 LSI	**HNC**	50 kA	-	-	-	-	-	-	50	65	50	70
		HEC	70 kA	-	-	-	-	-	-	-	-	-	70
	h400 TM	**HHD**	25 kA	-	-	-	-	-	-	-	-	-	-
		HND	50 kA	-	-	-	-	-	-	-	-	-	-
		HKD	70 kA	-	-	-	-	-	-	-	-	-	-
	h630 LSI	**HND**	50 kA	-	-	-	-	-	-	-	-	-	-
		HED	70 kA	-	-	-	-	-	-	-	-	-	-
	h800 TM	**HNK**	50 kA	-	-	-	-	-	-	-	-	-	-
		HEK	70 kA	-	-	-	-	-	-	-	-	-	-
	h1000 LSI	**HNE**	50 kA	-	-	-	-	-	-	-	-	-	-
		HEE	70 kA	-	-	-	-	-	-	-	-	-	-
	h1600 LSI	**HNF**	50 kA	-	-	-	-	-	-	-	-	-	-
		HEF	70 kA	-	-	-	-	-	-	-	-	-	-

Max. cascading value in kA rms according to IEC 947-2 Network: 3 phases + neutral 127/220 - 138/240 VAC
or downstream devices in single-phase network: 3 phases + neutral 220/380 - 240/415 VAC

				Upstream									
				x160 TM			**x250 TM**		**h250 TM**			**h250 TM+**	
				HDA	**HHA**	**HNA**	**HHB**	**HNB**	**HHG**	**HNG**	**HEG**	**HNH**	**HEH**
			IEC 60947-2	25 kA	35 kA	85 kA	35 kA	85 kA	35 kA	85 kA	85 kA	85 kA	100 kA
Downstream	**x160 TM**	**HDA**	25 kA	25	35	85	35	85	35	85	85	85	100
		HHA	35 kA	-	35	85	35	85	35	85	85	85	100
		HNA	85 kA	-	-	85	35	85	35	85	85	85	100
	x250 TM	**HHB**	35 kA	-	-	-	35	85	35	85	85	85	100
		HNB	85 kA	-	-	-	-	85	-	85	85	85	100
	h250 TM	**HHG**	35 kA	-	-	-	35	85	35	85	85	85	100
		HNG	85 kA	-	-	-	-	85	-	85	85	85	100
		HEG	85 kA	-	-	-	-	85	-	85	85	85	100
	h250 TM+	**HNH**	85 kA	-	-	-	-	-	-	85	85	85	100
		HEH	100 kA	-	-	-	-	-	-	-	85	85	100
	h250 LSI	**HNC**	85 kA	-	-	-	-	85	-	85	85	85	100
		HEC	100 kA	-	-	-	-	-	-	-	-	-	100
	h400 TM	**HHD**	35 kA	-	-	-	-	-	-	-	-	-	-
		HND	85 kA	-	-	-	-	-	-	-	-	-	-
		HKD	100 kA	-	-	-	-	-	-	-	-	-	-
	h630 LSI	**HND**	85 kA	-	-	-	-	-	-	-	-	-	-
		HED	100 kA	-	-	-	-	-	-	-	-	-	-
	h800 TM	**HNK**	85 kA	-	-	-	-	-	-	-	-	-	-
		HEK	100 kA	-	-	-	-	-	-	-	-	-	-
	h1000 LSI	**HNE**	85 kA	-	-	-	-	-	-	-	-	-	-
		HEE	100 kA	-	-	-	-	-	-	-	-	-	-
	h1600 LSI	**HNF**	100 kA	-	-	-	-	-	-	-	-	-	-
		HEF	100 kA	-	-	-	-	-	-	-	-	-	-

h250 LSI		**h400 TM**			**h630 LSI**		**h800 TM**		**h1000 LSI**		**h1600 LSI**	
HNC	**HEC**	**HHD**	**HND**	**HKD**	**HND**	**HED**	**HNK**	**HEK**	**HNE**	**HEE**	**HNF**	**HEF**
50 kA	70 kA	25 kA	50 kA	70 kA	50 kA	70 kA	50 kA	70 kA	50 kA	70 kA	50 kA	70 kA
50	70	25	34	24	24	24	25	25	25	25	18	18
50	70	25	50	55	50	55	45	45	45	45	28	28
50	70	25	50	70	50	70	50	70	50	70	50	50
50	70	25	50	55	50	55	45	45	45	45	28	28
50	70	25	50	70	50	70	50	70	50	70	50	50
50	70	25	50	55	50	55	45	45	45	45	28	28
50	70	25	50	70	50	70	50	70	50	70	50	70
50	70	25	50	55	50	55	45	45	50	70	28	28
50	70	25	50	70	50	70	50	70	50	70	50	70
50	70	25	50	70	50	70	50	70	50	70	50	70
50	70	25	50	70	50	70	50	70	50	70	50	70
-	70	25	50	70	50	70	50	70	50	70	50	70
-	-	25	50	55	50	55	45	45	45	45	28	28
-	-	-	50	70	50	70	50	70	50	70	50	70
-	-	-	-	70	50	70	50	70	50	70	50	70
-	-	-	-	-	50	70	50	70	50	70	50	70
-	-	-	-	-	-	70	50	70	50	70	50	70
-	-	-	-	-	-	-	50	70	50	70	50	70
-	-	-	-	-	-	-	-	70	-	70	50	70
-	-	-	-	-	-	-	-	-	50	70	50	70
-	-	-	-	-	-	-	-	-	-	70	50	70
-	-	-	-	-	-	-	-	-	-	-	50	70
-	-	-	-	-	-	-	-	-	-	-	-	70

h250 LSI		**h400 TM**			**h630 LSI**		**h800 TM**		**h1000 LSI**		**h1600 LSI**	
HNC	**HEC**	**HHD**	**HND**	**HKD**	**HND**	**HED**	**HNK**	**HEK**	**HNE**	**HEE**	**HNF**	**HEF**
85 kA	100 kA	35 kA	85 kA	100 kA	85 kA	100 kA	85 kA	100 kA	85 kA	100 kA	100 kA	100 kA
85	100	35	85	100	85	100	57	57	57	57	30	30
85	100	35	85	100	85	100	85	100	85	100	45	45
85	100	35	85	100	85	100	85	100	85	100	100	100
85	100	35	85	100	85	100	85	100	85	100	45	45
85	100	35	85	100	85	100	85	100	85	100	100	100
85	100	35	85	100	85	100	85	100	85	100	45	45
85	100	35	85	100	85	100	85	100	85	100	100	100
85	100	35	85	100	85	100	85	100	85	100	100	100
85	100	35	85	70	85	100	85	100	85	100	100	100
85	100	35	85	70	85	100	85	100	85	100	100	100
85	100	35	85	100	85	100	85	100	85	100	100	100
-	100	35	85	100	85	100	85	100	85	100	100	100
-	-	35	85	100	85	100	85	100	85	100	45	45
-	-	-	85	100	85	100	85	100	85	100	100	100
-	-	-	-	70	85	100	85	100	85	100	100	100
-	-	-	-	-	85	100	85	100	85	100	100	100
-	-	-	-	-	-	100	85	100	85	100	100	100
-	-	-	-	-	-	-	85	100	85	100	100	100
-	-	-	-	-	-	-	-	100	-	100	100	100
-	-	-	-	-	-	-	-	-	85	100	100	100
-	-	-	-	-	-	-	-	-	-	100	100	100
-	-	-	-	-	-	-	-	-	-	-	100	100
-	-	-	-	-	-	-	-	-	-	-	100	100

Max. cascading value in kA rms according to IEC 947-2 Network: 3 phases + neutral 220/380 - 240/415 VAC

				Upstream									
				x160 TM			**x250 TM**		**h250 TM**			**h250 TM+**	
				HDA	**HHA**	**HNA**	**HHB**	**HNB**	**HHG**	**HNG**	**HEG**	**HNH**	**HEH**
			IEC 60947-2	18 kA	25 kA	40 kA	25 kA	40 kA	25 kA	50 kA	65 kA	50 kA	70 kA
Downstream	**x160**	**HCA**		18	25	40	25	40	25	50	65	50	70
	x250	**HCB**		-	-	-	25	40	25	50	65	50	70
	h630	**HCD**		-	-	-	-	-	-	-	-	-	-
	h1000	**HCE**		-	-	-	-	-	-	-	-	-	-
	h1600	**HCF**		-	-	-	-	-	-	-	-	-	-

Max. cascading value in kA rms according to IEC 947-2 Network: 3 phases + neutral 127/220 - 138/240 VAC
or downstream devices in single-phase network: 3 phases + neutral 220/380 - 240/415 VAC

				Upstream									
				x160 TM			**x250 TM**		**h250 TM**			**h250 TM+**	
				HDA	**HHA**	**HNA**	**HHB**	**HNB**	**HHG**	**HNG**	**HEG**	**HNH**	**HEH**
			IEC 60947-2	25 kA	35 kA	85 kA	35 kA	85 kA	35 kA	85 kA	85 kA	85 kA	100 kA
Downstream	**x160**	**HCA**		25	35	85	35	85	35	85	85	85	100
	x250	**HCB**		-	-	-	35	85	35	85	85	85	100
	h250	**HCD**		-	-	-	-	-	-	-	-	-	-
	h250	**HCE**		-	-	-	-	-	-	-	-	-	-
	h250	**HCF**		-	-	-	-	-	-	-	-	-	-

h250 LSI		h400 TM			h630 LSI		h800 TM		h1000 LSI		h1600 LSI	
HNC	**HEC**	**HHD**	**HND**	**HKD**	**HND**	**HED**	**HNK**	**HEK**	**HNE**	**HEE**	**HNF**	**HEF**
50 kA	70 kA	25 kA	50 kA	70 kA	50 kA	70 kA	50 kA	70 kA	50 kA	70 kA	50 kA	70 kA
25	70	25	50	70	50	70	50	70	50	70	50	70
25	70	25	50	70	50	70	50	70	50	70	50	70
-	-	-	-	70	50	70	50	70	50	70	50	70
-	-	-	-	-	-	-	50	70	50	70	50	70
-	-	-	-	-	-	-	-	-	-	-	50	70

h250 LSI		h400 TM			h630 LSI		h800 TM		h1000 LSI		h1600 LSI	
HNC	**HEC**	**HHD**	**HND**	**HKD**	**HND**	**HED**	**HNK**	**HEK**	**HNE**	**HEE**	**HNF**	**HEF**
85 kA	100 kA	35 kA	85 kA	100 kA	85 kA	100 kA	85 kA	100 kA	85 kA	100 kA	100 kA	100 kA
35	100	35	85	100	85	100	85	100	100	100	100	100
35	100	35	85	100	85	100	85	100	100	100	100	100
-	-	-	-	100	85	100	85	100	100	100	100	100
-	-	-	-	-	-	-	85	100	100	100	100	100
-	-	-	-	-	-	-	-	-	-	-	100	100

Max. cascading value in kA rms according to IEC 947-2 Network: 3 phases + neutral 220/380 - 240/415 VAC

							Upstream							
							x160 TM			**x250 TM**		**h250 TM**		
							HDA	**HHA**	**HNA**	**HHB**	**HNB**	**HHG**	**HNG**	**HEG**
					IEC 60898 IEC 61008 IEC 61009	IEC 60947-2	18 kA	25 kA	40 kA	25 kA	40 kA	25 kA	50 kA	65 kA
Downstream	**Switches**	**SB1xx, SB3xx, SB4xx**	32A	1P, 3P, 4P			2.2	2.2	2.2	-	-	-	-	-
		SB1xx, SB3xx, SB4xx	63A	1P, 3P, 4P			3.1	3.1	3.1	-	-	-	-	-
		SB1xx, SB3xx, SB4xx	100A	1P, 3P, 4P			4.8	4.8	4.8	4.6	4.6	-	-	-
	Switches	**SB2xx**	32A	2P			2.3	2.3	2.3	-	-	-	-	-
		SB2xx	63A	2P			3.4	3.4	3.4	-	-	-	-	-
		SB2xx	100A	2P			5.5	5.5	5.5	4.6	4.6	-	-	-
	IDL 2P/4P	**SA2xx**	80A	2P			6.7	6.7	6.7	5.1	5.1	5	5	5
		SA4xx	80A	4P			5.7	5.7	5.7	5.1	5.1	5	5	5
	RCD 2P/4P	**CCxxx, CDxxx, CExxx, CFxxx, CGxxx**	63A	2P			4.25	4.25	4.25	3.7	3.7	-	-	-
			63A	4P			3.8	3.8	3.8	3.7	3.7	-	-	-
			100A	2P			5.5	5.5	5.5	4.6	4.6	-	-	-
			100A	4P			4.8	4.8	4.8	4.6	4.6	-	-	-
	MCB Ph+N under 240V	**MFS, MFN**	32A	C	3 kA	-	3.3	3.3	3.3	-	-	-	-	-
		MJN, MHN	40A	B, C	4.5 kA	6 kA	8	8	8	6.5	6.5	6	6	6
		MLN, MLU	40A	C	6 kA	7.5 kA	12.5	12.4	12.5	9.7	9.7	7.5	7.5	7.5
	MCB Spinx Ph+N under 240V	**3PP: NFT3xx, NGT3xx 3PP+N: NFT8xx, NGT8xx**	40A	C, D	6 kA	10 kA	18	20	20	14.1	20	10.1	10.1	10.1
		Ph+N: NFT7xx, NGT7xx	40A	C, D	6 kA	10 kA	18	18	18	14.1	14.1	10.1	10.1	10.1
		Ph+N: MHT7xx, MJT7xx	40A	B, C	4.5 kA	6 kA	8	8	8	6.5	6.5	6	6	6
	RCBO 2 mod 1PP+N under 240V	**ADC, ADH**	32A	C	3 kA	-	3.3	3.3	3.3	-	-	-	-	-
		Ax8xx	40A	C	4.5 kA	6 kA	8	8	8	6.5	6.5	6	6	6
		Ax9xx	40A	C	6 kA	10 kA	18	18	18	14	14	10	10	10
	RCBO 1 mod 1PP+N under 240V	**AC1xx, AD1xx, AE1xx, AF1xx, ACx1xx, ADx1xx, AEx1xx**	40A	B, C	10 kA	15 kA	18	25	40	25	40	25	25	25
			50A	B, C	6 kA	10 kA	18	20	20	14.1	14.1	10.1	10.1	10.1
	MCB Ocean 2 & v1 1 mod	**MV, MW**	63A	B, C	3 kA	4.5 kA	5.4	5.4	5.4	5.2	5.2	-	-	-
		MX, MY	63A	B, C	4.5 kA	6 kA	8	8	8	6.5	6.5	6	6	6
		MU, MT	63A	B, C	6 kA	10 kA	18	20	20	14.1	14.1	10.1	10.1	10.1
		NB, NC, ND	63A	B, C, D	10 kA	15 kA	18	25	40	25	40	25	25	25
	MCB GDE 1 mod	**MVN, MWN**	63A	B, C	3 kA	-	3.3	3.3	3.3	-	-	-	-	-
		MXN, MYN	63A	B, C	4.5 kA	-	5.4	5.4	5.4	5.2	5.2	-	-	-
		MBN, MCN, MTN, MUN, MP	63A	B, C	6 kA	-	8	8	8	6.5	6.5	6	6	6
	MCB GTE 1 mod	**MBA, MCA, NEN, NFN, NGN**	63A	B, C, D	6 kA	10 kA	18	25	30	20	25	15	18	20
		NBN, NCN, NDN, NKN	63A	B, C, D	10 kA	15 kA	18	25	40	25	40	25	25	25
		NQN, NRN, NSN	20A	B, C, D	-	25 kA	18	25	40	25	40	25	50	65
			40A	B, C, D	-	20 kA	18	25	40	25	40	25	50	55
			63A	B, C, D	-	15 kA	18	25	40	25	40	25	50	25
		MMN2xx, MMN3xx	12A	magn.	-	25 kA	18	25	40	25	40	25	50	65
		MMN2xx, MMN3xx	25A	magn.	-	20 kA	18	25	40	25	40	25	50	53.4
	MCB DEFI 125 1,5 mod	**HLE, HLF, HLG, HME, HMF, HMG**	125A	B, C	10 kA	15 kA	18	25	40	25	40	25	50	25
		HMB, HMC, HMD	125A	B, C, D	15 kA	15 kA	18	25	40	25	40	25	50	25
		HMJ, HMK	125A	C	-	30 kA	18	25	40	25	40	25	50	65
		HMX	63A	C	-	50 kA	18	25	40	25	40	25	50	65

h250 TM+		h250 LSI		h400 TM			h630 LSI		h800 TM		h1000 LSI		h1600 LSI	
HNH	**HEH**	**HNC**	**HEC**	**HHD**	**HND**	**HKD**	**HND**	**HED**	**HNK**	**HEK**	**HNE**	**HEE**	**HNF**	**HEF**
50 kA	70 kA	50 kA	70 kA	25 kA	50 kA	70 kA	50 kA	70 kA	50 kA	70 kA	50 kA	70 kA	50 kA	70 kA
3.5	3.5	3.5	3.5	-	-	-	-	-	-	-	-	-	-	-
3.9	3.9	3.9	3.9	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.5	3.5	3.5	3.5	-	-	-	-	-	-	-	-	-	-	-
3.9	3.10	3.11	3.12	-	-	-	-	-	-	-	-	-	-	-
4.7	4.7	4.7	4.7	-	-	-	-	-	-	-	-	-	-	-
5.3	5.3	5.3	5.3	-	-	-	-	-	-	-	-	-	-	-
5.3	5.3	5.3	5.3	-	-	-	-	-	-	-	-	-	-	-
5.3	5.3	5.3	5.3	-	-	-	-	-	-	-	-	-	-	-
5.3	5.3	5.3	5.3	-	-	-	-	-	-	-	-	-	-	-
4.7	4.7	4.7	4.7	-	-	-	-	-	-	-	-	-	-	-
4.7	4.7	4.7	4.7	-	-	-	-	-	-	-	-	-	-	-
4.1	4.1	4.1	4.1	-	-	-	-	-	-	-	-	-	-	-
6.5	6.5	6.5	6.5	-	-	-	-	-	-	-	-	-	-	-
9	9	9	9	9	9	7.7	7.7	7.7	-	-	-	-	-	-
20	20	20	20	13.6	13.6	20	20	20	10	10	10	10	10	10
14	14	14	14	13.6	13.6	10.1	10.1	10.1	10	10	10	10	10	10
6.5	6.5	6.5	6.5	6	6	6	6	6	6	6	6	6	6	6
4.1	4.1	4.1	4.1	-	-	-	-	-	-	-	-	-	-	-
6.5	6.5	6.5	6.5	-	-	-	-	-	-	-	-	-	-	-
14	14	14	14	14	14	10	10	10	-	-	-	-	-	-
46	46	46	46	23	23	18.6	18.6	18.6	18	18	18	18	-	-
14	14	14	14	13.6	13.6	10.1	10.1	10.1	-	-	-	-	-	-
5.1	5.1	5.1	5.1	-	-	-	-	-	-	-	-	-	-	-
6.5	6.5	6.5	6.5	-	-	-	-	-	-	-	-	-	-	-
14	14	14	14	13.6	13.6	10.1	10.1	10.1	-	-	-	-	-	-
47	47	47	47	23	23	18.6	18.6	18.6	18	18	18	18	-	-
4.1	4.1	4.1	4.1	-	-	-	-	-	-	-	-	-	-	-
5.1	5.1	5.1	5.1	-	-	-	-	-	-	-	-	-	-	-
6.5	6.5	6.5	6.5	-	-	-	-	-	-	-	-	-	-	-
25	35	25	35	15	20	20	20	20	18	18	18	18	-	-
47	47	47	47	23	23	20	20	20	18	18	18	18	-	-
50	70	50	70	25	50	58	50	58	44	44	44	44	28	28
50	70	50	70	25	44	29	29	29	30	30	30	30	20	20
47	47	47	47	25	33	19	19	19	18	18	18	18	-	-
50	70	50	70	25	50	58	50	58	44	44	44	44	28	28
50	70	50	70	25	44	29	29	29	30	30	30	30	20	20
47	47	47	47	23	23	18.6	18.6	18.6	18	18	18	18	-	-
47	47	47	47	23	23	19	19	19	18	18	18	18	-	-
50	70	50	70	25	50	70	50	70	50	65	50	65	34	34
50	70	50	70	25	50	70	50	70	50	70	50	70	50	70

Max. cascading value in kA rms according to IEC 947-2 Network: 3 phases + neutral 127/220 - 138/240 VAC or downstream devices in single-phase network: 3 phases + neutral 220/380 - 240/415 VAC

							Upstream							
							x160 TM			**x250 TM**		**h250 TM**		
							HDA	**HHA**	**HNA**	**HHB**	**HNB**	**HHG**	**HNG**	**HEG**
					IEC 69898 IEC 61008 IEC 61009	IEC 60947-2	25 kA	35 kA	85 kA	35 kA	85 kA	35 kA	85 kA	85 kA
Downstream	**Switches**	**SB1xx, SB3xx, SB4xx**	32A	1P, 3P, 4P			2.5	2.5	2.5	-	-	-	-	-
		SB1xx, SB3xx, SB4xx	63A	1P, 3P, 4P			4	4	4	-	-	-	-	-
		SB1xx, SB3xx, SB4xx	100A	1P, 3P, 4P			7.7	7.7	7.7	4.6	4.6	-	-	-
	Switches	**SB2xx**	32A	2P			2.7	2.7	2.7	-	-	-	-	-
		SB2xx	63A	2P			4.4	4.4	4.4	-	-	-	-	-
		SB2xx	100A	2P			9	9	9	4.6	4.6	-	-	-
	IDL 2P/4P	**SA2xx**	80A	2P			11.5	11.5	11.5	5.1	5.1	-	-	-
		SA4xx	80A	4P			9.9	9.9	9.9	5.1	5.1	-	-	-
	RCD 2P/4P	**CCxxx, CDxxx, CExxx, CFxxx, CGxxx**	63A	2P			6.2	6.2	6.2	3.7	3.7	-	-	-
			63A	4P			5.5	5.5	5.5	3.7	3.7	-	-	-
			100A	2P			9	9	9	4.6	4.6	-	-	-
			100A	4P			7.7	7.7	7.7	4.6	4.6	-	-	-
	MCB Ph+N under 240V	**MFS, MFN**	32A	C	3 kA	-	4.5	4.5	4.5	3.5	3.5	-	-	-
		MJN, MHN	40A	B, C	4.5 kA	6 kA	15	15	15	6.5	6.5	6	6	6
		MLN, MLU	40A	C	6 kA	7.5 kA	24	24	24	9	9	9	9	9
	MCB Spinx Ph+N under 240V	**NFT7xx, NGT7xx**	40A	C, D	6 kA	10 kA	25	35	45	15	20	18	18	18
		MHT7xx, MJT7xx	40A	B, C	4.5 kA	6 kA	15	15	15	6.5	6.5	6	6	6
	RCBO 2 mod 1PP+N under 240V	**ADC, ADH**	32A	C	3 kA	-	4.5	4.5	4.5	3.5	3.5	-	-	-
		Ax8xx	40A	C	4.5 kA	6 kA	15	15	15	6.5	6.5	6	6	6
		Ax9xx	40A	C	6 kA	10 kA	25	35	45	15	15	18	18	18
	RCBO 1 mod 1PP+N under 240V	**AC1xx, AD1xx, AE1xx, AF1xx, ACx1xx, ADx1xx, AEx1xx**	40A	B, C	10 kA	15 kA	25	35	45	35	85	35	85	85
			50A	B, C	6 kA	10 kA	25	35	45	15	15	18	18	18
	RCBO 2PP	**ADA2xxN**	32A	B, C	10 kA	10 kA	25	35	45	15	15	18	18	18
	MCB Ocean 2 & V1	**MV, MW**	63A	B, C	4,5 kA	6 kA	15	15	15	6.5	6.5	6	-	6
		MX, MY	63A	B, C	6 kA	10kA	25	35	45	15	15	18	18	18
		MU, MT	63A	B, C	10 kA	10 kA	25	35	45	15	15	18	18	18
		NB, NC, ND	63A	B, C, D	15 kA	20 kA	25	35	85	35	85	35	85	85
	MCB GDE 1 mod	**MVN, MWN**	63A	B, C	4.5 kA	-	-	-	-	-	-	-	-	-
		MXN, MYN	63A	B, C	6 kA	-	15	15	15	6.5	6.5	6	6	6
		MP 5xx under 240V	63A	ICP-M	6 kA	-	8	8	8	6.5	6.5	6	6	6
		MUN 5xx under 240V	40A	C	6 kA	-	8	8	8	6.5	6.5	6	6	6
		MBN, MCN, MTN, MUN, MP	63A	B, C	10 kA	-	25	35	45	15	15	18	18	18
	MCB GTE 1 mod	**NFN 7xx under 240V**	63A	C	6 kA	10 kA	18	18	18	14.1	15.1	10.1	10.1	10.1
		MBA, MCA, NEN, NFN, NGN	63A	B, C, D	10 kA	20 kA	25	35	85	35	85	35	85	85
		NBN, NCN, NDN, NKN	63A	B, C, D	10 kA	30 kA	25	35	85	35	85	35	85	85
		NQN, NRN, NSN	20A	B, C, D	-	50 kA	25	35	85	35	85	35	85	85
			40A	B, C, D	-	40 kA	25	35	85	35	85	35	85	85
			63A	B, C, D	-	30 kA	25	35	85	35	85	35	85	85
		MMN2xx, MMN3xx	12A	magn.	-	50 kA	25	35	85	35	85	35	85	85
		MMN2xx, MMN3xx	25A	magn.	-	40 kA	25	35	85	35	85	35	85	85
	MCB DEFI 125 1,5 mod	**HLE, HLF, HLG, HME, HMF, HMG**	125A	B, C	15 kA	30 kA	25	35	85	35	85	35	85	85
		HMB, HMC, HMD	125A	B, C, D	15 kA	30 kA	25	35	85	35	85	35	85	85
		HMJ, HMK	125A	C	-	60 kA	25	35	85	35	85	35	85	85
		HMX	63A	C	-	100 kA	25	35	85	35	85	35	85	85

h250 TM+		**h250 LSI**		**h400 TM**			**h630 LSI**		**h800 TM**		**h1000 LSI**		**h1600 LSI**	
HNH	**HEH**	**HNC**	**HEC**	**HHD**	**HND**	**HKD**	**HND**	**HED**	**HNK**	**HEK**	**HNE**	**HEE**	**HNF**	**HEF**
85 kA	100 kA	85 kA	100 kA	35 kA	85 kA	100 kA	85 kA	100 kA	85 kA	100 kA	85 kA	100 kA	100 kA	100 kA
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	6	6	-	-	-	-	-	-	-	-	-
-	-	-	-	6	6	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	7	6	7	8.2	8.2	7.2	7.2	7.2	-	-	-	-	-	-
9	12	9	12	13.5	13.5	10	10	10	-	-	-	-	-	-
20	40	20	40	19	19	15	15	15	10	10	10	10	10	10
6	7	6	7	8.2	8.2	7.2	7.2	7.2	6	6	6	6	6	6
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	7	6	7	8.2	8.2	7.2	7.2	7.2	-	-	-	-	-	-
18	40	18	40	19	19	15	15	15	14	14	14	14	-	-
85	100	85	100	35	42	37	37	37	27	27	27	27	16	16
18	40	18	40	19	19	15	15	15	14	14	14	14	-	-
18	40	18	40	19	19	15	15	15	14	14	14	14	-	-
6	7	6	7	8.2	8.2	7.2	7.2	7.2	-	-	-	-	-	-
18	40	18	40	19	19	15	15	15	14	14	14	14	-	-
18	40	18	40	19	19	15	15	15	14	14	14	14	-	-
85	100	85	100	35	64	63	63	63	40	40	40	40	21	21
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	7	6	7	8.2	8.2	7.2	7.2	7.2	-	-	-	-	-	-
6.5	6.5	6.5	6.5	-	-	-	-	-	-	-	-	-	-	-
6.5	6.5	6.5	6.5	-	-	-	-	-	-	-	-	-	-	-
18	40	18	40	19	19	15	15	15	14	14	14	14	-	-
14	14	14	14	13.6	13.6	10.1	10.1	10.1	-	-	-	-	-	-
85	100	85	100	35	64	63	63	63	40	40	40	40	27	27
85	100	85	100	35	85	100	85	100	85	85	85	85	37	37
85	100	85	100	35	85	100	85	100	85	100	85	100	85	85
85	100	85	100	35	85	100	85	100	85	100	85	100	55	55
85	100	85	100	35	85	100	85	100	85	100	85	100	37	37
85	100	85	100	35	85	100	85	100	85	100	85	100	85	85
85	100	85	100	35	85	100	85	100	85	100	85	100	55	55
85	100	85	100	35	85	100	85	100	85	100	85	100	37	37
85	100	85	100	35	85	100	85	100	85	100	85	100	37	37
85	100	85	100	35	85	100	85	100	85	100	85	100	100	100
85	100	85	100	35	85	100	85	100	85	100	85	100	100	100

Discrimination chart according to IEC 60947-2
MCCBs x160, x250, h250, h400, h630, h800, h1000, h1600

	Icc (kA)	Upstream	**x160 TM** 18/25/40 kA						**x250 TM** 25/40 kA						**h250 TM** 25/50/65 kA								
	Downstream		**HDA, HHA, HNA**						**HHB, HNB**						**HHG, HNG, HEG**								
		(A)	16 - 50	63	80	100	125	160	100	125	160	200	225	250	20	32	50	63	100	125	160	200	250
HDA HHA HNA	**x160 TM** 18/25/40 kA	16	-	2	2	2.9	2.9	3	2.15	2.9	4.1	5.6	5.5	5.4	-	-	-	1.2	2.15	2.9	4.1	5.6	5.4
		20	-	2	2	2.9	2.9	3	2.15	2.9	4.1	5.6	5.5	5.4	-	-	-	1.2	2.15	2.9	4.1	5.6	5.4
		25	-	2	2	2.9	2.9	3	2.15	2.9	4.1	5.6	5.5	5.4	-	-	-	1.2	2.15	2.9	4.1	5.6	5.4
		32	-	1.8	1.8	2.6	2.6	2.7	2	2.6	3.6	5	4.9	4.8	-	-	-	1.15	2	2.6	3.6	5	4.8
		40	-	1.6	1.6	2.35	2.35	2.4	1.8	2.35	3.3	4.3	4.25	4.2	-	-	-	1.1	1.8	2.35	3.3	4.3	4.2
		50	-	1.6	1.6	2.35	2.35	2.4	1.8	2.35	3.15	4.25	4.2	4.15	-	-	-	1.1	1.8	2.35	3.15	4.25	4.15
		63	-	-	-	2.15	2.15	2.2	1.7	2.15	3	4.05	4	3.9	-	-	-	-	1.7	2.15	3	4.05	3.9
		80	-	-	-	2.15	2.15	2.2	1.7	2.15	2.9	3.9	3.9	3.8	-	-	-	-	1.7	2.15	2.9	3.9	3.8
		100	-	-	-	-	-	2.1	-	1.95	2.75	3.7	3.7	3.6	-	-	-	-	-	1.95	2.75	3.7	3.6
		125	-	-	-	-	-	2.1	-	-	2.65	3.5	3.5	3.4	-	-	-	-	-	-	2.65	3.5	3.4
		160	-	-	-	-	-	-	-	-	-	3.45	3.4	3.35	-	-	-	-	-	-	-	3.45	3.35
HHB HNB	**x250 TM** 25/40 kA	100	-	-	-	-	-	-	-	1.95	2.5	3.15	3.2	3.3	-	-	-	-	-	1.95	2.5	3.15	3
		125	-	-	-	-	-	-	-	-	2.5	3.15	3.2	3.3	-	-	-	-	-	-	2.5	3.15	3
		160	-	-	-	-	-	-	-	-	-	3.15	3.2	3.3	-	-	-	-	-	-	-	3.15	3
		200	-	-	-	-	-	-	-	-	-	-	3.2	3.3	-	-	-	-	-	-	-	-	3
		225	-	-	-	-	-	-	-	-	-	-	-	3.3	-	-	-	-	-	-	-	-	3
		250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHG HNG HEG	**h250 TM** 25/50/65 kA	20	-	-	-	-	-	-	1.55	1.95	2.5	3.15	3.2	3.3	-	0.41	0.6	1	1.55	1.95	2.5	3.15	3
		32	-	-	-	-	-	-	1.55	1.95	2.5	3.15	3.2	3.3	-	-	0.6	1	1.55	1.95	2.5	3.15	3
		50	-	-	-	-	-	-	1.55	1.95	2.5	3.15	3.2	3.3	-	-	-	1	1.55	1.95	2.5	3.15	3
		63	-	-	-	-	-	-	1.55	1.95	2.5	3.15	3.2	3.3	-	-	-	-	1.55	1.95	2.5	3.15	3
		100	-	-	-	-	-	-	-	1.95	2.5	3.15	3.2	3.3	-	-	-	-	-	1.95	2.5	3.15	3
		125	-	-	-	-	-	-	-	-	2.5	3.15	3.2	3.3	-	-	-	-	-	-	2.5	3.15	3
		160	-	-	-	-	-	-	-	-	-	3.15	3.2	3.3	-	-	-	-	-	-	-	3.15	3
		200	-	-	-	-	-	-	-	-	-	-	3.2	3.3	-	-	-	-	-	-	-	-	3
		250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HNH HEH	**h250 TM+** 50/70 kA	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		160	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HNC HEC	**h250 LSI** 50/70 kA	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HHD HND HKD	**h400 TM** 25/50/70 kA	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		350	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HND HED	**h630 LSI** 50/70kA	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		630	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HNK HEK	**h800 TM** 50/70 kA	630	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HNE HEE	**h1000 LSI** 50/70 kA	630	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		7000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HNF HEF	**h1600 LSI** 50/70 kA	800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		1250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		1600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Breaking capacity according to IEC 947-2. Network : 3 phasis + neutral 220/380 ~ 240/415 V AC
notes : “T” = total discrimination (up to the breaking capacity of the downstream device)
“-” = no discrimination

h250 TM+ 50/70 kA								**h250 LSI** 50/70 kA			**h400 TM** 25/50/70 kA				**h630 LSI** 25/40 kA					**h800 TM** 25/40 kA		**h1000 LSI** 25/40 kA				**h1600 LSI** 25/40 kA		
HNH, HEH								**HNC, HEC**			**HHD, HND, HKD**				**HND, HED**					**HNK, HEK**		**HNE, HEE**				**HNF, HEF**		
20	32	50	63	100	125	160	250	40	125	250	250	300	350	400	250	400	500	600	630	630	800	630	700	800	1000	800	1250	1600
-	-	-	1.1	1.9	2.6	4.1	5.4	T	T	T	6.5	8.8	10.5	13	T	T	T	T	T	18.6	28	T	T	T	T	T	T	T
-	-	-	1.1	1.9	2.6	4.1	5.4	T	T	T	6.5	8.5	10.5	13	T	T	T	T	T	18.6	28	T	T	T	T	T	T	T
-	-	-	1.1	1.9	2.6	4.1	5.4	T	T	T	6.5	8.5	10.5	13	T	T	T	T	T	18.6	28	T	T	T	T	T	T	T
-	-	-	1	1.8	2.4	3.6	4.8	T	T	T	5.6	7.3	8.8	10.5	T	T	T	T	T	15.4	22.5	T	T	T	T	T	T	T
-	-	-	1	1.6	2.2	3.3	4.2	-	T	T	4.95	6.2	7.6	9.2	T	T	T	T	T	13.3	18.9	T	T	T	T	T	T	T
-	-	-	1	1.6	2.2	3.15	4.15	-	T	T	4.8	6	7.45	8.8	T	T	T	T	T	13	18.5	T	T	T	T	T	T	T
-	-	-	-	1.5	2	3	3.6	-	T	T	4.6	5.8	7.1	8.3	T	T	T	T	T	12.5	18.2	T	T	T	T	T	T	T
-	-	-	-	1.5	2	2.9	3.8	-	T	T	4.35	5.6	6.8	7.9	T	T	T	T	T	11.7	16.6	T	T	T	T	T	T	T
-	-	-	-	-	1.8	2.75	3.6	-	T	T	4.15	5.4	6.5	7.5	T	T	T	T	T	11.2	15.9	T	T	T	T	T	T	T
-	-	-	-	-	-	2.65	3.4	-	1.65	T	4	5	6	7	T	T	T	T	T	10	14.2	T	T	T	T	T	T	T
-	-	-	-	-	-	-	3.35	-	-	T	3.9	4.9	5.9	6.6	T	T	T	T	T	9.7	13.5	T	T	T	T	T	T	T
-	-	-	-	-	1.8	2.5	3	-	T	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	-	-	-	-	2.5	3	-	1.65	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	-	-	-	-	-	3	-	-	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	-	-	-	-	-	3	-	-	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	-	-	-	-	-	3	-	-	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	3.25	-	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	0.38	0.6	0.9	1.45	1.8	2.5	3	T	T	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	0.6	0.9	1.45	1.8	2.5	3	T	T	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	-	0.9	1.45	1.8	2.5	3	-	T	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	-	-	1.45	1.8	2.5	3	-	T	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	-	-	-	1.8	2.5	3	-	T	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	-	-	-	-	2.5	3	-	1.65	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	-	-	-	-	-	3	-	-	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	-	-	-	-	-	3	-	-	T	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	3.25	3.6	4.3	5	5.75	T	T	T	T	T	7.6	9.6	T	T	T	T	T	T	T
-	0.38	0.6	0.9	1.45	1.8	2.5	3	T	T	T	4.2	4.8	5.2	5.9	T	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	0.6	0.9	1.45	1.8	2.5	3	T	T	T	4.2	4.8	5.2	5.9	T	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	0.9	1.45	1.8	2.5	3	-	T	T	4.2	4.8	5.2	5.9	T	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	1.45	1.8	2.5	3	-	T	T	4.2	4.8	5.2	5.9	T	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	1.8	2.5	3	-	T	T	4.2	4.8	5.2	5.9	T	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	2.5	3	-	1.65	T	4.2	4.8	5.2	5.9	T	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	3	-	-	T	4.2	4.8	5.2	5.9	T	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	3.25	-	4.8	5.2	5.9	T	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	1.625	3.25	4.2	4.8	5.2	5.9	T	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	3.25	4.2	4.8	5.2	5.9	T	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	4.8	5.2	5.9	-	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	3.25	-	4.3	5	5.75	3.25	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	5	5.75	-	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.75	-	T	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.75	-	5.2	T	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.3	T	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.3	T	8.2	10	T	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.3	8.2	10	7.55	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.2	10	-	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.3	-	10	-	T	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	T	-	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	9.6	T	T	T	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	9.6	T	15	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	T	-	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	T	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	T
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Discrimination chart according to IEC 60947-2
MCCBs / RCBOs and MCBs

Icc (kA)		Upstream	x160 TM 18/25/40 kA											x250 TM 25/40 kA						h250 TM 25/50/65 kA								
			HDA, HHA, HNA											HHB, HNB						HHG, HNG, HEG								
Downstream		(A)	16	20	25	32	40	50	63	80	100	125	160	100	125	160	200	225	250	20	32	50	63	100	125	160	200	250
MCB 1 module / multi SPHINX range (10 kA max IEC 60947-2)	**C curve**	6	1.2	1.2	1.2	1.2	1.2	1.2	2.7	2.7	5.9	5.9	6.7	3.9	5.9	9.6	T	T	0.3	0.7	1.1	1.7	3.9	5.9	9.6	T	T	T
		10	1.1	1.1	1.1	1.1	1.1	1.1	2.3	2.3	4.9	4.9	5.5	3.2	4.9	8	T	T	0.3	0.6	1	1.4	3.2	4.9	8	T	T	T
		16	1	1	1	1	1	1	2.1	2.1	4.4	4.4	4.9	2.8	4.4	6.9	T	T	0.3	0.6	0.9	1.3	2.8	4.4	6.9	T	9.8	T
		20	-	0.9	0.9	0.9	0.9	0.9	1.8	1.8	3.6	3.6	4.1	2.5	3.6	5.6	8.5	9.4	0.3	0.5	0.8	1.2	2.5	3.6	5.6	8.5	7.9	8.9
		25	-	-	0.9	0.9	0.9	0.9	1.8	1.8	3.6	3.6	4.1	2.5	3.6	5.6	8.5	9.4	-	0.5	0.8	1.2	2.5	3.6	5.6	8.5	7.9	8.9
		32	-	-	-	0.9	0.9	0.9	1.6	1.6	3	3	3.4	2.1	3	4.7	7	7.8	-	0.5	0.8	1.1	2.1	3	4.7	7	6.5	7.1
		40	-	-	-	-	0.9	0.9	1.6	1.6	3	3	3.4	2.1	3	4.7	7	7.8	-	-	0.8	1.1	2.1	3	4.7	7	6.5	7.1
	D curve	6	1.1	1.1	1.1	1.1	1.1	1.1	2.5	2.5	5.5	5.5	6.2	3.6	5.5	9.1	T	T	0.3	0.6	1	1.5	3.6	5.5	9.1	T	T	T
		10	1	1	1	1	1	1	2.1	2.1	4.4	4.4	5	2.8	4.4	7.2	T	T	0.3	0.6	0.9	1.3	2.8	4.4	7.2	T	T	T
		16	0.9	0.9	0.9	0.9	0.9	0.9	1.9	1.9	3.8	3.8	4.3	2.5	3.8	5.9	9.3	T	0.3	0.5	0.9	1.2	2.5	3.8	5.9	9.3	8.6	T
		20	-	0.9	0.9	0.9	0.9	0.9	1.6	1.6	3.1	3.1	3.6	2.2	3.1	4.9	7.3	8.1	0.3	0.5	0.8	1.2	2.2	3.1	4.9	7.3	6.7	8.7
		25	-	-	0.9	0.9	0.9	0.9	1.6	1.6	3.1	3.1	3.6	2.2	3.1	4.9	7.3	8.1	-	0.5	0.8	1.2	2.2	3.1	4.9	7.3	6.7	8.7
		32	-	-	-	0.8	0.8	0.8	1.4	1.4	2.6	2.6	2.9	1.9	2.6	3.9	5.5	5.9	-	0.5	0.8	1.1	1.9	2.6	3.9	5.5	5.2	6.9
		40	-	-	-	-	0.8	0.8	1.4	1.4	2.6	2.6	2.9	1.9	2.6	3.9	5.5	5.9	-	-	0.8	1.1	1.9	2.6	3.9	5.5	5.2	6.9
RCBO Ph+N 1 module AC1xx, AD1xx, AE1xx, AF1xx, AC5xx, AD5xx, AE5xx, AF5xx, AC9xx, AD9xx, AE9xx, AF9xx, ACx1xx, ADx1xx, AEx1xx (10kA max IEC 61009)	**B curve**	6	1.3	1.3	1.3	1.3	1.3	1.3	2.6	2.6	5.5	5.5	6.3	3.8	5.5	8.4	T	T	T	0.33	6.5	1.1	1.6	3.8	5.5	8.4	T	T
		10	1.1	1.1	1.1	1.1	1.1	1.1	2.3	2.3	4.6	4.6	5.3	3.1	4.6	7	T	T	T	0.31	5.8	0.95	1.5	3.1	4.6	7	T	T
		16	0.96	0.96	0.96	0.96	0.96	0.96	2.1	2.1	3.9	3.9	4.4	2.6	3.9	5.7	T	T	T	0.3	5.4	0.88	1.4	2.6	3.9	5.7	10	9.1
		20	-	0.9	0.9	0.9	0.9	0.9	1.8	1.8	3.3	3.3	3.7	2.4	3.3	4.8	8.1	9.1	8.1	0.29	5.2	0.81	1.4	2.4	3.3	4.8	8.1	7.5
		25	-	-	0.9	0.9	0.9	0.9	1.8	1.8	3.3	3.3	3.7	2.4	3.3	4.8	8.1	9.1	7	0.29	5.2	0.81	1.3	2.4	3.3	4.8	8.1	7.5
		32	-	-	-	0.83	0.83	0.83	1.6	1.6	2.8	2.8	3.2	2.1	2.8	4.2	7	8	7	-	5	0.76	1.2	2.1	2.8	4.2	7	6.4
		40	-	-	-	-	0.8	0.8	1.4	1.4	2.4	2.4	2.8	1.8	2.4	3.6	T	T	T	-	-	0.74	1.1	1.8	2.4	3.6	6	5.5
		45	-	-	-	-	-	0.8	1.4	1.4	2.4	2.4	2.8	1.8	2.4	3.6	T	T	T	-	-	0.74	1.1	1.8	2.4	3.6	T	5.5
		50	-	-	-	-	-	0.8	1.4	1.4	2.4	2.4	2.8	1.8	2.4	3.6	T	T	T	-	-	0.74	1.1	1.8	2.4	3.6	T	5.5
	C curve	6	1.3	1.3	1.3	1.3	1.3	1.3	2.6	2.6	5.5	5.5	6.3	3.8	5.5	8.4	T	T	T	0.33	6.5	1.1	1.6	3.8	5.5	8.4	T	T
		10	1.1	1.1	1.1	1.1	1.1	1.1	2.3	2.3	4.6	4.6	5.3	3.1	4.6	7	T	T	T	0.31	5.8	0.95	1.5	3.1	4.6	7	T	T
		16	0.96	0.96	0.96	0.96	0.96	0.96	2.1	2.1	3.9	3.9	4.4	2.6	3.9	5.7	T	T	T	0.3	5.4	0.88	1.4	2.6	3.9	5.7	10	9.1
		20	-	0.9	0.9	0.9	0.9	0.9	1.8	1.8	3.3	3.3	3.7	2.4	3.3	4.8	8.1	9.1	8.1	0.29	5.2	0.81	1.4	2.4	3.3	4.8	8.1	7.5
		25	-	-	0.9	0.9	0.9	0.9	1.8	1.8	3.3	3.3	3.7	2.4	3.3	4.8	8.1	9.1	7	0.29	5.2	0.81	1.3	2.4	3.3	4.8	8.1	7.5
		32	-	-	-	0.83	0.83	0.83	1.6	1.6	2.8	2.8	3.2	2.1	2.8	4.2	7	8	7	-	5	0.76	1.2	2.1	2.8	4.2	7	6.4
		40	-	-	-	-	0.8	0.8	1.4	1.4	2.4	2.4	2.8	1.8	2.4	3.6	T	T	T	-	-	0.74	1.1	1.8	2.4	3.6	6	5.5
		45	-	-	-	-	-	0.8	1.4	1.4	2.4	2.4	2.8	1.8	2.4	3.6	T	T	T	-	-	0.74	1.1	1.8	2.4	3.6	T	5.5
		50	-	-	-	-	-	0.8	1.4	1.4	2.4	2.4	2.8	1.8	2.4	3.6	T	T	T	-	-	0.74	1.1	1.8	2.4	3.6	T	5.5
MCB 1 module / pole, Ocean2 and V1 ranges MV, MW, MX, MY, MU, MT, NB, NC, ND (10 kA max IEC 60898)	**B curve**	6	1.3	1.3	1.3	1.3	1.3	1.3	2.7	2.7	5.9	5.9	6.6	3.7	5.9	9.8	T	T	T	0.35	0.65	1.1	1.7	3.7	5.9	9.8	T	T
		10	1.1	1.1	1.1	1.1	1.1	1.1	2.3	2.3	4.9	4.9	5.3	3.1	4.9	8	T	T	T	0.35	0.59	1	1.5	3.1	4.9	8	T	T
		13	0.96	0.96	0.96	0.96	0.96	0.96	2	2	4.2	4.2	4.8	2.7	4.2	6.9	T	T	T	0.33	0.54	0.92	1.4	2.7	4.2	6.9	T	9.8
		16	0.96	0.96	0.96	0.96	0.96	0.96	2	2	4.2	4.2	4.8	2.7	4.2	6.9	T	T	T	0.32	0.54	0.92	1.4	2.7	4.2	6.9	T	9.8
		20	-	0.9	0.9	0.9	0.9	0.9	1.8	1.8	3.6	3.6	4	2.4	3.6	5.6	8.5	T	9.3	0.31	0.52	0.86	1.2	2.4	3.6	5.6	8.3	7.9
		25	-	-	0.9	0.9	0.9	0.9	1.8	1.8	3.6	3.6	4	2.4	3.6	5.6	8.5	T	9.3	-	0.52	0.86	1.2	2.4	3.6	5.6	8.3	7.9
		32	-	-	-	0.83	0.83	0.83	1.5	1.5	3	3	3.3	2.1	3	4.6	7	9	7.8	-	0.5	0.8	1.15	2.1	3	4.6	7	6.4
		40	-	-	-	-	0.83	0.83	1.5	1.5	3	3	3.3	2.1	3	4.6	7	9	7.8	-	-	0.8	1.15	2.1	3	4.6	7	6.4
		50	-	-	-	-	-	0.8	1.4	1.4	2.6	2.6	2.8	1.8	2.6	3.7	5.4	6.6	6	-	-	0.78	1.1	1.8	2.6	3.7	5.3	5
		63	-	-	-	-	-	-	1.4	1.4	2.6	2.6	2.7	1.8	2.6	3.7	5.4	6.6	6	-	-	-	1.1	1.8	2.6	3.7	5.3	5
	C curve	0,5	5	5	5	5	5	5	T	T	T	T	T	T	T	T	T	T	T	0.8	1.8	4.5	8.6	T	T	T	T	T
		1	1.7	1.7	1.7	1.7	1.7	1.7	4.8	4.8	T	T	T	7	T	T	T	T	T	0.42	0.84	1.4	2.6	7	T	T	T	T
		2	1.7	1.7	1.7	1.7	1.7	1.7	4.8	4.8	T	T	T	7	T	T	T	T	T	0.42	0.84	1.4	2.6	7	T	T	T	T
		3	1.4	1.4	1.4	1.4	1.4	1.4	3.5	3.5	8	8	9	4.1	8	T	T	T	T	0.36	0.7	1.3	2	4.1	8	T	T	T
		4	1.4	1.4	1.4	1.4	1.4	1.4	3.5	3.5	8	8	9	4.1	8	T	T	T	T	0.36	0.7	1.3	2	4.1	8	T	T	T
		6	1.3	1.3	1.3	1.3	1.3	1.3	2.7	2.7	5.9	5.9	6.6	3.7	5.9	9.8	T	T	T	0.35	0.65	1.1	1.7	3.7	5.9	9.8	T	T
		10	1.1	1.1	1.1	1.1	1.1	1.1	2.3	2.3	4.9	4.9	5.3	3.1	4.9	8	T	T	T	0.35	0.59	1	1.5	3.1	4.9	8	T	T
		13	0.96	0.96	0.96	0.96	0.96	0.96	2	2	4.2	4.2	4.8	2.7	4.2	6.9	T	T	T	0.33	0.54	0.92	1.4	2.7	4.2	6.9	T	9.8
		16	0.96	0.96	0.96	0.96	0.96	0.96	2	2	4.2	4.2	4.8	2.7	4.2	6.9	T	T	T	0.32	0.54	0.92	1.4	2.7	4.2	6.9	T	9.8
		20	-	0.9	0.9	0.9	0.9	0.9	1.8	1.8	3.6	3.6	4	2.4	3.6	5.6	8.5	T	9.3	0.31	0.52	0.86	1.2	2.4	3.6	5.6	8.3	7.9
		25	-	-	0.9	0.9	0.9	0.9	1.8	1.8	3.6	3.6	4	2.4	3.6	5.6	8.5	T	9.3	-	0.52	0.86	1.2	2.4	3.6	5.6	8.3	7.9
		32	-	-	-	0.83	0.83	0.83	1.5	1.5	3	3	3.3	2.1	3	4.6	7	9	7.8	-	0.5	0.8	1.15	2.1	3	4.6	7	6.4
		40	-	-	-	-	0.83	0.83	1.5	1.5	3	3	3.3	2.1	3	4.6	7	9	7.8	-	-	0.8	1.15	2.1	3	4.6	7	6.4
		50	-	-	-	-	-	0.8	1.4	1.4	2.6	2.6	2.8	1.8	2.6	3.7	5.4	6.6	6	-	-	0.78	1.1	1.8	2.6	3.7	5.3	5
		63	-	-	-	-	-	-	1.4	1.4	2.6	2.6	2.7	1.8	2.6	3.7	5.4	6.6	6	-	-	-	1.1	1.8	2.6	3.7	5.3	5
	D curve	0,5	4.3	4.3	4.3	4.3	4.3	4.3	T	T	T	T	T	T	T	T	T	T	T	0.75	1.8	3.7	7	T	T	T	T	T
		1	1.7	1.7	1.7	1.7	1.7	1.7	4.6	4.6	T	T	T	6.8	T	T	T	T	T	0.4	0.84	1.5	2.6	6.8	T	T	T	T
		2	1.7	1.7	1.7	1.7	1.7	1.7	4.6	4.6	T	T	T	6.8	T	T	T	T	T	0.4	0.84	1.5	2.6	6.8	T	T	T	T
		3	1.4	1.4	1.4	1.4	1.4	1.4	3.2	3.2	7.6	7.6	8.6	4.6	7.6	T	T	T	T	0.35	0.7	1.2	1.9	4.6	7.6	T	T	T
		4	1.4	1.4	1.4	1.4	1.4	1.4	3.2	3.2	7.6	7.6	8.6	4.6	7.6	T	T	T	T	0.35	0.7	1.2	1.9	4.6	7.6	T	T	T
		6	1.2	1.2	1.2	1.2	1.2	1.2	2.4	2.4	5.5	5.5	6.1	3.4	5.5	9.1	T	T	T	0.34	0.62	1	1.5	3.4	5.5	9.1	T	T
		10	1	1	1	1	1	1	2.1	2.1	4.3	4.3	5	2.7	4.3	7.2	T	T	T	0.33	0.57	0.91	1.4	2.7	4.3	7.2	T	T
		13	0.93	0.93	0.93	0.93	0.93	0.93	1.8	1.8	3.8	3.8	4.2	2.5	3.8	6	9.2	T	T	0.32	0.54	0.91	1.3	2.5	3.8	6	9.2	8.4
		16	0.93	0.93	0.93	0.93	0.93	0.93	1.8	1.8	3.8	3.8	4.2	2.5	3.8	6	9.2	T	T	0.31	0.54	0.86	1.3	2.5	3.8	6	9.2	8.4
		20	-	0.86	0.86	0.86	0.86	0.86	1.6	1.6	3.1	3.1	3.4	2.2	3.1	4.9	7.2	9	8	0.3	0.52	0.8	1.2	2.2	3.1	4.9	7.1	6.7
		25	-	-	0.86	0.86	0.86	0.86	1.6	1.6	3.1	3.1	3.4	2.2	3.1	4.9	7.2	9	8	-	0.52	0.8	1.2	2.2	3.1	4.9	7.1	6.7
		32	-	-	-	0.81	0.81	0.81	1.5	1.5	2.6	2.6	2.8	1.8	2.6	3.8	5.4	6.6	6	-	0.5	0.76	1.1	1.8	2.6	3.8	5.4	5.1
		40	-	-	-	-	0.81	0.81	1.5	1.5	2.6	2.6	2.8	1.8	2.6	3.8	5.4	6.6	6	-	-	0.76	1.1	1.8	2.6	3.8	5.4	5.1
		50	-	-	-	-	-	0.78	1.4	1.4	2.4	2.4	2.5	1.7	2.4	3.3	4.6	5.5	5	-	-	0.74	1	1.7	2.4	3.3	4.6	4.3
		63	-	-	-	-	-	-	1.4	1.4	2.4	2.4	2.5	1.7	2.4	3.3	4.6	5.5	5	-	-	-	1	1.7	2.4	3.3	4.6	4.3

Breaking capacity according to IEC 947-2. Network : 3 phasis + neutral 220/380 ~ 240/415 V AC

h250 TM+ 50/70 kA								**h250 LSI** 50/70 kA			**h400 TM** 25/50/70 kA				**h630 LSI** 50/70 kA					**h800 TM** 50/70 kA		**h1000 LSI** 50/70 kA				**h1600 LSI** 50/70 kA		
HNH, HEH								**HNG, HEG**			**HHD, HND, HKD**				**HND, HED**					**HNK, HEK**		**HNE, HEE**				**HNF, HEF**		
20	32	50	63	100	125	160	250	40	125	250	250	300	350	400	250	400	500	600	630	630	800	630	700	800	1000	800	1250	1600
0.3	0.6	1.1	1.5	3.3	5.1	9.6	T	0.7	4.2	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.3	0.5	1	1.3	2.8	4.2	8	T	0.6	3.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.3	0.5	0.9	1.2	2.5	3.7	6.9	9.8	0.6	3	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.3	0.5	0.8	1.1	2.2	3.1	5.6	7.9	0.6	2.6	9.1	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.5	0.8	1.1	2.2	3.1	5.6	7.9	0.6	2.6	9.1	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.5	0.8	1	1.9	2.7	4.7	6.5	0.5	2.3	7.6	9.2	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.8	1	1.9	2.7	4.7	6.5	0.5	2.3	7.6	9.2	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.3	0.6	1	1.4	3	4.7	9.1	T	0.7	3.9	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.3	0.5	0.9	1.2	2.5	3.8	7.2	T	0.6	3	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.3	0.5	0.9	1.1	2.2	3.3	5.9	8.6	0.6	2.7	10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.3	0.5	0.8	1.1	2	2.8	4.9	6.7	0.6	2.4	7.8	9.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.5	0.8	1.1	2	2.8	4.9	6.7	0.6	2.4	7.8	9.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.5	0.8	1	1.7	2.3	3.9	5.2	0.5	2	5.8	7	9.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.8	1	1.7	2.3	3.9	5.2	0.5	2	5.8	7	9.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.33	0.6	1.1	1.4	3	5	8.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.31	0.54	0.95	1.2	2.4	4	7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.3	0.5	0.88	1.1	2.2	3.4	5.7	9.1	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.29	0.48	0.81	1.05	2	3	4.8	7.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.29	0.48	0.81	1.05	2	3	4.8	7.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.46	0.76	0.93	1.7	2.6	4.2	6.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.74	0.9	1.5	2.4	3.6	5.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.74	0.9	1.5	2.4	3.6	5.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.74	0.9	1.5	2.4	3.6	5.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.33	0.6	1.1	1.4	3	5	8.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.31	0.54	0.95	1.2	2.4	4	7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.3	0.5	0.88	1.1	2.2	3.4	5.7	9.1	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.29	0.48	0.81	1.05	2	3	4.8	7.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.29	0.48	0.81	1.05	2	3	4.8	7.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.46	0.76	0.93	1.7	2.6	4.2	6.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.74	0.9	1.5	2.4	3.6	5.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.74	0.9	1.5	2.4	3.6	5.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.74	0.9	1.5	2.4	3.6	5.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.35	0.59	1.1	1.4	3.5	5.2	9.8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.35	0.51	1	1.3	2.9	4.3	8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.33	0.49	0.92	1.2	2.6	3.8	6.9	9.8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.32	0.49	0.92	1.2	2.6	3.8	6.9	9.8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.31	0.47	0.86	1.1	2.3	3.2	5.6	7.9	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.47	0.86	1.1	2.3	3.2	5.6	7.9	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.45	0.8	0.95	1.9	2.7	4.6	6.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.8	0.95	1.9	2.7	4.6	6.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.78	0.92	1.7	2.3	3.7	5	-	T	T	8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	-	0.92	1.7	2.3	3.7	5	-	T	T	8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.8	1.6	4.5	6.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.42	0.75	1.4	2	6.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.42	0.75	1.4	2	8.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.36	0.61	1.3	1.5	4.6	7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.36	0.61	1.3	1.5	4.6	7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.35	0.59	1.1	1.4	3.5	5.2	9.8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.35	0.51	1	1.3	2.9	4.3	8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.33	0.49	0.92	1.2	2.6	3.8	6.9	9.8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.32	0.49	0.92	1.2	2.6	3.8	6.9	9.8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.31	0.47	0.86	1.1	2.3	3.2	5.6	7.9	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.47	0.86	1.1	2.3	3.2	5.6	7.9	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.45	0.8	0.95	1.9	2.7	4.6	6.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.8	0.95	1.9	2.7	4.6	6.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.78	0.92	1.7	2.3	3.7	5	-	T	T	8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	-	0.92	1.7	2.3	3.7	5	-	T	T	8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.75	1.6	3.7	6	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.4	0.72	1.5	2.2	6	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.4	0.72	1.5	2.2	6	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.35	0.61	1.2	1.6	4	7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.35	0.61	1.2	1.6	4	7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.34	0.54	1	1.4	3	5	9.1	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.33	0.51	0.91	1.3	2.5	4	7.2	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.32	0.49	0.91	1.2	2.3	3.4	6	8.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.31	0.49	0.86	1.2	2.3	3.4	6	8.4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.3	0.49	0.8	1.1	2	2.9	4.9	6.7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.49	0.8	1.1	2	2.9	4.9	6.7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.48	0.76	0.96	1.7	2.4	3.8	5.1	T	T	T	7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.76	0.96	1.7	2.4	3.8	5.1	T	T	T	7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.74	0.92	1.6	2.2	3.3	4.3	T	T	T	6	8	8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	-	0.92	1.6	2.2	3.3	4.3	T	T	T	6	8	8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T

notes : “T” = total discrimination (up to the breaking capacity of the downstream device), “-” = no discrimination

Discrimination chart according to IEC 60947-2
MCCBs / RCBOs and MCBs

Icc (kA)		Upstream	**x160 TM** 18/25/40 kA											**x250 TM** 25/40 kA						**h250 TM** 25/50/65 kA								
			HDA, HHA, HNA											**HHB, HNB**						**HHG, HNG, HEG**								
Downstream		(A)	16	20	25	32	40	50	63	80	100	125	160	100	125	160	200	225	250	20	32	50	63	100	125	160	200	250
MCB 1 module / pole, GTE range MBA, MCA, NEN, NFN, NGN, NBN, NCN, NDN, NKN (15 kA max IEC 60947-2)	**B curve**	6	1.3	1.3	1.3	1.3	1.3	1.3	2.7	2.7	5.8	5.8	6.7	3.8	5.8	9.6	T	T	T	0.35	0.65	1.2	1.7	3.8	5.8	9.6	T	T
		10	1.2	1.2	1.2	1.2	1.2	1.2	2.2	2.2	4.8	4.8	5.4	3.1	4.8	8	13	T	T	0.33	0.58	1	1.5	3.1	4.8	8	13	12
		13	0.97	0.97	0.97	0.97	0.97	0.97	2	2	4.3	4.3	4.8	2.8	4.3	6.9	11	13	12	0.32	0.55	0.92	1.4	2.8	4.3	6.9	11	9.7
		16	0.97	0.97	0.97	0.97	0.97	0.97	2	2	4.3	4.3	4.8	2.8	4.3	6.9	11	13	12	0.32	0.55	0.92	1.4	2.8	4.3	6.9	11	9.7
		20	-	0.92	0.92	0.92	0.92	0.92	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.3	10	9.3	0.31	0.53	0.85	1.3	2.4	3.6	5.5	8.3	7.7
		25	-	-	0.92	0.92	0.92	0.92	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.3	10	9.3	-	0.53	0.85	1.3	2.4	3.6	5.5	8.3	7.7
		32	-	-	-	0.84	0.84	0.84	1.5	1.5	3	3	3.4	2.1	3	4.7	6.9	8	7.7	-	0.5	0.8	1.2	2.1	3	4.7	6.9	6.4
		40	-	-	-	-	0.84	0.84	1.5	1.5	3	3	3.4	2.1	3	4.7	6.9	8	7.7	-	-	0.8	1.2	2.1	3	4.7	6.9	6.4
		50	-	-	-	-	-	0.81	1.4	1.4	2.5	2.5	2.8	1.8	2.5	3.7	5.4	6.2	6	-	-	0.78	1.1	1.8	2.5	3.7	5.4	5
		63	-	-	-	-	-	-	1.4	1.4	2.5	2.5	2.8	1.8	2.5	3.7	5.4	6.2	6	-	-	-	1.1	1.8	2.5	3.7	5.4	5
	C curve	0,5	5	5	5	5	5	5	T	T	T	T	T	T	T	T	T	T	T	0.8	1.8	4.5	8.5	T	T	T	T	T
		1	1.6	1.6	1.6	1.6	1.6	1.6	4.8	4.8	12	12	14	7.1	12	T	T	T	T	0.42	0.85	1.5	2.6	7.1	12	T	T	T
		2	1.6	1.6	1.6	1.6	1.6	1.6	4.8	4.8	12	12	14	7.1	12	T	T	T	T	0.42	0.85	1.5	2.6	7.1	12	T	T	T
		3	1.4	1.4	1.4	1.4	1.4	1.4	3.5	3.5	8	8	9.2	5.1	8	14	T	T	T	0.37	0.7	1.3	2	5.1	8	14	T	T
		4	1.4	1.4	1.4	1.4	1.4	1.4	3.5	3.5	8	8	9.2	5.1	8	14	T	T	T	0.37	0.7	1.3	2	5.1	8	14	T	T
		6	1.3	1.3	1.3	1.3	1.3	1.3	2.7	2.7	5.8	5.8	6.7	3.8	5.8	9.6	T	T	T	0.35	0.65	1.2	1.7	3.8	5.8	9.6	T	T
		10	1.2	1.2	1.2	1.2	1.2	1.2	2.2	2.2	4.8	4.8	5.4	3.1	4.8	8	13	T	T	0.33	0.58	1	1.5	3.1	4.8	8	13	12
		13	0.97	0.97	0.97	0.97	0.97	0.97	2	2	4.3	4.3	4.8	2.8	4.3	6.9	11	13	12	0.32	0.55	0.92	1.4	2.8	4.3	6.9	11	9.7
		16	0.97	0.97	0.97	0.97	0.97	0.97	2	2	4.3	4.3	4.8	2.8	4.3	6.9	11	13	12	0.32	0.55	0.92	1.4	2.8	4.3	6.9	11	9.7
		20	-	0.92	0.92	0.92	0.92	0.92	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.3	10	9.3	0.31	0.53	0.85	1.3	2.4	3.6	5.5	8.3	7.7
		25	-	-	0.92	0.92	0.92	0.92	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.3	10	9.3	-	0.53	0.85	1.3	2.4	3.6	5.5	8.3	7.7
		32	-	-	-	0.84	0.84	0.84	1.5	1.5	3	3	3.4	2.1	3	4.7	6.9	8	7.7	-	0.5	0.8	1.2	2.1	3	4.7	6.9	6.4
		40	-	-	-	-	0.84	0.84	1.5	1.5	3	3	3.4	2.1	3	4.7	6.9	8	7.7	-	-	0.8	1.2	2.1	3	4.7	6.9	6.4
		50	-	-	-	-	-	0.81	1.4	1.4	2.5	2.5	2.8	1.8	2.5	3.7	5.4	6.2	6	-	-	0.78	1.1	1.8	2.5	3.7	5.4	5
		63	-	-	-	-	-	-	1.4	1.4	2.5	2.5	2.8	1.8	2.5	3.7	5.4	6.2	6	-	-	-	1.1	1.8	2.5	3.7	5.4	5
	D curve	0,5	4.3	4.3	4.3	4.3	4.3	4.3	14	14	T	T	T	T	T	T	T	T	T	0.8	1.8	4	7	T	T	T	T	T
		1	1.6	1.6	1.6	1.6	1.6	1.6	4.6	4.6	11	11	13	6.8	11	T	T	T	T	0.42	0.84	1.5	7	6.8	11	T	T	T
		2	1.6	1.6	1.6	1.6	1.6	1.6	4.6	4.6	11	11	13	6.8	11	T	T	T	T	0.42	0.84	1.5	2.6	6.8	11	T	T	T
		3	1.4	1.4	1.4	1.4	1.4	1.4	3.2	3.2	7.4	7.4	8.5	4.6	7.4	13	T	T	T	0.36	0.7	1.3	2.6	4.6	7.4	13	T	T
		4	1.4	1.4	1.4	1.4	1.4	1.4	3.2	3.2	7.4	7.4	8.5	4.6	7.4	13	T	T	T	0.36	0.7	1.3	1.9	4.6	7.4	13	T	T
		6	1.2	1.2	1.2	1.2	1.2	1.2	2.4	2.4	5.4	5.4	6.2	3.4	5.4	9	T	T	T	0.34	0.62	1.05	1.5	3.4	5.4	9	T	14
		10	0.98	0.98	0.98	0.98	0.98	0.98	2	2	4.3	4.3	4.9	2.8	4.3	7.2	12	14	13	0.33	0.56	0.93	1.4	2.8	4.3	7.2	12	10.5
		13	0.92	0.92	0.92	0.92	0.92	0.92	1.8	1.8	3.7	3.7	4.2	2.5	3.7	6	9.2	11	11	0.32	0.54	0.88	1.3	2.5	3.7	6	9.2	8.4
		16	0.92	0.92	0.92	0.92	0.92	0.92	1.8	1.8	3.7	3.7	4.2	2.5	3.7	6	9.2	11	11	0.32	0.54	0.88	1.3	2.5	3.7	6	9.2	8.4
		20	-	0.86	0.86	0.86	0.86	0.86	1.6	1.6	3.2	3.2	3.4	2.2	3.2	4.8	7.1	8.5	7.9	0.31	0.52	0.82	1.2	2.2	3.2	4.8	7.1	6.7
		25	-	-	0.86	0.86	0.86	0.86	1.6	1.6	3.2	3.2	3.4	2.2	3.2	4.8	7.1	8.5	7.9	-	0.52	0.82	1.2	2.2	3.2	4.8	7.1	6.7
		32	-	-	-	0.81	0.81	0.81	1.5	1.5	2.5	2.5	2.7	1.8	2.5	3.7	5.4	7.2	5.9	-	0.5	0.78	1.1	1.8	2.5	3.7	5.4	5.1
		40	-	-	-	-	0.81	0.81	1.5	1.5	2.5	2.5	2.7	1.8	2.5	3.7	5.4	7.2	5.9	-	-	0.78	1.1	1.8	2.5	3.7	5.4	5.1
		50	-	-	-	-	-	0.78	1.4	1.4	2.4	2.4	2.5	1.7	2.4	3.3	4.6	6.2	5	-	-	0.76	1	1.7	2.4	3.3	4.6	4.3
		63	-	-	-	-	-	-	1.4	1.4	2.4	2.4	2.5	1.7	2.4	3.3	4.6	6.2	5	-	-	-	1	1.7	2.4	3.3	4.6	4.3

Breaking capacity according to IEC 947-2. Network : 3 phasis + neutral 220/380 ~ 240/415 V AC
notes : “T” = total discrimination (up to the breaking capacity of the downstream device)
“-” = no discrimination

h250 TM+ 50/70 kA								**h250 LSI** 50/70 kA			**h400 TM** 25/50/70 kA				**h630 LSI** 50/70 kA					**h800 TM** 50/70 kA		**h1000 LSI** 50/70 kA				**h1600 LSI** 50/70 kA		
HNH, HEH								**HNG, HEG**			**HHD, HND, HKD**				**HND, HED**					**HNK, HEK**		**HNE, HEE**				**HNF, HEF**		
20	32	50	63	100	125	160	250	40	125	250	250	300	350	400	250	400	500	600	630	630	800	630	700	800	1000	800	1250	1600
0.35	0.59	1.2	1.5	3.3	5	9.6	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.33	0.52	1	1.4	2.8	4.2	8	12	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.32	0.5	0.92	1.3	2.5	3.7	6.9	9.7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.32	0.5	0.92	1.3	2.5	3.7	6.9	9.7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.31	0.48	0.85	1.1	2.2	3.1	5.5	7.7	T	T	T	11	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.48	0.85	1.1	2.2	3.1	5.5	7.7	T	T	T	11	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.46	0.8	1	1.9	2.6	4.7	6.4	T	T	T	9	14	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.8	1	1.9	2.6	4.7	6.4	T	T	T	9	14	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.78	0.95	1.6	2.3	3.7	5	-	T	T	7	10	10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	-	0.95	1.6	2.3	3.7	5	-	T	T	7	10	10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.8	1.6	4.5	7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.42	0.74	1.5	2.2	6.2	10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.42	0.74	1.5	2.2	6.2	10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.37	0.61	1.3	1.7	4.5	7	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.37	0.61	1.3	1.7	4.5	7	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.35	0.59	1.2	1.5	3.3	5	9.6	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.33	0.52	1	1.4	2.8	4.2	8	12	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.32	0.5	0.92	1.3	2.5	3.7	6.9	9.7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.32	0.5	0.92	1.3	2.5	3.7	6.9	9.7	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.31	0.48	0.85	1.1	2.2	3.1	5.5	7.7	T	T	T	11	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.48	0.85	1.1	2.2	3.1	5.5	7.7	T	T	T	11	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.46	0.8	1	1.9	2.6	4.7	6.4	T	T	T	9	14	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.8	1	1.9	2.6	4.7	6.4	T	T	T	9	14	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.78	0.95	1.6	2.3	3.7	5	-	T	T	7	10	10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	-	0.95	1.6	2.3	3.7	5	-	T	T	7	10	10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.8	1.6	4	5.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.42	0.72	1.5	2	5.8	10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.42	0.72	1.5	2	5.8	10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.36	0.6	1.3	1.6	4	6.6	13	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.36	0.6	1.3	1.6	4	6.6	13	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.34	0.53	1.05	1.4	3	5	9	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.33	0.5	0.93	1.2	2.5	4	7.2	10.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.32	0.48	0.88	1.1	2.2	3.4	6	8.4	T	T	T	12	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.32	0.48	0.88	1.1	2.2	3.4	6	8.4	T	T	T	12	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.31	0.46	0.82	1	1.9	2.8	4.8	6.7	T	T	T	9.5	8	8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.46	0.82	1	1.9	2.8	4.8	6.7	T	T	T	9.5	8	8	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.44	0.78	0.95	1.7	2.4	3.7	5.1	T	T	T	7	10	10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.78	0.95	1.7	2.4	3.7	5.1	T	T	T	7	10	10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.76	0.9	1.6	2.2	3.3	4.3	T	T	T	5.8	14	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	-	0.9	1.6	2.2	3.3	4.3	T	T	T	5.8	14	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T

Discrimination chart according to IEC 60947-2
MCCBs / RCBOs and MCBs

Icc (kA)		Upstream	**x160 TM** 18/25/40 kA											**x250 TM** 25/40 kA						**h250 TM** 25/50/65 kA								
			HDA, HHA, HNA											**HHB, HNB**						**HHG, HNG, HEG**								
Downstream		(A)	16	20	25	32	40	50	63	80	100	125	160	100	125	160	200	225	250	20	32	50	63	100	125	160	200	250
MCB 1 module / pole, GTE range NQN, NRN, NSN (25 kA max IEC 60947-2)	**B curve**	6	1.3	1.3	1.3	1.3	1.3	1.3	2.7	2.7	5.8	5.8	6.7	3.8	5.8	9.6	15	20	17	0.35	0.65	1.2	1.7	3.8	5.8	9.6	15	14
		10	1.2	1.2	1.2	1.2	1.2	1.2	2.2	2.2	4.8	4.8	5.4	3.1	4.8	8	13	16	14	0.33	0.58	1	1.5	3.1	4.8	8	13	12
		13	0.97	0.97	0.97	0.97	0.97	0.97	2	2	4.3	4.3	4.8	2.8	4.3	6.9	11	13	12	0.32	0.55	0.92	1.4	2.8	4.3	6.9	11	9.7
		16	0.97	0.97	0.97	0.97	0.97	0.97	2	2	4.3	4.3	4.8	2.8	4.3	6.9	11	13	12	0.32	0.55	0.92	1.4	2.8	4.3	6.9	11	9.7
		20	-	0.92	0.92	0.92	0.92	0.92	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.3	10	9.3	0.31	0.53	0.85	1.3	2.4	3.6	5.5	8.3	7.7
		25	-	-	0.92	0.92	0.92	0.92	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.3	10	9.3	-	0.53	0.85	1.3	2.4	3.6	5.5	8.3	7.7
		32	-	-	-	0.84	0.84	0.84	1.5	1.5	3	3	3.4	2.1	3	4.7	6.9	8	7.7	-	0.5	0.8	1.2	2.1	3	4.7	6.9	6.4
		40	-	-	-	-	0.84	0.84	1.5	1.5	3	3	3.4	2.1	3	4.7	6.9	8	7.7	-	-	0.8	1.2	2.1	3	4.7	6.9	6.4
		50	-	-	-	-	-	0.81	1.4	1.4	2.5	2.5	2.8	1.8	2.	3.7	5.4	6.2	6	-	-	0.78	1.1	1.8	2.5	3.7	5.4	5
		63	-	-	-	-	-	-	1.4	1.4	2.5	2.5	2.8	1.8	2.5	3.7	5.4	6.2	6	-	-	-	1.1	1.8	2.5	3.7	5.4	5
	C curve	0,5	5	5	5	5	5	5	17	17	T	T	T	T	T	T	T	T	T	0.8	1.8	4.5	8.5	T	T	T	T	T
		1	1.6	1.6	1.6	1.6	1.6	1.6	4.8	4.8	12	12	14	7.1	12	20	T	T	T	0.42	0.85	1.5	2.6	7.1	12	20	T	T
		2	1.6	1.6	1.6	1.6	1.6	1.6	4.8	4.8	12	12	14	7.1	12	20	T	T	T	0.42	0.85	1.5	2.6	7.1	12	20	T	T
		3	1.4	1.4	1.4	1.4	1.4	1.4	3.5	3.5	8	8	9.2	5.1	8	14	22	T	T	0.37	0.7	1.3	2	5.1	8	14	22	20
		4	1.4	1.4	1.4	1.4	1.4	1.4	3.5	3.5	8	8	9.2	5.1	8	14	22	T	T	0.37	0.7	1.3	2	5.1	8	14	22	20
		6	1.3	1.3	1.3	1.3	1.3	1.3	2.7	2.7	5.8	5.8	6.7	3.8	5.8	9.6	15	20	17	0.35	0.65	1.2	1.7	3.8	5.8	9.6	15	14
		10	1.2	1.2	1.2	1.2	1.2	1.2	2.2	2.2	4.8	4.8	5.4	3.1	4.8	8	13	16	14	0.33	0.58	1	1.5	3.1	4.8	8	13	12
		13	0.97	0.97	0.97	0.97	0.97	0.97	2	2	4.3	4.3	4.8	2.8	4.3	6.9	11	13	12	0.32	0.55	0.92	1.4	2.8	4.3	6.9	11	9.7
		16	0.97	0.97	0.97	0.97	0.97	0.97	2	2	4.3	4.3	4.8	2.8	4.3	6.9	11	13	12	0.32	0.55	0.92	1.4	2.8	4.3	6.9	11	9.7
		20	-	0.92	0.92	0.92	0.92	0.92	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.3	10	9.3	0.31	0.53	0.85	1.3	2.4	3.6	5.5	8.3	7.7
		25	-	-	0.92	0.92	0.92	0.92	1.8	1.8	3.6	3.6	4	2.4	3.6	5.5	8.3	10	9.3	-	0.53	0.85	1.3	2.4	3.6	5.5	8.3	7.7
		32	-	-	-	0.84	0.84	0.84	1.5	1.5	3	3	3.4	2.1	3	4.7	6.9	8	7.7	-	0.5	0.8	1.2	2.1	3	4.7	6.9	6.4
		40	-	-	-	-	0.84	0.84	1.5	1.5	3	3	3.4	2.1	3	4.7	6.9	8	7.7	-	-	0.8	1.2	2.1	3	4.7	6.9	6.4
		50	-	-	-	-	-	0.81	1.4	1.4	2.5	2.5	2.8	1.8	2.5	3.7	5.4	6.2	6	-	-	0.78	1.1	1.8	2.5	3.7	5.4	5
		63	-	-	-	-	-	-	1.4	1.4	2.5	2.5	2.8	1.8	2.5	3.7	5.4	6.2	6	-	-	-	1.1	1.8	2.5	3.7	5.4	5
	D curve	0,5	4.3	4.3	4.3	4.3	4.3	4.3	14	14	T	T	T	18	T	T	T	T	T	-	1.8	-	7	18	T	T	T	T
		1	1.6	1.6	1.6	1.6	1.6	1.6	4.6	4.6	11	11	13	6.8	11	19	T	T	T	-	0.84	-	7	6.8	11	19	T	T
		2	1.6	1.6	1.6	1.6	1.6	1.6	4.6	4.6	11	11	13	6.8	11	19	T	T	T	-	0.84	-	2.6	6.8	11	19	T	T
		3	1.4	1.4	1.4	1.4	1.4	1.4	3.2	3.2	7.4	7.4	8.8	4.6	7.4	13	21	T	24	-	0.7	-	2.6	4.6	7.4	13	21	19
		4	1.4	1.4	1.4	1.4	1.4	1.4	3.2	3.2	7.4	7.4	8.5	4.6	7.4	13	21	T	24	-	0.7	-	1.9	4.6	7.4	13	21	19
		6	1.2	1.2	1.2	1.2	1.2	1.2	2.4	2.4	5.4	5.4	6.2	3.4	5.4	9	15	18	16	-	0.62	-	1.5	3.4	5.4	9	15	14
		10	0.98	0.98	0.98	0.98	0.98	0.98	2	2	4.3	4.3	4.9	2.8	4.3	7.2	12	14	13	-	0.56	-	1.4	2.8	4.3	7.2	12	10.5
		13	0.92	0.92	0.92	0.92	0.92	0.92	1.8	1.8	3.7	3.7	4.2	2.5	3.7	6	9.2	11	11	-	0.54	-	1.3	2.5	3.7	6	9.2	8.4
		16	0.92	0.92	0.92	0.92	0.92	0.92	1.8	1.8	3.7	3.7	4.2	2.5	3.7	6	9.2	11	11	-	0.54	-	1.3	2.5	3.7	6	9.2	8.4
		20	-	0.86	0.86	0.86	0.86	0.86	1.6	1.6	3.2	3.2	3.4	2.2	3.2	4.8	7.1	8.5	7.9	-	0.52	-	1.2	2.2	3.2	4.8	7.1	6.7
		25	-	-	0.86	0.86	0.86	0.86	1.6	1.6	3.2	3.2	3.4	2.2	3.2	4.8	7.1	8.5	7.9	-	0.52	-	1.2	2.2	3.2	4.8	7.1	6.7
		32	-	-	-	0.81	0.81	0.81	1.5	1.5	2.5	2.5	2.7	1.8	2.5	3.7	5.4	7.2	5.9	-	0.5	-	1.1	1.8	2.5	3.7	5.4	5.1
		40	-	-	-	-	0.81	0.81	1.5	1.5	2.5	2.5	2.7	1.8	2.5	3.7	5.4	7.2	5.9	-	-	-	1.1	1.8	2.5	3.7	5.4	5.1
		50	-	-	-	-	-	0.78	1.4	1.4	2.4	2.4	2.5	1.7	2.4	3.3	4.6	6.2	5	-	-	-	1	1.7	2.4	3.3	4.6	4.3
		63	-	-	-	-	-	-	1.4	1.4	2.4	2.4	2.5	1.7	2.4	3.3	4.6	6.2	5	-	-	-	1	1.7	2.4	3.3	4.6	4.3
MCB 1.5 module / pole, DEFI125 range HLE, HLF, HLG, HME, HMF, HMG, HMB, HMC, HMD (15 kA max IEC 60947-2)	**B curve**	80	-	-	-	-	-	-	-	1.3	2.3	2.3	2.5	1.6	2.3	3.2	4.2	5	4.6	-	0.5	-	1	1.6	2.3	3.2	4.2	4
		100	-	-	-	-	-	-	-	1.3	2.3	2.3	2.5	1.6	2.3	3.2	4.2	5	4.6	-	0.5	-	1	1.6	2.3	3.2	4.2	4
		125	-	-	-	-	-	-	-	1.3	2.3	2.3	2.5	1.6	2.3	3.2	4.2	5	4.6	-	0.5	-	1	1.6	2.3	3.2	4.2	4
	C curve	80	-	-	-	-	-	-	-	1.3	2.3	2.3	2.5	1.6	2.3	3.2	4.2	5	4.6	-	-	-	-	1.6	2.3	3.2	4.2	4
		100	-	-	-	-	-	-	-	-	2.3	2.3	2.5	1.6	2.3	3.2	4.2	5	4.6	-	-	-	-	1.6	2.3	3.2	4.2	4
		125	-	-	-	-	-	-	-	-	-	2.3	2.5	-	2.3	3.2	4.2	5	4.6	-	-	-	-	-	2.3	3.2	4.2	4
	D curve	80	-	-	-	-	-	-	-	1.3	2	2	2.1	1.5	2	2.5	3.5	4	3.8	-	-	-	-	1.5	2	2.5	3.5	3.3
		100	-	-	-	-	-	-	-	-	2	2	2.1	1.5	2	2.5	3.5	4	3.8	-	-	-	-	1.5	2	2.5	3.5	3.3
		125	-	-	-	-	-	-	-	-	-	2	2.1	-	2	2.5	3.5	4	3.8	-	-	-	-	-	2	2.5	3.5	3.3
MCB 1.5 module / pole, DEFI125 range HMJ, HMK, HMK, HMX (50 kA max IEC 60947-2)	**C curve**	10	1.5	1.5	1.5	1.5	1.5	1.5	3	3	5	5	5.5	4	5	7	14	18	14	0.4	0.85	1.3	2.1	4	5	7	14	12
		16	1.4	1.4	1.4	1.4	1.4	1.4	2.8	2.8	4.2	4.2	5	3.5	4.2	6	8	10	8.5	0.4	0.85	1.3	2	3.5	4.2	6	8	8
		20	-	1.35	1.35	1.35	1.35	1.35	2.8	2.8	4	4	4.5	3.2	4	5.5	6	8.5	7.5	0.4	0.85	1.25	2	3.3	4	5.5	6	7.3
		25	-	-	1.3	1.3	1.3	1.3	2.6	2.6	3.8	3.8	4.3	3.1	3.8	5.4	6.5	8	7	-	0.8	1.25	1.9	3.3	3.8	5.4	6.5	7.3
		32	-	-	-	1.3	1.3	1.3	2.6	2.6	3.8	3.8	4.3	3.1	3.8	5.4	6.5	8	7	-	0.8	1.2	1.9	3.2	3.8	5.4	6.5	7
		40	-	-	-	-	1.3	1.3	2.5	2.5	3.5	3.5	4	3	3.5	5.1	6	7.5	6.5	-	-	1.2	1.8	3.2	3.5	5.1	6	7
		50	-	-	-	-	-	1.3	2.5	2.5	3.5	3.5	4	3	3.5	5.1	6	7.5	6.5	-	-	1.2	1.8	3	3.5	5.1	6	6.5
		63	-	-	-	-	-	-	2.5	2.5	3.5	3.5	4	3	3.5	5.1	6	7.5	6.5	-	-	-	1.8	3	3.5	5.1	6	6.5
		80	-	-	-	-	-	-	-	1.3	2.3	2.3	2.5	1.6	2.3	3.2	4.2	5	4.6	-	-	-	-	1.6	2.3	3.2	4.2	4
		100	-	-	-	-	-	-	-	-	2.3	2.3	2.5	1.6	2.3	3.2	4.2	5	4.6	-	-	-	-	1.6	2.3	3.2	4.2	4
		125	-	-	-	-	-	-	-	-	-	2.3	2.5	-	2.3	3.2	4.2	5	4.6	-	-	-	-	-	2.3	3.2	4.2	4

Breaking capacity according to IEC 947-2. Network : 3 phasis + neutral 220/380 ~ 240/415 V AC
notes : “T” = total discrimination (up to the breaking capacity of the downstream device)
“-” = no discrimination

h250 TM+ 50/70 kA								**h250 LSI** 50/70 kA			**h400 TM** 25/50/70 kA				**h630 LSI** 50/70 kA					**h800 TM** 50/70 kA		**h1000 LSI** 50/70 kA				**h1600 LSI** 50/70 kA		
HNH, HEH								**HNG, HEG**			**HHD, HND, HKD**				**HND, HED**					**HNK, HEK**		**HNE, HEE**				**HNF, HEF**		
20	32	50	63	100	125	160	250	40	125	250	250	300	350	400	250	400	500	600	630	630	800	630	700	800	1000	800	1250	1600
0.35	0.59	1.2	1.5	3.3	5	9.6	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.33	0.52	1	1.4	2.8	4.2	8	12	T	T	T	18	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.32	0.5	0.92	1.3	2.5	3.7	6.9	9.7	T	T	T	15	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.32	0.5	0.92	1.3	2.5	3.7	6.9	9.7	T	T	T	15	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.31	0.48	0.85	1.1	2.2	3.1	5.5	7.7	T	T	T	12	16	22	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.48	0.85	1.1	2.2	3.1	5.5	7.7	T	T	T	12	16	22	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.46	0.8	1	1.9	2.6	4.7	6.4	T	T	T	10	13	18	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.46	0.8	1	1.9	2.6	4.7	6.4	T	T	T	10	13	18	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.46	0.78	0.95	1.6	2.3	3.7	5	-	T	T	7.5	10	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.46	-	0.95	1.6	2.3	3.7	5	-	T	T	7.5	10	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.8	1.6	4.5	7	22	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.42	0.74	1.5	2.2	6.2	10	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.42	0.74	1.5	2.2	6.2	10	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.37	0.61	1.3	1.7	4.5	7	14	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.37	0.61	1.3	1.7	4.5	7	14	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.35	0.59	1.2	1.5	3.3	5	9.6	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.33	0.52	1	1.4	2.8	4.2	8	12	T	T	T	18	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.32	0.5	0.92	1.3	2.5	3.7	6.9	9.7	T	T	T	15	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.32	0.5	0.92	1.3	2.5	3.7	6.9	9.7	T	T	T	15	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.31	0.48	0.85	1.1	2.2	3.1	5.5	7.7	T	T	T	12	16	22	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.48	0.85	1.1	2.2	3.1	5.5	7.7	T	T	T	12	16	22	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.46	0.8	1	1.9	2.6	4.7	6.4	T	T	T	10	13	18	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.46	0.8	1	1.9	2.6	4.7	6.4	T	T	T	10	13	18	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.46	0.78	0.95	1.6	2.3	3.7	5	-	T	T	7.5	10	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.46	-	0.95	1.6	2.3	3.7	5	-	T	T	7.5	10	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.8	1.6	4	5.5	15	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.42	0.72	1.5	2	5.8	10	19	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.42	0.72	1.5	2	5.8	10	19	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.36	0.6	1.3	1.6	4	6.6	13	19	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.36	0.6	1.3	1.6	4	6.6	13	19	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.34	0.53	1.05	1.4	3	5	9	14	T	T	T	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.33	0.5	0.93	1.2	2.5	4	7.2	10.5	T	T	T	14	22	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.32	0.48	0.88	1.1	2.2	3.4	6	8.4	T	T	T	12	17	24	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.32	0.48	0.88	1.1	2.2	3.4	6	8.4	T	T	T	12	17	24	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.31	0.46	0.82	1	1.9	2.8	4.8	6.7	T	T	T	9.5	14	17	22	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.46	0.82	1	1.9	2.8	4.8	6.7	T	T	T	9.5	14	17	22	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.44	0.78	0.95	1.7	2.4	3.7	5.1	T	T	T	7	10	13	17	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.78	0.95	1.7	2.4	3.7	5.1	T	T	T	7	10	13	17	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	0.76	0.9	1.6	2.2	3.3	4.3	T	T	T	5.8	8	10	15	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	-	0.9	1.6	2.2	3.3	4.3	T	T	T	5.8	8	10	15	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	-	-	1.5	2	3.2	4	T	T	T	7	7.2	8.8	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	-	-	-	2	3.2	4	T	T	T	7	7.2	8.8	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	-	-	-	-	3.2	4	T	T	T	7	7.2	8.8	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	-	-	1.5	2	3.2	4	-	T	T	7	7.2	8.8	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	-	-	-	2	3.2	4	-	T	T	7	7.2	8.8	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	-	-	-	-	3.2	4	-	T	T	7	7.2	8.8	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	-	-	1.4	1.8	2.5	3.3	-	T	T	5.5	6	8.8	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	-	-	-	1.8	2.5	3.3	-	T	T	5.5	6	8.8	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	-	-	-	-	2.5	3.3	-	T	T	5.5	6	8.8	14	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.4	0.7	1.3	1.9	3.4	4.6	7	12	T	T	T	20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.4	0.7	1.3	1.8	3.1	4	6	8	T	T	T	10	18	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
0.4	0.7	1.25	1.7	3	3.8	5.5	7.3	T	T	T	9	12	22	40	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.7	1.25	1.6	2.9	3.6	5.4	7.3	T	T	T	8	11	15	18	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	0.7	1.2	1.6	2.9	3.6	5.4	7	T	T	T	8	11	15	18	T	T	T	T	T	T	T	T	T	T	T	T	T	T
-	-	1.2	1.5	2.7	3.5	5.1	7	-	T	T	7.5	9	11	15	T	T	T	T	T	30	T	T	T	T	T	T	T	T
-	-	1.2	1.5	2.7	3.5	5.1	6.5	-	T	T	7.5	9	11	15	T	T	T	T	T	30	T	T	T	T	T	T	T	T
-	-	-	1.5	2.7	3.5	5.1	6.5	-	T	T	7.5	9	11	15	T	T	T	T	T	30	T	T	T	T	T	T	T	T
-	-	-	-	1.5	2	3.2	4	-	T	T	7	7.2	8.8	14	T	T	T	T	T	15	T	T	T	T	T	T	T	T
-	-	-	-	1.5	2	3.2	4	-	T	T	7	7.2	8.8	14	T	T	T	T	T	15	T	T	T	T	T	T	T	T
-	-	-	-	-	2	3.2	4	-	T	T	7	7.2	8.8	14	T	T	T	T	T	15	T	T	T	T	T	T	T	T

	Icc (kA)	Upstream	**frame I, HWG**				**frame I, HWN**					
	Downstream		**Icu = Ics = 50 kA @ 415V**				**Icu = Ics = 65 kA @ 415V**					
			OCR: LSI or LSIG with OCR with Ir=1xIn, Tr>24s at 6Ir, Is=10In, Ts>20ms, Ip=Max									
		(A)	630	800	1000	1250	630	800	1000	1250	1600	2000
HDA **HHA** **HNA**	**x160 TM** 18/25/40 kA	16	T	T	T	T	T	T	T	T	T	T
		20	T	T	T	T	T	T	T	T	T	T
		25	T	T	T	T	T	T	T	T	T	T
		32	T	T	T	T	T	T	T	T	T	T
		40	T	T	T	T	T	T	T	T	T	T
		50	T	T	T	T	T	T	T	T	T	T
		63	T	T	T	T	T	T	T	T	T	T
		80	T	T	T	T	T	T	T	T	T	T
		100	T	T	T	T	T	T	T	T	T	T
		125	T	T	T	T	T	T	T	T	T	T
		160	T	T	T	T	T	T	T	T	T	T
HHB **HNB**	**x250 TM** 25/40 kA	100	T	T	T	T	T	T	T	T	T	T
		125	T	T	T	T	T	T	T	T	T	T
		160	T	T	T	T	T	T	T	T	T	T
		200	T	T	T	T	T	T	T	T	T	T
		225	T	T	T	T	T	T	T	T	T	T
		250	T	T	T	T	T	T	T	T	T	T
HHG **HNG** **HEG**	**h250 TM** 25/50/65 kA	20	T	T	T	T	T	T	T	T	T	T
		32	T	T	T	T	T	T	T	T	T	T
		50	T	T	T	T	T	T	T	T	T	T
		63	T	T	T	T	T	T	T	T	T	T
		100	T	T	T	T	T	T	T	T	T	T
		125	T	T	T	T	T	T	T	T	T	T
		160	T	T	T	T	T	T	T	T	T	T
		200	T	T	T	T	T	T	T	T	T	T
		250	T	T	T	T	T	T	T	T	T	T
HNH **HEH**	**h250 TM+** 50/70 kA	20	T	T	T	T	T	T	T	T	T	T
		32	T	T	T	T	T	T	T	T	T	T
		50	T	T	T	T	T	T	T	T	T	T
		63	T	T	T	T	T	T	T	T	T	T
		100	T	T	T	T	T	T	T	T	T	T
		125	T	T	T	T	T	T	T	T	T	T
		160	T	T	T	T	T	T	T	T	T	T
		250	T	T	T	T	T	T	T	T	T	T
HNC **HEC**	**h250 LSI** 50/70 kA	40	T	T	T	T	T	T	T	T	T	T
		125	T	T	T	T	T	T	T	T	T	T
		250	T	T	T	T	T	T	T	T	T	T
HHD **HND** **HKD**	**h400 TM** 25/50/70 kA	250	T	T	T	T	T	T	T	T	T	T
		300	T	T	T	T	T	T	T	T	T	T
		350	T	T	T	T	T	T	T	T	T	T
		400	T	T	T	T	T	T	T	T	T	T
HND **HED**	**h630 LSI** 50/70kA	250	T	T	T	T	T	T	T	T	T	T
		400	T	T	T	T	T	T	T	T	T	T
		500	T	T	T	T	T	T	T	T	T	T
		600	T	T	T	T	T	T	T	T	T	T
		630	-	T	T	T	-	T	T	T	T	T
HNK **HEK**	**h800 TM** 50/70 kA	630	-	-	T	T	-	-	T	T	T	T
		800	-	-	T	T	-	-	T	T	T	T
HNE **HEE**	**h1000 LSI** 50/70 kA	630	-	-	T	T	-	-	T	T	T	T
		700	-	-	T	T	-	-	T	T	T	T
		800	-	-	T	T	-	-	T	T	T	T
		7000	-	-	-	T	-	-	-	T	T	T
HNF **HEF**	**h1600 LSI** 50/70 kA	800	-	-	T	T	-	-	T	T	T	T
		1250	-	-	-	-	-	-	-	-	T	T
		1600	-	-	-	-	-	-	-	-	-	T

Breaking capacity according to IEC 60947-2. Network : 3 phasis + neutral 220/380 ~ 240/415 V AC
notes : “T” = total discrimination (up to the breaking capacity of the downstream device)
“-” = no discrimination

frame II, HWS							frame III, HWP	
Icu = Ics = 80 kA @ 415V							Icu = Ics = 100 kA @ 415V	
800	1000	1250	1600	2000	2500	3200	3200	4000
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T
-	T	T	T	T	T	T	T	T
-	T	T	T	T	T	T	T	T
-	T	T	T	T	T	T	T	T
-	T	T	T	T	T	T	T	T
-	T	T	T	T	T	T	T	T
-	-	T	T	T	T	T	T	T
-	T	T	T	T	T	T	T	T
-	-	-	T	T	T	T	T	T
-	-	-	-	T	T	T	T	T

Max. cascading value in kA rms according to IEC 947-2 and IEC 60439-1 **Network: 3 phases + neutral 220/380 - 240/415 VAC**

				Upstream			
				frame I, HWG	**frame I HWN**		
				rated current 630-800-1000-1250A	**rated current 630-800-1000-1250A**	**rated current 1600A**	**rated current 2000A**
			IEC 60947-2	50 kA	65 kA	65 kA	65 kA
Downstream	**x160 TM**	**HDA**	18 kA	18	18	18	18
		HHA	25 kA	25	25	25	25
		HNA	40 kA	40	40	40	40
	x250 TM	**HHB**	25 kA	25	25	25	25
		HNB	40 kA	40	40	40	40
	h250 TM	**HHG**	25 kA	25	25	25	25
		HNG	50 kA	50	50	50	50
		HEG	65 kA	50	65	65	65
	h250 TM+	**HNH**	50 kA	50	50	50	50
		HEH	70 kA	50	65	65	65
	h250 LSI	**HNC**	50 kA	50	50	50	50
		HEC	70 kA	50	65	65	65
	h400 TM	**HHD**	25 kA	25	25	25	25
		HND	50 kA	50	50	50	50
		HKD	70 kA	50	65	65	65
	h630 LSI	**HND**	50 kA	50	50	50	50
		HED	70 kA	50	65	65	65
	h800 TM	**HNK**	50 kA	50	50	50	50
		HEK	70 kA	50	65	65	65
	h1000 LSI	**HNE**	50 kA	50	50	50	50
		HEE	70 kA	50	65	65	65
	h1600 LSI	**HNF**	50 kA	-	-	50	50
		HEF	70 kA	-	-	65	65

frame II, HWS	**frame II, HWS**	**frame II, HWS**	**frame III, HWP**
rated current 800A	**rated current 1000A**	**rated current 1600-2000-2500-3200A**	**rated current 3200-4000A**
80 kA	80 kA	80 kA	100 kA
18	18	18	18
25	25	25	25
40	40	40	40
25	25	25	25
40	40	40	40
25	25	25	25
50	50	50	50
65	65	65	65
50	50	50	50
70	70	70	70
50	50	50	50
70	70	70	70
25	25	25	25
50	50	50	50
70	70	70	70
50	50	50	50
70	70	70	70
50	50	50	50
70	70	70	70
-	50	50	50
-	70	70	70
-	-	50	50
-	-	70	70

Hager Electro Systems Pte Ltd
12 Tai Seng Street,
#06-01B, Luxasia Building,
Singapore 534118

Tel: +65 6383 1030
Fax: +65 6383 0230
Email: sales@hager.sg

hager.sg