

Shunts

The long-life shunts of the STM GmbH are used to expand the current measuring range of moving coil ammeters for the reliable displaying and further processing of direct currents, especially at high rates of up to 15,000A.

The direct current flowing through the shunt generates a proportional voltage drop which, for example, can be displayed by means of a moving coil meter connected in parallel or be further processed electronically.

The shunts manufactured by us comply with DIN 43703 and DIN EN 60051.

The accuracy is 0.5% relative to the nominal value. In addition, shunts with an increased accuracy of 0.2% or 0.1% can be realised on request.

The rated currents are in the range of 1A to 15,000A. Shunts are manufactured in three different designs, depending on the nominal current.

Up to 25A, the shunts are always mounted on an insulating base which can be mounted on a 35mm DIN rail or by means of screw fixing. Above 25A, an insulating base is optionally available for type A, as well as for some current ranges in type B.

Operating conditions:

- ▶ working temperature: $-10 \leq \vartheta \leq +55 \text{ }^{\circ}\text{C}$
- ▶ storage temperature: $-25 \leq \vartheta \leq +65 \text{ }^{\circ}\text{C}$
- ▶ relative humidity: $\leq 75 \text{ } \%$ (no condensation)
- ▶ climatic conditions: climatic class 3 according to VDE/VDI 3540

Accuracy:

- ▶ accuracy class: class 0.5
(optional class 0.2 or 0.1)

Material:

- ▶ resistor: Manganin
- ▶ connector, type A: brass
- ▶ connector, type B: brass/copper
- ▶ connector, type C: copper

Connections:

- ▶ current path: see dimension drawings
- ▶ voltage path: M5 x 8

Safety:

- ▶ protection class: IP00

Connector shape:

- ▶ type A: flat profile, with insulating base (1 ... 25A)
flat profile, optionally with insulating base (30 ... 400A)
- ▶ type B: L-section
- ▶ type C: T-section

Applied standards:

- ▶ DIN 43703 shunt dimensions
- ▶ DIN EN 60051 direct acting indicating analogue electrical measuring instruments and their accessories

Standard designs

- ▶ voltage drop: 60mV; 100mV; 150mV; 300mV
- ▶ overload withstand: 1.2 rated current, permanently 5-fold, max. 5 sec. ($\leq 2,000\text{A}$)
2-fold, max. 5 Sek. ($> 2,000\text{A}$... 10,000A)
- ▶ rated current: 1 ... 15000A
- ▶ accuracy: class 0,5
- ▶ insulating base: 1... 25A as standard
30...400A optionally
- ▶ cover cap available as accessory: 1...400A (60mV)

Special designs

A flexible manufacturing allows the realisation of individually customised shunts.

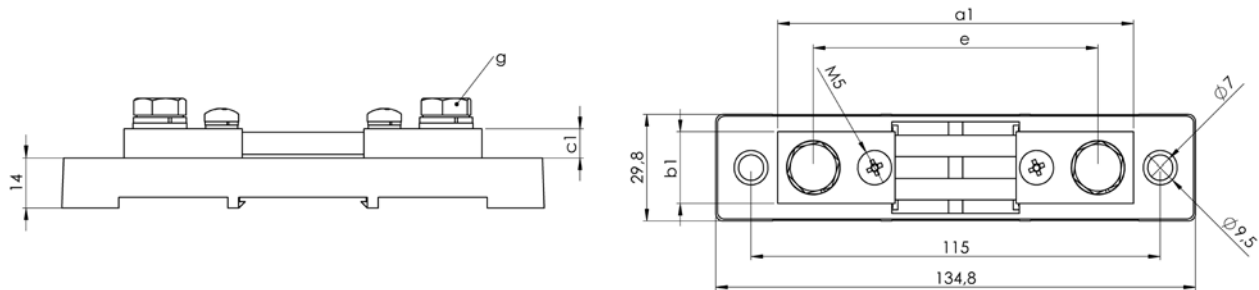
- ▶ different voltage drop
- ▶ different rated current
- ▶ accuracy class 0.2, 0.1 on request
- ▶ customised designs according to dimensioned drawing for your installation situation

Ordering example

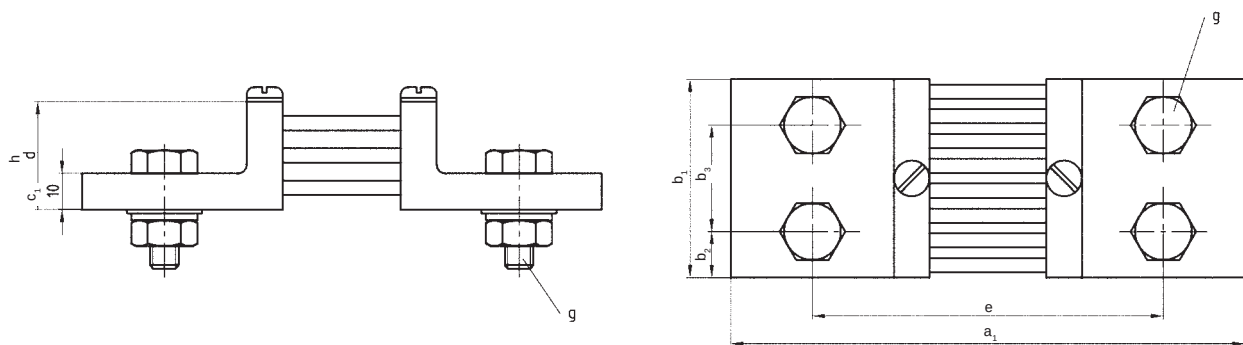
- ▶ voltage drop: 60mV
- ▶ rated current: 1000A
- ▶ accuracy class: 0.5

Dimension Drawings

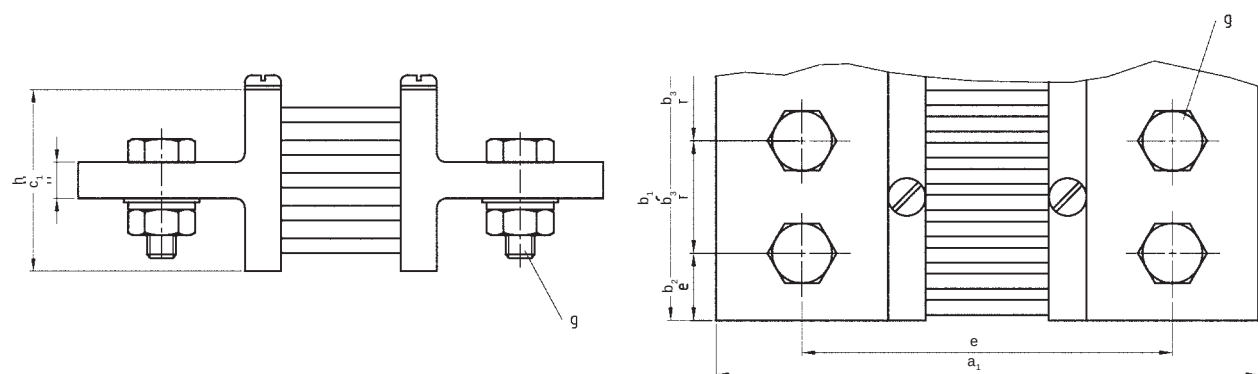
Type A



Type B



Type C



Dimensions

voltage drop [mV]	dim. [mm]	for rated current [A]													
		1 - 25	30 - 250	300- 400	200- 350	400- 800	900- 1000	1000- 1250	1500- 2000	2500- 3000	3000- 5000	6000- 8000	8000- 10000	15000	
60		type A			type B						type C				
	a ₁	90	100		145		165				165	175	185		
	b ₁	20		30	30	40	60		90	120	120	154	206	310	
	b ₂	-			15	20	30		21	30	30	25			
	b ₃	-			-				48	60	60	52			
	c ₁	8		10	10						15	25	30		
	e	78	80		105		115				115	125	135		
	h	-			30						60	130	170		
100		type A			type B						type C				
	a ₁	90	145		190			210		210	220				
	b ₁	20	25		30	40	60		120	120		154			
	b ₂	-			15	20	30			30		25			
	b ₃	-			-				60	60		52			
	c ₁	8			10						15	25			
	e	78	125		150			160		160	170				
	h	-			30						60	130			
150		type A			type B						type C				
	a ₁	90	225		270		290		290		300		310		
	b ₁	20	25		30	40	70		90	120		154	206	310	
	b ₂	-			15	20	35		21	30		25			
	b ₃	-			-				48	60		52			
	c ₁	8			10				15		25		30		
	e	78	205		230		240		240		250		260		
	h	-			50		60		60		130		170		
300		type A			type B						type C				
	a ₁	90	384		429		449		449		459				
	b ₁	20	25		30	40	70		90	120		154			
	b ₂	-			15	20	35		21	30		25			
	b ₃	-			-				48	60		52			
	c ₁	8			10				15		25				
	e	78	364		389		399		399		409				
	h	-			50		60		60		130				

Subject to change

Type A



Voltage drop 60 mV - class 0.5

rated current [A]	insulating base*	weight (approx.)	current connection (dimension g)	number of connections
1	yes	0.10 kg	M5x12	2x 1
1.5	yes	0.10 kg	M5x12	2x 1
2.5	yes	0.10 kg	M5x12	2x 1
4	yes	0.10 kg	M5x12	2x 1
6	yes	0.10 kg	M5x12	2x 1
10	yes	0.10 kg	M5x12	2x 1
15	yes	0.11 kg	M5x12	2x 1
25	yes	0.11 kg	M5x12	2x 1
40	optional	0.12 kg	M8x16	2x 1
50	optional	0.12 kg	M8x16	2x 1
60	optional	0.13 kg	M8x16	2x 1
80	optional	0.13 kg	M8x16	2x 1
100	optional	0.13 kg	M8x16	2x 1
150	optional	0.13 kg	M8x16	2x 1
200	optional	0.13 kg	M8x16	2x 1
250	optional	0.13 kg	M8x16	2x 1
300	optional	0.21 kg	M10x20	2x 1
400	optional	0.21 kg	M10x20	2x 1

*cover cap available as accessory for voltage drop 60mV

Voltage drop 100 mV - class 0.5

rated current [A]	insulating base	weight (approx.)	current connection (dimension g)	number of connections
1	yes	0.10 kg	M5x12	2x 1
1.5	yes	0.10 kg	M5x12	2x 1
2.5	yes	0.10 kg	M5x12	2x 1
4	yes	0.10 kg	M5x12	2x 1
6	yes	0.10 kg	M5x12	2x 1
10	yes	0.11 kg	M5x12	2x 1
15	yes	0.11 kg	M5x12	2x 1
25	yes	0.11 kg	M5x12	2x 1
40	optional	0.16 kg	M8x16	2x 1
50	optional	0.16 kg	M8x16	2x 1
60	optional	0.16 kg	M8x16	2x 1
80	optional	0.16 kg	M8x16	2x 1
100	optional	0.17 kg	M8x16	2x 1
150	optional	0.18 kg	M8x16	2x 1
200	optional	0.18 kg	M8x16	2x 1
250	optional	0.18 kg	M8x16	2x 1

Voltage drop 150 mV - class 0.5

rated current [A]	insulating base*	weight (approx.)	current connection (dimension g)	number of connections
1	yes	0.10 kg	M5x12	2x 1
1.5	yes	0.10 kg	M5x12	2x 1
2.5	yes	0.11 kg	M5x12	2x 1
4	yes	0.11 kg	M5x12	2x 1
6	yes	0.11 kg	M5x12	2x 1
10	yes	0.11 kg	M5x12	2x 1
15	yes	0.11 kg	M5x12	2x 1
25	yes	0.12 kg	M5x12	2x 1
40	optional	0.17 kg	M8x16	2x 1
50	optional	0.17 kg	M8x16	2x 1
60	optional	0.18 kg	M8x16	2x 1
80	optional	0.19 kg	M8x16	2x 1
100	optional	0.21 kg	M8x16	2x 1
150	optional	0.24 kg	M8x16	2x 1
200	optional	0.24 kg	M8x16	2x 1
250	optional	0.26 kg	M8x16	2x 1

*cover cap available as accessory for up to 25A/150mV

Voltage drop 300 mV - class 0.5

rated current [A]	insulating base	weight (approx.)	current connection (dimension g)	number of connections
1	yes	0.11 kg	M5x12	2x 1
1.5	yes	0.11 kg	M5x12	2x 1
2.5	yes	0.11 kg	M5x12	2x 1
4	yes	0.11 kg	M5x12	2x 1
6	yes	0.11 kg	M5x12	2x 1
10	yes	0.11 kg	M5x12	2x 1
15	yes	0.12 kg	M5x12	2x 1
25	yes	0.13 kg	M5x12	2x 1
40	optional	0.19 kg	M8x16	2x 1
50	optional	0.19 kg	M8x16	2x 1
60	optional	0.22 kg	M8x16	2x 1
80	optional	0.24 kg	M8x16	2x 1
100	optional	0.27 kg	M8x16	2x 1
150	optional	0.33 kg	M8x16	2x 1
200	optional	0.33 kg	M8x16	2x 1
250	optional	0.33 kg	M8x16	2x 1

Type B



Voltage drop 60 mV - class 0.5

rated current [A]	insulating base	weight (approx.)	current connection (dimension g)	number of connections
250	optional	0.5 kg	M12x40	2x 1
400	optional	0.8 kg	M16x45	2x 1
600	optional	0.8 kg	M16x45	2x 1
1000	no	1.4 kg	M20x50	2x 1
1500	optional	2.0 kg	M16x45	2x 2
2500	no	2.9 kg	M20x50	2x 2

Voltage drop 100 mV - class 0.5

rated current [A]	insulating base	weight (approx.)	current connection (dimension g)	number of connections
250	optional	0.6 kg	M12x40	2x 1
400	optional	0.9 kg	M16x45	2x 1
600	optional	0.9 kg	M16x45	2x 1
1000	no	1.6 kg	M20x50	2x 1
1500	optional	3.1 kg	M16x45	2x 2

Voltage drop 150 mV - class 0.5

rated current [A]	insulating base	weight (approx.)	current connection (dimension g)	number of connections
250	optional	0.8 kg	M12x40	2x 1
400	optional	1.2 kg	M16x45	2x 1
600	optional	1.3 kg	M16x45	2x 1
1000	no	2.5 kg	M20x50	2x 1

Voltage drop 300 mV - class 0.5

rated current [A]	insulating base	weight (approx.)	current connection (dimension g)	number of connections
250	optional	0.9 kg	M12x40	2x 1
400	optional	1.4 kg	M16x45	2x 1
600	optional	1.7 kg	M16x45	2x 1
1000	no	3.1 kg	M20x50	2x 1

Type B



Voltage drop 60 mV - class 0.5

rated current [A]	insulating base	weight (approx.)	current connection (dimension g)	number of connections
4000	no	4.3 kg	M20x60	2x 2
6000	no	10.9 kg	M20x75	2x 3
10000	no	21.1 kg	M20x80	2x 4
15000	no	31.7 kg	M20x80	2x 6

Voltage drop 100 mV - class 0.5

rated current [A]	insulating base	weight (approx.)	current connection (dimension g)	number of connections
2500	no	4.6 kg	M20x60	2x 2
4000	no	8.9 kg	M20x75	2x 2
6000	no	11.9 kg	M20x75	2x 3

Voltage drop 150 mV - class 0.5

rated current [A]	insulating base	weight (approx.)	current connection (dimension g)	number of connections
1500	no	3.8 kg	M16x60	2x 2
2500	no	5.5 kg	M20x60	2x 2
4000	no	10.0 kg	M20x75	2x 2
6000	no	14.2 kg	M20x75	2x 3
10000	no	26.5 kg	M20x80	2x 4

Voltage drop 300 mV - class 0.5

rated current [A]	insulating base	weight (approx.)	current connection (dimension g)	number of connections
1500	no	4.7 kg	M16x60	2x 2
2500	no	7.1 kg	M20x60	2x 2
4000	no	13.0 kg	M20x75	2x 2
6000	no	17.6 kg	M20x75	2x 3