



### Post Type Bushings Series 8171

- Explosion protection to
  - CENELEC
  - IEC
- Can be used in Zone 1 and Zone 2
- Means of supplying power to lead-in for EEx d enclosures
- Sealed to prevent propagation of flame on explosion and insulated from wall
- Versions with
  - split post connection
  - clamp connection
  - soldered connection
- For voltages up to max. 1000 V and currents up to max 630 A

STAHL

The bushings were developed for inserting an electrical conductor into a "flameproof" enclosure. They provide an insulated path through the enclosure wall, which is sealed to prevent the escape of flame, sparks or hot gases in case of an internal explosion.

The bushings are of post type construction; a double-ended post terminal is fitted in the middle of a threaded bush and the two are combined in a press-moulding press using high quality, tracking resistant, insulating material to form an inseparable unit. The post terminal may have various conductor connections, split post, clamp or soldering type. The EEx e enclosure end of the bushing must meet the requirements of DIN EN 50 019 with respect to air and creepage clearances. The bushings must be secured against self-loosening.

# Zone 1 and Zone 2













Selection table											
Rated cross section (flexible) [mm <sup>2</sup> ]	Poles	Current (post) [A]	Rated working voltage U <sub>e</sub> [V]	Thread size [mm]	Max. conductor capacity			Termination type		Ordering code	Weight [kg]
					flexible [mm <sup>2</sup> ]	stranded [mm <sup>2</sup> ]	solid [mm <sup>2</sup> ]	EEx e- encl.	EEx d- encl.		
1,5 mm <sup>2</sup>	1	10 A	400 V	M10 x 1	1 x 1,5	–	L: 1 x 1,5 Z: 1 x 2			8171/20-ZL	0,04
2,5 mm <sup>2</sup>	1	26 A	400 V	M15 x 1,5	1 x 2,5	–	A: 2 x 2,5 L: 1 x 4			8171/17-AL	0,02
	1	54 A	400 V	M14 x 1,5	1 x 2,5	–	2 x 2,5			8171/15-AA	0,03
4 mm <sup>2</sup>	1	54 A	690 V	M15 x 1,5	1 x 2,5	–	2 x 2,5			8171/02-AA	0,03
	1	54 A	690 V	M15 x 1,5	1 x 4	–	1 x 6			8171/01-KK	0,03
	4	54 A	500 V	M42 x 1,5	1 x 4 1 x 2,5	–	1 x 6 2 x 4			8171/14-RR	0,25
6 mm <sup>2</sup>	6	17 A	400 V	M42 x 1,5	R: 1 x 4 L: 1 x 4	–	R: 1 x 6 L: 2 x 4			8171/06-RL	0,25
	1	54 A	690 V	M15 x 1,5	K: 1 x 6 B: 1 x 6	K: 1 x 10 B: 1 x 10	K: 2 x 6 B: 2 x 6			8171/43-KB	0,06
16 mm <sup>2</sup>	1	54 A	690 V	M15 x 1,5	1 x 6	1 x 10	1 x 10 2 x 6			8171/03-KK	0,05
	1	120 A	690 V	M20 x 1,5	1 x 16	1 x 25	2 x 16			8171/18-KK	0,12
	1	120 A	690 V	M20 x 1,5	1 x 16	1 x 25	2 x 16			8171/24-KK	0,10
35 mm <sup>2</sup>	1	120 A	690 V	M20 x 1,5	K: 1 x 16 B: 1 x 16	K: 1 x 25 B: 1 x 25	K: 2 x 16 B: 2 x 16			8171/48-KB	0,14
	1	250 A	1000 V	M42 x 1,5	2 x 35	K: 2 x 50 B: 2 x 50	–			8171/07-KB	0,35
50 mm <sup>2</sup>	1	250 A	1000 V	M42 x 1,5	K: 2 x 50 B: 2 x 50	K: 2 x 70 B: 2 x 70	–			8171/09-KB	0,40
70 mm <sup>2</sup>	1	200 A	1000 V	M42 x 1,5	–	C: 1 x 70 B: 1 x 70	1 x 16			8171/51-CB	0,55
	1	250 A	1000 V	M42 x 1,5	F: 1 x 150 B: 1 x 150	F: 1 x 150 B: 1 x 150	–			8171/56-DB	0,53
185 mm <sup>2</sup>	1	630 A	1000 V	M42 x 1,5	1 x 240	1 x 240	–			8171/55-FF	1,90

### Technical data

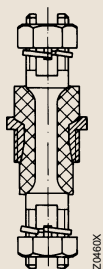
Explosion protection	für EEx d II und EEx d I
Test certificate	PTB No. Ex-88.B.1013 U BVS No. 8/67-9/67, 8/82 (Mining equipment certificate, EEx I) BVS No. 5/81 (EN) other certificates: CSA (Canada), SEV (Switzerland), FTZU (Czech Republic), BKI (Hungary)
Material Post terminal Insulating material	Brass PU resin
Rated working voltage $U_e$	400 V, 690 V, 1000 V, see selection table
Rated working current $I_e$	max. 630 A, see selection table
Number of post terminal	1 pole, 3, 4 and 6 pole
Ambient temperature range	- 50 °C ... + 130 °C
Terminal capacity	1,5 mm <sup>2</sup> to 300 mm <sup>2</sup>

### Terminals

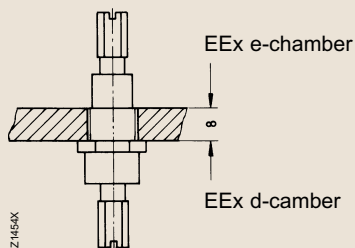
Design	Symbol	Description	Design	Symbol	Description
	A	Hexagon head screw with spring washer and clamp		L	Solder socket
	B	Cheese hd. or hex. hd. screw with spring washer (permissible only on Ex d side)		R	Cap or hood type terminal (round) on split post
	C	Saddle clamp to DIN 46 223		S	Cap or hood type terminal (hexagon) on split post
	K	Split post with hexagon nut and pressure plate DIN 22 412		Z	Cheese head screw with spring washer and clamp
	D	Terminal piece for cable bracket connection		F	Flat terminal



### Description



Principles of construction



Mounting arrangement

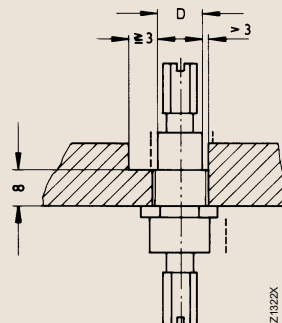


Illustration of creepage

The installation of explosionproof bushings must meet the requirement of EN 50018. A thread engagement of 5 full complete threads is required (with 1.5 mm pitch, 8 mm enclosure wall thickness).

During conductor installation the air and creepage clearances applicable to the voltage rating must be maintained. In case of excessively thick walls the clearances may be reduced (see diagram). This problem can be avoided by countersinking the wall. The bushings are screwed in from the inside of the flameproof enclosure and secured against self-loosening by backing strips of epoxy adhesive (see examples page 13/8).

To prevent damage during installation, the torque values must be observed. If necessary spacers can be used to keep the split terminals in place.





## Conductor Bushings Series 8174

- Explosion protection to
  - CENELEC
  - IEC
- Can be used in Zone 1 and Zone 2
- Current lead-in for EEx d enclosures
- Sealed to prevent propagation of flame on explosion and insulated from wall
- 1 to 21 conductors combined in one current lead-in
- Series
  - screw-in
  - plug-in
- For voltages up to max. 1000 V and currents up to max 240 A

STAHL


The conductor bushings are suitable for the passage of current into flameproof enclosures. They provide an insulated path through the enclosure wall, which is sealed to prevent the escape of flame, sparks or hot gases in case of an internal explosion. The conductors are potted with high-quality, creepage-resistant PU resin and are thus insulated from the enclosure wall.

# Zone 1 and Zone 2

Selection table


Series	Conductor size	Quantity	Rated working current at to 40 °C	Rated working voltage	Thread size	Lead length EEx d/EEEx e	Ordering code	Weight
	[mm <sup>2</sup> ]		EEx II	[V]		[mm]		[kg]

Threaded conductor bushings



8174/1 Threaded conductor bushing	0,75 mm <sup>2</sup>	6	9 A	690 V	M24 x 1,5 M33 x 1,5 M42 x 1,5	1000/1000	8174/102 – 0601	0,16
		12	12 A				8174/103 – 1201	0,30
		21	10 A				8174/104 – 2101	0,49
	1 mm <sup>2</sup>	1	12 A	1000 V	M24 x 1,5	1000/1000	8174/102 – 0112	0,16
		1,5 mm <sup>2</sup>	4	17 A	690 V	M24 x 1,5 M33 x 1,5 M33 x 1,5 M42 x 1,5	1000/1000	8174/102 – 0402
	6		20 A	8174/103 – 0602				0,24
	12		17 A	8174/103 – 1202				0,42
	21		14,5 A	8174/104 – 2102				0,70
	2,5 mm <sup>2</sup>	6	27 A	690 V	M33 x 1,5 M33 x 1,5	1000/1000	8174/103 – 0603	0,336
		12	22 A				8174/103 – 1203	0,612
	4 mm <sup>2</sup>	3	36 A	690 V	M33 x 1,5	1000/1000	8174/103 – 0304	0,261
6		36 A	8174/103 – 0604				0,462	
6 mm <sup>2</sup>	6	47 A	600 V	M42 x 1,5	1000/1000	8174/104 – 0605	1,01	
	10 mm <sup>2</sup>	3	65 A	690 V	M42 x 1,5	1000/1000	8174/104 – 0306	0,538
6		65 A	8174/104 – 0606				1,01	
16 mm <sup>2</sup>	3	87 A	690 V	M42 x 1,5 M48 x 1,5	1000/1000	8174/104 – 0307	0,826	
	6	87 A				8174/105 – 0607	1,601	
25 mm <sup>2</sup>	3	115 A	690 V	M42 x 1,5	1000/1000	8174/104 – 0308	1,222	
	35 mm <sup>2</sup>	1	154 A	690 V	M24 x 1,5 M48 x 1,5	1000/1000	8174/102 – 0109	0,544
3		143 A	8174/105 – 0309				1,602	
50 mm <sup>2</sup>	1	193 A	1000 V	M33 x 1,5	1000/1000	8174/103 – 0110	0,804	
	70 mm <sup>2</sup>	1	240 A	1000 V	M33 x 1,5	1000/1000	8174/103 – 0111	1,104

Plain conductor bushings



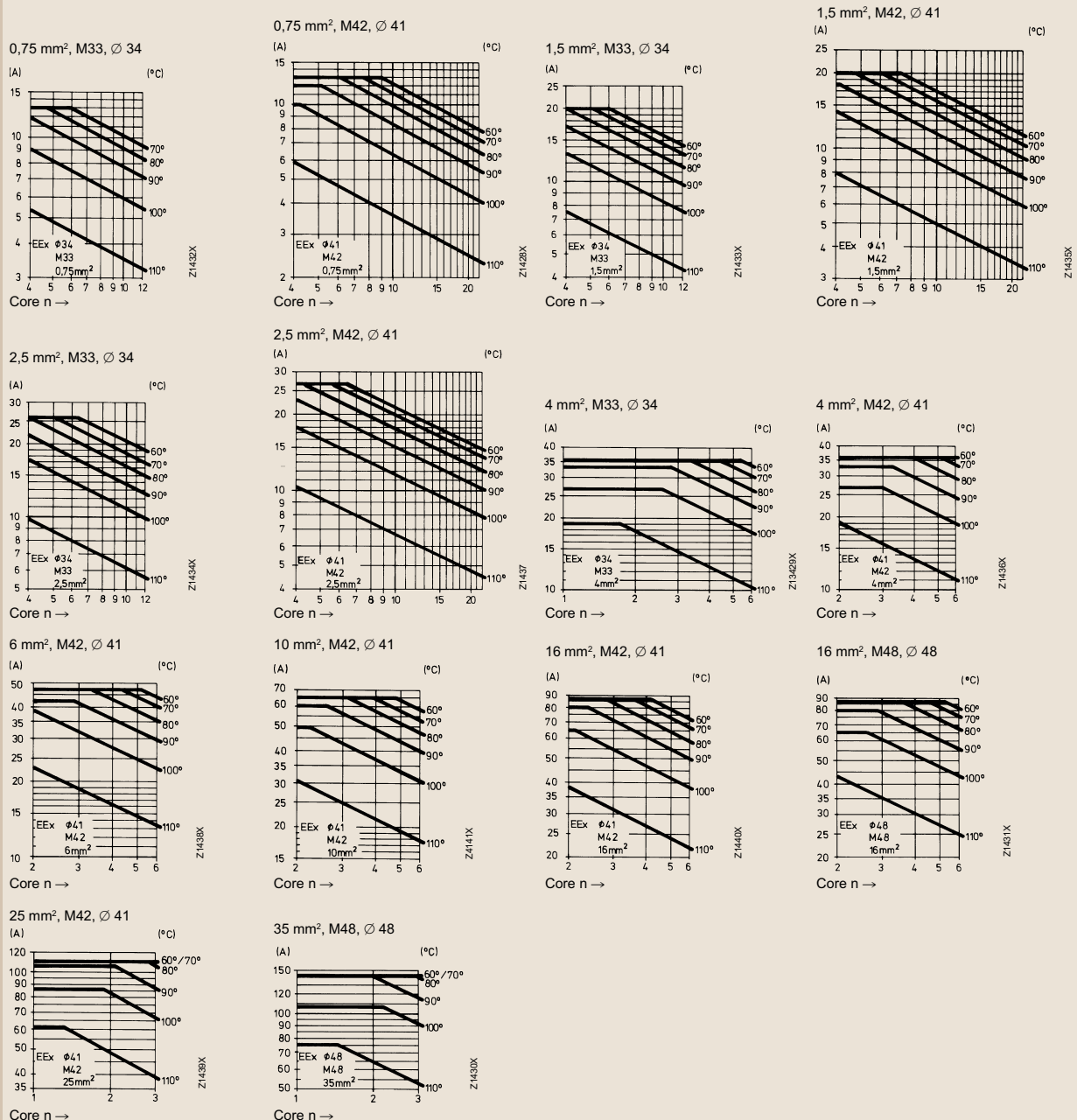
8174/2 Plain conductor bushing	0,75 mm <sup>2</sup>	12	12 A	690 V	Ø 34 mm Ø 41 mm	1000/1000	8174/203 – 1201	0,28
		21	10 A				8174/204 – 2101	0,47
	1,5 mm <sup>2</sup>	6	20 A	690 V	Ø 34 mm Ø 34 mm Ø 41 mm	1000/1000	8174/203 – 0602	0,22
		12	17 A				8174/203 – 1202	0,40
		21	14 A				8174/204 – 2102	0,68
	2,5 mm <sup>2</sup>	6	27 A	690 V	Ø 34 mm Ø 34 mm	1000/1000	8174/203 – 0603	0,316
		12	22 A				8174/203 – 1203	0,592
	4 mm <sup>2</sup>	3	36 A	690 V	Ø 34 mm	1000/1000	8174/203 – 0304	0,241
		6	36 A				8174/203 – 0604	0,442
	6 mm <sup>2</sup>	3	47 A	690 V	Ø 34 mm Ø 34 mm	1000/1000	8174/203 – 0305	0,338
		6	47 A				8174/203 – 0605	0,626
10 mm <sup>2</sup>	3	65 A	690 V	Ø 41 mm	1000/1000	8174/204 – 0306	0,518	
	6	65 A				8174/204 – 0606	0,986	
16 mm <sup>2</sup>	3	87 A	690 V	Ø 41 mm Ø 48 mm	1000/1000	8174/204 – 0307	0,806	
	6	87 A				8174/205 – 0607	1,592	
25 mm <sup>2</sup>	3	115 A	690 V	Ø 41 mm	1000/1000	8174/204 – 0308	1,202	
	35 mm <sup>2</sup>	3	143 A	690 V	Ø 48 mm	1000/1000	8174/205 – 0309	1,592



### Technical data



Explosion protection	für EEx d II
Test certificate	PTB No. Ex-88.B.1026 U other certificates: CSA (Canada), FTZU (Czech Republic), BKI (Hungary)
Material	
Thread bush	Brass
Sealing material	PU resin
Threaded liner	Brass
Rated working voltage $U_e$	690 V, UC
Rated working current $I_e$	max. 240 A, see diagrams of permissible current below
Conductor	
Series	N4GAF, flexible, extra heat resistant
Number	max. 21 cables per bushing
Length	1000 mm each side (standard length)
Size	0,75 mm <sup>2</sup> to 70 mm <sup>2</sup>
Ambient temperature	- 40 °C ... + 120 °C, other ranges on request

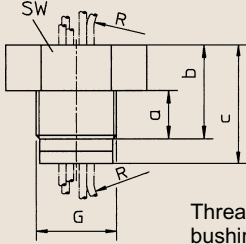
### Current load diagram (for bunched conductors of various temperatures)





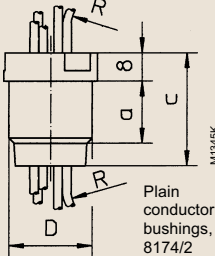
**Accessories**

Designation	Illustration	Description	Ordering code	Weight [kg]		
Threaded liner		for plain conductor bushings	Thread diameter	Thread size		
		$\leq 16 \text{ mm}^2$	34 mm	M42 x 1,5	<b>81 749 06 50 0</b>	0,130
			41 mm	M48 x 1,5	<b>81 749 07 50 0</b>	0,140
		$\geq 16 \text{ mm}^2$	48 mm	M56 x 1,5	<b>81 749 09 50 0</b>	0,155
Screw		Screw to secure conductor bushing (plain version in the threaded sleeve) M 4 x 6	<b>500 630 0</b>	–		

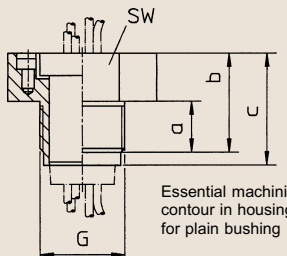


Threaded conductor bushings, 8174/10.

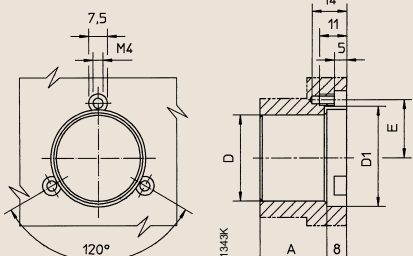
Type	Size cond. [mm <sup>2</sup> ]	G	SW	a	b	c	Size cond.	R
8174/102-...-	$\leq 10$	M24 x 1,5	27	12	19	31	0,75 - 1,5	19
	$> 10$		27	17	24	41	2,5	12
8174/103-...-	$\leq 10$	M33 x 1,5	36	12	19	31	4	15
	$> 10$		36	17	24	41	6	17
8174/104-...-	$\leq 10$	M42 x 1,5	46	12	19	31	10	21
	$> 10$		46	17	24	41	16	28
8174/105-...-	$\leq 10$	M48 x 1,5	55	12	19	31	25	36
	$> 10$		55	17	24	41	35	45



Plain conductor bushings, 8174/2



Essential machining contour in housing wall for plain bushing

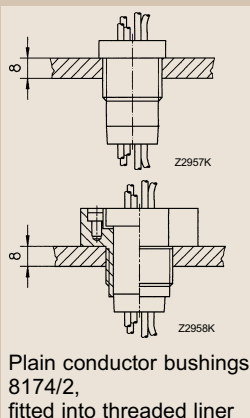


Threaded liner for plain type conductor bushing

Type	D	a	c	for Type	G	SW	a	b	c	for Type	D	D	A	E
8174/203-...	34	27	42	8174/203-...	M42 x 1,5	46	16	31	35	8174/203-...	34 <sup>H8</sup>	38,4	27	21,75 <sup>-0,2</sup>
8174/204-...	41	27	42	8174/204-... $\leq 10 \text{ mm}^2$	M48 x 1,5	55	16	31	35	8174/204-... $\leq 10 \text{ mm}^2$	41 <sup>H8</sup>	48,4	27	26,75 <sup>-0,2</sup>
8174/205-...	48	33	48	8174/205-... $\leq 16 \text{ mm}^2$	M48 x 1,5	55	16	31	35	8174/205-... $\geq 16 \text{ mm}^2$	41 <sup>H8</sup>	48,4	27	26,75 <sup>-0,2</sup>
				8174/205-...	M56 x 1,5	65	16	31	41	8174/205-...	48 <sup>H8</sup>	58,4	33	31,75 <sup>-0,2</sup>

Dim.	for size conductor mm					
[mm]	0,75...2,5	4	6/10	16	25	35
R	9	15	17/21	28	36	45



Connection of conductors on the Ex e, "increased safety" side of the bush comply with the relevant regulations.

The installation of bushings must meet requirements of EN 50018. A thread engagement of at least 5 full threads is required (with a pitch of 1,5 mm, 8 mm thickness of the enclosure wall). The conductor bushings are generally screwed in from the inside of the flameproof enclosure (inverted installation is only possible by using a special lock; upon request). The bushings must be secured against self-loosening by using backing strips or epoxy adhesives.

The plain type bushings can be inserted directly into the corresponding hole drilled in the enclosure. Flameproof sealing is established via a cylindrical gap between enclosure and bushing.

The installation is simplified by using a threaded liner, having the threaded gap on the outside and cylindrical gap on the inside. A flameproof seal is thus ensured (see illustrations 2). The threaded liner is also secured against self-loosening by using tab strips or adhesive.