



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEX PTB 06.0046** Issue No.: **0**

Status: **Current**

Date of Issue: **2006-06-30** Page **1** of **3**

Applicant: **R. STAHL Schaltgeräte GmbH**
Am Bahnhof 30
74638 Waldenburg (Württ.)
Germany

Electrical Apparatus: **Terminal box, type 8146/1...-.. and 8146/2...-..**
Optional accessory:

Type of Protection: **Increased safety "e", Flameproof enclosures "d", Intrinsic safety "i", Encapsulation "m", Protection by enclosures "tD"**

Marking: **Ex dem ia/ib [ia] IIC/IIB/IIA T6, T5 or T4**
Ex tD A21 IP66 T80 °C, T95 °C or T130 °C

*Approved for issue on behalf of the IECEx
Certification Body:*

Dr.-Ing. Uwe Klausmeyer

Position:

Head of Section "Flameproof Enclosures"

*Signature:
(for printed version)*

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

**Physikalisch-Technische
Bundesanstalt (PTB)**

Bundesallee 100
38116 Braunschweig
Germany





IECEX Certificate of Conformity

Certificate No.: **IECEX PTB 06.0046**

Date of Issue: **2006-06-30**

Issue No.: **0**

Page **2** of **3**

Manufacturer: **R. STAHL Schaltgeräte GmbH**
Am Bahnhof 30
74638 Waldenburg (Württ.)
Germany

Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacture's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2004 Edition: 4.0	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-1 : 2001 Edition: 4	Electrical apparatus for explosive gas atmospheres - Part 1: Flameproof enclosures 'd'
IEC 60079-11 : 1999 Edition: 4	Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic safety 'i'
IEC 60079-18 : 1992 Edition: 1	Electrical apparatus for explosive gas atmospheres - Part 18: Encapsulation 'm'
IEC 60079-7 : 2001 Edition: 3	Electrical apparatus for explosive gas atmospheres - Part 7: Increased safety 'e'
IEC 61241-0 : 2004 Edition: 1	Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements
IEC 61241-1 : 2004 Edition: 1	Electrical apparatus for use in the presence of combustible dust - Part 1: Protection by enclosures "tD"

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

[DE/PTB/ExTR06.0061/00](#)

Quality Assessment Report:

[DE/PTB/QAR06.0001/00](#)



IECEx Certificate of Conformity

Certificate No.: **IECEx PTB 06.0046**
 Date of Issue: **2006-06-30** Issue No.: **0**
 Page **3** of **3**

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

Description of equipment

The terminal box of types 8146/1.... and 8146/2...-.. is a polyester-resin housing designed to type of protection Increased safety "e" and Protection by enclosure "tD". It is used to house terminals for intrinsically safe and non-intrinsically safe circuits and may optionally be provided with disconnect terminals and fuses. The intrinsically safe circuits will be marked e.g. by a special colour (light-blue) or a warning label. Connection will be made by means of explosion-proof cable entries.

The empty enclosure as well as any installed and attached components have been tested and certified under a separate test certificate.

Nomenclature

Terminal box	Type	8146/abcd-ef
a	1 = Terminal box "Ex e" 2 = Terminal box "Ex i"	
b, c	Sizes (Length x Width in mm) 00 = Combination 03 = 112.5 x 112.5 04 = 170 x 112.5 24 = 227 x 112.5 05 = 170 x 170 06 = 227 x 170 07 = 340 x 170 B7 = 340 x 170 S7 = 340 x 170 08 = 340 x 340 09 = 681 x 340	
d	Sizes (Height in mm) 0 = Combination 1 = 91 2 = 131 3 = 150 4 = 171 5 = 190 6 = 230	
e, f	numerals or letters without influence to explosion-protection	

Technical data for terminal box

Rated voltage*	up to	1100 V
Rated current*	max.	500 A
Rated cross section*	max.	300 mm ²
*) depending on type of terminal and explosions-proof components used		
Ambient temperature	Depending on temperature class and sealing used	
	-20 °C to +40 °C, T6	
	-40 °C to +40 °C, T6	
	-20 °C to +55 °C, T5	
	-40 °C to +55 °C, T5	
Protection against contact, entry of solids and water according to IEC 60529	IP66	

Technical data for terminal box with bolt connection terminals

Rated voltage	up to	800 V
Rated current	max.	315 A for T6 400 A for T5
Rated short-circuit current	max.	70 kA
Rated cross section*	max.	185 mm ² , connection with cable lug

The ratings specified are maximum values, actual values will be subject to the electrical equipment used from case to case. Depending on the system conditions, the mode of operation, the utilisation category, etc., the manufacturer will define ratings which will be within the range of these limiting values and will comply with the relevant standards.

The composition of the protection symbol will be based on the types of protection of the components actually used.

Notes for installation and use

For the maximum number of conductors, which for each size of enclosure is determined by the cross section and the admissible continuous current, reference is made to the specification sheets.

Equipment of the type of protection Intrinsic Safety "i" shall be installed in such a way that the clearances and creepage distances between intrinsically safe and non-intrinsically safe circuits as set forth in IEC 60049-14 are duly accounted for.

If clearance requirements for the connectors as specified in IEC 60079-11 cannot be safe-guarded with the system installation and layout, wiring that meets the quality criteria Increased Safety "e" shall be used, or the wiring shall be of the fail-safe type.

When using more than one intrinsically safe circuit, the rules and regulations for interconnection shall duly be observed.

The line-side fuse or protective device shall be selected so as to provide for safe interruption of the max. rated current, the max. rated short-circuit current, and the max. rated short-time current (1 s).

Annex

Supplementary sheets with tables of the maximum number of conductors depending on the cable size and permitted current.

CONDITIONS OF CERTIFICATION: NO



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx PTB 06.0046 issue No.:1

Status: **Current**

Certificate history:
Issue No. 1 (2007-9-3)
Issue No. 0 (2006-6-30)

Date of Issue: **2007-09-03** Page 1 of 5

Applicant: **R. STAHL Schaltgeräte GmbH**
Am Bahnhof 30
74638 Waldenburg (Württ.)
Germany

Electrical Apparatus: **Terminal box, type 8146/1...-... and 8146/2...-...**
Optional accessory:

Type of Protection: **Increased safety "e", Flameproof enclosures "d", Intrinsic safety "i", Encapsulation "m", Protection by enclosures "tD"**

Marking: **Ex dem ia/ib [ia] IIC/IIB/IIA T6, T5 or T4
Ex tD A21 IP66 T80 °C, T95 °C or T130 °C**

Approved for issue on behalf of the IECEx
Certification Body:

Dr.-Ing. Uwe Klausmeyer

Position:

Head of Section "Flameproof Enclosures"

Signature:
(for printed version)

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38116 Braunschweig
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IECEx Certificate of Conformity

Certificate No.: IECEx PTB 06.0046

Date of Issue: 2007-09-03

Issue No.: 1

Page 2 of 5

Manufacturer: **R. STAHL Schaltgeräte GmbH**
Am Bahnhof 30
74638 Waldenburg (Württ.)
Germany

Manufacturing location(s):

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STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2004 Edition: 4.0	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-1 : 2001 Edition: 4	Electrical apparatus for explosive gas atmospheres - Part 1: Flameproof enclosures 'd'
IEC 60079-11 : 1999 Edition: 4	Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic safety 'i'
IEC 60079-18 : 1992 Edition: 1	Electrical apparatus for explosive gas atmospheres - Part 18: Encapsulation 'm'
IEC 60079-7 : 2001 Edition: 3	Electrical apparatus for explosive gas atmospheres - Part 7: Increased safety 'e'
IEC 61241-0 : 2004 Edition: 1	Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements
IEC 61241-1 : 2004 Edition: 1	Electrical apparatus for use in the presence of combustible dust - Part 1: Protection by enclosures "tD"

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

[DE/PTB/ExTR06.0061/01](#)

Quality Assessment Report:

[DE/PTB/QAR06.0001/00](#)



IECEx Certificate of Conformity

Certificate No.: IECEx PTB 06.0046

Date of Issue: 2007-09-03

Issue No.: 1

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

Description of equipment

The terminal box of types 8146/1.... and 8146/2...-.. is a polyester-resin housing designed to type of protection Increased safety "e" and Protection by enclosure "tD". It is used to house terminals for intrinsically safe and non-intrinsically safe circuits and may optionally be provided with disconnect terminals and fuses. The intrinsically safe circuits will be marked e.g. by a special colour (light-blue) or a warning label. Connection will be made by means of explosion-proof cable entries.

The empty enclosure as well as any installed and attached components have been tested and certified under a separate test certificate

Annex

Supplementary sheets with nomenclature, notes for installation and use and tables of the maximum number of conductors depending on the cable size and permitted current.

CONDITIONS OF CERTIFICATION: NO

Empty box for conditions of certification.



IECEx Certificate of Conformity

Certificate No.: IECEx PTB 06.0046

Date of Issue: 2007-09-03

Issue No.: 1

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EQUIPMENT(continued):

Technical data for terminal box

Rated voltage*	up to	1100 V
Rated current*	max.	500 A
Rated cross section*	max.	300 mm ²
*) depending on type of terminal and explosions-proof components used		
Ambient temperature	type 8146/1 -40 °C to +55 °C type 8146/2 -40 °C to +75 °C The actual ambient temperature range depends on the maximum permissible temperature range of the components used and the temperature class	
Protection against contact, entry of solids and water according to IEC 60529	IP66	

Technical data for terminal box with bolt connection terminals

Rated voltage	up to	800 V
Rated current	max.	315 A for T6400 A for T5
Rated short-circuit current	max.	70 kA
Rated cross section*	max.	185 mm ² , connection with cable lug

The ratings specified are maximum values, actual values will be subject to the electrical equipment used from case to case. Depending on the system conditions, the mode of operation, the utilisation category, etc., the manufacturer will define ratings which will be within the range of these limiting values and will comply with the relevant standards.

The composition of the protection symbol will be based on the types of protection of the components actually used.



IECEx Certificate of Conformity

Certificate No.: IECEx PTB 06.0046

Date of Issue: 2007-09-03

Issue No.: 1

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

The ambient temperature has been changed

Nomenclature

Terminal box	Type	8146/abcd-ef
a	1 = Terminal box "Ex e" 2 = Terminal box "Ex i"	
b, c	Sizes (Length x Width in mm) 00 = Combination 03 = 112.5 x 112.5 04 = 170 x 112.5 24 = 227 x 112.5 05 = 170 x 170 06 = 227 x 170 07 = 340 x 170 B7 = 340 x 170 S7 = 340 x 170 08 = 340 x 340 09 = 681 x 340	
d	Sizes (Height in mm) 0 = Combination 1 = 91 2 = 131 3 = 150 4 = 171 5 = 190 6 = 230	
e, f	numerals or letters without influence to explosion-protection	

Notes for installation and use

For the maximum number of conductors, which for each size of enclosure is determined by the cross section and the admissible continuous current, reference is made to the specification sheets.

Equipment of the type of protection Intrinsic Safety "i" shall be installed in such a way that the clearances and creepage distances between intrinsically safe and non-intrinsically safe circuits as set forth in IEC 60049-14 are duly accounted for.

If clearance requirements for the connectors as specified in IEC 60079-11 cannot be safeguarded with the system installation and layout, wiring that meets the quality criteria Increased Safety "e" shall be used, or the wiring shall be of the fail-safe type.

When using more than one intrinsically safe circuit, the rules and regulations for interconnection shall duly be observed.

The line-side fuse or protective device shall be selected so as to provide for safe interruption of the max. rated current, the max. rated short-circuit current, and the max. rated short-time current (1 s).

Supplementary sheet 1

Fitting of terminal boxes Type 8146/1031

Max. number of conductors ¹⁾ depending on cross section and the permissible continuous current:

current / A	cross section / mm ²			
	1,5	2,5	4	
3				2)
6				
10	42			
16	14	28	108	4)
20	6	16	31	
25		7	17	
35			5	
50				3)
	14	14	14	
max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals				

Notes

- 1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.
- 2) additional conductors optional
- 3) to be specified by the manufacturer (including temperature rise test)
- 4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm ²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

Supplementary sheet 2

Fitting of terminal boxes Type 8146/1041

Max. number of conductors ¹⁾ depending on cross section and the permissible continuous current:

current / A	cross section / mm ²						
	1,5	2,5	4	6	10	16	
3							2)
6							
10	44						
16	15	29	114				
20	6	17	33				
25		8	18	36			4)
35			5	14	35		
50				2	11	29	
63					3	13	
80						5	
100							3)
	28	28	28	10	10	8	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals						

Notes

- 1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.
- 2) additional conductors optional
- 3) to be specified by the manufacturer (including temperature rise test)
- 4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm ²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

Supplementary sheet 3

Fitting of terminal boxes Type 8146/1241

Max. number of conductors ¹⁾ depending on cross section and the permissible continuous current:

current / A	cross section / mm ²								
	1,5	2,5	4	6	10	16	25	35	
3									2)
6									
10	45								
16	15	29	116						
20	6	17	33						
25		8	19	36					
35			5	14	35				
50				2	11	29			
63					3	13	48		
80						5	15	54	
100							6	14	4)
125								5	
150									3)
	56	56	33	20	10	8	6	5	
max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals									

Notes

- 1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.
- 2) additional conductors optional
- 3) to be specified by the manufacturer (including temperature rise test)
- 4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm ²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

Supplementary sheet 4

Fitting of terminal boxes Type 8146/1242

Max. number of conductors ¹⁾ depending on cross section and the permissible continuous current:

current / A	cross section / mm ²								
	1,5	2,5	4	6	10	16	25	35	
3									2)
6									
10	55								
16	19	37	143						
20	8	21	41						
25		10	23	45					
35			7	17	44				
50				2	14	36			
63					4	17	60		
80						6	19	67	
100							8	17	4)
125								7	
160									3)
	56	56	33	20	10	8	6	5	
max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals									

Notes

- 1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.
- 2) additional conductors optional
- 3) to be specified by the manufacturer (including temperature rise test)
- 4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm ²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

Supplementary sheet 5

Fitting of terminal boxes Type 8146/1051

Max. number of conductors ¹⁾ depending on cross section and the permissible continuous current:

current / A	cross section / mm ²						
	1,5	2,5	4	6	10	16	
3							2)
6							
10	50						
16	17	33	129				
20	7	19	37				
25		9	21	41			
35			6	16	39		4)
50				2	13	33	
63					4	15	
80						5	
100							3)
	46	46	46	17	17	13	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals						

Notes

- 1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.
- 2) additional conductors optional
- 3) to be specified by the manufacturer (including temperature rise test)
- 4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm ²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

Supplementary sheet 6

Fitting of terminal boxes Type 8146/1052

Max. number of conductors ¹⁾ depending on cross section and the permissible continuous current:

current / A	cross section / mm ²						
	1,5	2,5	4	6	10	16	
3							2)
6							
10	61						
16	21	41	159				
20	8	24	46				
25		11	26	50			4)
35			7	19	49		
50				2	16	40	
63					5	18	
80						7	3)
100							
	46	46	46	17	17	13	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals						

Notes

- 1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.
- 2) additional conductors optional
- 3) to be specified by the manufacturer (including temperature rise test)
- 4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm ²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

Supplementary sheet 7

Fitting of terminal boxes Type 8146/1061

Max. number of conductors ¹⁾ depending on cross section and the permissible continuous current:

current / A	cross section / mm ²								
	1,5	2,5	4	6	10	16	25	35	
3									2)
6									
10	53								
16	18	35	137						
20	7	20	39						
25		9	22	43					
35			6	17	42				
50				2	13	35			
63					4	16	57		
80						6	18	64	
100							7	17	4)
125								6	3)
160									
	92	92	66	34	24	19	11	9	
max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals									

Notes

- 1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.
- 2) additional conductors optional
- 3) to be specified by the manufacturer (including temperature rise test)
- 4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm ²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

Supplementary sheet 8

Fitting of terminal boxes Type 8146/1062

Max. number of conductors ¹⁾ depending on cross section and the permissible continuous current:

current / A	cross section / mm ²								
	1,5	2,5	4	6	10	16	25	35	
3									2)
6									
10	64								
16	22	42	166						
20	9	25	48						
25		11	27	52					
35			8	20	51				
50				3	16	42			
63					5	19	69		
80						7	21	78	
100							9	20	4)
125								8	
160									3)
	92	92	66	34	24	19	11	9	
max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals									

Notes

- 1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.
- 2) additional conductors optional
- 3) to be specified by the manufacturer (including temperature rise test)
- 4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm ²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

Supplementary sheet 9

Fitting of terminal boxes Type 8146/1071 and Type 8146/1S71

Max. number of conductors ¹⁾ depending on cross section and the permissible continuous current:

current / A	cross section / mm ²								
	1,5	2,5	4	6	10	16	25	35	
3									2)
6									
10	55								
16	19	36	142						
20	7	21	41						
25		10	23	45					
35			6	17	44				
50				2	14	36			
63					4	17	60		
80						6	18	67	
100							8	17	4)
125								7	3)
160									
	138	138	104	51	38	30	22	9	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals								

Notes

- 1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.
- 2) additional conductors optional
- 3) to be specified by the manufacturer (including temperature rise test)
- 4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm ²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

Supplementary sheet 10

Fitting of terminal boxes Type 8146/1072 and Type 8146/1S72

Max. number of conductors ¹⁾ depending on cross section and the permissible continuous current:

current / A	cross section / mm ²										
	1,5	2,5	4	6	10	16	25	35	50	70	
3											2)
6											
10	66										
16	22	44	170								
20	9	25	49								
25		12	28	54							
35			8	21	52						
50				3	17	43					
63					5	20	71				
80						7	22	80			
100							9	21			
125								8	21		
160									7	19	
200										6	
225										2	
250											
	138	138	104	51	38	30	22	9	6	6	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals										

Notes

- 1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.
- 2) additional conductors optional
- 3) to be specified by the manufacturer (including temperature rise test)
- 4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm ²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

Supplementary sheet 11

Fitting of terminal boxes Type 8146/1073 and Type 8146/1S73

Max. number of conductors ¹⁾ depending on cross section and the permissible continuous current:

current / A	cross section / mm ²										
	1,5	2,5	4	6	10	16	25	35	50	70	
3											2)
6											
10	71										
16	24	47	184								
20	10	27	53								
25		13	30	58							
35			8	22	56						
50				3	18	47					
63					6	21	77				
80						8	24	86			
100							10	22			
125								9	23		
160									8	20	
200										7	
225										2	
250											
	138	138	104	51	38	30	22	9	6	6	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals										

Notes

- 1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.
- 2) additional conductors optional
- 3) to be specified by the manufacturer (including temperature rise test)
- 4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm ²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

Supplementary sheet 12

Fitting of terminal boxes Type 8146/1075 and Type 8146/1S75

Max. number of conductors ¹⁾ depending on cross section and the permissible continuous current:

current / A	cross section / mm ²											
	1,5	2,5	4	6	10	16	25	35	50	70		
3												2)
6												
10	82											
16	28	54	212									
20	11	32	61									
25		15	35	67								
35			10	26	65							
50				3	21	54						
63					7	25	89					
80						9	28	99				
100							12	26				
125								10	26			
160									9	23		
200										8	4)	
225										3		
250											3)	
	138	138	104	51	38	30	22	9	6	6		
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals											

Notes

- 1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.
- 2) additional conductors optional
- 3) to be specified by the manufacturer (including temperature rise test)
- 4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm ²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

Supplementary sheet 13

Fitting of terminal boxes Type 8146/1081

Max. number of conductors ¹⁾ depending on cross section and the permissible continuous current:

current / A	cross section / mm ²								
	1,5	2,5	4	6	10	16	25	35	
3									2)
6									
10	74								
16	25	49	192						
20	10	29	55						
25		13	31	61					
35			9	23	59				
50				3	19	49			
63					6	22	80		
80						8	25	90	
100							10	23	4)
125								9	
160									3)
	312	312	208	117	76	60	50	20	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals								

Notes

- 1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.
- 2) additional conductors optional
- 3) to be specified by the manufacturer (including temperature rise test)
- 4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm ²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

Supplementary sheet 14

Fitting of terminal boxes Type 8146/1082

Max. number of conductors ¹⁾ depending on cross section and the permissible continuous current:

current / A	cross section / mm ²											
	1,5	2,5	4	6	10	16	25	35	50	70		
3												2)
6												
10	86											
16	29	57	221									
20	12	33	64									
25		15	36	70								
35			10	27	68							
50				4	22	56						
63					7	26	93					
80						10	29	104				
100							12	27				
125									11	28		
160										9	24	
200											8	
225											3	
250												3)
	312	312	208	117	76	60	50	20	14	14		
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals											

Notes

- 1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.
- 2) additional conductors optional
- 3) to be specified by the manufacturer (including temperature rise test)
- 4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm ²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

Supplementary sheet 15

Fitting of terminal boxes Type 8146/1083

Max. number of conductors ¹⁾ depending on cross section and the permissible continuous current:

current / A	cross section / mm ²											
	1,5	2,5	4	6	10	16	25	35	50	70		
3												2)
6												
10	91											
16	31	60	235									
20	13	35	68									
25		16	38	74								
35			11	29	72							
50				4	23	60						
63					8	28	99					
80						10	31	111				
100							13	29				
125								11	29			
160									10	26		
200										9	4)	
225										3		
250											3)	
	312	312	208	117	76	60	50	20	14	14		
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals											

Notes

- 1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.
- 2) additional conductors optional
- 3) to be specified by the manufacturer (including temperature rise test)
- 4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm ²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

Supplementary sheet 16

Fitting of terminal boxes Type 8146/1084

Max. number of conductors ¹⁾ depending on cross section and the permissible continuous current:

current / A	cross section / mm ²											
	1,5	2,5	4	6	10	16	25	35	50	70		
3												2)
6												
10	97											
16	33	64	251									
20	14	37	73									
25		18	41	79								
35			12	31	77							
50				4	25	64						
63					8	29	105					
80						11	33	118				
100							14	31				
125								12	31			
160									11	27		
200										10	4)	
225										3		
250											3)	
	312	312	208	117	76	60	50	20	14	14		
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals											

Notes

- 1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.
- 2) additional conductors optional
- 3) to be specified by the manufacturer (including temperature rise test)
- 4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm ²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

Supplementary sheet 17

Fitting of terminal boxes Type 8146/1085

Max. number of conductors ¹⁾ depending on cross section and the permissible continuous current:

current / A	cross section / mm ²										
	1,5	2,5	4	6	10	16	25	35	50	70	
3											2)
6											
10	102										
16	35	68	265								
20	14	40	77								
25		19	43	84							
35			12	33	81						
50				4	26	67					
63					9	31	111				
80						12	35	124			
100							15	33			4)
125								13	33		
160									11	29	3)
200										10	
225										4	
250											
	312	312	208	117	76	60	50	20	14	14	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals										

Notes

- 1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.
- 2) additional conductors optional
- 3) to be specified by the manufacturer (including temperature rise test)
- 4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm ²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

Supplementary sheet 18

Fitting of terminal boxes Type 8146/1086

Max. number of conductors ¹⁾ depending on cross section and the permissible continuous current:

current / A	cross section / mm ²											
	1,5	2,5	4	6	10	16	25	35	50	70		
3												2)
6												
10	114											
16	39	76	294									
20	16	44	85									
25		21	48	93								
35			14	36	90							
50				5	29	75						
63					10	35	123					
80						13	38	138				
100							16	36				
125								14	37			
160									12	32		
200										11	4)	
225										4		
250											3)	
	312	312	208	117	76	60	50	20	14	14		
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals											

Notes

- 1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.
- 2) additional conductors optional
- 3) to be specified by the manufacturer (including temperature rise test)
- 4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm ²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

Supplementary sheet 19

Fitting of terminal boxes Type 8146/1091

Max. number of conductors ¹⁾ depending on cross section and the permissible continuous current:

current / A	cross section / mm ²								
	1,5	2,5	4	6	10	16	25	35	
3									2)
6									
10	86								
16	29	57	222						
20	12	33	64						
25		16	36	70					
35			10	27	68				
50				4	22	56			
63					7	26	93		
80						10	29	104	
100							12	27	4)
125								11	3)
160									
	676	676	468	273	190	128	106	60	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals								

Notes

- 1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.
- 2) additional conductors optional
- 3) to be specified by the manufacturer (including temperature rise test)
- 4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm ²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

Supplementary sheet 20

Fitting of terminal boxes Type 8146/1092

Max. number of conductors ¹⁾ depending on cross section and the permissible continuous current:

current A	cross section / mm ²																
	1,5	2,5	4	6	10	16	25	35	50	70	95	120	150	185	240	300	
3																	
6																	
10	97																
16	33	64	250														
20	13	37	72														
25		18	41	79													
35			12	31	77												
50				4	25	63											
63					8	29	105										
80						11	33	117									
100							14	31									
125								12	31								
160									10	27							
200										10	24	74					
225										3	13	29					
250											7	17	36				
315												3	10	22			
400														4	15	44	4)
500															2	8	
																	3)
	676	676	468	273	190	128	106	60	29	29	8	8	6	6	6	6	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals																

Notes

- 1) Each incoming conductor and each internal connection wire is counted as a conductor. Bridges and earthing conductors are not counted.
- 2) additional conductors optional
- 3) to be specified by the manufacturer (including temperature rise test)
- 4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm ²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

Supplementary sheet 21

Fitting of terminal boxes Type 8146/1093

Max. number of conductors ¹⁾ depending on cross section and the permissible continuous current:

current A	cross section / mm ²																
	1,5	2,5	4	6	10	16	25	35	50	70	95	120	150	185	240	300	
3																	
6																	
10	102																
16	35	68	263														
20	14	39	76														
25		18	43	83													
35			12	32	81												
50				4	26	67											
63					9	31	110										
80						12	34	123									
100							15	32									
125								13	33								
160									11	29							
200										10	25	78					
225										4	14	30					
250											7	18	38				
315												4	11	23			
400														5	16	46	4)
500															2	9	
																	3)
	676	676	468	273	190	128	106	60	29	29	8	8	6	6	6	6	
	max. number of terminals depending of the above mentioned enclosure size and the cross section resp. max. permissible conductor cross section of the built-in terminals																

Notes

- 1) Each incoming conductor and each internal connection wire is counted as a conductor.
Bridges and earthing conductors are not counted.
- 2) additional conductors optional
- 3) to be specified by the manufacturer (including temperature rise test)
- 4) When applying the values of this table simultaneous factors or load factors to IEC 439 may be considered. Mixed equipment with circuits of different cross sections and currents is possible if the various values of the table are applied proportionally:

Example: (general)	cross section / mm ²	current / A	number of conductors	utilization
	2,5	16	10 (of 30)	= 33 %
	16	50	12 (of 48)	= 25 %
	25	63	36 (of 90)	= 40 %
			total	= 98 % < 100 %

