

# Operating Instructions

## Empty enclosures



Design

Series

KEL 94xx



## Use

The empty enclosures made of stainless steel are designed for installation of Ex components and terminals.

## Purpose of these Instructions

When work is done in areas where there is risk of explosion, the safety of persons and equipment depends on adherence to the relevant safety regulations. Installation and maintenance personnel working on this equipment have a serious responsibility, and they need to have detailed knowledge of the applicable regulations and requirements. These instructions present a brief summary of the most important safety guidelines. It is intended as an enhancement to the appropriate regulations which the persons responsible must comply with.



## Safety information

The empty enclosure must only be used for the approved purpose. Inappropriate or unauthorised use or failure to comply with the information contained in these instructions voids any warranty on our part. Modifications or changes to the empty enclosure which impair explosion protection are not allowed. The empty enclosure must be clean and undamaged when it is installed.

You must adhere to the following when you use the enclosure :

- + national safety regulations
- + national workplace health and safety regulations
- + national installation and set-up regulations
- + generally accepted engineering standards
- + the safety information contained in these operating instructions
- + the data and rated operating conditions on the name plate and rating plate
- + the EU prototype testing certificate

## Conformance to standards

The empty enclosures conform to the following standards and regulations:

EN 50014, EN 50019

Series KEL 94xx empty enclosures are suitable for use in explosion hazard areas. The empty enclosures conform to the requirements for "e" enhanced ignition safety for a Group II EX component.

## Technical data

Explosion protection  0102 II 2 G EEx e II

Component certificate PTB 02 ATEX 1082U

**Important: After having been equipped with components, empty enclosures with component certificate still require overall approval (prototype test certificate).**

Material: **corrosion protected material**

KEL/KE 94xx-00 = 1.4301 / 304  
KEL/KE 94xx-30 = 1.4401 / (316)  
KEL/KE 94xx-40 = 1.4571  
KEL/KE 94xx-26 = 1.4404 / (316L)

Protection category IP 66 per EN 60 529/10.91



**We will gladly provide test certificates on request.**

## Cable and wire entries (KEL)

Cable and wire entries as well as sealing plugs made of metal or cold impact resistant plastic can be used. All cable and wire entries must have a separate EU prototype test certificate, for example:

PTB 00 ATEX 3119X	manufactured by Stahl
PTB 02 ATEX 1066U	manufactured by Stahl
PTB 99 ATEX 3121 (flared)	manufactured by CEAG
PTB 98 ATEX 3109 (metal)	manufactured by Pflitsch

The maximum number of entries listed in the table for each side of the enclosure has been defined to avoid weakening of the side panels or degrading the stability of the enclosure. Metric cable glands can be used as well as PG sizes. All cable and wire entries must be installed using a metal counternut. The number of possible standard cable glands decreases if strain relief or cable guards are used. A mixture of cable and wire entries can be used. Zones for intrinsically safe circuits must be marked.

Unused openings for cable and wire entries must be closed with plastic or metal plugs that have a separate EU prototype test certificate, for example: PTB 99 ATEX 3133 type 8290 manufactured by Stahl.



**On new designs, use cable and wire entries with metric threads only**

**Max. number of cable entries (KEL)**

The maximum number of cable/wire entries on the respective enclosure is as follows:

Size / Side	KEL 9401				KEL 9402				KEL 9403			
	A	B	C	D	A	B	C	D	A	B	C	D
PG 7	60	54	40	40	60	55	80	80	128	122	128	128
PG 9	44	40	28	28	44	41	60	60	105	101	105	105
PG 11	40	36	24	24	40	36	52	52	78	74	78	78
PG 13.5	36	32	24	24	36	32	48	48	72	67	72	72
PG 16	24	21	15	15	24	21	30	30	50	47	50	50
PG 21	12	10	8	8	12	10	16	16	32	30	32	32
PG 29	10	8	6	6	10	8	12	12	18	15	18	18
PG 36	8	7	6	6	8	6	10	10	10	8	10	10
PG 42	-	-	-	-	4	3	5	5	10	8	10	10
PG 48	-	-	-	-	3	2	4	4	8	7	8	8
M 12	60	54	40	40	60	54	80	80	128	122	128	128
M 16	44	40	28	28	44	41	60	60	105	101	105	105
M 20	36	32	24	24	36	32	48	48	72	67	72	72
M 25	23	20	14	14	24	21	30	30	48	46	48	48
M 32	11	10	7	7	12	10	16	16	30	28	30	30
M 40	10	8	6	6	10	8	12	12	18	15	18	18
M 50	8	7	6	6	8	6	9	9	10	8	10	10
M 63	-	-	-	-	3	2	4	4	8	7	8	8

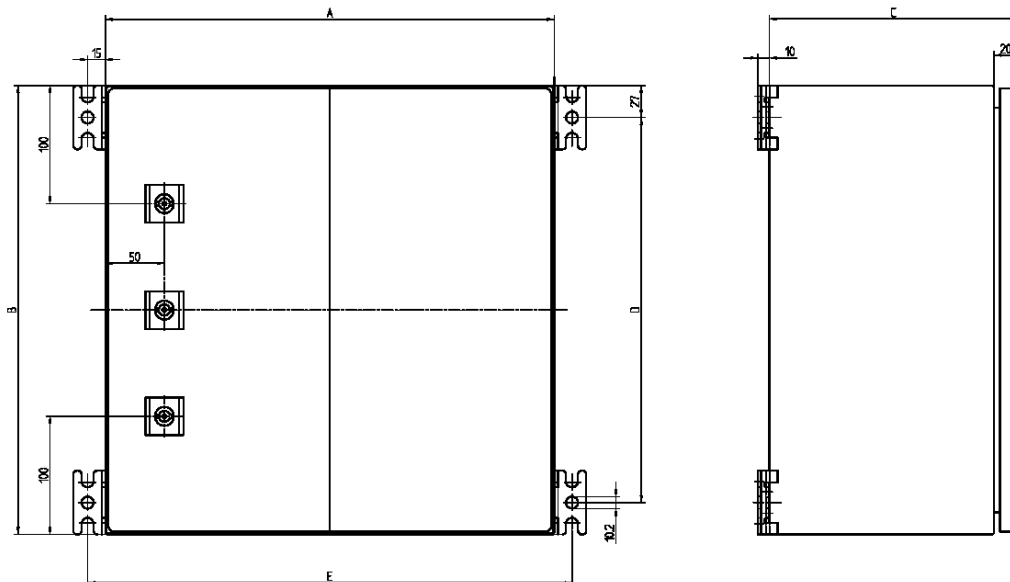
Size / Side	KEL 9404				KEL 9405				KEL 9406			
	A	B	C	D	A	B	C	D	A	B	C	D
PG 7	216	208	128	128	216	208	128	128	272	264	216	216
PG 9	168	163	105	105	168	163	168	168	217	212	168	168
PG 11	126	120	78	78	126	120	126	126	162	156	126	126
PG 13.5	114	108	72	72	114	108	114	114	150	144	114	114
PG 16	85	82	50	50	85	82	85	85	110	107	85	85
PG 21	52	50	32	32	52	50	52	52	68	66	52	52
PG 29	30	28	18	18	30	28	30	30	39	37	30	30
PG 36	18	16	10	10	18	16	18	18	22	20	18	18
PG 42	16	14	10	10	16	14	16	16	22	20	16	16
PG 48	14	12	8	8	14	12	14	14	18	16	14	14
M 12	216	208	128	128	216	208	216	216	272	264	216	216
M 16	161	156	98	98	161	155	161	161	210	205	161	161
M 20	114	108	72	72	114	108	114	114	150	144	114	114
M 25	80	77	50	50	80	77	80	80	100	97	80	80
M 32	48	46	32	32	48	46	48	48	64	62	48	48
M 40	30	28	18	18	30	28	30	30	39	37	30	30
M 50	16	14	10	10	16	14	16	16	22	20	16	16
M 63	14	12	8	8	14	12	14	14	18	16	14	14

Size / Side	KEL 9407				KEL 9408				KEL 9409			
	A	B	C	D	A	B	C	D	A	B	C	D
PG 7	408	402	408	408	552	544	432	432	128	124	96	96
PG 9	341	335	341	341	451	445	352	352	105	102	77	77
PG 11	243	238	243	243	324	320	252	252	78	74	60	60
PG 13.5	225	219	225	225	297	292	234	234	72	68	54	54
PG 16	176	171	176	176	232	227	184	184	50	48	40	40
PG 21	102	99	102	102	132	130	108	108	32	30	24	24
PG 29	78	75	78	78	85	83	70	70	18	17	15	15
PG 36	44	42	44	44	60	58	48	48	10	9	8	8
PG 42	30	28	30	30	42	40	33	33	10	8	8	8
PG 48	27	25	27	27	36	35	30	30	8	8	6	6
M 12	408	402	408	408	552	544	432	432	128	124	96	96
M 16	330	324	330	330	429	423	341	341	102	99	77	77
M 20	225	219	225	225	324	320	252	252	72	68	54	54
M 25	156	151	156	156	189	189	154	154	50	48	40	40
M 32	94	91	94	94	126	124	108	108	32	30	24	24
M 40	76	73	76	76	83	81	68	68	18	17	15	15
M 50	44	42	44	44	56	54	44	44	10	9	8	8
M 63	27	25	27	27	35	34	27	27	8	7	6	6

Max. number of cable glands at 2 mm width across corners.

**Installation**

Dimension sketch





The information contained in the operating instructions provided by the manufacturers of cable and wire entries must be observed!

#### Enclosure dimensions (mm)

Side	KEL								
	9401	9402	9403	9404	9405	9406	9407	9408	9409
A	200	380	380	380	600	600	760	800	300
B	300	300	380	600	600	760	760	1000	380
C	155	155	210	210	210	210	300	300	190
D	242	242	322	542	542	702	702	942	322
E	170	350	350	350	570	570	730	770	270
Number of cam locks	1	1	1	2	2	2	2	2	1

When you mount cable and wire entries, you must ensure that the defined protection category for the enclosure is maintained. Use appropriate tools and wrenches to fasten cable and wire entries. Use only the double-bit key provided to operate the door lock. The KEL 94xx enclosure closes in the anticlockwise direction. M8 screws are recommended for mounting the enclosure on a wall. You can also use DIN 96 screws. You must use appropriate locking hardware such as split washers or tooth lock washers. If the enclosure is exposed to the elements or mounted outside, we recommend that you install a protective cover or panel. The original packaging must be used when the enclosure is transported or stored.

#### Initial start-up procedure

Before you apply power for the first time, you must check the following items:

- + the enclosure must be properly installed
- + the enclosure must not be damaged; this applies in particular to the seals
- + there must be no foreign objects inside the enclosure and the wiring space must be clean
- + mounting and device screws must be securely fastened
- + cable and wire entries must be securely fastened
- + all cables and wires must be installed in the leadthroughs as required for the protection category
- + unused cable and wire entries must be closed with certified plugs
- + unused holes must be sealed with certified plugs
- + the outer protective earth connection must be properly installed near the enclosure

#### Repair and maintenance

Only authorised personnel with the appropriate training may carry out repair and maintenance work on the enclosures listed above.

The enclosures should be checked for seal damage during maintenance and inspection.



Applicable national regulations must be observed during operation of the enclosures listed above.

#### Accessories and spare parts



Only original accessories and spare parts from Rittal GmbH & Co. KG may be used.

#### Disposal

Please observe your national disposal regulations.