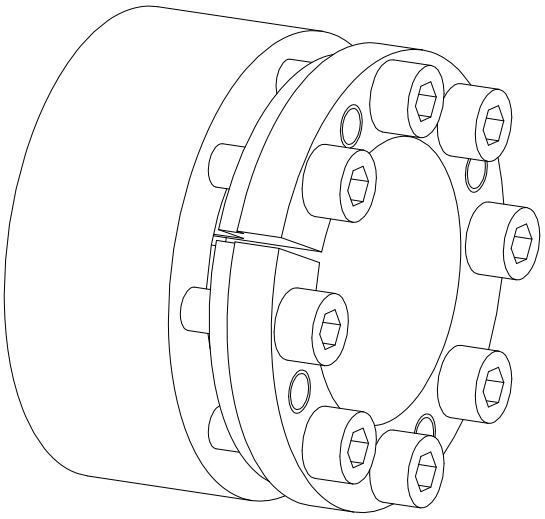
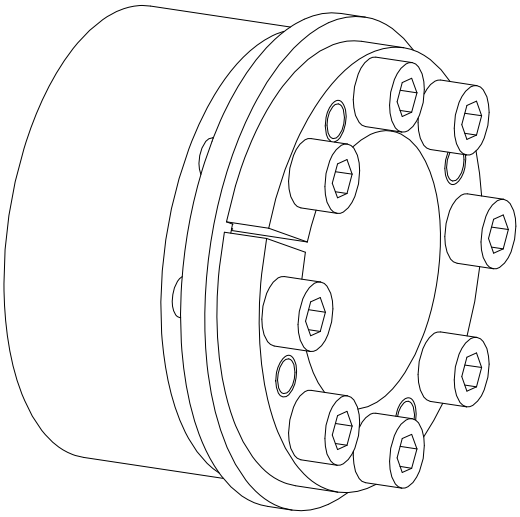
CLAMPEX® KTR 200



CLAMPEX® KTR 201



The **CLAMPEX®** clamping set is a frictionally engaged, detachable shaft-hub-connection for cylindrical shafts and bores without feather key.

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1 Technical Data

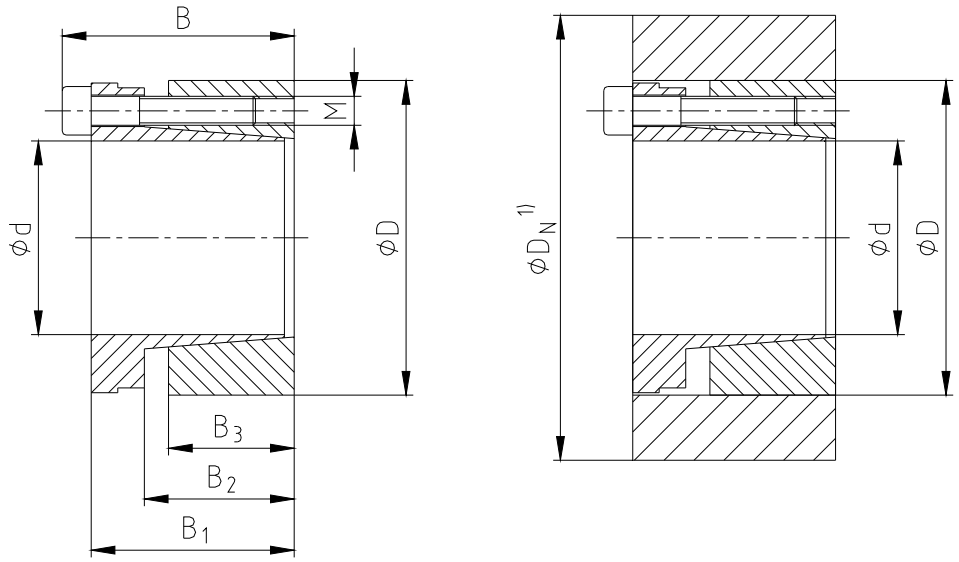

Illustration 1: CLAMPEX® KTR 200

1) Dimension D_N: for hub calculation see company catalogue

2) These are the maximum screw tightening torques. They can be reduced to max. 40 % of the aforementioned figures with T, F_{ax}, P_W and P_N being reduced proportionally.

Table 1: CLAMPEX® KTR 200

Dimensions [mm]						Clamping screws DIN EN 4762 – 12.9 μ_{total} = 0,14			Transmittable torque or axial force		Surface pressure between clamping set [N/mm²]		Weight ~ kg
d x D	B	B_1	B_2	B_3	D_1	M	z No.	T_A 2) [Nm]	T [Nm]	F_{ax} [kN]	Shaft P_W	Hub P_N	
20 x 47	48	42	31	26	53	M6	6	17	513	51	291	124	0,41
22 x 47	48	42	31	26	53	M6	6	17	564	51	264	124	0,38
24 x 50	48	42	31	26	56	M6	6	17	616	51	242	116	0,42
25 x 50	48	42	31	26	56	M6	6	17	641	51	233	116	0,41
28 x 55	48	42	31	26	61	M6	6	17	718	51	208	106	0,50
30 x 55	48	42	31	26	61	M6	6	17	769	51	194	106	0,47
32 x 60	48	42	31	26	66	M6	8	17	1094	68	242	129	0,56
35 x 60	48	42	31	26	66	M6	8	17	1197	68	222	129	0,53
38 x 65	48	42	31	26	71	M6	8	17	1299	68	204	119	0,62
40 x 65	48	42	31	26	71	M6	8	17	1368	68	194	119	0,57
42 x 75	59	51	35	30	81	M8	6	41	1990	95	222	124	1,01
45 x 75	59	51	35	30	81	M8	6	41	2132	95	207	124	0,98
48 x 80	59	51	35	30	86	M8	8	41	3033	126	259	155	1,09
50 x 80	59	51	35	30	86	M8	8	41	3159	126	248	155	1,07
55 x 85	59	51	35	30	91	M8	8	41	3475	126	226	146	1,15
60 x 90	59	51	35	30	96	M8	8	41	3791	126	207	138	1,23
65 x 95	59	51	35	30	101	M8	8	41	4107	126	191	131	1,32
70 x 110	70	60	45	40	119	M10	8	83	7023	201	211	134	2,18
75 x 115	70	60	45	40	124	M10	8	83	7524	201	197	129	2,30
80 x 120	70	60	45	40	129	M10	8	83	8026	201	185	123	2,44
85 x 125	70	60	45	40	134	M10	10	83	10659	251	217	148	2,55
90 x 130	70	60	45	40	139	M10	10	83	11286	251	205	142	2,67
95 x 135	66	60	45	40	144	M10	10	83	11373	239	186	131	2,80
100 x 145	80	68	52	45	155	M12	8	145	14607	292	191	132	3,90
110 x 155	80	68	52	45	165	M12	8	145	16068	292	174	123	4,20
120 x 165	80	68	52	45	175	M12	10	145	21910	365	199	145	4,50
130 x 180	80	68	52	45	188	M12	12	145	28483	438	221	159	5,50
140 x 190	90	76	58	50	199	M14	10	210	32023	457	193	142	6,60
150 x 200	90	76	58	50	209	M14	12	210	41173	549	216	162	6,90
160 x 210	90	76	58	50	219	M14	12	210	43918	549	202	154	7,40
170 x 225	90	76	58	50	234	M14	14	210	54440	640	222	168	8,60
180 x 235	90	76	58	50	244	M14	14	210	57642	640	210	161	9,10

1 Technical Data

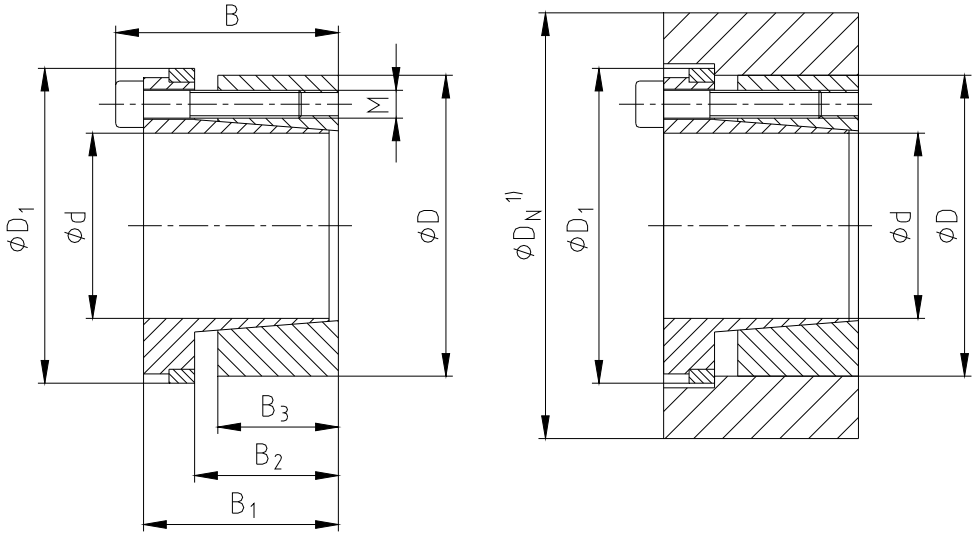

Illustration 2: CLAMPEX® KTR 201

1) Dimension D_N: for hub calculation see company catalogue

2) These are the maximum screw tightening torques. They can be reduced to max. 40 % of the aforementioned figures with T, F_{ax}, P_W and P_N being reduced proportionally.

Table 2: CLAMPEX® KTR 201

Dimensions [mm]						Clamping screws DIN EN 4762 – 12.9 μ_{total} = 0,14			Transmittable torque or axial force		Surface pressure between clamping set [N/mm²]		Weight ~ kg
d x D	B	B_1	B_2	B_3	D_1	M	z No.	T_A 2) [Nm]	T [Nm]	F_{ax} [kN]	Shaft P_W	Hub P_N	
20 x 47	48	42	31	26	53	M6	6	17	332	33	178	76	0,42
22 x 47	48	42	31	26	53	M6	6	17	366	33	162	76	0,39
24 x 50	48	42	31	26	56	M6	6	17	399	33	149	71	0,43
25 x 50	48	42	31	26	56	M6	6	17	415	33	143	71	0,42
28 x 55	48	42	31	26	61	M6	6	17	465	33	127	65	0,51
30 x 55	48	42	31	26	61	M6	6	17	499	33	119	65	0,48
32 x 60	48	42	31	26	66	M6	8	17	709	44	149	79	0,57
35 x 60	48	42	31	26	66	M6	8	17	776	44	136	79	0,54
38 x 65	48	42	31	26	71	M6	8	17	842	44	125	73	0,63
40 x 65	48	42	31	26	71	M6	8	17	886	44	119	73	0,58
42 x 75	59	51	35	30	81	M8	6	41	1290	61	136	76	1,02
45 x 75	59	51	35	30	81	M8	6	41	1382	61	127	76	0,99
48 x 80	59	51	35	30	86	M8	8	41	1965	82	159	95	1,10
50 x 80	59	51	35	30	86	M8	8	41	2047	82	152	95	1,08
55 x 85	59	51	35	30	91	M8	8	41	2252	82	139	90	1,16
60 x 90	59	51	35	30	96	M8	8	41	2456	82	127	85	1,24
65 x 95	59	51	35	30	101	M8	8	41	2661	82	117	80	1,33
70 x 110	70	60	45	40	119	M10	8	83	4550	130	130	83	2,29
75 x 115	70	60	45	40	124	M10	8	83	4875	130	121	79	2,41
80 x 120	70	60	45	40	129	M10	8	83	5200	130	113	76	2,56
85 x 125	70	60	45	40	134	M10	10	83	6907	163	133	91	2,67
90 x 130	70	60	45	40	139	M10	10	83	7313	163	126	87	2,80
95 x 135	66	60	45	40	144	M10	10	83	7501	158	116	82	2,93
100 x 145	80	68	52	45	155	M12	8	145	9465	189	117	81	4,10
110 x 155	80	68	52	45	165	M12	8	145	10411	189	107	76	4,40
120 x 165	80	68	52	45	175	M12	10	145	14197	237	122	89	4,72
130 x 180	80	68	52	45	188	M12	12	145	18456	284	136	98	5,74
140 x 190	90	76	58	50	199	M14	10	230	22726	325	130	95	6,92
150 x 200	90	76	58	50	209	M14	12	230	29219	390	145	109	7,24
160 x 210	90	76	58	50	219	M14	12	230	31167	390	136	104	7,76
170 x 225	90	76	58	50	234	M14	14	230	38634	455	149	113	8,98
180 x 235	90	76	58	50	244	M14	14	230	40907	455	141	108	9,50

2 Hints

2.1 General Hints

Please read through these mounting instructions carefully before assembling the clamping set.
Please pay special attention to the safety instructions!
The mounting instructions are part of your product. Please keep them carefully and close to the clamping set.

2.2 Safety and Advice Hints

	**D A N G E R !**	**Danger of injury to persons.**
	**C A U T I O N !**	**Damages on the machine possible.**
	**A T T E N T I O N !**	**Pointing to important items.**
	**P R E C A U T I O N !**	**Hints concerning explosion protection.**

2.3 General Hints to Danger

D A N G E R !
With assembly and disassembly of the clamping set it has to be made sure that the entire drive train is protected against unintentional engagement. You can be seriously hurt by rotating parts. Please make absolutely sure to read through and observe the following safety instructions.

- All operations on and with the clamping set have to be performed taking into account "safety first".
- Please make sure to disengage the power pack before you perform your work at the clamping set.
- Protect the power pack against unintentional engagement, e. g. by providing hints at the place of engagement or removing the fuse for current supply.
- Do not touch the operation area of the machine as long as it is in operation.
- Please protect the rotating drive parts against unintentional touch. Please provide for the necessary protection devices and caps.

2.4 Proper Use

You may only assemble and disassemble the clamping set if you

- have carefully read through the mounting instructions and understood them
- had technical training
- are authorized to do so by your company

The clamping set may only be used in accordance with the technical data (see table 1 or 2). Unauthorized modifications on the clamping set are not admissible. We do not take any warranty for resulting damages.
To further develop the product we reserve the right for technical modifications.
The clamping set described in here corresponds to the technical status at the time of printing of these mounting instructions.

3 Storage

The clamping set is supplied in preserved condition and can be stored at a dry and roofed place for 6 - 9 months.

C A U T I O N !
Humid storage rooms are not suitable.
Please make sure that there is no condensation.

4 Assembly

The clamping set is generally delivered in assembled condition.

Tolerances, surfaces

A good rotating process is sufficient:
Rz ≤ 16µm

Highest permissible tolerance:
d = h8/H8 - shaft/hub

4.1 Components of CLAMPEX® Clamping Set KTR 200 / KTR 201

Component	Quantity	Designation
1	1	External ring (slotted)
2	1	Internal ring (slotted)
3	1	Axial ring
4	see table 1 and 2	Cap screw DIN EN ISO 4762

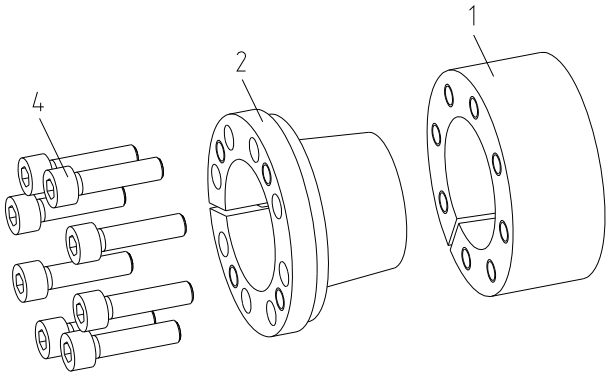

Illustration 3: CLAMPEX® KTR 200

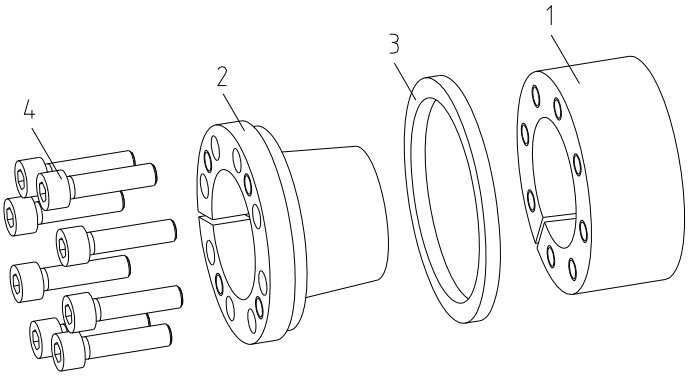

Illustration 4: CLAMPEX® KTR 201

C A U T I O N !
When assembling the internal ring (component 2) to the external ring (component 1) we recommend to arrange the slots offset in order to avoid potential vibrations or imbalances, respectively. Moreover, no pull-off thread of the internal ring (component 2) must be congruent with the slot of the external ring (component 1).

A T T E N T I O N !
Dirty or used clamping sets must be disassembled before the installation in order to be cleaned. Afterwards a thin fluid oil has to be lightly applied (e. g. Castrol 4 in 1 or Klüber Quitsch Ex).

4 Assembly

4.2 Assembly of the Clamping Set

- Check the shaft and hub position regarding the permitted tolerance (h8/H8).
- Clean the contact surfaces of the clamping set as well as the shaft and hub (see illustration 5) and afterwards apply a thin fluid oil lightly (e. g. Castrol 4 in 1 or Klüber Quitsch-Ex).

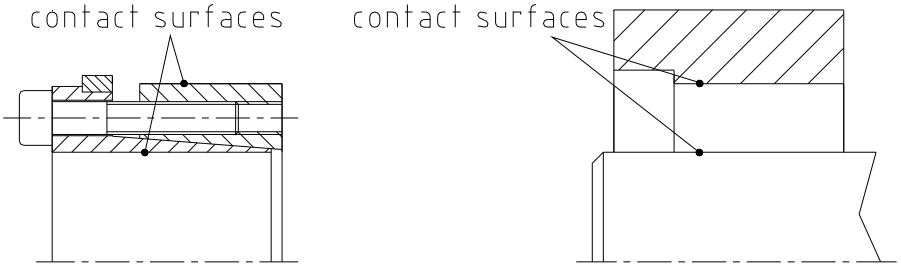

Illustration 5: cleaning of the contact surfaces (example: CLAMPEX® KTR 201)

C A U T I O N !
Oils and greases with molybdenum sulfide or high-pressure additives, additives of teflon and silicone as well as slide grease pastes must not be used which would considerably reduce the coefficient of friction. An oil-free assembly of the clamping set taper would result in tabular values and characteristic strengths other than the given values.

- Lightly unscrew the clamping screws. To facilitate the assembly, fix the internal and external ring via the pull-off threads by means of 2-off clamping screws (see illustration 6). Insert the clamping set KTR 200 / KTR 201 between shaft and hub.

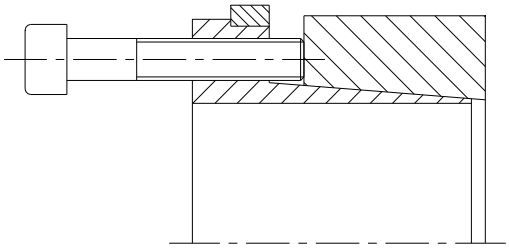

Illustration 6: Fixing the clamping set (example: CLAMPEX® KTR 201)

- Remove the clamping screws used for fixing and screw in the threads of the external ring again.
- Slightly tighten the clamping screws manually and align the clamping set with hub part.
- Regarding KTR 201 please make sure that the axial supporting ring (component 3) fits closely and evenly.
- Tighten the clamping screws stepwise and with several revolutions evenly crosswise to the tightening torque mentioned in table 1, 2 or 3, respectively. Repeat this process until a ¼ revolution of the screws is no longer possible. Afterwards tighten the clamping screws one after another at the tightening torque mentioned over one revolution.

Table 3:

Type of clamping set	200 / 201	200 / 201	200 / 201	200 / 201	200	201
Screw size M	M6	M8	M10	M12	M14	M14
Tightening torque T_A [Nm]	17	41	83	145	210	230

A T T E N T I O N !
During the assembly of the KTR 200 an axial displacement of the hub is effected.

4 Assembly

4.3 Disassembly of the Clamping Set

D A N G E R !
Loosened or falling drive parts can cause injuries to persons or damages to the machines. Secure the drive parts before the disassembly.

- Release all clamping screws evenly one after the other and unscrew them.
- Screw the clamping screws into the threads of the internal ring (component 2) (see illustration 7 and 8).
- Tighten the clamping screws evenly at ¼ revolution crosswise. Increase the compression torque stepwise until external ring (component 1) and internal ring (component 2) are separated.
- Remove the unscrewed clamping set between shaft and hub.

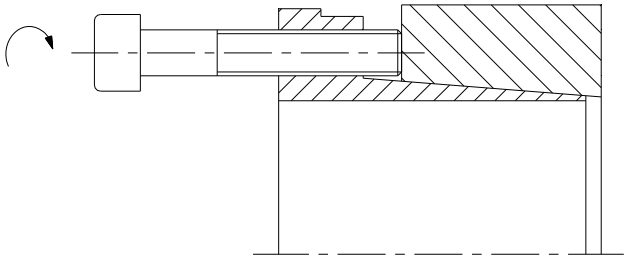

Illustration 7: unscrew the clamping set KTR 200

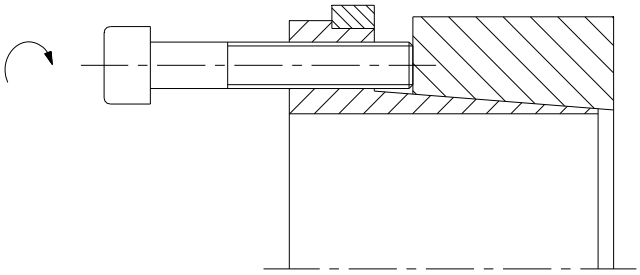

Illustration 8: unscrew the clamping set KTR 201

C A U T I O N !
In case of non-observance of these hints or in case of non-considerance of the operating conditions regarding the selection of the clamping set, the operation of the clamping set may be influenced.

Disposal of waste: ***Defective clamping sets must be cleaned and scrapped.***

4.4 Spares Inventory, Customer Service Addresses

A stock of clamping sets at the site of application is a basic condition to ensure the operational readiness of the drive components.

Contact addresses of the KTR partners for spare parts and orders can be obtained from the KTR homepage under www.ktr.com.

5 Remark for the Use in Explosive Applications According to ATEX 95

For the use in explosive applications the type and size of clamping set (applying for category 3 only) has to be selected in a way that starting from the peak torque of the machine including all operating parameters to the rated torque of the clamping set there is a service factor of at least s = 2.

CLAMPEX® clamping sets are not part of the standard 94/9/EG, since

- this product is a torsionally rigid, backlash-free, frictionally engaged connection with one or more taper clamping ring(s) by means of several screws.
  (Clamping screws have to be secured, e. g. by means of a medium strength adhesive).
- due to the design of clamping sets a fracture/failure does not have to be expected (frictional heat is only caused by improper assembly/tightening torques, i. e. not in case of proper use).