

 <b>KTR Kupplungstechnik GmbH</b> D-48407 Rheine	<b>CLAMPEX®</b> <b>KTR 203 / KTR 206</b> <b>mounting instructions</b>	<b>KTR-N 40814 EN</b> sheet: 1 of 6 edition: 5
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The **CLAMPEX®** clamping set is a frictionally engaged, detachable shaft - hub connection for cylindrical shafts and bores without feather key.

### 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.  
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### Safety and Advice Hints



**DANGER!** Danger of injury to persons.



**CAUTION!** Damages on the machine possible.



**ATTENTION!** Pointing to important items.



**PRECAUTION!** Hints concerning explosion protection.

### General Hints to Danger



**DANGER!**  
**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.

### Proper Use

You may only assemble and disassemble the clamping set if you

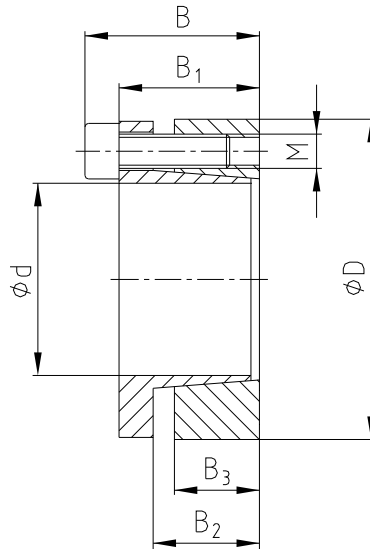
- carefully read through the mounting instructions and understood them
- had technical training
- are authorized to do so by your company

The clamping set may only be used in accordance with the technical data (see table 1 and 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 **CLAMPEX®** clamping set described in here corresponds to the technical status at the time of printing of these mounting instructions.

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**Technical Data – KTR 203**



picture 3: CLAMPEX® KTR 203

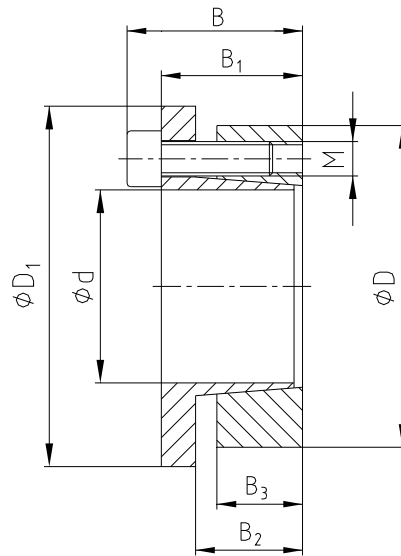
1) These are the maximum screw tightening torques. They can be reduced to max. 40 % of the aforementioned figures with T, F<sub>ax</sub> and P<sub>w</sub>, P<sub>N</sub> being reduced proportionally.

**Table 1:**

Dimensions [mm]					Clamping screws DIN EN ISO 4762 – 12.9 $\mu_{total} = 0,14$			Transmittable torque or axial force		Surface pressure between clamping set [N/mm <sup>2</sup> ]		weight ~ kg
d x D	B	B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>	M	z No.	T <sub>A</sub> <sup>1)</sup> [Nm]	T [Nm]	F <sub>ax</sub> [kN]	shaft P <sub>w</sub>	hub P <sub>N</sub>	
20 x 47	34	28	22	17	M6	6	14	428	43	334	142	0,25
22 x 47	34	28	22	17	M6	6	14	471	43	304	142	0,23
24 x 50	34	28	22	17	M6	6	14	514	43	278	134	0,26
25 x 50	34	28	22	17	M6	6	14	535	43	267	134	0,25
28 x 55	34	28	22	17	M6	6	14	599	43	239	121	0,31
30 x 55	34	28	22	17	M6	6	14	642	43	223	121	0,29
32 x 60	34	28	22	17	M6	8	14	913	57	278	148	0,34
35 x 60	34	28	22	17	M6	8	14	999	57	254	148	0,33
38 x 65	34	28	22	17	M6	8	14	1084	57	234	137	0,38
40 x 65	34	28	22	17	M6	8	14	1141	57	223	137	0,34
42 x 75	41	33	25	20	M8	8	35	2207	105	332	186	0,59
45 x 75	41	33	25	20	M8	8	35	2364	105	310	186	0,58
48 x 80	41	33,5	24	20	M8	8	35	2522	105	290	174	0,64
50 x 80	41	33,5	24	20	M8	8	35	2627	105	279	174	0,63
55 x 85	41	33,5	24	20	M8	8	35	2890	105	253	164	0,69
60 x 90	41	33,5	24	20	M8	8	35	3152	105	232	155	0,73
65 x 95	41	33,5	24	20	M8	8	35	3415	105	214	147	0,79
70 x 110	50	40	29	24	M10	8	70	5934	170	268	170	1,47
75 x 115	50	40	29	24	M10	8	70	6358	170	250	163	1,55
80 x 120	50	40	29	24	M10	8	70	6782	170	234	156	1,65
85 x 125	50	40	29	24	M10	10	70	9007	212	276	187	1,72
90 x 130	50	40	29	24	M10	10	70	9537	212	260	180	1,81
95 x 135	50	40	29	24	M10	10	70	9611	202	235	166	1,90
100 x 145	56	44	31	26	M12	8	115	11719	234	239	165	2,48
110 x 155	56	44	31	26	M12	8	115	12891	234	217	154	2,66
120 x 165	56	44	31	26	M12	9	115	15821	264	224	163	2,84
130 x 180	64	52	39	34	M12	12	115	22853	352	211	152	4,45
140 x 190	68	54	39	34	M14	9	185	25699	367	205	151	4,62
150 x 200	68	54	39	34	M14	10	185	30595	408	212	159	4,80
160 x 210	68	54	39	34	M14	12	185	39161	490	239	182	5,18
170 x 225	78	64	49	44	M14	12	185	41609	490	225	170	7,33
180 x 235	78	64	49	44	M14	12	185	44056	490	212	163	7,77



**Technical Data – KTR 206**



picture 4: CLAMPEX® KTR 206

1) These are the maximum screw tightening torques. They can be reduced to max. 40 % of the aforementioned figures with T, F<sub>ax</sub> and P<sub>w</sub>, P<sub>N</sub> being reduced proportionally.

**Table 2:**

Dimensions [mm]						Clamping screws DIN EN ISO 4762 – 12.9 $\mu_{total} = 0,14$			Transmittable torque or axial force		Surface pressure between clamping set [N/mm <sup>2</sup> ]		weight ~ kg
d x D	B	B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>	D <sub>1</sub>	M	z No.	T <sub>A</sub> <sup>1)</sup> [Nm]	T [Nm]	F <sub>ax</sub> [kN]	shaft P <sub>w</sub>	hub P <sub>N</sub>	
20 x 47	34	28	22	17	53	M6	6	17	332	33	259	110	0,26
22 x 47	34	28	22	17	53	M6	6	17	366	33	236	110	0,24
24 x 50	34	28	22	17	56	M6	6	17	399	33	216	104	0,27
25 x 50	34	28	22	17	56	M6	6	17	415	33	207	104	0,26
28 x 55	34	28	22	17	61,5	M6	6	17	465	33	185	94	0,32
30 x 55	34	28	22	17	61,5	M6	6	17	499	33	173	94	0,30
32 x 60	34	28	22	17	67	M6	8	17	709	44	216	115	0,35
35 x 60	34	28	22	17	67	M6	8	17	776	44	198	115	0,34
38 x 65	34	28	22	17	72	M6	8	17	842	44	182	106	0,39
40 x 65	34	28	22	17	72	M6	8	17	886	44	173	106	0,35
42 x 75	41	33	25	20	84	M8	8	41	1719	82	259	145	0,60
45 x 75	41	33	25	20	84	M8	8	41	1842	82	241	145	0,59
48 x 80	41	33,5	24	20	89	M8	8	41	1965	82	226	136	0,65
50 x 80	41	33,5	24	20	89	M8	8	41	2047	82	217	136	0,64
55 x 85	41	33,5	24	20	91	M8	8	41	2252	82	197	128	0,70
60 x 90	41	33,5	24	20	99	M8	8	41	2456	82	181	121	0,74
65 x 95	41	33,5	24	20	104	M8	8	41	2661	82	167	114	0,80
70 x 110	50	40	29	24	119	M10	8	83	4550	130	205	131	1,58
75 x 115	50	40	29	24	124	M10	8	83	4875	130	192	125	1,66
80 x 120	50	40	29	24	129	M10	8	83	5200	130	180	120	1,77
85 x 125	50	40	29	24	134	M10	10	83	6907	163	211	144	1,84
90 x 130	50	40	29	24	139	M10	10	83	7313	163	200	138	1,94
95 x 135	50	40	29	24	144	M10	10	83	7501	158	184	129	2,03
100 x 145	56	44	31	26	154	M12	8	145	9465	189	193	133	2,68
110 x 155	56	44	31	26	164	M12	8	145	10411	189	176	125	2,86
120 x 165	56	44	31	26	174	M12	9	145	12777	213	181	132	3,06
130 x 180	64	52	39	34	189	M12	12	145	18456	284	170	123	4,69
140 x 190	68	54	39	34	199	M14	9	230	20453	292	163	120	4,94
150 x 200	68	54	39	34	209	M14	10	230	24349	325	169	127	5,14
160 x 210	68	54	39	34	219	M14	12	230	31167	390	190	145	5,54
170 x 225	78	64	49	44	234	M14	12	230	33115	390	179	135	7,71
180 x 235	78	64	49	44	244	M14	12	230	35063	390	169	129	8,17



The clamping set is generally delivered in assembled condition.

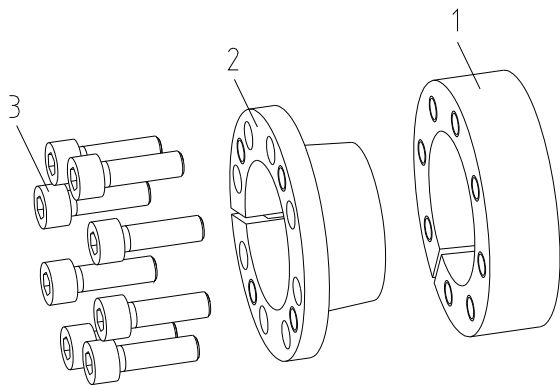
### Tolerances, surfaces

A good rotating process is sufficient:  
 $Rz \leq 16\mu\text{m}$

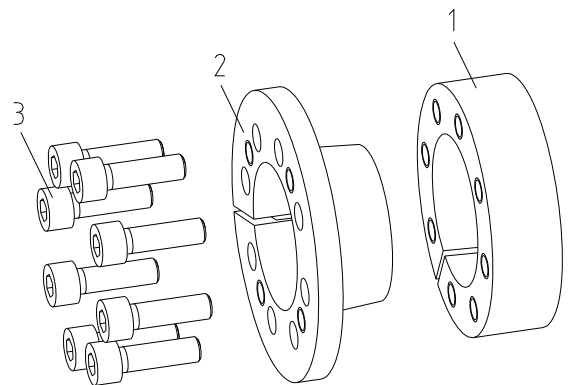
Highest permissible tolerance:  
 $d = h8/H8$  - shaft/hub

### **Components of CLAMPEX® KTR 203 / KTR 206**

Component	Quantity	Designation
1	1	external ring (slotted)
2	1	internal ring (slotted)
3	see table 1 and 2	cap screw DIN EN ISO 4762



picture 3: CLAMPEX® KTR 203



picture 4: CLAMPEX® KTR 206



### **ATTENTION!**

**Dirty or used clamping sets must be disassembled, cleaned and afterwards oiled with thin-bodied oil (e. g. Castrol 4 in 1 or Klüber Quietsch-Ex) before the assembly.**



### **CAUTION!**

**When assembling the internal ring (part 2) and the external ring (part 1) please make sure that the slots are staggered. The forcing thread of the internal ring (part 2) must not be congruent with the slot of the external ring (part 1).**

### **Assembly**

- Check the position of shaft and hub regarding the stipulated tolerance (h8/H8).
- Clean the hub bore and the shaft and afterwards oil them with thin-bodied oil (e. g. Castrol 4 in 1 or Klüber Quietsch-Ex).



### **CAUTION!**

**Do not use oils and greases with molybdenum disulphide or high pressure additions as well as slide grease pastes.**

- Unscrew the clamping screws slightly and insert the clamping set KTR 203 / KTR 206 between shaft and hub.
- Slightly tighten the clamping screws manually and align the clamping set with hub part.
- Regarding the KTR 206 please make sure that the internal ring with the pressure flange evenly contacts the axial fixing (component 2).

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## Assembly

### Continuation:

- Tighten the clamping screws evenly and crosswise. Increase the tightening torque step by step. This procedure must be repeated until the tightening torque indicated in table 3 is reached with all clamping screws.

**Table 3:**

type of clamping set	203					206				
screw size M	M6	M8	M10	M12	M14	M6	M8	M10	M12	M14
tightening torque $T_A$ [Nm]	14	35	70	115	185	17	41	83	145	230



### ATTENTION!

During the assembly of the KTR 203 an axial displacement of the hub is effected.

## Disassembly

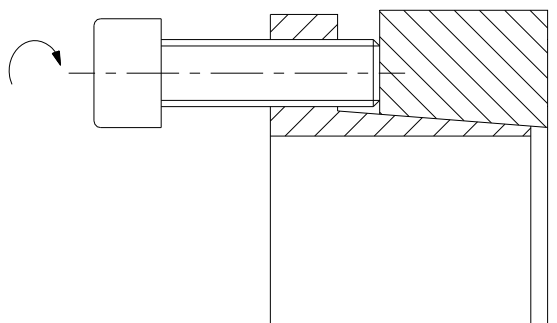


### DANGER!

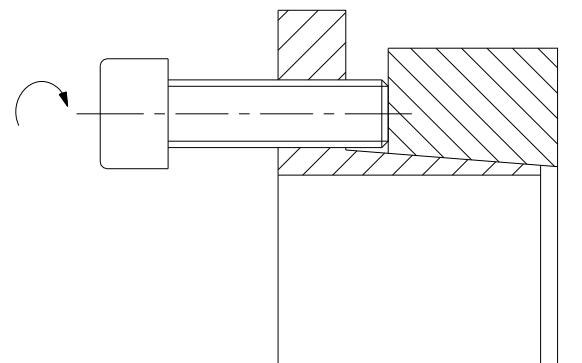
Loosened or falling drive parts can cause injuries to persons or damages to the machines.

Safe the drive parts before the disassembly.

- Loose all clamping screws evenly one after the other and unscrew them.
- Screw the clamping screws into the threads of the internal ring (component 2).
- Tighten the clamping screws evenly and crosswise. Increase the tightening torque step by step until the external ring (component 1) and the internal ring (component 2) are separated.
- Remove the unscrewed clamping set between shaft and hub.



picture 3: unscrew the clamping set KTR 203



picture 4: unscrew the clamping set KTR 206



### CAUTION!

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 function of the clamping set can be influenced.

### Disposal of waste:

**Defective clamping sets must be cleaned and scrapped.**

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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).

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