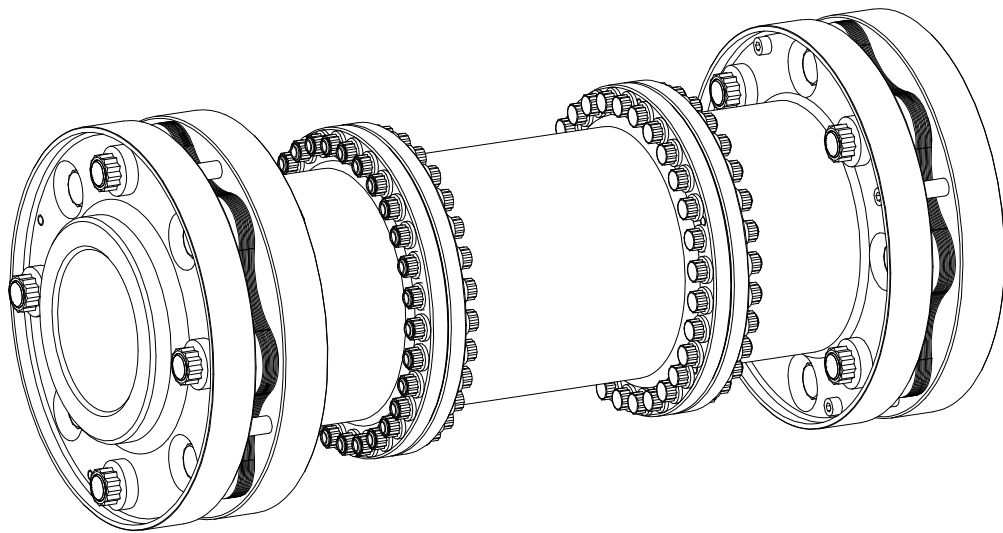


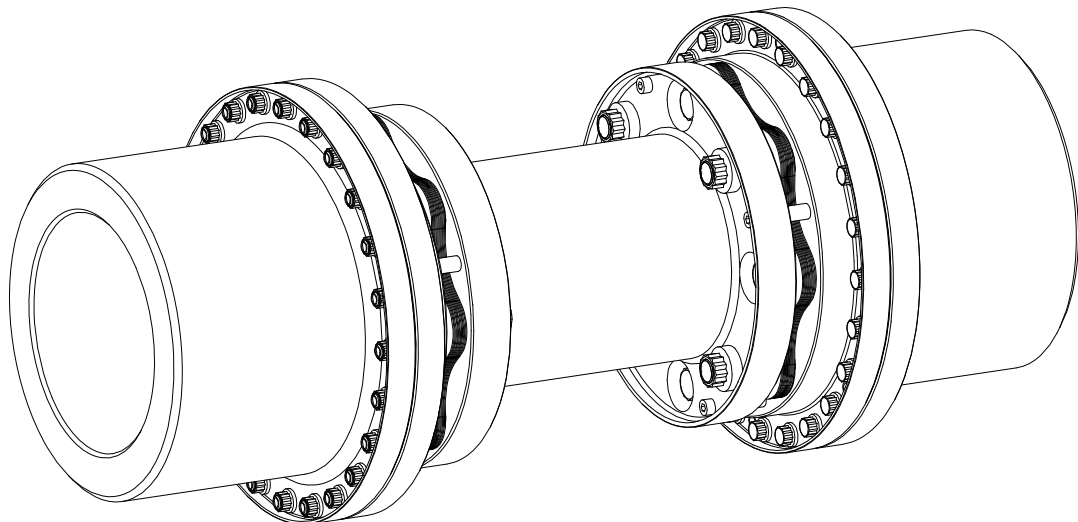


RIGIFLEX®-HP

Torsionally stiff, steel lamina couplings types
C and L



Type C



Type L



RIGIFLEX®-HP is a torsionally stiff, flexible steel lamina coupling for high-speed drive trains. It is able to compensate for shaft misalignment caused, for example, by heat expansion.

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1 Technical Data

Type C

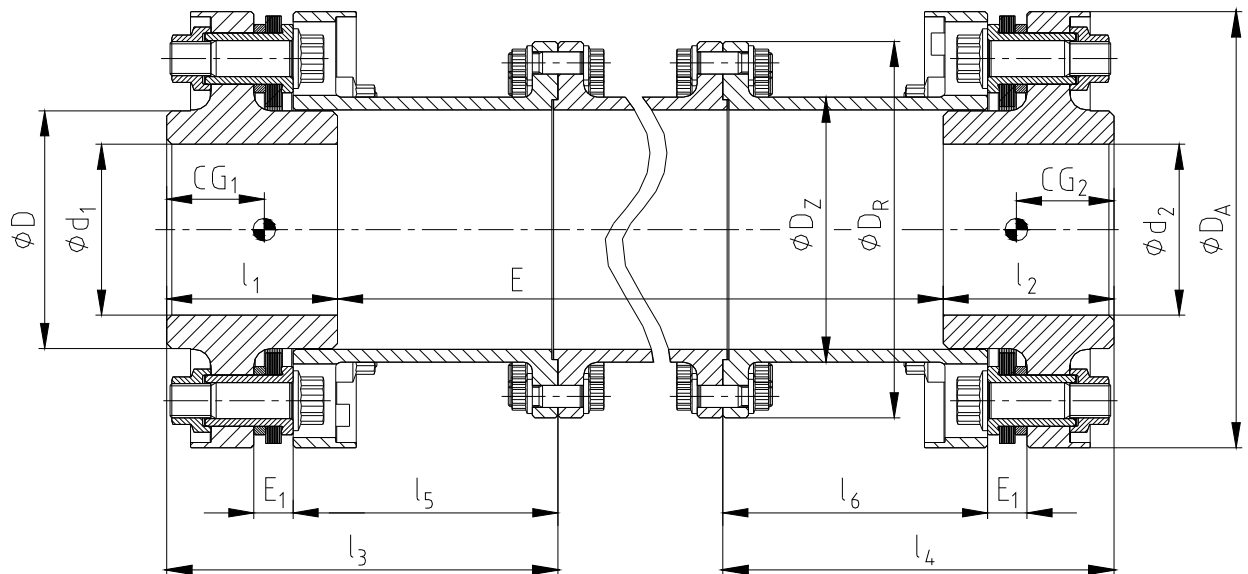


Illustration 1: RIGIFLEX®-HP, type C

Table 1: Dimensions – Type C

Size	Max. finish bore d_1/d_2	Dimensions [mm]										
		D	D_A	D_Z	D_R	E_1	E	$E_{min.}$	$CG_1/CG_2^{1)}$	l_1/l_2	l_3/l_4	l_5/l_6
158	85	119	220	195	135	17	as requested by the customer	335	46	85	189	130
168	100	139	255	220	155	23		395	55	100	229	155
188	105	147	265	235	165	23		375	55	105	229	155
208	120	168	298	245	186	23		350	57	120	229	155
228	125	178	315	270	199	33		425	65	125	265	175
248	140	196	335	300	217	33		395	67	140	265	175
278	160	225	380	335	248	33		355	70	160	265	175
318	180	252	445	370	280	48		495	88	180	348	225
358	210	295	500	415	326	48		435	93	210	348	225
388	235	330	545	464	362	48		400	97	235	348	225

1) with E=457,2 mm and max. cylindrical finish bore

Table 2: Torque and speed – Type C

Size	Torque [Nm]		Max. speed [rpm]
	T_{KN}	$T_{Kmax.}$	
158	20000	26000	17300
168	30000	39000	14900
188	38000	49400	14400
208	50000	65000	12800
228	59000	76700	12100
248	72000	93600	11400
278	115000	149500	10000
318	180000	234000	8500
358	253000	328900	7600
388	330000	429000	7000



1 Technical Data

Type L

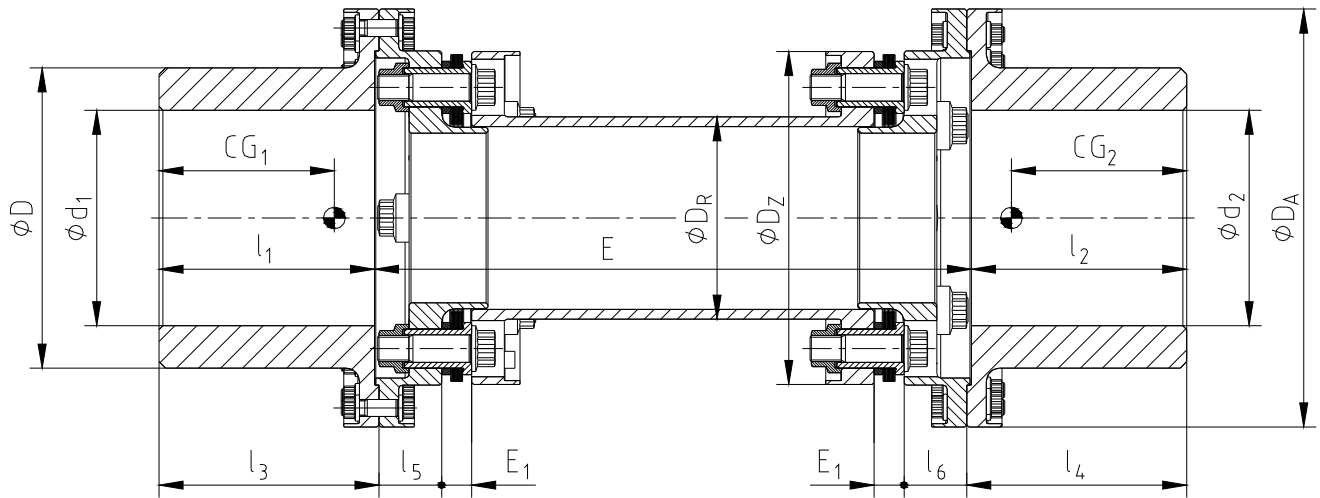


Illustration 2: RIGIFLEX®-HP, type L

Table 3: Dimensions – Type L

Size	Max. finish bore d_1/d_2	Dimensions [mm]										
		D	D_A	D_Z	D_R	E_1	E	$E_{min.}$	$CG_1/CG_2^{1)}$	l_1/l_2	l_3/l_4	l_5/l_6
158	150	210	310	220	135	17	as requested by the customer	265	140	150	163,5	37,5
168	165	230	320	255	155	23		340	148	165	168,5	48,0
188	180	250	335	265	165	23		340	156	180	183,5	48,0
208	200	280	362	298	186	23		340	165	200	203,5	48,0
228	220	310	390	315	199	33		390	179	220	223,5	54,5
248	240	340	420	334	217	33		390	185	235	238,5	54,5
278	270	380	455	380	248	33		390	202	270	273,5	54,5
318	315	445	550	445	280	48		510	246	315	318,5	71,5
358	350	490	600	500	326	48		510	263	350	353,5	71,5
388	380	535	650	545	362	48		510	277	380	383,5	71,5

1) with $E=457,2$ mm and max. cylindrical finish bore

Table 4: Torque and speed – Type L

Size	Torque [Nm]		Max. speed [rpm]
	T_{KN}	$T_{Kmax.}$	
158	20000	26000	13800
168	30000	39000	12300
188	38000	49400	11400
208	50000	65000	10500
228	59000	76700	9700
248	72000	93600	9000
278	115000	149500	8300
318	180000	234000	6900
358	253000	328900	6300
388	330000	429000	5800



2 Hints

2.1 Coupling Selection



CAUTION!

For a continuous and troublefree operation of the coupling it must be designed according to the selection instructions for the particular application (see RIGIFLEX®-HP catalogue). If the operating conditions (performance, speed, changes at engine and machine) change, the coupling selection must be checked again. Please make sure that the technical data regarding torque only refer to the lamina package. The transmittable torque of the shaft/hub connection must be checked by the orderer, and he is responsible for the same.

For drives with endangered torsional vibration (drives with periodical load on torsional vibration) it is necessary to make a torsional vibration calculation to ensure a perfect selection. Typical drives with endangered torsional vibration are e. g. drives with diesel engines, piston pumps, piston compressors etc. On request KTR performs the coupling selection and the torsional vibration calculation.

2.2 General Hints

Please read through these mounting instructions carefully before you set the coupling into operation. Please pay special attention to the safety instructions! The mounting instructions are part of your product. Please keep them carefully and close to the coupling. The copyright for these mounting instructions remains with KTR Kupplungstechnik GmbH.

2.3 Safety and Advice Hints



DANGER!

Danger of injury to persons.



CAUTION!

Damages on the machine possible.



ATTENTION!

Pointing to important items.

2.4 General Hints of Danger



DANGER!

With assembly, operation and maintenance of the coupling 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 coupling have to be performed taking into account "safety first".
- Please make sure to disengage the power pack before you perform your work.
- 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 coupling as long as it is in operation.
- Please protect the coupling against unintentional touch. Please provide for the necessary protection devices and caps.

Please note protection mark ISO 16016.	Drawn: 06.06.13 Pz/Wig	Replaced for: ---
	Verified: 19.06.13 Pz	Replaced by:



2 Hints

2.5 Proper Use

You may only assemble, operate and maintain the coupling if you

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

The coupling may only be used in accordance with the technical data (see chapter 1). Unauthorized modifications on the coupling design 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 **RIGIFLEX®-HP** described in here corresponds to the technical status at the time of printing of these mounting instructions.

3 Storage

The coupling hubs are supplied in preserved condition and can be stored at a dry and roofed place for 6 - 9 months.



CAUTION!

Humid storage rooms are not suitable.

Please make sure that there is no condensation. The best relative air humidity is under 65%.

4 Assembly

The coupling hubs are supplied fully assembled. Before assembly the coupling has to be inspected for completeness.



DANGER!

**Parts falling down may cause injury of persons or damage to the machine.
Secure the driving parts during assembly or disassembly.**



4 Assembly

4.1 Components of the Couplings

Components of RIGIFLEX®-HP type C

Component	Quantity	Designation
1	2	Coupling hub C
2	1	Spacer C
3	see table 5	Double hexagon bolt
4	see table 5	Double hexagon nut

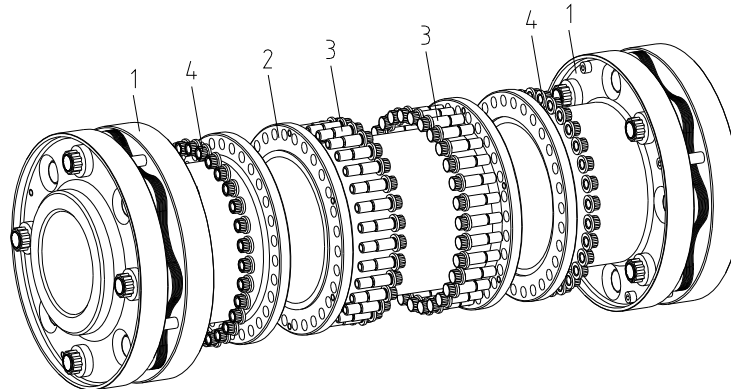


Illustration 3: RIGIFLEX®-HP, type C

Table 5:

Size	158	168	188	208	228	248	278	318	358	388
Quantity of Double hexagon bolt/nut ¹⁾	18	24	30	30	24	25	30	25	30	34
Tightening torque T _A [Nm]	115	115	115	115	290	290	290	560	560	560

1) Number per coupling half

Components of RIGIFLEX®-HP type L

Component	Quantity	Designation
1	2	Coupling hub L
2	1	Spacer L
3	see table 6	Double hexagon bolt
4	see table 6	Double hexagon nut

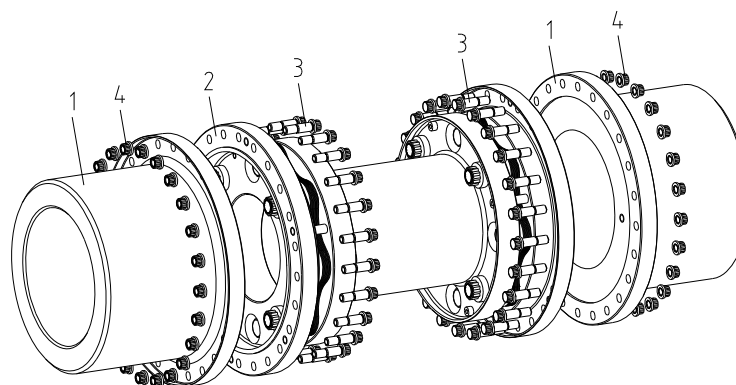


Illustration 4: RIGIFLEX®-HP, type L

Table 6:

Size	158	168	188	208	228	248	278	318	358	388
Quantity of Double hexagon bolt/nut ¹⁾	13	18	20	24	15	18	20	20	25	30
Tightening torque T _A [Nm]	115	115	115	115	290	290	290	560	560	560

1) Number per coupling half

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4 Assembly

4.2 Hints Regarding the Finish Bore



CAUTION!

The buyer is responsible for all subsequently made machinings to unbored or pilot bored and to finish machined coupling parts and spare parts. KTR does not assume any warranty claims resulting from insufficient refinish.

4.3 Assembly of the Coupling Hubs



CAUTION!

In case that a dimensioned drawing has been prepared for the coupling, the dimensions shown have to be respected first.
The operator of the machine should be provided with the dimensioned drawing.



ATTENTION!

We recommend to check bores, shaft, keyway and feather key for dimensional accuracy before assembly.

Heating the coupling hubs slightly (approx. 80 °C) allows for an easier installation onto the shaft.



DANGER!

Touching the heated coupling hubs causes burns.
We would recommend to wear safety gloves.



CAUTION!

During the assembly please make sure that the E dimension (see table 1 and 3) is observed, so that the coupling parts do not contact each other during the operation.
Disregarding this hint may cause damage on the coupling.

For the axial alignment of the coupling the dimensions E (see table 1 and 3) are decisive. In order to adjust the right dimension E you should proceed as follows:

- Assemble the coupling hubs (component 1) onto the shaft of driving and driven side.
- The inner sides of the coupling hubs must end flush with the front sides of the shafts (type C see illustration 5 or type L see illustration 6).
- Move the power packs in axial direction until the dimension E is achieved.
- If the power packs are already firmly assembled, axial movement of the coupling hubs on the shafts allows for adjusting the dimension E.

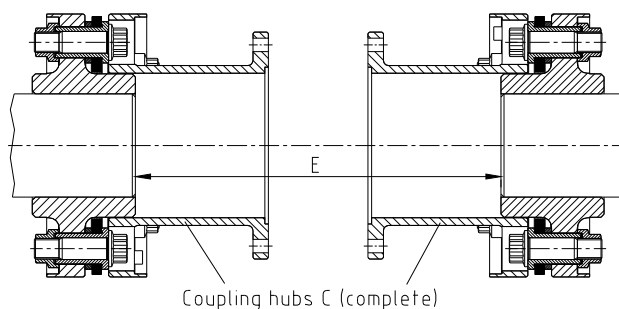


Illustration 5: assembly of the coupling hubs C

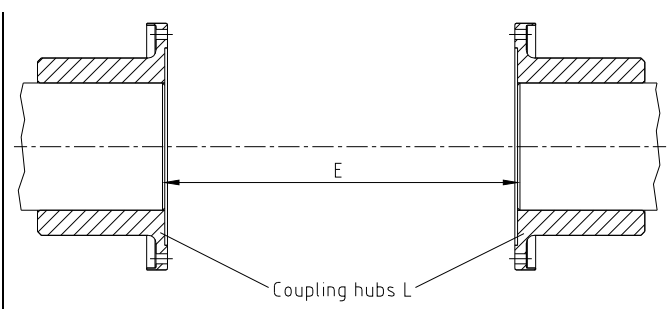


Illustration 6: assembly of the coupling hubs L



4 Assembly

4.4 Assembly of the Spacer – Type C

- Align the coupling hubs (component 1) so that the screws from the lamina package line up (see illustration 5).
- Clean and degrease the centerings and contact surfaces on the spacer (component 2) and on the coupling hubs.



CAUTION!
The screws for transport and the distance bushes need to be removed for further assembly and operation (see illustration 7).

- Mount the spacer between the coupling hubs.
- Screw the spacer hand-tight to the coupling hubs by means of the double hexagon bolts and double hexagon nuts.
- Tighten the double hexagon nuts at the tightening torque indicated (see table 5) while preventing the double hexagon bolts from turning.

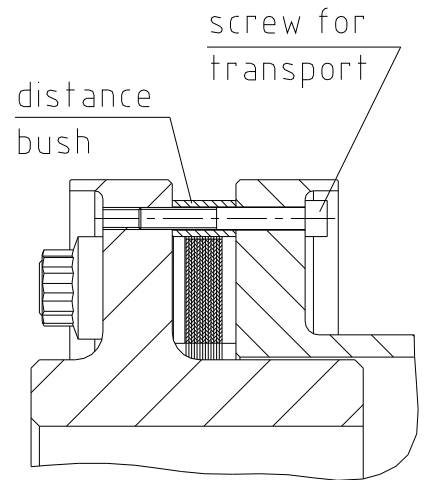


Illustration 7: disassembly of transport lock



ATTENTION!
For each coupling only screws with the same weight (tared) may be used.



CAUTION!
Having set the coupling into operation, the tightening torque of the screws has to be investigated at regular maintenance intervals.

4.5 Assembly of the Spacer – Type L

- Align the coupling hubs (component 1) so that the bores from the coupling hubs line up (see illustration 6).
- Clean and degrease the centerings and contact surfaces on the spacer (component 2) and on the coupling hubs.



CAUTION!
The screws for transport and the distance bushes need to be removed for further assembly and operation (see illustration 8).

- Mount the spacer between the coupling hubs.
- Screw the spacer hand-tight to the coupling hubs by means of the double hexagon bolts and double hexagon nuts.
- Tighten the double hexagon nuts at the tightening torque indicated (see table 6) while preventing the double hexagon bolts from turning.

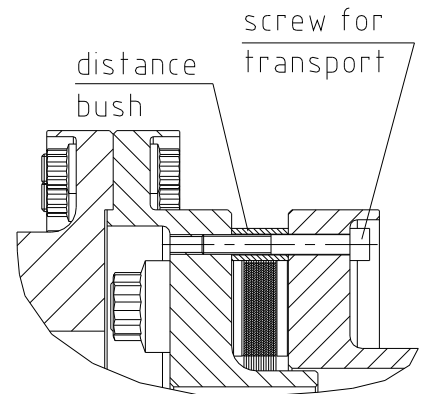


Illustration 8: disassembly of transport lock



ATTENTION!
For each coupling only screws with the same weight (tared) may be used.



CAUTION!
Having set the coupling into operation, the tightening torque of the screws has to be investigated at regular maintenance intervals.

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4 Assembly

4.6 Displacements - Alignment of the Couplings

The displacement figures shown in table 7 offer sufficient safety to compensate for environmental influences like, for example, heat expansion or lowering of foundation.

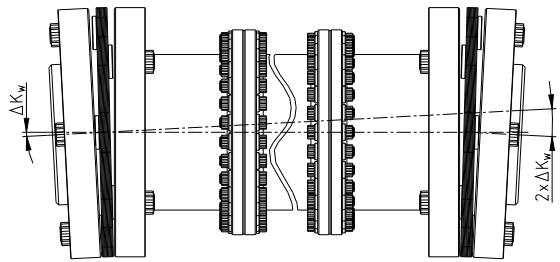


CAUTION!

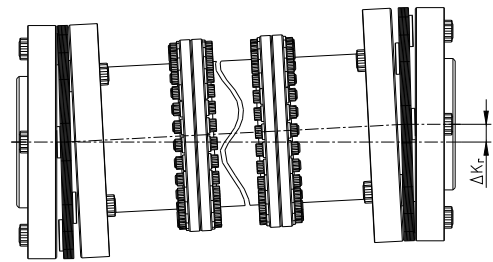
In order to ensure a long lifetime of the coupling the shaft ends must be accurately aligned. Please absolutely observe the displacement figures indicated (see table 7). If the figures are exceeded, the coupling is damaged. The more accurate the alignment of the coupling, the higher is its lifetime.

Please note:

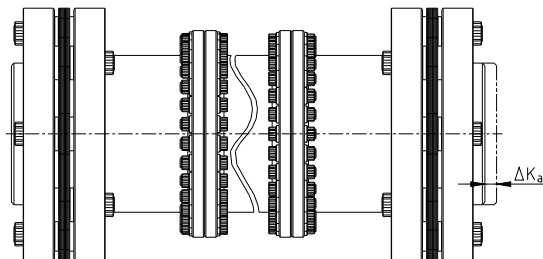
- The displacement figures mentioned in table 7 are maximum figures which must not arise in parallel. In case of a simultaneous radial, axial and angular displacement, these values must be reduced (see illustration 10).
- Please check with a dial gauge, ruler or feeler whether the permissible displacement figures of table 7 can be observed.



angular displacements



radial displacements



axial displacements

Illustration 9: displacements
(Example: type C)

Example for the misalignment combinations given in illustration 10:

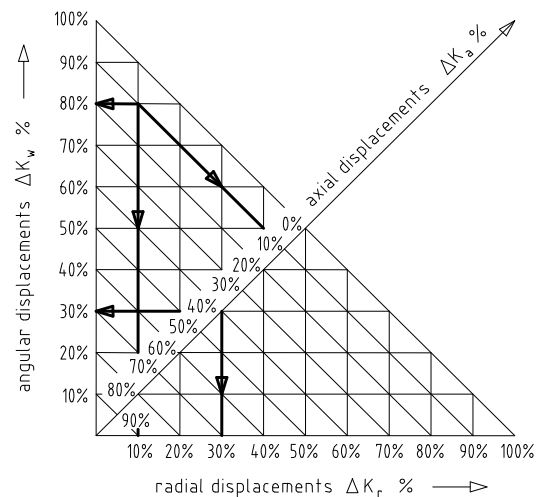
Example 1:

- $\Delta K_r = 10\%$
- $\Delta K_w = 80\%$
- $\Delta K_a = 10\%$

Example 2:

- $\Delta K_r = 30\%$
- $\Delta K_w = 30\%$
- $\Delta K_a = 40\%$

Illustration 10:
combinations of displacement



$$\Delta K_{\text{total}} = \Delta K_a + \Delta K_r + \Delta K_w \leq 100 \%$$

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4 Assembly

4.6 Displacements - Alignment of the Couplings

Table 7: displacement figures

Size	Angular displacements ¹⁾ ΔK_w [°]	Axial displacements ΔK_a [mm]	Radial displacement ²⁾ ΔK_r [mm]	
			Type C	Type L
158	0,25	±3,0	2,30	1,56
168	0,25	±3,0	2,32	1,45
188	0,25	±3,3	2,37	1,45
208	0,25	±3,8	2,50	1,45
228	0,25	±4,0	2,44	1,34
248	0,25	±4,2	2,58	1,34
278	0,25	±4,5	2,75	1,34
318	0,25	±5,2	2,70	1,13
358	0,25	±6,0	2,96	1,13
388	0,25	±6,5	3,18	1,13

1) each lamina package

2) with E=457,2 mm and max. cylindrical finish bore

4.7 Spares Inventory, Customer Service Addresses

A basic requirement to guarantee the operational readiness of the coupling is a stock of the most important spare parts on site.

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



ATTENTION!

KTR does not assume any liabilities or guarantees regarding the use of spare parts and accessories which are not provided by KTR and for the damages resulting here from.

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