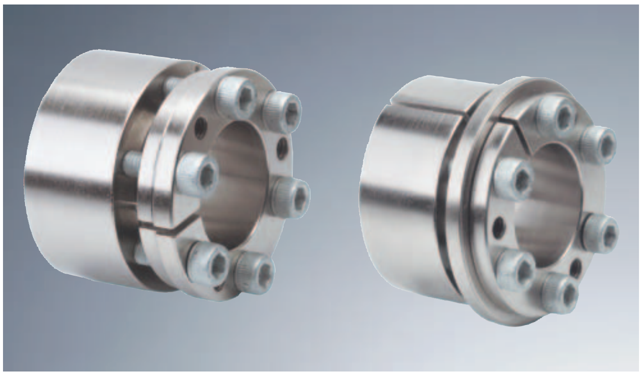
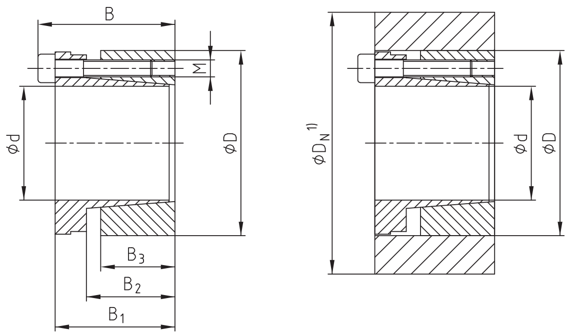
KTR 200 and KTR 201 (self-centering)



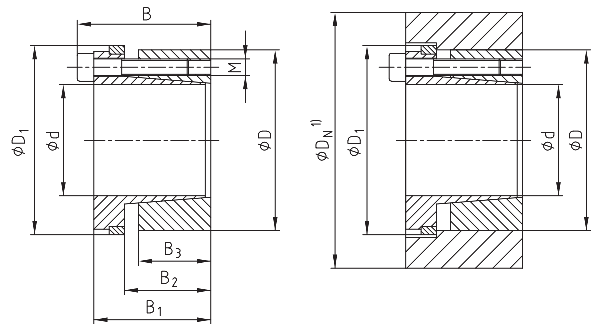
- Clamping element for universal use
- Wide range of applications
- Low-cost solution with average to high torques
- Mounting instructions under www.ktr.com

KTR 200



Considerably higher transmittable torque than KTR 201,
slight axial movement of the hub

KTR 201



No axial movement of the hub,
but lower transmittable torque than KTR 200

1) Dimension D_N: For calculation see page 282/283.

Assembly

Clean and lightly oil the contact surfaces of shaft and hub. Insert the clamping element into the hub fit and push it onto the shaft. Tighten the clamping screws crosswise, evenly and by degrees to the tightening torque T_A mentioned by means of the torque wrench. Check the tightening torque of all clamping screws in the order of arrangement. The figures T and F_{ax} mentioned in the table were calculated for an assembly with oil.

Note: Do not use any oil with molybdenum sulphide or high-pressure additions or grease reducing the coefficient of friction considerably. The clamping sets are delivered with oil. For assembly without oil the figures mentioned in the table deviate.

Disassembly

Unscrew the clamping screws. Screw the screws into the pull-off thread, tighten them crosswise by degrees and evenly until the rear taper ring is released. For repeated application oil the screws and threads.

Tolerances, surfaces

One accurate turning process is sufficient:

$R_Z \leq 16 \mu m$

Maximum permissible tolerances:

h8 for the shaft - H8 for the hub

Centering

The clamping elements KTR 200 and KTR 201 are **self-centering**. Between shaft and hub the concentricity of the clamping set is between **0,02** and **0,04** mm.

Order form:

KTR 200	40	x	65
Type	Size of inside diameter		Size of outside diameter

KTR 200 and KTR 201 (self-centering) – Technical Data

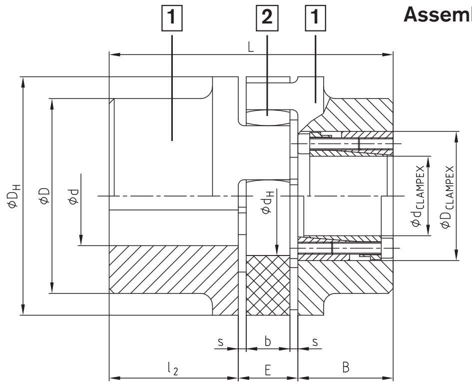
CLAMPEX® – KTR 200 and KTR 201																					
										KTR 200						KTR 201					
d x D [mm]	Dimensions [mm]					Clamping screws DIN EN ISO 4762 - 12.9 μ_{total}=0,14				Transmittable torque or axial force		Surface pressure between clamping set		Weight [~kg]	Stock-programme	Transmittable torque or axial force		Surface pressure between clamping set		Weight [~kg]	Stock-programme
	B	B_1	B_2	B_3	D_1	M	z Number	T_A [1] [Nm] KTR 200	T_A [1] [Nm] KTR 201	T [Nm]	F_{ax} [kN]	Shaft P_W [N/mm²]	Hub P_N [N/mm²]			T [Nm]	F_{ax} [kN]	Shaft P_W [N/mm²]	Hub P_N [N/mm²]		
20 x 47	48	42	31	26	53	M6	6	17	17	513	51	291	124	0,41	●	332	33	178	76	0,42	●
22 x 47	48	42	31	26	53	M6	6	17	17	564	51	264	124	0,38	●	366	33	162	76	0,39	●
24 x 50	48	42	31	26	56	M6	6	17	17	616	51	242	116	0,42	●	399	33	149	71	0,43	●
25 x 50	48	42	31	26	56	M6	6	17	17	641	51	233	116	0,41	●	415	33	143	71	0,42	●
28 x 55	48	42	31	26	61	M6	6	17	17	718	51	208	106	0,50	●	465	33	127	65	0,51	●
30 x 55	48	42	31	26	61	M6	6	17	17	769	51	194	106	0,47	●	499	33	119	65	0,48	●
32 x 60	48	42	31	26	66	M6	8	17	17	1094	68	242	129	0,56	●	709	44	149	79	0,57	●
35 x 60	48	42	31	26	66	M6	8	17	17	1197	68	222	129	0,53	●	776	44	136	79	0,54	●
38 x 65	48	42	31	26	71	M6	8	17	17	1299	68	204	119	0,62	●	842	44	125	73	0,63	●
40 x 65	48	42	31	26	71	M6	8	17	17	1368	68	194	119	0,57	●	886	44	119	73	0,58	●
42 x 75	59	51	35	30	81	M8	6	41	41	1990	95	222	124	1,01	●	1290	61	136	76	1,02	●
45 x 75	59	51	35	30	81	M8	6	41	41	2132	95	207	124	0,98	●	1382	61	127	76	0,99	●
48 x 80	59	51	35	30	86	M8	8	41	41	3033	126	259	155	1,09	●	1965	82	159	95	1,10	●
50 x 80	59	51	35	30	86	M8	8	41	41	3159	126	248	155	1,07	●	2047	82	152	95	1,08	●
55 x 85	59	51	35	30	91	M8	8	41	41	3475	126	226	146	1,15	●	2252	82	139	90	1,16	●
60 x 90	59	51	35	30	96	M8	8	41	41	3791	126	207	138	1,23	●	2456	82	127	85	1,24	●
65 x 95	59	51	35	30	101	M8	8	41	41	4107	126	191	131	1,32	●	2661	82	117	80	1,33	●
70 x 110	70	60	45	40	119	M10	8	83	83	7023	201	211	134	2,18	●	4550	130	130	83	2,29	●
75 x 115	70	60	45	40	124	M10	8	83	83	7524	201	197	129	2,30	●	4875	130	121	79	2,41	●
80 x 120	70	60	45	40	129	M10	8	83	83	8026	201	185	123	2,44	●	5200	130	113	76	2,56	●
85 x 125	70	60	45	40	134	M10	10	83	83	10659	251	217	148	2,55	●	6907	163	133	91	2,67	●
90 x 130	70	60	45	40	139	M10	10	83	83	11286	251	205	142	2,67	●	7313	163	126	87	2,80	●
95 x 135	66	60	45	40	144	M10	10	83	83	11373	239	186	131	2,80	●	7501	158	116	82	2,93	●
100 x 145	80	68	52	45	155	M12	8	145	145	14607	292	191	132	3,90	●	9465	189	117	81	4,10	●
110 x 155	80	68	52	45	165	M12	8	145	145	16068	292	174	123	4,20	●	10411	189	107	76	4,40	●
120 x 165	80	68	52	45	175	M12	10	145	145	21910	365	199	145	4,50	●	14197	237	122	89	4,72	●
130 x 180	80	68	52	45	188	M12	12	145	145	28483	438	221	159	5,50		18456	284	136	98	5,74	
140 x 190	90	76	58	50	199	M14	10	210	230	32023	457	193	142	6,60		22726	325	130	95	6,92	
150 x 200	90	76	58	50	209	M14	12	210	230	41173	549	216	162	6,90	●	29219	390	145	109	7,24	
160 x 210	90	76	58	50	219	M14	12	210	230	43918	549	202	154	7,40		31167	390	136	104	7,76	
170 x 225	90	76	58	50	234	M14	14	210	230	54440	640	222	168	8,60		38634	455	149	113	8,98	
180 x 235	90	76	58	50	244	M14	14	210	230	57642	640	210	161	9,10		40907	455	141	108	9,50	

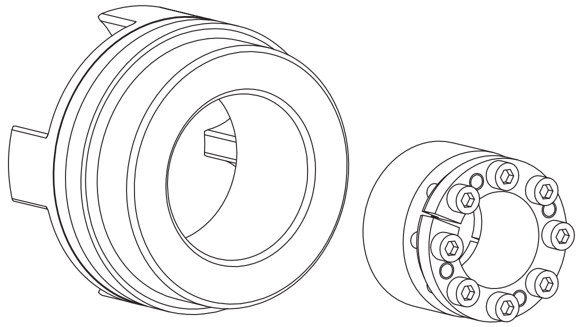
● Clamping sets available from stock.

1) 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.

KTR 200 with torsionally flexible ROTEX® coupling

Assembly 1





Assembly 2

ROTEX® size	Pilot bore Ød [mm]	Hub material	Dimensions of CLAMPEX® KTR 200 [mm]: Maximum KTR clamping d x D	Transmittable torques and axial force T [Nm]	F_{ax} [kN]	B	Dimensions of ROTEX® coupling [mm]: l_1	E	s	b	D_H	D	D_1	d_H	L
42	x	Steel part 1	30 x 55	769	51	48	50	26	3,0	20	95	-	95	46	Length L > l_1 + E + B (clamping set)
48	x		35 x 60	1197	68	48	56	28	3,5	21	105	-	105	51	
55	x		45 x 75	2132	95	59	65	30	4,0	22	120	-	120	60	
65	x		45 x 75	2132	95	59	75	35	4,5	26	135	115	-	68	
75	x		50 x 80	3159	126	59	85	40	5,0	30	160	135	-	80	
90	x		65 x 95	4107	126	59	100	45	5,5	34	200	160	-	100	
100	45	GGG40 part 1	65 x 95	4107	126	59	110	50	6,0	38	225	180	-	113	
110	58		70 x 110	7023	201	70	120	55	6,5	42	255	200	-	127	
125	58		80 x 120	8026	201	70	140	60	7,0	46	290	230	-	147	
140	56		95 x 135	11373	239	66	155	65	7,5	50	320	255	-	165	
160	78		110 x 155	16068	292	80	175	75	9,0	57	370	290	-	190	
180	80		120 x 135	21910	365	80	195	85	10,5	64	420	325	-	220	

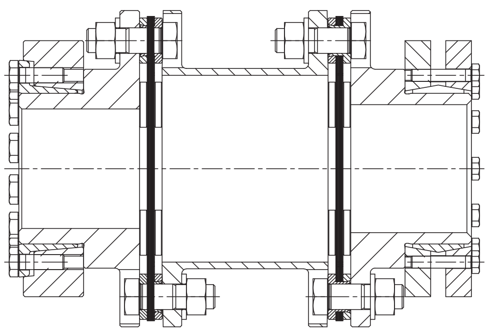
CLAMPEX® – KTR 200

d x D [mm]	B [mm]	Transmittable torques and axial force T [Nm]	F_{ax} [kN]	Clamping screws DIN EN ISO 4762 12.9 [mm] z x M	T_A [Nm]	d x D [mm]	B [mm]	Transmittable torques and axial force T [Nm]	F_{ax} [kN]	Clamping screws DIN EN ISO 4762 12.9 [mm] z x M	T_A [Nm]	d x D [mm]	B [mm]	Transmittable torques and axial force T [Nm]	F_{ax} [kN]	Clamping screws DIN EN ISO 4762 12.9 [mm] z x M	T_A [Nm]
20 x 47	48	513	51	6 x M6	17	38 x 65	48	1299	68	8 x M6	17	65 x 95	59	4107	126	8 x M8	41
22 x 47	48	564	51	6 x M6	17	40 x 65	48	1368	68	8 x M6	17	70 x 110	70	7023	201	8 x M10	83
24 x 50	48	616	51	6 x M6	17	42 x 75	59	1990	95	6 x M8	41	75 x 115	70	7524	201	8 x M10	83
25 x 50	48	641	51	6 x M6	17	45 x 75	59	2132	95	6 x M8	41	80 x 120	70	8026	201	8 x M10	83
28 x 55	48	718	51	6 x M6	17	48 x 80	59	3033	126	8 x M8	41	85 x 125	70	10659	251	10 x M10	83
30 x 55	48	769	51	6 x M6	17	50 x 80	59	3159	126	8 x M8	41	90 x 130	70	11286	251	10 x M10	83
32 x 60	48	1094	68	8 x M6	17	55 x 85	59	3475	126	8 x M8	41	95 x 135	66	11373	239	10 x M10	83
35 x 60	48	1197	68	8 x M6	17	60 x 90	59	3791	126	8 x M8	41	Further details see page 263.					

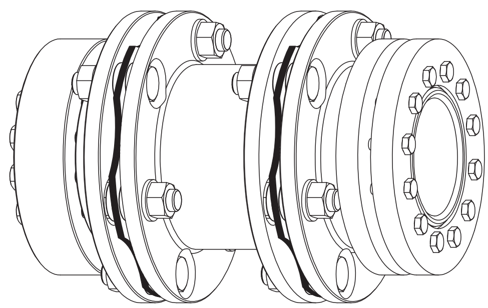
Other coupling combination

RADEX®-N NANA 1 with external clamping set KTR 620 and KTR 603

KTR 620



KTR 603



Further details about the external clamping set KTR 620 and KTR 603 are shown on page 254-259.

Calculation

For a properly working CLAMPEX® shaft-hub-connection the following technical details should be taken into account.
Please contact us in case you have tolerances different from the table below.

CLAMPEX® – Toleranzen, Rautiefe und Rundlaufgenauigkeit						
Type	d [mm]	d_W [mm]	Shaft diameter tolerance	Diameter of hub bore tolerance	Surface roughness [µm]	Concentricity (applies for the clamping set only)
KTR 250	-	-	h8	H8	Rz ≤ 16	0,02 - 0,04
KTR 200	-	-	h8	H8	Rz ≤ 16	0,02 - 0,04
KTR 201	-	-	h8	H8	Rz ≤ 16	0,02 - 0,04
KTR 203	-	-	h8	H8	Rz ≤ 16	0,02 - 0,04
KTR 206	-	-	h8	H8	Rz ≤ 16	0,02 - 0,04
KTR 225	-	-	h8	H8	Rz ≤ 16	0,02 - 0,04
KTR 100	-	-	h11	H11	Rz ≤ 16	1)
KTR 105	-	-	h9	H9	Rz ≤ 16	0,02 - 0,04
KTR 150	up to 38	-	h6	H7	Rz ≤ 6	1)
KTR 150	bigger than 38	-	h8	H8	Rz ≤ 6	1)
KTR 400	-	-	h8	H8	Rz ≤ 16	0,02 - 0,04
KTR 620	-	13-150 > 160	H7/h6 > H7/g6	H7/f7	Rz ≤ 16	0,02 - 0,04
KTR 603	-	18 - 30	j6	H6	Rz ≤ 16	0,02 - 0,04
KTR 603	-	31 - 50	h6	H6	Rz ≤ 16	0,02 - 0,04
KTR 603	-	51 - 80	g6	H6	Rz ≤ 16	0,02 - 0,04
KTR 603	-	81 - 500	g6	H7	Rz ≤ 16	0,02 - 0,04

1) Depending on the centering of the hub or shafts or the drive component and accuracy of assembly, respectively.

Fatigue strenght and shape stability of components loaded under torsion and bending

The stress calculation figures β_k, for the clamping elements, are worked out similar to those of hydraulic fittings. Please contact us for calculations. The stress concentration is dependet upon the load, the material and the clamping set type. Stress concentration factor on request.

Resulting torque T_R

The transmittable torque $T \approx T_R$ always has to exceed the highest torque peak T_B which may arise in the connection positions. The torque peaks arising during the acceleration of electric motors have to be considered.

$$T \approx TR \geq \sqrt{T_B^2 + \left[\frac{Fa \cdot d}{2}\right]^2} \quad [Nm]$$

Transmittable axial force F_{ax}

The maximum transmittable axial force F_{ax} which is mentioned in the tables has to be reduced accordingly in case of additional torque transmission.

$$F_{ax} = \frac{2 \cdot T}{d} \quad [kN]$$

Calculation of the outside diameter of the hub D_N

The required outside diameter of the hub D_N depends on the cross section of the hub, the shape of the hub and the apparent yield point of the hub material. In order to facilitate the calculation the table on page 283 shows some figures by the help of which D_N can be determined.

Example:
Shaft diameter d = 50 mm
Hub material: GGG 40
Apparent yield point of material
$\sigma_{0,2}$ = 250 N/mm

Selected: CLAMPEX® clamping set KTR 100
with d x D = 50 mm x 80 mm and P_N = 149 N/mm² page 277
➔ approximate value from table on page 283: P_N = 150 N/mm²
selected design see page 283. C = 0,8 (value C of hub shape)
➔ figure as per table 1,69
➔ D_N = D x 1,69 = 80 mm x 1,69 = 135,20 mm

Outside diameters of hubs which cannot be calculated based on the table are calculated with the following formula:

$$D_N \geq D \cdot \sqrt{\frac{\sigma_{N0,2} + P_N \cdot C}{\sigma_{N0,2} - P_N \cdot C}} \quad [mm]$$

Tangential tension on the inside diameter of hub

$$\sigma_{tiN} \approx P_N \frac{(1 + C_N^2)}{(1 - C_N^2)} \cdot C \quad [N/mm^2]$$

For clamping connections with hollow shafts the required inside diameter of the hollow shaft d_{iW} is calculated with the following formula:

$$d_{iw} \leq d \cdot \sqrt{\frac{\sigma_{W0,2} - 2 \cdot P_W \cdot 0{,}8}{\sigma_{W0,2}}} \quad [mm]$$

Tangential tension on the inside diameter of shaft

$$\sigma_{tiW} \approx \frac{2 \cdot P_W}{(C_W^2 - 1)} \quad [N/mm^2]$$

$\sigma_{N0,2}$ = Apparent yield point of the hub material [N/mm²]
C = Value C of hub shape (see picture on page 283)
P_N = Perm. surface pressure of clamping set/hub [N/mm²]
D = Outside diameter of the clamping set [mm]
T = Transmittable torque [Nm]
T_R = Resulting transmittable torque [Nm]
T_B = Operating torque to be transmitted [Nm]
L/L_1 = Hub length [mm]

$\sigma_{W0,2}$ = Apparent yield point of the shaft material [N/mm²]
P_W = Perm. surface pressure of clamping set/shaft [N/mm²]
d = Inside diameter of the clamping set [mm]
C_W = d_{iW} / d
C_N = D / D_N
F_a = Axial force arising during operation [N]
F_{ax} = Maximum transmittable axial force [kN]
F_V = Prestressed force [N]

Calculation of hubs

Table of screws

Dimension M	Prestressed force F_V and tightening torque T_A with μ_{total} = 0,14					
	Prestressed force F_V [N]			Tightening torque T_A [Nm]		
	8.8	10.9	12.9	8.8	10.9	12.9
M3	2210	3110	3730	1,34	1,89	2,25
M4	3900	5450	6550	2,9	4,1	4,9
M5	6350	8950	10700	6	8,5	10
M6	9000	12600	15100	10	14	17
M8	16500	23200	27900	25	35	41
M10	26200	36900	44300	49	69	83
M12	38300	54000	64500	86	120	145
M14	52500	74000	88500	135	190	230
M16	73000	102000	123000	210	295	355
M18	88000	124000	148000	290	405	485
M20	114000	160000	192000	410	580	690
M22	141000	199000	239000	550	780	930
M24	164000	230000	276000	710	1000	1200
M27	215000	302000	363000	1050	1500	1800
M30	262000	368000	442000	1450	2000	2400

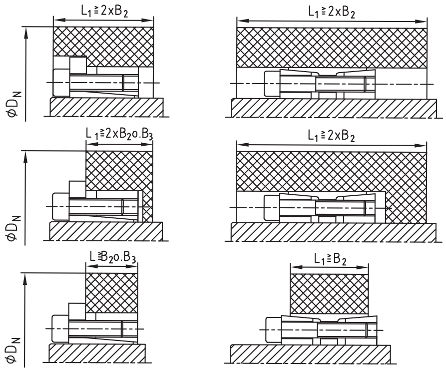
Mounting conditions of clamping set

Value C of hub shape

C = 0,6

C = 0,8

C = 1



L/L_1 ≙ Hub length
B_2/B_3 ≙ Clamping set length

Selection table for the calculation of the required outside diameter of hub D_N

Surface pressure between clamping set and hub		Average apparent yield point of material σ 0,2 in N/mm² (more accurate stiffness data, depending on the diameter, as per details mentioned by the manufacturer)										
		150	180	200	220	250	270	300	350	400	450	600
		Hub materials										
PN [N/mm²]	Hub form C-value	GG 20	GG 25 GS 38	GG 30 GTS 35	GS 45 ST 37-2	GGG 40 GS 52 AlCuMgPb	ST 50-2 C 35	GGG 50 GS 60 ST 52-3	GGG 60 GS 62 C 45	GGG 70 GS 70 C 60	Tempering steel	Tempering steel
	C = 0,6	1,28	1,25	1,20	1,18	1,15	1,14	1,12	1,10	1,09	1,08	1,06
60	C = 0,8	1,39	1,30	1,24	1,23	1,22	1,20	1,18	1,15	1,12	1,11	1,08
	C = 1	1,52	1,42	1,36	1,32	1,28	1,25	1,22	1,18	1,16	1,14	1,10
	C = 0,6	1,30	1,25	1,22	1,20	1,18	1,15	1,13	1,11	1,10	1,09	1,07
65	C = 0,8	1,44	1,35	1,30	1,28	1,24	1,22	1,20	1,16	1,14	1,12	1,09
	C = 1	1,60	1,45	1,40	1,35	1,30	1,28	1,24	1,20	1,18	1,16	1,12
	C = 0,6	1,34	1,26	1,24	1,22	1,18	1,16	1,15	1,12	1,11	1,10	1,07
70	C = 0,8	1,48	1,38	1,34	1,30	1,25	1,23	1,20	1,18	1,15	1,13	1,10
	C = 1	1,65	1,50	1,45	1,40	1,34	1,30	1,26	1,22	1,20	1,17	1,13
	C = 0,6	1,30	1,28	1,25	1,23	1,20	1,18	1,16	1,14	1,12	1,11	1,08
75	C = 0,8	1,52	1,42	1,36	1,32	1,28	1,25	1,22	1,18	1,16	1,14	1,11
	C = 1	1,74	1,55	1,48	1,42	1,36	1,33	1,30	1,25	1,20	1,18	1,13
	C = 0,6	1,39	1,31	1,28	1,25	1,21	1,20	1,18	1,15	1,13	1,11	1,08
80	C = 0,8	1,58	1,45	1,39	1,35	1,30	1,27	1,24	1,20	1,18	1,15	1,11
	C = 1	1,81	1,61	1,53	1,46	1,39	1,36	1,31	1,26	1,22	1,20	1,14
	C = 0,6	1,42	1,34	1,30	1,27	1,23	1,21	1,19	1,16	1,14	1,12	1,09
85	C = 0,8	1,63	1,49	1,42	1,38	1,32	1,29	1,26	1,22	1,19	1,16	1,12
	C = 1	1,90	1,67	1,57	1,50	1,42	1,39	1,34	1,28	1,24	1,21	1,15
	C = 0,6	1,46	1,36	1,32	1,28	1,25	1,22	1,20	1,17	1,15	1,13	1,09
90	C = 0,8	1,69	1,53	1,46	1,40	1,34	1,31	1,28	1,23	1,20	1,18	1,13
	C = 1	2,00	1,73	1,62	1,54	1,46	1,41	1,36	1,30	1,26	1,22	1,16
	C = 0,6	1,49	1,39	1,34	1,30	1,26	1,24	1,21	1,18	1,15	1,14	1,10
95	C = 0,8	1,75	1,57	1,49	1,43	1,37	1,34	1,30	1,25	1,21	1,19	1,14
	C = 1	2,11	1,80	1,68	1,59	1,49	1,44	1,39	1,32	1,27	1,24	1,17
	C = 0,6	1,53	1,41	1,36	1,32	1,28	1,25	1,22	1,19	1,16	1,14	1,11
100	C = 0,8	1,81	1,61	1,53	1,46	1,39	1,36	1,31	1,26	1,22	1,20	1,14
	C = 1	2,24	1,87	1,73	1,63	1,53	1,48	1,41	1,34	1,29	1,25	1,18
	C = 0,6	1,56	1,44	1,39	1,34	1,29	1,27	1,24	1,20	1,17	1,15	1,11
105	C = 0,8	1,88	1,66	1,56	1,50	1,42	1,38	1,33	1,28	1,24	1,21	1,15
	C = 1	2,38	1,95	1,79	1,68	1,56	1,51	1,44	1,36	1,31	1,27	1,19
	C = 0,6	1,60	1,47	1,41	1,36	1,31	1,28	1,25	1,21	1,18	1,16	1,12
110	C = 0,8	1,96	1,71	1,60	1,53	1,44	1,40	1,35	1,29	1,25	1,22	1,16
	C = 1	2,55	2,04	1,86	1,73	1,60	1,54	1,47	1,38	1,33	1,28	1,20
	C = 0,6	1,64	1,50	1,43	1,36	1,33	1,30	1,26	1,22	1,19	1,17	1,12
115	C = 0,8	2,04	1,76	1,64	1,56	1,47	1,43	1,37	1,31	1,26	1,23	1,17
	C = 1	2,75	2,13	1,93	1,79	1,64	1,58	1,50	1,41	1,34	1,30	1,21
	C = 0,6	1,69	1,53	1,46	1,40	1,34	1,31	1,28	1,23	1,20	1,18	1,13
120	C = 0,8	2,13	1,81	1,69	1,60	1,50	1,45	1,39	1,33	1,28	1,24	1,18
	C = 1	3,00	2,24	2,00	1,84	1,69	1,61	1,53	1,43	1,36	1,31	1,22
	C = 0,6	1,73	1,56	1,48	1,43	1,36	1,33	1,29	1,24	1,21	1,18	1,13
125	C = 0,8	2,24	1,87	1,73	1,63	1,53	1,48	1,41	1,34	1,29	1,25	1,18
	C = 1	3,32	2,35	2,08	1,91	1,73	1,65	1,56	1,45	1,38	1,33	1,24
	C = 0,6	1,78	1,59	1,51	1,45	1,38	1,35	1,30	1,25	1,22	1,19	1,14
130	C = 0,8	2,35	1,93	1,78	1,67	1,56	1,50	1,44	1,36	1,30	1,27	1,19
	C = 1	3,74	2,49	2,17	1,97	1,78	1,69	1,59	1,48	1,40	1,35	1,25
	C = 0,6	1,83	1,62	1,54	1,47	1,40	1,36	1,32	1,27	1,23	1,20	1,15
135	C = 0,8	2,48	2,00	1,83	1,71	1,59	1,53	1,46	1,38	1,32	1,28	1,20
	C = 1	4,36	2,65	2,27	2,04	1,83	1,73	1,62	1,50	1,42	1,36	1,26
	C = 0,6	1,88	1,66	1,56	1,50	1,42	1,38	1,33	1,28	1,24	1,21	1,15
140	C = 0,8	2,63	2,07	1,88	1,75	1,62	1,55	1,48	1,39	1,33	1,29	1,21
	C = 1	5,39	2,83	2,38	2,12	1,88	1,78	1,66	1,53	1,44	1,38	1,27
	C = 0,6	1,94	1,69	1,59	1,52	1,44	1,40	1,35	1,29	1,25	1,22	1,16
145	C = 0,8	2,80	2,15	1,94	1,80	1,65	1,58	1,50	1,41	1,35	1,30	1,22
	C = 1	7,68	3,05	2,50	2,21	1,94	1,82	1,69	1,55	1,46	1,40	1,28
	C = 0,6	2,00	1,73	1,62	1,54	1,46	1,41	1,36	1,30	1,26	1,23	1,16
150	C = 0,8	3,00	2,24	2,00	1,84	1,69	1,61	1,53	1,43	1,36	1,31	1,23
	C = 1	–	3,32	2,65	2,30	2,00	1,87	1,73	1,58	1,48	1,41	1,29
	C = 0,6	2,06	1,77	1,65	1,57	1,48	1,43	1,38	1,31	1,27	1,24	1,17
155	C = 0,8	3,25	2,33	2,06	1,89	1,72	1,65	1,55	1,45	1,38	1,33	1,23
	C = 1	–	3,66	2,80	2,40	2,06	1,92	1,77	1,61	1,51	1,43	1,30
	C = 0,6	2,13	1,81	1,69	1,60	1,50	1,45	1,39	1,33	1,28	1,24	1,18
160	C = 0,8	3,55	2,43	2,13	1,94	1,76	1,67	1,58	1,47	1,39	1,34	1,24
	C = 1	–	4,12	3,00	2,52	2,13	1,98	1,81	1,64	1,53	1,45	1,31
	C = 0,6	2,21	1,86	1,72	1,62	1,52	1,47	1,41	1,34	1,29	1,25	1,18
165	C = 0,8	3,96	2,55	2,21	2,00	1,80	1,71	1,60	1,49	1,41	1,35	1,25
	C = 1	–	4,80	3,23	2,65	2,21	2,04	1,86	1,67	1,55	1,47	1,33