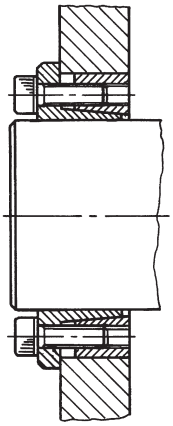
CLAMPING ELEMENTS

The clamping system connects one or two component parts solidly to the drive shaft, which allow motion to be transmitted or to withstand an axial thrust. Friction connection enables gaps to be eliminated, thereby ensuring greater precision of the keyed components without requiring strict processing tolerances. The thrust cones develop a pressure between the shaft and the hub, which enables pulleys, gears, chain sprockets, drums, flywheels, etc. to be anchored securely. The easy assembly and disassembly features give users many advantages leading to a further cost saving.

Chiaravalli Trasmissioni S.p.A. provides its Customers with different types of clamping elements, which are designed to cover a broad range of applications.

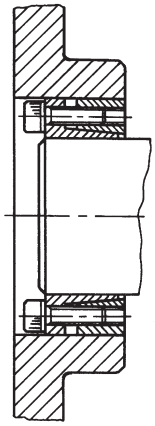
SELF-CENTRING RCK 15 TYPE

Suitable for assemblies where axial and radial positioning accuracy is required with medium-high torque values. The main feature is the possibility of varying the internal bores while maintaining the external dimensions constant at only three diameters.



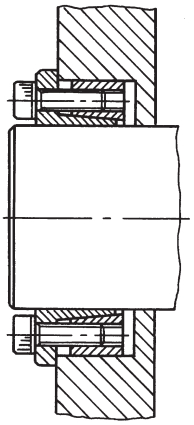
SELF-CENTRING RCK 13 TYPE

Suitable for assemblies where good concentricity is required in small spaces with medium-high torque values. Can substitute RCK 40 in some cases.



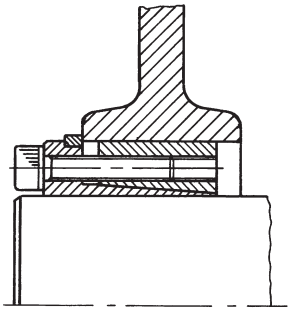
SELF-CENTRING RCK 16 TYPE

Suitable for assemblies where concentricity and positioning accuracy is required. Operates with medium-high torque values.



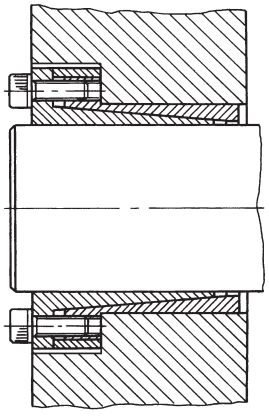
SELF-CENTRING RCK 70/71 TYPE (RCK 70 WITH SPACER)

The RCK 70 version is suitable for assemblies where concentricity and orthogonal positioning of the parts is required.
The RCK 71 version has the same features as RCK 70 with the addition of a spacer ring to completely avoid possible axial displacements.
These components operate with medium-high torque values.

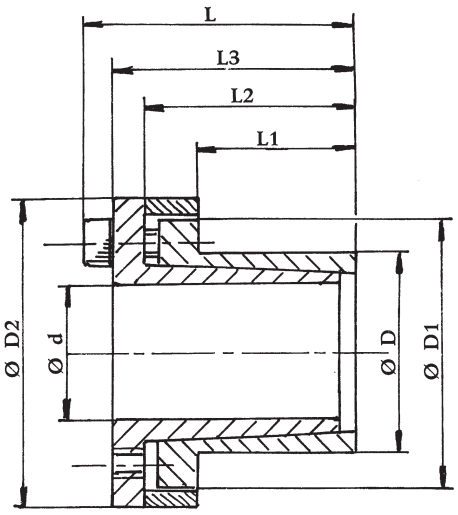


SELF-CENTRING RCK 80 TYPE

Suitable for assemblies on hubs with thin walls guarantees both axial and radial positioning precision with medium transmission torque values.



SELF-CENTRING TYPE CLAMPING ELEMENTS RCK 80



N.B. The recommended machining tolerances for the pressure surfaces are as follows:
h8 for Shaft
H8 for Hub

ORDERING EXAMPLE:
The following will be ordered with a shaft having Ød 95 with a torque value less than or equal to 11000 Nm: **RCK 80** - 95x120.

* = manufactured on request

RCK 80

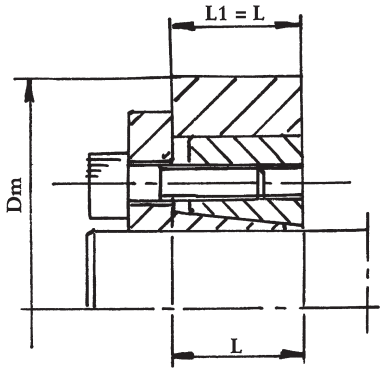
DIMENSIONS								Torque Mt Nm	PRESSURES		Clamping Screws DIN 912 MAT. 12.9			Extraction Thread	
Ød	ØD	ØD1	ØD2	L1	L2	L3	L		Shaft N/mm²	Hub N/mm²	No.	Type	Torque Nm	Type	No.
6	14	23	25	10	18.5	22.5	25.5	12	190	80	3	M3 x 10	2.2	M3	2
8	15	24	27	12	21.5	25.5	29.5	29	205	110	3	M4 x 12	5	M4	2
9	16	25	28	14	23.5	27.5	31.5	31	150	85	3	M4 x 12	5	M4	2
10	16	25	28	14	23.5	27.5	31.5	35	140	85	3	M4 x 12	5	M4	2
11	18	28	32	14	23.5	27.5	31.5	52	170	105	4	M4 x 12	5	M4	2
12	18	28	32	14	23.5	27.5	31.5	58	150	100	4	M4 x 12	5	M4	2
14	23	35	39	14	23.5	27.5	31.5	69	140	80	4	M4 x 12	5	M4	2
15	24	40	45	16	29.5	36.5	42.5	170	158	98	4	M6 x 18	17	M6	2
16	24	40	45	16	29.5	36.5	42.5	180	148	98	4	M6 x 18	17	M6	2
17	26	42	47	19	32.5	39.5	45.5	200	180	125	4	M6 x 18	17	M6	2
18	26	42	47	19	32.5	39.5	45.5	200	180	125	4	M6 x 18	17	M6	2
19	27	43	49	19	32.5	39.5	45.5	210	170	120	4	M6 x 18	17	M6	2
20	28	44	50	19	32.5	39.5	45.5	220	160	115	4	M6 x 18	17	M6	2
22	32	48	54	26	39.5	46.5	52.5	250	115	80	4	M6 x 18	17	M6	2
24	34	50	56	26	39.5	46.5	52.5	395	146	102	6	M6 x 18	17	M6	3
25	34	50	56	26	39.5	46.5	52.5	410	140	102	6	M6 x 18	17	M6	3
28	39	55	61	25.5	39.5	46.5	52.5	465	135	98	6	M6 x 18	17	M6	3
30	41	57	62	25.5	39.5	46.5	52.5	510	127	90	6	M6 x 18	17	M6	3
32	43	59	65	25.5	39.5	46.5	52.5	705	146	108	8	M6 x 18	17	M6	4
35	47	62	69	31.5	45.5	52.5	58.5	790	105	80	8	M6 x 18	17	M6	4
38	50	66	72	31.5	45.5	52.5	58.5	860	100	76	8	M6 x 18	17	M6	4
40	53	69	75	31.5	45.5	52.5	58.5	900	96	72	8	M6 x 18	17	M6	4
42	55	71	78	31.5	45.5	52.5	58.5	940	90	70	8	M6 x 18	17	M6	4
45	59	80	86	45	62.5	71	79	1840	110	85	8	M8 x 22	41	M8	4
48	62	81	87	45	62.5	71	79	2000	105	80	8	M8 x 22	41	M8	4
50	65	86	92	45	62.5	71	79	2100	100	75	8	M8 x 22	41	M8	4
55	71	92	98	55	72.5	81	89	2580	85	65	9	M8 x 22	41	M8	3
60	77	98	104	55	72.5	81	89	2800	75	60	9	M8 x 22	41	M8	3
65	84	105	111	55	72.5	81	89	3050	70	55	9	M8 x 22	41	M8	3
70	90	113	119	65	86.5	96.5	106.5	5250	90	70	9	M10 x 25	83	M10	3
75	95	119	126	65	86.5	96.5	106.5	5600	80	65	9	M10 x 25	83	M10	3
80	100	125	131	65	86.5	96.5	106.5	8000	100	80	12	M10 x 25	83	M10	4
* 85	106	131	137	65	86.5	96.5	106.5	8500	95	75	12	M10 x 25	83	M10	4
90	112	137	144	65	86.5	96.5	106.5	9000	90	75	12	M10 x 25	83	M10	4
* 95	120	142	149	65	86.5	96.5	106.5	11000	100	80	14	M10 x 25	83	M10	4
100	125	147	154	65	86.5	96.5	106.5	15000	120	95	18	M10 x 25	83	M10	4
110	140	172	180	90	114	128	140	16000	80	65	12	M12 x 35	154	M12	4
120	155	187	198	90	114	128	140	17500	70	55	12	M12 x 35	145	M12	4

Checking minimum hub diameter Dm

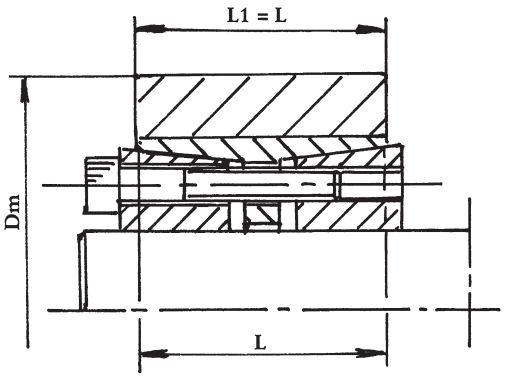
The minimum external hub diameter (Dm) must be checked after the type of clamping element with the required features has been selected, since the hub must withstand the stresses produced by the high pressures developed by the clamping element.
The check is merely static and only refers to the stresses generated by the clamping element:

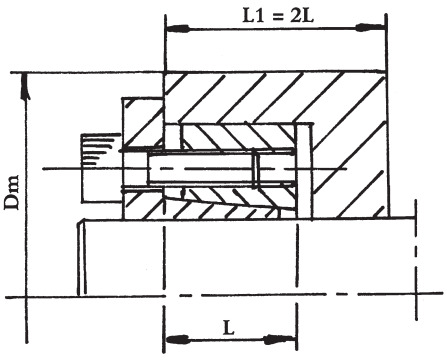
$$Dm \geq D \times \sqrt{\frac{Rs_{0.2} + (Pm \times C)}{Rs_{0.2} - (Pm \times C)}}$$

Dove:
- Dm = external hub diameter (mm)
- D = external diameter of clamping element (mm)
- $Rs_{0.2}$ = yield strength for a permanent elongation of 0.2% (N/mm^2)
- Pm = specific pressure exerted on the hub by the clamping element (N/mm^2)
- C = Utilisation coefficient depending on the hub profile (refer to the figures below).

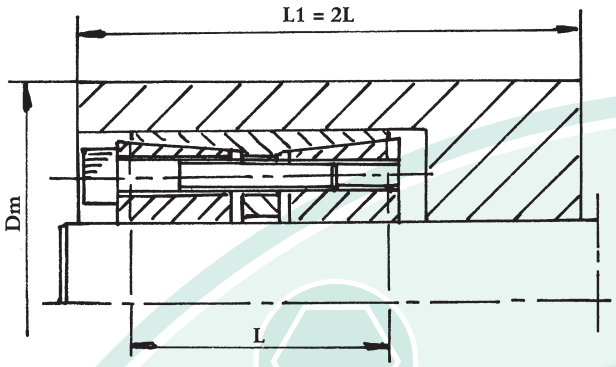


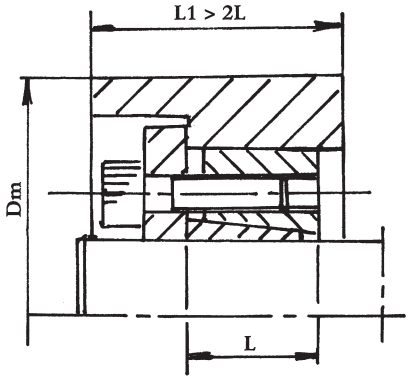
C = 1





C = 0.8





C = 0.6