

# CLAMPING ELEMENTS

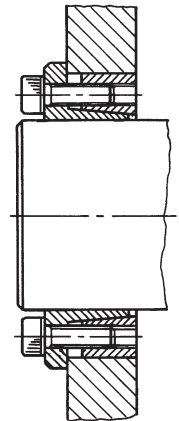
The clamping system connects one or two component parts solidly to the drive shaft, which allow motion to be transmitted or to withstand an axial thrust. Friction connection enables gaps to be eliminated, thereby ensuring greater precision of the keyed components without requiring strict processing tolerances. 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



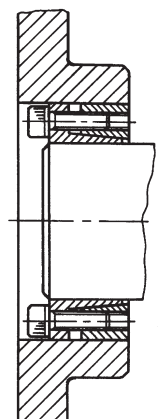
Suitable for assemblies where axial and radial positioning accuracy is required with medium-high torque values. The main feature is the possibility of varying the internal bores while maintaining the external dimensions constant at only three diameters.



## SELF-CENTRING RCK 13 TYPE



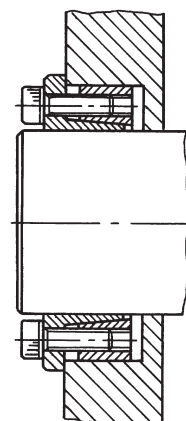
Suitable for assemblies where good concentricity is required in small spaces with medium-high torque values. Can substitute RCK 40 in some cases.



## SELF-CENTRING RCK 16 TYPE



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



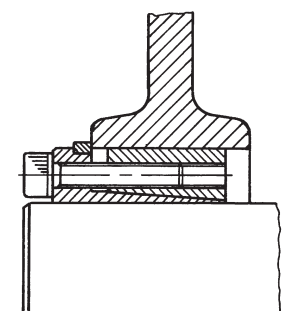
## SELF-CENTRING RCK 70/71 TYPE (RCK 70 WITH SPACER)



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.

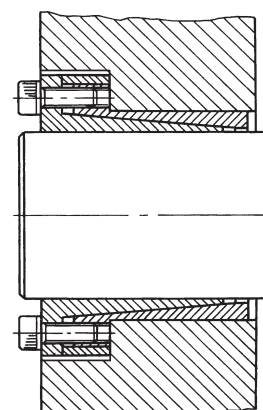
These components operate with medium-high torque values.

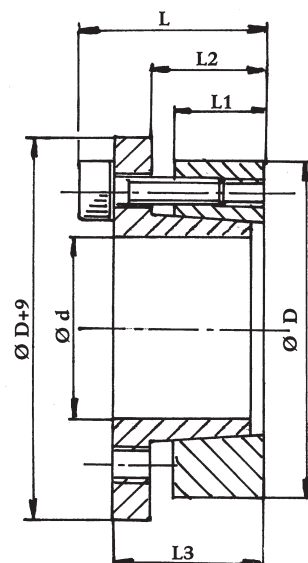


## SELF-CENTRING RCK 80 TYPE



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





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 75 with a torque value less than or equal to 5.000 Nm: **RCK 16 - 75x115.**

RCK 16

DIMENSIONS						PRESSURES			Clamping Screws DIN 912 MAT. 12.9			Extraction Thread	
Ød	ØD	L1	L2	L3	L	Torque Mt Nm	Shaft N/mm <sup>2</sup>	Hub N/mm <sup>2</sup>	No.	Type	Torque Nm	Type	No.
18	47	17	22	28	34	260	240	93	5	M6x20	17	M6	3
19	47	17	22	28	34	270	230	93	5	M6x20	17	M6	3
20	47	17	22	28	34	280	220	95	5	M6x20	17	M6	3
22	47	17	22	28	34	300	200	95	5	M6x20	17	M6	3
24	50	17	22	28	34	400	215	107	6	M6x20	17	M6	3
25	50	17	22	28	34	420	210	105	6	M6x20	17	M6	3
28	55	17	22	28	34	470	190	96	6	M6x20	17	M6	3
30	55	17	22	28	34	500	180	95	6	M6x20	17	M6	3
32	60	17	22	28	34	720	220	115	8	M6x20	17	M6	4
35	60	17	22	28	34	790	200	115	8	M6x20	17	M6	4
38	65	17	22	28	34	850	185	105	8	M6x20	17	M6	4
40	65	17	22	28	34	900	175	105	8	M6x20	17	M6	4
45	75	20	25	33	41	1620	215	125	7	M8x25	41	M8	3
50	80	20	25	33	41	1820	195	120	7	M8x25	41	M8	3
55	85	20	25	33	41	2300	200	130	8	M8x25	41	M8	4
60	90	20	25	33	41	2500	185	125	8	M8x25	41	M8	4
65	95	20	25	33	41	3050	190	130	9	M8x25	41	M8	3
70	110	24	30	40	50	4660	210	135	8	M10x30	83	M10	4
75	115	24	30	40	50	5000	195	125	8	M10x30	83	M10	4
80	120	24	30	40	50	5300	185	125	8	M10x30	83	M10	4
85	125	24	30	40	50	6350	195	135	9	M10x30	83	M10	3
90	130	24	30	40	50	6760	185	130	9	M10x30	83	M10	3
95	135	24	30	40	50	7900	195	135	10	M10x30	83	M10	4
100	145	26	32	44	56	9700	200	140	8	M12x35	145	M12	4
110	155	26	32	44	56	10600	180	130	8	M12x35	145	M12	4
120	165	26	32	44	56	13000	185	135	9	M12x35	145	M12	4
130	180	34	40	52	64	18900	175	125	12	M12x35	145	M12	6
140	190	34	40	54	68	20600	165	120	9	M14x40	230	M14	4
150	200	34	40	54	68	25100	175	130	10	M14x40	230	M14	5
160	210	34	40	54	68	29100	180	135	11	M14x40	230	M14	4
170	225	44	50	64	78	34100	140	105	12	M14x40	230	M14	6
180	235	44	50	64	78	36100	135	105	12	M14x40	230	M14	6

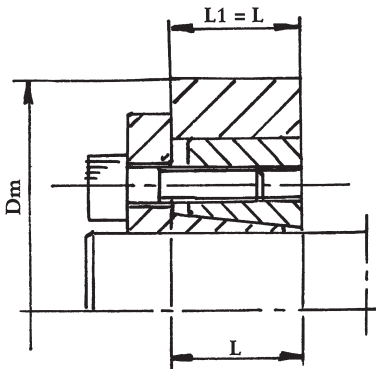
## Checking minimum hub diameter $D_m$

The minimum external hub diameter ( $D_m$ ) 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.

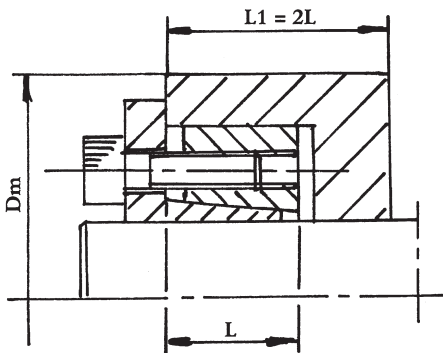
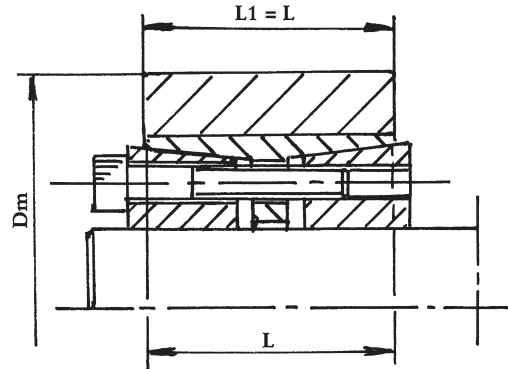
The check is merely static and only refers to the stresses generated by the clamping element:

$$D_m \geq D \times \sqrt{\frac{R_{s\ 0.2} + (P_m \times C)}{R_{s\ 0.2} - (P_m \times C)}}$$

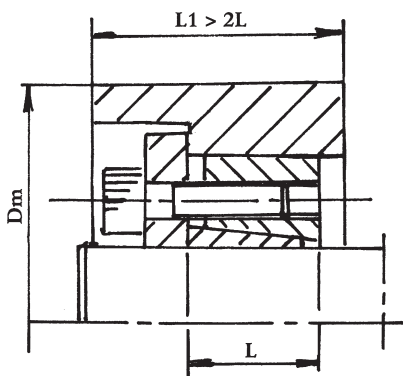
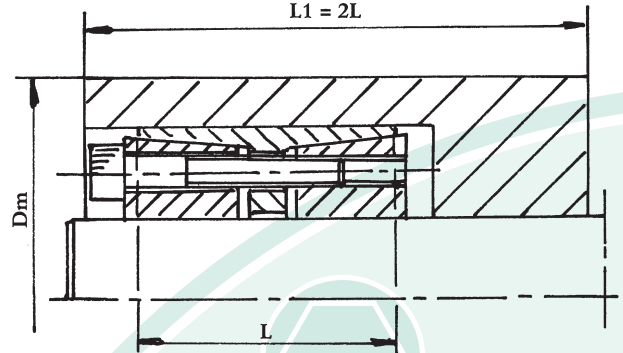
- Dove:  $D_m$  = external hub diameter (mm)  
 $D$  = external diameter of clamping element (mm)  
 $R_{s\ 0.2}$  = yield strength for a permanent elongation of 0.2% (N/mm<sup>2</sup>)  
 $P_m$  = specific pressure exerted on the hub by the clamping element (N/mm<sup>2</sup>)  
 $C$  = Utilisation coefficient depending on the hub profile (refer to the figures below).



$C = 1$



$C = 0.8$



$C = 0.6$

