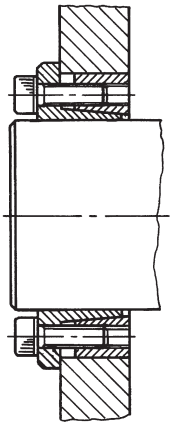
CLAMPING ELEMENTS

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.

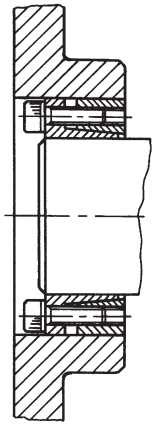
SELF-CENTRING RCK 15 TYPE

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.

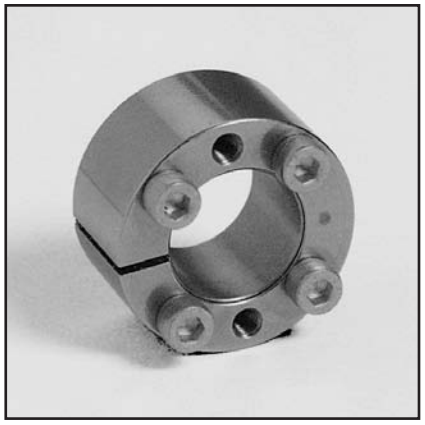


SELF-CENTRING RCK 13 TYPE

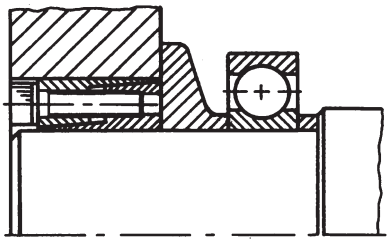
Suitable for assemblies where good concentricity is required in small spaces with medium-high torque values. Can substitute RCK 40 in some cases.



SELF-CENTRING RCK 61 TYPE

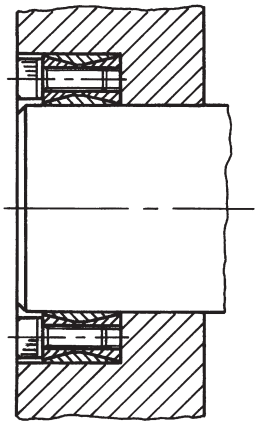


Enables adjacent components to be clamped to the hub thanks to an axial force achieved during the clamping phase.
Operates with medium torque values.



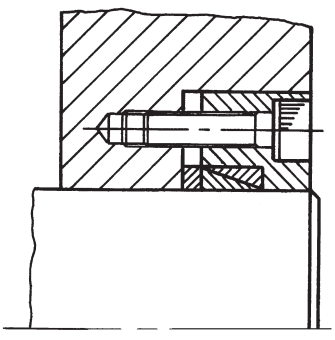
RCK 40 TYPE

Suitable for general applications, is not self-centring and therefore requires a centring band to ensure perfect concentricity.
Operates with medium-high torque values.

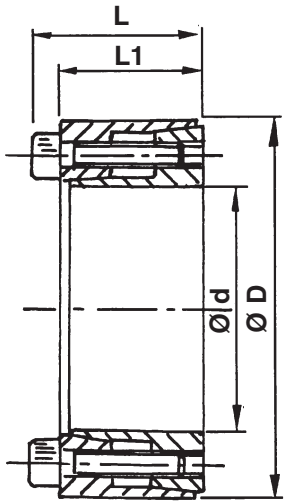


RCK 50 TYPE

Comprising two tapered rings, must always be mounted with a tightening flange.
Operates with low torque values; not self-centring.



SELF-CENTRING TYPE CLAMPING ELEMENTS RCK 61



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 15 with a torque value less than or equal to 40 Nm: **RCK 61** - 15x28.

RCK 61

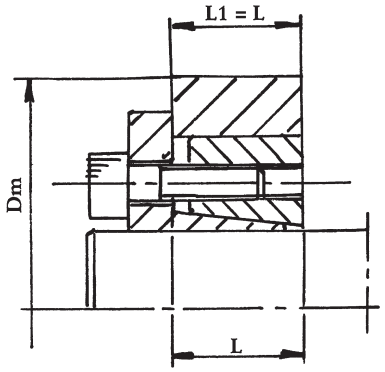
DIMENSIONS				Torque	PRESSURES		Clamping Screws DIN 912 MAT. 12.9			Extraction Thread	
Ød	ØD	L1	L	Mt Nm	Shaft N/mm²	Hub N/mm²	No.	Type	Torque Nm	Type	No.
10	20	13	15.5	15	110	55	4	M2.5x12	1.2	M2.5	2
12	22	13	15.5	20	90	50	4	M2.5x12	1.2	M2.5	2
14	26	17	20	35	105	55	4	M3x16	2.1	M3	2
15	28	17	20	40	100	50	4	M3x16	2.1	M3	2
16	32	17	21	70	130	65	4	M4x16	4.9	M4	2
18	35	21	25	80	115	60	4	M4x20	4.9	M4	2
19	35	21	25	85	110	60	4	M4x20	4.9	M4	2
20	38	21	26	220	220	115	6	M5x20	9.7	M5	3
22	40	21	26	240	200	110	6	M5x20	9.7	M5	3
24	47	26	32	380	220	110	6	M6x25	16.2	M6	3
25	47	26	32	390	210	110	6	M6x25	16.2	M6	3

Checking minimum hub diameter Dm

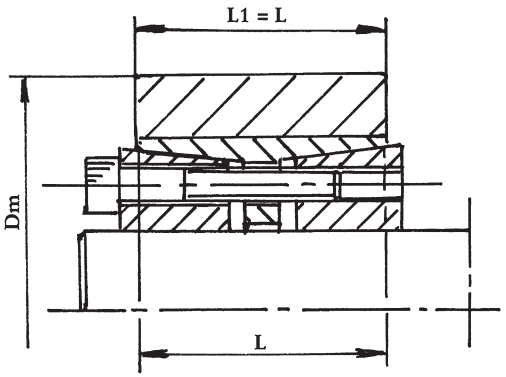
The minimum external hub diameter (Dm) must be checked after the type of clamping element with the required features has been selected, since the hub must withstand the stresses produced by the high pressures developed by the clamping element.
The check is merely static and only refers to the stresses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

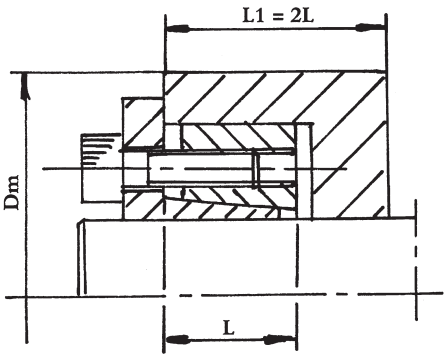
$$Dm \geq D \times \sqrt{\frac{Rs_{0.2} + (Pm \times C)}{Rs_{0.2} - (Pm \times C)}}$$

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).

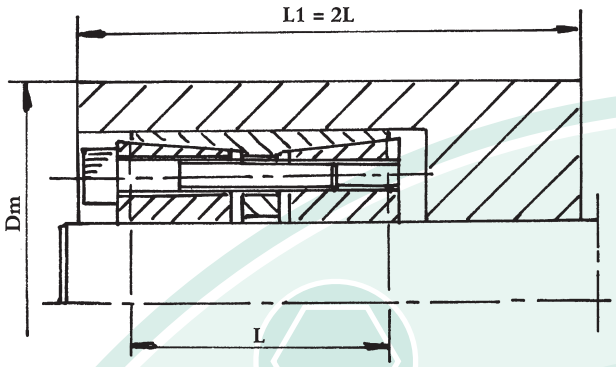


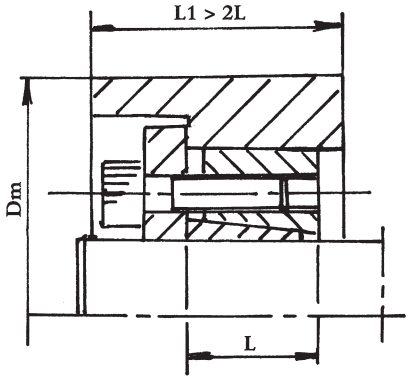
C = 1





C = 0.8





C = 0.6