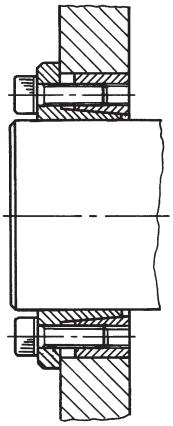
CLAMPING ELEMENTS

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.

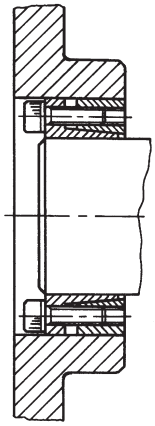
SELF-CENTRING RCK 15 TYPE

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.



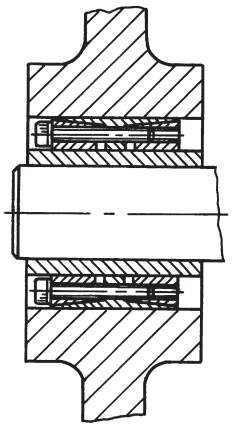
SELF-CENTRING RCK 13 TYPE

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



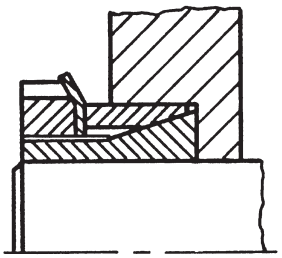
SELF-CENTRING RCK 11 TYPE

Suitable for assemblies where special, even heavy-duty conditions are required, achieving maximum friction clamping results.
Incorporates the best features of all the models presented.
Operates with very high torque values.



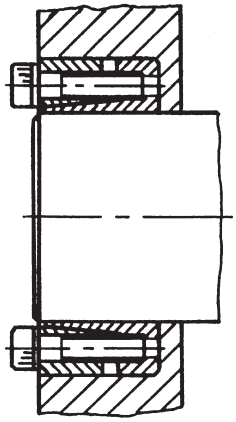
SELF-CENTRING RCK 55 TYPE

Suitable for assemblies where limited overall dimensions and times are required.
Operates with medium-low torque values.

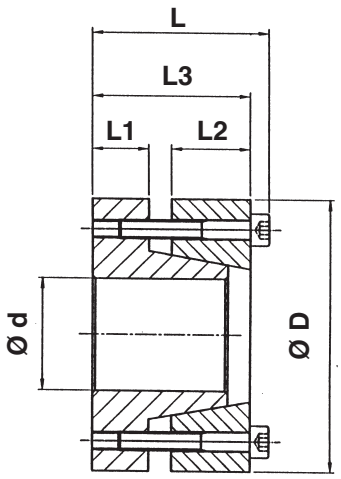


SELF-CENTRING RCK 60 TYPE

Suitable for assemblies where a medium-high twisting moment is required.
Operates in the opposite mode to RCK 13.



SELF-CENTRING TYPE CLAMPING ELEMENTS RCK 60



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 30 with a torque value less than or equal to 480 Nm: **RCK 60** - 30x55.

RCK 60

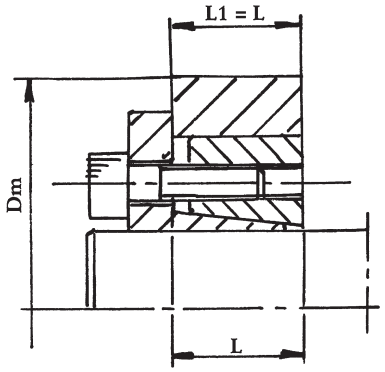
DIMENSIONS						Torque Mt Nm	Axial force N	PRESSURES		Clamping Screws DIN 912 MAT. 12.9			Extraction Thread	
Ød	ØD	L1	L2	L3	L			Shaft N/mm²	Hub N/mm²	No.	Type	Torque Nm	Type	No.
20	47	10	14	28	34	245	29400	210	93	5	M6x25	17	M6	3
22	47	10	14	28	34	265	30000	196	93	5	M6x25	17	M6	3
24	50	10	14	28	34	370	32300	215	108	6	M6x25	17	M6	3
25	50	10	14	28	34	390	33300	210	108	6	M6x25	17	M6	3
30	55	10	14	28	34	480	41200	186	98	6	M6x25	17	M6	3
35	60	10	14	28	34	735	44100	186	108	8	M6x25	17	M6	4
38	65	10	14	28	34	790	46100	206	103	8	M6x25	17	M6	4
40	65	10	14	28	34	830	47000	186	103	8	M6x25	17	M6	4
42	75	12	18	35	43	1450	66000	225	132	7	M8x30	41	M8	4
45	75	12	18	35	43	1560	70000	220	132	7	M8x30	41	M8	4
50	80	12	18	35	43	1650	72000	206	127	7	M8x30	41	M8	4
55	85	12	18	35	43	2250	80000	210	132	8	M8x30	41	M8	4
60	90	12	18	35	43	2450	83000	186	122	8	M8x30	41	M8	4
65	95	12	18	35	43	2890	90000	200	132	9	M8x30	41	M8	3
70	110	16	24	46	56	4700	130000	220	140	8	M10x40	83	M10	4

Checking minimum hub diameter Dm

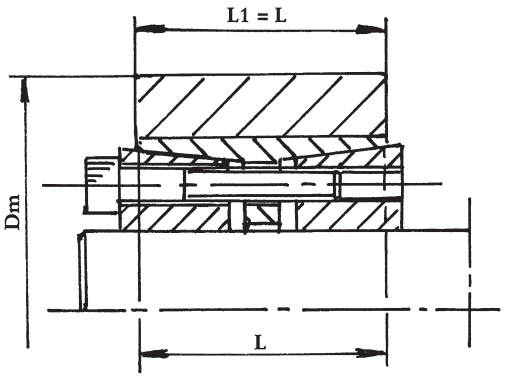
The minimum external hub diameter (Dm) must be checked after the type of clamping element with the required features has been selected, since the hub must withstand the stresses produced by the high pressures developed by the clamping element.
The check is merely static and only refers to the stresses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

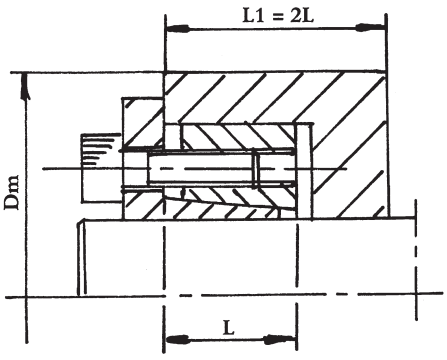
$$Dm \geq D \times \sqrt{\frac{Rs_{0.2} + (Pm \times C)}{Rs_{0.2} - (Pm \times C)}}$$

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).

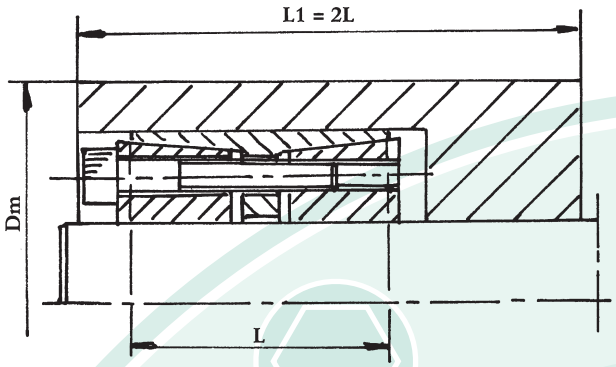


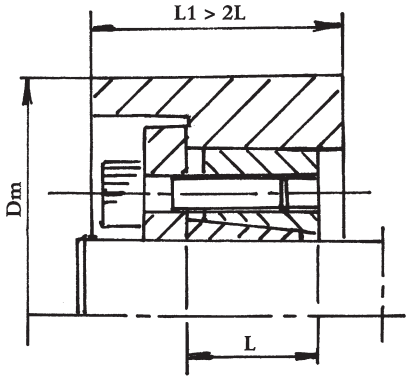
C = 1





C = 0.8





C = 0.6