Centering Bore Clamps

SPECIFICATION

Types

- Type **K**: With clamping balls
- Type **S**: With clamping segments

Steel

- Hardened
- Blackened

Clamping balls / segments

- Hardened
- Plain, tumbled

INFORMATION

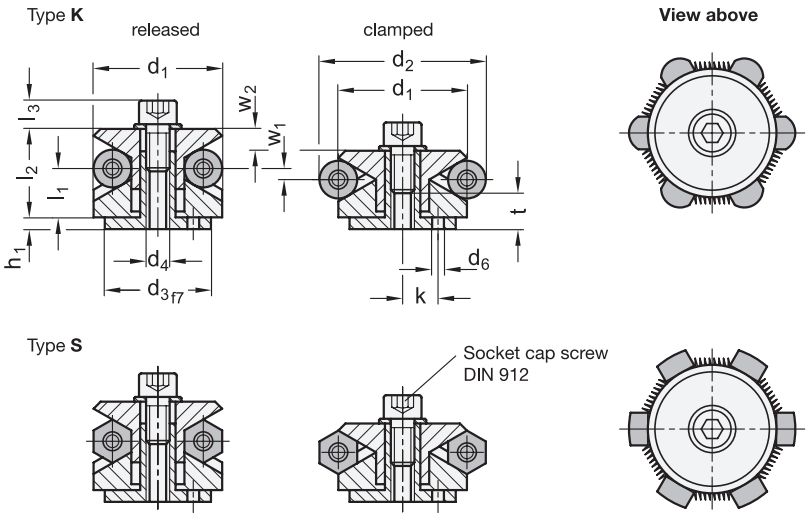
With centering bore clamps GN 411.2 workpieces can be centrally positioned and clamped from the inside of the bore.
They offer the following advantages:
- Precise self centering
- Repetitive accuracy: ± 0.025
- Accuracy of concentricity: ± 0.05
- Solid and stable clamping through either 3 or 6 contact points on the workpiece
- Clamping of workpieces with uneven or irregular surface (such as castings) with type K
- Distortion free clamping
- Reduced height
- Can be fitted in any position
- Large adjustable range
- Draw-down clamping

ON REQUEST

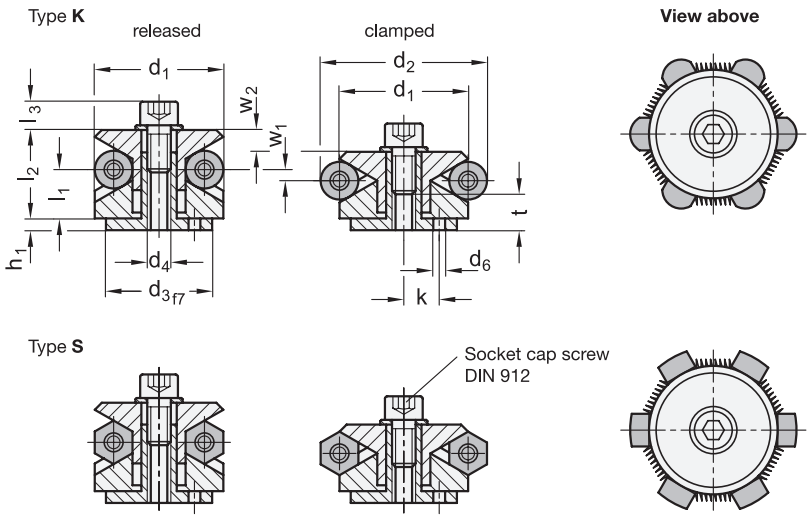
- Centering bore clamps GN 411.3, operable from the opposite side respectively for hydraulic or pneumatic operation
- Centering bore clamps with 2 clamping elements for clamping tubes

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



GN 411.2 | Centering Bore Clamps



GN 411.2-K

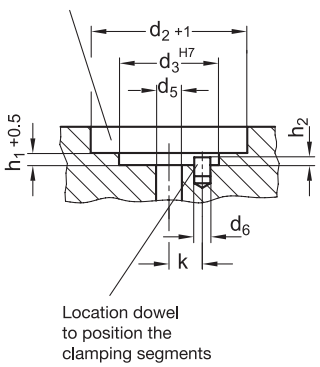
Description	d1	d2	d3	d4	d5	d6	h1	h2	k ±0.1	l1	l2	l3	t min.	w1	w2	Number of clamping elements	Clamping force in kN	⚖
GN 411.2-11,7-K	11.7	14.2	10	M 4	4.3	1.5	3.5	2.5	3.5	3.9	8.6	6.3	4	0.7	1.3	3	0.5	12
GN 411.2-14,5-K	14.5	18.5	12	M 4	4.3	2	5.5	3.5	4.5	9.8	14.2	5	6	1.2	2.3	3	3.5	20
GN 411.2-18,5-K	18.5	22.5	15	M 5	5.3	2.5	7.5	3	5.5	11.5	16.5	6.2	7	1.2	2.3	3	4	39
GN 411.2-22,5-K	22.5	26.5	20	M 6	6.4	3	6	4	7	14.1	19.6	9	8	1.2	2.3	3	4.5	56
GN 411.2-26,5-K	26.5	30.5	20	M 6	6.4	3	6	4.5	7	14.1	19.8	9	8	1.2	2.3	3	4.5	86
GN 411.2-30,5-K	30.5	38.5	25	M 6	6.4	4	7	4.5	9	14.1	23.2	9	8	2.3	4.6	3	4.5	125
GN 411.2-38,5-K	38.5	46.5	30	M 8	8.4	4	7.5	4.5	11	18	27.2	12	10	2.3	4.6	6	6.5	233
GN 411.2-46,5-K	46.5	54.5	30	M 8	8.4	4	7.5	4.5	11	18	27.1	12	10	2.3	4.6	6	6.5	323
GN 411.2-54,5-K	54.5	70.5	45	M 10	10.5	5	9	5.5	15	23.7	40.6	14	12	4.7	9.2	6	8	653
GN 411.2-70,5-K	70.5	86.5	60	M 12	13	5	10	5.5	17	28.3	46.1	17	15	4.7	9.2	6	10	1271
GN 411.2-86,5-K	86.5	102.5	60	M 16	17	5	10	5.5	25	30.3	51.2	21	15	4.7	9.2	6	12.5	1783

GN 411.2-S

Description	d1	d2	d3	d4	d5	d6	h1	h2	k ±0.1	l1	l2	l3	t min.	w1	w2	Number of clamping elements	Clamping force in kN	⚖
GN 411.2-14,5-S	14.5	18.5	12	M 4	4.3	2	5.5	3.5	4.5	9.8	14.2	5	6	1.2	2.3	3	3.5	20
GN 411.2-18,5-S	18.5	22.5	15	M 5	5.3	2.5	7.5	3	5.5	11.5	16.5	6.2	7	1.2	2.3	3	4	39
GN 411.2-22,5-S	22.5	26.5	20	M 6	6.4	3	6	4	7	14.1	19.6	9	8	1.2	2.3	3	4.5	61
GN 411.2-26,5-S	26.5	30.5	20	M 6	6.4	3	6	4.5	7	14.1	19.8	9	8	1.2	2.3	3	4.5	87
GN 411.2-30,5-S	30.5	38.5	25	M 6	6.4	4	7	4.5	9	14.1	23.2	9	8	2.3	4.6	3	4.5	127
GN 411.2-38,5-S	38.5	46.5	30	M 8	8.4	4	7.5	4.5	11	18	27.2	12	10	2.3	4.6	6	6.5	235
GN 411.2-46,5-S	46.5	54.5	30	M 8	8.4	4	7.5	4.5	11	18	27.1	12	10	2.3	4.6	6	6.5	325
GN 411.2-54,5-S	54.5	70.5	45	M 10	10.5	5	9	5.5	15	23.7	40.6	14	12	4.7	9.2	6	8	660
GN 411.2-70,5-S	70.5	86.5	60	M 12	13	5	10	5.5	17	28.3	46.1	17	15	4.7	9.2	6	10	1280
GN 411.2-86,5-S	86.5	102.5	60	M 16	17	5	10	5.5	25	30.3	51.2	21	15	4.7	9.2	6	12.5	1792

Dimensions

The recess d_2 is only required for clamping very low parts.



Location dowel to position the clamping segments

Operating principle

A circular ball cage containing 3 or 6 balls is forced outwards over an accurately guided cone by means of a screw which, through the exerted thrust, will enlarge the outside diameter of the circular ball cage. This in turn will lead to a firm contact between the centring clamp and bore of the workpiece.

Type K (with balls) is used for clamping applications where minute ball marks at the contact points with the workpiece are acceptable.

Type S (with clamping segments) is used in such cases where marks at the clamping points on the workpiece would be acceptable.