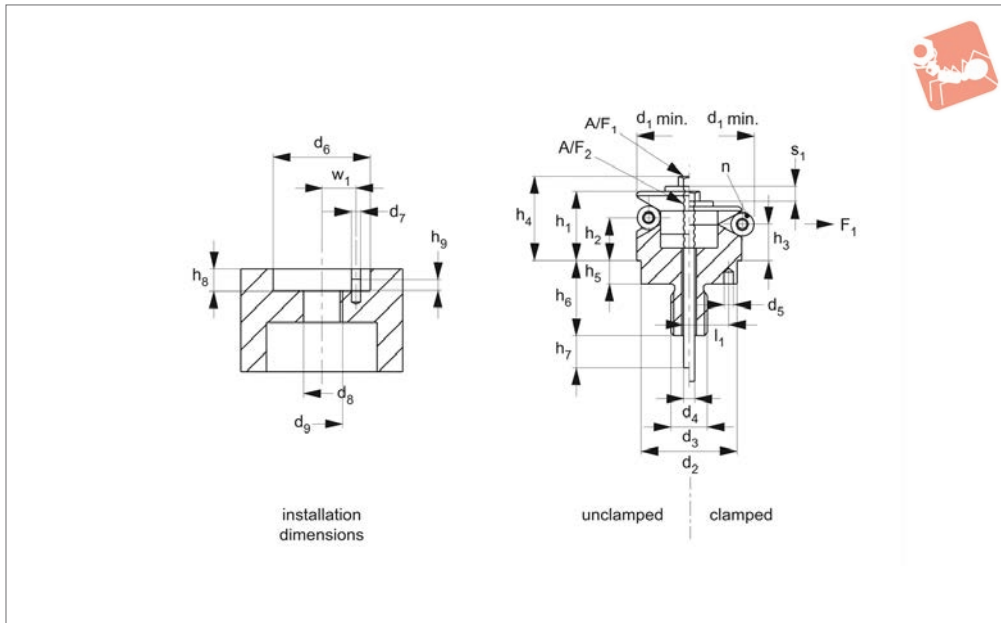




Internal Centering Clamps

rear actuated, for casts and forgings

Bore Clamping



12072

BORE CLAMPING

Material

Body: tool steel, blackened.
 Top cone: case hardened stainless steel 1.4112, blackened and ground.
 Ball: stainless steel, 1.4034, hardened and ground.
 Spring: stainless steel, 1.4310 (AISI 301).

Technical Notes

Suitable for concentric positioning and chucking inside holes, provided that small

ball impressions can be accepted.
 Pull down version can be actuated from rear either manually, or via pneumatic of hydraulic cylinder attached to thread „d₄“ at rear of clamp.
 For deep installation applications, „d₂ max.“ must be maintained for clearance.
 A locking pin can be used for precise ball positioning.
 Repeatability and rotational accuracy,

±0,025.

Tips

Suitable for; machining centres, welding devices, transfer units, assembly units etc.

Important Notes

If machining delicate components, see parts 12062.

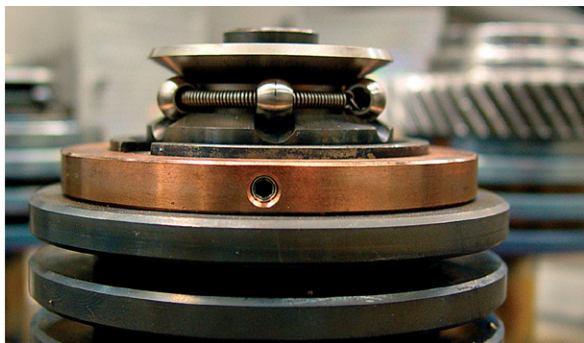
Order No.	h ₁	h ₂	h ₃	l ₁ ±0.1	w ₁ ±0.1	d ₁ min.	d ₁ max.	d ₂ tol. f7	d ₃	d ₄	d ₅ +0.3	d ₆ tol. H7	d ₇	d ₈	Weight g
12072.W0211	9.9	3.9	3.2	3.5	3.5	11.7	14.2	10	M 5	M 3	1.5	10	1.5	5	12
12072.W0214	14.2	9.8	8.6	4.5	4.5	14.5	18.5	12	M 6	M 3	2.0	12	2.0	6	21
12072.W0218	16.5	11.6	10.4	5.5	5.5	18.5	22.5	15	M 8	M 4	2.5	15	2.5	8	45
12072.W0222	19.6	14.1	12.9	7.0	7.0	22.5	26.5	20	M10	M 5	3.0	20	3.0	10	77
12072.W0226	19.8	14.1	13.0	7.0	7.0	26.5	30.5	20	M10	M 5	3.0	20	3.0	10	96
12072.W0230	23.2	14.1	11.8	9.0	9.0	30.5	38.5	25	M12	M 6	4.0	25	4.0	12	140
12072.W0238	27.1	18.0	15.5	11.0	11.0	38.5	46.5	30	M12	M 6	4.0	30	4.0	12	246
12072.W0246	27.2	18.0	15.7	11.0	11.0	46.5	54.5	30	M12	M 6	4.0	30	4.0	12	327
12072.W0254	40.6	23.7	19.1	15.0	15.0	54.5	70.5	45	M14x1,5	M 8	5.0	45	5.0	14	650
12072.W0270	46.1	28.3	23.7	17.0	17.0	70.5	86.5	60	M16x1,5	M 8	5.0	60	5.0	16	1272
12072.W0286	51.2	30.3	25.7	25.0	25.0	86.5	102.5	60	M16x1,5	M10	5.0	60	5.0	16	2042

Order No.	d ₉	h ₄ -2	h ₅	h ₆ +1	h ₇ ≈	h ₈ +0,5	h ₉	Stroke s ₁	A/F ₁	A/F ₂	A/F ₃	Torque to Nm max.	Clamping force F ₁ kN	Ball dia.	Number of balls n
12072.W0211	M 5	12.7	3.5	11.0	10	3.5	2.0	1.3	5.5	4	8	2	0.5	2.5	3
12072.W0214	M 6	17.0	5.5	14.1	12	5.5	2.5	2.3	5.5	3	10	2	3.5	4.0	3
12072.W0218	M 8	20.4	7.5	18.2	14	7.5	3.5	2.3	7.0	5	13	5	4.0	4.0	3
12072.W0222	M10	24.3	6.0	17.4	15	6.0	3.5	2.3	8.0	6	16	10	4.5	4.0	3
12072.W0226	M10	24.5	6.0	17.4	15	6.0	3.5	2.3	8.0	6	16	10	4.5	4.0	3
12072.W0230	M12	28.8	7.0	21.9	20	7.0	3.5	4.6	10.0	6	18	17	4.5	8.0	3
12072.W0238	M12	33.0	7.5	22.5	20	7.5	4.5	4.6	10.0	8	18	17	6.5	8.0	6
12072.W0246	M12	33.1	7.5	22.5	20	7.5	6.5	4.6	10.0	8	18	17	6.5	8.0	6
12072.W0254	M14x1,4	49.9	9.0	24.5	32	9.0	6.5	9.2	13.0	10	21	43	8.0	16.0	6



Order No.	d_9	h_4 -2	h_5	h_6 +1	h_7 \approx	h_8 +0.5	h_9	Stroke s_1	A/F_1	A/F_2	A/F_3	Torque to Nm max.	Clamping force F_1 kN	Ball dia.	Number of balls n
12072.W0270	M16x1,5	55.4	10.0	29.4	20	10.0	6.5	9.2	13.0	12	24	43	10.0	16.0	6
12072.W0286	M16x1,5	61.6	10.0	29.4	25	10.0	6.5	9.2	16.0	12	24	79	15.5	16.0	6

BORE CLAMPING





Self Centering Internal Clamps

12061, 62 -
12071, 72
Clamping & Height Setting

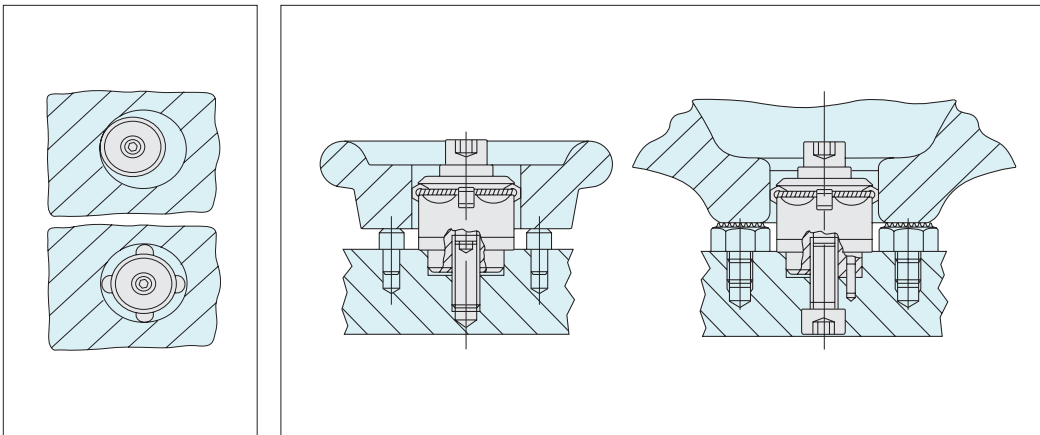
The internal centering clamp provides autocentric chucking inside both round and square holes, at the simple turn of a hexagon screw. Precise self-centering is achieved through the expansion of the ring of balls which, during clamping, are pressed outward across a precision cone. As the outer diameter of the clamp changes the balls transmit force between its body and the bore. The clamps are used in machining and welding fixtures, product assemblies and transfer units.



- Easy to use.
- Precise self-centering and downhold clamping minimising tolerance errors.
- 3 or 6 points of clamping for maximum stability.
- Clamping on uneven surfaces, such as casts and forgings.
- Low height clamping element.
- Bore sizes 11 to 102mm.
- Repeatability positioning accuracy $\pm 0,025$ and rotational accuracy $\pm 0,025$.
- Easily actuated by the turn of a screw.
- Clamping of workpieces with perforated walls without distortion.
- Actuation from above or below.

Advantages

Centering



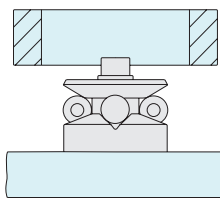
Manual from above

Manual, hydraulic or pneumatic from below

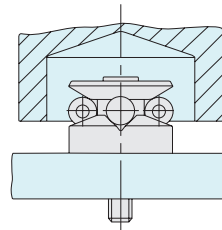
Actuation Models



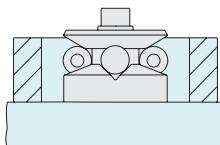
12061 - for delicate workpieces (non-marking).



12062 - for delicate workpieces (non-marking).



12071 - for cast and more robust workpieces.



12072 - for cast and more robust workpieces.

