HYDRAULIC BORE CLAMPS FOR 5-SIDE MACHINING

- clamping force up to 31 kN
- operating pressure up to 350 bar
- internal clamping
- oil supply via threaded port or oil channel in the fixture body

PRODUCT OVERVIEW:

Type	Clamping force [kN]	Bore hole diameter [mm]	No. of models	Oil connection	Operating mode
6970	4,0 - 31,0	8,8 - 25,9	17	thread/O-Ring	single acting
6970-xx-50	3,5 - 11,5	6,8 - 14,7	8	thread/O-Ring	single acting
6970D	5,0	5,9 - 10,8	8	O-Ring	double acting
6970D	9,5	10,9 - 16,8	6	O-Ring	double acting
6970CD MINI	2,76	5,2 - 7,7	4	O-Ring	double acting
6970CD MAXI	4,1 - 7,5	7,8 - 13,8	6	O-Ring	double acting

PRODUCT EXAMPLES:

NO. 6970

> clamping force: 4 - 31 kN

NO. 6970D

> clamping force: 5,0 - 9,5 kN

NO. 6970CD

> clamping force: 2,76 - 5,0 kN

No. 6970

Bore clamp, hydraulic, centric

Single-acting, with spring return,
max. operating pressure 350 bar,
min. operating pressure 30 bar.
lateral compensation per clamp ± 0.25 mm.

Order no.	Article no.	Clamping force vertical [kN]	Clamping rim height min. [mm]	Permissible horizontal force [kN]	Radial force of sleeve segments [kN]	dia. K [mm]	L	Weight [g]
63651	6970-09	4	6	1,2	12	8,8-9,7	10	2600
60293	6970-10	4	6	1,2	12	9,8-10,7	10	2600
60301	6970-11	10	8	3,0	30	10,8-11,9	15	2600
60319	6970-12	10	8	3,0	30	12,0-12,9	15	2600
63677	6970-13	10	8	3,0	30	13,0-13,9	15	2600
60418	6970-14	10	8	3,0	30	14,0-14,9	15	2600
60434	6970-15	26	9	7,7	77	15,0-15,9	17	2800
60525	6970-16	26	9	7,7	77	16,0-16,9	17	2800
60426	6970-17	26	9	7,7	77	17,0-17,9	17	2800
63693	6970-18	26	9	7,7	77	18,0-18,9	17	2800
60616	6970-19	26	9	7,7	77	19,0-19,9	17	2800
60715	6970-20	31	10	9,2	92	20,0-20,9	17	2900
60723	6970-21	31	10	9,2	92	21,0-21,9	17	2900
63719	6970-22	31	10	9,2	92	22,0-22,9	17	2900
60731	6970-23	31	10	9,2	92	23,0-23,9	17	2900
60376	6970-24	31	10	9,2	92	24,0-24,9	17	2900
60384	6970-25	31	10	9,2	92	25,0-25,9	17	2900

Design:

The actuating piston is single-acting. Cylinder body, clamping segments and tensioning bolts from hardened steel, gas-nitrided. Four-part clamping segments are externally serrated.
A Ø 8 H7 centring hole located on the underside for positioning the clamping element. Two fastening screws are included in the supply scope. Oil supply via threaded connection or oil channel in the fixture body.

Application:

The hydraulic bore clamp is preferred for use on workpieces with complex external geometries that must be clamped for machining.
After the clamping segments are applied to single-attachment clamping holes with low depth, a safe 5-sided processing can be performed without difficulty.
Workpieces can be installed or removed automatically with handling devices.

Features:

The tension bolt has the shape of a four-sided pyramid at the coupling point to the clamping sleeve. The clamping sleeve segments have this shape also, thus ensuring contact on the entire surface in every position of the tension bolt.
This facilitates a high clamping force and ensures very low wear.
Elastic rings hold the clamping segments together and seal them against entry of chips. Depending on the material, the external serration is pressed into the clamping hole with more or less force, thus permitting the required positive fit. The built-in plate springs achieve a maximum pull-down stroke of approx. 0.2 mm.

The tension bolt has a pyramid shape for improved pre-centring of workpieces.

The bore clamp is also the contact surface for the workpiece.
The workpiece contact surface is hard-metal coated (µ 0.3), thereby significantly increasing the displacement force.

The eccentric arrangement of the clamping elements is especially suited for clamping workpieces with circumferential contact edge, such as gear and engine housings, oil pans and similar workpieces.

Note:

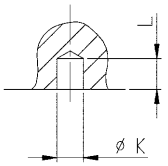
The lateral force when inserting the workpiece must not exceed the „lateral force“ table value. The radial force must be observed.

Please check with us for clamping hardened workpieces or those from GG / GGG.

On request:

Bore clamps for other hole diameters available upon request.

Clamping hole in workpiece:



CAD

Subject to technical alterations.

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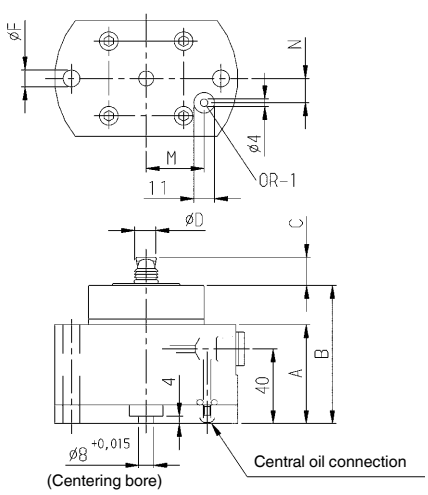
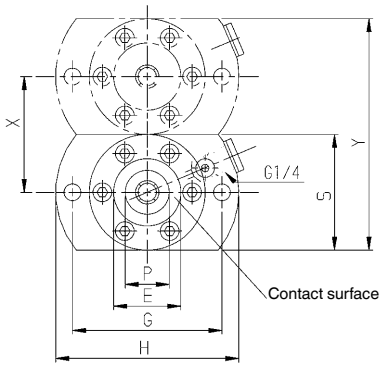




Dimensions:

Order no.	Article no.	Expansion of sleeve [mm]	Piston dia. [mm]	Vol. [cm³]	Side load (unclamped) [N]	A	B ±0.01	C	dia. D	E	dia. F	G	H	M	N	P	S	X ±0.5	Y	OR-1 O-ring Order No.
63651	6970-09	1,4	28	0,5	50	53	75	9,5	8,5	36	9	80	98	31	13	15	62	62	124	260448
60293	6970-10	1,4	28	0,5	50	53	75	9,5	9,5	36	9	80	98	31	13	15	62	62	124	260448
60301	6970-11	1,7	32	1,6	150	53	75	14	10,5	36	9	80	98	31	13	19	62	62	124	260448
60319	6970-12	1,7	32	1,6	150	53	75	14	11,5	36	9	80	98	31	13	19	62	62	124	260448
63677	6970-13	1,7	32	1,6	150	53	75	14	12,5	36	9	80	98	31	13	19	62	62	124	260448
60418	6970-14	1,7	32	1,6	150	53	75	14	13,5	36	9	80	98	31	13	19	62	62	124	260448
60434	6970-15	1,7	40	3,8	200	53	75	16	14,5	36	13	90	115	35	15	24	62	62	124	260448
60525	6970-16	1,7	40	3,8	200	53	75	16	15,5	36	13	90	115	35	15	24	62	62	124	260448
60426	6970-17	1,7	40	3,8	200	53	75	16	16,5	36	13	90	115	35	15	24	62	62	124	260448
63693	6970-18	1,7	40	3,8	200	53	75	16	17,5	36	13	90	115	35	15	24	62	62	124	260448
60616	6970-19	1,7	40	3,8	200	53	75	16	18,5	36	13	90	115	35	15	24	62	62	124	260448
60715	6970-20	1,7	42	4,4	300	53	75	16	19,5	36	13	90	115	35	15	28	62	62	124	260448
60723	6970-21	1,7	42	4,4	300	53	75	16	20,5	36	13	90	115	35	15	28	62	62	124	260448
63719	6970-22	1,7	42	4,4	300	53	75	16	21,5	36	13	90	115	35	15	28	62	62	124	260448
60731	6970-23	1,7	42	4,4	300	53	75	16	22,5	62	13	90	115	35	15	32	62	62	124	260448
60376	6970-24	1,7	42	4,4	300	53	75	16	23,5	62	13	90	115	35	15	32	62	62	124	260448
60384	6970-25	1,7	42	4,4	300	53	75	16	24,5	62	13	90	115	35	15	32	62	62	124	260448

Subject to technical alterations.

No. 6970

Bore clamp, hydraulic, eccentric

Single-acting, with spring return,
max. operating pressure 150 bar,
min. operating pressure 30 bar.
lateral compensation per clamp ± 0.25 mm.

Order no.	Article no.	Clamping force vertical [kN]	Clamping rim height min. [mm]	dia. K [mm]	L	Weight [g]
63669	6970-07-50	3,5	6	6,8-7,7	10	2600
60798	6970-08-50	3,5	6	7,8-8,7	10	2600
63685	6970-09-50	5,3	7	8,8-9,7	10	2600
60814	6970-10-50	5,3	7	9,8-10,7	10	2800
63701	6970-11-50	8,5	8	10,8-11,7	13	2800
60830	6970-12-50	8,5	8	11,8-12,7	13	2800
63727	6970-13-50	11,5	9	12,8-13,7	13	2900
60822	6970-14-50	11,5	9	13,8-14,7	13	2900

Design:

The actuating piston is single-acting. Cylinder body, clamping segments and tensioning bolts are from hardened steel, gas-nitrided. Four-part clamping segments are externally serrated.
A Ø 8 H7 centring hole located on the underside for positioning the clamping element. Three fastening screws are included in the supply scope. Oil supply via threaded connection or oil channel in the fixture body.

Application:

The hydraulic bore clamp is preferred for use on workpieces with complex external geometries that must be clamped for machining.
After the clamping segments engage into clamping holes attached on one side with low depth, reliable 5-sided machining does not present a problem.
Workpieces can be installed or removed automatically with handling devices.

Features:

The tension bolt has the shape of a four-sided pyramid at the coupling point to the clamping sleeve. The clamping sleeve segments have this shape also, thus ensuring contact on the entire surface in every position of the tension bolt.
This facilitates a high clamping force and ensures very low wear.
Elastic rings hold the clamping segments together and seal them against entry of chips. Depending on the material, the external serration is pressed into the clamping hole with more or less force, thus permitting the required positive fit. The built-in plate springs achieve a maximum pull-down stroke of approx. 0.2 mm.

The tension bolt has a pyramid shape for improved pre-centring of workpieces.

The bore clamp is also a contact surface for the workpiece. The workpiece contact surface is hard-metal coated (µ 0.3), thereby significantly increasing the displacement force.

The eccentric arrangement of the clamping elements is especially suited for clamping workpieces with circumferential contact edge, such as gear and engine housings, oil pans and similar workpieces.

Note:

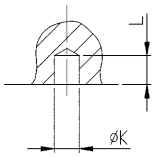
The lateral force when inserting the workpiece must not exceed the „lateral force“ table value. The radial force must be observed.

Please check with us for clamping hardened workpieces or those from GG / GGG.

On request:

Bore clamps for other hole diameters available upon request.

Clamping hole in workpiece:



CAD

Subject to technical alterations.

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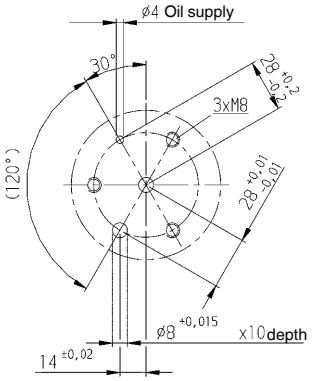
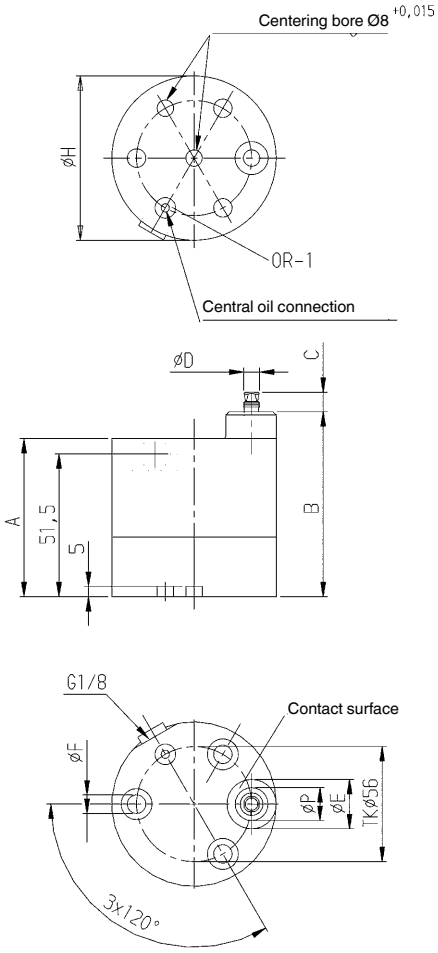
Drilling template device:





Dimensions:

Order no.	Article no.	Permissible horizontal force [kN]	Radial force of sleeve segments [kN]	Expansion of sleeve [mm]	Piston dia. [mm]	Vol. [cm³]	Side load (unclamped) [N]	A	B ±0.01	C	D	dia. E	dia. F	dia. H	dia. P	OR-1 O-ring Order No.
63669	6970-07-50	1,0	10	1,4	18	1,0	50	59	75	9,5	6,6	24	9	80	15	260448
60798	6970-08-50	1,0	10	1,4	18	1,0	50	59	75	9,5	7,5	24	9	80	15	260448
63685	6970-09-50	1,5	15	1,4	22	1,5	80	59	75	9,5	8,5	24	9	80	15	260448
60814	6970-10-50	1,5	15	1,4	22	1,5	80	59	75	9,5	9,5	24	9	80	15	260448
63701	6970-11-50	2,5	25	1,4	28	2,5	120	59	75	12	10,5	24	9	80	19	260448
60830	6970-12-50	2,5	25	1,4	28	2,5	120	59	75	12	11,5	24	9	80	19	260448
63727	6970-13-50	3,5	35	1,4	32	3,2	150	59	75	12	12,5	24	9	80	19	260448
60822	6970-14-50	3,5	35	1,4	32	3,2	150	59	75	12	13,5	24	9	80	19	260448

Subject to technical alterations.

Bore clamp, hydraulic, eccentric

No. 6970D

Bore clamp, hydraulic, eccentric

double acting,
max. operating pressure 250 bar,
min. operating pressure 40 bar.
Lateral compensation per clamp ± 0,25 mm.

Order no.	Article no.	Clamping force vertical [kN]	Clamping rim height min. for Al-alloy [mm]	dia. K [mm]	L	Weight [g]
323410	6970D-06-60	5,0	7	5,9 - 6,3	9	1000
324384	6970D-065-60	5,0	7	6,4 - 6,8	9	1000
323436	6970D-07-60	5,0	7	6,9 - 7,3	9	1000
324400	6970D-075-60	5,0	7	7,4 - 7,8	9	1000
323444	6970D-08-60	5,0	8	7,9 - 8,3	9	1000
324392	6970D-085-60	5,0	8	8,4 - 8,8	10	1000
323469	6970D-09-60	5,0	8	8,9 - 9,8	10	1000
323485	6970D-10-60	5,0	8	9,9 - 10,8	10	1000

Design:

The actuating piston is double-acting. Cylinder body, clamping segments and tensioning bolts are from hardened steel, gas-nitrided. Two-part clamping segments are externally serrated. A Ø 8 H7 centring hole located on the underside for positioning the clamping elements. Supply scope includes three fastening screws. Oil supply via oil channel in fixture body.

Application:

The hydraulic bore clamp is preferred for use on workpieces with complex external geometries that must be clamped for machining.
After the clamping segments engage into clamping holes attached on one side with low depth, reliable 5-sided machining does not present a problem.
Workpieces can be installed or removed automatically with handling devices.

Features:

Two clamping segments are spread in parallel, thus ensuring contact on the entire surface in every position of the tension bolt. This facilitates a high clamping power and ensures very low wear. Elastic rings hold the clamping segments together and seal them against entry of chips. Depending on the material, the external serration is pressed into the clamping hole with more or less force, thus permitting the required positive fit. The built-in plate springs achieve a max. pull-down stroke of approx. 0.2 mm during clamping.

The integrated air connection is used for clamping control. The pull-down movement opens the passage of a compressed air hole, thereby creating a pressure drop of approx. 2 bar, which can be evaluated as a clamping control.

The holding bolts are sword-shaped for better pre-centring of the workpieces. The complete clamping-segment / holding-bolt unit can be turned so that an optimal force flow toward the workpiece centre can be set and locked. By setting the clamping elements, overloading of the clamping hole (spreading force) with low clamping rim is avoided.

The bore clamp is simultaneously the contact surface for the workpiece.
The workpiece contact surface is hard-metal coated (µ 0.3), which markedly increases the displacement force.

The eccentric arrangement of the clamping elements is especially suited for clamping workpieces with circumferential contact edge, such as gear and engine housings, oil pans and similar workpieces.

Note:

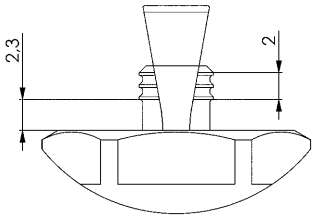
The lateral force when inserting the workpiece must not exceed the „lateral force“ table value. The radial force must be observed.

Please check with us for clamping hardened workpieces or those from GG / GGG.

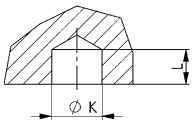
On request:

Bore clamps for other hole diameters available upon request.

On request, the integrated air connection can be used for cleaning the clamping area. The blow-off can also be used as a mount check for blind holes.



Clamping hole in workpiece:



CAD

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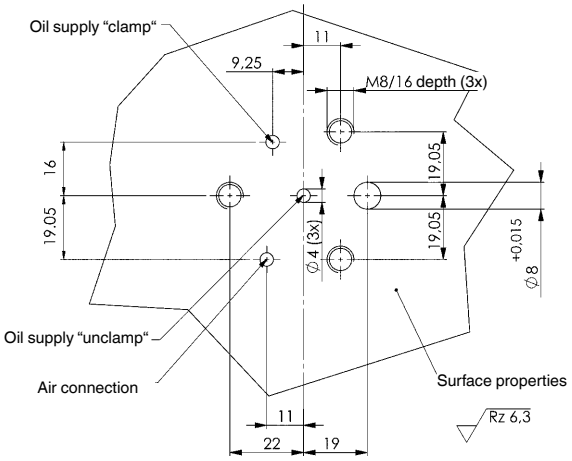
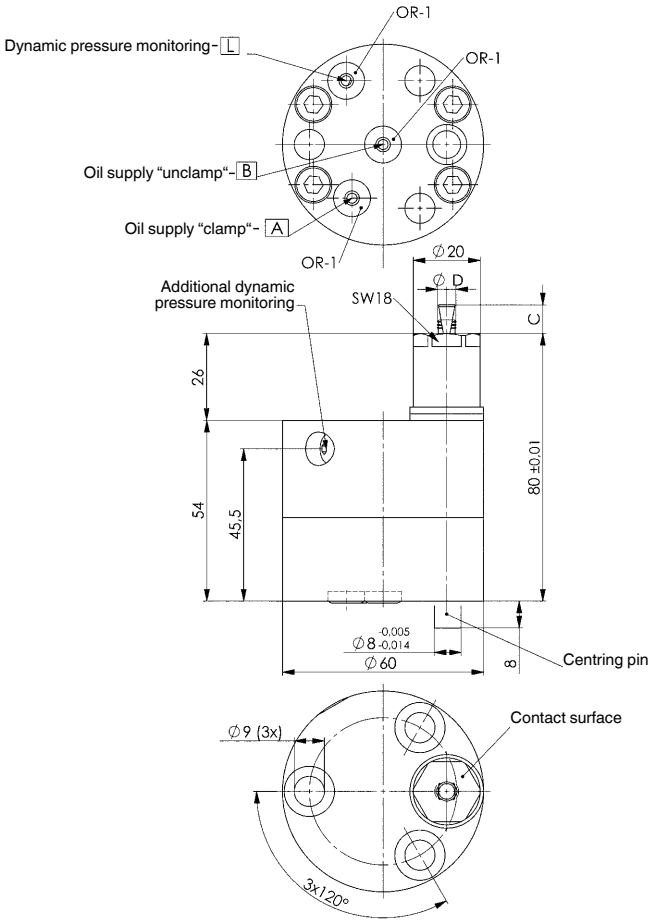
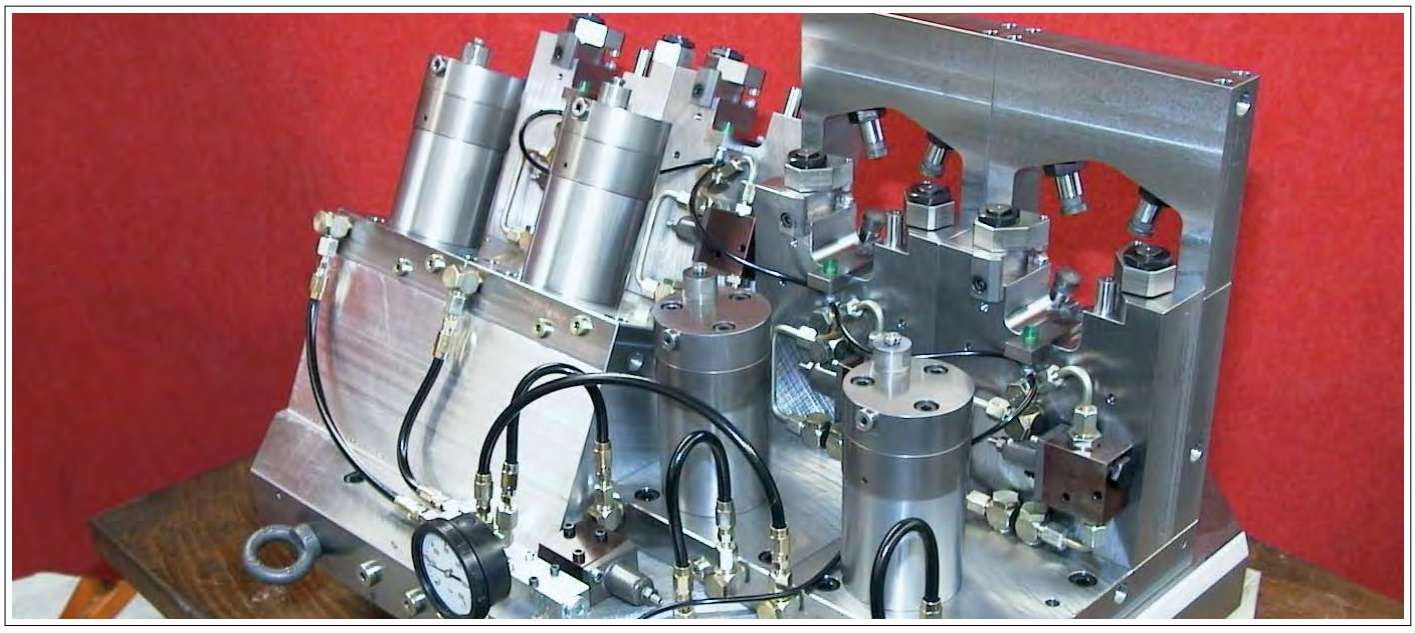
Drilling template device:





Dimensions:

Order no.	Article no.	Permissible horizontal force [kN]	Radial force of sleeve segments [kN]	Expansion of sleeve [mm]	Clamping piston diameter [mm]	Vol. [cm³]	Side load (unclamped) [N]	C	dia. D	OR-1 O-ring Order No.
323410	6970D-06-60	1,5	14	1,5	16	0,9	30	9,5	5,6	260448
324384	6970D-065-60	1,5	14	1,5	16	0,9	30	9,5	6,1	260448
323436	6970D-07-60	1,5	14	1,5	16	0,9	40	9,5	6,6	260448
324400	6970D-075-60	1,5	14	1,5	16	0,9	40	9,5	7,1	260448
323444	6970D-08-60	1,5	14	1,5	16	0,9	50	9,5	7,6	260448
324392	6970D-085-60	1,5	14	1,5	16	0,9	50	9,5	8,1	260448
323469	6970D-09-60	1,5	14	1,5	16	0,9	80	9,5	8,6	260448
323485	6970D-10-60	1,5	14	1,5	16	0,9	80	9,5	9,6	260448



Subject to technical alterations.

No. 6970D

Bore clamp, hydraulic, eccentric

double acting,
max. operating pressure 250 bar,
min. operating pressure 40 bar.
Lateral compensation per clamp ± 0,25 mm.

Order no.	Article no.	Clamping force vertical [kN]	Clamping rim height min. for Al-alloy [mm]	dia. K [mm]	L	Weight [g]
323501	6970D-11-60	9,5	9	10,9 - 11,8	11	2000
323527	6970D-12-60	9,5	9	11,9 - 12,8	11	2000
323543	6970D-13-60	9,5	9	12,9 - 13,8	11	2000
323568	6970D-14-60	9,5	10	13,9 - 14,8	11	2100
323584	6970D-15-60	9,5	10	14,9 - 15,8	11	2100
323600	6970D-16-60	9,5	10	15,9 - 16,8	11	2100

Design:

The actuating piston is double-acting. Cylinder body, clamping segments and tensioning bolts are from hardened steel, gas-nitrided. Two-part clamping segments are externally serrated. A Ø 8 H7 centring hole located on the underside for positioning the clamping elements. Supply scope includes three fastening screws. Oil supply via oil channel in fixture body.

Application:

The hydraulic bore clamp is preferred for use on workpieces with complex external geometries that must be clamped for machining.
After the clamping segments engage into clamping holes attached on one side with low depth, reliable 5-sided machining does not present a problem.
Workpieces can be installed or removed automatically with handling devices.

Features:

Two clamping segments are spread in parallel, thus ensuring contact on the entire surface in every position of the tension bolt. This facilitates a high clamping power and ensures very low wear. Elastic rings hold the clamping segments together and seal them against entry of chips. Depending on the material, the external serration is pressed into the clamping hole with more or less force, thus permitting the required positive fit. The built-in plate springs achieve a max. pull-down stroke of approx. 0.2 mm during clamping.

The integrated air connection is used for clamping control. The pull-down movement opens the passage of a compressed air hole, thereby creating a pressure drop of approx. 2 bar, which can be evaluated as a clamping control.

The holding bolts are sword-shaped for better pre-centring of the workpieces. The complete clamping-segment/holding-bolt unit can be turned so that an optimal force flow toward the workpiece centre can be set and locked. By setting the clamping elements, overloading of the clamping hole (spreading force) with low clamping rim is avoided.

The bore clamp is simultaneously the contact surface for the workpiece.
The workpiece contact surface is hard-metal coated (µ 0.3), which markedly increases the displacement force.

The eccentric arrangement of the clamping elements is especially suited for clamping workpieces with circumferential contact edge, such as gear and engine housings, oil pans and similar workpieces.

Note:

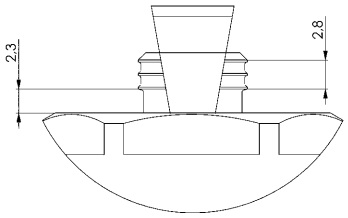
The lateral force when inserting the workpiece must not exceed the „lateral force“ table value. The radial force must be observed.

Please check with us for clamping hardened workpieces or those from GG / GGG.

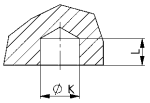
On request:

Bore clamps for other hole diameters available upon request.

On request, the integrated air connection can be used for cleaning the clamping area. The blow-off can also be used as a mount check for blind holes.



Clamping hole in workpiece:



CAD

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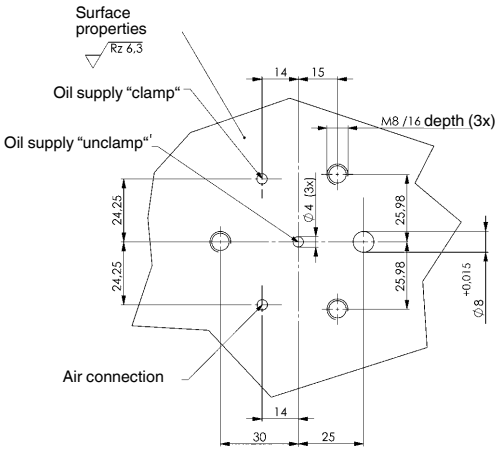
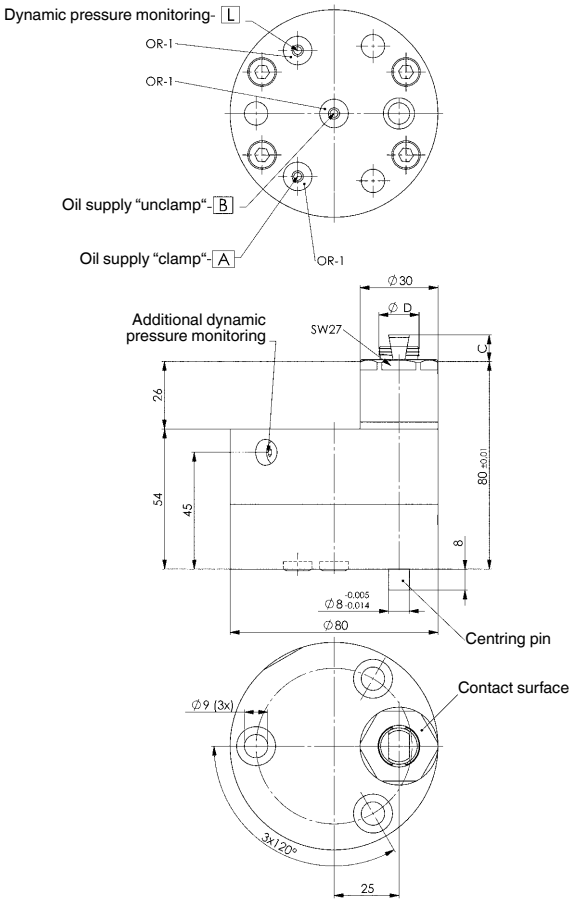
Drilling template device:





Dimensions:

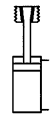
Order no.	Article no.	Permissible horizontal force [kN]	Radial force of sleeve segments [kN]	Expansion of sleeve [mm]	Clamping piston diameter [mm]	Vol. [cm³]	Side load (unclamped) [N]	C	dia. D	OR-1 O-ring Order No.
323501	6970D-11-60	2,8	27	1,5	22	1,7	100	10,5	10,6	260448
323527	6970D-12-60	2,8	27	1,5	22	1,7	110	10,5	11,6	260448
323543	6970D-13-60	2,8	27	1,5	22	1,7	130	10,5	12,6	260448
323568	6970D-14-60	2,8	27	1,5	22	1,7	160	10,5	13,6	260448
323584	6970D-15-60	2,8	27	1,5	22	1,7	200	10,5	14,6	260448
323600	6970D-16-60	2,8	27	1,5	22	1,7	250	10,5	15,6	260448

Subject to technical alterations.

No. 6970CD

Bore clamp MINI, hydraulic, centric

Double-acting,
max. operating pressure, see table,
min. operating pressure 40 bar,
lateral compensation per clamp ±0.2 mm.



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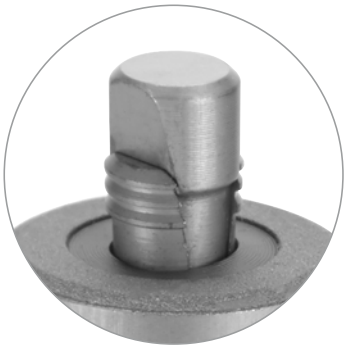


Order no.	Article no.	Clamping force vertical at 100 bar [kN]	Clamping force vertical at 150 bar [kN]	Clamping rim height min. for Al-alloy [mm]	dia. K	L	Md [Nm]	max. operating pressure [bar]	Weight [g]
556561	6970CD-055	2,76	-	5	5,2 - 5,9	8,5	3,7	100	273
556562	6970CD-06	2,76	4,1	5	6,0 - 6,7	8,5	3,7	150	274
556563	6970CD-065	2,76	4,1	5	6,6 - 7,2	8,5	3,7	150	274
556564	6970CD-07	2,76	4,1	5	7,0 - 7,7	8,5	3,7	150	275

Design:

The actuating piston is double-acting. Body, clamping segments and tension bolts are made of nitrided tempered steel. Two-part clamping segments are externally interlocked. Four fastening screws are supplied as standard. Oil supply via oil channel in fixture body.

Application:

The hydraulic bore clamp is preferred for use on workpieces with complex external geometries that must be clamped for machining. After the clamping segments are applied to single-attachment clamping holes with low depth, a secure 5-sided processing can be performed without difficulty. Workpieces can be installed or removed automatically with handling devices.

Features:

Two clamping segments are spread in parallel, thus ensuring contact on the entire surface in every position of the tension bolt. This facilitates a high clamping power and ensures very low wear. Elastic rings hold the clamping segments together and seal them against entry of chips. Depending on the material, the external serration is pressed into the clamping hole with more or less force, thus permitting the required positive fit. The built-in plate springs achieve a max. pull-down stroke of approx. 0.2 mm during clamping. The integrated air connection L1 is for cleaning the clamping area. This blow-off can also be used as a mount check for blind holes. The integrated air connection L is used for clamping control. The pull-down movement opens the passage of a compressed air hole, thereby creating a pressure drop of approx. 2 bar, which can be evaluated as a clamping control.

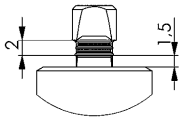
The holding bolts have a sword-shape for better pre-positioning of the workpieces. The complete clamping-segment/holding-bolt unit can be turned 90° so that an optimal force flow toward the workpiece centre can be set and locked. By setting the clamping elements, overloading of the clamping hole (spreading force) with low clamping rim is avoided. The bore clamp is also a contact surface for the workpiece. The workpiece contact surface is hard-metal coated (µ =0.3), which markedly increases the displacement force.

Note:

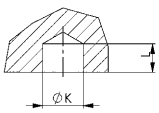
The lateral force when inserting the workpiece must not exceed the “lateral force” table value. The radial force must be observed.
Please contact us if clamping hardened or cast workpieces.

On request:

Bore clamps for other hole diameters available upon request.



Clamping hole in workpiece:



CAD

Subject to technical alterations.

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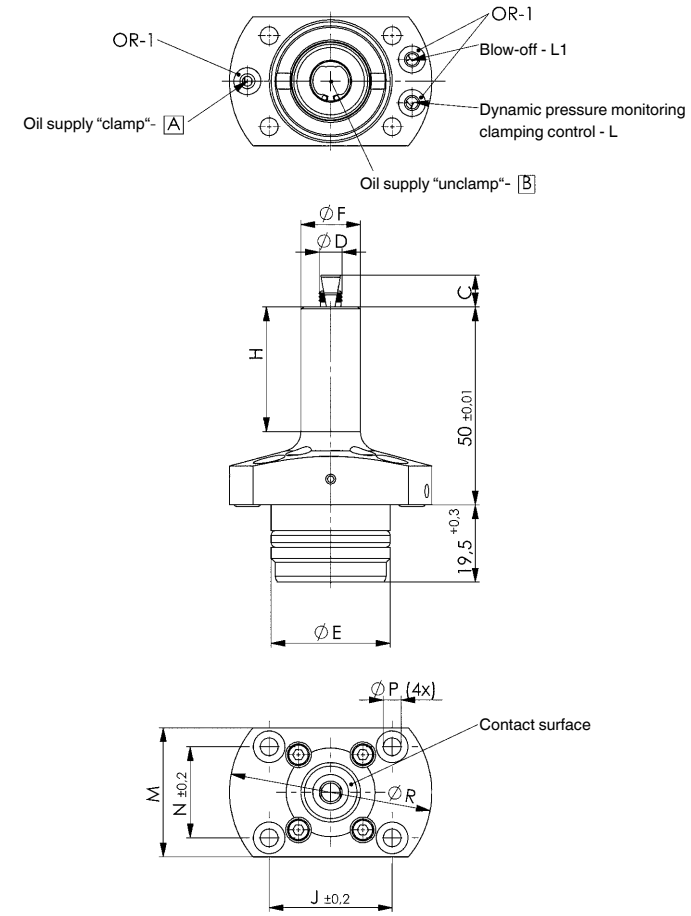
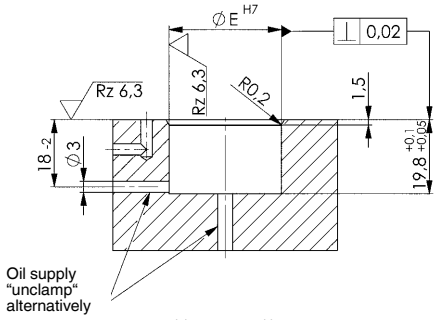


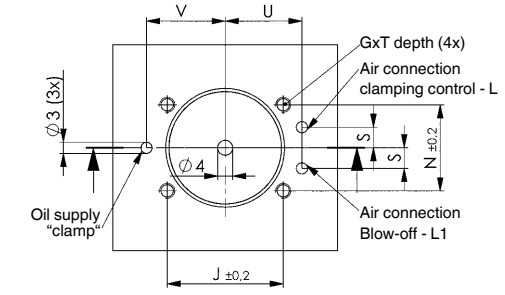
Dimensions:

Order no.	Article no.	Displacement force horizontal at 100 bar [kN]	Displacement force horizontal at 150 bar [kN]	Clamping sleeve radial force at 100 bar [kN]	Clamping sleeve radial force at 150 bar [kN]	Vol. [cm³]	C	dia. D	dia. E	dia. F	H	J	M	N	P	R	OR-1 O-ring Order No.
556561	6970CD-055	0,83	-	7,85	-	1,3	8	5,0	30	15	31,5	31	32,6	23	4,5	51	176164
556562	6970CD-06	0,83	1,23	7,85	11,78	1,3	8	5,8	30	15	31,5	31	32,6	23	4,5	51	176164
556563	6970CD-065	0,83	1,23	7,85	11,78	1,3	8	6,3	30	15	31,5	31	32,6	23	4,5	51	176164
556564	6970CD-07	0,83	1,23	7,85	11,78	1,3	8	6,8	30	15	31,5	31	32,6	23	4,5	51	176164



Installation dimensions:

Order no.	Article no.	ØE H7	G	S	T	U	V
556561	6970CD-055	30	M4	5,5	8	20,5	21
556562	6970CD-06	30	M4	5,5	8	20,5	21
556563	6970CD-065	30	M4	5,5	8	20,5	21
556564	6970CD-07	30	M4	5,5	8	20,5	21

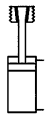


Subject to technical alterations.

No. 6970CD

Bore clamp MAXI, hydraulic, centric

Double-acting,
max. operating pressure 150 bar,
min. operating pressure 40 bar,
lateral compensation per clamp ±0.25 mm.



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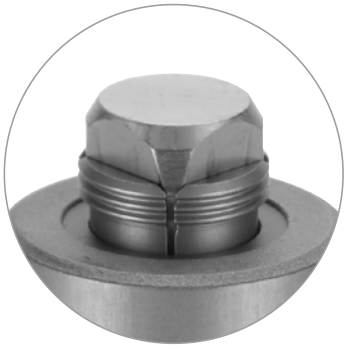


Order no.	Article no.	Clamping force vertical at 100 bar [kN]	Clamping force vertical at 150 bar [kN]	Clamping rim height min. for Al-alloy [mm]	dia. K	L	Md [Nm]	Weight [g]
556565	6970CD-08	2,76	4,1	5	7,8 - 8,6	9	3,7	298
556566	6970CD-09	4,4	6,6	6	8,7 - 9,6	9	7,2	413
556567	6970CD-10	4,4	6,6	6	9,7 - 10,7	9	7,2	413
556568	6970CD-11	5,0	7,5	8	10,8 - 11,8	9	10,0	530
556569	6970CD-12	5,0	7,5	8	11,9 - 12,8	9	10,0	532
556570	6970CD-13	5,0	7,5	8	12,9 - 13,8	9	10,0	535

Design:

The actuating piston is double-acting. Body, clamping segments and tension bolts are made of nitrided tempered steel. Four-part clamping segments are externally interlocked. Four fastening screws are supplied as standard. Oil supply via oil channel in fixture body.

Application:

The hydraulic bore clamp is preferred for use on workpieces with complex external geometries that must be clamped for machining. After the clamping segments are applied to single-attachment clamping holes with low depth, a secure 5-sided processing can be performed without difficulty. Workpieces can be installed or removed automatically with handling devices.

Features:

The tension bolt has the shape of a four-sided pyramid at the coupling point to the clamping sleeve. The clamping sleeve segments have this shape also, thus ensuring the sleeve segments have contact on the entire surface in every position of the tension bolt. This facilitates a high clamping power and ensures very low wear. Elastic rings hold the clamping segments together and seal them against entry of chips. Depending on the material, the external serration is pressed into the clamping hole with more or less force, thus permitting the required positive fit. The built-in plate springs achieve a max. pull-down stroke of approx. 0.2 mm during clamping. The integrated air connection L1 is for cleaning the clamping area. This blow-off can also be used as a mount check for blind holes. The integrated air connection L is used for clamping control. The pull-down movement opens the passage of a compressed air hole, thereby creating a pressure drop of approx. 2 bar, which can be evaluated as a clamping control.

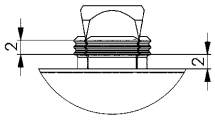
The tension bolt has a pyramid shape for better pre-positioning of the workpieces. The bore clamp is also a contact surface for the workpiece. The workpiece contact surface is hard-metal coated (μ =0.3), which markedly increases the displacement force.

Note:

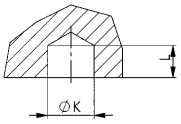
The lateral force when inserting the workpiece must not exceed the “lateral force” table value. The radial force must be observed.
Please contact us if clamping hardened or cast workpieces.

On request:

Bore clamps for other hole diameters available upon request.



Clamping hole in workpiece:



CAD

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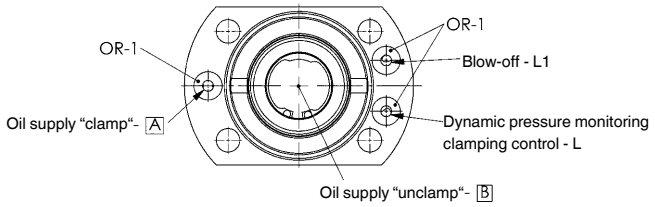
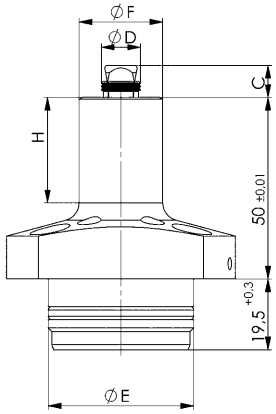
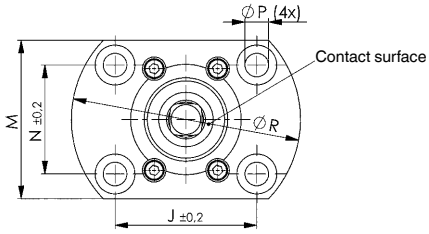
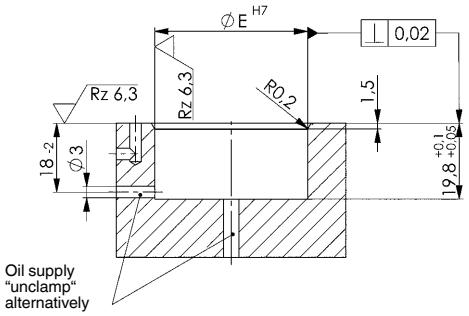






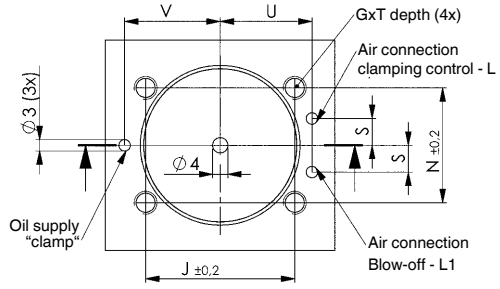
Dimensions:

Order no.	Article no.	Displacement force horizontal at 100 bar [kN]	Displacement force horizontal at 150 bar [kN]	Clamping sleeve radial force at 100 bar [kN]	Clamping sleeve radial force at 150 bar [kN]	Vol. [cm³]	C	dia. D	dia. E	dia. F	H	J	M	N	P	R	OR-1 O-ring Order No.
556565	6970CD-08	0,83	1,23	7,85	11,78	1,25	8,5	7,6	30	18	31,5	31	32,6	23	4,5	51	176164
556566	6970CD-09	1,32	1,98	12,47	18,71	2,35	8,8	8,6	37	20	31,5	38	39,6	29	5,5	60	161802
556567	6970CD-10	1,32	1,98	12,47	18,71	2,35	8,8	9,6	37	20	31,5	38	39,6	29	5,5	60	161802
556568	6970CD-11	1,51	2,26	14,26	21,39	2,46	8,8	10,7	40	23	29,0	39	43,6	30	6,5	63	161802
556569	6970CD-12	1,51	2,26	14,26	21,39	2,46	8,8	11,7	40	23	29,0	39	43,6	30	6,5	63	161802
556570	6970CD-13	1,51	2,26	14,26	21,39	2,46	8,8	12,7	40	23	29,0	39	43,6	30	6,5	36	161802



Installation dimensions:

Order no.	Article no.	ØE H7	G	S	T	U	V
556565	6970CD-08	30	M4	5,5	8	24	25
556566	6970CD-09	37	M5	7,0	10	24	25
556567	6970CD-10	37	M5	7,0	10	24	25
556568	6970CD-11	40	M6	7,0	12	24	25
556569	6970CD-12	40	M6	7,0	12	24	25
556570	6970CD-13	40	M6	7,0	12	24	25



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