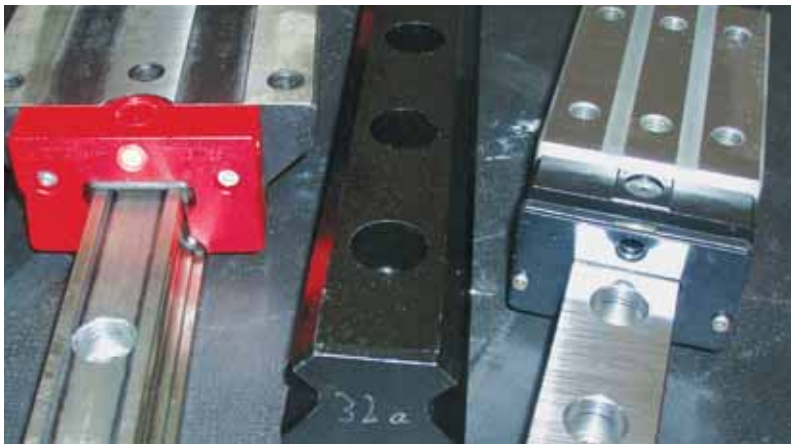
HEMA

Clamping systems

HEMA
MASCHINEN- UND
APPARATESCHUTZ GMBH



ADVANTAGE HEMA.
INNOVATION NEVER ENDS.

Made-to-measure safety systems

WARRANTY

Warranty conditions for clamping systems

The general terms and conditions of HEMA Maschinen- und Apparateschutz GmbH apply; these can be viewed at www.hema-schutz.de. The following additional points apply to the clamping system range of products:

RotoClamp

- Due to its construction, the tolerance range of the RotoClamp (tolerance: cylindricity) between the shaft and the clamp must be maintained within the defined range; a deviation from this range may result in damage to the housing or the diaphragm when in continuous operation. A deviation from the tolerance range results in loss of the warranty.
- The warranty period for RotoClamp Inside Standard is 12 months from the date of delivery or at most 1,000,000 clamping cycles (no emergency or brake clamping). In case of warranty, the customer must provide suitable proof of the actual number of clampings.
  The warranty period for RotoClamp Inside Active is 12 months from the date of delivery or at most 500,000 clamping cycles (no emergency or brake clamping). In case of warranty, the customer must provide suitable proof of the actual number of clampings.

LinClamp

- The LinClamp S clamping elements are designed for static and dynamic clamping. LinClamp S safety clamping systems have a warranty of 12 months from the date of delivery, or at most 1,000,000 (S/SK)/ 100,000 (SA) clampings (no emergency stop braking) or 500 emergency stop brakings (brake only permissible with sinter linings; if other linings are used then this warranty and the features described do not apply). In case of warranty, the customer must provide suitable proof of the actual number of clampings.
- The LinClamp A clamping elements are designed for static functional clamping (no precision clamping). LinClamp A safety clamping elements have a warranty of 12 months after the date of delivery, but at most a clamping cycle of a maximum of 10,000 clampings (no emergency stop braking). In case of warranty, the customer must provide suitable proof of the actual number of clampings.
- The LinClamp S/SK/SA clamping elements are preset at the factory to the respective rail dimensions. The contact surfaces of the brake and clamping linings are pressed onto the free surfaces of the respective linear guide rail. The pressing procedure therefore does not influence the accuracy and lifetime of the mounting rail.

PClamp

- The PClamp clamping elements are designed for static clamping. PClamp safety clamping elements have a warranty of 12 months after the date of delivery, but at most a clamping cycle of a maximum of 1,000,000 clampings. In case of warranty, the customer must provide suitable proof of the actual number of clampings.
- The PClamp clamp elements are preset at the factory to the respective rod length and cylinder size.

DiskClamp/ HLGClamp

- For the individual warranty conditions of DiskClamp and HLGClamp please see HEMA website.

The clamping elements are NOT intended for securing loads. Correct use of the clamping elements presupposes that these are only used within the possibilities laid out and described in the technical specifications. Other usages of the elements invalidate warranty.

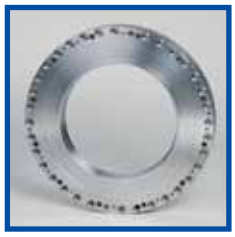
Recommended operating temperature range for clamping systems is between 10°C and 45°C, at pneumatic operating pressure of 4 Bar or 6 Bar; medium: filtered compressed air (40 µm), dry or oiled.

During assembly, reconstruction, maintenance and repairs, the assembly instructions must be observed and the required equipment and accessories must be used. During all work on the clamping elements, the accident-prevention regulations as well as the VDE safety and assembly instructions valid in each case must be observed.

The operating and assembly instructions must be passed on to the installation engineer, the operator and the user.

Content

RotoClamp



RotoClamp
Inside
4 or 6 Bar

- RotoClamp A
  Clamping with air
  - RotoClamp
    Single/tandem version
    - RotoClamp SA
    - RotoClamp NA
    - RotoClamp LA
    - RotoClamp YA
- RotoClamp
  Opening with air
  - RotoClamp
    Single/tandem version
    - RotoClamp S
    - RotoClamp N
    - RotoClamp L
    - RotoClamp Y

RotoClamp
Outside
4 or 6 Bar

- RotoClamp A
  Clamping with air
  - RotoClamp
    Single/tandem version
- RotoClamp
  Opening with air
  - RotoClamp
    Single/tandem version

DiskClamp
4 or 6 Bar

- Clamping with air
- Opening with air

Checklist of product selection

Select the solution best suited to you from our wide range of products. The HEMA clamping systems provide an innovative and above all fast and compact solution for the most important applications. When making your selection, please consider whether you want to actively clamp or release using the applied compressed air based on the model. The operating pressure you select decides on the possible clamping force and is important when selecting the model.

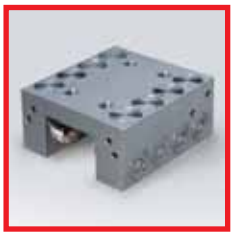
RotoClamp

RotoClamp is ideal for rotary position clamping in axes, tables and swivel heads of machines. Two versions – Inside and Outside – allow various directions of the clamping function.

DiskClamp

DiskClamp is a security clamping system with emergency brake.

LINCLAMP/HLGCLAMP

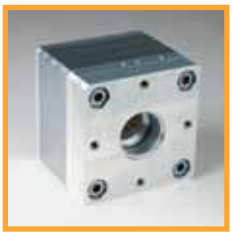


- LinClamp 4 or 6 Bar
  - LinClamp/ HLGClamp Clamping with air
    - LinClamp SA Rail clamping
    - HLGClamp Rail clamping
  - LinClamp Opening with air
    - LinClamp Surface or rail clamping
      - LinClamp A Surface clamping 4 Bar
      - LinClamp S Rail clamping
      - LinClamp SK Compact rail clamping
      - LinClamp SK Compact rail clamping
- HLGClamp 4 or 6 Bar

LinClamp / HLGClamp

For single linear applications in which you do not want to exclude emergency braking, the LinClamp/HLGClamp systems with sinter linings are recommended. Of course, you can also use LinClamp / HLGClamp for almost all types of linear guide system or for processed surfaces for fast and safe clamping (steel coverings).

PCLAMP



- PClamp 4 or 6 Bar
  - PClamp with additional safety device
    - PClamp X in modular design
  - PClamp without additional safety device
    - PClamp N in modular design
    - PClamp ISO in modular design
    - PClamp E

PClamp

PClamp clamps and brakes rod loads safely and quickly. It can be adapted to standard systems such as pneumatic cylinders from leading manufacturers (e.g. SMC, Festo) or to individual solutions. Rotary clamping can also be achieved with PClamp. Certified systems from Employer's Liability Insurance Associations can be realised.

HEMA CLAMPING SYSTEMS

ROTOCLAMP/DISKCLAMP

RotoClamp Inside

RotoClamp Outside

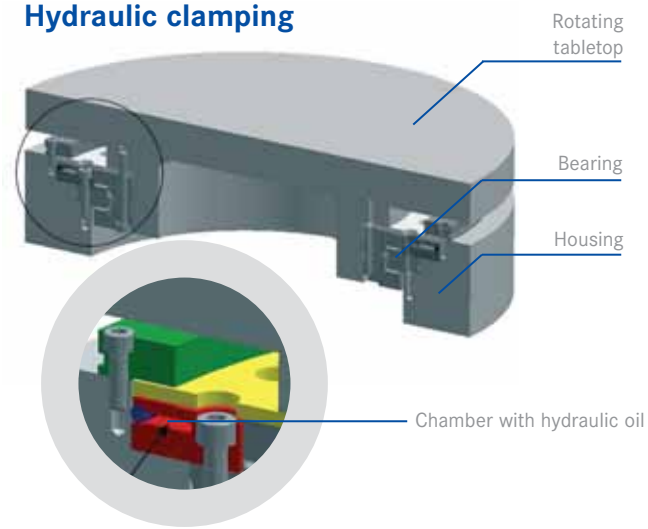
DiskClamp

Advantages

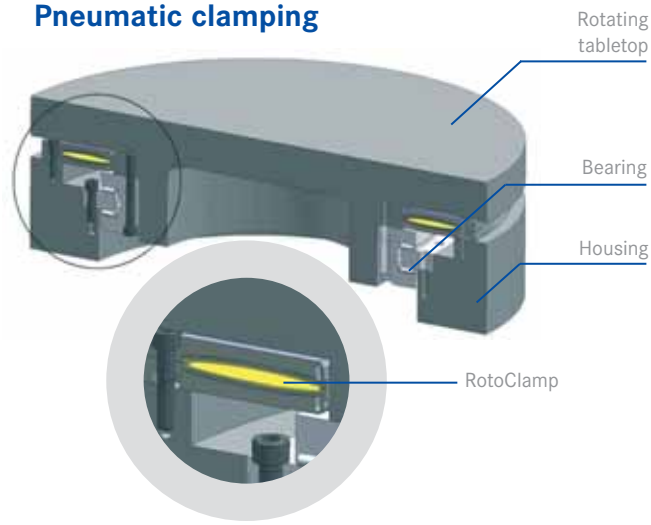
1. Pneumatic clamping with high forces
2. Safety clamping RotoClamp Standard – If the air supply fails then system clamps
3. The values of hydraulic clamping are reached and exceeded
4. Low system costs in comparison to hydraulics
5. Simple installation
6. Compact design
7. Suitable for all shaft sizes

COMPARISON OF OPERATING PRINCIPLES

Hydraulic clamping



Pneumatic clamping



Operating principle of hydraulic clamping

Function The chamber formed by the expansion ring and the O-ring is supplied with hydraulic oil. The upper ring of the expansion ring is pressed upwards and away elastically and clamps the rotating brake disk between the fixed expansion and counter rings. Standard table sizes with 500 x 500 mm pallets achieve approx. 3000 to 4000 Nm holding torque at 80 to 120 Bar hydraulic pressure.

Safety No safety clamping. If there is a power loss then this axis is no longer clamped.

Reaction times Long and short times with high effort can be achieved.

Costs Precisely manufactured mechanical parts, expensive hydraulic valves, hydraulic piping incl. assembly times, assembly and matching of the mechanical parts; replaceable in part. Safety clamping can only be realised at great effort. Extra material costs of hydraulic vis-à-vis pneumatic. (hydraulic valves, flexible hydraulic lines, piping and screwed joints, relays due to higher rate of power consumption).

Cleanliness hydraulic.

Operating principle of the RotoClamp

Function Clamps with spring actuator. Depressurizing the inner spring diaphragm chamber and ventilating the outer spring diaphragm chamber relaxes the diaphragm and presses on the radial contact surfaces at the inner and outer diameter of the spring. The clamping element is reformed elastically in the area of the clamping surface and presses on the shaft. Adding pressurized air to the inner spring diaphragm chamber (4 or 6 Bar) and venting the outer spring diaphragm chamber bends the diaphragm and the distance between the two radial contact surfaces at the inner and outer diameter of the spring is shortened: The clamping surface lifts off from the shaft. You have the optional possibility of increasing the clamping force by extra loading of the outer spring diaphragm chamber with compressed air when clamped (4 or 6 Bar).

Safety Safety clamping by spring actuator. In case of a power loss, the axis is immediately clamped.

Reaction times Very short due to pneumatics. With quick air-vent valve and quick-acting gate valve attached directly to the clamping mechanism, you can realise extremely short clamping times.

Costs Low costs (in comparison to hydraulics), pneumatic valves and pneumatic piping, low installation costs, no cost for matching, easily replaceable, including safety clamp.

Cleanliness Very clean due to pneumatics.

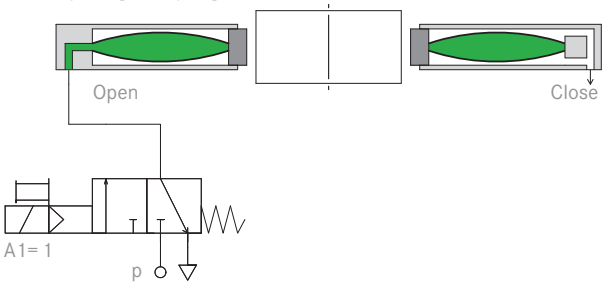
Materials Clamping-body housing hardened and tempered in fine grain mild steel, optional

- supported flange joint hardened with case-hardening steel,
- steel coated, alternative lining procedure possible.

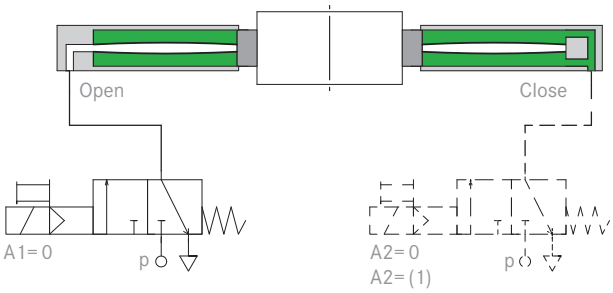
Operating principle of the RotoClamp Inside

Function of the RotoClamp Inside

RotoClamp standard inner clamping
Opening the spring actuator



RotoClamp standard inner clamping
Clamping optional with spring actuator and secondary air



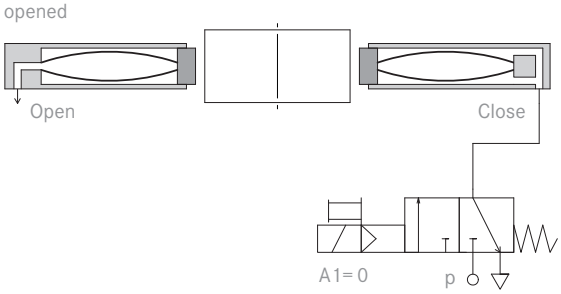
Release RotoClamp Inside Adding pressurized air to the inner spring diaphragm chamber (open, 4 or 6 Bar) and venting the outer spring diaphragm chamber (close) bends the diaphragm and the distance between the two radial contact surfaces at the inner and outer diameter of the spring is shortened: The clamping element is opened in this state.

Clamping RotoClamp Inside Depressurizing the inner spring diaphragm chamber (open) and venting the outer spring diaphragm chamber (close) relaxes the diaphragm and presses on the radial contact surfaces at the inner and outer diameter of the spring. The clamping element is re-formed in the area of the clamping surface. The clamping element is closed in this state.

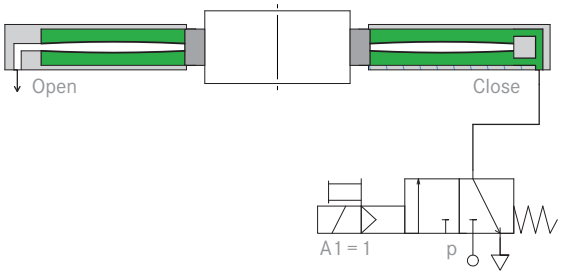
RotoClamp Inside with secondary air You have the optional possibility of increasing the clamping force by extra loading of the outer spring diaphragm chamber (close) with compressed air (4 or 6 Bar). The clamping element is closed in this state.

Function of the RotoClamp Inside Active

RotoClamp standard inner clamping active
opened



RotoClamp standard inner clamping active
Clamping with secondary air



Release RotoClamp Inside The spring diaphragm is bent on assembly and the distance between the two radial contact surfaces at the inner and outer diameter of the spring is reduced. The clamping element is opened in this state.

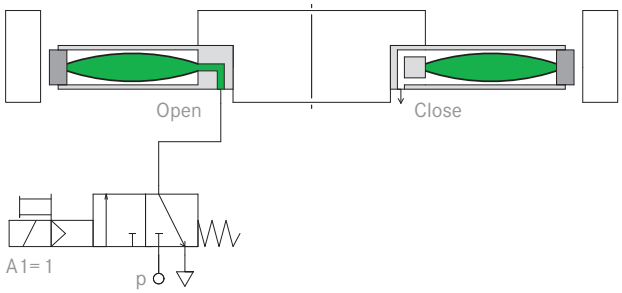
Clamping RotoClamp Inside Depressurizing the inner spring diaphragm chamber (open) and venting the outer spring diaphragm chamber (close, 4 or 6 Bar) reforms the diaphragm and presses on the radial contact surfaces at the inner and outer diameter of the spring. The clamping element is reformed in the area of the clamping surface. The clamping element is closed in this state.

Compressed air

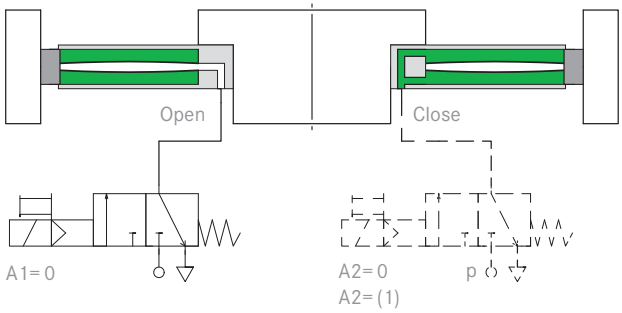
OPERATING PRINCIPLE OF THE ROTOCLAMP OUTSIDE

Function of the RotoClamp Outside

RotoClamp standard outer clamping
Opening the spring actuator



RotoClamp standard outer clamping
Clamping optional with spring actuator and secondary air



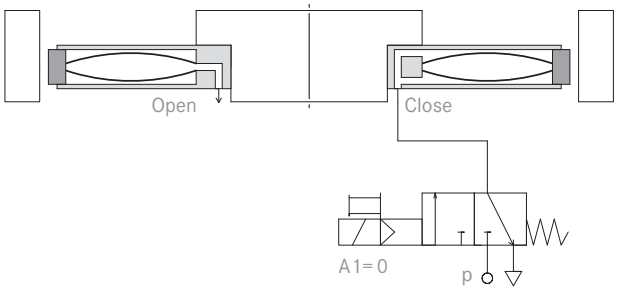
Release RotoClamp Outside Adding pressurized air to the inner spring diaphragm chamber (open, 4 or 6 Bar) and venting the outer spring diaphragm chamber (close) bends the diaphragm and the distance between the two radial contact surfaces at the inner and outer diameter of the spring is shortened. The clamping element is opened in this state.

Release (open) RotoClamp Outside Depressurizing the inner spring diaphragm chamber (open) and venting the outer spring diaphragm chamber (close) relaxes the diaphragm and presses on the radial contact surfaces at the inner and outer diameter of the spring. The clamping element is reformed in the area of the clamping surface. The clamping element is closed in this state.

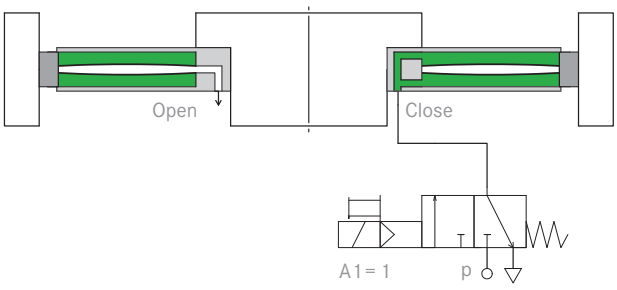
Clamping RotoClamp Outside with secondary air You have the possibility of increasing the clamping force by extra loading of the outer spring diaphragm chamber (close) with compressed air (4 or 6 Bar). The clamping element is closed in this state.

Function of the RotoClamp Outside Active

RotoClamp standard outer clamping active
opened



RotoClamp standard outer clamping active
Clamping with secondary air



Release RotoClamp Outside The spring diaphragm is bent on assembly and the distance between the two radial contact surfaces at the inner and outer diameter of the spring is reduced. The clamping element is opened in this state.

Clamping (close) RotoClamp Outside Depressurizing the inner spring diaphragm chamber (open) and venting the outer spring diaphragm chamber (close) with compressed air (4 or 6 Bar) reforms the diaphragm and presses on the radial contact surfaces at the inner and outer diameter of the spring. The clamping element is reformed in the area of the clamping surface. The clamping element is closed in this state.

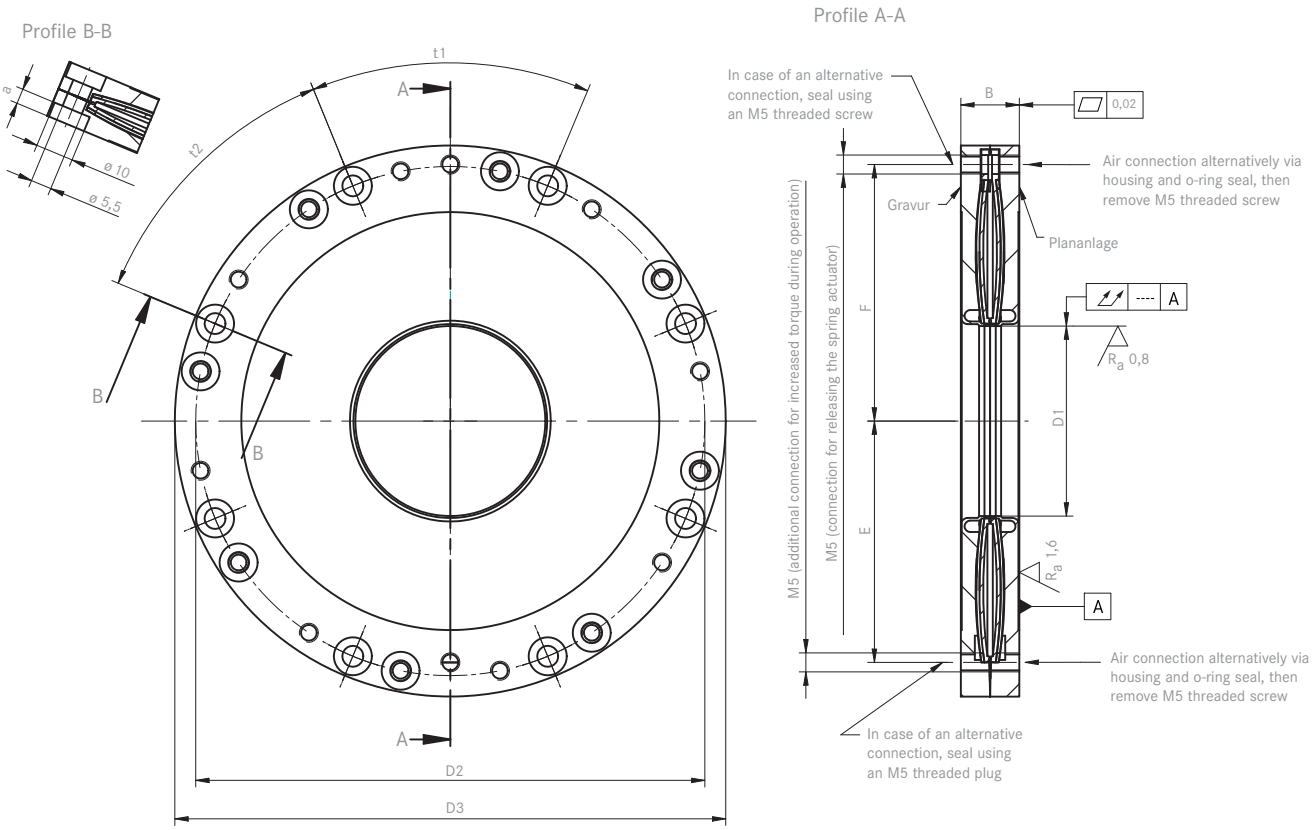
Compressed air

Technical data

Technical data of the RotoClamp S

Size	D1 opened at rated pressure Pn-4/ 6 Bar	Required shaft diameter	D2	D3	B	E	F	n number of fixing screws M5	a	t1	t2	Elastic holding torque at 0 Bar Pn = 6 Bar	Elastic holding torque with secon-dary air at 6 Bar Pn = 6 Bar	Elastic holding torque at 0 Bar Pn = 4 Bar	Elastic holding torque with secon-dary air at 4 Bar Pn = 4 Bar	Max. mass	Air require-ments per max. stroke
Unit	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	Quantity	[mm]	[°]	[°]	[Nm]	[Nm]	[Nm]	[Nm]	[kg]	[mL]
Tolerance	+0,03/+0,05	-0,01/-0,025	± 0,1		+0,4												
Round-ness	0,01	0,01															
Surface finish	R_a 0,8 µm	R_a 0,8 µm															
RC 50 S	50	50	134	145	15	63,5	67,5	8	4	45	45	60	108	42	76	1,7	20
RC 60 S	60	60	144	155	15	68,5	72,5	8	4	45	45	84	153	59	107	1,9	20
RC 70 S	70	70	154	165	15	73,5	77,5	12	4	30	30	114	210	80	147	2,1	20
RC 80 S	80	80	164	175	15	78,5	82,5	12	4	30	30	150	270	105	189	2,3	20
RC 90 S	90	90	174	185	15	83,5	87,5	12	4	30	30	189	342	132	239	2,5	20

This technical data applies to the RotoClamp S Standard. Data for the RotoClamp S Active is available on request.



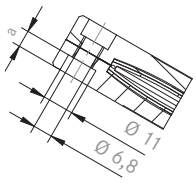
TECHNICAL DATA

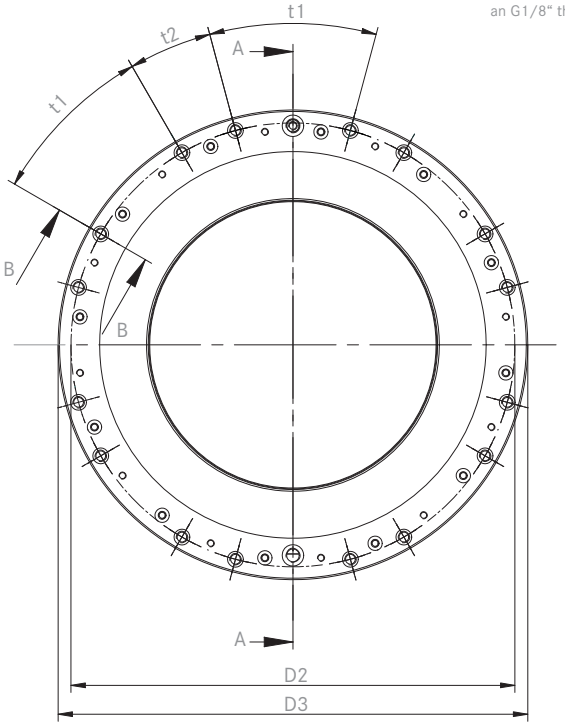
Technical data of the RotoClamp N

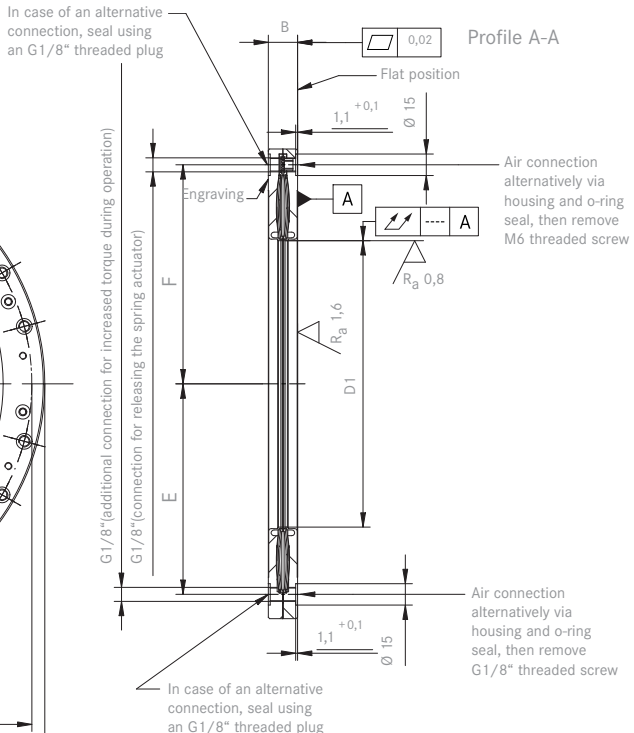
Size	D1 opened at rated pressure Pn = 4 / 6 Bar	Required shaft diameter	D2	D3	B	E	F	n number of fixing screws M6	a	t1	t2	Elastic holding torque at 0 Bar Pn = 6 Bar	Elastic holding torque with secondary air at 6 Bar Pn = 6 Bar	Elastic holding torque at 0 Bar Pn = 4 Bar	Elastic holding torque with secondary air at 4 Bar Pn = 4 Bar	Max. mass	Air requirements per max. stroke
Unit	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	Quantity	[mm]	[°]	[°]	[Nm]	[Nm]	[Nm]	[Nm]	[kg]	[mL]
Tolerance	+0,04/+0,06	-0,01/-0,025	± 0,1		+0,4												
Roundness	0,01	0,01															
Surface finish	R_a 0,8 µm	R_a 0,8 µm															
RC 100 N	100	100	210	228	16	103	103	12	4	40	20	240	420	168	294	4,1	60
RC 120 N	120	120	230	248	16	113	113	12	4	40	20	336	600	235	420	4,6	60
RC 140 N	140	140	250	268	16	123	123	12	4	40	20	456	840	319	588	5,1	60
RC 160 N	160	160	270	288	16	133	133	12	4	40	20	600	1080	420	756	5,6	60
RC 180 N	180	180	290	308	20	137	143	16	6	30	15	750	1380	525	966	7,7	90
Tolerance	+0,05/+0,07	-0,01/-0,03	± 0,2		+0,4												
Roundness	0,015	0,015															
RC 200 N	200	200	310	328	20	147	153	16	6	30	15	930	1680	651	1176	8,3	90
RC 220 N	220	220	330	348	20	157	163	16	6	30	15	1110	2040	777	1428	8,9	90
RC 240 N	240	240	350	368	20	167	173	24	6	20	10	1350	2400	945	1680	9,5	90
RC 260 N	260	260	370	388	22	177	183	24	6	20	10	1560	2820	1092	1974	11,2	120
RC 280 N	280	280	390	408	22	187	193	24	6	20	10	1800	3240	1260	2268	11,9	120
RC 300 N	300	300	410	428	22	197	203	24	6	20	10	2100	3720	1470	2604	12,6	120
RC 320 N	320	320	430	448	22	207	213	24	6	20	10	2340	4200	1638	2940	13,3	120
RC 340 N	340	340	450	468	22	217	223	24	6	20	10	2580	4680	1806	3276	14,0	120

This technical data applies to the RotoClamp N Standard. Data for the RotoClamp N Active is available on request.

Profile B-B





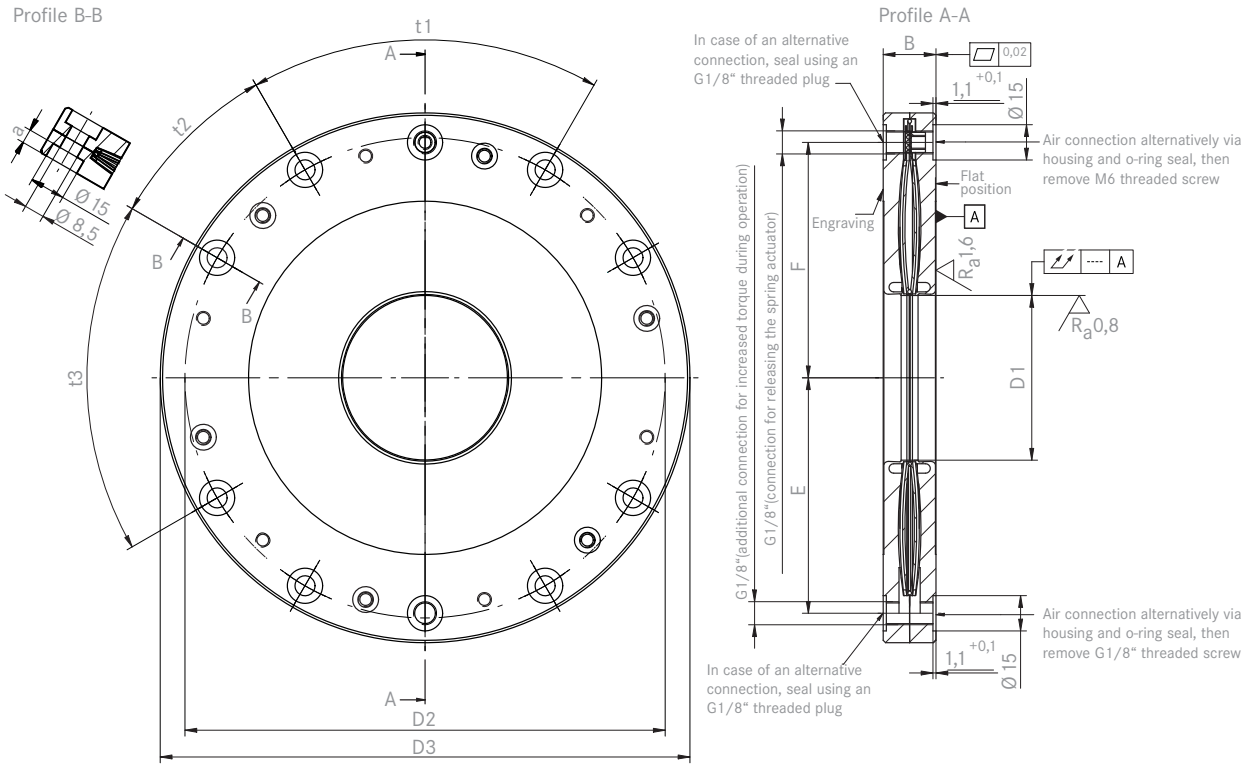


Technical data

Technical data of the RotoClamp L

Size	D1 opened at rated pressure Pn = 4 Bar	Required shaft diameter	D2	D3	B	E	F	n number of fixing screws M8	a	t1	t2	t3	Elastic holding torque at 0 Bar Pn = 4 Bar	Elastic holding torque with secondary air at 4 Bar Pn = 4 Bar	Max. mass	Air requirements per max. stroke.
Unit	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	Quantity	[mm]	[°]	[°]	[°]	[Nm]	[Nm]	[kg]	[mL]
Tolerance	+0,04/+0,06	-0,01/-0,025	± 0,1		+0,4											
Roundness	0,01	0,01														
Surface finish	R_a 0,8 µm	R_a 0,8 µm														
RC 70 L	70	70	204	225	22	100	100	8	6	60	30	60	114	210	6,2	50
RC 140 L	140	140	274	295	22	135	135	16	6	30	15	30	456	840	9,1	100
RC 180 L	180	180	314	335	22	155	155	22	6	30	15	15	750	1380	10,8	100
Tolerance	+0,05/+0,07	-0,01/-0,03	± 0,2		+0,4											
Roundness	0,015	0,015														
RC 200 L	200	200	334	355	22	165	165	22	6	30	15	15	930	1680	11,7	100
RC 240 L	240	240	374	395	22	185	185	34	6	20	10	10	1350	2400	13,3	150
RC 280 L	280	280	414	435	22	205	205	34	6	20	10	10	1800	3240	14,9	150
RC 320 L	320	320	454	475	22	225	225	34	6	20	10	10	2340	4200	16,7	150
RC 340 L	340	340	474	495	22	235	235	34	6	20	10	10	2580	4680	17,5	150

This technical data applies to the RotoClamp L Standard. Data for the RotoClamp L Active is available on request.



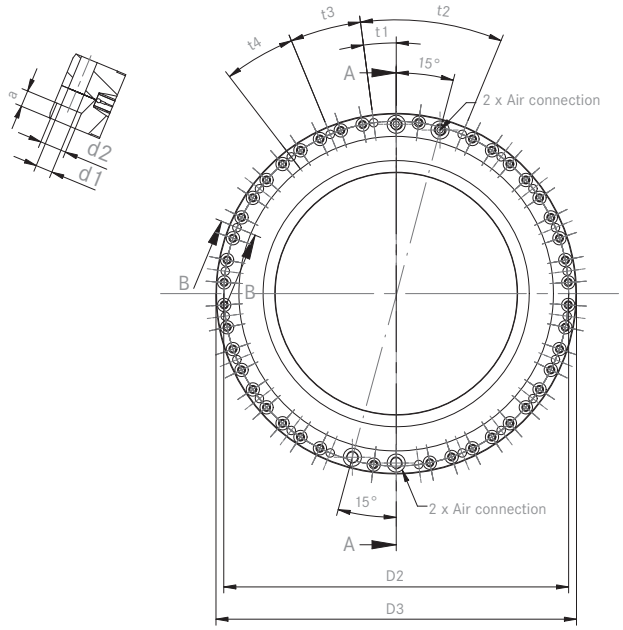
TECHNICAL DATA

Technical data of the RotoClamp Y

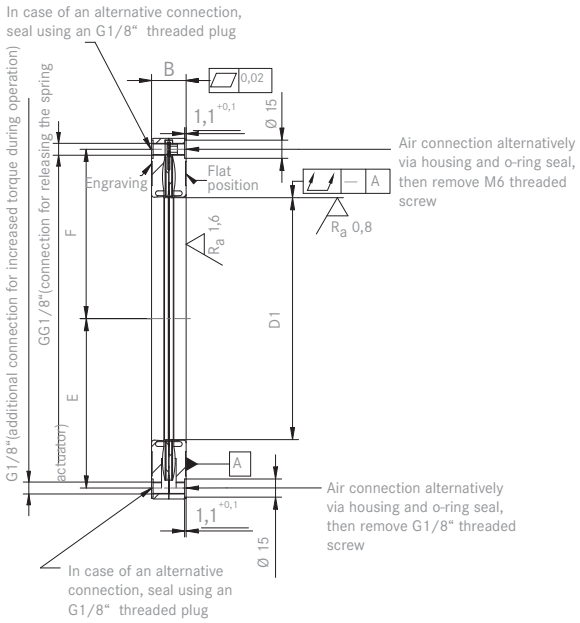
Size	D1 opened at rated pressure Pn = 4 / 6 Bar	Required shaft diameter	D2	D3	B	E	F	n number of fixing screws	a	d1	d2	t1	t2	t3	t4	Elastic holding torque at 0 Bar Pn = 6 Bar	Elastic holding torque with secon-dary air at 6 Bar Pn = 6 Bar	Elastic holding torque at 0 Bar Pn = 4 Bar	Elastic holding torque with secon-dary air at 4 Bar Pn = 4 Bar	Max. mass	Air require-ments per max. stroke
Unit	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	Quantity	[mm]	[mm]	[mm]	[°]	[°]	[°]	[°]	[Nm]	[Nm]	[Nm]	[Nm]	[kg]	[mL]
Tolerance	+0,05/+0,07	-0,01/-0,03	± 0,2		+0,4																
Round-ness	0,015	0,015																			
Surface finish	R_a 0,8 µm	R_a 0,8 µm																			
RC 200 Y	200	200	285	298	28	140	140	22 x M6	6,8	7	11	7,5	30	15	15	600	1000	420	700	8,5	100
RC 260 Y	260	260	365	383	30	183	183	24 x M8	9,0	9	15	5	10	20	10	1600	2900	1120	2030	14,5	100
RC 325 Y	325	325	430	448	30	215	215	24 x M8	9,0	9	15	5	10	20	10	2300	4100	1610	2870	17,5	120
Tolerance	+0,05/+0,07	-0,01/-0,03	± 0,2		+0,4																
Round-ness	0,020	0,015																			
RC 395 Y	395	395	505	523	36	252,5	252,5	48 x M8	9	9	15	3,75	7,5	7,5	7,5	3300	6100	2310	4270	26	160
Tolerance	+0,06/+0,08	-0,01/-0,03	± 0,2		+0,4																
Round-ness	0,020	0,015																			
RC 460 Y	460	460	580	598	36	290	290	48 x M8	9	9	15	3,75	7,5	7,5	7,5	4600	8400	3220	5880	32	240

This technical data applies to the RotoClamp Y Standard. Data for the RotoClamp Y Active is available on request.

Profile B-B



Profile A-A

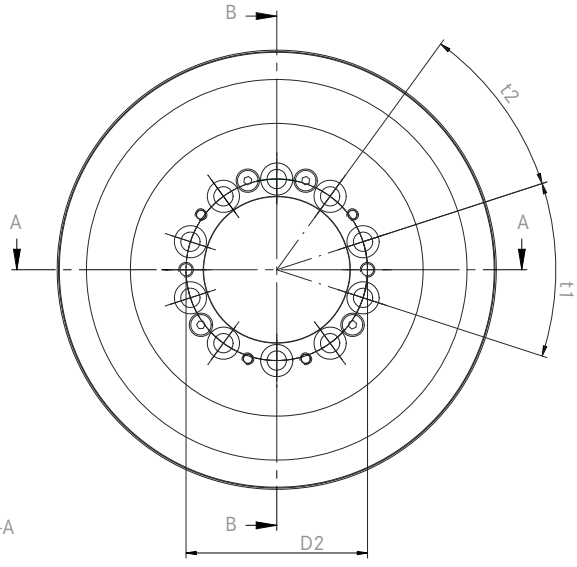


Technical data

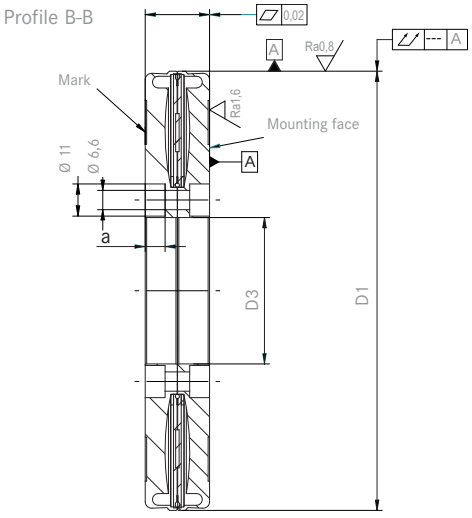
Technical Data RotoClamp Outside S

Size	D1 opened at rated pressure Pn = 4/6 Bar	Required shaft diameter	D2	D3	B	E	F	n number of fixing screws	a	t1	t2	Elastic holding torque at 0 Bar Pn = 6 Bar	Elastic holding torque with secondary air at 6 Bar Pn = 6 Bar	Elastic holding torque at 0 Bar Pn = 4 Bar	Elastic holding torque with secondary air at 4 Bar Pn = 4 Bar	max. Mass	Air require-ments per max stroke
Unit	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	Quantity	[mm]	[°]	[°]	[Nm]	[Nm]	[Nm]	[Nm]	[kg]	[mL]
Tolerance	-0,035/-0,05	+0,01/+0,025	± 0,1		+0,4												
Round-ness	0,01	0,01															
Surface finish	R_a 0,8 µm	R_a 0,8 µm															
RCO 150 S	150	150	62	50	22	31	31	10 x M6	6,8	36	36	250	460	170	320	2	20
RCO 170 S*	170	170	82	20	22	41	41	12 x M6	6,8	30	30	359	650	251	454	2,2	25

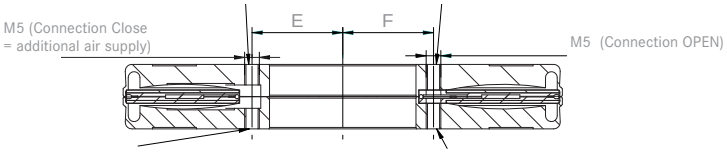
This technical data applies to the RotoClamp S Standard. Data for the RotoClamp S Active is available on request.
*Preliminary data



Profile A-A



In case of alternative connection, seal using M5 screw.



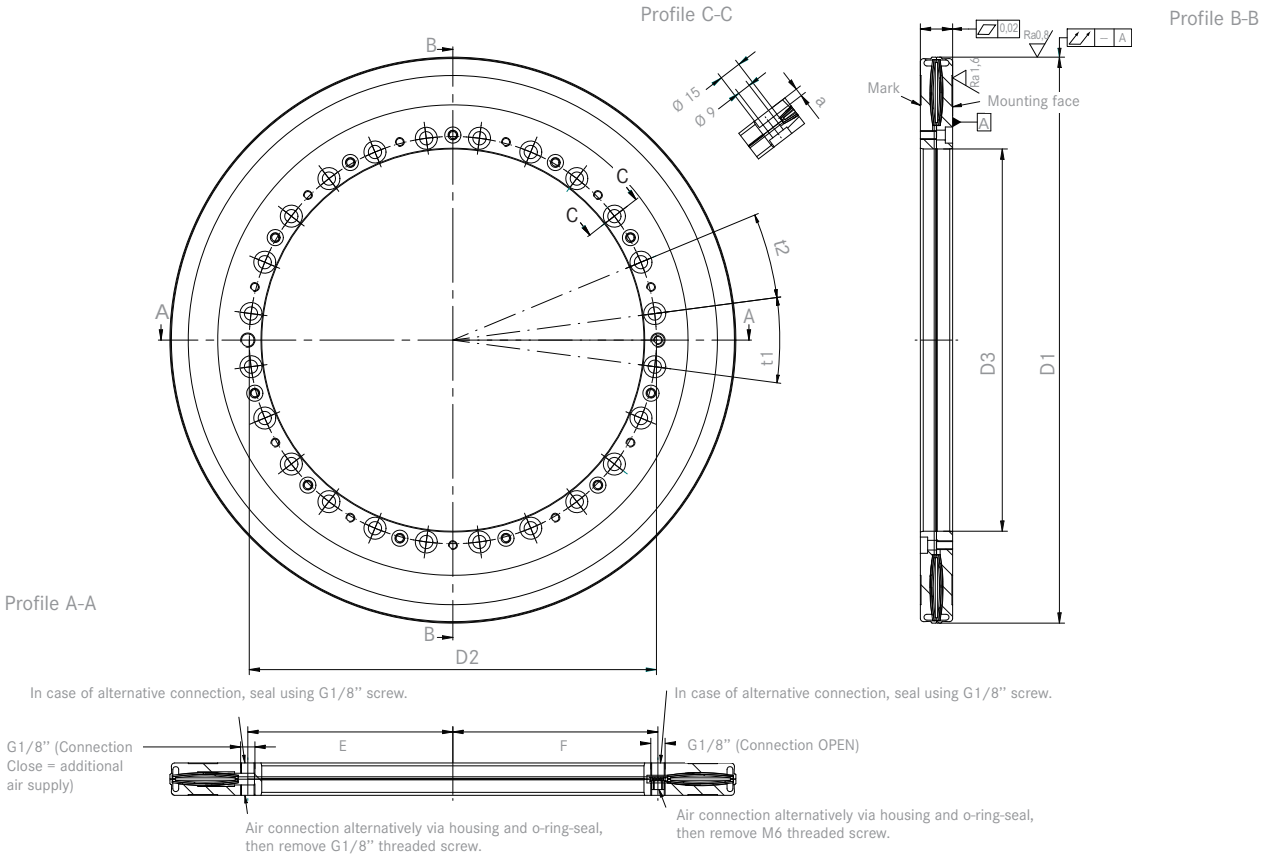
Air connection alternatively via housing and o-ring-seal, then remove M5 threaded screw.

TECHNICAL DATA

Technical Data RotoClamp Outside N

Size	D1 opened at rated pressure Pn = 4/6 Bar	Required shaft diameter	D2	D3	B	E	F	n number of fixing screws	a	t1	t2	Elastic holding torque at 0 Bar Pn = 6 Bar	Elastic holding torque with secondary air at 6 Bar Pn = 6 Bar	Elastic holding torque at 0 Bar Pn = 4 Bar	Elastic holding torque with secondary air at 4 Bar Pn = 4 Bar	Mase max.	Air require-ments per max stroke
Unit	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	Quantity	[mm]	[°]	[°]	[Nm]	[Nm]	[Nm]	[Nm]	[kg]	[mL]
Tolerance	-0,045/-0,065	+0,01/+0,03	± 0,1		+0,4												
Round-ness	0,015	0,015															
Surface-finish	R_a 0,8 µm	R_a 0,8 µm															
RCO 195 N*	195	195	87	70	22	44,5	44,5	10 x M8	5,5	36	36	456	819	328	573	3,1	60
RCO 255 N*	255	255	147	130	22	74,5	74,5	16 x M8	5,5	22,5	22,5	1080	1944	756	1361	4,5	80
RCO 315 N*	315	315	207	190	22	104,5	104,5	18 x M8	5,5	20	20	1887	3468	1321	2428	6,1	100
RCO 385 N	385	385	277	260	22	139,5	139,5	24 x M8	5,5	15	15	3100	5500	2100	3800	7	120

This technical data applies to the RotoClamp N Standard. Data for the RotoClamp N Active is available on request.
*Preliminary data

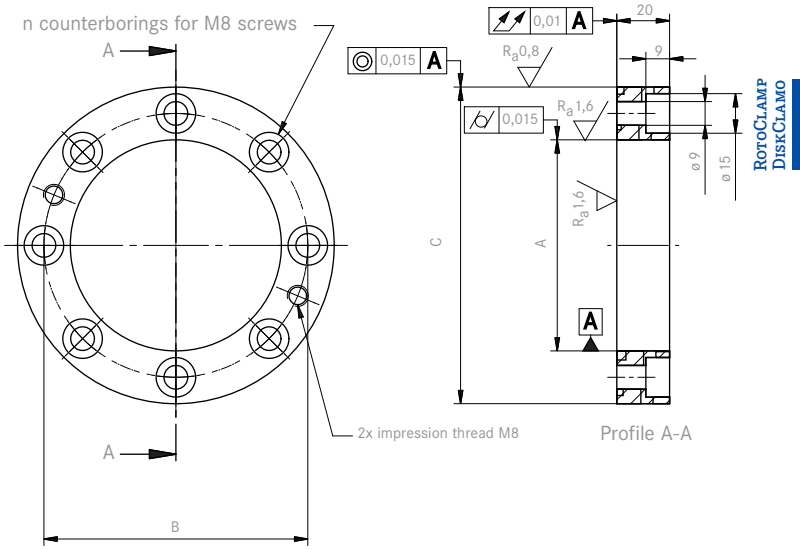


Options/Installation

RotoClamp with optional shaft flange

RotoClamp can also be delivered as a complete solution with the shaft flange manufactured to your specifications using various materials. The optional clamping flange is available in the following qualities: hardened with case-hardened steel or plasma-coated steel.

Size	Ø A	Ø B	Ø C	n counter-sinkings
Tolerance	H7	±0,1 mm	- 0,010 - 0,030	
100	60	80	120	8
120	80	100	120	8
140	100	120	140	8
160	110	136	160	12
180	130	156	180	12
200	150	176	200	12
220	170	196	220	12
240	190	216	240	12
260	210	236	260	12
280	230	256	280	12
300	250	276	300	12
320	270	296	320	12



Installation and assembly

General

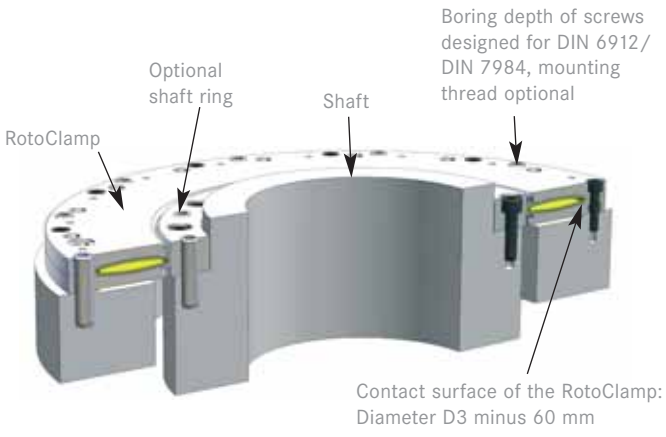
- To transfer the maximum clamping forces, the connection to the machine structure should be as rigid as possible.
- The characteristics indicated for the clamping elements can only be achieved by correct construction, manufacturing, assembly and use of the system.

Assembly instructions of the shaft flange

- The seating at the shaft should be a g6-fit. The shaft flange is placed on the flat machined side, screwed down lightly and then aligned for smooth running.
- The required tightening torque for the tightening screws M8/12,9 is 44 Nm in order to transfer the maximum torque.

Assembly instructions of the RotoClamp

- Compressed air is applied to the RotoClamp and it is opened. Clamping can then be initiated via the shaft. The RotoClamp is then placed on the flat matching side and screwed down with a reduced torque.
- The compressed air is then reduced to 0 Bar, thereby activating the clamping. This procedure centres the clamping mechanism relative to the shaft The RotoClamp must be free at the outer diameter (>1 mm) to ensure safe function.
- After the RotoClamp is centred in the intended position, the fixing screws are tightened cross-wise in several phases to the defined torque.
- After fixing, the clamping mechanism is opened and a check is made whether the shaft can be turned freely. Only this ensures correct function.

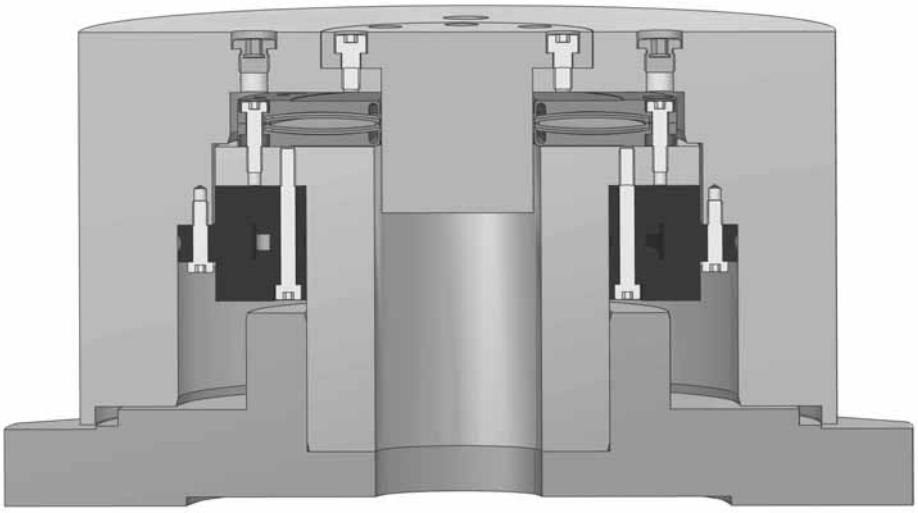


Make sure that there is a rigid connection and correct attachment to transmit the forces!

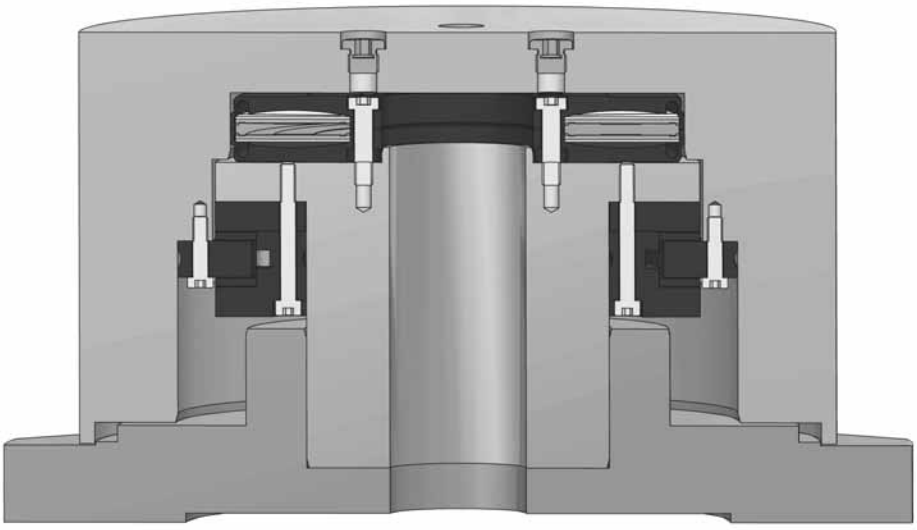
DETAILS OF CONSTRUCTION

Design recommendations

- The accuracy of the clamping surface is established by matching the precision ground inside diameter to the flat machined mounting surface of the RotoClamp. The total running tolerance of the clamping surface to the defined flat matching surface is smaller than 0.02 mm.
- The contact width of the clamping surface is between 2.5 and 4 mm, depending on the gap width. In this area, compressive stresses up to max. 180 N/mm² arise at the clamping diameter when using the secondary air function.
- Transferable torque (example): When using 12,9 M8 screws and at a prestressing force of 30700 N for each screw and a coefficient of friction of μ=0.1 and a radius of 100 mm, a transferable torque of 307 Nm is achieved for each screw.
- The roundness and radial eccentricity of the shaft in assembled state should be < 0.02 mm.
- The total running tolerance of the plane surface to the shaft for attaching the clamping mechanism should be < 0.02 mm.
- The flat attachment should not be wider than D3-60 mm.
- The RotoClamp must be free at the outer diameter (RotoClamp Inside) or at the inside diameter (RotoClamp Outside) to be able to centre itself.



View: RotoClamp Inside in mounting position (suggestion)



View: RotoClamp Outside in mounting position (suggestion)

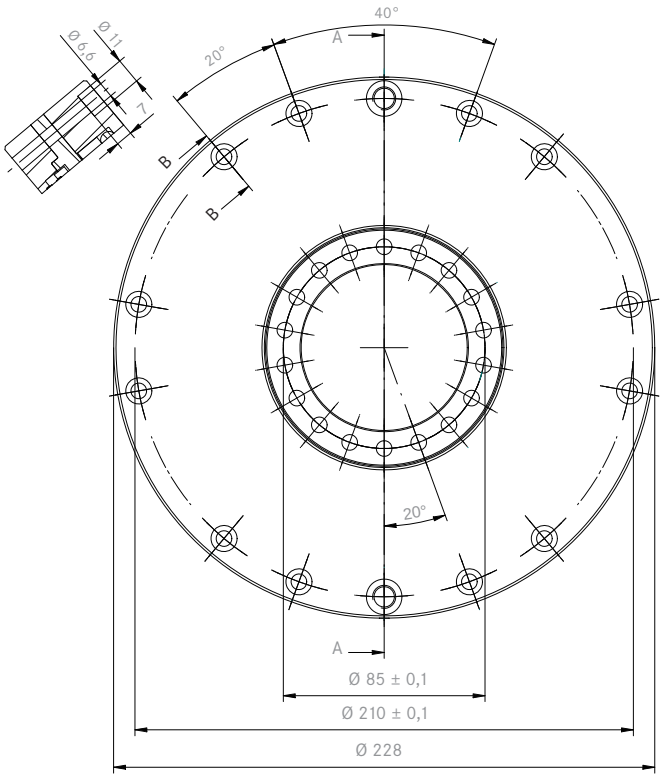
Technical Data

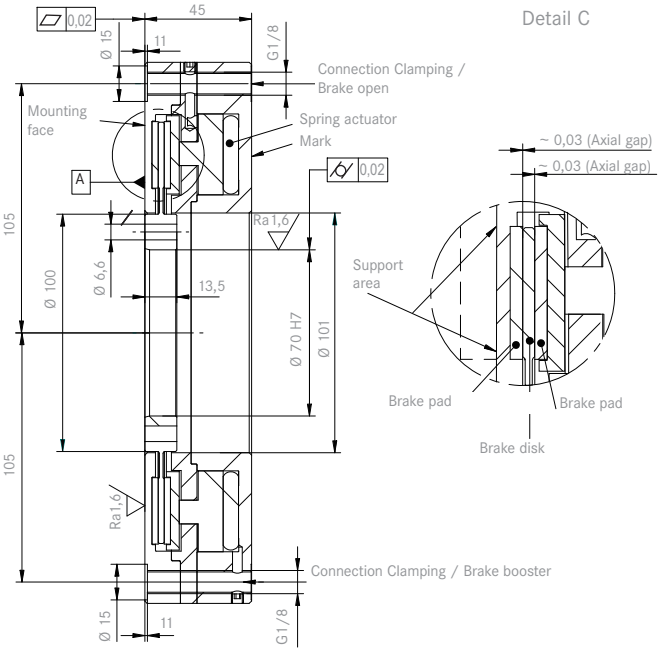
DiskClamp - Security clamping system with Emergency brake

Technical Data DiskClamp

Size	Brake clamping torque at 0 Bar Pn = 6 Bar	Brake clamping torque with booster at 6 Bar Pn = 6 Bar	Brake clamping torque at 0 Bar Pn = 4 Bar	Brake clamping torque with booster at 4 Bar Pn = 4 Bar	Mass Brake disk	Mass max.	Air requirements per max stroke
Unit	[Nm]	[Nm]	[Nm]	[Nm]	[kg]	[kg]	[mL]
DC 100	240	420	160	290	0,65	10	60

Profile B-B





Profil A-A

HEMA CLAMPING SYSTEMS

REQUEST FORM

Please send by fax to +49 6182 773-35

Company name:

Address: Country/Zip/Location:

Contact: Area/Department:

Telephone: DID: Fax: Direct:

E-Mail: Internet:

RotoClamp systems can be adjusted for various applications. The following criteria decide on the configuration of the system. Please enter the information as completely and detailed as possible.

Model (please check):

☐ RotoClamp Outside
☐ S ☐ N

☐ RotoClamp Inside (A = Aktiv)
☐ S ☐ N ☐ L ☐ Y
☐ SA ☐ NA ☐ LA ☐ YA

☐ DiskClamp

Type designation according to the table:

Clamping cycles: per

special requirement:

Clamping torque: Nm

Planned connection pressure:

☐ 4 Bar ☐ 6 Bar

Dimensions:

Outer diameter D3: mm

Inside diameter D1: mm

Fixing diameter D2: mm

Overall height:

Standard bore according to drawing:

☐ Yes ☐ No

In case of deviation, please enclose the drawing for the application or mail to info@hema-schutz.de.

Optional shaft flange:

Required quantity:

Date of delivery:

☐ Please call back ☐ Please visit

Other:

You can also download this form at:
www.hema-schutz.de.

RotoClamp / DiskClamp

LinClamp/HLGClamp

LinClamp S

HLGClamp

LinClamp SK

LinClamp SA

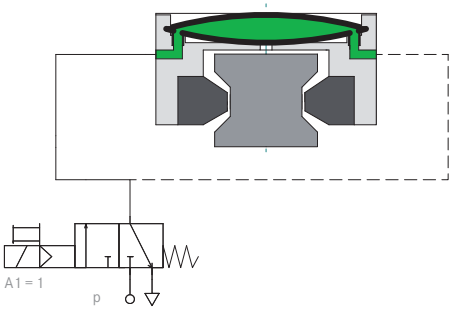
LinClamp A

Advantages

1. Suitable for almost all sizes and manufacturers of linear guide systems as well as for surfaces (LinClamp A)
2. Compact design, suitable for high and low carriages, simple installation
3. Compatible to other rail clamping systems
4. Pneumatic clamping or braking of the highest forces
5. Optimum safety clamping, failure of pneumatics results in clamping
6. Low system costs in comparison to hydraulics and electronic solutions
7. Special linings for clamping without loss of holding power for linear guides with grease lubrication.

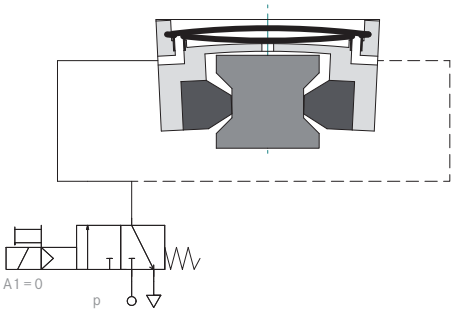
OPERATING PRINCIPLE OF THE LINCLAMP

Function of the LinClamp S/SK



Standard LinClamp rail clamping mechanism Opening with spring actuator

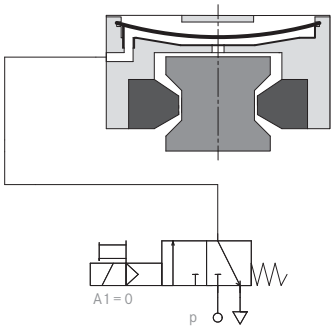
LinClamp S/SK released Compressed air is applied to the chamber between the two spring steel diaphragms. This deforms the spring steel sheets elastically and shortens them in the horizontal direction. The clamp body is deformed in such a way that it contacts at the top with the spring steel sheets and expands at the bottom around the brake shoes. This lifts the brake shoes from the rail and it can be moved freely.



Standard LinClamp rail clamping mechanism Clamping with spring actuator

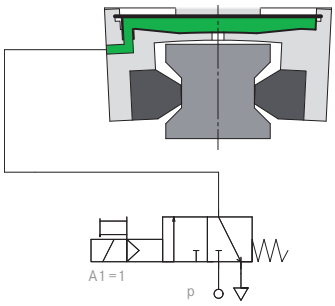
LinClamp S/SK clamped The chamber between the two spring steel diaphragms is vented. The spring steel sheets spring back to their normal position and expand the upper part of the clamping body. However, this expansion at the top simultaneously leads to a narrowing at the bottom. This narrowing causes the brake shoes to press against the rail and to clamp it.

Function of the LinClamp SA



Standard LinClamp rail clamping mechanism Opening with spring actuator

LinClamp SA released Venting causes the sheet to spring back and splays out the clamping body below the slide way. The base plate, which has previously been reformed elastically, now springs back to its starting position. It is thereby narrower above the cross web and wider beneath it. The brake shoes lift off from the rail. Operating pressure 4 to 6 Bar.



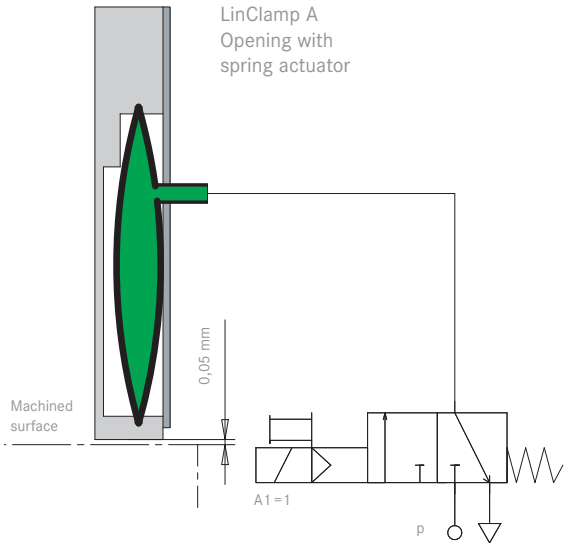
Standard LinClamp rail clamping mechanism Clamping with spring actuator

LinClamp SA clamped To activate the clamping mechanism, the chamber below the spring steel sheet is filled with compressed air. The prestressed spring steel sheet is thereby pressed upwards and simultaneously stretched. Simultaneously, the lower part of the clamping body is narrower over the cross web as pivot point. This presses the brake shoes against the rail.

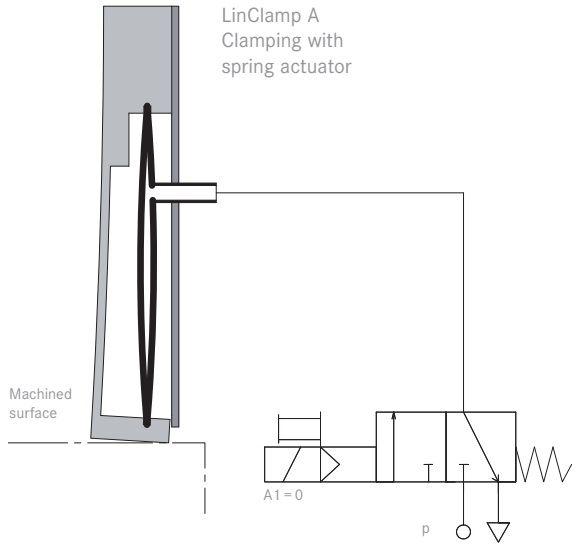
Compressed air

Operating principle of the LinClamp

Function of the LinClamp A



LinClamp A released Compressed air is applied to the chamber between the two spring steel diaphragms. This elastically deforms the spring steel sheets and the entire system contracts. This contraction causes the clamping jaw to lift from the base frame – the carriage can now be moved freely. The gap between the clamping jaws and the frame at an operating pressure of 4 Bar is 0.05 mm. The distance between the carriages and the frame remains constant due to the high accuracy of the precision rails; the gap of 0.05 mm is therefore not a problem.



LinClamp A clamped The chamber between the two spring steel diaphragms is vented. The energy stored in the spring steel sheets causes the clamping element to expand towards the machine frame. When the clamping jaws touch the machine frame, a large part of the energy is still within the spring actuator – the carriage is clamped.

Compressed air

RESEARCH RESULTS

Research results for pneumatically operated brake systems

Within the scope of a research project carried out by the VDW/VDMA (German Machinery Plant Manufacturer's Association), measurements were carried out at the Institut für Fertigungstechnik und Werkzeugmaschinen (IWF) at Hanover University, Germany over the course of two years to determine the braking distance of LinClamp brake systems using sintered metal in comparison to alternative products.

Comparative test of the braking distance

Test configuration
Institut für Fertigungstechnik und Werkzeugmaschinen (IWF) at Hanover University, Project "Fast braking" of the VDW/VDMA

Test object
LinClamp S 55

Rated values
6 kN holding force per element
Guide rails INA, air pressure min. 5.5 Bar

Measurements carried out
The measurements were made to determine the braking distance in comparison to alternative products

Parameter
60 and 120 m/min at 550 kg to 1550 kg
in 200-kg steps, 50 horizontal measurements,
air pressure 5.5 Bar

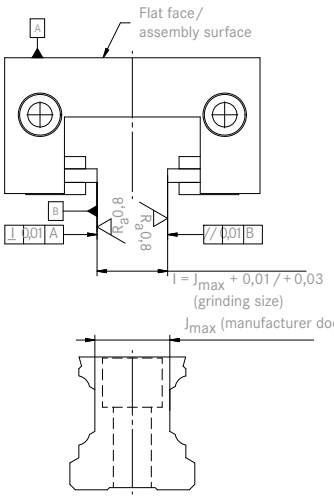
Results

Test object	60 m/min, 1150 kg	60 m/min, 1350 kg	60 m/min, 1550 kg	120 m/min, 550 kg	120 m/min, 750 kg
Unit	[mm]	[mm]	[mm]	[mm]	[mm]
LinClamp S 55	62,7	65,2	69,9	121,8	144,5
Clamping alternative 1	66,9	81,2	89,3	151,4	179,9
Clamping alternative 2	87,9	96,2	101,9	145,8	173,4

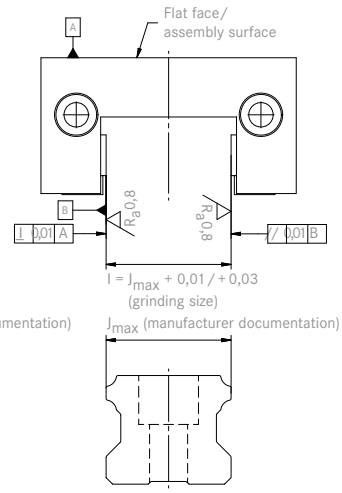
Features of LinClamp

Gap width between brake and clamping faces and linear guide rails

Example: Clamping in the middle area of a linear guide rail



Example: Clamping in the upper area of a linear guide rail



The inner dimension I between the faces of each LinClamp is polished to an exact value. This is always 0.01 mm to 0.03 mm larger than the maximum size J_{max} from the manufacturer documentation of the respective linear guide rail (refer to the diagram). The greatest possible holding force is at J_{max}. In unfavourable cases, there are resulting losses of holding force of up to 30% (refer to the table).

Air gap bellows/linear guide rail (mm)	Loss in holding force (%)
0,01	5
0,03	10
0,05	20
0,07	30

Clamping

Braking

All S, SK, and SA type LinClamps can be used both as brake and clamping elements.
Use as brake: Sintered metal brake lining.
Use as clamp: Clamp linings made of tool steel.

Mounting of the carriages

high

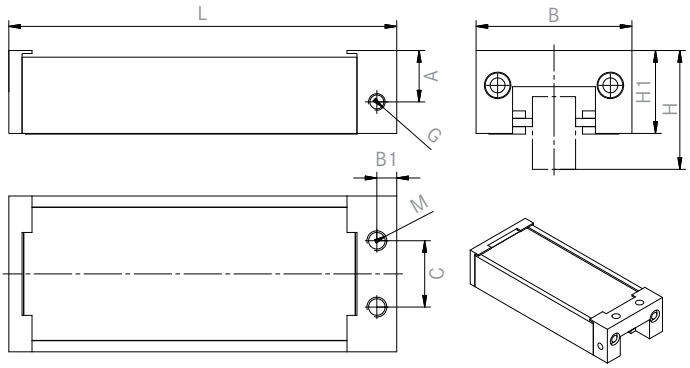
low

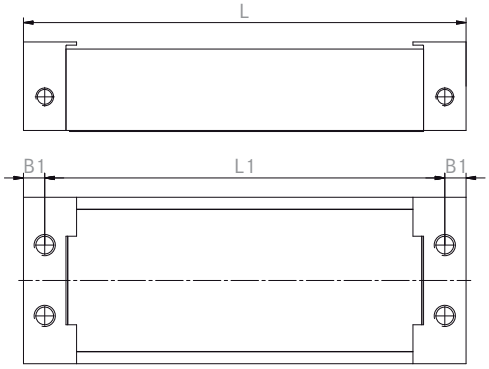
Comparison of higher/lower runner block LinClamp S:
In accordance to the configuration of the linear guide used, you can select between a high or a low fixing element.

TECHNICAL DATA

Technical data of the LinClamp S

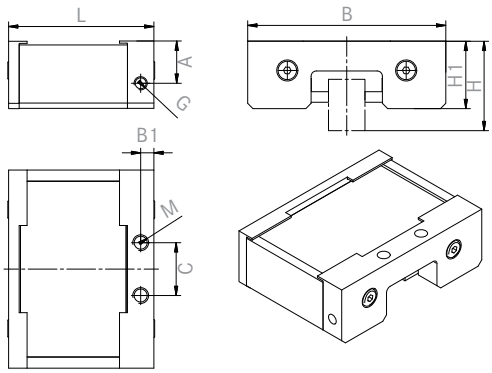
	2 fixing holes	4 fixing holes			Low carriage			High carriage									
Rail size	L	L	L1	B	H	H1	A	H	H1	A	B1	C	G	M	Holding force at 6 Bar	Holding force at 4 Bar	Mass
Unit	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]			[N]	[N]	[kg]
20	97,5	105,5	93,2	43	30	19,5	13,5	-	-	-	6,0	15	M5	M5	900	540	0,32
25	117,5	125,5	113,0	47	36	25,0	15,5	40	29,0	19,5	6,0	20	M5	M6	1200	780	0,50
30	126,5	141,5	121,0	59	42	29,5	17,0	45	32,5	20,0	10,0	24	M5	M8	1800	1100	0,90
35	156,5	171,5	151,2	69	48	35,0	22,5	55	42,0	29,5	10,0	24	G1/8	M8	2800	1800	1,26
45	176,5	191,5	171,2	80	60	42,0	26,5	70	52,0	36,5	10,0	26	G1/8	M10	4000	2400	2,30
55	202,5	221,5	196,2	98	70	49,0	28,0	80	59,0	38,0	12,5	30	G1/8	M12	6000	3600	3,90
65	259,5	281,5	251,2	120	90	64,0	38,0	100	74,0	48,0	15,0	40	G1/8	M12	10000	6000	5,00

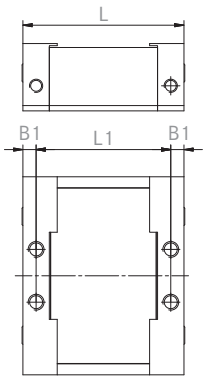




Technical data of the LinClamp SK

	2 fixing holes	4 fixing holes			Low carriage			High carriage									
Rail size	L	L	L1	B	H	H1	A	H	H1	A	B1	C	G	M	Holding force at 6 Bar	Holding force at 4 Bar	Mass
Unit	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]			[N]	[N]	[kg]
15	55,5	61,5	51,5	45	24	18,0	14,0	-	-	14,0	5,00	15	M5	M4	450	300	0,50
20	55,5	61,5	51,5	54	30	22,0	16,0	-	-	16,0	5,00	20	M5	M6	650	430	0,60
25	55,5	61,5	51,5	75	36	25,5	16,0	40	29,5	16,0	5,00	20	M5	M6	800	530	0,70
30	67,0	76,5	59,0	82	42	30,0	21,0	45	33	21,0	8,75	22	M5	M8	1150	750	0,90
35	67,0	76,5	59,0	96	48	35,0	21,2	55	42	21,2	8,75	24	G1/8	M8	1250	820	1,27
45	80,0	92,0	72,0	116	60	45,0	27,5	70	55	27,5	10,00	26	G1/8	M10	1500	950	2,00
55	100,0	112,0	92,0	136	70	49,0	30,5	80	59	30,5	10,00	30	G1/8	M10	2100	1300	2,80

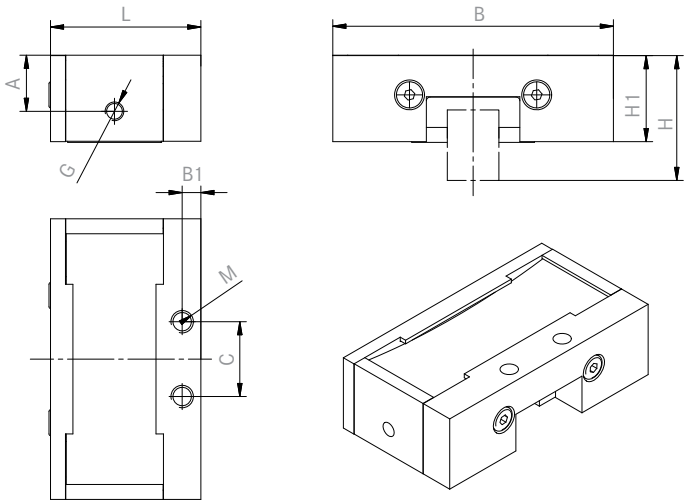




Technical data

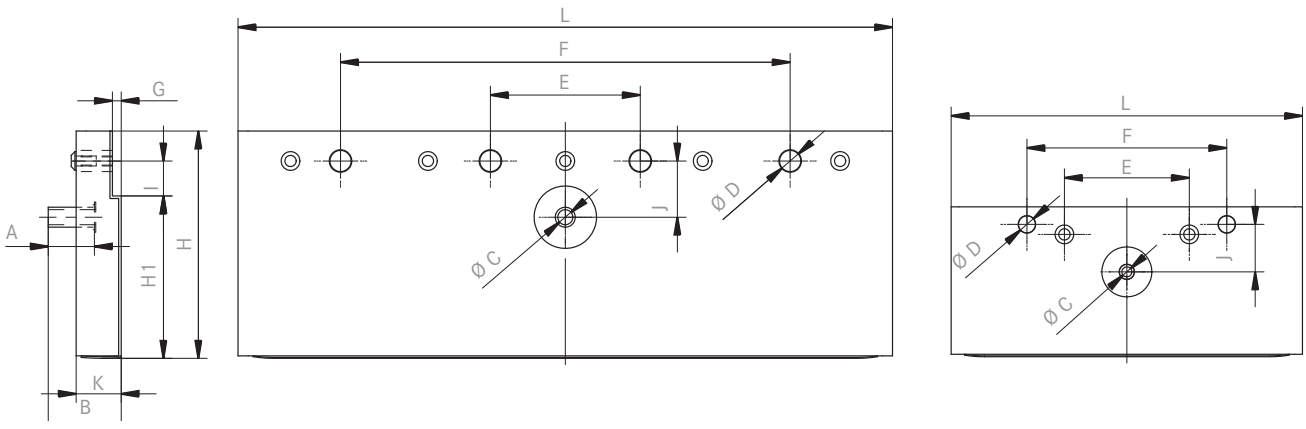
Technical data of the LinClamp SA

	2 fixing holes		Low carriage			High carriage									
Rail size	L	B	H	H1	A	H	H1	A	B1	C	G	M	Holding force at 6 Bar	Holding force at 4 Bar	Mass
Unit	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		[N]	[N]	[kg]
20	40	75	30	23	15	-	-	15	5,00	20	M5	M6	650	390	0,53
25	40	75	36	23	15	40	27	15	5,00	20	M5	M6	800	480	0,53
35	67	96	48	35	20	55	42	20	8,75	24	G1/8	M8	1250	750	1,14



Technical data of the LinClamp A

Rail size	L	B	H	H1	A	C	D	E	F	G	I	J	K	Holding force at 4 Bar	Mass
Unit	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[N]	[kg]
25	140	28,15	60	36	17	4	6,8	50	80	3,5	17	19	18	1100	0,53
35	212	29,45	81	55	19	8	6,8	50	150	3,5	14	22	18	2200	1,15



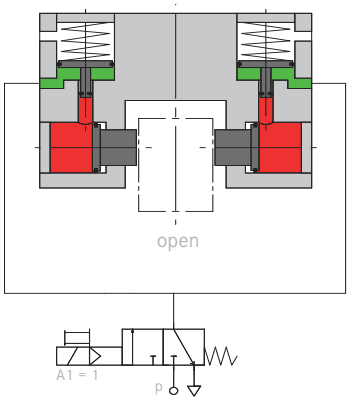
OPERATING PRINCIPLE OF THE HLGCLAMP

The main components of the HLGClamp are the housing, master and slave piston, hydraulic oil with power pack function and pressure springs for energy storage.

Advantages of HLGClamp

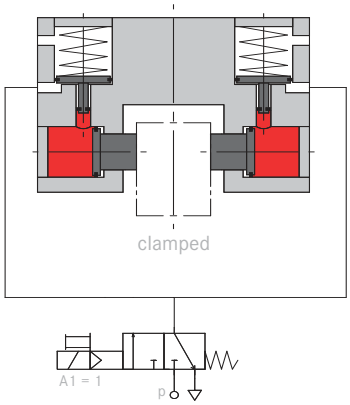
- One-piece, solid housing
- Functional principle applicable for most sizes and manufactures of linear guiding systems
- Compatible with other clamping solutions
- Active and passive clamping and clamping with booster function in one system
- High clamping forces with compact construction
- Low system costs by use of fewer production and standard parts

HLGClamp open



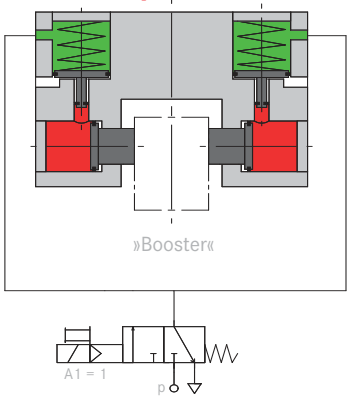
»Open« condition When applying compressed air the master piston compresses the spring. The slave pistons will be retracted, the HLGClamp is open.

HLGClamp clamped



»Clamped« condition Decreasing pressure will release the energy retained in the springs and transmit this energy to the the master pistons. Hereby the slave pistons will be moved toward the linear guidance rail, the HLGClamp is closed.
The power applied by the pressure springs will be magnified in the ratio of master to slave piston.

HLGClamp mit »Booster«

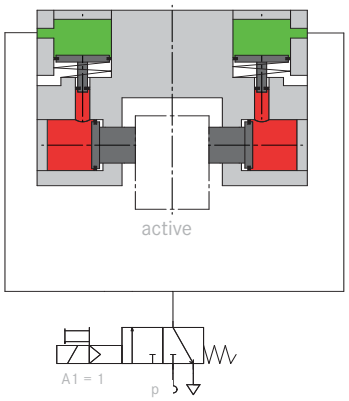


»Booster« condition The master pistons will be actuated with compressed air. Thereby the slave pistons will be moved toward the linear guiding rail, the HLGClamp is closed.
The power applied by the pressure springs will be magnified in the ratio of master to slave piston.
This function will increase the clamping force (booster).

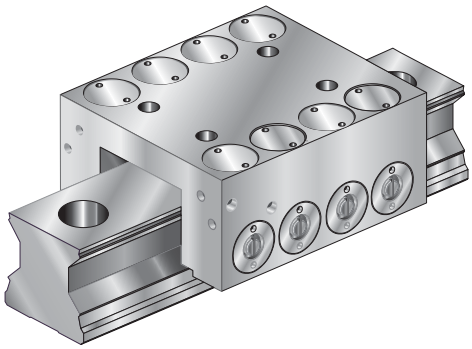
Compressed air

Operating principle of the HLGClamp

HLGClamp active



»Active« condition The master pistons are retracted by spring. The clamping is effected by compressed air.

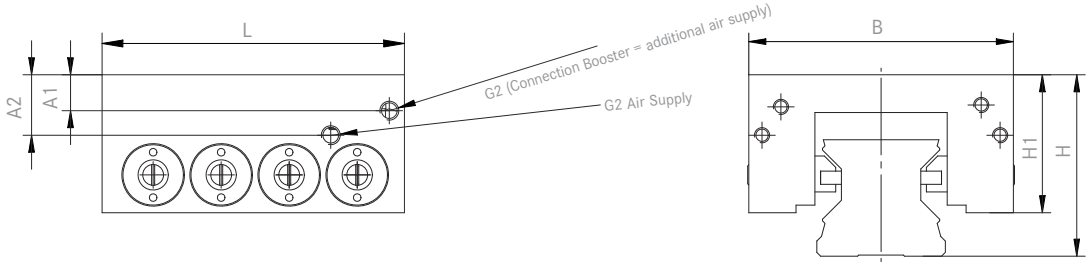


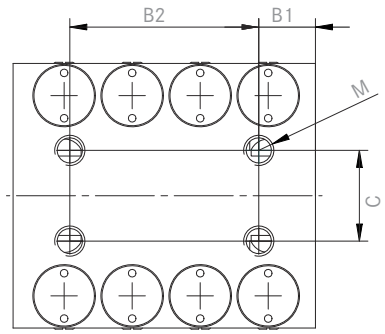
Technical Data

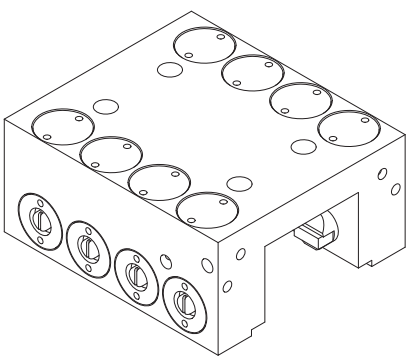
Technical Data HLGClamp

			Low carriage				High carriage										Clamping force		
Rail Size	L	B	H	H1	A1	A2	H	H1	A1	A2	B1	B2	C	G1	G2	M	at 6 Bar	Booster at 6 Bar	Mass
Unit	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]				[N]	[N]	[kg]
25	75	46,8	36	27	4,5	10	40	31	8,5	14	20,8	33,4	20	M5	M5	M6	1400*	2500*	2,20
35	80	69,8	48	36,5	5,5	13,9	55	43,5	12,5	20,9	15	50	24	M5	M5	M8	2800*	5200*	2,78
Special design for shaft guiding Ø20	30	80	85	70	15	31,5	-	-	-	-	6	18	18	M5	M5	M6	650	1200	0,96

* Preliminary Data







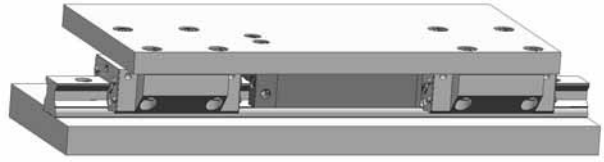
RECOMMENDATIONS/INSTALLATION/WARRANTY

General

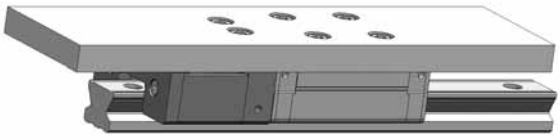
- To be able to transmit the indicated holding forces, the connection to the carriage(s) of the linear guide system used should be as rigid as possible.
- The mounting surface of the LinClamp is always at the same height as the mounting surfaces of the carriages (low or high) used in the linear guide due to the use of high or low fixing elements. Special heights of LinClamp as well as models adapted to lower rail sizes can be delivered on request.
- The mounting surface for fixing the LinClamp must be perfectly machined geometrically and must be flat.
- Check the air supply, line lengths and feeds and both check and test the valve selection.
- Braking element (brake linings) that are greased achieve approx. 60% of the holding forces.
- Clamping elements (steel linings) that are greased achieve 100% of the holding forces.
- If the combination of tolerances is unfavourable then there is a potential loss of holding force of up to 30% (due to the system).

Installation and assembly

- Air Pressure is applied to the LinClamp and it is opened (Type S, SK) or it is pushed over the rail without air pressure (Type SA) and then attached to the mounting surface via the fixing screws. The screws are only tightened by hand at first.
- The air pressure is now reduced to 0 Bar (Type S, SK) or increased to the required pressure (Type SA), thereby activating the clamping mechanism. This procedure centres the LinClamp relative to the rail.
- After the LinClamp has been centred in the intended position, the fixing screws are tightened in several steps up to the defined tightening torque.
- After assembly, a check is made whether the LinClamp can be freely moved over the rail when open. Only in this way is perfect function ensured.



View: LinClamp S in mounting position (suggestion)



View: LinClamp SK in mounting position (suggestion)

Request form

Please send by fax to +49 6182 773-35

Company name:

Address:

Country/Zip/Location:

Contact:

Area/Department:

Telephone: DID:

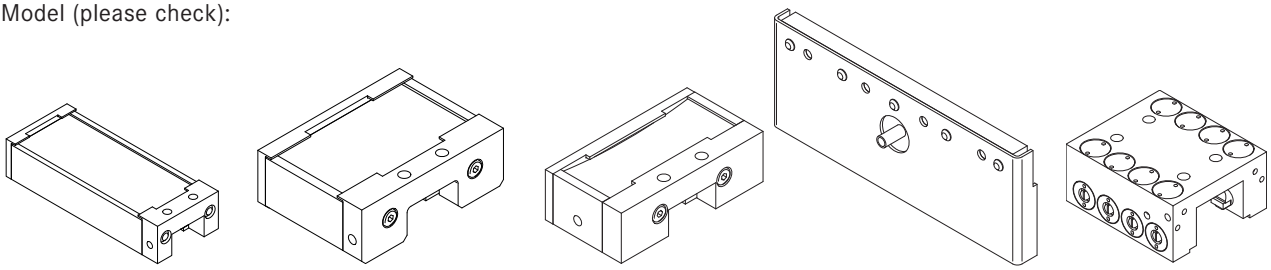
Fax: Direct:

E-Mail:

Internet:

LinClamp systems can be adjusted for various applications. The following criteria decide on the configuration of the system. Please enter the information as completely and detailed as possible.

Model (please check):



☐ LinClamp S ☐ LinClamp SK ☐ LinClamp SA ☐ LinClamp A ☐ HLGClamp

Type designation according to the table: _____

Holding force: _____ N Air pressure: _____ Bar

☐ System should clamp with air
☐ System should open with air

☐ Horizontal operation
☐ Vertical operation
☐ Vertical operation (with free fall)

Use as:
☐ brake system
☐ emergency brake
☐ mechanical fall arrester
☐ clamping system
☐ process terminal

Clamping cycles _____ per _____

Surface operating conditions:
☐ dry ☐ oiled ☐ greased

Exact designation of the oil/grease: _____

Exact designation of linear guidance:

Manufacturer: _____

Type/Size: _____

Carriage type high/low: _____

Required quantity: _____

Date of delivery: _____

☐ Please call back

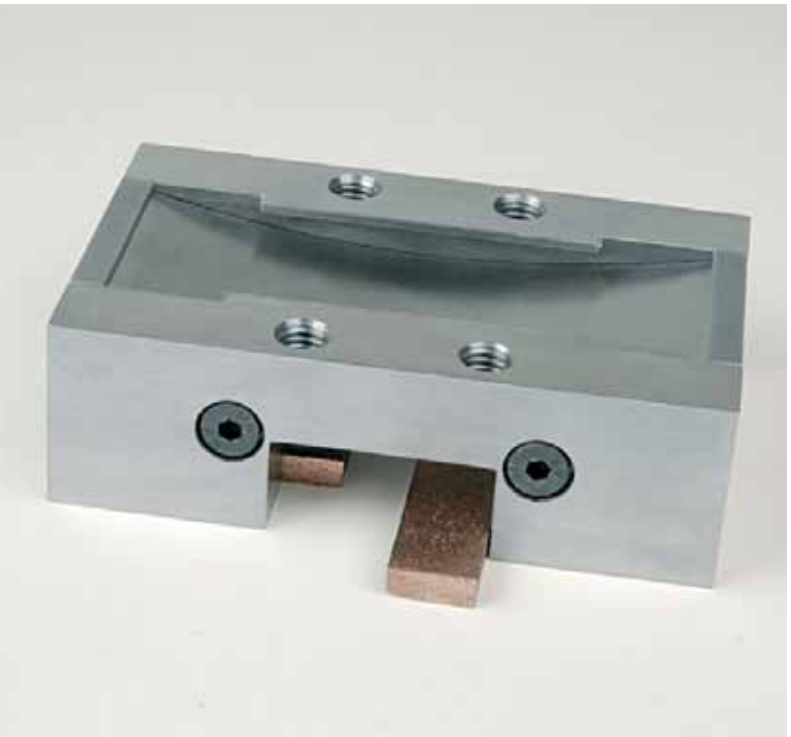
☐ Please visit

Other: _____

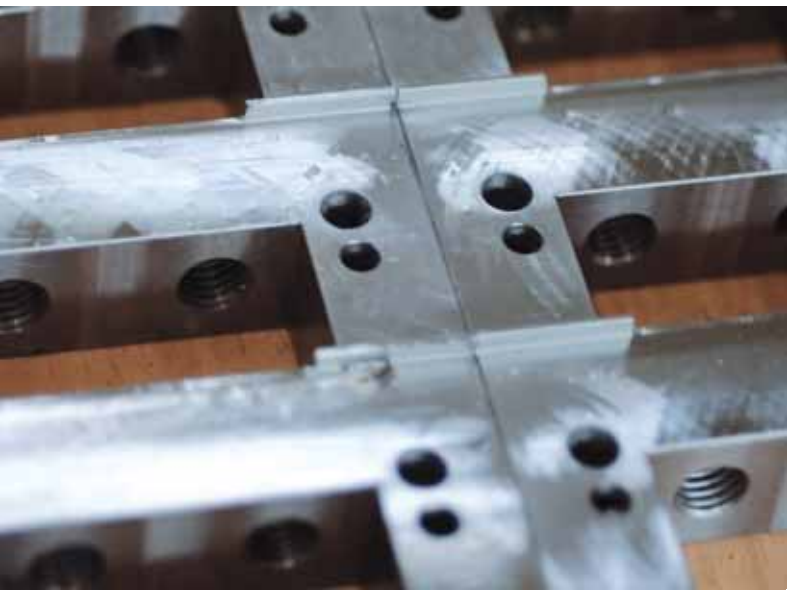
You can also download this form at:
www.hema-schutz.de.

HEMA

CLAMPING SYSTEMS



LinClamp/HLGClamp



PCLAMP

PClamp X

PClamp E

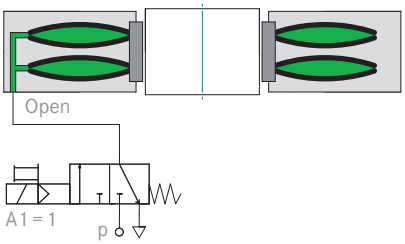
ADVANTAGES

1. Pneumatic clamping with high forces
2. Optimum safety clamping – if the pneumatic fail the system is locked
3. The values of hydraulic clamps are reached and exceeded
4. Low system costs in comparison to hydraulics
5. Simple installation
6. Compact design
7. Wide range for many shaft sizes can be delivered

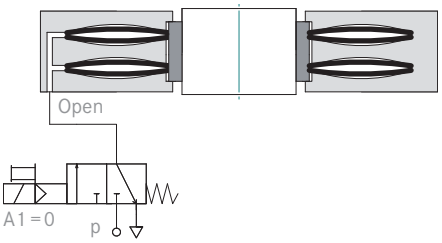
OPERATING PRINCIPLE

Function of the PClamp N

PClamp Standard opening the spring actuator



PClamp Standard clamping with spring actuator

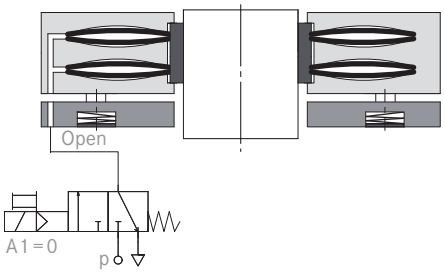


PClamp N released Pressure is applied to the air chambers between the spring steel sheets. The spring steel sheets bend outwards, reducing their radial width. The clamping collet can therefore expand, releasing the rod.

PClamp N clamped The air chambers between the spring steel sheets are vented, the elastic spring steel sheets return to their original position, thereby clamping the collet against the rod. In this condition, the PClamp N is able to stop both rotary motion as well as linear motion.

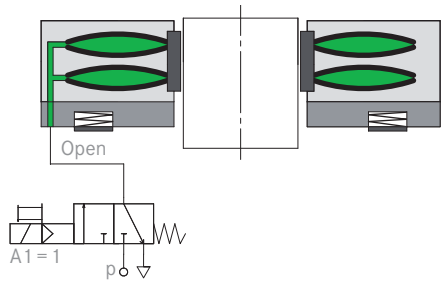
Function of the PClamp X

PClamp X clamping with spring actuator



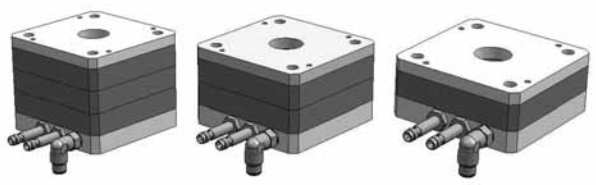
PClamp X clamped PClamp X offers an additional safety feature: In case of emergency clamping, an air escape channel opens, and the PClamp cannot be released.

PClamp X opening the spring actuator



PClamp X released The clamping can only be unlocked after lifting the load.

Increasing power



The building block system – more power by stacking several PClamp modules

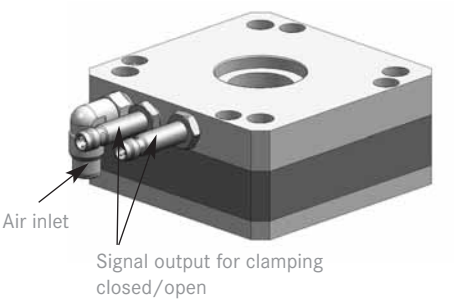
Compressed air

Intelligent modular concept PClamp stacking the easiest method of increasing the clamping force by stacking several clamping units. The clamping forces can be increased by arranging up to three clamping units between the base plate and the surface plate.

PClamp is suitable for clamping rods with diameters of 12 mm to 40 mm. The flange dimension as well as the outside dimensions are matched to those of standard cylinders ISO 6431. The lengths vary depending on the clamping force required. Additional data for special solutions are available on request.

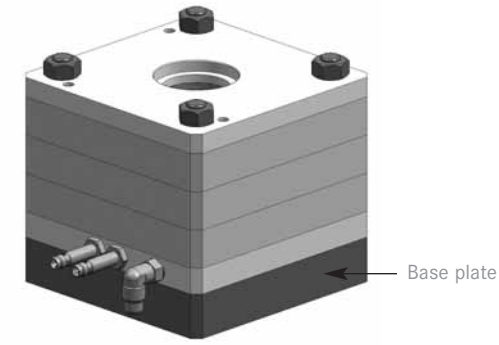
PRODUCT OVERVIEW

PClamp N



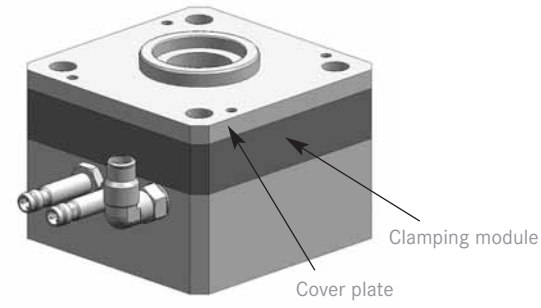
Standard version Comprising the standard cover plate, one to three clamping units and base plate with connections for initiators as well as air inlet. Suitable for linear and rotary loads.

PClamp X



Version with additional safety mechanism for highest safety standards for vertical axes Models with improved safety for vertical axes. After clamping the piston rod, the clamping mechanism can only be released when the axis is moved vertically upwards. The clamping unit is identical to the versions N and ISO. Version PClamp X fulfils the requirements of the Employer's Liability Insurance Association.

PClamp ISO



Version for ISO pneumatic cylinder Cover plate and base plate are matched to the dimensions on the flange dimension of the ISO cylinder. Due to the integrated attachments in the housing, the ISO version is ideal for use with standard cylinders. The clamping unit is identical to versions N and X.

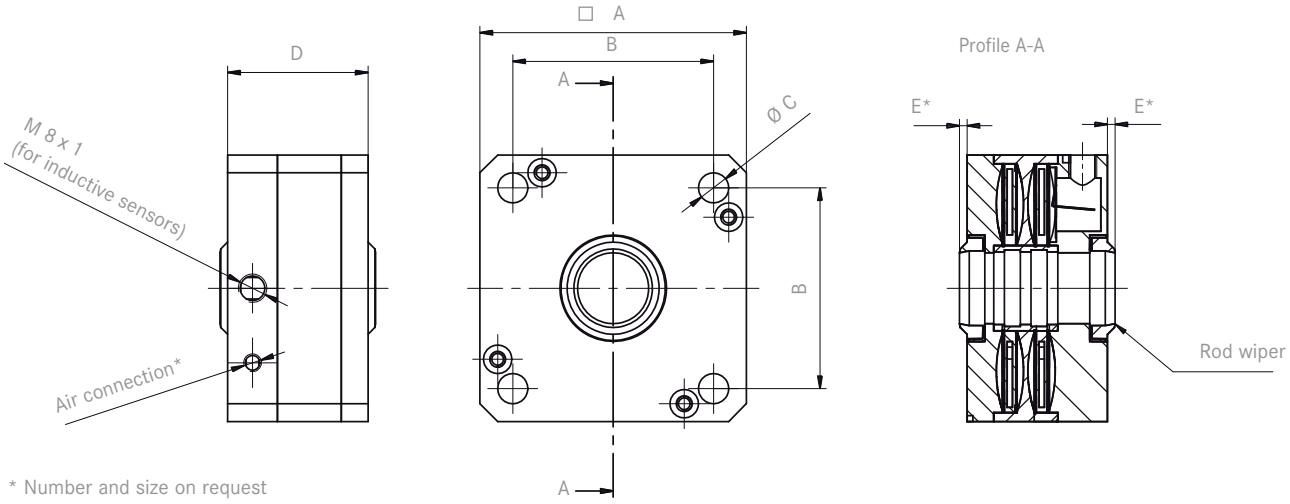
PClamp E

Compact version for lower clamping forces PClamp E has a lower overall height – ideal for applications with limited installation space or operating ranges in which lower holding forces are required. Sensors can not be used. The clamping unit has a different outward appearance than Version N, X and ISO, although the active principle is identical.

TECHNICAL DATA

Technical data of the PClamp N

Size	A	B	C	D	E	Air connection	Holding force Version 4 Bar	Holding force Version 6 Bar	Holding torque Version 4 Bar	Holding torque Version 6 Bar	Standard rod	Mass
Unit	[mm]	[mm]	[mm]	[mm]	[mm]		[N]	[N]	[Nm]	[Nm]	[mm]	[kg]
PC 63-20-1	75	56,5	8,5	41,5	2,10	M5	1400	2000	15	20	20	0,70
PC 63-20-2	75	56,5	8,5	59,5	2,10	M5	2520	3600	25	35	20	1,13
PC 63-20-3	75	56,5	8,5	77,5	2,10	M5	3780	5400	35	50	20	1,56
PC 80-25-1	96	72,0	10,5	43,5	2,14	G 1/8	2100	3000	25	35	25	1,30
PC 80-25-2	96	72,0	10,5	63,5	2,14	G 1/8	3780	5400	40	60	25	2,20
PC 80-25-3	96	72,0	10,5	83,5	2,14	G 1/8	5670	8100	65	95	25	3,10
PC 125-40-1	145	110,0	13,0	51,6	3,00	G 1/8	7000	10000	140	200	40	3,65
PC 125-40-2	145	110,0	13,0	75,2	3,00	G 1/8	12600	18000	250	360	40	5,85
PC 125-40-3	145	110,0	13,0	98,8	3,00	G 1/8	18900	27000	375	540	40	8,05



* Number and size on request

Example of tabulation

- PC 63-20-1: PClamp suitable for ISO cylinders, size 63, rod diameter 20 mm, one clamping module.
- Sizes A, B, C, D and E are geometric data (refer to the drawing).
- Air connection M5: Connecting thread for hose connector.
- Holding force Version 4 Bar: 1400N/holding force Version 6 Bar: 2000 N. The versions for various pressure ranges achieve different holding forces.
- Holding torque Version 4 Bar: 15 Nm/holding torque version 6 Bar: 20 Nm. Also here, there are different holding torques at different pressures.
- Standard rod diameter Starting from the standard value, you can get versions with reduced diameter. Available diameter and corresponding holding forces on request.

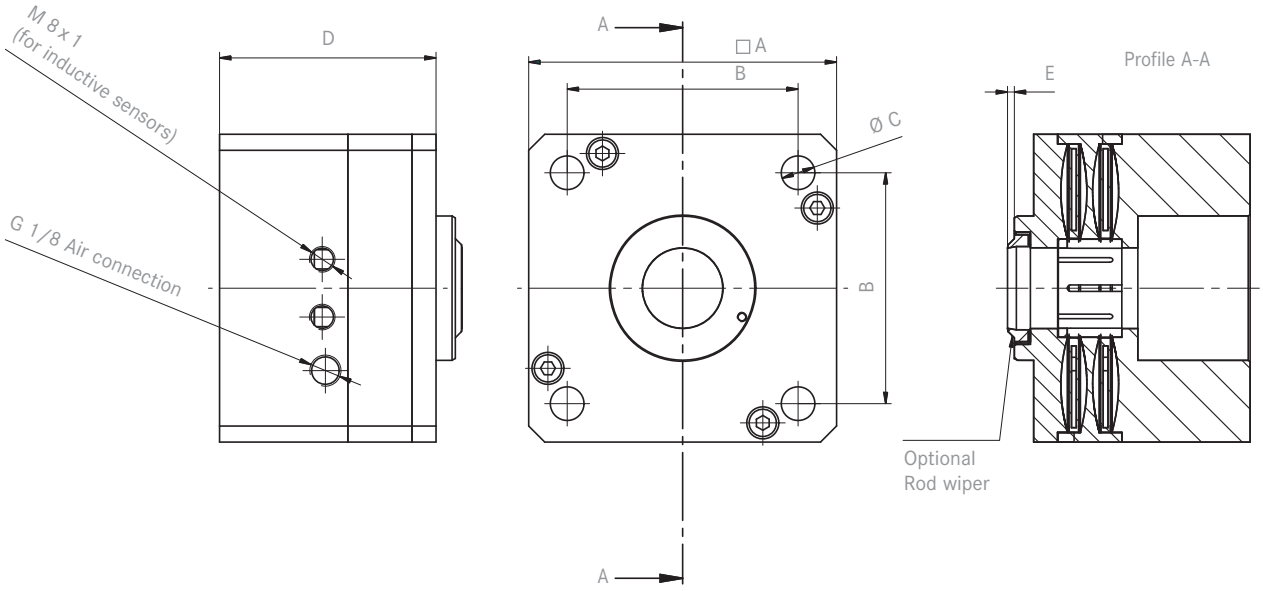
Safety note for construction

The holding forces indicated can be achieved under optimal conditions; we recommend a safety factor of >10%. Please observe that the surface, material, and cleanliness of the rod as well as wear and use of wipers result in changed holding forces. For new or safety applications, check the clamp by testing it in its environment and measure the actual values. Make regular functional checks and functional monitoring. Please indicate these intervals as safety instructions for the end user. The axis/shaft must be designed at least with an h9 fit. If using the entire range of tolerances, then you should expect reduced holding force. To achieve optimum holding force, machine the fit as closely as possible to the nominal size.

TECHNICAL DATA

Technical data of the PClamp ISO

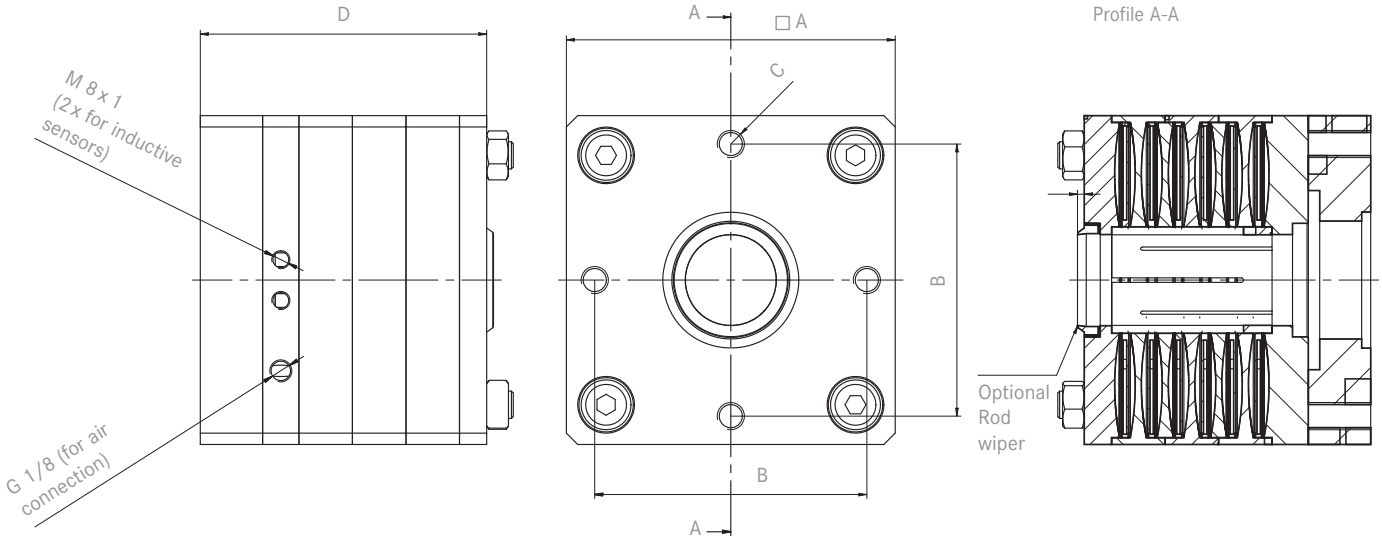
Size	A	B	C	D	E	Air connection	Holding force Version 4 Bar	Holding force Version 6 Bar	Holding torque Version 4 Bar	Holding torque Version 6 Bar	Standard rod	Mass
Unit	[mm]	[mm]	[mm]	[mm]	[mm]		[N]	[N]	[Nm]	[Nm]	[mm]	[kg]
PC 63-20-1	75	56,5	8,5	69,5	2,10	M5	1400	2000	15	20	20	1,00
PC 63-20-2	75	56,5	8,5	87,5	2,10	M5	2520	3600	25	35	20	1,43
PC 63-20-3	75	56,5	8,5	105,5	2,10	M5	3780	5400	35	50	20	1,86
PC 80-25-1	96	72,0	10,5	67,5	2,14	G 1/8	2100	3000	25	35	25	1,80
PC 80-25-2	96	72,0	10,5	87,5	2,14	G 1/8	3780	5400	40	60	25	2,70
PC 80-25-3	96	72,0	10,5	107,5	2,14	G 1/8	5670	8100	65	95	25	5,60
PC 125-40-1	145	110,0	13,0	95,6	3,00	G 1/8	7000	10000	140	200	40	3,65
PC 125-40-2	145	110,0	13,0	119,2	3,00	G 1/8	12600	18000	250	360	40	8,05
PC 125-40-3	145	110,0	13,0	142,8	3,00	G 1/8	18900	27000	375	540	40	10,25



TECHNICAL DATA

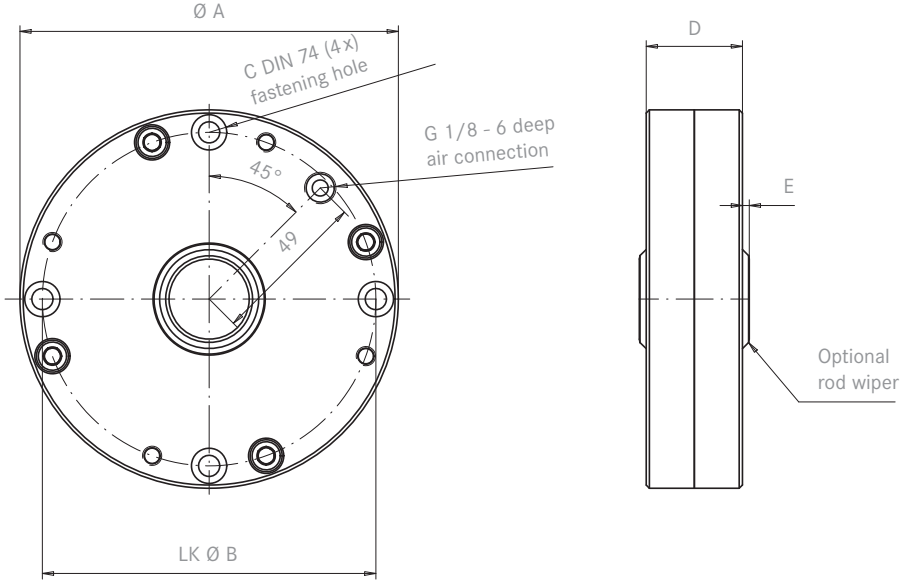
Technical data of the PClamp X

Size	A	B	C	D	E	Air connection	Holding force Version 4 Bar	Holding force Version 6 Bar	Standard rod	Mass
Unit	[mm]	[mm]		[mm]	[mm]		[N]	N]	[mm]	[kg]
PC 125-40-1	145	120	M12	90,8	3	G 1/8	7000	10000	40	5,30
PC 125-40-2	145	120	M12	114,4	3	G 1/8	12600	18000	40	7,55
PC 125-40-3	145	120	M12	138,0	3	G 1/8	18900	27000	40	9,80



Technical data of the PClamp E

Size	A	B	C	D	E	Air connection	Holding force Version 4 Bar	Holding force Version 6 Bar	Holding torque Version 4 Bar	Holding torque Version 6 Bar	Standard rod	Mass
Unit	[mm]	[mm]		[mm]	[mm]		[N]	[N]	[Nm]	[Nm]	[mm]	[kg]
PC 63-20 E	92	80	M5	28	2,10	G 1/8	700	1000	7	10	20	1,15
PC 80-25 E	118	104	M6	30	2,14	G 1/8	1050	1500	12	17	25	2,10
PC 125-40 E	168	152	M6	34	3,00	G 1/8	3500	5000	70	100	40	4,90



REQUEST FORM

Please send by fax to +49 6182 773-35

Company name: _____

Address: _____ Country/Zip/Location: _____

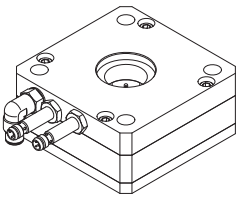
Contact: _____ Area/Department: _____

Telephone: _____ DID: _____ Fax: _____ Direct: _____

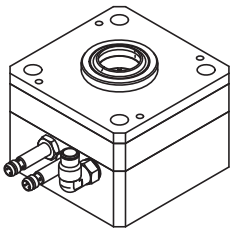
E-Mail: _____ Internet: _____

PClamp systems are suited to for various applications. The following criteria decide on the configuration of the system. Please enter the information as completely and detailed as possible.

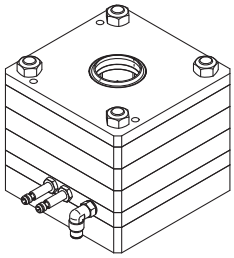
Model (please check):



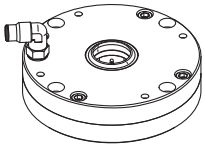
☐ PClamp N



☐ PClamp ISO



☐ PClamp X



☐ PClamp E

Type designation according to the table: _____

Required holding force: _____ N

Required holding torque: _____ Nm

System can only open with air:

☐ 4 Bar compressed air

☐ 6 Bar compressed air

☐ Horizontal operation

☐ Vertical operation

☐ Vertical operation (with free fall)

Use as:

☐ brake system

☐ clamping system

☐ translatory

☐ rotary

Clamping cycles: _____ for each _____

Surface operating conditions:

☐ dry ☐ oiled ☐ greased

Exact designation of the oil/grease: _____

Piston diameter: _____ mm

Required quantity: _____

Date of delivery: _____

☐ Please call back

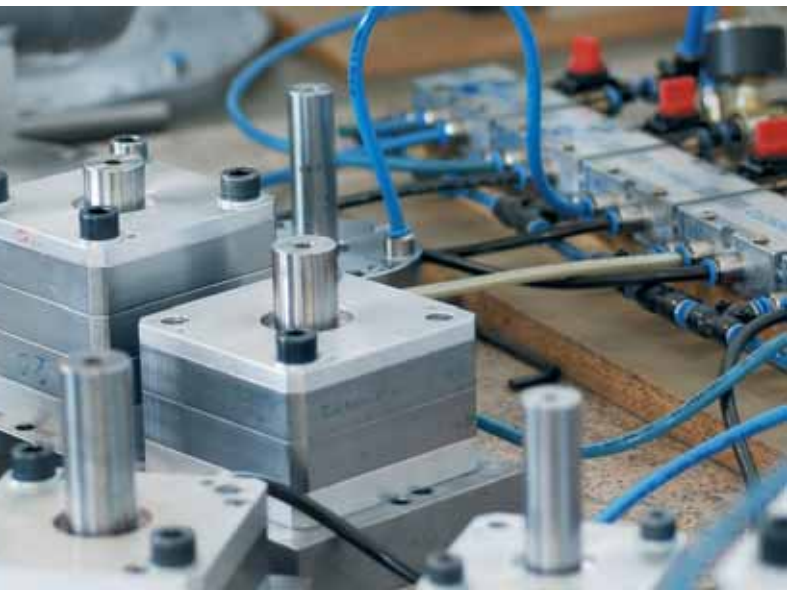
☐ Please visit

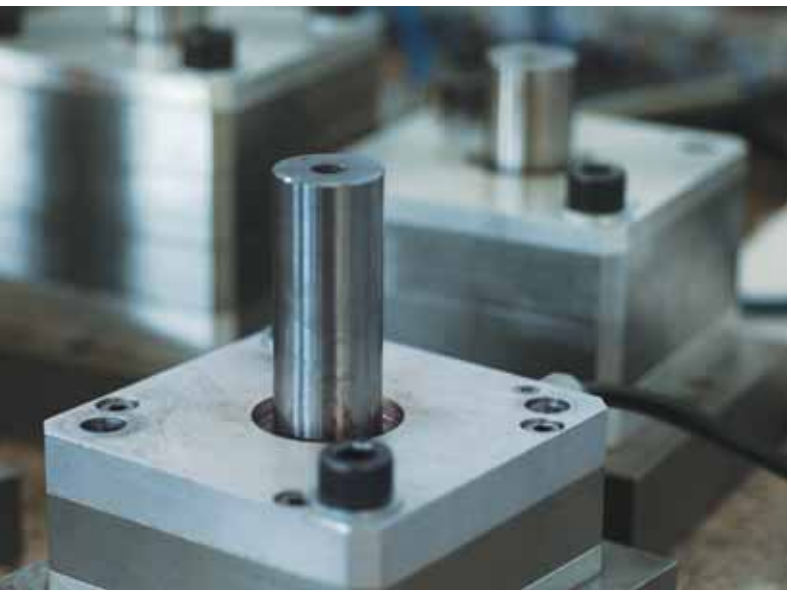
Other: _____

You can also download this form at:
www.hema-schutz.de.

HEMA

Clamping systems





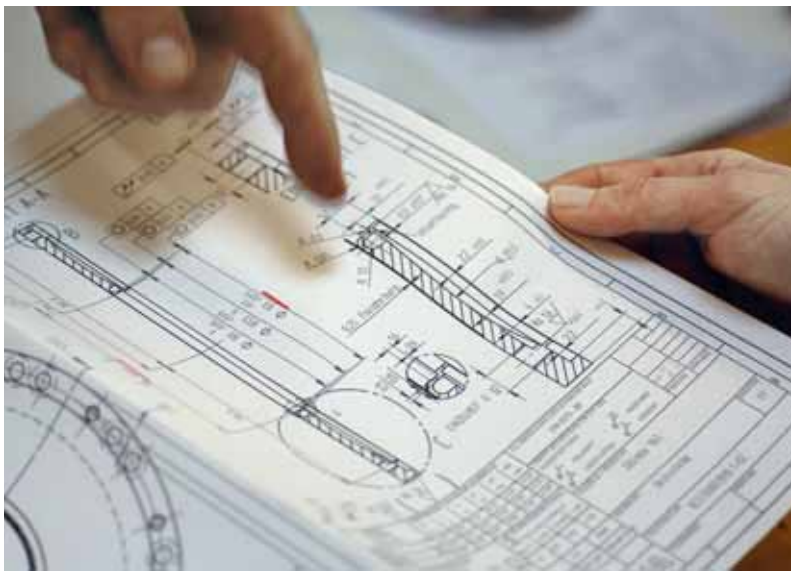
Quality at HEMA

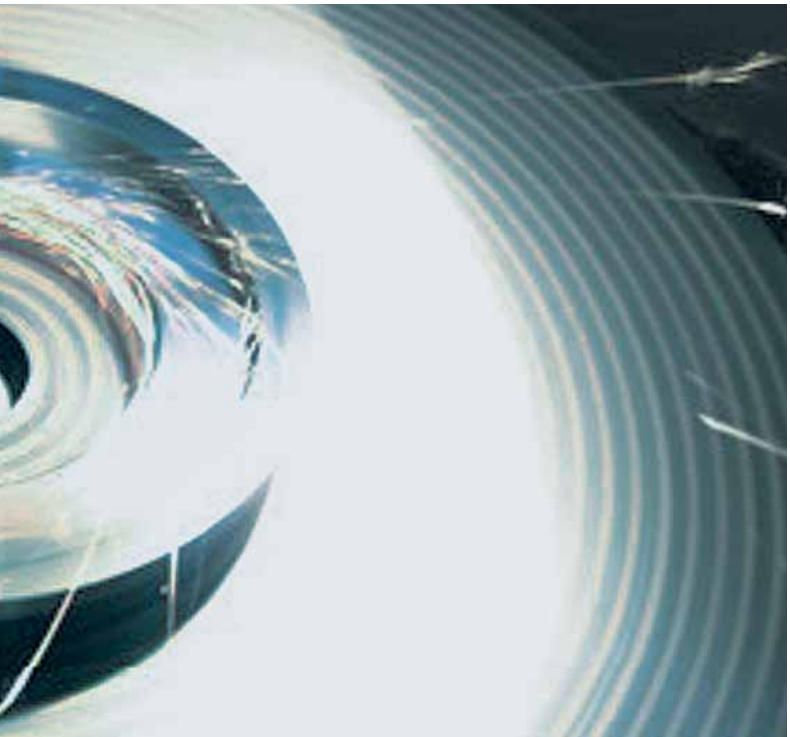
All clamping systems are subject to the most stringent quality requirements according to the HEMA ISO 9001 System. A 100% check of components at all stages of production ensures absolute quality.

The most modern 3D measuring machines and our own, specially developed testing machines ensure high quality on delivery and continuous performance data.

A batch number system allows for unique identification of all performance data for the clamping system delivered in each case. Detailed operating instructions supplement the high-performance systems.

Quality at HEMA





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HEMA
MASCHINEN- UND
APPARATESCHUTZ GMBH

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Internet: www.hema-schutz.de

Authorized contract partner:

ADVANTAGE HEMA.
INNOVATION NEVER ENDS.

Made-to-measure safety systems