



# SWING CLAMP

WITHOUT SWIVEL STROKE

## HOW DO YOU CONFIGURE YOUR SWING CLAMP?

In the following you will find a simplified overview for putting together our products.

For more information and our online configurator, please go to our website [www.micromat.de](http://www.micromat.de)

- 1 How is the swing clamp flanged? M     
Select a housing shape.
- 2 What type of clamping arm is used? M620 -   
Select a head shape.
- 3 What clamping force is required? M620 - K1:10 -   
Select the size.
- 4 Which stroke is required? M620 - K1:10 - 018 -   
Select the linear stroke.
- 5 Should the clamping arm be indexed? M620 - K1:10 - 018 - 08 -   
**Select an indexing (only cone design).**  
If no indexing is selected, continue to 7.
- 6 Where will it be clamped? \*M620 - K1:10 - 018 - 08 - X -   
Select the clamping point.
- 7 In which direction should it be swiveled? \*M610 - K1:10 - 018 - 08 - X - 0 -   
Select the swivel direction for to the clamping point.  
M610 - K1:10 - 018 - 08 - 0 -
- 8 How far should the clamping arm swivel? \*M620 - K1:10 - 018 - 08 - X - 0 - L -   
Select the swivel angle from the clamping point.  
M620 - K1:10 - 018 - 08 - 0 - L -
- 9 Additional protection with hot chips? \*M620 - K1:10 - 018 - 08 - X - 0 - L 45 -   
Select the type of stripper.  
M620 - K1:10 - 018 - 08 - 0 - L 45 -

Your order designation:

M620 - K1:10 - 018 - 08 - X - 0 - L 45 - M

M620 - K1:10 - 018 - 08 - 0 - L 45

\* With indexing.

## COMPONENTS OF THE ORDER NUMBERS

ID	DESCRIPTION
Housing shape	M600 = Head flange with male threads and pipe thread connection M620 = Head flange with O-ring connection M630 = Base flange with O-ring connection M640 = Block construction with O-ring connection M650 = Cartridge design M680 = Head flange with O-ring connection
Head shape	K1:10 = Head cone 1:10 K15 = Head cone 15° PA = Pendulum eye head GK = Rod clevis head
Size (piston Ø in mm)	018 025 028 036 042
Linear stroke	8 mm (only size 18) 12 mm 15 mm (only size 18) 25 mm 30 mm (only size 18) 40 mm
Indexing	Empty = No indexing X = Indexing
Clamping point	From -90° to +90° (1° increments)
Swivel direction	L = left      R = right
Swivel angle	Swivel angle 0°–90° (1 ° increments)
Metal stripper	Empty = no metal stripper, M = Metal stripper

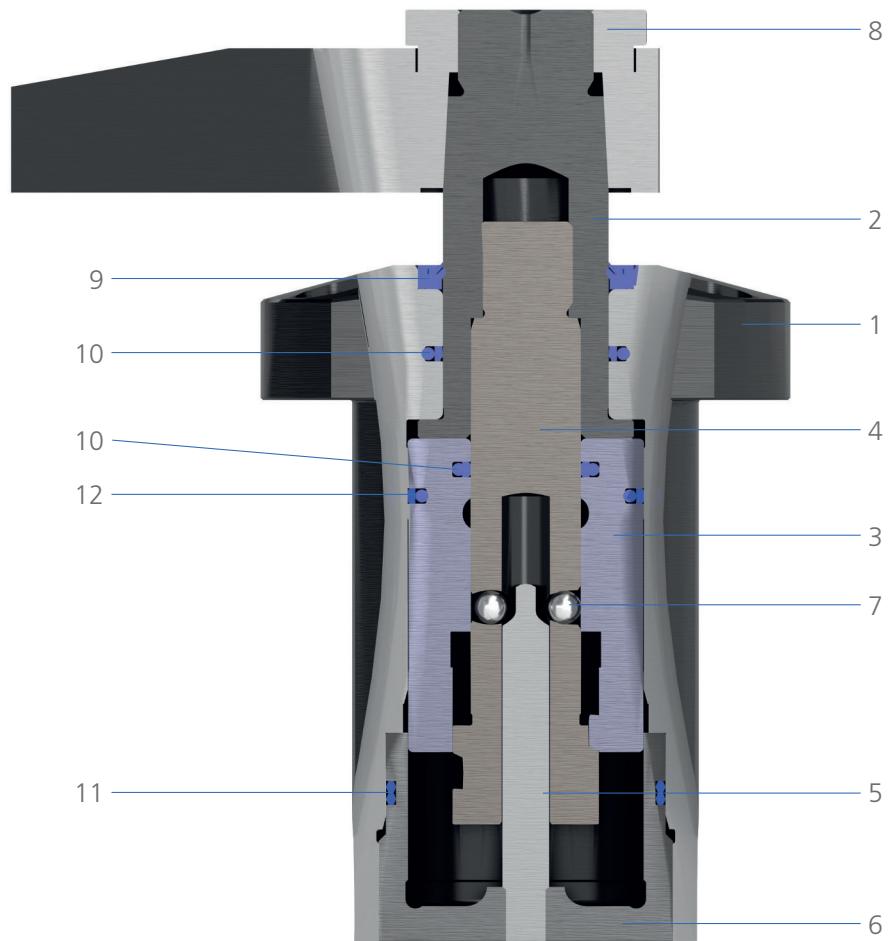
## GENERAL DESCRIPTION

Swivel clamp cylinders enable fast and problem-free placing and removal of the workpiece, since the clamping locations are free in the relaxed condition of the cylinder. Due to the reduction of the throughput times resulting from this, the efficiency of the production process is increased.

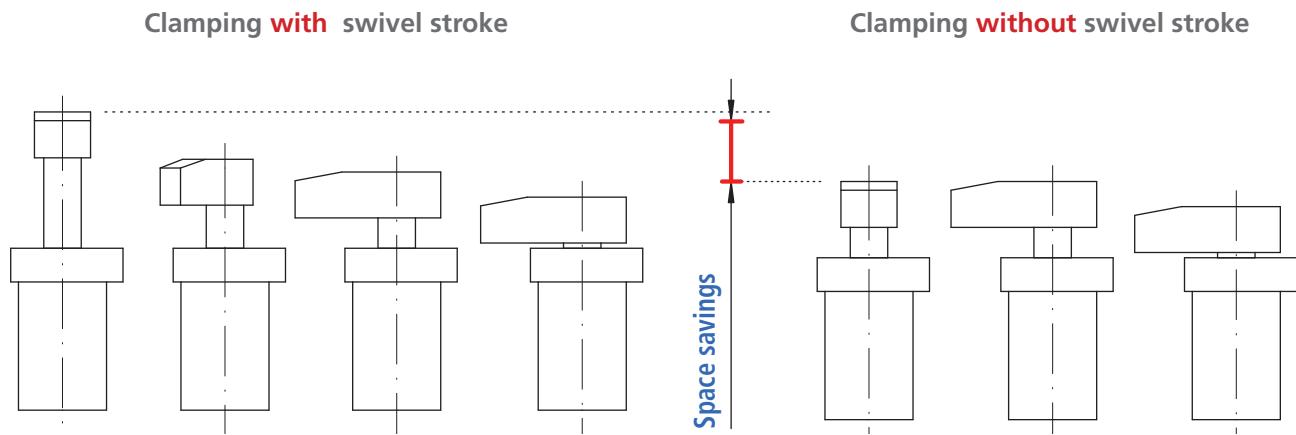
Micromat Swivel Clamps do not cause any axial movement during the swivel movement. This reduces the space required for the swivel process to a minimum. Thus it is also possible, for example, to swing in small spaces and to clamp workpieces even in closely spaced grooves.

## STRUCTURE OF THE SWING CLAMP

- Housing bronzed, piston rod guide induction hardened
- Piston ARCOR treated
- Swing clamps are equipped with ventilation screws (not all sizes)
- Very stable swiveling system
- All swing clamps are available with clamping arm indexing.



## SPECIAL FEATURE OF THIS SYSTEM



Swivel Clamps without swivel stroke do not cause any axial movement during the swivel movement. This reduces the required space for the swivel process to a minimum. Thanks to swiveling at the level, it is no problem to swing in and clamp workpieces in small spaces or closely spaced ribs.

Furthermore, Micromat swing clamps without swivel stroke offer an integrated safety system during overhead processing. The clamp executes its axial movement with a sudden drop in pressure in the hydraulic system. The mechanical block of the rotation prevents the unscrewing of the cylinder and the workpiece falling out.

## FUNCTIONAL PRINCIPLE OF SWING CLAMP WITHOUT SWING STROKE

If pressure is applied to the swing clamp at connection A, first a special grooved swivel ring moves down and causes a rotating movement of the piston. During this rotating movement the piston is mechanically blocked in the axial direction by steel balls. As soon as the swivel ring has reached its end position and therefore the swivel movement of the piston has stopped, the lock is released – the piston can now execute its clamping stroke downward. When releasing the function is executed exactly in reverse. The piston first moves in the axial direction upward and then swivels back into its initial position.

**Due to the unique design of the MICROMAT swivel clamp and the hydraulic-mechanical separated function of the rotation movement and linear stroke, the "fall protection" is already integrated into the swing clamp and thus offers the highest degree of safety.**

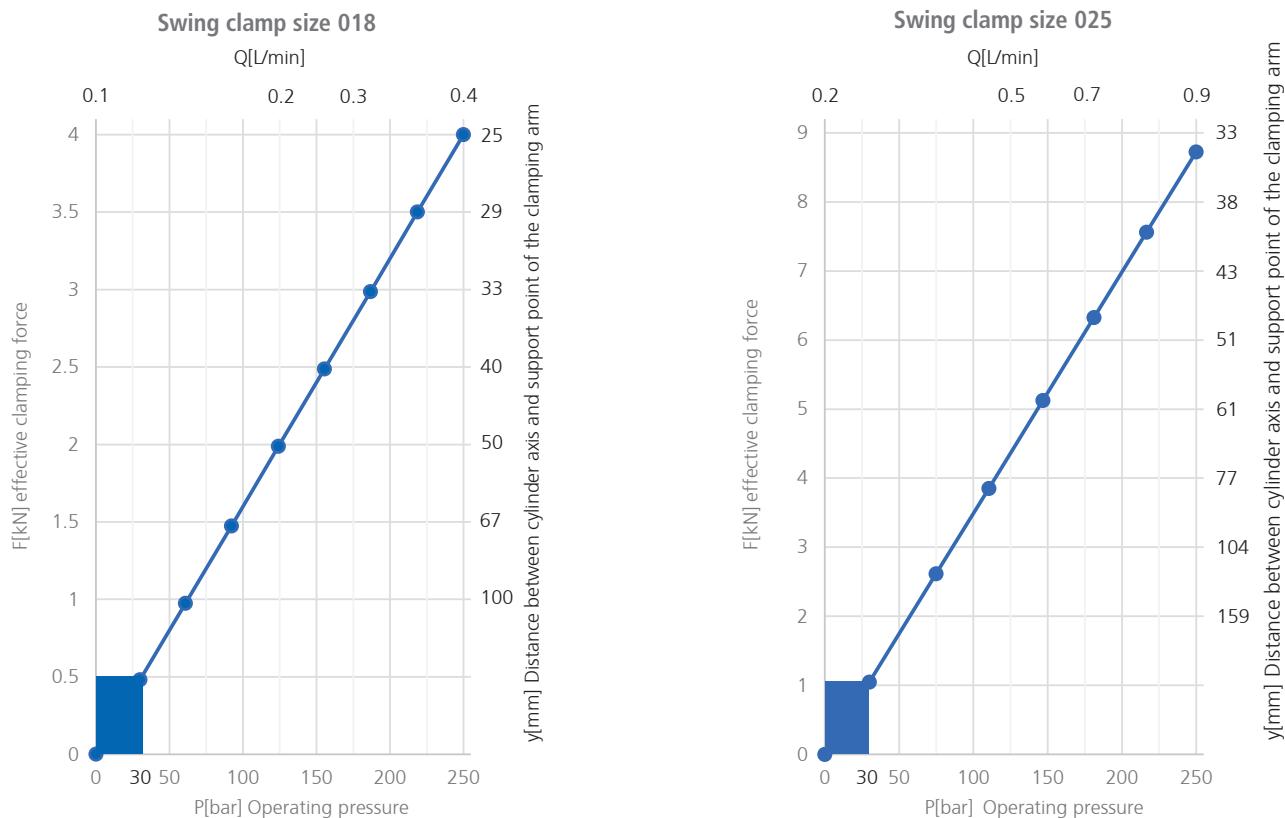
## TECHNICAL VALUES

Rod diameter	mm	18	25	36	42
Piston diameter	mm	25	35	50	60
Swivel angle	°	0°–90° (1° increments)			
Clamping pressure area	cm <sup>2</sup>	2.4	4.7	9.5	14.4
Releasing pressure area	cm <sup>2</sup>	4.9	9.6	19.6	28.3
Clamping volume	cm <sup>3</sup>	5.7	7.3	10.9	14.6
Releasing volume	cm <sup>3</sup>	7.7	11.1	18.5	20.5
		33	47.4	52.3	77.8
		40.1	42.7	66.5	70.4
		52.4	107.3	87	89.1
		66.5	123.8	110.8	166.2
Volumes are dependent on the size, the linear stroke and the swivel angle. Given here with 90° swivel angle					
Axial pressure force at 100 bar without losses	kN	2.4	4.7	9.5	14.4
Effective clamping force	kN	See clamping diagram			
Maximum allowable volume flow	l/min	0.4	0.9	2	3
Maximum pressure	bar	250*			
Minimum pressure	bar	30			
Maximum temperature	°C	70**			

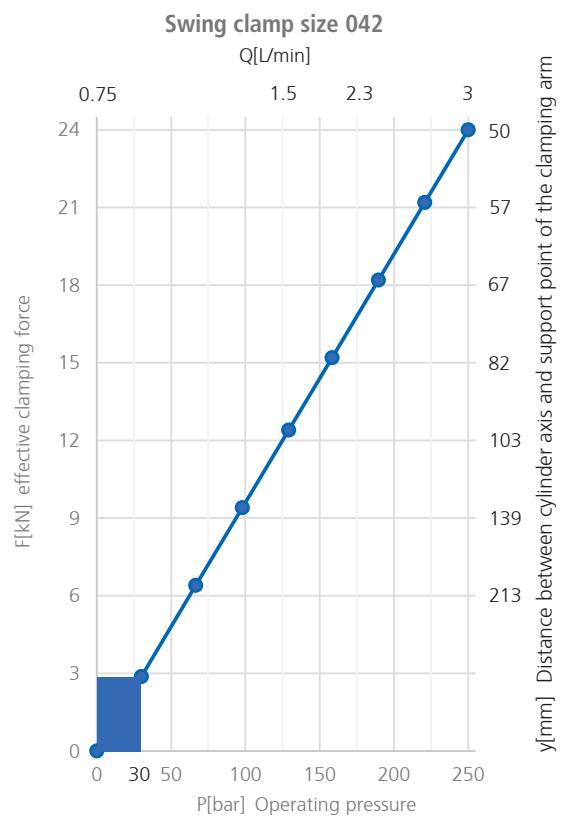
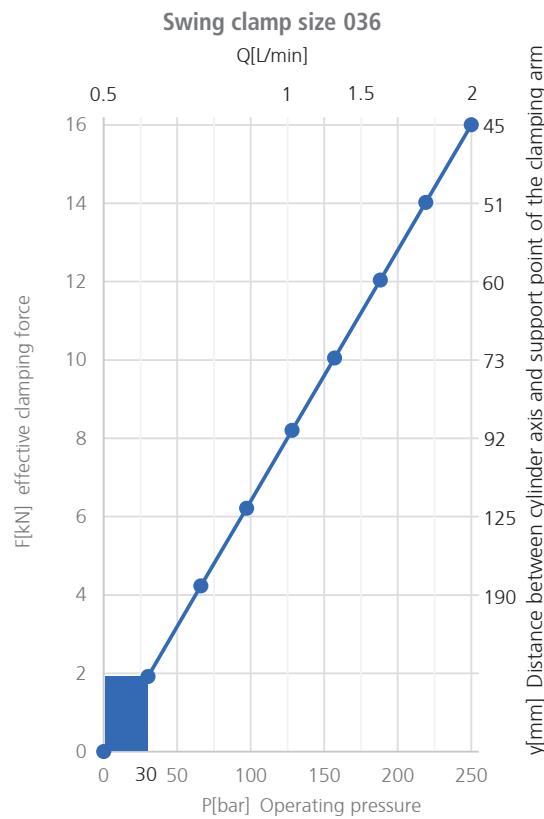
\* Maximum pressure of 250 bar only with short clamping arm (see clamping diagram)

\*\* For temperatures above 70°C, please contact us.

## CLAMPING DIAGRAM



The maximum allowable operating pressure and the resulting effective clamping force and the volume flow are dependent on the clamping arm length.



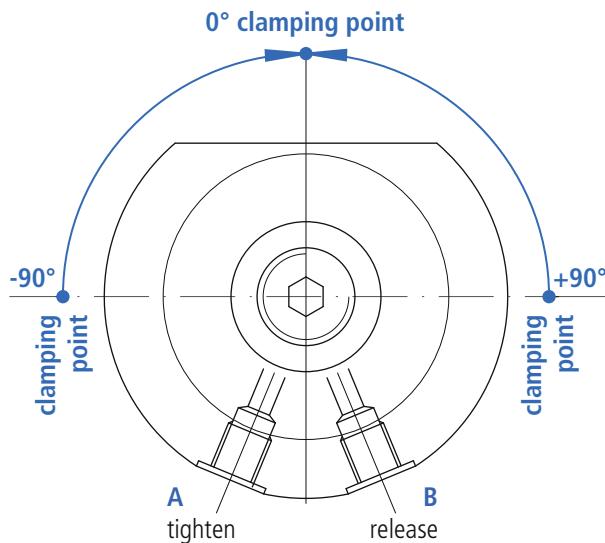
The maximum forces are given for a pressure of 250 bar. This pressure is only allowed for the shortest clamping arm. The maximum clamping force (as well as the maximum pressure) decrease proportionally to the lengthening of the clamping arm. The maximum allowable volume flow (speed during extension or retraction) decreases with the inertia of the clamping arm.

*For standard clamping arms please follow the values of the diagram.*

*For the use of custom clamping arms please contact us.*

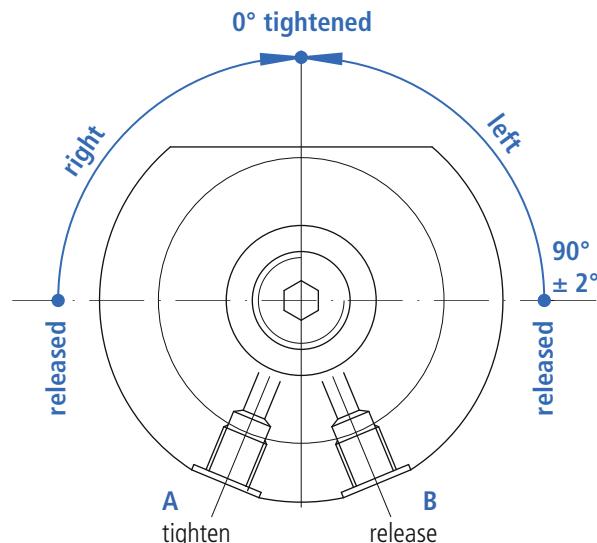
## LOCATION OF CLAMPING POINT

The named clamping point can, as shown in the illustration, be selected between  $+90^\circ$  and  $-90^\circ$  ( $1^\circ$  increments).



## SWIVEL DIRECTION AND ANGLE OF ROTATION

The named swivel direction is defined by the movement from tensioned to released state, view from above (rod side)



Swivel direction right = clockwise

Swivel direction left = counterclockwise

The angle of rotation in this view is:  $90^\circ \pm 2^\circ$ .

All angles of rotation between  $0^\circ$  and  $90^\circ$  can be selected ( $1^\circ$  increments). The selection of the swivel angle can always be selected from  $0^\circ$  to  $90^\circ$  regardless of the location of the clamping point.

## INDEXING

When selecting with indexing a cylinder pin is placed at the desired location of the piston. Thus the clamping arm is secured against twisting.

## METAL STRIPPER

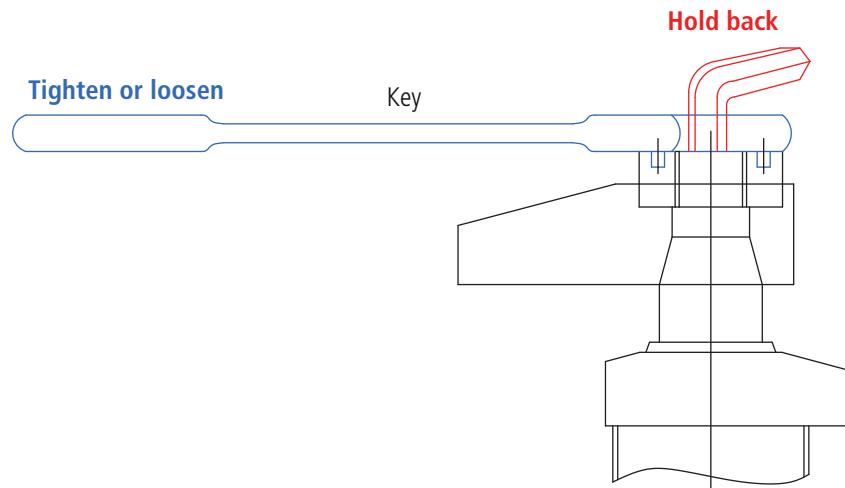
The MICROMAT- swing clamp is supplied standard with a PU stripper. This has high chemical resistance against most cooling and cutting emulsions. A metal stripper can be used optionally for all housing shapes.

The metal stripper is then used if the stripper must be protected from coarse or hot chips.

This is selected in the last step of the swing clamp configuration.

## CLAMPING ARM ASSEMBLY

The upper end of the rod is designed for the fastening of the clamping arm with cone and threads. During the assembly of the clamping arm, the piston rod must absolutely be held back so that the torque does not damage the internal mechanism.

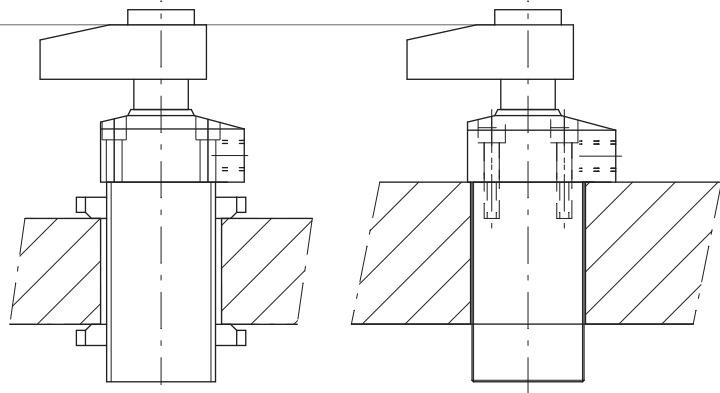


**There are two options for doing this:**

- hold back the piston rod with the aid of an Allen wrench (see figure)
- clamp the clamping arm in a vise and tighten the nut.

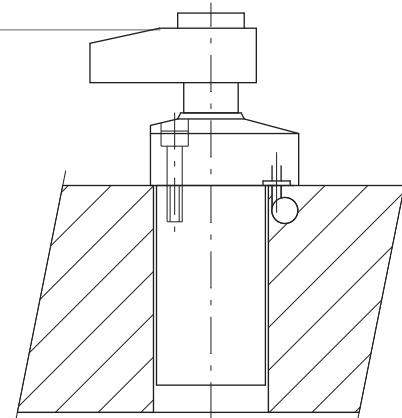
## M600

- Fastening:** Grooved nut or  
4 screws on head flange  
**Provision:** Pipe thread connection



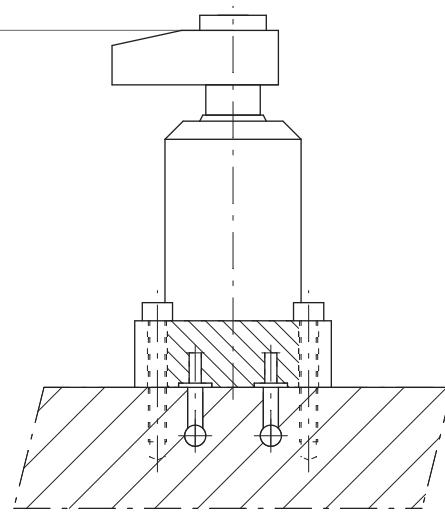
## M620

- Fastening:** 4 screws on head flange  
**Provision:** O-ring seat in head flange



## M630

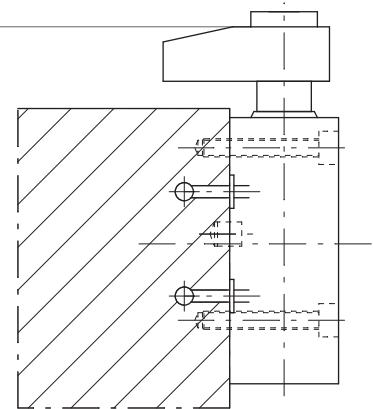
- Fastening:** 4 screws on base flange  
**Provision:** O-ring seat in base flange



## M640

**Fastening:** 4 screws on housing

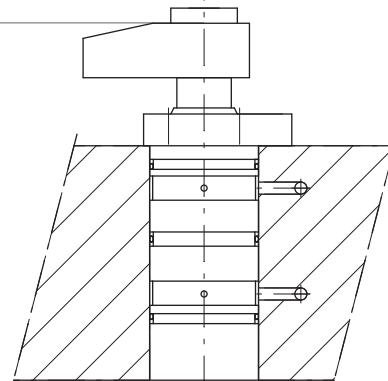
**Provision:** O-ring seat on the housing side



## M650

**Fastening:** 4 screws on head flange

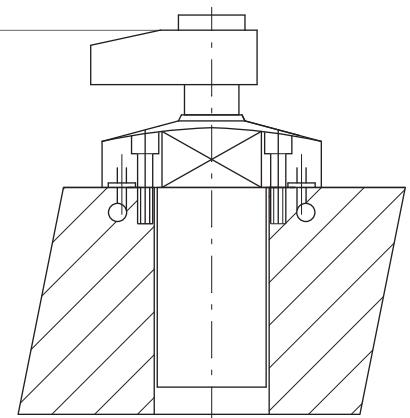
**Provision:** Installation design  
(Cartridge design)



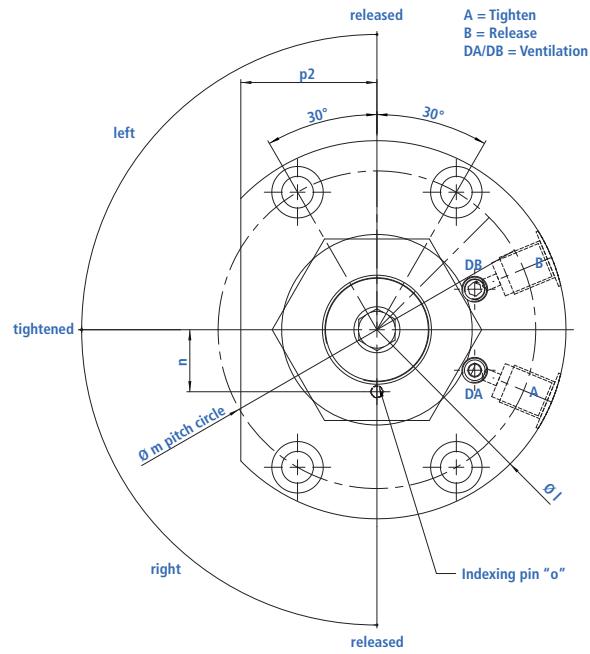
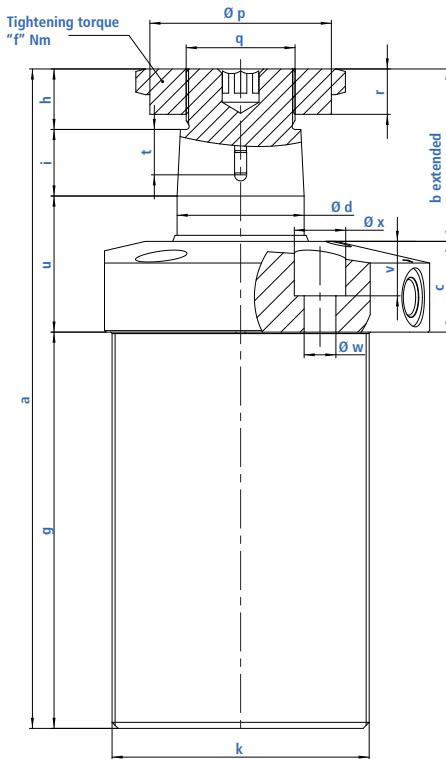
## M680

**Fastening:** 4 screws on head flange

**Provision:** O-ring seat in head flange



## HEAD SHAPE CONE 1:10



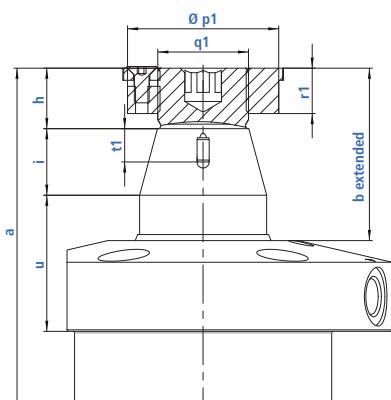
## FEATURES

- Cylindrical housing with male threads, head flange and 4 fastening bores
- Pipe thread connections on the side
- 4 sizes with 3 stroke areas each
- 4 Standard shapes available
- Swivel angle between 0° and 90° in 1° increments available as standard

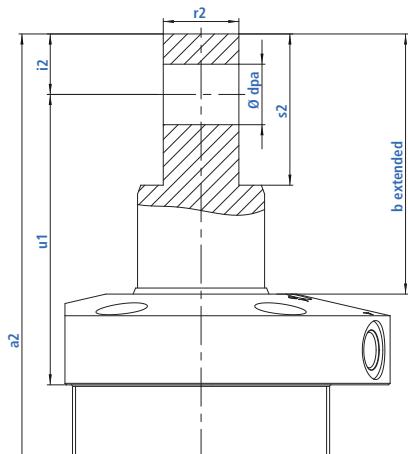
- **No** swivel stroke
- With or without indexing available (only with cone design)
- Direction of rotation can be selected right or left
- Clamping point freely selectable (Cone design with indexing, rod clevis and pendulum eye)

## OTHER STANDARD HEAD SHAPES

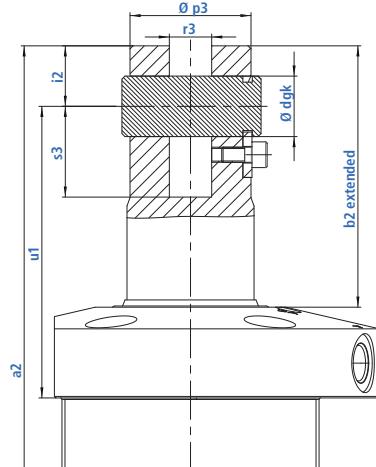
Cone 15°



Pendulum eye



Rod clevis



## GENERAL DATA M600

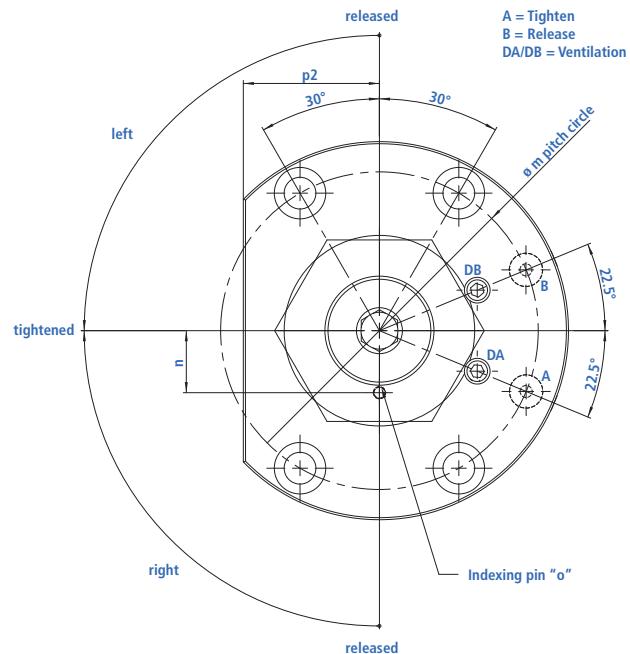
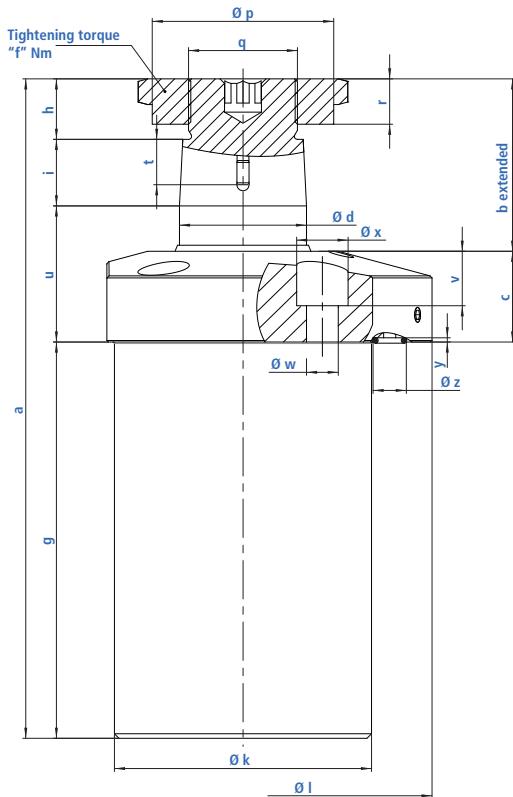


Size	mm	018			025			036			042			
Stroke length	mm	8	15	30	12	25	40	12	25	40	12	25	40	
Swivel stroke	mm		0			0			0			0		
Rod diameter	mm		18			25			36			42		
Piston diameter	mm		25			35			50			60		
Swivel angle	°		0°–90° (1° increments)											
A/B			G1/8"			G1/4"			G1/4"			G1/4"		
c	mm		22			26			28			30		
Ø d	mm		18			25			36			42		
Stroke e	Stroke length selectable in 1 mm increments (exterior dimension remains the same)	mm	4–8	9–15	16–30	12–7	13–25	26–40	12–7	13–25	26–40	12–7	13–25	26–40
f		Nm		20			50			140			270	
g		mm	66	80	110	81	107	137	114	140	170	131	157	187
k		mm	M36 x 1.5			M52 x 1.5			M72 x 2			M85 x 2		
l		mm	58			76			110			125		
m		mm	47			63			90			105		
n		mm	9.3			12.8			17.5			20.5		
o		mm	ø 3x5			ø 3x5			ø 4x8			ø 4x8		
p2		mm	20			28			38			45		
v		mm	9			10			17			18		
Ø w		mm	5.5			6.5			10.5			10.5		
x		mm	50			65			86			96		

Design head shape		CONE 1:10 & CONE 15°											
a	mm	121	142	187	152	191	236	195	234	279	218	257	302
b extended	mm	33	40	55	45	58	73	53	66	81	57	70	85
h	mm	13			16			18			20		
i	mm	10			14			20			22		
Ø p	mm	24			32			46			60		
Ø p1	mm	22			30			40			50		
q	mm	M16 x 1.5			M22 x 1.5			M30 x 1.5			M36 x 1.5		
q1	mm	M12 x 1.5			M16 x 1.5			M24 x 1.5			M30 x 1.5		
r	mm	9			10.7			13			15		
r1	mm	8.4			10.6			12.5			15		
t	mm	8			12			13			15		
t1	mm	8			8			11			11		
u	mm	32	39	54	41	54	69	43	56	71	45	58	73

Design head shape		PENDULUM EYE & ROD CLEVIS											
a2	mm	125	146	191	160	199	244	215	254	299	234	273	318
b2 extended	mm	37	44	59	53	66	81	73	86	101	73	86	101
Ø d <sub>pa</sub>	mm	8H8			12H8			16H8			20H8		
Ø d <sub>gk</sub>	mm	8g6			12g6			14g6			20g6		
i2	mm	10			13			20			20		
Ø p3	mm	17.5			24			34			40		
r2	mm	10-0.05			15-0.05			25-0.05			25-0.1		
r3	mm	8+0.01+0.05			10+0.01+0.05			12+0.01+0.05			14+0.01+0.05		
s2	mm	23			33			50			50		
s3	mm	12-0.05			20-0.05			30-0.05			30-0.05		
u1	mm	49	56	71	66	79	94	81	94	109	83	96	111

## HEAD SHAPE CONE 1:10

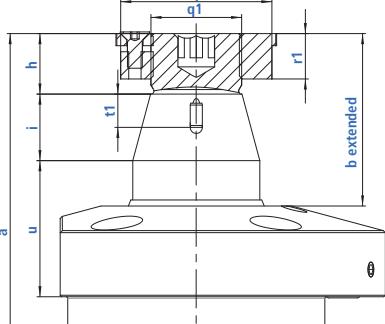


## FEATURES

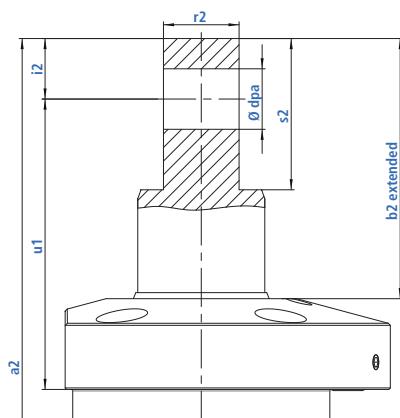
- Cylindrical housing with head flange
- O-ring connections on the flange underside
- 4 sizes with 3 stroke areas each
- 4 Standard shapes available
- Swivel angle between  $0^\circ$  and  $90^\circ$  in  $1^\circ$  increments available as standard
- **No** swivel stroke
- With or without indexing available (only with cone design)
- Direction of rotation can be selected right or left
- Clamping point freely selectable (Cone design with indexing, rod clevis and pendulum eye)

## OTHER STANDARD HEAD SHAPES

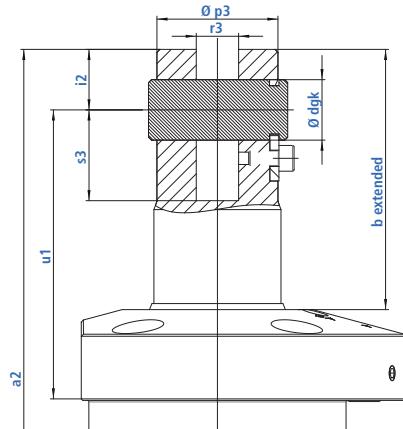
Cone 15°



Pendulum eye



Rod clevis



## GENERAL DATA M620

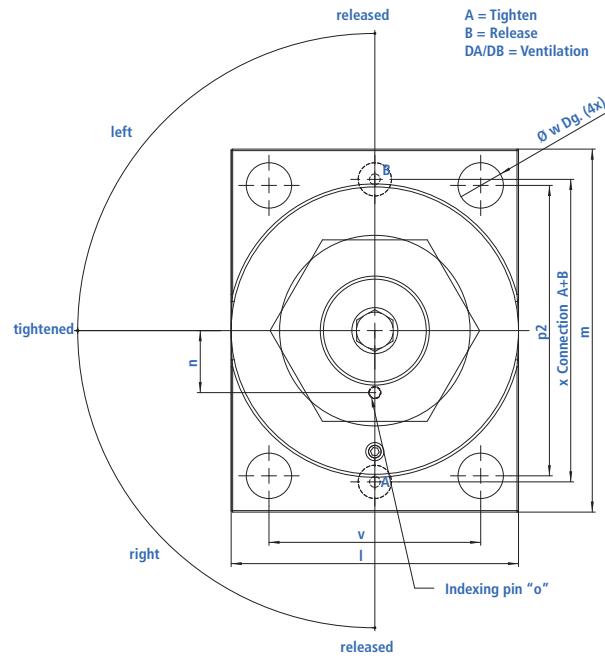
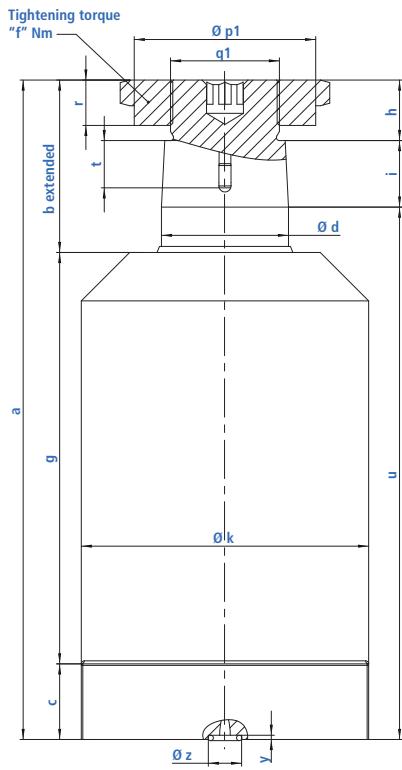


Size	mm	018			025			036			042			
Stroke length	mm	8	15	30	12	25	40	12	25	40	12	25	40	
Swivel stroke	mm		0			0			0			0		
Rod diameter	mm		18			25			36			42		
Piston diameter	mm		25			35			50			60		
Swivel angle	°		0°–90° (1° increments)											
c	mm		22			26			28			30		
Ø d	mm		18			25			36			42		
Stroke e	Stroke length selectable in 1 mm increments (exterior dimension remains the same)	mm	4–8	9–15	16–30	12–7	13–25	26–40	12–7	13–25	26–40	12–7	13–25	26–40
f	Nm		20			50			140			270		
g	mm	66	80	110	81	107	137	114	140	170	131	157	187	
Ø k	mm		36			52			72			85		
Ø l	mm		58			76			110			125		
Ø m	mm		47			63			90			105		
n	mm		9.3			12.8			17.5			20.5		
o	mm		ø 3x5			ø 3x5			ø 4x8			ø 4x8		
p2	mm		20			28			38			45		
v	mm		9			10			17			18		
Ø w	mm		5.5			6.5			10.5			10.5		
Ø x	mm		9			10.5			17			17		
y	mm		1.4			1.4			1.4			1.4		
Ø z	mm		8.8			8.8			11			11		

Design head shape		CONE 1:10 & CONE 15°											
a	mm	121	142	187	152	191	236	195	234	279	218	257	302
b extended	mm	33	40	55	45	58	73	53	66	81	57	70	85
h	mm		13			16			18			20	
i	mm		10			14			20			22	
Ø p	mm		24			32			46			60	
Ø p1	mm		22			30			40			50	
q	mm	M16 x 1.5			M22 x 1.5			M30 x 1.5			M36 x 1.5		
q1	mm	M12 x 1.5			M16 x 1.5			M24 x 1.5			M30 x 1.5		
r	mm		9			10.7			13			15	
r1	mm		5.9			7.3			12.5			15	
t	mm		8			12			13			15	
t1	mm		8			8			11			11	
u	mm	32	39	54	41	54	69	43	56	71	45	58	73

Design head shape		PENDULUM EYE & ROD CLEVIS											
a2	mm	125	146	191	160	199	244	215	254	299	234	273	318
b2 extended	mm	37	44	59	53	66	81	73	86	101	73	86	101
Ø d <sub>pa</sub>	mm	8H8			12H8			16H8			20H8		
Ø d <sub>gk</sub>	mm	8g6			12g6			14g6			20g6		
i2	mm		10			13			20			20	
Ø p3	mm		17.5			24			34			40	
r2	mm	10-0.05			15-0.05			25-0.05			25-0.1		
r3	mm	8+0.01+0.05			10+0.01+0.05			12+0.01+0.05			14+0.01+0.05		
s2	mm		23			33			50			50	
s3	mm	12-0.05			20-0.05			30-0.05			30-0.05		
u1	mm	49	56	71	66	79	94	81	94	109	83	96	111

## HEAD SHAPE CONE 1:10

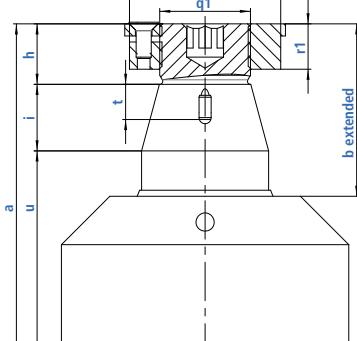


## FEATURES

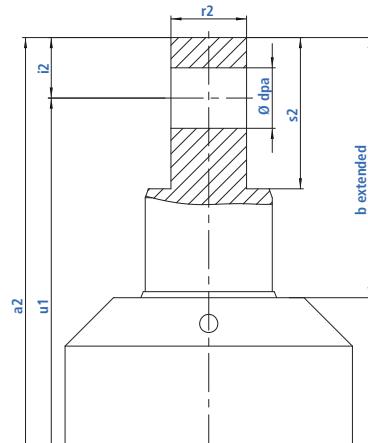
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- O-ring connections on the flange underside
- 4 sizes with 3 stroke areas each
- 4 Standard shapes available
- Swivel angle between 0° and 90° in 1° increments available as standard
- **No** swivel stroke
- With or without indexing available (only with cone design)
- Direction of rotation can be selected right or left
- Clamping point freely selectable (Cone design with indexing, rod clevis and pendulum eye)

## OTHER STANDARD HEAD SHAPES

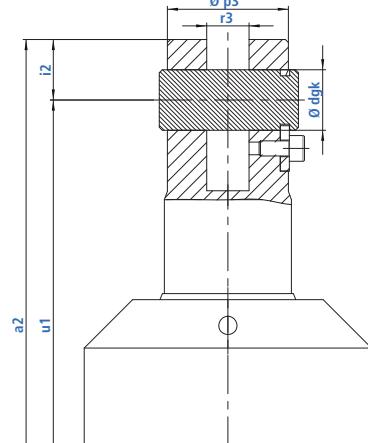
Cone 15°



Pendulum eye



Rod clevis



All dimensions in extended state. 2D and 3D data is found at: <https://micromat.partcommunity.com>

# GENERAL DATA M630

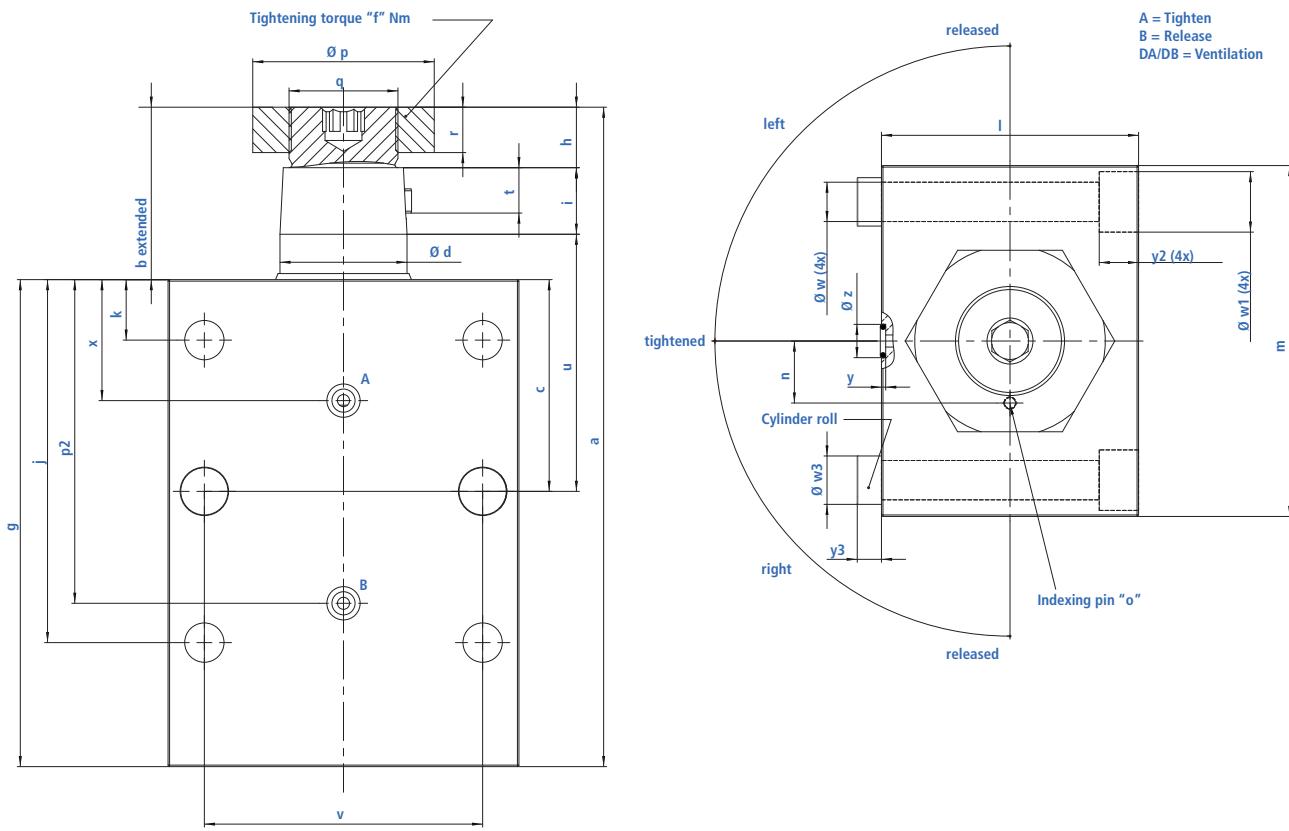


Size	mm	018			025			036			042			
Stroke length	mm	8	15	30	12	25	40	12	25	40	12	25	40	
Swivel stroke	mm		0			0			0			0		
Rod diameter	mm		18			25			36			42		
Piston diameter	mm		25			35			50			60		
Swivel angle	°		0°–90° (1° increments)											
c	mm		22			22			25			30		
Ø d	mm		18			25			36			42		
Stroke e	Stroke length selectable in 1 mm increments (exterior dimension remains the same)	mm	4–8	9–15	16–30	12–7	13–25	26–40	12–7	13–25	26–40	12–7	13–25	26–40
f	Nm		20			50			140			270		
g	mm	66	80	110	85	111	141	117	143	173	136	162	192	
Ø k	mm		45			60			80			95		
l	mm		45			63			80			95		
m	mm		65			85			110			120		
n	mm		9.3			12.8			17.5			20.5		
o	mm		ø 3x5			ø 3x5			ø 4x8			ø 4x8		
p2	mm		50			65			86			100		
v	mm		30			44			60			70		
Ø w	mm		6.5			8.5			13			15		
x	mm		48			64			86			100		
y	mm		1.4			1.4			1.4			1.4		
Ø z	mm		11			11			11			11		

Design head shape		CONE 1:10 & CONE 15°											
a	mm	121	142	187	152	191	236	195	234	279	218	257	302
b extended	mm	33	40	55	45	58	73	53	66	81	57	70	85
h	mm		13			16			18			20	
i	mm		10			14			20			22	
Ø p	mm		24			32			46			60	
Ø p1	mm		22			30			40			50	
q	mm	M16 x 1.5			M22 x 1.5			M30 x 1.5			M36 x 1.5		
q1	mm	M12 x 1.5			M16 x 1.5			M24 x 1.5			M30 x 1.5		
r	mm		9			10.7			13			15	
r1	mm		5.9			7.3			12.5			15	
t	mm		8			12			13			15	
t1	mm		8			8			11			11	
u	mm	98	119	164	122	161	206	157	196	241	176	215	260

Design head shape		PENDULUM EYE & ROD CLEVIS											
a2	mm	125	146	191	160	199	244	215	254	299	234	273	318
b2 extended	mm	37	44	59	53	66	81	73	86	101	73	86	101
Ø d <sub>pa</sub>	mm	8H8			12H8			16H8			20H8		
Ø d <sub>gk</sub>	mm	8g6			12g6			14g6			20g6		
i2	mm		10			13			20			20	
Ø p3	mm		17.5			24			34			40	
r2	mm	10-0.05			15-0.05			25-0.05			25-0.1		
r3	mm	8+0.01+0.05			10+0.01+0.05			12+0.01+0.05			14+0.01+0.05		
s2	mm		23			33			50			50	
s3	mm	12-0.05			20-0.05			30-0.05			30-0.05		
u1	mm	115	136	181	147	186	231	195	234	279	214	253	298

## HEAD SHAPE CONE 1:10

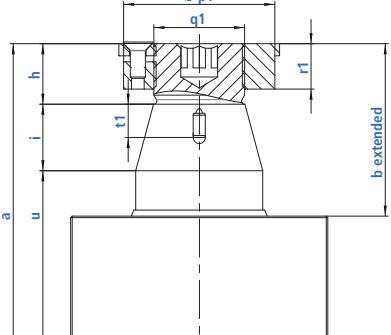


## FEATURES

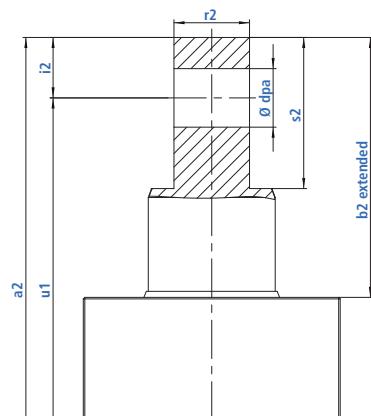
- Block construction with O-ring connection
- 4 sizes with 3 stroke areas each
- 4 Standard shapes available
- Swivel angle between 0° and 90° in 1° increments available as standard
- **No** swivel stroke
- With or without indexing available (only with cone design)
- Direction of rotation can be selected right or left
- Clamping point freely selectable (Cone design with indexing, rod clevis and pendulum eye)

## OTHER STANDARD HEAD SHAPES

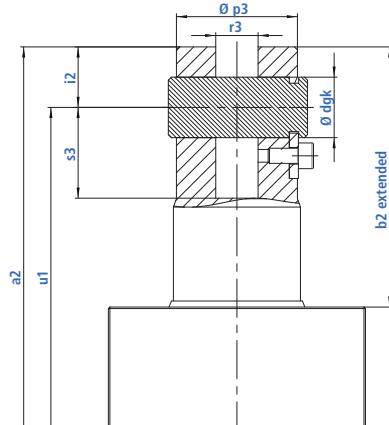
Cone 15°



Pendulum eye



Rod clevis



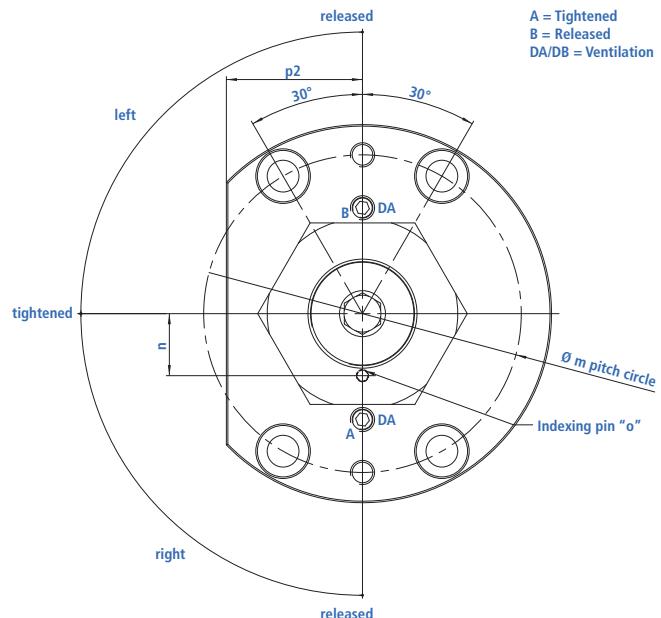
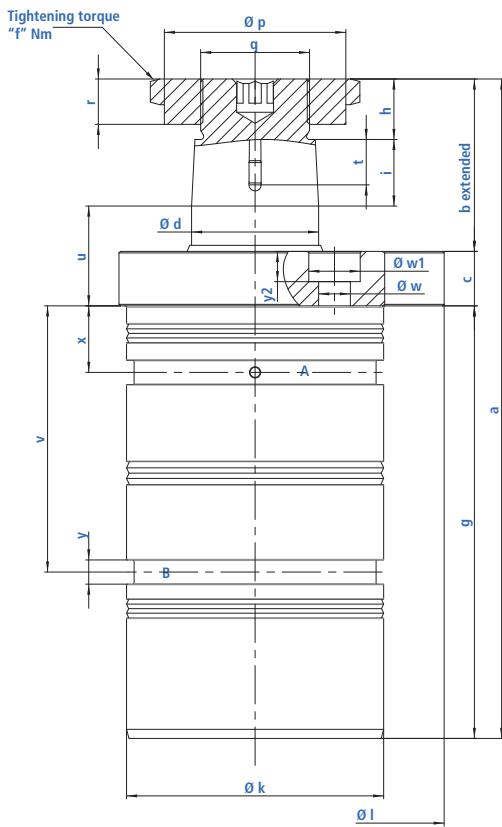
# GENERAL DATA M640

Size	mm	018			025			036			042			
Stroke length	mm	8	15	30	12	25	40	12	25	40	12	25	40	
Swivel stroke	mm		0			0			0			0		
Rod diameter	mm		18			25			36			42		
Piston diameter	mm		25			35			50			60		
Swivel angle	°				0°–90° (1° increments)									
c	mm	38.5			44.5			60			70			
Ø d	mm	18			25			36			42			
Stroke e	Stroke length selectable in 1 mm increments (exterior dimension remains the same)	mm	4–8	9–15	16–30	12–7	13–25	26–40	12–7	13–25	26–40	12–7	13–25	26–40
f	Nm	20			50			140			270			
g	mm	88	102	132	107	133	163	142	168	198	161	187	217	
j	mm	67	74	89	77	90	105	105	118	133	120	133	148	
k	mm	10			12			15			20			
l	mm	36			52			72			85			
m	mm	60			75			96			116			
n	mm	9.3			12.8			17.5			20.5			
o	mm	ø 3x5			ø 3x5			ø 4x8			ø 4x8			
p2	mm	59.25	66.25	81.25	68.5	81.5	96.5	94	107	122	107	120	135	
v	mm	45			58			76			92			
Ø w	mm	6.5			8.5			10.5			13			
Ø w1	mm	11			14			17			20			
Ø w3	mm	8			10			14			16			
x	mm	24.5			28			34			40			
y	mm	1.4			1.4			1.4			1.4			
y2	mm	6.5			8			11			13			
y3	mm	4			4.5			6			8			
Ø z	mm	11			11			11			11			

Design head shape		CONE 1:10 & CONE 15°											
a	mm	121	142	187	152	191	236	195	234	279	218	257	302
b extended	mm	33	40	55	45	58	73	53	66	81	57	70	85
h	mm	13			16			18			20		
i	mm	10			14			20			22		
Ø p	mm	24			32			46			60		
Ø p1	mm	22			30			40			50		
q	mm	M16 x 1.5			M22 x 1.5			M30 x 1.5			M36 x 1.5		
q1	mm	M12 x 1.5			M16 x 1.5			M24 x 1.5			M30 x 1.5		
r	mm	9			10.7			13			15		
r1	mm	8.4			10.6			12.5			15		
t	mm	8			12			13			15		
t1	mm	8			8			11			11		
u	mm	48.5	55.5	70.5	89.5	102.5	117.5	113	126	141	127	140	155

Design head shape		PENDULUM EYE & ROD CLEVIS											
a2	mm	125	146	191	160	199	244	215	254	299	234	273	318
b2 extended	mm	37	44	59	53	66	81	73	86	101	73	86	101
Ø d <sub>pa</sub>	mm	8H8			12H8			16H8			20H8		
Ø d <sub>gk</sub>	mm	8g6			12g6			14g6			20g6		
i2	mm	10			13			20			20		
Ø p3	mm	17.5			24			34			40		
r2	mm	10-0.05			15-0.05			25-0.05			25-0.1		
r3	mm	8+0.01+0.05			10+0.01+0.05			12+0.01+0.05			14+0.01+0.05		
s2	mm	23			33			50			50		
s3	mm	12-0.05			20-0.05			30-0.05			30-0.05		
u1	mm	65.5	72.5	87.5	84.5	97.5	112.5	113	126	141	123	136	151

## HEAD SHAPE CONE 1:10



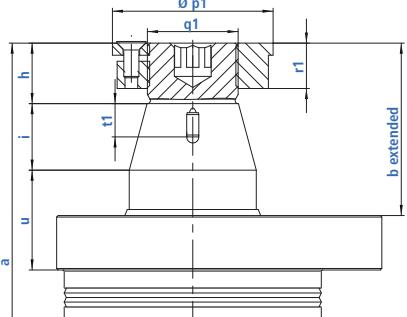
## FEATURES

- Cartridge design
  - 4 sizes with 3 stroke areas each
  - 4 Standard shapes available
  - Swivel angle between 0° and 90° in 1° increments available as standard
  - **No** swivel stroke

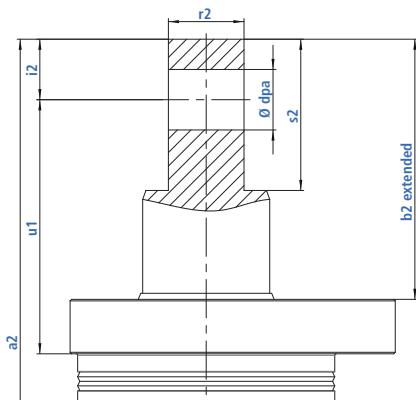
- With or without indexing available  
(only with cone design)
  - Direction of rotation can be selected right or left
  - Clamping point freely selectable (Cone design  
with indexing, rod clevis and pendulum eye)

## OTHER STANDARD HEAD SHAPES

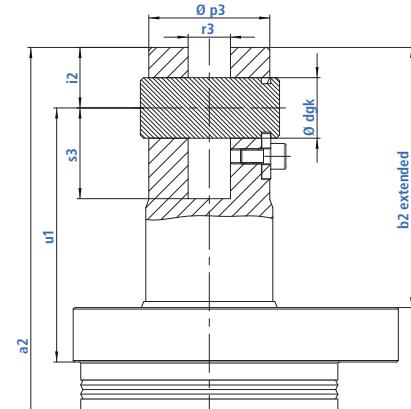
Cone 15°



## Pendulum eye



## Rod clevis



# GENERAL DATA M650

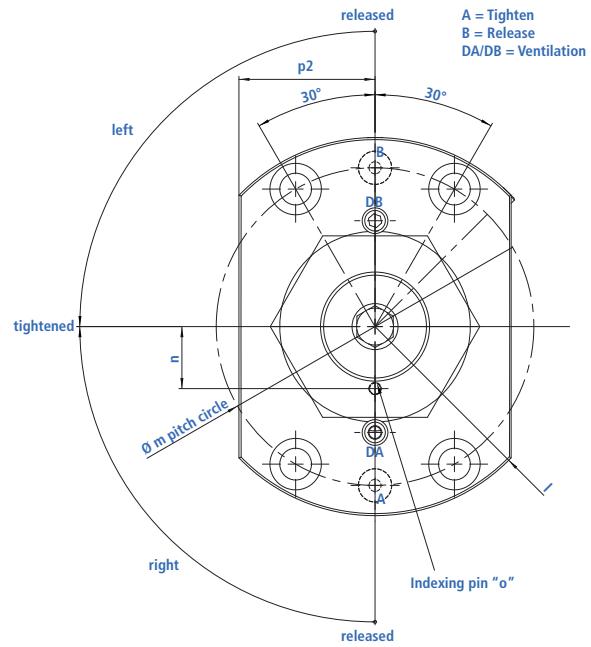
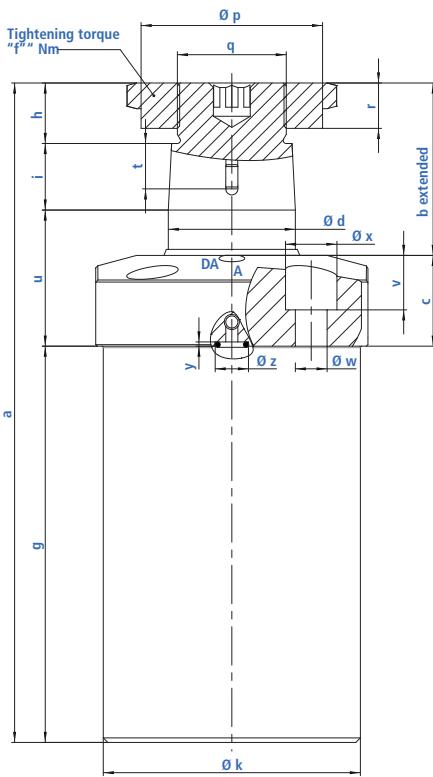


Size	mm	018			025			036			042			
Stroke length	mm	8	15	30	12	25	40	12	25	40	12	25	40	
Swivel stroke	mm		0			0			0			0		
Rod diameter	mm		18			25			36			42		
Piston diameter	mm		25			35			50			60		
Swivel angle	°		0°–90° (1° increments)											
c	mm	10.5			12			18			18			
Ø d	mm	18			25			36			42			
Stroke e	Stroke length selectable in 1 mm increments (exterior dimension remains the same)	mm	4–8	9–15	16–30	12–7	13–25	26–40	12–7	13–25	26–40	12–7	13–25	26–40
f	Nm	20			50			140			270			
g	mm	77.5	91.5	121.5	95	121	151	124	150	180	143	169	199	
Ø k	mm	36f7			52f7			72f7			85f7			
Ø l	mm	58			76			110			125			
m	mm	47			63			90			105			
n	mm	9.3			12.8			17.5			20.5			
o	mm	ø 3x5			ø 3x5			ø 4x8			ø 4x8			
v	mm	48.75	55.75	71	56	69	84	77	90	105	88	101	116	
Ø w	mm	5.5			6.5			10.5			10.5			
Ø w1	mm	9			10.5			17			17			
x	mm	14			16			17			22			
y	mm	8			8			8			8			

Design head shape		CONE 1:10 & CONE 15°											
a	mm	121	142	187	152	191	236	195	234	279	218	257	302
b extended	mm	33	40	55	45	58	73	53	66	81	57	70	85
h	mm	13			16			18			20		
i	mm	10			14			20			22		
Ø p	mm	24			32			46			60		
Ø p1	mm	22			30			40			50		
q	mm	M16 x 1.5			M22 x 1.5			M30 x 1.5			M36 x 1.5		
q1	mm	M12 x 1.5			M16 x 1.5			M24 x 1.5			M30 x 1.5		
r	mm	9			10.7			13			15		
r1	mm	8.4			10.6			12.5			15		
t	mm	8			12			13			15		
t1	mm	8			8			11			11		
u	mm	20.5	27.5	42.5	27	40	55	33	46	61	33	46	61

Design head shape		PENDULUM EYE & ROD CLEVIS											
a2	mm	125	146	191	160	199	244	215	254	299	234	273	318
b2 extended	mm	37	44	59	53	66	81	73	86	101	73	86	101
Ø d <sub>pa</sub>	mm	8H8			12H8			16H8			20H8		
Ø d <sub>gk</sub>	mm	8g6			12g6			14g6			20g6		
i2	mm	10			13			20			20		
Ø p3	mm	17.5			24			34			40		
r2	mm	10-0.05			15-0.05			25-0.05			25-0.1		
r3	mm	8+0.01+0.05			10+0.01+0.05			12+0.01+0.05			14+0.01+0.05		
s2	mm	23			33			50			50		
s3	mm	12-0.05			20-0.05			30-0.05			30-0.05		
u1	mm	37.5	44.5	59.5	52	65	80	71	84	99	71	84	99

## HEAD SHAPE CONE 1:10

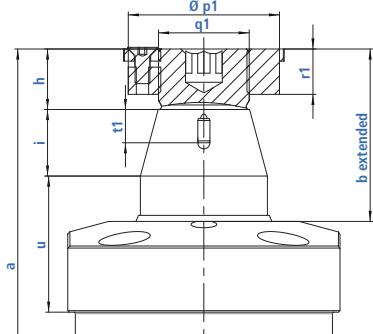


## FEATURES

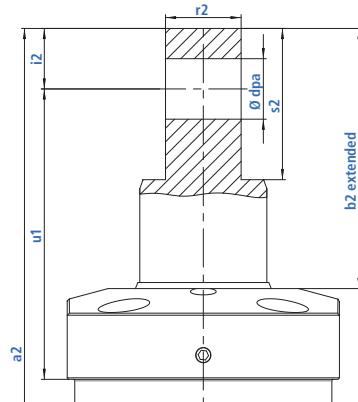
- Cylindrical housing with head flange
- O-ring connections on the flange underside
- 4 sizes with 3 stroke areas each
- 4 Standard shapes available
- Swivel angle between 0° and 90° in 1° increments available as standard
- **No** swivel stroke
- With or without indexing available (only with cone design)
- Direction of rotation can be selected right or left
- Clamping point freely selectable (Cone design with indexing, rod clevis and pendulum eye)

## OTHER STANDARD HEAD SHAPES

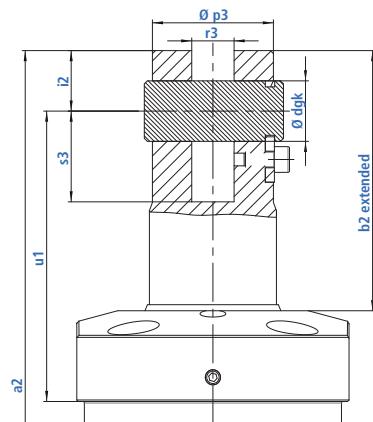
Cone 15°



Pendulum eye



Rod clevis



## GENERAL DATA M680



Size	mm	018			025			036			042			
Stroke length	mm	8	15	30	12	25	40	12	25	40	12	25	40	
Swivel stroke	mm		0			0			0			0		
Rod diameter	mm		18			25			36			42		
Piston diameter	mm		25			35			50			60		
Swivel angle	°		0°–90° (1° increments)											
c	mm		22		26			28			30			
Ø d	mm		18			25			36			42		
Stroke e	Stroke length selectable in 1 mm increments (exterior dimension remains the same)	mm	4–8	9–15	16–30	12–7	13–25	26–40	12–7	13–25	26–40	12–7	13–25	26–40
f	Nm		20			50			140			270		
g	mm	66	80	110	81	107	137	114	140	170	131	157	187	
Ø k	mm		36			52			72			85		
Ø l	mm		58			76			110			125		
Ø m	mm		47			63			90			105		
n	mm		9.3			12.8			17.5			20.5		
o	mm		ø 3x5			ø 3x5			ø 4x8			ø 4x8		
p2	mm		20			28			38			45		
v	mm		9			10			17			18		
Ø w	mm		5.5			6.5			10.5			10.5		
Ø x	mm		9			10.5			17			17		
y	mm		1.4			1.4			1.4			1.4		
Ø z	mm		8.8			8.8			11			11		

Design head shape		CONE 1:10 & CONE 15°											
a	mm	121	142	187	152	191	236	195	234	279	218	257	302
b extended	mm	33	40	55	45	58	73	53	66	81	57	70	85
h	mm	13			16			18			20		
i	mm	10			14			20			22		
Ø p	mm	24			32			46			60		
Ø p1	mm	22			30			40			50		
q	mm	M16 x 1.5			M22 x 1.5			M30 x 1.5			M36 x 1.5		
q1	mm	M12 x 1.5			M16 x 1.5			M24 x 1.5			M30 x 1.5		
r	mm	9			10.7			13			15		
r1	mm	5.9			7.3			12.5			15		
t	mm	8			12			13			15		
t1	mm	8			8			11			11		
u	mm	32	39	54	41	54	69	43	56	71	45	58	73

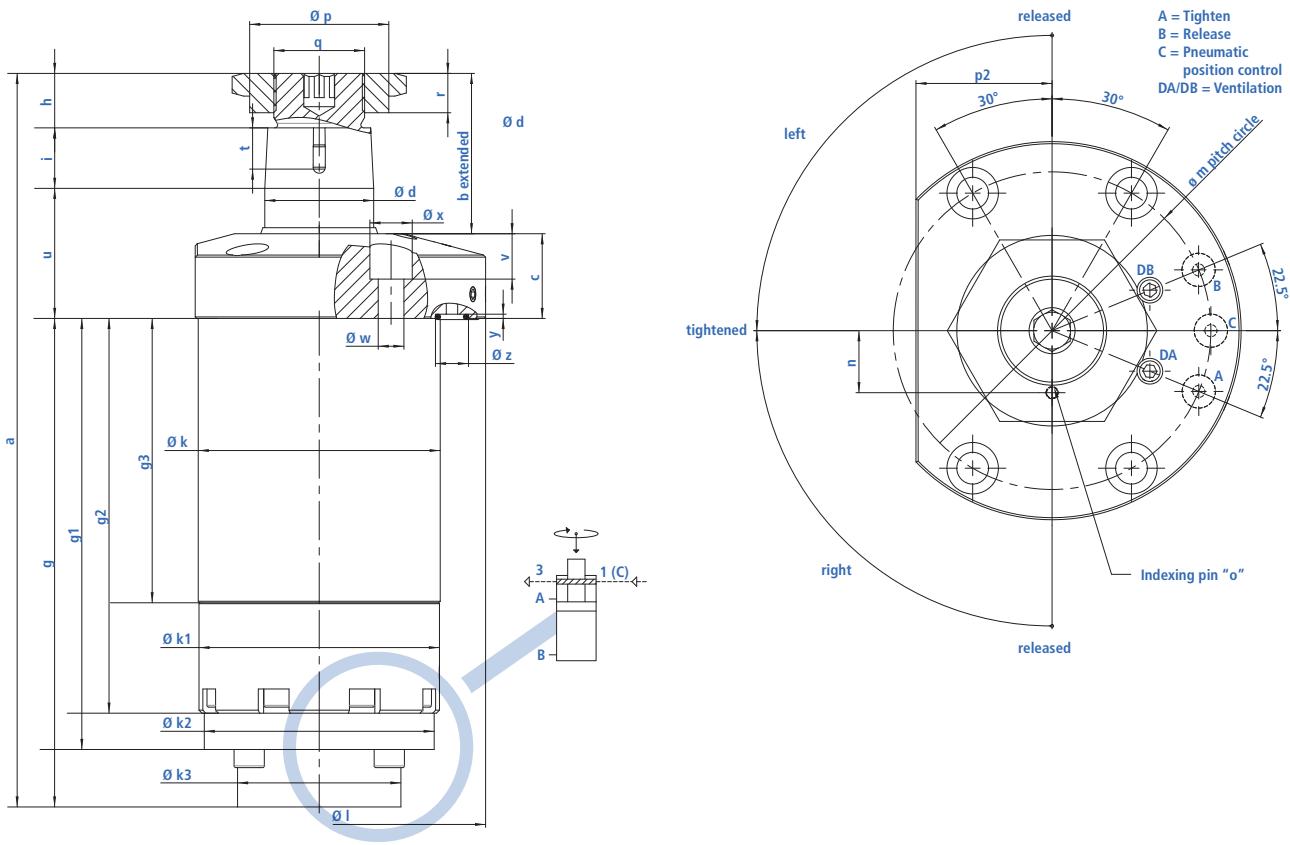
Design head shape		PENDULUM EYE & ROD CLEVIS											
a2	mm	125	146	191	160	199	244	215	254	299	234	273	318
b2 extended	mm	37	44	59	53	66	81	73	86	101	73	86	101
Ø d <sub>pa</sub>	mm	8H8			12H8			16H8			20H8		
Ø d <sub>gk</sub>	mm	8g6			12g6			14g6			20g6		
i2	mm	10			13			20			20		
Ø p3	mm	17.5			24			34			40		
r2	mm	10-0.05			15-0.05			25-0.05			25-0.1		
r3	mm	8+0.01+0.05			10+0.01+0.05			12+0.01+0.05			14+0.01+0.05		
s2	mm	23			33			50			50		
s3	mm	12-0.05			20-0.05			30-0.05			30-0.05		
u1	mm	49	56	71	66	79	94	81	94	109	83	96	111





**SWING CLAMP**  
WITHOUT SWIVEL STROKE TRIGGERED WITH QUERY

## HEAD SHAPE CONE 1:10

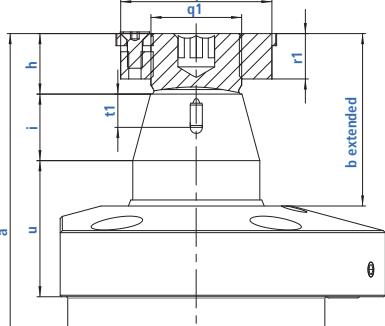


## FEATURES

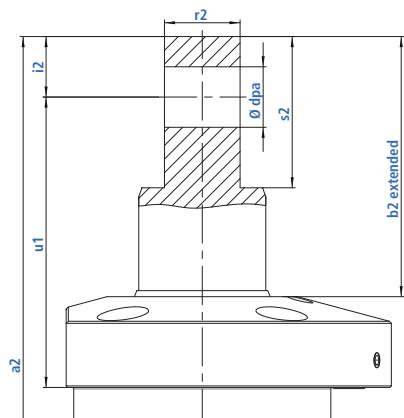
- Cylindrical housing with head flange
- O-ring connections on the flange underside
- Query triggered via air purge
- 2 sizes with 2 stroke areas each
- 4 Standard head shapes available
- Swivel angle between 0° and 90° in 1° increments available as standard
- **No** swivel stroke
- With or without indexing available (only with cone design)
- Direction of rotation can be selected right or left
- Clamping point freely selectable (Cone design with indexing, rod clevis and pendulum eye)

## OTHER STANDARD HEAD SHAPES

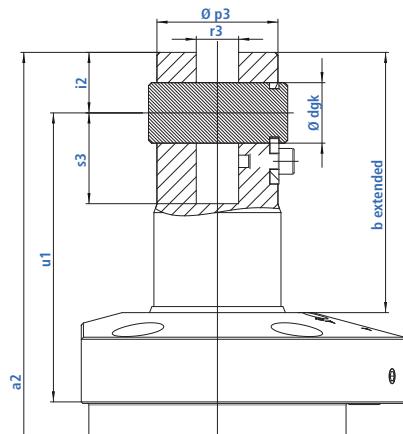
Cone 15°



Pendulum eye



Rod clevis



## GENERAL DATA M622

Size	mm	028		036			
Stroke length	mm	12	25	12	25		
Swivel stroke	mm	0		0			
Rod diameter	mm	28		36			
Piston diameter	mm	40		50			
Swivel angle	°	0° – 90° (1° increments)					
Clamping pressure area	cm <sup>2</sup>	6.4		9.5			
Releasing pressure area	cm <sup>2</sup>	12.6		19.6			
Clamping volume	cm <sup>3</sup>	22.3	29.7	40.1	52.4		
Releasing volume	cm <sup>3</sup>	30.6	46	52.3	77.8		
Axial pressure force at 100 bar without losses	kN	6.4		9.5			
Maximum allowable volume flow	l/min	0.9		2			
Maximum pressure	bar	250					
Minimum pressure	bar	30					
c	mm	27		28			
Ø d	mm	28		36			
Stroke e	Stroke length selectable in 1 mm increments (exterior dimension remains the same)						
f	Nm	50		140			
g	mm	150.5	189.5	161.5	200.5		
g1	mm	142	168	142.5	168.5		
g2	mm	119	145	130.5	156.5		
g3	mm	85	98	94	107		
Ø k	mm	65		80			
Ø k1	mm	64.6		79.5			
Ø k2	mm	64		76			
Ø k3	mm	45		54			
Ø l	mm	95		110			
Ø m	mm	80		95			
n	mm	13.9		17.5			
o	mm	ø 3x5		ø 4x8			
p2	mm	33.5		41			
v	mm	15		15			
Ø w	mm	8.5		8.5			
Ø x	mm	14		14			
y	mm	1.5		1.5			
Ø z	mm	11		11			

Design head shape		Cone 1:10		Cone 15°	
a	mm	224.5	276.5	242.5	294.5
b extended	mm	47	60	53	66
h	mm	16		18	
i	mm	16		20	
Ø p	mm	32		46	
Ø p1	mm	30		40	
q	mm	M22 x 1.5		M30 x 1.5	
q1	mm	M16 x 1.5		M24 x 1.5	
r	mm	10.7		13	
r1	mm	7.3		12.5	
t	mm	13.5		13	
t1	mm	10		11	
u	mm	42	55	43	56

Design head shape		Pendulum eye		Rod clevis	
a2	mm	231.5	283.5	262.5	314.5
b2 extended	mm	54	67	73	86
Ø d <sub>pa</sub>	mm	12H8		16H8	
Ø d <sub>gk</sub>	mm	12g6		14g6	
i2	mm	13		20	
Ø p3	mm	26.5		34	
r2	mm	15-0.05		25-0.05	
r3	mm	10+0.01+0.05		12+0.01+0.05	
s2	mm	33		50	
s3	mm	20-0.05		30-0.05	
u1	mm	68	81	81	94