

GENERAL CATALOGUE



ERMANN BALZI

ERMANNNO BALZI





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Viale Enrico Mattei, 13
25080 Mazzano (Brescia)
Tel: +39 0302120868
E-mail: info@ermannnobalzi.com

Contact persons:

Damiano Balzi
damiano.balzi@ermannnobalzi.com

Francesca Balzi
francesca.balzi@ermannnobalzi.com



宁波百驰贸易有限公司

地址：宁波市鄞州区富强路555号北面3楼

电话：(+86)-574-89119140

传真：(+86)-574-89119141

Ningbo Balzi Trading Company, Ltd

mould parts and components

Third floor, No. 555 Fuqiang Road, 315100, Yinzhou

District, Ningbo

Phone (+86)-574-89119140

Fax (+86)-574-89119141

Contact person: (English speaking)

Stefano Osellame

E-mail: stefano.osellame@ermannnobalzi.com

Mobile: +86 137-19479224

Contact person (普通话和英语):

Alice

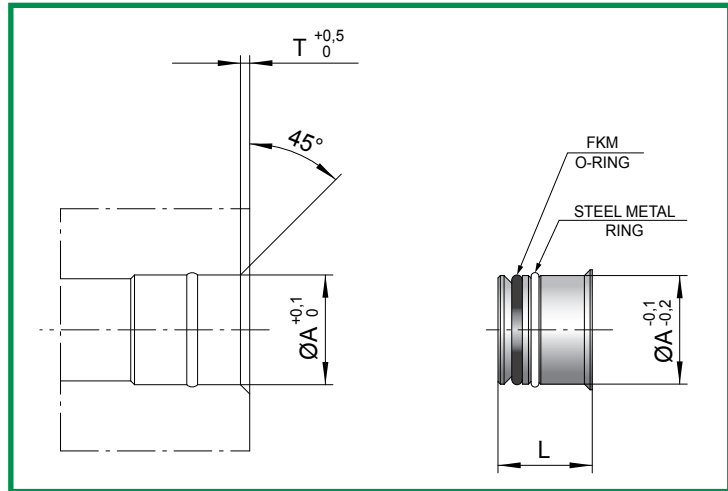
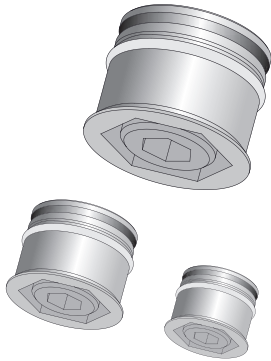
E-mail: infochina@ermannnobalzi.com

***“RAPID PLUG AND UNPLUG SYSTEM”
COMPLETE PRODUCTS LINE FOR THE
EQUIPMENT OF THE CONDITIONING
CIRCUITS OF THE MOULDS***



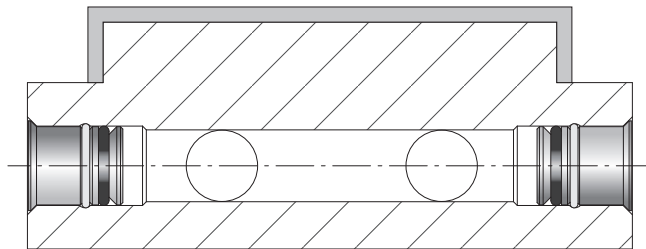
EXTERNAL PLUG

RAPID PLUG AND UNPLUG SYSTEM (PATENTED SYSTEM)



CODE: **TR..**

CODE	A	T	L
TR-6I	6,5	0,7	7,5
TR-8I	8,5	1	9
TR-10	10,5	1	12,5
TR-12	12,5	1	12,5
TR-14	14,5	1	12,5



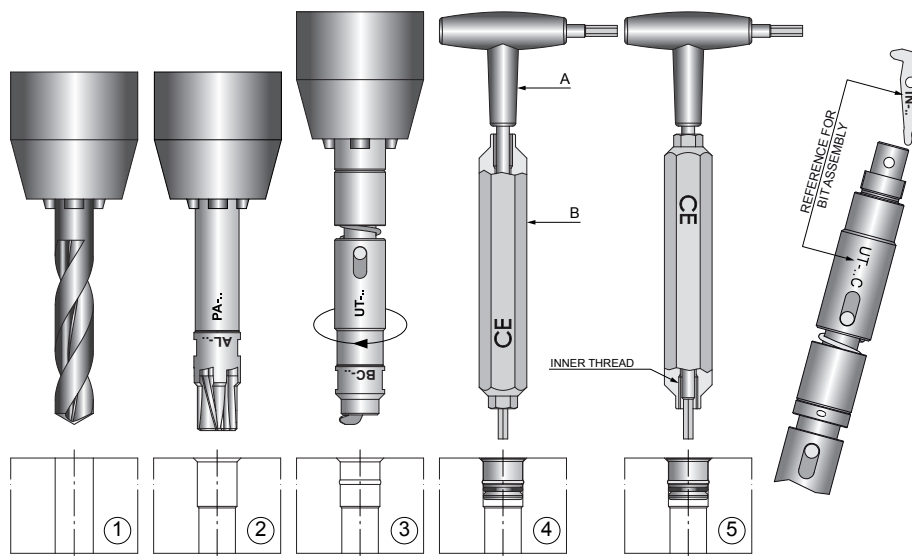
CHARACTERISTICS

- 1) RAPID MACHINING OF THE HOUSING ;
- 2) RAPID PLUG FITTING AND REMOVING;
- 3) SECURE SEAL IS MAINTAINED EVEN UNDER HIGH PRESSURE CONDITIONS (~100 BAR);

N.B.: ON DEMAND AVAILABLE ALSO WITH SCREW IN STAINLESS STEEL.

TR-6I AND **TR-8I** AVAILABLE ONLY WITH SCREW MADE IN STAINLESS STEEL.

STANDARD SET



EXECUTION PLUGS' HOUSING

- PERFORM HOLE WITH DRILL (the diameter of the drill has to correspond to the mark of the plug; exemple: for the plug TR-8 use drill $\varnothing 8$). See picture 1.
The diameter obtained by the drill can also be increased of $0,2 \pm 0,3$ millimeters.
- PERFORM BLADE WITH A SUITABLE REAMER. See picture 2. In the operation n° 2 the hole has to be calibrated with a suitable reamer to \varnothing drill + 0,5 (exemple: the hole $\varnothing 8$ will be brought up to $\varnothing 8,5$). **N.B.:** the cutting speed of this operation will change according to the type of machined steel and will be equal to the one used for any other reamer in HSS (high-speed tool steel).
- PERFORM RETAINING GROOVE WITH SUITABLE TOOL. See picture 3

SOME ADVICE FOR THE CORRECT USE OF ABOVE MENTIONED TOOL

- Before beginning the operation put a drop of oil on the chamfer created on the piece by the reamer (picture 2) to encourage the sliding of the centering bush of the tool.
- The descent in vertical of the tool has to be slow (as adopted when a center drill is used). Consider however that such a tool works only in the last millimeter of the descent.
- When the two elements of the tool separated by the spring (visible) touch each other, the operation is completed. Now neither making further pressure on the tool nor stopping in such a position more than a few seconds is not advisable (so to avoid the heating of the centering bush that rubs on the piece).
- The above mentioned advice, related to the pressure that has to be applied on the tool, are obviously usable by the worker only in case of operation on a drill or also on a miller, only if provided by a mobile chuck (type drill) so to have the sensitivity of the practiced pressure. In case of performing the above mentioned operation on a machine with fixed head or on a machining center, it's necessary to use the tool with the pressure compensator (provided on request).

PLUGS ASSEMBLY

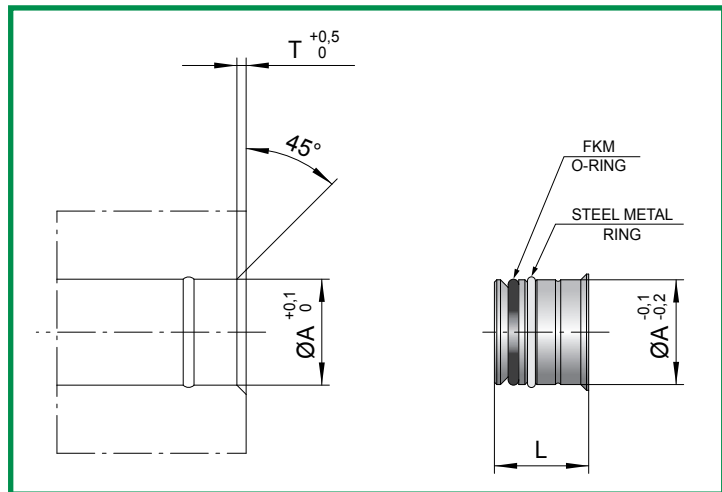
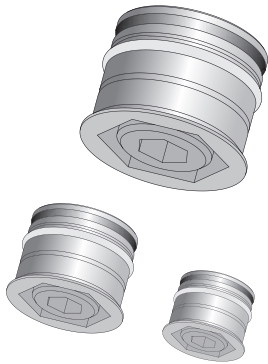
- Insert the piece to be assembled in its seat.
- Insert the keys as in picture 4.
- Holding the key "A" tight, rotate the key "B" clockwise blocking the plug with strong pressure, but using only the hands (without the help of any other keys to subsequently increase the pressure of locking).

PLUGS DISASSEMBLY

- Insert the keys as in picture 4.
- Unblock the plug holding the key "A" tight and rotating the key "B" counter clockwise (1-2 turns maximum).
- Remove the keys.
- Using the key "B" from the side with the inner thread hook the plug and extract.

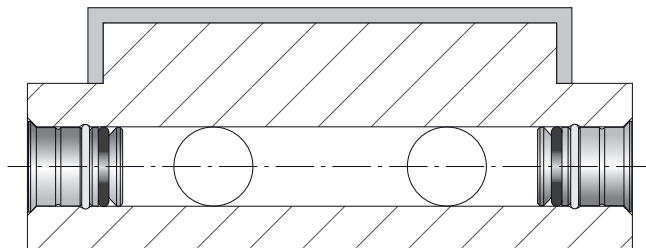
EXTERNAL PLUG

RAPID PLUG AND UNPLUG SYSTEM (PATENTED SYSTEM)



CODE: **TR-..F**

CODE	A	T	L
TR-5FINOX	5	0,7	7
TR-6F	6	0,7	7,5
TR-8F	8	1	9
TR-10F	10	1	12,5
TR-11F	11	1	12,5
TR-11,5F	11,5	1	12,5
TR-12F	12	1	12,5
TR-14F	14	1	12,5
TR-15F	15	1,2	13
TR-16F	16	1,2	13
TR-18F	18	1,2	13
TR-19F	19	1,2	13
TR-20F	20	1,2	13
TR-25F	25	1,2	13



CHARACTERISTICS

- 1) RAPID MACHINING OF THE HOUSING ;
- 2) RAPID PLUG FITTING AND REMOVING;
- 3) SECURE SEAL IS MAINTAINED EVEN UNDER HIGH PRESSURE CONDITIONS (~100 BAR);

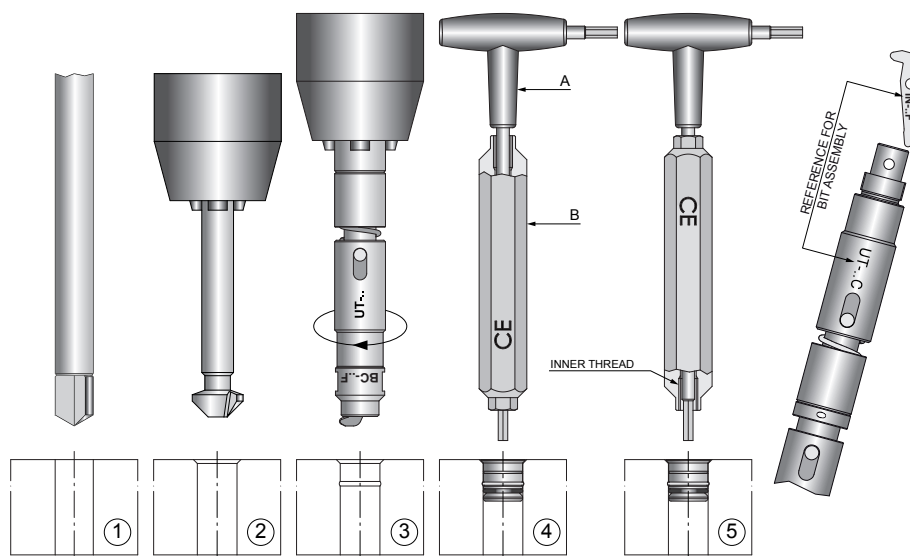
N.B.: ON DEMAND AVAILABLE ALSO WITH SCREW IN STAINLESS STEEL.

TR-5F INOX STAINLESS STEEL.

TR-6I AND **TR-8I** AVAILABLE ONLY WITH SCREW MADE IN STAINLESS STEEL.

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SET 'F'



EXECUTION PLUGS' HOUSING

1. PERFORM THE HOLE WITH GUN DRILL (the diameter of the drill has to correspond to the mark of the plug; for example: for the plug type TR-8F use drill $\varnothing 8$. See picture 1)
2. PERFORM CHAMFERING. See picture 2
3. PERFORM RETAINING GROOVE WITH SUITABLE TOOL. See picture 3

SOME ADVICE FOR THE CORRECT USE OF ABOVE MENTIONED TOOL

- A. Before beginning the operation put a drop of oil on the piece by the chamfer (picture 2) to encourage the sliding of the centering bush of the tool.
- B. The descent in vertical of the tool has to be slow (as adopted when a center drill is used). Consider however that such a tool works only in the last millimeter of the descent.
- C. When the two elements of the tool separated by the spring (visible) touch each other, the operation is completed. Now neither making further pressure on the tool nor stopping in such a position more than a few seconds is not advisable (so to avoid the heating of the centering bush that rubs on the piece).
- D. The above mentioned advice, related to the pressure that has to be applied on the tool, are obviously usable by the worker only in case of operation on a drill or also on a miller, only if provided by a mobile chuck (type drill) so to have the sensitivity of the practiced pressure. In case of performing the above mentioned operation on a machine with fixed head or on a machining center, it's necessary to use the tool with the pressure compensator (provided on request).

PLUGS ASSEMBLY

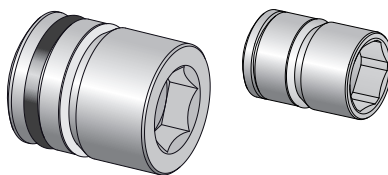
1. Insert the piece to be assembled in its seat.
2. Insert the key as in picture 4.
3. Holding the key "A" tight, rotate the key "B" clockwise blocking the plug with strong pressure, but using only the hands (without the help of any other keys to subsequently increase the pressure of locking).

PLUGS DISASSEMBLY

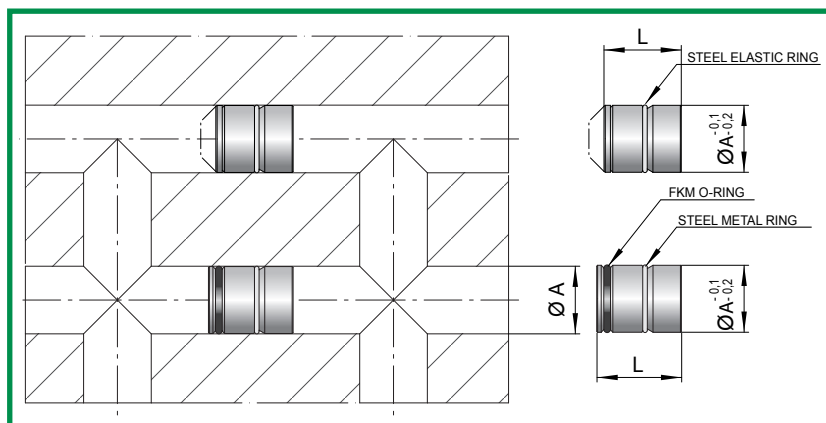
1. Insert the keys as in picture 4.
2. Unblock the plug holding the key "A" tight and rotating the key "B" counter clockwise (1-2 turns maximum).
3. Remove the keys.
4. Using the key "B" from the side with the inner thread hook the plug and extract.

PLUG FOR THE DEVIATION OF THE FLOW

RAPID PLUG AND UNPLUG SYSTEM
(PATENTED SYSTEM)



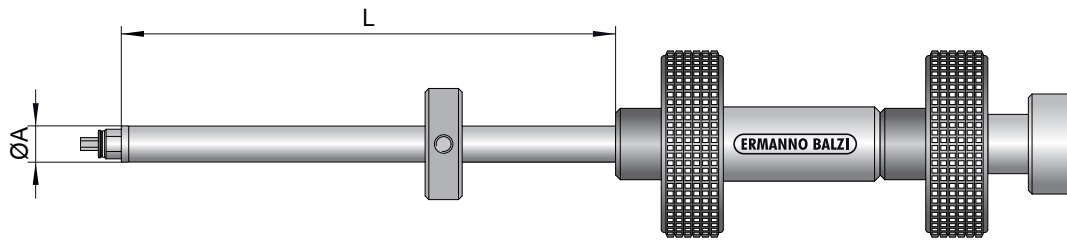
CODE: **TRI-..**



CODE	A	L	NOTE	ASSEMBLY DEVICE
TRI-6L	6	12		APT-0
TRI-6C	6	10	WITHOUT O-RING	
TRI-8L	8	15		APT-1
TRI-8C	8	10,5	WITHOUT O-RING	
TRI-10L	10	17,5		APT-2
TRI-10C	10	13,5	WITHOUT O-RING	
TRI-11	11	17,5		
TRI-11,5	11,5	17,5		
TRI-12	12	17,5		
TRI-14	14	17,5		
TRI-15	15	17,5		APT-3
TRI-16	16	22		
TRI-18	18	22,5		
TRI-19	19	22,5		
TRI-20	20	22,5		
TRI-25	25	22,5		

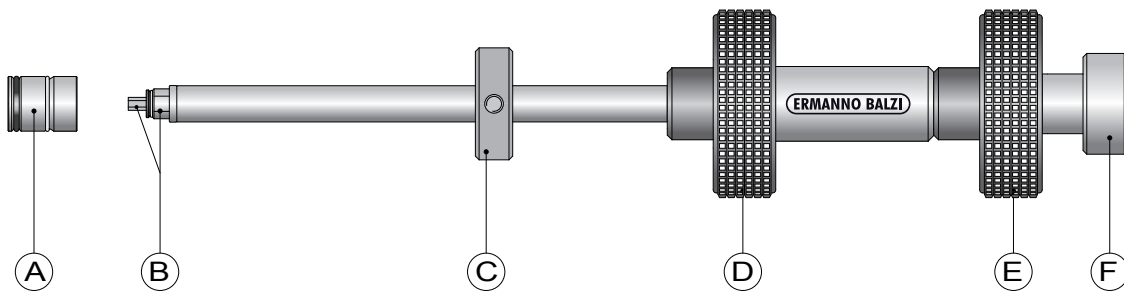
CHARACTERISTICS

- 1) RAPID PLUG FITTING AND REMOVING;
- 2) UNLIMITED PLUG REUTILIZATION;
- 3) POSSIBLE PLUG SECURING FOR HOLES WITH INCREASED DIAMETER (UP $\varnothing A + 0.3 \pm 0.4$ mm).



CODE	A	L
APT-0	5,9	250
APT-1	7,7	400
APT-2	9,7	800
APT-3	14	1000

N.B.: on demand the rod can be supplied in special lengths.

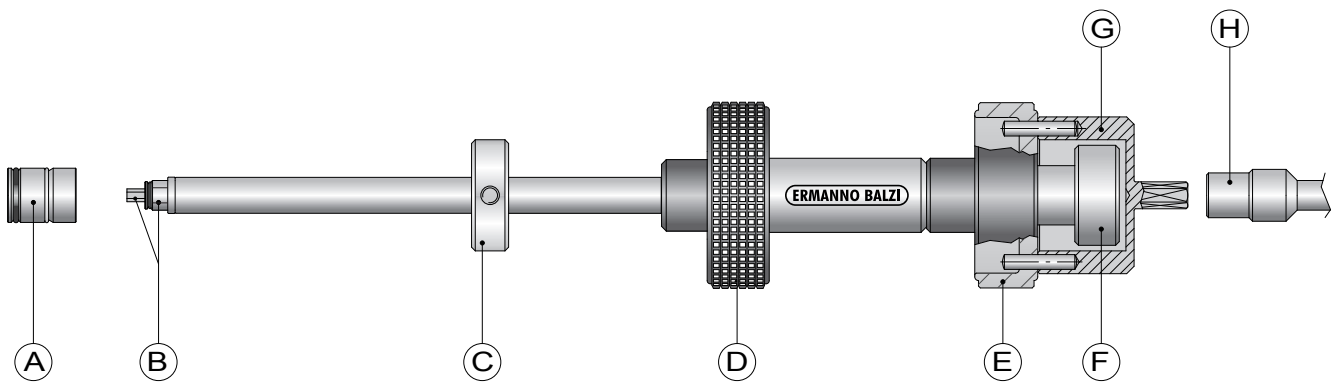


PLUGS ASSEMBLY

1. Assemble the plug "A" on the two hexagons "B" verifying that it's well inserted.
2. Holding the handle "E" tight, screw the handle "F", blocking it with a light pressure.
3. Verify that the plug is hooked to the rod.
4. Insert the rod in the hole determining the position with the ring nut "C".
5. Holding the handle "D" tight, rotate the handle "E" counter-clockwise until it blocks .
6. Verify that the plug is blocked in the hole, pushing the rod forwards and backwards.
7. Holding the handle "E" tight, unscrew the handle "F" (1 or 2 turns are enough).
8. Remove the rod holding it preferably by the handle "D".

PLUGS DISASSEMBLY

1. Insert the rod in the hole and, slightly rotating the handle "D" and "E", practice a light pressure on the plug until the two hexagons "B" have entered in their seats (the operation has happened when the handle "D" and "E" don't rotate anymore).
2. Holding the handle "E" tight, screw the handle "F" blocking it with a light pressure and verify that the plug is hooked, pulling the rod towards outside.
3. Holding the handle "D" tight, unblock the handle "E" clockwise.
4. Remove APT tool from the bore and unscrew the plug from APT rod.



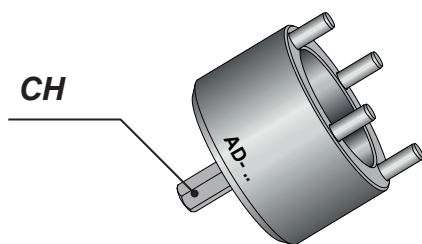
PLUGS ASSEMBLY

1. Assemble the plug "A" on the two hexagons "B" verifying that it's well inserted.
2. Holding the handle "E" tight, screw the handle "F", locking it with a light pressure.
3. Verify that the plug is hooked to the rod.
4. Insert the rod in the hole determining the depth position with the ring nut "C".
5. Connect the torque adaptor "G" to the handle "E", holding the handle "D" rotate the torque adaptor "G" with a torque screwdriver "H" counter-clockwise. Torque force will have to be set according to suggested value.
6. Holding the handle "E" tight, unscrew the handle "F" (1 or 2 turns are enough).
7. Remove the rod holding it preferably by the handle "D".

PLUGS DISASSEMBLY

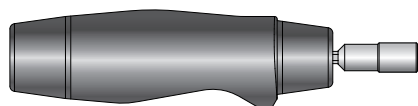
1. Insert the rod in the hole and, slightly rotating the handle "D" and "E", apply a light pressure on the plug until the two hexagons "B" have entered in their seats (the operation has completed when the handle "D" and "E" does not rotate anymore).
2. Holding the handle "E" tight, screw the handle "F" locking it with a light pressure and verify that the plug is connected, then pull the rod towards outside.
3. Holding the handle "D" tight, unlock the handle "E" clockwise.
4. Remove APT tool from the bore and unscrew the plug from APT rod.

TORQUE ADAPTOR



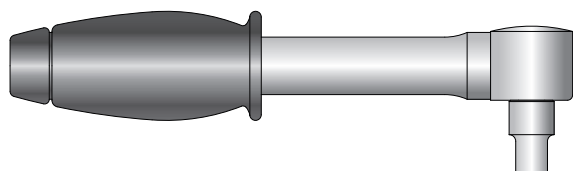
CODE	PLUGS	TORQUE FORCE (Nm)	PRESSURE (BAR)	CH	ASSEMBLY DEVICE
AD-0	TRI-6L TRI-6C	1,5	40	1/4	APT-0
AD-1/2	TRI-8L TRI-8C	2	30	1/4	APT-1
	TRI-10L TRI-10C	2	30	1/4	APT-2
	TRI-11 TRI-11,5	5	30		
	TRI-12	5	30		
	TRI-14	6	30		
	TRI-15	8	30		
AD-3	TRI-16	15	30	3/8	APT-3
	TRI-18	15	15		
	TRI-19	15	15		
	TRI-20	15	15		
	TRI-25	15	15		

TORQUE BAR FOR LEFT-HAND TIGHTENING



CODE: **TS-1,2/6**

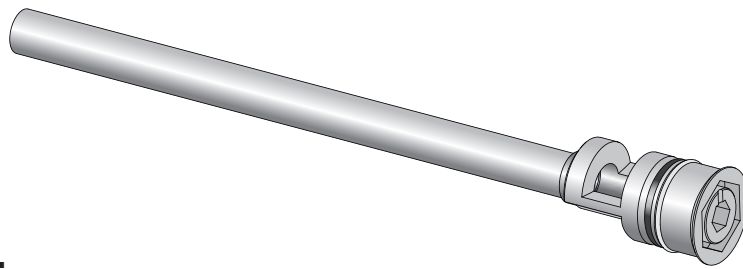
TORQUE RANGE:
1,2÷6 N/m



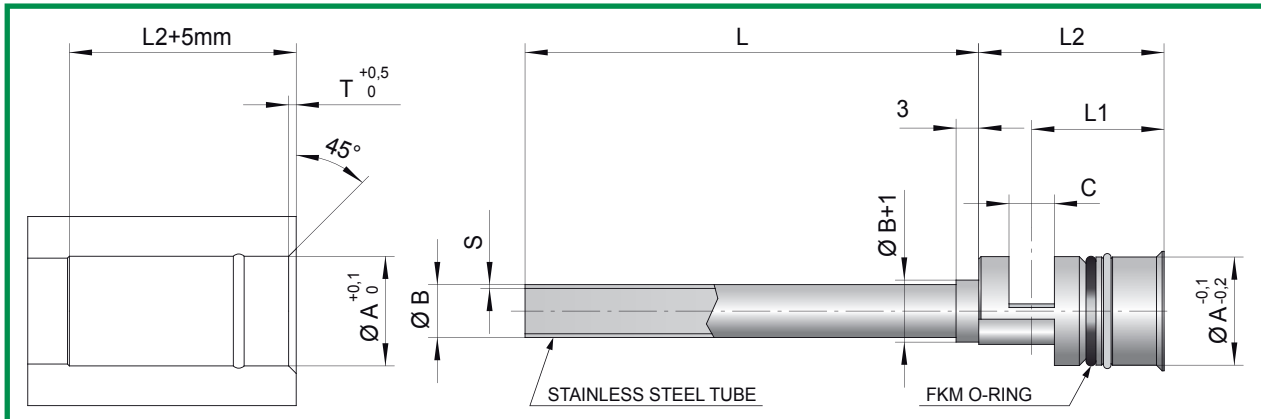
CODE: **TB-4/20**

TORQUE RANGE:
4÷20 N/m

RAPID PLUG AND UNPLUG SYSTEM (PATENTED SYSTEM)

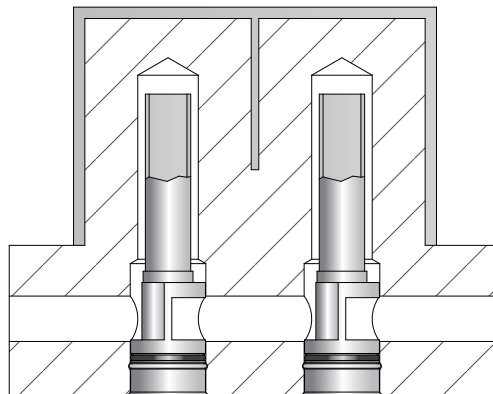


CODE: **RF-..**



CODE	A	T	B			S	C	L1	L2	L				
RF-8	8,5	1	2	3	4	0,25	4	13,5	18	150	300	450	600	
RF-10	10,5	1	2,5	3	4	5	0,25	5	16	22,5	150	300	450	600
RF-12	12,5	1	6			0,5	5	17	24	150	300	450	600	
RF-14	14,5	1	7			0,5	6	17,5	24,5	150	300	450	600	

Order example: RF-8x150/2I

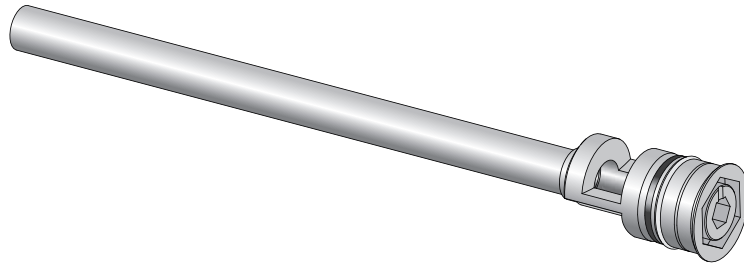


CHARACTERISTICS

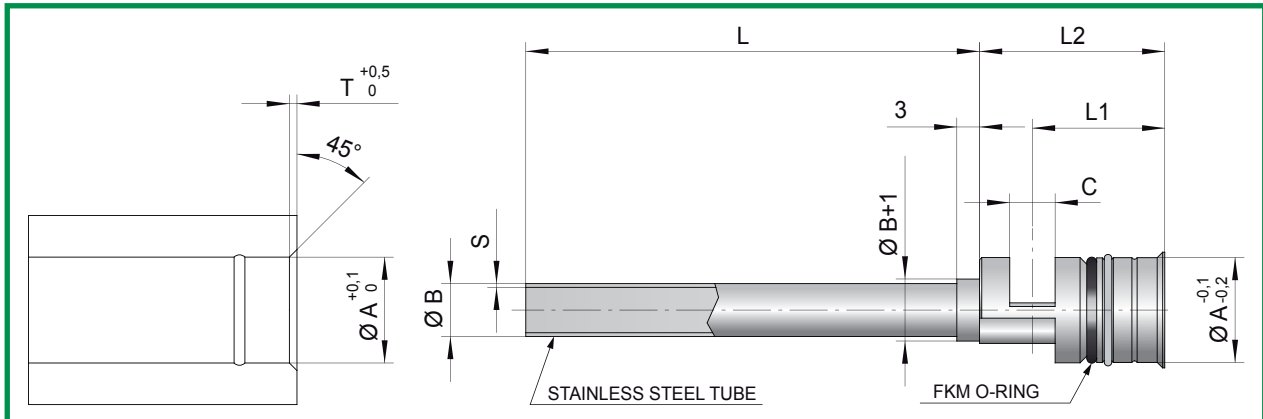
- 1) RAPID MACHINING OF THE HOUSING;
- 2) RAPID FITTING AND REMOVING;
- 3) PLACEMENT VERSATILITY (due to the shape of the inlet and outlet liquid discharges);
- 4) SECURE SEAL IS MAINTAINED EVEN UNDER HIGH PRESSURE CONDITIONS (~100 BAR).

BUBBLES

RAPID PLUG AND UNPLUG SYSTEM (PATENTED SYSTEM)

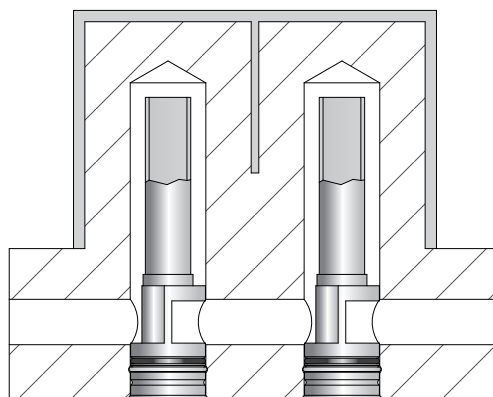


CODE: **RF-..F**



CODE	A	T	B				S	C	L1	L2	L			
RF-6F	8	1	2		3		0,25	4	12,5	17,5	150	300	450	600
RF-8F	8	1	2	3	4		0,25	4	13,5	18	150	300	450	600
RF-10F	10	1	2,5	3	4	5	0,25	5	16	22,5	150	300	450	600
RF-12F	12	1	6				0,5	5	17	24	150	300	450	600
RF-14F	14	1	7				0,5	6	17,5	24,5	150	300	450	600
RF-16F	16	1,2	8				0,5	8	19	27,5	150	300	450	600
RF-20F	20	1,2	12				1	10	20	29,5	150	300	450	600
RF-25F	25	1,2	15				1	12	22,5	33,5	150	300	450	600

Order example: RF-8Fx150/2I

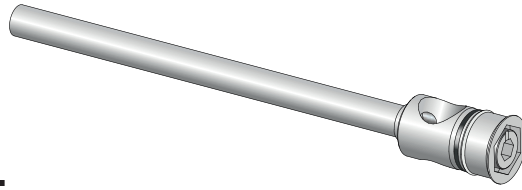


CHARACTERISTICS

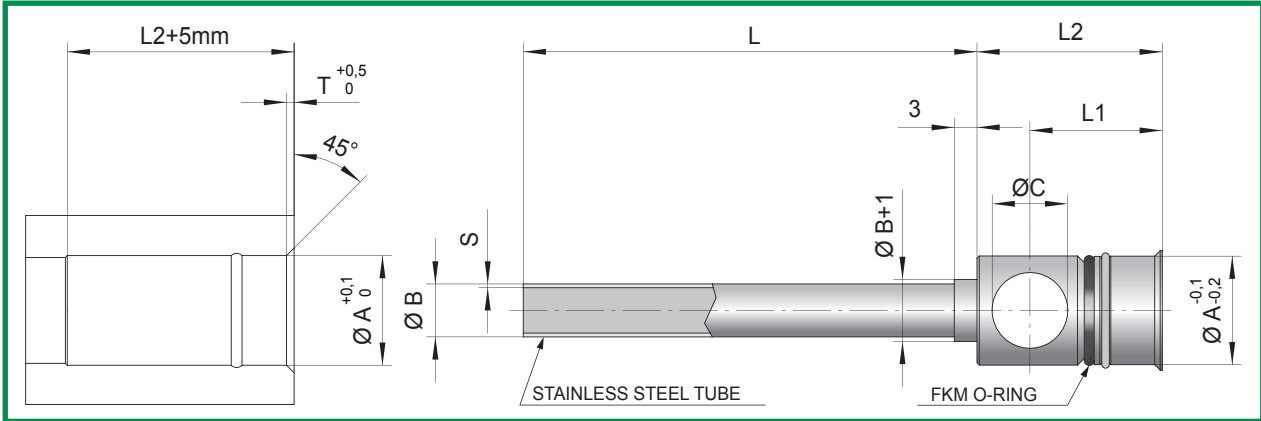
- 1) RAPID MACHINING OF THE HOUSING;
- 2) RAPID FITTING AND REMOVING;
- 3) PLACEMENT VERSATILITY (due to the shape of the inlet and outlet liquid discharges);
- 4) SECURE SEAL IS MAINTAINED EVEN UNDER HIGH PRESSURE CONDITIONS (~100 BAR).

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RAPID PLUG AND UNPLUG SYSTEM FOR PARALLEL COOLING

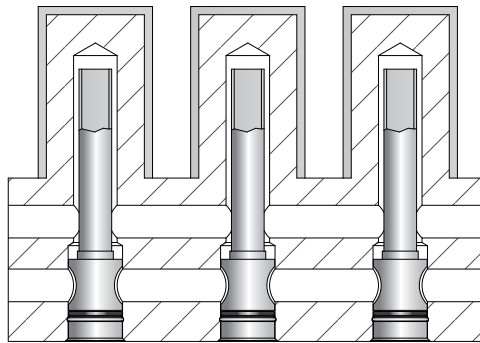


CODE: **RFP-...**



CODE	A	T	B			S	C	L1	L2	L				
RFP-8	8,5	1	2	3	4	0,25	5,5	13,5	18	150	300	450	600	
RFP-10	10,5	1	2,5	3	4	5	0,25	7	16	22,5	150	300	450	600
RFP-12	12,5	1	6			0,5	8	17	24	150	300	450	600	
RFP-14	14,5	1	7			0,5	10	17,5	24,5	150	300	450	600	

Order example: RFP-8x150/2I

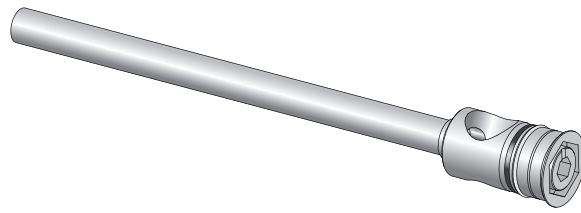


CHARACTERISTICS

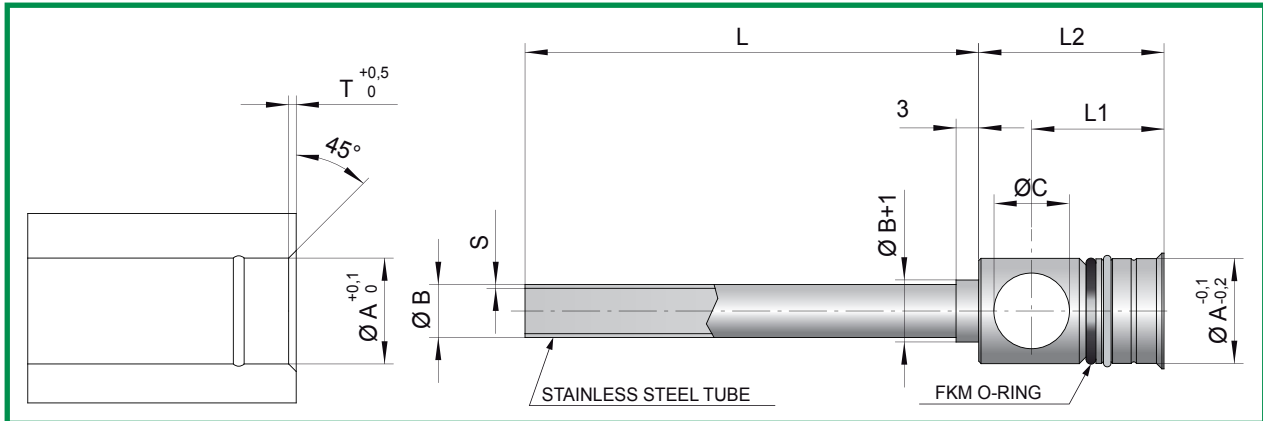
- 1) RAPID MACHINING OF THE HOUSING;
- 2) RAPID FITTING AND REMOVING;
- 3) UNIFORMITY OF TEMPERATURE ON THE MOULD;
- 4) SECURE SEAL IS MAINTAINED EVEN UNDER HIGH PRESSURE CONDITIONS (~100 BAR).

BUBBLES

RAPID PLUG AND UNPLUG SYSTEM FOR PARALLEL COOLING

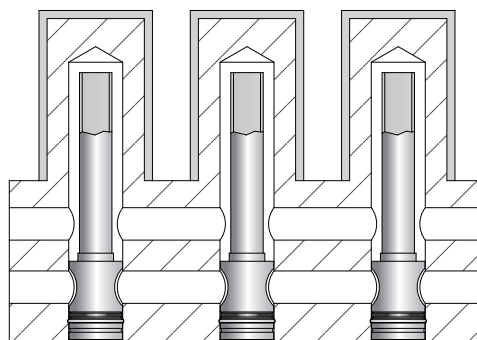


CODE: **RFP-..F**



CODE	A	T	B				S	C	L1	L2	L			
RFP-8F	8	1	2	3	4	0,25	5,5	13,5	18	150	300	450	600	
RFP-10F	10	1	2,5	3	4	5	0,25	7	16	22,5	150	300	450	600
RFP-12F	12	1	6				0,5	8	17	24	150	300	450	600
RFP-14F	14	1	7				0,5	10	17,5	24,5	150	300	450	600
RFP-16F	16	1,2	8				0,5	12	19	27,5	150	300	450	600
RFP-20F	20	1,2	12				1	14	20	29,5	150	300	450	600
RFP-25F	25	1,2	15				1	16	22,5	33,5	150	300	450	600

Order example: RFP-8Fx150/2l

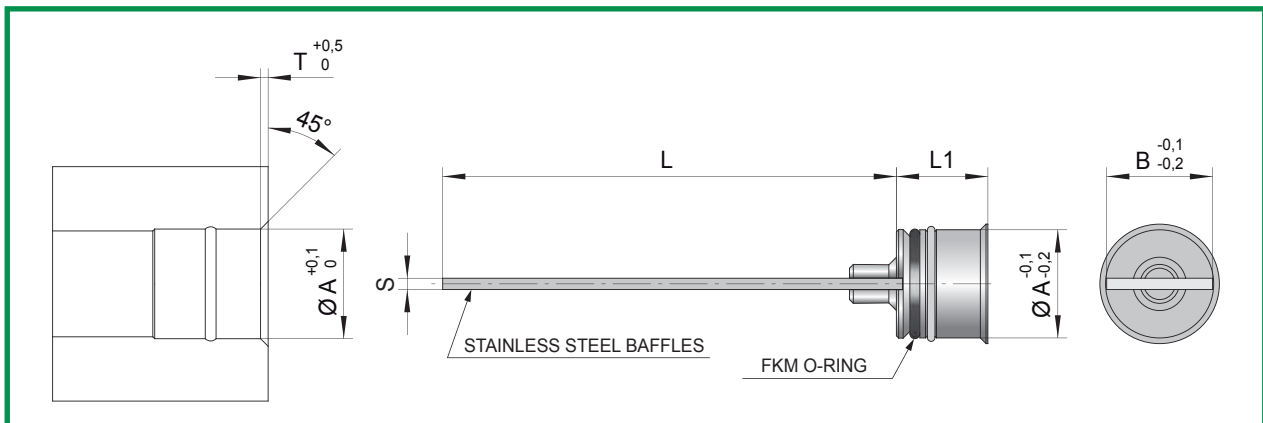
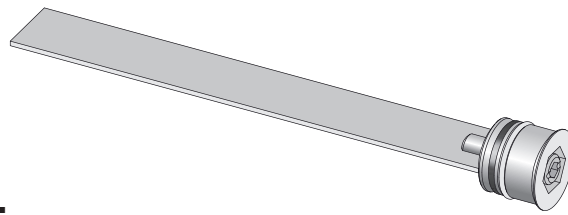


CHARACTERISTICS

- 1) RAPID MACHINING OF THE HOUSING;
- 2) RAPID FITTING AND REMOVING;
- 3) UNIFORMITY OF TEMPERATURE ON THE MOULD;
- 4) SECURE SEAL IS MAINTAINED EVEN UNDER HIGH PRESSURE CONDITIONS (~100 BAR).

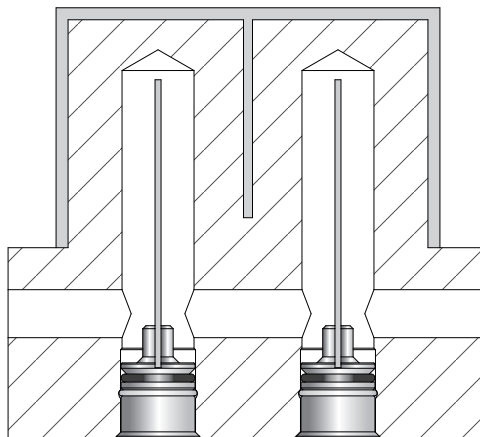
RAPID PLUG AND UNPLUG SYSTEM (PATENTED SYSTEM)

CODE: **RL-..**



CODE	A	T	S	B	L1	L		
RL-6	6,5	0,7	1	6	7,5	100	200	300
RL-8	8,5	1	1	8	9,5	100	200	300
RL-10	10,5	1	1	10	12,5	100	200	300
RL-12	12,5	1	1	12	12,5	100	200	300
RL-14	14,5	1	1	14	12,5	100	200	300

Order example: RL-8x100

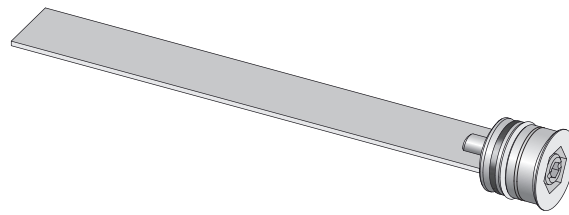


CHARACTERISTICS

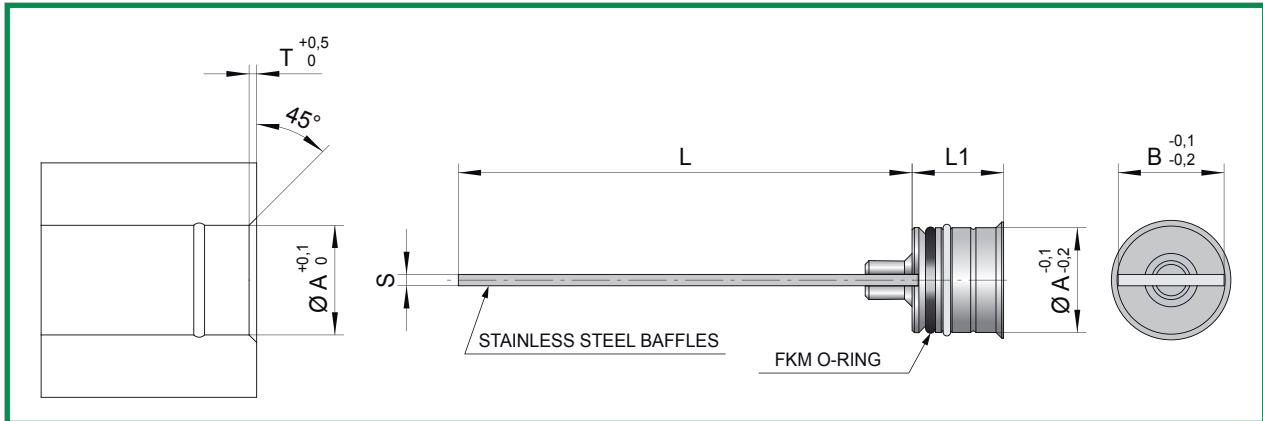
- 1) RAPID MACHINING OF THE HOUSING;
- 2) RAPID FITTING AND REMOVING;
- 3) SECURE SEAL IS MAINTAINED EVEN UNDER HIGH PRESSURE CONDITIONS (~100 BAR).

BAFFLES

RAPID PLUG AND UNPLUG SYSTEM (PATENTED SYSTEM)



CODE: **RL-..F**



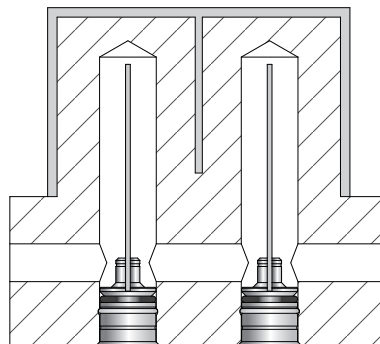
CODE	A	B	T	S	L1	L			
RL-6F	6	6	0,7	1	7,5	100	200	300	
RL-8F	8	8	1	1	9,5	100	200	300	
RL-10F	10	10	1	1	12,5	100	200	300	
RL-12F	12	12	1	1	12,5	100	200	300	
RL-14F	14	14	1	1	12,5	100	200	300	
RL-15F	15	15	1,2	1	14	150	300	450	600
RL-16F	16	15,5 16	1,2	1	14	150	300	450	600
RL-19F	19	19	1,2	1	14	150	300	450	600
RL-20F	20	19,5 20	1,2	1	14	150	300	450	600
RL-25F	25	24,5 25	1,2	1	14	150	300	450	600
RL-30F	30	30	1,2	1	14	150	300	450	600

Order example: RL-8Fx100

N.B.: The baffles RL-16F-20F-25F are available with two different baffle dimensions "B".

Order example:

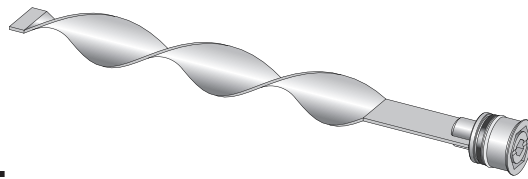
RL-16Fx150p (baffle 15,5mm)



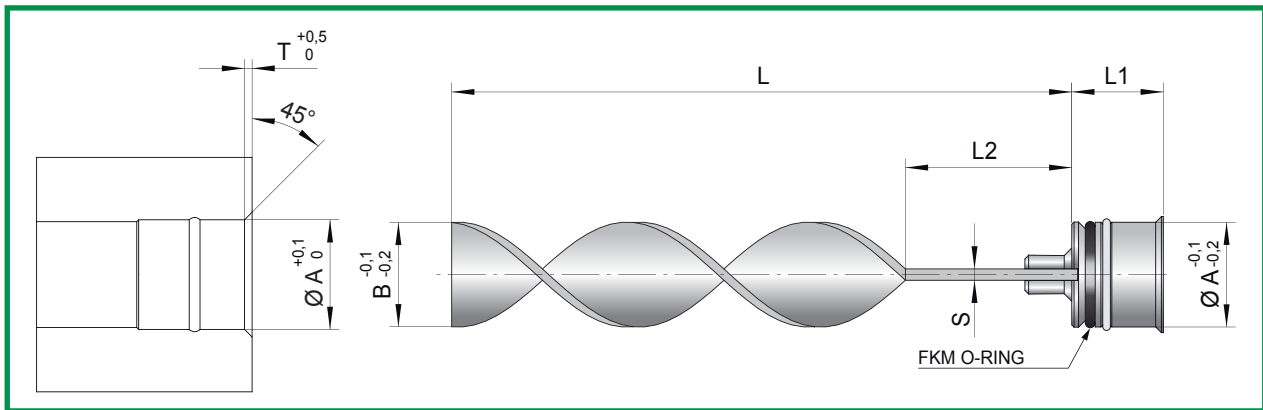
CHARACTERISTICS

- 1) RAPID MACHINING OF THE HOUSING;
- 2) RAPID FITTING AND REMOVING;
- 3) SECURE SEAL IS MAINTAINED EVEN UNDER HIGH PRESSURE CONDITIONS (~100 BAR).

RAPID PLUG AND UNPLUG SYSTEM SPIRAL SHAPE

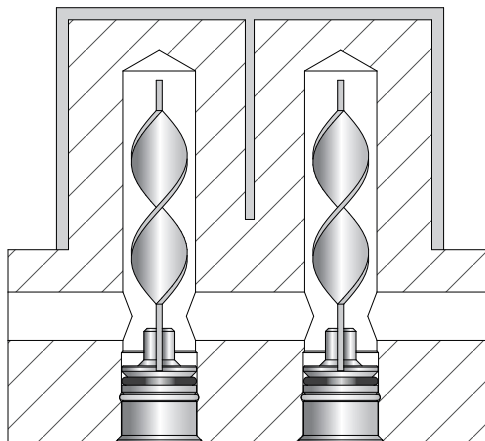


CODE: **RLS-...**



CODE	A	B	T	S	L1	L2	L		
RLS-6	6,5	6	0,7	1	7,5	1/4 L	100	200	300
RLS-8	8,5	8	1	1	9,5	1/4 L	100	200	300
RLS-10	10,5	10	1	1	12,5	1/4 L	100	200	300
RLS-12	12,5	12	1	1	12,5	1/4 L	100	200	300
RLS-14	14,5	14	1	1	12,5	1/4 L	100	200	300

Order example: RLS-8x100

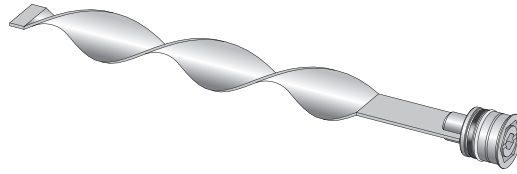


CHARACTERISTICS

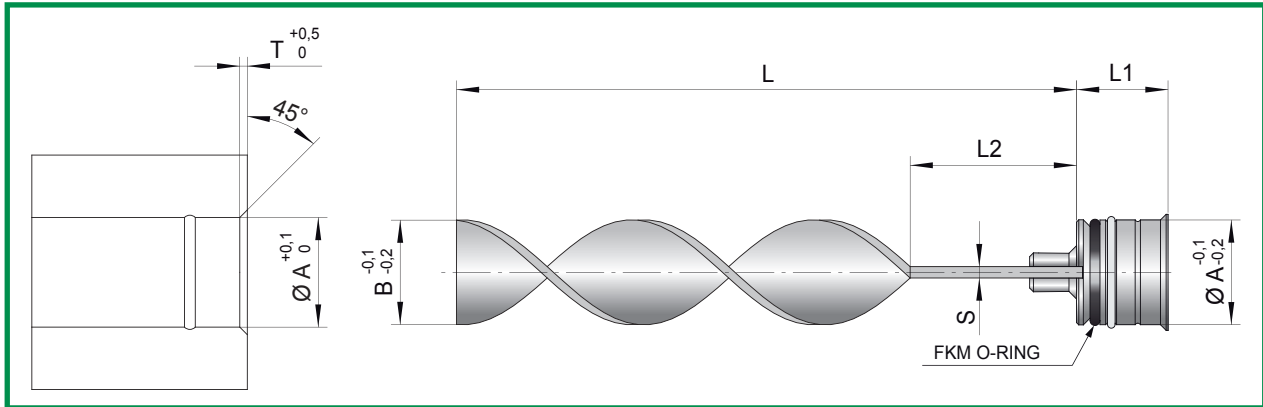
- 1) RAPID MACHINING OF THE HOUSING;
- 2) RAPID FITTING AND REMOVING;
- 3) OPTIMIZATION OF THE COOLING;
- 4) SECURE SEAL IS MAINTAINED EVEN UNDER HIGH PRESSURE CONDITIONS (~100 BAR).

BAFFLES

RAPID PLUG AND UNPLUG SYSTEM SPIRAL SHAPE



CODE: **RLS-..F**



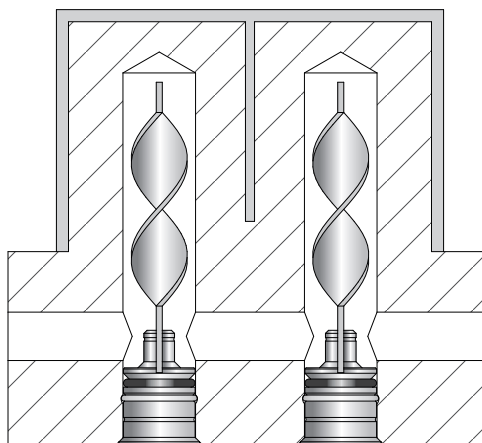
CODE	A	B	T	S	L1	L2	L			
RLS-6F	6	6	0,7	1	7,5	1/4L	100	200	300	
RLS-8F	8	8	1	1	9,5	1/4L	100	200	300	
RLS-10F	10	10	1	1	12,5	1/4L	100	200	300	
RLS-12F	12	12	1	1	12,5	1/4L	100	200	300	
RLS-14F	14	14	1	1	12,5	1/4L	100	200	300	
RLS-16F	16	15,5	16	1,2	14	1/4L	150	300	450	600
RLS-20F	20	19,5	20	1,2	1,5	14	150	300	450	600
RLS-25F	25	24,5	25	1,2	1,5	14	150	300	450	600

Order example: RLS-8Fx100

N.B.: The baffles RL-16F-20F-25F are available with two different baffle dimensions "B".

Order example:

RLS -16Fx150p (baffle 15,5mm)



CHARACTERISTICS

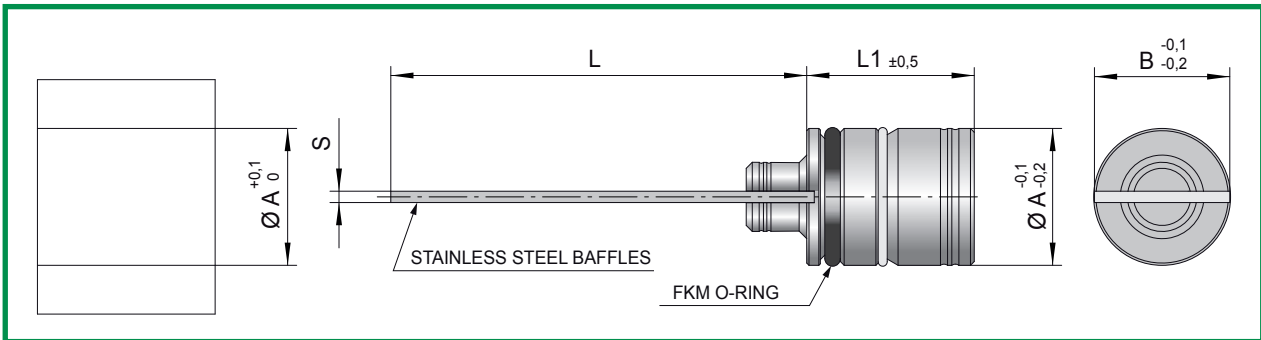
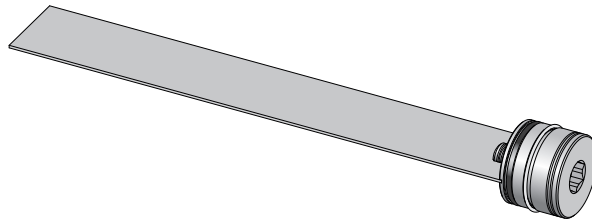
- 1) RAPID MACHINING OF THE HOUSING;
- 2) RAPID FITTING AND REMOVING;
- 3) OPTIMIZATION OF THE COOLING;
- 4) SECURE SEAL IS MAINTAINED EVEN UNDER HIGH PRESSURE CONDITIONS (~100 BAR).

N.B.: THE BLADES 1 mm THICK ARE IN STAINLESS STEEL. THE BLADE 1,5 mm THICK ARE IN BRASS OT63.

INTERNAL BAFFLES

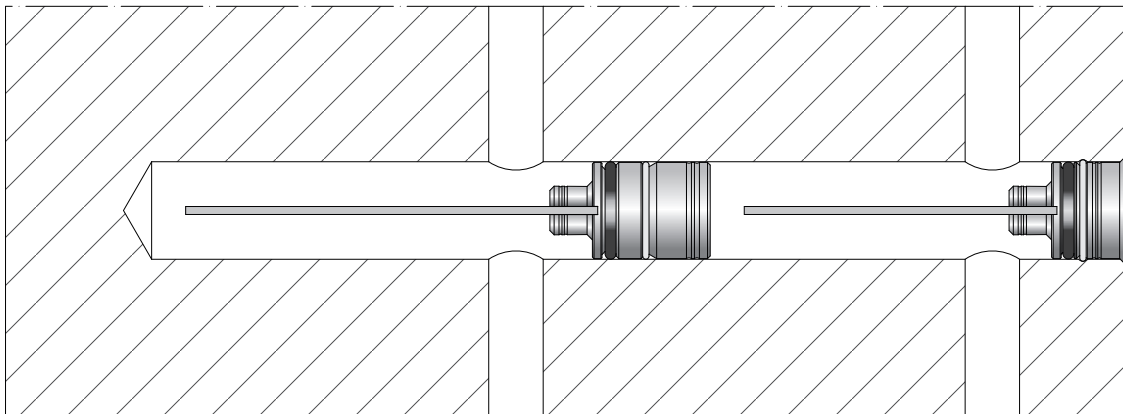
RAPID PLUG AND UNPLUG SYSTEM

CODE: **RLI-..**



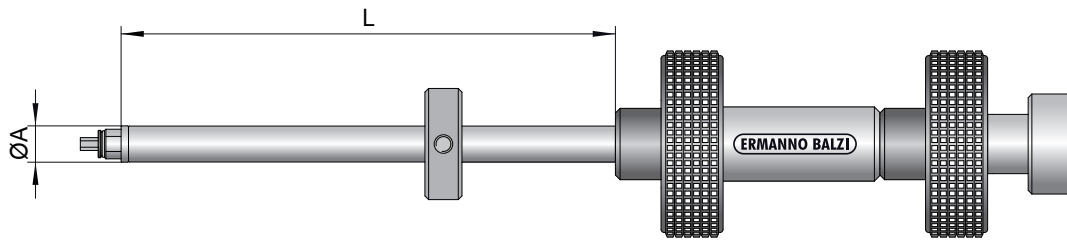
CODE	A	B	S	L1	L				ASSEMBLY DEVICE
RLI-16F	16	16	1	22	150	300	450	600	APT-3
RLI-20F	20	20	1	22,5	150	300	450	600	
RLI-25F	25	25	1	22,5	150	300	450	600	

Order example: RLI-16Fx150



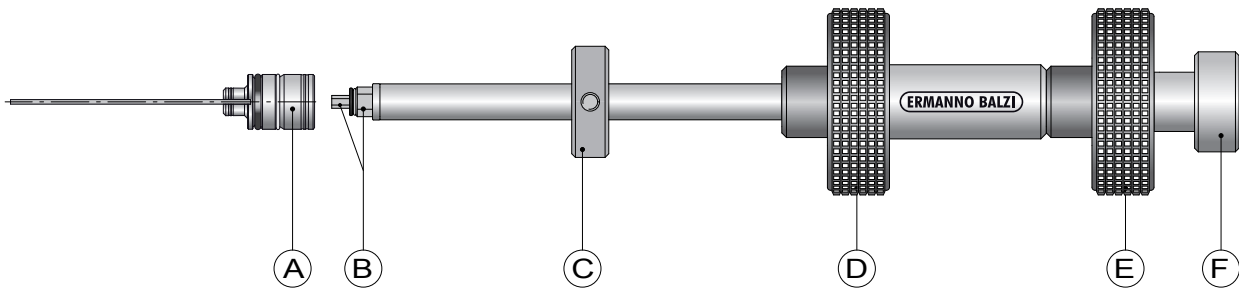
CHARACTERISTICS

- 1) RAPID FITTING AND REMOVING;
- 2) EASY BLADE ORIENTATION;
- 3) SUPPLIED WITH FKM O-RING WHICH MAY ALSO BE USED AT HIGH TEMPERATURES.



CODE	Ø	L
APT-3	14	1000

N.B.: on demand the rod can be supplied in special lengths.

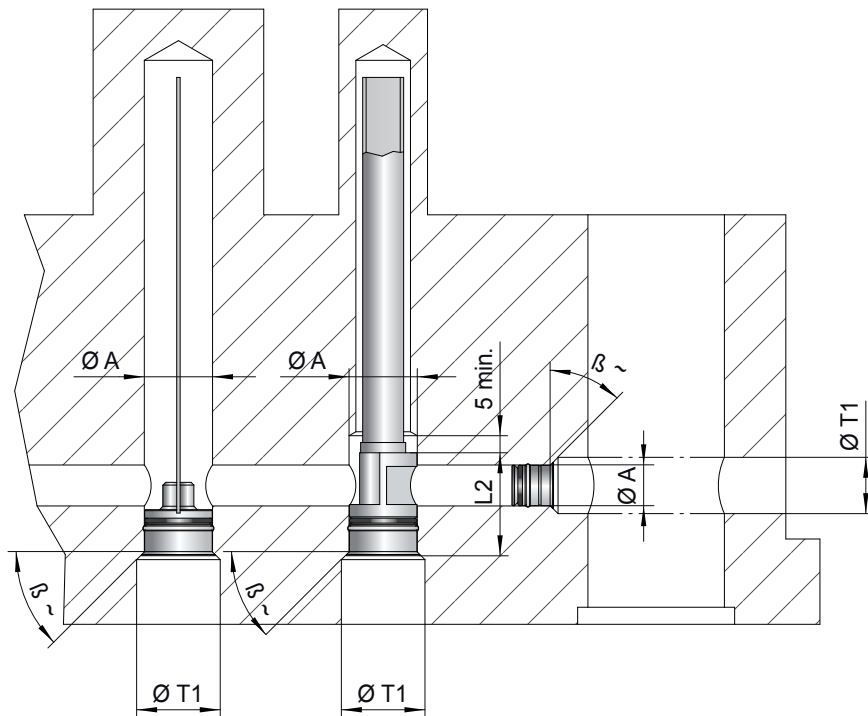


BAFFLE ASSEMBLY

1. Assemble the baffle "A" around two hexagons "B" verifying that it's well inserted.
2. Holding the handle "E" tight, screw the handle "F", blocking it with a light pressure.
3. Verify that the baffle is hooked to the rod.
4. Insert the rod in the hole determining the position with the ring nut "C".
5. Holding the handle "E" tight, rotate the handle "D" counter-clockwise until it blocks .
6. Verify that the baffle is blocked in the hole, pushing the rod forwards and backwards.
7. Holding the handle "E" tight, unscrew the handle "F" (1 or 2 turns are enough).
8. Unthread the rod preferably by the handle "D".

BAFFLE DISASSEMBLY

1. Insert the rod in the hole and, slightly rotating the handle "D" and "E", practice a light pressure on the baffle until the two hexagons "B" have entered in their seats (the operation has happened when the handle "D" and "E" don't rotate anymore).
2. Holding the handle "E" tight, screw the handle "F" blocking it with a light pressure and verify that the baffle is hooked, pulling the rod towards outside.
3. Holding the handle "D" tight, unblock the handle "F" clockwise.
4. Remove APT tool from the bore and unscrew the baffle from APT rod.



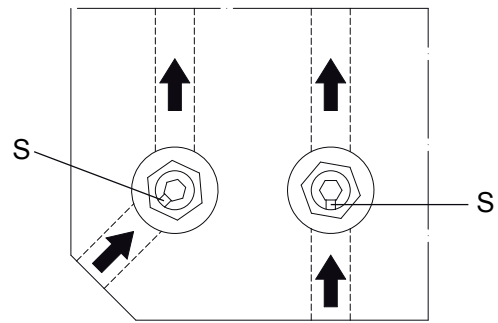
NOTE:

1. In the case where it is necessary to position some cooling elements in depth (as in the diagram above) and it is desired to execute the retaining groove using the appropriate tool, you will have to machine the undercut ØT1 with the measures indicated in table.
2. The angle β (front inclination of the drill) should vary from a minimum of 0° to a maximum of 45° .
3. During the execution of a seat with double diameter (as in the diagram above), the depth of the ØA must be at least 5mm longer than the dimension «L2» of the bubbles.

DIMENSION ØA OF THE ITEM TO APPLY	ØT1	L2
5	10,5	/
6 / 6,5	10,5	/
8 / 8,5	13	18
10 / 10,5	16,5	22,5
11	16,5	/
11,5	16,5	/
12 / 12,5	16,5	24
14/14,5	17,5	24,5
15	20	/
16	20,5	27,5
18	22,5	/
19	23,5	/
20	24,5	29,5
25	29	33,5
30	35	/

POSITIONING OF THE BUBBLES

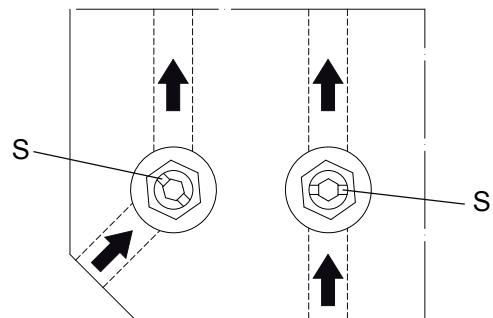
In order to obtain a proper circulation of the coolant, position the reference mark **S** that you can find on the bubble as indicated in the diagram.



POSITIONING OF THE BAFFLES

In order to obtain a proper circulation of the liquid, position the reference marks **S** that you can find on the baffle as indicated in the diagram.

The fiducial marks correspond to the position of the blade.



APPLICATION OF BAFFLES RL / RLS

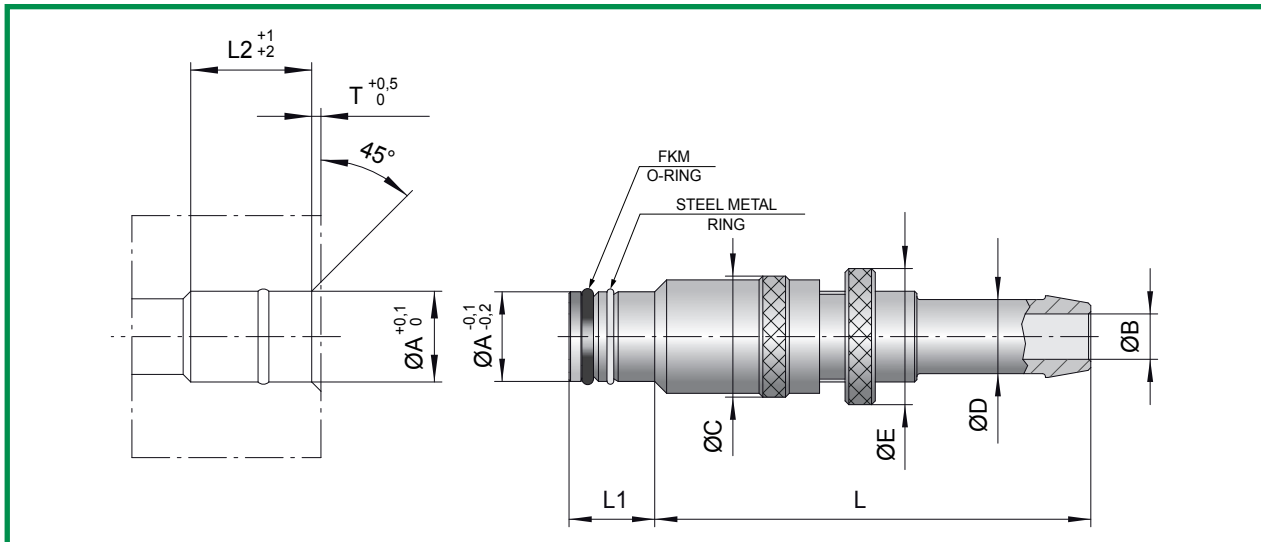
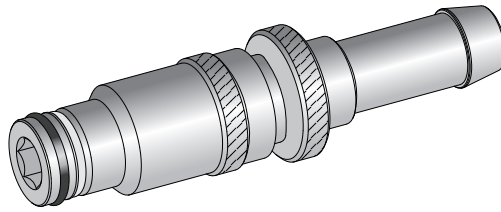
Considering that the baffles with \varnothing bigger than 14mm are available only in the set F, and if it is not possible to machine the hole with gun drill, it is advisable to apply the baffle set F with a width B lower than the major diameter and to proceed as in the example.

EXEMPLE OF APPLICATION RL-16Fp (B=15,5mm)

1. perform hole with drill $\varnothing 15,5$;
2. perform blade with a reamer $\varnothing 16$ for a depth of $L2+5\text{mm}$;
3. to go on with the procedure for the application of the item set F.

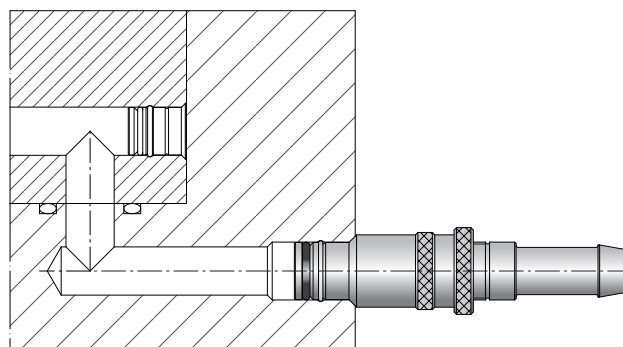
RAPID PLUG AND UNPLUG SYSTEM (PATENTED SYSTEM)

CODE: **AR-..**



CODE	A	B	C	D	E	T	L	L1	L2
AR12	12	6	16	10	18	1	57	12	14
AR16	16	9	19	13	22	1	60	12,5	15
AR20	20	13	24	20	28	1	73	13,5	16,5

Order example: AR12

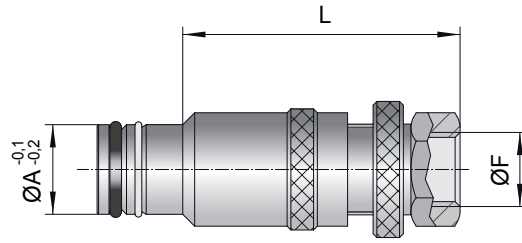


CHARACTERISTICS

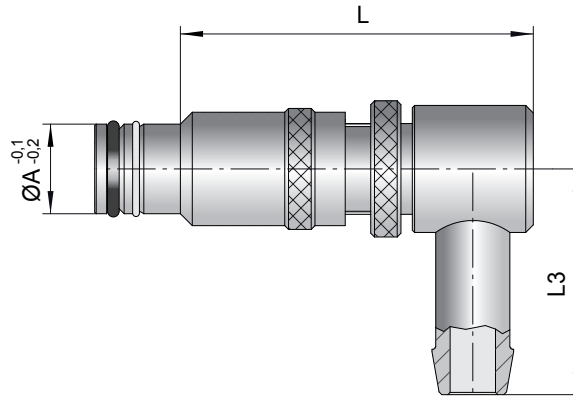
- 1) RAPID MACHINING OF THE HOUSING;
 - 2) RAPID FITTING AND REMOVING;
 - 3) CONTAINED DIMENSION OF ENCUMBRANCE;
 - 4) SUPPLIED WITH FKM O-RING FOR USE AT HIGH TEMPERATURES.
- N.B.: AFTER THE RELEASE IT IS POSSIBLE TO CLOSE THE CONNECTOR WITH A CAP IN PP.

RAPID CONNECTOR

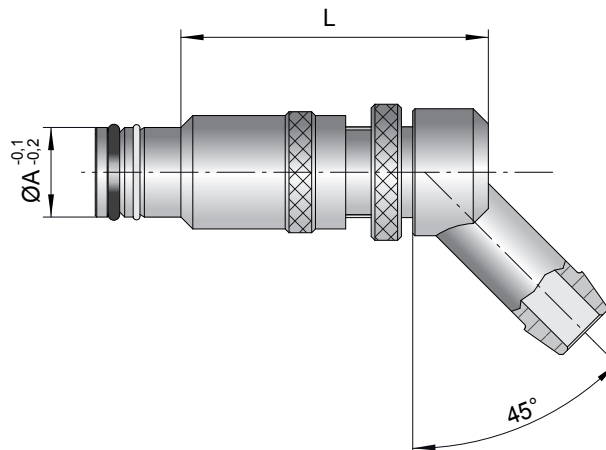
RAPID PLUG AND UNPLUG SYSTEM (PATENTED SYSTEM)



CODE	A	F	L
AR12-1/8	12	1/8	37
AR16-1/4	16	1/4	40
AR20-1/2	20	1/2	55

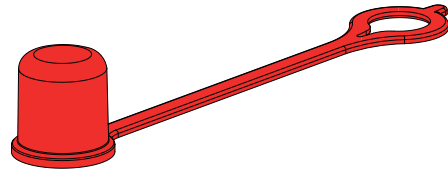
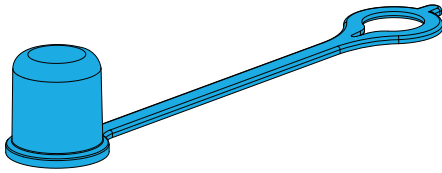


CODE	A	L	L3
AR12-90	12	47	30
AR16-90	16	55	30
AR20-90	20	65	42



CODE	$\varnothing A$	L
AR12-45	12	40
AR16-45	16	46
AR20-45	20	60

CLOSING PLUG IN TWO COLORS



CODE (BLUE)

AR12-TPa

AR16-TPa

AR20-TPa

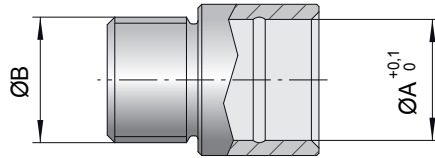
CODE (RED)

AR12-TPr

AR16-TPr

AR20-TPr

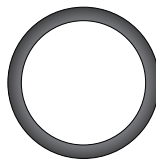
REDUCTION FOR THREADED HOLES



MAT.: BRASS

CODE	A	B
AR12-R1/4	12	1/4
AR16-R3/8	16	3/8
AR20-R1/2	20	1/2

O-RING

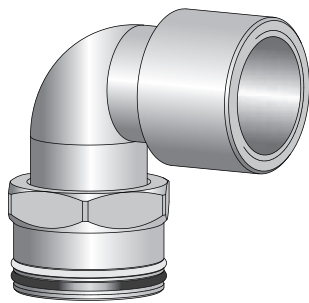


MAT.:FKM

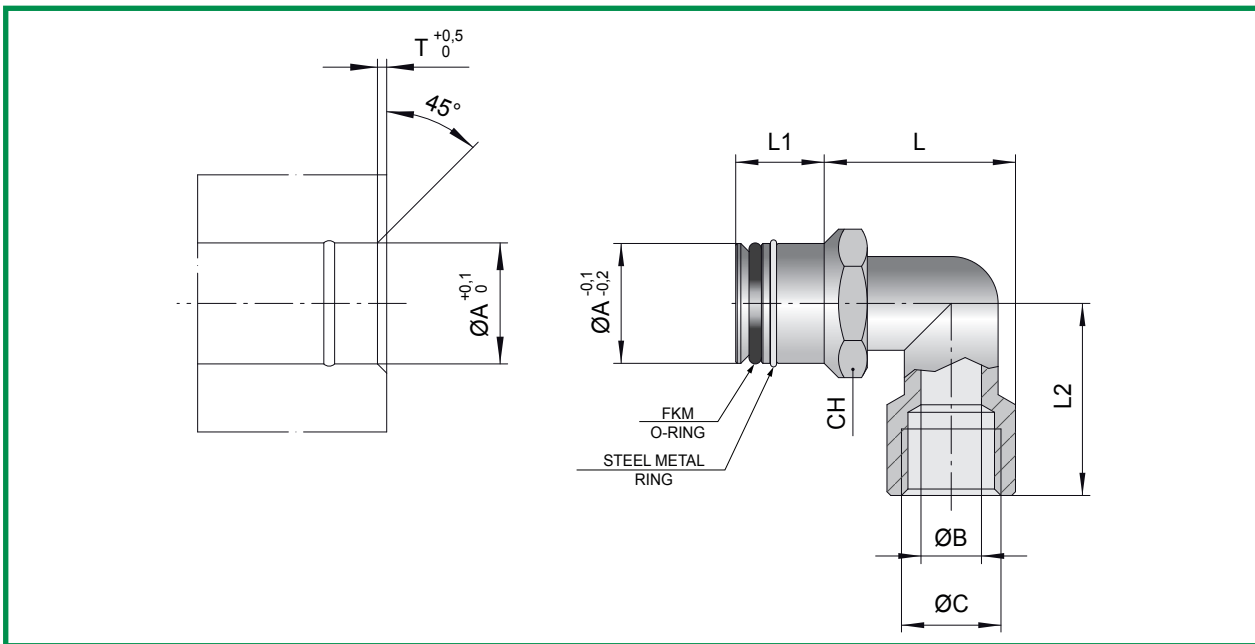
CODE	O-RING
AR12-OR	OR107
AR16-OR	OR114
AR20-OR	OR2062

CONNECTOR BRIDGE

RAPID PLUG AND UNPLUG SYSTEM
(PATENTED SYSTEM)



CODE: **PT-..**



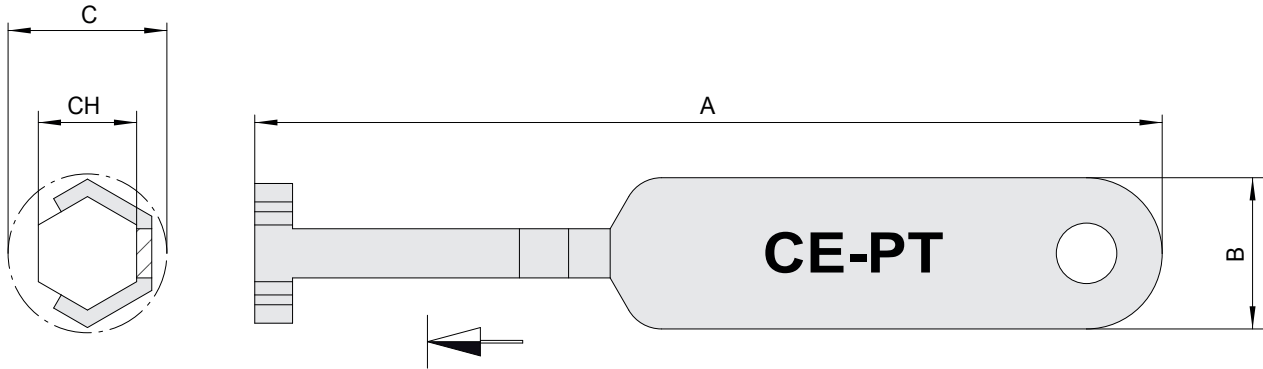
CODE	A	B	C	T	L	L1	L2	CH
PT12	12	5,5	1/8"	1	20	11,5	20	13
PT16	16	8	1/4"	1,2	25	12	25,5	17
PT20	20	10	3/8"	1,2	30	12	31	21
PT25	25	14	1/2"	1,2	36	12	35	26

Order example: PT12

CHARACTERISTICS

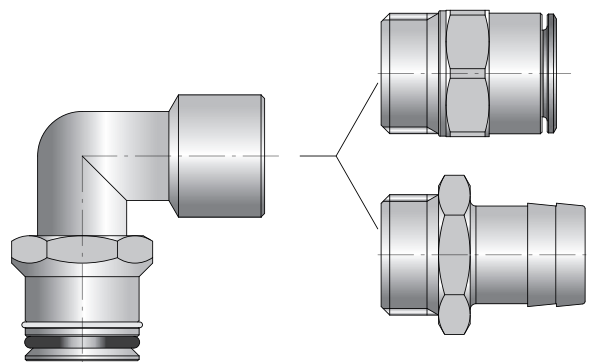
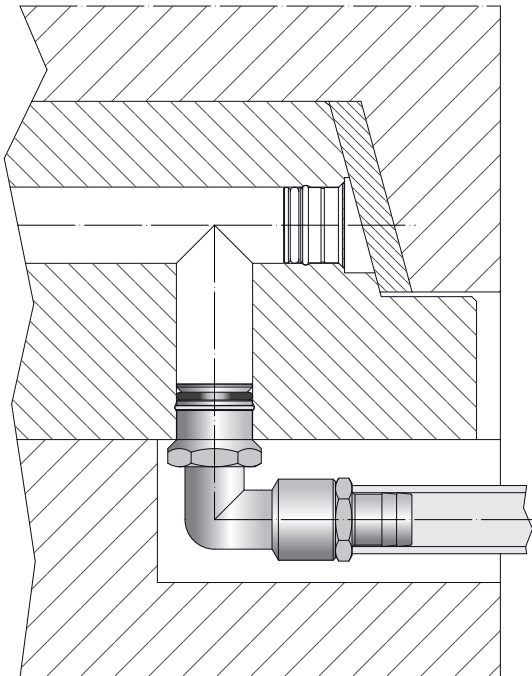
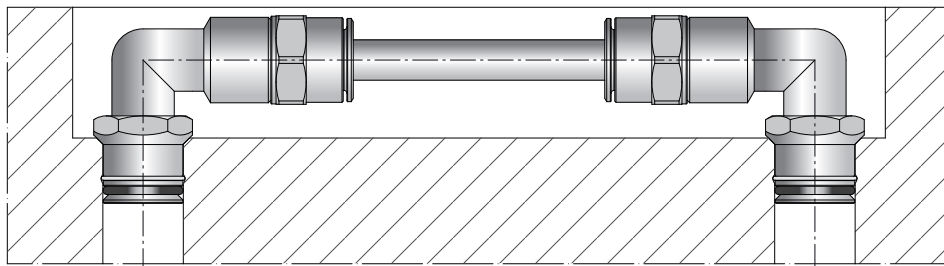
- 1) RAPID MACHINING OF THE HOUSING (check canal can be made with suitable tool);
- 2) CONTAINED DIMENSION OF ENCUMBRANCE;
- 3) SUPPLIED WITH FKM O-RING FOR USE AT HIGH TEMPERATURES;
- 4) POSSIBILITY OF 360° ROTATION.

KEY FOR APPLICATION IN DEPTH



CODE	A	B	C	CH
CE-PT12	120	20	21	13
CE-PT16	120	20	27	17
CE-PT20	120	20	32	21
CE-PT25	120	20	38	26

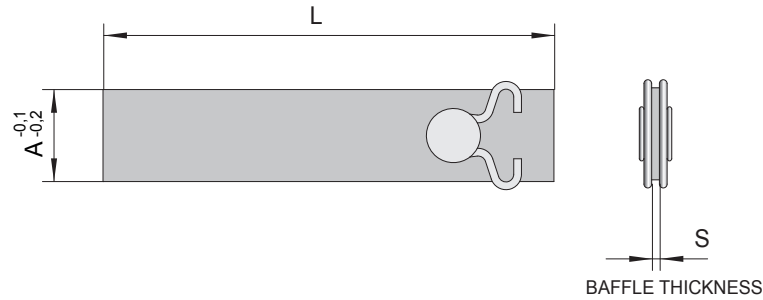
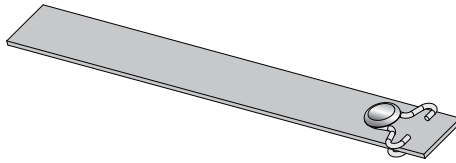
APPLICATION IN DEPTH



It is possible to connect two different fittings according to the need of application.

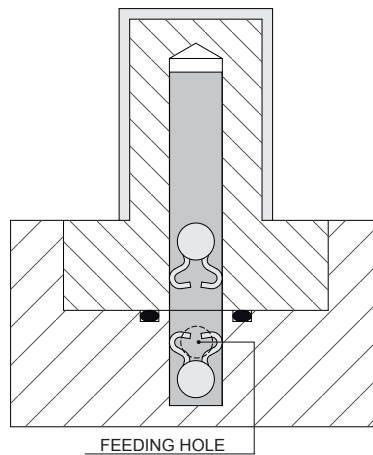
WITH POSITIONING SYSTEM

CODE: **RLA-..**



CODE	A	S	L		
RLA-10	10	1	18	100	200
RLA-12	12	1	20	100	200
RLA-14	14	1	22	100	200
RLA-16	16	1	24	150	300
RLA-20	20	1	26	150	300
RLA-25	25	1	28	150	300

Order example: RLA-12x100



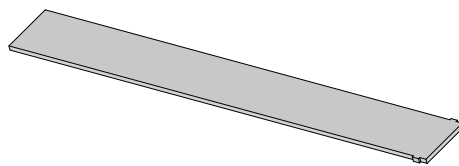
CHARACTERISTICS

- 1) RAPID APPLICATION;
- 2) POSSIBILITY TO REALIZE, WITH THE APPROPRIATE TOOL, A SEATING FOR THE POSITIONING OF THE BAFFLE;
- 3) SECURE POSITIONING EVEN IN CASE OF MAINTENANCE;
- 4) UNLIMITED REUTILIZATION.

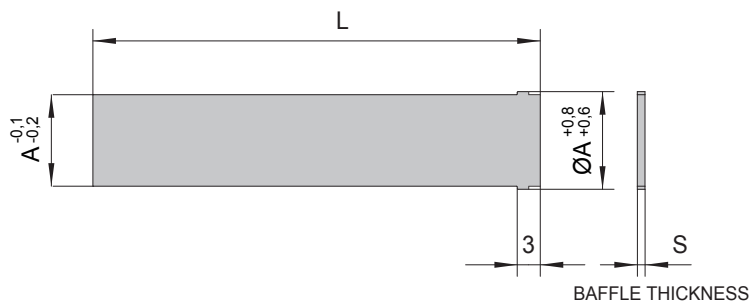
N.B.: ALL THE BAFFLES ARE IN STAINLESS STEEL.

SELF-LOCKING

WITH POSITIONING SYSTEM

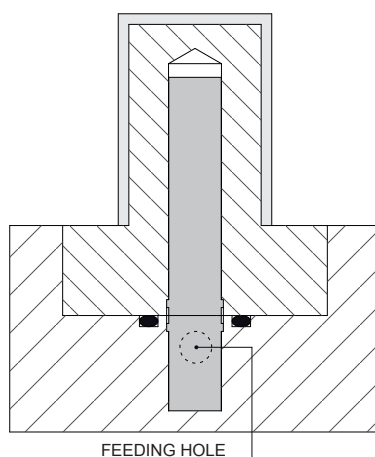


CODE: **RLA-..SM**



CODE	A	S	L		
RLA-6SM	6	1	14	100	200
RLA-8SM	8	1	16	100	200
RLA-10SM	10	1	18	100	200
RLA-12SM	12	1	20	100	200
RLA-14SM	14	1	22	100	200
RLA-16SM	16	1	24	150	300
RLA-20SM	20	1	26	150	300
RLA-25SM	25	1	28	150	300

Order example: RLA-12SMx100



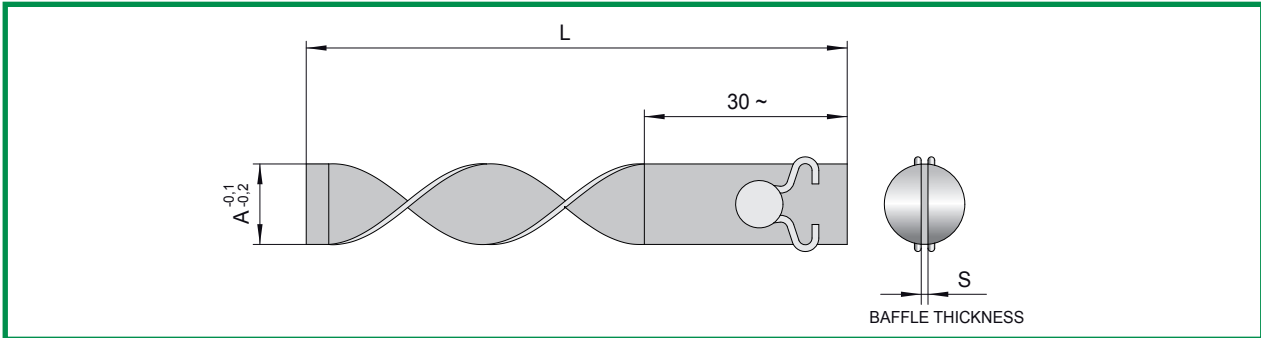
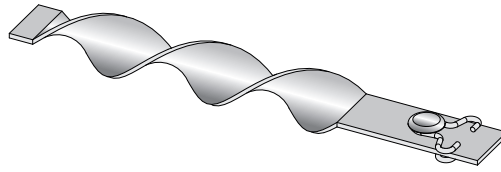
CHARACTERISTICS

- 1) RAPID APPLICATION;
- 2) POSSIBILITY TO REALIZE, WITH THE APPROPRIATE TOOL, A SEATING FOR THE POSITIONING OF THE BAFFLE;
- 3) SECURE POSITIONING EVEN IN CASE OF MAINTENAGE;
- 4) UNLIMITED REUTILIZATION.

N.B.: ALL THE BAFFLES ARE IN STAINLESS STEEL.

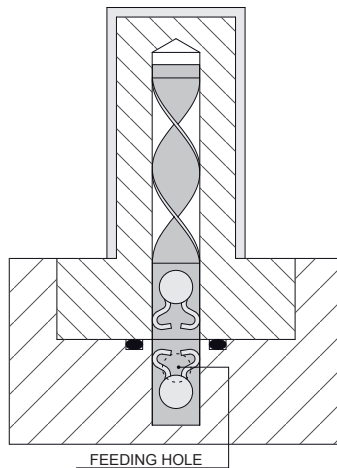
WITH SPIRAL BAFFLE

CODE: **RLAS-..**



CODE	A	S	L
RLAS-10	10	1	200
RLAS-12	12	1	200
RLAS-14	14	1	200
RLAS-16	16	1	300
RLAS-20	20	1,5	300
RLAS-25	25	1,5	300

Order example: RLAS-12x100



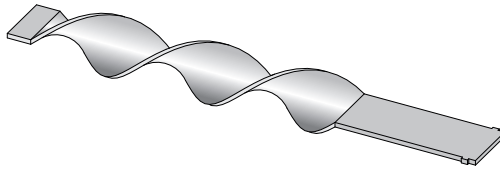
CHARACTERISTICS

- 1) RAPID APPLICATION;
- 2) UNLIMITED REUTILIZATION.

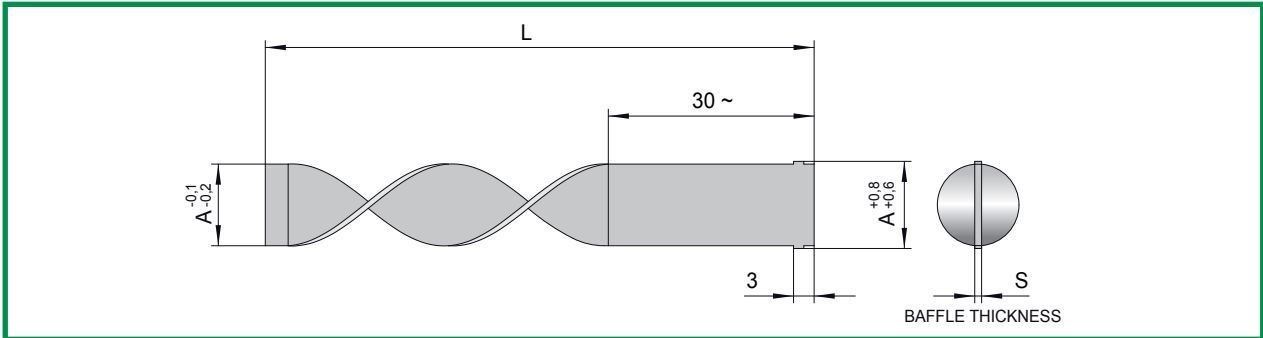
N.B.: THE BLADES 1 mm THICK ARE IN STAINLESS STEEL. THE BLADE 1,5 mm THICK ARE IN BRASS OT63.

SELF-LOCKING

WITH SPIRAL BAFFLE

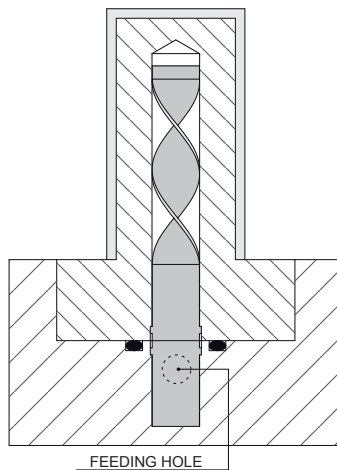


CODE: **RLAS-..SM**



CODE	A	S	L	
RLAS-6SM	6	1	100	200
RLAS-8SM	8	1	100	200
RLAS-10SM	10	1	100	200
RLAS-12SM	12	1	100	200
RLAS-14SM	14	1	100	200
RLAS-16SM	16	1	150	300
RLAS-20SM	20	1,5	150	300
RLAS-25SM	25	1,5	150	300

Order example: RLAS-12SMx100



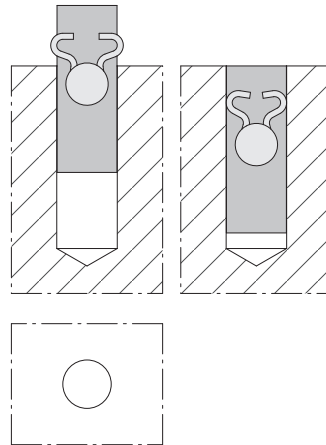
CHARACTERISTICS

- 1) RAPID APPLICATION;
- 2) POSSIBILITY TO REALIZE, WITH A PROPER TOOL, A SEATING FOR THE POSITIONING OF THE BAFFLE.

N.B.: THE BLADES 1 mm THICK ARE IN STAINLESS STEEL. THE BLADE 1,5 mm THICK ARE IN BRASS OT63.

APPLICATION OF BAFFLES RLA

The standard type **COD. RLA** is inserted in the hole without additional machining and the double spring allows the locking inside the same hole.



APPLICATION OF BAFFLES RLA-SM

REALIZATION OF THE SEAT FOR THE BAFFLES RLA-SM

1. Insert the tool in a normal spindle for drill or of any type.
2. Insert a hinge $\varnothing 6$ mm on the hole over tool and orientate the insert.
3. Center the hole to machine until the insert rests on the piece.
4. To make the machining, press until the tool UTB rests on the piece, then to return.

Due to small dimension the tool BR-6 can not properly expel the chips produced during the machining.

Because of this reason it is necessary to perform the broaching in two steps:

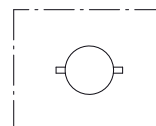
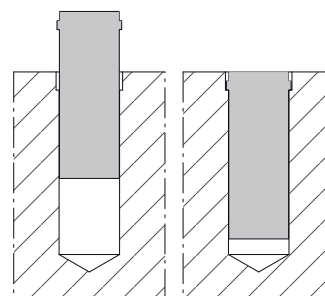
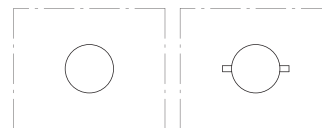
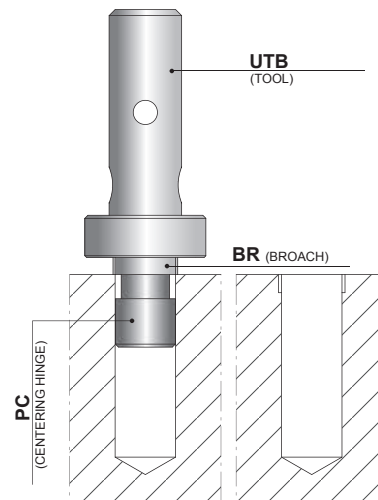
- to broach for a first stroke ($\sim 1,5$ mm) and step back to help the chip evacuate;
- to complete the broaching.

NB :

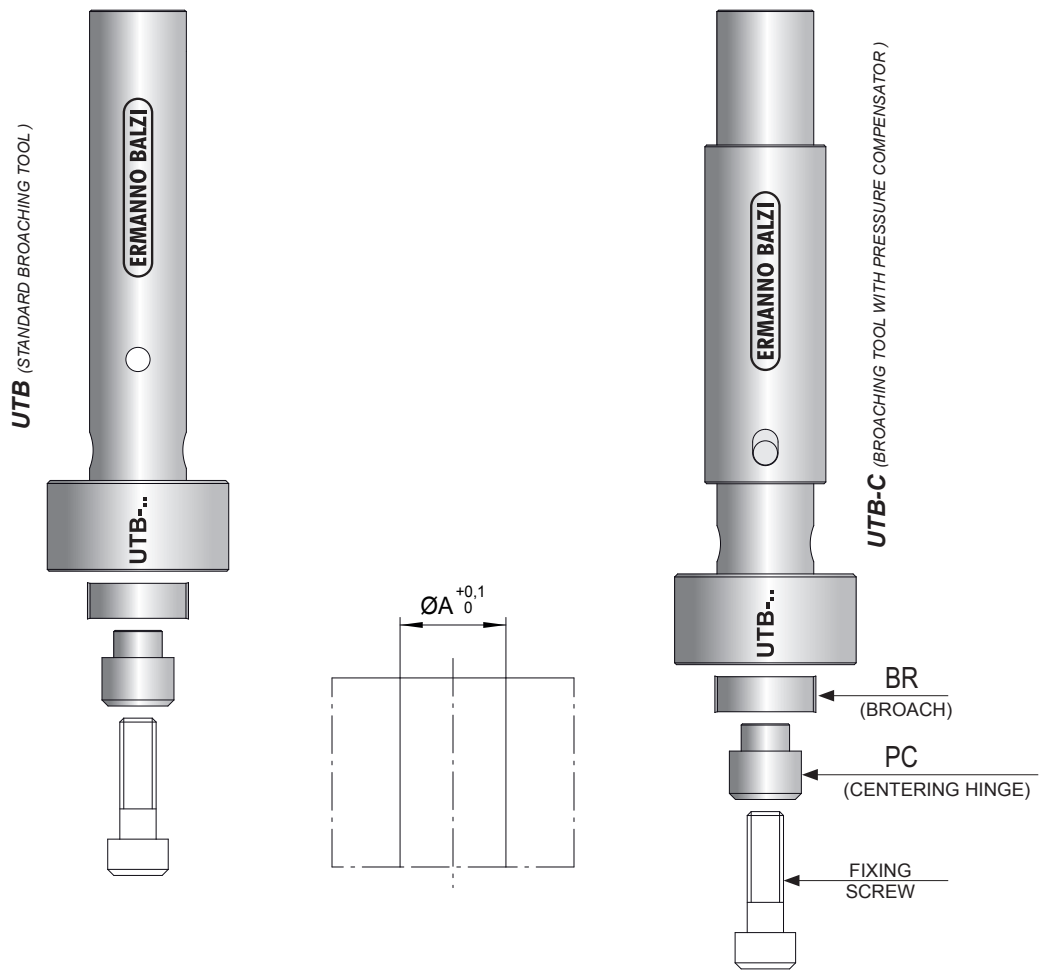
it is important that the pressure exercised over tool is carried out in the above described way and not using a hammer or suchlike.

The type without spring **COD. RLA-SM** is inserted in the hole after having realized, with the appropriate tool, a seat in which will be inserted the final part of the baffle.

The advantage in this application is the perfect positioning of the baffle, in case of spin or in depth, and also in the smaller cost of the component, due to the lack of the double spring.



TOOLS FOR THE MACHINING OF THE SEAT FOR RLA-SM AND RLA-SM



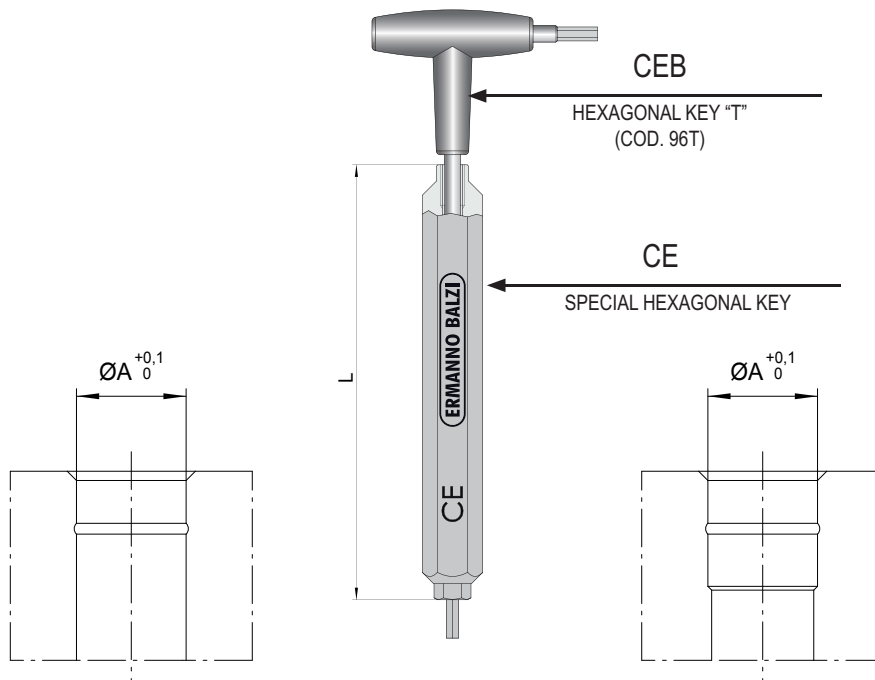
CODE	A	CENTERING HINGE	BROACH
UTB-0	Ø6	PC-6	BR-6
UTB-0C			

CODE	A	CENTERING HINGE	BROACH
UTB-1	Ø8	PC-8	BR-8
UTB-1C			

CODE	A	CENTERING HINGE	BROACH
UTB-2 UTB-2C	Ø10	PC-10	BR10
	Ø12	PC-12	BR-12
	Ø14	PC-14	BR-14

CODE	A	CENTERING HINGE	BROACH
UTB-3 UTB-3C	Ø16	PC-16	BR16
	Ø20	PC-20	BR-20
	Ø25	PC-25	BR-25
	Ø30	PC-30	BR-30

SET KEYS FOR THE ASSEMBLY OF STANDARD SET AND SET F



CODE	A	L
CE-4 CEB-1,5	$\varnothing 5$	60

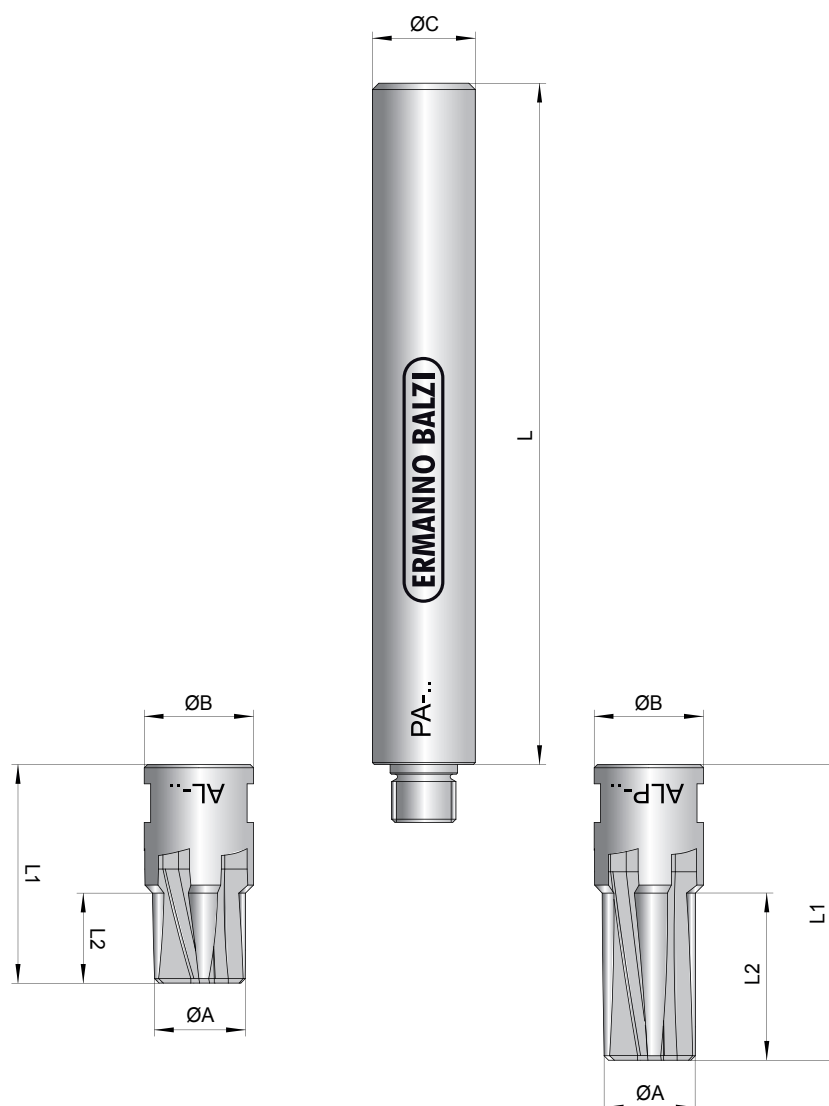
CODE	A	L
CE-5 CEB-2	$\varnothing 6 / \varnothing 6,5$	97

CODE	A	L
CE-6,5 CEB-2,5	$\varnothing 8 / \varnothing 8,5$	108

CODE	A	L
CE-8 CEB-3	$\varnothing 10$	108
	$\varnothing 12$	
	$\varnothing 14$	

CODE	A	L
CE-12 CEB-5	$\varnothing 15$	126
	$\varnothing 16$	
	$\varnothing 18$	
	$\varnothing 20$	
	$\varnothing 25$	
	$\varnothing 30$	

REAMERS FOR THE EXECUTION OF STANDARD SEAT

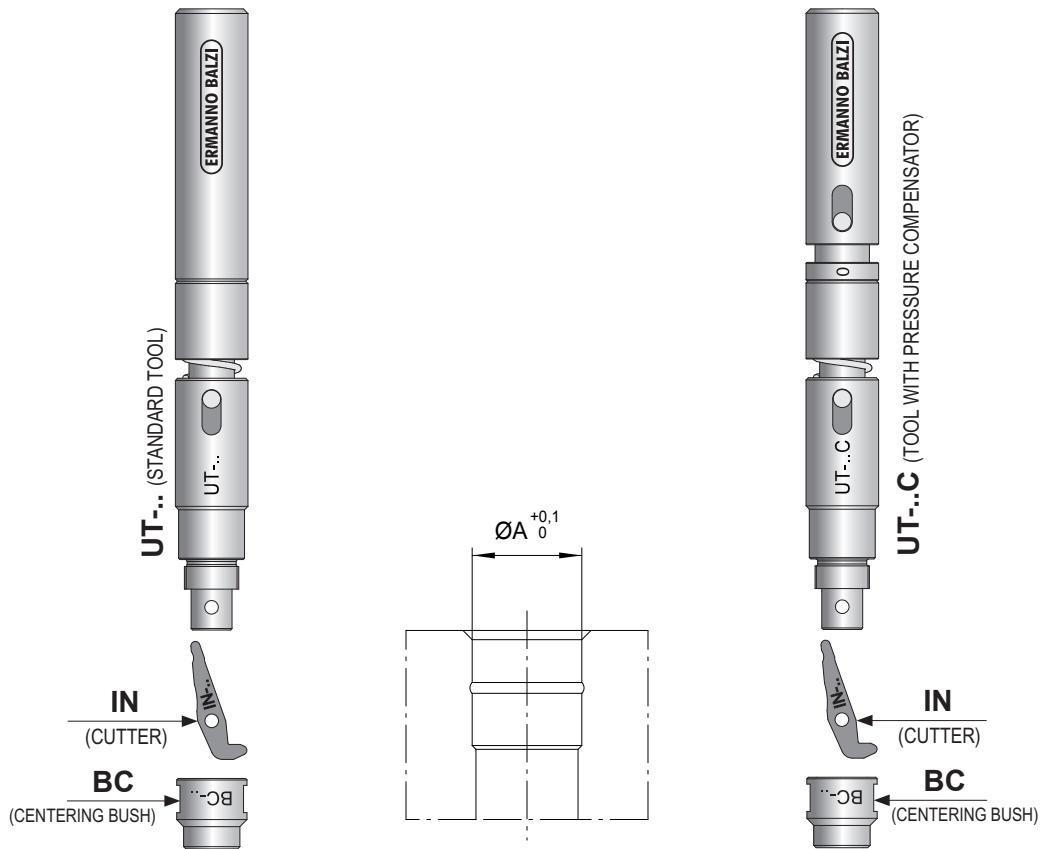


CODE	A	B	C	L	L1	L2	EXTENSION
AL-6	Ø6,5	10	10	98	28	8	PA-1

CODE	A	B	C	L	L1	L2	EXTENSION
AL-8	Ø8,5	12,5	12	95	31	9,5	PA-2
ALP-8					41	19,5	

CODE	A	B	C	L	L1	L2	EXTENSION
AL-10	Ø10,5	15	16	106	34	14	PA-3
ALP-10					44	24	
AL-12	Ø12,5	15	16	106	34	14	PA-3
ALP-12					45	25	
AL-14	Ø14,5	15	16	106	34	14	PA-3
ALP-14					46	26	

STANDARD SET



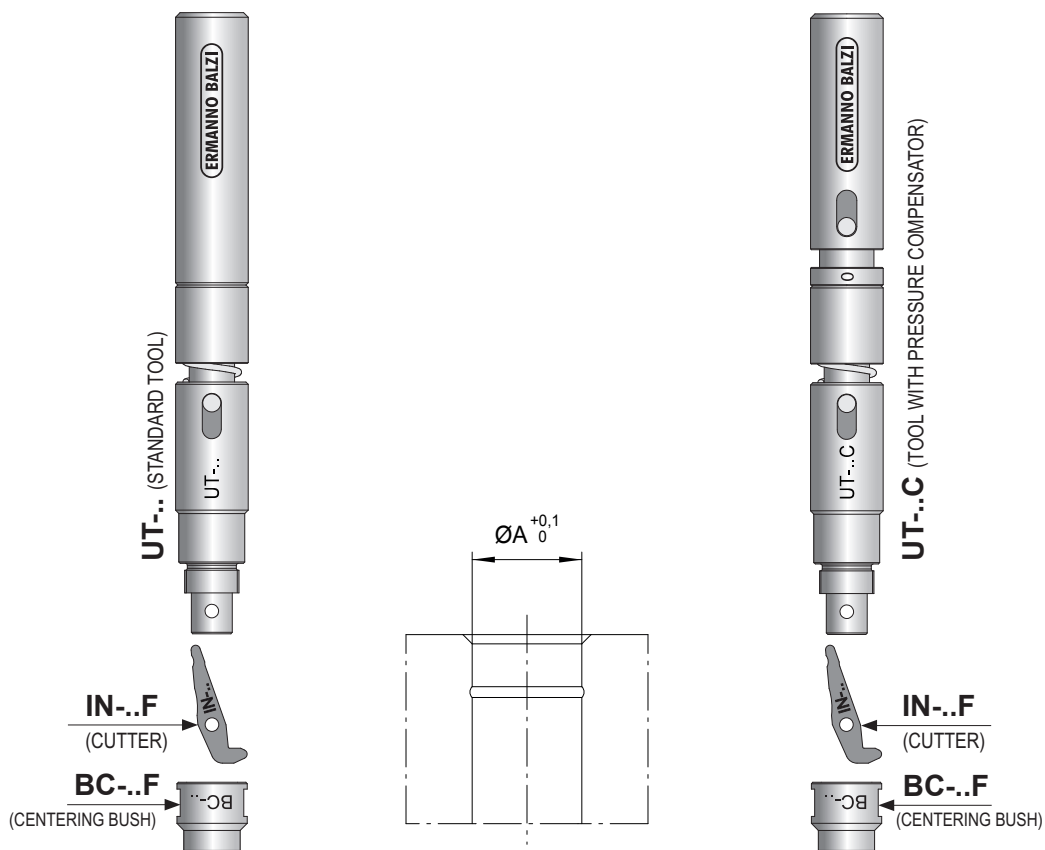
CODE	A	BC	IN
UT-1 / UT-1C	Ø6,5	BC-6	IN-6

CODE	A	BC	IN
UT-2 / UT-2C	Ø8,5	BC-8	IN-8

CODE	A	BC	IN
UT-3 / UT-3C	Ø10,5	BC-10	IN-10
	Ø12,5	BC-12	IN-12
	Ø14,5	BC-14	IN-14

TOOLS FOR THE PERFORMING OF THE RETAINING GROOVE

SET "F"



CODE	A	BC	IN
UT-0 / UT-0C	$\varnothing 5$	BC-5F	IN-5F

CODE	A	BC	IN
UT-1 / UT-1C	$\varnothing 6$	BC-6F	IN-6F

CODE	A	BC	IN
UT-2 / UT-2C	$\varnothing 8$	BC-8F	IN-8F

CODE	A	BC	IN
UT-3 / UT-3C	$\varnothing 10$	BC-10F	IN-10F
	$\varnothing 11$	BC-11F	IN-11F
	$\varnothing 11,5$	BC-11,5F	IN-11,5F
	$\varnothing 12$	BC-12F	IN-12F
	$\varnothing 14$	BC-14F	IN-14F
	$\varnothing 15$	BC-15F	IN-15F

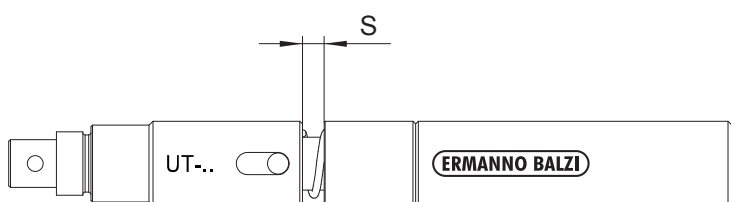
CODE	A	BC	IN
UT-4 / UT-4C	$\varnothing 16$	BC-16F	IN-16F
	$\varnothing 18$	BC-18F	IN-18F
	$\varnothing 19$	BC-19F	IN-19F
	$\varnothing 20$	BC-20F	IN-20F
	$\varnothing 25$	BC-25F	IN-25F
	$\varnothing 30$	BC-30F	IN-30F

STANDARD CUTTER		
CODE	CUTTING SPEED m/min.	RPM
IN-5F	9,4÷11	600÷700
IN-6F	9,4÷11	500÷600
IN-6	9,4÷11	460÷550
IN-8F	9,4÷11	370÷450
IN-8	9,4÷11	350÷420
IN-10F	9,4÷11	300÷360
IN-10	9,4÷11	290÷340
IN-12F	9,4÷11	250÷300
IN-12	9,4÷11	240÷290
IN-14F	9,4÷11	215÷260
IN-14	9,4÷11	210÷250
IN-15F	9,4÷11	200÷240
IN-16F	9,4÷11	190÷225
IN-18F	9,4÷11	200÷170
IN-19F	9,4÷11	190÷160
IN-20F	9,4÷11	150÷180
IN-25F	9,4÷11	120÷140
IN-30F	9,4÷11	100÷120

CARBIDE CUTTER		
CODE	CUTTING SPEED m/min.	RPM
IN-5FD	19÷23	1200÷1400
IN-6FD	19÷23	1000÷1200
IN-6D	19÷23	920÷1100
IN-8FD	19÷23	750÷900
IN-8D	19÷23	700÷850
IN-10FD	19÷23	600÷720
IN-10D	19÷23	570÷680
IN-12FD	19÷23	500÷600
IN-12D	19÷23	480÷580
IN-14FD	19÷23	430÷520
IN-14D	19÷23	420÷500
IN-16FD	19÷23	380÷450
IN-18FD	19÷23	340÷400
IN-20FD	19÷23	300÷360
IN-25FD	19÷23	240÷290

MATERIALS HARDNESS

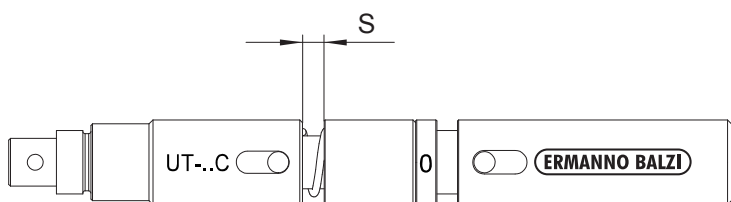
The standard cutters code IN-.. are made in HSS and titanium carbonitride coated. Such cutters can machine steel with maximum hardness of 40÷42 HRC; it is necessary to consider that as the hardness of the steel increases the working life of the cutter becomes significantly shorter. In order to meet the growing need to assembly cooling components on pre hardened inserts, a new set of cutters made in carbide steel code IN-..D able to machine steel with hardness up to 50÷52 HRC, is now available.



TOOL	S
UT-0	4,3
UT-1	4,3
UT-2	4,3
UT-3	4,7
UT-4	5,1

ADVICES FOR THE CORRECT USE OF THE TOOL "UT"

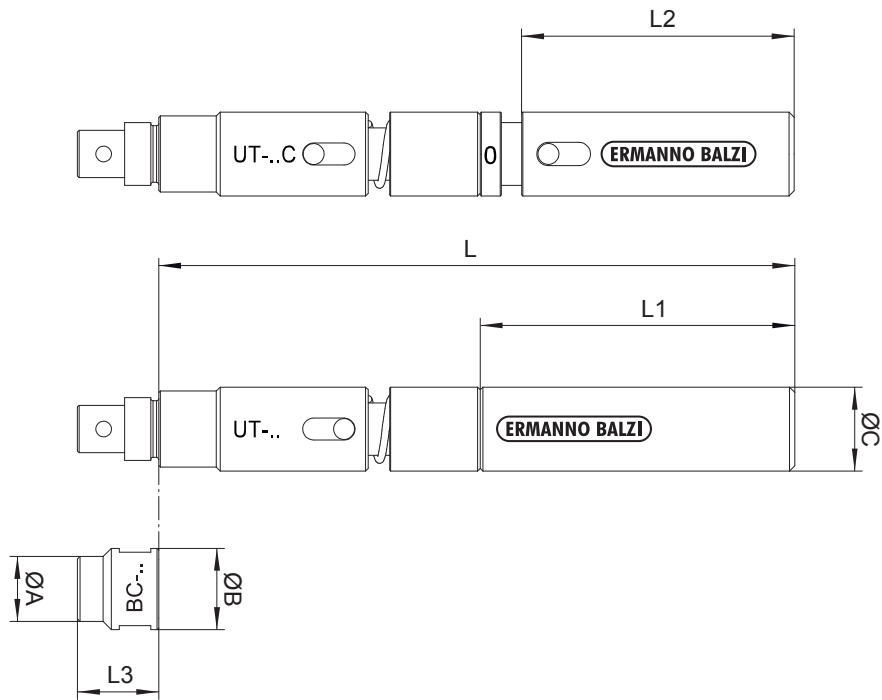
1. The tool "UT" is designed to be used on machines where the forward movement is manually controlled.
2. The cutter starts the machining of the groove a few millimeters after the centering bush "BC" get in contact with the chamfer on the hole. Starting from this point the forward movement has to be slow.
3. The machining of the groove is completed when the gap "S" is completely closed by the forward movement of the tool.
4. Once the forward movement is completed neither making further pressure on the tool, nor stopping in such a position more than a few seconds is advisable.



TOOL	S ^{+2 / +3}
UT-0C	4,3
UT-1C	4,3
UT-2C	4,3
UT-3C	4,7
UT-4C	5,1

ADVICES FOR THE CORRECT USE OF THE TOOL "UT-C"

1. The tool "UT-C" is designed to be used on CNC machines where forward movement is electronically controlled.
2. It is possible to move in fast forward till 2 mm from the working position (contact point between centering bush "BC" and chamfer of the hole).
3. Starting from this point a feed rate of 0,05 mm/rotation is suggested.
4. The machining of the groove is completed when the gap "S" is completely closed by the forward movement of the tool. To guarantee the proper machining we suggest to set an extra stroke of 2+3 mm, the extra stroke will be compensated by a spring inside the tool.
5. Once the forward movement is completed neither making further pressure on the tool, nor stopping in such a position more than a few seconds is advisable.



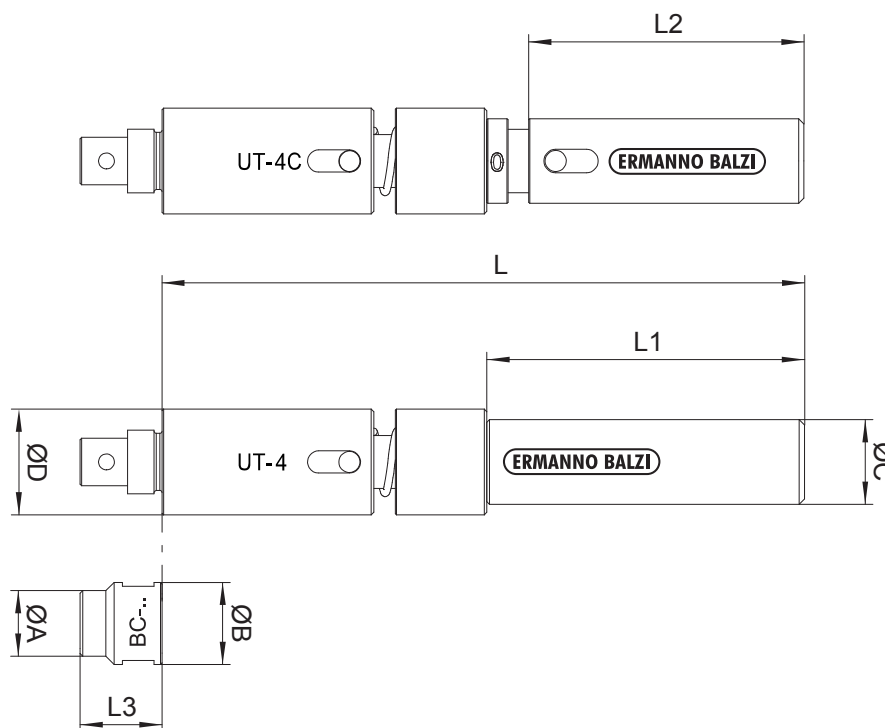
CODE	C	L	L1	L2
UT-0 / UT-0C	10	110	70	62
UT-1 / UT-1C	10	110	70	62
UT-2 / UT-2C	12	108	60	52
UT-3 / UT-3C	16	122	60	54

UT-0 / UT-0C			
CENTERING BUSH	A	B	L3
BC-5F	5	10	12

UT-1 / UT-1C			
CENTERING BUSH	A	B	L3
BC-6F	6	10	12
BC-6	6,5	10	12

UT-2 / UT-2C			
CENTERING BUSH	A	B	L3
BC-8F	8	12	14,5
BC-8	8,5	12	14,5

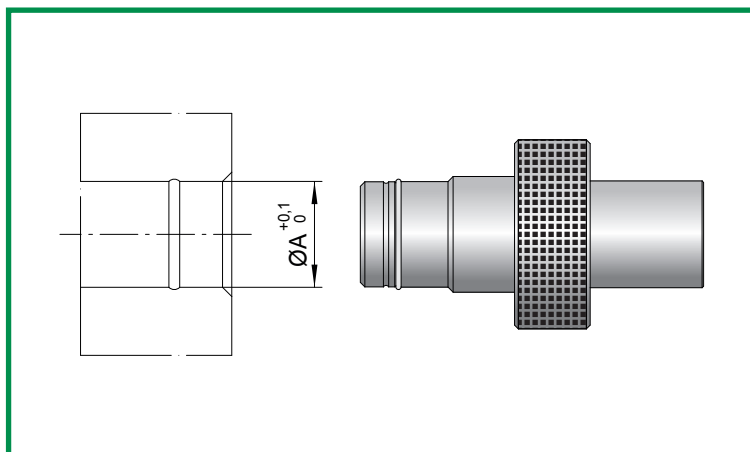
UT-3 / UT-3C			
CENTERING BUSH	A	B	L3
BC-10F	10	14,5	15,5
BC-10	10,5	14,5	15,5
BC-11F	11	15,5	15,5
BC-11,5F	11,5	15,5	15,5
BC-12F	12	15,5	15,5
BC-12	12,5	15,5	15,5
BC-14F	14	16,5	15,5
BC-14	14,5	16,5	15,5
BC-15F	15	17,5	15,5



CODE	C	D	L	L1	L2
UT-4 / UT-4C	16	20	122	60	54

UT-4 / UT-4C			
CENTERING BUSH	A	B	L3
BC-16F	16	19,5	15,5
BC-18F	18	21	15,5
BC-19F	19	22	15,5
BC-20F	20	23	15,5
BC-25F	25	28	15,5
BC-30F	30	34	15,5

CONTROL GAUGE FOR RETAINING GROOVE



CODE	ØA
CST-6F	6
CST-8F	8
CST-10F	10
CST-12F	12
CST-14F	14

CODE	ØA
CST-6	6,5
CST-8	8,5
CST-10	10,5
CST-12	12,5
CST-14	14,5

REALIZATION OF THE SEAT:

Thanks to the proper gauge it is possible to check the hole dimension and the retaining groove.

O-RING COMPOUND

O-ring maximum working temperature changes with the type of fluid.

ERMANNO BALZI cooling components are equipped with FKM O-rings suitable to work with pressurized water or oil up to 150 °C.

In case of applications requiring the circulation of fluids such as steam, pressurized water or oil at high temperature we suggest to apply O-ring made in special FKM compounds properly developed to guarantee better performance.

- O-ring for steam or pressurized water suitable for working temperature up to 190 – 200°C and peak temperature of 220°C.
- O-ring for diathermic oil suitable for working temperature up to 200 – 220°C and peak temperature of 250 – 270°C.

DIAM.	O-RING STEAM (ST)	O-RING OIL (HO)
6	✓	✓
6,5	✓	
8	✓	✓
8,5	✓	
10	✓	✓
11	✓	
11,5	✓	✓
12	✓	✓
14	✓	
15	✓	
16	✓	✓
19	✓	✓
20	✓	✓
25	✓	✓

Order example with steam o-ring: TR-8FST

Order example with oil o-ring: TR-8FHO

STANDARD SERIES TOOL BOX

TOOL WITHOUT PRESSURE COMPENSATION SYSTEM



CODE	STANDARD SET COMPOSITION
UT	N°1 SINGLE TOOL
CE	N°1 SPECIAL HEXAGONAL KEY
CEB	N°1 "T" BETA HEXAGONAL KEY
PA	N°1 REAMER EXTENSION
AL	N°1 REAMER FOR EACH SIZE
BC	N°1 CENTERING BUSH FOR EACH SIZE
IN	N°1 CUTTER FOR EACH SIZE

Order example: CS-10

CODE	CS-6	CS-8	CS-10	CS-12	CS-14	CS-10-12	CS-10-14	CS-12-14	CS-10-12-14
UT-1	✓								
UT-2		✓							
UT-3			✓	✓	✓	✓	✓	✓	✓
BC-6	✓								
BC-8		✓							
BC-10			✓			✓	✓		✓
BC-12				✓		✓		✓	✓
BC-14					✓		✓	✓	✓
IN-6	✓								
IN-8		✓							
IN-10			✓			✓	✓		✓
IN-12				✓		✓		✓	✓
IN-14					✓		✓	✓	✓
AL-6	✓								
AL-8		✓							
AL-10			✓			✓	✓		✓
AL-12				✓		✓		✓	✓
AL-14					✓		✓	✓	✓
PA-1	✓								
PA-2		✓							
PA-3			✓	✓	✓	✓	✓	✓	✓
CE-5	✓								
CE-6,5		✓							
CE-8			✓	✓	✓	✓	✓	✓	✓
CEB-2	✓								
CEB-2,5		✓							
CEB-3			✓	✓	✓	✓	✓	✓	✓

STANDARD SERIES TOOL BOX

TOOL WITH PRESSURE COMPENSATION SYSTEM

CODE	STANDARD SET COMPOSITION
UT-C	N°1 SINGLE TOOL
CE	N°1 SPECIAL HEXAGONAL KEY
CEB	N°1 "T" BETA HEXAGONAL KEY
PA	N°1 REAMER EXTENSION
AL	N°1 REAMER FOR EACH SIZE
BC	N°1 CENTERING BUSH FOR EACH SIZE
IN	N°1 CUTTER FOR EACH SIZE



Order example: CS-10C

CODE	CS-6C	CS-8C	CS-10C	CS-12C	CS-14C	CS-10-12C	CS-10-14C	CS-12-14C	CS-10-12-14C
UT-1C	✓								
UT-2C		✓							
UT-3C			✓	✓	✓	✓	✓	✓	✓
BC-6	✓								
BC-8		✓							
BC-10			✓			✓	✓		✓
BC-12				✓		✓		✓	✓
BC-14					✓		✓	✓	✓
IN-6	✓								
IN-8		✓							
IN-10			✓			✓	✓		✓
IN-12				✓		✓		✓	✓
IN-14					✓		✓	✓	✓
AL-6	✓								
AL-8		✓							
AL-10			✓			✓	✓		✓
AL-12				✓		✓		✓	✓
AL-14					✓		✓	✓	✓
PA-1	✓								
PA-2		✓							
PA-3			✓	✓	✓	✓	✓	✓	✓
CE-5	✓								
CE-6,5		✓							
CE-8			✓	✓	✓	✓	✓	✓	✓
CEB-2	✓								
CEB-2,5		✓							
CEB-3			✓	✓	✓	✓	✓	✓	✓

"F" SERIES TOOL BOX

TOOL WITHOUT PRESSURE COMPENSATION SYSTEM



CODE	F SERIES SET COMPOSITION
UT	N°1 SINGLE TOOL
CE	N°1 SPECIAL HEXAGONAL KEY
CEB	N°1 "T" BETA HEXAGONAL KEY
BC-F	N°1 CENTERING BUSH FOR EACH SIZE
IN-F	N°1 CUTTER FOR EACH SIZE

Order example: CSF-10

CODE	CSF-5	CSF-6	CSF-8	CSF-10	CSF-11	CSF-11,5	CSF-12	CSF-14	CSF-15
UT-0	✓								
UT-1		✓							
UT-2			✓						
UT-3				✓	✓	✓	✓	✓	✓
BC-5F	✓								
BC-6F		✓							
BC-8F			✓						
BC-10F				✓					
BC-11F					✓				
BC-11,5F						✓			
BC-12F							✓		
BC-14F								✓	
BC-15F									✓
IN-5F	✓								
IN-6F		✓							
IN-8F			✓						
IN-10F				✓					
IN-11F					✓				
IN-11,5F						✓			
IN-12F							✓		
IN-14F								✓	
IN-15F									✓
CE-4	✓								
CE-5		✓							
CE-6,5			✓						
CE-8				✓	✓	✓	✓	✓	
CE-12									✓
CEB-1,5	✓								
CEB-2		✓							
CEB-2,5			✓						
CEB-3				✓	✓	✓	✓	✓	
CEB-5									✓

TOOL WITHOUT PRESSURE COMPENSATION SYSTEM

CODE	F SERIES SET COMPOSITION
UT	N°1 SINGLE TOOL
CE	N°1 SPECIAL HEXAGONAL KEY
CEB	N°1 "T" BETA HEXAGONAL KEY
BC-F	N°1 CENTERING BUSH FOR EACH SIZE
IN-F	N°1 CUTTER FOR EACH SIZE



Order example: CSF-16

CODE	CSF-16	CSF-18	CSF-19	CSF-20	CSF-25	CSF-30
UT-4	✓	✓	✓	✓	✓	✓
BC-16F	✓					
BC-18F		✓				
BC-19F			✓			
BC-20F				✓		
BC-25F					✓	
BC-30F						✓
IN-16F	✓					
IN-18F		✓				
IN-19F			✓			
IN-20F				✓		
IN-25F					✓	
IN-30F						✓
CE-12	✓	✓	✓	✓	✓	✓
CEB-5	✓	✓	✓	✓	✓	✓

"F" SERIES TOOL BOX

TOOL WITHOUT PRESSURE COMPENSATION SYSTEM



CODE	F SERIES SET COMPOSITION
UT	N°1 SINGLE TOOL
CE	N°1 SPECIAL HEXAGONAL KEY
CEB	N°1 "T" BETA HEXAGONAL KEY
BC-F	N°1 CENTERING BUSH FOR EACH SIZE
IN-F	N°1 CUTTER FOR EACH SIZE

Order example: CSF-10-12

CODE	CSF-10-11	CSF-10-11,5	CSF-10-12	CSF-10-14	CSF-11-11,5	CSF-11-12	CSF-11-14	CSF-11,5-12	CSF-11,5-14	CSF-12-14
UT-3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BC-10F	✓	✓	✓	✓						
BC-11F	✓				✓	✓	✓			
BC-11,5F		✓			✓			✓	✓	
BC-12F			✓			✓		✓		✓
BC-14F				✓			✓		✓	✓
IN-10F	✓	✓	✓	✓						
IN-11F	✓				✓	✓	✓			
IN-11,5F		✓			✓			✓	✓	
IN-12F			✓			✓		✓		✓
IN-14F				✓			✓		✓	✓
CE-8	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CEB-3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

TOOL WITHOUT PRESSURE COMPENSATION SYSTEM

CODE	F SERIES SET COMPOSITION
UT	N°1 SINGLE TOOL
CE	N°1 SPECIAL HEXAGONAL KEY
CEB	N°1 "T" BETA HEXAGONAL KEY
BC-F	N°1 CENTERING BUSH FOR EACH SIZE
IN-F	N°1 CUTTER FOR EACH SIZE

Order example: CSF-10-12



CODE	CSF-10-12-14	CSF-16-20	CSF-16-25	CSF-20-25	CSF-16-20-25
UT-3	✓				
UT-4		✓	✓	✓	✓
BC-10F	✓				
BC-12F	✓				
BC-14F	✓				
BC-16F		✓	✓		✓
BC-20F		✓		✓	✓
BC-25F			✓	✓	✓
IN-10F	✓				
IN-12F	✓				
IN-14F	✓				
IN-16F		✓	✓		✓
IN-20F		✓		✓	✓
IN-25F			✓	✓	✓
CE-8	✓				
CE-12		✓	✓	✓	✓
CEB-3	✓				
CEB-5		✓	✓	✓	✓

"F" SERIES TOOL BOX

TOOL WITH PRESSURE COMPENSATION SYSTEM



CODE	F SERIES SET COMPOSITION
UT-C	N°1 SINGLE TOOL
CE	N°1 SPECIAL HEXAGONAL KEY
CEB	N°1 "T" BETA HEXAGONAL KEY
BC-F	N°1 CENTERING BUSH FOR EACH SIZE
IN-F	N°1 CUTTER FOR EACH SIZE

Order example: CSF-10C

CODE	CSF-5C	CSF-6C	CSF-8C	CSF-10C	CSF-11C	CSF-11,5C	CSF-12C	CSF-14C	CSF-15C
UT-0C	✓								
UT-1C		✓							
UT-2C			✓						
UT-3C				✓	✓	✓	✓	✓	✓
BC-5F	✓								
BC-6F		✓							
BC-8F			✓						
BC-10F				✓					
BC-11F					✓				
BC-11,5F						✓			
BC-12F							✓		
BC-14F								✓	
BC-15F									✓
IN-5F	✓								
IN-6F		✓							
IN-8F			✓						
IN-10F				✓					
IN-11F					✓				
IN-11,5F						✓			
IN-12F							✓		
IN-14F								✓	
IN-15F									✓
CE-4	✓								
CE-5		✓							
CE-6,5			✓						
CE-8				✓	✓	✓	✓	✓	
CE-12									✓
CEB-1,5	✓								
CEB-2		✓							
CEB-2,5			✓						
CEB-3				✓	✓	✓	✓	✓	
CEB-5									✓

TOOL WITH PRESSURE COMPENSATION SYSTEM

CODE	F SERIES SET COMPOSITION
UT-C	N°1 SINGLE TOOL
CE	N°1 SPECIAL HEXAGONAL KEY
CEB	N°1 "T" BETA HEXAGONAL KEY
BC-F	N°1 CENTERING BUSH FOR EACH SIZE
IN-F	N°1 CUTTER FOR EACH SIZE

Order example: CSF-16C



CODE	CSF-16C	CSF-18C	CSF-19C	CSF-20C	CSF-25C	CSF-30C
UT-4C	✓	✓	✓	✓	✓	✓
BC-16F	✓					
BC-18F		✓				
BC-19F			✓			
BC-20F				✓		
BC-25F					✓	
BC-30F						✓
IN-16F	✓					
IN-18F		✓				
IN-19F			✓			
IN-20F				✓		
IN-25F					✓	
IN-30F						✓
CE-12	✓	✓	✓	✓	✓	✓
CEB-5	✓	✓	✓	✓	✓	✓

"F" SERIES TOOL BOX

TOOL WITH PRESSURE COMPENSATION SYSTEM



CODE	F SERIES SET COMPOSITION
UT-C	N°1 SINGLE TOOL
CE	N°1 SPECIAL HEXAGONAL KEY
CEB	N°1 "T" BETA HEXAGONAL KEY
BC-F	N°1 CENTERING BUSH FOR EACH SIZE
IN-F	N°1 CUTTER FOR EACH SIZE

Order example: CSF-10-12C

CODE	CSF-10-11C	CSF-10-11,5C	CSF-10-12C	CSF-10-14C	CSF-11-11,5C	CSF-11-12C	CSF-11-14C	CSF-11,5-12C	CSF-11,5-14C	CSF-12-14C
UT-3C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BC-10F	✓	✓	✓	✓						
BC-11F	✓				✓	✓	✓			
BC-11,5F		✓			✓			✓	✓	
BC-12F			✓			✓		✓		✓
BC-14F				✓			✓		✓	✓
IN-10F	✓	✓	✓	✓						
IN-11F	✓				✓	✓	✓			
IN-11,5F		✓			✓			✓	✓	
IN-12F			✓			✓		✓		✓
IN-14F				✓			✓		✓	✓
CE-8	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CEB-3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

TOOL WITH PRESSURE COMPENSATION SYSTEM

CODE	F SERIES SET COMPOSITION
UT-C	N°1 SINGLE TOOL
CE	N°1 SPECIAL HEXAGONAL KEY
CEB	N°1 "T" BETA HEXAGONAL KEY
BC-F	N°1 CENTERING BUSH FOR EACH SIZE
IN-F	N°1 CUTTER FOR EACH SIZE

Order example: CSF-16-20C

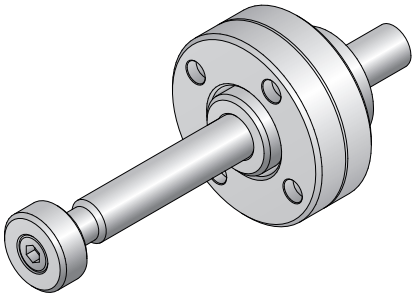


CODE	CSF-10-12-14C	CSF-16-20C	CSF-16-25C	CSF-20-25C	CSF-16-20-25C
UT-3C	✓				
UT-4C		✓	✓	✓	✓
BC-10F	✓				
BC-12F	✓				
BC-14F	✓				
BC-16F		✓	✓		✓
BC-20F		✓		✓	✓
BC-25F			✓	✓	✓
IN-10F	✓				
IN-12F	✓				
IN-14F	✓				
IN-16F		✓	✓		✓
IN-20F		✓		✓	✓
IN-25F			✓	✓	✓
CE-8	✓				
CE-12		✓	✓	✓	✓
CEB-3	✓				
CEB-5		✓	✓	✓	✓

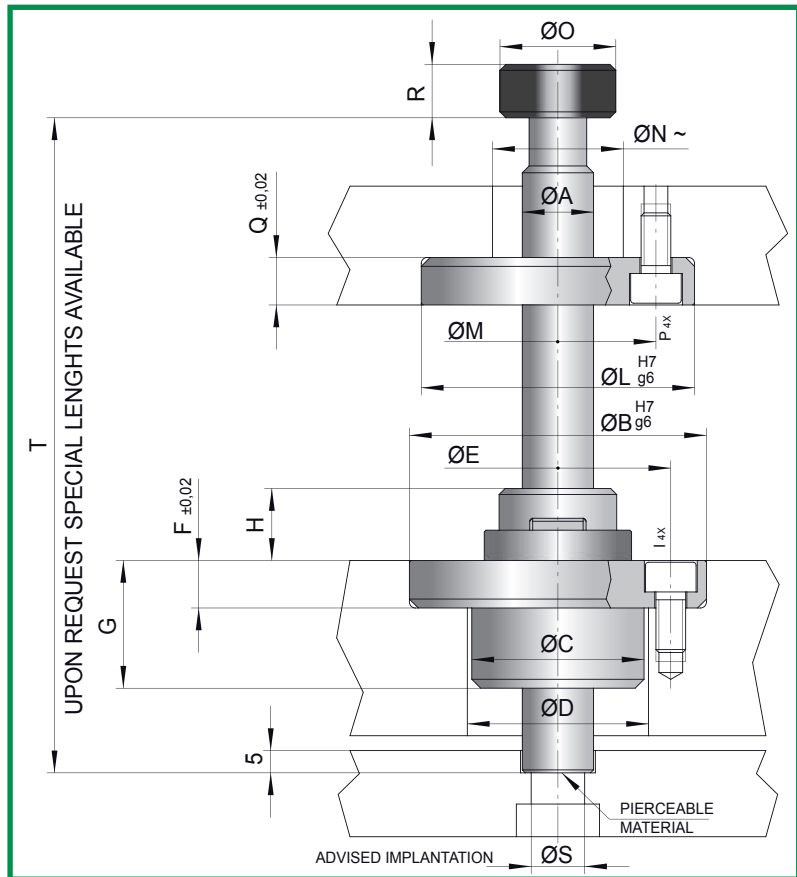
*SYSTEMS FOR THE MOVING OF
MECHANICAL ELEMENTS AND MOLDED
PARTS*



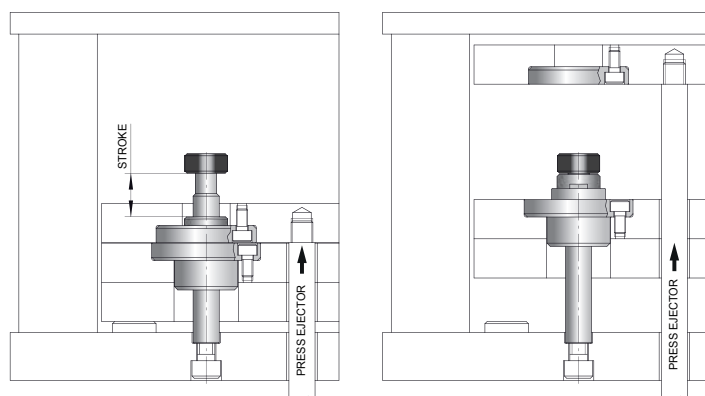
TWO STAGES EJECTOR



CODE: **AS**



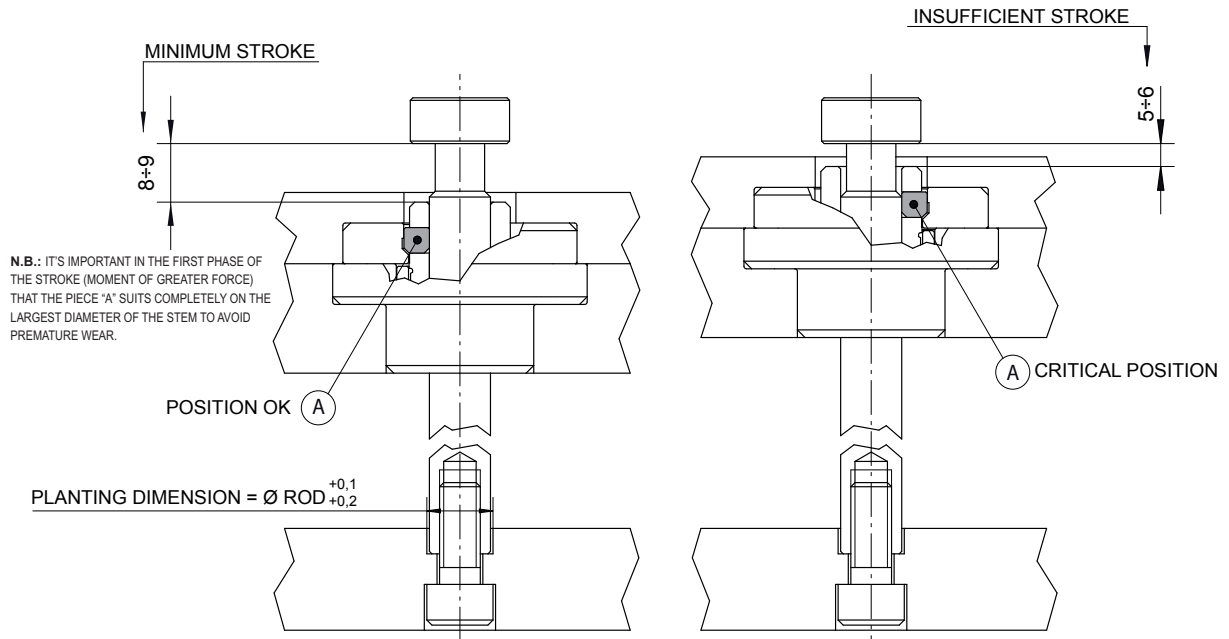
CODE	A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R	S	T	MAX DYNAMIC LOAD
AS-12C	12	50	29	29,5	38	8	21,5	12	M5	46	33	22	19,5	M5	8	9	M8	100	Kg100
AS-12L																		200	
AS-16C	16	70	41	41,5	52	13	28	17	M8	70	52	33	29	M8	13	12	M10	100	Kg300
AS-16L																		200	



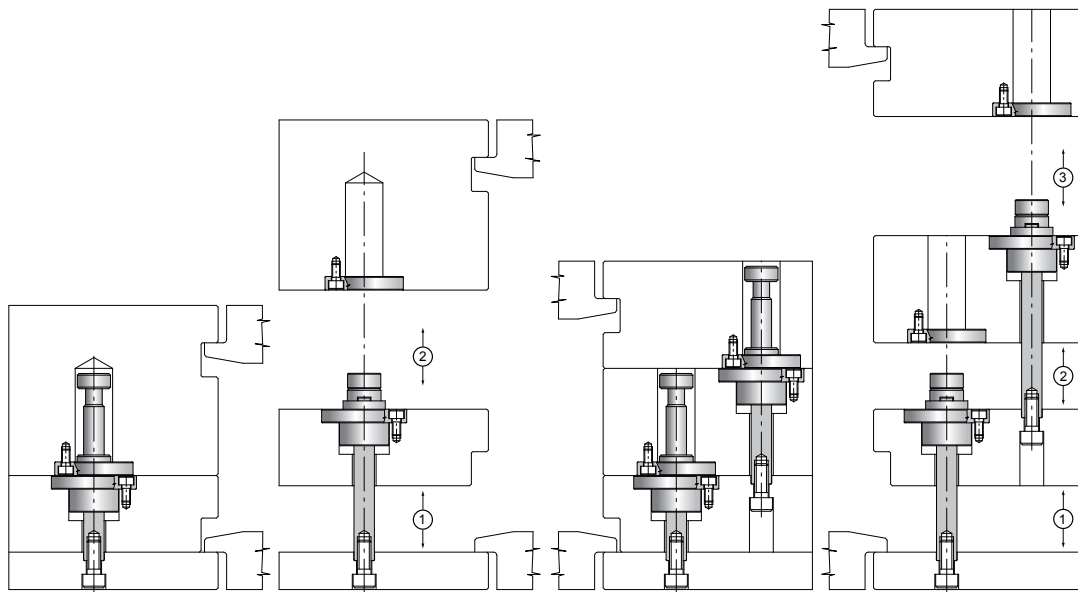
CHARACTERISTICS

- 1) EASE OF APPLICATION;
 - 2) VERSATILITY OF USE;
 - 3) BLOCKAGE OF THE TRAILED PLATE AFTER UNHOOKING;
 - 4) WITHOUT LIMIT OF STROKE;
- N.B.: IT'S IMPORTANT TO OBSERVE THE SUGGESTED MAXIMUM WORKING LOADS.
IN CASE OF UNCERTAIN APPLICATIONS CONSULT THE CONSTRUCTOR.

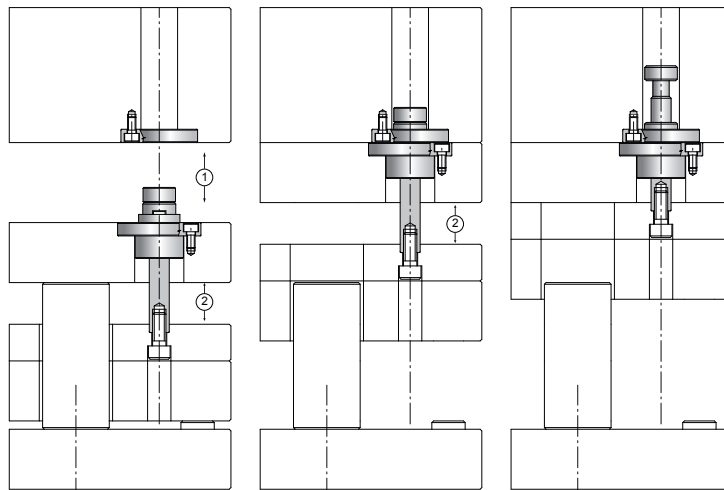
ERMANN BALZI



EXAMPLES OF APPLICATION



SPECIAL APPLICATION

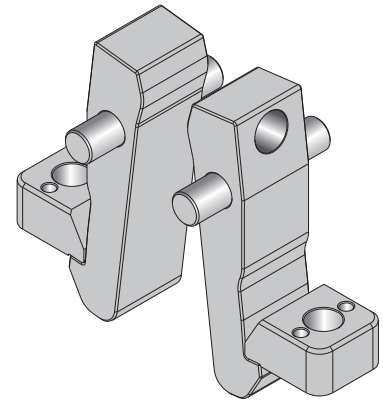
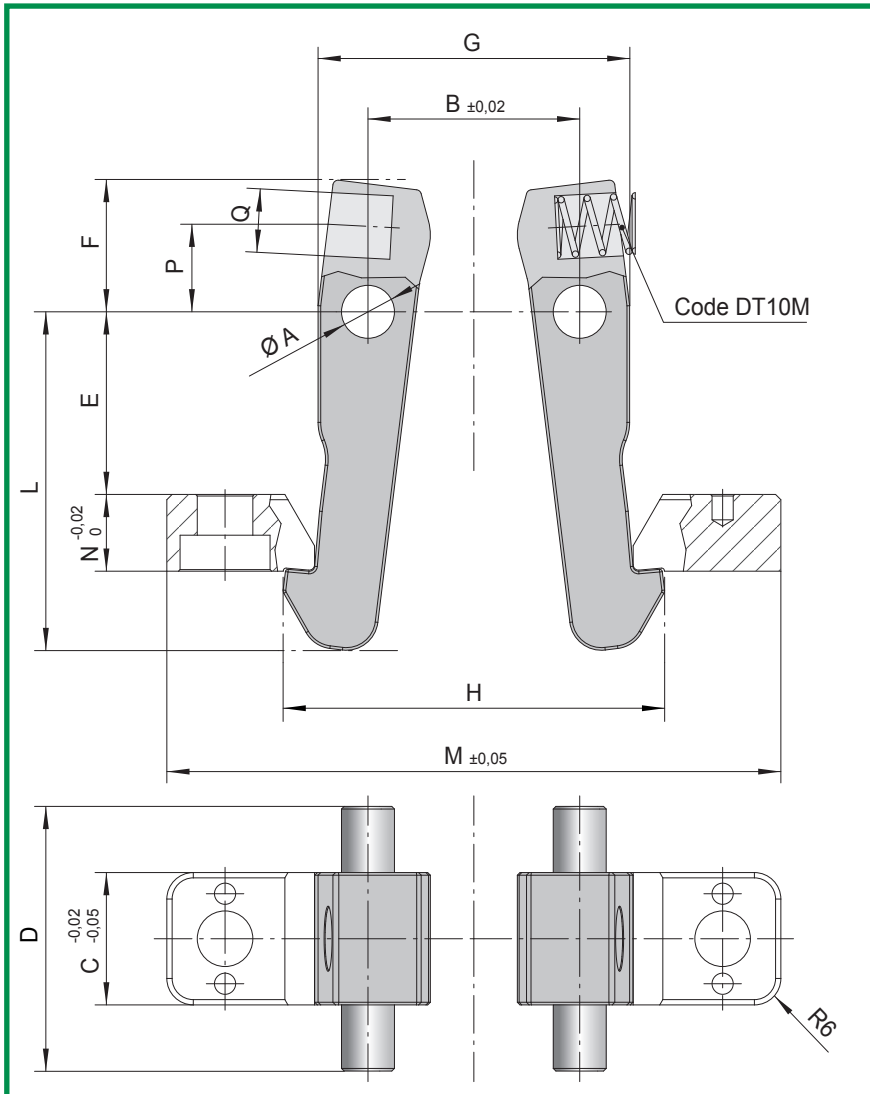




CHARACTERISTICS

- 1) HIGH LOAD CAPACITY;
- 2) EASY INSTALLATION WITH ONLY A SMALL AMOUNT OF MACHINING;
- 3) DOUBLE EJECTION APPLICATION;
- 4) THREE PLATES APPLICATION.

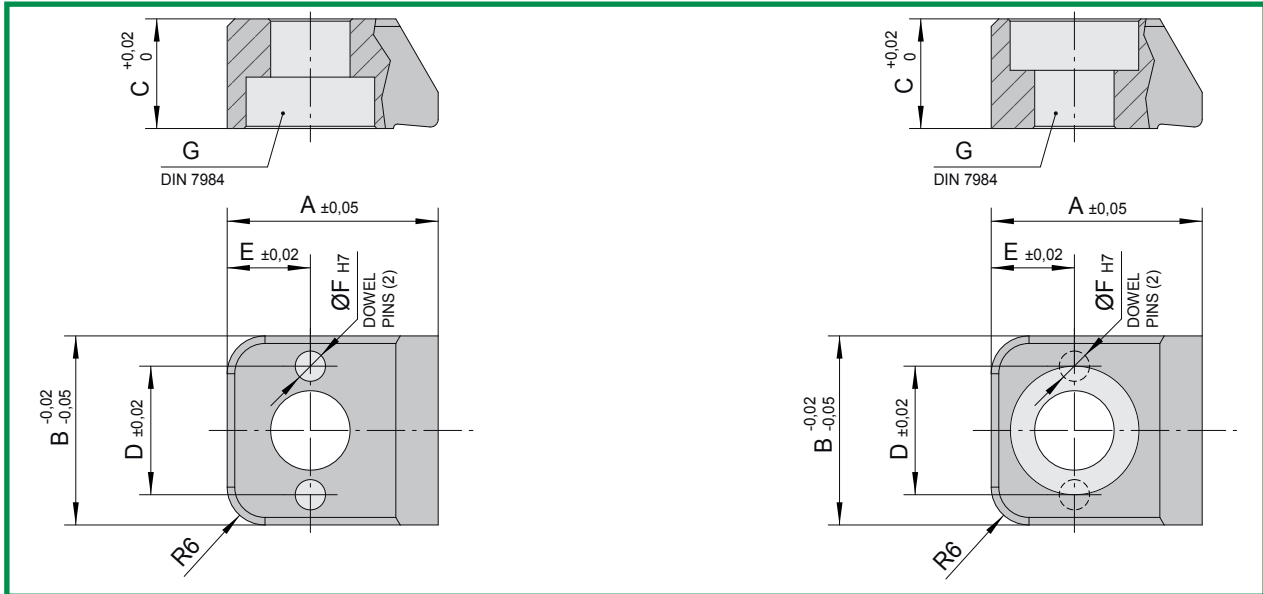
PLATE LOCKS LEVERS DT



CODE: **DT10L**

CODE	A	B	C	D	E	F	G	H	L	M	N	P	Q
DT10L	10	40	25	50	34,5	25	59	72,5	64	116	14,5	15,5	12

Mat.: Carbon steel. Hardness: 540 HRV
Carbonitrided depth 0,5mm



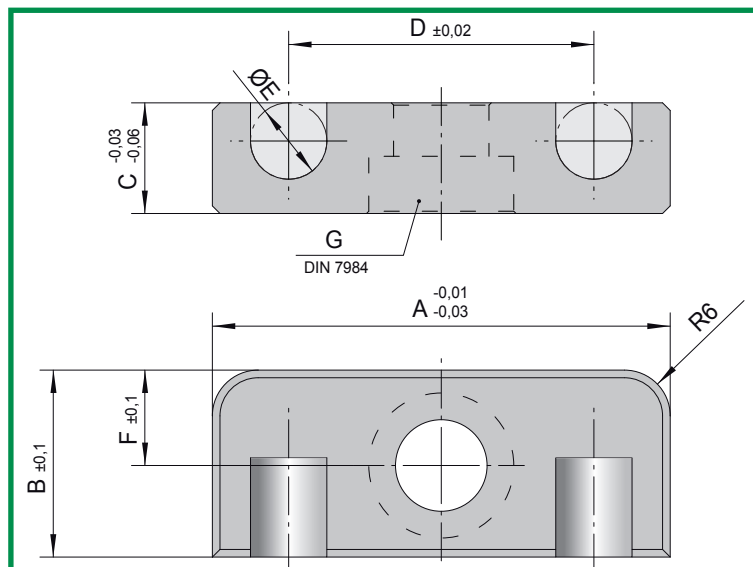
CODE: **DT10TI**

CODE: **DT10TS**

CODE	A	B	C	D	E	F	G
DT10TI	27,9	25	14,5	17	11	4	M10
DT10TS	27,9	25	14,5	17	11	4	M10

Mat.: Carbon steel. Hardness: 540 HRV
Carbonitrided depth 0,5mm

DOWELS HOLDING PLATE DT

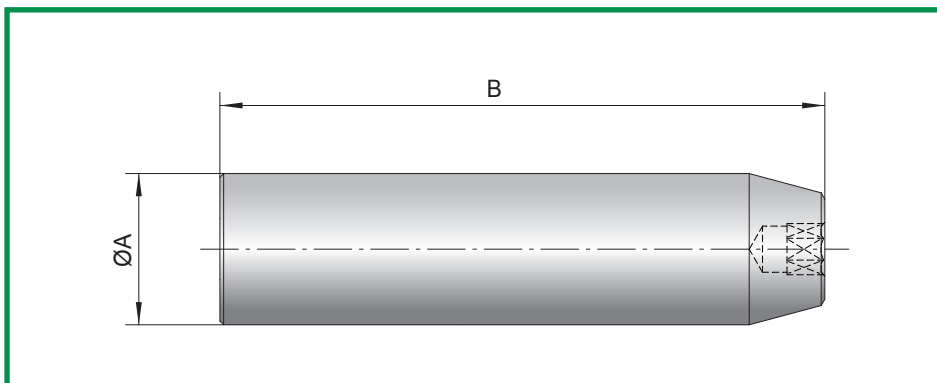


CODE: **DT10PS**

CODE	A	B	C	D	E	F	G
DT10PS	60	24,5	14,5	40	10	12,5	M12

Mat.: Carbon steel. Hardness: 540 HRV
Nitrided depth 0,3mm

RELEASE ROD DT

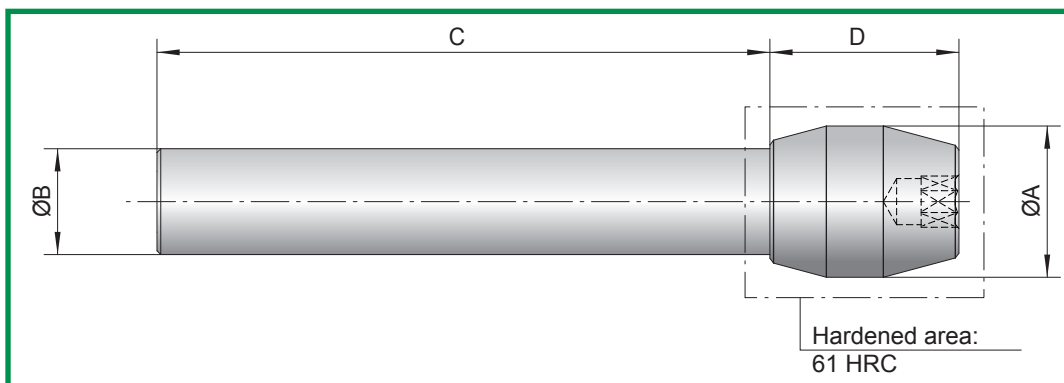


CODE: **DT10P**

CODE	A	B
DT10P	20	200

Mat.: 7225. Hardness: 670 HV05
Nitrided depth 0,3mm

DOUBLE TAPER RELEASE ROD DT

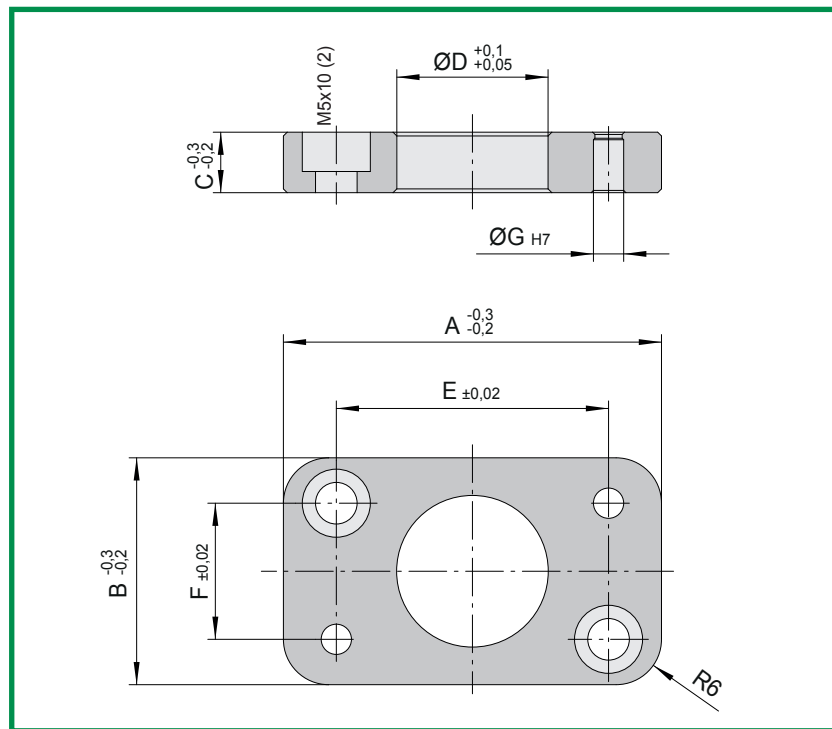


CODE: **DT10PDC**

CODE	A	B	C	D
DT10PDC	20	14	225	25

Mat.: 7225. Hardness: 800 N/mm² (21,7 HRC)
Nitrided depth 0,1mm

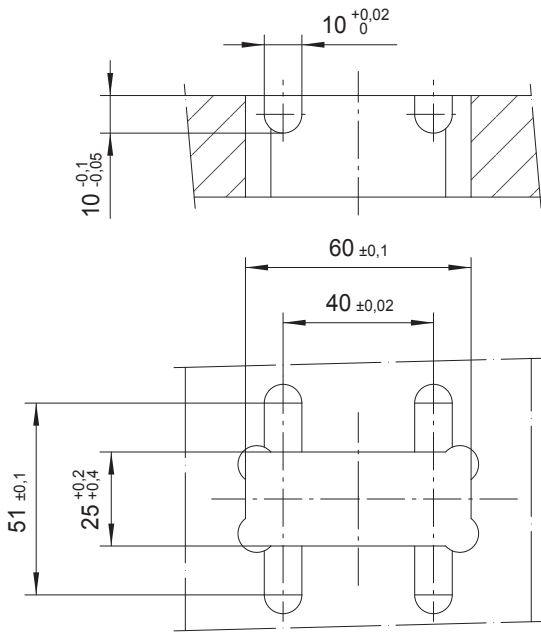
GUIDING PLATE FOR RELEASE ROD DT



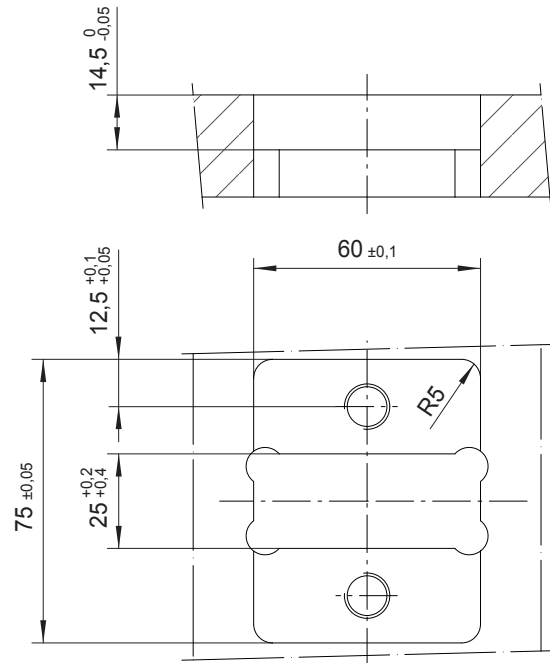
CODE: **DT10GP**

CODE	A	B	C	D	E	F	G
DT10GP	50	30	8	20	36	18	4

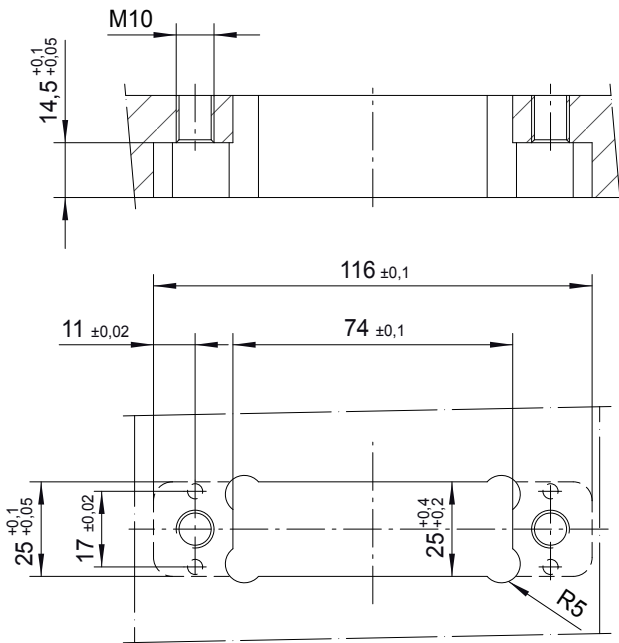
Mat.: Carbon steel. Hardness: 540 HRV
Nitrided depth 0,3mm



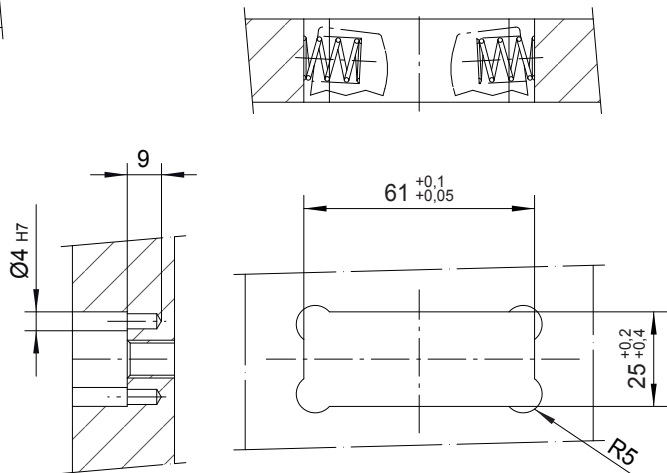
- Suggested seat machining for application without dowels holding plate.



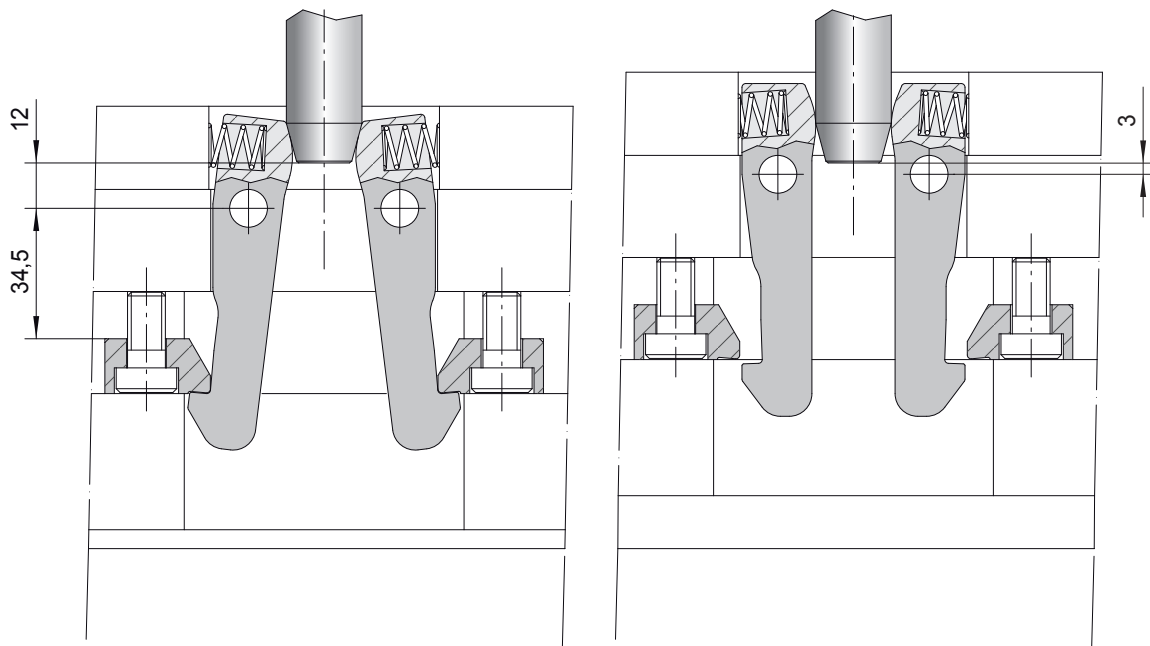
- Suggested seat machining for application with dowels holding plate.



- Seat dimensions for lock blocks application.



- Seat dimensions for proper spring load.

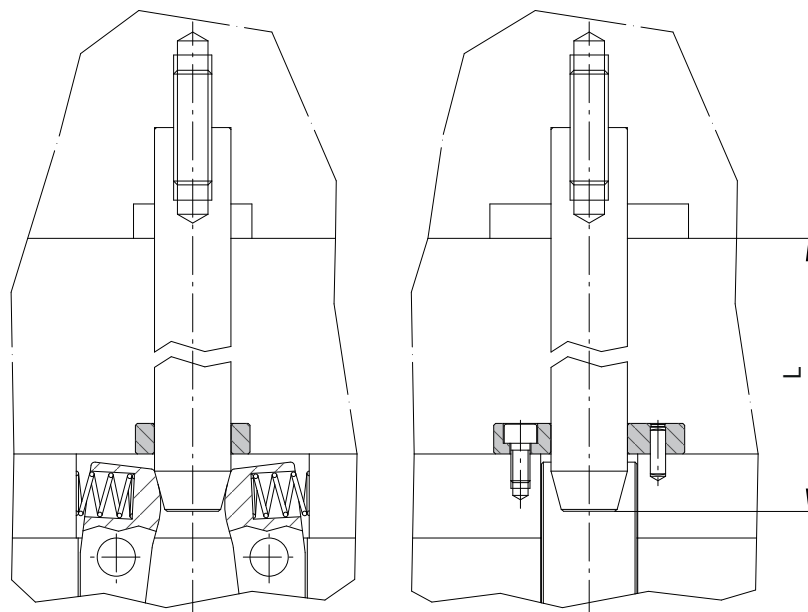


RELEASE STARTING POINT

RELEASE ENDING POINT

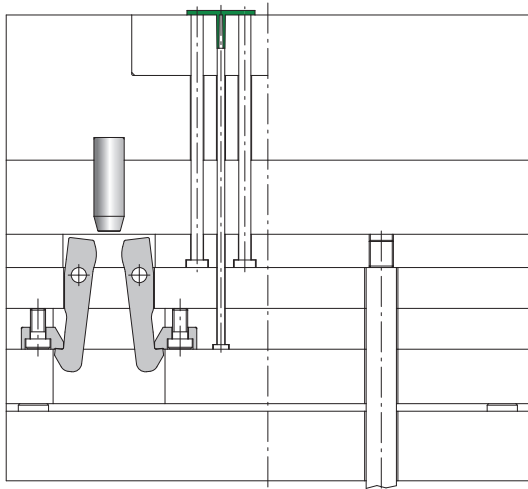
- In order to guarantee a complete release of the system a minimum 9 mm stroke is needed.
- Insert the proper recovery springs during assembly.

GUIDING PLATE FOR RELEASE ROD DT



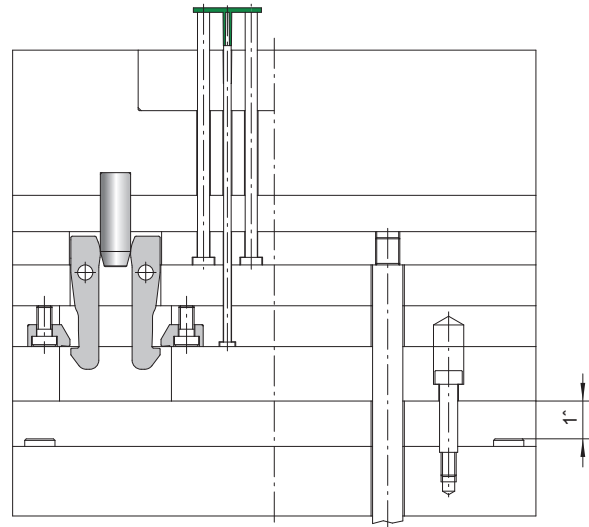
- In case of applications where the release rod DT10P protrudes for more than 50mm we advise to apply the guiding plate DT10GP in order to guarantee a correct alignment of the rod with the levers.

DOUBLE EJECTION APPLICATION



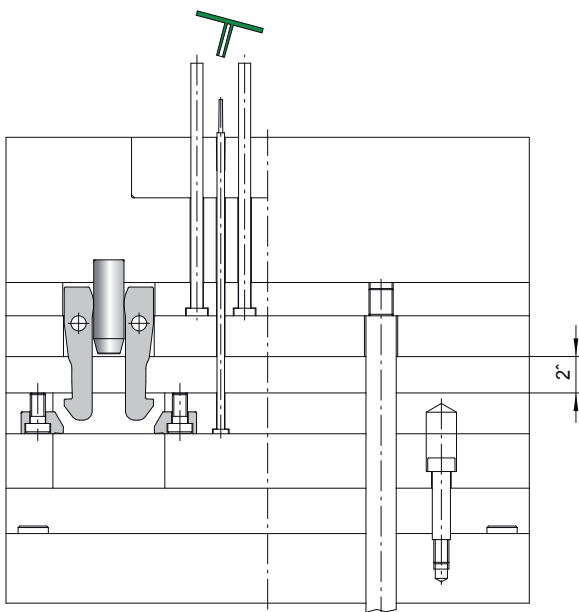
STARTING POSITION

- DT system held closed the ejectors plates



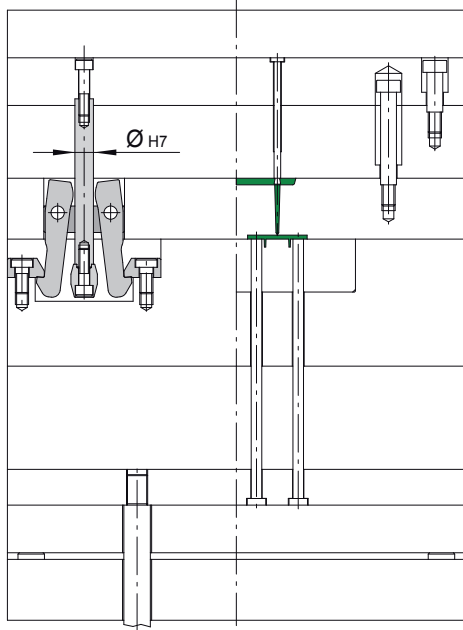
FIRST STROKE

- The ejector plates perform the first stroke coupled till the releasing of the system DT



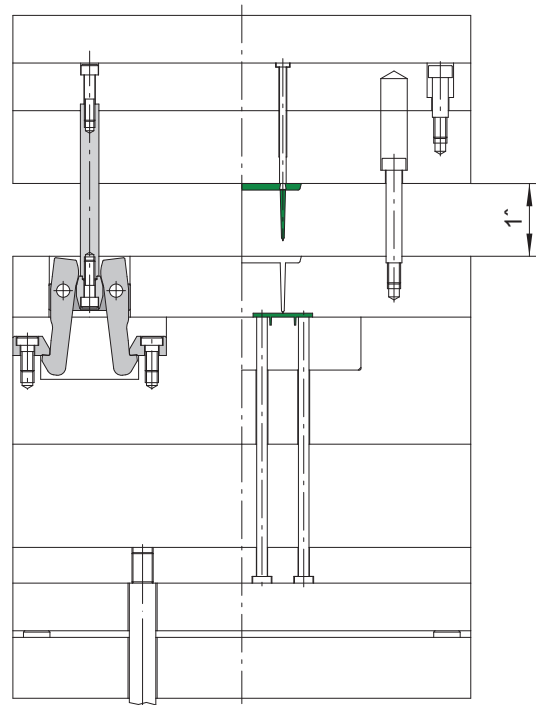
SECOND STROKE

- After DT system release the upper ejector plate performs the second stroke



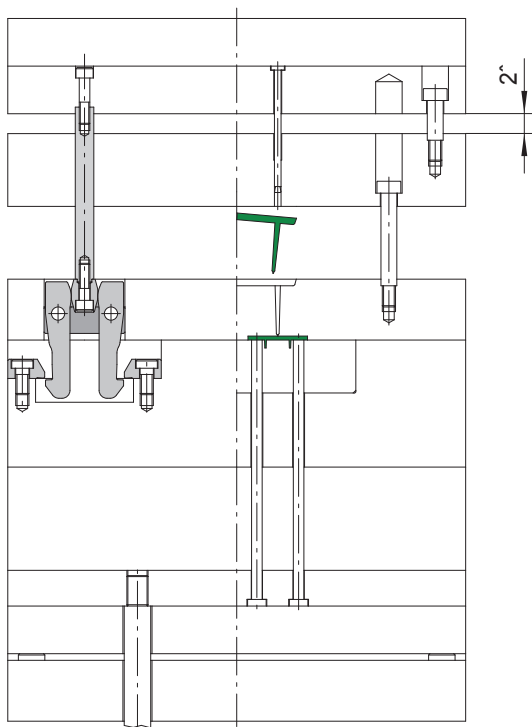
STARTING POSITION

- DT system connects core and cavity side



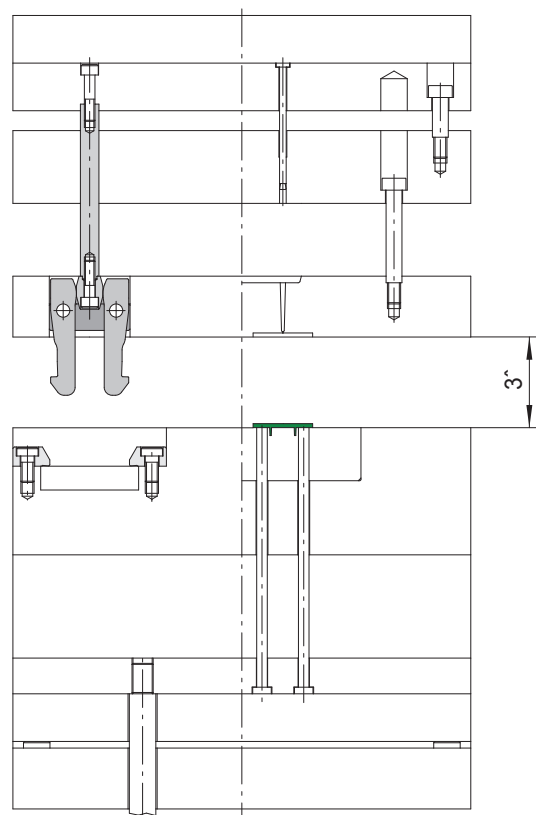
FIRST STROKE

- Parting of the runner system from injected part



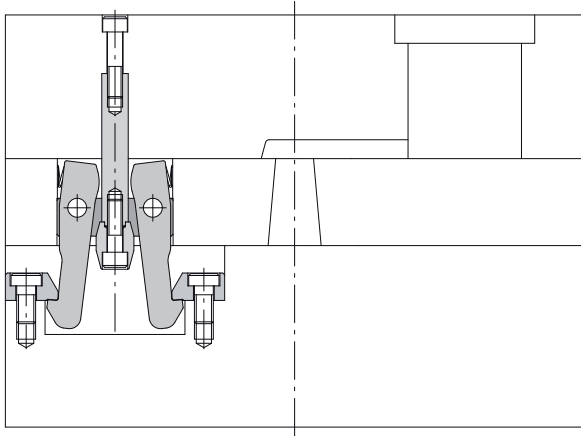
SECOND STROKE

- runner system ejection



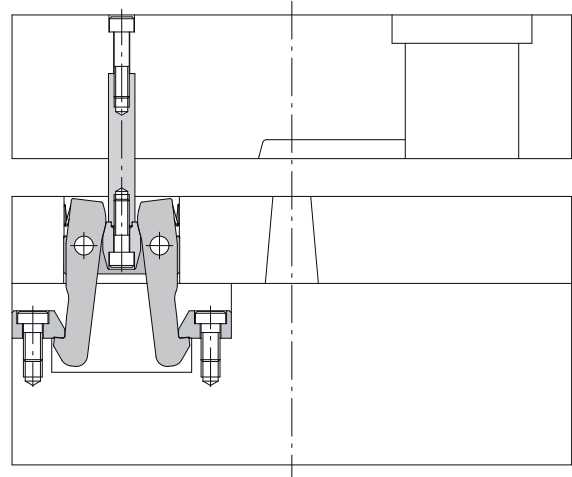
THIRD STROKE

- DT system release with opening of cavity-core parting line



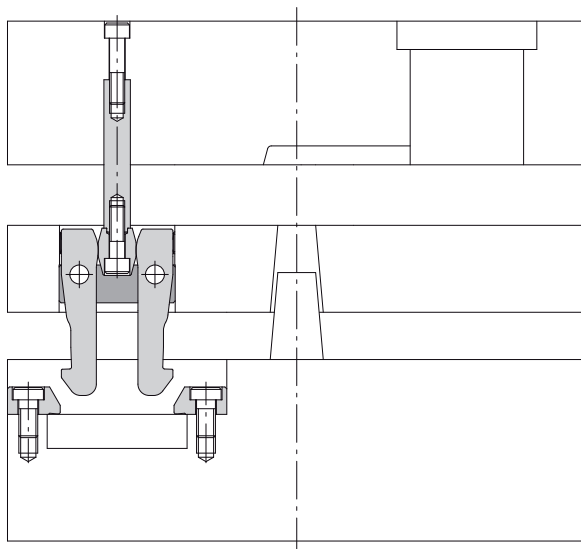
STARTING POSITION

- DT system connects core and cavity sides



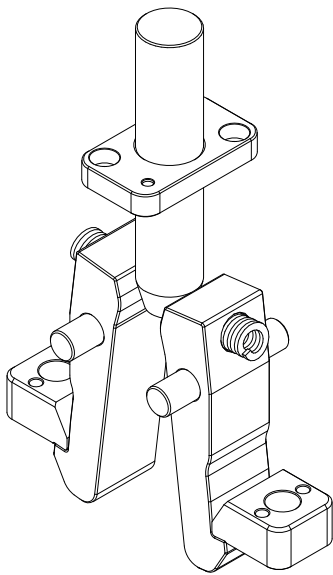
FIRST STROKE

- parting of the sprue from runner system



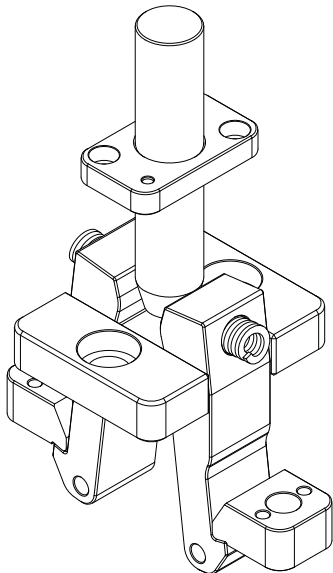
SECOND STROKE

- DT system release with opening of cavity - core parting line



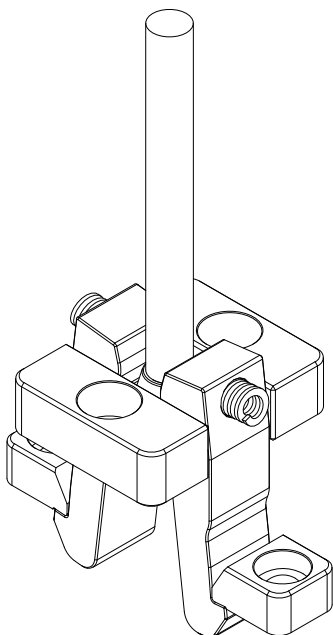
CODE KIT	CODE	COMPONENTS
DT10K1	DT10L	PLATE LOCKS LEVERS DT (2)
	DT10TI	LOCKS BLOCKS DT (2)
	DT10P	RELEASE ROD DT
	DT10GP	GUIDING PLATE FOR RELEASE ROD DT

Kit includes: dowel pins Ø10x50 (2) - fixing screws M10x20 DIN 7984 (2) -
dowel pins Ø4x10 (4) - recovery springs (2)



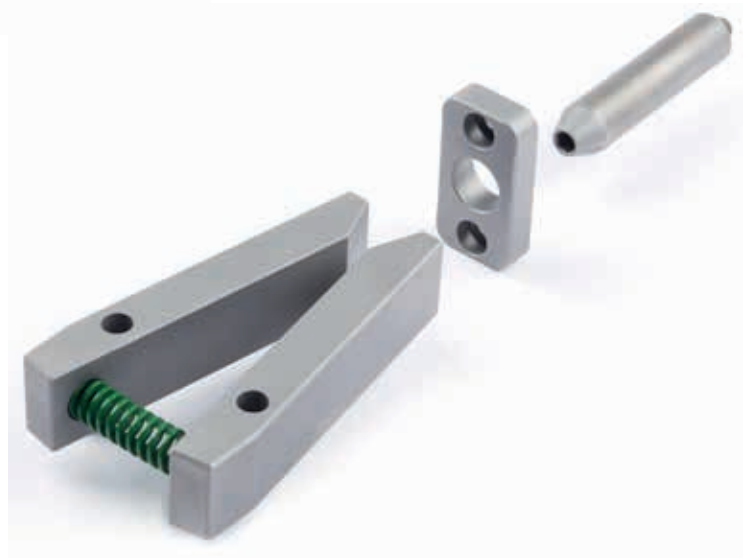
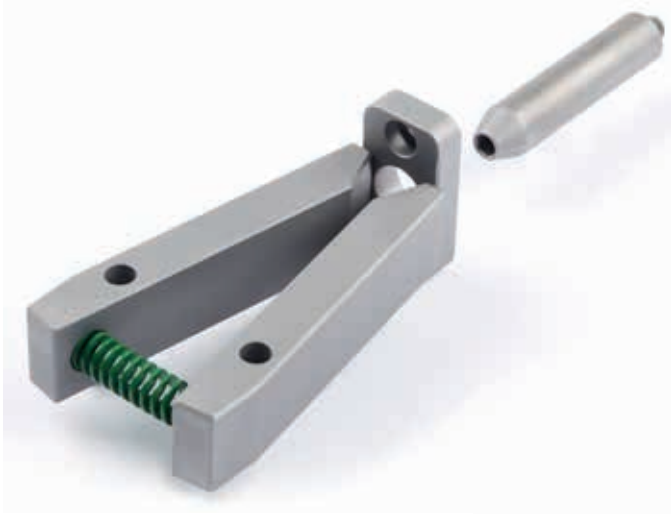
CODE KIT	CODE	COMPONENTS
DT10K2	DT10L	PLATE LOCKS LEVERS DT (2)
	DT10TI	LOCKS BLOCKS DT (2)
	DT10PS	DOWELS HOLDING PLATE DT (2)
	DT10P	RELEASE ROD DT
	DT10GP	GUIDING PLATE FOR RELEASE ROD DT

Kit includes: dowel pins Ø10x50 (2) - fixing screws M10x20 DIN 7984 (2) -
dowel pins Ø4x10 (4) - fixing screws M12x25 DIN 7984 (2) -
recovery springs (2)



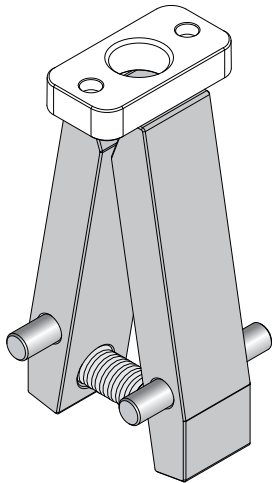
CODE KIT	CODE	COMPONENTS
DT10K3	DT10L	PLATE LOCKS LEVERS DT (2)
	DT10TS	LOCKS BLOCKS DT (2)
	DT10PS	DOWELS HOLDING PLATE DT (2)
	DT10PDL	DOUBLE TAPER RELEASE ROD DT

Kit includes: dowel pins Ø10x50 (2) - fixing screws M10x20 DIN 7984 (2) -
dowel pins Ø4x10 (4) - fixing screws M12x25 DIN 7984 (2) -
recovery springs (2)

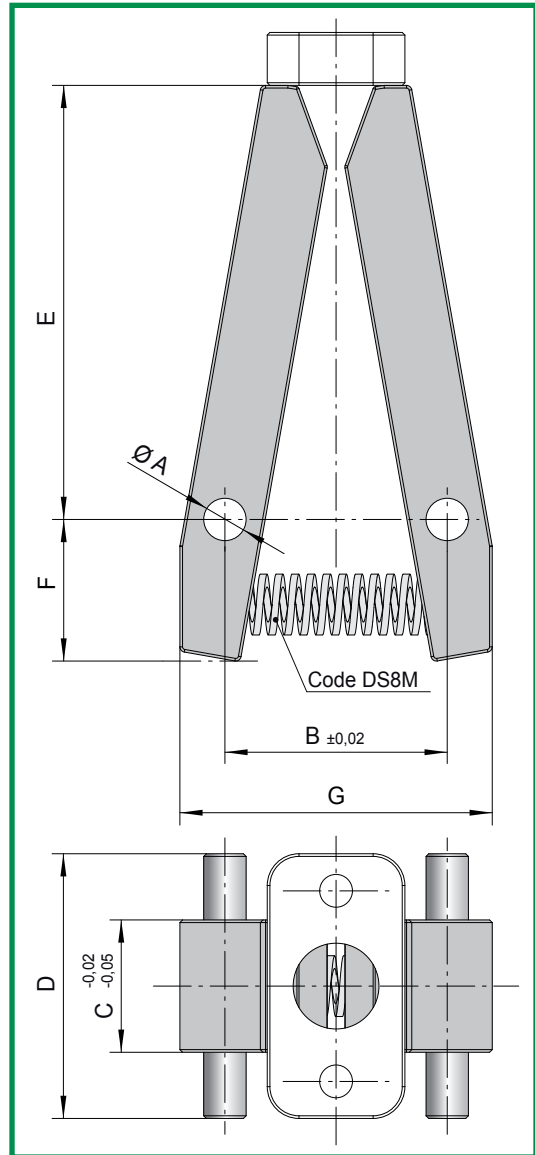


CHARACTERISTICS

- 1) HIGH LOAD CAPACITY;
- 2) EASY INSTALLATION WITH ONLY A SMALL AMOUNT OF MACHINING;
- 3) DOUBLE EJECTION WITH SPACED PLATES DESIGN.



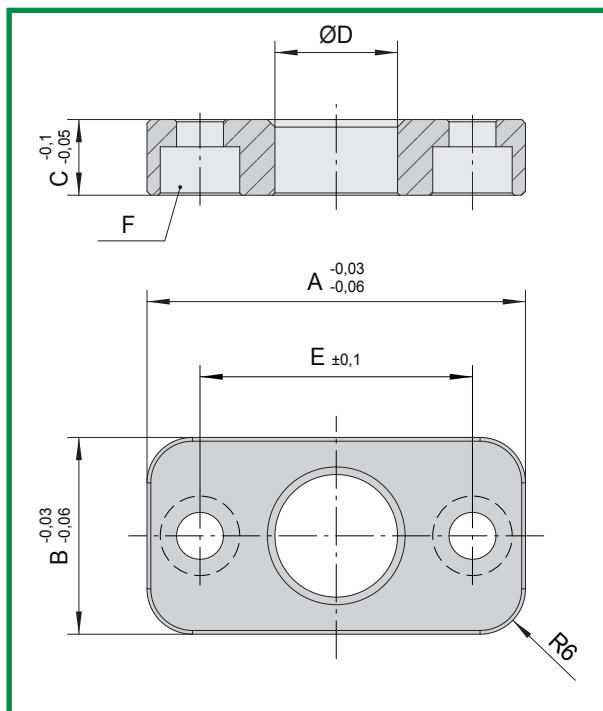
CODE: **DS8L**



CODE	A	B	C	D	E	F	G
DS8L	8	42	25	50	82	27	60

Mat.: Carbon steel. Hardness: 540 HRV
Carbonitrided depth 0,5mm

PUSH PLATE DS

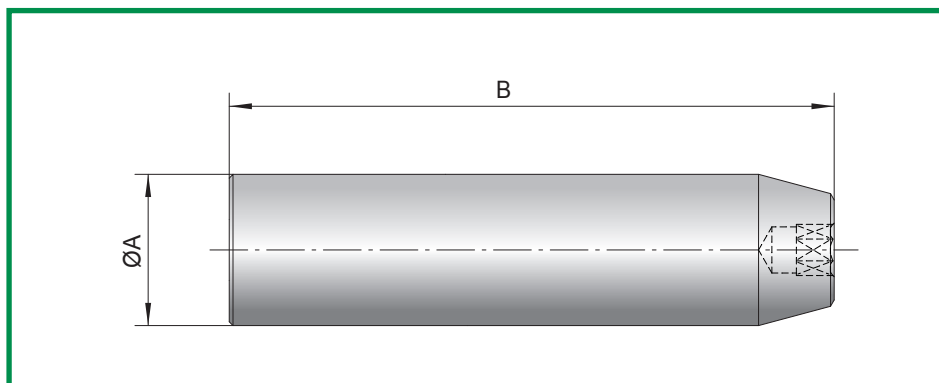


CODE: **DS8PA**

CODE	A	B	C	D	E	F
DS8PA	50	26	10	16,2	36	M6

Mat.: Carbon steel. Hardness: 540 HRV
Carbonitrided depth 0,5mm

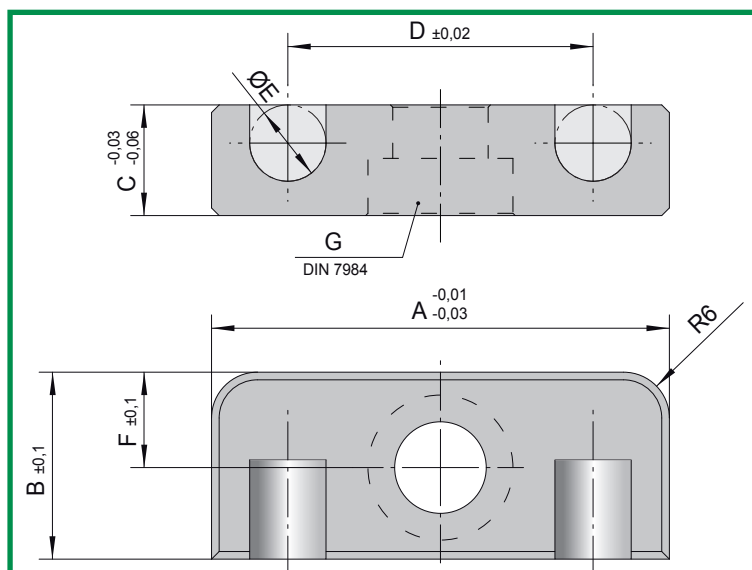
RELEASE ROD DS



CODE: **DS8P**

CODE	A	B
DS8P	16	200

Mat.: 7225. Hardness: 670 HV05
Nitrided depth 0,3mm

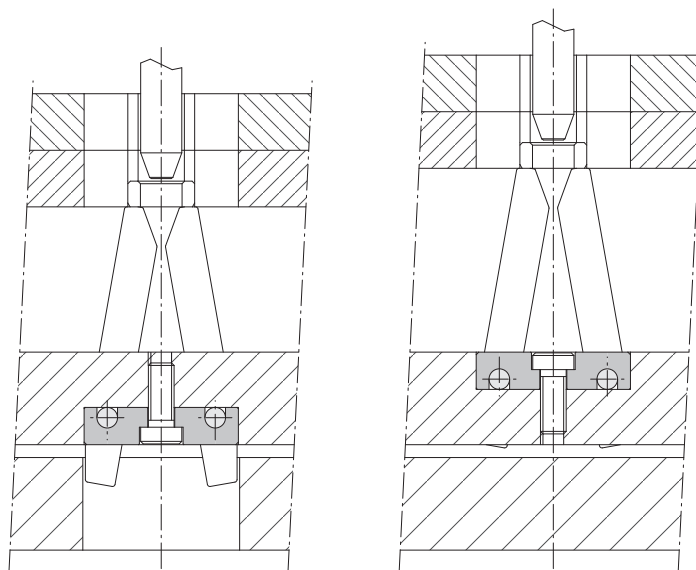


CODE: **DS8PS**

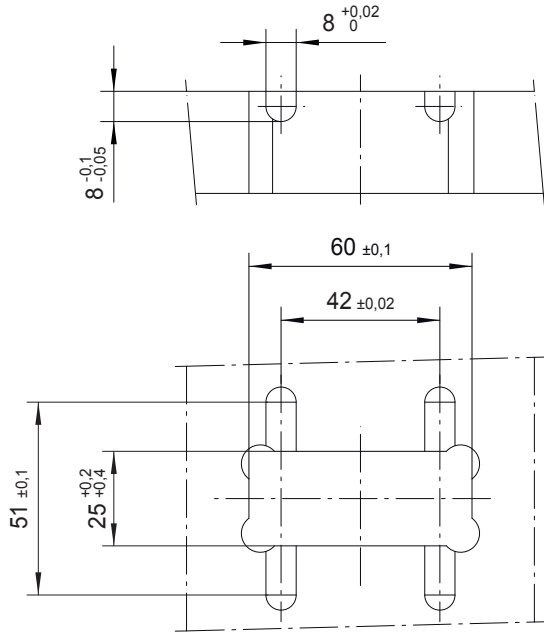
CODE	A	B	C	D	E	F	G
DS8PS	60	24,5	14,5	42	8	12,5	M12

Mat.: Carbon steel. Hardness: 540 HRV
Nitrided depth 0,3mm

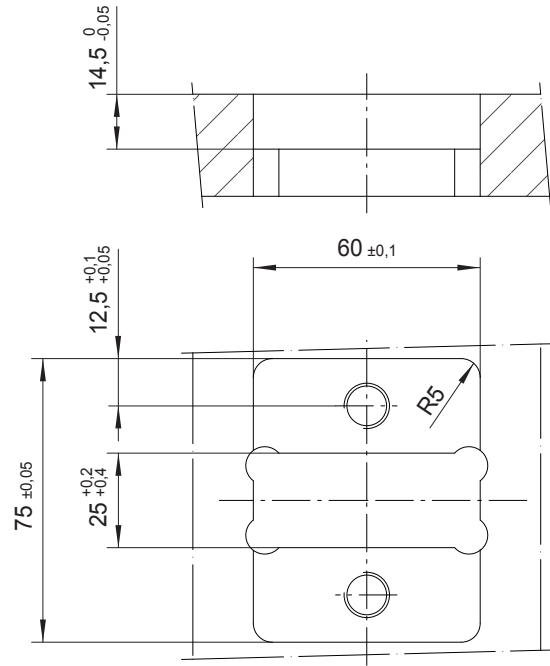
TECHNICAL NOTES



• Dowels holding plate application examples.

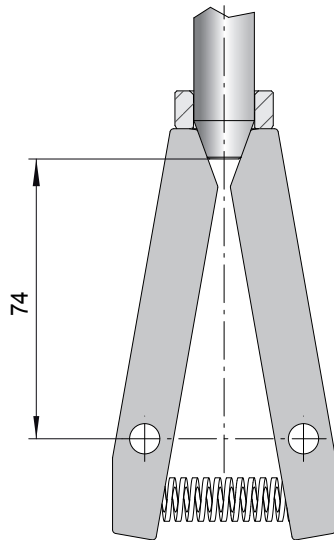


- Suggested seat machining for application without dowels holding plate.

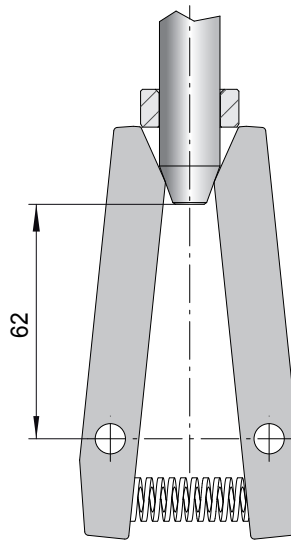


- Suggested seat machining for application with dowels holding plate.

MINIMUM STROKE

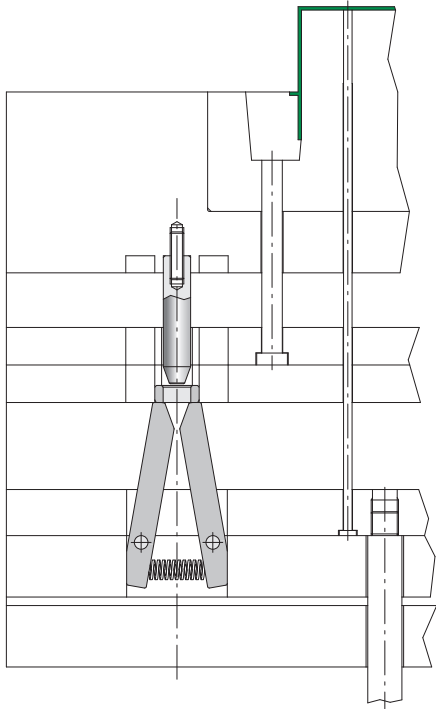


RELEASE STARTING POINT



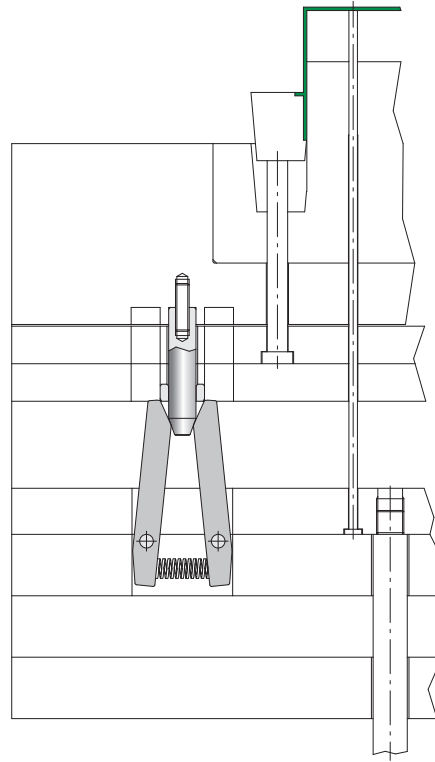
RELEASE ENDING POINT

- In order to guarantee a complete release of the system a minimum 12 mm stroke is needed.



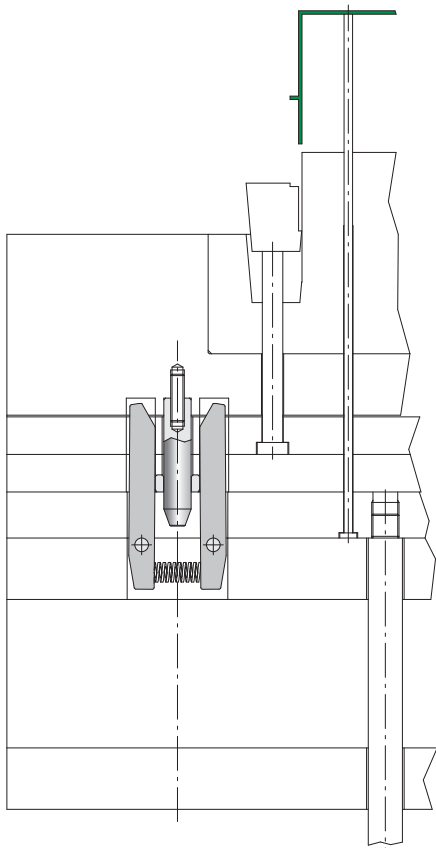
STARTING POSITION

- DS system keeps the ejector plates spaced



FIRST STROKE

- The lower ejector plate transmits the movement to the upper ejector plate through the DS system. The ejector plates move keeping mutual distance till the achievement of the DS releasing point.



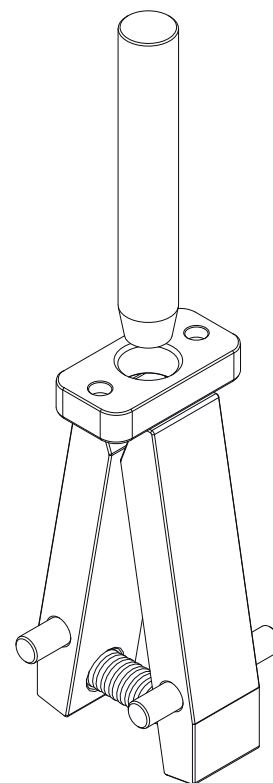
SECOND STROKE

- After the releasing of the DS system the lower ejector plate performs the second stroke

DS PLATE LOCKS KIT

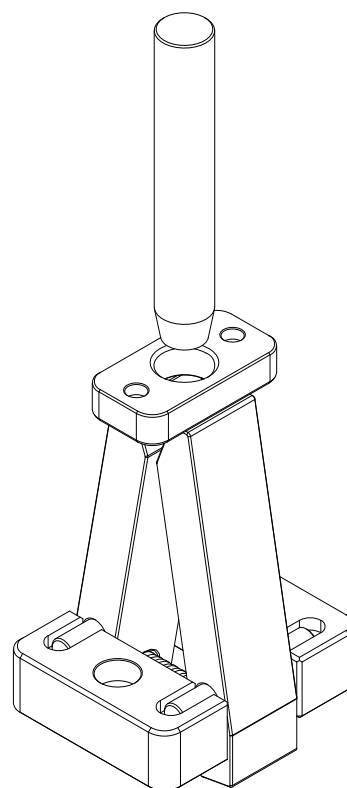
CODE KIT	CODE	COMPONENTS
DS8K1	DS8L	PLATE LOCKS LEVERS DS (2)
	DS8PA	PUSH PLATE DS
	DS8P	RELEASE ROD DS

Kit includes: dowel pins Ø8x50 (2) - fixing screws M6x12 (2)
- recovery spring

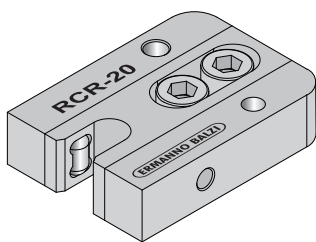


CODE KIT	CODE	COMPONENTS
DS8K2	DS8L	PLATE LOCKS LEVERS DS (2)
	DS8PA	PUSH PLATE DS
	DS8PS	DOWELS HOLDING PLATE DS (2)
	DS8P	RELEASE ROD DS

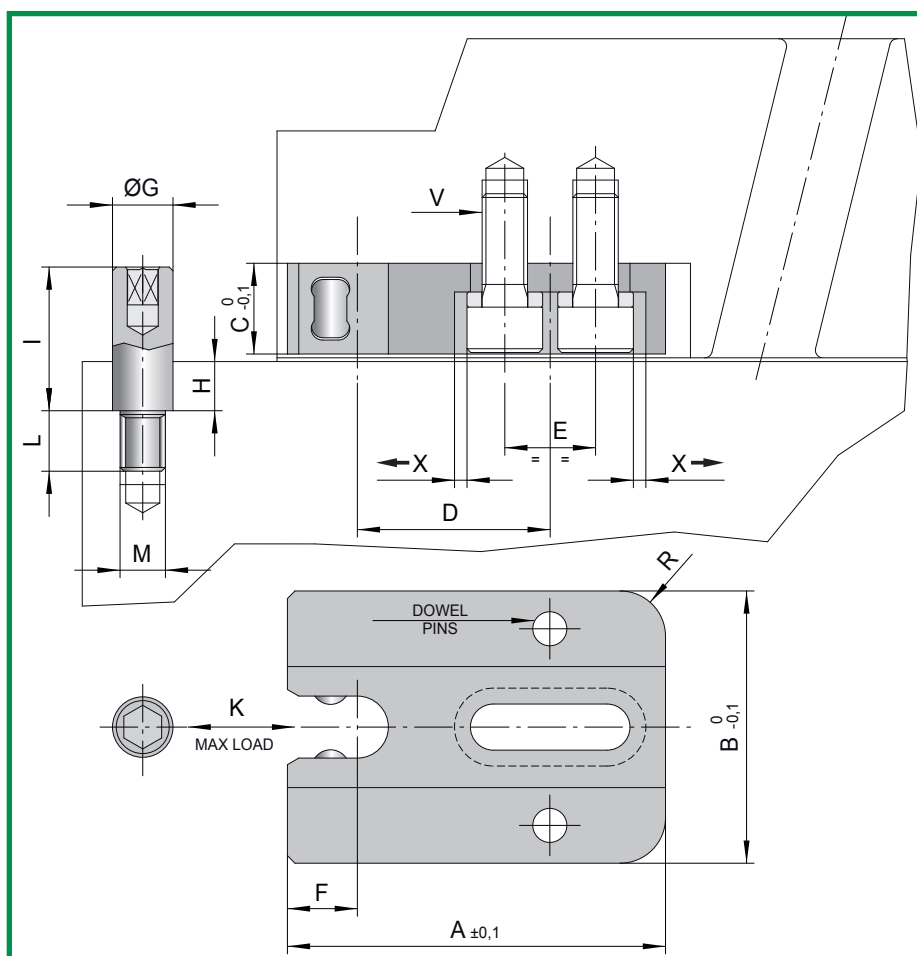
Kit includes: dowel pins Ø8x50 (2) - fixing screws M6x12(2) -
fixing screws M12x25 DIN 7984 (2) - recovery springs



ADJUSTABLE SLIDE RETAINER



CODE: **RCR**



WAYS OF APPLICATION

Adjustable

Positioning the screws with interaxis **E1**, it is possible to adjust the device position according to the quote **X**.

In this case we recommend to apply, after the setting, at least a positioning pin, that allows to maintain the position in case of disassembly.

Fixed

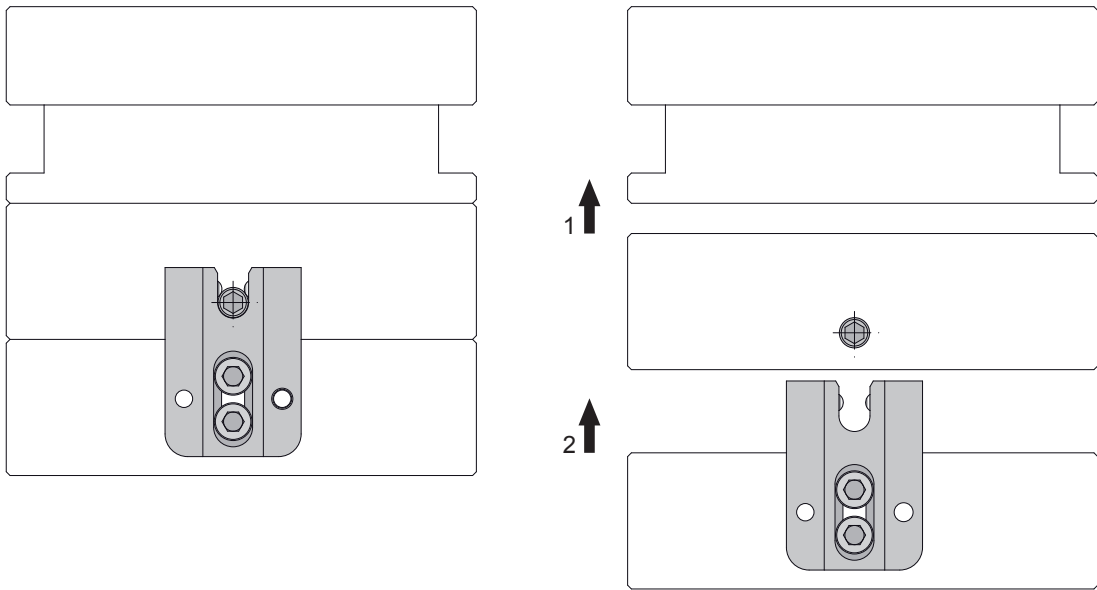
Positioning the screws with interaxis **E2** the holder is fixed.

CODE	A	B	C	D	E1	E2	F	G	H	I	L	M	V	X	R	K
RCR-10	38	24	10	18,5	10	12	7,5	6	6	15	6	M5	M5x15	1	4	10Kg
RCR-20	50	36	12	25,5	12	15	9	8	8	19	8	M6	M6x15	1,5	6	20Kg
RCR-40	64	46	16	33	15	19	12	12	8	23	10	M10	M8x20	2	8	40Kg

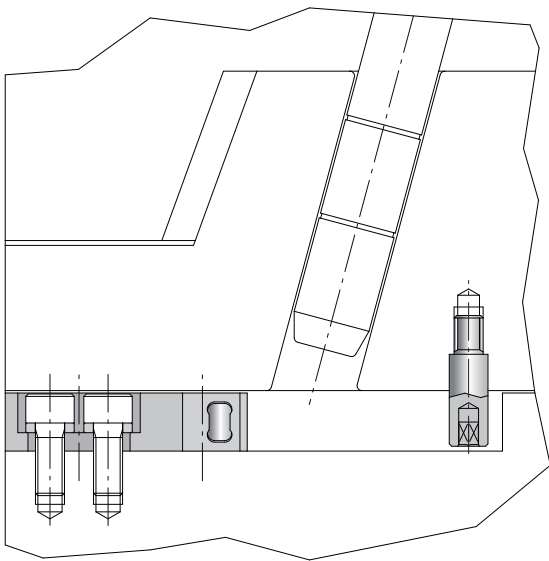
CHARACTERISTICS

- 1) POSSIBILITY OF REGULATION;
- 2) HIGH LOAD CAPACITY;
- 3) LACK OF WEAR (guaranteed by hooking by rolls);
- 4) PROTECTED HOOKING MECHANISM (no fear of dirt).

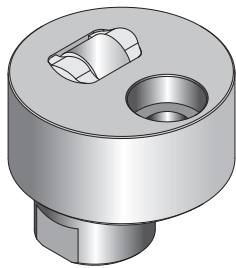
PLATES RETAINING



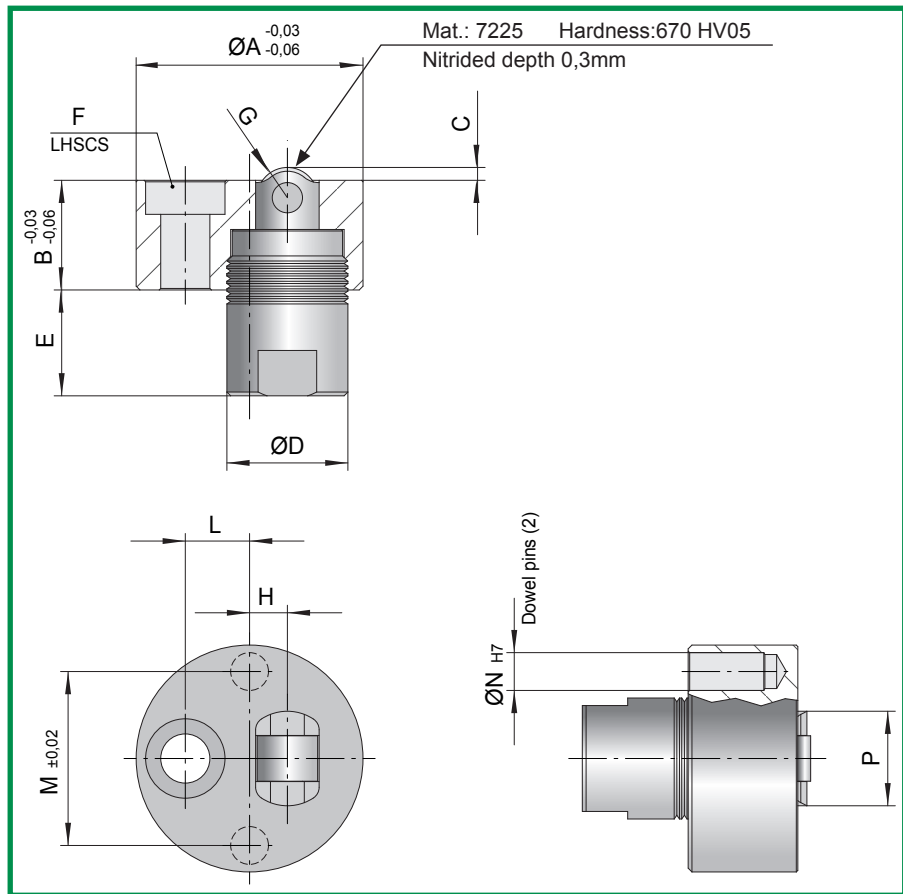
SLIDERS RETAINING



ROLLER SLIDE RETAINER

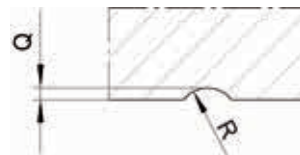
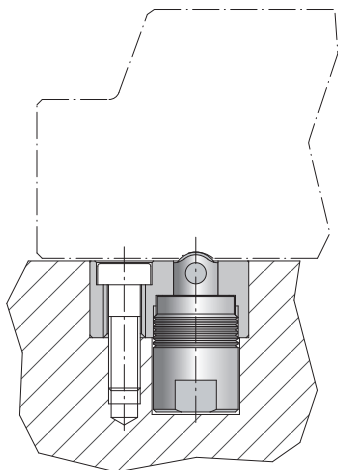


CODE: **RIT..**



K= MAXIMUM LOAD

CODE	A	B	C	D	E	F	G	H	L	M	N	P	K
RIT10	25	11,5	1	14	14	M5	6	3	7,5	18	4	10,5	10Kg
RIT20	30	14,5	1,5	16	14	M6	8	5	8,5	23	5	12,5	20Kg
RIT50	40	19,5	2	22	18	M8	12	7	11	30	6	18,5	50Kg

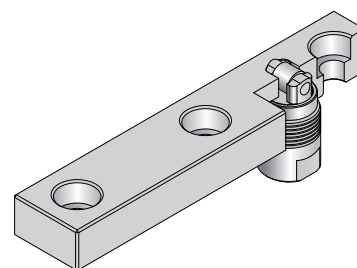
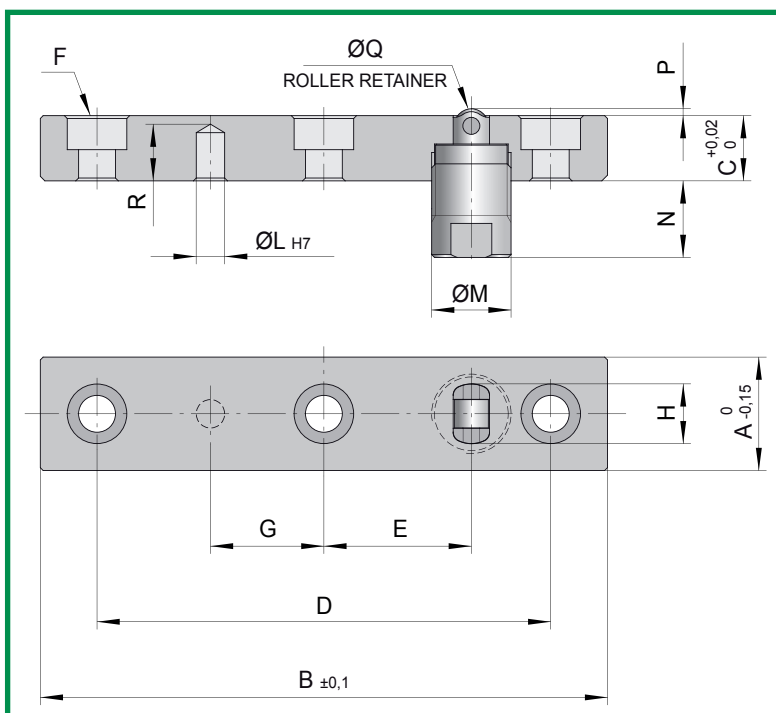


CODE	Q	R
RIT10	1	3
RIT20	1,5	4
RIT50	2	6

CHARACTERISTICS

- 1) LOW FRICTION BETWEEN SLIDING ELEMENTS;
- 2) HIGH LOAD CAPACITY;
- 3) SMALL ENCUMBRANCE .

SLIDING PLATE WITH INTEGRATED SLIDE RETAINER



CODE: PRI..

K= MAXIMUM LOAD

CODE	A	B	C	D	E	F	G	H	L	M	N	P	Q	R	K
PRI2060	20	60	11,5	44	8	M6 (2)	9	10,5	5	14	14	1	6	7,5	10Kg
PRI2080	20	80	11,5	60	16	M6 (2)	9	10,5	5	14	14	1	6	7,5	10Kg
PRI20100	20	100	11,5	80	26	M6 (3)	20	10,5	5	14	14	1	6	7,5	10Kg
PRI20120	20	120	11,5	100	36	M6 (3)	25	10,5	5	14	14	1	6	7,5	10Kg

CODE	A	B	C	D	E	F	G	H	L	M	N	P	Q	R	K
PRI30100	30	100	14,5	76	20	M8 (2)	10	12,5	6	16	14	1,5	8	10	20Kg
PRI30120	30	120	14,5	92	28	M8 (2)	10	12,5	6	16	14	1,5	8	10	20Kg
PRI30140	30	140	14,5	112	38	M8 (3)	28	12,5	6	16	14	1,5	8	10	20Kg
PRI30160	30	160	14,5	132	48	M8 (3)	33	12,5	6	16	14	1,5	8	10	20Kg

CODE	A	B	C	D	E	F	G	H	L	M	N	P	Q	R	K
PRI40120	40	120	19,5	88	22	M10 (2)	14	18,5	8	22	18	2	12	14	50Kg
PRI40140	40	140	19,5	104	30	M10 (2)	14	18,5	8	22	18	2	12	14	50Kg
PRI40160	40	160	19,5	124	40	M10 (3)	31	18,5	8	22	18	2	12	14	50Kg
PRI40180	40	180	19,5	144	50	M10 (3)	36	18,5	8	22	18	2	12	14	50Kg

Mat.: Carbon steel. Hardness:430 HV05
Nitrided depth 0,3mm.

N.B.: Sliding plates code

PRI 20x60 / 20x80 - PRI 30x100 / 30x120 - PRI 40x120 / 40x140 are not provided with central screw

CHARACTERISTICS

- 1) LOW FRICTION BETWEEN SLIDING ELEMENTS;
- 2) HIGH LOAD CAPACITY;
- 3) SMALL ENCUMBRANCE .

ERMANN BALZI

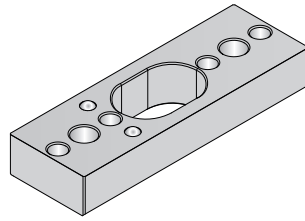
MODULAR SYSTEM FOR SLIDES WITH CYLINDRICAL GUIDES



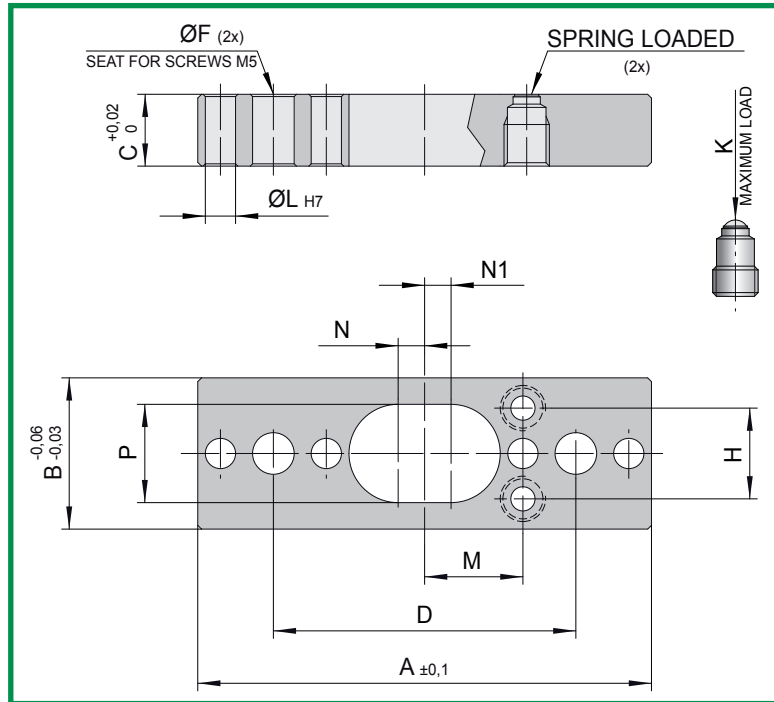
CHARACTERISTICS

1. MODULAR SYSTEM FOR ALL SIZES FROM 20 TO 220mm;
 2. MORE COMPACT DESIGN THANKS TO THE ELIMINATION OF EXTERNAL GUIDES;
 3. EXTENDED GUIDES AVAILABLE WITHOUT STROKE LIMITS;
 4. POSSIBILITY TO APPLY A SPECIAL ROUND SLIDE RETAINER TO THE CYLINDRICAL GUIDES;
 5. COUPLIYNG OF THE HYDRAULIC CYLINDER TO THE CYLINDRICAL GUIDES, LEAN SOLUTION THAT AVOID BULKY FRAMES;
 6. SPRING LOADED SLIDE RETAINER DEVICE FOR THE END OF STROKE IN THE SLIDING PLATES SET 12.
- N.B.: CYLINDRICAL GUIDES AND SLIDING PLATES AVAILABLE COVERED WITH SOLID ANTIFRICTION LUBRICATING .

SLIDING PLATE SET 12



CODE: **PS12..**

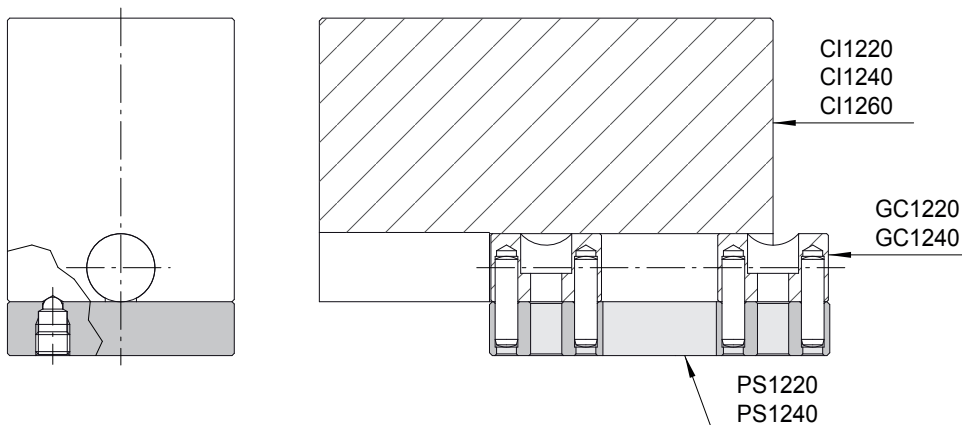


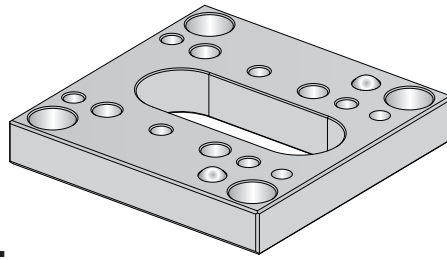
CODE	A	B	C	D	F	H	L	M	N	N1	P	K
PS1220	60	20	9,5	40	5,5	12	4	13	3,5	3,5	13	2Kg
PS1240	60	40	9,5	40	5,5	24	4	13	3,5	3,5	13	5Kg

Carbon steel. Hardness:430 HV05

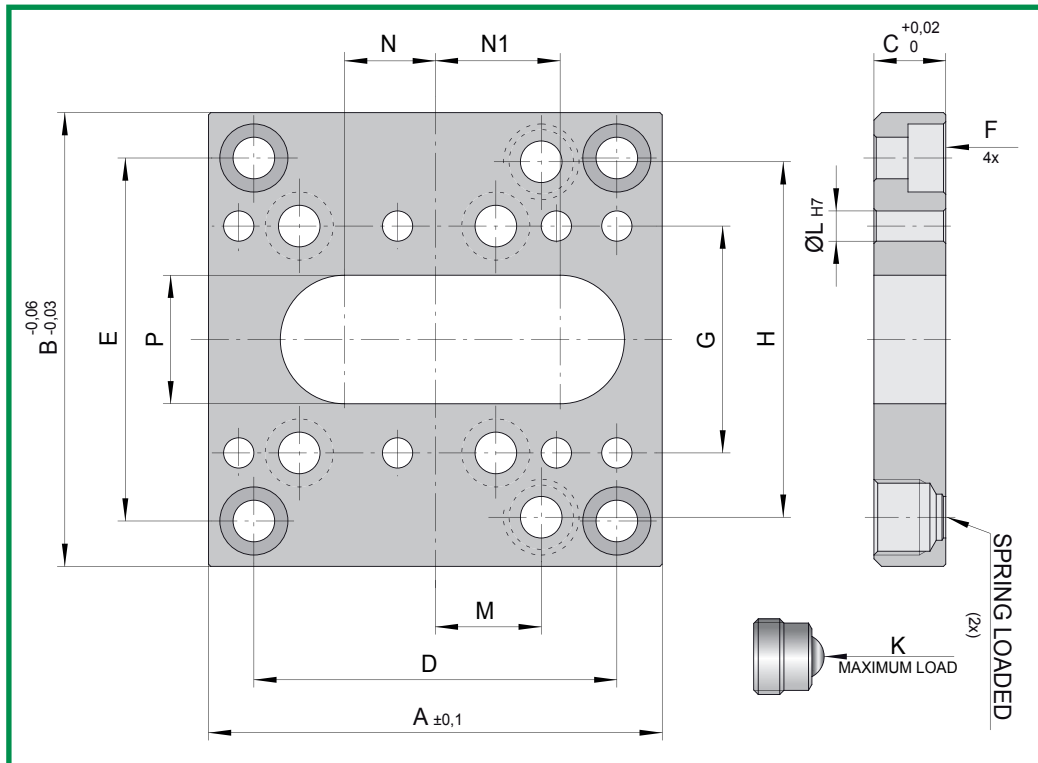
Nitrided depth 0,3mm.

Available covered with solid antifriction lubricating.



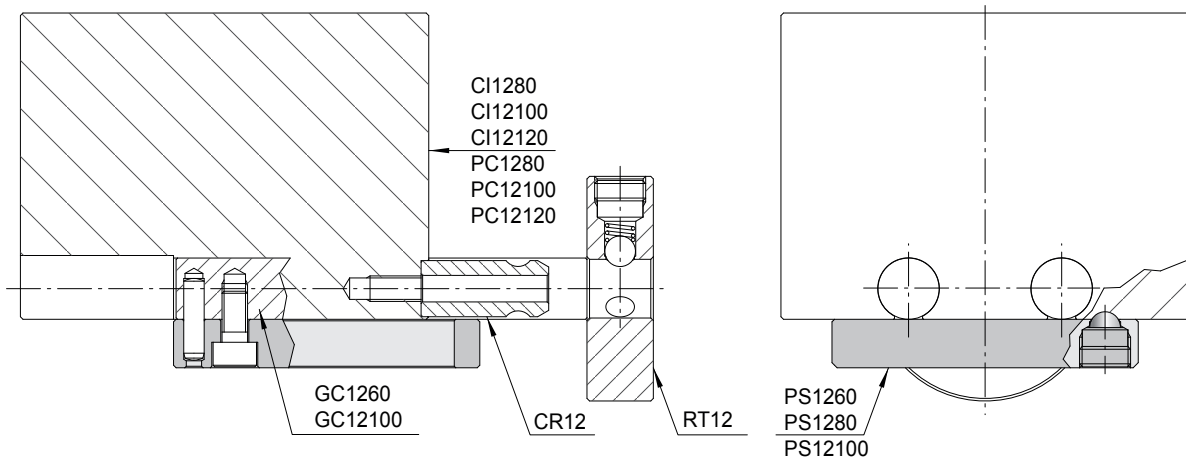


CODE: **PS12..**

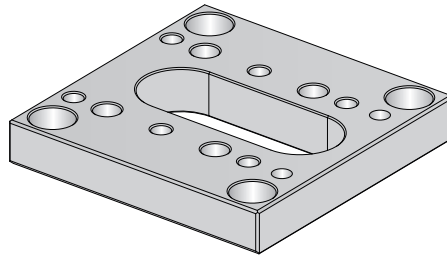


CODE	A	B	C	D	E	F	G	H	L	M	N	N1	P	K
PS1260	60	60	9,5	48	48	M5	30	47	4	14	12	16,5	17	2Kg
PS1280	60	80	9,5	48	68	M5	30	52	4	14	12	16,5	17	5Kg
PS12100	60	100	9,5	48	80	M5	30	60	4	14	12	16,5	17	5Kg

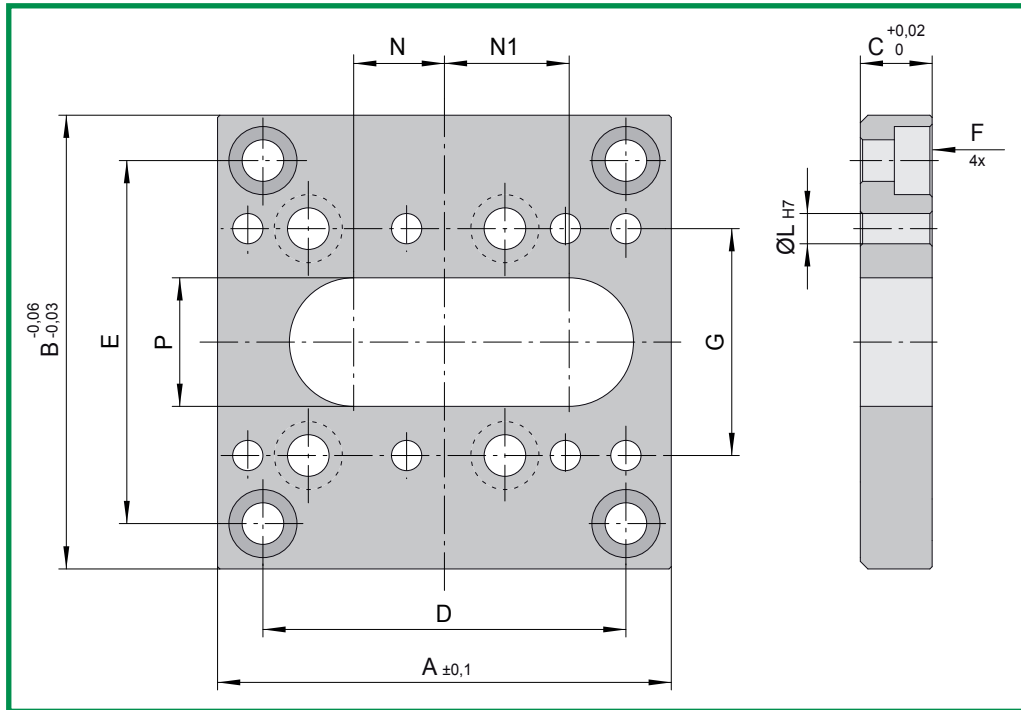
Mat.: Carbon steel. Hardness:430 HV05
 Nitrided depth 0,3mm.
 Available covered with solid antifriction lubricating.



SLIDING PLATE SET 20



CODE: **PS20..**

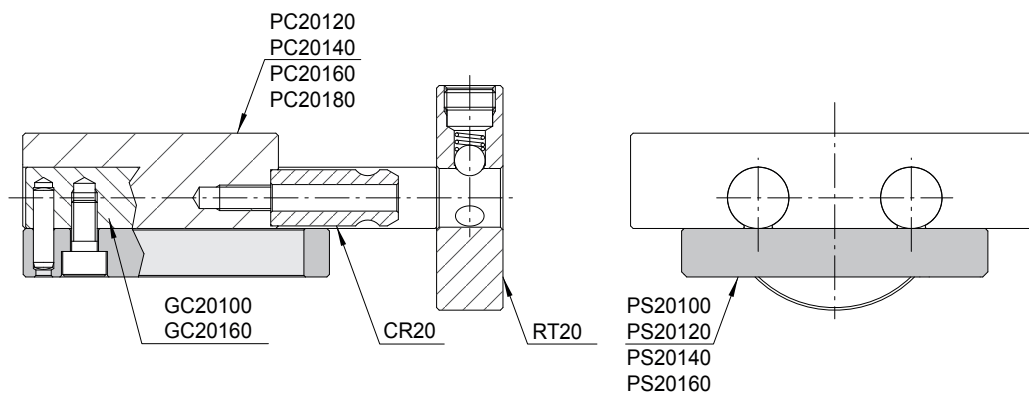


CODE	A	B	C	D	E	F	G	L	N	N1	P
PS20100	100	100	11,5	80	82	M8	48	8	23,5	27	27
PS20120	100	120	11,5	80	90	M8	48	8	23,5	27	27
PS20140	100	140	11,5	80	100	M8	48	8	23,5	27	27
PS20160	100	160	11,5	80	110	M8	48	8	23,5	27	27

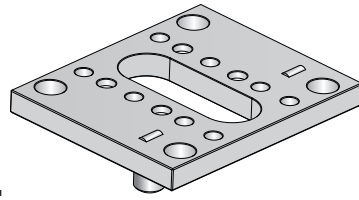
Mat.: Carbon steel. Hardness:430 HV05

Nitrided depth 0,3mm.

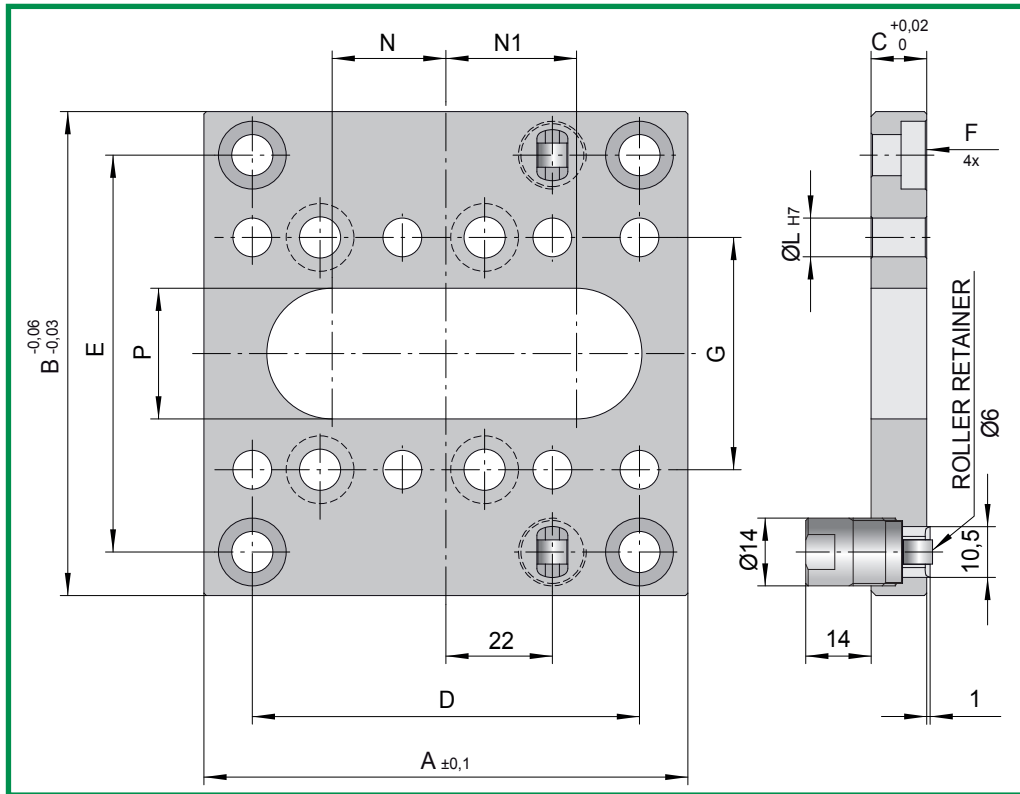
Available covered with solid antifriction lubricating.



SLIDING PATE SET 20 WITH ROLLER SLIDE RETAINER

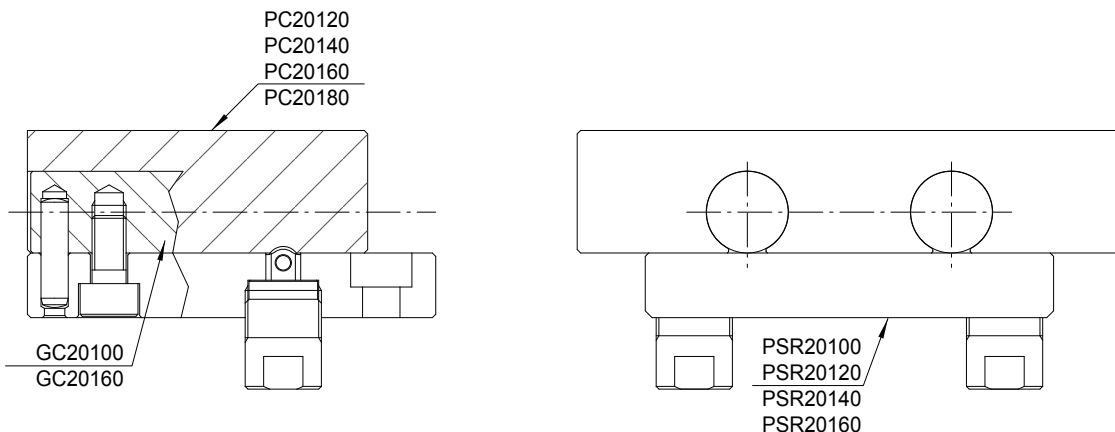


CODE: **PSR20..**

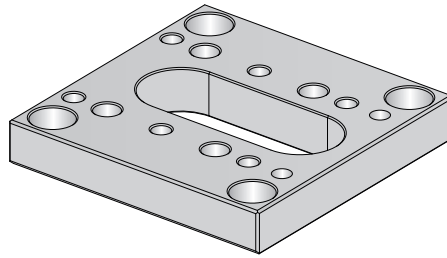


CODE	A	B	C	D	E	F	G	L	N	N1	P
PSR20100	100	100	11,5	80	82	M8	48	8	23,5	27	27
PSR20120	100	120	11,5	80	90	M8	48	8	23,5	27	27
PSR20140	100	140	11,5	80	100	M8	48	8	23,5	27	27
PSR20160	100	160	11,5	80	110	M8	48	8	23,5	27	27

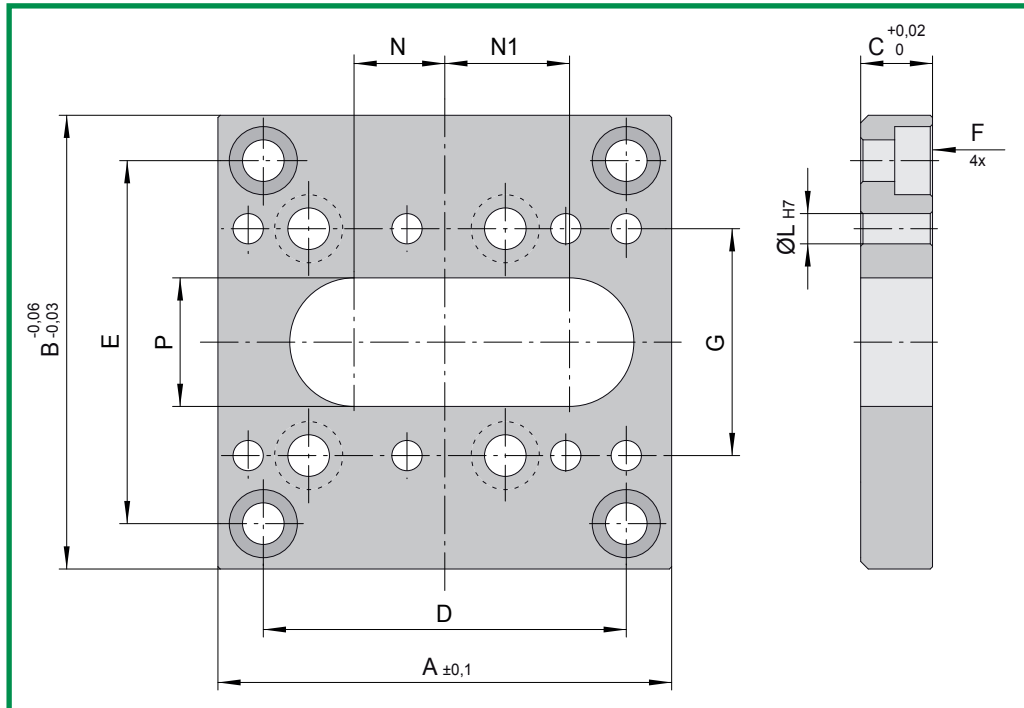
Maximum load 20 Kg.
 Carbon steel. Hardness:430 HV05
 Nitrided depth 0,3mm.
 Available covered with solid antifriction lubricating.



SLIDING PLATE SET 30

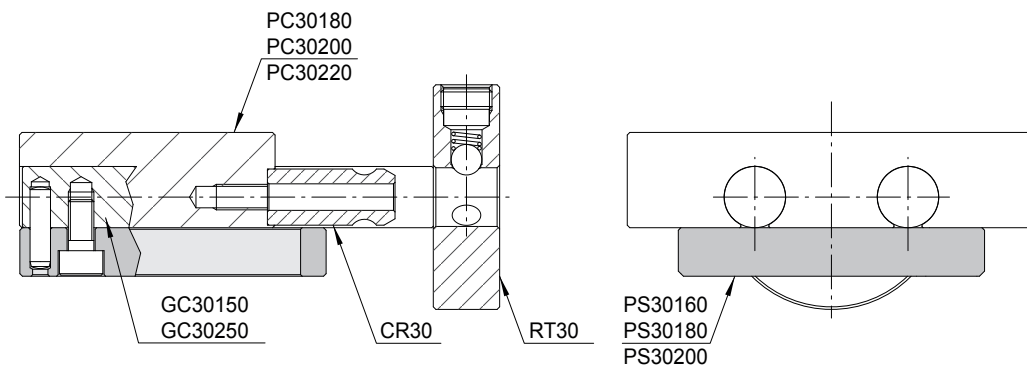


CODE: **PS30..**

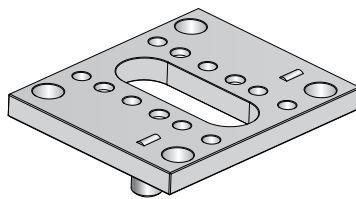


CODE	A	B	C	D	E	F	G	L	N	N1	P
PS30160	150	160	14,5	120	120	M10	64	10	45	49	34
PS30180	150	180	14,5	120	120	M10	64	10	45	49	34
PS30200	150	200	14,5	120	140	M10	64	10	45	49	34

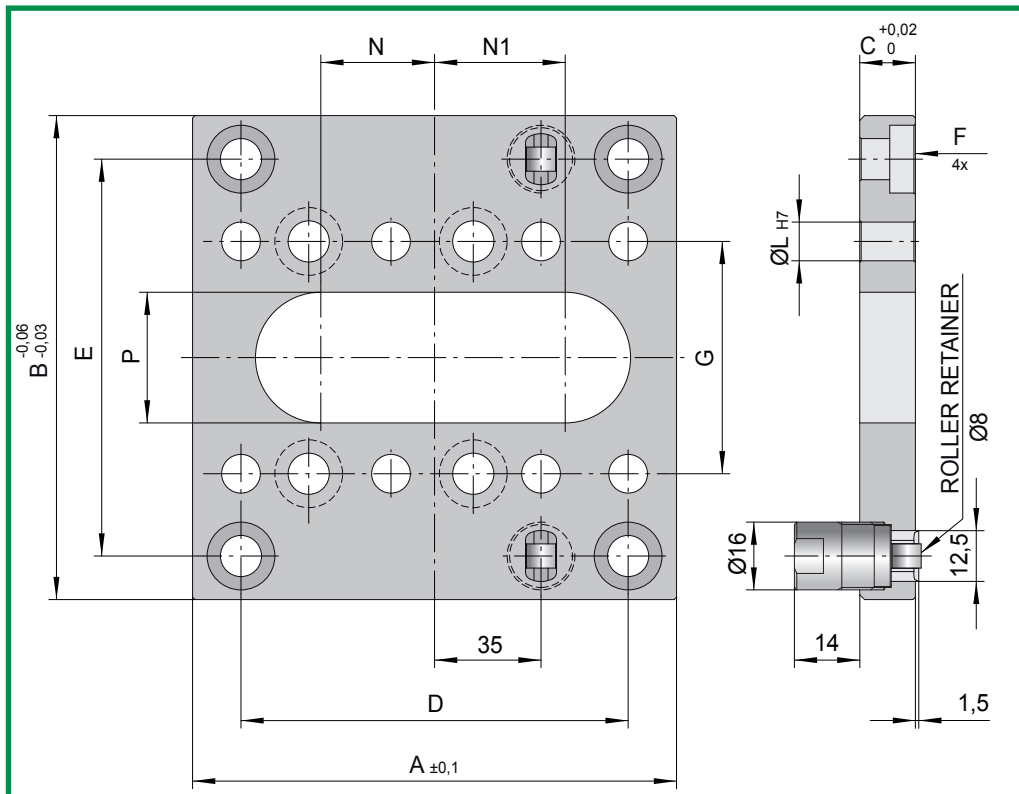
Mat.: Carbon steel. Hardness:430 HV05
 Nitrided depth 0,3mm.
 Available covered with solid antifriction lubricating.



SLIDING PATE SET 30 WITH ROLLER SLIDE RETAINER



CODE: **PSR30..**



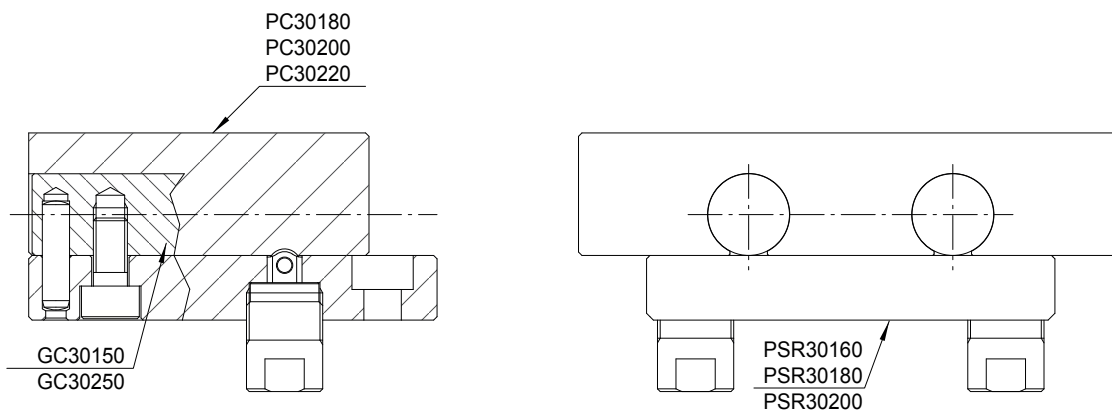
CODE	A	B	C	D	E	F	G	L	N	N1	P
PSR30160	150	160	14,5	120	120	M10	64	10	45	49	34
PSR30180	150	180	14,5	120	120	M10	64	10	45	49	34
PSR30200	150	200	14,5	120	140	M10	64	10	45	49	34

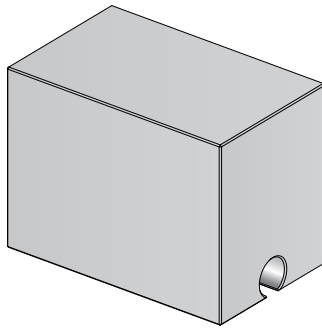
Maximum load 40 Kg.

Carbon steel. Hardness:430 HV05

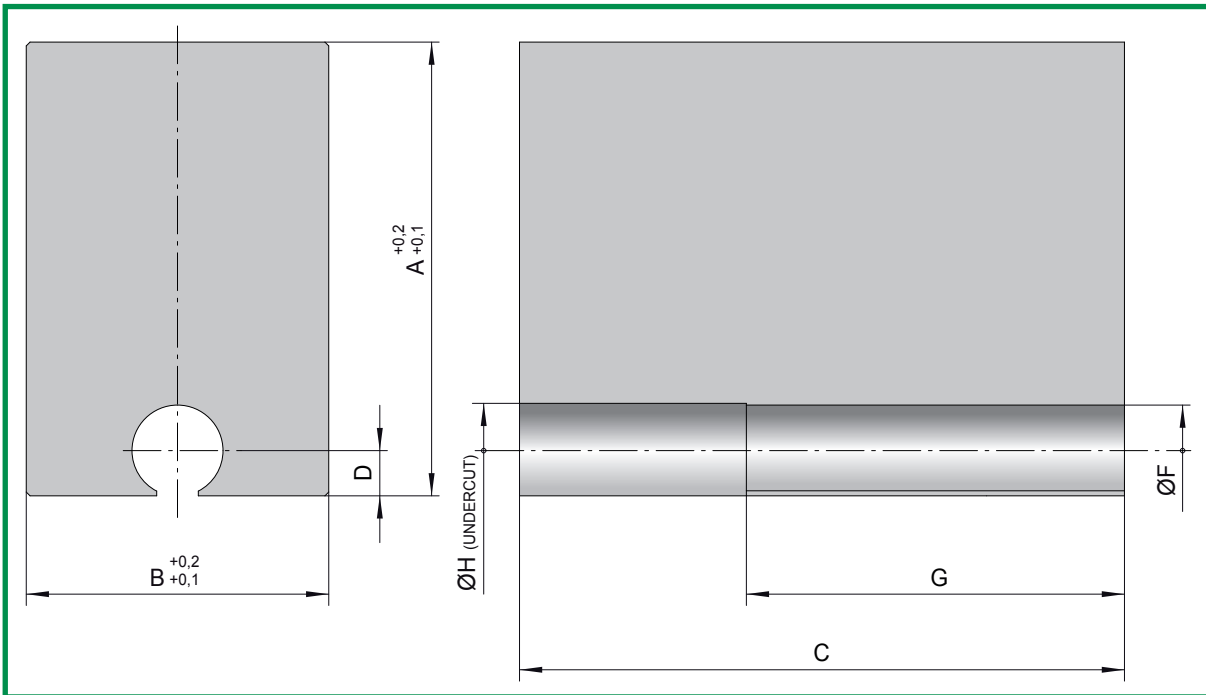
Nitrided depth 0,3mm.

Available covered with solid antifriction lubricating.





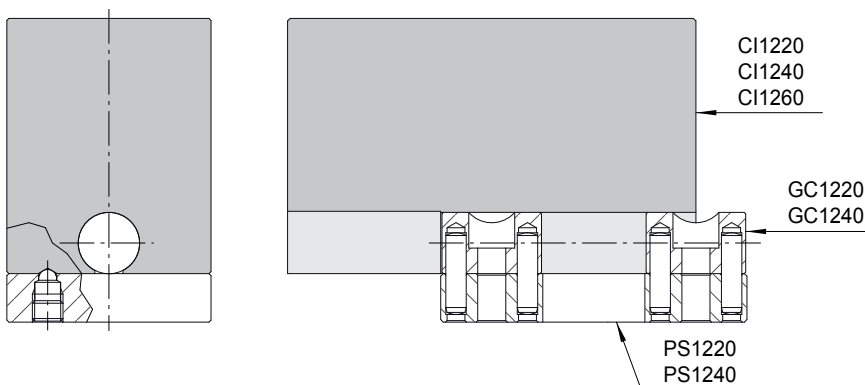
CODE: **CI12..**

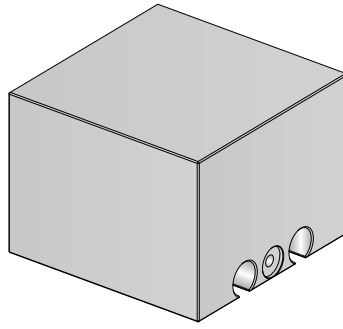


CODE	A	B	C	D	F	G	H
CI1220	60	20	80	6	12	50	12,5
CI1240	60	40	80	6	12	50	12,5
CI1260	60	60	80	6	12	50	12,5

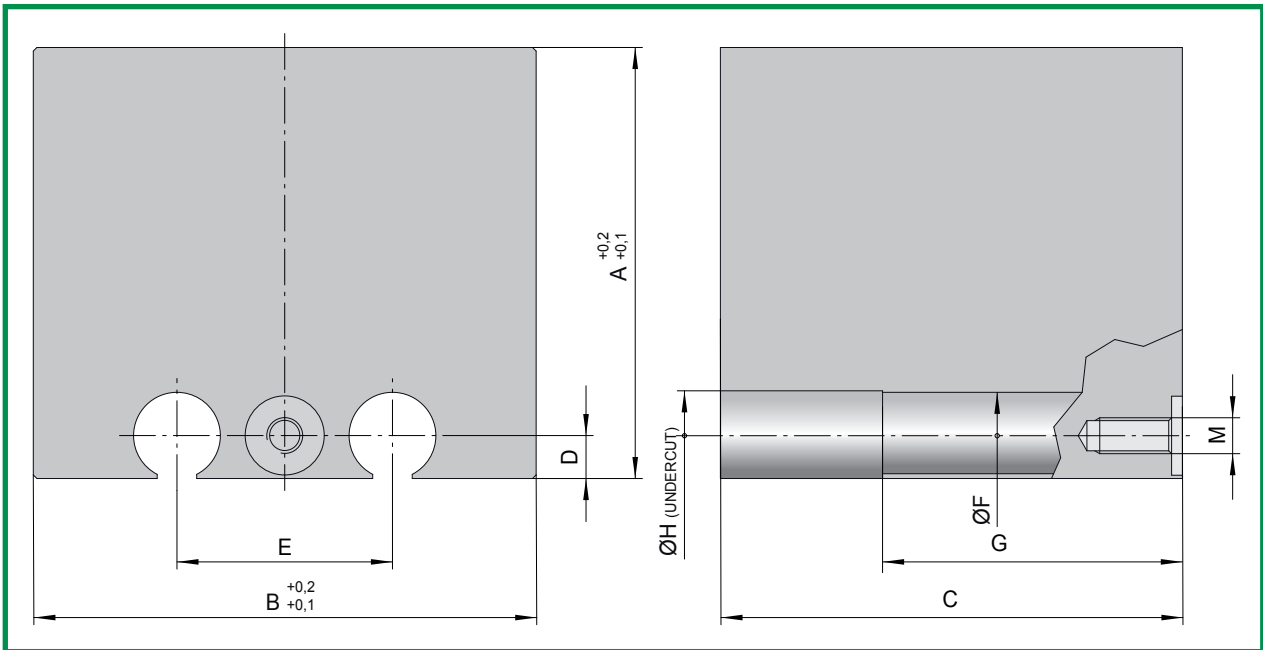
Mat.: 2311

Hardness: 1000±1100 N/mm² (33 HRC)





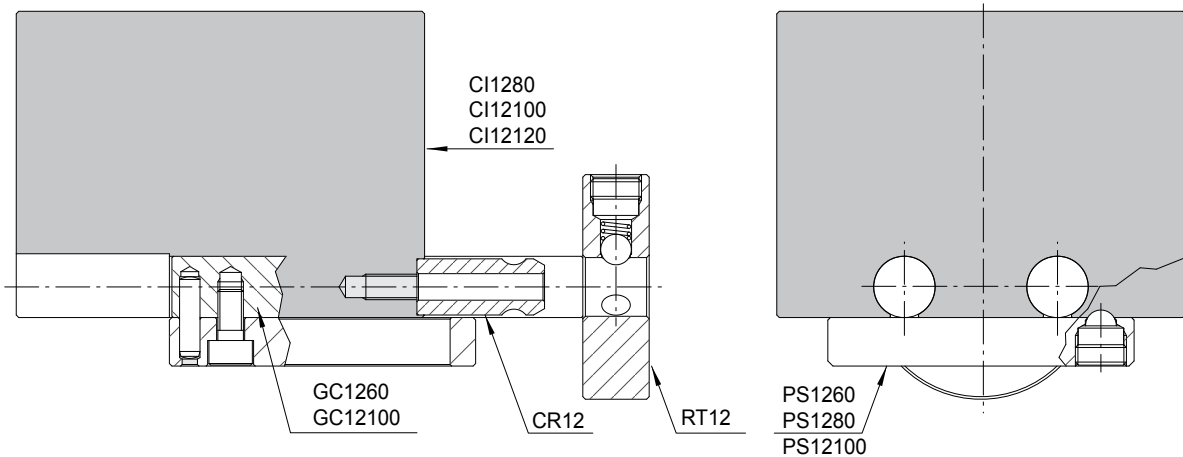
CODE: **CI12..**

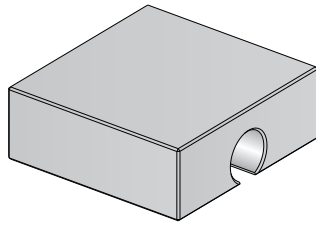


CODE	A	B	C	D	E	F	G	H	M
CI1280	60	80	80	6	30	12	50	12,5	M5
CI12100	60	100	80	6	30	12	50	12,5	M5
CI12120	60	120	80	6	30	12	50	12,5	M5

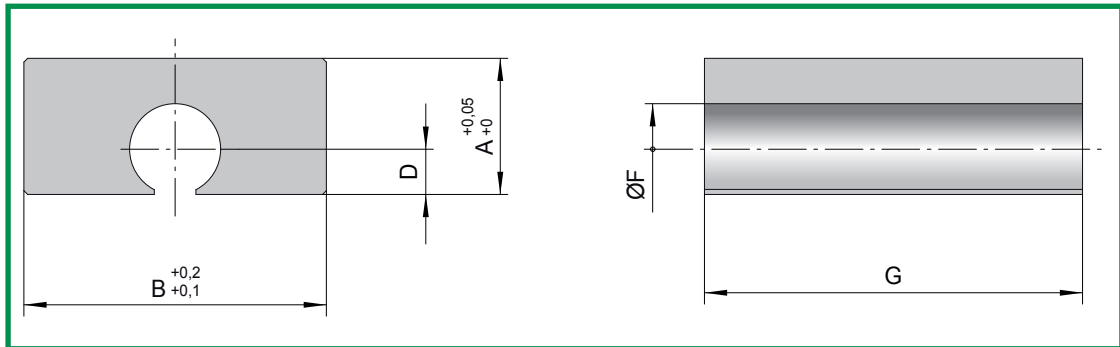
Mat.: 2311

Hardness: 1000÷1100 N/mm² (33 HRC)





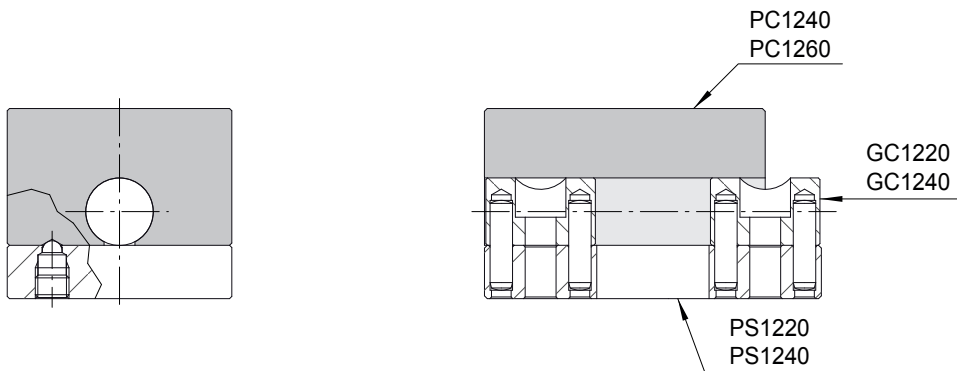
CODE: **PC12..**

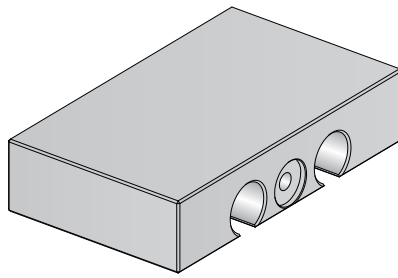


CODE	A	B	D	F	G
PC1240	18	40	6	12	48
PC1260	18	60	6	12	48

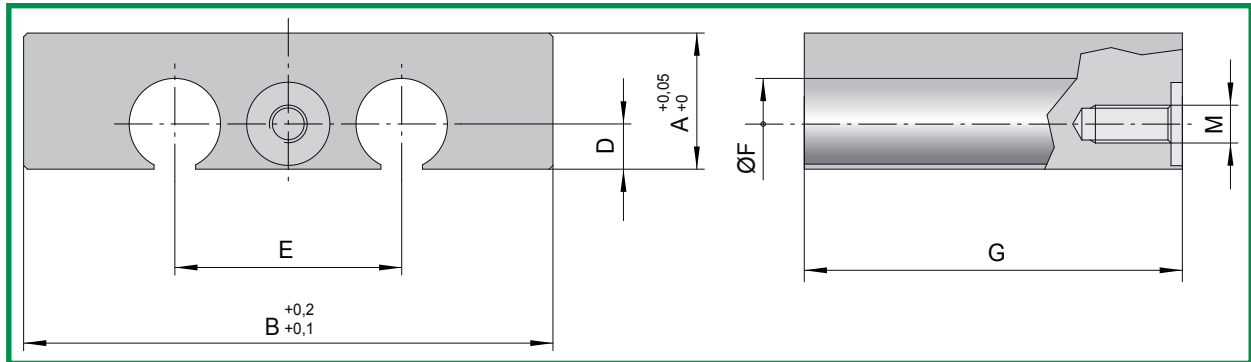
Mat.: 2311

Hardness: 1000÷1100 N/mm² (33 HRC)





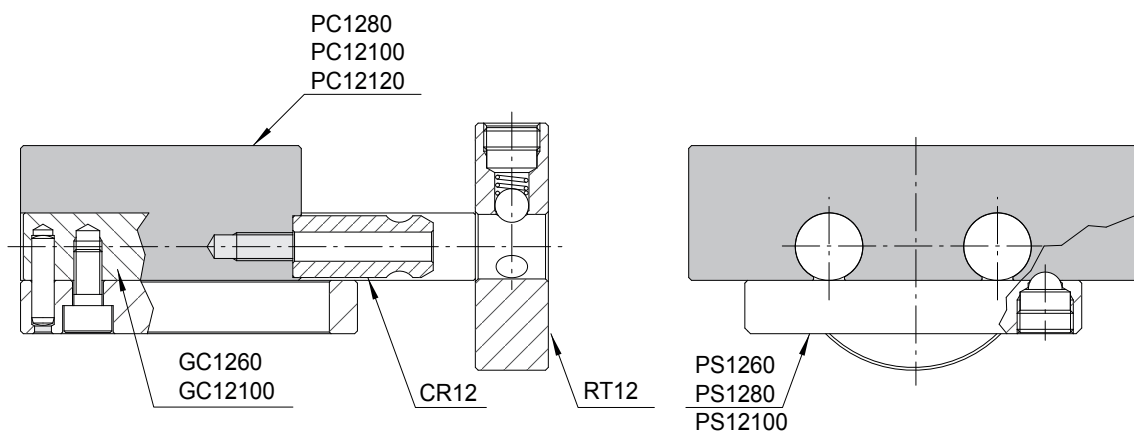
CODE: **PC12..**



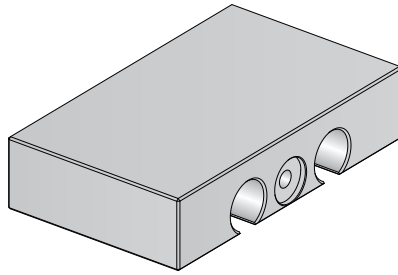
CODE	A	B	D	E	F	G	M
PC1280	18	80	6	30	12	48	M5
PC12100	18	100	6	30	12	48	M5
PC12120	18	120	6	30	12	48	M5

Mat.: 2311

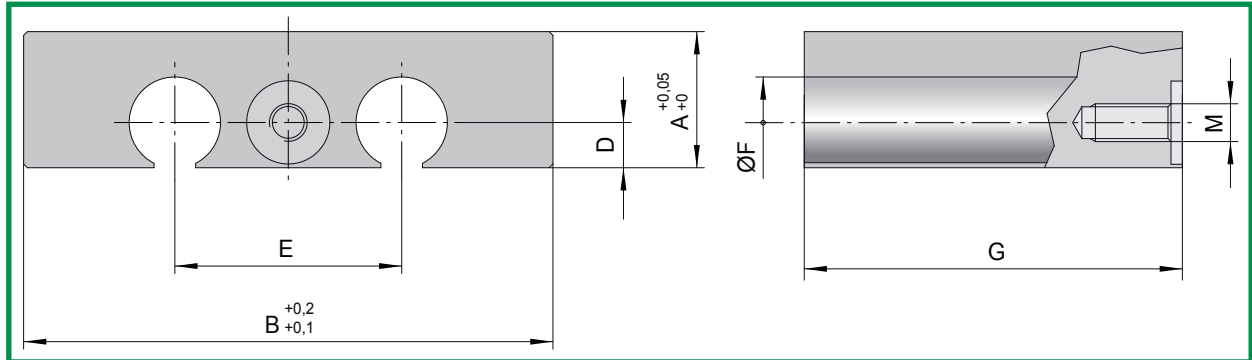
Hardness: 1000÷1100 N/mm² (33 HRC)



SLIDE BEARING SET 20



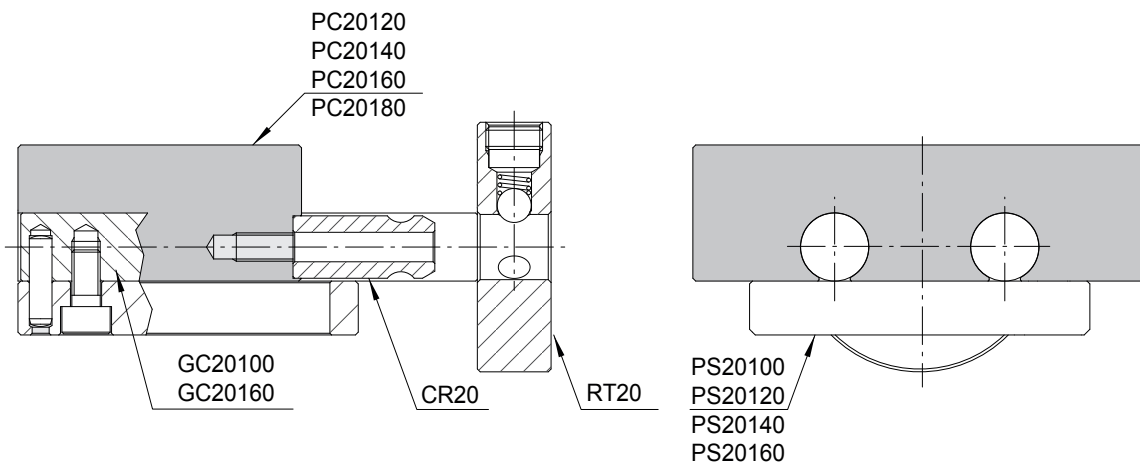
CODE: **PC20..**

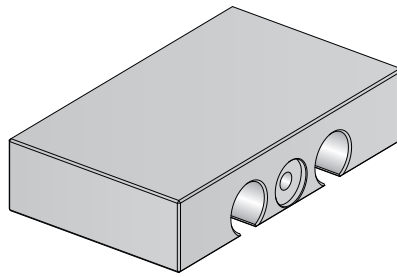


CODE	A	B	D	E	F	G	M
PC20120	28	120	10	48	20	78	M8
PC20140	28	140	10	48	20	78	M8
PC20160	28	160	10	48	20	78	M8
PC20180	28	180	10	48	20	78	M8

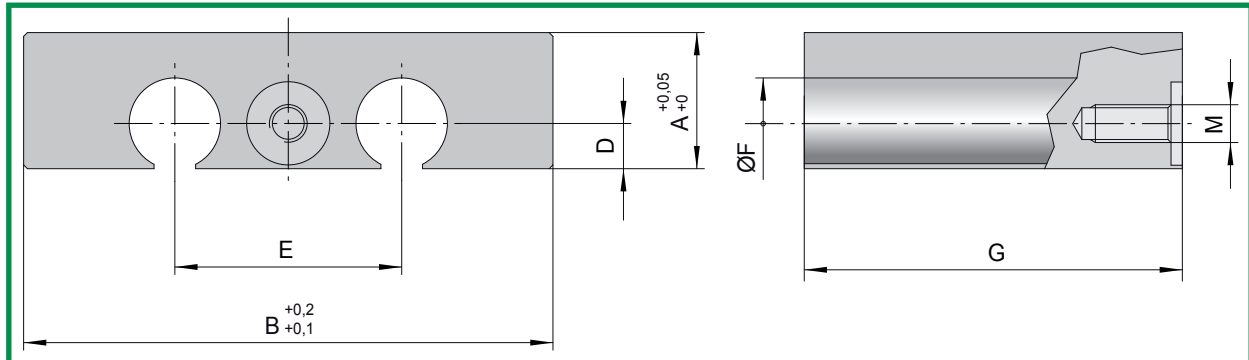
Mat.: 2311

Hardness: 1000÷1100 N/mm² (33 HRC)





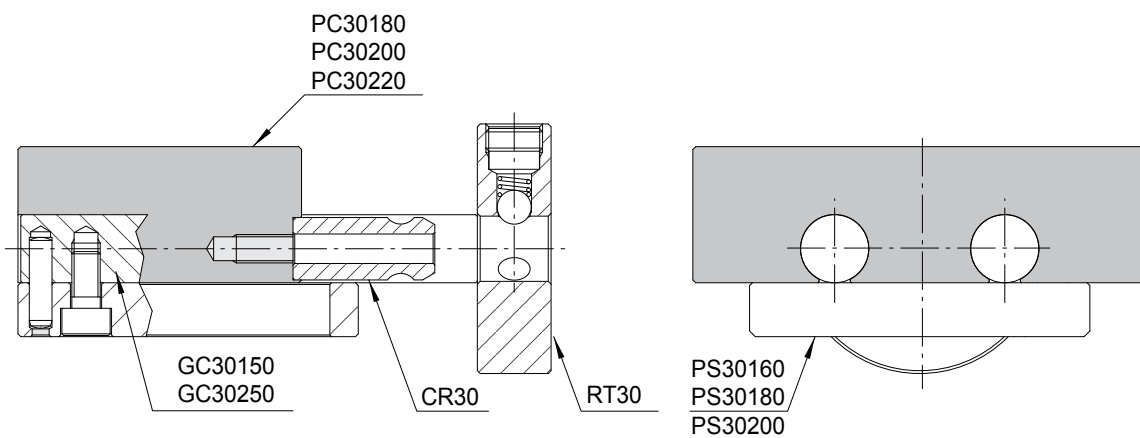
CODE: **PC30..**



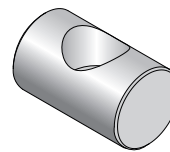
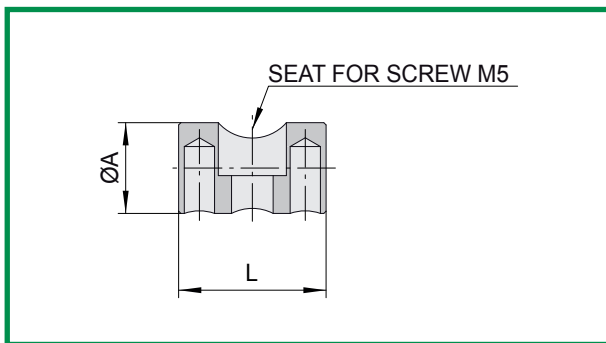
CODE	A	B	D	E	F	G	M
PC30180	48	180	15	64	30	118	M10
PC30200	48	200	15	64	30	118	M10
PC30220	48	220	15	64	30	118	M10

Mat.: 2311

Hardness: 1000÷1100 N/mm² (33 HRC)



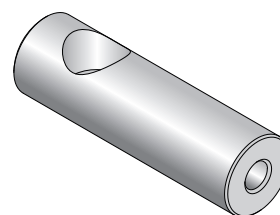
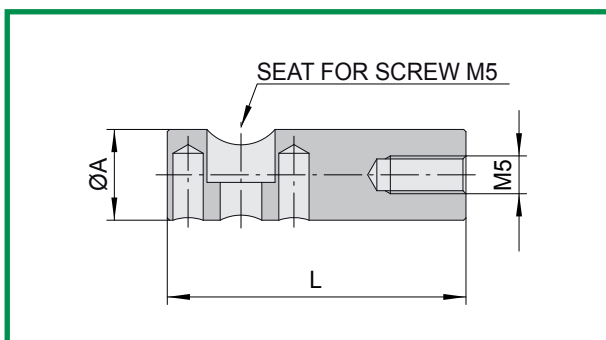
CYLINDRICAL GUIDES SET 12



CODE: **GC1220**

CODE	A	L
GC1220	12	20

Mat.: 7225. Hardness:670 HV05
Nitrided depth 0,3mm.
Available covered with solid antifriction lubricating.

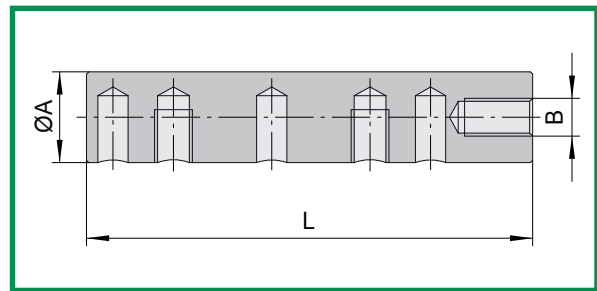
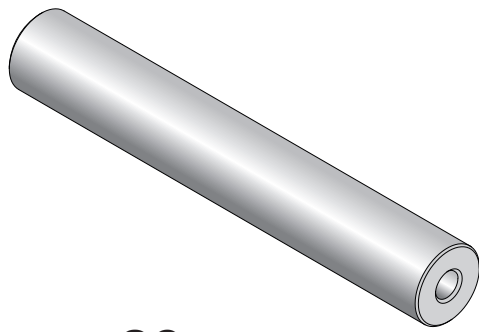


CODE: **GC1240**

CODE	A	L
GC1240	12	40

Mat.: 7225. Hardness:670 HV05
Nitrided depth 0,3mm.
Available covered with solid antifriction lubricating.

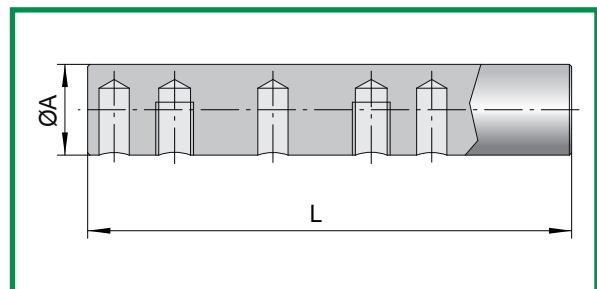
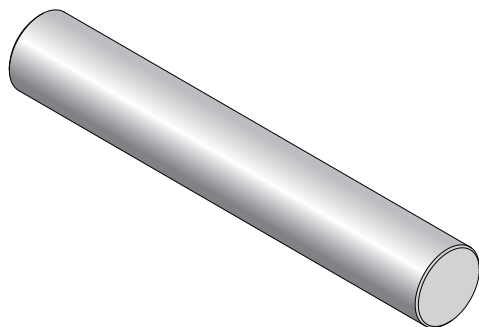
CYLINDRICAL GUIDES SET 12-20-30



CODE: **GC..**

CODE	A	B	L
GC1260	12	M5	60
GC20100	20	M8	100
GC30150	30	M10	150

Mat.: 7225. Hardness:670 HV05
Nitrided depth 0,3mm.
Available covered with solid antifriction lubricating.
Upon request special lengths available.

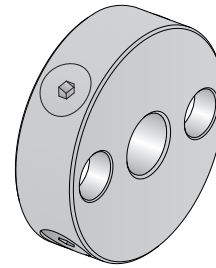
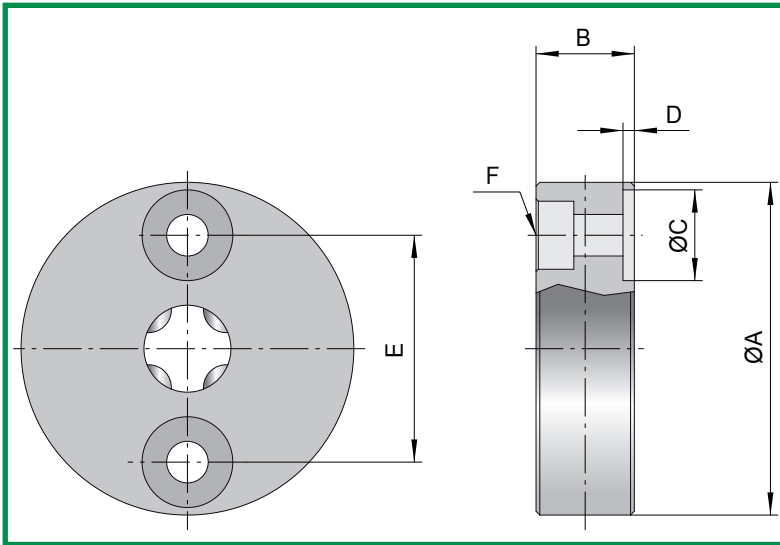


CODE: **GC..**

CODE	A	L
GC12100	12	100
GC20160	20	160
GC30250	30	250

Mat.: 7225. Hardness:670 HV05
Nitrided depth 0,3mm.
Available covered with solid antifriction lubricating.
Upon request special lengths available.

ROUND SLIDE RETAINER SET 12-20-30



CODE: **RT..**

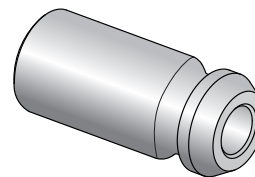
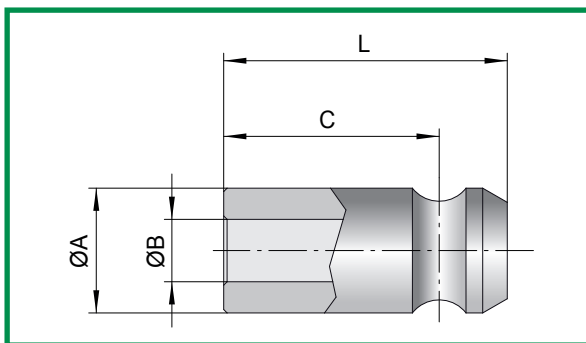
CODE	A	B	C	D	E	F	LOAD
RT12	44	13	12	1,5	30	M5	10 Kg
RT20	74	18	20	2	48	M8	20 Kg
RT30	98	20	30	2,5	64	M10	40 Kg

Mat.: 7225

Hardness: 800 N/mm² (21,7 HRC)

Nitrided depth 0,1mm.

TANG FOR SLIDE RETAINER SET 12-20-30



CODE: **CR..**

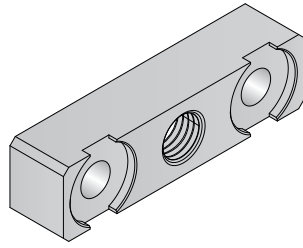
CODE	A	B	C	L
CR12	11	5,5	19	25
CR20	17	8,5	32	42
CR30	24	10,5	49,5	62,5

Mat.: 7225

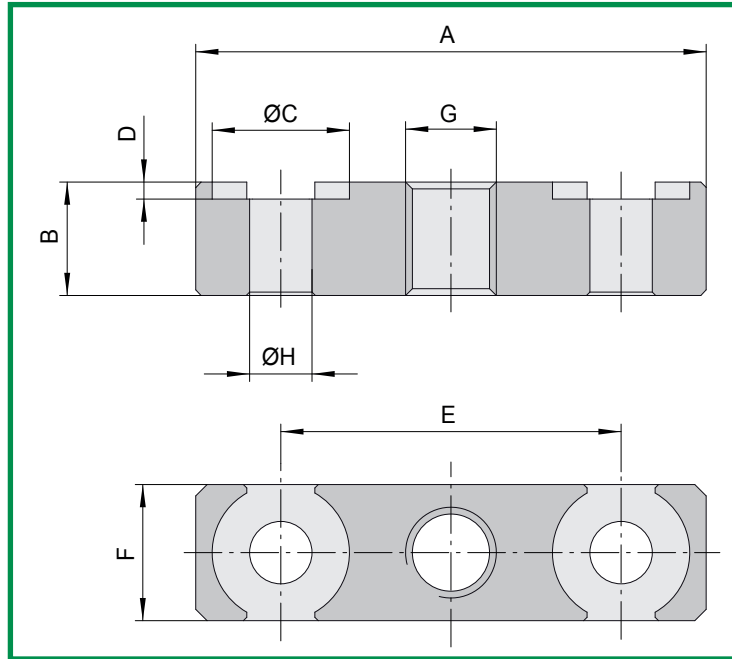
Hardness: 670 HV05

Nitrided depth 0,3mm.

FLANGE FOR SLIDE DOCKING SET 12-20-30



CODE: **PBC**



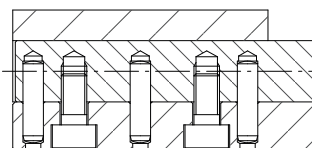
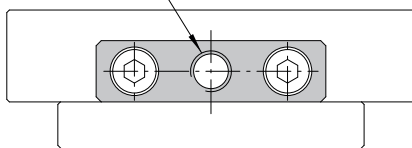
CODE	A	B	C	D	E	F	G	H
PBC12	45	10	12	1,5	30	12	M8	5,5
PBC20	75	15	20	2	48	20	M10	8,5
PBC30	100	20	30	2,5	64	30	M12	10,5

Mat.: 1191

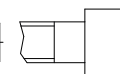
Hardness: 750 N/mm² (220 HB)

Nitrided depth 0,1mm.

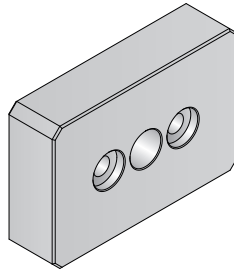
SEAT FOR BLOCKING
SCREW



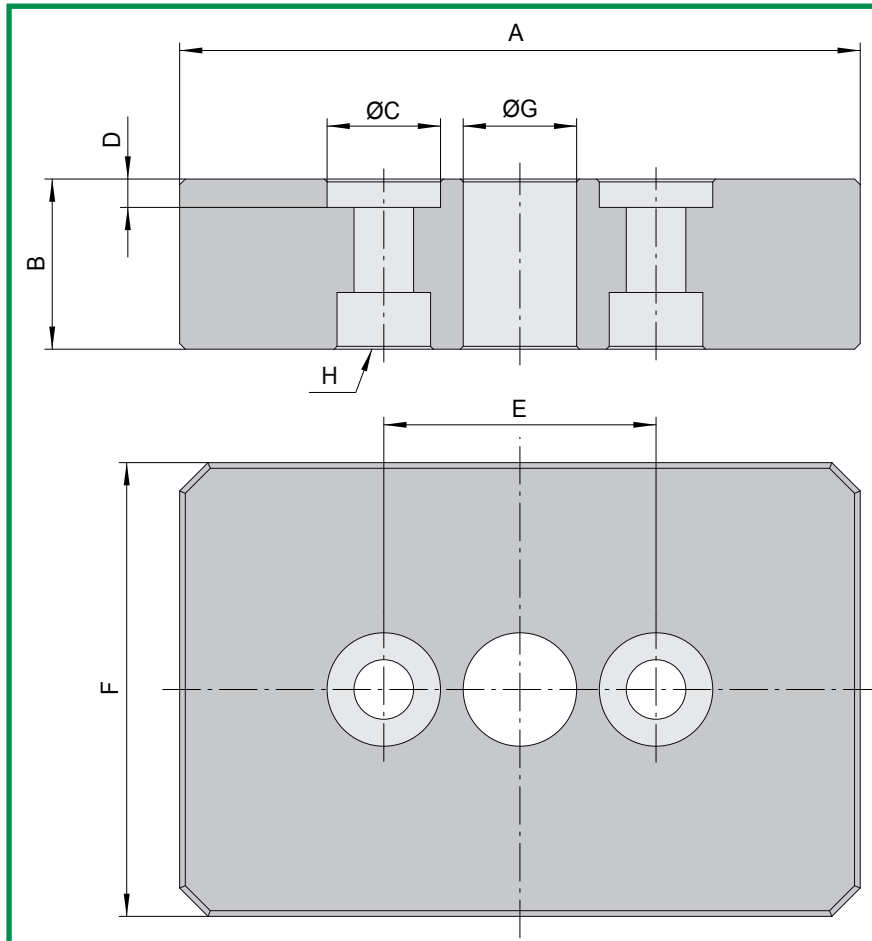
PBC12
PBC20
PBC30



BEARING FLANGE FOR CYLINDER SET 20-30



CODE: **FS..**

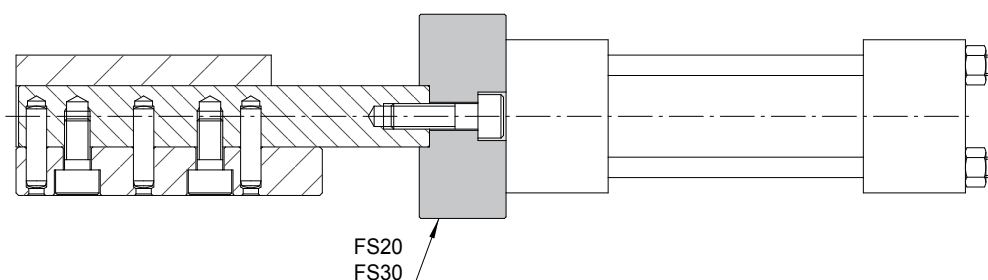


CODE	A	B	C	D	E	F	G	H
FS20	120	30	20	5	48	80	20	M10
FS30	150	40	30	6	64	90	20	M12

Mat.: 1191

Hardness: 750 N/mm² (220 HB)

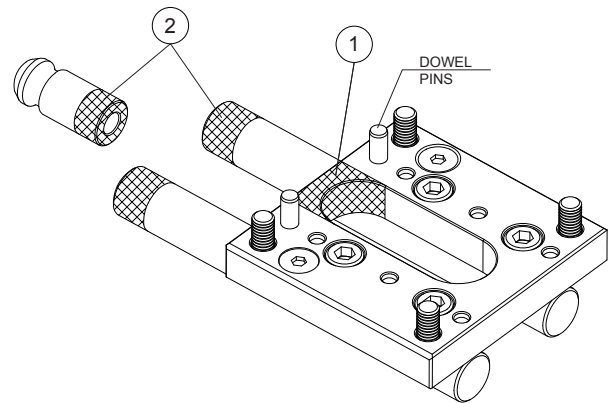
Nitrided depth 0,1mm.



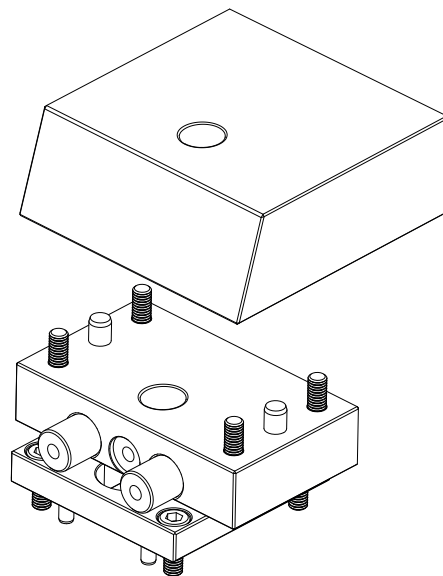
1) If necessary it is possible to modify the slot of the sliding plate **PS..** (figure point 1).

N.B.: in this case it is important to make use of the dowel pins to keep the geometry of the item and to guarantee the right working of the slide.

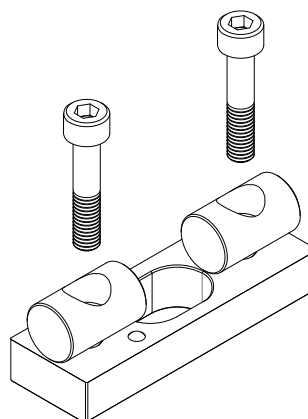
2) The extended cylindrical guides and the tang for slide retainer can be easily shortened as needed (figure point 2).



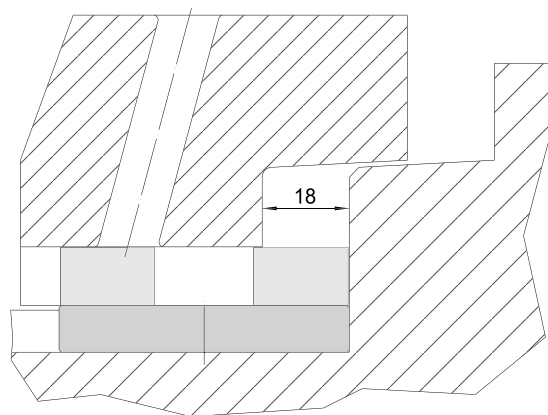
The slide bearing **PC..** works as a support for the moulding part.



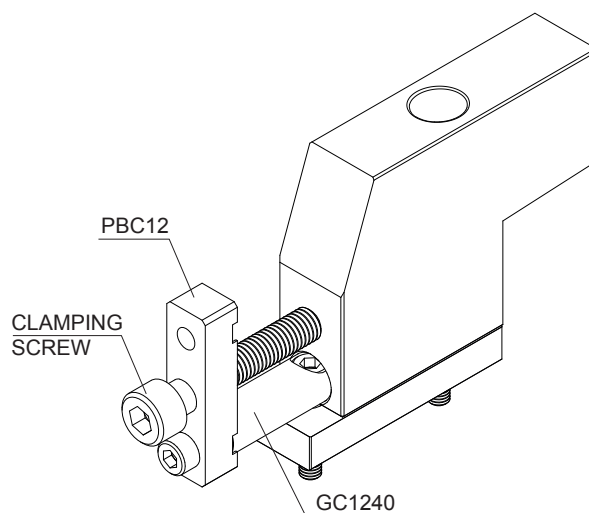
1) The slides with the single guide are fixed on the mouldbase as shown in figure.

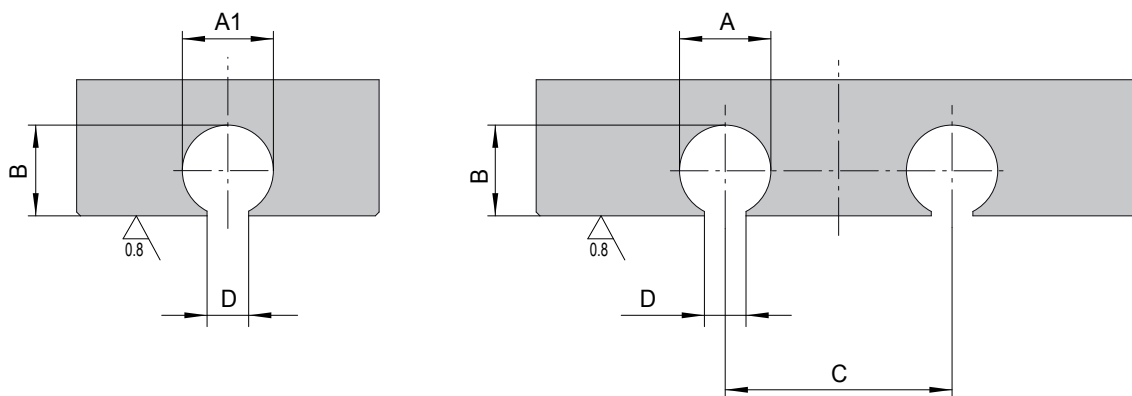


2) It is advisable to apply this slide for a maximum stroke of 18mm.



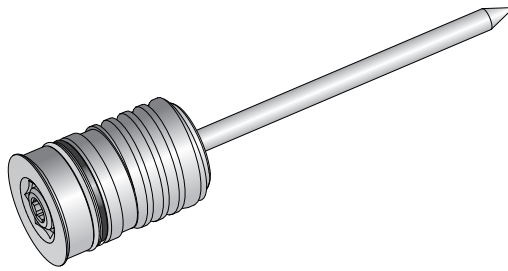
3) The flange for slide docking **PBC12** can also be used to dock the slide with the single guide.
 N.B.: for such use it is necessary to temporarily apply the extended cylindrical guide **GC1240**.



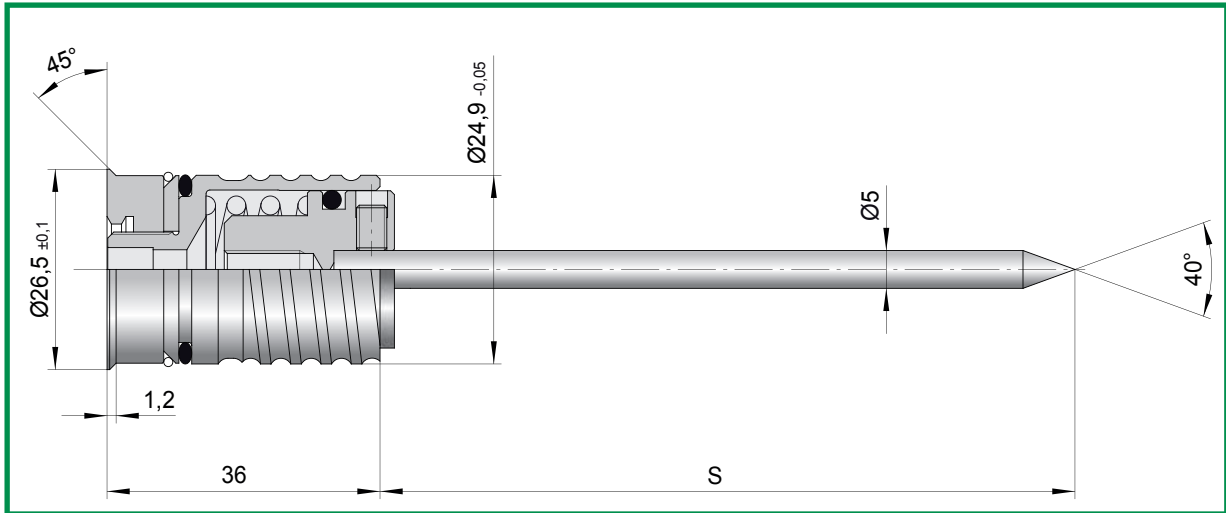


CODE	A	A1	B	C	D
12	12,08 $\begin{smallmatrix} +0,02 \\ 0 \end{smallmatrix}$	12,04 $\begin{smallmatrix} +0,02 \\ 0 \end{smallmatrix}$	12 $\begin{smallmatrix} +0,04 \\ +0,02 \end{smallmatrix}$	30	5,5 $\pm 0,1$
20	20,10 $\begin{smallmatrix} +0,05 \\ 0 \end{smallmatrix}$		20 $\begin{smallmatrix} +0,04 \\ +0,02 \end{smallmatrix}$	48	8,5 $\pm 0,1$
30	30,15 $\begin{smallmatrix} +0,05 \\ 0 \end{smallmatrix}$		30 $\begin{smallmatrix} +0,04 \\ +0,02 \end{smallmatrix}$	64	10,5 $\pm 0,1$

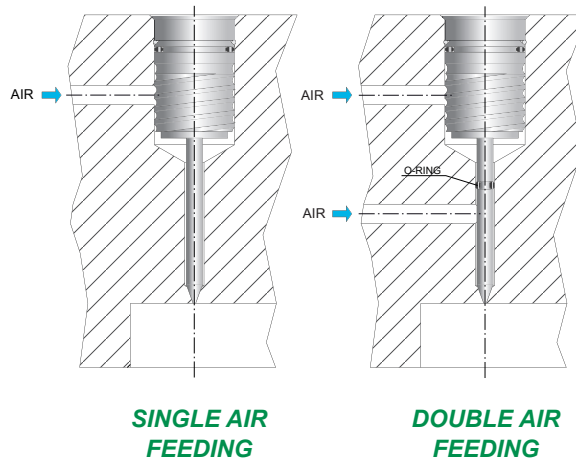
AIR NEEDLE VALVE



CODE: **VASP**



CODE	S
VASP-C	100
VASP-L	200

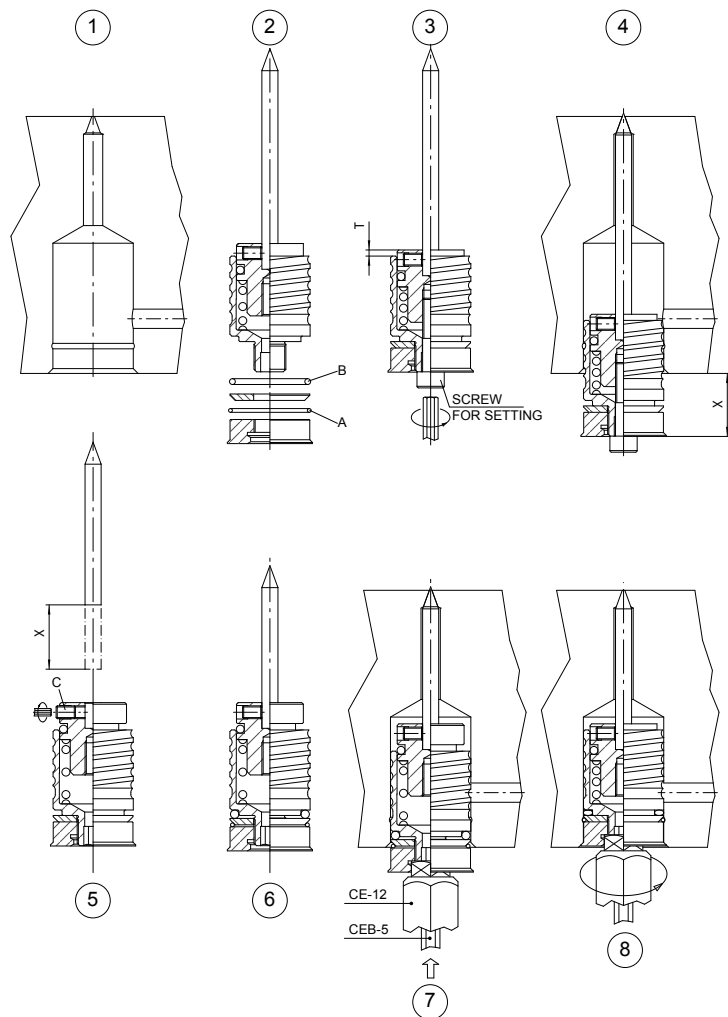


CHARACTERISTICS

- 1) VERY LIMITED ENCUMBRANCE;
- 2) LIMITED JAMMING RISK;
- 3) IDEAL IN CASE OF AESTHETIC SURFACES;
- 4) USABLE AS SELF-CLEANING GAS OUTLET POINT (by means of special needle shaping);
- 5) MAXIMUM WORKING TEMPERATURE 200°C;
- 6) DOUBLE AIR FEEDING APPLICATION TO MAXIMIZE AIR FLOW RATE INTO THE CAVITY.

**APPLICATION
PROCESS**

1. Machine the seat.
2. Take off the metal ring "A" and the O-ring "B", re-assemble the washer and the ring nut until it reaches the mechanic stop .
3. Set the "T" dimension with the setting screw.
4. Insert the air valve into the seat and take the "X" dimension.
5. Take off the setting screw, unloose the dowel "C", remove the needle and shorten it in the rear part of the dimension "X" .
6. Re-assemble the metal ring "A" and the O-ring "B".
7. Insert the valve into the seat.
8. Fix the valve with the proper keys pressing simultaneously the valve toward the inside.



SETTING

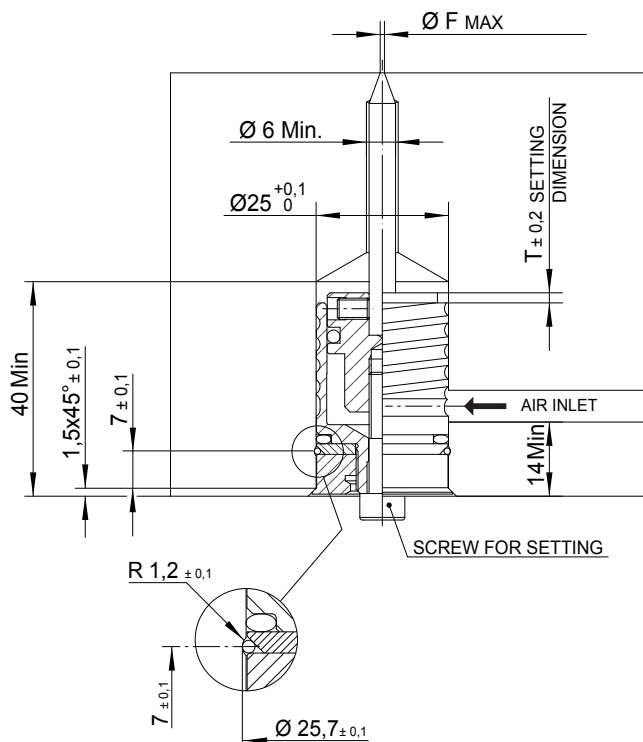
AVAILABLE PRESSURE (bar)	ØF MAX (mm)	SETTING T ±0,2mm
6÷8	0,8	3,5
8÷10	1,0	2
10÷12	1,2	1

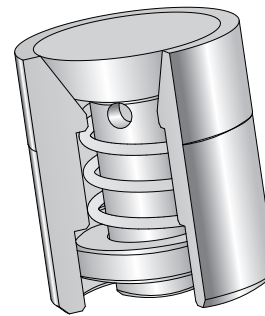
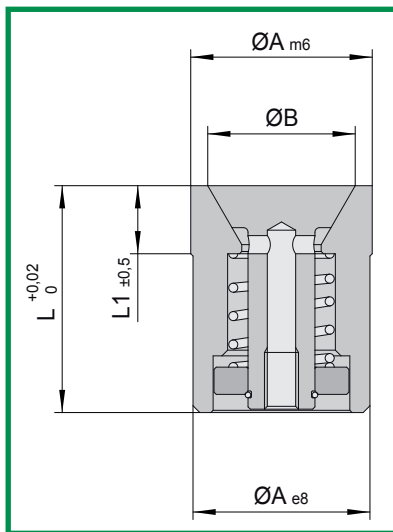
N.B.:

The values expressed in the schedule refer to a moulding pressure of 1000Kg/cm² Max.

In case of higher pressure the diameter of the "F" hole in the mold should be redimensioned.

SEAT DIMENSIONS

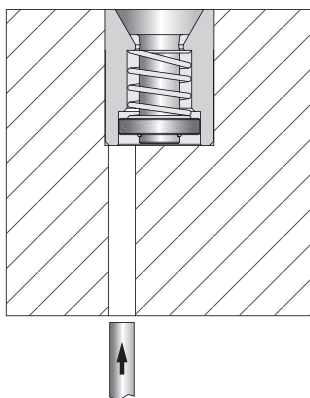




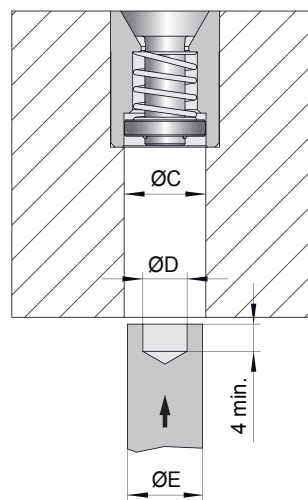
CODE: **VA**

CODE	A	B	L	L1	C	D	E
VA-4	4	3,4	8	4	3,5	2,8	3
VA-6	6	5	10	4	5	4	4,5
VA-6L	6	5	12	4	5	4	4,5
VA-8	8	5,6	12	4	6,5	5	6
VA-10	10	8	14	5	7,5	5	7
VA-10C	10	8	12	5	7,5	5	7
VA-12	12	10	14	5	9	5,5	8,5
VA-12C	12	10	12	5	9	5,5	8,5
VA-16	16	12	20	6	12	6,5	11
VA-20	20	16	20	6	12	6,5	11

TECHNICAL NOTES FOR AIR VALVES DISASSEMBLY



SOLUTION 1

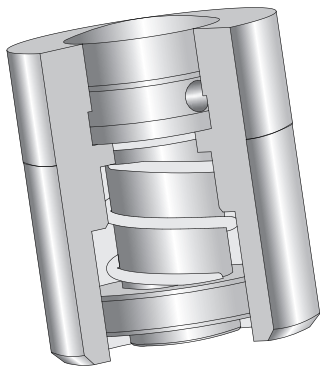


SOLUTION 2

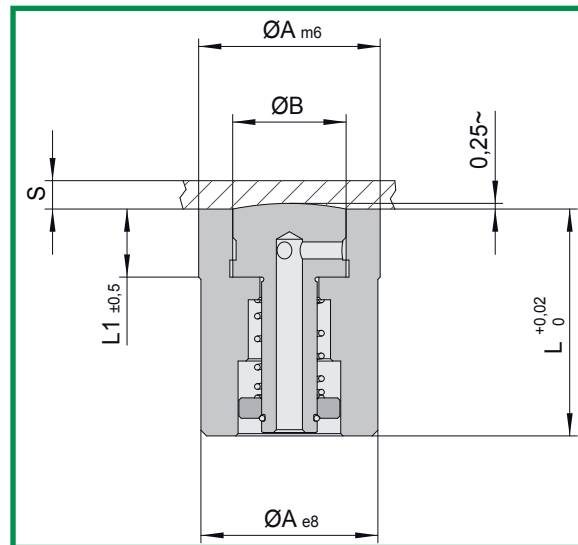
CHARACTERISTICS

- 1) STAINLESSNESS, MAT. STAINLESS STEEL AISI 420 50+55 HRC;
- 2) FULLY GRINDED;
- 3) COMPACT STRUCTURE (avoid the breakage in case of disassembly).

(PATENT REGISTERED)



CODE: **VABA**

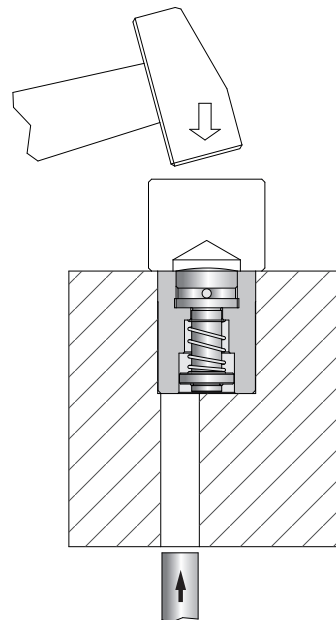


CODE	A	B	L	L1	S
VABA-8	8	5	12	4	1
VABA-12	12	7	14	5	1,5
VABA-16	16	10	20	6	2,5

S= maximum thickness of the moulded part

TECHNICAL NOTES FOR THE APPLICATION

- 1) In order to disassembly the air valve and avoid damaging, we recommend drilling a feeding hole as pictured.
- 2) In order to insert the air valve properly, we recommend not to push the poppet but to operate only on the external crown as pictured.



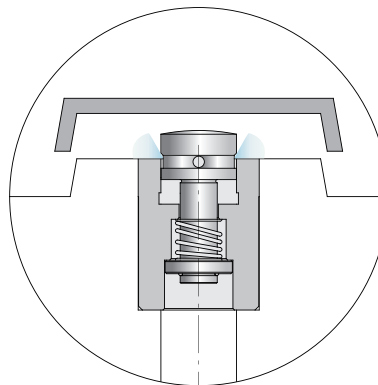
CHARACTERISTICS

- 1) LOCKING UP IS GUARANTEED IN SPITE OF VALVE JAMMING;
- 2) STAINLESSNESS, MAT. STAINLESS STEEL AISI 420 50+55 HRC;
- 3) FULLY GRINDED;
- 4) MAXIMUM AIR PRESSURE: 10 BAR.

One of the most recurring and onerous problems with the air valves is the jamming and the subsequent filling of them and of their air feeding holes. This problems generate long production downtime and costs for the restoration of the mould. With the BALZI air valve the filling problem is definitively excluded and it may be necessary only a routine maintenance to guarantee the best efficiency of the valve.

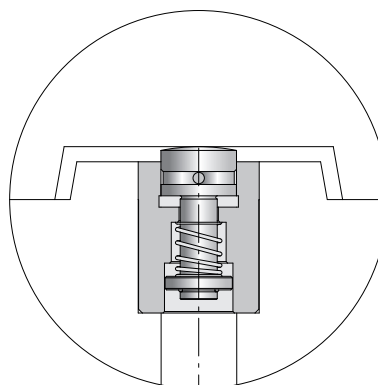
1)

In the ejection phase the BALZI air valve introduces air in the cavity of the mould, first in limited quantity through the space between the body of the valve and the convex poppet, than in big quantity through the proper bleeds.



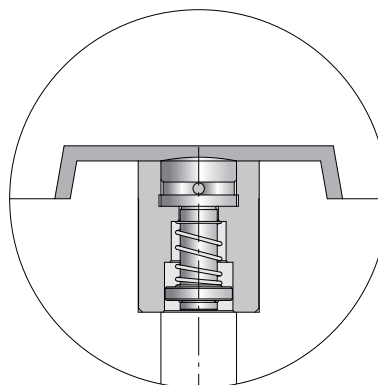
2)

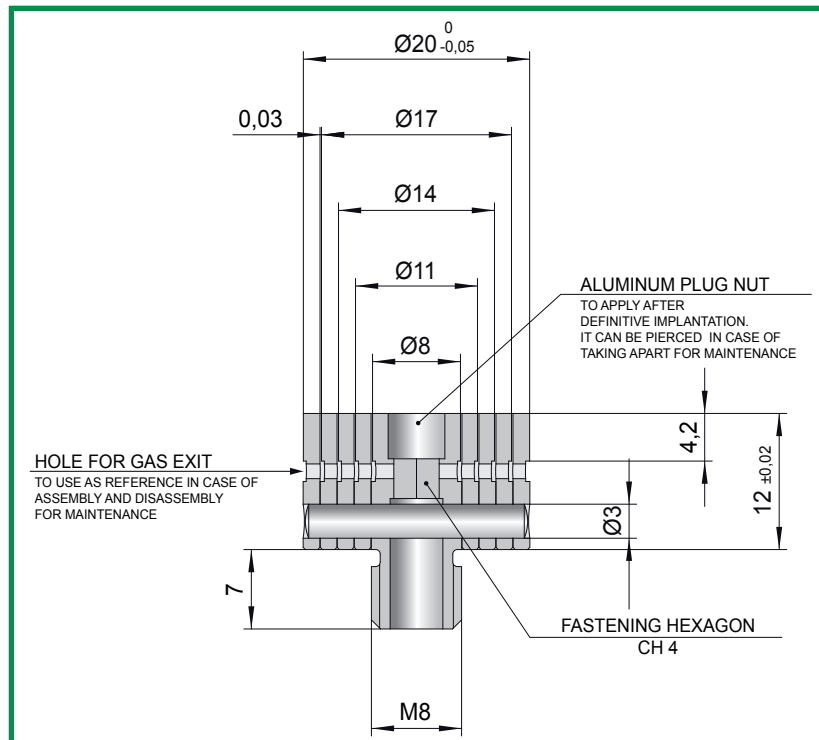
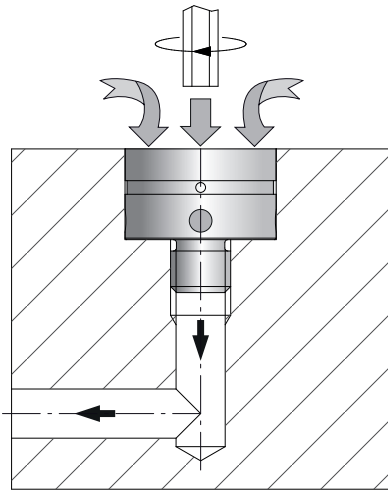
In the closure phase of the mould, in case of valve jamming or solenoid valve malfunction, the push of the matrix guarantee the first closing of the convex poppet that moves in anti-filling position.



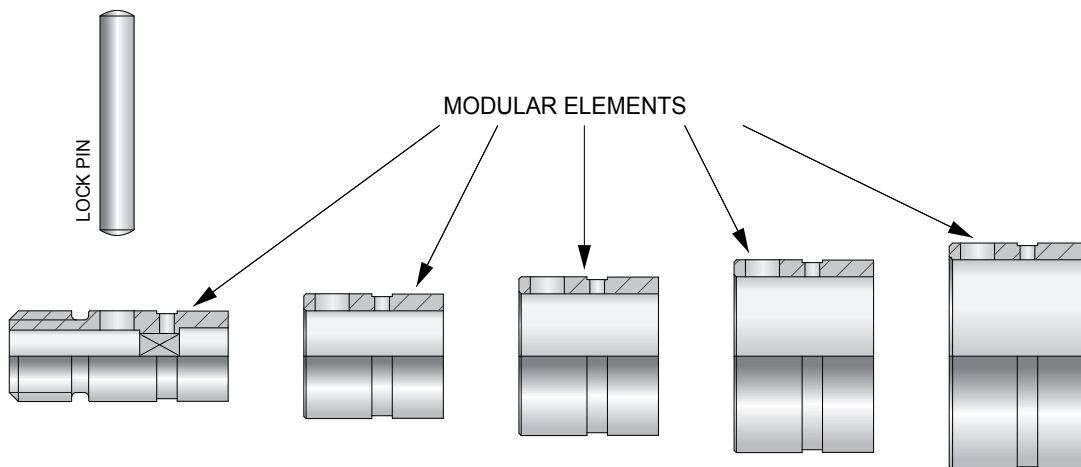
3)

During the injection phase the front flow of the plastic material, getting between the convex poppet and the matrix, brings the convex poppet into the right position.





CODE: **ISG-20**

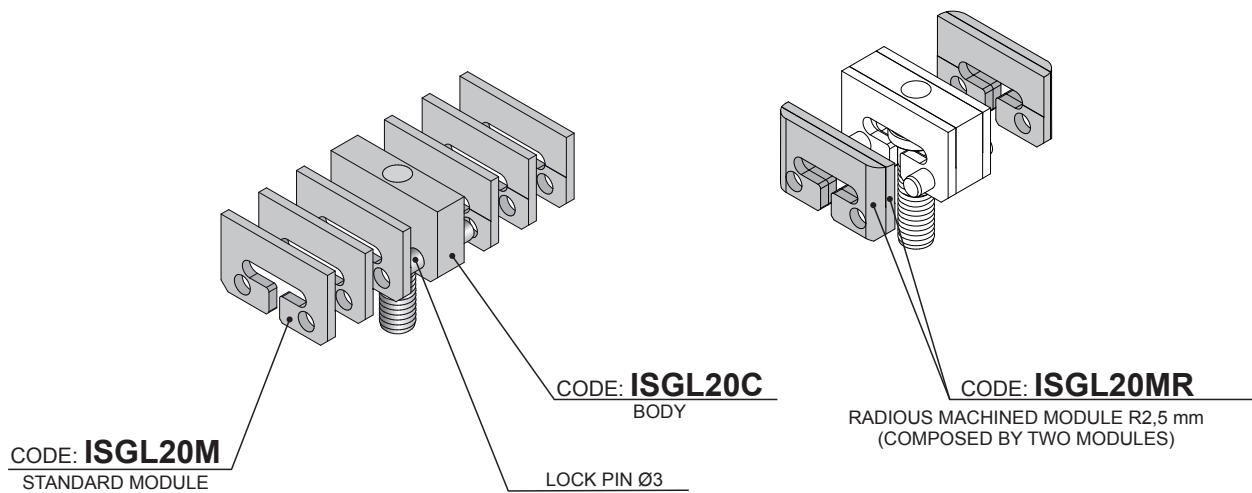
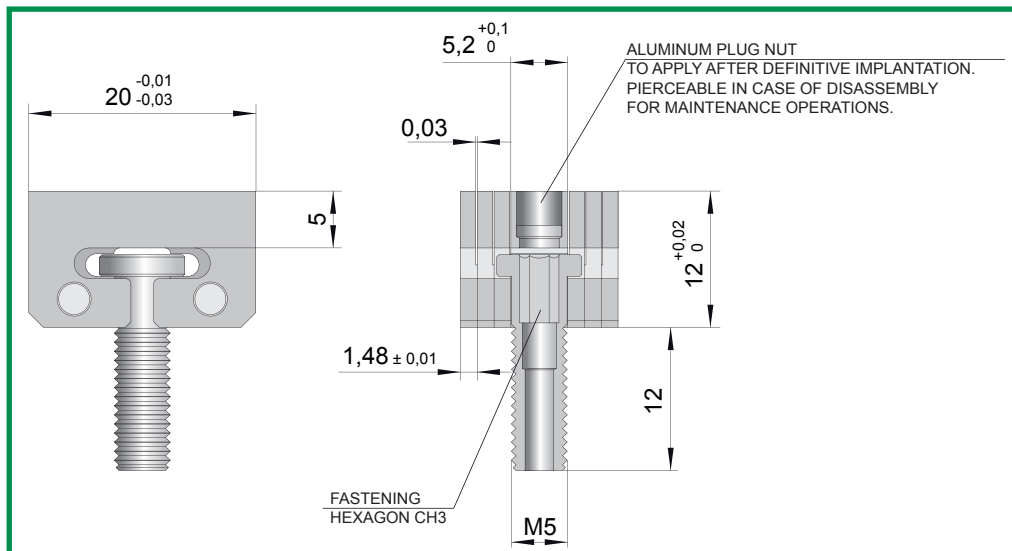


CHARACTERISTICS

- 1) STAINLESSNESS;
- 2) POSSIBILITY OF FRONT ASSEMBLY AND DISASSEMBLY;
- 3) EASE OF MAINTENANCE (because completely dismountable) ;
- 4) POSSIBILITY OF MODIFYING THE EXTERNAL DIAMETER (removing some parts);
- 5) POSSIBILITY TO SHAPE THE INSERT.
- 6) 0,03 mm GAS BREATHING BETWEEN EACH RING ELEMENT.

LAMELLAR GAS VENT DEVICE

FRONT FIXING

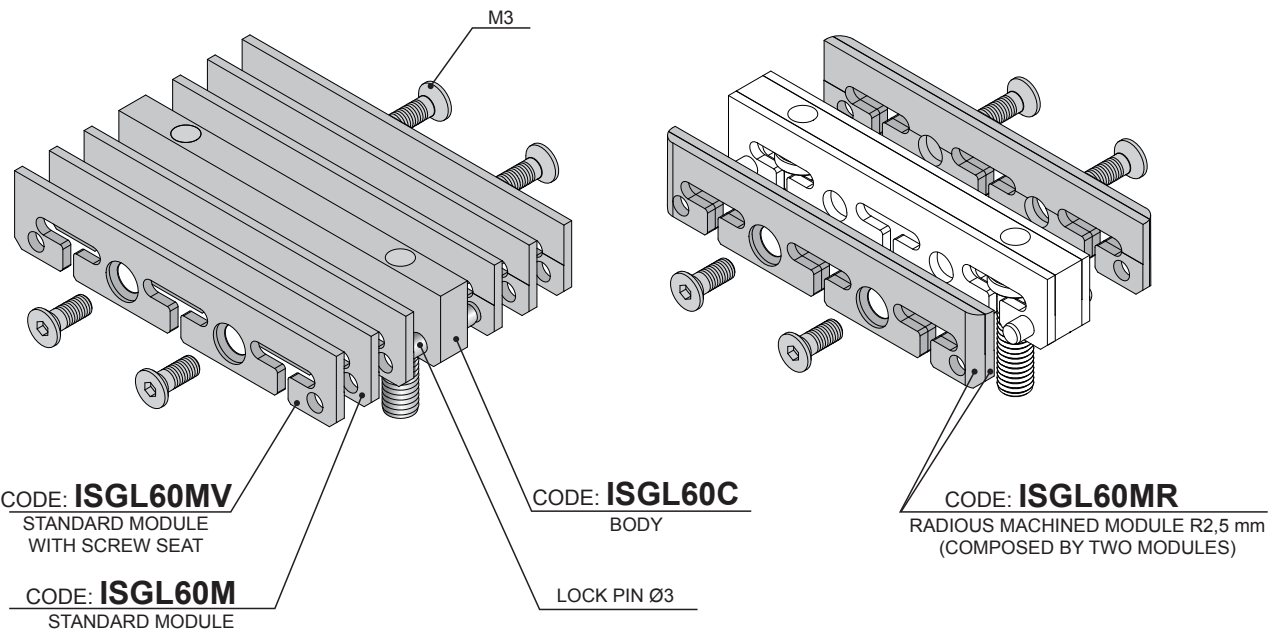
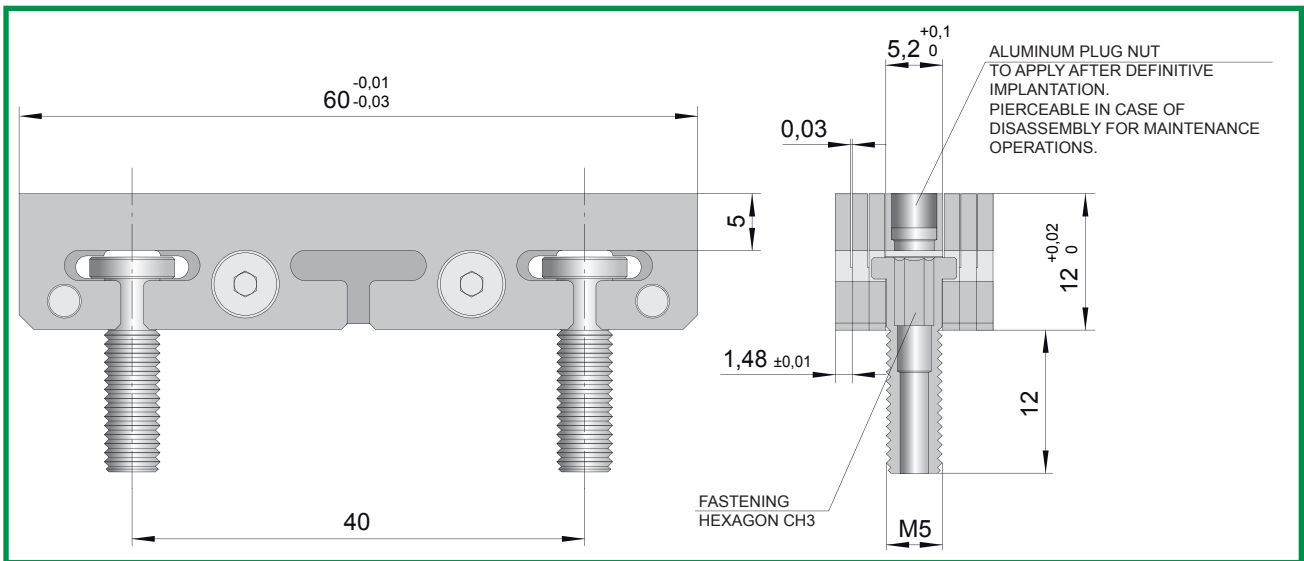


CHARACTERISTICS

- 1) MODULAR SYSTEM (to be fitted in any given space);
- 2) POSSIBILITY OF FRONT ASSEMBLY AND DISASSEMBLY (thanks to the shape of the fixing screw, which also operates as ejecting devices);
- 3) EASE OF MAINTENANCE (thanks to the fully dismountable set up);
- 4) POSSIBILITY TO SHAPE THE INSERT;
- 5) STAINLESS STEEL;
- 6) RADIOUS MACHINED TERMINAL MODULES AVAILABLE.

LAMELLAR GAS VENT DEVICE

FRONT FIXING

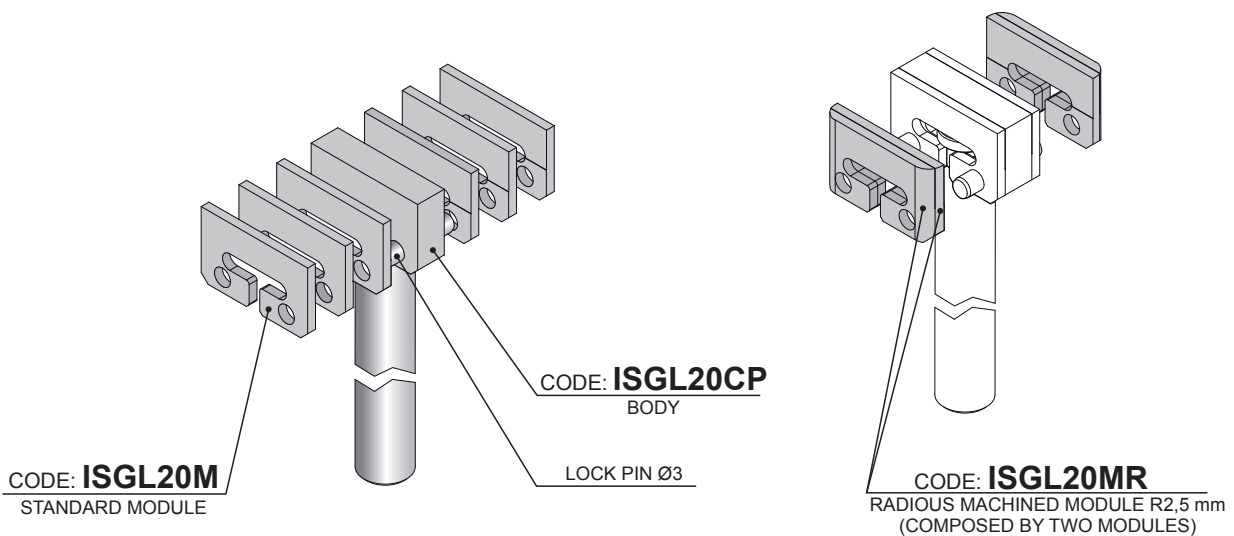
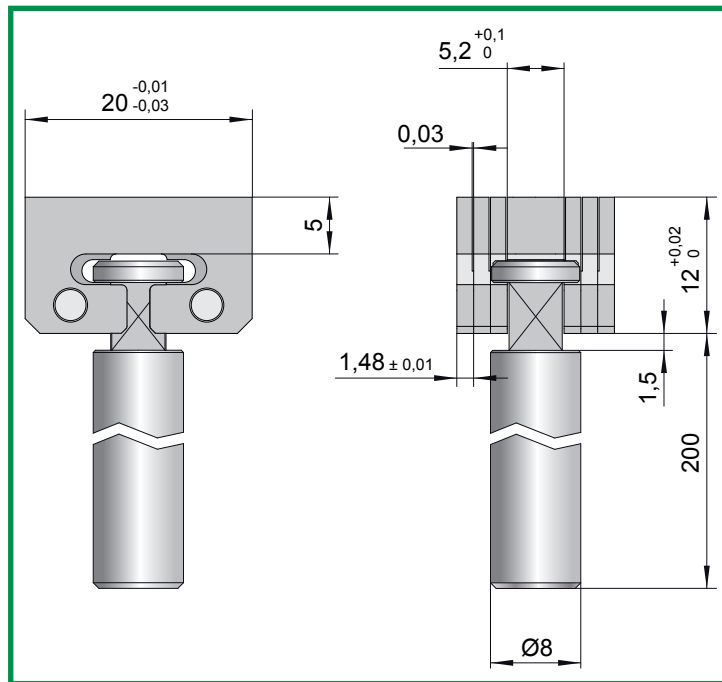


CHARACTERISTICS

- 1) MODULAR SYSTEM (to be fitted in any given space);
- 2) POSSIBILITY OF FRONT ASSEMBLY AND DISASSEMBLY (thanks to the shape of the fixing screws, which also operates as ejecting device);
- 3) EASE OF MAINTENANCE (thanks to the fully dismountable set up);
- 4) POSSIBILITY TO SHAPE THE INSERT;
- 5) STAINLESS STEEL;
- 6) RADIOUS MACHINED TERMINAL MODULES AVAILABLE.

LAMELLAR GAS VENT DEVICE

BACK FIXING

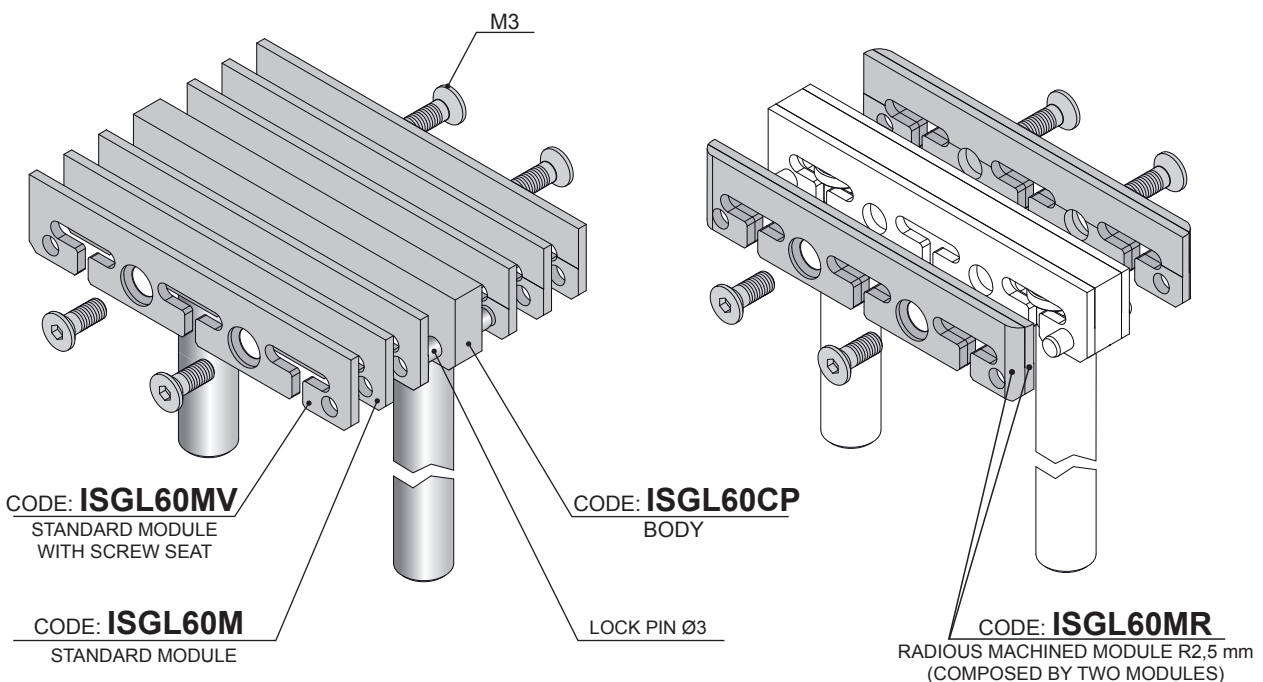
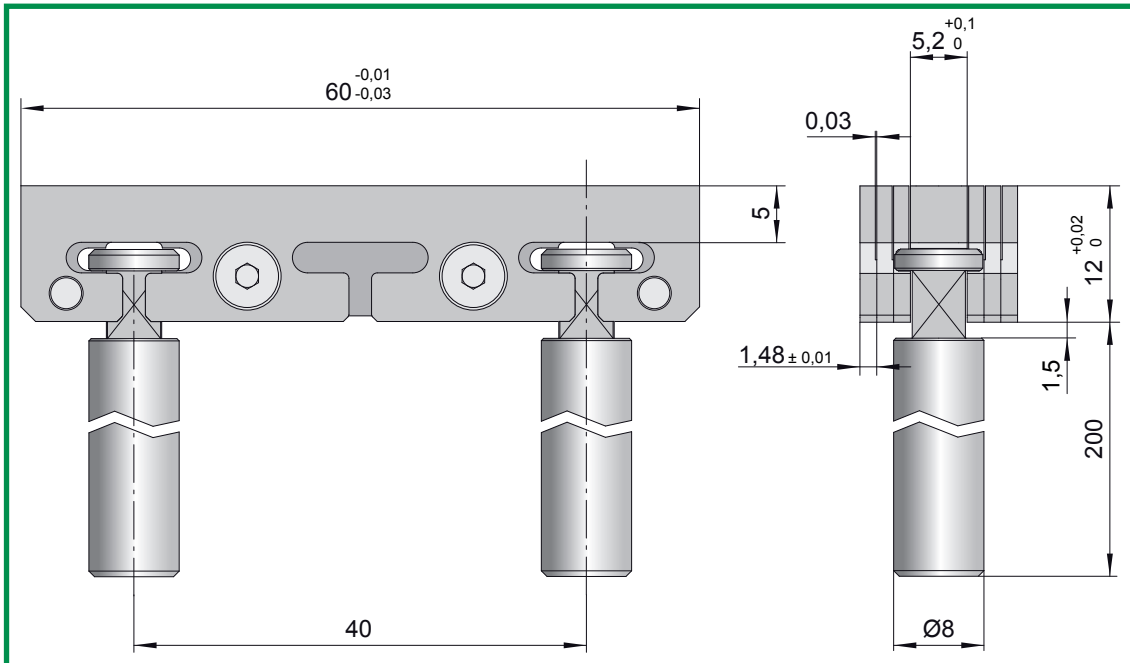


CHARACTERISTICS

- 1) MODULAR SYSTEM (to be fitted in any given space);
- 2) POSSIBILITY OF BACK OR SIDE ASSEMBLY AND DISASSEMBLY ;
- 3) EASE OF MAINTENANCE (thanks to the fully dismountable set up);
- 4) POSSIBILITY TO SHAPE THE INSERT;
- 5) STAINLESS STEEL;
- 6) RADIOUS MACHINED TERMINAL MODULES AVAILABLE.

LAMELLAR GAS VENT DEVICE

BACK FIXING

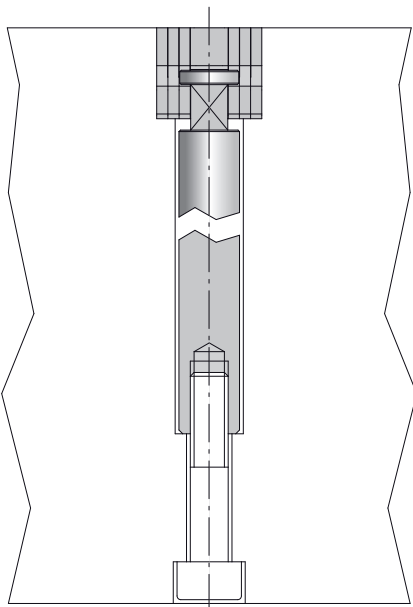


CHARACTERISTICS

- 1) MODULAR SYSTEM (to be fitted in any given space);
- 2) POSSIBILITY OF BACK OR SIDE ASSEMBLY AND DISASSEMBLY ;
- 3) EASE OF MAINTENANCE (thanks to the fully dismountable set up);
- 4) POSSIBILITY TO SHAPE THE INSERT;
- 5) STAINLESS STEEL;
- 6) RADIOUS MACHINED TERMINAL MODULES AVAILABLE.

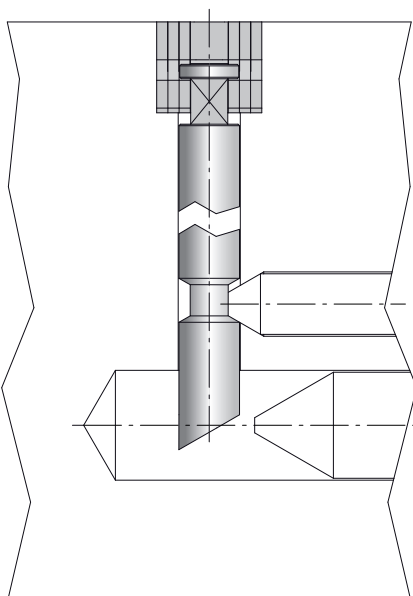
APPLICATION 1:

Back fixing

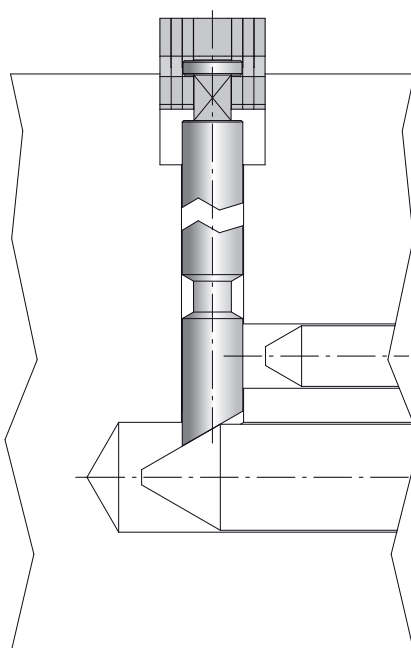


APPLICATION 2:

Side fixing and ejection system

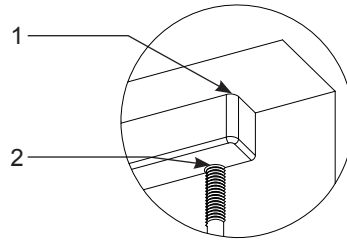


FIXING PHASE

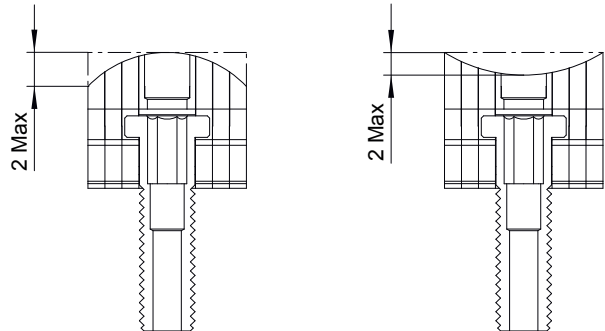


EJECTION PHASE

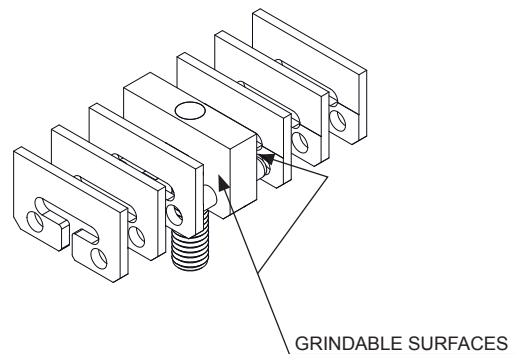
1. In order to avoid intrusions with the gas vent's lockpins the seat edges radius should not exceed 2.5mm.
2. The fixing screws also work as ejecting devices.



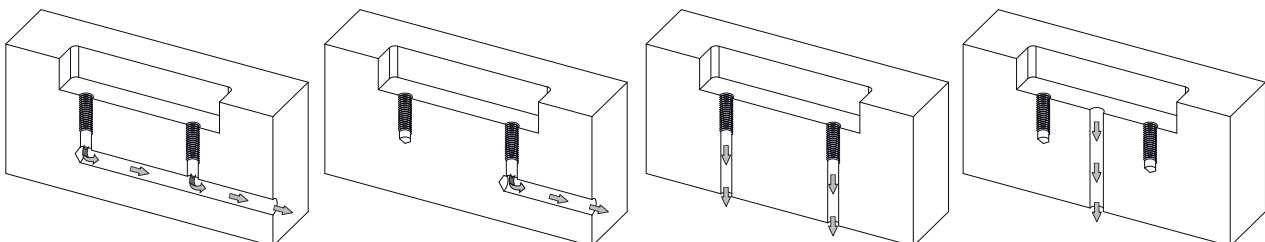
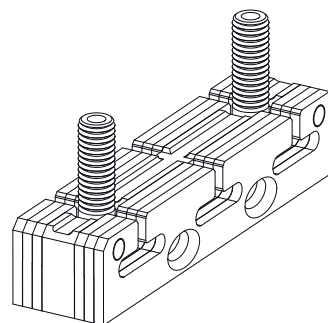
It is possible to machine the insert according to the mould surface. After, it will be necessary to disassembly the device in order to clean it. To ensure the free passage of the gas.

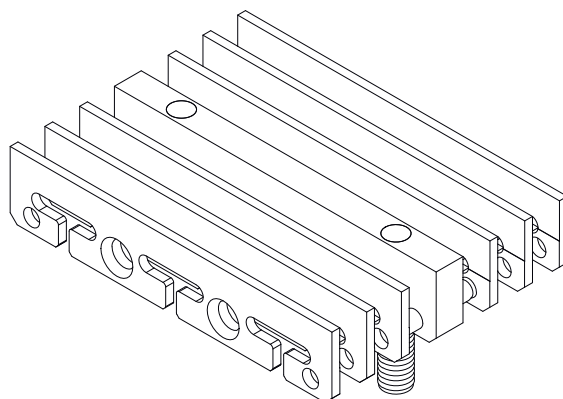
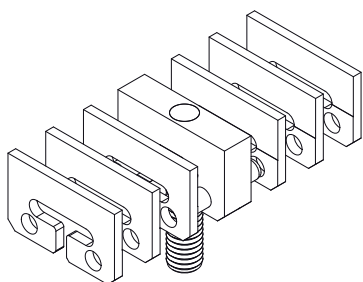


The assembled insert final size amounts to the summation of several dimensions subjected to tolerance, thanks to the use of lamellar elements in the final set up. In order to ensure the correct placing into the mould cavity, we recommend to measure empirically the size of the insert and, if required, to modify it by grinding both inner sides of the central body.

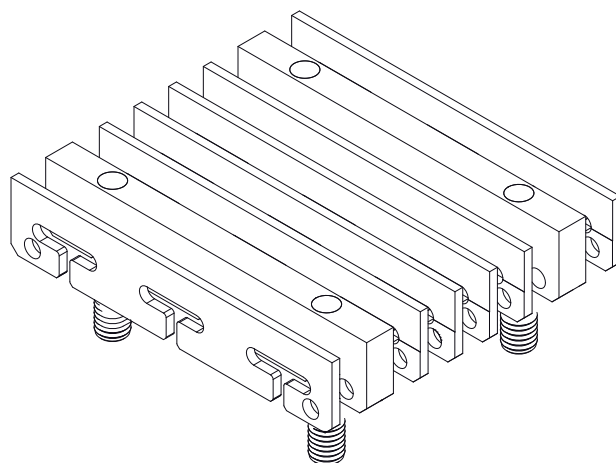
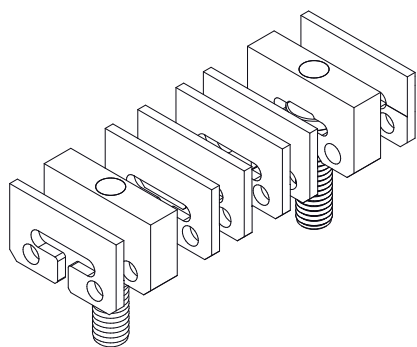


Ermanno Balzi's modular system geometry grants gas evacuation through a full communicating system where gasses are conveyed towards one only exit aperture. Such exit hole can always be placed in the best available position, ensuring maximum flexibility (*see examples*).

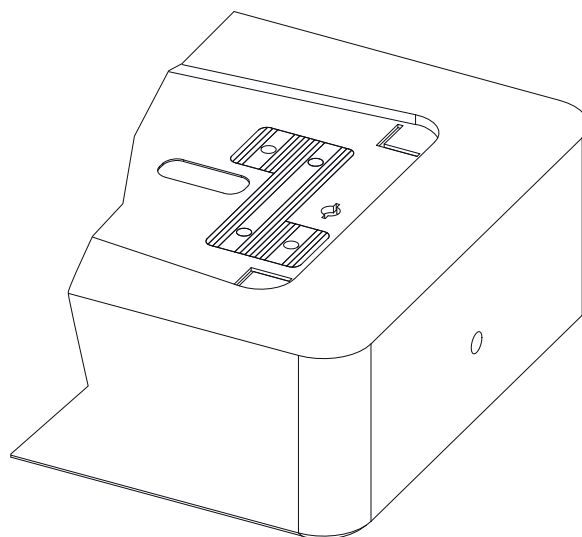
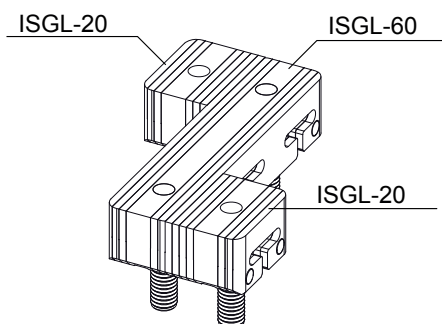


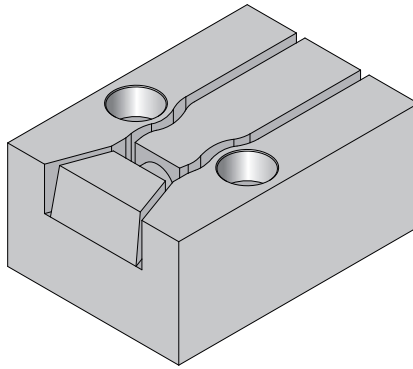


In case of central body application we recommend a maximum number of 10 modular elements.
It is necessary to apply at least the body and one modular element on both sides.

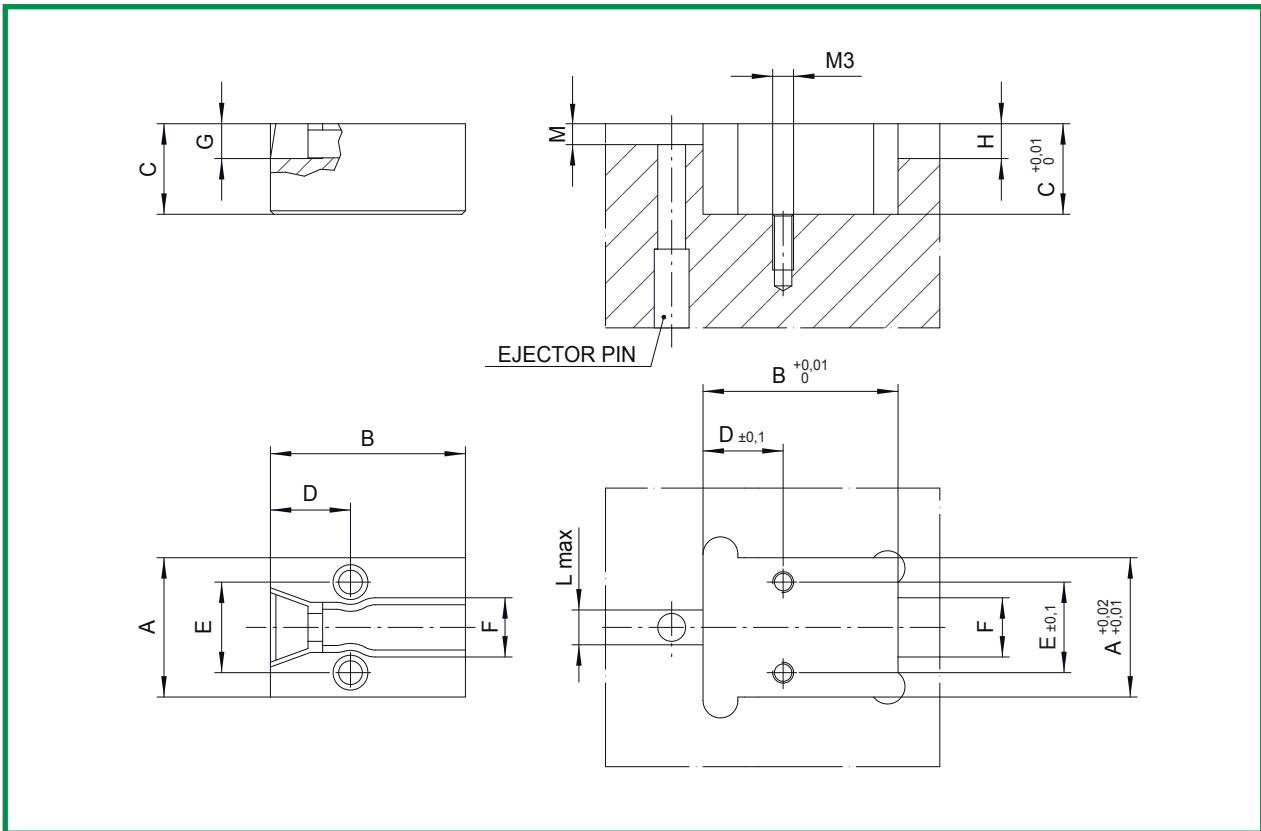


In case of double body application we recommend to insert a maximum number of 30 modular elements.
It is also necessary to insert one modular element on both ends of the bodies.





CODE: **EB**



SAITO MOLD Mfg.co.ltd
Patented system



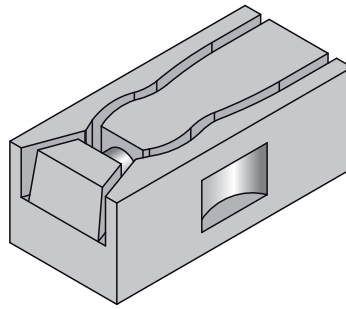
CODE	A	B	C	D	E	F	G	H	L	M
EB	20	28,0	13,0	11,5	13	8,5	5	5	5	4

Mat.: AISI 420B
Hardness: 50+52 HRC

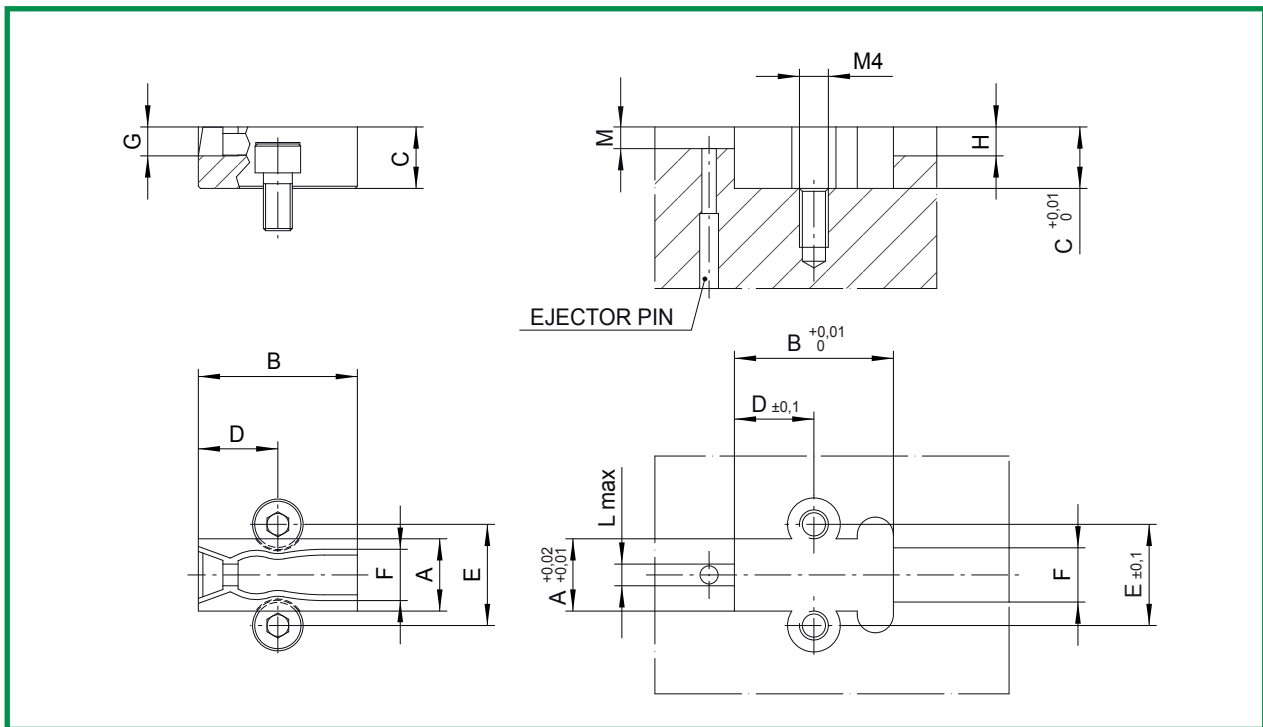
CHARACTERISTICS

- 1) COMPLETE GAS RELEASE;
- 2) IMPROVEMENT OF THE AESTHETIC CHARACTERISTICS OF THE PART;
- 3) INJECTION PRESSURE DRAMATICALLY REDUCED;
- 4) EASY TO REMOVE AND EASY MAINTENANCE.

ECOVENT GAS VENTING SYSTEM



CODE: **EB-MINI**



SAITO MOLD Mfg.co.ltd
Patented system



CODE	A	B	C	D	E	F	G	H	L	M
EB-MINI	10	22,0	8,5	11	14	7,5	4	4	3	3

Mat.: AISI 420B
Hardness: 50÷52 HRC

CHARACTERISTICS

- 1) COMPLETE GAS RELEASE;
- 2) IMPROVEMENT OF THE AESTHETIC CHARACTERISTICS OF THE PART;
- 3) INJECTION PRESSURE DRAMATICALLY REDUCED;
- 4) EASY TO REMOVE AND EASY MAINTENANCE.

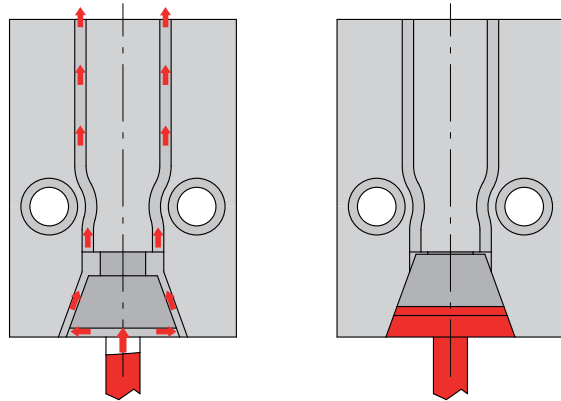
Venting issues produce bad quality parts and can also put the mould itself at risk. Voids, bubbles, short shots and surface defects such as blemishes or burn marks produce rejected parts and dramatically reduce the mould profitability .

ECOVENT is an innovative solution able to solve the most familiar effects of poor venting and to reduce the maintenance of venting grooves and channels.

ECOVENT is based on a simple mechanical system that allows the gas to escape from a venting window a few square millimeter wide that automatically closes down under plastic flow front pressure. As a consequence the pressure inside the cavity decreases significantly allowing to modify the injection parameters and optimize the filling pattern. ECOVENT can be applied at last filling point or at runner side according to part design and aesthetic demands. Application on runner allows anyway a pressure decrease: according to Bernoulli's principle an increase in the speed of the fluid occurs simultaneously with a decrease in pressure. With the application of ECOVENT the speed of gas flowing into the runner increases causing a pressure drop, the pressure gradient between runner and cavity intakes the gas from the cavity into the runner and outside of the mould through ECOVENT.

WORKING SYSTEM

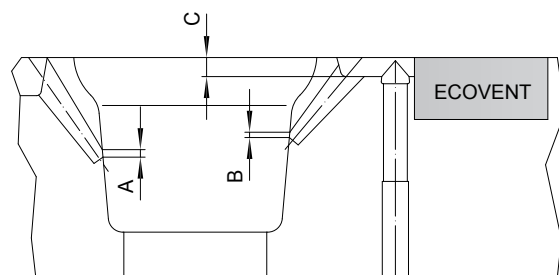
During the injection process the spring keeps the slider in "OPEN POSITION" allowing the gas to pour out through the proper channels. When the flow front reaches ECOVENT the slider moves back under plastic pressure and closes the gas venting channels. ECOVENT working system is not based on the over flow concept, the small mark called "TAB" is a kind of certification that the gas has been completely released.



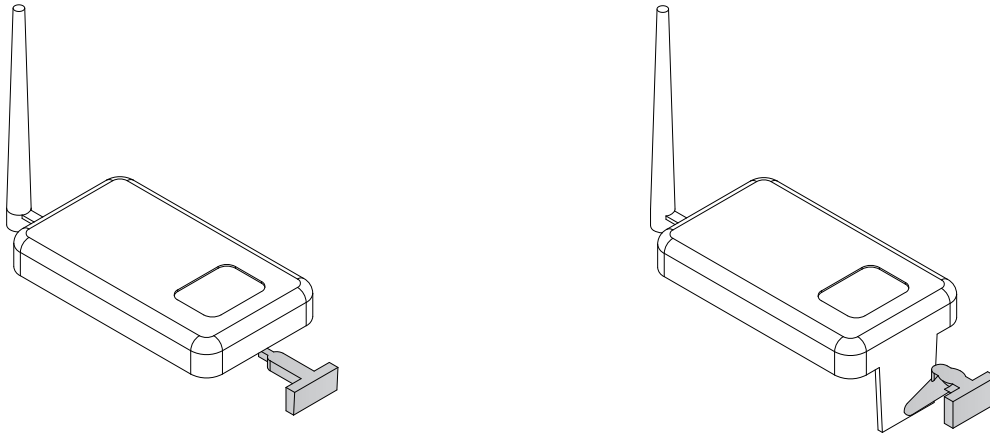
APPLICATION EXAMPLE

ECOVENT can be connected to last filling point of the cavity with a "submarine" channel. With such a design it is possible to automatically cut the connecting channel during the ejection of the injected part.

The dimension of the venting hole "B" has to be as big as possible in order to help the gas venting.



APPLICATION AT LAST FILLING POINT

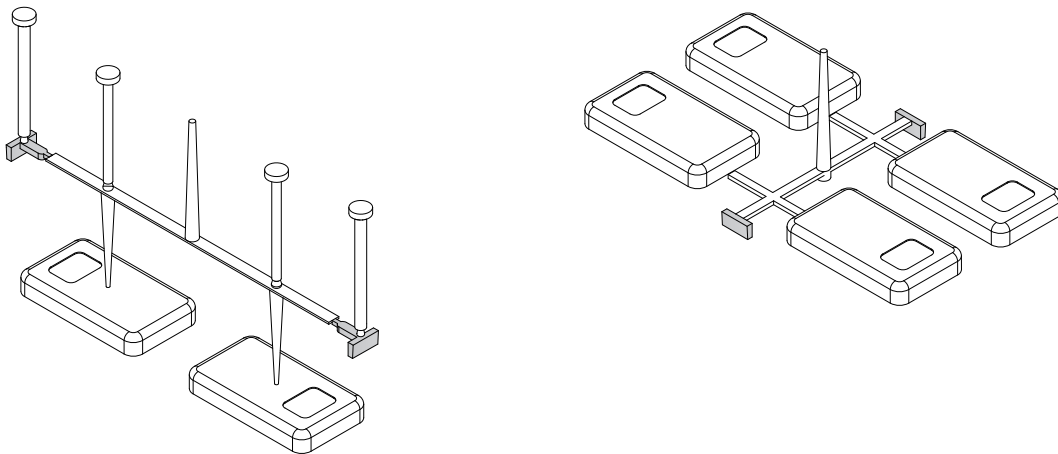


During the filling phase the plastic flow front pushes air and gases contained in the cavity trough ECOVENT where a big gas vent channel is open. In such a condition the plastic feels the cavity with a very low backpressure and the injection pressure decreases accordingly.

The main positive outcomes are:

- In cavity pressure dramatically reduced
- Part quality improvement
- Extended mold maintenance frequency

APPLICATION AT RUNNER SIDE



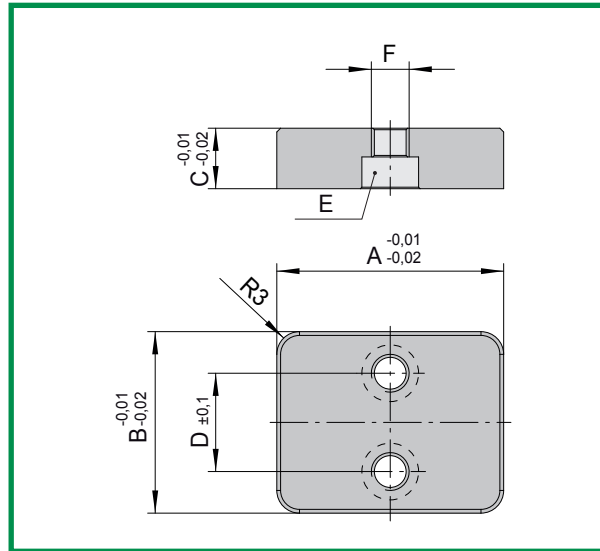
With ECOVENT application a big gas venting area is set up at the end of the runner that allows the gases produced during the melting process to flow through the system instead of flowing into the cavity.

Moreover it avoids to compress the air contained into the sprue and runner into the cavity and, according to Bernoulli's principle, it is possible to extract air from the cavity itself

The main positive outcomes are:

- Extended mold maintenance frequency
- Part quality improvement
- Reduced in cavity pressure

PLATE FOR ECOVENT

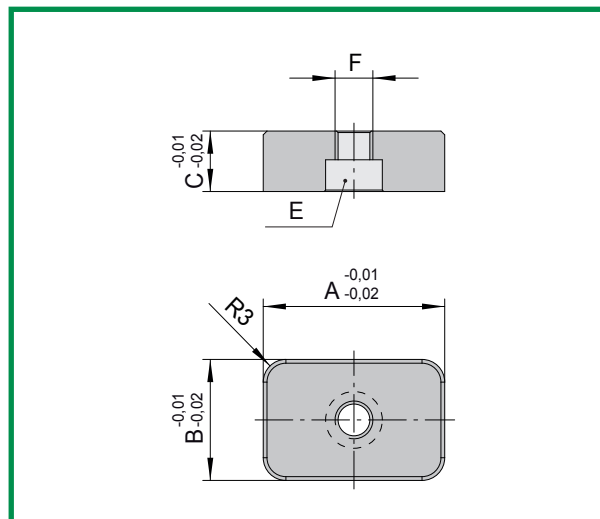


CODE: **EB-P**

CODE	A	B	C	D	E	F
EB-P	30	24	8	13	M4	M5

Mat.: AISI 420B Hardness: 50-52 HRC

PLATE ECOVENT MINI



CODE: **EB MINI-P**

CODE	A	B	C	E	F
EB MINI-P	24	16	8	M4	M5

Mat.: AISI 420B Hardness: 50-52 HRC

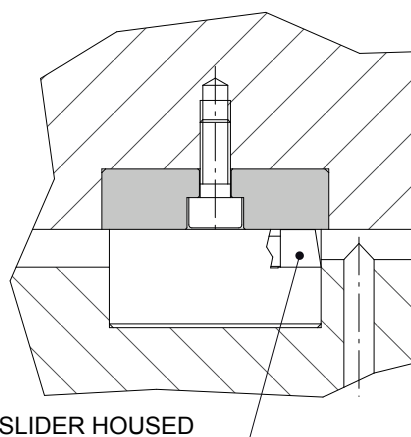
ECOVENT PLATE APPLICATION

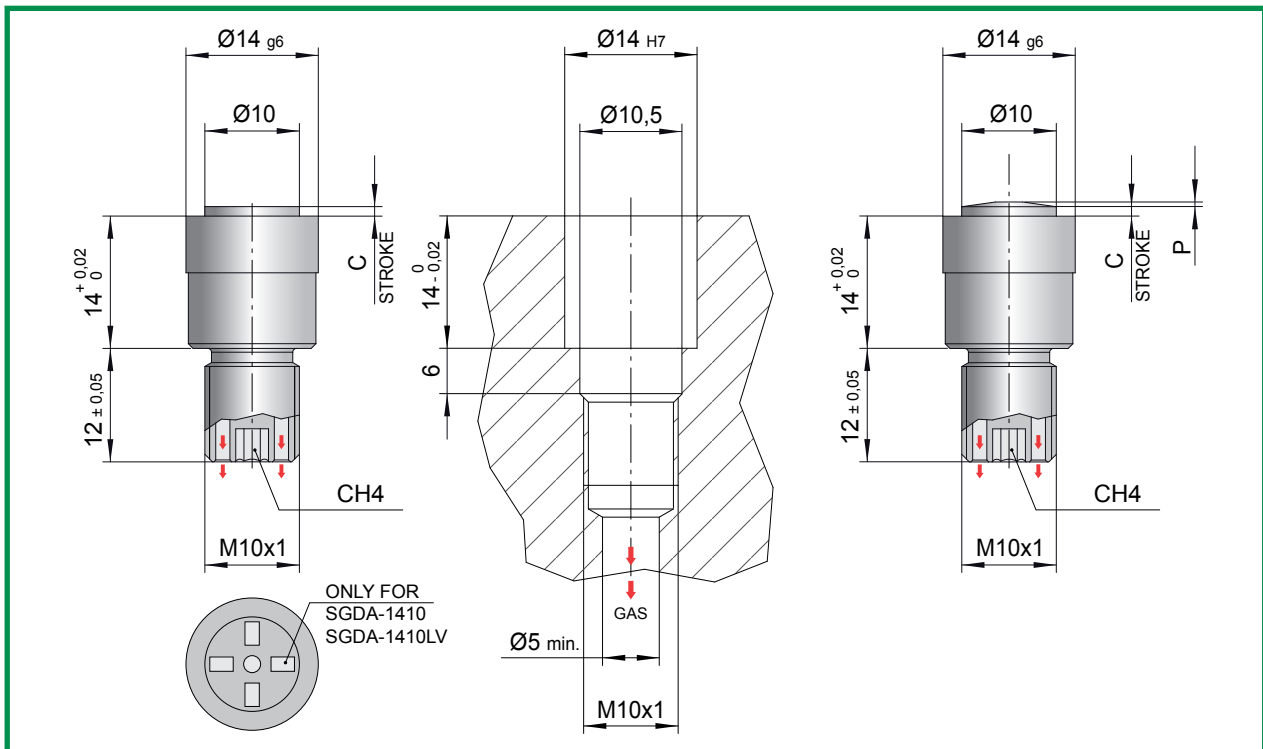
The slider housed in the ECOVENT valve is designed to be a few hundredths of a millimeter lower than the parting line. This gap allows the slider to move back when the plastic reaches the valve.

During the production process the mechanical stress can lead to a restrike of the parting line. This modification of the surface could close the gap between the parting line and the slider preventing the correct operation of the valve.

This problem is most likely to happen in big molds with not hardened cavity.

ECOVENT plate dramatically reduces the above described problems and allows for an easy restoration if necessary.



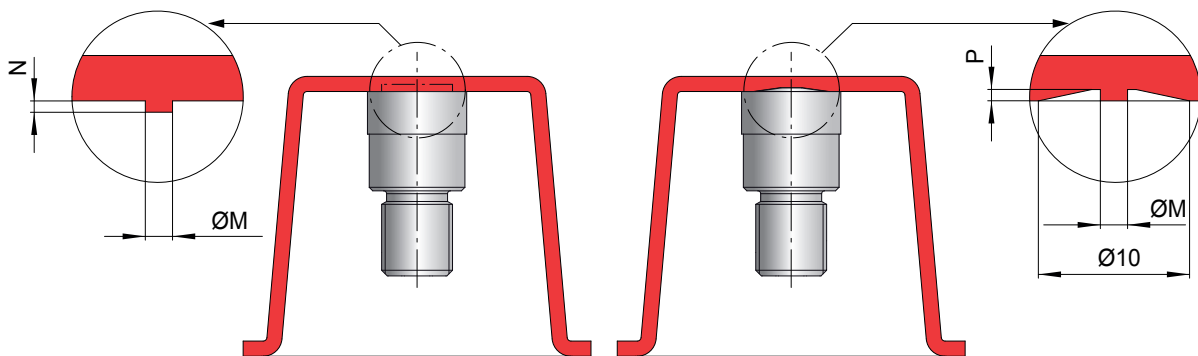


ONLY FOR HIGH VISCOSITY MATERIALS

CODE	C	M	N	P
SGD-1410	1	2	0,5	/
SGDA-1410	1	2	0,5	/
SGD-1410C	1	2	/	0,5
SGD-1415	1,5	/	/	/

Mat.: AISI 420B

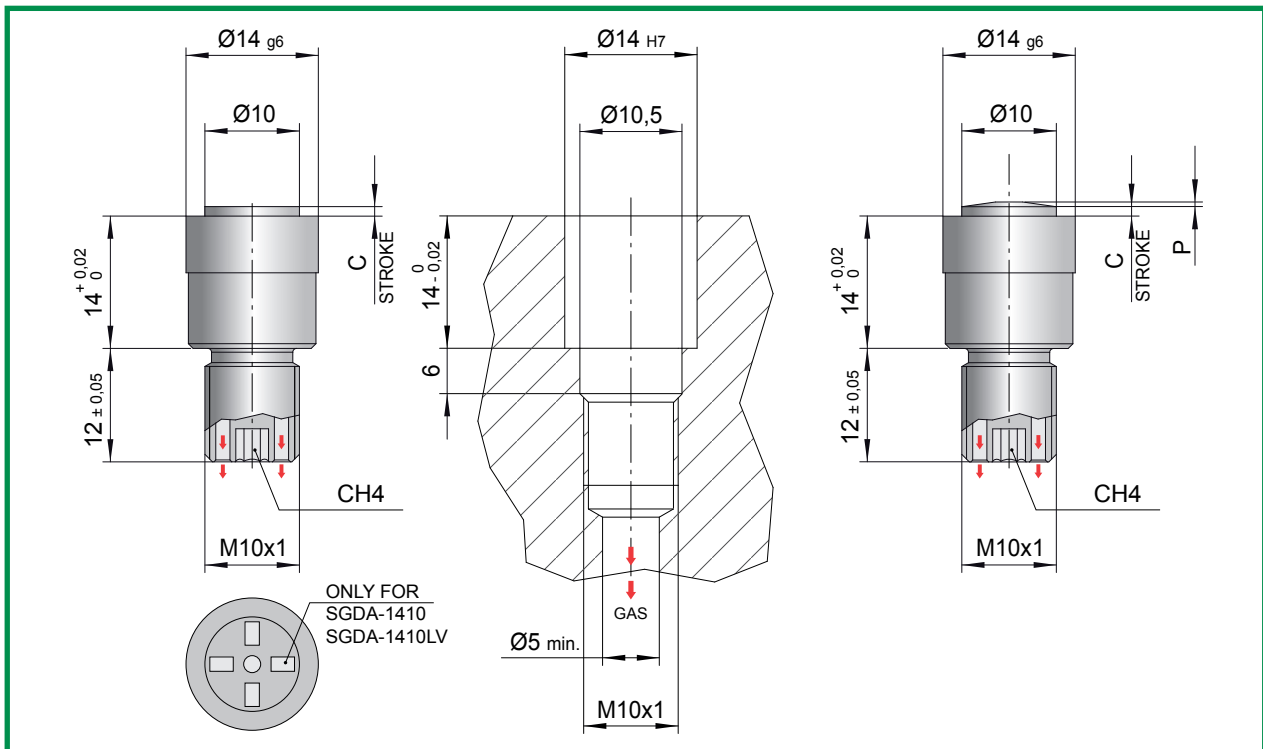
Hardness: 50÷52 HRC



CHARACTERISTICS

1. HIGH VENTING CAPACITY;
2. VENTING SURFACE SLOWLY AFFECTED BY MOLD DEPOSITS;
3. IN CAVITY AIR BACK PRESSURE DRAMATICALLY REDUCED;
4. IMPROVEMENT OF AESTHETIC CHARACTERISTICS OF THE INJECTED PART;
5. POSSIBILITY OF FRONT DISASSEMBLY.

DYNAMIC GAS VENTING SYSTEM

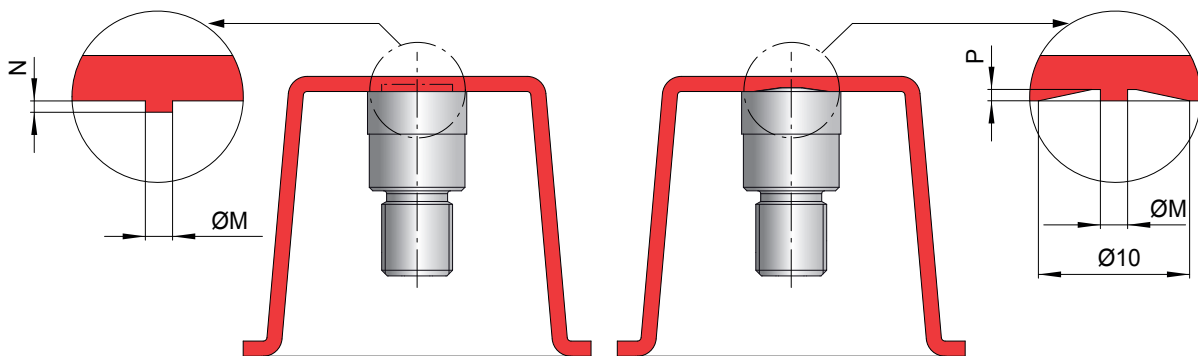


SUITABLE ALSO FOR LOW VISCOSITY MATERIALS

CODE	C	M	N	P
SGD-1410LV	1	1,2	0,5	/
SGDA-1410LV	1	1,2	0,5	/
SGD-1410CLV	1	1,2	/	0,5
SGD-1415LV	1,5	/	/	/

Mat.: AISI 420B

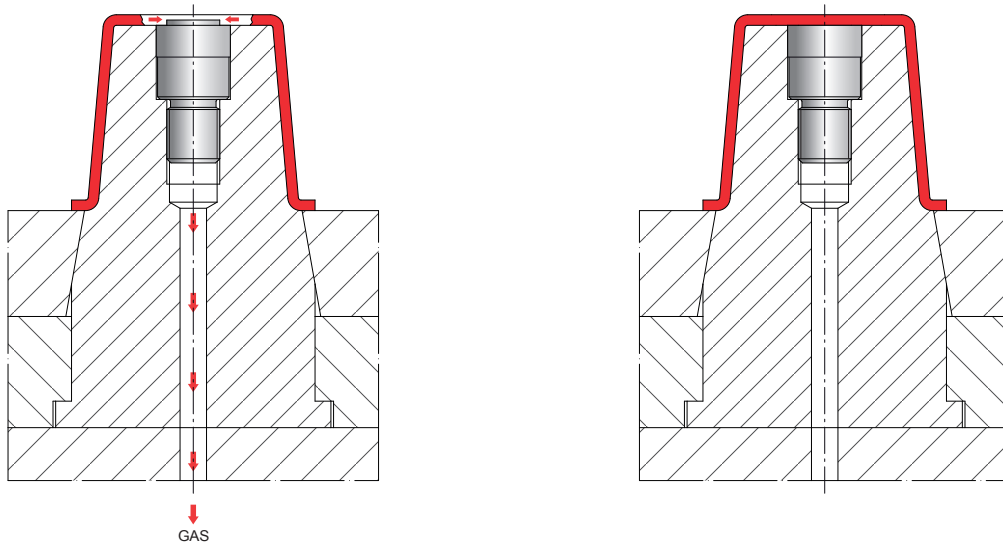
Hardness: 50÷52 HRC



CHARACTERISTICS

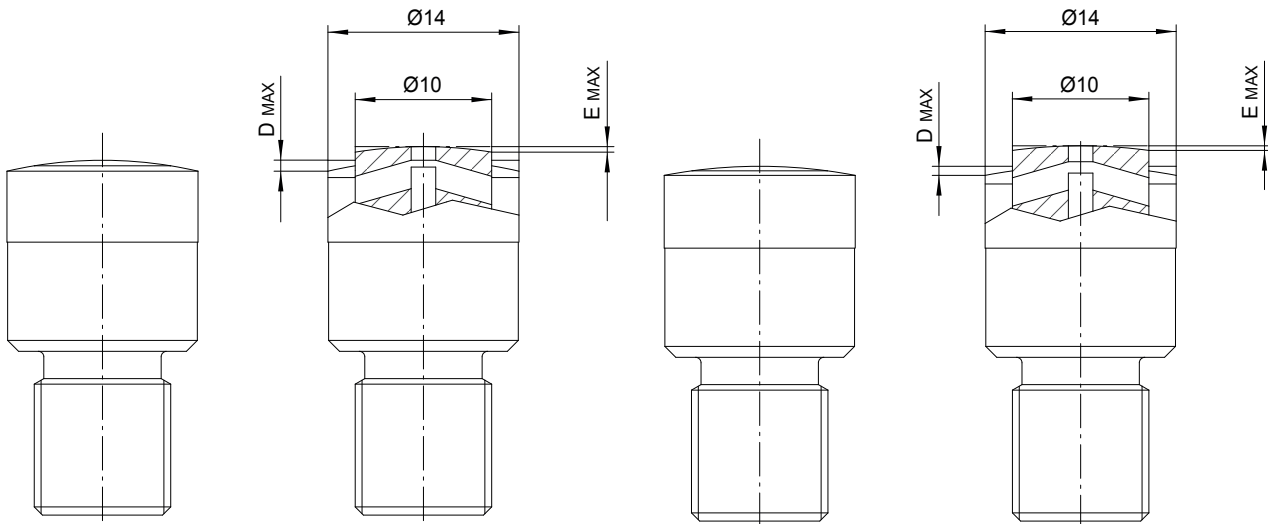
1. HIGH VENTING CAPACITY;
2. VENTING SURFACE SLOWLY AFFECTED BY MOLD DEPOSITS;
3. IN CAVITY AIR BACK PRESSURE DRAMATICALLY REDUCED;
4. IMPROVEMENT OF AESTHETIC CHARACTERISTICS OF THE INJECTED PART;
5. POSSIBILITY OF FRONT DISASSEMBLY.

WORKING SYSTEM



During the injection process the spring keeps the sliding insert in "open position" allowing the gases to pour out through the hole on the top of the valve. When the flow front reaches SGD the sliding insert moves back under plastic pressure to "close position" and closes the gas venting hole.

SHAPING MACHINING



MODEL: SGD-1410

MODEL: SGD-1415

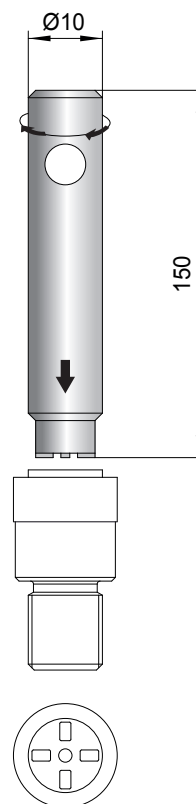
CODE	D	E
SGD-1410	0,8	0,4
SGD-1415	0,5	0,25

The SGD valve can be shaped within the maximum limit shown in the above picture.

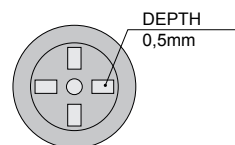
FRONT UNSCREWING

The valve code SGDA-1410 can be screwed and unscrewed thanks to the special key code CS-SGDA. This application makes faster and simpler the valve maintenance procedure.

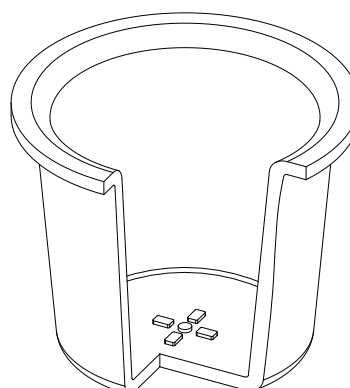
CODE: **CS-SGDA**

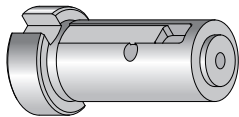
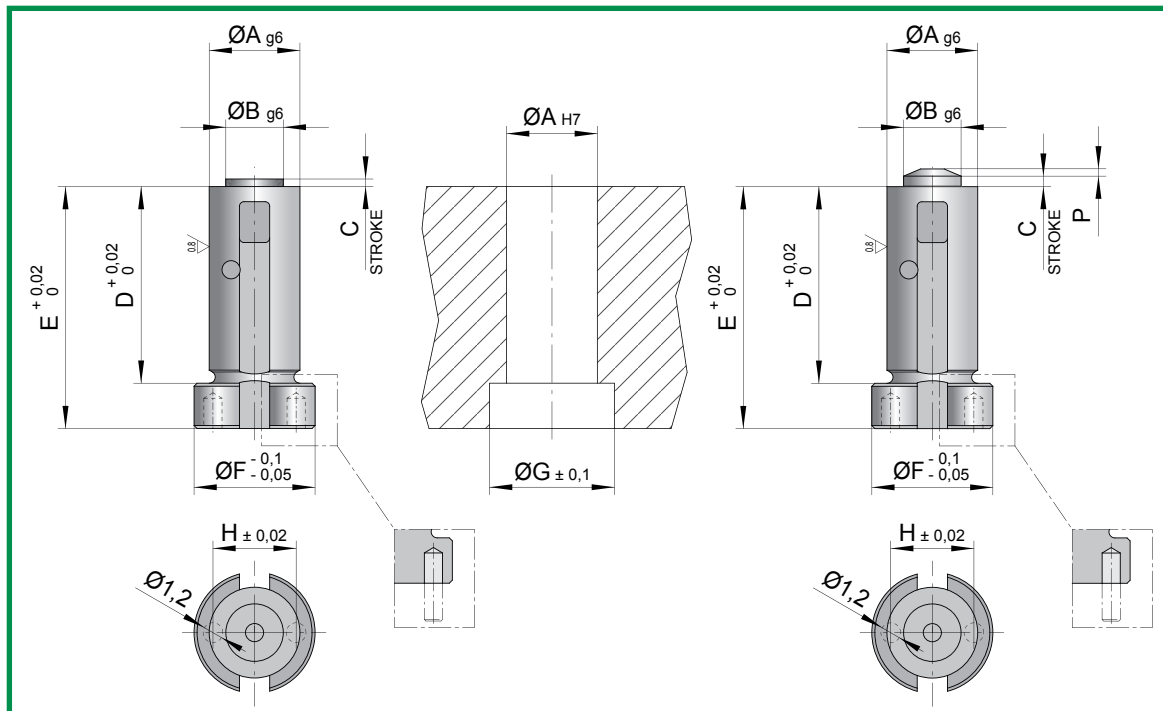


The top surface of the valve type SGDA-1410 is machined to fit the key code CS-SGDA.

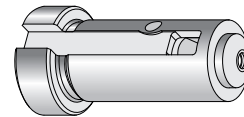


Such special machining creates four protrusions thickness 0,5 mm on the injected part.





CODE: **SGD-605 / SGD-608**



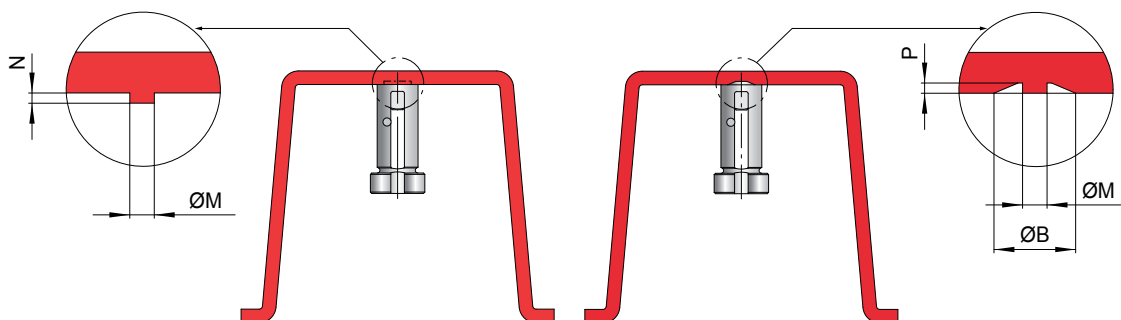
CODE: **SGD-607C**

CODE	A	B	C	D	E	F	G	H	M	N	P
SGD-605	6	4	0,5	13	16	8	8,5	5,5	1,2	0,3	/
*SGD-608	6	4	0,8	13	16	8	8,5	5,5	/	/	/
SGD-607C	6	4	0,7	13	16	8	8,5	5,5	1,2	/	0,5

Mat.: AISI 420B

Hardness: 50±52 HRC

* It is necessary to inject an air blast after ejection of plastic part. (See technical notes)

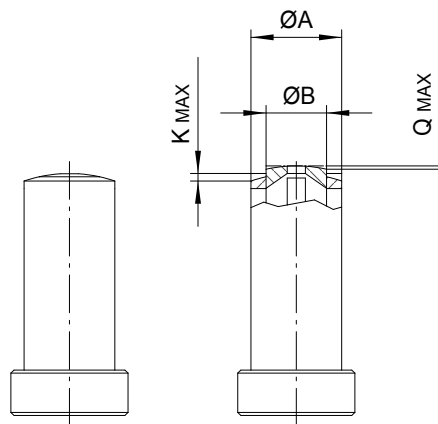


CHARACTERISTICS

1. HIGH VENTING CAPACITY;
2. VENTING SURFACE SLOWLY AFFECTED BY MOLD DEPOSITS;
3. IN CAVITY AIR BACK PRESSURE DRAMATICALLY REDUCED;
4. IMPROVEMENT OF AESTHETIC CHARACTERISTICS OF THE INJECTED PART.

SHAPING MACHINING

The SGD-6.. valves can be shaped within the maximum limit shown in the above picture.



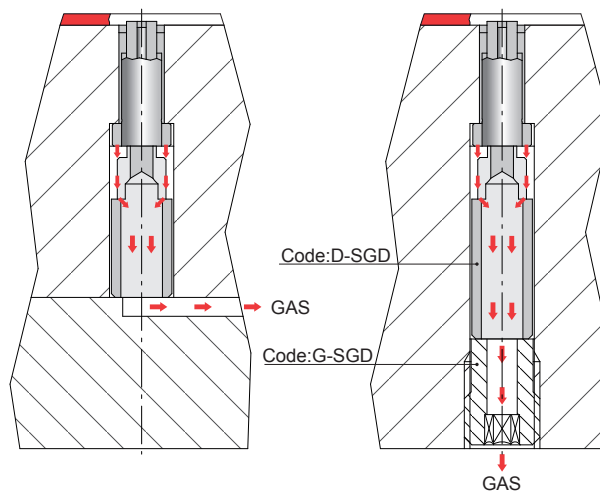
CODE	A	B	K	Q
SGD-605	6	4	0,5	0,25
SGD-608	6	4	0,5	0,25

APPLICATION EXAMPLE

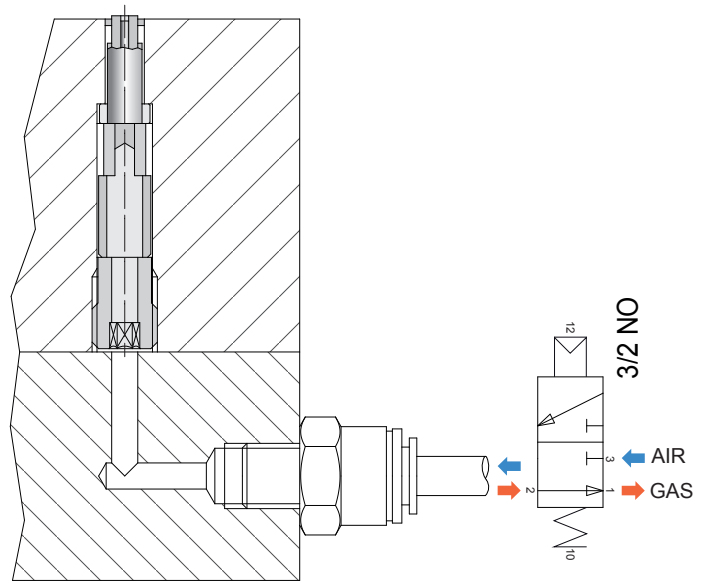
The valve type SGD-6.. has to be fixed into the mold insert from the back side. The spacer code D-SGD and the dowel code G-SGD can make this application easier.

The spacer is specially designed to collect the gases from the valve toward a central hole that communicates with the open atmosphere. It is possible to machine the spacer in order to reach the desired length.

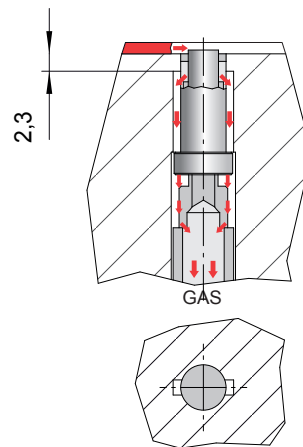
The dowel allows to fix the spacer and the valve and collects the gases into the central hole.



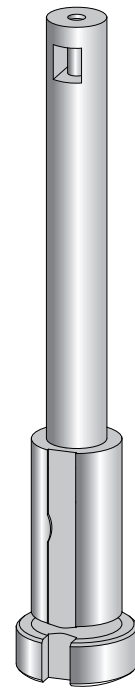
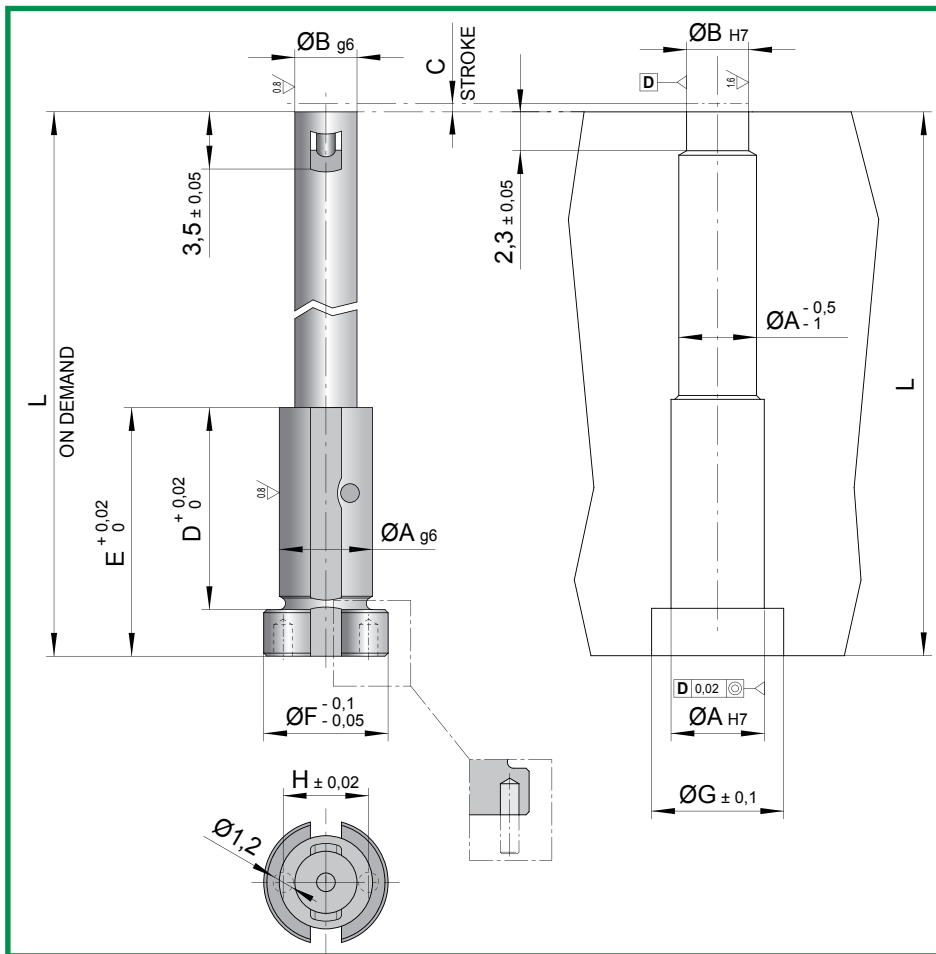
For a correct application of the venting valve code: SGD-608 it is necessary to inject an air blast after ejection of plastic part, the air will guarantee the valve to open every shot. With a normally open 3/2 valve it is possible to use the gas venting channel also to inject the air blast.



Some polymeric materials produce remarkable gas volume during melting process. Oily gas deposits can pile up and obstruct the gas venting channels. It is possible to machine extra gas venting channel in the mold as shown in the picture to improve valve performance.



DYNAMIC GAS VENTING SYSTEM



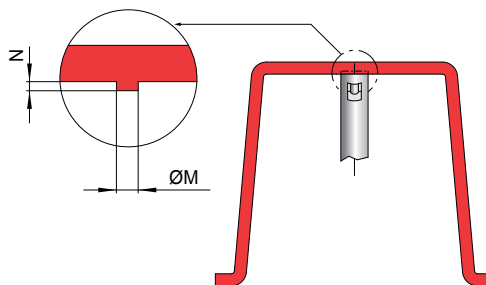
CODE: **SGDL-...**

CODE	A	B	C	D	E	F	G	H	L (min)	L (max)	M	N
SGDL-605	6	4	0,5	13	16	8	8,5	5,5	20	105	1,2	0,3
*SGDL-608	6	4	0,8	13	16	8	8,5	5,5	20	105	/	/

Mat.: AISI 420B

Hardness: 50+52 HRC

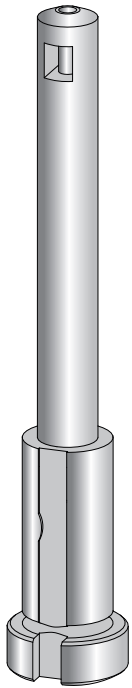
* It is necessary to inject an air blast after ejection of plastic part. (See technical notes)



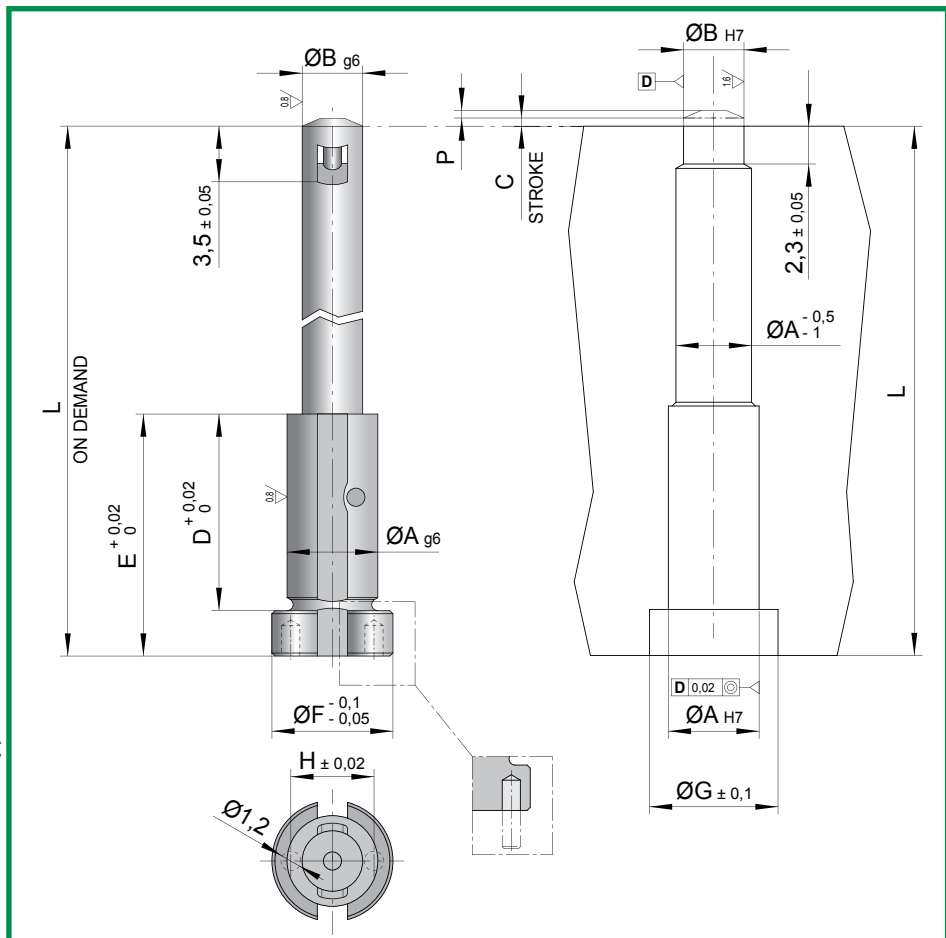
CHARACTERISTICS

1. HIGH VENTING CAPACITY;
2. VENTING SURFACE SLOWLY AFFECTED BY MOLD DEPOSITS;
3. IN CAVITY AIR BACK PRESSURE DRAMATICALLY REDUCED;
4. IMPROVEMENT OF AESTHETIC CHARACTERISTICS OF THE INJECTED PART;
5. LIMITED DIMENSIONS;
6. MAXIMUM AVAILABLE LENGTH 105mm.

ERMANN BALZI

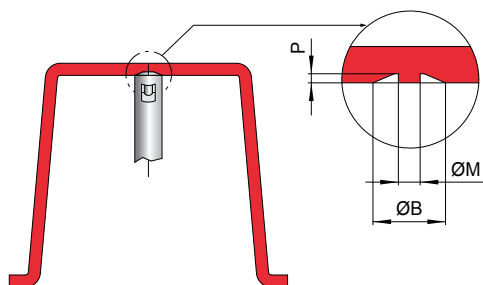


CODE: **SGDL-607C**



CODE	A	B	C	D	E	F	G	H	L (min)	L (max)	M	N	P
SGDL-607C	6	4	0,7	13	16	8	8,5	5,5	20	105	1,2	/	0,5

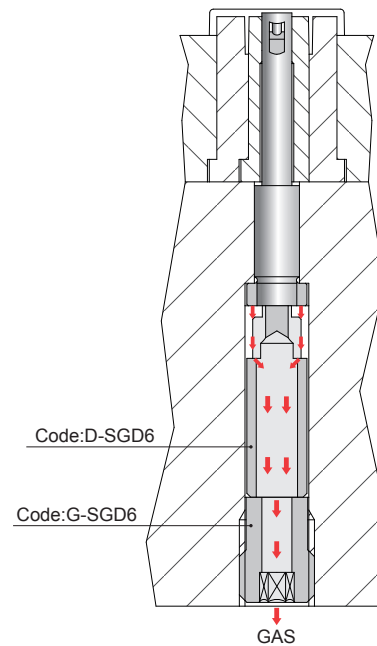
Mat.: AISI 420B
Hardness: 50÷52 HRC



CHARACTERISTICS

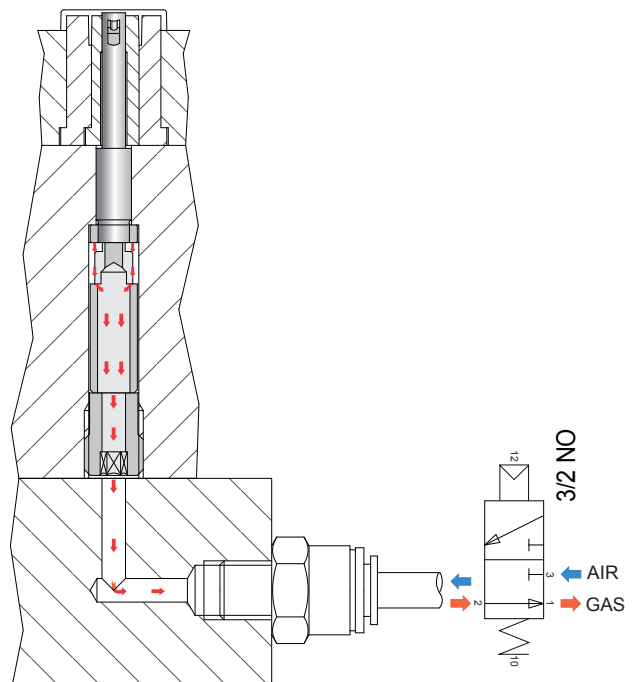
1. HIGH VENTING CAPACITY;
2. VENTING SURFACE NOT AFFECTED BY MOLD DEPOSITS;
3. IN CAVITY AIR BACK PRESSURE DRAMATICALLY REDUCED;
4. IMPROVEMENT OF AESTHETIC CHARACTERISTICS OF THE INJECTED PART;
5. LIMITED DIMENSIONS;
6. MAXIMUM AVAILABLE LENGTH 105mm.

The valve type SGDL has to be fixed into the mold insert from the back side and the valve needle has to stick out from the mold surface for a dimension equal to the stroke "C". The spacer code D-SGD.. and the dowel code G-SGD.. can make this application easier. The spacer is specially designed to collect the gases from the valve toward a central hole that communicates with the open atmosphere. It is possible to machine the spacer in order to reach the desired length. The dowel allows to fix the spacer and the valve and collects the gases into the central hole.

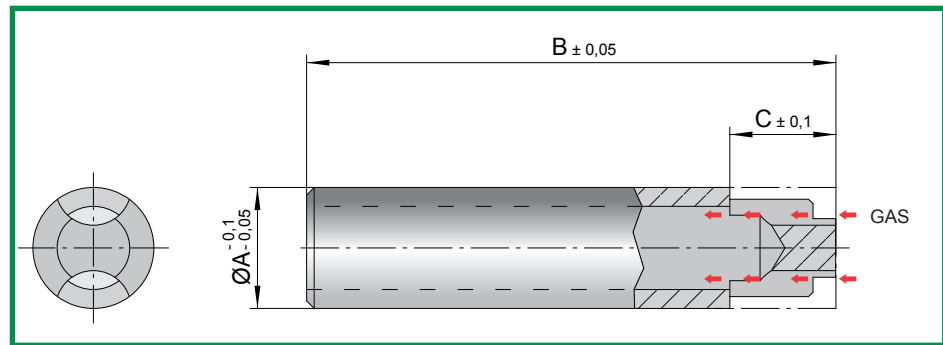


For a correct application of the venting valve Code: SGDL-608 it is necessary to inject an air blast after ejection of plastic part, the air will guarantee the valve to open every shot.

With a normally open 3/2 valve it is possible to use the gas venting channel also to inject the air blast.



SPACER FOR GAS VENTING VALVE

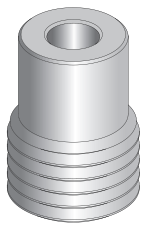


CODE: **D-SGD..**

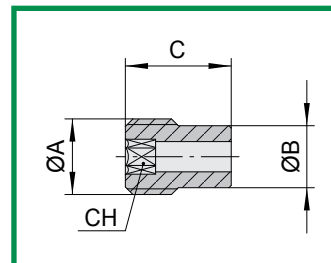
CODE	A	B	C
D-SGD6	8	50	7

Mat.: carbon steel. Hardness: 750 N/mm² (220 HB)
Nitred depth 0,1mm

DOWEL FOR GAS VENTING VALVE



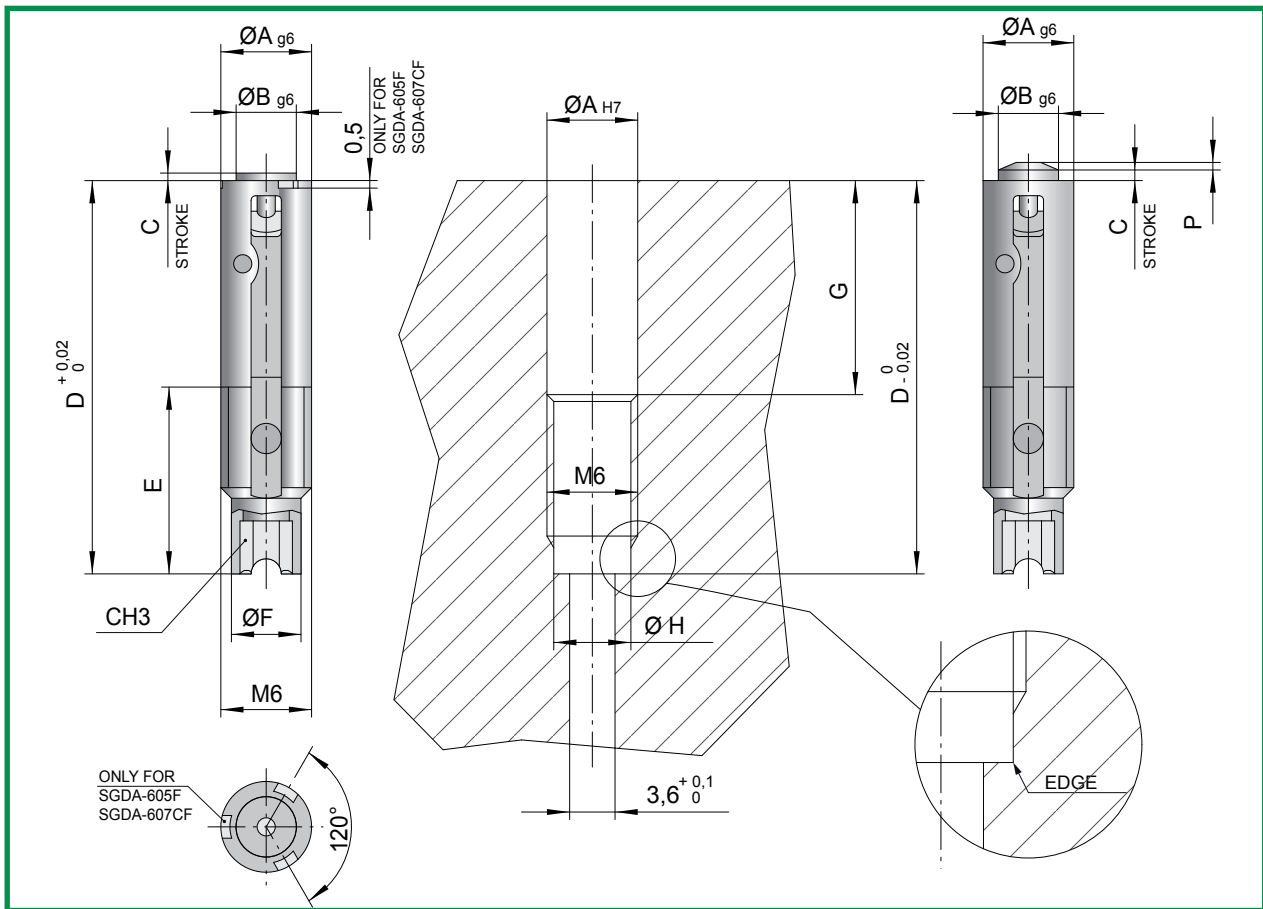
CODE: **G-SGD..**



CODE	A	B	C	CH
G-SGD6	M10	8,3	14	4

Mat.: 7225. Hardness: 750 N/mm² (220 HB)
Nitred depth 0,1mm

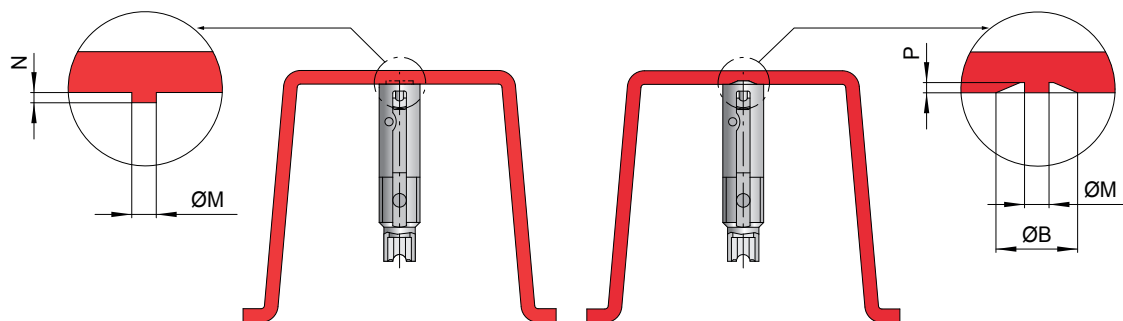
DYNAMIC GAS VENTING SYSTEM



CODE	A	B	C	D	E	F	G	H	M	N	P
SGD-605F	6	4	0,5	26	12	4,6	15	5,1	1,2	0,3	/
SGDA-605F	6	4	0,5	26	12	4,6	15	5,1	1,2	0,5	/
*SGD-608F	6	4	0,8	26	12	4,6	15	5,1	/	/	/
SGD-607CF	6	4	0,7	26	12	4,6	15	5,1	1,2	/	0,5
SGDA-607CF	6	4	0,7	26	12	4,6	15	5,1	1,2	/	0,5

Mat.: AISI 420B Hardness: 50±52 HRC

* It is necessary to inject an air blast after ejection of plastic part. (See technical notes)



CHARACTERISTICS

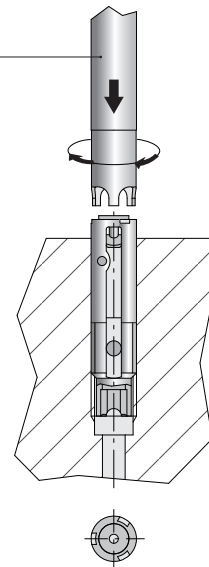
1. HIGH VENTING CAPACITY;
2. CAVITY AIR COUNTER PRESSURE DRAMATICALLY REDUCED;
3. IMPROVEMENT OF PART'S AESTHETIC CHARACTERISTICS;
4. POSSIBILITY OF FRONT DISASSEMBLY.

ERMANN BALZI

FRONT UNSCREWING

The valve code SGDA-605F can be screwed and unscrewed thanks to the special key code CS-SGDAF. This application makes faster and simpler the valve maintenance procedure.

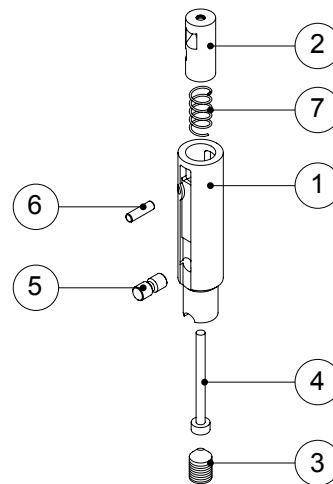
CODE: **CS-SGDAF**



CLEANING AND MAINTENANCE

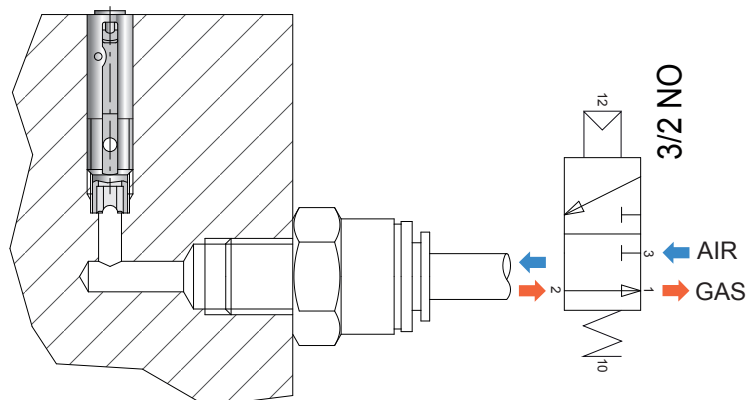
It is possible to disassembly the dynamic venting valve with the following procedure:

- remove the assembly pin 6;
- remove the sliding shaft 2 and the spring 7;
- unscrew the internal dowel 3;
- remove the pin for body fixing 5 and central pin 4.

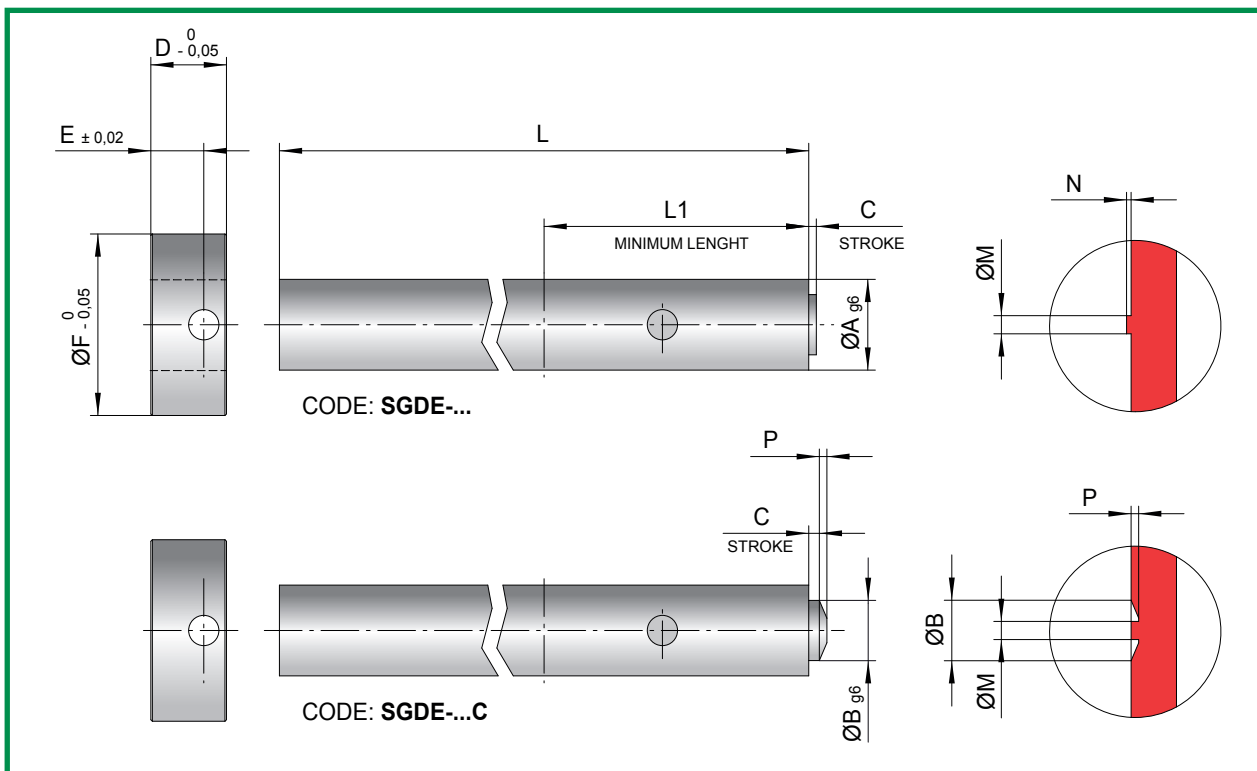


TECHNICAL INSTRUCTIONS FOR THE APPLICATION OF CODE SGD-608F

For a correct application of the venting valve code: SGD-608F it is necessary to inject an air blast after ejection of plastic part, the air will guarantee the valve to open every shot. With a normally open 3/2 valve it is possible to use the gas venting channel also to inject the air blast.



DYNAMIC GAS VENTING EJECTOR PIN



CODE	A	B	C	D	E	F	M	N	P	L1	L	
SGDE-605	6	4	0,5	5	3,5	12	1,2	0,3	/	35	300	400
SGDE-607C	6	4	0,7	5	3,5	12	1,2	/	0,5	35	300	400
*SGDE-608	6	4	0,8	5	3,5	12	/	/	/	35	300	400
SGDE-805	8	4	0,5	5	3,5	14	1,2	0,3	/	35	300	400
SGDE-807C	8	4	0,7	5	3,5	14	1,2	/	0,5	35	300	400
*SGDE-808	8	4	0,8	5	3,5	14	/	/	/	35	300	400
SGDE-1005	10	4	0,5	5	3,5	16	1,2	0,3	/	35	300	400
SGDE-1007C	10	4	0,7	5	3,5	16	1,2	/	0,5	35	300	400
*SGDE-1008	10	4	0,8	5	3,5	16	/	/	/	35	300	400
SGDE-1205	12	4	0,5	7	4	18	1,2	0,3	/	35	600	
SGDE-1207C	12	4	0,7	7	4	18	1,2	/	0,5	35	600	
*SGDE-1208	12	4	0,8	7	4	18	/	/	/	35	600	
SGDE-1405	14	4	0,5	7	4	22	1,2	0,3	/	35	600	
SGDE-1407C	14	4	0,7	7	4	22	1,2	/	0,5	35	600	
*SGDE-1408	14	4	0,8	7	4	22	/	/	/	35	600	

Order example: SGDE-605x300

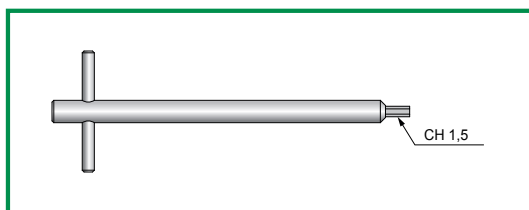
Mat. valve: AISI 420B

Hardness: 50÷52 HRC

Mat. ejector pin: 1.2344

Hardness: 950 HV

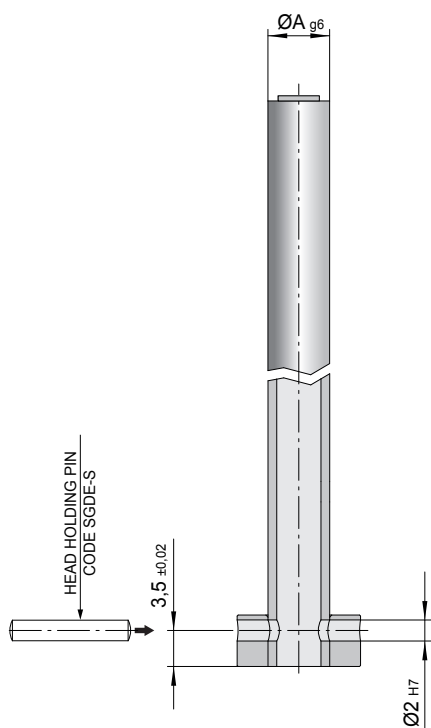
* It is necessary to inject an air blast after ejection of plastic part. (See technical notes)



CODE: **SGDE-CH**

ASSEMBLY

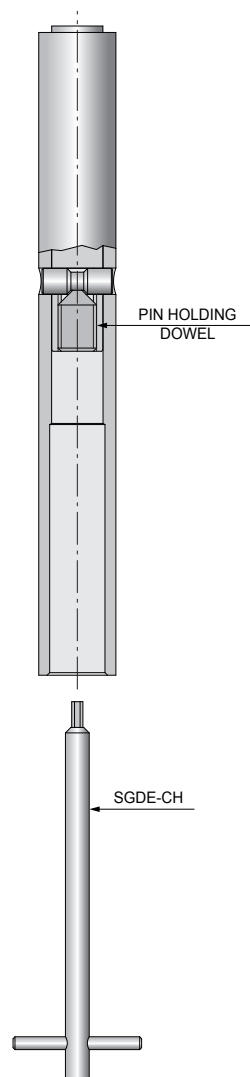
- Cut the ejector rod to the desired length.
- Machine on the ejector rod the hole to fit the head-holding pin.
- Insert the ejector head and fix it with the pin code SGDE-S.



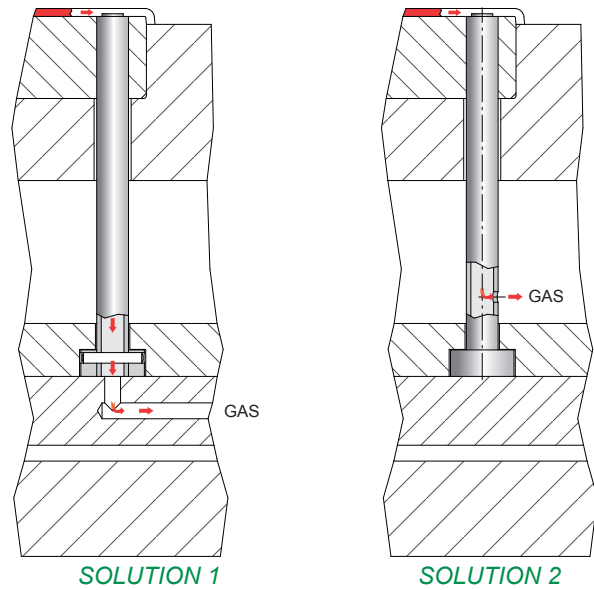
CLEANING AND MAINTENANCE

It is possible to disassemble the dynamic venting valve with the following procedure:

- Remove the head holding pin and the ejector head.
- Unscrew the internal dowel with the key SGDE-CH, remove the valve holding pin and extract the venting valve from ejector front side.



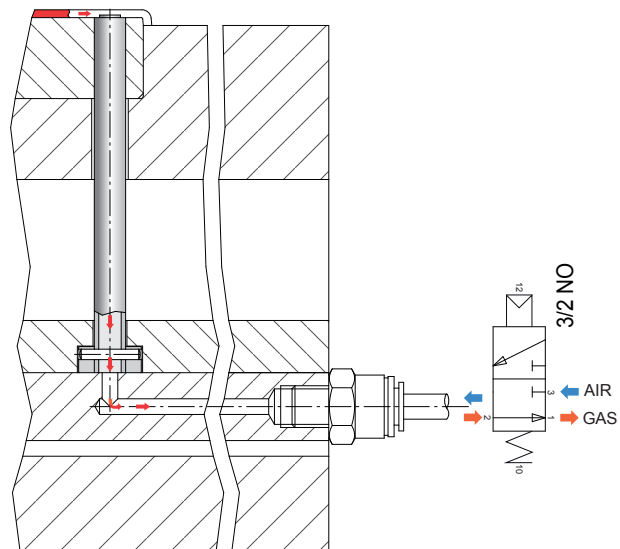
- The gas can flow out of the ejector pin through a hole machined in the ejector plate or in the ejector rod.



TECHNICAL INSTRUCTIONS FOR THE APPLICATION OF CODE SGDE-608/808/1008

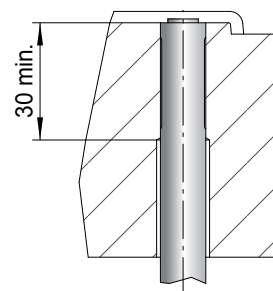
For a correct application of the venting valve code: SGDE-608/808/1008 it is necessary to inject an air blast after ejection of plastic part, the air will guarantee the valve to open every shot.

With a normally open 3/2 valve it is possible to use the gas venting channel also to inject the air blast.

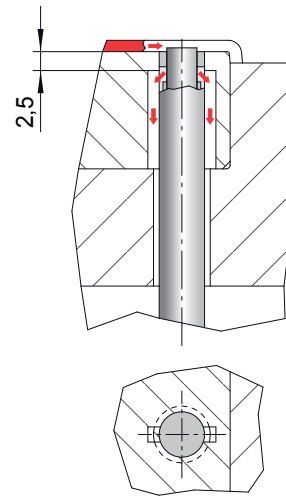


TECHNICAL INSTRUCTIONS FOR THE APPLICATION OF CODE SGDE-608/808/1008

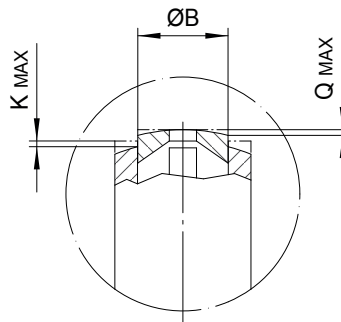
- It is necessary to guide the ejector pin for at least 30mm.



Some polymeric materials produce remarkable gas volume during melting process. Oily gas deposits can pile up and obstruct the gas venting channels. It is possible to machine extra gas venting channel in the mold as shown in the picture to improve valve performance.

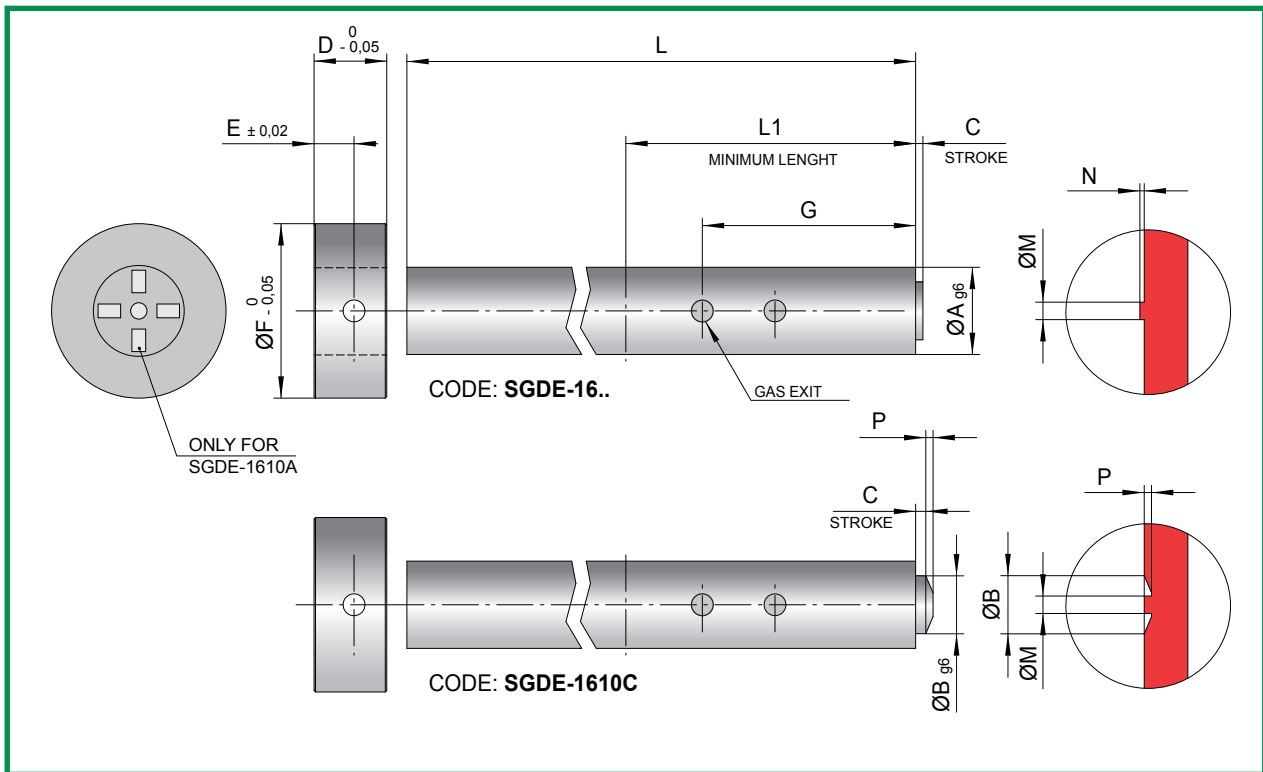


SHAPING MACHINING



CODE	B	K	Q
SGDE-605/805/1005	4	0,5	0,25
SGDE-608/808/1008	4	0,25	0,25

DYNAMIC GAS VENTING EJECTOR PIN



CODE: **SGDE-16..**

ONLY FOR HIGH VISCOSITY MATERIALS

CODE	A	B	C	D	E	F	G	M	N	P	L1	L
SGDE-1610	16	10	1	7	4	22	80	2	0,5	/	100	780
SGDE-1610A	16	10	1	7	4	22	80	2	0,5	/	100	780
SGDE-1610C	16	10	1	7	4	22	80	2	/	0,5	100	780
SGDE-1615	16	10	1,5	7	4	22	80	/	/	/	100	780

Order example: SGDE-1610x780

Mat. valve: AISI 420B

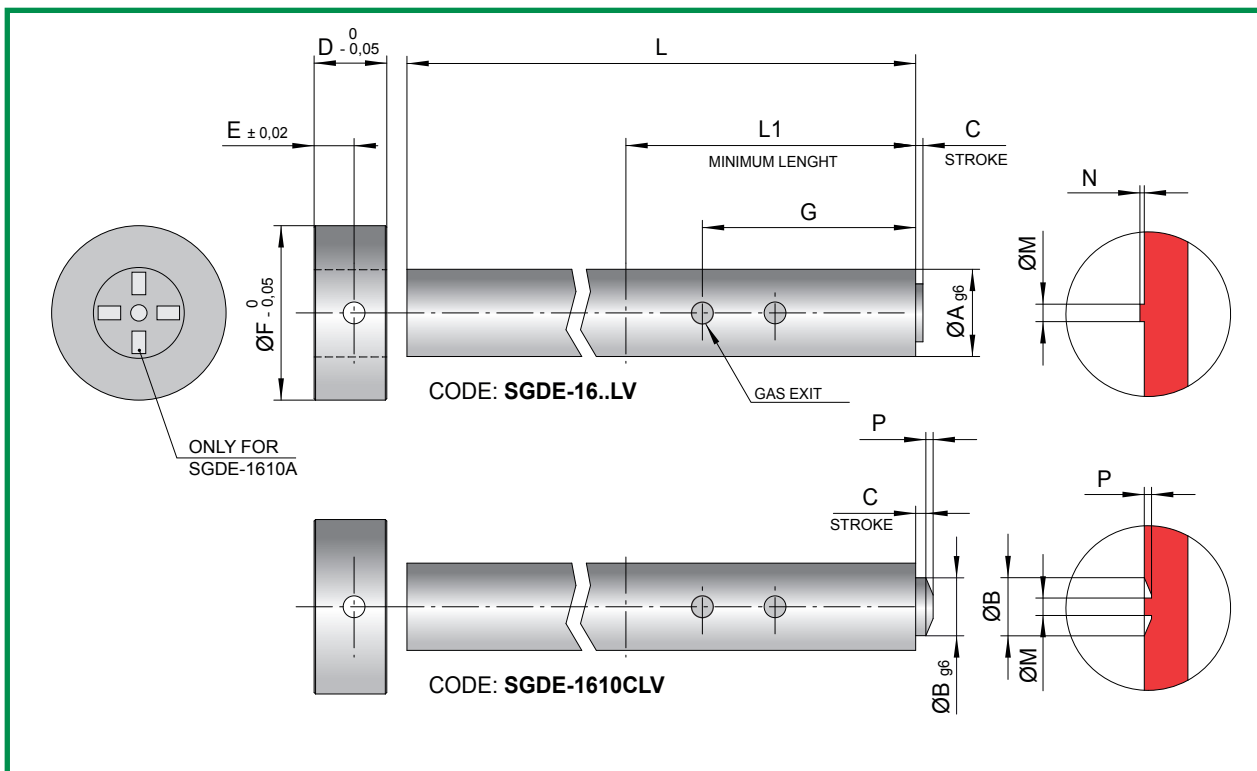
Hardness: 50±52 HRC

Mat. ejector: 1.2344

Hardness: 1000/1100 HV

CHARACTERISTICS

1. HIGH VENTING CAPACITY;
2. MOLD DEPOSITS CANNOT PLUG UP THE VENTING SURFACE;
3. CAVITY AIR COUNTER PRESSURE DRAMATICALLY REDUCED;
4. IMPROVEMENT OF PART'S AESTHETIC CHARACTERISTICS;
5. INTERCHANGEABLE WITH STANDARDIZED DIN EJECTOR PINS;
6. ADJUSTABLE LENGTH;



CODE: **SGDE-16..LV**

SUITABLE ALSO FOR LOW VISCOSITY MATERIALS

CODE	A	B	C	D	E	F	G	M	N	P	L1	L
SGDE-1610LV	16	10	1	7	4	22	80	1,2	0,5	/	100	780
SGDE-1610ALV	16	10	1	7	4	22	80	1,2	0,5	/	100	780
SGDE-1610CLV	16	10	1	7	4	22	80	1,2	/	0,5	100	780
SGDE-1615LV	16	10	1,5	7	4	22	80	/	/	/	100	780

Order example: SGDE-1610LVx780

Mat. valve: AISI 420B

Hardness: 50÷52 HRC

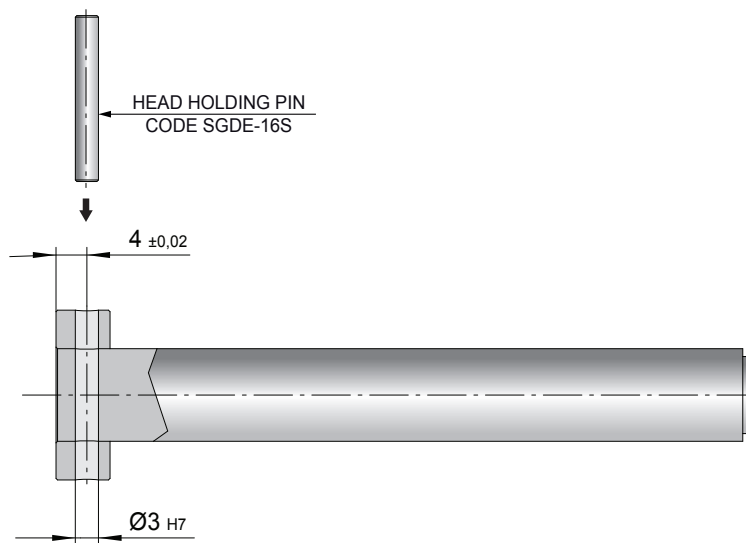
Mat. ejector: 1.2344

Hardness: 1000/1100 HV

CHARACTERISTICS

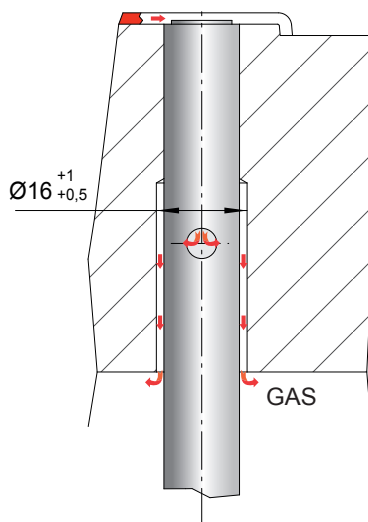
1. HIGH VENTING CAPACITY;
2. MOLD DEPOSITS CANNOT PLUG UP THE VENTING SURFACE;
3. CAVITY AIR COUNTER PRESSURE DRAMATICALLY REDUCED;
4. IMPROVEMENT OF PART'S AESTHETIC CHARACTERISTICS;
5. INTERCHANGEABLE WITH STANDARDIZED DIN EJECTOR PINS;
6. ADJUSTABLE LENGTH;

EJECTOR'S HEAD ASSEMBLY



- Cut the ejector rod to the desired length.
- Machine on the ejector rod the hole Ø3 to fit the head-holding pin.
- Insert the ejector head and fix it with the pin code SGDE-16S.

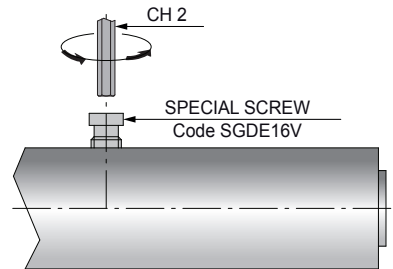
VENTING HOLE POSITION



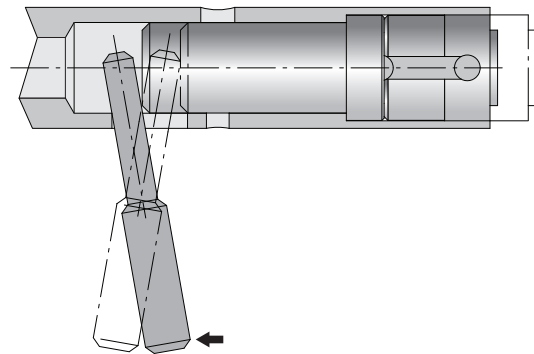
- Make sure the venting hole is located in the non-guided area of the ejector's seat

CLEANING AND MAINTENANCE

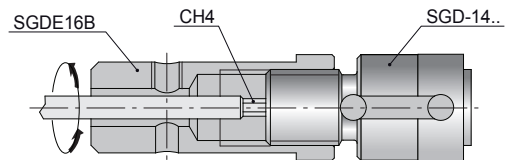
- Remove the special screw code SGDE-16V using a hexagonal key CH 2.



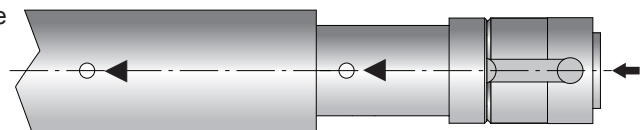
- Insert a pin diameter 3-4mm in the slot and extract the valve.



- Clamp the bush code SGDE-16B and unscrew the valve code SGD-14 with a hexagonal key CH 4.



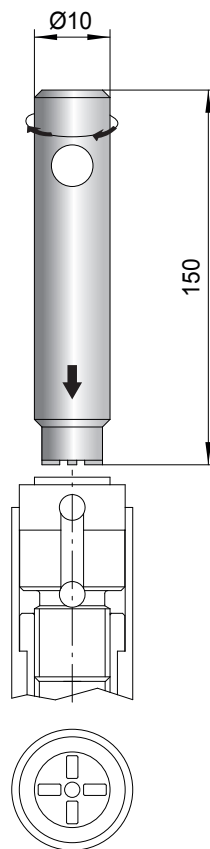
- During the assembly procedure make sure the reference marks are aligned.



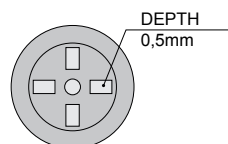
CLEANING AND MAINTENANCE

The valve code SGDE-1610A and SGDE-1610ALV can be screwed and unscrewed thanks to the special key code CS-SGDA.

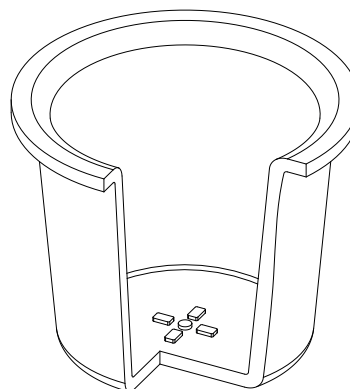
CODE: **CS-SGDA**



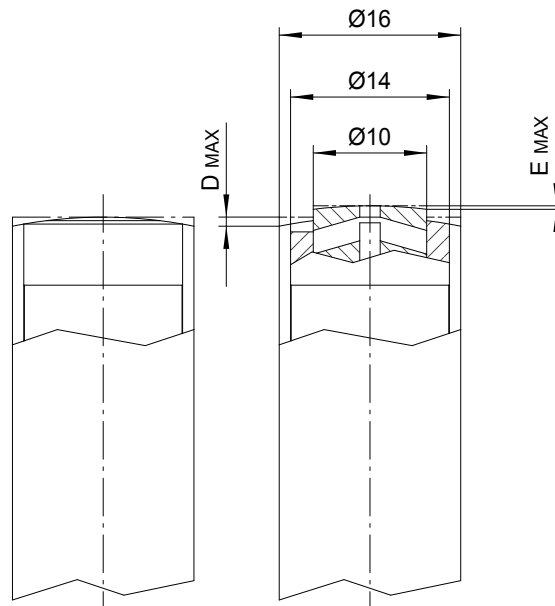
The top surface of the valve type SGDE-1610A and SGDE-1610ALV is machined to fit the key code CS-SGDA.



Such special machining creates four protrusions thickness 0,5 mm on the injected part.



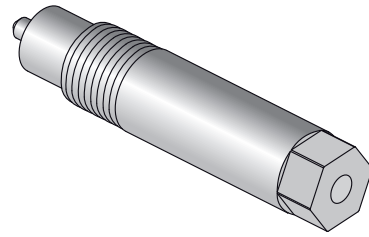
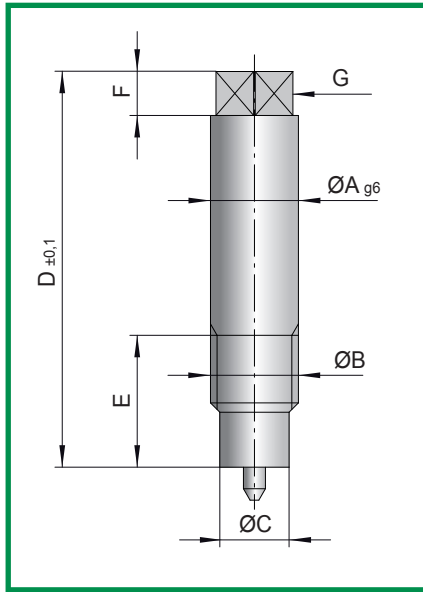
SHAPING MACHINING



CODE	D	E
SGDE-1610	0,8	0,3
SGDE-1615	0,5	0,25

The SGDE-.... valve can be shaped within the maximum limit shown in the above picture.

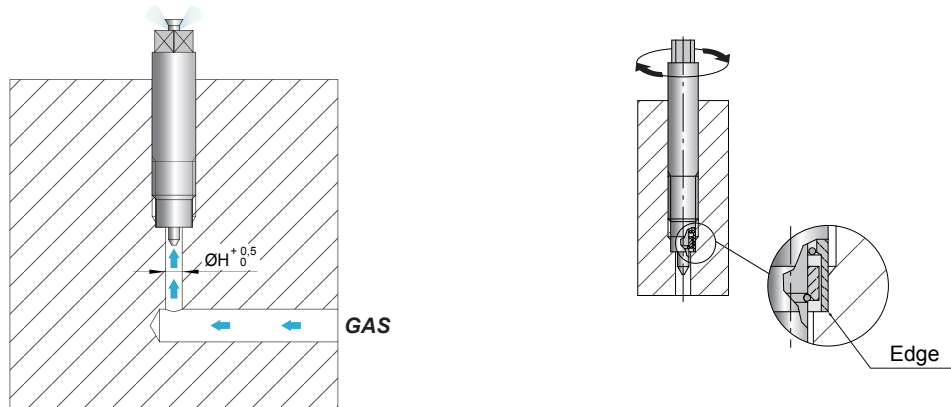
GAS INJECTOR



CODE: **IGB-..**

CODE	A	B	C	D	E	F	G	H
IGB-4	4	M4	3,3	28	10	3	CH 3,5	2
IGB-6	6	M6	4,6	33	12	3	CH 5	3
IGB-8	8	M8	6,3	36	12	4	CH 7	4
IGB-8L	8	M8	6,3	60	12	4	CH 7	4

Mat.: AISI 420B
Hardness: 50÷52 HRC

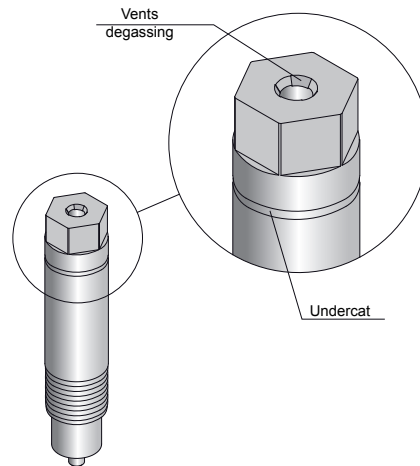


CHARACTERISTICS

- 1) FLOATING PIN SYSTEM: THE PIN CONICAL SHAPE GUARANTEES HIGH GAS FLOW RATE;
- 2) DEGASSING VENTS: VENTS TO LET THE GAS OUT ARE MACHINED ON THE INJECTOR;
- 3) CLEANING: THE MOVEMENT OF THE FLOATING PIN ALLOWS A SELF-CLEANING ACTION;
- 4) STAINLESS STEEL: THE INJECTOR IS COMPLETELY MADE IN STAINLESS STEEL;
- 5) WORKING PRESSURE FROM 1 TO 160 BAR.

STANDARD APPLICATION

1. The injection system with floating pin guarantees a high gas flow rate.
2. The degassing is carried on thanks to proper vents machined on the conical closure of the injector's body.
3. To make sure the gas spreads only in the desired direction the plastic material has to adhere to the gas injector body. In case of plastic materials such as polycarbonate or Nylon it is possible to machine an undercut on the injector body (see drawing) in order to help this process.



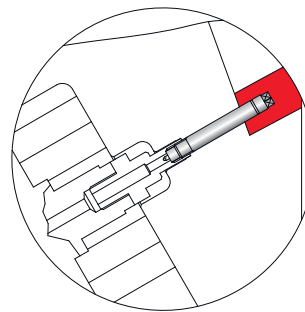
APPLICATION WITH CYLINDER

In case of big injected parts with high aesthetic requirements, degassing turns out to be extremely important in order to control the linear expansion of the gas and possible bulges.

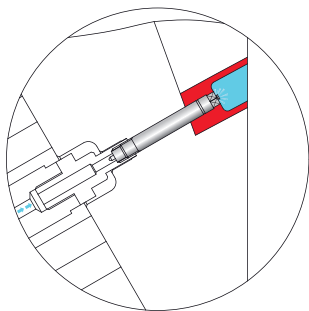
The gas vents on standard injectors sometime can't guarantees a proper degassing, that's why it can be useful to apply the gas injector on a cylinder.

Thanks to this application it is possible to carry out the degassing just extracting the gas injector from the injected part in order to allow gas to flow out.

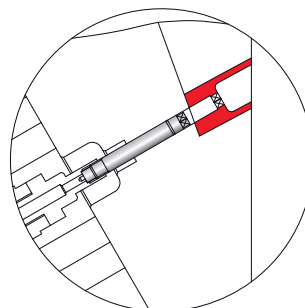
The application on a cylinder also allows to place the gas injector in undercut position.



FIRST PHASE:
Plastic injection.

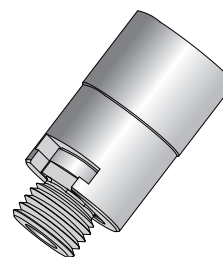
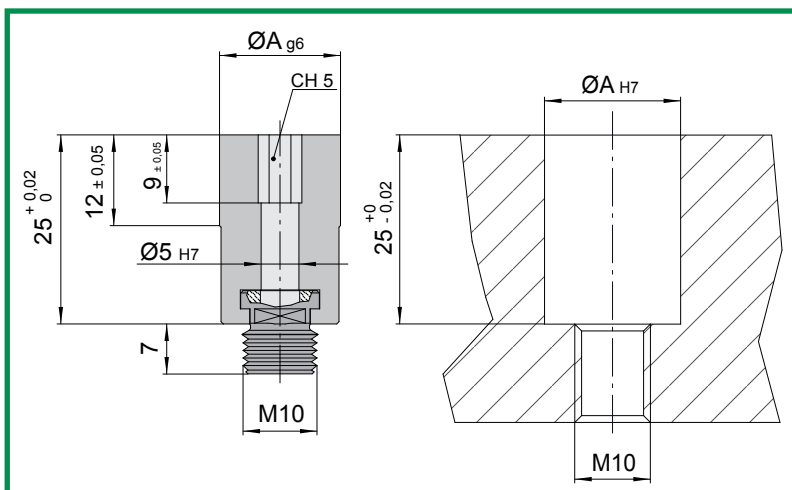


SECOND PHASE:
Gas is injected into the liquid-state material.



THIRD PHASE:
After carrying out the proper pressure reduction profile, the gas injector is extracted to complete the degassing.

RUNNER SELECTOR



CODE: **SC-..**

CODE	A
SC-14	14
SC-16	16

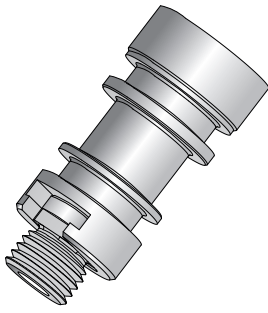
Mat.: AISI 420B

Hardness: 50+52 HRC

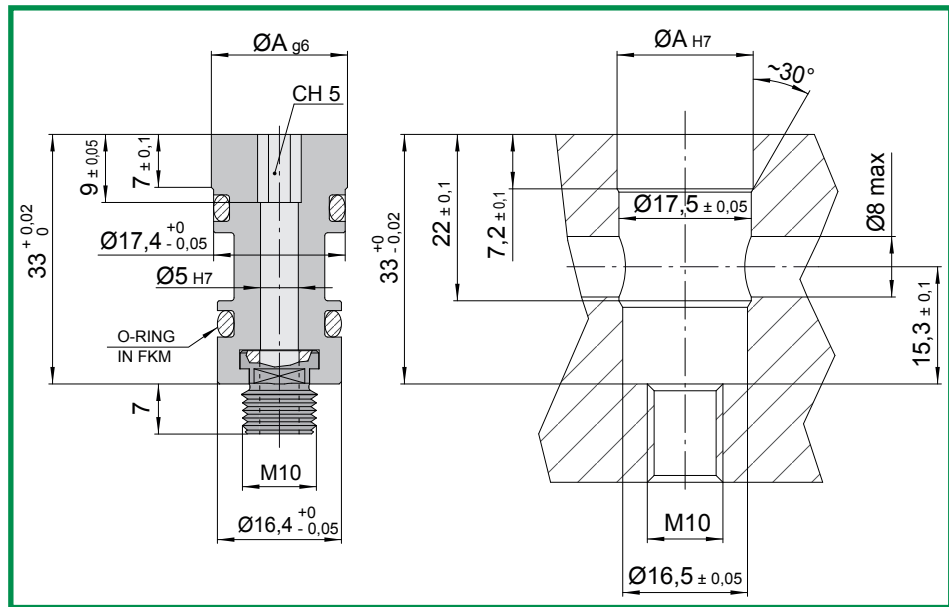
CHARACTERISTICS

- 1) POSSIBILITY OF FRONT ASSEMBLY AND DISASSEMBLY;
- 2) STAINLESSNESS;
- 3) WITH EJECTOR BORE DIAMETER Ø5 MM.

RUNNER SELECTOR WITH COOLING SYSTEM



CODE: **SCR-18**



CODE	A
SCR-18	18

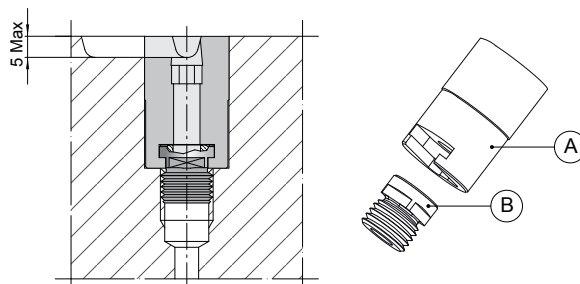
Mat.: AISI 420B
Hardness: 50÷52 HRC

CHARACTERISTICS

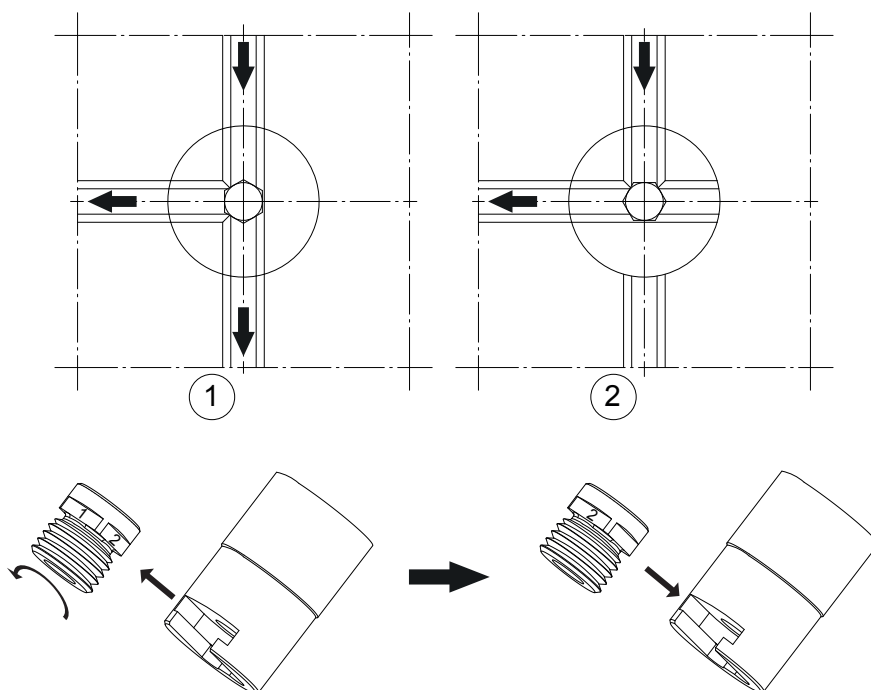
- 1) POSSIBILITY OF FRONT ASSEMBLY AND DISASSEMBLY;
- 2) POSSIBILITY TO COOL THE INJECTION AREA;
- 3) STAINLESSNESS;
- 4) WITH EJECTOR BORE DIAMETER $\varnothing 5$ MM.

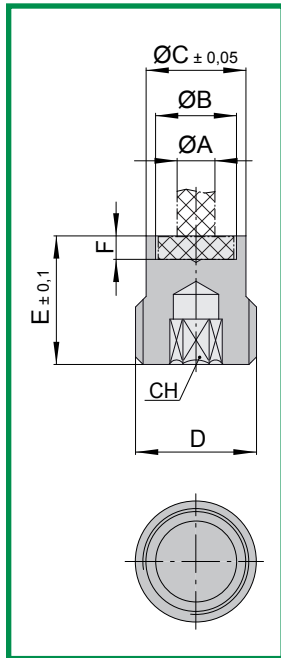
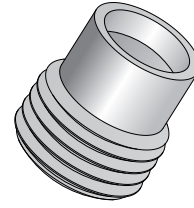
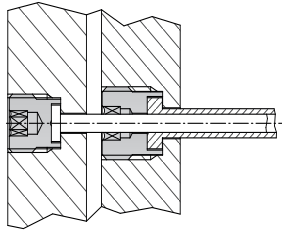
APPLICATION PROCESS

1. Insert the runner selector into the seat and tighten it all the way down.
2. Machine the runner system.
3. Blocking of runner is done by unscrewing the Runner selector, remove the element B and insert it rotated with the required angle ($90^\circ - 180^\circ - 270^\circ$).

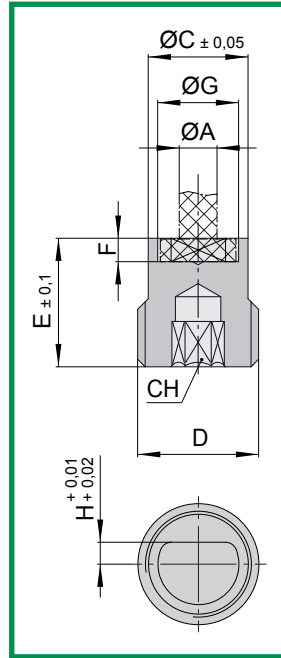


APPLICATION EXAMPLES

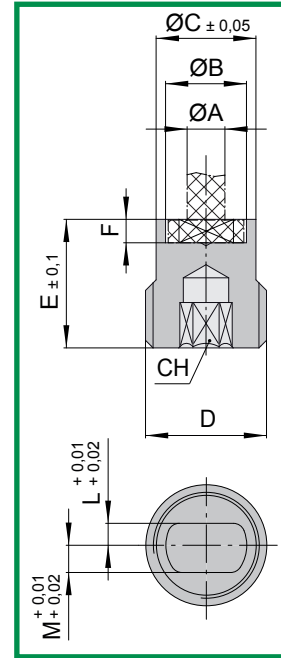




CODE: **PE-..**



CODE: **PEPS-..**



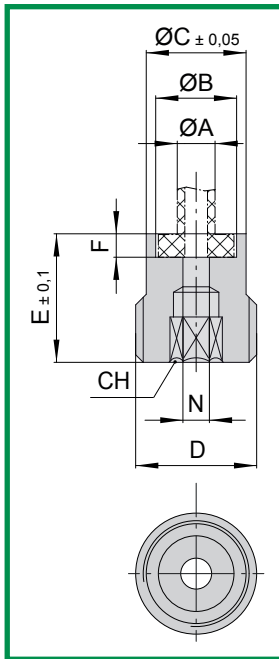
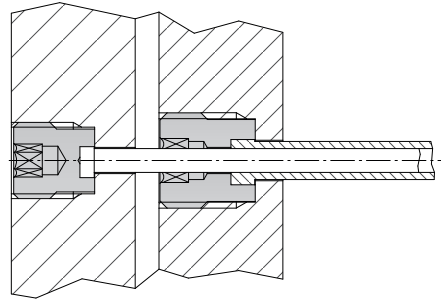
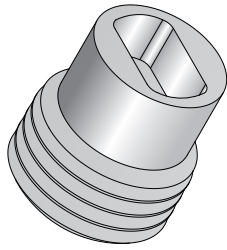
CODE: **PEP-..**

CODE	A	B	C	D	E	F	G	H	L	M	CH
PE-2	2	4,6	8,3	M10	14	2,1	4,1	1,2	1,1	1,4	4
PE-2,5	2,5	5,6	8,3	M10	14	2,1	5,1	1,4	1,3	1,6	4
PE-3	3	6,6	8,3	M10	14	3,1	6,1	1,7	1,6	2,3	4
PE-3,5	3,5	7,7	9,7	M12	14	3,1	7,1	1,9	1,8	2,5	4
PE-4	4	8,7	11,2	M14	16	3,1	8,1	2,5	2,4	3,1	5
PE-5	5	10,7	13,2	M16	17	3,1	10,1	3	2,9	3,6	6
PE-6	6	12,5	14,5	M18	18	5,1	12,1	3,5	3,4	4,1	6
PE-8	8	14,7	17,2	M20x2	20	5,1	14,1	4,5	4,4	5,1	8
PE-10	10	16,7	19,2	M22x2	20	5,1	16,1	5,5	5,4	6,1	8
PE-12	12	18,7	22,5	M25x2	22	7,1	18,1	6,5	6,4	7,1	12
PE-14	14	22,7	27	M30x2	22	7,1	22,1	8,5	8,4	9,1	12
PE-16	16	22,7	27	M30x2	22	7,1	22,1	9	8,9	9,6	12

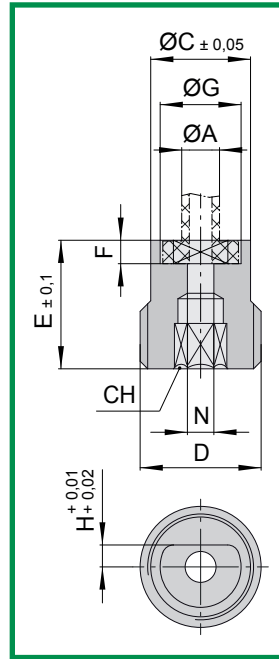
CHARACTERISTICS

- 1) RAPID APPLICATION;
- 2) SPACE SAVING DESIGN ;
- 3) ANTI-LOCKING DESIGN;
- 4) DESIGNED FOR EJECTOR PINS ISO 6751 (DIN 1530 A) STANDARD.

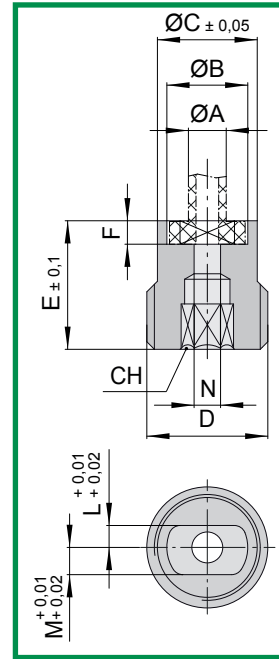
EJECTOR SLEEVE HOLDER



CODE: **PEC-..**



CODE: **PECPS-..**

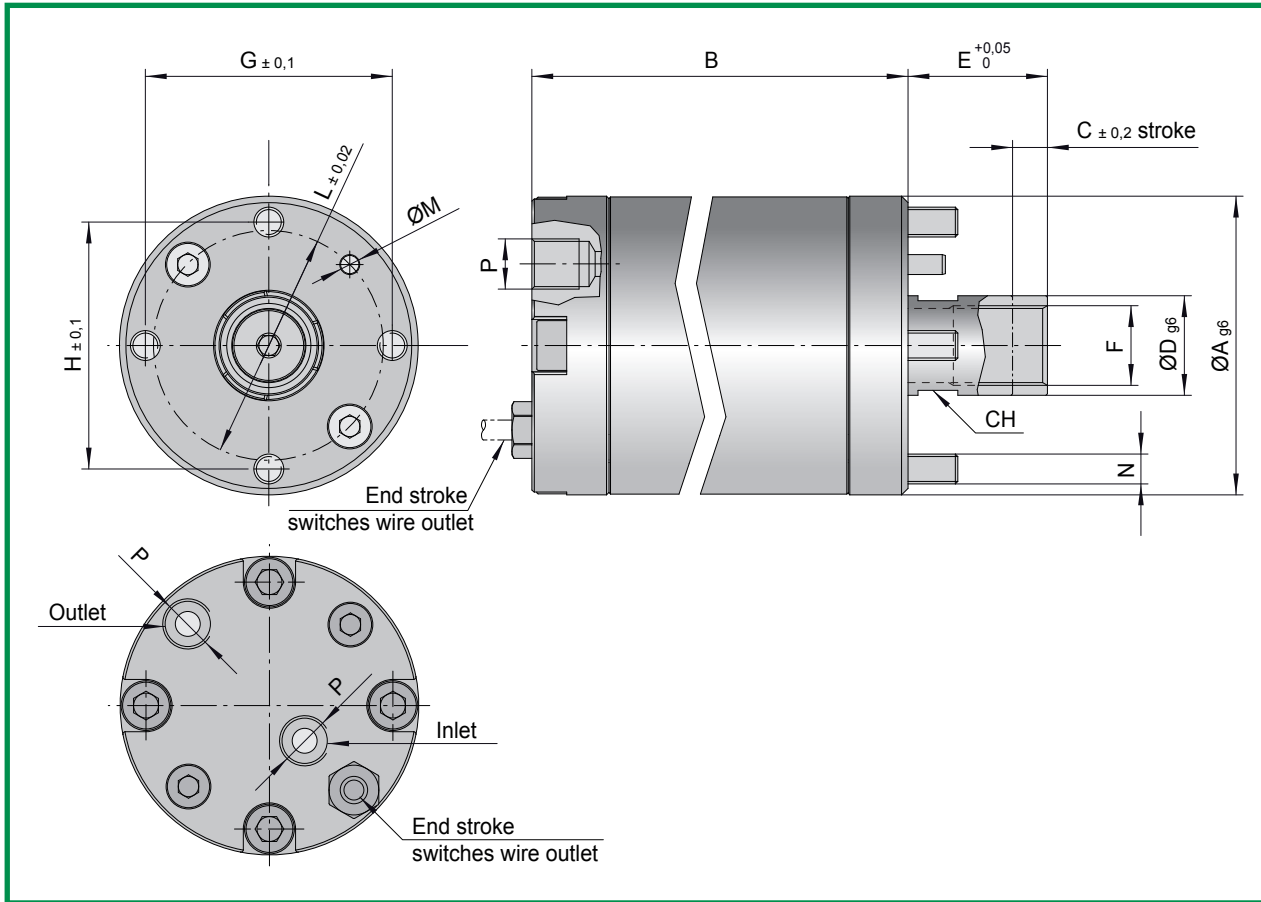


CODE: **PECP-..**

CODE			A	B	C	D	E	F	G	H	L	M	N	CH
PEC-2	PECPS-2	PECP-2	4	8,7	11,2	M14	16	3,1	8,1	2,5	2,4	3,1	2,5	5
PEC-3	PECPS-3	PECP-3	5	10,7	13,2	M16	17	3,1	10,1	3	2,9	3,6	3,5	6
PEC-4	PECPS-4	PECP-4	6	12,5	14,5	M18	18	5,1	12,1	3,5	3,4	4,1	4,5	6
PEC-5	PECPS-5	PECP-5	8	14,7	17,2	M20x2	20	5,1	14,1	4,5	4,4	5,1	5,5	8
PEC-6	PECPS-6	PECP-6	10	16,7	19,2	M22x2	20	5,1	16,1	5,5	5,4	6,1	6,5	8
PEC-8	PECPS-8	PECP-8	12	20,7	24	M27x2	22	7,1	20,1	6,5	6,4	7,1	8,5	12
PEC-10	PECPS-10	PECP-10	14	22,7	27	M30x2	22	7,1	22,1	8,5	8,4	9,1	10,5	12
PEC-12	PECPS-12	PECP-12	16	22,7	27	M30x2	22	7,1	22,1	9	8,9	9,6	12,5	12

CHARACTERISTICS

- 1) RAPID APPLICATION;
- 2) SPACE SAVING DESIGN ;
- 3) ANTI-LOCKING DESIGN;
- 4) DESIGNED FOR SLEEVE EJECTOR ISO 8405 (DIN 16756).



CODE	A	B	C	D	E	F	G	H	L	M	N	P	CH
CA6007	60	97	7	20	28	M16x1	49,6	49,6	46	4	M6	1/8"	18

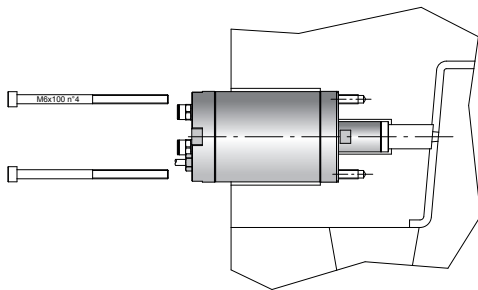
CHARACTERISTICS

- 1) MECHANICAL LOCKING SYSTEM;
- 2) CAN WORK WITH BOTH AIR AND OIL;
- 3) ROD ORIENTATED AGAINST ROTATION;
- 4) POSSIBILITY OF ADJUSTMENT;
- 5) PIN FOR CYLINDER ORIENTATION;
- 6) EASY TO ASSEMBLY AND DISASSEMBLY;
- 7) INTERNAL INDUCTIVE END STROKE SWITCHES;
- 8) COMPACT DESIGN.

ATTENTION: THE MECHANICAL LOCKING SYSTEM SET IN ONLY AT THE END OF THE STROKE (7mm).

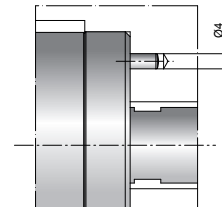
CODE	AIR 6 bar		AIR 12 bar		LOCKING STATIC FORCE	T max
	PUSH	PULL	PUSH	PULL		
CA6007	60 Kgf	50 Kgf	110 Kgf	100 Kgf	800 Kgf	70°C

CODE	OIL 80 bar		LOCKING STATIC FORCE	T max
	PUSH	PULL		
CA6007	750 Kgf	650 Kgf	800 Kgf	70°C



FIXING

- Fixing performed with four through screws (M6x100 DIN 912 - classe 12.9) makes assembly and disassembly operations easy.

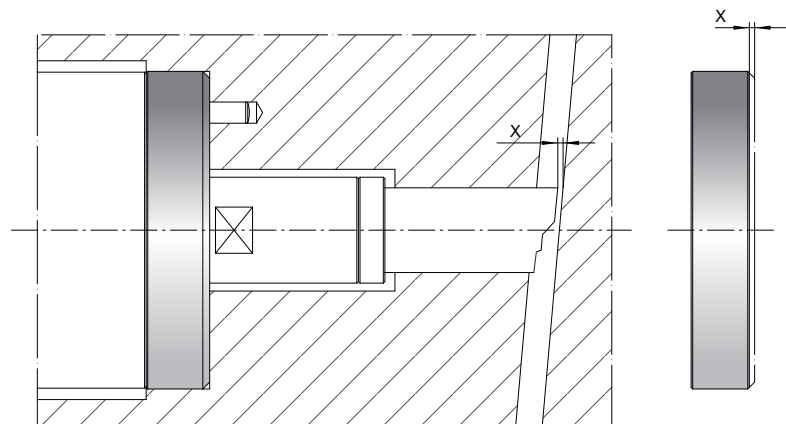


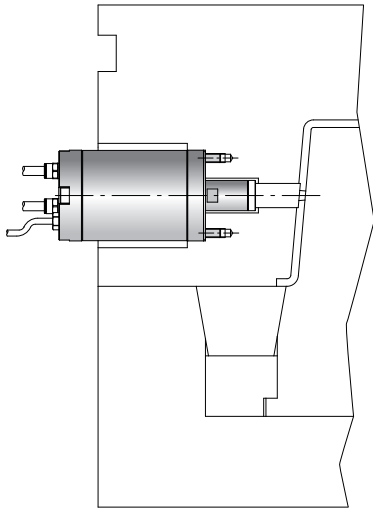
POSITIONING

- Cylinder orientation is guaranteed with a dowel pin.

SETTING

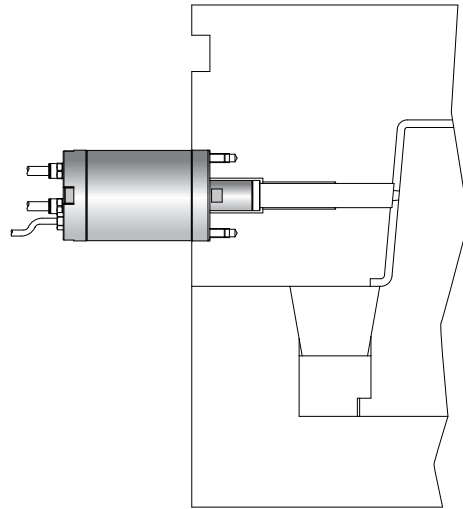
- During adjustment operations it is possible to grind the front surface of the cylinder's flange to set the position of the core.





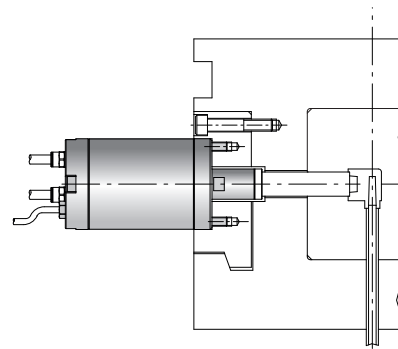
APPLICATION 1

- Thanks to the compact design it is possible to embed the cylinder minimizing the mold encumbrance and the core length leading to reduced core thermal expansion.



APPLICATION 2

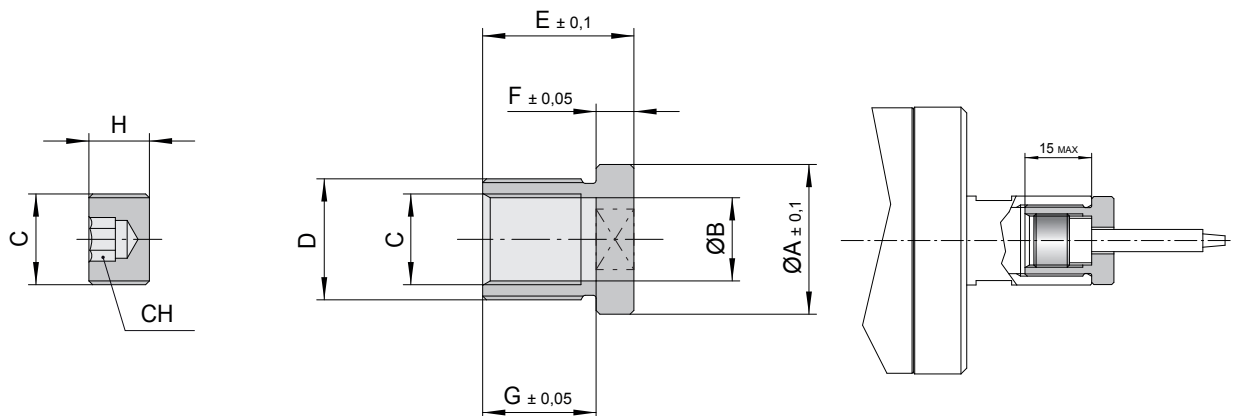
- In case of applications with critical temperatures or limited spaces it is possible to apply the cylinder outside the mold.



APPLICATION 3

- It is possible to apply the cylinder at parting line with a special designed flange.

PIN HOLDING INSERT

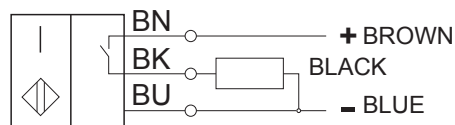


CODE	A	B	C	D	E	F	G	H	CH
IPS-CA60	19,8	11	M12x1	M16x1	20	5	15	8	5

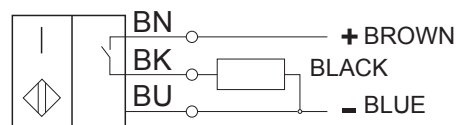
Mat.: 7225. Hardness: 670 HV05
Nitrided depth 0,1mm.

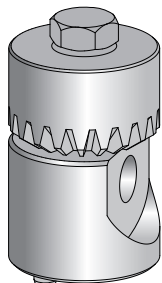
SENSORS

CODE	Inductive standard sensor	
CAFI	Contact type	NO
	Operating voltage Ue DC	24.0 V
	Operating voltage range	From 10.0 to 30.0 V
	Operating current	150mA
	Switching freq. f max	3000Hz
	Sensor type	Inductive PNP
	Voltage drop static max	2.5V
	Temperature range	+70°C / -25°C
	Polarity reversal protected	Yes
	Function indicator	Yes
IP rating	IP65	

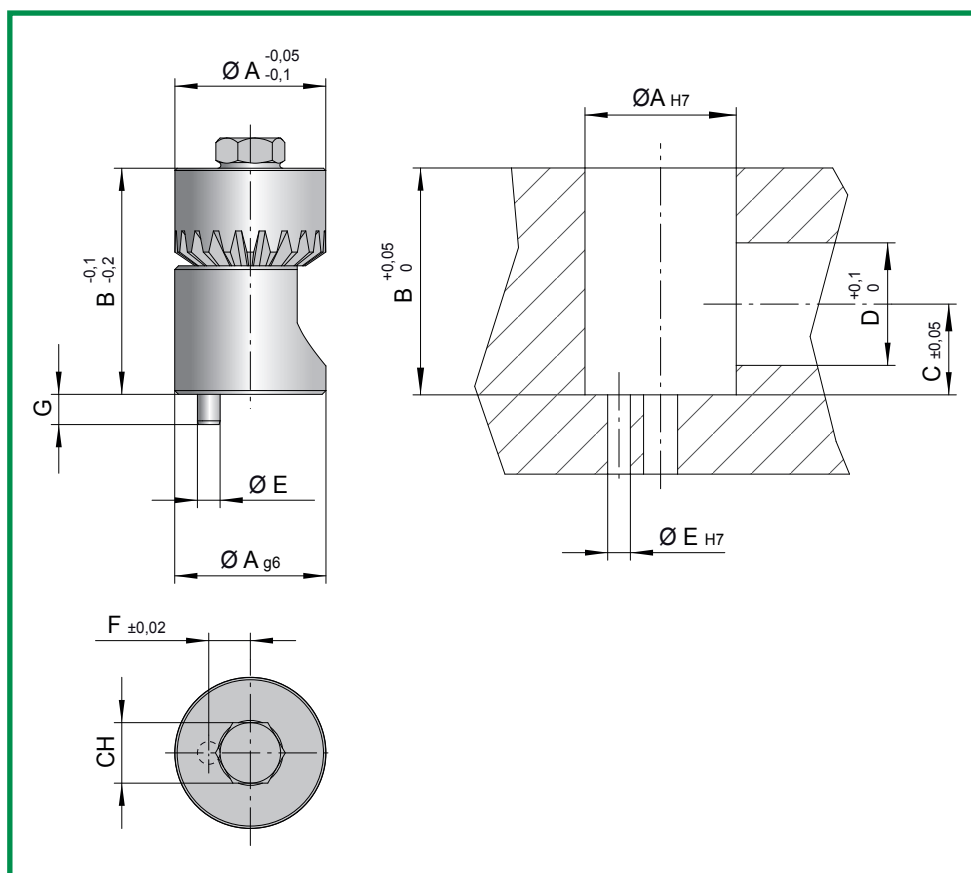


CODE	Magnetic field sensor PNP	
CAFI	Contact type	NO
	Operating voltage Ue DC	24.0 V
	Operating voltage range	From 10.0 to 30.0 V
	Operating current	200mA
	Switching freq. f max	3000Hz
	Sensor type	Magnetic PNP
	Voltage drop static max	2.5V
	Temperature range	+85°C / -25°C
	Polarity reversal protected	Yes
	Function indicator	Yes
IP rating	IP65	





CODE: **EI-..**



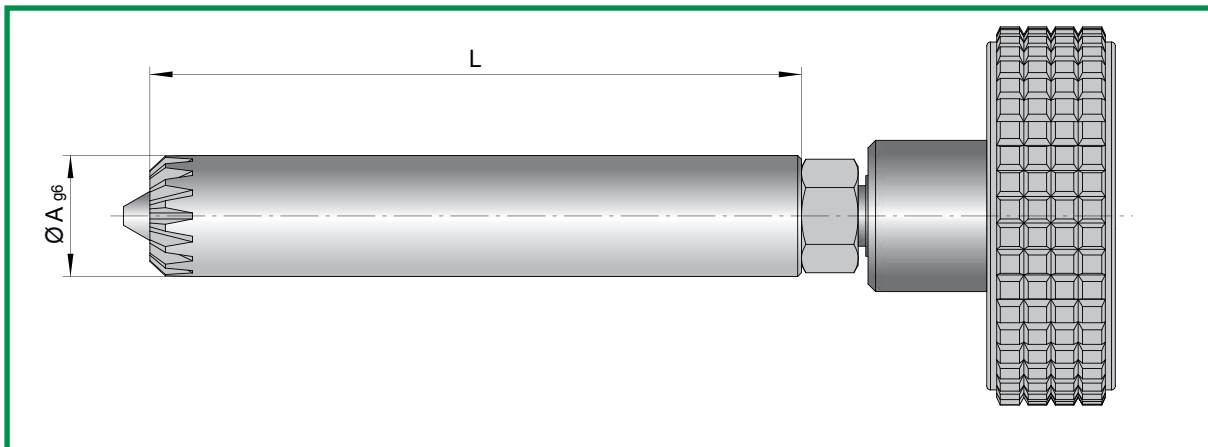
CODE	CH	A	B	C	D	E	F	G
EI-203	3	20	30	12	16,2	3	5,5	4
EI-204	4							
EI-205	5							
EI-206	6							
EI-208	8							

Mat.: 7225. Hardness: 800 N/mm² (21,7 HRC)
Nitrided depth 0,1mm

CHARACTERISTICS

- 1) LIMITED SIZE;
- 2) STURDY SYSTEM SUITABLE EVEN FOR MEDIUM TORQUE FORCE;
- 3) EASY TO INSTALL.

KEY FOR MOLD INSERT REMOVAL

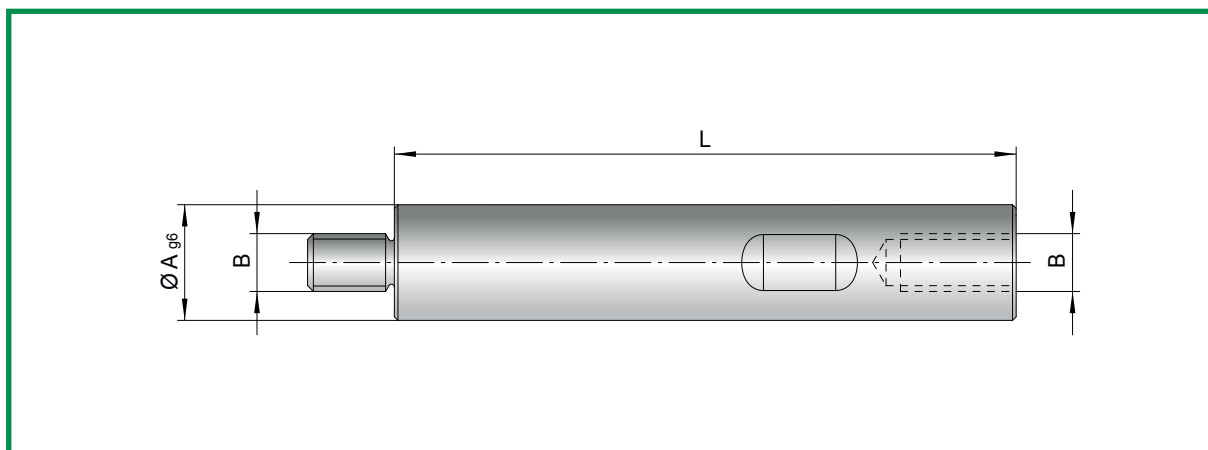


CODE: **EI-..C**

CODE	A	L
EI-20C	16	150

Mat.: 7225. Hardness: 800 N/mm² (21,7 HRC)
Nitrided depth 0,1mm

EXTENSION OF KEY FOR MOLD INSERT REMOVAL

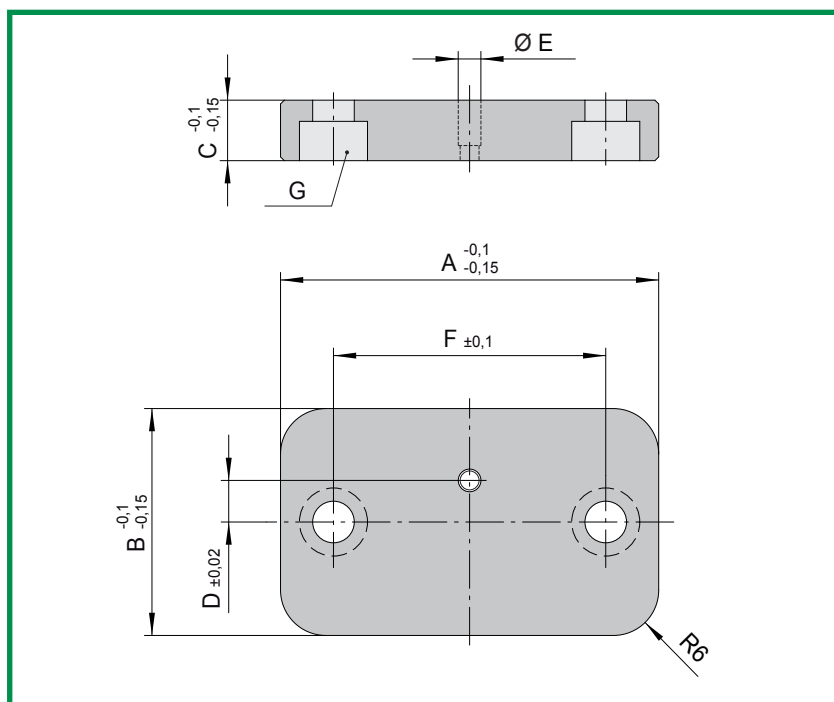


CODE: **EI-..PC**

CODE	A	B	L
EI-20PC	16	M8	150

Mat.: 7225. Hardness: 800 N/mm² (21,7 HRC)
Nitrided depth 0,1mm

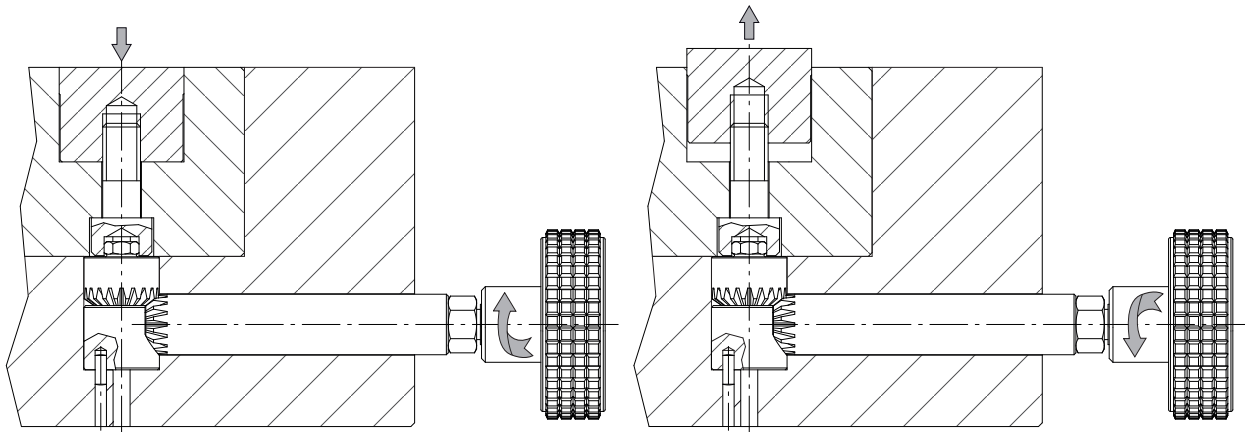
FIXING PLATE FOR MOLD INSERT REMOVAL



CODE: **EI-20PI**

CODE	A	B	C	D	E	F
EI-20PI	44	25	8	5,5	30	M5

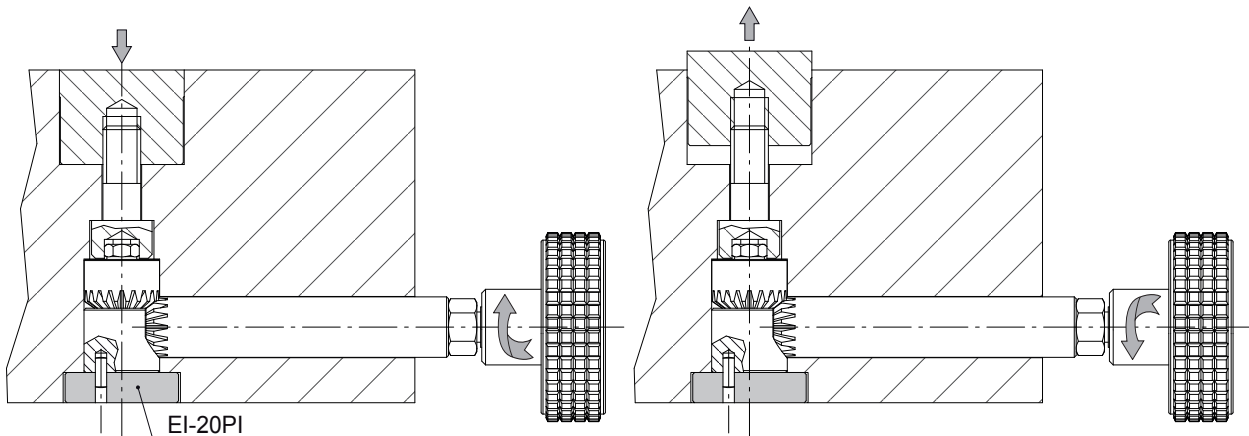
Mat.: Carbon steel. Hardness: 540 HRV
Nitrided depth 0,3mm



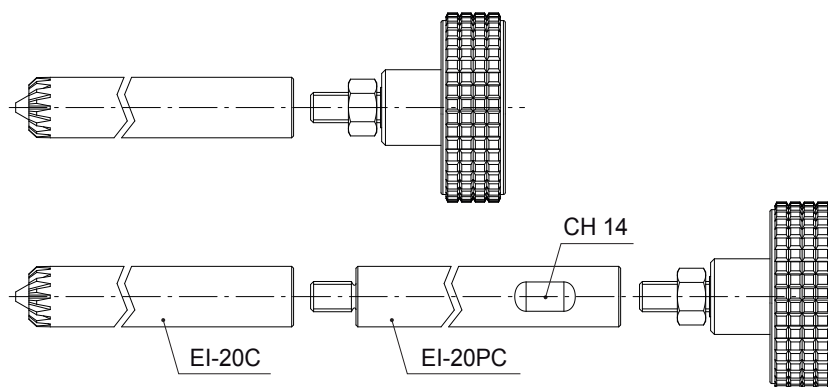
FIXING PHASE

EJECTION PHASE

- Mold insert can be fixed rotating clock wise the specific key.
- Mold insert can be removed rotating counterclockwise the specific key.

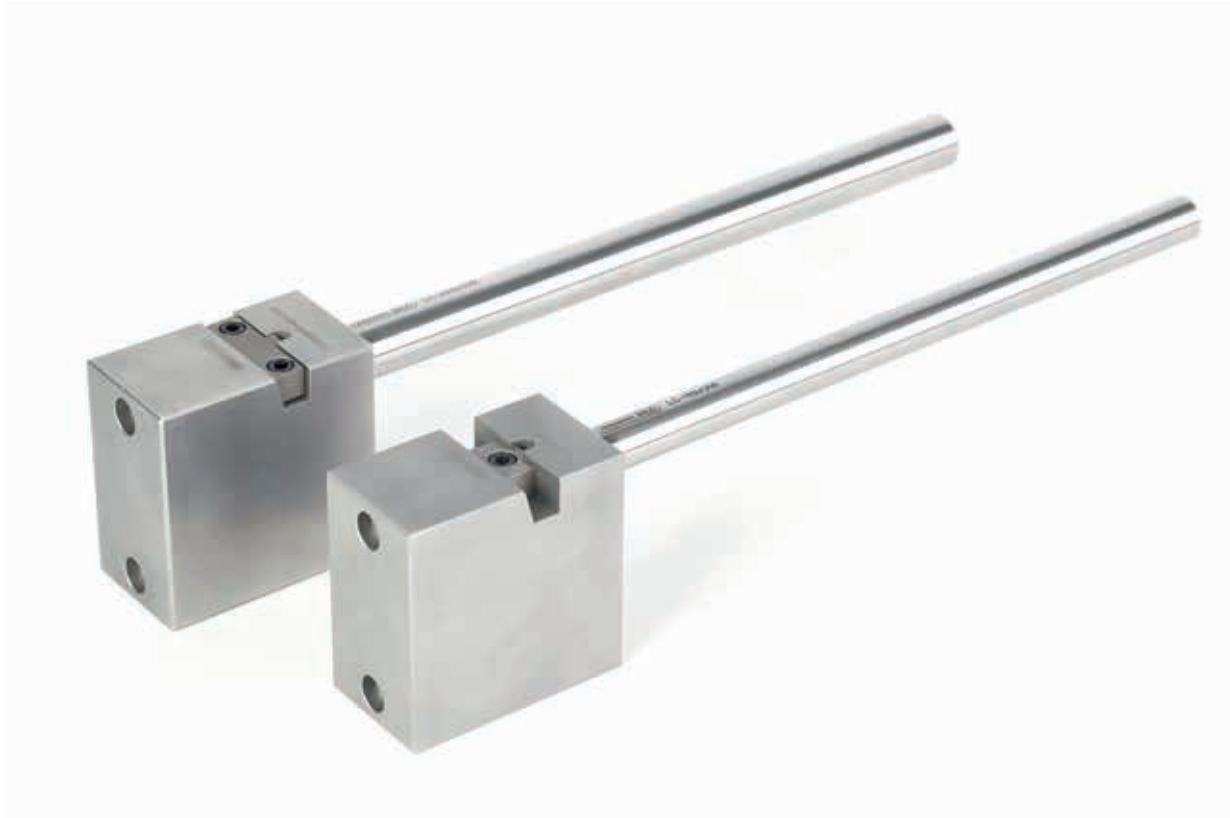


- The mold insert removal can be fixed with the specific plate.



HOW TO APPLY THE EXTENTION

- Remove the handle from the key EI-20C.
- Fix the extension EI-20PC to the key.
- Assembly the handle to the extension.



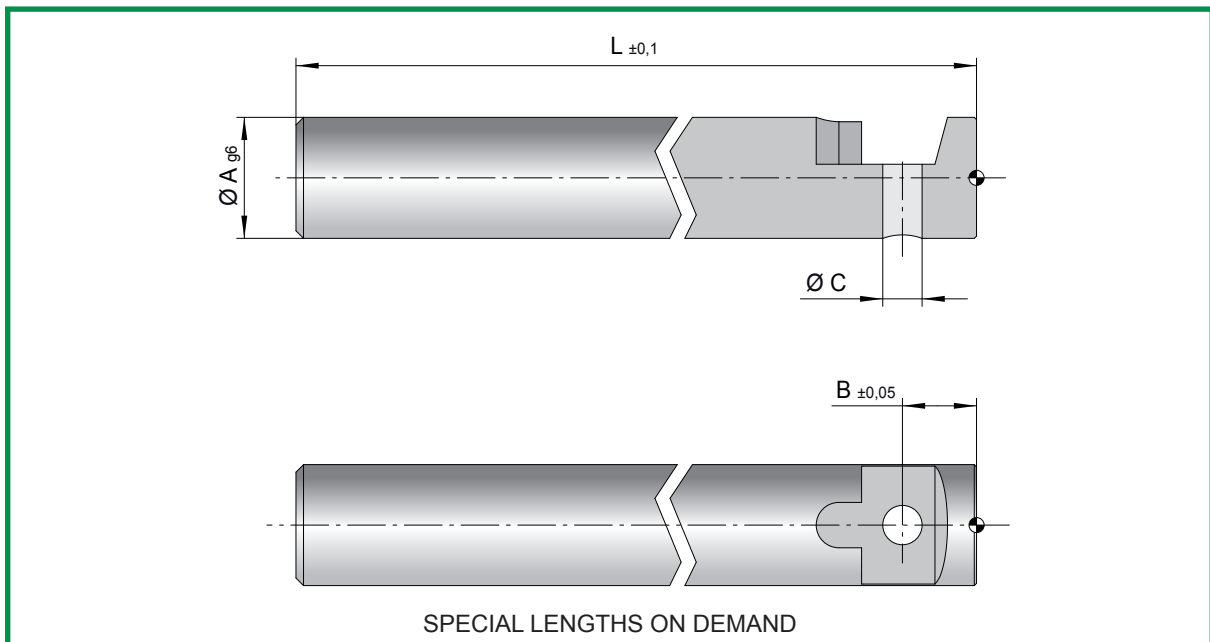
CHARACTERISTICS

STANDARD LIFTER is a semi-finished product designed for the production of undercut release components in plastic injection moulds.

STANDARD LIFTER can be fixed on the milling machine with both clamping vice and fast clamping system on drilled pallets. Thanks to its design and to a machining jig all workpiece's faces are easily accessible for milling operations.

STANDARD LIFTER, available in a wide dimensional range, allows reducing design and machining time leading to a vast time and cost saving during the production process.

ROD STANDARD LIFTER



CODE	A	B	C	L
SLS1012300	12	9,8	5,1	300
SLS1012500	12	9,8	5,1	500
SLS1016300	16	9,8	5,1	300
SLS1016500	16	9,8	5,1	500
SLS1020300	20	9,8	5,1	300
SLS1020500	20	9,8	5,1	500
SLS1025400	25	12,8	6,1	400
SLS1025600	25	12,8	6,1	600

Mat.: 1.1213

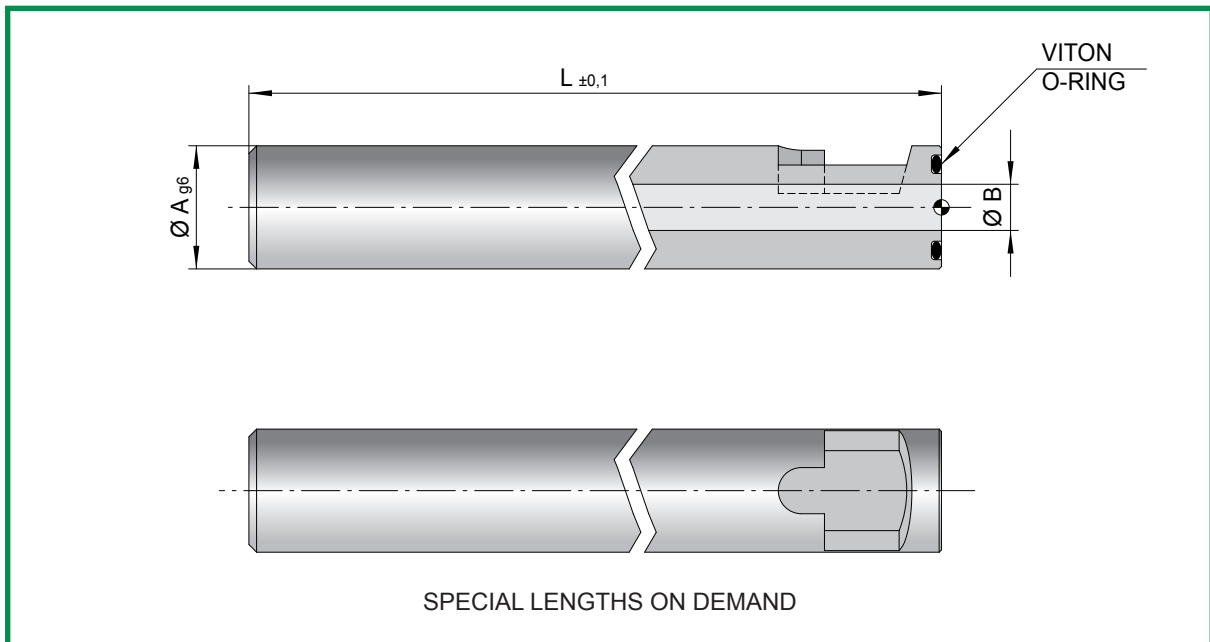
Hardness: 61-64 HRC Depth 1,5-2mm

CODE	A	B	C	L
SLS2012300	12	9,8	5,1	300
SLS2012500	12	9,8	5,1	500
SLS2016300	16	9,8	5,1	300
SLS2016500	16	9,8	5,1	500
SLS2020300	20	9,8	5,1	300
SLS2020500	20	9,8	5,1	500
SLS2025400	25	12,8	6,1	400
SLS2025600	25	12,8	6,1	600

Mat.: 1.2343

Hardness: Surface > 950 Vickers - HV 0,3

COOLED ROD STANDARD LIFTER



CODE	A	B	L
SLSR1012300	12	6	300
SLSR1012500	12	6	500
SLSR1016300	16	6	300
SLSR1016500	16	6	500
SLSR1020300	20	8	300
SLSR1020500	20	8	500
SLSR1025400	25	8	400
SLSR1025600	25	8	600

Mat.: 1.1213

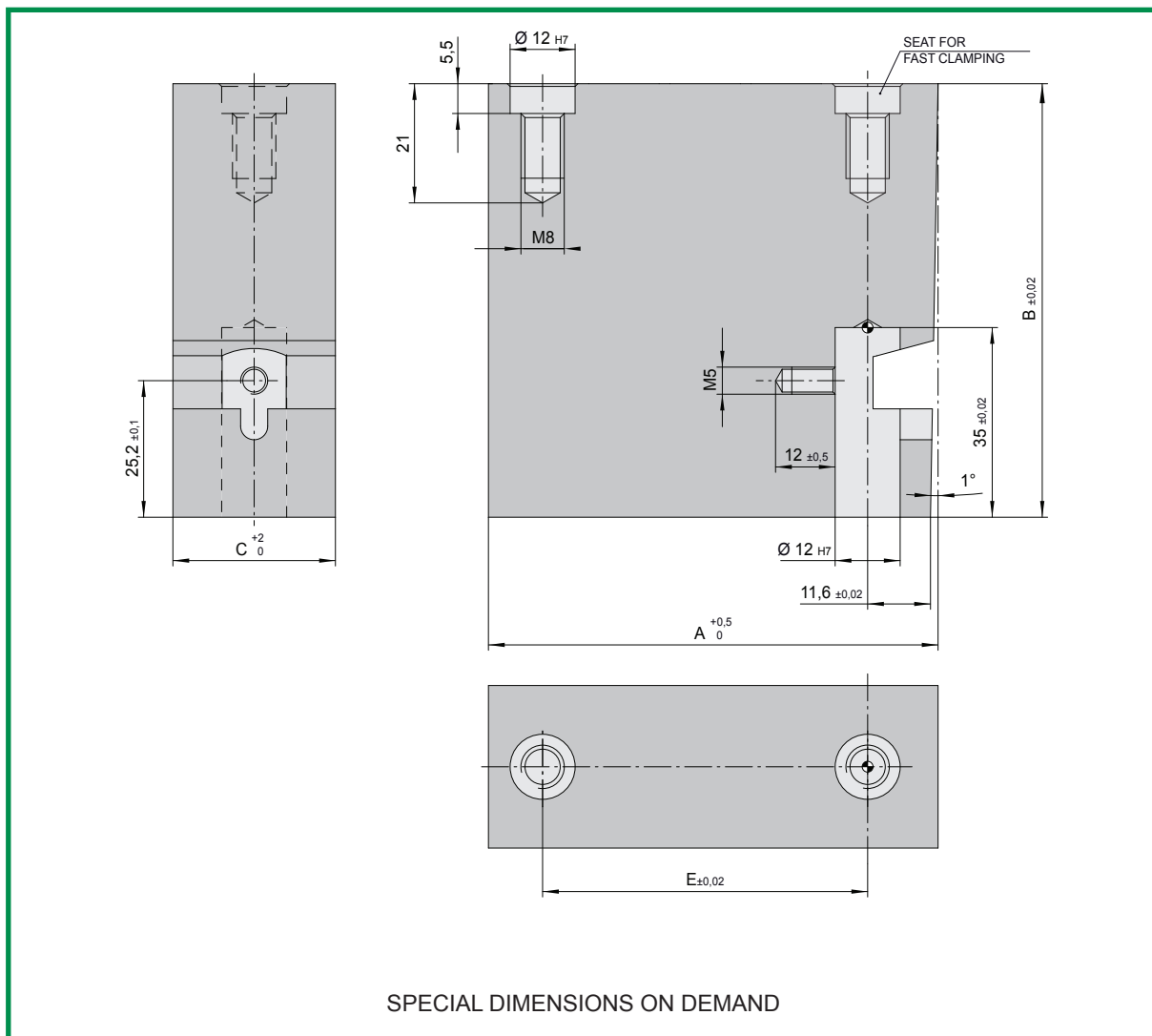
Hardness: 61-64 HRC Depth 1,5-2mm

CODE	A	B	L
SLSR1012300	12	6	300
SLSR1012500	12	6	500
SLSR1016300	16	6	300
SLSR1016500	16	6	500
SLSR1020300	20	8	300
SLSR1020500	20	8	500
SLSR1025400	25	8	400
SLSR1025600	25	8	600

Mat.: 1.2343

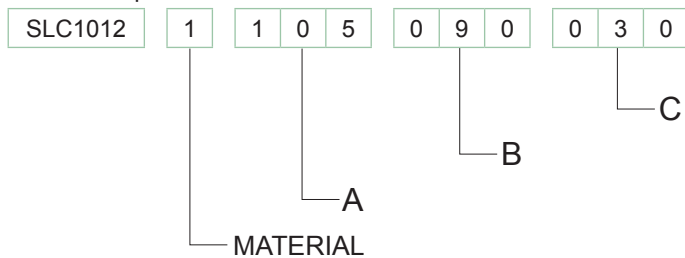
Hardness: Surface > 950 Vickers - HV 0,3

BODY SET 12 STANDARD LIFTER

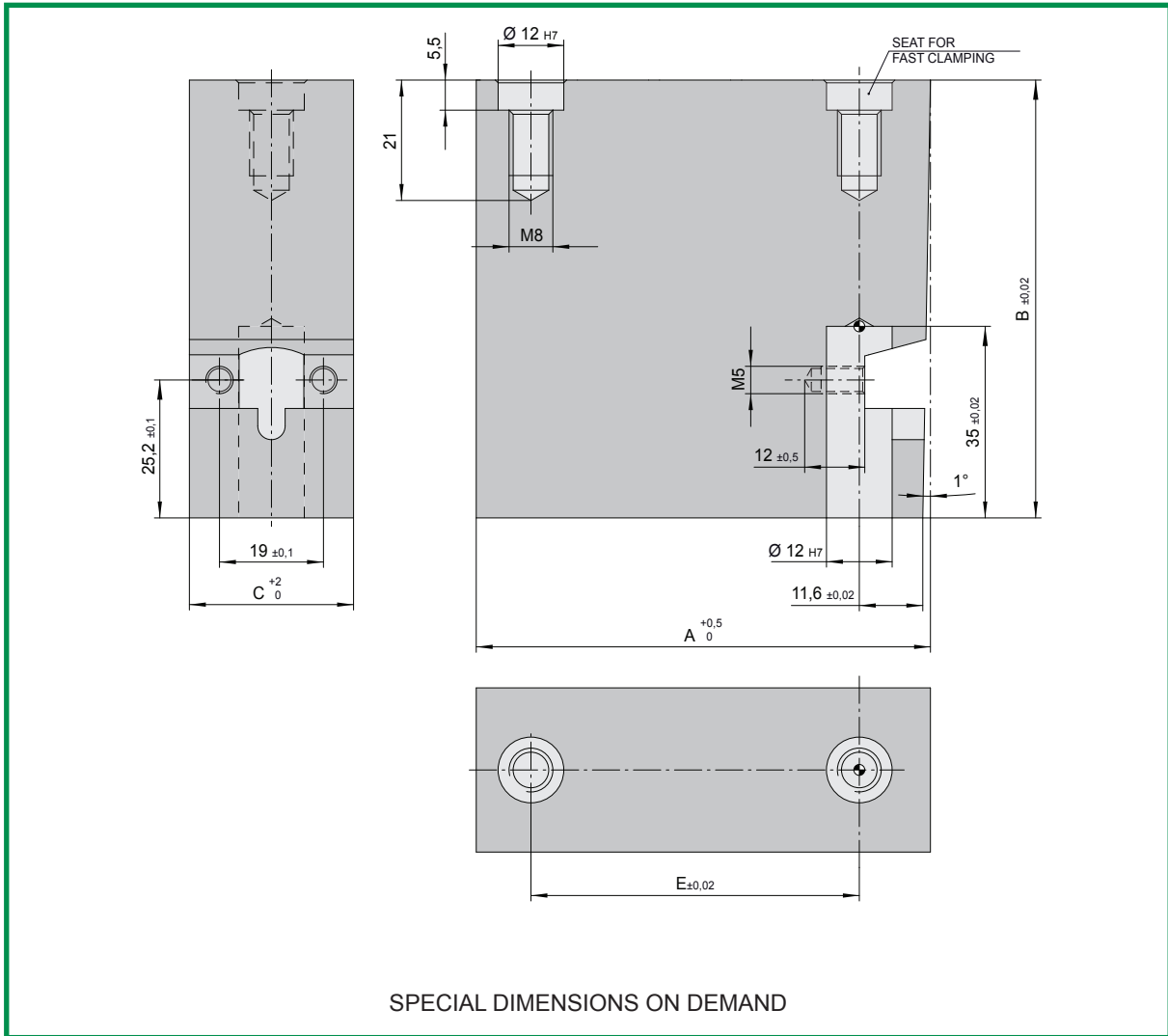


CODE	Material	A	E	B	C
SLC1012	1 = 1.2738 2 = 1.2343 (48+50 HRC)	70	40	70	20
		90	60	90	30
		105	80	105	40
		120		120	

Order example:

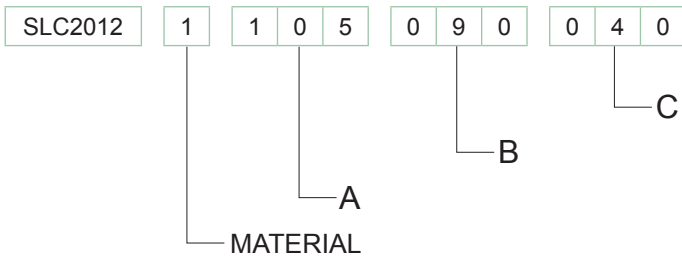


BODY SET 12 STANDARD LIFTER

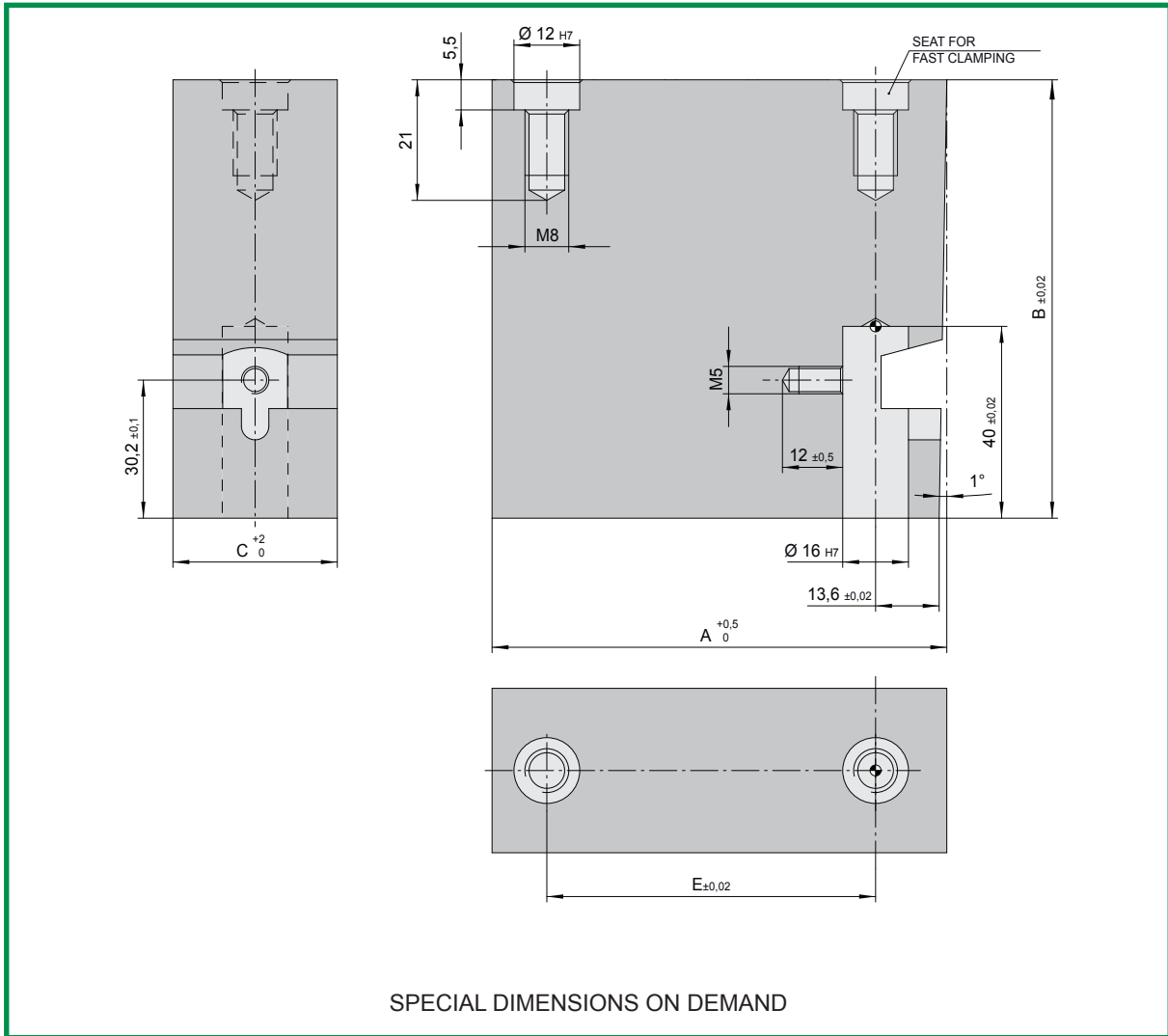


CODE	Material	A	E	B	C
SLC2012	1 = 1.2738 2 = 1.2343 (48-50 HRC)	70	40	70	40
		90	60	90	
		105	80	105	
		120		120	

Order example:

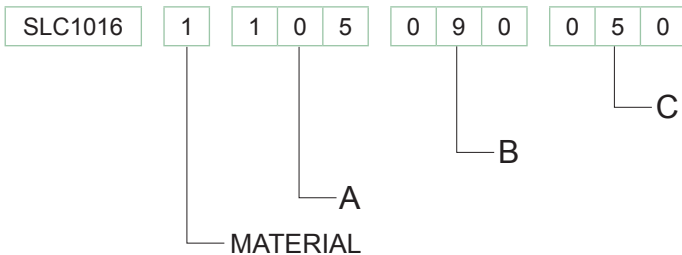


BODY SET 16 STANDARD LIFTER

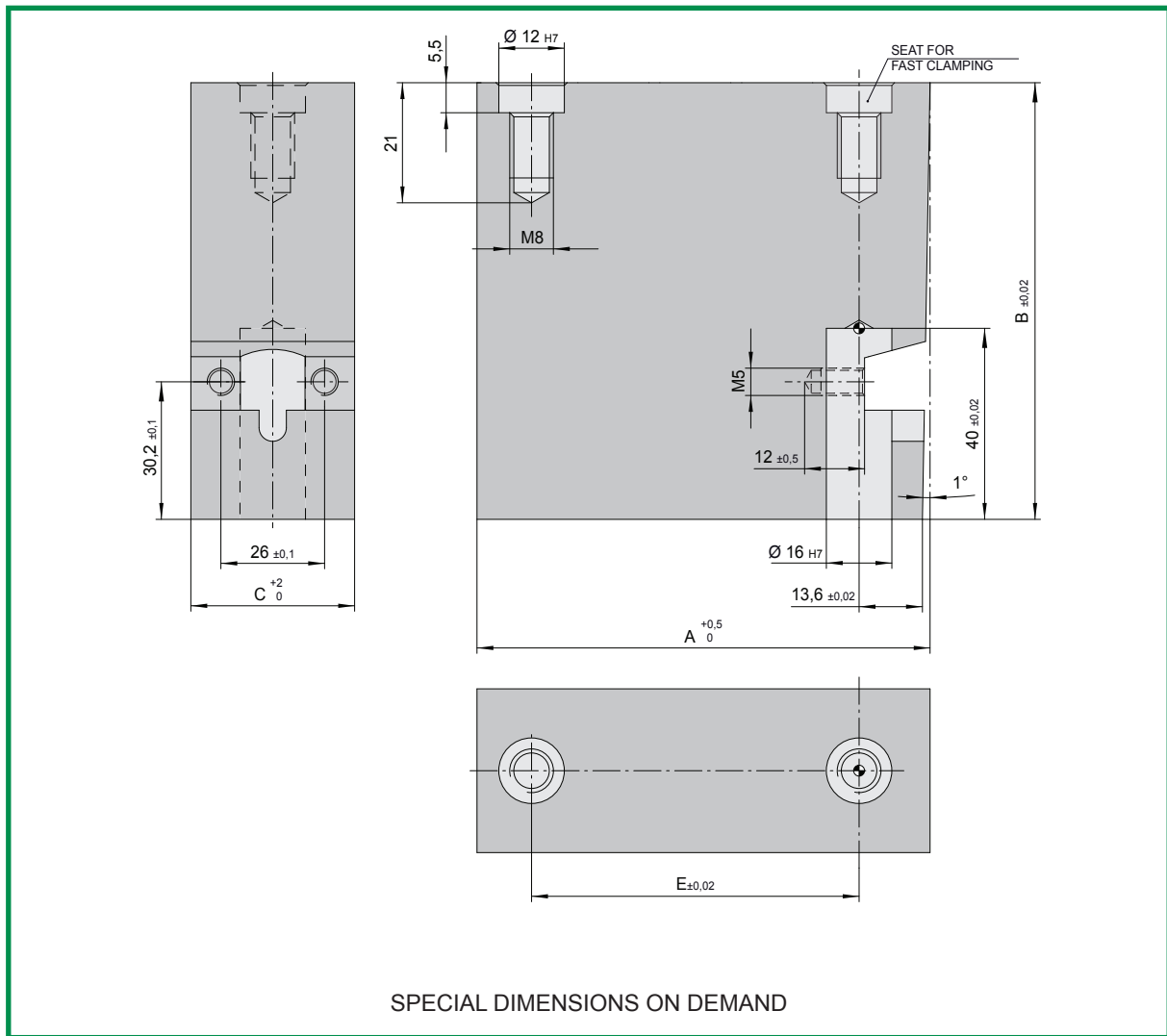


CODE	Material	A	E	B	C
SLC1016	1 = 1.2738 2 = 1.2343 (48-50 HRC)	70	40	70	30
		90	60	90	40
		105	80	105	50
		120		120	60

Order example:

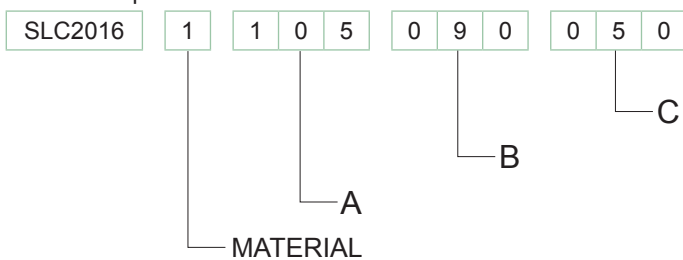


BODY SET 16 STANDARD LIFTER

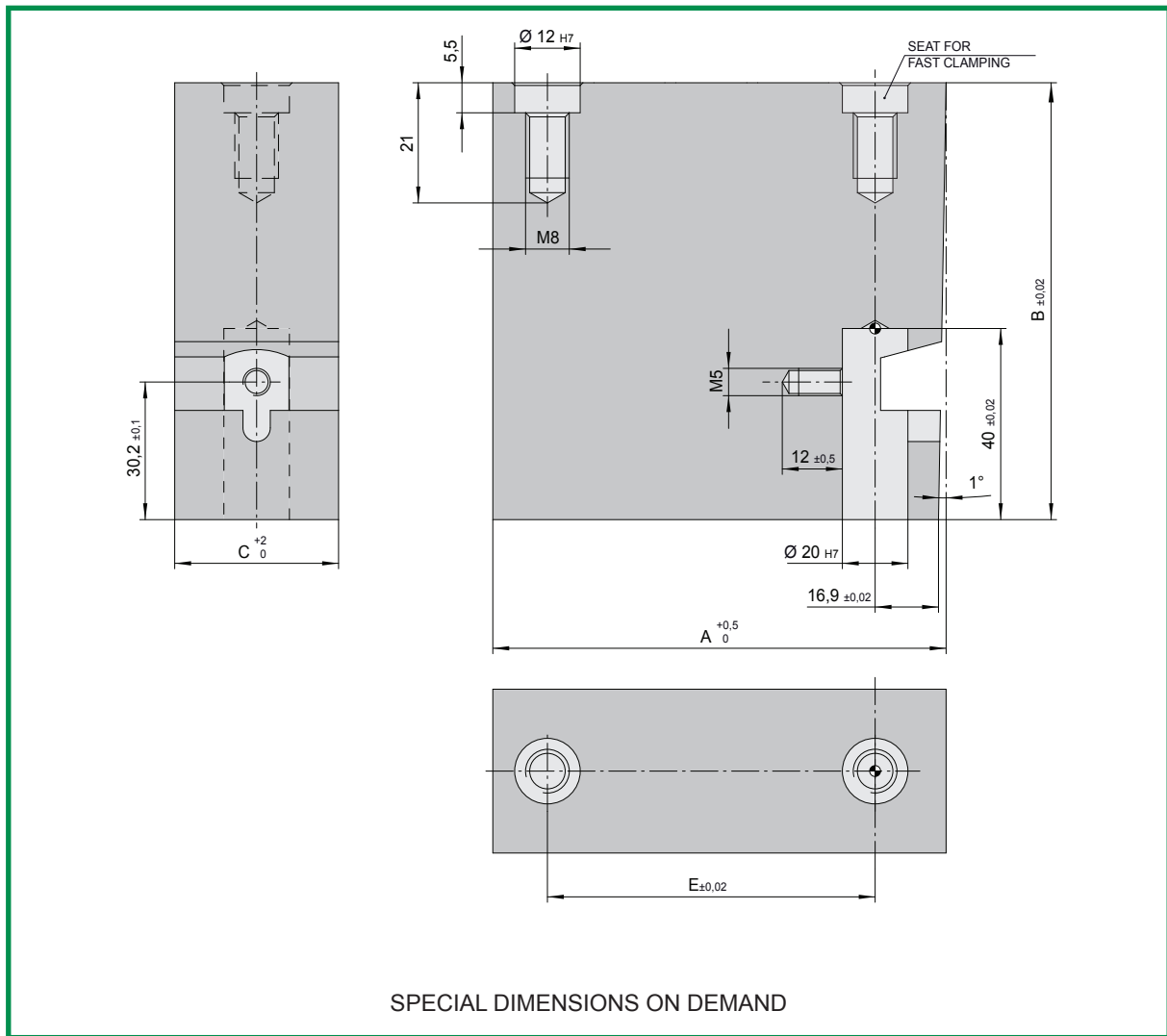


CODE	Material	A	E	B	C
SLC2016	1 = 1.2738 2 = 1.2343 (48-50 HRC)	70	40	70	40
		90	60	90	50
		105	80	105	60
		120		120	

Order example:

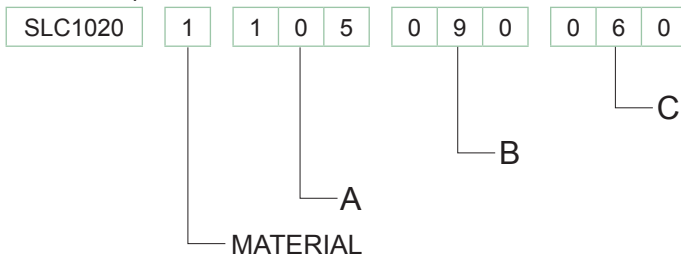


BODY SET 20 STANDARD LIFTER

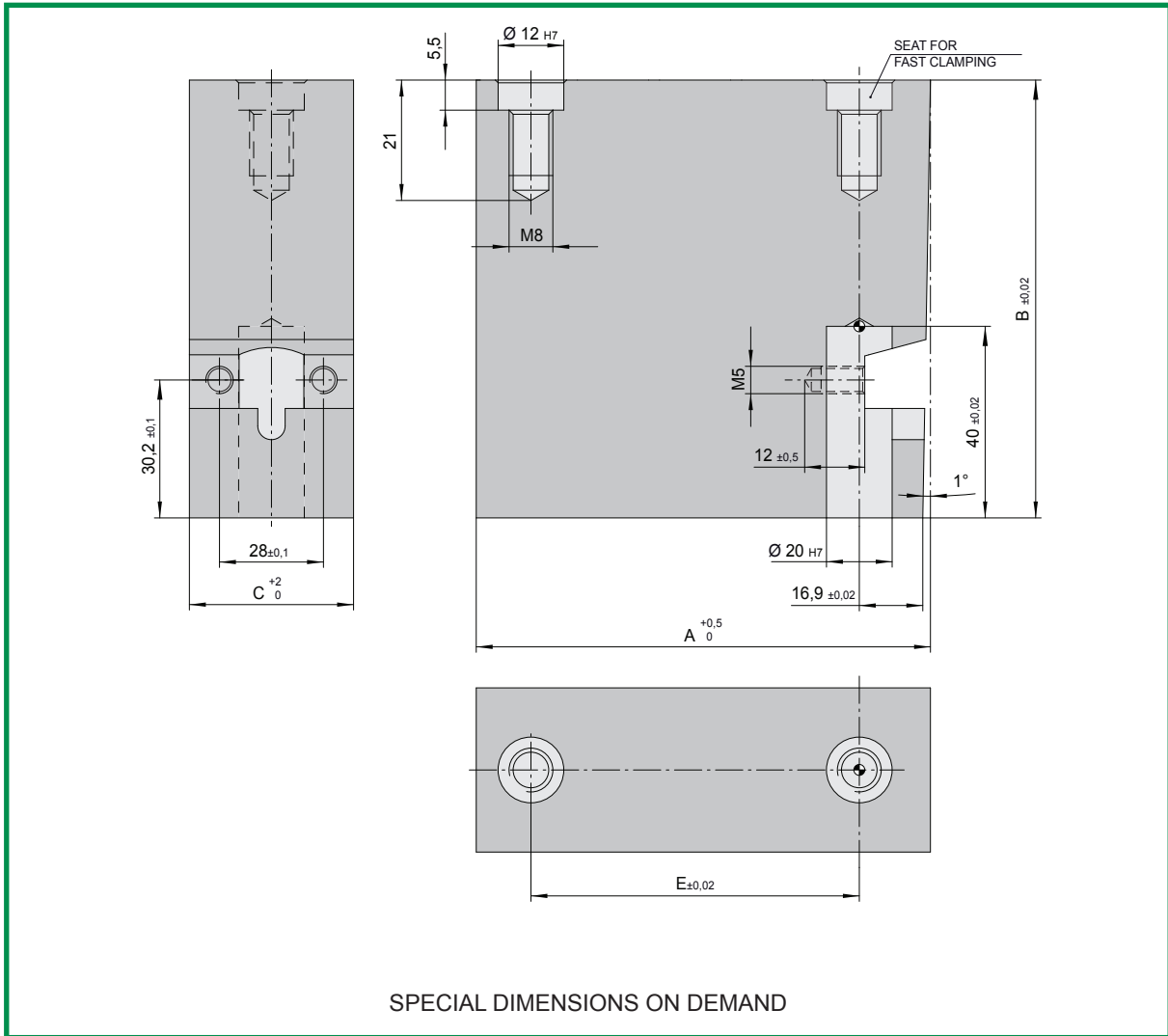


CODE	Material	A	E	B	C
SLC1020	1 = 1.2738 2 = 1.2343 (48-50 HRC)	70	40	70	40
		90	60	90	50
		105		105	60
		120	80	120	70
					80

Order example:

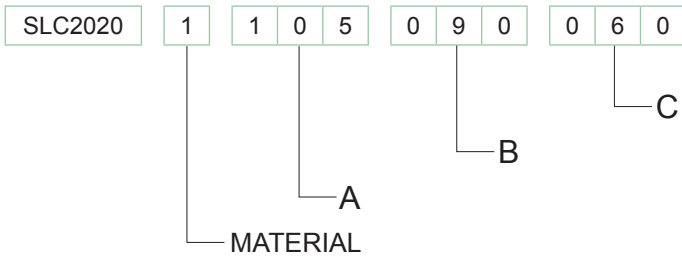


BODY SET 20 STANDARD LIFTER

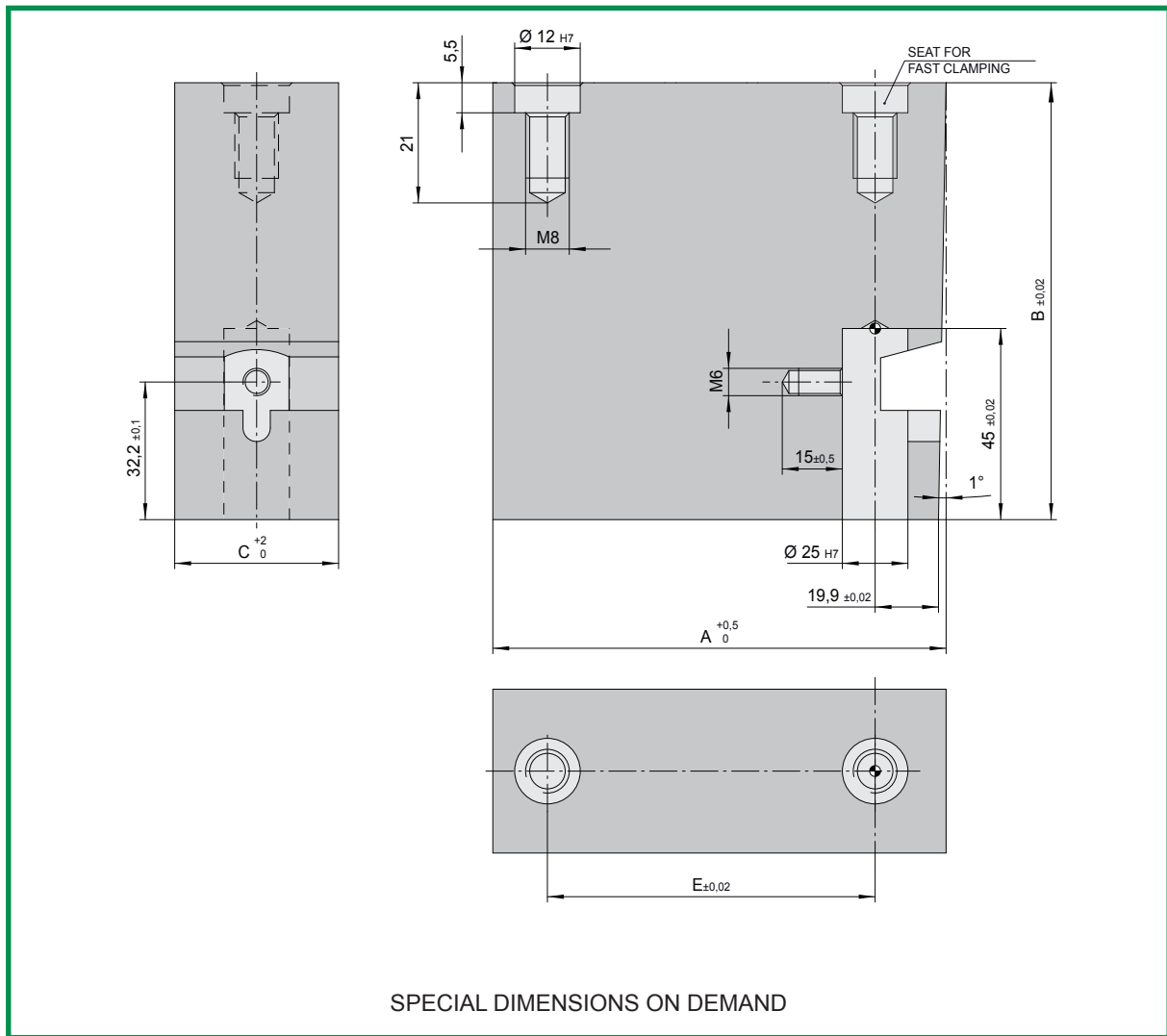


CODE	Material	A	E	B	C
SLC2020	1 = 1.2738 2 = 1.2343 (48-50 HRC)	70	40	70	40
		90	60	90	50
		105		105	60
		120	80	120	70
					80

Order example:

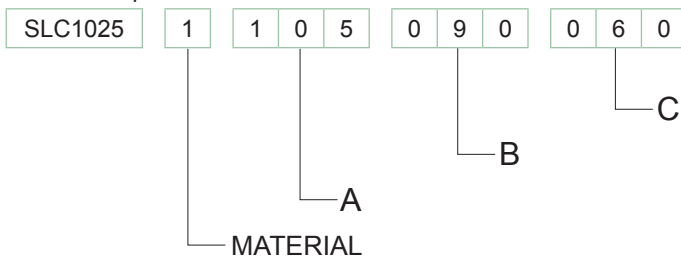


BODY SET 25 STANDARD LIFTER

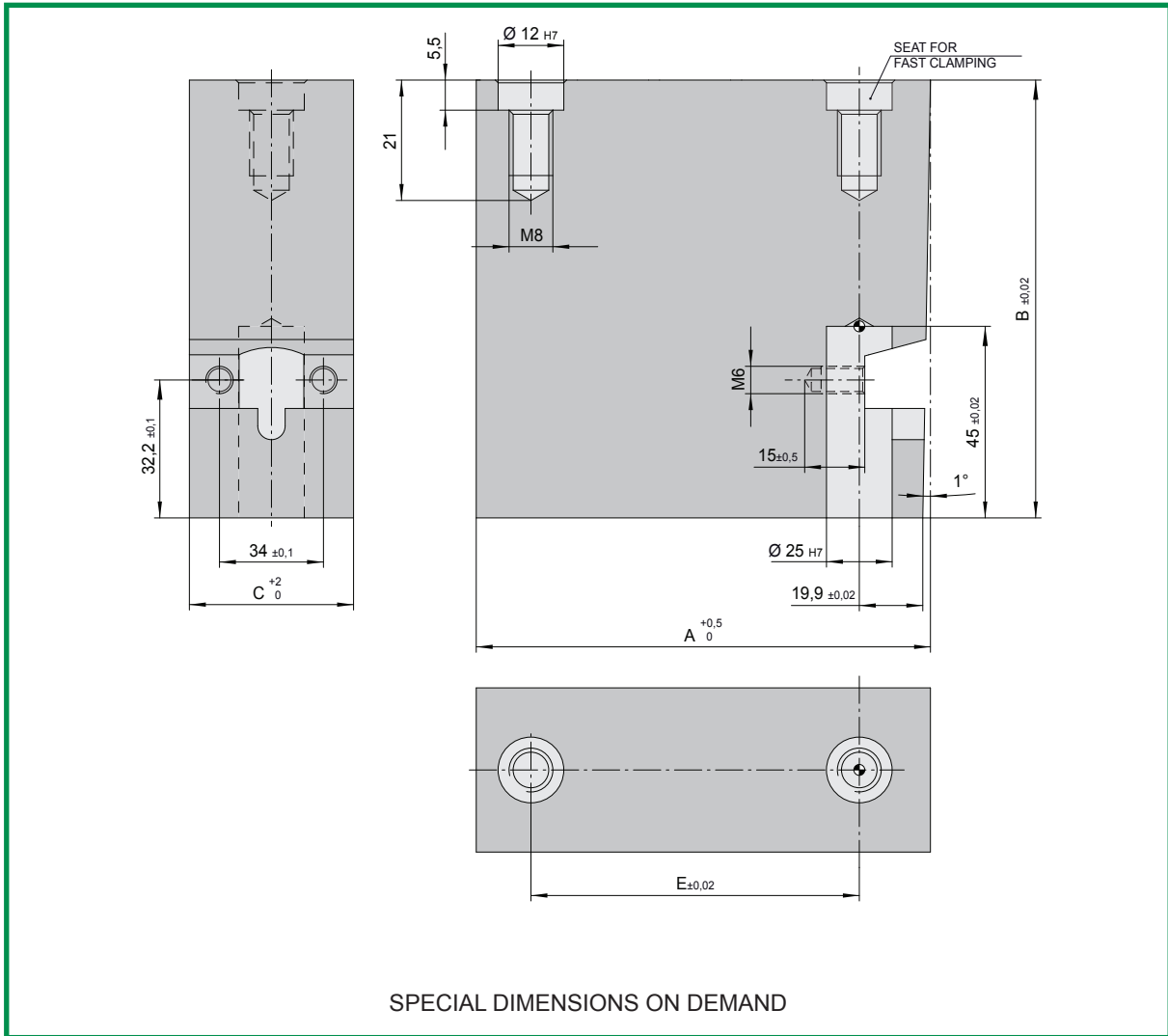


CODE	Material	A	E	B	C
SLC1025	1 = 1.2738 2 = 1.2343 (48-50 HRC)	70	40	70	50
		90	60	90	60
		105	80	105	70
		120	80	120	80

Order example:

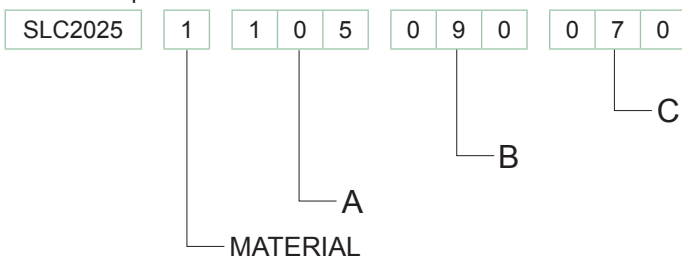


BODY SET 25 STANDARD LIFTER

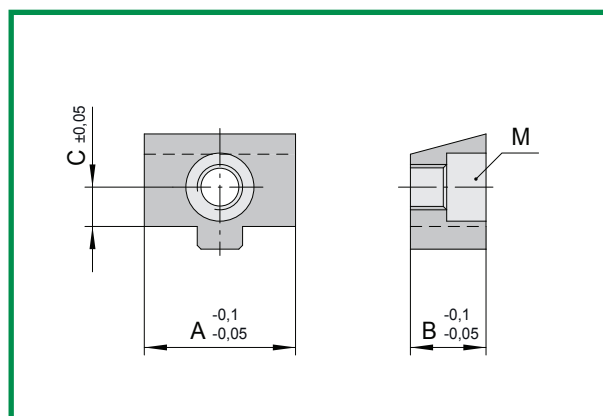


CODE	Material	A	E	B	C
SLC2025	1 = 1.2738 2 = 1.2343 (48-50 HRC)	70	40	70 90 105 120	50
		90	60		60
		105			70
			80		80
		120			90
					100
					110
					120

Order example:

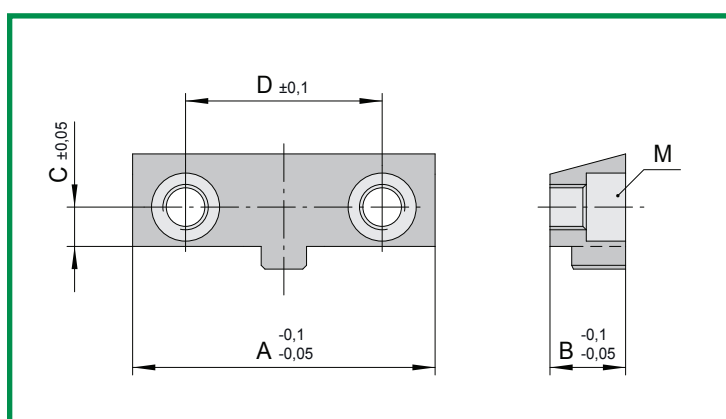


KEY STANDARD LIFTER



CODE	A	B	C	M
SLK1012102	15	10	5,2	M5x20
SLK1016508	20	10	5,2	M5x22
SLK1020304	25	10	5,2	M5x28
SLK1025001	30	12	7,2	M6x35

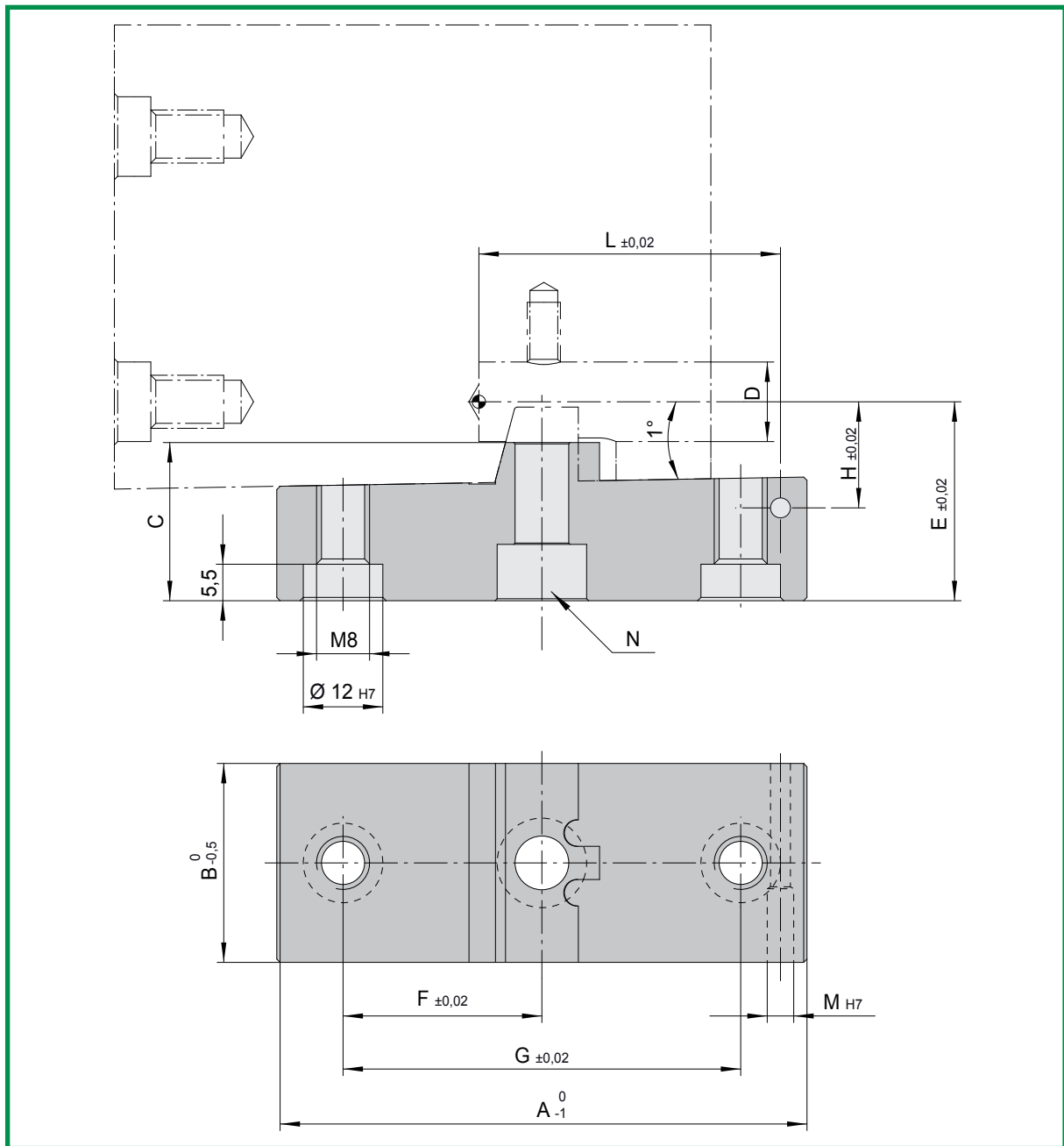
Mat.: 1.2343
Hardness: 44-46 HRC



CODE	A	B	C	D	M	SLSR COMPATIBLE
SLK2012102	30	10	5,2	19	M5x12	
SLK2012102R	30	10	5,2	19	M5x12	✓
SLK2016508	40	10	5,2	26	M5x12	
SLK2016508R	40	10	5,2	26	M5x12	✓
SLK2020304	40	10	5,2	28	M5x12	✓
SLK2025001	50	12	7,2	34	M6x16	✓

Mat.: 1.2343
Hardness: 44-46 HRC

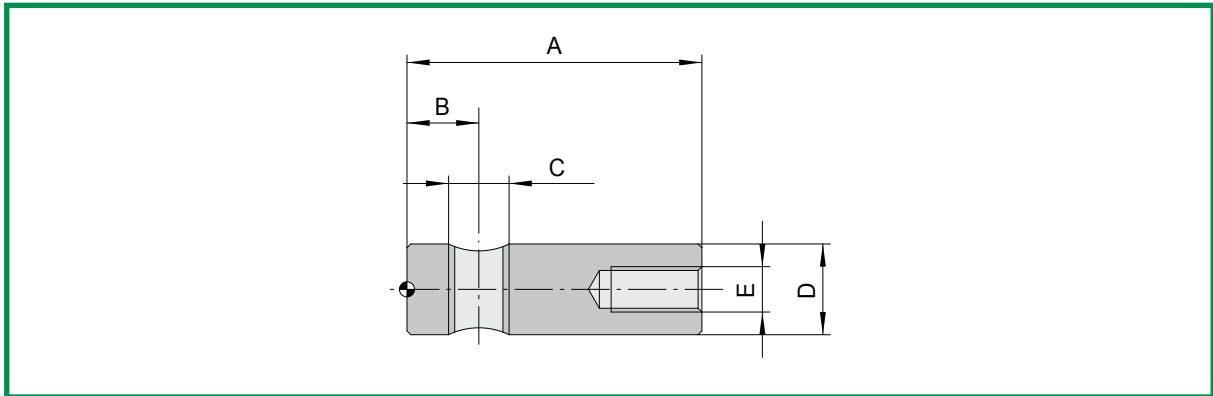
SPACER STANDARD LIFTER



CODE	A	B	C	D	E	F	G	H	L	M	N
SLD012102	85	30	28,8	12	35	30	60	20	47,5	6	M8x30
SLD016508	85	40	28,8	16	37	30	60	22	47,5	6	M8x35
SLD020304	85	40	28,8	20	39	30	60	24	47,5	6	M8x35
SLD025001	85	50	29,3	25	42	30	60	27	51	6	M10x40

Mat.: 1.1191

LOCKING PIN STANDARD LIFTER



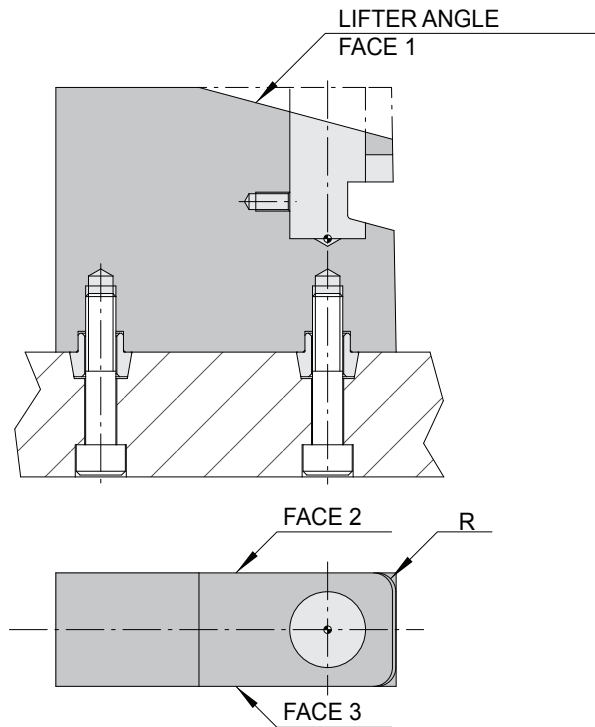
CODE	A	B	C	D	E
SLP012	34	9,5	M8	12	M6
SLP016	39	9,5	M8	16	M6
SLP020	39	9,5	M8	20	M6
SLP025	44	13	M10	25	M6

Mat.: 1.7225

MACHINING IN TWO STEPS

STEP 1

3 and 5 axis CNC milling machine: fixing with a vise or with fast clamping system and machining of all available faces.

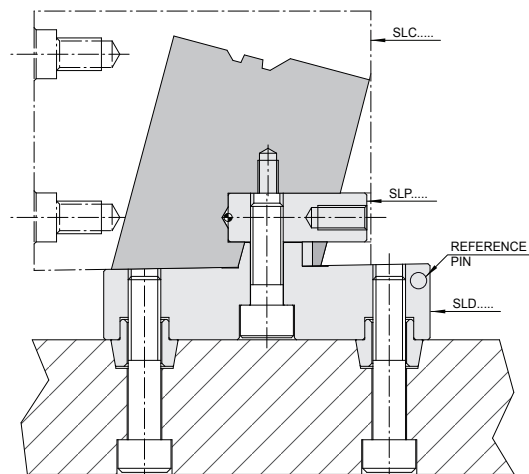


STEP 2

The machining of the remaining faces can be easily done with the use of the suitable spacer code SLD....

Once the body has been fixed to the spacer it is possible to proceed as follow:

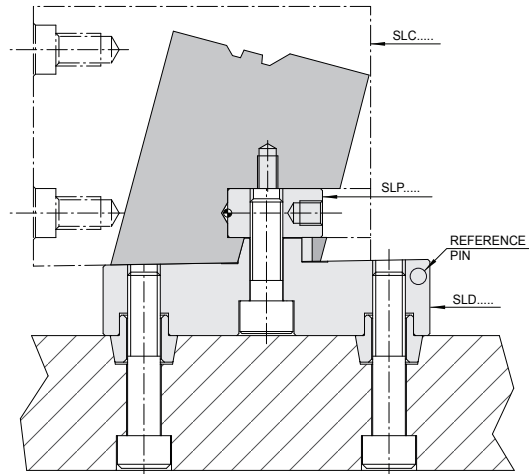
- 3 axis milling machine: clamping with a vise and workpiece's zero setting by the means of the reference pin;
- 5 axis milling machine: fixing with a vice or with fast clamping system allowing automatic workpiece's zero setting.



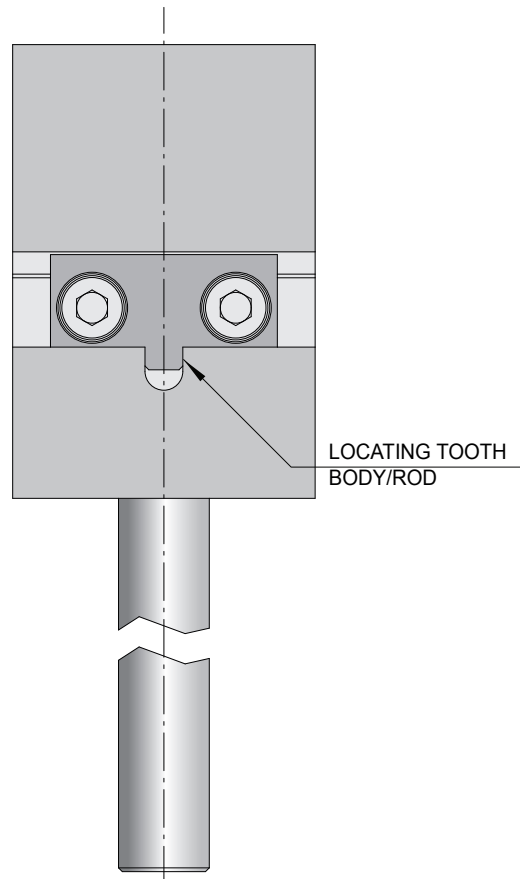
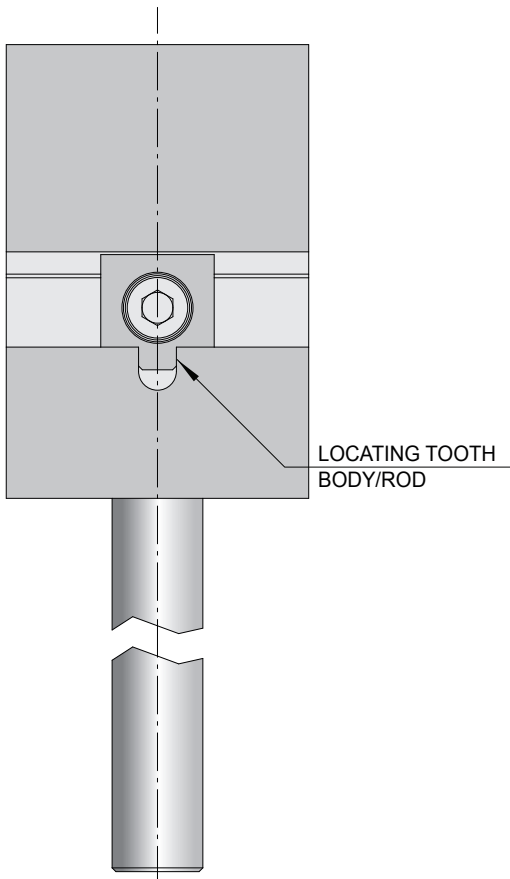
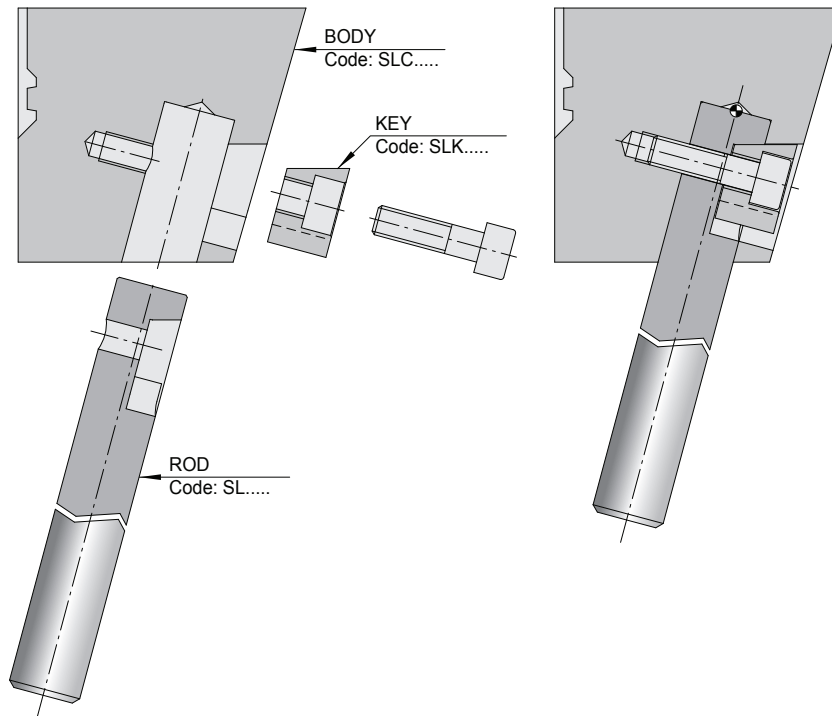
MACHINING IN ONE STEP

5 axis milling machines also allow to shape the lifter body in just one machining step:

- assembly of Standard Lifter body SLC... with spacer SLD... using the locking pin SLP...;
- fixing with a vise or with fast clamping system and milling of the body.



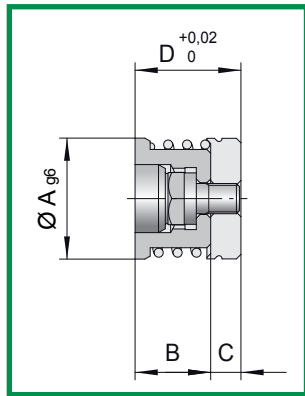
The assembly of body and rod can be easily, precisely and safely done thanks to the design of the key and to the fixing screws.



***COMPONENTS FOR THE MARKING OF
TRACEABILITY, DATING
AND RECYCLING OF MOLDED PARTS***



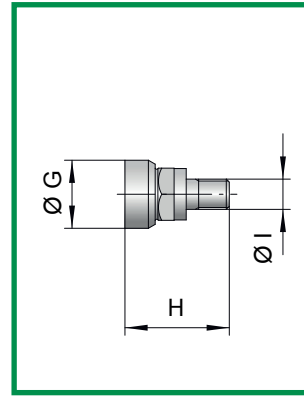
(PATENTED SYSTEM)



COMPLETE DATE STAMP

A	B	C	D
6	7	3	10
8	8	4	12
10	10	4	14
12	10	4	14
16	10	4	14

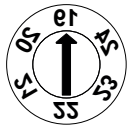
Mat.: AISI 420B
Hardness: 50÷55 HRC



INTERCHANGEABLE INSERT

G	H	I
3,8	10	M2,5
5	12	M3
6	14	M3
7	14	M4
9	14	M4

Mat.: AISI 420B
Hardness: 48÷50 HRC

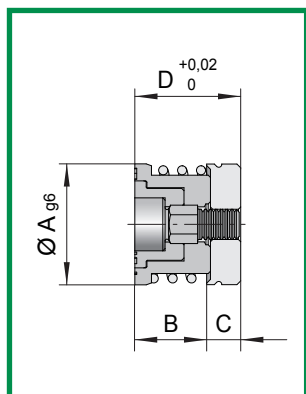


ORDER CODE	ORDER CODE	ORDER CODE
DA-MFA6	DA-MF6	DA-AF6
DA-MFA8	DA-MF8	DA-AF8
DA-MFA10	DA-MF10	DA-AF10
DA-MFA12	DA-MF12	DA-AF12
DA-MFA16	DA-MF16	DA-AF16



ORDER CODE	ORDER CODE
ID-FA6	ID-F6
ID-FA8	ID-F8
ID-FA10	ID-F10
ID-FA12	ID-F12
ID-FA16	ID-F16

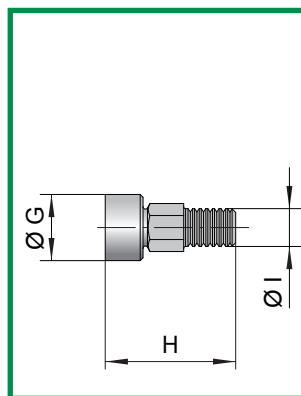
DOUBLE DATE STAMP



COMPLETE DATE STAMP

A	B	C	D
8	8	4	12
10	10	4	14
12	10	4	14
16	10	4	14

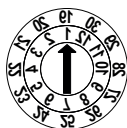
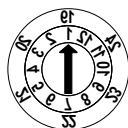
Mat.: AISI 420B
Hardness: 50+55 HRC



INTERCHANGEABLE INSERT

G	H	I
3,8	12	M2,5
4,8	14	M3
5,8	14	M4
7	14	M4

Mat.: AISI 420B
Hardness: 48+50 HRC



ORDER CODE

DAU-8

DAU-10

DAU-12

DAU-16

ORDER CODE

DAU-8D

DAU-10D

DAU-12D

DAU-16D

ORDER CODE

IDAU-F8

IDAU-F10

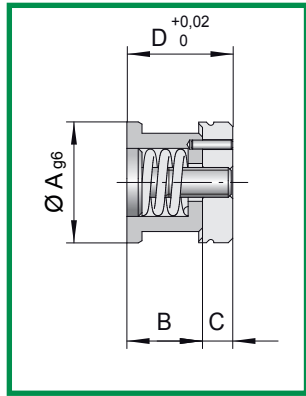
IDAU-F12

IDAU-F16



CHARACTERISTICS

- 1) MONTHLY TRACEABILITY FOR A PERIOD OF 6 OR 12 YEARS;
- 2) POSSIBILITY OF FRONT ASSEMBLY AND DISASSEMBLY;
- 3) GUARANTEED FLATNESS BETWEEN THE INSERT AND THE CROWN ;
- 4) ACCURATE POSITIONING OF THE INSERT AGAINST THE CROWNS.



COMPLETE DATE STAMP

A	B	C	D
10	10	4	14
12	10	4	14
16	10	4	14

Mat.: AISI 420B
Hardness: 50÷55 HRC

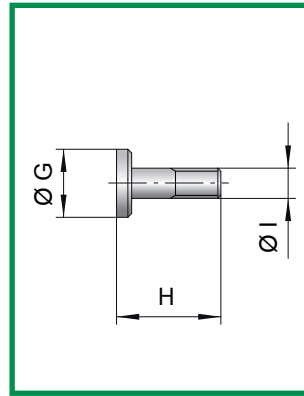


ORDER CODE

DA-GF10

DA-GF12

DA-GF16



INTERCHANGEABLE INSERT

G	H	I
6	14	M3x0,35
7	14	M4x0,35
9	14	M4x0,35

Mat.: AISI 420B
Hardness: 48÷50 HRC



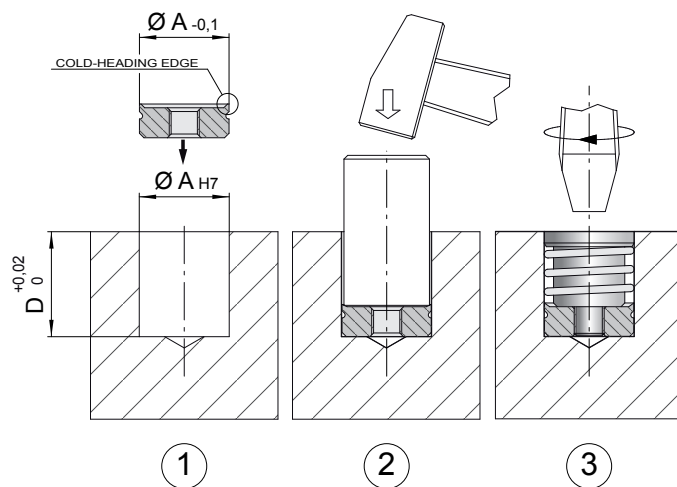
ORDER CODE

ID-FG10

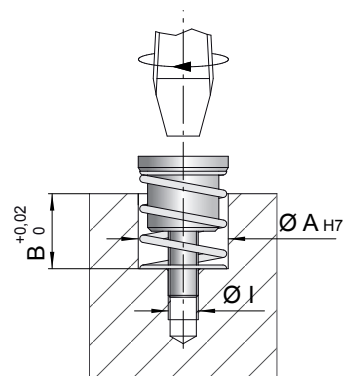
ID-FG12

ID-FG16

WITH THREADED RING NUT



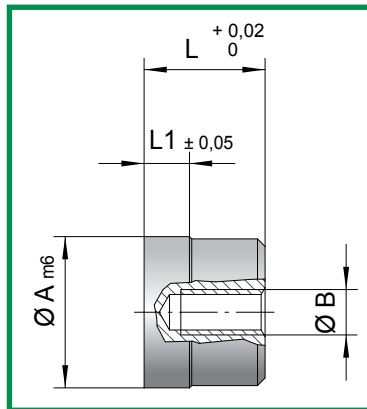
WITH THREAD MACHINED IN THE MOLD PLATE



1. Insert the threaded ring nut keeping the cold-heading edge upwards;
2. Insert a punch of the same diameter and cold head the edge;
3. Insert the dater screwing it with a screwdriver on the arrow insert.

N.B.: the daily daters DA-G \varnothing ..
are only inserted with threaded ring nut.

DATE STAMP FOR DIE CASTING MOULDS



COMPLETE DATE STAMP

A	B	L	L1
5	M3	10	4
6	M4	10	4
8	M4	10	4
10	M5	12	5
12	M6	14	5
16	M6	14	6
20	M6	16	6

Mat.: AISI 420B

Hardness: 46÷48 HRC



ORDER CODE

DAP-5N

DAP-6N

DAP-8N

DAP-10N

DAP-12N

DAP-16N

DAP-20N

ORDER CODE

DAP-5A

DAP-6A

DAP-8A

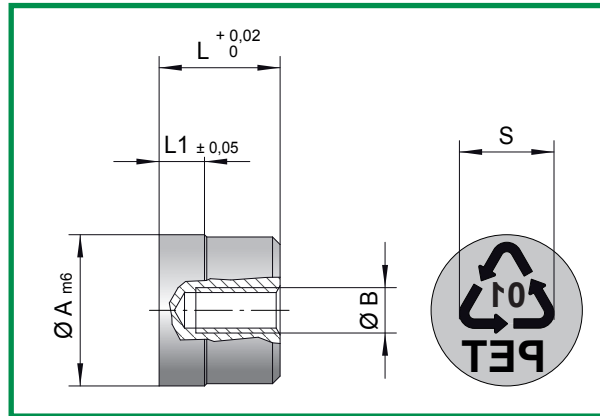
DAP-10A

DAP-12A

DAP-16A

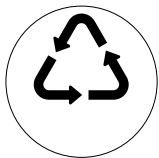
DAP-20A

STANDARD MODEL



CODE	A	B	L	L1	S
IR-5	5	M3	10	4	3
IR-6	6	M4	10	4	4
IR-8	8	M4	10	4	5
IR-10	10	M5	12	4	6
IR-12	12	M6	14	4	8
IR-16	16	M6	14	4	10
IR-20	20	M6	16	4	12

Mat.: AISI 420B
Hardness: 50±55 HRC



01



02



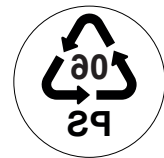
03



04



05



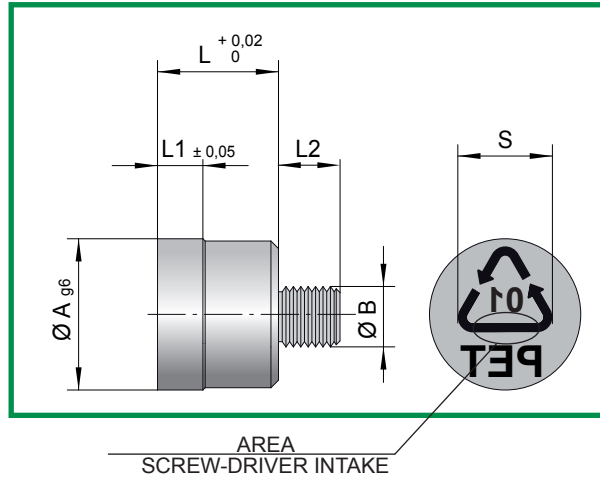
06

Upon request we realize special marking (laser engraving).

ORDER EXAMPLE: IR-6PET

MODEL FOR FRONT FIXING

WITH SYSTEM FOR FIGURE ORIENTATION



CODE	A	B	L	L1	L2	S
IRA-10	10	M6	12	4	7	6
IRA-12	12	M6	14	4	7	8
IRA-16	16	M6	14	4	7	10
IRA-20	20	M6	16	4	7	12

Mat.: AISI 420B
Hardness: 50+55 HRC

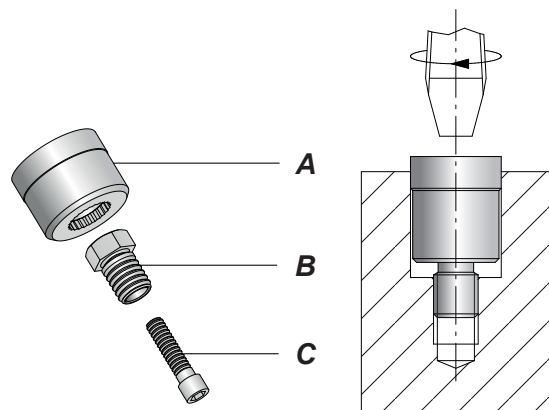


Upon request we realize special marking
(laser engraving)

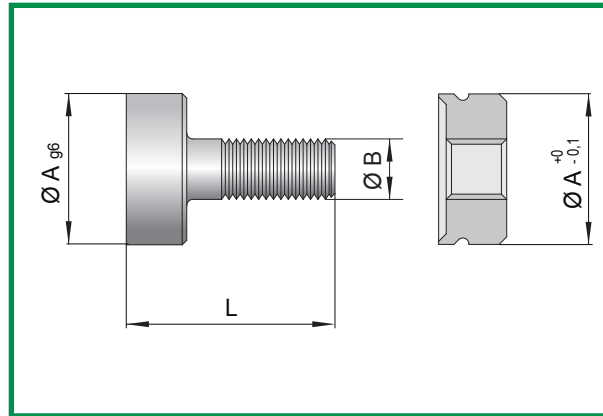
ORDER EXAMPLE: IRA-6PET

APPLICATION PROCESS

1. Build the seat according to the drawing.
2. Fit the insert assembled in to the mould screwing it with a screw-driver and verifying the phase-displacement as in the picture.
3. Take "A" away from the seat, unscrew "C" replace "B", screw "C" and assembly again.



INDICATOR INSERT

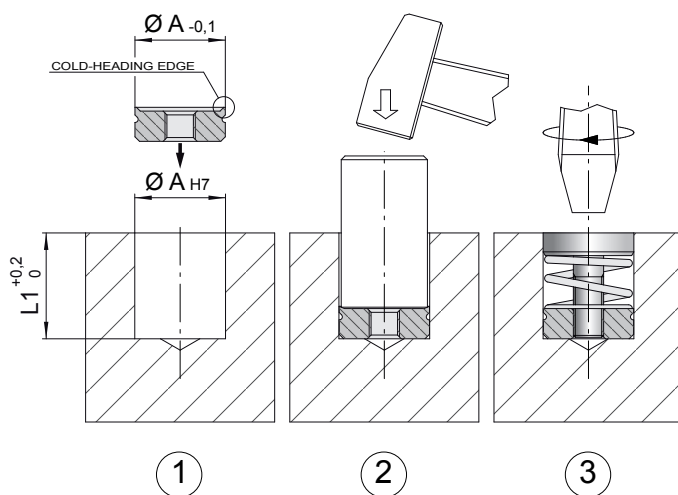


CODE	A	B	L	L1
II-6	6	M3x0,35	10	10 min.
II-8	8	M4x0,35	14	14 min.
II-10	10	M4x0,35	14	14 min.

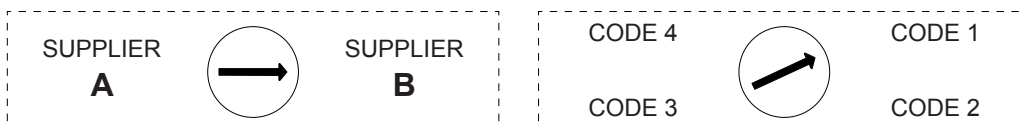
Mat.: AISI 420B
Hardness: 50÷55 HRC

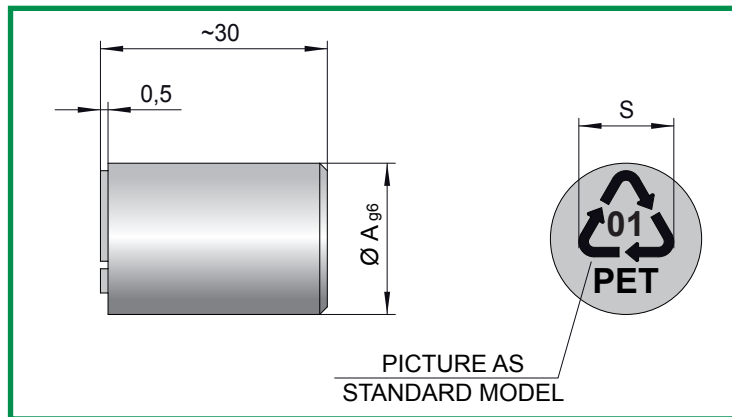
APPLICATION PROCESS

- 1) Build the seat according to the drawing;
- 2) Fit the threaded bush in with the cold-heading edge upwards;
- 3) Cold-head the border with a drift of the same diameter;
- 4) Fit the spring in and screw the insert.



APPLICATION EXAMPLES





CODE	A	S
ER-6	6	4
ER-8	8	5
ER-10	10	6
ER-12	12	8
ER-16	16	10
ER-20	20	12

Special markings on electrodes and inserts for recycling are produced with laser engraving.

***TESTING AND SUPPORTING EQUIPMENTS
USEFUL IN THE MANUFACTURING AND
MAINTENANCE PHASE OF THE MOLDS***





CODE	FLOW RATE (L/min.)	PRESSURE MAX (BAR)	CAPACITY TANK (L)	DIGITAL FLOW METER	LIQUID	PRESSURE SETTING
CPR	7,5	50	30		50% H2O + 50% GLICOLE	✓
CPR C60-P30DN8	30	40	60	✓	50% H2O + 50% GLICOLE	✓
CPR C60-P60DN15	60	20	60	✓	50% H2O + 50% GLICOLE	✓
CPR H2O C60 P25	25	10	60		H2O	

CPR cooling test station is an easy and effective tool to check the thermoregulation circuits hydraulic seal.

It is possible to carry out the test closing the tap that cut off the flow circulation allowing the pump to generate pressure inside the circuit, the pressure can be adjusted by the means of a relief valve. Once the desired test pressure has been achieved the feeding tap has to be closed and the engine switched off. In such situation a leakage in the circuits immediately produces a pressure drop inside the circuit shown by a manometer. Once the test is over it is possible to empty the circuit by the mean of compressed air that push the liquid back into the CPR tank.

In order to verify the flow rate inside each circuit at a defined pressure it is necessary to equip the CPR with pump and engine able to guarantee a higher flow rate. The circulating pressure will be defined by the circuit geometry and can be adjusted to reach the desired value thanks to a relief valve. In order to have a more flexible system it is possible to equip the CPR machine with a frequency drive system able to modify the rpm of the engine and accordingly the flow rate. Such CPR machines are equipped with digital flow meter and with a by-pass system able to protect the flow meter while using compressed air to empty the circuit.

HYDRAULIC CYLINDERS TEST STATION



CODE	FLOW RATE (L/min.)	PRESSURE MAX (BAR)	CAPACITY TANK (L)
CPC	5	150	30
CPC-S9L	9	90	30
CPC-S15L	15	50	30
CPC P200 PO15	15	200	50

The CPC test station is a useful equipment to test the proper operation of hydraulic cylinders.

The movement of the cylinder can be managed with a manual handle, the pressure can be set according to the specific requirements.

The CPC test station is available with different flow rates and maximum working pressure.



CODE	FLOW RATE (L/min.)	CAPACITY TANK (L)
CDC	6	25
CDC C120-P100	45	120

The CDC test station has been designed to remove limestone deposits from moulds thermoregulation circuits. During the moulding process this kind of deposits, settled, obstruct the water flow limiting the cooling efficacy. The limestone itself acts as an insulation layer between thermoregulation fluid and mould. One millimeter of limestone deposit insulates as 10 mm of steel, meaning that thermoregulate a mold with limestone deposits in the circuit affect the performance as much as shifting the channels several millimeters from the molding surface.

The CDC test station is provided with two tanks, one containing solvent liquid while the other containing passivating liquid. The first liquid descales the calcareous deposit, while the latter restrains the corrosive action of the solvent occasionally left in the circuit. The CDC is completely pneumatic and equipped with a cooling circuit automatic emptying device.

The CDC machine is able to clean the circuits as long as a minimum solvent flow rate is guaranteed. If the channel is completely closed it is not possible to work with the CDC machine.

In order to optimize the cleaning performance of the CDC equipment we suggest to clean the thermoregulation circuits one by one to guarantee solvent flow rate where needed. If more circuits are connected in parallel the solvent automatically flows where the pressure drop is lower and the cleaning efficacy will be lower in the obstructed channels.

In case of standard maintenance it is however possible to use a CDC with higher flow rate able to feed more circuits at once. With such purpose the CDC C120-P100 has been developed.



ERMANN BALZI srl
componenti e accessori per stampi

Viale Enrico Mattei, 13
25080 Mazzano (Brescia) - ITALY
C.F. e P. IVA: 03316170988
Tel. +39 030 2120868 / +39 030 2591534
Fax +39 0302490796
info@ermannobalzi.com
www.ermannobalzi.com

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