

Z3 ROUND LATCH LOCKS OPERATING INSTRUCTION



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Information english - Round latch locks Z3-1 up to Z3-31

Different heat expansion leads to a mismatch of the gauge for bore holes, particularly at hot runner moulds

In the following we show you a constructive possibility to compensate the different heat expansion of single plates for the latch locking unit, however, hereby the guiding properties, which are existing by standard, are lost. Tensile and locking forces are not affected.

For compensation possibility constructively that side offers on which the bolts are mounted and the drawn plate H1V.

1. Tie bolts

The tie bolt is carried radial floating that means it does not follow the modification in dimension and remains in its' original position, however can not be charged radially.

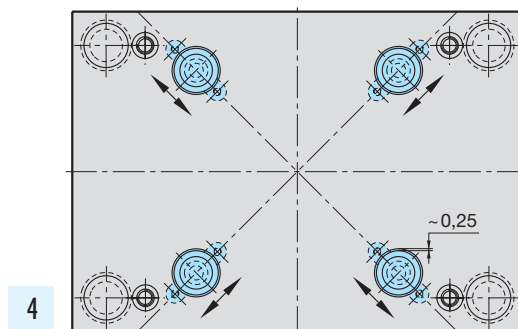
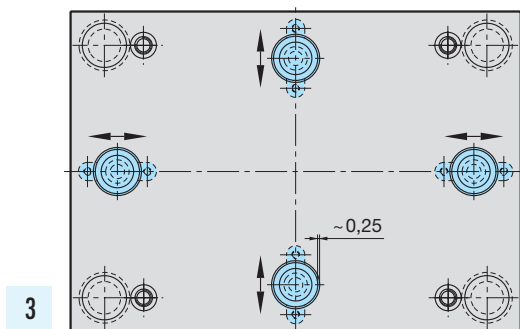
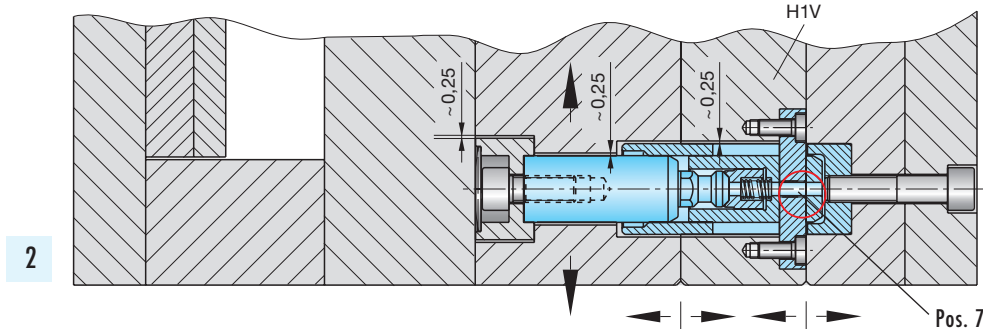
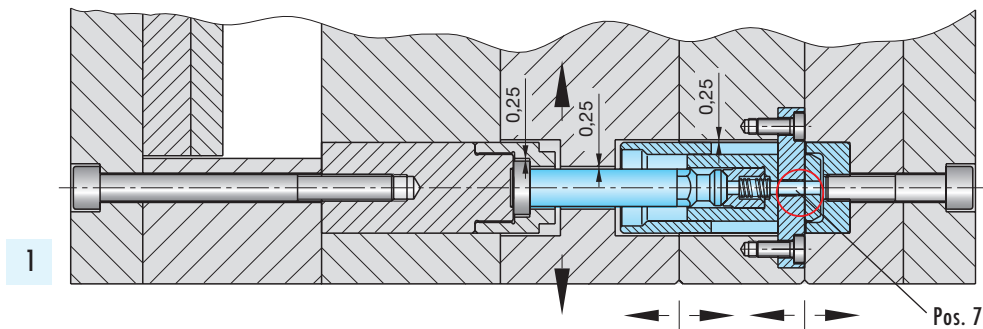
For this purpose we propose two different mounting possibilities which can be suitable for your construction.

The possible mismatch lies at ± 0.25 mm for each locking unit, that means the difference of lengths of the gauge for bore holes may have 0.5 mm (figure 1 + 2).

2. Drawn plate (H1V)

- This plate should not lead to the outside diameter of the housing, but has to be bored about 0.5 mm greater in diameter.
- The frictional puller have to be mounted in the direction of expansion, either crucially (figure 3) or diagonally (figure 4).

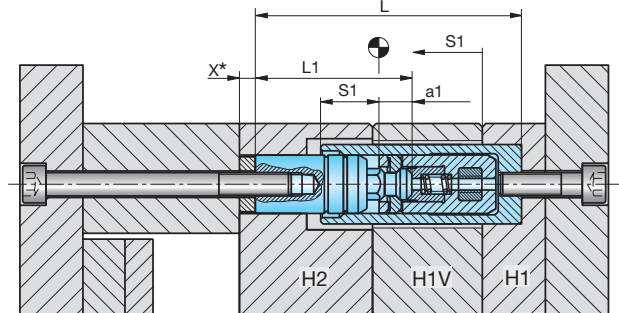
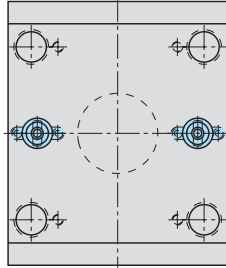
 The central setscrew Pos. 7 should not be mounted.



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Installation independent of guide system

Z3-1, Z3-2, Z3-3



Technical guide values

Type	Stroke min. (mm)	Stroke max. (mm)	Tensile force max.	Locking force max.
Z3-1	4	60	1.0 kN	0.5 kN
Z3-2	4	150	2.0 kN	1.0 kN
Z3-3	5	175	2.8 kN	1.4 kN

6

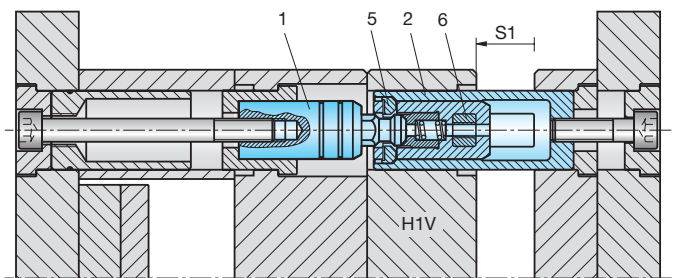
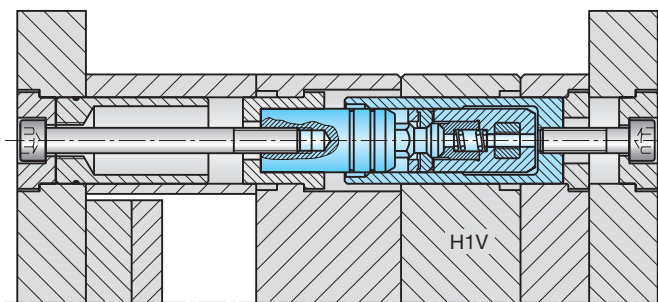
Principle of operation

When the injection mould is opened, the mould plate (H1V) to be drawn at the same time in the direction of the arrow by the stroke (S1) determined by the design until the driver (6) comes to a stop in the housing (2) is drawn along. In this position, the catches (5) unlock and thus release the latch bar (1).

At the same time, the drawn mould plate (H1V) is locked via the housing (2), the

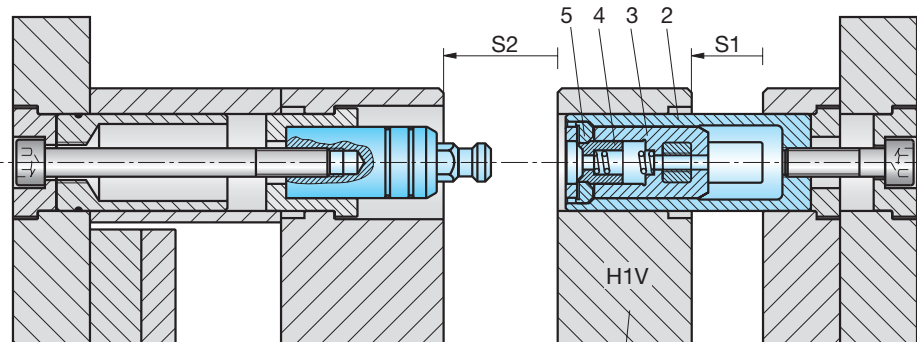
catches (5) and the piston (3) by the securing bush (4).

The actual parting of the mould is performed by moving the closing or ejector side further back by stroke S2 in the direction of the arrow. The closing operation is performed in the reserve sequence.



1

2



3

Plate locked

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Application as two stage ejector

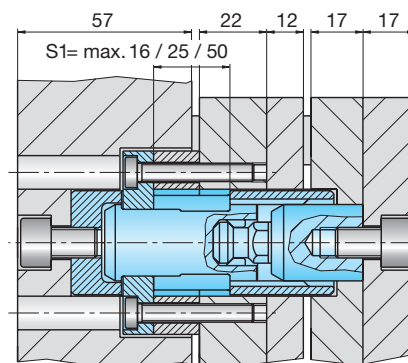


Technical guide values

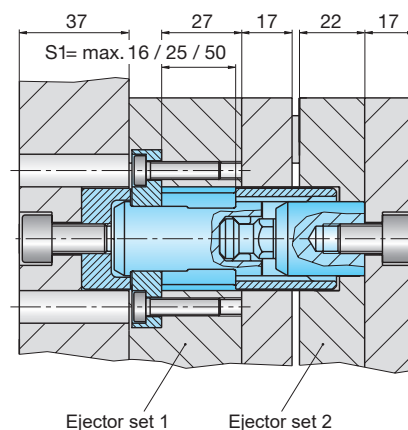
Type	Stroke min. (mm)	Stroke max. (mm)	Tensile force max.	Locking force max.
Z3-1-16	4	16	1 kN	0.5 kN
Z3-2-25	4	25	2 kN	1.0 kN
Z3-2-50	4	50	2 kN	1.0 kN

Installation

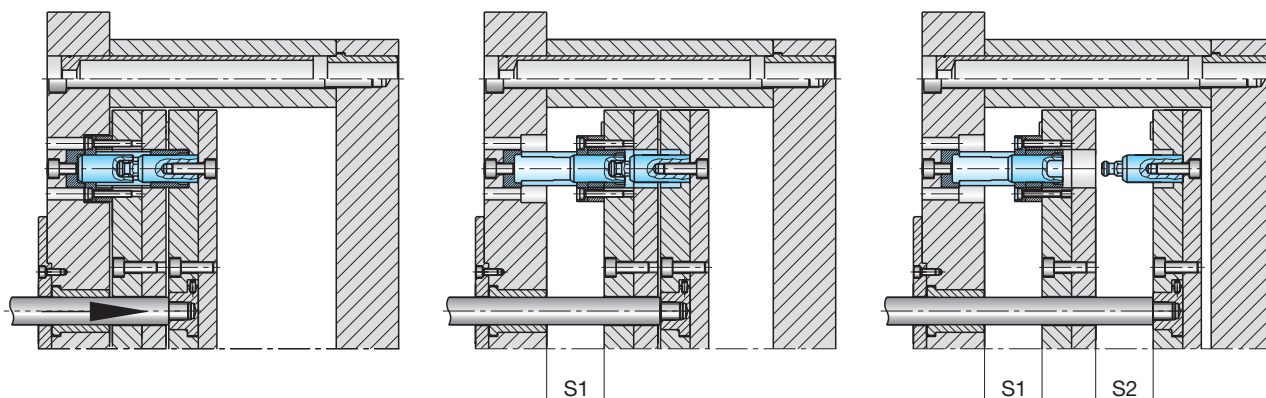
Variant 1



Variant 2



Principle of operation



At first the two ejector-sets have to be pulled by the stroke (S1) determined by the design. Then, after having done the unlock of the catches, the second stroke (S2) is to be made by pushing now the front ejector-set more forward separately from the ejector-bar.

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1. Choice

At least two latch locks must be used.

Careful attention must be paid to the uniform setting of all the latch locks and to uniform drawing of the plate to be drawn, in order to avoid tilting the plate.

Guide values, not binding:

Type	Stroke min. (mm)	Stroke max. (mm)	Tensile force max.	Locking force max.
Z3-1/Z3-11	4	60	1.0 kN	0.5 kN
Z3-2/Z3-21	4	150	2.0 kN	1.0 kN
Z3-3/Z3-31	5	175	2.8 kN	1.4 kN

2. Locking function

The securing bush (4) locks the catches (5). This prevents the drawn mould plate (H1V) running back in an uncontrolled manner (see fig. 1).

The safety function is cancelled during the closing operation as soon as the latch bar (1) has moved into the piston to such an extent that the catches (5) can be guided back towards the inside onto the latch bar (unlocking, see fig. 2).

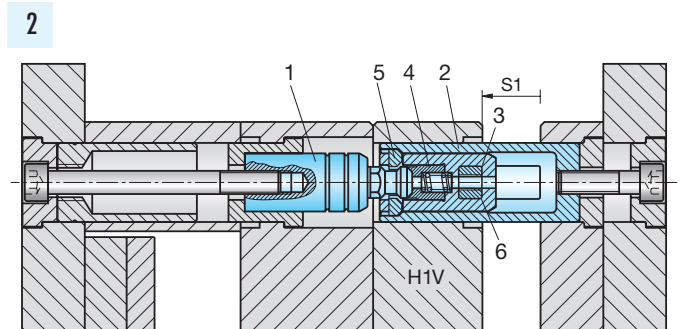
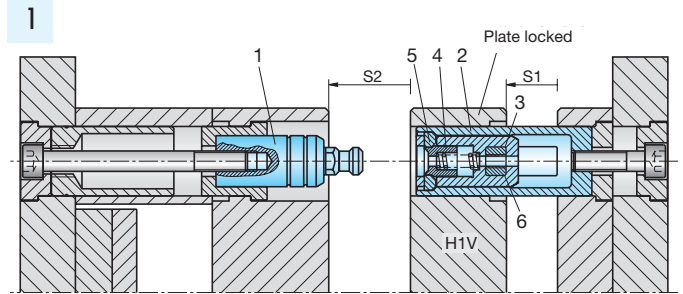
3. Locking force

The locking force is the force which must be overcome in order to push back the pulled mould plate (H1V) forcibly (prematurely).

4. Securing the mould

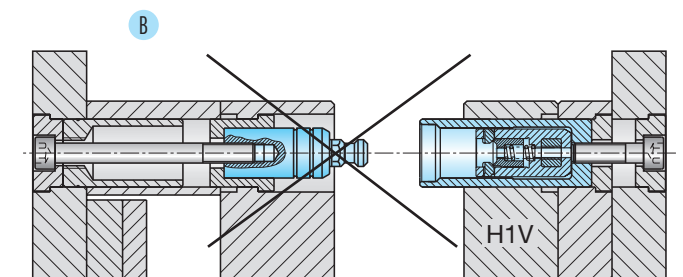
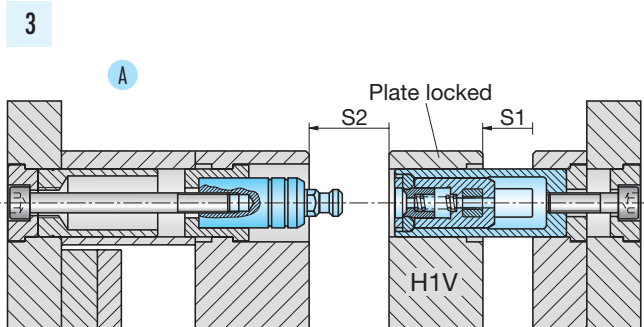
The blocked mould plate (H1V), before being unlocked by the latch bar (1), must be secured against impermissibly high closing forces in the stroke (S2) by the mould securing means of the injection moulding machine.

If there are mould slides with angle pins in the stroke region (S2), then the mould securing means must respond before the angle pins plunge into the mould slides.



If the mould is to be clamped with both mould halves separately, care should be taken that the drawn mould plate (H1V) is located in the limit position of the fully drawn stroke (S1), and the block is active, before the closing movement of the injection mould (see fig. 3).

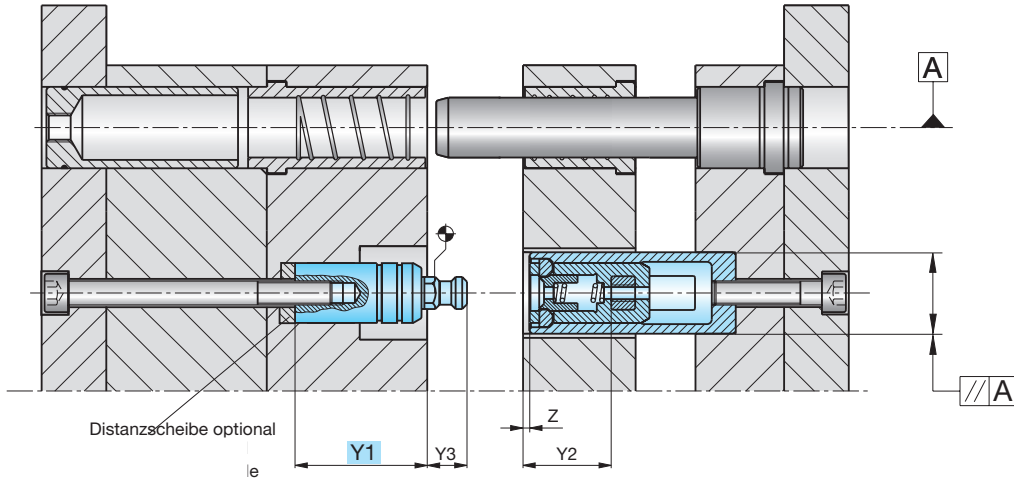
A = Right; B = Wrong



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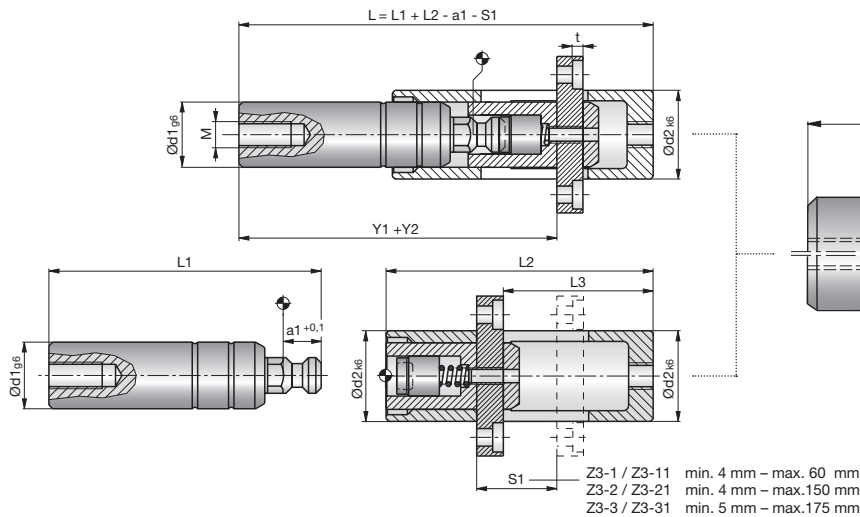
Installation and assembly instructions

The latch locks are to be fitted symmetrically and parallel to the mould guide. (Installation independent of guide system)

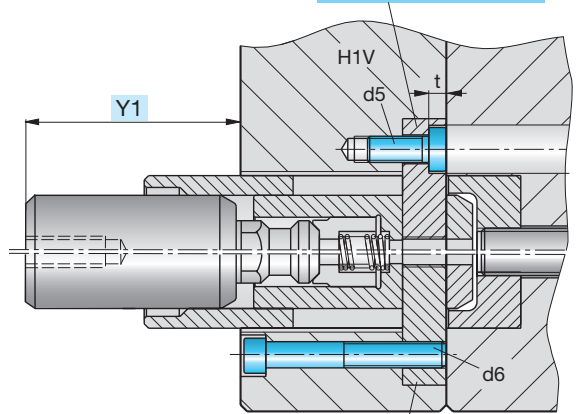


The zero points (⊕ positioning points) indicated in the following illustrations are used to coordinate the designs and dimensions during mould design. Careful attention should be paid to **setting all the latch locks** uniformly in dimensi-

ons Y1, Y2 and Y3 and to drawing the plate which is to be drawn uniformly, in order to prevent the plate from tilting.



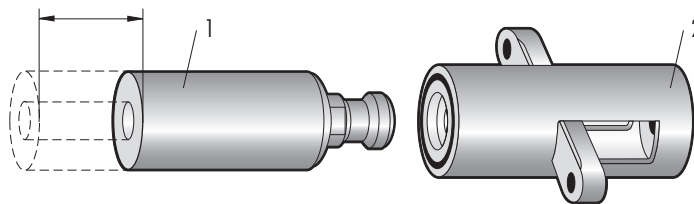
Z3-1/Z3-2/Z3-3



Z3-11/Z3-21/Z3-31



Latch bars (1) can be shortened as required. Housing (2) must not be altered.

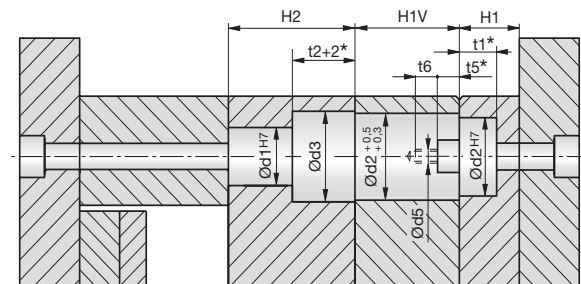
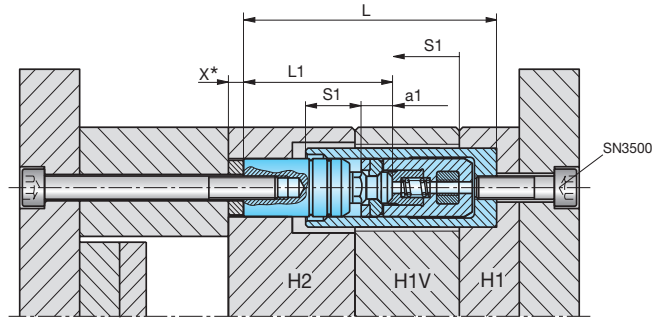
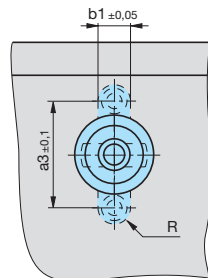
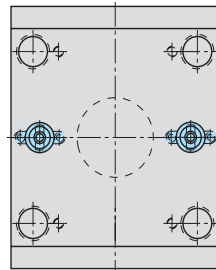


Type	a1	a2	a3	b1	d1	d2	d3	d4	d5	t	t5	t6	M	R	d6
Z3-1/Z3-11	10,80	-	35	10,1	17	25	27	-	M4	4,5	8	8	8	5	M5
Z3-2/Z3-21	14,25	18	46	14,1	25	34	36	39	M6	4,5	10	10	10	7	M6
Z3-3/Z3-31	18,40	27	57	18,1	30	42	44	47	M8	6,0	12	12	12	9	M8

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Installation independent of the guide system

Other installation variants are possible.
Please take account of the dimensions, identified "x*".
L1, L2 and L3 see page 6.6/6.8/6.10.



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S1 = Opening stroke of the mould plate (H1V) to be drawn
t4/X = Precise adaption is necessary when mounting

$$\begin{aligned} t1 &= L3 - S1 \\ t2 &= L2 + S1 - L3 - H1V \\ X &= H2 + H1V + a1 + L3 - L1 - L2 \end{aligned}$$

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Disassembly

1. Loosen the locking screw (7) with hexagon socket screw key (size 4) and remove it.
2. Pull the driver (6) out of the piston (3).
3. Then push the piston (3) out of the housing.
4. Then remove the catches (5) and the securing bush (4) with spring (8) from the piston.

Assembly

1. Insert the securing bush (4) with spring (8) into the piston (3) and then add the two catches (5).
2. Insert the preassembled piston with items 3, 4, 5 and 8 into the housing (2) and position it such that the aperture in the piston for the driver (6) is located symmetrically in relation to the cut-out.
3. Next, press the securing bush (4) downwards to such an extent that the catches (5) can move inwards, in order to push the entire piston unit into the housing.
4. Insert the driver (6) into the opening of the housing (2) and piston (3) and align it centrally.

 Set screw (7) only serves as transport lock and must not be mounted!

Maintenance

 All functional components of the latch locks must be lubricated regularly.

The mounting screws must be checked regularly and tightened.

