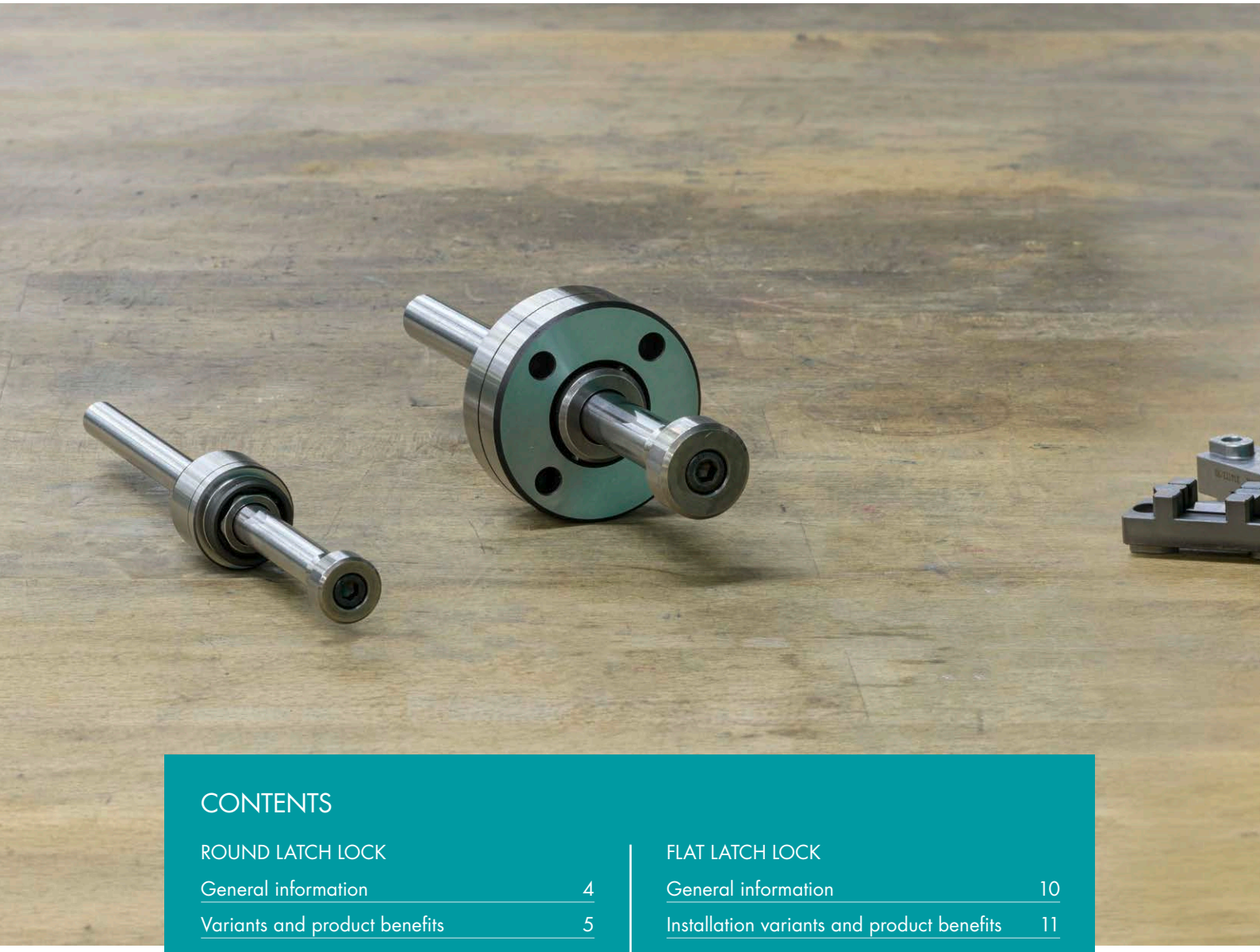
KNARR®

LATCH LOCKS

MOVEMENT ACROSS MULTIPLE LEVELS



LATCH LOCKS:
PROCESS-RELIABLE DEMOULDING



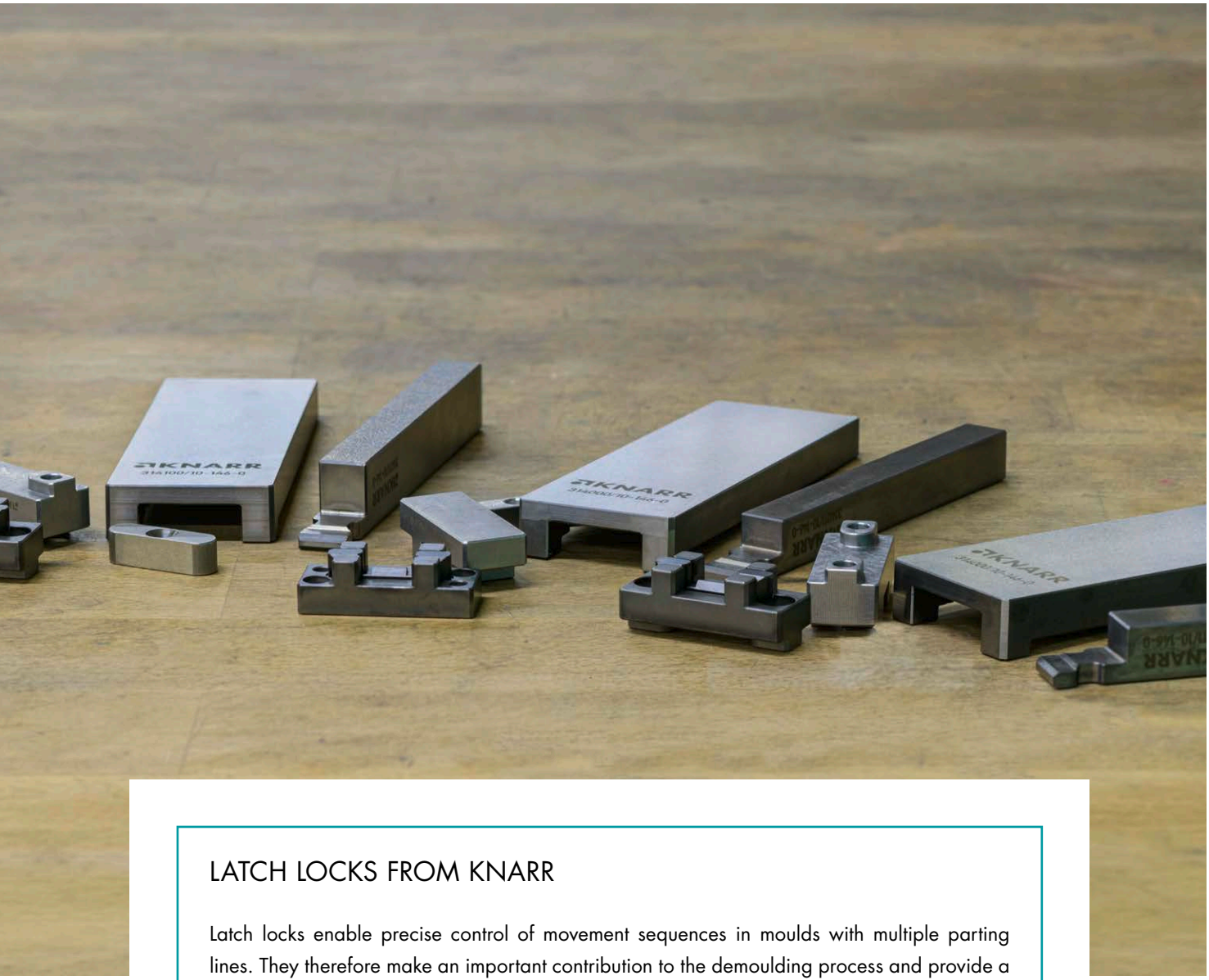
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FLAT LATCH LOCK

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LATCH LOCKS FROM KNARR

Latch locks enable precise control of movement sequences in moulds with multiple parting lines. They therefore make an important contribution to the demoulding process and provide a cost-effective solution compared with alternative concepts.

With two types of our round latch lock 313000, as well as three different flat latch lock designs and four possible mounting options for articles 314000, 314100 and 314200, you can select the ideal solution for your application and mould concept.

ROUND LATCH LOCK

313000



TWO-STAGE INTERNAL DEMOULDING FOR A WIDE RANGE OF MOULD DESIGNS

Our round latch locks enable reliable, controlled two-stage ejection, helping to ensure a dependable demoulding process across a wide range of mould designs.

The compact design saves space and offers flexibility when integrating the round latch lock into your mould. Depending on the application, it can be installed centrally or off-centre (decentrally) and configured to operate either ahead (leading type) of or following (trailing type) the movement.

Two variants are available for different installation requirements: Type 1, a particularly compact version with an external thread, and Type 2, with a screw connection. The easily adjustable stroke can be matched to the application, making the round latch lock a straightforward, economical and versatile solution.

Type 1



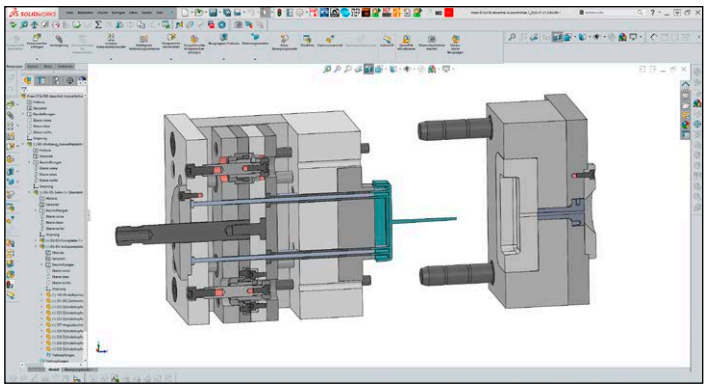
Type 2



AT A GLANCE

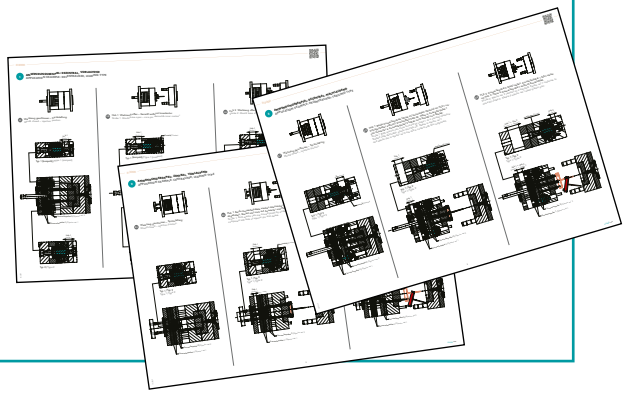
- Space-saving, cost-effective design
- Suitable for a wide range of applications (e.g. two-stage ejector)
- For centralised and decentralised use in the mould base
- Stroke easily adjustable for reliable operation
- DLC — Segments with DLC coating (rod optional)
- Maintenance-friendly design with easy removal and installation

DETAILED APPLICATION EXAMPLES



Design examples as STEP

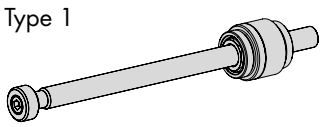
We provide CAD data and sectional drawings for the wide range of applications of the round latch lock free of charge.
Whether decentralised leading or centralised trailing — discover the versatile application options!



ROUND LATCH LOCK

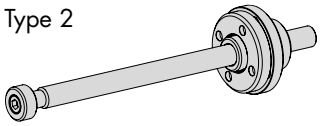
313000

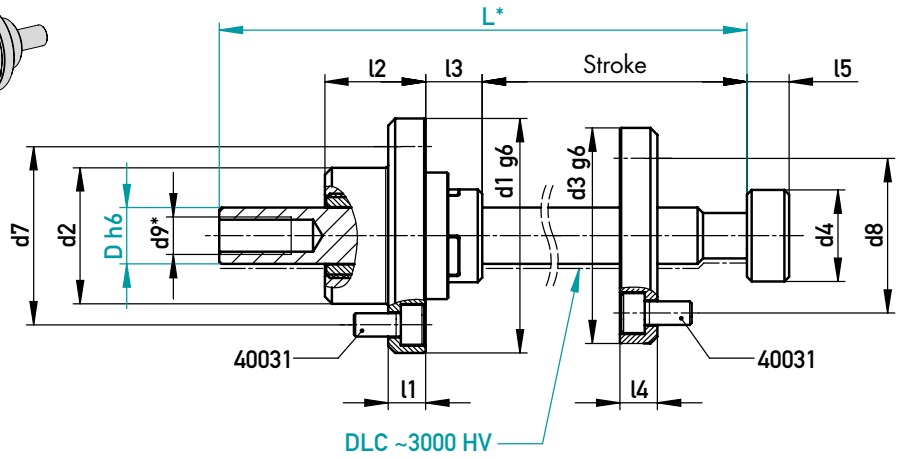
Type 1



* Shorten L to the desired length; machine a thread d9

Type 2





120 °C

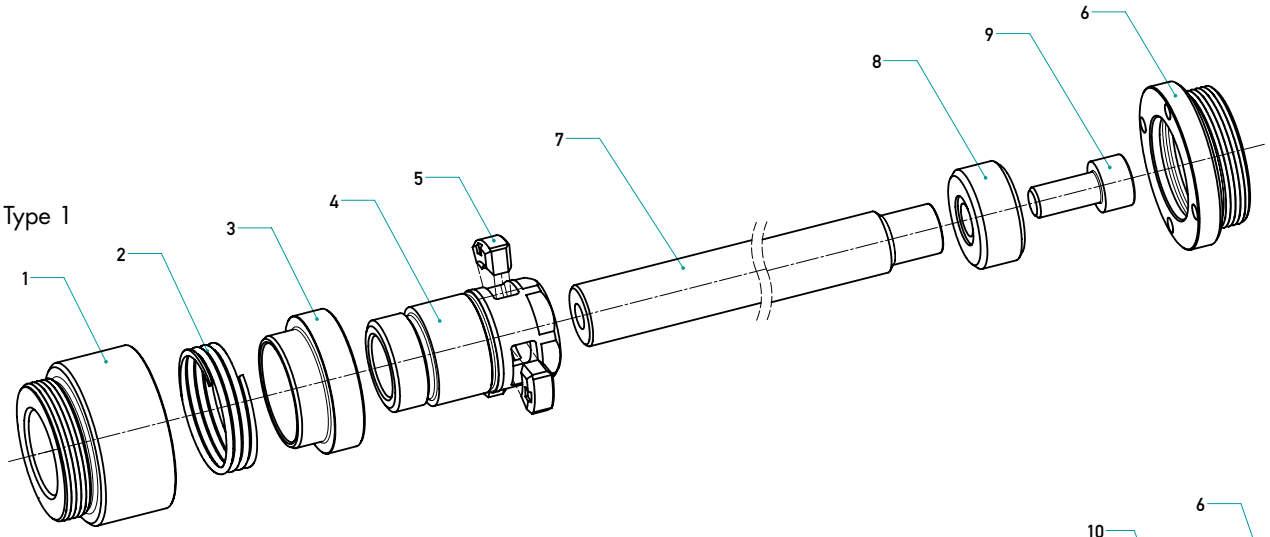
40031	F (N)	Stroke	l6	l5	l4	l3	l2	l1	d9	d8	d7	d6	d5	d4	d3	d2	d1	Type	D	L	DLC
–	800	161,5	11,6	9	5,1	12	21,5	15	M8	–	–	–	26	19,5	32	M27x1,5	32	1	12	200	–
																					DLC
		361,5																		400	–
																					DLC
8 x M5-10	800	161,5	–	9	8	12	21,5	8	M8	33	38	4 x M5	22	19,5	46	29	50	2	12	200	–
																					DLC
		361,5																		400	–
																					DLC
8 x M8-16	1000	150	–	12	13	17	28	13	M10	52	52	4 x M8	33	29	70	41	70	2	16	200	–
																					DLC
		350																		400	–
																					DLC
12 x M8-20	2200	128	–	20	20	31	36	20	M12	70	70	6 x M8	45	38	88	58	88	2	25	200	–
																					DLC
		328																		400	–
																					DLC
12 x M10-30	3500	406,5	–	29	25	38,5	50	25	M16	101	101	6 x M10	65	45	125	82	125	2	32	500	–
																					DLC

Stroke = maximum travel • F = maximum actuation force

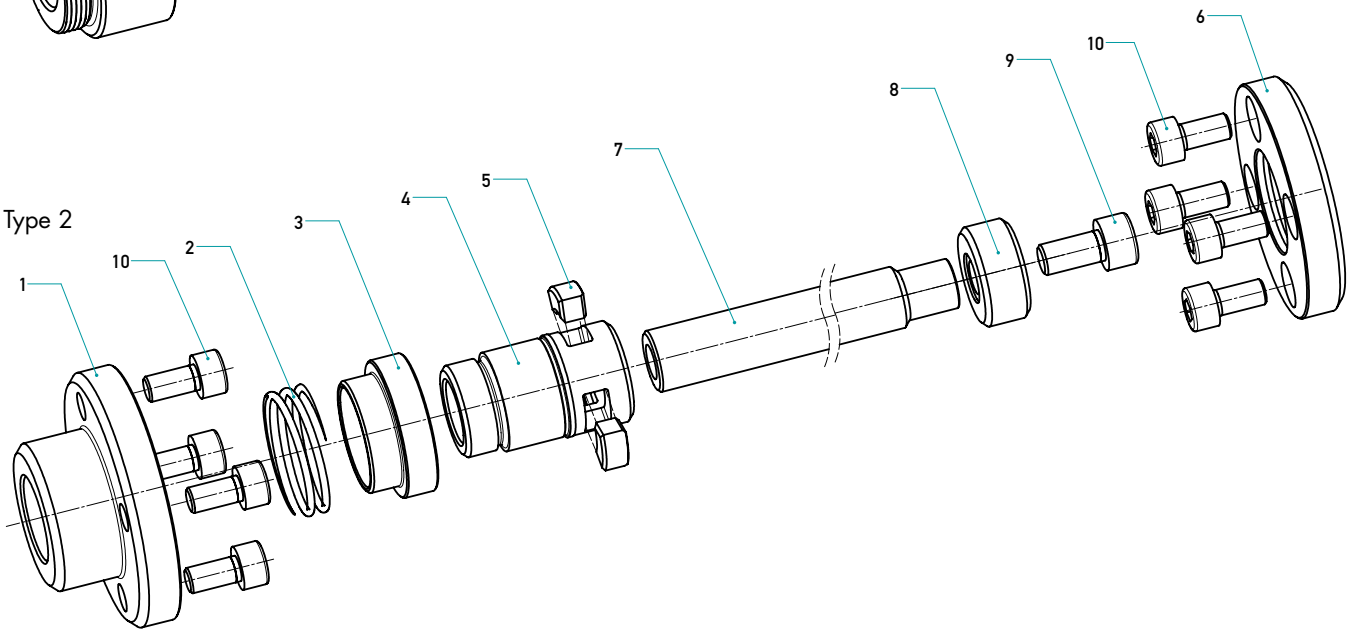
✉ 313000/Type/D-L/DLC

EXPLODED VIEWS AND MATERIALS

Type 1



Type 2



120 °C

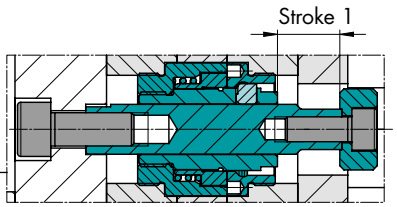
No.	Component		Remarks	
1	Housing	1.6566 / ~61 HRC 0.5 mm deep	–	–
2	Spring	1.1269	–	–
3	Bush	1.0503 nitrided 0.3 mm deep	–	–
4	Notch retainer	1.3505 / ~46 HRC	–	–
5	Notch (DLC)	1.3343 (HSS) / ~63 HRC + DLC	DLC	–
6	Locating ring	1.6566 / ~61 HRC 0.5 mm deep	–	–
7*	Rod	1.1213 / ~63 HRC 1.5 – 2 mm deep	DLC optional 313002	313002/D-L/–* or 313002/D-L/DLC*
8*	Buffer	1.0503 nitrided 0.3 mm deep	–	
9*	Screw	–	included in scope of delivery	
10	Screw	–	not included in scope of delivery	40031/d1-l1

*Spare parts set available containing components 6, 8 and 9: ✉ 313002/D-L/

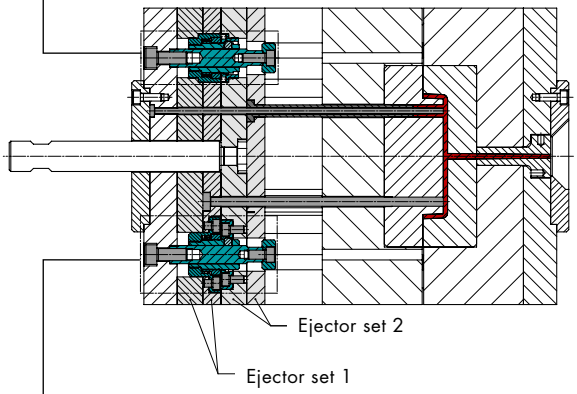
APPLICATION EXAMPLES

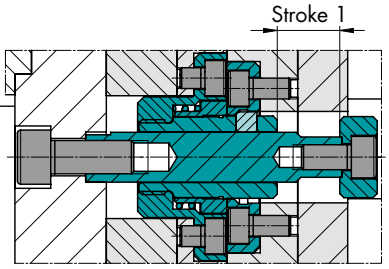
Four application examples – illustrated in detail.
All applications are shown in the 'Tool closed – injection position' state.

1 DECENTRALISED, LEADING TYPE



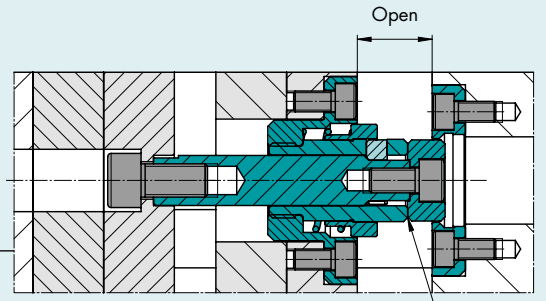
Type 1 (compact design)



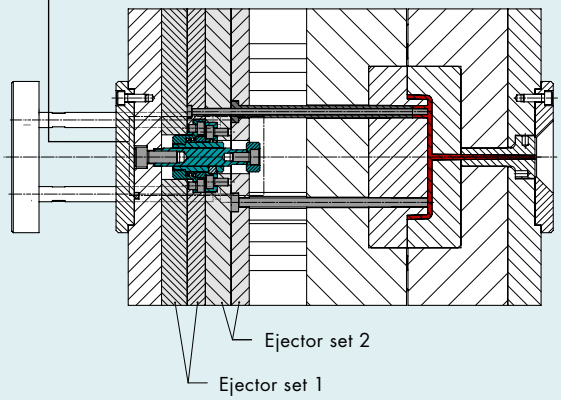


Type 2

2 CENTRALISED, LEADING TYPE

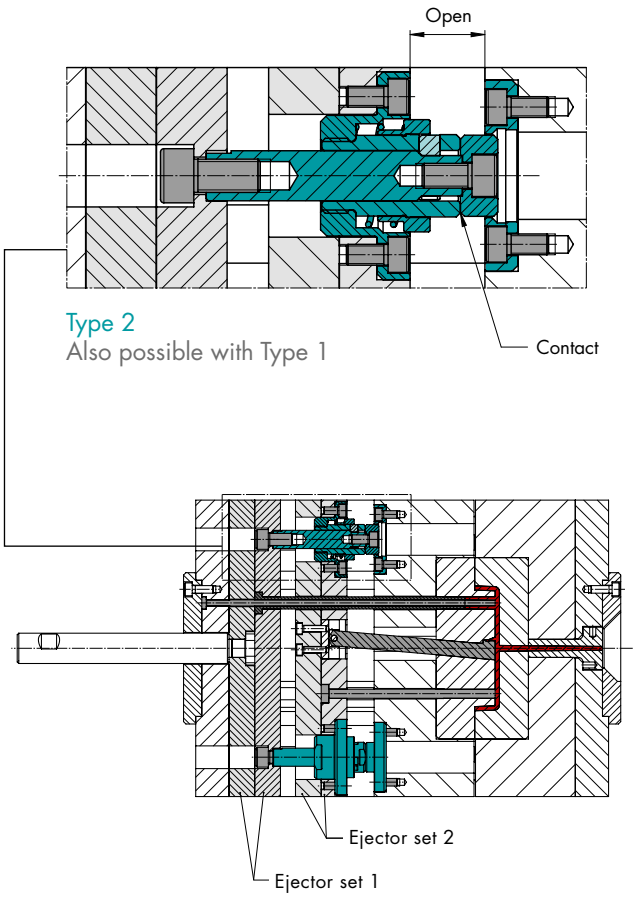


Type 2
Also possible with Type 1



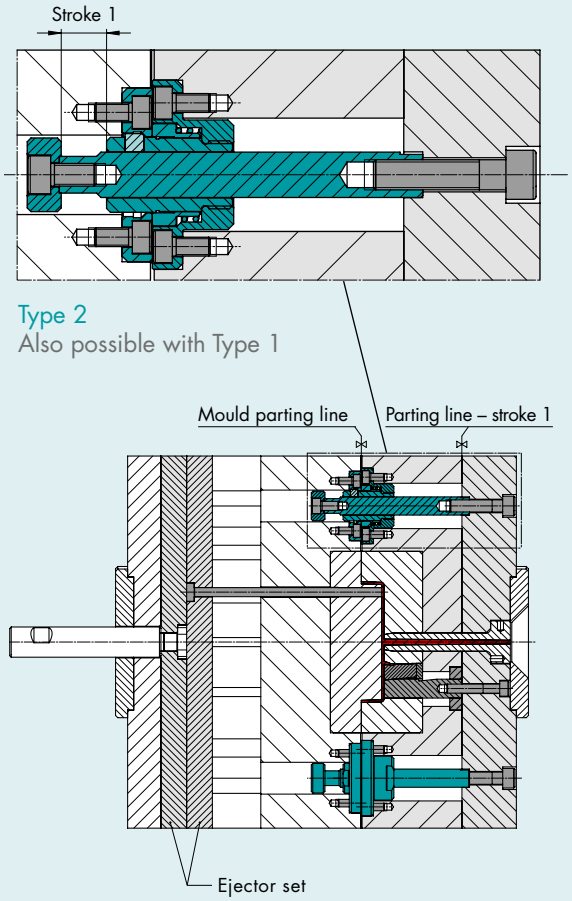
Explore further mould configurations, detailed views and free CAD data in our KNARR Webshop for use in your own designs.

3 DECENTRALISED, TRAILING TYPE



Type 2
Also possible with Type 1

4 LIFTING MOULD PLATE NOZZLE SIDE



Type 2
Also possible with Type 1

Further information at shop.knarr.com

FLAT LATCH LOCK



FLAT LATCH LOCKS FOR RELIABLE DEMOULDING PROCESSES WITH MULTIPLE PARTING LINES

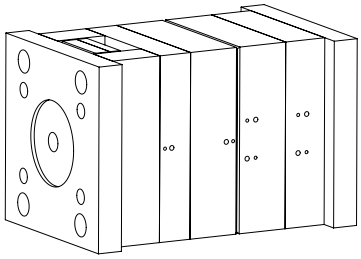
In moulds with multiple parting lines, flat latch locks enable the reliable opening of an additional parting line and support a safe and controlled demoulding process.

The compact, pre-assembled unit allows quick and straightforward installation on the injection mould. All required fastening elements are included in the scope of supply. Well-matched materials, including coated components, ensure reduced wear, extended service life and lower maintenance costs. A latching system integrated into the latch lock contributes to a reliable production process by securely retaining the backing plate in position and preventing potential collisions.

The 314000, 314100 and 314200 flat latch locks offer four different installation options, providing a high degree of flexibility for integration into a wide range of mould designs. Depending on the application and on request, KNARR latch locks can also be individually adapted and supplied fully machined and ready for installation.

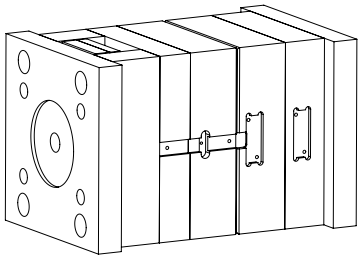
MOUNTING OPTIONS

ON-MOUNTED/PINNED 314000



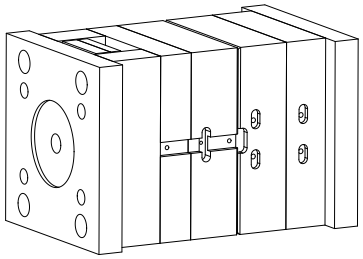
Positioning via housing and dowel pins

RECESSED/INSERTED 314000



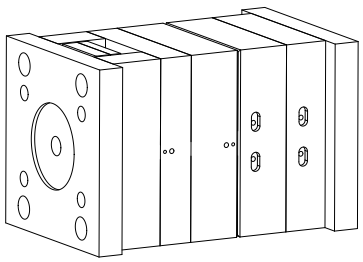
Positioning via housing and fitting key

RECESSED/INSERTED 314100



Positioning via centring shoulder and fitting key

RECESSED/PINNED 314200



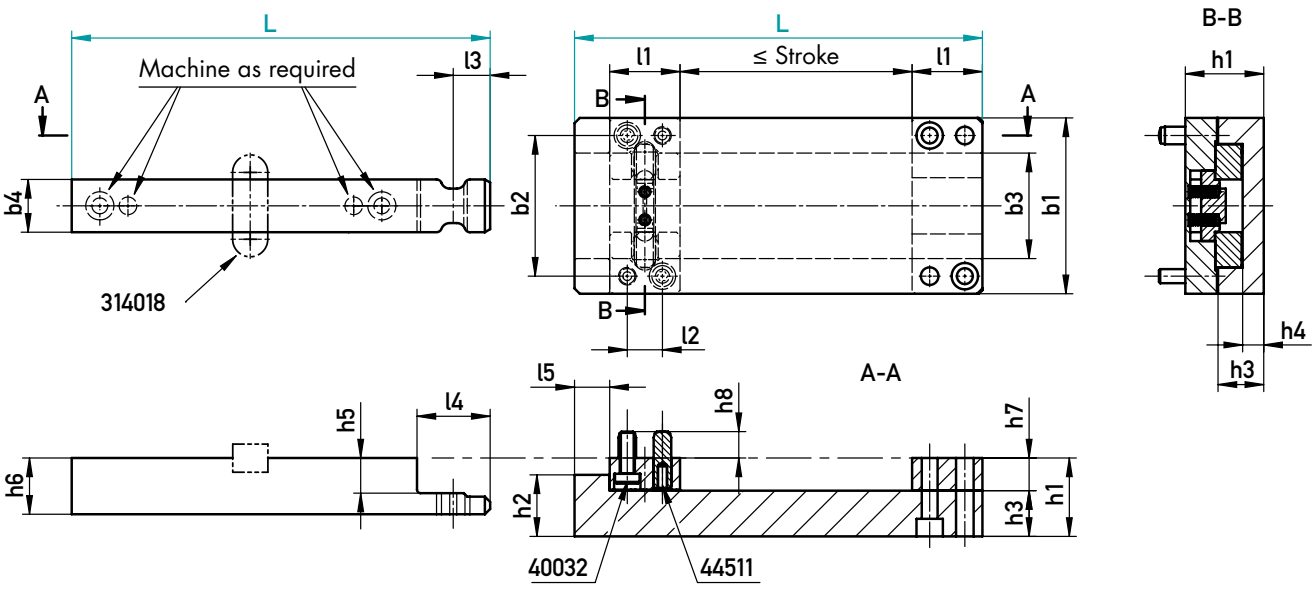
Positioning via centring shoulder and dowel pins

AT A GLANCE

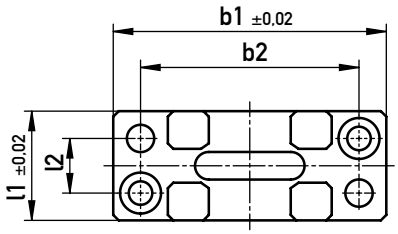
- Very compact design
- Quick and easy installation
- Various installation options
- Components can be customised to individual requirements
- Enclosed latch housing
- DLC-coated components for a longer service life
- All required fasteners included
- Suitable for standard mould sizes

FLAT LATCH LOCK

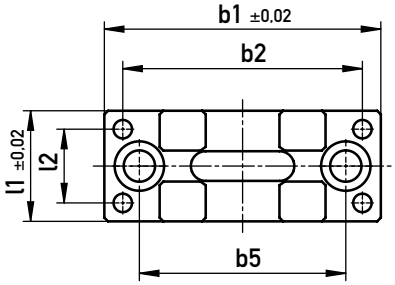
314000



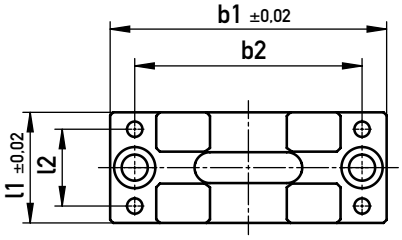
Type 10



Type 15



Type 20



Two units must always be installed opposite each other on the mould.

40032, 44511 included in delivery

160 °C

40032	44511	l1	l2	l3	l4	l5	b1	b2	b3	b4	b5	h1	h2	h3	h4	h5	h6	h7	h8	Stroke	Type	L
2x M4-12	2x 5-16	20	10	10,4	20,7	10	50	40	30	15	–	22,3	17,5	13	6	10	16	9,3	7,5	96	10	146
																				136		186
2x M8-16	4x 5-20	30	20	15,5	30,7	15	75	65	45	20	56	30,3	23,5	18	9	13	21	12,3	10	121	15	196
																				171		246
2x M8-20	4x 5-24	36	25	18,5	36,7	15	90	74	60	25	–	37,5	29	22	10	16	27	15,5	11	159	20	246
																				209		296

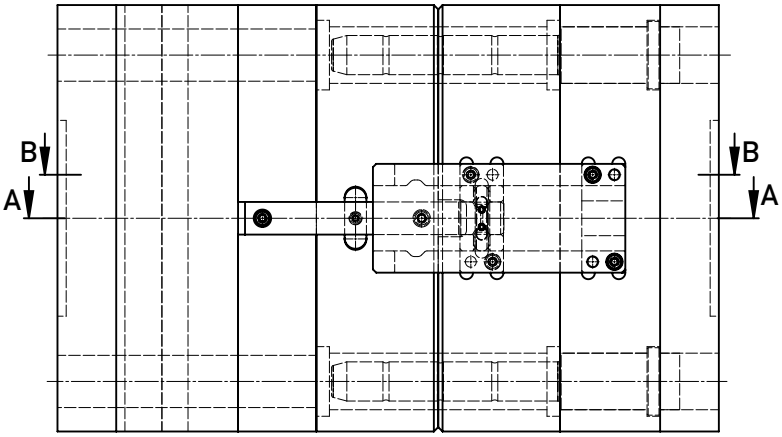
314000/Type-L-0

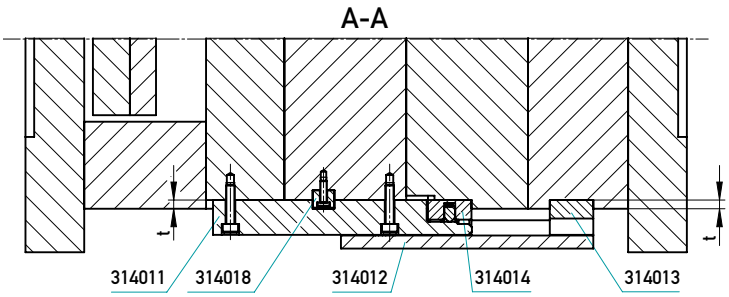


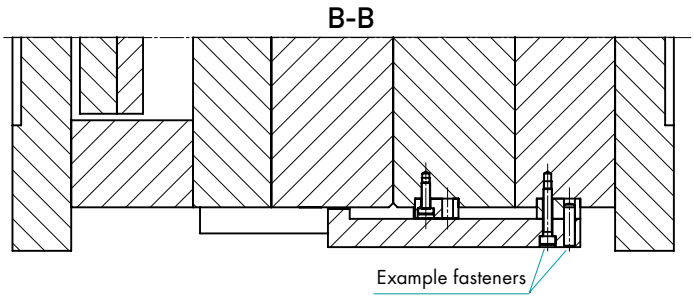
RECESSED MOUNTING (INSERTED)

⊠	Item Name
314011	Latch bar
314012	Control bracket
314013	Spacer bar
314014	Notch housing
314018	Fitting key

Type	314018	t
10	314018/10-8-28	4
15	314018/12-8-32	5
20	314018/16-10-40	6

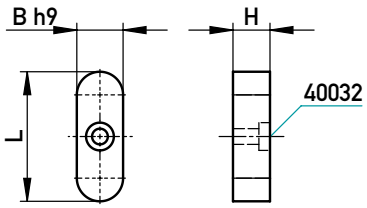


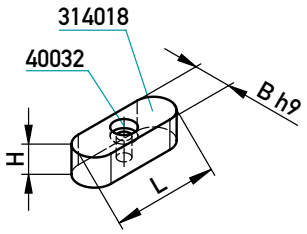




314018

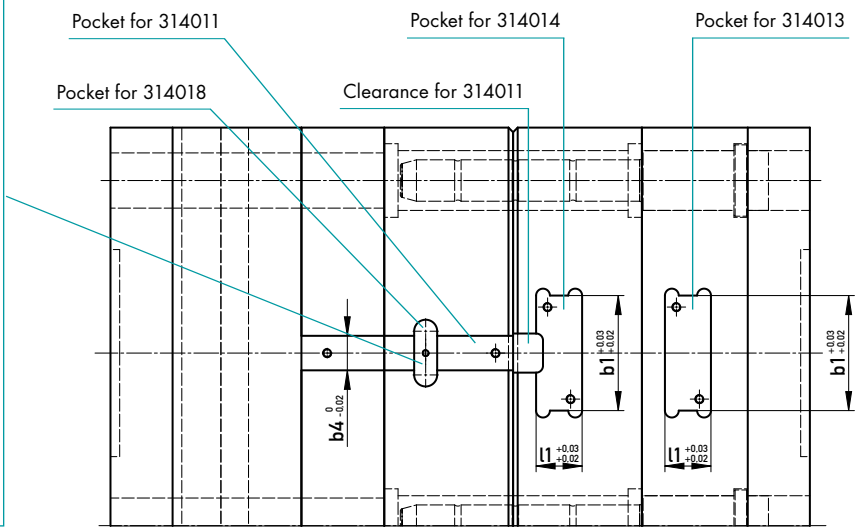
FITTING KEY





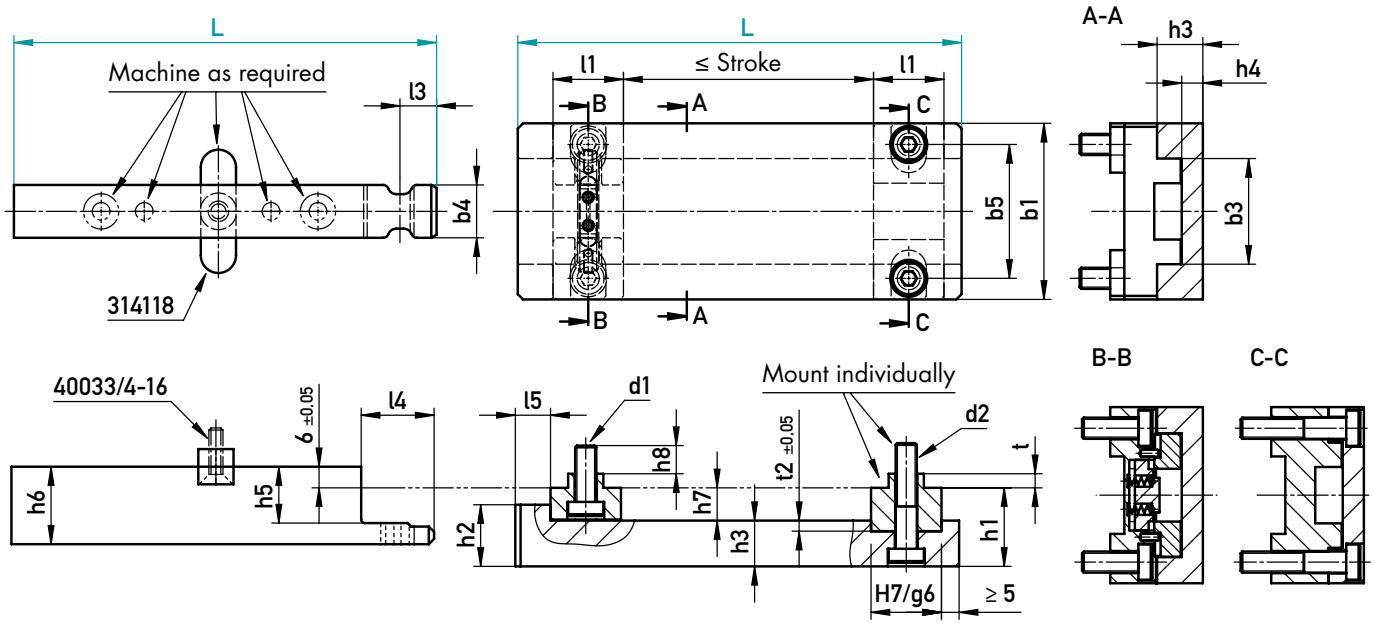
C 45, DIN 6885 Shape C

⊠	B	H	L	40032
314018/10-8-28	10	8	28	M3-10
314018/12-8-32	12	8	32	M4-10
314018/16-10-40	16	10	40	M5-12

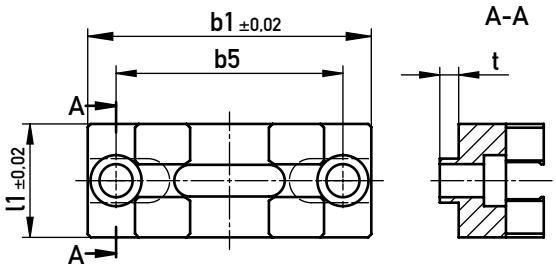


FLAT LATCH LOCK WITH CENTRING SHOULDER

314100



Type 10/15/20



Two units must always be installed opposite each other on the mould.

40032, 40033 included in delivery

160 °C

d2 (40032)	d1 (40032)	t	l1	l3	l4	l5	b1	b3	b4	b5	h1	h2	h3	h4	h5	h6	h7	h8	Stroke	Type	L
2x M6-30	2x M6-16	4	20	10,4	21	10	50	30	15	38	22,3	17,5	13	6	16	22	9,3	8	91	10	146
																			131		186
2x M8-40	2x M8-25	5	30	15,5	33	15	75	45	20	56	30,3	23,5	18	9	19	27	12,3	13,5	116	15	196
																			166		246
2x M10-50	2x M10-30	6	36	18,5	40	15	90	60	25	72	37,5	29	22	10	22	33	15,5	16	154	20	246
																			204		296

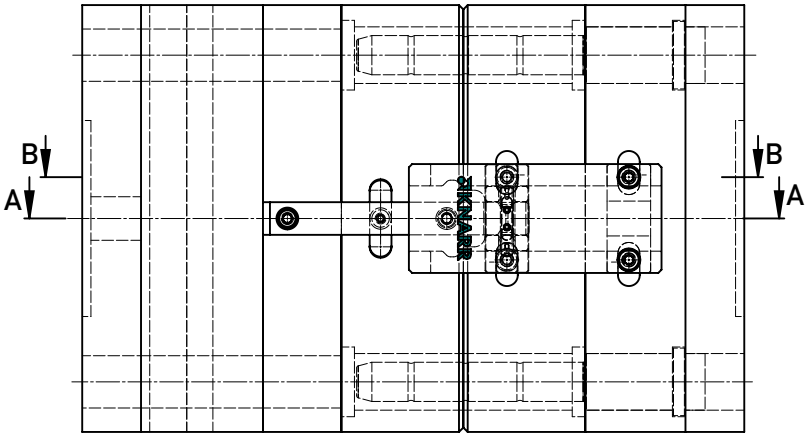
314100/Type-L-0



MOUNTING WITH CENTRING SHOULDER

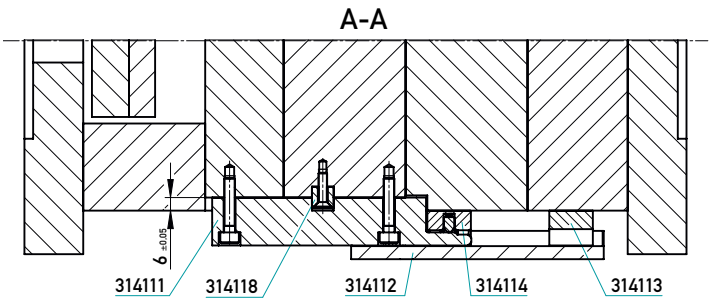
314100

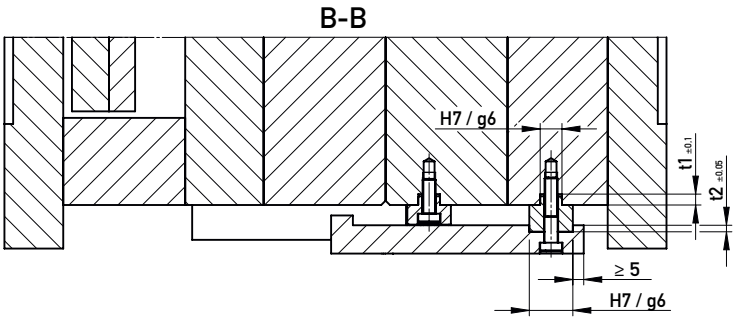
⊠	Item Name
314111	Latch bar
314112	Control bracket
314113	Spacer bar
314114	Notch housing
314118	Fitting key



MOUNTING DIMENSIONS

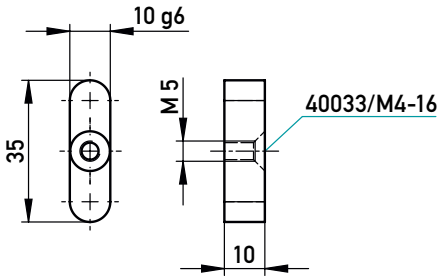
Type	b4	B	t1	t2	A1	A2	A3
10	15	10	4,5	3,0	22	38	62
15	20	12	5,5	4,5	30	56	89
20	25	14	6,5	6,0	38	72	106

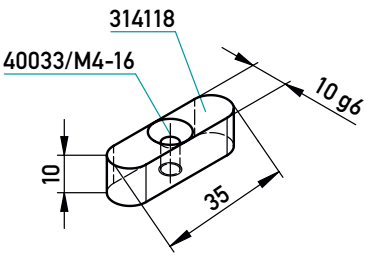




314118

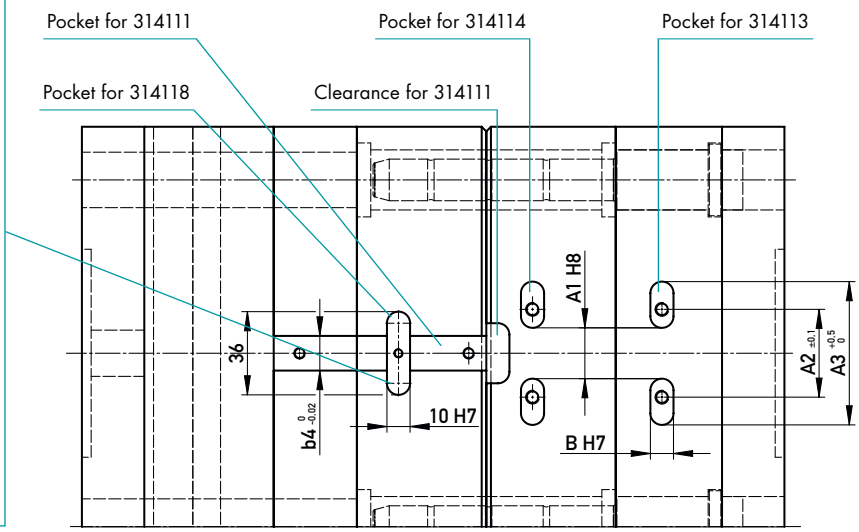
FITTING KEY





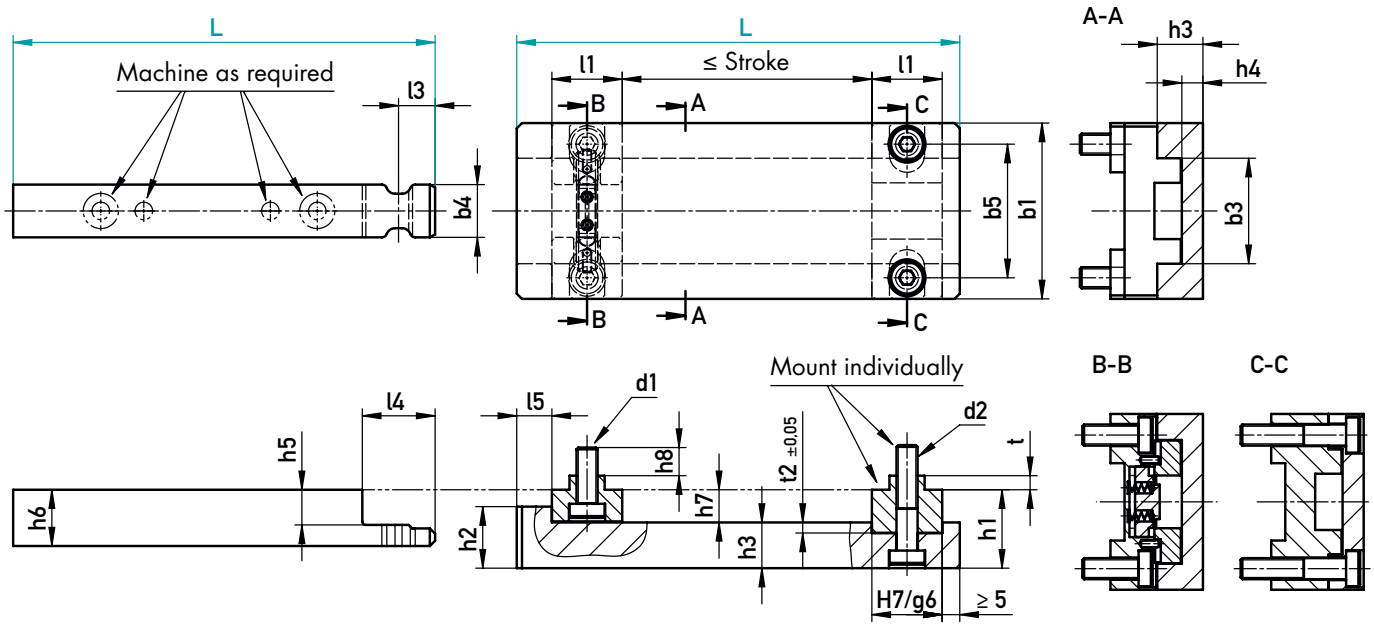
1.7225 nitrided / ~58 HRC

⊠	B	H	L	40033
314118/10-10-35	10	10	35	M4-16

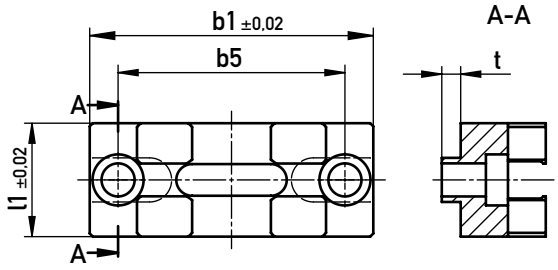


FLAT LATCH LOCK WITH CENTRING SHOULDER, PINNED

314200



Type 10/15/20



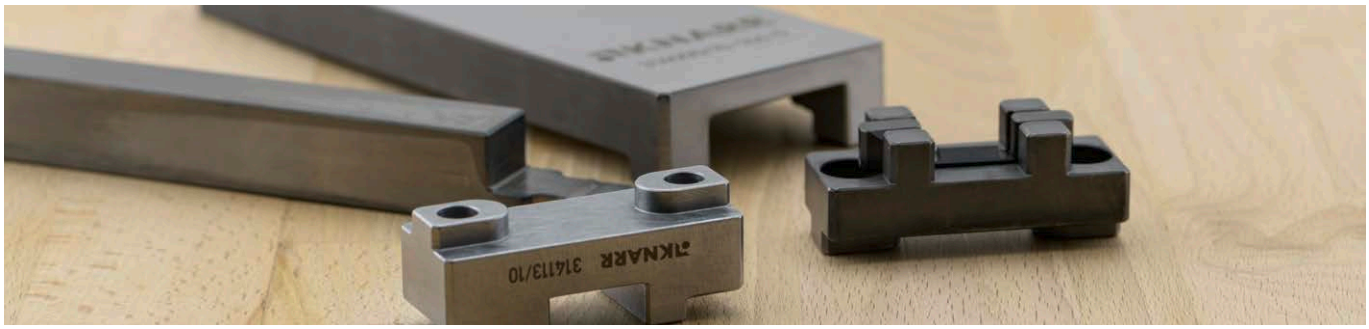
Two units must always be installed opposite each other on the mould.

40032 included in delivery

160 °C

d2 (40032)	d1 (40032)	t	l1	l3	l4	l5	b1	b3	b4	b5	h1	h2	h3	h4	h5	h6	h7	h8	Stroke	Type	L
2x M6-30	2x M6-16	4	20	10,4	20,7	10	50	30	15	38	22,3	17,5	13	6	10	16	9,3	8	91	10	146
																			131		186
2x M8-40	2x M8-25	5	30	15,5	30,7	15	75	45	20	56	30,3	23,5	18	9	13	21	12,3	13,5	116	15	196
																			166		246
2x M10-50	2x M10-30	6	36	18,5	36,7	15	90	60	25	72	37,5	29	22	10	16	27	15,5	16	154	20	246
																			204		296

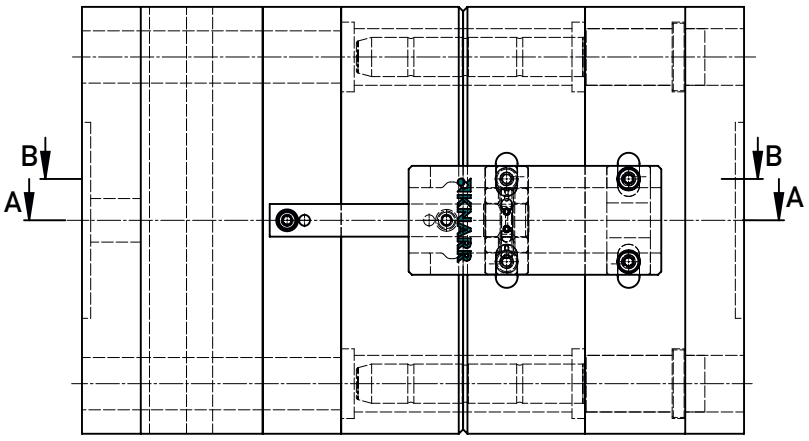
314200/Type-L-0



MOUNTING WITH CENTRING SHOULDER, PINNED

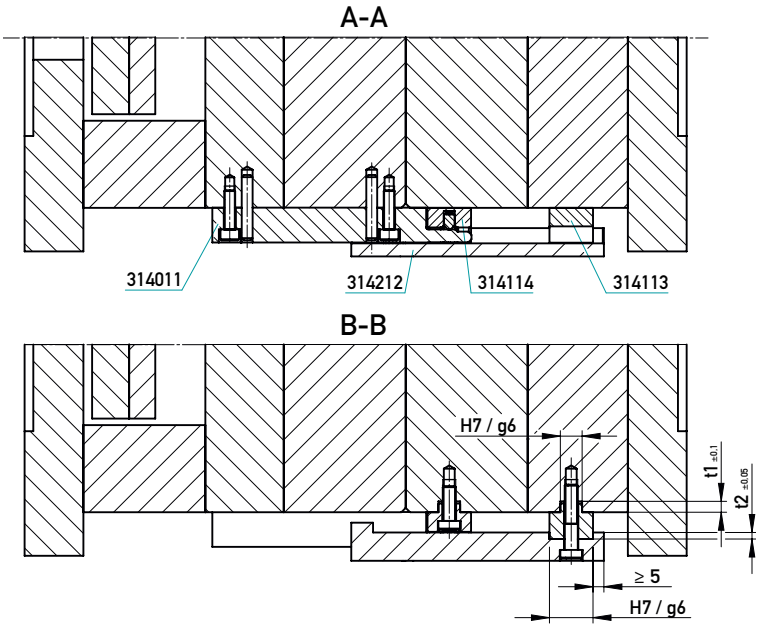
314200

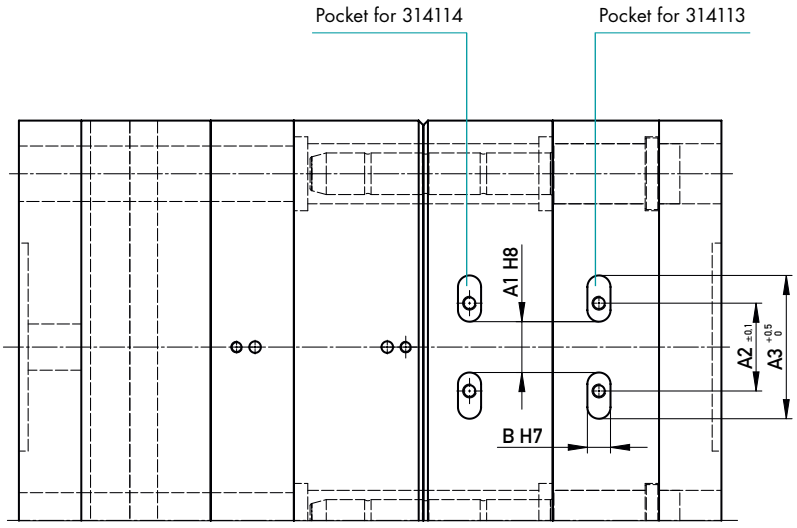
⊠	Item Name
314011	Latch bar
314212	Control bracket
314113	Spacer bar
314114	Notch housing



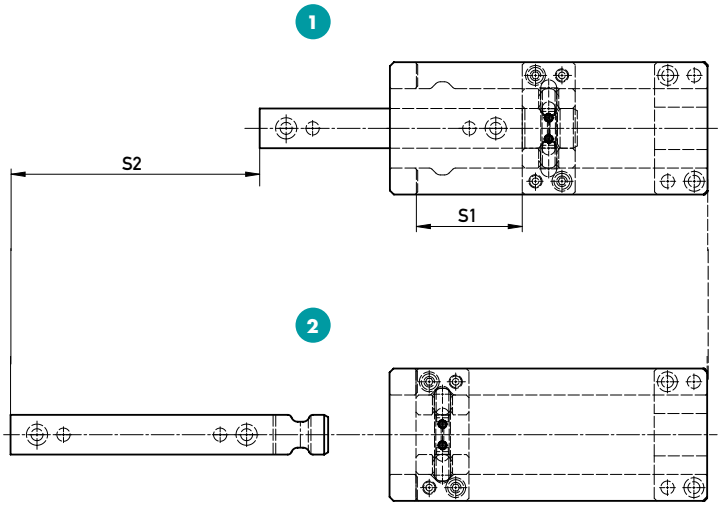
MOUNTING DIMENSIONS

Type	B	t1	t2	A1	A2	A3
10	10	4,5	3,0	22	38	62
15	12	5,5	4,5	30	56	89
20	14	6,5	6,0	38	72	106





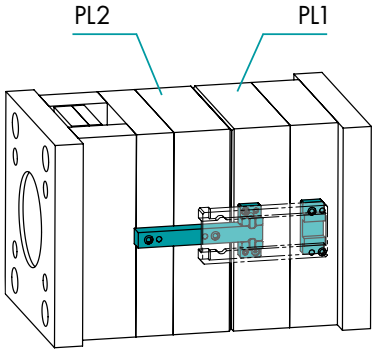
FLAT LATCH LOCK – OPERATING PRINCIPLE



1 Mould closed – injection position:
The notches are positively connected to the notch housing and the latch bar.

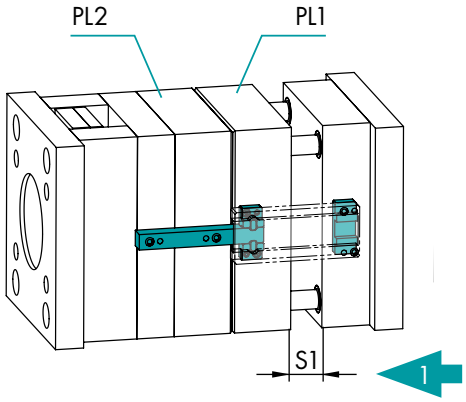
2 Mould opened – parts removal:
The notches recess in the clearance of the control bracket, unlocking the latch bar and thereby releasing it. The notch housing is now positively connected to the control bracket. The spring-loaded stop locks the 2 notches.

Injection position

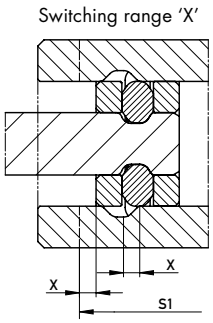


When the injection mould is opened, the plates PL1 and PL2 are moved by stroke „S1“. When the defined opening stroke „S1“ is reached, the notch housing hits the shoulder of the control bracket. The tool opens further by „S2“. By locking the notch housing to the control bracket, PL1 is locked. ‘S2’ begins as soon as the notches can move outwards (S1-X)! Please note when determining the stroke!

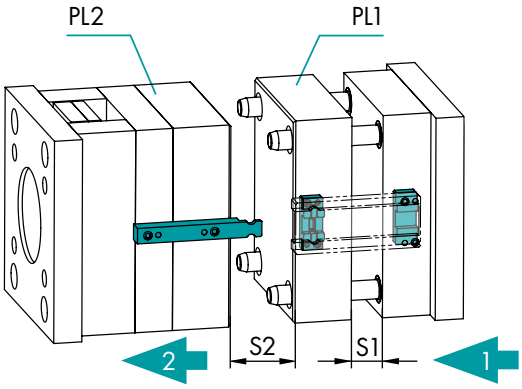
Step 1

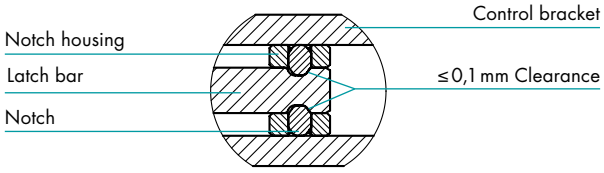


The mould is closed in reverse order. First, the latch bar unlocks the two notches in the notch housing by pushing back the stop. PL2 hits PL1 and pushes it back by stroke „S1“. The notches can retract back into the latch bar. The latch bar may only move into the locked plate (PL1)!



Step 2





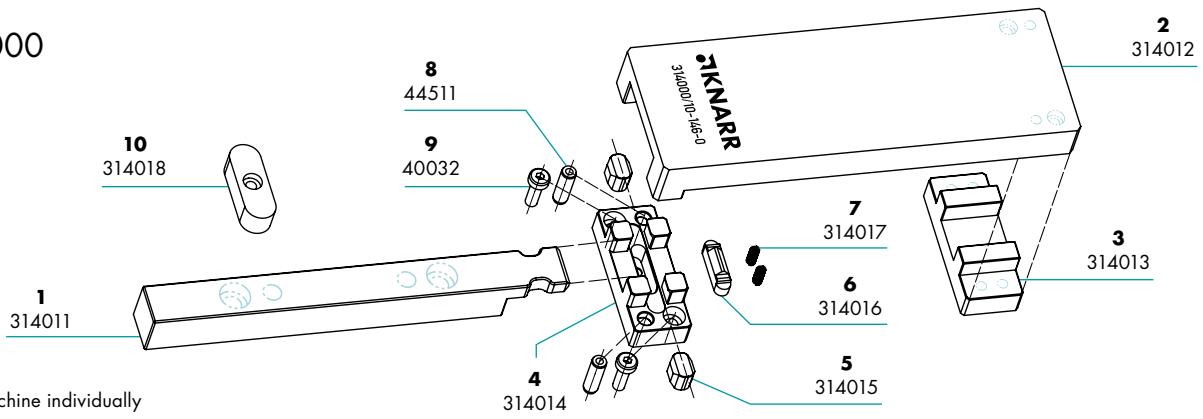
NON-BINDING GUIDE VALUES

				314000		314100		314200	
Type	Tool size	max. tensile force (kN)	max. locking force (kN)	min. stroke (mm)	max. stroke (mm)	min. stroke (mm)	max. stroke (mm)	min. stroke (mm)	max. stroke (mm)
10	≤ 196 x 196	10	1	4	96	4	91	4	91
					136		131		131
15	≤ 296 x 296	30	3	5,5	121	5,5	116	5,5	116
					171		166		166
20	≤ 596 x 596	40	4	7	159	7	154	7	154
					209		204		204



EXPLODED VIEWS AND MATERIALS

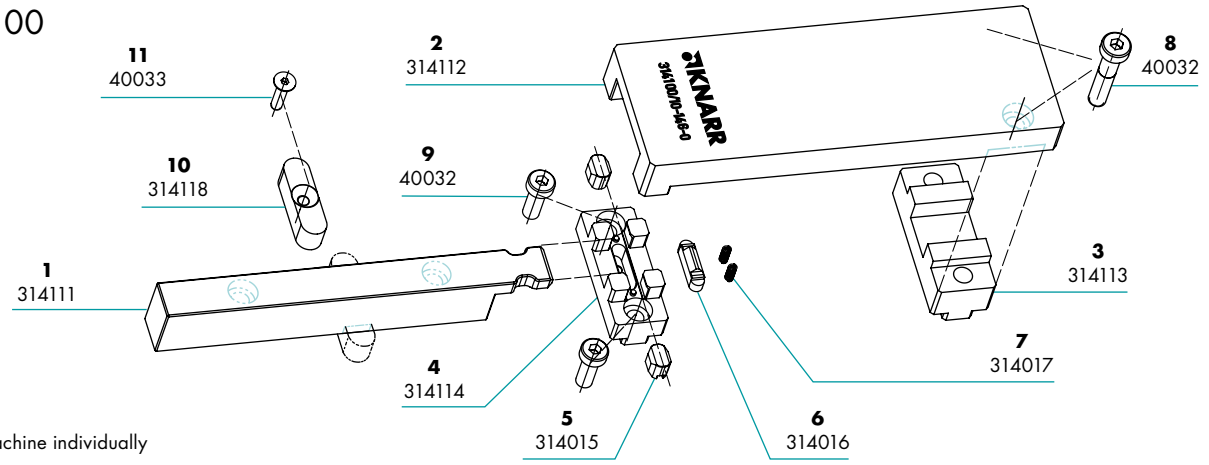
314000



Machine individually

No.	Article	Type			
		10	15	20	
1	Latch bar	1x 314011/10-146-0	1x 314011/15-196-0	1x 314011/20-246-0	1.2162 / ~56 HRC
		1x 314011/10-186-0	1x 314011/15-246-0	1x 314011/20-296-0	
2	Control bracket	1x 314012/10-146	1x 314012/15-196	1x 314012/20-246	1.2162 / ~56 HRC
		1x 314012/10-186	1x 314012/15-246	1x 314012/20-296	
3	Spacer bar	1x 314013/10	1x 314013/15	1x 314013/20	1.1730
4	Notch housing	1x 314014/10	1x 314014/15	1x 314014/20	1.2312 / ~52 HRC
5	Notch (DLC)	2x 314015/10	2x 314015/15	2x 314015/20	1.2767 / ~51 HRC + DLC
6	Stop (DLC)	1x 314016/10	1x 314016/15	1x 314016/20	1.2767 / ~54 HRC + DLC
7	Compression spring	2x 314017/1	3x 314017/1	2x 314017/2	EN 10270-1
8	Dowel pin	2x 44511/5-16	4x 44511/5-20	4x 44511/5-24	1.3505 / ~60 HRC
9	Cylinder head screw, flat	2x 40032/M4-12	2x 40032/M8-16	2x 40032/M8-20	10.9 DIN 7984
10	Fitting key	1x 314018/10-8-28	1x 314018/12-8-32	1x 314018/16-10-40	Steel C45

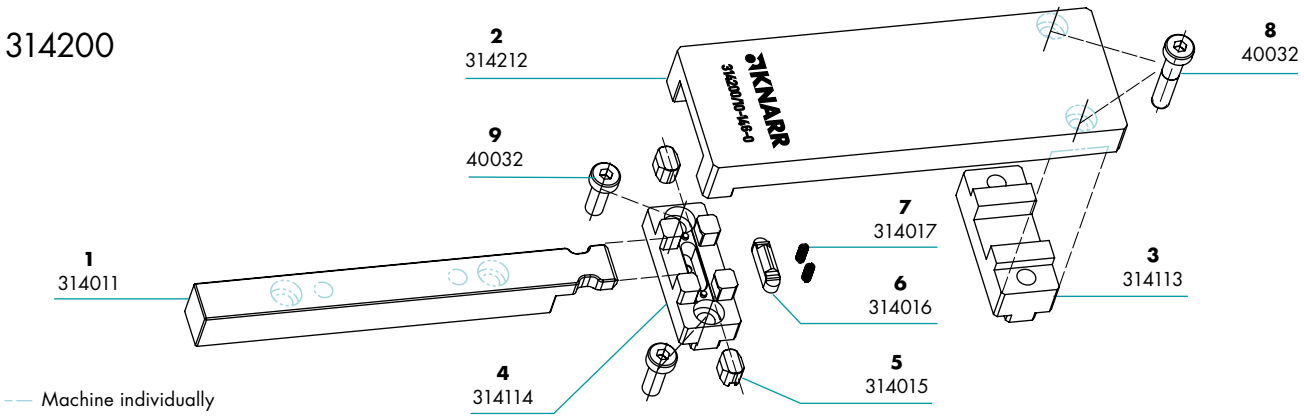
314100



Machine individually

No..	Article	Typ			
		10	15	20	
1	Latch bar	1x 314111/10-146-0	1x 314111/15-196-0	1x 314111/20-246-0	1.2162 / ~56 HRC
		1x 314111/10-186-0	1x 314111/15-246-0	1x 314111/20-296-0	
2	Control bracket	1x 314112/10-146	1x 314112/15-196	1x 314112/20-246	1.2162 / ~56 HRC
		1x 314112/10-186	1x 314112/15-246	1x 314112/20-296	
3	Spacer bar	1x 314113/10	1x 314113/15	1x 314113/20	1.1730
4	Notch housing	1x 314114/10	1x 314114/15	1x 314114/20	1.2312 / ~52 HRC
5	Notch (DLC)	2x 314015/10	2x 314015/15	2x 314015/20	1.2767 / ~51 HRC + DLC
6	Stop (DLC)	1x 314016/10	1x 314016/15	1x 314016/20	1.2767 / ~54 HRC + DLC
7	Compression spring	2x 314017/1	3x 314017/1	2x 314017/2	EN 10270-1
8	Cylinder head screw, flat	2x 40032/M6-30	2x 40032/M8-40	2x 40032/M10-50	10.9 DIN 7984
9	Cylinder head screw, flat	2x 40032/M6-16	2x 40032/M8-25	2x 40032/M10-30	10.9 DIN 7984
10	Fitting key	1x 314118/10-10-35	1x 314118/10-10-35	1x 314118/10-10-35	1.7225 nitrided
11	Countersunk screw	1x 40033/M4-16	1x 40033/M4-16	1x 40033/M4-16	10.9 ISO 10642

314200



No.	Article	Type			
		10	15	20	
1	Latch bar	1x 314011/10-146-0	1x 314011/15-196-0	1x 314011/20-246-0	1.2162 / ~56 HRC
		1x 314011/10-186-0	1x 314011/15-246-0	1x 314011/20-296-0	
2	Control bracket	1x 314212/10-146	1x 314212/15-196	1x 314212/20-246	1.2162 / ~56 HRC
		1x 314212/10-186	1x 314212/15-246	1x 314212/20-296	
3	Spacer bar	1x 314113/10	1x 314113/15	1x 314113/20	1.1730
4	Notch housing	1x 314114/10	1x 314114/15	1x 314114/20	1.2312 / ~52 HRC
5	Notch (DLC)	2x 314015/10	2x 314015/15	2x 314015/20	1.2767 / ~51 HRC + DLC
6	Stop (DLC)	1x 314016/10	1x 314016/15	1x 314016/20	1.2767 / ~54 HRC + DLC
7	Compression spring	2x 314017/1	3x 314017/1	2x 314017/2	EN 10270-1
8	Cylinder head screw, flat	2x 40032/M6-30	2x 40032/M8-40	2x 40032/M10-50	10.9 DIN 7984
9	Cylinder head screw, flat	2x 40032/M6-16	2x 40032/M8-25	2x 40032/M10-30	10.9 DIN 7984

SPECIAL MACHINING

OF LATCH LOCKS BASED ON STANDARD PRODUCTS 314000 • 314100 • 314200

AT A GLANCE

- High quality base product
- Short delivery time
- Precise machining of single components according to customer data
- All components are delivered together as a package

TECHNICAL INFORMATION

- The basis of the data to be processed is the CAD data from the KNARR Webshop
- Transmission of the CAD data preferably as STEP
- In order to ensure a short delivery time, even if a customised delay is required, the latch bar is made of 1.2312 (nitrided)
- The fitting holes are drilled with tolerance H7 and ± 0.01 mm from the reference edge

CUT-TO-LENGTH

✉ 314000/Type-L-1 • 314100/Type-L-1 • 314200/Type-L-1

The control bracket and latch bar are shortened to the desired length (±0.2 mm).

CUT-TO-LENGTH/DRILLING

✉ 314000/Type-L-2 • 314100/Type-L-2 • 314200/Type-L-2

The control bracket and the latch bar are shortened to the desired length (±0.2 mm) and delivered with the holes necessary for mounting. In standard sizes, the latch lock is thus delivered ready for installation.

CUT-TO-LENGTH/DRILLING/DELAY

✉ 314000/Type-L-6 • 314100/Type-L-6 • 314200/Type-L-6

In addition to the shortened and drilled control bracket, the latch bar is designed according to customer data. This can include both customised mounting holes and a specific delay.

ORDER PROCESS

Download CAD data from the KNARR Webshop

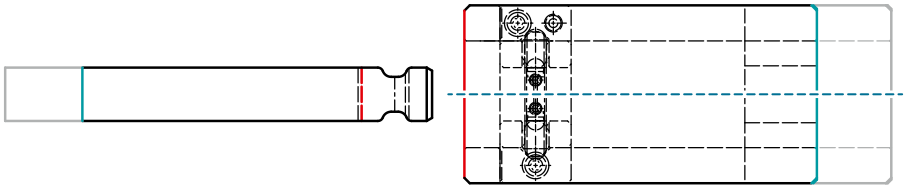
Individual adaptation

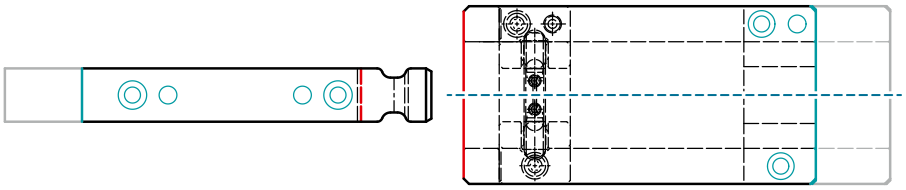
Data transmission to KNARR

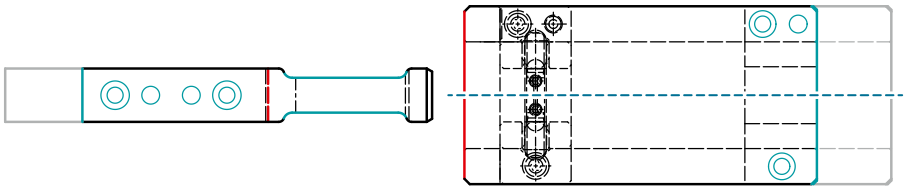
Production

Shipment of the ready-to-use latch lock

– Desired length – Reference edge







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