

Mechanical rapid clamping system for machine series C and S

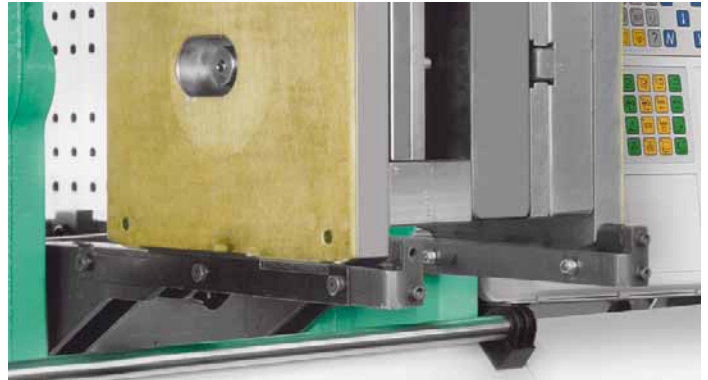
Efficient mould change



Know-how: Changing moulds – quickly and safely



Guide rail and mounted mould with location pin engaged



Mould support as an extension to the rapid clamping system

Use of ARBURG's mechanical rapid clamping system enables mould changing operations to be effected in a very short time. Long set-up times and the associated machine down times can be reduced significantly.

The mechanical rapid clamping system excels by virtue of its straightforward handling, in particular its easy installation into the injection moulding machine, as well as its simple operating principle. The changeover system comprises four guide rails, each equipped with two movable clamping elements. A spring-loaded location pin integrated in the guide rail ensures the correct positioning of the moulds.

The maximum configuration of the rapid clamping system consists of the following two main components:

Mechanical rapid clamping system with ejector coupling

The mechanical rapid clamping system enables a fast and efficient alignment of the mould, for coupling the ejector in the first instance and secondly, the central position of the nozzle. Fastening and releasing of the mould with clamping jaws is rendered unnecessary; this occurs simply and quickly by means of the 4 x 2 clamping elements. The rapid-connect coupling for the ejector facilitates the connection of mould and machine.

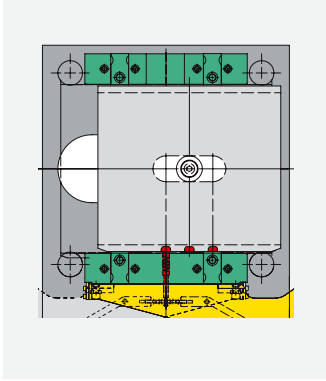
Mould support

In conjunction with the rapid clamping system, the mould support also enables an easy "rolling in" of the moulds from the front or rear of the injection moulding machine. In order to efficiently utilise the rapid clamping system, certain injection mould dimensions must be standardised.

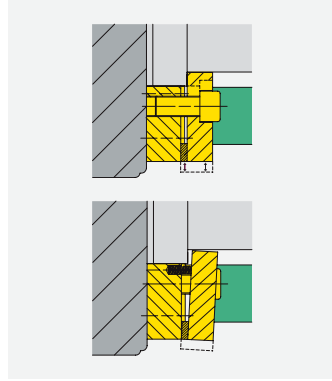
Installation of the system

Two guide rails, each with two spring-loaded clamps, are mounted to both mounting platens. These two guide rails remain fixed to the injection moulding machine.

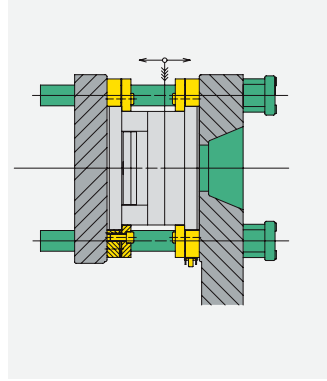
Installation and removal of the mould



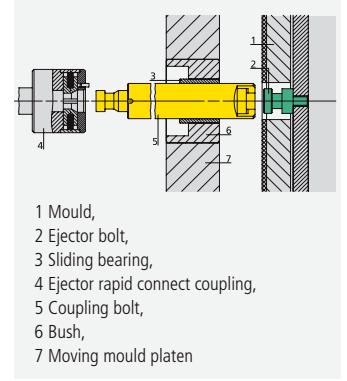
Positioning via the location pin



Securing and releasing the rapid clamping system bolts



Mould installation using mechanical rapid clamping system



- 1 Mould,
- 2 Ejector bolt,
- 3 Sliding bearing,
- 4 Ejector rapid connect coupling,
- 5 Coupling bolt,
- 6 Bush,
- 7 Moving mould platen

Coupling bolt for the standard ejector rapid connect coupling

Mould installation

To install the mould, the moving platen is moved to the relevant mould height (minimum distance). The mould moves in the guide rails of the mould supports and is then pushed on rollers up to the intermediate stop position. The horizontal intermediate and end positions are reached via a spring-loaded location pin, which automatically engages in the grooves, located on the lower edge of the nozzle-side mould platen. The exact vertical position is achieved by the clamping platens. Consequently, moulds adapted for rapid clamping are always positioned accurately.

Precise centring

The ejector is moved forward and coupled to the mould in the intermediate stop position. The location pin is released by means of a lever and the mould is pushed into the final end position. The exact centre position of the mould is achieved once the locating pin re-engages. The mould is now interlocked with the machine's hydraulic ejector and in a precise centre position. The moving platen is closed and the mould can be mounted easily and securely by tightening the bolts on all of the clamping elements. If on the other hand the mould is mounted and clamped from above in the conventional way, the clamping elements can also be positioned vertically.

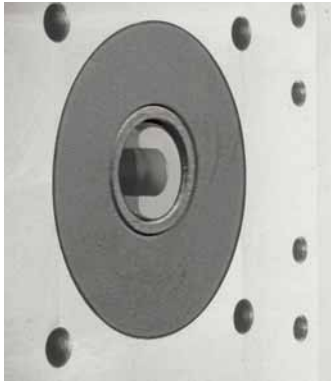
Mould removal

When removing a mould, integral springs lift the clamping elements from the edge of the mould when the securing bolts are loosened. It can then be removed from the machine unhindered following the uncoupling of the ejector in the intermediate stop position. Installation and removal of the mould is possible either from the front or rear of the machine. The rollers fitted to the lower part of both platens make easy work of moving even heavy moulds. The four spring-loaded clamping elements can be pulled outwards from the centre of the mould, enabling the mould to be installed from a vertical direction.

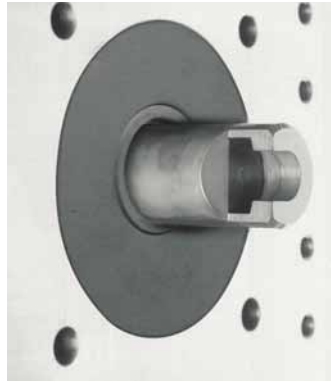
Rapid connect coupling of the ejector

A coupling bolt for the standard ejector rapid-connect coupling on the machine facilitates the coupling of the ejector to the mould. This bolt is guided in a sliding bearing which is an integral part of the ejector bore of moving platen. The coupling bolt interlocks with the machine's hydraulic ejector via a rapid connect coupling, enabling a targeted movement of the ejector even in the case of sensitive moulded parts.

The mould support and optimised moulds ensure a smooth changeover



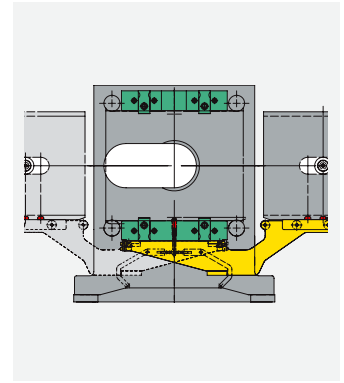
Hydraulic ejector with coupling bolt (retracted position)



Hydraulic ejector with coupling bolt (advanced position)



Mould on mould support

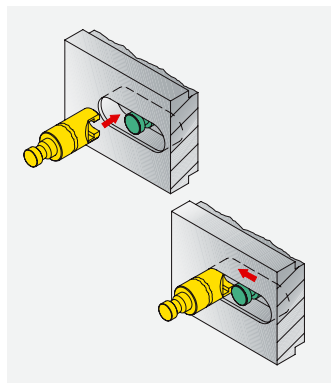


Mould installation with mould supports, positioning via spring-loaded pin

Coupling procedure

In the mould intermediate stop position, the coupling pin is released from the ejector rapid-connect coupling and pushed against the mould manually. When the mould end-position is reached, the ejector rapid-connect coupling is moved hydraulically against the coupling bolt and secured. The integral slot in the mould enables installation from the front or rear of the machine.

The coupling bolt is brought into the correct position by turning and can then be locked easily. The shape of the ejector bolt allows for simple retrofitting of the mould.



Coupling procedure of coupling and ejector bolt

Mould support

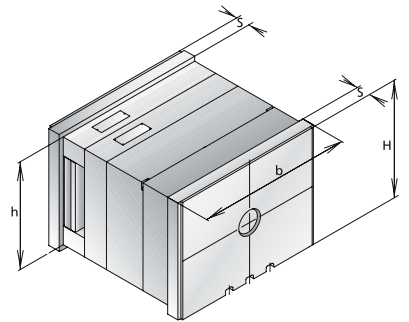
The effectiveness of the ARBURG rapid clamping systems has been further improved with the use of the mould supports. This installation aid enables mould changes from the rear or operator's side of the machine. The mould supports are inserted into the lower rails of the mould clamping system and, as a result, are automatically adjusted to the correct mould height. (With the ALLROUNDERS 470/520 C, the mould supports are inserted between the lower tie bars and machine base, and can be moved freely over the installation height of the moulds.)

The mould can be prepared for production prior to insertion into the clamping unit. This simplifies the operating sequence considerably. After making the necessary connections between the mould and the machine/peripherals, the mould is pushed in manually and clamped into position. The installation aid is taken up by the machine and production can begin immediately. The moulds are carried to and from the machine easily and safely via a crane.

Dimension for S and C ALLROUNDERS

Machine type S						Clamping force	Clamping platens				Module according to Euromap
470 x 470	420 x 420	370 x 370	320 x 320	270 x 270	220 x 220		H x b	h max.	S	b	
						150 / 250	168 x b 218 x b	156 196	25 32	156 / 196 / 246 / 296 196 / 246 / 296 / 346	
						150 / 250	218 x b 268 x b	196 246	32 32	196 / 246 / 296 / 346 / 396 246 / 296 / 346 / 396	
						350 / 500	218 x b 268 x b	196 246	32 32	196 / 246 / 296 / 346 / 396 446 / 246 / 296 / 346 / 396 / 446	
						350 / 500	268 x b 318 x b	246 296	32 40	246 / 296 / 346 / 396 / 446 246 / 296 / 346 / 396 / 446	
						600 / 800	318 x b 368 x b	296 346	40 40	296 / 346 / 396 / 446 / 496 346 / 396 / 446 / 496	
						600 / 800	368 x b 418 x b	346 396	40 40	346 / 396 / 446 / 496 346 / 396 / 446 / 496	
						1000 / 1300	368 x b 418 x b	346 396	40 40	346 / 396 / 446 / 496 / 596 346 / 396 / 446 / 496 / 596	
						1000 / 1300	418 x b 468 x b	396 446	40 50	346 / 396 / 446 / 496 / 596 396 / 446 / 496 / 596	

Universally adaptable
The mould clamping systems can be used universally on all ARBURG C and S series injection moulding machines.



Machine type C						Clamping force	Clamping platens				Module according to Euromap
520 x 520	470 x 470	420 x 420	370 x 370	320 x 320	270 x 270		H x b	h max.	S	b	
						300 / 400 / 500	218 x b 268 x b	196 246	32 32	196 / 246 / 296 / 346 / 396 446 / 246 / 296 / 346 / 396 / 446	
						500 / 600	268 x b 318 x b	246 296	32 40	246 / 296 / 346 / 396 / 446 246 / 296 / 346 / 396 / 446	
						600 / 800	318 x b 368 x b	296 346	40 40	296 / 346 / 396 / 446 / 496 346 / 396 / 446 / 496	
						800 / 1000	368 x b 418 x b	346 396	40 40	346 / 396 / 446 / 496 346 / 396 / 446 / 496	
						1300	368 x b 418 x b	346 396	40 40	346 / 396 / 446 / 496 / 596 346 / 396 / 446 / 496 / 596	
						1300 / 1500 / 1600	418 x b 468 x b	396 446	40 50	346 / 396 / 446 / 496 / 596 396 / 446 / 496 / 596	
						1600 / 2000	468 x b 518 x b	446 496	50 50	346 / 396 / 446 / 496 / 596 346 / 396 / 446 / 496 / 596	

Smooth clamping surfaces, standardised dimensions
A prerequisite for working with the ARBURG rapid clamping systems are optimised moulds with smooth clamping surfaces, without protruding components such as centring or ejector bars. After conversion, such moulds have uniform exterior dimensions and are suitable for use with rapid clamping units.



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