

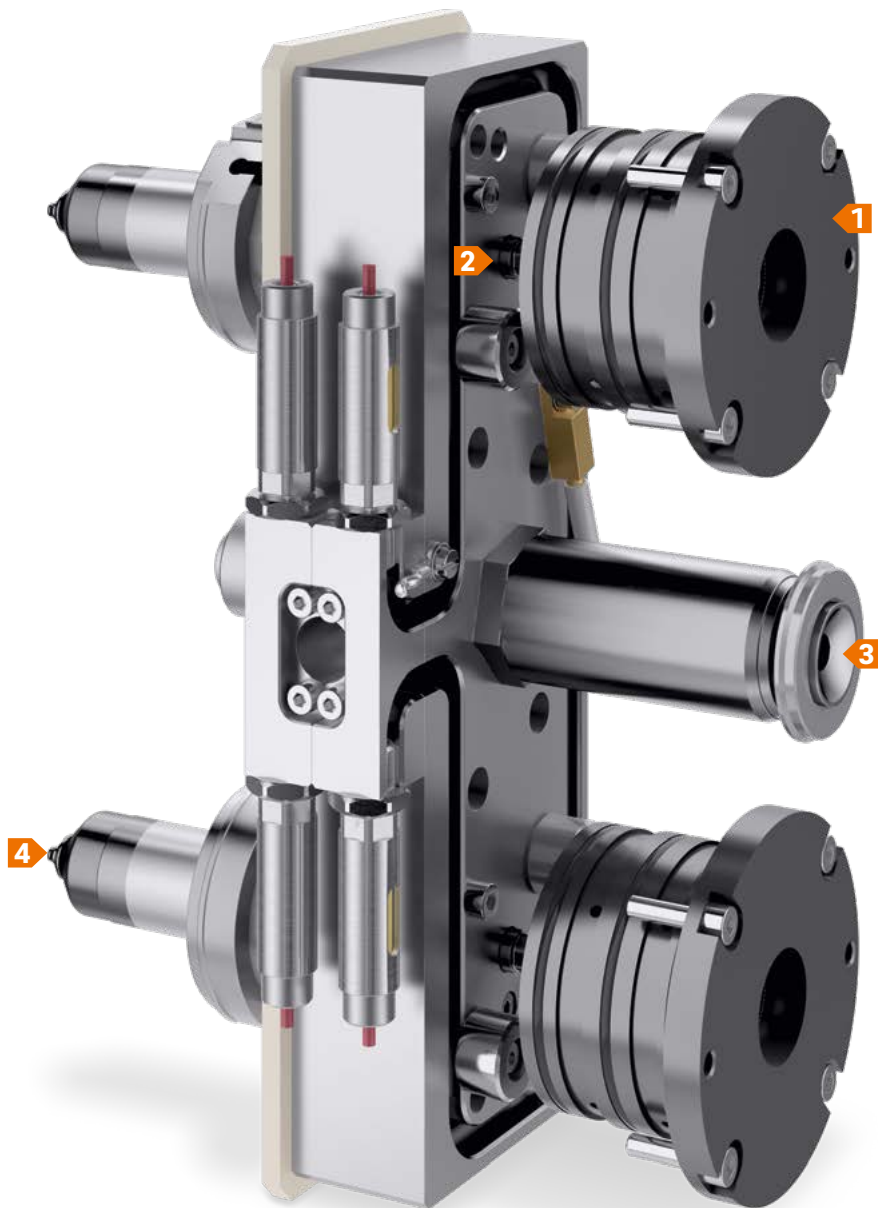


Valve gate systems



Valve gate technology

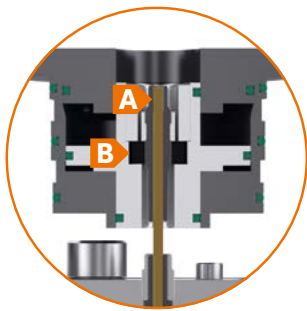
High visual requirements, a variety of applications, minimal shear stress, variable gate diameters and high process reliability. These are just a few of the requirements for which GÜNTHER valve gate technology has the right answer.



GÜNTHER's portfolio includes a variety of valve gate nozzles and needle actuation options. This enables perfect application-specific adaptation to the mould concept, both technically and financially. Both the smallest and large shot volumes and gate diameters from 0.8 to 4.0 mm can be implemented with valve gate technology.

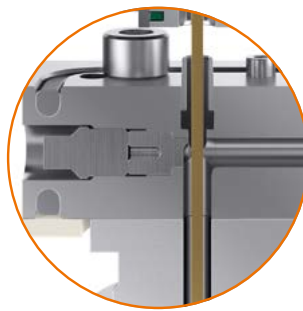
The innovative design of the needle guide and the optimised shut-off needle enable low-wear operation. During the shut-off movement, the needle is first led over a cone up

to the cylindrical pre-centring device for precise immersion into the cylindrical gate point. The needle guide is supported floating in the melt channel. In case of wear, the needle guide can be changed with minimal effort. Special openings in the mould clamping plate enable individual adjustment of the immersion depth of the shut-off needle from the outside. Depending on the application, highly filled plastics can be processed.



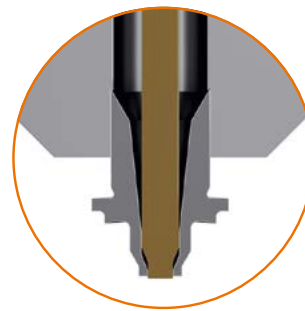
1 ENV single-needle valve

- A** Adjustment of the needle position
- B** Installation independent of heat expansion



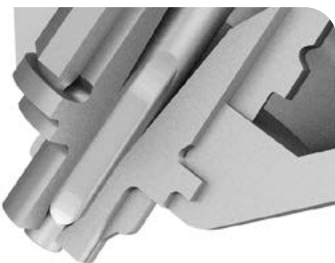
2 Needle guide and sealing in the manifold

3 Heated connecting nozzle



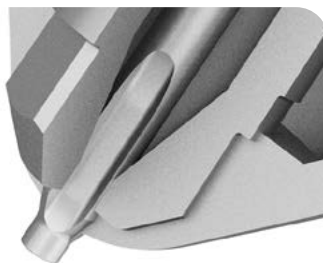
4 Needle guide in the nozzle

POSSIBLE NEEDLE GUIDE DESIGNS



LA NEEDLE GUIDE

Second mark on the part



KA NEEDLE GUIDE

Application-dependent use

THE ADVANTAGES AT A GLANCE

- + Unambiguous opening behaviour
- + Consistent gate point quality
- + Sequential injection
- + Long needle guide service life
- + Time and cost savings
- + Wear parts are easy to replace



Needle actuator

GÜNTHER needle actuators enable precise and intelligent needle control with simple installation and connection technology. Uniform opening of the individual valve gate nozzles enables a reliable injection moulding process, even with the smallest shot weights.

- 1 Fast and powerful servo drive**
For valve gate systems, up to 24 drops per sliding mechanism. Needle adjustment in the μ range. Needles close in less than 0.2 s. Can be used in clean rooms.
- 2 Sliding components with special coating**
Protected against wear, can be replaced by the customer.

ANES SLIDING MECHANISM

If a large number of closely positioned nozzles are being operated, a sliding mechanism is to be provided as the drive. Design of moulds with a high number of drops with small mould dimensions. High product quality, as all cavities are filled evenly through the synchronised opening and closing of the needles. Adjustment of the needle position when mounted on the machine.

Possible drive types:



Electrical



Hydraulic



Pneumatic

THE ADVANTAGES AT A GLANCE

- + Precise opening and closing
- + Reliable injection process
- + Individual cavities can be shut off
- + Optimally adjusted needle
- + Precise and intelligent needle control
- + All moving parts can be replaced by the customer
- + Saves time





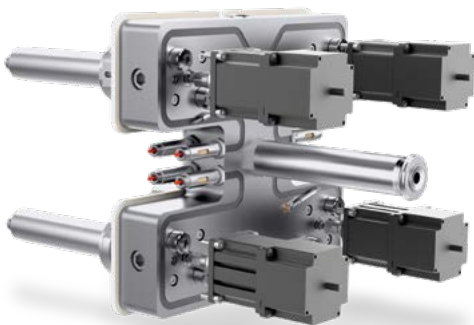
ENV AND EEV SINGLE-NEEDLE VALVE

Single-needle actuation on single- and multi-drop nozzle systems. Cascade injection moulding through the sequential opening and closing of needles is possible. Single-needle valve is mounted with the housing in the clamping plate.

ENV single-needle valve: Minimum cavity spacing with hydraulic drive: 48 mm, with pneumatic drive: 69 mm. Needle adjustment or needle replacement without removing the mould.

EEV single-needle valve: Minimum cavity spacing with hydraulic drive: 40 mm, with pneumatic drive: 57 mm. Due to a fixed needle length, needle adjustment is only possible with the mould disassembled.

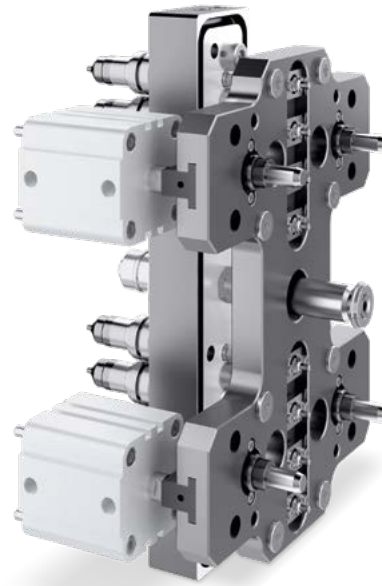
Possible drive types:  Hydraulic  Pneumatic



SMA 10 STEPPER MOTOR

Electric drive for complex applications with up to four different needle positions per cycle. Up to 16 SMA 10 stepper motors can be controlled with extreme precision using the DPE control unit. Using the DPE control unit, the position of each individual shut-off needle in the mould can be set individually. Needle adjustment in the range of 1/100 mm. Can be used in clean rooms.

Drive type:  Electrical



ANEH STROKE MECHANISM

Reliable injection process, even with small shot weights thanks to uniform opening and closing of the needles. Replacement of the external cylinder without removal of the mould. Adjustment of the needle position in the assembled mould.

Possible drive types:  Hydraulic  Pneumatic  Electrical



NEST SINGLE VALVE GATE NOZZLE

The pneumatically driven NEST valve gate nozzle offers optimum process reliability when processing high-quality, demanding materials. Melt channel diameters from 5 to 12 mm and a length of up to 250 mm enable a variety of different injection moulded part and mould designs.

Drive type:  Pneumatic



3.5 Needle actuator

SINGLE-NEEDLE DRIVE

Page



Single-needle valve ENV2/ENV3
Pneumatic drive, with housing

30



Single-needle valve ENV2/ENV3
Hydraulic drive, with housing

40



Single-needle valve ENV5
Pneumatic drive, with housing

50



Single-needle valve ENV5
Hydraulic drive, with housing

60



Single-needle valve EEV2/EEV3
Pneumatic drive, with housing

70



Single-needle valve EEV2/EEV3
Hydraulic drive, with housing

80



Stepper motor SMA 10
Electric drive

100

MULTI-NEEDLE DRIVE



Stroke mechanism ANEH
Pneumatic/hydraulic drive

110

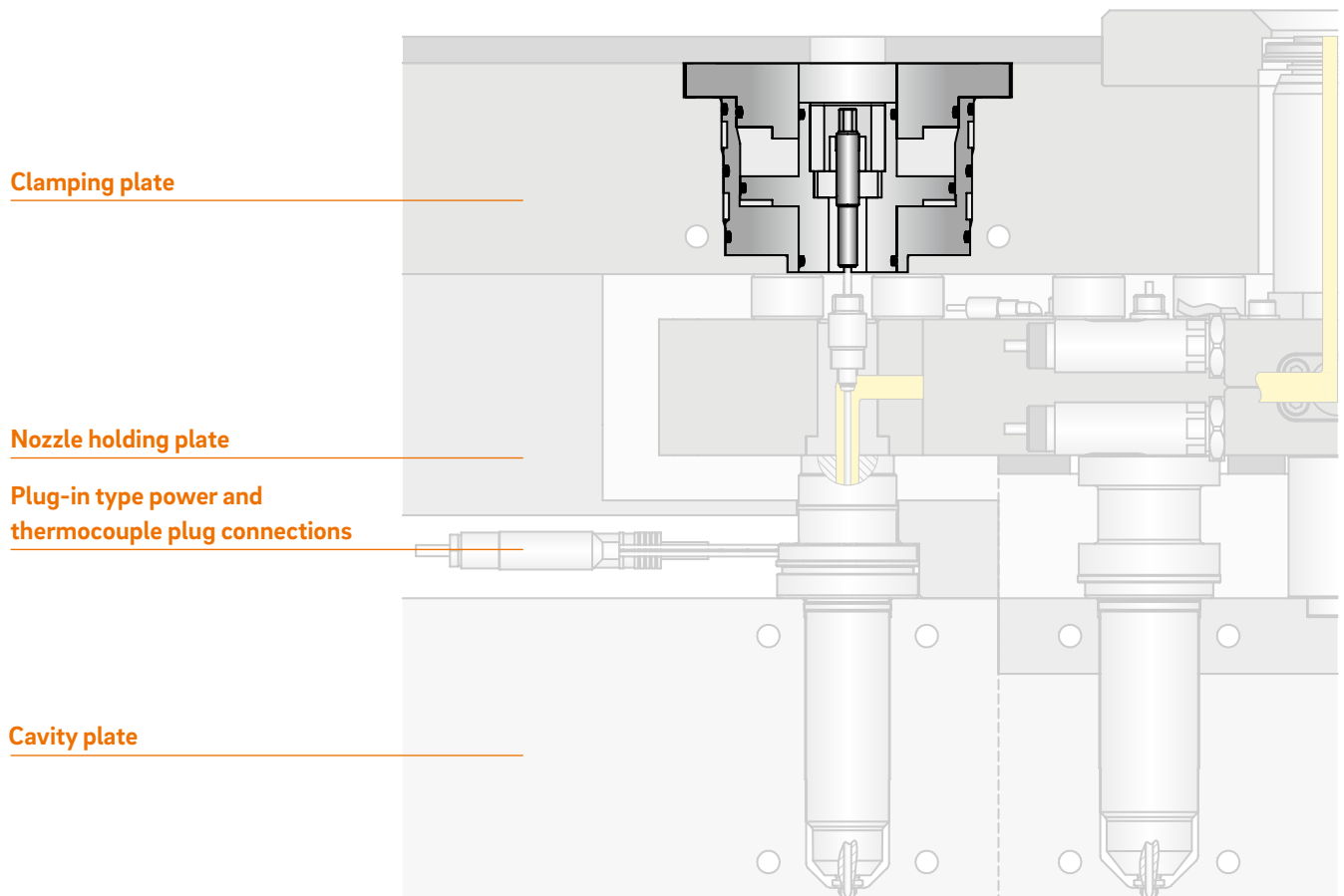


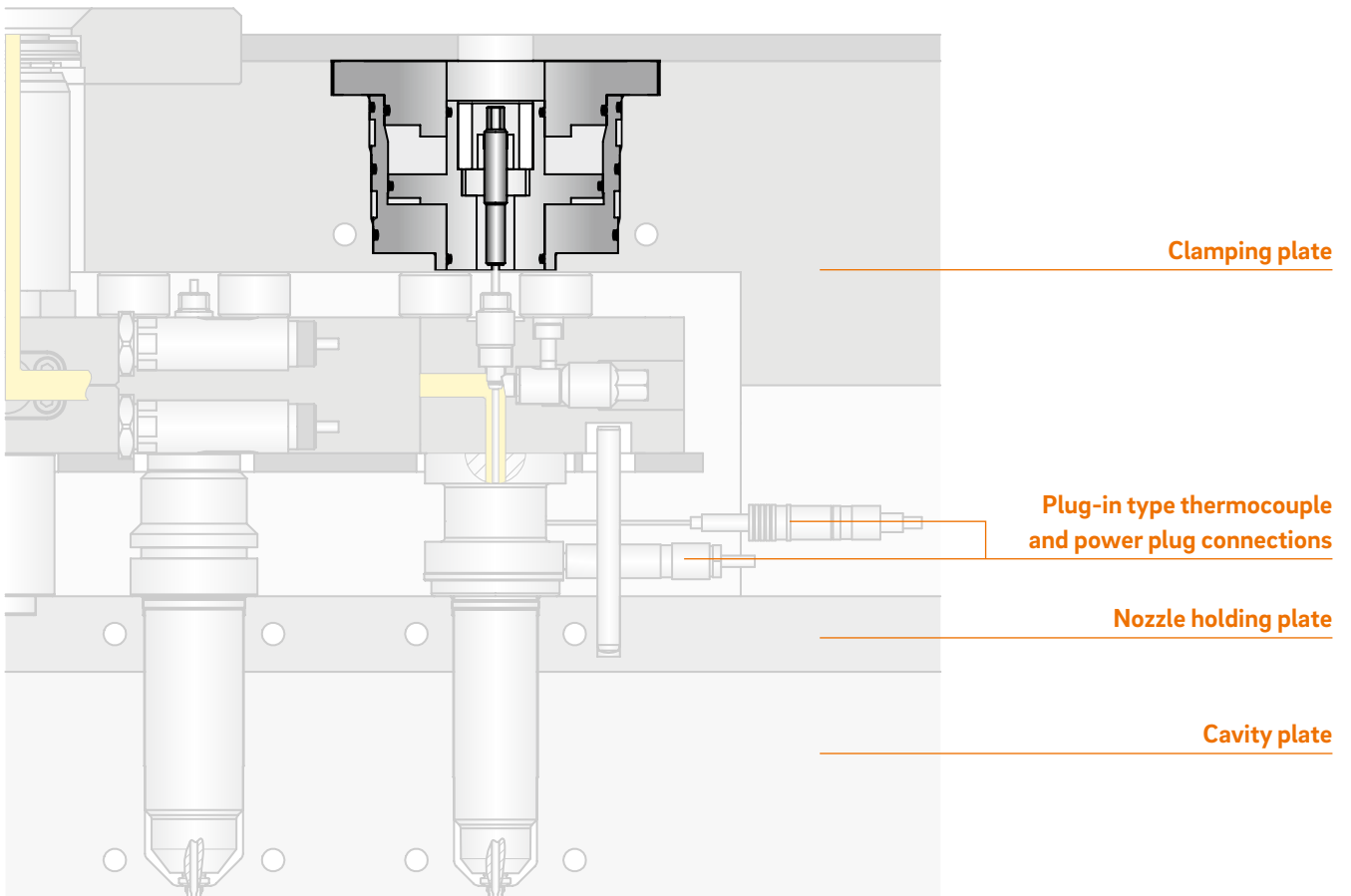
Sliding mechanism ANES
Electric/pneumatic/hydraulic drive

300



Overview of overall design for needle actuator







Single-needle valve ENV2/ENV3

Pneumatic drive, with housing

TECHNICAL DATA

ENV2/10/L/G

| | |
|--------------------|------------------------------|
| Nozzle Ød | 4–5 mm |
| Drive type | pneumatic |
| Operating pressure | min. 6 bar air intake at ENV |

ENV3/10/L/G

| | |
|--------------------|------------------------------|
| Nozzle Ød | 5–10 mm |
| Drive type | pneumatic |
| Operating pressure | min. 6 bar air intake at ENV |

NOTE

- Adjustable needle
- Maximum usage temperature: 100 °C



WEBCODE
34010



Single-needle valve ENV2/ENV3

Hydraulic drive, with housing

TECHNICAL DATA

ENV2/10/0/G

| | |
|--------------------|-----------------------------|
| Nozzle Ød | 4–5 mm |
| Drive type | hydraulic |
| Operating pressure | 40–60 bar oil intake at ENV |

ENV3/10/0/G

| | |
|--------------------|-----------------------------|
| Nozzle Ød | 5–10 mm |
| Drive type | hydraulic |
| Operating pressure | 40–60 bar oil intake at ENV |

NOTE

- Adjustable needle
- Maximum usage temperature: 60 °C
- Hydraulic cylinders and the entire hydraulic system are to be carefully vented before commissioning



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34020



Single-needle valve ENV5

Pneumatic drive, with housing

TECHNICAL DATA

ENV5/10/L/G

| | |
|--------------------|------------------------------|
| Nozzle Ød | 10–12 mm |
| Drive type | pneumatic |
| Operating pressure | min. 6 bar air intake at ENV |

NOTE

- Adjustable needle
- Maximum usage temperature: 100 °C



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34030



Single-needle valve ENV5

Hydraulic drive, with housing

TECHNICAL DATA

ENV5/10/0/G

| | |
|--------------------|--------------------------------|
| Nozzle Ød | 10–12 mm |
| Drive type | hydraulic |
| Operating pressure | 40–60 bar oil intake at ENV |

NOTE

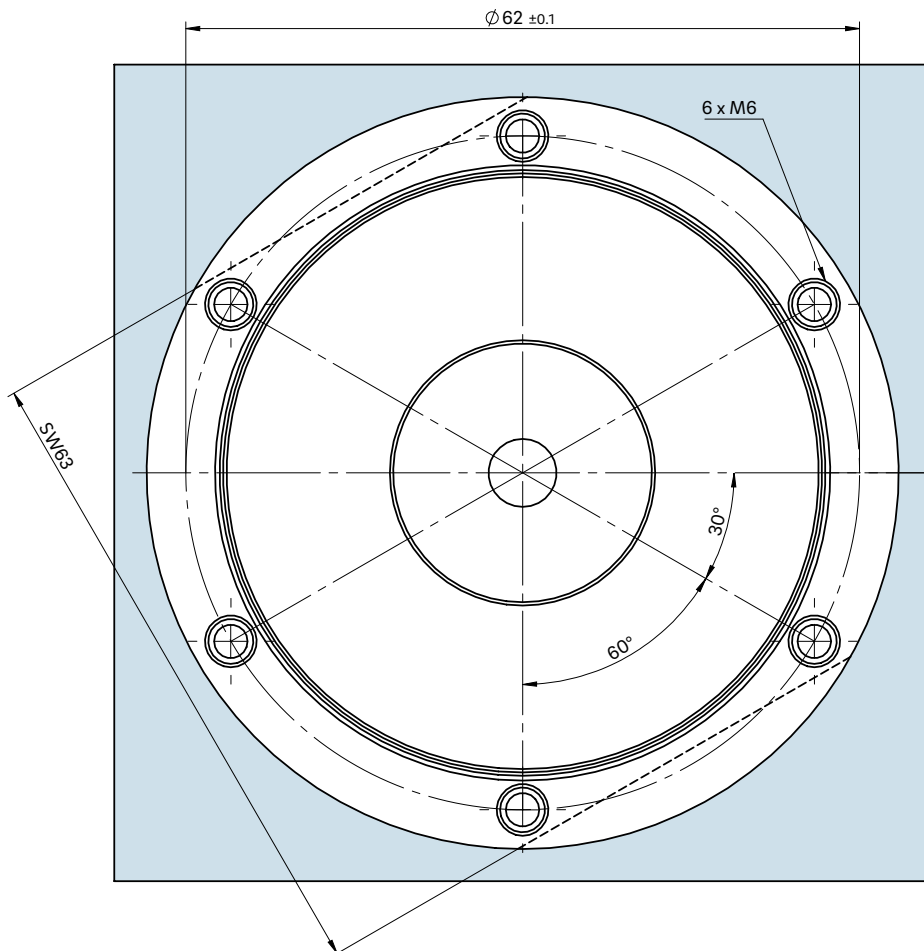
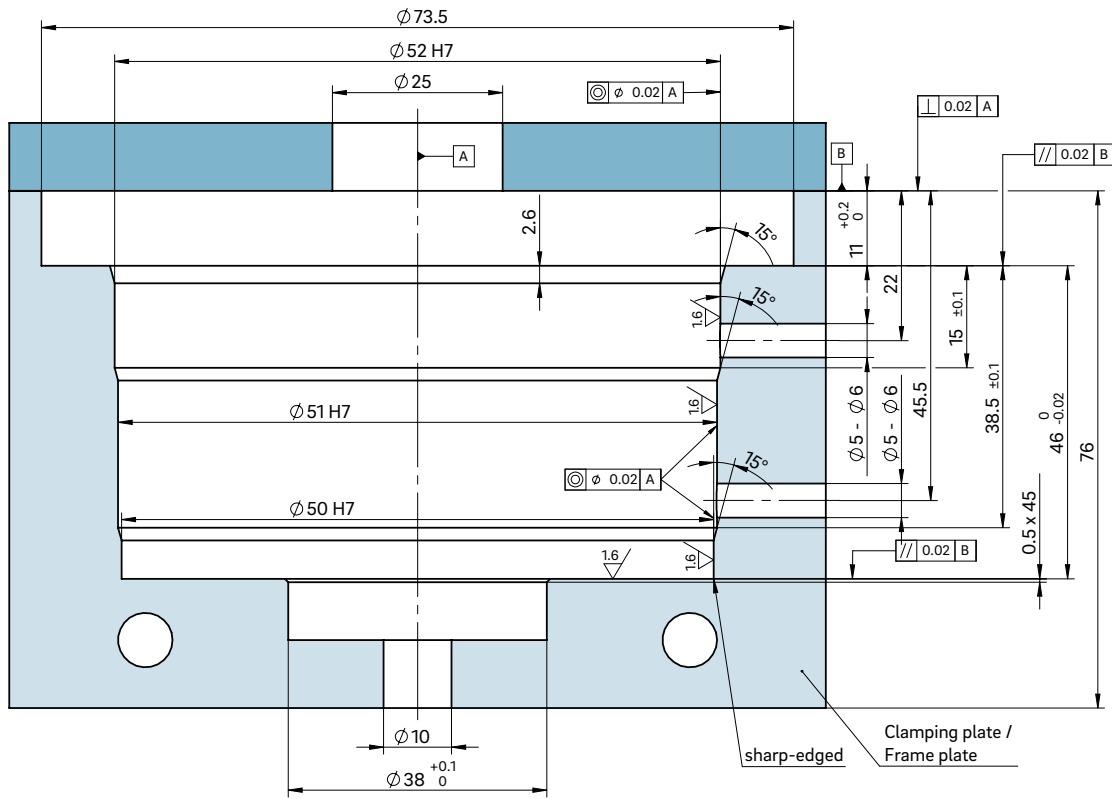
- Adjustable needle
- Maximum usage temperature: 60 °C
- Hydraulic cylinders and the entire hydraulic system are to be carefully vented before commissioning



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34040



INSTALLATION WITH HOUSING





Single-needle valve EEV2/EEV3

Pneumatic drive, with housing

TECHNICAL DATA

EEV2/10/L/G

| | |
|--------------------|------------------------------|
| Nozzle Ød | 4–5 mm |
| Drive type | pneumatic |
| Operating pressure | min. 6 bar air intake at ENV |

EEV3/10/L/G

| | |
|--------------------|------------------------------|
| Nozzle Ød | 5–10 mm |
| Drive type | pneumatic |
| Operating pressure | min. 6 bar air intake at ENV |

NOTE

- Non-adjustable needle
- Maximum usage temperature: 100 °C



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34050



Single-needle valve EEV2/EEV3

Hydraulic drive, with housing

TECHNICAL DATA

EEV2/10/O/G

| | |
|--------------------|--------------------------------|
| Nozzle Ød | 4–5 mm |
| Drive type | hydraulic |
| Operating pressure | 40–60 bar oil intake at ENV |

EEV3/10/O/G

| | |
|--------------------|--------------------------------|
| Nozzle Ød | 5–10 mm |
| Drive type | hydraulic |
| Operating pressure | 40–60 bar oil intake at ENV |

NOTE

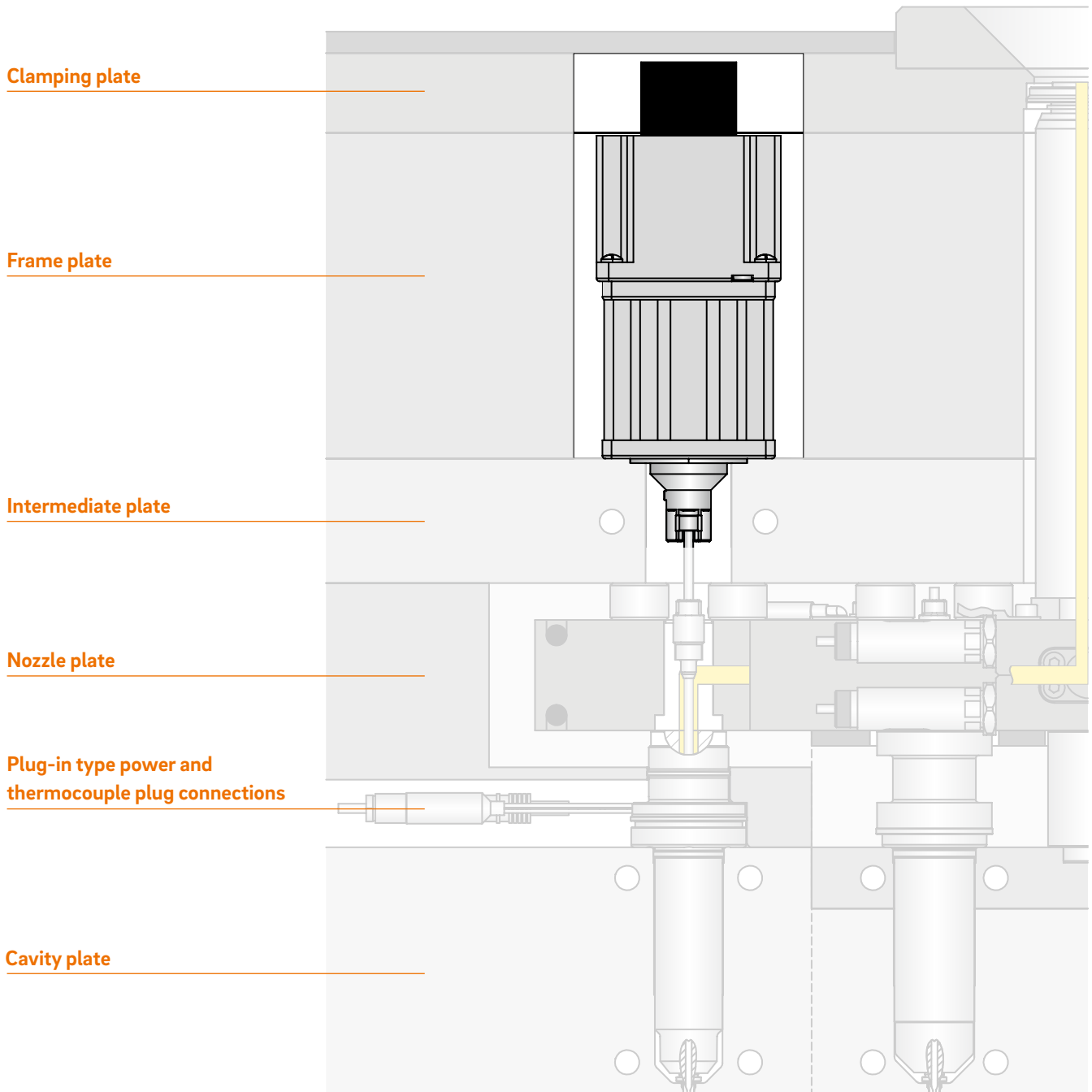
- Non-adjustable needle
- Maximum usage temperature: 60°C
- Hydraulic cylinders and the entire hydraulic system are to be carefully vented before commissioning

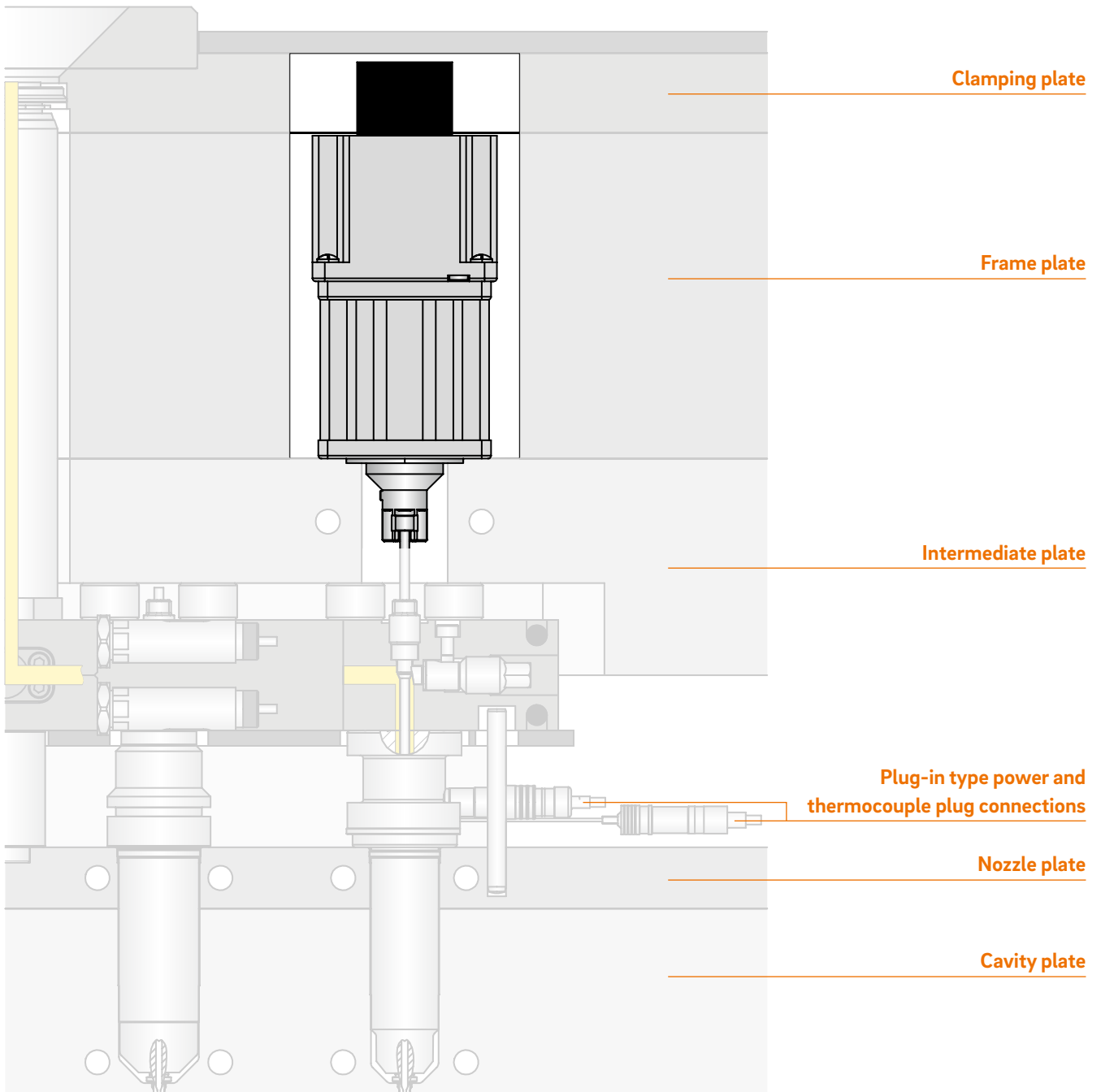


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34060



Overview of overall design for needle actuator – stepper motor SMA 10







Stepper motor SMA 10

Electric drive

TECHNICAL DATA

Stepper motor SMA 10

| | |
|-------------------|-----------------------|
| Nozzle Ød | 4–10 mm |
| Drive type | electrical |
| Operating voltage | 230 V _{AC} * |

*Volts alternating current

NOTE

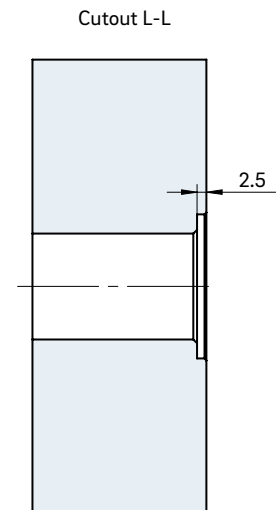
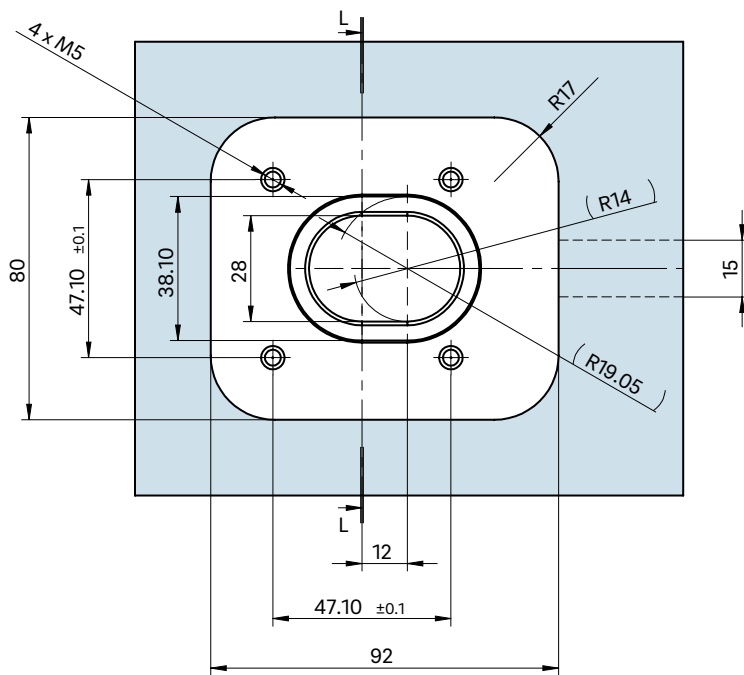
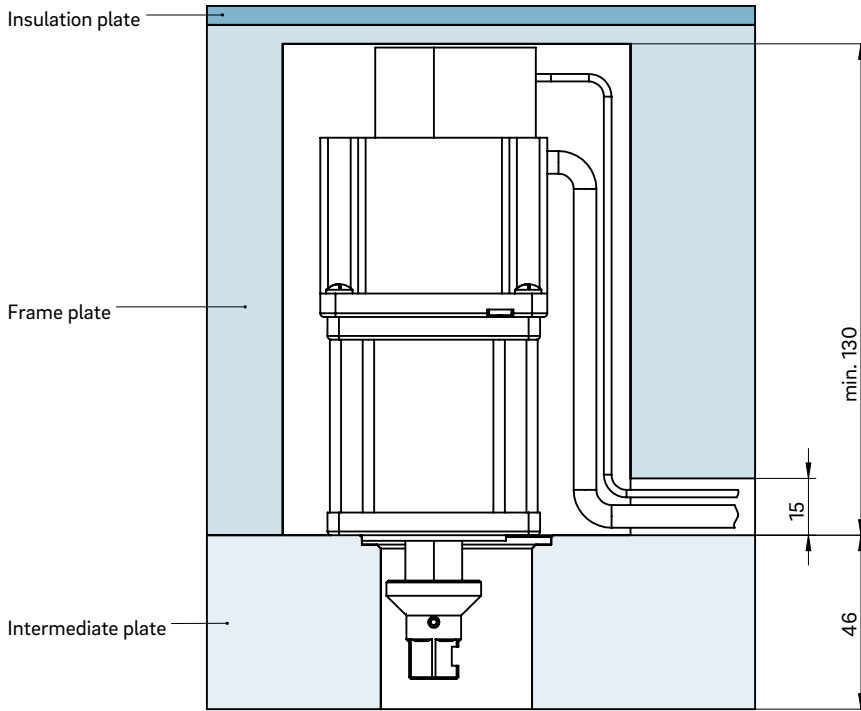
- Adjustable needle



WEBCODE
34070



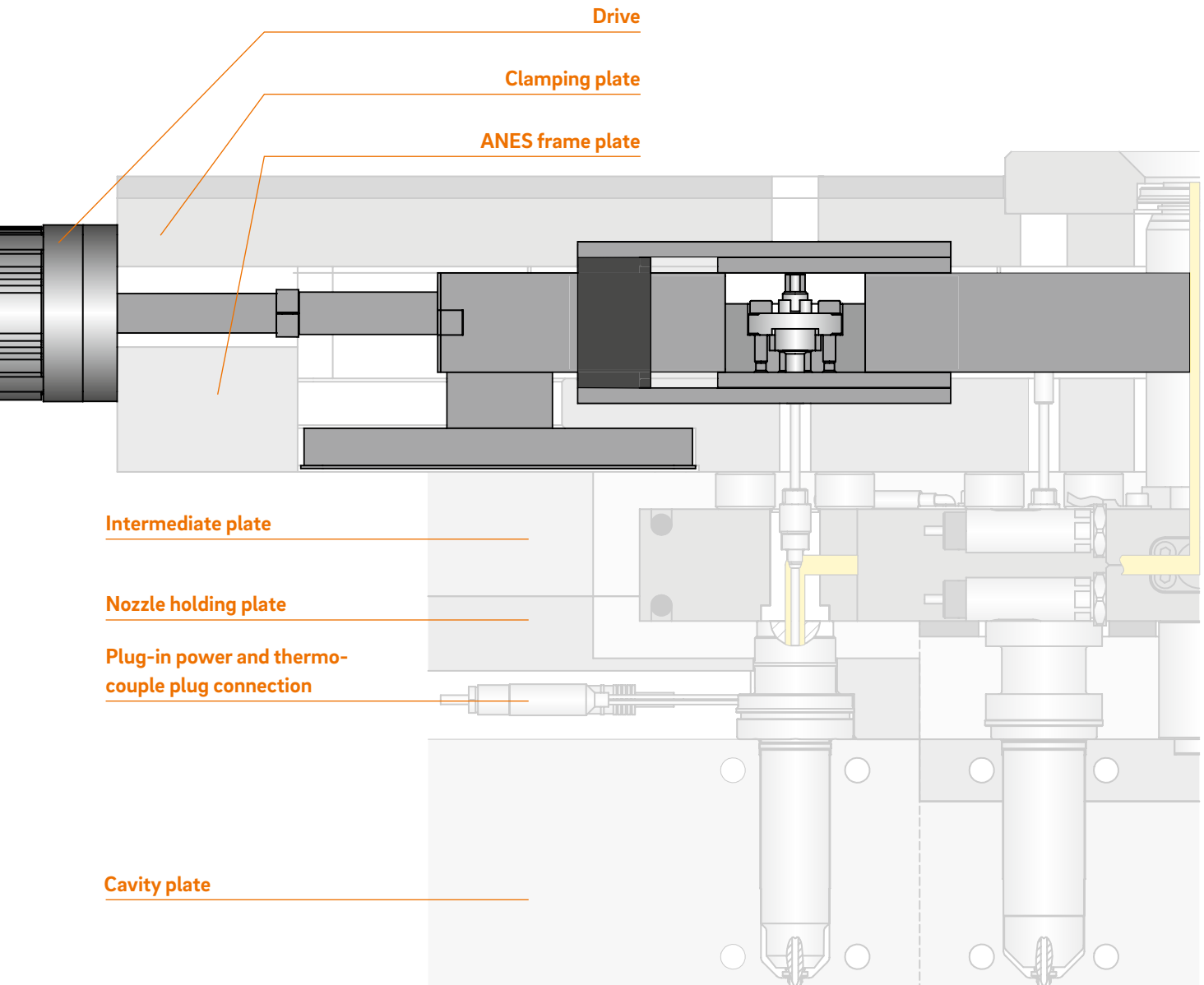
INSTALLATION

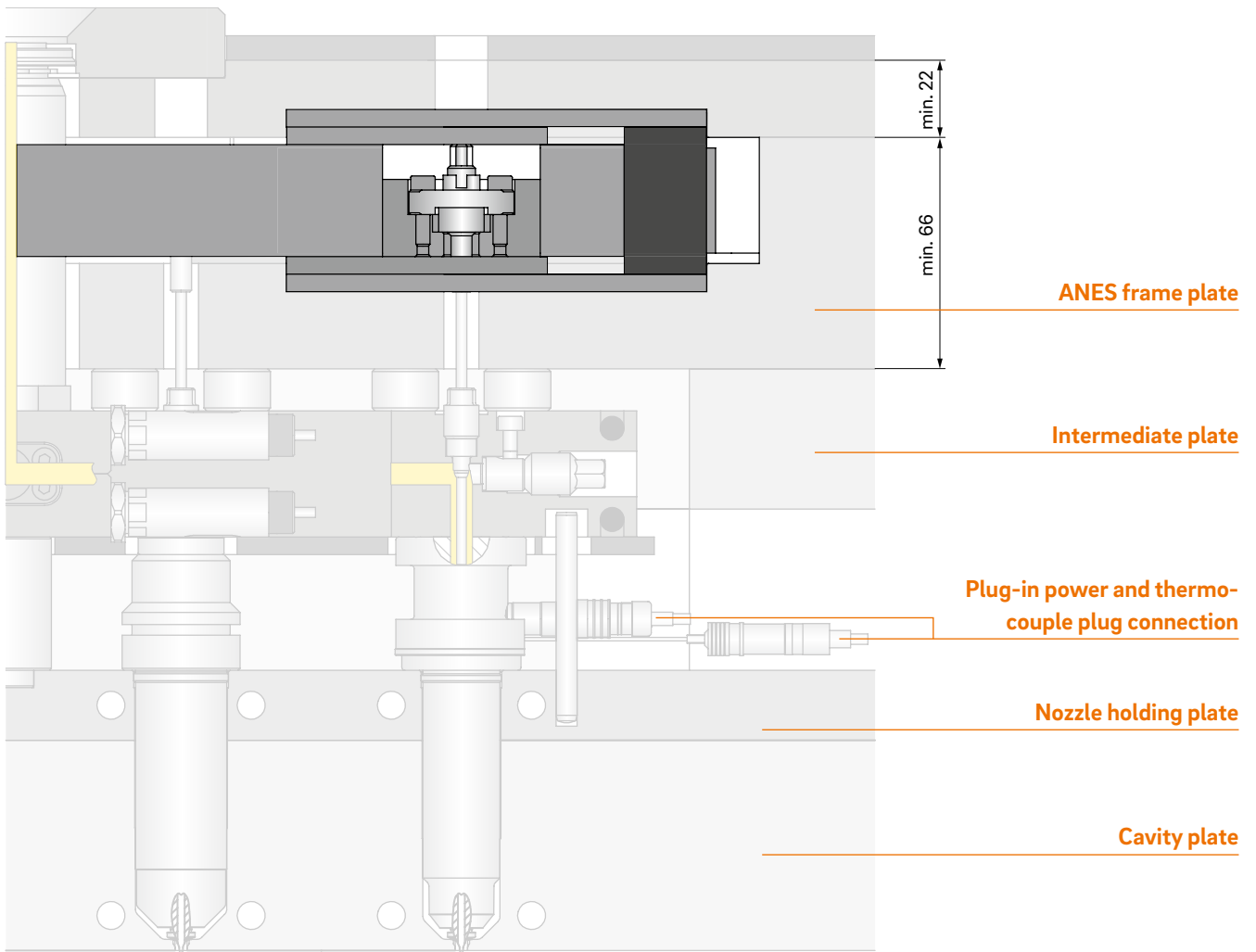




Configuration in overall structure

of needle actuator – ANES multi-needle drive sliding mechanism

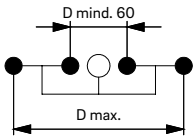






Nozzle arrangement, single row (SR)

Sample nozzle arrangement

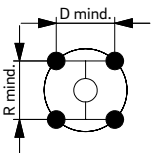


Drive type for nozzle arrangement (SR)

| Number of nozzles/ cavities | Model | Drive type | | | Chapter | Page |
|--------------------------------|-----------------------|------------|-----------|----------|---------|------|
| | | pneumatic | hydraulic | electric | | |
| 4 | ANES-111/ ANES-121 | • | • | • | 3.5 | 320 |
| 8 | | • | • | • | | |
| 12 | | • | • | • | | |
| 16 | | | • | • | | |

Nozzle arrangement, multi-row (MR)

Sample nozzle arrangement



Drive type for nozzle arrangement (MR)

| Number of nozzles/ cavities | Model | Drive type | | | Chapter | Page |
|--------------------------------|-----------------------|------------|-----------|----------|---------|------|
| | | pneumatic | hydraulic | electric | | |
| 4 | ANES-111/ ANES-121 | • | • | • | 3.5 | 330 |
| 8 | | • | • | • | | |
| 12 | | • | • | • | | |
| 16 | | | • | • | | |

ANES multi-needle drive sliding mechanism

Page



ANES-111 sliding mechanism / ANES-121 sliding mechanism
Single row

320



ANES-111 sliding mechanism / ANES-121 sliding mechanism
Multi-row

330



ANES-111, -121 multi-needle drive sliding mechanism

Single row

TECHNICAL DATA

WEBCODE
34710

ANES-111

| | |
|-------------------------------|--|
| Number of stroke element rows | 1 |
| Number of stroke elements | 1 |
| Number of drives | 1 |
| Drive type | pneumatic (L) hydraulic (O) electric (E) |

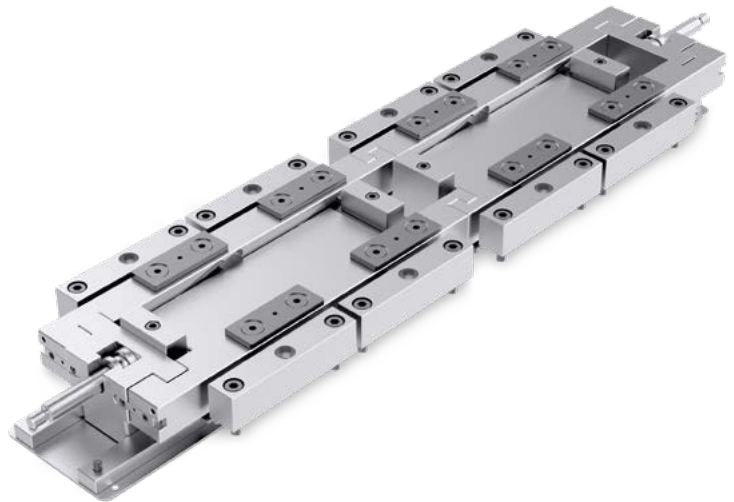


TECHNICAL DATA

WEBCODE
34750

ANES-121

| | |
|-------------------------------|--|
| Number of stroke element rows | 1 |
| Number of stroke elements | 2 |
| Number of drives | 1 |
| Drive type | pneumatic (L) hydraulic (O) electric (E) |

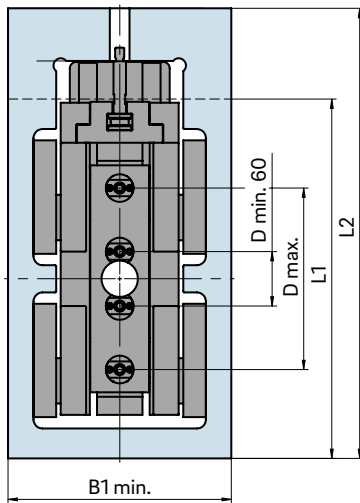


DESCRIPTION

- Maximum operating temperature 100 °C

If you have any questions, please contact the Application Technology Consulting Service:
Tel. +49 6451 5008-510




INSTALLATION



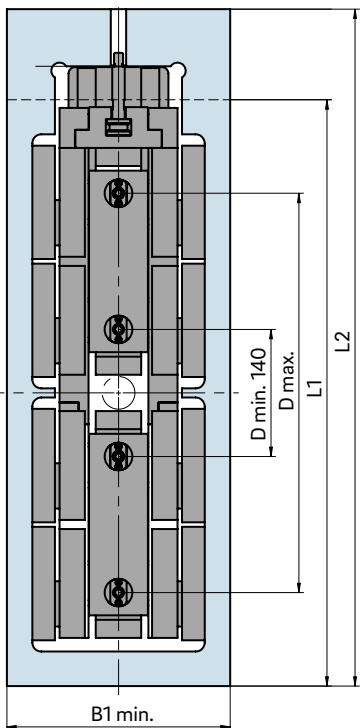
1 drive up to 16 nozzles

| D max. | W1 x L1 | L2 |
|--------|-----------|-----|
| 150 | 246 x 346 | 446 |
| 200 | 246 x 396 | 496 |
| 250 | 246 x 446 | 546 |
| 300 | 246 x 496 | 596 |
| 350 | 246 x 546 | 646 |

All table dimensions in mm

-  pneumatic (6 bar) for up to 12 nozzles
-  hydraulic (100 bar) for up to 16 nozzles
-  electric for up to 16 nozzles




INSTALLATION



1 drive up to 16 nozzles

| D max. | W1 x L1 | L2 |
|--------|-----------|------|
| 440 | 246 x 646 | 746 |
| 490 | 246 x 696 | 796 |
| 540 | 246 x 746 | 846 |
| 590 | 246 x 796 | 896 |
| 640 | 246 x 846 | 946 |
| 690 | 246 x 896 | 996 |
| 740 | 246 x 946 | 1046 |

All table dimensions in mm

-  pneumatic (6 bar) for up to 12 nozzles
-  hydraulic (100 bar) for up to 16 nozzles
-  electric for up to 16 nozzles



ANES-111, -121 multi-needle drive sliding mechanism

Multi-row

TECHNICAL DATA

WEBCODE

34720

ANES-111

| | |
|-------------------------------|--|
| Number of stroke element rows | 1 |
| Number of stroke elements | 1 |
| Number of drives | 1 |
| Drive type | pneumatic (L) hydraulic (O) electric (E) |



TECHNICAL DATA

WEBCODE

34760

ANES-121

| | |
|-------------------------------|--|
| Number of stroke element rows | 1 |
| Number of stroke elements | 2 |
| Number of drives | 1 |
| Drive type | pneumatic (L) hydraulic (O) electric (E) |

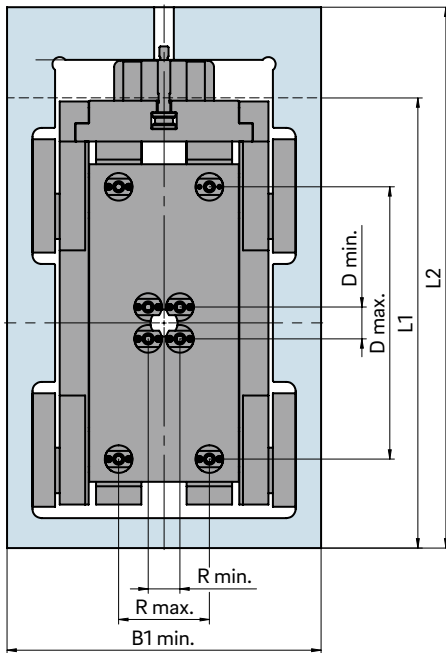


DESCRIPTION

- Maximum operating temperature 100 °C

If you have any questions, please contact the Application Technology Consulting Service:
Tel. +49 6451 5008-510




INSTALLATION



1 drive up to 16 nozzles

| D max. | W1 x L1 | | | | | L2 |
|--------|-----------|-----------|-----------|-----------|-----------|-----|
| | R. max | | | | | |
| | 100 | 150 | 200 | 250 | 300 | |
| 150 | 346 x 346 | 396 x 346 | - | - | - | 446 |
| 200 | 346 x 396 | 396 x 396 | 446 x 396 | - | - | 496 |
| 250 | 346 x 446 | 396 x 446 | 446 x 446 | 496 x 446 | - | 546 |
| 300 | 346 x 496 | 396 x 496 | 446 x 496 | 496 x 496 | 546 x 496 | 596 |
| 350 | 346 x 496 | 396 x 496 | 446 x 496 | 496 x 496 | 546 x 546 | 646 |

All table dimensions in mm

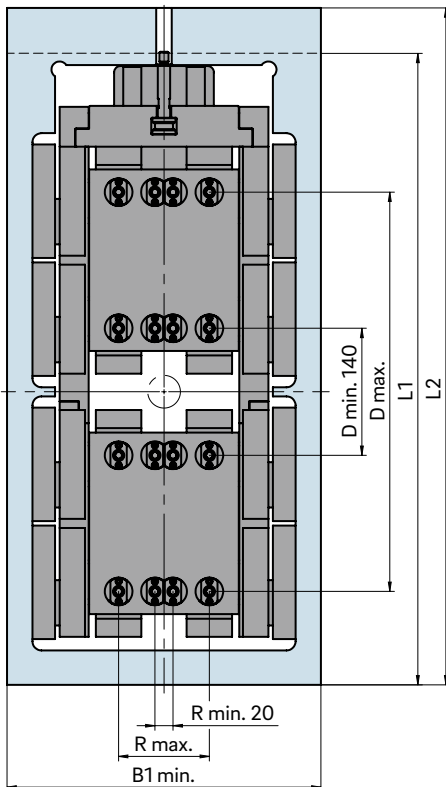
-  pneumatic (6 bar) for up to 12 nozzles
-  hydraulic (100 bar) for up to 16 nozzles
-  electric for up to 16 nozzles

Minimum distances R min./D min.:

- For cross pitch: R min. = 35 mm/D min. = 35 mm
- For asymmetrical pitch: R min. = 20 mm/D min. = 70 mm or R min. = 70 mm/D min. = 20 mm

* The thickness of the tool plates varies according to their size




INSTALLATION



1 drive up to 16 nozzles

| D max. | W1 x L1 | | | | | L2 |
|--------|-----------|-----------|-----------|-----------|-----------|------|
| | R. max | | | | | |
| | 100 | 150 | 200 | 250 | 300 | |
| 440 | 346 x 646 | 396 x 646 | - | - | - | 746 |
| 490 | 346 x 696 | 396 x 696 | - | - | - | 796 |
| 540 | 346 x 746 | 396 x 746 | 446 x 746 | - | - | 846 |
| 590 | 346 x 796 | 396 x 796 | 446 x 796 | - | - | 896 |
| 640 | 346 x 846 | 396 x 846 | 446 x 846 | 496 x 846 | - | 946 |
| 690 | 346 x 896 | 396 x 896 | 446 x 896 | 496 x 896 | - | 996 |
| 740 | 346 x 946 | 396 x 946 | 446 x 946 | 496 x 946 | 546 x 946 | 1046 |

All table dimensions in mm

-  pneumatic (6 bar) for up to 12 nozzles
-  hydraulic (100 bar) for up to 16 nozzles
-  electric for up to 16 nozzles