FAST MOVING TECHNOLOGY

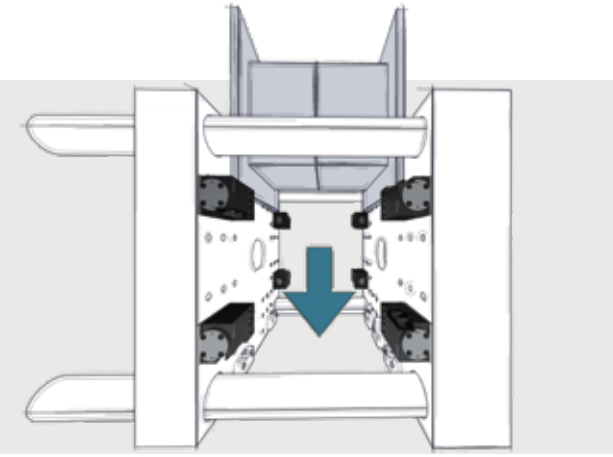
STÄUBLI

Hydraulic Clamping System QMC 101

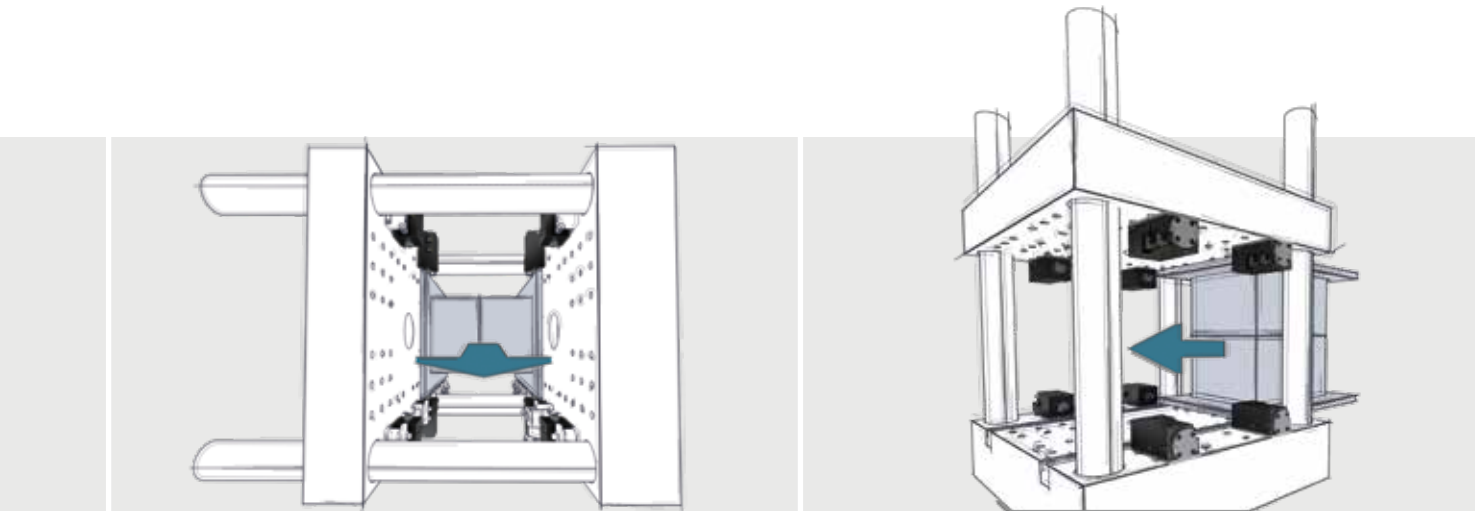
Higher productivity | Plastics industry

VERSATILE AND SIMPLE INTEGRATION

Efficient clamping with QMC 101 clamping elements



Discover Stäubli's full range of solutions for the plastics industry at:
www.quick-mould-change.com



Full flexibility for mould loading

QMC 101 clamping elements can be used for vertical and horizontal mould changes.

The applicable safety requirements and standards must be checked and adhered to when using in vertical presses.

The QMC 101 hydraulic clamping system substantially reduces the time required to change a mould. It provides a significant, highly cost effective contribution to optimising overall set up time, which forms the basis for achieving a Single Minute Exchange of Die (SMED).

Seamless integration

QMC 101 clamping elements are integrated into the production process without reducing any mould installation height. The integrated sensor technology enables moulds to be changed automatically in a matter of minutes. Thanks to their versatility, QMC 101 clamping elements can be incorporated in all machine types and applications.

Easy assembly

On new machines and in an existing machine park, the QMC 101 clamping elements are mounted directly on the machine platen in accordance with EUROMAP 2/3/11 drilling pattern. Additional holes in the platen can be avoided by adjusting the clamping element.

A movable QMC 101 series offers flexibility for machines with T-slot back plates.

For all moulds

No hardened inserts or clamping bevels are required on the tool back plates. All common types of steel can be used.

- Tolerance compensation for mould-side back plates of up to +/- 0.1 mm
- Individual clamping height with the fixed spacer plate underneath the clamping element
- No lateral forces due to the vertically acting clamping force

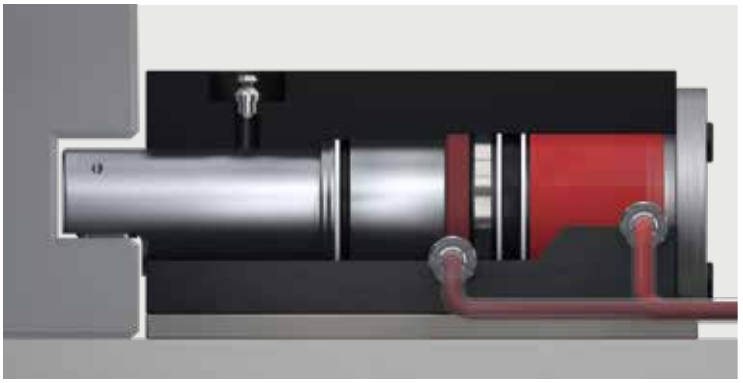
- **Wide variety of applications** with seven sizes available
- **Great flexibility** with the movable compatible T-slot series
- **Secure clamping** with friction locking and vertical force application
- **High economic efficiency** due to seamless integration and long service life
- **Full mould height** is retained
- **High process reliability** through standardised mould change procedure

Applications

- Injection moulding machines
- Presses
- Turntable machines
- Retractable tie bars
- Test units

MAXIMUM EFFICIENCY AND RELIABILITY

Robust and flexible



The robust construction makes QMC 101 clamping elements the ideal core component for automatic mould change.

System sizes
With seven sizes available and a clamping force of between 25 and 500 kN per element, QMC 101 clamping elements are ideal for machines of all sizes.

Materials
The use of high quality materials ensures a long service life for the QMC 101 clamping elements.

- Hardened clamping block made of quenched and tempered steel with enhanced corrosion protection
- Piston contact surface with enhanced strength & low friction
- Heat-treated and honed piston made of high-alloy steel
- Seals made of NBR + FKM

Operating temperatures and flexibility
Capable of handling operating temperatures of up to 100 °C, QMC 101 clamping elements from Staubli are suitable for a wide range of applications.

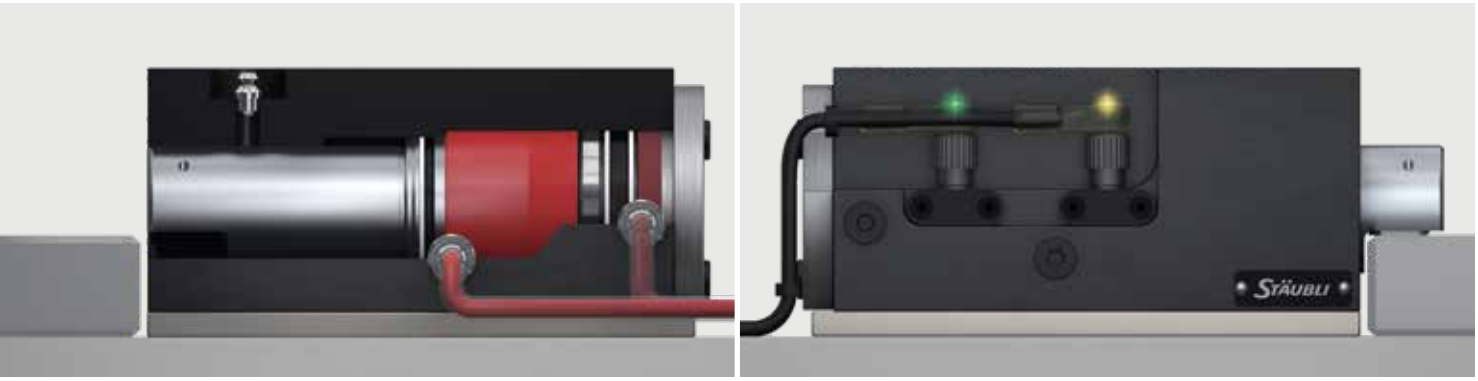
Additional series with varying numbers of clamping cycles or flexible positioning are available for special applications.

QMC 101 / HF
for high volume clamping cycles
All QMC 101 sizes can be used with a special sealing system for an extremely high clamping frequency.

- Up to 2500 clamping cycles per day
- Excellent low friction properties

QMC 101 / TS
for T-slot back plates
The vertical transfer of force onto the mould back plate means that all sizes of QMC 101 can be used as movable clamping elements on machines with T-slot back plates.

- Different mould sizes can be clamped



High degree of process safety with vertical force application and integrated sensor technology
Vertical application of the clamping force onto the mould back plate prevents displacement by lateral forces.
Integrated proximity switches determine and signal the position of the piston.

Powerful, safe and precise

The QMC 101 clamping system uses a double acting cylinder. Two pistons (one located inside the other are) used to vertically transfer the clamping force onto the mould back plate. This prevents lateral forces during the clamping action.

How it works
To clamp the mould, the outer piston is first extended by hydraulic pressure applied to the rear chamber. A pressure piece is integrated on the underside of the piston, which is then vertically pressed against the back plate of the mould by extending the inner piston.

A friction locking mechanism between the inner piston and the pressure piece causes the mould to remain securely clamped without any further pressure required.

To release the mould, the inner and then the outer piston is retracted by hydraulic pressure in the front chamber. No additional hydraulic pressure is required to maintain the position of the piston.

A mechanical safety device prevents clamping pistons retracting when not under pressure.

Machine reliability
Two inductive proximity switches sense whether the piston of the QMC 101 is retracted or extended. The corresponding status is indicated by signal LEDs on the clamping element.

- Easily verifiable clamping status
- Conforms to EN 201 safety requirements

Hydraulic actuation
QMC 101 clamping elements are operated via two hydraulic circuits for each machine platen. Hydraulic pressure can be delivered by moving cores or a standalone hydraulic power pack.

- Hydraulic connection available as an option on both sides of the clamping element

Stäubli hydraulic power pack
If the machine is not fitted with enough hydraulic circuits, Stäubli can provide a separate hydraulic power pack. This removes the need for a costly machine retrofit.

TECHNICAL DATA

Model series

Model

QMC 101
QMC 101 / HF

QMC 101 / TS

	QMC 101, QMC 101 / HF, QMC 101 / TS						
	101.025	101.050	101.080	101.120	101.200	101.300	101.500
Clamping pressure	7-8 MPa	7-8 MPa	7-8 MPa	7-8 MPa	7-8 MPa	7-8 MPa	7-8 MPa
Holding force	25 kN	50 kN	80 kN	120 kN	200 kN	350 kN	500 kN
Clamping force	15 kN	55 kN	55 kN	125 kN	125 kN	170 kN	170 kN
Unlock pressure	16-18 MPa	16-18 MPa	16-18 MPa	16-18 MPa	16-18 MPa	16-18 MPa	16-18 MPa
Max. operating temperature	100 °C	100 °C	100 °C	100 °C	100 °C	100 °C	100 °C
Hydraulic fluid	22 HLP	22 HLP	22 HLP	22 HLP	22 HLP	22 HLP	22 HLP
Viscosity 0°C - 100°C	300-4 mm^2/s	300-4 mm^2/s	300-4 mm^2/s	300-4 mm^2/s	300-4 mm^2/s	300-4 mm^2/s	300-4 mm^2/s
Oil volume	20 cm^3	92 cm^3	92 cm^3	380 cm^3	380 cm^3	700 cm^3	700 cm^3
Max. flow rate	1.5 l/min	2 l/min	2 l/min	6 l/min	6 l/min	8 l/min	8 l/min
Max. residual pressure in return line to tank	0.5 MPa	0.5 MPa	0.5 MPa	0.5 MPa	0.5 MPa	0.1 MPa	0.1 MPa
Sealing system QMC 101, QMC 101 / TS	NBR+FKM	NBR+FKM	NBR+FKM	NBR+FKM	NBR+FKM	NBR+FKM	NBR+FKM
Sealing system QMC 101 / HF	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE

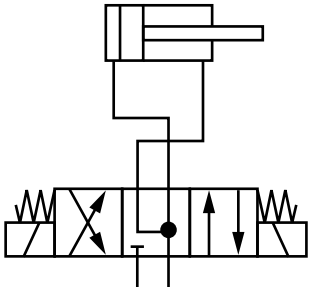
Items included:

- Clamping element
- Energy chain compatible cables for sensor set
- Spacer plate
- Fastening screws

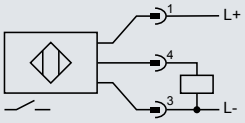
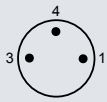
Available on request:

- Special dimensions
- Special piston geometry
- Variants suitable for JIS B 6702, AN-136 (SPI)
- Separate hydraulic power pack

Hydraulic actuation



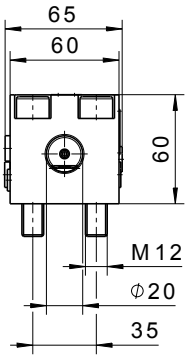
Piston position sensing

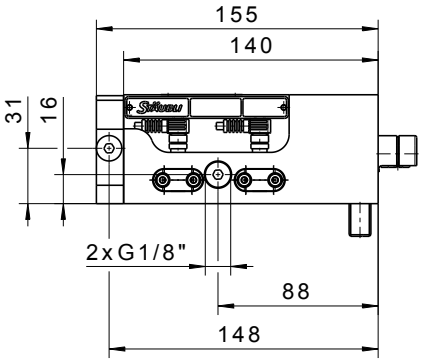
	QMC 101, QMC 101 / HF		QMC 101 / TS	
	101.025	101.050 – 101.500	101.050 – 101.500	
	Piston position	Piston position	Piston position	Plate spacing
					
Technical data, initiator				
Type	M8 x 1	M12 x 1	M12 x 1	M18 x 1
Operating voltage	10-30 VDC	10-30 VDC	10-30 VDC	10-36 VDC
Output function	N/O contact, PNP	N/O contact, PNP	N/O contact, PNP	N/O contact, PNP
Electrical connection	M8 x 1 plug, 3-pin	M12 x 1 plug, 4-pin	M12 x 1 plug, 4-pin	M12 x1, 4-pin
Protection class, sensor set	IP68	IP68	IP68	IP68
Max. ambient temperature	100 °C	100 °C	100 °C	100 °C
Display unit	LED	LED	LED	LED
Approval / conformity	CE, cULus	CE, cULus	CE, cULus	CE, cULus
Technical data, energy chain compatible cables				
Type	M8 x 1 socket, angled, 3-pin	M12 x 1 socket, angled, 4-pin	M12 x 1 socket, angled, 4-pin	M12 x 1 socket, angled, 4-pin
Length	5 m	15 m	15 m	15 m
Display unit	Green LED: operating voltage Yellow LED: display unit (pin 4)	Green LED: operating voltage Yellow LED: display unit (pin 4)	Green LED: operating voltage Yellow LED: display unit (pin 4)	Green LED: operating voltage Yellow LED: display unit (pin 4)
Approval / conformity	CE, cULus	CE, cULus	CE, cULus	CE, cULus

TECHNICAL DATA

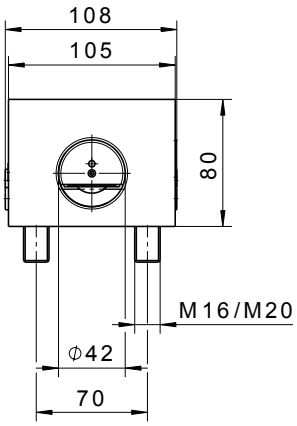
QMC 101, QMC 101 / HF

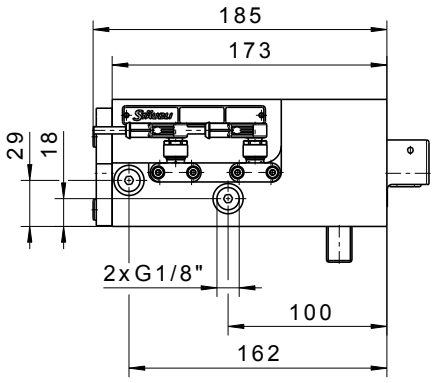
QMC 101.025



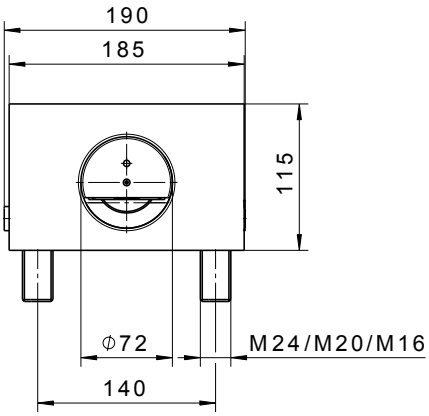


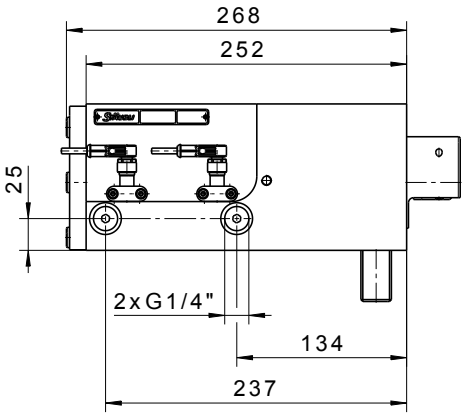
QMC 101.050 - QMC 101.080



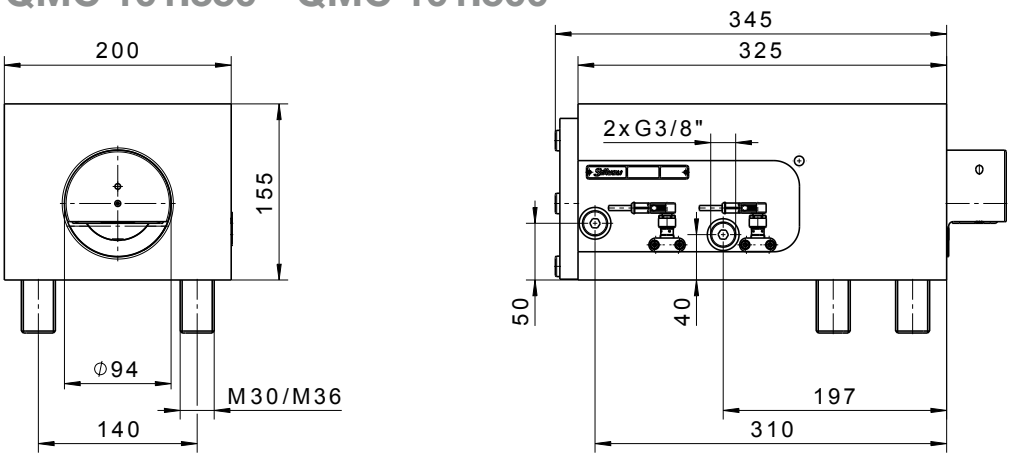


QMC 101.120 - QMC 101.200

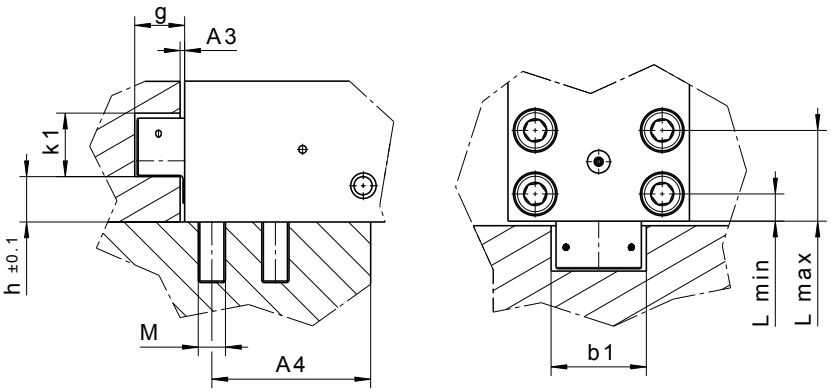




QMC 101.350 - QMC 101.500



Installation dimensions

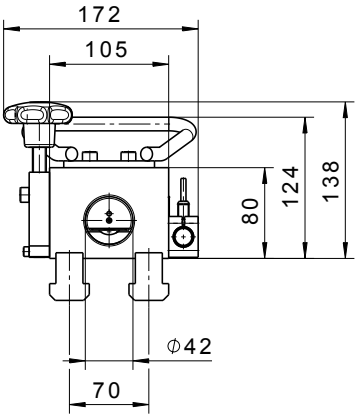


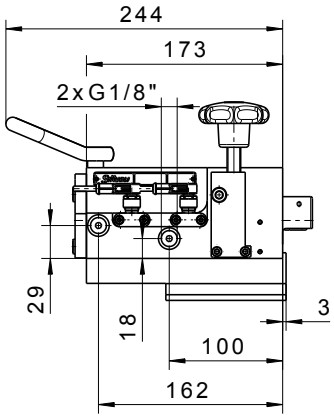
	QMC 101, QMC 101 / HF						
	101.025	101.050	101.080	101.120	101.200	101.350	101.500
M (metric)	2 x M12	2 x M16	2 x M20 4 x M16	2 x M20 4 x M16	2 x M24 4 x M20	2 x M36 4 x M30	4 x M36
Tightening torque (metric)	35 Nm	90 Nm	190 Nm 70 Nm	450 Nm 110 Nm	730 Nm 225 Nm	1280 Nm 640 Nm	1115 Nm
M (UNC inch)	Available by request	Available by request	Available by request	Available by request	2 x 1.000 UNC-8	4 x 1.250 UNC-7	4 x 1.500 UNC-6
L min.	10 mm	12 mm	15 mm 12 mm	15 mm 12 mm	18 mm 15 mm	27 mm 23 mm	27 mm
L max.	40 mm	52 mm	50 mm 52 mm	95 mm 94 mm	92 mm 94 mm	105 mm 105 mm	105 mm
A3	2 mm	2 - 4 mm	2 - 4 mm	3 - 5 mm	3 - 5 mm	3 - 5 mm	3 - 5 mm
A4	50 mm	75 mm	75 mm	125 mm	175 mm	175 mm	225 mm
b1 min.	28 mm	50 mm	50 mm	80 mm	80 mm	105 mm	105 mm
g min.	22 mm	26 mm	26 mm	42 mm	42 mm	52 mm	52 mm
h ± 0.1	20 mm	25 mm	25 mm	40 mm	40 mm	50 mm	50 mm
k1 min.	20 mm	35 mm	35 mm	55 mm	55 mm	70 mm	70 mm

TECHNICAL DATA

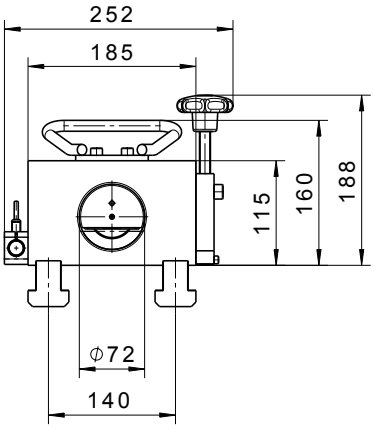
QMC 101 / TS

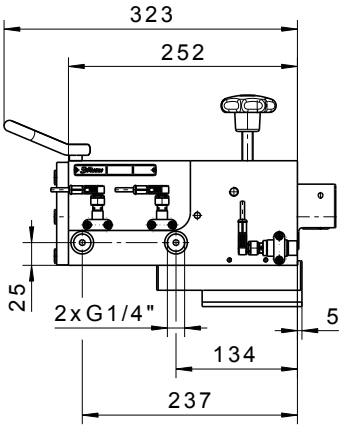
QMC 101.050 - QMC 101.080



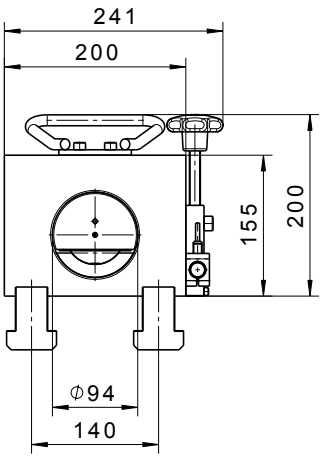


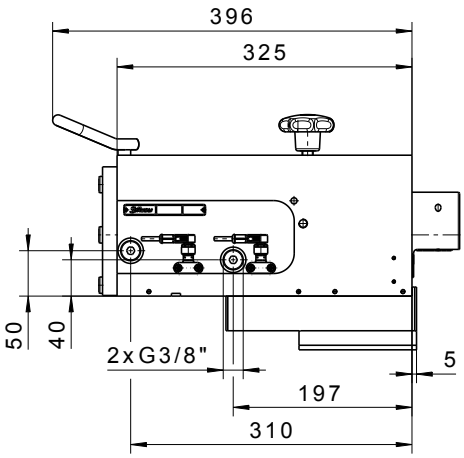
QMC 101.120 - QMC 101.200



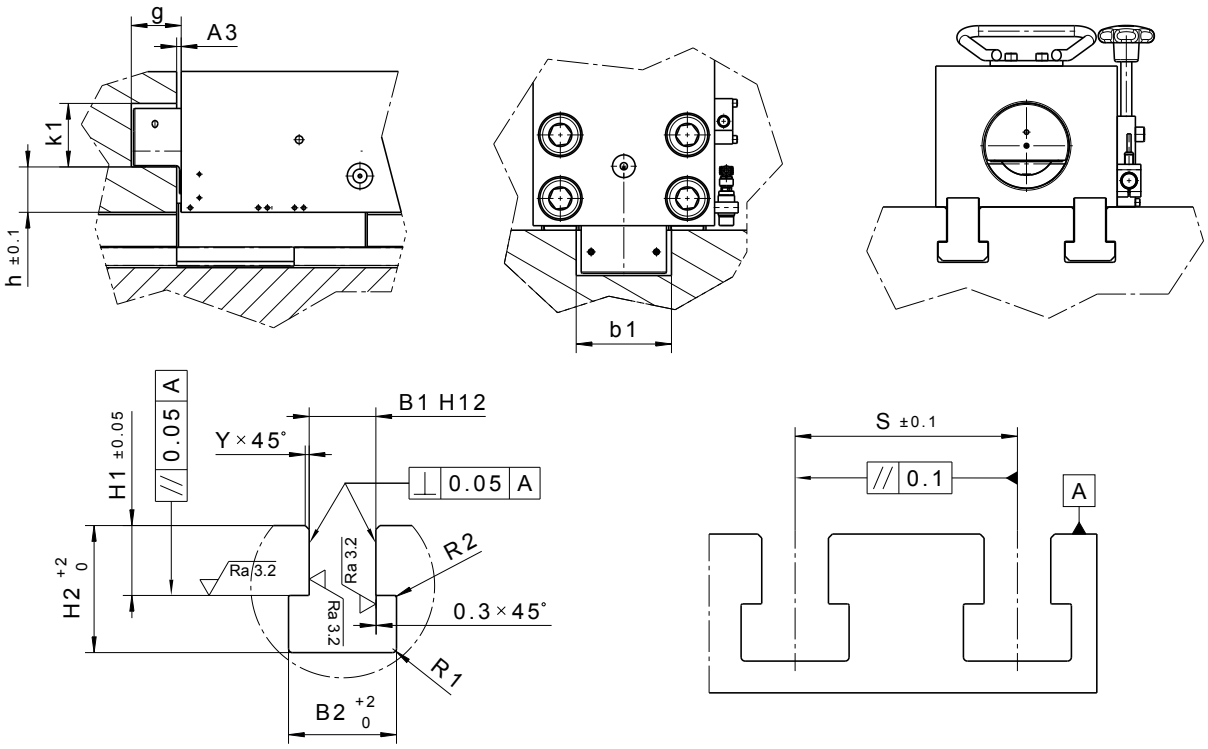


QMC 101.350 - QMC 101.500





Installation dimensions



	QMC 101 / TS					
	101.050	101.080	101.120	101.200	101.300	101.500
B1	18 mm	24 mm	24 mm	24 mm 28 mm	36 mm	42 mm
B2	30 mm	37 mm	37 mm	48.5 mm 37 mm	56 mm	68 mm
H1	17.3 mm	22 mm	22 mm	27.3 mm 22 mm	38 mm	44 mm
H2	33 mm	38 mm	38 mm	48 mm 38 mm	61 mm	80 mm
Y	1 mm	1 mm	1 mm	1 mm	2.5 mm	2.5 mm
S	70 mm	70 mm	140 mm	140 mm	140 mm	140 mm
R1 max.	1	2.5	2.5	2.5	2.5	2.5
R2 max.	0.8	1	1	1	1	1
b1 min.	50 mm	50 mm	80 mm	80 mm	105 mm	105 mm
g min.	26 mm	26 mm	42 mm	42 mm	52 mm	52 mm
h ± 0.1	25 mm	25 mm	40 mm	40 mm	50 mm	50 mm
k1 min.	35 mm	35 mm	55 mm	55 mm	70 mm	70 mm
A3	3 mm	3 mm	5 mm	5 mm	5 mm	5 mm
A4	75 mm	75 mm	125 mm	175 mm	175 mm	225 mm

RL2100300A

■ Stäubli Units ○ Representatives/Agents

Global presence of the Stäubli Group

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