

Technology that inspires



PRODUCT RANGE

Mechanics | Software | Electronics



Excerpt of the WEISS Product Range
ASSEMBLY SYSTEM PICK-O-MAT

4

I would like to commission my installation quickly and efficiently



3

I require machine frames, mounting bases or custom equipment



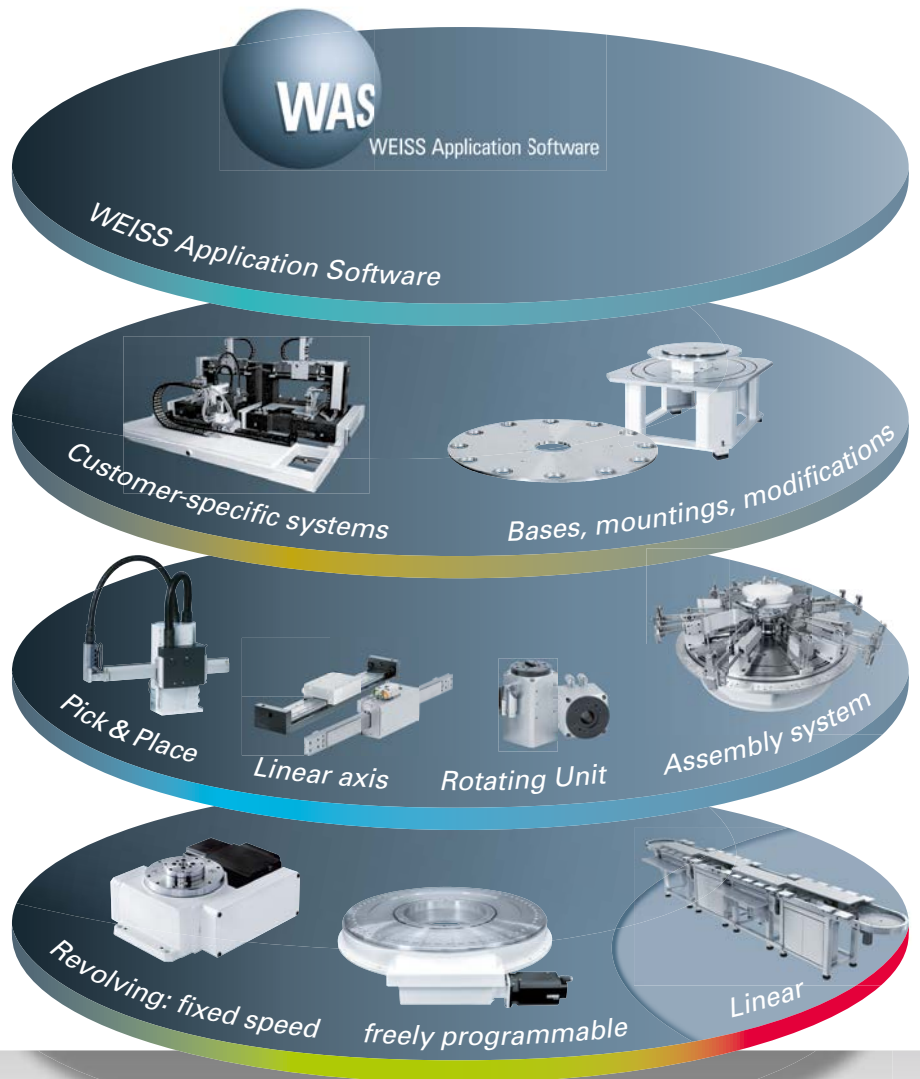
2

I require handling components



1

My transport is...



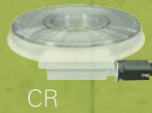
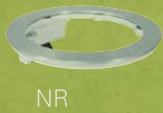
Four steps to perfect automation

Fixed position rotary indexing tables



TC rotary indexing table
TR rotary indexing ring

User-programmable rotary indexing tables



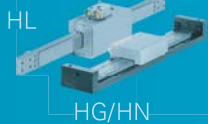
NC rotary indexing table NR rotary indexing ring
CR/TH heavy duty ring TO torque rotary indexing table
TW rotary indexing table

Linear assembly system



LS 280

Handling modules



HG/HN



PM



HP Pick & Place HL Linear axis
HG/HN Linear axes ST/SW rotary unit
SH Lifting-rotating unit PM Pick-o-Mat

Customer specific solutions



SK



SR/SK indexing machine bases
Additional indexing plate



WAS-Software

WEISS Application Software (WAS)

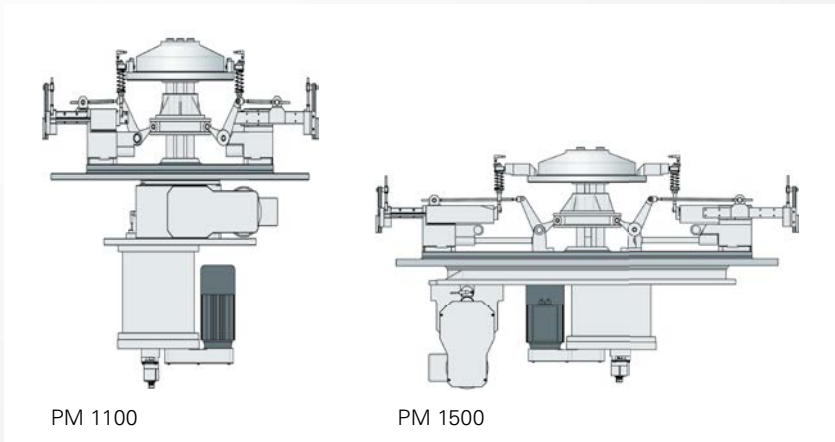


Free arrangement of up to 24 modules

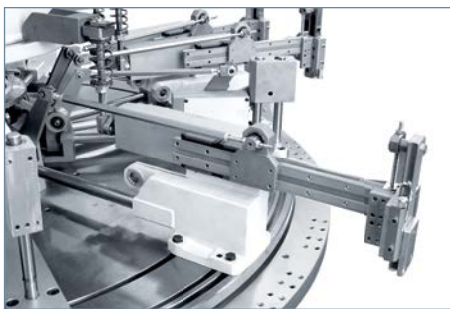
One central cam drive for all movements, for all modules

Pick-o-Mat automated assembly system: High-performance and easy to integrate

The Pick-o-Mat is in a class of its own: the electromechanical automated assembly system unites a rotary indexing table with up to 24 handling, pressing and lifting modules, which are synchronised via a central drive. Different stroke variants can be combined easily. The elegant and powerful drive solution works without pneumatic handling mechanisms and is available in two sizes.



Available in two sizes, the PM 1100 and PM 1500 are the ideal basic machines for your specific application.



Handling module



Lifting module

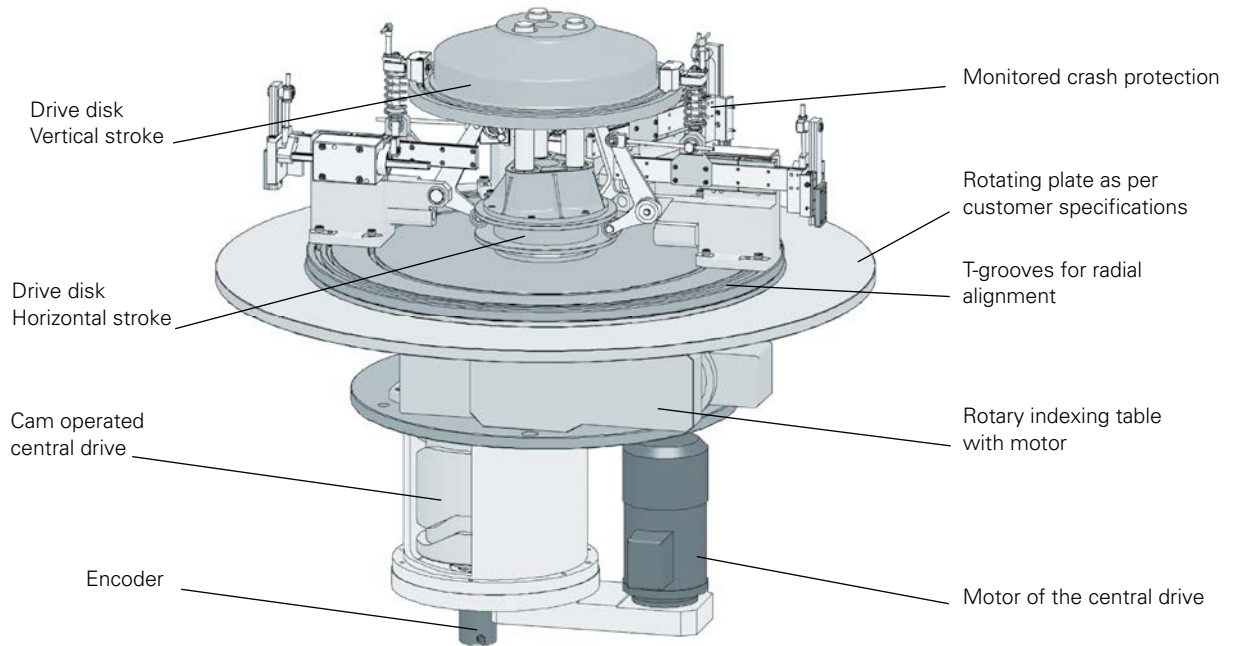


Pressing module

The key advantages at a glance

- Automated assembly system with rotary indexing table and up to 24 integrated handling, pressing and lifting modules
- Central cam drive for all module movements
- Powerful, affordable and easy-to-integrate complete solution also available on request with base plate, base frame (SR or SK model range) and control system

Central drive



360° barrel cam rotation = 4 vertical strokes + 2 horizontal strokes = 1 complete cycle

A 360° rotation of the barrel cam of the central drive generates a complete cycle of the pick-and-place units. Lifting and pressing modules are moved by the lower drive disk (only).

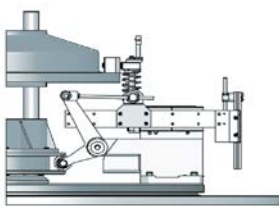


Figure 1: Pos. cam cylinder: 0°
Pos. manipulator: down-retracted

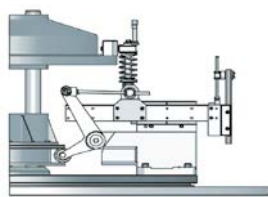


Figure 2: Pos. cam cylinder: 75°
Pos. manipulator: up-retracted

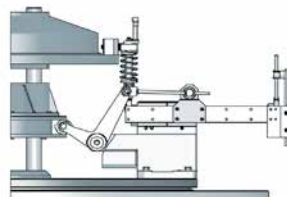


Figure 3: Pos. cam cylinder: 112°
Pos. manipulator: up-extended

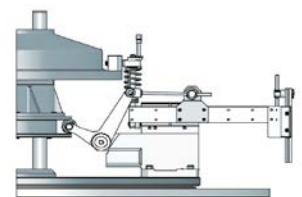


Figure 4: Pos. cam cylinder: 180°
Pos. manipulator: down-extended

Specifications

Repeatability:	± 0.03 mm
Max. horizontal stroke (handling module):	140 mm
Max. vertical stroke (handling module):	50 mm
Mechanical standard speeds/min. at 50 Hz:	32*, 48*, 60*, 75*
Max. handling weight (kg):	2
Drive of the rotary table and central unit:	AC brake motor
Motor voltage:	400 V / 50 Hz or 440 V / 60 Hz
Drive output:	0.25 - 0.37 kW
Monitoring sensor:	24 V, PNP

* Reduction possible with frequency converter.

Options and adjustments

Standardised yet individual

Alongside a large variety of parameters for adapting our standard components, we can manufacture the following components for adapting or completing your Pick-o-Mat in accordance with your drawings:

- *Base frame with levelling elements for stable mounting of the basic machine (see also SR/SK model line)*
- *Base plate for mounting the central drive and your additional devices such as feeder equipment*
- *Rotary plate for mounting your workpiece carriers in accordance with your drilling pattern and with the desired outer diameter*
- *Adapter plate on the handling module for mounting your grippers*

Looking at the CAD models of all standard modules of the Pick-o-Mat which have been made available on our website allows fast and secure project planning and design.

Fast start-up and guaranteed quality

Every Pick-o-Mat is subjected to comprehensive testing and measurements prior to shipping, guaranteeing seamless integration into your complete system.

Simple and secure control

An encoder mounted on the cam axis of the central drive transmits the current position. The direct relationship between the rotation angle of the cam and the position of the gripper enables easy and secure control of all other modules within the rotary table.

Alongside the compact control and monitoring components offered by WEISS, the integrated mechanical overload protection ensures the safe operation of your machine.

Affordable and quickly available

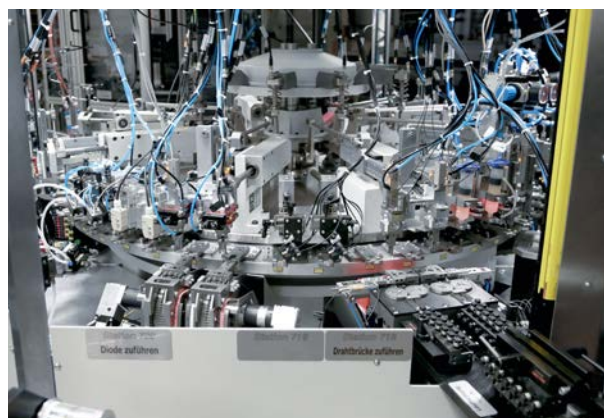
Thanks to the combination of WEISS components manufactured in large numbers and your individual automated assembly systems, we can deliver the entire machine in six weeks at an unbeatable price.



To complete your Pick-o-Mat, plates and base frames can be manufactured as per your drawings



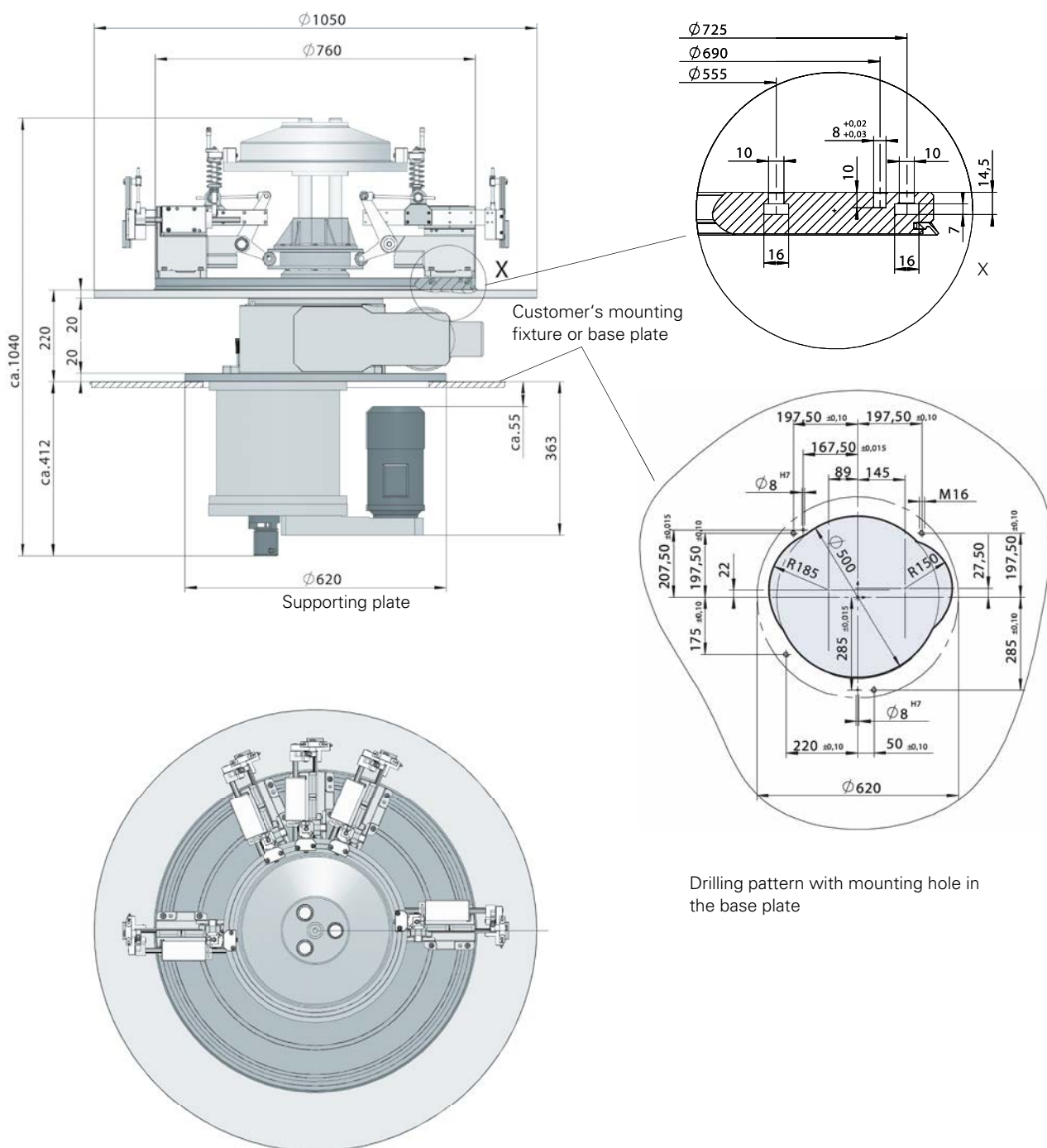
EF2 frequency converter control system for fast and simple start-up



Application example for the assembly of small parts at Hammermeister Sondermaschinenentwicklung GmbH

PM 1100

Rotary indexing table, basis:	TC 320T (for specifications, see TC-T rotary indexing tables)
Max. number of modules:	16
Number of stations on rotary table:	4 to 36
Diameter of stationary module plate:	760 mm
Diameter of rotary plate:	Standard 1050 mm (other diameters possible)
Available base frames:	SR 0200B or SK 0300B

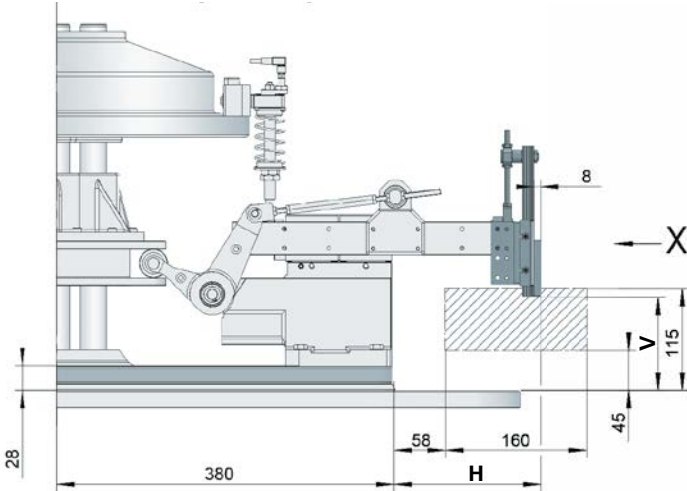


The maximum number of modules and the smallest spacing distance possible must be reviewed for each application from a design point of view and depend on the type of module and the desired sequence.

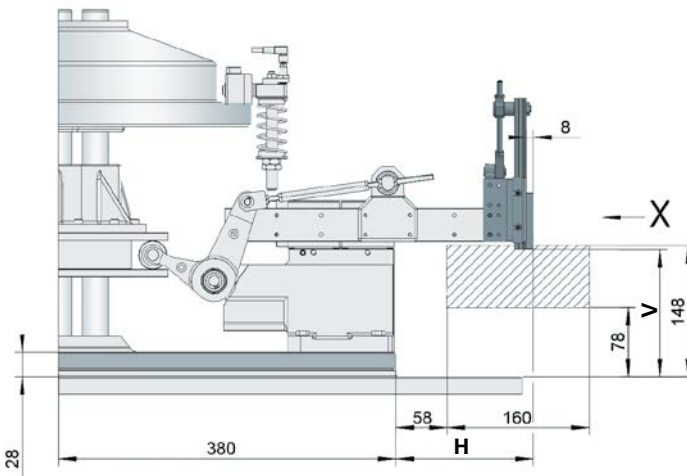
PM 1100 E handling module

If required, the vertical guide assembly can be mounted at two heights with a difference of 33 mm (see figures for assembly 1 and assembly 2).

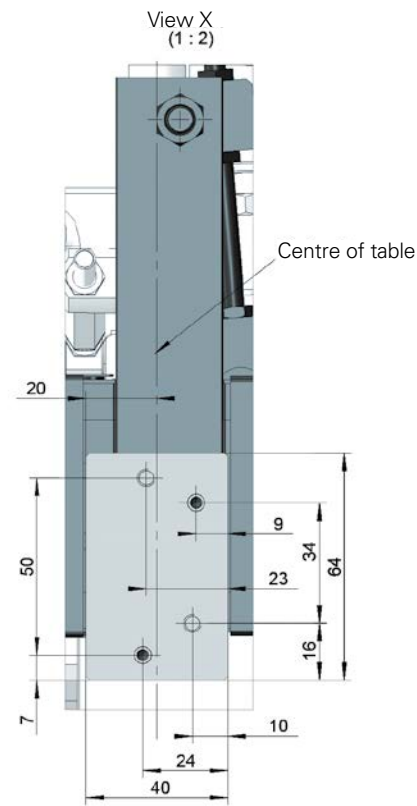
For all stroke variants, the stroke including adjustment limits can only lie within the grey shaded area. For pre-adjustment prior to assembly, the setting **dimensions H and V** must be specified when ordering. The final adjustment is performed by the customer after fitting the gripper.



Assembly 1 – bottom vertical rail
Position of the handling unit: top – outside



Assembly 2 – top vertical rail
Position of the handling unit: top – outside



Standard adapter plate (40 x 64 x 8 mm) with drilling pattern for mounting to the guide (customised configurations possible)

Specifications

Maximum extra weight: 2 kg (depending on speed and number of modules)

Standard strokes:

Vertical stroke [mm]	30	40	50
Of which linear	25	30	37.5
Without crossover (approx.) [mm]			

Horizontal stroke [mm]	80	90*	100	120	140
Of which linear	65	75	85	100	115
Without crossover (approx.) [mm]					

*The horizontal stroke of 90 mm can only be realised in combination with vertical strokes of 40 mm and 50 mm.

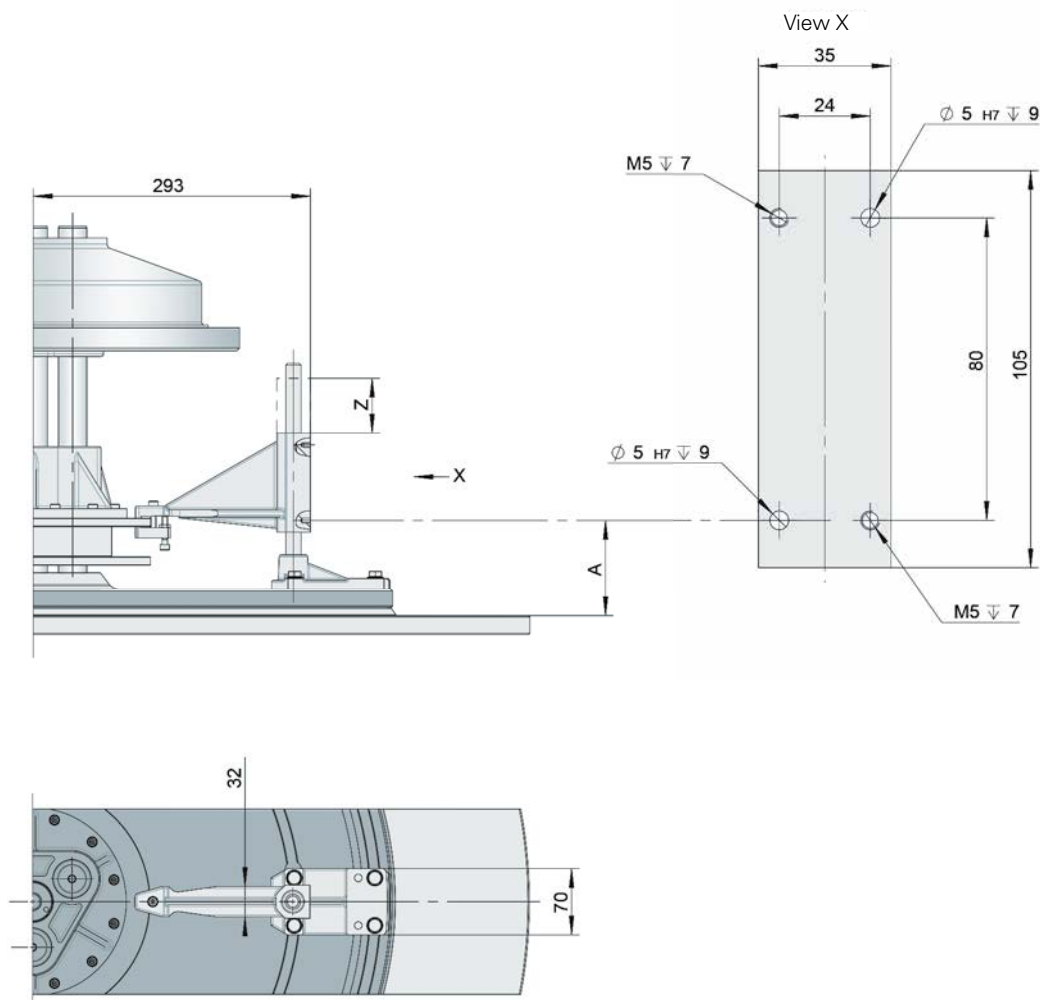
PM 1100 H lifting module

Using the lifting module

The lifting module can be used for the vertical movement of a test medium. In order to avoid crash situations, the test medium must contain a spring-mounted overload protection system that permits max. 50 N spring force and at least 71 mm spring travel.

Method of functioning

The lifting module moves simultaneously with the horizontal stroke of the handling module. The downward movement is performed synchronously with the retraction of the handling module.



Specifications

Maximum weight to be moved: 1.5 kg

Stroke dependencies [mm]

Vertical stroke of the handling module	30.0	≥ 40.0
Stroke of the lifting module	58.3	70.0
Bottom position (distance A)	100.0	94.0

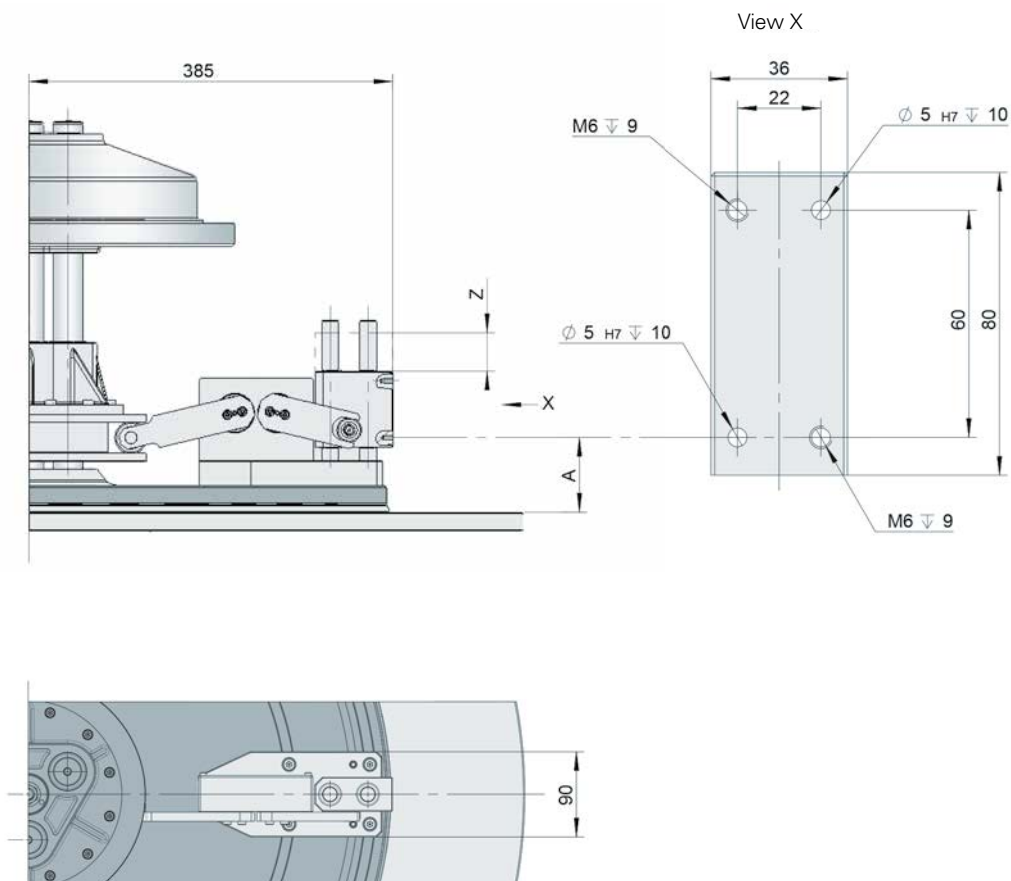
PM 1100P pressing module

Application

The pressing module can move the press head to the workpiece to be joined in the vertical direction. In order to avoid crash situations, the press head must contain a spring-mounted overload protection system that permits max. 300 N spring force and at least 51 mm spring travel.

Method of functioning

The pressing module moves simultaneously with the horizontal stroke of the handling module. The downward movement is performed synchronously with the retraction of the handling module.



Specifications

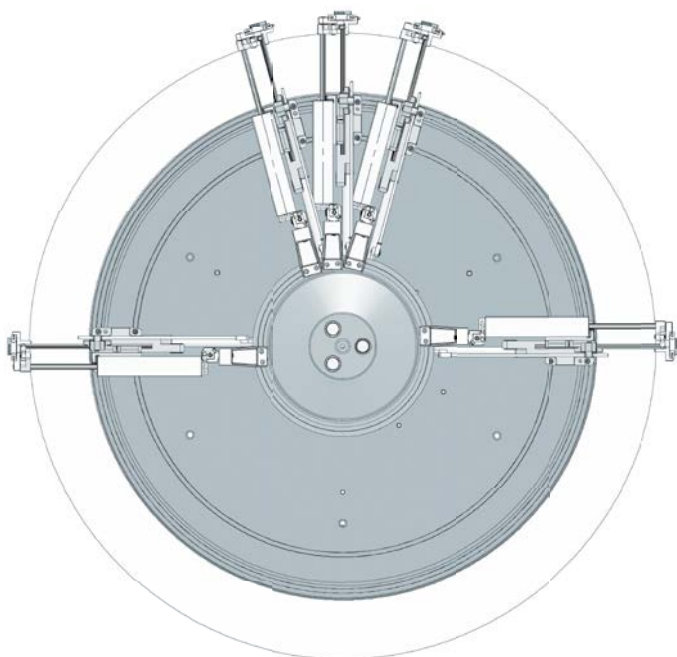
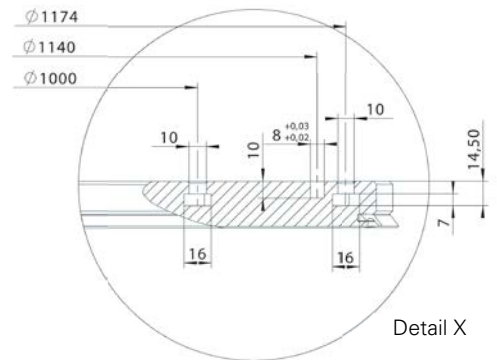
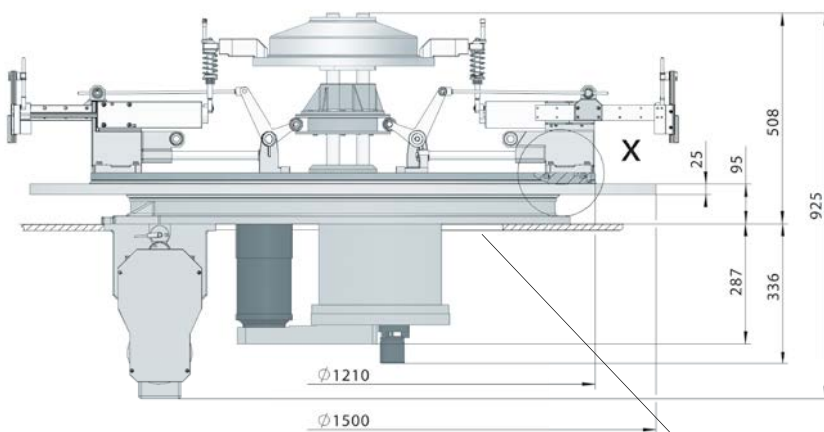
Maximum pressing force: 200 N

Stroke dependencies [mm]

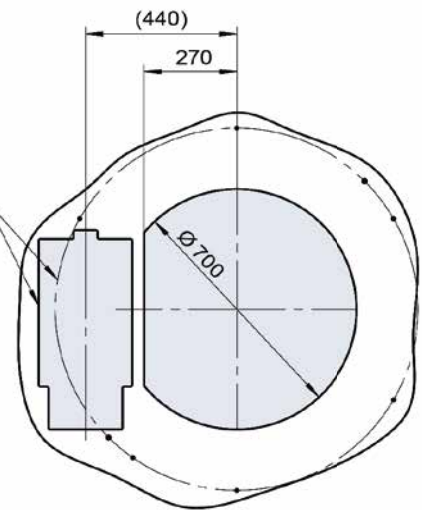
Vertical stroke of the handling module	30.0	≥ 40.0
Stroke of the pressing module	40.5	49.5
Bottom position (distance A)	79.3	75.0

PM 1500

Rotary indexing table, basis:	TR 1100A (for specifications, see TR rotary indexing tables)
Max. number of modules:	24
Number of stations on rotary table:	6 to 36
Diameter of stationary module plate:	1210 mm
Diameter of rotary ring:	Standard 1500 mm (other diameters possible)
Possible base frames:	SR 0300B or SK 0300B



Recess + drilling pattern TR 1100A



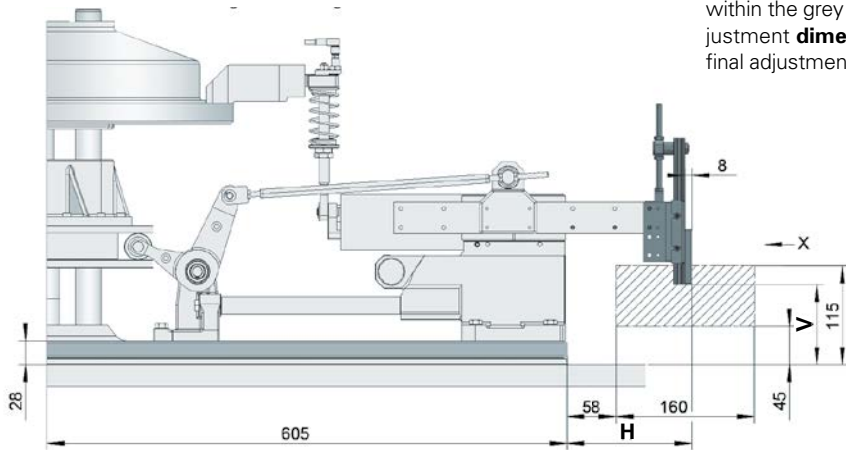
Recess in the base plate

The maximum number of modules and the smallest spacing distance possible must be reviewed for each application from a design point of view and depend on the type of module and the desired sequence.

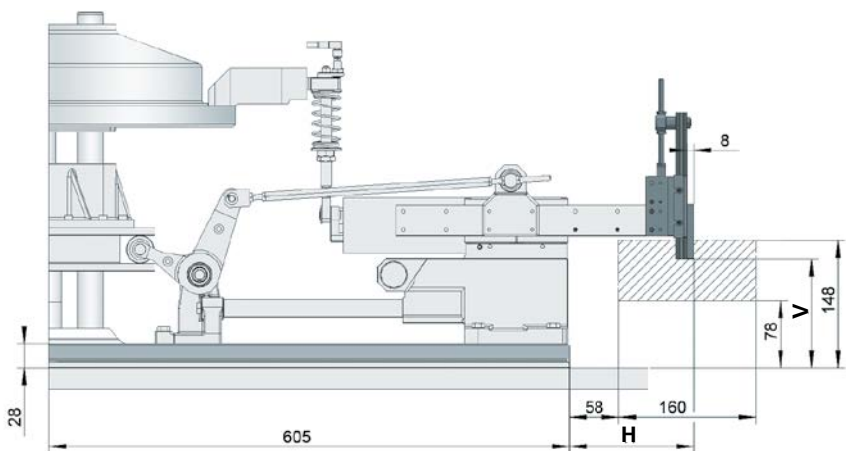
PM 1500 E handling module

If required, the vertical guide assembly can be mounted at two heights with a difference of 33 mm (see figures for assembly 1 and assembly 2).

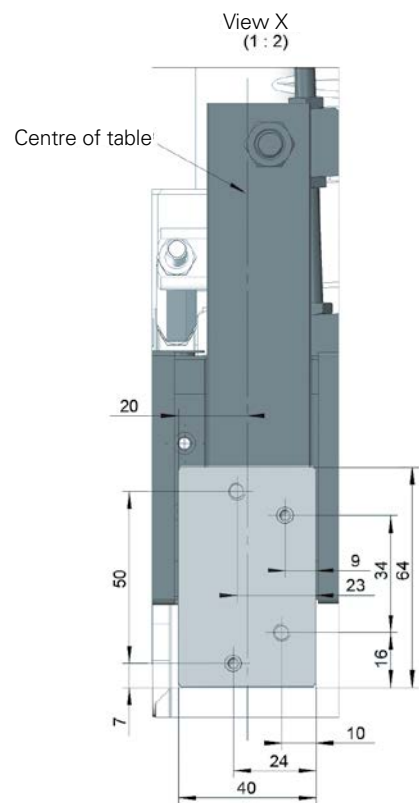
For all stroke variants, the stroke including adjustment limits can only lie within the grey shaded area. For pre-adjustment in the factory, the adjustment **dimensions H and V** must be specified when ordering. The final adjustment is performed by the customer after fitting the gripper.



Assembly 1 – bottom vertical rail
Position of the handling unit: top – outside



Assembly 2 – top vertical rail
Position of the handling unit: top – outside



Standard adapter plate (40 x 64 x 8 mm) with drilling pattern for mounting to the guide (customised configurations possible)

Specifications

Maximum extra weight: 2 kg (depending on speed and number of modules)

Standard strokes:

Vertical stroke [mm]	30	40	50
Of which linear	25	30	37.5
Without crossover (approx.) [mm]			

Horizontal stroke [mm]	80	90*	100	120	140
Of which linear	65	75	85	100	115
Without crossover (approx.) [mm]					

*The horizontal stroke of 90 mm can only be realised in combination with vertical strokes of 40 mm and 50 mm.

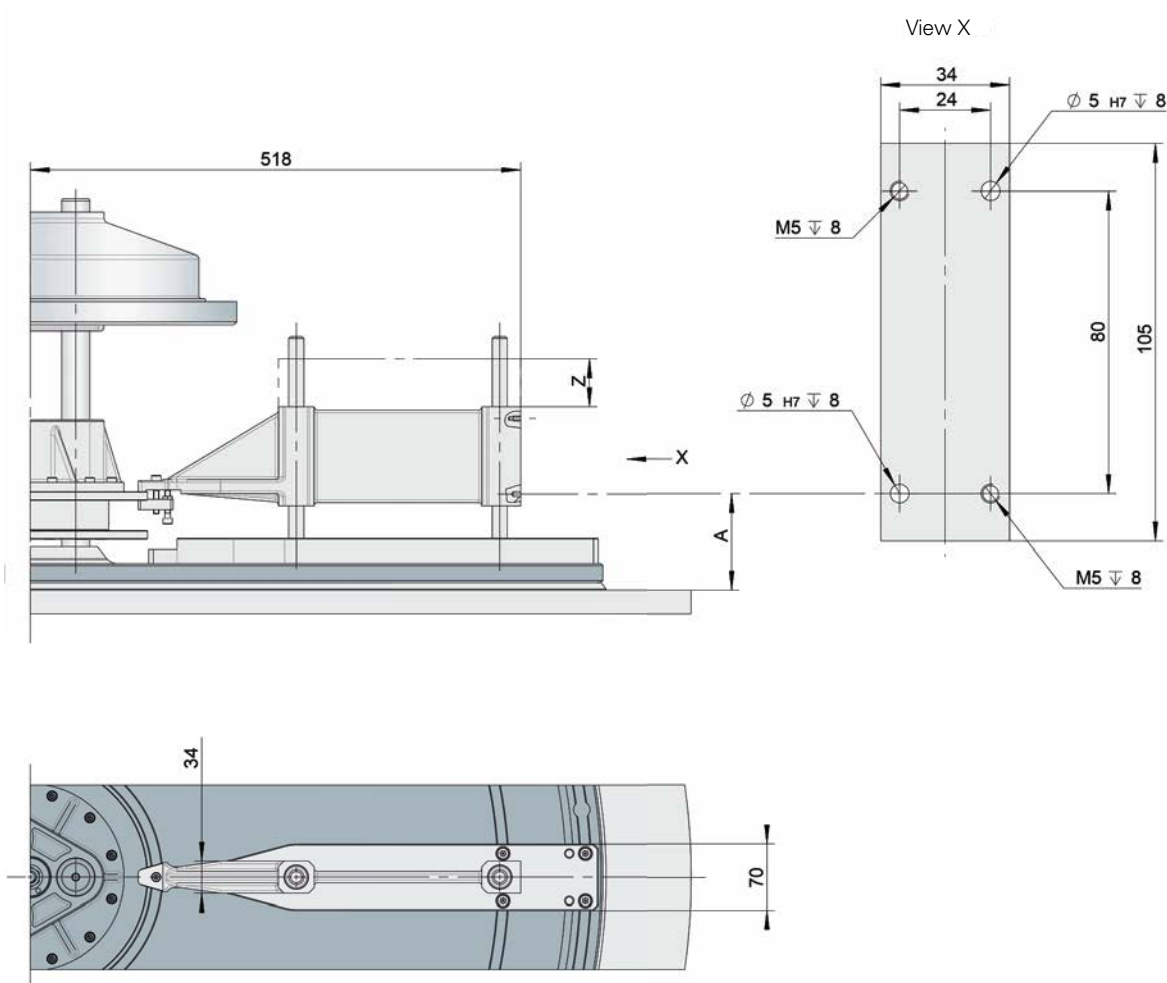
PM 1500H lifting module

Using the lifting module

The lifting module can be used for vertical movement of test equipment. In order to avoid crash situations, the test medium must contain a spring-mounted overload protection system that permits max. 50 N spring force and at least 71 mm spring travel.

Method of functioning

The lifting module moves simultaneously with the horizontal stroke of the handling module. The downward movement is performed synchronously with the retraction of the handling module.



Specifications

Maximum weight to be moved: 1.5 kg

Stroke dependencies [mm]

Vertical stroke of the handling module	30.0	≥ 40.0
Stroke of the lifting module	58.3	70.0
Bottom position (distance A)	100.0	94.0

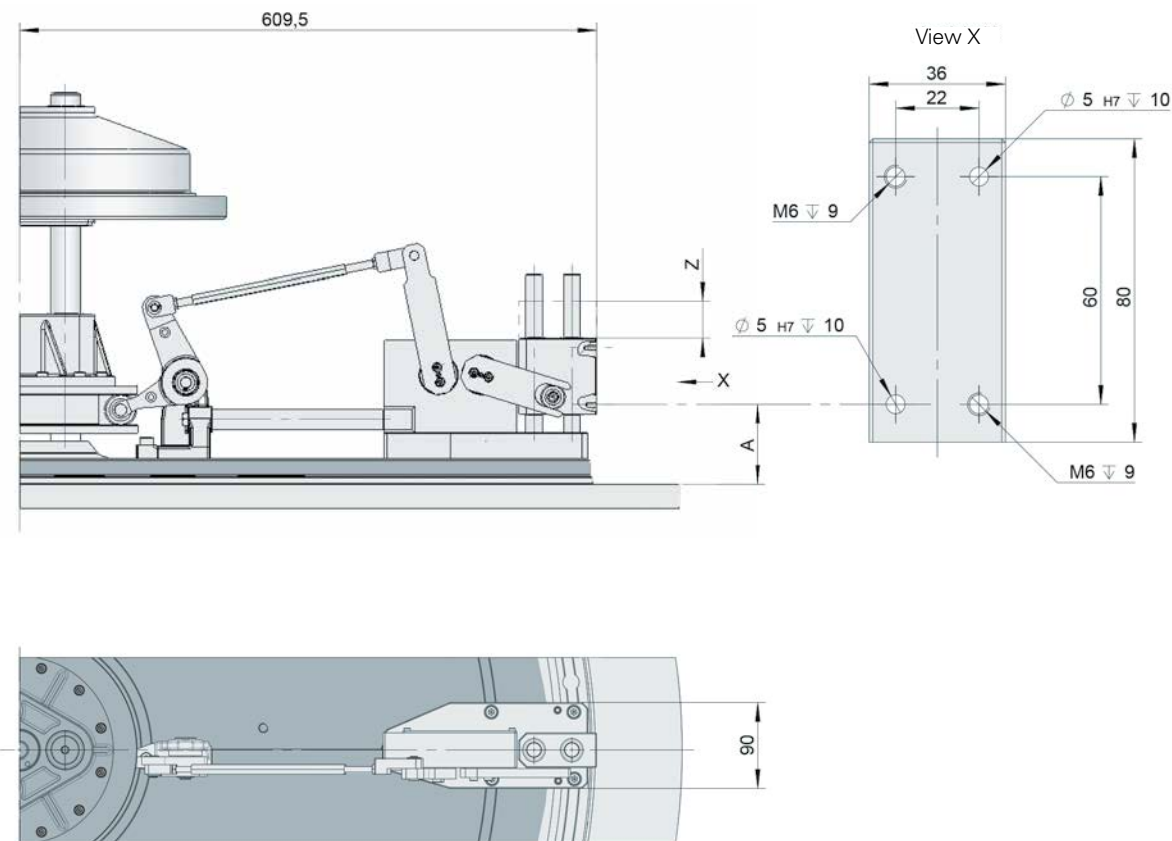
PM 1500P pressing module

Application

The pressing module can move the press head to the workpiece to be joined in the vertical direction. In order to avoid crash situations, the press head must contain a spring-mounted overload protection system that permits max. 300 N spring force and at least 51 mm spring travel.

Method of functioning

The pressing module moves simultaneously with the horizontal stroke of the handling module. The downward movement is performed synchronously with the retraction of the handling module.



Specifications

Maximum pressing force: 200 N

Stroke dependencies [mm]

Vertical stroke of the handling module	30.0	≥ 40.0
Stroke of the pressing module	41.5	50.05
Bottom position (distance A)	75-95	75-95

The stroke position can be adjusted by means of a threaded bar.

Design of the Pick-o-Mat machine

Enquiry Enclosure with order

Dear customer,

thank you for your interest in our Pick-o-Mat machine. Please answer the following questions, to ensure we optimise the design of the system to suit your application. Please also fill out the „Module arrangement and setting dimensions“ form at page 211.

Configuration of the central unit

PM 1100Z with TC 320T

PM 1500Z with TR 1100A

Cycles per minute: _____

Vertical stroke: 30 mm 40 mm (50 mm possible through special handling module)

Encoder:

Single-turn absolute encoder (standard)

Customer-specific as per drawing no.: _____

None

Type of rotary table

Indexing: _____

Weight per station in kg: _____

Effective diameter of the centre of mass in mm: _____

Position of motor

Standard (TC 320T – interior side; TR 1100A – lower interior)

Other, as per drawing no.: _____

Colour: RAL 7035 (standard) or RAL _____

Dimensions and additional processing of the rotating plate as per drawing no.: _____

Standard material of rotating plate (AlMg4.5Mn)

Standard surface treatment (naturally anodized)

Deviations from standard:

Material: _____

Surface treatment: _____

Electric drives (central unit and rotary table)

Drive motor 230/400 V 50 Hz (standard)

Drive motor special voltage in V: _____

Customer drive motor (additional)

Control system of the central unit and of the rotary table

WEISS EF2 rotary table control system (frequency converter)

No control system

For technical enquiries

Company: _____

Name: _____

Country: _____

Handling module

Number of modules: _____

Max. handling weight in kg: _____

Strokes, arrangement and setting dimensions as per form

Adapter plate:

Standard (see catalogue for drilling pattern)

As per drawing no.: _____

No adapter plate

Colour: RAL 7035 (standard) or RAL _____

Lifting module

Number of modules: _____

Max. weight to be lifted in kg: _____

Drilling pattern of the mounting surface:

Standard

As per drawing no.: _____

Colour: RAL 7035 (standard) or RAL _____

Pressing module

Number of modules: _____

Pressing force in N (max. permitted 200 N): _____

Max. stroke in mm: _____

Drilling pattern of the mounting surface:

Standard (see catalogue for drilling pattern)

As per drawing no.: _____

Colour: RAL 7035 (standard) or RAL _____

Base frame

No base frame

Round SR (SR 200B or SR 300B)

Square SK (SK 300B)

Special base frame as per drawing: _____

Height floor – base plate in mm: _____

Colour: RAL 7035 (standard) or RAL _____

Base plate

Dimensions, additional processing, material and surface treatment of the base plate as per drawing no.: _____

Desired delivery date: _____

Phone: _____ Fax: _____

email: _____

Module arrangement and setting dimensions

Customer: _____

Date: _____

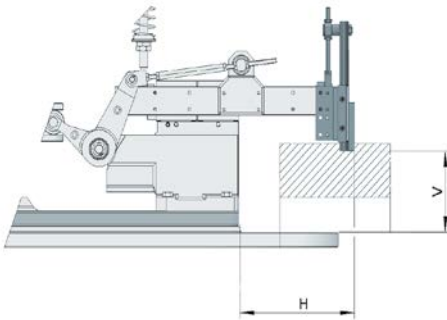
Order number: _____

Drawing number of the assembly drawing: _____

Originator: _____

Size of the POM: PM 1100 PM 1500

Indexing of the rotary table: _____



Station	Module ¹ h p l	Horizontal stroke [mm] (handling module only) ²	Setting dimension horizontal H [mm] ³	Vertical stroke [mm] ⁴	Setting dimension vertical V [mm] ³
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35	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>				
36	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>				

¹ h=handling module, p=pressing module, l=lifting module. Please assign the modules to the corresponding station.
If no gripper plate is required, distance H is up to the front side of the guide rail.

² Stroke variants: 80/90/100/120/140

³ The values for the setting dimensions H and V are always specified in the „upper/extended“ position.

⁴ Stroke variants: **handling**: 30/40/50; **lifting**: 58.3/70; **pressing**: PM 1100 P: 40.5/49.5; PM 1500 P: 41/50.5

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