PA and PD Series

Universal Center Lathes (conventional controls)

The universal lathes of the PA series have been designed for the rough- and precision machining of medium weight workpieces. POTISJE machines stand out for robust design, long life cycles and ease of operation. Thousands of them have proven their value worldwide.

The advantages at a glimpse

- Vibration damping, robust and wide bed made of casted iron.
- Wide induction hardened prism guides with large distance between guideways.
  Low surface pressure, long-term precision.
- 3rd guide at the front of the bed – to increase precision and reduce vibrations at high cutting performance.
- Solid spindlestock with triple bearing arrangement of the main spindle.
- High driving power with large torque up to 16000 Nm.
- Comfortable handling of the machine via operation controls at spindlestock and slide.
- Continuous speed regulation within 3 speed gears.
- Large choice of thread cutting capabilities (metric, Whitworth-BSP, and Modul) without changing gears.
- Several options allow to carry out additional machining jobs on the same machine.

Technical Specification:

		PA 1000	PA 1250	PD 1300	PD 1600	PD 2000
Main Selection Criteria						
swing Ø	mm	**1000**	**1250**	**1300**	**1600**	**2000**
workpiece weight (2 steadies)	mm	**6500**	**8000**	**8000**	**20000**	**20000**
spindle bore	mm	**140 bzw. 322**		**190**	**260**	**260**

Working range						
center distance	mm	2000, 3000, 4000, 6000, 8000, 10000				
Ø above bed (swing)	mm	1000	1250	1300	1600	2000
Ø above slide	mm	700	1000	1000	1200	1600
Ø of facelplate max.	mm	850	850	1120	1600	
Ø in bed gap	mm	1300	1600	--	--	
length of bed gap	mm	400	400	--	--	
Main Spindle						
spindle bore Ø	mm	140 bzw. 322		130	210	
spindle nose	DIN	55021 Nr.11		55027 Nr.11	55026 Nr.15	
spindle Ø at front bearing	mm	190		190	260	
spindle rpm's						
range I	min-1	2-128		1,6-125	0,9-70	
range II	min-1	5-315		3,15-250	1,8-140	
range III	min-1	12,5-800		8-800	4,5-500	
max. torque	Nm	5000		9400	16000	
Main Drive AC						
capacity 40% / 100% duty cycle	kW	45 / 30		56 / 37		
motor rpm's	min-1	50-3400		50-3700		
Bed and Slide						
bed width	mm	650		710	1120	
width of carriage	mm	820		1000	1200	
cross slide travel	mm	610		660	1000	
upper slide travel	mm	300		200		
Tailstock						
sleeve Ø	mm	120		160	220	
sleeve stroke	mm	300		280		
sleeve taper		MK 6		MK6	ME 80	
Allowed Work Piece Weight						
between centers (2 steadies)	kg	6500		8000	20000	
between centers (1 steady)	kg	5000		6300	16000	
between centers	kg	4000		5000	12500	
in faceplate (unsupported) at dist. of center of gravitiy from faceplate	kg mm	800		1500 215	2500 320	
Feeds						
number of feeds		42		48		
longitudinal feed	mm/r	0,049-5,6		0,09-5		
cross feed	mm/r	0,024-2,8		0,045-2,5		
rapid traverse (longitudinal/cross)	m/min	3,5 / 1,75		5 / 2,5		
Threads						
number of threads		42		48		
metric	mm	0,75-64		0,56-128		
Whitworth (BSP)	pitch/"	9/16-64		0,28-64		
Modul		1-16		0,25-32		

Standard Accessories:

- working room illumination
- MULTIFIX D1 toolpost
- manual tailstock with electrical displacement
- coolant attachment
- central lubrication system
- electric equipment 400 V / 50 Hz
- owners documentation
- CE-declaration

Options:

- 4-side PARAT turret
- boring bar post
- hydraulic tailstock
- steadies
- digital read out HEIDENHAIN or ISKRA
- chip-conveyor
- faceplates, chucks

further options on request

Machine Bed:

The robust bed of the machine gives optimum absorbtion of vibrations for heavy duty operations.

It is casted from grey iron with a homogeneous structure. The use of permanent sand cores improves vibration absorption properties. To avoid later distortion the bed undergoes natural and artificial aging.

Inclined chip chutes at the inner side of the bed assure reliable chip removal.
The bed is prepared for the use of a chip conveyor.

All assemblies except of the coolant attachment are mounted on the bed to form a compact machine unit.

Bed Guideways:

A triple guideway design assures precise movement of the slide. Two high precision inverted V-track guideways are located on the top of the bed. A third guideway at the front side gives additional support for heavy duty machining.

Induction hardening (45-50 HRc) and extra wide guideway design provide low surface pressure and long term durability.

To ensure optimum gliding properties all countersurfaces are coated with TURCITE B polymers.

Headstock, Main Spindle, Gearbox:

The triple bearing arrangement (two taper roller bearings and one cylindrical roller bearing) gives precise spindle properties with low radial run-outs.

3 mechanical speed ranges provide a strong torque for all operation conditions.

All functional parts in the spindlestock are heat treated and precision grinded.

Moving elements are forced-feed lubricated by means of a gear pump (circulating oil lubrication).

Main Drive:

The main drive is located left of the spindlestock. The continuous controlled AC motor is connected to the gear box via a belt drive.

	PA	PD	
capacity at 40 % duty cycle	45	56	kW
capacity at 100 % duty cycle	30	37	kW

Increased Spindle Bore (Option)

For the machining of pipes the machine can be equipped with a larger spindle (oil-country lathe).

Additionally the machine may be set aside for the installation of a second chuck at the rear side of the spindlestock.

spindle bore	322 mm
spindle Ø in front bearing	400 mm
spindle nose	DIN 55021 No. 20

Feed and Threading Gearbox:

The gearbox for feeds and threads is an enclosed and compact unit. It allows to choose gears by means of hand levers (witout the changing of gears).

A large choice of feeds and threads (metric, Whitworth–BSP, Modul) is available.

Slide:

The compound slide consists of the carriage and the cross slide.

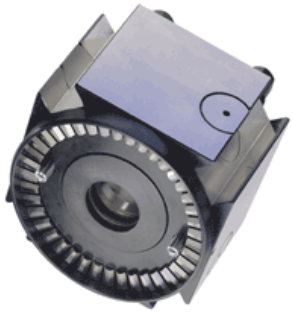
Carriage guides are induction hardened to 45 HRc. Large supporting surfaces provide long term guide precision.

The counter surfaces are coated with TURCITE-B polymers to privide optimum sliding properties.

All main functions are accessible from mechanical and electrical operator elements directly at the slide.

Tool Posts:

A MULTIFIX D1 toolpost is provided with the standard machine.



Optionally the machines can be attached with a manual 4-side turret PARAT RD4 (RD5).

Tailstock:

The rigid tailstock can be moved by means of an electric drive on the bed. The operation of the sleeve is manual.

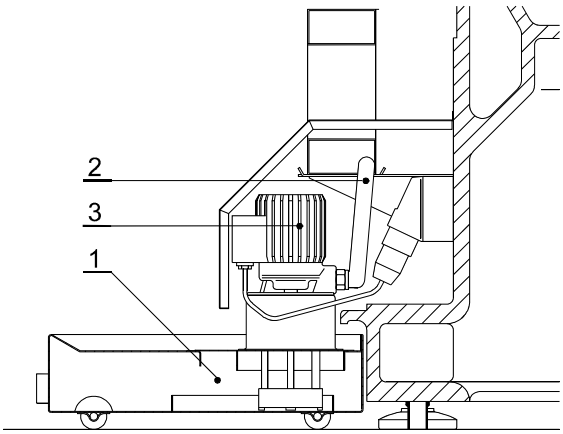
	PA 1000/1250		PD 1300	PD 1600/2000
sleeve Ø	mm	120	160	220
sleeve stroke	mm	300	280	
sleeve taper		MK 6	MK6	ME 80

Hydraulic Sleeve (option):
the tailstock can be supplied with a hydraulic sleeve.

Chip Removal, Coolant Attachment:

Chips are flowing down the chip chutes which are integrated in the bed. They enter the wheeled chip trough at the backside of the machine which also carries the low pressure coolant attachment.

flow rate nominal	50	ltr./min
pressure nominal	0,4	bar



Chip Conveyor (Option):

Chip conveyors can be used instead of the chip trough.

conveyor width	520	mm
active cross section	380x230	mm

Boring bar post (for assembly on cross-slide)

boring bar diameter max.	mm	120
boring bar length max.	mm	1200

Electric System:

The CE conform electric installation is placed in an electric cabinet integrated at the rear side of the spindlestock.

The compact design avoids additional space requirements for a stand alone electric cabinet.

All operation elements are clearly arranged at the front of the spindlestock and slide. This enables an ergonomic operation of the machine.

LITOSTROJ-POTISJE taps full potential of 9 decades of experience and thousands of produced PA and PD machines.
The best warranty for:

- economic efficiency
- precision
- a long work life

LITOSTROJ-POTISJE stands for mature machine design and manufacturing.