



## SLANT BED CNC LATHES

**AVIAturn35**

**AVIAturn50**

**AVIAturn63**





## Fabryka Obrabiarek Precyzyjnych

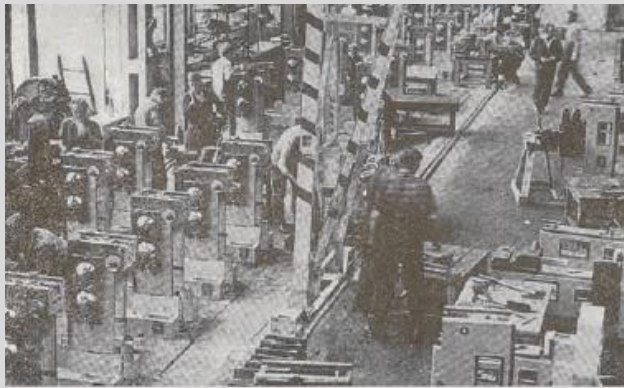
**AVIA S.A.**

### ABOUT US ...

Fabryka Obrabiarek Precyzyjnych AVIA S.A. Warsaw, Poland (Machine Tool Factory AVIA S.A.) was founded in 1902 and is one from the oldest Polish industrial plants. For the past 70 years, AVIA has been one of the leading Polish manufacturers of high-quality, precision machine tools. Today, our brand is widely recognized in Europe, especially in Germany, where we have over 4,500 installations.

The presence of machine tools manufactured by us in demanding and industrialized markets ensures constant and continuous growth of production and increases the competitiveness of our customers. Proven AVIA machine solutions, depending on favourable prices, are also successfully featured in emerging markets in Eastern Europe.

At present, AVIA offers in its product line Vertical machining centres 3, 4 and 5-axis, CNC and Manual universal milling machines and CNC inclined bed lathes. AVIA is also a manufacturer of key components for machine tools such as: spindles or precision ball screws. We supply ball screws to some of the world's leading machine tool manufacturers.



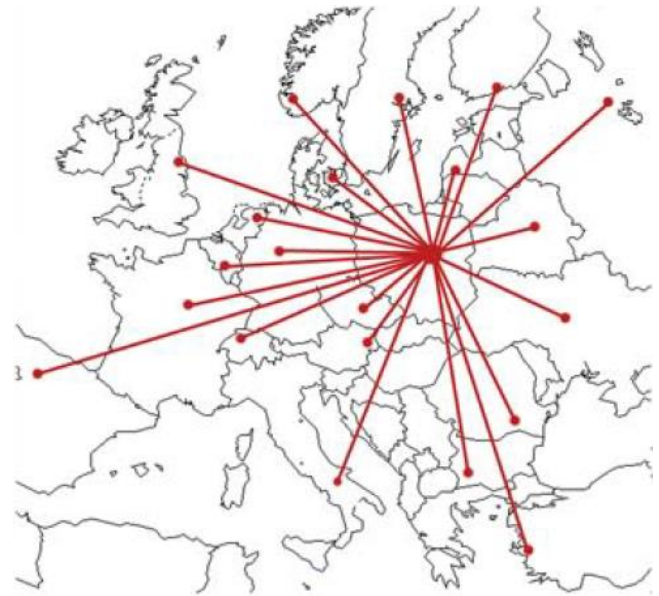
Assembly line AVIA – Manual Universal Milling Machines - 1970

Company management and production:

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New machine designs are based on our own development and research department. The unique combination of very talented young engineers and very experienced designers who have worked at AVIA for many years ensures an ideal environment for development and research processes. Design proposals are created by computer systems such as:

- Solid Modelling Design (CAD-3D),
- Finite Element Method optimization,
- Computer Aided Manufacturing (CAM).

Our goal is not only to develop the latest technologies and deliver them to customers, but also to provide adequate training, service and maintenance of machines, as well as the availability of spare parts for many years after the machine has been handed over.

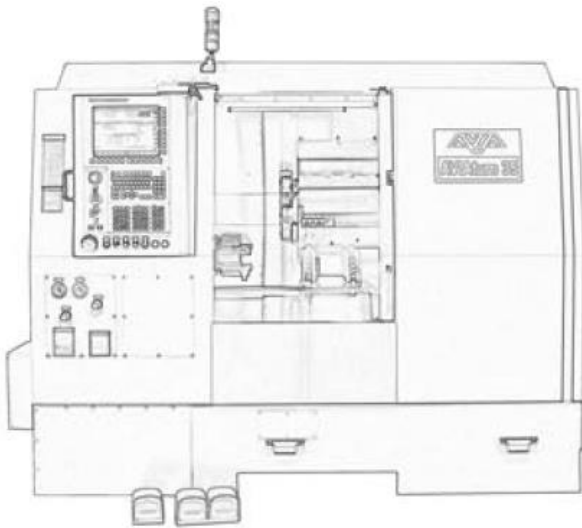
Sales representation

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# DISCOVER WIDE RANGE OF PRECISION SLANT BED CMC LATHES OF AVIA

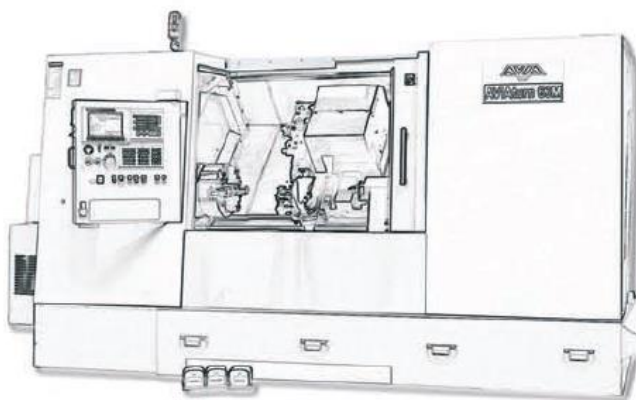
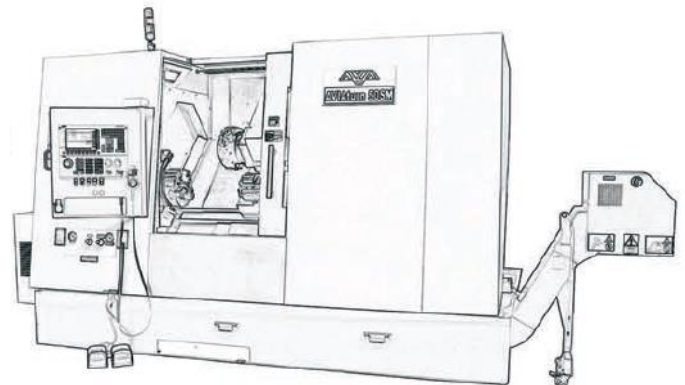


## AVIAturn35 SERIES

- modern and versatile CNC lathes are characterized by high dynamics and fast machining
- extra rigidity is achieved thanks to good ribbing from one piece of cast base
- 12 tool positions on the rotary magazine VDI 30 or BMT 55 provide the shortest replacement time
- The tailstock with automatic travel and a diameter of 77 mm enables more efficient work for a wider range of turning
- combination of power and torque with modern CNC control for higher production and accuracy
- the use of AVIA ground ball screws with pre-tensioned nuts guarantees positioning accuracy and long-term maintenance-free operation

## AVIAturn50 SERIES

- modern slant bed CNC lathes designed for demanding and efficient production purposes, ensures high rigidity during rough machining
- fully enclosed workspace for chip less work environments - stainless steel internal covers
- rigidity tailstock travel performed by precision ground ball screw and motor with brake
- well ribbed cast iron base cast in one piece and optimized by the FEM method ensures high rigidity during roughing
- 12 tool positions with VDI40 or BMT65 actuators
- digital axial axis motors and servomotors bring high accuracy and dynamics of operation



## AVIAturn63 SERIES

- extraordinarily rigid one-piece iron casting base guarantees stability during heavy machining and roughing
- spacious workplace allows machining of large workpieces up to a length of 2500 mm
- performance solution for rough and high-performance turning with a torque of up to 1266 Nm
- digital axis motors and servomotors deliver high accuracy and traffic dynamics
- CNC lathe is equipped with a rotating magazine for 12 tools VDI 50 or BMT 75 for larger tool applications
- roller type linear guideways with extra rigidity positively affect the stability and turning performance of large diameter workpieces



special index chuck SMW  
AXN adjustable in 4  
positions



Extractor - for extracting the  
workpiece from the spindle



Cut off parts catcher for  
automatic parts  
collection



Automatic tool  
probe



Hydraulic steady rest for long  
rods and shafts



Stainless steel line  
covers



# DISCOVER SLANT BED CNC LATHES DESIGNED TO YOUR NEEDS

## HIGH CLASS CNC SYSTEMS

Modern CNC control system FANUC Oi-TF with the highest reliability on the market. Conversation program options Manual Guide i. Many interface ports (RS 232, PCMCIA, Ethernet) allow communication with CNC control. Available FANUC Oi-TF simulation system running on a PC or laptop.

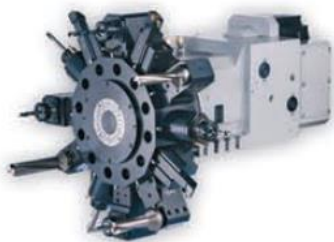
Siemens SINUMERIK 828D new CNC system guarantees high work efficiency with the ShopTurn 3D Dialog option. A large number of interface ports (RS 232, USB, PCMCIA, Ethernet) enable communication with CNC control. Maintenance-free operation thanks to NV-RAM technology - hard disk without the need for batteries.



## RELIABILITY KEY COMPONENTS



A well-ribbed machine base is always cast in one piece together with the machine bed in order to maintain the appropriate rigidity, good vibration damping, thermal and dimensional stability. The contact surfaces for the linear guide are precisely ground on a Waldrich-Coburg surface grinder for ideal adhesion, high rigidity and geometric stability. The machine is tilted by 35 to 45 °, which provides very good conditions for trouble-free chip removal.

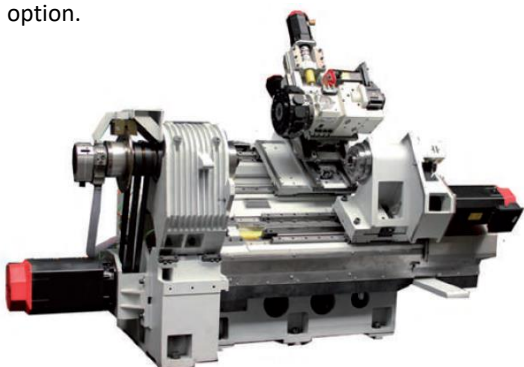


AVIA Class C3 precision ball screws with preloaded double nut are used to achieve excellent positioning accuracy and prevent backlash. Our solution is characterized by a long service life without the need for service interventions. Very high accuracy is ensured by a fully digital CNC servo system in combination with direct mechanical drives (without belt) connected with pre-tensioned double ball screws.

The maintenance-free roller linear guide enables high-speed rapid traverses, high accuracy and prevents the "stick-slip" effects (contamination of the guide surfaces) that are characteristic of square guides. Linear guidance is always more stable and stiffer over a wider range. Electrical components from well-known and reliable suppliers that are CE-compliant and easily available on the market for maintenance purposes.

## 12 STATION SERVO TURRETS WITH VDI AND BMT TOOLING DISC

AVIAturn lathes use the popular VDI tool holders for the fastest possible tool change and maximum rigidity while turning as efficiently as possible. BMT tool holders with higher repeatability and rigidity are also available as an option.



## OPTIONAL EQUIPMENT

- automatic tool probe - for fast and automatic tool measurement
- chip conveyor - trouble-free chip removal
- oil mist extractor
- hydraulic support - supports long rods and shafts
- collet chuck - necessary for working with bars
- blade for automatic removal of the workpiece without the need to interrupt turning
- automatic bar feeder - feeds the bar with a spindle - necessary for series production

## „Y“AXIS FUNCTIONALITY AVAILABLE FOR AVIAturn 35/50/63 SERIES

- the Y axis is realized by means of an additional wedge support and displacements in the X1 and X2 axes
- greater rigidity and accuracy compared to the axial recess



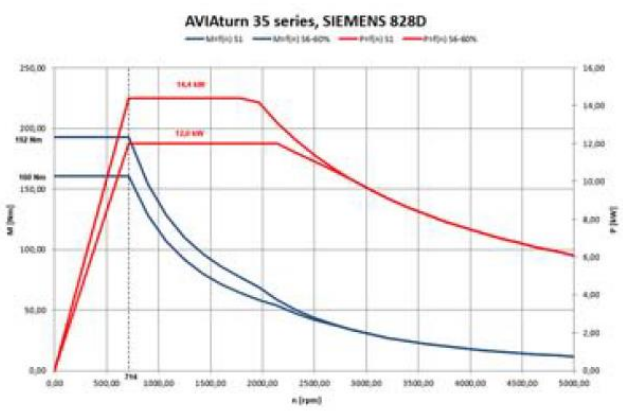
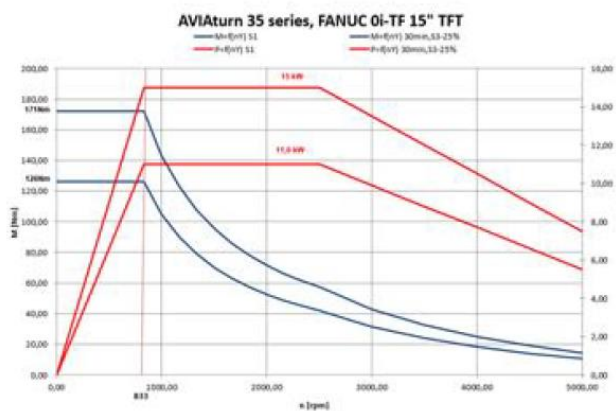
# AVIAturn 35

dynamics  
rigidity  
modernity



## AVIAturn 35

- modern and versatile CNC lathes are characterized by high dynamics and fast machining
- extra rigidity is achieved thanks to ell ribbed base of one piece iron casting
- 12 tool positions on the rotary magazine VDI 30 or BMT 55 provide the shortest replacement time
- tailstock with automatic travel and a diameter of 77 mm enables more efficient work for a wider range of turning
- combination of power and torque with modern CNC control for higher production and accuracy
- the use of AVIA ball screws with pre-tensioned nuts guarantees positioning accuracy and long-term maintenance-free operation



Technical Data		AVIAturn 35	AVIAturn 35M / AVIAturn 35MY	AVIAturn 35SM / AVIAturn 35SMY	
<b>WORKING AREA:</b>					
Diameter above the bed	mm	560	560	560	
Diameter over support	mm	350	350	350	
Turning length	mm	600	580	580	
Diameter for bars	mm	65	65	65	
<b>SPINDLE:</b>					
Spindle	type	A2-6	A2-6	A2-6	A2-5
Spindle speed	rpm	5000	5000	5000	6000
3-jaw chuck	mm	210	210	210	169
Spindle bore	mm	75,5	75,5	75,5	-
Spindle motor power S1 / S6 (40%) *	kW	11 / 15	11 / 15	11 / 15	7,5 / 11
Spindle torque S1 / S6 (40%) *	Nm	126 / 171	126 / 171	126 / 171	45 / 60
<b>FEEDS:</b>					
X-axis feed	mm	-10 / 210	-60 / 180 (M) -55 / 185 (MY)	-10/180	
Z / Z2 axis feed	mm	610 / -	600 / -	600 / 520	
Y-axis feed	mm	-	- / ±50	- / ±50	
X / Z / Z2 rapid traverse	m/mm	25 / 30 / -	25 / 30 / - (M) 25 / 30 / - (MY)	25 / 30 / 30 (SM) 25 / 30 / 30 (SMY)	
<b>TURRET:</b>					
Number of stations / active stations	pcs	12 / -	12 / 12	12 / 12	
Type of instruments / options	type	VDI 30 / BMT 55	VDI 30 / BMT 55	VDI 30 / BMT 55	
Tool size	mm	20 x 20 / 25x25	20 x 20 / 25x25	20 x 20 / 25x25	
Tool diameter	mm	32 / 40	32 / 40	32 / 40	
Speed of SIEMENS / FANUC driven tools	rpm	-	5 000 / 5 000	5 000 / 5 000	
Motor power of SIEMENS / FANUC driven tools	kW	-	4,8 / 4,5	4,8 / 4,5	
SIEMENS / FANUC driven tools torque	Nm	-	20 / 18	20 / 18	
<b>TAILSTOCK:</b>					
Travel	mm	500	500	-	
Axial force	N	5000	5000	-	
Tailstock cone	MK	5	5	-	
Feed method		hydraulic cylinder	Hydraulic cylinder	-	
<b>CNC CONTROL:</b>					
FANUC (standard)	type	0i-TF	0i-TF	0i-TF	
SIEMENS (optional)	type	828D	828D	828D	
<b>GENERAL INFORMATION:</b>					
Dimensions: L x W x D	mm	2860x1660x2120	2860x1660x2120	3060x1660x2120	
Weight cca	kg	3850	3900	4200	
Total power consumption *	kVA	24	26/29	38 / 40	
* For CNC system FANUC					
<b>STANDARD:</b>					
Digital servo axes and spindle		12 VDI 30 revolver stations			
3-jaw chuck 210 mm, hydraulic, self-centring		Automatic lubrication system for ball screws and guides			
Set of hard and soft jaws		Cooling system with coolant supply through the tool carrier			
Through spindle		Electronic hand wheel			
Linear guidance on the X and Z axes		Fully enclosed workspace with lighting			
Telescopic stainless steel line covers		Ethernet. PCMCIA, RS 232, USB (SIEMENS only)			
Ball screws with double pre-tensioned nut		Instructions for use and programming			
<b>options:</b>					
Hydraulic tailstock		Automatic bar feeder			
Tool probe		Oil mist collection			
Chip conveyor		Oil separator			
Additional soft jaws for the chuck		Tool holders			
Paddle		CAD / CAM software			
Self-centring 3-jaw chuck 250 mm, hydraulic		Coolant gun for work and cleaning			



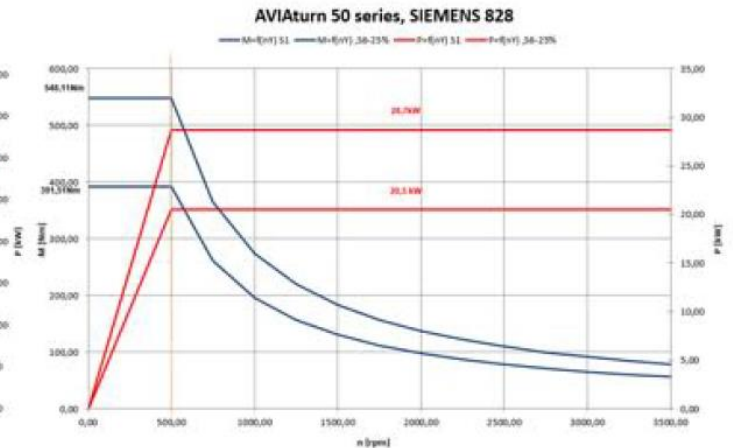
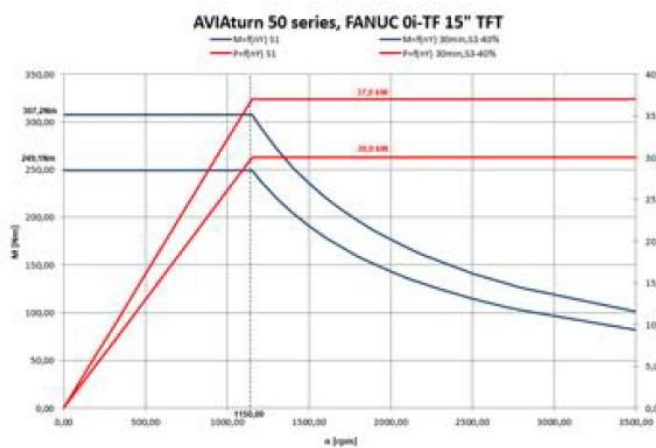
# AVIAturn 50

built in  
accordance with  
the most up to  
date design trends



## AVIAturn 50

- modern Slant bed CNC lathes designed for demanding and efficient production purposes high rigidity during roughing
- fully enclosed workspace for chipless work environments - stainless steel internal covers
- rigid tailstock travel performed by precision ground ball screw and a motor with brake
- well ribbed one-piece cast base optimized by FEM method ensures high rigidity during roughing
- 12 tool positions with VDI40 or BMT 65 actuators
- digital axial axis motors and servomotors bring high accuracy and dynamics of operation





Technical Data		AVIAturn 50	AVIAturn 50M / AVIAturn 50MY	AVIAturn 50 SM / AVIAturn 50SMY	
<b>WORKING AREA:</b>					
Diameter above the bed	mm	700	700	700	
Diameter over support	mm	500/445	500/445	500/445	
Turning length	mm	800	800	800	
Diameter for bars	mm	80	80	80	
<b>SPINDLE:</b>					
				<b>SPINDLE</b>	<b>SUB-SPINDLE</b>
Spindle	type	A2-8	A2-8	A2-8	A2-6
Spindle speed	rpm	3500	3500	3500	5000
3-jaw chuck	mm	315	315	315	210
Spindle bore	mm	93	93	93	-
Spindle motor power S1 / S6 (40%) *	kW	30/37	30/37	30/37	17/26
Spindle torque S1 / S6 (40%) *	Nm	391/548	391/548	391/548	115/160
<b>FEEDS:</b>					
X-axis feed	mm	-10/360	-60/300 (M) -20/290 (MY)	-5/280	
Z / Z2 axis feed	mm	830/-	830/-	830/690	
Y-axis feed	mm	-	-/±65	-/±65	
X / Z / Z2 rapid traverse	m/mm	24/24/-	24/24/-	24/24/24	
<b>TURRET:</b>					
Number of stations / active stations	pcs	12/-	12/12	12/12	
Type of instruments / options	type	VDI 40 / BMT 65	VDI 40 / BMT 65	VDI 40 / BMT 65	
Tool size	mm	25x25	25x25	25x25	
Tool diameter	mm	40	40	40	
Speed of SIEMENS / FANUC driven tools	rpm	-	4000/4000	4500/4000	
Motor power of SIEMENS / FANUC driven tools	kW	-	4,2/5,5	4,2/5,5	
SIEMENS / FANUC driven tools torque	Nm	-	28/30	28/30	
<b>TAILSTOCK:</b>					
Travel	mm	680	680	-	
Axial force	N	15 000	15 000	-	
Quill diameter	mm	110	110	-	
Quill travel (hydraulic)	mm	100	100	-	
Tailstock cone	MK	5	5	-	
Tailstock travel execution		el. motor + ball screw	el. motor + ball screw	-	
<b>CNC CONTROL:</b>					
FANUC (standard)	type	0i-TF	0i-TF	0i-TF	
SIEMENS (option)	type	828D	828D	828D	
<b>GENERAL INFORMATION:</b>					
Dimensions: L x W x D	mm	4050x2150x2370	4050x2150x2370(M) 4200x2150x2770 (MY)	4050x2150x2370 (SM) 4200x2150x2770 (SMY)	
Weight cca	kg	7000	7000 (M), 8000 (MY)	7500 (SM), 8500 (SMY)	
Total power consumption *	kVA	42	48/51	2/65	
* For CNC system FANUC					
<b>STANDARD:</b>					
Digital axis and spindle actuators		Tailstock with hydraulic quill			
Self-centring 3-jaw hydraulic chuck 315 mm		Automatic lubrication system for ball screws and guides			
Set of soft and hard jaws		Cooling system with coolant supply through the tool carrier			
Through spindle		Electronic hand wheel			
Linear guidance on the X and Z axes		Fully enclosed workspace with lighting			
Telescopic stainless steel line covers		Ethernet. PCMCIA, RS 232, USB (SIEMENS only)			
Ball screws with double pre-tensioned nut		Instructions for use and programming			
<b>OPTIONS:</b>					
Hydraulic steady rest		Automatic bar feeder			
Tool probe		Oil mist collection			
Chip conveyor		Oil separator			
Additional soft jaws for the chuck		Tool holders			
Cut off parts catcher with container		CAD / CAM software			
Collet chuck		More on request			



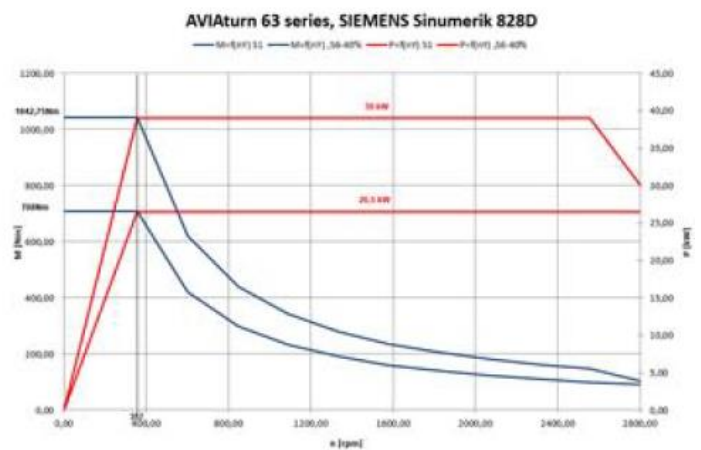
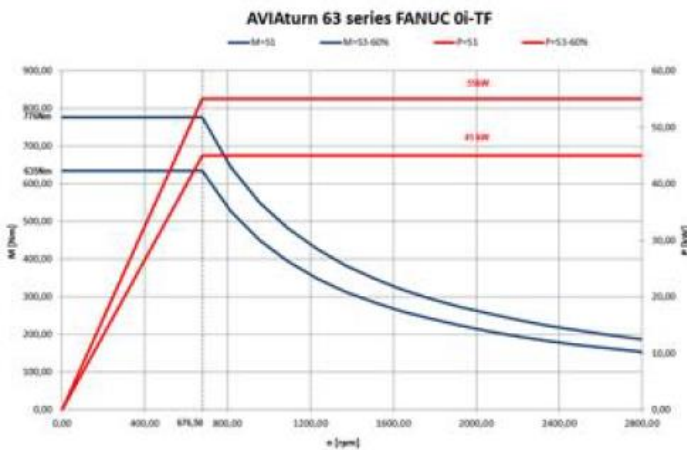
# AVIAturn 63

high performance lathes for most demanding applications

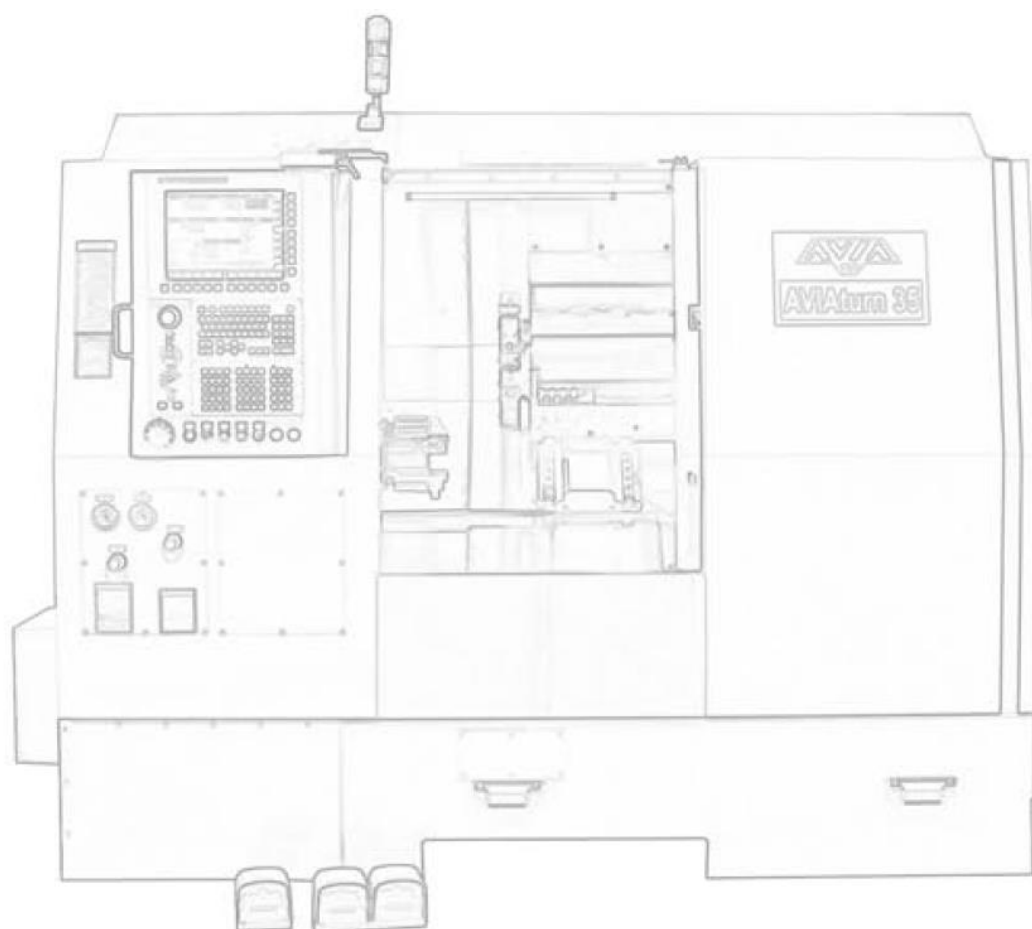


## AVIAturn 63

- extraordinary rigid one-piece iron casting base guarantees stability during heavy machining and roughing
- spacious workplace allows machining of large workpieces up to a length of 2500 mm
- perfect solution for rough and high-performance turning with a torque of up to 1266 Nm
- digital axis motors and servomotors bring high accuracy and dynamics of operation
- CNC lathe is equipped with a rotating magazine for 12 tools VDI 50 or BMT 75 for larger tool applications
- roller linear guideways with exceeded rigidity positively affect the stability and turning performance of large diameter workpieces



Technical Data		AVIAturn 63	AVIAturn 63M	AVIAturn 63MY / AVIAturn 63MYL	AVIAturn 63L / AVIAturn 63ML
<b>WORKING AREA:</b>					
Diameter above the bed	mm	770	770	770	770
Diameter over support	mm	630/445	630/445	580/445	630/550
Turning length	mm	1400	1400	1400 / 2500	2500
Diameter for bars (options)	mm	90 (112/135/150)	90 (112/135/150)	90 (112/135/150)	112 (135/150)
<b>SPINDLE:</b>					
Spindle (options)	type	A2-8 (A2-11 / A2-15)	A2-8 (A2-11 / A2-15)	A2-8 (A2-11 / A2-15)	A2-11 (A2-15)
Spindle speed	rpm	2800	2800	2800	1800
3-jaw chuck	mm	400	400	400	400
Spindle bore (options)	mm	105 (131/155/178)	105 (131/155/178)	105 (131/155/178)	131 (155/178)
Spindle motor power S1 / S6 (40%) *	kW	45/55	45/55	45/55	45/55
Spindle torque S1 / S6 (40%) *	Nm	860/1266	860/1266	860/1266	860/1266
<b>FEEDS:</b>					
X-axis feed	mm	-20/405	-40/385	-20/310	-20/405 (L) -40/385 (ML)
Z / Z2 axis feed	mm	1440	1440 / 2500	1440	2500
Y-axis feed	mm	-	-	±65	-
X / Z / Z2 rapid traverse	m/mm	24/24	24/24	24/24	24/24
<b>TURRET:</b>					
Number of stations / active stations	pcs	12/-	12/6	12/12	12/-(L), 12/6(ML)
Type of instruments / options	type	VDI 50 / BMT 75	VDI 50 / BMT 75	VDI 40 / BMT 65	DVI 50 / BMT 75
Tool size	mm	32 x 32	32 x 32	25 x 25	32 x 32
Tool diameter	mm	50	50	40	50
Speed of SIEMENS / FANUC driven tools	rpm	-	4 000 / 4 000	4 000 / 4 000	4 000 / 4 000 (ML)
Power of SIEMENS / FANUC driven tools	kW	-	8,8/5,5	8,8/5,5	8,8/5,5 (ML)
SIEMENS / FANUC driven tools torque	Nm	-	50/40	50/30	50/40 (ML)
<b>TAILSTOCK:</b>					
Travel	mm	1150	1150	1150	2100
Axial force	N	15 000	15 000	15 000	47 000
Quill diameter	mm	110	110	110	165
Quill travel (hydraulic)	mm	100	100	100	120
Tailstock cone	MK	5	5	5	6
Tailstock travel execution			el. motor + ball screw		
<b>CNC CONTROL:</b>					
FANUC (standard)	type	0i-TF	0i-TF	0i-TF	0i-TF
SIEMENS (option)	type	828D	828D	828D	828D
<b>GENERAL DATA:</b>					
Dimensions: L x W x H	mm	4580 x 2150 x 2370	4580 x 2150 x 2370	4580x2150x2800	5880x2340x2500
Weight cca	kg	8500	8500	9000	12000(L), 13000(ML)
Total power cca	kVA	49	60	68	cca 49/60
<b>STANDARD:</b>					
Digital actuators for axes and spindle			Telescopic stainless steel line covers		
12 tool positions VDI 50			Ball screws with double pre-tensioned nut		
Only medium hydraulic 3-jaw chuck 400 mm			Automatic lubrication system for ball screws and guides		
Tailstock with hydraulic quill			Cooling system with coolant supply through the tool carrier		
Through spindle			Electronic handwheel		
Set of soft and hard jaws			Fully enclosed workspace with lighting		
Linear guidance on the X and Z axes			Ethernet. PCMCIA, RS 232, USB (SIEMENS only)		
<b>OPTIONS:</b>					
Hydraulic steady rest			Collet chuck		
Tool probe			Oil mist collection		
Chip conveyor			Oil separator		
Additional soft jaws for the chuck			Tool holders		
Cut of parts catcher with container			CAD/CAM software		



Company management and production:

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