



SLANT BED CNC LATHES

AVIAturn35 | AVIAturn50 | AVIAturn63





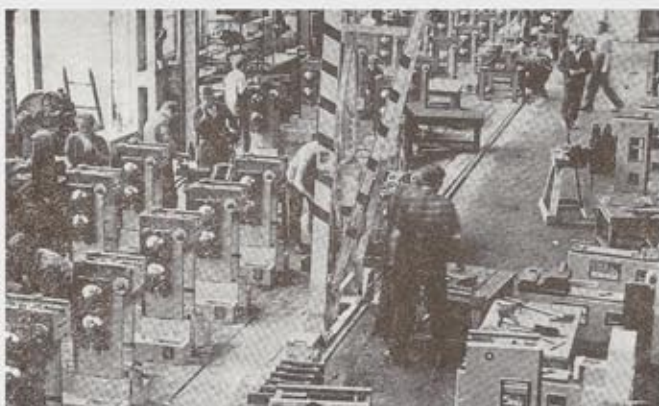
Fabryka Obrabiarek Precyzyjnych
AVIA S.A.

ABOUT US... |

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

Presence of our machine tools on highly industrialized markets stimulates constant growth and competitiveness of our Customers. Proven solutions from AVIA brand also support development of emerging markets in eastern part of Europe.

At present AVIA offers in its product range series of Vertical Machining Centres 3, 4 and 5 axis (continuous), CNC and Manual Universal Milling Machines and Slant Bed CNC Lathes. AVIA is also the manufacturer of machine tools key components i.e. spindles and precision ground ballscrews. We are supplier of ballscrews to some world leading machine tools producers.



Assembly line of AVIA Manual Universal Milling Machines - 1970's



New machine tool designs are made by our own R&D Department. The unique combination of highly skilled young engineers and very experienced designers, being with AVIA for many years, ensures that special "environment" of Research and Development process. Designs are made using computer systems for:

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

Our aim is not only to develop state-of-the-art machines and deliver them to the Customers, but also to provide training, service and maintenance support as well as the spare parts availability for many years after sale of the machine.

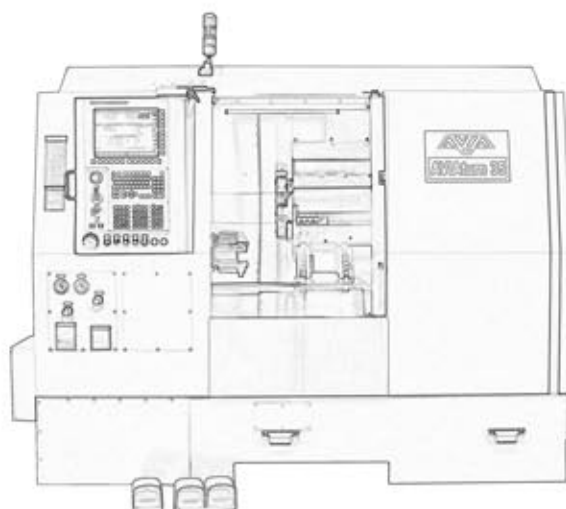
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DISCOVER WIDE RANGE OF PRECISION SLANT BED CNC LATHES OF AVIA |

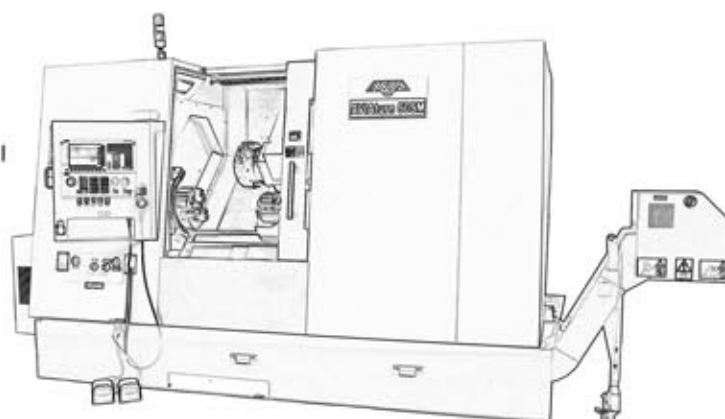


AVIAturn35 SERIES |

- modern and versatile CNC lathes are characterized by high dynamics and machining speed,
- extra rigidity is achieved thanks to well ribbed base of one piece iron casting,
- 12 station servo turrets with VDI 30 or BMT 55 tooling discs provide fastest tool change time,
- tailstock with automatic travel and 75,5 mm spindle bore enable efficient chuck work, center work and bar work for wide range of turning jobs,
- combination of power and torque characteristics with modern CNC systems for higher performance and accuracy,
- application of AVIA ground ballscrews with pre-loaded nuts guarantees positioning accuracy and long lasting maintenance-free operations.

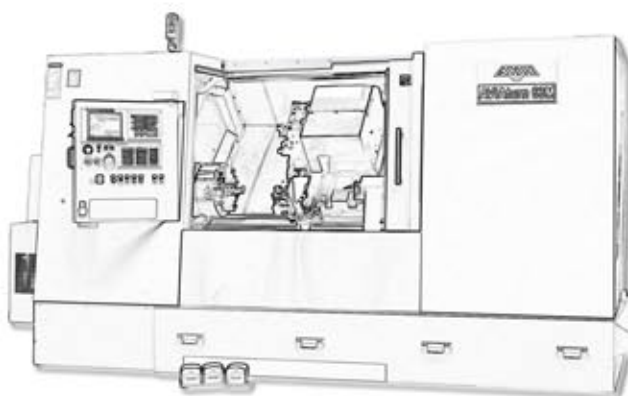
AVIAturn50 SERIES |

- modern Slant Bed CNC Lathes designed for demanding and efficient production purposes, ensures high rigidity during rough machining,
- fully enclosed working area for chip-free working environment - internal covers made of stainless steel,
- rigid tailstock travel performed by precision ground ballscrew and motor with brake,
- well ribbed base is one piece iron casting with bed optimized using Finite Elements Method (FEM) ensures high rigidity during rough machining,
- 12 station servo turrets with VDI 40 or BMT 65 tooling discs,
- digital axis motors and servodrives ensure high positioning accuracy and dynamics.



AVIAturn63 SERIES |

- extraordinarily rigid one piece iron casting base guarantees stability during heavy duty rough machining,
- spacious working area enables large workpieces machining - turning length up to 2500 in centres,
- perfect solution for rough and high performance turning with available spindle torque up to 1026 Nm,
- digital axis motors and servodrives ensure high positioning accuracy and dynamics,
- CNC lathes are equipped with 12 station servo turrets with VDI 50 or BMT 75 tooling discs for large tools application,
- roller type linear guideways with exceeded rigidity positively influence stability and performance of turning large diameter workpieces.





1.



2.



3.

1. Special indexing chuck SMW AXN series adjusted in 4 positions. 2. Puller – for pulling bar from the spindle. 3. Cut-off parts catcher for automatic parts collection. 4. Automatic tool probe. 5. Hydraulic steady rest – provides support for long bars and shafts during turning operations, 6. Guideways covers made of stainless steel.



4.



5.



6.

DISCOVER SLANT BED CNC LATHES DESIGNED TO YOUR NEEDS |

HIGH CLASS CNC SYSTEMS |

Modern Digital CNC control system FANUC Oi-TF with highest reliability on the market. Possibility of conversational programming – Manual Guide i. Numerous interface ports enables communication with control. Available option of running FANUC Oi-TF system Simulator on PC/laptop.

Siemens SINUMERIK 828D new CNC system guarantees high machining efficiency with possibility of ShopTurn 3D Dialog mode. Numerous interfaces (RS 232, USB, PCMCIA, Ethernet) enables communication with CNC control. Maintenance free operations thanks to NV-RAM technology – no batteries or hard drive required.



RELIABLE KEY COMPONENTS |



Well ribbed base of the lathe is always an one piece casting together with the bed in order to achieve respective rigidity, good vibration dumping, thermal and dimensional stability. Mechanical components are precisely positioned. Assembly surfaces for linear guideways are ground on precision Waldrich-Coburg surface grinder for ideal adhere, high rigidity and geometrical stability. The top surface of the base is inclined at 35 or 45 deg. to the horizontal plane, what provides very good conditions for the unobstructed removal of chips.



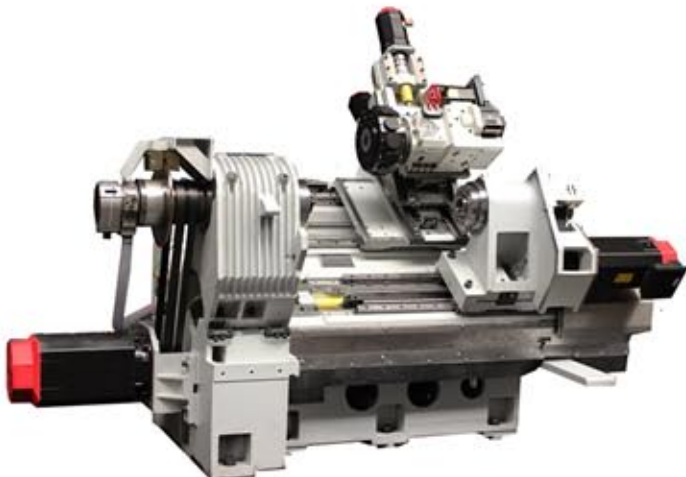
Precision ground C3 class ballscrews made by AVIA with preloaded double nut are applied in our Slant Bed CNC Lathes in order to achieve excellent positioning accuracy and avoid backlash effect. Ballscrews are precisely aligned to the linear guideways. Our solution is characterized by long life durability without the necessity of service intervention. Very high accuracy is achieved due to the entirely digital CNC-Servo system combined with the direct mechanical drives (no belts) coupled to the preloaded double nut ballscrews.

Clearance-free roller type linear guideways enable achieving high rapid traverse speeds, high precision and avoiding stick-slip effect which is characteristic for box type guideways. Linear guideways are always widely spaced for better stability and rigidity.

CE conformed electric parts of well-known and reliable suppliers are easily available on the market for maintenance purposes.

12 STATION SERVO TURRETS WITH VDI and BMT TOOLING DISC |

12 station servo turrets with VDI tooling discs are used for fastest possible tool change time and maximum rigidity for more efficient turning. Popular among Customers VDI toolholders were used for fast toolholder change and wide availability on the market. Optionally also available BMT tooling disc for higher repeatability and rigidity.



OPTIONAL EQUIPMENT |

- automatic tool probes – installed for faster and automatic tool measurement procedures,
- chip conveyor – unobstructed removal of chips from working area combined with coolant pre-separation,
- oil mist collector - eliminates the following harmful effects of suspended mists,
- hydraulic steady rest – provides support for long bars and shafts during turning operations,
- collet chucks – necessary for bar work,
- cut-off parts catcher for automatic parts collection without interrupting lathe operations,
- magazine bar feed system – supply bar through the spindle and is essential for serial production.

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

- Y axis is realized using additional inclined support and combination of X1 and X2 axis movement.
- application of inclined support provides higher rigidity and accuracy in comparison to other solutions available on the market i.e. Y axis built-in turret



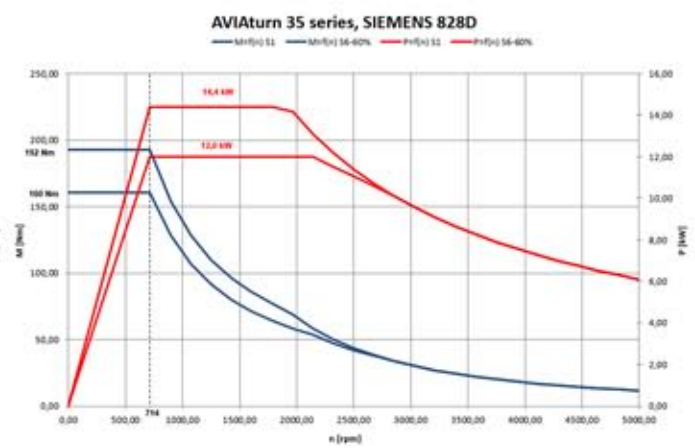
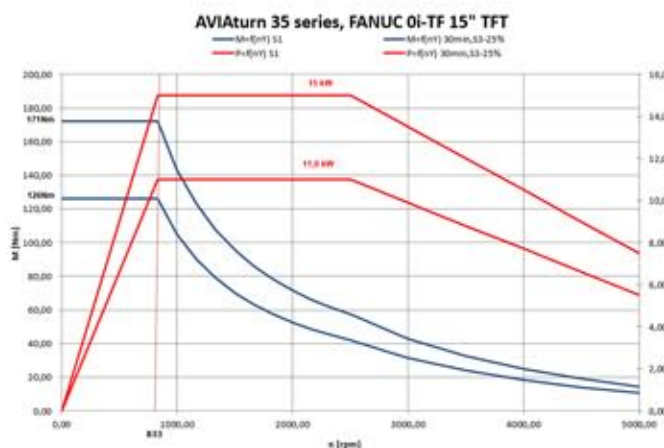
AVIAturn35 |

dynamics
rigidity
modernity



AVIAturn35 |

- modern and versatile CNC lathes are characterized by high dynamics and machining speed,
- extra rigidity is achieved thanks to well ribbed base of one piece iron casting,
- 12 station servo turrets with VDI 30 or BMT 55 tooling discs provide fastest tool change time,
- tailstock with automatic travel and 75,5 mm spindle bore enable efficient chuck work, center work and bar work for wide range of turning jobs,
- combination of power and torque characteristics with modern CNC systems for higher performance and accuracy,
- application of AVIA ground ballscrews with pre-loaded nuts guarantees positioning accuracy and long lasting maintenance-free operations.



Technical Data		AVIATurn 35	AVIATurn 35M / AVIATurn 35MY	AVIATurn 35SM / AVIATurn 35SMY	
WORKING AREA:					
Swing over bed covers	mm	560	560	560	
Max. turning diameter over cross carriage	mm	350	350	350	
Max. turning length	mm	600	580	580	
Max. bar capacity	mm	65	65	65	
HEADSTOCK:				SPINDLE	SUB- SPINDLE
Spindle nose	type	A2-6	A2-6	A2-6	A2-5
Max. spindle speed	rpm	5000	5000	5000	6000
3-jaw chuck diameter	mm	210	210	210	169
Spindle bore	mm	75,5	75,5	75,5	-
Spindle motor power S1/S6(60%)*	kW	13,5/16,2	13,5/16,2	13,5/16,2	8/9,7
Spindle torque S1/S6(60%)*	Nm	157/189	157/189	157/189	52/62
AXES:					
Travel in X axis	mm	-10/+210	-60/180 (M) -55/185 (MY)	-10/+180	
Travel in Z / Z2 axis	mm	610 / -	600 / -	600 / 520	
Travel in Y axis (MY and SMY models)	mm	-	±50	±50	
Rapid traverse X / Z / X1 / Z2	m/min	25/30/-/-	25/30/-/- 25/30/11/- (MY)	25/30/-/30 (SM) 25/30/11/30 (SMY)	
TURRET:					
No. of stations / live tooling stations	pcs	12/-	12/12	12/12	
Tool disc std. / option	type	VDI 30 / BMT 55	VDI 30 / BMT 55	VDI 30 / BMT 55	
Tool shank	mm	20 x 20	20 x 20	20 x 20	
Max. boring bar diameter	mm	32	32	32	
Max. driven tools speed	SIEMENS / FANUC rpm	-	5000/5000	5000/5000	
Power of driven tools motor	SIEMENS / FANUC kW	-	4,8/4,5	4,82/4,5	
Torque of driven tools motor S1	SIEMENS / FANUC Nm	-	20/18	20/18	
TAILSTOCK:					
Travel	mm	500	500	-	
Max. axial thrust	N	5000	5000	-	
Centre seat	MK	5	5	-	
Tailstock travel execution		hydraulic cylinder	hydraulic cylinder	-	
CNC CONTROLS:					
FANUC (standard)	type	0i-TF 15"	0i-TF 15"	0i-TF 15"	
SIEMENS (option)	type	828D 15"	828D 15"	828D 15"	
GENERAL DATA:					
Dimensions: L x W x H without chip conveyor	mm	2860x1660x2120	2860x1660x2120	3060x1660x2120	
Weight c.a.	kg	3850	3900	4200	
Total power installed*	kVA	c.a. 24	c.a. 26/29	c.a. 38/40	
*for FANUC 0i-TF					
STANDARD:					
<ul style="list-style-type: none">digital package of servo-drives for axes and spindle,12-station servo turret VDI 30,self-centering, Ø210 mm 3-jaw chuck with hydraulic clamping,sets of hard and soft jaws for 3-jaw chuck,through hole chuck cylinder,linear guideways in X / Z axes,telescopic guideways covers made of stainless steel,ball screws with double preloaded nut,			<ul style="list-style-type: none">automatic lubrication system for ball screws and guideways,coolant system with coolant supply through tooling disc,electronic handwheel,fully enclosed working area with lighting installation,Ethernet, PCMCIA, RS 232, USB (SIEMENS only),operating and programming manuals.		
OPTIONS:					
<ul style="list-style-type: none">hydraulic tailstock,tool probe,chip conveyor,additional soft jaws for the chuck,collet chuck with collets,cut-off parts catcher with container,self-centering, Ø250 mm 3-jaw chuck with hydraulic clamping			<ul style="list-style-type: none">bar feed system,oil mist collector,oil separator,toolholders,CAD/CAM software,coolant gun for working area cleaning,other upon request.		



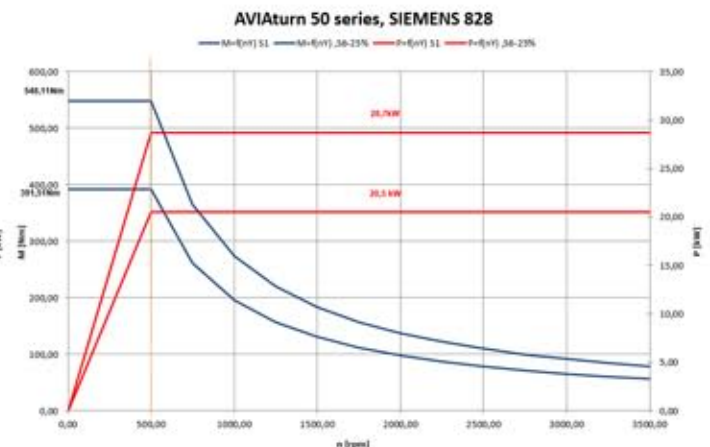
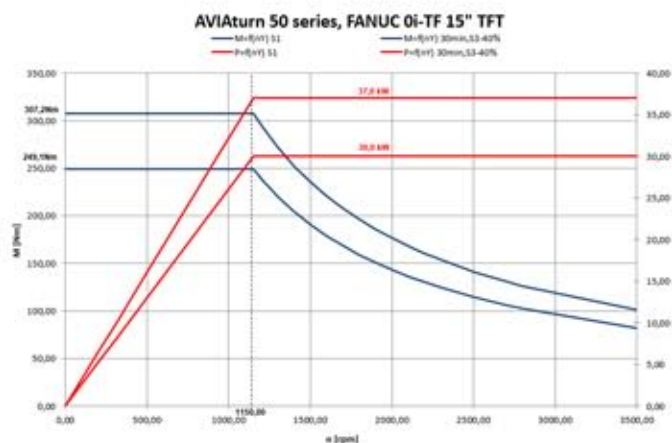
AVIAturn50 |

built in
accordance with
the most up to
date design
trends



AVIAturn50 |

- modern Slant Bed CNC Lathes designed for demanding and efficient production purposes, ensures high rigidity during rough machining,
- fully enclosed working area for chip-free working environment - internal covers made of stainless steel,
- rigid tailstock travel performed by precision ground ballscrew and motor with brake,
- well ribbed base is one piece iron casting with bed optimized using Finite Elements Method (FEM) ensures high rigidity during rough machining,
- 12 station servo turrets with VDI 40 or BMT 65 tooling discs: fast and rigid,
- digital axis motors and servodrives ensure high positioning accuracy and dynamics.



Technical Data		AVIAturn 50	AVIAturn 50M / AVIAturn50MY	AVIAturn 50SM / AVIAturn50SMY
WORKING AREA:				
Swing over bed covers	mm	700	700	700
Max. turning diameter over bed covers / over cross carriage	mm	500/445	500/445	500/445
Max. turning length	mm	800	800	780
Max. bar capacity	mm	80	80	80
HEADSTOCK:				SPINDLE SUB-SPINDLE
Spindle nose	type	A2-8	A2-8	A2-8 A2-6
Max. spindle speed	rpm	3500	3500	3500 5000
3-jaw chuck diameter	mm	315	315	315 210
Spindle bore	mm	93	93	93 -
Spindle motor power S1/S6(40%)*	kW	20,5/30,7	20,5/30,7	20,5/30,7 17/26,4
Spindle torque S1/ S6(40%)*	Nm	391/548	391/548	391/548 115/160
AXES:				
Travel in X axis	mm	-10/360	-60/300 (M) -20/290 (MY)	-5/280
Travel in Z / Z2 axis	mm	830/-	830/-	830/690
Travel in Y axis (MY and SMY models)	mm	-	±65	±65
Rapid traverse X / Z / Z2	m/min	24/24/-	24/24/-	24/24/24
TURRET:				
No. of stations / live tooling stations	pcs	12/-	12/12	12/12
Tool disc std. / option	type	VDI 40 / BMT 65	VDI 40 / BMT 65	VDI 40 / BMT 65
Tool shank	mm	25 x 25	25 x 25	25 x 25
Max. boring bar diameter	mm	40	40	40
Max. driven tools speed	rpm	-	4000/4000	4000/4000
Power of driven tools motor	KW	-	4,2/5,5	4,2/5,5
Torque of driven tools motor S1	Nm	-	28/30	28/30
TAILSTOCK:				
Travel	mm	680	680	-
Max. axial thrust	N	15 000	15 000	-
Quill diameter	mm	110	110	-
Quill travel (hydraulic)	mm	100	100	-
Centre seat	MK	5	5	-
Tailstock travel execution		ball screw + electric motor	ball screw + electric motor	-
CNC CONTROLS:				
FANUC (standard)	type	0i-TF 15"	0i-TF 15"	0i-TF 15"
SIEMENS (option)	type	828D 15"	828D 15"	828D 15"
GENERAL DATA:				
Dimensions: L x W x H without chip conveyor	mm	4050x2150x2370	4050x2150x2370(M) 4200x2150x2770 (MY)	4050x2150x2370 (SM) 4200x2150x2770 (SMY)
Weight c.a.	kg	7000	7000 (M), 8000 (MY)	c.a. 7500 (SM), 8500 (SMY)
Total power installed*	kVA	c.a. 45	c.a. 48/51	c.a. 62/65
*for SIEMENS SINUMERIK 828D				
STANDARD:				
<ul style="list-style-type: none"> digital package of servo-drives for axes and spindle, self centring, Ø315 mm 3-jaw chuck with hydraulic clamping, 12-station servo turret VDI 40, tailstock with hydraulic travelling quill, through hole chuck cylinder, sets of hard and soft jaws for 3-jaw chuck , roller type linear guideways in X / Z axes, telescopic guideways covers made of stainless steel ball screws with double preloaded nut, automatic lubrication system for ball screws and guideways, coolant system with coolant supply through tooling disc, electronic handwheel, fully enclosed working area with lighting installation, Ethernet, PCMCIA, USB (SIEMENS only), operating and programming manuals. 				
OPTIONS:				
<ul style="list-style-type: none"> hydraulic steady rest, tool probe, chip conveyor, additional soft jaws for the chuck, collet chuck with collets, cut-off parts catcher with container, bar feed system, oil mist collector, oil separator, toolholders, CAD/CAM software, other upon request. 				



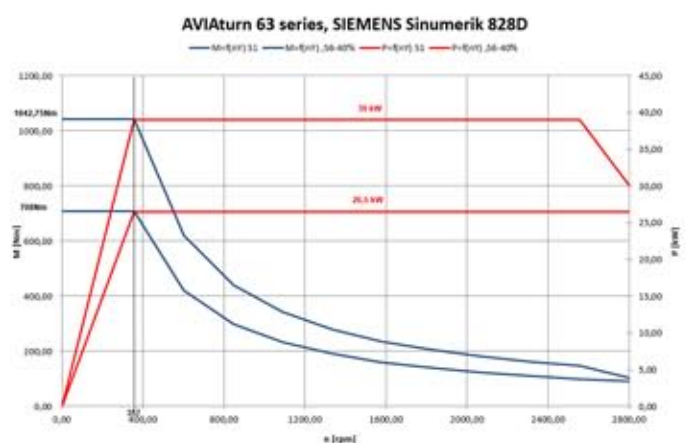
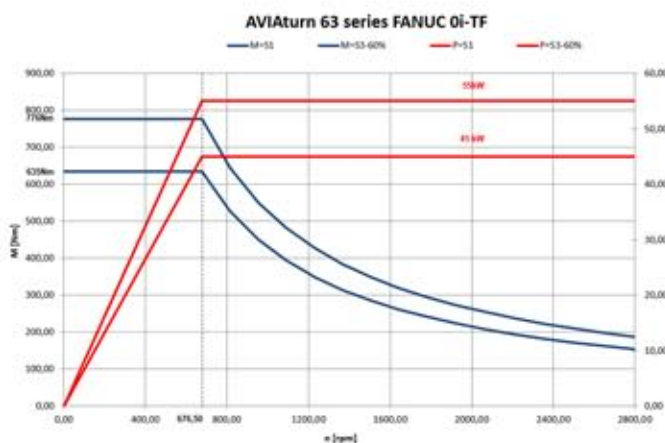
AVIAturn63 |

high performance
lathes for most
demanding
applications



AVIAturn63 |

- extraordinarily rigid, one piece iron casting base guarantees stability during heavy duty cutting,
- spacious working area enables large workpieces machining - turning length between centres - up to 2500 mm,
- perfect solution for rough and high performance turning with available spindle torque up to 1042 Nm,
- digital axis motors and servodrives ensure high positioning accuracy and dynamics,
- CNC lathes are equipped with 12 station servo turrets with VDI 50 or BMT 75 tooling discs for large tools application,
- roller type linear guideways with exceeded rigidity positively influence stability and performance of turning large diameter workpieces.



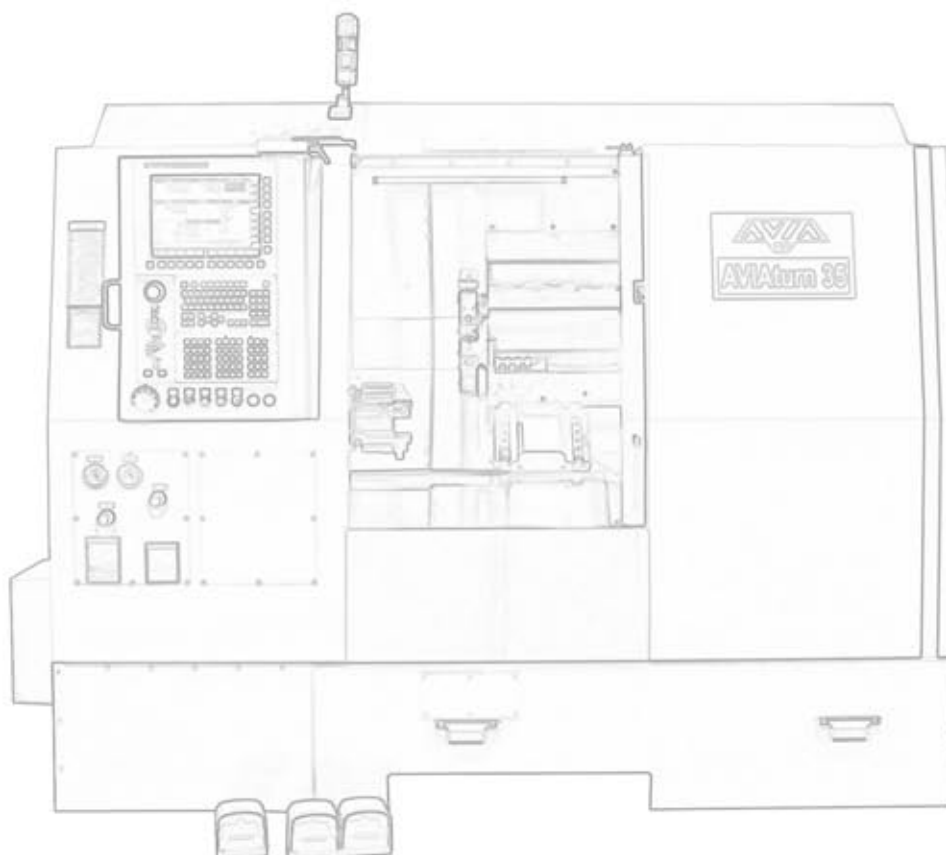
Technical Data		AVIAturn 63	AVIAturn 63M	AVIAturn 63MY	AVIAturn 63L / AVIAturn 63ML
WORKING AREA:					
Swing over bed covers	mm	770	770	770	770
Max. turning diameter over bed covers / over cross carriage	mm	630/445	630/445	580/445	630/630
Max. turning length	mm	1400	1400	1300	2500
Max. bar capacity (options)	mm	90 (112/135/150)	90 (112/135/150)	90 (112/135/150)	112 (135/150)
HEADSTOCK:					
Spindle nose std. (options)	type	A2-8 (A2-11/A2-15)	A2-8 (A2-11/A2-15)	A2-8 (A2-11/A2-15)	A2-11 (A2-15)
Max. spindle speed	rpm	2800	2800	2800	1800
3-jaw chuck diameter	mm	400	400	400	400
Spindle bore (options)	mm	105 (131/155/178)	105 (131/155/178)	105 (128/155/178)	131 (155/178)
Spindle motor power S1/S6(40%)*	kW	26,5/39	26,5/39	26,5/39	26,5/39
Spindle torque S1/ S6(40%)*	Nm	620/923	620/923	620/923	860/1266
AXES:					
Travel in X axis	mm	-20/405	-40/385	-20/310	-20/405 (L) -40/385 (ML)
Travel in Z axis	mm	1440	1440	1390	2500
Travel in Y axis	mm	-	-	±65	-
Rapid traverse X / Z	m/min	24/24	24/24	24/24	24/24
TURRET:					
No. of stations / live tooling stations	pcs	12/-	12/6	12/12	12/- (L), 12/6 (ML)
Tool disc std. / option	type	VDI 50 / BMT 75	VDI 50 / BMT 75	VDI 40 / BMT 65	BMT 65 / BMT 75
Tool shank	mm	32 x 32	32 x 32	25 x 25	32 x 32
Max. boring bar diameter	mm	50	50	40	50
Max. driven tools speed	SIEMENS / FANUC rpm	-	4000/4000	4000/4000	4000/4000 (ML)
Power of driven tools motor	SIEMENS / FANUC kW	-	8,8/5,5	8,8/5,5	8,8/5,5 (ML)
Torque of driven tools motor S1	SIEMENS / FANUC Nm	-	50/40	50/40	50/40 (ML)
TAILSTOCK:					
Travel	mm	1150	1150	1150	2100
Max. axial thrust	N	15 000	15 000	15 000	47 000
Quill diameter	mm	110	110	110	165
Quill travel (hydraulic)	mm	100	100	100	120
Centre seat	MK	5	5	5	6
Tailstock travel execution		ball screw + electric motor	ball screw + electric motor	ball screw + electric motor	ball screw + electric motor
CNC CONTROLS:					
FANUC (standard)	type	0i-TF	0i-TF	0i-TF	0i-TF
SIEMENS (option)	type	SINUMERIK 828D	SINUMERIK 828D	SINUMERIK 828D	SINUMERIK 828D
GENERAL DATA:					
Dimensions: L x W x H without chip conveyor	mm	4580x2150x2370	4580x2150x2370	4580x2150x2800	5880x2340x2500
Weight c.a.	kg	8500	8500	9000	12000 (L), 13000(ML)
Total power installed*	kVA	c.a. 66	c.a. 66	c.a. 66	c.a. 66÷72
*for SIEMENS SINUMERIK 828D					

STANDARD:

- digital package of servo-drives for axes and spindle,
- self centring, Ø400 mm 3-jaw chuck with hydraulic clamping,
- 12-station servo turret VDI 50,
- tailstock with hydraulic travelling quill,
- through hole chuck cylinder,
- sets of hard and soft jaws for 3-jaw chuck ,
- roller type linear guideways in X / Z axes,
- telescopic guideways covers made of stainless steel
- ball screws with double preloaded nut,
- automatic lubrication system for ball screws and guideways,
- coolant system with coolant supply through tooling disc,
- electronic handwheel,
- fully enclosed working area with lighting installation,
- Ethernet, PCMCIA, RS 232, USB (SIEMENS only), operating and programming manuals.

OPTIONS:

- hydraulic steady rest,
- tool probe,
- chip conveyor,
- additional soft jaws for the chuck,
- self centring, Ø500 mm 3-jaw chuck with hydraulic clamping,
- selection of big bore spindles,
- oil mist collector,
- oil separator,
- toolholders,
- CAD/CAM software,
- other upon request.



Factory:

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