



SLANT BED CNC LATHES

AVIAturn35 | **AVIAturn50** | **AVIAturn63**





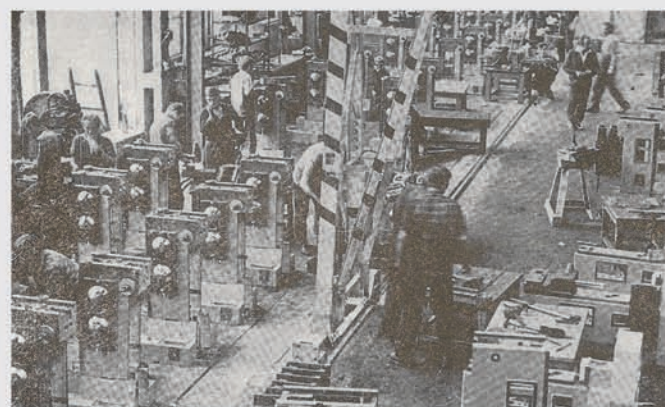
Fabryka Obrabiarek Precyzyjnych
AVIA S.A.

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 50 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 4 000 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.

Company Headquarters and Factory:

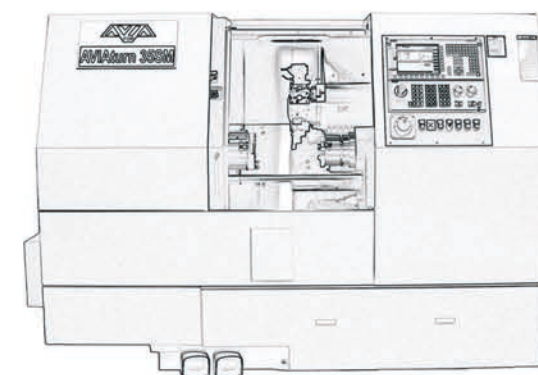
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DISCOVER WIDE RANGE OF PRECISION SLANT BED CNC LATHES OF AVIA |

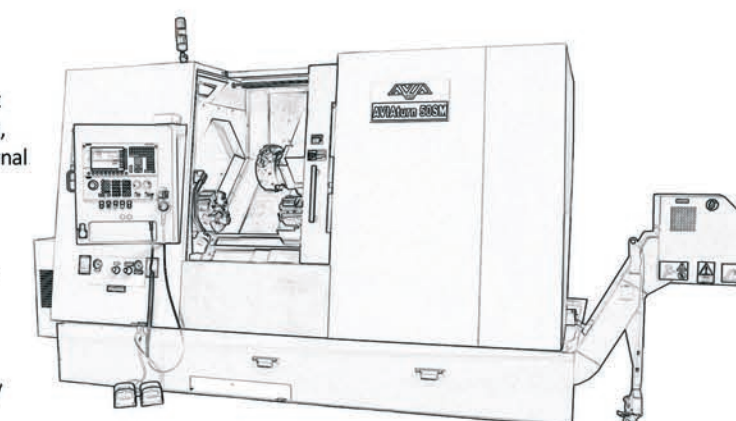
AVIAturn35 SERIES |



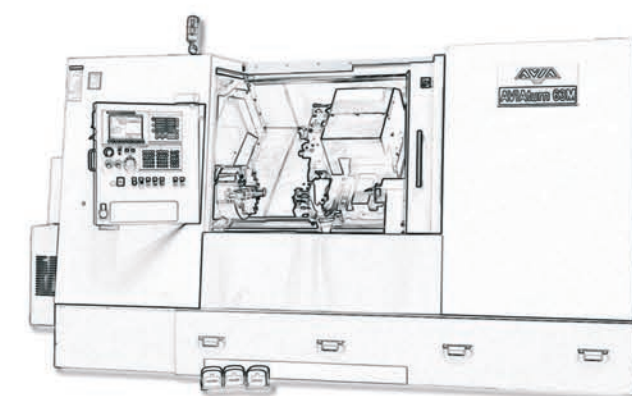
- modern and versatile CNC lathes are characterized by high dynamics and machining speed,
- extra rigidity is achieved thanks to well ribbed base of one piece iron casting,
- 12 station servo turrets with VDI 30 or BMT 55 tooling discs provide fastest tool change time,
- tailstock with automatic travel and 77 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 from 1500 mm to 2500 in centres,
- perfect solution for rough and high performance turning with available spindle torque up to 1400 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.

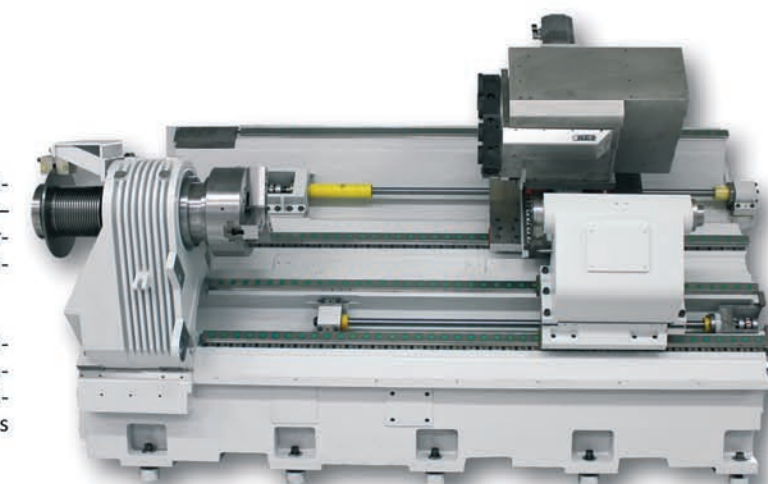


DISCOVER SLANT BED CNC LATHES DESIGNED TO YOUR NEEDS |

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 (RS 232, PCMCIA, Ethernet) enables communication with control. Available option of running FANUC Oi-TF system Simulator on PC/laptop.

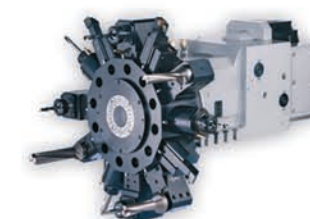
Siemens SINUMERIK 828D new CNC system guarantees high machining efficiency with possibility of ShopTurn 3D Dialog mode. Numerous interfaces (RS 232, USB, PCMCIA, Ethernet) enables communication with CNC control. Maintenance free operations thanks to NV-RAM technology – no batteries or hard drive required.



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.

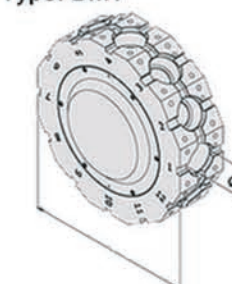
Clearance-free roller type linear guideways enable achieving high rapid traverse speeds, high precision and avoiding stick-slip effect which is characteristic for box type guideways. Linear guideways are always widely spaced for better stability and rigidity.

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

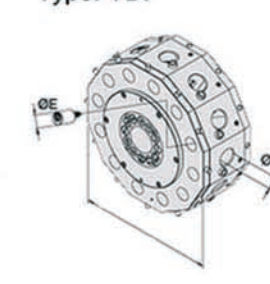
12 STATION SERVO TURRETS WITH VDI and BMT TOOLING DISC |

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.

Type: BMT



Type: VDI



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.



1.



2.



3.

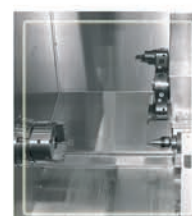
1. Special indexing chuck SMW AXN series adjusted in 4 positions. 2. Puller – for pulling bar from the spindle. 3. Cut-off parts catcher for automatic parts collection. 4. Automatic tool probe. 5. Hydraulic steady rest – provides support for long bars and shafts during turning operations, 6. Guideways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



4.



5.



6.



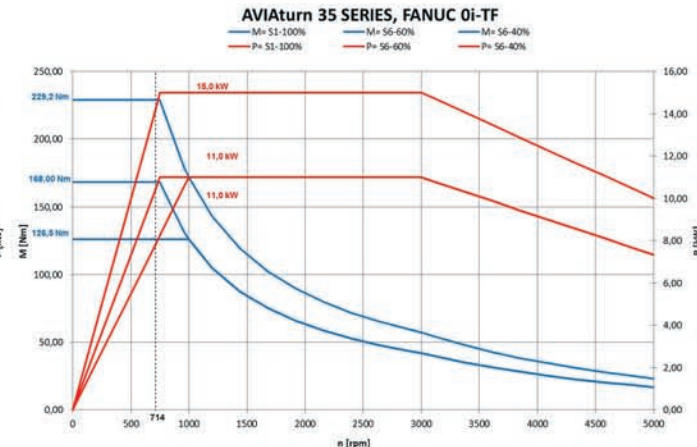
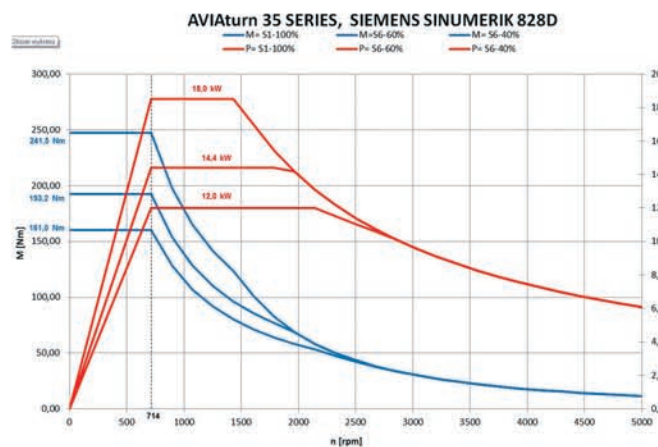
AVIAturn35 |

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 77 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(Y)	AVIAturn 35SM(Y)
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 (500)	540 (500)
Max. bar capacity	mm	65	65	65
HEADSTOCK:				
Spindle nose	type	A2-6	A2-6	A2-6
Max. spindle speed	rpm	5000	5000	5000
3-jaw chuck diameter	mm	210	210	210
Spindle bore	mm	75,5	75,5	75,5
Spindle motor power S1/S3(60%)*	kW	11/15	11/15	11/15
Spindle torque S1/S3(60%)*	Nm	126/229	126/229	126/229
AXES:				
Travel in X axis	mm	240	210	210 (200)
Travel in Z axis	mm	605	585	605 (600)
Travel in Y axis	Mm	-	(±50)	(±50)
Rapid traverse X / Z	m/min	25/30	25/30	25/30
TURRET:				
No. of stations	pcs	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	rpm	-	5000	5000
Power of driven tools motor (SIEMENS / FANUC)	KW	-	4,1 / 2,2	4,1 / 2,2
TAILSTOCK:				
Travel	mm	500	500	n/a
Max. axial thrust	N	5000	5000	n/a
Centre seat	MK	5	5	n/a
Tailstock travel execution		hydraulic cylinder	hydraulic cylinder	n/a
Travel of sub-spindle (Z2)	mm	n/a	n/a	520 (500)
Rapid traverse of sub-spindle (Z2)	m/min	n/a	n/a	30
CNC CONTROLS:				
FANUC (standard)	type	0i-TF	0i-TF	0i-TF
SIEMENS (option)	type	SINUMERIK 828D	SINUMERIK 828D	SINUMERIK 828D
GENERAL DATA:				
Dimensions: L x W x H without chip conveyor	mm	2860x1660x2120	2860x1660x2120	3000x1660x2120
Weight c.a.	kg	c.a. 3850	c.a. 3850	c.a. 4000
Total power installed	kVA	c.a. 30	c.a. 30 (32)	c.a. 40 (42)

*for FANUC 0i-TF

STANDARD:

- 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,
- 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 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,
- bar feed system,
- oil mist collector,
- oil separator,
- toolholders,
- CAD/CAM software,
- other upon request.
- coolant gun for working area cleaning.



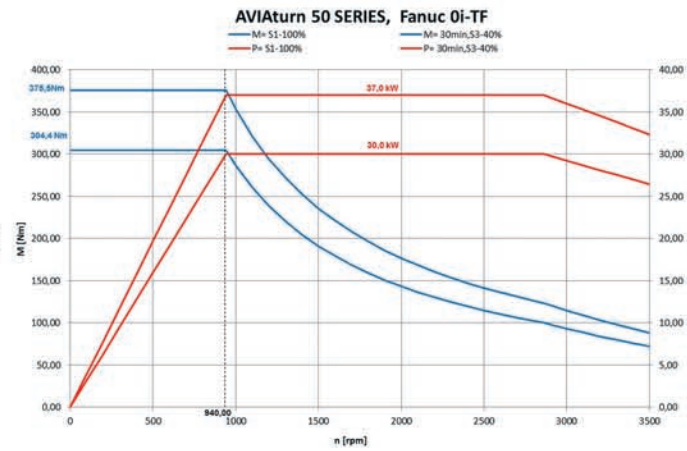
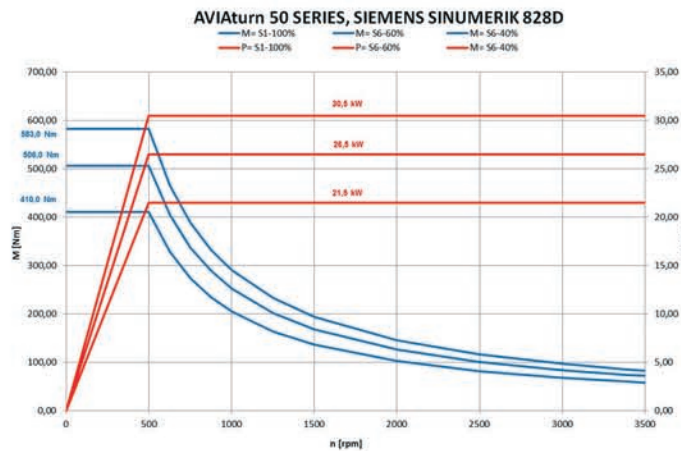
AVIAturn50 |

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	AVIAturn 50SM
WORKING AREA:				
Swing over bed covers	mm	745	745	745
Max. turning diameter over bed covers	mm	500	500	500
Max. turning diameter over cross carriage	mm	500	500	500
Swing over bed covers	mm	745	745	745
Max. turning length	mm	800	800	800
Max. bar capacity	mm	80	80	80
HEADSTOCK:				
Spindle nose	type	A2-8	A2-8	A2-8
Max. spindle speed	rpm	3500	3500	3500
3-jaw chuck diameter	mm	315	315	315
Spindle bore	mm	93,5	93,5	93,5
Spindle motor power S1/S6(60%)/S6(40%)*	kW	21,5/26,5/30,5	21,5/26,5/30,5	21,5/26,5/30,5
Spindle torque S1/ S6(60%)/S6(40%)*	Nm	410/506/583	410/506/583	410/506/583
AXES:				
Travel in X axis	mm	340	340	340
Travel in Z axis	mm	850	850	850
Rapid traverse X / Z	m/min	24/24	24/24	24/24
TURRET:				
No. of stations	pcs	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
Power of driven tools motor (SIEMENS / FANUC)	KW	-	5,7 / 5,5	5,7 / 5,5
TAILSTOCK:				
Travel	mm	700	700	n/a
Max. axial thrust	N	12 000	12 000	n/a
Quill diameter	mm	115	115	n/a
Quill travel	mm	100	100	n/a
Centre seat	MK	5	5	n/a
Tailstock travel execution		electric motor + ball screw	electric motor + ball screw	n/a
Travel of sub-spindle (Z2)	mm	n/a	n/a	710
Rapid travel of sub-spindle (Z2)	m/min	n/a	n/a	24
CNC CONTROLS:				
FANUC (standard)	type	0i-TF	0i-TF	0i-TF
SIEMENS (option)	type	SINUMERIK 828D	SINUMERIK 828D	SINUMERIK 828D

GENERAL DATA:				
Dimensions: L x W x H without chip conveyor	mm	4050x2100x2400	4050x2100x2400	4050x2100x2400
Weight c.a.	kg	c.a. 7000	c.a. 7000	c.a. 7500
Total power installed	kVA	c.a. 47	c.a. 47	c.a. 55
*for SIEMENS SINUMERIK 828D				

STANDARD:				
<input type="checkbox"/> digital package of servo-drives for axes and spindle,	<input type="checkbox"/> ball screws with double preloaded nut,			
<input type="checkbox"/> self centring, Ø315 mm 3-jaw chuck with hydraulic clamping,	<input type="checkbox"/> automatic lubrication system for ball screws and guideways,			
<input type="checkbox"/> 12-station servo turret VDI 40,	<input type="checkbox"/> coolant system with coolant supply through tooling disc,			
<input type="checkbox"/> tailstock with hydraulic travelling quill,	<input type="checkbox"/> electronic handwheel,			
<input type="checkbox"/> through hole chuck cylinder,	<input type="checkbox"/> fully enclosed working area with lighting installation,			
<input type="checkbox"/> sets of hard and soft jaws for 3-jaw chuck ,	<input type="checkbox"/> Ethernet, PCMCIA, RS 232, USB (SIEMENS only),			
<input type="checkbox"/> roller type linear guideways in X / Z axes,	<input type="checkbox"/> operating and programming manuals.			
<input type="checkbox"/> telescopic guideways covers made of stainless steel				

OPTIONS:				
<input type="checkbox"/> hydraulic steady rest,	<input type="checkbox"/> bar feed system,			
<input type="checkbox"/> tool probe,	<input type="checkbox"/> oil mist collector,			
<input type="checkbox"/> chip conveyor,	<input type="checkbox"/> oil separator,			
<input type="checkbox"/> additional soft jaws for the chuck,	<input type="checkbox"/> toolholders,			
<input type="checkbox"/> collet chuck with collets,	<input type="checkbox"/> CAD/CAM software,			
<input type="checkbox"/> cut-off parts catcher with container,	<input type="checkbox"/> other upon request.			



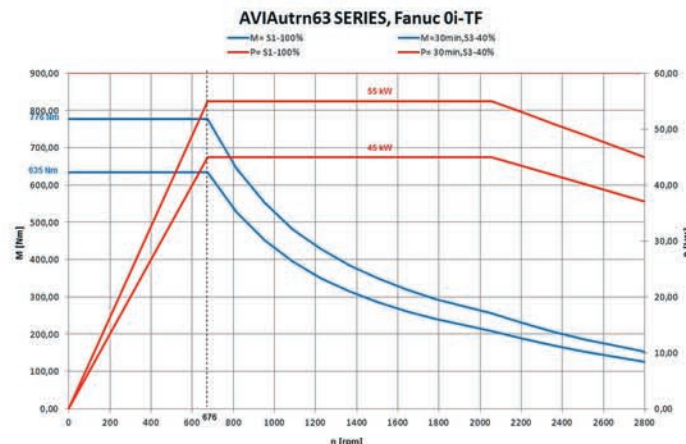
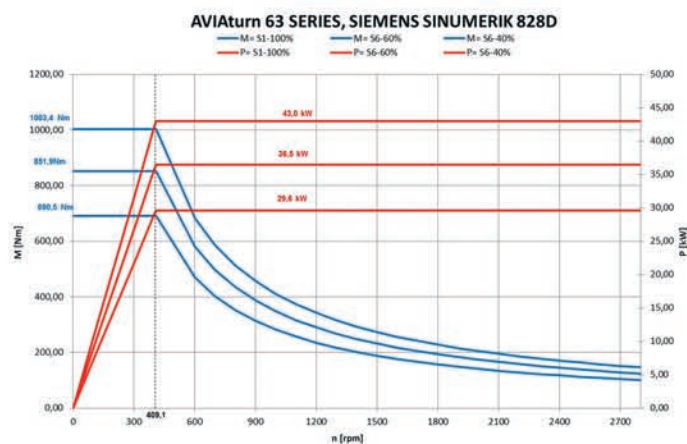
AVIAturn63

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 - from 1500 up to 2500 mm,
- perfect solution for rough and high performance turning with available spindle torque up to 1400 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 (L)	AVIAturn 63M (L)
WORKING AREA:			
Swing over bed covers	mm	745	745
Max. turning diameter over bed covers	mm	630	630
Max. turning diameter over cross carriage	mm	570	570
Max. turning length	mm	1400 (2500)	1400 (2500)
Max. bar capacity	mm	90	90
(options)		(112 / 130 / 155 / 340)	(112 / 130 / 155 / 340)
HEADSTOCK:			
Spindle nose (std./option)	type	A2-8	A2-8
Max. spindle speed	rpm	2800	2800
3-jaw chuck diameter	mm	400	400
Spindle bore	mm	105	105
(options)		(130 / 155 / 178 / 360)	(130 / 155 / 178 / 360)
Spindle motor power S1/S6(40%)*	kW	30/43	30/43
Spindle torque S1/ S6(40%)* (optional)	Nm	690/1003 (1400)	690/1003 (1400)
AXES:			
Travel in X axis	mm	400	400
Travel in Z axis	mm	1440 (2600)	1440 (2600)
Rapid traverse X / Z	m/min	24 / 24	24 / 24
TURRET:			
No. of stations	pcs	12	12
Tool disc	type	VDI 50 / BMT 75	VDI 50 / BMT 75
Tool shank	mm	32 x 32	32 x 32
Max. boring bar diameter	mm	50	50
Max. driven tools speed	rpm	-	4000
Power of driven tools motor (SIEMENS / FANUC)	KW	-	9 / 5,5
TAILSTOCK:			
Travel	mm	1150 (2250)	1150 (2250)
Max. axial thrust	N	12 000	12 000
Quill diameter	mm	100	100
Quill travel	mm	100	100
Centre seat	MK	5	5
Tailstock travel execution		electric motor + ball screw	electric motor + ball screw
CNC CONTROLS:			
FANUC (standard)	type	Oi-TF	Oi-TF
SIEMENS (option)	type	SINUMERIK 828D	SINUMERIK 828D
GENERAL DATA:			
Dimensions: L x W x H without chip conveyor	mm	4600 (7200) x 2300 x 2800	4600 (7200) x 2300 x 2800
Weight c.a.	kg	c.a. 8500 (12000)	c.a. 8500 (12000)
Total power installed	kVA	c.a. 50	c.a. 50

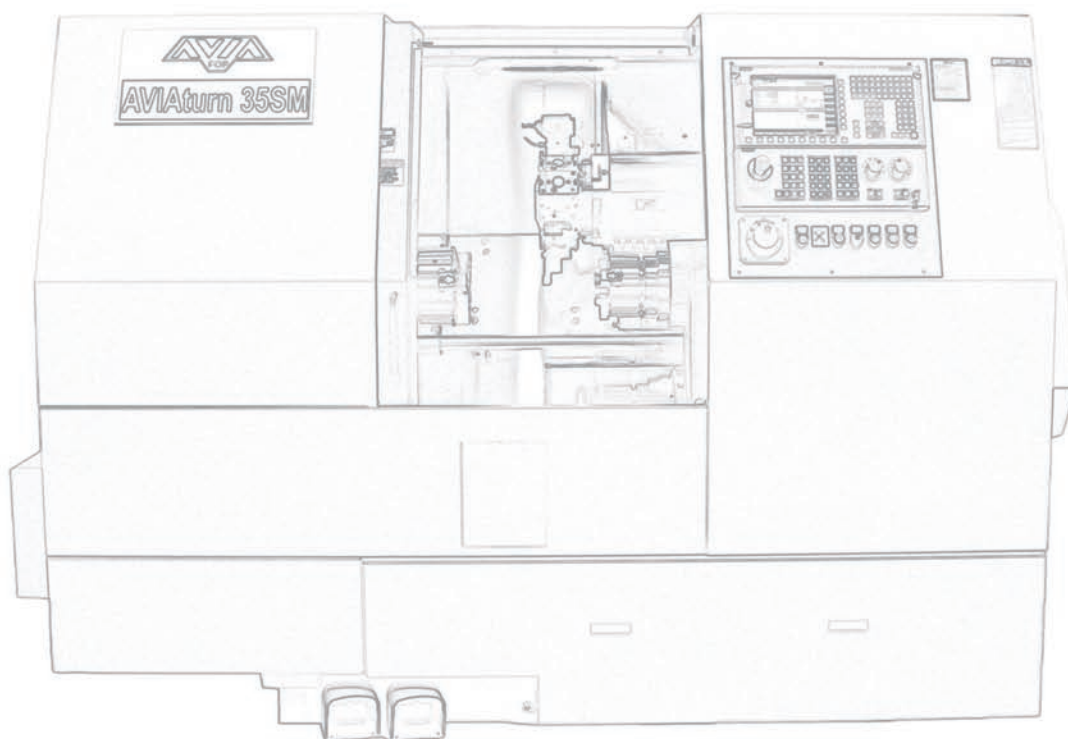
* for SIEMENS SINUMERIK 828D

STANDARD:

- digital package of servo-drives for axes and spindle,
- 12-station servo turret VDI 50,
- self centring, Ø400 mm 3-jaw chuck with hydraulic clamping,
- 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,
- 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,
- 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.



Factory:

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MADE IN EU (POLAND)