



SMART SERIES



HORIZONTAL TURNING CENTERS

Smart Minimaster Linear



Smart LT



HIGHLIGHTS

- FG300 grade casting for tensile strength
- Box type structure for better chip & coolant management
- Slant bed design for maximum cutting force
- Ergonomic shell cover design
- Integral bed with coolant tank to increase thermal stability
- Rear chip disposal arrangement
- Compact Foot print

MACHINING SOLUTIONS



Smart Minimaster



Smarturn



Smart Ultra



SMART SERIES

BASIC INFORMATION

SPECIFICATIONS

DIAGRAMS

APPLICATIONS

SMART SERIES

- Smart Minimaster, StarTurn has 5" chuck ideal for manufacturing small components.
- The Smartturn has 165mm chuck capacity CNC lathe & Smart LT - linear tools CNC lathe enables you to manufacture high quality parts.
- Changing over from one component to another is easy.
- Non cutting time has been minimized to reduce cycle time.
- A very stable machine and therefore can utilize the cutting tools at their optimum cutting parameters.
- Rigid structure, the stiffness built into the feed mechanism and higher in-cut time-all contribute to greater man-machine efficiency.
- Use of optimum cutting parameters, rapid change over, greater overall operating efficiency- all contribute to higher utilisation of tools, power, space and time.
- Smart Series is an ideal production tool for small part machining, either in small batches or in larger volumes.



MACHINE STRUCTURE

- A high precision spindle with large diameter P4 class bearing and ample stiffness in the feed mechanism ensure machining to very close tolerances.
- As a standard, all machines are calibrated for compensation of pitch error and backlash.
- Pre-tensioned ballscrews, Linear motion guideways and a hydraulically clamped massive turret ensure excellent part-to-part repeat accuracies.
- The Smart Series will indeed help you adhere to stringent process standards thereby reducing your cost of quality.



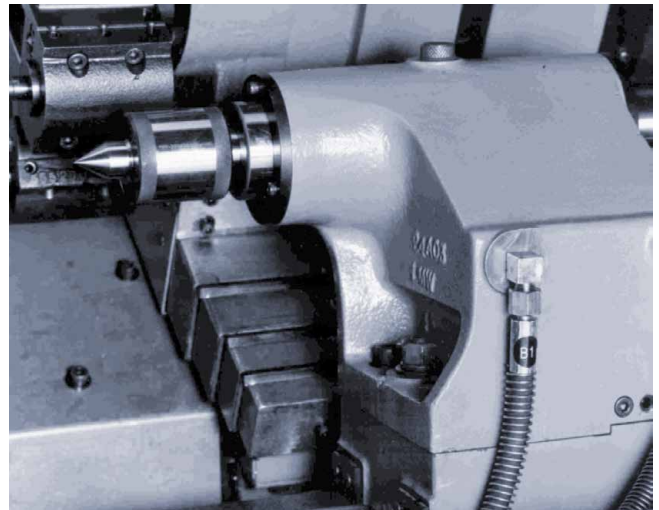
REDUCED SET-UP TIME

- Clearly defined interference free machining area, freedom in use of OD/ID tools and the overall ergonomics ensure that set-up and change over times are kept to the minimum.
- The Smart Series will help to stick to very demanding delivery schedules of the customers even for small batch production.

- High speed positioning keep non-cut time to the minimum.
- Use of optimum cutting parameters helps to strike a balance between the tool life and in-cut time.

TAILSTOCK

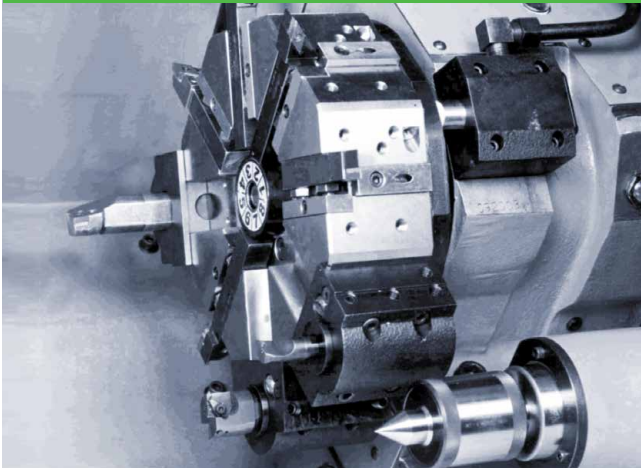
- Tailstock is offered as standard in Smarturn for machining long bar which require end support opposite of the chuck.
- The Tailstock main body houses the quill with cylinder and piston arrangement.
- The programmable quill is moved hydraulically with 80 mm traverse and has a MT4 quill taper.
- The Tailstock is moved manually on the bed.
- Tailstock assembly for machining shaft component



The Smart Series produce faster and is ideally placed to keep you ahead of your competition.

TURRET - SMART MINIMASTER / STARTURN / SMARTURN

- 8 Station Hydraulic indexing Turret
- 20 x 20 shank size & 32 mm boring bar dia



LINEAR TOOLS – SMART MINIMASTER LINEAR / SMART LT

- 5 no's - Linear tools
- 20 x 20 shank size & 32 mm boring bar dia



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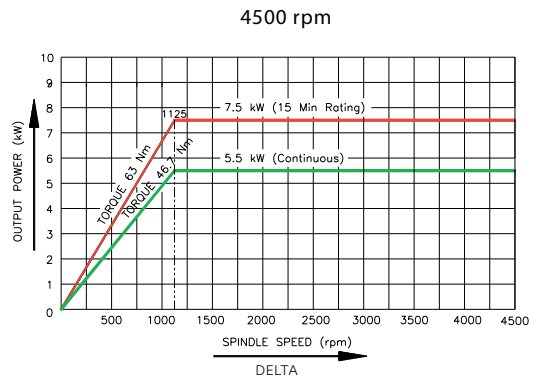
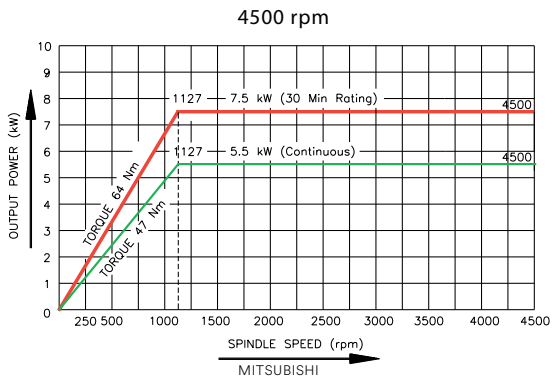
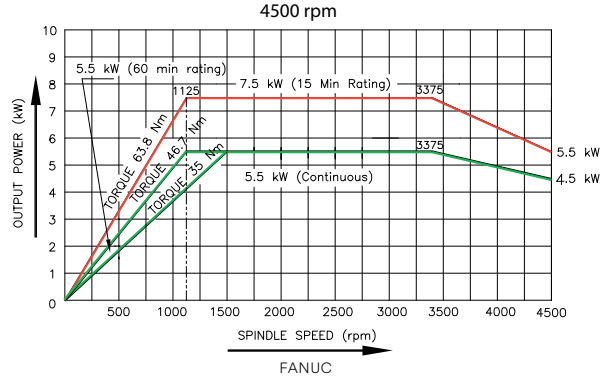
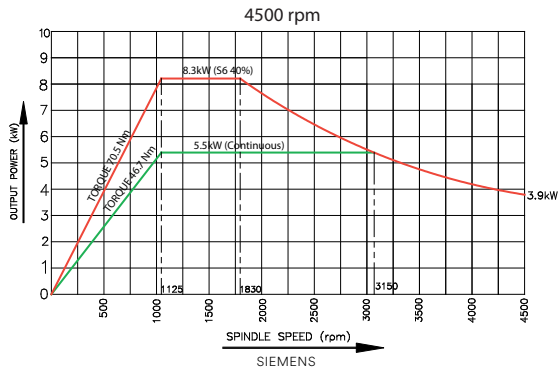
SPECIFICATIONS

Title	Description	Unit	StarTurn	Smart Minimaster	Smart Minimaster Linear	Smartturn	Smart LT	Smart Ultra	
Capacity	Swing over bed	mm	480	350	350	480	480	460	
	Chuck dia, max	mm	135			169		200 / 169	
	Max. turning diameter	mm	200	150	130	200	190	290	
	Max. turning length*	mm	200			262	240	325/370	
	Admit between centres	mm	-	286	-	345	-	434	
Spindle	Spindle nose	type	Flat (Dia:110)			Flat (Dia: 140)			
	Hole through spindle	mm	36			53			
	Spindle speed	rpm	6000			4500		4000	
	Spindle motor power (Cont / int)	Siemens	kW	3.7 / 5.5 (15mins)	3.7/5.5 (S6-25%)		5.5 / 8.3 (S6-40%)	-	5.5 / 8.3 (S6-40%)
		Fanuc	kW	3.7 / 5.5 (S6-40%)			5.5 / 7.5 (15mins)		5.5 / 7.5 (15mins)
Mitsubishi		kW	-			5.5 / 7.5 (30mins)	5.5 / 7.5 (15mins)		
Delta		kW	-	3.7 / 5.5 (15mins)		5.5 / 7.5 (15mins)	5.5 / 7.5 (30mins)	-	
Feed system	Cross travel X-axis	mm	105	105	200	105	400	155	
	Longitudinal travel Z-axis	mm	215	250	215	320	240	420	
	Rapid traverse rate X/Z-axes	m/min	20 / 20	30 / 30		20 / 30*	36 / 36	30 / 30	
Turret	No. of stations	nos.	8	8	-	8	-	8	
	Tool shank size	mm	20 x 20	20 x 20		20 X 20		25 x 25	
	Maximum boring bar dia.	mm	32	32		32		40	
	Turret indexing	type	Hydraulic	Hydraulic		Hydraulic		Hydraulic	
Table	No. of tool holders	nos.	-	-	5	-	5	-	
	Tool shank size	mm			20 x 20		20 x 20		
	Max. Boring bar dia.	mm			32		32		
Tailstock	Quill dia	mm	-	40	-	65	-	65	
	Quill stroke	mm		60		80		80	
	Quill taper	-		MT-3		MT-4		MT-4	
CNC system	Controller	-	Siemens / Fanuc	Delta		Siemens / Fanuc / Mitsubishi / Delta	Delta	Siemens/ Fanuc / Mitsubishi	
Power Supply	Power Requirement	kVA	Siemens - 13/ Fanuc - 12.5	Siemens 13/Delta - 12.5		Siemens / Fanuc / Mitsubishi/ Delta - 15	Delta - 15	Siemens - 14.5/ Fanuc - 15/ Mitsubishi-15	
Machine size	Front x Side x Height	mm	2056x1515 x1652	1575x1126x1700		2275x1640x 1620	1985x1400 x2100	2295x1410x 1860	
	Machine Weight (Approx.)	kg	1900	1800		2300	2300	2300	

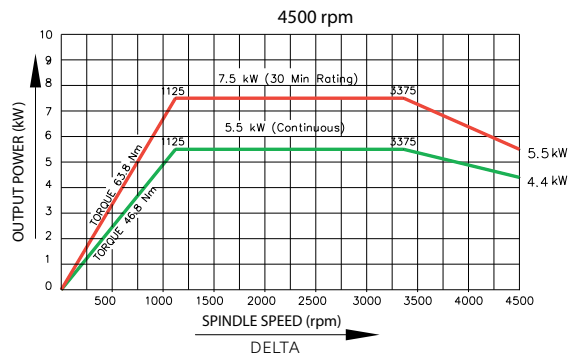
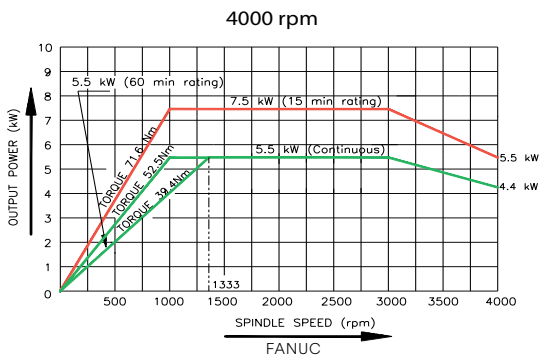
Note: *May vary depending upon make / model of chuck.
20/30 is available in Fanuc

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Smartturn



Smart LT



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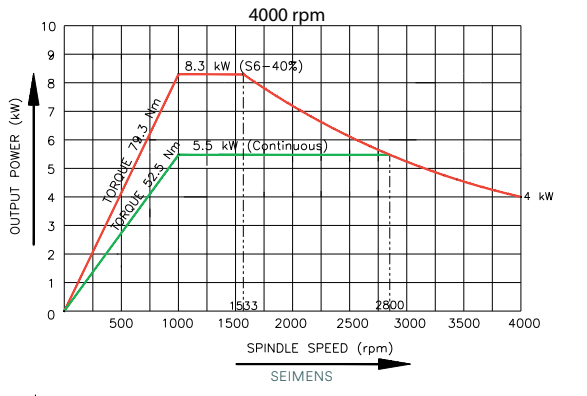
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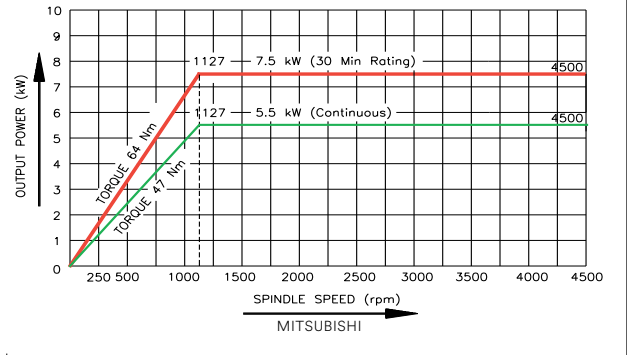
APPLICATIONS

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Smart Ultra



4500 rpm

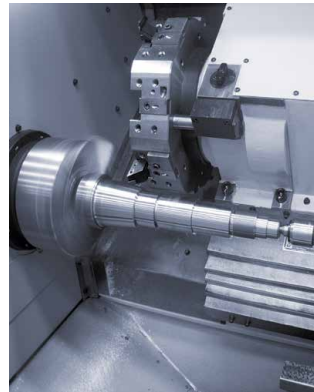


MATERIAL REMOVAL RATE (MRR)

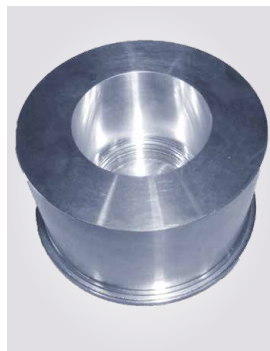
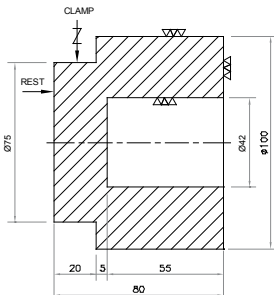
SMART SERIES STEEL C45

OUTER DIA TURN TEST

Description	Unit	Smart Minimaster	Smart Minimaster Linear	Smarturn	Smart LT	Smart Ultra
Turning Diameter	mm	40	46	39	57	38
Cutting Speed	mm/min	200	300	200	200	200
Spindle Speed	rpm	1592	2032	1633	1117	1675
DOC	mm	2.5	2.25	3.5	4.5	3.5
Feed	mm/rev	0.2	0.2	0.25	0.2	0.25
Capacity	cc/min	135	135	225	180	175
Spindle Load	%	130	137	100	142	115



ACCURACY SMARTURN



DRILLING TEST

Description	Unit	Smart Minimaster	Smart Minimaster Linear	Smarturn	Smart LT	Smart Ultra
Diameter	mm	28	21	34	39	34
Cutting Speed	mm/min	106	140	128	137	128
Spindle Speed	rpm	1200	2173	1200	1125	1200
Feed	mm/rev	0.06	0.18	0.08	0.08	0.1
Spindle Load	%	100	166	86	100	98

Material	Aluminium
Clamping Area	Ø75 × 18 mm
Clamping Pressure	10 Kgf/cm ²
Cutting Speed (Vc)	400 m/min
D.O.C	0.05 mm
Feed	0.05 mm/rev

Surface Finish Ra			Roundness mm		Perpendicularity mm		Cylindricity mm		Concentricity mm	Flatness mm
I.D.	O.D.	Face	I.D.	O.D.	I.D.	O.D.	I.D.	O.D.		
0.11	0.14	0.15	0.001	0.0007	0.002	0.001	0.002	0.002	0.003	0.002

MATERIAL : STEEL



Rigid Tapping

Maximum Tap Size	M16 × 2
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Profile Turning

Sphericity	0.007 mm
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Threading

Thread size	M24 × 3 mm
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* Test conducted with Fanuc with 5.5/7.5 kW Spindle Power.

* Note : Values shown are in test conditions, may vary depending on tools, materials and cutting parameters / conditions

COMPONENTS



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