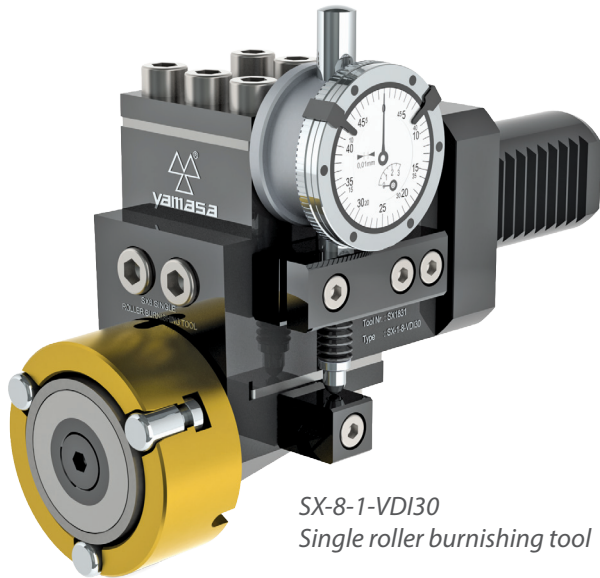


✓ Achievable surface roughness $Rz < 1 \mu\text{m}$ / $Ra < 0,16 \mu\text{m}$

Cylindrical external surfaces, flat surfaces, tapers and holes

Application

YAMASA SX type tools are used for the aim of burnishing the stepped-plain shafts, tapers, flat surfaces and holes. The tools provide as well as surface hardness and at low rate calibration (measurement accuracy) beside of burnishing. The tools provide time saving through a high processing power and speed and this is a motive to prefer for the serial production.



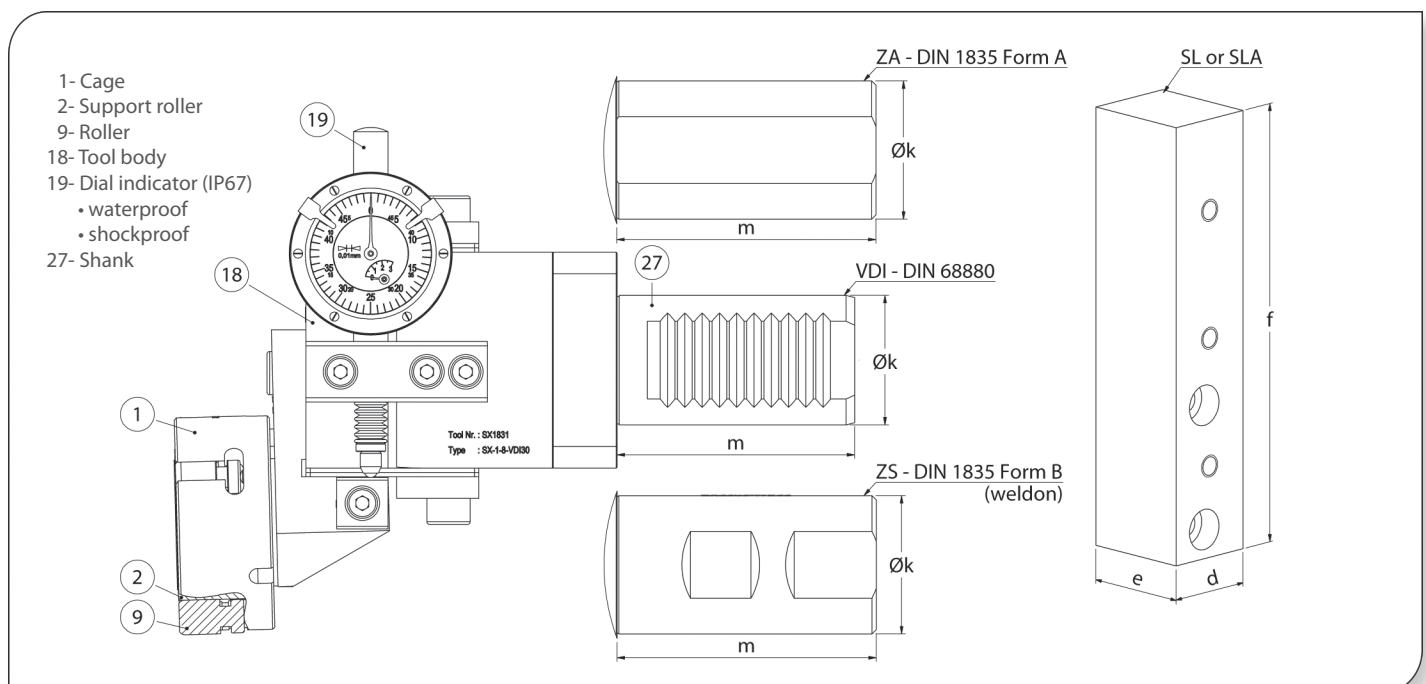
SX-8-1-VDI30
Single roller burnishing tool

Technical features and advantages

- Burnishing different sizes with same tool.
- Used on CNC and universal lathe machines.
- Tool design allows either right or left hand operation.
- Don't require settings and when the tool is fixed to the machine, it is ready to use.
- Roller burnishing force is adjustable, so it is possible to achieve high quality and standard roughness values.
- Special design and spring system apply rolling force consistently. So it provides high quality and standard work flow.
- Burnishing all kinds of metallic materials up to the tensile strength of 1400N/mm^2 and to the hardness 42-45 HRC.
- Easy to change the spare part.
- Process time is short.
- Needs min. lubrication (oil or emulsion).
- It does not make sawdust.

Hole machining

Tool type	min. diameter (mm)	Hole dept (mm)
SX5	Ø51	≤ 20
	Ø104	> 20
SX8	Ø53	≤ 20
	Ø106	> 20



Tool structure

- Tools consist of a connecting shank, precision body, roller head and a dial indicator which shows rolling force.
- Dial indicator is IP67 protected and has a waterproof-shockproof structure.
- Square, cylindrical or VDI shanks are available. Whole shanks are demountable.

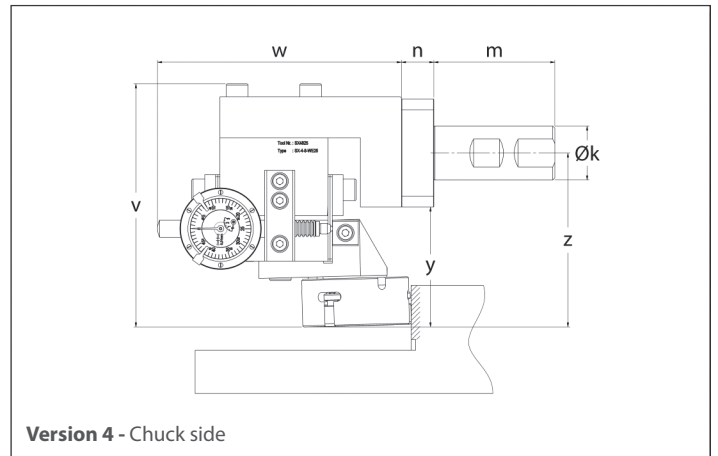
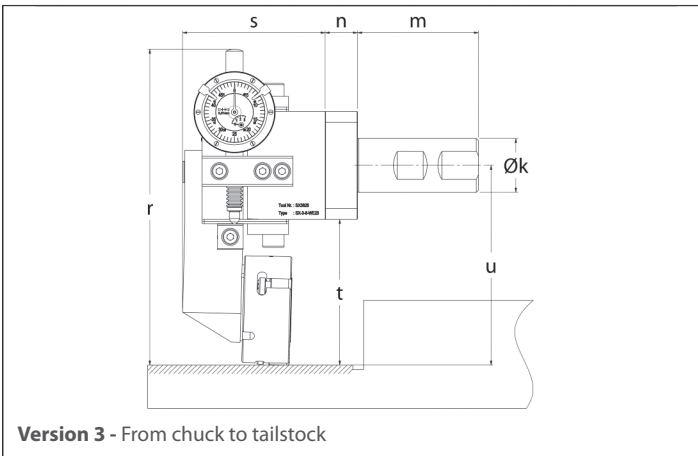
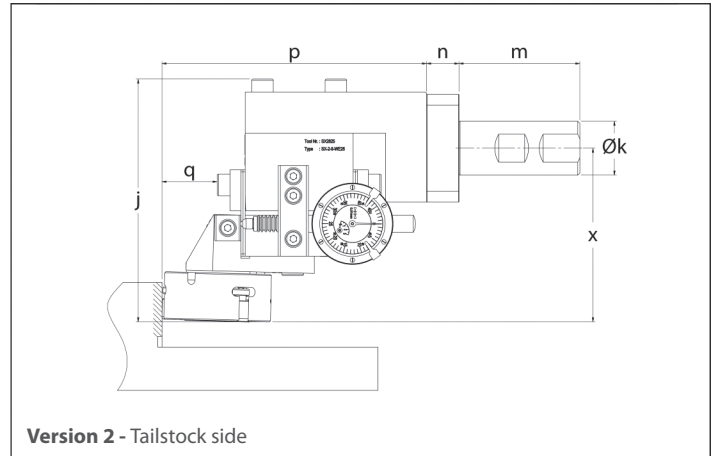
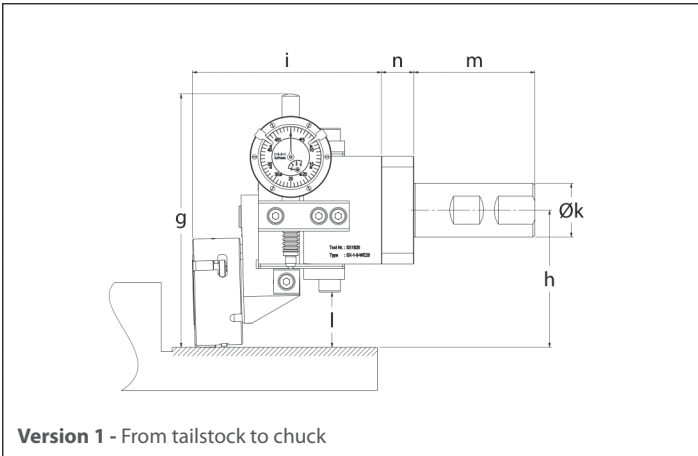
Single Roller Burnishing Tools

SX5 - Machining parameters

Working range	Ø ≥ 10 (up to Ø 80 mm)
Circumferential speed	max. 150 m/min.
Feed rate	max. 0,6 mm/rev.
Rolling share	up to 0,02 mm
Rolling force	max. 5000 Newton
Pre-machining roughness	Rz = 5 - 20 µm
Pre-machining	lathe or grinding
Coolant	Oil or emulsion

SX8 - Machining parameters

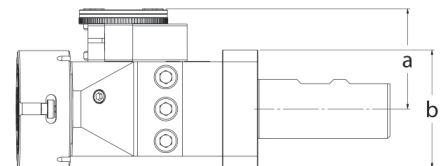
Working range	Ø > 12 (up to Ø200 mm)
Circumferential speed	max. 150 m/min.
Feed rate	max. 0,6 mm/rev.
Rolling share	up to 0,02 mm
Rolling force	max. 5000 Newton
Pre-machining roughness	Rz = 5 - 20 µm
Pre-machining	lathe or grinding
Coolant	Oil or emulsion



Dimensions

Tool type	Design	Height		Version 1				Version 2				Version 3				Version 4				
		a	b*	g	h	i	l	j	x	p	q	r	s	t	u	v	w	y	z	n
SX	5	43	50	115	60	88	22	113	80	120	22	144	66	64	89	113	113	55	80	15
	8			118	63	88	25	113	81	123	25	147	66	67	92	113	113	55	80	15

* b=60 mm for the tools with Ø40 mm VDI and cylindrical shank.
There is not "n" size at square shank tools.



Product selection

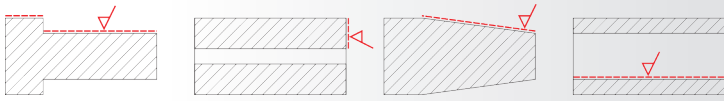
SX Tool selection (complete)						Spare part selection								
Tool type	Design	Version	Shank			Tool type	Design	Version	SX Cage		Support roller		Roller	
			VDI	Cylindrical					Square		Tool type	Design	Tool type	Design
			DIN69880 (Øk x m)	DIN1835 A (Øk x m)	DIN1835 B (Øk x m)				SL (d x e x f)	SLA (d x e x f)				
SX	5 • 8	1	VDI20(Ø20x40)	ZA20(Ø20x50)	ZS20(Ø20x50)	SL16(16x30x120)	SLA16(16x60x120)	SX	5 • 8	SX	5 • 8	SX	5 • 8	
		2	VDI25(Ø25x48)	ZA25(Ø25x56)	ZS25(Ø25x56)	SL20(20x30x120)	SLA20(20x60x120)							
		3	VDI30(Ø30x55)	ZA32(Ø32x60)	ZS32(Ø32x60)	SL25(25x30x120)	SLA25(25x60x120)							
		4	VDI40(Ø40x63)	ZA40(Ø40x70)	ZS40(Ø40x70)	SL32(32x30x120)	SLA32(32x60x120)							

All dimensions in mm.

How to order | Order samples

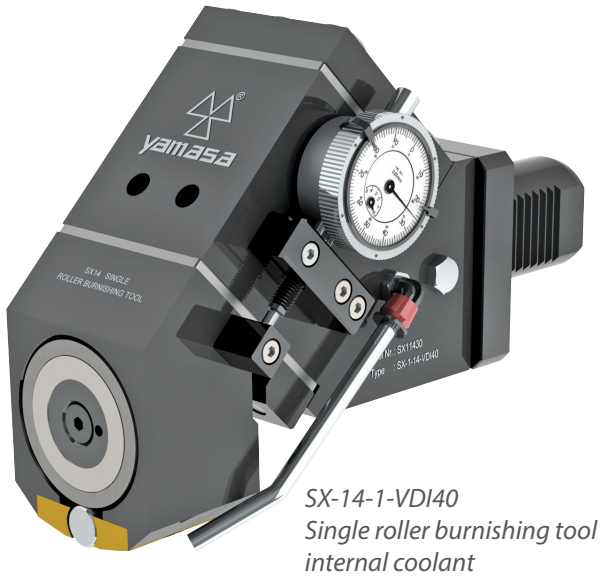
SX-8-1-ZS25 Single roller burnishing tool	SX-8-1 Cage	SX-8 Sup.roller	SX-8 Roller
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You can create order codes of the tool and spare parts by looking at the product selection table. For this, please rank the requested product features side by side.

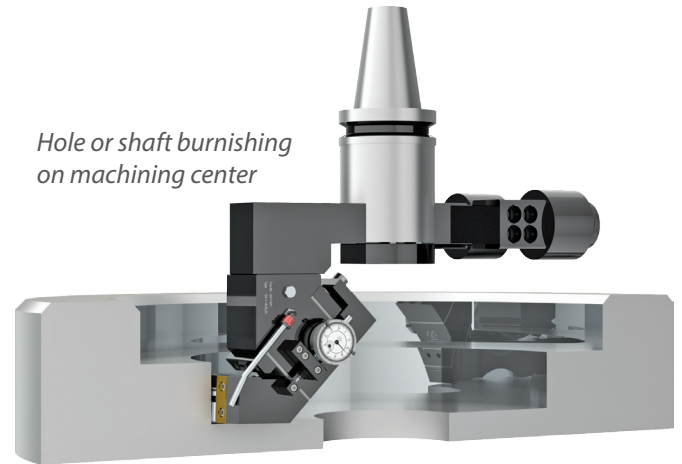


✓ Achievable surface roughness $Rz < 1 \mu\text{m}$ / $Ra < 0,16 \mu\text{m}$

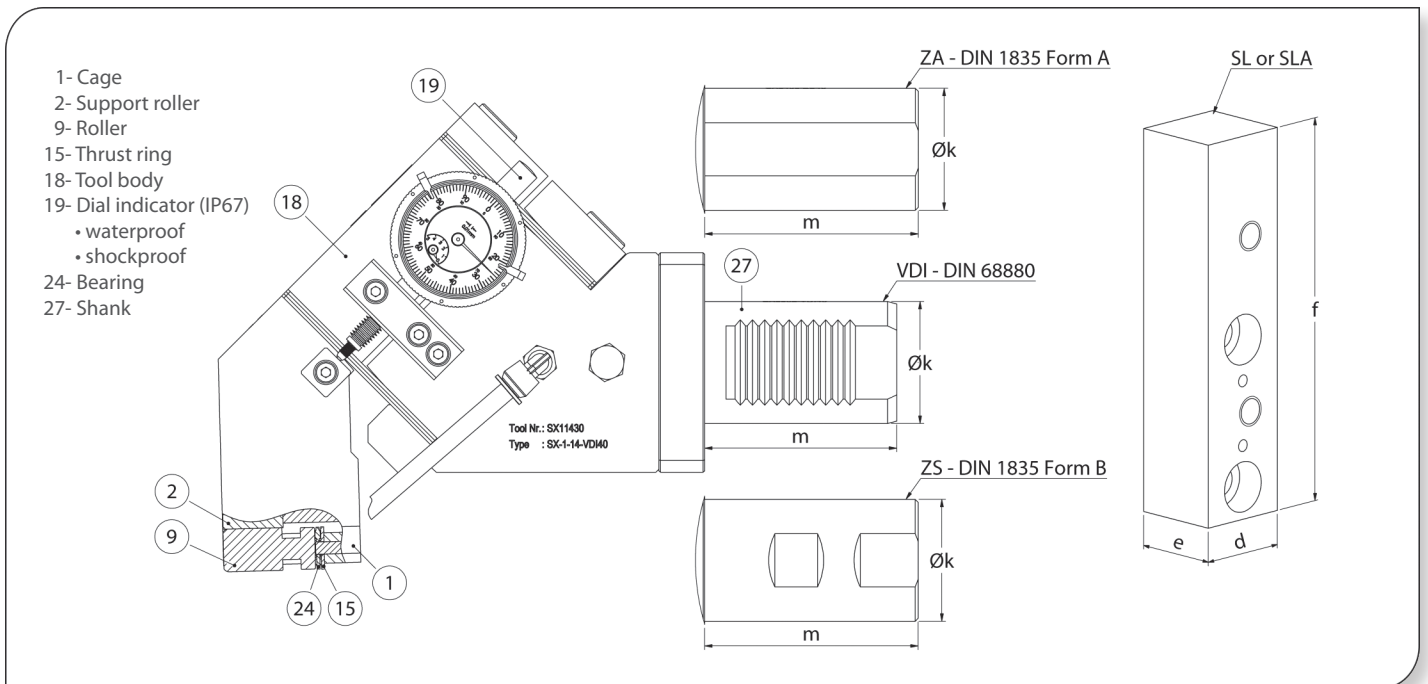
Cylindrical external surfaces, flat surfaces, tapers and holes



SX-14-1-VDI40
Single roller burnishing tool
internal coolant

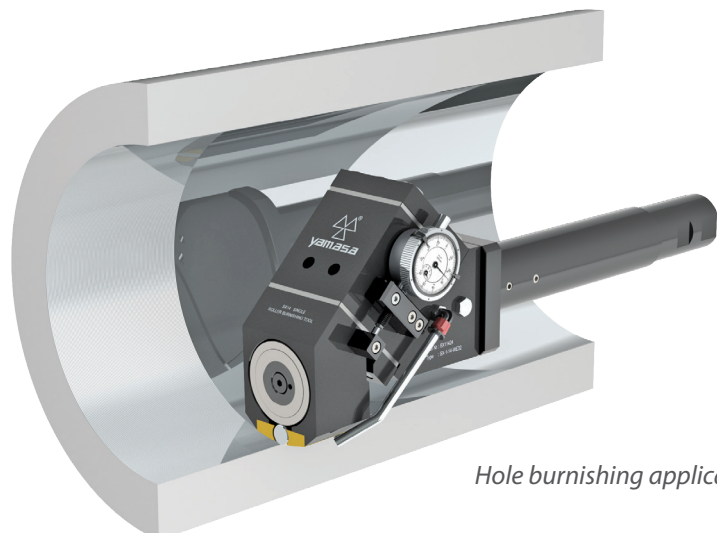


Hole or shaft burnishing
on machining center



Hole machining

Tool type	min. diameter (mm)	Hole dept (mm)
SX 14	Ø110	≤ 30
	Ø151	≤ 80
	Ø160	Unlimited

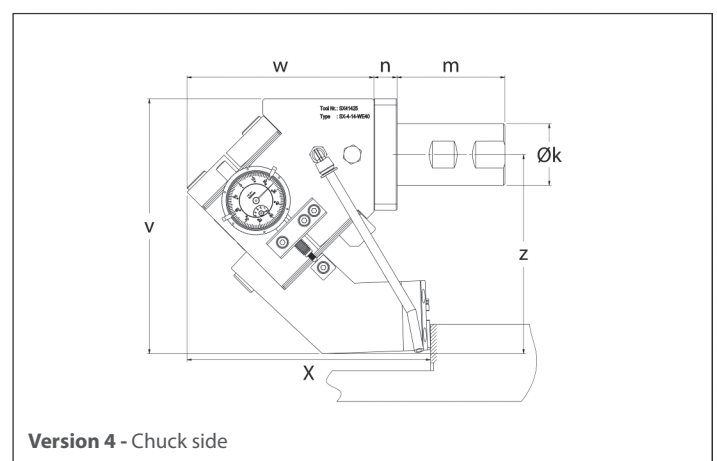
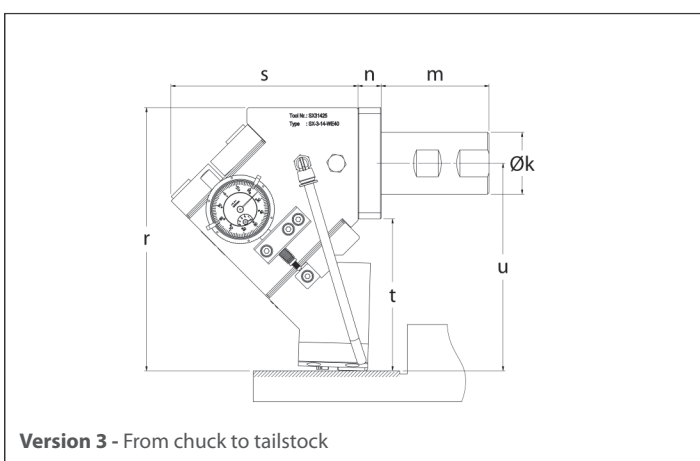
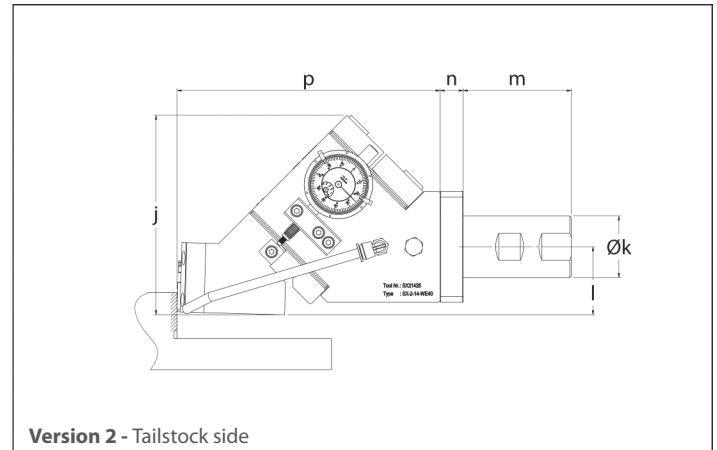
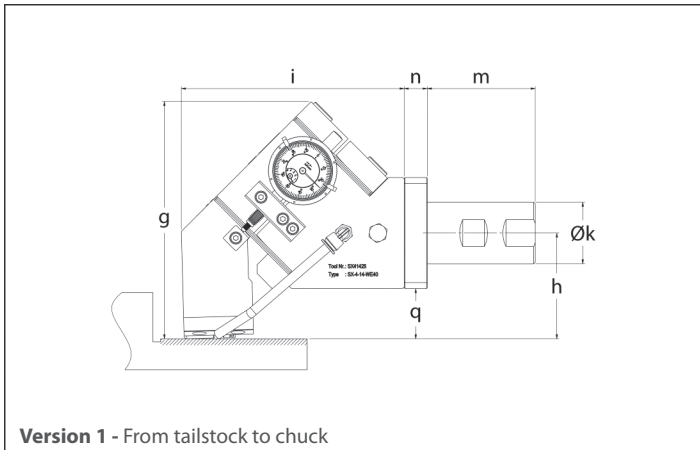


Hole burnishing application

Single Roller Burnishing Tools

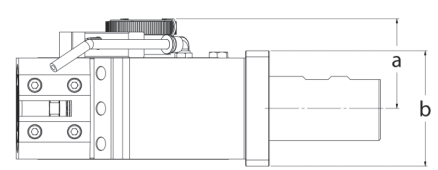
SX14 - Machining parameters

Working range	$\varnothing \geq 30$ (up to $\varnothing 5000$ mm)	Rolling force	max. 10000 Newton
Circumferential speed	max. 200 m/min.	Pre-machining roughness	Rz = 5 - 20 μm
Feed rate	max. 1 mm/rev.	Pre-machining	lathe or grinding
Rolling share	up to 0,03 mm	Coolant	Oil or emulsion



Dimensions

Tool type	Design	Shank	Height		Version 1		Version 2		Version 3		Version 4				n						
			a	b*	g	h	i	q	j	l	p	r	s	t		u	v	w	x	z	
SX	14	all types	56	72	154	68	145	32	129	44	170	171	122	98	134	165	122	158	129	15	
		VDI40		83																	
		VDI50		100						134	49										-
		VDI60		123			165		139	54	177										



There is not "n" size at square tools

Product selection

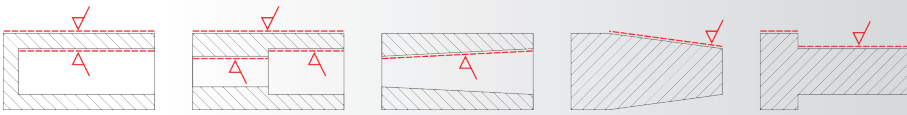
SX Tool selection (complete)						Spare part selection								
Tool type	Design	Version	Shank			SX Cage			Support roller		Roller			
			VDI	Cylindrical		SL	Design	Tool type	Design	Tool type	Design			
				DIN69880	DIN1835 A							DIN1835 B	SL	SLA
				($\varnothing k \times m$)	($\varnothing k \times m$)							($\varnothing k \times m$)	(d x e x f)	(d x e x f)
SX	14	1	VDI30($\varnothing 30 \times 55$)	ZA32($\varnothing 32 \times 60$)	ZS32($\varnothing 32 \times 60$)	SX	14	SX	14	SX	14			
		2	VDI40($\varnothing 40 \times 63$)	ZA40($\varnothing 40 \times 70$)	ZS40($\varnothing 40 \times 70$)							SL25(25x30x130)	SLA25(25x60x130)	
		3	VDI50($\varnothing 50 \times 78$)	ZA50($\varnothing 50 \times 80$)	ZS50($\varnothing 50 \times 80$)							SL32(32x30x130)	SLA32(32x60x130)	
		4	VDI60($\varnothing 60 \times 94$)	ZA63($\varnothing 63 \times 90$)	ZS63($\varnothing 63 \times 90$)									

All dimensions in mm.

How to order | Order samples

SX-14-1-VDI40 Single roller burnishing tool	SX-14 Cage	SX-14 Sup.roller	SX-14 Roller
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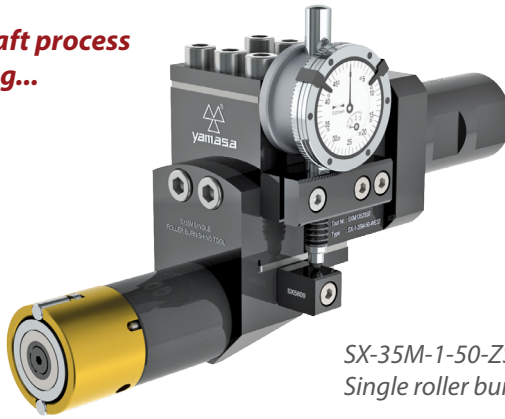
You can create order codes of the tool and spare parts by looking at the product selection table. For this, please rank the requested product features side by side.



✓ Achievable surface roughness $Rz < 1 \mu\text{m}$ / $Ra < 0,16 \mu\text{m}$

Limited length of holes, shafts and internal-external tapers

Hole and shaft process in one setting...



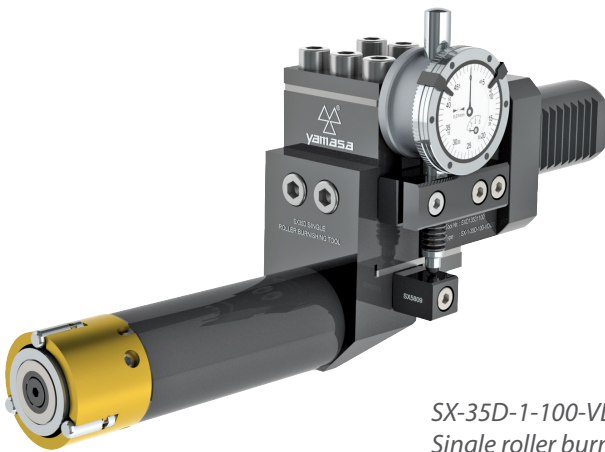
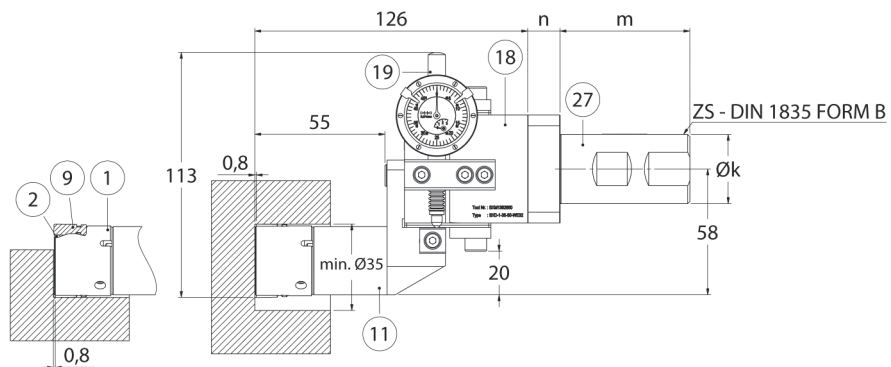
SX-35M-1-50-ZS32
Single roller burnishing tool

SX-35M Processing properties and parameters

Processable surface	Holes, shafts, internal and external tapers*
Working range	$\varnothing \geq 35$
Circumferential speed	max. 150 m/min.
Feed rate	max. 0,6 mm/rev.
Rolling share (int./ext.)	up to 0,03 / 0,02 mm
Rolling force	max. 5000 Newton
Pre-machining roughness	$Rz = 5 - 20 \mu\text{m}$
Pre-machining	lathe or reaming
Coolant	Oil or emulsion

* Taper setting should be made for taper process.

- 1- Cage
- 2- Support roller
- 9- Roller
- 11- Roller head carrier
- 18- Tool body
- 19- Dial indicator (IP67)
 - waterproof
 - shockproof
- 27- Shank



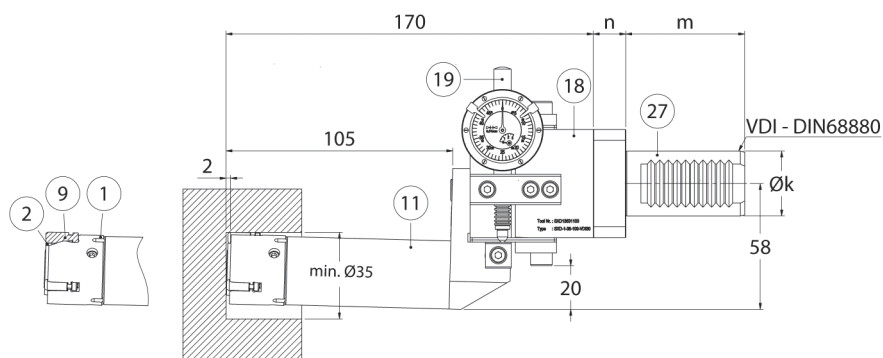
SX-35D-1-100-VDI30
Single roller burnishing tool

SX-35D Processing properties and parameters

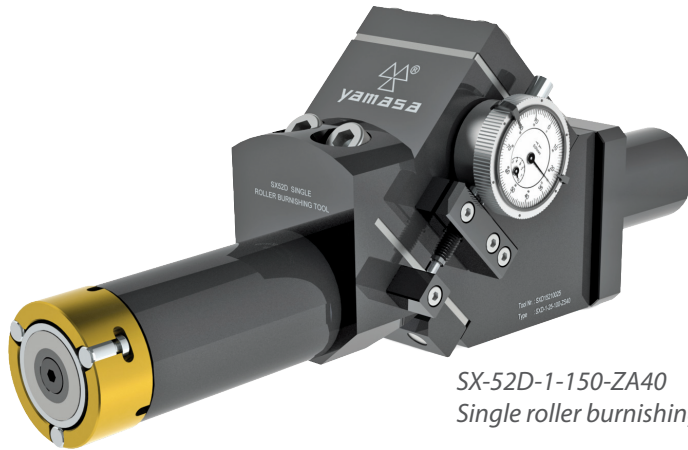
Processable surface	Holes and internal tapers*
Working range	$\varnothing \geq 35$
Circumferential speed	max. 150 m/min.
Feed rate	max. 0,6 mm/rev.
Rolling share	up to 0,03 mm
Rolling force	max. 5000 Newton
Pre-machining roughness	$Rz = 5 - 20 \mu\text{m}$
Pre-machining	lathe or reaming
Coolant	Oil or emulsion

* Taper setting should be made for taper process.

- 1- Cage
- 2- Support roller
- 9- Roller
- 11- Roller head carrier
- 18- Tool body
- 19- Dial indicator (IP67)
 - waterproof
 - shockproof
- 27- Shank



Single Roller Burnishing Tools

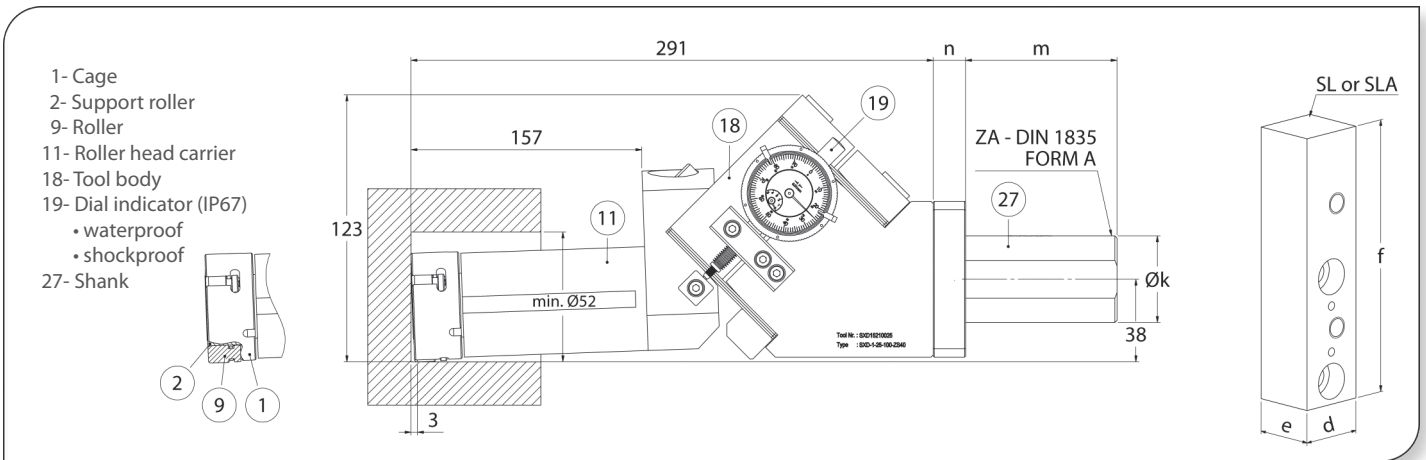


SX-52D-1-150-ZA40
Single roller burnishing tool

SX-52D Processing properties and parameters

Processable surface	Holes, shafts, internal and external tapers*
Working range	Ø ≥ 52
Circumferential speed	max. 150 m/min.
Feed rate	max. 0,6 mm/rev.
Rolling share (int./ext.)	up to 0,04 / 0,02 mm
Rolling force	max. 10000 Newton
Pre-machining roughness	Rz = 5 - 20 µm
Pre-machining	lathe or reaming
Coolant	Oil or emulsion

* Taper setting should be made for taper process.



Hole machining

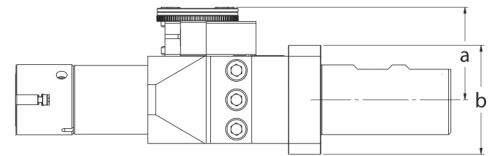
Tool type	Design	Hole depth (mm)						Work-piece
		<40	<60	<80	<100	<125	<150	
SX	35M	35	35	35	35	35	35	min. hole Ø-mm
	35D	35	36	36,5	37	37,5	38	
	52D	52	53	53,5	54	55	56	

* b = 60 mm for Ø40 mm cyl. and VDI shanks (SX-35M / SX-35D).
* b = 83 mm for Ø40 mm VDI shank (SX-52D).

Dimensions

Tool type	Design	Height		
		a	b*	n
SX	35M	43	50	15
	35D	43	50	15
	52D	56	72	15

* b = 100 mm for Ø50 mm VDI shank (SX-52D)
* b = 123 mm for Ø60 mm VDI shank (SX-52D)



There is not "n" size at square shank tools.

Product selection

SX Tool selection (complete)						Spare part selection										
Tool type	Design	Ver- sion	Rolling length	Shank					Tool type	Design	Sup. Roller		Roller			
				VDI	Cylindrical		Square				Tool type	Design	Tool type	Design	Tool type	Design
				DIN69880 (Øk x m)	DIN1835 A (Øk x m)	DIN1835 B (Øk x m)	SL (d x e x f)	SLA (d x e x f)								
SX	35M 35D	1	50 100 150	VDI20(Ø20x40)	ZA20(Ø20x50)	ZS20(Ø20x50)	SL16(16x30x120)	SLA16(16x60x120)	SX	35M 35D	SX	35M 35D	SX	35M 35D		
				VDI25(Ø25x48)	ZA25(Ø25x56)	ZS25(Ø25x56)	SL20(20x30x120)	SLA20(20x60x120)								
				VDI30(Ø30x55)	ZA32(Ø32x60)	ZS32(Ø32x60)	SL25(25x30x120)	SLA25(25x60x120)								
				VDI40(Ø40x63)	ZA40(Ø40x70)	ZS40(Ø40x70)	SL32(32x30x120)	SLA32(32x60x120)								
				VDI30(Ø30x55)	ZA32(Ø32x60)	ZS32(Ø32x60)	SL25(25x30x130)	SLA25(25x60x130)								
				VDI40(Ø40x63)	ZA40(Ø40x70)	ZS40(Ø40x70)	SL32(32x30x130)	SLA32(32x60x130)								
	52D	VDI150(Ø50x78)	ZA50(Ø50x80)	ZS50(Ø50x80)	SL32(32x30x130)	SLA32(32x60x130)	SX	52D	SX	52D	SX	52D				
		VDI160(Ø60x94)	ZA63(Ø63x90)	ZS63(Ø63x90)												

All dimensions in mm.

How to order | Order samples

SX-35M-1-50-ZS32 Single roller burnishing tool	SX-35M Cage	SX-35M S.Rol.	SX-35M Roll.
SX-35D-1-100-VDI30 Single roller burnishing tool	SX-35D Cage	SX-35D S.Rol.	SX-35D Roll.
SX-52D-1-150-ZA40 Single roller burnishing tool	SX-52D Cage	SX-52D S.Rol.	SX-52D Roll.

You can create order codes of the tool and spare parts by looking at the product selection table. For this, please rank the requested product features side by side.