

Raziol spray nozzles and lubricating stations

**Product
Portfolio**



Raziol
Zibulla & Sohn GmbH

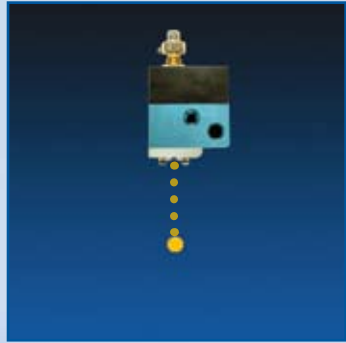
... and everything is running smoothly

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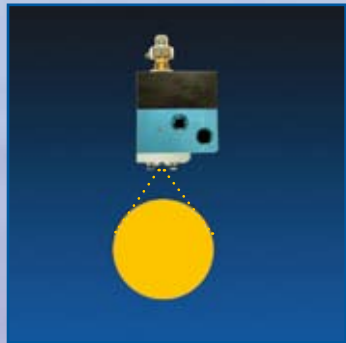
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Spray patterns



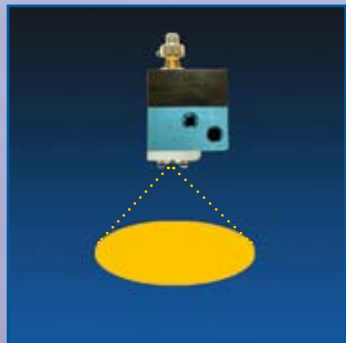
Without spray air

Spray pattern: Point



With spray air

Spray pattern: Circle



With wide air beam

Spray pattern: Ellipse

Nozzle parameters



Control air

- Closes and/or opens the nozzle by means of the nozzle needle

Spray air

- Tears the oil coming out of the nozzle into little droplets



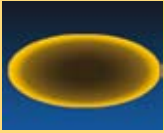



Wide air beam

- Deflection of the oil droplets from the circular shape so that an elliptical spray pattern is created

Spray pattern

- The characteristic spray pattern of a nozzle is composed of a core beam and a diffuse marginal beam
- The ratio of core beam and diffuse marginal beam as well as the overlap of the oil applied to the sheet metal depends on the used lubricant and the set pressure ratios of spray air, wide air beam and oil



	High pressure	Low pressure
Spray air	<ul style="list-style-type: none"> • Droplet size small • Oil mist formation large • Fine distribution 	<ul style="list-style-type: none"> • Droplet size large • Oil mist formation small • Coarse distribution 
Wide air beam	<ul style="list-style-type: none"> • Core beam area much larger than marginal beam area • Lubrication pattern Ellipse 	<ul style="list-style-type: none"> • Core beam area larger than marginal beam area • Lubrication pattern Circle 
Oil	<ul style="list-style-type: none"> • Large oil quantity 	<ul style="list-style-type: none"> • Low oil quantity 

Guiding values, nozzle adjustment

Nozzle type		Basic adjustment* ¹		
		low* ²	medium* ²	high* ²
Control air	bar	2.7	2.7	2.7
Oil amount/oil pressure	bar	< 0.5	0.5 - 1.0	> 1.0
Spray air/diffuse air	bar	0.5	0.7	1.0
Wide air beam* ³	bar	0.8	1.0	1.5 - 2.0
Control air piston	bar	2.7 - 3.0	2.7 - 3.0	2.7 - 3.0
Grid		15	25	60

*1 Basic adjustment

The pressures stated here are approximate values and depend on the relevant forming lubricants used.

It may be necessary for the customer to adjust the pressure to suit the current application.

*2 Viscosity level

low < 60 mm²/s at 40°C

medium 60 - 200 mm²/s at 40°C

high 200 - 600 mm²/s at 40°C

*3 Wide air beam

Only applies to nozzles / lubricating stations of the type ST CD-100 BS(D), BS-25/“SV“, BS-25/“SRV“

ST LAMA-1000



ST LAMA-1000/Streu



ST LAMA-1000 HL



ST LAMA-1000 HL Streu

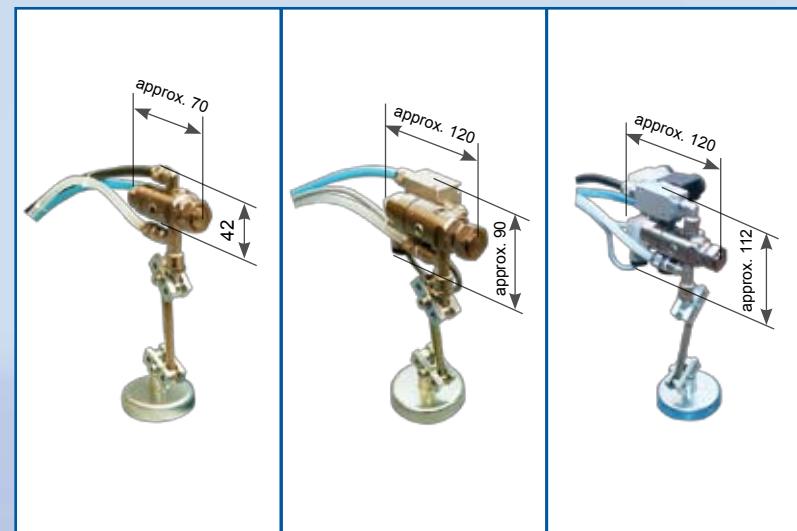
Description

- Precision coaxial spray head with magnetic holder and magnetic base for positioning the "spray beam"
- Minimum possible amount to be applied < 0.5g/m²
- For highly viscous lubricants
- Different nozzle inserts with different nominal diameters for different oil quantities and viscosities

Use

- For the use with Raziol control units for the tool lubrication and for the minimum lubrication during the chipless machining such as deep-drawing, stamping, bending, trueing, thread moulding
- During the shape cutting such as drilling, milling

(SchmierSTelle LAMA-1000)



ST LAMA-1000/Streu

ST LAMA-1000 HL

ST LAMA-1000 HL Streu

	ST LAMA-1000/ Streu	ST LAMA-1000 HL	ST LAMA-1000 HL Streu
Description	Precision coaxial spray head with round beam spray angle and nozzle opening from Ø 0.4 to 1.5 mm Complete with 3 m tube package, threaded joints 8/6-1/4" and 2-X magnetic holder with magnetic base Ø 63 mm	Precision coaxial spray head with nozzle opening from Ø 0.4 to 1.5 mm Complete with solenoid valve for control air, magnetic coil with connection cable and RV-plug, 3m tube package, threaded joints 8/6-1/4" and 2-X magnetic holder with magnetic base Ø 63mm	Precision coaxial spray head with round beam spray angle and nozzle opening from Ø 0.4 to 1.5 mm Complete with one solenoid valve for control air and one solenoid valve for spray air, magnetic coils with connection cable and RV-plug, 3m tube package, threaded joints 8/6-1/4" and 2-X magnetic holder with magnetic base Ø 63mm
Part No.	1044300008	1044300010	1044300012
Ports	3	2	3
Medium	x (white)	x (white)	x (white)
Spray air	x (black)	-	x (black)
Control air	x (blue)	x (blue)	x (blue)

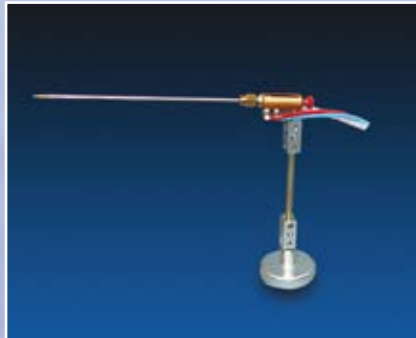
ST LAMA-3000



ST LAMA-3000

Description

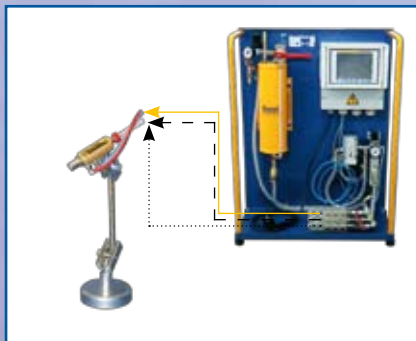
- Precision coaxial spray head with magnetic holder and magnetic base for positioning the "spray beam"
- Minimum possible amount to be applied < 0.5g/m²
- Low up to medium viscosity
- Precision spray head extension can be used in different lengths (40 - 800 mm)
- Diameter of the extension 4 mm, at the tip 5 mm
- The tube of the spray head extension is flexible and can therefore be exactly positioned onto the point to be lubricated with oil



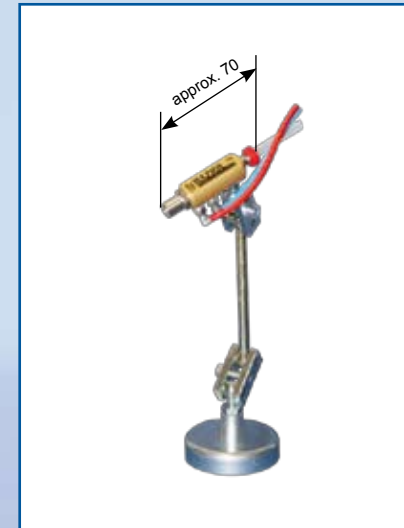
ST LAMA-3000/VL-200

Use

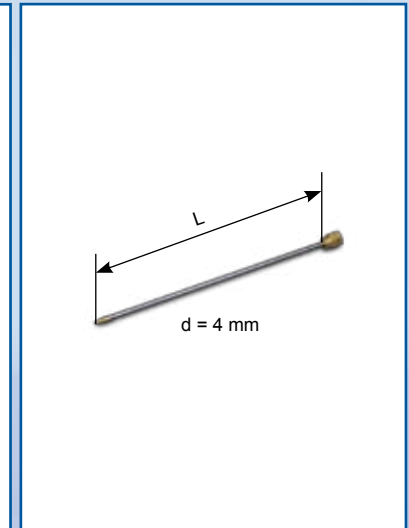
- For the use with Raziol control units for the tool lubrication and for the minimum lubrication during the chipless machining such as deep-drawing, stamping, bending, trueing, thread moulding
- During the shape cutting such as drilling, milling



(SchmierSTelle LAMA-3000)



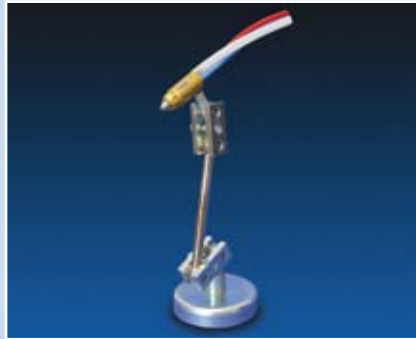
ST LAMA-3000



LAMA-3000 extension

	ST LAMA-3000		Extension	
	Description	Part No.	Length L [mm]	Part no.
	Precision coaxial spray head with 5° round beam spray angle Separate connections for spray air and control air Complete with 3 m tube package, threaded joints and 2-X magnetic holder with magnetic base ø 63 mm	1044300030	40	1080720046
			50	1080720085
			70	1080720074
			100	1080720080
			150	1080720099
			200	1080720095
			220	1080720558
			250	1080720557
			500	1080720096
			800	1080720097
Ports	3			
Medium	x (white)			
Spray air	x (red)			
Control air	x (blue)			

ST LAMA-4000



ST LAMA-4000

Description

- Precision coaxial spray head with magnetic holder and magnetic base for positioning the "spray beam"
- Minimum possible amount to be applied <math>< 0.5\text{g/m}^2</math>
- For lubricants with low up to medium viscosity
- Different nozzle attachments can be used for change of the lubrication pattern
- Different coaxial nozzles with different nominal diameters can be used for different oil quantities and viscosities



LAMA-4000 attachments

Use

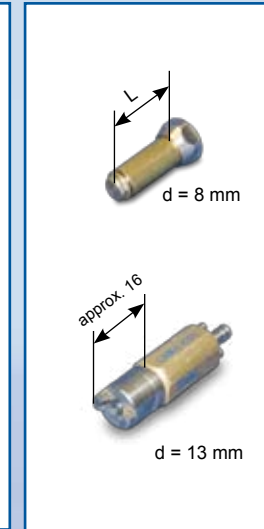
- For the use with Raziol control units for the tool lubrication and for the minimum lubrication during the chipless machining such as deep-drawing, stamping, bending, trueing, thread moulding
- During the shape cutting such as drilling, milling



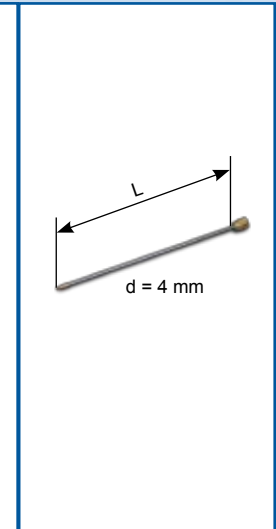
(SchmierSTelle LAMA-4000)



ST LAMA-4000



LAMA-4000 attachments
Annular beam 75°
wide beam 90° with nozzle



LAMA-4000 extension

	ST LAMA-4000
Description	Precision coaxial spray head with 5° round beam spray angle and nozzle opening Ø 3 mm Complete with 3 m tube package, threaded joints and 2-X magnetic holder with magnetic base ø 63 mm
Part No.	1080044010
Ports	3
Medium	x (white)
Spray air	x (red)
Control air	x (blue)

Attachment		Extension	
Name	Part no.	Length L [mm]	Part no.
Annular beam 75° L=20mm	1080044023	50	1080044025
Annular beam 75° L=40mm	1080044029	70	1080044024
Wide beam 90°	1094211019	100	1080044011
		150	1080044026
		200	1080044027

ST DUSTY-2000



ST DUSTY-2000

Description

- Precision coaxial spray head with 15° round beam spray angle
- Oil amount and spray air can be directly adjusted on the nozzle head
- Counter-clockwise rotation: more lubricant and/or more spray air
- Clockwise rotation: less lubricant and/or less spray air



ST DUSTY-2000/VL-200

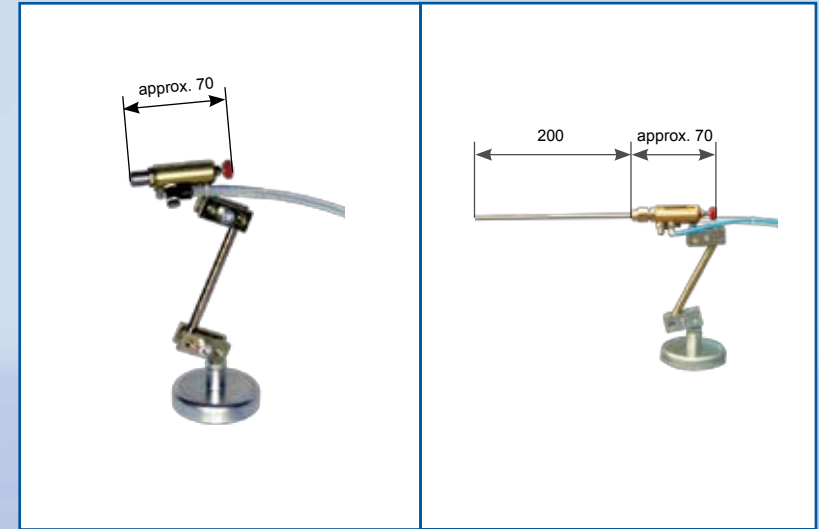
- Precision spray head extension can be used in different lengths (50 - 800 mm)
- Diameter of the extension 4 mm, at the tip 5 mm
- The tube of the spray head extension is flexible and can therefore be exactly positioned onto the point to be lubricated with oil

Use

- For the use with Raziol control units for the tool lubrication and for the minimum lubrication during the chipless machining such as deep-drawing, stamping, bending, trueing, thread moulding
- During the shape cutting such as drilling, milling



(SchmierSTelle DUSTY-2000)



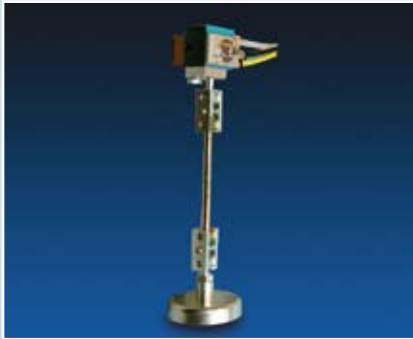
ST DUSTY-2000

ST DUSTY-2000/VL-200

	ST DUSTY-2000	ST DUSTY-2000/VL-200
Description	Precision coaxial spray head with 15° round beam spray angle Common connection for spray and control air Complete with 3 m tube package, threaded joints and 2-X magnetic holder with magnetic base ø 63 mm	Precision coaxial spray head with 15° round beam spray angle Common connection for spray and control air With 200 mm spray head extension Complete with 3 m tube package, threaded joints and 2-X magnetic holder with magnetic base ø 63 mm
Part No.	1044211001	1044300038
Ports	2	2
Medium	x (white)	x (white)
Control air	x (blue)	x (blue)

ST CD-100 BS(D)

(SchmierSTelle CD-100 BreitstrahlSprühluft(Drossel))



ST block nozzle CD-100 BS



ST block nozzle CD-100 BSD

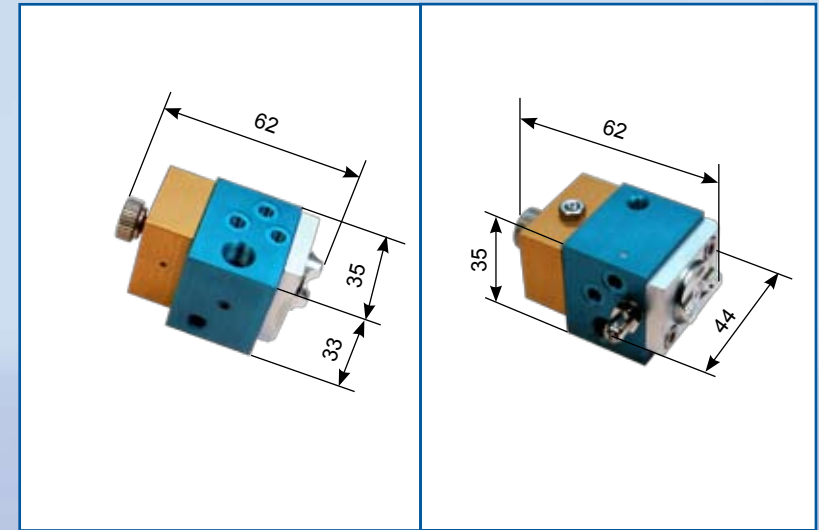
Description

- Precision coaxial spray head with 90° wide beam spray angle for the use in the spray lubrication
- Very good adjustability of the spray parameters
- Very good reproducibility of the lubricant to be applied

- The control air switches the nozzle
- By supplying spray air to the oil outlet, the medium, depending on the preset pressure, is torn into micro droplets
- The flattening of the usually circular lubrication pattern of the nozzle is realized by means of the wide air beam. Due to the preset pressure of the wide air beam, influence can be exerted on the lubrication width of each single nozzle

Use

- For the use with Raziol control units for the tool lubrication and for the minimum lubrication during the chipless machining such as deep-drawing, stamping, bending, trueing, thread moulding
- During the shape cutting such as drilling, milling



Block Nozzle CD-100 BS

Block Nozzle CD-100 BSD

	Block nozzle ST CD-100 BS	Block nozzle ST CD-100 BSD
Description	Precision coaxial spray head with 90° flat beam spray angle and manual oil quantity adjustment by means of a precision grid nozzle with 40 catch positions per revolution Complete with 3 m tube package and 2-X magnetic holder with magnetic base ø 63 mm	Precision coaxial spray head with 90° flat beam spray angle and manual oil quantity adjustment by means of a precision grid nozzle with 40 catch positions per revolution Complete with 3 m tube package and 2-X magnetic holder with magnetic base ø 63 mm
Part No.	1080720204	1080720205
Ports	4	3
Medium	x (white)	x (white)
Spray air	x (black)	
Control air	x (blue)	x (blue)
Wide spray air	x (yellow)	x (yellow)
Nozzle / part no.	CD-100 BS / 1080720206	CD-100 BSD / 1080720208

BS-25/„SV“



BS-25/„SV“ manual, grid nozzle / pilot valve



BS-25/„S“ automatic, grid nozzle / pilot valve



BS-25/„S“ manual, twist valve / pilot valve

Description

- Block nozzle with manual or automatic oil quantity adjustment for spray lubrication applications in spray chambers
- Very good adjustability of the spray parameters
- Very good reproducibility of the lubricant to be applied
- Very fast reaction time

- The control air switches the nozzle
- By supplying spray air to the oil outlet, the medium, depending on the preset pressure, is torn into micro droplets
- The flattening of the usually circular lubrication pattern of the nozzle is realized by means of the wide air beam. Due to the preset pressure of the wide air beam, influence can be exerted on the lubrication width of each single nozzle

Use

- Use in spray chambers, assembled together to a nozzle girder
- Lubrication of blanks and strip stock
- Sectoral and partial lubrication as well as lubrication over the entire surface is possible

(Blockdüse-25/„SchleifenbohrungVorsteuerventil“)



BS-25/„SV“ manual, grid nozzle

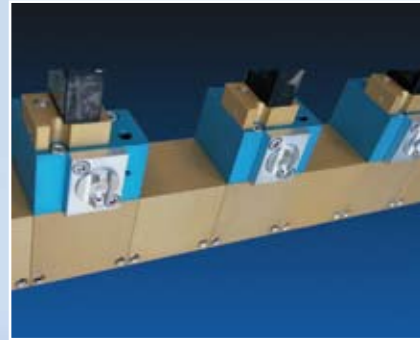
BS-25/„SV“ aut., grid nozzle

BS-25/„SV“ manual, grid nozzle / internal twist nozzle

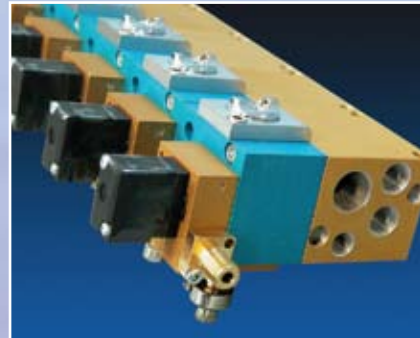
	BS-25/„SV“ manual, grid nozzle and pilot valve, single	BS-25/„SV“ automatic, grid nozzle and pilot valve, single	BS-25/„SV“ manual, grid nozzle, internal twist nozzle and pilot valve, single
Description	Block nozzle with manual oil quantity adjustment by means of a precision grid nozzle M6x0.5 with 40 catch positions per revolution With wide beam attachment, pilot valve and continuous oil bore (loop borehole)	Block nozzle with automatic oil quantity adjustment by means of a precision grid nozzle M6x0.5 with 20 catch positions per revolution With wide beam attachment, pilot valve and continuous oil bore (loop borehole)	Block nozzle with manual oil quantity adjustment by means of a precision grid nozzle M6x0.5 with 40 catch positions per revolution With internal twist nozzle, pilot valve and continuous oil bore (loop borehole)
Part No.	1080720056	1080720055	1080720057
Ports	4	5	3
Medium	x	x	x
Spray air	x	x	x
Control air	x	x	x
Wide spray air	x	x	
Medium return		x	

BS-25/„SRV“

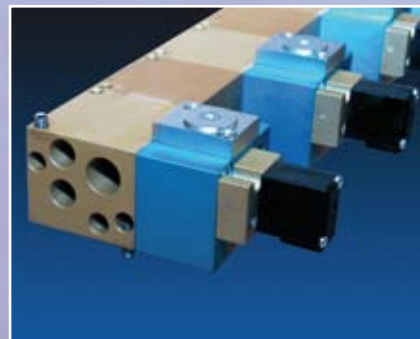
(Blockdüse-25/„Schleifenbohrung Raster Vorsteuerventil“)



BS-25/„SV“ manual, grid nozzle, flat, row



BS-25/„S“ automatic, grid nozzle, flat, row



BS-25/„S“ manual, grid nozzle, round, row

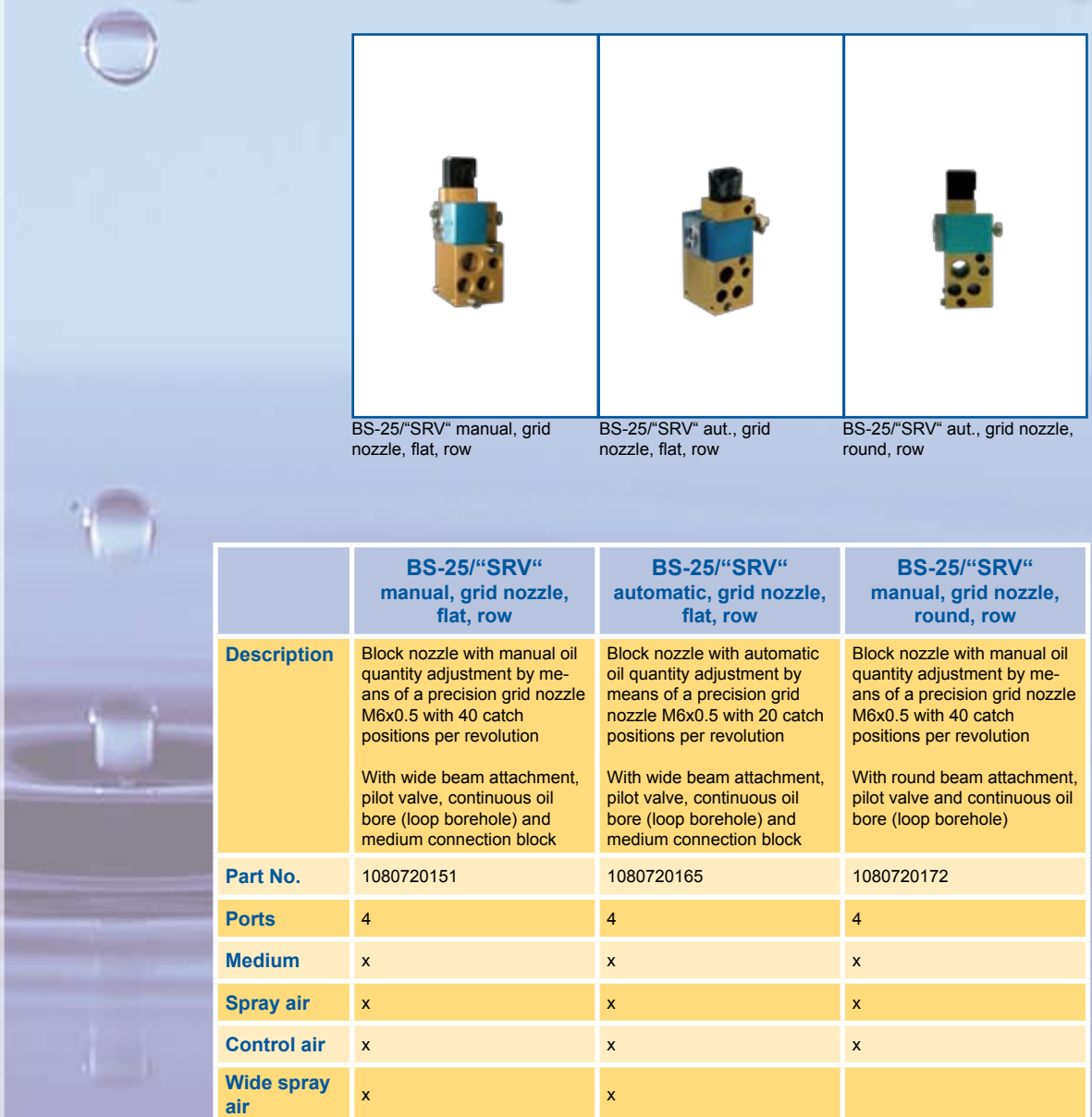
Description

- Block nozzle with manual or automatic oil quantity adjustment for spray lubrication applications in spray chambers
- Very good adjustability of the spray parameters
- Very good reproducibility of the lubricant to be applied
- Very fast reaction time

- The control air switches the nozzle
- By supplying spray air to the oil outlet, the medium, depending on the preset pressure, is torn into micro droplets
- The flattening of the usually circular lubrication pattern of the nozzle is realized by means of the wide air beam. Due to the preset pressure of the wide air beam, influence can be exerted on the lubrication width of each single nozzle

Use

- Use in spray chambers, assembled together to a nozzle girder
- Lubrication of blanks and strip stock
- Sectoral and partial lubrication as well as lubrication over the entire surface is possible



BS-25/„SRV“ manual, grid nozzle, flat, row

BS-25/„SRV“ aut., grid nozzle, flat, row

BS-25/„SRV“ aut., grid nozzle, round, row

	BS-25/„SRV“ manual, grid nozzle, flat, row	BS-25/„SRV“ automatic, grid nozzle, flat, row	BS-25/„SRV“ manual, grid nozzle, round, row
Description	Block nozzle with manual oil quantity adjustment by means of a precision grid nozzle M6x0.5 with 40 catch positions per revolution With wide beam attachment, pilot valve, continuous oil bore (loop borehole) and medium connection block	Block nozzle with automatic oil quantity adjustment by means of a precision grid nozzle M6x0.5 with 20 catch positions per revolution With wide beam attachment, pilot valve, continuous oil bore (loop borehole) and medium connection block	Block nozzle with manual oil quantity adjustment by means of a precision grid nozzle M6x0.5 with 40 catch positions per revolution With round beam attachment, pilot valve and continuous oil bore (loop borehole)
Part No.	1080720151	1080720165	1080720172
Ports	4	4	4
Medium	x	x	x
Spray air	x	x	x
Control air	x	x	x
Wide spray air	x	x	

Examples of spray control units



• Spray control units for 1 lubricating station with 3 hose connections

- The following nozzles can be connected:
ST LAMA-1000 Streu, ST LAMA-2000, ST LAMA-3000
- ELS 2000 control electronics
- Pressure reservoir, 2 or 10 litres
- Solenoid valve group with two solenoid valves for spray and control air
- Connection angles with 3 ball valves
- Mounted, ready for connection, in a mobile unit



• Spray control units for up to 6 lubricating stations with 3 hose connections each

- The following nozzles can be connected:
ST LAMA-3000, ST LAMA-4000, ST block nozzle CD 100 BSD
- EBAD 3000 control electronics
- Pressure reservoir, 2 or 10 litre
- Solenoid valve group with two solenoid valves for spray and control air
- Manifold assembly with ball valves for up to 6 lubricating stations
- Mounted, ready for connection, in a mobile unit



• Spray control units for up to 5 lubricating stations Dusty-2000

- The following nozzles can be connected: ST Dusty-2000
- ELS 2000 control electronics
- Pressure reservoir, 2 or 10 litres
- Solenoid valve group for oil and air
- Prepared for up to 5 lubricating stations
- Mounted, ready for connection, in a mobile unit



- For all types, dimensions and item numbers of the spray control units, please refer to our brochure.

Spray control units Non-contact lubrication





• We would be happy to send you additional information material, e.g. on

- Roller lubricators
- Forming lubricants
- Dosing control units
- Exhaust systems

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