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Laser SPA2-F

Marking of variable information on printed packaging

For plastics and metals

Extremely high lifetime

High quality high-speed marking



we're on it.

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Laser marking

The quality of industrial markings with lasers depends on the **reaction** of the marked **material** (color, coating, condition) and which laser is used (performance, wavelength).

Material reaction for CO₂-Laser

Material group	Material	Wavelength	Reaction
Foil	Aluminum foil	10,6 µm	+
	Polyethylene terephthalate (PET)	10,6 µm	○
	Oriented polypropylene (OPP)	10,6 µm	○
Glass	Glass	10,6 µm	+
	Glass fiber	10,6 µm	+
Wood	Wood	10,6 µm	+
	Thermo-label	10,6 µm	+
	Board	10,6 µm	+
Ceramic	Ceramic	10,6 µm	+
Plastic	Polypropylene (PP)	10,6 µm	+
	Low density polyethylene (LDPE)	10,6 µm	+
	Polystyrene (PS, GPPS, HIPS)	10,6 µm	+
	Acrylnitril-Butadien-Styrol (ABS)	10,6 µm	○
	Polyacetal (POM)	10,6 µm	+
	Polyamide (PA)	10,6 µm	○
	Polycarbonate (PC)	10,6 µm	-
	Polyethylene (PET)	10,6 µm	+
	Polybutylene terephthalate (PBT)	10,6 µm	+
	Polyvinyl chloride (PVC)	10,6 µm	+
	Silicon varnished	10,6 µm	○
	Epoxy resin	10,6 µm	+
	Phenolic resin	10,6 µm	○
	Polyurethane	10,6 µm	+
Metal	Coated metals	10,6 µm	+
	Metals	10,6 µm	-
Organic material	Fruits and vegetables	10,6 µm	+
Paper	Paper	10,6 µm	+
Textile	Textile	10,6 µm	○
Label	Label	10,6 µm	+
Cable	Cable	10,6 µm	○
Tires	Tires	10,6 µm	+

+	=	good
0	=	potential
-	=	bad

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Application examples

SPA-FP; PULSED – laser (for metals and plastics)



SPA-FF; FILM – Laser (für Folien und beschichtete Verpackungen)



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SPA2-FP 20W

Model	SPA2-F				
Name	LASER SPA2-FP-SE20M-2XG		LASER SPA2-FP-DE20M-5XG		
Material number	1041.1803		1041.1811		
Control unit	19" rack		stainless steel control cabinet		
Protection class	IP 22		IP54		
Performance	20 W				
Pulse duration	90 – 120 ns				
Pulse performance	9,4 kW (@Prr=20kHz)				
Pulse energy	1 mJ				
Frequency	20-200 kHz				
Connection values	115 V / 230 V ; 50 Hz / 60 Hz ; 500 VA				
Wavelength	1062 nm				
Scanner	XQS				
Net Weight	28 kg				
Gross Weight	32 kg				
System	Laser head + external control unit				
Default Features	Dynamic Barcode Generator, diode pointer				
Environment	Temperature + 10° to + 40° C, relative humidity max. 95 %				
Cooling system	integrated air cooling				
Control	PC-software, touchscreen terminal				
Interfaces	Ethernet TCP/IP, I/O, USB (RS 232 need adaptor)				
Options					
Lens	Mat. no.	Working space	Working distance	Beam diameter	Power density
	1041.1926	60x60 mm	126 mm	45 µm	1249 kW/cm²
	1041.1923	100x100 mm	201 mm	72 µm	488 kW/cm²
	1041.1924	107x107 mm	203 mm	73 µm	474 kW/cm²
	1041.1927	160x160 mm	345 mm	115 µm	194 kW/cm²
	1041.1929	212x212 mm	446 mm	156 µm	104 kW/cm²
	1041.1930	242x242 mm	545 mm	190 µm	70,8 kW/cm²
	1041.1932	325x325 mm	710 mm	257 µm	38,5 kW/cm²
	1041.1933	560x560 mm	955 mm	370 µm	18,6 kW/cm²
Optional Features	See below	PL-D (Performance Level D)			
	See below	Profinet Interface			
	1041.1913	Pilot laser for SPA2-F (assembled on the EMS) -> EMS required			
	10411912	EMS SPA2-F (electromechanical shutter)			
Plugs	1040.4887	I/O plug DB 44			
	1040.4888	Signal plug photo cell I/O 3-pin M8			
	1040.6424	Signal plug encoder I/O 8-pin M12			
	1040.6762	MULTICONNECTED DB44			
Accessories	Housing, mounting, stand, encoder, light barrier, extraction, ... (for details see data sheet accessories and extraction)				

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SPA2-FP 50W

Model	SPA2-F	
Name	LASER SPA2-FP-SE50M-2XG	LASER SPA2-FP-DE50M-5XG
Material number	1041.1819	1041.1827
Control unit	19" rack	stainless steel control cabinet
Protection class	IP 22	IP54
Performance	50 W	
Pulse duration	100 – 140 ns	
Pulse performance	7,83 kW (@Prr=50kHz)	
Pulse energy	1 mJ	
Frequency	50-200 kHz	
Connection values	115 V / 230 V ; 50 Hz / 60 Hz ; 700 VA	
Wavelength	1062 nm	
Scanner	XQS	
Net Weight	28 kg	
Gross Weight	32 kg	
System	Laser head + external control unit	
Default Features	Dynamic Barcode Generator, diode pointer	
Environment	Temperature + 10° to + 40° C, relative humidity max. 95 %	
Cooling system	integrated air cooling	
Control	PC-software, touchscreen terminal	
Interfaces	Ethernet TCP/IP, I/O, USB (RS 232 need adaptor)	

Options					
Lens	Mat. no.	Working space	Working distance	Beam diameter	Power density
	1041.1926	60x60 mm	126 mm	45 µm	3122 kW/cm²
	1041.1923	107x107 mm	203 mm	73 µm	1184 kW/cm²
	1041.1924	160x160 mm	345 mm	115 µm	484 kW/cm²
	1041.1927	212x212 mm	446 mm	156 µm	260 kW/cm²
	1041.1929	242x242 mm	545 mm	190 µm	177 kW/cm²
	1041.1930	325x325 mm	710 mm	257 µm	96,2 kW/cm²
	1041.1932	560x560 mm	955 mm	370 µm	46,5 kW/cm²
	Optional Features	See below	PL-D (Performance Level D)		
See below		Profinet Interface			
1041.1913		Pilot laser for SPA2-F (assembled on the EMS) -> EMS required			
10411912		EMS SPA2-F (electromechanical shutter)			
Plugs	1040.4887	I/O plug DB 44			
	1040.4888	Signal plug photo cell I/O 3-pin M8			
	1040.6424	Signal plug encoder I/O 8-pin M12			
	1040.6762	MULTICONNECTED DB44			
Accessories	Housing, mounting, stand, encoder, light barrier, extraction, ... (for details see data sheet accessories and extraction)				

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SPA2-FP 100W

Model	SPA2-F	
Name	LASER SPA2-FP-SE100M-2XG	LASER SPA2-FP-DE100M-5XG
Material number	1041.1835	1041.1843
Control unit	19" rack	stainless steel control cabinet
Protection class	IP 22	IP54
Performance	100 W	
Pulse duration	80 – 120 ns	
Pulse performance	9,39 kW (@Prr=100kHz)	
Pulse energy	1 mJ	
Frequency	50-500 kHz	
Connection values	115 V / 230 V ; 50 Hz / 60 Hz ; 825 VA	
Wavelength	1062 nm	
Scanner	XQS	
Net Weight	28 kg	
Gross Weight	32 kg	
System	Laser head + external control unit	
Default Features	Dynamic Barcode Generator, diode pointer	
Environment	Temperature + 10° to + 40° C, relative humidity max. 95 %	
Cooling system	integrated air cooling	
Control	PC-software, touchscreen terminal	
Interfaces	Ethernet TCP/IP, I/O, USB (RS 232 need adaptor)	

Options					
Lens	Mat. no.	Working space	Working distance	Beam diameter	Power density
	1041.1926	60x60 mm	126 mm	45 µm	6244 kW/cm²
	1041.1923	107x107 mm	203 mm	73 µm	2367 kW/cm²
	1041.1924	160x160 mm	345 mm	115 µm	968 kW/cm²
	1041.1927	212x212 mm	446 mm	156 µm	521 kW/cm²
	1041.1929	242x242 mm	545 mm	190 µm	354 kW/cm²
	1041.1930	325x325 mm	710 mm	257 µm	192 kW/cm²
	1041.1932	560x560 mm	955 mm	370 µm	92,9 kW/cm²
	Optional Features	See below	PL-D (Performance Level D)		
See below		Profinet Interface			
1041.1913		Pilot laser for SPA2-F (assembled on the EMS) -> EMS required			
10411912		EMS SPA2-F (electromechanical shutter)			
Plugs	1040.4887	I/O plug DB 44			
	1040.4888	Signal plug photo cell I/O 3-pin M8			
	1040.6424	Signal plug encoder I/O 8-pin M12			
	1040.6762	MULTICONNECTED DB44			
Accessories	Housing, mounting, stand, encoder, light barrier, extraction, ... (for details see data sheet accessories and extraction)				

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SPA2-FF 20W

Model	SPA2-F				
Name	LASER SPA2-FF-SE20M-2XG		LASER SPA2-FF-DE20M-5XG		
Material number	1041.1852		1041.1860		
Control unit	19" rack		stainless steel control cabinet		
Protection class	IP 22		IP54		
Performance	20 W				
Connection values	115 V / 230 V ; 50 Hz / 60 Hz ; 450 VA				
Wavelength	1062 nm				
Scanner	XQS				
Net Weight	26 kg				
Gross Weight	30 kg				
System	Laser head + external control unit				
Default Features	Dynamic Barcode Generator				
Environment	Temperature + 10° to + 40° C, relative humidity max. 95 %				
Cooling system	integrated air cooling				
Control	PC-software, touchscreen terminal				
Interfaces	Ethernet TCP/IP, I/O, USB (RS 232 need adaptor)				
Options					
Lens	Mat. no.	Working space	Working distance	Beam diameter	Power density
	1041.1926	60x60 mm	126 mm	27 µm	3469 kW/cm²
	1041.1923	100x100 mm	201 mm	43 µm	1355 kW/cm²
	1041.1924	107x107 mm	203 mm	44 µm	1315 kW/cm²
	1041.1927	160x160 mm	345 mm	69 µm	538 kW/cm²
	1041.1929	212x212 mm	446 mm	94 µm	289 kW/cm²
	1041.1930	242x242 mm	545 mm	114 µm	197 kW/cm²
	1041.1932	325x325 mm	710 mm	154 µm	107 kW/cm²
	1041.1933	560x560 mm	955 mm	222 µm	51,6 kW/cm²
Optional Features	See below	PL-D (Performance Level D)			
	See below	Profinet Interface			
	1041.1913	Pilot laser for SPA2-F (assembled on the EMS) -> EMS required			
	10411912	EMS SPA2-F (electromechanical shutter)			
Plugs	1040.4887	I/O plug DB 44			
	1040.4888	Signal plug photo cell I/O 3-pin M8			
	1040.6424	Signal plug encoder I/O 8-pin M12			
	1040.6762	MULTICONNECTED DB44			
Accessories	Housing, mounting, stand, encoder, light barrier, extraction, ... (for details see data sheet accessories and extraction)				

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SPA2-FF 50W

Model	SPA2-F				
Name	LASER SPA2-FF-SE50M-2XG		LASER SPA2-FF-DE50M-5XG		
Material number	1041.1867		1041.1875		
Control unit	19" rack		stainless steel control cabinet		
Protection class	IP 22		IP54		
Performance	20 W				
Connection values	115 V / 230 V ; 50 Hz / 60 Hz ; 650 VA				
Wavelength	1062 nm				
Scanner	XQS				
Net Weight	28 kg				
Gross Weight	32 kg				
System	Laser head + external control unit				
Default Features	Dynamic Barcode Generator				
Environment	Temperature + 10° to + 40° C, relative humidity max. 95 %				
Cooling system	integrated air cooling				
Control	PC-software, touchscreen terminal				
Interfaces	Ethernet TCP/IP, I/O, USB (RS 232 need adaptor)				
Options					
Lens	Mat. no.	Working space	Working distance	Beam diameter	Power density
	1041.1926	60x60 mm	126 mm	27 µm	8672 kW/cm²
	1041.1923	107x107 mm	203 mm	44 µm	3288 kW/cm²
	1041.1924	160x160 mm	345 mm	69 µm	1344 kW/cm²
	1041.1927	212x212 mm	446 mm	94 µm	723 kW/cm²
	1041.1929	242x242 mm	545 mm	114 µm	492 kW/cm²
	1041.1930	325x325 mm	710 mm	154 µm	267 kW/cm²
	1041.1932	560x560 mm	955 mm	222 µm	129 kW/cm²
Optional Features	See below	PL-D (Performance Level D)			
	See below	Profinet Interface			
	1041.1913	Pilot laser for SPA2-F (assembled on the EMS) -> EMS required			
	1041.1912	EMS SPA2-F (electromechanical shutter)			
Plugs	1040.4887	I/O plug DB 44			
	1040.4888	Signal plug photo cell I/O 3-pin M8			
	1040.6424	Signal plug encoder I/O 8-pin M12			
	1040.6762	MULTICONNECTED DB44			
Accessories	Housing, mounting, stand, encoder, light barrier, extraction, ... (for details see data sheet accessories and extraction)				

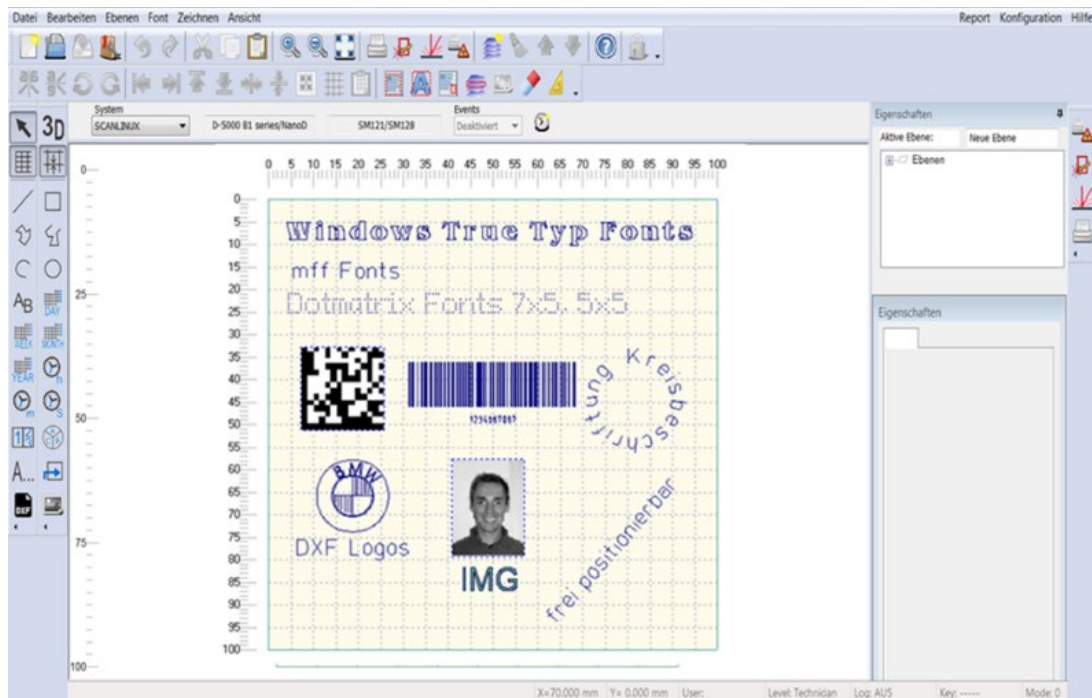
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SPA2-FF 100W

Model	SPA2-F				
Name	LASER SPA2-FF-SE100M-2XG		LASER SPA2-FF-DE100M-5XG		
Material number	1041.1883		1041.1891		
Control unit	19" rack		stainless steel control cabinet		
Protection class	IP 22		IP54		
Performance	20 W				
Connection values	115 V / 230 V ; 50 Hz / 60 Hz ; 770 VA				
Wavelength	1062 nm				
Scanner	XQS				
Net Weight	28 kg				
Gross Weight	32 kg				
System	Laser head + external control unit				
Default Features	Dynamic Barcode Generator				
Environment	Temperature + 10° to + 40° C, relative humidity max. 95 %				
Cooling system	integrated air cooling				
Control	PC-software, touchscreen terminal				
Interfaces	Ethernet TCP/IP, I/O, USB (RS 232 need adaptor)				
Options					
Lens	Mat. no.	Working space	Working distance	Beam diameter	Power density
	1041.1926	60x60 mm	126 mm	27 µm	17344 kW/cm²
	1041.1923	107x107 mm	203 mm	44 µm	6576 kW/cm²
	1041.1924	160x160 mm	345 mm	69 µm	2688 kW/cm²
	1041.1927	212x212 mm	446 mm	94 µm	1446 kW/cm²
	1041.1929	242x242 mm	545 mm	114 µm	983 kW/cm²
	1041.1930	325x325 mm	710 mm	154 µm	534 kW/cm²
	1041.1932	560x560 mm	955 mm	222 µm	258 kW/cm²
Optional Features	See below	PL-D (Performance Level D)			
	See below	Profinet Interface			
	1041.1913	Pilot laser for SPA2-F (assembled on the EMS) -> EMS required			
	10411912	EMS SPA2-F (electromechanical shutter)			
Plugs	1040.4887	I/O plug DB 44			
	1040.4888	Signal plug photo cell I/O 3-pin M8			
	1040.6424	Signal plug encoder I/O 8-pin M12			
	1040.6762	MULTICONNECTED DB44			
Accessories	Housing, mounting, stand, encoder, light barrier, extraction, ... (for details see data sheet accessories and extraction)				

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Software



- Marca PC software with windows interface (7, 8, 10)
- WYSIWYG display
- Freely selectable character size and alignment
- Variable date and time formats
- Serial numbering or text passages
- Text list
- Circular marking
- Logos or graphics loaded in DXF or IMG format
- Bar codes, 2D codes
- True Type Fonts, Unicode, MFF Fonts, Crystal Fonts 5x5, 7x5
- Database printing
- Logos and graphics can be created via integrated vector graphic function
- Font Editor
- Multilayer function
- Event handler
- And much more

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Order Code

	LASER	SPA2-FP	SE	20	M	2	X	G
Typ	LASER	Laser						
Model	SPA2-FP	Pulsed						
	SPA2-FF	FILM						
Version	SE	19" RACK						
	DE	Stainless Steel RACK						
	WD	Wash Down						
Power	20	20W						
	50	50W						
	100	100W						
Scanner	M	XQS						
	U	UHS						
Ingress Protection	2	IP22						
	5	IP54						
	6	IP55						
	7	IP67						
Performance Level	X	no PLD						
	D	PL-D						
Software Licence	G	Graphics						
	Q	Graphics & Profinet						

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SPA2-FP 20W

	IP	PLD	Profinet	Ordering number	Article code
SE	22	-	-	LASER SPA2-FP-SE20M-2XG	1041.1803
SE	22	Yes	-	LASER SPA2-FP-SE20M-2DG	1041.1805
SE	22	-	Yes	LASER SPA2-FP-SE20M-2XQ	1041.1807
SE	22	Yes	Yes	LASER SPA2-FP-SE20M-2DQ	1041.1809
DE	54	-	-	LASER SPA2-FP-DE20M-5XG	1041.1811
DE	54	Yes	-	LASER SPA2-FP-DE20M-5DG	1041.1813
DE	54	-	Yes	LASER SPA2-FP-DE20M-5XQ	1041.1815
DE	54	Yes	Yes	LASER SPA2-FP-DE20M-5DQ	1041.1663

SPA2-FP 50W

	IP	PLD	Profinet	Ordering number	Article code
SE	22	-	-	LASER SPA2-FP-SE50M-2XG	1041.1818
SE	22	Yes	-	LASER SPA2-FP-SE50M-2DG	1041.1821
SE	22	-	Yes	LASER SPA2-FP-SE50M-2XQ	1041.1823
SE	22	Yes	Yes	LASER SPA2-FP-SE50M-2DQ	1041.1825
DE	54	-	-	LASER SPA2-FP-DE50M-5XG	1041.1827
DE	54	Yes	-	LASER SPA2-FP-DE50M-5DG	1041.1829
DE	54	-	Yes	LASER SPA2-FP-DE50M-5XQ	1041.1831
DE	54	Yes	Yes	LASER SPA2-FP-DE50M-5DQ	1041.1833

SPA2-FP 100W

	IP	PLD	Profinet	Ordering number	Article code
SE	22	-	-	LASER SPA2-FP-SE100M-2XG	1041.1835
SE	22	Yes	-	LASER SPA2-FP-SE100M-2DG	1041.1837
SE	22	-	Yes	LASER SPA2-FP-SE100M-2XQ	1041.1839
SE	22	Yes	Yes	LASER SPA2-FP-SE100M-2DQ	1041.1841
DE	54	-	-	LASER SPA2-FP-DE100M-5XG	1041.1843
DE	54	Yes	-	LASER SPA2-FP-DE100M-5DG	1041.1846
DE	54	-	Yes	LASER SPA2-FP-DE100M-5XQ	1041.1848
DE	54	Yes	Yes	LASER SPA2-FP-DE100M-5DQ	1041.1850

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SPA2-FF 20W

	IP	PLD	Profinet	Ordering number	Article code
SE	22	-	-	LASER SPA2-FF-SE20M-2XG	1041.1852
SE	22	Yes	-	LASER SPA2-FF-SE20M-2DG	1041.1854
SE	22	-	Yes	LASER SPA2-FF-SE20M-2XQ	1041.1856
SE	22	Yes	Yes	LASER SPA2-FF-SE20M-2DQ	1041.1858
DE	54	-	-	LASER SPA2-FF-DE20M-5XG	1041.1860
DE	54	Yes	-	LASER SPA2-FF-DE20M-5DG	1041.1862
DE	54	-	Yes	LASER SPA2-FF-DE20M-5XQ	1041.1864
DE	54	Yes	Yes	LASER SPA2-FF-DE20M-5DQ	1041.1866

SPA2-FF 50W

	IP	PLD	Profinet	Ordering number	Article code
SE	22	-	-	LASER SPA2-FF-SE50M-2XG	1041.1868
SE	22	Yes	-	LASER SPA2-FF-SE50M-2DG	1041.1870
SE	22	-	Yes	LASER SPA2-FF-SE50M-2XQ	1041.1872
SE	22	Yes	Yes	LASER SPA2-FF-SE50M-2DQ	1041.1874
DE	54	-	-	LASER SPA2-FF-DE50M-5XG	1041.1876
DE	54	Yes	-	LASER SPA2-FF-DE50M-5DG	1041.1497
DE	54	-	Yes	LASER SPA2-FF-DE50M-5XQ	1041.1880
DE	54	Yes	Yes	LASER SPA2-FF-DE50M-5DQ	1041.1882

SPA2-FF 100W

	IP	PLD	Profinet	Ordering number	Article code
SE	22	-	-	LASER SPA2-FF-SE100M-2XG	1041.1884
SE	22	Yes	-	LASER SPA2-FF-SE100M-2DG	1041.1886
SE	22	-	Yes	LASER SPA2-FF-SE100M-2XQ	1041.1888
SE	22	Yes	Yes	LASER SPA2-FF-SE100M-2DQ	1041.1890
DE	54	-	-	LASER SPA2-FF-DE100M-5XG	1041.1892
DE	54	Yes	-	LASER SPA2-FF-DE100M-5DG	1041.1894
DE	54	-	Yes	LASER SPA2-FF-DE100M-5XQ	1041.1896
DE	54	Yes	Yes	LASER SPA2-FF-DE100M-5DQ	1041.1898

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Quality

ISO-certification by DIN EN ISO 9001-2015

Made in Europe.

Our quality requirements include the process of continuous improvement. Design and technical changes are reserved without previous announcement.

Contact

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