SR 125

oem-xray-components.siemens.com

SIEMENS Healthineers

Features and Benefits

Siemens Healthineers
X-ray tube SR 125

The X-ray tubes of the SR 125 family can be used for dental cone beam and standard conventional radiography and fluoroscopy. The high quality tube with glass design has double focal spots and a high anode heat storage capacity. The anode heat storage capacity ensures a wide range of applications for routine X-ray diagnostic procedures especially in combination with single tank generators in conventional or MF-technique.

- High quality tungsten target
- Increased anode heat storage capacity
- Optimized cooling
- Excellent durability
- High dose yield

Technical Data

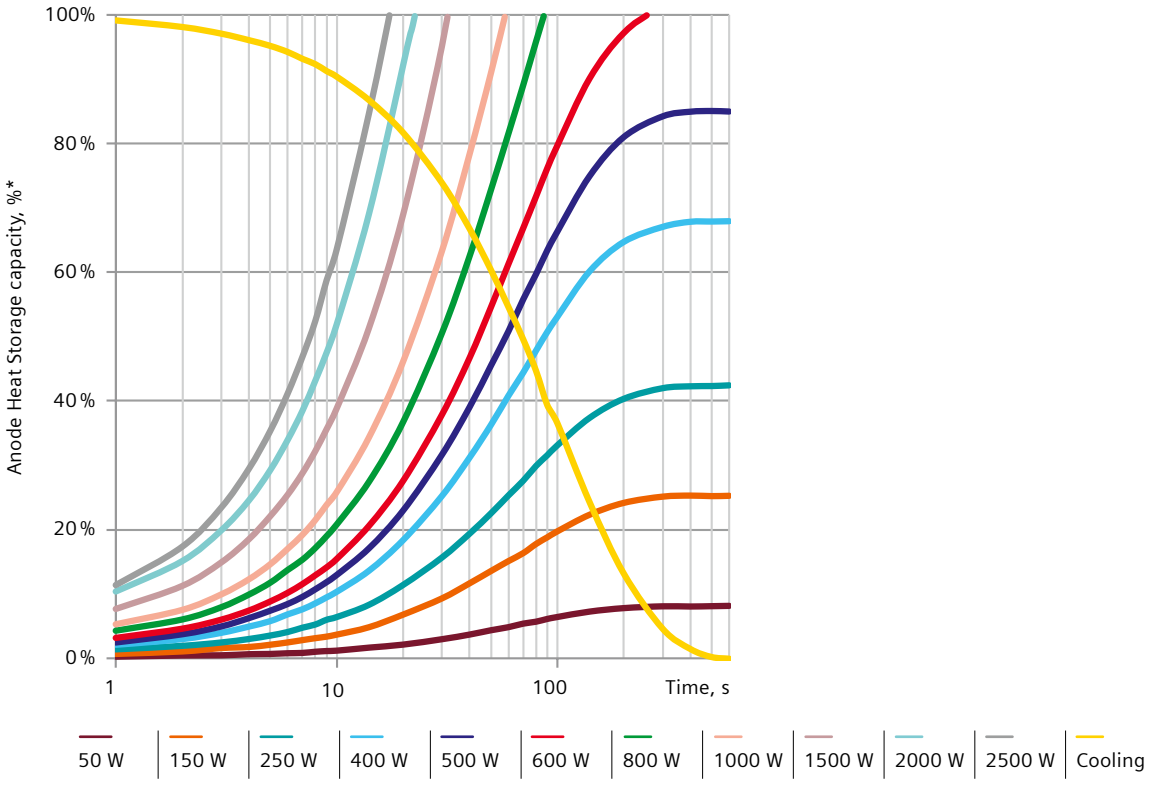
Technical Data		**SR 125/40/80-R**		**SR 125/40/100**		**IEC**
Nominal voltage		125 kV				60 613: 2010
Nominal voltage for fluoroscopy		125 kV				
Nominal focal spot values		0.6	1.0	0.6	1.2	60 336: 2005
Pulse power		2.1 kW*	4.0 kW*	2.1 kW*	5.0 kW**	
Nominal anode input power		1980 W (DC)	3650 W (DC)	1980 W (DC)	4800 W (DC)	60 613: 2010
Nominal radiographic anode input power		1980 W (DC)	3650 W (DC)	1980 W (DC)	4800 W (DC)	60 613: 2010
Filament heating	maximum current	4.5 V		4.5 V		(DC) or (AC < 20 kHz)
	maximum voltage	8.0 V	8.0 V	8.0 V	10.0 V	
Anode angle		9°				60 788: 2004
Maximum anode heat content		60 kJ = 85 kHU				60 613: 1989
Permanent filtration		≥ 0.75 mm Al/75 kV				60522, 60601-1-3
Weight		0.77±0.05 kg				
Maximum fluoroscopy duration		20min @ 600W				
Anode Material		Tungsten / Copper				
Continuous anode input power		500 W				60 613: 2010

Operation Limits (with dielectric oil having a dielectric strength of ≥ 50 kV/2.5 mm)	**Transport and Storage Limits**
Oil temperature (10 to 60) °C Oil pressure (70 to 106) kPa	Temperature (-25 to 70) °C Humidity (10 to 90) % (No condensation) Atmospheric pressure (50 to 106) kPa

** at 60 ms pulse duration* *** at 70 ms pulse duration*

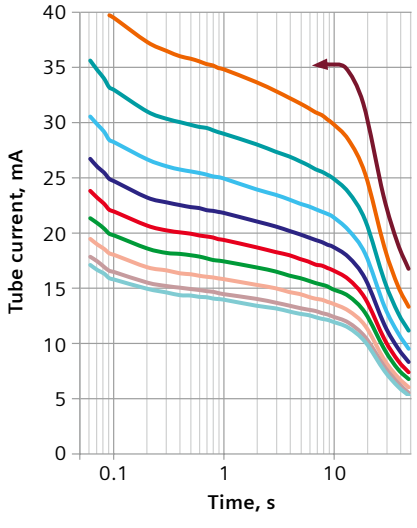
Technical Charts

Anode heating and cooling curves

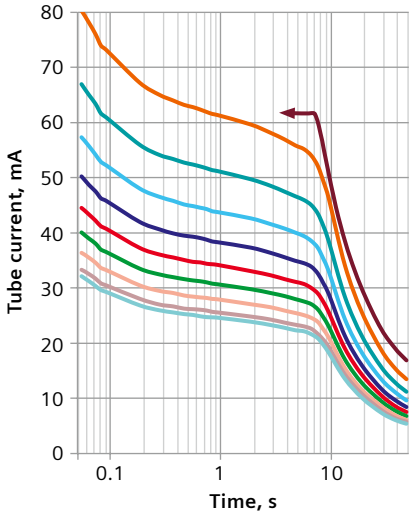


Loading charts

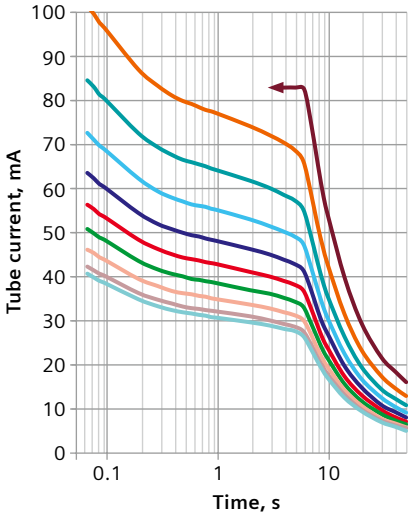
Loading Curve of F1 (0.6)



Loading Curve of F1 (1.0)



Loading Curve of F1 (1.2)

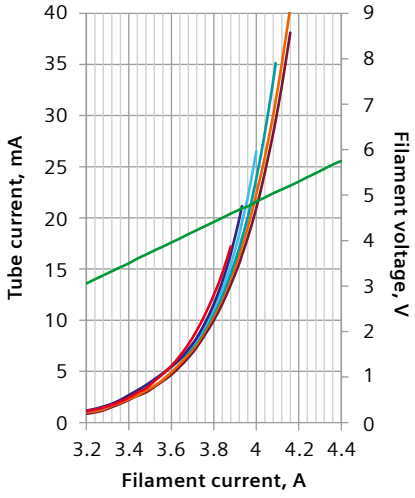


** 100% = 38kJ*

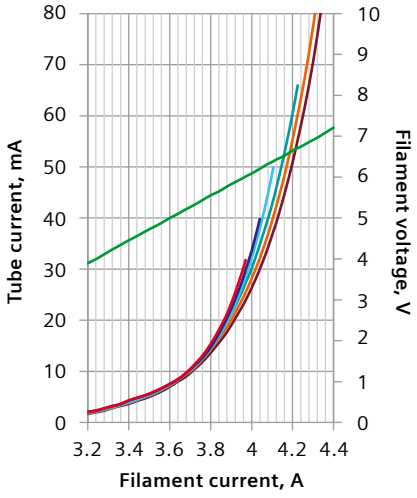
Technical Charts

Filament and Emission Charts

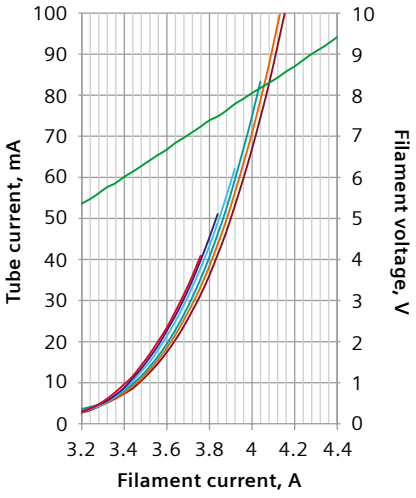
Filament and emission characteristics of F1 (0.6)



Filament and emission characteristics of F2 (1.0)



Filament and emission characteristics of F2 (1.2)



Rating Tables

Pulse Mode Rating Table
(pulse width max. 40ms based on 80W reference power, pulse power in kW)

Focal spot IEC 0.6

Series Duration (s)

ms x fps	1	2	4	6	10	15	20	30	40	60	100	200	300	600	900	1200	1500	1800	2100	2400
50	2.07	2.07	2.06	2.06	2.06	2.05	2.05	2.04	2.03	2.02	2.01	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
100	2.06	2.06	2.06	2.05	2.04	2.03	2.02	2.01	1.99	1.97	1.95	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93
150	2.04	2.04	2.04	2.03	2.02	2.00	1.99	1.96	1.95	1.92	1.88	1.86	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85
200	2.03	2.02	2.02	2.01	1.99	1.97	1.95	1.92	1.90	1.86	1.82	1.79	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78
250	2.01	2.00	1.99	1.98	1.96	1.94	1.91	1.88	1.85	1.81	1.76	1.72	1.71	1.70	1.70	1.70	1.70	1.70	1.70	1.70
300	1.99	1.97	1.96	1.95	1.93	1.90	1.87	1.83	1.80	1.75	1.59	1.44	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42
350	1.96	1.95	1.93	1.92	1.90	1.86	1.84	1.79	1.75	1.63	1.36	1.23	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
400	1.94	1.93	1.91	1.89	1.87	1.83	1.80	1.75	1.71	1.42	1.19	1.08	1.07	1.06	1.06	1.06	1.06	1.06	1.06	1.06
450	1.92	1.90	1.88	1.86	1.83	1.80	1.76	1.71	1.56	1.27	1.06	0.96	0.95	0.94	0.94	0.94	0.94	0.94	0.94	0.94
500	1.89	1.87	1.85	1.83	1.80	1.76	1.72	1.67	1.40	1.14	0.95	0.86	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
550	1.86	1.85	1.82	1.80	1.77	1.72	1.69	1.52	1.27	1.03	0.87	0.78	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
600	1.84	1.82	1.79	1.77	1.73	1.69	1.65	1.39	1.17	0.95	0.79	0.72	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
650	1.81	1.79	1.76	1.74	1.70	1.65	1.61	1.28	1.08	0.87	0.73	0.66	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
700	1.78	1.76	1.73	1.71	1.67	1.62	1.58	1.19	1.00	0.81	0.68	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
800	1.73	1.71	1.67	1.65	1.60	1.56	1.39	1.04	0.87	0.71	0.59	0.54	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
900	1.68	1.65	1.62	1.59	1.55	1.49	1.23	0.93	0.78	0.63	0.53	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50

Pulse Mode Rating Table
(pulse width max. 40ms based on 80W reference power, pulse power in kW)

Focal spot IEC 1.0

Series Duration (s)

ms x fps	1	2	4	6	10	15	20	30	40	60	100	200	300	600	900	1200	1500	1800	2100	2400
50	4.18	4.17	4.17	4.16	4.16	4.15	4.15	4.14	4.13	4.12	4.11	4.10	4.10	4.10	4.10	4.10	4.10	4.10	4.10	4.10
100	4.15	4.13	4.11	4.10	4.08	4.05	4.03	4.00	3.97	3.93	3.88	3.84	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
150	4.10	4.08	4.05	4.02	3.98	3.94	3.91	3.85	3.80	3.73	3.19	2.88	2.85	2.84	2.84	2.84	2.84	2.84	2.84	2.84
200	4.05	4.02	3.98	3.94	3.89	3.83	3.78	3.70	3.51	2.85	2.39	2.16	2.14	2.13	2.13	2.13	2.13	2.13	2.13	2.13
250	3.98	3.95	3.89	3.85	3.78	3.71	3.66	3.35	2.80	2.28	1.91	1.73	1.71	1.70	1.70	1.70	1.70	1.70	1.70	1.70
300	3.91	3.87	3.80	3.76	3.68	3.60	3.53	2.79	2.34	1.90	1.59	1.44	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42
350	3.83	3.78	3.71	3.66	3.57	3.48	3.18	2.39	2.00	1.63	1.36	1.23	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
400	3.75	3.70	3.62	3.56	3.46	3.37	2.78	2.09	1.75	1.42	1.19	1.08	1.07	1.06	1.06	1.06	1.06	1.06	1.06	1.06
450	3.68	3.62	3.53	3.47	3.36	3.10	2.47	1.86	1.56	1.27	1.06	0.96	0.95	0.94	0.94	0.94	0.94	0.94	0.94	0.94
500	3.60	3.53	3.44	3.38	3.27	2.79	2.23	1.67	1.40	1.14	0.95	0.86	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
550	3.52	3.45	3.36	3.29	3.17	2.53	2.02	1.52	1.27	1.03	0.87	0.78	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
600	3.45	3.38	3.28	3.20	3.08	2.32	1.85	1.39	1.17	0.95	0.79	0.72	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
650	3.37	3.30	3.20	3.12	3.00	2.14	1.71	1.28	1.08	0.87	0.73	0.66	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
700	3.30	3.22	3.12	3.04	2.79	1.99	1.59	1.19	1.00	0.81	0.68	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
800	3.16	3.08	2.97	2.89	2.44	1.74	1.39	1.04	0.87	0.71	0.59	0.54	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
900	3.03	2.95	2.83	2.75	2.17	1.55	1.23	0.93	0.78	0.63	0.53	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50

Pulse Mode Rating Table
(pulse width max. 40ms based on 80W reference power, pulse power in kW)

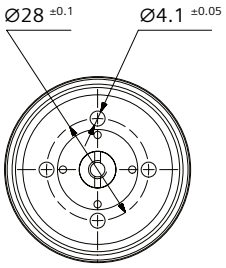
Focal spot IEC 1.2

Series Duration (s)

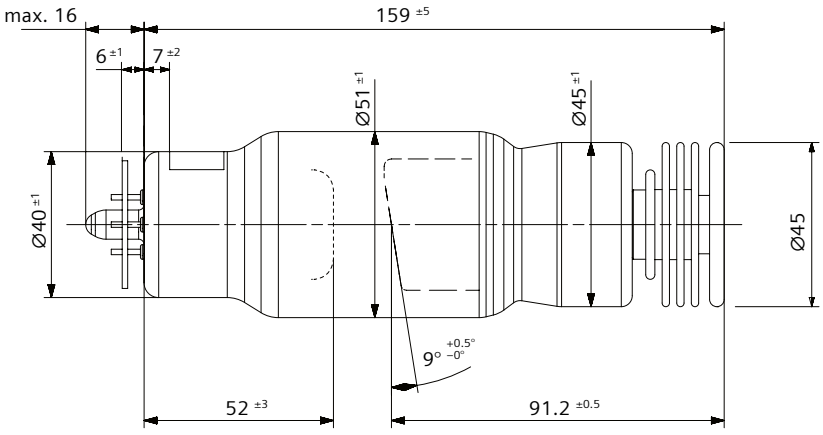
ms x fps	1	2	4	6	10	15	20	30	40	60	100	200	300	600	900	1200	1500	1800	2100	2400
50	5.35	5.34	5.33	5.32	5.30	5.29	5.27	5.25	5.23	5.21	5.17	5.15	5.14	5.14	5.14	5.14	5.14	5.14	5.14	5.14
100	5.31	5.28	5.25	5.23	5.18	5.14	5.10	5.03	4.98	4.91	4.78	4.32	4.27	4.26	4.26	4.26	4.26	4.26	4.26	4.26
150	5.25	5.21	5.16	5.12	5.05	4.98	4.92	4.82	4.67	3.80	3.19	2.88	2.85	2.84	2.84	2.84	2.84	2.84	2.84	2.84
200	5.17	5.12	5.05	5.00	4.90	4.81	4.73	4.18	3.50	2.85	2.39	2.16	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13
250	5.08	5.02	4.93	4.86	4.75	4.64	4.46	3.35	2.80	2.28	1.91	1.73	1.71	1.70	1.70	1.70	1.70	1.70	1.70	1.70
300	4.98	4.91	4.81	4.73	4.60	4.47	3.71	2.79	2.33	1.90	1.59	1.44	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42
350	4.88	4.80	4.68	4.60	4.45	3.98	3.18	2.39	2.00	1.63	1.36	1.23	1.22	1.21	1.21	1.21	1.21	1.21	1.21	1.21
400	4.78	4.69	4.56	4.46	4.31	3.48	2.78	2.09	1.75	1.42	1.19	1.08	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
450	4.67	4.58	4.44	4.34	4.17	3.10	2.47	1.86	1.55	1.26	1.06	0.96	0.95	0.94	0.94	0.94	0.94	0.94	0.94	0.94
500	4.57	4.46	4.32	4.21	3.91	2.79	2.23	1.67	1.40	1.14	0.95	0.86	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
550	4.47	4.36	4.21	4.09	3.56	2.53	2.02	1.52	1.27	1.03	0.87	0.78	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
600	4.37	4.25	4.10	3.98	3.26	2.32	1.85	1.39	1.16	0.95	0.79	0.72	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
650	4.28	4.15	3.99	3.87	3.01	2.14	1.71	1.28	1.07	0.87	0.73	0.66	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
700	4.18	4.06	3.89	3.76	2.79	1.99	1.59	1.19	1.00	0.81	0.68	0.61	0.61	0.60	0.60	0.60	0.60	0.60	0.60	0.60
800	4.00	3.87	3.69	3.56	2.44	1.74	1.39	1.04	0.87	0.71	0.59	0.54	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
900	3.83	3.69	3.51	3.38	2.17	1.55	1.23	0.93	0.77	0.63	0.53	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50

Dimensions

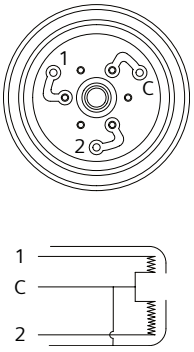
Bottom view



Front view



Top view



Dimensions are given in mm

1-Small filament
C-Commen
2-Large filament

Types and material numbers

Tube type	Model no.
SR 125/40/80-R	10928409
SR 125/40/100	10928400

Company Information

The Technology Centers of Siemens Healthcare GmbH are major manufacturers of components for medical and industrial applications, supplying most divisions of Siemens Healthcare and a large number of OEM partners worldwide.

Safety and general notes

(Read carefully prior to product use. For handling following items have to be taken in consideration.)

- The X-ray tube is a high vacuum product that is produced according to state-of-the-art technology.
- This tube must not be used without taking measures of X-ray protection. Qualified personnel is obligated to observe applicable regulations and standards, for example concerning requirements of minimum source-skin distance (SSD) and required filtration to safeguard beam quality parameters.
- The envelope of this tube is made of glass. To prevent implosion please handle with care during transport, storage, mounting and operation. Use protective devices for your own safety, e.g. protection glasses!
- Avoid shocks and vibrations.
- Overloading of tube will damage the product. Operate this tube only within the parameters of this data sheet. Charts and characteristics are based on average values. Adjustment of parameters should be done carefully.
- If you find any irregularity at the product please don't use it without prior contact with our service.
- If you find any irregularity in operation switch off power supply of equipment immediately and contact responsible service.
- For any product related questions please contact us.

- Tubes used in high voltage condition, electrical shock protection should be taken.
- Be careful of high temperature during or after work.
- In the interest of complying with legal requirements concerning the environmental compatibility of our products (protection of natural resources, avoidance of waste) we endeavor to reuse components and to return them to the production cycle. We guarantee the functioning, quality and life of these components by taking extensive quality assurance measures, just as for factory-new components.

Operating conditions

For the installation of a new X-ray tube, the tube should be trained before operation according to the following steps:

- Switch on fluoroscopy with 60kV, boost to 125kV/3mA with the speed of ca. 5kV/min and keep it there for 5 minutes
- Select exposure mode with F2
  1. 80kV/40mA, 0.1s – 2 exposures, Pause after each exposure ≥5s
  2. 90kV/35mA, 0.1s – 2 exposures, Pause after each exposure ≥5s
  3. 100kV/32mA, 0.1s – 2 exposures, Pause after each exposure ≥5s
  4. 115kV/29mA, 0.1s – 2 exposures, Pause after each exposure ≥5s
  5. 125kV/25mA, 0.1s – 2 exposures, Pause after each exposure ≥5s

For the tube extended idle time more than 2 weeks:

- Switch on fluoroscopy with 60kV, boost to 100kV/3mA with the speed of ca. 5kV/min and keep it there for 5 minutes
- Select exposure mode with F2
  1. 80kV/40mA, 0.1s – 2 exposures, Pause after each exposure ≥5s
  2. 90kV/35mA, 0.1s – 2 exposures, Pause after each exposure ≥5s
  3. 100kV/32mA, 0.1s – 2 exposures, Pause after each exposure ≥5s
- If the tube current is not stable, the tube voltage should be reduced first and increased after it becomes stable.
- If the tube tends to repeatedly and strongly "arc", abort the procedure

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These components and configurations are not finished medical devices. Compliance with all laws and regulations that are applicable to finished medical devices are the responsibility of the manufacturer of the finished medical device.

The information in this document contains general descriptions of the technical options available, which do not always have to be present in individual cases. The required features should therefore be specified in each individual case at the time of closing the contract.

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Publisher for USA
Siemens Medical Solutions USA, Inc.
40 Liberty Boulevard
Malvern, PA 19355
United States of America

Published by Siemens Healthcare GmbH · 10306993_DS_SR125 VFV E00 00, 2018-12 · PDF only · 6810 0219 · ©Siemens Healthcare GmbH, 2019