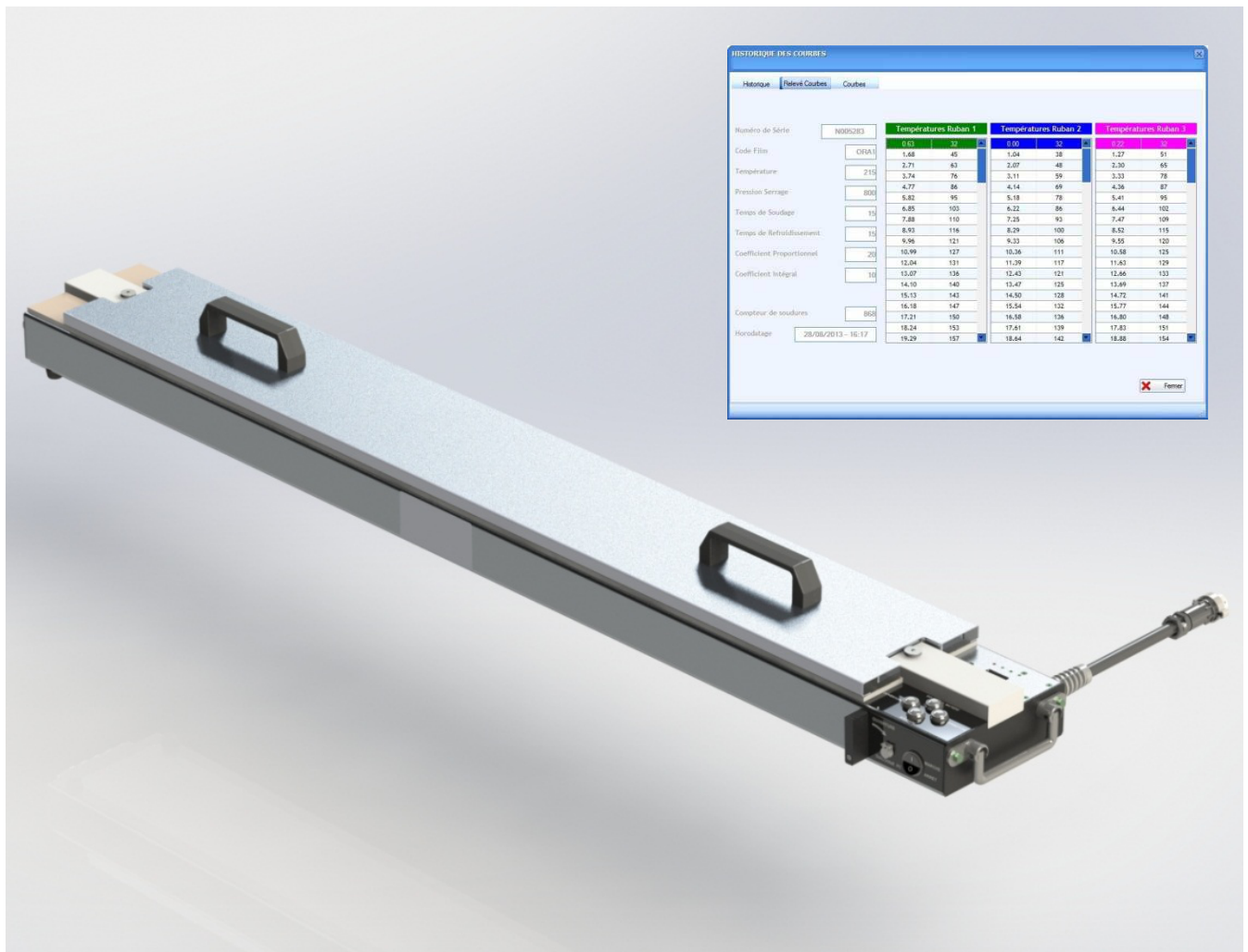


Heat Sealing Device Type HS-D hightec



Range of Application

Due to the exceptionally high safety requirements in regard of changing filter elements in nuclear facilities, bio-safety laboratories and other environments with high risk for staff, people and environment, a "safe change" procedure will be used when changing filter elements, utilizing the Krantz heat sealing device HS-D hightec.

The Krantz heat sealing device HS-D hightec combines

- ease of handling by low weight device, completely removable upper sealing bar and automatic process
- consistent pressure over the seal length (patent pending)
- guaranteed process parameters
- documentation of sealing process
- quality and consistency of sealing (20% improvement versus conventional sealing, confirmed by third party approval)

Krantz sealing device HS-D hightec is used in nuclear industry and safety laboratories for many years.

Design

- 1,000 mm wide welding device, suitable for bag-in bag-out procedure of prefilters and HEPA-filters with dimensions up to 610 x 610 x 292 mm
- Constant and regular pressurization of the sealing area
- Permanent temperature control of each sealing strip by means of thermocouple
- Electronic microprocessor control for all relevant and preset sealing parameters (pressure, time, temperature)
- Sealing and cutting of plastic bag in one process
- Each side of the plastic bag double-closed by two seals, cut in the middle of the intermediate seal
- Documentation of sealing history (full data set including temperature graphs for the last 10 seals, reduced data set for 999 seals)
- Possibility of displaying, printing and storing all sealing history by using the PC software
- Predefined sealing parameters set to Krantz PE plastic bags
- Complete delivery of sealing device with power generator, PC software and one set of ware parts (PTFE protective cloth and sealing stripes)



Sealing device type HS-D hightec with upper sealing bar open



Sealing device type HS-D hightec with upper sealing bar closed



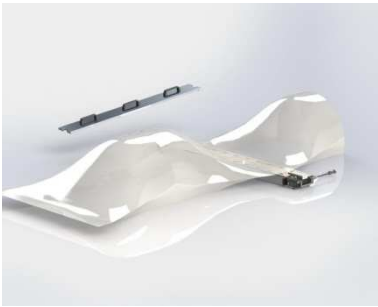
Sealing device type HS-D hightec with plastic bag clamped and pressed for sealing



Power generator for sealing device type HS-D hightec

Operation

After positioning of the filter element in the plastic bag, the plastic bag has to be laid on the lower part of the sealing device.



Picture 1: Plastic bag positioned on sealing device

Provide that the plastic bag is flat without any folding and in the middle of the sealing device. Then put the upper sealing bar at its position (see picture 2).



Picture 2: Plastic bag positioned for sealing

The sealing device will be connected via the power generator with mains power and has to be switched on. After initializing process the procedure is as follows:



Picture 3: Control panel on sealing device: "Close sealing device"

- Press "close" – button on the control panel (see picture 3) of the sealing device. The preset sealing pressure will be built up automatically. Then the control panel will show the next step "WELD" (see picture 4).



Picture 4: Control panel on sealing device: "Start welding"

- Press "weld" button on the control panel once. The sealing process with the predefined sealing parameters (pressure, time, temperature) will start and run. At the end the control panel shows "OPEN" for the next step (see picture 5).



Picture 5: Control panel on sealing device: "open sealing device"

- Press "opening" button on the control panel and keep it pressed until the opening process is finished. The control panel shows "STOP".
- Lift the upper sealing bar and take the two parts of the plastic bag from the sealing device.

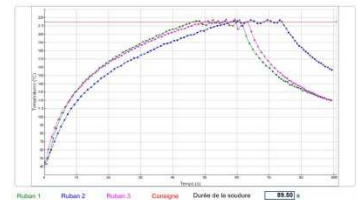
If any of the predefined parameter fails during the sealing process, the sealing device will stop and show an error code.

Display and documentation of sealing data

With the HS-D hightec software on a windows PC you can display, print and store the data of each sealing process.

Each data set (per sealing) gets a number and date/time from the control of the sealing device for clear assignment. Data sets can be transferred to the PC software where they can be displayed, printed (see picture 6) and/or stored as file.

Número de Série	N005283
Compteur de Cycles	009
Horodate	20/08/2013 -16:23
Code Film	ORA1
Température	215
Température	
Pression Serrage	600
Temps de soudage	15
Temps de Refroidissement	15
Coefficient Proportionnel	20
Coefficient Intégral	10



Picture 6: Print version of sealing data

Another possibility is to run the process from the PC, connected to the sealing device during the sealing process. You will see seal time and temperature of each sealing strip in real time (see picture 7).

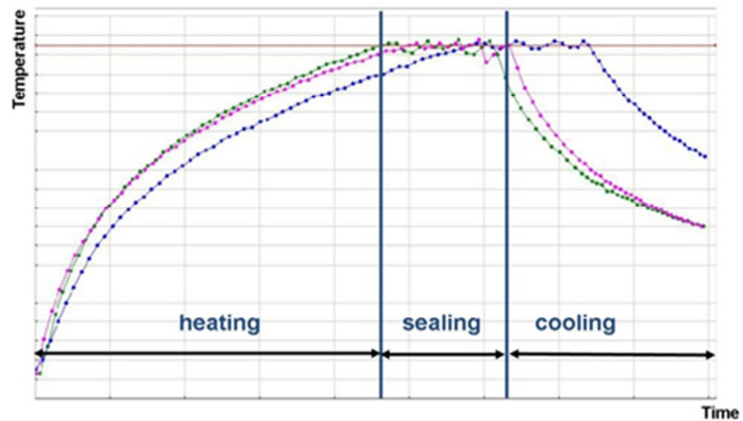
N° de Série	Pressions Serrage		Température Serrage		Température Serrage	
	ORA1	ORA2	ORA1	ORA2	ORA1	ORA2
Code Film	215	215	215	215	215	215
Pression Serrage	600	600	600	600	600	600
Temps de Soudage	15	15	15	15	15	15
Temps de Refroidissement	15	15	15	15	15	15
Coefficient Proportionnel	20	20	20	20	20	20
Coefficient Intégral	10	10	10	10	10	10
Compteur de Soudures	009	009	009	009	009	009
Horodate	20/08/2013 -16:17	20/08/2013 -16:17	20/08/2013 -16:17	20/08/2013 -16:17	20/08/2013 -16:17	20/08/2013 -16:17

Picture 7: PC display during sealing

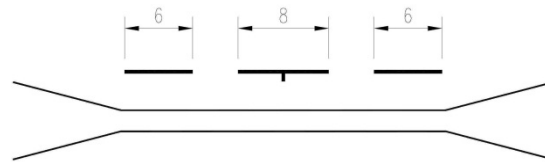
Sealing Process

The sealing process consists of three phases:

- Heating of the sealing stripes.** Via the power generator and the control of the sealing device the sealing stripes will be heated up to the predefined sealing temperature. The 6 mm wide sealing stripes on both sides of the sealing will reach the preset temperature first. The 8 mm wide intermediate sealing stripe will reach it later. The temperature of each stripe is measured and controlled continuously.

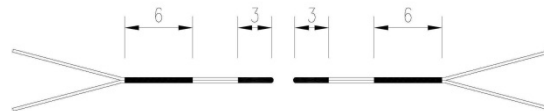


Picture 1: Sealing process (time and temperature)



Picture 2: Plastic bag before sealing

- Sealing of the plastic bag.** The time and temperature for sealing is depending on the material and type of the plastic bag. The temperature of each strip is measured and controlled also during this phase. The 6 mm wide seals on both sides of the sealing will be sealed first. Afterwards the 8 mm wide seal in the middle is finished. Due to the shape of this sealing stripe the plastic bag is cut in the same process automatically and exactly in the middle of this seal.



Picture 3: Plastic bag after sealing

- Cooling of the seals.** The seals have to cool down after sealing before taking the plastic bag from the sealing device to guarantee the quality of the sealing.

Ware Parts

The PTFE and sealing stripes on each sealing bar have to be replaced after some 500 sealing cycles, depending on type and material of plastic bags. The operator will recognize the time for a change when the plastic bag will stick at

the sealing bars after sealing. The replacement of the PTFE stripes can be done by the operator. The first set of PTFE ware parts will be delivered with the sealing device.

Technical Data

Fabricate:	Krantz
Type:	HS-D hightec
Dimensions of sealing device ¹⁾ :	1,270 x 80 x 155 mm (L x H x W)
Dimensions of power generator:	Ø 400 mm
Total weight of sealing device:	17.2 kg
Weight of the upper sealing bar:	3.7 kg
Weight of power generator:	9.5 kg
Power supply:	230 V / 50 Hz single phase
Power consumption:	0.6 KW
Certificate:	CE

¹⁾ Special dimensions on request

Text for Tender

Heat seal device for sealing and automatic cutting plastic bags during bag-in bag-out procedure of filter elements, type HS-D hightec

- 1,000 mm wide welding device, suitable for bag-in bag-out procedure of prefilters and HEPA-filters with dimensions up to 610 x 610 x 292 mm
- ease of handling by low weight device (17.2 kg)
- completely removable upper sealing bar
- automatic sealing process using predefined and software-stored parameter
- Constant and regular pressurization of the complete 1,000 mm wide sealing area
- Three sealing stripes in constant distance, width of the sealing stripes is 6 mm resp. 4 + 4 mm for the intermediate stripe
- Each side of the plastic bag will be double-closed by two seals, cut in the middle of the intermediate seal
- Permanent temperature control of each sealing strip by means of thermocouple
- Electronic microprocessor control for all relevant and preset sealing parameters (pressure, time, temperature)
- Sealing and cutting of plastic bag in one process
- Documentation of sealing history (full data set including temperature graphs for the last 10 seals, basic data set for 999 seals)
- Possibility of displaying, printing and storing all sealing history by using the HS-D hightec PC software
- Predefined sealing parameters set to Krantz PE plastic bags
- Complete delivery of sealing device with power generator, PC software and one set of ware parts (PTFE protection and sealing stripes)

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