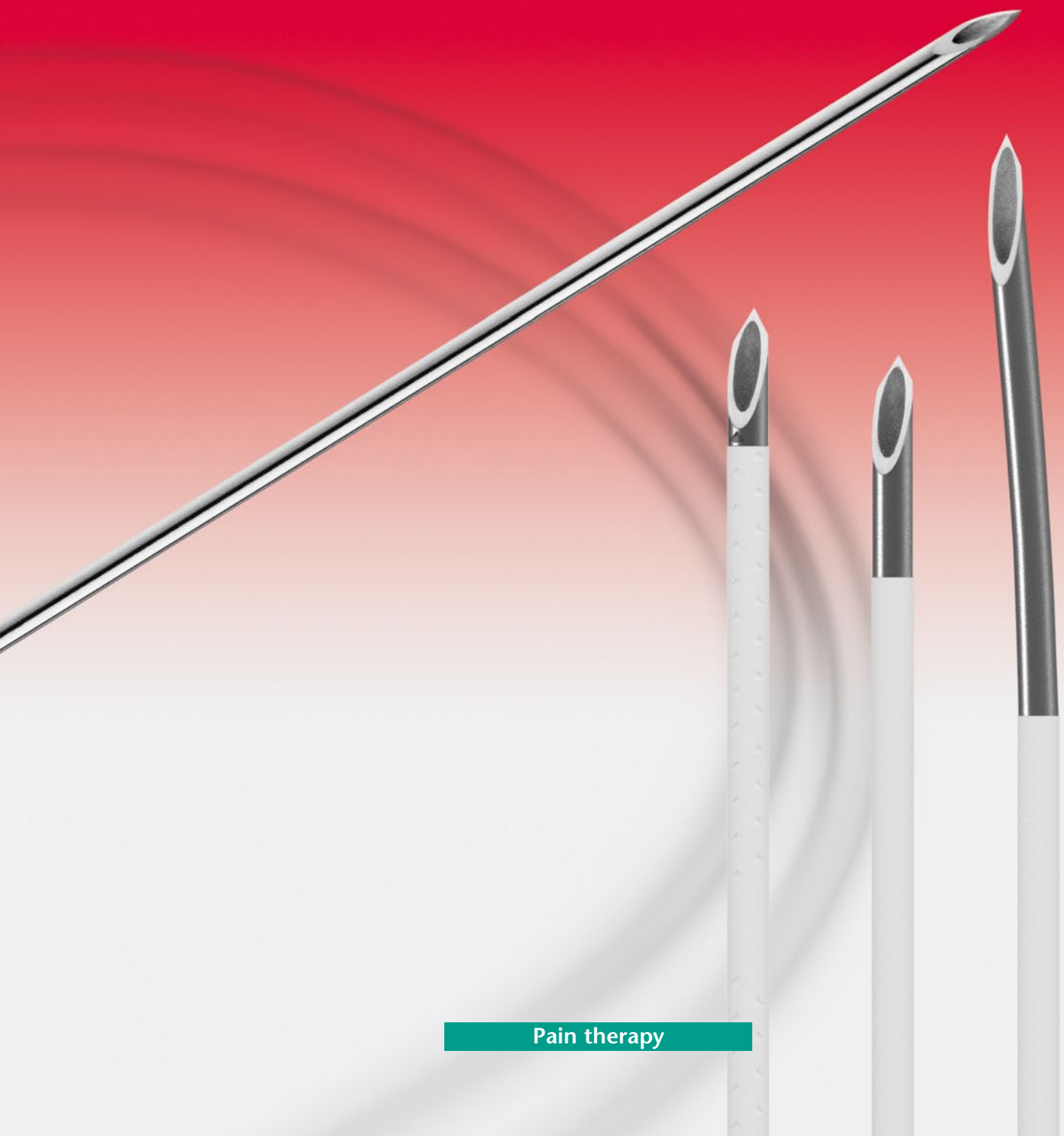


**PAJUNK®**

*Thermolesion cannulas*  
*Interventional pain therapy*



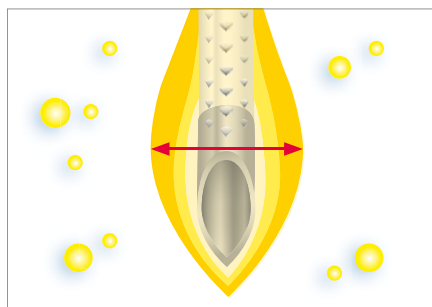
Pain therapy

## Selective and efficient Thermolesioning and pulsed radiofrequency therapy

Radiofrequency thermolesion is an important and familiar instrument for the decisive reduction or removal of chronic pain in the region of the nervous system.

PAJUNK® supports all common RF procedures with its RF thermolesion cannulas.

The cannula is positioned using imaging procedures (ultrasound, computer tomography or X-rays). Contrast medium for position control or an analgesic for analgesia can also be applied using the Luer-Lock hub. The position of the cannula tip with regard to the motor and sensory nerve branches is reliably verified by means of stimulation control. The surrounding nerve tissue is coagulated in the subsequent application of high frequency current. The extension of the lesion is essentially defined by the length of the active cannula tip.<sup>1</sup>



### Uniform coagulation

PAJUNK® RF thermolesion cannulas are characterized in particular by the uniform coagulation of the tissue at the cannula tip and thus comply with an important quality feature for this field of application.<sup>2</sup>

- ➔ Pain relief for neuropathic pain in the nervous system
- ➔ Alternative procedure: conventional RF procedure and pulsed radiofrequency therapy
- ➔ Different dimensions of the active tip enable a precise lesion
- ➔ Uniform coagulation of tissue at the cannula tip guaranteed

## Pain therapy using radiofrequency thermolesion

PAJUNK® supports different application techniques with the following cannulas:

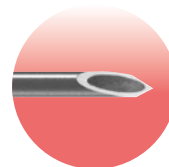
### Radiofrequency thermolesion cannula

With this widely-used technique, a special cannula that is only conductive at the tip is advanced with the aid of an imaging procedure (ultrasound or X-ray) to the respective nerve. After introduction of a RF electrode in the special cannula, the nerve tissue is lesioned around the active part of the cannula tip.

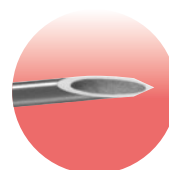


RF thermolesion cannula with different designs and lengths

Active tip



Active tip, curved



Active tip and "Cornerstone" reflectors



### Thermolesion cannulas with crocodile clip

PAJUNK® alternatively offers a set consisting of a thermolesion cannula with crocodile clip and an injection tube. It is connected directly to the RF generator without the use of RF electrodes.



Thermolesion cannula with crocodile clip and injection tube

Active tip, 5mm



### X-ray contrast cannula

PAJUNK® supports imaging procedures with a special X-ray contrast cannula.



X-ray contrast cannula for injecting contrast medium

Facet tip design



## Diversity of variants

# Different versions of the RF thermolesion cannulas

Due to the high level of invasiveness of the intervention, the precise placement of the cannula tip at the correct nerve is of vital importance. Against this background, the use of ultrasound as an imaging procedure as well as X-ray control is gaining increasing importance. Accordingly, we distinguish between three types of cannula:

For use with X-ray control:

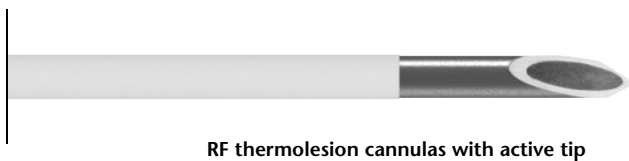
- ➔ Standard RF thermolesion cannulas
- ➔ Curved RF thermolesion cannulas

For use with ultrasound imaging:

- ➔ RF thermolesion cannulas with "Cornerstone" reflectors



Standard RF thermolesion cannulas are available in a variety of different lengths and with two geometries appropriate to the different probes available on the market.



RF thermolesion cannulas with active tip

Active tip available in:

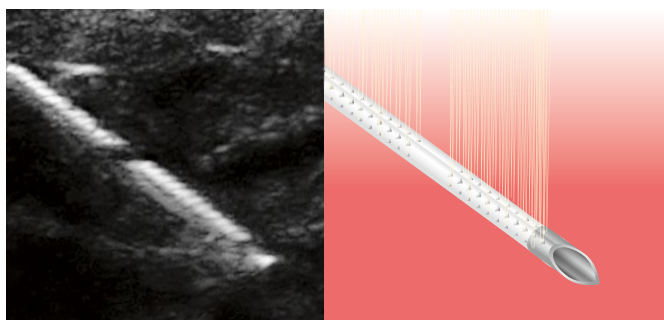
- 2mm —
- 2.5mm —
- 4mm —
- 5mm —
- 10mm —



RF thermolesion cannulas with curved active tip

Active tip available in:

- 10mm —

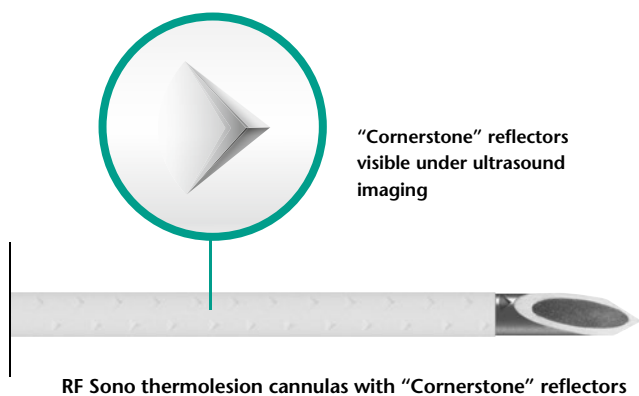


The patented "Cornerstone" reflectors are attached around the RF Sono thermolesion cannula. Their "three-walled" indentation guarantees reflection of ultrasonic waves independent of the cannula puncture angle.



Radiofrequency Thermolesion Cannula

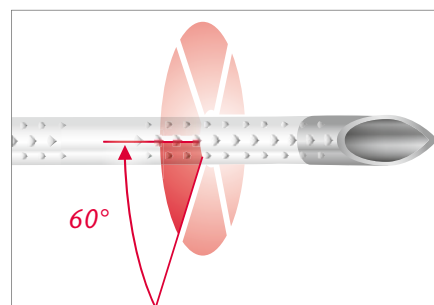
With the introduction of "Cornerstone" technology, PAJUNK® in cooperation with Dr. Chris Mitchell launched a new generation of cannulas with outstanding reflection properties.<sup>3</sup> Accordingly, the ultrasound visible RF Sono thermolesion cannulas significantly contribute to the safety of the procedure with their "Cornerstone" reflectors.



"Cornerstone" reflectors visible under ultrasound imaging

Active tip available in:

- 2.5 mm —
- 5 mm —
- 10 mm —



➔ "Cornerstone" reflectors for very good visibility under ultrasound imaging

➔ Visibility – also for steep insertion angles

### Sophisticated layout

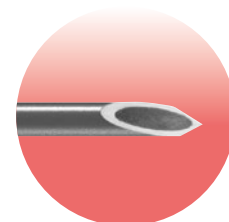
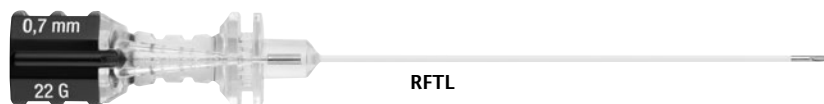
The distal end of the cannula has two sections that are each 10 mm long and graduated all-round with "Cornerstone" reflectors that are offset 60°.

➔ This makes the cannula tip extremely visible and permits clear identification of its position.

# Interventional pain therapy

## Cannula

### RFTL



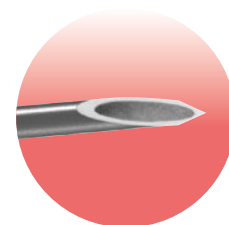
RFTL

Product	Size	Active tip	Art. No.	PU
<b>RFTL</b>				
Thermolesion cannula with active tip, 15°	22 G x 52.6 mm	2 mm	001165-10A	25
	22 G x 52.6 mm	4 mm	001165-10B	25
	20 G x 52.6 mm	5 mm	001165-11D	25
	22 G x 98.6 mm	2.5 mm	001165-20A	25
	22 G x 98.6 mm	5 mm	001165-20B	25
	22 G x 98.6 mm	10 mm	001165-20C	25
	20 G x 98.6 mm	5 mm	001165-21B	25
	18 G x 98.6 mm	10 mm	001165-22C	25
	20 G x 142 mm	2.5 mm	001165-30A	10
	20 G x 142 mm	5 mm	001165-30B	10
	20 G x 145 mm	5 mm	001165-30BM	10
	20 G x 142 mm	10 mm	001165-30C	10
	20 G x 145 mm	10 mm	001165-30CM	10
	20 G x 98.6 mm	10 mm	001165-30D	25
	17 G x 142 mm	5 mm	001165-31B	10
	18 G x 145 mm	10 mm	001165-40CM	10

### RFTL

Thermolesion cannula,  
curved with active tip, 15°

22 G x 52.6 mm	10 mm	011165-12C	25
22 G x 98.6 mm	10 mm	011165-20C	25
20 G x 98.6 mm	10 mm	011165-30D	25
20 G x 142 mm	10 mm	011165-32C	10
20 G x 145 mm	10 mm	011165-32CM	10
18 G x 145 mm	10 mm	011165-40CM	10
18 G x 98.6 mm	10 mm	011165-40D	25



RFTL  
curved

## RFTL Sono



RFTL Sono



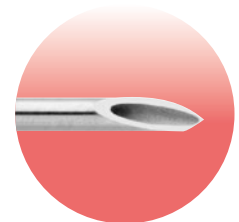
RFTL Sono

Product	Size	Active tip	Art. No.	PU
<b>RFTL Sono</b>				
Sono thermolesion cannula with „Cornerstone“ reflectors and active tip, 15°	22 G x 98.6 mm	2.5 mm	001175-20A	25
	22 G x 98.6 mm	5 mm	001175-20B	25
	20 G x 52.6 mm	10 mm	001175-11C	25
	20 G x 52.6 mm	5 mm	001175-11D	25

## TL



TL



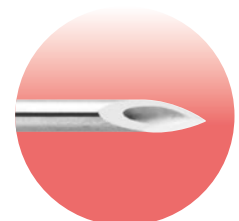
TL

Product	Size	Active tip	Art. No.	PU
<b>TL</b>				
Thermolesion cannula with crocodile clip, injection tube and active tip, 15°	22 G x 60 mm	5 mm	001155-12	25
	20 G x 100 mm	5 mm	001155-20	25
	22 G x 100 mm	5 mm	001155-22	25
	20 G x 150 mm	5 mm	001155-32	10

## RGN



RGN



Facet tip design

Product	Size	Active tip	Art. No.	PU
<b>RGN</b>				
X-ray contrast cannula with injection tip	23 G x 60 mm	15°	001160-10	25
	22 G x 100 mm	15°	001160-20	25
	22 G x 100 mm	18°	001160-21	25
	21 G x 120 mm	18°	001160-30	10

# \*Studies

- **Binder D. S., Nampiaparampil D. E.** The provocative lumbar facet joint, *Curr. Rev. Musculoskelet Med.* 2009; 2: 15–24

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- **Niemisto L., Kalso E. A., Malmivaara A., Seitsalo S., Hurri H.** Radiofrequency denervation for neck and back pain (Review), *The Cochrane Collaboration* 2009

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- **Rosenow D., Tronnier V., Göbel H.** *Neurogener Schmerz: Management von Diagnostik und Therapie*, Heidelberg: Springer Medizin Verlag 2005; 343–347

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- **van Boxem K., van Eerd M., Brinkhuize T., Patijn J., van Kleef, M., van Zundert J.** Radiofrequency and Pulsed Radiofrequency Treatment of Chronic Pain Syndromes: The Available Evidence, *World Institute of Pain* 2008; 385–393

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- **Vervest A. C. M., Lahaye J. W. T.** Lesion profiles of electrode canulas for radiofrequency procedures to teat spinal pain, 8th World Congress of the Pain Clinic, Tenerife, Spain, 1998 May 6–10

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