

***Black Belt™ Advanced Cervical Retractor System***  
***For Superior Single and Multi-Level Retraction***





# Black Belt™ Advanced Cervical Retractor System *Patented* For Superior Single and Multi-Level Retraction

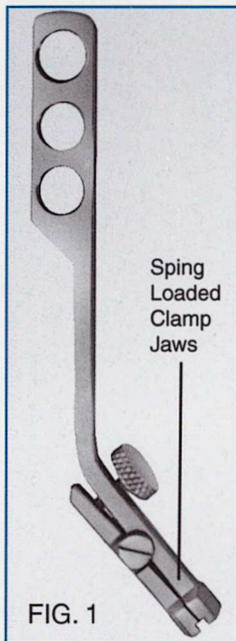


FIG. 1

## Blade Inserter Clamps...

- Feature spring-loaded, clamping jaws for easy blade engagement.
- Clamp handles create minimal visual obstruction.
- Blade and clamp assembly may be used for hand retraction.
- Clamps are quickly and easily removed after retractor arms have securely engaged the blades.

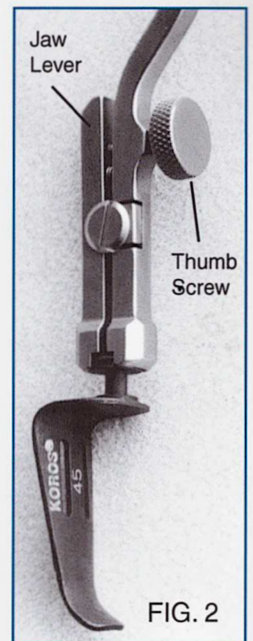


FIG. 2



FIG. 3

Blunt Blade      Pronged Blade

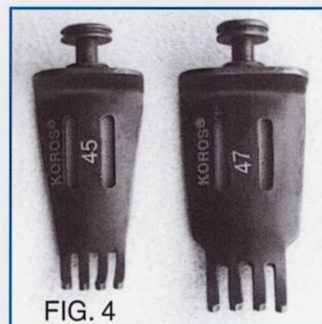


FIG. 4

22mm Wide Blade      27mm Wide Two-Level Blade

## Blades...

- Set includes a wide range of blade sizes to satisfy anatomical requirements from adolescents to large adult patients.
  - 46 individual blades included in the Standard Set (in pairs). Blades are offered in 22 mm and 27 mm width, with blunt and pronged tips.
  - Blade depths are 34, 40, 45, 50, 55, 60 and 70 mm on the standard blades and 40, 47, 55 mm on the two-level blades.
  - The 27 mm wide blades are useful for multi-level exposure.
  - Blade tip design ensures blades will hold firmly in retracted tissue.
  - Optional two-level, blunt and pronged blades are 65 and 70 mm deep. Optional 22 mm wide pronged blades are 85, 90, and 100 mm deep.
- Custom made blades are also available.

## Lumbar Microdiscectomy Attachments...

- Enable the Black Belt Cervical Retractor to be used effectively in lumbar micro-discectomy procedures (Fig.5).
- Supplementary pieces are used in conjunction with existing components in the cervical retractor set.



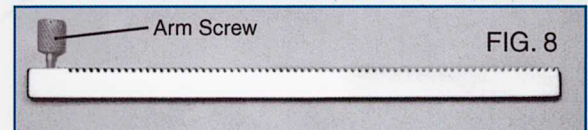
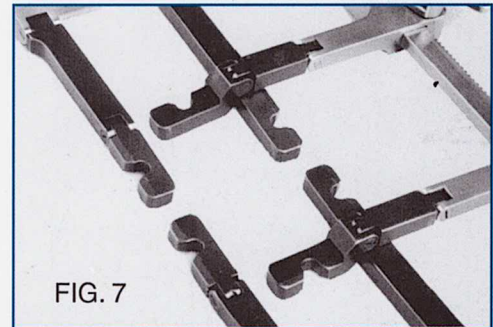
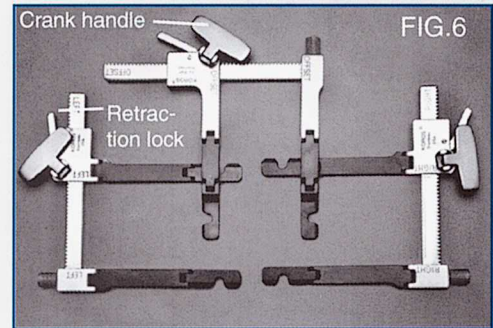
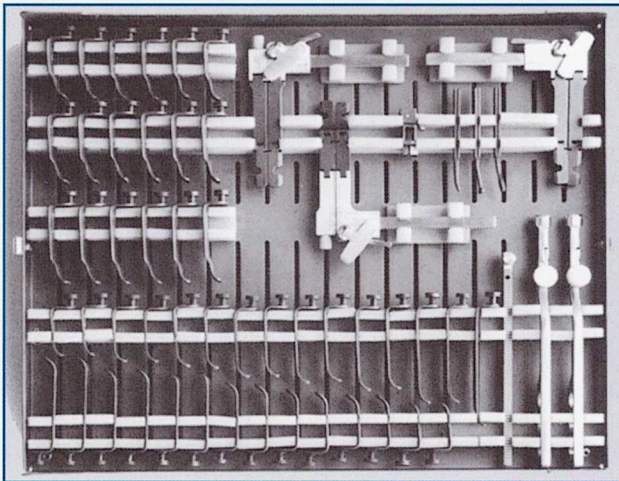
FIG. 5

85mm Blade, Ligament Blade, T-Shape Blade, Spike Blade & Micro Discectomy Attachment



## Frames...

- Double hinged frame arms fully articulate to match the contour of the patient.
- The tension of retracted tissue hold side-loading blades securely in retractor arm notch.
- A left, right and offset frame is included in both standard and the extended sets. (Two frames are used in standard procedures. A third frame is designed for use in multi level exposures.)
- The low profile, crank handle folds down and out of the surgeon's way for optimal visibility.
- Non-reflective frame arms and blades are black-coated to prevent glare created by overhead surgical lights.
- The extended set includes an extra long retractor rack which gives the additional 1-1/2" of retraction needed for long multi-level exposures or mini lumbar procedures.



## Sterilization Instrument Case...

- Silicon inserts secure all retractor blades and components firmly in place.
- Components are easily identifiable during surgery.
- Hard anodized, heavy-gauge, aluminum case has a scratch resistant finish.
- Light weight and cools quickly after sterilization.
- Stackable for safety and convenience.

# Ordering Information:

## 7320-00 Standard Black Belt™ Retractor System

consisting of:

7320-10	1ea	Retractor Frame, Right
7320-20	1ea	Retractor Frame, Left
7320-30	1ea	Retractor Frame, Offset
7320-40	2ea	Blade Inserters Clamps
7322-34,-40,-45,-50,-55,-60,-70	2ea	Pronged Blades
7324-34,-40,-45,-50,-55,-60,-70	2ea	Blunt Blades
7326-40,-47,-55	4ea	Two-Level Pronged Blades
7328-40,-47,-55	2ea	Two-Level Blunt Blades
7320-50	1ea	Sterilizing Instrument Case

## 7321-00 Micro Discectomy Attachment Set for Black Belt™ Retractor System

consisting of: (See Fig. 5)

7321-10	Micro Discectomy Attachment	
7321-20	Spike Blade	70mm
7321-30	T-Shape Blade	70mm
7321-40	Interspinous Ligament Blade (Oval)	70mm
7276-85	Pronged Blade	22x85mm deep

## 7320-05 Extended Black Belt™ Retractor System

consisting of:

7320-10	1ea	Retractor frame, Right
7320-20	1ea	Retractor frame, Left
7320-30	1ea	Retractor frame, Offset
7320-40	2ea	Blade Inserters Clamps
7322-34,-40,-45,-50,-55,-60,-70	2ea	Pronged Blades
7324-34,-40,-45,-50,-55,-60,-70	2ea	Blunt Blades
7326-40,-47,-55	4ea	Two-Level Pronged Blades
7328-40,-47,-55	2ea	Two-Level Blunt Blades
7320-50	1ea	Sterilizing Instrument Case
7321-00	1set	Micro Discectomy Attachment Set
7322-75	1 ea	Extra Long Retractor Rack, 15cm

## Optional Items:

7321-00	Micro Discectomy Attachment Set	
7322-85	Extra Deep Pronged Blade	85mm x 22mm wide
7322-90	Extra Deep Pronged Blade	90mm x 22mm wide
7322-99	Extra Deep Pronged Blade	100mm x 22mm wide
7326-65	Deep Two-Level Pronged Blades	65mm x 27mm wide
7326-70	Deep Two-Level Pronged Blades	70mm x 27mm wide
7328-65	Deep Two-Level Blunt Blades	65mm x 27mm wide
7328-70	Deep Two-Level Blunt Blades	70mm x 27mm wide
7322-75	Extra Long Retractor Rack (See Fig. 8)	15cm



## **Surgical Technique for BLACK BELT™ ADVANCED CERVICAL RETRACTOR SYSTEM**

Left and Right lateral tissue retractor frames and an Offset cephalad-caudad (longitudinal) retractor frame are offered in both the standard and extended sets. (Fig. 6) For single and two-level procedures the offset frame and either a left or a right frame are usually used.

Forty-Six individual blades are offered in the standard set. Blade tip designs are blunt & pronged and two-level blunt & pronged (Figs. 3 & 4). Blade depths range from 34mm to 70mm. Blunt & pronged blades are 22mm wide, and the two-level blunt & pronged blades are 27mm wide, both measured at the widest point. All blades are tapered. Optional 65 and 70mm Two-Level Blunt and Pronged and extra deep 85mm, 90mm and 100mm blades are available as well.

Retraction is attained as follows:

1. The blades are attached to the spring-loaded blade inserter clamps by slightly backing out the thumb-screw and pressing the clamp jaw lever while inserting the desired blade. The thumb-screw is gently tightened by hand to secure blade lock. (Fig. 2).

2. The two inserter clamps with blades attached are then placed into the surgical site and held parallel, slightly retracting the lateral tissue.

3. Either a left or right retractor frame is chosen according to patient position. Retractor frame arms are then placed between the blades with the rack pointing away from surgeon and the notch adjacent to the blade heads. The retractor is opened until the two side-loading notches on the frame arms make contact with the exposed blade head shaft. The crank handle on the frame is turned until the proper retraction is attained. Blade inserting clamps are removed for the rest of the case duration. Double-hinged retractor arms are adjusted to articulate the patient's contour and the crank-handle is folded down out of the surgeon's way. The tension of the retracted tissue on the blades holds them into the frame arm notches and automatically holds in place. The blade shape is designed to resist climbing out of the surgical site and the wide two-level blades have an extra bend which follow the contour of the vertebrae to create superior visualization.

4. Steps 1 through 3 are then repeated using the offset frame to gain the desired retraction in the cephalad-caudad direction. Two blunt blades are usually used for this orientation. The offset frame is placed directly opposite the surgeon and should ride over the arms of the left or right frame near a 90 degree angle. (Fig. 6 & 7) This ensures the blades are enter the wound from the exact plane and the surgeon can accurately determine blade depth. (Fig 6 & Fig. 7).

For multi-level fusion or plating procedures where longer cephalad-caudad exposure is required the second lateral

frame and the wider blades may be used. (Fig. 4 and Fig. 6). The offset frame can be extended an additional 1-1/2" using the extra long retractor rack included in the Black Belt Extended Set. To change the rack press the retraction lock and pull the sliding arm off the end. Remove the stationary arm from the rack by removing the arm screw. Reassemble the unit in the same way using the extra long rack. (Fig. 8)

With the Lumbar Microdiscectomy Attachment Set (included in the extended set) the standard cervical retractor becomes a lumbar microdiscectomy retractor unit. The attachment set consists of three adjustable depth blades, one attachment unit and one 85 mm blade.

The microdiscectomy unilateral exposure is created by utilizing either the Spike blade, the T-shape blade or the Interspinous Ligament (Oval) blade. The tissue of the opposing side of the surgical site is retracted with one of the standard blades from the set or the optional 85 mm deep blade. A curette or burr is used to create a small divot in the base of the spinous process. The spike blade tip is then inserted into the divot for retraction. The rough surface of the T-shape blade is placed against the spinous process. The oval blade is usually placed against the interspinous ligament. (Fig. 5)

The Micro Discectomy Attachment mounts on the left or right cervical retractor frame arm as follows:

- A. After choosing one of the three adjustable blades locate the two locks on top of the attachment unit, the arm lock (larger) and the blade lock (smaller). Press the smaller blade lock and slide the blade into it's track from the bottom up. The blade tip must be pointing down. Adjust up or down as needed using the blade lock. (Fig. 5)

- B. Open the retractor about 3/4" to 1" to accommodate the blades. While pressing the arm lock (larger lever) on the attachment, slide the unit onto the retractor arm so that the adjustable blade is between the two retractor arms and blade tip is pointing down. The microdiscectomy unit will engage into the arm notch and lock preventing sliding.

- C. The opposing blade will be chosen from the standard cervical retractor set, usually the 55 mm, 60 mm, 70 mm or the optional 85 mm deep blade. The blade is attached to the frame arm using the blade inserting clamps in the same fashion as explained in steps 1 through 3.