CZMEDITECH

Changzhou Meditech Technology Co., Ltd.



椎间孔镜手术系统·骨科
Transforaminal endoscopic surgical system Orthopedics

通过ISO9001、ISO13485认证
通过欧盟“CE”认证、美国FDA认证



选用瑞典生产的“山特维克”优质不锈钢材料和先进的生产设备，二十多年的生产经验，承接传统精湛的工艺，共同打造优质产品，尽展现代高端科技。

行业领先的数控装备，提供先进的加工技术
A corner of Workshop equipped with numerical controlled machines showing its production capability



瑞士威力铭马科戴尔五轴联动数控加工中心加工内窥镜及手术钳精密零件
5Axes CNC Machine made in WILLEMIN-MACODEL S.A./Switzerland for high precision mechanical parts production



德国巨浪（Chiron）复合加工中心实现高速、高效、高精度柔性加工
Compound CNC machine from Chiron Germany for fast, efficient and high precision production in wide range of flexibility





光学车间德国工程师指导生产
German engineer guides production in the optical workshop

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Transforaminal endoscopic surgical system Orthopedics

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Operation steps and the instruments applied

第一步：手术前准备

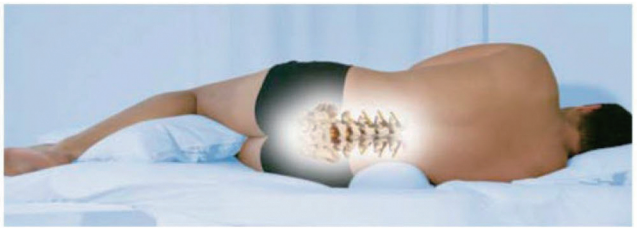
需要拍矢状位和横断面的MRI确定突出的性质。拍侧面的X片确定椎间孔的大小和髂脊的高度。依据患者的身体大小和肥胖程度选择合适旁开中线进入（参考：椎间盘突出在L2-L3和L3-L4水平，选择在旁开中线10 cm进入；椎间盘突出在L4-L5和L5-S1水平，选择在旁开中线12-14 cm进入。肥胖、椎间孔狭小、小关节面假性关节病的患者旁开的距离要大一些）。

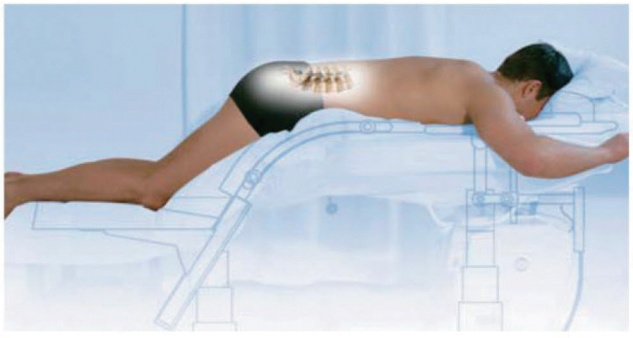
患者体位：如果采取侧卧位，髋核突出侧朝上。在腰部放一个枕头或支架，髋关节和膝关节保持屈曲。

Step 1: preoperative preparation

We need to take a MRI of sagittal view and cross section to confirm the property of the protuberance. Take a lateral X ray picture to confirm the size of foramen intervertebrale and the height of iliac crest. Choose a proper side-open central line to enter according to the body size and the level of obesity of patient. (Here is a reference. Enter at the 10cm of side-open central line if the protrusion is at the L2-L3 and L3-L4 level. Enter at the 12-14cm of side-open central line if the protrusion is at the L4-L5 and L5-S1 level. The side-open distance should be longer if the patient is with obesity, narrow foramen intervertebrale, and pseudo arthropathy at facet joint.)

Patient position: if the patient position is lateral position, the NPH will be upward. Put a pillow or holder at the lumbar, hip joint and knee joint should keep curved.



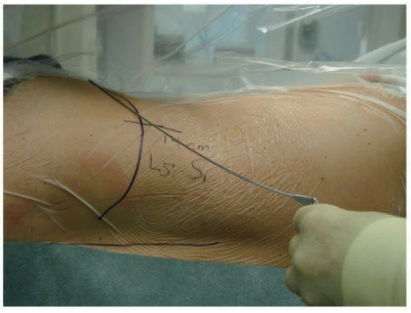


第二步：确定进针路线

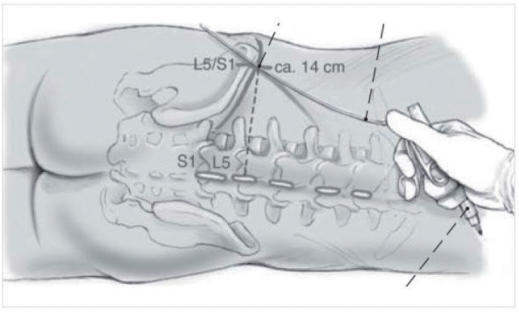
首先沿着脊突标记正中线，然后标记髂脊。用一个长的器械（抓钳），帮助确定进针路线。当达到突出的髓核时，画一条进针路线。然后在水平距离线上再画交叉点。此点即为进针点。

Step 2: make sure the puncture route

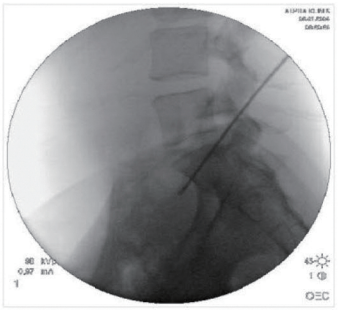
Mark the middle line along with the crest, and then mark the iliac crest. Make sure the puncture route under the help of a long instrument (grasping forceps). When it comes to the protruding nucleus pulposus, draw a puncture route. Make a intersection on the horizontal distance line. This point is the puncture point.



用抓钳标记进针路线
use grasping forceps mark puncture needle



用抓钳标记进针路线的解剖示意
anatomy schematic

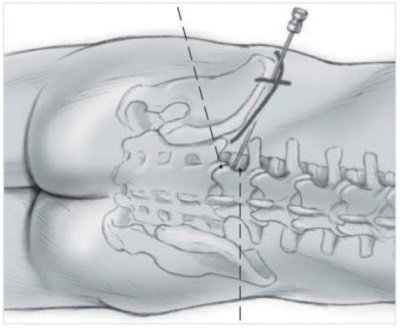


C型臂显示进针路线
C shaped arm shows puncture route

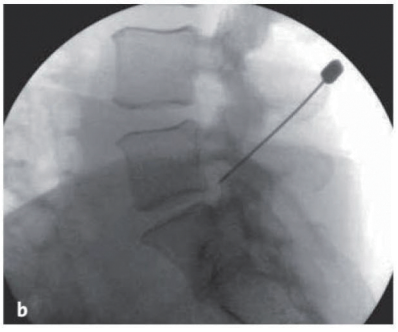
第三步：局部麻醉
Step 3: local anaesthesia



局麻进针点
Puncture point of local anaesthesia



针头插到小关节突
Puncture needle insert into facet joint protrusion



理想的进针位置是稍微到达小关节突的头端
Ideal puncture position is the head of facet joint protrusion

第四步：椎间盘显影

穿刺针到安全三角区，到达突出髓核的后外侧。向椎间盘内注入2cc与青兰胭脂红(indigo carmine)混合的对比显影液。青兰胭脂红通常把髓核组织染成蓝色或蓝绿色。

Step4: development of intervertebral disc

The puncture needle should be reached to the posterior-lateral of protruded nucleus pulposus after it reached to the triangular safe area. Inject 2cc comparing developing solution cmixed with indigo carmine into intervertebral disc. Indigo carmine can dye the nucleus pulposus tissue into blue or blue-green.

第五步：放置导丝

穿刺针直达椎间盘后，退出针芯，插入导丝。沿着导丝退出18G的针，导丝保留在原位。

Step 5: place the guide wire

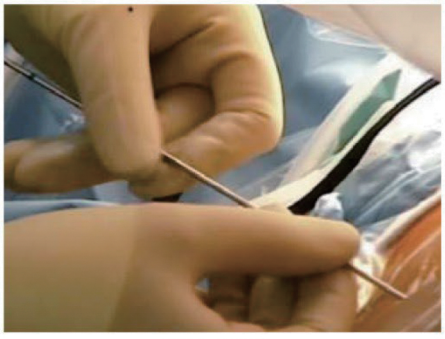
After the trocar reached to the intervertebral disc, pull out the needle, insert the guide wire. Pull out the 18G needle along the guide wire, keep the guide wire in situ.

第六步：放置扩张管

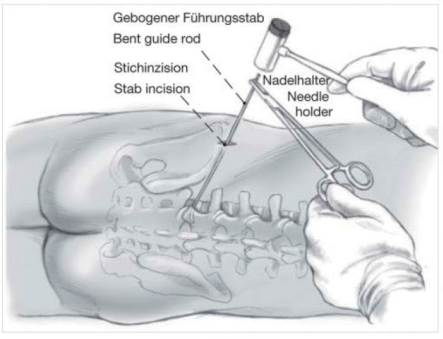
用锋利的小手术刀在进针点皮肤切开一个大约8 mm的切口。沿着导丝向小关节方向插入扩张管。逐级放置扩张管向外扩张软组织。必要时用橡胶锤辅助置入扩张管。

Step 6: place the dilator

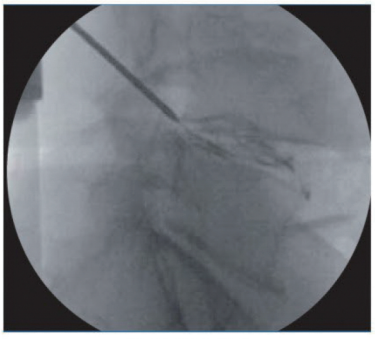
Use the small sharp scalpel to cut a skin incision about 8mm at the entry point. Insert the dilator along with guide wire in the direction of small joints. Place the dilator cannula step by step to expand the soft tissue.Can use the rubber hammer to assist place the dilator if necessary.



置入扩张管
Place the dilator



置入扩张管
Place the dilator



C型臂下显示
Under arm C

第七步：环锯或骨钻扩椎间孔

环锯扩椎间孔：环锯套在套管（G5002.1T）的外边，套管放在导杆（G5002.2T）的外边。沿着套管放置环锯，去掉小关节远端增生的骨质，扩大椎间孔。环锯是逐级加大直径，首先使用小直径环锯，依次使用大直径环锯。环锯的锯齿采用特殊设计，当顺时针方向旋转时不会损伤周围的软组织。环锯一旦接触到骨头时，就应该尽快沿着顺时针的方向旋转切割增生的骨质。前进或后退时都要保持顺时针旋转。

Step 7: enlarge the foramen intervertebrale by trephine or bone drill

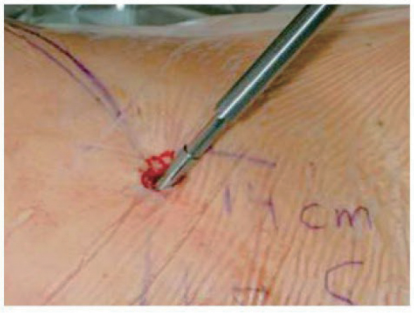
Enlarge the foramen intervertebrale by trephine: cover the tube G5002.1T with trephine, cover the guiding bar G5002.2T with tube. Place the trephine along with the tube, remove the hyperplastic bone at the far-end of facet joint and enlarge the foramen intervertebrale. Increase the diameter of trephine step by step. Use the trephine with small diameter first and then use the trephine with large diameter in turn. The tooth of the trephine applies special design. It will not hurt any tissues around it when it is clockwise rotated. Once the trephine touched the bone, it should be clockwise rotated to cut the hyperplastic bone. It should be kept clockwise rotated when it is forwarded or back up.



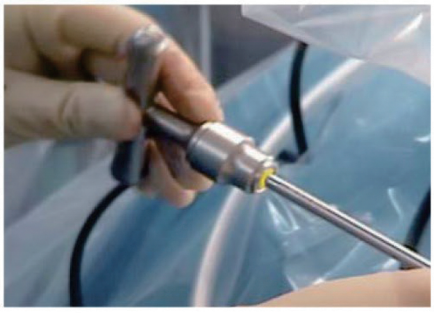
导丝-导杆-扩张管-环锯的关系
Relation between guide wire · guiding bar · dilator and trephine



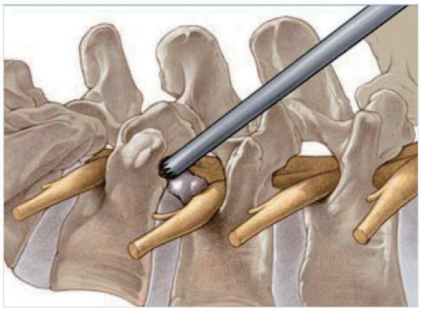
插入导杆
Insert the guiding bar



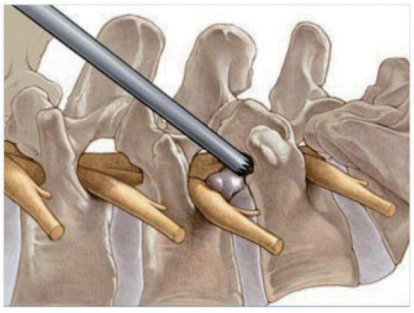
插入扩张管
Insert the dilator



用旋转手柄卡住环锯
Rotate the handle to lock the trephine



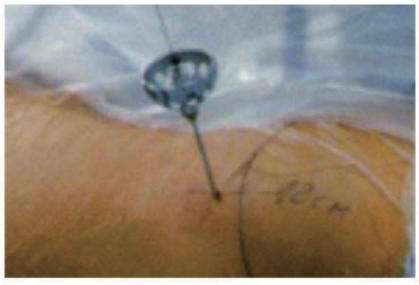
环锯应该放置的位置
The position place the trephine



用环锯去除部分小关节
Remove some facet joint with trephine

骨钻扩椎间孔：通过细导丝放置定位针（G5066.4T）的套管；拔出导丝，定位针（G5066.4T）的针芯插入套管，定位并打点关节突上；退出针芯换上定位钻（G5066.6T）的针芯，钻穿关节突第二层皮质（有镂空感）；退出针芯换上探针（G5066.5T）的针芯探试；退出针芯将细导丝经套管插入到指定位置，拔出定位针套管。然后用骨钻逐级打磨关节突（注意：逆时针旋转插入骨钻，顺时针旋转进行打磨）。

Enlarge the the foramen intervertebrale by bone drill: place the tube of locating needle (G5066.4T) through guide wire, pull out the guide wire, insert the needle of locating needle (G5066.4T) into the tube, locate and mark a point at the zygopophysis. Pull out the locating needle and place the needle of guiding drill (G5066.6T). Drill through the second cortex of zygopophysis (with feeling of hollow out), pull out the needle and place the needle of probe (G5066.5T) to probe, pull out the needle and insert the guide wire into specific location through tube, pull out the tube of locating needle. And then use the done drill to polish the zygopophysis gradually. (Note: insert the bone drill with contrarotation and polish with clockwise rotation.)



放置定位针套管
Place the guide needle cannula



定位打点
Mark the positioning



骨钻打磨
Bone drill polishing

如果在关节突上定位有偏差，可以在偏差的基础上采用定位调整套管（G5068T）重新定位。
If there is any deviation on location on the zygopophysis, relocate based on the deviation by using positioning adjustment cannula(G5068T).



G5068T

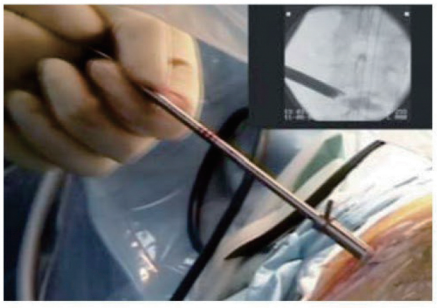
第八步：放置工作套管

沿着扩张管（导杆）放置工作套管，到达位置后，拔出扩张管，在C臂下定位工作套管。正确的位置应该是放在神经根下方，椎间盘水平，顶端正好在中线，开口朝向突出的髓核。Tian Song®设计有多种样式的工作套管，以满足不同医生的特殊需要。

Step 8: place the working cannula

Place the working cannula along the dilator (guide bar), pull out the dilator after reach the position. Place the guide working cannula at arm c.The right position should be under the nerve root, the level of a disc herniation,the top right at midcourt line, openings toward the prominent nucleus pulposus.

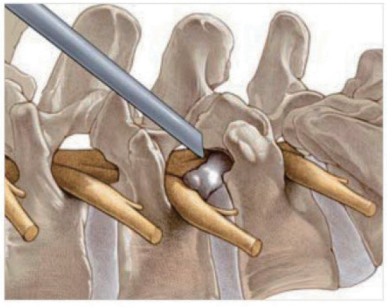
Tian Song® have design many kinds of working cannula to meet the special needs of different doctor.



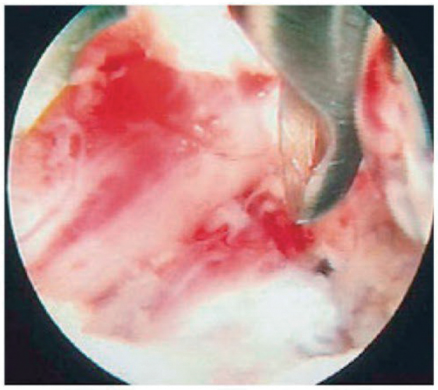
沿着套管放置工作套管
Place the working cannula along the cannula



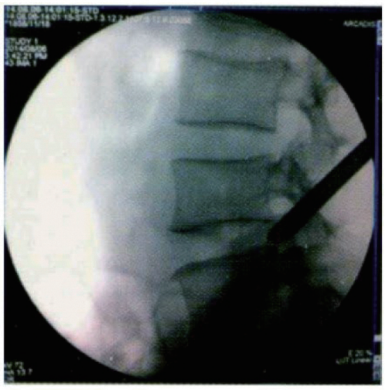
放置工作套完成
Complete the placing of working cannula



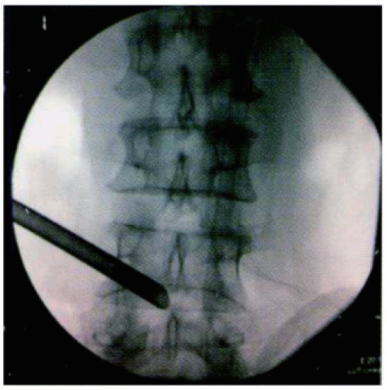
工作套管示意图
Schematic of working cannula



套管顶端可以保护神经根免遭损伤
The tip of the cannula can protect the nerve root



用C型臂下影像确定工作套管的位置
Confirm the position of woring cannula with image under arm C



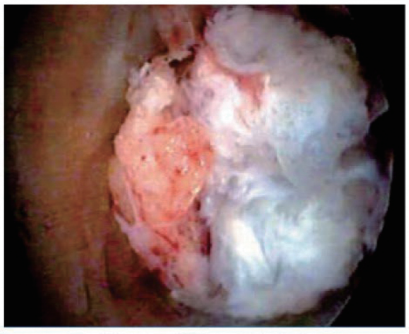
用C型臂下影像确定工作套管的位置
Confirm the position of woring cannula with image under arm C

第九步：放置椎间孔镜

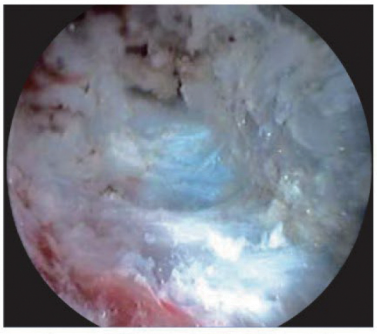
连接椎间孔镜到光源和摄像机。打开光源，调节白平衡，达到最佳彩色效果。把椎间孔镜放入工作套管。调节合适的水流量和压力对取得良好效果很重要。插入椎间孔镜后可以看到各种组织结构。由于髓核染色，可以清楚地区别突出的髓核、神经根和硬脊膜。

Step 9: place the diskoscope

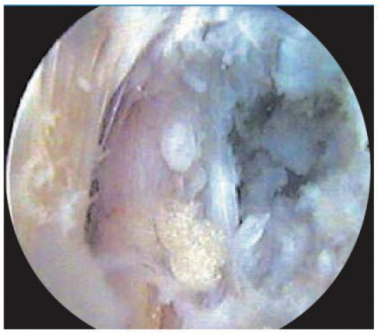
Connect the diskoscope with light source and camera. Turn on the light source and adjust the white balance to achieve the best color effect. Put the diskcoscope into the working cannula .The suitable water flow and pressure is very important to achieve the good effect. After insert the diskoscope, the operator can see many kinds of tissues. Due to the dyeing of nucleus pulposus, operator can clearly distinguish the protruded nucleus pulposus, nerve root and endorhachis.



镜下看到突出髓核碎片
Protruded nucleus pulposus under the diskoscope



镜下看到突出髓核碎片和硬膜囊
protruded nucleus pulposus and dural sac under the diskoscope



镜下看到突出髓核碎片和神经根
protruded nucleus pulposus and nerbe root under the diskoscope

第十步：摘除髓核碎片

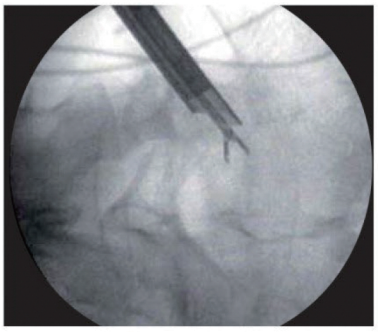
在整个手术过程中患者必须保持清醒和配合。Tian Song®提供完整的椎间盘摘除器械，如神经探针、神经拉钩、抓钳、咬切钳等。这些器械都可以通过椎间孔镜的工作通道操作。如果突出的髓核比较大，也可以不用通过椎间孔镜，用大号的髓核钳通过工作套管直接摘除突出的髓核。全部摘完突出的髓核后，通过椎间孔镜可以清楚地看到神经根。转动工作套管观看周围组织检查是否还有游离的髓核碎片，对需要去除骨组织时采用镜下动力系统。

Step 10: nucleus pulposus fragments extirpation

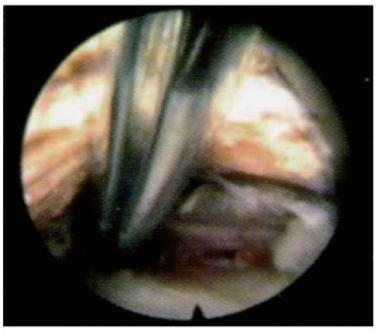
The patient should keep awake and cooperate during the operation. Tian Song® provides the complete set of instruments for the discectomy such as nerve probe, nerve hook, grasping forceps, punch forceps and so on. All instruments can operate through the working channel of diskoscope. If the protruded nucleus pulposus is relatively large, the diskoscope is not necessary to be applied; \the large size nucleus pulposus forceps can be applied directly used to remove the nucleus pulposus through the working cannula. After remove all the protruded nucleus pulposus, the nerve root can be seen very clearly through the diskoscope. Rotate the working cannule and observe the surrounding tissues to check whether there are any dissociative fragments of the nucleus pulposus. Applying shaver system under the endoscopes during removing bone tissue.



摘除髓核示意图
Schematic of removing nucleus pulposus



C型臂下显示
Display of arm C



椎间孔镜下看到
Image under diskoscope

如果在手术时出现大出血，在其它止血方法无法解决的情况，采用压迫止血法。减压阻断器插入工作套管止血。

If other hemostasis methods do not work under the condition of massive haemorrhage during the operation, hemostasis by compression should be adopted. Insert the decompression blocker into the working cannula to stop the bleeding.



G5016T

第十一步：应用低温等离子系统止血、消融

采用独特设计的可伸屈和转向的等离子刀头可以通过椎间孔镜的工作通道达到工作区域用于安全、快速止血、消融髓核、以及通过组织收缩的作用封闭纤维环直径3 mm以下的裂口达到修补成型。

Step 11: use the low temperature plasma surgery system to stop bleeding and ablate

The plasma blade can be extended and swerved applies a unique design. It can reach to the operating area through the working channel of diskoscope. It is used for hemostasis safely and fast, ablation of nucleus pulposus. It is also can be used to close the split with fibrous rings diameter under 3mm by tissue contraction to reach the effect of repair.

射频机 RF Generator



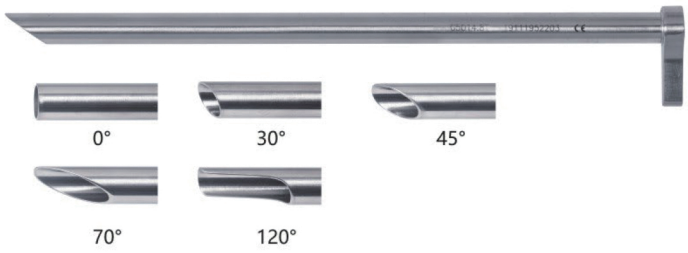
一次性等离子刀头 Disposable plasma blade



椎间孔镜手术系统 6.3mm Transforaminal endoscopic surgical system



椎间盘内窥镜 Endoscope
G0113 30° Φ6.3×181mm，工作通道3.7mm Working channel



套管 Cannula
G5014.6T Φ7.5×150mm (0°)
G5014.7T Φ7.5×155mm (30°)
G5014.8T Φ7.5×160mm (45°)
G5014.9T Φ7.5×165mm (70°)
G5014.10T Φ7.5×170mm (120°)
G5015.6T Φ7.8×180mm (70°) 厚壁 Thick wall
G5015.7T Φ7.8×190mm (120°) 厚壁 Thick wall
G5015.8T Φ7.5×120mm (30°) 后路 Posterior
G5015.9T Φ7.5×120mm (45°) 后路 Posterior
G5015.10T Φ7.5×120mm (70°) 后路 Posterior

用于置入内窥镜，保护神经根；各种长度、角度方便医生根据不同的手术选择套管。
Use for entering the endoscope, protect the nerve root; it is convenient for doctors choosing the cannula with different lengths and angles.



扩张管 Dilator
G5002.7T Φ6.3×210mm，圆锥形
G5002.8T Φ3×230mm，圆锥形

环锯 Trephine
G5005.1T Φ5.1×240mm
G5006.1T Φ6.3×240mm
G5004.1T Φ3×355mm 镜下





环锯 Trephine
G5072.1T Φ7.5×160mm 镜外，配G5072T
G5072.1T-1 Φ7.5×165mm
G5072.1T-2 Φ7.5×170mm
G5072.1T-3 Φ7.5×175mm



套管 Cannula
G5072T Φ8.5×140mm
G5072T-1 Φ8.5×145mm
G5072T-2 Φ8.5×150mm

椎间孔镜手术系统 6.6mm Transforaminal endoscopic surgical system



G0118.1 椎间孔内窥镜 Endoscope
30°，Φ6.6×181mm 工作通道4mm Working channel，
耐高温高压 Autoclave，德国费格 German



扩张管 Dilator
G5002.8T Φ3×230mm，圆锥形
G5002.7T Φ6.3×210mm，圆锥形

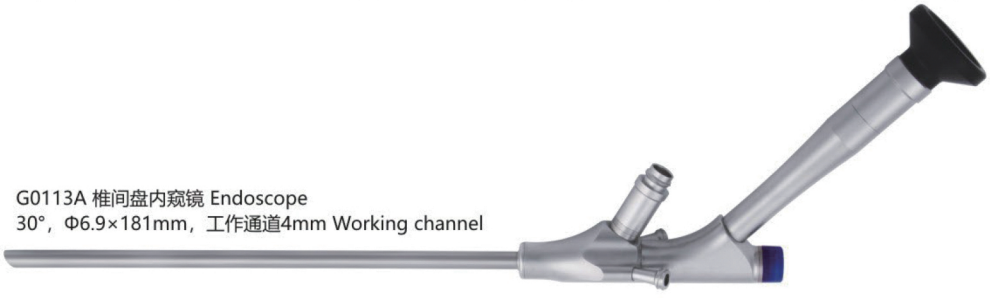


套管 Cannula
G5702.1T Φ7.6×0.4×160mm (0°)
G5702.2T Φ7.6×0.4×165mm (30°)
G5702.3T Φ7.6×0.4×170mm (60°)
G5702.4T Φ7.6×0.4×175mm (80°)
G5702.5T Φ7.6×0.4×180mm (120°)
G5702.6T Φ7.6×0.4×120mm (60°)
G5702.7T Φ7.6×0.4×120mm (80°)
G5702.8T Φ7.6×0.4×120mm (120°)



环锯 Trephine
G5703T Φ6.6×240mm
G5007T Φ7.6×220mm

椎间孔镜手术系统 6.9mm Transforaminal endoscopic surgical system



G0113A 椎间盘内窥镜 Endoscope
30°，Φ6.9×181mm，工作通道4mm Working channel



扩张管 Dilator
G5002.6T Φ6.9×Φ3×210mm
G5002.8T Φ3×230mm



套管 Cannula
G5502.1T Φ8×160mm (0°)
G5502.2T Φ8×165mm (30°)
G5502.3T Φ8×170mm (45°)
G5502.4T Φ8×175mm (80°)
G5502.5T Φ8×180mm (120°)
G5502.6T Φ8×120mm (30°)
G5502.7T Φ8×120mm (80°)
G5502.8T Φ8×120mm (120°)



环锯 Trephine
G5503T Φ5×240mm
G5403.1T Φ7×240mm





G5504.1T 环锯 Trephine
Φ8×170mm 镜外，配G5504T

G5504T 套管 Cannula Φ9×150mm

椎间孔镜手术系统（通用件） Transforaminal endoscopic surgical system (Standard parts)



独特专利设计的阶梯旋转钻和神经保护端头极大提高了安全性，带引导，快锁手柄设计。
The unique patented design drill and nerve protected end increase the safety greatly, with guide, quick lock handle design.



安全骨钻 Safe bone drill
G5069.1T Φ4×200mm
G5069.2T Φ6×200mm
G5069.3T Φ7×200mm
G5069.4T Φ8×200mm
G5069.5T Φ9×200mm



G5069T 手柄 Handle





G5066.4T 定位针 Locating needle
Φ2.2×175mm 球形手柄
在关节突上定位打点，头部为三棱尖
Locating in the zygopophysis, head is sharp trigone



G5066.5T 定位探针 Probe
Φ2.2×175mm 球形手柄
探索通道，保护神经，头部为钝头
Search channel, protect nerve, head is blunt.



G5066.6T 定位钻 Locating drill
Φ2.2×185mm 球形手柄
通过定位针的打点钻通关节突，不对发生位移
Break the zygopophysis by the guide need, no displacement



定位调整套管 Cannula
G5068T　Φ8×170mm 双通道 2 channels
G5068.1T Φ8×170mm 五通道 5 channels
G5068.2T Φ6×170mm 三通道 3 channels
G5068.3T Φ5×170mm 双通道 2 channels
调整和重新定位插入点位置
Adjust and re-guide the insert position





G5008T 神经拉钩
3.4×Φ2.2×330mm
Nerve hook



G5009T 剥离子
3.3×Φ2.2×330mm
Elevator



G5010T 神经探针
3.2×Φ2.2×330mm
Nerve probe



G5011T 尖锥 Φ3×330mm
Hollow sharp cone



G5012T 定位标尺
Φ4×300mm
Locating ruler



G5013.1T 骨凿镰状刀
2.6×Φ2.2×330mm
Sickle knife



G5013.2T 骨凿穿刺针
3.4×Φ2×330mm
Trocar



G5013.3T 骨凿半圆头
Φ3×330mm
Osteotome

椎间孔镜手术系统（通用件） Transforaminal endoscopic surgical system (Standard parts)



G5016T 减压阻断器 Decompression blocker



G5017T 毛刷 Brush Φ1.5×330mm



G5018T 乳突锤子 Mastoid mallet Φ17×55mm



定位针 Trocar，长150mm或200mm
G5019.4T Φ1.2mm
G5019.8T Φ1.3mm
G5019.7T Φ1.6mm
用于定位时插入，也可以用于注射麻醉剂和造影剂
Use for insert when locating, also use for injecting anesthetic and contrast agent



活检钳
Biopsy forceps
G5021T Φ3×330mm
G5321T Φ2.5×330mm

髓核钳杯形头
Nucleus pulposus forceps, cup head
G5022T Φ3×330mm
G5022.1T Φ3×400mm
G5022.2T Φ3.5×330mm
G5322T Φ2.5×330mm

抓钳 Grasping forceps
G5023T 45° Φ3×330mm
G5323T 45° Φ2.5×330mm



咬切钳 上翘10°
Punch forceps
G5024.2T Φ3.5×330mm
G5024.6T Φ2.5×330mm



抓钳，倒齿
Grasping forceps, pawl
G5025T Φ3×330mm
G5325T Φ2.5×330mm



G5028T 异物钳 粗齿
Φ3×330mm
Foreign body forceps, rough tooth



G5029T 抓钳
Φ3×330mm 锯齿
Grasping forceps, serrated



G5030T 髓核钳 Φ3.5×330mm
Nucleus pulposus forceps



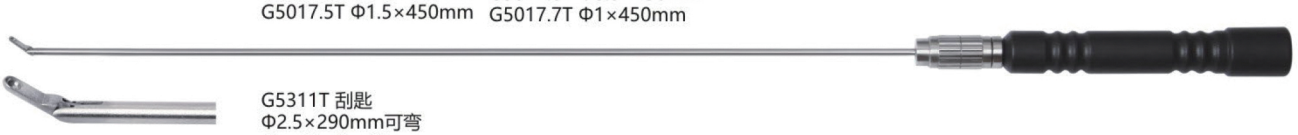
活检钳，可弯
Biopsy forceps, flexible
G5033T Φ2.7×330mm
G5333T Φ2.5×330mm

椎间孔镜手术系统（通用件） Transforaminal endoscopic surgical system (Standard parts)

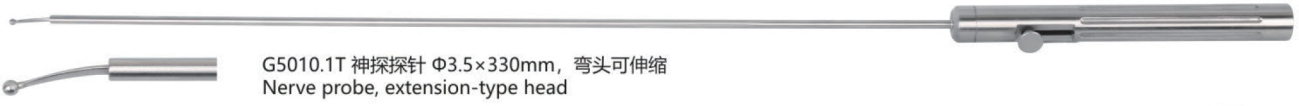


咬切钳，旋转60° 切口
Rongeur, rotatable 45° incision
G5030.4T Φ3.5×7×320mm
G5030.5T Φ3.5×15×330mm
G5030.10T Φ3.5×15×330mm 头1.5mm, 60° 切口Incision 颈椎Cervical vertebra

骨引导针 Guide needle
G5017.4T Φ0.7×450mm G5017.6T Φ0.8×450mm
G5017.5T Φ1.5×450mm G5017.7T Φ1×450mm



G5311T 刮匙
Φ2.5×290mm可弯
Curette, flexible



G5010.1T 神探探针 Φ3.5×330mm，弯头可伸缩
Nerve probe, extension-type head



G5043T 磁棒 Magnetic bar Φ3.4×330mm



G5032T 夹持钳 Holding forceps



T5010 导光束 Light guide cable Φ4.5×2000mm



T1001 连接器 Adaptor

椎间孔镜手术系统（选购件） Transforaminal endoscopic surgical system (Options)



椎间盘内窥镜 Endoscope
G0113.9A 0° Φ4.65×251mm，工作通道2mm Working channel
G0113.9B 30° Φ4.65×251mm，工作通道2mm Working channel
G0113.9C 30° Φ4.65×181mm，工作通道2mm Working channel

套管 Cannula
G5014.14T φ5.3*188mm (0°) 配G0113/9A镜
G5014.15T φ5.3*188mm (30°) 配G0113/9B镜
G5014.16T φ5.3*118mm (30°) 配G0113/9C镜

椎间孔镜手术系统（选购件）Transforaminal endoscopic surgical system (Standard parts)



G5001T 扩张管7支组件 Dilator, 7pcs
7级扩张，逐级之前直径增加量较小，逐级扩张时患者疼痛感弱，手术扩张时间较长。
7 levels dilation, the increase of diameter is smaller before step-by-step, the aching feeling is small during dilation, the time of operation dilation is longer.



扩张管 Dilator
G5002.1-1T Φ4×220mm
G5002.1-2T Φ5×210mm
G5002.1-3T Φ6×200mm



扩张管 Dilator
G5002.2-1T Φ2.5×230mm
G5002.2-2T Φ4×230mm
G5002.2-3T Φ5.1×230mm
G5002.1T系列和G5002.2T系列配套使用，逐级之前直径增加量适中，与G5070T系列的环锯配套使用
G5002.1T and G5002.2T work together, the increase of diameter is moderate before step-by-step, work with G5070T series trephine.



扩张管 Dilator
G5002.3T Φ3×190mm
G5002.4T Φ6.3×Φ1.8×210mm





G5070T 手柄 Handle

环锯 Trephine 配G5070T手柄
G5070.1T Φ4×200mm
G5070.2T Φ5×200mm
G5070.3T Φ6.3×200mm
G5070.6T Φ6.5×200mm
G5070.4T Φ7.5×200mm
G5070.9T Φ3×330mm 镜下用 Endoscopic us



环锯 Trephine
G5071.1T Φ7.5×200mm
G5071.2T Φ6.5×200mm
G5071.3T Φ5×200mm
G5071.4T Φ6.3×220mm
G5071.8T Φ7.5×220mm



G5014.13T 工作套管 Cannula Φ7.5×180mm，70°



套管 Cannula
G5001.2T Φ7.6×155mm



G5075.1T 套管 Cannula Φ9×140mm 镜外





G5074.1T 套管 Cannula Φ7.8×156mm 镜外



G5013.7T 骨凿 Osteotome
7×11.5×170mm 镜外



椎间盘内窥镜（大通道） Large-channel endoscope



椎间盘内窥镜 Endoscope
G0113.8 25° Φ10×125mm 斜视 side viewing
G0113.8C 12° Φ10×126.5mm 斜视 side viewing



套管 Cannula
G5802T Φ13.7×85mm，螺旋管斜口 spiral, oblique
G5802.1T 黑色塑料，可透X光
Black plastic, X Ray transparent



套管 Cannula
G5803T Φ13.7×85mm，螺旋管平口 spiral, flat
G5803.1T 黑色塑料，可透X光
Black plastic, X Ray transparent



G5813T 工作套管 Working cannula
Φ11.2×117mm，33°斜口 oblique



G5801T 扩张管 Dilator set 4级扩张（4支）4pcs



G5805T 套管 Cannula Φ6×195mm，平口 flat



G5804T 套管 Cannula Φ6×231mm，
开口长30mm 鸭嘴 duck mouth



G5019.4T 定位针 Trocar Φ1.2mm，长150mm或200mm



G5815.1T 扩张管 Dilator Φ10×Φ1.1×180mm

骨引导针 Guide needle
G5017.6T Φ0.8×450mm G5017.7T Φ1×450mm



G5820T 髓核异物钳
Nucleus pulposus forceps, foreign body
Φ4.5×320mm 单动 single action



G5824T 咬切钳 Punch forceps
Φ4.5×240mm

活检钳 Biopsy forceps
G5833.1T Φ2.7×270mm
G5833T Φ3.5×240mm



咬切钳 Rongeur，旋转，60°切口
G5030.6T Φ3.5×15×270mm 头宽1.5mm(head width 1.5mm)
G5030.7T Φ4×15×240mm 头宽1.7mm(head width 1.7mm)

咬切钳 Rongeur，旋转，Φ5.5×15×240mm
头宽2.5mm(head width 2.5mm)
G5030.8T 60°切口
G5030.9T 90°切口





G5807T 剥离子 Elevator
Φ2.5×320mm



G5808T 神经拉钩 Nerve hook
Φ3×320mm



G5809T 刮匙 Curette
Φ4.5×260mm



G5810T 剥离子 Elevator
Φ4.5×260mm



G5811T 骨凿 Osteotome
Φ3.5×240mm

椎间孔镜手术系统 Transforaminal endoscopic surgical system



M0017 低温等离子体多功能手术系统
Low temperature plasma multifunctional surgery system



一次性使用等离子刀头
Disposable plasma blade
G8002 Φ2.5×400mm
G8003 Φ1.8×260mm

配Ellman、Elliquence射频机
For Ellman, Elliquence RF Generator

G8002

配国产射频机
For domestic RF Generator



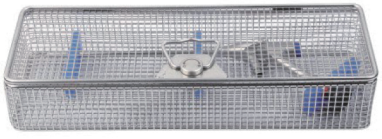
G8002.2

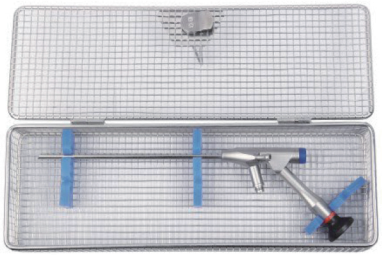
消毒盒 Sterilizing box



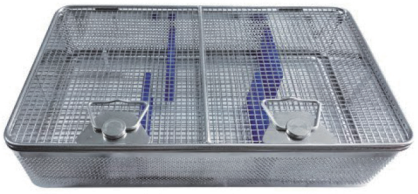


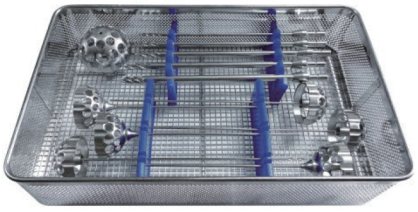
G0000.9 椎间孔镜器械消毒盒，网状
580×220×125mm
For discectomy instruments





G0000.3 椎间孔镜消毒盒网状
350×120×70mm
For discectomy endoscope





G0000.10 椎间孔镜骨钻消毒盒，网状
370×230×80mm
Transforaminal endoscopic bone drill sterilizing box

孔镜下动力系统 Shaver system under discectomy endoscope





外鞘 Outer sheath
G4606.1 Φ3.4×290mm，带保护鞘 with protective sheath
G4606.2 Φ3×290mm

G4605 直接头，可拆
Straight joint, detachable



球形钻头，配保护鞘G4606.1
Ball shaped drill,
with protective sheath
G4606.1-1 Φ2.5×290mm



球形磨头，配保护鞘G4606.1
Ball shaped grinding head,
with protective sheath
G4606.1-2 Φ2.5×290mm



钻头球形，配G4606.2
Drill, round, used with G4606.2
G4606.2-1 Φ3×290mm



磨头球形，配G4606.2
Grinder, round, used with G4606.2
G4606.2-2 Φ3×290mm





弯接头一体式，角度可调节。配6.9的椎间孔镜
工作长度290mm，钻头直径4mm
Integrated curved joint, adjustable, For 6.9mm endoscope
WL290mm, OD4mm
G4604 钻头 Drill
G4604.1 磨头 Grinding head

DB型多功能手术动力系统 Multi-functional arthroscopy system





刀头Blade



G4020 关节刀头斜口有齿
Blade, with tooth inside
Φ5×130mm



G4021 关节刀头斜口无齿
Blade, without tooth
Φ5×130mm



G4022 关节刀头内外有齿
Blade, with tooth inside and outside
Φ5×130mm



G4023 关节刀头球状
Blade, round bur
Φ5×130mm

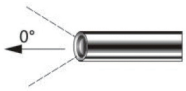


关节弯刀头 正面斜口内有齿
Obverse inside with tooth
Curved blade
G4025 20°
G4027 40°

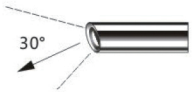


关节弯刀头 反面斜口内有齿
Inverse inside with tooth
Curved blade
G4026 20°
G4028 40°

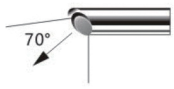
关节镜 Arthroscopy set



G0021 广角 Wide angle 0° Φ2.7×175mm
G0031 广角 Wide angle 0° Φ4×175mm
G0051 广角 耐134° 2bar 高温高压
Wide angle autoclave
0° Φ4×175mm



G0022 广角 Wide angle 30° Φ2.7×175mm
G0032 广角 Wide angle 30° Φ4×175mm
G0052 广角 耐134° 2 bar 高温高压
Wide angle autoclave
30° Φ4×175mm



G0023 广角 Wide angle 70° Φ2.7×175mm
G0033 广角 Wide angle 70° Φ4×175mm
G0053 广角 耐134° 2bar 高温高压
Wide angle autoclave
70° Φ4×175mm

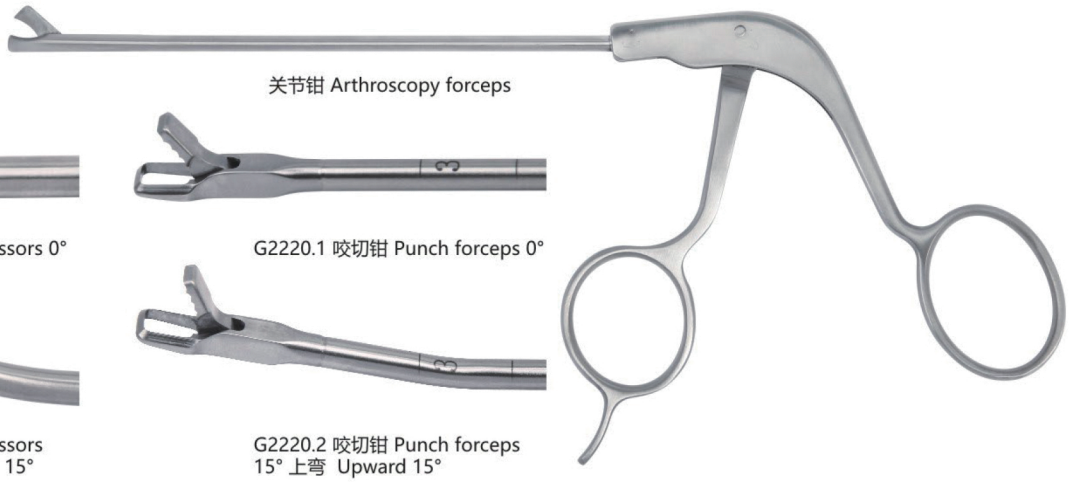
1.连接天松导光束
Connecting to TIANSONG light guide cable
连接OLYMPUS导光束
Connecting to OLYMPUS light guide cable
连接STORZ导光束
Connecting to STORZ light guide cable



2.连接WOLF导光束
Connecting to WOLF light guide cable
3.连接ACMI导光束
Connecting to ACMI, STRYKER light guide cable



关节镜 Arthroscopy



关节钳 Arthroscopy forceps



G2219.1 剪刀 Scissors 0°

G2220.1 咬切钳 Punch forceps 0°



G2219.2 剪刀 Scissors
上弯 15° Upward 15°

G2220.2 咬切钳 Punch forceps
15° 上弯 Upward 15°



G2219.3 剪刀 Scissors
左弯 30° Left curved 30°



G2220.4咬切钳Punch forceps
15° 下弯 Downward 15°



G2220.6 带齿抓钳
Grasping forceps with tooth



G2219.4 剪刀 Scissors
下弯 15° Downward 15°



咬切钳 Punch forceps
G2220.3 30° 左弯 Left curved 30°
G2220.5 30° 右弯 Righr curved 30°



G2220.7 咬线钳 Line grasping forceps



G2219.5 剪刀 Scissors
右弯 30° Righr curved 30°



咬切钳 Punch forceps
G2221 宽头0° wide head 0°

关节镜 Arthroscopy set





G2229 咬切钳
Punch forceps 0° 圆头

G2229.1 咬切钳
Punch forceps 0° 方头

G2229.7 咬切钳
Punch forceps
方头上翘15° Head upward



G2229.20 咬切钳
Punch forceps 0°小方头

G2229.11 咬切钳
Punch forceps
头三角 15°左弯 Left curved

G2229.12 咬切钳
Punch forceps
头三角 15°右弯 Right curved



G2229.6 带齿抓钳1*2齿
Grasping forceps



咬切钳 Punch forceps
G2229.8 反咬左 Retrograde Left
G2229.9 反咬右 Retrograde Right





G2228.21 抓钳
Grasping forceps 0°

G2228.22 抓钳
Grasping forceps
0°尖头Sharp head

G2228.23 抓钳
Grasping forceps
上弯15° Curved 尖头Sharp head



G2228.24 抓钳
Grasping forceps
0° 鹰嘴 Olecranon

G2228.25 抓钳
Grasping forceps 0°

G2228.26 抓钳
Grasping forceps
头上翘Head upward30°



G2228.27 剪刀 Scissors



G2228.29 咬切钳
Punch forceps
下反咬 头上翘15°



手术刀具 Operating knife



G2012 香蕉刀
Banana shaped knife 92mm



G2013 玫瑰型齿刀
Rose shaped knife 92mm



G2014 锉
Rasp 92mm



G2015 半月板切刀
Meniscotome 6×92mm



G2016 探针
Probe 3×92mm 4×92mm



G2017 韧带松弛切刀
Ligamentous cutting knife
6×92mm



G2018 直钩刀
Hooked knife, straight
7×92mm



G2019 刮匙
Curette 5×92mm



G2020 杯型刮匙
Cup shaped curette
7×92mm



G2021 反角刀 45°
Knife, contra angled
7×92mm

关节镜 Arthroscopy set



穿刺器 Trocar set
G1101.3 Φ5×140mm
G1101.4 Φ4×140mm
G1101.5 Φ3×72mm
G1101.6 Φ4.5×105mm for STRYKER
G1101.7 Φ3×140mm



穿刺器 Trocar
配70° 关节镜 for 70°arthroscope
G1101.3A Φ5×140mm
G1101.4A Φ4×140mm



G1101.11 穿刺器 Trocar
Φ6.5×80mm



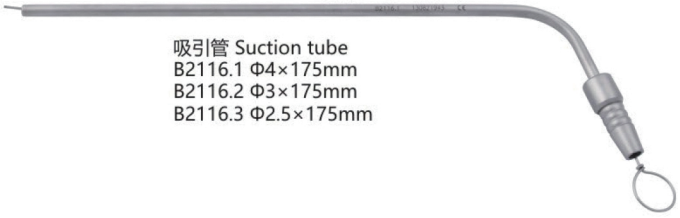
G1101.12 穿刺器 Trocar
Φ5.2×95mm



G1101.10 穿刺器 Trocar
Φ4×140mm 插口式 Click type



G1101.13 穿刺器 Trocar
Φ5.5×140mm



吸引管 Suction tube
B2116.1 Φ4×175mm
B2116.2 Φ3×175mm
B2116.3 Φ2.5×175mm

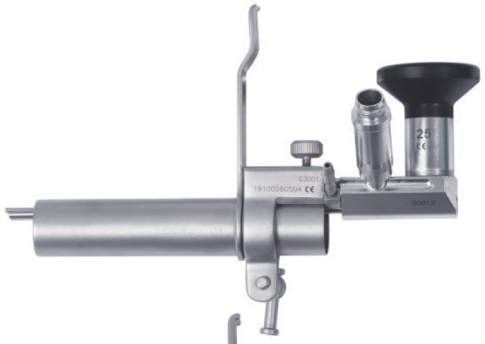


G2016.1 探针 Probe 3×92mm/ 4×92mm

ZJJ 型椎间盘镜手术系统 Diskoscopy set



G0012 椎间盘内窥镜 25° Φ4mm
Endoscope



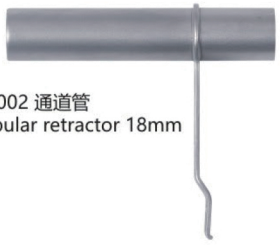




扩张管 5支组件 Dilator, 5pcs
G3004 Φ5.3-Φ16.8mm



G3001 联接杯
Ring attachment 18mm



G3002 通道管
Tubular retractor 18mm



G5062 联接环
Ring attachment



G5063 通道管
Tubular retractor

ZJJ 型椎间盘镜手术系统 Diskoscopy set



G3003 定位针 Locating needle



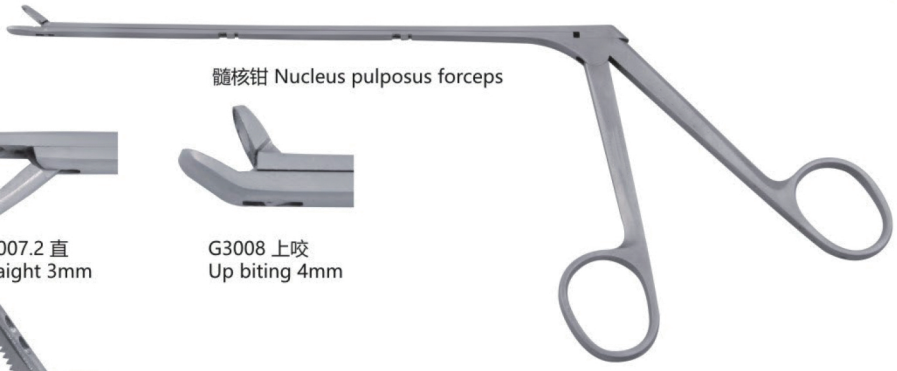
吸引管 Suction tube
G3005 2.5mm
G3005.1 3.5mm





G3006 神经拉钩
Nerve hook

G3005.2 拉钩型 Retractor 4.0mm



髓核钳 Nucleus pulposus forceps



G3007 直
Straight 4mm

G3007.2 直
Straight 3mm

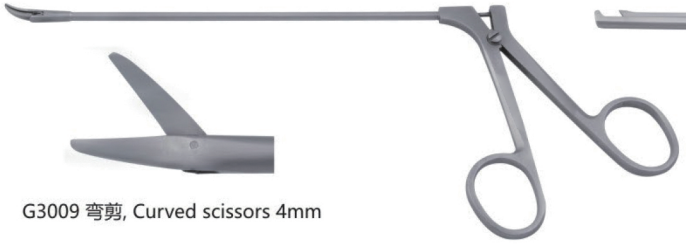
G3008 上咬
Up biting 4mm



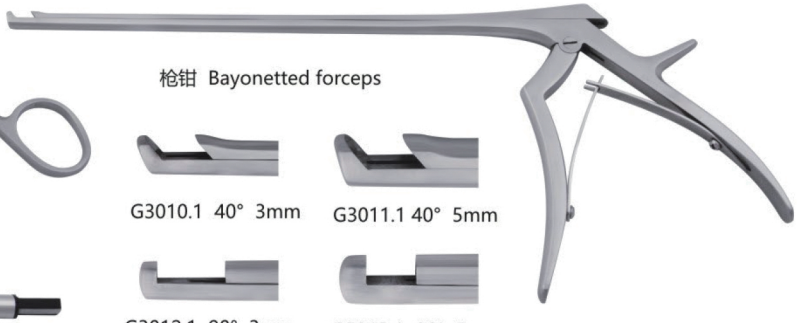
G3008.1 下咬
Down biting 4mm



G3008.3 3.2×5.6×170mm
上翘30°带齿头长12



G3009 弯剪, Curved scissors 4mm



枪钳 Bayonetted forceps

G3010.1 40° 3mm

G3011.1 40° 5mm

G3012.1 90° 3mm

G3013.1 90° 5mm



G3019 电凝 Straight bipolar tweezers 直形，双极



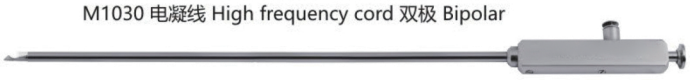
电凝 Bayonet bipolar tweezers
G3019.1 枪形，双极
G3019.2 枪形，双极 250mm加长款



G3019.3 电凝 Bayonet bipolar tweezers 枪形，头弯，双极 Tip curved



M1030 电凝线 High frequency cord 双极 Bipolar



G3020 带鞘小刀 Knife with sheath



G3018 神经牵引器 Nerve retractor







G3014 直刮匙 Straight curette 3.6mm
G3014.1 直刮匙 Straight curette 5.2mm

G3014.2 弯刮匙 Curved curette 3.6mm
G3014.3 弯刮匙 curved curette 5.2mm

G3014.4 反刮匙 Reversal curette 3.6mm
G3014.5 反刮匙 Reversal curette 5.2mm

ZJJ 型椎间盘镜手术系统 Diskoscopy set



N1003 内窥镜支架 Endoscope holder



G3015 定位笔2# 上翘高度2.5mm Locating pen up ward length 2.5mm
G3015.1 定位笔4# 上翘高度3.5mm Locating pen up ward length 3.5mm



G3016 探头 短球形90°
Short ball probe 90°



G3016.1 探头 长球形90°
Long ball probe 90°



G3017 解剖器45°
Dissector 45°



G3017.1 解剖器90°
Dissector 90°

冷光源 Cold light source



LED 医用冷光源
T5040 LL-100，30W
T5040.1 LL-150，80W



T5002.4 超高亮度氙灯 350W
Ultra-High Brightness xenon light source

摄像机 Camera system



A2500F 618 防水型 单晶片 液晶屏
Single chip, water proof, LCD panel



A2500E 638 防水型 三晶片 液晶屏
3 chips, water proof, LCD panel



A2500H 668
防水型 高清 (1080p) 液晶触摸屏
Water proof, HD (1080p)LCD touch panel

A2500P 668(1080P)，
支持U盘存储1080P录像和图片
Support U disk to save 1080P video and images

A2500Q 668(三晶片1080P)，
支持U盘存储1080P录像和图片
3 chips, Support U disk to save 1080P video and images



配纤维镜 Single chip. for fiberscope
A2500J单晶片摄像机068
A2500K单晶片摄像机168
A2500L单晶片摄像机268

内窥镜图像显示仪 Endoscopy camera system

01. CCD彩色摄像机，F-168D，480线。
02. 特制防水光学接口，F=23mm。
03. 工作台车。
04. 主机，Intel/2G内存/500G硬盘/DVD刻录机。
05. 显示器，19寸宽屏液晶。
06. 打印机，HP4800DPI,高分辨率打印。
07. 脚踏开关。
08. 视频捕捉卡，进口飞利浦芯片全通道色彩采样，最高级别的图像质量。高清晰数码DVD级，可实现影像数码动态放大，各种动态滤波处理。
09. 图文软件，可直接实现动态录像DVD回放/刻录，图文打印，最新XP系统。丰富的模板/词库/图库，强大的病历管理功能。
10. 系统视频教学，整套产品的视频全面教学，对本系统操作的无师自通视频教学，教学医师如何采集图像，录像，打印专业级报告。
11. 系统自动恢复，可在20分钟快速恢复，并对所以资料完好保存。



Endoscope Camera Documentation System

01. F-168D CCD camera,480lines
02. Coupler ,F23, Water Proof
03. Pushcart, with multifunctional shelf
04. Computer, Intel/2G/500G/DVD Recorder
05. Monitor, 19"LCD
06. Printer, HP4800DPI, high resolution print
07. Foot pedal
08. Video capture card, PHILIPS chip highest quality of image, HD digital DVD level, dynamic magnification, dynamic filter processing
09. Software, can make DVD replay /record, print, many template/word/stock/photo stock, powerful function of case management
10. Video teaching of the system, comprehensive teaching of the whole system
11. Automatic system recovery, fast recovery to factory setting in 20mins

01. 668型高清摄像机，1080P，日本原装可浸泡消毒摄像头。
02. 特制防水光学接口。
03. 26" Panasonic 高清监视器。
04. 专用仪器车，带多功能架。



Endoscopy Camera System(Water Proof, HD)

01. 668HD medical camera, 1080P, immersible camera lens from Japan
02. Coupler, Water Proof
03. 26" Panasonic medical HD monitor
04. Pushcart, with multifunctional shelf

1. 全高清摄像机668A，液晶屏，1080P，可浸泡消毒摄像头
2. 防水光学接口（可选配变焦光学接头）
3. 24寸专用医用监视器（可选配27寸监视器）
4. LED冷光源
5. 专用仪器车，带抽屉、插线板



Endoscope camera system

1. Full-HD camera, LCD screen, 1080P, immersible camera head for disinfection
2. Water proof coupler(Zoom coupler is optional)
3. 24 inch medical monitor(27inch monitor is optional)
4. LED cold light source
5. Troley with drawer and patch board

1. 高清摄像机268A，1080P，可浸泡消毒摄像头
2. F14防水光学接口
3. 24寸专用医用监视器
4. LED冷光源
5. 专用仪器车，带抽屉、插线板



Endoscope camera system

1. HD camera, 1080P, immersible camera head for disinfection
2. F14 Water proof coupler
3. 24 inch medical monitor
4. LED cold light source
5. Troley with drawer and patch board