mPACT
Medialized Posterior Approach
Cortical Trajectory
Image intensifier control

Note
This surgical technique describes the use of VIPER, T-PAL and Insight Retractor. Refer to the corresponding surgical techniques for Expedium® 5.5 System, T-PAL System and for Insight Retractor System at www.depuysynthes.com

Warning
This description alone does not provide sufficient background for direct use of DePuy Synthes products. Instruction by a surgeon experienced in handling these products is highly recommended.

Processing, Reprocessing, Care and Maintenance
For general guidelines, function control and dismantling of multi-part instruments, as well as processing guidelines for implants, please contact your local sales representative or refer:

Concerning Synthes Spine products to:
http://emea.depuysynthes.com/hcp/reprocessing-care-maintenance
For general information about reprocessing, care and maintenance of Synthes reusable devices, instrument trays and cases, please consult the Important Information leaflet (SE_023827) or refer to: http://emea.depuysynthes.com/hcp/reprocessing-care-maintenance

For information regarding reprocessing instructions for Anspach Effort Inc or DePuy Spine products, please refer to the product specific Instructions for Use.
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Through extensive surgeon collaboration, DePuy Synthes Spine has optimized the cortical trajectory technique for posterior screw fixation.

mPACT (medialized Posterior Approach Cortical Trajectory) is a less invasive method of achieving posterior fixation and fusion compared to open surgery that medializes the surgical approach and limits the exposure to the lateral margin of the articular processes. Potential advantages of the technique include: fixation, visualization and preservation.

**Fixation**
- Trajectory maximizes cortical bone contact.

**Visualization**
- Single, small midline incision.
- Familiar open anatomy with clear visualization.
- Not restricted by a tubular retractor.

**Preservation**
Compared to traditional open techniques, with the mPACT procedure potentially:
- There is less muscle disruption.
- There are less neurovascular elements compromised.
VIPER CORTICAL FIX SCREW SYSTEM

Enhanced Fixation
The Cortical Fix thread form doubles the number of contact points with the cortical wall of the pedicle or pars and increases the resistance to axial pull-out forces (compared to standard Expedium® 5.5 Spine System and VIPER® Screws of the same length).*

Additional proximal threads have been added to engage more of the posterior wall of the pedicle.

System and Technique Compatibility
Cannulated screws are compatible with both Expedium Spine System and VIPER System for open, mini-open or percutaneous procedures. Cortical Fix screws have the TOP NOTCH® feature and are compatible with all Spine System and VIPER System instrumentation, including screwdrivers, taps and reduction and derotation instruments.

The optimized screw tip is self-centering and self-tapping.

* Test data on file with DePuy Synthes Spine.
T-PAL

**Positioning**
- Rails on the surface guide and turn the cage into the desired position.
- Self-distracting nose for ease of insertion.

**Visualization**
- Radiographic markers to verify placement.

**Performance**
- Axial window accommodates autogenous bone graft or bone graft substitute to allow fusion to occur through the cage.
- Pyramidal teeth provides resistance to implant migration.
- $5^\circ$ to restore the natural spine lordotic curve (except for the 7-mm height).
Pivoting Implant Applicator
• Accommodates open, mini-open and MIS approaches.
• One instrument, one technique.

Familiar Process
• Approach, disc preparation and final implant location are the same as traditional TLIF procedures.

Versatility
• Trial sizing and implant placement use the same tool and technique.
• No need for angled impactors.
• Fewer tool transitions.

True Sizing
• Allows true trial sizing and placement testing.

Control
• Rigid connection between implant and applicator to reach desired implant depth.
• Streamlined positioning procedure.
• Pivoting during advancement to reach final position.
INSIGHT RETRACTOR

The Insight Retractor allows the surgeon to accomplish the goals of an open procedure in minimal space with reduced tissue damage.

Retractor
- Semi-radiolucent aluminum blades allow visualization of bony anatomy and disc space.
- Numerous table-mounting points increase the retractor stability to OR table.
- Release button returns retractor to parallel position.

Retractor Handles
- Permit blades to independently angulate up to 30° for additional access.
- Available in two angles to accommodate varying patient anatomy.

Lighting Option
- Light clip illuminates the surgical field. (Light clip only attaches to the cephalad/caudal frame.)
ANSPACH™ EG1™ HIGH SPEED SYSTEM

Precise
• Up to 80,000 rpm
• High cutting precision
• Redesigned dissection tools and coupling mechanism
• Minimal start-up kick

Easy to use
• Place and lock attachment
• Push to lock dissection tool
• User-friendly, stackable console
• Compatible with automated washing

Powerful
• 30% more power than the ANSPACH XMAX™
  and EMAX™ 2 Plus systems
• Higher cutting speed for comfort and precision
• Air-cooled motor for demanding applications

Comprehensive
• Wide selection of attachments and dissection tools* for spinal procedures ranging from open to minimal access

* Refer to Anspach cutting tool Chart #035.000.971

EG1 High Speed Electric System is intended for cutting and shaping bone including the spine and cranium.
INDICATIONS

**Expedium and VIPER Spine Systems**

The Expedium and VIPER Spine Systems are intended to provide immobilization and stabilization of spinal segments in skeletally mature patients as an adjunct to fusion in the treatment of acute and chronic instabilities or deformities of the thoracic, lumbar and sacral spine.

The Expedium and VIPER Spine System are intended for noncervical pedicle fixation and nonpedicle fixation for the following indications: degenerative disc disease (defined as back pain of discogenic origin with degeneration of the disc confirmed by history and radiographic studies); spondylolisthesis; trauma (i.e., fracture or dislocation); spinal stenosis; curvatures (i.e., scoliosis, kyphosis, and/or lordosis); tumor, pseudarthrosis; and failed previous fusion in skeletally mature patients.

When used in a posterior percutaneous approach with MIS instrumentation, the VIPER System is intended for noncervical pedicle fixation and nonpedicle fixation for the following indications: degenerative disc disease (defined as back pain of discogenic origin with degeneration of the disc confirmed by history and radiographic studies); spondylolisthesis; trauma (i.e., fracture or dislocation); spinal stenosis; curvatures (i.e., scoliosis, kyphosis, and/or lordosis); tumor, pseudarthrosis; and failed previous fusion in skeletally mature patients.

**T-PAL**

**Intended use**

The T-PAL implant is intended to replace lumbar intervertebral discs and to fuse the adjacent vertebral bodies together at vertebral levels L1–S1. The T-PAL implant is designed for a transforaminal approach.

**Indications**

Indications are lumbar and lumbosacral pathologies in which segmental spondylodesis is indicated, for example:

- Degenerative disc diseases and spinal instabilities
- Revision procedures for post-discectomy syndrome
- Pseudarthrosis or failed spondylodesis
- Degenerative spondylolisthesis
- Isthmic spondylolisthesis

**Contraindications**

- Vertebral body fractures
- Spinal tumors
- Major spinal instabilities
- Primary spinal deformities
- Osteoporosis

**Important:** T-PAL must be applied in combination with posterior fixation.
1 Exposure and Access

• AP and Lateral Imaging:
  ◦ Obtain a true AP image, ensuring that the pedicles and the superior endplate are both visible.
• Create a midline incision. Elevate the muscles to the lateral edge of the pars and to the joint line, similar to a laminectomy exposure to help preserve the neurovascular supply to the muscles.
• Expose to mid facet at the cephalad level and to mid lamina at the caudal level.
• Insight Retractor surgical technique:
  ◦ Select medial/lateral blades and assemble them to the retractor frame.

Note: Each length has both a wide and narrow selection.

  ◦ Insert the retractor frame into the incision.

Note: Refer to the Insight Retractor surgical technique for specific instructions.
2
Create Pilot Holes for Screws

• To locate the starting point, palpate the anatomy 1–2 mm medial of the junction of the lateral border of the pars and the inferior margin of the transverse process, just below the upper facet complex (Fig. 1).

• Utilizing a true AP image, reference the outer margin of the pedicle (Fig. 2). Using the pedicle as a clock face, locate the approximate starting point:
  % Left side: approximately at 5 o’clock
  % Right side: approximately 7 o’clock

• Use a high speed burr to create a dimple for your starting point and confirm on fluoroscopy. After creating the dimple, do not remove the burr and angle 8–10° medially and 25° caudal (Fig. 3 and 4).
• Your trajectory should aim for the lateral/upper corner in the posterior third of the vertebral body (Fig. 5).
• Tap or drill the full length of your desired path. It is recommended to tap the pilot hole line to line by selecting the same diameter tap as your planned screw diameter.

**Note:** Confirm using lateral fluoroscopy that the screw path does not compromise the endplate.

• If desired, a drill and drill guide can be used (see Power Tools section in the Product Catalogue).
• Repeat for each of your intended points of fixation.

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3 Facetectomy and Working Zone Preparation

• Perform bony work in order to gain access to the disc space.
• After a full discectomy and decompression has been completed, proceed with your interbody work.
T-PAL: Trialing and Implant Insertion

Trialing to aid the correct selection of the implant is extremely important. A trial implant should be used prior to insertion of the implant to evaluate potential implant placement and determine the optimal implant fit. Trialing with T-PAL is true trialing as the implant sizing matches the trial sizing.

Additionally, the T-PAL trials will pivot on the T-PAL applicator the same way that the definitive implant does providing the opportunity to ensure accurate placement.

The trials feature rails creating shape that not only match the rails found on the implant but will prepare the path for the final implant to follow.

Note: Refer to the T-PAL surgical technique for specific instructions.

4. A

T-PAL: Trialing

• Attach the applicator knob to the proximal end of the applicator outer shaft.

• Select an appropriate size trial implant. Insert the trial implant shaft into the applicator outer shaft ensuring the arrows on the end of the applicator align with those on the trial implant.
• Insert and position the trial implant into the disc space, ensuring that the orientation of the trial implant is correct. The trial implant tip should be orientated medial.

4. B
T-PAL: Implant Insertion

• Select implant, pack implant with bone graft and connect the implant to the applicator.

• Insert and position the implant into the disc space, ensuring that the orientation of the implant is correct.

**Warning:** Maintain a minimum of 10 degrees between applicator shaft and the sagittal plane when reaching final position to avoid potential difficulty in detaching the applicator.
• Once the implant reaches its final position, detach the applicator from the implant.
5

Screw Insertion
• Load the VIPER Cortical Fix screws by inserting the T20 drive feature of the Expedium Quick Connect Driver into the shank of the screw. Slide the screwdriver sleeve down and thread into the head of the screw.
• Insert the screws into each of your prepared pilot holes.

Note: Refer to the Expedium 5.5 System surgical technique for specific instructions.

6

Construct Assembly
• Perform rod insertion, capture and final tightening.
• Compress along the rod as needed to increase lordosis.

Note: Refer to the Expedium 5.5 System surgical technique for specific instructions.
1. Clean debris/tissue from set screws.
2. Loosen set screw with the T-Handle Torque Wrench and the Hexlobe Shaft rotating it counter-clockwise. The 5.5 SI Rod Stabilizer should be used while loosening the set screw.
3. Remove the Single Innie set screw with the X25 Set Screw Inserter.
4. Once the set screws are removed, the rods can be removed.
5. Use the T20 screwdriver to back the screw out of the pedicle.

For specific instructions regarding T-PAL implant removal, refer to the T-PAL surgical technique.
# PRODUCT ORDERING INFORMATION

## mPACT SET

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<th>Item Description</th>
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<tbody>
<tr>
<td>279792130</td>
<td>mPACT Case, Base</td>
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<td>279792131</td>
<td>mPACT Set Screw and Rod Caddy</td>
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<td>299704840</td>
<td>1/2 Lid Assembly</td>
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<td>5.5 TI Cort Fix 4.35 × 30 mm</td>
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## SETS

### Expedium Vital

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<tr>
<td>279789400</td>
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<td>279789100</td>
<td>Expedium Vital Instrument Tray 1</td>
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<td>279789200</td>
<td>Expedium Vital Instrument Tray 2</td>
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### T-PAL System

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<tr>
<td>01.812.001</td>
<td>T-PAL Implant and Instrument Set</td>
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</table>
Product ordering information

**Insight Retractor System**

01.615.002  Insight Retractor Set
  Standard Configuration

**Set for MIS Posterior Instruments**

01.605.903  Set for MIS Posterior Instruments
**ANSPACH™ EG1™ Electric High Speed System**

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<tr>
<th>Item</th>
<th>Description</th>
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<tbody>
<tr>
<td>EG1A</td>
<td>G1 High Speed Electric Handpiece, air cooled</td>
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<tr>
<td>SC3002</td>
<td>G1 Electric Console, With Irrigation</td>
</tr>
<tr>
<td>E-FP-DIR/IRR</td>
<td>Electric Systems Foot Control with Direction and Irrigation</td>
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<td>MEDIUM-G1*</td>
<td>8 cm Medium Attachment, G1</td>
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<td>LONG-G1*</td>
<td>11 cm Long Attachment, G1</td>
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<td>QD11-G1*</td>
<td>11 cm QD Angle Attachment, G1</td>
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<td>QD14-G1*</td>
<td>14 cm QD Angle Attachment, G1</td>
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<td>MA-D20-G1*</td>
<td>Minimal Access Angle Driver, G1</td>
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<td>MA-15C*</td>
<td>Bearing Sleeve, 15 cm Curved. Use with Minimal Access Attachments</td>
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**Note:** For more detailed information, refer to EG1 brochure (036.001.682).

* Choice of the attachment depends on surgeon's preference.
Not all products are currently available in all markets.

This publication is not intended for distribution in the USA.

All surgical techniques are available as PDF files at www.depuysynthes.com