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# Instructions for Use SYNAPSE™ System

This instruction for use is not intended for distribution in the USA.

# Instructions for Use

## SYNAPSE™ System

Please read these instructions for use, the Synthes brochure "Important Information" and the corresponding surgical techniques carefully before use. Ensure that you are familiar with the appropriate surgical technique.

### Material

Material:	Standard:
TAN	ISO 5832-11
CPTI	ISO 5832-2

### Intended use

The SYNAPSE System is an enhanced set of instruments and implants, including:

- Top-loading variable axis screws
- Hooks
- Transverse bars
- Rods

It is designed for posterior stabilization of the cervical spine and upper thoracic spine. The implants provide the flexibility required to accommodate variations in patient anatomy.

### Indications

Instabilities in the upper cervical spine and in the occipito-cervical region:

- Rheumatoid arthritis
- Congenital anomalies
- Posttraumatic conditions
- Tumors
- Infections

Instabilities in the lower cervical and upper thoracic spine:

- Posttraumatic conditions
- Tumors
- Iatrogenic instabilities following laminectomy etc.

Degenerative and painful posttraumatic conditions in the lower cervical and upper thoracic spine.

Anterior cervical fusions requiring additional posterior stabilization.

### Contraindications

- Spinal destruction accompanied by a loss of ventral support (caused by tumors, fractures and infections) results in major instability of the cervical spine and upper thoracic spine. In this situation, stabilization with SYNAPSE is not sufficient. Additional anterior stabilization is crucial.
- Severe osteoporosis.

### Side effects

As with all major surgical procedures, risks, side effects and adverse events can occur. While many possible reactions may occur, some of the most common may include:

Problems resulting from anesthesia and patient positioning (e.g. nausea, vomiting, dental injuries, neurological impairments, etc.), thrombosis, embolism, infection, excessive bleeding, iatrogenic neural and vascular injury, damage to soft tissues incl. swelling, abnormal scar formation, functional impairment of the musculoskeletal system, Sudeck's disease, allergy/hypersensitivity reactions, side effects associated with implant or hardware prominence, malunion, non-union, ongoing pain; damage to adjacent bones, discs, or soft tissue, dural tear or spinal fluid leak; spinal cord compression and/or contusion, partial displacement of the graft, vertebral angulation.


### Sterile device

**STERILE R** Sterilized using irradiation

Store implants in their original protective packaging, and do not remove them from the packaging until immediately before use.

Prior to use, check the product expiration date and verify the integrity of the sterile packaging. Do not use, if the package is damaged.

### Single-use device

 Do not re-use

Products intended for single-use must not be re-used.

Re-use or reprocessing (e.g. cleaning and reesterilization) may compromise the structural integrity of the device and/or lead to device failure which may result in patient injury, illness or death.

Furthermore, reuse or reprocessing of single-use devices may create a risk of contamination e.g. due to the transmission of infectious material from one patient to another. This could result in injury or death of the patient or user.

Contaminated implants must not be reprocessed. Any Synthes implant that has been contaminated by blood, tissue, and/or bodily fluids/matter should never be used again and should be handled according to hospital protocol. Even though they may appear undamaged, the implants may have small defects and internal stress patterns that may cause material fatigue.

### Precautions

The general risks associated with surgery are not described in these instructions for use. For more information, please refer to the Synthes brochure "Important Information".

### Warnings

It is strongly advised that SYNAPSE is implanted only by operating surgeons who are familiar with the general problems of spinal surgery and who are able to master the product-specific surgical techniques. Implantation is to take place with the instructions for the recommended surgical procedure. The surgeon is responsible for ensuring that the operation is carried out properly.

The manufacturer is not responsible for any complications arising from incorrect diagnosis, choice of incorrect implant, incorrectly combined implant components and/or operating techniques, the limitations of treatment methods, or inadequate asepsis.

### Combination of medical devices

Synthes has not tested compatibility with devices provided by other manufacturers and assumes no liability in such instances.

### Magnetic Resonance environment

MR Conditional:

Non-clinical testing of the worst-case scenario has demonstrated that the implants of the SYNAPSE system are MR conditional. These articles can be scanned safely under the following conditions:

- Static magnetic field of 1.5 Tesla and 3.0 Tesla.
- Spatial gradient field of 300 mT/cm (3000 Gauss/cm).
- Maximum whole body averaged specific absorption rate (SAR) of 1.8 W/kg for 15 minutes of scanning.

Based on non-clinical testing, the SYNAPSE implant will produce a temperature rise not greater than 5.7°C at a maximum whole body averaged specific absorption rate (SAR) of 1.8 W/kg, as assessed by calorimetry for 15 minutes of MR scanning in a 1.5 Tesla and 3.0 Tesla MR scanner.

MR Imaging quality may be compromised if the area of interest is in the exact same area or relatively close to the position of the SYNAPSE device.

### Treatment before device is used

Synthes products supplied in a non-sterile condition must be cleaned and steam-sterilized prior to surgical use. Prior to cleaning, remove all original packaging. Prior to steam-sterilization, place the product in an approved wrap or container. Follow the cleaning and sterilization instruction given by the Synthes brochure "Important Information".

### Processing/reprocessing of the device

Detailed instructions for processing implants and reprocessing reusable devices, instrument trays and cases are described in the Synthes brochure "Important Information". Assembly and disassembly instructions of instruments "Dismantling Multipart Instruments" can be downloaded from: <http://www.synthes.com/reprocessing>

  
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