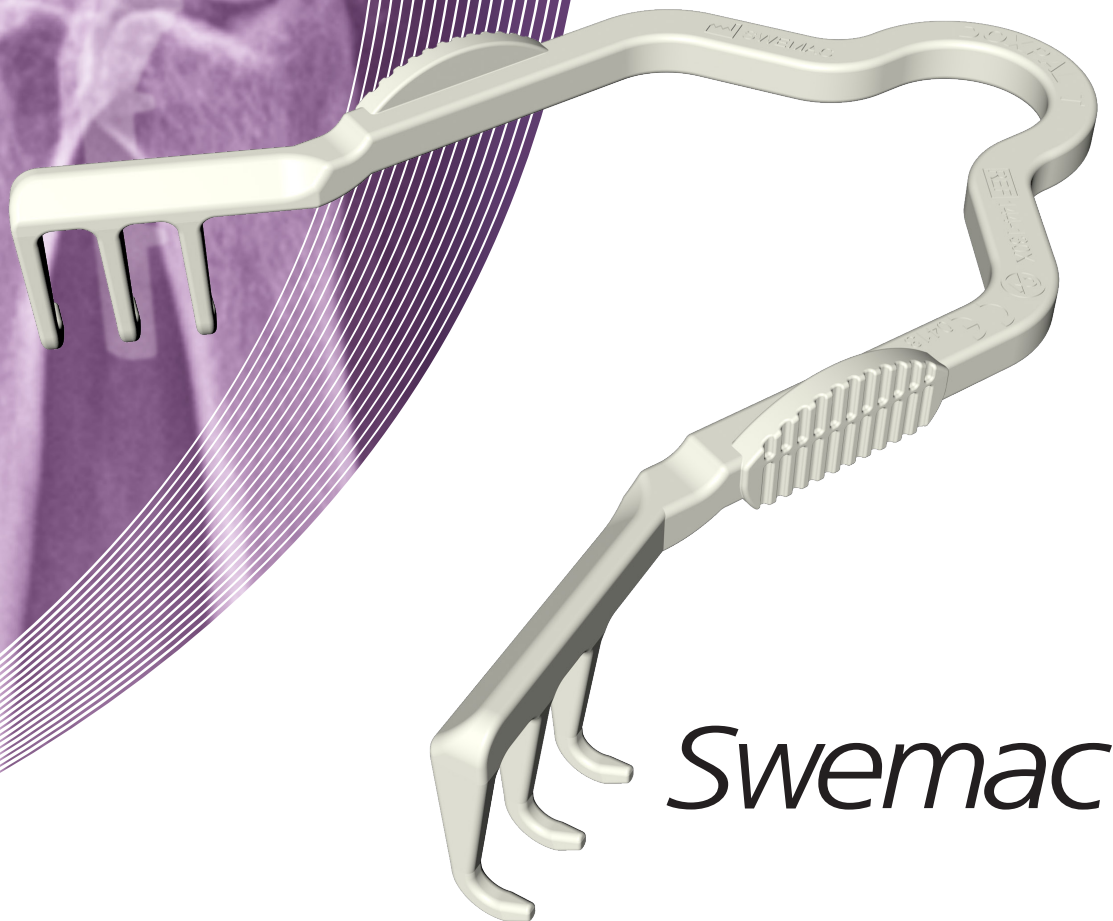


# Doxpal<sup>®</sup>

Self-retaining Retractor



*Swemac*

# Doxpal®

## Easy to use and reposition

Doxpal retractors are easy to use and easy to reposition due to the elastic properties of the plastic. There are no locking devices to attach or remove.

## Radiolucent

There is no need to remove the Doxpal retractor when using image intensification. The plastic is radiolucent and does not obstruct the surgeon's view of the bone. The Doxpal appears as a faint shadow on the monitor.



Doxpal retractor, Double



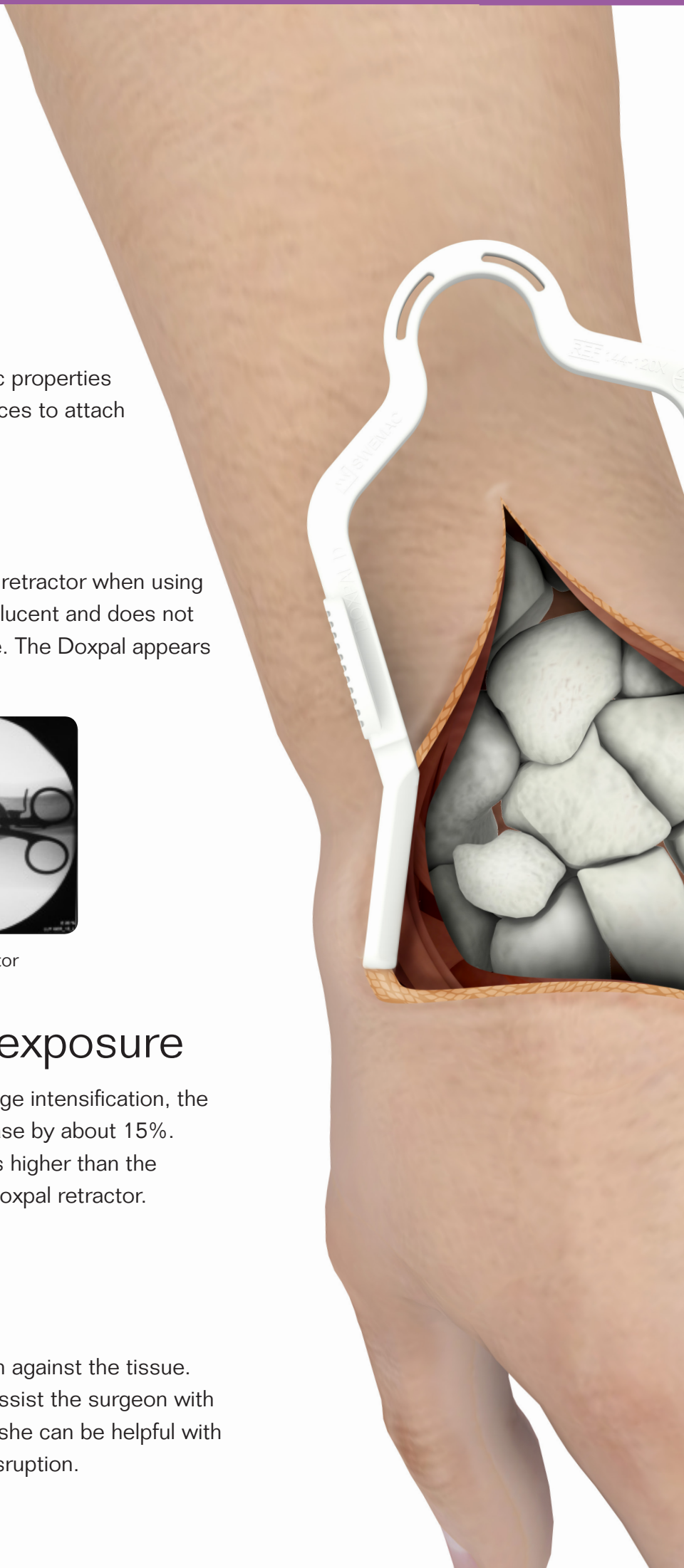
Weitlaner retractor

## Reduced radiation exposure

When using a metal retractor under image intensification, the dose rate (the air kerma rate) will increase by about 15%. This increase is approximately 2.5 times higher than the corresponding increase when using a Doxpal retractor. (See reference article)

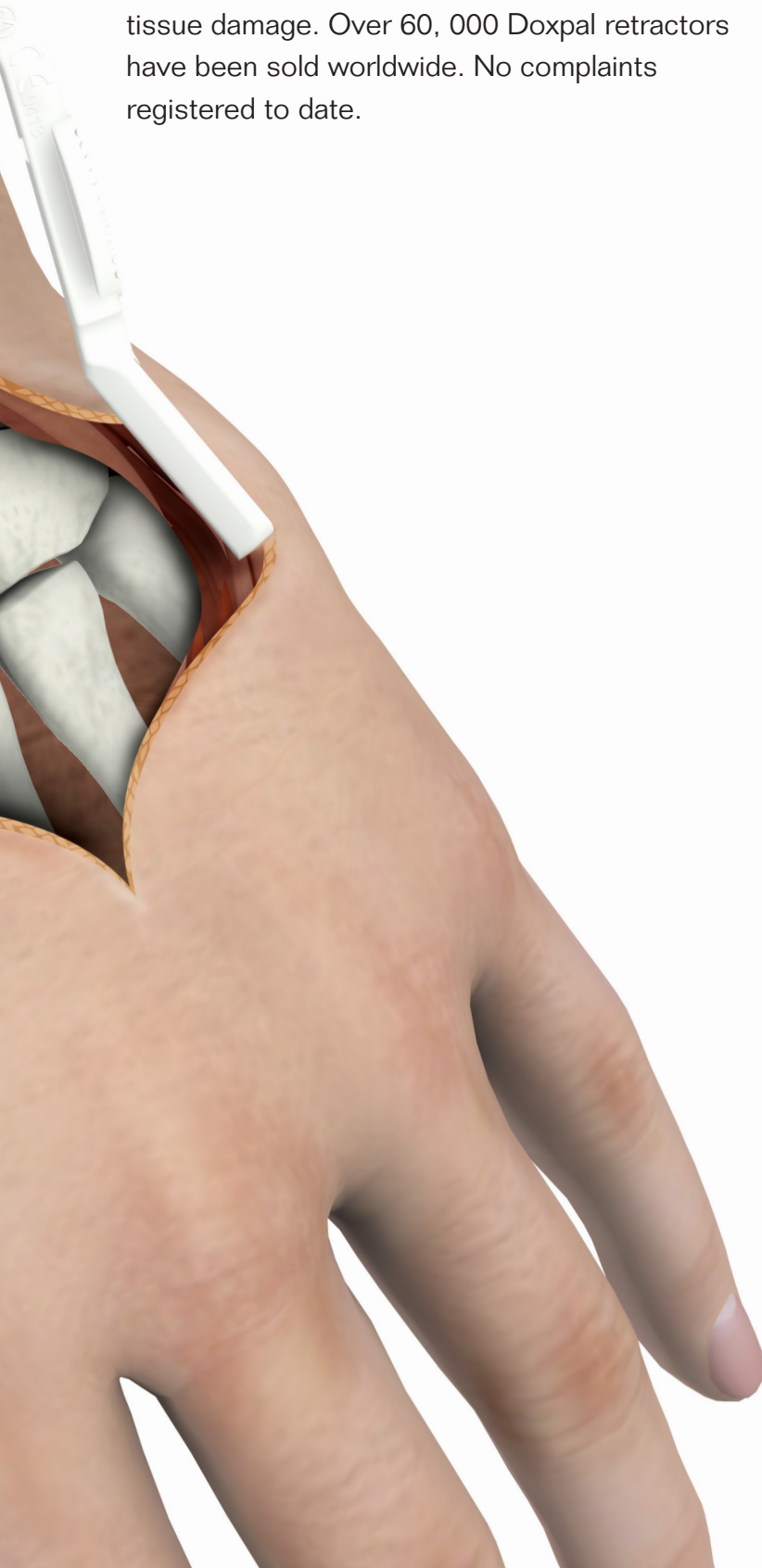
## Self-adjusting

Doxpal retractors self-adjust the tension against the tissue. The operation nurse does not have to assist the surgeon with adjustment of the retractor. Instead he/she can be helpful with the instruments required without any disruption.



## Limited tissue pressure

Doxpal retractors will never apply more tissue pressure than that needed to squeeze it together. The purpose of this limitation is to make the device predictable for the surgeon, thus making it easier to avoid retractor induced tissue damage. Over 60, 000 Doxpal retractors have been sold worldwide. No complaints registered to date.



## Low risk of falling out

The weight of a Doxpal retractor is only 10% of the weight of a metal retractor, which minimizes the risk of the retractor falling out or sagging during surgery. This feature is especially important when using a lateral approach in the lower extremity.

## Always available

Doxpal single-use retractors are delivered sterile, ready for immediate use.

- No time-consuming cleaning process.
- No risk of shortage of necessary retractors in the sterile storage.
- Guaranteed free of contaminants such as tissue residue, toxins or microorganisms.



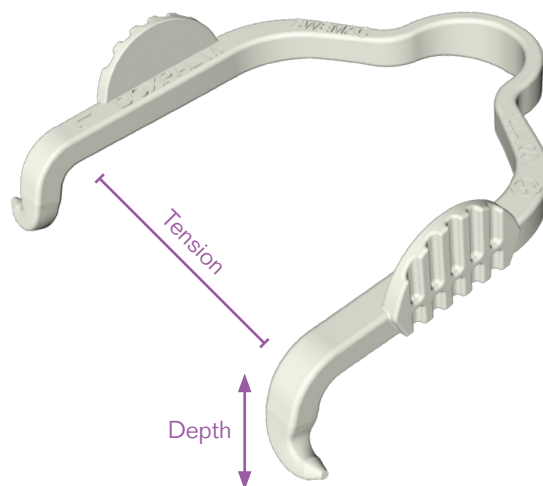
# Doxpal sizes

Doxpal retractors are available in different sizes and each size is available with two different tensions; Low and High.

## Micro – Low and High

Suitable for minor surgeries such as dorsal incisions on hand and foot.

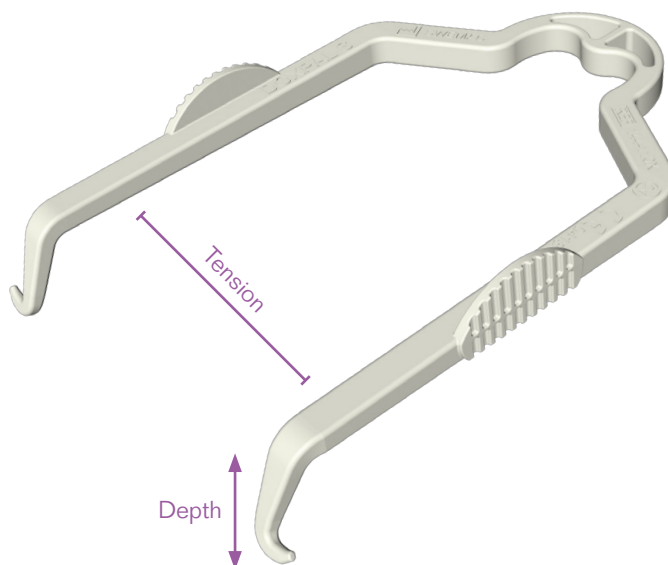
Technical data	
No. of Prongs	1
Tension Low	~2 N
Tension High	~4 N
Length	49 mm
Depth	7 mm
Neutral width	50 mm
Sterility time	5 years

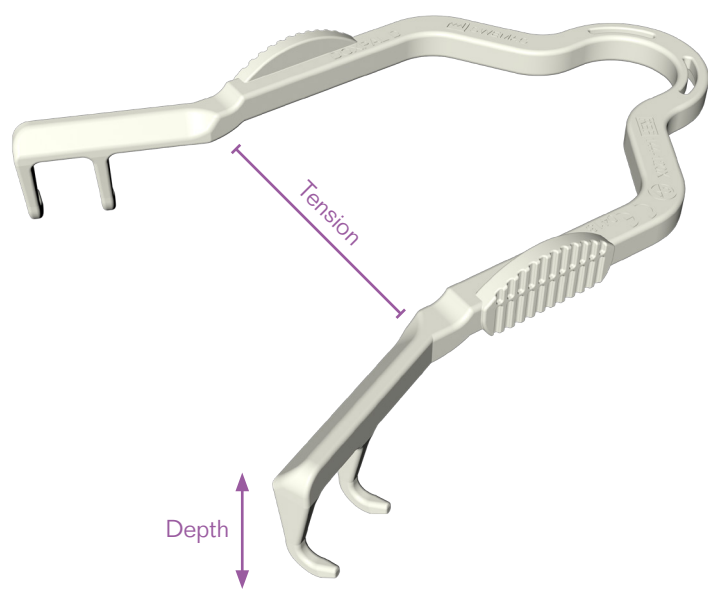


## Single – Low and High

Suitable for minor surgeries.

Technical data	
No. of Prongs	1
Tension Low	~7 N
Tension High	~10 N
Length	117 mm
Depth	15 mm
Neutral width	84 mm
Sterility time	5 years





## Double – Low and High

Suitable for mid-size surgeries such as wrist, arm, elbow, clavicle and lower limb.

### Technical data

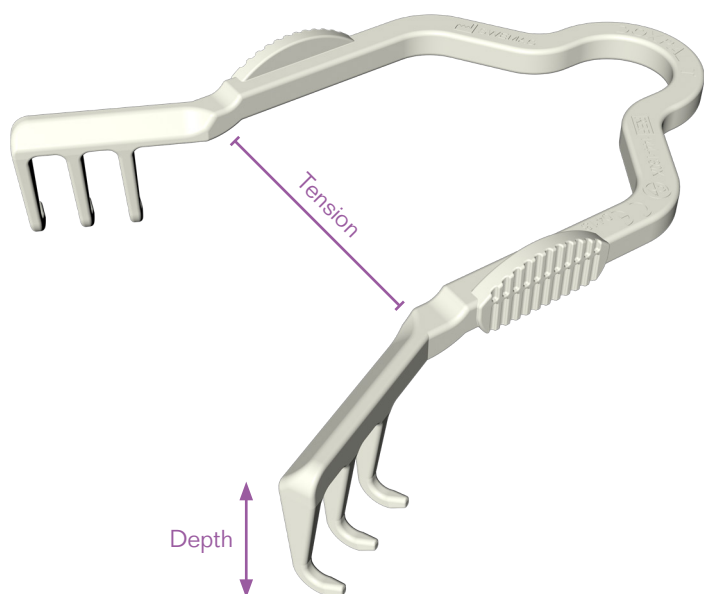
No. of Prongs	2
Tension Low	~9 N
Tension High	~19 N
Length	127 mm
Depth	17 mm
Neutral width	114 mm
Sterility time	5 years

## Triple – Low and High

Suitable for mid-size surgeries such as wrist, arm, elbow, clavicle, shoulder and lower limb.

### Technical data

No. of Prongs	3
Tension Low	~16 N
Tension High	~22 N
Length	127 mm
Depth	22 mm
Neutral width	117 mm
Sterility time	5 years



# Instructions for use

**Doxpal must only be used by professional surgeons thoroughly familiar with the product and the methods of application.**

1. Make your incision. Fig 1.
2. The Doxpal retractor is available in multiple variants with different prong designs and different tension. Make sure that the appropriate variant is selected to ensure that the retractor can be positioned correctly and that tissue pressure is minimized. Avoid touching the prongs with surgical gloves.
3. Squeeze the Doxpal retractor together, using the finger grip. Fig 2.
4. Insert the Doxpal retractor so that the prongs are beneath the edges of the incision; release the grip carefully, after which the incision will be held open. Fig 2 and 3.
5. Following further exposure the Doxpal retractor can be reset deeper in the surgical incision. There is a risk of tissue damage in event of prolonged heavy pressure on a single area. It is advisable to change the position of the Doxpal retractor from time to time during surgery.
6. Doxpal retractors can be used effectively in pairs and in combination with other sizes for optimum accessibility. Fig 4.
7. When the operation is concluded, squeeze the Doxpal retractor together to remove it.
8. Dispose of the Doxpal retractor along with other disposable materials.



Fig 1



Fig 2



Fig 3



Fig 4

## Precautions

Inspect the sterile packaging prior to surgery. The product shall be discarded if the product or package seems damaged, contaminated or if, for any reason, there is doubt regarding sterility.

## Reference article

**Sandborg M.** Measurement of entrance air kerma rate on anthropomorphic phantoms in relation to Doxpal® Double and Doxpal® Hip/Spine and their metallic counterparts i.e. the Weitlander and Adson self-retaining retractor. Medical Radiation Physics Department, Linköping University Hospital, Sweden.

# Product information

## Doxpal

Doxpal Micro Low   Length 49 mm   Tension ~2 N	144-1001S
Doxpal Micro High   Length 49 mm   Tension ~4 N	144-1002S
Doxpal Single Low   Length 117 mm   Tension ~7 N	144-1101S
Doxpal Single High   Length 117 mm   Tension ~10 N	144-1102S
Doxpal Double Low   Length 127 mm   Tension ~9 N	144-1201S
Doxpal Double High   Length 127 mm   Tension ~19 N	144-1202S
Doxpal Triple Low   Length 127 mm   Tension ~16 N	144-1301S
Doxpal Triple High   Length 127 mm   Tension ~22 N	144-1302S

The Doxpal retractor was originally developed by Surgmate AB and is based on a patent by Dr. Olof Risto, Orthopaedic Department, University Hospital Linköping, Sweden, and Dr. Stefan Lind, Orthopaedic Department, County Hospital Ryhov, Jönköping, Sweden.

The Doxpal Self-retaining Retractor is a patented product with world wide protection.

### Warnings

**Do not use the device without reading the Instructions For Use, which can be downloaded in PDF format from the Swemac website <http://www.swemac.com/ifu/IFU-0144/>**

- Do not apply the Doxpal prongs directly to nerves, tendon or major veins.
- Doxpal is not intended to be used in direct contact with the central nervous or central circulatory systems.
- There will be a risk of tissue damage due to prolonged heavy pressure on a single area. It is advisable to change position of Doxpal from time to time during surgery.
- Doxpal must only be used by a professional surgeon who is thoroughly familiar with the product and the methods of application.
- Doxpal are available in different sizes and versions. It is important to select the appropriate size due to the location and depth of the wound and in respect of the risk exposure.
- Do not touch sharp edges of the Doxpal prongs.
- Breakage or damage may occur if Doxpal is subjected to excessive loads or come into contact with other instruments, such as reamers or saw blades.
- If either the product or package seems damaged, contaminated or if sterility is questioned for any reason, the product shall not be used.
- The Doxpal retractor is not intended for long term use.

# IFU

For the latest version of this Instruction For Use. Please visit:  
<http://download.swemac.com/Doxpal>

Swemac develops and promotes innovative solutions for fracture treatment and joint replacement. We create outstanding value for our clients and their patients by being a very competent and reliable partner.

# Swemac

Doxpal Self-retaining Retractor

Manufacturer



**Swemac Innovation AB**

**CE 0413**

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