Stable fixation even in poor-quality bone
Faster bone healing
Enhanced patient quality of life
Simple plate technique
**Key concepts of osteosynthesis**

In 1958, the AO\(^1\) defined the four principles of osteosynthesis:

- Anatomical reduction of the fracture
- Stable internal fixation appropriate to the anatomical requirements
- Protection of bone blood supply
- Early and safe patient mobilization

These guidelines yielded better clinical results such as faster bone healing and reduced complications such as defects and pseudoarthrosis.

**Problematic bone healing – also in cardiac surgery**

Up to 5% of all patients\(^2\) experience instabilities and sternum infections after median sternotomies.

Traditional reconstruction techniques such as re-wiring and muscle flap repair involve risks:

- **Insufficient fixation leads to instability**
- **Wires cutting through the sternum**
- **Ineffective solution for patients with poor bone quality**
Osteosynthesis in cardiac surgery – The sternum fixation system

**Indication**
- Reliable secondary reconstruction
- Safe primary occlusion in patients with poor bone quality

**Stable fixation**
- Secure sternum closure due to a locking plate system

**Faster bone healing**
- Faster and more reliable healing

**Enhanced patient quality of life**
- Reduction of symptoms such as pain and “cracking” of the sternum
- Earlier extubation
- Improved esthetic results in comparison to muscle flap repair

**Simple and secure plate system**
- Easy to handle instruments
- Easy and quick re-entry in cardiac emergency cases with the emergency release pin.
**Emergency release pin**

Most plates consist of two parts which are joined by a U-shaped release pin

- Quick and easy sternal re-entry in cardiac emergencies
- Easy to re-close by inserting a new pin

---

**Safety and stability provided by the locking system**

- Threads in the plate hole and screw head enable screws to be tightly and permanently locked
- Excellent fixation stability even when bone quality is poor
- Reduced risk of screw loosening
- Reduced plate/bone contact protects the blood supply
- Simplified adaptation to the rib contour
Wide variety of sternum plates

H-shaped and star-shaped sternum locking plates for the manubrium

Sternal Locking Plate 2.4, straight, 12 holes (available with 8, 12, 20 or 30 holes)

Sternal Locking Plate 2.4, straight, 13 holes* without Emergency Release Pin

Sternal body plates for primary closure

* Contraindicated for primary closure of the sternum

Option:
self-tapping or self-drilling screws

Easy to handle instruments
Bending pliers enable easy plate adaptation in every plane
Drill guide for precise drilling and insertion of screws
Drill with stop in different lengths prevents excessively deep drilling
Titanium Sternal Fixation System.
Stable internal fixation of the sternum.

Synthes – In the service of health

Synthes is an internationally leading company in medical technology.
Over 10,000 employees worldwide are involved in serving the needs of surgeons, surgical support staff and patients. Synthes – a company specializing in the field of osteosynthesis – develops, produces and markets surgical instruments, implants, and biomaterials for the surgical treatment of bone fractures and reconstructions of the human skeleton and its associated soft tissue.

The main goal of Synthes is to provide safe and highly advanced implants, surgical instruments and technologies that enable reliable operations, fast healing and a complaint-free life after surgery. We guarantee high quality, continuous innovation and a focused customer orientation.

AO – A medically oriented non-profit organization in the service of surgeons and patients

Synthes works closely with the AO Foundation, and is licensee of the products bearing the brand name Synthes.

AO stands for “Arbeitsgemeinschaft für Osteosynthesefragen” [Association for the Study of Osteosynthesis]. The foundation boasts more than 5,000 surgeons who participate in AO activities throughout the world – one of the largest networks in the field of medicine. In the professional world, this surgeon-led, scientific non-profit organization focused on treating bone fractures and diseases of the musculoskeletal system is a pioneer in research, documentation and development.

Yet even the best implants and instruments are useless if they are not used properly. AO International, the arm of the foundation responsible for training, annually organizes more than 160 AO courses throughout the world that offer practical exercises and discussions. Since the beginnings of the AO, experienced AO physicians have provided theoretical and practical training for more than 500,000 surgeons and more than 150,000 surgical support staff members.

Notes, Bibliography

1 AO stands for “Arbeitsgemeinschaft für Osteosynthesefragen” [Association for the Study of Osteosynthesis]. The AO Foundation and “AO philosophy” are viewed as the professional standard for trauma surgery worldwide. The initials “AO” have become a household name among an international network of surgeons.


3 Pictures provided with the collegial approval of André Plass, M.D., Unispital Zürich