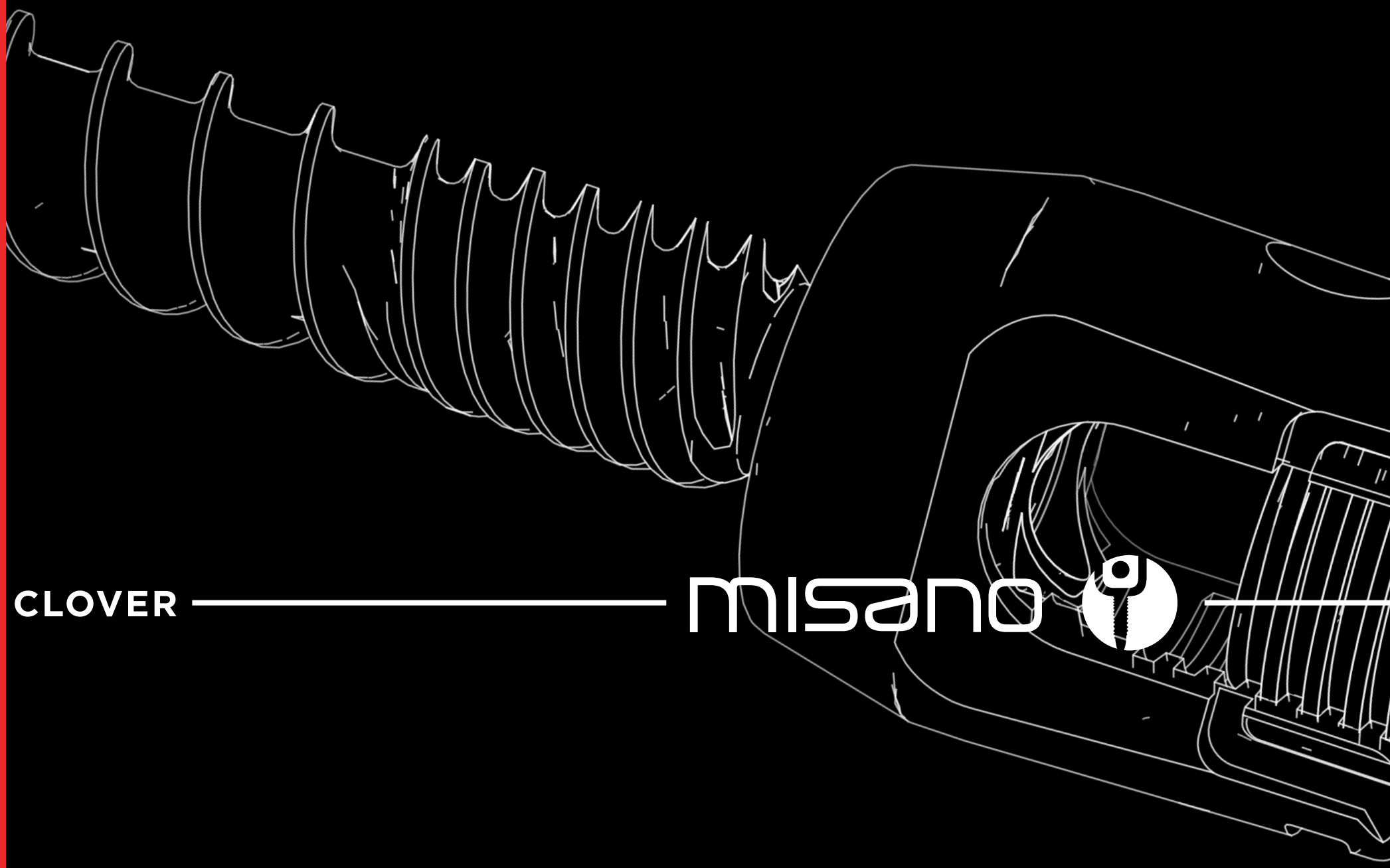
CLOVER

misano



misano

CLOVER

- Complete set of sizes for open, mis and deformity procedures
- Self-tapping screw for insertion even without tapping
- Great mechanical properties
- Double thread for improved sealing
- Sophisticated yet compact instrumentation
- Cannulated screw for injection of cement or bone substitute
- Sterile packaging

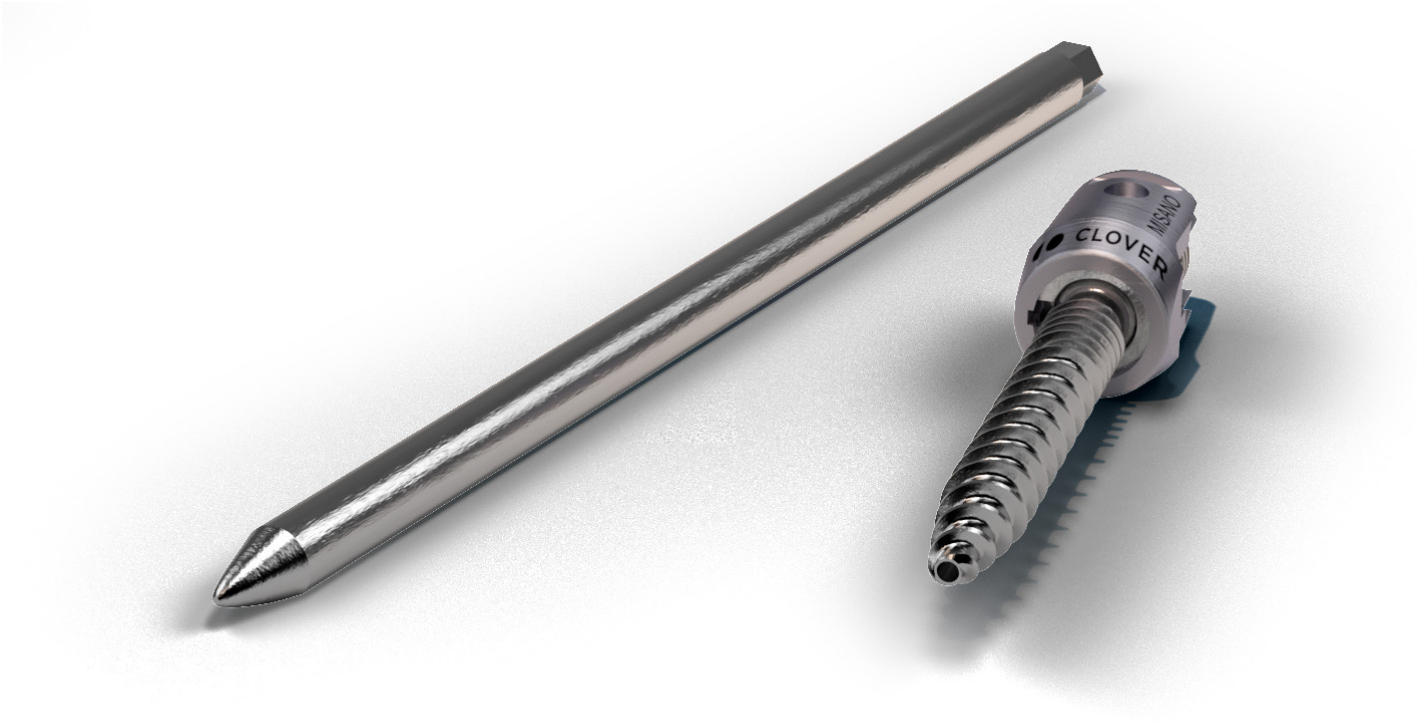
Stabilization system thoracolumbar vertebral

Misano is the first stabilization system thoracolumbosacral, totally made of titanium, which allows the use of a single pedicle screw for the treatment of all degenerative, traumatic, and deformity pathologies. The self-tapping screw can be inserted without the aid of the tap, has a specific two-principle thread at the distal level that ensures rapid implantation, which then changes to a four-principle thread also ensuring a high pedicle seal. The screws are also always cannulated to allow insertion with the aid of a guide wire and fenestrated to allow cementing.

The Misano thoracolumbosacral stabilization system from Clover Orthopedics consists of single- and polyaxial pedicle screws, clamping nuts, straight and precurved titanium and cobalt-chrome bars, a wide range of hooks, offsets, connectors, and cross-links, and is used to facilitate a solid arthrodesis of the treated portion of the spine.

misano

CLOVER



Appropriately used, the Misano thoracolumbar-sacral stabilization system from Clover Orthopedics is indicated to promote the development of solid thoracic, lumbar and sacral arthrodesis.

It is recommended in cases of spinal deformity, degenerative disc disease, traumatic vertebral fractures, vertebral tumors, spinal stenosis, spondylolisthesis, pseudoarthrosis, and previous unsuccessful attempts at vertebral arthrodesis.
Any surgical decisions other than those recommended by the manufacturer are at the discretion and responsibility of the surgeon.

Do not use 4.5 mm diameter screws in the lumbar and lumbosacral spine, and do not couple 4.5 mm diameter screws with CoCr rods.

Features

TITANIUM ALLOY

ALLOY CO-CR
UPON REQUEST

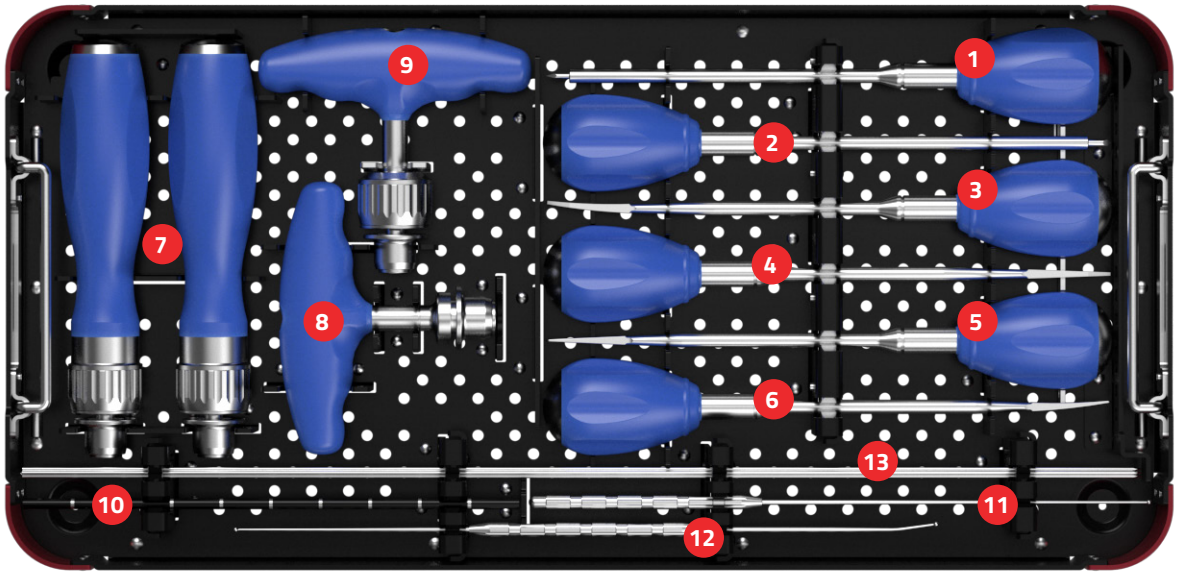
ETO STERILE

#LESSISMORE

INSTRUMENTS

Clover has invested heavily in instrument design and care with the goal of creating ergonomic, functional, and compact instrumentation.
Designed for the surgeon and his team.

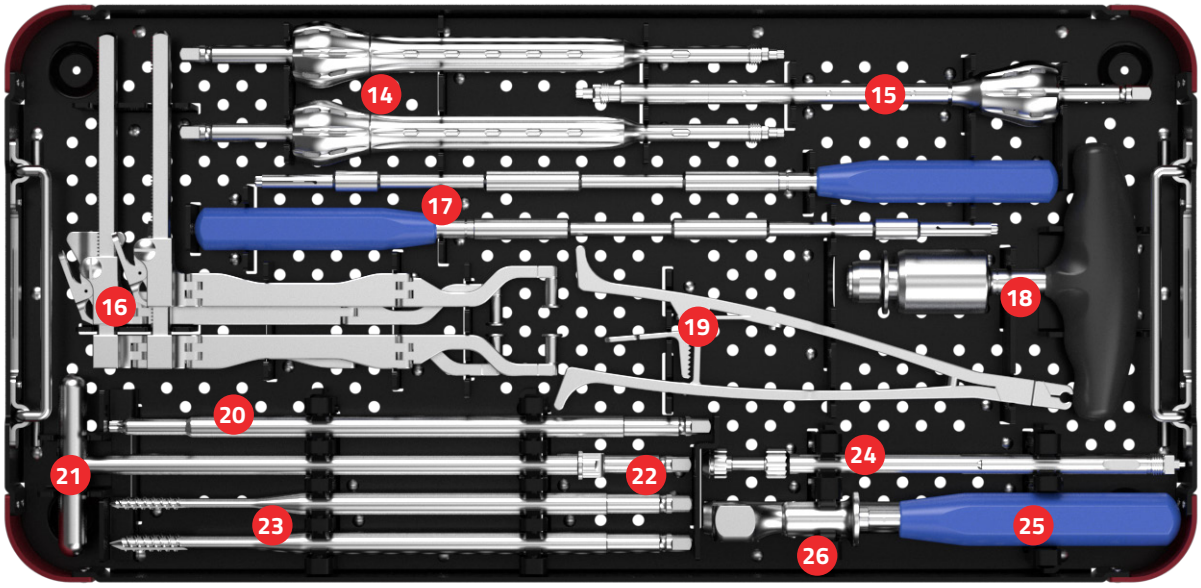
CASE 1 | TRAY 1



1	THORACIC AWL	MSN-A0SS02510S
2	LUMBAR AWL	MSN-A0SS03208S
3	NARROW GEAR SHIFT PROBE CURVED	MSN-B1SS00000S
4	NARROW GEAR SHIFT PROBE STRAIGHT	MSN-B0SS00000S
5	GEAR SHIFT PROBE STRAIGHT	MSN-B0SS00001S
6	GEAR SHIFT PROBE CURVED	MSN-B1SS00001S
7	RATCHETING HANDLE	MSN-H0SS00100S
8	T-HANDLE	MSN-H1SS00000S
9	RATCHETING T-HANDLE	MSN-H1SS00100S
10	ROD TEMPLATE L200 D5.5	MSN-M0AL00000S
11	SOUNDING 2MM	MSN-C0SS00000S
12	DOUBLE SOUNDING 2MM	MSN-C1SS00000S
13	KIRCHNER WIRES	MSN-K0NT00500S

INSTRUMENTS

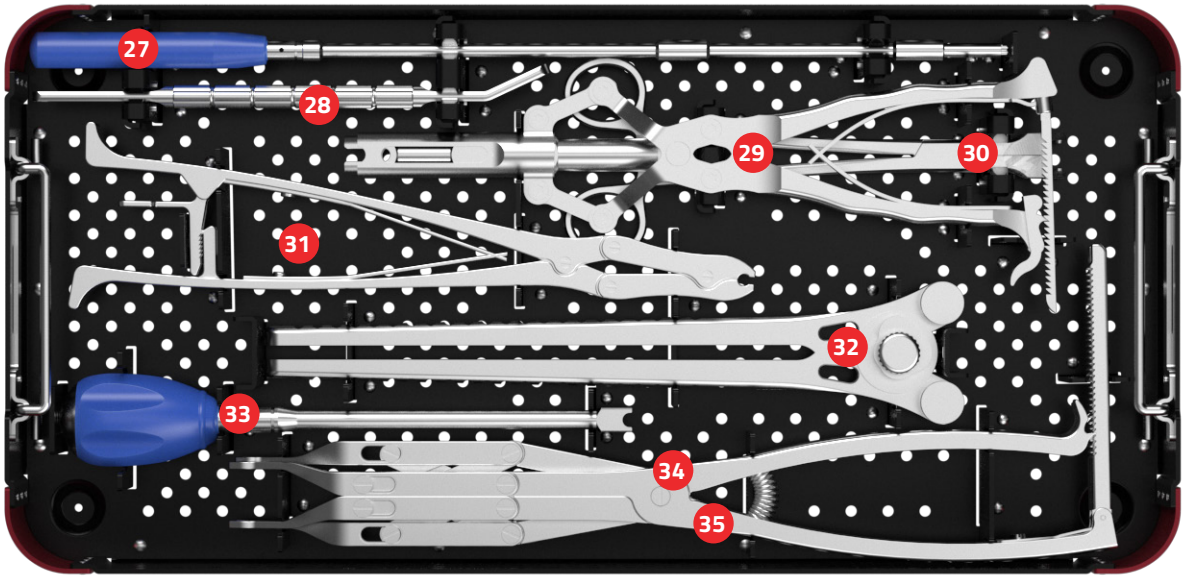
CASE 1 | TRAY 2



14	POLYAXIAL SCREWDRIVER	MSN-I1SS25120S
15	POLYAXIAL CANNULATED SCREWDRIVER	MSN-I2SS23920S
16	CASPAR	MSN-N0SS00001S
17	CAP HOLDER	MSN-I0SS30025S
18	DINAMOMETRIC T-HANDLE 9Nm	MSN-H1SS00090S
19	ROD HOLDER	MSN-D0SS00001S
20	CAP SCREWDRIVER	MSN-I1SS28525S
21	TULIP ALIGNMENT	MSN-K0SS00227S
22	FREEHAND POLYAXIAL SCREWDRIVER	MSN-I1SS28520S
23	TAP 4.5MM	MSN-J0SS00045S
	TAP 5.5MM	MSN-J0SS00055S
	TAP 6.5MM	MSN-J0SS00065S
	TAP 7.5MM	MSN-J0SS00075S
24	CEMENT NEEDLE ADAPTER	MSN-K0SS00200S
25	COUNTER TORQUE HANDLE	MSN-Q0SS00000S
26	LOSCKSCREW GUIDE TOWER	MSN-Q0SS00002S

INSTRUMENTS

CASE 2 | TRAY 1



27	CAP HOLDER LONG	MSN-I0SS38025S
28	HAEXAGONAL WRENCH	MSN-Q0SS00001S
29	PERSUADER	MSN-P0SS00005S
30	ROCKER	MSN-P0SS00003S
31	ROD GRIPPER	MSN-E1SS00000S
32	ROD BENDER	MSN-F0SS00000S
33	ROD PUSHER	MSN-P0SS00000S
34	DISTRACTOR	MSN-N1SS00000S
35	COMPRESSOR	MSN-N0SS00000S

INSTRUMENTS

THORACIC AWL MSN-A0SS02510S

LUMBAR AWL MSN-A0SS03208S

NARROW GEAR SHIFT
PROBE CURVED MSN-B1SS00000S

NARROW GEAR SHIFT
PROPED STRAIGHT MSN-B0SS00000S

GEAR SHIFT
PROBE CURVED MSN-B1SS00001S

GEAR SHIFT
PROBE STRAIGHT MSN-B0SS00001S

RATCHETING HANDLE MSN-H0SS00100S

RATCHETING T HANDLE MSN-H1SS00100S

T HANDLE MSN-H1SS00000S

ROD TEMPLATE L200 D5.5 MSN-M0AL00000S

INSTRUMENTS

SOUNDING 2MM MSN-C0SS00000S

SOUNDING 2MM DOUBLE MSN-C1SS00000S

POLYAXIAL SCREWDRIVER MSN-I1SS25120S

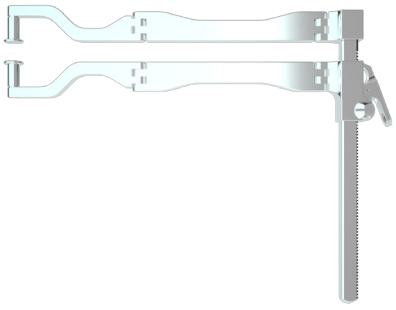
POLYAXIAL CANNULATED SCREWDRIVER MSN-I2SS23920S

FREEHAND POLYAXIAL SCREWDRIVER MSN-I1SS28520S

CAP HOLDER MSN-I0SS30025S

CAP SCREWDRIVER MSN-I1SS28525S

CASPAR MSN-N0SS00001S



ROD HOLDER MSN-D0SS00001S

DINAMOMETRIC
T HANDLE 9Nm MSN-H1SS00090S

INSTRUMENTS

TULIP ALIGNMENT MSN-K0SS00227S

TAP 4.5MM MSN-J0SS00045S

TAP 5.5MM MSN-J0SS00055S

TAP 6.5MM MSN-J0SS00065S

TAP 7.5MM MSN-J0SS00075S

KIRCHNER WIRES MSN-K0NT00500S

COUNTER-TORQUE HANDLE MSN-Q2SS00000S

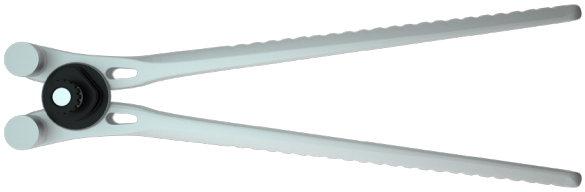
LOCKSCREW GUIDE
DEROTATION TOWER MSN-Q0SS00002S

ROD PUSHER MSN-P0SS00000S

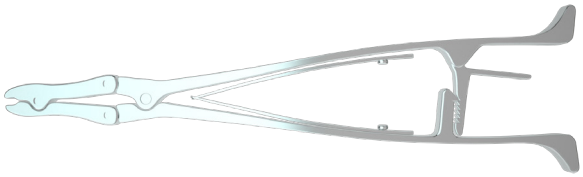
HEAXGONAL WRENCH MSN-Q0SS00001S

INSTRUMENTS

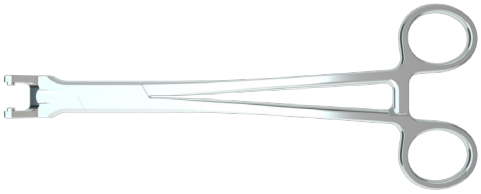
ROD BENDER MSN-F0SS00000S



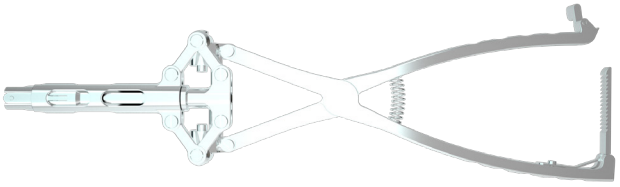
ROD GRIPPER MSN-E1SS00000S



ROCKER FORCEPS MSN-P0SS00003S

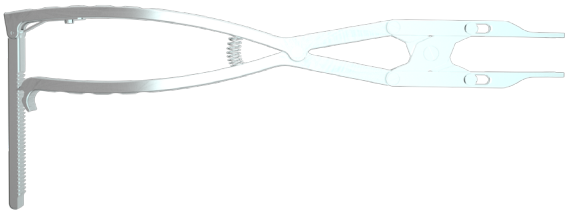


PERSUADER MSN-P0SS00005S

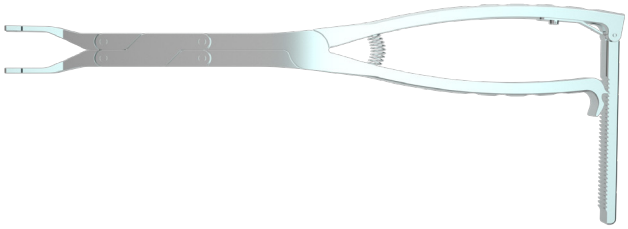


CEMENT NEEDLE ADAPTER MSN-K0SS00200S

PARALLEL DISTRACTOR MSN-N1SS00000S

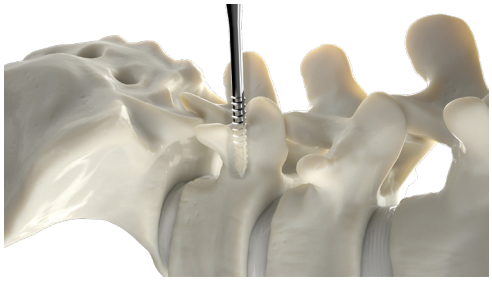


PARALLEL COMPRESSOR MSN-N0SS00000S



OPEN SURGICAL TECHNIQUE

1 —



Preparation of the pedicle screw

After determining the entry point proceed via **thoracic or lumbar aw**l through the pedicle.

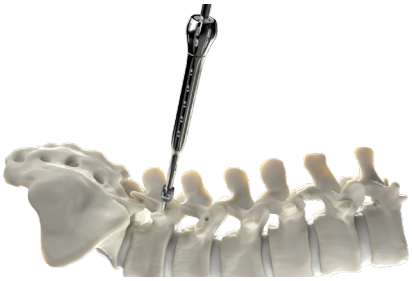
Subsequently, open the pedicle canal with the **curved or straight gear shift**.

Use the **straight or curved sounding** to assess the integrity of the pedicle walls.

Although Misano pedicle screws are self-tapping, **taps** can be used to prepare the screw housing. Tapping undersized by one size relative to the selected screw size is recommended. The taps - available in diameters 4.5 mm, 5.5 mm, 6.5 mm, 7.5 mm and 8.5 mm - must be assembled to the **handle**. The thread length is 30 mm.

All of the above tools are laser-marked at 10 mm intervals to display depth and aid in selecting the appropriate screw length.

2 —



Inserting the screw

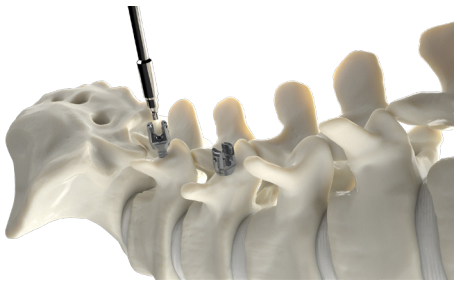
Connect the **polyaxial screwdriver** to the **ratcheting handle**:

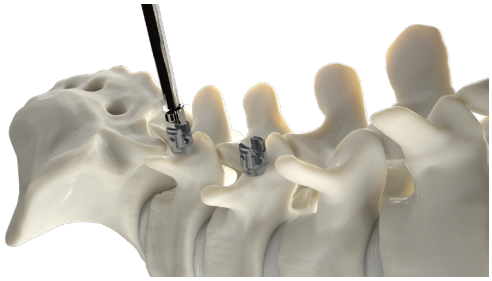
- connect the **screwdriver** to the screw by inserting its tip inside the tulip until the thread reaches the head of the screw and then turn the screwdriver nut clockwise to make the final tightening;

- proceed to implant the screw.

Once the desired insertion depth is reached, the screwdriver is disengaged from the screw by turning the screwdriver nut counterclockwise.

3 —





Adjustment of the screw head

If necessary, you can use the **freehand screwdriver** by placing the tip of the screwdriver directly in contact with the stem of the screw. Tighten or unscrew the screw to the desired depth.

The head of the polyaxial screw can be aligned using the **tulip alignment**.

OPEN SURGICAL TECHNIQUE

Opt. —

Cementing

Connect the **cement needle adapter** by inserting its tip inside the screw, and then turn the guide ring clockwise to make the final tightening.

After checking that the two elements are firmly seated together, proceed to introduce the disposable bone filler to cement the screw.
Before injecting the cement, make sure that the bone filler has come to rest against the screw stem.

4 —

Rod preparation

Once all screws are in place use the **rod template** to determine the length of the final bar.

If necessary to bend and shape the bars you can use the **rod bender**.

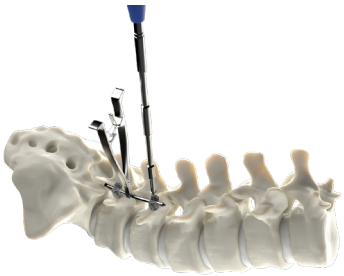
5 —

Positioning the rod

Place the previously selected bar inside the screw head with the **rod holder**.

OPEN SURGICAL TECHNIQUE

6A —



Positioning of the clamping nut — A

To ensure proper positioning of the clamping nut on the screw, the **lockscrew guide derotation tower** can be used. The latter has a slightly larger distal end that is positioned over the head of the screw. At the same time, by exerting downward pressure, you properly seat the bar inside the screw. You can then proceed to position the clamping nut with the **cap holder**.

If necessary, the **rod pusher** can be used.

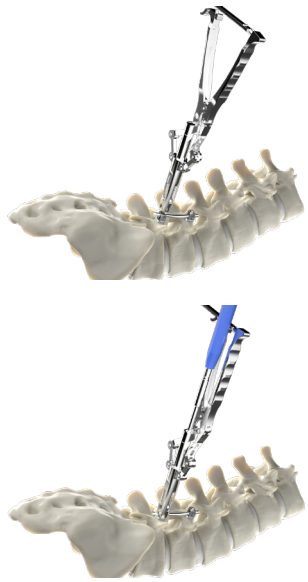
6B —

Positioning of the clamping nut — B

As an alternative to the **rod pusher**, the **rocker** can be used. Grasp the waist head with the rocker, subsequently deflect the rocker downward until the bar is fully inserted into the screw head. Then insert a clamping nut using the **cap holder**.

OPEN SURGICAL TECHNIQUE

6C —



Positioning of the clamping nut — C

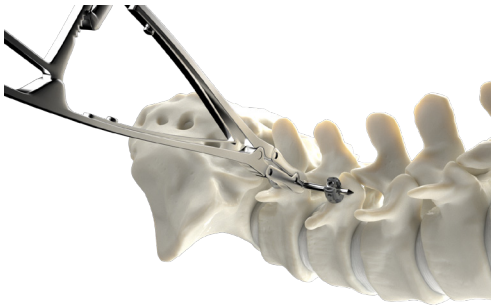
Alternatively, it is possible to use the **axial persuader with folding handle**, which allows, with greater force, the bar to be brought closer to the head of the screw and the tightening nut then positioned.

With the handles fully open, engage the persuader to the tulip of the screw. By then tightening the handles, the mechanism lowers the bar until it is inserted into the head of the screw.

Next, introduce the clamping nut inside the persuader using the long clamping **cap holder.**

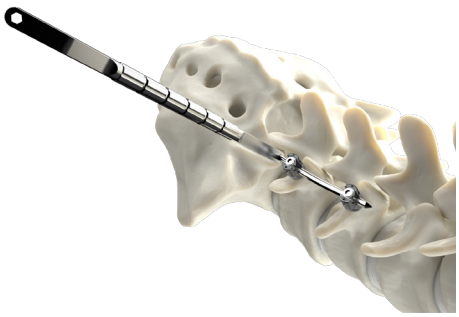
Then release the persuader from the screw tulip by releasing the handles.

7 —



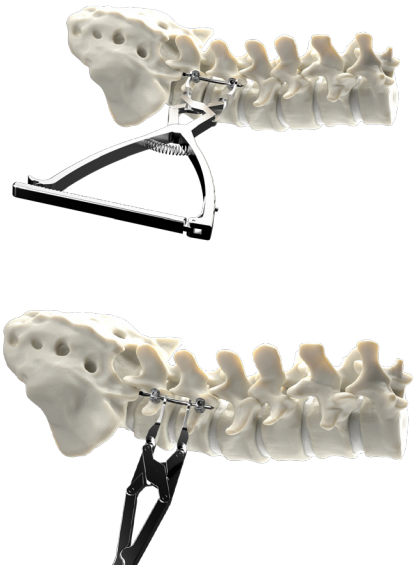
Rod rotation

If it is necessary to rotate the bar before final clamping, use the **rod gripper**.



Alternatively, the hexagonal end of the bar allows the additional use of the **hexagonal wrench**.

8 —



Compression and Distraction

Once the bar has been fully inserted into all polyaxial screw heads and the clamping nuts are in place, distraction or compression can be performed using the **distractor** or **compressor**.

9 —

Final tightening

Proceed to the final tightening of the system.

Final tightening is carried out using the **countertorque** system, consisting of the **countertorque handle** connected to the **lockscrew guide derotation tower**, and the **cap screwdriver** previously assembled to the **9Nm dynamometric T-handle**.

REV04EN
04|02|25

misano
monza
evo
dixi
recon-i
rally

MONOAXIAL SCREW CANNULATED - FENESTRATED	D5.5 D6.5 D7.5 D8.5	FROM L30 TO L55 FROM L30 TO L55 FROM L30 TO L55 FROM L30 TO L55
POLIAXIAL SCREW CANNULATED - FENESTRATED	D4.5 D5.5 D6.5 D7.5 D8.5 D9.5	FROM L25 TO L40 FROM L30 TO L55 FROM L30 TO L55 FROM L30 TO L90 FROM L30 TO L90 FROM L45 TO L90
TITANIUM PRECURVED ROD	D5.5	FROM L25 TO L100
TITANIUM ROD	D5.5	FROM L110 TO L500
CO-CR ROD	D5.5	FROM L110 TO L500
CLAMPING CAP FOR SCREWS AND HOOKS		
DOMINOES		
LONGITUDINAL CONNECTION ELEMENT		
MODULAR CROSSLINK		S - M - L - XL
ANGLED OFFSET		FROM L20 TO L60
OFFSET		FROM L20 TO L60
LUMBAR WIDE HOOK		FROM SIZE 7 TO SIZE 11
PEDICLE HOOK		FROM SIZE 5 TO SIZE 9
TORACHIC LAMINAR HOOK		FROM SIZE 5 TO SIZE 9
OLBIQUE HOOK - DX/SX		
OFFSET HOOK - DX/SX		
LUMBAR NARROW HOOK		FROM SIZE 7 TO SIZE 11

Clover Orthopedics s.r.l.
Via Gadames n. 57/7, c.a.p. 20151 Milano

M. info@cloverorthopedics.com
W. cloverorthopedics.com

T. +39 02 457 902 31
F. +39 02 457 902 66

CE
0426

SISTEMA DI GESTIONE QUALITÀ CERTIFICATO
ITALCERT
UNI CEI EN ISO 13485:2016
UNI EN ISO 9001:2015