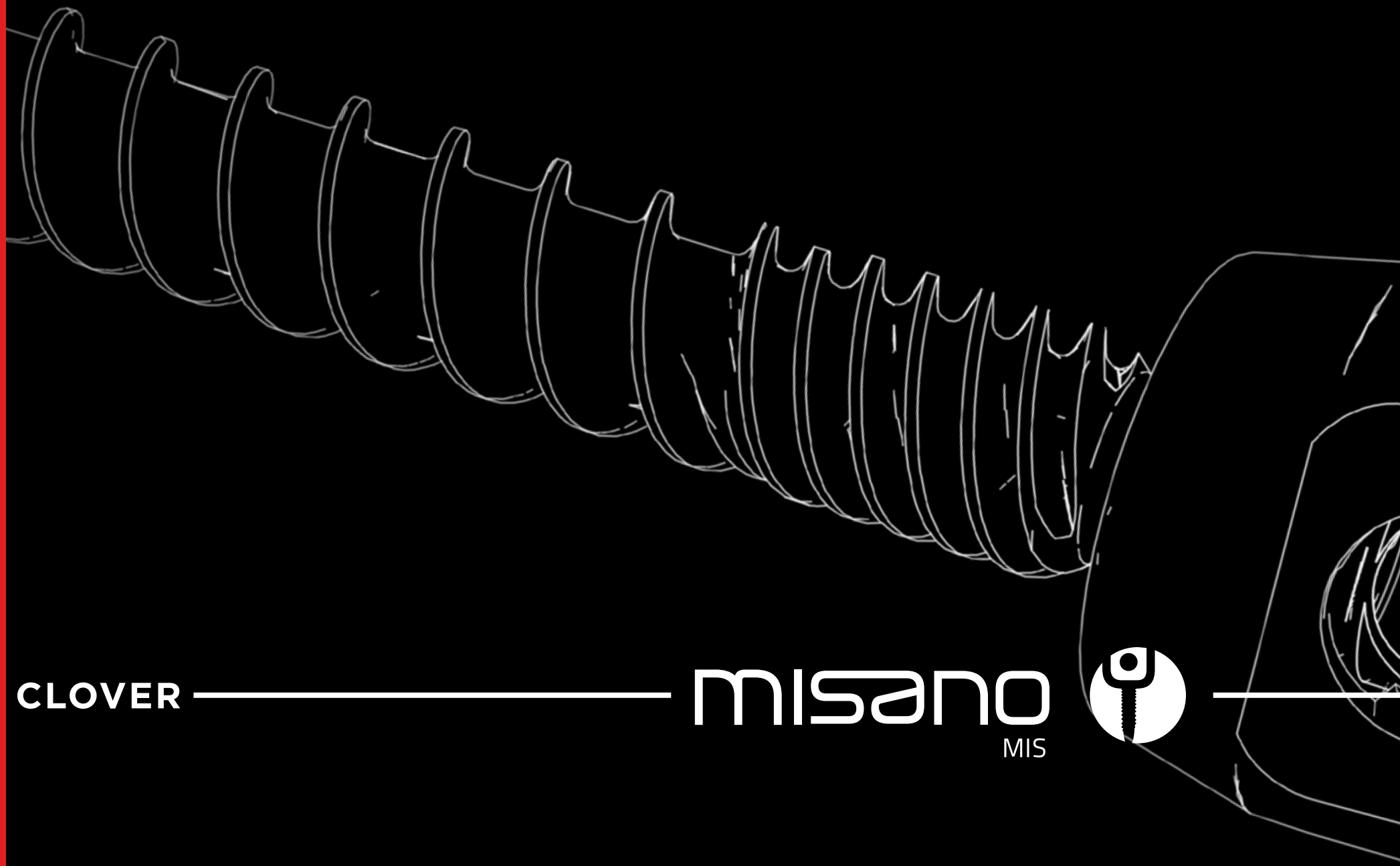


CLOVER

misano

MIS

- 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 transitions to four-principles while 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 pre-curved 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 MIS

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 pathology, 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

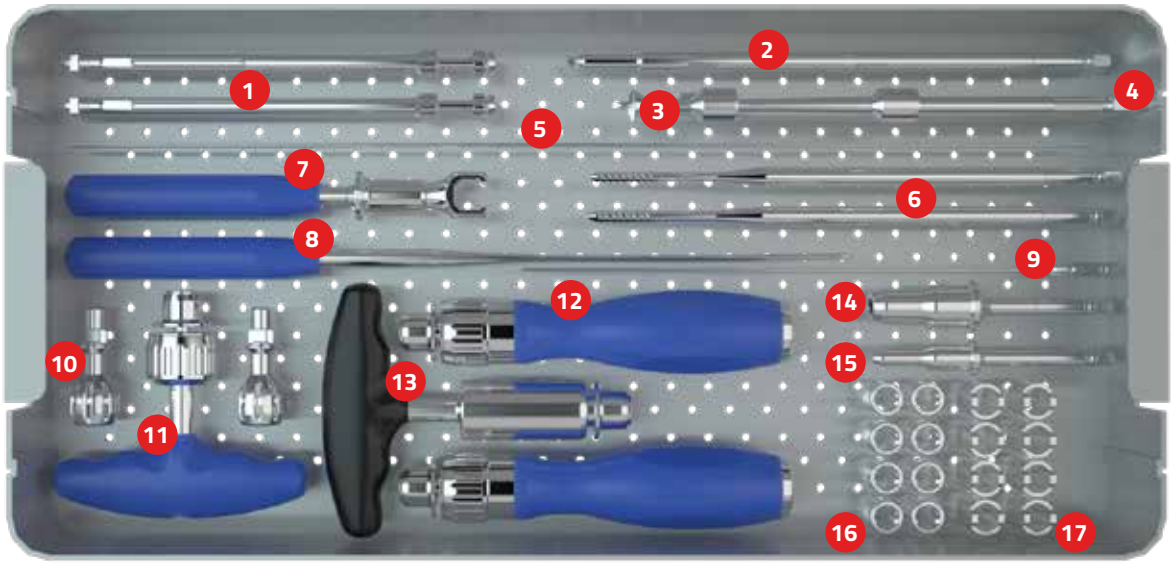
ETO STERILE

#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.

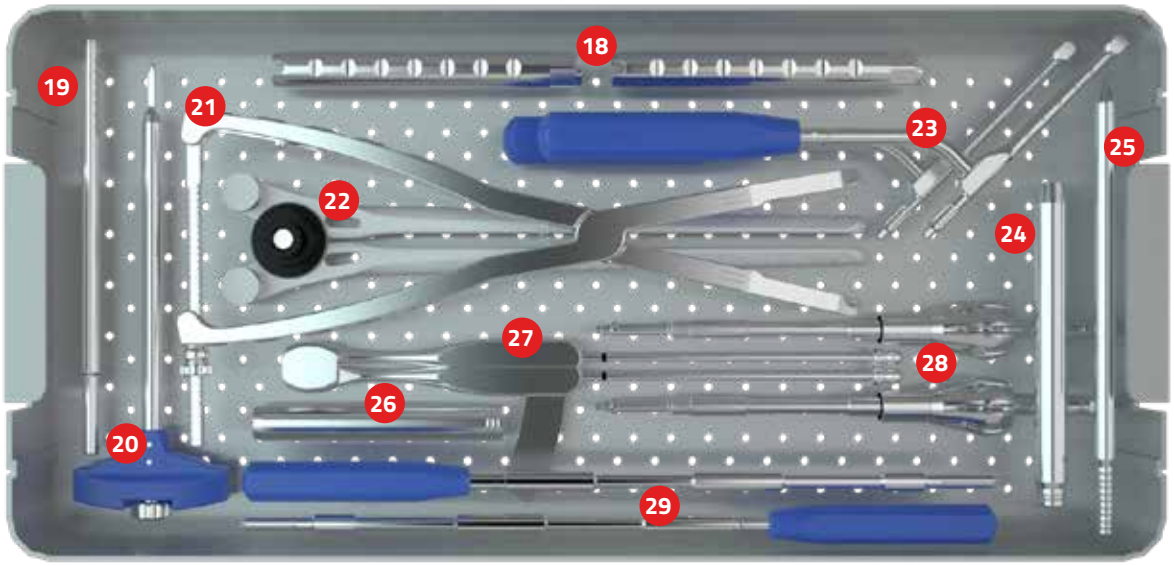
TRAY 1



1	CEMENT NEEDLE ADAPTER	MSN-K0SS00200S
2	DUAL LEAD CAP SCREWDRIVER	MSN-I1SS28525S
3	REAMING AWL	MSN-A1SS03507S
4	SCREW TAB REMOVER	MSN-Z2SS00002S
5	GUIDE WIRE TROCAR	MSN-K0NT00500S
6	TAP 4.5MM	MSN-J0S S00045S
	TAP 5.5MM	MSN-J0SS00055S
	TAP 6.5MM	MSN-J0SS00065S
	TAP 7.5MM	MSN-J0SS00075S
7	COUNTER TORQUE HANDLE	MSN-H2SS00000S
8	TISSUE DISSECTOR	MSN-T0SS00000S
9	PIPE CLEANER	MSN-J2SS00000S
10	TULIP ALIGNMENT	MSN-K0SS00055S
11	RATCHETING T HANDLE	MSN-H1SS00100S
12	RATCHETING HANDLE	MSN-H0SS00100S
13	DINAMOMETRIC T HANDLE 9NM	MSN-H1SS00090S
14	PIVOT 2	MSN-Z1SS00002S
15	PIVOT 1	MSN-Z1SS00001S
16	SUPERIOR RING	MSN-K2SS00015S
17	SLIDING RING	MSN-K2SS00025S

INSTRUMENTS

TRAY 2



18	MIS GAUGE	MSN-K3SS00138S
19	MIS ROD PUSHER	MSN-P1SS00001S
20	MIS TROCAR	MSN-A1SS02922S
21	MIS COMPRESSOR	MSN-N0SS00002S
22	ROD BENDER	MSN-F0SS00000S
23	MIS ROD HOLDER	MSN-D1SS00000
24	DILATOR N.2	MSN-L2SS14409S
25	DILATOR N.1	MSN-L0SS20002S
26	DILATOR N.3	MSN-L2SS11514S
27	MIS CALIPER	MSN-M1SS00000S
28	DUAL LEAD MIS SCREWDRIVER	MSN-I2SS23520S
29	CAP HOLDER	MSN-I0SS30025S

INSTRUMENTS

CEMENT NEEDLE ADAPTER MSN-K0SS00200S

CAP SCREWDRIVER MSN-I1SS28525S

DUAL LEAD MIS SCREWDRIVER MSN-I2SS23520S

GUIDE WIRE TROCAR MSN-K0NT00500S

COUNTER TORQUE HANDLE MSN-H2SS00000S

TAP 4.5MM MSN-J0SS00045S

TAP 5.5MM MSN-J0SS00055S

TAP 6.5MM MSN-J0SS00065S

TAP 7.5MM MSN-J0SS00075S

TAP 8.5MM MSN-J0SS00085S

INSTRUMENTS

RATCHETING HANDLE MSN-H0SS00100S

TULIP ALIGNMENT MSN-K0SS00055S

RATCHETING T HANDLE MSN-H1SS00100S

DINAMOMETRIC T HANDLE 9Nm MSN-H1SS00090S

MIS ROD HOLDER MSN-D1SS00000

DILATOR N.1 MSN-L0SS20002S

DILATOR N.2 MSN-L2SS14409S

DILATOR N.3 MSN-L2SS11514S

MIS ROD PUSHER MSN-P1SS00001S

MIS TROCAR MSN-A1SS02922S

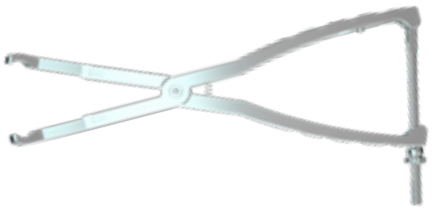
INSTRUMENTS

CAP HOLDER MSN-I2SS24520S

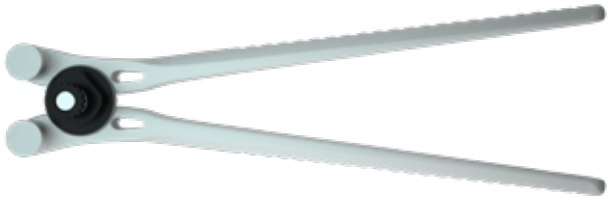
REAMING AWL MSN-A1SS13507S

MIS CALIPER MSN-M1SS00000S

MIS COMPRESSOR MSN-N0SS00002S



ROD BENDER MSN-F0SS00000S

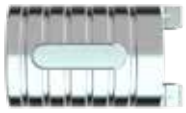


PIPE CLEANER MSN-J2SS00000S

TISSUE DISSECTOR MSN-T0SS00000S

MIS GAUGE MSN-K3SS00138S

SLIDING RING MSN-K2SS00025S



SUPERIOR RING MSN-K2SS00015S

INSTRUMENTS

PIVOT 1 MSN-Z1SS00001S

PIVOT 2 MSN-Z1SS00002S

SCREW TAB REMOVER MSN-Z2SS00002S

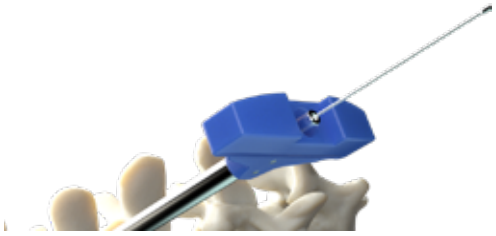
MIS SURGICAL TECHNIQUE

1 —

Preparation of the pedicle

After locating the access point, position the **trocar** and through radiographic control proceed to the inside of the pedicle.

Once the appropriate depth has been reached remove the core and handle, and insert the **guide wire** ensuring that it intercepts the vertebral body to ensure minimum anchorage to the vertebral body.



Then remove the trocar making sure not to move the guide wire.

Continue with the insertion of **dilator tube no. 1** and then **dilator tube no. 2** and **dilator tube no. 3**, which, thanks to the toothed termination allows anchorage to the articular process to prevent unwanted translation or displacement during manoeuvres.

MIS SURGICAL TECHNIQUE

Then remove **dilator tube No. 1**, checking that the guide wire remains in place, and should the operator wish to do so, prepare the screw housing with the **tapping tool**, which should be one size undersized in diameter from that of the screw you intend to place.

In case it is deemed appropriate, after removing **dilator tube No. 2** use the **reaming awl** to enable better positioning of the screw.

2 —

Screw assembly

Next proceed to the assembly of the screw.

Hook the **MIS screwdriver** onto the **ratcheting handle**.

Next assemble the screw to the **screwdriver** by inserting it inside the tulip and turn the ferrule clockwise to make the final tightening.

MIS SURGICAL TECHNIQUE

3 —

Screw insertion

Proceed to insert the screw inside the stalk following the **guide wire** and tighten.

Then slide out the **screwdriver**, turning counterclockwise the ferrule previously used to tighten the screw, remove the **guide wire** and **dilator tube No. 3**.

Insert the **sliding ring** along the tulip of the screw to prevent premature breakage of the screw, and if deemed appropriate, also insert the **superior ring** to prevent the screws from interfering with each other during subsequent operations.

Repeat the same operations for the insertion of subsequent screws.

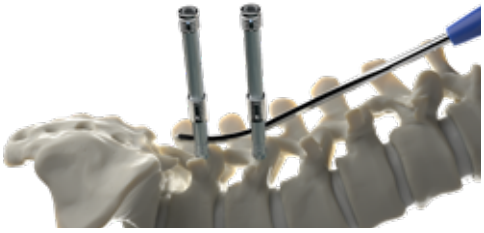
Opt. —

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 insertion

After positioning the screws, perform the measurement of the distance between them using appropriate **MIS caliper** in order to choose the appropriate bar.

Please note that the gauge shows the actual measurement between the screw heads, so it is recommended to insert a bar with a length at least 5 mm longer than that shown on the **MIS caliper**.

If it is considered appropriate, use the **tissue dissector** to create the necessary space for inserting the bar.

Connect the bar to the **MIS rod holder** by inserting the hexagonal part of the bar into the appropriate hole on the gauge and secure it to the gauge by turning the locking crown clockwise.

If necessary, the bar can be bent and shaped using the **bar bending pliers**.

Then insert the bar by passing inside the tulips previously aligned according to a hypothetical sagittal plane.

5 —

Inserting the tightening nut

Using the **rod pusher** you can both check that the rod is seated correctly and push the rod down.

When you are certain that the bar has been properly seated in all screws, insert the nuts with the appropriate nut locators.

Once the nuts are in place, attach the **ratcheting handle** to the **cap screwdriver** and tighten the locknuts until the rod is pushed into the tulips.

Once the rod is secured to the screws, pull the rings out of the tulips.

6 —

Compression and distraction

Cover the tulips with **MIS gauge** and use **pivot 1** or **pivot 2** as the fulcrum of action in the center of the cannulas-after securing them to a handle.

To perform a compression, use the **MIS compressor** and compress below the **pivot**.

To perform a distraction, use the **MIS compressor** and compress above the **pivot**.

7 —

Final tightening

With the help of the **counter torque handle** connected to the **MIS gauge** make the final closure with the **9Nm dynamometric T-handle** assembled to the **cap screwdriver.**

Pull the **MIS gauge** out of the tulips and then unscrew the **rod holder** using the locking crown and then remove the gauge.

8 —

Tulip removal

Using the **screw tab removal** coupled with a **handle**, hook each individual tulip and then pry it loose from the screw cup.

To avoid displacements or small deformations of the system caused by the force required to break the tulips, a **counter torque** coupled with a handle can be used.

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