## DHS/DCS Plate (Long/Short Barrel)

The Dynamic Hip Screw is designed to providestrong and stable internal fixation of a variety of intertrochanteric, subtrochanteric and basilar neck fractures, with minimal soft tissue irritation.The Dynamic Condylar Screw is designed to proved strong and stable internal fixation of certain distal femoral and subtrochanteric fractures, with minimal soft tissue irritation.

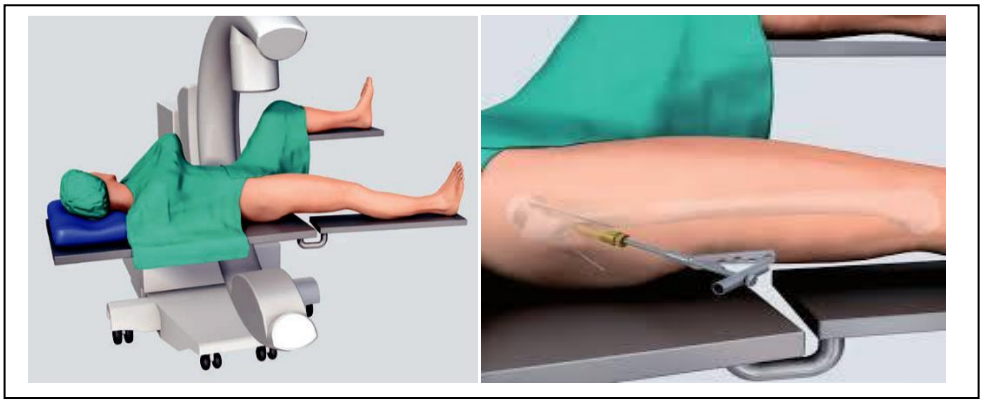
### 1. Preoperative planning

The size and angle of the plate as well as the length of the DHS Blade or Screw can be determined preoperatively by using the DHS Goniometer.

**Note:** If the DHS Blade is from 65 to 75 mm, a DHS plate with short barrel should be used to allow for Sufficient dynamization.

### 2. Position patient

Place the patient in a supine position on the operating table.

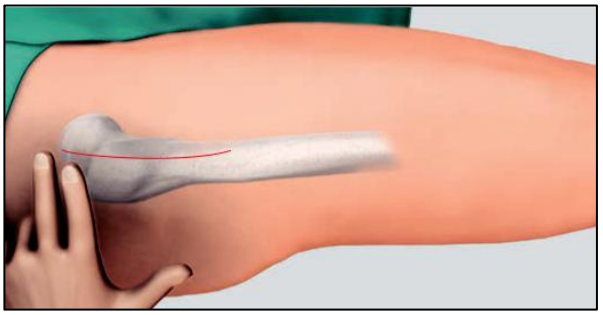


### 3. Reduce fracture

If possible, reduce the fracture under the image intensifier by means of traction, abduction and internal Rotation.

#### 4. Access

Make a straight lateral skin incision of approximately 15 cm in length, starting two finger-widths proximal to the tip of the greater trochanter. Split the iliotibia tract lengthwise. Detach the m. vastus lateralis dorsally to the intramuscular membrane, retract ventrally and, if necessary, make a slight notch in the muscle in the -region of the in nominate tubercle. Expose the proximal femoral shaft without retracting the periosteum.



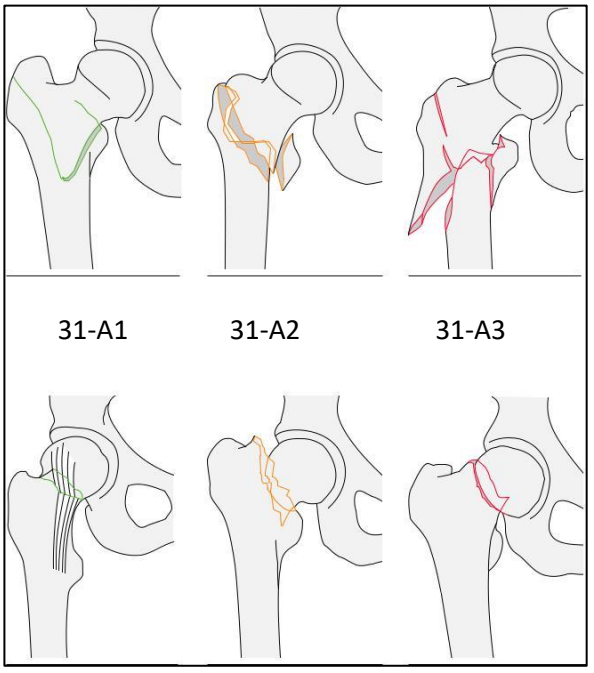
# DHS/DCS Plate Dynamic Hip and Condylar Screw

**Indications and Contraindications**
**DHS**

Including all combinations of DHS Screw, DHS Blade, DHS plate with DCP holes, LCP DHS plate and LCP DHS With collar-.

**Indications DHS**

- Pertrochanteric fractures of type 31-A1 and 31-A2 Intertrochanteric fractures of type 31-A3
- Basilar neck fractures 31-B (DHS Screw in conjunction with an antirotation screw)
- Subtrochanteric fractures



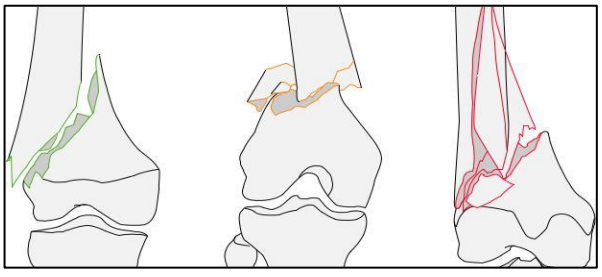

**Contraindications DHS**

The DHS is not to be used in cases where there is a high incidence of:

- Sepsis
- Malignant primary or metastatic tumors
- Material sensitivity
- Compromised vascularity Recommendations DHS
- DHS Blade: for osteoporotic patients
- DHS Screw B 14 mm: for revisions of DHS Screws B 13 mm
- LCP DHS: for the use of shorter plates, especially in the case of femoral neck fractures
- For certain subtrochanteric fractures, a 95º DCS plate is recommended.

**Trochanter Stabilizing Plate Indications**

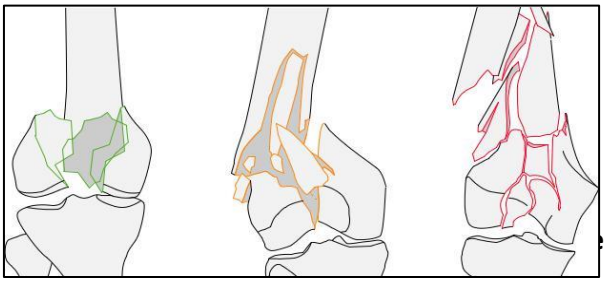
- Unstable pertrochanteric fractures of type 31-A2 and 31-A3, especially multi fragmentary fractures with a separated or longitudinally split greater trochanter




**DCS**
**Indications DCS**

- Proximal femur: Very proximally located, purely sub-trochanteric fractures of types 32-A and 32-B

- Distal femur: Fractures of type 33-A (extra-articular, Supracondylar) and fractures of type 33-C (fully articular Fractures)



**Contraindications DCS**

- Pertrochanteric fractures or trochanteric fractures with Subtrochanteric expansion (31-A3)

33-C1 33-C2 33-C3

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The Dynamic Hip Screw is designed to provide strong and stable internal fiction of a variety of intertrochanteric, subtrochanteric and basilar neck fractures, with minimal soft tissue irritation.

**Strong**

The DHS plates are made of 316l stainless steel and are cold worked strength.

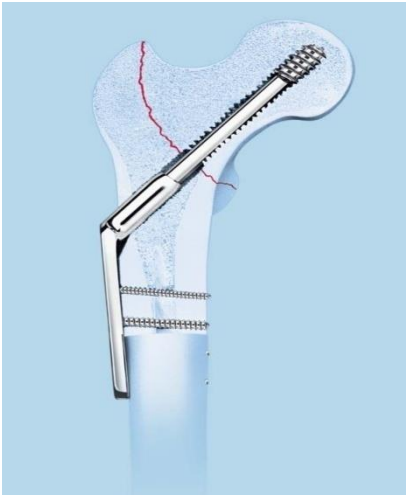
**Stable**

The number of screw holes per plate length is maximized, without compromising plate's strength. This allows an increased number of fixation points with a smaller incision.

DCP (dynamic compression plate) holes in the DHS side plate:

- Allow angulations of 4.5 mm cortex screws, for lag screw fixation of medial fragments, and
- Allow axial compression and multiple-screw fixation of the main fragment in subtrochanteric fractures with shaft extension

Two flats within the DHS plate barrel correspond to the two-flat design of the DHS / DCS lag screw, preventing rotation of the lag screw within the barrel. The two-flat design also eases insertion of the plate over the DHS/DCS lag screw.



**Minimal soft tissue irritation**

The DHS plates have a low-profile design, reducing the risk of trochanteric bursitis.

The DHS plates are available in a wide range of sizes and barrel angles, with standard or short barrels, for varied clinical situations.

The DHS / DCS lag screw, available from 50 mm to 145 mm lengths, easily glides within the DHS plate barrel for controlled collapse and impaction of fragments. When the fracture requires additional intraoperative compression, the DHS / DCS compression screw can be used; only one size compression screw is needed.

The DHS Instruments provide direct measurements throughout the DHS procedure, allowing proper reaming, tapping and lag screw insertion depth. The built-in stop and locking nut on the DHS triple reamer prevent over-reaming.

**Dynamic Condylar Screw (DCS)**

The Dynamic Condylar Screw is designed to provide strong and stable internal fixation of certain distal femoral and subtrochanteric fractures, with minimal soft tissue irritation.

**Strong**

The DCS plates are made of 316L stainless steel and are cold-worked for strength.

**Stable**

The two holes closest to the barrel accept 6.5 mm cancellous bone screws. This enhances stability by allowing additional fixation of the most distal condylar fracture fragments or fixation of the most proximal subtrochanteric fracture fragments.

# DHS/DCS Plate Dynamic Hip and Condylar Screw

DCP holes in the DCS side plate allow angulation of 4.5 mm cortex screws and axial compression across a Shaft fracture.

The number of screw holes per plate length is maximized, without compromising plate strength. This allows an increased number of fixation points with a smaller incision.

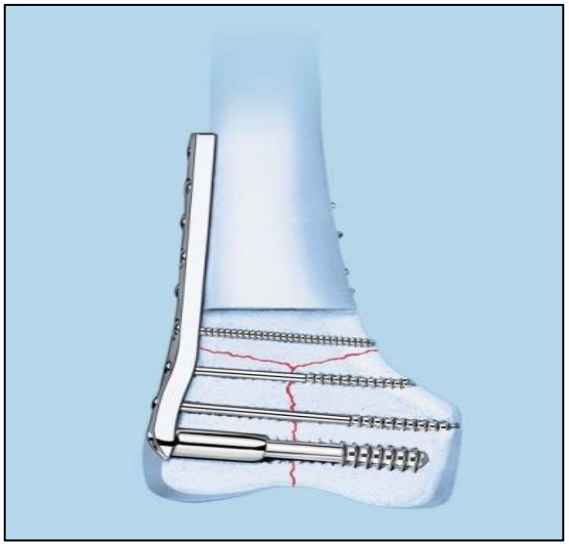
Two flats within the DCS plate barrel correspond to the two-flat design of the lag screw, preventing rotation of the DHS/DCS lag screw within the barrel. The two-flat design also eases insertion of the plate over the DHS / DCS lag screw.

**Minimal soft tissue irritation**

The low-profile design reduces the risk of iliotibia band irritation (distal femoral fractures) and trochanteric bursitis (subtrochanteric fractures).

The DCS plates are available with 6 to 16 holes, for varied clinical situations. The DHS/DCS lag screw is available in 50 mm to 145 mm lengths. The DHS/DCS compression screw can be used for additional compression; only one size compression screw is needed.

The DCS instruments also provide direct measurements throughout the DCS procedure, allowing proper reaming, tapping, and lag screw insertion depth. The built-in stop and locking nut on the DCS triple reamer prevent over-reaming



## Indications

**DHS**

The DHS is indicated for the following fractures of the proximal femur:

- Intertrochanteric fractures
- Subtrochanteric fractures*
- Basilar neck fractures

The DHS is indicated for stable fractures, and unstable fractures in which a stable medial buttress can be reconstructed. The DHS provides controlled collapse and compression of fracture fragments. This results in stable fixation and prevents undue stress concentration on the implant.

- For certain subtrochanteric fractures, a 95° device is the implant of choice (See "Using the DCS for Subtrochanteric Fractures,").

**DCS**

The DCS is indicated for the following fractures of the distal femur:

- Intercondylar fractures**
- Supracondylar fractures**
- Unicondylar fractures**

** The following anatomic conditions should exist:

- 4 cm of distal femur should remain intact to provide support for the implant.
- A distal portion of the medial condyle should be intact for the DHS/DCS lag screw to gain good purchase.

If these conditions do not exist, a 4.5 mm LCP condylar plate or LCP distal femur plate should be considered.

The DCS is indicated for the following fractures of the proximal femur:

- Transverse subtrochanteric fractures†
- Short oblique subtrochanteric fractures†
- Long oblique subtrochanteric fractures†

† With the lesser trochanter avulsed or on the distal fragment (femoral shaft).[1]

# DHS/DCS Plate Dynamic Hip and Condylar Screw

**Plate selection**

**Barrel length**

The standard 38 mm barrel length is most commonly Indicated.

The 25 mm short barrel is indicated for specific clinical situations, including:

- Cases in which the standard barrel may not provide sufficient glide for the lag screw; i.e., a long impaction distance is expected
- A medial displacement osteotomy
- Unusually small femurs

**Barrel angle**

An evaluation of the angle subtended between the femoral neck and shaft axes (CCD, or collum-center-diaphysis angle) of the uninjured femur will aid in the selection of the most appropriate barrel angle. The 135° barrel angle is most commonly indicated.

**Note:** Greater barrel angles may produce biomechanical advantages in unstable cases; i.e., better gliding characteristics and reduced bending stresses on the plate/barrel junction, although correct placement of the implant becomes technically more difficult as barrel angles increase.[2]


**SURGICAL TECHNIQUE**

**DHS PLATE**

Insert a new DHS/DCS guide wire at the desired angle with the correct angled guide. The guide wire should be placed in the middle of the femoral head and should -extend into the subchondral bone.

Read the length of the DHS Screw or Blade directly off the guide wire with the measuring device.

If the guide wire is inserted into the subchondral bone -remove 10 mm from the measurement Assemble the triple reamer.

Slide the reamer over the drill bit until it clicks into place.

Set the triple reamer at the length of the implant Selected.

Mount the centering sleeve from the side onto the tap and lock it into place by turning the inner sleeve clock-wise against the outer sleeve.

Insert the connecting screw into the wrench, slide an appropriate DHS plate onto it and connect the DHS Screw to the wrench. For DHS screws shorter than or equal to 75 mm, take a DHS plate with short barrel. Mount the centering sleeve onto the wrench.

Insert the DHS guide shaft for coupling screw shaft, Insert the DHS impactor, Insert the DHS Compression Screw with Screw

Driver.

**5400-INS-0014** D.H.S ANGLE GUIDE-135 °
**5400-INS-0013** Ø 2.5 MM THREADED GUIDE WIRE -230 MM
**5400-INS-0012** DIRECT MEASURING DEVICE ALUMINIUM
**5400-INS-0002** D.H.S. TRIPLE REAMER Q. C.
**5400-INS-0008** Ø 12.5 MM DHS TAP
**5400-INS-0004** D.H.S/D.C.S CENTERING SLEEVE, LONG FOR T-WRENCH

**5400-INS-0010** DHS/DCS GUIDE SHAFT FOR COUPLING SCREW SHORT
**5400-INS-0009** DHS/DCS COUPLING SCREW, SHORT FOR INSERTING DHS SCREW
**5400-INS-0011** D.H.S IMPACTOR
**5400-INS-0016** Ø 4.5 MM SCREW DRIVER-9"

Use the drill guide and the drill bit to drill holes in a neutral position through the plate holes. Insert self tapping 4.5 mm cortex screws of appropriate length. Insert the 4.5 mm drill bit Q.C.

**5400-INS-0026** Ø 4.5 MM/3.2 MM DOUBLE DRILL SLEEVE NORMAL
**5400-INS-0019** Ø 4.5 MM DRILL BIT Q. C. (8”)
**5400-INS-0022** Ø 4.5 MM DEPTH GAUGE
**5400-INS-0016** Ø 4.5 MM SCREW DRIVER-9"
**5400-INS-0023** Ø 4.5 MM SCREW DRIVER WITH HOLDING SLEEVE -9"

# DHS/DCS Plate Dynamic Hip and Condylar Screw

## Instruments

**5400-INS-0001** Q. C. T-HANDLE

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**5400-INS-0002** D.H.S. TRIPLE REAMER Q. C

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**5400-INS-0003** D.C.S. TRIPLES REAMER Q. C.

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**5400-INS-0004** D.H.S/D.C.S CENTERING SLEEVE, LONG
FOR T-WRENCH

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**5400-INS-0005** D.H.S/D.C.S T-WRENCH

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**5400-INS-0006** DHS/DCS COUPLING SCREW, LONG FOR
DHS SCREW REMOVAL

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**5400-INS-0007** D.H.S/D.C.S CENTERING SLEEVE, SHORT
FOR DHS SCREW TAP

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**5400-INS-0008** Ø 12.5 MM DHS TAP

**5400-INS-0009** DHS/DCS COUPLING SCREW, SHORT
FOR INSERTING DHS SCREW

**5400-INS-0010** DHS/DCS GUIDE SHAFT FOR COUPLING
SCREW SHORT

**5400-INS-0011** D.H.S IMPACTOR

**5400-INS-0012** DIRECT MEASURING DEVICE ALUMINIUM

**5400-INS-0013** Ø 2.5 MM THREADED GUIDE WIRE
230 MM

**5400-INS-0014** D.H.S ANGLE GUIDE 135 °

**5400-INS-0015** D.C.S. ANGLE GUIDE 95°

**5400-INS-0016** Ø 4.5 MM SCREW DRIVER-9"

# DHS/DCS Plate Dynamic Hip and Condylar Screw

**5400-INS-0017** Ø 4.5 MM BONE TAP

**5400-INS-0018** Ø 3.2 MM DRILL BIT Q. C. (8")

**5400-INS-0019** Ø 4.5 MM DRILL BIT Q. C. (8")

**5400-INS-0020** Q. C. T-HANDLE FOR DRILL BIT USE

**5400-INS-0021** VARIABLE ANGLE GUIDE

**5400-INS-0022** Ø 4.5 MM DEPTH GAUGE

**5400-INS-0023** 4.5 MM SCREW DRIVER WITH HOLDING SLEEVE -9"

**5400-INS-0024** Ø 4.5 MM SCREW DRIVER QUICK COUPLING

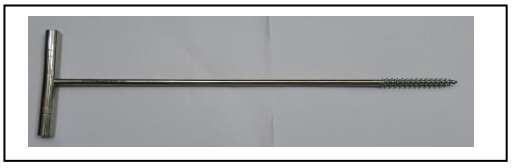
**5400-INS-0025** SCREW HOLDING FORCEP

**5400-INS-0026** Ø 4.5 MM/3.2 MM DOUBLE DRILL SLEEVE NORMAL

**5400-INS-0027** Ø 4.5 MM DCP DRILL GUIDE (NEUTRAL & LOADED)

**5400-INS-0028** Ø 4.5 MM BONE TAP CORTICAL WITH T-HANDLE

**5400-INS-0029** Ø 6.5 MM BONE TAP CANCELLOUS WITH T-HANDLE



**Implant Size:**

**125° LCP DHS PLATE LONG BARREL**

| SS316L | Titanium | Size |
|---|---|---|
| 1369-SS-2503 | 1369-TT-2503 | 3 HOLES |
| 1369-SS-2504 | 1369-TT-2504 | 4 HOLES |
| 1369-SS-2505 | 1369-TT-2505 | 5 HOLES |
| 1369-SS-2506 | 1369-TT-2506 | 6 HOLES |
| 1369-SS-2507 | 1369-TT-2507 | 7 HOLES |
| 1369-SS-2508 | 1369-TT-2508 | 8 HOLES |
| 1369-SS-2509 | 1369-TT-2509 | 9 HOLES |
| 1369-SS-2510 | 1369-TT-2510 | 10 HOLES |
| 1369-SS-2512 | 1369-TT-2512 | 12 HOLES |

# DHS/DCS Plate Dynamic Hip and Condylar Screw

**130° LCP DHS PLATE LONG BARREL**

| SS316L | Titanium | Size |
|---|---|---|
| 1369-SS-3003 | 1369-TT-3003 | 3 HOLES |
| 1369-SS-3004 | 1369-TT-3004 | 4 HOLES |
| 1369-SS-3005 | 1369-TT-3005 | 5 HOLES |
| 1369-SS-3006 | 1369-TT-3006 | 6 HOLES |
| 1369-SS-3007 | 1369-TT-3007 | 7 HOLES |
| 1369-SS-3008 | 1369-TT-3008 | 8 HOLES |
| 1369-SS-3009 | 1369-TT-3009 | 9 HOLES |
| 1369-SS-3010 | 1369-TT-3010 | 10 HOLES |
| 1369-SS-3012 | 1369-TT-3012 | 12 HOLES |
| 1369-SS-3014 | 1369-TT-3014 | 14 HOLES |
| 1369-SS-3016 | 1369-TT-3016 | 16 HOLES |

**135° LCP DHS PLATE LONG BARREL**

| SS316L | Titanium | Size |
|---|---|---|
| 1369-SS-3503 | 1369-TT-3503 | 3 HOLES |
| 1369-SS-3504 | 1369-TT-3504 | 4 HOLES |
| 1369-SS-3505 | 1369-TT-3505 | 5 HOLES |
| 1369-SS-3506 | 1369-TT-3506 | 6 HOLES |
| 1369-SS-3507 | 1369-TT-3507 | 7 HOLES |
| 1369-SS-3508 | 1369-TT-3508 | 8 HOLES |
| 1369-SS-3509 | 1369-TT-3509 | 9 HOLES |
| 1369-SS-3510 | 1369-TT-3510 | 10 HOLES |
| 1369-SS-3512 | 1369-TT-3512 | 12 HOLES |
| 1369-SS-3514 | 1369-TT-3514 | 14 HOLES |
| 1369-SS-3516 | 1369-TT-3516 | 16 HOLES |

**140° LCP DHS PLATE LONG BARREL**

| SS316L | Titanium | Size |
|---|---|---|
| 1369-SS-4003 | 1369-TT-4003 | 3 HOLES |
| 1369-SS-4004 | 1369-TT-4004 | 4 HOLES |
| 1369-SS-4005 | 1369-TT-4005 | 5 HOLES |
| 1369-SS-4006 | 1369-TT-4006 | 6 HOLES |
| 1369-SS-4007 | 1369-TT-4007 | 7 HOLES |
| 1369-SS-4008 | 1369-TT-4008 | 8 HOLES |
| 1369-SS-4009 | 1369-TT-4009 | 9 HOLES |
| 1369-SS-4010 | 1369-TT-4010 | 10 HOLES |
| 1369-SS-4012 | 1369-TT-4012 | 12 HOLES |
| 1369-SS-4014 | 1369-TT-4014 | 14 HOLES |
| 1369-SS-4016 | 1369-TT-4016 | 16 HOLES |

**125° LCP DHS PLATE SHORT BARREL**

| SS316L | Titanium | Size |
|---|---|---|
| 1370-SS-2503 | 1370-TT-2503 | 3 HOLES |
| 1370-SS-2504 | 1370-TT-2504 | 4 HOLES |
| 1370-SS-2505 | 1370-TT-2505 | 5 HOLES |
| 1370-SS-2506 | 1370-TT-2506 | 6 HOLES |
| 1370-SS-2507 | 1370-TT-2507 | 7 HOLES |
| 1370-SS-2508 | 1370-TT-2508 | 8 HOLES |
| 1370-SS-2509 | 1370-TT-2509 | 9 HOLES |
| 1370-SS-2510 | 1370-TT-2510 | 10 HOLES |
| 1370-SS-2512 | 1370-TT-2512 | 12 HOLES |

**130° LCP DHS PLATE SHORT BARREL**

| SS316L | Titanium | Size |
|---|---|---|
| 1370-SS-3003 | 1370-TT-3003 | 3 HOLES |
| 1370-SS-3004 | 1370-TT-3004 | 4 HOLES |
| 1370-SS-3005 | 1370-TT-3005 | 5 HOLES |
| 1370-SS-3006 | 1370-TT-3006 | 6 HOLES |
| 1370-SS-3007 | 1370-TT-3007 | 7 HOLES |
| 1370-SS-3008 | 1370-TT-3008 | 8 HOLES |
| 1370-SS-3009 | 1370-TT-3009 | 9 HOLES |
| 1370-SS-3010 | 1370-TT-3010 | 10 HOLES |
| 1370-SS-3012 | 1370-TT-3012 | 12 HOLES |
| 1370-SS-3014 | 1370-TT-3014 | 14 HOLES |
| 1370-SS-3016 | 1370-TT-3016 | 16 HOLES |

**135° LCP DHS PLATE SHORT BARREL**

| SS316L | Titanium | Size |
|---|---|---|
| 1370-SS-3503 | 1370-TT-3503 | 3 HOLES |
| 1370-SS-3504 | 1370-TT-3504 | 4 HOLES |
| 1370-SS-3505 | 1370-TT-3505 | 5 HOLES |
| 1370-SS-3506 | 1370-TT-3506 | 6 HOLES |
| 1370-SS-3507 | 1370-TT-3507 | 7 HOLES |
| 1370-SS-3508 | 1370-TT-3508 | 8 HOLES |
| 1370-SS-3509 | 1370-TT-3509 | 9 HOLES |
| 1370-SS-3510 | 1370-TT-3510 | 10 HOLES |
| 1370-SS-3512 | 1370-TT-3512 | 12 HOLES |
| 1370-SS-3514 | 1370-TT-3514 | 14 HOLES |
| 1370-SS-3516 | 1370-TT-3516 | 16 HOLES |

# DHS/DCS Plate Dynamic Hip and Condylar Screw

**140° LCP DHS PLATE SHORT BARREL**

| SS316L | Titanium | Size |
|---|---|---|
| 1370-SS-4003 | 1370-TT-4003 | 3 HOLES |
| 1370-SS-4004 | 1370-TT-4004 | 4 HOLES |
| 1370-SS-4005 | 1370-TT-4005 | 5 HOLES |
| 1370-SS-4006 | 1370-TT-4006 | 6 HOLES |
| 1370-SS-4007 | 1370-TT-4007 | 7 HOLES |
| 1370-SS-4008 | 1370-TT-4008 | 8 HOLES |
| 1370-SS-4009 | 1370-TT-4009 | 9 HOLES |
| 1370-SS-4010 | 1370-TT-4010 | 10 HOLES |
| 1370-SS-4012 | 1370-TT-4012 | 12 HOLES |
| 1370-SS-4014 | 1370-TT-4014 | 14 HOLES |
| 1370-SS-4016 | 1370-TT-4016 | 16 HOLES |

**95° LCP DCS PLATE**

| SS316L | Titanium | Size |
|---|---|---|
| 1322-SS-9504 | 1322-TT-9504 | 4 HOLES |
| 1322-SS-9505 | 1322-TT-9505 | 5 HOLES |
| 1322-SS-9506 | 1322-TT-9506 | 6 HOLES |
| 1322-SS-9507 | 1322-TT-9507 | 7 HOLES |
| 1322-SS-9508 | 1322-TT-9508 | 8 HOLES |
| 1322-SS-9509 | 1322-TT-9509 | 9 HOLES |
| 1322-SS-9510 | 1322-TT-9510 | 10 HOLES |
| 1322-SS-9511 | 1322-TT-9511 | 11 HOLES |
| 1322-SS-9512 | 1322-TT-9512 | 12 HOLES |
| 1322-SS-9514 | 1322-TT-9514 | 14 HOLES |
| 1322-SS-9516 | 1322-TT-9516 | 16 HOLES |
| 1322-SS-9518 | 1322-TT-9518 | 18 HOLES |

**Screws:**

**Ø4.5 MM CORTICAL SCREW - 14TPI - SELF TAPPING**
**1111-SS-4510/1111-SS-4580** SS 10 mm to 80 mm
**1111-TT-4510/1111-TT-4580** TT 10 mm to 80 mm

**Ø12.5 MM DHS SCREW WITH COMPRESSION SCREW**
**1123-SS-1245/ 1123-SS-12120** SS 45 mm to 120 mm
**1123-TT-1245/ 1123-TT-12120** TT 45 mm to 120 mm

**Ø6.5 MM LCP CANCELLOUS SCREW 16 MM THREADED**
**1421-SS-6525/1421-SS-65120** SS 25 mm to 120 mm
**1421-TT-6525/1421-TT-65120** TT 25 mm to 120 mm

**Ø6.5 MM LCP CANCELLOUS SCREW 32 MM THREADED**
**1422-SS-6540/1422-SS-65120** SS 40 mm to 120 mm
**1422-TT-6540/1422-TT-65120** TT 40 mm to 120 mm

**Ø6.5 MM LCP CANCELLOUS SCREW FULLY THREADED**
**1423-SS-6525/1423-SS-65100** SS 25 mm to 100 mm
**1423-TT-6525/1423-TT-65100** TT 25 mm to 100 mm

**Address:**

***Corporate Office***
*310, Sanket Avenue, Opp. Ambe Vidhyalaya,*
*Sama-savli road Vadodara-390024*

***Plant Office:***
*R.S.No. 99/2, P-2, Village & Post Karmasiya*
*Kheda Rasulabad – Vitoj Road,*
*Taluka - Waghodiya Dist. Vadodara-391510*
*Gujarat –India.*