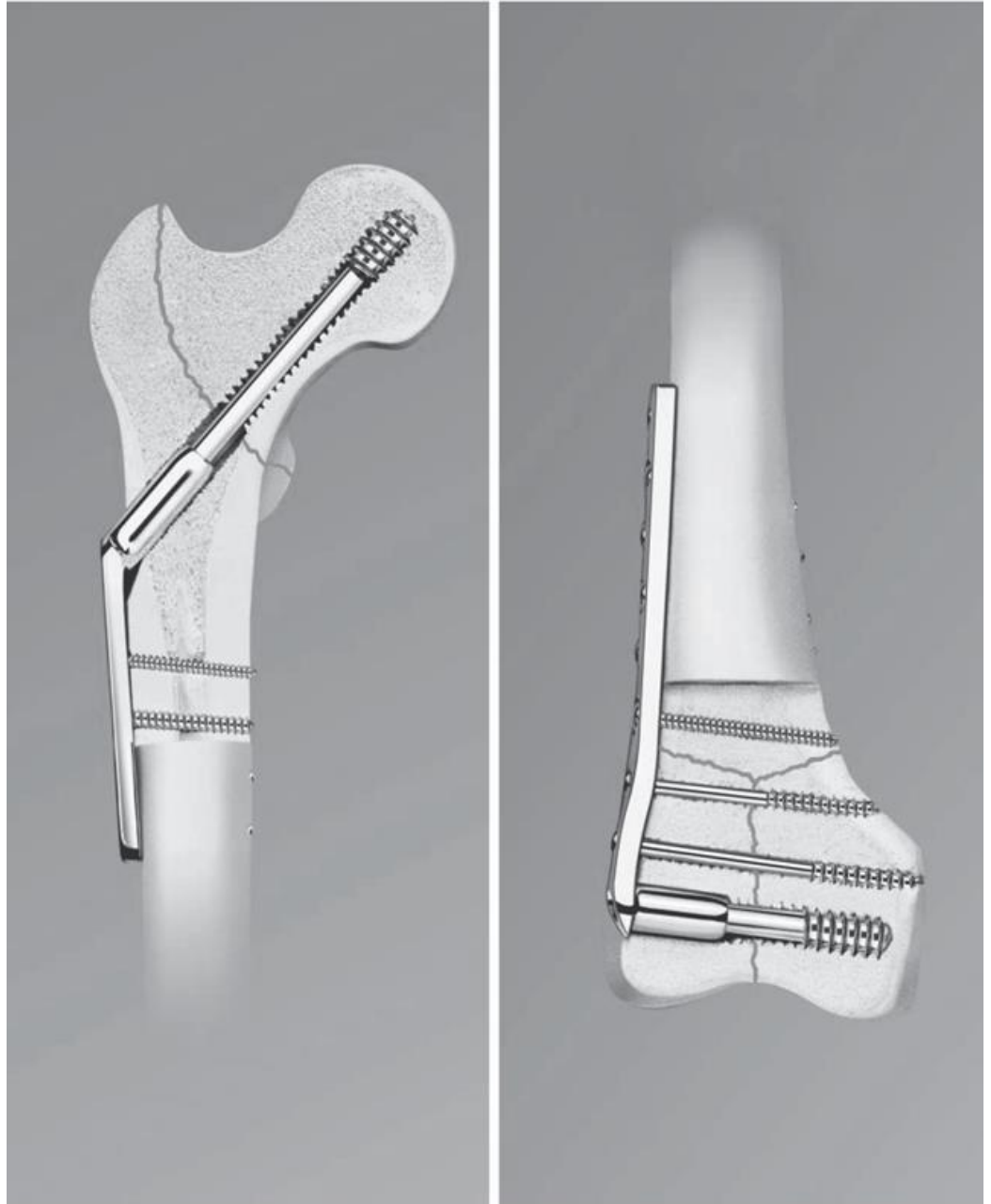


DHS/DCS Hip System

Technique Guide



Surgical Technique—DHS

1

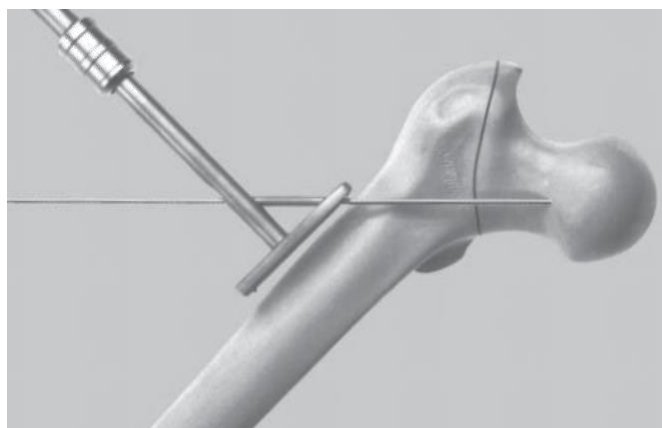
Reduce fracture

Instruments

1602 - Angle Guide Fix (Q.C.)

197 - Guide Wire 2.5 mm

Reduce the fracture. Determine anteversion by placing a 2.5 mm threaded guide wire anteriorly along the femoral neck, using the appropriate DHS angle guide. Gently hammer the wire into the femoral head. This anteversion wire will later allow correct placement of the central guide wire in the center of the femoral head.



2

Insert guide wire

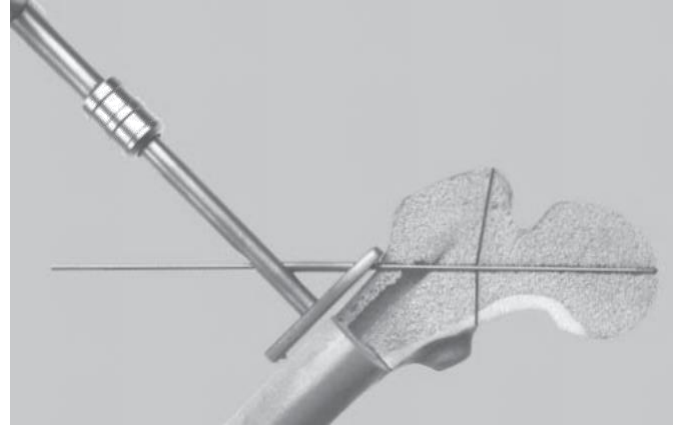
Instruments

303.08.25-45 - Drill Bits 08"

1602 - Angle Guide Fix (Q.C.)

197 - Guide Wire 2.5 mm

Align the appropriate DHS angle guide along the axis of the femoral shaft, and place it on the femur. Point the guide tube toward the center of the femoral head. Predrilling of the lateral cortex with the 2.0 mm drill bit is recommended in dense bone. Insert a 2.5 mm threaded guide wire through the appropriate DHS angle guide, parallel to the anteversion wire and directed toward the center of the femoral head. This point of introduction varies with barrel angle. When a 135° barrel angle is used, the guide wire enters the proximal femur approximately 2.5 cm distal to the vastus ridge.

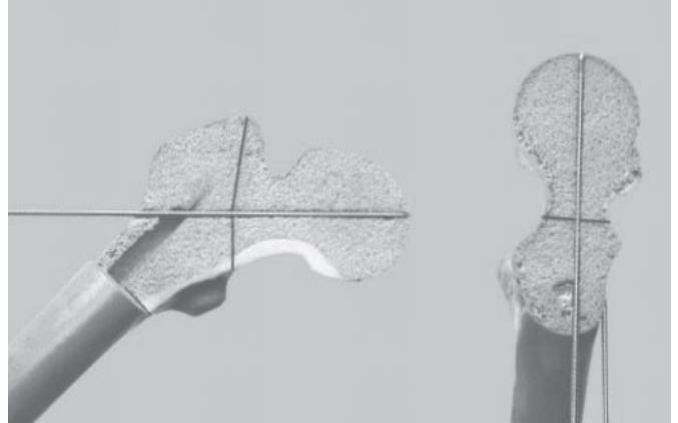


Surgical Technique—DHS

3

Confirm placement

- Confirm placement of the 2.5 mm threaded guide wire under image intensification. It must lie along the axis of the femoral neck in both the AP and lateral views, and parallel to the anteversion wire. If its position is incorrect, insert a new guide wire. Remove and discard the anteversion wire.



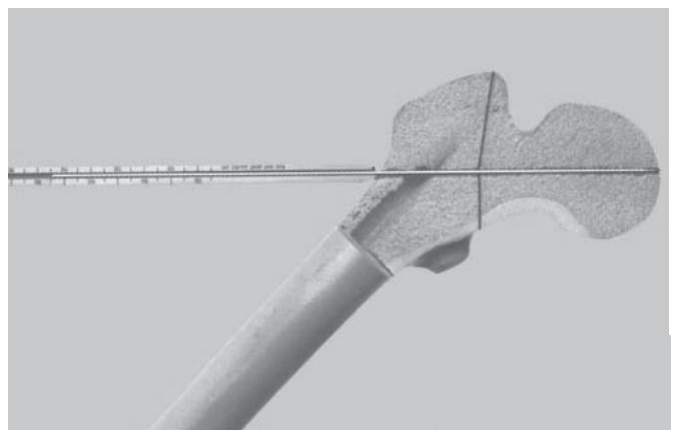
4

Determine insertion depth

Instrument

1611 - Measuring Device

Slide the direct measuring device over the guide wire to determine guide wire insertion depth. Calibration on the measuring device provides a direct reading.

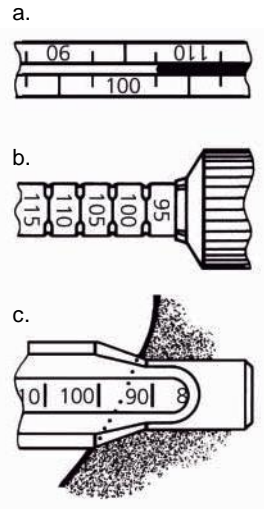


5

Calculate reaming depth and lag screw length

To calculate reaming depth, tapping depth and lag screw length, subtract 10 mm from the reading. For example:

a.	Direct reading	105 mm
b.	Reamer setting	95 mm
c.	Tapping depth (optional)	95 mm
	Lag screw length	95 mm



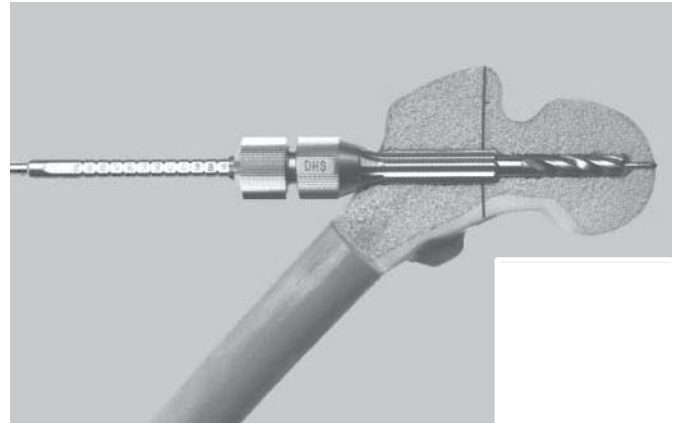
6

Ream to predetermined depth

Instruments

1601 - Triple Action Reamer(Q.C.)

Assemble the appropriate DHS triple reamer (for either the standard or short barrel DHS plate) (see “Assembling the Instrumentation,” page 37). Set the reamer to the correct depth. Insert the DHS triple reamer into the small battery drive using the large quick coupling attachment. Slide the reamer over the guide wire to simultaneously drill for the lag screw, ream for the plate barrel, and countersink for the plate/barrel junction to the preset depth. When reaming in dense bone, continuously irrigate the DHS triple reamer to prevent thermal necrosis.



Surgical Technique—DHS

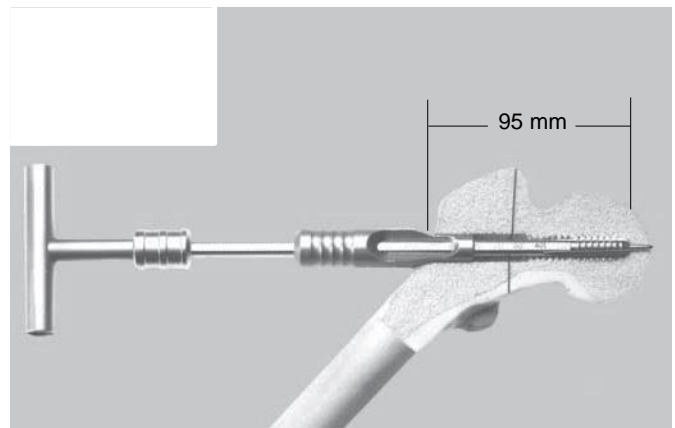
7

Tap to predetermined depth (optional)

Instruments

- 1608 - T- Handle For Quick Coupling
- 1609 - Centering Sleeve For Tap

If necessary, tap to the predetermined depth using the tap assembly. Tapping depth can be seen through the window in the short centering sleeve.

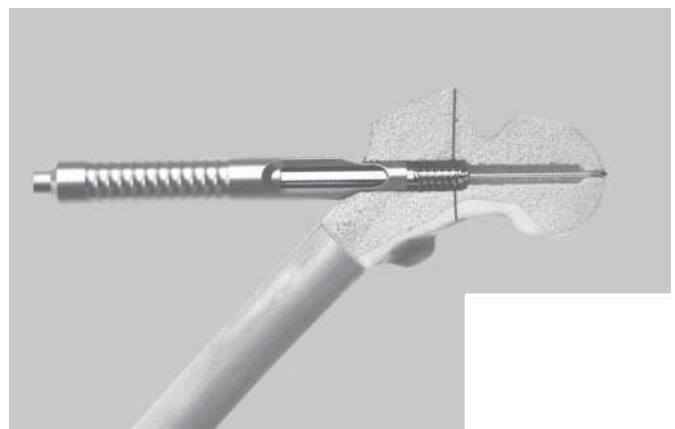


8

Insert lag screw

Instruments

- 1610 - Centering Sleeve For Wrench
- 1603 - Tap For D.H.S Screw (Q.C.)

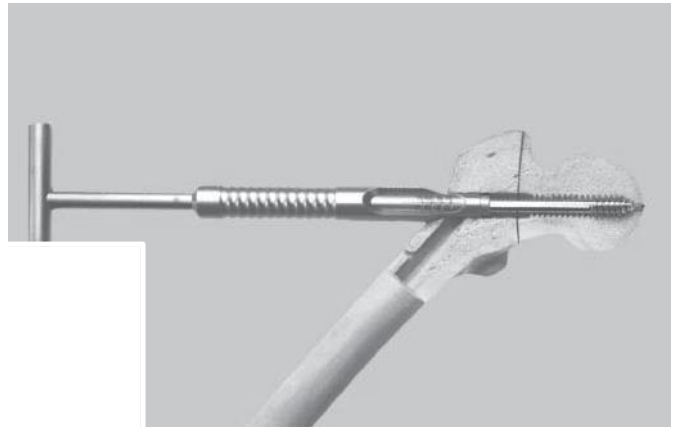


Select the DHS/DCS lag screw and assemble the lag screw insertion assembly. Slide the assembly over the guide wire and into the reamed hole. Seat the long centering sleeve in the hole to center and stabilize the assembly. Insert the lag screw by turning the handle clockwise, until the zero mark on the assembly aligns with the lateral cortex. The threaded tip of the lag screw now lies 10 mm from the joint surface. The lag screw may be inserted an additional 5 mm in porotic bone, for increased holding power and additional controlled collapse.

9

Align handle

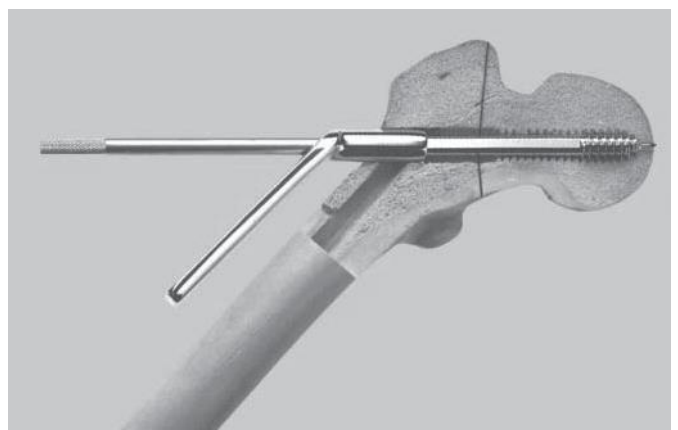
Before removing the assembly, align the handle so it is in the same plane as the femoral shaft (parallel to the femoral shaft axis when viewed laterally). This allows proper placement of the DHS plate onto the lag screw.



10

Remove wrench

Remove the DHS/DCS wrench and long centering sleeve. Slide the appropriate DHS plate onto the guide shaft/lag screw assembly until it contacts the lateral cortex. Loosen and remove the coupling screw and guide shaft. Use the small battery drive in reverse, with the quick coupling for K-wires, to withdraw the 2.5 mm threaded guide wire.



Surgical Technique—DHS

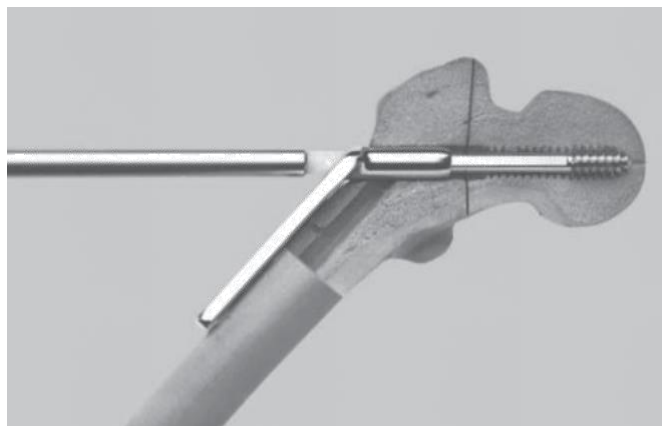
11

Seat plate

Instrument

1607 - Impactor With Nylon Faced

Gently seat the plate with the DHS/DCS impactor.



12

Fix plate to femur

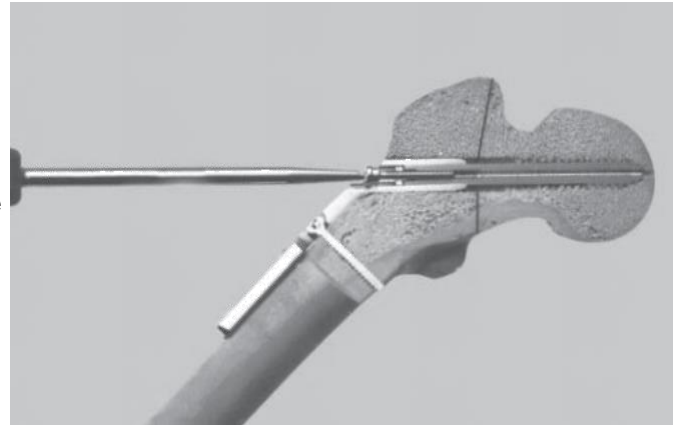
Fix the DHS plate to the femur with 4.5 mm cortex screws.



13

Insert compression screw (optional)

For further, intraoperative compression of the trochanteric fracture, the DHS/DCS compression screw may be inserted into the lag screw. The DHS/DCS compression screw may be used in unstable fractures to prevent disengagement of the lag screw from the plate barrel in non-weight-bearing patients.



Surgical Technique—DCS

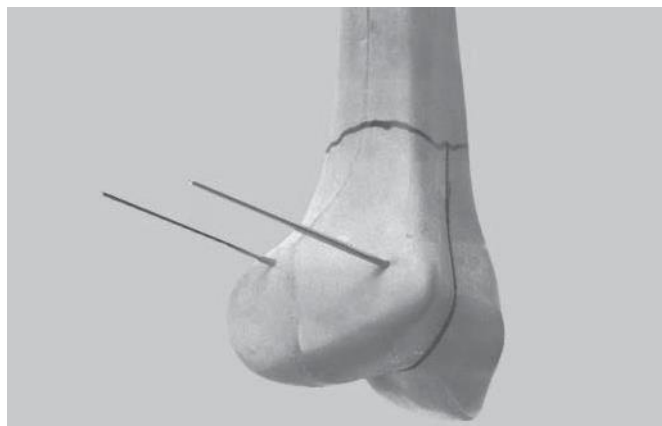
1

Reduce fracture

Instrument

197 - Guide Wire 2.5 mm

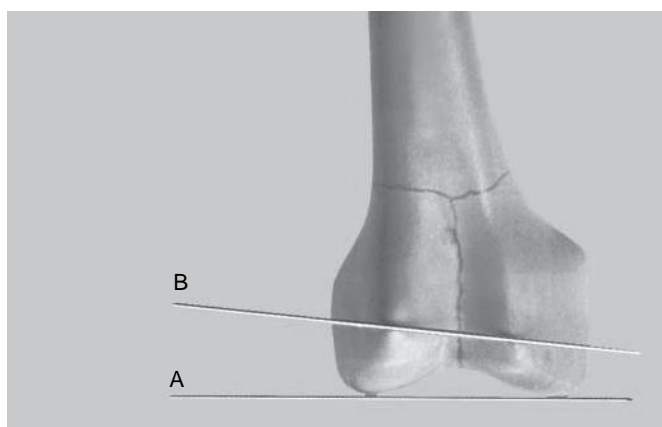
Reduce the fracture. The fracture can be temporarily stabilized with 2.5 mm threaded guide wires or Steinmann pins. Place these wires so they do not interfere with subsequent positioning of the DCS implant assembly. In intercondylar fractures the wires should be replaced with independent 6.5 mm or 7.3 mm cannulated screws or 6.5 mm cancellous bone screws with washers.



2

Determine direction of central guide wire

To determine the direction of the central guide wire, flex the knee to 90°, and mark the axis of the knee joint by placing a K-wire distally over the condyles (A). Place a second K-wire anteriorly over the condyles (B).



Surgical Technique—DCS

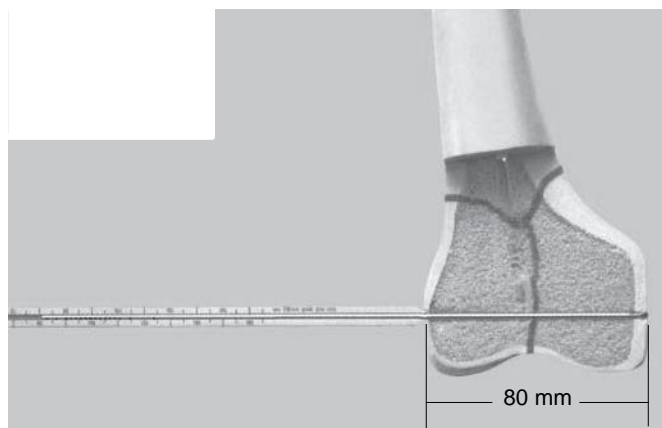
4

Determine guide wire insertion depth

Instrument

1611 - Measuring Device

Slide the direct measuring device over the guide wire, and determine guide wire insertion depth. Calibration on the measuring device provides a direct reading.



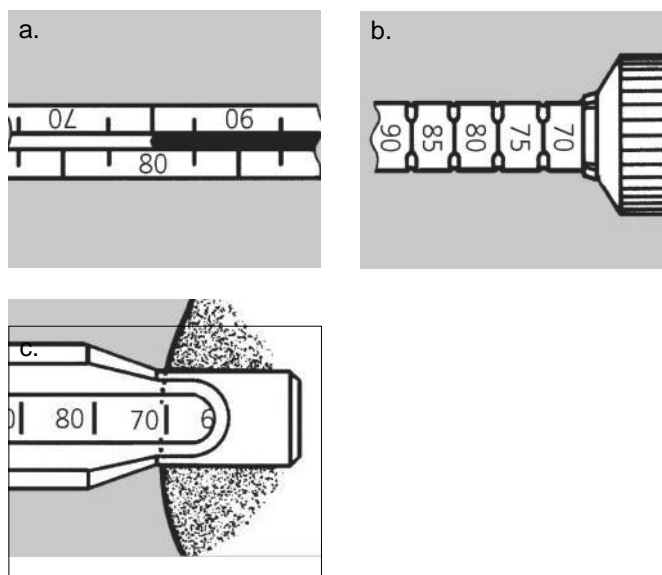
5

Calculate reaming depth and lag screw length

To calculate reaming depth, tapping depth and lag screw length, subtract 10 mm from the reading. For example:

a	Direct reading	80 mm
b	Reamer setting	70 mm
c	Tapping depth (optional)	70 mm
	Lag screw length	70 mm

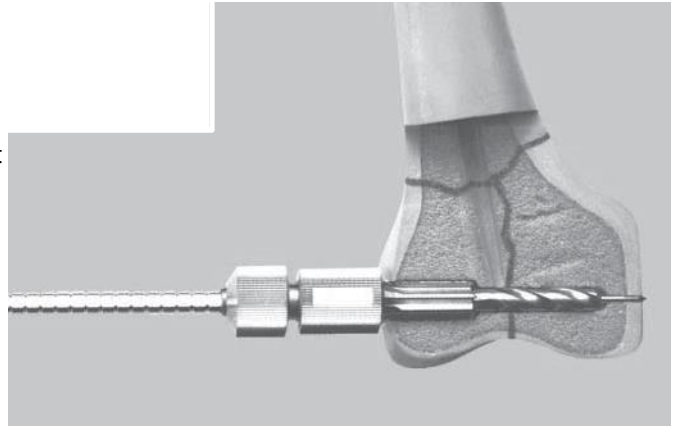
If the compression screw will be used, allow for additional compression of the fracture by selecting a lag screw 5 mm shorter (in this case, 65 mm) and inserting it an additional 5 mm.



6

Ream to predetermined depth

Assemble the DCS triple reamer. Set the reamer to the correct depth. Insert the DCS triple reamer into the small battery drive using the large quick coupling attachment. Slide the reamer over the guide wire to simultaneously drill for the lag screw, ream for the plate barrel, and countersink for the plate/barrel junction to the preset depth. When reaming in dense bone, continuously irrigate the DCS triple reamer to prevent thermal necrosis.



7

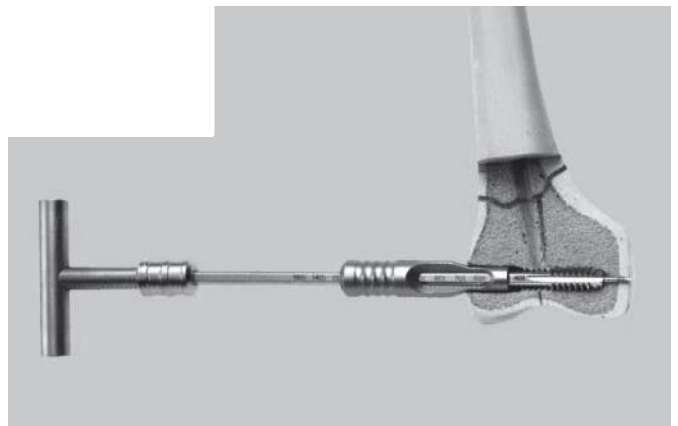
Tap to predetermined depth (optional)

Instruments

1608 - T- Handle For Quick Coupling

1609 - Centering Sleeve For Tap

If necessary, use the tap assembly to tap to the predetermined depth, which can be seen through the window in the short centering sleeve.



Surgical Technique—DCS

8

Assemble lag screw insertion assembly

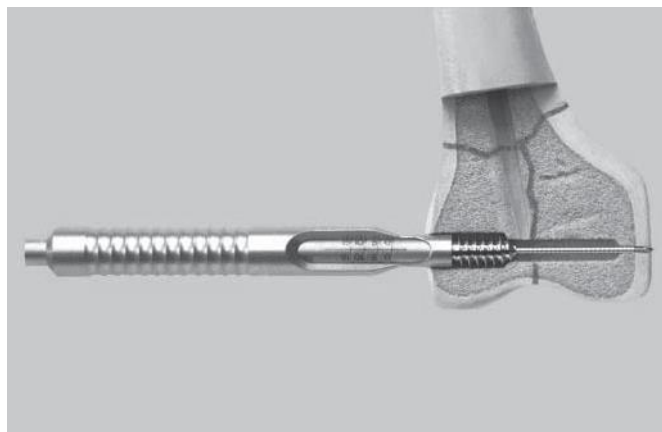
Instruments

1610 - Centering Sleeve For Wrench

1603 - Tap For D.H.S Screw (Q.C.)

1603.M - Tap For D.H.S Screw (Q.C.)

Select the correct length DHS/DCS lag screw and assemble the lag screw insertion assembly. Slide the assembly over the guide wire and into the reamed hole. Seat the long centering sleeve in the hole to center and stabilize the assembly.



9

Insert lag screw

Insert the lag screw by turning the handle clockwise. The threaded tip of the lag screw now lies 10 mm from the medial cortex. The lag screw may be inserted an additional 5 mm in porotic bone, for increased holding power.

10

Align handle

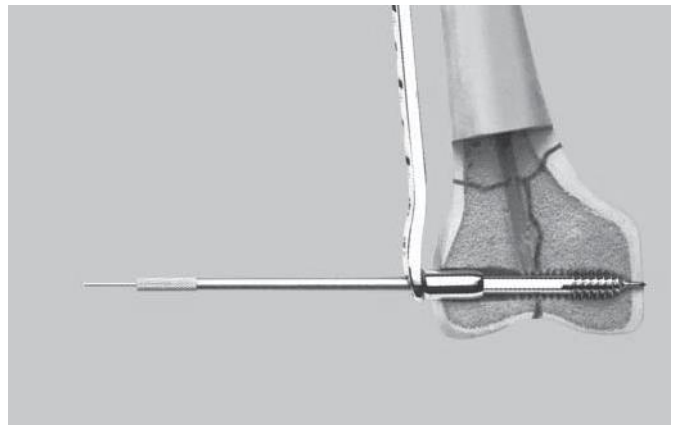
Before removing the assembly, align the handle so it is parallel with the femoral shaft axis when viewed laterally. This allows proper placement of the DCS plate onto the lag screw.



11

Remove wrench

Remove the DHS/DCS wrench and long centering sleeve. Slide the appropriate DCS plate onto the guide shaft/lag screw assembly. Loosen and remove the coupling screw and guide shaft. Use the small battery drive in reverse, with the quick coupling for K-wires, to withdraw the guide wire.



Surgical Technique—DCS

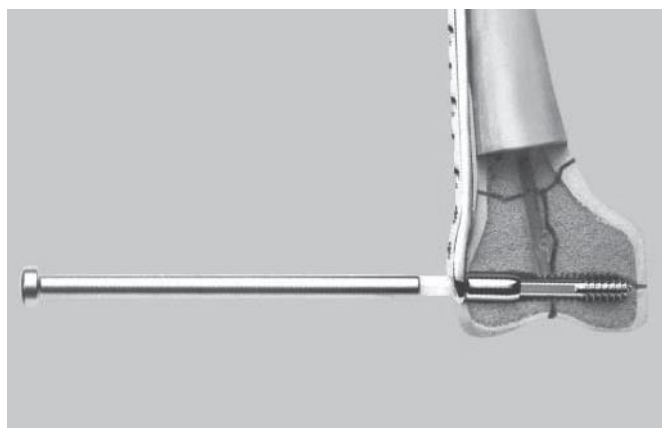
12

Seat plate

Instrument

1607 - Impactor With Nylon Faced

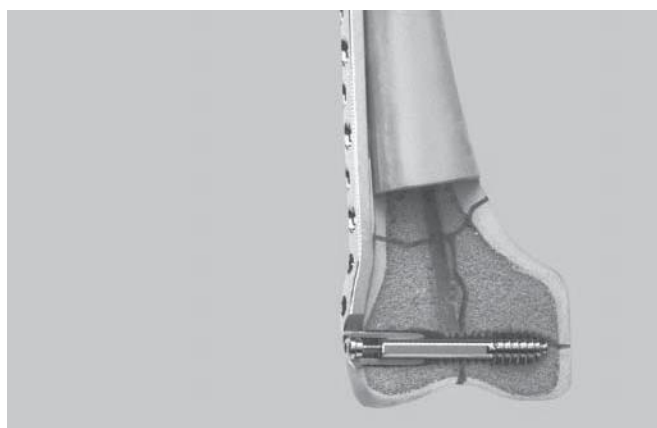
Gently seat the plate with the DHS/DCS impactor. The lateral condylar cortex may be chiseled to further seat the plate on bone.



13

Compress distal fragments with compression screw

If the joint fragments were not previously reduced with independent 6.5 mm cancellous bone screws, the DHS/DCS compression screw may be inserted into the lag screw. In porotic bone, insert the screw very carefully to avoid stripping the lag screw thread.



Surgical Technique—DCS

INSTUMENT FOR D.H.S. / D.C.S (Q.C.)

1	1601	Triple ACTION REAMER (Q.C.)
2	1602	ANGLE GUIDE FIX (Q.C.)
	1602.95-140	For 95° , 120° , 125° , 130° , 135° , 140°
3	1603	TAP For D.H.S. SCREW (Q.C.)
4	1604	SCREW INTRODUCER (Wrench)
6	1606	D.H.S PLATE HOLDER
7	1607	IMPACTOR WITH NYLON FACED
8	1608	T-HANDLE For QUICK COUPLING
9	1609	CENTERING SLEEVE For TAP
10	1610	CENTERING SLEEVE For WRENCH
11	1611	MEASURING DEVICE
12	1612	DHS PLATE GUIDE
13	197	GUIDE WIRE 2.5 MM (3 NOS.)
14	1613	ANGLE GUIDE HANDLE 2.5 MM



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