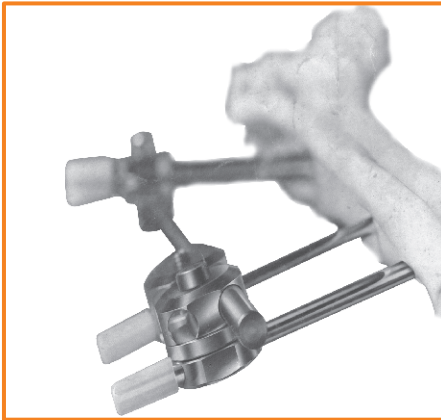


8mm & 4mm FIXATOR

Operative Guidelines for 8mm & 4mm Fixator



Design Features

- Preferred method of use for fracture with severe injuries to soft parts, infected fractures or pseudoarthrosis as well as transportation osteotomies.
- Simple and easily understood components.
- Mechanically hard wearing.



Office & Works :

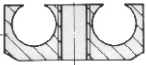
EL - 32, " J " Block, MIDC Bhosari, Pune 411 026 India.
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Email: info@pitkar.com

Developed with scientific & clinical inputs from **Dr. Mangal Parihar** , orthopedic surgeon, Sir H. N. Hospital, Mumbai, India.

Assembly of Clamps for Various Applications

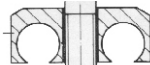
The External Fixator System consists of various parts viz. fixing elements, bolts and Spacer disc. The combination of which could be converted into a clamp to be tightened on guide rod. The various fixing elements are given below.

The combination of various fixing elements with spacer disc and bolts can create assemblies like Universal clamp, reverse clamp etc. that can be used into Modular External fixing devices depending on applications on fracture conditions.



Fixing Element 8mm hole with centrally tapped bore

Part No. C 189000080



Fixing Element 8mm hole with untapped central bore

Part No. C 190000060



Fixing Element 6mm hole with centrally tapped bore

Part No. C 189000060



Fixing Element 6mm hole with untapped central bore

Part No. C 190000080



Spacer Disc

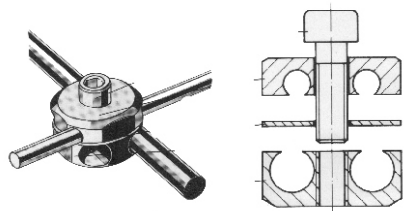
Part No.	Dia
C 191000005	0.5
C 191000020	2.0
C 191000040	4.0
C 191000080	8.0



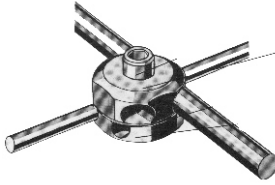
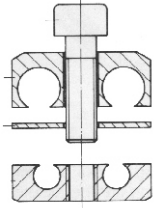
Bolts

Part No.	Length
C 192000020	Short 20 mm
C 192000250	Medium 25 mm
C 192000350	Large 35 mm

The combination of fixing elements 8 mm hole with centrally tapped bore at the bottom and fixing elements with 5 mm holes and centrally untapped holes on the top with spacer disc of 0.5 mm and a bolt of 20 mm creates a combination as show in the figure that can be called as Universal Clamp. The 8 mm fixing elements in the lower part of the assembly accommodates component guide rod of assorted lengths and the upper fixing elements with 6/5 mm holes accommodates with Tapered / half Pins inserted in the bone for necessary fixation.

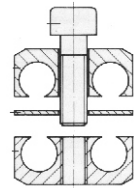
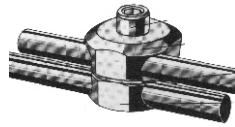
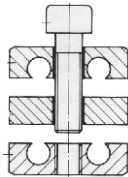
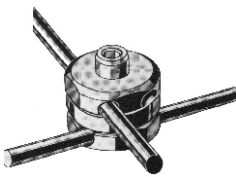


8 mm Universal External Fixator

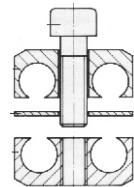
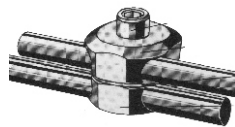
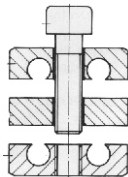
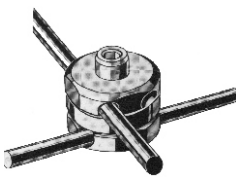


The combination of fixing elements with 8 mm holes with untapped centrally holes at the upper end and fixing elements with 5 mm holes with centrally tapped bore at the bottom with spacer disc of .5 mm and with a bolt of 20 mm makes an assembly of reverse clamp as shown in the figure.

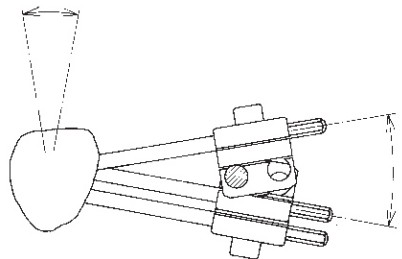
By joining together different fixing elements, different 3 dimensional constructs can be assembled in xyz axis. This can be explained with 2 following figures, one of them creates construct of fixing elements with 5 mm holes with tapped bore at the bottom and fixing elements with 5 mm hole with untapped central hole at the top in combination with spacer disc and bolt and the other one of fixing elements with 8 mm hole with centrally tapped bore at the bottom and fixing elements with 8 mm hole with centrally untapped hole with combination of spacer and bolt.



These assemblies are shown used in three-dimensional constructs. Few other constructs could be created by fixing three different fixing elements of 8 mm and 5 mm with the help of spacer disc at each level and a longer bolt for complex assemblies.



The application of external fixation is most frequently reserved for open fractures where soft parts are at a risk. The different types of assemblies permit different subsequent adjustments. The bolts of the clamp are loosened for the position or rotational adjustments, if required. All parts can be moved relative to each other. If major corrections are necessary, further thickened spacer disc can be inserted into fixing elements for compensation

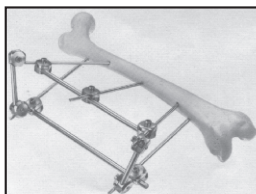
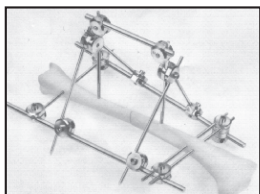


Various Applications of this System

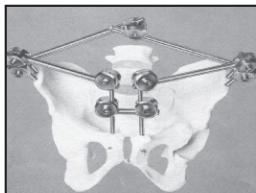
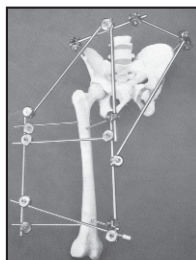
The examples of various assembly models are shown below to explain various possibility for assembly. The application of external Fixator could be extended for following purposes:

In Lower Limb

- Compound fracture of lower leg, Infected pseudoarthrosis of lower leg.
- Femur joint arthrodesis
- Knee joint arthrodesis
- Knee joint transposition osteotomy
- Compound femur fracture, Infected femoral pseudoarthrosis
- Compound fragmented fracture, Femur Neck of femur Pelvis

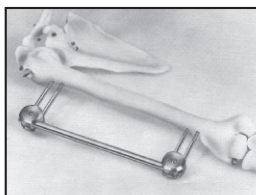
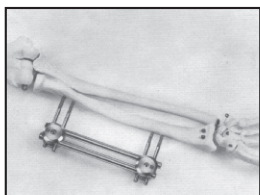


Pelvic crest fixation



Upper limb

- Compound fracture of upper arm, Infected pseudoarthrosis of upper arm
- Compound fracture of lower arm, Infected radial pseudoarthrosis, Infected Pseudoarthrosis of ulna



Assembly of Clamps for Various Applications

The External Fixator System consists of various parts viz. fixing elements, bolts and Spacer disc. The combination of which could be converted into a clamp to be tightened on guide rod. The various fixing elements are given below.



Fixing Element 4mm hole
with centrally tapped bore

Part No. C 198000040



Fixing Element 4mm hole
with untapped central bore

Part No. C 199000040



Fixing Element 2.5 mm hole with
centrally tapped bore

Part No. C 200000040



Spacer 0.5 mm

Part No.
C 201000005



Bolt M4

Part No. C 202000015

OPERATIVE TECHNIQUE :

Note : The procedure for fixation of 4mm universal external fixation system remains same as that of 8mm system as described in previous pages.

4 mm External Fixator



Fixing Element 4mm Hole with centrally tapped bore

Part No. C 198000040



Fixing Element 4mm Hole with centrally untapped bore

Part No. C 199000040



Fixing Element 2.5mm Hole with untapped central bore

Part No. C 200000040



Rod 4mm - Carbon

Part No.	Length
C 203000800	80mm
C 203001000	100mm
C 203001500	150mm
C 203002000	200mm



Bolt M4

Part No. C 202000015



Spacer 0.5mm

Part No. C 201000005

Instruments



Allen Key Universal 3mm

Part No. C 543000000



Drill Bit 2.5 x 80 mm

Part No. C 542000000



Drill Bit 1.8 x 80 mm

Part No. C 541000000



Half Pin Introducer Universal

Part No. C 552001000



Parallel Screw Jig for 4mm & 2.5mm

Part No. C 553001000



Sleeve

size	Part No.
6 x 4mm	C 554001000
4 x 2.6 mm	C 558001000
2.5 x 1.8 mm	C 559001000



Trocar

Size	Part No.
2.5mm	C 556001000
1.8mm	C 560001000