

b.Bone™

INSPIRED BY NATURE.
CREATED BY INNOVATION.


GreenBone®
THE NATURAL ARCHITECTURE OF HEALING



b.Bone™

is a radically new innovative 3D bone replacement produced by the biomorphic transformation of the rattan wood.

- Nature is a source of inspiration for the development of hierarchically structured biomaterials.

- Inspired by Nature, b.Bone™ is an innovative product obtained by a unique process that preserves the rattan wood 3D architecture (1,2).

- Rattan wood - a member of the palm family - was selected as best choice for its unique interior 3D architecture that mimics that of bone, its elasticity, lightness and strength.

- Additionally, the rattan architecture incorporates xylem-transporting channels that naturally transfer fluid upward and downward, matching the way blood vessels run through bone.

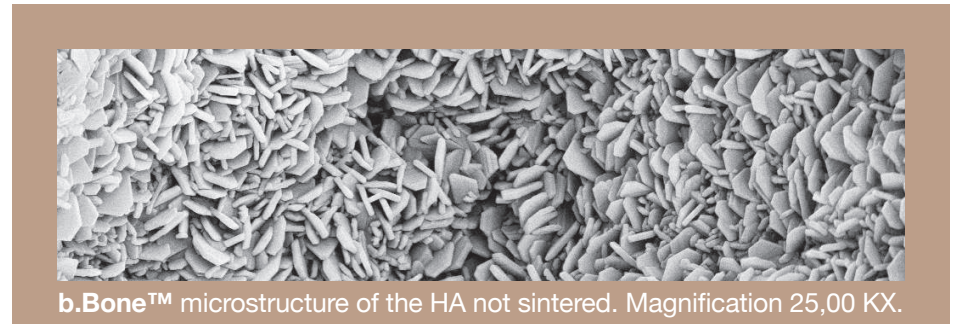
- A novel multi-step process transforms the native vegetable structures into b.Bone™ which mimics the original 3D morphology and hierarchical architecture of the rattan wood.

b.Bone™ is our naturally better answer.

WOOD INTO BONE.

b.Bone™ is composed of hydroxyapatite and beta-tricalcium phosphate in a unique, highly interconnected and porous 3D structure to reproduce the hierarchical architecture and morphology of natural human bone (3,4). The biomimetic structure of **b.Bone™** is a driver of new bone formation and remodelling.

b.Bone™ allows cellular infiltration and vascularization throughout the graft material for bone healing, with improved absorption and bio-resorption properties (5,6).



b.Bone™ microstructure of the HA not sintered. Magnification 25,00 KX.

- **Unique internal 3D architecture from wood**
- **No sintering process to preserve hydroxyapatite bioactivity**
- **Enhanced bone regeneration**
- **Biocompatible and safe**

PUTTING INNOVATION INTO PRACTICE.

b.Bone™ is characterized by phase composition of Hydroxyapatite (HA) 85±10 % and Beta-Tricalcium Phosphate (β -TCP) 15±10 %.

b.Bone™ architecture is engineered with a porous geometry and interconnected porosity to reflect the anatomical and physiological hierarchical structure of human bone.

SURGEONS' BENEFITS.

- Wide range of shapes and sizes: cylinder, block, wedge and granules to match clinical application
- Surgeons can customise the shape to resemble the bone defect and achieve a better fit (7) - easy to use
- Natural and vegan - suitable for all patients
- No sintering process - HA bioactivity preserved to enhance bone regeneration (8,9)
- Allows appropriate fluid imbibition, including bone marrow aspirate, due to the micro- and macro- porosity



INTEGRATION, OSSIFICATION AND MINERALISATION IN CLINICAL PRACTICE.

After implantation, **b.Bone™** is progressively resorbed and replaced by the newly formed bone tissue with new osteonic systems and blood vessels, mimicking the process of natural osteogenesis.

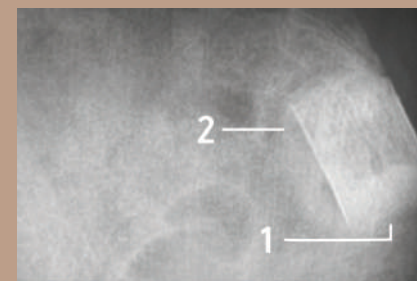


Post op x-rays: pelvic fusion and SI joints.

Replacement of left iliac crest bone defect with **b.Bone™**



Post op x-rays at 6 months follow up



Magnification at 6 months follow up demonstrates complete integration of the graft material (1) with mineralization similar to the pelvic bone texture (2)

Courtesy of prof. P. Giannoudis (Leeds, UK)

THE NATURAL CHOICE OF THE FUTURE.

b.Bone™ is intended for use as a bone graft for voids or gaps that are not intrinsic to the stability of the bony structure. It is indicated in the treatment of surgically created osseous defects or osseous defects resulting from traumatic injury to the bone.

b.Bone™ is intended to be implanted into bony voids or gaps of the skeletal system as a bone substitute, in the extremities and pelvis.

b.Bone™ suits a wide range of clinical applications, including:

TRAUMATOLOGY

BONE AUGMENTATION

JOINT AUGMENTATION

CORRECTION OF DEFORMITY

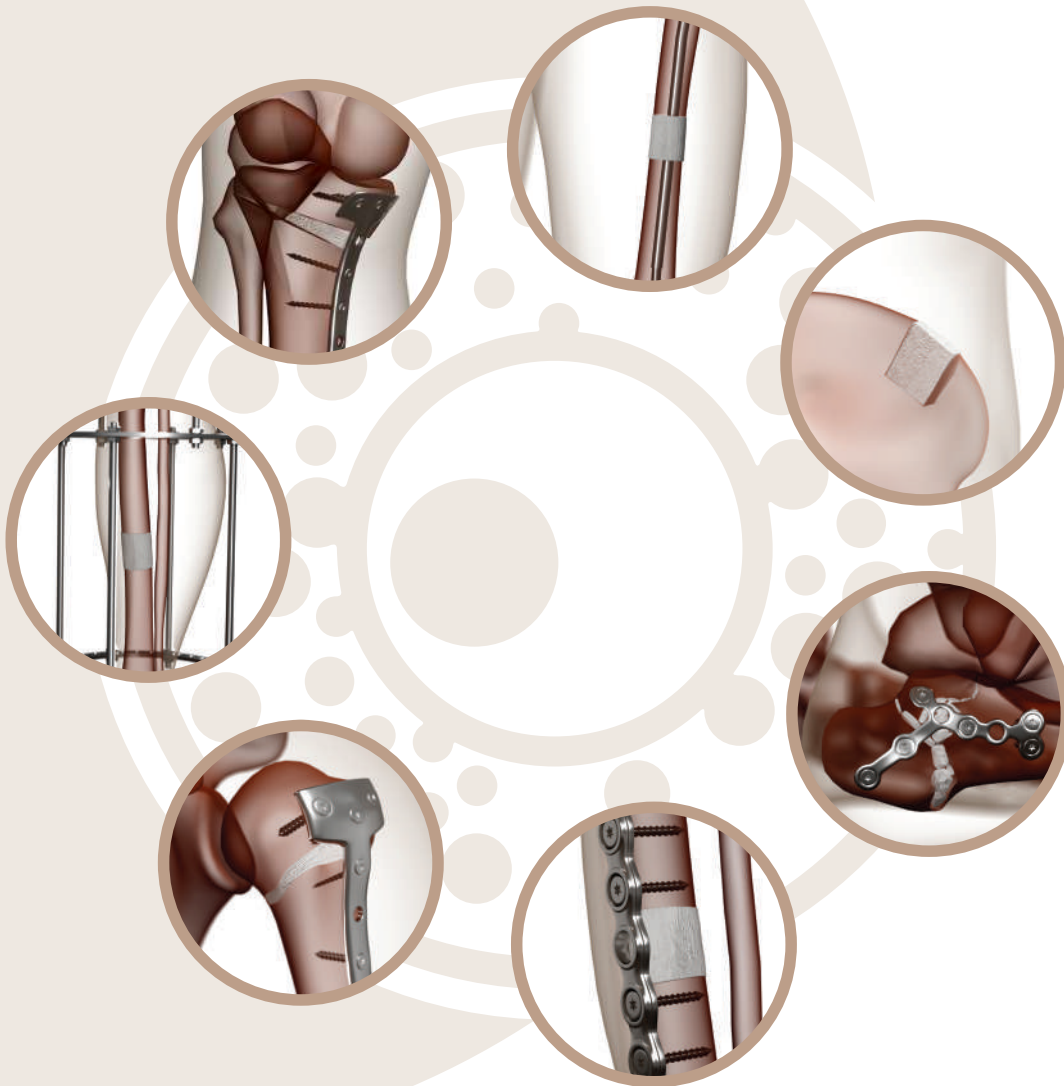
LENGTHENING

NON UNION

BONE LOSS

OSTEOTOMY

JOINT REVISION





BLOCK
Available size

BLOCK
Upon request

PRODUCT CODE	WIDTH	DEPTH	HEIGHT
HP401020PS	10 mm	20 mm	40 mm

WIDTH - RANGES	DEPTH - RANGES	HEIGHT - RANGES
5 mm - 10 mm - 15 mm	10 mm - 20mm - 30 mm	20 mm - 30 mm - 40 mm - 50 mm

PRODUCT CODE	EXTERNAL DIAMETER	INTERNAL DIAMETER	LENGTH
HC100030PS	10 mm	0 mm	30 mm
HC150630PS	15 mm	6 mm	30 mm
HC201030PS	20 mm	10 mm	30 mm
HC251330PS	25 mm	13 mm	30 mm
HC301530PS	30 mm	15 mm	30 mm
HC100060PS	10 mm	0 mm	60 mm
HC150660PS	15 mm	6 mm	60 mm
HC201060PS	20 mm	10 mm	60 mm
HC251360PS	25 mm	13 mm	60 mm
HC301560PS	30 mm	15 mm	60 mm

CYLINDER
Available sizes

CYLINDER
Upon request

LENGTH
10 mm - 20 mm - 40 mm - 50 mm for each external diameter

WEDGE
Available sizes

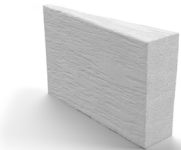
WEDGE
Upon request

PRODUCT CODE	ANGLE	DEPTH	WIDTH
WE093015PS	9°	30 mm	15 mm
WE113015PS	11°	30 mm	15 mm
WE133015PS	13°	30 mm	15 mm

PRODUCT CODE	ANGLE	DEPTH	WIDTH
WE094030PS	9°	40 mm	30 mm
WE114030PS	11°	40 mm	30 mm
WE134030PS	13°	40 mm	30 mm

GRANULES
Available sizes

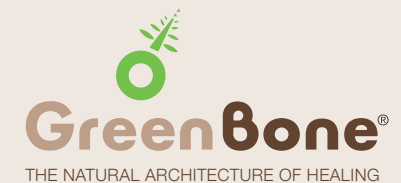
PRODUCT CODE	RANGE	QUANTITY
GR051005PS	0.5 - 1 mm	5 g
GR102005PS	1 - 2 mm	5 g
GR204005PS	2 - 4 mm	5 g
GR407105PS	4 - 7.1 mm	5 g



GreenBone® is a patented technology (WO 2021/063201 and WO 2017/021894). The design and production processes comply with ISO 13485:2016. The idea was conceived at ISTEC – CNR (Institute of Science and Technology for Ceramics – National Research Council) in Faenza by dr. Anna Tampieri's team. The design and production processes of the product comply with ISO 13485:2016 and MDD 93/42 requirements.

References and bibliography:

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