

Z5m(t) implants (single-component + tapered)

General comments

Chapters 1–4 of the surgical prosthetic concept are also to be observed for patient treatment with Z5m(t). Chapter 8 describes both the specific features of the Z5m(t) implants as well as modifications to the before described procedure.

Concept

The Z5m(t) implant combines a tapered basic shape with a dynamic self-cutting thread.

The supracrestal area of the implant (abutment/tulip) is identical to the Z5m.

The preparation of the implant bed with resulting bone condensation allows achieving high primary stability (≥ 35 Ncm) in the soft, largely spongy bone of class D3/D4.

Indications (see also chapters 2.1 / 2.2)

- Z5m(t) implants are intended for surgical implantation in the maxilla and mandible for the fixation of dental restorations to replace missing teeth. Z5m(t) implants are also suited for patients with allergies to metal and those patients showing symptoms of allergic reactions.
- Due to their tapered form and special thread for the possibility of bone condensation, Z5m(t) implants are suitable for implantation in soft, largely spongy bone of classes D3/D4.





* Bone classification according to Lekholm and Zarb

Z5m(t)-40-08, Z5m(t)-40-10 and Z5m(t)-40-12

Scope of application





- Z5m(t) implant, suitable for most indications.
- As a rule of thumb, the implant with the largest diameter should be used, as mechanical strength increases disproportionately with increasing implant diameter.

- **Not suitable** for applications with the risk of excessive bending moments (i.e. crowns with attachments, extension bridges, bridges with more than one pontic).

Product No.		Ø	Shoulder diameter	Insertion depth	Comments
Z5m(t)-40-08		4,0 mm	4,8 mm	8,0 mm	Standard thread diameter and shortened length, for reduced available vertical bone.
Z5m(t)-40-10		4,0 mm	4,8 mm	10,0 mm	Standard thread diameter for universal use in the maxilla and mandible.
Z5m(t)-40-12		4,0 mm	4,8 mm	12,0 mm	Standard thread diameter for universal use in the maxilla and mandible with good availability of vertical bone.

Z5m(t)-50-08, Z5m(t)-50-10 and Z5m(t)-50-12**Scope of application**


- As alternative for wide alveolar ridges.
- Implants with \varnothing 5.0 mm are recommended for the indication canines and maxillary/mandibular molars.

Product No.		\varnothing	Shoulder diameter	Insertion depth	Comments
Z5m(t)-50-08		5,0 mm	6,0 mm	8,0 mm	Enlarged thread diameter, especially suited for wide jaws with limited vertical bone availability.
Z5m(t)-50-10		5,0 mm	6,0 mm	10,0 mm	Enlarged thread diameter, especially for wide jaws.
Z5m(t)-50-12		5,0 mm	6,0 mm	12,0 mm	Enlarged thread diameter, especially for wide jaws with very good vertical bone availability.

Special instruments for Z5m(t) implants

The Z5m(t) implant is fitted with a special fine thread in the cortical area to relieve pressure on the cortical bone. The correspondingly adapted cortical drills expand the osteotomy in the cortical bone area. In most cases (depending on the quality of the bone, see drilling protocol), the cortical drill is to be sunk to crestal bone level up to the laser marking, the maximum speed is 400 rpm.

Drills

		
<p>TD170 Spiral drills 1,7 x 16 mm</p> <p>For length and pilot drilling for Ø 4 mm Z5m(t) implants</p>	<p>CD355 Cortical drills Ø 3,55 mm</p> <p>For expanding the corticalis for Ø 4 mm Z5m(t) implants</p>	<p>CD455 Cortical drills Ø 4,55 mm</p> <p>For expanding the corticalis for Ø 5 mm Z5m(t) implants</p>

Drilling protocol

Z5m(t) implants with standard length 10 mm*

The drilling protocol for tapered implants differs from the drilling protocol for cylindrical Z5m implants in significant points!

The thread of the Z5m(t) implants is self-cutting and has the ability of condensing soft bone when preparing the diameter of the implant bed, to also achieve high primary stability (≥ 35 Ncm) in the soft, largely spongy bone. The special thread design relieves the pressure on the bone in the cortical area.

Drilling protocol for 8 mm implant length

The individual drilling steps correspond to those for 10 mm implant lengths. The insertion depth for spiral drills must be chosen 2 mm shorter in each case, the insertion depth for cortical drills remains unchanged.

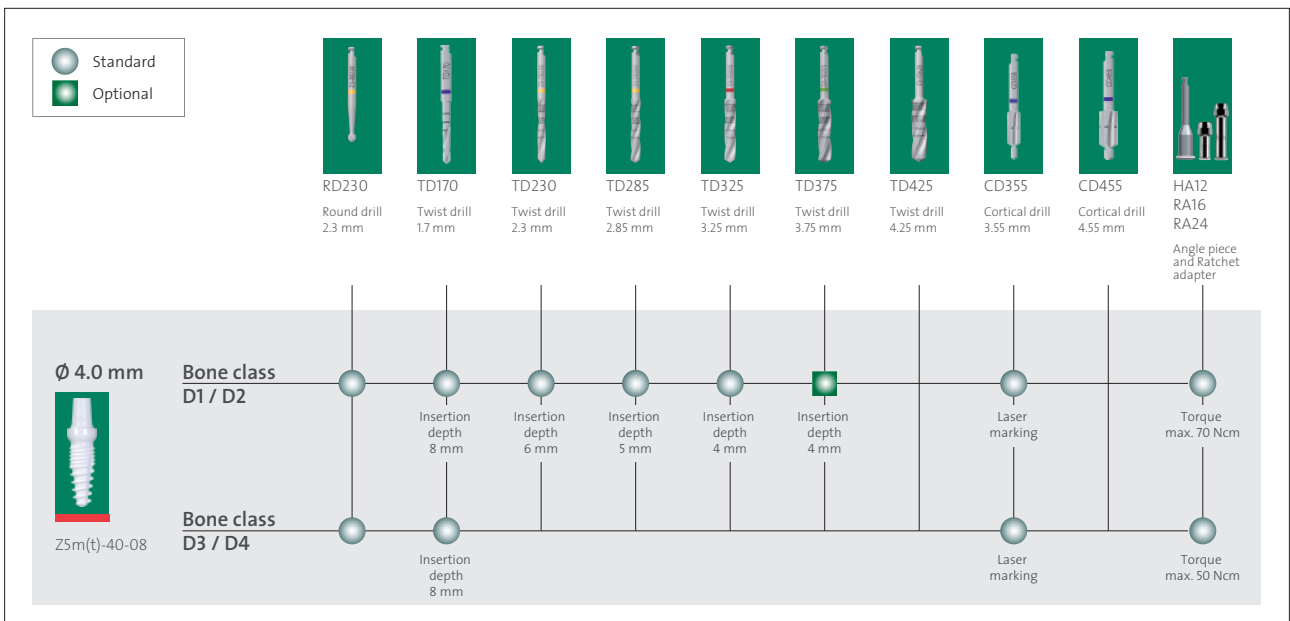
Drilling protocol for 12 mm implant length

The individual drilling steps correspond to those for 10 mm implant lengths. The insertion depth for spiral drills must be chosen 2 mm longer in each case, the insertion depth for cortical drills remains unchanged.

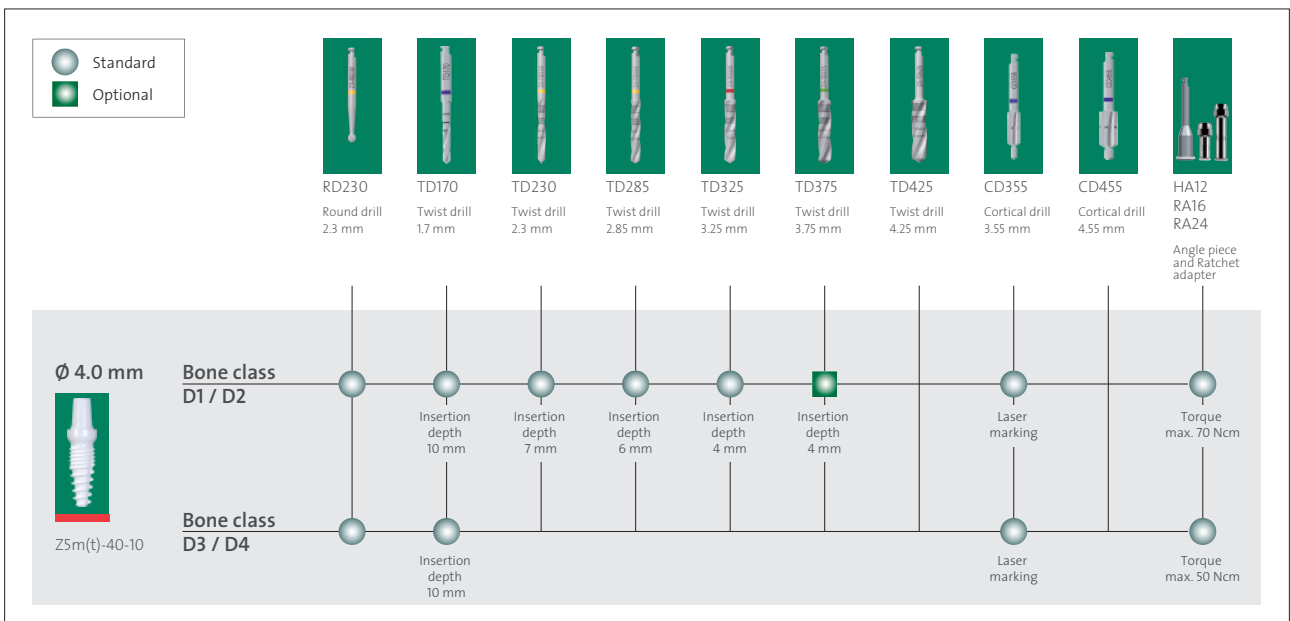
Implant insertion

The supracrestal area of the Z5m(t) implant (abutment/tulip) is identical to the Z5m. The known insertion drivers can be used with limitations, the insertion depth corresponds to the Z5m implant. The maximum permissible torque is 70 Ncm.

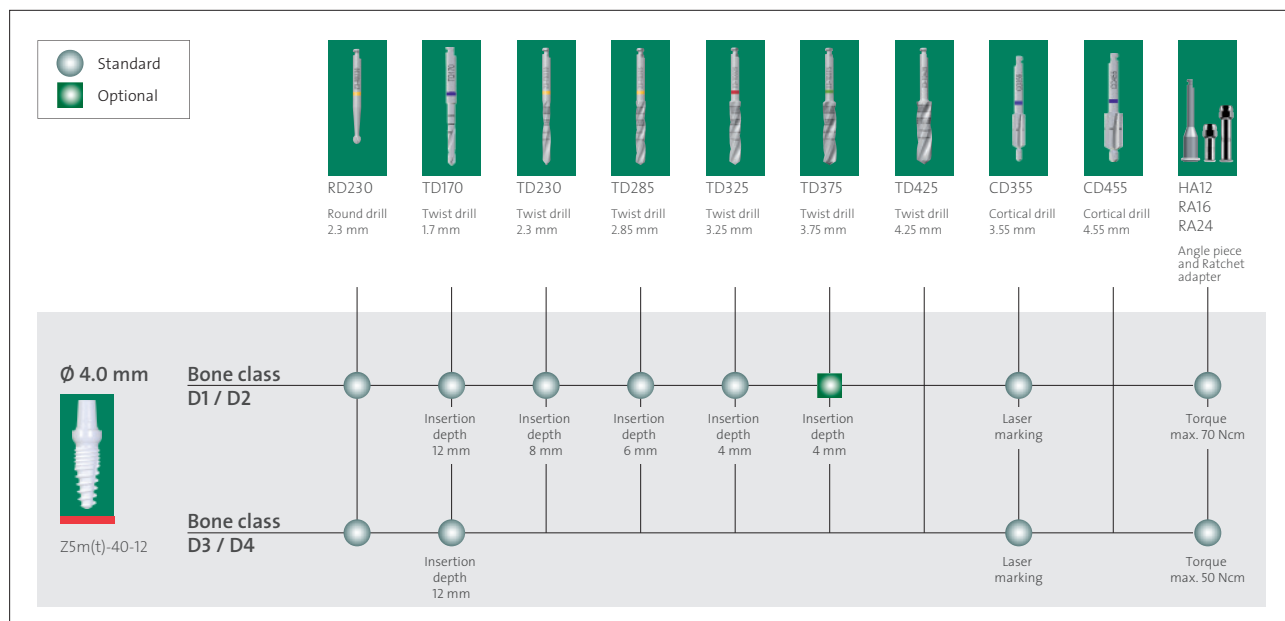
Z5m(t)-40-08 drilling protocol



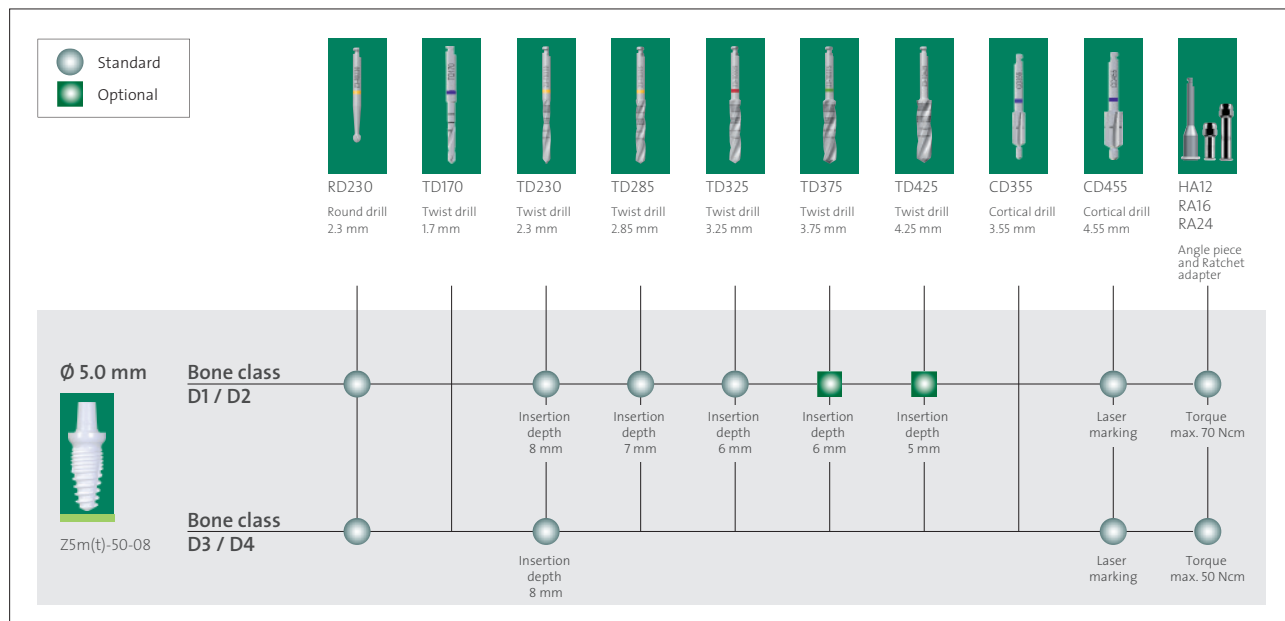
Z5m(t)-40-10 drilling protocol



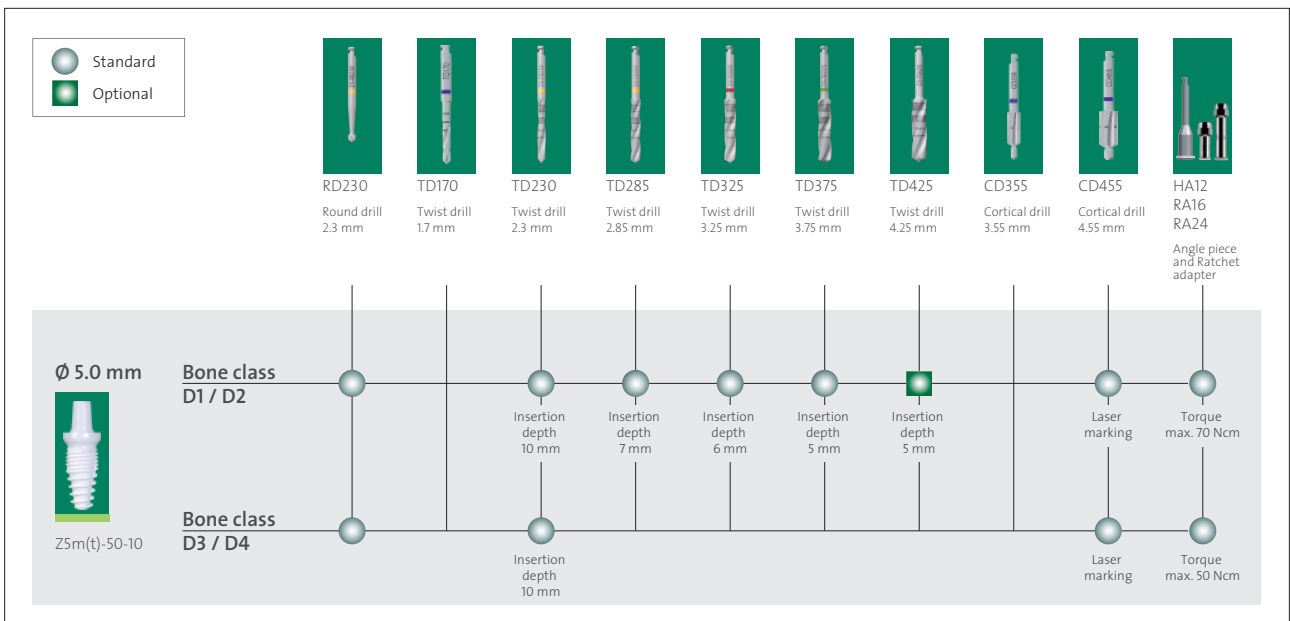
Z5m(t)-40-12 drilling protocol



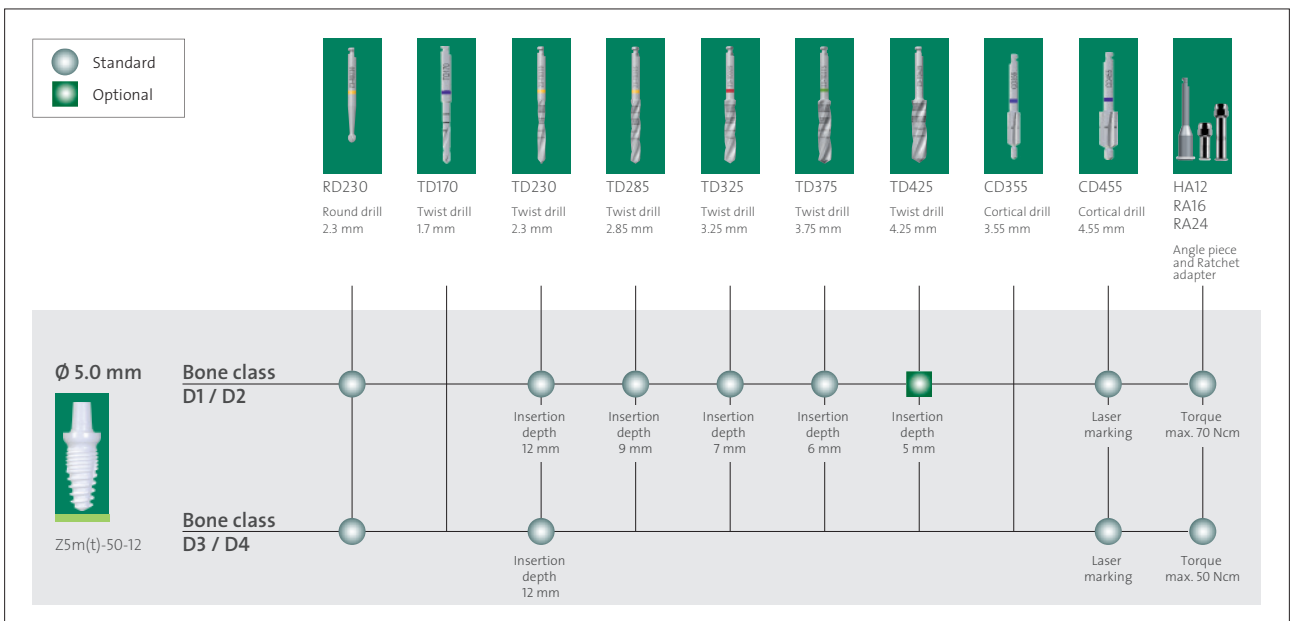
Z5m(t)-50-08 drilling protocol

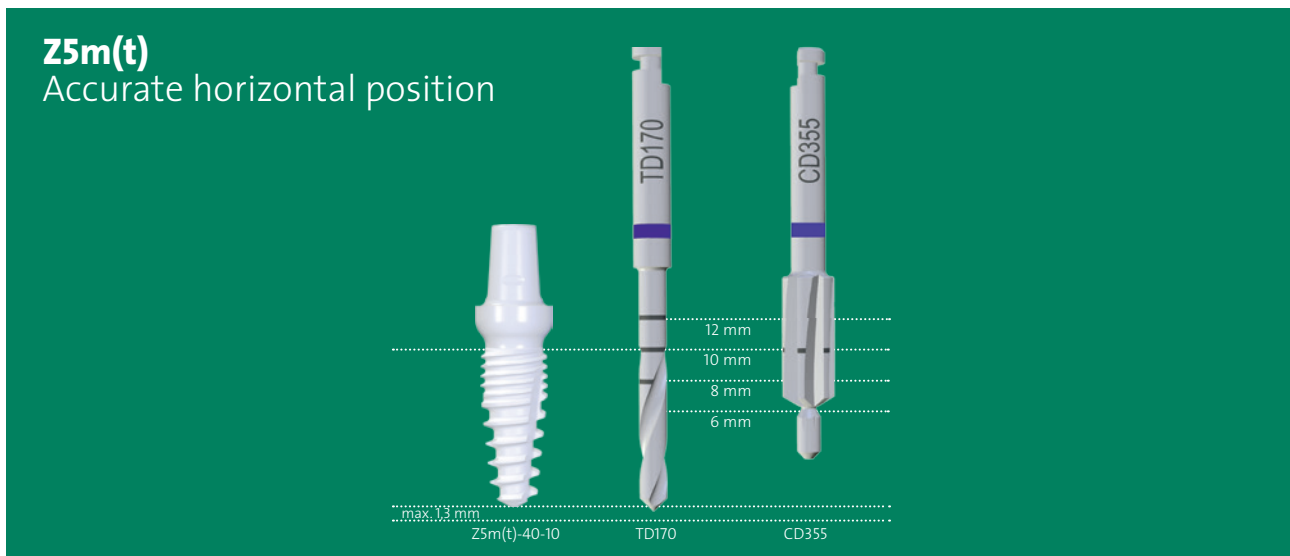


Z5m(t)-50-10 drilling protocol



Z5m(t)-50-12 drilling protocol





Cave: the unique self-cutting thread design of the Z5m(t) implants can alter the direction of the implant during insertion. Insertion requires special attention, in particular when preparing the implant bed, as the implant could possibly leave the pre-prepared bone bed.

Considerations with soft bone

The self-tapping Z5m(t) implant can be placed in drill holes which have not been prepared to their full length for bone class D4. This feature is of advantage if important anatomical structures are in the vicinity, or with soft bone when maximum condensation is desired. Select a drilling depth of 2 – 4 mm less than the enossal implant length. Insert the implant to the drilled depth and then continue to screw in. The self-tapping implant will then reach its final depth. A torque of 70 Ncm must not be exceeded.

In case of pronounced resistance

Torque should not be too high during implant insertion. This could otherwise lead to damage of the insertion

screw adapter or the implant and excessive compression of the bone.

- If pronounced resistance (max. 70 Ncm) can be felt at a point during insertion, rotate the implant approximately half a revolution anti-clockwise and utilize the self-tapping/self-cutting properties of the implant. Then continue inserting the implant.
- If pronounced physiological resistance can still be felt, remove the implant, store in saline solution, and prepare the implant bed further according to protocol.

Protective measure healing phase

Z5m(t) implants must be allowed to heal stress-free, protected against pressure from the tongue, chewing and cheeks (see chapter 2.4).

After reaching a minimum torque of 50 Ncm, immediate restoration with a dimension-reduced and an even contact-free ground temporary denture is possible.

Grinding

Z5m(t) implants may be ground within the bounds of the Z5 grinding protocol (see chapter 3.7/4.3).

Prosthetic restoration of Z5m(t) implants

The individual working steps do not differ from those of Z5 implants. Please observe the corresponding chapters of the prosthetic concept for exposure, impression taking and prosthetic restoration / follow-up.