UTILIS
multidec®
swiss type tools

# MULTIDEC®-WHIRLING

## THE EFFICIENT WAY TO MAKE THREADS

- SIGNIFICANT PRODUCTIVITY GAINS
- UP TO 50% SHORTER MACHINING TIMES
- TOP SURFACE QUALITY IN A SINGLE PASS
- INSTANT TOOL CHANGING
- ALMOST NO LIMIT ON THREAD LENGTHS

100 future since 1915

UTILIS®
Tooling for High Technology

# MULTIDEC®-WHIRLING


Multidec®-Whirling is the thread whirling tool system with multiple cutting edges; unlike the thread turning method, this enables the thread to be finished without burr in a single pass. Even tough materials can still be machined to the tightest possible tolerances.
The cutting edges which are uniformly located in the whirling ring are positioned on the cutting track and «fly» round the workpiece in an eccentric pattern with rapid material attack at a high cutting speed.
For use on specific machines, UTILIS supplies versions with different cutting tracks.

The driven whirling unit is inclined around the thread pitch angle in relation to the workpiece; the whirling head performs the rotating cut motion while the workpiece effects rotating forward feed.
With the Multidec®-Whirling system, the workpiece rotates in the same direction as the whirling head with the following benefits (as opposed to rotation in the opposite direction):
– smoother surfaces
– short chips and better chip removal
– lower cutting edge wear
That is why whirling is frequently used to make bone screws in titanium or stainless steel.

## INNOVATIVE SYSTEMS

**Mono-system**
Highly compact single component system. This enables high concentricity of ± 0.005 mm to be achieved.

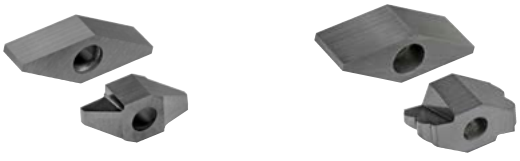
**xModular-System**
Flexible, two-part system, which reduces set-up time with the fast change whirling ring (the adapter remains in the whirling device); guaranteed concentricity of ± 0.005 mm.

**QuickChange-System**
Unlike the xModular-System the whirling ring is removed or inserted by rotation. Here too, the guaranteed concentricity of ± 0.005 mm is maintained.

## CUTTING FOR ALL NEEDS

If a special cutting shape is needed with dimensions and coatings that are not available in the standard version, we will be happy to assist as your partner.
We develop the most convenient thread whirling plate in cooperation with you and manufacture it in-house. Using existing blanks, these special versions can be supplied fast and at low cost; you continue to use the existing Utilis whirling head.

Standard thread form (single start)



Special form (one, two and three starts) with blank

# INCREASED PRODUCTIVITY AND OPTIMISED MANUFACTURING COSTS

Use of up to 12 cutting edges brings a significant productivity gain with the same feed rate per tooth. This results in faster manufacturing at lower cost.

## UP TO 50% SHORTER MACHINING TIMES

Whirling with up to 12 cutting edges enables machining time to be cut by up to 50 %. This enables the rate of machine utilization to be increased by up to 100 %, while achieving substantially higher capacities.
The high surface quality free from burr practically eliminates the need for reworking.
Fast whirling tool change accompanied by short set-up times further increases productivity.

## TOP SURFACE QUALITY

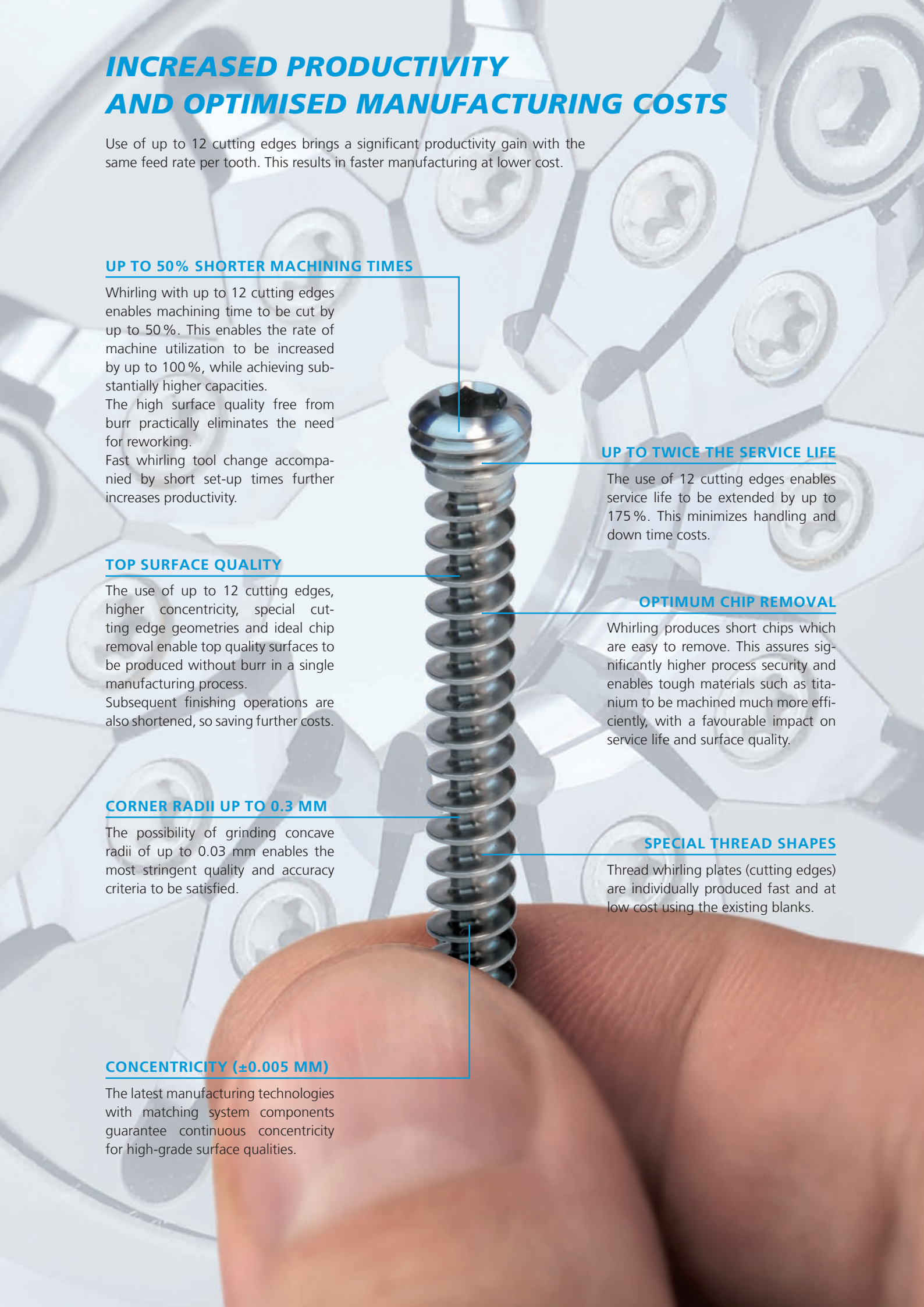
The use of up to 12 cutting edges, higher concentricity, special cutting edge geometries and ideal chip removal enable top quality surfaces to be produced without burr in a single manufacturing process.
Subsequent finishing operations are also shortened, so saving further costs.

## CORNER RADII UP TO 0.3 MM

The possibility of grinding concave radii of up to 0.03 mm enables the most stringent quality and accuracy criteria to be satisfied.

## CONCENTRICITY (±0.005 MM)

The latest manufacturing technologies with matching system components guarantee continuous concentricity for high-grade surface qualities.



## UP TO TWICE THE SERVICE LIFE

The use of 12 cutting edges enables service life to be extended by up to 175 %. This minimizes handling and down time costs.

## OPTIMUM CHIP REMOVAL

Whirling produces short chips which are easy to remove. This assures significantly higher process security and enables tough materials such as titanium to be machined much more efficiently, with a favourable impact on service life and surface quality.

## SPECIAL THREAD SHAPES

Thread whirling plates (cutting edges) are individually produced fast and at low cost using the existing blanks.

# EXAMPLES OF MACHINING

## 1 STANDARD THREAD HA 4.5 IN 1.4441 / 316 LVM / SUS 316

**Mission:**
Substantial saving on machining time and improved service life with no loss of quality.

**Outcome:**
– machining time halved
– service life improved to 175 %
– high surface quality
– smooth running
– identical quality

## 2 DEEP DOUBLE THREAD IN TITANIUM GRADE 5

**Mission:**
Production of double threads with a high material removal volume.
The client requires high accuracy despite the heavy cutting forces.

**Outcome:**
– high surface quality
– extremely smooth running
– high accuracy

## 3 WORM THREAD IN 11SMnPb30

**Mission:**
Replacement of the traditional cumbersome manufacture of two-start worm threads with a view to improving the surface quality, enhancing process security and minimizing the chip problem.

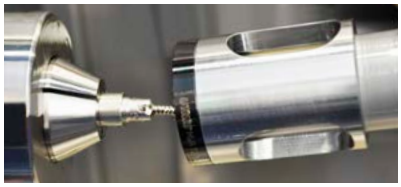
**Outcome:**
– the shape is perfectly accurate
– very good surfaces
– more than twice as fast as using the traditional process
– high process certainty

## 4 ECCENTRIC WHIRLING IN 1.4057 / 430 F / SUS 430 F

**Mission:**
Eccentric production on the long lathe replaces expensive traditional techniques.
Whirling permits fast component production with a high degree of accuracy and without rechucking.

**Outcome:**
– high surface quality Ra 0.15 – 0.18
– feasibility without expensive clamping fixtures
– high cutting speed
– utmost precision Ø 10.5 mm ± 4 µm or Ø 7 mm ± 3 µm
– faster than specified process time

## 5 LATHE/MILLING CENTER WITH HSK40 ATTACHMENT



**Mission:**
Use of thread whirling on lathe milling centers to produce thread lengths of up to 5 × Ø and reduce machining time.

**Outcome:**
– very good surface
– stable clamping
– extremely smooth running
– 400 % higher productivity than on a long lathe

Your contact:

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UTILIS, MULTIDEC-WHIRLING, PROSPEKT 2014.10 E – 300969