WALTER
Engineering Kompetenz

Turning, holemaking,
threading, milling

**Product highlights**
Edition 2023-2

_PRODUCT HIGHLIGHTS

# Always one step ahead.

# Krato·tec™
# Ready to take on even your toughest job.

**Now there are three good reasons for why you can rely on your choice of tool.**
The new Walter Krato·tec™ multi-layer coating for solid carbide tools combines extreme hardness with outstanding toughness. Stress concentration and flaking of the coating are efficiently prevented. This means that Krato·tec™ offers optimum robustness against frictional heat and wear – and can be used universally.

walter-tools.com

WALTER
Engineering Kompetenz

# A – Turning

# Extremely hard in order to protect against wear.

**NEW**

### THE GRADE

- Tiger·tec® Gold PVD coating: Combination of TiAlN and TiSiN for long tool life and high process reliability
- Multi-layer TiAlN and TiSiN structure for greater layer hardness to protect again flank face wear and plastic deformation
- Post-treatment for a smooth rake face, reduced friction and improved toughness

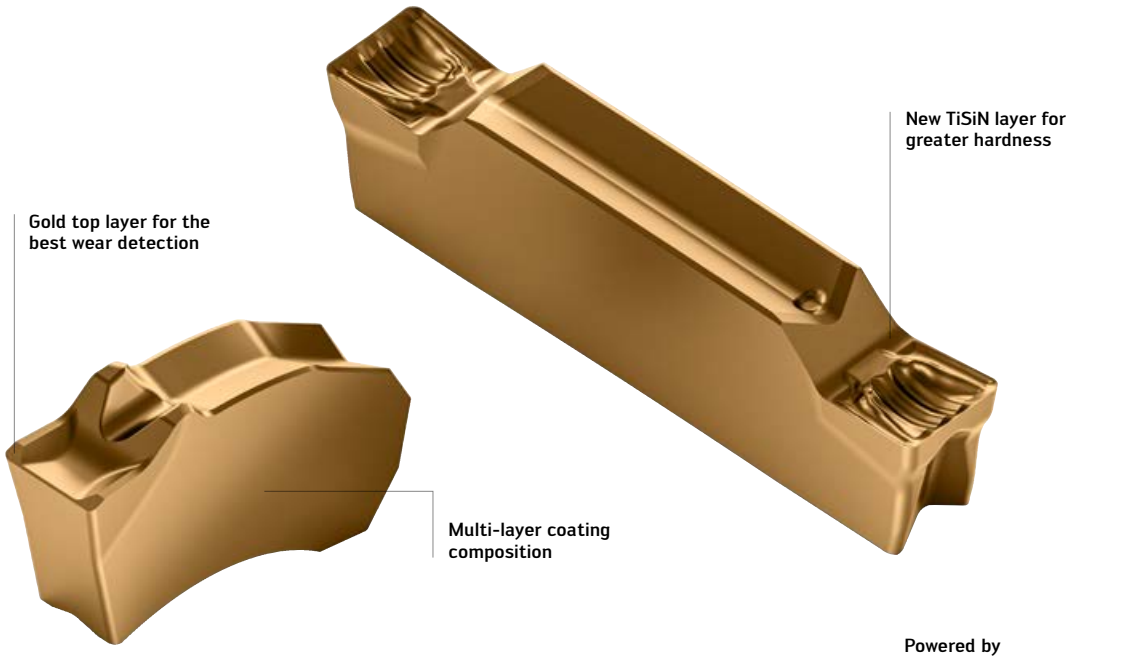
### THE INDEXABLE INSERTS

**SX**

- Single-edged SX cutting inserts with positive engagement and self-clamping system
- Chip former geometries: CE4, CF5, CF6, SF5 and UF4
- For G2000 tool types

**DX18**

- Double-edged DX18 cutting inserts with second prism for the positive engagement in the insert seat
- Chip former geometries: CE4, CF5, CF6, GD6, GD3, UD4, UF4, UF7 and RD4
- For G4000 tool types



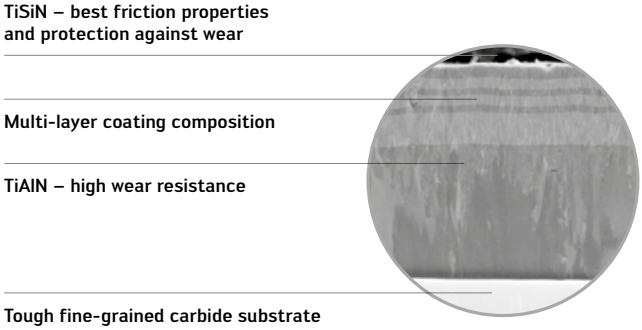

Tiger·tec® Gold cutting inserts for grooving

Fig.: DX18-3E300N03-UF4 WSM33G / SX-3E300N02-CE4 WSM33G

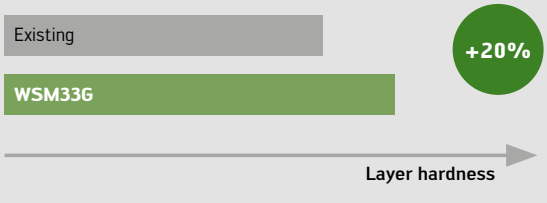
## THE APPLICATION

- Radial grooving and parting off, groove turning, copy turning and slot milling
- WSM33G: Universal grade for approx. 75% of all applications
- Primary application: Stainless steel ISO M30, materials with difficult cutting properties ISO S30, steel ISO P30

### Tiger·tec® Gold PVD technology




### Hardness comparison: Existing coating type and new WSM33G



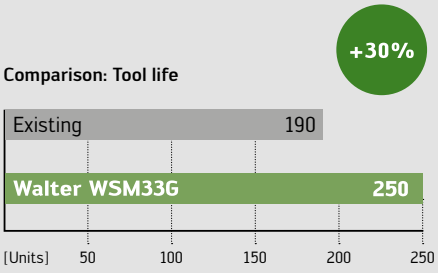

## APPLICATION EXAMPLE

### Axle – Parting off

| | |
|---|---|
| **Material:** | X2 CrNi 19 11 / DIN 1.4306 |
| **Tensile strength:** | 680 N/mm² |
| **Tool:** | G4014-1616R-3T17DX18-P |
| **Diameter:** | 20 mm |
| **Cooling:** | Internal coolant – oil, 20 bar |

| **Cutting data:** | Existing | **Walter WSM33G** |
|---|---|---|
| **$v_c$ [m/min]** | 70 | 70 |
| **f [mm]** | 0.08 / 0.04 | 0.08 / 0.04 |
| **Tool life [units]** | 190 | 250 |

**Comparison: Tool life**




## BENEFITS FOR YOU

- Extremely productive and reliable due to the patent-pending Tiger·tec® Gold PVD coating
- Universal application even under difficult conditions
- Best wear detection due to the gold-coloured TiSiN top layer

# Cost-effective – with strong performance on ISO M/S.

## EXPANSION OF THE RANGE

### NEW ADDITION TO THE PRODUCT RANGE

- FM5 geometry in the WSM01 grade with CNMG, DNMG, WNMG basic shapes
- WL25 indexable inserts with FM4 or MM4 geometry in the WSM01 grade
- FM4, FM6 and MM4 geometries in the WSM01 grade with further radii

### THE GRADE

- PVD HiPIMS TiAlN-coated grade WSM01 for stainless steel (ISO M01) or materials with difficult cutting properties (ISO S01)
- Extremely smooth rake face for low friction

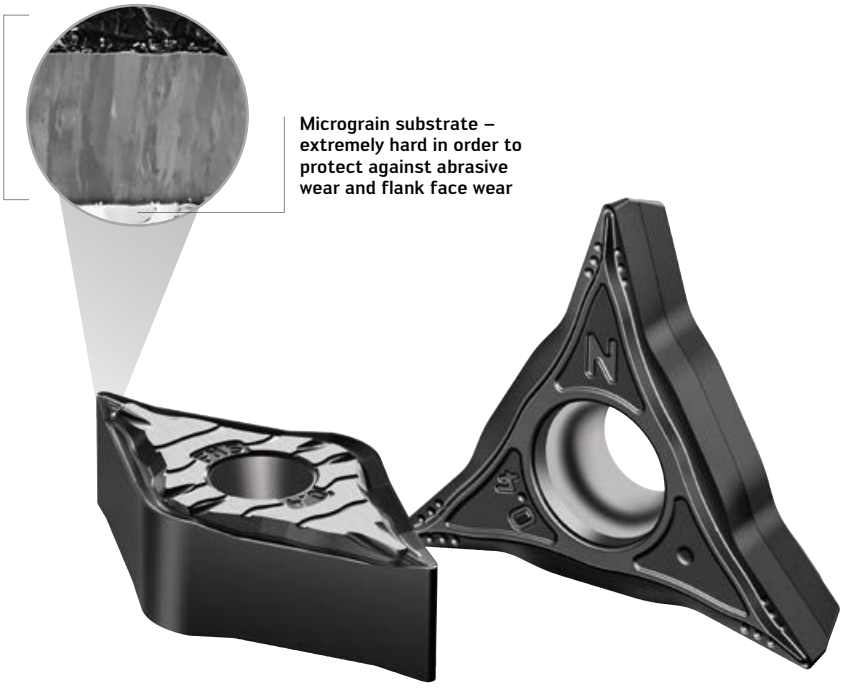
### THE APPLICATION

**FM5 geometry**
- Machining parameters – f: 0.03–0.25 mm; $a_p$: 0.1–2.0 mm
- Finishing stainless materials and high-temperature alloys

**FM6 geometry**
- Machining parameters – f: 0.08–0.32 mm; $a_p$ 0.3–2.5 mm
- Universal geometry for finishing and medium machining operations

**MM4 geometry**
- Machining parameters – f: 0.08–0.32 mm; $a_p$ 0.4–3.5 mm
- Machining long-chipping materials

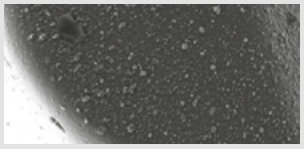
**Copy turn system WL25**
- Copy turning of recesses up to 30°, 50° (W1011/W1211) and 72.5° (W1010/W1210)
- Replacement for ISO VBMT, VCMT, DCMT indexable inserts



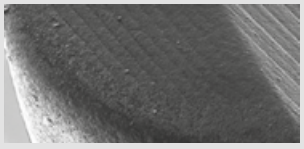

Indexable inserts in grade WSM01

Fig.: DNMG150604-FM5 WSM01
WL25-VC0704N-MM4 WSM01

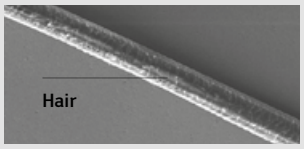
**Surface comparison:**



Standard PVD process:
Increased droplet formation



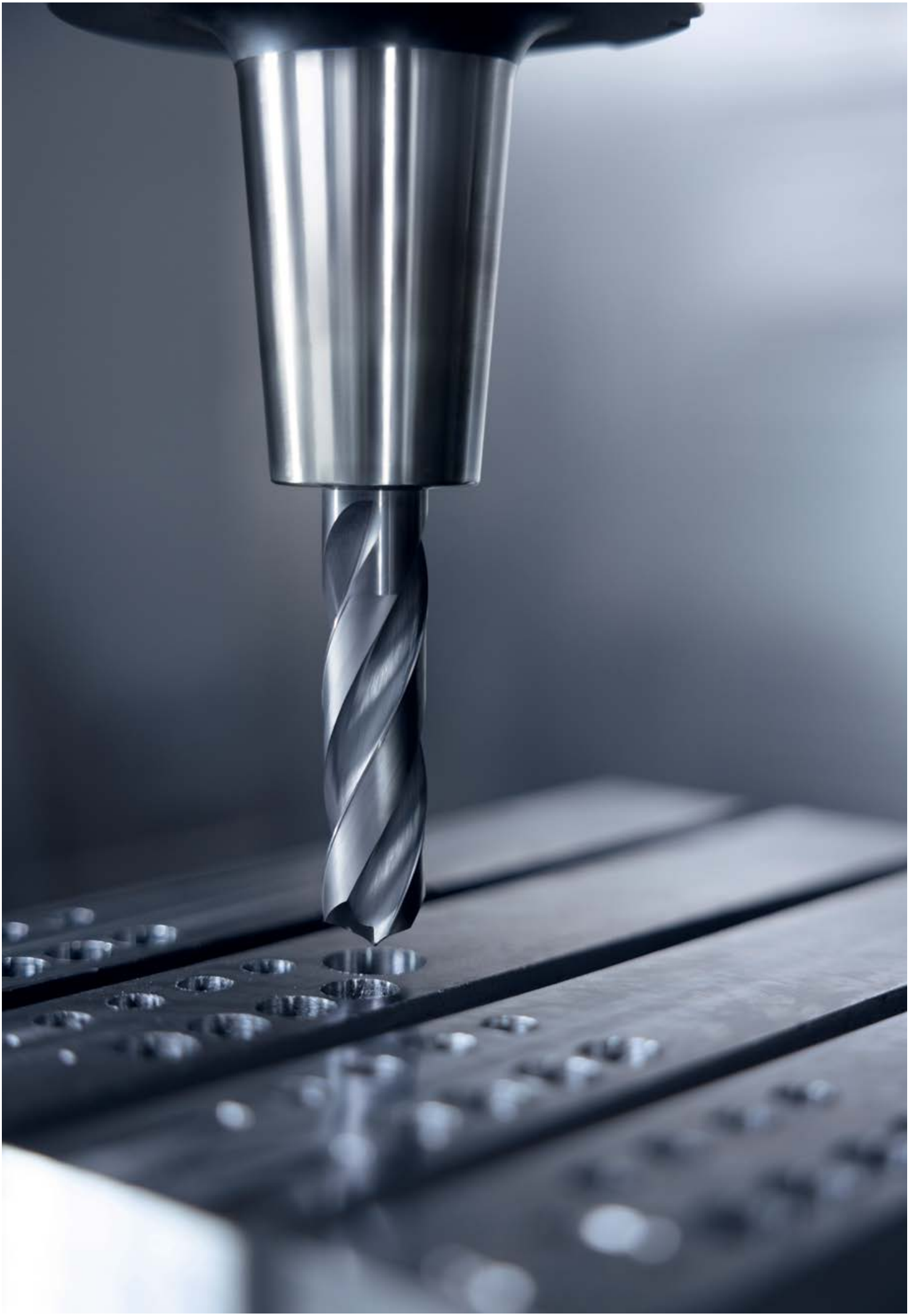
HiPIMS PVD process:
Extremely smooth surface




HiPIMS surface and structure of a hair as a direct comparison

### BENEFITS FOR YOU

- Maximum tool life for high-strength materials
- Optimum surface qualities thanks to HIPIMS coating
- High-quality workpieces over a long tool life



# B – Drilling

## B1: Drilling from solid

# For added productivity and process reliability.

## EXPANSION OF THE RANGE

### NEW ADDITION TO THE PRODUCT RANGE

– 8 × $D_C$ in accordance with Walter standard

### THE TOOL

– DC180 Supreme solid carbide drill with internal coolant
– Dia. 3–20 mm

**Dimensions – standard:**

– 3 × $D_C$ in accordance with DIN 6537 short
– 5 × $D_C$ in accordance with DIN 6537 long
– 8 × $D_C$ in accordance with Walter standard

**Dimensions – Walter Xpress:**

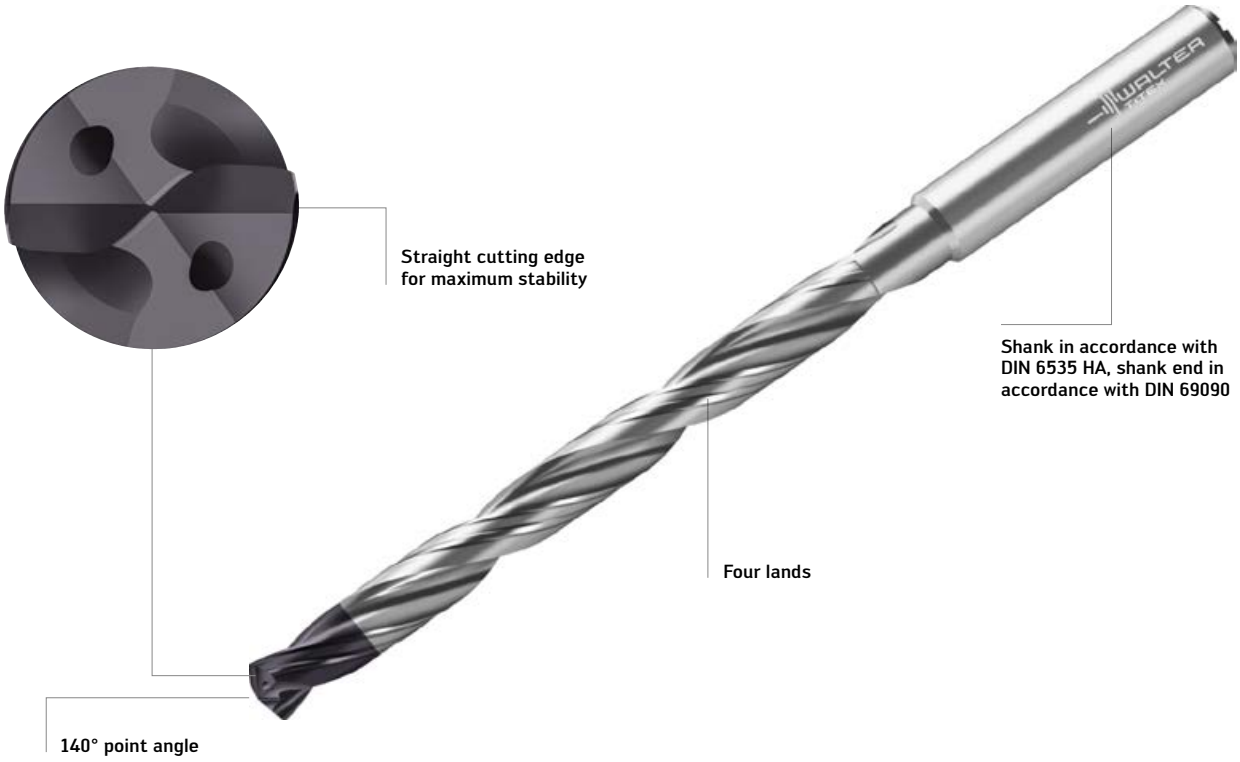
– Up to 8 × $D_C$
– Step drill

**Grades:**

– WJ30EZ: K30F, AlTiN multi-layer coating
– WJ30EY: K30F, AlTiN multi-layer tip coating

### THE APPLICATION

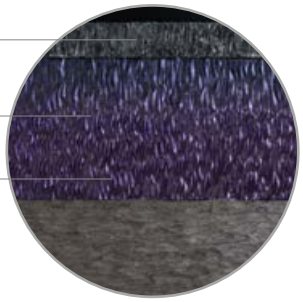
– ISO material groups P, M, K, N, S and H
– Can be used with emulsion, oil or minimum quantity lubrication (MQL)
– Areas of use: Automotive, aviation and energy industries, mould and die making, general mechanical engineering




DC180 Supreme solid carbide drill

Fig.: DC180-08-08.500A1-WJ30EY

## Grades: WJ30EZ and WJ30EY

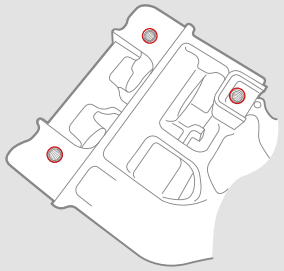



Krato·tec™ multi-layer coating

Powered by
**Krato·tec™**

## APPLICATION EXAMPLE

### Connector – Packaging technology

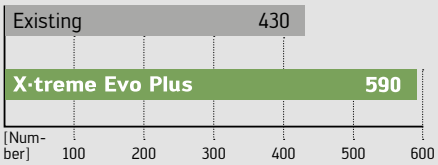


| | |
|---|---|
| **Material:** | TiAl6V4 |
| **Tensile strength:** | 1100 N/mm² |
| **Tool:** | X·treme Evo Plus<br>DC180-05-05.100A1-WJ30EZ |
| **Cooling:** | 10% emulsion – 40 bar |

| **Cutting data:** | Existing | **Walter DC180 Supreme** |
|---|---|---|
| **$v_c$ [m/min]** | 24 | 24 |
| **n [rpm]** | 1500 | 1500 |
| **f [mm/rev]** | 0.097 | 0.097 |
| **$v_f$ [mm/min]** | 145 | 145 |
| **Drilling depth [mm]** | 13 | 13 |
| **Drilled holes [#]** | 430 | 590 |

**Comparison: Number of holes**

**+37%**




## BENEFITS FOR YOU

- Maximum productivity due to Krato·tec™ coating technology
- Straight cutting edge ensures high process reliability
- Universal application at the highest cutting speeds
- 8 × $D_c$ version with four lands
- Can be used with emulsion, oil or minimum quantity lubrication (MQL)

**Also available as**

Walter Xpress

# C – Threading

# Thrill·tec™ – the 3-in-1 solution for fast thread milling.

**NEW**

### THE TOOL

- Orbital drill/thread mill for universal machining
- Creation of core hole and thread in one operation
- Can also be used for chamfering
- IMPORTANT: Left-hand cutting tool

**Dimensions:**

- M4–M12
- UNC8–UNC1/2
- G1/16–G1/4

### THE APPLICATION

- Blind-hole and through-hole threads
- Can be used universally with ISO P, M, K, N and S up to 48 HRC
- Thread depths of 2 and 2.5 × $D_N$

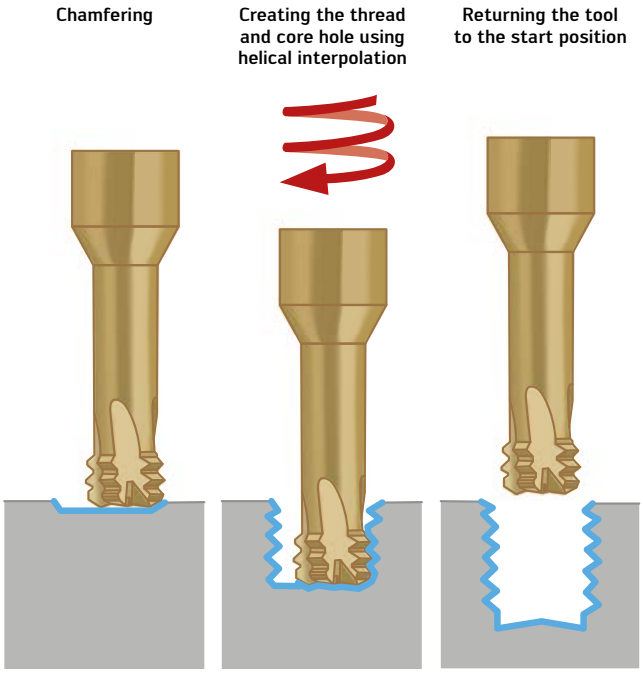

**Thrill·tec™**

Solid carbide orbital drill/thread mill

Fig.: TC645-M10-A1D-WB10TJ

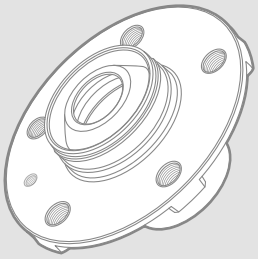
## THE STRATEGY

- Chamfering should take place before thread milling (repeat chamfering may be required)
- Cooling with emulsion makes it possible to achieve maximum tool life in materials up to 48 HRC




## APPLICATION EXAMPLE

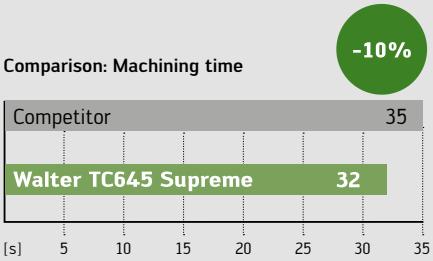
### Wheel hub



| | |
|---|---|
| **Material:** | 42CrMo4 - 1.7223 |
| **Tensile strength:** | 850 N/mm² |
| **Thread depth:** | 12 mm |
| **Tool:** | TC645 – M14×1,5 |
| **Machining:** | Through hole |
| **Cooling:** | Emulsion |

| **Cutting data:** | **Competitor** Drill<br>Countersinker<br>Tap | **Walter** Circular drill/ thread mill |
|---|---|---|
| **$v_c$ [m/min]** | 120<br>100<br>40 | 315 |
| **$f_n$ [mm]** | 0.30<br>0.20 | - |
| **$f_z$ [mm]** | - | 0.25 |
| **Machining time [s]** | 25 | 30 |
| **Tool change and processing time [s]** | 10 | 2 |
| **Total time [s]** | 35 | 32 |

**Comparison: Machining time**




## BENEFITS FOR YOU

- Maximum process reliability
- Very low cost per thread (high tool life quantity, fast machining time)
- Reduces the number of tool positions and the tool change time
- Universal use

# Tiger·tec® Gold – the new benchmark for thread milling.

**NEW**

### THE GRADE

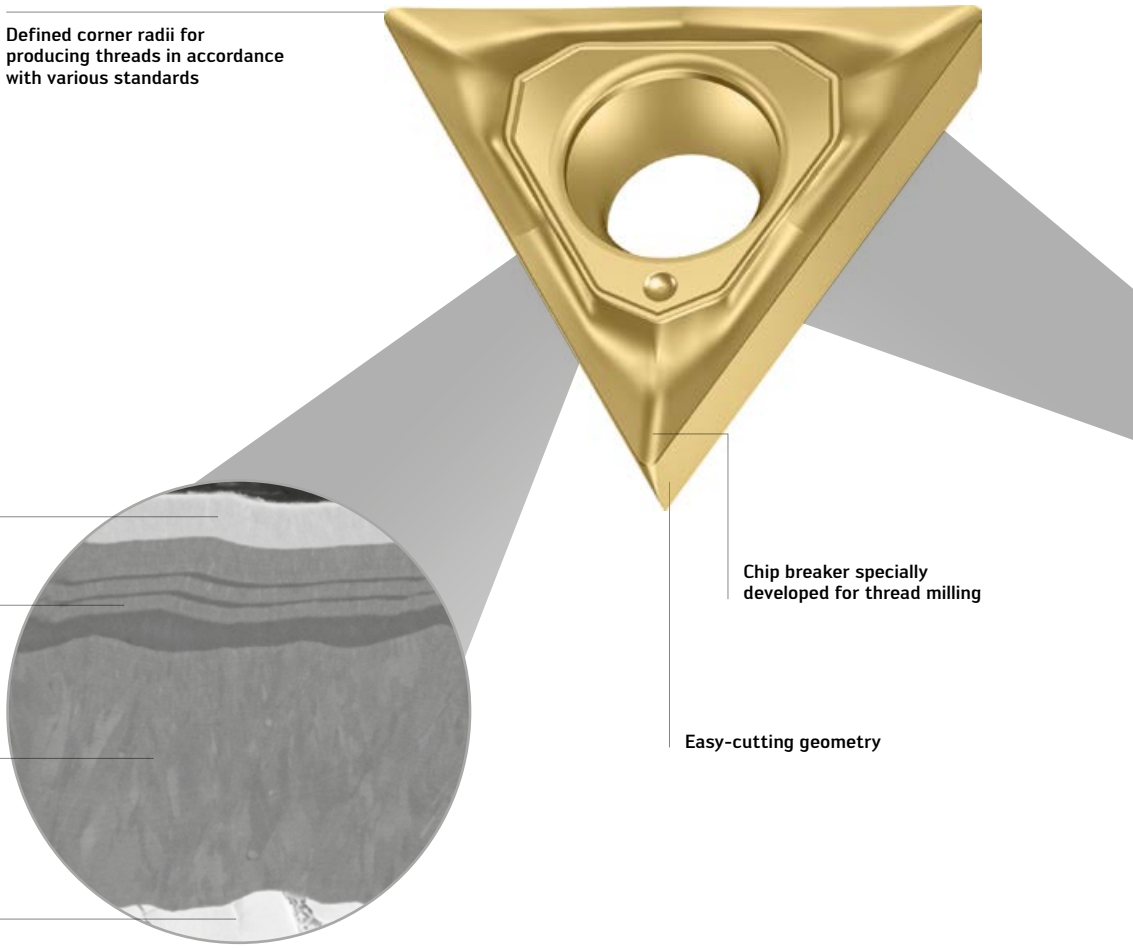
- Tiger·tec® Gold thread milling grade WSM37G
- Wear-resistant, universal grade
- The only PVD $Al_2O_3$ coating technology of its kind in the world
- Extremely smooth rake face for low friction

### THE TOOL

- Compatible with all Walter T2710–T2713 thread milling cutters

### THE GEOMETRY

- Positive basic shape with three cutting edges
- Defined corner radii for producing threads in accordance with various standards
- D67 universal geometry for maximum tool life quantity
- D61 with anti-vibration land for a high level of operational smoothness when using large projection lengths or under difficult conditions




Powered by Tiger·tec® Gold

P26300 thread milling cutter insert in grade WSM37G

Fig.: P26300-0902-D67 WSM37G

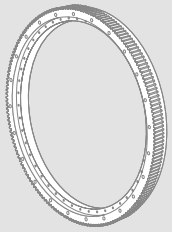
## THE APPLICATION

- Blind-hole and through-hole threads
- Threads with a nominal diameter from 16 mm or UNC 3/4
- Pitch range 1.5–10 mm or 18–3 TPI
- Universal application with ISO P, M, K, S and H up to 55 HRC


T2710 indexable insert thread milling cutter  Fig.: T2710-44-W40-3-14-3-22

## APPLICATION EXAMPLE

### Spur gear

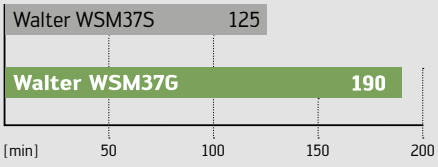


| | |
|---|---|
| **Material:** | 42CrMo4 - 1.7223 |
| **Tensile strength:** | 1 200 N/mm² |
| **Tool:** | T2711-29-W32-3-09-3-24 |
| **Indexable insert:** | P26300-0902-D67 |
| **Thread size/ thread depth:** | M36; 72 mm |
| **Cooling:** | Emulsion |

| Cutting data: | Walter WSM37S | Walter WSM37G |
|---|---|---|
| $v_c$ [m/min] | 160 | 160 |
| $f_z$ [mm] | 0.35 | 0.35 |
| Number of radial cuts | 1 | 1 |
| Tool life [min] | 125 | 190 |

**+50%**

**Comparison: Tool life**




## BENEFITS FOR YOU

- Process reliability due to the perfect balance between wear resistance and toughness
- High tool life due to unique PVD $Al_2O_3$ coating
- Universal application even under difficult conditions
- High productivity due to optimal cutting parameters
- Best wear detection due to the gold-coloured top layer

# Impressive solution for small and deep threads.

## EXPANSION OF THE RANGE

### THE TOOL

- Universal orbital thread milling cutter
- Walter DeVibe technology for vibration damping
- As an option, internal coolant from M3 for reliable chip removal on deep threads
- Flexible clamping options (collet, shrink-fit chuck, hydraulic expansion chuck and power clamping chuck)

**The range**

- M1.2–M18
- M5×0.5–M14×1.5
- UNC 1–64 – UNC ¾–10
- UNF0–80 – UNF3/4–16
- STI UNF10–32 – STI UNF3/8–24

### THE APPLICATION

- Blind-hole and through-hole threads
- ISO materials P, M, K, N and S up to 48 HRC
- Useable length up to 4 × $D_N$ in the standard range
- Ideal for strict requirements on process reliability (e.g. for expensive components)
- Unfavourable machining conditions
- Areas of use: General mechanical engineering, aerospace, medical, electronics and precision mechanical industries


Solid carbide orbital thread milling cutter

Fig.: TC630-M6-A5H-WB10TJ

### BENEFITS FOR YOU

- High level of process reliability for demanding machining operations
- Walter DeVibe technology: Reliable machining, even in extreme conditions
- Universal application in many different materials
- Flexible clamping options
- Extensive product range

# Hard machining times two: Core hole and thread in one operation.

## EXPANSION OF THE RANGE

### THE TOOL

- Orbital drill thread milling cutter for hard machining
- Chamfer, core hole and thread in one operation
- 15° helix angle for perfect chip removal
- IMPORTANT: Left-hand cutting tool

**The range**

- M2–M20
- G1/16–G1/2

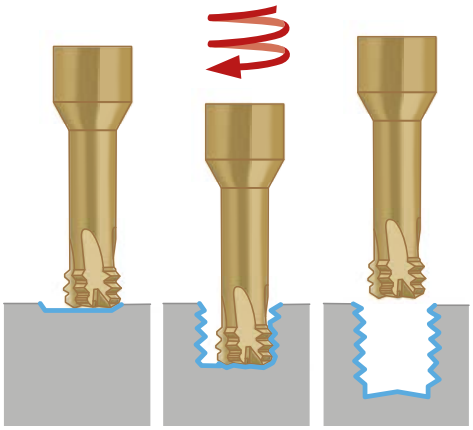
### THE APPLICATION

- Blind-hole and through-hole threads
- ISO P and ISO H materials with 44–65 HRC
- Thread depths of 2 and 2.5 × $D_N$
- Areas of use: Mould and die making, general mechanical engineering, among others

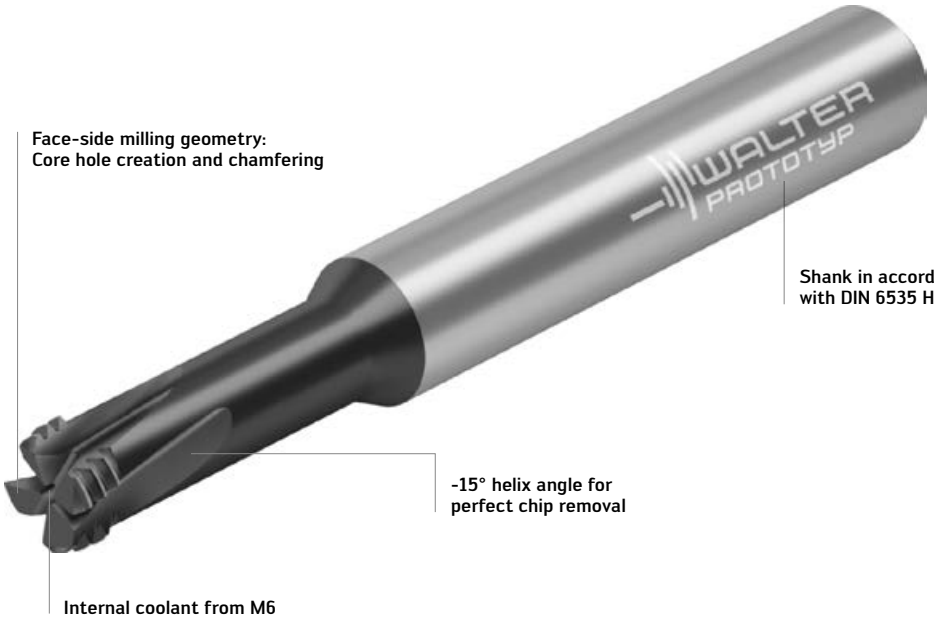
### THE STRATEGY

- Chamfering should take place before thread milling (repeat chamfering may be required)
- Cooling with compressed air makes it possible to achieve maximum tool life in materials above 50 HRC

### THE STRATEGY



Chamfering | Creating the thread and core hole using helical interpolation | Returning the tool to the start position




Face-side milling geometry: Core hole creation and chamfering

Shank in accordance with DIN 6535 HA

-15° helix angle for perfect chip removal

Internal coolant from M6

Solid carbide orbital drill/thread mill Fig.: TC685-G1/4-A1D-WB10RC

### BENEFITS FOR YOU

- Maximum process reliability and tool life quantity
- Very low cost per thread
- Reduces the number of tool positions

# D – Milling

# Tiger·tec® Gold is pushing the boundaries.

## EXPANSION OF THE RANGE

### NEW ADDITION TO THE PRODUCT RANGE

– Other indexable inserts in grades WKK25G and WSM35G for all common shoulder milling cutters, face milling cutters, high-feed milling cutters, slot milling cutters, copy milling cutters and profiling cutters

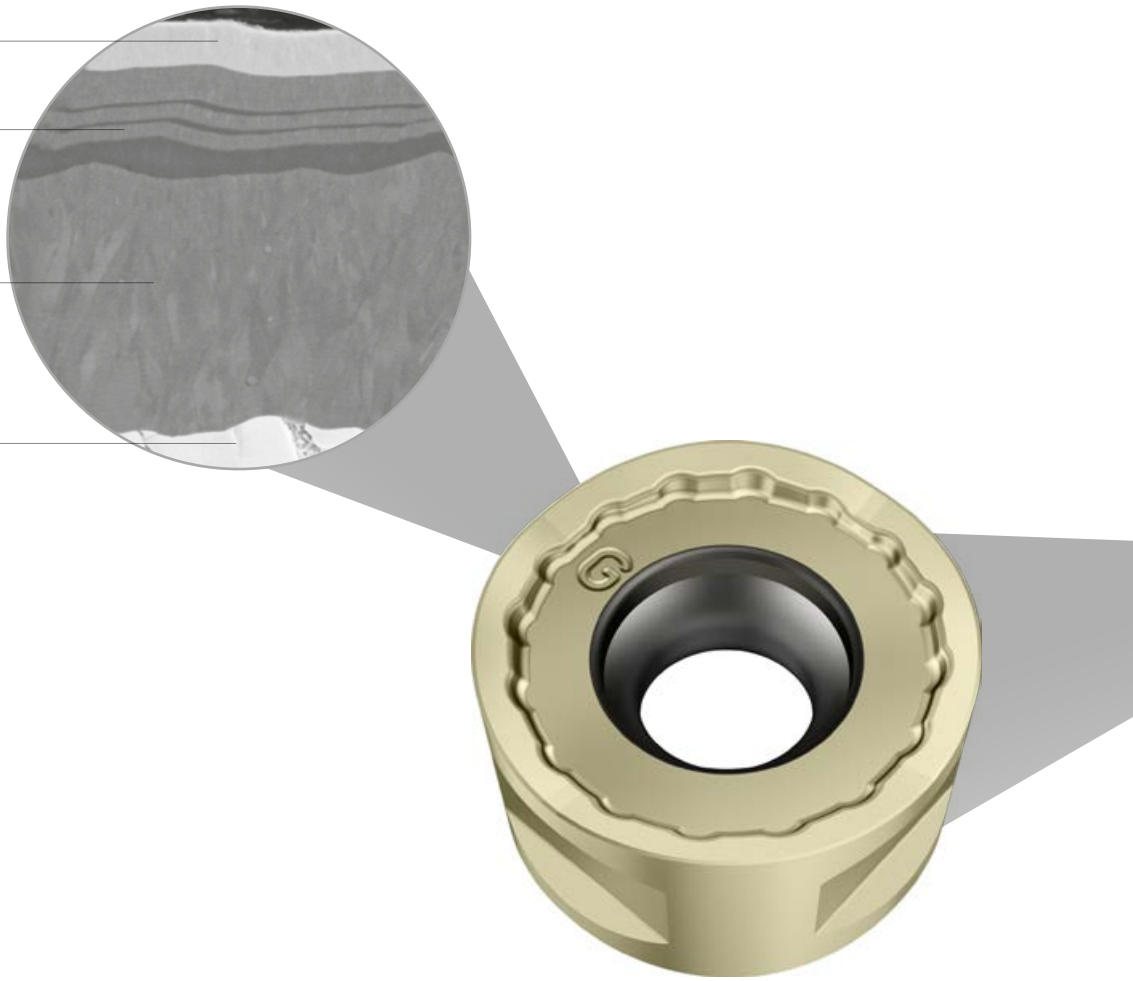
### THE TOOL

– Compatible with all standard milling cutters from the Walter range

### THE GRADE

– PVD-coated Tiger·tec® Gold milling grades WKK25G and WSM35G
– The only PVD $Al_2O_3$ coating technology of its kind in the world
– ZrN top layer for the best wear detection
– Perfect balance between wear resistance and toughness
– Extremely smooth rake face for low friction

**Tiger·tec® Gold**




Tiger·tec® Gold grade WSM35G

Fig.: RNMX1005M0-G57 WSM35G

## THE APPLICATION

### WKK25G

- Universal application for ISO K materials (e.g. ductile cast iron)
- Ideal for unfavourable conditions such as interrupted cuts or for wet machining
- Areas of use: E.g. automotive industry and general mechanical engineering

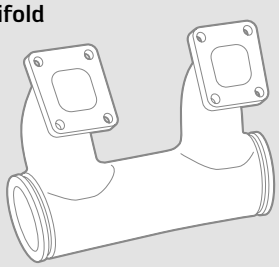
### WSM35G

- Universal application for ISO M and S (e.g. austenitic stainless steel or nickel-based alloys)
- For good conditions and long tool life (even during wet machining)
- Areas of use: E.g. aerospace and energy industries and general mechanical engineering


M2471 button insert milling cutter Fig.: M2471-050-B22-06-05

## APPLICATION EXAMPLE

### Exhaust manifold

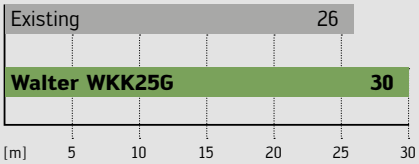


| | |
|---|---|
| **Material:** | GGG40 (0.7040), ISO K |
| **Tool:** | M5012 / 063 /Z6 |
| **Indexable insert:** | SNGX1205ZNN-F57 |
| **Cutting tool material:** | WKK25G |

**Cutting data**

| | Existing | Walter WKK25G |
|---|---|---|
| **$v_c$ (m/min)** | 277 | 277 |
| **$f_z$ (mm)** | 0.12 | 0.12 |
| **$a_e$ (mm)** | 30–50 | 30–50 |
| **$a_p$ (mm)** | 0.40 | 0.40 |
| **Cooling** | Wet | Wet |

**Comparison: Tool life distance** **+15%**




## BENEFITS FOR YOU

- Highly reliable due to the perfect balance between wear resistance and toughness
- Universal application even under difficult conditions
- High productivity due to cutting tool materials adapted to the application
- Best wear detection due to the gold-coloured top layer
- Long tool life due to unique PVD $Al_2O_3$ coating

# The Tiger·tec® Gold grade for profile milling.

## EXPANSION OF THE RANGE

### NEW ADDITION TO THE PRODUCT RANGE

– Tiger·tec® Gold grade WSP46G – specially developed for P3204 inserts

### THE GRADE

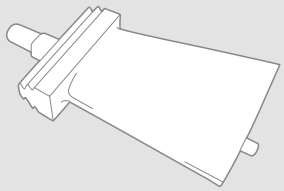
– PVD-coated Tiger·tec® Gold milling grade WSP46G
– AlTiN coating with excellent layer bonding
– Layer thickness optimised for best coverage of sharp cutting edges
– Smooth layer with perfect balance between toughness and wear resistance
– ZrN top layer for the best wear detection

### THE APPLICATION

– High-precision copying of freeform surfaces and deep cavities
– For steel, stainless steels and materials with difficult cutting properties
– Areas of application: Mould and die marking, aerospace and energy industries

### APPLICATION EXAMPLE

**Turbine blade – Copying and finishing**

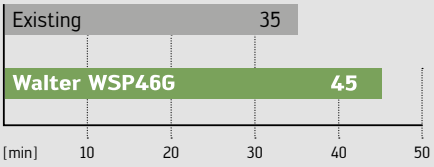


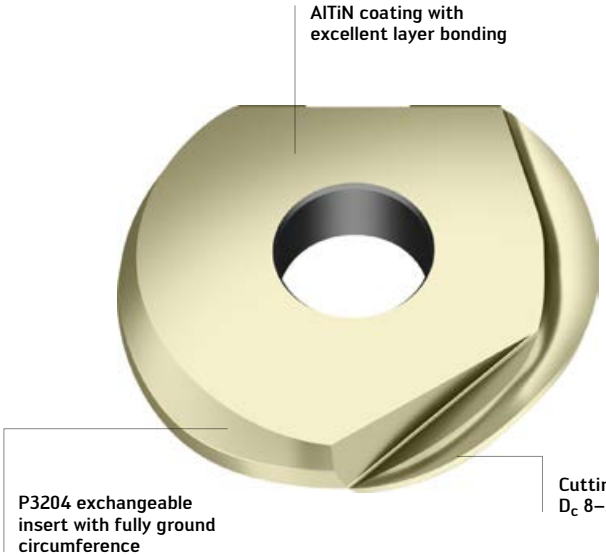
| | |
|---|---|
| **Material:** | 1.4923, X22CrMoV12-1 |
| **Tensile strength:** | 890 N/mm² |
| **Tool:** | M5460-012-A12-02-06-C |
| **Indexable insert:** | P3204-D12 WSP46G |

| Cutting data: | Existing | Walter WSP46G |
|---|---|---|
| $v_c$ [m/min] | 280 | 280 |
| $f_z$ [mm] | 0.20 | 0.20 |
| $a_e$ [mm] | 0.6 | 0.6 |
| $a_p$ [mm] | 0.6 | 0.6 |
| Cooling | Compressed air | Compressed air |
| $T_e$ [min] | 35 | 45 |

**Comparison: Tool life**

+29%




New Tiger·tec® Gold grade WSP46G

### BENEFITS FOR YOU

– Maximum cost-efficiency due to high cutting speeds and less rework
– Maximum precision and tool life due to extreme cutting edge stability
– Maximum process reliability and best surfaces due to optimised chip removal

# Ready for high cutting speeds.

**NEW**

## THE TOOL

- M2472 – milling cutter with positive ceramic inserts
- M2473 – milling cutter with double-sided ceramic inserts

## THE GRADE

- The top choice for milling: SiAlON grades due to their high resistance to thermal shocks
- WIS10: For very stable conditions with excellent wear resistance
- WIS30: For universal application due to the extreme toughness

## THE APPLICATION

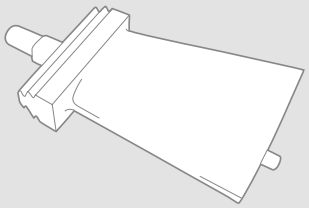
- Ideal for roughing heat-resistant super alloys (HRSA)
- For use without cooling lubricant – compressed air or MQL can be beneficial
- To protect the cutting edge when the tool enters, use the "roll-in" strategy
- Materials: Nimonic, Haynes, Inconel, Stellite, Udimet, Waspaloy, etc.


New button insert milling cutter with ceramic inserts

Fig.: M2473-050-B22-05-06

## APPLICATION EXAMPLE

**Turbine blade – Roughing operation**

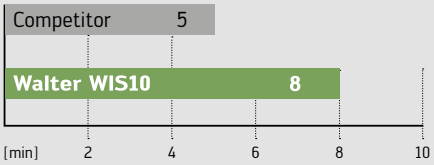


| | |
|---|---|
| **Material:** | Inconel 718 |
| **Tensile strength:** | 1500 N/mm² |
| **Tool:** | M2473-050-B22-05-06 |
| **Indexable insert:** | RNGN120700E WIS10 |

| Cutting data: | Competitor | Walter WIS10 |
|---|---|---|
| $v_c$ [m/min] | 640 | 640 |
| $f_z$ [mm] | 0.28 | 0.28 |
| $a_e$ [mm] | 20 | 20 |
| $a_p$ [mm] | 1.0–1.5 | 1.0–1.5 |
| Cooling | Compressed air | Compressed air |
| $T_e$ [min] | 5 | 8 |

**+60%**

**Comparison: Tool life**




## BENEFITS FOR YOU

- Excellent wear resistance and toughness for reliable production
- Reduction in unit costs due to high productivity
- Protection against material weld formations due to coating on the wedges
- Protection against the flow of chips produced by the milling cutter due to targeted compressed air supply using wedge-type clamping
- Machining of various heat-resistant super alloys (HRSA)


Accure·tec

# E – Boring bars/adaptors

_AB735 SYNCHRONOUS THREADED QUICK-CHANGE COLLET

# Minimise axial forces – make the most of your tool's performance.

## EXPANSION OF THE RANGE

### NEW ADDITION TO THE PRODUCT RANGE

- AB735-ER20-R080-036
- AB735-ER25-R060-027
- AB735-ER25-R100-041
- AB735-ER32-R060-008
- AB735-ER32-R070-019

### THE TOOL

- AB735 synchronous threaded insert for axial movement and pressure compensation
- Can be used in all common ER collet adaptors
- In sizes ER16 to ER32
- For all tool types with and without internal coolant

### THE APPLICATION

- Compensating synchronisation errors
- Avoiding high axial forces
- Minimising load on thread flanks
- Sleek design – therefore requires less space


Synchronous threaded insert

Fig.: AB735-ER20
Fig.: AB735-ER20-R060-035

### BENEFITS FOR YOU

- Low investment costs thanks to modular design
- Increased tool life and process reliability
- Higher productivity thanks to fast tool changes
- Low-maintenance, reduced risk of tool breakage
- Saves costs as fewer tools required

# Master adaptor update – HSK for Walter Capto™.

**NEW**

### THE TOOL

- Master from HSK-A to Walter Capto™
- HA06-C... for HSK-A 63
- HA10-C... for HSK-A 100
- Update in accordance with ISO 12164-1 with data carrier hole
- Balanced construction
- Modular design

### THE APPLICATION

- Can be used on machining centres, lathes and multi-task machines
- Turning, holemaking and milling
- Areas of application: Mould and die making, aerospace and energy industries
- Areas of use: Automotive industry, general mechanical engineering, etc.


Master adaptor from HSK to Walter Capto™ Fig.: HA06-C5-050-090

### BENEFITS FOR YOU

- High level of process reliability due to robust system
- Stability, rigidity and flexibility combined in one system
- Can be used on all machine types (machining centres, lathes, etc.)
- Minimal preparation required as integrally balanced construction created during manufacture

# Save time thanks to the QuadFit quick-change system.

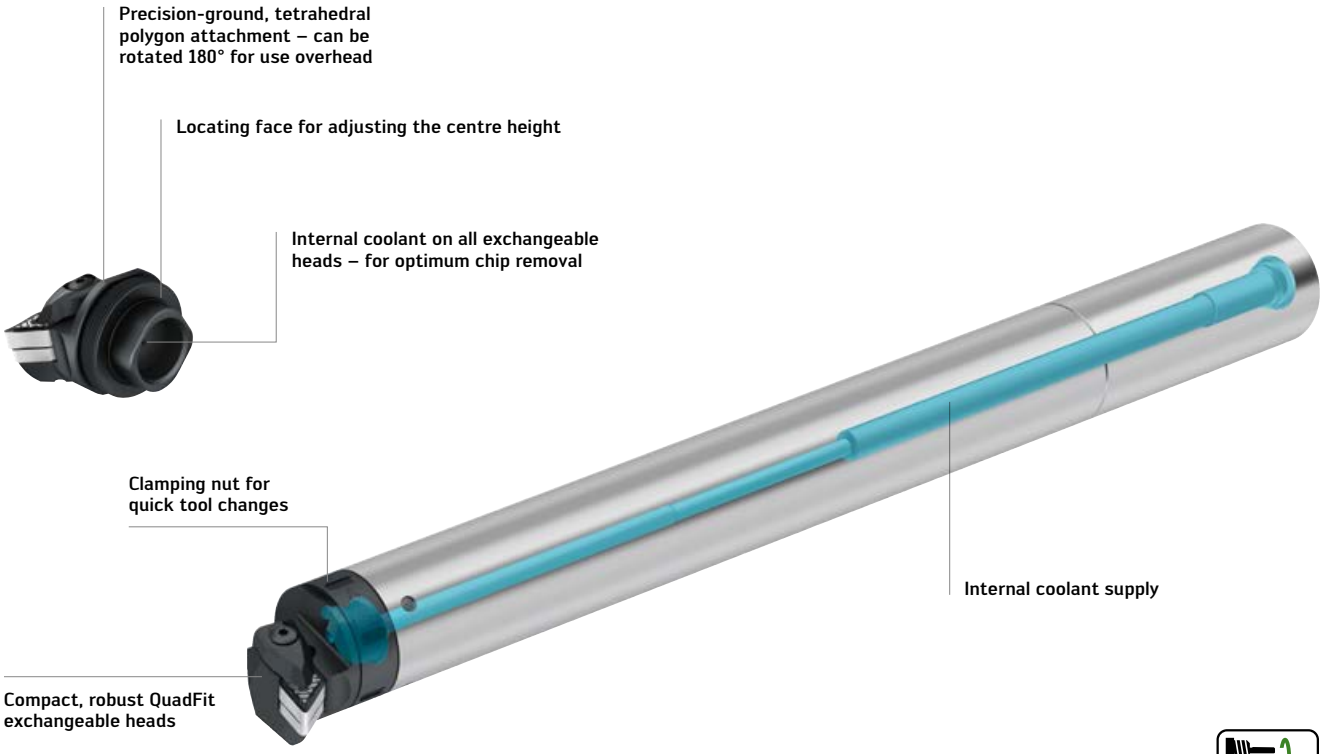
**NEW**

## THE TOOL

- Cylindrical shank adaptor with QuadFit
- Boring bar diameter: 40, 50 and 60 mm
- Dimension 8 × D
- Cylindrical-modular interface

## THE APPLICATION

- Counterboring and internal copy turning
- Machining of long bores
- Areas of application: Aerospace (e.g. engines), Oil & Gas (e.g. pumps) and General Mechanical Engineering




QuadFit quick-change head — Fig.: Q40-DDUNR-27032-15

A2100 steel adaptor with QuadFit — Fig.: A2100-40-Q40-288

## BENEFITS FOR YOU

- Quick and precise tool change (±0.002 mm)
- Less non-productive time due to fast tool changes
- Wide application range for all segments
- Can be used universally for turning operations
- Easy handling

# Xill·tec®
# Universal eXcellence in milling.


With Xill·tec®, the solid carbide milling cutters from the MC230 Advance range, Walter offers you unprecedented universality and excellence in milling: Universal, due to versatility for virtually any application and any material. Excellent, due to the unique combination of a new high-performance geometry with Walter's own wear-resistant WK40TF high-performance grade. This makes Xill·tec® a byword for the greatest operational smoothness, tool life increases and process reliability. And all with outstanding cost-effectiveness.

www.solid-carbide-milling.walter

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WALTER
Engineering Kompetenz

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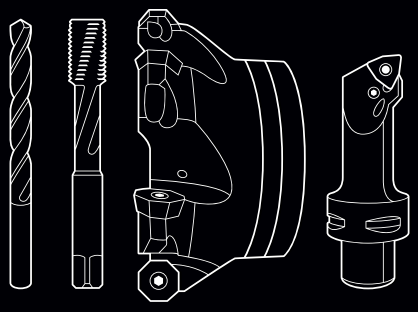

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