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

A1: Grooving

A1: ISO turning

Extremely hard for protection 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

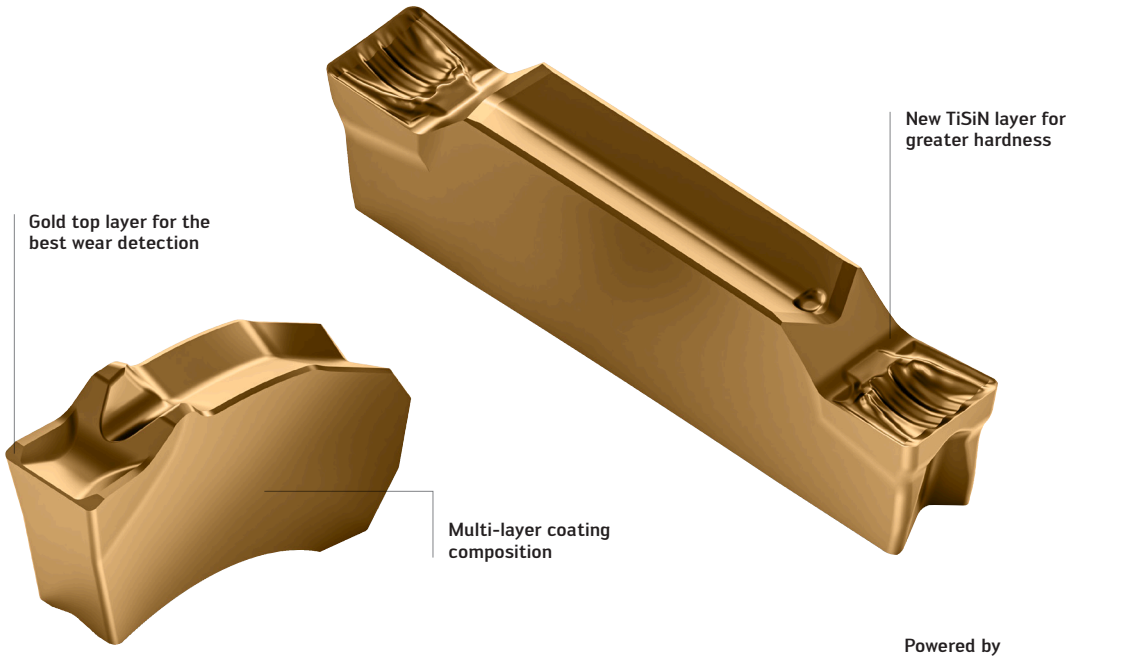
THE INDEXABLE INSERTS

SX

- Single-edged SX cutting inserts with positive engagement and self-clamping system
- Chip breaker geometries: CE4, CF5, CF6, SF5 and UF4
- For G2xxx 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 G4xxx tool types



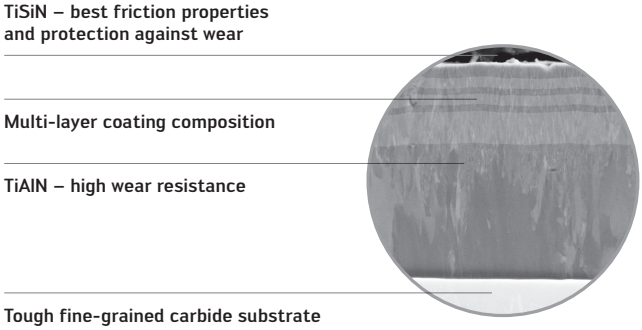
Tiger·tec® Gold cutting inserts for grooving

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

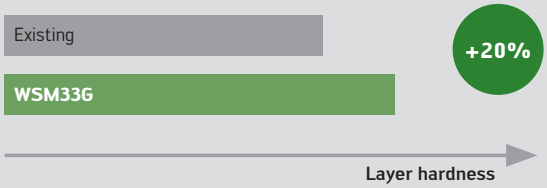
THE APPLICATION

- 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, super alloys (HRSA) ISO S30, steel ISO P30

Tiger·tec® Gold PVD technology



Hardness comparison: Existing coating type and new WSM33G



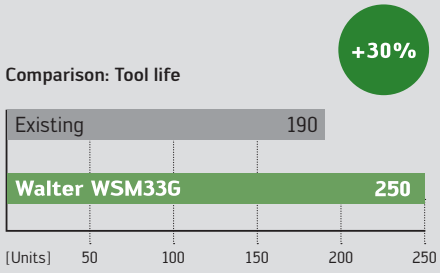
APPLICATION EXAMPLE

Axle – Parting off

Material:	AISI 304L Stainless Steel(X2 CrNi 19 11)
Hardness:	~200 HB
Tool:	G4014-1616R-3T17DX18-P
Diameter:	0.787 in
Cooling:	Internal coolant – oil, 290 psi

Cutting data:	Existing	Walter WSM33G
v_c [sfm]	230	230
f [in]	0.0031/0.0016	0.0031/0.0016
Tool life [units]	190	250

Comparison: Tool life



POTENTIAL BENEFITS

- 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-colored 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 super alloys (HRSA) (ISO S01)
- Extremely smooth rake face for low friction leading to reduced built up edge (BUE)

THE APPLICATION

FM5 geometry

- Machining parameters f: 0.004-0.233 in(0.10–0.60 mm), a_p: 0.012-0.118 in(0.3–3.0 mm)
- Finishing stainless materials and high-temperature alloys

FM6 geometry

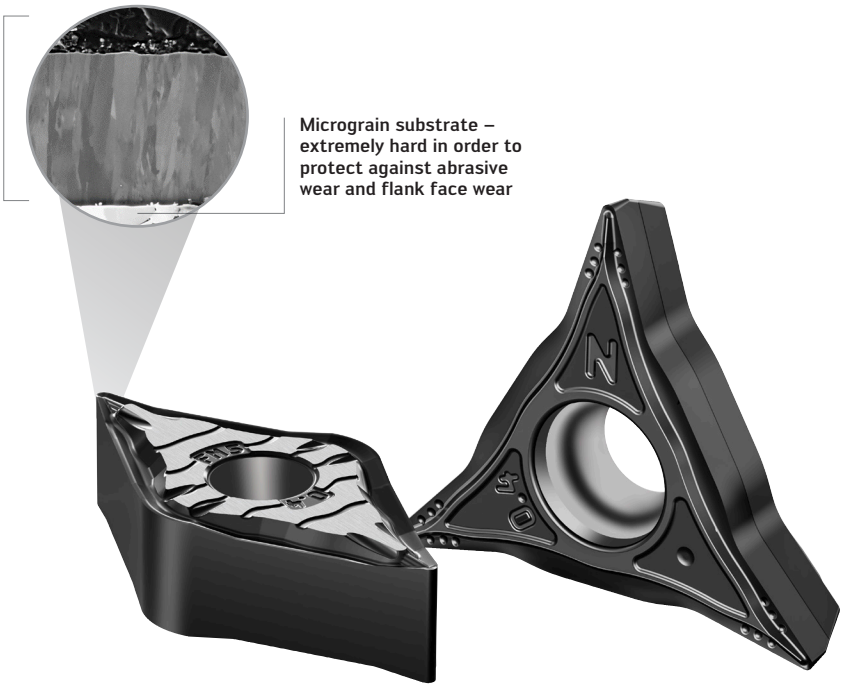
- Machining parameters – f: 0.003-0.013 in(0.08–0.32 mm), a_p: 0.012-0.098 in (0.3–2.5 mm)
- Universal geometry for finishing and medium machining operations

MM4 geometry

- Machining parameters – f: 0.003-0.013 in (0.08–0.32 mm), a_p: 0.016-0.138 in (0.4–3.5 mm)
- Machining long-chipping materials

Copy turn system WL25

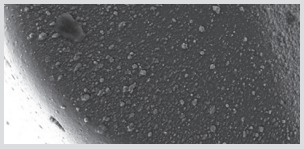
- Copy turning of undercuts and recesses up to 30°, 50° (W1011/W1211) and 72.5° (W1010/W1210)
- Replacement for ISO VBMT, VCMT, DCMT indexable inserts



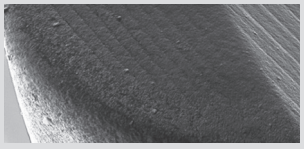
Indexable inserts in grade WSM01

Fig.: DNMG441-FM5 WSM01
WL25-VC0704N-MM4 WSM01

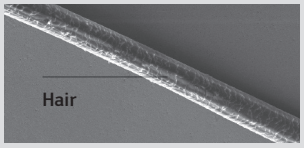
Surface comparison:



Standard PVD process:
Increased droplet formation



HiPIMS PVD process:
Extremely smooth surface



HiPIMS surface and structure of a hair as a direct comparison

POTENTIAL BENEFITS

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

Save time with the QuadFit quick-change system.

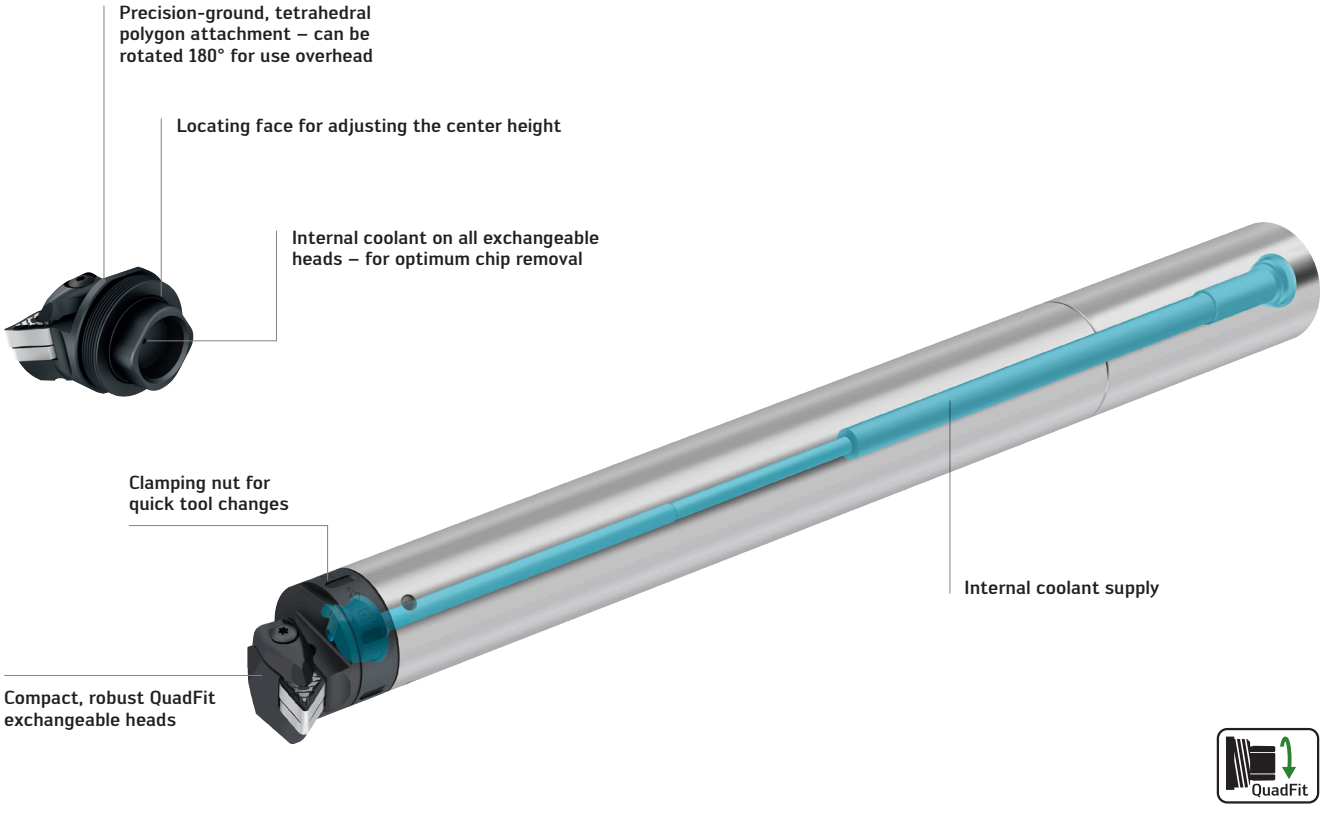
NEW

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

POTENTIAL BENEFITS

- Quick and precise tool change ±0.00008 in(±0.002 mm)
- Less non-productive time due to fast tool changes
- Wide application range for all industry segments
- Can be used universally for turning operations
- Easy handling

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. 0.118-0.787 in (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:

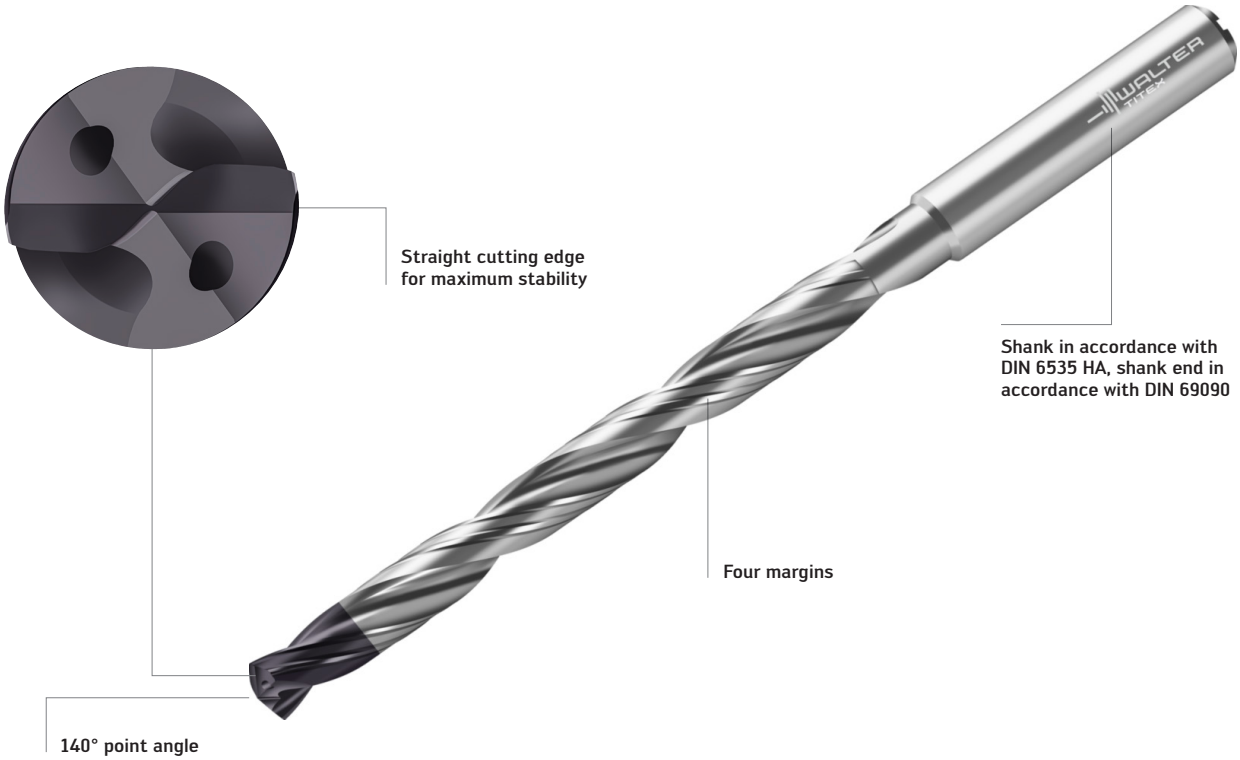
– Up to 8 × D_C
– Step drill

Grades:

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

THE APPLICATION

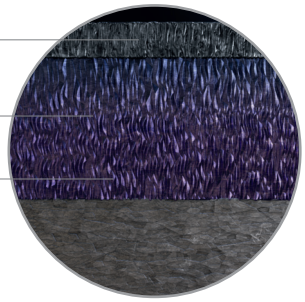
– Steels, stainless steels, cast irons, non-ferrous materials, super alloys and hard materials (ISO material groups P, M, K, N, S and H)
– Can be used with emulsion, oil or minimum quantity lubrication (MQL)
– Areas of use: Automotive, aviation and energy industries, mold and die making, general mechanical engineering



DC180 Supreme solid carbide drill

Fig.: DC180-08-08.500A1-WJ30EY

Grades: WJ30EZ and WJ30EY

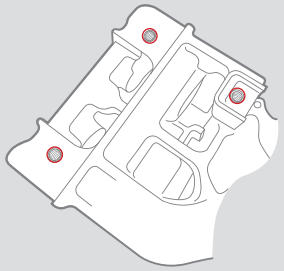


Krato·tec™ multi-layer coating

Powered by
Krato·tec™

APPLICATION EXAMPLE

Connector – Packaging technology

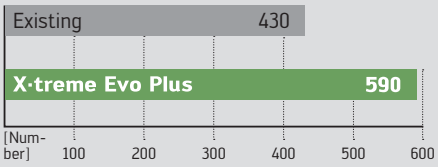


Material:	TiAl6V4
Tensile strength:	160 ksi (~350 BHN)
Tool:	X·treme Evo Plus DC180-05-05.100A1-WJ30EZ
Cooling:	10% emulsion – 580 psi

Cutting data:	Existing	**Walter DC180 Supreme**
v_c [sfm]	79	79
n [rpm]	1500	1500
f [in/rev]	0.004	0.004
v_f [in/min]	5.71	5.71
Drilling depth [in]	0.512	0.512
Drilled holes [#]	430	590

Comparison: Number of holes

+37%

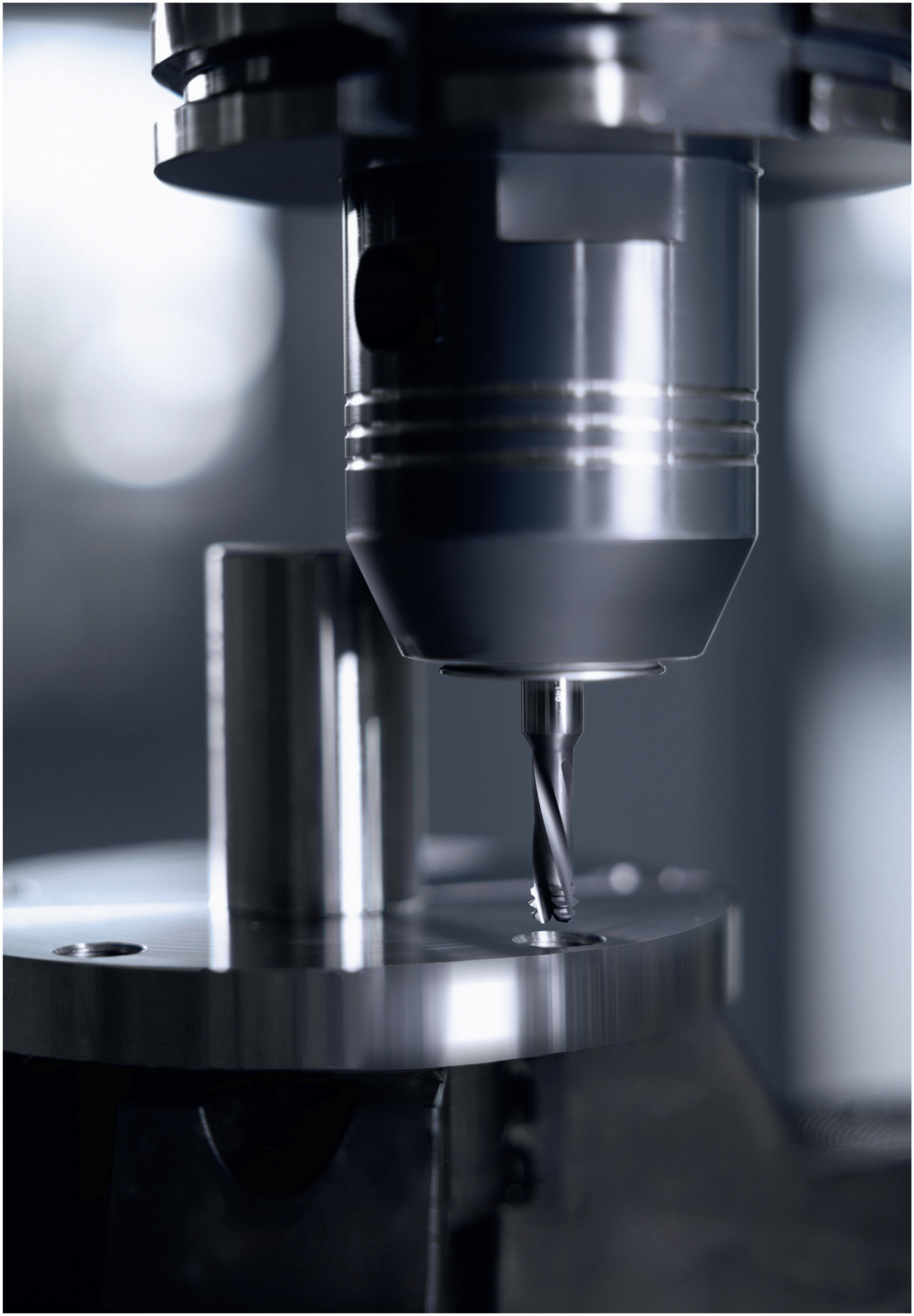


POTENTIAL BENEFITS

- 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 margins
- 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

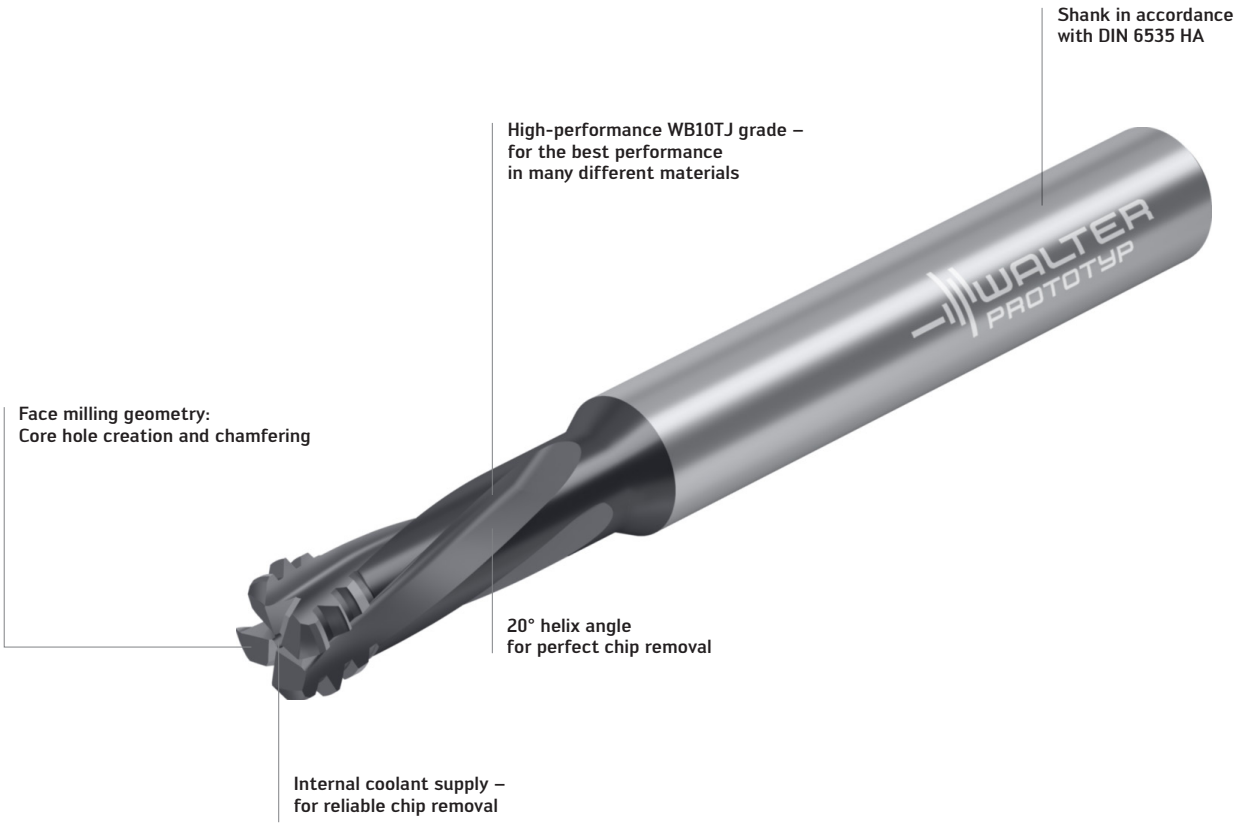
- Orbital drill/thread mill for universal machining
- Creation of core hole and thread in one operation
- Can also be used for chamfering
- IMPORTANT: Left-hand cutting tool

Dimensions:

- UNC8–UNC1/2
- M4–M12
- 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



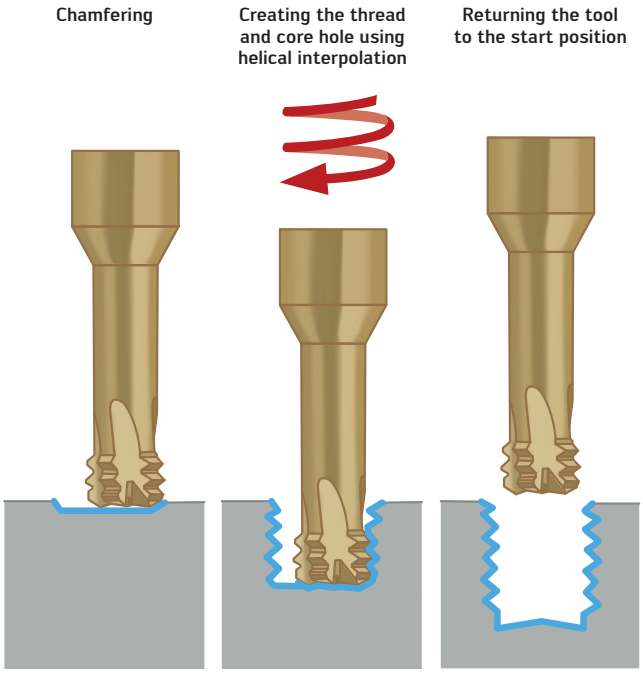
Thrill·tec™

Solid carbide orbital drill/thread mill

Fig.: TC645-M10-A1D-WB10TJ

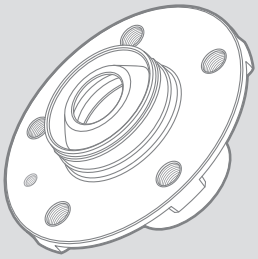
THE STRATEGY

- 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

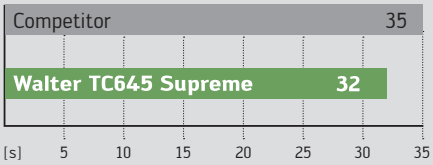


Material:	4140 - 1.7223
Tensile strength:	850 N/mm²
Thread depth:	12 mm
Tool:	TC645 – M14×1,5
Machining:	Through hole
Cooling:	Emulsion

Cutting data:	**Competitor** Drill Countersinker Tap	**Walter** Circular drill/ thread mill
v_c [sfm]	395 330 130	1000
f_n [in/rev]	0.012 0.008	-
f_z [in/rev]	-	0.010
Machining time [s]	25	30
Tool change and processing time [s]	10	2
Total time [s]	35	32

Comparison: Machining time

-10%



POTENTIAL BENEFITS

- 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

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

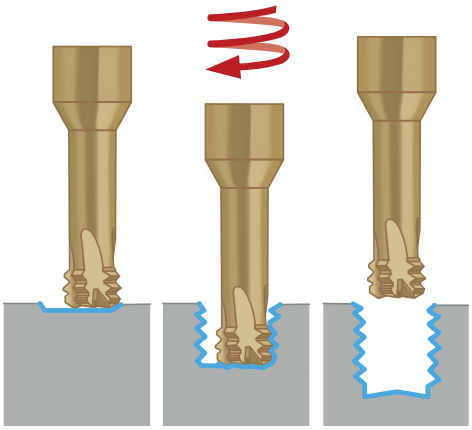
THE APPLICATION

- 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: Mold and die, general mechanical engineering, among others

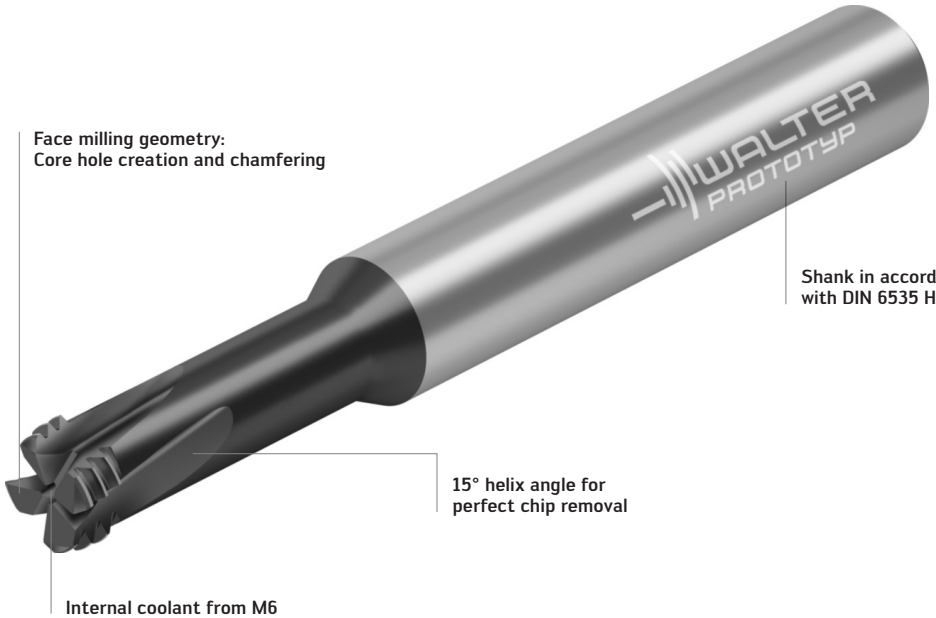
THE STRATEGY

- 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



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

POTENTIAL BENEFITS

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

Impressive solution for small and deep threads.

EXPANSION OF THE RANGE

THE TOOL

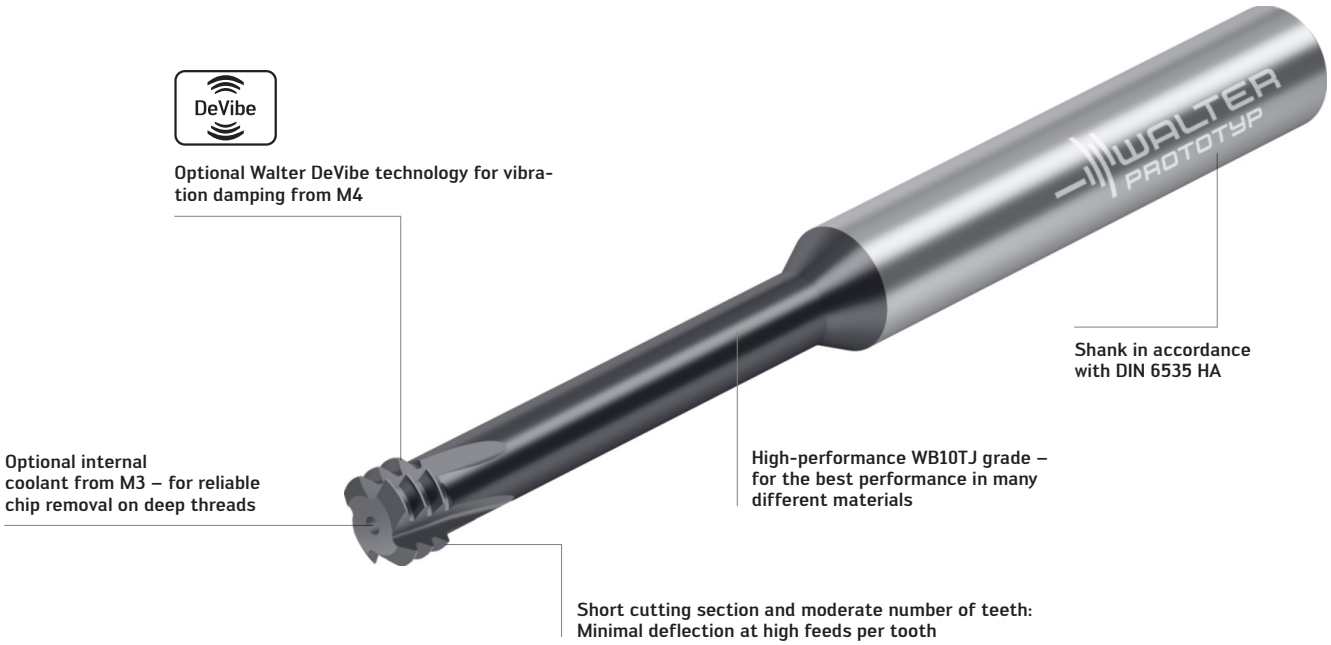
- Universal orbital thread milling cutter
- Walter DeVibe technology for vibration damping
- Optional internal coolant from M3 for reliable chip removal on deep threads
- Flexible clamping options (collet, shrink-fit chuck, hydraulic expansion chuck and power clamping chuck)

The range

- UNC 1–64 – UNC ¾–10
- UNF0–80 – UNF3/4–16
- M1.2–M18
- M5×0.5–M14×1.5
- 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)
- Unfavorable 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

POTENTIAL BENEFITS

- 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

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

NEW

THE GRADE

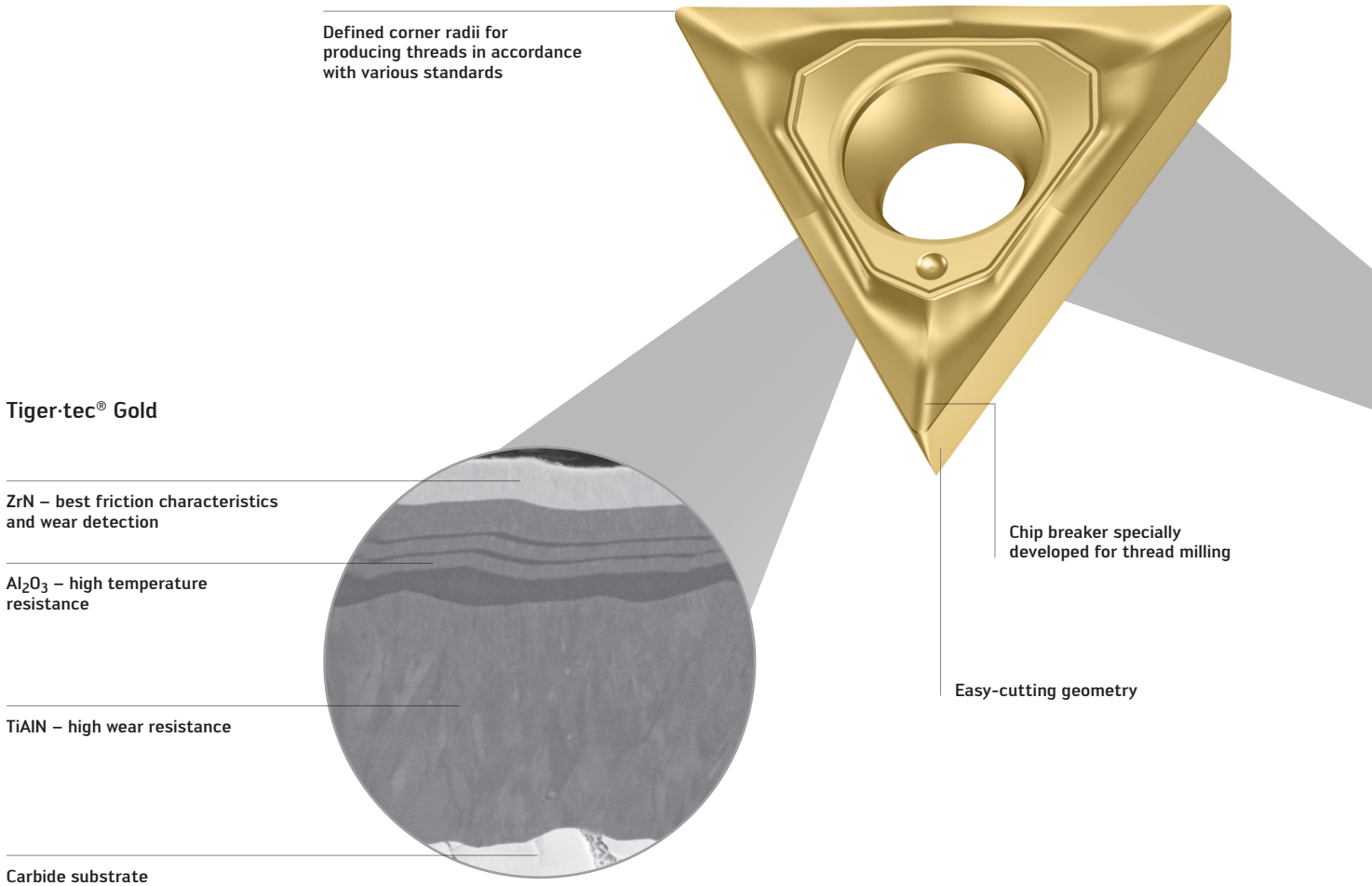
- Tiger·tec® Gold thread milling grade WSM37G
- Wear-resistant, universal grade
- The only PVD Al_2O_3 coating technology of its kind in the world
- Extremely smooth rake face for low friction

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

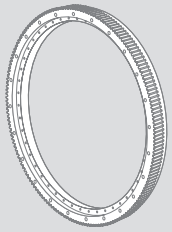
THE APPLICATION

- Blind-hole and through-hole threads
- Threads with a nominal diameter from UNC 3/4 or 16 mm
- Pitch range 3–18 TPI or 1.5–10 mm
- 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

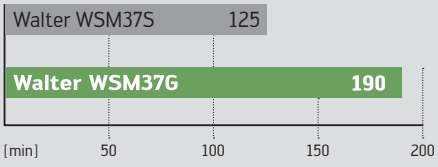


Material:	4140 - 1.7223
Tensile strength:	1 200 N/mm²
Tool:	T2711-29-W32-3-09-3-24
Indexable insert:	P26300-0902-D67
Thread size/ thread depth:	M36; 72 mm
Cooling:	Emulsion

Cutting data:	Walter WSM37S	Walter WSM37G
v_c [sfm]	525	525
f_z [in]	0.014	0.014
Number of radial cuts	1	1
Tool life [min]	125	190

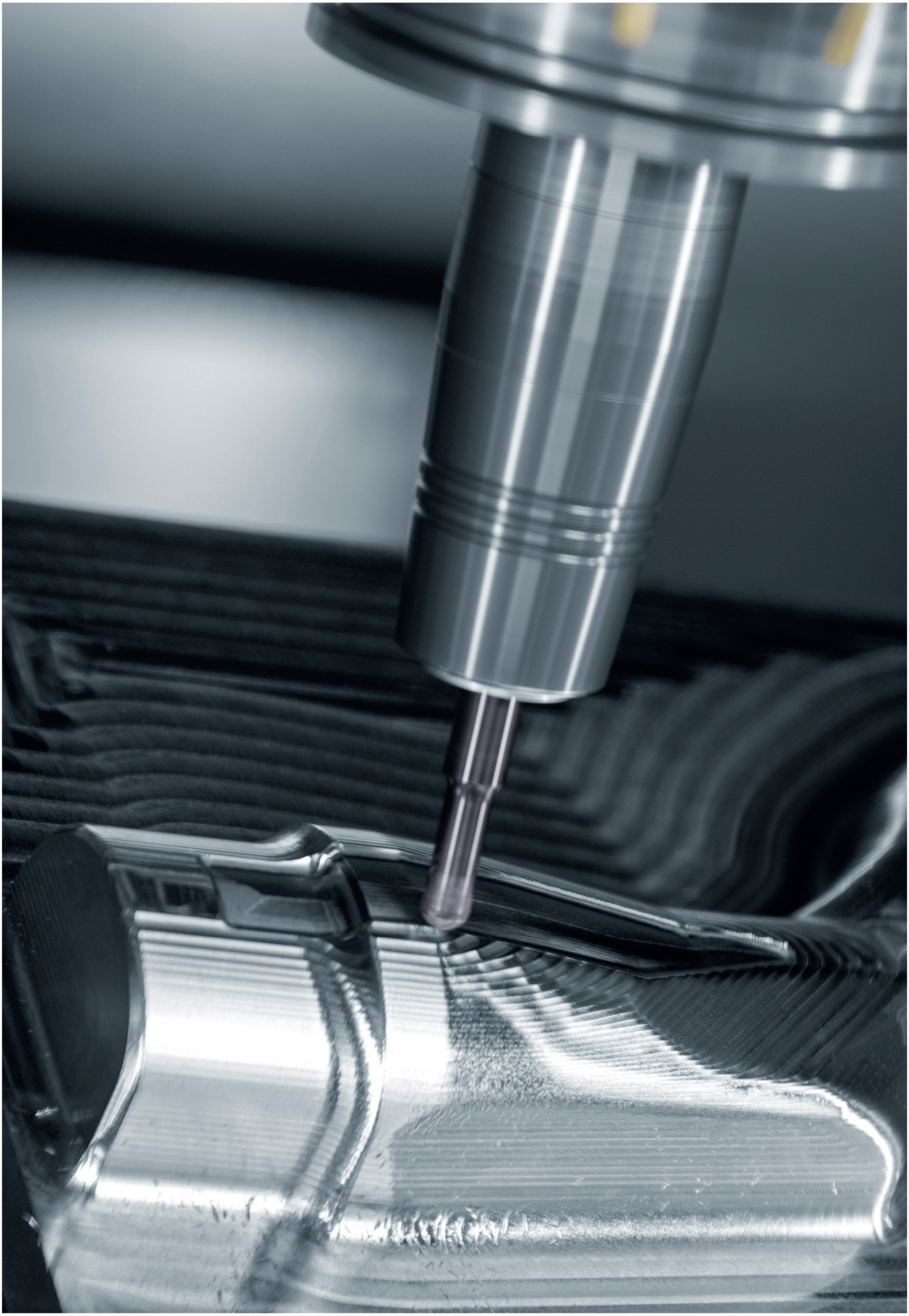
+50%

Comparison: Tool life



POTENTIAL BENEFITS

- 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-colored top layer



D – Milling

Tiger·tec® Gold is pushing the boundaries.

EXPANSION OF THE RANGE

NEW ADDITION TO THE PRODUCT RANGE

– Even more 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

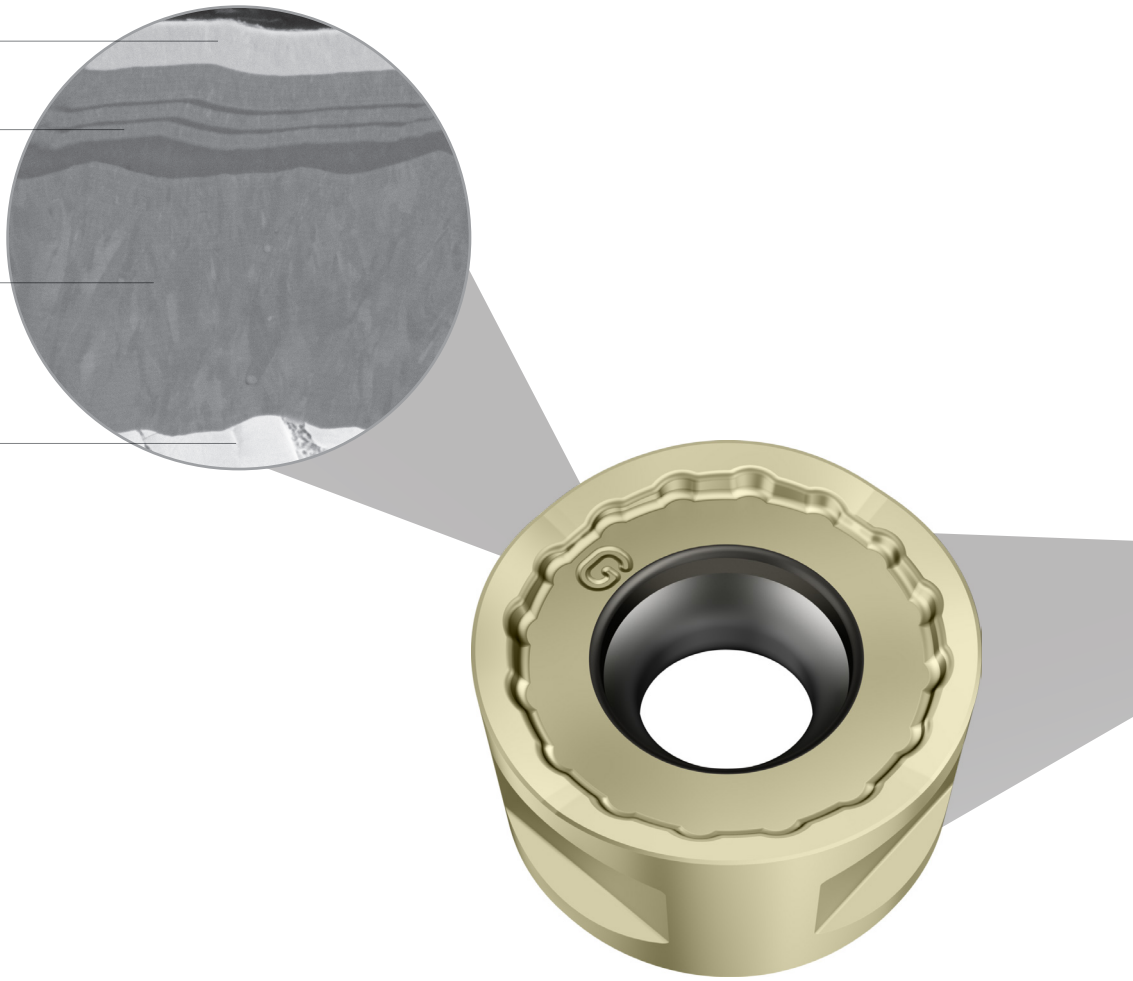
THE TOOL

– 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 unfavorable conditions such as interrupted cuts or for wet machining
- Areas of use: e.g. automotive industry and general mechanical engineering

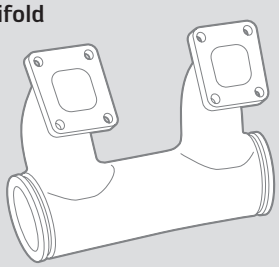
WSM35G

- 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

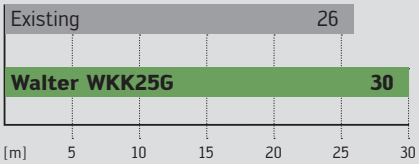


Material:	GGG40 (0.7040), ISO K
Tool:	M5012 / 063 /Z6
Indexable insert:	SNGX1205ZNN-F57
Cutting tool material:	WKK25G

Cutting data

	Existing	Walter WKK25G
v_c (sfm)	910	910
f_z (in)	0.005	0.005
a_e (in)	1.2–2.0	1.2–2.0
a_p (in)	0.016	0.016
Cooling	Wet	Wet

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



POTENTIAL BENEFITS

- 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-colored 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

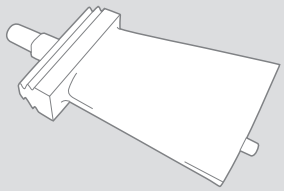
– PVD-coated Tiger·tec® Gold milling grade WSP46G
– AlTiN coating with excellent layer bonding
– Layer thickness optimized for best coverage of sharp cutting edges
– Smooth layer with perfect balance between toughness and wear resistance
– ZrN top layer for the best wear detection

THE APPLICATION

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

APPLICATION EXAMPLE

Turbine blade – Copying and finishing

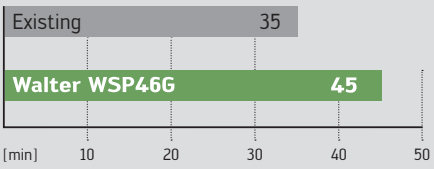


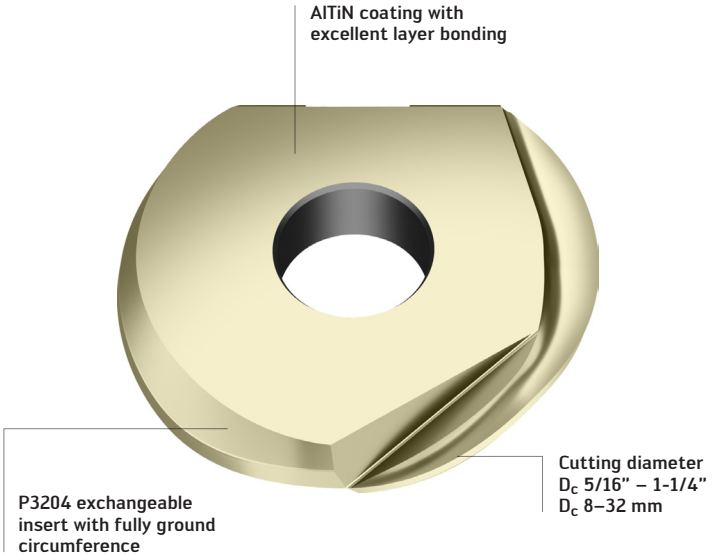
Material: X22CrMoV12–1 (1.4923)
Tensile strength: 890 N/mm²
Tool: M5460-012-A12-02-06-C
Indexable insert: P3204-D12 WSP46G

Cutting data:	Existing	Walter WSP46G
v_c [sfm]	920	920
f_z [in]	0.008	0.008
a_e [in]	0.024	0.024
a_p [in]	0.024	0.024
Cooling	Compressed air	Compressed air
T_e [min]	35	45

Comparison: Tool life

+29%





New Tiger·tec® Gold grade WSP46G

POTENTIAL BENEFITS

– 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 optimized 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

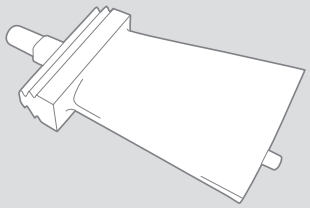
THE APPLICATION

- 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 milling cutter for button ceramic inserts — Fig.: M2473-050-B22-05-06

APPLICATION EXAMPLE

Turbine blade – Roughing operation

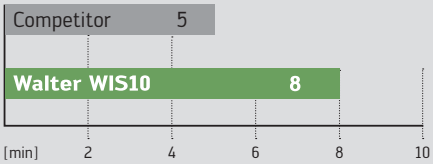


Material:	Inconel 718
Tensile strength:	1500 N/mm²
Tool:	M2473-050-B22-05-06
Indexable insert:	RNGN120700E WIS10

Cutting data:	Competitor	Walter WIS10
v_c [sfm]	2100	2100
f_z [in]	0.011	0.011
a_e [in]	0.800	0.800
a_p [in]	0.040–0.060	0.040–0.060
Cooling	Compressed air	Compressed air
T_e [min]	5	8

+60%

Comparison: Tool life



POTENTIAL BENEFITS

- 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

E1: Rotating adaptors/ Threading adaptors

_AB735 SYNCHRONOUS THREADED QUICK-CHANGE COLLET

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

EXPANSION OF THE RANGE

NEW ADDITION TO THE PRODUCT RANGE

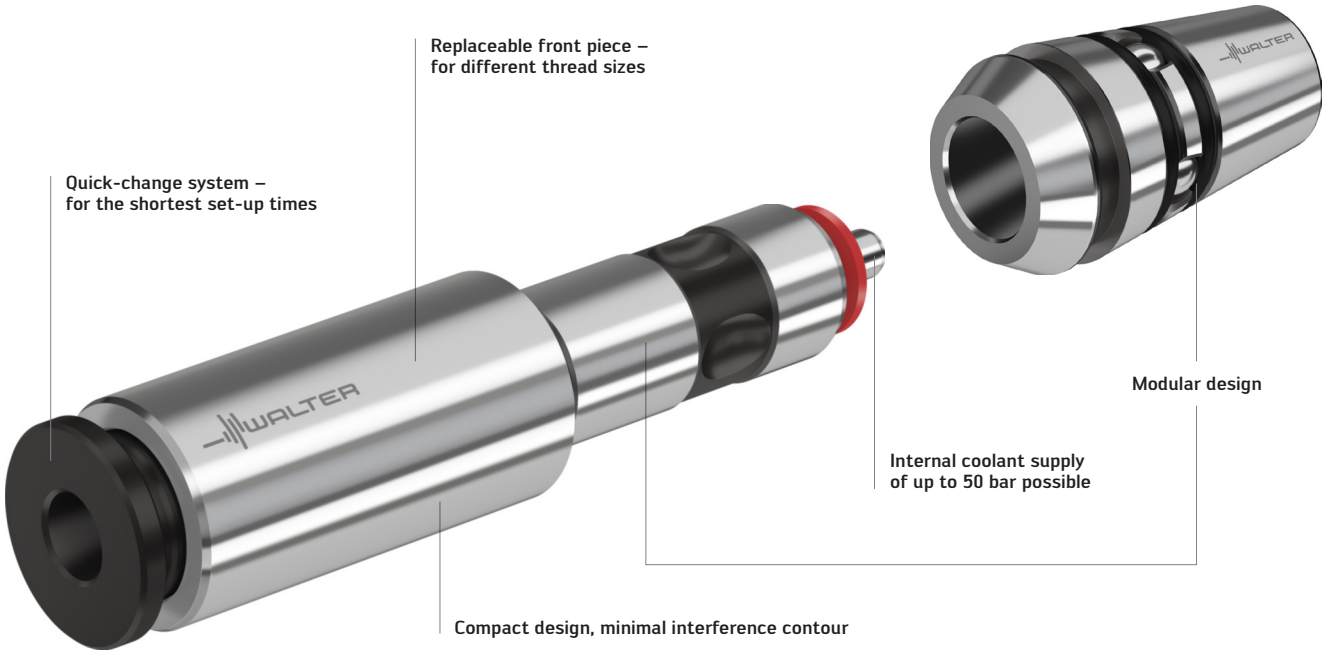
- AB735-ER20-R080-036
- AB735-ER25-R060-027
- AB735-ER25-R100-041
- AB735-ER32-R060-008
- AB735-ER32-R070-019

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
- Minimizing load on thread flanks
- Sleek design – therefore requires less space



Synchronous threaded insert

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

POTENTIAL BENEFITS

- 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 to Walter Capto™.

NEW

THE TOOL

- Master from HSK-A to Walter Capto™
- HA06-C... for HSK-A 63
- HA10-C... for HSK-A 100
- Updated to ISO 12164-1 with data carrier hole (Balluff)
- Balanced construction
- Modular design

THE APPLICATION

- Can be used on machining centers, lathes and multi-task machines
- Turning, holemaking and milling
- Areas of application: Mold and die, 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

POTENTIAL BENEFITS

- 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 centers, lathes, etc.)
- Minimal preparation required as integrally balanced construction created during manufacture

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

Walter USA, LLC

1510 South Batesville Rd
Greer, SC 29650, USA

Phone: 800-945-5554
Fax: 262-347-2500
service.us@walter-tools.com

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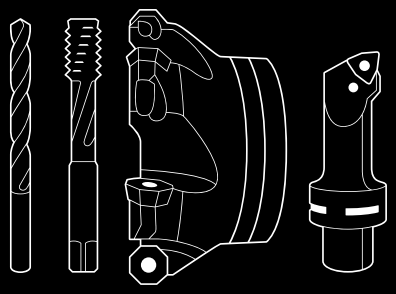

Walter Canada
service.ca@walter-tools.com

Walter Tools S.A. de C.V.
Carr. Estatal KM 2.22 #431, Módulo 3, Interior 19 y 20
El Colorado Galindo, Municipio El Marqués, Querétaro, C.P. 76246, México
Phone: +52 (442) 478-3500
service.mx@walter-tools.com

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