



Walter Cut GX - Grooving

Edition 2020

_WALTER CUT GX

Recessing with cool precision

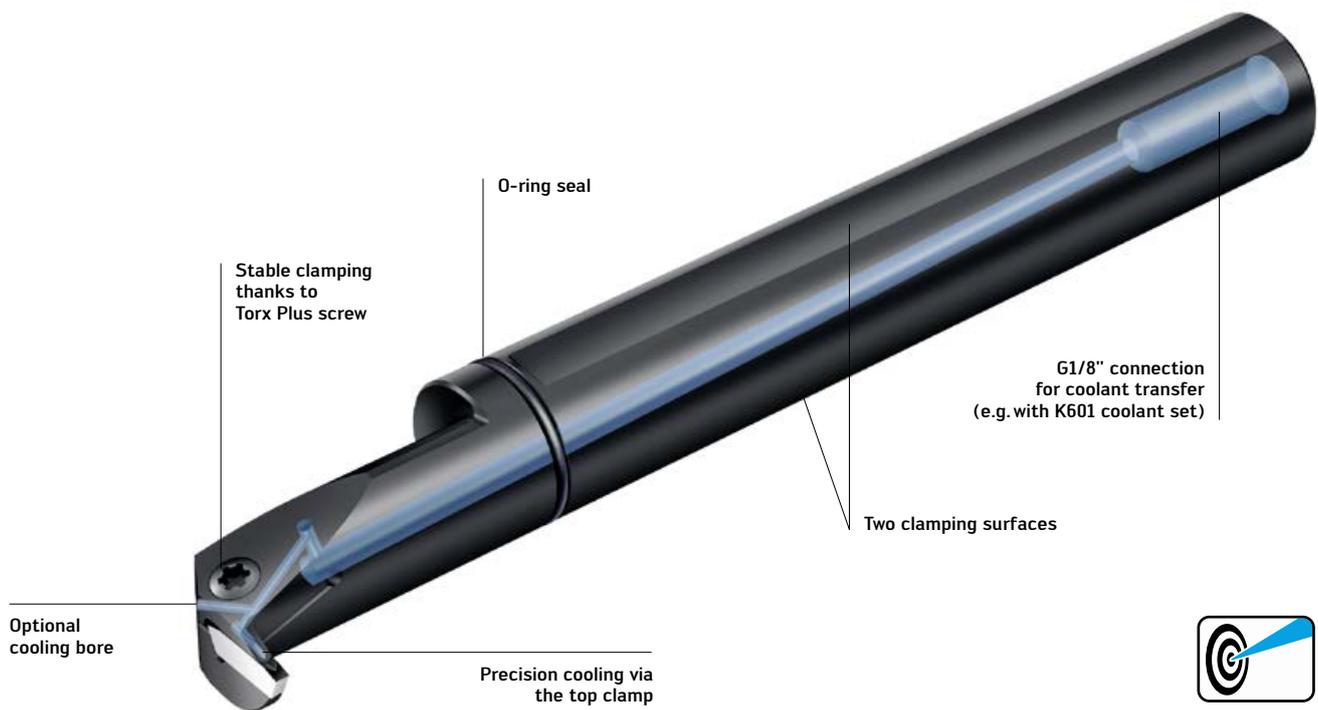
Efficient internal grooving and recessing with cool precision.

THE APPLICATION

- First choice for internal grooving and recessing
- All ISO material groups
- Internal grooves with a diameter starting from $D_{\min} = 16 \text{ mm}$
- Grooving to a depth of $T_{\max} = 12 \text{ mm}$
- Insert widths of 2, 3, 4, 5 and 6 mm
- Can be used up to a coolant pressure of 80 bar

THE TOOL

- Precision cooling via the top clamp
- Sealable axial cooling bore for blind-hole machining
- Connection using K601 coolant set (G1/8" thread on shank) or installation, e.g. using a Weldon basic adaptor
- Flexible O-ring seal for leakage-free coolant transfer between the tool and base adaptor
- Two clamping surfaces



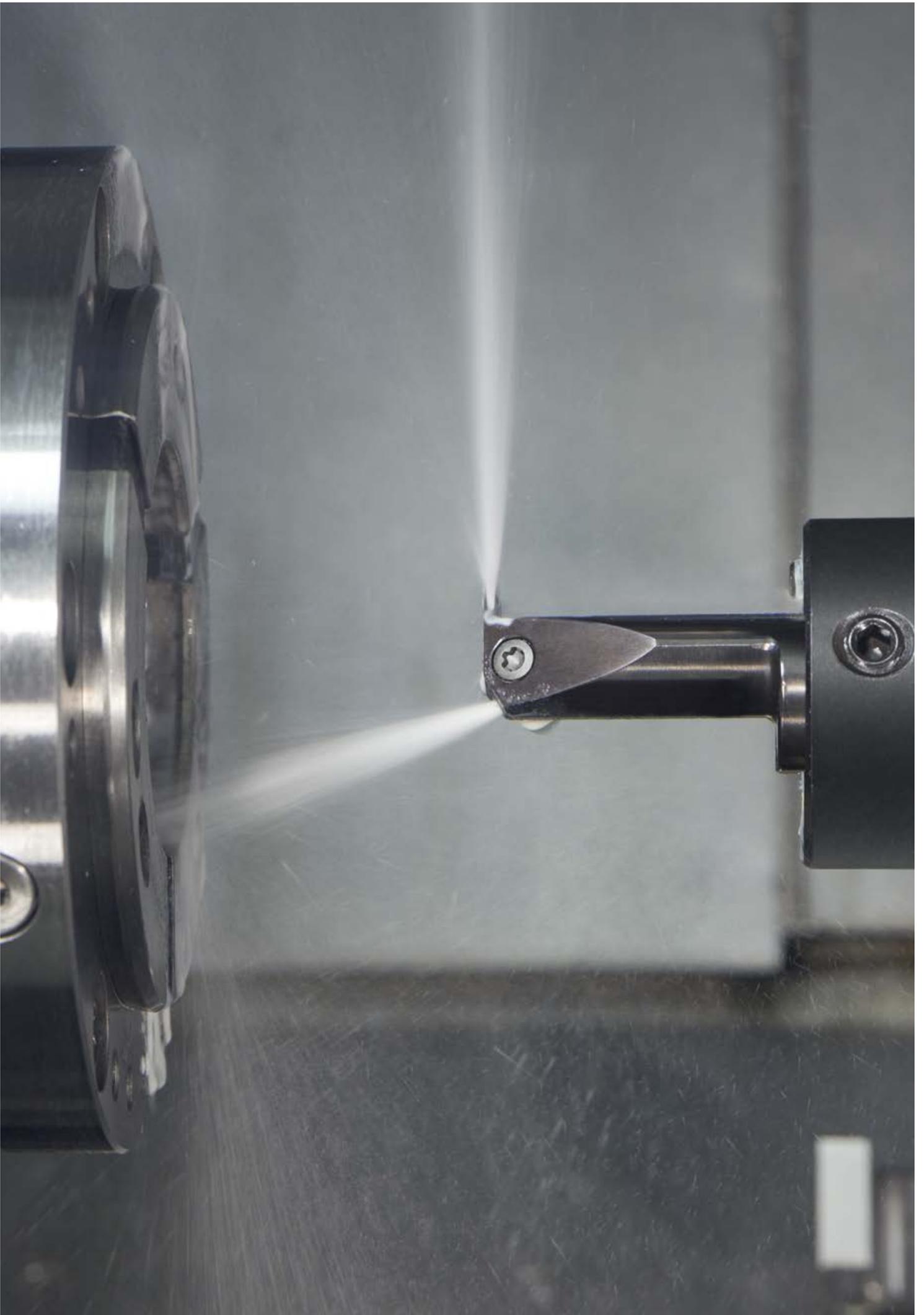
Grooving boring bar with precision cooling

Fig.: G1221-P

BENEFITS FOR YOU

- Interface between basic adaptor and tool, free from pressure loss thanks to O-ring seal
- Unique chip flushing effect due to the axial cooling bore for blind-hole machining
- Optimal surface quality, process reliability and chip evacuation
- Tool can be used in normal or overhead position
- Superlative machining results thanks to optimal $L \times D$ ratio

Watch the product video:
www.youtube.com/waltertools



Enormous potential savings when machining behind the shoulder.

NEW ADDITION TO THE PRODUCT RANGE

- VG7 geometry for Walter Cut GX grooving tools

THE INDEXABLE INSERT

- Two precision-sintered GX24 cutting edges
- For use in standard tools
- Indexable insert width of 2.8 mm (designed for 3 mm parting off)
- Corner radii of 0.2 and 0.4 mm

THE APPLICATION

- For finishing operations behind the shoulder of a component
- Machining parameters: f : 0.05–0.25 mm; a_p : 0.2–2.0 mm
- Machining operations on automatic bar machines and multi-spindle machines

Primary application:

- ISO P – steel

Secondary application:

- ISO M – stainless steels
- ISO N – non-ferrous metals

THE GRADE

- PVD Al_2O_3 grades: WSM23S, WSM33S



Walter Cut GX grooving tools

Fig.: GX24

BENEFITS FOR YOU

- Enormous savings on material in mass production compared to standard ISO indexable inserts
- High level of cost-efficiency for series production on automatic bar machines and multi-spindle machines
- Optimum chip breaking during finishing operations thanks to VG7 geometry
- Can be used on standard tools

MACHINING EXAMPLE

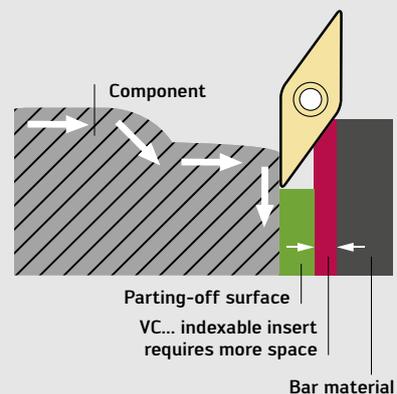
Machining of bar material behind the shoulder

Components: 4,000,000 units

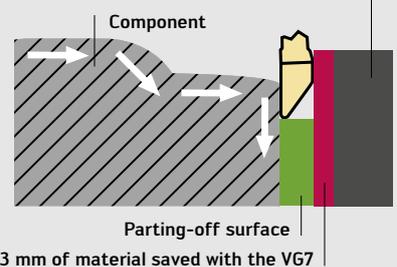
Saving per component by using GX...VG7: 3 mm

Saving – Material: 125 tonnes of steel

Existing: VCMT160408 ISO indexable insert (35°)



New: GX24-2E280R02-VG7 WSM33S



Part off a diameter of up to 65 mm with two cutting edges.

THE TOOL

Walter Cut G1041...R/L-P parting blades with reinforced shank

- Precision cooling on the rake and flank faces
- Blade height 26–32 mm
- In right-hand, left-hand and contra versions

Walter Cut G1011...R/L-P monoblock tools

- Precision cooling on the rake and flank faces
- Shank sizes 20–25 mm
- Optimal application of force from below due to
- Clamping screw
- G1/8" internal coolant connection

THE APPLICATION

- Deep grooving and parting off up to a diameter of 65 mm
- Parting off operations where space is limited
- Large tool overhangs

GX size comparison:



THE INDEXABLE INSERT

- 34 mm long grooving inserts, width 3–4 mm
- Three chip geometries to choose from: Low to high feed

THE GEOMETRIES

CF5:

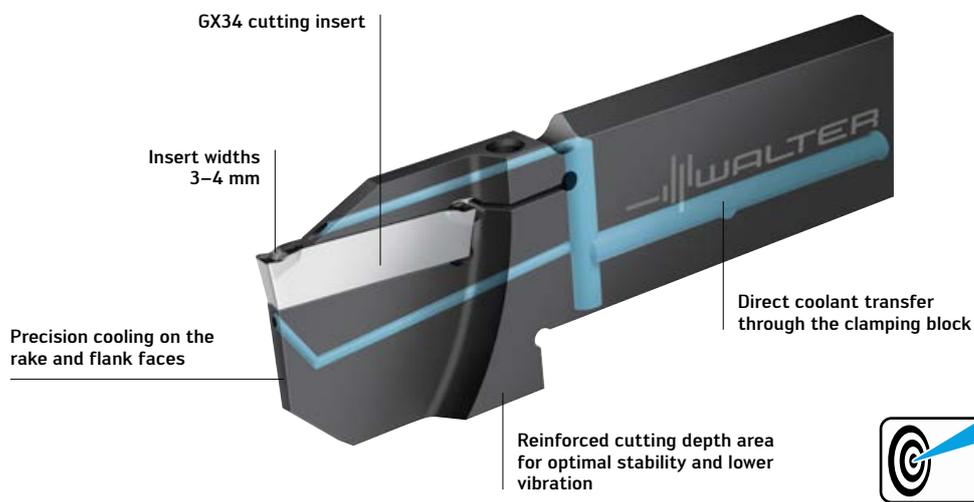
- Light to moderate feeds
- Good chip control
- 6° angle, low burr and pip formation

GD6:

- Moderate feeds
- Long-chipping materials
- Average machining conditions

CE4:

- Moderate to high feeds
- Good chip constricting
- Stable cutting edge



Parting blade with precision cooling – GX34 cutting insert

BENEFITS FOR YOU

- Maximum productivity and cutting values due to optimal cooling, stability and controlled chip breaking
- Efficient parting off with two cutting edges (up to a diameter of 65 mm)
- Best surface qualities and plane parallelism thanks to a long insert guide
- Shorter set-up times and greater process reliability due to omission of cooling nozzle alignment task

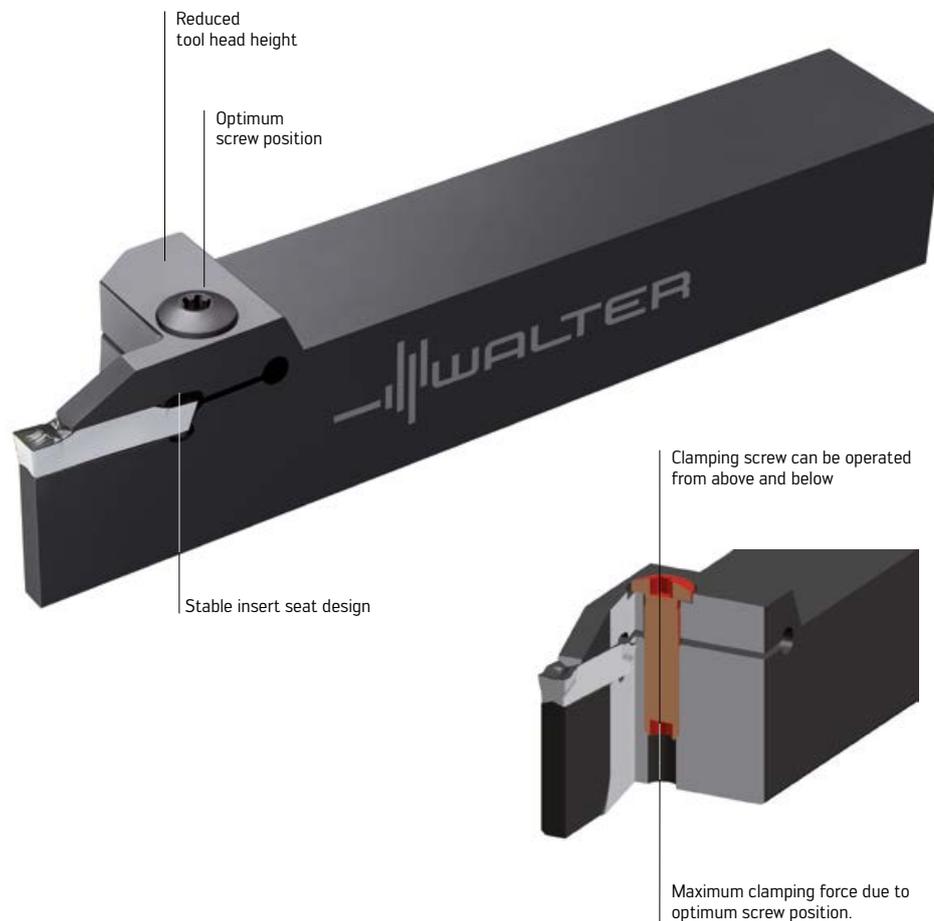
Monoblock tool: One for all.

THE TOOL

- Walter Cut monoblock tools for grooving, parting off and recessing
- G1011-P with internal coolant supply directly to the cutting edge
- Clamping screw operable from above and below
- For double-edged GX16, GX24 and GX30 grooving inserts
- Insert widths of 2.0/2.5/3.0/4.0/5.0/6.0/8.0 mm
- Cutting depths of 12, 21, 28 and 32 mm
- Shank sizes of 12 x 12 up to 32 x 32 mm

THE APPLICATION

- Parting off up to a diameter of 42 mm with two cutting edges
- Grooving and recessing operations up to a depth of 32 mm
- For use on lathes of all types
- First choice for all grooving/recessing operations



Walter Cut monoblock toolholder

Type: G1011

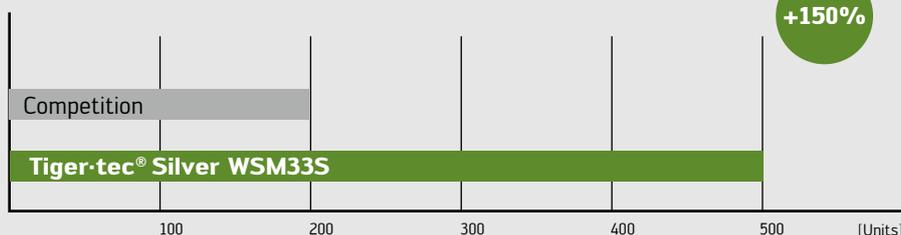
Parting off operation on a guide pin

Workpiece material: 60WCrV7 (1.2520), ISO P
 Cutting insert: GX24-2E300N030-UF4
 Cutting tool material: Tiger-tec® Silver WSM33S
 Tool: G1011.2020R-3T21GX24

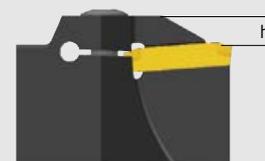
Cutting data

v_c	106 m/min
f	0.1 mm
Insert width	3 mm
Cutting depth	13.5 mm

Comparison of the number of components



OVERVIEW OF THE ADVANTAGES OF THE G1011 AND G1111



Easier chip evacuation thanks to reduced tool head height [h]

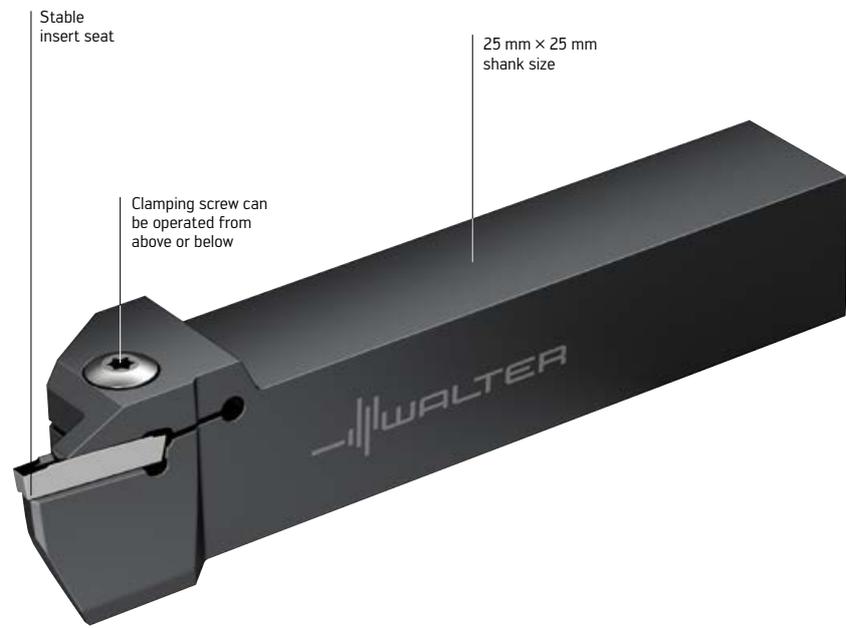
Monoblock tools: A new dimension in axial grooving.

THE APPLICATION

- Axial grooves from a diameter of 34 mm
- Cutting depths up to 25 mm
- Insert width from 3 mm

THE TOOL

- Monoblock tool
- Clamping screw can be operated from above or below
- Two cutting depths available for optimum tool stability



Monoblock toolholder for axial grooving

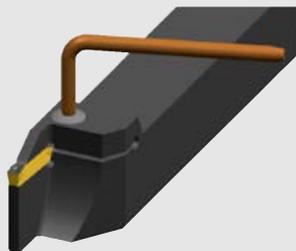
Type: G1111



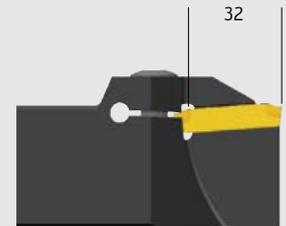
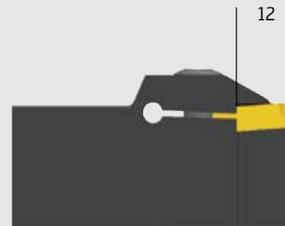
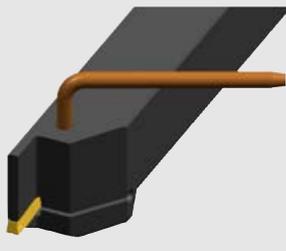
Right-hand version



Left-hand version



Easy handling in inverted use



Optimum stability thanks to a selection of different cutting depths

Monoblock tools: Flexible use for moderate cutting depths.

THE TOOLS

G1511 monoblock toolholder

- For cutting depths up to 6 mm
- For GX16 and GX24 cutting inserts
- For radial and axial grooving, and recessing
- The same tool can be used for all insert widths from 2 to 6 mm



G1511 monoblock toolholder – straight version

G1521 90° angled monoblock toolholder

- 90° angled tool design
- For cutting depths up to 6 mm
- For GX16 and GX24 cutting inserts
- For radial and axial grooving, and recessing
- The same tool can be used for all insert widths from 2 to 6 mm



G1521 monoblock toolholder – 90° offset

G1551 monoblock toolholder set to 45°

- Tool design set to 45°
- For cutting depths up to 6 mm
- For GX24 cutting inserts
- For undercuts, relief grooves and copy turning applications
- The same tool can be used for all insert widths from 3 to 6 mm



G1551 monoblock toolholder – set to 45°

THE APPLICATION

- For grooving shallow grooves e.g.:
 - Circlip grooves
 - Sealing ring grooves
 - Thread relief grooves
- For axial and radial grooving
- Compatible with all types of lathe

BENEFITS FOR YOU

- Low inventory costs thanks to tool bodies for different cutting edge widths
- Easy tool handling thanks to clamping screw accessible from above and below
- Maximum productivity when combined with **Tiger-tec® Silver** cutting tool materials

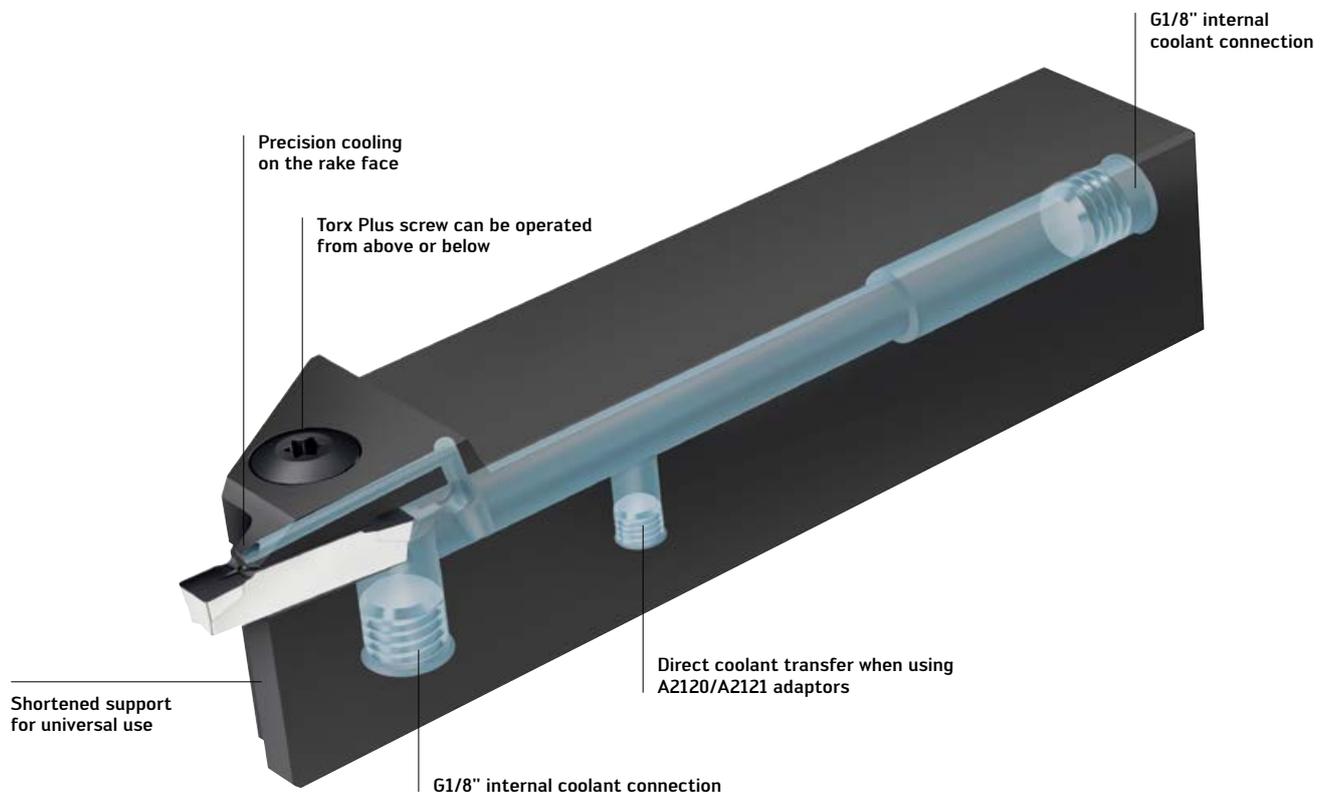
Tool holder: With precision cooling, for universal use.

THE TOOL

- G1511-P in the following sizes: 16 × 16 mm, 20 × 20 mm, 25 × 25 mm
- For GX insert widths from 2.0 mm to 6.35 mm
- 6 mm cutting depth with GX24 cutting inserts

THE APPLICATION

- Grooving and recessing with precision cooling in radial and axial machining directions
- Can be used from 10 bar up to a maximum coolant pressure of 150 bar
- Can be used on all types of lathes



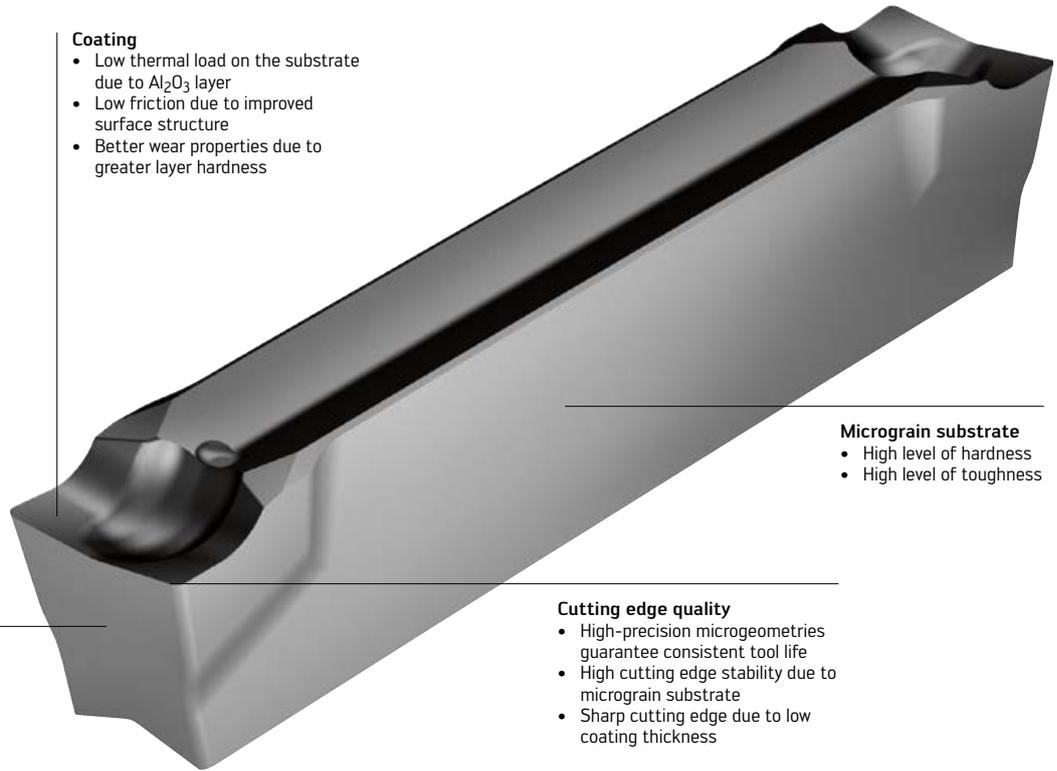
GX monoblock tool with precision cooling

Fig.: G1511-P

BENEFITS FOR YOU

- Universal use – carry out radial and axial grooving operations with a single tool, without loss of stability
- Suitable for universal use with all cutting edges from 2.0 mm to 6.35 mm
- Longer tool life and higher productivity
- Optimum cooling directly in the cutting zone starting from a coolant pressure as low as 10 bar
- Low head height for perfect chip evacuation

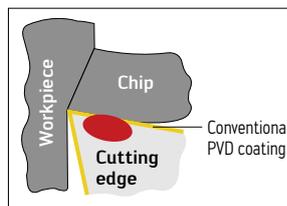
Wear resistance and toughness are not a contradiction.



COMPARISON

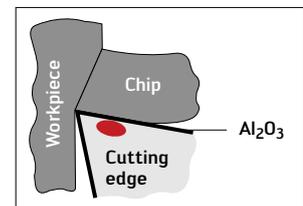
Heat ingress into the carbide

Competition



High level of thermal loading of carbide

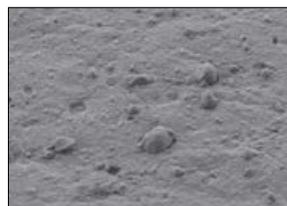
Tiger-tec® Silver PVD



Thermal protection by Al₂O₃



Surface structure of the coating



High level of friction due to surface structure



Reduced friction due to improved surface

Tiger-tec® Silver

THE NEW PVD GRADES

WSM13S – (ISO P10, ISO M10, ISO S10)

- Optimum resistance to temperature and wear when machining steel, stainless alloys and heat-resistant super alloys
- For finishing and medium machining with uninterrupted cuts

WSM23S – (ISO P20, ISO M20, ISO S20)

- Resistance to temperature and wear when machining steel, stainless alloys and heat-resistant super alloys
- For use in stable conditions, with high cutting speeds and also when oil is used as the lubricant

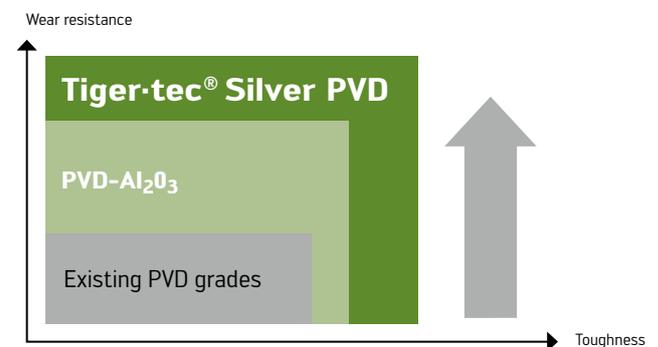
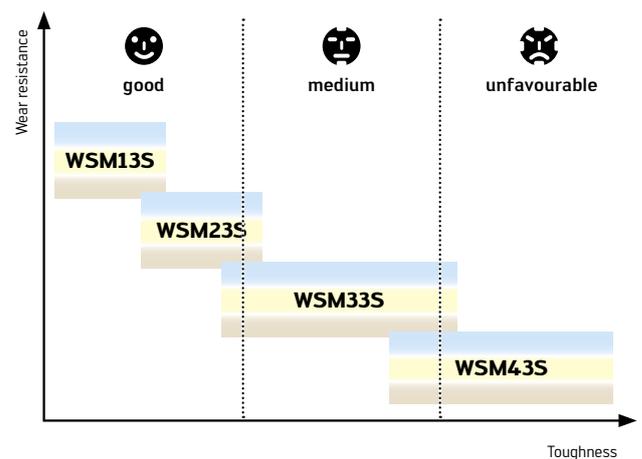
WSM33S – (ISO P30, ISO M30, ISO S30)

- First choice for machining steels, stainless steels and heat-resistant super alloys
- For use under normal conditions
- Covers the majority of applications
- Combination of outstanding wear resistance and a high degree of toughness

WSM43S – (ISO P40, ISO M40, ISO S40)

- Maximum toughness and process reliability when machining steel, stainless alloys and heat-resistant super alloys
- Ideal grade for machining interrupted cuts, low cutting speeds and unstable clamping or poor machine conditions

Overview of Tiger-tec® Silver grades



BENEFITS FOR YOU

- Unique combination of thermal stability and toughness ensures unbeatable cost-efficiency
- Maximum process reliability thanks to improved cutting edge stability
- Low tendency for build-up on the cutting edge due to improved surface structure and sharp cutting edge with thin **Tiger-tec® Silver** PVD Al₂O₃ coating
- Longer tool life thanks to improved layer hardness
- Universal cutting tool material for different ISO material groups
- Excellent machining results thanks to the use of **Tiger-tec® Silver** PVD technology in conjunction with Walter Cut geometries

High-performance cutting tool materials specially developed for grooving and longitudinal turning.

THE APPLICATION

Primary application of ISO P:

- Typical steels, such as 42CrMo4, 100Cr6 and C45

Primary application of ISO K:

- All cast iron materials, such as grey cast iron (EN-GJL), ductile cast iron (EN-GJS) and vermicular cast iron (EN-GJV)

THE NEW CVD GRADES

WKP13S (ISO P10, ISO K20)

- Excellent wear resistance and cutting speed
- Continuous cutting

WKP23S (ISO P20, ISO K25)

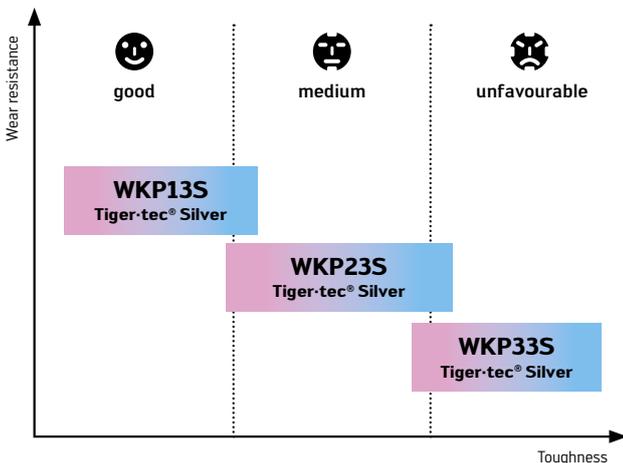
- Excellent wear resistance and cutting speed
- Continuous cut up to occasionally interrupted cuts
- Universal grade for approx. 80% of all applications

WKP33S (ISO P30, ISO K30)

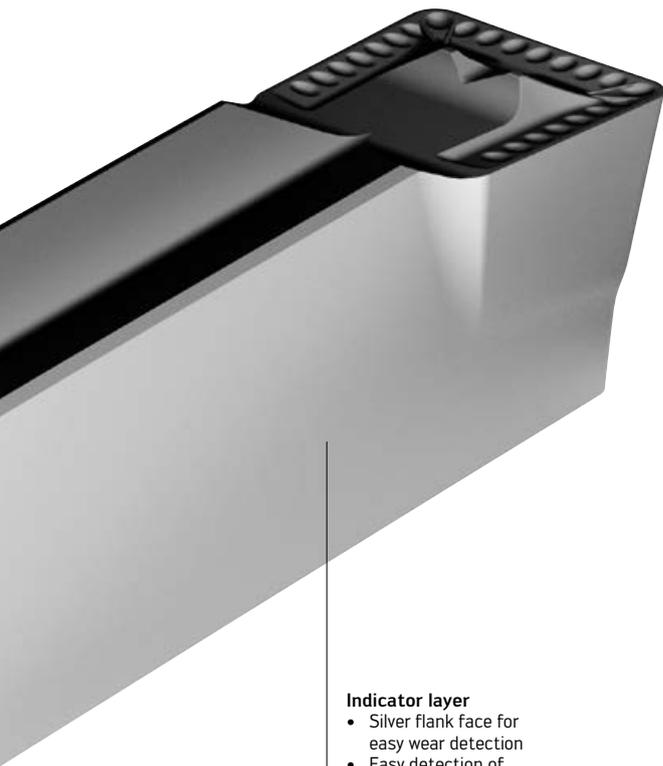
- Excellent wear resistance and toughness
- Unfavourable conditions or interrupted cuts

Tiger-tec® Silver CVD coating

- Aluminium oxide with optimised microstructure for maximum crater wear resistance/ cutting speed
- Mechanical post-treatment creates compressive stresses to prevent fracture on the cutting edge



Tiger-tec® Silver



Indicator layer

- Silver flank face for easy wear detection
- Easy detection of unused cutting edges

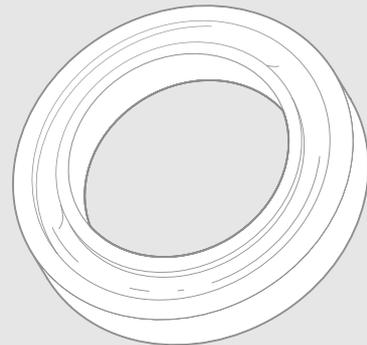
THE GEOMETRIES

The new WKP13S, WKP23S and WKP33S grades are introduced in combination with the proven recessing geometries UD4, UA4, UF4 and RD4, and the grooving and parting off geometries GD3 and CE4. This means the new **Tiger-tec® Silver** technology is combined with the long-standing experience of our existing geometries.

BENEFITS FOR YOU

- Maximum productivity by increasing the cutting data with an improved tool life quantity thanks to latest **Tiger-tec® Silver** technology
- Wear-resistant cutting tool material as an alternative to our WSM grades

Axial grooving
2 × 4 mm
Forged blank

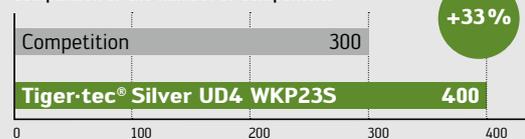


Workpiece material: C45 (1.0503)
Cutting insert: GX24-3E400N04-UD4
Cutting tool material: WKP23S Tiger-tec® Silver
Tool: G1111.2525R-5T12-040GX24

Cutting data	Competition CVD	Tiger-tec® Silver WKP23S
v_c	250 m/min	250 m/min
f	0.15 mm	0.20 mm
Cutting depth	4 mm	4 mm
Tool life	300 components	400 components
Machining time	36 secs	30 secs -20%

Note:
Excellent chip breaking thanks to UD4 geometry, high level of process reliability

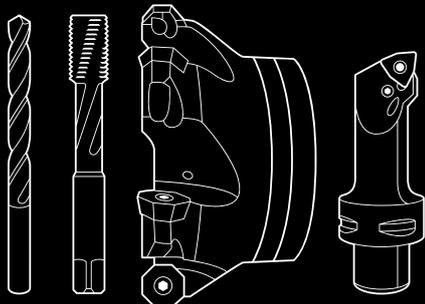
Comparison of the number of components



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