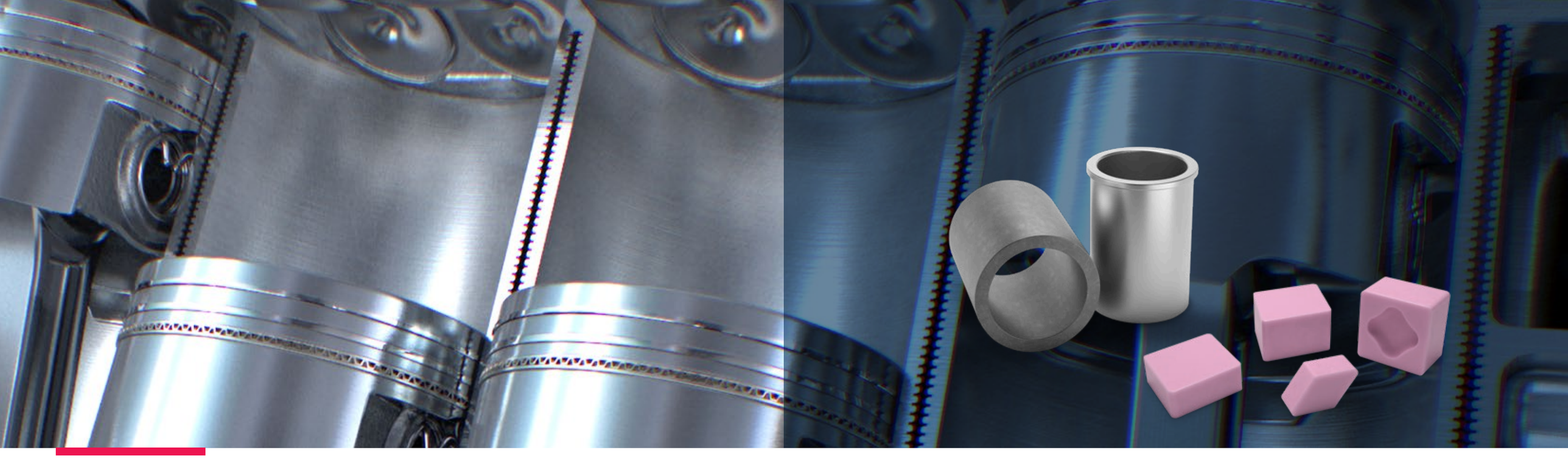
CeramTec

CUTTING TOOLS

Machining of cast iron / centrifugal casting

Oxide Ceramic AKT 180

THE CERAMIC EXPERTS



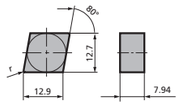
Oxide Ceramic AKT 180

For the process-secure machining of cast iron material, especially for those which are produced as centrifugal casting, we have developed the cutting material AKT 180. This cutting material is a zirconium oxide reinforced oxide ceramic. Thanks to this composition, the cutting material has increased wear resistance and gives the cutting material matrix a higher toughness. The high heat resistance retains on highest level. The matrix reinforcement makes it possible to achieve very high cutting values with the cutting material, with increased process reliability. The achievable removal rate and the reproducible wear and cutting behaviour enable the high economic efficiency of this cutting material. Especially in the series production from medium batch and up to high quantities, its significantly improved properties enable a stable cutting process with high output and reliability.

- Cutting data:
  v_c = 400 - 1200 m/min
  a_p = 0,2 - 4 mm
  f = 0,15 - 0,5 mm
- Materials: cast iron materials- specially produced by centrifugal casting process
- Machining method: Turning
- Roughing and finishing with continuous cut, without use of coolant

Hardness (HB)	Cutting speed v_c (m/min)		Depth of cut a_p (mm)	Feed f (mm)		Grade
	recommended	range		recommended	range	
25 ▽ Roughing; continuous cutting						
140 - 210	600	300 - 1000	1,0 - 4,0	0,30	0,20 - 0,50	AKT 180
220 - 240	500	200 - 800	1,0 - 4,0	0,30	0,20 - 0,50	AKT 180
250 - 280	300	100 - 400	1,0 - 4,0	0,30	0,20 - 0,50	AKT 180
6.3 ▽ Finishing; continuous cutting						
140 - 210	750	400 - 1200	0,2 - 1,0	0,20	0,15 - 0,40	AKT 180
220 - 240	550	300 - 800	0,2 - 1,0	0,20	0,15 - 0,40	AKT 180
250 - 280	350	150 - 450	0,2 - 1,0	0,20	0,15 - 0,40	AKT 180

Inserts AKT 180

			K																							H			S	P	
			GJL					GJS					ADI			SI GJS		GJV														
INSERT	ISO	GRADE	EN-GJL 150	EN-GJL 200	EN-GJL 250	EN-GJL 300	EN-GJL 350	EN-GJS 400-15	EN-GJS 500-7	EN-GJS 600-3	EN-GJS 700-2	EN-GJS 800-2	EN-GJS 800-8	EN-GJS 1000-5	EN-GJS 1200-2	EN-GJS 1400-0	EN-GJS 450-18	EN-GJS 500-14	EN-GJS 600-10	EN-GJV 300	EN-GJV 350	EN-GJV 400	EN-GJV 450	EN-GJV 500	STAHL HART	HARTGUSS	KOKILLENGUSS	SPEZ. LEGIERUNG	STAHL		SPK-REF. NO.
CNGN 12 07 .. T 	CNGN 12 07 08 T02020	AKT 180	✦	✦	✦	✦	✦																								36.50.022.04.6
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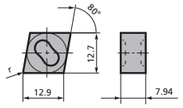
CNGX 12 07 .. T 	CNGX 12 07 08 T02020	AKT 180	✦	✦	✦	✦	✦																								36.54.095.04.6
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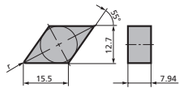
DNGN 15 07 .. T 	DNGN 15 07 12 T02020	AKT 180	✦	✦	✦	✦	✦																								36.50.078.04.6
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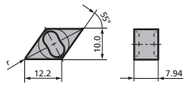
DNGX 12 07 .. T 	DNGX 12 07 04 T02020	AKT 180	✦	✦	✦	✦	✦																								36.54.118.04.6
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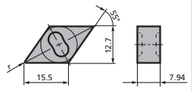
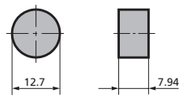
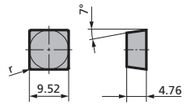
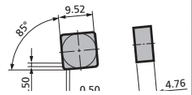
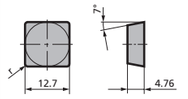
DNGX 15 07 .. T 	DNGX 15 07 16 T02020	AKT 180	✦	✦	✦	✦	✦																								36.54.122.04.6
RNGN 12 07 T 	RNGN 12 07 00 T02020	AKT 180	✦	✦	✦	✦	✦																								36.40.002.04.6

			K																							H			S	P	
			GJL					GJS					ADI			SI GJS		GJV														
INSERT	ISO	GRADE	EN-GJL 150	EN-GJL 200	EN-GJL 250	EN-GJL 300	EN-GJL 350	EN-GJS 400-15	EN-GJS 500-7	EN-GJS 600-3	EN-GJS 700-2	EN-GJS 800-2	EN-GJS 800-8	EN-GJS 1000-5	EN-GJS 1200-2	EN-GJS 1400-0	EN-GJS 450-18	EN-GJS 500-14	EN-GJS 600-10	EN-GJV 300	EN-GJV 350	EN-GJV 400	EN-GJV 450	EN-GJV 500	STAHL HART	HARTGUSS	KOKILLENGUSS	SPEZ. LEGIERUNG	STAHL		SPK-REF. NO.
SCGN 09 04 .. T 	SCGN 09 04 12 T00520	AKT 180	✦	✦	✦	✦	✦																								36.12.093.03.6
SCGN 09 04 08 T - A85Z075 	SCGN 09 04 08 T00520 A85Z075	AKT 180	✦	✦	✦	✦	✦																								36.12.381.03.6
SCGN 12 04 .. T 	SCGN 12 04 08 T00520	AKT 180	✦	✦	✦	✦	✦																								36.12.098.03.6
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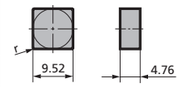
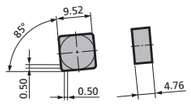
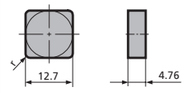
SNGN 09 04 .. T00520 	SNGN 09 04 12 T00520	AKT 180	✦	✦	✦	✦	✦																								36.10.050.03.6
SNGN 09 04 .. T - A85Z050 	SNGN 09 04 08 T00520 A85Z050	AKT 180	✦	✦	✦	✦	✦																								36.10.500.03.6
SNGN 12 04 .. T 	SNGN 12 04 08 T02020	AKT 180	✦	✦	✦	✦	✦																								36.10.009.04.6
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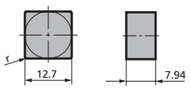
SNGN 12 07 .. T 	SNGN 12 07 08 T02020	AKT 180	✦	✦	✦	✦	✦																								36.10.021.04.6
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K ■ Gusseisen | H ■ Harte Werkstoffe | S ■ HSRA | P ■ Stahl | Hauptanwendung ✦ | Nebenanwendung ✧

INSERT	ISO	GRADE	K: GJL: EN-GJL 150	K: GJL: EN-GJL 200	K: GJL: EN-GJL 250	K: GJL: EN-GJL 300	K: GJL: EN-GJL 350	K: GJS: EN-GJS 400-15	K: GJS: EN-GJS 500-7	K: GJS: EN-GJS 600-3	K: GJS: EN-GJS 700-2	K: GJS: EN-GJS 800-2	K: ADI: EN-GJS 800-8	K: ADI: EN-GJS 1000-5	K: ADI: EN-GJS 1200-2	K: ADI: EN-GJS 1400-0	K: SI GJS: EN-GJS 450-18	K: SI GJS: EN-GJS 500-14	K: SI GJS: EN-GJS 600-10	K: GJV: EN-GJV 300	K: GJV: EN-GJV 350	K: GJV: EN-GJV 400	K: GJV: EN-GJV 450	K: GJV: EN-GJV 500	H: STAHL HART	H: HARTGUSS	H: KOKILLENGUSS	S: SPEZ. LEGIERUNG	P: STAHL	SPK-REF. NO.
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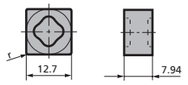	SNGX 12 07 12 T02020	AKT180	✦	✦	✦	✦	✦																							36.14.169.04.6
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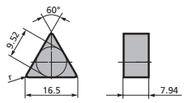	TNGN 16 07 08 T02020	AKT 180	✦	✦	✦	✦	✦																							36.30.011.04.6
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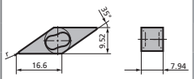
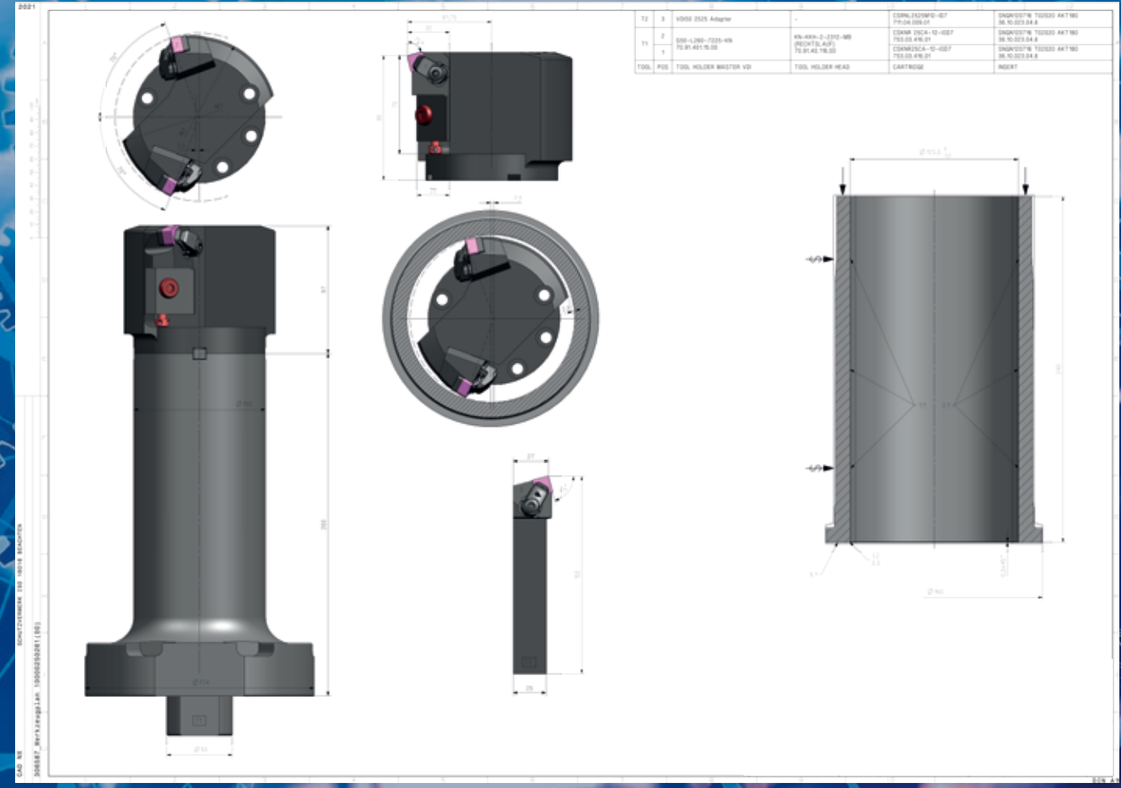
	VNGX 16 07 12 T00520	AKT 180	✦	✦	✦	✦	✦																							36.50.236.03.6

Machining Example
Cylinder liner
1. Set-up



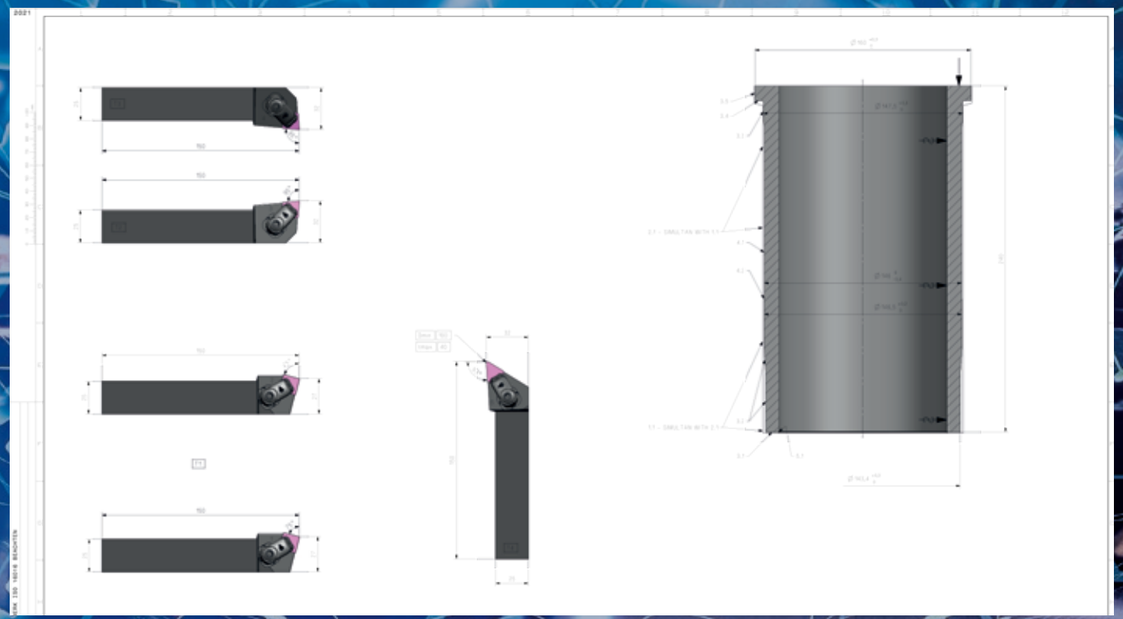
Internal machining T1

Asymmetrical, double-edged boring bar
v_c = 500 m/min.
a_p = 3 mm
f = 1,0 mm

External machining T2

v_c = 500 m/min.
a_p = 2 mm
f = 0,4 mm

Machining Example
Cylinder liner
2. Set-up



External and simultaneous machining T1
v_c = 500 m/min.
a_p = 2 - 3 mm
f = 0,45 mm

External machining T2
v_c = 500 m/min.
a_p = 1 - 2 mm
f = 0,4 - 0,45 mm

External machining T3
v_c = 500 m/min.
a_p = 1 - 2 mm
f = 0,45 mm

Internal machining T4
v_c = 500 m/min.
a_p = 0,5 - 1 mm
f = 0,3 mm

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