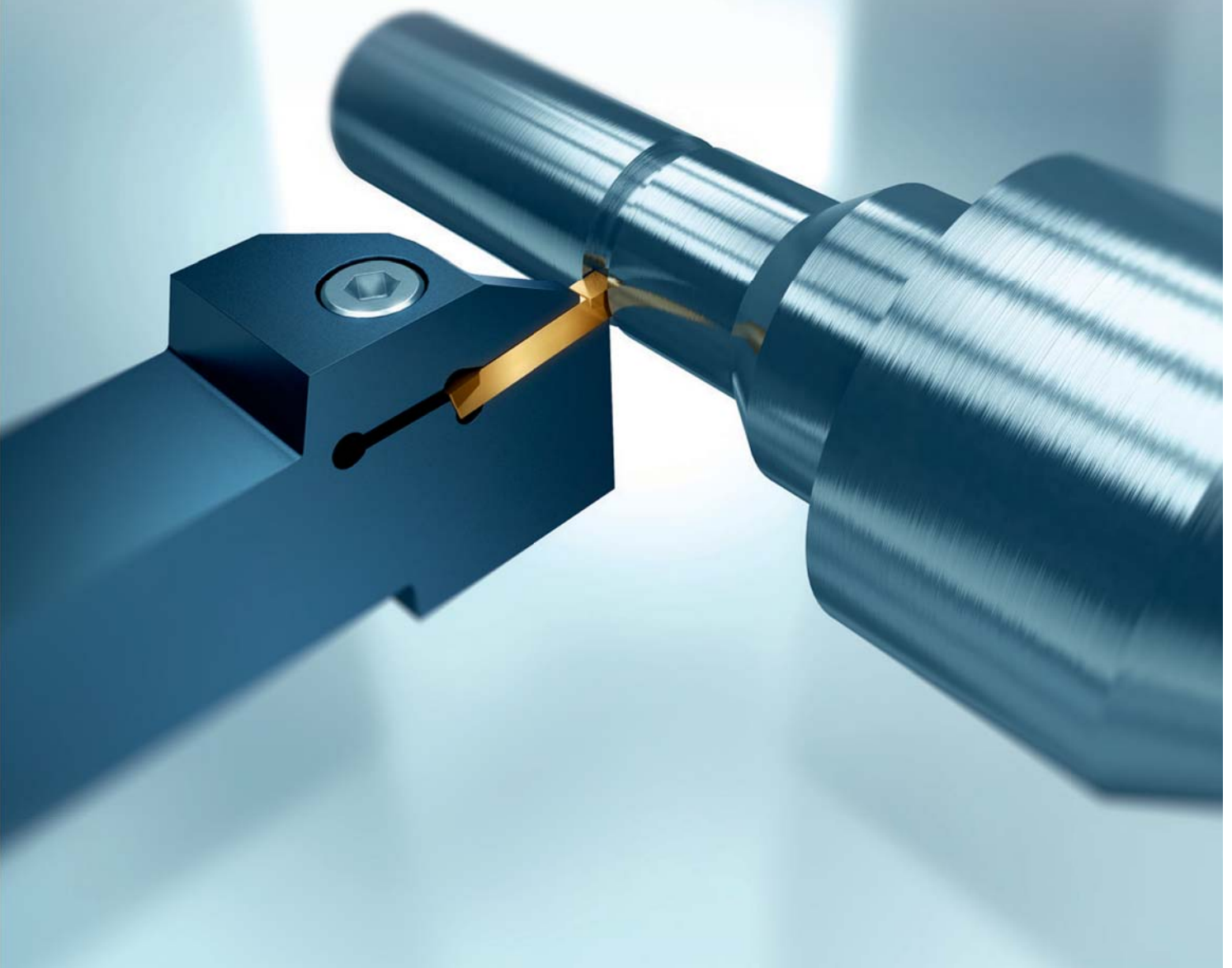


Hard material machining

Inserts, coating and tool holders for parting off, grooving and turning

Inserts with efficient chip breakers and special coating for:

- ▶ *machining hardened materials*
- ▶ *hard materials*
- ▶ *exotic and tempered materials*



Hard material machining

Inserts, coating and tool holders parting off, grooving and turning

Definition:

Machining materials with a Rockwell hardness of 54 and more. Inserts and holders are stressed heavily on such operations.

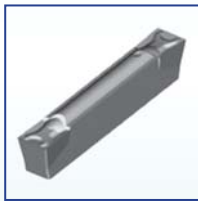
Therefore starting-up speeds, feeds and depths should be low graded.



To be able to machine hard materials inserts are coated with Hardlox 2 coating. This coating features red hardness and an extremely smooth surface which reduces resistance to cutting forces. You can find a detailed description of this coating on page 192 onwards.

HARDLOX 2® oder CBN?

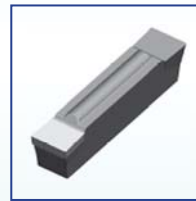
HARDLOX 2®



p. 175 - 179

- Polished edges and surfaces
- Low price alternative compared with CBN tipped inserts
- Constant performance when cutting from hard fringe area into soft area
- Big variety of different geometries and GripLock systems
- To be used on unhardened steels as well
- Multi edge inserts available
- Tailor made on request

CBN (Boron nitride)



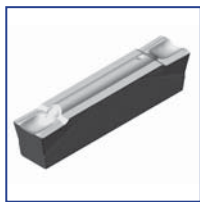
p. 180

- For machining hard materials, sintered materials and cast materials
- Extremely wear resisting
- To be used with holders of GripLock P92 system
- CBN tips on one edge

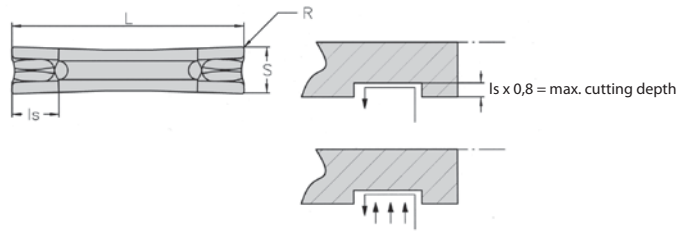
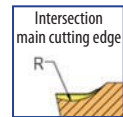
Remark:

Other inserts with HARDLOX 2® coating on request

Cutting and turning inserts



BTNG
System P92



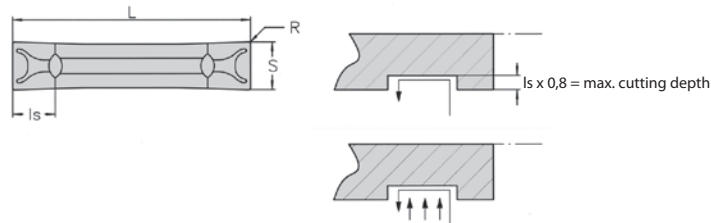
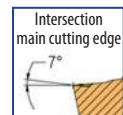
Enlarged view

WG262 Ref.	GF110 Hardlox 2 ID-Nr.	⌀	L	Is	R	S ±0,025
BTNG 202	38751	N	20,00	2,0	0,2	2,00
BTNG 302	38752	N	20,00	3,5	0,2	3,00
BTNG 304	38753	N	20,00	3,5	0,4	3,00
BTNG 504	38754	N	25,00	4,2	0,4	5,00
BTNG 808	38755	N	30,00	6,4	0,8	8,00

Fitting tool holders see below



MTNS
System P92



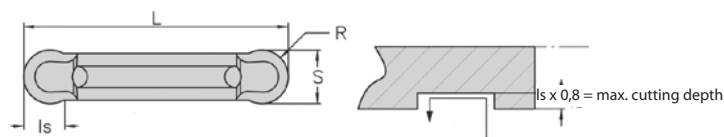
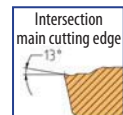
Enlarged view

WG302 Ref.	KM Hardlox 2 ID-Nr.	GF110 Hardlox 2 ID-Nr.	⌀	L	Is	R	S
MTNS 202	38745	-	N	20,10	2,0	0,2	2,05 +0,10
MTNS 302	-	38746	N	20	3,5	0,2	3,00 +0,15
MTNS 304	-	38747	N	20	3,5	0,4	3,00 +0,15
MTNS 402	-	38748	N	20	3,5	0,2	4,00 +0,20
MTNS 604	-	38749	N	30	4,9	0,4	6,05 +0,25
MTNS 808	38750	-	N	30	6,4	0,8	8,05 +0,25

Fitting tool holders see below



RTNG
System P92



Enlarged view

WG262 Ref.	GF110 Hardlox 2 ID-Nr.	⌀	L	Is	R	S ±0,025
RTNG 210	38756	N	20,00	1,71	1,0	2,00
RTNG 315	38757	N	20,00	2,60	1,5	3,00

Fitting tool holders



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p. 63

p. 67

p. 70

p. 72

p. 89

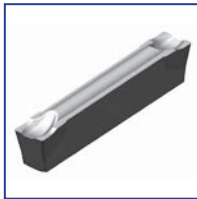
p. 94

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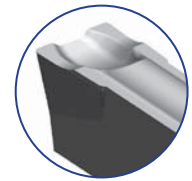
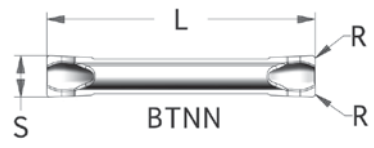
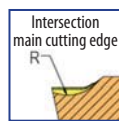
p. 183

Technical section page 185 onwards

Inserts for grooving and parting off



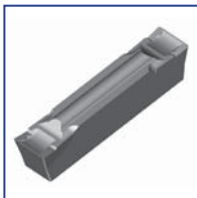
BTNN
System P92



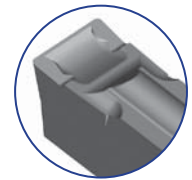
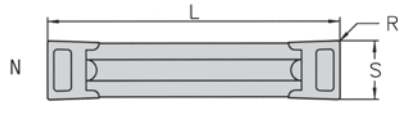
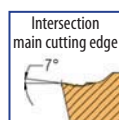
Enlarged view

WG302 Ref.	KM Hardlox 2 ID-Nr.	(C)	L	R	S
BTNN1,5	38760	N	15,50	0,2	1,50
BTNN 2	38761	N	20,02	0,2	2,05
BTNN 2,5	38762	N	20,03	0,2	2,50
BTNN 3	38763	N	20,10	0,2	3,05
BTNN 4	38764	N	20,10	0,2	4,05

Fitting tool holders see below



CTD ALU
System P92



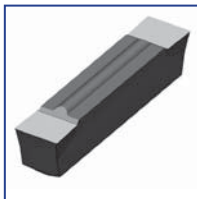
Enlarged view

WG302 Ref.	KM Hardlox 2 ID-Nr.	(C)	L	R	S
CTD 3 ALU	38758	N	20,00	0,2	3,0 ^{+0,15}
CTD 4 ALU	38759	N	20,00	0,2	4,0 ^{+0,20}

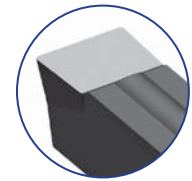
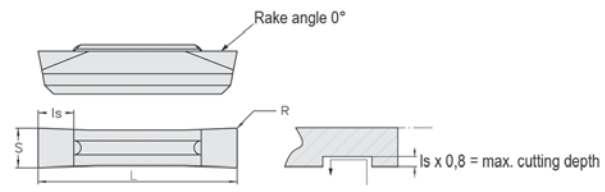
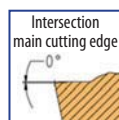
Remark

Insert with ground cutting edge.

Fitting tool holders see below



OTXS
System P92



Enlarged view

WG261 Ref.	KM Hardlox 2 ID-Nr.	(C)	L	Is	R	S
OTXS 302	38765	N	20	3,5	0,2	3,0 ^{+0,15}
OTXS 402	38766	N	20	3,5	0,2	4,0 ^{+0,20}

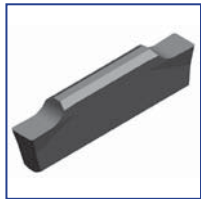
Remark

Inserts with ground top-face.

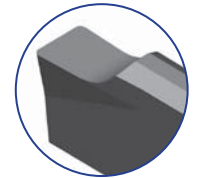
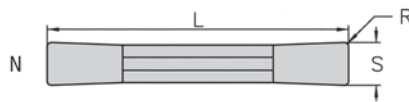
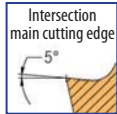
Fitting tool holders



Inserts for grooving and parting off



HTNS
System P92 S



Enlarged view

WG302 Ref.	KM Hardlox 2 ID-Nr.	(C)	L	R	S ±0,10
HTNS 2	38767	N	14,00	0,2	2,00

Remark

Inserts for internal and external machining

Fitting tool holders

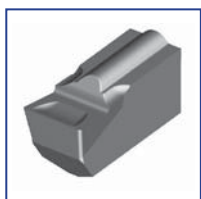


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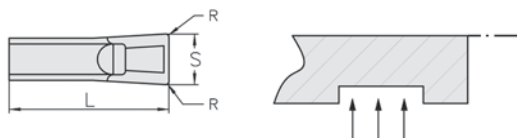
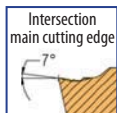


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Inserts for grooving



KCTD
System P92



WG302 Ref.	KM Hardlox 2 ID-Nr.	(C)	P	L	R	S +0,15
KCTD 3	38768	N	3/4,5	9,5	0,2	3,0
KCTD 3 MAX	38769	N	5,5/7	12	0,2	3,0

Remark

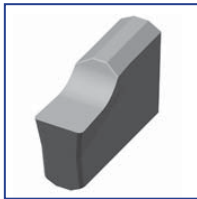
Inserts for small diameters.

Fitting boring bars

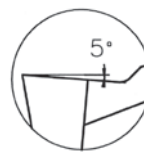
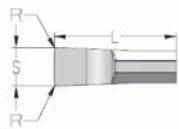
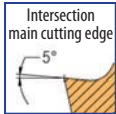


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Inserts for grooving



KHTNS
System P92 S



WG302 Ref.	KM Hardlox 2 ID-Nr.	(C)	L ±0,1	R	S ±0,10
KHTNS 2	38770	N	6,35	0,2	2,0

Remark

Inserts for small diameters.

Fitting tool holders

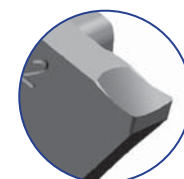
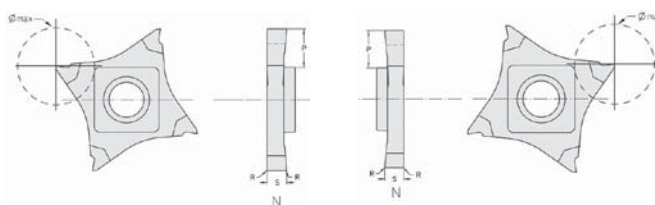


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MULTICUT 4 Inserts for grooving and parting off



OFQ16 R/L...N00
System M92 Q



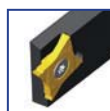
Enlarged view

WG404 Ref.	FM Hardlox 2 ID-Nr.	(C)	P	R	S +/- 0,05	α°	Ømax.
OFQ16L 120 000 N 00	38771	N	6,5	0,00	1,20	0	13,0
OFQ16L 150 010 N 00	38772	N	6,5	0,10	1,50	0	13,0
OFQ16L 200 010 N 00	38773	N	6,5	0,10	2,00	0	13,0
OFQ16L 200 020 N 00	43689	N	6,5	0,20	2,00	0	13,0
OFQ16R 120 000 N 00	38774	N	6,5	0,00	1,20	0	13,0
OFQ16R 150 010 N 00	38775	N	6,5	0,10	1,50	0	13,0
OFQ16R 200 010 N 00	38776	N	6,5	0,10	2,00	0	13,0
OFQ16R 200 020 N 00	43690	N	6,5	0,20	2,00	0	13,0

Fitting tool holders



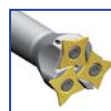
p. 33



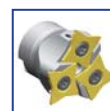
p. 34



p. 34



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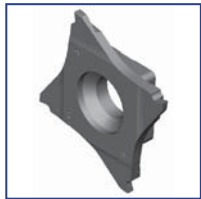


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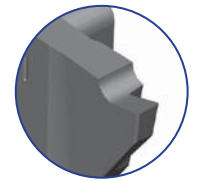
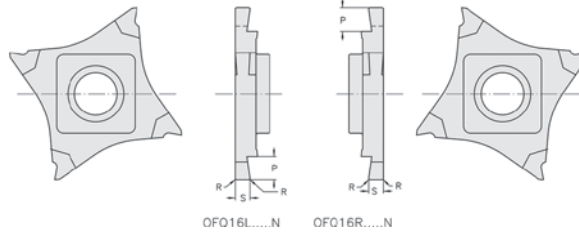
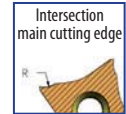


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MULTICUT 4 Precision grooving inserts



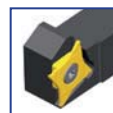
OFQ16 R/L...N
System M92 Q



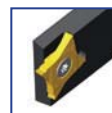
Enlarged view

WG404 Ref.	FM Hardlox 2 ID-Nr.	(C)	P	R		S ^{-0,05}
OFQ16L 050 000 N	38781	L	1,0	0,00	0,50	0,57
OFQ16L 100 000 N	38782	L	1,5	0,00	1,00	1,07
OFQ16L 160 010 N	38783	L	2,0	0,10	1,60	1,74
OFQ16L 215 010 N	38784	L	2,5	0,10	2,15	2,29
OFQ16R 050 000 N	38777	R	1,0	0,00	0,50	0,57
OFQ16R 100 000 N	38778	R	1,5	0,00	1,00	1,07
OFQ16R 160 010 N	38779	R	2,0	0,10	1,60	1,74
OFQ16R 215 010 N	38780	R	2,5	0,10	2,15	2,29

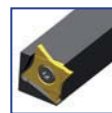
Fitting tool holders



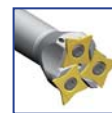
p. 33



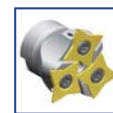
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p. 34



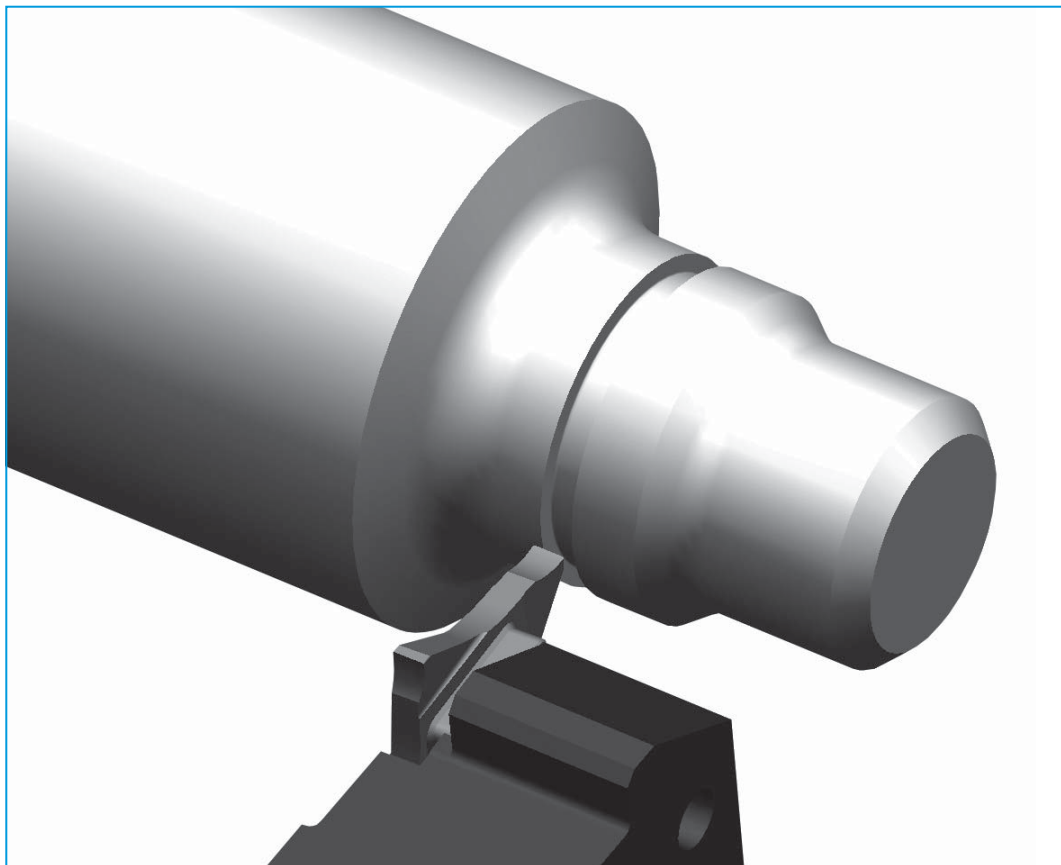
p. 41



p. 42



p. 153



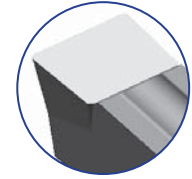
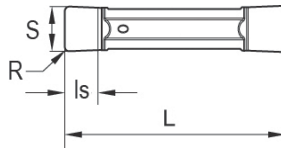
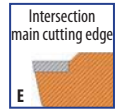
Hardened material
PRECISION GROOVING
with MULTICUT 4

CBN tipped cutting inserts for grooving and turning

new



OTX EST



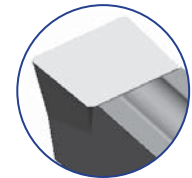
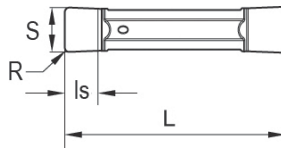
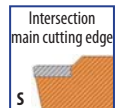
Enlarged view

WG700 Ref.	CBN1630GL uncoated ID-Nr.	CBN5625GL ID-Nr.	()	L	Ls	R	S ±0,025
OTX 304 EST	49061		N	20,00	3,00	0,4	3,00
OTX 404 EST	49062		N	20,00	3,30	0,4	4,00
OTX 508 EST	49063		N	25,00	3,50	0,8	5,00
OTX 608 EST	49064		N	30,00	4,00	0,8	6,00

new



OTX S02025ST



Enlarged view

WG700 Ref.	CBN1630GL uncoated ID-Nr.	CBN5625GL ID-Nr.	()	L	Ls	R	S ±0,025
OTX 304 S02025ST	49065	49069	N	20,00	3,00	0,4	3,00
OTX 404 S02025ST	49066	49070	N	20,00	3,30	0,4	4,00
OTX 508 S02025ST	49067	49071	N	25,00	3,50	0,8	5,00
OTX 608 S02025ST	49068	49072	N	30,00	4,00	0,8	6,00

Fitting tool holders



CBN1630GL (90% CBN contents)

Uncoated, tough CBN grade. To be used on hardened components, sinter materials and cast irons. (Continuous and interrupted cutting)

CBN5625GL (65% CBN contents)

PVD coated CBN grade to be used on hardened components, sinter materials (Continuous and interrupted cutting)



- E = Flat geometry slightly honed
- ST = Insert with one CBN tip
- S = Edge negative chamfer and honing

CBN insert on P92 holder in action.

