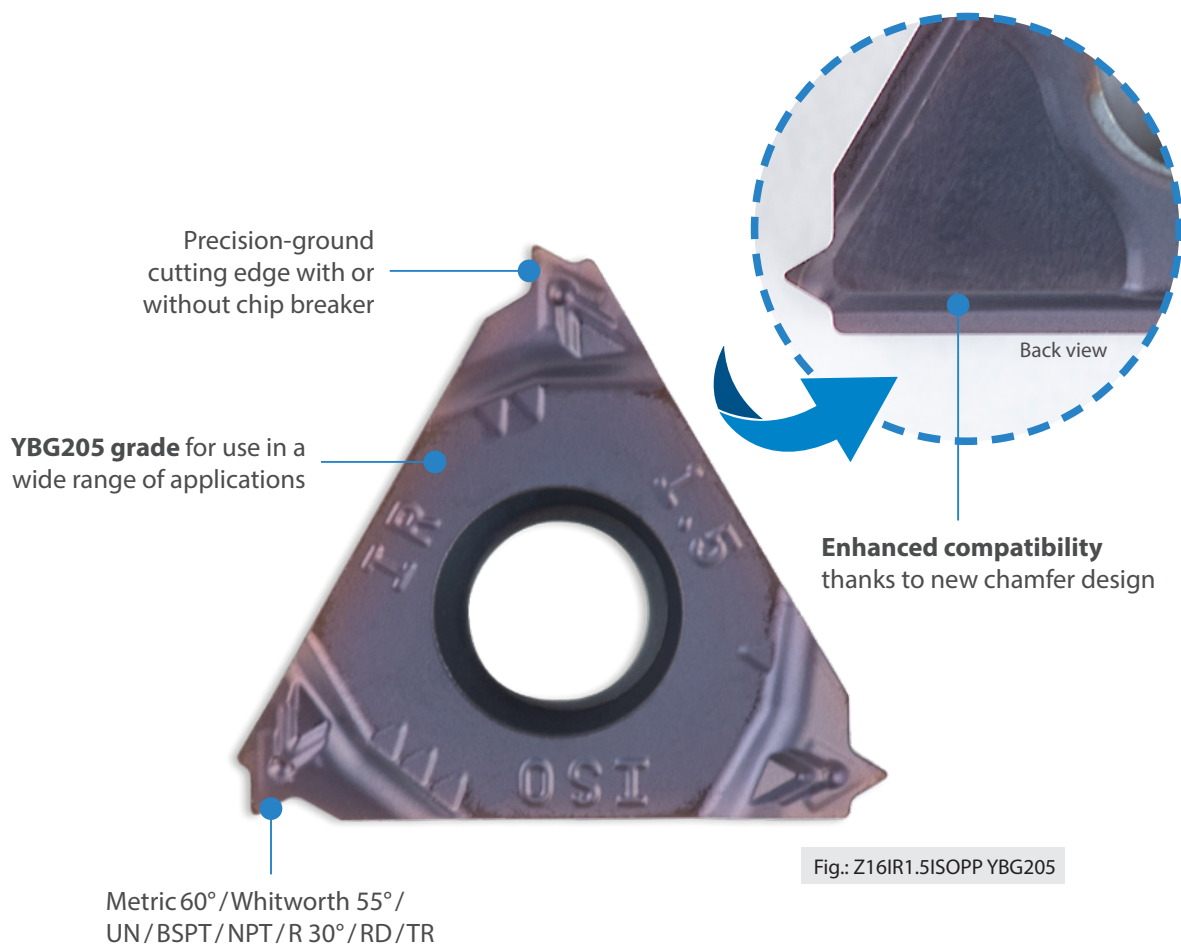


zType threading inserts

New series for high-quality results in threading operations

YOUR BENEFITS

- **Highly compatible with commercially available systems**
- Tried-and-tested YBG205 grade for use in a wide range of applications
- **Wide assortment of thread types**
- Available with or without chip breaker
- Lower carbide content to conserve resources and save money



A

zType threading inserts

Z	I.C	S	d
11	6,35	3,05	3,2
16	9,525	3,52	4,0

Turning

B

Milling

C

Drilling

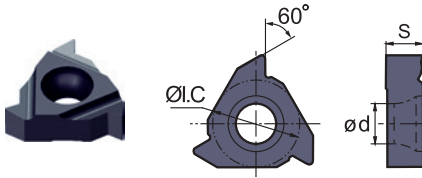
D

Technical Information

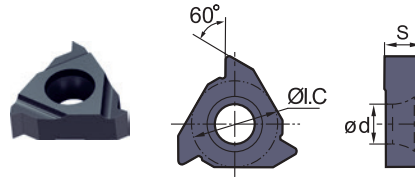
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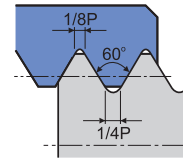
ISO metric coarse thread 60°



External right hand
Internal left hand



Internal right hand
External left hand



ISO 965-1980 DIN 13
GB-T 197-2003 Tolerance: 6g/6H

ISO	Pitch [mm]	External machining	HC ¹ (PVD)					Internal machining	HC ¹ (PVD)				
			YBG205						YBG205				
11	1	-						Z11IR1.0ISO	•				
		-						Z11IL1.0ISO	•				
	1,25	-						Z11IR1.25ISO	•				
		-						Z11IL1.25ISO	•				
	1,5	-						Z11IR1.5ISO	•				
		-						Z11IL1.5ISO	•				
16	1	-						Z11IR2.0ISO	•				
		-						Z11IL2.0ISO	•				
		Z16ER1.0ISO	•					Z16IR1.0ISO	•				
		Z16ER1.0ISOPP	•					Z16IR1.0ISOPP	•				
	1,25	Z16EL1.0ISO	•					Z16IL10ISO	•				
		Z16EL1.0ISOPP	○					-					
		Z16ER1.25ISO	•					Z16IR1.25ISO	•				
		Z16ER1.25ISOPP	•					Z16IR1.25ISOPP	•				
	1,5	Z16EL1.25ISO	•					Z16IL1.25ISO	•				
		Z16ER1.5ISO	•					Z16IR1.5ISO	•				
		Z16ER1.5ISOPP	•					Z16IR1.5ISOPP	•				
		Z16EL1.5ISO	•					Z16IL1.5ISO	•				
	1,75	Z16ER1.75ISO	•					Z16IR1.75ISO	•				
		Z16ER1.75ISOPP	•					Z16IR1.75ISOPP	•				
		Z16EL1.75ISO	•					Z16IL1.75ISO	•				
		Z16ER2.0ISO	•					Z16IR2.0ISO	•				
	2	Z16ER2.0ISOPP	•					Z16IR2.0ISOPP	•				
		Z16EL2.0ISO	•					Z16IL2.0ISO	•				

• Ex stock ○ On demand
PP*: Inserts with chip-breakers

HC¹ Coated cemented carbide

Tool holders

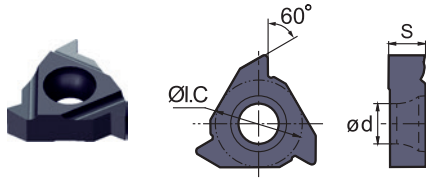
SWR/L

SNR/L

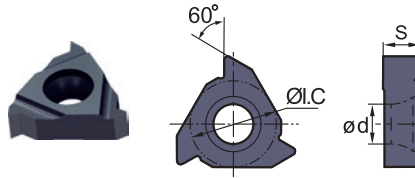


zType threading inserts

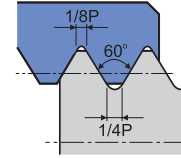
Z	I.C	S	d
16	9,525	3,52	4,0
22	12,7	4,65	5,0

ISO metric coarse thread 60°


External right hand
Internal left hand



Internal right hand
External left hand



ISO 965-1980 DIN 13
GB-T 197-2003 Tolerance: 6g/6H

ISO	Pitch [mm]	External machining	HC ¹ (PVD)					Internal machining	HC ¹ (PVD)				
			YBG205						YBG205				
16	2,5	Z16ER2.5ISO	●					Z16IR2.5ISO	●				
		Z16ER2.5ISOPP	●					Z16IR2.5ISOPP	●				
		Z16EL2.5ISO	●					Z16IL2.5ISO	●				
	3	Z16ER3.0ISO	●					Z16IR3.0ISO	●				
		Z16ER3.0ISOPP	●					Z16IR3.0ISOPP	●				
		Z16EL3.0ISO	●					Z16IL3.0ISO	●				
22	3,5	Z22ER3.5ISO	●					Z22IR3.5ISO	●				
		Z22EL3.5ISO	●					Z22IL3.5ISO	○				
	4	Z22ER4.0ISO	●					Z22IR4.0ISO	●				
		Z22EL4.0ISO	○					Z22IL4.0ISO	○				
	4,5	Z22ER4.5ISO	●					Z22IR4.5ISO	●				
		Z22EL4.5ISO	○					Z22IL4.5ISO	○				
	5	Z22ER5.0ISO	●					Z22IR5.0ISO	●				
		Z22EL5.0ISO	●					Z22IL5.0ISO	●				
	5,5	Z22ER5.5ISO	●					Z22IR5.5ISO	●				
		Z22EL5.5ISO	●					Z22IL5.5ISO	●				
	6	Z22ER6.0ISO	●					Z22IR6.0ISO	●				
		Z22EL6.0ISO	○					Z22IL6.0ISO	●				

● Ex stock ○ On demand

PP*: Inserts with chip-breakers

HC¹ Coated cemented carbide

Tool holders

SWR/L

SNR/L



A

Turning

B

Milling

C

Drilling

D

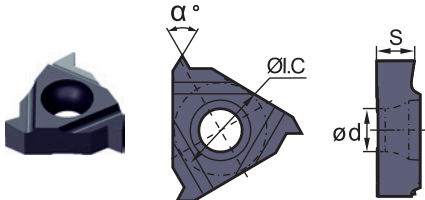
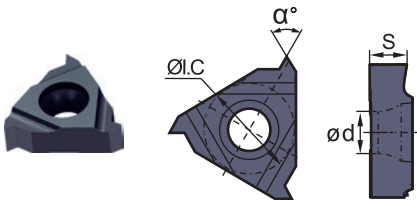
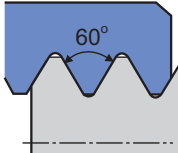
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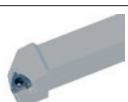
Z	I.C	S	d
11	6,35	3,05	3,2
16	9,525	3,52	4,0
22	12,7	4,65	5,0

zType threading inserts

Partial profile 60°											
											
External right hand Internal left hand			Internal right hand External left hand								
ISO	Pitch [mm]	External machining	HC ¹ (PVD)				Internal machining	HC ¹ (PVD)			
			YBG205					YBG205			
11	0,50–1,50	–					Z11IRA60	•			
		–					Z11ILA60	•			
16	0,50–1,50	Z16ERA60	•				Z16IRA60	•			
		Z16ERA60PP	•				Z16IRA60PP	•			
		Z16ELA60	•				Z16ILA60	•			
	0,50–3,00	Z16ERAG60	•				Z16IRAG60	•			
		Z16ERAG60PP	•				Z16IRAG60PP	•			
		Z16ELAG60	•				Z16ILAG60	•			
	1,75–3,00	Z16ERG60	•				Z16IRG60	•			
		Z16ERG60PP	•				Z16IRG60PP	•			
		Z16ELG60	•				Z16ILG60	•			
	22	3,5–5,00	Z22ERN60	•				Z22IRN60	•		

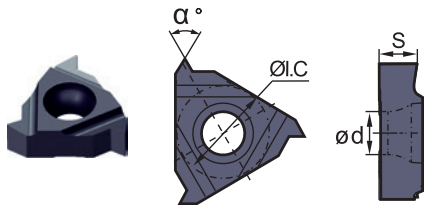
• Ex stock ○ On demand
PP*: Inserts with chip-breakers

HC¹ Coated cemented carbide

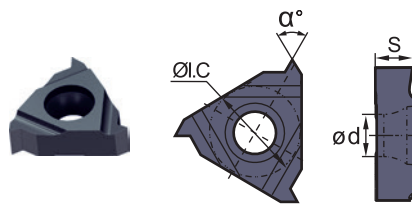
Tool holders	
SWR/L	SNR/L
	

zType threading inserts

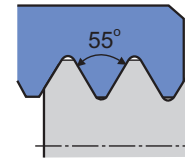
Z	I.C	S	d
11	6,35	3,05	3,2
16	9,525	3,52	4,0
22	12,7	4,65	5,0

Partial profile 55°


External right hand
Internal left hand



Internal right hand
External left hand



ISO	Thread pitches [mm]	External machining	HC ¹ (PVD)					Internal machining	HC ¹ (PVD)				
			YBG205						YBG205				
11	48-16	-						Z11IRA55	●				
		-						Z11ILA55	●				
16	48-16	Z16ERA55	○					Z16IRA55	●				
		Z16ERA55PP	●					Z16IRA55PP	●				
		Z16ELA55	●					Z16ILA55	●				
	48-8	Z16ERAG55	●					Z16IRAG55	●				
		Z16ERAG55PP	●					Z16IRAG55PP	●				
		Z16ELAG55	●					Z16ILAG55	●				
	14-8	Z16ERG55	●					Z16IRG55	●				
		Z16ERG55PP	●					Z16IRG55PP	●				
		Z16ELG55	●					Z16ILG55	●				
	7-5	Z22ERN55	●					Z22IRN55	●				

● Ex stock ○ On demand
PP*: Inserts with chip-breakers

HC¹ Coated cemented carbide

Tool holders

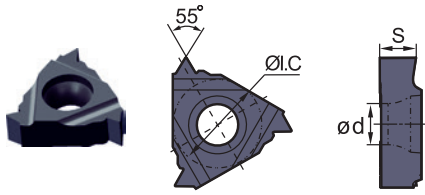
SWR/L	SNR/L

A

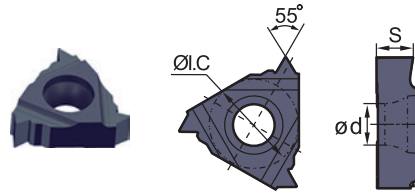
zType threading inserts

Z	I.C	S	d
16	9,525	3,52	4,0

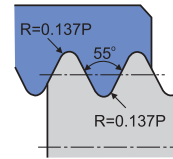
Turning



External right hand
Internal left hand



Internal right hand
External left hand



ISO 965-1980 DIN 13
GB-T 197-2003 Tolerance: medium class A

B

Milling

ISO	Thread pitches [mm]	External machining	HC ¹ (PVD)					Internal machining	HC ¹ (PVD)				
			YBG205						YBG205				
16	8	Z16ER8W	●					Z16IR8W	●				
	9	Z16ER9W	●					Z16IR9W	●				
	10	Z16ER10W	●					Z16IR10W	●				
		Z16EL10W	●					Z16IL10W	●				
	11	Z16ER11W	●					Z16IR11W	●				
		Z16ER11WPP	●					Z16IR11WPP	●				
		Z16EL11W	●					Z16IL11W	●				
	12	Z16ER12W	●					Z16IR12W	●				
		Z16EL12W	●					Z16IL12W	●				
	14	Z16ER14W	●					Z16IR14W	●				
		Z16ER14WPP	●					Z16IR14WPP	●				
		Z16EL14W	●					Z16IL14W	●				
	16	Z16ER16W	●					Z16IR16W	●				
		Z16EL16W	●					Z16IL16W	●				
	18	Z16ER18W	●					Z16IR18W	●				
		Z16EL18W	●					Z16IL18W	●				
	19	Z16ER19W	●					Z16IR19W	●				
		Z16ER19WPP	●					Z16IR19WPP	●				
		Z16EL19W	●					Z16IL19W	●				

● Ex stock ○ On demand
PP*: Inserts with chip-breakers

HC¹ Coated cemented carbide

C

Drilling

D

Technical Information

Tool holders

SWR/L

SNR/L

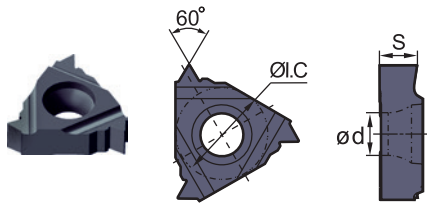


E

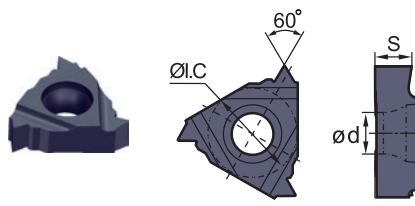
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zType threading inserts

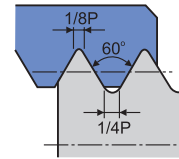
Z	I.C	S	d
16	9,525	3,52	4,0

Unified conventional thread UN


External right hand
Internal left hand



Internal right hand
External left hand



ASME B1.1-1989
Tolerance: 2A/2B

ISO	Thread pitches [mm]	External machining	HC ¹ (PVD)					Internal machining	HC ¹ (PVD)				
			YBG205						YBG205				
16	8	Z16ER8UN	●					Z16IR8UN	●				
		Z16EL8UN	●					Z16IL8UN	○				
	10	Z16ER10UN	●					Z16IR10UN	●				
		Z16EL10UN	●					Z16IL10UN	○				
	12	Z16ER12UN	●					Z16IR12UN	●				
		Z16ER12UNPP	●					Z16IR12UNPP	●				
		Z16EL12UN	●					Z16IL12UN	●				
	14	Z16ER14UN	●					Z16IR14UN	●				
		Z16ER14UNPP	●					Z16IR14UNPP	●				
		Z16EL14UN	●					Z16IL14UN	○				
	16	Z16ER16UN	●					Z16IR16UN	●				
		Z16ER16UNPP	●					Z16IR16UNPP	●				
		Z16EL16UN	●					Z16IL16UN	●				
	18	Z16ER18UN	●					Z16IR18UN	●				
		Z16EL18UN	●					Z16IL18UN	●				
	20	Z16ER20UN	●					Z16IR20UN	●				
		Z16EL20UN	●					Z16IL20UN	●				
	24	Z16ER24UN	●					Z16IR24UN	●				
		Z16EL24UN	●					Z16IL24UN	○				

● Ex stock ○ On demand
PP*: Inserts with chip-breakers

HC¹ Coated cemented carbide

Tool holders

SWR/L

SNR/L

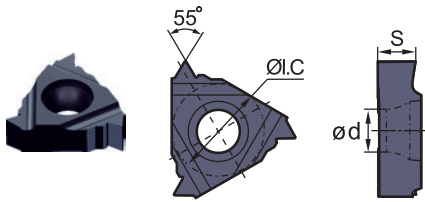


A

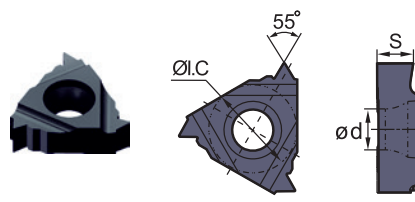
zType threading inserts

Z	I.C	S	d
16	9,525	3,52	4,0

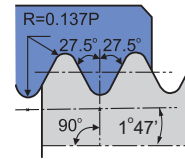
Turning



External right hand
Internal left hand



Internal right hand
External left hand



ASME B1.1-1989
Tolerance: 2A/2B

B

Milling

ISO	Thread pitches [mm]	External machining	HC ¹ (PVD)					Internal machining	HC ¹ (PVD)				
			YBG205						YBG205				
16	11	Z16ER11BSPT	●					Z16IR11BSPT	●				
		Z16ER11BSPTPP	●					Z16IR11BSPTPP	●				
		Z16EL11BSPT	●					–					
	14	Z16ER14BSPT	●					Z16IR14BSPT	●				
		Z16ER14BSPTPP	●					Z16IR14BSPTPP	●				
		Z16EL14BSPT	●					–					
	19	Z16ER19BSPT	●					Z16IR19BSPT	●				
		Z16ER19BSPTPP	●					Z16IR19BSPTPP	●				
		Z16EL19BSPT	●					Z16IL19BSPT	●				
	28	Z16ER28BSPT	●					Z16IR28BSPT	●				
		Z16EL28BSPT	●					–					

● Ex stock ○ On demand
PP*: Inserts with chip-breakers

HC¹ Coated cemented carbide

D

Technical Information

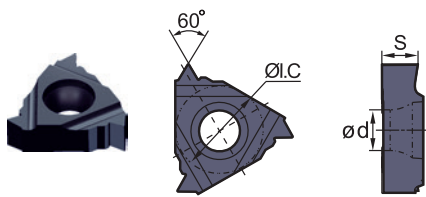
Tool holders	
SWR/L	SNR/L

E

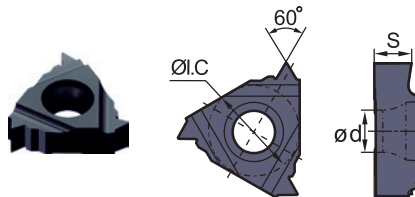
Index

zType threading inserts

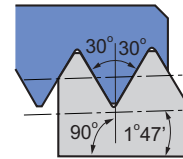
Z	I.C	S	d
16	9,525	3,52	4,0

American taper pipe thread NPT


External right hand
Internal left hand



Internal right hand
External left hand



ASME B1.20.1-1983
Standard NPT

ISO	Thread pitches [mm]	External machining	HC ¹ (PVD)					Internal machining	HC ¹ (PVD)				
			YBG205						YBG205				
16	8	Z16ER8NPT	●					Z16IR8NPT	○				
		Z16EL8NPT	●					-					
	11,5	Z16ER11.5NPT	●					Z16IR11.5NPT	●				
		Z16ER11.5NPTPP	●					Z16IR11.5NPTPP	●				
		Z16EL11.5NPT	●					-					
	14	Z16ER14NPT	●					Z16IR14NPT	●				
		Z16ER14NPTPP	●					Z16IR14NPTPP	●				
		Z16EL14NPT	●					-					
	18	Z16ER18NPT	●					Z16IR18NPT	●				
		Z16ER18NPTPP	●					Z16IR18NPTPP	●				
		Z16EL18NPT	●					Z16IL18NPT	●				
	27	Z16ER27NPT	●					Z16IR27NPT	●				
		Z16EL27NPT	●					-					

● Ex stock ○ On demand
PP*: Inserts with chip-breakers

HC¹ Coated cemented carbide

Tool holders

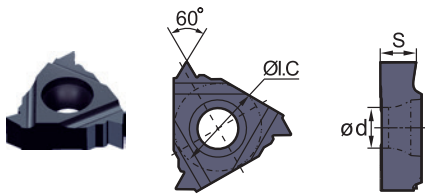
SWR/L	SNR/L
	

A

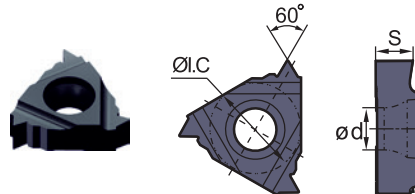
zType threading inserts

Z	I.C	S	d
16	9,525	3,52	4,0

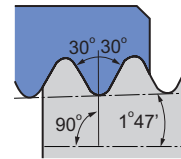
Turning



External right hand
Internal left hand



Internal right hand
External left hand



API spec.5B
Tolerance: API RD

B

Milling

ISO	Thread pitches [mm]	External machining	HC ¹ (PVD)					Internal machining	HC ¹ (PVD)				
			YBG205						YBG205				
16	8	Z16ER8RD	●					Z16IR8RD	●				
	10	Z16ER10RD	●					Z16IR10RD	●				

● Ex stock ○ On demand

HC¹ Coated cemented carbide

C

Drilling

Tool holders	
SWR/L	SNR/L

D

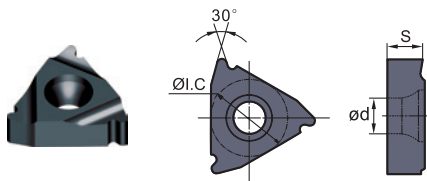
Technical Information

E

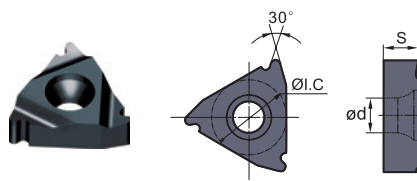
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zType threading inserts

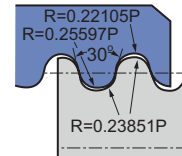
Z	I.C	S	d
16	9,525	3,52	4,0

Knuckle thread 30°


External right hand
Internal left hand



Internal right hand
External left hand



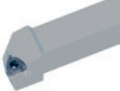
DIN 405
Tolerance: 7

ISO	Thread pitches [mm]	External machining	HC ¹ (PVD)						Internal machining	HC ¹ (PVD)					
			YBG205							YBG205					
16	8	Z16ER8R	●						-						
	10	Z16ER10R	●						-						

● Ex stock ○ On demand

HC¹ Coated cemented carbide

Tool holders

SWR/L	SNR/L
	

A

Turning

B

Milling

C

Drilling

D

Technical
Information

E

Index

A

zType threading inserts

Z	I.C	S	d
16	9,525	3,52	4,0

Turning

B

Milling

C

Drilling

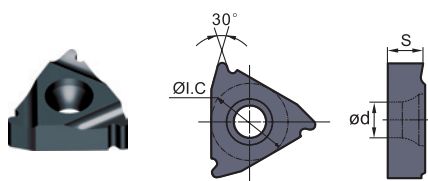
D

Technical Information

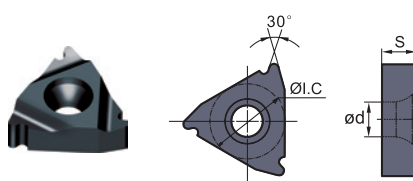
E

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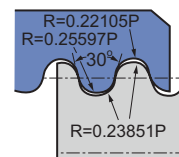
Metrical trapezoidal thread 30°



External right hand
Internal left hand



Internal right hand
External left hand



DIN 405
Tolerance: 7

ISO	Pitch [mm]	External machining	HC ¹ (PVD)					Internal machining	HC ¹ (PVD)				
			YBG205						YBG205				
16	2	Z16ER2.0TR	●					-					

● Ex stock ○ On demand

HC¹ Coated cemented carbide

Tool holders

SWR/L

SNR/L



Threading inserts

Material group		Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed v_c [m/min]		
						HC (PVD)		
						YBG205		
P	Unalloyed steel	approx. 0,15 % C	annealed	125	1	190		
		approx. 0,45 % C	annealed	190	2	175		
		approx. 0,45 % C	tempered	250	3	145		
		approx. 0,75 % C	annealed	270	4	140		
		approx. 0,75 % C	tempered	300	5	135		
	Low-alloyed steel		annealed	180	6	170		
			tempered	275	7	125		
			tempered	300	8	115		
			tempered	350	9	105		
	High-alloyed steel and high-alloyed tool steel		annealed	200	10	125		
			hardened and tempered	325	11	95		
M	Stainless steel	ferritic/martensitic	annealed	200	12	165		
		martensitic	tempered	240	13	135		
		austenitic	quench hardened	180	14	155		
		austenitic-ferritic		230	15	135		
K	Grey cast iron	perlitic/ferritic		180	16	240		
		perlitic (martensitic)		260	17	185		
	Cast iron with spheroidal graphite	ferritic		160	18	220		
		perlitic		250	19	165		
	Malleable cast iron	ferritic		130	20	175		
		perlitic		230	21	165		
N	Aluminium wrought alloys	cannot be hardened		60	22	800		
		hardenable	hardened	100	23	600		
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	24	320		
		≤ 12% Si, hardenable	hardened	90	25	240		
		> 12% Si, cannot be hardened		130	26	160		
	Copper and copper alloys (bronze/brass)	machining steel, PB > 1%		110	27	160		
		CuZn, CuSnZn		90	28	600		
		CuSn, Pb-free copper, electrolytic copper		100	29	200		
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30	95		
			hardened	280	31	50		
		Ni or Co base	annealed	250	32	80		
			hardened	350	33	70		
			cast	320	34	70		
	Titanium alloys	pure titanium		R _m 400	35	145		
		α and β alloys	hardened	R _m 1050	36	50		
H	Hardened steel		hardened and tempered	55 HRC	37			
			hardened and tempered	60 HRC	38			
	Hard cast iron		cast	400	39			
	Hardened cast iron		hardened and tempered	55 HRC	40			
X	Non-metallic materials	Thermoplasts			41			
		Thermosetting plastics			42			
		Plastic, glass-fibre reinforced GFRP			43			
		Plastic, carbon fibre reinforced CFRP			44			
		Graphite			45			
		Wood			46			

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.
For examples of material for cutting tool groups view page D11.

HC Coated carbide

A

Turning

B

Milling

C

Drilling

D

Technical Information

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