

SAW BLADE



Features



SLITTING/ SLOTTING/ CUT-OFF SERIES

PATENTED

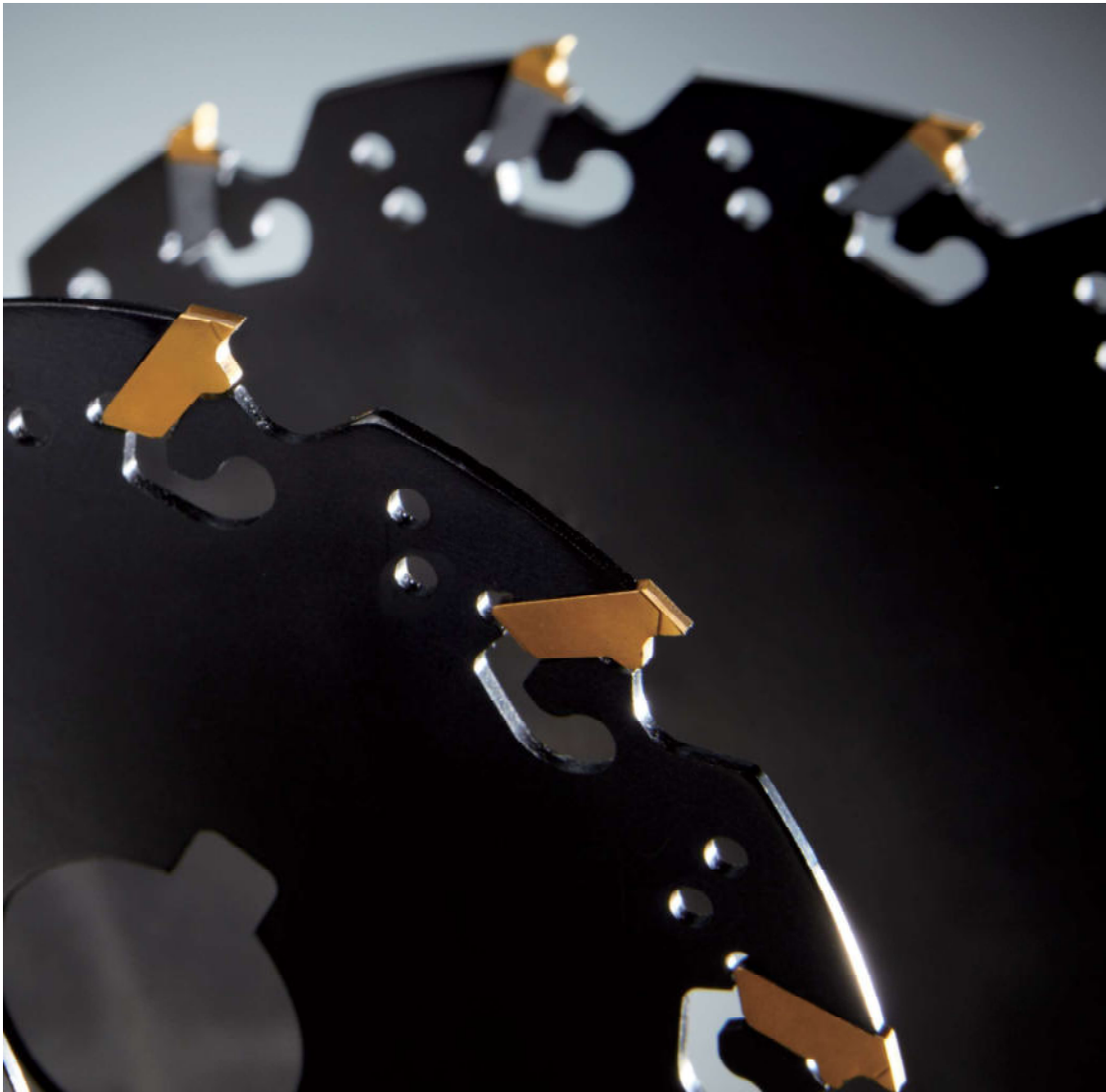


Video



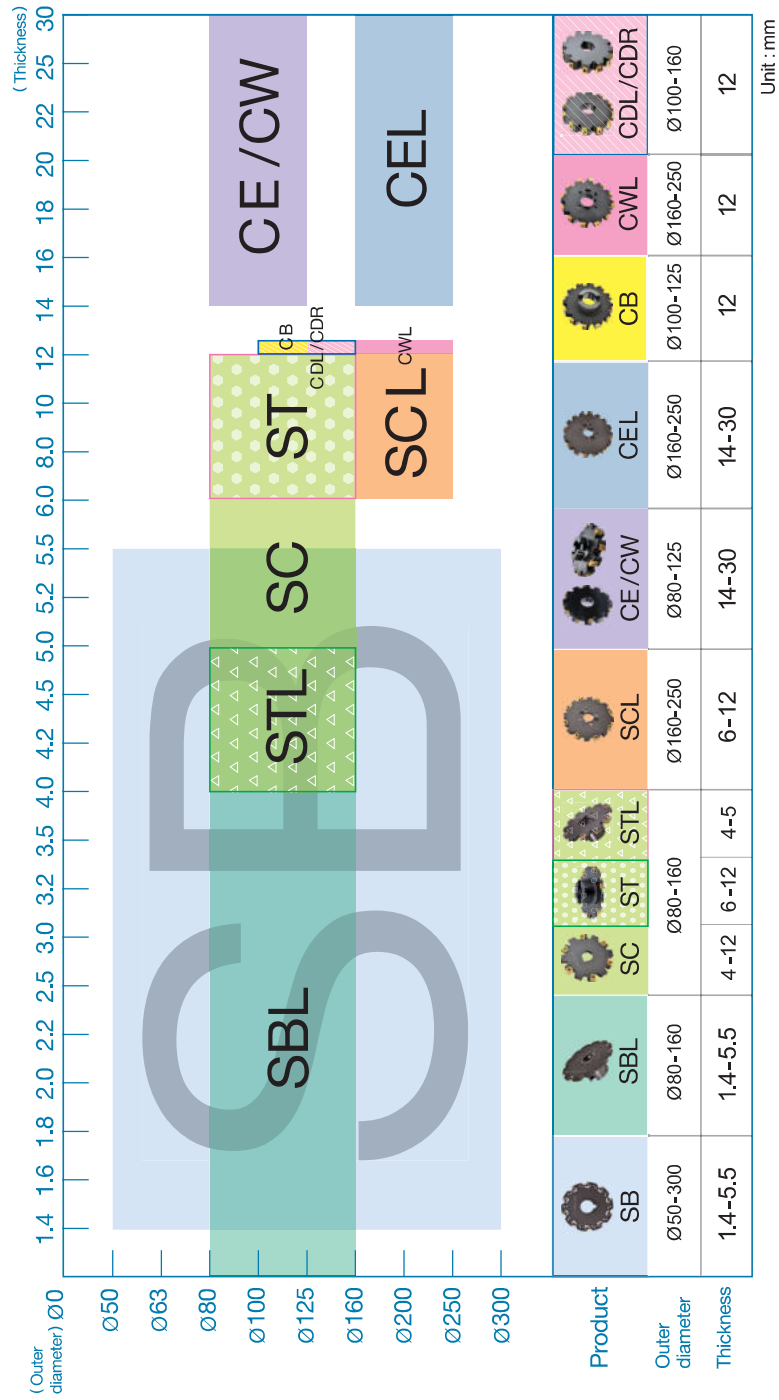
The Safest Saw

Patented embedding system assures the rigidity of inserts clamping which enhances the tool life and cutting speed, meanwhile realize impressive productivities.



SLITTING/SLOTTING/CUT-OFF SERIES

Classification table



Traditional vs. New Patent

"Yih Troun" is the first ever in the world which developed this precise locking type saw blade.



1. The screwless indexable insert was TIALN coated and designed with exclusive geometric angle on the cutting edge for producing impressive performance.
2. It increasing the machining (cutting) speed 300% - 500%
3. Cut down the cost of cutting tools



Patent No. : M538848



Patent No. : ZL 2016 2 1300067.8



PCT Priority

Traditional

Solid type saw blade:

1. HSS Saw is only available with low cutting speed, if speed up, the blade will be damaged soon.
2. The carbide brazed saw is welded by high temperature and without coating, it will degrade the body hardness and machining performance.



Multi Functional Saw Blade

1 Same cutter applicable to inserts of :

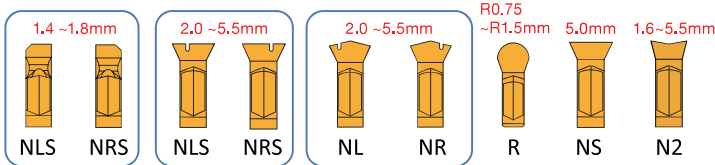
A. Different materials



B. Different thickness

ex.: 1.75 mm cutter can fit inserts 2.0/2.2/2.5mm

C. Different insert forms



Slitting

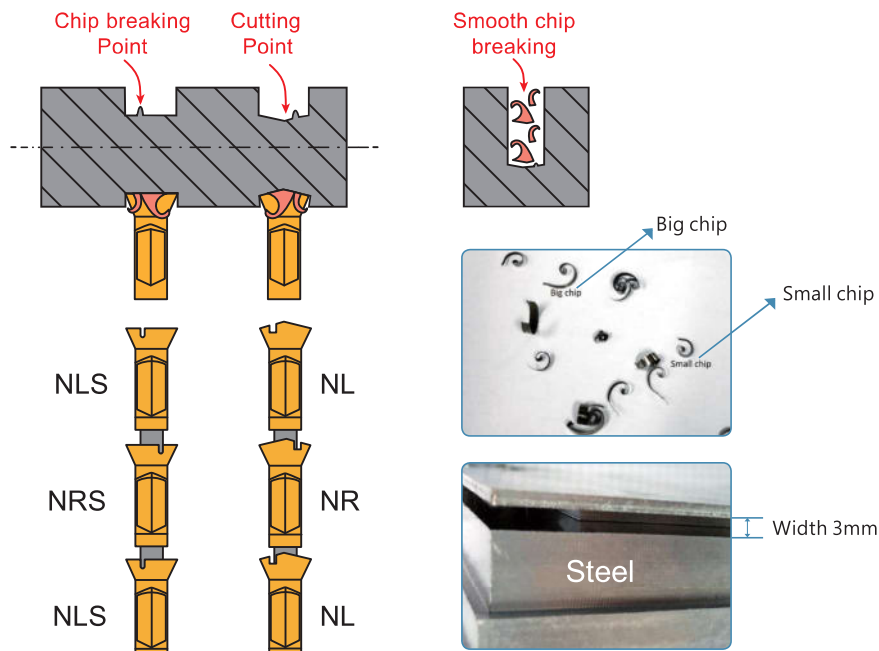
2 Patented embedding system

Strong clamping even in high feed machining



Circular embedding system achieves optimum performance in high speed machining, Max. RPM 17200 rev/min, approved in sweden.

Y.T. Patented Chip Breaking System

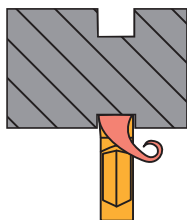


Excellent surface finishing quality and chip evacuation at the live test for machining 20mm deep slots by one pass

Characteristics

- The Insert has unique chip breaker design to break chips into two parts and chips are easily discharged while machining deep grooves and slots.
- It has accurate center positioning design which enables stronger and steady cutter conditions while machining, and lessens vibrations.
- Compare with the saw blades in the market, this design helps in reducing lots of cutting resistances and lower the machining power. It's the best choice for long depth and difficult materials machining.

Defect of other branded self-grip inserts



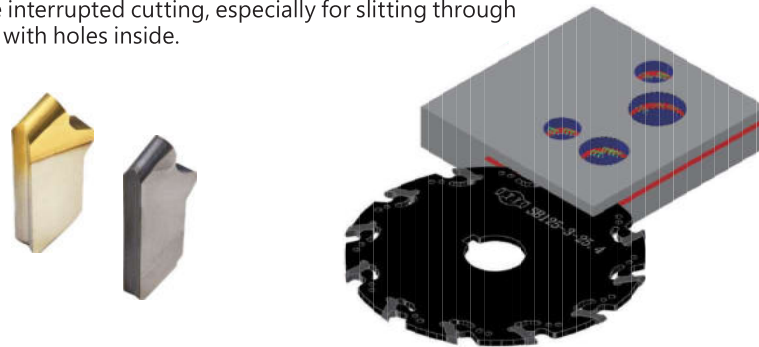
Characteristics

- While in deep grooving, chips often get stuck in the workpiece slot.
- Requires heavy power and generates large resistance in machining.
- As a result, it gives a be poor efficiency and heavy vibrations while large contact machining.

The Solution To Interrupted Cutting:

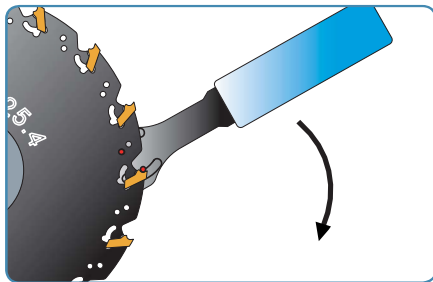
LNGT Radius Inserts

The radius insert with smooth entering cut provides excellent solution to the interrupted cutting, especially for slitting through the workpiece with holes inside.

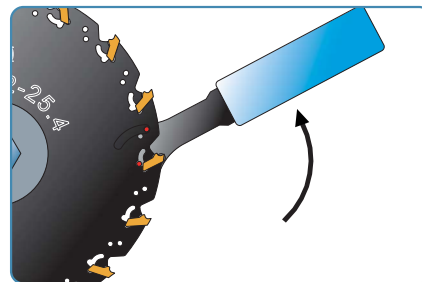


Slitting

Change The Inserts



Mount inserts



Remove inserts



Video

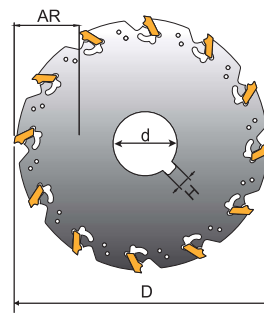


Before mounting inserts, use marker pen (oil-based) to wipe across the concave surface of the insert for helping fit the insert into the blade smoothly.

PRODUCT SPECIFICATIONS

Saw Blades

- Inserts P. 182 - 189
- Cutting Data P. 193 - 195



SB

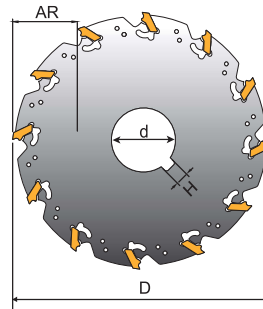
Order Code	Dimensions (mm)							Z	H	KG	MAX. RPM	Insert LNGLT	Wrench	
	D	AE	AR	P	d	C	B							
SB050-1.4-13	50	1.4	14.5	1.2	13	-	-	4	-	0.07	12000	1414	150.10-30	
SB050-1.4-12.7					12.7			4						
SB063-1.4-16	63		18		16			6	-	0.09	8000			1415
SB063-1.4-15.875					15.875									
SB080-1.4-22	80		22.5		22			8	6	0.13	6300			
SB080-1.4-25.4			19.5		25.4				6.35					
SB100-1.4-22	100		32.5		22			10	6	0.20	5000			
SB100-1.4-25.4			29.5		25.4				6.35					
SB100-1.4-27					27				7					
SB125-1.4-22	125		45		22			12	6	0.20	5000			
SB125-1.4-25.4		25.4		6.35										
SB125-1.4-32		32		8										

* Wrench for above holders sold seperately.

Saw Blades

- Inserts P. 182 - 189
- Cutting Data P. 193 - 195

SB



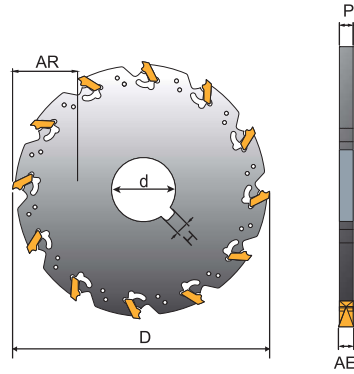
Slitting

Order Code	Dimensions (mm)							Z	H	KG	MAX. RPM	Inserts LNGT	Wrench
	D	AE	AR	P	d	C	B						
SB050-1.6-13	50	1.6	14.5	1.4	13	-	-	4	-	0.08	12000	1616	150.10-30
SB050-1.6-12.7					12.7								
SB063-1.6-16	63	1.6	18	1.4	16	-	-	6	-	0.09	11000	1616	150.10-30
SB063-1.6-15.875					15.875								
SB080-1.6-22	80	1.6	22.5	1.4	22	-	-	8	6	0.09	8000	1616	150.10-30
SB080-1.6-25.4			19.5		25.4								
SB100-1.6-22	100	1.6	32.5	1.4	22	-	-	10	6	0.14	6300	1616	150.10-30
SB100-1.6-25.4			29.5		25.4				6.35				
SB100-1.6-27			27		7								
SB125-1.6-22	125	1.6	45	1.4	22	-	-	12	6	0.21	5000	1616	150.10-30
SB125-1.6-25.4			42		25.4				6.35				
SB125-1.6-32			39		32				8				
SB160-1.6-25.4	160	1.6	59.5	1.4	25.4	-	-	16	6.35	0.35	4000	1616	150.10-30
SB160-1.6-32			56.5		32				8				
SB160-1.6-40			52		40				10				

* Wrench for above holders sold separately.

Saw Blades

- Inserts P. 182 - 189
- Cutting Data P. 193 - 195



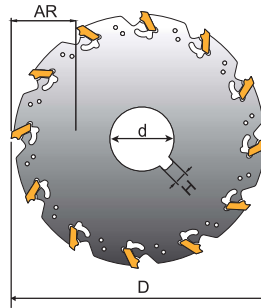
SB

Order Code	Dimensions (mm)							Z	H	KG	MAX. RPM	Inserts LNGT	Wrench
	D	AE	AR	P	d	C	B						
SB050-1.8-13	50	1.8	14.5	1.6	13	-	-	4	-	0.09	12000	1818	150.10-30
SB050-1.8-12.7					12.7								
SB063-1.8-16	63	1.8	18	1.6	16	-	-	6	-	0.10	11000	1818	150.10-30
SB063-1.8-15.875					15.875								
SB080-1.8-22	80	1.8	22.5	1.6	22	-	-	8	6	0.10	8000	1818	150.10-30
SB080-1.8-25.4					25.4								
SB100-1.8-22	100	1.8	32.5	1.6	22	-	-	10	6	0.15	6300	1818	150.10-30
SB100-1.8-25.4					25.4								
SB100-1.8-27					27								
SB125-1.8-22	125	1.8	45	1.6	22	-	-	12	6	0.22	5000	1818	150.10-30
SB125-1.8-25.4					25.4								
SB125-1.8-32					32								
SB160-1.8-25.4	160	1.8	59.5	1.6	25.4	-	-	16	6.35	0.38	4000	1818	150.10-30
SB160-1.8-32					32								
SB160-1.8-40					40								

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Slitting

SB

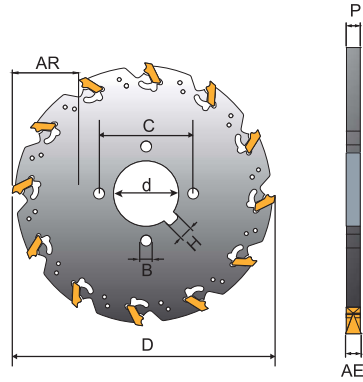
Order Code	Dimensions (mm)							Z	H	KG	MAX. RPM	Inserts LNGT	Wrench
	D	AE	AR	P	d	C	B						
SB050-2-13	50		14.5		13			4		0.08	12000		
SB050-2-12.7					12.7			6					
SB063-2-16	63		18		16				6			11000	
SB063-2-15.875					15.875								
SB080-2-22	80		22.5		22			8	6	0.10	8000		
SB080-2-25.4			19.5		25.4			6.35					
SB100-2-22	100	2.0	32.5	1.75	22			10	6	0.16	6300	2020	150.10-30
SB100-2-25.4		2.2	25.4		6.35								
SB100-2-27		2.5	29.5		27				7				
SB125-2-22	125		45		22			12	6	0.24	5000		
SB125-2-25.4			42		25.4				6.35				
SB125-2-32			39		32				8				
SB160-2-25.4	160		59.5		25.4			16	6.35	0.39	4000		
SB160-2-32			56.5		32				8				
SB160-2-40			52		40				10				

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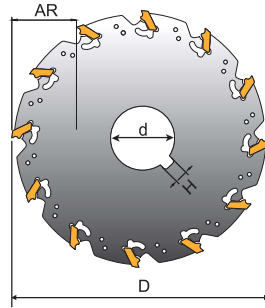


Order Code	Dimensions (mm)							Z	H	KG	MAX. RPM	Inserts LNGT	Wrench	
	D	AE	AR	P	d	C	B							
SB200-2-25.4	200	2.0	79.5	1.75	25.4	-	-	20	6.35	0.64	3200	2020	150.10-30	
SB200M-2-25.4								26						
SB200-2-32								20	8					
SB200M-2-32														26
SB200-2-40								20	10					3200
SB200M-2-40														
SB250-2-25.4	250	2.2	104.5	1.75	25.4	-	-	26	6.35	0.96	2600	2022	150.10-30	
SB250M-2-25.4		34												
SB250-2-32		26						8						
SB250M-2-32									34					
SB250-2-40		26						10	3200					
SB250M-2-40														34
SB285-2-32	285	119	32	63	11	28	8	1.12	2300					
SB285M-2-32										40				
SB050-2.5-13	50	2.5	14.5	2.25	13	-	-	4	-	0.1	12000	2525	150.10-30	
SB050-2.5-12.7		2.7			12.7									2527
		3.0										2530		

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Slitting

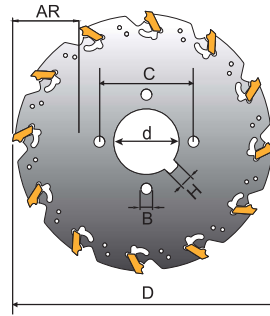
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Order Code	Dimensions (mm)							Z	H	KG	MAX. RPM	Inserts LNGT	Wrench	
	D	AE	AR	P	d	C	B							
SB063-2.5-16	63	2.5	18	2.25	16	-	-	6	-	0.11	11000	2525	150.10-30	
SB063-2.5-15.875					15.875									
SB080-2.5-22	80	2.5	22.5	2.25	22	-	-	8	6	0.12	8000	2525	150.10-30	
SB080-2.5-25.4			19.5		25.4									6.35
SB100-2.5-22	100	2.5	32.5	2.25	22	-	-	10	6	0.18	6300	2525	150.10-30	
SB100-2.5-25.4			29.5		25.4									6.35
SB100-2.5-27					27									
SB125-2.5-22	125	3.0	45	2.25	22	-	-	12	6	0.27	5000	2527	150.10-30	
SB125-2.5-25.4			42		25.4									6.35
SB125-2.5-32			39		32									
SB160-2.5-25.4	160	2.5	59.5	2.25	25.4	-	-	16	6.35	0.47	4000	2525	150.10-30	
SB160-2.5-32			56.5		32									8
SB160-2.5-40			52		40									
SB200-2.5-25.4	200	2.5	79.5	2.25	25.4	-	-	20	6.35	0.73	3200	2525	150.10-30	
SB200M-2.5-25.4														26

* Wrench for above holders sold separately.

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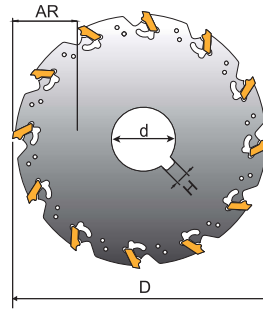
SB

Order Code	Dimensions (mm)							Z	H	KG	MAX. RPM	Inserts LNGT	Wrench
	D	AE	AR	P	d	C	B						
SB200-2.5-32	200	2.5	76.5	2.25	32	63	11	20	8	0.73	3200	2525	150.10-30
SB200M-2.5-32								26					
SB200-2.5-40			72		40	90	20	10					
SB200M-2.5-40							26						
SB250-2.5-25.4	250	2.5	104.5	2.25	25.4	-	-	26	6.35	1.12	2600	2527	150.10-30
SB250M-2.5-25.4								34					
SB250-2.5-32			101.5		32	63	11	26	8				
SB250M-2.5-32								34					
SB250-2.5-40	97	40	90	11	26	10							
SB250M-2.5-40					34								
SB300-2.5-25.4	300	2.7	129.5	2.25	25.4	-	-	30	6.35	1.61	2200	2530	150.10-30
SB300M-2.5-25.4								40					
SB300-2.5-32			126.5		32	63	11	30	8				
SB300M-2.5-32								40					
SB300-2.5-40			122		40	90	11	30	10				
SB300M-2.5-40								40					

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Saw Blades

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Slitting

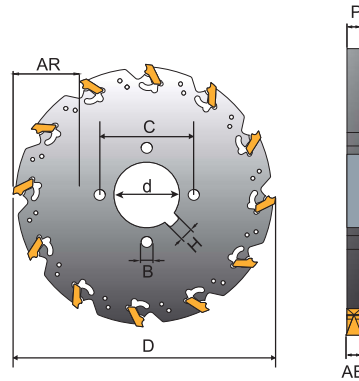
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Order Code	Dimensions (mm)							Z	H	KG	MAX. RPM	Inserts LNGT	Wrench
	D	AE	AR	P	d	C	B						
SB050-3-13	50		14.5		13			4	-	0.10	12000		
SB050-3-12.7					12.7								
SB063-3-16	63		18		16			6	-	0.11	11000		
SB063-3-15.875					15.875								
SB080-3-22	80		22.5		22			8	6	0.13	8000		
SB080-3-25.4			19.5		25.4				6.35				
SB100-3-22	100	3.0	32.5	2.7	22				6	0.20	6300	3030	
SB100-3-25.4			29.5		25.4				6.35				
SB100-3-27			3.2		27				7				
SB125-3-22	125	3.5	45		22				6	0.31	5000	3035	
SB125-3-25.4			42		25.4				6.35				
SB125-3-32			39		32				8				
SB160-3-25.4	160		59.5		25.4				6.35	0.53	4000		
SB160-3-32			56.5		32				8				
SB160-3-40			52		40				10				
SB200-3-25.4	200		79.5		25.4				20	0.85	3200		
SB200M-3-25.4									26				

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Saw Blades

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SB

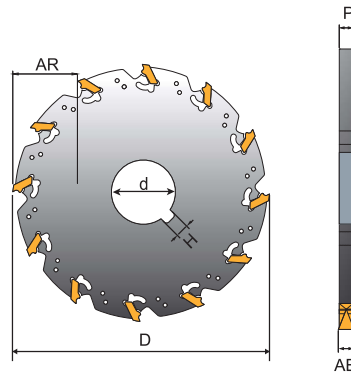
Order Code	Dimensions (mm)							Z	H	kg	MAX. RPM	Inserts LNKT	Wrench							
	D	AE	AR	P	d	C	B													
SB200-3-32	200		76.5	2.7	32	63	11	20	8	0.85	3200									
SB200M-3-32								26												
SB200-3-40			20		10															
SB200M-3-40						26														
SB250-3-25.4	250	3.0	104.5	2.7	25.4	-	-	26	6.35	1.38	2600	3030	150.10-30							
SB250M-3-25.4								34												
SB250-3-32			26		8															
SB250M-3-32						34														
SB250-3-40			26		10															
SB250M-3-40						34														
SB300-3-25.4			300		3.2	129.5	2.7	25.4	-					-	30	6.35	1.86	2200	3032	
SB300M-3-25.4															40					
SB300-3-32	30	8																		
SB300M-3-32				40																
SB300-3-40	30	10																		
SB300M-3-40				40																

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SB



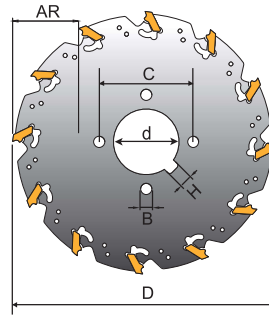
Slitting

Order Code	Dimensions (mm)							Z	H	KG	MAX. RPM	Inserts LNGT	Wrench
	D	AE	AR	P	d	C	B						
SB050-4-13	50	4.0	14.5	3.7	13	-	-	4	-	0.09	12000	4040	150.10-30
SB050-4-12.7					12.7								
SB063-4-16	63	4.0	18	3.7	16	-	-	6	-	0.12	11000	4040	150.10-30
SB063-4-15.875					15.875								
SB080-4-22	80	4.0	22.5	3.7	22	-	-	8	6	0.15	8000	4040	150.10-30
SB080-4-25.4			19.5		25.4				6.35				
SB100-4-22	100	4.0	32.5	3.7	22	-	-	10	6	0.25	6300	4040	150.10-30
SB100-4-25.4			29.5		25.4				6.35				
SB100-4-27		4.2			27				7				
SB125-4-22	125	4.5	45	3.7	22	-	-	12	6	0.40	5000	4045	150.10-30
SB125-4-25.4			42		25.4				6.35				
SB125-4-32			39		32				8				
SB160-4-25.4	160	4.5	59.5	3.7	25.4	-	-	16	6.35	0.66	4000	4045	150.10-30
SB160-4-32			56.5		32				8				
SB160-4-40			52		40				10				
SB200-4-25.4	200	4.5	79.5	3.7	25.4	-	-	20	6.35	1.02	3200	4045	150.10-30
SB200M-4-25.4													

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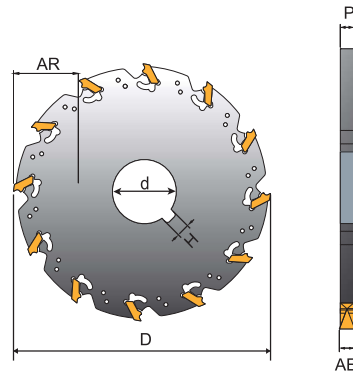
SB

Order Code	Dimensions (mm)							Z	H	KG	MAX. RPM	Inserts LNGT	Wrench
	D	AE	AR	P	d	C	B						
SB200-4-32	200	4.0	76.5	3.7	32	63	11	20	8	1.02	3200	4040	150.10-30
SB200M-4-32								26					
SB200-4-40			72		40	90		20	10				
SB200M-4-40								26					
SB250-4-25.4	250	4.0	104.5	3.7	25.4	-	11	26	6.35	1.69	2600	4042	150.10-30
SB250M-4-25.4								34					
SB250-4-32			101.5		32	63		26	8				
SB250M-4-32													
SB250-4-40			97		40	90		26	10				
SB250M-4-40													
SB300-4-25.4	300	4.5	129.5	3.7	25.4	-	11	30	6.35	2.18	2200	4045	150.10-30
SB300M-4-25.4								40					
SB300-4-32			126.5		32	63		30	8				
SB300M-4-32													
SB300-4-40			122		40	90		30	10				
SB300M-4-40													

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Slitting

SB

Order Code	Dimensions (mm)							Z	H	KG	MAX. RPM	Inserts LNKT	Wrench
	D	AE	AR	P	d	C	B						
SB050-5-13	50		14.5		13			4			12000		
SB050-5-12.7					12.7								
SB063-5-16	63		18		16			6		0.13	11000		
SB063-5-15.875					15.875								
SB080-5-22	80		22.5		22			8	6	0.18	8000		
SB080-5-25.4			19.5		25.4				6.35				
SB100-5-22	100	5.0	4.5	32.5	22			10	6	0.28	6300	5050	150.10-30
SB100-5-25.4		5.2		25.4					6.35				
SB100-5-27		5.5		27					7				
SB125-5-22	125		45		22			12	6	0.45	5000		
SB125-5-25.4			42		25.4				6.35				
SB125-5-32			39		32				8				
SB160-5-25.4	160		59.5		25.4			16	6.35	0.75	4000		
SB160-5-32			56.5		32				8				
SB160-5-40			52		40				10				

* Wrench for above holders sold separately.

ADAPTER HOLDER SERIES



Video

Features

Available in
materials



Cost
200~300%
SAVING

Applicable
Machines
Milling machine

Efficiency
300~500%
UP

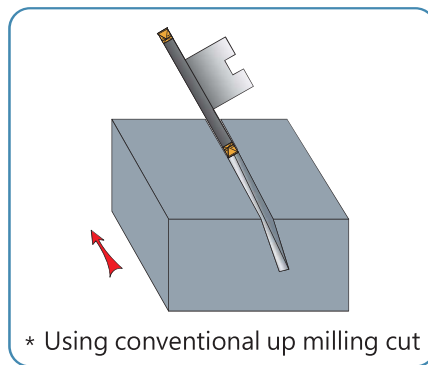
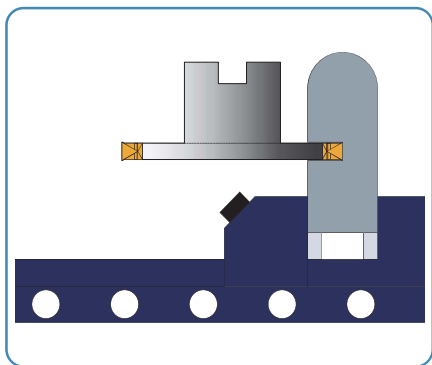
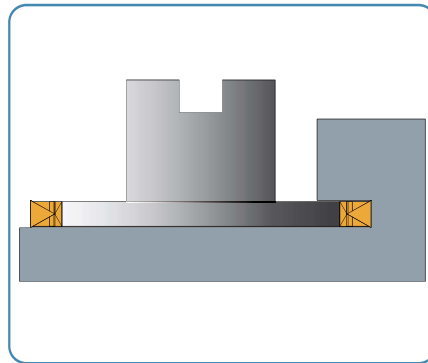
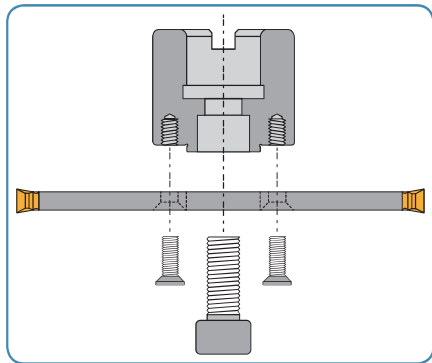
Durability
300%
UP

New
System
For T-Slot
Milling

ADAPTER HOLDER

Slitting / Slotting / Cut-off

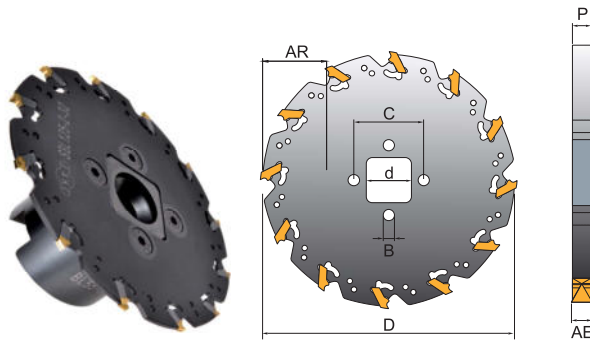
Slotting



PRODUCT SPECIFICATIONS

Saw Milling Cutters

- Adapter Holders P. 154
- Inserts P. 182 - 189
- Cutting Data P. 193 - 195



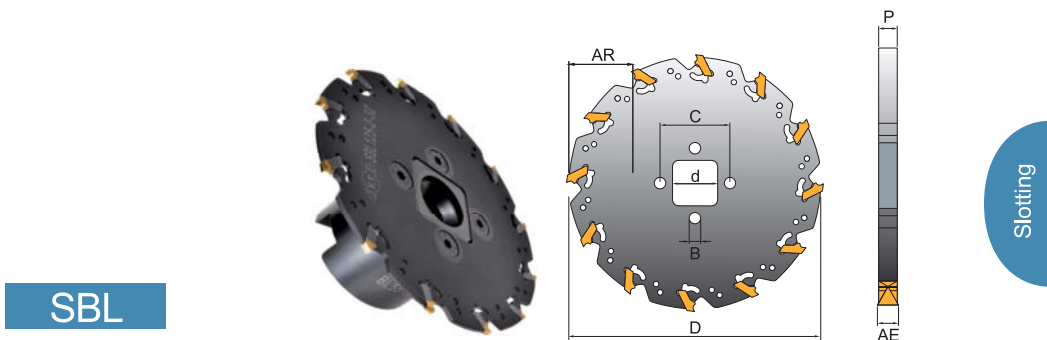
SBL

Order Code	Dimensions (mm)							Z	H	kg	MAX. RPM	Inserts LNGT	Wrench
	D	AE	AR	P	d	C	B						
SBL080-1.4-22	80	1.4	17	1.2	22	34	5	8	-	0.08	8000	1414	150.10-30
SBL100-1.4-22	100		27					10		0.13			
SBL125-1.4-32	125	1.5	33		32	46	6	12		0.18	5000		
SBL160-1.4-32	160		50.5					16		0.33	4000		
SBL080-1.6-22	80	1.6	17	1.4	22	34	5	8	-	0.09	8000	1616	150.10-30
SBL100-1.6-22	100		27					10		0.14			
SBL125-1.6-32	125		33		32	46	6	12		0.19	5000		
SBL160-1.6-32	160		50.5					16		0.35	4000		

* Wrench for above holders sold separately.

Saw Milling Cutters

- Adapter Holders P. 154
- Inserts P. 182 - 189
- Cutting Data P. 193 - 195



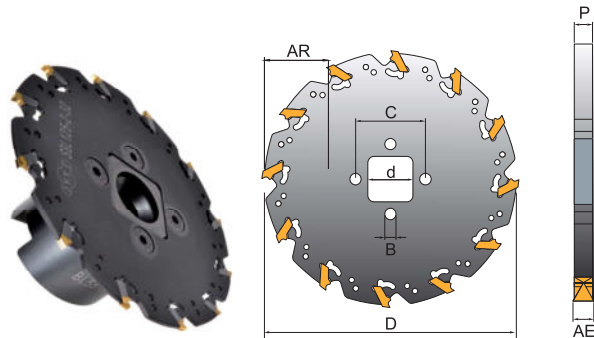
SBL

Order Code	Dimensions (mm)							Z	H	KG	MAX. RPM	Inserts LNGT	Wrench
	D	AE	AR	P	d	C	B						
SBL080-1.8-22	80	1.8	17	1.6	22	34	5	8	-	0.10	8000	1818	150.10-30
SBL100-1.8-22	100		27					10		0.15	6300		
SBL125-1.8-32	125		33					12		0.21	5000		
SBL160-1.8-32	160		50.5					16		0.37	4000		
SBL080-2-22	80	2.0	17	1.75	22	34	5	8	-	0.10	8000	2020 2022 2025	150.10-30
SBL100-2-22	100		27					10		0.15	6300		
SBL125-2-32	125		33					12		0.22	5000		
SBL160-2-32	160		50.5					16		0.39	4000		
SBL080-2.5-22	80	2.5	17	2.25	22	34	5	8	-	0.11	8000	2525 2527 2530	150.10-30
SBL100-2.5-22	100		27					10		0.17	6300		
SBL125-2.5-32	125		33					12		0.26	5000		
SBL160-2.5-32	160		50.5					16		0.45	4000		

* Wrench for above holders sold separately.

Saw Milling Cutters

- Adapter Holders P. 154
- Inserts P. 182 - 189
- Cutting Data P. 193 - 195



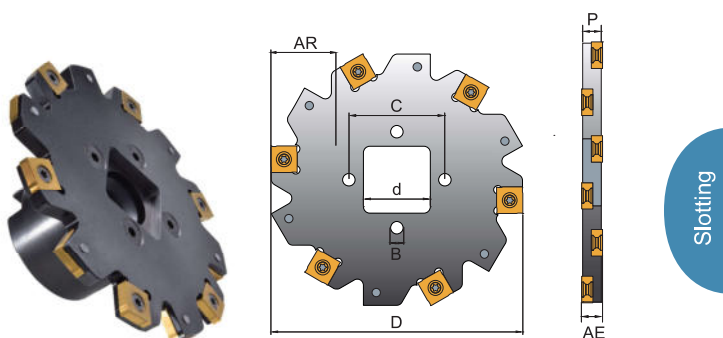
SBL

Order Code	Dimensions (mm)							Z	H	KG	MAX. RPM	Inserts LNGT	Wrench
	D	AE	AR	P	d	C	B						
SBL080-3-22	80	3.0	17	2.7	22	34	5	8	-	0.12	8000	3030 3032 3035	150.10-30
SBL100-3-22	100		27					10		0.20	6300		
SBL125-3-32	125	3.2	33	12	0.29	5000							
SBL160-3-32	160	3.5	50.5	16	0.51	4000							
SBL080-4-22	80	4.0	17	3.7	22	34	5	8	-	0.15	8000	4040 4042 4045	150.10-30
SBL100-4-22	100	27	10					0.24		6300			
SBL125-4-32	125	4.2	33	12	0.36	5000							
SBL160-4-32	160	4.5	50.5	16	0.64	4000							
SBL080-5-22	80	5.0	17	4.5	22	34	5	8	-	0.17	8000	5050 5052 5055	150.10-30
SBL100-5-22	100		27					10		0.27	6300		
SBL125-5-32	125	5.2	33	12	0.42	5000							
SBL160-5-32	160	5.5	50.5	16	0.74	4000							

* Wrench for above holders sold seperately.

Side Milling Cutters

- Adapter Holders P. 154
- Inserts P. 190 - 192
- Cutting Data P. 196 - 197

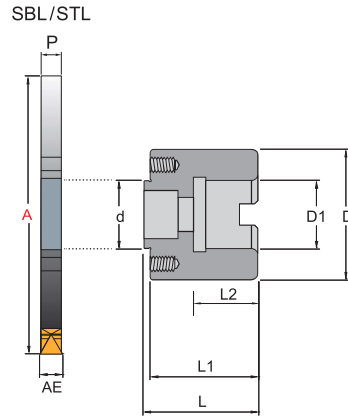
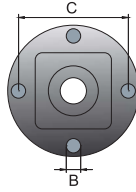


STL

Order Code	Dimensions (mm)							Z	Zc	KG	MAX. RPM	Inserts SNGX SNGW	Screw	Key
	D	AE	AR	P	d	C	B							
STL080-4-22	80	4	17	3.4	22	34	5	8	4	0.16	13700	1102	T9354	T09P
STL080-5-22		5		4.2								1103	T9355	T08P
STL100-4-22	100	4	27	3.4	32	46	6	10	5	0.26	12000	1102	T9354	T09P
STL100-5-22		5		4.2								1103	T9355	T08P
STL125-4-32	125	4	33	3.4	32	46	6	12	6	0.37	10900	1102	T9354	T09P
STL125-5-32		5		4.2								1103	T9355	T08P
STL160-4-32	160	4	50.5	3.4	32	46	6	16	8	0.68	8300	1102	T9354	T09P
STL160-5-32		5		4.2								1103	T9355	T08P

* Use Zc (effective no. of teeth) to calculate the feed.

Adapter Holders



BL / BLL

Order Code	Dimensions (mm)									KG	Available P	
	D	D1	d	C	B	L	L1	L2	A			
BL45-22	45	22	22	34	5	43	41.8	27	80	0.47	 1.2-2.25mm	
BL45-25.4		25.4				45	43.8		100			
BL58-31.75	58	31.75	32	46	6	55	53.8	28	125	0.95		
BL58-32		32							160			
BLL45-22	45	22	22	34	5	43	40.5	27	80	0.47		 2.7-4.5mm
BLL45-25.4		25.4				45	42.5		100			
BLL58-31.75	58	31.75	32	46	6	55	52.5	28	125	0.95		
BLL58-32		32							160			

* Please follow the step 1、2、3 to choose the cutter and holder to match: 1. Available P 2. "d" size 3. "D1" size.

Standard Spare Parts

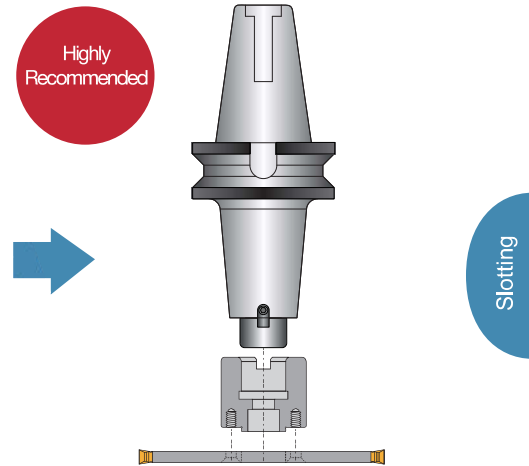
Holder	Screw	Holder	Screw	Arbor Screw	
BL45-22	C90512	BLL45-22	C90512	M1035	
BL45-25.4		BLL45-25.4		M1235	
BL58-31.75	C90612	BLL58-31.75	C90612	M1235/M1635/ W2403	
BL58-32		BLL58-32		M1635	

SOLUTION-1

SBL/STL Series



Face Milling Arbor:
Better strength with shorter
length and bigger diameter

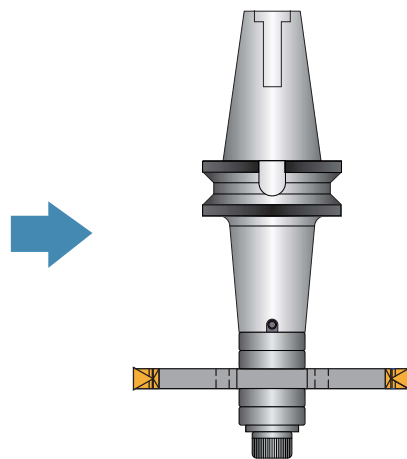


SOLUTION-2

SB Series



Side Milling Arbor:
Poor strength with longer
length and smaller diameter



It might cause mechanism interferences.

ADAPTER HOLDER SERIES



Features

Available in materials

P K M
N S H

Cost
200~300%
SAVING

Applicable
Machines
Milling machine

Efficiency
300~500%
UP

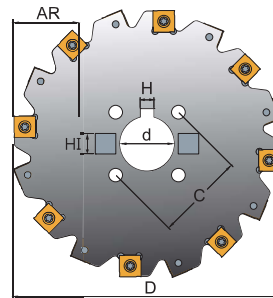
Durability
300%
UP

PRODUCT SPECIFICATIONS


Side Milling Cutters

- Adapter Holders P. 160
- Inserts P. 190 - 192
- Cutting Data P. 196 - 197

Slotting



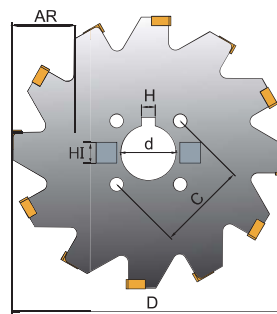
SCL

Order Code	Dimensions (mm)									Z	Zc		MAX. RPM	Inserts SNGX SNGW	Screw	Key
	D	AE	AR	P	H	C	d	HI								
SCL-160-6-32	160	6	46.5	5	8	52	32		16	8	0.87	8300	1203	T945		
SCL-160-8-32		8		7									12045	T947		
SCL-160-10-32		10		9									1205	T948		
SCL-160-12-32		12		11									1207	T9411		
SCL-200-6-40	200	6	54	5	10	70	40	12X12	18	9	1.34	4200	1203	T945	T15P	
SCL-200-8-40		8		7									12045	T947		
SCL-200-10-40		10		9									1205	T948		
SCL-200-12-40		12		11									1207	T9411		
SCL-250-6-40	250	6	79	5					24	12	2.05	3800	1203	T945		
SCL-250-8-40		8		7									12045	T947		
SCL-250-10-40		10		9									1205	T948		
SCL-250-12-40		12		11									1207	T9411		

* Use Zc (effective no. of teeth) to calculate the feed.

Disc Milling Cutters

- Adapter Holders P. 160
- Inserts P. 193
- Cutting Data P. 198-199



CEL

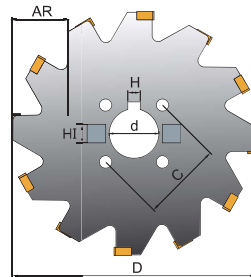
Order Code	Dimensions (mm)								Z	Zc	KG	MAX. RPM	Inserts CNGX	Screw	Key
	D	AE	AR	P	H	C	d	HI							
CEL-160-14-32	160	14	46.5	12.5	8	52	32	12	6	1.72	6900	1005	C04011	T15P	
CEL-160-16-32		16		14.5						1.95					
CEL-160-18-32		18		16.5						2.19					
CEL-160-20-32		20		18.5						2.44		1305			
CEL-160-22-32		22		20.5						2.68					
CEL-160-25-32		25		23.5						3.04					
CEL-160-30-32		30		28.5						3.64		1605			
CEL-200-14-40	200	14	54	12.5	10	70	40	12X12	16	8	2.68	1005	C04011	T15P	
CEL-200-16-40		16		14.5							3.06				
CEL-200-18-40		18		16.5							3.44				
CEL-200-20-40		20		18.5							3.82	1305			
CEL-200-22-40		22		20.5					4.20						
CEL-200-25-40		25		23.5					4.77						
CEL-200-30-40		30		28.5					5.72	1605					

* Use Zc (effective no. of teeth) to calculate the feed.

Disc Milling Cutters

- Adapter Holders P. 160
- Inserts P. 193
- Cutting Data P. 198 -199

Slotting



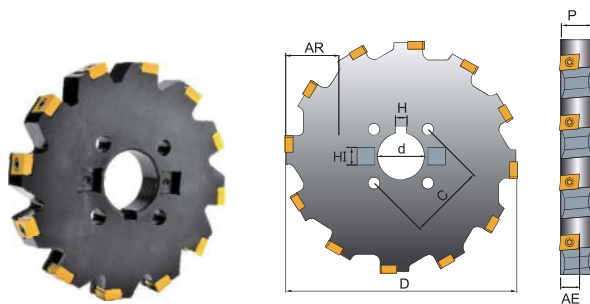
CEL

Order Code	Dimensions (mm)								Z	Zc	KG	MAX. RPM	Inserts CNGX	Screw	Key
	D	AE	AR	P	H	C	d	HI							
CEL-250-14-40	250	14	79	12.5	10	70	40	12X12	20	10	5500	1005	C04011	T15P	
CEL-250-16-40		16		14.5											3.20
CEL-250-18-40		18		16.5											3.72
CEL-250-20-40		20	18.5	4.24											
CEL-250-22-40		22	20.5	4.76											
CEL-250-25-40		25	23.5	5.28					16	8		1605			
CEL-250-25-40		25	23.5	6.06											
CEL-250-30-40		30	28.5	7.36											

* Use Zc (effective no. of teeth) to calculate the feed.

Back Milling Cutters

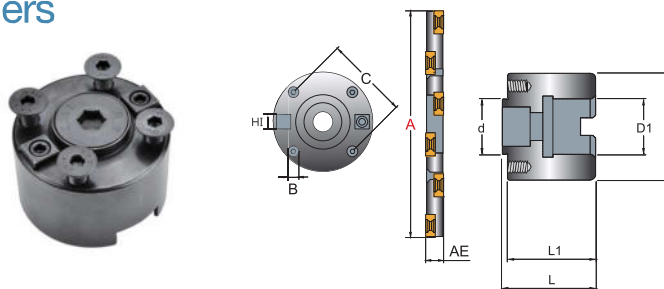
- Adapter Holders P. 160
- Inserts P. 193
- Cutting Data P. 198 -199



CWL

Order Code	Dimensions(mm)								Z	KG	MAX. RPM	Inserts CNGX	Screw	Key
	D	AE	AR	P	H	C	d	HI						
CWL-160-32	160		46.5		8	52	32		16	1.90	6900			
CWL-200-40	200	12	54	16.5				12X12	20	2.30	6100	1305	C04011	T15P
CWL-250-40	250		79		10	70	40		24	3.20	5500			

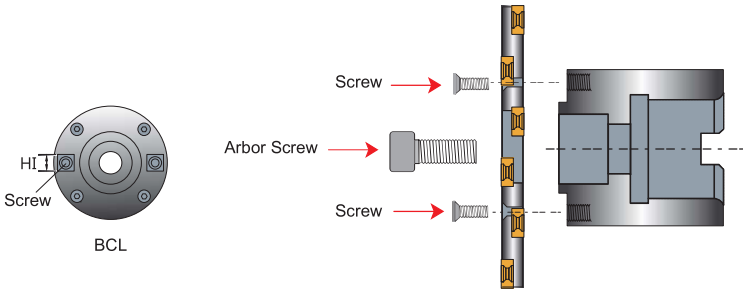
Adapter Holders



BCL

Order Code	Dimensions (mm)									KG
	D	D1	d	C	B	L	L1	A	HI	
BCL65-31.75	65	31.75	32	52	8	50	44.5	160	12X12	0.84
BCL65-32		32								
BCL65-38.1		38.1								
BCL65-40		40								
BCL90-38.1	90	38.1	40	70	8	60	54.5	200 250	12X12	1.70
BCL90-40		40								1.78
BCL90-50		50								1.80
BCL90-50.8		50.8								1.85
BCL90-60		60								1.90

Standard Spare Parts



Slotting

Holders	Screw	Arbor Screw	HI+Screw	Holders	Screw	Arbor Screw	HI+Screw
SCL-160-6-32	C90815	M1635	W12.12.8 + M0510	CEL-160-14-32	C90820	M1635	W12.12.8 + M0510
SCL-160-8-32	C90820			CEL-160-16-32	C90825		
SCL-160-10-32	C90815			CEL-160-18-32	C90830		
SCL-160-12-32	C90820			CEL-160-20-32	C90835		
SCL-200-6-40	C90815			CEL-160-22-32	C90820		
SCL-200-8-40	C90820			CEL-160-25-32	C90835		
SCL-200-10-40	C90815			CEL-160-30-32	C90820		
SCL-200-12-40	C90820			CEL-200-14-40	C90825		
SCL-250-6-40	C90815			CEL-200-16-40	C90830		
SCL-250-8-40	C90820			CEL-200-18-40	C90835		
SCL-250-10-40	C90815			CEL-200-20-40	C90820		
SCL-250-12-40	C90820			CEL-200-22-40	C90835		
CWL-160-32	C90825			CEL-200-25-40	C90820		
CWL-200-40	C90825			CEL-200-30-40	C90830		
CWL-250-40	C90825			CEL-250-14-40	C90835		
				CEL-250-16-40			
		CEL-250-18-40					
		CEL-250-20-40					
		CEL-250-22-40					
		CEL-250-25-40					
		CEL-250-30-40					

SIDE MILLING CUTTER



Video

Features

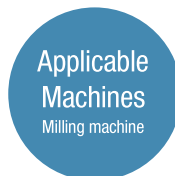


Available in materials

P K M
N S H



Cost
200~300%
SAVING



Applicable
Machines
Milling machine



Efficiency
300~500%
UP

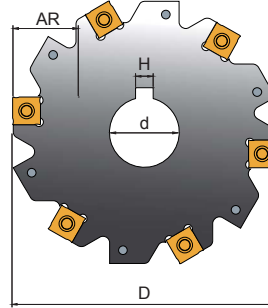


Durability
300%
UP

PRODUCT SPECIFICATIONS

Side Milling Cutters

- Inserts P. 190 - 192
- Cutting Data P. 196 - 197



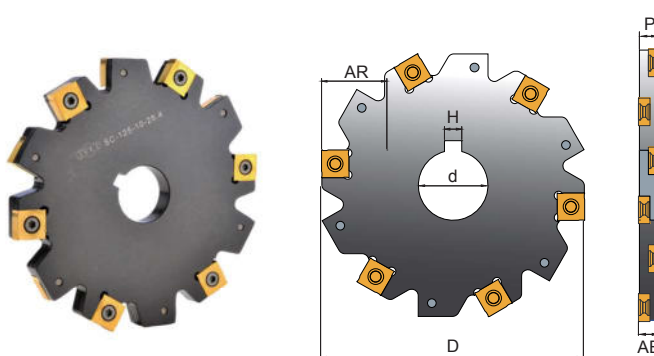
SC

Order Code	Dimensions (mm)						Z	Zc	KG	MAX. RPM	Inserts SNGX SNGW	Screw	Key
	D	AE	AR	P	H	d							
SC-80-4-22	80	4	22.5	3.4	6	22	8	4	13700	1102	T9354	T09P	
SC-80-5-22		5		4.2						1103	T9355	T08P	
SC-80-6-22		6		5						1203	T945	T15P	
SC-80-7-22		7		6						1204	T946		
SC-80-8-22		8		7						12045	T947		
SC-80-10-22		10		9						1205	T948		
SC-80-12-22		12	11	1207	T9411								
SC-80-4-25.4		4	3.4	6.35	25.4	1102				T9354	T09P		
SC-80-5-25.4		5	4.2			1103				T9355	T08P		
SC-80-6-25.4		6	5			1203				T945	T15P		
SC-80-7-25.4		7	6			1204				T946			
SC-80-8-25.4		8	7			12045				T947			
SC-80-10-25.4	10	9	1205			T948							
SC-80-12-25.4	12	11	1207	T9411									

* Use Zc (effective no. of teeth) to calculate the feed.

Side Milling Cutters

- Inserts P. 190 - 192
- Cutting Data P. 196 - 197



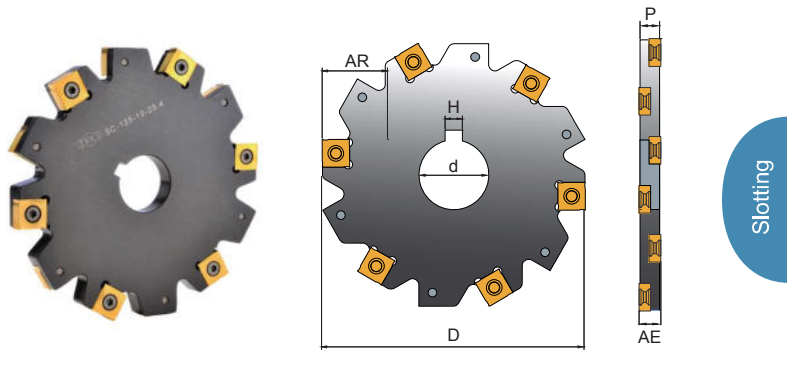
SC

Order Code	Dimensions (mm)						Z	Zc	kg	MAX. RPM	Inserts SNGX SNGW	Screw	Key		
	D	AE	AR	P	H	d									
SC-100-4-25.4	100	4	29.5	3.4	6.35	25.4	10	5	12000	0.23	1102	T9354	T09P		
SC-100-5-25.4		5		4.2						7	27	0.26	1103	T9355	T08P
SC-100-6-25.4		6		5								0.32	1203	T945	T15P
SC-100-7-25.4		7		6								0.36	1204	T946	
SC-100-8-25.4		8		7								0.39	12045	T947	
SC-100-10-25.4		10		9								0.46	1205	T948	
SC-100-12-25.4		12		11	0.54	1207				T9411					
SC-100-4-27		4		3.4	7	27				0.23	1102	T9354	T09P		
SC-100-5-27		5		4.2						0.26	1103	T9355	T08P		
SC-100-6-27		6		5						0.31	1203	T945	T15P		
SC-100-7-27		7		6						0.35	1204	T946			
SC-100-8-27		8		7						0.39	12045	T947			
SC-100-10-27	10	9	0.46	1205			T948								
SC-100-12-27	12	11	0.53	1207			T9411								

* Use Zc (effective no. of teeth) to calculate the feed.

Side Milling Cutters

- Inserts P. 190 - 192
- Cutting Data P. 196 - 197



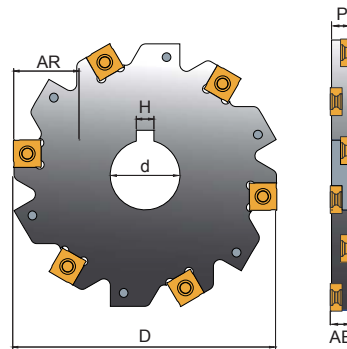
SC

Order Code	Dimensions (mm)						Z	Zc	KG	MAX. RPM	Inserts SNGX SNGW	Screw	Key					
	D	AE	AR	P	H	d												
SC-125-4-32	125	4	39	3.4	8	32	12	6	10900	1102	T9354	T09P						
SC-125-5-32		5		4.2						1103	T9355	T08P						
SC-125-6-32		6		5						1203	T945	T15P						
SC-125-7-32		7		6						1204	T946							
SC-125-8-32		8		7						12045	T947							
SC-125-10-32		10		9						1205	T948							
SC-125-12-32		12		11						1207	T9411							
SC-125-4-40		4		34.5						3.4	10		40	12	6	10900	1102	T9354
SC-125-5-40		5								4.2		1103					T9355	T08P
SC-125-6-40		6								5		1203					T945	T15P
SC-125-7-40		7								6		1204					T946	
SC-125-8-40		8								7		12045					T947	
SC-125-10-40	10	9	1205		T948													
SC-125-12-40	12	11	1207		T9411													

* Use Zc (effective no. of teeth) to calculate the feed.

Side Milling Cutters

- Inserts P. 190 - 192
- Cutting Data P. 196 - 197



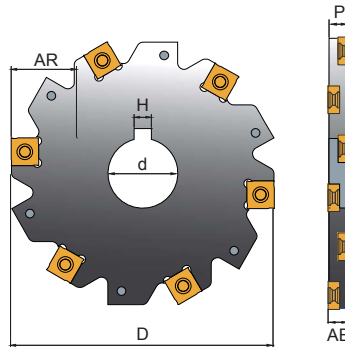
SC

Order Code	Dimensions (mm)						Z	Zc	KG	MAX. RPM	Inserts SNGX SNGW	Screw	Key
	D	AE	AR	P	H	d							
SC-125-4-25.4	125	4	42	3.4	6.35	25.4	12	6	10900	1102	T9354	T09P	
SC-125-5-25.4		5		4.2						T08P			
SC-125-6-25.4		6		5						T15P			
SC-125-7-25.4		7		6									
SC-125-8-25.4		8		7									
SC-125-10-25.4		10		9						T15P			
SC-125-12-25.4		12	11										
SC-125-4-31.75		4	3.4	T09P									
SC-125-5-31.75		5	4.2	T08P									
SC-125-6-31.75		6	5	T15P									
SC-125-7-31.75		7	6		8	31.75				0.55	1204	T946	
SC-125-8-31.75		8	7		0.61	12045				T947			
SC-125-10-31.75	10	9	0.74	1205	T948								
SC-125-12-31.75	12	11	0.88	1207	T9411								

* Use Zc (effective no. of teeth) to calculate the feed.

Side Milling Cutters

- Inserts P. 190 - 192
- Cutting Data P. 196 - 197



Slotting

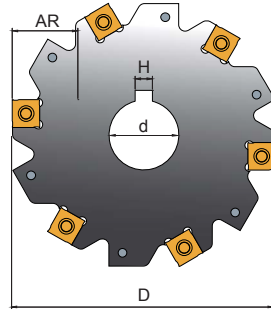
SC

Order Code	Dimensions (mm)						Z	Zc	KG	MAX. RPM	Inserts SNGX SNGW	Screw	Key
	D	AE	AR	P	H	d							
SC-160-4-32	160	4	56.5	3.4	8	32	16	8	8300	1102	T9354	T09P	
SC-160-5-32		5		4.2						T9355	T08P		
SC-160-6-32		6		5						1203	T945	T15P	
SC-160-7-32		7		6						1204	T946		
SC-160-8-32		8		7						12045	T947		
SC-160-10-32		10		9						1205	T948		
SC-160-12-32		12	11	1207	T9411								
SC-160-4-40		4	52	3.4	10	40				1102	T9354	T09P	
SC-160-5-40		5		4.2						1103	T9355	T08P	
SC-160-6-40		6		5						1203	T945	T15P	
SC-160-7-40		7		6						1204	T946		
SC-160-8-40		8		7						12045	T947		
SC-160-10-40	10	9		1205			T948						
SC-160-12-40	12	11	1207	T9411									

* Use Zc (effective no. of teeth) to calculate the feed.

Side Milling Cutters

- Inserts P. 190 - 192
- Cutting Data P. 196 - 197



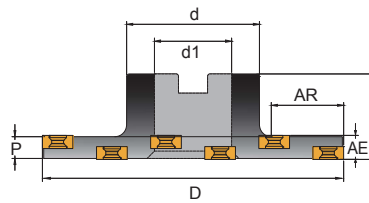
SC

Order Code	Dimensions (mm)						Z	Zc	KG	MAX. RPM	Inserts SNGX SNGW	Screw	Key			
	D	AE	AR	P	H	d										
SC-160-4-25.4	160	4	59.5	3.4	6.35	25.4	16	8	8300	1102	T9354	T09P				
SC-160-5-25.4		5		4.2						1103	T9355	T08P				
SC-160-6-25.4		6		5						1203	T945	T15P				
SC-160-7-25.4		7		6						1204	T946					
SC-160-8-25.4		8		7						12045	T947					
SC-160-10-25.4		10		9						1205	T948					
SC-160-12-25.4		12	11	1207	T9411											
SC-160-4-31.75		160	4	56.5	3.4	8				31.75	16	8	8300	1102	T9354	T09P
SC-160-5-31.75			5		4.2									1103	T9355	T08P
SC-160-6-31.75			6		5									1203	T945	T15P
SC-160-7-31.75			7		6									1204	T946	
SC-160-8-31.75			8		7									12045	T947	
SC-160-10-31.75	10		9		1205		T948									
SC-160-12-31.75	12		11		1207		T9411									

* Use Zc (effective no. of teeth) to calculate the feed.

Side Milling Cutters

- Inserts P. 190 - 192
- Cutting Data P. 196 - 197



ST

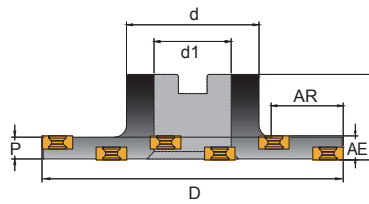
Slotting

Order Code	Dimensions (mm)							Z	Zc	KG	MAX. RPM	Inserts SNGX SNGW	Screw	Key
	D	AE	AR	P	d	d1	L							
ST-80-6-22	80	6	17	5	40	22	8	4	0.47	13700	1203	T945	T15P	
ST-80-7-22		7		6							1204	T946		
ST-80-8-22		8		7							12045	T947		
ST-80-10-22		10		9							1205	T948		
ST-80-12-22		12		11							1207	T9411		
ST-100-6-27	100	6	27	5	40	27	10	5	0.56	12000	1203	T945		
ST-100-7-27		7		6							1204	T946		
ST-100-8-27		8		7							12045	T947		
ST-100-10-27		10		9							1205	T948		
ST-100-12-27		12		11							1207	T9411		
ST-125-6-32	125	6	31	5	55	32	12	6	0.96	10900	1203	T945		
ST-125-7-32		7		6							1204	T946		
ST-125-8-32		8		7							12045	T947		
ST-125-10-32		10		9							1205	T948		
ST-125-12-32		12		11							1207	T9411		
ST-160-6-32	160	6	48.5	5	55	32	16	8	1.42	8300	1203	T945		
ST-160-7-32		7		6							1204	T946		
ST-160-8-32		8		7							12045	T947		
ST-160-10-32		10		9							1205	T948		
ST-160-12-32		12		11							1207	T9411		

* Use Zc (effective no. of teeth) to calculate the feed.

Side Milling Cutters

- Inserts P. 190 - 192
- Cutting Data P. 196 - 197



ST

Order Code	Dimensions (mm)							Z	Zc	KG	MAX. RPM	Inserts SNGX SNGW	Screw	Key
	D	AE	AR	P	d	d1	L							
ST-80-6-25.4	80	6	17	5	40	25.4	35	8	4	0.47	13700	1203	T945	T15P
ST-80-7-25.4		7		6								1204	T946	
ST-80-8-25.4		8		7								12045	T947	
ST-80-10-25.4		10		9								1205	T948	
ST-80-12-25.4		12		11								1207	T9411	
ST-100-6-25.4	100	6	27	5	55	31.75	10	5	0.56	12000	1203	T945		
ST-100-7-25.4		7		6							1204	T946		
ST-100-8-25.4		8		7							12045	T947		
ST-100-10-25.4		10		9							1205	T948		
ST-100-12-25.4		12		11							1207	T9411		
ST-125-6-31.75	125	6	31	5	55	31.75	12	6	0.96	10900	1203	T945		
ST-125-7-31.75		7		6							1204	T946		
ST-125-8-31.75		8		7							12045	T947		
ST-125-10-31.75		10		9							1205	T948		
ST-125-12-31.75		12		11							1207	T9411		
ST-160-6-31.75	160	6	48.5	5	55	31.75	16	8	1.42	8300	1203	T945		
ST-160-7-31.75		7		6							1204	T946		
ST-160-8-31.75		8		7							12045	T947		
ST-160-10-31.75		10		9							1205	T948		
ST-160-12-31.75		12		11							1207	T9411		

* Use Zc (effective no. of teeth) to calculate the feed.

DISC MILLING CUTTER



Features



Cost
200~300%
SAVING

Applicable
Machines
Milling machine

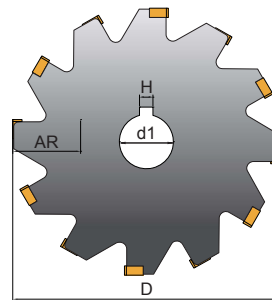
Efficiency
300~500%
UP

Durability
300%
UP

PRODUCT SPECIFICATIONS

Disc Milling Cutters

- Inserts P. 193
- Cutting Data P. 198 - 199



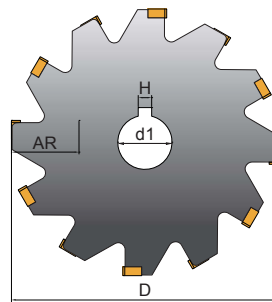
CE

Order Code	Dimensions (mm)						Z	Zc	KG	MAX. RPM	Inserts CNGX	Screw	Key
	D	AE	AR	P	H	d1							
CE080-14-22	80	14	22.5	12.5	6	22	8	4	13700	1005	C04011	T15P	
CE080-16-22		16		14.5									
CE080-18-22		18		16.5									
CE080-20-22		20		18.5									
CE080-22-22		22		20.5									
CE080-25-22		25		23.5									
CE080-30-22		30		28.5									
CE100-14-27		100		14									29.5
CE100-16-27	16		14.5										
CE100-18-27	18		16.5										

* Use Zc (effective no. of teeth) to calculate the feed.

Disc Milling Cutters

- Inserts P. 193
- Cutting Data P. 198 - 199



Slotting

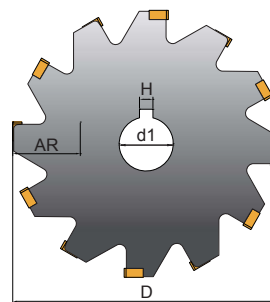
CE

Order Code	Dimensions (mm)						Z	Zc	KG	MAX. RPM	Inserts CNGX	Screw	Key
	D	AE	AR	P	H	d1							
CE100-20-27	100	20	29.5	18.5	7	27	10	5	12000	1305	C04011	T15P	
CE100-22-27		22		20.5									
CE100-25-27		25		23.5									
CE100-30-27		30		28.5									
CE125-14-32	125	14	39	12.5	8	32	12	6	10900	1005	C04011	T15P	
CE125-16-32		16		14.5									
CE125-18-32		18		16.5									
CE125-20-32		20		18.5									
CE125-22-32		22		20.5									
CE125-25-32		25		23.5									
CE125-30-32		30		28.5									
CE125-30-32													
CE080-14-25.4	80	14	19.5	12.5	6.35	25.4	8	4	13700	1005	C04011	T15P	
CE080-16-25.4		16		14.5									
CE080-18-25.4		18		16.5									
CE080-20-25.4		20		18.5									
CE080-22-25.4		22		20.5									
CE080-22-25.4										1305			

* Use Zc (effective no. of teeth) to calculate the feed.

Disc Milling Cutters

- Inserts P. 193
- Cutting Data P. 198 - 199



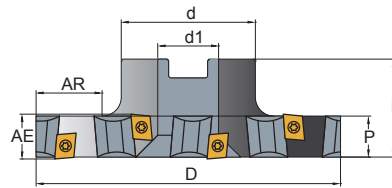
CE

Order Code	Dimensions (mm)						Z	Zc	KG	MAX. RPM	Inserts CNGX	Screw	Key	
	D	AE	AR	P	H	d1								
CE080-25-25.4	80	25	19.5	23.5	6.35	25.4	8	4	0.75	13700	1605	C04011	T15P	
CE080-30-25.4		30		28.5										0.88
CE100-14-25.4	100	14	29.5	12.5			10	5	0.67	12000	1005			
CE100-16-25.4		16		14.5										0.76
CE100-18-25.4		18		16.5										0.84
CE100-20-25.4		20		18.5							0.91			1305
CE100-22-25.4		22		20.5							1.01			
CE100-25-25.4		25		23.5							1.16			
CE100-30-25.4	30	28.5	1.40	1605										
CE125-14-25.4	125	14	42	12.5			12	6	1.02	10900	1005			
CE125-16-25.4		16		14.5										1.17
CE125-18-25.4		18		16.5										1.36
CE125-20-25.4		20		18.5	1.52	1305								
CE125-22-25.4		22		20.5	1.57									
CE125-25-25.4		25		23.5	1.85									
CE125-30-25.4		30		28.5	1.92	1605								

* Use Zc (effective no. of teeth) to calculate the feed.

Disc Milling Cutters

- Inserts P. 193
- Cutting Data P. 198 - 199



CW

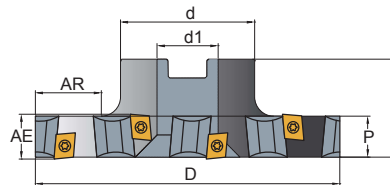
Slotting

Order Code	Dimensions (mm)							Z	Zc	KG	MAX. RPM	Inserts CNGX	Screw	Key
	D	AE	AR	P	d	d1	L							
CW080-14-22	80	14	17	12.5	40	22	35	8	4	0.67	13700	1005		
CW080-16-22		16		14.5						0.72				
CW080-18-22		18		16.5										
CW080-20-22		20	17	18.5						0.78		1305		
CW080-22-22		22	20.5											
CW080-25-22		25	23.5	0.85						1605				
CW080-30-22		30	28.5									40		
CW100-14-27	100	14	24.5	12.5	45	27	35	10	5	0.84	10900	1005	C04011	T15P
CW100-16-27		16		14.5						0.94				
CW100-18-27		18		16.5										
CW100-20-27		20	18.5	1.09						1305				
CW100-22-27		22	20.5											
CW100-25-27		25	23.5	1.25						1605				
CW100-30-27		30	28.5									40		
CW125-14-32		125	14	32						12.5		55		
CW125-16-32	16		14.5		1.53									

* Use Zc (effective no. of teeth) to calculate the feed.

Disc Milling Cutters

- Inserts P. 193
- Cutting Data P. 198 - 199



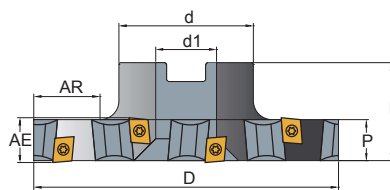
CW

Order Code	Dimensions (mm)							Z	Zc	KG	MAX. RPM	Inserts CNGX	Screw	Key
	D	AE	AR	P	d	d1	L							
CW125-18-32	125	18	32	16.5	55	32	35	12	6	1.68	10900	1305	C04011	T15P
CW125-20-32		20		18.5						1.92				
CW125-22-32		22		20.5						1.94				
CW125-25-32		25		23.5						1.96				
CW125-30-32		30		28.5						2.29				
CW080-14-25.4	80	14	17	12.5	40	25.4	35	8	4	0.67	13700	1305	C04011	T15P
CW080-16-25.4		16		14.5						0.72				
CW080-18-25.4		18		16.5						0.76				
CW080-20-25.4		20		18.5						0.78				
CW080-22-25.4		22		20.5						0.79				
CW080-25-25.4		25		23.5						0.85				
CW080-30-25.4		30		28.5						0.92				
CW100-14-25.4		100		14						24.5				
CW100-16-25.4	16		14.5	0.94										
CW100-18-25.4	18		16.5	1.02										
CW100-20-25.4	20		18.5	1.09										

* Use Zc (effective no. of teeth) to calculate the feed.

Disc Milling Cutters

- Inserts P. 193
- Cutting Data P. 198 - 199



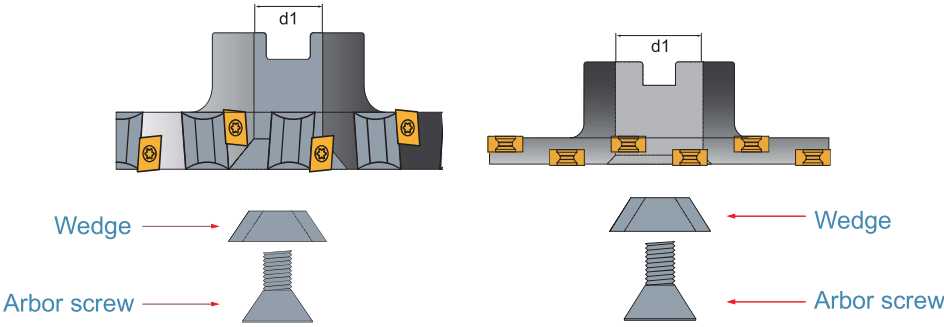
CW

Slotting

Order Code	Dimensions (mm)							Z	Zc	KG	MAX. RPM	Inserts CNGX	Screw	Key	
	D	AE	AR	P	d	d1	L								
CW100-22-25.4	100	22	24.5	20.5	45	25.4	35	10	5	1.17	12000	1305	C04011	T15P	
CW100-25-25.4		25		23.5						1.25		1605			
CW100-30-25.4		30		28.5						1.32					
CW125-14-31.75	125	14	32	12.5	55	31.75	35	12	6	1.42	10900	1005	C04011	T15P	
CW125-16-31.75		16		14.5						1.53					
CW125-18-31.75		18		16.5						1.68					
CW125-20-31.75		20		18.5						1.92		1305			
CW125-22-31.75		22		20.5						1.94					
CW125-25-31.75		25		23.5						1.96					
CW125-30-31.75		30		28.5								2.29			1605

* Use Zc (effective no. of teeth) to calculate the feed.

Mounting Dimensions



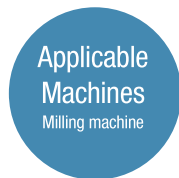
Dimension (mm)		
Cutter dimension d1	Arbor screw	Tapered Wedge
ST Ø 22	C901035	WE30
ST Ø 27	C901235	
ST Ø 32	C901635	WE45
ST Ø 25.4	C901235	WE30
ST Ø 31.75	C901235, C901635	WE30, WE45
CW Ø 22	C901035	WE30
CW Ø 27	C901235	
CW Ø 32	C901635	WE45
CW Ø 40	C901640	WE63
CW Ø 25.4	C901235	WE30
CW Ø 31.75	C901235, C901635	WE30, WE45
CW Ø 38.1	C901635	WE63
CW Ø 50.8		

* Cutter price includes the wedge.

BACK AND STRADDLE



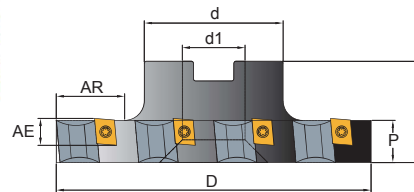
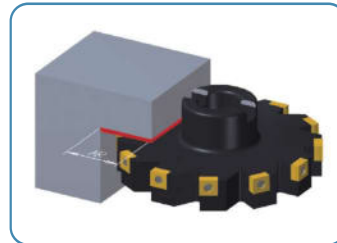
Features



PRODUCT SPECIFICATIONS

Back milling Cutters

- Inserts P. 193
- Cutting Data P. 198 - 199



CB

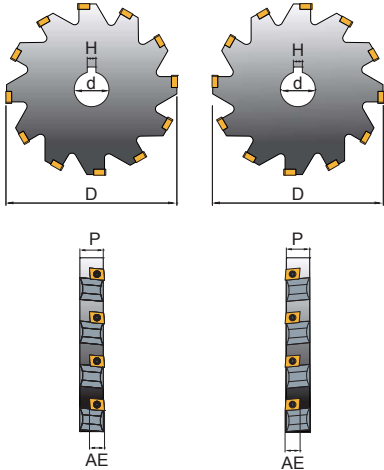
Order Code	Dimensions (mm)							Z	MAX. RPM	Insert CNGX	Screw	Key	
	D	AE	P	d	d1	L	AR						
CB-100-27	100	12	16.5	45	27	35	24.5	10	0.97	12000	1305	C04011	T15P
CB-125-32	125			55	32		32						

Straddle milling cutters

- Inserts P. 182
- Cutting Data P. 198 - 199



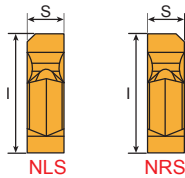
Back & Straddle



CDL / CDR

Order Code	Dimensions (mm)						Z	KG	MAX. RPM	Insert CNGX	Screw	Key
	D	AE	P	d	H	L/R						
CDL-100-27	100			27	7	L	10	0.87	12000			
CDR-100-27						R						
CDL-125-32	125	12	16.5	32	8	L	12	1.42	10900	1305	C04011	T15P
CDR-125-32						R						
CDL-160-40	160			40	10	L	16	2.52	6900			
CDR-160-40						R						

LNGT Inserts


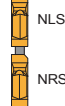
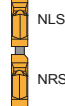


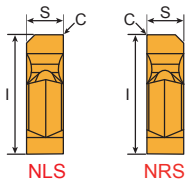
Tolerances (mm)
S=±0.02



Inserts 10 PCS / Box

Dimensions (mm)		
Blade Thickness	S	I
1.2	1.4	9
1.2	1.5	
1.4	1.6	

Inserts	Order Code	Grades								 Inserts Sequencing Position  (Interleaving one after another different one.)	
		Carbide					Cermet		Uncoated		
		B100	C200	C250	F20	F30	CE100	CE60	K10		CE
NLS	LNGT 1414NLS-EE										 (Interleaving one after another different one.)
	LNGT 1415NLS-EE										
	LNGT 1616NLS-EE										
NRS	LNGT 1414NRS-EE										
	LNGT 1415NRS-EE										
	LNGT 1616NRS-EE										


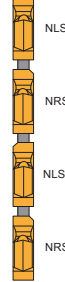
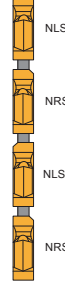


Tolerances (mm)
S=±0.02



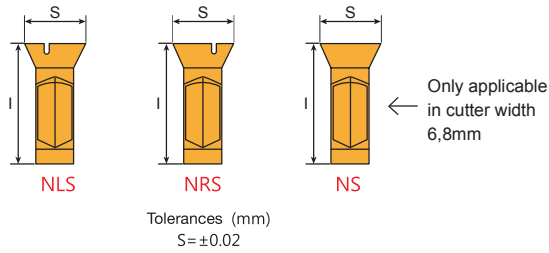
Inserts 10 PCS / Box

Dimensions (mm)			
Blade Thickness	S	I	C
1.2	1.4	9	0.03
1.2	1.5		
1.4	1.6		


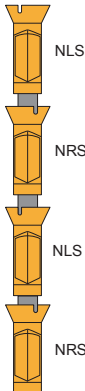
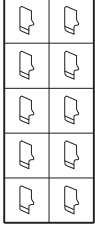
Inserts	Order Code	Grades								 Inserts Sequencing Position  (Interleaving one after another different one.)	
		Carbide					Cermet		Uncoated		
		B100	C200	C250	F20	F30	CE100	CE60	K10		CE
NLS	LNGT 1414NLS-M										 (Interleaving one after another different one.)
	LNGT 1415NLS-M										
	LNGT 1616NLS-M										
	LNGT 1414NLS-ME	⊗									
	LNGT 1415NLS-ME	⊗									
	LNGT 1616NLS-ME	⊗									
NRS	LNGT 1414NRS-M										
	LNGT 1415NRS-M										
	LNGT 1616NRS-M										
	LNGT 1414NRS-ME	⊗									
	LNGT 1415NRS-ME	⊗									
	LNGT 1616NRS-ME	⊗									

- Steel Stainless Steel Steel/Stainless Steel /Super alloy Cast Iron Aluminum Steel/Cast Iron
- Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: LNGT 1414NLS-M,B100

LNGT Inserts

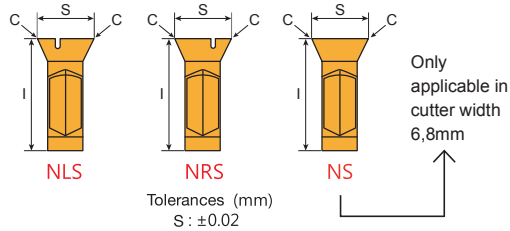


Dimensions (mm)		
Blade Thickness	S	I
1.6	1.8	9
1.75	2.0, 2.2, 2.5	
2.25	2.5, 2.7, 3.0	
2.7	3.0, 3.2, 3.5	
3.7	4.0, 4.2, 4.5	
4.5	5.0, 5.2, 5.5	

Inserts	Order Code	Grades											
		Carbide					Cermet		Uncoated				
		B100	C200	C250	F20	F30	CE100	CE60	K10	CE			
NLS	LNGT 1818NLS-EE												 <p>Inserts Sequencing Position</p> <p>(Interleaving one after another different one.)</p>  <p>Inserts 10 PCS / Box</p>
	LNGT 2020NLS-EE												
	LNGT 2022NLS-EE												
	LNGT 2025NLS-EE												
	LNGT 2527NLS-EE												
	LNGT 2530NLS-EE												
	LNGT 3030NLS-EE												
	LNGT 3032NLS-EE												
	LNGT 3035NLS-EE												
	LNGT 4040NLS-EE												
	LNGT 4042NLS-EE												
	LNGT 4045NLS-EE												
	LNGT 5050NLS-EE												
	LNGT 5052NLS-EE												
LNGT 5055NLS-EE													
NRS	LNGT 1818NRS-EE												
	LNGT 2020NRS-EE												
	LNGT 2022NRS-EE												
	LNGT 2025NRS-EE												
	LNGT 2525NRS-EE												
	LNGT 2527NRS-EE												
	LNGT 2530NRS-EE												
	LNGT 3030NRS-EE												
	LNGT 3032NRS-EE												
	LNGT 3035NRS-EE												
	LNGT 4040NRS-EE												
	LNGT 4042NRS-EE												
	LNGT 4045NRS-EE												
	LNGT 5050NRS-EE												
LNGT 5052NRS-EE													
LNGT 5055NRS-EE													
NS	LNGT 5050NS-EE												

- Steel Stainless Steel Steel/Stainless Steel /Super alloy Cast Iron Aluminum Steel/Cast Iron
- Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: LNGT 2020NLS-EE, F20

LNGT Inserts

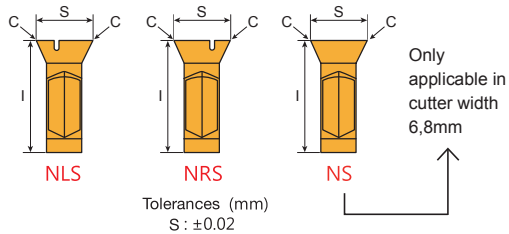


Dimensions (mm)			
Blade Thickness	S	I	C
1.6	1.8	9	0.05
1.75	2.0, 2.2, 2.5		
2.25	2.5, 2.7, 3.0		
2.7	3.0, 3.2, 3.5		
3.7	4.0, 4.2, 4.5		
4.5	5.0, 5.2, 5.5		


Inserts	Order Code	Grades												
		Carbide					Cermet		Uncoated					
		B100	C200	C250	F20	F30	CE100	CE60	K10	CE				
NLS	LNGT 1818NLS-M													<p>Inserts Sequencing Position</p> <p>(Interleaving one after another different one.)</p>
	LNGT 2020NLS-M													
	LNGT 2022NLS-M													
	LNGT 2025NLS-M													
	LNGT 2525NLS-M													
	LNGT 2527NLS-M													
	LNGT 2530NLS-M													
	LNGT 3030NLS-M													
	LNGT 3032NLS-M													
	LNGT 3035NLS-M													
	LNGT 4040NLS-M													
	LNGT 4042NLS-M													
	LNGT 4045NLS-M													
	LNGT 5050NLS-M													
	LNGT 5052NLS-M													
LNGT 5055NLS-M														
NRS	LNGT 1818NRS-M													<p>Inserts 10 PCS / Box</p>
	LNGT 2020NRS-M													
	LNGT 2022NRS-M													
	LNGT 2025NRS-M													
	LNGT 2525NRS-M													
	LNGT 2527NRS-M													
	LNGT 2530NRS-M													
	LNGT 3030NRS-M													
	LNGT 3032NRS-M													
	LNGT 3035NRS-M													
	LNGT 4040NRS-M													
	LNGT 4042NRS-M													
	LNGT 4045NRS-M													
	LNGT 5050NRS-M													
	LNGT 5052NRS-M													
LNGT 5055NRS-M														
NS	LNGT 5050NS-M													

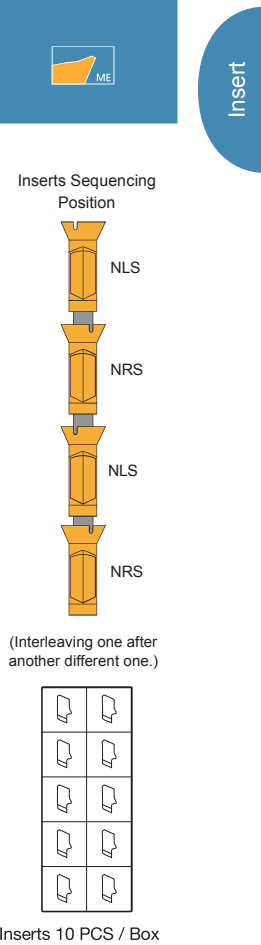
- Steel Stainless Steel Steel/Stainless Steel /Super alloy Cast Iron Aluminum Steel/Cast Iron
- Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: LNGT 2020NLS-M,B100

LNGT Inserts



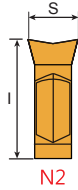
Dimensions (mm)			
Blade Thickness	S	I	C
1.6	1.8	9	0.05
1.75	2.0, 2.2, 2.5		
2.25	2.5, 2.7, 3.0		
2.7	3.0, 3.2, 3.5		
3.7	4.0, 4.2, 4.5		
4.5	5.0, 5.2, 5.5		

Inserts	Order Code	Grades										
		Carbide					Cermet		Uncoated			
		B100	C200	C250	F20	F30	CE100	CE60	K10		CE	
NLS	LNGT 1818NLS-ME	⊙										
	LNGT 2020NLS-ME	⊙					⊙					
	LNGT 2022NLS-ME	⊙										
	LNGT 2025NLS-ME	⊙										
	LNGT 2525NLS-ME	⊙						⊙				
	LNGT 2527NLS-ME	⊙										
	LNGT 2530NLS-ME	⊙										
	LNGT 3030NLS-ME	⊙						⊙				
	LNGT 3032NLS-ME	⊙										
	LNGT 3035NLS-ME	⊙										
	LNGT 4040NLS-ME	⊙						⊙				
	LNGT 4042NLS-ME	⊙										
	LNGT 4045NLS-ME	⊙										
	LNGT 5050NLS-ME	⊙						⊙				
	LNGT 5052NLS-ME	⊙										
LNGT 5055NLS-ME	⊙											
NRS	LNGT 1818NRS-ME	⊙										
	LNGT 2020NRS-ME	⊙					⊙					
	LNGT 2022NRS-ME	⊙										
	LNGT 2025NRS-ME	⊙										
	LNGT 2525NRS-ME	⊙						⊙				
	LNGT 2527NRS-ME	⊙										
	LNGT 2530NRS-ME	⊙										
	LNGT 3030NRS-ME	⊙						⊙				
	LNGT 3032NRS-ME	⊙										
	LNGT 3035NRS-ME	⊙										
	LNGT 4040NRS-ME	⊙						⊙				
	LNGT 4042NRS-ME	⊙										
	LNGT 4045NRS-ME	⊙										
	LNGT 5050NRS-ME	⊙						⊙				
	LNGT 5052NRS-ME	⊙										
LNGT 5055NRS-ME	⊙											
NS	LNGT 5050NS-ME	⊙										



- Steel Stainless Steel Steel/Stainless Steel /Super alloy Cast Iron Aluminum Steel/Cast Iron
- Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: LNGT 2020NLS-ME,B100



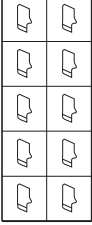
LNGT Inserts



For the application in Alu. pipe and Alu. plate

Tolerances (mm)
S : ±0.02

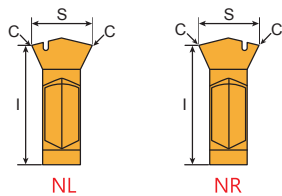
Dimensions (mm)		
Blade Thickness	S	I
1.4	1.6	9
1.6	1.8	
1.75	2.0	
	2.2	
	2.5	
2.25	2.5	
	2.7	
	3.0	
2.7	3.0	
	3.2	
	3.5	
3.7	4.0	
	4.2	
	4.5	
4.5	5.0	
	5.2	
	5.5	

Inserts	Order Code	Grades												
		Carbide					Cermet		Uncoated					
		B100	C200	C250	F20	F30	CE100	CE60	K10	CE				
N2	LNGT 1616N2-EE												Inserts Sequencing Position 	
	LNGT 1818N2-EE													
	LNGT 2020N2-EE													
	LNGT 2022N2-EE													
	LNGT 2025N2-EE													
	LNGT 2525N2-EE													
	LNGT 2527N2-EE													
	LNGT 2530N2-EE													
	LNGT 3030N2-EE													
	LNGT 3032N2-EE													
	LNGT 3035N2-EE													
	LNGT 4040N2-EE													
	LNGT 4042N2-EE													
	LNGT 4045N2-EE													
	LNGT 5050N2-EE													
	LNGT 5052N2-EE													
	LNGT 5055N2-EE													
														

Inserts 10 PCS / Box

- Steel Stainless Steel Steel/Stainless Steel /Super alloy Cast Iron Aluminum Steel/Cast Iron
- Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: LNGT 1616N2-EE,F20


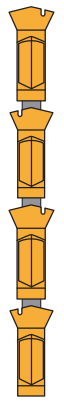
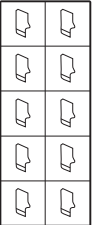
LNGT Inserts



V shape insert designed for superior stability and durability

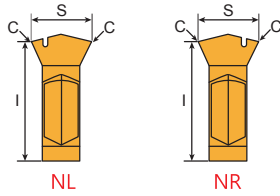
Tolerances (mm)
S : ±0.02

Dimensions (mm)			
Blade Thickness	S	I	C
1.75	2.0	9	0.05
	2.2		
	2.5		
2.25	2.5		
	2.7		
	3.0		
2.7	3.0		
	3.2		
	3.5		
3.7	4.0		
	4.2		
	4.5		
4.5	5.0		
	5.2		
	5.5		

Inserts	Order Code	Grades												
		Carbide					Cermet		Uncoated					
		B100	C200	C250	F20	F30	CE100	CE60	K10	CE				
NL	LNGT 2020NL-M													 Inserts Sequencing Position NR NL NR NL
	LNGT 2022NL-M													
	LNGT 2025NL-M													
	LNGT 2525NL-M													
	LNGT 2527NL-M													
	LNGT 2530NL-M													
	LNGT 3030NL-M													
	LNGT 3032NL-M													
	LNGT 3035NL-M													
	LNGT 4040NL-M													
	LNGT 4042NL-M													
	LNGT 4045NL-M													
	LNGT 5050NL-M													
	LNGT 5052NL-M													
LNGT 5055NL-M														
NR	LNGT 2020NR-M													(Interleaving one after another different one.)  Inserts 10 PCS / Box
	LNGT 2022NR-M													
	LNGT 2025NR-M													
	LNGT 2525NR-M													
	LNGT 2527NR-M													
	LNGT 2530NR-M													
	LNGT 3030NR-M													
	LNGT 3032NR-M													
	LNGT 3035NR-M													
	LNGT 4040NR-M													
	LNGT 4042NR-M													
	LNGT 4045NR-M													
	LNGT 5050NR-M													
	LNGT 5052NR-M													
LNGT 5055NR-M														



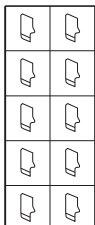
- Steel Stainless Steel Steel/Stainless Steel /Super alloy Cast Iron Aluminum Steel/Cast Iron
- Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: LNGT 2020NL-M, B100

LNGT Inserts



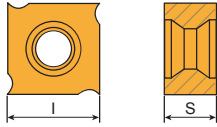
Tolerances (mm)
S: ±0.02

Dimensions (mm)			
Blade Thickness	S	I	C
1.75	2.0	9	0.05
	2.2		
	2.5		
2.25	2.5		
	2.7		
	3.0		
2.7	3.0		
	3.2		
	3.5		
3.7	4.0		
	4.2		
	4.5		
4.5	5.0		
	5.2		
	5.5		

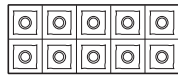
Inserts	Order Code	Grades											
		Carbide					Cermets		Uncoated				
		B100	C200	C250	F20	F30	CE100	CE60	K10		CE		
NL	LNGT 2020NL-ME	⊙					⊙						 <p>Inserts Sequencing Position</p> <p>NR</p> <p>NL</p> <p>NR</p> <p>NL</p> <p>(Interleaving one after another different one.)</p>  <p>Inserts 10 PCS / Box</p>
	LNGT 2022NL-ME	⊙											
	LNGT 2025NL-ME	⊙											
	LNGT 2525NL-ME	⊙					⊙						
	LNGT 2527NL-ME	⊙					⊙						
	LNGT 2530NL-ME	⊙											
	LNGT 3030NL-ME	⊙					⊙						
	LNGT 3032NL-ME	⊙											
	LNGT 3035NL-ME	⊙											
	LNGT 4040NL-ME	⊙					⊙						
	LNGT 4042NL-ME	⊙					⊙						
	LNGT 4045NL-ME	⊙											
	LNGT 5050NL-ME	⊙					⊙						
	LNGT 5052NL-ME	⊙					⊙						
LNGT 5055NL-ME	⊙												
NR	LNGT 2020NR-ME	⊙					⊙						
	LNGT 2022NR-ME	⊙											
	LNGT 2025NR-ME	⊙											
	LNGT 2525NR-ME	⊙					⊙						
	LNGT 2527NR-ME	⊙											
	LNGT 2530NR-ME	⊙											
	LNGT 3030NR-ME	⊙					⊙						
	LNGT 3032NR-ME	⊙											
	LNGT 3035NR-ME	⊙											
	LNGT 4040NR-ME	⊙					⊙						
	LNGT 4042NR-ME	⊙											
	LNGT 4045NR-ME	⊙											
	LNGT 5050NR-ME	⊙					⊙						
	LNGT 5052NR-ME	⊙					⊙						
LNGT 5055NR-ME	⊙												

- Steel Stainless Steel Steel/Stainless Steel /Super alloy Cast Iron Aluminum Steel/Cast Iron
- Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: LNGT 2020NL-ME,B100

SNGX Inserts




Tolerances (mm)
I=±0.025 S=±0.025



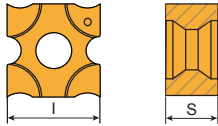
Inserts 10 PCS / Box

Dimensions (mm)		
Cutter Thickness	S	I
1102	2.3	11.0
1103	2.7	
1203	3.2	
1204	4.0	12.7
12045	4.5	
1205	5.4	
1207	7.0	

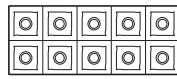
Inserts	Order Code	Cutting Rake	Grades									
			Carbide				Cermet		Uncoated			
			B100	C200	C250	F20	F30	CE100	CE60	K10	CE	
 E / ME / M	SNGX 1102-E	25 °										
	SNGX 1103-E											
	SNGX 1203-E											
	SNGX 1204-E											
	SNGX 12045-E											
	SNGX 1205-E											
	SNGX 1207-E											
	SNGX 1102-ME	15 °	⊗									
	SNGX 1103-ME		⊗									
	SNGX 1203-ME		⊗									
	SNGX 1204-ME		⊗									
	SNGX 12045-ME		⊗									
	SNGX 1205-ME		⊗									
	SNGX 1207-ME		⊗									
	SNGX 1102T-M	15 °										
	SNGX 1103T-M											
	SNGX 1203T-M											
	SNGX 1204T-M											
	SNGX 12045T-M											
	SNGX 1205T-M											
	SNGX 1207T-M											

- Steel Stainless Steel Steel/Stainless Steel /Super alloy Cast Iron Aluminum Steel/Cast Iron
- Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: SNGX 1102-E,F20

SNGW Inserts




Tolerances (mm)
I=±0.025 S=±0.025



Inserts 10 PCS / Box

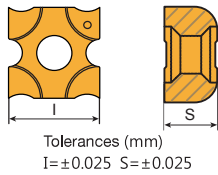
Dimensions (mm)		
Cutter Thickness	S	I
1102	2.3	11.0
1103	2.7	
1203	3.2	12.7
1204	4.0	
12045	4.5	
1205	5.4	
1207	7.0	

Inserts	Order Code	Cutting Rake	Grades										
			Carbide				Cermets		Uncoated				
			B100	C200	C250	F20	F30	CE100	CE60	K10	CE		
 E / ME / M	SNGW 1102-E	25°											
	SNGW 1103-E												
	SNGW 1203-E												
	SNGW 1204-E												
	SNGW 12045-E												
	SNGW 1205-E												
	SNGW 1207-E												
	SNGW 1102-ME	15°	☉										
	SNGW 1103-ME		☉										
	SNGW 1203-ME		☉										
	SNGW 1204-ME		☉										
	SNGW 12045-ME		☉										
	SNGW 1205-ME		☉										
	SNGW 1207-ME		☉										
	SNGW 1102T-M	15°	☐										
	SNGW 1103T-M		☐										
	SNGW 1203T-M		☐										
	SNGW 1204T-M		☐										
	SNGW 12045T-M		☐										
	SNGW 1205T-M		☐										
	SNGW 1207T-M		☐										

- ☐ Steel ☐ Stainless Steel ☉ Steel/Stainless Steel /Super alloy ☐ Cast Iron ☐ Aluminum ☐ Steel/Cast Iron
- ☉ Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: SNGW 1102-E,F20


Insert

SNGW Inserts - R0.4~R3.0



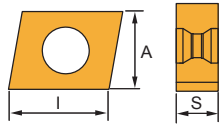
Dimensions (mm)			
Cutter Thickness	S	I	R
1102	2.3	11.0	0.4
1102			0.8
1103	2.7	11.0	0.4
1103			0.8
1203	3.2	11.0	0.4
1203			0.8
1203	3.2	11.0	1.2
1204			0.4
1204	4.0	12.7	0.8
1204			1.2
1204	4.0	12.7	1.6
1204			0.4
12045	4.5	12.7	0.8
12045			1.2

Dimensions (mm)			
Cutter Thickness	S	I	R
12045	4.5	11.0	1.6
12045			2.0
1205	4.5	11.0	0.4
1205			0.8
1205	5.4	12.7	1.2
1205			1.6
1205	5.4	12.7	2.0
1205			2.5
1207	7.0	12.7	0.4
1207			0.8
1207	7.0	12.7	1.2
1207			1.6
1207	7.0	12.7	2.0
1207			2.5
1207	7.0	12.7	3.0

Inserts	Order Code	Cutting Rake	Grades											
			Carbide					Cermet		Uncoated				
			B100	C200	C250	F20	F30	CE100	CE60	K10	CE			
 ME	SNGW 1102R04-ME	15°	⊗											
	SNGW 1102R08-ME		⊗											
	SNGW 1103R04-ME		⊗											
	SNGW 1103R08-ME		⊗											
	SNGW 1203R04-ME		⊗											
	SNGW 1203R08-ME		⊗											
	SNGW 1203R12-ME		⊗											
	SNGW 1204R04-ME		⊗											
	SNGW 1204R08-ME		⊗											
	SNGW 1204R12-ME		⊗											
	SNGW 1204R16-ME		⊗											
	SNGW 12045R04-ME		⊗											
	SNGW 12045R08-ME		⊗											
	SNGW 12045R12-ME		⊗											
	SNGW 12045R16-ME		⊗											
	SNGW 12045R20-ME		⊗											
	SNGW 1205R04-ME		⊗											
	SNGW 1205R08-ME		⊗											
	SNGW 1205R12-ME		⊗											
	SNGW 1205R16-ME		⊗											
	SNGW 1205R20-ME		⊗											
	SNGW 1205R25-ME		⊗											
	SNGW 1207R04-ME		⊗											
	SNGW 1207R08-ME		⊗											
	SNGW 1207R12-ME		⊗											
	SNGW 1207R16-ME		⊗											
	SNGW 1207R20-ME		⊗											
	SNGW 1207R25-ME		⊗											
	SNGW 1207R30-ME		⊗											

- Steel Stainless Steel Steel/Stainless Steel /Super alloy Cast Iron Aluminum Steel/Cast Iron
- ⊗ Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: SNGW 1102R04-ME,F20

CNGX Inserts



Tolerances (mm)
I=±0.025 S=±0.025 A=±0.025

Dimensions (mm)			
Cutter Thickness	S	I	A
1005	5.4	10.0	10
1305		12.7	
1605		16.0	

Inserts	Order Code	Grades											
		Carbide					Cermet		Uncoated				
		B100	C200	C250	F20	F30	CE100	CE60	K10	CE			
	CNGX 1005-E												 Inserts 10 PCS / Box
	CNGX 1305-E												
	CNGX 1605-E												
	CNGX 1005-ME	⊗											
	CNGX 1305-ME	⊗											
	CNGX 1605-ME	⊗											
	CNGX 1005T-M												
	CNGX 1305T-M												
	CNGX 1605T-M												

- Steel Stainless Steel Steel/Stainless Steel /Super alloy Cast Iron Aluminum Steel/Cast Iron
- ⊗ Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: CNGX 1005-E,F20

Recommendation-LNGT Inserts

LNGT Insert Grade Selection

Material group	Recom. fz (mm/tooth)	Inserts			
		LNGT ... M	LNGT...ME	LNGT...EE	
1	0.04-0.12	B100	B100	-	-
2	0.04-0.10	B100	B100	-	-
3	0.04-0.10	B100	B100	-	-
4	0.04-0.10	B100	B100	-	-
5	0.04-0.08	B100	B100	-	-
6	0.04-0.07	B100	B100	-	-
7	0.03-0.06	-	B100	-	-
8	0.04-0.12	-	B100	-	-
9	0.04-0.10	-	B100	-	-
10	0.04-0.09	-	B100	-	-
11	0.04-0.08	-	B100	-	-
12	0.04-0.12	-	F20	-	-
13	0.04-0.12	-	F20	-	-
14	0.04-0.11	-	F20	-	-
15	0.04-0.10	-	F20	-	-
16	0.06-0.13	-	-	F20	-
17	0.06-0.12	-	-	F20	-
18	0.06-0.11	-	-	F20	-
19	0.06-0.09	-	B100	-	-
20	0.06-0.08	-	B100	-	-
21	0.04-0.06	-	B100	-	-
22	0.04-0.07	-	B100	-	-

Recommendation-LNGT Inserts

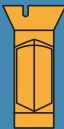
• LNGT Insert Recommended Cutting speed, Vc(m/min)

Material group	Grades						
	B100	C250	F20	CE60	CE	K10	F30
	fz (mm/tooth)						
	0.03 0.05 0.08		0.05 0.09 0.13				
Cutting speed, Vc (m/min)							
1	215 195 168	-	-	-	-	-	-
2	168 151 135	-	-	-	-	-	-
3	151 135 122	-	-	-	-	-	-
4	134 122 109	-	-	-	-	-	-
5	121 109 97	-	-	-	-	-	-
6	109 - -	-	-	-	-	-	-
7	- - -	-	-	-	-	-	-
8	160 - 80	-	-	-	-	-	-
9	160 - 80	-	-	-	-	-	-
10	80 - 50	-	-	-	-	-	-
11	80 - 50	-	-	-	-	-	-
12	-	-	168 142 126	-	-	-	-
13	-	-	151 126 117	-	-	-	-
14	-	-	134 117 109	-	-	-	-
15	-	-	105 97 -	-	-	-	-
16	-	-	1150 950 850	-	-	-	-
17	-	-	950 780 700	-	-	-	-
18	-	-	950 780 700	-	-	-	-
19	50 45 -	-	-	-	-	-	-
20	50 45 -	-	-	-	-	-	-
21	35 40 -	-	-	-	-	-	-
22	50 45 -	-	-	-	-	-	-

• Cutting Data-Side Milling

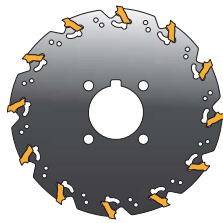
Operations	AR / Dc	Recom.fz (mm/tooth)			Speed Factor
Full engagement	-	0.04	0.08	0.11	0.60
Side Milling	2%	0.17	0.44	0.65	1.10
	5%	0.11	0.28	0.41	1.00
	10%	0.08	0.20	0.30	0.90
	20%	0.07	0.14	0.21	0.85
	30%	0.05	0.12	0.18	0.80
Average Chip Thickness (hm)	-	0.03	0.06	0.09	-

• Type Of Inserts

	Insert Code	Width of slot (mm)
	1414	1.4
	2020	2.0
	2525	2.5
	3030	3.0
	4040	4.0
5050	5.0	

Recommendation-LNGT Inserts

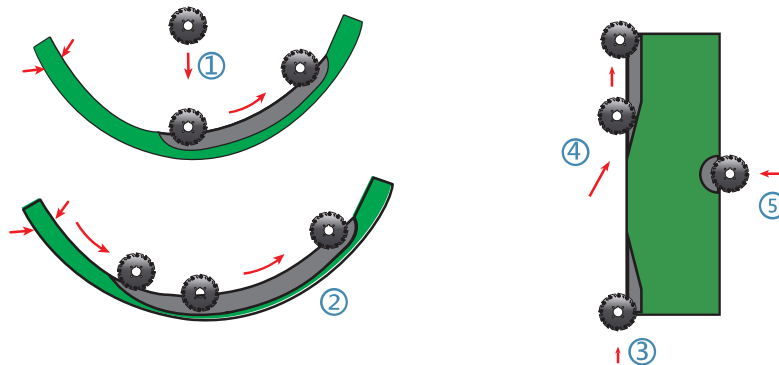
f_z (mm / tooth)



Insert

• f_z (mm/tooth)

AE	f_z (mm/tooth)					
	Material group					
	1 2 3 4	5 6	8 9 10 11	12 13 14 15	16 17 18	19 20 21 22
1.4-1.7 mm	0.02-0.03	0.015-0.025	0.03-0.04	0.02-0.04	0.02-0.04	0.015-0.025
1.8-2.2 mm	0.03-0.05	0.03-0.04	0.03-0.04	0.03-0.06	0.03-0.08	0.02-0.03
2.5-3.0 mm	0.03-0.06	0.03-0.05	0.02-0.03	0.03-0.08	0.03-0.1	0.03-0.04
3.0-3.5 mm	0.04-0.08	0.03-0.06	0.03-0.06	0.04-0.1	0.04-0.1	0.03-0.05
4.0-4.5 mm						
5.0-5.5 mm	0.05-0.1	0.04-0.08	0.04-0.07	0.05-0.12	0.05-0.17	0.04-0.06



- ① Plunging to mill : F_z reduce to 50%
- ② Ramping to mill : F_z remain 100%
- ③ Mill : F_z remain 100%
- ④ Ramping : F_z remain 100%
- ⑤ Plunging to mill : F_z reduce to 50%

Recommendation-SNGX / SNGW Inserts

• SNGX / SNGW Insert Grade Selection

Material group	Recom. fz (mm/tooth)	Inserts			
		SNGX ... M SNGW ...M	SNGX ... ME SNGW ... ME	SNGX ... EE SNGW ... EE	
1	0.14-0.30	C250/B100	B100	-	-
2	0.14-0.25	C250/B100	B100	-	-
3	0.14-0.22	C250/B100	B100	-	-
4	0.14-0.22	C250/B100	B100	-	-
5	0.14-0.20	C250/B100	B100	-	-
6	0.10-0.15	C250/B100	B100	-	-
7	0.10-0.13	C250/B100	B100	-	-
8	0.14-0.25	-	B100	-	-
9	0.14-0.22	-	B100	-	-
10	0.14-0.20	-	B100	-	-
11	0.10-0.15	-	B100	-	-
12	0.14-0.30	-	F30	-	-
13	0.14-0.22	-	F30	-	-
14	0.14-0.20	-	F30	-	-
15	0.10-0.15	-	F30	-	-
16	0.16-0.30	-	-	F20	-
17	0.16-0.25	-	-	F20	-
18	0.16-0.20	-	-	F20	-
19	0.14-0.20	-	B100	-	-
20	0.14-0.18	-	B100	-	-
21	0.10-0.13	-	B100	-	-
22	0.14-0.20	-	B100	-	-

Recommendation-SNGX SNGW Inserts

• Recommended Cutting Speed, Vc(m/min)

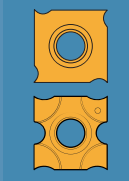
Material group	Grades													
	B100			C250			F20			CE60	CE	K10	F30	
	fz (mm/tooth)													
	0.1	0.2	0.3	0.1	0.2	0.3	0.1	0.2	0.3				0.1	0.2
Cutting Speed, Vc (m/min)														
1	186	166	150	166	146	130	-	-	-	-	-	-	-	-
2	168	150	135	148	130	115	-	-	-	-	-	-	-	-
3	151	136	122	131	116	102	-	-	-	-	-	-	-	-
4	136	122	110	116	102	90	-	-	-	-	-	-	-	-
5	120	110	99	100	90	79	-	-	-	-	-	-	-	-
6	92	78	-	72	58	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	160	-	80	-	-	-	-	-	-	-	-	-	-	-
9	160	-	80	-	-	-	-	-	-	-	-	-	-	-
10	80	-	50	-	-	-	-	-	-	-	-	-	-	-
11	80	-	50	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	140	119	105
13	-	-	-	-	-	-	-	-	-	-	-	126	105	98
14	-	-	-	-	-	-	-	-	-	-	-	119	98	91
15	-	-	-	-	-	-	-	-	-	-	-	91	88	-
16	-	-	-	-	-	1150	950	850	-	-	-	-	-	-
17	-	-	-	-	-	950	780	700	-	-	-	-	-	-
18	-	-	-	-	-	950	780	700	-	-	-	-	-	-
19	55	45	-	-	-	-	-	-	-	-	-	-	-	-
20	55	45	-	-	-	-	-	-	-	-	-	-	-	-
21	46	38	-	-	-	-	-	-	-	-	-	-	-	-
22	55	45	-	-	-	-	-	-	-	-	-	-	-	-

Insert

• Cutting Data-Side Milling

Operations	AR / Dc	Recom.fz (mm/tooth)			Speed Factor
Full Engagement	-	0.05	0.10	0.14	0.65
Side Milling	2%	0.21	0.44	0.65	1.20
	5%	0.14	0.28	0.41	1.10
	10%	0.10	0.20	0.30	1.00
	20%	0.07	0.14	0.21	0.90
	30%	0.06	0.12	0.18	0.85
Average Chip Thickness (hm)	-	0.03	0.06	0.09	-

• Type Of Inserts

	Insert Code	Width of slot (mm)
	1203	6
	1204	7
	12045	8
	1205	10
	1207	12

Recommendation-CNGX Inserts

• CNGX Insert Grade Selection

Material group	Recom. fz (mm/tooth)	Inserts			
		CNGX ... M	CNGX...ME	CNGX...E	
1	0.2-0.4	C250/B100	B100	-	-
2		C250/B100	B100	-	-
3	0.2-0.35	C250/B100	B100	-	-
4		C250/B100	B100	-	-
5	0.2-0.32	C250/B100	B100	-	-
6		C250/B100	B100	-	-
7	0.15-0.3	C250/B100	B100	-	-
8	0.2-0.4	-	B100	-	-
9		-	B100	-	-
10	0.2-0.33	-	B100	-	-
11		-	B100	-	-
12	0.22-0.4	-	F30	-	-
13		-	F30	-	-
14	0.2-0.35	-	F30	-	-
15		-	F30	-	-
16	0.22-0.42	-	-	F20	-
17		-	-	F20	-
18		-	-	F20	-
19	0.2-0.3	-	B100	-	-
20		-	B100	-	-
21	0.15-0.25	-	B100	-	-
22	0.2-0.25	-	B100	-	-

• Cutting Data-Side Milling


Operations	AR / Dc	Recom. fz (mm/tooth)			Speed Factor
Full engagement	-	0.05	0.10	0.14	0.65
Side Milling	2%	0.21	0.44	0.65	1.20
	5%	0.14	0.28	0.41	1.10
	10%	0.10	0.20	0.30	1.00
	20%	0.07	0.14	0.21	0.90
	30%	0.06	0.12	0.18	0.85
Average Chip Thickness (hm)	-	0.03	0.06	0.09	-

• Recommended Cutting Speed, Vc(m/min)

Material group	Grades													
	B100			C250			F20			CE60	CE	K10	F30	
	fz (mm/tooth)													
	0.1	0.2	0.3	0.1	0.2	0.3	0.1	0.2	0.3					
Cutting Speed, Vc (m/min)														
1	162	140	123	162	140	123	-	-	-	-	-	-	-	
2	146	123	105	146	123	105	-	-	-	-	-	-	-	
3	120	101	92	120	101	92	-	-	-	-	-	-	-	
4	109	92	84	109	92	84	-	-	-	-	-	-	-	
5	90	78	70	90	78	70	-	-	-	-	-	-	-	
6	63	56	-	64	56	-	-	-	-	-	-	-	-	
7	-	-	-	28	-	-	-	-	-	-	-	-	-	
8	160	-	70	-	-	-	-	-	-	-	-	-	-	
9	160	-	70	-	-	-	-	-	-	-	-	-	-	
10	80	-	50	-	-	-	-	-	-	-	-	-	-	
11	80	-	50	-	-	-	-	-	-	-	-	-	-	
12	-	-	-	-	-	-	-	-	-	-	-	140	119	105
13	-	-	-	-	-	-	-	-	-	-	-	126	105	98
14	-	-	-	-	-	-	-	-	-	-	-	119	98	91
15	-	-	-	-	-	-	-	-	-	-	-	91	84	-
16	-	-	-	-	-	-	805	665	595	-	-	-	-	-
17	-	-	-	-	-	-	665	549	490	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	40	37	-	-	-	-	-	-	-	-	-	-	-	-
20	40	37	-	-	-	-	-	-	-	-	-	-	-	-
21	35	30	-	-	-	-	-	-	-	-	-	-	-	-
22	40	37	-	-	-	-	-	-	-	-	-	-	-	-

Insert

• Type Of Inserts

	Insert Code	Width of slot (mm)
	1005	14-16
	1305	18-24
	1605	25-30

Material Classification Groups

• Steel

mat. group	The material group of workpieces						
	W.- Nr	EN	EN-Nr	DIN	BS	AFNOR	JIS
1	1.1133	G 28 Mn6	1.1165	20 Mn5	120 M 19	20 M 5	SMnC 420 SMn 1 H; SCMn 2 S 10 C S 25 C S 10 C; S 9 CK S 15 C; S 15 CK S 22 C; S 20 CK S 25 C STKM 12 C
	1.1165	C10	1.0301	30 Mn5	120 M 36		
	1.0301			C 10	045 M 10	AF 34 C 10; XC 10	
	1.0401	C22+N	1.0402	C 15	080 M 15	AF3 7 C 12; XC 18	
	1.0402	C25+N	1.0406	C 22	050 A 20	C 20	
	1.0406	C 10E	1.1121	C 25	070 M 26	AF 50 C 30	
	1.1121	C 15R	1.1141	Ck 10	040 A 10	XC 10	
	1.1141	C 22E	1.1151	Ck 15	080 M 15	XC 15; XC 18	
	1.1151			Ck 22	040 A 22	XC25; XC 18	
	1.1158	S235JR	1.0037	Ck 25	060 A 25	XC 25	
	1.0037	S235JRG2	1.0038	St 37-2		E24-2	
	1.0116	S275J0H	1.0149	St 37-3	4360-40 C	E 24-3; E 24-4	
	1.0044	S275J2G3	1.0144	St 44-2	4360-43 B	E 28-2	
	1.0144			St 44-3 N	4360-43 C	E 28-3; E 28-4	
2	1.0721	10 S 20	1.0721	10 S 20	210 M 15	10 F 1	SUM 32 SUM 21 SUM 22 SUM 22 L
	1.0722			10 SPb 20		10 PbF 2	
	1.0723	15 SMn13	1.0725	15 S 20	210 A 15		
	1.0726	35 S20	1.0726	35 S 20	212 M 36	35 MF 4	
	1.0727	46 S20	1.0727	46 S 20	212 M 44	45 MF 4	
	1.0728	60 S20	1.0728	60 S 20		60 MF 4	
	1.0711			9 S 20	220 M 07		
	1.0715	11 SMn30	1.0715	9 SMn 28	230 M 07	S 250	
	1.0736	11 Smn37	1.0736	9 SMn 36	240 M 07	S 300	
	1.0718	11 SMnPb30	1.0718	9 SMnPb 28		S 250 Pb	
1.0737	11 SMnPb37	1.0737	9 SMnPb 36		S 300 Pb		
3	1.5622	G 28 Mn6+QT	1.1165	14 Ni 6	1503-245-420	16 N 6	SB 450 M SMn 438 (H); SCMn 3 S 30 C S 40 C S 45 C S 50 C S 30 C S 35 C S 40 C S 55 C SM 50 YA
	1.5423			16 Mo 5			
	1.1167			36 Mn 5			
	1.1157			40 Mn 4			
	1.0528			C 30			
	1.0501			C 35			
	1.0511			C 40			
	1.0503			C 45			
	1.0540			C 50			
	1.1178			Ck 30			
	1.1181			Ck 35			
	1.1186			Ck 40			
	1.1206			Ck 50			
	1.1203			Ck 55			
	1.0570			St 52-3			
1.0535	St 70-2						
4	1.5680	13 CrMo 4 5	1.7335	12 Ni 19	1501-620 Gr. 27 1503-660-440	Z 18 N 5	SNC 415 (H) SNC 815 (H) SCr 415 (H) SCM 415 (H) SNC 22 SCR 415 SCM 421 SMnC 420 (H) SMnC 21H SCR 420H
	1.7012			13 Cr 2			
	1.7335			13 CrMo 4 4			
	1.7715			14 MoV 6 3			
	1.5732			14 NiCr 10			
	1.5752			14 NiCr 14			
	1.7015			15 Cr 3			
	1.7262			15 CrMo 5			
	1.8521			15 CrMoV 5 9			
	1.5919			15 CrNi 6			
	1.5415			15 Mo 3			
	1.2735			15 NiCr 14			
	1.7337			16 CrMo 44			
	1.7131			16 MnCr 5			
	1.7139			16 MnCrS 5			
	1.5920			16 MnCrS 5			
	1.6587			17 CrNiMo 6			
	1.7311			20 CrMo 5			
1.7264	20 MnCr 5						
1.7147	20 MnCr 5						
1.7149	20 MnCrS 5						
1.7321	20 MoCr 4						
1.7323	20 MoCrS 4						
1.2162	21 MnCr 5						

• Steel

The material group of workpieces							
UNI	SS	AISI/ASTM	UNS	Condition	Misc. Brands	Structure	Form
G 22 Mn 3		1022; 1518	G10220				
C 10		1330	G13300				
C 15; C 16	1350	1010	G10100				
C 20; C 21	1450	1015	G10170				
C 25		1023	G10200				
C 10	1265	1025					
15; C 16	1370	1010	G10100				
C 20		1015	G10170				
C 25		1022					
Fe 360 B	1311	1025	G10250				
Fe 360 D FF	1312; 1313						
Fe 430 B FN	1412	A 573 Gr. 58					
Fe 430 D FF	1412; 1414	A 570 Gr. 40					
CF 10 S 20		1108					
CF 10 SPb 20		11 L 08					
	1922						
	1957	1140	G11400				
	1973	1146	G11460				
CF 9 S 22		1212	G12120				
CF 9 SMn 28	1912	1213	G12130				
CF 9 SMn 36		1215	G12150				
CF 9 SMnPb 28	1914	12 L 13	G12134				
CF 9 SMnPb 36	1926	12 L 14	G12144				
14 Ni 6		A 350-LF 5					
16 Mo 5	2120	4520	G45200				
		1335	G13350				
		1039	G10390				
C 35	1550	1035	G10350				
C 40		1040					
C 45	1650	1045	G10430				
		1049					
		1030					
C 35	1572	1035	G10340				
C 40		1040					
		1050					
C 50		1055					
Fe 510 B; C; D	2172; 2132						
Fe 690	1655	1055					
14 CrMo 4 5	2216	2515					
16 NiCr 11		A 182-F11; F12					
		3415					
		3310; 9314	G 33106				
		5015	G 50150				
12 CrMo 4							
16 CrNi 4		4320					
16 Mo 3	2912	A 204 Gr. A					
		P6	T 51605				
14 CrMo 4 5	2216	A 387 Gr.12 Cl.2					
16 MnCr 5	2511	5115	G51170				
18 NiCrMo 7							
20 MnCr 5							
		5120					
		5120 H	G51200				

• Steel

mat. group	The material group of workpieces						
	W.- Nr	EN	EN-Nr	DIN	BS	AFNOR	JIS
4	1.6523	20 NiCrMoS 2 2	1.6526	21 NiCrMo 2	805 M 20	20 NCD 2	SNCM 220 (H)
	1.7271			23 CrMoB 3 3			
	1.7218	25 CrMo 4	1.7218	25 CrMo 4	1717 CDS 110	25 CD 4 S	SCM420;SCM430
	1.7325			25 MoCr 4			
	1.7326			25 MoCrS 4			
	1.7030	28 Cr4	1.7030	28 Cr 4	530 A 30		
	1.6513			28 NiCrMo4			SNCM 431
	1.7707			30 CrMoV 9			
	1.6580			30 CrNiMo 8	823 M 30	30 CND 8	SNC 836
	1.8519	31 CrMoV 9	1.8519	31 CrMov 9		32 CDV 12	
	1.5755			31 NiCr 14	653 M 31	30 NC 11	
	1.7020			32 Cr 2			SCr 430 (H)
	1.7361			32 CrMo 12	722 M 24	30 CD 12	SCM 432;
	1.7033	34 Cr 4	1.7033	34 Cr 4	530 A 32	32 C 4	SCCrM3
	1.7220	34 CrMo 4	1.7220	34 CrMo 4	708 A 37	35 CD 4	
	1.2330			35 CrMo 4	708 A 37	34 CD 4	
	1.5864			35 NiCr 18			
	1.6511	36CrNiMo4+TA		36 CrNiMo 4	816 M 40	40 NCD 3	
	1.5736			36 NiCr 10		35 NC 11	
	1.5710			36 NiCr 6	640 A 35	35 NC 6	
	1.7034			37 Cr 4	530 A 36	38 C 4	
	1.5122			37 MnSi 4			
	1.7003	38 Cr2	1.7003	38 Cr 2		38 C 2	
	1.5120			38 MnSi 4			
	1.8523			39 CrMoV 13 9	897 M 39		
	1.2311			40 CrMnMo 7			
	1.2312			40 CrMnMoS 8 6		40 CMD 8S	SCr 440 (H)
	1.2738			40 CrMnNiMo 8		40 CND 8	SCM 440
	1.7035	41 Cr 4	1.7035	41 Cr4	530 M 40	42 C 4	SCr 440
	1.7223			41 CrMo 4	708 M 40	42 CD 4 TS	SCM 440 (H)
	1.7045			42 Cr 4	530 A 40	42 C 4 TS	
	1.7225	42 CrMo 4	1.7225	42 CrMo 4	708 M 40	42 CD 4	
	1.7561			42 CrV 6			
	1.5223			42 MnV 7			
	1.3563			43 CrMo 4			
	1.3561			44 Cr 2			
	1.7006			46 Cr 2		42 C 2	
	1.5121			46 MnSi 4			SCM 445 (H)
	1.3565			48 CrMo 4			SUP 10
	1.7228			50 CrMo 4	708 A 47		
	1.8159	50 CrV 4	1.8159	50 CrV 4	735 A 50	50 CV 4	
	1.5131	50 MnSi4	1.5131	50 MnSi 4			SUP 9(A)
	1.5141			53 MnSi 4			
	1.7176	55 Cr 3	1.7176	55 Cr3	527 A 60	55 C 3	
	1.0904	55 SiCr7	1.7100	55 Si 7	250 A 53	55 S 7	SUP 7
	1.2103			58 SiCr 8			
	1.0961			60 SiCr 7		60 SC 7	
	1.2101			62 SiMnCr4			
	1.1730			C 45W		Y3 42	
	1.1820			C 55W			SK7
1.0601	C60+N	1.0601	C 60	080 A 62	CC 55		
1.1740			C 60W		Y3 55		
1.1744			C 67W				
1.1520			C 70W1				
1.1620			C 70W2				
1.1750	C 75 W	1.1750	C 75W	BW 1A		SKC 3; SK 5;	
1.1525			C 80W1		Y1 90; Y1 80	SK 6	
1.1625			C 80W2	BW 1 B	Y1 80	SK 5	
1.1830			C 85W		Y3 90	S 45 C	
1.1191	C 45E	1.1191	Ck 45	080 M 46	XC 42	S 58 C	
1.1221	C 60E	1.1221	Ck 60	080 A 62	XC 60		
1.1231	C 67S	1.1231	Ck 67	060 A 67	XC 68		
1.1248	C 75S	1.1248	Ck 75	060 A 78	XC 75		
1.8159			GS-50 CrV 4				
1.0060	E 335	1.0060	St 60-2	4360-SSE; SSC	A 60-2	SM 58	

• Steel

The material group of workpieces							
UNI	SS	AISI/ASTM	UNS	Condition	Misc. Brands	Structure	Form
20 NiCrMo 2	2506	8620	G86170				
25 CrMo 4 (KB)	2225	4130	G41300				
		5130					
30 NiCrMo 8							
32 CrMo 12	2240	5132	G51320				
34 Cr 4 (KB)		4135; 4137	G41350				
35 CrMo 4	2234	4135	T 51620				
35 CrMo 4	2234						
38 NiCrMo 4 (KB)		9840	G98400				
35 NiCr 9		3435					
38 Cr 4		3135					
38 Cr 2		5135					
36 CrMoV 13 9							
		P 20					
		P 20+S					
		P 20+Ni					
41 Cr 4		5140	G51400				
41 CrMo 4	2244	4142; 4140	G41420				
42 Cr 4	2244	5140					
42 CrMo 4	2244	4142; 4140	G41400				
45 Cr 2		5045					
		5045					
51 CrV 4	2230	4150	G41470				
		6150	H61500				
55 Cr 3	2253	5155	G51550				
55 Si 8	2085; 2090	9255					
60 SiCr 8		9262					
C60		1060	G10600				
C 80 KU		W1	T72301				
C 80 KU		W 108					
C 45	1672		G10420				
C 60	1665; 1678	1064	G10640				
C 70	1770	1070	G10700				
C 75	1774; 1778	1078; 1080	G10780				
Fe 590; Fe 60-2		6150H					

• Steel

mat. group	The material group of workpieces						
	W.-Nr	EN	EN-Nr	DIN	BS	AFNOR	JIS
4	1.4006	X 12 Cr 13	1.4006	X 10 Cr 13	410 S 21	Z 12 C 13	SUS 410
	1.4724	X 10 CrAl 13	1.4724	X 10 CrAl 13	BH 12	Z 10 C 13	SUS 405
	1.4762	X 10 CrAl 24	1.4762	X 10 CrAl 24		Z 10 CAS 24	SUH 442
	1.4006	X 12 Cr 13	1.4006	X 12 Cr 13	410 S 21		SUS 410
	1.4104	X 14 CrMoS 17	1.4104	X 12 CrMoS 17	411 S 29	Z 10 CF 17	SUS 430 F
	1.4005	X 12 CrS 13	1.4005	X 12 CrS 13	416 S 21	Z 12 CF 13	SUS 416
	1.4024	X 12 Cr 13	1.4024	X 15 Cr 13	420 S 29	Z 12 C 13	SUS 410 J 1
	1.4521	X 2 CrMoTi18 2	1.4521	X 2 CrMoTi18 2			
	1.4521	X 2 CrMoTi18 2	1.4521	X 2 CrMoTi18 2			
	1.4003	X 2 CrNi 13	1.4003	X 2 CrNi 12			
	1.4313	X 3 CrNiMo 13 3	1.4313	X 5 CrNi 13 4	425 C 11	Z 5 CN 13.4	SCS 5
	1.4512	X 5 CrTi 12	1.4512	X 5 CrTi 12	409 S 19	Z 6 CT 12	SUH 409
	1.4000	X 6 Cr 13	1.4000	X 6 Cr 13	403 S 17	Z 6 C 12	SUS 403
	1.4016	X 6 Cr 17	1.4016	X 6 Cr 17	430 S 15	Z 8 C 17	SUS 430
	1.4002	X 6 CrAl 13	1.4002	X 6 CrAl 13	405 S 17	Z 6 CA 13	SUS 405
	1.2341	X 6 CrMo 4	1.2341	X 6 CrMo 4			
	1.4510	X 6 CrTi 17	1.4510	X 6 CrTi 17		Z 8 CT 17	SUS 430 LX
	1.4511	X 3 CrNb 17	1.4511	X 8 CrNb 17		Z 8 CNb 17	SUS 430 LX
	5	1.7380	10 CrMo 9 10	1.7380	10 CrMo 9 10	1501-622 Gr. 31; 45	10 CD 9. 10
1.3505		100 Cr 6	1.3505	100 Cr 6	534 A 99	100 C 6	SUJ 2
1.2510				100 MnCrW 4	BO 1	90 MWCV 5	SKS 3
1.2833				100 V 1	BW 2	Y1 105 V	SKS 43
1.2419		105 WCr 6	1.2419	105 WCr 6		105 WC 13	SKS 31
1.2210		107 CrV 3	1.2210	115 CrV 3		100 C 3	
1.2516				120 WV 4	BF 1	110 WC 20	
1.7735		14 CrMoV 6 9	1.7735	14 CrMoV 6 9		20 CDV 5.07	
1.5860				14 NiCr 18			
1.7709				21 CrMoV 5 7			
1.6746				32 NiCrMo 14 5	830 M 31	35 NCD 14	
1.8504		34 CrAl 6	1.8504	34 CrAl 6			
1.8507				34 CrAlMo 5	905 M 31	30 CAD 6.12	
1.8550		34 CrAlNi 7	1.8550	34 CrAlNi 7		34 CAND 7	
1.8506				34 CrAlS 5			
1.6582		34 CrNiMo 6	1.6582	34 CrNiMo 6	817 M 40	35 NCD 6	SNCM 447
1.6546				40 NiCrMo 2 2	311-Type 7	40 NCD 2	SNCM 240
1.6565				40 NiCrMo 6	311-Type 6		SNCM 439
1.8509		41 CrAlMo 7 10	1.8509	41 CrAlMo 7	905 M 39	40 CAD 6.12	SACM 645
1.2542				45 WCrV 7	BS 1		
1.2721				50 NiCr 13			
1.8161				58 CrV 4			
1.2826				60 MnSiCr 4			
1.2550				60 WCrV 7		55 WC 20	
1.7103				67 SiCr 5			
1.2108				90 CrSi 5			
1.1273				90 Mn 4			
1.2842		90 MnCrV 8	1.2842	90 MnCrV 8	BO 2	90 MV 8	
1.1545		C 105U	1.1545	C 105 W1		Y1 105	
1.1645				C 105 W2		Y1 105	SK 3
1.1654				C 110 W			
1.1663				C 125 W		Y2 120	SK 2
1.1673				C 135 W		Y2 140	SK 1
1.1274		C 100S	1.1274	Ck 101	060 A 96		SUP 4
1.2887				GS-34 CoCrMoV 19 12			
1.2392				G-X 28 CrMoV 5 1			
1.2606			G-X 37 CrMoW 5 1				
1.4749	X 18 CrN 28	1.4749	X 18 CrN 28		Z 18 C 25		
1.2764			X 19 NiCrMo 4				
1.4021	X 20 Cr 13	1.4021	X 20 Cr 13	420 S 37	Z 20 C 13	SUS 420 J1	
1.4935	X 20 CrMoWV 12 1	1.4935	X 20 CrMoWV 12 1				
1.4057	1	1.4057	X 20 CrNi 17 2	431 S 29	Z 15 CN 16.02	SUS 431	
1.4923	X 20 CrNi 17 2	1.4923	X 22 CrMoV 12 1	762	Z 21 CDV 12		
1.4028	X 22 CrMoV 12 1	1.4028	X 30 Cr 13	420 S 45	Z 30 C 13	SUS 420 J 2	
1.2316	X 30 Cr 13	1.2316	X 36 CrMo 17		Z 35CD17		
1.4418	X 38 CrMo 16	1.4418	X 4 CrNiMo 16 5		Z 6 CND 16.05.01		
1.4031	X 4 CrNiMo 16 5	1.4031	X 40 Cr 13	(420 S 45)	Z 40 C 14	SUS 420	
	X 39 Cr 13						

• Steel

The material group of workpieces							
UNI	SS	AISI/ASTM	UNS	Condition	Misc.Brands	Structure	Form
X 12 Cr 13	2302	410; CA-15	S41000			Martensite	
X 10 CrAl 12		405	S40500			Ferrite	
X 16 Cr 26		446	S44600			Ferrite	
	2302	410 S	S41000			Martensite	
X 10 CrS 17	2383	430 F	S43020			Ferrite	
X 12 CrS 13	2380	416	S41600			Martensite	
			J91201			Martensite	
	2326	444				Ferrite	
	2326	444				Ferrite	
		309	S40977			Ferrite	
X 6 CrNi 13 04	2385		S41500		F6NM	Martensite	
X 6 CrTi 12		409 L	S40900			Ferrite	
X 6 Cr 13	2301	403	S41008			Ferrite	
X 8 Cr 17	2320	430	S43000			Ferrite	
X 6 CrAl 13		405	S40500			Ferrite	
X 6 CrTi 17		430 Ti	S43036			Ferrite	
X 6 CrNb 17		430 Nb				Ferrite	
12 CrMo 9 10	2218	A 182-F22	J 21890				
100 Cr 6	2258	52100	G51986				
95 MnWCr 5 KU	2140	O1	T31501				
102 V 2 KU		W 210	T 72302				
107 WCr 5 KU							
107 CrV 3 KU		L2	T61202				
110 W 4 KU							
34 CrAlMo 7		A 355 CI. D	K 23545 K 52440 K 23745				
35 NiCrMo 6 (KW)	2541	4340	G87400				
40 NiCrMo 2 (KB)		8740					
		4340					
41 CrAlMo 7	2940	A 355 CI. A	K 24065				
45 WCrV 8 KU	2710	S1	T41901				
55 WCrV 8 KU							
90 MnVCr 8 KU		O2	T31502				
C 100 KU	1880	W 110					
C 100 KU							
C 120 KU		W 112					
C 140 KU	1870	1095	G10950				
	2322	446	S44600			Ferrite	
X 20 Cr 13	2303	420	S42000 S42200 S43100			Martensite	
X 16 CrNi 16	2321-03	431				Martensite	
X 22 CrMoV 12 1	2317					Martensite	
X 30 Cr 13	2304	420	J91153			Martensite	
X 38 CrMo 16 1 KU		422				Martensite	
	2387		-			Martensite	
X 40 Cr 14	2304,2314	420	S40280			Martensite	

• Steel

The material group of workpieces							
UNI	SS	AISI/ASTM	UNS	Condition	Misc. Brands	Structure	Form
X 45 CrNiW 18 9 42 NiCrMo 15 7	[2304]	- SAE HNV 3 6F7				Martensite Martensite	
X 80 CrSiNi 20 X CrTi 12	2327	440 A SAE HNV 6 440 B	S44002 S65006 S44003	sol. treated		Martensite PH Martensite	
HS 10-4-3-10		6F2 L6	T61206				
HS 18-0-1 HS 18-1-2-10		T15 T1 T5	T12015 T12001 T12005				
HS 18-1-1-5 HS 2-9-1-8 HS 1-8-1 HS 2-9-2	2782	T4 M42 H41; M1 M7 M33;M34	T12004 T11342 T11301 T11307 T11333				
HS 3-3-2 HS 6-5-2 HS 6-5-2-5 HS 6-5-3	2722 2723	M2 M35 M3 Cl.2 M3	T11302 T11323 T11323 T11341			Martensite	
HS 7-4-2-5 X 100 CrMoV 5 1 KU X 105 CrMo 17 X 155 CrVMo 12 1 KU X 166 CrMoW 12 KU	2260 2310	M41 A2 440 C D2	T30102 S44004 T30402				
X 210 Cr 13 KU X 215 CrW 12 1 KU	2312	18 MAR 300 D3	T30403 K 93120				
X30 WCrV 5 3 KU X30 WCrV 9 3 KU		H21	T20821				
30 CrMoV 12 12 KU X37 CrMoV 5 1 KU		H10 H11	T20810 T20811				
X 40 CrMo 5 1 1 KU	2242	H13	T20813				
Hardened steel							
	2183	A128 Grade A					
Stainless steel							
X 10 CrNi 18 09 X 12 CrNi 17 07	2346 (2331) 2331	303 301 302 348	S30300 S30100 S30200 S34800			Austenite Austenite Austenite Austenite	
X 6 CrNiNb 18 11 X 5 CrNi 18 11 X 5 CrNi 18 10 KW X 7 CrNi 18 10 X 6 CrNiNb 18 11	2333 2333 2333 2338	304; 304 H 304 H 308; 305 347	S30400 S30480 S30500 S34700			Austenite Austenite Austenite Austenite	
X 6 CrNiMoNb 17 13 X 6 CrNi 26 20 X 6 CrNiTi 18 11	2361 2337	318 310 S 321; 321H 347 H 309	S31008 S32100 S34700 S30900 S30403			Austenite Austenite Austenite Austenite Austenite	
X 3 Cr Ni 18 11 X 2 CrNiMo 17 12 2 X 2 CrNiMo 17 13 2 X 2 CrNiMo 18 16	2352 2348 2353 2367	304 L 316 L 316 L 317 L	S31603 S31603 S31703			Austenite Austenite Austenite Austenite	

• Stainless steel

mat. group	The material group of workpieces						
	W.-Nr	EN	EN-Nr	DIN	BS	AFNOR	JIS
9	1.4311	X 2 CrNiN 18 10	1.4311	X 2 CrNiN 19 11	304 S 62	Z 2 CN 18. 10 Az	SUS 304 LN
	1.4436	X 5 CrNiMo 17 13 3	1.4436	X 5 CrNiMo 17 13 3	316 S 33	Z 6 CND 18.12.03	SUS 316
	1.4308	X 5 CrNi 19 10	1.4308	X 6 CrNi 18 9	304 C 15	Z 6 CN 18.10M	SUS 13
	1.4580	X 6 CrNiMoNb 17 12 2	1.4580	X 6 CrNiMoNb 17 12 2	318 S 17	Z 6 CNDNb 17.12	
	1.4571	X 6 CrNiMoTi 17 12 2	1.4571	X 6 CrNiMoTi 17 12 2	320 S 31	Z 6 CNDT 17.12	SUS 316 Ti
10	1.4841	X 15 CrNiSi 25 20	1.4841	X 15 CrNiSi 25 20	314 S 25	Z 15 CNS 25.20	SUH 310
	1.4401	X 5 CrNiMo 17 12 2	1.4401	X 5 CrNiMo 18 10	316 S 31	Z 3 CND 17.11.1	SUS 316
11	1.4547	X 1 CrNiMoN 20 18 7	1.4547	X 1 CrNiMoN 20 18 7	X1CrNiMoN2018	Incoloy 800 Z 20 NCS 33.16 Z 3 CHD 25.07 Az Z 3 CND 25.06 Az Z 3 CND 17.12 Az Z 3 CND 17.13 Az Z 3 CHD 18.14.05Az Z 2 CHD 22.05 Az Z 2 CHD 22.05 Az Z 2 NCDU 25 20 Z 4 CNUNb 16.4 M Z 3 CND 25.7 Az Z 6 CNU 17.4	NCF 800 SUH 330 SUS 329 J 3L
	1.4563	X 1 NiCrMoCuN 31 27 4	1.4563	X 1 NiCrMoCuN 31 27 4	X1NiCrMoCuN31274		
	1.4876	X 10 NiCrAlTi 32 20	1.4876	X 10 NiCrAlTi 32 20			
	1.4864	X 12 NiCrSi 35 16	1.4864	X 12 NiCrSi 36 16	Z 10 NC 32 21		
	1.4410	X 2 CrNiMoN 25 7 4	1.4410	X 2 CrNiMoN 25 7 4	NA 17		
	1.4507	X 2 CrMoNiCuN 25 6 3	1.4507	X 2 CrMoNiCuN 25 6 3			
	1.4501	X 2 CrNiMoCuWN 25 7 4	1.4501	X 2 CrNiMoCuWN 25 7 4			
	1.4406	X 2 CrNiMoN 17 11 2	1.4406	X 2 CrNiMoN 17 12 2			
	1.4429	X 2 CrNiMoN 17 13 3	1.4429	X 2 CrNiMoN 17 13 3	316 S 61		
	1.4439	X 2 CrNiMoN 17 13 5	1.4439	X 2 CrNiMoN 17 13 3	316 S 62		
	1.4462	X 2 CrNiMoN 22 5 3	1.4462	X 2 CrNiMoN 17 13 3	(316 S 63)		
	1.4462	X 2 CrNiMoN 22 5	1.4462	X 2 CrNiMoN 22 5	332 S 15		
	1.4652	X 1 CrNiMoN 25 22 8	1.4652	X 2 CrNiMoN 22 5	318 S 13		
	1.4362	X 2 CrNiN 23 4	1.4362	X 2 CrNiMoN 25 22 7			
	1.4539	X 2 NiCrMoCu 25 20 5	1.4539	X 2 CrNiN 23 4			
	1.4539	X 1 NiCrMoCu 25 20 5	1.4539	X 2 NiCrMoCu 25 20 5	904 S 13		
	1.4540	X 4 CrNiCuNb 16 4	1.4540	X 2 NiCrMoCu 25 20 5			
1.4460	X 3 CrNiMo 27 5 2	1.4460	X 4 CrNiCuNb 16 4				
1.4542	X 5 CrNiCuNb 16 4	1.4548	X 4 CrNiMo 27 5 2				
			X 5 CrNiCuNb 17 4				
Cast iron							
12	0.6100	EN-GJL-100	0.6100	GG-10	Grade 100	Ft 10 D	FC 100
	0.6150	EN-GJL-150	0.6150	GG-15	Grade 150	Ft 15 D	FC 150
	0.7033	EN-GJS-350-22	0.7033	GGG-35-3	Grade 350/22	FGS 370-17	FCD 350-22L
	0.7040	EN-GJS-400-15	0.7040	GGG-40	Grade 420/12	FGS 400-12	FCD 400-18L
	0.7043	EN-GJS-400-18	0.7043	GGG-40.3	Grade 370/17	FGS -370-17	
		EN-GJMB-350-10	0.8135	GTS-35-10	B 340/12	B 340/12	FCMB35-10
	EN-GJMB-450-6	0.8145	GTS-45-06	P 440/7	P 440/7	PCMP45-06	
	EN-GJMB-550-4	0.8155	GTS-55-04	P 540/5	P 540/5	PCMP55-04	
13	0.6200	EN-GJL-200	0.6200	GG-20	Grade 220	Ft 20 D	FC 200
	0.6250	EN-GJL-250	0.6250	GG-25	Grade 260	Ft 25 D	FC 250
	0.7050	EN-GJS-500-7	0.7050	GGG-50	Grade 500/7	FGS 500-7	FCD 500-7
	0.7060	EN-GJS-600-3	0.7060	GGG-60	Grade 600/3	FGS 600-3	FCD 600-3
	0.7660	EN-GJSA-XNiCr20-2	0.7660	GGG-NiCr 20 2	Grade S2	FGS Ni20 Cr2	
	0.7661	EN-GJSA-XNiCr20-3	0.7661	GGG-NiCr 20 3	Grade S2B	FGS Ni20 Cr3	
	0.7652	EN-GJLA-XNiMn 13-7	0.7652	GGG-NiMn 13 7	Grade S6	FGS Ni13 Mn7	
	0.6660	EN-GJLA-XNiCr 20-2	0.6660	GGL-NiCr 20 2	Grade F2	FGL Ni20 Cr2	
0.6661	EN-GJLA-XNiCr 20-3	0.6661	GGL-NiCr 20 3		FGL Ni20 Cr3		
	EN-GJMB-600-3	0.8165	GTS-65-02	P 570/3	P 570/3	PCMP60-03	
14	0.6300	EN-GJL-300	0.6300	GG-30	Grade 300	Ft 30 D	FC 300
	0.7070	EN-GJS-700-2	0.7070	GGG-70	Grade 700/2	FGS 700-2	FCD 700-2
	0.6655	EN-GJLA-XNiCuCr15-6-2	0.6655	GGL-NiCuCr 15 6 2	Grade F1	FGL Ni15 Cu6 Cr2	
	0.6655	EN-GJLA-XNiCuCr15-6-2	0.6656	GGL-NiCuCr 15 6 3		FGL Ni15 Cu6 Cr3	
	0.6657	EN-GJLA-XNiCuCr15-6-3	0.8170	GTS-70-02	P 690/2	P 690/2	PCMP70-02
	EN-GJMB-700-2						
15	0.6350	EN-GJL-350	0.6350	GG-35	Grade 350	Ft 35 D	FC 350
	0.6040	-	0.6040	GG-40	Grade 400	Fgl 400	
	0.7080	EN-GJS-800-2	0.7080	GGG-80		FGS 800-2	FCD 800-2
	0.7670	EN-GJSA-XNi22	0.7670	GGG-Ni 22		FGS Ni22	
	0.7683	EN-GJSA-XNi35	0.7683	GGG-Ni 35		FGS Ni35	
	0.7677	-	0.7677	GGG-NiCr 30 1		FGS Ni30 Cr1	
	0.7676	EN-GJSA-XNiCr30-3	0.7676	GGG-NiCr 30 3	Grade S3	FGS Ni30 Cr3	
	0.7683	EN-GJSA-XNiCr35-3	0.7683	GGG-NiCr 35 3		FGS Ni35 Cr3	
	0.7673	EN-GJSA-XNiMn23-4	0.7673	GGG-NiMn 23 4	Grade S2M	FGS Ni23 Mn4	
	0.7665	EN-GJSA-XNiSiCr20-5-2	0.7665	GGG-NiSiCr 20 5 2		FGS Ni20 Si5 Cr2	
	0.7680	EN-GJSA-XNiSiCr30-5-5	0.7680	GGG-NiSiCr 30 5 5		FGS Ni30 Si5 Cr5	
0.6676	EN-GJSA-XNiCr30-3	0.6676	GGL-NiCr 30 3	Grade F3	FGL Ni30 Cr3		
0.6667	EN-GJSA-XNiSiCr20-5-3	0.6667	GGL-NiSiCr 20 5 3		FGL Ni20 Si5 Cr3	A1200	
0.6680	-	0.6680	GGL-NiSiCr 30 5 5		FGL Ni30 Si5 Cr5	(A1050)	

• Stainless steel

The material group of workpieces							
UNI	SS	AISI/ASTM	UNS	Condition	Misc.Brands	Structure	Form
X 2 CrNiN 18 11 X 5 CrNiMo 17 13 2	2371 2343 2333	304 LN 316 CF8	S30453 S31600			Austenite Austenite	
X 6 CrNiMoNb 17 12 X 6 CrNiMoTi 17 12	2350	316 Cb 316 Ti	S31640			Austenite Austenite	
X 16 CrNiSi 25 20 X 5 CrNiMo 17 12	2347	314; 310 316	S31000 S31600	314 S 25 316 S 31		Austenite Austenite	
X 1 CrNiMoN 20 18 7	2778		S31254 N08028 N08800 N08330	Sol. treated	254 SMO Sanicro 28 Alloy 800 Incoloy DS	Super austenite Super austenite PH	
X 2 CrNiMoN 25 7 4	2328	330 F 53 255 F 55	S32750 S32550 S32760		SAF 2507 Ferralium Zeron 100	Austenite Super duplex Super duplex Super duplex	
X 2 CrNiMoN 17 12 X 2 CrNiMoN 17 13 3	2375	316 LN 316 LN (316 LN)	S 31653 S31653 (S31653)			Austenite Austenite	
X 2 CrNiMoN 22 5 X 2 CrNiMoN 22 5	2377 2377	329 LN 318	S31803 S32205		SAF 2205 SAF 2205	Duplex Duplex	
	2327 2562 2564	- 904L CN7M XM-12	S32654 S32304 N08904		654 SMO SAF 2304	Super austenite Duplex Super austenite	
X 3 CrNiMo 27 5 2	2324	329 630	S15500 S32900 S17400	Sol. treated Sol. treated	15-5-PH 17-4-PH	PH Duplex Super austenite	

Cast iron							
G10 G15	01 10-00 01 15-00 07 17-15	A18 20 B A48 25 B	F11401 F11601			GCI GCI DCI	
GS 400-12 GSO 42/17 B 35-12 P 45-06 P 55-04	07 17-02 07 17-12 08 15-00 08 52-00 08 54-00	60-40-18 60-40-18 A47 32510 A220 45008 A220 60004	F32800 F32800 F22200 F23130 F24130			DCI DCI Martensite Martensite Martensite	
G20 G25 GS 500-7 GS 600-3	01 20-00 01 25-00 07 27-02 07 32-03	A48 30 B A48 35 B A536 80-55-6 A476 80-60-03 A436 Type D-2 A436 Type D-2B	F12101 F12401 F33800 F34100 F43000 F43001			GCI GCI DCI DCI Austenite Austenite	
	07 72-00 05 23-00	- A436 Type 2 A436Type 2b	- F41002 F41003			Austenite Austenite Austenite	
P65-02	08 56-00	A220 70003	F24830			Martensite	
G30 GS 700-2	01 30-00 07 37-01	A48 45 B A536 100-70-03 A436 Type 1 A436 Type 1b	F13101 F34800 F41000 F41001 F26230			GCI DCI Austenite Austenite Martensite	
P 70-02	08 62-00	A220 90001					
G35 GS 800-2	01 35-00 01 40-00	A48 50 B A278 60 B A536 120-90-02 A439 Type D-2B A439 Type D-5 A436 Type D-3A A436 Type D-3 A436 Type D-5B A439 Type D-2M Nicrosilal Spheronic A439 Type D-4 A436 Type 3 Nicrosilal A436 Type D-4	F13502 F14102 F36200 F43006 F43004 F43003 F43007 F43010 - F43005 F41001			GCI GCI Martensite Austenite Austenite Austenite Austenite Austenite Austenite Austenite Austenite Austenite Austenite Austenite	

• Non-Ferrous metal

mat. group	The material group of workpieces						
	W.- Nr	EN	EN-Nr	DIN	BS	AFNOR	JIS
16	3.0205	AW-1200	Al99	Al99	1C/1200	A-4/1200	A1200
	3.0255	AW-1050A	Al99.5	Al99.5	1B/1050A	A-5/1050A	(A1050)
	3.0275	AW-1070	Al99.7	Al99.7		A-7/1070	
	3.0285	AW-1080	Al99.8	Al99.8	1A	A-8/1080	
	3.1305			AlCu2.5Mg0.5	2L69	A-U2G	
	3.1655	AW-2011	AlCuBiPb	AlCuBiPb	FC1/2011	A-U5PbBi/2011	A2011
	3.1325	AW-2024	AlCuMg1	AlCuMg1	H14	A-U4G/2024	A2017
	3.1355			AlCuMg2	2L97/98	A-U4G1	
	3.1255	AW-2014	AlCuSiMn	AlCuSiMn	H15/2014	A-U4SG/2014	
	3.3315	AW-5005A	AlMg1	AlMg1	N41/5005	A-G0.6	
	3.3316			AlMg1.5		A-G1.5	
	3.3211	AW-6061	AlMg1SiCu	AlMg1SiCu	H20	(6061)	A6061
	3.3523	AW-5052	AlMg2.5	AlMg2.5	(N4)	A-G2.5C/5052	A5052
	3.3537	AW-5454	AlMg2.7Mn	AlMg2.7Mn	N51/5454	A-G2.5MC/5454	A5454
	3.3525	AW-5251	AlMg2Mn0.3	AlMg2Mn0.3	N4 /5251	A-G2M	
	3.3527	AW-5049	AlMg2Mn0.8	AlMg2Mn0.8		A-G2Mn0.8	
	3.3535	AW-5754	AlMg3	AlMg3		A-G3M	
	3.3345			AlMg4.5			A5082
	3.3547	AW-5083	AlMg4.5Mn	AlMg4.5Mn	N8/5083	A-G4.5MC	
	3.3545	AW-5086	AlMg4Mn	AlMg4Mn	(N5/6)	A-G4MC-5086	
	3.3206	AW-6060	AlMgSi0.5	AlMgSi0.5	(H9)/(6060)	A-GS/6060	
	3.3210	AW-6063	AlMgSi0.7	AlMgSi0.7	(H10)	A-GSUC/6061	(A6063)
	3.2315	AW-6082	AlMgSi1	AlMgSi1	H30/6082	A-SGM0.7/6082	
	3.0615			AlMgSiPb		A-SGPb	
	3.0505	AW-3105	AlMn0.5Mg0.5	AlMn0.5Mg0.5	N31		
	3.0525	AW-3005	AlMn0.5Mg0.5	AlMn0.5Mg0.5		A-MG0.5/3005	-
	3.0515	AW-3103	AlMn1	AlMn1	N3/3103		
	3.0517	AW-3003	AlMn1Cu	AlMn1Cu		A-M1/3003	A3003
	3.0526	AW-3004	AlMn1Mg1	AlMn1Mg1		A-M1G/3004	-
	3.4335	AW-7020	AlZn4.5Mg1	AlZn4.5Mg1	H17/7020	A-Z5G/7020	
	3.4345			AlZnMgCu0.5		A-Z4GU	
	3.4365	AW-7075		AlZnMgCu1.5	2L95/96	A-Z5GU/7075	A7075
	3.1841	AC-21100	AlCu4Ti	G-AlCu4Ti			
	3.1371	AC-21000	AlCu4TiMg	G-AlCu4TiMg	2L91/92	A-U5GT	
	3.3541	AC-51100	AlMg3	G-AlMg3		A-G3T	
	3.3241			G-AlMg3Si			
	3.3261	AC-51400	AlMg5(Si)	G-AlMg5			
	3.3555	AC-51400	AlMg5	G-AlMg5	LM5		
	3.3292	AC-51200	AlMg9	G-AlMg9			
	3.2381	AC-43400	AlSi10Mg(Fe)	G-AlSi10Mg	LM9	A-S10G	
	3.2341	AC-42000		G-AlSi5Mg	LM25	A-S7G	
	3.2151	AC-45000	AlSi6Cu4	G-AlSi6Cu4			
	3.2371	AC-42100	AlSi7Mg	G-AlSi7Mg	2L99	A-S7GO3	
	3.2161	AC-46200	AlSi8Cu3(Si)	G-AlSi8Cu3			
	3.2373	AC-43200	AlSi9Mg	G-AlSi9Mg		A-S10G	
	3.5106			G-MgAg3Se2Zr1			
	3.5314	MG-P-62	MgAl3Zn	G-MgAl3Zn	MAG-E-111	G-A3-Z1	
	3.5662	MC 21230	MgAl6Mn	G-MgAl6Mn			
	3.5612	MG-P-63	MgAl6Zn	G-MgAl6Zn	MAG-E-121	G-A6-Z1	
	3.5812	MG-P-61	MgAl8Zn	G-MgAl8Zn	MAG1-M	G-A9	
	3.5812	MC 21110	MgAl8Zn1	G-MgAl8Zn1	A82	G-A92	
	3.5912	MC 21120	MgAl9Zn	G-MgAl9Zn1	MAG3	G-A92	
	3.5200			G-MgMn2	MAG-E-101	G-M2	
3.5103	MB 65110	MgSe3Zn2Zr1	G-MgSe3Zn2Zr1	MAG6-TE	ZRE1		
3.5105			G-MgTh3Zn2Zr1				
17	3.2383	AC-43200	AlSi10Mg(Cu)	G-AlSi10Mg(Cu)			
	3.2382	AC-44200	AlSi12	GD-AlSi12			
		AC-46100	AlSi11Cu2(Fe)		LM9		ADC12
		AC-47100	AlSi12Cu1(Fe)				ADC14
18	2.1203	CW004A		Cu			
	2.0940.01	CW013A	CuAg0.1	CuAg0.1	Cu-Ag-4		
		CC331G		CuAl10Fe	AB1	CuAl10Fe	
		CC333G-GZ		CuAl10Fe5Ni5			
	2.0975.01	CC333G		CuAl10Ni	AB2	CuAl10Ni5Fe5	

• Non-Ferrous metal

The material group of workpieces							
UNI	SS	AISI/ASTM	UNS	Condition	Misc. Brands	Structure	Form
4010			AA1200				
4007			AA1050A				
4005			AA1070A				
4004			AA1080A				
4355			AA2117				
			AA2011				
			AA2017A				
			AA2024				
4338			AA2014				
4106			AA5005A				
			AA5050B				
			AA6061				
4120			AA5052				
			AA5454				
			AA5251				
4115			AA5049				
4125			AA5754				
			AA5082				
4140			AA5083				
			AA5086				
4103			AA6060				
4104,4107			AA6005				
4212			AA6082				
			AA6012				
			AA3105				
			AA3005				
4054			AA3103				
			AA3003				
			AA3004				
4425			AA7020				
			AA7022				
			AA7075				
4337		204	A02040				
		5140	A05140				
		5056A					
4163							
4253		B85	A13600				
4244		B26					
4245			A13560				
4251		A380					
		359,2					
		4418					
4633			AZ31B				
			AM60A				
			AZ61A				
			AZ80A				
4637		4437	AZ81A				
4635		4442	AZ91A/B				
			M1A				
			B80				
			B80				
		A413.2					
		A384.0	AA384				
		B390.0					
5015			C11600				
5030			C95200				
5710		CA952					
5716		CA955	C95500				

• Non-Ferrous metal

mat. group	The material group of workpieces						
	W.- Nr	EN	EN-Nr	DIN	BS	AFNOR	JIS
18	2.0966	CW307G	CuAl10Ni5Fe4	CuAl10Ni5Fe4	Ca104	CuAl10Ni	C6301
	2.0978	CW308G	CuAl11Ni6Fe6	CuAl11Ni6Fe5			
	2.0916			CuAl5			
	2.0918	CW300G	CuAl5As	CuAl5As			C6140
	2.0932			CuAl8 Fe3			
	2.1291			CuCr			
	2.1310	CW107C	CuFe2P	CuFe2P			
	2.0853	CW109C	CuNi1Si	CuNi1.5Si			
	2.0872		CuNi10Fe1Mn	CuNi10Fe1Mn	CZ102	CuNi10Fe1Mn	
				CuNi10Zn45			
	2.0780	CW406J	CuNi12Zn30Pb1	CuNi12Zn30Pb1			CuNi18Zn19Pb1
	2.0790		CW408J	CuNi18Zn19Pb1			CuNi18Zn19Pb1
	2.0790	CW408J	CuNi18Zn19Pb1	CuNi18Zn19Pb1			C7451
	2.0740	CW409J	CuNi18Zn20	CuNi18Zn20	Ns106		
	2.0742	CW410J	CuNi18Zn27	CuNi18Zn27	NS107		
	2.0822			CuNi20			
	2.0830			CuNi25	CN105	CuNi25	
	2.0835			CuNi30			
	2.0883			CuNi30Fe2Mn2			
				CuNi30FeMn			
	2.0882	CW354H	CuNi30Mn1Fe	CuNi30Mn1Fe	CN107	CuNi30Mn1Fe	
	2.0857	CW112C	CuNi3Si	CuNi3Si			
	2.0842			CuNi44Mn1		CuNi44Mn	
				CuNi5Fe1Mn		CuNi5Fe1Mn	
	2.0875	CW351H	CuNi9Sn2	CuNi9Sn2			
	2.1176	CW352H		CuPb10Sn	LB2	CuSn10Pb10	
	2.1183	CC496K-GZ		CuPb15Sn			
	2.1160	CW113C	Cupb1p	CuPb1P			
	2.1189			CuPb20Sn			
	2.1050.01	CC480K		CuSn10	CT1	CuSn10	
	2.1087			CuSn10Zn			
	2.1051.01	CC483K		CuSn12	PB2	CuSn12	
				CuSn14		CuSn14	
	2.1016	CW450K	CuSn4	CuSn4	PB101	CuSn4p	C5111
			CW451K	CuSn5			
	2.1020	CW452K	CuSn6	CuSn6	PB103	CuSn6	C5191
	2.1080			CuSn6Zn6			
				CuSn7			
	2.1090.03	CC493K-GZ		CuSn7ZnPb			
	2.1030	CW453K	CuSn8	CuSn8	PB104	CuSn8P	C5210
	2.0230	CW501L	CuZn10	CuZn10	CZ101	CuZn10	C2200
	2.0240	CW502L	CuZn15	CuZn15	CZ102	CuZn15	C2300
	2.0250	CW503L	CuZn20	CuZn20	CZ103		C2400
	2.0460	CW702R	CuZn20Al2	CuZn20Al2	CZ110	CuZn22Al2	
				CuZn25Al15			
	2.0261	CW504L	CuZn28	CuZn28	CZ105		C4430
	2.0470	CW706R	CuZn28Sn1	CuZn28Sn1		CuZn29Sn1	
	2.0265	CW505L	CuZn30	CuZn30	CZ106	CuZn30	C2600
				CuZn30AlFeMn		CuZn30AlFeMn	
	2.0490	CW708R	CuZn31Si1	CuZn31Si1			
2.0280	CW506L	CuZn33	CuZn33	CZ107		C2680	
2.0592.01	CC765S		CuZn35Al1	HTB1	CuZn30AlFeMn		
2.0540	CW710R	CuZn35Ni2	CuZn35Ni2				
2.0335	CW507L	CuZn36	CuZn36	CZ108	CuZn36	C2720	
2.0331	CW601N	CuZn35Pb2	CuZn36Pb1.5	CZ131	CuZn35Pb2		
2.0375	CW602N	CuZn36Pb3	CuZn36Pb3	CZ124	CuZn36Pb3		
2.0321	CW508L	CuZn37	CuZn37	CZ108	CuZn37		
2.0332	CW604N	CuZn37Pb0.5	CuZn37Pb0.5	CZ118			
2.0371	CW607N	CuZn38Pb1.5	CuZn38Pb1.5	CZ119	(CuZn38Pb2)		
2.0530	CW717R	CuZn38Sn1	CuZn38Sn1				
2.0525	CW715R	CuZn38SnAl	CuZn38SnAl				
			CuZn39AlFeMn				
2.0372	CW610N	CuZn39Pb0.5	CuZn39Pb0.5	CZ123	CuZn39Pb0.8		
2.0380	CW612N	CuZn39Pb2	CuZn39Pb2	CZ128			
2.0401	CW614N	CuZn39Pb3	CuZn39Pb3	CZ121	CuZn39Pb3		
2.0360	CW509	CuZn40	CuZn40	CZ109	CuZn40	C2800	
2.0550	CW713R		CuZn40A12				

• Non-Ferrous metal

The material group of workpieces										
UNI	SS	AISI/ASTM	UNS	Condition	Misc. Brands	Structure	Form			
CuNi30	5667		C62730							
			C60800							
			C18400							
			C19400							
			C70600							
			C79300							
			C76300							
			C76300							
			C75200							
			C77000							
CuNi30	5682		C71300							
			C71580							
			C70600							
			C70250							
			C72150							
			CuNi30	5640	CA937	C72500				
						C93700				
						C93800				
						C19000				
						C94100				
C90700										
C90500										
CuSn7	5443 5458 5465 5475	CA907				C91000				
						C51100				
						C51000				
			C51900							
			CuSn7	5428		C93200				
						C83600				
						C52100				
						C22000				
						C23000				
						C24000				
C68700										
C86300										
C25600										
C44300										
C5122										
CuSn7	5220 5122		C26000							
			CuSn7	5256	CA865	C26800				
						C96500				
						C27200				
						C34200				
						C36000				
						C27200				
						C33500				
						C35300				
						C46400				
C47000										
CuSn7	5150 5165		C36500							
			C37700							
			C38500							
			C28000							
			C67410							
			CuSn7	5170		C36500				
						C37700				
						C38500				
						C28000				
						C67410				

• Non-Ferrous metal

mat. group	The material group of workpieces						
	W.- Nr	EN	EN-Nr	DIN	BS	AFNOR	JIS
18	2.0572	CW723R	CuZn40Mn1	CuZn40Mn1			
	2.0580	CW720R	CuZn40Mn1Pb	CuZn40Mn1Pb	CZ136	CuZn39Pb2	
	2.0402	CW612N	CuZn40Pb2	CuZn40Pb2	CZ120		
	2.0410	CW622N	CuZn44Pb2	CuZn44Pb2	CZ104		
	2.0220	CW500L	CuZn5	CuZn5	CZ125		
Heat resistant super alloys / Titanium alloys							
19							
	X2NiCrAlTi3220		1.4876				
20							
21	NiMo30		2.4810				
	NiMo30		2.4810				
	NiMo16Cr15W		2.4602				
	NiMo16Cr16Ti		2.4819				
			2.4610				
		2.4619					
	NiCr21Fe18Mo9		2.4665				

• Non-Ferrous metal

The material group of workpieces							
UNI	SS	AISI/ASTM	UNS	Condition	Misc.Brands	Structure	Form
	5168 5272		C37800 C68700 C21000		AMPCO 15 AMPCO 18 AMPCO 18.136 AMPCO 18.22 AMPCO 18.23 AMPCO 21 AMPCO 22 AMPCO 25 AMPCO 26 AMPCO 45 AMPCO 483 AMPCO 642 AMPCO 673 AMPCO 674 AMPCO 8 AMPCO 863 AMPCO M4		
Heat resistant super alloys / Titanium alloys							
			S66286 S35000 S35000 S35500 S45500 N08800 N19909 R30155 R30155	Precip.hardened heat treated	A286 AM350 AM350 AM355 Custom 455 Discalloy Incoloy 800 Incoloy 801 Incoloy 909 Lapelloy M-308 N-155 N-155		cast bar, forge, ring
			R30195		Air Resist 13 FSX-414 H531 Haynes 188 Haynes 188 Haynes 25 Mar-M-302 Mar-M-509 MP159 MP35N Stellite 21 Stellite 30 Stellite 31 W152 W162		bar, forge, ring tube
			N10665 N10002 N10002 N10276 N06455 N06007 N06985 N10003 N10003 N06635 N10004 N06002		Astroloy GTD222 Hastelloy B-2 Hastelloy C Hastelloy C Hastelloy C-22 Hastelloy C-276 Hastelloy C-4 Hastelloy G Hastelloy G-3 Hastelloy N Hastelloy N Hastelloy S Hastelloy W Hastelloy X		all forms plate cast bar, sforge, ring cast all forms all forms

• Heat resistant super alloys / Titanium alloys

mat. group	The material group of workpieces						
	W.- Nr	EN	EN-Nr	DIN	BS	AFNOR	JIS
21	2.4816 2.4851 2.4856 2.4856 2.4856	NiCr15Fe NiCr22Mo9Nb NiCr22Mo9Nb NiCr22Mo9Nb NiFe38Cr16Nb					
	2.4668 2.4668 2.4668	NiCr19Fe19Nb5Mo3 NiCr19Fe19Nb5Mo3 NiCr19Fe19Nb5Mo3					
	2.4669 2.4669						
	2.4061	Ni99.6					
	2.4634 2.4636 2.4650 2.4631	NiCr20TiAl					
	2.4632 2.4662						
	ppm	NiCr19Co18Mo4Ti3Al3					
	2.4654 2.4654	NiCr20Co13Mo4Ti3Al NiCr20Co13Mo4Ti3Al					
	3.7024 3.7024			TiV10Fe2Al3			
	3.7124	TiCu2					
		TiAl5Sn2.5 TiAl5Sn2.5 TiAl5Sn2.5					
	3.7164 3.7164 3.7164 3.7164	TiAl6V4 TiAl6V4 TiAl6V4 TiAl6V4					

