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NEW LINE OF CUTTERS WITH SETTING ANGLE 90°
FOR ECONOMICAL MILLING WITH INSERTS

LNGX12 and LNGU16

AVAILABLE ALSO IN NEW GRADES WITH MTCVD COATING

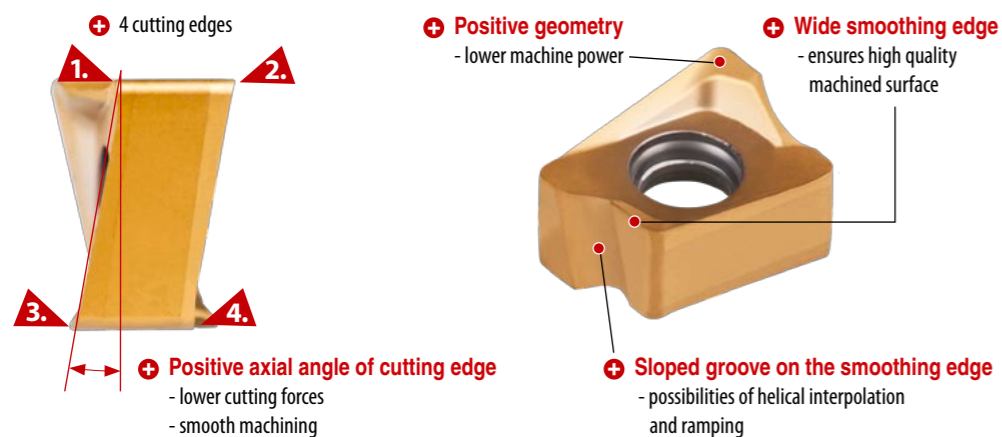


CUTTING TOOLS WITH LNGX 12 AND LNGU 16 INSERTS

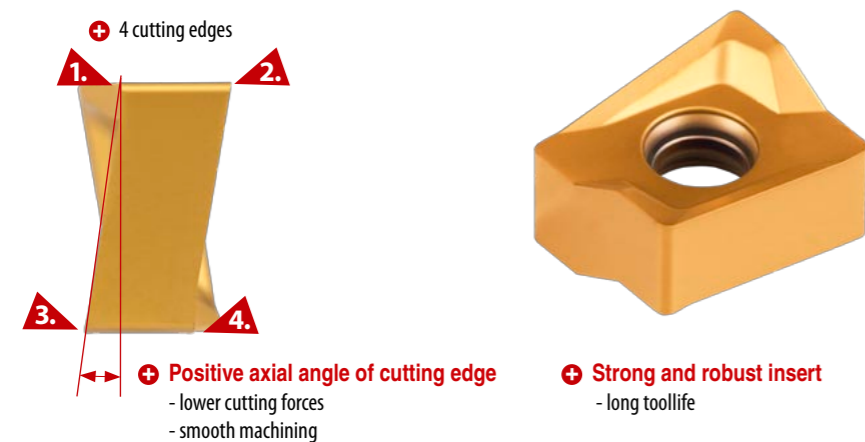
PRAMET
AGE **MILL**

Both-side inserts with 4 cutting edges

LNGX 120508ER-M



LNGU 160708SR-M



both-side inserts
LNGX 12 and LNGU 16 with 4 cutting edges

periphery grinded inserts for precise milling

ramping and helical interpolation for LNGX 12

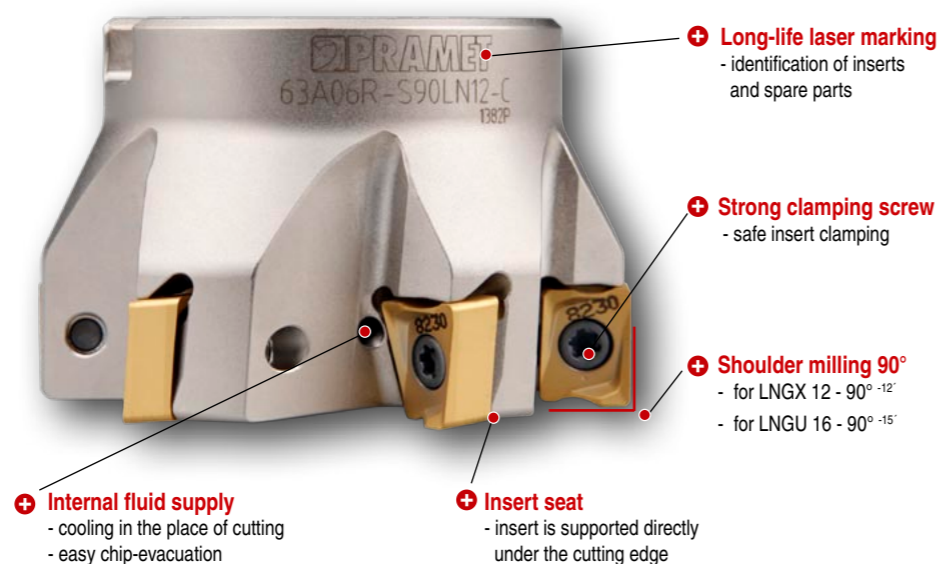
high quality of machined surface

wide cutter assortment

90° cutters for economical machining with LNGX12 and LNGU 16 inserts

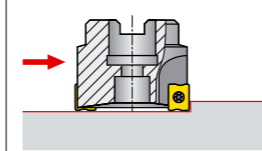
Universal use:
face milling,
shoulder milling,
slotting
and grooving

PLUS
for LNGX 12
milling by helical
interpolation
ramping
progressive
plunging

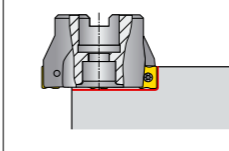


Wide area of applications of new milling cutters with inserts LNGX 12 and LNGU 16

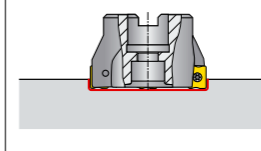
FACE MILLING
LNGX 12 $R_a \leq 0,7 \mu\text{m}$
LNGU 16 $R_a \leq 0,7 \mu\text{m}$



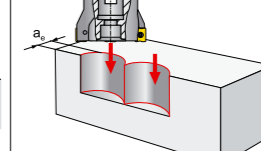
SHOULDER MILLING
areas link-up
 $x_{\text{max}} \leq 0,03 \text{ mm}$



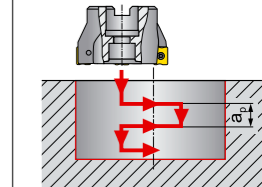
SLOT MILLING
LNGX 12 $a_{\text{pmax}} = 9 \text{ mm}$
LNGU 16 $a_{\text{pmax}} = 13 \text{ mm}$



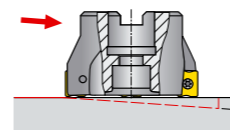
PLUNGE MILLING
 $a_{\text{emax}} = 3,5 \text{ mm}$ for LNGX 12
 $a_{\text{emax}} = 7 \text{ mm}$ for LNGU 16



PROGRESSIVE PLUNGING
for LNGX 12
 $a_{\text{pmax}} = 0,4 \text{ mm}$

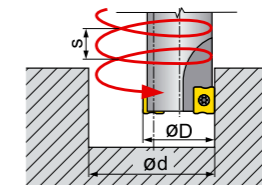


RAMPING
for LNGX 12



cutter Ø	α_{max} [°]
ø 25	2,20
ø 32	1,20
ø 40	0,85
ø 50	0,65
ø 63	0,45
ø 80	0,35
ø 100	0,25
ø 110	0,2

MILLING BY HELICAL INTERPOLATION
for LNGX 12



cutter Ø	d_{min}	s_{max}	d_{max}	s_{min}
25	43	2,20	48	2,80
32	57	1,65	62	2,00
40	73	1,55	78	1,75
50	93	1,50	98	1,70
63	119	1,40	124	1,50

Assortment of inserts LNGX 12/LNGU 16

Basic shape of insert	Cutting condition	Initial cutting conditions						
		P	M	K	N	S	H	
LNGX 120508ER-M M9315	feed [mm.teeth ⁻¹]	0,05 - 0,15	-	0,05 - 0,15	-	-	0,1 - 0,2	
	depth of cut [mm]	1 - 9	-	1 - 9	-	-	0,3 - 1,5	
	cutting speed [m.min ⁻¹]	255 - 475	-	240 - 450	-	-	50 - 95	
	LNGX 120508ER-M M9325	feed [mm.teeth ⁻¹]	0,05 - 0,15	0,05 - 0,11	-	-	0,05 - 0,09	-
		depth of cut [mm]	1 - 9	1 - 6,75	-	-	1 - 5,4	-
		cutting speed [m.min ⁻¹]	250 - 420	150 - 250	-	-	50 - 125	-
LNGX 120508ER-M 8215	feed [mm.teeth ⁻¹]	0,05 - 0,25	0,05 - 0,19	0,05 - 0,25	-	0,05 - 0,15	0,1 - 0,2	
	depth of cut [mm]	1 - 9	1 - 6,75	1 - 9	-	1 - 5,4	0,3 - 1,5	
	cutting speed [m.min ⁻¹]	185 - 255	110 - 150	175 - 240	-	35 - 75	35 - 50	
LNGX 120508ER-M 8230	feed [mm.teeth ⁻¹]	0,05 - 0,25	0,05 - 0,19	0,05 - 0,25	-	0,05 - 0,15	0,1 - 0,2	
	depth of cut [mm]	1 - 9	1 - 6,75	1 - 9	-	1 - 5,4	0,3 - 1,5	
	cutting speed [m.min ⁻¹]	160 - 245	95 - 145	150 - 235	-	30 - 75	30 - 50	
	LNGX 120508ER-M 8240	feed [mm.teeth ⁻¹]	0,05 - 0,25	0,05 - 0,19	0,05 - 0,25	-	0,05 - 0,15	-
cutting speed [m.min ⁻¹]		145 - 205	85 - 120	135 - 190	-	25 - 60	-	
LNGU 160708SR-M M9315	feed [mm.teeth ⁻¹]	0,1 - 0,25	-	0,1 - 0,25	-	-	0,1 - 0,2	
	depth of cut [mm]	1 - 13	-	1 - 13	-	-	0,3 - 1,5	
	cutting speed [m.min ⁻¹]	205 - 375	-	190 - 355	-	-	40 - 75	
LNGU 160708SR-M M9325	feed [mm.teeth ⁻¹]	0,1 - 0,25	0,1 - 0,19	-	-	0,1 - 0,15	-	
	depth of cut [mm]	1 - 13	1 - 9,75	-	-	1 - 7,8	-	
	cutting speed [m.min ⁻¹]	215 - 355	125 - 210	-	-	40 - 105	-	
LNGU 160708SR-M 8215	feed [mm.teeth ⁻¹]	0,1 - 0,3	0,1 - 0,23	0,1 - 0,3	-	0,1 - 0,18	0,1 - 0,2	
	depth of cut [mm]	1 - 13	1 - 9,75	1 - 13	-	1 - 7,8	0,3 - 1,5	
	cutting speed [m.min ⁻¹]	175 - 245	105 - 145	165 - 230	-	35 - 70	35 - 45	
LNGU 160708SR-M 8230	feed [mm.teeth ⁻¹]	0,1 - 0,3	0,1 - 0,23	0,1 - 0,3	-	0,1 - 0,18	0,1 - 0,2	
	depth of cut [mm]	1 - 13	1 - 9,75	1 - 13	-	1 - 7,8	0,3 - 1,5	
	cutting speed [m.min ⁻¹]	150 - 240	90 - 140	140 - 225	-	30 - 70	30 - 45	
LNGU 160708SR-M 8240	feed [mm.teeth ⁻¹]	0,1 - 0,3	0,1 - 0,23	0,1 - 0,3	-	0,1 - 0,18	-	
	depth of cut [mm]	1 - 13	1 - 9,75	1 - 13	-	1 - 7,8	-	
	cutting speed [m.min ⁻¹]	140 - 200	80 - 120	130 - 190	-	25 - 60	-	

Overview of geometries LNGX12/ LNGU 16

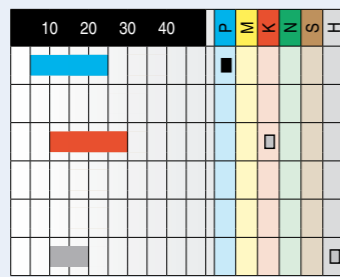
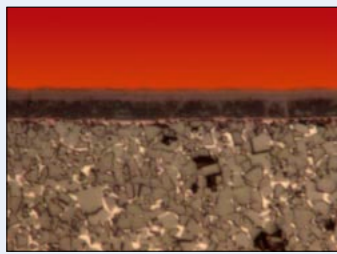
Geometry	Photo	Workpiece material group						Diagram of application	Description	Applied to inserts: LNGX 120508ER-M
		Milling	P	M	K	N	S			
LNGX 12-M		Finishing	■	■	■	■	■		- high positive geometry - suitable for machining of material groups P and K - for light and medium machining	Range of cutting conditions: f_z 0,05 ÷ 0,25 [mm.teeth ⁻¹] (0,05 ÷ 0,15 for grade MT-CVD) a_p 1,0 ÷ 9,0 [mm]
	Profile of cutting edge	Medium	■	■	■	■				
	Roughing	■	■	■	■	■				
LNGU 16-M		Finishing	■	■	■	■		- high positive geometry - suitable for machining of material groups P and K - for medium machining - suitable geometry for non-stable cutting conditions	Range of cutting conditions: f_z 0,1 ÷ 0,3 [mm.teeth ⁻¹] (0,1 ÷ 0,25 for grade MT-CVD) a_p 1,0 ÷ 13,0 [mm]	
	Profile of cutting edge	Medium	■	■	■	■				
	Roughing	■	■	■	■	■				

■ Main application □ Other applications □ Conditional applications

New cutting grades with MT-CVD coating

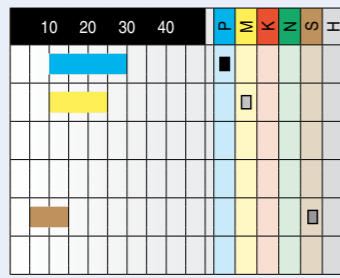
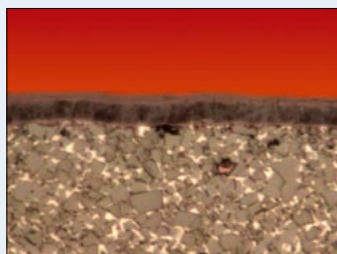
NEW

M9315



- Fine grained substrate with relatively low content of cobalt binder phase
- Thin MT-CVD coating with unique Al₂O₃ layer
- Machining of materials of group P, conditionally K and H
- Medium to high cutting speeds
- Ability to work with and without coolant
- Excellent wear resistance with reasonable toughness

M9325

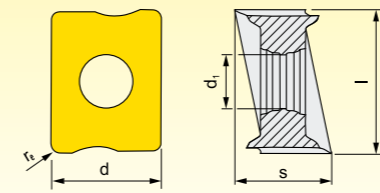


- Fine-grained substrate with higher content of cobalt binder phase
- Thin coating applied by MT-CVD method with unique Al₂O₃ layer
- Machining of materials P and conditionally for groups M and S
- Medium to high cutting speeds
- With and without cooling
- High toughness and reliability
- Good wear resistance

■ Main application □ Other applications □ Conditional applications

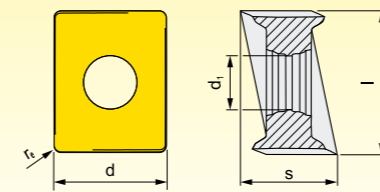
Indexable cutting inserts LNGX12 and LNGU 16

LNGX 12



Size	l	d	s	d ₁	r _e
12	12,00	9,50	8,10	4,50	0,80

LNGU 16



Size	l	d	s	d ₁	r _e
16	16,60	13,20	10,00	5,70	0,80

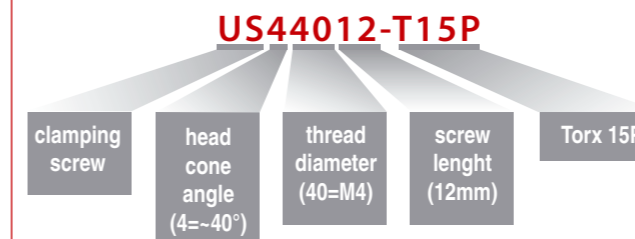
● Stock Assortment ○ Non-stock Assortment

ISO	ANSI	Grade						Radius
		M9315	M9325	8215	8230	8240		
LNGX 120508ER-M	LNGX -(3.5)2ER-M	●	●	●	●	●		0,80

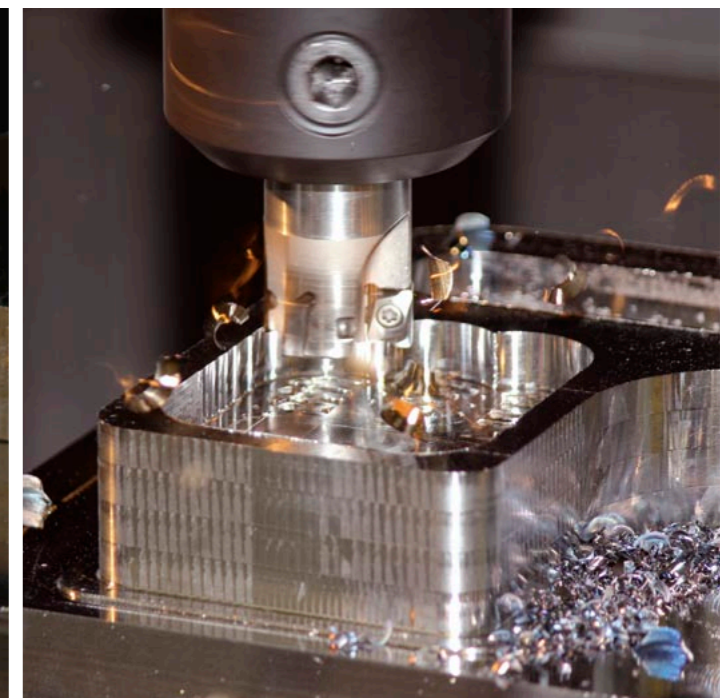
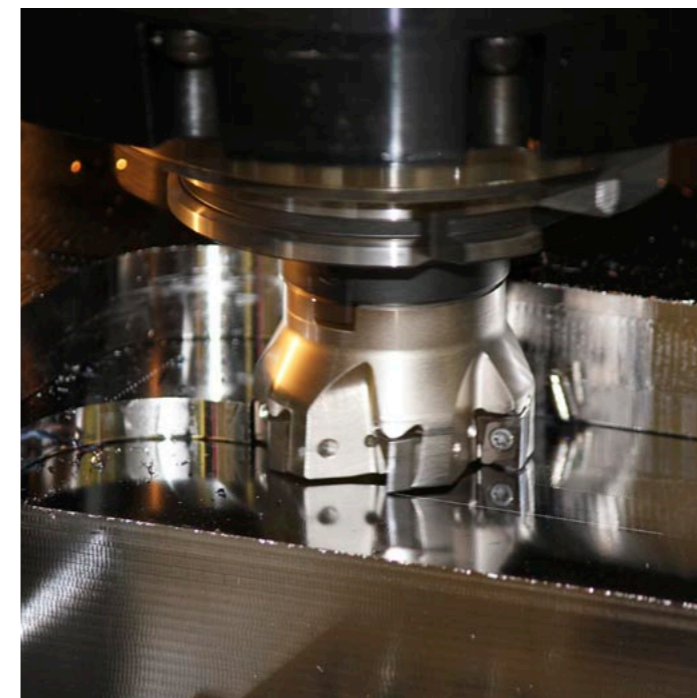
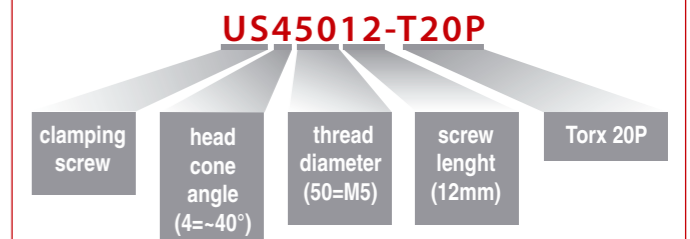
ISO	ANSI	Grade						Radius
		M9315	M9325	8215	8230	8240		
LNGU 160708SR-M	LNGU -52SR-M	●	●	●	●	●		0,80

All dimensions in [mm]

Marking of clamping screw for LNGX 12

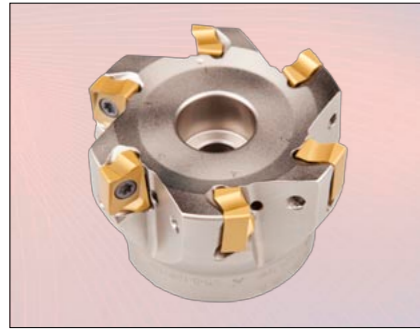


Marking of clamping screw for LNGU 16

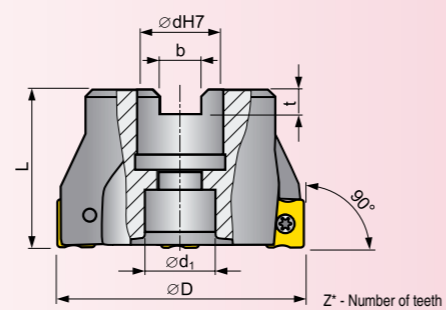
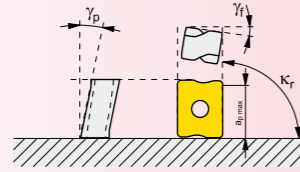


S90LN12

Shoulder milling cutters with inserts LNGX 12



γ_p	-6°	κ_r	90°
γ_f	-14°±-15°	$a_{p\ max}$	9 mm



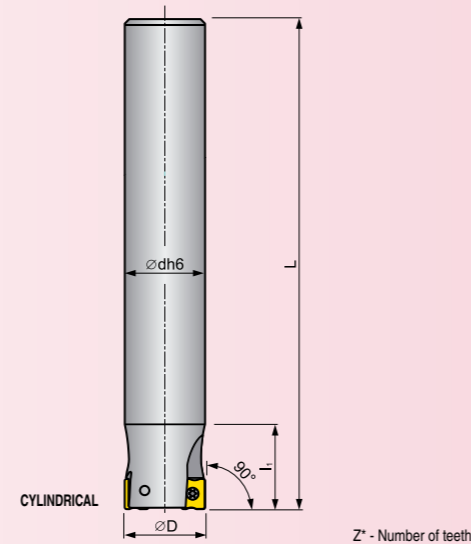
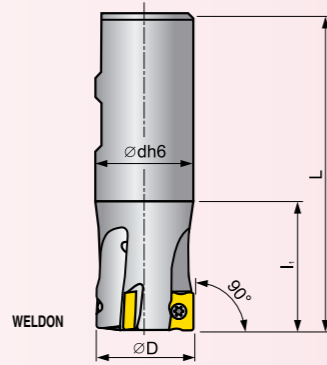
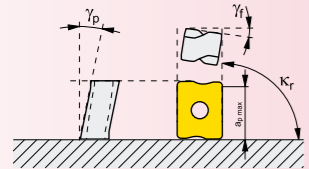
ISO	Assortment	Dimensions							[kg]	Cooling	Spare parts			Inserts
		D	dH7	d_1	L	b	t	Z^*						
40A04R-S90LN12-C	●	40	16	14	40	8,4	5,6	4	0,2	+	US44012-T15P	D-T08PT15P	FG-15	LNGX 120508ER-M
50A04R-S90LN12-C	●	50	22	18	40	10,4	6,3	4	0,3	+				
50A05R-S90LN12-C	●	50	22	18	40	10,4	6,3	5	0,3	+				
63A04R-S90LN12-C	●	63	22	18	40	10,4	6,3	4	0,5	+				
63A06R-S90LN12-C	●	63	22	18	40	10,4	6,3	6	0,5	+				
80A05R-S90LN12-C	●	80	27	38	50	12,4	7,0	5	1,0	+				
80A07R-S90LN12-C	●	80	27	38	50	12,4	7,0	7	1,0	+				
100A06R-S90LN12-C	●	100	32	45	50	14,4	8,0	6	1,7	+				
100A08R-S90LN12-C	●	100	32	45	50	14,4	8,0	8	1,7	+				
110A06R-S90LN12-C	●	110	32	45	50	14,4	8,0	6	2,3	+				

SLN12

Shoulder end milling cutters with inserts LNGX 12



γ_p	-6°±-8°	κ_r	90°
γ_f	-15°±-23°	$a_{p\ max}$	9 mm



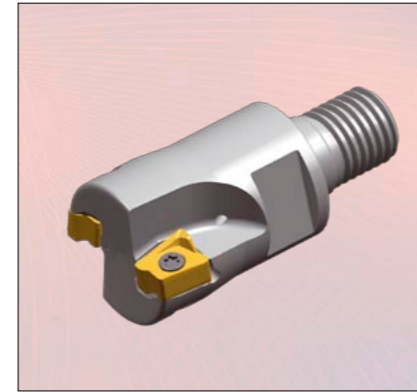
ISO	Assortment	Dimensions					[kg]	Cooling	Spare parts			Inserts
		D	L	l_1	dh6	Z^*						
WELDON	25A2R042B25-SLN12-C	●	25	99	42	25	2	0,1	+	US44012-T15P	FLAG T15P	LNGX 120508ER-M
	32A3R042B32-SLN12-C	●	32	103	42	32	3	0,5	+			
	40A4R050B32-SLN12-C	●	40	111	50	32	4	0,6	+			
	25A2R034A25-SLN12-C	●	25	170	34	25	2	0,5	+			
25A2R080A25-SLN12-C	●	25	170	80	25	2	0,5	+				
32A2R034A32-SLN12-C	●	32	195	34	32	2	0,9	+				
32A2R090A32-SLN12-C	●	32	195	90	32	2	0,9	+				

● Stock Assortment ○ Non-stock Assortment

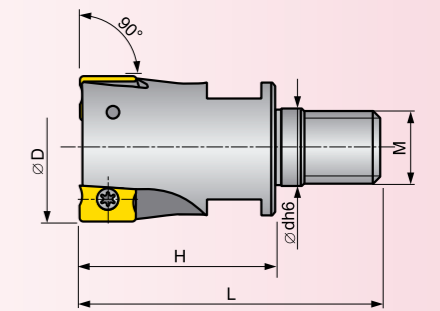
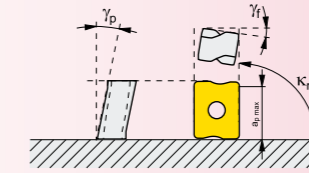
All dimensions in [mm]

SLN12

Exchangeable heads for modular system with inserts LNGX12



γ_p	-6°	κ_r	90°
γ_f	-15°	$a_{p\ max}$	9 mm



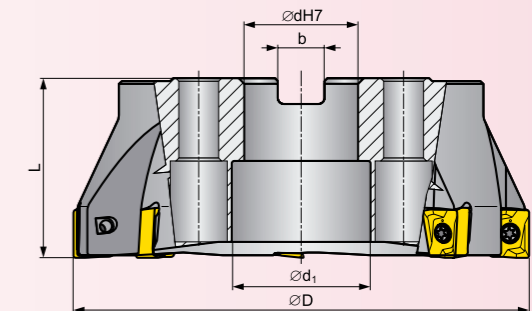
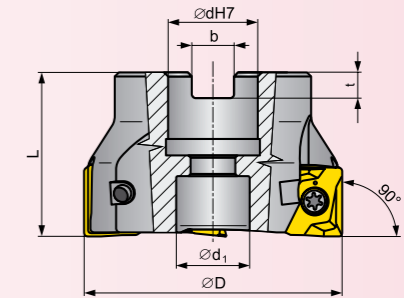
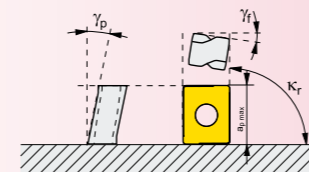
ISO	Assortment	Dimensions					[kg]	Cooling	Spare parts			Inserts
		D	L	H	dh6	Z^*						
32A2R043M16-SLN12-C	●	32	66	43	17	2	0,2	+	US44012-T15P	FLAG T15P	LNGX 120508ER-M	
40A3R043M16-SLN12-C	●	40	66	43	17	3	0,2	+				

S90LN16

Shoulder milling cutters with inserts LNGU 16



γ_p	-6°	κ_r	90°
γ_f	-10,5°	$a_{p\ max}$	13 mm



ISO	Assortment	Dimensions							[kg]	Cooling	Spare parts			Inserts
		D	dH7	d_1	L	b	t	Z^*						
63A04R-S90LN16-C	●	63	22	18	40	10,4	6,3	4	0,5	+	US45012-T20P	SDR T20P-T	LNGU 16	
63A05R-S90LN16-C	●	63	22	18	40	10,4	6,3	5	0,5	+				
80A04R-S90LN16-C	●	80	27	38	50	12,4	7,0	4	1,0	+				
80A06R-S90LN16-C	●	80	27	38	50	12,4	7,0	6	1,0	+				
100A05R-S90LN16-C	●	100	32	45	50	14,4	8,0	5	1,8	+				
100A07R-S90LN16-C	●	100	32	45	50	14,4	8,0	7	1,7	+				
125A06R-S90LN16-C	●	125	40	56	63	16,4	9,0	6	3,5	+				
125A08R-S90LN16-C	●	125	40	56	63	16,4	9,0	8	3,3	+				
140A06R-S90LN16-C	●	140	40	56	63	16,4	9,0	6	4,5	+				
160C08R-S90LN16	●	160	40	66,7	63	16,4	9,0	8	5,7	+				
175C08R-S90LN16	●	175	40	66,7	63	16,4	9,0	8	6,7	+				

● Stock Assortment ○ Non-stock Assortment

All dimensions in [mm]