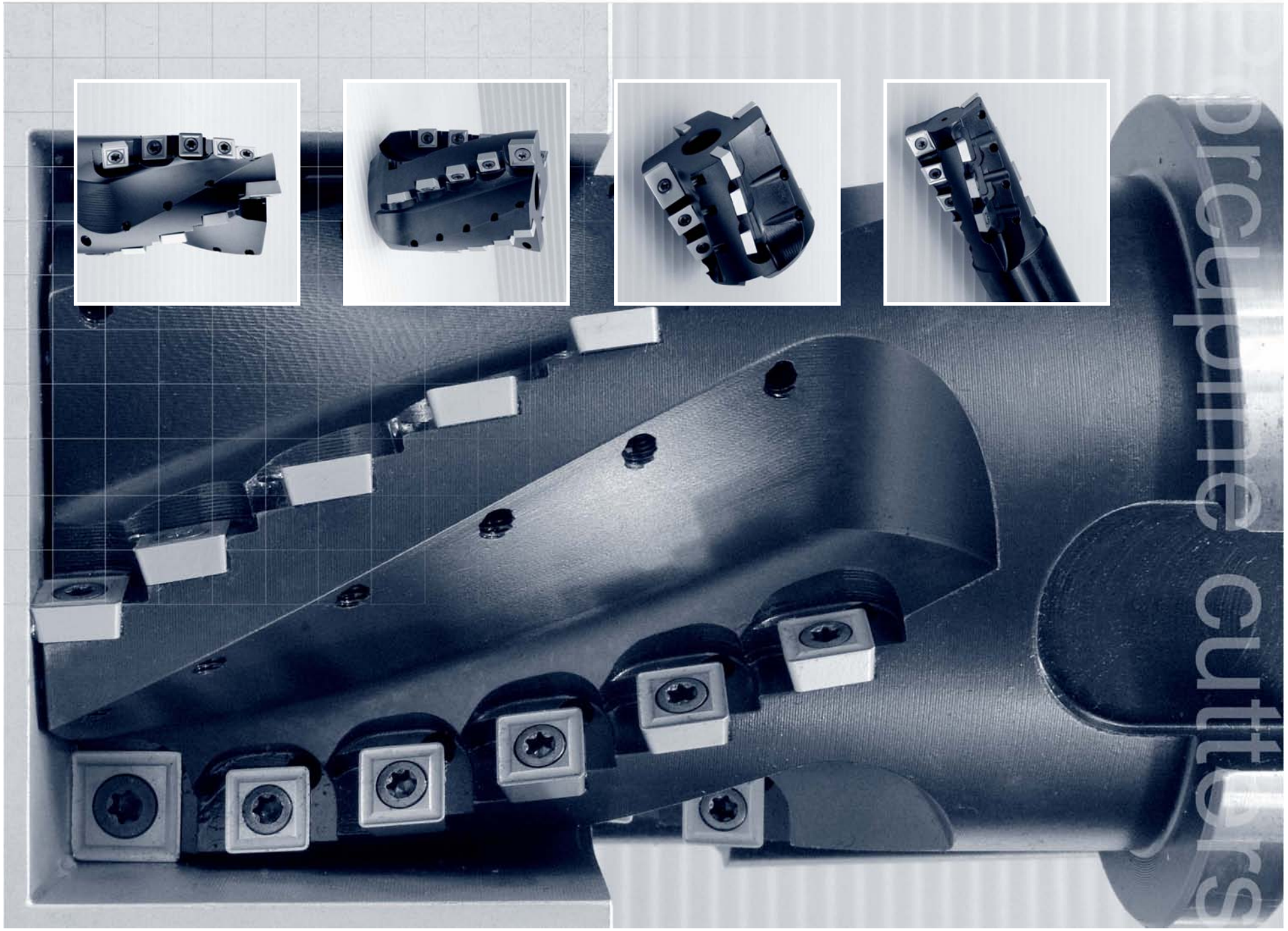

porcupine cutters

Porcupine cutters

2 2	4	0	90	050	90
1	2	3	4	5	6

1

22	23

2

1	2	3	4
80° 6	80° 8	9 · 80° 9 · 16	12 · 80° 12 · 20

3

0	4
11°	7°

4

Short Weldon	ISO / DIN 2080			ISO 7388 / DIN 69871 A		ISO / BT System		Direct spindle mounting
Ø12 Ø16 Ø20 Ø25 Ø32 Ø40	ISO 30	ISO 40	ISO 50	7388 40	7388 50	BT 40	BT 50	
07	43	44	45	47	48	49	50	90

5

Diameter, mm.

Ø

6

Cutting length

a

Porcupine milling cutters

2240.90
Slot and side milling 90°

Page E.04 AP.. 1504..
SPM.. 1204..

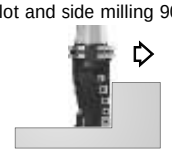
2234.90
Slot and side milling 90°

Page E.05 SC.. 09T3..
SC.. 1204..

2234.$^{44}_{45}$
Slot and side milling 90°

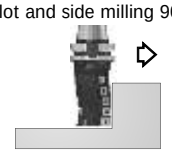
Page E.06 SC.. 09T3..
SC.. 1204..

2234.$^{47}_{48}$
Slot and side milling 90°



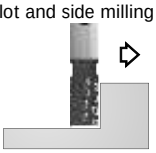
Page E.07 SC.. 09T3..
SC.. 1204..

2234.$^{49}_{50}$
Slot and side milling 90°



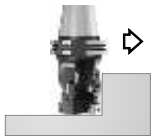
Page E.08 SC.. 09T3..
SC.. 1204..

23$^{1}_{3}$4.07
Slot and side milling 90°



Page E.09 CC.. 0602..
CC.. 0803..
CC.. 09T3..

2330.$^{47}_{48}$
Slot and side milling 90°



Page E.10 AP.. 1604...

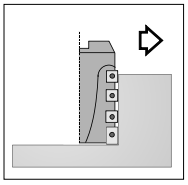
2330.$^{49}_{50}$
Slot and side milling 90°

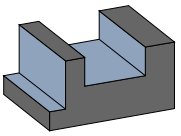
Page E.11 AP.. 1604..

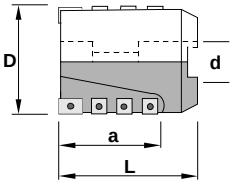
23$^{2}_{3}$0.07
Slot and side milling 90°

Page E.12 AP.. 1003..
AP.. 1604..

Characteristics:
Heavy roughing milling cutter that uses very strong inserts allowing deep passes and high feed per teeth.
The insert is fixed by Torx screw that allow a good chip evacuation and easy use.
Applications:
This heavy roughing cutter works well on steels, alloyed steels, stainless steels, refractory casts and aluminium alloys. This general milling cutter for diversified manufacture is recommended for conventional milling machines and machining centres.



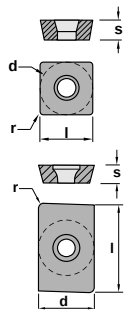




2240.90

Ref.			D	L	d	a	Insert size	Kg
	2240.90.050.48	1+2	50	70	22	48	1 AP.. 2004.. + 11 SPM.. 1204..	0,600
	2240.90.063.58	2+2	63	70	27	58	2 AP.. 2004.. + 10 SPM.. 1204..	0,850
	2240.90.080.68	3+2	80	80	32	68	2 AP.. 2004.. + 16 SPM.. 1204..	1,900
	2240.90.100.78	3+3	100	90	40	78	3 AP.. 2004.. + 21 SPM.. 1204..	2,600
	2240.90.125.88	4+4	125	100	40	88	4 AP.. 2004.. + 32 SPM.. 1204..	5,850

Ref.				
	2240.90.050.48	1550	5620	912,10
	2240.90.063.58	1550	5620	912,12
	2240.90.080.68	1550	5620	912,16
	2240.90.100.78	1550	5620	912,20
	2240.90.125.88	1550	5620	-



Ref.	AP.. / SPM..	l	s	d
	AP.. 2004..	20,00	4,76	12,70
	SPM.. 1204..	12,70	4,76	12,70

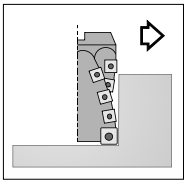
AP..
Positive 11° clearance - Rectangular inserts.

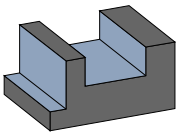
SPM..
Positive 11° clearance - Square insert.

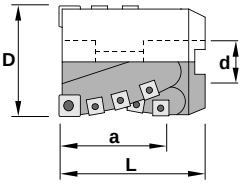
For more information see page: A.12 / A.19

APMT	APMW	SPMT	SPMW			
						

Characteristics:
Heavy roughing milling cutter that uses very strong inserts allowing deep passes and high feed per teeth.
The insert is fixed by Torx screw that allow a good chip evacuation and easy use.
Applications:
This heavy roughing cutter works well on steels, alloyed steels, stainless steels, refractory casts and aluminium alloys. This general milling cutter for diversified manufacture is recommended for conventional milling machines



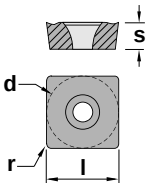




2234.90

Ref.			D	L	d	a	Insert size	Kg
	2234.90.063.65	2+2	63	80	27	65	2 SC.. 1204.. + 18 SC.. 09T3..	1,050
	2234.90.080.75	2+3	80	90	32	75	2 SC.. 1204.. + 22 SC.. 09T3..	1,900
	2234.90.100.85	3+3	100	100	40	85	3 SC.. 1204.. + 36 SC.. 09T3..	3,800
	2234.90.125.95	4+4	125	110	40	95	4 SC.. 1204.. + 52 SC.. 09T3..	4,500

Ref.						
	2234.90.063.65	1250	5620	1240	5615	912,12
	2234.90.080.75	1250	5620	1240	5615	912,16
	2234.90.100.85	1250	5620	1240	5615	912,20
	2234.90.125.95	1250	5620	1240	5615	-
		SC.. 1204..		*SC.. 09T3..*		



Ref.	SC..	l	s	d
	SC.. 09T3..	9,52	3,97	9,52
	SC.. 1204..	12,70	4,76	12,70

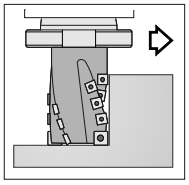
Positive 7° clearance - Square inserts.

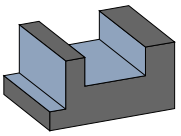
For more information see page: A.16

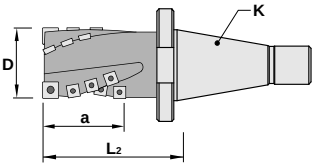
SCGT-AL	SCMT-39	SCMW				
						

Characteristics:
Heavy roughing milling cutter that uses very strong inserts allowing deep passes and high feed per teeth.
The insert is fixed by Torx screw that allow a good chip evacuation and easy use.
Milling cutter equipped with DIN-2080 shank.

Applications:
This heavy roughing cutter works well on steels, alloyed steels, stainless steels, refractory casts and aluminium alloys. This general milling cutter for diversified manufacture is recommended for conventional milling machines and machining centres.



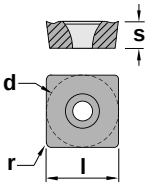




2234.44/45

Ref.			D	L2	K	a	Insert size	Kg
	2234.44.040.60	1+2	40	105	40	60	1 SC.. 1204.. + 13 SC.. 09T3..	1,300
	2234.44.050.65	1+2	50	105	40	65	1 SC.. 1204.. + 14 SC.. 09T3..	1,700
	2234.45.040.70	1+2	40	123	50	70	1 SC.. 1204.. + 14 SC.. 09T3..	3,250
	2234.45.050.75	1+2	50	128	50	75	1 SC.. 1204.. + 16 SC.. 09T3..	3,650
	2234.45.063.80	2+2	63	133	50	80	2 SC.. 1204.. + 22 SC.. 09T3..	4,700
	2234.45.080.85	2+3	80	138	50	85	2 SC.. 1204.. + 28 SC.. 09T3..	6,200
	2234.45.100.95	3+3	100	148	50	95	3 SC.. 1204.. + 39 SC.. 09T3..	8,850

Ref.					
	2234.44.040.60	1250	5620	1240	5615
	2234.44.050.65	1250	5620	1240	5615
	2234.45.040.70	1250	5620	1240	5615
	2234.45.050.75	1250	5620	1240	5615
	2234.45.063.80	1250	5620	1240	5615
	2234.45.080.85	1250	5620	1240	5615
	2234.45.100.95	1250	5620	1240	5615
		SC.. 1204..		*SC.. 09T3..*	



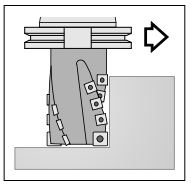
Ref.	SC..	l	s	d
	SC.. 09T3..	9,52	3,97	9,52
	SC.. 1204..	12,70	4,76	12,70

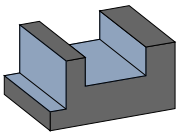
Positive 7° clearance - Square inserts.

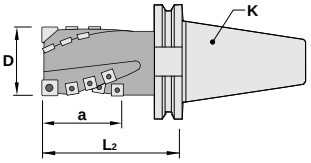
For more information see page: A.16

SCGT-AL	SCMT-39	SCMW				
						

Characteristics:
Heavy roughing milling cutter that uses very strong inserts allowing deep passes and high feed per teeth.
The insert is fixed by Torx screw that allow a good chip evacuation and easy use.
Milling cutter equipped with DIN-69871 shank.
Applications:
This heavy roughing cutter works well on steels, alloyed steels, stainless steels, refractory casts and aluminium alloys. This general milling cutter for diversified manufacture is recommended for conventional milling machines and machining centres.



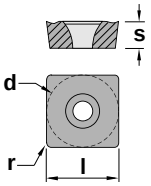




2234.47/48

Ref.			D	L2	K	a	Insert size	Kg
	2234.47.040.60	1+2	40	105	40	60	1 SC.. 1204.. + 13 SC.. 09T3..	1,300
	2234.47.050.65	1+2	50	105	40	65	1 SC.. 1204.. + 14 SC.. 09T3..	1,650
	2234.48.040.70	1+2	40	123	50	70	1 SC.. 1204.. + 14 SC.. 09T3..	3,200
	2234.48.050.75	1+2	50	128	50	75	1 SC.. 1204.. + 16 SC.. 09T3..	3,700
	2234.48.063.80	2+2	63	133	50	80	2 SC.. 1204.. + 22 SC.. 09T3..	4,450
	2234.48.080.85	2+3	80	138	50	85	2 SC.. 1204.. + 28 SC.. 09T3..	5,950
	2234.48.100.95	3+3	100	148	50	95	3 SC.. 1204.. + 39 SC.. 09T3..	8,450

Ref.					
	2234.47.040.60	1250	5620	1240	5615
	2234.47.050.65	1250	5620	1240	5615
	2234.48.040.70	1250	5620	1240	5615
	2234.48.050.75	1250	5620	1240	5615
	2234.48.063.80	1250	5620	1240	5615
	2234.48.080.85	1250	5620	1240	5615
	2234.48.100.95	1250	5620	1240	5615
		SC.. 1204..		*SC.. 09T3..*	



Ref.	SC..	l	s	d
	SC.. 09T3..	9,52	3,97	9,52
	SC.. 1204..	12,70	4,76	12,70

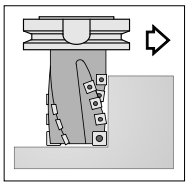
Positive 7° clearance - Square inserts.

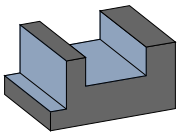
For more information see page: A.16

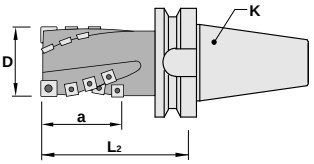
SCGT-AL	SCMT-39	SCMW				
						

Characteristics:
Heavy roughing milling cutter that uses very strong inserts allowing deep passes and high feed per teeth.
The insert is fixed by Torx screw that allow a good chip evacuation and easy use.
Milling cutter equipped with BT shank.

Applications:
This heavy roughing cutter works well on steels, alloyed steels, stainless steels, refractory casts and aluminium alloys. This general milling cutter for diversified manufacture is recommended for conventional milling machines and machining centres.



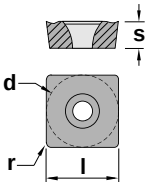




2234.49/50

Ref.			D	L2	K	a	Insert size	Kg
	2234.49.040.60	1+2	40	105	40	60	1 SC.. 1204.. + 13 SC.. 09T3..	1,400
	2234.49.050.65	1+2	50	105	40	65	1 SC.. 1204.. + 14 SC.. 09T3..	1,700
	2234.50.040.70	1+2	40	123	50	70	1 SC.. 1204.. + 14 SC.. 09T3..	3,300
	2234.50.050.75	1+2	50	128	50	75	1 SC.. 1204.. + 16 SC.. 09T3..	3,800
	2234.50.063.80	2+2	63	133	50	80	2 SC.. 1204.. + 22 SC.. 09T3..	5,100
	2234.50.080.85	2+3	80	138	50	85	2 SC.. 1204.. + 28 SC.. 09T3..	6,100
	2234.50.100.95	3+3	100	148	50	95	3 SC.. 1204.. + 39 SC.. 09T3..	8,400

Ref.					
	2234.49.040.60	1250	5620	1240	5615
	2234.49.050.65	1250	5620	1240	5615
	2234.50.040.70	1250	5620	1240	5615
	2234.50.050.75	1250	5620	1240	5615
	2234.50.063.80	1250	5620	1240	5615
	2234.50.080.85	1250	5620	1240	5615
	2234.50.100.95	1250	5620	1240	5615
		SC.. 1204..		*SC.. 09T3..*	



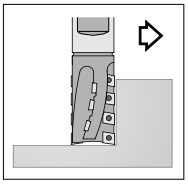
Ref.	SC..	l	s	d
	SC.. 09T3..	9,52	3,97	9,52
	SC.. 1204..	12,70	4,76	12,70

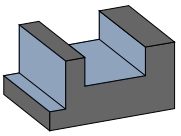
Positive 7° clearance - Square inserts.

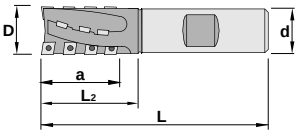
For more information see page: A.16

SCGT-AL	SCMT-39	SCMW				
						

Characteristics:
Heavy roughing milling cutter that uses very strong inserts allowing deep passes and high feed per teeth.
The insert is fixed by Torx screw that allow a good chip evacuation and easy use.
Milling cutter equipped with Weldon shank.
Applications:
This heavy roughing cutter works well on steels, alloyed steels, stainless steels, refractory casts and aluminium alloys. This general milling cutter for diversified manufacture is recommended for conventional milling machines and machining centres.



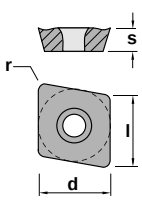




23 1/3 4.07

			D	L	L2	d	a	Insert size	Kg
Ref.	**2314.07.025.30**	2+2	25	125	60	25	30	CC.. 0602..	0,400
	2314.07.025.43	2+2	25	125	60	25	43	CC.. 0602..	0,400
	2324.07.032.30	2+2	32	130	60	32	30	CC.. 0803..	0,700
	2324.07.032.43	2+2	32	130	60	32	43	CC.. 0803..	0,650
	2334.07.040.30	2+2	40	130	60	32	30	CC.. 09T3..	0,800
	2334.07.040.43	2+2	40	130	60	32	43	CC.. 09T3..	0,800

Ref.	**2314.07.025.30**	1225	5607
	2314.07.025.43	1225	5607
	2324.07.032.30	1230	5608
	2324.07.032.43	1230	5608
	2334.07.040.30	1240	5615
	2334.07.040.43	1240	5615



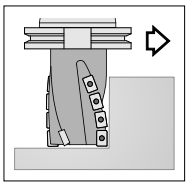
	CC..	l	s	d
Ref.	**CC.. 0602..**	6,45	2,38	6,35
	CC.. 0803..	8,05	3,18	7,94
	CC.. 09T3..	9,65	3,97	9,52

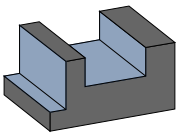
Positive 7° clearance - 80° rhombic insert.

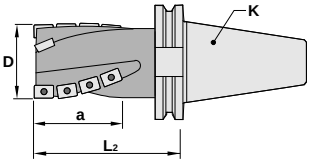
For more information see page: A.16

CCGT-AL	CCKT	CCMW				
						

Characteristics:
Heavy roughing milling cutter that uses very strong inserts allowing deep passes and high feed per teeth.
The insert is fixed by Torx screw that allow a good chip evacuation and easy use.
Milling cutter equipped with DIN-69871 shank.
Applications:
This heavy roughing cutter works well on steels, alloyed steels, stainless steels, refractory casts and aluminium alloys. This general milling cutter for diversified manufacture is recommended for conventional milling machines and machining centres.



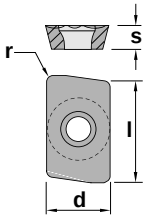




2330.47/48

Ref.			D	L2	K	a	Insert size	Kg
	2330.47.050.65	3	50	105	40	65	AP.. 1604..	1,650
	2330.48.050.65	3	50	105	50	65	AP.. 1604..	3,700
	2330.48.063.65	3	63	130	50	65	AP.. 1604..	4,450
	2330.48.080.85	3	80	140	50	80	AP.. 1604..	5,950

Ref.			
	2330.47.050.65	1240	5615
	2330.48.050.65	1240	5615
	2330.48.063.65	1240	5615
	2330.48.080.85	1240	5615



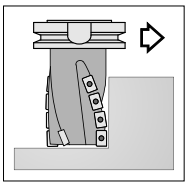
	AP..	l	s	d
Ref.	**AP.. 1604..**	16,00	4,76	9,52

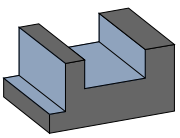
Positive 11° clearance - Rectangular insert.

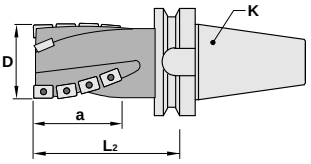
For more information see page: A.11

APFT	APHT-AL	APKT	APKT-26	APMT	APMT-26	
						

Characteristics:
Heavy roughing milling cutter that uses very strong inserts allowing deep passes and high feed per teeth.
The insert is fixed by Torx screw that allow a good chip evacuation and easy use.
Milling cutter equipped with BT shank.
Applications:
This heavy roughing cutter works well on steels, alloyed steels, stainless steels, refractory casts and aluminium alloys. This general milling cutter for diversified manufacture is recommended for conventional milling machines and machining centres.



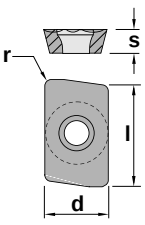




2330.$^{49}_{50}$

			D	L2	K	a	Insert size	Kg
Ref.	**2330.49.050.65**	3	50	105	40	65	AP.. 1604..	1,700
	2330.50.050.65	3	50	105	50	65	AP.. 1604..	3,800
	2330.50.063.65	3	63	130	50	65	AP.. 1604..	5,100
	2330.50.080.85	3	80	140	50	80	AP.. 1604..	6,100

Ref.	**2330.49.050.65**	1240	5615
	2330.50.050.65	1240	5615
	2330.50.063.65	1240	5615
	2330.50.080.85	1240	5615



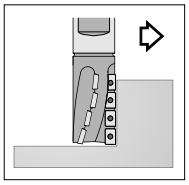
	AP..	l	s	d
Ref.	**AP.. 1604..**	16,00	4,76	9,52

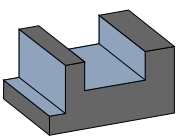
Positive 11° clearance - Rectangular insert.

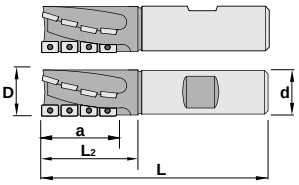
For more information see page: A.11

APFT	APHT-AL	APKT	APKT-26	APMT	APMT-26	
						

Characteristics:
Heavy roughing milling cutter that uses very strong inserts allowing deep passes and high feed per teeth.
The insert is fixed by Torx screw that allow a good chip evacuation and easy use.
Milling cutter equipped with Weldon shank.
Applications:
This heavy roughing cutter works well on steels, alloyed steels, stainless steels, refractory casts and aluminium alloys. This general milling cutter for diversified manufacture is recommended for conventional milling machines and machining centres.



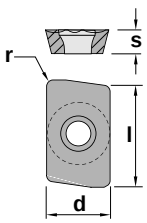




23 2/3 0.07

Ref.			D	L	L2	d	a	Insert size	Kg
	2320.07.025.37	2	25	110	50	25	37	AP.. 1003..	0,400
	2330.07.032.45	2	32	125	55	32	45	AP.. 1604..	0,650
	2330.07.040.50	3	40	125	65	32	50	AP.. 1604..	0,800

Ref.			
	2320.07.025.37	1425	5507
	2330.07.032.45	1440	5515
	2330.07.040.50	1440	5515



Ref.	AP..	l	s	d
	AP.. 1003..	9,52	3,18	6,35
	AP.. 1604..	16,00	4,76	9,52

Positive 11° clearance - Rectangular insert.

For more information see page: A.11

APFT	APHT-AL	APKT	APKT-26	APMT	APMT-26	
						

Cutting data for porcupine milling cutters

Material P	HB	Condition	Tool diameter D mm.	Basic qualities TIN25	TIN41	PM25	KM15	Feed/tooth complete slot f_2
				Cutting speed m/min.				
Unalloyed steel	110 170 250	C<0,25% C<0,8% C<1,4%	20-32 40-50	250-300 150-200 100-150		150-200 100-140 70-110		0,12-0,22 0,15-0,39
Low alloyed steel	125-225 220-450	Annealed Hardened	20-32 40-50	150-200 90-140	100-150 60-110	90-140 60-110		0,10-0,21 0,15-0,34
High alloyed steel	150-250 250-500	Annealed Hardened	20-32 40-50	130-170 90-120	80-120	80-120 50-80		0,10-0,21 0,15-0,34
Stainless steel	150-270	Martensitic/Ferritic	20-32 40-50	140-190	120-160	100-130		0,12-0,22 0,15-0,34
Steel castings	150 150-220 160-200	Unalloyed Low alloyed High alloyed	20-32 40-50	130-170 110-150 80-120		80-110 50-90 50-80		0,12-0,22 0,15-0,34
Stainless steel castings	200	Martensitic/Ferritic	20-32		50-80			0,10-0,21 0,15-0,34

Material	HB	Condition	Tool diameter D mm.	Basic qualities TIN25	TIN41	PM25	KM15	Feed/tooth complete slot f_2
				Cutting speed m/min.				
Stainless steel	150-220	Austenitic	20-32 40-50		80-160	70-130		0,12-0,23 0,15-0,37
Stainless steel castings	200	Austenitic	20-32 40-50		40-70	40-60		0,10-0,21 0,15-0,34
Heat resistant alloys **Nickel or cobalt base**	140-300 300-475	Annealed or treated solution Aged	20-32 40-50				15-25 12-20	0,05-0,07 0,07-0,10
Titanium alloys	300-340 320-380	Annealed or treated solution	20-32 40-50				40-80 30-60	0,07-0,10 0,10-0,15

Material K	HB	Condition	Tool diameter D mm.	Basic qualities TIN25	TIN41	PM25	KM15	Feed/tooth complete slot f_2
				Cutting speed m/min.				
Malleable cast iron	110-145 200-230	Short chipping Long chipping	20-32 40-50				60-80 50-70	0,12-0,23 0,15-0,37
Grey cast iron	180 260	Low tensile strength High tensile strength, alloyed	20-32 40-50				70-100 50-80	0,12-0,23 0,15-0,37
Nodular cast iron **Spheroidal graphite**	160 250	Ferritic Pearlitic	20-32 40-50				40-60 30-50	0,10-0,21 0,15-0,34
Aluminium alloys	60-150 40-180	Forged Cast	20-32 40-50				300-500 250-450	0,23-0,39 0,31-0,60
Bronze-brass alloys	60-150		20-32 40-50				80-120	0,15-0,31 0,23-0,39

D/a_e	50	40	20	10	5	2,5	2	1,5	1
f_1	4,5	4	3	2	1,5	1	1	1	1

When you trace a contour (side peripherical milling), you must multiply the f_2 value of a complete slot (see table) by the correction factor f_1 corresponding to the relationship D/a_e (milling cutter diameter/radial cutting depth) in order to get a suitable feed.