



**Carmex**  
Precision Tools Ltd.

**New**

**新产品**

**CR-超级切削-粗加工 / 粗齿 /  
不等螺旋角度立铣刀**

# CR-SUPERCUT Roughers



**Metric 2016 - 17**

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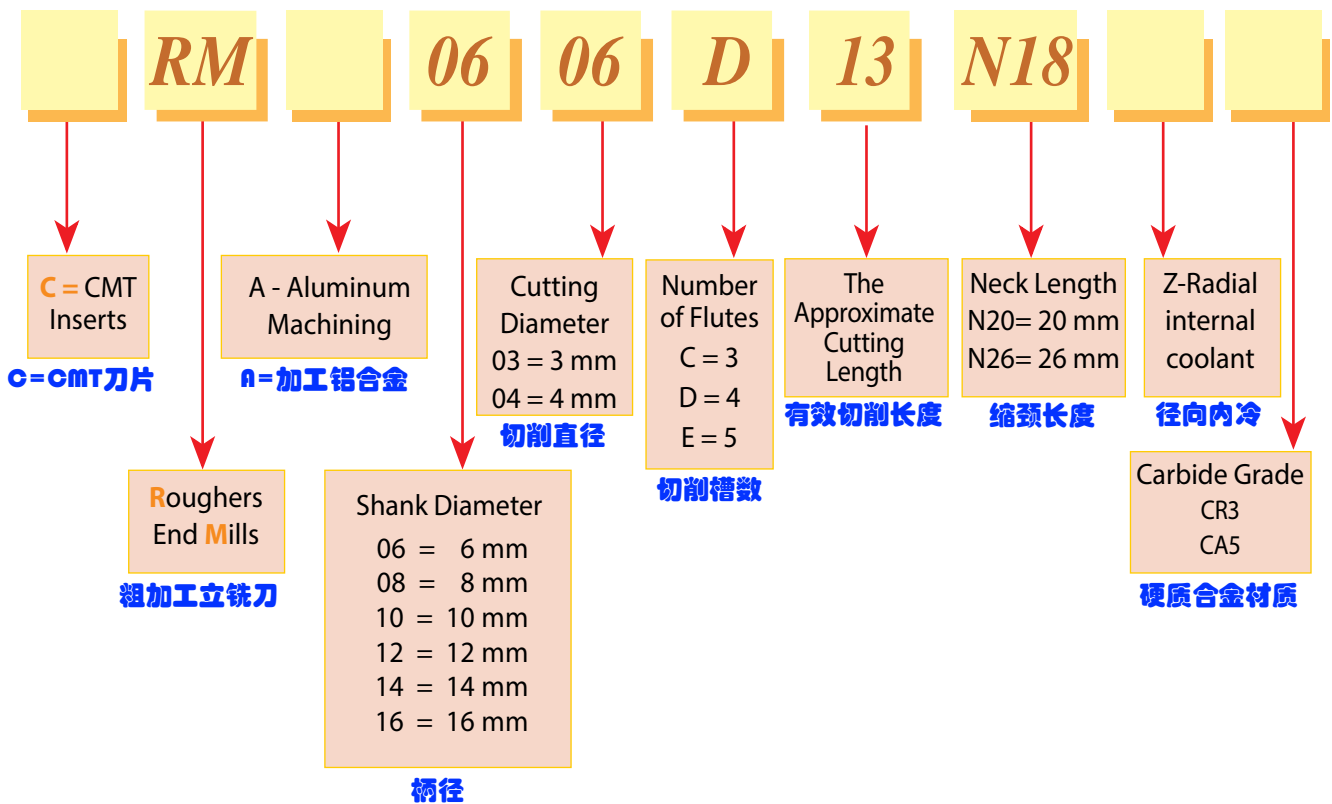
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## Product Identification 产品标识

### Ordering Codes 订货号



## **CR-Supercut Roughers** **CR-超级切削 / 粗加工**

Carmex solid carbide Roughers are new innovative high performance end mills.

Specifically designed for high volume machining applications.

Multi-flute, semi-finish profile and center cutting.

Provides high metal removal rates in Slotting, Shouldering and Helical Plunging operations.

**Carmex整体硬质合金粗加工是新的创新的高性能粗齿波纹不等螺旋角度立铣刀。专门设计用于大批量生产加工。多槽，半精、仿形和中心切削。在铣槽、台阶和螺旋插补上，提供高金属去除率。**



### **Features** **特点**

- **High Performance Cutting (HPC)** **高效能切削 (HPC)**
- **Innovative roughing geometry produces smaller chips** **创新的粗加工几何刃设计，细小的切屑。**
- **Low cutting forces** **低切削力**
- **Extremely high material removal rate** **极高的金属去除率**
- **Reinforced corner chamfer, promotes additional strength for longer tool life** **增加铣刀尖倒角，以达到更长的刀具寿命**
- **Designed to machine difficult and abrasive materials** **专为加工困难材料和耐磨材料设计的**

### **Carbide Grade: CR3** **硬质合金材质**

Ultra-Fine carbide grade with high hardness and toughness provides high cutting edge stability and wear resistance. **高硬度、高韧性的极微细颗粒硬质合金提供切削刀的高稳定性和高耐磨性。**

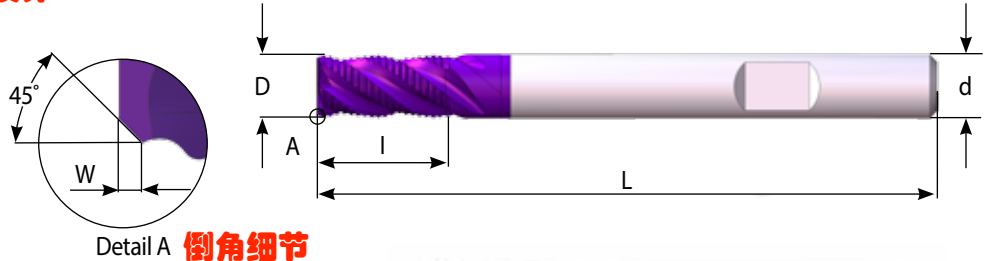
A **New Generation** of PVD Coating for High-Performance Cutting Applications.

**一个新的改进型PVD涂层用于高效能切削加工**

## Solid Carbide Roughers

整体硬质合金粗加工

Short Design 短的设计



不等螺旋角度

高效加工 侧固式 刃数 45° 倒角

HPC HB 40°/45° 3-5 45°

适应被加工材料

小于HRC56

P	M	K	N	S	H
●	●	●	○	●	≤56 HRc

订货号

槽数

Ordering Code	d	D	W	No. of Flutes	I	L
RM 0603 C05	6	3	0.2	3	5	58
RM 0604 C09	6	4	0.3	3	9	58
RM 0605 D10	6	5	0.3	4	10	58
RM 0606 D10	6	6	0.3	4	10	58
RM 0808 D12	8	8	0.3	4	12	64
RM 1010 D14	10	10	0.3	4	14	73
RM 1212 D16	12	12	0.4	4	16	84
RM 1616 E27	16	16	0.5	5	27	105

● First choice 首选  
○ Alternative 次选

不等螺旋角度

Long Design 长的设计

高效加工 侧固式 刃数 45° 倒角

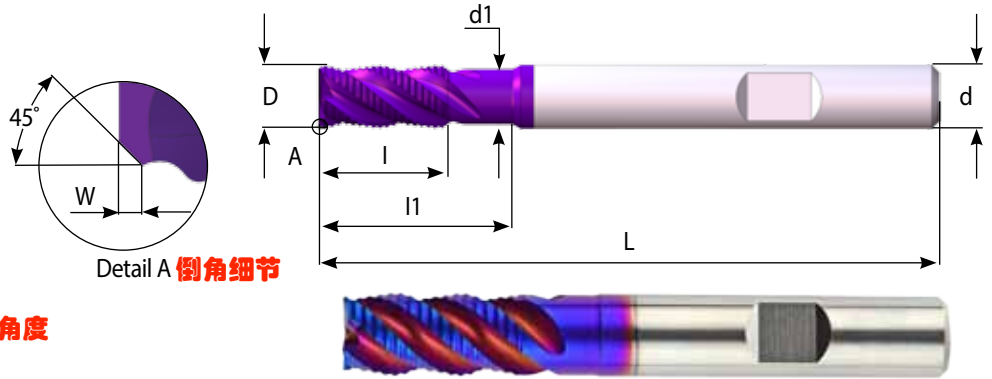
HPC HB 40°/45° 4 45°

订货号

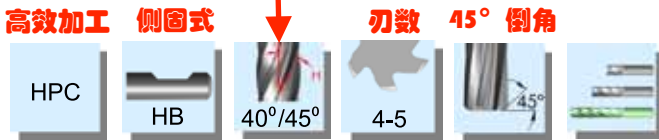
刃数

Ordering Code	d	D	W	No. of Flutes	I	L
RM 0606 D16	6	6	0.3	4	16	58
RM 0807 D16	8	7	0.3	4	16	64
RM 0808 D18	8	8	0.3	4	18	64
RM 1010 D22	10	10	0.3	4	22	73
RM 1212 D26	12	12	0.4	4	26	84

**Solid Carbide Roughers with Neck** **整体硬质合金粗加工 / 缩颈**



不等螺旋角度



适应被加工材料

小于HRC56

P	M	K	N	S	H
●	●	●	○	●	≤56 HRc

订货号

槽数

Ordering Code	d	D	I	l1	d1	W	No. of Flutes	L
RM 0606 D13 N18	6	6	13	18	5.8	0.3	4	58
RM 0808 D17 N24	8	8	17	24	7.7	0.3	4	64
RM 1010 D21 N30	10	10	21	30	9.7	0.3	4	73
RM 1212 D25 N36	12	12	25	36	11.6	0.4	4	84
RM 1616 E33 N48	16	16	33	48	15.5	0.5	5	105

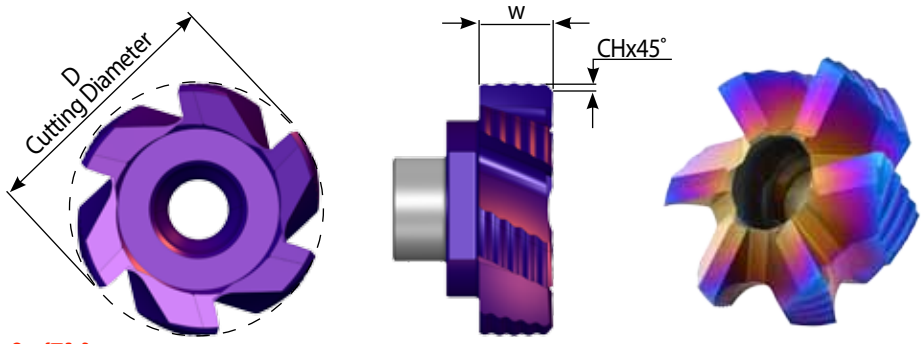
- First choice **首选**      ○ Alternative **次选**

## CMT Roughers **CMT形式粗加工刀片**

Indexable CMT roughers for excellent performance **用于CMT形式的高效能粗加工**

- Solid and accurate clamping method enables full repeatability **整体和准确的夹持和可重复性**
- Working at high machining parameters **在高参数下加工**
- Modular system using the standard CMT tool holders with various shank options **使用模块化系列的标准的和不同柄径的CMT刀杆**
- Enables machining with large overhang **可以大悬伸的加工**

Carbide Grade: CR3 **硬质合金材质**



**30° 螺旋角度**  
**高效加工** **刃数** **45° 倒角**

**被加工材料** **小于HRC56**

P	M	K	N	S	H
●	●	●	○	●	≤56 HRc

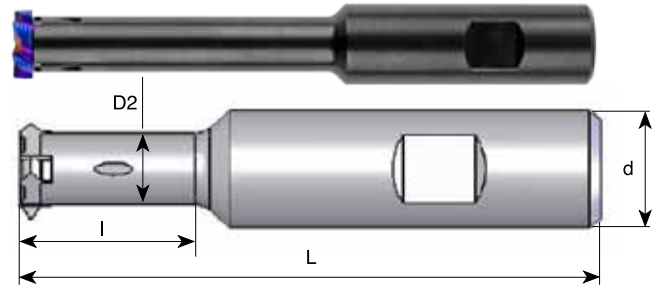
刀片型号	订货号	槽数
Insert Type	Ordering Code	No. of Flutes
S20	CRM160 F W50	6
S20	CRM170 F W50	6
S20	CRM200 F W50	6

● First choice **首选**    ○ Alternative **替代**

The CMT Roughers should be used with all the toolholders shown on page 6

**CMT粗加工用的全部刀杆见第6页**

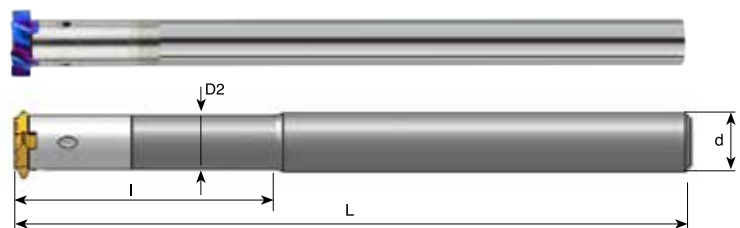
## Steel Toolholders With internal coolant 钢制刀杆带内冷孔



订货号	刀片型号					刀片螺丝	扳手
Ordering Code	Insert Type	d	D2	l	L	Insert Screw	Torx Key
<b>SRC 1618 H</b>	S20	16	13.8	48	100	S16	K16
<b>SRC 2018 H</b>	S20	20	13.8	32	100	S16	K16
<b>SRC 2018 J</b>	S20	20	13.8	48	110	S16	K16
<b>SRC 2018 L</b>	S20	20	13.8	74	140	S16	K16

## Carbide Shank Toolholder With internal coolant

整体硬质合金刀杆带内冷孔



订货号	刀片型号					刀片螺丝	扳手
Ordering Code	Insert type	d	D2	l	L	Insert Screw	Torx Key
<b>CRC 1218 P</b>	S20	12	12.0	-	170	S16	K16



## Solid Carbide Roughers- Aluminum Machining

整体硬质合金粗加工-铝合金 / 非铁金属加工

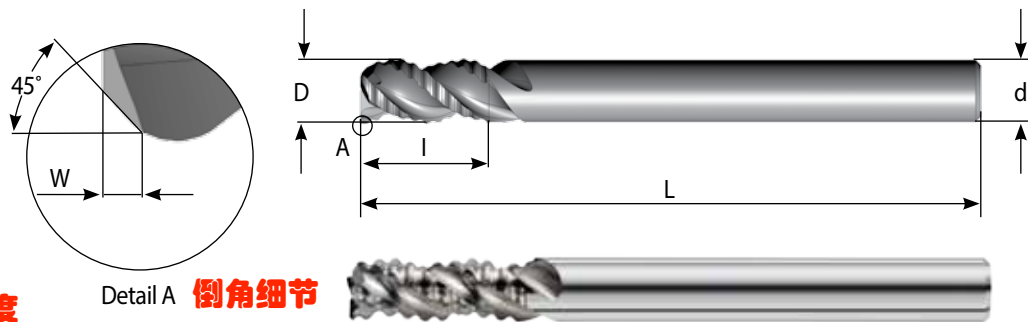
### Features 特点

- High Performance Cutting (HPC) 高效能切削 (HPC)
- Optimal flute geometry delivers maximum metal removal rates and better chip evacuation 最佳几何槽设计提供了最大的金属去除率和更好的排屑。
- Low cutting forces 低切削力
- Reinforced corner chamfer, promotes additional strength for longer tool life 增加铣刀尖倒角, 以达到更长的刀具寿命
- Uncoated smooth polished surface finish 光滑的、抛光的非涂层表面适用于精加工

### Carbide Grade: CA5 硬质合金材质

Ultra-Fine carbide grade with high hardness and toughness provides high cutting edge stability and wear resistance.

高硬度、高韧性的极微细颗粒硬质合金提供切削刀的高稳定性和高耐磨性。



40° 螺旋角度

Detail A 倒角细节

高效加工

刃数

45° 倒角



被加工材料铝 / 非铁金属

P	M	K	N	S	H
	○	○	●	○	

订货号 Ordering Code	d	D	W	刃数 No. of Flutes	I	L
RMA 0604 C08	6	4	0.3	3	8	57
RMA 0606 C16	6	6	0.3	3	16	57
RMA 0808 C19	8	8	0.3	3	19	63
RMA 1010 C22	10	10	0.3	3	22	72
RMA 1212 C26	12	12	0.4	3	26	83

- First choice 首选      ○ Alternative 替代

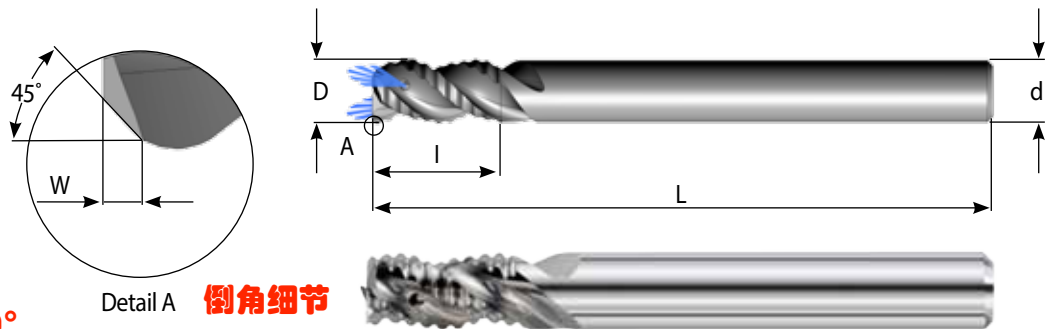
# Solid Carbide Roughers - Aluminum Machining

with internal coolant through the flutes **整体硬质合金粗加工-铝合金 / 非铁金属加工**  
**内冷通过切削槽**

## Features **特点**

- High Performance Cutting (HPC) **高效能切削 (HPC)**
- The coolant washes the chip out **冷却液冲刷切屑排出**

Carbide Grade: CA5 **硬质合金材质**



**螺旋角度40°**

Detail A **倒角细节**

**高效加工**

**刃数**

**45° 倒角**



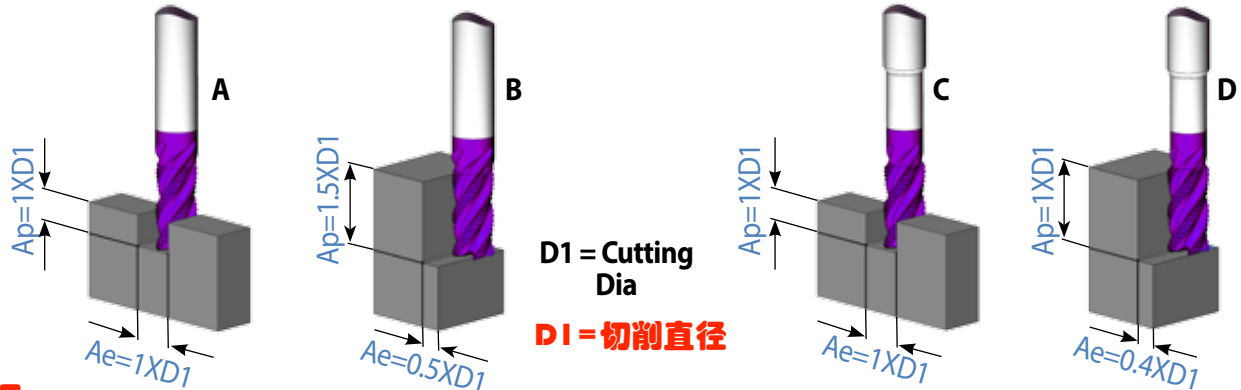
**被加工材料铝 / 非铁金属**

P	M	K	N	S	H
	○	○	●	○	

<b>订货号</b> Ordering Code	d	D	W	<b>刃数</b> No. of Flutes	I	L
<b>RMA 0606 C16 Z</b>	6	6	0.3	3	16	58
<b>RMA 0808 C19 Z</b>	8	8	0.3	3	19	64
<b>RMA 1010 C22 Z</b>	10	10	0.3	3	22	73
<b>RMA 1212 C26 Z</b>	12	12	0.4	3	26	84

## Cutting Conditions (solid end-mills and CMT)

### 整体硬质合金立铣刀和CMT切削条件



$A_p$  = 切深  
 $A_e$  = 切宽

Roughers 粗加工

Roughers with Neck 粗加工 / 缩颈

## Cutting Data 切削数据

For hard or tough materials reduce the  $A_p$  by 20%-30% 加工硬或韧性材料减少 $A_p$ 切深20-30%

Roughers with neck (C, D) can be used with same feed and speed as below. 缩颈粗加工 (CD) 可以用相同的进给和速度

ISO Standard	Materials Class 材料	Vc [m/min] 线速度	Fz [mm/tooth] Cutting Diameter 切削直径 / 每齿进给			
			Ø3- Ø4	Ø5- Ø6	Ø7- Ø10	Ø12- Ø20
钢 P 低碳 高碳 合金	Low & Medium Carbon Steels <0.55%C	A: 120-180 B: 140-200	A: 0.012-0.02 B: 0.018-0.024	A: 0.025-0.03 B: 0.03-0.036	A: 0.035-0.05 B: 0.048-0.06	A: 0.055-0.08 B: 0.072-0.096
	High Carbon Steels ≥0.55%C	A: 110-160 B: 140-180	A: 0.01-0.015 B: 0.015-0.02	A: 0.015-0.02 B: 0.025-0.03	A: 0.03-0.04 B: 0.035-0.045	A: 0.04-0.055 B: 0.06-0.08
	Alloy Steels, Treated Steels	A: 100-140 B: 130-160	A: 0.009-0.012 B: 0.009-0.012	A: 0.015-0.018 B: 0.015-0.018	A: 0.024-0.03 B: 0.024-0.03	A: 0.036-0.048 B: 0.036-0.048
马氏体 奥氏体 铸钢 M 不锈钢	Stainless Steel-Free Cutting	A: 100-140 B: 130-150	A: 0.009-0.012 B: 0.012-0.016	A: 0.015-0.018 B: 0.02-0.024	A: 0.024-0.03 B: 0.032-0.04	A: 0.036-0.048 B: 0.048-0.064
	Stainless Steel-Austenitic	A: 70-100 B: 90-130	A: 0.008-0.011 B: 0.01-0.016	A: 0.01-0.015 B: 0.015-0.024	A: 0.02-0.025 B: 0.03-0.04	A: 0.03-0.04 B: 0.045-0.06
	Cast Steels	A: 120-160 B: 140-180	A: 0.009-0.012 B: 0.012-0.016	A: 0.015-0.018 B: 0.02-0.024	A: 0.024-0.03 B: 0.032-0.04	A: 0.036-0.048 B: 0.048-0.064
铸 K 铁	Cast Iron	A: 100-160 B: 140-180	A: 0.012-0.02 B: 0.018-0.024	A: 0.025-0.03 B: 0.03-0.036	A: 0.035-0.05 B: 0.048-0.06	A: 0.055-0.08 B: 0.072-0.096
铝 N 非铁金属	Aluminum ≤12%Si, Copper	A: 180-250 B: 200-300	A: 0.015-0.025 B: 0.018-0.03	A: 0.03-0.04 B: 0.035-0.045	A: 0.04-0.06 B: 0.045-0.065	A: 0.06-0.09 B: 0.065-0.095
	Aluminum >12%Si	A: 100-200 B: 130-250	A: 0.01-0.02 B: 0.01-0.02	A: 0.025-0.035 B: 0.03-0.04	A: 0.035-0.055 B: 0.04-0.05	A: 0.055-0.08 B: 0.05-0.09
	Synthetics, Duroplastics, Thermoplastics	A: 180-250 B: 200-300	A: 0.015-0.025 B: 0.018-0.03	A: 0.03-0.04 B: 0.035-0.045	A: 0.04-0.06 B: 0.045-0.065	A: 0.06-0.09 B: 0.065-0.095
高温 S 合金	Nickel alloys, Titanium alloys	A: 50-70 B: 60-80	A: 0.012-0.016 B: 0.012-0.016	A: 0.02-0.024 B: 0.02-0.024	A: 0.032-0.04 B: 0.032-0.04	A: 0.048-0.064 B: 0.048-0.064
H 硬钢	Hardened Steel 45-50 HRc	A: 50-70 B: 60-80	A: 0.01-0.02 B: 0.018-0.024	A: 0.02-0.025 B: 0.025-0.03	A: 0.03-0.04 B: 0.04-0.05	A: 0.04-0.06 B: 0.06-0.08
	Hardened Steel 51-56 HRc	A: 40-60 B: 50-70	A: 0.01-0.015 B: 0.015-0.02	A: 0.015-0.025 B: 0.02-0.025	A: 0.02-0.035 B: 0.025-0.04	A: 0.03-0.055 B: 0.035-0.065



Hacharoshet St. 1, Maalot Industrial Zone 2101302, ISRAEL  
Tel: (972) 4-9077400, Fax: (972) 4-9077440.  
E-mail: [info@carmex.com](mailto:info@carmex.com) Website: [www.carmex.com](http://www.carmex.com)  
Postal address: P.O. Box 404, Maalot 2101302, ISRAEL.