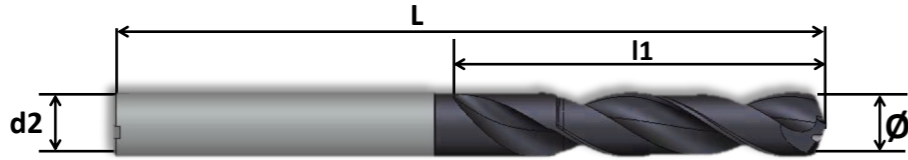


# 04 SPECIFICATIONS & RANGE



Ø (m7)	d2 (h5)	24 220		24 320		24 520		24 720		24 SPX	
		2xD		3xD Coolant feed		5xD Coolant feed		7xD Coolant feed		12xD Coolant feed	
		L	l1	L	l1	L	l1	L	l1	L	l1
3,00	6,00	62	20	62	20	66	28	78	40	102	64
3,10 → 3,90	6,00	62	20	62	20	66	28	78	40	102	64
4,00	6,00	66	24	66	24	74	36	92	54	125	87
4,10 → 4,90	6,00	66	24	66	24	74	36	92	54	125	87
5,00	6,00	66	28	66	28	82	44	112	74	140	102
5,10 → 5,90	6,00	66	28	66	28	82	44	112	74	140	102
6,00	6,00	66	28	66	28	82	44	112	74	140	102
6,10 → 6,90	8,00	79	34	79	34	91	53	116	78	161	123
7,00	8,00	79	34	79	34	91	53	116	78	161	123
7,10 → 7,90	8,00	79	41	79	41	91	53	116	78	161	123
8,00	8,00	79	41	79	41	91	53	116	78	161	123
8,10 → 8,90	10,00	89	47	89	47	103	61	132	90	184	142
9,00	10,00	89	47	89	47	103	61	132	90	184	142
9,10 → 9,90	10,00	89	47	89	47	103	61	132	90	184	142
10,00	10,00	89	47	102	55	103	61	132	90	184	142
10,10 → 10,90	12,00	102	55	102	55	118	71	151	104	210	163
11,00	12,00	102	55	102	55	118	71	151	104	210	163
11,10 → 11,90	12,00	102	55	102	55	118	71	151	104	210	163
12,00	12,00	102	55	102	55	118	71	151	104	210	163
12,10 → 12,90	14,00	107	60	107	60	124	77	159	112	222	175
13,00	14,00	107	60	107	60	124	77	159	112	222	175
13,10 → 13,90	14,00	107	60	107	60	124	77	159	112	222	175
14,00	14,00	107	60	107	60	124	77	159	112	222	175
14,10 → 14,90	16,00	115	65	115	65	133	83	170	120	237	187
15,00	16,00	115	65	115	65	133	83	170	120	237	187
15,10 → 15,90	16,00	115	65	115	65	133	83	170	120	240	192
16,00	16,00	115	65	115	65	133	83	170	120	240	192

# SIRIUS

**SOLID CARBIDE DRILL**  
**MULTIPLE APPLICATIONS**  
 INNOVATION & TECHNOLOGY  
 Product focus

**Multipurpose  
 Productive  
 Drilling**

- AB** Steels for heat treatment 200-700 N/mm<sup>2</sup>
- CD** Steels for heat treatment 700-1 200 N/mm<sup>2</sup>
- FGH** Stainless steels
- KLM** Aluminium alloys
- ARCo ARni** Ni/Co based special alloys
- Ti** Titanium alloys



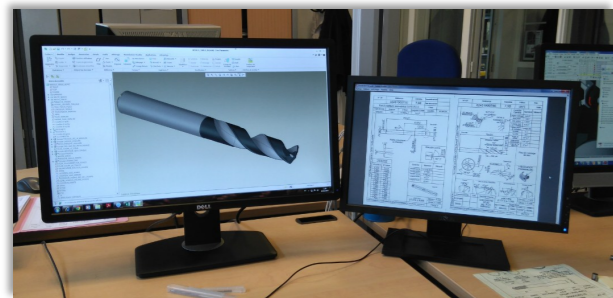
01

## PRESENTATION

With its almost 100 years experience of manufacturing cutting tools, TIVOLY introduces its latest innovation in multipurpose drilling.

The new SIRIUS III carbide drill is developed and manufactured in TIVOLY Saint-Étienne plant.

Further to various researches linked to drilling processes, the TIVOLY R&D team has created a high performance tool, whatever the material being machined.



## SIRIUS III TOOL SPECIFICATIONS

### TRIBOFINISHING

- ▶ Edge readying
- ▶ Improved precision

### CURVILINEAR HONING

- ▶ Extended lifetime

### BREAKING FLUTE

- ▶ Flutes protection

### BACKTAPER & THIN MARGIN

- ▶ Reduces heating

### PERTURA® COATING

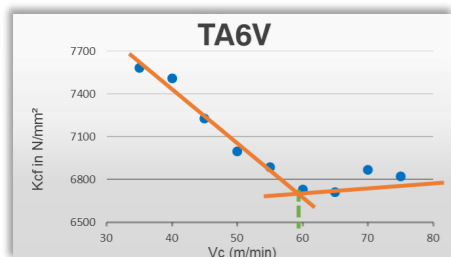
- ▶ TiAlN
- ▶ Max. temperature = 1 000°C
- ▶ Microhardness: 3 200 (HV 0,05)



02

## TECHNICAL PERFORMANCE

### MATERIAL SUITABILITY

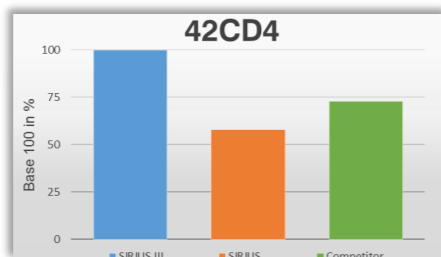


Material suitability made in Titanium TA6V in our R&D laboratory (CRAOC).

A material suitability allows us to define, through several tests, the perfect cutting speeds and feeds for one tool, in one material.

This chart shows the evolution of Kcf (specific cutting pressure) depending of the cutting speed Vc.

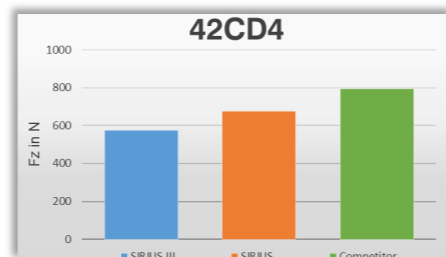
### LIFETIME TEST



Cutting conditions - 42CD4 :

- Tools : Ø8 ( SIRIUS III, SIRIUS, Competitor tool )
- Machine : HURON KX 10
- Cutting conditions : Vc = 160 m/min - f = 0.12 mm/tr
- Lubrication : Internal - 15 bars
- Material : 42CD4
- Depth : 24 mm

### STRESS TEST



Example, SIRIUS 320 Ø8 :

### STEEL : 42CD4

Vc = 160 m/min  
f = 0,12 mm/tr  
Vf = 764 mm/min

### TITANIUM : TA6V

Vc = 60 m/min  
f = 0,10 mm/tr  
Vf = 239 mm/min

### STAINLESS STEEL : 316L

Vc = 80 m/min  
f = 0,08 mm/tr  
Vf = 255 mm/min

03

## CUTTING CONDITIONS

These cutting conditions are provided for information in order to assure a satisfying lifetime and productivity.

They are given for tools with :

- Coolant feed
- Internal pressure of 15 bars
- A concentricity of the tool on the machine < 0,01 mm

MATERIALS CATEGORIES	Vc (m/min)	f (mm/tr)			
		Ø 3	Ø 5	Ø 10	Ø 16
<b>A</b> Unalloyed & low alloyed Steels < 400 N/mm <sup>2</sup>	150-180	0,08	0,16	0,30	0,48
<b>B</b> Heat treatable Steels < 700 N/mm <sup>2</sup>	130-160	0,07	0,14	0,30	0,48
<b>C</b> Heat treatable Steels < 950 N/mm <sup>2</sup>	120-140	0,07	0,14	0,30	0,48
<b>D</b> Heat treatable Steels < 1 200 N/mm <sup>2</sup>	80-120	0,07	0,14	0,30	0,48
<b>F</b> Stainless steels, Ferritic	60-90	0,05	0,10	0,18	0,30
<b>G</b> Stainless steels, Martensitic	50-70	0,04	0,07	0,16	0,24
<b>H</b> Stainless steels, Austenitic	50-70	0,04	0,07	0,16	0,24
<b>K</b> Aluminium Forgings	180-220	0,07	0,14	0,30	0,48
<b>L</b> Cast Aluminium SI < 10%	150-180	0,07	0,14	0,30	0,48
<b>M</b> Cast Aluminium SI > 10%	120-150	0,07	0,14	0,30	0,48
<b>ARCO/ AR NI</b> Special Alloys based Co Ni	40-70	0,04	0,07	0,16	0,24
<b>Ti</b> Titanium Alloys	45-75	0,04	0,07	0,16	0,24