



C O L O U R B A N D R A N G E

# INTRODUCTION

SOMTA Colour Band Application range of drills and taps is specially designed to optimize your machining performances. The need for greater productivity from expensive high-performance machine tools and the demand for the cutting tools to perform at optimum efficiency to minimize machine down-time, together with the demands for improved quality of machined components can be met with this range of Colour Band cutting tools. The geometry has been specifically designed for each material group to improve quality of finish and increase the tool performance.

## Product Types:

The CBA family consists of five "Colour Band Application" ranges of drill and tap combinations. Each range has been designed with different cutting geometries and surface treatments to ensure optimum tool performance for each specific material category. Each range of materials group has its own drill and tap combination, and taps are available in both Spiral Point and Spiral Flute to suit the individual requirement.



C O L O U R   B A N D   R A N G E

# Carbon Steel

## Green Band

The machinability of different steels is just as varied as their properties. Soft-tough construction steels place completely different demands on the tools, and the green band combination of taps and drills has been perfected for this range of steels.

### GREEN BAND TAP CHARACTERISTICS

- MSSE - Vanadium content for toughness
- Thread and flute configuration design for free cutting and structural steels in the general purpose range of medium tensile strengths.

### GREEN BAND CHARACTERISTICS (FOR BOTH TAP AND DRILL)

- Material Properties - Used to machine materials with hardness up to 250HB, tensile strength up to 900N/mm<sup>2</sup>.
- Surface Finish - TiN Coating increases surface hardness to 85Hc, with excellent resistance to abrasion and cold welding.

### GREEN BAND DRILL CHARACTERISTICS

- FLUTE - 33° helix, open profile designed with reinforced web for high rigidity under extreme conditions.
- POINT - The 130° SPLIT POINT provides self centering and easier penetration



Drilling based on Jobber drill lengths  
For deep hole drilling reduce speeds by

|                              |     |
|------------------------------|-----|
| 3 x Drill diameter           | 10% |
| 4 x Drill diameter           | 20% |
| 5 x Drill diameter           | 30% |
| More than 6 x Drill diameter | 40% |

## GENERAL MACHINING GUIDE

| Tool Material           |                  |                            | TAPPING                  | DRILLING                 |                         |       |       |       |       |       |       |       |
|-------------------------|------------------|----------------------------|--------------------------|--------------------------|-------------------------|-------|-------|-------|-------|-------|-------|-------|
| MACHINED MATERIALS      | HARDNESS Brinell | HARDNESS N/mm <sup>2</sup> | Cutting speed Metres/min | Cutting speed Metres/min | Feed Rate for Diameters |       |       |       |       |       |       |       |
| CARBON ALLOY STEELS     |                  |                            |                          |                          | 3mm                     | 5mm   | 6mm   | 8mm   | 10mm  | 12mm  | 16mm  | 20mm  |
| Free Cutting Mild Steel | <120             | 420N/mm <sup>2</sup>       | 20-45                    | 40-50                    | 0.120                   | 0.150 | 0.170 | 0.220 | 0.260 | 0.280 | 0.320 | 0.360 |
| Low Carbon Steel        | <200             | 758N/mm <sup>2</sup>       | 18-40                    | 30-40                    | 0.085                   | 0.110 | 0.120 | 0.160 | 0.190 | 0.200 | 0.240 | 0.280 |
| Medium Carbon Steel     | <250             | 861N/mm <sup>2</sup>       | 14-25                    | 25-35                    | 0.062                   | 0.080 | 0.095 | 0.120 | 0.140 | 0.150 | 0.160 | 0.210 |
|                         |                  |                            |                          |                          |                         |       |       |       |       |       |       |       |

**SOMTA** PRODUCT CODES: **TAPS:** 561, 562, 563, 566, 567, 568 **DRILLS:** IG7

# Cast Iron White Band

Having damping and thermal conductivity, with high strength and resistance to wear characteristics, Cast Iron is a material that is used extensively for mass produced components which all require machining. The SOMTA white band range of taps and drills has been designed to suit this demand.

## WHITE BAND TAP CHARACTERISTICS

- **Material Types** - Designed for highly abrasive materials such as Cast Iron and reinforced plastics.
- **Flutes** - Increased number of flutes reduces torque and increases tap life.

## WHITE BAND CHARACTERISTICS (FOR BOTH TAP AND DRILL)

- **Material Parameters** - Used to tap materials with hardness up to 300HB, tensile strength up to 1000N/mm<sup>2</sup>.
- **Surface Finish** - TiAlN coating increases the surface hardness of the tool to around 87Rc with an excellent hot hardness working temperature and high oxidation temperature making it suitable for dry machining.

## WHITE BAND DRILL CHARACTERISTICS

- **FLUTE** - Slow helix, parabolic flute designed with reinforced web for high rigidity under extreme conditions.
- **POINT** - The double angled "DX" point, 118° / 70° minimizes wear on the outer corners of the drill point in highly abrasive materials such as Cast Iron and Reinforced Plastics. The point is web thinned for easier penetration



Drilling based on Jobber drill lengths  
For deep hole drilling reduce speeds by

|                              |     |
|------------------------------|-----|
| 3 x Drill diameter           | 10% |
| 4 x Drill diameter           | 20% |
| 5 x Drill diameter           | 30% |
| More than 6 x Drill diameter | 40% |

## GENERAL MACHINING GUIDE

| Tool Material               |                  |                            | TAPPING                  | DRILLING                 |                         |       |       |       |       |       |       |       |
|-----------------------------|------------------|----------------------------|--------------------------|--------------------------|-------------------------|-------|-------|-------|-------|-------|-------|-------|
| MACHINED MATERIALS          | HARDNESS Brinell | HARDNESS N/mm <sup>2</sup> | Cutting speed Metres/min | Cutting speed Metres/min | Feed Rate for Diameters |       |       |       |       |       |       |       |
|                             |                  |                            |                          |                          | 3mm                     | 5mm   | 6mm   | 8mm   | 10mm  | 12mm  | 16mm  | 20mm  |
| <b>CAST IRONS</b>           |                  |                            |                          |                          |                         |       |       |       |       |       |       |       |
| Plain Grey Irons            | <150             | 541N/mm <sup>2</sup>       | 16-30                    | 35-45                    | 0.120                   | 0.150 | 0.170 | 0.220 | 0.260 | 0.280 | 0.320 | 0.360 |
| Plan 'SG' Iron              | <250             | 861N/mm <sup>2</sup>       | 12-20                    | 23-35                    | 0.062                   | 0.080 | 0.095 | 0.120 | 0.140 | 0.150 | 0.160 | 0.210 |
| Alloy 'SG' Iron Nickel Hard | >250             | 861N/mm <sup>2</sup>       | 07-14                    | 15-28                    | 0.062                   | 0.080 | 0.095 | 0.120 | 0.140 | 0.150 | 0.160 | 0.210 |

# Aluminium

## Yellow Band

The alloying elements which achieve varying Aluminium Alloys have an effect on the machining properties of these materials. This generally creates a difficult chip formation and material which has tendencies to stick to the tool, placing very different demands on the tool. The yellow band contends with these machining difficulties.

### YELLOW BAND TAP CHARACTERISTICS

- Flute and Thread designed for more ductile materials such as Aluminium, Magnesium Alloys, Soft Brass (MS58), Plastic, Zinc Alloys and Copper.
- Flutes - Wide flutes allow more efficient swarf removal which prevents clogging and torque build-up.
- Rake Angle - High rake angle improves shear characteristic and reduces build-up on the cutting edge, allowing tap to cut more freely for longer periods.

### YELLOW BAND CHARACTERISTICS (FOR BOTH TAP AND DRILL)

- Surface Finish - Bright as ground condition which is the most suitable finish for this ductile range of products.
- Material Properties - Used to tap materials with hardness up to 200HB, tensile strength up to 700N/mm<sup>2</sup>.

### YELLOW BAND DRILL CHARACTERISTICS

- FLUTE - 35° helix, open profile designed for efficient swarf evacuation.
- POINT - The notched point reduces end thrust and optimizes centre cutting efficiency with chisel strength



Drilling based on Jobber drill lengths  
For deep hole drilling reduce speeds by

|                              |     |
|------------------------------|-----|
| 3 x Drill diameter           | 10% |
| 4 x Drill diameter           | 20% |
| 5 x Drill diameter           | 30% |
| More than 6 x Drill diameter | 40% |

## GENERAL MACHINING GUIDE

| Tool Material             |          |                      | TAPPING       | DRILLING      |                         |       |       |       |       |       |       |       |
|---------------------------|----------|----------------------|---------------|---------------|-------------------------|-------|-------|-------|-------|-------|-------|-------|
| MACHINED MATERIALS        | HARDNESS | HARDNESS             | Cutting speed | Cutting speed | Feed Rate for Diameters |       |       |       |       |       |       |       |
|                           | Brinell  | N/mm <sup>2</sup>    | Metres/min    | Metres/min    | 3mm                     | 5mm   | 6mm   | 8mm   | 10mm  | 12mm  | 16mm  | 20mm  |
| <b>ALUMINIUM ALLOYS</b>   |          |                      |               |               |                         |       |       |       |       |       |       |       |
| Wrought & Extruded        | < 150    | 541N/mm <sup>2</sup> | 30-55         | 50-60         | 0.120                   | 0.150 | 0.170 | 0.220 | 0.260 | 0.280 | 0.320 | 0.360 |
| Wrought & Treated         | > 150    | 541N/mm <sup>2</sup> | 27-50         | 35-50         | 0.085                   | 0.110 | 0.120 | 0.160 | 0.190 | 0.200 | 0.240 | 0.280 |
| "Cast, Low Silicon <5%"   | < 150    | 541N/mm <sup>2</sup> | 20-35         | 30-40         | 0.085                   | 0.110 | 0.120 | 0.160 | 0.190 | 0.200 | 0.240 | 0.280 |
| "Cast, High Silicon >10%" | > 150    | 541N/mm <sup>2</sup> | 15-30         | 23-35         | 0.085                   | 0.110 | 0.120 | 0.160 | 0.190 | 0.200 | 0.240 | 0.280 |
| <b>COPPER</b>             |          |                      |               |               |                         |       |       |       |       |       |       |       |
| Pure Copper               | <100     | -                    | 15-30         | 35-55         | 0.062                   | 0.080 | 0.095 | 0.120 | 0.140 | 0.150 | 0.160 | 0.210 |
| "Brass, Soft"             | <200     | 717N/mm <sup>2</sup> | 40-50         | 40-50         | 0.150                   | 0.190 | 0.210 | 0.280 | 0.330 | 0.350 | 0.400 | 0.450 |
| "Brass, Bronze"           | >200     | 717N/mm <sup>2</sup> | 30-50         | 35-45         | 0.085                   | 0.110 | 0.120 | 0.160 | 0.190 | 0.200 | 0.240 | 0.280 |

# Tough Treatable Steel

## Red Band

The mechanical properties of materials are influenced diversely by the addition of alloying elements and heat treatment processes, resulting in some high-strength, quenched and tempered steels or hardened steels. This range has its own unique set of machining requirements which are satisfied by the red band range of drills and taps.

### RED BAND TAP CHARACTERISTICS

- HSSE - Vanadium content for toughness
- Thread and flute configuration designed for high tensile materials such as Tool Steels, Heat Treatable Steels, Spring Steel, Case Hardening Steel, Unalloyed Titanium, Nitriding Steel, Cold Drawn Constructional Steel and High Tensile Steel.

### RED BAND CHARACTERISTICS (FOR BOTH TAP AND DRILL)

- Material Properties - Used to machine materials with hardness up to 470HB, tensile strength up to 1500N/mm<sup>2</sup>.
- Surface Finish - TiAIN coating increases surface hardness of the tool to around 87Hc with an excellent hot hardness working temperature and high oxidation temperature making it suitable for dry machining.

### RED BAND DRILL CHARACTERISTICS

- FLUTE - Slow helix, parabolic flute designed with reinforced web for high rigidity under extreme conditions.
- POINT - The 130° special notched "UX" point style provides self centering, easier penetration, improved hole accuracy and improved load distribution. This special notch geometry gives a corrected rake angle of 15° which provides a strong point for harder materials, as well as preventing snatching with materials such as Aluminium, Brass, Bronze and Plastics



Drilling based on Jobber drill lengths  
For deep hole drilling reduce speeds by

|                              |     |
|------------------------------|-----|
| 3 x Drill diameter           | 10% |
| 4 x Drill diameter           | 20% |
| 5 x Drill diameter           | 30% |
| More than 6 x Drill diameter | 40% |

## GENERAL MACHINING GUIDE

| Tool Material               |                  |                            | TAPPING                  | DRILLING                 |                         |       |       |       |       |       |       |       |
|-----------------------------|------------------|----------------------------|--------------------------|--------------------------|-------------------------|-------|-------|-------|-------|-------|-------|-------|
| MACHINED MATERIALS          | HARDNESS Brinell | HARDNESS N/mm <sup>2</sup> | Cutting speed Metres/min | Cutting speed Metres/min | Feed Rate for Diameters |       |       |       |       |       |       |       |
| COPPER                      |                  |                            |                          |                          | 3mm                     | 5mm   | 6mm   | 8mm   | 10mm  | 12mm  | 16mm  | 20mm  |
| High Tensile Bronze         | <350             | 1144N/mm <sup>2</sup>      | 12-28                    | 15-28                    | 0.062                   | 0.080 | 0.095 | 0.120 | 0.140 | 0.150 | 0.160 | 0.210 |
| CARBON ALLOY STEELS         |                  |                            |                          |                          |                         |       |       |       |       |       |       |       |
| Low Alloy Steel             | >250             | 861N/mm <sup>2</sup>       | 12-20                    | 25-30                    | 0.062                   | 0.080 | 0.095 | 0.120 | 0.140 | 0.150 | 0.160 | 0.210 |
| "Alloyed, Heat Treated"     | >300             | 971N/mm <sup>2</sup>       | 07-15                    | 15-20                    | 0.045                   | 0.060 | 0.065 | 0.070 | 0.100 | 0.110 | 0.130 | 0.160 |
| "Alloyed, Heat Treated"     | >350             | 1144N/mm <sup>2</sup>      | 05-09                    | 10-15                    | 0.045                   | 0.060 | 0.065 | 0.070 | 0.100 | 0.110 | 0.130 | 0.160 |
| NICKEL                      |                  |                            |                          |                          |                         |       |       |       |       |       |       |       |
| "Nickel, Nimonic 75"        | >300             | 971N/mm <sup>2</sup>       | 04-12                    | 06-10                    | 0.062                   | 0.080 | 0.095 | 0.120 | 0.140 | 0.150 | 0.160 | 0.210 |
| "Nickel, Inconel 718 Alloy" | <350             | 1144N/mm <sup>2</sup>      | 03-07                    | 04-08                    | 0.045                   | 0.060 | 0.065 | 0.070 | 0.100 | 0.110 | 0.130 | 0.160 |

**SOMTA** PRODUCT CODES: TAPS: 540, 550, 564, 576 DRILLS: IR5

# Stainless Steel

## Blue band

Stainless steels are used extensively for components and products that demand corrosion resistance and long life. The machining of stainless steels is difficult due to its work hardening properties, toughness and poor thermal conductivity, which places high demands on the cutting tools. The Blue band has been specifically adapted to suit these difficult machining requirements.

### BLUE BAND TAP CHARACTERISTICS

- Thread and flute configuration designed for tough materials, such as Stainless Steel, Titanium Alloys, Cast Steel, Heat Resisting Steel and Work Hardening Steel.
- HSSE - Vanadium content for toughness
- Truncated Thread - Truncated thread after lead reduces frictional contact with the threaded hole and allows easier penetration of coolant.

### BLUE BAND CHARACTERISTICS (FOR BOTH TAP AND DRILL)

- Material Properties - Used to tap materials with hardness up to 350HB, tensile strength up to 1250N/mm<sup>2</sup>.
- Surface Finish - TiAlN coating increases surface hardness of the tool to around 87Rc with an excellent hot hardness working temperature and high oxidation temperature making it suitable for dry machining.

### BLUE BAND DRILL CHARACTERISTICS

- FLUTE - Refined flute profile with high helix for enhanced chip removal
- POINT - Specifically developed MULTIFACET POINT for higher load carrying capacity and enhancing feed rates in the machining of difficult materials.



Drilling based on Jobber drill lengths  
For deep hole drilling reduce speeds by

|                              |     |
|------------------------------|-----|
| 3 x Drill diameter           | 10% |
| 4 x Drill diameter           | 20% |
| 5 x Drill diameter           | 30% |
| More than 6 x Drill diameter | 40% |

## GENERAL MACHINING GUIDE

|                            |                  |                            | TAPPING                  | DRILLING                 |                         |       |       |       |       |       |       |       |
|----------------------------|------------------|----------------------------|--------------------------|--------------------------|-------------------------|-------|-------|-------|-------|-------|-------|-------|
| MACHINED MATERIALS         | HARDNESS Brinell | HARDNESS N/mm <sup>2</sup> | Cutting speed Metres/min | Cutting speed Metres/min | Feed Rate for Diameters |       |       |       |       |       |       |       |
|                            |                  |                            |                          |                          | 3mm                     | 5mm   | 6mm   | 8mm   | 10mm  | 12mm  | 16mm  | 20mm  |
| STAINLESS STEELS           |                  |                            |                          |                          |                         |       |       |       |       |       |       |       |
| Free Cutting               | <250             | 861N/mm <sup>2</sup>       | 12-20                    | 12-22                    | 0.085                   | 0.110 | 0.120 | 0.160 | 0.190 | 0.200 | 0.240 | 0.280 |
| Austenitic                 | <250             | 861N/mm <sup>2</sup>       | 08-16                    | 10-15                    | 0.085                   | 0.110 | 0.120 | 0.160 | 0.190 | 0.200 | 0.240 | 0.280 |
| "Martensitic, Ferritic"    | >300             | 971N/mm <sup>2</sup>       | 07-10                    | 12-18                    | 0.062                   | 0.080 | 0.095 | 0.120 | 0.140 | 0.150 | 0.160 | 0.210 |
| TITANIUM                   |                  |                            |                          |                          |                         |       |       |       |       |       |       |       |
| "Pure Titanium, unalloyed" | <200             | 758N/mm <sup>2</sup>       | 10-16                    | 20-32                    | 0.062                   | 0.080 | 0.095 | 0.120 | 0.140 | 0.150 | 0.160 | 0.210 |
| Titanium Alloys            | >300             | 971N/mm <sup>2</sup>       | 05-10                    | 06-12                    | 0.062                   | 0.080 | 0.095 | 0.120 | 0.140 | 0.150 | 0.160 | 0.210 |
| NICKEL                     |                  |                            |                          |                          |                         |       |       |       |       |       |       |       |
| "Pure Nickel, Unalloyed"   | <300             | 971N/mm <sup>2</sup>       | 09-15                    | 10-15                    | 0.085                   | 0.110 | 0.120 | 0.160 | 0.190 | 0.200 | 0.240 | 0.280 |

**SOMTA** PRODUCT CODES: **TAPS:** 539, 549, 559, 570 **DRILLS:** IBB, IBS



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