



 **FLUBETECH**  
SURFACE ENGINEERING



Flubetech's PVD tool coatings have the best wear and friction resistance properties and give excellent performance in every application and material. The absence of micro-droplets ensures a very fine surface and a 100% even coating.

|               | Hardness | Friction coefficient | Colour        | Thickness (µm)  | Oxidation T |
|---------------|----------|----------------------|---------------|-----------------|-------------|
| Hyperlox      | 3500HV   | 0.5                  | Violet        | 3 <sup>±1</sup> | 900°C       |
| Hyperlox Plus |          |                      |               | 6 <sup>±2</sup> |             |
| Hyperlox Gold | 3500HV   | 0.3                  | Gold          | 3 <sup>±1</sup> | 700°C       |
| Hyperlox Blue | 3500HV   | 0.5                  | Electric blue | 3 <sup>±1</sup> | 900°C       |

## HYPERLOX RANGE

The coatings of the Hyperlox range, based on AlTiN compounds, are highly recommended for cutting tools that require high resistance to wear and oxidation in dry work (milling, grooving, reaming, drilling, etc.).

Hyperlox Gold is particularly suitable for lathe plates and screw cutting taps.

Hyperlox Blue imparts an electric blue shade that gives the tool a distinctive look and makes it easier to check for tool wear.



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|                    | Hardness         | Friction coefficient | Colour           | Thickness (µm)                     | Oxidation T |
|--------------------|------------------|----------------------|------------------|------------------------------------|-------------|
| CrN                | 2500HV           | 0.5                  | Metallic grey    | 3 <sup>±1</sup>                    | 700°C       |
| HSN2               | 3500HV           | 0.4                  | Bronze           | 3 <sup>±1</sup>                    | 1200°C      |
| Dalcut<br>DalcoMax | 2300HV<br>3000HV | <0.1                 | Anthracite black | 3 <sup>±1</sup><br>5 <sup>±2</sup> | 450°C       |
| Aluspeed           | 2900HV           | 0.6                  | Metallic grey    | 2 <sup>±1</sup>                    | 950°C       |

**CrN**

Drilling and milling of soft materials.

**HSN2**

General machining of steels and Ni, Ti and Cr alloys.

**Dalcut/DalcoMax**

Machining of non-ferrous alloys: Al (Si <9%), Cu, Zn, Mg and carbon fibre.

**Aluspeed**

Recommended for machining high-Si-content aluminium alloys.



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The extra range from Flubetech takes tool performance a step further. Improvements in adhesion, coating density, layer uniformity, and toughness allow these coatings to work with the most complex materials under the most extreme conditions.

|          | Hardness | Friction coefficient | Color     | Thickness (μm)  | Oxidation Temp. |
|----------|----------|----------------------|-----------|-----------------|-----------------|
| FerroCon | 3500HV   | 0,5                  | Black     | 3 <sup>+1</sup> | 1100°C          |
| HPN1     | 3700HV   | 0,4                  | Dark blue | 3 <sup>+1</sup> | 1100°C          |
| SteelCon | 3700HV   | 0,4                  | Rose Gold | 3 <sup>+1</sup> | 1200°C          |
| Hardlox  | 3700HV   | 0,4                  | Bronze    | 3 <sup>+1</sup> | 1200°C          |
| Alcrolox | 3500HV   | 0,5                  | Dark grey | 3 <sup>+1</sup> | 1150°C          |

## FerroCon

FerroCon, based on the AlTiN compound, is used in the machining of ferrous materials and high-speed steel.

## HPN1

HPN1 is based on the AlTiCrN compound and is used for machining cast iron, ferrous materials, and hardened steels.

## SteelCon

SteelCon, based on the AlTiN/TiSiN compound, is ideal for the general machining of hardened steels.

## Hardlox

Hardlox, based on the AlTiSiN compound, is the ideal coating for machining soft and hardened steels, nickel alloys, titanium, and superalloys.

## Alcrolox

Alcrolox, based on the AlCrN compound, is the ideal coating for machining materials under the most demanding conditions.



Polycrystalline diamond layers are widely used in hard metal tools for the aerospace industry. This type of coating is specially recommended for machining aluminium, carbon fibre, reinforced plastics (CFRP, GFRP), laminar sandwich composites, graphite and cermets.

|                    | Hardness | Colour    | Thickness<br>( $\mu\text{m}$ ) | Oxidation T |
|--------------------|----------|-----------|--------------------------------|-------------|
| CCDIA CARBONSPEED  | 10000HV  | Dark Grey | 7 $\pm$ 1                      | 450°C       |
| CCDIA FIBERSPEED   | 10000HV  | Dark Grey | 9 $\pm$ 1                      | 450°C       |
| CCDIA MULTISPEED   | 10000HV  | Dark Grey | 3/14 $\pm$ 2                   | 450°C       |
| CCDIA AEROSPEED    | 10000HV  | Dark Grey | 3/9/14 $\pm$ 1                 | 450°C       |
| CCDIA CARBIDESPEED | 10000HV  | Dark Grey | 3 $\pm$ 1                      | 450°C       |



Technology by:  
GEMESON



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RG-TCCH1