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General Information

Jonalloy is a cast alloy, comprised principally of cobalt. It bridges the gap between HS (high speed steel) and HW (tungsten carbide). The fine grain structure and physical properties make it especially recommended and widely used for cutting operations.

1 Composition

F Cobalt (Co)	44 - 48	%
F Chromium (Cr)	28 - 32	%
F Tungsten (W)	13 - 17	%
F Niobium (Nb)	3 - 5	%
F Carbon (C)	1 - 5	%
F Iron (Fe)	1.5 - 4	%
F Manganese(Mn)	0.5 - 2	%
F Borium (B)	0.1 - 0.6	%

2 Hardness

60-62 Hrc: for general use in wood

47 Hrc: special for sawing in very cold environment

3 Production procedure

The raw materials are melted in high-frequency furnaces at about 1600°C / 2912°F. Jonalloy products are always cast in graphite moulds. This ensures a very high solidification rate, which results in an extremely fine granular structure.

4 General application

4.1 Cutting tools for wood

- Ä Saw tips for circular saws
- Ä Profile knives/ knife blankets for profiling
- Ä STB bars
- Ä Planing knives and corrugated back knives
- Ä Pointed cutters

4.2 Metal cutting

- Ä Ideal for planing of stainless steel, chisels, turning of welded pieces
- Ä Turning, milling of armour plates
- Ä Turning of welded pieces
- Ä Special drills
- Ä Chisels
- Ä Drilling, chamfering and grooving

JONALLOY HAS THE SPECIAL PROPERTY OF UNLOADING THE HARDENED MATERIAL ONLY LOCALLY, WITHOUT THERMAL DAMAGE DURING DRILLING

4.3 Surgical use

- Ä Jonalloy is often used as cutting plate for surgical scissors, mainly because of its rust and corrosion resistance, but also because of its excellent cutting quality.

4.4 Wear Parts

- Ä Custom manufacturing of wear parts, on sketch or specifications.

5 Properties

5.1 *Wear resistant*

Even on very sharp cutting edges (35°)

5.2 *Heat resistant*

Jonalloy retains its hardness at red-hot temperatures; neither discharge, nor structural change up to 814°C / 1497°F

5.3 *Non-magnetic*

5.4 *Rust-proof and highly corrosion resistant*

5.5 *Elasticity*

About the double of most cast alloys

5.6 *Resistant to shocks*

5.7 *Low friction coefficient*

6 Jonalloy in woodworking

Jonalloy is one of the most versatile materials available today for cutting **solid soft- and hardwood** (with the exception of some extremely abrasive tropical woods).

This "cast" cobalt alloy has an edge strength similar to HS (high speed steel), a hardness approaching some grades of HW (tungsten carbide) and a 'red heat' strength that is unaffected right up to 814°C / 1497°F.

These facts combined with its corrosion resistance and excellent braze ability make Jonalloy as a unique cutting material for woodworking.

Jonalloy bridges the gap between HS (high speed steel) and HW (tungsten carbide) and solves surface and tool life problems.

F Jonalloy as a substitute for HS (high speed steel)

Jonalloy's ability to retain full hardness at red heat, allows the use of dramatically increased feed rates and cutting speeds compared to HS, which will fail at much lower temperature (discharge).

Run times of Jonalloy tips and knives are 5 to 10 times longer than HS, (depending on wood species) resulting in a lower cost per linear meter.

F Jonalloy as a substitute for HW (tungsten carbide)

As Jonalloy is very tough it can be ground to very aggressive back clearance angles, impossible with carbide, thus allowing increased infeed speeds and increased productivity.

As the cutting properties are far superior to carbide, Jonalloy creates an excellent surface quality that needs no or few sanding.

JONALLOY STANDS FOR EXCELLENT CUTTING QUALITY WITH VERY LONG
TOOLLIFE

6.1 List of solid woods -WELL- recommended

GROUP 1: SOFTWOOD

'	Pine	
'	Deal	American
		Light type
		Heavy type
'	Deal	European
		Northern
		Local, heart
		Local, sapwood
'	Deal	French
'	Hemlock	Eastern
		Western
'	Incense cedar	
'	Larch	American
		Eastern
		Western
		European
		Japanese
		Russian
'	Oregon pine	Light
		Heavy
		Local
'	Parana pine	Much compression wood
		Little compression wood
'	Redwood	Californian
		Light
		Heavy
'	Sugar pine	
'	Fir	Northern European
		Central European
'	Western red cedar	
'	Fir	Northern European
		Central European
'	Western red cedar	

GROUP 2: HARDWOOD

'	Abachi	
'	Afrormosia	
'	Azelia-Apa*	
'	Azelia-Doussié*	
'	Avodiré	
'	Birch	European
'	Beech	European steamed*
		European unsteamed*
'	Cedar (hardwood)	
'	Oak	American red
'	Oak	European-light
'		European-heavy
'		Japanese
'	Oak	
'	Alder	
'	Maple	European
'	Ash	European
		Local
'	Framiré	
'	Elm	
'	Iroko	
'	Chestnut	Cultivated
'	Cherry	American
		European
'	Limba	
'	Linden	
'	Mahogany	Bassam
'	Sapele	
'	Sipo	
'	Makoré	
'	Mengkulang	
'	Meranti	Dark red
		Light red
'	Walnut	American
		European
'	Okan	
'	Okoumé	unsteamed
'	Pear	
'	Plane	
'	Poplar	
'	Ramin	
'	Tasmanian oak	
'	Tola branca	
'	Tulip tree	
'	Williow	

* only if humidity level is at least 12%

6.2 List of materials -NOT- recommended

- F Chipboard
- F Glued parts
- F Extremely abrasive tropical woods (eg. Teak, Movinqui)

HARDWOOD

' Afzelia-Apa		Dry
' Afzalea-Doussié		Dry
' Azobé heart		
' Balam		
' Beech	European steamed	Dry
	European unsteamed	Dry
' Bubinga		
' Oak	American white	
' Maple	American, hard maple	
	American, soft maple	
' Hornbeam		
' Hickory		
' Keroewing	Light	
	Heavy	
' Merbau	West iran	
	Malaysia	
' Movingui		
' Muninga		
' Ogea		
' Padouk	African	
' Rosewood	Rio	
' Boxwood		
' Panga Panga		
' Guaiac (pockwood)		
' Purpleheart		
' Red kabbes		
' Salinga gum		
' Tali		
' Teak		
' Wengé		
' Yang		