

Quality of the Arunda materials

- **The Arunda jigs** – models N°. 60, 80, 100 and 120 – are made of **zinc-coated steel**. The plates are 10 and 8 mm thick and the stops 5 mm. These jigs are **indeformable, everlasting and shock-resistant**. They are thus immune to any serious damage if accidentally touched by the cutter.
 - The two router **expansion plates** are made of **stainless steel**. They are thus particularly resistant to shock and wear.
 - **The bit** is made of the **best cutting-tool steel** and the precision tolerance is +4 / -6 hundredths of a mm. **The blades** are of **hard metal** (tungsten carbide or HM).
 - **The gauge** is precisely machined in **solid aluminium** in order to protect the blades when the cutter rests on the gauge for calibrating.
 - **The guide ring** is made of **chilled steel and coated with zinc** to resist friction with the jigs.
- We do not use synthetic or light materials such as aluminium for the manufacture of Arunda tools (other than for the gauge).

Arunda tools are manufactured to meet the high demands of roof-frame wood-working. They are made to last and offer optimum quality over the long-term.

1 or 4 models of jigs?

Single model?

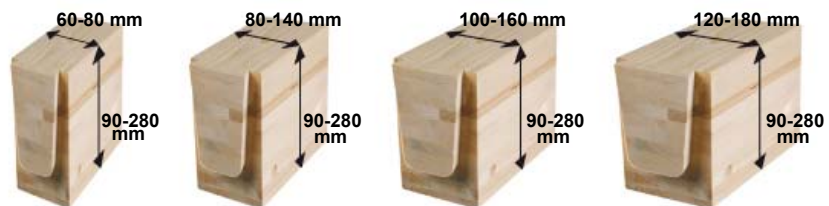
We deliberately decided not to produce a single jig!

A single model would make it possible to work on all wood cross-sections from 60 to 180 mm wide. Such a jig would then have the shape of a very narrow dovetail – usable on timbers as narrow as 60 mm – and leaving a broad shoulder for the passage of the router on broad beams of up to 180 mm in width. This simplification would however generate a significant problem relating to the working load of the assemblies: A very narrow dovetail involves a weak working load! Conversely, **the broader the dovetail, the greater the working load!**

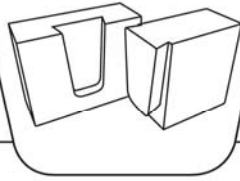
4 Models of jigs!

Arunda jigs N°. 80 and 100 are the models in greatest demand. Model 80, for example, usually makes it possible to work on joists/rafters of **80 to 120 mm** in width with a margin of 20 mm which thus increases the maximum utilisation width **to 140 mm**. This perfectly acceptable margin can not be exploited by using a higher model of jig. Thus, a 120 mm wide timber could be assembled with the N°. 80, 100 or 120 jigs. Jigs N°. 100 and 120 will create a broader dovetail than model N°. 80 and a greater working load. This example shows that each of the four models of jigs makes it possible to work over several widths but that it is judicious, once the maximum width of the timber is reached, to use a higher model jig in order to obtain a greater working load, stability and safety.

This realisation, the project studies and engineers' calculations naturally dictated the quality requirements of the Arunda system. In the end, the best option consisted in creating **4 models of jig, each intended for a specific range of timber widths**.



Length in mm	Width of joist/rafter (taking the tail)												
	60	70	80	90	100	110	120	130	140	150	160	170	180
Jig N° 60	n° 60												
Jig N° 80			n° 80										
Jig N° 100				n° 100									
Jig N° 120						n° 120							



Resistance of the assemblies

By way of comparison, we give below the of resistance / working loads of two tails of different heights cut with the 4 models of Arunda jigs:

	Jig N° 60	Jig N° 80	Jig N° 100	Jig N° 120
Height of the tail 140 mm + Resistance/working load of the tail	140 mm = 553 kg	140 mm = 654 kg	140 mm = 744 kg	140 mm = 834 kg
Height of the tail 200 mm + Resistance/working load of the tail	200 mm = 733 kg	200 mm = 834 kg	200 mm = 924 kg	200 mm = 1014 kg

This comparison clearly shows the utility of the 4 jigs, the need for adapting the model to the timber cross-sections and the problems of a single model of jig which penalises large dovetailed assemblies for large structural members. The table of working loads also shows that it is pointless to reinforce an Arunda assembly with any type of additional connector (screw, plates, etc.) in all common forms of timber construction.

Assembly angles

The pins and tails realized with Arunda have optimised angles (face angles of the tails and cutting angles of the bit). These angles have been calculated to provide:

- **The best resistance** of an assembly.
- **The best tightening** (wedging of the tails in the pins) guaranteeing the good stability of the assembly and which plays a decisive role in determining the working load.
- **The best maintenance of the tail** in the pins in order to ensure that, during assembly, the tail does not easily slip out of the front of the pins. Thus, the tail, once inserted, can be disengaged only upwards and not downwards as happens if the angles of the tail are less steeply inclined.

Moreover, the Arunda jigs generate the shape of a dovetail whose base is **flat** in order to offer **good support of the tail on the bottom of the pin member**. This stability of the assembly combined with the lateral gripping force obtained as the tail is inserted between the pins provides **maximum safety and working load**.

Fixing the jigs

The Arunda jigs are easily positioned on the timbers, without marking or measurement. The male jig is positioned by means of the "stepped" stop which allows it to be centred across the width of the timber. The female jig is positioned by aligning the axis of the joist or rafter on the "v" notch of the jig. Simple and fast! In most current assemblies, the Arunda jigs are fixed by means of **Bessey GH 30H type fast lever clamps**. This is indisputably the **fastest and most stable** method. By comparison, screwing is slower, leaves the marks of the screw holes and does not guarantee the perfect bedding of the male jig (of the frame on the jig dovetail) when the pressure of the router is brought to bear on it!

Sale by ARUNDA retailers

The Arunda system is sold exclusively – and in each country – by **Arunda retailers**. We will refuse any request for sale of Arunda jigs to an end-user whom we will refer to a local retailer.

International patent application

A patent for the Arunda system was first applied for in **Switzerland** (N°. 01904/04) in November 2004. A second **international** patent application (PCT) with priority rights was filed on 13 July 2005 under number PCT/CH2005/000400. These "patent applications" are so called because the single "patent" is granted only after the various procedures and examinations have been conducted over the long term by the patent office of each country. While awaiting the final validation of the patent, the inventions for which an application has been filed remain protected and exclude any new patent application by a third party for the same object claiming to have the same inventiveness. Thus any mention of "patent/patent pending/patent filed/etc." must be taken with the customary precautions and be checked if necessary.