Guide to choosing a press

Many people choose a press on bed size/price ratio, in short they want the biggest bed for the cheapest price .
This is a big mistake. They don't factor in the press specifications which ultimately are the very thing they will need from a press , these are the gears, roller sizes, bed supports, bed material, drive handles, in fact the whole design and quality of the press. Some press may look similar and purport to be similar, they are not.

Gears & Handles

When for example high pressures are required for etching and collographs it is difficult to print the full width of the bed on a direct drive model above 40cm and this gets progressively worse the wider the bed. Large star wheels are employed but the printing requires lots of effort and strength. Gears eliminate this and provide a smoother action through the rollers.
Gears are described as a ratio and the higher the ratio the better ie., 12:1 is better then 4:1. In simple terms
12:1 is twelve times easier to use than direct drive and 4:1 is four times easier to use than direct drive.
This is why Rollaco presses uses a simple handle on it's table top geared presses and one of the benefits being it can be used with one hand. A star wheel requires two hands for operation. Where Rollaco uses a star wheel the spokes are screwed in for rigidity and removable for transportation. Rimwheels are the best option combining both aspects of the crank handle and the star wheel and looking good to boot.
Some press manufacturers tell you geared presses damage plates, it's exactly the same pressure applied to produce the print, the difference is, geared presses does it easier. Some **'Artist Manufactures '** need a lesson in Physics. Engineers are well aware direct drive is utilised because its cheap. Beware handles that are fastened with wing nuts or grub screws, this is the work of butchers ,bakers and candlestick makers, not engineers.

Rollers

The rule for rollers is, the larger the better , especially the top roller. This helps smooth out point loading.
Recommended **minimum** roller size for bench models is, 75mm dia bottom roller, 85mm dia top roller.
Prefabricated rollers, as used by Rollaco Presses are a sound engineering standard, used extensively throughout industry worldwide and are **not** bettered by solid rollers. For example the rollers used on Steel Rolling Mills are prefabricated, they have to be hollow because they have to be water cooled, which begs the question, if its good enough to extrude girders, it should be good enough for paper prints. On an etching press prefabricated rollers are a better engineering option than solid rollers which only provides excessive weigh with no engineering benefit.
People who disagree with that statement will have no engineering qualifications, knowledge or skills.
Bare metal rollers used in the home or studio present no problems, but if used in a damp environment (garden sheds) will need extra protection such as water dispersant (WD40) and covered with a cling film when unused for long periods
Rollaco now provides Stainless Steel rollers as an option to eliminate this problem.

Beds

Heavy steel beds for use in schools can be a liability, which is why some companies use thin steel beds.
The consequences of this are, after a time the beds begin to curl and eventually have to be straightened.
Wooden composite beds are cheap and unreliable, even quality Birch plywood warps Wooden beds are simply unsuitable for the large compressive stresses generated by etching, drypoint and collograph work and will need replacing often. They are also not exactly a wipe clean surface, they are used for cheapness, a benefit for them not the customer. The bed material used on Rollaco Presses is a composite that is tried and tested over 40 years. The bed material is light, strong, inert to chemical attack and is dimensionally stable under pressure. This material costs considerably more than steel beds .
All Rollaco beds are fitted with safety stops.

Top Roller Guides

It is very important that the top roller runs smoothly within its guides and without excessive play. The term **play** is used in engineering to describe movement. The top roller should not move in the plain /direction of the bed. Excessive play can cause problems in printing where pressure is involved. The problem occurs when the pressure comes off the plate and causes the top roller to jump which sometimes leaves marks at the edge of the print. A properly engineered press should have no movement of the top roller and should be able to be lifted up and down freely. A small amount of lateral movement/clearance at right angles to the bed run is allowed. This enables the adjusters to be moved independently without the fear of jamming.

Bed Support

It is also important that the bed is supported in a stable condition when extended, allowing the artist to work comfortably.
Rollaco Presses has support rollers both sides and both ends, ensuring a safe working surface.
Many presses these days are constructed **without** rollers or bed guides, this is a cheap measure and leaves the press side frames unprotected from scrubbing, leading to wear. All Rollaco Presses are fitted with guides made from an appropriate material, lasting for many years of service.

Press materials

I often here people saying presses should be made from cast iron and not prefabricated steel, this is a naivety .
Cast iron was used extensively in the 19th century and to a certain extent today. They used it widely in the 19th century but soon found it had limitations especially when used where combination stresses where involved.
Simply put, in mechanics there are three types of stresses**, Compressive** ,**Tensile** and **Shear** . Two of these stresses are developed when an etching presses is under load, **Tensile** and **Shear**. The third stress, **Compressive**, is in the press

whether under load or at rest, it is in fact created by the very weight of the machine itself.
Cast iron is not a strong material when under **Tensile** or **Shear** stress, the very stresses developed while printing.
The stress which cast iron is strong against **Compressive,** does not develop during printing, it begs the question why use it. Well it is used because a decorative side frame can be employed and reproduced faithfully time after time.
This is ok but the down side is, presses have to be much heavier than necessary to compensate for a weak material.
In a nutshell building a etching press from cast iron gives you a pretty press that's pretty heavy.
The future for etching presses is carbon it is the material for tomorrow. It will be grown and woven and used as a replacement for steel. It is already happening in the aerospace industry with the new Boeing airliner built entirely of carbon fibre. It is estimated future nano tube technology will produce a carbon material up to a thousand times stronger than steel. Do you really think early Victorian engineers would not have used it if it had been available to them.
Fact : Pound for pound steel is stronger than cast iron but not as strong as silk.

Press parts

What is important is that parts used are of a suitable quality.
The use of brass bearings instead of the modern ball bearing units is a no contest.
Brass bearings are ok on a etching press where slow movement prevails but have to be lubricated often and have frictional forces many times greater than ball bearings which are pre-packed with grease for life.
Without ball bearings no vehicle that depends on wheels could operate. Wheelbarrows are ok.

Press Design

In the design of the press beware of spring loaded top rollers where the springs are fitted **over** the roller bearing.
This is designed to prevent the machine from overload whilst that is ok in principle it can prevent a quality intaglio print. Machines with the springs fitted **under** the roller bearing are ok , the spring assists lifting the top roller and does not interfere with the quality of the print. Rollaco do not use springs and rely on a better crafted design where the roller can be lifted up and down the guides with very little backlash giving full control of the top roller.
All presses should have gears enclosed and stops fitted to the beds to prevent the bed being ejected from the press.
Make sure the top roller of the press can be lifted, preferably type high at least.
There is no significant gain in using top roller or bottom roller drives they are both roughly equal.
Construction of the press is very important , if pictures of the press make it look flimsy, it probably is but as a guide presses with beds wider than 40cm (16") should not weigh less than 40kgs.These are not etching presses, they may be capable of some relief work but if used for etching, drypoint and collographs, they will probably fail.
Also avoid any presses with any of the rollers less than 75mm (3") diameter .

Press Adjustment

Many artists can get anxious over adjustments to the top roller or setting of the pressure for various types of printing. This should never be a problem, prints themselves tell you where the pressure needs increasing. Whatever type of press you are using the finale adjustment is always decided by the work not by Micrometers or Vernier scales which in my experience confuses the artist. Micrometers and Vernier callipers are tools of the Engineer, indeed it is what I use to make presses. In the early days of a press a small amount of movement can occur especially when intaglio work is being done, it can be described as settlement. This amount depending on the care taken when the press was assembled Could be significant and render the gauges inaccurate. A simple toggle bar at each end of the roller is all that is needed plus the eye and feel of a Printmaker which can be gained fairly quickly. Thirty years of feedback tells me this is true.
Rollaco has introduced a simple method of setting up the top roller using an indexable handle.

Traditional vs. Modern

Some of the above information tells of two camps, those that believe presses should be traditional or modern.
Traditional in my view represents, old inefficient, hard to use, inflexible, hard to move, very expensive, nice looking presses. Look at the old Columbian type pinch presses, beautiful ,great for lino, typeface, weigh in at two tons and they can't do an etching but traditional. Traditional means using the materials at hand for any given era not the best materials.
Traditional as applied to a motor car would be a Model T Ford , okay if that is what you want.
Modern would be the opposite to the above ,efficient ,easy to use, relatively portable, inexpensive but not great looking.
Whatever your choice the prints from a modern, well designed built press, are **not bettered** by a traditional press.
By now you will know which camp I belong. I like old things like art deco wristwatches things made for function and beauty but I have to accept they don't keep perfect time and need lots of attention, like remembering to wind them.

In recent years I have come across some terrible examples of so called etching presses where the artists and schools have made what they thought was bargain purchases, only to be left with wreckage gathering dust in corners.
Make sure your press was designed and made by a professional that understands the forces generated to produce a print.
Ask questions about the press. **Ask the load rating for the press.** If they cannot tell you, avoid it .
Be wary of making your choice for promises of long warranties many of those warranties are limited .
Also be wary of companies claiming to have been making presses for long periods, this can be a ploy to give credibility. I have witnessed many here today gone tomorrow merchants over the genuine 40 years I have been making presses leaving artists with poorly made presses and no backup.

In my experience well designed presses prove to be no problem as long as the operator is competent.

All presses should have a load rating which allows a **factor of safety** for the press.
Always make sure when using your press you only apply the pressure necessary to produce a print.
Extra pressure stresses all presses which will eventually results in failure or damage.

In this guide I have tried to assist in plain language how to choose your press and I hope it has been of assistance.
Rollaco Presses invites any questions technical or otherwise about its presses.

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I am a formally trained craftsman and engineer with 50 years experience **.** I have worked in a wide range of industries and those years I designed , built , repaired a whole range of different types of machines and that experience is my CV.

Some Rollaco Presses