

Is used equipment worth the effort?

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Some of the consultants that contribute to this column believe that we built some excellent extrusion equipment during the 60's and 70's and that with a minimum of upgrading, it is attractive for many applications today.

First, it is lower cost. The actual cost of used equipment is about 25% of replacement cost 'as is, where is" to a dealer or to any buyer who can move it immediately and pay for it when picked up. Normally, a dealer will add from 10 to 100% depending upon the cost of handling to him and to the risk that he has to take. Tales of "stealing" equipment for scrap prices do actually hap pen, but only if the owner is poorly informed or is too busy to market his used equipment.

It is usually very difficult to examine equipment in its original setting for wear or condition unless the user-owner is making a business of selling the equipment. Then he may have the expertise to measure barrels, screws, brushes on motors, etc. How ever, this approach is disruptive to his maintenance and supervisory staff and in most cases he will simply give an honest, but cursory opinion as to the equipment's condition. I have found that my inspection of equipment at the source is usually not worth the cost of the travel and time it takes. A serial number is often more descriptive than the best pictures.

An original seller should not give a warranty, nor should you expect one. If the warranty is not invoked, it can only cost the buyer needlessly. If it is invoked, the seller is irritated because it disrupts his organization and reflects upon him as being less than truthful. More important, he is in no position to correct the fault and can only provide a cash settlement which is distasteful to both parties.

A reputable dealer is in a somewhat better position to warrant a product. If it is bad, he can replace it with another unit or make some sort of adjustment in kind, rather than in cash. Cash adjustments are as difficult in used as they are in new equipment and hap pen about as often.

Once the equipment is purchased, either the dealer or the new owner should disassemble as much as is convenient and clean the unit. Bearings are expendable. High speed bearings should be changed if suspicious. Low speed bearings can have more leeway. Several chemical houses make good derusters and degreasing chemicals. A steam cleaner is a useful tool, but be careful of sandblasting anything except component parts. Sand is not good for gear boxes. Change all oil seals.

Gears are critical. Some gears can be reversed to give unworn, matching faces, making them, literally, as good as new. However, unless the gears have been over loaded, they seldom show excessive wear. Occasionally, a gear box may be warped. Avoid these units completely. They can seldom be repaired.

We generally hone out barrels and rebuild screws. However, it is a calculated cost to buy a new barrel and it does make the extruder worth more money. Remember, if the barrel diameter is increased by honing, the channel depth of the screw is changed and the operating characteristics are changed. For close tolerance work, such as nylon pro files, a close barrel and screw fit is necessary. For reprocessing, a little extra wear may even be desirable.

All power disconnects and motor starters should be kept and reused. They generally do not need repair. Temperature controllers and their accompanying contactors may need to be replaced. We recommend new solid-state controllers, if needed, and mercury contactors. Proper choice here is critical. Process control can be made equal to a new unit. Heaters and cooling units are generally adequate, but wiring should be inspected for faults.

Drive motors and controls are an entirely separate entity. We recommend that the buyer take the motor to his local electric motor shop to be checked out. That way, he can get whatever warranty he wants. One way is for the new buyer to pay for all labor on the motor and the seller to pay for all materials, if any. The speed control unit is always problematical. You can get an estimate from a good electrical house. If it is questionable, get a new unit.

Most motors today are DC. Older DC motors, most of them 240 volts, will operate with solid state controls even though they were originally matched with a motor-generator unit. They are limited in torque, however, because the wiring is exposed to the higher current generated by the solid-state wave form. Water-cooled eddy-current clutches are still in use and are entirely satisfactory when equipped with a closed-loop cooling system. They should always be operated at close to full motor speed.

Cone drive variable speed units are less satisfactory because the cones tend to wear and may cause reduced belt life. Also, they do not go to zero speed and they are noisy. A simple telephone call to the service department of any major extruder manufacturer will get you assembly drawings and service books, including lists of spare parts. Spare parts are less costly now than a few years ago as some manufacturers priced themselves out of business. They may charge for manuals, but they are well worth the cost.

It generally pays to get professional help. A consultant or a service man from the manufacturer will review your needs and can generally answer your questions on gearing, controls and adaptation to your present equipment. Your local utility and your insurance man are sources of detailed information.

By this time, your 25-30% purchase has reached 60-70% of the price of new equipment. However, your own maintenance can in turn cut this to 40%.

By all means, don't negate any safety devices. The best method is to make the installation in your plant, then go over every detail to make certain you have all turning elements guarded, all hot spots covered and all electricals properly grounded. Finally, instruct your personnel in the operation. We have the enviable record of running used extruders for 23 years without a lost-time accident. We're lucky, of course, but constant instruction and vigilance doesn't hurt.

Never think of used equipment as second-class. Either it can do the job properly or you shouldn't use it. Extruders are a tool and they should be honed and adjusted and then used by an expert, just as any fine tool.

- Robert L. Miller

See also:

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- Old vs. new extruders
- Used extruders

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