

THE BARRELLING PROCESS EXPLAINED

In barrelling, the articles and media intermingle as the barrel rotates, and the deburring, burnishing or polishing action is due to the surface of the articles and media sliding over each under the pressure exerted by the mass of media.

MACHINES

Modern rotating barrelling processes usually involve the use of barrelling compounds which are mixed with water and media. Turning speed between 20 and 45 rpm are normal with barrels up to 300mm diameter. 6 sided barrels create the best environment for quick results, circular barrels are very slow and not have any effect.

MATERIALS

The various barrelling compounds, when mixed with water, act as a abrasive or polishing lubricant between components and the medium. It prevents the medium from glazing and also keeps the components and tumbling media in good condition.

MIXED SHOT

For effective barrel burnishing it is essential that suitable steel balls be used and that these maintained in good condition. For the majority of Barrel burnishing, balls of 3 to 6mm (1/8" into 1/4") diameter are employed, in conjunction with special burnishing shapes to ensure effective burnishing of the surface of components. The ball content is usually recommended to be 80% of the total mix or unusual effects may occur.

MEDIA

Impregnated plastic and Ceramic media may be used in deburring of precious and non-precious metals.

Process example process based on the ROTABARREL 6 LITRE MACHINE

REQUIRED PARTS

6 litre ROTABARREL machine
3 kg 12mm GREEN CUTTING CONES
6 kg Mixed Barrelling shot and shapes
1kg "BARRELBRITE" BARRELLING POWDER
1 KG "PB" CUTTING POWDER

DEBURRING STAGE – Produces a matt surface, removes marks, scratches and surface defects. Can also be used to remove sharp edges.

DE-BURRING OPERATION

1. Load compartment with approximately 3 kg Green Cones.
2. Add cold water until the level is 15mm above the cones.
3. Add 25grams of "PB" cutting powder plus 10 grams "BARRELBRITE" barrelling powder.
4. Add work to be done. Maximum volume of work should not exceed 250 ml. efficiency of a barrel is more dependent on the ratio of volume of work than the weight ratio. Measure the work using a measuring jug or cylinder.
5. Close barrel securely. Switch on unit with green switch and run for 1 – 4 hours depending on the quality of the work being put in, and the finish required.
6. Empty barrel, wash well in running water.

You may increase the cutting effect by reducing the amount Of "BARRELBRITE" barrelling powder. Deburring is not necessary on all products. Many may be polished only using shot and shapes mix.

POLISHING STAGE

Produces a semi bright to bright finish on many metals. Reduces work on polishing wheels and does not harm fragile items.

All new shot should be run in the barrel for a maximum of 1 hour with 25 grams of "BARRELBRITE" barrelling powder per 25kg of steel shot and shapes. After the shot and barrel interior have been thoroughly washed the machine is ready for operation.

POLISHING OPERATION

1. Load compartment with approximately 6 kg of mixed shot.
2. Add cold water until the level is 15mm above the shot and shapes.
3. Add 25 grams of "BARRELBRITE" barrelling powder.
4. Add work to be done. Maximum volume of work should not exceed 250 ml. efficiency of a barrel is more dependent on the ratio of volume of work to shot than the weight ratio. Measure the work using a measuring jug or cylinder.
5. Close barrel securely. Switch on unit with green switch and run for 1 – 4 hours depending on the quality of work being put in, and the finish required.
6. Empty barrel, sieve work and shot separate, wash well in running water.

MAINTENANCE – To consistently achieve good results the following points must be observed.

1. Cleanliness is very important, keep inside of barrel clear of grease, deposits of lime and barrelling powder build up.
2. Shot must be kept clean and never allowed to oxidise or rust. Always keep shot under a solution of water and barrelling powder. For prolonged periods of non-use, add 25cc of Ammonia to this solution of barrelling liquid to increase the alkalinity of the solution. Rusted shot is useless and must be replaced.
3. Do not overload the work content of the barrel, damage to product may occur.
4. Try and use separate barrel bodies where different metals are being processed. This is particularly true when processing Gold after Silver as the residues of Silver will impart a light colour on the Gold. If separate barrel bodies are not available then washing of the media, barrel body and barrel lid must be done thoroughly to avoid problems.

ORDERING MATERIALS

ROTABARREL 6 LITRE MACHINE with 1 x 6 litre barrel (4484E)
ROTABARREL 12 LITRE MACHINE with 2 x 6 barrels (3486E)
ROTABARREL 18 LITRE MACHINE with 3 x 6 barrels (3486D)
1 Kg PACK "BARRELBRITE" BARRELLING POWDER (AG1450)
1 Kg PACK "PB" CUTTING POWDER (2051C)
1 Kg PACK 12mm GREEN CONES (1209B1)
2 Kg PACK MIXED STEEL BALLS AND SHAPES (1210B)