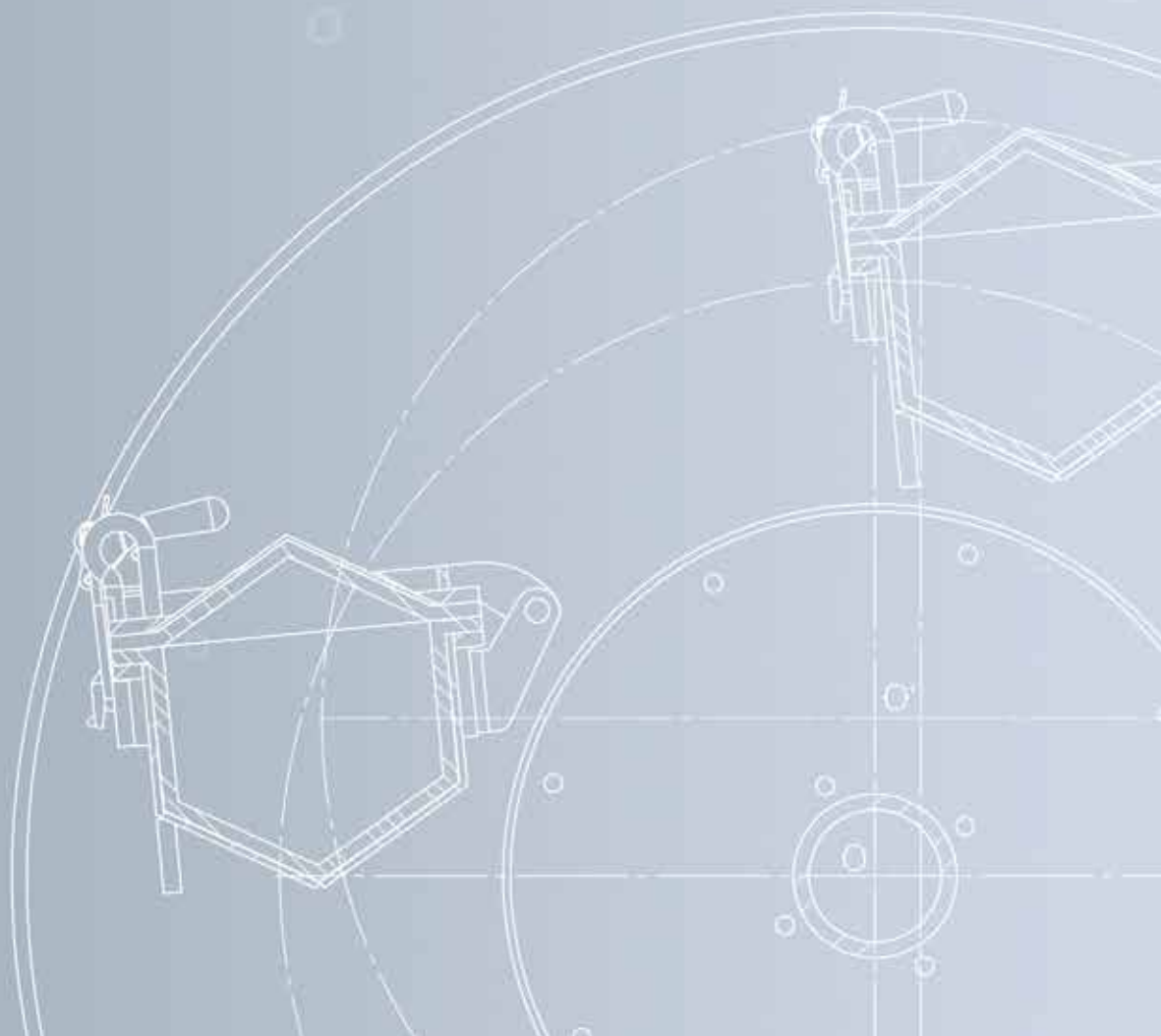


we redefine

High Energy Finishing



We're the UK's leading experts in designing and developing machinery and consumables for mass finishing applications.

we redefine:

- Aerospace
- Automotive
- Coin blanking
- Fashion
- General Engineering
- Hospitality
- Manufacturing
- Medical

and more...

Why Choose Us?

We're a family run business that pride ourselves on working as a strong, unified team of specialists.

We believe in British

Born in the United Kingdom, we are unique in our product design and the manufacture of our specialist machines and consumables.

We're here for you

Being based in the heart of the country means we have easy access to all of our clients.

We have experience

With five decades of experience and knowledge in the finishing industry, we know what works for you.

We provide options

We have an impressive range of media and compounds to choose from, including one of the best polishing compounds in the market. We also provide a wide range of machinery and subcontract services to meet all of your needs.

We go the extra mile

We'll tailor our services to your needs, not the other way round. Our service is all about you.



What is High Energy Finishing?

High Energy Finishing is a process that delivers superior results in a short space of time.

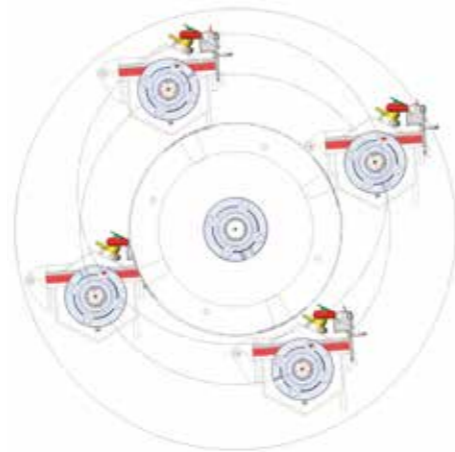
This is a stage in the manufacturing process of components, which allows small or large numbers of parts to be finished simultaneously. This method of finishing is used across a wide range of industries, from medical implants to jewellery.

In many cases, the results achieved via High Energy Finishing cannot be achieved in a standard vibratory process. Particularly applications that include achieving a high surface finish requirement, a mirror finish and the removal of heavy manufacturing defects. Parts that require hand finishing are excellent candidates for High Energy Finishing. One of the main advantages of High Energy Finishing is the reduced processing times for most applications, taking between 10 to 30 minutes. In comparison with vibratory finishing, HE finishing can be 10 times faster and produces superior finishes. It is one of the most efficient batch finishing methods.

The concept of a high energy machine can be closely related to a ferrous wheel where the barrels act as the seat, and the turret as the flywheel. The turret is belt driven, and rotated

at high speeds. The unit consists of 3 or 4 hexagonal or circular barrels mounted on the periphery of the turret. The turret rotates, setting up within these barrels a centrifugal force equal to 5 to 25 times the normal gravity. In addition to the rotation of the turret, the individual barrel also rotates. The rotation of the turret and barrels are opposite directions, at the same speed. The rotation of the turret at high speeds provides strong centrifugal force where high finishing efficiency can be expected. The result of this orbital motion is that the centrifugal force applied increases the weight of the abrasive media and this then slides against the components, producing a rapid cutting action.

Components to be processed wet or dry. In a wet process, parts are generally loaded as a batch with media and a solution made of a barreling compound and water. The barrels can be filled up to 70% of its volume. When processing large or fragile components, divider plates may be fitted to form compartments within the barrel in order that parts may be processed individually, ensuring no impingement, without the use of any fixturing.



The process benefits include:

- Significant reduction in surface roughness
- Shorter processing time than traditional methods
- Increased part cleanliness
- Removal of surface defects
- Corrosion protection
- Non part specific
- No major tooling required
- No requirement of fixturing
- Consistent and repeatable results

$$\underline{\text{Man}} \times \underline{\text{Machine}} \times \underline{\text{Media}} = M^3$$

Almost all manufactured components have experienced some surface improvement to ensure that these are in an acceptable condition for the end-user.

We understand the importance of surface finishing for components, and have worked closely with major manufacturers in the industry to adapt and develop finishing solutions that meet their stringent requirements. It has been proven that the solutions we've developed have benefited the industry by reducing processing times and producing a repeatable and quality product.

Surface Finishing is Critical in Keeping Manufactured Components Repeatable

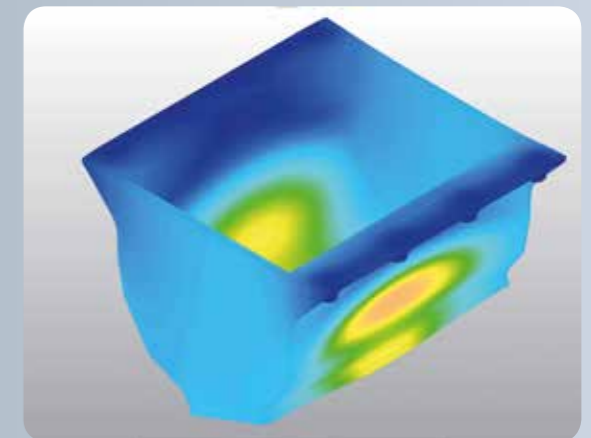
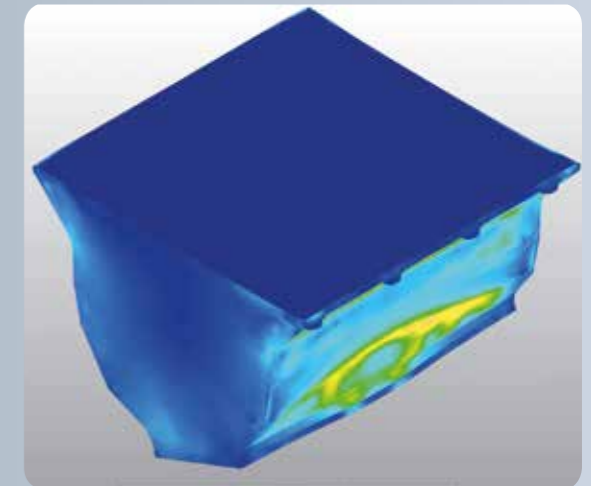
Manufacturing companies usually implement mass finishing techniques in their processes for the economic advantages, and the consistent results achieved. Manual finishing processes are known to be labour intensive, with the disadvantages of rework high part rejects rates and inconsistent results. Having identified the issues, we offer a wide range of unique solutions that improve current processes, achieving the repeatability and quality desired by manufacturers.

ActOn Research and Development

We are continually evolving our processes and machines, making them more effective. We also have academic connections throughout the United Kingdom and around the world, who help facilitate our Research and Development department, where we house various metrological equipment to ensure that our customers' requirements are met and exceeded.

With projects involving modal and dynamic FEA analysis of our centrifugal high energy machines, and the persistent gathering of empirical data on our various compounds, medias and machines, we strive to design and optimise everything we do to a high standard.

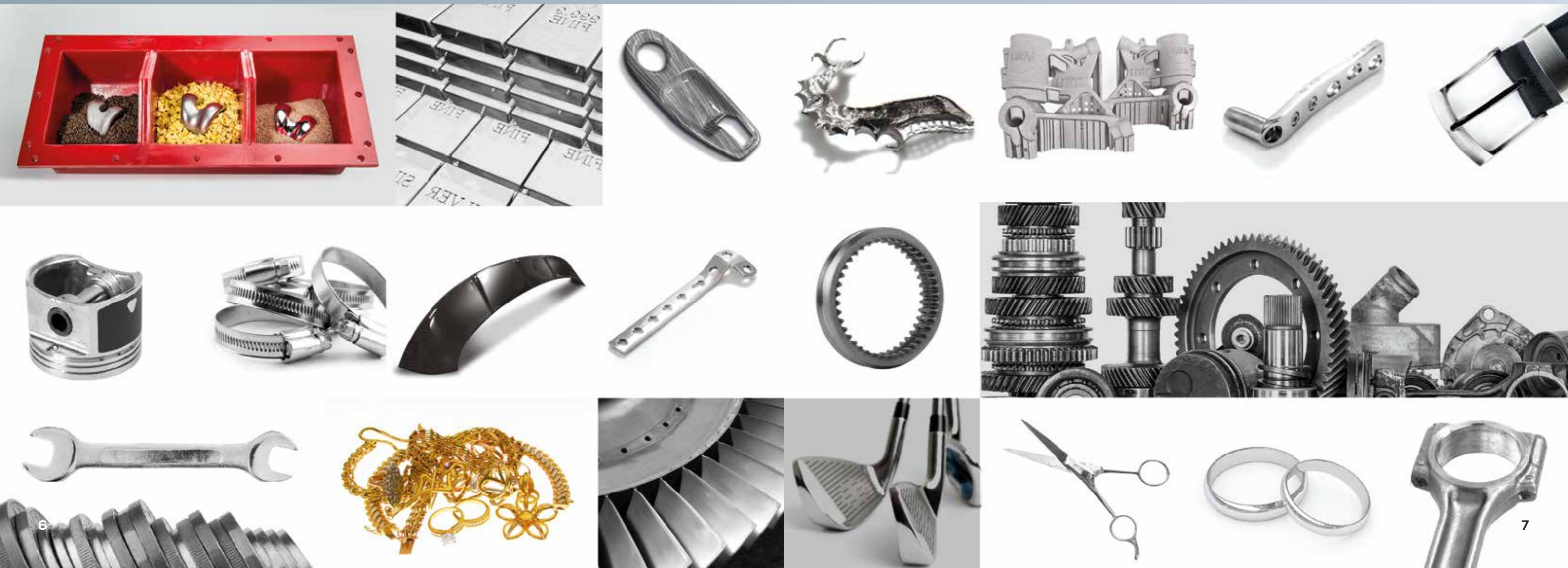
FEA Analysis



High Energy Applications

- Deburring
- Descaling
- Degreasing & Oil Removal
- Cleaning
- Smoothing
- Radiusing
- Brightening
- Polishing
- Drying
- Corrosion Protection

- Surface Finish
- Mirror Finish
- Defect Removal
- Stock Removal



Centrifugal High Energy Machine

ActOn's Centrifugal High Energy Finishing machines are possibly the most efficient of the finishing systems available in the industry. These machines generate a very high gravitational force and are designed to perfection and engineered to maximise output.

The CHE series machines are made with the latest in High Energy Technology. The drive mechanism is designed to produce high 'g' forces resulting in shorter process times. Hence these machines enable faster finishing of the parts, while ensuring high quality of the finishing component. With a variety of applications, the CPM and CHE series can give you an aggressive cut-down; yet it is precise enough to give a mirror shine to most of your delicate components.

ActOn engineers have ensured that each machine meets quality standards and undergo extensive testing before shipping to customers. ActOn has effectively leveraged its expertise in carefully selecting the raw materials and subsequent heat treatment on the critical components in the assembly, for longer life and safety.

Key Benefits:

- ✓ British built, high-quality product
- ✓ Unique Drive Mechanism
- ✓ The nucleus is constructed of steel carefully selected for its metallurgical properties
- ✓ Critical components heat-treated for added durability
- ✓ PLC controlled
- ✓ High polishing efficiency
- ✓ High or low rate of stock removal
- ✓ Gentle action on parts
- ✓ Greater control of the process
- ✓ No need for fixturing or tooling
- ✓ Fast processing times
- ✓ No part impingement
- ✓ Easy to maintain
- ✓ Operator friendly
- ✓ Option to carry out different processes in each barrel
- ✓ Availability of automated systems
- ✓ Easily customised to suit applications



CPM10

The CPM10 is built with the latest high energy technology and it has a direct drive system with counter rotating turrets and barrels. Typically used for small components, it can be aggressive enough to handle your toughest burr, yet precise enough to process the most delicate piece.

- Unique barrel design with clamping system in either circular or hexagonal configuration.
- Removable barrels.
- Easy and quick barrel changeover.
- Wear resistant polyurethane liners.
- Removable liners.
- Pressure release valves on barrels.
- Safety Feature: door interlocking safety switch provided.
- Single Phase.
- Mobile unit as it is mounted on castor wheels.
- Storage space for spare barrels and consumables.
- Compact design, space saving machine.
- Manual load and unload.
- Very quiet machine in operation.
- A unique jogging facility has been incorporated for accurate positioning of the barrels for unloading and loading of components.

Please refer to page 22 and 23 for further information on the standard and optional features available on this model.



Model	Capacity		Number of Barrels	Barrel Shape	Overall dimensions in mm / inch			Barrel Size in mm / inch (with liners fitted)		Max. Motor Rating (kW)	Max Barrel Speed (RPM)
	Cu. Ft.	Litres			Length	Width	Height	Hexagonal Barrel	Circular Barrel		
								Width x Length	Diameter x Length		
CPM10	0.35	10	4	Hexagonal or Circular	1080 / 42.5	875 / 34.4	1700 / 66.9	136 x 129 / 5.4 x 5.1	157 x 129 / 6.2 x 5.1	11	225

Sizes indicated above are standard. Custom sizes can be manufactured to suit specific applications. Dimensions are subject to change due to design improvements.

CPM10



Pressure Release System

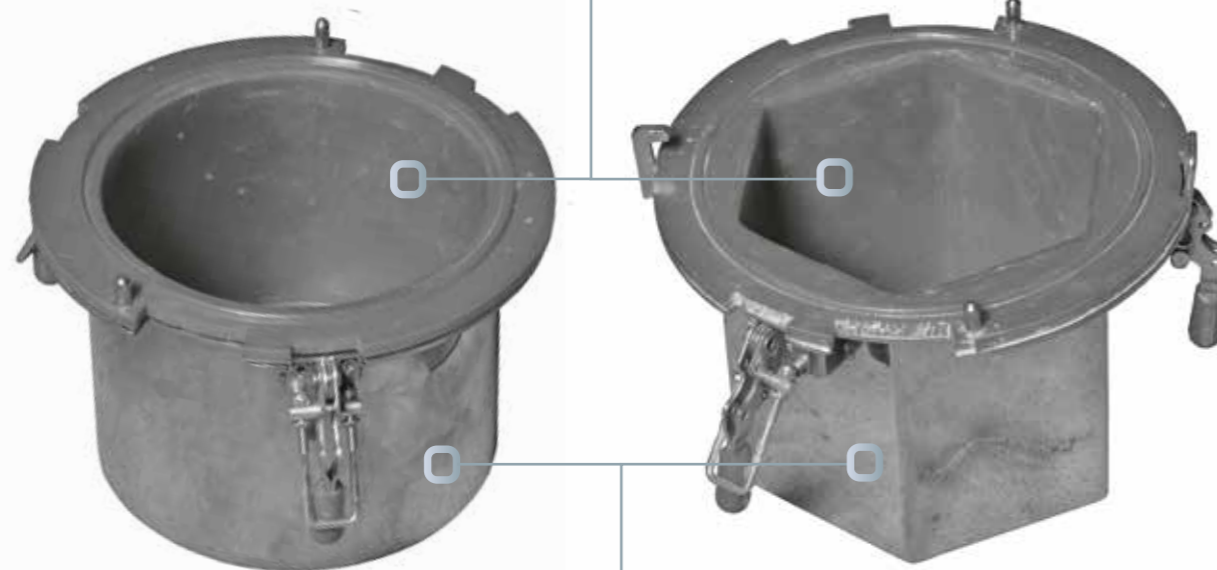
Operator releases the pressure prior to opening the barrels.

Door Interlock Safety Switch

Locks access door in closed position while the turret is in motion, thus eliminating health & safety hazards.

Control System

ON / OFF button; controls jogging the barrels accurately positioning them for unloading and loading of components. If required, a speed control option can be included.



Barrel Liners

Polyurethane casted liners. Interchangeable.

Circular / Hexagonal Barrels

Unique barrel design with clamping system. The barrels are removable and can be supplied in a hexagonal or circular shape.

Circular / Hexagonal Barrels

Unique barrel design with clamping system. The barrels are removable and can be supplied in a hexagonal or circular shape.

Storage space for spare barrels and consumables.

CHE30

Like CPM10, the CHE30 is a manually operated centrifugal high energy machine. This machine is equipped with 4 hexagonal barrels and it is ideally suited for small to medium batch sizes.

The ActOn CHE30 Machine is unique in its design. The drive system, in addition to having a drive and driven plate, also has a spider plate, which is mounted eccentrically. This ensures that an increased Centrifugal Force is developed within the barrel delivering greater polishing efficiency, thereby resulting in a good cut down or high shine on the components in the shortest possible time.

ActOn's CHE30 machine uses a drive system where the transmission of energy from the motor to the rotating turret is achieved through the direct arms - spider pin combination. This is unlike conventional Centrifugal Machines, which use a series of intermediate belts, idler pulleys, belt tensioners, adjusters, chains etc. to convey the energy from the motor.

Please refer to page 22 and 23 for further information on the standard and optional features available on this model.

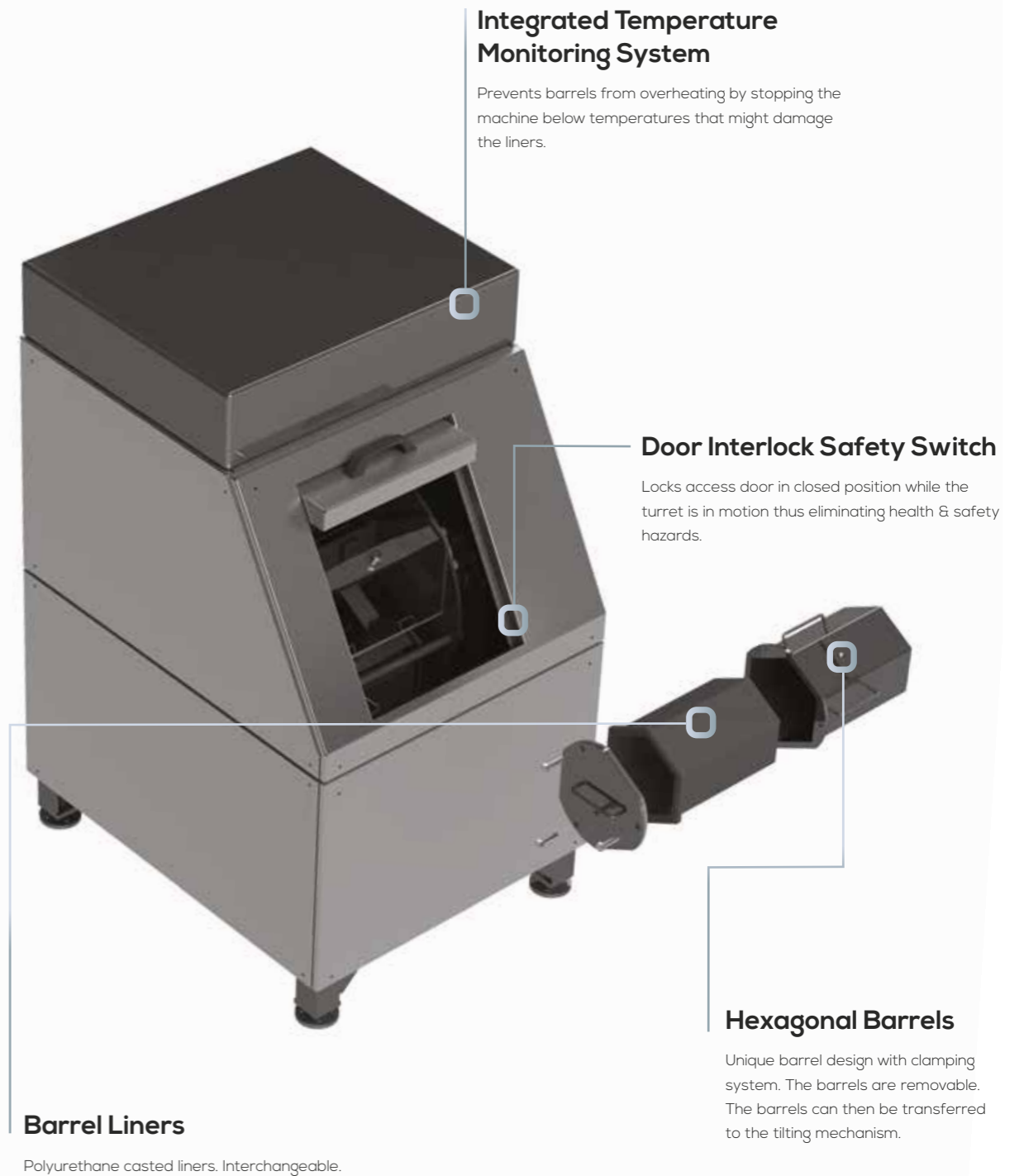


- Main rotating assembly is precision machined.
- Rotating assembly consists of heat-treated parts and is mounted on a rugged frame.
- Side panels are manufactured using CNC machines and are finished for aesthetic appeal.
- Control panel positioned on top of machine for operator safety.
- Unique barrel design with clamping system in hexagonal configuration.
- Replaceable polyurethane liners.
- Removable liners.
- Removable barrels.
- Safety Feature: door interlocking safety switch provided.
- Very quiet machine in operation.
- A unique jogging facility has been incorporated for accurate positioning of the barrels for unloading and loading of components.

Model	Capacity		Number of Barrels	Barrel Shape	Overall dimensions in mm / inch			Barrel Size in mm / inch (with liners fitted)		Max. Motor Rating (kW)	Max Barrel Speed (RPM)
	Cu. Ft.	Litres			Length	Width	Height	Width	Length		
CHE30	1.05	30	4	Hexagonal	840 / 33.07	1040 / 40.94	1575 / 62.01	173 / 6.81	292 / 11.49	3.75	250

Sizes indicated above are standard. Custom sizes can be manufactured to suit specific applications. Dimensions are subject to change due to design improvements.

CHE30



Integrated Temperature Monitoring System

Prevents barrels from overheating by stopping the machine below temperatures that might damage the liners.

Door Interlock Safety Switch

Locks access door in closed position while the turret is in motion thus eliminating health & safety hazards.

Hexagonal Barrels

Unique barrel design with clamping system. The barrels are removable. The barrels can then be transferred to the tilting mechanism.

Barrel Liners

Polyurethane casted liners. Interchangeable.

CHE40, CHE50, CHE80 & CHE240

These machines are semi-automated machines and are equipped with hexagonal shaped barrels. The system incorporates a direct drive mechanism which generates high g-forces resulting in shorter processing times.

The simplicity of the design makes the Acton Centrifugal machine user friendly and easy to maintain. In addition, a disposable automatic lubricating system is provided on each bearing in the drive system for continuous ingress of grease. The lubricator is easy to remove and can be refitted with a new lubricator when empty.

Please refer to page 22 and 23 for further information on the standard and optional features available on these models.

- Hinged barrels with clamps makes it easy to use.
- Wear resistant polyurethane liners.
- Liners available with dividers to avoid damage of parts.
- Removable liners.
- Metal reinforced liners available for rigidity and sealing, when processing very small parts.
- Incorporates the spider plate technology for added thrust for processing of components.
- Variable frequency drive.
- The motor rating can vary to suit specific application due to part weight.
- A unique jogging facility has been incorporated for accurate positioning of the barrels for unloading and loading of components.
- Geared motor for barrel tilting mechanism for automatic unloading is provided.
- Proximity sensor provided for accurate positioning of barrels in the loading and unloading position.
- Safety Feature: door interlocking safety switch provided.
- Integrated Temperature Monitoring System to ensure that any overheat within the barrels will result in the machine coming to a stop to prevent any damage to the liners.
- Pressure release valves are mounted on each barrel for release of pressure prior to opening the barrels. This operation is carried out manually by the operator. Automated pressure release system integrated with the PLC is available as an option.
- Belt tightening system.
- The machine requires no foundation and can be located on any levelled surface using the levelling screws provided.
- The program in the PLC operated machines can be customized to user requirements.
- Maintenance alerts.
- 100 Recipe programs.
- Unbalance weight detection.
- Vibratory Screen Separator provided to separate the media from parts.
- Compound dosing system included.
- Rotating assembly consists of heat-treated parts and is mounted on a rugged frame.
- Very quiet machine in operation.
- Available in Painted and Stainless Steel version.
- CHE240 machine can be manufactured to include special split bearings (optional).

Model	Capacity		Number of Barrels	Barrel Shape	Overall dimensions in mm / inch			Barrel Size in mm / inch (with liners fitted)			Max. Motor Rating (kW)	Max Barrel Speed (RPM)
	Cu. Ft.	Litres			Length	Width	Height	Width	Length	Height		
CHE40	1.41	40	3	Hexagonal	1220 / 48.03	1570 / 61.81	1560 / 61.41	180 / 7.08	480 / 18.89	208 / 8.18	4.0	225
CHE50	1.88	53.5	4	Hexagonal	1230 / 48.42	2000 / 78.74	1950 / 76.77	180 / 7.08	480 / 18.89	208 / 8.18	5.5	175
CHE80	2.82	80	4	Hexagonal	1270 / 50.00	1640 / 64.56	2700 / 106.29	215 / 8.46	520 / 20.47	248 / 9.76	5.5	150
CHE240	8.47	240	3	Hexagonal	1720 / 67.71	1740 / 68.50	3050 / 120.07	365 / 14.37	693 / 27.28	422 / 16.61	11.0	125

CHE40



CHE50



CHE80



CHE240



CHE40

Temperature Monitoring System

To ensure that any overheat within the barrels will result in the machine coming to a stop to prevent any damage to the liners.

Pressure Release System

The operator releases the pressure manually prior to opening the barrels.

PLC & HMI Controls

Control process parameters, recipes, maintenance alerts and accessories.

Hexagonal Barrels

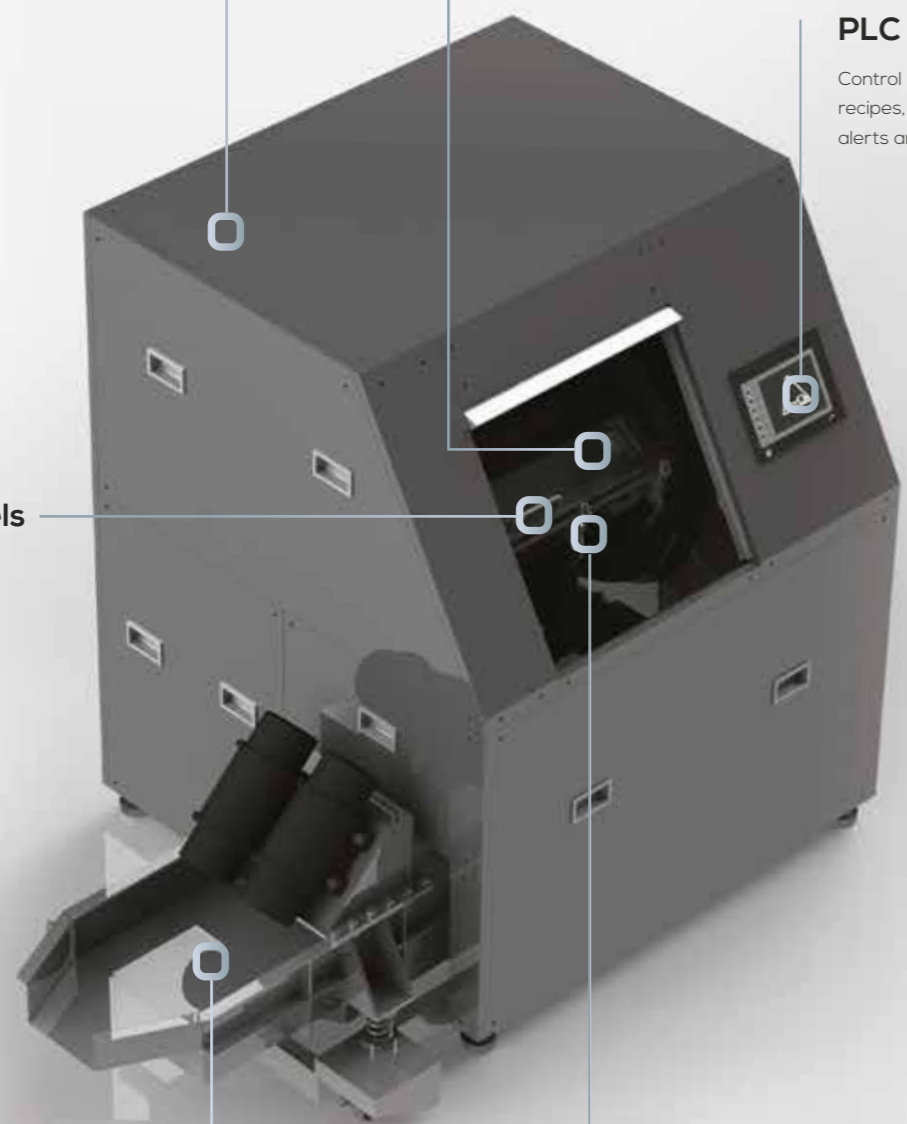
Unique barrel design with clamping system.

Vibratory Separator Screen

To separate media and parts at the end of process. In addition, all the solution is drained away. After the completion of the process, the barrels tilt, thereby emptying all the contents inside (parts, media and liquid solution) onto the separation screen.

Lid Liners

Polyurethane casted liners. Available in standard version and metal reinforced version. To avoid part impingement, the lid liners can be provided with dividers.



CHE50

Automated Dosing Control

Compound & water reservoir fitted with diaphragm pump allowing precise metering of desired compound and water mix. The solution is transferred into the barrel via the swivel tube.

Lid Lifting Hook

To ensure that any overheat within the barrels will result in the machine coming to a stop to prevent any damage to the liners

Lid Liners

Polyurethane casted liners. Available in standard version and metal reinforced version. To avoid part impingement the lid liners can be provided with dividers.

PLC & HMI controls

Temperature Monitoring System

To ensure that any overheat within the barrels will result in the machine coming to a stop to prevent any damage to the liners.

Pressure Release System

Parts Trolley

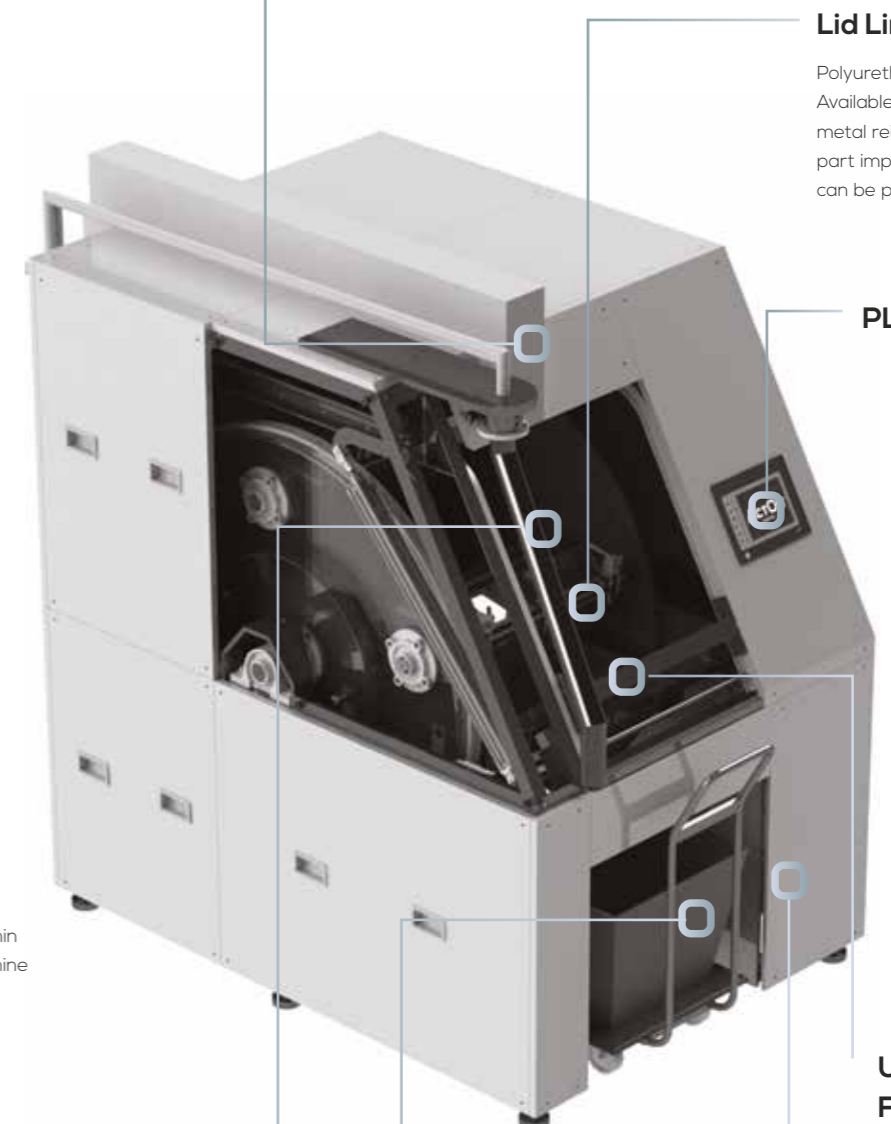
To collect components post process. Normally, a perforated basket which is in a box, is placed on the trolley. This allows the parts to be separated from the media and liquid.

Bottom Doors For The Trolley

Pneumatically operated doors to allow the operator to push the trolley to collect the parts.

Unload Chute For Delicate Parts

Polyurethane lined to ensure all the contents from the barrels are guided into the basket.



Man x Machine x Media = M³

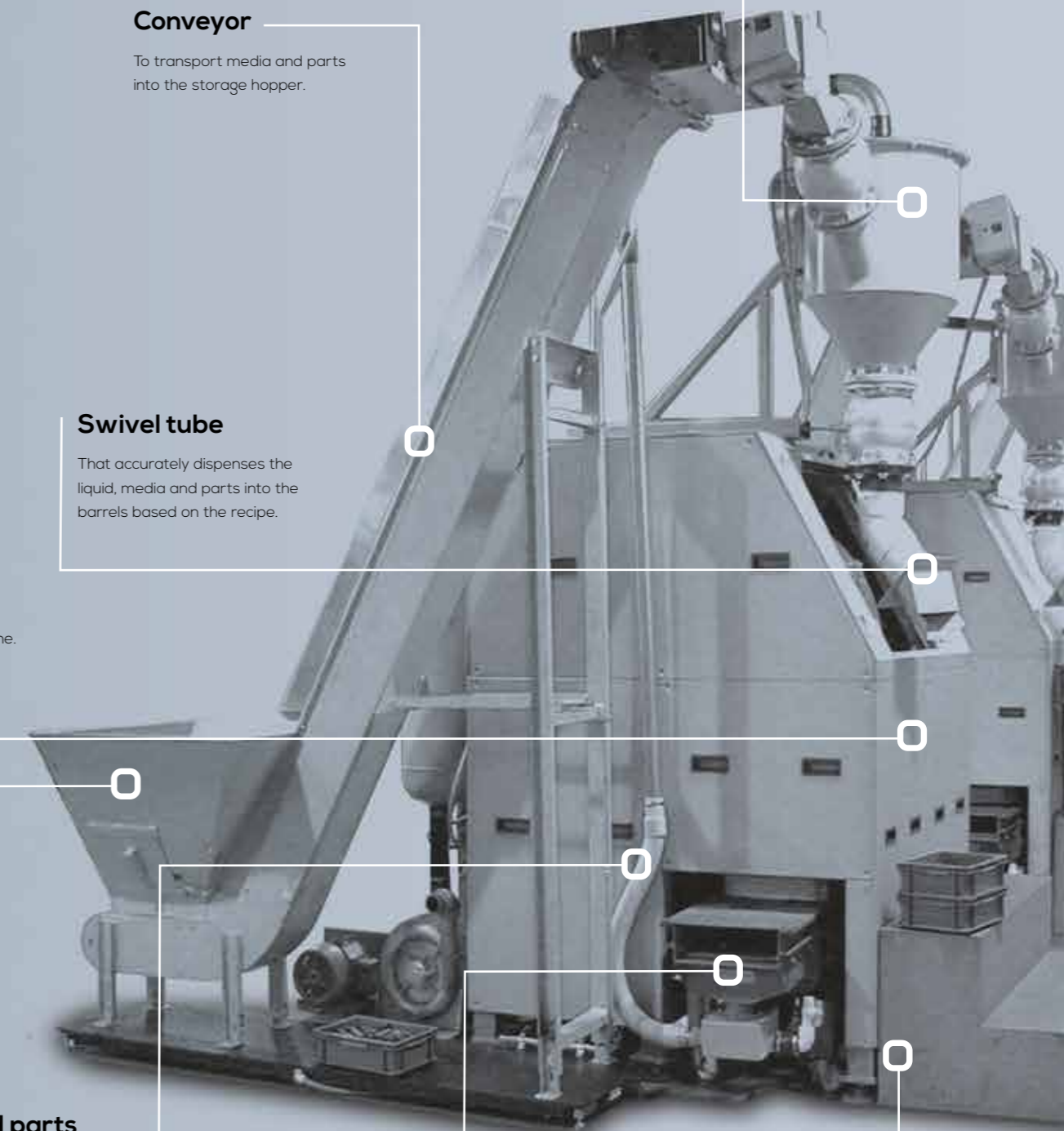
CHE240 Finishing System

System Description & Process

The following system was designed and manufactured for processing of aerofoils. The system is PLC controlled ensuring measurements of media, parts and compound are precise and accurate. The system delivers consistent results in short cycle times. The HMI allows the operator to choose the desired recipe and have access to the maintenance schedules.

Advantages

- ✓ Ensures consistency in quality
- ✓ PLC fully controlled process to ensure minimum reliance on operator
- ✓ Durable machine due to design, good quality materials and workmanship knowledge
- ✓ 100% media part separation
- ✓ Suited for small and large volumes of parts
- ✓ Option to carry out different processes in each barrel
- ✓ Time efficient
- ✓ Easy to set recipes to suit various processes
- ✓ Component superior finish in comparison with Vibratory finishing machines



Storage hopper

With load cells that controls the weight of parts and media being dispensed into the barrel.

Conveyor

To transport media and parts into the storage hopper.

Swivel tube

That accurately dispenses the liquid, media and parts into the barrels based on the recipe.

CHE240

Finishing Machine.

Media and parts storage hopper

With weight control.

Media recirculation system

Transports the media back into the storage hopper post the process.

Separation system

To separate parts and media at the end of the process. This system also has a drain for all the liquid to be emptied.

Work platform

High Energy Range

	CPM10	CHE 30	CHE 40	CHE 50	CHE 80	CHE 240
Machine Door						
Manually Operated	○	○	○	○	○	
Pneumatically Operated			+	+	+	○
Pressure Release						
Manual	○		○	○	○	○
Automated			+	+	+	+
Temperature						
Temperature monitoring		○	○	○	○	○
Barrels						
Hexagonal Barrels	○	○	○	○	○	○
Circular Barrels	+					
Bearings						
Standard Bearings	○	○	○	○	○	○
Special Split Bearings						+
Motor						
Single Speed	○	+	+	+	+	+
Variable Speed	+	○	○	○	○	○
Control Systems						
Standard Controls	○	○	○	○	○	+
PLC / HMI Controls	+	+	+	+	+	○
Automation						
Media Recirculation system			+	+	+	+
Parts Recirculation system			+	+	+	+
Compound Dosing System			+	+	+	+
Lid Lifting Hook (Pneumatically operated)			+	+	+	+
Unbalanced Weight Detection			+	+	+	+
Liners						
Polyurethane Liner	○	○	○	○	○	○
Reinforced Lid Liner	+	+	+	+	+	+
Accessories						
Vibratory Separator			+	+	+	+
Media Feeder/Hopper			+	+	+	+
Recirculation Tank			+	+	+	+
Batch Centrifuge			+	+	+	+
Lifting Station with Pump			+	+	+	+
Barrel Tilting Mechanism		+				
Unload Shute system (For delicate parts)			+	+	+	+
Parts Trolley			+	+	+	+

1. The above accessories are the most commonly used. Please refer to our accessories brochure for more options along with detailed description.

2. If certain options are required, PLC + HMI controls will be necessary.

3. Dimensions may change depending upon the optionals and accessories chosen.

+ Optional ○ Standard

Value Added Service

On top of our state-of-the-art machinery and media, we also supply a range of support and training services.

Learn more on how you'll benefit:



Waste Water Treatment

During the finishing operation, the effluent can be polluted with oil, media and metal fines. It is critical that the effluent must be treated before going to drain, or if it is being recycled back into the system. Each area or district has its own discharge consent, hence the effluent must be analysed against this.

The effluent can be recycled, however there are certain applications where it is not possible. In those cases, the treated effluent can be transferred directly to the drain. Recycling can save on the significant amount of water and compounds (greater than 90%) used.

We offer a range of flocculants (powder and liquid) coupled with our Centrifugal technology. Please refer to our waste water treatment brochure for more details.

Subcontract Services



Precision Polishing

In order to provide you with complete surface finishing solutions, we offer a precision polishing service for components from various industry sectors. In combination with our barrelling capability, you'll benefit in terms of cost, delivery and quality. Our applications include removal of manufacturing defects on femurs and aerofoils, which are inherent in the casting and forging process.

Inspection

Our trained inspectors ensure every component is inspected to the required specification prior to delivery. The inspections can include visual, dimensional and surface finish measurements. Our document controls ensure that all inspections are recorded for traceability purposes.

High Energy and Vibratory Finishing Services

Our factory is well equipped with High Energy (HE) and Vibratory machines, which are designed and manufactured by our Engineers. The HE machines provide a speedy finishing solution, as well as a high quality finish to the parts, eliminating any need of fixturing and preventing their impingement. Along with the HE machines we also have Vibrota finishing equipment, which processes parts of variable sizes and batch quantities.



After-sales, Training and Installation

We hire a number of highly trained staff, including engineers, who are on-call for all of your after-sales requirements. From installation and training, to maintenance and prompt professional advice, our finishing specialists are here for you every step of the way.



What Our Customers Say

“ ActOn have revolutionised the way we finish, saving us time and money with the use of their machines and media. ”

“ From developing a bespoke process, to installing machines and training our staff, ActOn were excellent throughout. ”

“ I have been running this machine for over 10 years, and it's still going.”

Quality You Can See

We pride ourselves on our excellence, and over the years we have successfully demonstrated an ongoing compliance with ISO quality and environmental standards.

For ISO, we currently hold:



We're proud members of the 'Made in Britain' campaign.

we redefine

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