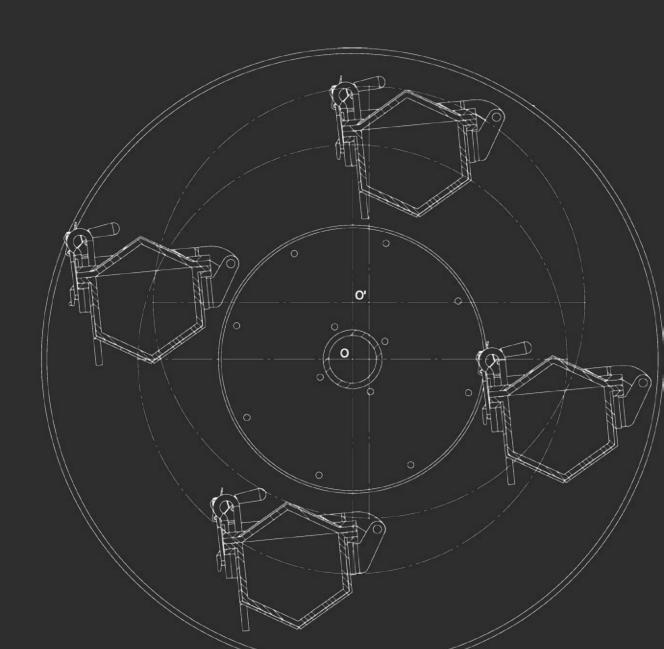


we redefine

# High Energy Finishing



We offer a range of High Energy Finishing machines to help our customers achieve the surface finish they need. We can cater to all your application requirements including deburring, degreasing & oil removal, cleaning, descaling, radiusing, smoothing and polishing. We will offer you full support every step of the way.

# we redefine:

- Vibratory Finishing
- High Energy Finishing
- Shot Blasting

- Consumables
- Precision Polishing
- Subcontract Services

# Why Choose

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

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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 or 4 hexagonal or circular barrels mounted on process of components, which allows small simultaneously. This method of finishing is used across a wide range of industries, from medical implants to jewellery.

Energy Finishing cannot be achieved in a standard vibratory process. Particularly 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 Components to be processed wet or dry. In applications, taking between 10 to 30 minutes. In comparison with vibratory finishing, HE finishing can be 10 times faster and produces of a barrelling compound and water. superior finishes. It is one of the most efficient The barrels can be filled up to 70% of its batch finishing methods.

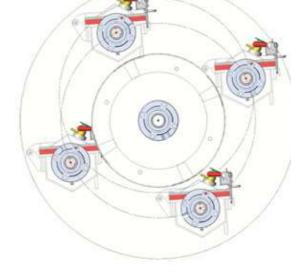
The concept of a high energy machine can be closely related to a ferrous wheel where the barrels act as the seat, and the turret as the flywheel. The turret is belt driven, and rotated at high speeds. The unit consists of 3

the periphery of the turret. The turret rotates, or large numbers of parts to be finished 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, In many cases, the results achieved via High at the same speed. The rotation of the turret at high speeds provides strong centrifugal force where high finishing efficiency can be applications that include achieving a high 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.

> a wet process, parts are generally loaded as a batch with media and a solution made 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



Man  $\times$  Machine  $\times$  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

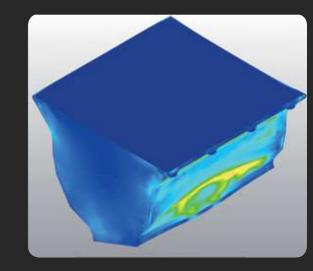
Manufacturing companies usually implement mass finishing techniques in their processes for the economic advantages, and the consistent results achieved. Manual finishing processes are known to be labour intensive, with the disadvantages of rework high part rejects rates and inconsistent results. Having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

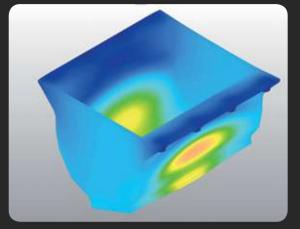
# **ActOn Research and Development**

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

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

**FEA Analysis** 





# High Energy Applications



Deburring

**Surface Finish** 

Descaling

Mirror Finish

Degreasing & Oil Removal

**Defect Removal** 

Cleaning

**Stock Removal** 

Smoothing

Radiusing

Brightening

Polishing

Drying

**Corrosion Protection** 













































# Centrifugal High Energy Technology

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

Request your Free Trial today!

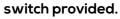


# CPM10

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.
- Removable and wear resistant polyurethane liners.
- PLC controlled. The program in the PLC can be customized to user requirements. 100
- Recipe programs.
- Pressure release valves on barrels.
- Safety Feature: door interlocking safety

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



- 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 parts.





	Capac	ity						Barrel Size in mm / inch (with liners fitted)			
Model	Cu. Ft.	Litres	Number of Barrels	Barrel Shape	Overall dimensions in mm / inch			Hexagonal Barrel	Circular Barrel	Max. Motor	Max Barrel Speed
					Length	Width	Height	Width x Length	Diameter x Length	Rating (kW)	(RPM)
CPM10	0.35	10	4	Hexagonal	1080 /	845/	1700 /	136 x 129 /	157 x 129 /	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









Operator releases the pressure prior to opening

Pressure Release System

# 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.

**Barrel Holding Station** 

### Manual Separator with —— Splash-Guard

the barrels.

Enables end user to separate parts from media from CPM10 barrels at the end of the process.

- Includes a barrel resting station, for emptying contents onto a separation screen.
- The separation screen has a tapered end to feed the media back into the barrels for next cycle.
- Equipped with water gun to clean media and parts of any sludge accumulation.
- Includes a collection chamber attached to a drain valve, to collect the discharged water. This can be connected to a drain directly, or emptied into a drum for later removal
- Mounted on castor wheels for easy movement



### Door Interlock Safety Switch

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

### PLC & HMI Controls

Control process parameters, recipes, maintenance alerts, jogging the barrels accurately positioning them for unloading and loading of components and accessories.



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.

# CHE<sub>30</sub>

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.

Like CPM10, the CHE30 is a manually operated ActOn's CHE30 machine uses a drive system where the transmission of energy from the motortotherotatingturretisachievedthrough 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.
- 0 Unique barrel design with clamping

- system in hexagonal configuration.
- 0 Replaceable polyurethane liners. 0 Removable liners.
- 0 Removable barrels.

components.

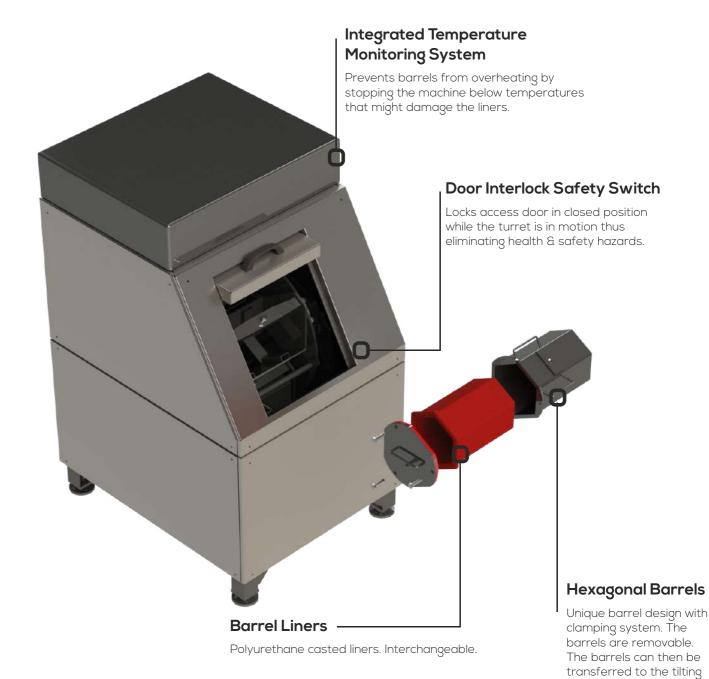
- Safety Feature: door interlocking safety switch provided.
- 0 Very quiet machine in operation. A unique jogging facility has been incorporated for accurate positioning of the barrels for unloading and loading of

**Contact us** to request your Quotation today!

# **Technical Information**

Model	Capacity		Number of	Barrel	Overall dimensions in mm / inch			Barrel Size in mm / inch (with liners fitted)		Max. Motor Rating	Max Barrel Speed
	Cu. Ft.	Litres	Barrels	Shape	Length	Width	Height	Width	Length	(kW)	(RPM)
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.



mechanism.

# 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 accessories available on these models.

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

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



CHE40 with Magnetic Separation System











# **Key Features**

- 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 parts.
- 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.
- Uibratory 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).

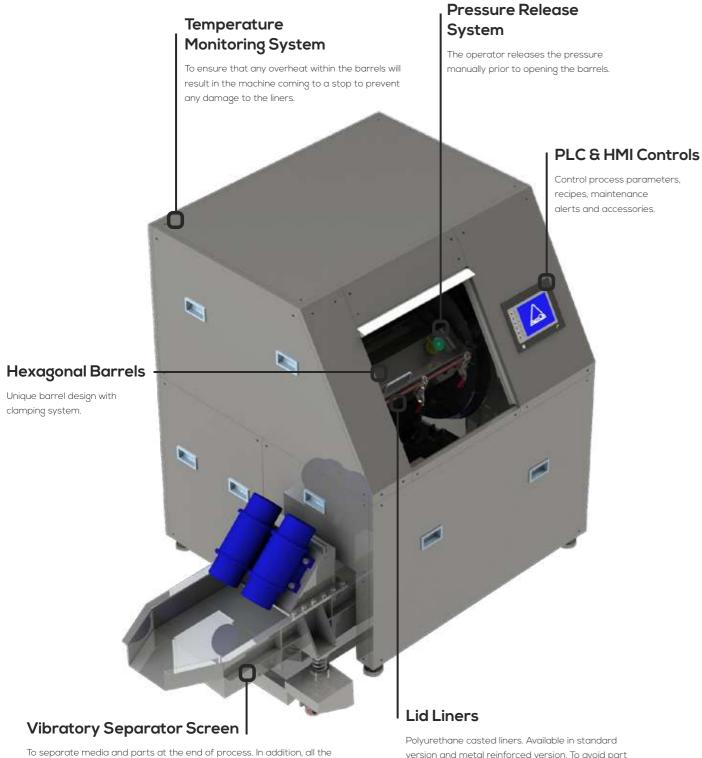


# CHE40

# CHE50







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.

version and metal reinforced version. To avoid part impingement, the lid liners can be provided with dividers.

### **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.

### 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** 

Lid Lifting Hook

# 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 **Monitoring System** To ensure that any overheat within the barrels will result in the machine

# **Unload Chute** For Delicate **Parts**

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

### **Bottom Doors For** The Trolley

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

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.

Parts Trolley -

18 19

**Temperature** 

coming to a stop to prevent any damage to the liners.

Pressure Release System

# Man x Machine x Media = $M^3$

# CHE240 Finishing System

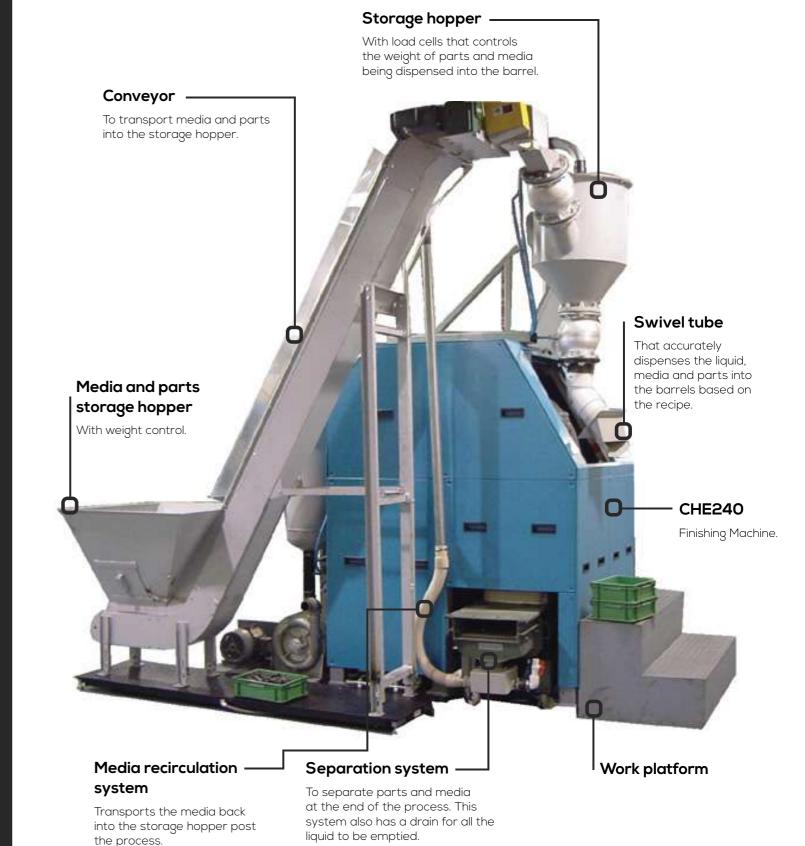
# **System Description & Process**

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

Request your <u>Free Trial</u> today!



# Accesories for High Energy Range

	CPM10	CHE 30	CHE40	CHE50	CHE80	CHE240
Machine Door						
Manually Operated	0	0	0	0	0	
Pneumatically Operated			+	+	+	0
Manualy Operated						
Manual	0		0	0	0	0
Automated			+	+	+	+
Temperature						
Temperature Monitoring		0	0	0	0	0
Barrels						
Hexagonal Barrels	0	0	0	0	0	0
Circular Barrels	+					
Bearings						
Standard Bearings	0	0	0	0	0	0
Special Split Bearings						+
Motor						
Singe Speed	0	+	+	+	+	+
Variable Speed	+	0	0	0	0	0
Control Systems						
Standard Controls		0	0	0	0	+
PLC / HMI Controls	0	+	+	+	+	0
Automation						
Media Recirculation System			+	+	+	+
Parts Recirculation System			+	+	+	+
Compound Dosing System			+	+	+	+
Lid Lifting Hook (Pneumatically operated)			+	+	+	+
Unbalanced Weight Detection						
Liners						
Polyurethane Liner	0	0	0	0	0	0
Reinforced Lid Liner	+	+	+	+	+	+
Accessories						
Vibratory Separator			+	+	+	+
Media Feeder / Hopper			+	+	+	+
Recirculation Tank			+	+	+	+
Batch Centrifuge			+	+	+	+
Lifting Station with Pump			+	+	+	+
Barrel Tilting Mechanism		+				
Unload Chute System (For Delicate Parts)			+	+	+	+
Parts Trolley			+	+	+	+
Manual Separator with Splash-Guard	+					
Barrel Holding Station	+					
9	•					

<sup>22 1.</sup> 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.

<sup>+</sup> Optional O Standard

# we manufacture









# **Bowls**

Each of our Bowls are simple to operate, highly efficient, and manufactured in classic designs and sizes to meet your unique applications.



# **Centrifugal High Energy**

Engineered with the latest technology, the drive mechanism is designed to produce high g-forces, resulting in shorter process times. This technology can be used for both wet and dry processes.



# **Troughs**

We offer Troughs in many different sizes and an infinite choice of length and width combinations, making them one of our most versatile. These are particularly useful for larger components.



# **Shot Blasting Cabinets**

We offer a range of Shot Blast Systems to help our customers achieve the surface finish they need every time. Whether you require to descale, remove corrosion, mill scale, paint or rust, achieve a smooth finish, deflash, polish or strengthen the metal we will offer you full support every step of the way.



# **Duals**

The orbital Dual finisher works to both deburr and dry in one single unit. This is both an excellent and economical finishing option.



# **Wheel Blasting Systems**

At ActOn we now offer a range of Wheel Blast Systems to help you achieve the surface finish you need. We can cater to all your application requirements including descaling, removal of corrosion or rust, paint stripping, de-flashing, achieving a smooth finish, shot peening, polishing and surface preparation prior to coating.



# **Dryers**

Our unique, elliptical-shaped Vibratory bowl drying machines are compact in size, and simple to operate. The design provides the flexibility to use it as an effective 1 lap drying process or a multi lap process. We also offer centrifugal dryers, conveyorised ovens and rotary dryers.



# **DLyte Technology**

DLyte Finishing Technology is a fully automatic finishing system which enables you to deburr, grind, surface finish & mirror polish in one step. It is used for metal parts which require high performance or superior finishes, including steel and stainless-steel, cobalt chrome, titanium, nickel and other common metal alloys.



# Wheel Polisher

Suitable for achieving a highly polished finish on wheels with different sizes (up to 610 mm), the AWP188 machine has been designed to be simple to operate and to produce excellent results. The wheel polisher is great for grinding, smoothing and polishing processes.



# **Waste Water Treatment**

During the finishing operation, the effluent can be polluted with oil, media and metal fines. Our customers trust us to help select a waste water treatment system that complies with the industry's growing regulations. Once processed, the effluent is treated in the ActOn centrifuge system before being discharged to the drain or recycled.

Man x Machine x Media =  $M^3$ 

# Consumables

Over the years, we have been at the forefront of the industry, developing a range of consumables with the aim of achieving the desired finish on various components.

Working closely with highly skilled manufacturers, our Engineers have understood the numerous challenges faced in the different industries and developed suitable consumables.

Choosing the right consumables is crucial in achieving your desired finish, and we endeavour to help you, and all customers, select the media and compounds right for your products.



### **Liquid Compounds**

An extensive range of compounds is manufactured on site, which suit almost any application. Compounds accomplish cleaning, inhibiting for rust and corrosion of parts, brightening, descaling and degreasing. Often, they reduces media costs and process time. All of our compounds are biodegradable, too.



### **Powder & Pastes**

A full range of powders and pastes are available, all of which complement the media and contribute to the grinding, cleaning and polishing of ferrous and non-ferrous materials. These products are suitable in freshwater operations.



### Plastic Media

Our range of plastic media comes in various grades, shapes and sizes and is specially designed for smoothing processes and removing light burrs. This media also reduces the risk of part damage, and gives us a consistent, bright and matte finish.



### Ceramic Media

Our ceramic media comes in a variety of abrasive grades, starting from low abrasive to super finishing. This type of media is suitable for various deburring, radiusing and polishing processes, and is specially formulated to go hand-in-hand with ActOn's compounds.



# Agro Media

Part of our agro media range is corncob and walnut shell. Both products come in various grain sizes, which are carefully chosen to suit the specific parts. The corncob grains are known to have high abrasion resistance, good moisture absorption, low specific gravity and are employed mainly for drying in the Rotary Dryers and Vibratory Dryers. Walnut shell is a hard and fibrous material of medium abrasiveness, and is used in both the polishing and deburring processes, as it leaves no scratches or pitting.

### **Pre-treated Media**

All of our agro media comes in a treated, bovine-free form, which is particularly suitable for high lustre or mirror finishes.



# Special Media

Our special media includes steel media, a separation ball media that keeps flat parts separate, ensuring they don't stick together.



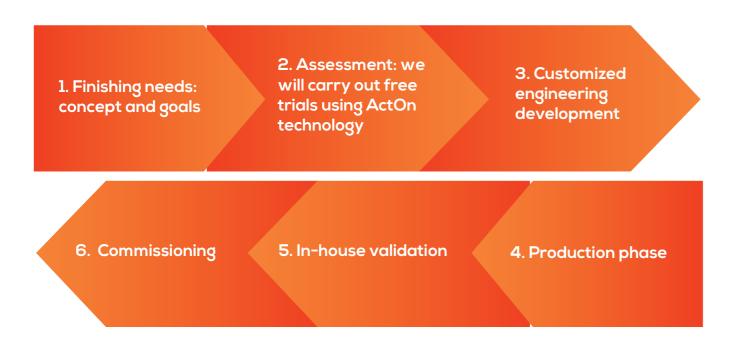


# **Subcontract Service**

On top of our state-of-the-art machinery and media, we also supply a range of support & training services. Moreover, we'll tailor our services & products to your needs, not the other way around. Our finishing service is all about you.

We suit our Finishing Technology and Subcontract Services to cover your needs. From a proved surface finishing technology we will adapt it according to your requirement. Just <u>contact us</u>. We will do the rest.

# **Custom project development:**



# Don't just think about it. It's now time to ActOn it.



CHEF, CLM, CDF, Shot Blasting & Vibratory Finishing Subcontract



Inspection Services



Installation, Training, Maintenance Services



Equipment Refurbishment & Spare Parts Service

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# What Our Customers Say

"We purchased a CHE50 from ActOn in 2019 to help with our capacity constraints on our internal deburring process. The professional service received from ActOn Finishing was invaluable especially throughout the qualification process. The purchasing of the centrifugal high energy finishing system has increased our capacity by 200% while maintaining a quality product."

Adam Cook, HC Starck Solutions

"The CPM-10 centrifugal high energy finishing system has provided invaluable insight into finishing both EBM and SLM AM parts. This has provided the MTC with a low cost means to efficiently and effectively conduct R&D into surface finishing of additive manufactured parts."

Ruaridh Mitchinson, The Manufacturing Technology Centre



# 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. We're also an approved supplier for many of our industries, including medical and aerospace.

For ISO, we currently hold:









"The bitterness of poor quality remains long after the sweetness of low price is forgotten."

Benjamin Franklin

# we redefine

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