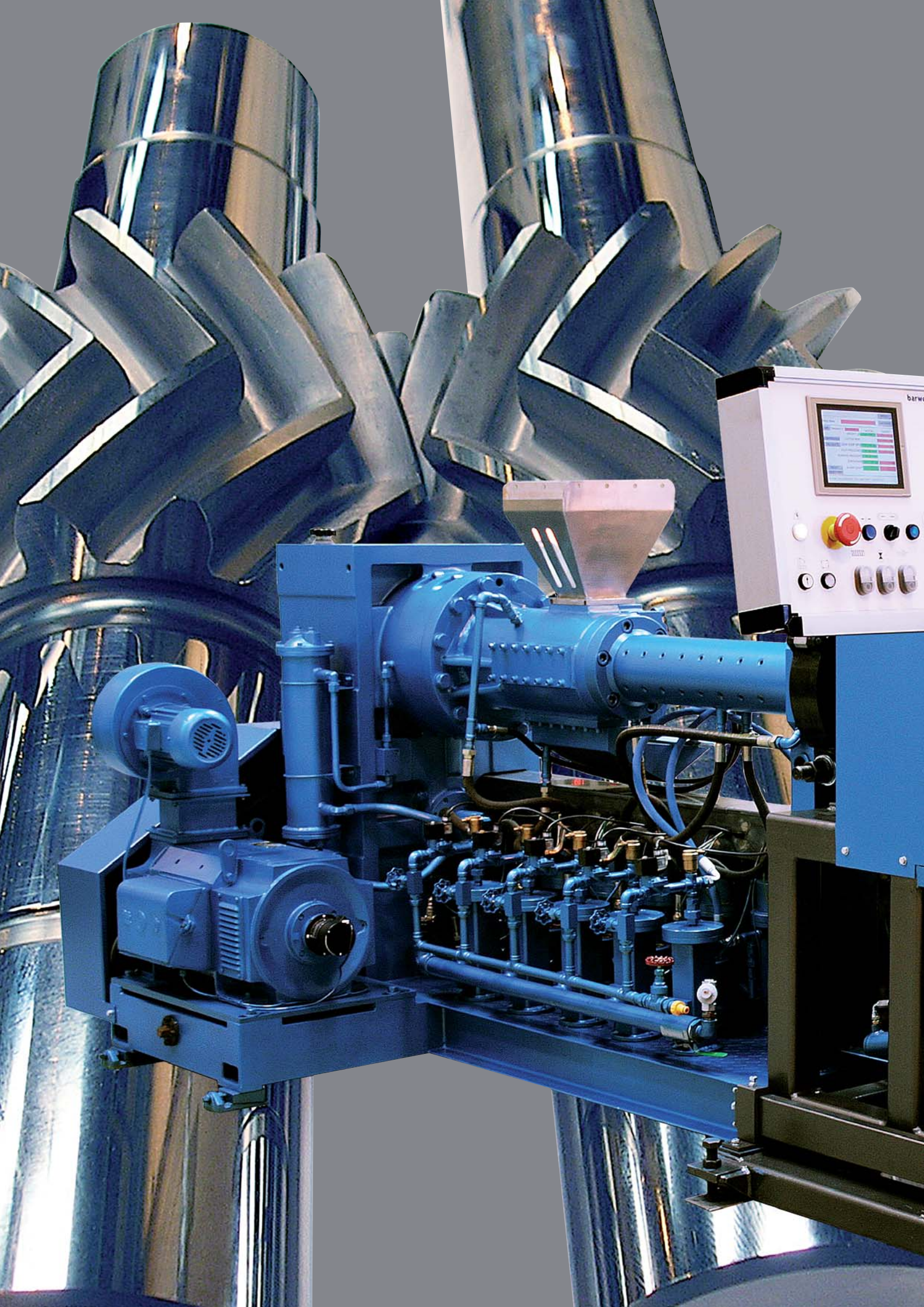


barrow III

CONTINUOUS GEAR PUMP PREFORMERS

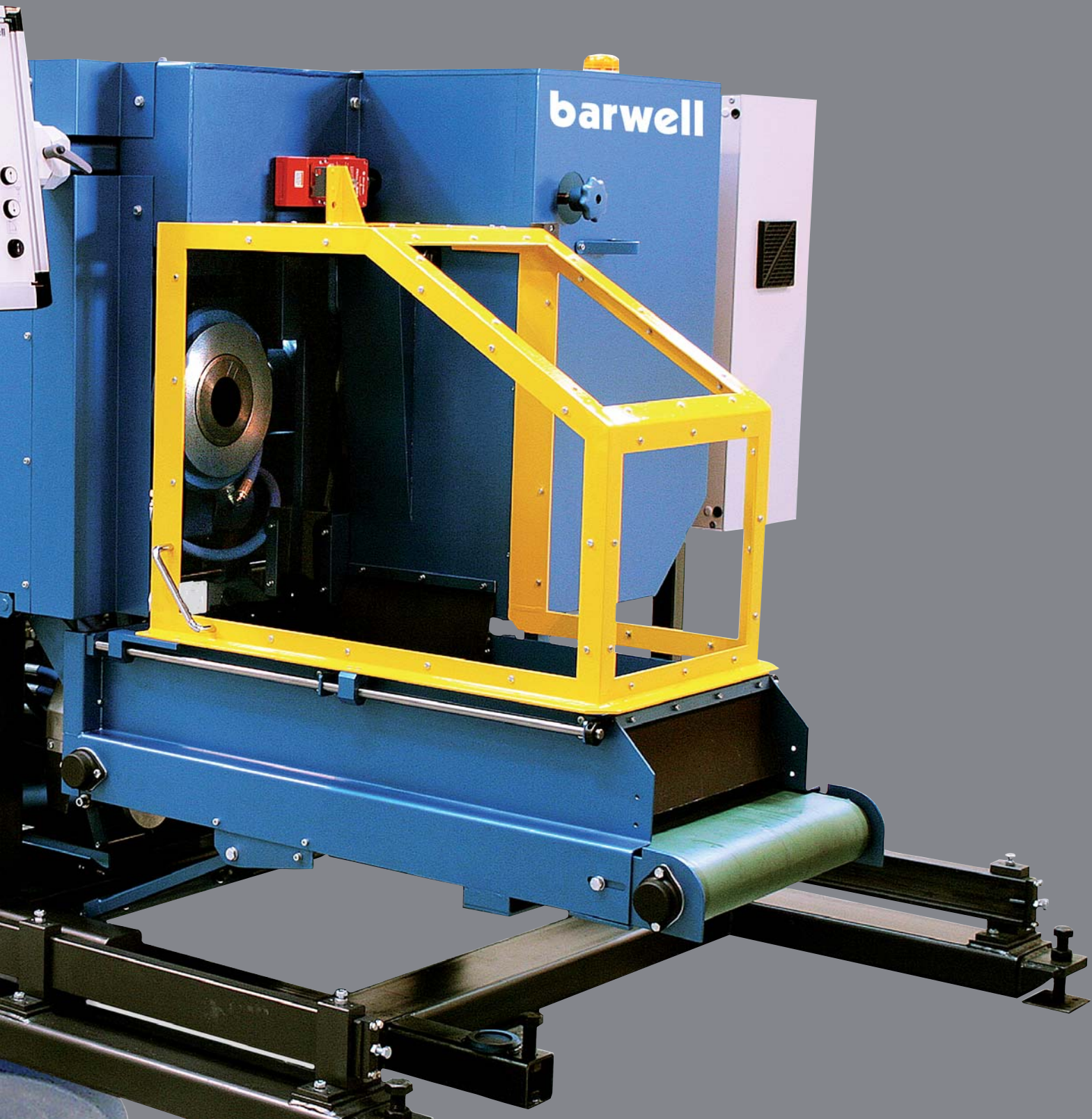


www.barwell.com



barwell

The Future of Continuous Preforming






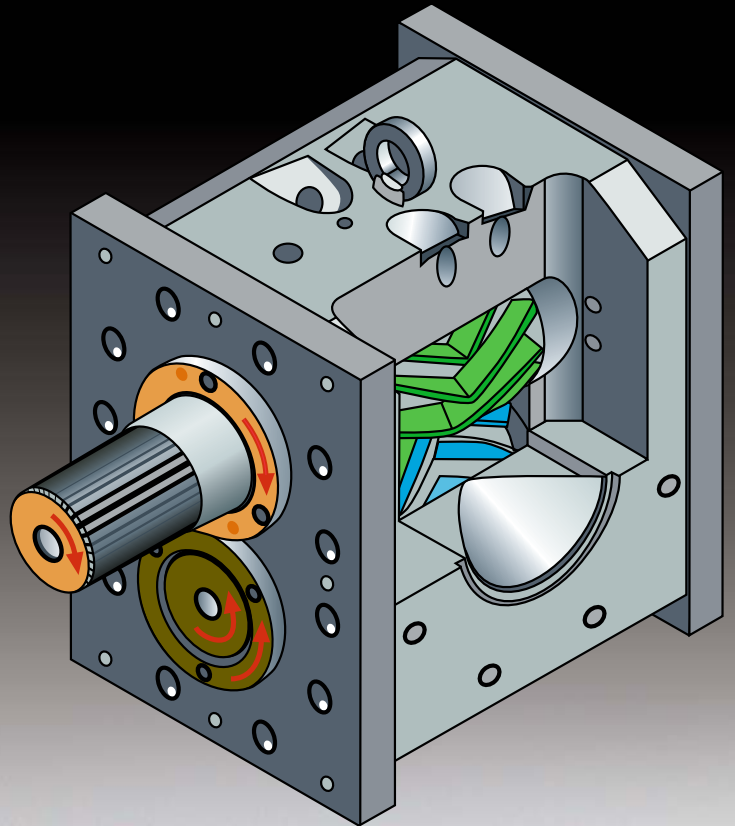
Gear Pump Systems

The Barwell Gear Pump Performer

Combining the plasticizing properties of a cold feed screw extruder with the volumetric flow control properties of a gear pump together with the proven Barwell cutter system

This combination increases the process capabilities of difficult materials including tight dimensional tolerances and overcomes temperature to output restrictions.

A significant advantage in using a Gear pump is that the output is linear relative to the Gear Pump rpm. Therefore outputs are much more predictable. The use of Herringbone gears greatly compliments this effect by ensuring even flow through the pump and maintaining precise extrusion. Effects of screw extrusion pulsing is therefore eliminated and quality controlled production is assured.



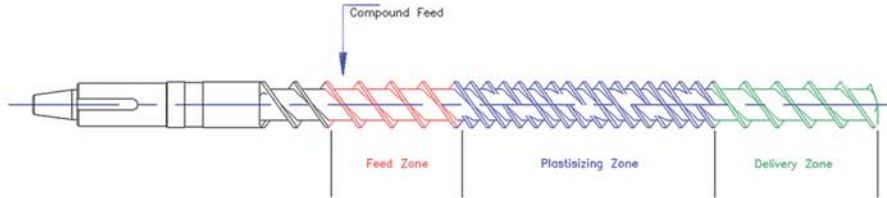
INCREASED PRODUCTIVITY
DIMENSIONAL STABILITY
PROCESS FLEXIBILITY
LOWER TEMPERATURE PROCESSING
FULLY AUTOMATED SYSTEMS
COMPLETE SYSTEMS OR RETROFIT PACKAGES
SIMULTANEOUS SCREENING
TOUCH SCREEN CONTROLS WITH DATABASE



Operational Principles

PRINCIPLE OF OPERATION

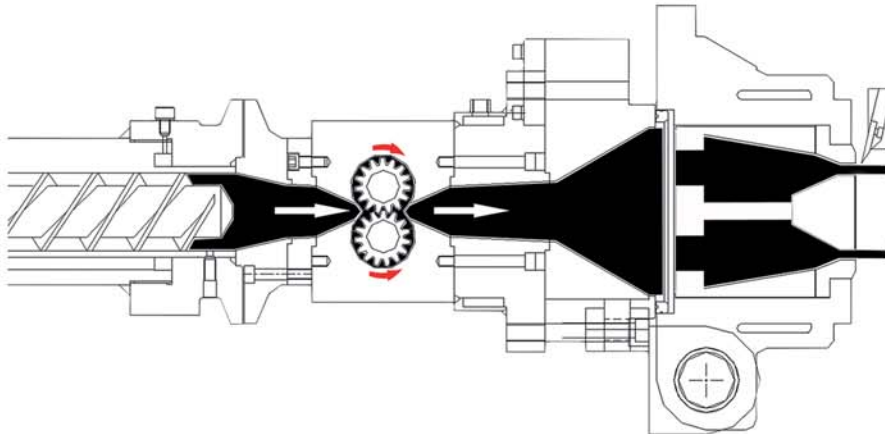
Material is delivered to the Gear Pump by a screw extruder which masticates the material prior to entry into the Gear Pump.



TYPICAL FEED SCREW ARRANGEMENT (PLASTISCREW)

The masticated material is pulled into the Pump by the intermeshing gear teeth at a constant rate, irrespective of screw rotation speed, ensuring the Gear Pump cavity remains full at all times. Minimal shear is generated in the Gear Pump so increases in material temperature are kept to a minimum, especially important when processing temperature sensitive materials.

The material is then compressed at the outlet point at a constant rate enabling precise control over extrudate dimensional stability. The constant rpm of the Gear Pump and constant monitoring and regulation of inlet pressure help overcome extruder pulsing. This is important when considering the effects of strip feed change-over. The Gear Pump is independently driven but controls the screw rpm by means of inlet pressure monitoring.



Without a Gear Pump the pressure build up and extrusion uniformity is directly influenced by the screw rotation and compound variations. When a Gear Pump is incorporated into the system line these variations are monitored at the Pump inlet and adjustments made automatically to maintain constant output flow.

Whilst the pressure at the inlet varies (due to material changes, variations in feed etc.), the pressure at the outlet of the Gear Pump remains constant. This ensures improved extrusion quality and tight control of extrudate dimensions.

By keeping the Gear Pump rpm constant, it is possible to influence the plasticizing effect on materials by changing the screw rpm. Increasing the screw rpm increases the inlet pressure and also the compound temperature as greater mastication is achieved during the dwell time in the extruder barrel.

This can have significant advantages when processing difficult materials that need additional mastication to achieve output requirements. Care should be taken to ensure that material temperatures remain within normal process limits.

Three Basic C

SPUR



ADVANTAGES
None

DISADVANTAGES
Limited Applications
Pulsing Effect
High Stress on Bearings
No Flow Stability

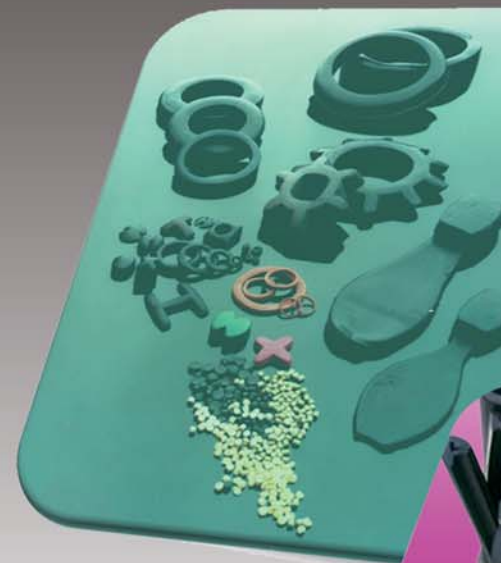
HELL



ADVANTAGES
None

DISADVANTAGES
Creates Cu
Pulsing
High Stress
Difficult
No Flow

We use only the latest "H" as developed by



PROFILES

Types & Performance

Gear Designs

SPUR



ADVANTAGES

Simple
Smooth Flow
Low Effect
Low Wear on Bearings
Easy To Clean
High Stability

HERRINGBONE



ADVANTAGES

Precise Flow Control, No Pulsing
Even Distribution, Straight Extrusions
Dimensional Stability
Easy Cleaning
Labyrinth (Self Lubricating) Bearings

DISADVANTAGES

None

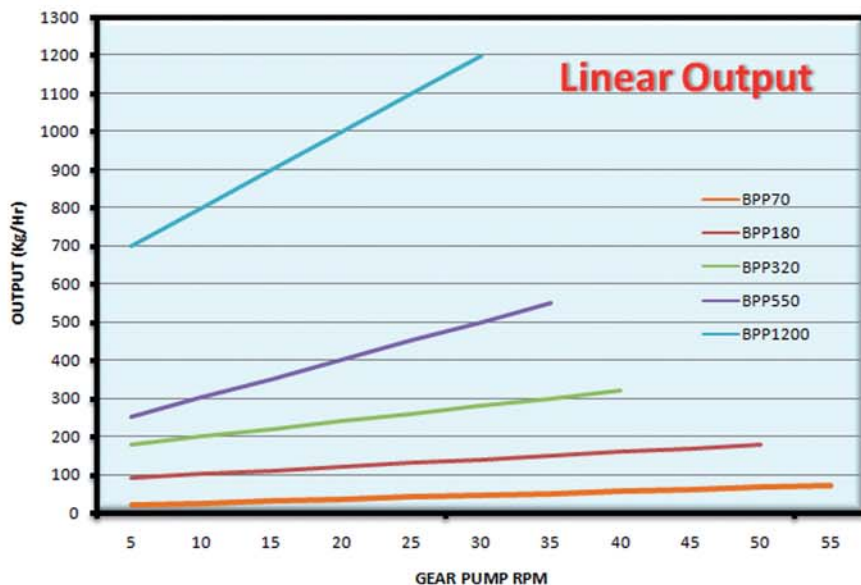
"Herringbone" Design Gears
HATEC, Germany.



PREFORMS



Material flow through the gear pump is generally linear and therefore entirely dependent on the gear pump rotation speed. Increasing the gear pump rpm will automatically adjust the screw feed accordingly, maintaining the inlet pressure and cavity fill.



This linear effect is not influenced by varying material characteristics. As long as the screw is capable of achieving adequate plasticizing the throughput will remain linear.

Very little energy is put into the material by the gear pump which means the system can be used at lower temperatures or alternatively, higher outputs can be achieved at normal process temperatures.

A metal detector is fitted as standard to all Barwell complete systems. This greatly reduces the possibility of foreign objects or material contamination to cause serious damage to either the screw or the Gear Pump. Detector sensitivity can be adjusted to avoid unnecessary stoppages during production.



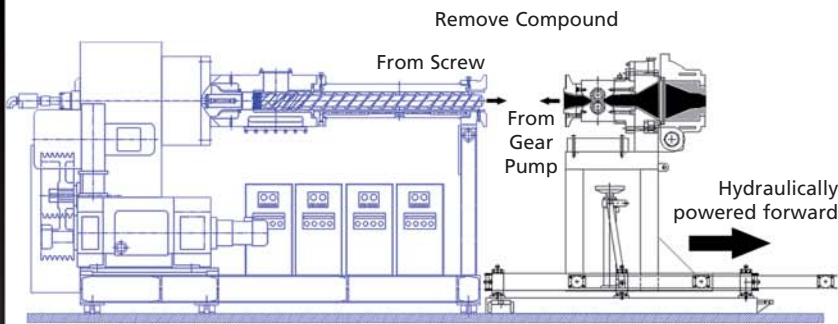
Barwell can offer complete Gear Pump Preforming systems, Profile Extrusion only systems or alternatively Gear Pump retrofit packages to suit customers existing extruders. Although the Gear Pump has an outlet pressure up to 350 Bar, Barwell offers two head options, a Standard 210 Bar GP (or SH) head for normal compounds or alternatively a 350 Bar High Pressure GP Head for tougher compounds or for mater



Easy Access Cleaning

Easy Access, Power Assisted Minimal Downtime

Gear Pump Cleaning process: Stage: No. 1



QUICK CLEAN METHOD

Stage 1.

Undo the 'C' clamp holding the screw in position. Press the machine open push button.

The head will move forward allowing access to the screw extruder and breaker plate in front of the screw.

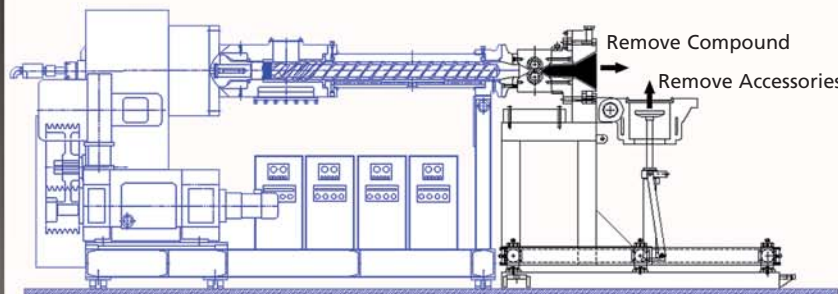
Remove breaker plate and any rubber by hand.

Start the screw and run all remaining compound out of the screw.

Check the inlet to the gear pump is clear of compound.

Refit the breaker plate.

Gear Pump Cleaning process: Stage: No. 2



Stage 2.

Close the machine by pressing both the machine close buttons together

Close and tighten the 'C' clamp. For safety the gear pump will not run unless the screw is in position.

With the head open and the cutter cage closed, run the gear pump to remove any compound still in the gears.

Open the cage and pull out from the front of the gear pump any remaining compound.

To remove accessories from head.

Slacken accessory retaining and die concentricity adjusting screws.

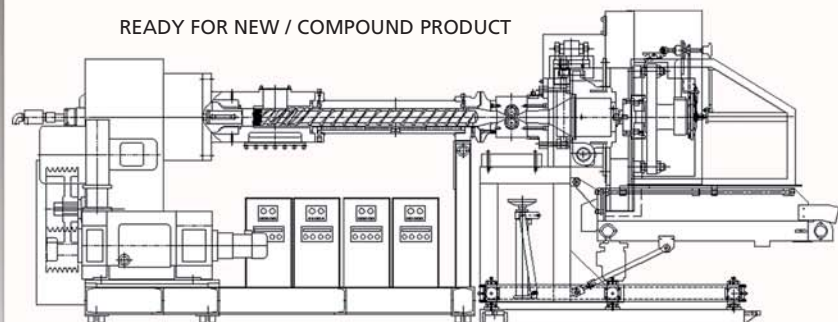
Lift out the die extractor making sure it is in the middle of the die holder

Select die extractor up to push the accessories out

Retract the die extractor after the accessories have been removed

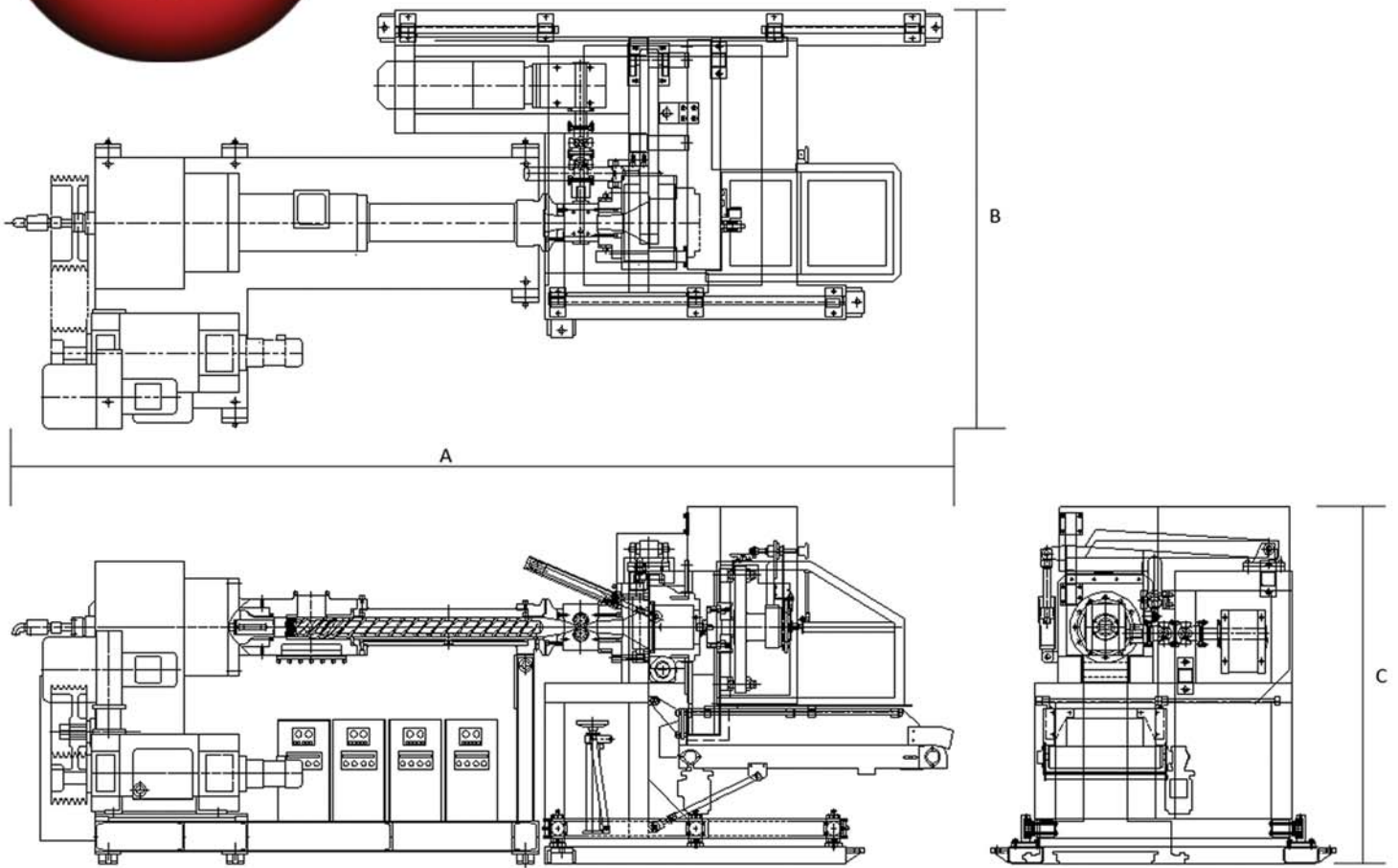
Put the die extractor back in its home location.

READY FOR NEW / COMPOUND PRODUCT





Basic Data & Dimensions



		BPP70	BPP180	BPP320	BPP550	BPP1200
--	--	-------	--------	--------	--------	---------

DIMENSION "A"	mm	2330	3250	4350	5100	5900
DIMENSION "B"	mm	1250	1900	1900	3000	3600
DIMENSION "C"	mm	1600	1600	1750	1750	1750
TOTAL WEIGHT (approx)	kg	2500	2950	5200	6000	7400

		BPP70	BPP180	BPP320	BPP550	BPP1200
--	--	-------	--------	--------	--------	---------

Max Output	kg/hr	70	180	320	550	1200
Max Pump RPM	rpm	55	50	40	36	30
Screw Size	mm	50	75	90	120	150
Screw L/D Ratio		10:1	10:1	12:1	12:1	12:1
Heating/cooling zones		4	4	5	6	6
Max operating pressure	bar	350	350	350	350	350
Max Die size (350 Bar Head)	mm	64	64	140	190	190
Max Die size (210 Bar Head)	mm	64	64	190	190	190
Cutter Speeds (Variable)		50-500	50-500	50-500	50-500	50-500
Touch screen controls		Y	Y	Y	Y	Y
Database		2000	2000	2000	2000	2000
Weigh scale loop feedback		Y	Y	Y	Y	Y
Accuracy (by volume)	%	+/-1	+/-1	+/-1	+/-1	+/-1
Extrusion only version		Y	Y	Y	Y	Y
Shoe Sole Head available		N	N	Y	Y	Y

Barwell International Ltd



Head Office

Atria Court · 60 Papworth Business Park · Stirling Way
Papworth Everard · Cambs · CB23 3GY · England
Tel: +44 (0) 1480 832060 · Fax: +44 (0) 1480 832070
E-mail: sales@barwell.com · Web Site: www.barwell.com
CB24 4QX . England



China

Barwell China
Room 502 · No. 1 Lane 600, Tianshan Rd
Shanghai · China · 200051
Tel: +86 21 611 39 270
E-mail: tsequip@126.com · Web Site: www.barwell.com



USA Canada & Mexico

Barwell Machinery USA
2868 Westway Drive · Brunswick
Ohio 44212 · USA
Tel: +1 330 225 9500 · Fax: +1 330 225 9555
E-mail: bgomola@barwellmachinery.com · Web Site: www.barwell.com



Brasil

Barwell Do Brasil
Equipamentos Para Borracha Ltda · Edificio Columbia Office Center
Av. Jabaquara · 2819 · Bairro: Mirandopolis · 0405-004 SAO
Tel: +55 11 5589 7168 / 5071 2983 · Fax: +55 11 3848 0903
E-mail: amissi@barwelldobrasil.com.br · Web Site: www.barwell.com
CB24 4QX . England
Tel: +44 (0) 1954 230383 Fax: +44 (0) 1954 230821
E-mail: sales@barwell.com Web Site: www.barwell.com