



GRAHAM ENGINEERING

The ULTRA Extruder



ULTRA

Proudly made in the USA, the ULTRA is available in 16 sizes and hundreds of possible configurations, our ULTRA extruders offer proven technology and high-quality components with all of the technical features your application requires. Each ULTRA extruder is backed by our unique customer protection plan, including:

- Three Year Warranty
- Comprehensive Wet Testing
- Complete Spare Parts Package

ULTRA MD

These extruders are designed exclusively for a variety of medical applications and are typically used in a cleanroom environment. Our medical line of extruders are supplied with a special urethane-based medical paint that is more chip resistant and does not "yellow" over time. The closed-loop AC vector or servo drives improves speed regulation. A replaceable feed section liner on all small machines provides the flexibility to configure the feed geometry to suit the application. There are many available options, including pressure feedback control that enables small but rapid changes to the screw speed to correct any drifting pressure that the ULTRA MD senses. Melt pump systems are also available on all models.

ULTRA Rubber

ULTRA R/S Rubber extruders are fixed horizontal extruders ranging from 1.0" to 4.5" diameter, any L/D, vented or non-vented. ULTRA R/S Rubber extruders come standard with electric heat & water cooling. Water cooling is a bolt-on cast aluminum, double-pass system. Temperature control units for screw and head tooling can be supplied, mounted, and pre-plumbed to the extruder base.

ULTRA Silicone

ULTRA R/S Silicone extruders are fixed horizontal extruders ranging from 1.0" to 4.5" diameter, typically 12:1 L/D. They come standard with high-efficiency bolt-on cast aluminum double-pass barrel coolers. The ULTRA R/S Silicone machines feature a unique easy open roller feed section. This proprietary design enables unprecedented access for cleaning & scraper blade adjustment. The ULTRA R/S is well suited for all extrusion applications, including precision tubing, profiles, sheet, wire & cable, etc. They may be mounted on wheels with or without track, with or without some limited height adjustment.

ULTRA Low Boy

These extruders include Steward Barrier® screws for high output and low melt temperature, heavy-duty double reduction gearbox (gearless is optional), AC or WC motor, deep finned cast barrel heaters, & smooth or grooved feed sections. Control panels can be provided mounted on the extruder base, or remote mounted.



Graham Engineering's exclusive PC-based control system is designed specifically for extrusion and extrusion blow molding machinery. Developed in 2001 as a replacement for traditional PLC-based systems, it provides more flexibility, a higher performance, with a lower cost. The Navigator control system comes in three versions to fit your needs. XC100, XC200, and XC300 provide varying integration, optimization, and customization levels to your Graham Engineering ULTRA extruder.

		XC300
		XC200 plus:
		Ability to control 7+ extruders Standard 21.5" screen Interface capability and/or control with up and downstream machinery, including:
		<ul style="list-style-type: none"> • Material handling systems • Dryers • Blenders • Pullers (Capstans) • Cutters • Water baths • Vacuum sizing tanks • Bump tube pullers • Spark testers • Gauging systems • Automatic screen changers
		XC200
		XC100 plus:
		<ul style="list-style-type: none"> • Up to (3) extruders • Melt pump • Servo drive(s) support • Expanded die zones • Integrated safety (TwinSAFE) • R/S support • Modular support • 15.6" version with option for 21.5"
		XC100
		Core extruder control (single extruder) Heat/cool, speed, safety, etc.
		Core HMI features:
		<ul style="list-style-type: none"> • Trending, Recipe, Access • I/O debugger • OPC UA connectivity
		Configurable options:
		<ul style="list-style-type: none"> • Extruder size (i.e. # of zones) • Die/tooling zones • Pressure control



COOLING TYPES



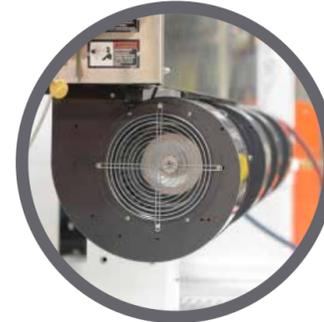
Water Cooled

A long history of providing barrel temperature control systems utilizing water-cooled heating elements has resulted in a highly user-friendly system designed for long-lasting use. The water-cooled system offers the ultimate barrel temperature control by engineering the system concerning piping metallurgy, steam generation, advanced water flow design, and proprietary PID control.



BAKdraft

Reverse air cooling system designed for the blown film industry. A unique barrel air cooling system that has a remote mounted suction fan for all heater zones and a vacuum air plenum that sucks air away from the extruder. This reduces the amount of heat near the extruder and eliminates air currents near the bubble area.



Air Cooled

GEC offers three versions of the most cost-effective and maintenance-friendly barrel cooling method - forced air cooling: standard air cooling, turbo air cooling, and cool-to-touch. GEC's proprietary deep fin heating elements, combined with a custom fit, cast aluminum heater shrouds, provide optimized cooling, minimized zone-to-zone "bleed," and reduced air loss.

SPECIFICATIONS

	GENERAL			BARREL HEAT				DIMENSIONS (24:1)				
	Model	Bore (inch / mm)	Nominal Standard Drive Size (HP / kW)	Number of Barrel Heat Zones		Barrel Zone (kW)	Hi-Temp Barrel Zone (kW)	Clamp Zone (kW)	Shipping Weight (lbs / kg)	Length (inch/mm)	Width (inch/mm)	Height (inch/mm)
				24:1	30:1							
SMALL	075	0.75 / 19	2 / 1.5	3	4	1.3	2	2	2K / 900	39 / 991	38 / 965	90 / 2286
	100	1.00 / 25	3 / 2.2	3	4	1.3	2	2	2K / 900	44 / 1118	38 / 965	90 / 2286
	125	1.25 / 30	5 / 3.7	3	4	2	3	2	2K / 900	48 / 1219	38 / 965	90 / 2286
	150	1.50 / 38	10 / 7.4	4	5	2	3	2	3K / 1360	56 / 1422	38 / 965	90 / 2286
	175	1.75 / 44	15 / 11.1	4	5	2	3	2	3K / 1360	62 / 1575	38 / 965	90 / 2286
MEDIUM	200	2.00 / 51	20 / 14.7	3	4	5	7.5	3	5K / 2250	74 / 1880	40 / 1016	90 / 2286
	250	2.50 / 64	40 / 29.4	4	5	5	7.5	3	6K / 2700	94 / 2388	42 / 1067	90 / 2286
	300	3.00 / 76	50 / 36.8	5	6	5	7.5	3	8K / 3600	106 / 2692	46 / 1168	90 / 2286
	350	3.50 / 89	75 / 55.1	4	5	10	N/A	3	9K / 4050	124 / 3150	56 / 1422	90 / 2286
	350T	3.5 / 89	75 / 55.1	4	5	10	N/A	3	9K / 4050	126 / 3200	56 / 1422	90 / 2286
LARGE	100mm	3.94 / 100	100 / 73	5	6	10	N/A	3	10K / 4500	142 / 3607	60 / 1524	90 / 2286
	100mmT	3.94 / 100	100 / 73	5	6	10	N/A	3	10K / 4500	142 / 3607	60 / 1524	90 / 2286
	450	4.50 / 114	150 / 110	5	6	12	N/A	6	13K / 5850	158 / 4013	64 / 1626	92 / 2237
	130mm	5.12 / 130	200 / 147	6	7	12	N/A	6	14K / 6300	185 / 4699	64 / 1626	92 / 2237
	600	6.00 / 152	300 / 220	5	6	20	N/A	6	17K / 7650	198 / 5029	64 / 1626	94 / 2388
	600T	6.00 / 152	400 / 294	5	6	20	N/A	6	17K / 7650	198 / 5029	64 / 1626	94 / 2388
	165mm	6.50 / 165	400 / 294	6	7	20	N/A	6	18K / 8100	234 / 5944	64 / 1626	94 / 2388
	165mmT	6.50 / 165	500 / 367	6	7	20	N/A	6	18K / 8100	234 / 5944	64 / 1626	94 / 2388
	800	8.00 / 203	500 / 367	5	6	27	N/A	6	25K / 11250	260 / 6604	77 / 1956	94 / 2388
	800T	8.00 / 203	600 / 441	5	6	27	N/A	6	26K / 11700	260 / 6604	77 / 1956	94 / 2388
	225mm	8.86 / 225	600 / 441	6	7	27	N/A	6	28K / 12600	281 / 7137	77 / 1956	94 / 2388

PRODUCTIVITY

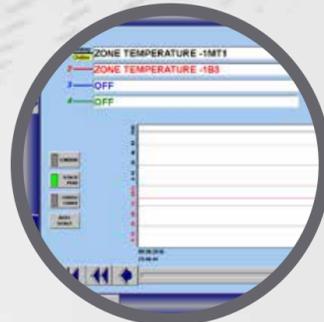
Pivot Hopper

GEC's unique pivoting hopper aids the operator in managing timesaving changeovers and purging events. With no tools required, the operator quickly and safely moves the hopper to an on-line, off-line, or dump position. Not only does this increase uptime, but it also provides for cleanly collecting materials and reducing scrap.



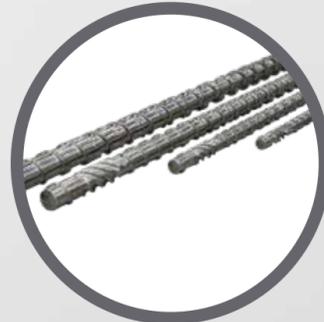
Navigator Trending & Data

Anything the Navigator controls, sets, adjusts, or measures can be monitored in a real-time trend plot. Timing updates can be measured in milliseconds or hours to suit the need of the operator or QA technician. The data can then be viewed on the HMI, printed, stored to an off-line device or network, or pushed to a comprehensive quality system. The data is stored for a minimum of 365 days.



Custom Screw Design

GEC's decades-long experience in designing screws and extrusion systems for every conceivable polymer provides confidence to your processing team. Screw design, geometry, sizing, metallurgy, and the specific polymers and applications are all considered when designing the extrusion system to ensure a successful extruded product.



SAFETY / QC

MELTRIC PLUGS

MELTRIC Switch-Rated plugs and receptacles combine the safety of a switch with the convenience of a plug and receptacle in one device. Their Decontactor® technology, with spring-loaded silver-nickel butt contacts, push button disconnection, enclosed arc chambers and dead-front construction with safety shutter provides users with safety benefits that are not possible with other devices.



Rupture Disc Monitoring

An important safety device, its function is to "rupture" if the pressure should exceed the limit of the disc. If the disc ruptures, the melt flow to relieve the stress and trips the limit switch creating a rupture plug fault triggering high-pressure shutdowns. Our Navigator® control solution provides two levels of melt-pressure monitoring. First-level monitoring utilizes a melt pressure transducer feedback and automatically stops the extruder when a high melt pressure condition is detected. Second level monitoring is accomplished with a rupture disc and limit switch paddle.



AutoGrip® Safety Clamp

For extrusion systems with frequent screw, breaker plate & downstream tooling changes, the AutoGrip® Power Clamp is designed for operator safety & efficiency. Available with a new machine or retrofitted to your existing extruder, it eliminates the need to manually release & tighten clamps during a changeover, reducing the risk of injury or damage. An added safety feature, it is governed from a few steps away by a two-hand push-button controller.

