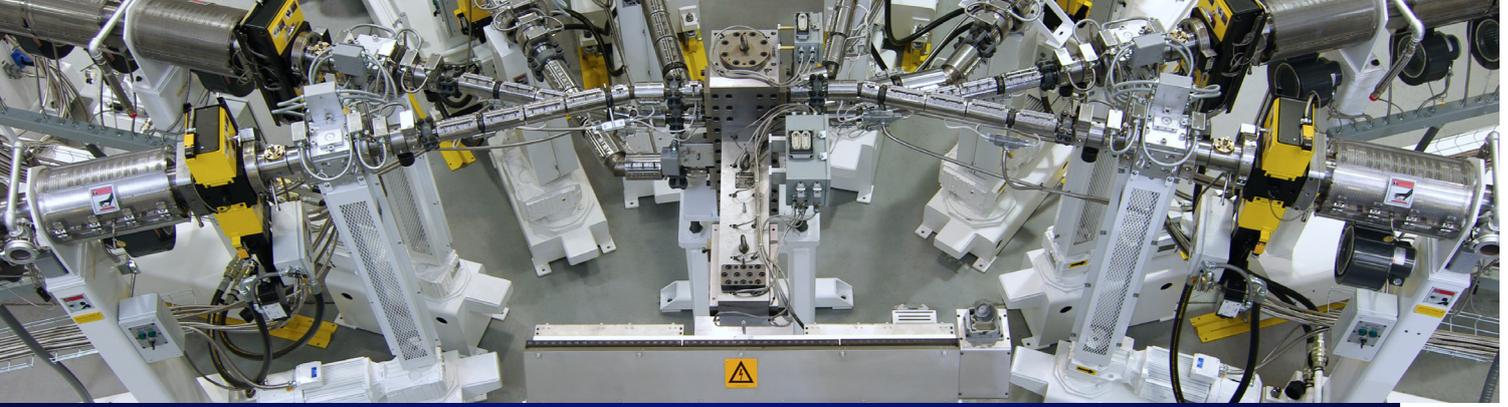




**GRAHAM**  
ENGINEERING

**Evolution® Sheet Extrusion System**



## UNMATCHED EXPERTISE

The Graham name has long been synonymous with innovations that have helped transform the plastics industry. Graham Engineering Company, LLC (GEC) is known worldwide for state-of-the-art technology, quality, reliability, and productivity. GEC equipment produces a wide array of high-quality plastic products year after year.

*Our vision focuses on delivering innovative solutions to a diverse customer base.*

Continuous technological innovation, client/partner relationships, product line diversification, and strategic alliances are all part of the GEC vision – a commitment to leadership tied directly to the needs of our customer base.

### Quality and Performance

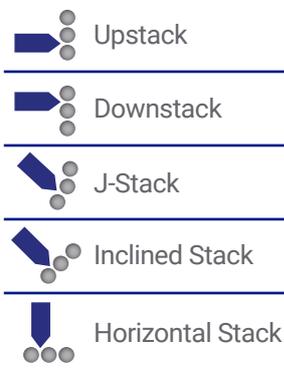
The Welex quality & performance you know & trust with newly engineered state-of-the-art customized features:

- Sheet widths from 36" to 90"
- Sheet gauge from .008" to .125"
- Throughputs to 10,000 lb/hr
- Monolayer or coextrusion
  - Up to 9 extruders
  - Multilayer or Polyside®
- XSL Navigator® control system
- Flexible & customized roll stand features
  - Quick roll change
  - Auto gap control
  - Movable auxiliary cooling rolls
  - Roll skewing
- Hydraulic, pneumatic & boosted pneumatic roll system

While packed with standard features, the Welex Evolution® sheet extrusion system is also flexible to be custom engineered to suit your specific application.

Available in monolayer or co-extrusion, the system can comprise up to 9 extruders in sizes ranging from 1.5" to 10" diameter. Custom, highly engineered tooling configurations include state-of-the-art screen changers, melt pumps, mixers, co-extrusion feed blocks & dies. These components can be mounted in the configuration best suited to your installation.

After the melt stream, the sheet enters the customizable, high quality chrome roll take-off unit, available in various configurations, including, but not limited to:



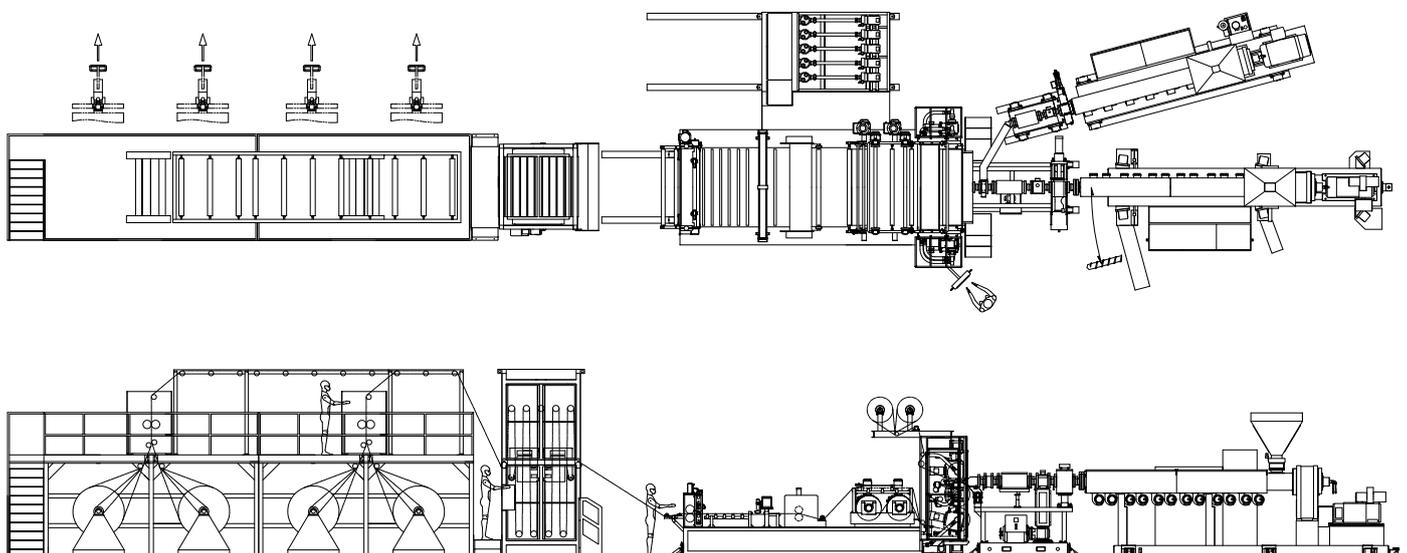
Highly efficient & maintenance-friendly heat/cool systems control the temperature of the chrome rolls with nips that are controlled hydraulically, pneumatically, or by boosted pneumatic. Key features of the take-off include automatic functions for critical product quality attributes such as roll skewing, crowning & electronically-controlled gap adjustment.

Downstream & finishing options are painstakingly engineered to maximize the throughput & quality of the desired end product. Stations including coating, treating, slitting, cooling, shearing, winding, laminating, embossing & stacking are all part of the Welex core competency & experience.

# Evolution® Sheet Systems - A Closer Look

		STANDARD		METRIC	
		VALUES	UNITS	VALUES	UNITS
THICKNESS	MINIMUM	0.008	INCHES	0.20	MM
	MAXIMUM	0.125	INCHES	3.175	MM
WEB WIDTH	MINIMUM	36	INCHES	914.4	MM
	MAXIMUM	90	INCHES	2,286	MM
THROUGHPUTS	MAXIMUM	10,000	LBS/HR	4,500	KG/HR
EXTRUDER SIZES	STANDARD (others available)	2, 2.5, 3, 4, 4.5, 5, 6, 7, 8, 10	INCHES	50, 65, 75, 90, 100, 115, 130, 150, 180, 205, 255	MM
CHILL ROLL DIAMETERS	STANDARD (others available)	12, 16, 18, 24, 30, 36	INCHES	300, 400, 450, 600, 800	MM
LINE SPEEDS	TYP MAXIMUM	250	FT/MIN	76	M/MIN
MOTOR POWER	MAXIMUM	1200	HP	900	KW
COEXTRUDERS	MAXIMUM	9			

EXAMPLES OF OUTPUTS AND LAYOUTS					UNITS
EXTRUDER DIAMETER	4.5	5	6	7	INCHES DIA
<b>PET</b>					
THROUGHPUT	1700	2200	3700	4700	LB/HR
MOTOR SIZE	250	300	500	600	HP
ROLL SIZES	12/18/18	18/24/24	18/24/24	18/30/30	INCHES DIA
AUX ROLLS	0	0	0	0	NUMBER
<b>PP</b>					
THROUGHPUT	1350	1600	2600	3700	LB/HR
MOTOR SIZE	250	300	500	600	HP
ROLL SIZES	12/18/18	18/24/24	18/24/24	18/30/30	INCHES DIA
AUX ROLLS	2	4	4	4	NUMBER
<b>HIPS</b>					
THROUGHPUT	1600	2100	3500	4500	LB/HR
MOTOR SIZE	250	300	500	600	HP
ROLL SIZES	12/18/18	18/24/24	18/24/24	18/30/30	INCHES DIA
AUX ROLLS	0	0	0	0	NUMBER
<b>HDPE</b>					
THROUGHPUT	1350	1600	2600	3700	LB/HR
MOTOR SIZE	250	300	500	600	HP
ROLL SIZES	12/18/18	18/24/24	18/24/24	18/30/30	INCHES DIA
AUX ROLLS	2	2	2	2	NUMBER





The XSL Navigator® control system provides complete machine control for our eXtrusion Sheet Line equipment. The PC-based system is built on the same award-winning technology first introduced for blow molding equipment. The highly intuitive HMI provides efficient operation and robust control for the entire sheet extrusion process from incoming raw material to finished sheet. Our integrated approach means the operator can control the entire sheet line from a single HMI. Key features include closed-loop temperature and speed control for up to 10 extruders, with or without melt pumps. The system is highly flexible and engineered to precisely control multiple configurations of take-offs, auxiliary cooling rolls, pull rolls, shears, and winders. Consistent with our other Navigator® products, the XSL system also includes a full suite of diagnostic tools. The entire system is designed to minimize downtime and maximize output.



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 various versions to fit your needs. XC100, XC200, XC300, XBM, and XLS provide varying integration, optimization, and customization levels to your Graham Engineering extruder.

