



**glasstech**<sup>®</sup>  
WHERE INNOVATION CONTINUES

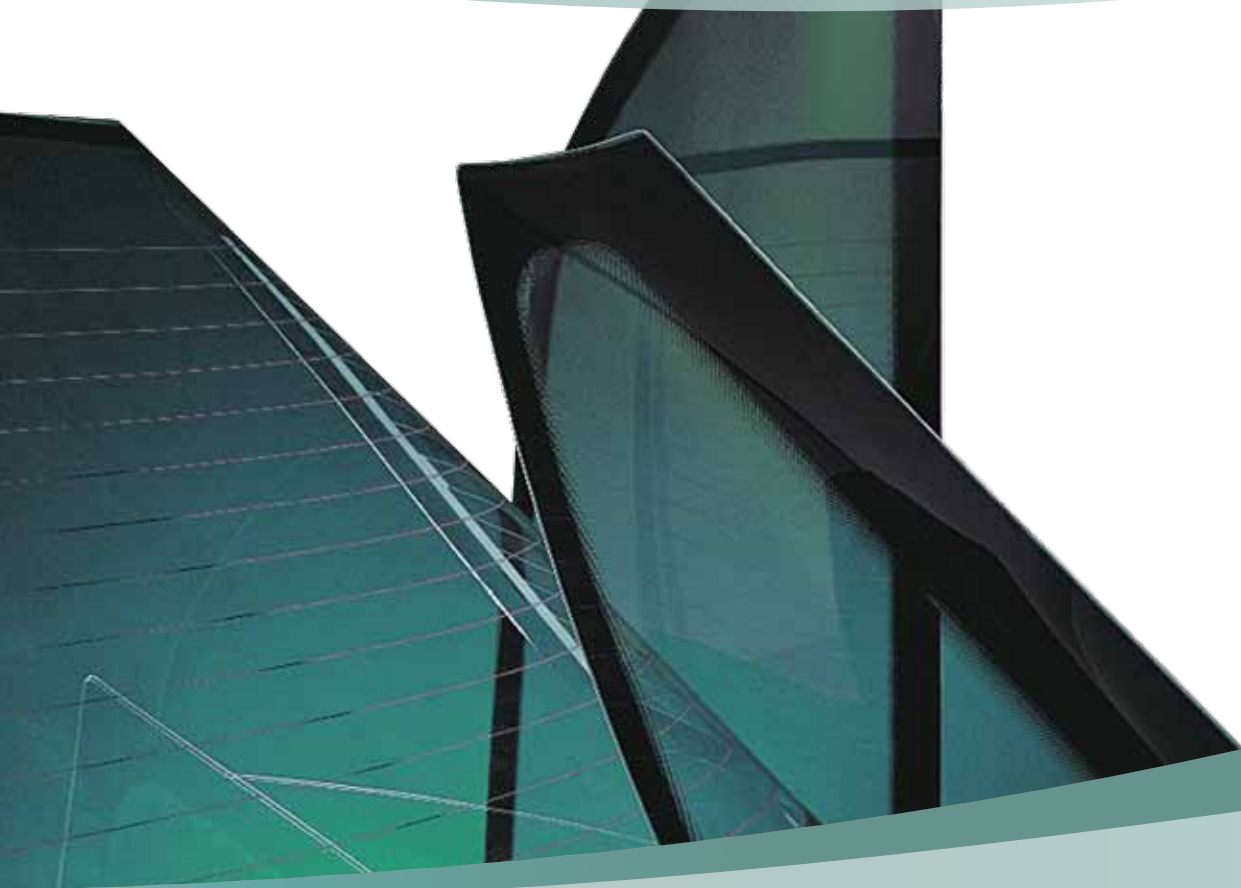
Automotive Glass Systems



# Flexibility provides the competitive advantage in new auto glass designs.

Evolution in the automotive glass industry adds to the allure of new vehicle designs. Asymmetrical shapes, cross-curvature windows and glass that sweeps into the roofline – all are processed on Glasstech systems that produce high optical quality glass to precise tolerances, that ensure repeatability and uniformity of shape, and maximize productivity by allowing part changeovers in minutes.

Engineered to advance as the industry evolves, Glasstech auto glass systems feature flexible, modular designs – to permit progress from innovative ideas to just-in-time production, and keep customers on the cutting edge.





## | Systems Overview |

Glasstech auto glass systems are designed to meet industry demand for greater productivity, economical tooling and energy conservation. A user-friendly PLC controller simplifies system regulation of conveyers, bending motion, shuttle movement, parts setup and instant diagnostics. System features and options include electric radiant or forced convection heating; pre-forming FanRolls, reheated convection and stripe heating; a high-efficiency quench; Quick Change and Fast Cycle capabilities; roll-in roll-out press bend stations; a modular cooler that eliminates ductwork, and more.

# | Advanced Bending and Tempering Systems |

Deep Bend, Quick Sag, External Press and Cylindrical Bending – Glasstech systems process virtually all automotive glass parts.

Cylindrical, compound curvature, symmetrical and asymmetrical forms. Tempered parts ideal for encapsulation. Heat-strengthened or low stress parts for lamination. Spherical and small tolerance parts. Glass sizes up to 1220mm x 1828mm (48" x 72") or as small as 228mm x 250mm (9" x 10").

## EPB-L™

**System Features:** External Press Bender system designed to produce bent and annealed windshields and doorlites suitable for laminating. Uses patented edge stress control technology. Glass is pre-formed before entering the press station with Glasstech's patented FanRoll system, thus increasing forming capability. Min. size is 890mm x 500mm (35" x 20"). Max. size capacity is 1220mm x 1828mm (48" x 72"). In the highest throughput configuration, EPB-L achieves a cycle time of 8 seconds for monoliths, to produce one windshield every 16 seconds at maximum capacity.



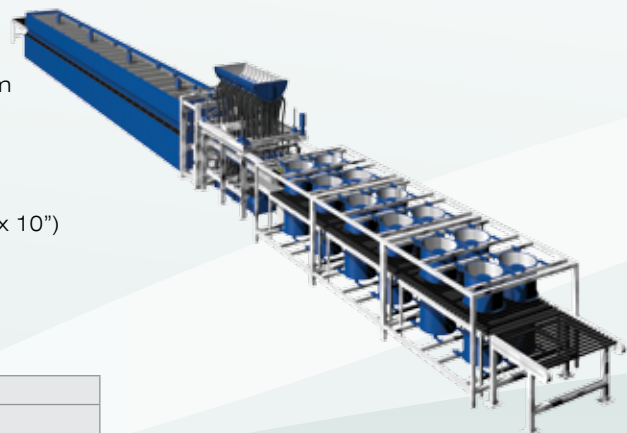
### Production Capability – Based on 1m Part

EPB-L Product Size and Forming Capability						
	Example System Configurations		Glass Thickness			
	Heater Length		1.6mm	2.0mm	2.2mm	2.6mm
	(m)	(ft)	(Sec)	(Sec)	(Sec)	(Sec)
EPB-L Low Capacity	14.7	48.2	20	20	20	20
EPB-L High Capacity	29.4	96.5	8	8	8	8

Depth of Bend:  
165mm (6.50")  
Minimum Radius of Curvature:  
890mm (35")

## EPB-T™

**System Features:** External Press Bender Tempering/Heat Strengthening system is designed for manufacturers of automotive sidelites, sunroofs and backlites. Innovative, highly versatile glass press bending system ideal for complex part shapes with superior optical quality. EPB-T features fast cycle times and highly accurate perimeter and surface tolerances. Min. size is 228mm x 254mm (9" x 10") with small part option. Max. size capacity is 1220mm x 1828mm (48" x 72"). The most productive EPB is able to produce 900 parts per hour.



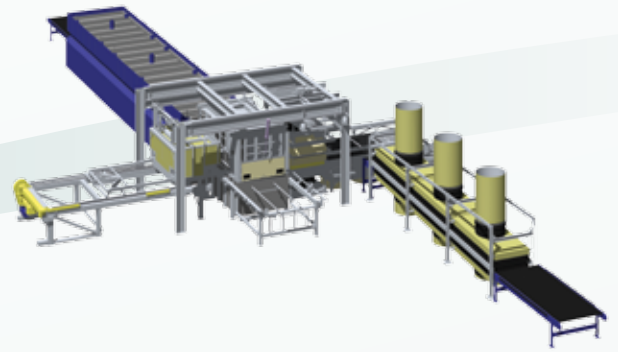
### Production Capability – Based on 1m Part

EPB-T Product Size and Forming Capability						
	Example System Configurations		Glass Thickness			
	Heater Length		3.0mm	3.5mm	4.0mm	5.0mm
	(m)	(ft)	(Sec)	(Sec)	(Sec)	(Sec)
EPB-SS Low Capacity	21.3	70	11.9	13.2	15	17.5
EPB-SS High Capacity	39.6	130	8.75	9.1	9.4	9.7
EPB-DS Low Capacity	18.9	62	11.9	13.2	15	17.5
EPB-DS High Capacity	31.5	104	8.75	9.1	9.4	9.7

Depth of Bend:  
Major Axis 84mm (3.3"), Minor Axis 31mm (1.22")  
Minimum Radius of Curvature:  
Major Axis 1143mm (45"), Minor Axis 6000mm (20")

# DB 4™

**System Features:** The Deep Bend 4 Advanced Bending and Tempering system produces glass of exceptionally high optical quality to precise tolerances and with highly repeatable shapes. Unsurpassed in creating complex backlites, sidelites and quarterlites, DB 4 can process coated and tinted glass without difficulty. Max. depth of bend is 254mm (10"). Min. radius of curvature for 3mm (.118") glass is 75mm (3"). Loading area is 1070mm x 1728mm (42" x 68"). Min. glass size is 380mm (15") in the direction of travel.



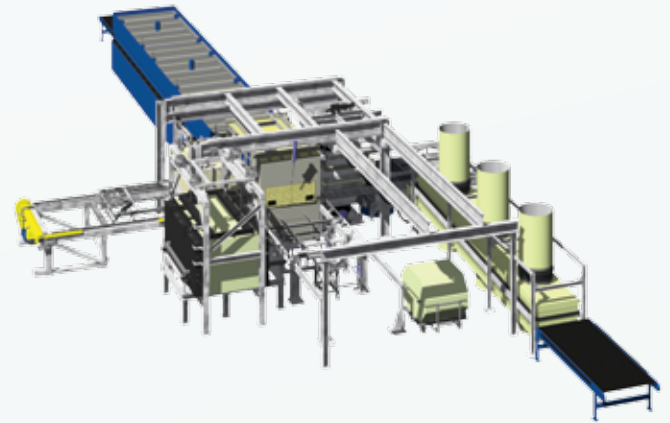
## Production Capability

Glass Thickness		36' Heater Cycle Time - Loads/Hr		60' Heater Cycle Time - Loads/Hr	
(mm)	(in)	(Sec)	(L/H)	(Sec)	(L/H)
3.0	.118	24	150	19-24	190-150
4.0	5/32	32	112	19-24	190-150
5.0	3/16	40	90	20-26	180-140
6.0	1/4	Conveyor Limit		24-26	150-140

Min. Radius of Curvature for 3mm (.118") Glass: 75mm (3")  
Max. Depth of Bend: 305mm (12")

# DB 4™ QC/FC

**System Features:** The Deep Bend 4 Advanced Bending and Tempering with Quick Change (QC) and Fast Cycle (FC) capabilities dramatically reduces tooling changeover times from approximately 6 hours to 90 minutes, and increases uptime, productivity and yields as a result of continuous tooling realignment. It also facilitates economical short part runs. Max. depth of bend is 305mm (12"). Min. radius of curvature for 3mm (.118") glass is 75mm (3"). Loading area is 1070mm x 1728mm (42" x 68"). Min. glass size is 380mm (15") in the direction of travel.



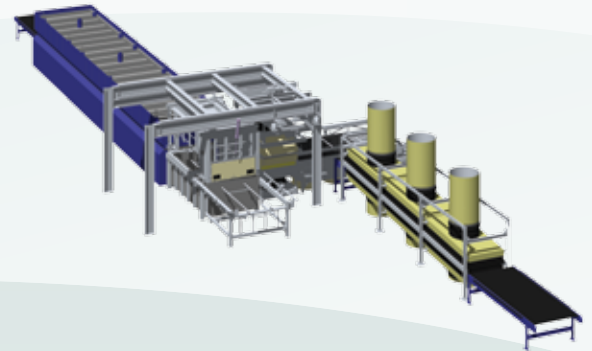
## Production Capability

Glass Thickness		36' Heater Cycle Time - Loads/Hr		72' Heater Cycle Time - Loads/Hr	
(mm)	(in)	(Sec)	(L/H)	(Sec)	(L/H)
3.0	.118	24	150	17-24	212-150
4.0	5/32	32	112	17-24	212-150
5.0	3/16	40	90	20-26	180-140
6.0	1/4	Conveyor Limit		24-26	150-140

Min. Radius of Curvature for 3mm (.118") Glass: 75mm (3")  
Max. Depth of Bend: 305mm (12")

# Quick Sag™

**System Features:** The Quick Sag Bending and Tempering system produces glass of high optical quality to precise tolerances in simpler shapes. Tooling consists of only one forming ring, resulting in lower costs and minimal downtime for part changeovers. Highly flexible, the system can be configured in both single-side and double-side exit models. Max. depth of bend is 50mm (2"). Min. radius of curvature for 3.2mm (1/8") glass is 1000mm (40"). Loading area is 1220mm x 1828mm (48" x 72"). Min. glass size is 380mm (15") in the direction of travel.



## Production Capability

Glass Thickness		36' Heater Cycle Time - Loads/Hr		60' Heater Cycle Time - Loads/Hr		108' Heater Cycle Time - Loads/Hr	
(mm)	(in)	(Sec)	(L/H)	(Sec)	(L/H)	(Sec)	(L/H)
3.2	1/8	30	120	15	240	9	400
4.0	5/32	37.5	96	17	210	11	350
5.0	3/16	50	72	21	170	13	280
6.0	1/4	Conveyor Limit		25	140	16	230

Max. Depth: 100mm (4")  
Min. Radius of Curvature: 1000mm (40")  
Max. Radius of Curvature: 2540mm (100")

# | Cylindrical Radius Bender Systems |

Designed for ease of operation and high productivity, Glasstech CRB systems produce very repeatable bent, tempered automotive parts in long or short runs. No part-dedicated tooling is required. Changing shapes can take just seconds for glass of the same thickness and only 5-20 minutes when changing between different glass thicknesses. CRB systems feature modular designs which combine flexibility and adaptability with impressive economy of operation.



# CRB1™

**System Features:** The CRB1 system forms flat glass into simple cylindrical shapes. The CRB1 produces up to 240 loads an hour depending on glass thickness and load size, and can change shapes in as little as 15 seconds. Available in widths of 915mm (36"), 1220mm (48") and 1500mm (59"); for part lengths up to 2000mm (79"). Min. radius of curvature is 890mm (35").

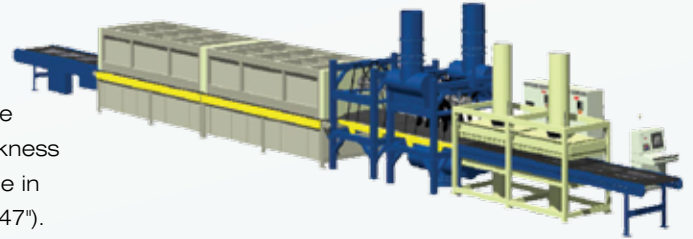


## Production Capability – Based on 1m Part

Example System Configurations				Glass Thickness		
System Width		System Length		3.0mm	4.0mm	5.0mm
(mm)	(in)	(m)	(ft)	(Sec)	(Sec)	(Sec)
915	36	6.1	20	54	44	36
915	36	21.3	70	240	204	185
1220	48	5.5	18	54	44	36
1220	48	21.9	72	240	204	185
1500	59	7.3	24	80	64	52

# CRB2™

**System Features:** The CRB2 system forms flat glass into simple cylindrical shapes. Meeting the economic needs of the automotive doorlite market, CRB2 produces upto 480 loads an hour depending on glass thickness and load size, and can change shapes in as little as 15 seconds. Available in widths of 915mm (36") or 1220mm (48"); for part lengths up to 1200mm (47"). Min. radius of curvature is 890mm (35").



## Production Capability – Based on 1m Part

Example System Configurations				Glass Thickness		
System Width		System Length		3.0mm	4.0mm	5.0mm
(mm)	(in)	(m)	(ft)	(Sec)	(Sec)	(Sec)
915	36	18.3	60	375	285	230
915	36	30.5	100	480	480	360
1220	48	-	-	-	-	-
1220	48	-	-	-	-	-

# CRBA™

**System Features:** The CRBA system forms flat glass into simple cylindrical or asymmetrical shapes for use in cars, trucks, SUVs, yachts, buses and trains. CRBA produces up to 80 loads an hour depending on glass thickness and load size, and can change shapes in only a few minutes. Min. radius of curvature is 1200mm (48"). Loading area is 1500mm x 2400mm (59" x 96"). Min. glass size is 380mm (15") in the direction of travel.



## Production Capability – Loads/Hour ECE R43

Glass Thickness		Loads/Hour 1000mm x 1500mm (39" x 59")	Loads/Hour 1500mm x 2000mm (59" x 79")	Max. Single Piece Size	
(mm)	(in)			(mm)	(in)
3.0	.118	80	52	685 x 1000	27 x 39
4.0	5/32	64	42	1500 x 2000	59 x 79
5.0	3/16	52	34	1500 x 2400	59 x 96
6.0	1/4	42	28	1500 x 2400	59 x 96

# Innovation Continues

Glasstech systems are the product of inventive minds, creative thinking and innovative problem solving. Customer experience has proven, beyond a doubt, that Glasstech equipment is the most rugged, dependable and versatile. Since 1971, Glasstech has been the leader in advancing glass bending and tempering technology with developments such as:

- Computer controlled process and heat control
- Roller hearth transport
- Bending in the heat
- Horizontal processing without tong marks
- Precision, easily changed tooling
- Modular construction
- Diagnostic monitoring
- Advanced quenches, minimizing iridescence and reducing energy
- Forced convection and electric radiant heating
- Shape modeling proprietary software which corrects glass designs, minimizes distortion, maximizes optical quality and increases production efficiency
- Prototype production
- Auto Glass Inspector
- Sample/pilot production run capabilities

## Glasstech supports its systems with:

- A one-year warranty
- Retrofits
- Tooling
- Replacement parts
- Ceramic rollers
- Service audits
- Refresher operator training
- Custom service/support packages
- 24-hour phone, fax and E-mail service inquiries

**Glasstech, Inc.**  
Perrysburg, Ohio USA  
Tel: +1-419-661-9500  
Fax: +1-419-661-9616

**Glasstech, Inc.**  
New York, New York USA  
Tel: +1-212-489-8040  
Fax: +1-212-307-5781

**glasstech**<sup>®</sup>  
WHERE INNOVATION CONTINUES

[www.glasstech.com](http://www.glasstech.com)

**Glasstech, Inc.**  
Shanghai, China  
Tel: +86-21-5836-7560  
Fax: +86-21-5836-8968

**Glasstech, Inc.**  
Mumbai, India  
Tel/Fax: +91-22-2528-7575

