

Solar DB 4-S™

Deep Bend Advanced Bending and Tempering System

An advanced tempering/annealing system for Deep Bend Solar Glass, the DB 4-S is ideal for the production of smaller, high volume spherical and parabolic solar collector parts for concentration solar power (CSP) and concentration photovoltaic (CPV) applications.

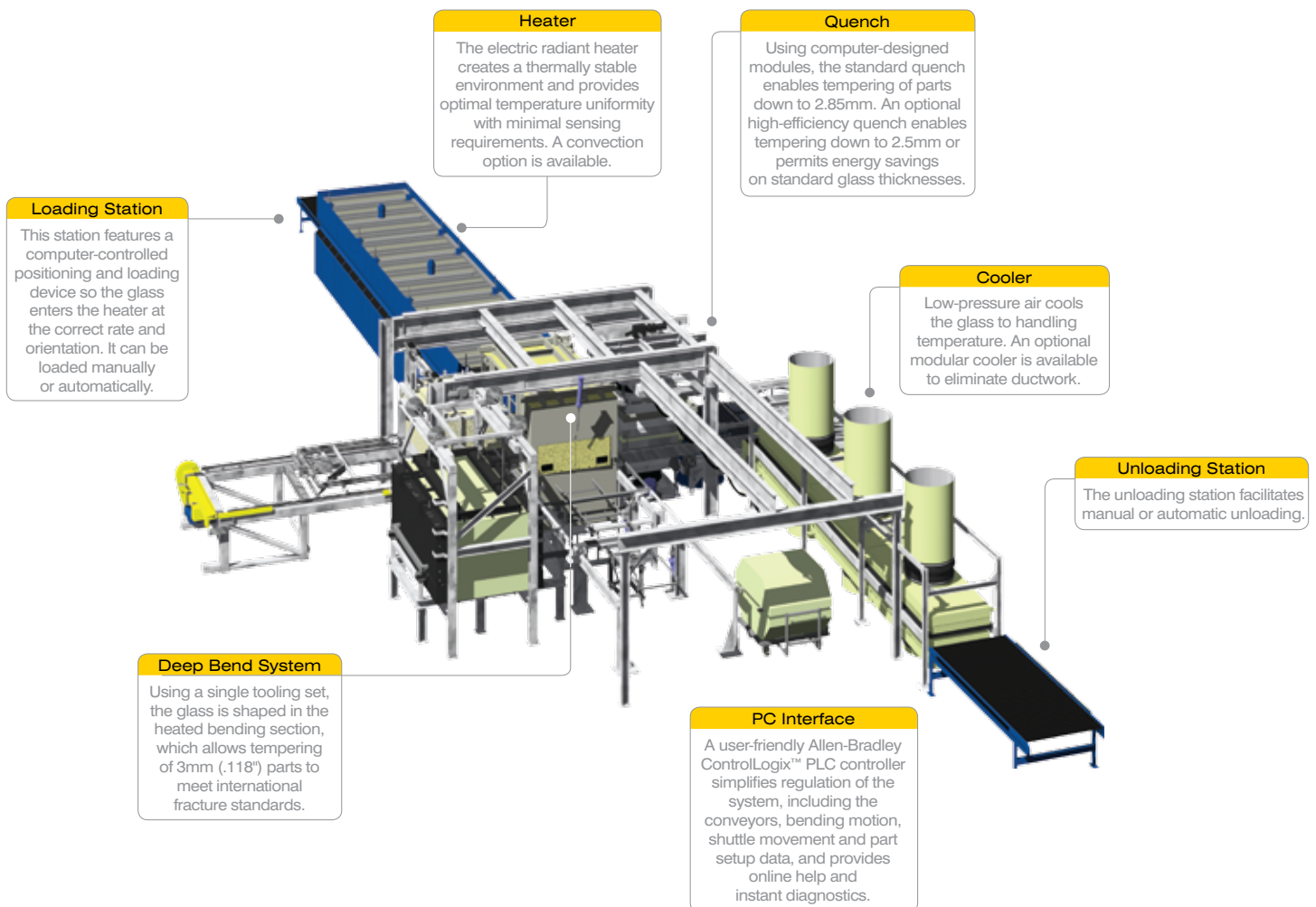
With Glasstech's Quick Change option, the system dramatically reduces tooling changeover times from approximately 6 hours to 90 minutes, increasing uptime, productivity and yields. The QC option also facilitates economical short part runs.

The DB 4-S system can also operate in Quick Sag™ mode to produce high quality glass to precise tolerances in simpler shapes.

The Glasstech DB 4-S System:

- Processes glass parts from 3.0mm – 6.0mm (.118" – 1/4") thickness
- Press bends glass using dedicated part tooling
- Achieves superior repeatability and shape control
- Can process coated and low-iron glass without difficulty

Glass produced on DB 4-S has exceptional optical quality and uniformity of shape to meet industry specifications for solar parabolic and spherical glass. Parts can be produced to automotive and architectural standards as well.



Solar DB 4-S™ Technical Features

Max. depth of bend: 300mm (12") Quick Change or 100mm (4") Quick Sag
 Standard glass thickness: Min. 3.0mm (± 0.1mm); Max. 6.0mm (+0.0mm, -0.2mm)
 Loading area: QC: 1070mm x 1728mm (42" x 68") all thicknesses*
 QS: 1220mm x 1828mm (48" x 72") all thicknesses
 Glass size and production rate based on typical size loads.

* For parts deeper than 300mm (12"), taller than 1070mm (42") or wider than 1728mm (68"), please contact Glasstech for more information.

DB 4-S Production Capability*

Glass Thickness		36' Heater Cycle Time – Loads/Hour		72' Heater Cycle Time – Loads/Hour	
(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 ^{†††}

* Production rates for coated panels or different glass compositions will vary depending on part size, thickness and specific type of coating used, and the consistency of the coating.

Max. Depth of Bend: 300mm (12")

Min. Radius of Curvature for 3mm (.118") Glass: 75mm (3")

† Heater limited

†† Shape dependent (press time)

††† Heater limited, shape dependent (press time) and quench time limited

Quick Sag 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 [†]	12	300 ^{††}
4.0	5/32	32	112 [†]	16	226 ^{††}
5.0	3/16	40	90 [†]	20	180 ^{†††}
6.0	1/4	Conveyor Limit		24	150 ^{†††}

* Production rates for coated panels or different glass compositions will vary depending on part size, thickness and specific type of coating used, and the consistency of the coating.

Max. Depth: 100mm (4")

Min. Radius of Curvature: 1000mm (40")

Max. Radius of Curvature: 2540mm (100")

† Heater limited

†† Quench time limited

††† Min. cycle (sag time will increase cycle time)

Floor Space Requirements

System	Total Length		Total Width		Total Height		Heating Sections (w/o Bender)		Blower Room	
	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)
Low Capacity DB 4848	30	100	17	55.8	7	23	3 x 3.66	3 x 12	20 x 11	65.6 x 36
High Capacity DB 4884	42	138	17	55.8	7	23	6 x 3.66	6 x 12	20 x 11	65.6 x 36

Installed Electric Power

System	Heating (kW)	Quenching ^{†††} (kW)		Electrical		Drives (kW)	Total (kW)
		Fan Power	Aftercooler	3-Phase (v)	4-Wire (Hz)		
DB4 4848 [†]	1600	1200	112.5	380-600	50-60	22	2825
DB4 4884 ^{††}	2522	1200	112.5	380-600	50-60	22	3910

† 11m (36') heater plus 3.66m (12') bender section, 254mm (10") max. depth of bend
 †† 18.3m (60') heater plus 3.66m (12') bender section, 254mm (10") max. depth of bend
 ††† Quench power based on ECE capability for 2.8mm thickness.
 Blow-up is powered by lower quench fan.

Typical DB 4-S Equipment Requirements

- Curved vacuum chamber/press mold and air jet press system
- Curved quench heads
- Curved quench ring frames with self-alignment capability
- Computer-controlled lift jet system
- Back side shuttle with press ring with self-alignment capability and heater
- Automated quench closing system
- Glass positioner
- Stable thermal-center vacuum chamber/press mold guide system
- Tool preheater (with Quick Change tool exchange system)

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