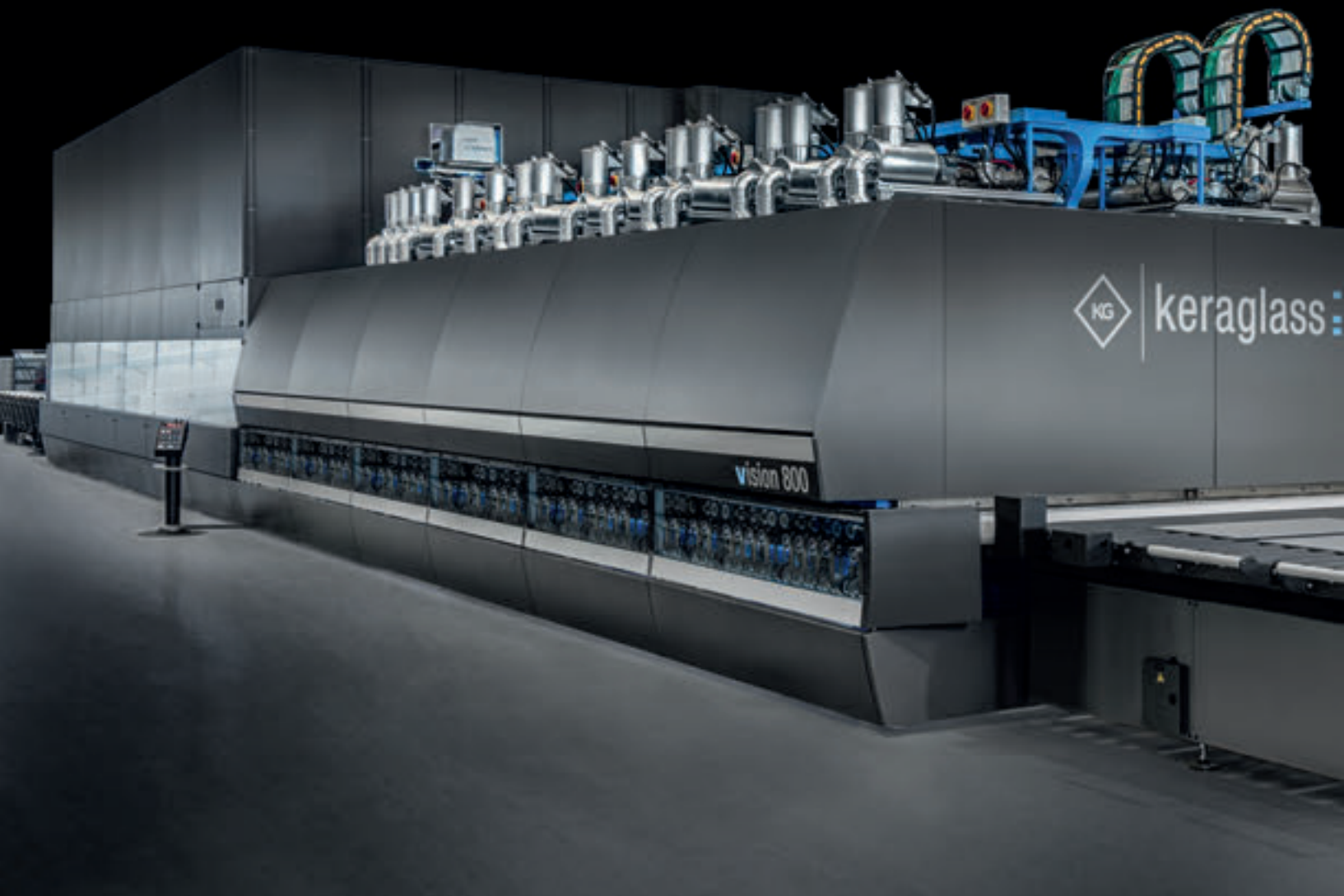


vision 800





Core Business

An overview that makes the difference. What characterizes Keraglass as a worldwide leader in the glass industry is its “all around” approach.

With innovative, functional and customer oriented solutions. Developed around a deep and direct analysis of the issues that may arise in glass processing on flat and curved tempering, screen printing, roller-coating and laminating.

Value and elegance

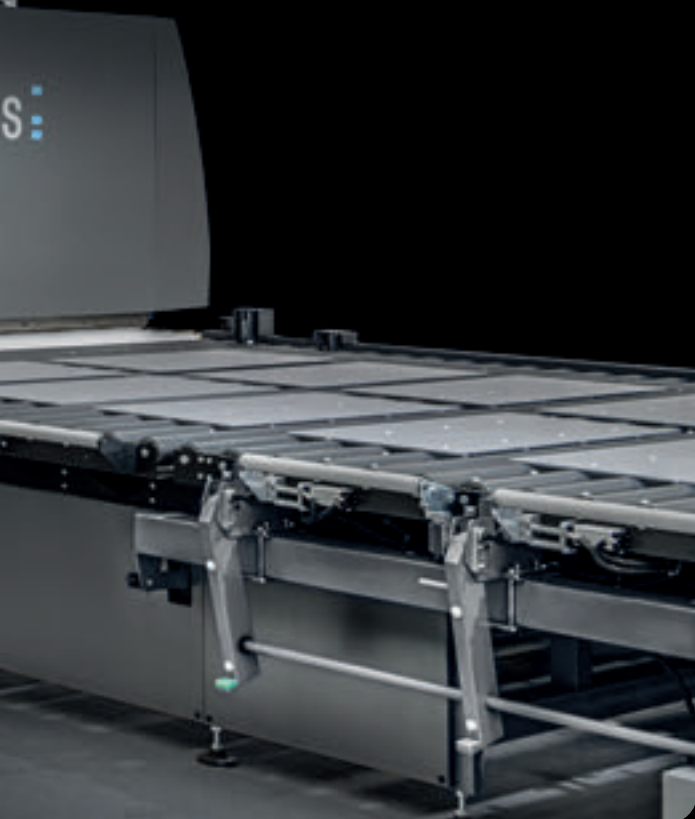
Keraglass presents Vision: the new line of glass tempering furnaces. A result of an innovative project which introduces new features and new design, keeping all milestones that have always distinguished Keraglass.

Vision 800

Oscillating tempering furnace equipped with a high efficiency convection system on the top and on the bottom of the glass, based on a high pressure blowing system inside the heating chamber with preheating air system at 700 ° C.

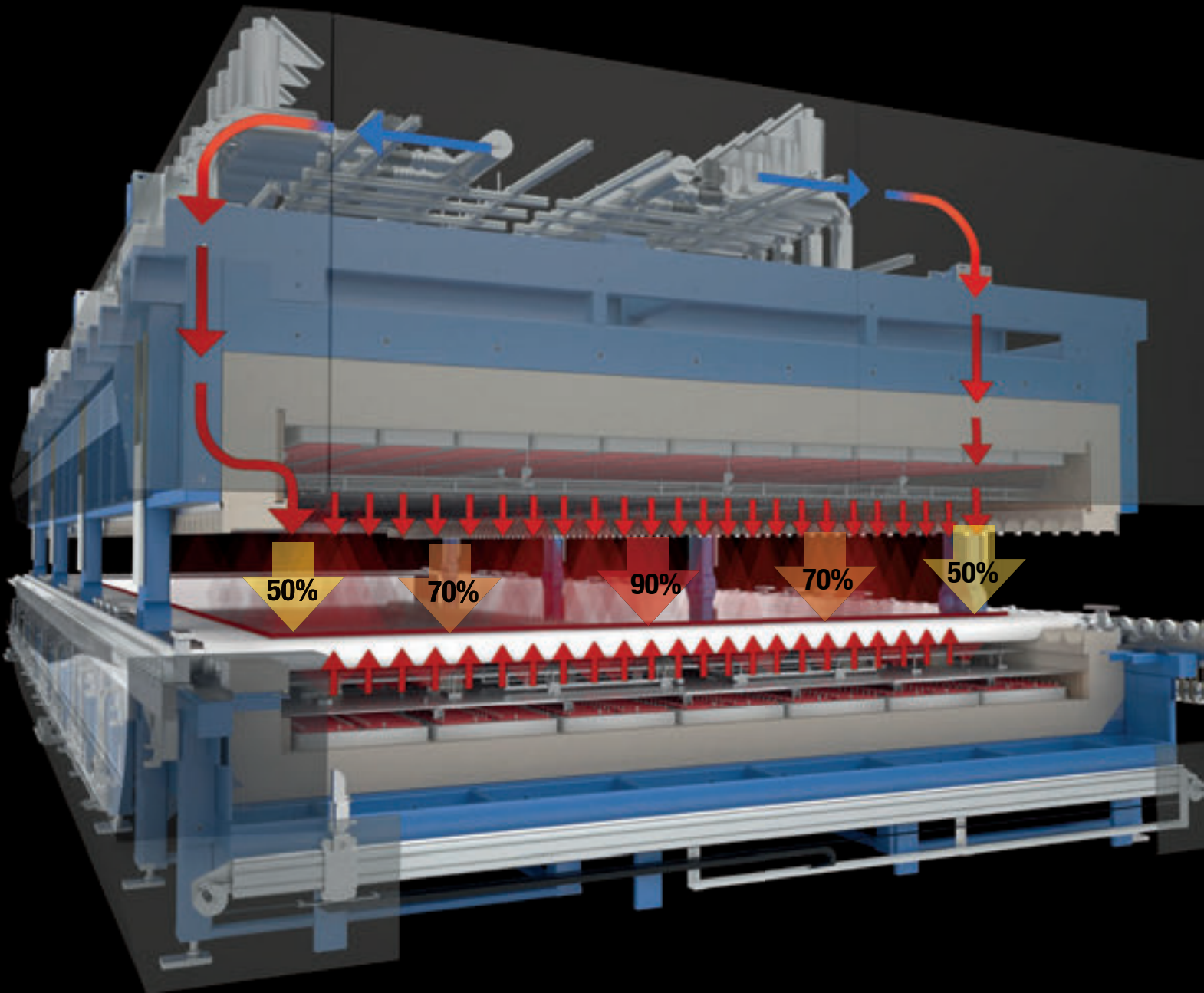
Several installations around the world confirm the great success of this furnace, capable to achieve the best quality of the last generation low e glasses $e = 0.01$.

Ideal for medium to large companies with high quality standards, especially in the architectural glass, providing custom made solutions.



Headquarters

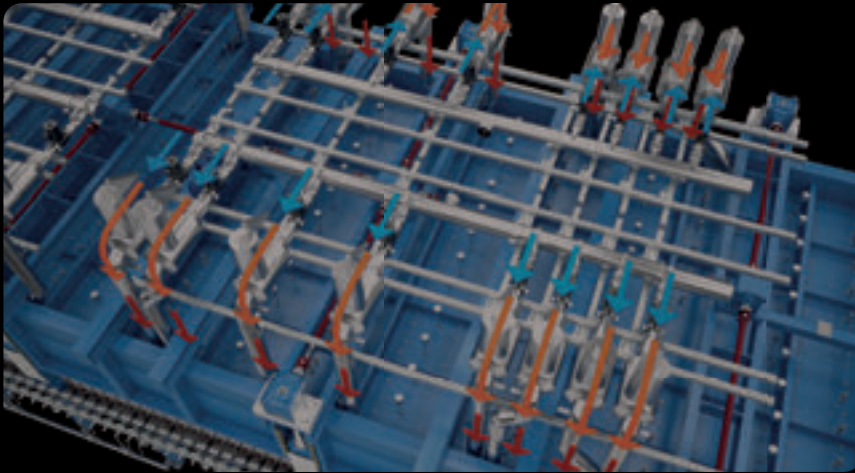
The headquarter in Baiso (Italy), with an area of 10,000 sqm includes executive offices, production workshops, R&D, warehouses in addition to the technological Showroom. All these aspects are the real flagship for technology and innovation.



air convection

Tronik System

- Convection system with high effectiveness, upper and lower to the rollers plane of the based on blowing air pre-heated at 700 ° C, for tempering the latest generation glasses, up to an emissivity of $e=0.01$.
The air distribution system with a rack of stainless pipes blowers, arranged above and below the rollers plane longitudinally, to achieve profile convective need. The air percentage is controlled in according to the recipes for glass settings. The new structure of the heating system will therefore
- be an integrated system of radiation and convection, where the latter may be operated or not depending on the type of glass to be treated.



Super Low-e glass E=0.01

Vision 800: Reduced optical distortion of the glass

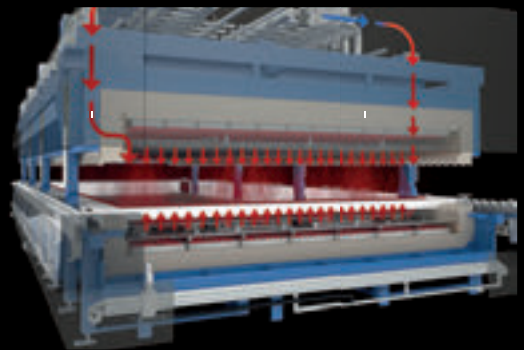
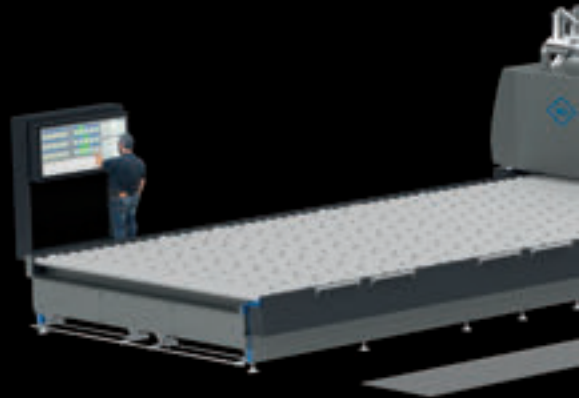
To minimize optical distortion from a heat treatment process means improving the aesthetic of the final product. Roller waves and end kink are sources of optical distortion that can be generated by tempering or heat strengthening, and that can influence the appearance of the final product.

The roller waves distortion and end kink may occur during the heating cycle in an oscillating horizontal furnace.

Roller waves and end-kink distortion only happen in the last few moments of heating when the glass is very soft.

With both end-kink and roll wave, the hotter the glass, the lower the viscosity and therefore the easier it is to distort the glass from its optically flat condition.

supervision intelligent

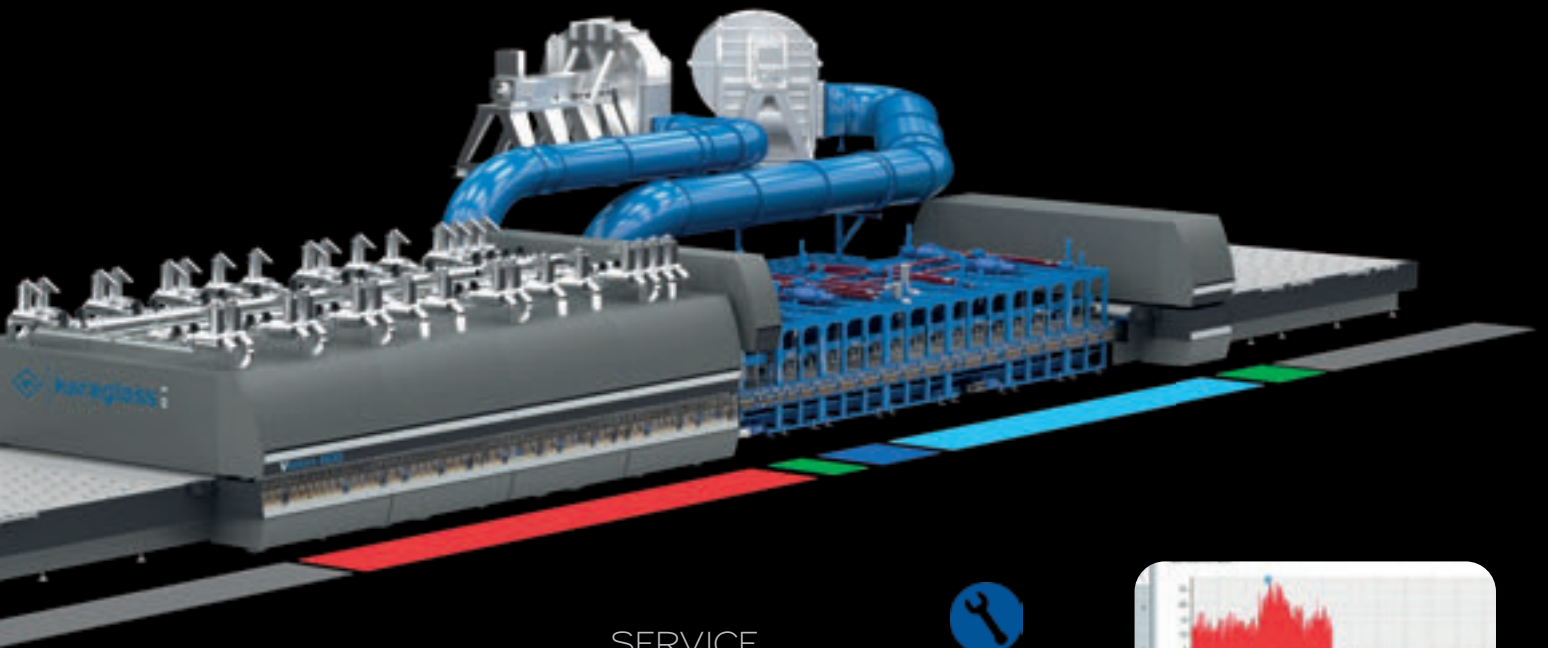


The intelligent vision

- A wide touch-screen monitor with a new user friendly graphic interface, allows total control of the furnace, including the control of the double star system, the heating cycle management and all the control instruments installed on the furnace.
- It includes a power consumption monitoring system and user manual with automatic troubleshooting system, minimizing the machine downtime.

DYNAMIC HEATING CYCLE (DHC)

The new software function DHC allows to obtain a more heat homogeneity on the glass. The function of dynamic heating DHC adapts during the heating phase all control parameters (temperature set point and power) independently for each individual heater, creating variable profiles of temperature and power. Target: heat up the glass only where needed, depending on the type of processed glass. The function is completely configurable by the operator, and it is essential for the new generation glasses and improves the performance of the oven while tempering thick or coated glass.



SERVICE

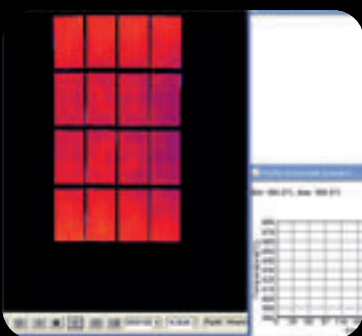
Scheduled maintenance plan

The system will automatically notify the operator, through the interface, about the maintenance operations aimed to keep in efficient conditions all parts



KERASOFT

Software interface that tracks and registers the electrical power consumption



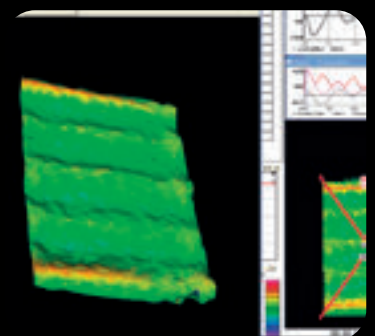
SCANNER CONTROL

Device for measuring the temperature of the glass, at the furnace exit. This innovative system allows the operator to have the complete control of the heating zone by providing precise temperature of all batches. Thanks to the "scroll" function it is possible to compare the results between batches in any point the glass. In this way it is possible to keep over time the same quality of the temper.



TEMPERING AND COOLING HOODS MOVEMENT

Actual glass tempering step, in which the load performs numerous transitions in reciprocating motion under the pressure of air that comes out from the calibrated nozzles. The flow of pressurized air cools the glass and consequently supports the tempering process.

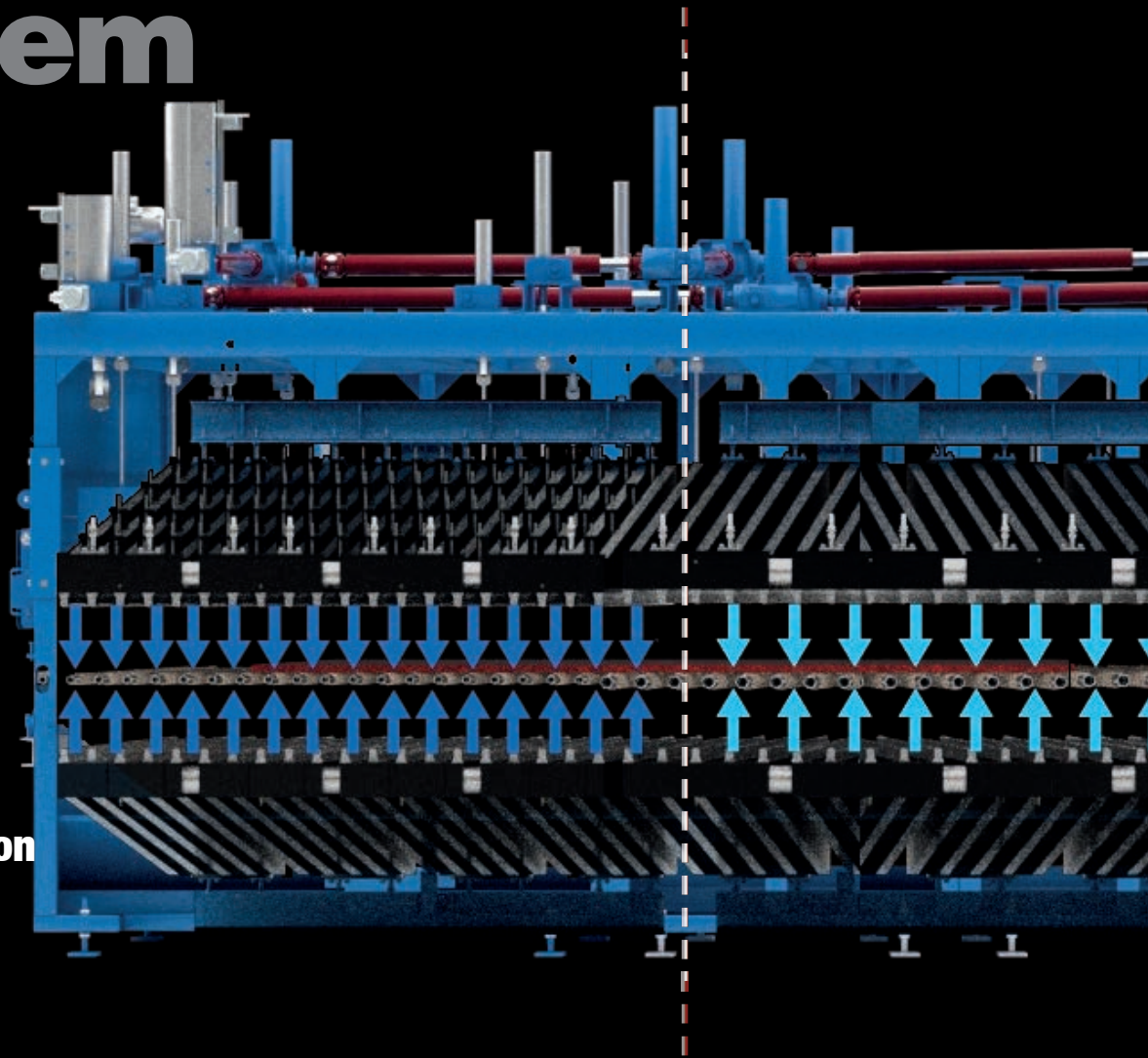


K-INSPECTOR

The K-Inspector system shows directly on Supervision Intelligent the realtime information related to the optical distortion of the glass. The operator can perform the corrective interventions of the various recipes directly during the tempering process.

tekno system

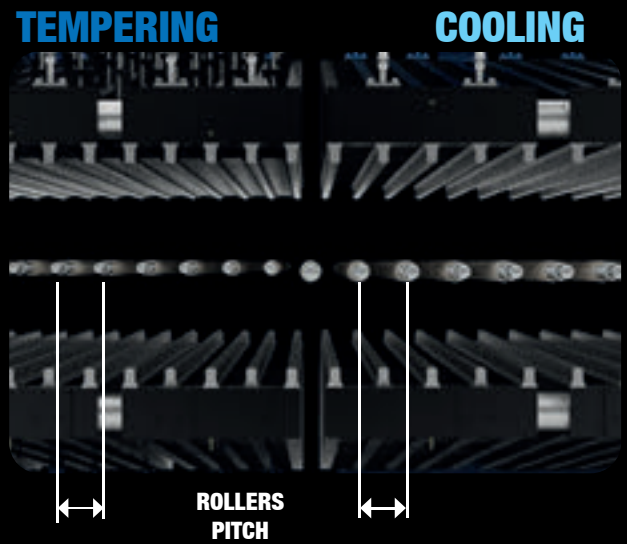
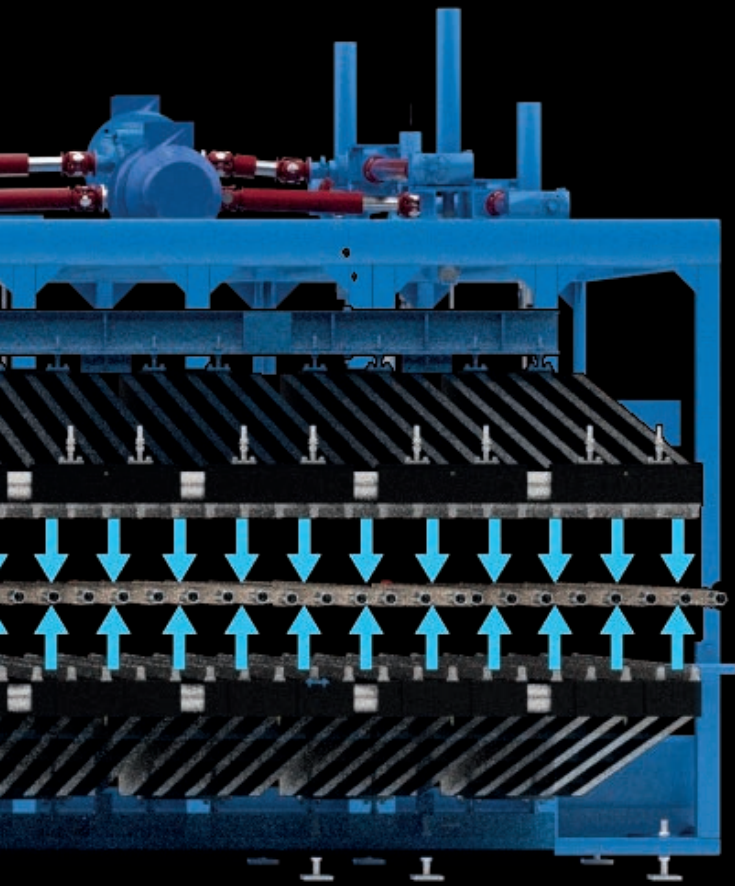
- + pressure
- + quality
- consumption
- anisotropy



Pass through tempering

- The pass through tempering area is characterized by an additional independent quench module, served by its own blower with independently moving hoods that permits a narrow pitch of the rollers and a higher pressure in a narrow area.
The reason for this technical choice lies in the improved control of the tempering conditions, mainly depending on the glass flatness.
- So the “tekno system” offers sure benefits, summarized below:
 - Improved flatness and optical quality of tempered glass
 - Ability to temper thin glass without size limitation
 - Reduced energy consumption, thanks to the use of variable speed motors for the blowers, and to the software management of the heating and tempering phases.





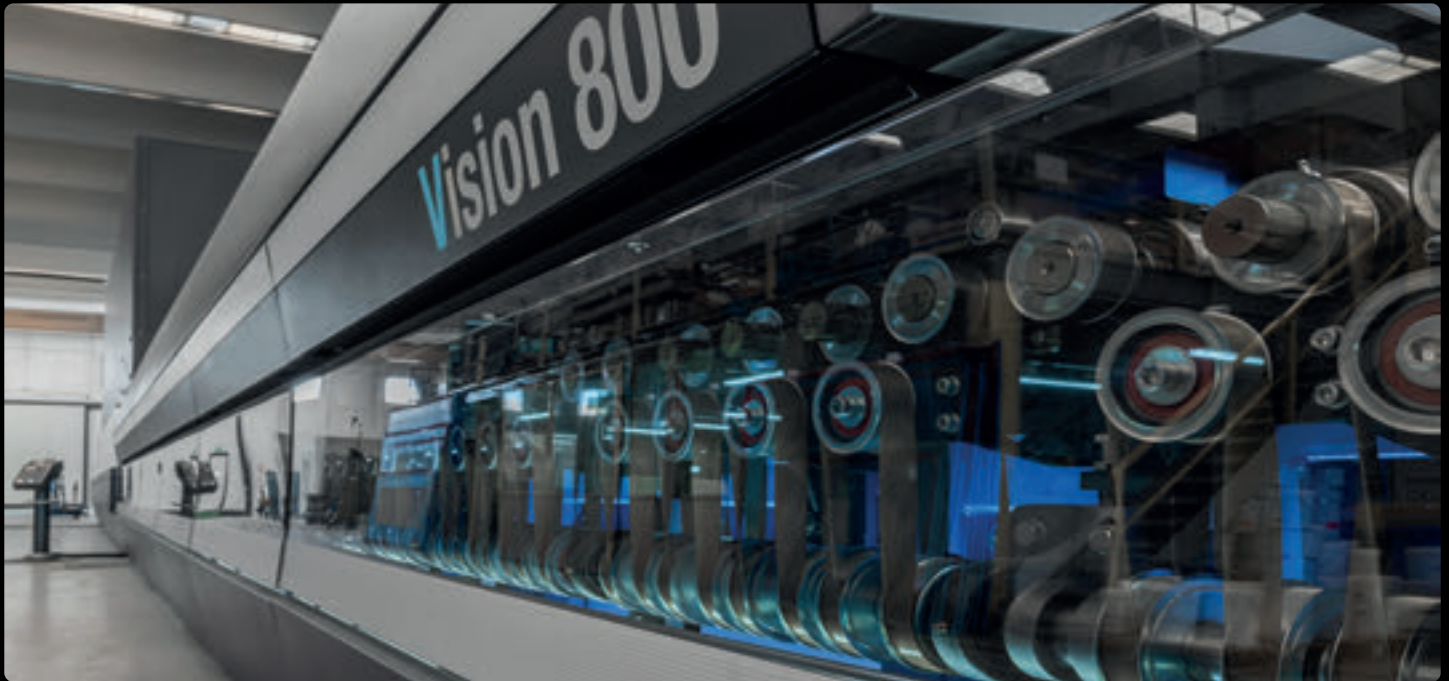
Vision 800: Glass anisotropy

Tempered glass anisotropy is a dreaded phenomenon which may look very unpleasant on a glazed façade. The mechanical stress created by the tempering process slightly modifies the optical properties of the glass: its refractive index is slightly modified, and depends on light direction. Such a material is called a birefringent material, and has strong effects on polarized light, such as blue sky or light reflected on the glass surface under angle. Keraglass improves this defect thanks to the use of this system, having a special nozzle distribution on the blowers which are of smaller diameter compared to a standard nozzles, improving the quality of air distribution in tempering step.

Blowers with independent movement.

Depending on the glass thickness, the central control unit provides to change the tempering fan speed to obtain the correct operating pressure. It also vertically adjusts the distance from the glass of the upper and lower quenchers that, thanks to two separate drives, may have an independent movement. The reason for this technical choice lies in the improved control of the tempering conditions, mainly depending on the glass flatness.

main elements



1250° Insulation

The thermal insulation of the walls, roof and bottom of the heating chamber is made by insulating panels tested for temperatures up to 1250°C. The most relevant characteristic is the internal walls lining with Cordierite refractory plates, featured by smooth and compact surface, which provides important advantages both in terms of internal cleaning and structural stability of the furnace.



HEATING

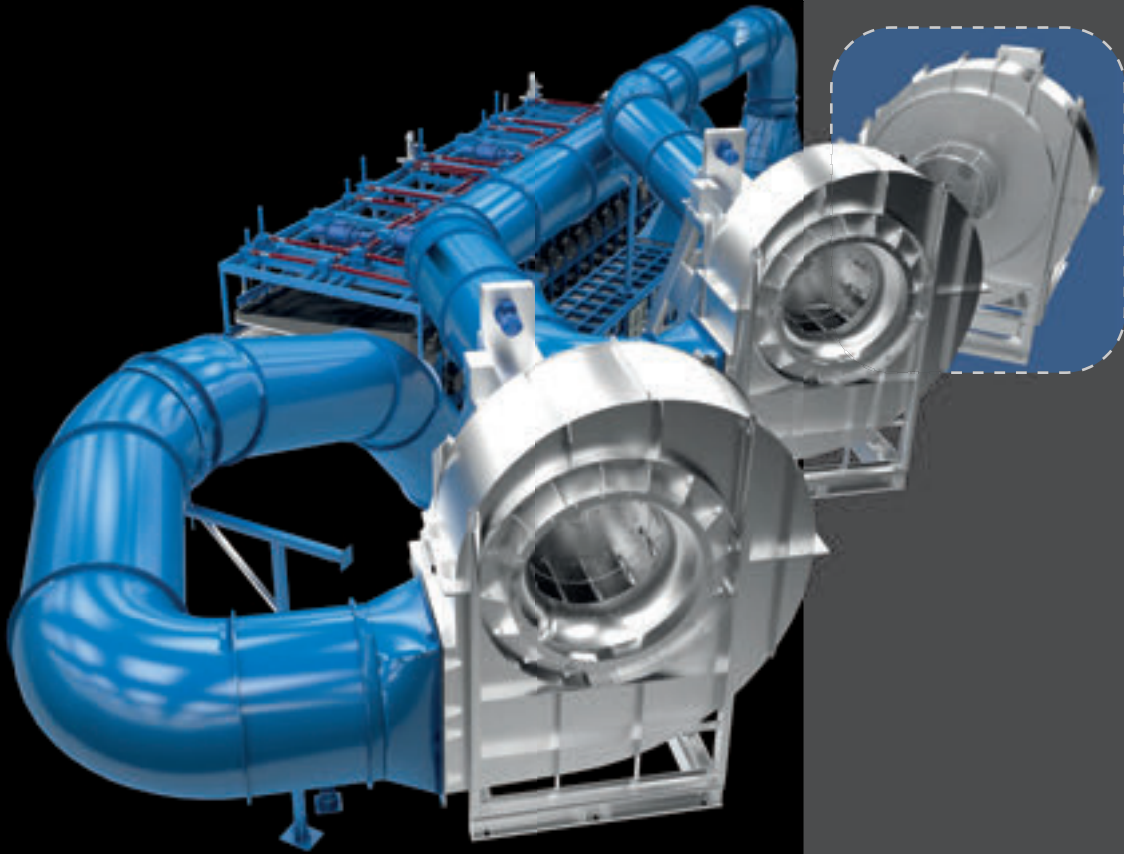
Keraglass furnaces are lined with radiant panels, placed side by side, independently controlled by thermocouple and operated through SCR in %. The electrical heating elements, with filaments of large diameter are synonymous with long-life guarantee. The matrix arrangement allows a wide range of radiation differentiated in both directions, longitudinally and transversely.

Advantages: large differentiated radiation; optimal management of the heating cycle; reduced energy consumption; low maintenance cost



DRIVING SYSTEM

Realized with special toothed timing belts it ensures an uniform and smooth motion of the ceramic rollers, without slacks, to ensure a perfect glass quality. All conveyors are independently driven, in order to optimize the production changes.



6

FANS

The furnaces are equipped with variable speed motors. This solution enables the maximum flexibility in speed regime and is suitable for all thickness values of treated glass. This provides a substantial benefit in terms of energy saving, since the blower will always operate in the optimal speed. The 3rd fan, optional, allows performing the tempering of the 2.8 mm glass.



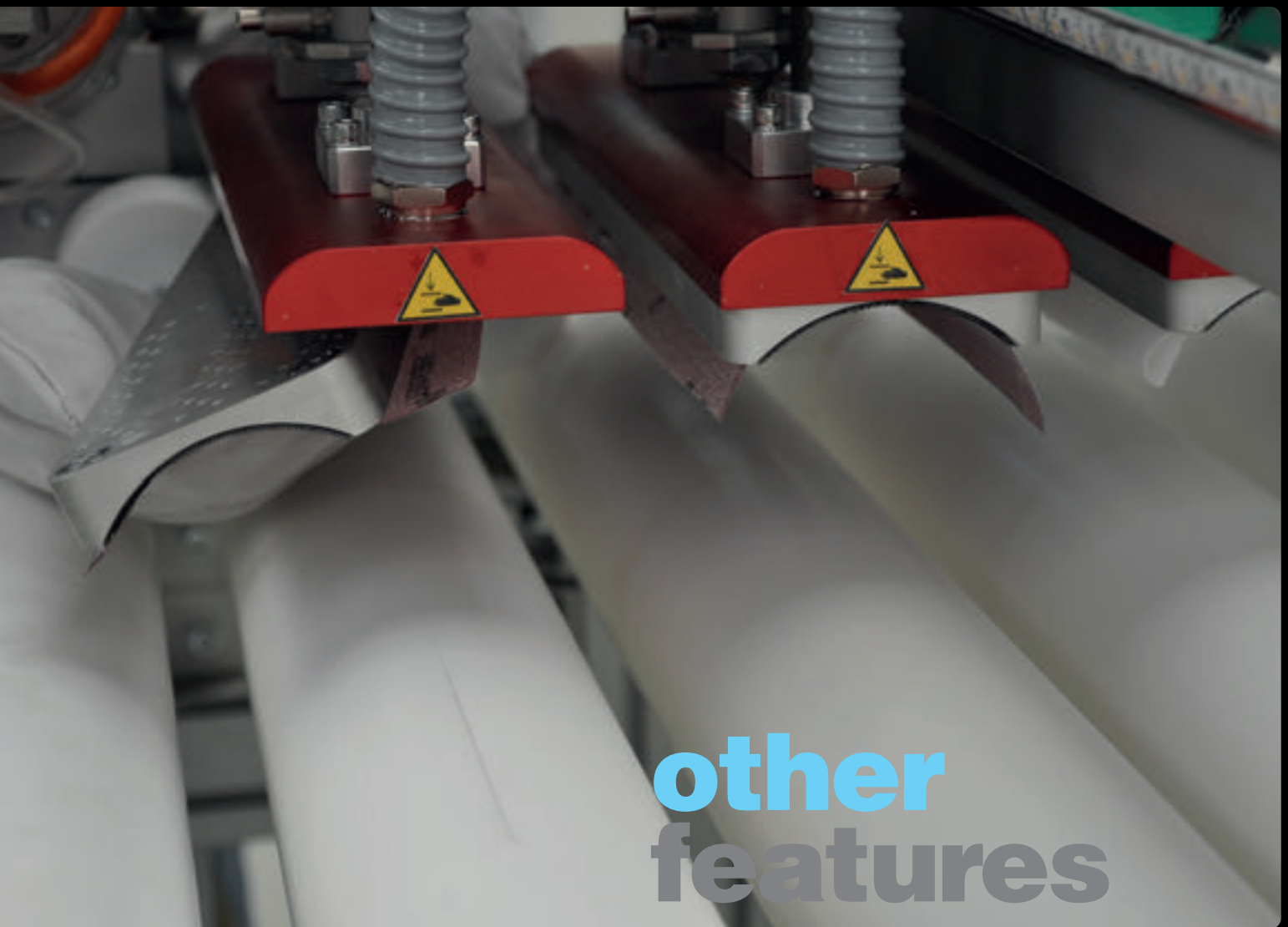
UPS

The emergency system is based on the use of a UPS group, which supplies the furnace cabinets in case of electricity loss.

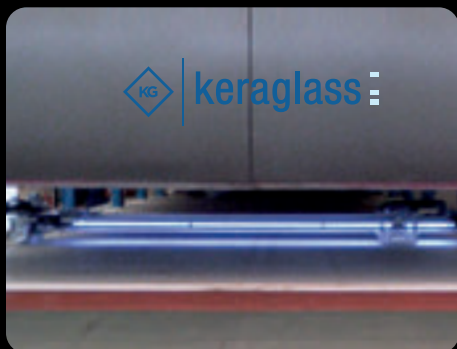


CULLET CONVEYOR

In case of accidental breaking of the glass during the tempering or cooling cycle, the cullets are collected to the bottom of the cooling section by means of a robust automatic metal mesh conveyor.

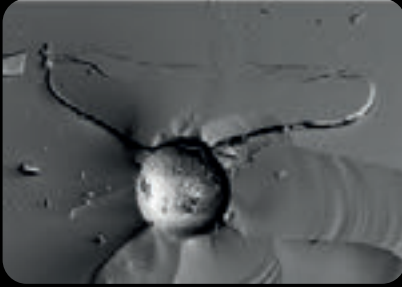


other features



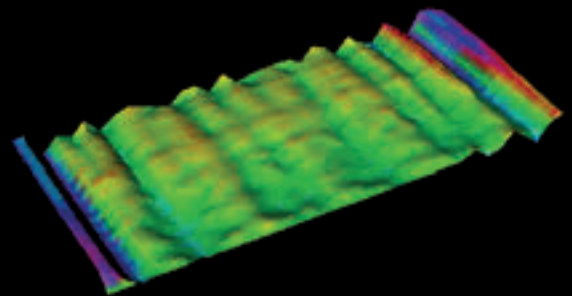
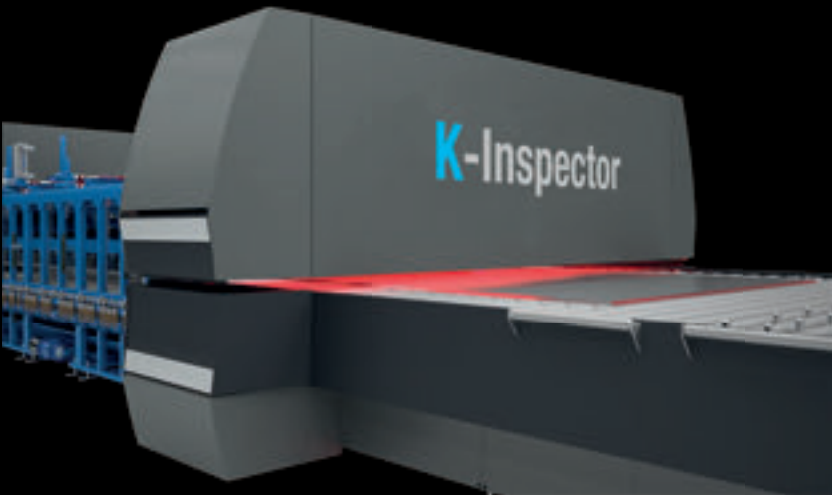
Rollers cleaning system

- RCK thoroughly cleans rollers with a rapid system of interchangeable pads: abrasive, vacuuming and washing. The extremely precise cleaning takes place directly on the system without the need of disassembling the rollers. This optimizes the working times and allows ease of operation than ever before. This machine can eliminate the glass residues stuck to the roller, polish it and aspirate the excess parts. A special option allows to pass from one roller to another in a completely automatic way. The innovative system proposed by Keraglass is adaptable to any type of furnace, pitch and diameter of the rollers.



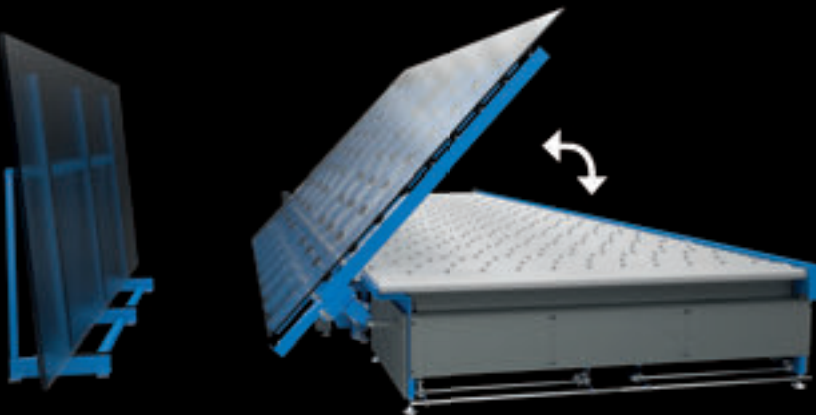
HST

Heat Soak Test furnace: the best guarantee to prevent sudden and unexpected explosions of tempered glass sheets due to Nickel-Sulphide impurities present in the initial float glass sheets. The HST furnace is the ideal tool to meet the safety standards on the use of tempered glass. The Keraglass furnace for HST, certified according to DIN-EN14179-1 standards, allows users to place a certified product on the market.



K-INSPECTOR

Provides the real optical measurement thanks to an advanced instrument. This system measures all types of optical distortion, including roller waves, edge kink, local bow, hammer and many others. It improves the quality and reduces the final product breakage. The real-time information sent directly to the beginning of the furnace in the SUPERVISION INTELLIGENT allows the operator to better control the process.





LOADER/UNLOADER

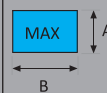
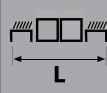
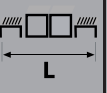
Optional device for load and unload the entry and exit conveyors



data sheets

vision 800 t



 SPESSORE THICKNESS mm	CLEAR GLASS						LOW-E GLASS			
		2,8	3,2	4	6	8	10	12	4	6
 N° CARICHE LOAD NR.	32	28	22	15	11	9	7	16	10	8
CONSUMO ENERGETICO ENERGY CONSUMPTION kW/m ²	1,8	2	2,5	3,2	3,7	4,9	6	3	3,5	4,5






 (A x B) CARICA MAX. MAX LOAD cm	 (A x B) CARICA MAX. MAX LOAD in	 LUNGHEZZA LENGTH m	 LUNGHEZZA LENGTH in	POTENZA RICHIESTA (*) POWER REQUIRED kW	PRODUZIONE PRODUCTION m²/h
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125/240	49x94	14.30	562	190	96	84	66	45	33	27	21	48	30	24
160/320	62x125	18.90	744	220	164	143	112	76	56	46	35	82	51	41
230/360	90x141	19.38	762	375	265	231	182	124	91	74	57	132	82	66
230/420	90x165	22.04	867	450	309	270	213	145	106	87	68	154	96	77
230/520	90x204	25.56	1006	550	382	335	263	179	132	108	84	191	119	95
230/620	90x244	30.96	1218	650	456	399	314	214	157	128	100	228	142	114
260/420	102x165	22.07	868	560	349	306	240	164	121	98	77	174	109	87
260/520	102x204	25.59	1007	660	433	378	297	203	149	122	94	216	135	108
260/620	102x244	31.09	1224	760	516	451	354	241	177	145	112	257	161	128
290/520	114x204	26.01	1024	710	482	422	331	226	165	135	105	241	150	120
290/620	114x244	31.21	1225	835	575	503	395	269	197	161	125	287	179	143
321/620	126x244	30.66	1207	980	-	557	438	298	219	179	139	318	199	159
321/800	126x314	37.92	1492	1130	-	719	565	385	282	231	180	410	256	205
335/620	131x244	32.04	1261	1100	-	-	456	311	298	186	145	332	207	166
335/900	131x354	42.55	1675	1320	-	-	663	452	331	271	211	482	301	241
335/1200	131x472	54.28	2137	1630	-	-	884	603	442	361	281	643	402	321

Note: The above-mentioned productivity data are based on 100% useful charge, on a hour constant production and with glass size according to standard rules. Actual productivity depends on the operator's efficiency, size of the glass, shape and quality standards requested by the customer.

vision 800

	CLEAR GLASS							LOW-E GLASS		
	 SPESSORE THICKNESS mm	2,8	3,2	4	6	8	10	12	4	6
 N° CARICHE LOAD NR.	32	28	22	15	11	9	7	16	10	8
CONSUMO ENERGETICO ENERGY CONSUMPTION kWh/m ²	2,2	2,5	2,7	3,4	4	5	6	3,2	3,7	4,8

(A x B) CARICA MAX. MAX LOAD cm	(A x B) CARICA MAX. MAX LOAD in	LUNGHEZZA LENGTH m	LUNGHEZZA LENGTH in	POTENZA RICHIESTA (*) POWER REQUIRED kW	PRODUZIONE PRODUCTION m ² /h
					

125/240	49x94	12.00	472	210	96	84	66	45	33	27	21	48	30	24
160/320	62x125	16.48	648	240	164	143	112	76	56	46	35	82	51	41
230/360	90x141	17.56	691	425	-	232	182	124	91	74	57	132	82	66
230/420	90x165	20.22	796	500	-	-	213	145	106	87	68	154	96	77
230/520	90x204	24.34	958	600	-	-	263	179	132	108	84	191	119	95
230/620	90x244	29.14	1147	700	-	-	314	214	157	128	100	228	142	114
260/420	102x165	20.38	802	610	-	-	240	164	121	98	76	174	109	87
260/520	102x204	24.49	964	670	-	-	297	203	149	122	94	216	135	108
260/620	102x244	29.39	1157	810	-	-	354	241	177	145	112	257	161	128

Note: The above-mentioned productivity data are based on 100% useful charge, on a hour constant production and with glass size according to standard rules. Actual productivity depends on the operator's efficiency, size of the glass, shape and quality standards requested by the customer.



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