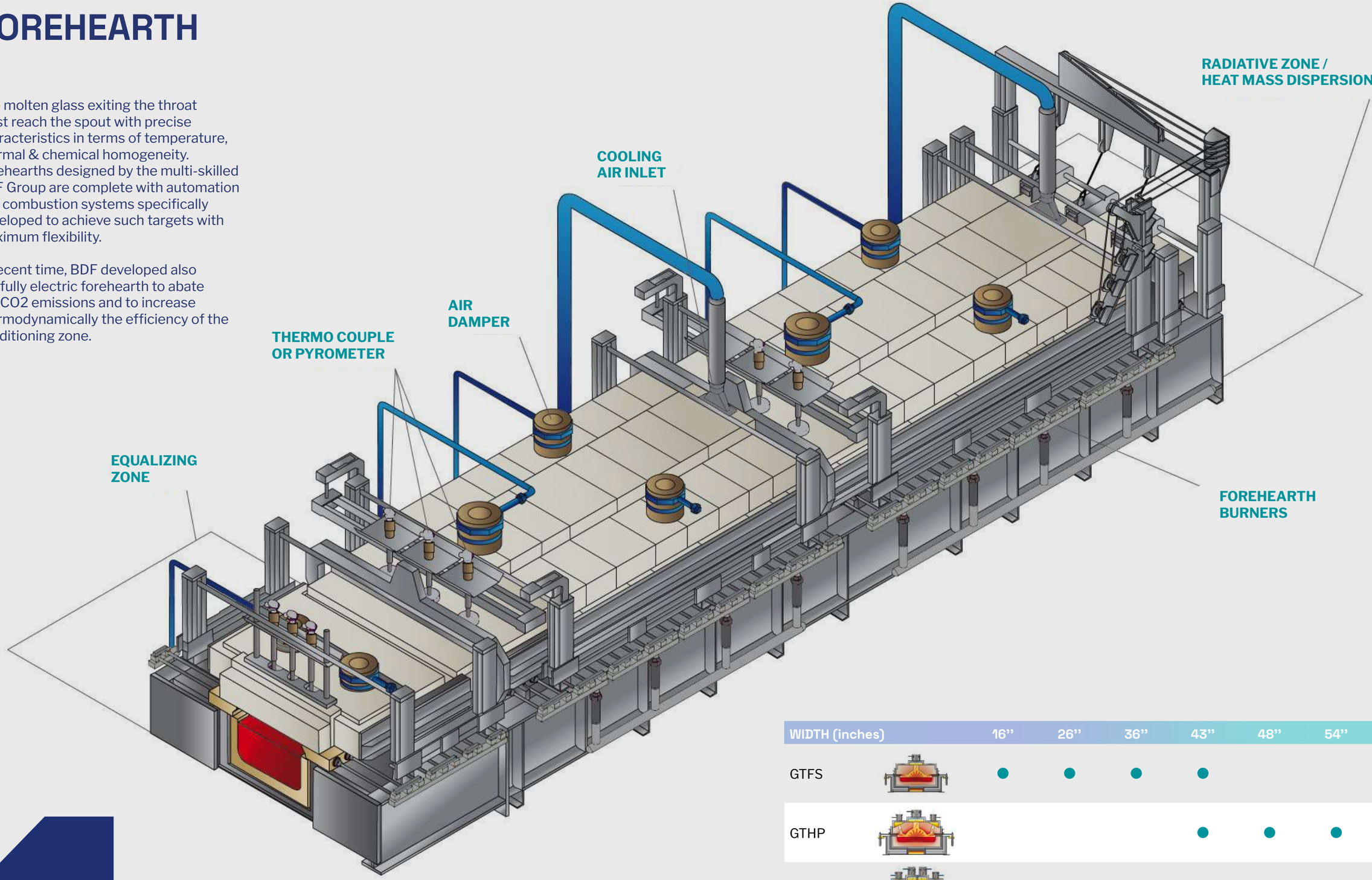
FOREHEARTH

The molten glass exiting the throat must reach the spout with precise characteristics in terms of temperature, thermal & chemical homogeneity. Forehearths designed by the multi-skilled BDF Group are complete with automation and combustion systems specifically developed to achieve such targets with maximum flexibility.

In recent time, BDF developed also the fully electric forehearth to abate the CO2 emissions and to increase thermodynamically the efficiency of the conditioning zone.



NNPB Ready

WIDTH (inches)	16”	26”	36”	43”	48”	54”	60”
GTFS	●	●	●	●			
GTHP				●	●	●	●
GTHP 4C					●	●	●
PULL (data are only approximate)	5-20	20-45	40-75	70-100	90-145	115-180	150-230

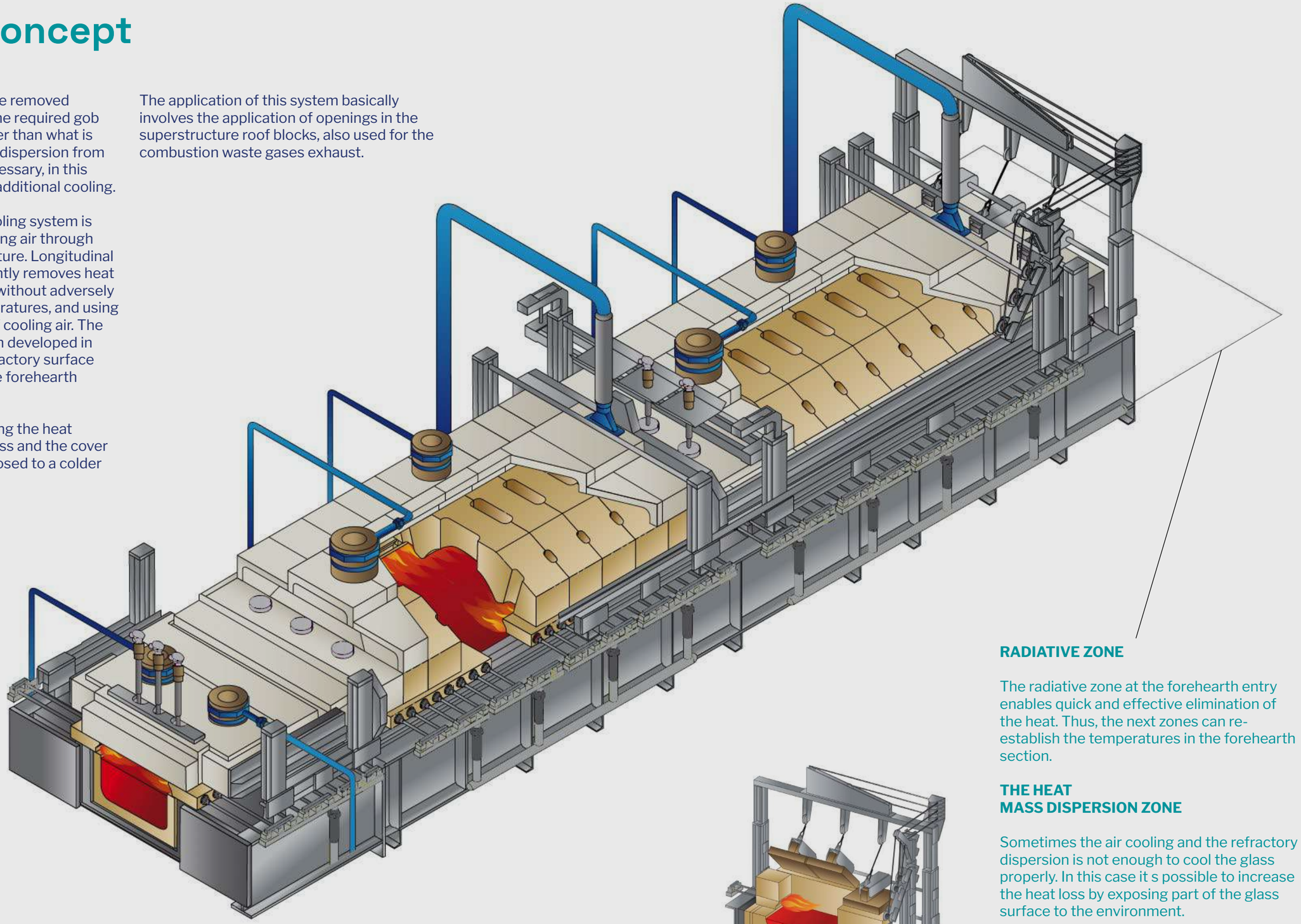
Cooling Concept

Very often the energy to be removed from the glass to deliver the required gob temperature is much higher than what is possible to achieve by the dispersion from the refractory and it is necessary, in this case, to implement some additional cooling.

The forced convection cooling system is based on introducing cooling air through the forehearth superstructure. Longitudinal centre line cooling, efficiently removes heat from the hot centre glass without adversely affecting side glass temperatures, and using relatively small volumes of cooling air. The cover roof design has been developed in order to maximize the refractory surface exposed to the glass in the forehearth centre.

This shape allows increasing the heat exchange between the glass and the cover roof since the glass is exposed to a colder large refractory surface.

The application of this system basically involves the application of openings in the superstructure roof blocks, also used for the combustion waste gases exhaust.



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RADIATIVE ZONE

The radiative zone at the forehearth entry enables quick and effective elimination of the heat. Thus, the next zones can re-establish the temperatures in the forehearth section.

THE HEAT MASS DISPERSION ZONE

Sometimes the air cooling and the refractory dispersion is not enough to cool the glass properly. In this case it s possible to increase the heat loss by exposing part of the glass surface to the environment.

The heat mass dispersion zone is normally installed at the forehearth entry, where the glass temperature is higher and the heat loss is more efficient.