



Optimising Performance of Hybrid Cooling Towers

A Cool Approach

Our partners



Introduction to Galebreaker

- ▶ Over 30 years experience
- ▶ Markets include industrial, agricultural, power and oil
- ▶ World wide market leader in conditioning air flow into cooling equipment
- ▶ Specialists in fabric design
- ▶ £6m turnover
- ▶ 40,000 ft² factory



Galebreaker and SPX

- ▶ 1998 - First ACC Wind Shield project with SPX at Kings Lynn Power Station in UK
- ▶ 2011 - First automated Rolling ACC Wind Shield at Kings Lynn Power Station
- ▶ 2013 - Galebreaker Rolling Systems used to improve performance of a NCWD cooling tower
- ▶ 2014 - Galebreaker Air Inlet Filters used on multiple FEP tower applications across Europe
- ▶ 2016 - Development of rolling systems and PlumeLogic controller for Hybrid towers

Solutions for Plume Abated Towers

► Metal Roller Shutters

- Have to be manually deployed and retracted usually once per year.
- Each coil requires an individual shutter
- Expensive to maintain
- Due to infrequent use these are prone to seizing.
- Potentially unsafe to operate, no protection from moving parts

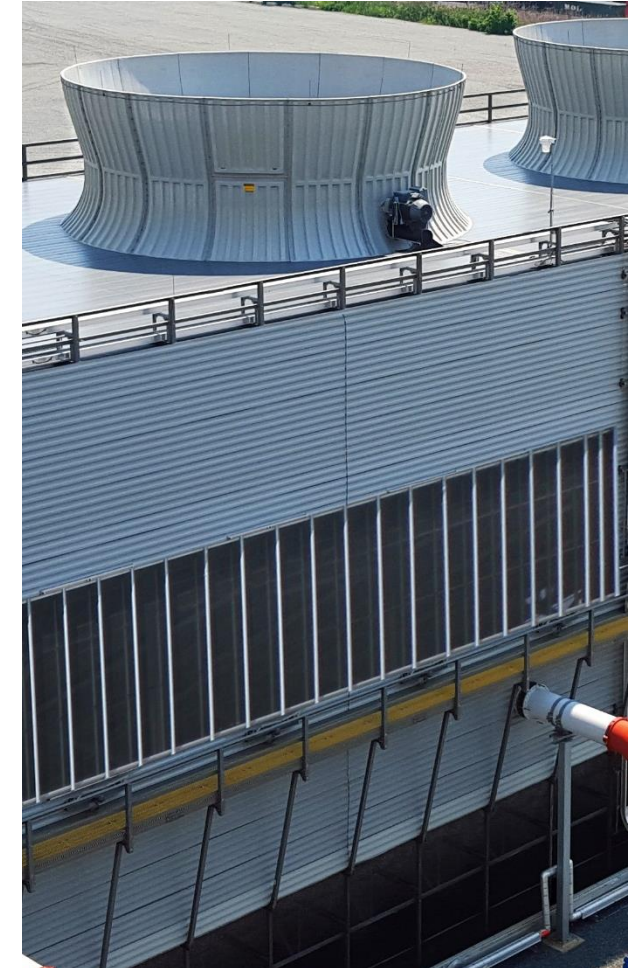
► Louvres

- Can be actuated, but complicated mechanical linkages are prone to seizing over time
- Large pressure drop on air flow into dry section when open
- Expensive to maintain
- Potentially unsafe to operate, no protection from moving parts.



Galebreaker Plume Management Screen

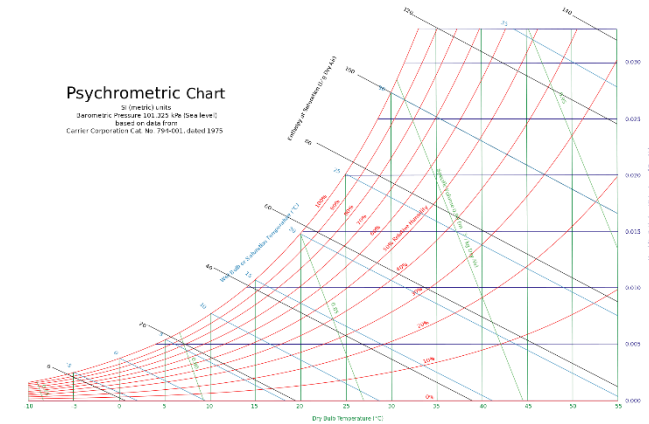
- ▶ Screen Material:
 - ▶ PVC Coated Polyester
 - ▶ Strong and lightweight
 - ▶ UV Stabilised
 - ▶ Flame retardant
- ▶ Easy maintenance
- ▶ Airborne debris protection
- ▶ Safe operation
- ▶ Reduced air inlet height
- ▶ Max. system length 45m, Max. system height 3.5m
- ▶ Resistant to wind speeds up to 90mph
- ▶ Saline and non-saline specifications available



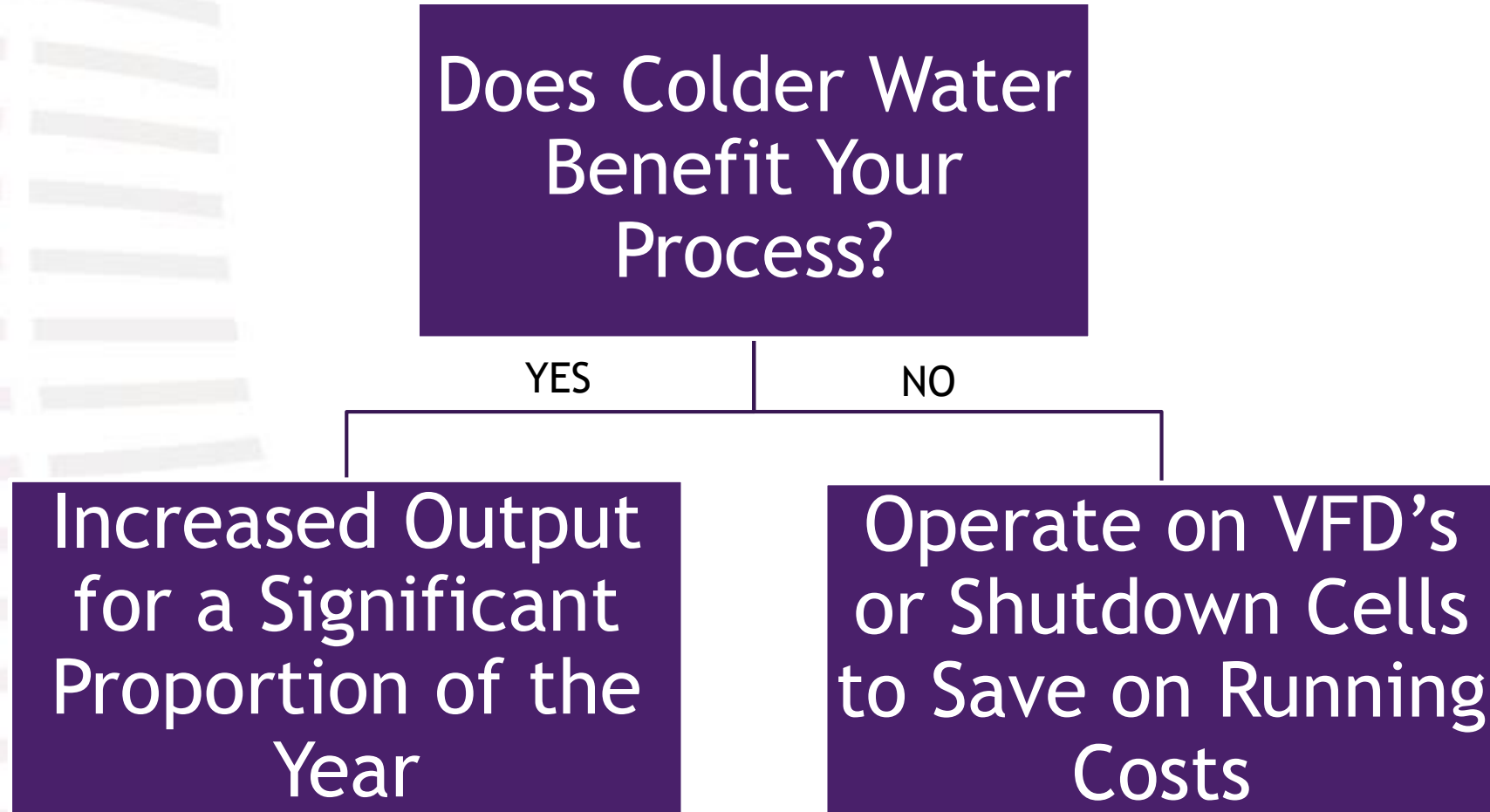
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PlumeLogic Controller

- ▶ Sensors measure local Relative Humidity and Dry Bulb Temperature
- ▶ Galebreaker PlumeLogic calculates optimum screen position
- ▶ Proportional deployment to maximise efficiency in changeable conditions
- ▶ Optimum airflow through wet section of tower without compromising plume abatement



Why Use PlumeLogic?



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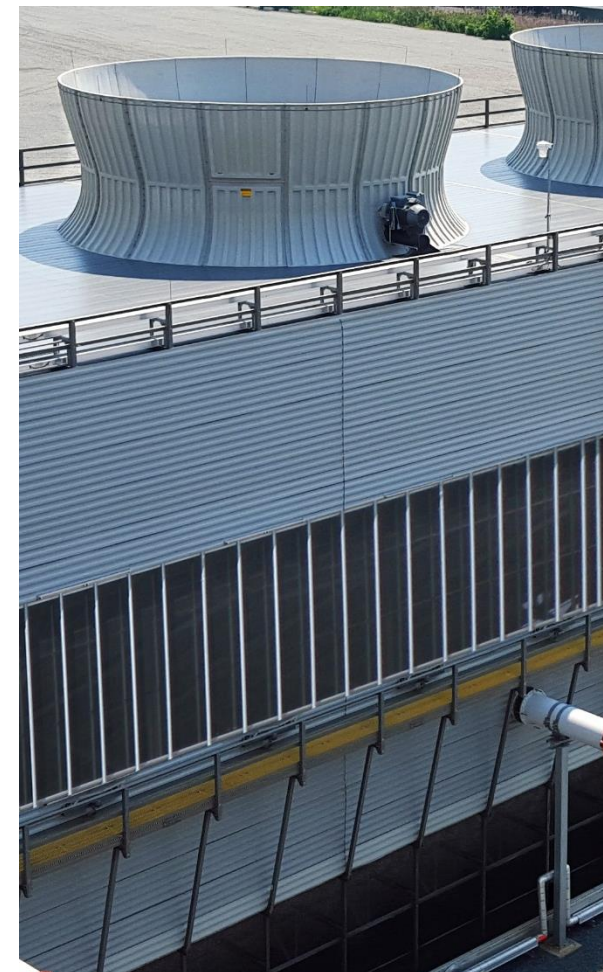
- ▶ Traditionally louvres will be shut for a couple of months of the year
- ▶ It is the plant operator's duty to judge when to close them
- ▶ PlumeLogic:
 - ▶ Removes ambiguity
 - ▶ Ensures plants either have the coldest water or the lowest running cost throughout the year
 - ▶ Is flexible for sites where a small amount of plume isn't an issue
- ▶ Options for further development with wet section air intake screens



Summary

- ▶ Completely automated system to maximise cooling tower performance
- ▶ Simple user interface to adjust operating frequency to suit all climates
- ▶ Easy installation supported directly from the coil frames requiring little or no modifications
- ▶ Externally protected to protect operators from moving parts
- ▶ External protection also acts as air inlet filter to reduce cleaning interval of coils and reduce debris into ClearSky
- ▶ 36 month warranty
- ▶ Improved plant efficiency

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Any Questions?

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