

# **WEBER** COOLING



## VACUUM COOLING

FOR FLOWERS & COLD  
CHAIN MANAGEMENT

*Preservation of Beauty & Vase Life!*





# VACUUM COOLING for Flowers & Cold Chain Management

**FAST & UNIFORM COOLING TO THE CORE**  
**REDUCING COOLING SPACE & ENERGY COSTS**  
**PRESERVATION OF BEAUTY & MAXIMIZING YOUR YIELD**

**Once harvested, all flowers will get stress.** This stress results in **respiration (breathing)** and **transpiration (sweating)**, both mainly triggered by temperature. By quick pre-cooling both respiration & transpiration can be reduced by 75% or more, resulting in quality preservation and minimized botrytis risk, thus reducing your reject & waste!

**Pre-cooling preserves flower beauty and increases your profits.**

**Vacuum cooling** is a rapid pre-cooling technology. By continuously reducing the pressure inside the vacuum room, you force (a fraction of) the flowers own moisture to evaporate, at decreasing temperatures. This evaporation costs energy, which is taken from the flower in the form of a rapid temperature reduction. Your flowers cool down: fast and to the core.

**Vacuum Cooling is the fastest & most efficient pre-cooling method.**

**A wide range of flowers** can be cooled with vacuum cooling, but your vacuum cooler will need to run a dedicated cooling program to reach optimal results. Parameter settings will be dependent on flower type, packing method and time of cooling. With most vacuum coolers supplied to the flower industry, no other supplier has more knowledge on flower cooling than Weber Cooling!

**Perfect for most flowers, but professional expertise is needed.**



## A WIDE RANGE OF FLOWERS CAN BE COOLED

Flowers are delicate, living produce which need optimal storage & shipping conditions to ensure **beauty preservation** and **long vase life**. Packed tightly in boxes, flowers generate a lot of heat, which can be troublesome during transportation. Cooling the flowers to the core is the only way to ensure low temperatures during transportation over large distances. Keeping the number of "degree hours" (a standard developed by Flower Watch) within limits will ensure maximum quality preservation.

**At the Farm** vacuum cooling is the **'perfect start' of the cold chain**. The careful implementation of vacuum (at the right moment and using the right settings) will cool your flowers to the core in a fast & efficient way, to ensure that your flowers can start their journey sleeping quietly, while hardly generating any heat, hardly and breathing. Thus preserving their energy.

However, even if you ship your flowers at perfect conditions, the flowers will still warm up when shipped over a long distance. Cooling back to the core on arrival – **at the airport or logistic hub** – is an important step in the cold chain management process. The only efficient and truly effective way of cooling is by vacuum, since no other technology can cool (consolidated) shipments so **fast, uniformly and to the core**.



### Chrysanthemum:

Important to cool when transportation times are long. Tightly packed in boxes, forced air will not give the "to the core" cooling that vacuum can provide!



### Roses:

Are challenging to cool, as they are heavy and have many varieties. Finding the right system setting is a prerequisite for optimal cooling results with vacuum (even the color can make differences).



### Tulips:

Need very low pressure to cool well, as they will release moisture only with difficulty. Cooling down to the freezing point can be achieved with the right settings, and with enough time.



### Hypericum:

To preserve quality, consistent low temperature throughout the flower is important. With vacuum, this can be achieved within shortest time, and with lowest cost.



### Flower Bouquets:

Require homogeneity in cooling, as different flowers cool at different speeds. We have developed a special software program to achieve optimal results!



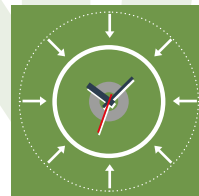
### Flower Cuttings:

Are delicate and fragile. Quality preservation can be achieved by rapid pre-cooling – to the core. Weber Cooling can provide compact & efficient vacuum cooling solutions.



# COOLING

Up to **90%**  
Savings on cooling time  
Up to **80%**  
Savings on cooling space & energy



## WEBER COOLING IS LEADING IN VACUUM COOLING

We have designed a range of standardized, affordable but powerful vacuum coolers to cool all kinds of vegetables and herbs.

### BASE ONE:



A fully standardized low cost but ultra-fast ONE pallet cooler. Simple in design, but with high performance, minimal cost and foot print. The Base One is supplied with a manual hinged door.

### COMPACT:



These smaller sized front-loaded systems with integrated sliding door can handle all kinds of pallets & trolleys, placed side by side. High speed, intelligent control.

### NEXT GEN 4FLOWERS:



A range of vacuum coolers (from 3 to 8 pallets) with larger inside space and a flower optimized cooling system. Use of flower trolleys instead of pallets is possible.


### TAILOR MADE SYSTEMS:

We can tailor our modular systems to your demands and can build **Ultimate Solutions** cooling up to 300.000 kg of fresh flowers – per day!

### AIR:



Weber Cooling is worldwide the **ONLY** supplier offering a standardized range for Aircraft Pallets! We offer single and double room solutions, for up to 4 standard Aircraft pallets, cooling up to > 100 pallets/day!



We make Vacuum Cooling for  
Flowers & Cold Chain Management  
affordable for ALL!

# WEBER COOLING

## Market References

**At the farm:** Weber Cooling has supplied vacuum coolers for the pre-cooling of flowers before storage & shipping, in Africa and South America.

"Vacuum cooling of our roses before storage gives us the possibility to ship our roses at 1 °C, which absolutely has improved our cold chain" (leading grower of Roses in Kenya).

**In the Greenhouse:** In the Netherlands we have supplied vacuum coolers for greenhouse farmers for both chrysanthemum & tulips.

Arcadia (NL) won the price for best quality chrysanthemum, within one year after installing our pre-cooling system at the farm!

**Airport Cooling:** Within only a few years, we have installed our Weber AIR systems at companies like Elite Flower, WWC Cargo in the USA, the Prime Group in Europe & South America, VegPro (in Africa) and Greenwings (in Asia).

At Elite Flower, over 300.000 kg. of flowers are cooled in a SINGLE DAY, with our AIR 2 + 2 system

**Distribution Centre Cooling:** Import and export companies are using our systems daily we have many systems installed! One of them is located at Holey (NL), they write:

"We no longer use our forced air, as with vacuum we can cool way faster, and to the core. Cooling time has been reduced to around 20 minutes using only minimal labour".



Ultra-fast cooling of flowers, starting at the farm  
Ensuring an optimal and stable temperature inside your cold room storage  
Preparing for optimal cooling conditions during transportation  
Prolonging your storage and/or shipping times  
Reducing the risk of botrytis, maximizing the vase life



## WEBER COOLING IS THE WORLD LEADING SUPPLIER OF VACUUM COOLING SOLUTIONS.

We do ONLY vacuum cooling, for ALL applications where vacuum cooling is used.  
We've developed dedicated, tailor made solutions for each of these vacuum cooling applications.

### FRESH APPLICATIONS

- VEGETABLES & HERBS
- FLOWERS & COLD CHAIN
- TURF & COMPOST

### FOOD APPLICATIONS

- BREAD & BAKERY
- FOOD & KITCHEN
- SUSHI & RICE

**Weber Cooling can provide highest quality solutions at lowest costs, thanks to our:**

- Economies of scale (we are the largest vacuum cooler supplier in the world)
- Low overhead (we combine a lean and agile organization with a strong partner network)
- Intelligent design (using modular technology and innovative solutions)



**We focus on CO2-reduction – for a greener world!**

For all our vacuum cooling systems we now offer 'Hydronic Cooling'. This technology is extremely energy efficient and guarantees highest cooling speeds. It reduces the amount of refrigerant by up to 70% and minimizes the risk of leakages. We can also offer "zero-GWP" cooling solutions, using natural refrigerants like CO2 and Ammonia.

With regional offices in Europe & Asia and a dedicated worldwide partner network we provide fast & reliable maintenance & support. At our head office in the Netherlands we have testing facilities with our demo- and research vacuum coolers for on-site testing.



### WEBER COOLING EUROPE B.V.

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### WEBER COOLING EUROPE KFT.

*Eastern Europe*

### WEBER COOLING ASIA LTD.

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