



## CORPORATE PROFILE



**DUNHAM-BUSH®**

Products that perform...By people who care





## WE WORK AROUND THE CLOCK WE WORK AROUND THE WORLD

We make it our business to make sure nothing stands in the way of your comfort and productivity. In countries around the globe, we at Dunham-Bush are creating innovative cooling solutions appropriate to the individual requirements of commercial buildings, schools, hospitals, airports, factories and residences. No matter where you are, what we deliver is the same: high performing, highly engineered cooling solutions developed to take on the challenges of the 21st century.









## Message from the CEO

With over one hundred years of history, Dunham-Bush is a major provider of comfort, process and industrial cooling worldwide.

Our continuous growth throughout the years is the product of lessons learned, synergies developed, and investment in highly talented individuals and technology.

In 1960's, Dunham-Bush was the first company to develop and use screw compressor technology for air conditioning and refrigeration. As a major brand, we are proud of our reputation amongst industry experts as “Dunham-Bush, the Experts' choice”

We have a clear global vision based on growing our global footprint in all major markets and segments in our industry.

We believe that we can achieve our objective through a clear strategic path by:

- Improving our technology through dedicated R&D efforts,
- Improving our brand name recognition,
- Offering green solutions,
- Offering energy efficient products,
- Expanding points of sale,
- Leveraging dealer strength,
- Enhancing our quality and
- Reducing our cost to remain competitive.

In summary, we aim to excel in everything we do with talented, self-motivated individuals who are well aware of our common objective.

**Max Ghiassian**  
CEO, Dunham-Bush

## PRODUCTS THAT PERFORM...BY PEOPLE WHO CARE



## WHO WE ARE

Dunham-Bush, one of the world's top commercial air-conditioning manufacturers, has long been committed to offering creative solutions for customers' requirements throughout our 100+ year history, in the heating, ventilation, air-conditioning and refrigeration (HVAC/R). Today, our global headquarters is located in Kajang, Malaysia. Dunham-Bush employs over 2,000 people in 15 regional sales offices and three factories worldwide.

Dunham-Bush offers a complete range of HVAC/R products such as large chillers, heat pumps, thermal energy storage, packaged, airside system and unitary, for residences, commercial buildings and industrial facilities. Our people focus on providing innovative engineering and superior quality manufacturing that meet our customers' demands for performance, reliability, quiet operation and energy efficiency.

## OUR HISTORY AND MILESTONES

1894

C.A. Dunham Company built in USA as a professional manufacturer of heating, ventilating & air-conditioning units and refrigeration equipment.



1906

Bush Manufacturing Company was built in USA. The second Dunham-Bush company was built.

1935

Factory in Morden, Great Britain was built to produce heating products.



1956

Dunham-Bush built by merging the C.A. Dunham Company and Bush Manufacturing Company to engage in the research, development and production of high standard products.

1967

Dunham-Bush patented the technology to use a screw compressor for refrigeration/cooling.



1995

Acquired by Berjaya Group in Malaysia.



OUR VISION

Dunham-Bush is the premier provider of value-added solutions in the HVAC/R market.

OUR MISSION

Dunham-Bush creates superior value by using customer insights to build on a core offering, so that we can deliver appropriate solutions exceeding customer expectations.

OUR VALUES

The right people. Customer-focused. Building trust. Integrity. Adaptability. Passion to succeed.

1995	1998	2007	2008	2012
Dunham-Bush built the factory in Yantai, China.	Dunham-Bush built the factory in Kajang, Malaysia. Later built Global Head Quarters in here in 2000.	Dunham-Bush was purchased by its Agromash Holding, one of Russia's largest engineering companies specialized in machinery and engine Production.	Dunham-Bush launched its new logo to match its new global brand & business strategy.	Acquired by Moon Group. Moon Group is a leader in China HVAC & R industry.
				





## OUR STRATEGY IS TO GROW BY MOVING TO SPACES WHERE OUR COMPETITORS DO NOT AND CANNOT COMPLETE

We're helping customers maintain the highest standards in critical manufacturing environments and provide comfortable, sustainable environments in select markets around the world. Dunham-Bush is focused on growth by offering what others can't: an open collaboration with customers and distribution partners who are committed to long-term relationships that are mutually beneficial.

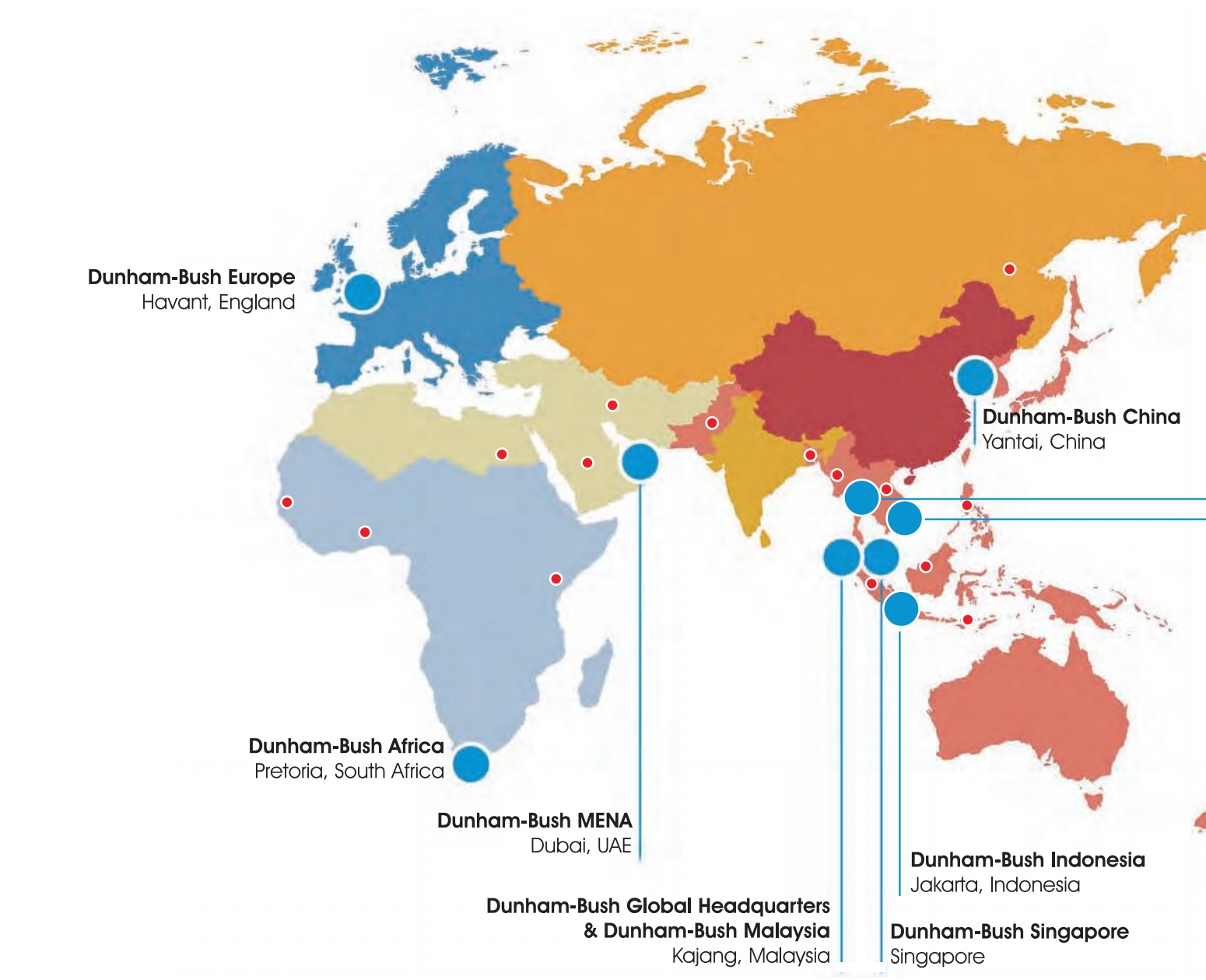
This strategy won't make us the world's largest manufacturer of cooling equipment. However it will make us uniquely qualified to meet the increasingly specialized requirements of customers who seek custom, high performance solutions. At Dunham-Bush, we offer a unique combination of customer intimacy and expertise that results in products engineered and manufactured to efficiently and reliably operator in the required environment.

Our strategy also gives us the flexibility to continuously respond to evolving conditions and emerging markets around the globe.

**Our diverse mix of products can be found in some of the most prestigious and recognizable projects around the world.**







**UK Facility**  
Havant, England



**Malaysia Facility**  
Kajang, Malaysia





## Our Reach



### A WORLDWIDE NETWORK DELIVERING SOLUTIONS

By utilizing our manufacturing facilities and global network of sales and service offices, Dunham-Bush delivers products and services to all corners of the world.

In countries around the globe, we're creating innovative cooling solutions appropriate to the individual requirements of commercial buildings, schools, hospitals, airports, factories and residences. No matter where you are, what we deliver is the same: customized, high performing, highly engineered cooling systems developed to take on the challenges of the 21st century.

**China Facility**  
Yantai, China





# PERFORMANCE DRIVEN BY INNOVATION ENGINEERED FOR FLEXIBILITY MADE TO ORDER FOR THE WORLD TODAY

By focusing on innovative product development matched with an aggressive attitude towards growth, Dunham-Bush is leading the way in emerging global markets. Rather than developing technology that can be used anywhere, our product development is tailored to meet the specific needs of our customers, building by building, country by country and region by region. No other HVAC manufacturer takes this approach to meet the performance expectations of their customers.

**With fewer moving parts and smooth rotary motion our unique vertical screw compressors provide reliable, non-pulsating positive displacement compression. A continuing program of in-house laboratory testing has resulted in screw compressors with the best combination of performance and efficiency available today.**



First commercially successful fluid filled radiator trap.

One of the first to manufacture air conditioning units with direct expansion coils, air cooled condensers, and evaporative condensers.

The introduction of water and glycol chillers for commercial and industrial applications.

The introduction of hydronic residential air conditioning system for easy retrofitting in hotels and retail centers.





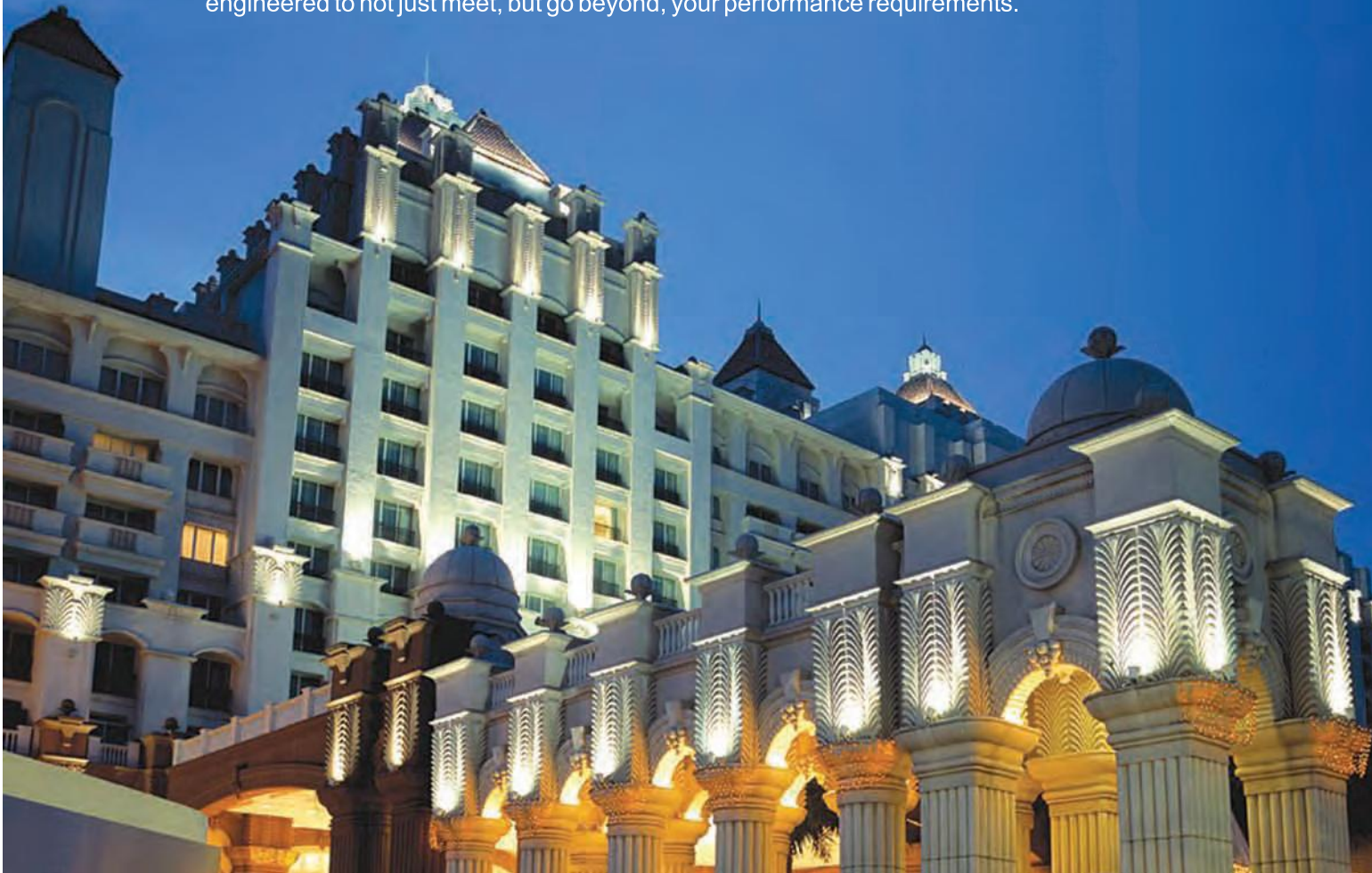
Dunham-Bush's single stage centrifugal compressor provides a large range capability and unmatched performance and stability, single stage advantages over other kinds of compressors include lower vibration and noise levels, lighter weight, higher efficiency and reliability, and lower energy consumption.



## COMFORT COOLING

Advanced compressors, ultra-quiet packaged chillers, efficient ice thermal storage, wall mount and ceiling exposed split air conditioners, new-age air handling equipment and architecturally oriented heating equipment. Dunham-Bush equipment plays a pivotal role in manufacturing comfortable living and working environments in new building construction and in renovating existing structures.

Our commitment to custom solutions has been solid for over 100 years. We believe the appropriate solution takes more than great products. It takes a team of people who are focused on your requirements. Wherever you are, there's a Dunham-Bush team ready to work with you to meet your specific comfort cooling requirements. We've built our legacy on delivering efficient, reliable and durable equipment that's right for the job. That means no off-the-shelf solutions, just out-of-the-box approaches engineered to not just meet, but go beyond, your performance requirements.



Comfort is the number one issue in any building. Dunham-Bush provides a wide array of chillers and unitary cooling equipment for commercial and residential buildings that deliver the comfort building occupants expect and the efficiency they demand.



## PROCESS COOLING

Dunham-Bush has a long and proud history of providing equipment for industrial and process cooling. The company's rotary screw and reciprocating chiller designs have been proven in a variety of settings throughout the world where reliable, precise cooling is an absolute necessity.

Dunham-Bush open-drive LSC compressors have become the industry standard for reliable operation. There are a number of installations where the compressor has been in operation for more than 200,000 hours without requiring repair.

Dunham-Bush engineers work closely with our customers to tailor products specifically to meet the critical needs of a particular application. Examples are explosion-proof cooling for chemical plants, or cooling in research laboratories where the temperature can never vary more than a degree.



The most critical manufacturing processes in the world have one thing in common: consistent, precise temperature control 24/7 for process cooling. Dunham-Bush will customize a process cooling solution around your needs, whether it's refrigerating chocolate or cooling reactors.





## DUNHAM-BUSH IS WORKING TO BE THE LEADING EDGE IN GREEN SOLUTIONS



### **Ice Thermal Storage Air Conditioning Systems**

The Ice Thermal Storage Air Conditioning System works in a similar manner to storing energy in a battery. It's able to reduce peak energy consumption, lower operating costs and improve system efficiency by 10%, while improving indoor air quality. All this adds up to greatly reducing your carbon footprint.



### **Heat Recovery Air Conditioning Systems**

Using a shell and tube de-superheater, our Heat Recovery Air Conditioning System recovers the waste heat from the cooling process, stores it and then uses it to generate hot water for sanitary uses. This reduces the building's need for hot water boilers/ heaters by around 10%, saving energy and costs.



### **Geothermal Heat Pump Air Conditioning Systems**

Dunham-Bush is able to use the ground water instead of outside air to provide heating, air conditioning, and in most cases, hot water. Using 25%-50% less electricity than conventional heating or cooling systems, our Geothermal Heat Pump Air Conditioning Systems greatly reduce operation cost and corresponding emissions. It also improves humidity control for indoor comfort.

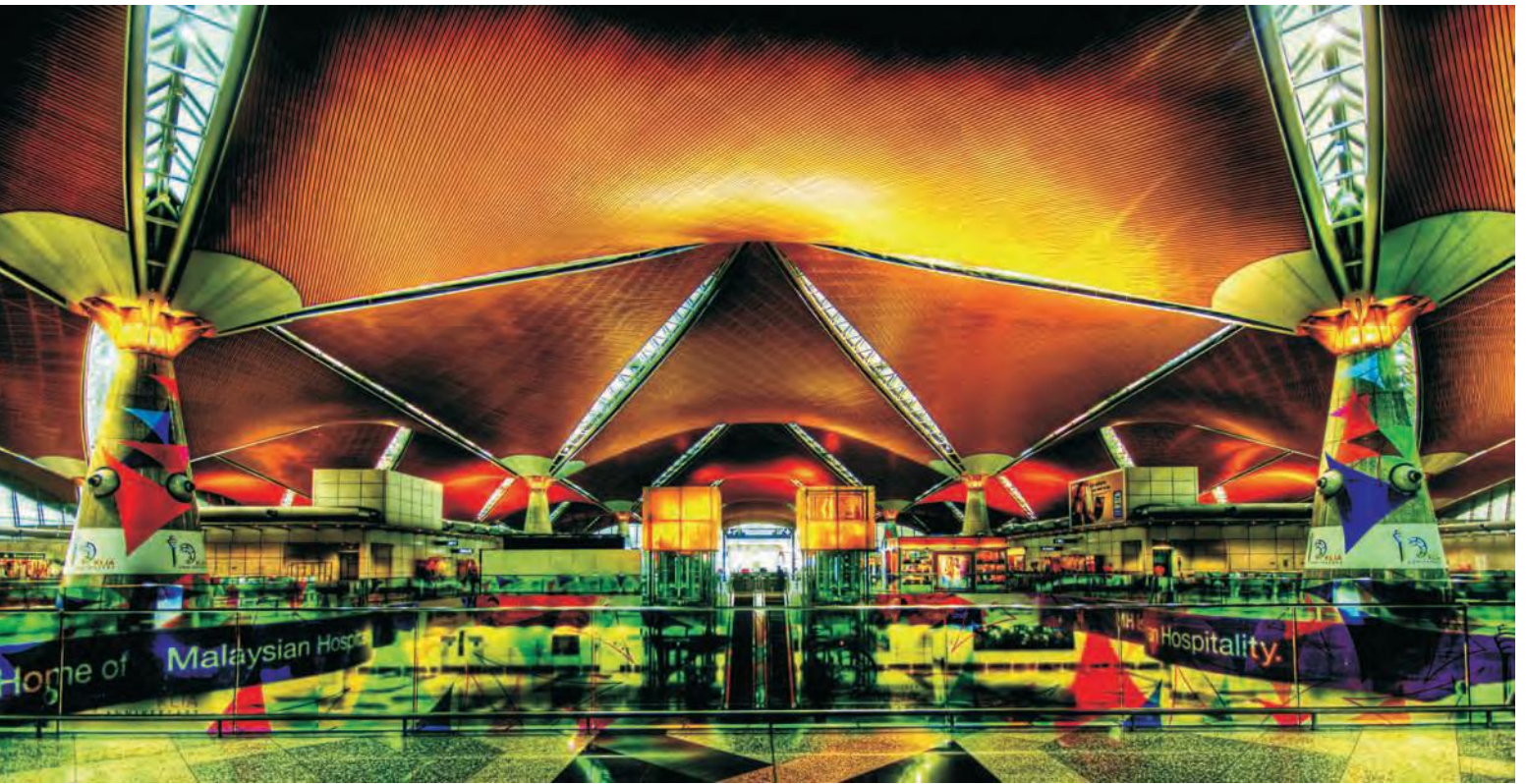


### **CO<sub>2</sub> / NH<sub>3</sub> Cascade Refrigeration Systems**

The innovative CO<sub>2</sub> / NH<sub>3</sub> concept is based on a cascade system that combines the advantages of CO<sub>2</sub> on the low-temperature side and ammonia on the high-temperature side. Ammonia is limited to the engine room, and only CO<sub>2</sub> will be present in working, processing and storage areas. Compared with conventional two-stage or economized single-stage systems, a CO<sub>2</sub> / NH<sub>3</sub> System uses significantly less power and has lower refrigerant costs, lower operating costs and lower installation costs.





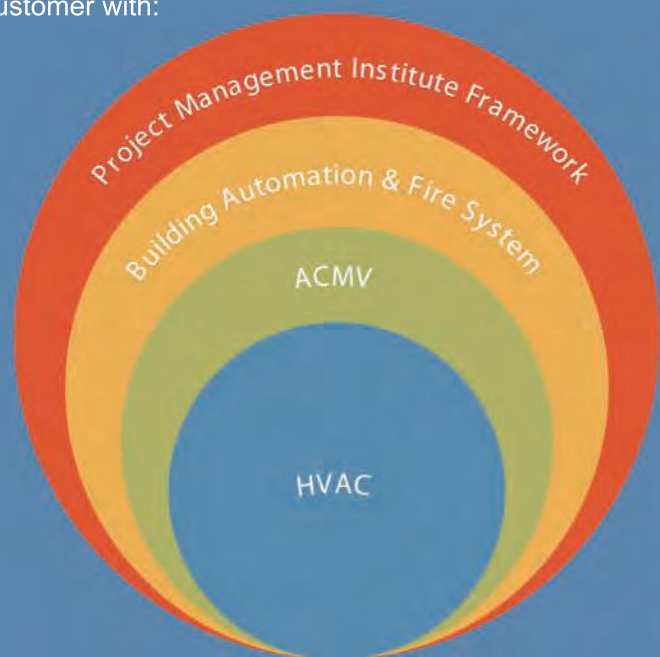


## PROJECT MANAGEMENT SERVICES

Dunham-Bush provides integrated professional project management with premier knowledge of HVAC system applications and a full product portfolio that offers customers a total solution from concept to reality.

As part of this total solution we provide our customer with:

- Lower first investment and lifetime operation costs
- Solutions and value under a single source
- Green building design focusing on energy efficiency and efficient total operation costs
- Value added solutions from HVAC to MEP requirement



## CREATING SUPERIOR VALUE ONE PRODUCT AT A TIME

Whether you need comfort cooling or process cooling, you can count on solutions driven by innovation and engineered for maximum flexibility and performance. Our global research and engineering group continues to develop new products and enhance our existing products to better meet the changing needs of the marketplace.

You expect higher efficiency and sustainable products, without compromising reliability, long life and superior value.

The products presented below represent only part of our product offering. For products beyond this scope please contact our Regional Office for further information.

### Chillers

Cooling Capacity Range	TR	kW
Centrifugal Chillers	300 - 4,000	1,055 - 14,068
Water Cooled Scroll & Screw Chillers	12 - 1,000	42 - 3,517
Water Cooled Scroll & Screw Heat Pump Chillers	10 - 586	35 - 2,061
Air Cooled Scroll & Screw Chillers	10 - 520	35 - 1,829
Air Cooled Scroll & Screw Heat Pump Chillers	10 - 500	35 - 1,759

Dunham-Bush offers a wide range of chiller products from small scroll to large centrifugal chillers. With our innovative and unique vertical screw compressor and ability to design and produce our own centrifugal chiller, Dunham-Bush leads the industry in technology.



### Packaged Units

Cooling Capacity Range	TR	kW
<b>Air Cooled Packaged Units</b>		
Rooftop Units	3 - 110	9 - 387
Self Contained Units	5 - 33	18 - 116
Split Systems	5 - 110	18 - 387
<b>Water Cooled Packaged Units</b>		
Self Contained Units	1 - 127	5 - 447

Dunham-Bush packaged units are developed to meet the diverse requirements of various customer segments. Our broad range of high efficiency and quality-packaged units are flexible in both design and installation.





## Our Products

### Airside Products

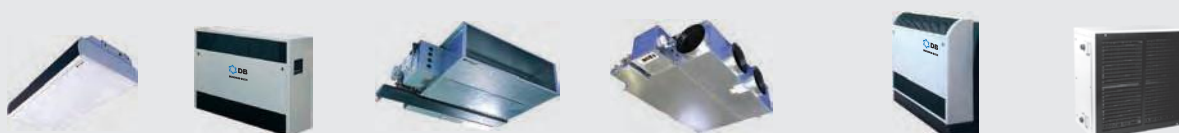
Air Flow Range	m <sup>3</sup> /h	CFM
Multizone AHU	2,040 - 108,732	1,200 - 64,000
AHU	1,359 - 95,155	800 - 56,000
FCU	176 - 10,875	100 - 6,400

Focusing on comfortable, clean and healthy indoor climates, Dunham-Bush is committed to providing customers with superior and customizable indoor air quality. With a wide range of products and functional options, we meet different customer requirements of commercial and industrial buildings.



### Heating Terminal Products

The Dunham-Bush Heating Division provides a large range of top grade heating products. With over 80 years of experience in the market, Dunham-Bush is recognized as a world leader in customized solutions for ventilation and heating applications.



### Specialty Products

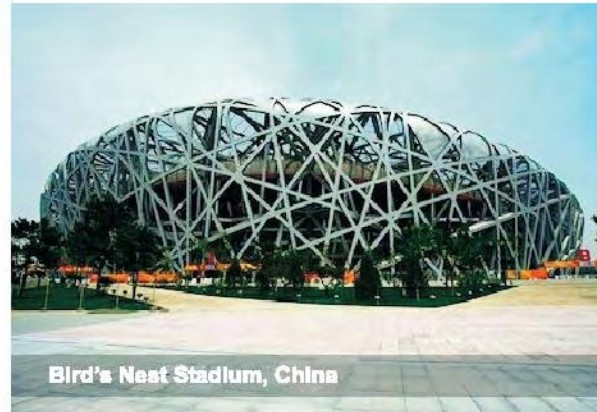
Dunham-Bush expands its offerings into various lines of specialty products for customers, including energy efficiency, specific industrial segments and special applications.



## BUILT LIKE NOTHING ELSE

You'll find Dunham-Bush cooling equipment in some of the world's highest profile buildings and most demanding environments. No two facilities are alike. And no two regional markets are alike. However, all Dunham-Bush installations do share some things in common. The need for superior engineering, state-of-the-art technology and worry-free performance. Our goal is to design and manufacture high reliability and performance equipment that doesn't just meet your requirements, but exceeds them.

No matter the location, the customer or the application, our strategy is the same. To provide innovative engineering and superior quality manufacturing that will meet your demands for performance, reliability, quiet operation, and energy efficiency.



Bird's Nest Stadium, China



Merit Afroditi Hotel, Turkey



Taj Hotel, Mumbai, India



IR Marina Bay Sands, Singapore



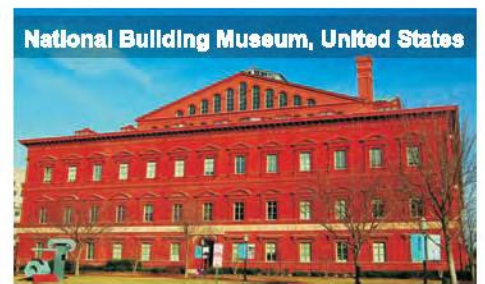
## Our Projects



Heron Tower, London,  
United Kingdom



Shanghai Subway, China



National Building Museum, United States



Michelangelo Towers, South Africa



Ohotny Ryad, Russia



Petronas Towers, Kuala Lumpur, Malaysia



Kuala Lumpur International Airport,  
Malaysia



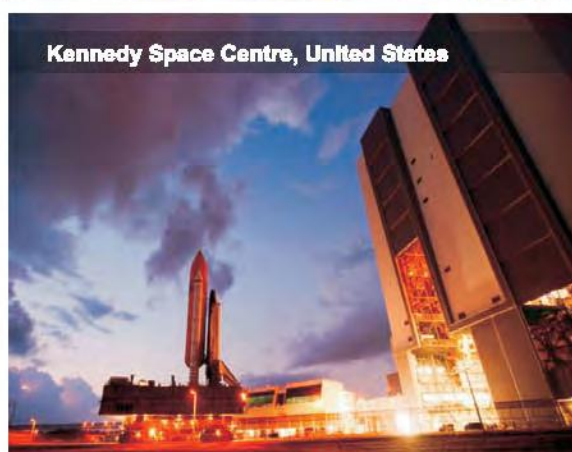
London Heathrow Airport, United Kingdom



Museum Budapest on Hero's Square,  
Hungary



Al Waab Mall, Qatar



Kennedy Space Centre, United States



Magarpatta Cyber City, Pune, India



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**DUNHAM-BUSH®**

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Manufacturer reserves the right to change specifications without prior notice.

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