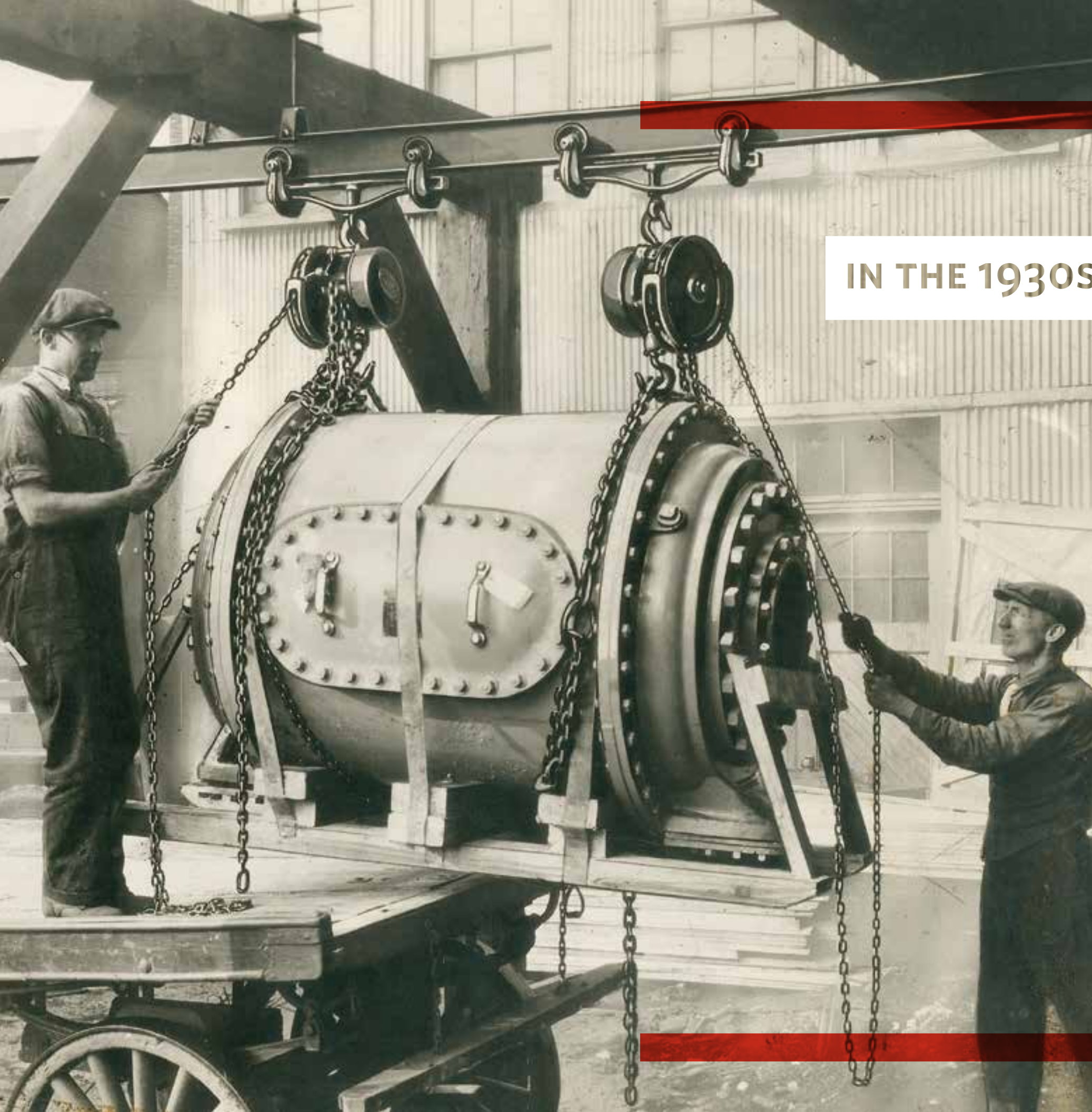


MINI
WWW

**Armstrong:
our history**



IN THE 1930S, SAMUEL ALLAN ARMSTRONG

established a design and engineering company with the belief that quality, service, innovation and building community are the underlying values that foster lasting success.

It is a commitment that set a standard from the beginning and has continued to guide Armstrong today and into the future.

ARMSTRONG LIGHT DUTY ENDING TYPE FACTORY TRUCK

ALL STEEL ELECTRIC WELDED

CROSS BAR HANDLES RIGIDLY WELDED
 OUTLINE OF PAN
 27 1/2" x 35 1/2" 14" DIA.
 50 OR 60 PEN TRUCK



LOAD CASTERS	SWIVEL CASTERS	CAPACITY APPROX.	A	B
4" x 1 1/2" F	3" x 1 1/4" F	500 #	2"	6 1/2"
5" x 1 3/8" F	4" x 1 1/2" F	750 #	3"	8 7/8"
6" x 2" F	5" x 1 5/8" F	900 #	3"	9 7/8"

CAPACITIES BASED ON SEMI-STEEL OR ATLASITE WHEELS WITH SMOOTH FLOORS

Samuel Armstrong

Nov. 1-44

S. A. ARMSTRONG LIMITED
 119 DUPONT STREET,
 TORONTO, CANADA

ML-25

GROUNDWORK

A **LAW GRADUATE**, Samuel Allan Armstrong served as Assistant Provincial Secretary in Ontario. In 1916, he was given the opportunity to move to the capital to create the first Department of Veterans Affairs Canada, which administers care, benefits and pensions for war veterans. In 1925, he became president of Jones Underfeed Stoker in Detroit, afterwards becoming Canadian president of the newly-formed Riley Engineering and Supply Company in Toronto. RECO manufactured steam and boiler feed products. In 1934, the Depression closed RECO but ushered in the beginning of a new company under the leadership of S. A. Armstrong.

With a handful of staff, a few machines and much determination, Armstrong made its debut in a basement at 720 Bathurst Street in Toronto. The adversity facing the beginning of Armstrong during a serious depression was significant; three circulating pumps a week was considered big production in the time of an international economic crisis. While scores of factories were closing their doors, Armstrong grew slowly but surely by virtue of the dynamic leadership of Allan and the determined cooperation of his staff.



We aim to elevate the industry to a high plane, and to sell not merely so much cast iron but an engineering service.

SAMUEL ALLAN ARMSTRONG, 1920

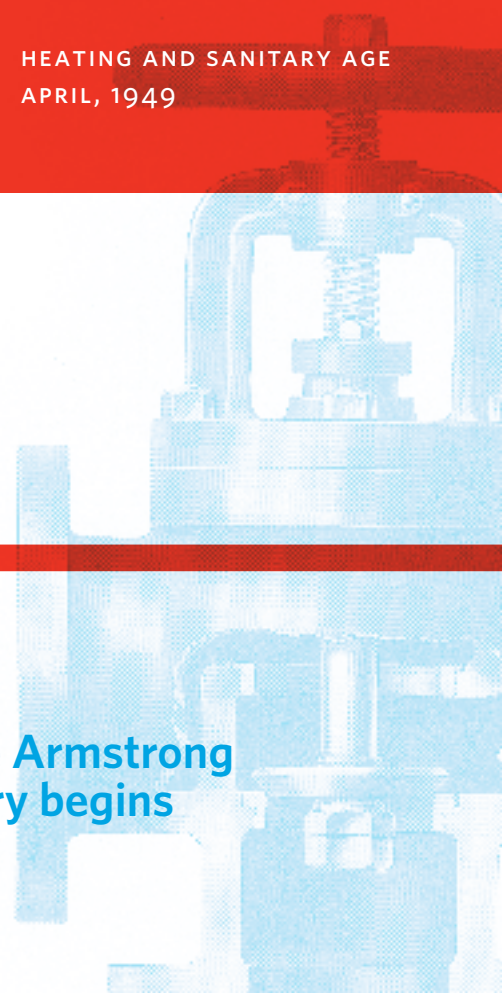
Reminiscing, Mr. Armstrong smiles when he tells you that three circulating pumps per week was big production in those days.

HEATING AND SANITARY AGE
 APRIL, 1949



1934

The Armstrong story begins



SAMUEL ALLAN ARMSTRONG ON SUSTAINABLE BUSINESS

To foster lasting growth Armstrong
will build from our three values:

SERVICE

Service to the world, who by reason of
such service will become our customer.

COMMUNITY

Building trust to collaborate with one-
another to enable us to build relationships
with customers, suppliers and our broader
technical and social community.

LEARNING & INNOVATION

Building organizational capability through
listening and learning from our customers
to evolve even more innovative solutions
to meet their changing needs.



Armstrong's first products were confined to circulating pumps manufactured under licence, in addition to heating systems for domestic installation and materials handling equipment. Production grew to include a variety of heaters, coolers and engineering specialties for industrial, commercial and domestic purposes. Manufacturing with Canadian rights to various products allowed Armstrong to improve in a fast-growing protected market and to expand virtually without serious competi-

tion. It also allowed Armstrong to build in quality assurances in its products and processes that would set the standard for excellence in the future. Quality and Service were the values that every employee understood and practiced. The trademark "Hallmark of Quality" was proudly emblazoned on the company symbol, and Armstrong products became established as the best that money could buy.

“ Now, our circulating pump output runs into

MANY THOUSANDS PER YEAR

to say nothing of the production of numerous other lines manufactured by our company.

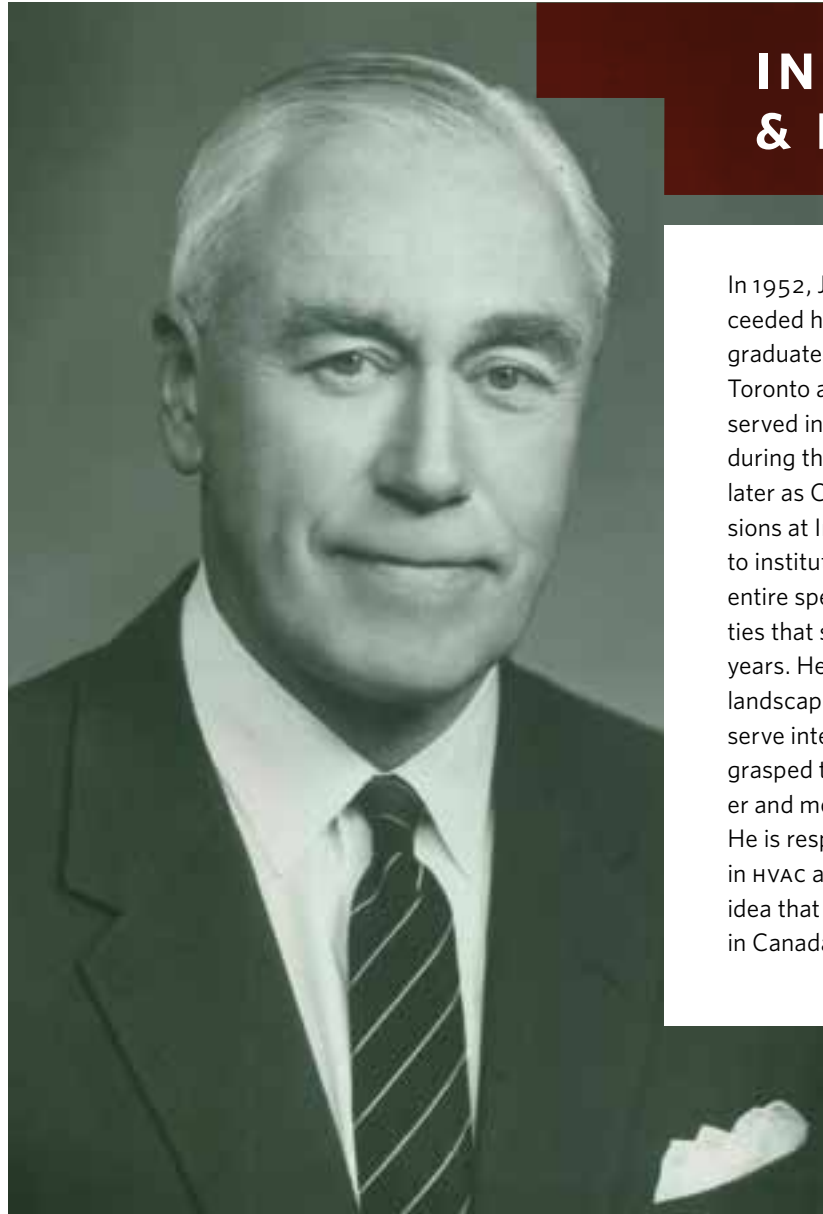
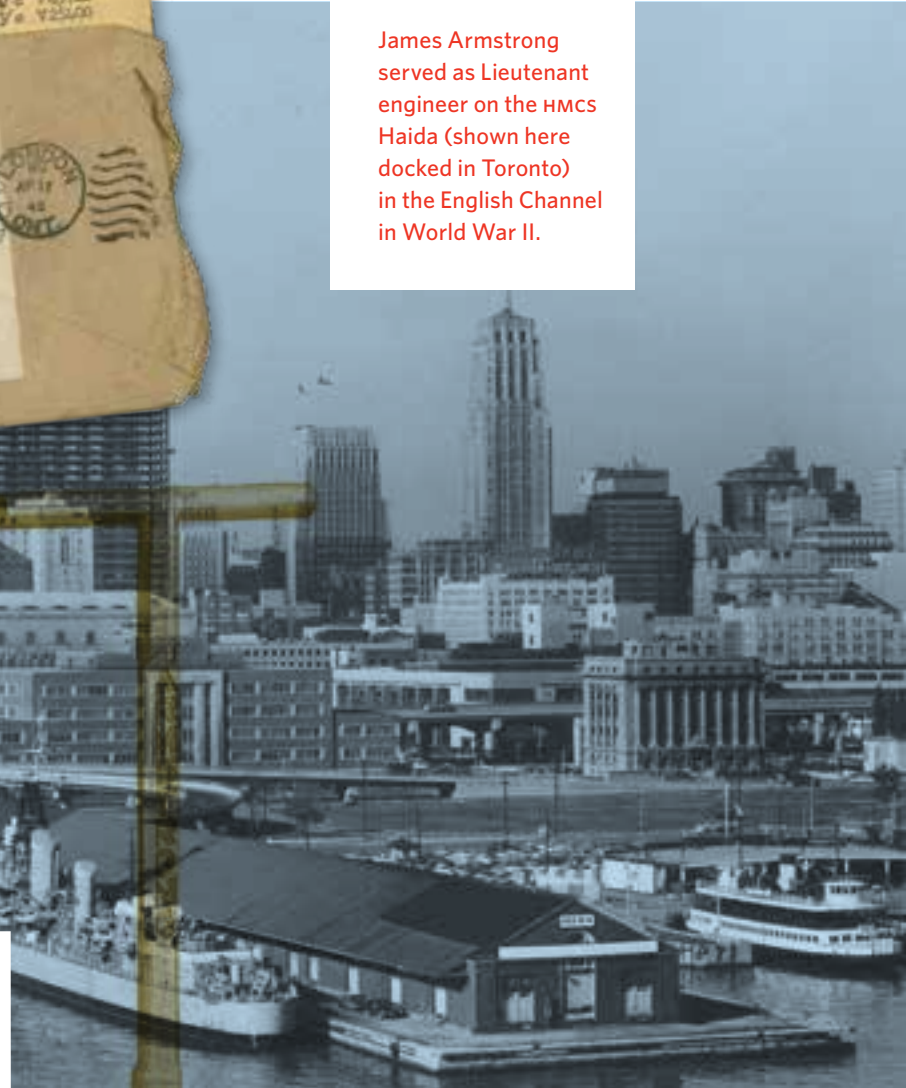
S.A. ARMSTRONG

1930s] First products: circulating pumps, Monoflow heating systems and materials handling equipment

1940s] Armstrong manufactures factory equipment for the war effort



James Armstrong served as Lieutenant engineer on the HMCS Haida (shown here docked in Toronto) in the English Channel in World War II.



INNOVATION & EXPANSION

In 1952, James A.C. Armstrong succeeded his father as president. James graduated from the University of Toronto as a mechanical engineer, and served in the Royal Canadian Navy during the Second World War, and later as Chief Engineer of pipe line divisions at Imperial Oil Limited. He began to institute bold initiatives across the entire spectrum of Armstrong activities that set the course for the next 30 years. He correctly read the business landscape and initiated our drive to serve international markets. Further, he grasped the need to make pumps easier and more cost effective to maintain. He is responsible for vertical pumping in HVAC applications, an Armstrong idea that has lead the market not only in Canada but around the world.

During the Second World War, Armstrong produced specialized war work, such as lift trucks constructed out of bronze for use in munitions factories. By the beginning of the 1950s, having since advanced to a larger premises, Armstrong's expanding business and the need for maximum efficiency necessitated another move. A new office and factory were constructed for Armstrong's employees, which now numbered over one hundred. The 20,000-square-foot building grew to 70,000-square-feet over four decades, and the increase in working space made possible an increase of service to customers as well as an increase in engineering staff.

Bronze lift truck manufactured by Armstrong for use in munitions factories. Bronze does not spark, making it safe to use around explosives.

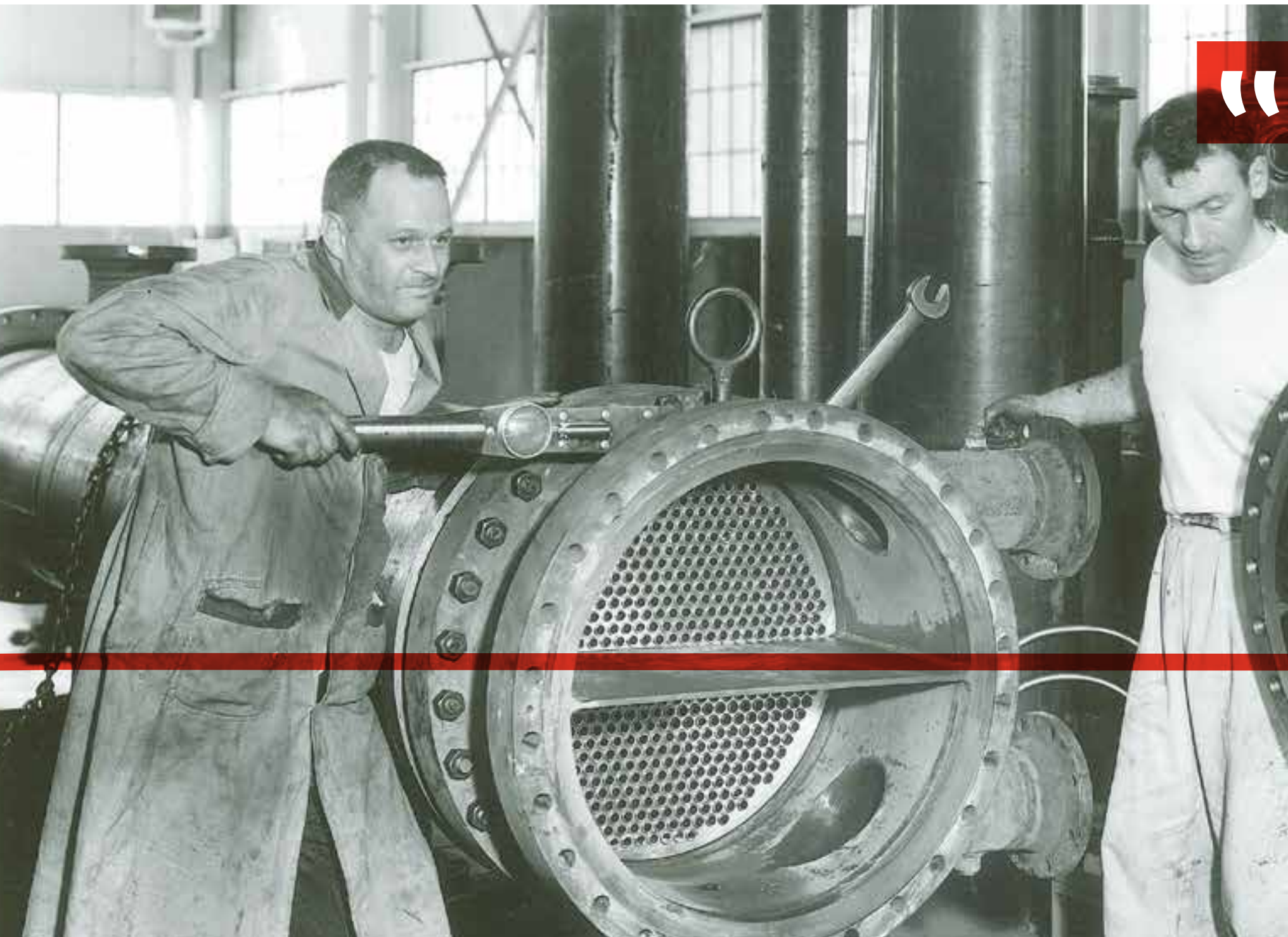


1952] James A.C. Armstrong becomes president



Armstrong fostered its own research and development department, and developed its own hydraulic hand-operated lift truck, portable elevator, and a new jet pump water system series to complement the line of centrifugal purpose pumps. In the 1960s, Armstrong invested heavily in new de-

signs, producing all Armstrong products, with a small export trade just beginning to take shape. By 1966 Armstrong had set up operations and manufacturing in the United Kingdom and the United States of America, initiating its first steps towards the goal of being a global business.

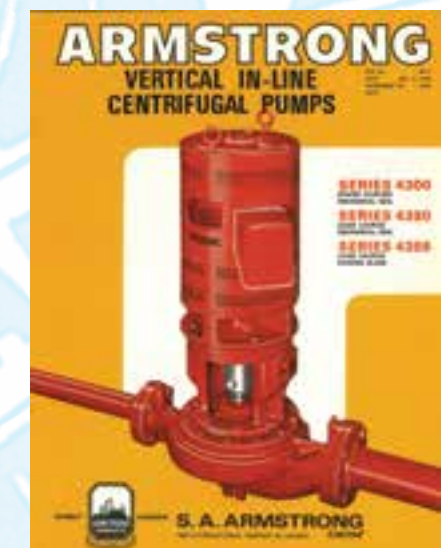
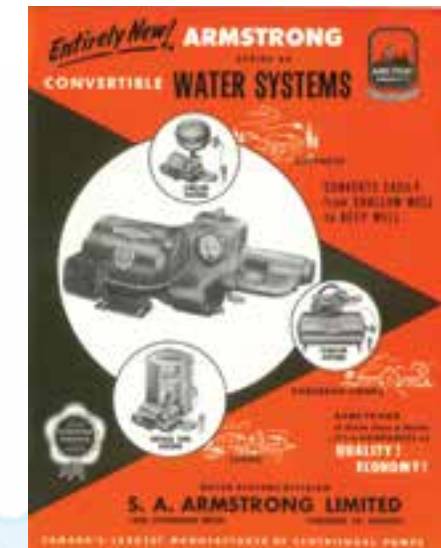
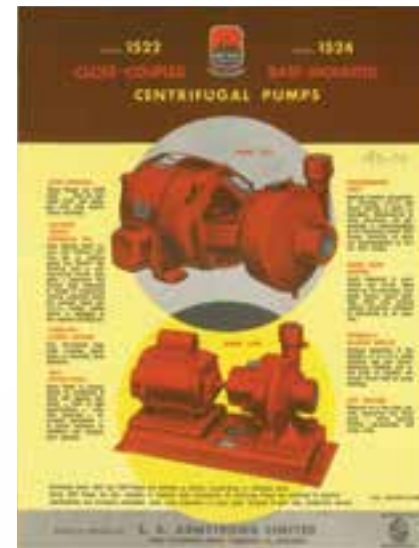
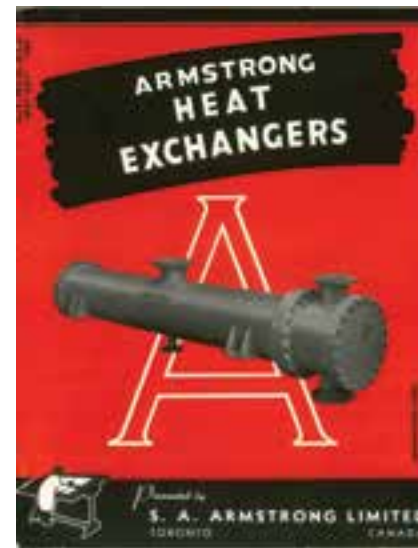
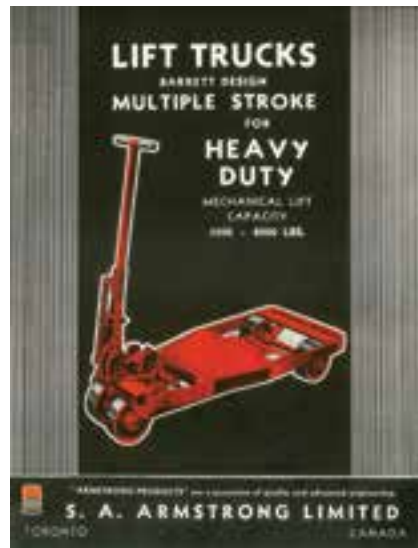
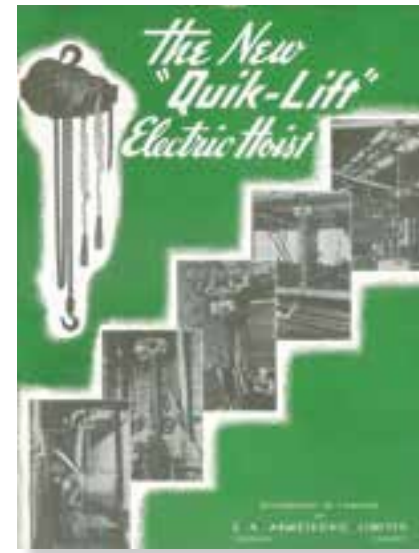
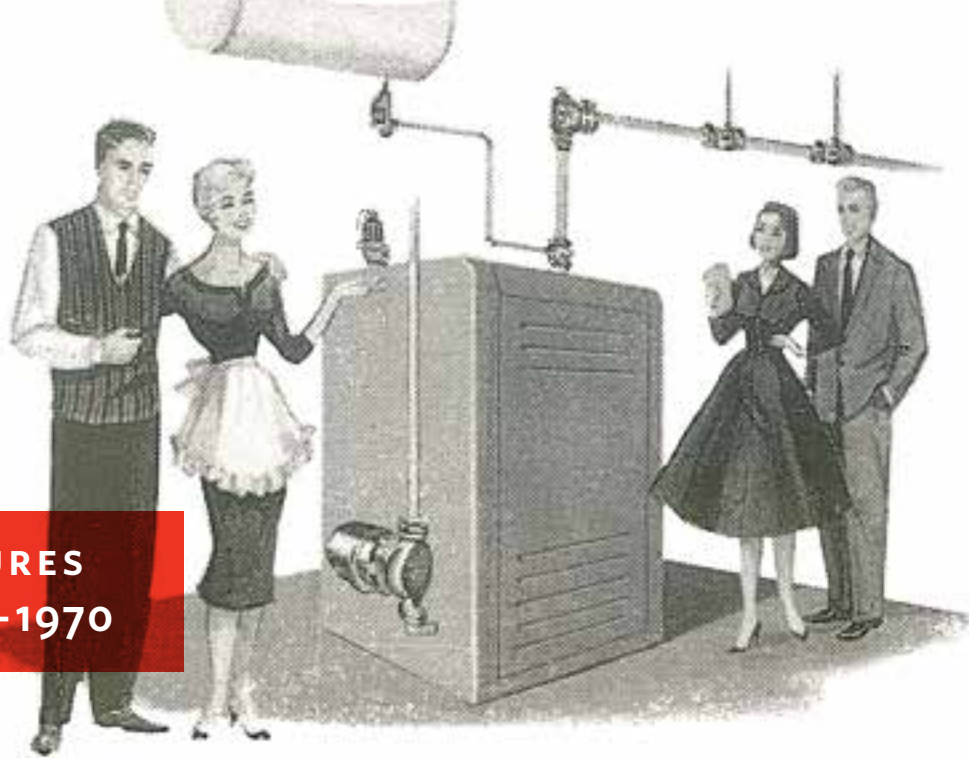


“
Armstrong owns a recently-erected single-storey brick building with addition added during 1954 to handle manufacture of larger heat exchange and refrigeration packages. Present premises are well-equipped and enable a highly efficient operation.
”

ARMSTRONG FINANCIAL
REPORT, 1957

BUILDING A CONDENSER
FOR IMPERIAL OIL, C. 1960

**BROCHURES
C. 1940-1970**





HEAT EXCHANGER
DRAFTING ROOM, 1950S

“ They were like partners to us – they were pump experts. They really knew their business. ”


LONG-TERM CUSTOMER

1958

Armstrong becomes the largest manufacturer of centrifugal pumps in Canada

1960s

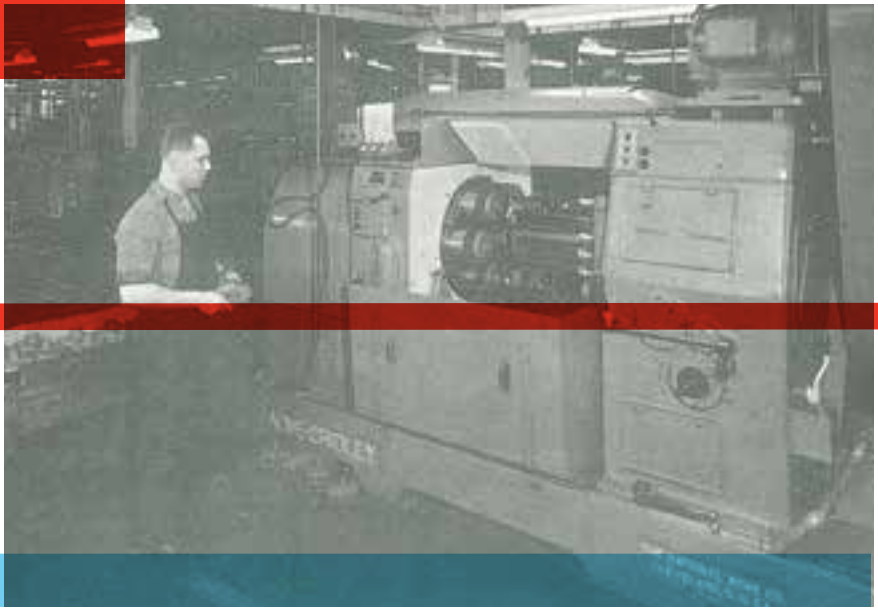
Armstrong promotes residential installations with “The Hydronic Home”




"We won't have to build that addition after all... We can secure the additional space we need and save the cost of a new building - by using

ARMSTRONG
STEEL STORAGE RACK SYSTEMS"

From the earliest products, Armstrong saved businesses time, money and space with compact and flexible solutions.



ARMSTRONG ALL-STEEL NON-TILTING FACTORY TRUCK



The Armstrong sales force became experts in their field; they worked to develop a relationship with their customers to such an extent that they were considered a partner in the enterprise. They took ownership for the products they sold, visiting sites, attending start-ups, and helping to solve any operational problems they encountered. Customer relationships were nurtured, cultivated, and often became long-lasting friendships. Armstrong employees were proud to be associated with a company so highly respected, and customers noted that pride of association.

30"
ARM 36"
7 1/4" - 4 1/2"
11 1/2"
PLATEFORM 18"
PRIMARY
STEEL
ELECTRIC WELDED THROUGH OUT
SWIVEL
WHEELS

S. A. ARMSTRONG LIMITED
115 DUPONT STREET
MAY 9 1944



ARMSTRONG'S FIRST NATIONAL TRAINING AND EDUCATION MEETING, 1962

1965

Armstrong begins international operations in the United Kingdom

ACCELERATED GROWTH

IN A SENSE, Armstrong changed from a small to a big business after two big contracts - First Canadian Place and the Ontario Hydro building in the 1970s. Growth accelerated as Armstrong commenced a major program of product marketing and promotion across Canada. In 1965, two subsidiaries were established in the United Kingdom and the United States: Colchester, Essex, and North Tonawanda, New York.

In 1992, Armstrong acquired Darling Duro, a Montreal-based manufacturer of fire pumps and other fluid systems, bringing fire systems into Armstrong's group of competencies.

As well as being known as a respected and dependable manufacturer of quality plumbing and heating products, Armstrong was now involved in a period of intense product development, and became known for several innovations. As early as the 1940s, fractional horsepower motors made their appearance on products; in the 1950s, Armstrong's Monoflo Tees changed the way residential and commercial buildings were heated; and now, the introduction of large vertical in-line pumps to the HVAC market made a major impact on the industry, leading global change in the fundamental design of pumping equipment.



EXPANDING TUBES IN
A HEAT EXCHANGER, C. 1960

1966

Armstrong begins operations in the United States of America

Technical sales department in the 1960s



Packaging circulators

“Armstrong changed from a small company to a big company after two big contracts – First Canadian Place and the Toronto Hydro Building.”



LONG-TERM EMPLOYEE



1970] Facility growth: Armstrong adds a second building of 50,000-square-feet in Toronto

With expanded markets, Armstrong could now justify the investment in modern automatic machine tools, and a 50,000-square-foot building was added in Toronto. In 1987, Armstrong moved into the architectural award-winning 130,000-square-foot building which serves as corporate headquarters, a symbol of how far Armstrong had come from its beginnings on Bathurst Street.

250 hp condenser water pumps were installed in First Canadian Place in 1975.



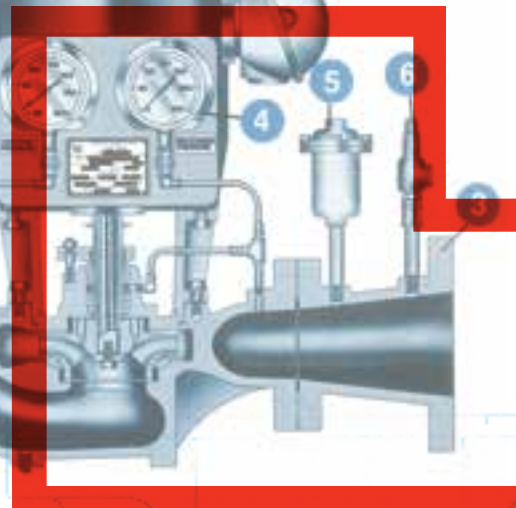
Artist's rendering of proposed First Canadian Place, early 1970s.

“Engineers knew that Armstrong made a better product. They grew up with Armstrong and they specified our products.”

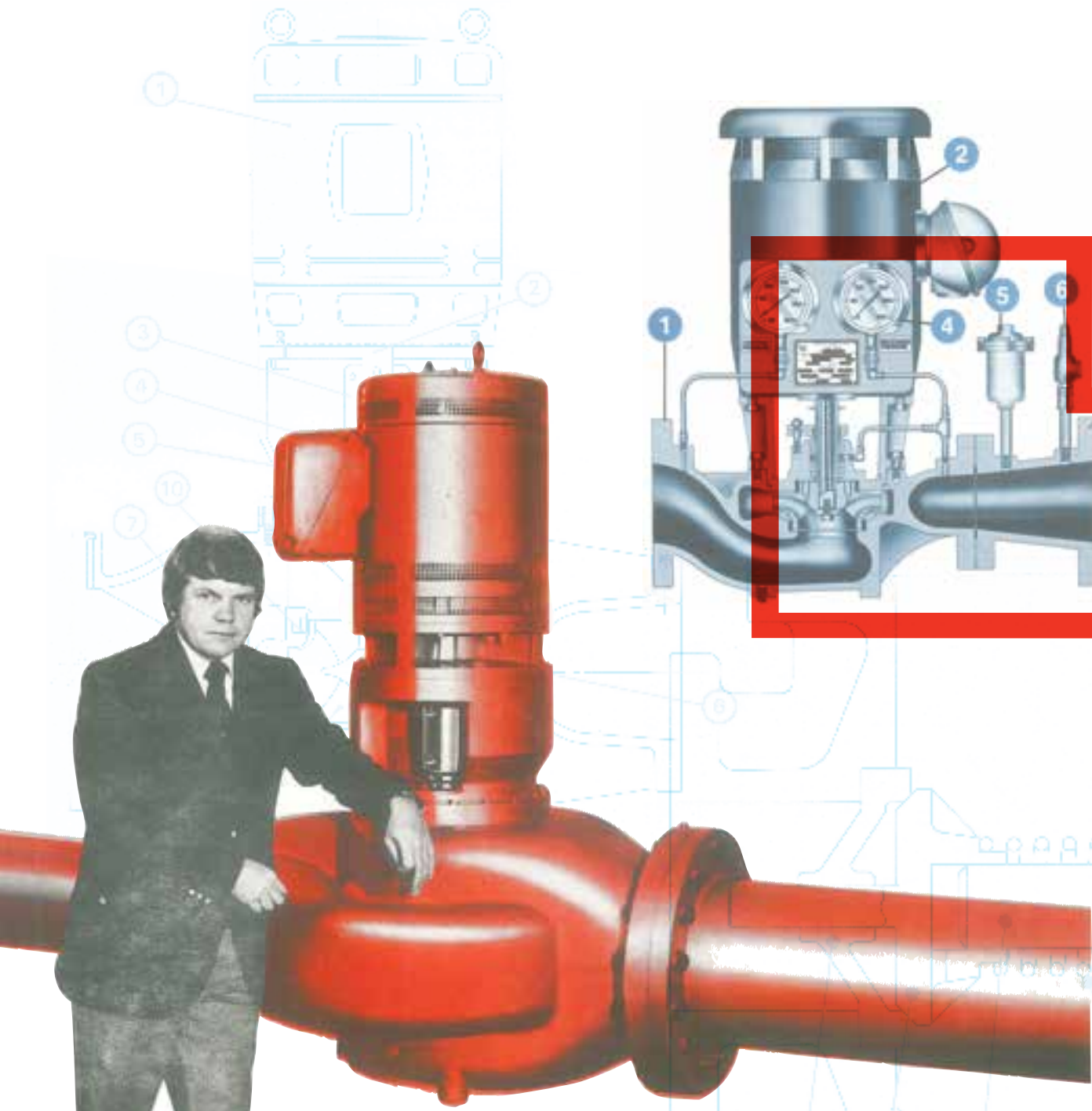
LONG-TERM CUSTOMER



By the 1970s, the most modern numerically-controlled machine tools were utilized at Armstrong for quality and cost control.



During this period, Armstrong introduced its first fire pump for use in commercial buildings.



1971] Armstrong develops the world's first Vertical In-Line centrifugal pumps for HVAC markets

1972] Introduction of Suction Guides and Flotrex Valves

1980] Introduction of Circuit Balancing Valves





1987

Armstrong builds
a new 130,000-
square-foot head-
quarters and plant

Becoming international: early Armstrong locations

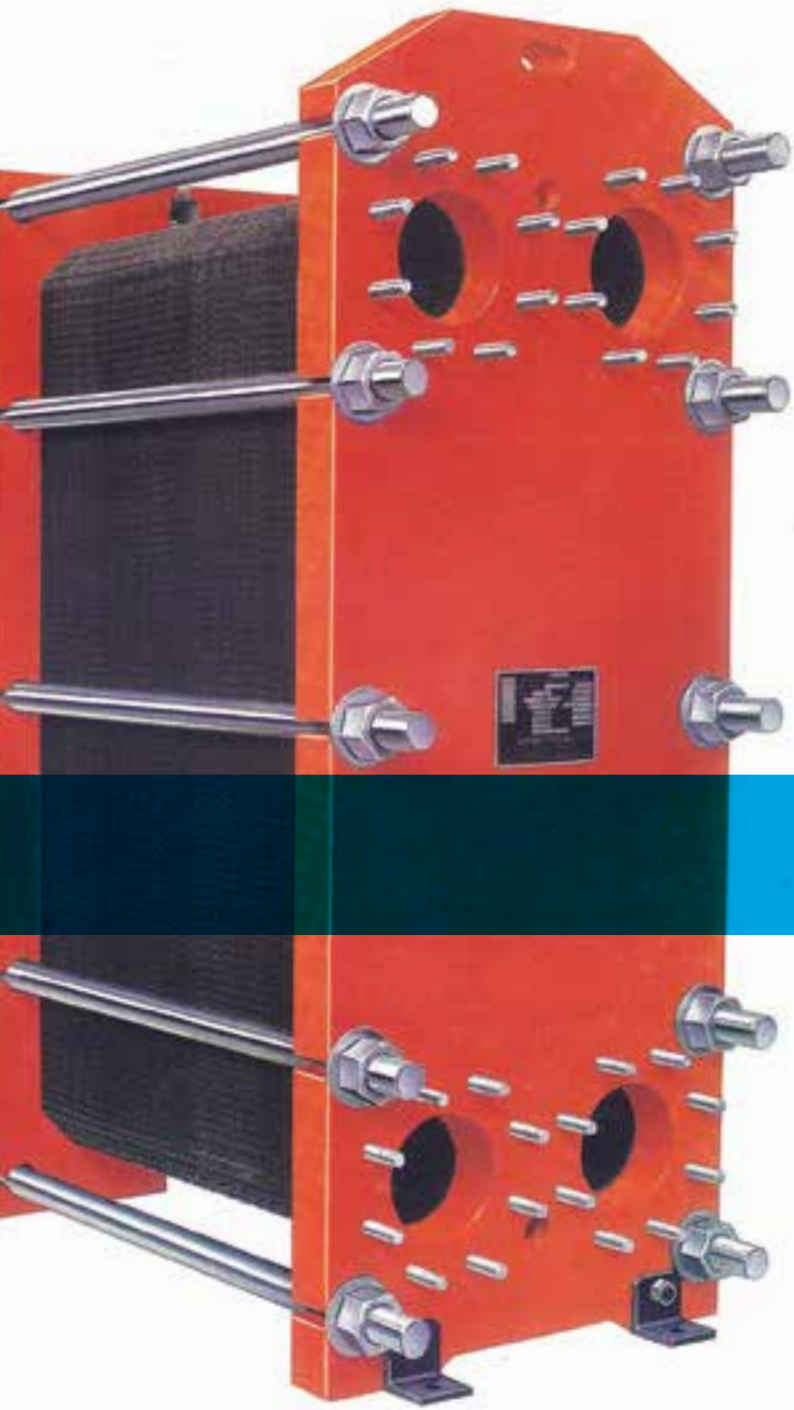


Symbol of an expanded global reach



Armstrong headquarters, designed by the architect Edward Jones, has a resemblance to Bauhaus founder Walter Gropius' Fagus factory in Germany. The design has a layered, technological appearance, with an impressive double storey glazed hall, open to the activity of arrival and departure and beyond to the industrial landscape of the surrounding area. Externally, this large screen acts as a representational device for the business as a whole — a Canadian portico.

ARCHITECT
EDWARD JONES



The third generation of ownership: Jim and Charles Armstrong, 1990s.

Armstrong staff, 1995

In the 1990s, leadership passed to James and Charles Armstrong, the third generation of Armstrongs. They set out an infrastructure plan for focused factories and a global information technology backbone to enhance collaboration amongst operations.

Innovations occurred on many fronts. New developments in heat transfer products, vertical pumping systems,

expansion equipment, fire products, and the concept of eco:nomics – with the first Intelligent Variable Speed (IVS) pumps being developed in its wake.

In 2004, Armstrong boldly committed to a truly global product line for both 50Hz and 60Hz electrical markets. In the UK, Armstrong combined a 150 year old pump company, Holden Brooke Pullen, and a plant integration specialist and systems builder, Plant Energy Systems into



one full service entity now operating as Armstrong Integrated Limited. Armstrong's 50Hz market capability was now launched.

Also in 2004, Armstrong made its first acquisition in India, a bronze foundry in Bangalore. A year later, the Indian Capabilities Centre was fully launched. In 2007, a full-fledged manufacturing facility was opened to serve Indian local and export markets.

1988

Armstrong delivers its first plate and frame heat exchangers

1990

Introduction of double-wall heat exchanger

1994

Dual Arm: the first truly integrated parallel multi-head pump is introduced



Expansion abroad continued in 2010 with the opening of a plant with full production and testing capabilities in Shanghai, China. A year later, Armstrong opened sales offices in Lyon and São Paulo, expanding Armstrong's presence in France and Brazil.

The iVS Sensorless pump: a world first and a new generation of intelligent pumps that integrate demand-based control and variable frequency drives into an integrated system yielding 65% in energy savings.



2003

Launch of the highly efficient E-Series circulator

2004

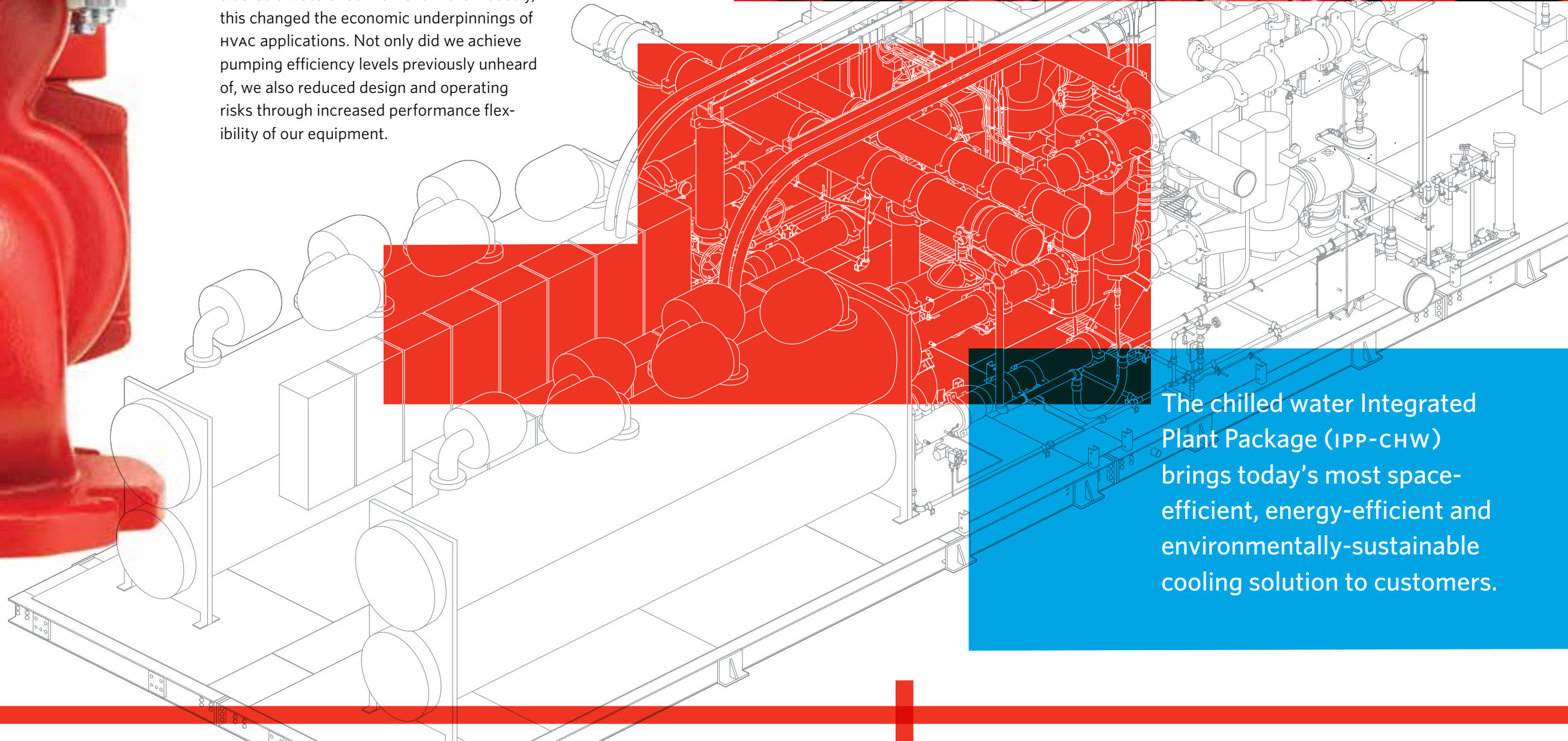
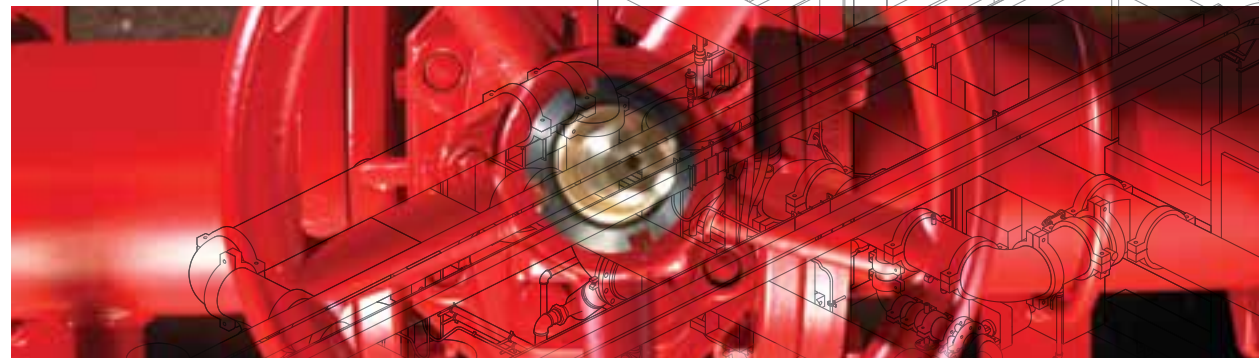
Launch of the Indian Capabilities Centre

2005

Introduction of Intelligent Variable Speed (iVS) pump



By 2009, Armstrong had ten years of practice in the application of two fundamental technologies: demand-based control and variable-frequency drives. Our experience had led us to understand that engineering practice needed to change substantially in order to optimize and leverage the combination of these two technologies. Based on the eco:nomics principle we could now steer our product management and development towards solutions that yielded truly significant first cost, life cost, and energy savings. Considered a watershed moment in the industry, this changed the economic underpinnings of HVAC applications. Not only did we achieve pumping efficiency levels previously unheard of, we also reduced design and operating risks through increased performance flexibility of our equipment.



The chilled water Integrated Plant Package (IPP-CHW) brings today's most space-efficient, energy-efficient and environmentally-sustainable cooling solution to customers.

2005

Armstrong's intelligent control system (IPC 11550) sets a new global standard in driving energy savings of 50% or more by full integration of cooling system component control

2006

Chilled water line of Integrated Plant Package introduced, with an energy savings of 60%



Greenbuild visits
Armstrong -
Toronto, 2010



2007

Armstrong introduces
second generation iVS
Sensorless pump with an
energy savings of 65%

A GLOBAL COMPANY

IN 2011, Lex van der Weerd joined Armstrong to serve as the company's first Chief Executive Officer, taking up the challenge of driving the evolution and execution of our global strategy. Like Allan Armstrong, today's Armstrong leadership understands that the key reason for continued success can be found in quality and the

Company's values of service, community, innovation and learning. That dedication has been a part of Armstrong's corporate culture since the beginning, and is as strong today, augmented by innovations in customer service, technology and manufacturing to ensure Armstrong's products offer even greater value, quality and durability to the world.



2007

Establishment of manufacturing facility in India

2009

Development of ECO*PAK MBS™ integrated heating solution

2010

Armstrong opens an office and plant in Shanghai



DESIGN ENVELOPE

In 2009, Armstrong's Design Envelope pumps were introduced as a complete solution for heating and cooling systems. Through advanced integration of demand-based control with variable-speed capability, the next generation of intelligent pumps is born. Design Envelope technology further increases energy savings as well as design and operating flexibility - yet again pushing application risks far below common practice levels.



2010

Armstrong Holden Brooke Pullen and Armstrong Integrated Systems Limited are merged into one company, Armstrong Integrated Limited

2011

Armstrong introduces Design Envelope across fluid technology product lines

Design Envelope technology on display at the ASHRAE trade show, Chicago, 2012

Over the course of Armstrong's history, we have become a global organization. We have become a multi-faceted customer-focused business. And above all, we have embarked on a journey that allows our expertise in producing fluid flow products to carry over into the engineering and support of intelligent building energy technologies. Armstrong is proud to have forged a leadership position globally for fluid technologies.

The results are energy applications that make sense - technically, financially and environmentally - which makes our customers' lives easier.

Where we stand today would not have been possible without the nearly 80 years of growing expertise and participation in the industry. Armstrong's past is an intrinsic part of our present and future.

Today, as Armstrong serves customers globally, the original commitments are unchanged: that creating customer experiences second to none is part of a long-standing family tradition.

2012

Armstrong listed in the Canada's 50 Best Managed Companies ranking for a fifth time



CREATING CUSTOMER VALUE

LEARNING & INNOVATION

Listening and learning are the fundamental elements of Armstrong's pursuit of innovation. We continue to lead our marketplace in innovation by listening intently to our customer's technical communities.

COMMUNITY

You can't build strong community partnerships without customers, suppliers, and technical/social communities gathered through trust and collaboration inside the company. Our industry is our global strength. We wish to be a contributing partner to all the communities we serve and operate within.

SERVICE

Our most sustainable value is service; service to the world who by reason of such service will become our customer. It is our purpose to serve and to contribute through learning, understanding, acting and innovating to meet the world's and our customer's needs.





MAKING ENERGY MAKE SENSE™

ARMSTRONG FLUID TECHNOLOGY
ESTABLISHED 1934

ARMSTRONGFLUIDTECHNOLOGY.COM