

Halifax Fan moves into China



ACHEMA show

Last May, Halifax Fan took a stand at the ACHEMA show in Frankfurt. ACHEMA represents one of the foremost international showcases for contractors to the Process Industries, particularly those in the chemical and pharmaceutical industries.

These industries are particularly relevant to Halifax Fan which has skilled and positioned itself to address demanding fan applications, particularly where there are aggressive mediums to be moved. Although Halifax offers what appears to be a standard range of fans, these in effect are frequently merely templates for special projects, engineered to meet their clients very demanding specifications.

As well as being fabricated from steel and, frequently, stainless steel, Halifax fans have also been constructed from titanium, hastelloy and a variety of other rare alloys, each designed to meet some specific need of the client.

According to Charles Halstead, Chief Engineer of Halifax Fan, "We went out to ACHEMA to demonstrate our capability to meet the special needs of the chemical and pharmaceutical sectors. Building fans for their applications is highly specialised and we enjoy success where the client has a requirement for a fan with the ability to deal with very difficult media. Although our presence at the show was modest, it was a great success for us and we made many valuable international contacts and indeed are working on tendering against a number of enquiries received at the show."

Next May there will be an ACHEMA show held in Beijing and Halifax will also have a strong presence at that show to strengthen their push into the active Far East market ●

It is growing almost exponentially and by having a design and manufacturing facility locally based, we will be able to access a greater volume of Chinese business much more competitively."

Despite the acknowledged lower manufacturing costs in China, it is not Halifax's intention to use the Chinese factory to manufacture fans for other markets ●

in this issue

p1 **ACHEMA show**
Halifax demonstrates capability at Frankfurt show



p2/3 **Wallchart**
Global supply voltages and IP codes



p4 **Malaysia**
Large fan for acid environments



p4 **Halifax appointment**
New Mobile Service Engineer appointed

Halifax Fan Ltd has set up a new company in China, Halifax Fan Shenzhen Ltd, to design and manufacture fans for the burgeoning Chinese and Asian markets. The new 2000 m² factory, nearing completion and just over the border from Hong Kong, will come under the control of Mr Li Yong who has been appointed Manager for Chinese operations.

Explaining the rationale behind this bold expansion, managing director Malcolm Staff explained: "There is a strong demand for high quality, high specification fans within the Chinese market. Despite there being a strong fan manufacturing sector in China, for historical reasons, the products do not offer the variation or design expertise that Halifax Fan brings to fan manufacturing. Most of the locally produced fans are to the same design and are even the same colour. A good proportion of the work going through our Brighthouse factory is ultimately destined for China as many of our existing customers have operations there.

Manufacturing costs will be greatly reduced by building the fans in China and in addition, the substantial costs involved in transporting such enormously heavy equipment, effectively to the other side of the world, will be slashed and delivery times will be substantially reduced. We're looking to replicate Halifax Fan's acknowledged expertise and quality local to the Chinese market.

Supply voltages and frequencies worldwide

Country	Frequency Hz	Industrial Voltage in common use	Country	Frequency Hz	Industrial Voltage in common use
AFRICA			NORTH AMERICA		
Algeria	50	415/230, 380/220	Canada	60Hz	600, 460/230
Angola	50Hz	380/220	USA	60Hz	480/240, 460/230
Burkina Faso	50Hz	380/220	CENTRAL & SOUTH AMERICA		
Burundi	50Hz	380/220	Argentina	50Hz	440/220, 380/220
Cameroon	50Hz	380/220	Bahamas	60Hz	480/240
Central African Rep	50Hz	380/220	Barbados	50Hz	400/230
Chad	50Hz	380/220	Belize	60Hz	440/254
Congo	50Hz	380/220	Bermuda	60Hz	240/120, 208/120
Egypt	50Hz	380/220	Bolivia	50Hz	400/230, 380/220
Ethiopia	50Hz	380/220	Brazil	50/60Hz	460, 440, 380/220
Gambia	50Hz	380/220	Chile	50/60Hz	500, 440, 380/220
Ghana	50Hz	415/240, 400/230	Columbia	60Hz	460, 440, 240/120
Guinea	50Hz	440/220, 380/220	Costa Rica	60Hz	440/254
Guinea-Bissau	50Hz	220/110	Cuba	60Hz	440/220
Ivory Coast	50Hz	380/220	Ecuador	60Hz	440/254, 220/110
Kenya	50Hz	415/240, 380/220	El Salvador	60Hz	460, 440/254
Lesotho	50Hz	380/220	Guatemala	60Hz	440/254
Lybia	50Hz	380/220	Guyana	50/60Hz	220/110
Malawi	50Hz	400/230, 380/220	Haiti	60Hz	380/220
Morocco	50Hz	400/230, 380/220	Honduras	60Hz	440/254
Mozambique	50Hz	380/220	Jamaica	50Hz	440/254
Namibia	50Hz	220	Mexico	60Hz	440/220
Nigeria	50Hz	415/240, 380/220	Nicaragua	60Hz	440/254
Senegal	50Hz	380/220	Panama	60Hz	440/254
Sierra Leone	50Hz	400/230	Paraguay	50Hz	440/220, 380/220
South Africa	50Hz	500, 400/230, 380/220	Peru	50/60Hz	440, 380/220
Sudan	50Hz	415/240, 380/220	Uruguay	50Hz	660, 380/220
Tanzania	50Hz	400/230	Venezuela	60Hz	460, 440/220
Tunisia	50Hz	380/220	EUROPE		
Uganda	50Hz	415/240	Austria	50Hz	600, 400/230
Zaire	50Hz	415, 380/220	Belarus	50Hz	380/220
Zambia	50Hz	380/220	Belgium	50Hz	400/230
Zimbabwe	50Hz	500, 415/240, 390/225	Bosnia-Herzegovina	50Hz	380/220
MIDDLE EAST			Bulgaria	50Hz	380/220
Bahrain	50Hz	400/230, 380/220	Cyprus	50Hz	415/240, 400/230
Iran	50Hz	400/230, 380/220	Croatia	50Hz	400/230, 380/220
Iraq	50Hz	380/220	Czech Republic	50Hz	600, 400/230, 380/220
Israel	50Hz	415, 400/230, 380/220	Denmark	50Hz	400/230
Jordan	50Hz	400/230, 380/220	Estonia	50Hz	380/220
Kuwait	50Hz	415/240	Finland	50Hz	690, 500, 400/230
Lebanon	50Hz	380/220	France	50Hz	400/230, 380/220
Oman	50Hz	415/240	Germany	50Hz	690, 400/230
Qatar	50Hz	415/240	Greece	50Hz	400/230, 380/220
Saudi Arabia	50/60Hz	440/220, 400/230, 380/220	Hungary	50Hz	400/230, 380/220
Syria	50Hz	380/220	Iceland	50Hz	400/230, 380/220
UEA	50Hz	415/220, 380/220	Italy	50Hz	400/230, 380/220
ASIA			Latvia	50Hz	380/220
Afghanistan	50Hz	380/220	Lithuania	50Hz	380/220
Bangladesh	50Hz	415/240	Luxembourg	50Hz	400/230, 380/220
Cambodia	50Hz	380/220	Malta	50Hz	415/240
China	50Hz	380/220	Monaco	50Hz	400/230, 380/220
Hong Kong	50Hz	380/220	Netherlands	50Hz	500, 400/230
India	50Hz	415/240, 400/230	Norway	50Hz	690/500, 400/230
Indonesia	50Hz	415, 380/220	Poland	50Hz	400/230, 380/220
Japan	50/60Hz	440/220, 400/200	Portugal	50Hz	400/230, 380/220
Korea (North)	60Hz	380/220	Romania	50Hz	400/230, 380/220
Korea (South)	60Hz	440, 380/220	Russia	50Hz	380/220
Laos	50Hz	380/220	Slovakia	50Hz	400/230, 380/220
Malaysia	50Hz	415/240	Slovenia	50Hz	400/230, 380/220
Myanmar (Burma)	50Hz	380/220	Spain	50Hz	400/230, 380/220
Pakistan	50Hz	415/240, 400/230	Sweden	50Hz	690, 500, 400/230
Philippines	60Hz	440, 220/110	Switzerland	50Hz	690, 500, 400/230
Singapore	50Hz	415/240	Turkey	50Hz	380/220
Sri Lanka	50Hz	400/230, 380/220	Ukraine	50Hz	380/220
Taiwan ROC	60Hz	440, 380/220	United Kingdom	50Hz	690, 415/240, 400/230, 380/220
Thailand	50Hz	380/220	Yugoslavia	50Hz	380/220
Vietnam	50Hz	380/220			
OCEANIA					
Australia	50Hz	440/250, 415/240			
Fiji	50Hz	415/240			
New Zealand	50Hz	415/240, 400/230			

This data is sourced from a variety of media and Halifax Fan accepts no liability for errors or omissions. This table is intended as a guide only.

Guide to Ingress Protection (IP) codes for enclosures - BS EN 60529:1992




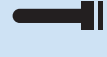



















BS EN 60529 outlines an international classification for the integrity of enclosures of electrical equipment against the ingress into the equipment of foreign bodies (tools, wire, dust, body parts etc) and moisture. In addition to the first two digits defining the level of ingress protection, an optional third digit is sometimes used to delineate the level of protection provided against damage from mechanical impact.

This latter digit does not form part of EN 60529.

FIRST DIGIT Protection of the person against access to hazardous parts inside enclosures and protection against the ingress of solid foreign objects.

SECOND DIGIT Protection against the ingress of moisture/liquids.

THIRD DIGIT (optional) Protection of the equipment against mechanical impact.

FIRST NUMBER	SECOND NUMBER	(THIRD NUMBER)
<p>IP</p> <p> 0 No protection</p> <p> 1 Protected against solid objects 50mm or bigger</p> <p> 2 Protected against solid objects 12mm or bigger</p> <p> 3 Protected against solid objects 2.5mm or bigger</p> <p> 4 Protected against solid objects 1mm or bigger</p> <p> 5 Protected against dust (limited ingress)</p> <p> 6 Protected against dust (totally)</p>	<p>IP</p> <p> 0 No protection</p> <p> 1 Protected against water falling vertically (condensation)</p> <p> 2 Protected against direct sprays up to 15° from vertical</p> <p> 3 Protected against direct sprays up to 60° from vertical</p> <p> 4 Protected against sprays from all directions</p> <p> 5 Protected against low pressure jets from all directions</p> <p> 6 Protected against high pressure jets from all directions</p> <p> 7 Protected against immersion between 15cm and 1m</p> <p> 8 Protected against immersion under pressure</p>	<p>IP</p> <p> 0 No protection</p> <p> 1 Protected against 0.225J impact</p> <p> 2 Protected against 0.375J impact</p> <p> 3 Protected against 0.5J impact</p> <p> 5 Protected against 2.0J impact</p> <p> 7 Protected against 6.0J impact</p> <p> 9 Protected against 20.0J impact</p>



Large Hastelloy® C-22® fan impeller for harsh acid environments

Operating in the chemicals industry, Halifax Fan has to be able to meet the requirements of the most rigorous operating environments to ensure longevity and reliability of their fans. To meet the needs of a Malaysian titanium oxide manufacturer for a 1.8m diameter fan, operating at 75°C and handling air saturated with highly corrosive concentrated sulphuric acid and chlorine ions, they designed and built the fan with an impeller constructed from HASTELLOY® C-22® alloy.

HASTELLOY® C-22® alloy is a versatile nickel-chromium-molybdenum-tungsten alloy with superior corrosion resistance. It offers outstanding immunity to pitting, crevice corrosion, and stress corrosion cracking and has excellent resistance to oxidizing aqueous media including wet chlorine and mixtures containing nitric acid or oxidizing acids with chlorine ions. C-22® alloy has exceptional resistance to a wide variety of chemical process environments, making it the ideal choice for this particular application.

Use of C-22® demanded specialist welding skills and water jet cutting was employed. Halifax constructed the impeller/ shaft assembly to the ICI Arduous Duty specification, which in turn, necessitated over-speed testing of the complete assembly. To ensure compliance, Halifax Fan



designed and constructed a special test rig so that the testing could be completed in-house. Part overlaying the mild steel shaft with Hastelloy® ensured corrosion resistance in the contact area and cryogenic cooling of the shaft and impeller was required to shrink the shaft sufficiently to fit into the fan centre boss. The result, upon returning to ambient temperature, was a unified shaft/impeller assembly that was then precision balanced in-house and shipped as one complete unit.

It is this versatility in meeting the needs of the most difficult and demanding operating environments and offering bespoke solutions, that places Halifax Fan in the forefront of the global industrial fan market ●

New service engineer

The rigor of the Health and Safety executive, combined with the difficulty in remaining competitive means that users of large fans today find it difficult to employ in-house, the specialist skills and test equipment needed to conduct routine maintenance on their fans. Increasingly Halifax Fan is being requested to provide an out-sourced maintenance service to hard-pressed clients and this has increased the pressure on the Halifax service department.

To meet this increasing load, Halifax Fan has expanded its service department with the appointment of a new mobile service engineer and is now offering pre-negotiated annual service contracts. Demand for this has been brisk, not only from established Halifax clients but from the wider fan market.

Announcing this appointment, M.D. Malcolm Staff commented, "There has been an increasing market demand for an out-sourced service capability. We offer a highly specialised service that includes vibration analysis, re-balancing, bearing checks, energy reviews and acoustic checks. Acoustics are particularly relevant today since the permitted noise levels under the Control of Noise at Work regulations were substantially tightened in April this year. With our highly developed skills and specialised test equipment, we can take a load off our clients' shoulders and ensure they stay within current legislation at a modest cost" ●

For further information on the articles published in this issue or any other subject of interest please contact us at Halifax Fan or visit our website.

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