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Forum for the Future

Our cover story this month reviews the very successful building services exhibition lhVex ’81 which was held recently in the RDS Simmonscourt Exhibition Complex. The main reason for its success seems to have been the increase in the attendance and also the number of key buyers and specifiers who attended. Irish made goods had a very good showing and the general feeling was that the show caught the mood and reflected the true attitude of the industry report and review see page 10.

Copy Cat Shows

While on the subject of exhibitions the old adage of “imitation being the highest form of flattery” must, after the success of lhVex make the organiser of the show feel very flattered indeed because at the moment there are at least two other services/energy? shows being planned for later in the year. One of the shows, ENERCON, has been planned for the unfortunate dates of April 14-16th which happens to be in the middle of Holy Week, prior to Easter and the other show is planned for the first two days of September.

H&V have done a comparison on the difference between lhVex and the show in September which is being organised by a British trade paper, Heating and Ventilating Review, and we have come up with some startling results.

Cost Difference

Apart from the differences in venue and the duration of the show, which may or may not be vital to a local exhibitor, certainly the cost for the British organised show is quite a bit in excess of the local one especially with additional cost of paying in pounds sterling and also the fact that the VIP lunch which is free at lhVex is being charged for at the other show, which works out at £60 for the first 500 visitors and £6 for every 50 visitors after that (rate for single stand) and the rate for a double stand is 1½ times that of the single stand rate, again pounds sterling.

H&V says be your own judge of the value on offer.

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H&V, March 1981
New Public Water and Sewerage Schemes

Governmental approval has been granted for 39 major water and sewerage schemes for which the total estimated cost is over £26 million. The local authorities undertaking these schemes are now free to invite tenders and financing will be arranged in due course. It is hoped that work and employment on most of these schemes will commence during the current year.

The following are some of the larger schemes included in the present release: Lisnabrin Regional Water Supply Stage 1; Sagard – Ballyboden Trunk Main; Trimore River Valley sewer; Cork; Ballinaclue Water Supply Improvement; Kings – Oldcastle Regional Water Supply; Galway City West Water Supply; Lough Gowna Water Supply, Stages 2 and 3; Lusk Sewerage Scheme.

The approval of contract documents for the 39 schemes in question indicates the considerable expansion in the sanitary service programme which is envisaged. This is possible because of the provision in the 1981 Public Capital Programme of £173.3 million as against £167.35 million in 1980 and less than £95 million in 1977. The Minister has already announced approval of tenders for schemes estimated to cost £10.2 million. The schemes now approved are a further development of the sanitary services programme in 1981.

Stanley Tours Ireland

Waterford Ironfounders has launched a major nationwide marketing drive for its Stanley Super 80 cooking and heating system which can cut home fuel bills by half while eliminating dependence on the availability of oil and oil based fuels.

A Stanley Super 80 cooker has been installed in a mobile home which will visit Dublin, Cork, Galway and Limerick during March and April. The Stanley is equipped with dampsers which can be adjusted to give maximum heat or to cut back on heat output when it is not needed to cook or keep radiators hot. A reduction in boiler output can be made in the summer months by using the cast iron heat shield plates which are supplied as standard equipment with the cooker. They simply hang on the boiler face and are easily positioned or removed.

The gross output of the Stanley Super 80 is 73,000 BTUs/hour. This is sufficient to heat the average size three or four bedroom home. The Stanley Superette 80 is similar in all respects to the Super 80 but with reduced boiler output – up to 24,000 BTUs/hour. Town dwellers, who do not have a chimney, may use a proprietary type of insulated pipe to install their Stanley.

Fujitsu Plant Use Daikin

The contract for the supply of water chillers and air handling units at the new Fujitsu plant at Greenhills has been awarded to Coolair Limited of Dublin.

The contract comprises three Daikin water chillers of 100 H.P. each and twenty-five vertical air handling units to be used for both heating and air conditioning purposes.

On the project, Coolair will work in conjunction with Climate Engineering, the Mechanical Services contractors and Varning McLoughney Kelly Associates, the Consulting Engineers.

Water Treatment Seminar

Dearborn Chemicals Ltd will hold a seminar in Jury’s Conference Centre, Cork on the 2nd April entitled “Control and Conservation – The Importance of Water Treatment in the 1980’s”.

The purpose of the seminar is to acquaint industrialists, contractors and consulting engineers of the savings that can be made in energy consumption by the correct use and control of equipment and chemical treatments currently available.

Application forms from Dearborn Chemicals Limited, 97 Lower Baggot Street, Dublin 2, (Tel: (01) 761613).

Stanley

Class O: the better facing

Better – because this new Fibreglass insulation facing provides a factory-applied decorative finish which achieves Class O performance, satisfying Building Regulations (1976) E15. It is also a vapour barrier, and can therefore be used on hot or cold pipes or ducts.

It never needs painting (dirt and grime are simply wiped from its specially coated surface), it looks good enough to be left exposed; it will not rot, age or sustain mould. It is the all-purpose finish for all applications, exposed or concealed. A single finish replacing old specifications for canvas, paint and aluminium foil.

Yet it costs no more than canvas.

National Refrigeration Ltd have installed three Carlyle 30G005 air cooled liquid chillers for Nokia Limited, Dublin. Nokia, who manufacture plastic bottles for detergents, are using the chillers, each with a nominal cooling capacity of 11.7kW, to ensure that the moulds used in their blow moulding process, are maintained at a low enough temperature, thereby ensuring that the correct bottle profile is maintained. The chillers operate on a 25 per cent concentration by weight ethylene glycol solution, with a freezing point of −12°C, and a solution leaving temperature of +1°C. The system is 100 per cent recirculatory.

The blow moulding machine produces approximately 900 bottles per hour and the chillers supply 10,000 l/h to ensure its constant operation. The machines were supplied by Walker Air Conditioning Ltd.

The Nokia bottle manufacturing plant which uses Carlyle liquid chillers.

Seminar on Transport Refrigeration

Annual amongst the Conference subjects to be held - all of which are simultaneously translated into English, French, German, Spanish and Italian - Fire Sessions include the Effect on Fire Safety of Modern Building Design, Materials and Contents; Fire Detection Systems - What Lies Ahead?; Developing the Use of Sprinkler Systems - and a joint Fire and Security Session discussing Computer Based Monitoring Systems. Security subjects include the Link and Operation of Access Control Systems; False Alarm Study; Intruder Alarms - the Police Policy; and Future Developments in Electronic Security. A brochure giving details of the conference programme and exhibition, together with complimentary exhibition tickets, can be obtained on application to the organisers, Victor Green Publications Limited, 106 Hampstead Road, London NW1 2LS. (Tel: 01-388 7661, Telex: 881108).

Fire and Safety Exhibition

This year will see another significant step in the growth of the International Fire, Security and Safety Exhibition and Conference — IFSEC '81, to be held at London's Olympia, 21-24 April, when for the first time over the event will occupy the whole of the exhibition complex. IFSEC, already the world's largest annual event of its type, will now provide a gross area of over 30,000 square metres, in order to meet the demand to accommodate up to 600 participating companies from approximately 20 countries. Mr Kenneth Barnes, IFSEC Director, said that even allowing for the effects of the recession, the fire protection, security and occupational safety and health industries still continue to be growth markets.

Conference Subjects

Amongst the Conference subjects to be held - all of which are simultaneously translated into English, French, German, Spanish and Italian - Fire Sessions include the Effect on Fire Safety of Modern Building Design, Materials and Contents; Fire Detection Systems - What Lies Ahead?; Developing the Use of Sprinkler Systems - and a joint Fire and Security Session discussing Computer Based Monitoring Systems. Security subjects include the Link and Operation of Access Control Systems; False Alarm Study; Intruder Alarms - the Police Policy; and Future Developments in Electronic Security. A brochure giving details of the conference programme and exhibition, together with complimentary exhibition tickets, can be obtained on application to the organisers, Victor Green Publications Limited, 106 Hampstead Road, London NW1 2LS. (Tel: 01-388 7661, Telex: 881108).
Legionnaires' Disease — a Special Shower

A new invention designed to eliminate one of the known causes of the killer "Legionnaires' Disease" has been developed by Meynell Valves Limited of Wolverhampton, Irish agents are Wyse & Ballantine Ltd.

The report from the hotel at the Spanish holiday resort where this disease was found has traced the likely cause to be from germs in the residue water remaining in a shower riser pipe when not in use.

When the water cools to a tepid temperature the Bacillus Legionnaires Pneumophila can germinate and these facts are recognised by hospitals authorities in the UK and elsewhere.

Meynell Valves Limited have designed a modification to their Safemix Thermostatic Shower which is widely used in hospitals, maternity units, etc. so that when the user has finished showering and turns the control knob to the "Off" position the mixer bottom outlet will open and the tepid water normally residual in the riser pipe will drain away into the shower tray. The bottom outlet becomes closed again only when the shower control knob is turned away into the shower tray.

Two papers on the important subject of "Process and Laboratory Filtration" were read by Dr. Theodore H. Meitler, Ph.D., senior research consultant with Gelman Sciences Inc., who travelled all the way from Michigan, USA, for the occasion. Dr. Meitler is recognised world wide as a leading authority in the field of filtration research and technology.

Gelman Sciences Inc. research, develop, manufacture and market microfiltration systems for process and laboratory applications in the pharmaceutical, electronic, food processing, cosmetic and health care industries.

Dundrum based Gelman Ireland Limited is the Irish subsidiary of Gelman Sciences Inc., Ann Arbor, Michigan, USA.

IDHE COMMITTEE CHANGES

At the recent AGM of the Institute of Domestic Heating Engineers, Victor Maddigan of Coppercraft Ltd., was elected Chairman of the institute. Victor has been associated with the institute for many years and obtained membership by passing the first ever examination held by the institute in Ireland at the College of Technology, Bolton Street, Dublin. He has served as treasurer for many years and has always kept the funds in the black which is a difficult thing to do with this type of organisation. Kevin Kavanagh retains the job of secretary and Bill Penrice who stood down as Chairman is now a committee member.

IDHE President, Victor Maddigan attended the seminar. Mr. Colin O'Connor, Managing Director, Coppercraft Ltd., presented the new company name and stated that Coppercraft Ltd., will be a member of the company's own range of products — GRP sectional water tanks, insulation products and grilles — the latter being manufactured in Ireland by Eurenco.

Name Change

A change of name has been announced by pump manu- facturers, Ryeland Pumps Ltd of Altrincham, Cheshire the UK based member of SIHI International, one of Europe’s largest engineering groups.

New name for the company will be SIHI-Ryeland Pumps Ltd to bring the company in line with international marketing strategy of the SIHI Group, which has its headquarters in Switzerland.

SIHI-Ryeland Pumps Ltd which manufactures a range of pumps for the chemical and process industries is one of the group’s 12 subsidiaries based throughout Europe, and North America.

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*20-50% Fuel Saving

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*Instant Heat

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*Healthy Heat

The Re-Verber-Ray range of radiant gas heaters

A GUARANTEED IRISH PRODUCT

Manufactured by:

PIONEER RADIANT PRODUCTS LIMITED

Multi-Solid Fuel Stove Design Competition

It has been established that the open fire, which is used to heat the living room in many Irish homes, is inefficient in its use of precious energy and causes much pollution. Householders could halve their fuel consumption without sacrificing their standards of comfort if they were to replace the open fire with a closed stove burning solid fuel.

With this in mind, a 'Multi-Solid Fuel Stove Design Competition' was announced recently under the National Energy Awards Programme of the Department of Energy. Companies and individual members of the public can enter for this competition which is organised by the National Board for Science and Technology with assistance from many national organisations.

The aims of the Multi-Solid Fuel Stove Design Competition are twofold: to promote an awareness among the public of the energy savings possible with solid fuel stoves; to produce a design of stove suited to Irish conditions of weather and fuel availability which can subsequently be developed, proven and finally produced in Ireland on a commercial basis.

People are generally unaware of the energy savings which can result from use of stoves. Irish stove users have difficulty in finding a stove which can burn a wide range of fuels — anything from bituminous coal to peat and wood.

The more widespread use of stoves would mean a cut in energy imports and a better use of native fuels. It has been estimated that the energy saving which could be achieved in this way is in the region of 1.3 million tonnes of oil equivalent. An additional advantage.

The Multi-Solid Fuel Stove Design Competition got underway on February 9 and the level of interest shown to date has been high.

The competition allows two types of stove to be designed: the first is a closed stove, either freestanding or inset which is compatible with existing fireplace opes of 550 mm height.

The second category relates to a closed stove either free-standing or inset without dimensional limitation.

The prizes for the competition are very attractive; in each category, the first, second and third prizes are £3,000, £2,000 and £1,000 respectively.

The judging panel will award prizes to those designs which, in its opinion, offer the best prospect of public acceptance and widespread commercialisation, as well as realising energy savings.

Potential entrants for the Multi-Solid Fuel Stove Design Competition must register with the National Board for Science and Technology before 31 March 1981 to obtain the technical details and rules. The winning designs will be announced in the autumn of 1981. It is expected that commercial production of the stoves will commence in 1983.
At the close of IhVex ‘81 as enquiries were still being taken by weary but very happy stand executives, one exhibitor was heard to comment “This business still has a great future” and indeed this seemed to sum up the feelings of most exhibitors at the show as many went away with larger orders or at least a fat enquiry file. Business in the building services industry seems to be ‘looking up’ contrary to the general trends in the construction industry and this in part must be due to the rapid growth of the new electronics based industries, which often require controlled environments, and also other factors like the present hospitals building programme and the expected supply of natural gas to Dublin and other cities and towns around the country.

Attendance figures were well up on the show held in 1979 but what is more important was the type of visitor who came to the show, key buyers and specifiers were to be seen in abundance and the more sceptical exhibitor was amazed by the amount of business that was available at the show.

Although the main feature of the show was the amount of business available other things stand out, in particular the fact that many buyers came long distances to attend and ultimately place orders many more visited the show on a number of occasions rather than the normal single visit and what is most important of all there was the largest showing of Irish made products every at any previous energy or building services show.

This appearance of Irish made products is a further sign of the independence of the industry both in the industrial and domestic sectors as there is now a very wide range of home produced domestic boilers on the market and there are now indeed some industrial boilers with the Guaranteed Irish symbol. On display at the show was the first condensing unit made in Ireland by Westinghouse at their Kells Co Meath factory, and also on show were a number of Irish made air handling units a thing almost unthought of ten years ago.

If the promise of IhVex ‘81 continues through the rest of the year then our industry has nothing to fear for its future.

George Colley, TD, Tánaiste and Minister for Energy at the opening of IhVex ‘81.
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Extending a hearty ‘Walker Welcome’ on the Walker Air Conditioning stand were (L-R) Tom Byrne, with Peter Wheeler of J V Tierney on the receiving end of the welcome, also from Walkers were Anne Keane, Michael Buckley and Brendan Kilgallon.

Discussing the TechnoFrigo industrial open compressor, which is new to Ireland, on the Southern Refrigerator stand were (L-R) Gerry Martin, Activooze, Brendan Gallagher and G P Gillett.

Pictured on the Pioneer Radiant products stand were (L-R) John Sullivan, Pioneer Radiant Products; Andrew O’Connell; Adrian Ryan, Pioneer Radiant Products and Francis Brannigan.

Mrs Lorna Renwick wife of GIMB director Gerard Renwick pictured with the Danks metric boiler.

“Failte Roimheid & Dan Chambers Ltd” was the welcome awaiting visitors to this stand and those pictured on the stand included (L-R) Sean Cagney, H A O’Neil Ltd; Dan Chambers, Dan Chambers Ltd; Ray Stokes, Roof Units Ltd; Ron Hutton demonstrating the Duro Dyne Pinspotter, Matt Johnston and Kevin Dillon of H A O’Neil Ltd.

The Brennan Group had on show some of their new product ranges. On the stand were pictured (L-R) Ray Welby, Managing Director, Eaton Williams Group; Julian Brennan, Brennan Group; François Vermeiren, Export Manager, Epuro S.A.; and Joe Brennan, Brennan Group.

High efficiency closed stoves will one day replace the inefficient open fire in Irish homes. Designs are required for closed stoves which will efficiently burn peat, coal and wood and can be developed for commercial manufacture in Ireland.

The competition, organised for the Department of Energy by the National Board for Science and Technology, is open to individuals and companies. Designs must conform to certain output, efficiency and dimension specifications in either or both of two categories. One category is for stoves compatible with normal fireplaces, height 1200mm. There is no height limitation on the other category.

Prizes of £2000, £1000 and £500 will be awarded in each category, taking into account technical feasibility, engineering design, aesthetics and manufacturing cost.

Prospective competitors are asked to write or phone for entry forms, rules, design brief and proposal forms to Mrs Paula Hinchy, Stove Design Competition, National Board for Science and Technology, Shipton House, Shipton Road, Dublin 4. Tel: 6632311 by 31 March 1981. Design entries will be received by 31 July 1981 and winners will be announced in the autumn.

New standards of efficiency in room heating replacing inefficient open fires.

Produces domestic hot water and radiator heating.

Especially suitable for turf briquettes, turf, coal, anthracite and other smokeless fuels. No need to rely on one fuel source.

The multi-solid fuel stove design competition

Issued by the National Board for Science and Technology for the Department of Energy.

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The
Standard Bearers.
Irish Instantor - The Irish standard bearers.
Over 300 couplings for connecting either copper or polythene tubing. Made in Ireland since 1934. Solid. Reliable. Leaders of the brand. The entire Irish Instantor range complies with the new Irish Standard specification for compression tube fittings issued by the Institute for Industrial Research and Standards. (IS 239: 1980)
Which just goes to prove that we’re the top brass. Irish Instantor - the Irish Standard Bearers.
CIBS SEMINAR SUCCESS

The Chartered Institution of Building Services held a very successful one day seminar in the Simmonscourt Complex of the RDS in Dublin on the final day of the IHVex '81 exhibition. With a good attendance of 63 delegates the theme of the seminar was Practical Energy Conservation Strategies. The papers were presented by Liam McCollion of P J Carroll Ltd, Dundalk, on their experiences of energy savings in their factory, the second paper of the morning was presented by Cormac Gordon of the IIRS on case studies of energy management in industry and the final session of the morning was presented by Philip Gregory of Cape Insulation Ltd on the subject of insulation materials.

The afternoon programme covered low energy light sources a paper which was presented jointly by Michael Maloney of the ESB and Herbert Taylor of GEC Ltd and finally Pat Benson of Bolton St., College of Technology covered the subject of energy conservation and computers, this was a paper which was of great interest to the delegates and the discussion after this paper could have gone on all night.

The general feeling after the seminar was that it was very worthwhile and had also consolidated the already established links between the lighting and heating sectors of the profession.

Energy Conservation

This symposium was one of the first efforts by the industries highly recognised body of professional people to demonstrate energy conservation measures that have been successfully applied by utilizing a number of interesting case histories and recent practical developments.

A large cross section of consultants, architects, engineers, contractors, manufacturers, energy managers and plant engineers both in private enterprise and Government service attended.

This was a unique opportunity for the CIBS to meet and solve the problems presented by the energy crisis to both the designers and the users of buildings. The CIBS being the recognised body in relation to building services as their guides and codes of practice are widely accepted as the authoritative source of information on building services and lighting by designers, developers and government departments were ideally suited to run this symposium.

In the building services industry contact with the Government is rare but the Tanaiste and Minister of Energy, Mr. George Colley, T.D., in line with the Government's policy on energy conservation performed the opening address at this symposium. The following is an edited version of the Minister's speech and will be followed next month by text of Liam McCollion’s paper on Energy Conservation in P J Carroll & Co. Ltd. factory in Dundalk.
I welcome the opportunity to address this Symposium organized by the Chartered Institution of Building Services. I am glad that you have chosen practical energy conservation strategies as your theme. It is a timely choice in view of the massive £1000m bill which our community is likely to have to shoulder this year for imported energy.

AWARENESS

At the outset I want to say that there is now a growing awareness of the need to use energy wisely, and to cut out waste. The use of insulation materials has increased substantially; more and more industrial firms are adopting energy-efficient systems; fuel economy is becoming a major selling point in new cars and heating systems are being monitored more carefully.

COMMON-SENSE

Good energy-housekeeping is coming to be recognized as good common-sense. Energy consumption here in Ireland showed a drop of about 6.5% compared with 1979 and, while I accept that factors such as the impact of the recession played a part, I believe the reduction was due to the fact that more people are now taking practical steps to save energy. There is still a lot of work to be done, however.

PRACTICAL

I appreciate that, as insulation standards and good temperature controls improve, more subtle are the more elusive factors such as ventilation losses from crawl spaces and attic rooms to be coned into the reckoning. Here again, the more practical design of buildings providing for double doors and windows is important for improving energy-use efficiency. There are some points which I would like to refer to here which are of particular relevance to the CIBS gathering. In 1977, the Department then responsible for energy commissioned An Foras Forbartha to obtain better data on the energy efficiency of domestic heating systems. The Department's aim was to identify specific demands on heating systems and to examine how efficiently these demands are met. One way in which we can certainly improve our energy usage is by installing closed stoves in place of the open fireplaces used in most of our living rooms. Nearly all of us have a fond attachment to the open fire and my suggestion may seem like advice to turn our back on an old friend. But the savings in reduced energy bills would be significant enough to warrant just that. The open fire is a false friend.

COMPETITION

I have recently launched a design competition for a closed stove which will burn turf, coal and wood efficiently. I mention the competition here today as it strikes me that a number of my listeners here would be very well qualified to submit designs. Details are available from the National Board for Science and Technology who will run the competition for my Department.

A new point which is now considered by my Department is the question of drawing up minimum performance standards for all new heat generators for space heating and the production of hot water such as burner/boilers, and stoves. I expect to be in a position to make an announcement about this in a few months. I have in consultation with the Department of Environmental Affairs initiated a study of the possibilities of introducing insulation standards for all types of buildings.

CONSCIOUS

Energy saving efforts will yield real savings when we set out to cut down energy demand in sensible commonsense ways and then strive to meet that reduced demand with greater efficiency in every sphere of energy use - heating, lighting, transport and in industry. Energy saving is an investment and good management of energy can provide a complete design and construction service - they will remain the Connacht in the long run.

The Construction Surveyors Institute's international conference on “Energy in the Building Industry” took place at the Metropole Hotel, Cork, from 26th-28th April. Speakers will be Michael Cotton, Tom Lenthal and Hugh Coveney and hands will be in the CIBS Southern Region who recently elected John O'Malley of O'Malley & Co. as President. The conference committee, pictured here, comprises Pat Murphy, Michael O'Dwyer, Tom O'Malley, Sean Jordan, Terry McCarthy and Jody Harley.

New Contractors Association Formed

Just before going to press we received word of a new initiative in the contracting business which if carried through would be of great benefit to the entire trade. We have not got the complete details but in a telephone conversation to the Secretary of the newly formed Heating & Plumbing Contractors Association, Jimmie Hamilton, of the contracting firm Hamilton & Fay, told H&V that the association was formed out of the need to improve the very poor public image of the contractor which is due to a small number of unscrupulous operators and part-timers who have "taken the money and run", leaving the established contractor to clean up the mess but leaving a bad impression of the heating trade with the customer.

As a result the main aims of the Association are to: 1. Establish a rigid set of standards. 2. Establish a guarantee scheme to protect the customer. 3. Ensure that only competent contractors shall be eligible to the Association. One thing the Association will do and that is to engage in price fixing which is to no one's benefit.

The Association meets once a month and has at the moment 20 members but as soon as standards and guarantees have been drawn up, a recruitment drive will be undertaken. H&V hopes to have more details in the next issue.

Offer Complete Service” Minister Tells Engineers

Unless Irish engineering practices develop into companies providing construction and services installations and enter consortiums to provide a complete design and construction service - they will remain the Connacht in the long run.

Presenting the Minister with a copy of a new corporate brochure on the association, which includes details of individual member firms and their expertise, ACEI President Joseph McCullough asserted: “no matter how large or complex a project is, the ACEI firmly contends that the proper approach is to appoint an Irish consulting engineering firm to take charge, and to rely on that firm to submit when necessary for specialized qualified outside firms, while carrying out the bulk of the design and supervision themselves.”
Circulating Pumps for Heating Systems

Some specific precautions should be observed when planning and selecting pumps for heating duties.

Volume Q
The required flow capacity (volume Q) can be calculated from the heating capacity (W) of the system served by the pump and the temperature difference (Δt) between system flow and return temperatures. In order to take into account the specific gravity of heating water as being 1.0 kg/m³ this is expressed as:

\[ Q = \frac{W}{\Delta t} \]

Heating capacity (W) is temperature difference (Δt).

Deviations of volume Q from selected values due to inherent system conditions result in an inversely proportional change of temperature difference or vice versa.

Head H
The circulatory pipe system of an heating installation offers only frictional head losses to the volume flow, i.e. the system head curve does not comprise portion of static head difference and is therefore a parabolic curve with its vertex at the zero-point of the ordinate (point C in zero position).

Exact calculation of frictional losses is particularly difficult in the case of larger and more complicated pipe reticulations. It is hardly practically possible to accurately calculate the system head at the planning stage, particularly, with regard to unforeseen conditions of installation (thickness of welding seams, differing internal pipe surfaces) or of operation (opening and closing radiator valves, isolating branch pipes, etc.). It is therefore accepted practice to base volume flow calculations on published friction loss charts using equivalent lengths for fittings and valves.

Pumping Operating Point
Because of the relationship of head H proportionally as the square of volume flow Q, any inaccuracies in calculating the system head will affect the flow through the system and is therefore very difficult to establish the exact operating point.

Practice has also proved that when the system operating point lies on the pump characteristic of two pump curves, it is always advisable to select the pump curve lying under the operating point.

Suction-side Pressure Conditions
As it is customary for heating circulating pumps to handle hot water of temperatures up to approx. 95°C, it is practically always required to provide a positive suction head, in most instances this is no problem in heating systems, because

Holfeld
H R Holfeld (Hydraulics) Ltd can supply pumps for almost any application, either its own range of manufacture or from its well known established agencies. Holfelds produce the Holpak booster systems and the Waterpak range of shallow and deepwell pumps for its many customers in the home market and the needs of most customers can be met from its standard production programme. Their new premises has a large area for stock, work shop and assembly area and a large area designed to service pumps for clients. 90% of all pumps sold by H R Holfeld (Hydraulics) Ltd are now produced in the factory premises and it is unique in being one of only two companies outside the Danish Grundfos group which is allowed to assemble their range of multi-stage pumps from basic components. The company also represents many leading European manufacturers of pumping and allied equipment such as Grundfos, Sulzer, Lee Howl, Calpeda, Loewe, Simon Hartley and others.

The company offers a wide range of Grundfos inline three-speed heating accelerators, with a maximum temperature of 120°C and a minimum of 20°C. Grundfos heating pumps are suitable for pipeline mounting with nominal diameters of 25 mm to 150 mm, and cover capacities of up to 80 m³/h in a manifold to 11 m. Grundfos Single and Twin pump sets are all available as positive head, inflow and exflow from the factory in Sandyford.

The wide experience of Grundfos have gained in the manufacture of pumps, Grundfos have recently introduced their new UMT/UPT direct-coupled in-line circulator pumps. The wide experience Grundfos have gained in the development and the production of circulator pumps of the canned rotor type and of multi-stage centrifugal
The new pumps are suitable for applications in the heating, ventilating and air conditioning market. Pumps are of the canned motor type and are available in single or twin pump sets. Capacities range from 1 to 50 m³/h at temperatures of up to 110°C. Drouard also have a bronze pump suitable for secondary hot water.

The Howard pumps are for specialist applications within the food, dairy, pharmaceutical, brewing, chemical and textile industries. Capacities range from 100 to 10,000 gallons per hour in sizes from ¼" up to 4". They are available with many useful optional extras including steam jacketing and pressure relief valves.

The Drouard and Howard pumps, like Gridlinestone Pumps, are available in Ireland only from the Allied Products Division, Walker Air Conditioning Limited, Dublin.

### Walker
The Drouard in-line circulating pumps are particularly suitable for applications in the heating, ventilating and air conditioning market. Pumps are of the canned motor type and are available in single or twin pump sets. Capacities range from 1 to 50 m³/h at temperatures of up to 110°C. Drouard also have a bronze pump suitable for secondary hot water.

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The Drouard and Howard pumps, like Gridlinestone Pumps, are available in Ireland only from the Allied Products Division, Walker Air Conditioning Limited, Dublin.

### Worthington Simpson
Worthington-Simpson packaged pressure sets consist of two or more centrifugal pumps and a pressure tank inter-connected with manifolds and valves. Each pump has a discharge non-return valve and suction and discharge sluice valves. Tank and pumps are all mounted on a baseplate together with the control panel. A pressure switch for each pump is incorporated. Where the set includes an air compressor this is mounted on the baseplate and its controls include a float operated switch and a pressure switch. All interconnecting electrical wiring is included so that only three connections require to be made on site — electrical supply, suction and discharge pipe connections.

On sets having two pumps the normal arrangement is duty/standby. Sets with three pumps are designed to have one or two pumps operating, depending on the water demand, and with the third pump as standby. The Worthington-Simpson standard pressure set...
PUMPS AND CIRCULATORS

range consists of seven basic sizes suitable for 50 Hz electrical supplies and seven basic sizes for 60 Hz. Each basic size is further varied by the size of motors fitted to the pumps. In addition to the standard sets custom built sets are also available.

Further information from Worthington-Simpson Ltd, Unit T3, Stillorgan Industrial Park, Stillorgan, Co. Dublin, (Tel: 923606 (4 lines), Paris & Service: 952036).

Pullen

Pullen Pumps Ltd, have introduced a miniature version of their 'Pulpress' pressurisation unit to cater for the make-up and pressurisation requirements on small LPHW and chilled water sealed systems. The new unit, known as the 'Mini-Pulpress', is suitable for system contents up to 1500 litres with fill pressures up to 1.3 bars, and is thus suitable for use in small hotels, small blocks of flats, very large (7 bedroom) houses, school and small industrial establishments.

Measuring only 560mm (width) x 610mm (height) x 310mm (depth), the 'Mini-Pulpress' may be conveniently mounted on a garage or cellar wall and comes complete with expansion tank, pressurising pump, suction tank with ball valve, pressure switch for pump control, non return valve, pressure gauge, fused electrical input switch and high and low pressure cut out switch. Extra tanks of 12, 50, 80 litres with or without an additional tank 140 litres can be added according to system size and pressure. Local Authority regulations concerning overflow requirements and the necessary air gap between tank water level and ball valve entry point (mandatory 6") have been strictly adhered to.

The working cycle of the 'Mini-Pulpress' is initiated via a pressure switch, which is activated when the system pressure drops as a result of the evacuation of water from the unit's membrane tank. The 'Mini-Pulpress' unit is housed in attractively finished grained steel casing.

- The 'Mini-Pulpress' pressurisation unit available from Pullen Pumps.

SMC

Sealed Motor Construction Company Limited manufactures domestic heating circulators and commercial and industrial pumps for heating, chilled water and other similar applications. The Commodore circulator is suitable for a wide range of domestic heating applications, this pump is available in cast iron or bronze versions, both being widely on the industrial scene, the recently introduced 'R' range in-line glandless pumps having been quickly accepted by the trade. Designed for commercial and industrial applications, the new pumps are quietly efficient, their increased flow rates and higher heads complementing the well-proven 'SE' range.

Flanged connections of the 'R' range pumps are from 1½in. to 3in.

The 'R' range pumps, SMC can now offer 2in. and 3in. single case glanded twin and 3in. twin-set and 'SM' range general purpose close coupled pumps.

SMC pumps are available from John R Taylor Ltd, 952058).

SIGMA PUMPS

Full Range Available From

Reconair Ltd.

Unit 4A Coolock Industrial Estate, Dublin 5. Telephone: (01) 470611 - 470209 - 470113 Telex: 31356

Also available on pageboy Tel: (01) 972229 Unit 804 - 547 - 346

Domestic Circulating Pumps

* Vema pumps have over the past number of years built up a reputation for dependability and value which is second to none.
* They come with a choice of isolating valves to suit either copper or G.B.
* All models have variable head and flow and have a self-protected single phase motor which gives long life and silent running.
* Choice of single speed or two speed models

From

Veha WICKLOW - IRELAND

Limitcd

Depots:
Dullivan 01-783466/50931
Cork 021-654268/509353
Galway 091-61549

0404-2278

ed for applications such as sheltering housing, where noise levels are an important criterion.

In addition to the new 'R' range pumps, SMC can now offer 2in. and 3in. single case glanded twin pumps and a range of glanded bronze secondary hot water pumps, all of which have been added to the 'C' range.

Other industrial pumps available from SMC include 'C' range in-line close coupled pumps, 'CB' range in-line and end-suction belt driven pumps, C/CB TAS twin-set and 'SM' range general purpose close coupled pumps.

A selection of pumps from SMC's new 'R' range of in-line glandless industrial pumps, which are designed for commercial and industrial heating applications.
**Ingersoll-Rand**

**TYPE SM GENERAL INDUSTRIAL PUMP**

**NEW!**

Single stage, end suction, overhung impeller, close coupled to standard metric motor. Back pullout feature for ease of maintenance. Designed for continuous service handling clean non-aggressive liquids at temperatures up to 120°C. Single and 3-phase.

SM Range 50m² to 50m head.

**PRICE:** The SM range of pu-puips is competitively priced — example: the 5½” h.p. pump complete with motor and mechanical seal is £286 for immediate delivery.

CONSOLIDATED PUMPS LTD.

Knockmeenagh Road, Clondalkin

Tel: (01) 683471, Telex: 30489

FOR FULL INFORMATION, PLEASE SEND THIS COUPON

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**PUMPS AND CIRCULATORS**

To the Irish market. The pumps which are manufactured in Limerick by Wilo have a much improved performance over the old Wilo range. With the aid of a large research and development department at their parent company in Dortmund, West Germany, Wilo in Ireland can stay ahead of the ever changing market requirements both home and abroad. The Wilo domestic range (the RS25 series) has three basic models. The RS25/50 for low head systems, the very popular RS25/60V (variable speed) for standard domestic systems and the RS25/70V (variable speed) for systems having larger flow and head requirements in domestic systems. A big feature of Wilo circulators for domestic use is the electric motor used. This motor which is manufactured by Wilo in Limerick has an extremely low power input requirement. The RS25/50 for example has a maximum power input on low speed of 45 watts and an amazing input of only 77 watts on high speed. Added to this is the larger port dimension sizes that eliminate hydraulic noise from the system. The pumps are available with either 130 mm or 180 mm housing thus making them fully interchangeable with all other pumps on the Irish market.

Wilo Engineering Co also markets the very extensive range of Wilo commercial and industrial pumps. This range which runs from the 1½” RS50/80 having screwed unions (BSP) through to the largest pumps in the range having 255 mm flanges. Included in the range are the RS50/80, RS50/80 and RS50 all of which are available in either single phase or three phase motors. The Z series of double secondary water (bronze) pumps offering excellent value for money. The Wilo range of mechanical seal pumps offers either single- or dual-type inline pumps (IP range) or dual-type inline pumps. The dual-type (DP) series are perfect for duties where a standby pump is required.

The Wilo Bloc pump is a close coupled end-suction pump and is available in three different speeds depending on flow and head requirements. They come available with a variety of different type motors for various hazardous working conditions. The Wilo Norm pump is also end-suction but has a flexible coupling between pump and motor. The Norm pumps range can handle volumes up to 500 m³/h and heads of 100 metre.

For full details and literature please contact Wilo Engineering Co., Rathmines Industrial Estate, Limerick, (Tel: (061) 27566 (3 lines)), Telex: 28202 El.

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**Veha**

In a declining market, when consumers are more cautious about how their money is spent, it is always true to say that the better products sell. In the case of Veha, the fact that sales of Veha industrial central heating circulation pumps have significantly increased last year, speaks for itself. The pumps are marketed with the announcement that these are pumps in virtually every conceivable application and these are available in Ireland by their sole agents Veha of Wicklow.

Two of the most popular models are the 32/22 and TS20/23. The 32/22 with a max head capacity, a twin speed pump having a max. head capacity of nearly 15 feet, or a max. flow capacity of 15 gpm, which is suitable for the larger house, or for micro-bore systems where high head/flow ratios are required. Features common to both pumps are a hardened stainless steel drive shaft, water lubricated bearings, and a self protected motor. There is also a choice of either brass or cast iron valves to suit 1” GB or 1/4” copper.

Further details from Veha Ltd., Wicklow. (Tel: 044-22229).

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**Major Breakthrough in Oil Tank Construction**

Tyrell Tanks of Cambide Industrial Estate Newry, Co. Down announce a major break through in oil tank construction with the announcement that they have produced a domestic fuel oil storage tank entirely made of plastic.

Mr. Ronnie Irwin Managing Director of the company, introducing the new project pointed out the benefits of such a tank, its durability, its resilience, ease of handling and of course it does not corrode.

Tyrell Tanks are the first company to use the material development by Du Pont of Canada for tank construction.

The tanks initially of the domestic range, will be distributed by D J Supplies of Dollingstown, Co. Armagh.

An outstanding lecture was given to a crowded meeting of Building Services News Section of the Institute of Energy, by Mr. Ron Huxford, Chief Fuel Technologist (Marketing) of the National Coal Board.

In his talk, Mr. Huxford spoke of the future forecasts as to the falling off of world oil supplies and the future rising prices forecast for natural gas. Any listener, hearing the documented facts as to the future of future fuels could only accept the optimism which he showed for the future of coal and the N.C.B. in particular. Mr. Huxford spent some time dealing with available combustion equipment and concluded with a very interesting review of the British development in the field of fluidised beds. Again Mr. Huxford was optimistic expressing the views that within a short and foreseeable time there would be available a range of fluidised fired shell boilers, where size of coal and oil fired units would be matched.

Giffels-Key Ltd have announced the promotion of Chris Hove as North Area Sales Manager and this area will include their Northern Ireland activities.

The Housing Executive have announced that they intend to suspend conversion of heating units using town gas. Belfast and Country pending the announcement by the Dept. of Commerce as to the results of the talks between the Eire Government on a possible link up in the Kinsale gas link.

Following the findings of the Dept. of Energy it has been announced that Belfast is one of the six cities chosen for consideration to have a major combined heat and power project. Other cities in competition for the scheme are London, Liverpool, Glasgow and Newcastle.

A new shopping complex is to be built at the Main Street Bangor comprising a 2/3 storey building will have a heat pump on the roof to provide central heating and air conditioning.

Architects are the McRae Hanlon partnership and the consulting engineer is Brian Caldwell.

Reports in last months issue that Irish Bridge Ltd were to take over the Belfast based pressure tank manufacturing company Euroweld Ltd have unfortunately not come to pass.

The last few weeks has seen an announcement that receivers have been appointed for the Dept. of Commerce are looking for a possible alternative purchaser.

P. A. International announce that Mr Dermott O’Callaghan has been promoted to senior consultant in their Belfast office. Mr O’Callaghan, former head boy at “First”, and with an Honours Degree in Mechanical Sciences from Cambridge University will devote a considerable amount of his time to dealing with energy consultancy activities of P.A.

Harland & Wolff Ltd, the Belfast shipbuilders have set up a new engineering division to co-ordinate their general engineering and electrical activities.

The new division will be headed by Mr Robert Harkness who will also have a seat on the Board of the company.

The new division will be responsible for the manufacture of slow and medium speed diesel and diesels and generators of and steam turbine equipment and water tube boilers.

The last few weeks has been announced that the Belfast based pressure tank manufacturing company Euroweld Ltd have unfortunately not come to pass.

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Further details from Veha Ltd., Wicklow. (Tel: 044-22229).

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On a recent visit to Belfast we pictured (from left): Mr Geoffrey Cutting, Director of the HVCA; Mr Bernard Wright, National President, HVCA; Mrs M Huntley, Nl Regional Secretary; Mr G Stewart, Nl Regional Chairman.
J & T Ballantine (Sales) Ltd, 3a Clarence Street, West Belfast distributors of Siebel Eltron announce a new water heater to provide a continuous flow of water to a number of outlets. The DHF Uniflange is suitable for mains pressure, hydraulically controlled with variable loading according to water usage. The heater is ideal for both new and renovated buildings and being 370 x 220 x 150 mm is easily installed.

Details of output are available from the distributors.

Ferguson Industrial Holdings Ltd have decided to amalgamate Antrim Builders Suppliers Ltd and W D Henderson & Sons Ltd. Antrim Builders Suppliers Ltd have a large site and warehouse at their site at Springfield Industrial Estate, Ballymena Road, Antrim which is ideal for the amalgamation and all the lines carried by both companies will be available from Antrim. The Director and General Manager in charge is Mr. Cecil McDowell and the telephone number is Antrim 5921.

Jim Parr, 12 Duke Street, Warrenpoint Co. Down has been appointed distributor for the Danish made VLO hot air stove. There are five models ranging from 180,000 btu to one million btu output.

The stove is an obvious energy saver using for fuel wood shavings, sawdust, paper, wood off cuts and in fact any thing that burns.

The Northern Ireland Branch of the Institute of Domestic Heating Engineers have announced the following programme:

4th March Strangford Arms Hotel - 7.30 p.m. Talk - C. Turner of the C.A.S. on "Solid Fuel Appliances".

27th March Strangford Arms Hotel - 7.30 p.m. Annual Dinner - Tickets £8.00.

5th May Strangford Arms Hotel - 7.30 p.m. Annual General Meeting.

The following golf outings have been arranged:-

<table>
<thead>
<tr>
<th>Date</th>
<th>Course</th>
<th>Sponsor</th>
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<tr>
<td>29th April</td>
<td>Helens Bay</td>
<td>UDT &amp; Carplant Ltd.</td>
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<tr>
<td>26th May</td>
<td>Royal Belfast</td>
<td>Thum Heating</td>
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<tr>
<td>24th June</td>
<td>Clandeboy</td>
<td>Fuel Services</td>
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<tr>
<td>27th August</td>
<td>Malone</td>
<td>N.F.B.P.M.</td>
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<tr>
<td>17th Sept.</td>
<td>Knock</td>
<td>M.P.I. Ltd</td>
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</table>

Full details are available from the Hon. Secretary, Mr. Brian Page, 17 Ermine Avenue, Belfast 10.

M&H Insulations Ltd have taken up occupancy of premises a Mountain Mill Industrial Estate, Ligoniel Road, Belfast. M&H in addition to normal insulation contract work are the sole licencees for sprayed insprop mineral fibre for fire protection and thermal insulation.

**CONCORD ENGINEERING CO. LTD.**

Bellevue, Islandbridge, Dublin 8

Phone: 770650/770564

**INDUSTRIAL BOILERS SERVICE AND SPARE PARTS**

Manufacturers of

- Steel Chimneys, Condensate Tanks, Pressure Vessels, Incinerators
- Steam Electric Oil Outflow Heaters, Line Heaters, Oil Heating and Pumping Sets
- Complete Boiler Installations

Agents for NEI Thompson Cochran Ltd

**NEW PRODUCTS**

**Fire Safety Rating for Fibreflex**

Fibreflex, the new dual purpose pipe insulation from Fiberglass Limited, is the first domestic pipe insulation to achieve a Class 'O' fire safety rating. This means that when fire safety is being considered Fibreflex can be confidently specified for use in any domestic purpose group of dwellings. Class 'O', the highest classification under Regulation E15 of the Building Regulations 1976 (restriction of spread of flame over surface of walls and ceilings) was awarded recently after exhaustive testing. Its fire safety rating, with its flexibility (it can literally be tied in knots) and its ease of installation means that Fibreflex is ideal for both the frost protection of cold water pipework and heat retention in hot water and central heating pipework. Fibreflex is manufactured from glass fibres sprayed with a modified PVC. It is made in a standard 19mm nominal uncompressed wall thickness and is supplied for both 15mm and 22mm nominal OD pipework in cartons containing 25 and 20 metres respectively.

**Energy Saving Heat Pump**

An air-to-water heat pump which offers energy saving, flexibility and quiet operation in either commercial or domestic applications, is now available from Walker Air Conditioning Ltd. These compact units - known as the 30RQ Series - can be used singly or in multiples for a precise meeting of heating and cooling requirements. A major feature which makes them particularly suitable in residential use, is the units' quiet operation. With SRN values of 18 and less, the outdoor sections can be positioned without fear of complaint from the neighbours. The Series also capitalises on the inherent flexibility of a water system. It can be added to existing hot water heating systems to give a bivalent system, or for new systems or constructions, can be teamed up with Carlye's fan coil units or underfloor heating to provide all the warming necessary. Apart from the energy saving available with every heat pump - they produce up to three units of heat for every one unit of electricity consumed - the combination of 42 Series fan coils and the 30RQ offers additional energy savings.

**RECORD LAUNCH 1707 TACHOMETER**

The Takette Model 1707 tachometer from the Record Electrical Company Ltd. can be used for a wide range of applications, from pumps to diesel engines.

The digital hand held contact tachometer is quartz crystal controlled with a range of 0-20,000 RPM updated once a second. The display readout consists of five 13mm high LED digits with an accuracy of + 1 RPM. The memory function is retained indefinitely until cancelled and the standard accessories include concave and convex speed tips and a 1cm linear speed wheel. Supplied in a foam padded carrying case with completely self contained 1.5 VDC HP7 (R6) batteries.

For further information please contact: Eoin O'Riain, Industrial Instruments Ltd. 6 Herbert Place, Dublin 2, (Tel: (01) 761691 Telex: 24789, Home: (01) 837290).

**New Marker System from Roper Bros.**

Roper Bros Limited have introduced a new identification system for large diameter pipes. The Pilogrip system comprises a large re-lesserable collar in polyethylene, which is locked by serrated teeth similar to conventional pipe ties. The collar is pushed through a moulded carrier strip and the markers pushed into the carrier to make the desired legend. Collars are produced in red, yellow and grey, markers white on black. Pipe capacity 30mm to 90mm.

Further information from Roper Bros Limited, 5 South Anne Street, Dublin 2.

**NEW PRODUCTS**

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3 Star General Stove from Unidare

Unidare recently showed the first of their new solid fuel stoves, the 3 Star General at IHVEx '81 exhibition. The "General" is expected to have a significant impact on the Irish market as it is designed to replace the inefficient open fires. Along with its new standards of efficiency, it is expected that the "General" will provide domestic hot water and heat up to four radiators. A significantly Irish feature of this Unidare stove is the fact that it burns turf most efficiently. Bord na Mona worked closely with Unidare in the development of this feature. In addition, the "General" can burn coal and anthracite, smokeless fuels and wood. The launch of the new product is timely and coincides with Mr. Colley's - Minister for Energy - recent announcements regarding the inefficiency of open fires and the National Board for Science and Technology's competition for an energy saving enclosed stove. The 3 Star General stove will be entered for this competition. The outer case is constructed from mild steel sheet, treated with high temperature proof paint. The door is fitted with heat resistant glass. The firebox air intake is controlled by a sliding mechanism. By this means the burning rate can be kept to a minimum and the stove will then remain alight during the night. The front door hinges down for easy access and to receive the removable ash tray via the lower panel.

Units may be fitted into sound existing fireplaces and also into new work and the installation should comply with British Standard CP 403. 74.

FOR SALE

UNUSED WEISS SYSTEM CABINET

TYPE AIR CONDITIONING UNIT

FEATURES

* Condensation Free Cooling System
* Aerosol-free Vapour Humidification
* Wide selection of regulating mechanisms
* Optional energy-saving mode of operation

USES

* Industrial processing and engineering air conditioning plants and installations
* Experimental & testing laboratories
* Special installations for research & developments

SIZE 28' x 13' x 9'
Refrigering Capacity: 6,000 Kcal/h
Ventilation air-flow: 1400 cubic m/h

For further details contact:
Arweld Steel Products Ltd.
Finlaskin Road, Sligo. Tel: (071) 61516/61517

PARKAFORM PRECASTS

The Parkaform range of precast concrete components for forming a heating appliance or open fire recesses in masonry chimneys and surrounds has been designed to allow both greater flexibility in choice of heating appliances and easy installation. The components have been developed jointly by Park Sectional and the Solid Fuel Advisory Service for use in new work and comprise a raft lintel, closure lintel, gather throat lintel, gather lid and two gather side supports. An appliance chamber is formed simply by fitting a closure lintel under the front lip of the raft lintel while for an open fire recess the gather throat unit is fitted under the raft lintel and supported by the gather side supports, or brick or block piers, placed inside each jamb. The gather lintel is then interlocked into the front of the gather throat unit ready for the opening to receive a standard fire-back. A superimposed hearth ing in over 500,000 possible duty cycle patterns. Manual override switches are provided. In the event of total power failure, Powerwatch maintains time of day and schedule data for a period of 10 days using battery back-up. All control and panel wiring is low voltage 24Vdc. For further information contact: Mr J. Carney, Manutec Ltd., Bank House, 106-108 O'Connell St., Limerick, (Tel: (061) 47341).

Manutec - Right on Time

Manutec Ltd., a Limerick based engineering services company recently announced its sole distributorship for all Ireland of the prestigious US-based range of energy saving devices using the brand name Powerwatch.

Powerwatch is a computer-based timing system which will allow sophisticated energy management programmes to be established showing savings of 10 to 30% on electricity bills. It is capable of controlling up to 15 independent electrical circuits, each with multiple loads, and can be programmed for a year-long schedule. Routine or special load schedules are entered through the keyboard which is built into the face of the unit.

The system will accept up to 9 start/stop operations per circuit per day, plus 9 duty cycle patterns per circuit. During the normal "on" time of a circuit, the load can be cycled "on" and "off" for independent intervals ranging from one minute to 12 hours, result-
Heat Recovery Systems

In this the third of a series of four articles on heat recovery from refrigeration systems, Ole Larsen B.Sc., an engineer with Dunfords Ltd, discusses heat recovery systems from one heat exchanger and also from several condensers. Utilisation of heat from high pressure side of refrigeration systems Part 3.

Heat recovery system with only one heat exchanger

Where the heat requirement coincides with the cold requirement all the time, and is of a sufficient order, the simplest and cheapest form of heat recovery can be obtained by designing the condenser so that it can be used directly as a heat exchanger in the heat recovery system.

Fig. 19. Heat recovery diagram.

Fig. 19 shows a heat recovery system where the condenser heat is used for heating in winter, while in summer it is discharged directly into the open. If the condenser capacity is insufficient for handling the maximum heating requirement, an extra heating surface can be built into the system, as shown. The air is controlled via the dampers shown which are controlled by a thermostat via actuator motors.

Condenser regulation is based on the principles for air-cooled condensers mentioned in section 4. In this example, a constant pressure regulator which will in most cases result in a smaller valve dimension. Furthermore, it is, normally, unnecessary to increase the receiver pressure by mean of hot gas. However, if there is an interest in maintaining two different condenser pressures for summer and winter operation, another constant pressure regulator which is set to the heat pressure can be fitted after the solenoid valve.

The foregoing examples have shown on/off regulation of the heat surface output which will give a sufficiently good result in far most cases. Modulating regulation can be obtained by means of a thermostatic pilot valve and a throttle valve in the pilot line. In principle, it is possible to connect many heat recovery condensers in parallel on the same refrigeration system. If it is desired to do this, it is, however, necessary to see that the pressure drops across the single condensers are the same so that liquid accumulation will be avoided. It is not enough for the heat recovery condensers to be of the same design since different load conditions (temperatures) will also result in different pressures across the single heat recovery condensers.

5.3 Automation of heat recovery systems connected in parallel

Fig. 23 shows a system in which the output of the heat recovery condenser is regulated on/off by a room thermostat in the heated room. The thermostat controls the solenoid valve marked 1 which opens when heating is required. Solenoid valve II opens and closes in the opposite order of solenoid valve I. To have such a simple system, it is a condition that both condensers have the same capacity, but even when this condition is satisfied, the condenser pressure will, as a rule, fluctuate strongly depending on the immediate load. Purely from a safety point of view it is also a difficult solution since there will never be 100 per cent security against function failure of the solenoid valves.

To counteract these drawbacks, the system can be automated as shown in fig. 24 where the solenoid valve II is replaced by a constant pressure regulator while, as before, the heat recovery condenser is controlled by a solenoid valve in connection with a room thermostat. When the solenoid valve is open, the entrapped, compressed gas will pass through the heat recovery surface. If the capacity of this surface is smaller than the total condenser capacity, the condenser pressure will increase until it reaches the value set on the constant pressure regulator. This regulator will begin to open, and the two condensers will then operate in parallel.

If the normal condenser and possibly the receiver are placed in the open, it is a condition that the heat recovery surface plus the normal surface output which will give a sufficiently good result in far most cases. Modulating regulation can be obtained by means of a thermostatic pilot valve and a throttle valve in the pilot line. In principle, it is possible to connect many heat recovery condensers in parallel on the same refrigeration system. If it is desired to do this, it is, however, necessary to see that the pressure drops across the single condensers are the same so that liquid accumulation will be avoided. It is not enough for the heat recovery condensers to be of the same design since different load conditions (temperatures) will also result in different pressures across the single heat recovery condensers.

Since the condenser and receiver...
## Companies Supplying Air Conditioning and Ventilating Equipment

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Address</th>
<th>Tel. No.</th>
<th>Telex</th>
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<td>Afpac Ltd</td>
<td>Moore Park, Garristown, Co Dublin</td>
<td>354328</td>
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<td>Edpac, CIAT, Marstair</td>
</tr>
<tr>
<td>AAF Ltd</td>
<td>Boucher Office Centre, Boucher Road, Belfast BT126</td>
<td>690416</td>
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<td>also in Dublin</td>
<td></td>
<td>762626</td>
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<tr>
<td>ASEA (Electric) Ireland Ltd</td>
<td>4 Mount St. Crescent Dublin 2</td>
<td>767033</td>
<td>30710</td>
<td>Flakt</td>
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<tr>
<td>B L Refrigeration &amp; Air Conditioning</td>
<td>151 Albertbridge Road, Belfast</td>
<td>991110</td>
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<tr>
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<td>Unit 60, Cookstown Industrial Estate, Co Dublin</td>
<td>514008</td>
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<td>Friedrich Radial AX,</td>
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<td>514711</td>
<td></td>
<td>McQuay, Europa, Pm-Luft, Shamrock</td>
</tr>
<tr>
<td>BSS Ireland Ltd Ltd and branches</td>
<td>White Heather Industrial Estate, 301 South Circular Rd, Dublin 8</td>
<td>781966</td>
<td>5317</td>
<td>United Air Co Ltd</td>
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<tr>
<td>James Gleeson Co Ltd</td>
<td>Caherdavin, Ennis Rd., Limerick also 50 Dartmouth Square, Dublin 6</td>
<td>(061) 54485</td>
<td>6287</td>
<td>Afos, Amana</td>
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### AIR CONDITIONING AND VENTILATING EQUIPMENT

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<td>GKN Autoparts Ireland Ltd</td>
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<td>Heat Recovery Ireland Ltd</td>
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<td>William H Leech &amp; Son Ltd</td>
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<td>K DeLargy</td>
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<td>MCW Ltd</td>
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<td>P &amp; D Macfarlane Ltd</td>
<td>Ardee House, Blanchardstown, Co Dublin</td>
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<td>McKenna (Ireland) Ltd</td>
<td>Unit 13, Dublin Industrial Estate, Glasnevin, Dublin 11</td>
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<td>Powrmatic Ltd</td>
<td>42 Wesley Lawns, Sandyford Rd., Dublin 14</td>
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<td>RSL (Ireland) Ltd</td>
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<td>Redbro Ltd</td>
<td>Unit 12G, Cherry Orchard Industrial Estate, Dublin 10</td>
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<td>Reconair Ltd</td>
<td>Unit 4A, Coolock Industrial Estate, Dublin 5</td>
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<td>Saireco Ltd</td>
<td>Unit 52, Cherry Orchard Industrial Estate, Dublin 10</td>
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**Diagram:**

- **Westinghouse Air Conditioning**
- **Reconair**
- **Denco Miller Limited**

**Addresses:**

- **H M C, Trox**
- **Kuba, Ranco, Castel-contardo, Bitzer, Alco Arton, Robinair, Castel, Italest, Yellow Jacket**
- **HMC, Trox**
- **Westinghouse, Nuair, Denco Miller**

**Contact Information:**

- **Telex:**
  - 31356
  - 301012
  - 31356

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AIR CONDITIONING AND VENTILATING EQUIPMENT

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<td>S R Airconditioning Ltd</td>
<td>149 North Strand, Dublin 3</td>
<td>782581</td>
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<tr>
<td>Sermet (NI) Ltd</td>
<td>11 Lisburn Street, Hillsborough, Co Down</td>
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<td>Solus Building Products Ltd</td>
<td>Corke Abbey, Bray, Co Wicklow</td>
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<td>John R Taylor Ltd</td>
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<td>Trane</td>
<td>46 Ardee Avenue, Lucan, Co Dublin</td>
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<tr>
<td>Thompson Air Heating &amp; Ventilating Ltd</td>
<td>Shortcastle, Mallow, Co Cork</td>
<td>0222</td>
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<tr>
<td>Unilax Ltd</td>
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<td>Ventac &amp; Co</td>
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<td>Walker Air Conditioning Ltd</td>
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Sheet Metal Works

TH COMPONENTS Limited

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-Carlyle from Walker-

1. The unbeatable range of energy miser heat pumps

2. Heat reclaim chillers with multi-compressors for even lower running costs

3. Moduline VAV systems with inherent self-balancing savings

4. 50 DF chiller, the boss of the Modupac VAV system

5. Unikal computer programme analysis to assist you in selection of the most energy efficient system

Walker Air Conditioning

Walker Air Conditioning Limited

(1) A member of the Air Conditioning Division Limited

Dunleary Industrial Estate, Finglas Road, Dublin 11 Tel: 300844. Telex: 4662
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Washington Road, Unit 114, Avondale Industrial Estate, Finglas, Ph: 344-427
Tel: 4662 Fax: 779460
Carlyle Distributor for Ireland, Scotland and Northern England
Sale of air conditioning and ventilation equipment in Ireland has not on face value at least, been seriously affected by the recession which has occurred during the period 1974 to date.

This fact has largely arisen due to the massive expenditure by three main sources, namely foreign investment in IDA factories, hospital building programmes and Department of Post and Telegraphs telephone exchanges. The major decrease in investment has come in the commercial office block development. This was foreseen as far back as the early 1970's.

Where office block development has proceeded and where there has been a need for an air conditioning installation the trend has definitely been towards air volume systems. Initially the flexibility offered by VAV attracted designers who were faced with large open plan office areas with no partition layout.

Obviously once the energy crisis VAV has also shown its energy savings available with its use. By the very nature of a large proportion of the IDA work, that is in the computer and microchip industries, air conditioning designers and suppliers have been forced to upgrade both designs and products to meet the stringent controls and filtration standards required in both the manufacture and testing of these products.

This requirement in air conditioning design has led to the installation of a computer room type environment, with air being supplied through a plenum ceiling or floating floor, rather than plenum systems with vast air handling units and supply air quantities. One of the major advantages to the mechanical contractor of this computer room type installation is that all his air handling equipment comes as a package, including all controls, pre-wired and tested at the factory.

This of course does not mean the end of the air handling unit market, as in many cases office block areas associated with these factories, require either heating and ventilation or full air conditioning combined with the air distribution available from a ducted system.

The hospital building programme started over the last few years has retained the old design of plenum systems, while upgrading the degree of control and filtration required for modern day standards. This however means that the air handling units tend to become more sophisticated. Using either spinning disk or electrode boiler type humidifiers, backward curved fans and HEPA filter terminals.

The tendency in operating theatre air conditioning design is to use chilled water as the cooling medium rather than direct expansion systems, due to the possibility of a cooling coil leak.

Since 1978 the increase in funds allocated to the Department of Post and Telegraphs has accounted for a boom time for most air conditioning suppliers. However, as with projects related to IDA investment the trend over the last eighteen months has been away from air handling units and ducted systems, and on to computer style equipment. This trend is obviously going to continue while the present policy of using digital telephone equipment is pursued.

To sum up, it can be seen from most of the present developments that the general trend in the air conditioning industry is away from air handling units as they were originally known and towards fan coil units with standard or close control packages, allowing for individual areas to be air conditioned.

Final and probably the most important aspect of this trend, is to allow the end user flexibility regarding the areas he requires to be air conditioned, and should a malfunction occur within any particular component he is not required to shut down the complete air conditioning plant.

The following notes are based on material submitted by the companies concerned.

**Powrmatic**

New-styled Powrvent and Powrjet extract units, introduced recently by Powrmatic Limited, are already proving their value in meeting the powered ventilation needs of commercial and industrial users.

Manufactured in flame retardant glass-fibre, both the general-purpose Powrvent and heavy duty Powrjet extract units feature polypropolene impellers available in a choice of five sizes, 400, 500, 630, 750 and 900mm.

This means that powered ventilation systems can be matched closely with the volume of air to be handled, thereby achieving optimum efficiency, which is so critical in these days of energy conservation.

The general all-round improvement in design standards has also been carried through to ductwork components associated with Powrvent modular input systems, these easily assembled flange connected components, such as duct bends and mixing boxes, now being finished in plain aluminium.

Installation of Powrvent and Powrjet extract units and Powrvent modular input system roof topsembles no problems with a comprehensive range of glass-fibre soaker flanges being available to match the

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*Tom Fleming is Sales Manager of Reconair Ltd.*

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**Ventilating Equipment**

Installation of Powrvent and Powrjet extract units and Powrvent modular input system top roof sections is a comprehensive range of glass-fibre soaker flanges being available to match the

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*Also (Bahco Tools Ltd) Adjustable Wrenches, Screwdrivers, Spanners, Hydraulic Tools, Engineers & Electronic Piers BAHCO VENTILATION LTD BAHCO HOUSE BEAUMONT ROAD BANBURY OX16 5TB TELEPHONE: BANBURY 57461*
Building Services News, Vol. 20, Iss. 3 [1981], Art. 1

Climate Change

Computerised Selection of Components

Triane Air Conditioning Ltd

Mathews & Yates

Finheat

Sound Octave


5. Weight/Dimensions/Price Index

Trane

Selecting Climate Changer AHU's is made easy by a new service. This new computer service is available through the local Trane sales office via the General Electric Mark III worldwide computer network.

All you have to do is input your required summer and winter design conditions, including details of cooling and heating, filtration, humidification, electrical characteristics and any of 22 special feature requirements. The computer takes it from there and gives you these items for your design decisions.


Mixes the specified outside air and recirculated air. Selects the lowest first cost combination of coils, humidifier, fan(s) and special features to meet your performance requirements. Prints out the leaving air temperature from each section (mixing box, heating and cooling coils, humidifiers and fan) along with the air pressure drop and other performance data for each.


Based on the specified total supply air volume and external static pressure, the computer adds the air pressure drop through each selected component and selects the best available supply fan with the proper motor drive. It prints out the rpm, absorbed kW and fan efficiency, plus the motor size and drive. The return fan, if required, is selected based on the specified air volume and external static pressure. Similar printouts are given. A fan performance allowance is made when using vertical and/or blow-through fans.


Printed out at the fan inlet or outlet, as specified for your system acoustic design.

5. Weight/Dimensions/Price Index

The operating weight and overall unit dimensions are summarized for your equipment-room planning. A price index can be given for the total unit and each component for your economic analysis.

The full range now extends over 14 sizes from 60,000 to 140,000 cfm. Incorporated within the unit is the Matthews & Yates Fan which has been tried, tested and proved in thousands of installations throughout the world. Virtually all variations and extras are available including damper/mixing boxes, choice of filters, heaters and cooling coils, spray coils, various humidifiers.

In addition, the units can be double skinned, and motors internal or external and be supplied suitable for dual duct or multi-zone systems.

The new catalogue and
WE'LL KEEP YOU ON THE STRAIGHT AND NARROW

An exciting new concept from Roof Units Ltd packages all the best characteristics of centrifugal fans in one unit and presents them in slim line, compact, easy to install units. Specifically designed for the high powered, high head, high efficiency applications, the new units feature a forward curved impeller, gives quiet, effortless performance against resistance and the important feature of full speed control allows the user to vary fan performance in situ.

This is the way through air flow concept conceals additional connecting ducting to the fan unit, and since the fan is housed within the duct then only marginal space is required to contain the power unit.

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Saireco
Saireco's first appearance at the recent Hves exhibition marks the company's recent appointment as the Republic's main distributor for the comprehensive Toshiba range of airconditioning systems, including ceiling and wall-mounted splits, ducted systems, self-contained mobiles and heatpumps.

Among principal exhibits shown was the advanced-technology RAS-20LHE heat pump — a microcomputer controlled split system designed for wall-mounting and supplied with a remote control panel incorporating a 12 hour programmable timer. Designed for operation from single phase 220/240 volts 50 Hz mains power, the RAS-20 has a cooling capacity of 8,800 btu/h (2,200 kcal/h) and a reverse cycle heating output of 12,000 btu/h (3,000 kcal/h). Other Toshiba heat pumps include three recently released self-contained "through the wall" systems, with cooling capacities from 9,300 to 16,000 btu/h (2,325 to 4,000 kcal/h) and heating output from 9,500 to 16,000 btu/h (2,375 to 4,000 kcal/h).

Two stage fan speeds, "high" and "low", settings for heating and cooling, plus automatic temperature control are features of these units.

Self-Contained Mobiles
Saireco also unveiled the first of Toshiba's 1981 newcomers, the compact, self-contained RAC-14YWE "Cool Mini" mobile room air conditioner which measures just 700 mm high, 500 mm wide, 500 mm deep. With cooling capacity of 5,600 btu/h (1,400 kcal/h), the "Cool Mini" is virtually silent in operation and is castor mounted to allow it to be wheeled from location to location. Equally attractive for use in offices or the home, it is designed to work from single phase 220/240 volts 50 Hz mains power. With its compressor switched off, it can also double as an air circulation fan.

Another Toshiba self-contained mobile on show was the RAC-10FE4 — also castor mounted — offering a cooling capacity of 8,000 btu/h (2,000 kcal/h). Again the unit is ideal for use in offices, the home or as stand-by air conditioning equipment in, for example, computer installations.

GKN
GKN Autosports Ireland Ltd are agents and distributors for Helios toilet, duct and wall fans, accessories, and industrial fans. Ten modular units in their Vent-Axia products.

The toilet fans are maintenance-free, quiet in operation (33dB(A) at a distance of 1 m), continuously-rated, and simple to install. The fans, like all, and time delay switches are now available ex-stock.

Helios industrial fans include axial and propeller fans in standard versions and in flameproof with explosion-proof motors. The roof extract fans include the ABC, a compact, slim line multiroom air conditioning unit offering a cooling capacity of 1,400 kcal/h (4,600 btu/h).

Climavent
The secret is that all Bahco's ABC air handling units are built up entirely from individual modules. Each module is an entity in itself, capable of performing its designed duty at maximum efficiency. For example, the fan unit, filter section, and heater battery are each quite separate sections and are put together like red, yellow and green building blocks. In all there are more than twenty of these modular sections in the ABC range. It is not surprising that the ABC is described as an air handling unit which treats air with the respect it deserves. Prices are competitive and delivery normally takes six to eight weeks.

Bahco equipment is available from Climavent Ltd.

Redbro
Redbro Ltd have recently launched a range of extract fans for bathrooms, shops, offices etc and also table fans. The bathroom and toilet fans are available in 10,12 and 15 cm models which cover both large and small ventilation systems. The fans consist of three
AIR HANDLERS TO YOUR SPECIFICATIONS

with duties up to 100,000m³/hr at external static pressures up to 200 mm. w.g. Ask us to quote you.

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AXIAL

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Belt Driven Fans

Ten fan sizes 300 - 1600 mm for contaminated or inflammable air streams.

BA

Bifurcated range 300 - 1200 mm vertical or horizontally mounted. High temperature corrosive gases.

Phone: 288229/288220

AIR CONDITIONING AND VENTILATING EQUIPMENT

- The Vortair 8 extract fan from Redhro.

Top heating and cooling units, with the option of electric heat by utilizing the unit as a heat pump. Pre-charged condensing unit up to 1 TR, initial charge condensing unit to 60 TR and the above matched to a range of direct expansion cooling coils in packaged air handling units are available.

Westinghouse's applied equipment range starts at the lower end with fan coil units, high, medium and low capacity with single or twin coils, electric or low pressure hot water heating, through to high velocity induction units. Westinghouse offer three types of air handling units, for low, medium and high pressure applications with air quantities from 400 to 44,000 c.f.m. and with a large variety of heating and cooling coils, from the standard fin unit through to copper finned copper tinned coils. The coils can vary from one row eight fin per inch to 10 row 16 fin per inch. Units can be single or multizone, utilizing draw through or blow through systems and coils utilize for water, refrigerant or steam application.

Three types of chiller are available in the Westinghouse range. There are reciprocating air cooled, reciprocating water cooled and centrifugal chillers. The reciprocating air cooled chillers which are PD and PN range have capacities ranging from 15 TR to 350 TR, the reciprocating water cooled chillers are the PX, PB, PZ, & PQ ranges and have capacities from 6 TR to 250 TR and the centrifugal chillers are the PF and PE have capacities ranging from 86 TR to 1300 TR refrigeration.

Finally, Westinghouse offer new a centrifugal packaged water chiller for heat recovery, the PH model. This unit utilizes the consumer heat which is extracted from the chilled water by the evaporator. This heat is then added to the heat of compression and the motor heat and the total is transferred to a heating condenser and can be distributed with the building as space heating, processed under the following headings, modular concept, system flexibility, ease of installation, serviceability, noise levels and aesthetics.

Further information on the above equipment please contact Reconair Ltd, Unit 4A, Coolock Industrial Estate, Dublin 5, (Tel: 470611/113/219/209).

Reconair

Reconair Ltd who are both Westinghouse and Denco Miller distributors in the Republic of Ireland, also boast the largest back up service to the air conditioning industry. Westinghouse equipment, some of which is shortly to become available from their new factory at Kells, Co. Meath, is adaptable for any type of air conditioning application and their range is more versatile than any other manufacturer in the business.

The range which starts at the lower end of the market with a 2 ton refrigeration air cooled wall mounted "whisper" cooling unit, with the option of a heat pump application continues through to the large split system units as used in telephone exchanges and computer rooms.

Coupled with the package products above they offer a wide range of roof basic parts with a double insulated motor and has a built-in unique solid state timer. The large Vortair range for shops, offices, etc. - available in 12, 20 and 25 cm and is fitted with an iris type shutter and is designed for installation and use in ordinary single pane windows and with the appropriate, available fittings can also be installed in double glazed windows and walls.

Chryotemp

Chryotemp Engineering are exclusive Irish distributors of Airtemp air conditioning equipment and Bally prefab walk-in coolers, freezers and refrigerated buildings. The Airtemp range covers the complete range of air conditioning equipment from packaged AC units to large central station AHU's. Airtemp also manufacture chillers, condensing units, compressors, coils for chilled water, hot water and steam, and fan coil units.

Part of the packaged air conditioning range include the 1000 series water cooled air conditioner, these units provide complete central cooling from a single, easily installed unit. The unit has broad acceptance in commercial applications where access to outdoor air is not practical and city or cooling tower water is readily available. Units are delivered to the job site completely installed.

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Reconair Ltd who are both Westinghouse and Denco Miller distributors in the Republic of Ireland, also boast the largest back up service to the air conditioning industry. Westinghouse equipment, some of which is shortly to become available from their new factory at Kells, Co. Meath, is adaptable for any type of air conditioning application and their range is more versatile than any other manufacturer in the business.

The range which starts at the lower end of the market with a 2 ton refrigeration air cooled wall mounted "whisper" cooling unit, with the option of a heat pump application continues through to the large split system units as used in telephone exchanges and computer rooms.

Coupled with the package products above they offer a wide range of roof basic parts with a double insulated motor and has a built-in unique solid state timer. The large Vortair range for shops, offices, etc. - available in 12, 20 and 25 cm and is fitted with an iris type shutter and is designed for installation and use in ordinary single pane windows and with the appropriate, available fittings can also be installed in double glazed windows and walls.

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Type EM 421

410

Type EM 317

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Type EM 111

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A comprehensive selection of ventilation equipment is available for all applications and a large variety of roof fans, wall fans, axial fans and centrifugal fans are obtained ex-stock.

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The wide range of centrifugal, axial and twin roof units with matching roofoker sheets to suit almost every corrugated roof profile and regulatable motors, from Roof Units Ltd, meet the demands of specific applications. They also manufacture vertical jet roof fans.

Novenco make aerofoil fans, centrifugal fans 250 mm-1000 mm, heating coils, unit heaters and air handling units.

The revolutionary external rotor motor is fitted to all Ziehl-Abegg fans and it shows its benefits in the slim compact design of their products.

To complete their range, Dan Chambers Ltd offer PVC fans, PFC fume scrubbers and PVC roof units from Marcal Fans Ltd, for installation where resistance to corrosion from acids and alkalis is required.

Further information:

Dan Chambers Ltd, 37/38 Nth Brunswick St, Dublin 7, (Tel: 720448/720557/720971).

Design. All units are available in double skinned construction on request. Wolf Klimatechnik employs 600 craftsmen and provides full customer service throughout Europe. Installation in Ireland is by advice and information call Macroom 339, Macroom, Co. Cork.

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Coolair Limited of Tallaght are sole distributors in the Republic of Ireland for the full range of Barber-Coleman air conditioning equipment and Daikin Heat Pump packaged air conditioners.

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AIR CONDITIONING AND VENTILATING EQUIPMENT

Heat Pump Packaged air conditioners

PRODUCT SYSTEMS

Heat recovery systems

Heat wheel for up to 100,000m³/hr air flow

Cross flow plate exchanger up to 60,000m³/hr

Waste heat recovery up to 80%
Barber-Colman range is the MPC-901 Microprocessor Controller, which can be programmed to automatically adjust a building’s exact energy needs and so reduce operating costs. Designed to provide automatic starting and stopping of mechanical and HVAC equipment, the new Controller has a 24-hour clock and 365 day calendar, understands long weekend and holiday schedules and also caters for daily variations.

The MPC-901 unit reduces KW demand and KWH usage, provides a greater air quantity at constant volume system and reduces operating costs. Developed by the Barber-Colman company are also variable terminal units, which includes instrumentation to display such data as time and day-of-year. The casings of Luwair VAV air handling units have rigid frames fabricated from pre-formed channel sections with purpose made corner sections and flush mounted cover plates.

Luwair The Luwair SB range of air handling equipment consists of various standardised sections which can be assembled on a modular floor plate. Individual cube and part cube sections with easily removable access panels give the utmost flexibility and virtually any arrangement is possible to suit awkward stings. The casings of Luwair SB air handling units have rigid frames fabricated from pre-formed channel sections with purpose made corner sections and flush mounted cover plates.

Woods Woods of Colchester will produce the units in 3 sizes, these providing maximum utilisation of backward curved impellers housed in an ‘in-line’ case of mounting, low noise generation, high performance and 70% speed regulation are in-built advantages of this fan. By using the unique ‘inside-out’ motor, fan dimensions are reduced to a minimum making the units ideal for false ceiling mounting, air handling units or conventional duct or tube mounting. Inlet and outlet dimensions are identical. Fan casing. The fan casing is manufactured from galvanised sheet steel and finished with special varnish. Two types are available - duct mounted - incorporating a rectangular casing, or tube mounting for installation in circular ducting.

Brennan The Radiator Fan is a new development in fan engineering incorporating the high performance characteristic of backward curved impellers housed in an ‘in-line’ case of mounting, low noise generation, high performance and 70% speed regulation are in-built advantages of this fan. By using the unique ‘inside-out’ motor, fan dimensions are reduced to a minimum making the units ideal for false ceiling mounting, air handling units or conventional duct or tube mounting. Inlet and outlet dimensions are identical. Fan casing. The fan casing is manufactured from galvanised sheet steel and finished with special varnish. Two types are available - duct mounted - incorporating a rectangular casing, or tube mounting for installation in circular ducting.
mounted units can be parallel mounted in composite casing to give volumes up to 3500 CFM. Casings are flanged and drilled and are complete with external terminal boxes. The inlet plate is formed to give excellent inlet entry conditions and the casing side plates are shaped to give good air flow.

Radialax Heat-Pac
The Radialax heat-pac offers to the heating contractor a unique heating system designed for efficient operation, ease of installation and maximum flexibility. The complete programme comprises separate and interchangeable modules, fans, filter, heater, silencer, and air control modules. All interchangeable. Modules can be mounted together as one package or separately vertically or horizontally in the ducting system, saving time, space and installation costs.

Radialax Twin-Pac
The RAF Twin-Pac system of twin backward bladed fans, mounted onto "inside out" motors and housed in "space-saving" modules. The RAF Twin-Pac has been developed to meet the increasing demand for standby fans in toilet extract systems where duct installation is necessary. In consequence, the modules have been designed to fit directly into ducting and located in false ceilings and roof cavities. Non-return louvres are included to prevent back draught. Fans can be mounted vertically or horizontally and include a 20mm flange at each end. Motors are wound 220 volts, 1 phase, 50 Hz with enclosure to IP 44 and class B insulation. All motors are 1000 Joule controllable by the Radialax speed controller. Auto-changeover switches can be supplied. Motors are connected to separate terminal boxes located outside the casing.

Volume range
Single fan operation to 2000 CFM
Double fan operation to 4000 CFM
Pressure range
Up to 90 mm static water gauge.

Eurenco
JJ ventilation systems are based on individual and self-contained 'Inblo' Units and Roof Extract Units, thereby dispensing with the costly central plant room and long runs of metal ducting associated with conventional systems. This not only permits fast economical installation but also results in substantial reductions in power requirements since the self-contained units do not move air over long distances. In the event of break-down only the immediate area is affected. Cleaning and maintenance are relatively simple and future extensions for

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expanding premises are quickly and easily installed. Fresh air in warm weather, fuel-saving reclamation of waste heat from the roof space in cold weather, plus optional heat generation and air filtration are all included within the compass of each of the JJ ‘‘Ibibo’’ Units. In conjunction with JJ Roof Extract Units they enable the requirements for a comfortable working environment in almost any industrial situation to be met quickly, efficiently and economically. The required number of units having been established by site survey, they can be positioned to serve the needs in various parts of an overall area. thus, the JJ development of modular construction enables purpose-designed units to be assembled in minimum time from accurately mating sections, each of which fulfils a particular function in a wide strata of both commercial and institutional buildings. Further information from Eurenco Sales Ltd.

Lennox Industries

Lennox Industries Ltd., Basingstoke, the international A C & Ventilating equipment manufacturer together with their Irish Distributor, C & F Ltd., of Mill Lane, Palmerstown, report tremendous reaction to the new Direct Single Zone Outdoor unit. This DSSI heat pump single zone unit incorporates a full heat/vent cool system (including an outdoor unit) of superbly engineered, integrated components housed in a weatherproof, low silhouette single package. The Lennox DSSI heat pump is ideally suited for installation in a wide strata of both commercial and institutional buildings.

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