H & V News
IRELAND'S BUILDING SERVICES MAGAZINE

H & V News

MARCH 1982

REGIONAL REVIEW:

ULSTER

DL's Energy Report • Pumps & Calculators • Pipework and Drainage • IDHE News • CIBS

Published by ARROW@DIT, 1982
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IRISH INSTANTOR® – Full range of over 300 Couplings for connecting copper and polythene tubes. Made in Ireland since 1934. Solid, reliable and backed by first class service. New bright and shining finish, easy to identify as the market leader. The Irish Instantor® range complies with the Irish Standard Specification for Compression fittings issued by the Institute for Industrial Research & Standards I.S. 239: 1980. We are the Top Brass. Irish Instantor® – Meigiri na hÉireann.
Next month we celebrate 21 years of publishing Ireland’s Building Services Magazine H&V News. We plan to make it an extra special issue with a stiff cover and what we hope will be an issue that will be worth keeping as a memento of 21 years in the service industry. We will look back over the major events of the period and we will be carrying comment from leading figures in the industry. Also included will be a look at the next 21 years and the energy prospects for Ireland. We will also include by popular demand, a number of articles that have appeared in past issues, e.g., the series entitled “Finance and the Sub Contractor” to mention one and we also hope to have current lists of members of the various professional bodies in the industry.

On a more lighter note we will also have a quiz with a prize for the nearest correct entry.

**Ulster Regional Review Extra**

The issue will also contain the normal issue for the month and will have a special feature on refrigeration, and due to the great response from Northern Ireland on the Ulster Regional Review this feature will be carried over into our special 21st issue.

**Hevac 82**

H&V News have again organised a special trip to the Hevac 82 exhibition in Birmingham. The show will run from the 24th to the 28th of May inclusive and these are the special rates negotiated by us:

- **Scheme 1**
  - **Holiday Inn Hotel**
  - Two nights bed and breakfast for either the 24/25th May or the 26/27th May.
  - Price to include air fare and B/B at hotel: £179.00
  - Single room supplement: £40.00 extra

- **Scheme 2**
  - **Grand Hotel**
  - Two nights bed and breakfast for either 25/26th May or 27/28th May.
  - Price to include air fare and B/B at hotel: £169.00
  - Single room supplement: £36.00

To book or for further information contact Victor Gibson of H&V News at (01) 885001, 5/7 Main St., Blackrock, Co. Dublin, or Bernard Healy or Pauline Thompson of Abbey Travel Tel: (01) 724188

**Energy Conscious Control Systems**

The series of articles on Energy Conscious Control Systems by Gordon Brickenden has proved to be one of the best ever published in H&V News and we would like to hear any comment from you the readers on any part of the series especially the last part which appears in this issue.

As a final word, congratulations must go to Michael Vaughan of Michael Vaughan Trading Ltd. who has announced details of the first Irish-made gas cooker made by his company in Trim Co. Meath.

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Dublin Tops in Gas Bills

Dublin gas consumers have to pay more for their fuel than anyone else in Europe or North America, more than anyone else in the EEC for heavy fuel oil, and more for electricity than anyone else outside Brussels and New York.

The startling comparison figures are contained in a lengthy and detailed survey published recently in the Financial Times.

All electricity and gas prices were converted to sterling and showed just how much more we paid last year compared with figures are contained in a survey by the Financial Times. It compared with how much more we paid in the last six months of last year than anyone else in Europe and the Netherlands.

The heavy fuel oil price in December was 218.99 followed by 213.59 and the Netherlands 204.85.

Gas prices are given in pence per therm. The Dublin price was 105.13 for the last six months of 1981.

This compared with 30.40p for London and Birmingham. The next highest price after Dublin was 42.2 followed by Paris at 39.36.

Electricity comparisons are given in pence per kilowatt hour. Consumption is also compared for small, medium and large commercial users. The Dublin figure for a small user in the last six months of last year was 6.29 — the highest in Europe after Brussels. New York was the highest price in the comparison at 9.82p.

The medium scale for Dublin was 4.32p a k.w.h., the second most expensive in Europe after Eindhoven. The London figure is 3.46p.

A large commercial user in Dublin paid 4.24p per k.w.h. in the last six months of 1981. Again, only Eindhoven consumers paid more (4.49p).

Teach-In at Walkers

Walker Air Conditioning Ltd. recently held an in-house training course for service engineers on the subject of Heat Pumps. The course lecturer was John Warren of Carrier Air Conditioning Corporation.

At the end of the course a three hour written examination was given and all who sat the examination passed which is a record for not only Ireland but for the UK also. Certificates will be issued to all who participated.

Hevac '82

Industrial & Trade Fairs is making particular efforts to attract domestic heating trade visitors to the 1982 Hevac exhibition which will be twinned with the European Expoclima exhibition and will be known as Expoclima Hevac '82. The exhibition will be held at the National Exhibition Centre, Birmingham, from 24 to 28 May and the domestic heating exhibits will be in hall 1.

Holiday Prize

An intensive direct-mail campaign in the UK is being mounted, aimed particularly at installers and builders, merchants, with the theme "The sweet smell of success — follow your nose to Hevac". It is hoped merchants will organise group visits to the show for their customers and as an incentive admission will be free to any groups which have notified ITF in advance of their intention to attend.

Admission will also be free to individuals who attend the show on Mon. 24 May or Fri. 28 May. As a visitor incentive a holiday for two worth £2,000 will be offered on a special free computer prize draw, with an additional holiday prize worth another £2,000 offered to group-visitor organisations who notify ITF in advance.

"Budget Planner"

At present some 16,000m² of the overall 22,500m² stand space has been sold, representing some 350 exhibitors with 87 from overseas including national groups from Belgium, Finland, Denmark and the USA. Space is therefore still available for companies wanting to participate, and to assist the smaller companies fully equipped package stands are available while for the medium-sized companies ITF has introduced a "budget planner" stand scheme for exhibitors wishing to have the minimum.

Details on Irish trip on contents page.
The new Crown Pipe Insulation has an outstanding advantage that only Fibreglass can provide. It has Z-lock: an interlocking, heat-conserving seal along the opening edge of thicker walls.

That's one reason why we believe it's superior to any other pipe insulation; but it's not the only reason.

Crown Pipe Insulation is a brand new product produced on brand new computer-controlled production lines. So we've been able to give it ALL the advantages.

Snap-on application. Smooth interior and exterior surfaces. A dense, closely-interwoven structure that's hard to tear or compress — but easy to cut and shape. Alternative wall thicknesses that make it easy to attain an economical thickness of pipe insulation. A choice of sizes that could make your 'special' a standard.

We've given Crown Pipe Insulation either traditional canvas or multi-purpose never-rot, never-age Class 'O' facing.

Even the cartons are the right size, shape and weight to encourage safety on site.

Hence the claim that Fibreglass Crown Pipe Insulation has ALL the advantages. Which, of course, you can easily prove for yourself by sending for the new Crown Pipe Insulation brochure.

Fibreglass Limited, 21 Merrion Square North, Dublin 2. Telephone: Dublin 767060 and 762395. A subsidiary of Pilkington Brothers P.L.C.
John Usher on the Move

John Usher Ltd., agents for Twyfords Bathrooms have moved to 34 Island St., Ushers Island, Dublin 8. Their new telephone numbers are 779510/770175. According to John Usher, Managing Director, John Usher Ltd: “The move to much larger premises in a central location will provide a better service to the trade and the larger floor space will allow greater stocks to be carried”. Stock is being carried for a complete range of bathrooms, bathroom accessories and Aztec gold and chrome plated taps.

Coolair to Distribute Vapac

Vapac, the manufacturers of a comprehensive range of humidification products, have announced the appointment of Coolair Limited of Tallaght as its distributors in Ireland. The appointment coincides with the introduction to the Irish market in March of the Vapac Mark III range of humidifiers. A major feature of the new range is its energy-saving characteristics. Commented Coolair Director, John Lawlor: “We are very pleased to add Vapac to our total range — it allows us to offer a complete service and certainly compliments our other leading makes of equipment”.

Correction

In the January issue of H&V News we incorrectly listed the distributor of MAICO fans in our filters, fans and air heaters feature the correct listing should be Ventac Ltd., Grand Canal Quay, Dublin 2, (Tel: 713499 Telex: 25307).

Dow at IEMA Meeting

Insulation expert Ian Elliott of Dow Chemical is to present a paper on the role of building insulation to a group of Irish energy managers in March. He will be addressing the Energy Management Association Meeting of the Institute for Industrial Research and Standards at the Carlow Lodge Hotel, Carlow, on 25 March.

Other papers at the one-day seminar will cover heating and the installation of insulation in existing buildings. Mr. Elliott will discuss the reasons for insulating buildings, what energy managers should expect from insulation, the importance of moisture resistance in insulation materials, and how and where insulation should be applied. Dow Chemical is a leading name in performance insulants. It manufactures Styrofoam and Roofmate extruded polystyrene foam insulation boards.

Enquip '82

- Picture shows (l-r) Mr. Pat Moriarty, Marketing Manager, Golden Vale Engineering Ltd., Charleville, Co. Cork, Mr. Barry Desmond, Minister of State at the Department of Finance, Mr. Brendan Moreland, President of the Engineering Industries Association and Mr. James Moen, President of the Royal Dublin Society looking at equipment on the Golden Vale Engineering Stand at the Enquip '82 in the RDS, Dublin, recently.
Ring Matthews
re: Ideal Standard Solid Fuel Boilers and Mechanical Stokers

P.J. Matthews & Co. Ltd.
the plumbing and heating people

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Matthews Corner, Swords Road, Santry, Dublin 9.
Phone (01) 373606

Johnstown, Ballytruckle, Waterford. Phone (051) 72171/4
Tipperary Road, Ballysimon, Limerick. Phone (061) 43402
ELECTRIC HEATING ADDS UP TO BETTER BUSINESS

When all the pluses are taken into account, there's a strong case to show that electric heating makes good economic sense. Just consider:

- **Low Capital Cost** — extra important when money is scarce.
- **Simple Installation** — minimum disruption to your business.
- **Economical** — takes full advantage of the cheaper non-peak rates of charge.
- **Space Saving** — no flues, boiler house or fuel storage.
- **Clean, Controllable** — makes for a better working environment. Control is automatic.
- **Secure** — electricity is generated from a variety of sources. So you are less susceptible to particular fuel shortages.

### INVESTMENT IN FUTURE SECURITY

Electricity dependence on expensive imported fuel oil is falling rapidly. It is at present less than 50% and by the end of this decade may be as low as 20%. Because of this fuel diversification — which includes a major coal-fired station at Moneypoint, coming on stream in 1985 — non-peak electricity rates will continue to be attractive. An investment in electric space heating is an investment in future security and economic operation.

If you are interested in an electric heating system the ESB will prepare a design to suit your particular needs. Indeed a suitable system can be devised for every type of commercial premises.

There is neither charge nor obligation in this design service which also covers lighting, water heating and air conditioning.

For further information contact your nearest ESB Office. There's a team of specialists just waiting to put you in the picture.
New Gas Technical Standards Committee

The Institute for Industrial Research and Standards has announced the establishment of a Gas Technical Standards Committee to advise on Irish standards and codes of practice relevant to the gas industry with particular reference to safety. The Committee has been established in response to the wishes of the Department of Industry and Energy.

Mr. Ewing Patterson, Director of IIRS Standards Division, has been appointed Chairman, and Mr. Stan W. Carroll, C.Eng., has been appointed Secretary to the new Committee. Mr. Carroll was formerly an engineer and surveyor with IIRS Ocean Services with responsibility for natural gas and the certification and inspection of offshore exploration and production platforms such as the Kinsale Head field.

Represented on the G.T.S.C. central committee are Bord Gais Eireann, Confederation of Irish Industry, Department of Industry and Energy, the major gas companies together with the Irish Gas Association and the Irish L.P.G. Association. The Irish Gas Association represents every gas company in the thirty two counties and will have representation on the G.T.S.C. central committee from both north and south. The G.T.S.C. will be supported in its activities by IIRS Standards Division whose primary responsibility is the development of consensus standards for various sectors of industry covering fire safety specifications, computer software and quality assurance. This Division also provides access to the latest standards for products including processes and performances.

Changes in Barlo Structure

Allied Irish Investment Bank Limited confirmed recently that a private placing of shares in Barlo Group Limited was arranged in November, 1981. As a result, Barlo is now 55% owned by 16 financial institutions, while the Barlo family's shareholding has reduced to 45%. Mr. Sean Barlow, chairman, and Mr. Aidan Barlow, managing director, each own 20%, and their sister, Mrs. Caroline Acheson, TD, owns 5% of the company.

Barlo is the holding company for Barlo Heating which is the Clonmel-based manufacturer of domestic central heating panel radiators. The company employs 186 people at its factory in Clonmel and at its distribution depots in Dublin, Horsham (Sussex) and Dunstable (Bedfordshire).

Reports suggest that exports account for 75% of sales and in the company's last financial year sales were in excess of 26 million.

Allied Combined Trust (ACT), which has a 20% share-holding in Barlo made its investment in March, 1973.

New Agency for Martin Derby

Sapragaz of Belgium have recently appointed Martin P. Derby & Associates as sole agents for their range of gas fired unit heaters ranging from 73,000 to 330,000 Btu/hr.

Roof + Wall '82 in Cologne

The next international trade fair for roof, wall and insulation technology, "Roof + Wall", takes place in Cologne from Thursday 17th to Sunday 20th June 1982. The trade fair is combined with the 83rd Federation Meeting of the German Roofing Contractors. Roof + Wall '82 is today, with so many exhibitors and visitors from abroad, the most important trade market in Europe for everything relating to roof, wall and insulation technology.

Cologne International Trade Fairs' representative in Ireland is Helmut Clissmann, 44 Dartmouth Square, Dublin 6, (Tel: 688566).

CIF Guide

The Construction Industry Federation has published a book to assist house builders and designers to meet the DoE's new regulations on thermal insulation. "Thermal Insulation for Housing" has been prepared by the Building Energy Department of the IIRS and sponsored by Concrete Products of Ireland Ltd. The cost is £5.50 including postage.

Published by ARROW@DIT, 1982
CIBS Coup

What must have taken many months of preparation for the committee of the Republic of Ireland Branch of the CIBS must seem to outsiders as the coup of the year with within the space of a week two of the most successful functions arranged by any professional body in the country. The first was a technical evening on the very topical subject of the National Concert Hall at which the views of the architect, the mechanical building services engineer and the lighting engineer were presented. The presentations discussed the various challenges which the project presented and a very lively discussion followed which took up the major part of the evening. An attendance of 60 was recorded.

The second event organised by the CIBS was undoubtedly the highlight of the year, some might even say the decade, and that was a live concert by Buddy Rich and his Orchestra in the National Concert Hall where the discussion of the previous technical meeting were put to the test. Demand for tickets proved far in excess of availability and in fact the original 40 seats booked were not enough but with some difficulty an additional two seats were made available and a total of 42 attended.

SALES REPRESENTATIVE

Due to the expansion of our heating business we require an additional sales representative to cover the Dublin/Leinster area.

Applicants will ideally be:
1. Between 25/35 years of age.
2. Experienced in the heating and allied trades.
3. Already calling on installers, heating engineers, specifiers and the merchant trade.
4. Have proven sales record.

TANEY DISTRIBUTORS LTD.
Unit 4, Riversdale Industrial Estate, Bluebell Ave., Dublin 12.

Gastech Ltd. — A New Irish Company

A new wholly Irish-owned company, Gastech Limited, which will manufacture components for the Cork/Dublin natural gas pipeline, was formally launched recently at a Reception in the Burlington Hotel, Dublin. Aimed at the potential market which the natural gas supply will generate for parts and service requirements, the Gastech project represents an estimated investment of £250,000.

An interesting feature of the venture to establish a home-based manufacturing facility to keep pace with the developments of the natural gas industry, was Gastech’s departure from the more usual course of seeking start-up assistance from the I.D.A. Instead funding was from re-investment of its sister company, Martin P. Derby & Associates which has operated for a number of years in the LPG sector.

Initial production will be of pre-designed modules of gas pressure control products for industrial, commercial and domestic consumers. Later expansion will include the manufacture of service isolation ball valves suitable for P.E. work, domestic pressure controls and safety shut-off valves.

Speaking at the Reception, Mr. Martin P. Derby, managing director, said that the company had been established to provide an indigenous technological support base for the Irish gas industry, which up to now was lacking.

The recently constructed factory premises at Newtown Industrial Estate, Coolock, Dublin will employ 25 persons when machinery is installed.

The principals of Gastech Ltd. are Mr. Martin P. Derby, managing director and Mr. Peter Brown, engineering manager.
Dear Reader,

We are pleased to announce the introduction of a new publication for the Plumbing and Heating trades, "The Irish Plumber and Heating Contractor." This will be the only journal in Ireland catering for these two important and extensive trades.

The decision to publish such a magazine as this has been taken following repeated requests from interested parties engaged in the industries concerned that a publication catering for their needs was definitely required. With this knowledge, we set about the planning and research necessary for the success of such a venture and we are now pleased to present our first issue.

It will be our constant aim to produce consistently a magazine of the greatest interest, value and quality to our readers. By so doing we are confident that we will succeed in maintaining the largest possible active readership.

On this count we are at all times very pleased to hear from our readers by way of advice and constructive criticism.

This morning, then, we sincerely hope that "The Irish Plumber and Heating Contractor," as it comes to you and your colleagues throughout Ireland, will be warmly received.

Yours very truly,

IRISH TRADE & TECHNICAL PUBLICATIONS

G. James Murphy,
Publisher

This announcement was contained in the first issue of the then 'Irish Plumber and Heating Contractor' — the forerunner to 'Irish Heating and Ventilating News'. Twenty one years later, H&V News continues to serve the plumbing and heating trades, and in celebration we are producing next month an extra special issue with a stiff cover and what we hope will be an issue that will be worth keeping as a memento of 21 years in the services industry.

To have your advertisement included contact Victor Gibson
Irish Trade & Technical Publications Ltd.
5/7 Main Street, Blackrock, Co. Dublin. Phone: 885001
Irish Agents for Twyfords Bathrooms. Colours available ex stock are White, Pampas, Avocado, Sepia, Mink, Cameo Pink, Sandalwood, Alpine Blue, Damask and the new Almond Shade. Also the Harlequinn Two Tone Shades in Sandalwood, Avocado and Pampas. Full range of matching accessories available including Mirrors, Soap Holder, Toilet Roll Holder, Tooth-Brush Holder, Shelf, Towel Rail, Towel Ring and Toilet Brush Holder.

John Usher Limited
34 Island Street, Usher’s Island, Dublin 8. Telephone 779510, 770175

Froling –
a hot little number that will burn just about anything.

The slim, elegant Froling is ideal as a domestic, commercial or consumer central heating boiler.

The Froling has a relatively small appetite and will consume just about any combustible material, including refuse... and give off big heat and big advantages.

A single-chamber down burning system which contributes to greater heat efficiency.

Top loading for safety and convenience.

A design that’s kind to the environment.

A burner that gets rid of waste and refuse, while giving off big heat. Ideal for Industrial and Commercial use.

Don’t just take our word for it. Call into Thermo House and see for yourself.
12/13 Berkeley Street, Dublin 7. Tel: 309588/309841

Froling – the neat little boiler with big advantages.
**Tomlinson Appoint Blackenberg**

Bill Black has announced the appointment of his company, Blackenberg Limited by R. Tomlinson Group of Leeds as sole agent in Ireland for their range of steam boilers, hot water boilers and waste fired boilers as well as the Tomlinson Groups range of tanks and chimneys, which include a service of design manufacture and erection. At a two-day reception recently held at Blackenberg’s premises at Baldoyle, on display were a Gemini 600 lbs per hr. steam boiler which was sold at the reception to a W. Ennis of Mountmellick, an Omega 1.4m Btu high pressure hot water boiler, a Taurus 1500 lbs per hr. steam boiler, which was sold by Blackenberg to C. J. Deacy of Renmore, Galway, and a Taurus 3,500 lbs per hr. class 1 steam boiler. There was tremendous interest by people attending the reception in the working demonstration of the Tomlinson Group’s revolutionary rubber burning boiler, sold under the name of ‘Baytherm Multi-Converters’, this range of boilers, rated at 200, 300 and 500,000 Btu/h giving an output of either hot air or water was demonstrated burning peat, saw dust, shavings, wet wood, coal, as well as a large quantity of general kitchen refuse from the reception. A unique feature of these boilers is that they burn virtually all combustable material without smoke. This is achieved by a specially developed blast tube which runs through the base of the fire inducing extremely hot air into the smoke outlet, thus burning all the smoke. These units can also be supplied with water grit arresters and spark arresters to ensure that no light or friable material being burnt can be ejected in the form of carbon particles from the chimney.

There is considerable success in the United Kingdom in the sale of these units to the supermarket trade where compressed waste cardboard is being used as a fuel, cardboard having an extremely high calorific value.

**Turbo Boiler at Caennt Barracks**

Thos. W. Ward Ltd., through their distributors in Ireland; Combex Eng. Ltd., were recently awarded the contract for a completely packaged hot water boiler suitable for use with turf brickeens at the new boiler for Caennt Barrack’s, Curragh Command, Co. Kildare.

The exacting and detailed specification prepared by the consulting engineers; J. A. Kenny & Partners resulted in the Byworth being chosen from considerable competition. The Byworth boiler was originally designed to run on coal, has required no modifications to make it suitable for burning turf brickeens; its advanced design being flexible enough to accommodate the fuels combustion characteristics. The Byworth boiler produces steam of hot water at high efficiencies and is a compact unit with many built-in operational benefits, some of which are automatic features. These include a burner with hydraulic drive; semi automatic ignition; silicon chip circuitry to monitor water levels and burner programming. The competitively priced range of Byworth Boilers are manufactured to BS 2790 (steam) or BS 855 (hot water) and cover a standard range of evaporates from 3500 lbs/hr F & A 100 C (212 F).

Above is a cut-away diagram of the Byworth Boiler designed to burn coal but capable of successfully using peat as an alternative fuel. The boiler is a three pass wet back design and is delivered as a complete package with boiler, patented ram type stoker, control cabinet, grit arrester, induced draught fan, feed pump for steam applications all mounted onto a solid steel base frame. Combex Engineering Limited are based at 3 East Road, East Wall, Dublin 3, (Tel: 748371/2).

* A cut-away diagram of the Byworth boiler — designed to burn coal, but capable of successfully using peat as an alternative fuel.

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**APPOINTMENTS**

- Marley Flooring & Plumbing Limited, a company within the CPI Group, have announced the appointment of Dudley Foster (above) to the Board of Directors. Dudley joined the company as sales representative for the Western region in 1972 and in 1975 was appointed Sales Manager of the Plumbing Division.

- Philip Barker, newly appointed Products Salesman to Hall Thermotank Ireland Limited.
A most successful Charter­
ed Institution of Building
Services Lighting Evening
was held on Thursday, 28
January at the Engineers
Club, Clyde Road, Dublin.
A record attendance of
120
comprising electrical con­
sultants, architects, the
lighting industry, the me­
chanical profession, electrical
contractors and third level
students enjoyed two pre­
sentations on lighting
aspects of topical interests.
A keynote paper on “De­
velopments in Lighting
Control
Systems” was read
by Tom Geary, Technical
Sales Manager, Electro­
sonic, London; David
Harries, CIBS Registrar,
delivered a paper on
“Lighting
Education
New
Courses”.

The meeting was chaired
by Bill Shires, Chairman of
the Lighting Division
Council, London.

Lighting Control Sys­
tems: Mr Geary explained
how recent advancements in
lighting technology have
made more economic run­
nings costs possible for light­
ing installations. He quoted
savings of 30%-40% ac­
hieved in experimental British
installations employing
some of the control systems
developed in his paper. He
also stressed that another
important aspect of cont­
rolling lighting was the
facility afforded in the
creation of mood and at­
mosphere, particularly in
hotels and other decorative
lighting applications. He
considered that the function
of a lighting control system
was simply to avoid wasting
energy, which in real terms
amounted to financial
saving.

With the aid of demon­
stration equipment and
slides he dealt with the main
control systems now
marketed, ie dimming,
photocell, programmed,
infrared, ultrasonic and
mains signalling.

Lighting Education: Opening the second pre­
sentation of the evening, the
Registrar of CIBS David
Harries said there had been
a dramatic drop in the
demand for specialist light­
ing courses. The Institution
had launched the Testamur
in Lighting Engineering as a
specialist qualification, but
there had been a dis­
appointing response.

Enquiries throughout the
profession revealed that
there was a need for quali­
fying courses in Building
Electrical Services, such
courses to include a signifi­
cant lighting content. The
position in Ireland ap­
peared to be no different to that
in Great Britain.

The Registrar said that he
had been encouraged by the
discussions he was having
with the College of Tech­
nology Kevin Street. While
there were a number of
problems to be resolved, it
was possible that suitable
courses could be offered at
Kevin Street in the not too
distance future. Such
courses would probably be
offered jointly with the
College of Technology,
Bolton Street, which
already offer NCEA
Certificates and Diploma
Courses in Building Ser­
vices Engineering. The
evening was sponsored by
ACEC.

* Bill Shires, Lighting Division Council Chairman, introducing David
Harries who read a paper entitled “Lighting Education — New Courses”.

Michael Moloney, CIBS with Tom Geary, Electrosonic; Eamonn
O’Brien, Chairman, CIBS (Ire); Bill Shires, Chairman, Lighting Council,
London; and David Harries, Registrar, CIBS, London.

Section of the large attendance at the CIBS Lighting Section evening
sponsored by ACEC.
As part of the ongoing programme of improvements in service to the members the committee has appointed a new permanent assistant secretary. The idea is that there will be someone available every day during business hours to answer calls from not only the members but from the trade and the general public. Most of the general secretarial services will also be handled at the new address and all future enquiries should be directed through the new address.

The new assistant secretary is Mrs. Katrina McTernan, 18 Arranleigh Vale, Rathfarnham, Dublin 16, Tel: 945257.

Two well-known people in the trade died not so long ago. One was Harry Hardy, self-employed service contractor, and the other Tony Armstrong, former service manager, Hevac Ltd.

Harry Hardy, who died after a short illness was a man of many talents especially in the music business where he excelled in "drumming". He would never let a client down and always did his best to get their "heating going". He was always obliged to fellow contractors when they were stuck with a problem. Harry, you are deeply missed. We extend to his wife and family our belated sympathy and sorrow on his departure from us. R.I.P.

Tony Armstrong was formerly service manager with Hevac Ltd. for a number of years where he met many friends and was always ready to help contractors on burner problems. We express to his wife and family our sympathy and sorrow on their recent loss. R.I.P.

A works visit to the Veha factory by the IDHE, took place on Wednesday 24th February.

A very enjoyable day was had by those who came along on the trip to Wicklow. On arrival, Veha's Michael O'Connor introduced managing director Joe Van Dee Flier to IDHE Chairman Victor Madigan, and without delay the party was divided into groups of five and showed around the factory.

A very impressive showing through the various aspects of production from the rolled metal sheeting stage to the completed packaged radiator, was displayed by the minimum man handling of the metal to the robust and yet sophisticated precision machinery on the Veha production line.

Last year saw Veha's 25th Anniversary in the business and having seen the way they operate the factory today, every indication is apparent that they will be there for another 25 years, and more.

The final round of Veha's invitation was extended to the Cullenmore Hotel nearby for a beautifully served lunch served with wine, and a special word of thanks goes to Joe Van Der Flier and all his staff for a really enlightening and surprised introduction to their factory and of course for the courtesy and personal treatment shown to all those who attended.

IDHE Chairman Victor Madigan also deserves a word of thanks for his usual enthusiasm and support in attending and in organising with Veha at a time when he was "out sick" (he still managed to go along). On behalf of the IDHE he thanked Veha for the day's outing and expressed the fact that Veha have already become a force in home and especially in export markets keeping the craftsmen and skill of Ireland's workforce in Wicklow at the top in engineering products and industry.

No. 1 In Coal Engineering
Announce the Formation of Their Gas Division

KROMSCHRODER
- gas filters, governors, safety shut-off valves, pressure relief, solenoid valves, transformers, gas metering etc.

OERTLI
- oil and gas burners.

BONGIOANNI
- cast iron sectional gas fired boilers up to 3,200,000 BTU/Hr.

D. BALDWIN & SONS
- wide range of gas fired Byworth boilers.

Standard sizes are available from 500 to 15,000 lbs/hr.

IMAC SYSTEM
- gas measurement and control systems, including the range of Elster Quantometers.

ORSEAL VALVES
- ball valves with Watson House approval.

OLDHAM FRANCE
- wide range of gas detection and explosimeters.

Exclusive Irish Agents,
In my last article, the lack of any energy policy was queried. In spite of the formation of the Department of Energy on the accession of Mr. Haughey to Taoiseach, and the holding of this Ministerial post by such political heavyweights as George Colley and Michael O'Leary, nothing has happened. We still have a monopoly in electricity, which in turn has meant the dearest priced electricity in the EEC. We still have a closely controlled coal industry with a myriad number of inter-related companies. We still have a multi-national dominated oil industry where an investigation into both pricing policies and distribution arrangements are urgently called for. We have an L.P.G. industry that is dominated by companies whose control is outside this country. We have a Town Gas industry that died many years ago and is in urgent need of artificial respiration, yet energy is vital, not only in our everyday problem of living but also to our industrial structure. We need, as a country, more jobs for our young people, but this means we must be more competitive. Should however, we have high energy costs, competitiveness cannot be achieved. Therefore the urgency for an energy plan covering the next years. I do not accept that it cannot be done because we have in the Department of Energy a very able team of Civil Servants in Kevin O'Leary, Sean Murray and Eoin O'Neill. What is lacking is political will. Should then, our politicos not really understand the problem, I propose to examine, in the coming months, each of the energy segments and to point out the structure, problems and costing of each.

This month we will focus our attention on the Town Gas Industry, particularly that of the Alliance & Dublin Consumers Company, as this company mirrors the entire industry. That this industry, once so dominant, died was due to a combination of factors. In the beginning of the century Ireland had a number of Town Gas companies, and they enjoyed some commercial success. However, the formation of the E.S.B. meant that they now faced a formidable competitor. The development of an industrial base in Ireland, where employment in industry went from 60,000 in 1926 to 160,000 in 1958 is the history of development of electricity itself. That Town Gas did not participate in this development was due to its inability to compete on a national basis. The E.S.B. meanwhile developed a nationwide distribution system. The Town Gas industry survived only in major urban areas. However, they tended to be low technology and labour intensive. Their basic raw material was coal, a fuel which is dirty and cumbersome. The advent of rapidly developing wage costs in the sixties placed labour intensive industries under pressure, and the Town Gas Industry was no exception.

About this time the L.P.G. industry was beginning to give the Town Gas industry a run for its money. This was particularly noticeable in Dublin, where the Alliance & Dublin Consumers Gas Company (Gas Company) who had dominated the gas industry, found itself under pressure from L.P.G. companies like Kosangas and Calor Gas. The most aggressive was Kosangas, a company founded by McMullan Bros., previously an oil distributor. This company in turn was purchased by an American called Mr. Bishop, together with the late Mr. Seamus Timmons, who proceeded to attack the Gas Company's market. They were very successful, so successful that the major international company in the L.P.G. industry, Calor Ltd., proceeded to buy out Kosangas. This presented the Gas Company with a powerful combination. They, in turn, through their legendary General Manager, Mr. N. J. Robertson, planned to opt out of the coal retort method of gas production, and so be less dependent on labour intensive methods. The plan was to produce gas from an oil-based product - naphta. At the time the plan seemed an excellent one. The plant size required was tiny in relation to that of the retorts. The number of people needed was negligible in relation to those previously required. The degree of automation was far in advance of previous production methods. The man who masterminded this plan was the then Chief Engineer, Mr. L. Allen, who in conjunction with I.C.I. got the project from the planning stage to the operational one. During this time the then General Manager of the new Calor Kosangas Company, Seamus Timmons, left to form his own company Ergas. This new company had a number of important Irish shareholders, including Mr. P. McGrath of Irish Glass Bottle and Waterford Glass fame. Shortly after the Ergas formation, the Gas Company lost one of the most important customers - the Irish Glass Bottle Company. From then on, the Gas Company had four aggressive energy companies - the new Calor Kosangas, Ergas, all the oil companies and the E.S.B.

The industrial base of the Gas Company started to be eroded in the late sixties and early seventies. They lost their big customers, Smurfits in Clonskeagh and Jacobs, who were then based in Bishop Street. Due to their financial constraints they were unable to move with the development of industrial estates on the outskirts of the City.

The 1973 oil crisis was calamitous for the Gas Company. Naphta prices went through the roof. The Gas Company claimed it had a fixed price contract with its oil supplier. Not so, said the supplier. They went to court and the Gas Company lost. From here on, things went from bad to worse for the Gas Company. Its raw material was now very expensive, so its product price was expensive. Its industrial base was under pressure, and its domestic business was disappearing down the tube. The domestic business consisted of gas cookers and water heater users, and also central heating users. This latter group had the advantage of lower priced gas by way of a two-part tariff system, in essence, a basic charge plus a new low rate. However, the naphta problem caused serious pricing problems and the Gas Company lost out firstly to oil fired central heating and then to solid fuel.
Interconnected Solid Fuel/Automatic Installations: Room for Improvement and Control

The first two articles in this series discussed “Efficient Control of Central Heating Boilers” and a new approach to “Energy Conscious Control Systems for Domestic Central Heating” which was mostly about fuel-saving related to comfort-efficiency. This article identifies some of the pitfalls which best heating contractors and their customers.

EDITORS NOTE: As this series of articles has proved very successful we invite comment in the form of letters or telephone calls to the editor on the subjects discussed especially those mentioned in this the last article of the series.

The lack of enforceable guidelines or standards in Ireland can be seen almost as a monument to our traditional naivety in matters of this kind. Several brave attempts at Heating Standards have been foiled by lack of publicity, support and conflicting interests.

The absence of statutory performance tests for imported or home manufactured appliances and equipment gives merchants and others carte blanche to foist all manner of inefficient and even potentially dangerous equipment on gullible householders and their unenlightened handymen. This is aggravated by inadequate or misleading installation instructions often in an unknown language.

Anyone in Ireland can be a plumber or a heating contractor overnight. In some countries there is a requirement for proficiency tests, qualifications and certification before one may legally practice as a contractor or serviceman. Enthusiastic ignorance of all the laws of thermo-dynamics, fluid-dynamics and electricity seems to have been one passport to a long and profitable career in heating and related services. Many of the victims seem to resign without uttering a sound. Not surprisingly, reputable and qualified contractors have been hard set to remain in business without dropping their standards to meet the competition existing in this free-for-all market place.

The advent of automatic smallbore domestic heating and commercial packaged systems — oil-fired or gas-fired — did away with much of the apparent need for a proper apprenticeship or training. Since the swing to solid fuel resulting from the last fuel/energy crisis the era of decadent and unthinking wastefulness has now passed, probably for good. That customers are to blame by always demanding the cheapest installation is not a valid argument: the real offenders are the institutes, organisations and authorities who should know — and in many cases do know — what goes on but are content to do or say nothing publicly and remain virtually anonymous to the community.

Careful Planning

Interconnected systems whether domestic or commercial require much higher levels of design and installation skills than is generally realised. Careful planning of the layout and informed selection of appliances/components and effective controls are all essential ingredients. Very often a solid fuel boiler is being added to what may have been a very bad oil-fired system in the first place: the competent contractor will be aware of this hazard and ensure that his approach takes this into account. What started out as a partly-automatic but inefficient system might otherwise easily end up as a very manual system needing complicated valve twiddling along with the usually unexpected chore of regular stoking and cleaning. Even then lack of competent supervision could further result in a potentially dangerous or structurally damaging installation. On the other hand the knowledgeable contractor will be able to make useful improvements to an existing system while installing an efficient new interconnected appliance. The well-planned job will save fuel costs for the owner and provide enhanced comfort whereas the casual job may well cost more to run whilst creating discomfort and consequent disillusionment.

There is no technical reason why an interconnected system should not include most of the twelve performance requirements listed in the previous article of this series under “Ideal Control System”. The key requirement is now probably No. 4 which calls for “Use to be logical, easily understood, requiring minimum household intervention or vigilance”. This applies even more forcefully to a commercial or institutional system. To be practical, the oil or gas-fired system (or the Heat Store) has to take-over automatically whenever stoking fails — which is likely to be twice per day or more often at weekends. Cost-effective automatic stoking of smaller solid fuel boilers is still a long way off: incredibly, even gravity feed anthracite appliances/boilers now cost more to run per unit of heat output than oil-fired boilers. So the question of efficient control becomes more important as prices of solid fuel increase relative to oil or gas.

Many recent woodburning installations have been unsuccessful in one or many ways, which have more than offset the hoped-for fuel savings. This was usually due to lack of awareness/planning, unsuitable fuel supply/handling, non-controllability and the unexpected extra amount of labour needed in contrast with the luxury of automatic inefficient oil-fired heating. Many people who bought woodburning boilers on the salesman’s promise that ‘changing
over to solid fuel or a dual purpose system is simply a matter of replacing the existing boiler,” rapidly found out too late that this simply is not true. Most of the woodburning boilers had very low combustion efficiencies and some caused dangerous chimney conditions. Anyone who “simply replaced” the existing boiler was taking a serious risk. IIRS have expressed concern about the inherent danger of explosion with some types of dual fuel or combination boilers: this risk occurs because of the possibility of one section of the boiler igniting a volume of combustible gas in the other section where the two boilers are joined by a common flue.

Handfiring of woodburning boilers preferably requires suitable timber in regular lengths/thicknesses stacked under shelter and air-dried for 1½ years in Irish conditions, somewhat less in drier climates. Automatic stokers for woodchip or woodwaste are at present very expensive. Wood-waste and woodchips also need to be fairly dry otherwise the relatively low calorific value of the wood is consumed in evaporating the moisture content instead of providing useful heat output. Worse still, when the fuel is damp, a further proportion is converted into smoke and creosote.

Heat Stores (highly insulated hot water stores) are a virtual necessity with larger woodburning systems. To be fuel efficient the boiler output has to match the heating load: this is clearly impossible to achieve efficiently without a “buffer”, where space temperature and time control is used. The heat store, if properly designed/applied can be an effective buffer. Take for example a joinery shop or a hardware store on a crisp Monday morning: heat stores since Friday evening provide the initial heating load, which is gradually absorbed throughout the day. When a safe improved method becomes available then anything less becomes “deficient”: why settle for less?

A recent report by An Foras Forbartha highlighted the low combustion efficiency of open fires at 20-25%. In this writer’s opinion many backboilers are not much better unless operated with laboratory precision. The recent multi solid fuel stove design competition won by an Irish unit with a tested average efficiency of almost 70%, supports the view that anything less could now be considered deficient in the context of fuel-efficiency. The same report suggested a testing/approval scheme for all domestic combustion appliances: this would obviously include cookers with boilers and is long overdue.

It is impossible to eliminate the risk of boiling in solid fuel systems, consequently it is logical to design so that, in the event of boiling, this can happen safely by the following provisions:-

Galvanised expansion tank with copper ballcock float arranged near the tank bottom.

1” copper overflow/alarm pipe carefully graded to discharge at safe eaves position.

Copper cold feed and expansion pipe at least ½”, carefully graded throughout to a Tee at the boiler return tapping.

Copper vent pipe at least 1” rising from the boiler flow tapping and graded carefully throughout to the top of the expansion tank.

Steam-tight galvanised lid firmly attached/sealed.

Because of improved attic insulation, traditional standards of tank and pipe insulation in the attic are inadequate to guard against freezing and condensation. In order to prevent condensation on the tanks, an impermeable insulant has to be stuck on, leaving the area underneath uninsulated as before. The pipework should be arranged neatly and close to the tanks then graded over the joists and insulated with pipe sections. Then a final layer of 100mm attic insulation can be neatly draped over the tanks and pipework thus permitting enough heat from the house to prevent freezing.

When suggesting these improvements it is assumed of course that all other aspects comply with the “Guide to the Safe installation of solid fuel central heating” as issued by IIRS.

**Deficiencies/Defects in Domestic Interlink & SF Systems**

Cases of convertible oil-fired/solid fuel boilers installed in outhouses and using underground heating mains but without any safety provisions are known to exist. Installations like this can look suitable for solid fuel firing. There is nothing to prevent house-holders who have not been warned from attempting solid fuel firing, with possibly dangerous consequencen.

There are a great number of unsatisfactory installations about. Very few indeed would comply with the recommendations in the IIRS Guide and it is surprising that there are so few serious accidents. Many of the substandard systems are in new estates.

Even a good interlink installation can suffer from all sorts of obscure ailments and teething problems — very often compounded by careless or blatantly incompetent customer relations. If another engineer or a consultant is called in for advice at this stage he will be obliged to seek out all defects and deficiencies. He will almost certainly also discover weaknesses in the existing system which should have been rectified by the present contractor or at least brought to the attention of the customer.

The “Sale of Goods and Supply of Services Act, 1980” has greatly increased the vulnerability of the genuine or established heating and plumbing contractor. His work is already much more complex in every sense than that of other trades. The acts tend to penalise the reputable contractor more than the part-timer. It covers not only the supply of goods but also services: it could therefore be interpreted to include designs and also implied performance. The part-timer escapes because he supplies only labour.

J. G. Brickenden  
*Energy Conservation Services Ltd.*  
*HVN, March 1982*
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Business continues to go through tough times for the manufacturers of pipework and drainage equipment with no great improvement in the house building sector and with finances still being difficult to get for the house purchaser. To meet the obvious need for housing, local authorities still continue their house building programmes to a greater or lesser degree depending on finances available.

The only hope for growth has been in the area of water supply and sewage and also road and related projects, these are areas that have at least some public service money put into them over the last year and seem to have helped to keep the industry afloat in the large diameter end of the market.

It is very disappointing on the other hand to look at the poor record of successive governments in the area of water and sanitary for existing houses and although the recently announced grants will help in some small way it cannot get away from figures like 141,000 houses without internal sewerage facilities, 87,000 without internal water supply and 185,000 without a bathroom or fixed shower.

These figures were further highlighted by the shameful admission of Dublin Corporation that 8000 houses under their authority have no bathrooms and are not likely to have for the foreseeable future.

This situation is shameful and should be made priority by the incoming government if this country is to continue to call itself civilized.

The following information is based on details supplied by the companies concerned.

P F Doggett (Engineering)

P. F. Doggett (Engineering) Ltd. have commenced manufacture of the new Geith Gravel Tunnel machine designed to place porous filling in underground mole drains and so stabilise and support the underground mole — especially useful in unstable soil conditions where conventional Mole Drains might collapse.

Manufacture has also commenced of an improved Geith Mark IV stone spreading hydraulic power assisted drive trailer. Generally the specifications are the same as the standard Mark IV trailer except that this trailer is powered by an hydraulic power pack on Tractor PTO. Power available is such that the complete unit can operate in very wet conditions.

A leaflet describing the Geith Gravel Tunnel Plough and the general principal of gravel tunnel drainage is available from P. F. Doggett (Engineering) Ltd., Geith Works, Slane, Co. Meath (Tel: Drogheda 24143, Telex: 24552).

P J Matthews

Over the last few months Ireland has seen the arrival of a unique cast iron soil and waste system. Manufactured by the Pont-A-Mousson Company of France, Europe’s leading manufacturers of cast iron pressure pipes and soil pipes, this system has some truly remarkable features.

Unlike the traditional cast iron systems it comes with an epoxy resin coating inside and outside with 30 microns of Glycerophthalic paint to give much greater resistance to corrosion. This standard coating offers resistance to water at temperatures up to 95°C and also to cycles of hot and cold water ranging from 95°C to 20°C. So determined are the company, however, to eliminate the problem they are also marketing a system which has an enamel finish inside and outside, specially designed to fight the toughest acids and chemicals. This particular system has been used widely on hospital projects in Germany, France, and Italy as well as a number of Middle Eastern and Far Eastern countries.

The system is assembled by means of the famous Swift Link Coupling which is put together in seconds and will withstand pressures of up to 10 bars. It can also be assembled with the S.M.U. Collar. Among its many features is its range of adaptors, which enables most types of plastic piping to be connected directly to the main soil stack with considerable ease.
PRODUCT REVIEW: PIPEWORK & DRAINAGE

One would imagine that will all these features the system would be prohibitively expensive but comparisons show that it is up 33 1/3% less expensive than most other imported systems, a point which particularly interested P. J. Matthews & Co. Ltd., when accepting the distribution and agency rights for Ireland. P. J. Matthews included a display of the system during the official opening of their new Dublin Branch at Matthews Corner, Santry in November of last year.

Further details of the system are available from Mr. G. Tobin, P. J. Matthews, Matthews Corner, Swords Road, Santry, (Tel: 373606).

Marley Plumbing

Following the successful launch of their Irish design and manufactured Universal Gully Marley Plumbing have now perfected an Integral "O"-ring Socketed PVC sewer and soil pipe. By eliminating the need for a separate coupler the new Marley pipe is quicker and easier to install and therefore more economical in use. Lengths of the integral socketed Marley pipe are simply and permanently connected to each other with the aid of a rubber "O"-ring seal built into the cleverly designed coupling end of each section.

The 110mm (4") diameter pipe is made in 6m lengths for sewer systems and in 2½m, 3m and 4m lengths for soil systems. Developed by Marley, the new pipe is being manufactured at the company's extensive plant in Lucan, Co. Dublin.

Marley customers can make further savings by using some of the new fittings which have been added to the already extensive range. These include single and double "O"-ring 135° bends for soil and sewer systems and offset bends for external soil stack installations. These new additions complement the existing range of PVC fittings available from Marley.

A new size in cable ducting, 100mm, will also reduce cost to the consumer by about 10%. This is further evidence of Marley enterprise at a time of rising material and other costs.

Ever conscious of the demand for maintenance free building products, Marley have added a new dry verge system to their existing PVC facia, sofit and bargeboard system. An illustrated brochure covering the new products, folded to A4 size, which will form a useful 17" x 23" wall chart when opened out, is available from Marley Flooring & Plumbing Ltd., Laraghcon, Lucan, Co. Dublin.

Flemings Fireclays

Flemings Fireclays Ltd., the largest manufacturers in Ireland of vitrified clay pipes, have now increased the range of diameters available. In conjunction with the Hepworth Group of England, who are the largest vitrified clay pipe manufacturers in the world, they have combined to offer a range of pipes up to 800mm in diameter. It is envisaged that in the near future the range will be extended to include 900mm and 1 metre diameters.

The entire range of vitrified clay pipes, all of which are of the flexible joint type, is now as follows: 100mm, 150mm, 225mm, 300mm, 400mm, 450mm, 500mm, 600mm, 700mm, and 800mm diameters. Other changes noted are the longer lengths now produced and in this respect the 2.5 meter lengths in the 300mm and 400mm diameters plus the 3 metre lengths in the 600mm to 800mm range are certainly a far distant cry from the original one yard lengths of earthenware pipes.

These large diameter pipes comply in all respects with the test requirements of BS 65 and 540: Part 1, 1971, and the flexible joints meet all the functional requirements of BS 65 and 540: Part 2, 1972. The entire image is in all ways capable of satisfying the relevant requirements of BS Code of Practice 2005: 1968. An outstanding feature of the 600mm and upwards range is the glass filament-wound socket and polyester "O" ring spigot. In fact, these diameters are currently being installed at the new E.S.B. generating station at Moneypoint in Co. Clare.

Since ancient times, vitrified clay has been accepted as a material which neither time nor the elements could corrode. This is confirmed in the construction scene of today where one can see vitrified clay pipes in constant use throughout the country whether it be a local authority housing contract or a vast complex chemical plant. The recently com-
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main valve. The pressure reducing valve can be made to perform several functions in addition to the control of the valve delivery pressure. The valve could, for example, have electric solenoid controls, a back pressure control, or reverse flow check.

Over pressure relief valves are specified for opening and relieving to atmosphere, or low pressure system, any pressures above a set point on a control pilot valve. Relief valves are required to open quickly and close at a controlled rate of speed. Among the many varieties of relief valves is the "surge anticipator" which is designed to open in response to conditions which would cause a surge and prior to the pressure rise.

Golden Anderson automatic check valves are designed to minimise surges in pumping systems which are a potential source of damage on start-up and shut-down.

Water level control valves include float valves, altitude valves of the single acting, double acting and back pressure sustaining types.

Hunter Plastic Industries
A grey UPVC trapped floor gully to BS 4514 with polished stainless steel tile, grid and cover that is suitable for bathrooms, washrooms, shower rooms and kitchens, particularly in overseas applications, has been introduced by Hunter Plastic Industries Ltd. It is designed for the collection of waste from one to three appliances to connect to a soil stack. The gully will not rust or corrode or be affected by domestic detergents and will withstand all temperatures normally experienced during discharge from appliances.

Wavin Pipes
Wavin Pipes Ltd., Ireland's largest manufacturers of pipes and fittings, has placed a contract with Building & Engineering of Dundalk for a purpose designed and computerised materials handling plant. This contract commences this £5m. second phase of Wavin's £8.5m. five-year development programme of which Wavin has already invested £2.5m. in building a new injection moulding factory and expanding its stock holding facilities. This first phase, now nearing completion, also included considerable investments in the most modern technology in extrusion processing.

The new purpose-designed materials handling plant will be equipped with the most advanced micro process equipment now available. In addition to its ability to monitor and control its own operation, it will measure and weigh minute to very large quantities of raw material and blend them to precisely accurate formulations, selecting multi-combinations of component raw materials. It will then deliver the appropriate formulation automatically to extrusion or injection moulding machines which have been selected for a particular production run. Required pipe performance characteristics can be determined with absolute precision, in conjunction with other production parameters. The equipment will be far in advance of the many modern installations now in use in Ireland or in the UK.

The level of sophistication of the technology involved will require a comprehensive training programme and familiarisation visits abroad for employees to equip them with the skills necessary for the efficient utilisation of the plant.

The new facilities will also release existing good buildings for the expansion of other technically intensive operations within the company, and at the same time accommodate a critical part of the Phase 3 development programme.

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This complete renewal and expansion of its production facilities has been planned by Wavin to enable it to develop and provide the best quality products and service for the market and increase its production capacity by 50 per cent. At the same time the new technology will make a positive contribution towards production costs and effectively combating continuing increases in the prices of raw materials.

The investment and development programme also expresses Wavin's confidence in the future and particularly in its people; it reaffirms the company's commitment to Balbriggan. At a time when many firms are laying off staff, Wavin is laying the foundations for its future expansion. Despite the on-going recession, Wavin has adhered to its policy of securing employment. It utilised the seasonal valley period earlier this year for factory reorganisation in contrast to the many firms which went on short time or laid off workers. It is a policy of assurance reflecting Wavin's belief in its own adaptability and management planning.

Unidare
The Unidare-Terrain soil system has stress-free solvent-welded joints to give a strong, stable structure requiring less supports than other systems. Seal-ring joints are only used to accommodate normal expansion, thus resulting in fewer joints and fixings. Both these advantages mean faster and easier installation.

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Further details from Unidare Ltd., Finglas, Dublin 11, (Tel: 771801).
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Recession to Become Depression?

The heating and ventilating industry in Ulster has not escaped the general depression which hangs over industry and commerce throughout the Province.

It has been a year of recession and cut backs with little work available and certainly large contracts have been few and far between. The result has been that many consulting and contracting firms have had to reduce staff and certainly it is doubtful if any increased their personnel.

General industrial expansion was at a minimum and so there was little or no private work and again what did emerge was small in nature. Government and Public Authority spending seemed mostly to be directed at care and maintenance with very few projects of a worthwhile nature. It had been hoped that the two major hospital projects would be under way but these like so many others fell foul of the cut backs.

While the trade as we know it would not normally be associated with power station work, there is a lot of pipework and fabrication required and the decision not to proceed with the second phase of Kilroot Power Station had its effect on the labour market and on many small firms who would have been involved in subcontracting work.

However, despite the gloom the industry continued although on a reduced scale and certainly not at the profitability level of the mid '70's. One or two firms having decided that there was little joy in the home market decided to look to the offshore scene and the Middle East. This they have done with success, one company in particular joining consortia to provide the mechanical services for new towns and the redevelopment of town centres.

There is at present a slight sign of improvement and the coming months could see more new work coming forward. One ray of hope and indeed work has come from those industrial units that have decided to embark on a programme of energy conservation. There are few firms who could not make substantial savings in their energy bills and it is disappointing that the matter of conservation has not generally been treated seriously.

One or two consultancy practices have endeavoured to become involved in the conservation field but the lack of knowledge of process industry has hampered the development. Rising fuel prices will obviously continue and there must be a point where industry must make a move and when this happens there should be a considerable amount of work.

The recent announcement of special grants to enable industry to convert from oil to coal has not had the impact expected. The main reason would appear to be difficulty in raising the necessary capital remaining after the grant coupled with the reluctance of factory engineers to use coal. Again, however, the last month has seen a change and it is a known fact that a number of companies are seriously considering the change. Such decisions could result in work of the heavier and more industrial nature, with additions to steam systems, boiler controls, chimneys, coal handling and general boiler work.

There has been much interest in the multi-fuel fired boiler now operating in a creamery near Fermoy. There have been many visitors from Northern Ireland to this plant and it is probable that such a plant will be in operation in the North later in the year.

If there has been any major change in the equipment scene it has been the interest shown in solid fuel by the boiler manufacturers. Practically all the major manufacturers have now got a solid fuel boiler in their range.

It is unfortunate that up to the moment with the exception of the multi fuel burner there has been no real advancement in the combustion equipment for the middle range of shell boilers, in fact one or two of the new developments being marketed would benefit by further development.

While on the subject of solid fuel we must mention the popularity with which the industrial gravity feed boiler has been received. Only introduced to the Province at the end of last year already a large number of these boilers have been installed or are specified. They are ideal for schools, commercial property, ole peoples homes etc. and offer for the first time an attractive alternative to the standard oil fired boiler.

On the Gerkross Boilers Tipperary Ltd. stand at the Energy, H&V show were Mr. G. Crosse of Gerkross Boilers Ltd., Mr. A. J. Leckie of the Northern Ireland Housing Executive and Mr. George Leckie of Leckie Construction.

IHVN, March 1982
Many contractors have had to turn their attention to this smaller market. Local Authority Boards too are concentrating their efforts in providing homes, nursery schools, sheltered dwellings, etc. Thus the popularity of this Anthracite burning boiler.

Commercial development is slowly beginning again but in most cases rooftop boiler houses are being used which swings the choice of fuel towards oil.

It has been interesting to see in the commercial market the development of the heat pumps. After a series of stops and starts the heat pump appears to be making an impact especially in the design of large stores and office blocks. Like the increase in demand so we have an increase in availability with most air conditioning equipment manufacturers producing heat pump units. Time only will, as happens after the early stages of interest, sort out the good units from the not so good and also the better type of unit. As yet it is too early to make firm decisions.

The glass fronted stove still continues to be the popular choice of heat source, with the larger unit being used to provide central heating. Again the Executive have been the main user, specifying such units for many of their houses and this together with the conversion from gas to solid fuel has provided the major work load.

The Northern Ireland Electricity Service have quietly introduced their new evening off peak tariff and those who have taken up the offer appear to be highly pleased, so we could see a renewed interest in electric heating.

The gas situation continues on its yes, we will - no, we won’t saga regarding the importation of gas from Kinsale. Too strong lobbies exist, one believing that it is essential to add another energy source to the economy of the Province opposed by those who believe that there is no way that the expenditure involved would be justified against either the existing or possible market.

If the decision favours the new gas system it is possible that the installation and provision of the equipment and services would lead to a considerable amount of work in the domestic field and possibly a whole new range of gas products to be handled by the heating distributors.

The distributive trade when operating under current market conditions has had to cut its cloth to suit. As a result trading terms have, on the whole, been rather strict, particularly in the respect of credit. Stock control has had to be watched to ensure that a building up of slow moving items...
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Selkirk Metalbestos
Wallace Murray

March 1982
does not occur.

One of the major developments has been the increase in the quality sanitary ware market. For a number of years interest has been centered on the kitchen and many plumbers combined a small "kitchen" showroom with their contracting business.

The current trend is to modernise bathrooms and even in the time of recession, the popular choice has been to go for quality coloured ware. A number of years ago a major manufacturer fitted gold taps to a suite, as a gimmick, at Balmoral Show — we all stood and admired them — now they have become standard.

Beyond the aforementioned, the domestic scene is very much as you were. The established contractors have continued, maybe with smaller squads but they have continued. The one man organisation continues to flourish. Unfortunately there are a large number of "moonlighters" about which neither goes the trade or the customer any good.

While the situation may appear to be one of gloom and despondency, it does not show with the people involved. The persons in the heating trade are by nature, optimists. Many have had to face cut backs, expansion programmes may have been shelved and maybe the car has had to last another year, but they are still in business and will continue to do so, knowing that there are signs however slight, of an improvement in the future.

For Sale — Energy

The Northern Ireland Market

Whether one be a domestic user or a large industrialist in Northern Ireland the one thing you have an ample choice of is an energy source, that is, if you have the money to pay for it.

Unlike many other areas in the British Isles, Northern Ireland has available a practically unlimited supply of solid fuel, electricity, fuel oil, L.P.G., some towns gas and of course talk of a possible supply of natural gas and yet all this occurs in an area which has practically no natural sources of its own.

Let us look first of all at the fuel oil situation, a market supplied by the international suppliers through their own tank farms, leased and otherwise backed up by a local refinery.

Prices on the market are extremely competitive and there are cases of oil being purchased at even what we would call mainland price. Industry on the whole selects either the heavy or gas oil. Rumours persist that the intermediate grades are to be withdrawn from the market. Considering the difficulty in handling and storage of these fuels coupled with the improvement in the heavy and light oil burners it is doubtful if they are economic anyway.

All retailers of petroleum products whether it be petrol or heavy fuel oil will tell of reduced sales, this is, of course, due not only to the recession, high cost, but in certain grades competition from other sources.

The oil industry has of recent date been the subject of considerable pressure, much of it from sources over which it had little or no control. Prices have, over the last couple of years, risen at an alarming rate and as a result the users adopt a rather cautious approach to any pronouncements by the oil companies. The companies themselves have reacted to their problems and the general world conditions by themselves taking a very low key. Advertising and promotion is practically at a stand still — changed days indeed.

One noticeable change has been the development in the domestic and small commercial market of the "authorised" distributor, particularly in the domestic market. The reason is difficult to fathom but it is probably due to the expense of modern accountancy and business control methods, plus the bad debt situation. This is much easier to control when one has only to look after one large account instead of dozens of small ones. It also substantially reduces distribution costs.

Domestic consumers are now buying 100 litres at a time. One tank load is being stretched out to last the season. Boiler operating times are being cut to a minimum. There is no shortage of oil just a shortage of money to pay for it.

L.P.G. the convenient fuel, seems to have settled into a market supplied by three major suppliers, with a couple of smaller outlets playing their part.

The change in heating habits, that is often only heating that area that is in use or heating for a short time, has led to an increase in the use of the cabinet heater. If this is coupled with a long cold spell, as this year, then there is an increase in the demand for L.P.G.

The catering industry particularly in the kitchen has opted very much in favour of L.P.G. both in bottle and in bulk tank form.

There is no doubt that it is an expanding market and in addition each petrol price increase sees another percentage of motorists and fleet operators converting their vehicles to gas.

The electrical supply industry has been the centre of much criticism, much of it unjustified and a lot with hind sight.

The big point of discussion has been of course Kilroot Power Station. Many seem to forget that the decision and the lead time involved in design, building and commissioning of a power station takes many years. If in that period economic conditions change and also the demand falls dramatically all due to conditions over which you had absolutely no control then it is somewhat unfair to blame the planners.

Electricity had for some years fallen out of favour for heating however over recent months there has been a change. Advertising is starting to reappear for storage heaters.

A new off peak tariff has been introduced, no doubt with a bit of publicity this will prove attractive.

However despite all the competition and its so called outdated image the real leader in the domestic fuel scene is solid fuel.

Over the last few years coal has literally risen from the ashes and is...
now accepted by the majority as the first choice.

Generally in the other forms of heating, development of new and alternative equipment seems to have come to a halt. However those involved in supplying the solid fuel market have continued to develop more attractive, economic and efficient appliances. Most of this development has been concentrated on equipment for use with the range of smokeless fuels. Unfortunately the price of these fuels has been increasing at a slightly higher rate than bituminous fuel.

The last couple of years has seen the development of appliances suitable for the burning of bituminous fuel smokelessly and these are now on the market and proving very successful. Further development of this equipment is obvious and when it reaches its finale a very acceptable unit will have arrived.

Glass fronted stoves with high output boilers have become standard equipment for the flat and the small and medium sized house. The gravity feed boilers cater for the larger house and these requiring a more sophisticated form of heating.

There are now a number of manufacturers of gravity feed type boilers supplying the market and of course we have also the gravity feed type of room heater. It is the availability of this range of equipment that has, together with the co-operation of the solid fuel distributive trade, taken solid fuel to the top of the domestic heating league.

While the domestic consumers may have made a change of direction, industry has been much slower.

There is a genuine will among management to change to coal but this is being nullified by first a lack of capital to make a change and the reluctance of their own engineers to accept solid fuel.

The rising price of oil and the fact that any producer must stay competitive will surely be sufficient in time, to overcome the present reluctance. It also follows that the supply industry and the National Coal Board will have to adjust their facilities, marketing and availability of fuels to meet this market.

It is generally accepted that the next year will see a swing to solid fuel. Negotiations are proceeding in a number of plants and some local boards have changed their policy.

Some of the early conversions which have taken place suffered a few hiccups, these were due to lack of experience by all concerned. Again time will provide the experience and it is to be hoped that the equipment manufacturers will embark on a development programme.

Much faith is attached to the fluidised bed. It seems strange that with all the effort and money that has been poured into the fluidised bed that a standard commercial unit has not as yet appeared and until it does the chain grate stoker continues to be the leader assisted by the new range of fixed grates.

The big "if" is the natural gas from Kinsale and what is more important if it does come North - what will the price be? Will the gas be for domestic use only? Will it be available to industry.

The introduction of natural gas could completely wreck the present balance and there are some who would say that considering the amount of private capital that has been invested in developing Ulster's energy supply industry, to introduce a state sponsored alternative fuel in present conditions could result in a withdrawal of some of the present alternatives.

Whether the decision is made by politicians or economists the final result is going to be controversial.

So, we have the energy scene offering plenty of alternatives but no-body offering any bargains. It must be accepted that fuels will never be cheap again.

The only way to reduce energy costs is to conserve and it is strange that it takes high prices to at least make people realise that they have money to burn.
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In March we had a very successful evening at Strangford Arms Hotel which was very well attended and took the form of an open forum. Many subjects were discussed, and it was so successful that later this year the Institute intend to hold a similar evening.

Late in March we had our 13th Annual Dinner at which we were honoured to have John Gorman, Chief Executive N.I. Housing Executive as our special guest. He gave us a very interesting and amusing speech. The good meal and speeches was followed by 1st class cabaret.

April saw our annual pilgrimage to Stranraer to partake in a game of curling, on the same trip we had a part of 25 golfers. So a total party of 50 odd have a very enjoyable day and competed with fellow members and guests from Scotland. Our thanks to OBC Ltd. for helping to make it all possible.

Also in April we had our AGM.

This then took us into May and the start of the ‘silly season’, as some members would see it.

From this month until September we have each year five golf outings for members and their guests at five different golf clubs. At four of these, the prizes were kindly given by the following: UDT Ltd.; Thorn EMI Heating Fuel Services (N.I.) Ltd.; N.I. Merchants Association. The fifth outing is the Institutes Captain’s Day — where we have thanks to MPI Ltd. many lovely prizes and the outright winner over the five golf days.

This brings us to the winter again and the business side of things. In November we had a very lively and interesting evening which was given by Charlie Turner of the Coal Advisory Service.

In January this year (1982) we had our evening lecture on ‘Heat Pumps’ given by Sam Patterson of the N.I. Electricity Service. This was more enlightening and encouraged a good discussion on the whole topic of electricity for heating in the home.

February we had, again, a very good evening when the subject under discussion was Corrosion in C/H Systems.

The evening lecture was very ably given by Pet Sall, marketing manager of Thermo Agencies – Fermoy Distributors, and Brian Page of the CITB.

Following months of work, experimenting and research by two of its staff the Coal Advisory Service is now marketing nationally its “Link Up” heating system.

By the “link up” one is able to couple a back boiler, stove or room heater to the free standing independent boiler feeding the standard wet systems of pipes and radiators.

The system has received wide publicity and is now accepted as a standard system. It is important to point out, that in the interests of safety, there are a number of do’s and don’ts to which must be rigidly adhered and the Coal Advisory Service advise strongly against the D.I.Y. approach.

Hard facts of savings and installation costs are now available and anyone requiring further information should contact Mr. C. Turner of the C.A.S. at 87 Eglantine Ave., Belfast. The swing back to the open fire becomes a further attraction when it can be coupled to an existing system as it literally offers the best of both worlds.

Published by ARROW@DIT, 1982
Leslie King has been appointed Manager, Belfast branch, Walker Air Conditioning (UK) Limited. He now reports to George Whillock, the Glasgow based Director of Walker Air Conditioning (UK) Limited.

King joined the company in 1974 and was previously sales manager at Belfast. He is an Associate of the Chartered Institution of Building Services.

Strangford Insulation Products of Co. Down have formed a new company linking up Strangford Insulation Products (Scotland) with Multi Glass Systems of Canada to manufacture pipe insulation section and act as an agency for Rockwool Ltd. The factory will be sited at Uddington in Scotland.

Allaway Acoustics have appointed the Environmental Supply Co. Ltd. of Connwater Industrial Estate, Belfast, as their Northern Ireland Agents.

Richmond Fabrications Ltd., a member of the Fisher Group, Unit H8, Knockmore Industrial Estate, Lisburn, have commenced manufacture of the Presisulator insulated chimney suitable for solid fuel, oil and gas installations.

The new company is headed by Mr. W. Jenkins as Managing Director and Mr. Ronnie Fisher as Chairman. Being locally based the company will provide a full technical service to customers.

SECRETARY of a new association, the Law Energy Design Association is Mr. Peter Cooke, 75 Springvale Road, Ballyclare. The Association includes engineers, contractors, architects, scientists and civil servants are concerned about the standards in the heating and insulation of buildings. In addition to trying to improve standards the Group hope to increase public awareness of the benefits to be obtained from low energy design.

February sees the commencement of a new one year wage agreement in the heating, ventilating and air conditioning contracting industry.

The hourly rate for fitters is to be increased by 19p with corresponding increases in other grades. There are a number of other increases and supplements for such things as lodgings, welding, etc.

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ENVIRONMENTAL SUPPLY

Environmental Supply Co. Limited, of Unit 35, Connswater Industrial Estate, Belfast, officially launched the Roof Units Limited product range at the recent exhibition held at the Culloden Hotel, Belfast.

The fast growing Roof Units Limited company already established as a major U.K. name, have concluded an agreement with Environmental Supply Company Limited, giving them sole and exclusive rights for their products in Northern Ireland.

Roof Units Limited manufacture a very extensive range of roof extract units in various forms from Axial powered to Centrifugal powered and including a full range of vertical extract units.

All units are supported by an extensive ancillary programme including the largest range of Soaker Sheets in Europe.

All the Roof Units products are powered by the revolutionary External Rotor Motor with either Axial or Centrifugal impellers and this superbly engineered power unit allows the user full speed control facilities.

The company market complete ranges of Plate Mounted Axials, Cased Axials and the recently launched “In-Line” Duct Fans and such is their confidence in the power units reliability that the motor failure rate of less than one unit per thousand is made public.

Highlight of the Belfast Exhibition was the specific launch of Maico (say My-ko) range of unit ventilators, claimed to be the most advanced and of these products in the world, offering a complete range from Units for Private Offices and Boardrooms through to the largest industrial models including automatic washing etc. Electrostatic precipitators with their ability to collect tobacco smoke particles, welding fumes etc., avoid the need to discharge heated air to outside, thus, providing 100% heat recovery. Collection of spores and bacteria make them invaluable too in the food industry and in the medical profession.

2. Airflow Developments Ltd., one of the most respected names in the field of small centrifugal fans and blowers for general heating and ventilating use, together with their applications by original equipment manufacturers. Their air flow and pressure measuring instruments and expertise is recognised all over Europe and beyond.

Stocks of the centrifugal blowers will be held in Belfast immediately, to be followed by the instruments and in the new year the much awaited new Axial Flow fan range.

W. J. Hogg & Co. Ltd. recently moved to the new address of 2 Lower Kilburn Street, Donegall Road, Belfast, Tel: (0232) 47668.

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Notwithstanding the recession, a new company has commenced operation in Belfast: Modern Plant Components Limited, 195 York Road, Belfast BT15 3HD., N. Ireland. Tel: 774649
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GLYNWED
The Collins Walker automatic electrode hot water boiler is of a vertical packaged design, with the boiler and all necessary controls mounted on a steel base. Installation comprises the connection of a 3 phase, 4 wire electrical supply, the flow and return to the system and the drain. A flanged standpipe is provided for the addition of a safety valve. As the boiler shell is vertical, the flanged flow and return pipes can be angled horizontally to suit the pipe runs.

The whole of the boiler interior lifts out of the shell, leaving an empty shell for easy inspection. Heat is produced by the passage of electricity through the water, and as nothing is hotter than the water, no thermal problems arise, allowing the electrode boiler to be used for high temperature applications.

As all the electrical energy is transformed into heat, the efficiency of the boiler is better than 95%, the only heat loss being the heat from the unlagged top cover.

The boiler modulates from zero to full output in approximately 3½ minutes, and will modulate between 10 and 100% load at the dictates of a standard Honeywell thermostat. Any on/off switch, or clean contact, can be used to switch the boiler on and off.

The circulating pump should be interlocked with the boiler, and this can be achieved by a clean auxiliary switch on the pump starter, wired to the terminals provided. Other interlocks can be wired in the same manner.

Further details from McCaig Collim Ltd.

MODERN PREFABS

The "Modheat" heat pump was officially launched recently in Belfast.

Designed in Northern Ireland by Modern Prefabrications Ltd., the "Modheat" heat pump incorporates a number of unique features which make it overall more efficient than most of its air-to-water rivals. The "Modheat" heat pump will also be manufactured locally and we envisage that this will create in the region of 40 new jobs within one year.

The company's electrical side is already engaged in the distribution of well known names such as Anaconda — flexible conduit and Glands and Takbro crimping terminations and accessories.

Within the mechanical division are stocks of Alcon solenoid valves, Yarway steam traps, Budenberg pressure gauges and Birkett pressure reducing and safety relief valves — all of which cater for a wide range of services in the power and process industries.

Collins Walker automatic electrode hot water boiler is of a vertical packaged design, with the boiler and all necessary controls mounted on a steel base. As all the electrical energy is transformed into heat, the efficiency of the boiler is better than 95%, the only heat loss being the heat from the unlagged top cover.

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Further details from McCaig Collim Ltd.

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Published by ARROW@DIT, 1982
Cut-Backs Hit Pump Sector

After what seemed to be a few good years for the pumping industry, last year was very disappointing. The general recession in the economy finally caught up with the industry and everyone has had to accept reductions in targets for the year. There have been some bright spots through the year with some large water and sewerage schemes going ahead together with the last of the present telephone exchanges and some new hospital projects.

Although industry has slowed down, new projects are still going ahead but at a slower pace than hoped for. Also anything to do with agriculture has taken a very hard knock and anyone specialising in that area has had to look elsewhere for business.

What has become a major part of the pumping scene is the packaging of pump sets for various applications including packaged pressure boosting sets, fire hose reels sets, oil transfer sets, condensate recovery sets and pressurised sealed system sets, all of these have now become an integral part of any new building but the major problem of interlocking controls and control panels still seems to give headaches to all concerned.

On the subject of energy conservation the most notable event in the pumping industry was the introduction into Ireland of the Crane CBA fully closed condensate recovery and booster system which by all early reports is greatly reducing the amount of fuel that a boiler needs to burn for the raising of process steam. A report on the system appears in the following feature.

The following information is based on details supplied by the companies concerned.

Pillinger

From 1926 to the present day Pillinger’s have been designing and manufacturing automatic pumping equipment for the movement of high, medium and low temperature hot water. During this period the packaged condensate recovery set has become a well proven method of returning condensate water to hot wells or low pressure boilers.

The Pillinger condensate recovery sets operate in the following manner. When the condensate in the recovery tank reaches a high level, the duty pump activated by the high level electrodes cuts in and pumps the condensate to use. As the condensate reaches a low level the duty pump cuts out, activated by the low level electrodes within the receiver. As with most other Pillinger equipment the packaged Condensate recovery sets come complete with duty and standby pump, with the controls so arranged that should the duty pump fail, the standby pump cuts in automatically. Also should the condensate flowing to the receiver exceed the design criteria, the standby pump will cut in automatically running in parallel with the duty pump, thus increasing pumping capacity by 100%.

Further details from G W Monson & Sons, Belfast and Dublin.

Wilo

Wilo, Ireland’s only manufacturer of central heating circulating pumps are now in their third year of operation in Ireland. In that time the Irish heating trade has come to know and respect Wilo products for what they are, real quality, real value.

With a factory in Limerick which now employs 140 people Wilo are in a very strong position to service the Irish market. An indication of this strength is the fact that this year Wilo will be installing a further IR£900,000 of new capital equipment. This equipment, the latest and most sophisticated available, will help Wilo to continue supplying the Irish and European markets with reliable and top quality circulators.

As a further indication of their continuing programme of improvements all Wilo glandless circulating pumps now have variable speed motors.

Wilo can supply pumps for domestic, commercial and industrial central heating and secondary water applications.

Wilo pumps, with their very distinctive green colour are fully interchangeable with all other circulators available on the Irish market.

Wilo Pumps are suitable for use on oil, gas or solid fuel central heating systems.

All Wilo pumps are covered by a no nonsense,
PRODUCT REVIEW: PUMPS AND CIRCULATORS

Finheat/Baric

Baric pressure booster systems automatically maintain a water supply in the event of mains supplies being inadequate. Units are fully automatic and packaged for ease of installation, factory wired, piped and tested ready for operation on site.

Standardised and custom designed systems are engineered to exacting standards ensuring reliable and efficient service. Selections are made, to suit customers individual parameters, from the Baric range of constant and intermittent units including: Series ITS, Intermittent operation controlled by pressure or flow switch, of low initial cost and compact design without use of a pressure vessel or compressor.

Series TCS, a constant run design pressure booster ideally suitable for near constant pressure application such as experimental laboratories and secondary hot water supplies.

Series IAS, this system includes a diaphragm cusion pressure vessel providing a quantity of stores pressurised water. A compressor is not required.

Fire sets, purpose designed for hose reel and wet riser installations, with the required performance and alarm features, complying fully with British Standards and London fire brigade regulations.

Custom built units hydro-pneumatic and variable speed sets.

Further details from Finheat Ltd.

Grundfos

Two new stainless steel electro-submersible pumps have been launched by Grundfos Pumps Limited, giving better balanced performance between existing models in the SP range. The introduction of the new submersibles are part of Grundfos’ continuing pump improvement plan.

The new SP27 and SP45 pumps offer improved efficiency and wider output ranges for a variety of submersible pumping applications. The SP27 (available with either four or six inch motors) gives flows from 52 to 132 gallons per minute (14 to 36m³/hr), while the SP45 (with four, six or eight inch motors) delivers flows of 80 to 205 gpm (22 to 61m³/hr) at 45 metres head. Automatic sequence control of the pumps was incorporated in order to satisfy fluctuating demands.

Pullen Pumps

Pullen Pumps Ltd. are marketing a new range of vertical multi-stage pumps. Designed for general purpose applications such as single pump boosting in small housing schemes, high pressure wash down, laboratory taps and boiler feed etc., the new units are designated type ‘CV’ and are available for either cold water or hot water duties.

Pullen type ‘CV’ units are designed to handle liquids at temperatures from 5°C to 40°C (cold water types) and from 40°C to 110°C (hot water types), and offer flow rates of 3.3 lit/sec against a head of 100 metres or 5 lit/sec against a head of 210 metres. The pumps, which are based on the well proven technology of stainless steel pressure casings and welding, are rated for continuous service and run extremely quietly under all conditions.
Get it Right Specify CRANE Circulators

SINGLE S-range pumps plus TWIN S-range and DCS S-range packaged circulator sets for automatic duty and standby.

G-range horizontal end suction pumps for industrial and mechanical service applications.

K-range single pumps & DGS K-range automatic duty and standby packaged circulator sets.

pumpServices

Exclusive suppliers of Crane Circulators throughout Ireland

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Cork
Hollymount Ind. Estate., Cork
Tel: 45769

Belfast
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Telex: 28186 LIDY

Submersible
PRODUCT REVIEW: PUMPS AND CIRCULATORS

All major components such as shaft, conveyors, diffusers, impellers, tie rods and the stage elements are manufactured in stainless steel with the top and bottom pump casings of grey cast iron. Bottom and intermediate guide bearings are of phosphor bronze, whilst the pump/motor coupling is manufactured from cold forged steel. All type 'CV' pumps have self adjusting mechanical seals with a carbon rotating face running against a stationary ceramic seat.

The pumps' electrical motors conform to metric standards and are continuously rated at 2900 rev/min. Standard voltages are 415V 3 phase 50Hz and 240V single phase 50Hz, single phase motors having built-in overload protection. Other voltages and frequencies are available on request.

Pullen Pumps Ltd, have also introduced a miniature version of their 'Pulpress' pressurisation unit to cater for the make-up and pressurisation requirements on small L.P.H.W. 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, schools 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 callar wall and comes complete with expansion tank, pressurisation 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 or 140 litres can be added according to system size and pressures. Local authorities 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. Voltage supply is 240V, single phase, 50Hz. Details from: MCW Ltd.

Finheat/Euramo

Finheat now stock the new 200M pump from Euramo. It has applications for central heating systems and air conditioning plants. For all types of installations: either for old systems (replacement) or new systems. It allows the replacement of all types of circulators without having to change the pipes so there are no spacers, no special adaptor kits required and substantial time saving is gained. It is silent in operation and motors up to 50 W are protected against overload (no protective motor switch required). Other advantages include automatic venting of rotor chamber and infinitely variable hydraulic performances.

The pump casing is designed with flanges and has adjustable port to port dimension with telescopic flange pipe with corrosion-proof surface treatment. Tightness between telescopic flange pipe and pump casing is ensured by the special "Quadrig System". Variable head-capacity adjustment is available for all sizes. The motor is glandless, wet rotor type, protected by sintered bronze filter and has sleeve bearings lubricated by the liquid pumped.

Further details from Finheat Ltd.

Lowara

With the extensive use of stainless steel in their products, Lowara Ireland Ltd., are one of the leading pump companies in Ireland supplying the domestic, industrial and marine markets. Their shallow and deepwell pressure systems are renowned nationwide for their reliability and efficiency.

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"This is just the tip of the iceberg, ask for details of our full range of Domestic and Industrial pumps"

Distributors & Stockists for the Industrial Range of Euramo Pumps

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PRODUCT REVIEW: PUMPS AND CIRCULATORS

service. Most models are carried in stock.

The Crane K range circulators are precision engineered in-line glanded pumps. They are fitted with a mechanical seal and an air release valve to ensure expulsion of air particularly at start-up.

The K range is specifically designed to operate with low noise levels. This is achieved by hydraulically and statically balanced impellers, TEFC motors operating below full power, and the incorporation of specially selected grease pre-loaded bearings, which are sealed-for-life and require no maintenance. All pumps have bore sizes adequate to prevent velocity noise.

Where duty and stand-by pumps are required, two K-range single pumps will meet this need. Alternatively, the DCS K-range automatic duty and stand-by packaged pump sets could be used. These provide an inexpensive and compact packaged set which is easy and quick to install as a single pump.

The Crane K range can be either pipeline or floor mounted. Pipeline mounted pumps can be installed either vertically or horizontally and need no other support other than that provided by the pipeline. Floor mounted pumps can be supplied with anti-vibration mountings for isolation from the main building structure.

For low pressure hot water and domestic hot water applications, the Crane S-range is ideal. These are glandless circulators which are precision engineered to give long service life, silent running and exceptional reliability. (Each pump carries a three year guarantee).

Because most heating systems contain foreign matter which can clog fine clearances between motor and rotor thereby causing seizure, the Crane S-range pump incorporates an unique non-clog sintered bronze filter to prevent this.

And for DHWS and other 'open systems' which contain entrained air and dissolved salts, the pumps are fitted with a bronze casing and unique self-balancing TUT seal.

The Crane S-range pump also has an unique combination of product lubricated bearings together with a manual air release fitment which ensures safety operation even under the most adverse conditions.

The wide range of motors means that while every Crane S-range is fitted with a non-overloading motor, none are grossly oversized for the actual system requirements. This has obvious energy saving advantages.

The newly introduced model S10 is a two speed pump ideal for domestic central heating systems.

Durability at a sensible price.

Lowara can also supply 'made to measure booster sets' of any size incorporating individual pump units or completely packaged sets comprising two pumps unit, i.e. duty and standby, pressure vessel, switches, gauges, control panel, all interconnecting pipework and valves mounted on a baseplate, ready for installation.

As far as domestic and industrial heating is concerned, Lowara can offer either single or twin units for most applications.

Pump Services

Pump Services Ltd. are the exclusive suppliers of Crane K, and S and G range circulating pumps in Ireland. From their offices in Dublin, Belfast and Cork, they offer a complete in-house and extensive field maintenance service. Most models are carried in stock.

end of page
PRODUCT REVIEW: PUMPS AND CIRCULATORS

And for projects which require a duty and stand-by pumping facility, the Crane S-range has been developed into two complementary ranges of packaged glandless pump sets.

The Twin S and DCS ranges have been designed to accommodate all types of system requirements in a fully automatic, compact, versatile and reliable package that is as easy to install as a single pump. The Crane Twin S-range offers an ideal solution where space is strictly limited. There is automatic change over from duty to stand-by pump.

The Crane G-range are horizontal end suction pumps for industrial, chemical and mechanical service applications. As with all Crane pumps, these have been carefully designed to offer the widest choice of construction materials, shaft sealing arrangements and pump configurations to suit different applications.

Pump Services Ltd. are the sole suppliers of Crane pumps in Ireland. More details from: Pump Services Ltd., Willbrook Road, Rathfarnham Dublin 14. Tel: (01) 903371. Telex: 24805.

Grosvenor Pump manufacturer Richard Grosvenor & Co. Ltd. have recently introduced a compact portable pressure set based on their well known and proved Pygme pump. This company has for many years been building one-off units to various customers requirements and are now offering a competitively priced unit of standard design. The unit is particularly suited to pressure testing pipe systems installed in modern buildings and annual tests of pressure vessels eg. boilers. An information leaflet and price list are available on request from Richard Grosvenor & Co. Ltd., Pump Manufacturers, 21 Grosvenor Road, Ashford, Middx. (Tel: Ashford (Middx.) 41021-2-3).

Jacuzzi

Hydromin Ltd., the sole agents in Ireland for Jacuzzi Europe S.P.A.'s fresh water pumping systems have pleasure in announcing the appointment of Mr. Douglas Gordon as Sales Manager. Douglas Gordon has considerable experience in Groundwater Developments. Having graduated from T.C.D. in 1975 with a degree in Hydrology, he joined the mining and water well drilling equipment division of Atlas Copco Ireland Ltd. Later he moved to the Geotechnical consulting firm of Minrex Ltd. where he worked for the Hydrogeological team on County Council group schemes and the E.E.C. Geothermal energy project. Hydromin will place very strong emphasis on quality fresh water pumping systems and groundwater development equipment.

Working from a new larger premises in the Sandyford Industrial Estate, Dublin 18, Hydromin will offer the full range of Jacuzzi's proven and reliable fresh water pumps for domestic, agricultural and industrial use. The new Hydropak and pumpak pressurised shallow and deep well systems remove the need for bulky header tanks, while the Aquapak eliminates the need for even pressure vessels, but still maintains constant tap pressure.

The new Jacuzzi 4" and 6" deep well submersible pumps still remain very popular in Ireland and represent a very cost efficient method of pumping water. The 4" and 6" vertical and horizontal Hydroflex Multistage systems provide both agriculture and industry with dependable shallow well and booster pump high pressure capacity.

For use in hotels, or multi-story buildings a choice of the Centriflex two pump pack with storage tank or the Hydroflex two pump pack with the Aquageni 200 can be used. The latter eliminates the need for storage tanks and provides constant pressure throughout the operating cycle.

In addition to the Jacuzzi pump equipment, Hydromin Ltd. are also agents for Jacuzzi whirlpool baths, preussag (p.v.c.) water well screen and casing, SEBA hydrometric water level equipment and other groundwater development equipment. For those in need, Hydromin Ltd. can arrange consulting services for most ground water.
**PRODUCT REVIEW: PUMPS AND CIRCULATORS**

Mono

Designed specifically for the delivery of light fuel oil to heating appliances, the Mono ‘M’ gas oil transfer system enables the heating engineer to specify a complete transfer unit suitable for ‘ring main’ or ‘deal leg’ operation. Consisting of two Mono MS pumps, each giving up to 720 l.p.h. and 240 kN/m², mounted on a common baseplate and complete with connecting pipework, the unit is supplied with a relief valve suitable for continuous or intermittent duty. If a ‘ring main’ system is being employed, the relief valve is only intended as an emergency pressure release to protect the pumps and burner seals from damage should the main be shut. When a ‘deal leg’ or single pipe system is employed all the oil in excess of that required by the burners is returned through the relief valve to the storage tank.

**Eliminates on-site work**

By incorporating all the equipment necessary for a fuel oil transfer system in a single unit, considerable economies can be realised, both in installation and maintenance, by eliminating lengthy and expensive on-site work. The unit incorporates isolation valves with tamper-proof operation, and unions, so that either pump may be removed without disturbing the pipework enabling maintenance to be completed at leisure. Check valves in each delivery line prevent the main draining when the pumps are switched off and prevent flow interference between the pumps. A pressure gauge, integral with the pressure relief valve, enables the valve to be accurately set on site to give only the minimum pressure required to enable oil to flow to the furthest point required.

**The famous Mono MS Pump**

Designed around the Mono MS pump, the Mono ‘M’ Gas Oil Transfer System shares the well known features of this pump. Its silence, freedom from vibration, low power consumption, self-priming ability and above all — utter reliability — have already led the MS pump to a position of pre-eminence in the field of gas oil transfer.

**Wide acceptance**

Attractively finished, the Mono ‘M’ Gas Oil Transfer System creates a good impression in any scheme, and has already won wide acceptance among heating engineers. Why not specify it on your next installation.

Further details from Brian Hunter Ltd., Belfast and Mono Pumps Ltd., Dublin.

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**Fitzpatrick Systems**

Fitzpatrick Systems Ltd. of Co. Down is one of the leading suppliers of sewage pumps and treatment equipment in Ireland and though based in Northern Ireland it does have full representation in the Republic. Over the past four years it has been building up a steady relationship with local authorities and industry and offers a comprehensive range of equipment including submersible pumps for sewage and effluent, screens, distributors, penstocks and valves. It also offers a range of package sewage treatment units for populations of 100 persons upwards and many of these can be seen throughout the country.

A product which Fitzpatrick Systems is particularly proud to be associated with is the Sarlin submersible pumps. Over 200 of these have been installed throughout the country and are giving first class service.

Manufactured by Sarlin in Finland deliveries are direct to Ireland and the back-up provided by Sarlin is second to none.

In recent years the pumps have been developed to incorporate the unique “S” shaped impeller which is semi-axle in design. This particular feature gives the impeller a long screw like vane and this enables the pumps to handle long rags without these getting wrapped around the impeller.

A normal problem with a pump is that head and flow decreases with the wear of the hydraulic parts. Initial values can be reached only by changing worn out parts but the Sarlin design makes it possible to keep the pumps performance unchanged by adjusting the three screws on the axial impeller.

**Crane**

The new Crane C.B.A. condensate recovery and booster system is briefly described as a patented, unique, fully closed
**MYSON UNIT TWO**

- Two Speed
- Quiet
- Economical
- Bronze + Flanged Base Models
- 1" BSP + ¾" Compression Pump Valves

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**WILLO CENTRAL HEATING CIRCULATING PUMPS**

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FULL DETAILS FROM: WILLO ENGINEERING COMPANY,
Raheen Industrial Estate,
Limerick.
Phone: (061) 27566.
Telex: 28202.
PRODUCT REVIEW: PUMPS AND CIRCULATORS

condensate recovery and booster system which is installed as a simple extension to existing return systems to save fuel and money and to provide a rapid return on investment.

Looking at Fig. 1 with Valve ‘A’ closed, Valves ‘B’ and ‘C’ open and with the C.B.A. operating, the return system is fully closed.

Condensate is induced from the process and into the C.B.A. from where it is pumped directly into the boiler. Since there is no flashing to atmosphere, there are no heat losses and the boiler is fed at much high temperature.

No vapour loss means that all the good quality condensate is recovered and re-used as boiler feed and the need for cold water make-up is drastically reduced.

Should the C.B.A. be out of commission for maintenance, the operation of the process continues without interruption. The closing of Valves ‘B’ and ‘C’ and the opening of Valve ‘A’ allows the existing vented system to be used as a standby facility for the short time which it takes for the maintenance to be completed.

For further details contact Pump Services Ltd., Tel: 903371 Telex: 4805.

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 control 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 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: 952606 (4 lines), Parts & Service: 952038).
Steam boilers both vertical and horizontal 150-800 lbs. of steam per hr. The Taurus range of patented 3 pass flame reinjection steam boilers rated from 1250 lbs. per hr. - 20,000 lbs. per hr. The Omega range of hot water boilers in both low, medium and high pressures, from 650,000 b.t.u.'s per hr. - 20 M b.t.u.'s per hr.

A standard vertical range of hot water boilers from 50,000 - 800,000 b.t.u.'s per hr., both oil or gas fired, the Baytherm Multi-Converters in 200, 300 and 500,000 b.t.u.'s per hr. rating both in hot water and warm air. Blackenberg will also be offering Tomlinson's services in the design and manufacture and erection of specialist tanks and chimneys. All enquiries should be addressed to Blackenberg Limited, Baldoye Industrial Estate, Dublin 13, Tel: 393071/393126.
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118 THE COOMBE, DUBLIN 5. TELEPHONE: 755867.
Aircosse
Extend Range

Two new ranges of compressors are now on the market, produced in Waterford by Aircosse Ltd., and a third will follow later in the year.

The first is a range of packaged screw compressors from 15 H.P. to 60 H.P., with capacities up to 265 C.F.M. Based on a well proved screw element, these units are built in self-contained silenced cabinets complete with all controls and aftercoolers ready for connection to power and air lines.

No special foundations or bolting down is required and the Units can be operational within hours after delivery.

The silenced cabinets give decibel ratings of 70/74 so they can be installed in work areas without a noise problem. Maintenance and operational costs are low as there are very few working parts.

The rotary screw is made up of only two moving parts - the lobed male rotor and cavity female rotor. As the screws rotate the space between the lobes decreases and the air is compressed as it passes through. As the rotors are not in contact they are not subject to wear.

An added bonus is that 90% of the heat generated can be directed into the factory heating system.

The second is the range of direct coupled small compressor units from 1/4 to 2 H.P. Designed on the same principle as industrial units they are ideal for the small operator and do-it-yourself enthusiast.

Later in the year a totally new concept in screw compressors from 1 H.P. to 20 H.P. will be launched with a totally new patented screw profile to give very high efficiency.

Aircosse have been marketing screw compressors for 18 months and are now producing these in Waterford using Irish made components wherever possible.

Aircosse have been operating for 17 years, and have been awarded four international trade awards, and have compressors working in 37 countries throughout the world.

Corrosion Pressure Transmitter

Fischer & Porter recently introduced their compact corrosion resistant pneumatic pressure transmitter. The 50PW3000 comprises a compact pressure sensing element isolated from the process fluid by a barrier diaphragm, the space between the two being liquid filled. The sensing element is connected to the input force beam of a force balance pneumatic transmitter. This design means that the sensing element never comes into contact with the process fluid.

The process diaphragm and trim, which are wetted, can be made of Hastelloy ‘C’ as standard with Stainless Steel, Monel or Tantalum as options. These capsules are all welded and can be replaced without disassembly or extensive realignment of the transmitter section. Process connections are screwed 1/4 or 1/2 inch and materials of construction are, stainless steel as standard with Hastelloy ‘C’, Monel, Titanium and Kynar as options.

A variety of capsules are available to measure gauge pressures from 1 to 350 bar g. with versions for differential and absolute pressures and vacuum.

The addition of the 50 PW3000 to the Fischer & Porter catalogue means that the company is now able to supply a complete range of pneumatic pressure, differential pressure and level transmitters to cover a wide range of applications whether corrosive or non-corrosive.

The full Fischer & Porter range is available through their agents in Ireland, Industrial Instruments Limited, The Instrument People, of 6 Herbert Place, Dublin 2 (01) 761691 and Little Island, Cork (021) 822186.

Dwyer Handbook

A new Dwyer Instruments 40-page engineering and product applications handbook describing 109 successful product applications is now available, free upon request, from Manotherm Ltd. The handbook provides applications, diagrams and engineering information on the measurement and control of low pressure or flow-gases and liquids. Also included are sections describing the purpose of the handbook and how to use it, and giving brief details of the Dwyer product line plus design precautions for the engineer and user. Application categories include pressure measurement, sensing and control, air and gas flow, filter monitoring, leak detection, liquid flow and level control, process control, medical equipment and life support systems applications.
NEW PRODUCTS

Maximum Demand Controller from Satchwell

Lomax is the name of a new maximum demand controller available from Satchwell Control Systems Limited. It is designed to reduce consumers' electrical energy costs by monitoring electrical demand and switching off selected equipment to keep consumption below the desired maximum demand limit.

The versatility of the Lomax system, which is manufactured by GEC Measurements and marketed by Satchwell Control Systems, makes it ideal for most industrial and commercial users. Amongst its features are:

* Automatic sequence control of up to five loads.
* Selective manual override of individual loads.
* Alarm and total load shedding when 'pre-target demand' is exceeded.
* Fail safe load disconnection on interruption of supply.
* Battery back-up.
* Unattended, maintenance-free operation.
* Continuous display of demand status.
* Easy installation.

To avoid excessive load switching at load levels near the predicted demand curve, Lomax has a 'demand corridor'; the demand at any time is compared with the upper and lower limits of this 'corridor', implementing a load switching routine if the 'present demand' is outside these ideal minimum and maximum demand values, until the load is again acceptable. The input to the Lomax system can be kWh or kVArh pulses received from transmitting meters or summation equipment, integrated over a short period to give the 'present demand' figure. This is shown continuously on an LED display on the equipment. The ancillary equipment can also be supplied direct by Satchwell Control Systems.

Pressures, single compressors or duplex, are designed and built as complete integrated systems, tested and ready for operation.

PW Series - These water cooled packages providing capacities from 36 to 1270 kW. Equipped with proven Veeblock semi-hermetic or open reciprocating compressors, these units have been in use throughout the world for many years. Some of the larger units in the PW Series are available in Duplex configuration giving 50% standby facility on a dual refrigerant circuit.

PA Series - These air cooled units give capacities from 32 to 226 kW and cover seven models. Fitted with low noise fans, the PA range can also be specially equipped for high ambient applications up to 46°C.

PR Series - For use with remote air cooled or water cooled condensers, this series comprises 12 units giving capacities from 32 to 1226 kW. Fitted with semi-hermetic or direct drive open compressors, these units can be equipped for use in high ambient temperatures up to 46°C. To provide a 50% standby facility on a dual refrigeration circuit, some of the PR Series are available as a Duplex package.

Commercial Range

This range of six units is fitted with compressors from the Hall Commercial range and cover capacities from 36 to 193 kW.

RAC Series - The air cooled Residential Aquachill Series is available with capacities from 32 to 226 kW and are designed particularly for air conditioning use. Using either two or three slow speed centrifugal fans, these units give extra quiet performance and are specially suited for use in noise sensitive areas.

Further information from Hall-Thermotank Ireland Ltd., Hall House, Main Street, Rathcoole, Co. Dublin (Telephone Dublin 580311).

H.T.I. Product News

A wide range of packaged liquid chillers is available from Hall-Thermotank. Fitted with air cooled or water cooled condensers, reciprocating or screw compressors, these units are designed for quiet, efficient operation and a wide range of temperatures down to -20°C. The range comprises 12 units giving capacities from 36 to 1270 kW. They are equipped with proven Veeblock semi-hermetic or open reciprocating compressors, these units have been in use throughout the world for many years. Some of the larger units in the PW Series are available in Duplex configuration giving 50% standby facility on a dual refrigerant circuit.

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Commercial Range

This range of six units is fitted with compressors from the Hall Commercial range and cover capacities from 36 to 193 kW.

RAC Series - The air cooled Residential Aquachill Series is available with capacities from 32 to 226 kW and are designed particularly for air conditioning use. Using either two or three slow speed centrifugal fans, these units give extra quiet performance and are specially suited for use in noise sensitive areas.

Further information from Hall-Thermotank Ireland Ltd., Hall House, Main Street, Rathcoole, Co. Dublin (Telephone Dublin 580311).
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