OLLSCOIL TEICNEOLAÍOCHTA BHAILE ÁTHA CLIATH
DUBLIN
TECHNOLOGICAL UNIVERSITY DUBLIN

Building Services News

Volume 22 | Issue 8 Article 1

8-1-1983

H & V News

Follow this and additional works at: https://arrow.tudublin.ie/bsn

 Part of the Civil Engineering Commons, Construction Engineering Commons, and the Construction Engineering and Management Commons

Recommended Citation
(1983) "H & V News," *Building Services News*: Vol. 22: Iss. 8, Article 1.
doi:10.21427/D77D75
Available at: https://arrow.tudublin.ie/bsn/vol22/iss8/1

This Article is brought to you for free and open access by the Journals at ARROW@TU Dublin. It has been accepted for inclusion in Building Services News by an authorized administrator of ARROW@TU Dublin. For more information, please contact yvonne.desmond@tudublin.ie, arrow.admin@tudublin.ie, brian.widdis@tudublin.ie.

This work is licensed under a Creative Commons Attribution-Noncommercial-Share Alike 3.0 License

OLLSCOIL TEICNEOLAÍOCHTA BHAILE ÁTHA CLIATH
DUBLIN
TECHNOLOGICAL UNIVERSITY DUBLIN

IRELAND'S BUILDING SERVICES MAGAZINE

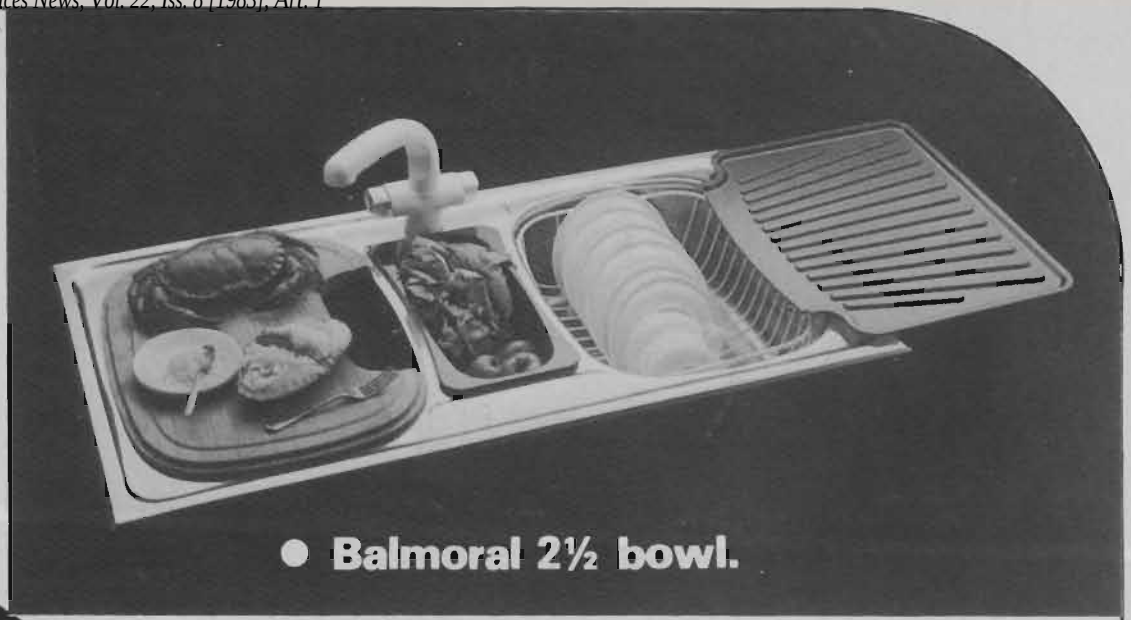
H&V NEWS

AUGUST 1983

EMA Programme To Go Ahead

— Harry Pattison, National Organiser

CARRON
STAINLESS PRODUCTS



● Balmoral 2½ bowl.

Introducing the new Castle range of stainless steel luxury work-centre sinks from Carron. The Balmoral, Edinburgh, Stirling and Blair models complement the existing range of inset, roll-front and square-front drop-on sinks. All available ex-stock from Ferguson Factors.

K-flex
ELECTRIC TRACE HEATING TAPES

powrmatic
OIL & GAS WARM AIR HEATERS & STAINLESS STEEL FLUE PIPE

Delcop
METRIC COPPER END-FEED CAPILLARY FITTINGS

DELTA
METRIC COPPER TUBE

LK
LANDON KINGSWAY
FIRE PROTECTION AND OVERFILL ALARMS & CABINETS

IVO
FLUE DRAUGHT STABILISER & EXPLOSION DOORS

NORMOND INSTRUMENTS LTD
TANK CONTENT GAUGES

FERGUSON FACTORS
A Division of Ferguson (Ireland) Ltd.

45 BROOMHILL CLOSE,
AIRTON ROAD, TALLAGHT,
CO. DUBLIN. TEL: 521533

(N.I. ADDRESS)
7 Trench Road, Mallusk,
Newtownabbey, Co. Antrim.
Glengormley 48331.

Distributor:
HEATING CONTROLS & DEVICES (I)

A DIVISION OF FERGUSON (IRELAND) LIMITED
45 BROOMHILL CLOSE, AIRTON ROAD, TALLAGHT, CO. DUBLIN.
TEL. 521533 TELEX: 747536

HCD (IRL) LTD. 768 UPPER NEWTOWNARDS ROAD, DUNDONALD, BELFAST BT160TL. PHONE 5110

https://arrow.tudublin.ie/bsn/vol22/iss8/1
DOI: 10.21427/D77D75

H&V NEWS

Ireland's Building Services Magazine

ISSN 0332 - 2335

published by

ITTP

Irish Trade and Technical Publications Ltd.
5/7 Main Street, Blackrock
Co. Dublin
Telephone: 885001
Telex: 92258

Member of the Trade and Professional Publishers Association

Managing Director:
Gerard J. Murphy

Editor:
Ray Loughran M.I.D.H.E.

Art Editor:
John Gibney

Sales and Marketing Director:
Patrick J. Codyre

Advertisement Manager:
Joe Warren

Northern Advertisement Representative:
Bob Armstrong, Suite 6 (Upper floor)
Carryduff Shopping Centre,
Carryduff, Belfast.
Tel: Belfast 813494

Irish Heating & Ventilating News circulates to key executives in the heating, ventilating, air conditioning, refrigeration, sanitaryware, plumbing and environmental control industries. Its circulation also includes energy managers, architects, designers, sanitary engineers, and environmental engineers in the 32 counties of Ireland.

Subscription Rate
One Year £15

Printed by Mercury Print Ltd
5/7 Main Street, Blackrock,
Co. Dublin.

All editorial contents and all advertisement artwork prepared by the publishers, Irish Trade & Technical Publications Ltd. 1983

IN THIS ISSUE

Published by ARROW@TU Dublin, 1983

Top Irish Dairy Men Visit Prestcold

HRP Walker, the refrigeration components wholesaler subsidiary of Walker Air Conditioning and sole distributor for the full range of Prestcold compressors and condensing units throughout Ireland, recently flew a party of the top Irish dairy advisers in the Smurfit jet to the Prestcold plant in Theale. The purpose was to inspect the manufacturing facilities there and to study the advantages of Prestcold equipment for use on bulk milk tanks as compared to any other brand. Prestcold products have a particularly good reputation within the growing Irish dairy industry, particularly for bulk milk cooling. In fact, Product Manager, Michael Stewart estimates that 50 per cent of the refrigerated milk tanks presently operating in this field in Ireland, have Prestcold air cooled condensing units from the AS, MA or ASR ranges installed. Prestcold equipment is needed to refrigerate the bulk milk storage tanks that every dairy farmer in Ireland must have if he wishes to supply his milk via the various co-op boards.

The party comprised John Considine (Waterford Co-Op), John Jo Collier (Avonmore Creamery), Seamus Monaghan (North Connacht Farmers), Michael Fleming (Agricultural Institute Fermoy), Pat Doyle (Dublin District), Dick O'Callaghan (Kerry Co-Op), Dermot Coyle (Lough Egish Co-Op) and Michael Stewart of HRP Walker.

After a full day at the Prestcold manufacturing plant, the party went to the dogs — literally — and spent a very entertaining evening backing sure fire winners! On day two the British Milk Marketing Board at Thames Ditton showed the party over their facilities, including the complex computerised monitoring of milk from 6,000 sources.

In the afternoon, the party went on to the National Institute for Dairy Research at Shinefield, Reading.

● (L to R): Mike Cody and Chris Blomfield, Smurfit Pilots; Dermot Coyle, Lough Egish Co-Op; John Jo Collier, Avonmore Creamery; John Considine, Waterford Co-Op; Michael Stewart, HRP Walker; Seamus Monaghan, North Connacht Farmers; Pat Doyle, Dublin District; Michael Fleming, Agricultural Institute Fermoy; Chris Dalley, Prestcold; Tony Madden, HRP Walker; Dick O'Callaghan, Kerry Co-Op and Glynn Measures, Prestcold pictured on departure to the Prestcold Plant in Theale.

EUROPE'S COALMEN VISIT DUBLIN

Mr. Rudi Nickels of Germany, President of the European Coal and Steel Consultative Committee, accompanied by the Members of the Bureau, visited Dublin recently for an E.C.S.C. meeting and were received by President Hillery at Arus an Uachtarann.

The Irish members M/S J. Maher, P. Donegan and G. Farren were also in attendance.

On the Sunday evening of the visit, Coal Information Service Ltd. hosted a dinner and reception in Jurys Hotel, Dublin, to mark the significance of the visit.

The Minister for State at the Dept. of Industry and Energy, Mr. E. Collins, was present at the function, with Department personnel, and delivered an important address effecting Ireland's role in European affairs. The prominent Cork coal importer, Mr. Ted O'Sullivan, received the guests.

CIS TRAINING COURSE

Coal Information Services are again running their Technical Training Course scheduled 12 Sept. '83 at 22 Clyde Rd. (I.E.I.).

The Course is fourth of series which have been organised over the past few years in conjunction with S.F.A.S., UK and participants can qualify for the much valued Diploma/Certificate of Proficiency in Solid Fuel Heating Goods practice.

The chief lecturer will be Ken Johnston, Deputy Head of Training, N.C.B.

Applications to Jim Maher or Miss Nuala Lawler at 18 D'Olier St., Dublin 2, (Tel: 776246).

Open to all parts of the country, there are a total of 25 places envisaged on the course and suitable, mainly, for people in solid fuel heating installation or distribution/stockist of appliances and equipment.

CIBS Diary

To open their programme of activities this Autumn on a totally different social note the CIBS are holding a race evening with the ladies in mind. Costs have been kept to a minimum with the race card costing only £4 and this includes supper.

Proceeds in aid of the Benevolent Association.
Venue: St. Marys Rugby Club, Terenure.
Date: Wednesday, September 21, 1983.
Time: First race 8.00 p.m. sharp.

The first CIBS Technical Evening of the year is devoted to lighting. Philips (Ire) are scheduled to present what promises to be a most interesting paper on recent developments in lighting technology. New light sources, luminaires, calculation aides, high frequency control gear and the integrated functions control system will be discussed and demonstrated.

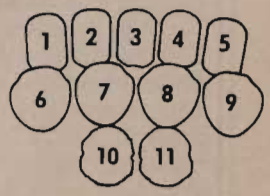
If you have any involvement whatever in lighting this evening should prove of particular interest.
Venue: Engineers Club
Date: Thursday, September 29th 1983
Time: 6.30 p.m.

IDHE AGM

The IDHE International Irish Branch AGM will be held in the Engineers Club, Clyde Road, Dublin 4 on 22nd September, 1983 at 7.30 p.m.

The Agenda is as follows:
1. Minutes of last AGM and matters arising.
2. Chairman's Report.
3. Secretary's Report.
4. Treasurer's Report.
5. Educational Report.
6. Registration and policing of Registration of Contractors
7. Corporate Membership
8. Financial Sponsorship for committee to attend Hevac exhibition in 1984
8. Appointment of National Council
10. Award of Fellowships

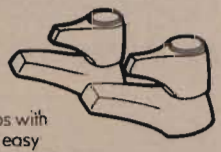
https://arrow.tudublin.ie/bsn/vol22/iss8/1
DOI: 10.21427/D77D75



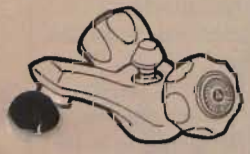
Starlite by Armitage Shanks – a range of luxury bathroom fittings which will co-ordinate with your suite and decor. The fittings are finished in Lustron gold or chrome plate and are available with a choice of seven different handwheels. You select the style and colour to suit your colour scheme.
Armitage Shanks 'Lustron' offers real gold plate with a hard protective coating at a cost which is little more than chromium plate – real luxury at a realistic price.
Armitage Shanks design features include easy grip, non-rising headworks, aerators on monoblocs, anti-splash flow straighteners on taps and mixers, and efficient pop-up wastes.
Starlite is designed for the bathroom of today – and tomorrow.

1. *Arctic White on Arctic White / Chrome plate only.*
2. *Red Tortoiseshell on Lustron Gold only.*
3. *Brown Tortoiseshell on Lustron Gold only.*
4. *Green Tortoiseshell on Lustron Gold only.*
5. *Golden Tortoiseshell on Lustron Gold only.*
6. *Veined oyster effect on Lustron Gold or Chrome plate.*
7. *Simulated onyx in Brown on Lustron Gold or Chrome plate.*
8. *Simulated onyx in White on Lustron Gold or Chrome plate.*
9. *Simulated onyx in Green on Lustron Gold or Chrome plate.*
10. *Chrome plate.* 11. *Lustron Gold.*

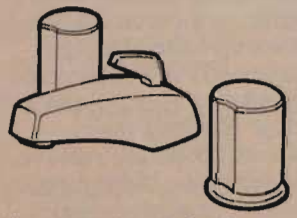
Basin



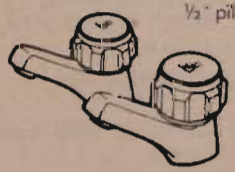
½" pillar taps with quarter turn, easy operation lever action.



Basin monobloc with pop-up waste.

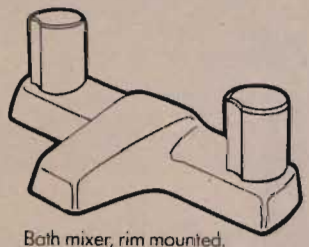


Dual flow basin mixer with Rotaflo pop-up waste (illustrated overleaf). A single flow version is also available.

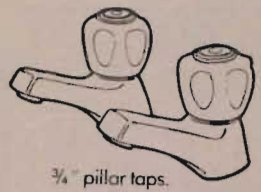


½" pillar taps.

Bath & Shower

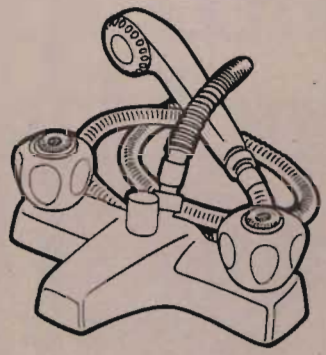


Bath mixer, rim mounted.

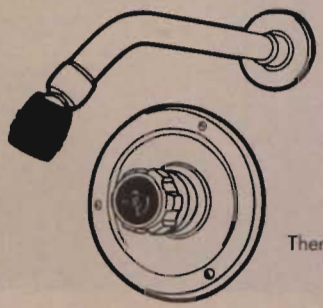


¾" pillar taps.

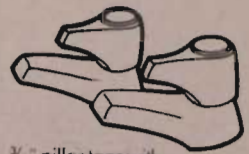
Remote control bath/shower mixer and nozzle. (Baths should be specially ordered to accept these fittings).



Bath/shower mixer (illustrated overleaf).



Thermostatic shower mixer.

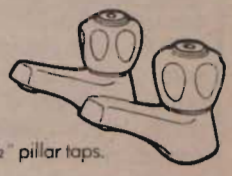


¾" pillar taps with quarter turn, easy operation lever action.

Bidet

Bidet mixer with Rotaflo pop-up waste and diverter to bowl or douche.

Bidet monobloc mixer with pop-up waste.



½" pillar taps.

This leaflet illustrates the most popular fittings in the Starlite range. Your local stockists will be pleased to advise you of other Starlite fittings available e.g. wall mounted mixer.

Colours printed on this leaflet are as near as possible to the manufactured range of Armitage Shanks quality bathrooms. For accurate comparison of colour see actual fittings on display at Armitage Shanks stockists.

armitage shanks
All the best in your bathroom

Armitage Shanks (Ireland) Ltd., Cookstown Industrial Estate, Tallaght, Co. Dublin. Phone: 510731/510951.

Our policy is one of continuous improvement and we reserve the right to change specifications and designs at any time without notice.

Published by ARROW@TU Dublin, 1983

New Title for Nu-Way

Nu-Way Heating Plants Limited and Nu-Way Energy Limited, both members of the Engineering Division of Wolseley-Hughes plc, announce that as of 1st August 1983 they will merge to form a new company under the title Nu-Way Limited.

Separate divisions will be set up within the new company to continue to meet the needs for burners, combustion systems, spares and services in the heating and industrial process markets.

Mr. G. A. Foster relinquishes his position as Managing Director of Nu-Way Heating Plants Limited but remains as Chairman of the new company on his appointment as Chief Executive — Engineering Division, Wolseley-Hughes plc.

Other Nu-Way Limited board appointments are Mr. W. D. Lawrie, Managing Director; Mr. W. J. O. Bartlett, Commercial Director; Mr. B. G. Creed, Financial Director; Mr. J. W. Findlay, Technical Sales Director and Mr. A. Fowkes, Export Director.

New Format IDHE Course

This three year evening course reference E60 prepares students for the examination of the Institute of Domestic Heating & Environmental Engineers. Successful candidates will be eligible for entry to the institute. Membership will gain entry with exemption to the Environmental/Building services course (D43V) and opens the way to gain Technician Grade in the IEI.

Entrance:
The course is available to those who are employed in the heating industry.

Duration of Course:
Three evenings per week over three years.

Course of Study:
First year: Drawing, Physics, Mathematics, Heat Transfer. Second Year: Mathematics, Heat Transfer Systems, Combustion. Third Year: Mathematics, Heat Transfer, Combustion.

The Institute awards its own diploma to candidates who successfully complete its three year course.

The diploma entitles candidates to apply for use of the Institutes titles.

Further details of the course from the Secretary, IDHE, 18 Aranleigh Vale, Rathfarnhame, Dublin 14. (Tel. 945257) or The College of Technology, Bolton St., Dublin 1.

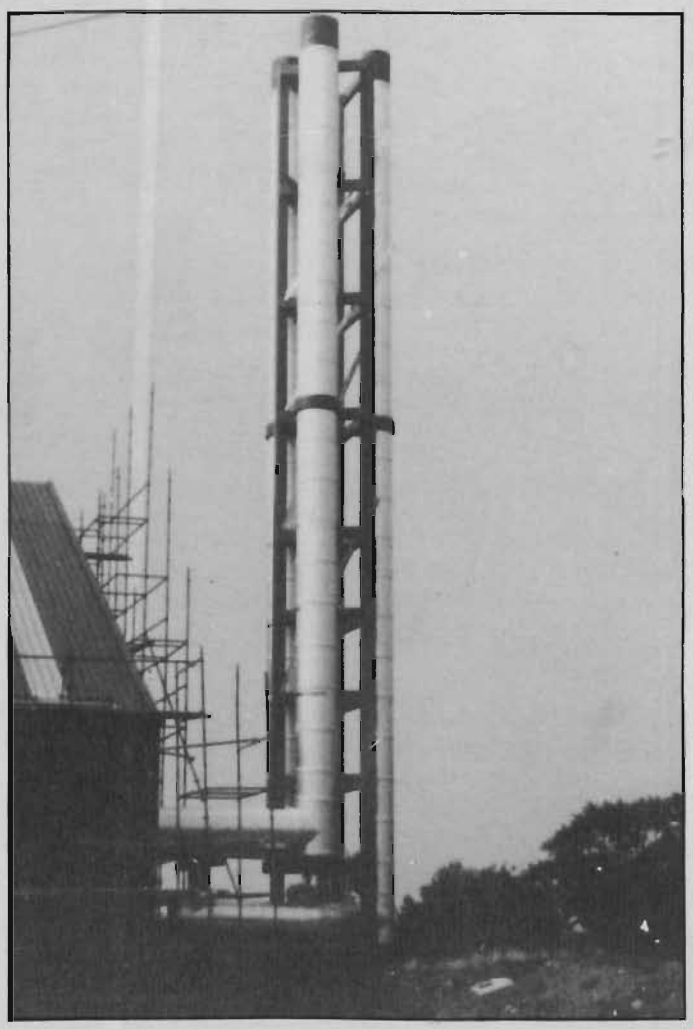
RECENT SELKIRK CONTRACTS

As appointed "Selkirk" distributors in Ireland Potter Cowan (Ireland) Ltd. handle the full range of Selkirk stainless steel insulated chimneys for all oil, gas and solid installations.

Potter Cowan specialise in the design, supply and installation of all types of chimney system, two of their most recent contracts being Wheat Industries Ltd. Cork which consists of 2-30" chimneys 130 ft. high suitable for either oil or pulverised fuel and St. James's Hospital which consists of 8-24" chimneys 150 ft. high for oil and solid fuel. Both of these contracts feature the open mast "Pace" design which makes chimneys more architecturally acceptable than the conventional windshield design using Selkirk ST chimney which is a triple walled insulated chimney.

On the smaller type contracts Potter Cowan (Ireland) Ltd. can offer either Selkirk SM chimney which is twin walled insulated stainless steel suitable for oil, gas or solid fuel or Selkirk gas vent which again is twin walled but not insulated or Selkirk single walled stainless steel chimneys.

Mr. Brendan Bracken at 58 Castleview Rd., Clondalkin, Co. Dublin is available to help with any further information you may require.



● A typical Selkirk chimney installation.

Dramatic Impression by Myson

The Myson thermostatic radiator valve, which is manufactured by Scanglo International Limited, Newcastle West, Co. Limerick, has made a dramatic impression on the U.K. market.

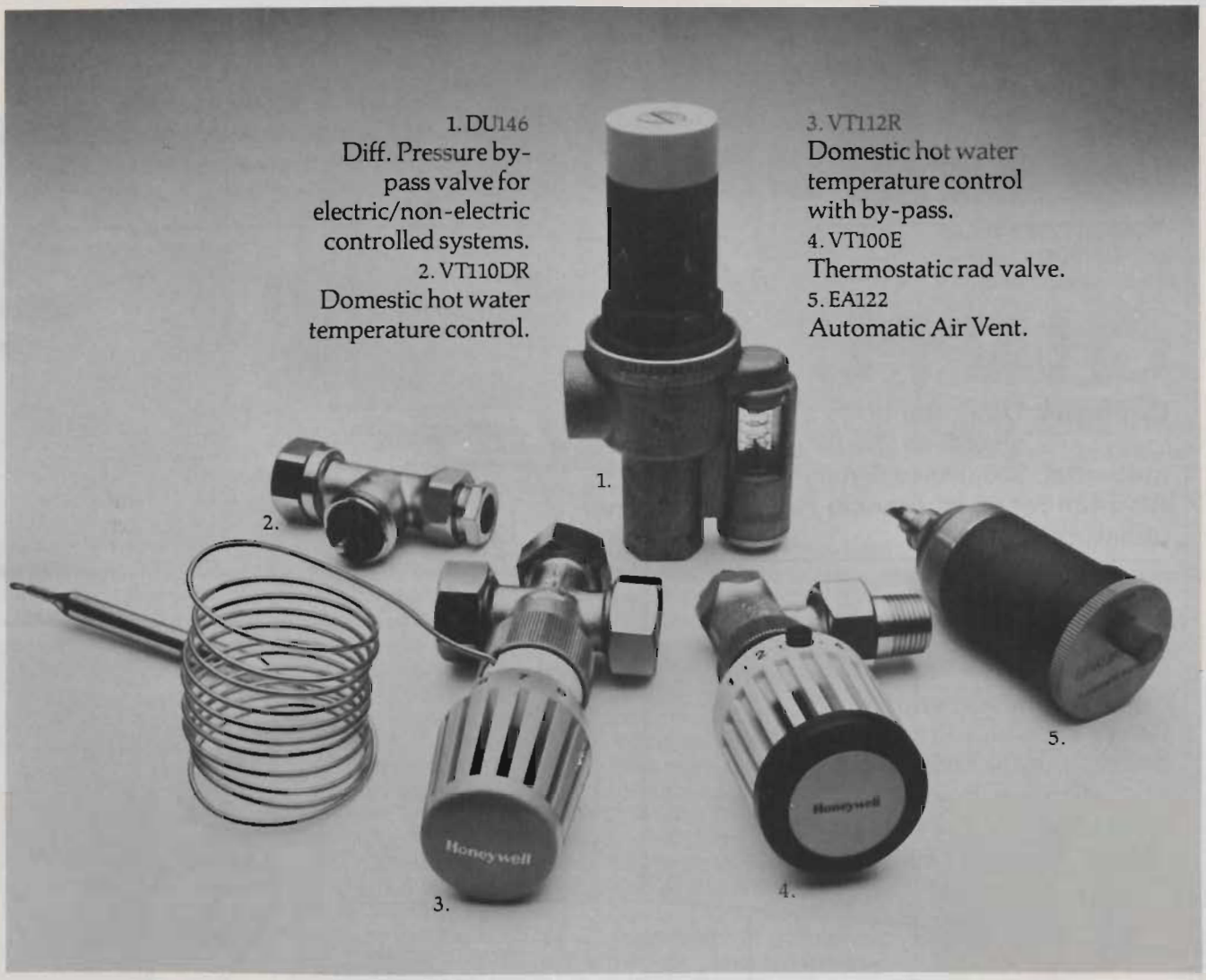
It has increased its share of the UK market, in one year, by 500% and is now selling at the rate of 200,000 units per annum.

In the U.K., State bodies and householders alike, are becoming more aware of the absolute necessity, in conserving expensive energy, and are now focusing their attention on the relative inexpensive thermostatic valve, to achieve real savings in this area.

Unfortunately this awareness is not present in the Irish market, and consequently expensive energy, which is imported, is being wasted daily, in most Irish homes and office blocks.

Installation of TRV's on existing radiators, is relatively inexpensive and would save 20% on fuel bills.

https://arrow.tudublin.ie/bsn/vol22/iss8/1
DOI: 10.21427/D77D75



Non-electric control. Automatically Honeywell.

There's a name for innovative ideas like these.

Honeywell.

Put our non-electric controls to work on any hydronic system. They're easy to install and you can get them off the shelf.

If you're already buying our TRVs you'll have an idea how good the rest of our range is.

They're out of the same stable and they carry the same name.

That's compatibility for you.

If you want to control it non-electrically, then control it with Honeywell—automatically.

Send us the coupon and we'll send you the details.

Honeywell Control Systems Limited,
Charles Square, Bracknell, Berkshire RG12 1EB.
Telephone (0344) 24555. Telex 847064.

Honeywell

Please send me details of all five controls.

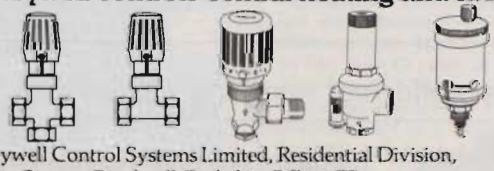
Name_____

Company_____

Address_____

Telephone_____

Honeywell controls central heating and fuel bills



Honeywell Control Systems Limited, Residential Division,
Charles Square, Bracknell, Berkshire RG12 1EB.
Tel: Bracknell (0344) 24555.

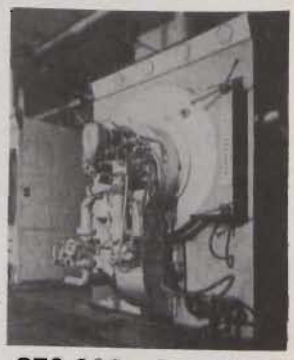
Hevac

A Total Capability in Residential, Commercial and Industrial Heating Plant. Representing exclusively in Ireland the following.

CHAPPÉE

Domestic: Duel fuel boilers 55,000 to 250,000 btu/h
Industrial: 300,000 to 5 million btu/h
Also full range of Francia Hoval steel panel radiators.

Allen Ygnis



Hot water boilers 400,000 - 24 million btu/h Steam Boilers 250 - 2,400 lbs/h
Combination boilers 250,000 - 2 million btu/h

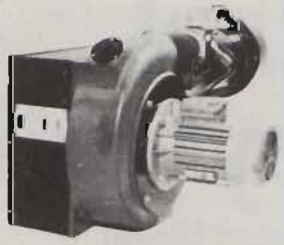
sime

"Rio" Domestic and Commercial oil fired boilers 60,000 - 604,000 btu/h Rio Gas Boilers (Atmospheric Type) 60,000 - 400,000 btu/h

NU-WAY BENSON

Space Heaters 150,000 - 1½ million btu/h

radiant supercet



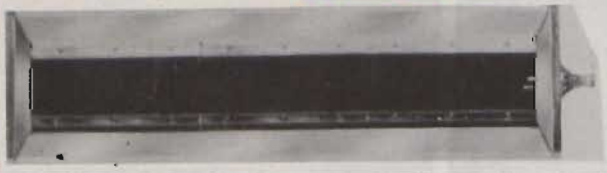
Blown Gas Burners 60,000 - 24 million btu/h

NU-WAY

HEATING PLANT

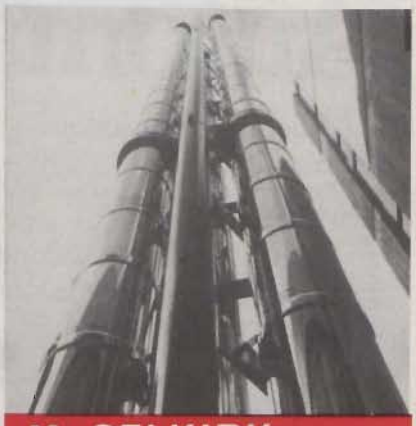
Oil Burners 60,000 - 24 million btu/h

Schwank



Gas fired overhead infra-red heaters 26,000 to 140,000 btu/h. LPG or towns gas.

Stainless steel twin wall industrial chimney systems from 5" up to 36" I.D.



SELKIRK METALBESTOS

Also solid fuel handling equipment, fluidised bed boilers and incineration.

HEVAC LIMITED, LISTER COMPLEX, BALLYMOUNT ROAD, CLONDALKIN, CO. DUBLIN.
TELEPHONE: 519411.

https://arrow.tudublin.ie/bsn/vol22/iss8/1
DOI: 10.21427/D77D75

Natural Gas for Irish Biscuits

A decision by Irish Biscuits to change their Tallaght factory to natural gas usage has been hailed as a significant 'first' in the Dublin industrial sector by New Dublin Gas and Bord Gais Eireann.

The company has awarded a contract for the changeover of processing equipment to Nordsea Gas Technology in association with Gas Applications and Systems of Kilkenny.

A spokesman for New Dublin Gas, who will supply the natural gas to Irish Biscuits, said that his company was extremely pleased with this development, which would lead to substantial interest on the part of other major industrial companies in changeover to the use of this premium fuel.

In a statement welcoming the announcement, Bord Gais Eireann say that they support the development of specialised applications and services that expand the market for natural gas in the domestic, commercial and industrial sectors.

'As part of our policy of maximising Irish involvement in the gas industry, we will work with Gas Applications and Systems to develop new products and services for natural gas consumers in all of these market sectors', the statement says.

Gas Applications & Systems is an enterprise in the Hoyne Group of Companies, with headquarters in Thomastown, Kilkenny. Associated companies include Hoyne Heating Ltd., a leading firm of building services contractors, and Wholesale Hardware Ltd., distributors of gas appliances and fittings on a nationwide basis.

Gas Applications & Systems was established to provide local expertise in natural gas changeover techniques and procedures backed by international gas combustion engineering specialists and appliance manufacturers that include:

Fer: Domestic and commercial boilers for central heating; Fiamma: Infra-red radiant heating systems; Horizon: Radiant heating systems for industry; JLS Engineering: Gas-fired recirculating ovens and furnaces; Nordsea Gas Technology: Systems and components for precision combustion in gas-fired installations; Scholtes: Luxury built-in domestic cooking appliances; Stordy: Direct and indirect gas-fired combustion engineering; Tecnogas: Free-standing gas cookers and hobs; John Thurley: Direct-fired systems for industrial ovens and furnaces, environmental control and incineration, and industrial/commercial air heating with energy conservation; T. C. Williams: Industrial blown-gas systems for steam plant.

Bord Gais Eireann support the development of the services offered by Gas Applications & Systems and as part of their policy of maximising Irish involvement in the gas industry, B.G.E. will work with G.A.S. to develop new products for the domestic, commercial and industrial markets for natural gas.

Further information on Gas Applications & Systems can be obtained from Tony Hoyne at Thomastown, Co. Kilkenny, telephone 056 24246 or telex 28797.

● Pictured at the recent Gas Ireland '83 exhibition on the Hoyne Group Stand were (l to r): Vivian Hoyne, Senior Sales Representative, Wholesale Hardware Ltd.; Cliff Williams, Managing Director, T. C. Williams Burners Ltd.; and Michael Hoyne, Director, Wholesale Hardware Ltd.

CLEAN AIR SUPPLY AND SERVICE IN IRELAND

The complete range of Envair microbiological safety cabinets, laminar flow clean air equipment and installations is now available in the Republic of Ireland through P. J. Brennan & Co. Ltd., of Stillorgan, Co. Dublin.

Brennan's also have Envair-trained service engineers to carry out planned preventive maintenance schemes and emergency service visits to clean air installations throughout the country.

Further details are available from Frank Branagan at P. J. Brennan & Co. Ltd., 61 Stillorgan Industrial Park, Stillorgan, Co. Dublin, telephone Dublin (01) 952501, telex 31817 BREN EI.

Ed Martin Joins Thorn Board

Thorn EMI Heating Limited announce that Mr. Edmund Martin has been elected to the board of Thorn EMI Heating and has been appointed General Manager of Curzon Components Limited and Thorn EMI Heating Service Division, the spares and service subsidiaries of Thorn EMI Heating Limited.

Mr. Martin was formerly Sales Manager of Thorn EMI Heating Limited and joined the company in 1961. He is based at Curzon Components Limited, Earlsway, Team Valley Trading Estate, Gateshead.

● Edmund Martin

H&V News and Ed's many friends in Ireland wish him the very best with his new appointment.

● Wavin Pipes of Balbriggan has announced the appointment of Mr. David Reynolds as Product Manager, Gas. Mr. Reynolds is a chartered engineer with extensive experience in modern gas distribution with British Gas and Wavin Plastics (UK). He has been involved for over 12 years in the design, development and operation of many gas projects in the UK and overseas. He is a member of the Institute of Gas Engineers, the Irish Gas Association and the Society of British Gas Industries where he is currently Chairman of the Society's Committee on Pipelines.

Published by ARROW@TU Dublin, 1983

HOT WATER FROM WIND POWER

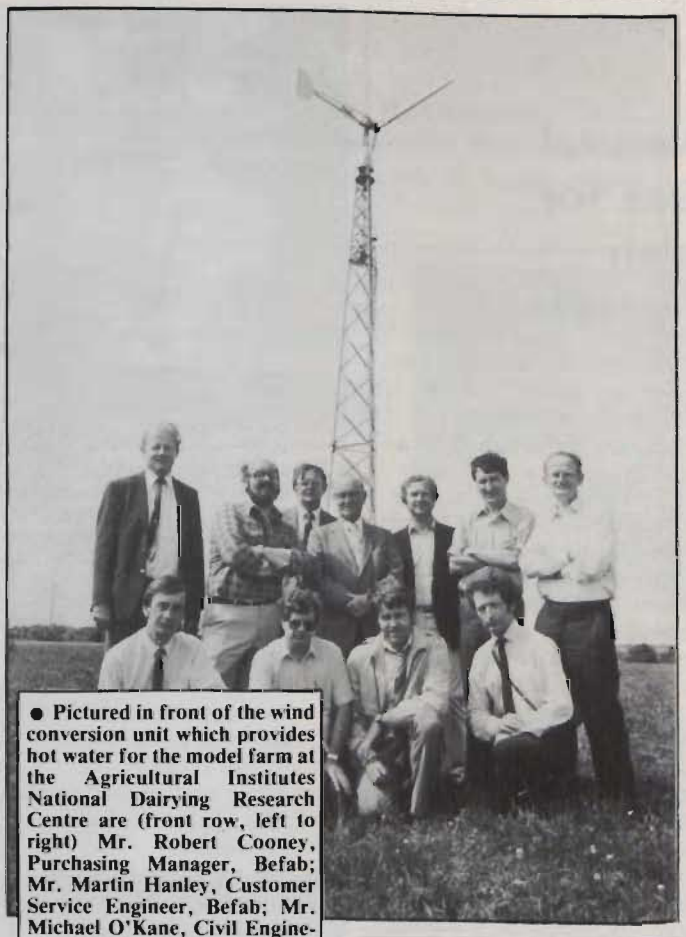
Marcellus Jacobs from Montana, USA, "the man who invented the modern windplant" and the most celebrated — and longest lasting — of the early American pioneers of wind eneryg, flew into Shannon Airport recently on a special mission. Jacobs was in Ireland to see how a Shannon Industrial Estate-based firm have, by combining one of Jacob's windmills with their own equipment, become the first people in the world using commercial components to successfully operate a new wind systems for heating water mechanically.

The new water heating system which is ideally suited for large farms, buildings or homes has been developed by Befab Safeland Ltd. in the Shannon Industrial Estate, who also happen to be, together with their sister company in the USA, world leaders in the manufacture of aircraft arrestor systems.

Befab's development of the first ever wind energy system for heating water mechanically has a very special interest for the intrepid 80 year old Marcellus Jacobs, who first started making windmills over an amazing 60 years ago. The success of the new water heating systems has been due to the successful linkage of the Jacobs windmill with Befab equipment.

Befab, who received grant aid for research and development of the break-through unit from Shannon Development Company, have manufactured a prototype of the new system which has been installed and operating on test for the last year and a half at the Agricultural Institutes National Dairying Research Centre at Moorepark, Fermoy. Its performance will continue to be monitored by the Centre staff and Department of Energy over the next threer years.

By harnessing the energy in the wind and converting it directly to heat in the form of hot water, the Befab unit bypasses the need for electrical conversion alltogether, says Managing Director, Alec O'Sullivan. Technically, what happens is this — the energy in the wind is used to turn a wind turbine, which in turn powers a gear box through a vertical drive shaft. The gear box drives a hydraulic energy absorber which produces heat. The heat is carried by the energy absorber fluid to one side of the heat exchanger located at the base of the tower. Cold water flows into the other side of the heat exchanger, is heated, and flows out to be used for space or equipment heating, domestic or industrial hot water, or any other purpose. The temperatures and amount of hot water produced depend directly on the prevailing wind velocities during operation.



● Pictured in front of the wind conversion unit which provides hot water for the model farm at the Agricultural Institutes National Dairying Research Centre are (front row, left to right) Mr. Robert Cooney, Purchasing Manager, Befab; Mr. Martin Hanley, Customer Service Engineer, Befab; Mr. Michael O'Kane, Civil Engineer, AFT Morepark; and Mr. Brian Hurley, College of Technology, Bolton St., Dublin. Standing in the back row are Mr. Tim Cathal O'Brien, IDA; Mr. Chris Shouldice, Wind Power Programme Co-ordinator, AFT; Mr. Alec O'Sullivan, Managing Director, Befab; Mr. Marcellus Jacobs; Mr. Jim Hall, Dept. of Energy; Mr. Aonrai de Paor, Professor of Electrical Engineering, University College, Dublin; and Dr. Tom O'Flaherty, AFT Kinsealy.

● Wessel Industries Holdings, the cable company, has sold its Cork plastic pipe division to the Finnish company, Uponor. Pictured at the signing of the contract were (from left): Niall Sparks, Chief Executive, Uponor (Ireland); Vincent Daly, Chairman, Wessel Industries; Niilo Pellonmaa, Chairman, Uponor and Terry Owens, Director of Finance, Uponor (Ireland).

New IDHE Corporate Grade

The IDHE have launched a new grade, Corporate Member. On acceptance as a Corporate Member, a company or organisation will automatically become eligible to send up to two representatives and to receive notices in advance, and for all evening lectures, educational functions, debates, biennial convention, and social functions, at the same rate of charge (if any), as ordinary members. They will also receive copies of technical literature, as issued by the institute from time to time, and will be encouraged to send members of their staff to evening courses designed for membership of the Institute. However, Corporate Members will not be eligible to vote at Annual General, or Special, or Extraordinary Meetings etc.

Details from IDHE Secretary.

https://arrow.tudublin.ie/bsn/vol22/iss8/1
DOI: 10.21427/D77D75

EMA PROGRAMME TO GO AHEAD

The fate of the Energy Management Association hung in the balance for some time during the last few months but figures just released by the Association means that there will be a programme of 14 meetings in the 1983/84 season. Ray Loughran spoke recently to Harry Pattison, National Organiser for the EMA about the Association and indeed for the energy scene in general. The cost of the EMA was about £48,000 per annum and the Department of Industry and Energy decided earlier in the year to cut this aspect of their energy programme. In fact the Association was given financial aid only up to June 1983, so after that date it was envisaged that the EMA would be self-sufficient.

The Energy Management Association is now going into its fourth season but owes its origins to the 1973 energy crisis when the Institute for Industrial Research & Standards expanded its fuel efficiency services by setting up training courses for boilermen and supervisors and also by holding a series of seminars on energy conservation and efficient energy management. These courses and seminars were very well attended and a national energy conference was held in March 1975 at which there were 300 participants. It was also at this time that the IIRS decided to establish the Industrial Energy Department within the Engineering Division of the IIRS.

After the second oil crisis the Minister for Industry, Commerce and Tourism decided to assign to the IIRS a National Leadership role in energy conservation and as part of that role regional energy managers associations were formed, the Eastern REMA was the first to be launched in early 1980.

These regional associations quickly merged into the Energy Management Association with Harry Pattison as National Organiser. Harry has been with the IIRS since 1956 and has been involved with various projects within the organisation including the Fuel Efficiency Service which really came to life after the 1973 energy crisis. For Harry those early days of the EMA were very memorable ones as "everyone in industry wanted to know more about energy conservation and how best to apply it to their own particular industry." Even today there exists a great need for conservation but with the passing of the oil shortages and the discovery of a viable source of natural gas industry, and indeed the Government, reduced the status of energy conservation from red alert to a "we are learning to live with it" attitude. It was in this mood that the Government decided to reduce the previous £450,000 funding for energy conservation to £200,000. One of the casualities of the cut was as said earlier the EMA. The need for courses still exists for such an association as energy remains one of the greatest problems facing Irish industry today. No fuels are cheap any more and that includes our own natural gas and indeed if as seems likely our own oil.

While solid fuel, natural gas and even oil in the short term will provide the energy necessary to run the country, electricity has to be the fuel of the future and indeed links with Europe for both electricity and gas are a must for the survival of the Irish economy.

So for the survival of the Irish economy a tight hold has to be kept on costs especially energy and the EMA has proven in the last three years to be a vital organisation in spreading the good word on energy management. At a general meeting of the EMA in May of this year the problems of funding the Association were discussed and it was decided that the programme could continue on a reduced scale with funds from the membership totalling £20,000. As part of this drive for funds many organisations were approached and with the aid of the ESB, the Banks,

Published by ARROW@TU Dublin, 1983

AnCO, corporate members and ordinary members the hoped for figure has been almost reached. With the aid of those who have not yet responded the final figure should be passed. The Department of Industry & Energy while they have withdrawn funds from the Association for the moment, do still wish to keep close contact with the EMA and in fact the Minister is soon to act as Patron of the Asssociation. So it remains to be seen if at a later stage some funds may become available from the department.

Details of the programme for the coming season of EMA meetings will be distributed very soon and while there are obvious cut-backs it would seem that a very interesting programme lies ahead. Areas for discussion include solid fuel, gas, LPG, liquid natural gas, small hydro-electric schemes and many other energy related subjects.

Discussing the energy scene with Harry Pattison you find it difficult not to be carried into the future and to discuss energy options. Harry feels that, "while solid fuel, natural gas and even oil in the short-term will provide the energy necessary to run the country, electricity has to be the fuel of the future and indeed links with Europe for both electricity and gas are a must for the survival of the Irish economy."

Harry runs the EMA with the help of Grainne Roche from an office in the IIRS in Dublin and can be contacted there for further information on the 1983/84 EMA programme. As a final word from Harry he wants anyone who still has the EMA letter on funding and has not replied to it yet to please do so by return.

There now seems no doubt that the EMA will continue whither by self funding or with some assistance from the Department of Industry and Energy but, what ever the means of funding the EMA is the most important association for energy management in Ireland today.

UNFAIR DISMISSALS

● At a time when redundancies and disputes over dismissals are becoming quite commonplace, it is essential for both employers and employees alike that they understand the legislation governing this sensitive area. The following is a brief article intended as a pointer to all concerned, illustrating the pitfalls and suggesting areas where legal advice should be sought before taking any action. The author is Professor John Lynch, Jefferson Smurfitt Professor of Business Law.

In recent times, the topic of redundancy and unfair dismissals has been occurring with alarming regularity rather than the exception. The recession and loss of business has forced companies to examine their costs and regrettably, redundancies follow in their wake.

Of course there is no encouragement given to employers by the Government to employ additional people. It has always seemed to me the height of folly to increase employers' PRSI on one hand, and then the Work Experience Programme on the other. All we have is a circular transfer of money with civil servants being employed at a cost to the taxpayer.

The problem of redundancy differs substantially from that of unfair dismissals, so I propose to examine each separately. This month, therefore, I will examine unfair dismissals.

STATUTORY REGULATIONS

The area of most concern to employers is the statutory regulations for unfair dismissals, ie the Unfair Dismissals Act of 1977. In general, the Act applies to all employees who have one year continuous service with the same employer. Continuous service is broken only by dismissal, resignation or where redundancy payments have been paid.

Under the Act, every dismissal of an employee is presumed to have been unfair unless the employer can show substantial grounds to justify the dismissal. Dismissals are deemed to be unfair where it is shown that they have been due wholly or mainly from the activities of any of the following:

— Trade Union membership or activities;
— Legal proceedings against the employer, where the employee is a party or a witness;
— Unfair selection for redundancy;
— Pregnancy of an employer;
— Race, colour, religious or political opinions of the employee.

Given then that we know what unfair dismissals are, do we know what fair dismissals are? Well, it is difficult. From an employer's point of view, cases involving alleged inefficiency, or inefficiency at work,

https://arrow.tudublin.ie/bsn/vol22/iss8/1
DOI: 10.21427/D77D75

are the most difficult under the Act. The line between dismissal for incompetence and for misconduct is very difficult. Incapability may be affected by ill health which is not, of course, an employee's fault. However, persistent short absences over a long period, or substantial single periods of absence for sickness, disability or mental illness, where there are effects on the job, may be grounds for dismissal under Section 6 of the Act.

Even where it is declared that a contract of employment is frustrated by a long illness, the Employment Appeals Tribunal will consider the reasonableness of an employer's decision to dismiss, (Nolan v Brooks Thomas).

The most difficult problem in relation to competence and qualifications usually arise where an employee's original qualifications are no longer good or sufficient owing to new machines or techniques, or a desire on the employer's part to improve work standards.

Problems may also arise where employees cannot acquire the technical expertise expected of them or a particular piece of paper to accompany their practical ability, or where paper qualifications are not accompanied by real and developing ability or where someone with good qualifications has outgrown his job.

EXCLUSIONS

There are also exclusions to the Unfair Dismissals Act of 1977. There is dismissal at the expiry of fixed term contracts. Employers should note that contracts must be in writing, signed by both parties and contain a statement stating that the Act does not apply to the particular contract.

Secondly, employees on probationary training, provided that a written contract exists and the period for probationary training specified in the contract is less than one year.

Thirdly, AnCO designated apprenticeships where the employee is dismissed either in the first six months of apprenticeship or in the months following the completion of the apprenticeship.

And finally, dismissal of an employee by way of a lock-out is not regarded as unfair under the Act, if he is reinstated or re-engaged on the resumption of work.

Another problem faced by employers is that of when does a dismissal take effect. Under Section 1 of the Act, a dismissal is defined as given by the employer's notice of termination. Therefore, it is important to remember the following:

— A mere warning is not notice. Once an employer has given notice he cannot revoke it without the employee's consent, (Murphy v Binchy, Unfair Dismissals 1978).

— Suspension without pay pending disciplinary procedures on foot of appeal, and the appeal is rejected, therefore dismissal is when it took effect, not when appealed, (Savage v Sainsbury).

— Wages in lieu of notice paid are treated as no notice. (O'Reilly v Pullman Kellog).

Under the 1977 Act, there is a right of appeal for dismissal.

POINT OF LAW

Disputes can be referred to a Rights Commissioner, Employment Appeals Tribunal, and, if dissatisfied, referred to the High Court, but only on a point of law. This brings us to the Employment Appeals Tribunal. The Tribunal, which was previously the Redundancy Appeals Tribunal, dealt with cases under redundancy or minimum terms of notice. However, it was renamed the Employment Appeals Tribunal under Section 18 of the Unfair Dismissals Act 1977. Much of the redundancy regulations of 1969 are applicable to the Employment Appeals Tribunal.

The Tribunal itself consists of a Chairman who is a practicing barrister or solicitor of not less than seven years standing and five Vice Chairmen and not less than twelve or more than thirty ordinary members who are representative in equal numbers of workers and employers.

All member of the Tribunal are appointed by the Minister for Labour. At the present moment there are three Vice Chairmen and four ordinary members. Half of the ordinary members being nominated by the Irish Congress of Trade Unions, and the other half by employer bodies.

It should be noted that the person can represent himself before the Employment Appeals Tribunal, or be represented by a lawyer or a trade union official. In the first half of its existence from 1977 to 1980, the total cases decided by the Tribunal under the Unfair Dismissals Act was 16, 151, 330, 754 respectively. At the time there was a drop in the number of applicants who choose to come before the Rights Commissioner.

As to the method of appeal, well, appeals can be made by a dismissed employee within six months to a Rights Commissioner, or the Appeals Tribunal. A copy of the cliam must also be sent to the employer within the same period. The Rights Commissioner (or the Tribunal) will hear the claim and if he finds in favour of the employee may recommend reinstatement, re-engagement or compensation. Either party can appeal within six weeks against the decision of the Rights Commissioner to the Employment Appeals Tribunal. The Tribunal may confirm or reject the Commissioner's recommendation.

Under Section 8 of the Act there are two instances where a Rights Commissioner may not hear a claim. First, where the Tribunal has made a determination in relation to a claim and secondly, where any party notifies the Commissioner in writing that he objects to the claim being heard by the Rights Commissioner. While there is a time limit of six months, it should be noted that failure to notify does not necessarily negate one's rights (Higgins v Donnelly Mirrors). The time limit for bringing an appeal from the recommendation of the Rights Commissioner is six weeks (Byrne v Clayton Inns). However, an appeal to the High Court may be initiated within six weeks from the date on which the Employment Appeals Tribunal's determination has been communicated to the parties.

ALARMING REGULARITY

As I said in the beginning, redundancies and unfair dismissals are occurring with alarming regularity. As stated earlier, the numbers of cases being heard by the Tribunal has increased dramatically. Employers now are faced with an entire new body of law emanating from the Unfair Dismissals Act by way of the Employment Appeals Tribunal.

ULSTER NEWS

IMPORTANT DISCUSSION DOCUMENT ON ENERGY IS LAUNCHED

We have taken the unusual step this month, of confining our Ulster Review to almost one subject, "Energy". The N.I. Government has just issued an important discussion document which details all the options available to the Province.

This is a most important document, the final outcome of which could affect the well being of us all in this island.

We have asked Mr. F. R. McBride, Chairman of the N.I. Energy Manager Group and Secretary of the Institute of Energy to review the publication and assess its contribution to the resolving of the economic problems which permeate the energy scene.

The Northern Ireland Department of Economic Development, which is responsible for energy matters, has recently issued a discussion document — "The Energy Issues", a document of several hundred pages which turns out to be a concientious attempt to set before the public the options which are available and even the options within the options.

The document is split into sections, each of which details a fuel or alternative and what happened up to the time of publication. It is not unexpected that a major portion of the statement is given over to the problems of both the gas and electricity industry.

Regarding gas and the possibility of a supply coming north from Kinsale, the Government make it clear that this will only be so if the gas can be purchased and sold at a price which is reasonably competitive with other fuels and sustain the capital and conversion costs of its installation, developement and conversion.

In a series of tables the sorry state of the Northern Gas industry is graphically revealed as is the "subsidy" in the form of financial assistance to the gas producer which in turn every consumer benefits from. It is interesting to note that since 1965 there has been practically no development of the industry. Much has been written about supplying to areas outside Belfast but on the figures in the document one would have great difficulty in justifying any development outside Belfast, if even one could justify bringing the gas north at all.

The report recently issued by the Northern Ireland Electricity Service provides the basis for the electrical section.

A number of points, with the relative costs are discussed, the conversion of the new Kilroot to coal or lignite burning, the building of a lignite burning station at Crumlin, the modernisation of Ballylumford or the immediate building of a Phase II of Kilroot is a coal fired station, are some of the alternatives discussed. From the facts as they are laid out the latter appears to be the most attractive.

A brief section of the document presents the case for alternative sources of electrical generation — wave power, solar generation, deep wells — but of them all the only one that offers any real chance of development is the Strangford Barrage. The idea of using the race which takes place with the mixing of the ties at the mouth of the Strangford Lough to generate electricity has been about for some time. If the environmental difficulties and fuel prices continue to rise then this scheme becomes a runner.

The frankness of the statement clarifies the immense difficulties which face the service in trying to come to a decision with their many problems, which will not only be economically and practically correct but that they will be right for the next decade.

Within the last year there has been immense publicity relative to the deposite of lignite at Crumlin, Co. Antrim. Estimates of the deposits vary between 100,000,000 to 500,000,000 tonnes, with the report suggesting the former and a possible developer the latter.

It is however pointed out in the document that this possible fuel has a high ash content and a water content in excess of 30%. It is also known that the deposit lies in a geographically difficult area due to the low lying nature of the ground on the edge of Lough Neagh.

There would appear to be a great deal of optimism about this deposit particularly as it presents the first major source of indigenous fuel for the Province. It is suggested that the fuel may be used for industry, or more likely that a small power station be built at Crumlin to use the fuel at source. It is throught that the making of briquettes for

Heat & Power Exhibition

As you are all aware, the Heat & Power Exhibition will take place at the King's Hall, Belfast, from 26 to 29 September inclusive. Among those participating will be *H&V News*, so why not come and meet us. Our stand will be fully manned throughout the entire duration of the show and our Northern Ireland Manager, Bob Armstrong, will be on hand to assist with all enquiries. Additionally, *H&V News* are sponsoring a unique competition, details of which can be obtained by visiting our stand. You could be the lucky winner of a substantial prize.

https://arrow.tudublin.ie/bsn/vol22/iss8/1
DOI: 10.21427/D77D75

domestic use does not present a commercial application.

No reference is made in the Report to the cost of getting the lignite out, of processing it and of maintaining quality consistency. These are questions the answers to which could materially affect the final cost and the viability of this valuable fuel source.

Little or no attention is given to either the solid fuel or oil industry in the Province, which in itself is a reflection on the stability of these two distributive trades.

Traditionally the Province has bought its coal supplies from the National Coal Board and there is no reason advanced as to any need for change.

Towards the end of the document the possibilities of Belfast being used as a base for a C.H.P. scheme is discussed and appears to be reasonably attractive particularly if it has a solid fuel base. However, attention is drawn to the unsatisfactory results so far in the Province with district heating and points out that this could mitigate against C.H.P.

Mr. Butler, the Minister who presents the Report, in an introduction states categorically that the Document is not an Energy Policy Statement but instead it is intended to stimulate discussion. One must ask does it succeed in its task.

The trouble with trying to have proper discussion, is that to discuss anything in an informed manner one must have all the facts or if not how can one draw a conclusion? For example in the document, various figures on estimates are given for the brining of Kinsale Gas north, suggested number of consumers now and in the future are given, but how can one discuss the true economies of the case if one does not know the cost of the fuel prior or after distribution? What estimated cost has been arrived at as regards the lignite.

It is a pity that the Report does not go a bit further and lift the veil a bit higher on what has been going on and what final costings are likely to be of the various options presented.

On the other hand we must pay tribute to the Department for presenting so many of the facts in a most interesting form of presentation and for inviting submissions. For anyone interested or involved in the Northern Ireland energy scene, the document is a must. If such a statement could be called compulsive reading this is it. It is available from the Energy Division, Dept. of Economic Development, Netherleigh, Massey Avenue, Belfast, price £2 per copy sterling.

New Electric Economy 7 Boiler

Now being launched by NIES on the domestic central heating market is their Economy 7 electric boiler, designed to suit radiator systems, in contrast to existing electrical heating methods which warm the air directly.

The electric boiler suits either installation in a new house along with the heating system, substitution for an oil-fired or solid fuel boiler due for replacement, or as an addition to a heating system to run in tandem with a flame fuel boiler. And it is manufactured locally, by Smith Tank and Engineering Company of Helens Bay, County Down.

The Economy 7 boiler consists of a well-insulated hot water cylinder with heating elements built in at the base. Water is heated overnight at the low cost of 1.9 pence a unit on Economy 7 tariff, about only one-third the cost of day rate. A thermostat ensures water temperature of 92°C in a bungalow (97°C in a two-storey house). This high-temperature water is mixed with the water returning from radiators to maintain correct radiator temperatures.

An air thermostat ensures constant comfort in the home throughout the seasons.

Catering for houses from the average semi-detached to the well-insulated 3/4 bedroom detached home, the Economy 7 boiler is made in three sizes from 150 gallon to 300 gallon capacity. There are additional electrical elements at the top for use during evenings in extremely cold weather to ensure constant heat supply.

In a new house, the boiler can fit into a central cupboard because no climney or fuel supply is needed, and, in a conversion, the boiler will usually replace the fuel-fired boiler in a garage or outhouse.

There are many advantages with this Economy 7 boiler — no regular maintenance needed, no flue, quietness in operation, no dust, ash or fumes. Above all, it is cheaper to run than other automatic systems.

ON THE MOVE

The new address of Brian Thompson Ltd. is Brian Thompson Ltd., 72 Central Avenue, Bangor, Co. Down BT20 3AU (Tel: Bangor 0247-65486).

G. W. Monson Appointed N.I. Agents for Zwickey

G. W. Monson & Sons Ltd. have been appointed Northern Ireland agents for Zwicky Engineering of Wokingham, Berkshire.

Zwicky products, which have been well established over many years in the heating industry, include the widely used pressure regulating and pressure reducing valves for oil supply to boilers, the well known range of Uniplex and Biplex filters, and the extensive range of Viking pumps.

For further information and literature contact G. W. Monson & Sons Ltd., 18 Ballyblack Road, Newtownards, Tel. (0247) 812350.

H&V NEWS in Northern Ireland

For advertising information contact: Bob Armstrong, Suite 6 (Upper Floor), Carryduff Shopping Centre, Carryduff, Belfast. Tel: Belfast 813494

Finheat's New Heater

A remarkable new heater which is claimed to consume up to 30% less electricity than existing equipment was launched in Ireland recently.

Developed in the UK by S & P Coil Products, the energy saving 803SE fan convector is distributed throughout Ireland by Finheat under the Hanovia brand name.

On the surface, the 803SE looks like many other wall mounted fan convectors used in homes and offices. It is basically, a conventional heater consisting of a tangential fan blowing air over electric heating elements. The secret of its ability to maintain chosen room temperatures while using comparatively less electricity, lies in its unique electronic control system.

Instead of a slow acting and relatively inaccurate mechanical thermostat, the Turboflo Electronic 803SE (max 3kW) is fitted with a solid state temperature sensing module and heat output controller. The temperature of air drawn into the heater is monitored constantly and the heating elements are turned on or off, individually or in groups, in rapid response to very small variations from the pre-selected room temperature.

• **The Hanovia Turboflo Electronic fan heater from S. & P. Coil Products.**

The automatic electronic temperature adjustment system has two significant benefits over conventional mechanical thermostats. Firstly, it provides much more accurate temperature control within a room, eliminating large variations and providing a more comfortable atmosphere. Secondly, the 803SE heater's quiet running fan continues to circulate air even though all heating elements are off for instant detection of an ambient air temperature drop. Many conventional heaters with mechanical thermostats will only turn some of the elements off, wasting energy when the desired temperature is reached.

Details of the full range of Hanovia electronic heaters for industrial, commercial and retail heating, together with the well known and proven FBM water and steam fed fan/coil convectors and Cirrus industrial unit heaters manufactured by S & P Coil Products are available from Finheat Limited, 17 Ushers Island, Dublin 8, Eire. Tel: 778109. Telex EI 2075.

Latest Coal Fired Boiler from Hartley & Sugden

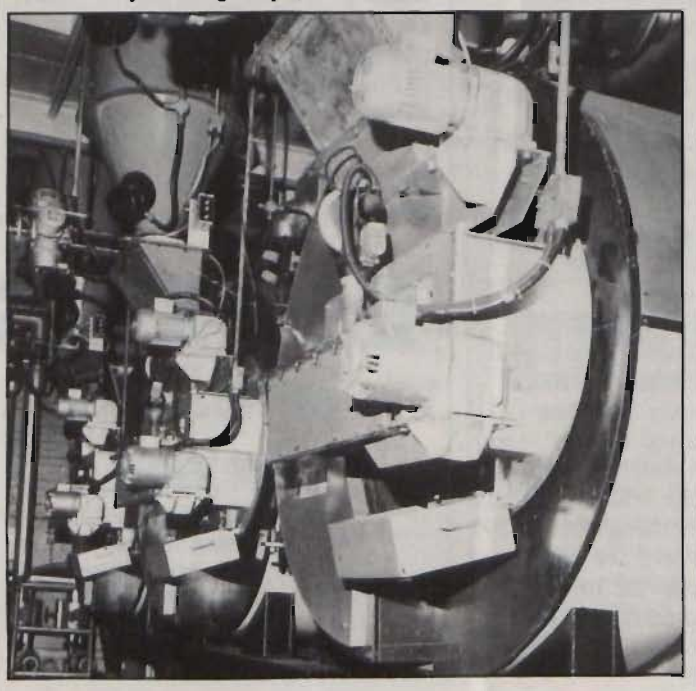
The 'Black Diamond' range of coal fired steam and hot water boilers are the latest product development from Halifax based Hartley & Sugden.

Based on experience gained over many years of coal fired boiler design and manufacture, these boilers represent the latest thinking for high efficiency automatic coal fired operation. Black Diamond boilers are available in five different outputs for both steam and hot water operation and may be supplied with outputs from 650 kW (2,250 lb/h) to 2,930 kW (10,250 lb/h) and working pressures up to 10.34 bar (150 lb. sq. in.).

These boilers are designed primarily for coal fired operation and may be fired via: drop feed stokers; mini-coking stokers; chain grate stokers; low ram stokers or pneumatically fed fixed grate burners. The boilers may also be fired by gas or oil forced draught burners and can be quickly converted from coal to these alternative fuels. High combustion efficiency, ease of operation and complete dependability with full fuel and stoking flexibility is ensured.

Fully or semi-automatic operation is available and several installations are successfully operating with computerised controls and self de-ashing facilities.

Details from McCaig Collim Ltd., (Tel: Belfast 656212/3/4).



• **The Hartley and Sugden Black Diamond boiler.**

Stelrad Natural Gas

Stelrad's most up-to-date boiler is the natural gas fired Concord Super. This energy saving boiler has an efficiency of 85 per cent on gross calorific value; even at part load.

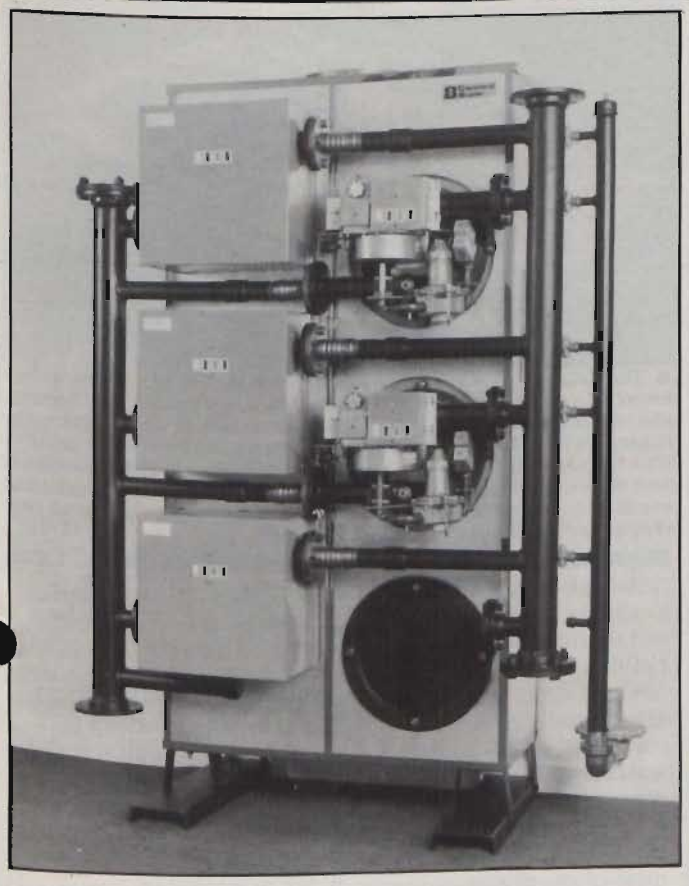
The Concord Super is made up of a number of identical heat exchanger modules. Each has an output of 50 kW (171,000 Btu/h), and together they form a highly effective boiler for commercial and industrial use.

The flexibility of the unit allows you to select the number of modules to exactly suit the outputs you require.

Each circular module is mounted in an insulated casing, which can take up to 12 modules. The boiler is controlled so that as the required temperature is reached the upper modules switch off first, then the middle modules and lastly the lower ones. Water in the upper modules is kept warm by exhaust gas from the lower modules which are still firing.

The boiler is lightweight, can easily be assembled by two men without the use of any mechanical handling equipment and only takes up a third of the floorspace required for

https://arrow.tudublin.ie/bsn/vol22/iss8/1
DOI: 10.21427/D77D75



• The Ideal Concord Super by Stelrad from P. J. Matthews.

traditional boilers.

Atmospheric natural gas boiler needs are met by the Ideal Concord C range and the Ideal Concord 400/1450 with output ranges of 41.0 to 96.7 kW (140,000 to 330,000 Btu/h) and 111.4 to 422.1 kW (380,000 to 1,440,000 Btu/h).

The Ideal Falcon, and Ideal Viceroy and Viscount ranges of boilers can both be supplied either for oil or gas firing.

It is relatively easy to change over the forced-draught burners, so anyone buying an oil fired boiler, for example, could later change to gas.

The Viceroy and Viscount are also available with dual fuel burners; so in those cases no change of burner is required if the user decides to switch fuels.

The Falcon boiler has a rating range of 25.4 kW to 115 kW (87,000 to 394,000 Btu/h). It comes in 12 sizes — from six to sixteen sections — and is designed to heat smaller commercial premises. Further models within the Ideal Falcon range are available as combination units with top mounted domestic hot water storage tanks.

The Ideal Viscount is manufactured in ductile iron, combining the advantages of steel and cast iron. It has an output range from 528 kW to 1480 kW (1,800,000 to 5,050,000 Btu/h).

The Viceroy was introduced in 1970 and since that time has achieved a significant part of the market. Its output ranges from 117 kW to 477 kW (400,000 to 1,630,000 Btu/h).

It has a hinged mounting to the burner, giving easy access to the combustion chamber and burner head.

Details from P. J. Matthews.

Evaporating Pressure Regulator for Refrigeration Plants

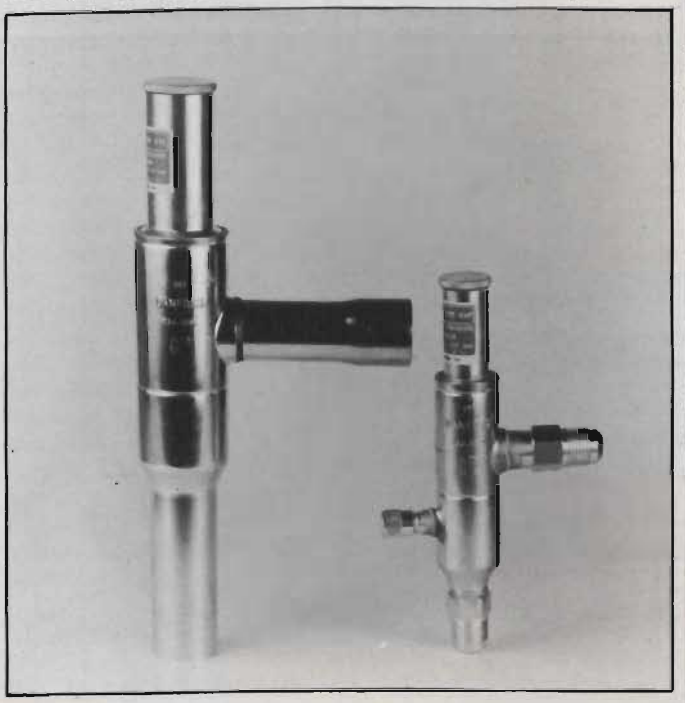
Danfoss introduces a new evaporating pressure regulator type KVP. It is a further development of the design marketed at present.

Mounted in the plant suction line after the evaporator, type KVP is used for two purposes:

Maintenance of a constant evaporating pressure on the evaporator surface. Regulation with a modulating effect. Throttling in the suction line adapts the sucked-off volume of refrigerant gas to the evaporator load.

Protection against two low an evaporating pressure since the regulator closes when the pressure falls below the setpoint.

Type KVP is used for fluorinated re-frigerants. Regulating range: 0-5.5 bar. Max. media temp: +60°C. Max. operating pressure: 14 bar. Capacity: Up to 5.6 kW (R12).



• The latest Danfoss evaporating pressure regulator type KVP.

Starting Regulator for Re-frigeration Plants

Danfoss introduces a new starting regulator type KVL in replacement of the design hitherto marketed by the firm.

Mounted in the suction line before the plant compressor, the regulator protects the compressor motor against overload especially owing to too high a suction pressure during start-up after lengthy standstill as well as after defrosting.

KVL makes it possible to use a smaller motor for low-temperature plants, with a resultant improved efficiency.

The starting regulator is used for fluorinated refrigerants.

Regulating range: 0.5-6 bar. Max. media temp. = +60°C. Max. operating pressure: 14 bar. Capacity: Up to 10.9 kW (R12).

For further details, please contact: Irish Agents and Distributors J. J. Sampson & Son Ltd., Unit 71, Cherry Orchard Industrial Estate, Ballyfermot Road, Dublin 10 (Tel: 268111) Telex 92219.

New Zirconia Oxygen Probes

Kent Industrial Measurements, at Cambridge, the gas analysis and monitoring specialists of Brown Boveri Kent, have introduced two new and improved zirconia oxygen probes as an addition to their latest range of Z-FG oxygen analysers. The fully site serviceable probes, when combined with the company's existing Z-FG electronics unit, form a simple, compact and low cost system for the measurement of net excess

Published by ARROW@TU Dublin, 1983

oxygen in combustion flue gases, and are suitable for use with the larger industrial boilers including gas fired boilers. The monitoring of oxygen is a most important evaluation for fuel saving and therefore economic boiler operation.

Based on experience gained from previous Kent zirconia oxygen analysers, the new probes incorporate many improvements and a lower purchase price has been achieved without compromise to the high standard of specification and performance. In common with the earlier models the two new Z-FG's are of the in-situ type and insert directly into the boiler smoke box or flue duct. Constructed mainly of stainless steel, the probes house a ceramic dust filter, the detector cell, a cell heater, a thermocouple and a flame trap which is fitted as standard. The flame trap enables the system to be used on gas fired boilers. The two new probles have insertion lengths of one and two metres respectively.

The established, compact electronics unit which completes the Z-FG system, houses a versatile, signal conditioning system together with cell heater control circuits and reference air pump. A local indicator, if required, is mounted in the hinged door and connections are provided for a remote signal output to an optional indicator or recorder.

The range of probes and the electronics units are compatible and therefore interchangeable. As a system, the Z-FG is simple to install, requires little maintenance and is fully site serviceable. All probe componets are easily removed and can be replaced on site without the use of special tools or bonding agents.

The Liquid and Gas Analysis Companies of Brown Boveri Kent are represented in Ireland by Industrial Instruments Ltd. of Cork.

New 'F' Version of the Thorn Olympic

Launched at the London HEVAC exhibition earlier this year, the new fan assisted version of the popular wall hung Olympic boiler from Thorn EMI Heating Ltd. is available in two models — the Olympic 20/35F with a range rated output of 20/35,000 Btu/h (5.86-10.26kW), and the Olympic 38/50F, (11.14-14.5kW).

Apart from the flueing arrangement, the boilers are identical to the existing standard Olympic's, in output and specification.

The fan is situated in the air inlet which ensures that the fan runs cool, and also pressurises the case, meaning there can be no spillage of products of combustion.

There are three flue applications with the Olympic F, rear, right and left, and for extended runs of flue in excess of 24'' right or left handed extended flues are available up to 59'', from the boiler to the outside wall.

The new fan assisted Olympic will give greater versatility of siting to specifiers and installers.

A high rise fixing kit is available, allowing ease of installation from inside the building.

The Olympic F boilers are specially designed for combined gravity hot water and fully pumped central heating, or fully pumped systems, and have the tried and trusted mini-pilot, giving maximum economy of use, without the worry of complicated electronics.

• Thorm EMI Heating's wall hung Olympic F wall hung gas boiler, installed for left hand flueing.

• The Edinburgh from the Carron stainless steel ranges comes in two forms — a single bowl and drainer version and a double bowl version, also with drainer, but both with smaller drainer sink to wash or defrost or to keep the scraps in. The second sink isn't just a half bowl affair either — it's a full size, full depth sink. It's very easily installed in 1000mm cabinets with work tops of any thickness between 16mm and 40mm. The waste and overflow fit just as easily and there's a full size deck for the taps of your choice. Further details are available from Ferguson Factors, Tel: 521533.

Versatile Single-Package Cooling Units from Walker

Walker Air Conditioning Limited, authorised distributors for Carlyle heating, air conditioning and refrigeration equipment, have introduced two compact and rugged rooftop cooling units suitable for shopping centres, offices, fast food stores or other commercial applications. These new 7½ ton units are available in custom-designed configurations to suit most installation requirements and they have a total cooling capacity of 87,000 Btu/h.

The 50CD is a downflow unit which discharges supply air directly into the conditioned space. Downflow design and accessory roof curb allow better air flow, compact construction and simple installation.

The 50CH is a horizontal unit ideal for slab mounting, through the wall installation or other applications where side connections are required.

Each unit is factory wired and fully charged for quick, easy on-site installation. Major featurs include Cycle-LOC compressor protection, refrigeration circuit protection, a crankcase heater and a belt drive fan which provides high static capability at nominal air flow.

A wide selection of field installed accessories help to increase still further the applicability of these machines and keep installation and operating costs low. These accessories include slide-in

https://arrow.tudublin.ie/bsn/vol22/iss8/1
DOI: 10.21427/D77D75

elements in various heat to cool ratios to provide electric heating if required. An economiser which allows some "free cooling", a remote control centre, time guard and motormaster are also available.

Gastech Heat Paks

Heat Pak No. 1
The Drugasar G2 and G2T are the smallest members of the Drugasar money saving, wall mounted, gas heaters. They are "balanced flue", therefore no chimney is required and they can be fitted on any external wall. The G2 range is ideal for kitchen, hall, study, bedroom, small dining room, office or workshop installation.

Heat Pak No. 2
Vaillant instantaneous wall mounted water heater — hot water, anywhere, anytime with the Vaillant instantaneous water heater, economical, simple installation, heating only as much water as you actually need.

Heat Pak No. 3
Vaillant Multipoint instantaneous water heaters. Comfort and convenience in the home must include a reliable and comprehensive supply of running water in the kitchen, bathroom and shower.

The Vaillant Mag 250 Multipoint features the following: Temperature selector, central switch, piezo-electric igniter, stainless steel burner, high quality copper-finned heat exchanger, pilot burner with thermo-electric ignition safeguard.

Heat Pak No. 4
Vaillant VC Gas Central Heating Boiler with extras built-in as standard.

Whenever you're considering a new installation or the replacement of an existing boiler, Vaillant VC wall mounted boilers have more to offer. For a start, they incorporate their own re-circulating pump, expansion tank, guages and by-pass valve, so installation is quicker and easier.

All models are available for natural, towns and L.P.G. operation.

Being wall hung, and requiring only about 0.5m^2, Vaillant VC Boilers can be installed in any convenient location and are ideal for flats, apartments and houses.

Four conventionally flued models cover outputs from 32,000 to 93,900 Btu/hr (9.3kw to 27.5kw). The output of all models — except for LPG — is range rated to about 50% of their nominal rating.

Heat Pak No. 5
The Vaillant Combi VCW is revoltionising gas central heating in Ireland.

The Vaillant combi is a complete single unit system covering all domestic central heating requirements from 33,000 Btus to 93,900 Btus, available in balanced and conventional flue models.

In fact all the equipment necessary for a gas fired central heating system and instantaneous hot water supply have been incorporated into a single compact wall mounted unit. It eliminates all the following costly components for faster, more cost-effective installations:- Hot water cylinders, water tanks, insulation, expansion vessels, by-pass valves and recirculating pumps.

Since the Combi comes completely pre-assembled, preplumbed and pre-wired, installation is simple a matter of mounting the Vaillant Combi on the wall, connecting up radiators and piped supplies, fitting the flue and running the electrical supply. The Vaillant Combi includes as standard the (Return) following additional accessories:
1. Pressure Relief Valve
2. Isolating Valve
3. Isolating Valve (flow)
4. Connection Set

The Vaillant Combi's big saving in time and effort obviously makes for more efficient, more profitable installations. It provides a continuous flow of hot water instantaneously. It costs less to run. It is from Vaillant the people who pioneered gas water heating and it is an altogether better, more efficient boiler.

Gastech are located at — Irish Gas House, Newtown Industrial Estate, Coolock, Dublin 5. (Tel: 476333) Telex 31716 EI and they welcome enquiries on any of the Gastech "Heat Paks".

New Taps from Armitage Shanks

Armitage Shanks have launched a practical range of quarter turn taps. They combine smooth effortless operation with the modern Starlite look. The smoothness of operation is provided by ceramic discs being incorporated in the headwork of the taps.

• New Starlite taps from Armitage Shanks.

This new range of Starlite lever action fittings comprises ½in basin, ½in high necked and ¼in bath taps. Their ease of operation and practical good looks make them the natural choice for the busy household as well as for many handicapped people who have differently operating conventional taps.

An exciting development to complement the already successful Starlite range.

esi

Energy Savers International are agents for Alfa Joule and can provide energy saving systems for domestic, commercial and industrial applications.

Joule Saver Equipment

* Joule Saver — up to 30% saving with oil or gas fired boilers.
* Joule 2000 — commercial and industrial equivalent to Joule Saver.
* The Clockwatcher — a switching device that saves fuel and keeps you warm.
* Joule Zone Control Units — from 2-50 zones design service.
* Warm Air Heat Controls — domestic, commercial, industrial.
* Economiser — for night storage radiators.
* Joule Seeker — Boiler waste heat recovery.
* Heat Pump — Warm air for cold.
* Joule 10,000 — micro-electronics for total energy control.
* Catalytic Combustion Improver — commercial and industrial.
* Solar Panels and Controls.

Agents with experience in the heating, ventilating and electrical business required on a nationwide county basis.

Apply:

esi

Energy Savers International,
St. Gatien House, Whitechurch Rd.,
Rathfarnham, Dublin 16
Tel:(01) 905119 Telex 24807/CTL SEI

Published by ARROW@TU Dublin, 1983

Safety in Gas Distribution

by J. Bowers, B.Sc., C.Eng., M.I.GasE. Distribution Engineer, Bord Gais Eireann

The following paper was presented at the recent Gas Ireland Seminar held in the Burlington Hotel, Dublin.

Gas, whether manufactured or natural, is a potentially dangerous fuel. This potential is only realised however, if it is not treated as such by the personnel working in or associated with the gas industry, and I include in this category all persons involved in the manufacturing, marketing and servicing of engineering materials, appliances etc., as well as the more obvious i.e. employees of the gas companies. It is vital for all such personnel to realise that no responsible person can expect "Joe Public" to treat gas with the same amount of respect and, therefore, he must be protected from his own complacency which is based on his expectations of our performance.

This responsibility also spreads to third parties such as electrical, local and telephone authorities, architects, builders, and indeed anyone else who excavates trenches in a public thoroughfare for whatever reason. They too have a responsibility to the public for gas safety.

Background

Gas has been known historically as the 3-D fuel. Not three dimensional unfortunately, but Dear, Dirty, and Dangerous. There was, in the coal gas era, some considerable justification for this image. Gas works were unavoidably filthy places, both for the people working in them and environmentally. The gas produced and distributed was highly toxic, and the pipes which distributed the gas were mostly constructed of brittle, unprotected, corrosion prone materials. The process of manufacturing gas in report houses was inefficient, and so gas became uncompetitive in the energy market, and was used principally only for cooking. Times have changed now and Ireland, like many other parts of the world is in the natural gas era. Following the successful completion by Bord Gais Eireann of the major transmission projects of the last few years, Kinsale Head gas is now in use in Cork and Dublin, and its use will spread hopefully, to other major centres of population in the near future. Cork Gas Company are currently halfway through their conversion project. Dublin Gas are also planning a similar project, and this presents a new challenge to the Irish gas distribution engineers, and others associated with the industry.

Distribution Technology

Traditionally, gas industries worldwide used cast iron pipe for gas mains in the coal gas era. For many decades, the 'caulked', socket and spigot joint (also known as run lead or lead yarn) was used with this material, and produced a relatively sound distribution mains system. There were three good reasons why the distribution engineer could have confidence in the system.

(i) Distribution pressures were very low — typically of the order of an average 4-5" w.g. (10-12 mbar).

(ii) The distributed gas was saturated with water vapour and many tarry hydrocarbons, both of which condensed out in the pipes, keeping the jute yarn swollen and sealed in the joint.

(iii) Heavy and continuous traffic over the mains did not significantly exist.

Pressure testing of newly laid mains was rarely if ever, carried out because of the above factors, and joint leakage and mains fractures were almost unheard of problems.

Mains jointing techniques developed from this position to the "bolted gland" joint which was cheaper and more labour efficient and utilised a rubber gland bolted into the socket and spigot joint. There were many of these systems developed, but all worked on the same priciple. These joints were also kept sound by the presence of aromatic hydrocarbons in the gas which swelled the rubber in the joints. The pipe and fittings were still produced in grey cast or spun iron material which possessed sufficient strength for the times. The distribution engineer still did not have any need for the additional safeguard of a pressure test and joint leakage problems were still rare.

Because of the uncompetitiveness of coal gas, a more efficient and cost effective method of gas manufacture was required if gas was to survive as an energy source. Reforming of oil in large, centralised plants to produce a towns gas of similar composition to coal gas provided the answer and gas demand increased.

Local distribution pressures increased also to an average of 7"-8" w.g. (17-20 mbar). Environmental changes began to impact on the distribution system in the form of heavier traffic loading and the cast iron pipe was found to be susceptible to fracture. Ductile iron pipe which was claimed to have the strength of steel was introduced, utilising the then traditional bolted gland joint. Distributed gas still had a proportion of aromatic hydrocarbons and since it was mostly stored in gas holders over water prior to distribution, it still contained a proportion of water vapour and so joints remained reasonably sound.

Gas services had also been through similar stages of development. Initially, the material most popular was lead, the traditional plumber's material. Mains were laid in footpaths very close to property, particularly terraced type and in city centres, so despite the cost of the material, service runs were kept short and therefore economical. As costs increased, unprotected iron and then steel pipe replaced the lead and screwed joints were utilised. The susceptibility of steel to corrosion problems was realised and bitumen or plastic coatings were applied to counteract the problem.

Safety problems for the distribution engineer are created when natural gas is introduced into the old mains systems. Joint yarn is dried out, and the swollen rubber in mechanical joints begins to shrink because of the absence of both moisture and aromatics in natural gas, so the joints begin to leak. Heavy traffic loading in our cities causes fractures of the old cast iron mains, and corrosion of unprotected pipes, particularly service pipes, is a further significant potential hazard.

https://arrow.tudublin.ie/bsn/vol22/iss8/1
DOI: 10.21427/D7D75

Safety in the Natural Gas Era

Existing Distribution Systems

Following completion of conversion to natural gas in, for example, the U.K., there were a number of "incidents" which led to a Government enquiry into serious gas explosions. In the enquiry report (known as the King Report and published in 1977) it was concluded that a mains replacement policy was necessary to reduce the possibility of further increases in the numbers of serious gas explosions. The report identified small diameter (up to 4") cast iron mains and any unprotected (from corrosion) steel mains in particular locations as being "high risk" and recommended that British Gas step up its rate of replacement of these mains in order that they were eliminated by 1984, and that this rate of renewal be maintained after 1984, until all secondary risk mains had also been eliminated. This was obviously a very expensive policy recommendation, and was made despite the best efforts of the U.K. gas industry to apply preventative techniques to the old mains system.

Since the Irish gas industry has very similar distribution systems in terms of materials, joints, pipe diameters, and, hopefully, growth of demand in the post-conversion era, it is essential that we do not lose sight of these lessons, which were so bitterly learned, amidst the excitement of the development and expansion of the old systems. Techniques have improved in the areas of preventative work such as the glycol conditioning systems (used to keep the yarn in caulked joints swollen), joint encapsulation or repair clamp systems used in conjunction with methods for minimising excavation sizes, internal mains treatment systems etc.

Equally, new techniques to minimise the cost to the utility and inconvenience to its customers of mains replacements have, and are, being developed principally around the technique of inserting Polyethylene (PE) Pipe into the old main which is to be replaced. The major developments include "Live Insertion" (the new pipe is inserted into the old pipe while the gas is still flowing) and "Size for Size" insertion (the old pipe being replaced by a new PE pipe of similar diameter). These techniques have been developed for cost effectiveness, principal savings being achieved in the areas of productivity (it is possible to renew 50 to 100 metres of main and associated services in one day with a six man gang) and reinstatement (excavation is minimised by utilising the old pipe as a sleeve).

Similar techniques for service renewals are also available, service extraction machines have been widely used for some time and can be extremely cost effective especially in "block" renewal schemes.

Leakage surveys form an essential part of any preventative maintenance system since, without a knowledge of the leakage history of the distribution system, the gas engineer cannot ensure that his expenditure in this critical area is effective in reducing the hazard. While it is known that certain sizes of particular materials in particular locations represent the highest risk, a proportion of these mains will be in perfect condition and need not be renewed. Leakage records, therefore, are of prime importance to distribution safety.

A vital distribution safety factor is public awareness of the potential hazard. How many times have we read in the newspapers after an incident involving gas leakage that "one local resident said he had been able to smell gas at that location for years". The sad fact is that the public may well smell it but they rarely report it. A campaign to educate the public in gas safety and to encourage a responsible attitude is as important as any other public education programme. It is equally important that gas companies are seen to expedite all Public Reported Escapes, despite the fact that a proportion of them will be spurious.

New Distribution Systems

Modern natural gas distribution systems are constructed from modern materials, which are designed to avoid the creation of any further safety hazard. Probably, the most important material in this respect is the polyethylene piping system. The material itself is inherently corrosion resistant; it is jointed by a fashion welding technique, which creates a homogenous system free from possible joint leakage problems in the future, and the material has sufficient strength to allow the utilisation of the higher natural gas pressures which are available, thus enabling the pipes sizes required to be minimised. This material is also, generally, cheaper to purchase and install than the traditional pipe materials which have been used in the past. One drawback of polyethylene pipe is its susceptibility to interference damage, but international experience has shown that the development of formal and informal utility co-ordination systems and "excavator education" can reduce this risk to an acceptably low level.

A second material for new systems is welded steel pipe, cathodically protected against corrosion. This high strength material allows the development of distribution systems for operating pressures as high as 19 bar and is, of course, used for the national transmission systems at very much higher pressures.

However, equally important safety factors required for the future, to complement the technological advances, are gas distribution standards and associated training programmes.

The Irish gas industry is relatively small by international comparison and until recently, has had no national gas standards for guidance. Formal training, particularly in distribution, has been negligible except by experience of working in the industry. The modern materials demand the use of modern technology by distribution personnel if their effectiveness is to be realised, and if their use is to enhance the safety of the industry. National minimum standards and associated training programmes are, therefore, of paramount importance to the industry.

Gas Technical Standards Committee (GTSC)

This committee was formed in 1982 under the auspices of the Institute for Industrial Research and Standards (IIRS). The main committee formed a number of sub-committees to consider the formulation of national standards in specific areas of the gas industry. For the purposes of this presentation, I will confine my comments to the work of Technical Committee No. 1 (TC1) — Gas Distribution. The Committee is chaired by Mr. John Sweeting, Cork Gas Company and BGE, New Dublin Gas, C.I.I., I.L.P.G.A. and I.I.R.S. are represented on it. The committee's immediate priorities were determined as:

(i) A standard for gas services.

(ii) A standard for gas mains.

It was decided initially, that safety regulations for each of the above subjects should be produced in advance of the standards.

In the course of the committee's work, however, it was clear that the production of detailed standards would take longer than anticipated and so it was decided that the safety aspects should be incorporated into a provisional standard for each subject to provide national minimum requirements for fundamental aspects, which could be used by undertakings to produce individual Codes of

Published by ARROW@TU Dublin, 1983

Times have changed now and Ireland, like many other parts of the world, is in the natural gas era. Following the successful completion by Bord Gais Eireann of the major transmission projects of the last few years, Kinsale Head gas is now in use in Cork and Dublin, and its use will spread hopefully, to other major centres of population in the near future.

Practice for their immediate and short term operations. A provisional standard for service laying has now been finalised by TC1 for recommendation to the G.T.S.C. and we hope that this can be published in the near future.

The document is general and lays down minimum requirements in the principal safety areas of, fixing of service valves, sealing of pipe entries through walls, services to multistorey buildings, pipe laying, services operating at elevated pressure, testing and commissioning. Work is proceeding on the Second Edition of this Standard, which will be far more detailed and will include material specification references, and consideration of aspects of Gas Services other than the laying of new pipe.

A similar Provisional Standard for Mainlaying is also being prepared and will be circulated for public comment by the Autumn.

During the preparation of the above mentioned documents, many other requirements have come to light by the sharing of experiences of the committee members, and in particular:

— The need for materials purchasing specifications and the question of quality assurance and certification of materials to those specifications.

— The need for a national system of utility co-ordination to control excavations in public thoroughfares.

— Standards for the design of pressure regulating installations.

— Training, which is being considered by another technical sub-committee.

Conclusions

What what of the 3-D fuel? I propose that natural gas should be promoted as the 3-C fuel.

Competitive — natural gas should allow all gas companies to provide existing and potential consumers with a premium fuel at a competitive price.

Clean — Kinsale Head natural gas is of the highest quality and purity and, burned directly and efficiently as a premium fuel, can make a significant contribution to the problem of environmental pollution.

Capable of being safe — and I make no apology for the creation of the third C. Safety can only be achieved by the responsible application of good standards by everyone associated with the industry, and by those whose work impinges in any way on the industry. An examination of worldwide statistics would show that natural gas has an excellent safety record in comparison with other forms of energy, but this safety record does not happen because of natural gas. Natural gas can only maintain its safety record if it is treated by everyone with the respect that a potentially dangerous fuel deserves.

Safety is fundamental to gas engineering.

Analysis of the Ducting and Ventilation Industry

As part of his studies Ian Sweeney recently completed a project on the ducting and ventilation industry and developed a business idea from the project. The following is part of the project and it will be published in three parts over the next few issues. This first part looks at the Economic Importance of the sector.

Gross Output and Contribution to GNP

The sector I have chosen (namely ducting and ventilation) is very small in terms of contribution to GNP. Figures for output are not available, therefore, I have had to make a survey and use these estimations to calculate the output + percentage of GNP. These figures refer to 1982.

Large firms in the sector

There are approximately six fairly large firms in the sector, one of which I have worked for, for the past five years. I have seen the accounts of two of these firms and it is fairly safe to assume that the average output is between £250,000 and £300,000 per annum. One or two of these firms may be larger or smaller as the case may be, but overall output of £1,650,000 is not far off the mark.

Medium sized firms

There are approximately 10 of these firms but I have only been given estimates of output for one of these firms. However, judging by the number of employees they have and the approximate amount of jobs they do, an average output of between £130,000 and £170,000 is not too far off the mark. So their overall output is approximately £1,500,00.

Small firms

This section accounts for about 15-20 firms consisting of some general sheet metal shops who do some ductwork and also some large companies who have small sections to do ductwork. These firms would produce no more than £75,000 of duct per annum on average. This section's total would be approximately £1,312,500.

This would give a total for the sector of £4,462,500.

I have suggested this figure to many of the business men in the sector and consulting engineers and, although some believe it's lower, many agree with the approximation. This figure is only .243% of the output of the building industry and as a percentage of GNP it is negligible.

Employment

Employment in this sector is approximately 500 people. The breakdown for this figure is discussed in Section 6 of the project. Again, as the sector is fairly small, no figures were available so I had to do my own research. It is fair to say that this sector has a fairly small economic importance with regard to employment, despite the fact that it is labour intensive. This subject is discussed more fully at a later date.

Growth Trends in the Sector

The trends for growth and decline in this sector are totally dependent on the construction industry (see

https://arrow.tudublin.ie/bsn/vol22/iss8/1
DOI: 10.21427/D77D75

BUILDING INDUSTRY

Summary of Output for 1976-1979 in Constant 1975 Prices

A	WORK DONE BY THE PRIVATE SECTOR (Contractors and own account)	£ million 1976	1977	1978
1	Housing	217.92	235.22	272.23
2	Industry and Semi-State Bodies	64.73	72.23	95.90
3	Agriculture	38.30	43.89	43.88
4	Commercial Development	23.81	26.14	26.03
5	Education	22.62	25.70	29.74
6	Water supply and sewerage	18.34	14.72	13.89
7	Hospitals	8.48	8.56	10.96
8	Public Buildings	6.73	6.36	7.08
9	Telecommunications	5.38	5.65	6.15
10	Tourism Development	3.95	5.47	5.40
11	Ports and Harbours	0.98	1.85	0.96
12	Roads	2.64	2.85	2.94
13	Environmental Services	1.08	1.15	2.13
14	Worship	2.25	1.33	1.50
15	Airport Development	0.72	0.84	0.63
16	Repairs and Maintenance	41.95	44.02	56.30
	TOTAL	459.90	494.08	575.86

Table 2.1

BUILDING INDUSTRY

Summary of Output for 1979-1982 in Constant 1975 Prices

A	WORK DONE BY THE PRIVATE SECTOR (Contractors and own account)	£ million 1979	1980	1981	1982
1	Housing	312.82	263.21	264.61	245.63
2	Industry and Semi-State Bodies	126.25	152.88	164.55	167.37
3	Agriculture	64.91	38.68	41.25	31.31
4	Commercial Development	34.46	35.82	37.67	34.58
5	Education	27.75	27.91	31.33	32.70
6	Water Supply and Sewerage	20.22	23.87	25.10	27.31
7	Hospitals	13.80	15.52	17.54	16.51
8	Public Buildings	9.16	11.09	16.32	19.03
9	Telecommunications	6.50	12.33	23.03	15.56
10	Tourism Development	7.13	8.28	6.79	6.90
11	Ports and Harbours	2.17	7.38	5.75	5.72
12	Roads	3.31	3.13	5.02	4.81
13	Miscellaneous Environmental Services	3.98	3.79	3.98	4.78
14	Worship	1.95	2.15	2.24	2.26
15	Airport Development	0.89	1.10	2.57	2.55
16	Gaeltacht Development	0.32	0.30	0.24	0.22
17	Repairs and Maintenance	77.13	49.56	34.14	25.98
	TOTAL	711.78	656.00	682.13	645.24

Table 2.2

Table 1).

(a) *Line A:* This is a graphic representation of output for the building industry from 1976-82 in current prices.

(b) *Line B:* This is a graphic representation of output figures for Sweeney Sheet Metal who are an average sized heating and ventilation sub contractor employing 22 men. This is approximately the trend which has been experienced by most of the other major firms in this sector.

A comparison of the lines clearly indicates that the heating and ventilation sector follows growth in the building industry closely.

To examine real growth trends we must look at output in terms of constant prices with a base year (1975). See Tables 2.1 and 2.2. These tables show growth up until 1979-80.

The real growth trends are shown more clearly in Table 3, which is a graphic representation of Tables 2.1 and 2.2. This graph, unlike the graph in Table 1 takes inflation into account and as such shows the trends more realistically.

Overall trends within construction are determined by the level of economic activity in the economy. It is possibly the most sensitive industry to economic change. There was a steady increase in the amount of building being done from 1976-1980. This was mainly due to increased government expenditure and an influx of new foreign firms.

The recession hit the building industry and stopped most of growth in 1980. The government at that time decreased the amount of public expenditure on construction. It was hoped that the Fianna Fail government, which gets a lot of its support from the large building and construction firms, would pump money into this sector. Although this was done to a limited extent, it only halted the decline and did not cause any growth as can clearly be seen from Table 3.

Unfortunately, the outlook for the construction industry is not good in the short run. It is becoming increasingly more difficult to find work and the competition, particularly in the ventilation side of construction, has proved to be too strong for many firms. Indeed, most firms have been forced to lay off men. (See Table 4).

However, looking at the long-term situation, it is expected that the economy will come out of this recession and that the construction industry should pick up.

Output of Building Industry and Sample Heating and Ventilation Firm for 1976-1982 in Current Prices

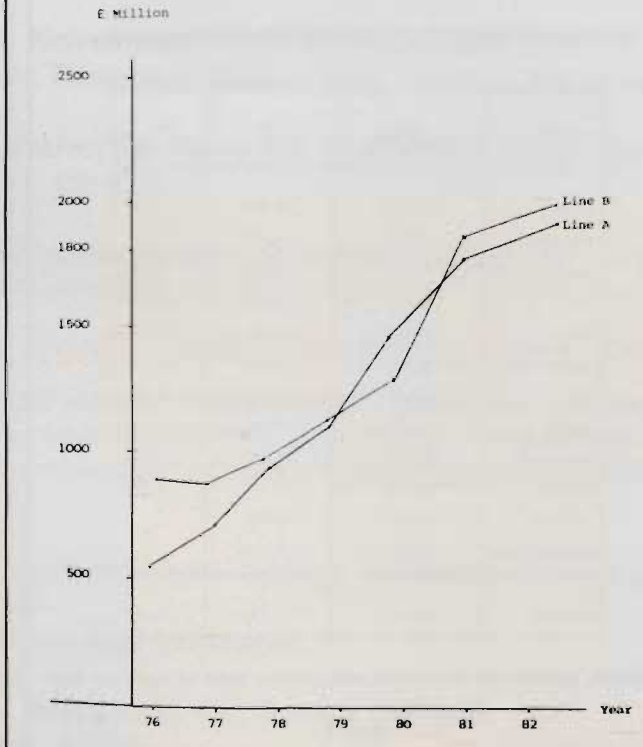


Table 1

Factors Affecting Growth Climate

Ireland has a damp, moist

Published by ARROW@TU Dublin, 1983

climate with no extremes of heat or cold. This restricts the growth of the heating and ventilation systems greatly. Normal building requirements for such systems are very simple and straightforward in Ireland and show no indication of increasing unless there is a radical change in climate, which is unlikely.

Population
Ireland is, for the first time in many years experiencing a steady growth in population. This will lead to increases in demand for housing, factories, schools, hospitals, etc, which in turn will cause a growth in demand for heating and ventilation systems.

New industries
New industries which are now coming into Ireland have greater demands for ventilation and heating.
(a) *Chemicals*
The chemical industry requires very precise ventilation and temperature level control. This is essential for the safety of the workers, which are protected by law, and also for the quality of the product. The growth of the chemical industry will automatically lead to an increase in demand for high power and quality ventilation systems.

(b) *Electronics*
Electronics and any other field with a high quality production process require very high powered extraction units. Dust in the air can cause a great decrease in the quality and performance of the finished goods. For example, Becton and Dickenson (Irl) have, in the past few years, built two factories, one in Dun Laoghaire and one in Drogheda which supply all of Europe with syringes. The ratio of total building cost to ventilation costs in these factories were more than three times the normal average.

This type of industry has been growing in Ireland (with help from the IDA) and hopefully will continue

Summary of Output in Building Industry 1978-83
Constant 1975 Prices

Table 3

Unfortunately, the outlook for the construction industry is not good in the short run. It is becoming increasingly more difficult to find work and the competition, particularly in the ventilation side of construction, has proved to be too strong for many firms.

UNEMPLOYMENT IN THE BUILDING INDUSTRY

MONTH	1980* (new basis)	1981	1982
January	19,664	26,928	31,337
February	19,603	27,389	32,544
March	19,823	27,749	32,561
April	20,114	27,755	32,497
May	20,270	27,373	32,137
June	20,893	26,930	32,248
July	18,076	26,976	32,748
August	21,731	27,765	34,148
September	22,038	27,589	33,866
October	22,848	28,015	34,585
November	24,296	28,995	
December	25,035	29, 821	
AVERAGE	21,466	27,774	32,866

***Excluding persons on short-time and persons aged 65 years or over**

Table 4

Services
As the economy advances a greater percentage of GNP is devoted to services. Everything from banking and insurance to restaurants and hairdressers experience growth. Banks and insurance companies can afford to install good ventilation and usually do so for the employees comfort. Restaurant and hairdressers find it essential to install such systems for the customers' comfort. With increased living standards, people demand better medical facilities. Hospitals and research centres require very high standards of ventilation for obvious reasons.

Nature of the sector
The ventilation of a building is by no means essential. It is like an added extra. Although the standards of ventilation systems in Ireland are among the highest in the world, there are no binding regulations or laws laid down (unless there is a need to protect the individual safety) forcing builders to install such systems. Therefore, when a builder is on a low budget, the money alloted to ventilation is among the first to be cut. This means that heating and ventilation is doubly sensitive to changes in the economy.

Imports and exports
Unfortunately, there are no exports from this sector and all the major raw materials are imported. It is, I am afraid, impossible to calculate the exact quantity, as there are no figures for such a small sector. However, 20% of this sector's output would not be too far off the mark, so I would guess about £1 million of imports for this sector. The reasons for all imports and no exports will be discussed later.

● *Next month we'll look at the number of firms in the sector and list some of the major ones. We will also examine the products provided and the manner in which they are marketed.*

https://arrow.tudublin.ie/bsn/vol22/iss8/1
DOI: 10.21427/D77D75

PLAN EXPO is a two-day exposition of architectural products and design lectures to be held in the Burlington Hotel, Dublin, on Tuesday 1st and Wednesday 2nd November 1983.

PLAN EXPO is being organised by Plan Magazine, the architectural monthly publication for all Ireland, and will comprise two major events:-

DESIGN LECTURES:

There will be two lecture sessions on a theme of interest to all developers, architects, designers, engineers, surveyors and contractors:
"Multi-Disciplinary Design and Contract Management":-

Tuesday 1st November: "BUILDING DESIGN"
Session Chairman: **Denis Haslam** ARIBA MRIAI, President of the Royal Society of Ulster Architects and Partner, Anthony F. Lucy & Co., Belfast.
Guest Speaker: **Derek Sugden** MICE MIStructE MWeldI MIOA, Partner, Arup Associates, London.

Wednesday 2nd November: "INTERIOR DESIGN"
Session Chairman: **Desmond Doyle** FRIAI, Partner, Burke-Kennedy Doyle & Partners, Dublin.
Guest Speaker: **Stefan Zacharay** BA FSIAD FBID FRSA, Director, Stewart McColl Design Associates, London.

Advance bookings per person per lecture cost £10.00 + 23% VAT (£12.30 total) or at the door if seats available £15.00 + 23% VAT (£18.45 total).

EXPOSITION OF ARCHITECTURAL PRODUCTS:

PLAN EXPO offers you the manufacturer, distributor and supplier of architectural products a truly unique opportunity to promote the specification of your products and services to the construction industry's most influential specifiers in a conducive environment.

Full information on both lecture sessions or exhibition costs and details are available from:
Richard P. Byrne or Neil Steedman
PLAN Magazine
5/7 Main Street, Blackrock, Co. Dublin, Ireland.
Tel.: 885001 Telex: 92258.

Published by ARROW@TU Dublin, 1983

INSULATION OF PIPES AND TANKS

Pipe insulation is a practical method of achieving significant energy savings using insulating materials which are readily available. Apart from reducing heat loss through pipes, saving fuel and reducing running costs, efficient pipe insulation has many additional benefits:

- Temperatures of the fluid in the pipe can be maintained closer to desired levels despite changes in external conditions.
- Heat gains from the piping is reduced, making the heating system easier to control in winter and providing more comfortable working conditions in summer.
- Insulation reduces surface temperatures so that the plant and the building are made safer for the occupants.
- With minimum heat loss the heating system can be tailored to the optimum economic size.
- For exposed piping the risk of freezing is greatly reduced.
- Uninsulated steam pipes of small diameter may condense heavily and so restrict the steam supply to outlying areas.

A wide range of products for pipe insulation is currently available from a number of different manufacturers. Detailed information may be obtained from manufacturers literature, but in all cases the desirable properties for pipe insulation may be summarised as follows:

Property 1
Ability to withstand operating temperatures while still retaining effective insulating properties. It is therefore essential to ensure that the operating temperature of the pipe does not exceed the permissible temperature limits of the insulation as quoted by the manufacturer.

Property No. 2
The insulation should be resistant to moisture penetration and should have adequate compressive strength to resist local loads imposed by scaffolding, boards, ladders, etc.

Property No. 3
The fire rating of the insulation should conform to fire safety requirements, particularly with regard to the emission of smoke and noxious gases.

Property No. 4
To avoid excessive labour costs, the insulation should be simple in construction, thereby

Table A1 k-values of insulating materials as a function of average temperature

Insulating material \ Average Temp. °C	50°	100°	150°	200°	250°	300°
Product A	0.041	0.047	0.055	0.065	0.079	0.094
Product B	0.040	0.045	0.052	0.062	0.073	0.090
Product C	0.036	0.044	0.055	0.066	—	—

Table A2
The Economic Thickness of Pipe Insulation

Stage	Parameter	Calculation method	Data required
I	Heat loss from pipe (watts/metre)	See Appendix B	Operating temp. of pipe. Ambient temperature Pipe dimensions. Insulation thickness and its k-value.
II	Annual heat loss from pipe (H) (watt-hours/metre per annum)	H = Heat loss (watts/metre) x annual hours of operation	Heat loss (from stage I). Hours of operation per annum.
III	Convert heat loss from Wh/m/annum to Gigajoules/m/annum (H_1)	$H_1 = H \times 3.6 \times 10^{-6}$	Conversion factor 3.6×10^{-6}
IV	Find the cost of the heat lost (H_2) over the entire period for which the investment in insulation is to be evaluated (i.e. the evaluation period)	$H_2 = H_1$ x evaluation period in years x cost of useful heat	Heat loss per annum (H_1) (from stage III). Cost of useful heat from charts.
V	Find the total cost	Sum of the cost of heat lost and the cost of the insulation	Heat loss cost (from stage IV). Capital and installation costs of the insulation.

https://arrow.tudublin.ie/bsnjvol22/iss8/1
DOI: 10.21427/D77D75

allowing for ease of application to the pipe.

Note:
It is important to note that the k-values of insulating materials vary with temperature. The k-values quoted at ambient temperatures are considerably more favourable in terms of insulating value than k-values at higher temperatures (see Table A1). The user should therefore specify the likely operating temperature when requesting information on the k-values of insulating materials.

As before, the R-values of suitable insulating materials may be determined once the k-values and the thickness of the insulation products are known. To ensure value for money, the insulating material chosen should be that which exhibits the largest R-value per unit cost, i.e. the highest R-value/£.

Having decided on the type of insulation, the next stage is to estimate the optimum thickness; i.e. to calculate the economic thickness of insulation. The method of calculation is similar to that already outlined for the economic thickness of building elements. It is first necessary to find the heat loss per metre run of pipe (expressed in watts/metre) given the following data:
(i) Temperature of fluid within the pipe.
(ii) Ambient temperature.
(iii) Inner and outer diameter of pipe.
(iv) Insulation thickness.
(v) Thermal conductivity of the insulation at the working temperature.

The heat loss in watts/metre may be found from manufacturers' data on the insulation of pipes.

The procedure for calculating the economic thickness of insulation is summarised in Table 1B

Here is a worked example using that method:

The supply of steam to

Table B1

Insulation thickness t	20	40	60	80	100	120
Heat loss from pipe expressed in watts/metre (W/m)	125.9	76	57	46.9	40.6	36.3

Table B2

Heat loss in W/m (from Table B1)	125.9	76	57	46.9	40.6	36.3
Multiply above by the annual hours of operation*	483456	291840	218880	180096	155904	139392

*The pipe operates 16 hrs/day, 5 days/week, 48 weeks/year. The annual hours of operation are 16 x 5 x 48 = 3840 hours per year.

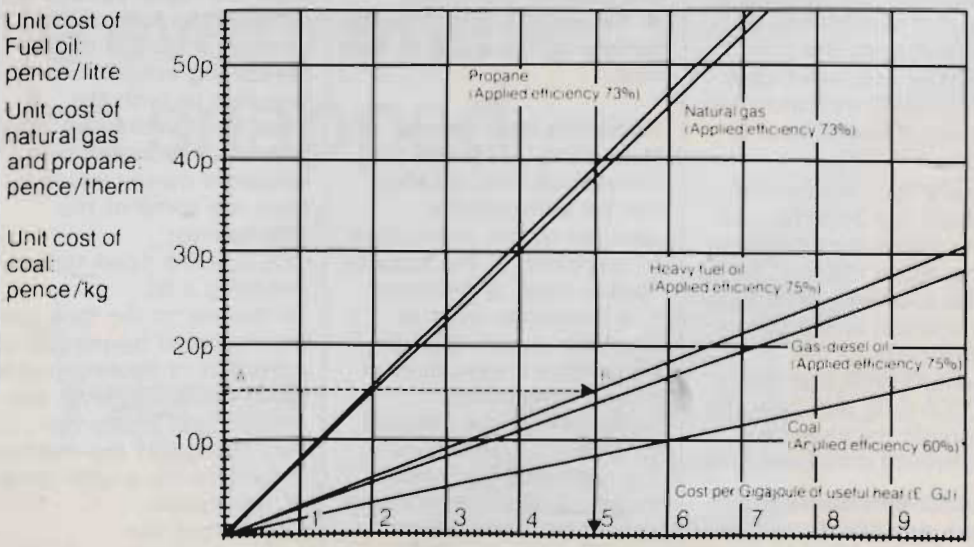
Table B3

Heat loss per annum in Wh/m (from Table B2)	483456	291840	218880	180096	155904	139392
Multiply above by 3.6×10^{-6} to obtain heat loss in GJ/m/annum	1.740	1.051	0.788	0.648	0.561	0.502

Table B4

Heat loss per annum in GJ/m from Table B3	1.740	1.051	0.788	0.648	0.561	0.502
Multiply above by the cost of useful heat (i.e. £5/GJ)	8.7	5.26	3.94	3.24	2.81	2.51
Multiply above by the evaluation period in years (i.e. by 7)	60.9	36.82	27.58	22.68	19.67	17.57

Table B5



a process area is served by a pipeline operating at a temperature of 150°C. The external diameter of the pipe is 140mm and its internal diameter (or bore) is 127mm. It is proposed to insulate the pipe with a material whose k-value is 0.0452 W/m°C at the temperature of operation. What is the economic thickness of insulation?

SOLUTION

Stage 1 Find the rate of heat loss from the pipe corresponding to a range of insulation thickness.

Stage II Find the Annual heat loss from the pipe.

Stage III Convert heat loss from watt-hours/m per annum in Gigajoules/m per annum.

Stage IV Find the cost of the heat loss over the evaluation period.

The cost of the heat lost is the product of:

- the heat loss per annum (GJ/m/annum) from Table B3
- the evualation period in years, chosen as seven years in this case
- the cost of useful heat supplied.

The cost of useful heat is found by reference to Table B5

In this case heavy fuel, at 15.2 pence/litre, is used for steam raising. To obtain the equivalent cost of useful heat in £/GJ, locate point A on the chart corresponding to the fuel price at 15.2p/litre. Draw a horizontal line from point A to meet the line marked 'Heavy Fuel Oil' at point B. From B a vertical line is projected onto the horizontal axis meeting it at C. Point C indicates that the cost of useful heat is £5/GJ.

Stage V Sum the cost of the heat lost and the cost of insulation for each value of insulation thickness.

The economic thickness of insulation is that which corresponds to the minimum total cost, i.e. £37.38/m. In this case the economic thickness is 80mm.

Table B6

Insulation thickness, mm	20	40	60	80	100	120
Installation costs of scheme, £ per metre of installed insulation	3.9	7.5	11.1	14.7	18.3	21.9
Heat loss cost, £/m from Table B4	60.9	36.82	27.58	22.68	19.67	17.57
Total cost, £/m	64.8	44.32	38.68	37.38	37.97	39.47

Minimum cost

Table C Heat loss from sides of tank

Parameter	Uninsulated tank	Insulated tank
R-value	0.09 m² °C/W	1.0 m² °C/W
$\frac{1}{R}$	11.11 W/m² °C	1.0 W/m² °C
Area* of sides and base of tank	13.34 m²	13.34 m²
Difference in temperature (ΔT) between the water in the tank and ambient temperature	77.5°C	77.5°C
Heat loss in watts = $\frac{1}{R}$ x area x ΔT	11486 W	1034 W

*Area = Area of 4 sides + area of the base of the tank.
= 2 x (3.66 x 0.91 + 1.22 x 0.91) + (1.22 x 3.66)
= 13.34 m².

Insulation of Storage Tanks and Vats

The use of insulation for storage and handling equipment offers significant scope for reducing heat loss. Heat loss from an open tank containing hot liquids occurs in the following ways:

- by conduction, convection and radiation associated with the sides and base of the tank;
- by evaporation from the surface of the liquid in the tank.

Reducing heat losses

Heat loses by conduction, convection and radiation can be substantially reduced by the application of insulation in the form of flexible mats or blankets. The insulation must be carefully chosen taking into account factors such as the temperature limitations of the material, its resistance to moisture, fire risks and insulation length. Adequate provision should be made for weather-proofing the insulation, especially in exposed locations.

Tanks which are open to the atmosphere (e.g. condensate tanks, miscellaneous process tanks, etc.) are subject to heat loss by evaporation from the surface of the liquid.

Evaporative heat loss from the water surface far exceeds the loss of heat through the walls of the containing vessel. This provides us with the incentive to minimise heat loss by evaporation by whatever means possible. Here are some of the alternatives:

(i) Cover the open tank by installing a lid.

(ii) Access to the tank can be preserved by the use of a blanket of floating plastic balls. A floating layer will reduce heat losses by two-thirds and the method is suitable for a wide range of hot liquids.

(iii) Reduce the temperature of the liquid where feasible.

(iv) Redesign the process or develop an alternative process which dispenses with the use of open tanks.

(v) Allow the tank to cool overnight if the plant operates on a one or two shift basis.

(vi) Allow the tank to cool over weekend periods where a five day week is in operation. A simple time clock controller can be installed to vary the supply of heat to the tank according to the desired schedules.

To illustrate the savings which can be achieved, consider the insulation scheme for a hot water tank, the details of which are as follows:

Water temperature: 93°C
Ambient temperature: 15.5°C
Tank dimensions: 3.66 metres x 1.22 metres x 0.91 metres.

Prior to adding insulation, the R-value of

https://arrow.tudublin.ie/bsn/vol22/iss8/1
DOI: 10.21427/D7D75

CROWN
PIPE INSULATION

With the distinctive heat-saving Z-lock. The self-sealing joint created by Fibreglass.

Clean, smooth, firm. With plain, canvas or Class 'O' facing.

In 263 sizes, 1200 mm long. Up to a super-thick 100 mm.

Crown Pipe Insulation.

Available everywhere. Ready to be snapped on.

Fibregl

PILKINGTON

◂ Fibreglass Insulation Products ▸

Fibreglass Limited
Insulation Division
21 Merrion Square North Dublin 2

Fibreglass Limited: A member of the Pilkington Group

Published by ARROW@TU Dublin, 1983

the uninsulated tank was 0.09m^2°C/W. After adding 35mm of insulation the R-value was increased to 1.0m^2°C/W. The heat loss through the four sides and the base of the tank is calculated in Table C.

Evaporative heat loss

The heat loss by evaporation from the water surface was 15135W/m^2. This was reduced by 75% by covering the surface of the water with small plastic spheres. The evaporative heat loss is now 3784 W/m^2. Total evaporative heat loss is calculated in Table D.

Tables C and D are summarised in Table E.

● The above article is part of a booklet issued by the Department of Industry & Energy prepared by the IIRS. The complete booklet on insulation is available from the IIRS.

Table D Evaporative heat loss from water surface

Parameter	Uninsulated surface	Insulated surface
Heat loss/unit area	15135 W/m^2	3784 W/m^2
Area of surface	4.465 m^2	4.465 m^2
Heat loss x Area	67578 Watts	16895 Watts

Table E Energy savings through tank insulation

	Uninsulated	Insulated	kW savings	% energy savings
Heat loss from sides and base of tank	11.49 kW	1.03 kW	10.46 kW	91%
Heat loss from water surface	67.58 kW	16.90 kW	50.68 kW	75%
Totals	79.07 kW	17.93 kW	61.14 kW	77%

C & R LIMITED

Insulation Specialists and Sheet Metal Contractors

Industrial Estate,
Grange Road,
Baldoyle,
Dublin.
Telephone: 390064
390478

Factoryliner from Fibreglass

Factoryliner lightweight insulation board by Fibreglass Limited is one product which meets insulation and lining requirements in new and existing buildings.

The rigid, glass fibre slabs have a white, decorative, washable facing which complies with Class 'O' of the Building Regulations. Factoryliner is thermally efficient, fire safe, and acoustically absorbent, and easily meets the required 'U' value of 0.6 W/m^{2}K in new buildings.

Fibreglass claims no other product combines such outstanding thermal and acoustic properties with lightweight and decorative qualities.

Typical weight of each thickness (including grid) and R values show below.

Factoryliner is available 600mm wide and 1800mm or 1200mm long.

Without imposing unnecessary strain on the building, 50mm Factoryliner panels can cut heat losses through lightweight structures 10-1fold and the 100mm panels 20-fold. The constructional U value is up to 11 per cent better than with traditional underlining.

The application of Factoryliner to previously hard surfaced buildings significantly reduces reverberant noise levels, and reductions of at least 6 db are readily achievable with roof and walls lined.

The Fire Offices' Committee, the central administrative body of the major tariff insurance companies, have approved Factoryliner with its non-combustible base board and Class 1 facing.

Thickness	Weight	R. Value (m^{2}K/W)
50mm	2.7 kg/m^2	1.50
75mm	3.3 kg/m^2	2.25
100mm	3.6 kg/m^2	3.00

https://arrow.tudublin.ie/bsn/vol22/iss8/1
DOI: 10.21427/D77D75

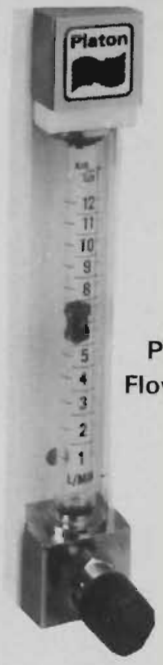
A Condensed Guide to MANOTHERM activities

THOMMEN CALIBRATOR EM

Type EM 421
410 x 260 x 230 mm
approx. 8 kg

Indep. from mains Separate power supply 24V D.C.

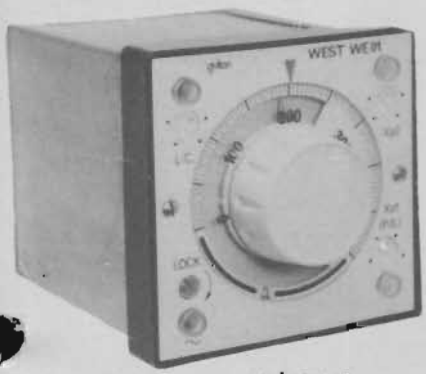
THOMMEN
SWITZERLAND



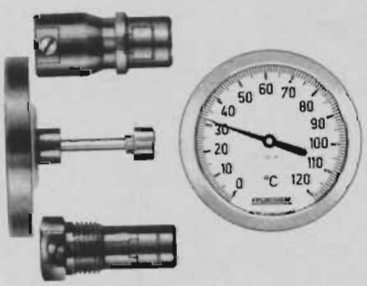
Platon Flowmeter

Barksdale piston pressure switch for pressures up to 315 bar.

West WE 01 process controller

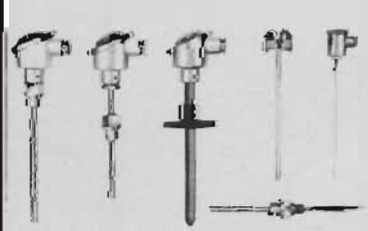


96mm square metal case.
PD + PI control action.
Limit comparator & controlling output option.



Rueger thermometers.

Platon 'M'—valve.
Air operated miniature control valve for automatic control of most media.



Thermocouples & resistance thermometers

MANOTHERM LTD.

Controls and Gauges for all industries

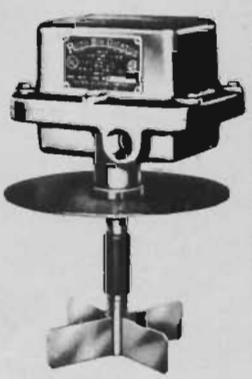
THE CONTROL CENTRES

4 WALKINSTOWN ROAD, DUBLIN 12

Phone: 522355, 522018, 522229. Telex: 24467

10 KNOCKBRACKEN PARK, BELFAST BT6 OHL

Phone 645966



Roto-Bindicator.

Hot 'news' from Landis & Gyr...

...and hotter profits for you!

Introducing Heatminder One and Heatminder Two. Very hot 'news' indeed!

With our new and fully integrated range of domestic heating controls, Landis & Gyr can now offer you and your customers the complete answer to safe and economical control of domestic central heating and hot water systems.

The Heatminder One package contains the best-selling Landis & Gyr RWB2 Programmer, together with the fully compatible SK3 Motorised Valve, the RAD5 Room Thermostat, and the RAM21 clamp-on Cylinder Thermostat.

The Heatminder Two is identical, except that the SK3 is replaced by two SK2 2-port Motorised Valves. Both Packs come complete with their own comprehensive installation and operation instruction booklets.

All the units in the range are compatible with each other, and are designed for exceptionally easy installation.

And you'll benefit from the competitive prices and discount structures available to you as the result of Landis & Gyr's integrated approach to total heating control.

Contact us NOW for your full-colour literature pack on this exciting new range of compatible domestic heating controls. Fill in and send us the coupon, or use the reader reply service.

CONTROLS FOR COMFORTABLE LIVING

Please send me your literature on the Heatminder One and Heatminder Two Packs, and the range of Landis & Gyr Domestic Heating Controls.

Name _____

Company _____

_____

Address _____

_____

_____

Telephone No _____

LANDIS & GYR

Landis & Gyr Limited, Victoria Road, North Acton, London W3 6XS. Telephone: 01-992 5311. Telex: 21486

https://arrow.tudublin.ie/bsn/vol22/iss8/1
DOI: 10.21427/D77D75