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## H & V News

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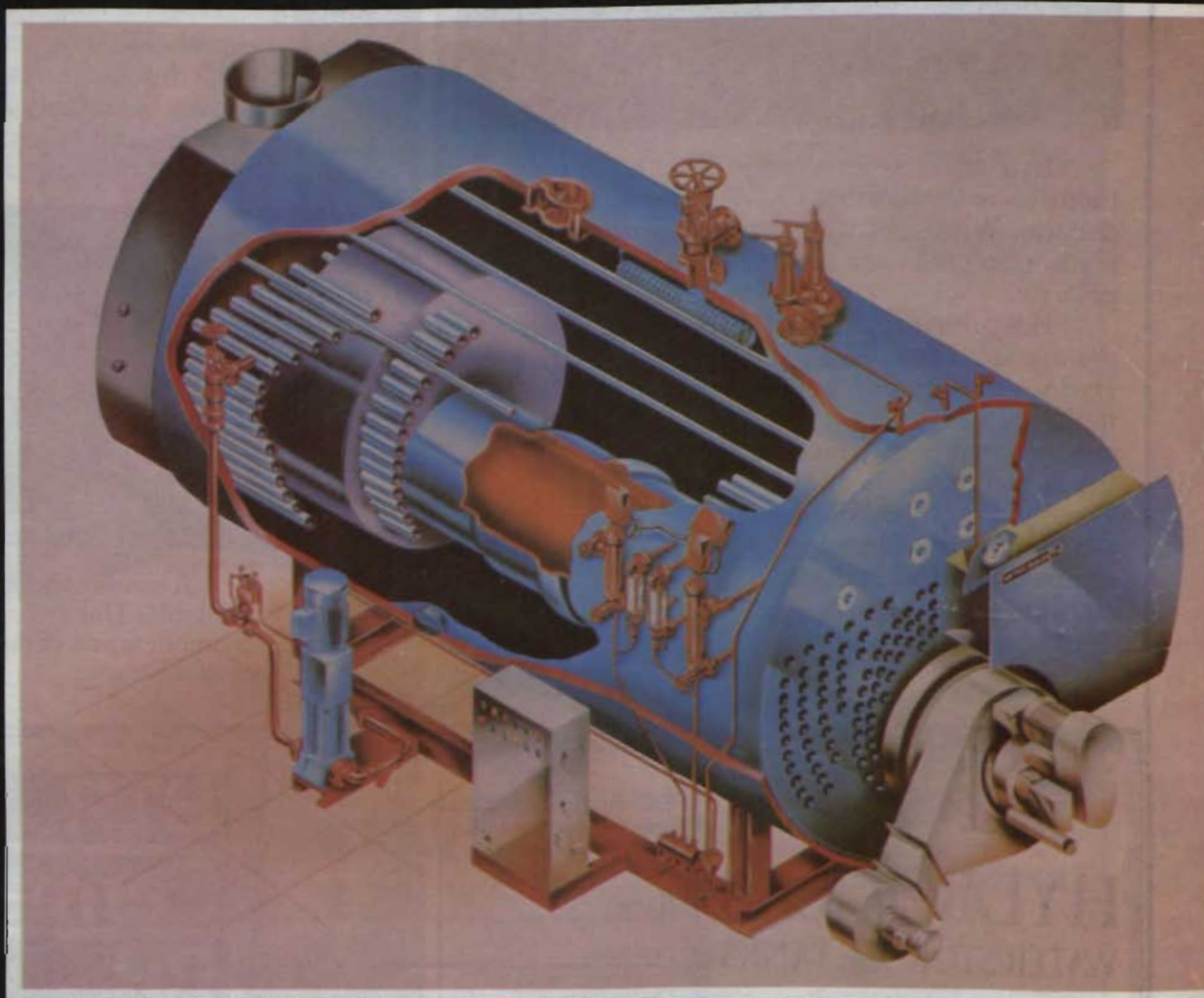
- GRILLES LOUVRES  
AND DUCTING

- HEAT PUMPS -  
IRISH STYLE

# H&V News

JUNE 1980

## INDUSTRIAL AND COMMERCIAL BOILERS

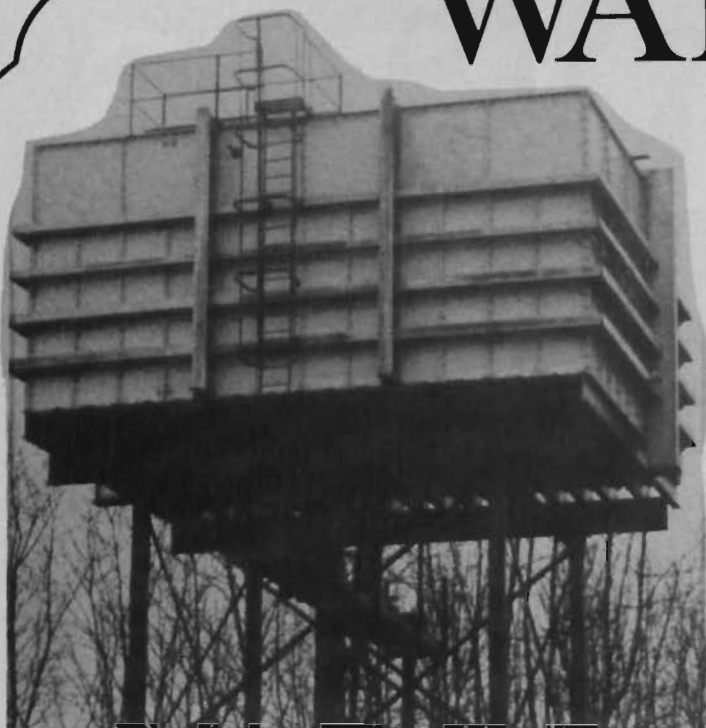


- FINANCE FOR SUBCONTRACTORS



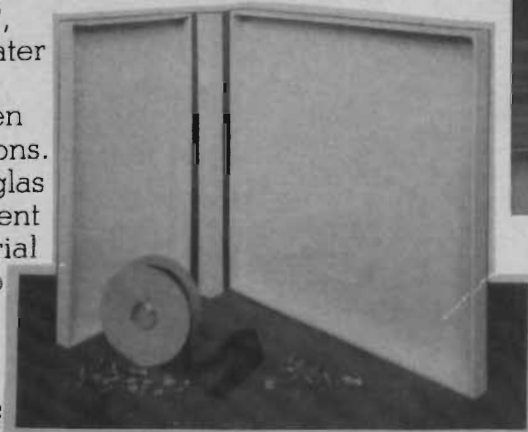
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# H&V NEWS

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# NEWSDESK

## Dublin Warehouse For Armitage Shanks

Armitage Shanks (Ireland) Ltd. are expected to make an early announcement regarding the establishment of a new Dublin warehouse and sales administration centre. This new warehouse is Phase 2 of their planned programme of expansion. This extensive warehouse will be a distribution centre for all Group products and from which deliveries will be made. The warehouse facilities should be particularly useful to customers from the provinces who make periodic visits to

Dublin. They will be able to collect their supplies and particularly, special application items from the tremendous range of Armitage Shanks products. Identifying, and having readily available, customer requirements will be the prime objective of the new warehouse operation, states Derek Gordon, marketing manager. "We intend providing a first class, comprehensive and immediate service geared totally to customer needs."

## BTU GOLF



(Left to right) BTU golfing society captain Peter Johnston with the overall winner on the day Eamonn Vickers with John Pickerill, Director of Veba Ltd.



A group of happy golfers pictured at the Veba sponsored BTU golf outing.

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## CIBS ANNUAL GOLF LADIES EVENING

Due to circumstance outside of the new CIBS committee control they were unable to hold the traditional golf outing/ladies evening in May, but have been fortunate enough to be able to have this outing on Friday 22nd August in the Hermitage Golf Club, by kind permission. Members are asked to not this date in their diary now and further details will be issued nearer the date.

## NEW MONSON ADDRESS

G W Monson & Sons Ltd have announced new additional office facilities at 8 Lower Mount Street, Dublin 2, tel: 765627, telex 32736.

## £50,000 Boiler from Danks

Additional process steam required for plant expansion at Avonmore Creamery of Ballyraggat, resulted in a £50,000 boiler order for Danks of Netherton Limited. The company, one of Britain's leading boiler manufacturers, has supplied an oil fired Metric Package 3-pass wet back boiler with an output of 40,000 lb/hr (11,300 KW) of steam from and at 212°F and at a pressure of 200 psig. Ordered last autumn through General Industrial and Marine Boilers Limited, agents for Danks in Ireland, the boiler has now been supplied, installed and is fully operational.

## New Agency For Loughrey

Loughrey Sales Ltd., have been appointed sole Irish agents for 'Ladybird' an exclusive range of van loaders, handstackers and industrial trucks. The Ladybird range includes three portable and genral purpose models and two models for heavy duty industrial use. The portable loaders have been designed for rapid loading and unloading. They can handle loads of up to 125 kg to a height of 1066 mm. Their great advantage says Peter Fox, manager of Loughrey Sales Ltd., is that "they can easily be operated by one man and are particularly useful where open floor space is restricted. They are completely portable and can be carried with the truck or van".

The heavy duty industrial trucks can lift loads of up to 270 kg to a height of 1066 mm. The castor wheels make them very manoeuvrable and they are being increasingly used for die, mould and tool handling in workshops and stores. They are also very suitable for use in hazard areas in petroleum, oil and chemical plants where power trucks are prohibited. The Ladybird loaders and trucks are all manually operated, the lift being achieved by a one-handed crank action which is smooth, efficient and fool-proof. Maintenance is virtually non-existent.

Further information on the Ladybird range can be obtained from Loughrey Sales Ltd., 35 Nephin Road, Cabra, Dublin 7, (Tel: 3077222).



## WALKER REPORT "OUTSTANDING PROGRESS"

An order intake of £770,000 in the month of January was the spectacular climax to another year of progress for Walker Air Conditioning. The company's business for the financial year to 31 January 1980 showed an increase of just over one million pounds on the previous year, with orders up from £2.9 million to £4.01 million. The growth has come from increases in the traditional business areas, particularly the distribution of Carlyle air conditioning and refrigeration products in Scotland, Ireland and Northern England, as well as from two new distribution activities in the fields of refrigeration components and fluids handling. Carlyle product sales increased substantially from all offices, with Glasgow accounting for 44% of the total, Dublin 44% and Belfast 12%. The growth has been particularly strong in packaged equipment and the increases have been similar in both comfort cooling and process cooling. The Fluids Handling Division, supplying pumps for commercial and industrial applications throughout the Republic, successfully completed its first full year of trading. The Division is the authori-

sed distributor throughout the 26 counties for Girdlestone Pumps Limited, whose products are used on the vast majority of Walker projects. Two additional franchises will be announced shortly to cover specialised applications outside the Girdlestone range.

In August last year Walker acquired the assets of HRP Ireland Limited, the Dublin based suppliers of refrigeration and air conditioning components. In the five months from September to January inclusive the Company's sales have increased by 30% over the same five months last year. This has been achieved by doubling the stocks and introducing more frequent deliveries to major customers as well as the opening of a Belfast branch.

"However, we see 1980 as a year of strong growth in our traditional market areas", commented Jim Anderson, Walker Managing Director. "With the market finally becoming conscious of the need for energy efficient products we are going to be better equipped, with our Carlyle franchise, to meet market needs than any other air conditioning equipment distributor in our part of the world", he added.



At the signing of contracts for the £1/2m. Tedcastle development at Ringsend Road: Mr. Jim McAdam, Director and General Manager, Tedcastle McCormick (Engineering) Ltd. (centre) with Mr. Jim Hodgins, Managing Director, Hodgins Ltd., Building Contractors (left) and Mr. Maurice Drennan of Rohan Construction Consultants Ltd.

## TWO CHANGES OF ADDRESS

James Gleeson and Co Ltd, Caherdavin, Ennis Rd., Limerick, tel: 54455/51731.

Brown Boveri (Ireland) Limited and Landis & Gyr Controls have moved to Whitestown Industrial Estate, Tallaght, Co Dublin, tel 522622, telex 25233.

## ITALY

**Italian manufacturing company wishes to come into contact with companies interested in the purchase of a complete and operating plant for the production of steel heating bodies (heating radiators).**

**Write to Box No. HV06**



Signing the mechanical installation and piping contract for the Nippon Denkai (Ireland) Ltd. plant in Cork are (left to right) Mr. Eiichi Izumi, Director and General Manager, Nippon Denkai (Ireland) Ltd., Mr. J. R. Hawyes, Managing Director, Irish Industrial Fabricators Ltd., and Mr. Yasufumi Eto, Asst. Manager, Production, Nippon Denkai (Ireland) Ltd.



# NEWSDESK

## DUBLIN GAS PIPELINE

The Government is considering building a pipeline from Cork to Dublin that could result in natural gas being used in Dublin homes by 1985, but only if the Alliance & Dublin Consumers Gas Company greatly improves its performance, the Tanaiste and Minister for Energy, Mr. George Colley, announced recently.

Castigating the company for its poor management record, its overmanning and labour relations, the Tanaiste said that were the company not given its recent price rise, it would have had to close down.

A condition of the rise, imposed by the Government, is that it bring in outside management experts to monitor its progress in reforming its operation. It will take between one and three years before judgement can be passed on the company, Mr. Colley said.

The question of a pipeline would not arise until then.

Meanwhile an Bord Ghais is undertaking a feasibility study of the proposed pipeline, which would cost over £100 million. Four routes are being

considered, as well as feeder lines to some of the provincial gas companies.

Asked about the ailing gas facility in Limerick, owned by the Corporation, Mr. Colley offered little hope of its survival, pointing out that were it even now to be granted a natural gas supply it would take three years to implement the decision.

Limerick Corporation is still hoping that Mr. Colley will be able to save the municipal gas company and the jobs of the 70 people employed there by diverting natural gas from Cork to Limerick, via Mallow and Charleville.

Representations are being made by the Corporation to the Minister to include Limerick in the national grid.

The City Manager, Mr. T. F. McDermott, in a report to the recent meeting of the City Council, said that because of losses amounting to over £800,000 in the last two years, they would have no option but to close down the gas company by October 1st next. (I.T.)



The new palletized system for handling Clayware pipes from Doggett Engineering.

## AUTOMATED CLAYWARE PIPE HANDLING

P. F. Doggett (Engineering) Limited the Slane based firm manufacturing Clayware Land Drainage Pipes, Clayware Flue Liners etc., have introduced a new palletized system of handling items products. Up to 1.5 tonnes of pipes is strapped on standard 4' x 5' wooden pallets as the ware is being unloaded from the kilns. Full pallets are then loaded by Fork Lift Truck on to delivery lorry, each lorry is equipped with a HIAB type crane which enables the lorry driver to off load a full 20 ton load at custom-

ers site or yard in under 30 minutes. The ware is left with the customer on the pallets supplied. This enables the customer to pick up full pallet loads again with his own loader to take some to the drainage or building site as the case maybe. Handling of Clayware Pipes has been a major problem in the past and this new development is regarded as a major step forward by Doggett. Clayware goods have been manufactured at the Slane works for over 100 years.

## INTERNATIONAL BUILDING SERVICES SHOWS 1980—1982

BUILDING PRODUCTS & SERVICES &		
GRAHAM EXPO	Olympia	15-19 June 1980
ENERGY SHOW	NEC	24-26 June 1980
SOLARTECHNIK '80	Hamburg	24-27 June 1980
HOME		
IMPROVMENTS	London	29 Sept-5 Oct 1980
ARAB BUILD '80	Bahrain	9-14 Nov 1980
IHVEX	Dublin	17-19 Feb 1981
INTERNATIONAL HEATING, REFRIGERATION AND AIR		
CONDITIONING	Utrecht	16-21 March 1981
ISH	Frankfurt	17-22 March 1981
INTERPLUMB		
HEATEX	London	Spring 1981
ENERGY 81	Essen	19-22 May 1981
HEVAC/EXPOCLIMA	Birmingham	Spring 1982

## Babcock -Bristol Appoints Irish Sales Agent

Babcock-Bristol Limited — a member of the Babcock Industrial & Electrical Products group — has appointed Measurement, Control & Automation Limited as sole agents to represent the company's Power & Water and Process Industries divisions in the Republic.

## IIRS New Meat Fridge Plant

A special refrigeration installation, for use in research into meat processing, has recently been completed by Cross Refrigeration Limited at the I.I.R.S.'s new extension at Ballymun Road, Glasnevin. The installation, comprising Foster equipment, includes a blast-freezer, a low temperature room and a chill room. Its use will be extended to other forms of research in the future.



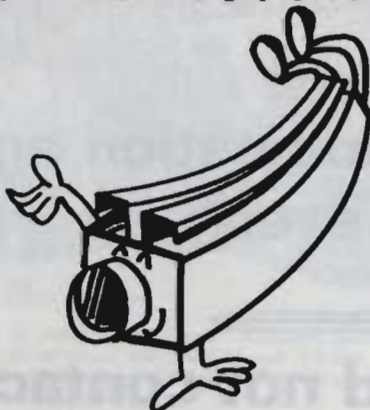
# Carlyle from Walker is energy efficiency

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## Walker Air Conditioning

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9a Cherryhill Road, Dundonald, Belfast BT16 0JH. Tel: Dundonald 5235 Telex: 747681

Washington Road, Unit 10B, Abbotsinch Industrial Estate, Paisley PA3 4ET

Tel: Glasgow 887 0551 Telex: 779406

Also Edinburgh (Tel: Edinburgh 553 1720)



# NEWSDesk

## Energy Efficient Buildings Symposium

*The Tanaiste and Minister for Energy Mr. George Colley TD officially opened a two day symposium "Energy-efficient Buildings" presented by An Foras Forbartha in association with The Royal Institute of the Architects of Ireland in Jury's Hotel, Dublin. Picture shows (left to right) Mr. Bernard Tighe, Chairman of An Foras Forbartha; Mr. George Colley TD, Mr. John O'Reilly, President, Royal Institute of the Architects of Ireland and Dr. Liam Downey, Chief Executive, An Foras Forbartha.*



## MACAWBER APPOINTS IRISH AGENTS

One of UK's fastest growing companies, Macawber Engineering Limited of Doncaster, South Yorkshire, has appointed Thermplant (Ireland) Limited as sole distributors of its products throughout Ireland. Macawber Engineering is fast becoming a world leader in the field of pneumatic conveying of bulk solids and has experienced a phenomenal growth record since its foundation just six years ago. During that time Macawber has

established a sister company in the USA, a subsidiary in West Germany and a string of agents around the world.

The appointment of Thermplant (Ireland) Limited will step up the availability of Macawber's unique "Denseveyor" pneumatic conveying systems to this important industrial market. Mr John Hoey, Thermplant's Managing Director commented: "There is no doubt that the "Denseveyor" is one of the

most exciting technological breakthroughs in the field of solids handling ever seen. With the "Denseveyor" it is possible to pump a wide range of solids through standard mild steel pipework in a fully automatic, totally enclosed way. This fact alone has tremendous environmental advantages for many bulk materials."

"In addition to this, the "Denseveyor" is the only system in the world which can handle most types of

coal — making it possible for the first time to coal fire boilers with much the same ease as oil or gas. We see a tremendous market for this product in Ireland, and already we are winning significant orders."

Under the terms of the agency agreement, Thermplant have sole distribution rights for Macawber systems in Ireland, and are available to give advice on total systems and carry out turnkey operations as required.

**We are back in communication again  
(or were we ever?)**

**We are sorry you could not contact us  
until recently due to phone problems.  
We are now in business**

**at**



**Thermplant**



Thermplant (Ireland) Ltd,  
2 Deansgrange Industrial Estate, Kill Avenue, Co. Dublin.  
Tel: (01) 850222 / 850641 Telex: 4409



# NEWSDESK



Taking a serious view at the Braithwaite stand are (left to right) Bill Lindsay (John Paul Mechanical), P. Feehily (Seamus Homan & Assoc., Consulting Engineers) Derek Sirrell (Braithwaite & Co. Structural Ltd.), Des O'Reilly (John Paul Mechanical) and Tom White (Finheat Limited).



Discussing the qualities of Mathews & Yates equipment are (left to right) Gordon Taylor (Climate Engineering) Tim O'Flaherty, (Finheat Limited), Neil Pollitt (Marketing Manager, Mathews & Yates) and Mr. J. Connelly (Abbott & Partners, Consulting Engineers).



(Left to right) Talking to John Grice, Export Manager, Myson International at the Myson RCM stand are Tony Hoyne (Hoyne Heating), John Harper (MacArdle McSeeney & O'Malley, Consulting Engineers) and Brian Maguire (Finheat Limited).

## FINHEAT EXHIBITION



Frank Treacy (I. E. Lynskey Ltd.) far left discussing the finer points of Pressurisation Units and Booster Sets at the Baric Pump Stand with R. Kilday (Baric Pumps) Lorcan W. Murphy (E.S.B. Industries Div.) and J. Sowden (Baric Pumps).

Finheat Ltd. recently held a very successful exhibition in Jurys Hotel, Dublin, on show were products of their principals including, Myson RCM, Mathews and Yates, Braithwaite, S & P Coil Products, Powermatic Ltd, Peglers, Diffusion Radiator

Co. Ltd., Hedin and Fenton Mechanaire.

Mr. Greg Traynor of J. N. & G. Traynor & Partners, consulting engineers, won a weekend for two in London at the exhibition.

## LARGE ATTENDANCE AT IEI LECTURES

"Treatment of Water for Human Consumption" was the theme of a recent evening lecture series, organised at NIHE by the Thomond Region of the Institution of Engineers of Ireland. More than a hundred engineers,

technical personnel and students attended the lecture programme.

In the first lecture D. M. O'Hegarty, P. J. Flanagan and D. Moore, all from the Department of the Environ-

ment, reviewed both the Irish and European legislation on the question. They also discussed the bacteriological aspects of the quality of water from rivers, lakes and underground sources and the setting of standards for drinking water.

In subsequent weeks topics such as "Preliminary Treatment Processes", "Filtration and Post-Filtration Processes" were dealt with.



# NEWSDESK

## B&E Boilers Reception



(Left to right) Michael Gannon, James O'Malley, Murdock Foley, Bernard Keaveney, and Derek Allen.



The Irish representatives for B&E Boilers are seen here talking to (left to right) Fergus Redmond, Hugh Siddall (B&E Boilers Irish Representative), Harry Lawless and Pierce Tiernan (B&E Irish Representative).



Pictured at the B&E Boilers reception in the Killiney Court Hotel Dublin were (left to right) Derek Allen, B&E Boilers; Eric Kinsella, Larry Kane, Ken Tidd, B&E Boilers and Tom Condon.

# KING COAL TO DUBLIN

A seven-foot thick "coal seam" was recently revealed in Dublin — but it was not to be the answer to the country's energy supply problems. For the "coal" seam is a lifelike replica in fibreglass and it was on the stage at the Royal Dublin Society — not beneath the foundations. It formed backcloth for an illustrated lecture and demonstration given by the UK's National Coal Board under the title "Power Below".

The 1979/80 Faraday Lecture, organised by the Institution of Electrical Engineers in memory of scientific pioneer Michael Faraday, told the story of the introduction of electrical power into the potentially hazardous environment of coal mines. It is the first time for several years that the lecture had been brought to Ireland and Dublin was the last port of call on a lecture tour which started last October and has involved visits to 18 major towns and cities.

The lecture came to Dublin on Wednesday, May 21st, with an afternoon presentation mainly for students and senior school-children from a wide area. The evening presentation was for members and friends of the I.E.E. and tickets were available for

the general public.

The audiences saw in demonstration, films and photographs some of the complex equipment which had been designed in recent years to make the coalminer's job safer and more efficient. In one demonstration a team of young NCB engineers built on stage a full-size replica of a giant coal-cutting machine, while in another a coal mine computer control desk is wheeled on stage and operated by a member of the team. The title of the 51st Faraday Lecture, had two meanings. It referred first to the vast reserved of power below the earth of this country, locked away in our rich coal seams. But it referred also to the technical problems involved in taking power below ground; taking electricity into the potentially hazardous environment of a coalmine as a source of mechanical power and of light to enable that power source to be exploited. With photographs and films of mining installations and practical demonstrations on stage of some of the complex equipment involved, the lecture gave a fascinating glimpse of a little known world. Local organisation was by the IEE and Coal Information Services.

## NEW ADDRESS

Thermoplant (Ireland) Ltd are now at: No. 2 Deansgrange Industrial Estate, Kill Avenue, Deansgrange, Co. Dublin, tel: 850222/850641.



# NEWSDESK



(Left to right) Gerry Curran of Temperature Controls Ltd, the sponsors of the CIBS Students Award, Michael McDonagh the new chairman of CIBS, and Sean Mulcahy the adjudicator.



The three CIBS Students Award winners (left to right) Derek Brown, Paul Cantwell, Derek Waters.

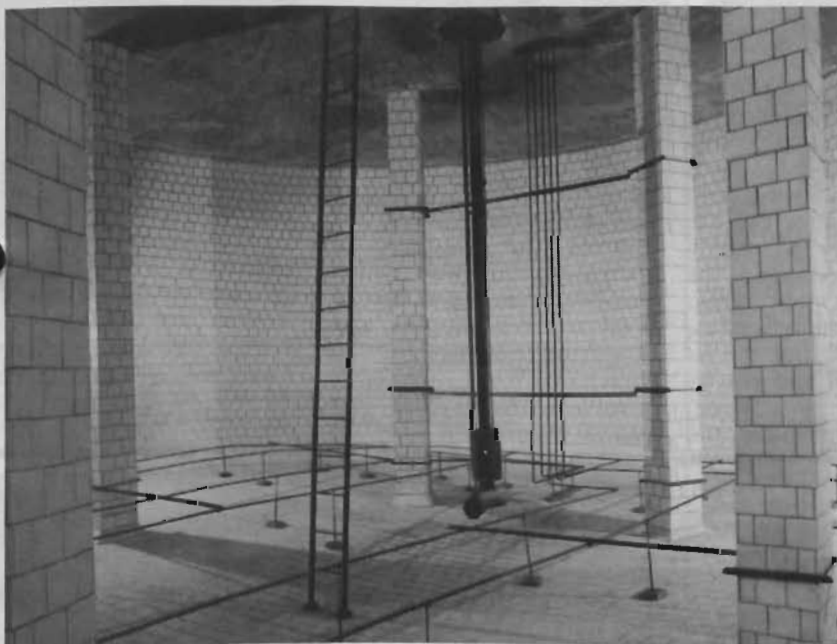
## CIBS ANNUAL STUDENT AWARD

10 papers were submitted by students, all from the College of Technology, Bolton Street, for the Annual Student Award. The papers were adjudicated by Sean Mulcahy, who had nominated the three

award winners. These were, Derek Waters, who produced a paper on glass, Paul Cantwell who produced a paper on Energy Conservation in Irish Housing, and Derek Brown who wrote on cheap hot water from solar

panels. These three students presented their papers to the Institute at a recent technical meeting. After the papers were read, Sean Mulcahy announced the order of winners, and Gerry Curran of Temperature

Controls Limited, who very kindly has offered to sponsor our Annual Student Award, presented the prizes. 1st Prize (£200) Paul Cantwell; 2nd Prize (£100) Derek Brown; 3rd Prize (£75) Derek Waters.



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Successfully in use  
since 1900

Erection on site — quick service  
Many British and Continental references  
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of charge



# NEWSDESK



Sanbra Fyffe Limited, recently played host to over 700 guests at the company's Open Day. Pictured at the Open Day were: (left to right) Mr. Frank Webb, Managing Director, Davis King & Co. Ltd.; Mr. Brendan Byrne, Sales Director, Sanbra Fyffe Ltd.; and Messrs. P. King, Director and Padraig King of Davis King & Co. Ltd.



Also pictured at the Open Day were: (left to right) Mr. Ted O'Connor, Pulvertaft Ltd., Cork; Mr. Frank Quill, Ward & Goldstone, Cork; Mr. John Darcy, Managing Director, Sanbra Fyffe and Mr. Gerry Byrne, Heiton McFerran, Howth.

## Sanbra Fyffe Open Day

Sanbra Fyffe Limited, which is owned by the Delta Metal Company and the TMG Group Limited, have announced at a recent 'Open Day' details of their recent capital investment programme. The company has invested £1 million over the last three years in plant and machinery, and a further investment of £250,000 is planned for 1980. The factory premises have been expanded by 8,000 sq. feet. Among the

additional items of plant and machinery are some sophisticated stamping presses, chucking automatics and automatic polishing equipment. "Re-investment in the plant has always been a policy in Sanbra Fyffe", Mr. John Darcy, Managing Director said recently at the company's Open Day. "Our production processes, consisting of hot brass stamping, sand and gravity die casting, machining, assembling, polishing and

plating, have been highly developed. Automation has been introduced into many areas, making the Sanbra Fyffe plant as efficient and up to date as any of our overseas competitors", he added. The investment has enabled the company to increase production which has been running at record levels in recent months, and thus the service to the merchant trade has been greatly improved. "Our capital programme will con-

tinue and this year we plan a further investment of £250,000 in our plant", Mr. Darcy said. Sanbra Fyffe manufactures an extensive range of almost 300 different Instantor fittings as well as a wide variety of plumbers brassware including the Saflo and Irlin ranges of taps and mixer fittings. Its product are sold through leading builders providers. There are 300 people employed at the factory in Santry.

## Walker Training Session

The lecture room in Walker's offices on the Dublin Industrial Estate was put to good use recently when a three day course was held for their Service Engineers. The course is part of an intensive training programme by Walker Air Conditioning, to maintain the highest standards of technical expertise among service personnel. Lectures were given by two members

of Carlyle's European service back up team, explaining the recent developments in Carlyle's centrifugal refrigeration machinery. In keeping with Walker's after sales service policy the company plans to hold a customer/operators course in Ireland for interested personnel from companies which have purchased Carlyle's 19 series centrifugal plant.



The photograph shows: A group of Walker service engineers who attended the 3 day course at Walker Air Conditioning Ltd.'s offices in Dublin.



# NEWSDESK

## IIF GET PIPING CONTRACT

Nippon Den kai (Ireland) Ltd. has awarded a £100,000 contract for the erection of mechanical equipment and piping at their new Cork plant to Irish Industrial Fabricators Ltd., Kinsale Road, Cork. The contract involves the installation of process equipment and site fabrication and erection of u. P.V.C. piping. The form of piping specified has not been extensively used in Irish construction up to now, and at the request of Nippon Dankai, I.I.F. has initiated a training scheme to qualify selected welders in the specialised techniques required to meet the exacting international standards. Mr. Eiichi Izumi, Director and General Manager of Nippon Den kai (Ireland) Ltd. stated that he is satisfied that I.I.F. will meet the

standards that have been set. Irish Industrial Fabricators, which was formed in 1963, undertakes high quality welding and mechanical engineering projects, steel-work fabrication and erection, and workshop fabrication to recognised international engineering standards. Since 1978, the company has been part of the Sisk Group of Companies. It presently employs 200 operatives and tradesmen in various disciplines. Nippon Den kai, a Japanese company, is one of the world's leading producers of electrolytic copper foil. The foil from the Cork plant will be for use in printed circuit boards in the computer industry. Its entire output will be exported and production will commence in October 1980.



Pictured at the recent Parkray training course were (left to right) Eric White, Instaheat Ltd agents for Parkray; Bob Smith, Ray Byrne and Martin Darby.



The Parkray technicians giving instruction on the installation of an inset room heater.

## Change of Name for Vent-Axia Distributors

Armstrong Autoparts (Ireland) Ltd, are now part of the GKN Group of Companies, will trade under its new name, as and from April 26th, 1980, as follows:-

GKN Autoparts (Ireland) Ltd.  
Camac Close,  
Emmet Rd,  
Inchicore,  
Dublin 8.  
Tel: 01-781700.

All the services, and stocks offered by Armstrongs, will be maintained, and further developed by GKN Autoparts (Ireland) Ltd. There will be no change in address, telephone, or telex numbers. The latest Vent-Axia Manual is now available, and copies can be obtained by contacting:- M. F. Randall, Sales & Marketing Manager.

## New Auto-Ranging Digital Avometer

Avo have followed up their successful DA116 digital multimeter with an additional portable model in the same size and styling. The main feature of the new DA117 is fast auto-ranging on all ranges, including current. The measurement ranges cover ac or dc voltage up to 1000V, ac or dc current up to 2A plus 10A (manual), resistance up to 20M. Range extension accessories and eht and RF probes are available extras. There is also a semiconductor junction test of 0.5mA, reading the voltage drop 0 to 2,000V. The 3½ liquid crystal display has clear 13mm high characters and includes symbols for over-range, battery low warning, range held manually, dc polarity, a large decimal

comma and unit measurement. The auto-ranging response on all dc and resistance ranges is extremely fast, less than 1 second.

There are several interesting features in the design of the instrument. DA117 is the first Avometer to use a CMOS, large scale, custom designed, integrated circuit. This 40 pin unit, produced by GEC Semiconductors Ltd, yields the advantages of very fast auto-ranging, cost saving (50 standard ICs would be needed to do the same job), bulk reduction, and good battery life, typically 400 hours from 4 ordinary HP11 zinc/carbon cells. There are also 6 standard ICs in the circuit.

Avo products available from Industrial Instruments in Dublin and Cork.



# NEWSDESK



The Brennan Groups stand also at the Energy Buffet Display.



The D W Products International stand at Energy Buffet Display.

## Energy Buffet Display

An informal buffet display was held recently in the Gresham Hotel Dublin. The theme was Energy, H & V and Air Conditioning and a number of companies displayed energy efficient products, also present were

the I.I.R.S., An Foras Forbatha and An Foras Taluntais. A seminar was also held during the display and the subject of Energy Control Developments Options was discussed.

## CIBS Republic of Ireland Region Office Bearers and Committee 1980/81

At a recent meeting of the CIBS the following were elected: Chairman, M. McDonagh; Vice Chairman, T. J. L. Kane; Secretary, M. D. Buckley; Treasurer, J. J.

Murray. Committee: D. Cooney, M. Moloney, T. Purcell, D. Byrne. Two more members have to be co-opted to complete the committee.

## NEW DISTRIBUTOR FOR ACTAIR AIR CLEANERS

Thompsons Air Heating and Ventilating Ltd, Short Castle, Mallow, near Cork, (Tel: Mallow 21521) are to distribute Actair electrostatic air cleaners throughout the Republic of Ireland on behalf of the manufacturers Actair International Ltd of Penarth Road, Cardiff. The Actair range of electrostatic air cleaners includes packaged units of 500 to 3800 m<sup>3</sup>/h (300 to 2200 cfm)

capacity, modular units for incorporation in ducted systems of up to 30,000 m<sup>3</sup>/h (17600 cfm) capacity and mobile models which can remove welding fumes, asbestos dust etc at source. They operate by re-circulating the air to be cleaned through high-voltage collector cells which remove particles of pollution down to a size of only 0.03 micron.

## IDHE GOLF OUTING



Enjoying the evening sunshine were this happy group of IDHE golfers.



Pictured with the winner of Class 1 were (left to right) Gerry Griffin, Bill Penrice, Chris Furlong, John Berkery, (Class 1 winner) and Donal Collins from Barlo Heating Ltd the sponsors of the outing.

The Republic of Ireland Branch of the IDHE held its first golf outing and dinner on the 16th May last at Bodinstown GC on a day of glorious sunshine. The prizes were sponsored by Barlo Heating Ltd. The following are the results of the outing:-

Prize winners were: Class 1 — First, John Berkery.

Second, Garry Stewart. Third, Eamon Cullen.

Class 2 — First, Chris Furlong. 2nd, Jim Lee. 3rd, Cyril O'Meara.

Best 1st nine, Kevin Ledwick. Best 2nd nine, Owen White. Other prize winners were, Michael Melligan, W. V. Madigan and Joe Hogan.



# NEWSDESK

## BARTOL CONFERENCE



Sales staff of Bartol Plastics board an Aer Lingus Boeing 737 jet at Liverpool Airport for their annual conference, held in Dublin. Foreground: Bob Jones, Bartol North West Regional Sales Manager, with Pat Carroll, Aer Lingus District Sales Manager, Liverpool.

### Congratulations Victor

Congratulations to Victor Gibson, Advertisement Manager H&V News, and his wife Anne on the birth of their daughter. Will this put an end to Victor's recent excursions to the golf course? P.S.

We recently received this notice for our classified ads:

### Unused Golf Clubs for Sale

A set of almost unused golf clubs for sale. Owner has no further use for them.

V.G.

Could this V.G. be our Victor?

## A New Journal Dealing With Renewable Energy

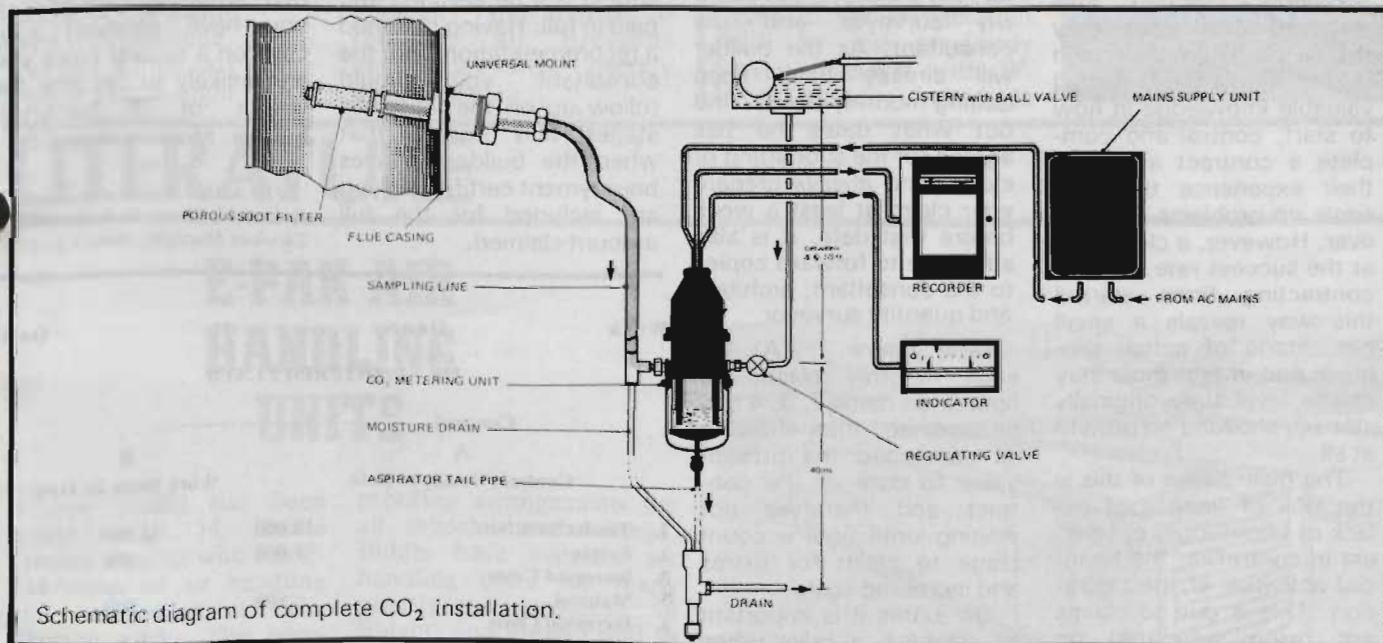
The publication of a new journal covering renewable energy sources and their application has been announced by The Construction Press Limited. The Coordinating Editor is Dr. Alan Sherratt, Assistant Director of Thames Polytechnic, London, who has wide experience in the field of energy conservation and a particular interest in the provision of controlled environments in buildings. The International Journal of Ambient Energy will concentrate on renewable energy sources including energy collection, its conversion to usable forms and new applications.

Direct heat from the sun, wind energy, wave energy, the role of biomass, ocean heat exchange, tides, geothermal energy, passive

building design, thermal storage and application of ambient energy in developing countries are all topics that will be covered by The International Journal of Ambient Energy. The Journal will contain papers describing new research, case studies of interesting and novel installations and reviews and assessments of current areas of interest. There will also be a comprehensive section detailing new books and published reports with full reviews of a selection each quarter.

The Journal is published by The Construction Press Limited, Hornby, Lancaster, England (Telephone: Hornby (0468) 21888) a subsidiary of the Longman Group from whom further details can be obtained.

## ARE YOU GETTING THE MOST OUT OF YOUR FUEL?



Schematic diagram of complete CO<sub>2</sub> installation.

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## FINANCE FOR SUB-CONTRACTORS

# GETTING PAID

The success or failure of any growing company in the construction industry, and in particular subcontracting, depends mainly on the operation and control of its cash flow. This function within a small company is not given the priority it deserves, as most individuals having formed their business from a small capital, concentrate on completing the work, satisfying the architect, and ignoring the whole idea of it all — getting paid.

This attitude by small companies is only to be expected as the self appointed directors have a technical background and have progressed up the ladder from site training commencing with a four or five year apprenticeship, a period of time as tradesman, a foreman, a supervisor and then possibly some training in the control of material and labour requirements for various contracts.

Having reached this stage of their trade they decide to begin their own business having gained valuable knowledge in how to start, control and complete a contract and with their experience this presents no problems whatsoever. However, a close look at the success rate of small contracting firms started this way reveals a small percentage of actual progress and in fact most stay at the level they originally started, showing no growth at all.

The main cause of this is the lack of finance or the lack of knowledge, or interest in controlling the financial activities of the operation. This is due to claims not being submitted on time, not being pursued through the various stages and therefore payments not being received. The subcontractors money is therefore being used by others while he pays overdraft interest to banks. These charges absorb all profit, leaving him without finance.

Over the next few months we hope to illustrate some simple methods (involving the minimum of time) on the operation and control of company finance for small subcontractors.

### INTERIM CLAIMS:

Claims are normally submitted monthly but on small contracts or short term contracts it is advisable to issue them at shorter intervals. Where direct contracts are involved payment will normally be made when due but when dealing with consultants, quantity surveyors, architects and builders, it is important to follow up each stage of your claim until the builder actually writes the cheque.

The preparation of monthly claims is also very important in ensuring payment and the example shown in Figure 1 should be used on all claims submitted. On receiving an order for a contract, obtain the name of the main contractor, the architect, the quantity surveyor and the consultant. As the builder will already have been issuing monthly claims, find out what dates he has agreed for the submitting of claims and always prepare your claim at least a week before that date. It is also advisable to forward copies to the consultant, architect and quantity surveyor.

Note figure 1: (A) On each monthly claim the figures on items 2, 3, 4 can be updated, thus showing all concerned the present value to date of the contract and therefore not waiting until final account stage to claim for extras and increased costs.

On extras it is important to establish a price when this work is requested and confirm the amount with the consultant/architect without delay. On increased costs, details should be submitted with each claim and kept up to date as frequently as possible.

(B) This section is the whole basis of your cash flow. On claiming for work

completed on the original tender sum you should refer to your estimate, and calculate the percentage of work completed as priced, and also include for material on site unfixed and also material expected on site within say four days of the interim claim.

The value of extras actually completed should be detailed and this can be calculated from the amount of extras requested. Increased labour costs and material will be the same figure as in section A.

The amount of paperwork involved in all this would appear to be excessive but if you examine it carefully and keep your records up to date the time involved should be minimal.

Having prepared and presented your interim claims in this format you have given all concerned all the facts and figures required and there is no reason whatsoever why the claims should not be certified and paid in full. Having obtained a recommendation from the consultant, you should follow up on the following stages and ensure that when the builder receives his payment certificates you are included for the full amount claimed.

Payment from the builder should follow provided you keep in touch and establish with him when in fact he expects payment from the client.

Having received payment your contract should be at least paying for itself and your profits, if any, are not being absorbed by bank overdraft interest. On a number of contracts the same control could result in your having a surplus cash situation in which to (a) increase your working capital or (b) negotiate with suppliers on the possibility of obtaining cash settlement discounts and therefore increasing the profits of the company. In the long term, a company can only be successful and ensure continuity by making profits.

In the short term however, a company can make profit but still be forced into liquidation because of an adverse cash flow (overtraded situation). Finally, if you have received your cash on a regular basis you are unlikely to become the victim of a bankrupt builder. More next month.

*The author of the above article Robert McClean, is Account Services Manager, Rotary Group.*

Work	Done	to	Date
<b>Fig 1 - INTERIM CLAIM</b>			
<b>Contract</b> _____			
<b>A</b>		<b>B</b>	
<b>Contract Details to Date</b>		<b>Work Done to Date</b>	
1. Tender Sum Nett	10,000	4,000	
2. Extras	1,000	400	
3. Increased Costs			
Material	500	500	
4. Increased Costs			
Labour	500	500	
<b>TOTAL NETT</b>	<b>12,000</b>	<b>5,400</b>	
<b>Builders Discount</b>	<b>600</b>	<b>300</b>	
<b>TOTAL GROSS</b>	<b>12,600</b>	<b>5,700</b>	
<b>V.A.T.</b>	<b>378</b>	<b>170</b>	
<b>TOTALS</b>	<b>12,978</b>	<b>5,870</b>	



# PIPELINE

By T. Piece

## Irate Contractor

One of our contractor friends advised us of a rather amusing incident which befell him recently. During a telephone discussion with a prospective customer, angry words developed in the conversation between the two parties, very probably as a result of fatigue on the contractors part, who had suffered a problematic morning. One word borrowed another until eventually the contractor terminated the conversation by referring to the customer as a "smart person". Approximately one hour later a letter was delivered to the contractor's office, by hand delivery service, with the customers name at the bottom of a 3 verse poem which read as follows:-

"God be with the days  
When the customer was right,  
Even if he called you in the middle of the night,  
Even if his attitude  
Was just a little tart  
Even if you thought he

was unduly smart.

God be with the days  
When all services were there  
To always please the client  
and treat him very fair,  
To sum up, Mr.  
Contractor  
You're a lucky man  
To be able to talk up like that — it's nice if you can.

To finish off this little note,  
Because too much was said,  
We were both a little hasty — wrong side of the bed?  
For my part I apologise,  
I'd like us to be friends  
I think it's worth this little time to try to make amends."

Having read the poem with much amusement, and great appreciation, our contractor friend had no hesitation in telephoning his new found poet, to express his apologies, and needless to remark, all previous animosities were quickly dispensed with.

## PEOPLE



Mr Tadhg Gleeson, Financial Controller of Sheffield Insulations.

Mr. Tadhg Gleeson B Comm., A.C.A. has been appointed Financial Controller of Sheffield Insulations (Irl) Ltd. He was previously an audit manager with Oliver, Freaney & Co., and prior to that worked with Craig Gardner & Co.

his new position, Mr May will head a service team of fourteen engineers in the Dublin region.



Ken Tidd recently appointed Managing Director B&E Boilers Ltd.

Alan Davies has been appointed Sales Manager for Monsell Mitchell. He has been involved in the Builders Providers industry for many years and has held departmental positions within the company prior to his appointment.

Cross Refrigeration Limited has announced the appointment of Mr Noel May as Service Manager with special responsibility for the Dublin area. A well known figure in the refrigeration field, he was previously Service Manager with W. H. O'Gorman Limited. In

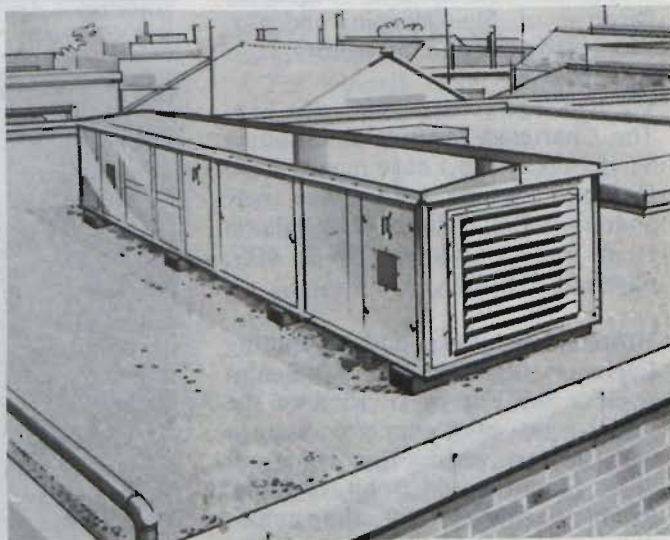
## LITERATURE

### E-PAK AIR HANDLING UNITS

A new leaflet has been issued by F. H. Biddle Limited dealing with the E-Pak range of air handling units assembled at their Ilkeston works. This comprehensive range consists of eleven models suitable for air volumes ranging from 0.62 m<sup>3</sup>/s to 20 m<sup>3</sup>/s for cooling capacities or 0.62 m<sup>3</sup>/s to 35 m<sup>3</sup>/s for heating applications. The new leaflet incorporates information relating to an optional direct gas fired heating section and the weather-

proofing arrangements for all models in the range. Biddle have supplied air handling units for many prestigious projects in Ireland and abroad and in addition to manufacturing the E, V, and C Pak standard ranges will also design and produce equipment to meet special requirements. Associated equipment also available from Biddle includes heat recovery systems, ductwork, noise attenuators, chillers and cooling towers.

Published by ARROW@TU Dublin, 1980





# +ULSTER NEWS+ ULSTER NEWS+ ULSTER NEWS

Mr. L. D. G. Collen, Chairman of Ergas Ltd. was the proudest man in Larne, recently on the occasion of the opening of their new bulk storage depot. The Portadown based Ergas (N.I.) Ltd. now one of the major suppliers of L.P.G. in Ulster have built their depot in the confines of Larne Harbour thus allowing them to ship in their supplies direct from Milford Haven. In the light of the possible closure of the piped or town gas system in Ulster, this L.P.G. plant will be a welcome asset to the provinces energy supplies. The new depot which has a capacity of 600 tons was opened by Mr. Roy Beggs, Mayor of Larne who was welcomed at the plant by Mr. Wilf McKee, General Manager of the company.

Tyrell Tanks Ltd., the Newry based firm who specialise in the manufacture of plastic domestic cold water tanks are to extend their activities and increase their labour force.

The tanks ranging from 25 to 100 gallons are moulded on a Carousel rotational moulding machine.

At a later date Tyrell Tanks hope to announce a further range of products suitable for the plumbing and heating trade.

The revolutionary new high efficiency high output open fire know as the Jetmaster was the subject of demonstration to architects heating engineers and fuel interest at the premises of MacGillicuddy & Co. Ltd. of Great Victoria Street, Belfast.

Mr. David Gibson, Managing Director of MacGillicuddy and Co. Ltd. acted as host to the visitors.

The Chartered Institute of Building Services (C.I.B.S.) have moved from Cadogan Square and their new address is Delta House, 222 Balham High Road, London, SW12 9BS, phone 01-675-5211.

Hospital, Industrial and Consulting Engineers together with representatives of the Energy Division of the Department of Commerce listened with interest when Mike Harrison, Sales Manager and John O'Toole, Products Manager of the pumps division of Crane Ltd. introduced the



(Left to right) Mr. G. Wright (left) and Mike Harrison with the Belfast sales staff of Pump Services Ltd.



(From left to right) J. O'Toole (Products Manager), M. Harrison (Sales Manager) of Crane Ltd. with G. Wright, N.I. Manager of Pump Services Ltd at the introduction of the new C.B.A. condensate recovery system.



(Left to right) E. Turner (Beggs & Partners), Mrs. A. Burmison (O.B.C. Ltd.), J. McClelland (McNaughton Blair Ltd) at the Thorm reception.



## +ULSTER NEWS+ ULSTER NEWS+ ULSTER NEWS+



Thorm introduce their new Panda range of oil fired boilers at a reception in the Culloden Hotel. (Left to right) Philip Johnson, N.I. Area Manager and Ed Martin, Northern Sales Manager with the Panda girls Miss McMinn and Miss O'Neil.



At the IDHE/UDT curplant golf outing were (from left to right) T. Galloway, C. Brewill, I. Morrison, R. Best.



(From left to right) V. Stephens, R. Coid, R. Jackson, W. Kelso also at the IDHE golf outing.

recovery and booster system.

The system is handled in Northern Ireland Services (N.I.) Ltd., whose General Manager Mr. G. A. Wright also attended supported by T. Ferguson, E. Martin, R. Millar and P. Walker of their sales organisation. In Southern Ireland the system is handled by P. S. Ltd. of Wallowbrook Road, Rathfarnham, Dublin and enquiries should be directed to their Sales Manager J. O'Reilly.

The C.B.A. is a unique step in the development of energy saving equipment as by improving the handling and quality of condensate return it greatly reduces the amount of fuel that a boiler needs to raise steam. In addition the application of the C.B.A. unit has indicated in the paper, laundry and similar industries that a substantial increase in throughput of product resulted.

Over 3,000 units have been installed throughout the world including installations in Northern and Southern Ireland and if listening to the views of some of the Engineers present who had already installed C.B.A. units, was any indication, then the C.B.A. is indeed a welcome addition of the energy conservation scene.

The first golf outing of the N.I. section of the Institute of Domestic Heating Engineers for 1980 was held at the popular Co. Down Helen's Bay course.

Following keen competition by the 40 members and guests, the prizes were distributed by Mr. T. Galloway and Mr. C. Brewill, Branch Manager of U.D.T. Ltd. the sponsors of the competition.

The winners were: Mr. H. Cox, Mr. D. Parkes and Mr. R. Mawhinney in that order.

The N.I. Branch of the Institute of Domestic Heating Engineers held their Annual General Meeting in the Strangford Arms Hotel Newtownards.

Following the A.G.M. the committee for 1980-1981 was announced as follows: Chairman - Philip Johnston, Vice-Chairman - W. Hunter, Hon. Sec/Treas. - B. Page, Committee: Ian Morrison, Peter Mawhinney, Bill McMichael, Charlie Turner, Bob Montgomery, Maurice Stevenson and Roy Best (ex-officio).



# COMPANIES SUPPLYING GRILLES, LOUVRES & DUCTING

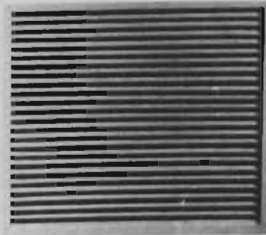
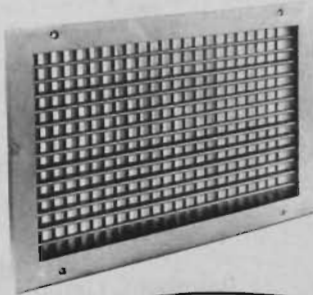
Company Name	Address	Tel. No.	Telex No.	Product Name
Henry R Ayton Ltd	The Cutts, Derriaghy, Dunmurry, Belfast BT179HS	618511	74618	Keith Blackman
Aire Flo Ltd	Greenhills Industrial Estate, Dublin 12	783674	-	Ducting
Dan Chambers Ltd	3 Echlin St., Dublin 8	720448	-	Netaline
Coolair Ltd	Unit C Cookstown Industrial Estate, Tallaght, Co. Dublin	511244	31689	Baber & Colman
C & F Ltd	Glenside Industrial Estate, Mill Lane, Palmerstown, Dublin 20	364917	-	Lennox
C & R Ltd	Baldoyle Industrial Estate, Grange Rd., Baldoyle, Dublin 13	390064	-	Ducting
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Climavent Ltd	29 North Brunswick St., Dublin 7	776615	31718	Bahco, Brook Air, Holdfire/Air Power



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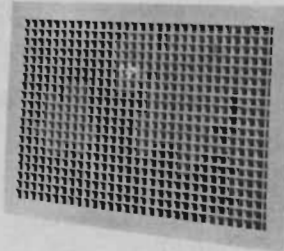


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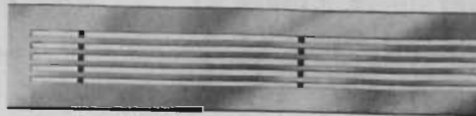
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to your job.

Then for that low-budget installation, there's our 'E' range – made  
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Dixon Agencies	3 Wellington Drive, Bangor, Co. Down BT204PN	-	-	Trox
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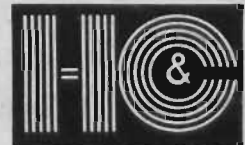
Environmental Supply Co Ltd	Unit 35 Connswater Industrial Estate, Belfast BT41AL	54429	-	Netaline
Finheat Ltd	34 Watling St., Dublin 8	778109	30751	Myson RCM
Glowtherm Ltd	Perrytown House, Whitehall Cross, Dublin 6	513887	30841	Waterloo Longford
GKN Autoparts (Ireland) Ltd	Camac Close, Emmet Rd., Inchicore, Dublin 8 & Branches	781700	-	Vent Axia
Heating Wholesalers Ltd	Thomastown, Kilkenny	(056) 24171	8797	Smitka
William H Leech & Son Ltd	299 Ormeau Rd., Belfast BT73GG	645339	-	Greenwood Airvac
W. J. Hogg & Co Ltd	46 Ballynahatty Rd., Shaw's Bridge, Belfast BT88LE	640319	-	Zestaflex, Moducel, Fire-Foil
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C A Parsons of Ireland Ltd	Dublin Rd., Howth, Co. Dublin	322693	5503	Ducting
Redbro Ltd	Unit 12G Cherry Orchard Industrial Estate, Dublin 10	266677	30898	Trox
Sweeney Sheet Metal Ltd	96 Fairview Strant, Dublin 3	887596	-	Ducting
Solas Teoranta	Corke Abbey, Bray, Co Wicklow	862984	-	Solas
John R Taylor Ltd	Naas Rd., Dublin 12	783255	5427	Ozonair
Tradfire Ltd	108 Pearse St., Dublin 2	710208	-	Environmark
Tru Flow Ltd	Chapelizod Industrial Estate, Dublin 20	365984	-	Tru Flow
Powrmatic Ltd (R Hutton)	42 Wesley Lawns, Sandyford Rd., Dublin 14	681355	-	Powrmatic
Longford Ventilators	Dublin Rd., Longford	(043) 5026	33624	Grilles
Unimack Ltd	70 Lr. Mountown Rd., Dunlaoghaire, Co. Dublin	801964	-	Biddle
Ventac Ltd	Grand Canal Quay, Dublin 2	713499	5307	Koolair
Walker Air Conditioning Ltd	Dublin Industrial Estate, Dublin 11	300844	4882	Carlyle
Woodside Engineering Ltd	Grand Canal Harbour, Dublin 8	780152	-	Verrolec Zone
Whitehouse Sheetmetal & Engineering Ltd	14 Trench Rd., Hydepark Industrial Estate, Mallusk, Newtownabbey Co. Antrim BT368UU	Glen- Gormley 41328 44153 44698	-	Ducting
Hall Thermotank Ireland Ltd	Hall House, Main St., Rathcoole, Co. Dublin and branches	580311	30943	Hall Thermotank



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## Grilles, Louvres & Ducting

# GRILLES, LOUVRES & DUCTING

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

### Coolair

Air distribution specialists Coolair Limited of Dublin are distributors in Ireland for Barber & Colman Limited, manufacturers of the world's most extensive range of air distribution equipment.

Available from Coolair, therefore, is a wide selection of louvres, grilles, diffusers, dampers, panels, terminal boxes and integrated ceilings to suit numerous applications.

### Grilles:

Among the range of Barber & Colman ceiling grilles is the revolutionary continuous line diffuser Model CUD. This grille delivers the same volume per air foot as a conventional four slot diffuser and is designed to produce one or two-way patterns.

Ideally suited for use with variable air volume systems, a major advantage of the CUD grille is that air flow can be throttled down to complete shut-off without dumping taking place, thereby avoiding uncomfortable environmental conditions.

The CUD grille, which underwent extensive laboratory testing is available in a variety of finishes including

anodised aluminium and bronze with maximum widths of 76 mm. for one-way units and 121 mm for two-way units.

Coolair also have a wide range of grilles and diffusers suitable for both side-wall and ceiling applications. A recent addition to the range is a new Barber & Colman integrated ceiling system, which provides diffusers designed to integrate with various types of ceiling systems.

### Louvres:

Coolair's choice of louvres comprises the Model DLF Sand Louvre and the Model DLO External Louvre. The Sand Louvre is designed to fit into air intake openings and perform initial separation of airborne sand and dust mixtures in sandy or desert locations. Constructed from aluminium extrusions, the Sand Louvre can be made from a minimum size of 300 mm wide x 300 mm high up to a maximum in one piece of 2,400 mm x 1,200 mm.

The External Louvre, also constructed from aluminium extrusions, can be used in any exterior wall opening where a continuous flow of supply or exhaust air is required, and can also be installed in any type of wall construction or at a duct terminal.

The design combines maximum free area with excellent weatherproof characteristics to allow a minimum ingress of rain water. The DL units can also be made up in the form of a door, complete with hinges and catches, for installation in plant rooms.



**Ducting:**

Included in the Coolair range of ducting equipment is the Model DRO Adjustable Balancing Damper and the Econ-o-Flow Air Conditioning Terminals.

The Model DRO is a new type of damper in the form of a conical iris. It comprises an outer collar fitted with several blades which form an adjustable cone open at each end. This allows the aperture to be annular with the duct diameter and it remains annular from the minimum to maximum opening position, so ensuring a constant profile of air stream.

The Econ-o-Flow induction terminals select the correct amount of cool primary and secondary air to satisfy space cooling requirements at the lowest cost. Constructed of coated steel, the terminals are available in eight sizes from 130 to 3,200 cfm. to provide wide zone selections.

Further information on the Coolair range of grilles, louvres and ducting equipment is available from: Coolair Limited, 25 Cookstown Industrial Estate, Tal-laght, Co. Dublin. (Tel: 511244)

**Finheat**

Finheat Ltd, sole agents/stockists for the full range of Myson/RCM grilles, diffusers, damper and registers, claim to be fast becoming the sales leaders in that field due mainly to the policy of the company and the quality of the product.

The Myson/RCM grille is easy to identify in that it is the only argan-arc welded mitred corner constructed grille available with a silver grey stove enamel finish. This particular finish eliminates the visibility of corner joints and ensures the rigidity of its construction.

Myson also do a range of secondary duct dampers which are particularly useful for controlling air flow rates in small duct sections such as branch ducts or plenum connections. Types JOD and JRD can be used for controlling the air flow rate from terminal

boxes positioned above a ventilated ceiling. All units, except JRD, can be supplied with fusible links to give a limited amount of fire protection.

Finheat's policy has always been to carry the maximum stock to suit demand and this policy has proven them right time and again which is mirrored by the response they are receiving from their customers, and on special specified contracts, they are fast gaining a name for themselves for speedy deliveries. These factors, together with the full support of Myson Group Marketing Ltd, ensure that Myson/RCM grilles will have an ever increasing demand in the future.

Further information is available from Finheat Ltd., 34 Watling Street, Dublin 8. (Tel: 778120).

**Europair**

Hart and Cooley offer a large choice of grilles and diffusers in steel or aluminium helping the heating and ventilating engineer to solve his design problem. H&C also offer mixing and expansion boxes (with or without reheat oils, either with hot water or electric), aluminium liner grilles and slot diffusers and a complete range of adjustable and multi pattern ceiling dissusers. The H&C factory in Lokern Belgium is a very modern and adequately equipped production area with stocks to meet immediate demands.

For further information contact Europair (Ireland) Ltd.

**GKN Autoparts**

GKN Autoparts offer a free design service to architects, consulting engineers and specifiers for ventilation problems. They also carry a very comprehensive range of ventilation units and accessories. These accessories complete the range of products and provides even greater flexibility in solving all kinds of ventilation problems.

Accessories ex-stock in-

clude: Roof plate assemblies (for flat or pitched roofs), soaker flange sheets to suit most profiles of corrugation, ceiling housings (for ceiling void or concealed ventilation), wall plates (fixed and removeable types), egg crate grilles, non vision door grilles and external weather louvres, PVC flexible ducting in sizes 102 mm, 178 mm, 229 mm, 254 mm, 305 mm, and 406 mm and the corresponding worm drive clips.

Adaptor kits for splitting Vent-Axia fans to accommodate a large fixing thickness between the two are also available. Four core white PVC cable is supplied in minimum lengths of 5 m.

A comprehensive ventilation manual can be obtained from Vent-Axia Division, GKN Autoparts (Ire) Ltd., Camac Close, Emmet Road, Inchicore, Dublin 8. (Tel: 781700).

**Glowtherm**

Longford Ventilators Ltd, is a company based in Longford town and is set up solely for the purpose of manufacturing aluminium air distribution products. The aims of the company are to produce a high quality product range at competitive prices, and short delivery, thus giving an efficient service to the Heating and Ventilation/Air Conditioning contractor. A large stock of grilles is being held by Glowtherm Ltd, thus, delivery is ex-stock on most sizes, and due to the close liaison with Longford Ventilators, delivery on non-stock items can be as little as one week. Eyelash diffusers are also available in 1, 2, 3 and 4 way discharge patterns.

Architects will be interested to note that due to the flexibility of production, aesthetic and other architectural requirements can be catered for as non standard items, providing reasonable production quantities can be assured. For further information contact Glowtherm Ltd.

**Netaline**

The Netaline range of top quality extruded aluminium

registers and grilles combine clean modern lines with efficient performance.

Single and double deflector registers, eggcrate and linear strip grilles, external louvres, circular and square ceiling diffusers, linear slot diffusers, volume control dampers — they're all available in various sizes to meet all requirements.

Further details, prices, and catalogues can be obtained from Dan Chambers Ltd., and Environmental Supply Ltd.

**Smitka**

The Smitka duct flanging system is proving very popular with ducting manufacturers and contractors for branches, reducers, flexible connections etc., and in recent times has been used on prestige projects all over Ireland.

The main advantages in the system are the simplicity of assembly and the fact that no welding is required. HVCA approval is given under standard DW141, 1977.

Further information from: Heating Wholesalers Ltd, Thomastown, Co Kilkenny. (Tel: 056-24171).

**Woodside Engineering**

Woodside Engineering Ltd. are sheet metal fabricators and erectors, offering a high quality service to the mechanical services industry. Having established themselves as one of the leading sheet metal ductwork companies in Ireland, they recognise the need for a good service to the sheet metal industry. Using their experience gained over the years, they set about supplying a good quality range of accessories they knew was required by the industry. This was successfully achieved by introducing the Mez Flanging System now extensively used throughout Ireland. The Zone conditioning equipment also provides almost all the needs of a ductwork manufacturing shop and they keep a constant eye on improved products as they come on the market.



# NEW PRODUCTS

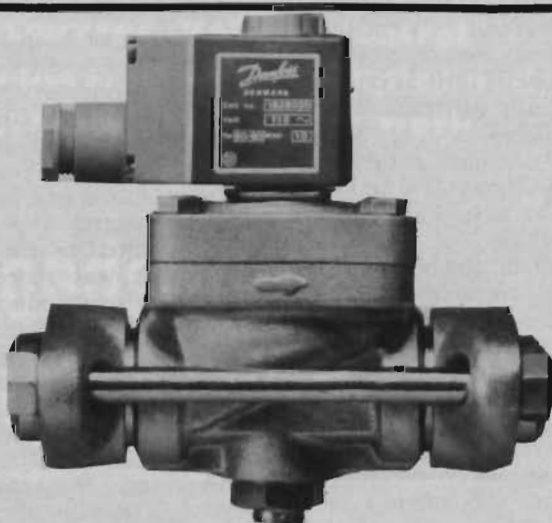
## NEW AHU FROM BAHCO

A new air conditioning unit, which may be as small as an office filing cabinet, is being launched by Bahco Ventilation Ltd. The new unit, to be called the ABCO, will have two outstanding advantages apart from its size. Normally small ventilation units will only heat and filter the air but the ABCO can incorporate cooling humidification and heat recovery as well. "It is a very adaptable unit designed for those applications where large air volumes are not necessary and would be wasteful," said Geoff Reynolds, Operations Director of Bahco Ventilation Ltd, Banbury, Oxon. "For example, it will be the ideal choice for the board room or small canteen."

Installation is greatly simplified by the modular composition of all ABC units. Modules are easily fitted together by means of a neat and simple slide rail joint. This means that the ABCO can be assembled in a variety of shapes and adapted to fit existing res-

tricted space without special building programmes being necessary. Modularity also means that regular servicing is made easy. Each section can be treated as a separate entity. Fan units and filters will even slide out on guide rails for easy access.

A basic combination unit is available, which consists of fan, heater and filter. This will then have added to it other modules such as mixing sections. The fan may be chosen belt driven or driven direct. As with all ABC units the ABCO can incorporate heat recovery, reducing fuel bills. Heat from the exhaust air is transferred to fresh incoming air by means of a heat exchanger. There is a choice of three forms of heat recovery: thermal wheel, run-around-coil, and plate heat exchanger. The ABCO has a cross sectional area of 720 x 420 mm (no more than the area of a small coffee table top) and delivers an air flow from 0.25 - 0.7 m<sup>3</sup>/s (440 - 1230 cfm). Bahco are represented in Ireland by Climavent Ltd.



The Danfoss solenoid valve type EVRA 25.

## Wavix, Wavin's New Jointing System

A new addition to the Wavin comprehensive range of fittings is the highly efficient Wafix fixed seal jointing system for the Wavin-Sewer, and soil, systems. It will be introduced on the 110mm coupler, long radius bends, and curved channels. The seal used in this system is permanently held in position with a polypropylene click-ring. Consequently, joints can be made quickly and easily. The Wafix's rubber click-ring will withstand wide fluctuations in temperature and will remain fully effective under vacuum. Wavin's research and development division conducts an ongoing programme of product refinement, and the design of fittings for new applications. The Wafix system is one of a number of advances resulting from the programme. Wavin is unique in this country in that it manufactures 96% of its fitting requirements for its pipe systems at Balbriggan, Co Dublin.

## FROM QUALITY PLASTICS

Quality Plastics Ltd. has introduced a new multi-purpose 67½° double access junction to its 110mm qualplast range of U.P.V. C. underground drainage pipes and fittings.

The new fitting can be used in a variety of configurations utilising standard qualplast socket plugs, including right-hand, left-hand or double branch entry, in addition to allowing access on a straight drain run.

## Satchwell's New Spring Return Valves

Satchwell Sunvic have launched an additional range of two port spring return zone valves which set themselves apart from any other valves in the market in that they consist of two separate parts. Satchwell say that for the first time with spring return valves the valve bodies and the actuators are separated so that installers can, if they wish, plumb in the valve section first and then wire the actuator up later, at a more convenient time. The Satchwell Unival as it is called, is designed for the flow control of low pressure hot and cold water. It is particularly suitable for central heating applications where on-off regulation of heating zones is required. The actuator, which fits Satchwell's existing ML range of valve bodies, requires no earth wiring because of its double insulated body. It comes in five different sizes three of which have an auxiliary switch. The need for a separate relay is eliminated with the SZ 1302 due to the incorporation of a change-over switching facility. This allows independent hot water controls in systems using pumped central heating and gravity domestic hot water. The valve bodies also come in five different metric and imperial sizes and incorporate twin self-cleaning PTFE shoes which, irrespective of flow direction ensure positive shut-off in the closed position and trouble free operation. Compression fittings are included as standard on metric pipe sizes.



# NEW PRODUCTS

## Principles of Vortex Shedding

Vortex is the name given to the natural effect that occurs when a gas or a liquid flows around a blunt non-streamlined object. The flow, unable to follow the shape on its downstream side, separates from the surface of the object, leaving a highly turbulent wake that takes the form of a continuous series of eddies forming and being swept downstream. Each eddy or vortex first grows and then becomes detached or shed from the object — hence, the name given to the phenomenon, vortex shedding.

If the vortex-generating object is correctly shaped and placed in a pipeline with the correct relative dimensions, it forms a primary flow element that generates pulse signals over a very wide flow ranges at a frequency proportional to the volumetric flow rate approaching it. Shown is a preferred geometry used in the meter and the resulting regular flow pattern. The triangular-shaped flow element is placed in the pipeline with its base facing into the direction of flow. The approaching flow separates from the flow element, and the vortices form and are shed alternately on either side of the triangular shape. As the flow rate increases, the speed with which each vortex forms and is shed increases at the same rate. As a result, the number of vortices generated per second is directly proportional to the flow rate. Furthermore, the calibration factor (e.g., pulses per gallon or cubic

foot) is determined only by the dimensions of the flow element and the bore of the metering chamber. It does not depend on fluid gravity, viscosity, pressure or temperature; neither does it depend on whether the fluid is a gas or a liquid. Although the Vort-X-Cel can be supplied with alternative types of vortex sensor, it is the oscillating disc sensor which is suitable for steam. This is a small disc which is oscillated by the vortices at the shedding frequency. It moves within a magnetic field and the resultant change of inductance produces a signal which is fed to a Neptune Universal Signal Processor Model 4650 which can provide either digital or analogue outputs compatible with most instruments.

The Neptune Vort-X-Cel vortex-shedding flowmeter can be supplied to measure liquids, steam, gases and cryogenics. It is available in sizes from 2 inches to 8 inches and operates at pressures up to 3600 psig and temperatures up to 700°F, with a minimum turndown ratio of 10:1. Calibration factor is constant regardless of temperature, pressure, density or viscosity changes. An important optional feature of the Vort-X-Cel is a hot tap valve which allows maintenance to be carried out without removing the meter from the flow line.

Neptune Measurement is represented in Ireland by Bentley Instrument Co Ltd, 4A Greenville Avenue, South Circular Road, Dublin 8.



*The Neptune Vort-X-Cel meter.*

## Elegant Shower Bath

A completely re-styled Sheraton 2 acrylic bath replaces Armitage Shank's highly successful Sheraton. The semi-luxury shower-bath has a slip-resistant area at the waste end — the modified dimpled base making bathing and showering equally convenient. Fully re-inforced, it is made from acrylic sheet and is available in nine colours and white.

As with all Armitage Shanks acrylic baths, the metal support frame is glassfibre-bonded to the underside, forming a secure cradle with the legs screwed to the base board and floor fixing position. Built-in wall brackets attach to the frame on the long side of the bath and can be screwed

in to the wall and tiled over to ensure a firm "bath to wall" fix.

Designed with similar generous internal proportions as its predecessor, Sheraton 2 has twin hand-grips, and in addition dual soap recesses, a sloping back with angled neck rest area, and wide flat edges, so useful when bathing children.

A completely re-styled and curved front panel forms a toe recess running the length of the bath. Overall dimensions 1700 x 800 mm and an internal depth of 387 mm at the waste end make this a generously proportioned bath to suit most existing bathrooms.





# Heat Pumps and Energy Conservation

By

C. P. Ford, Consulting Engineer and  
T. C. O'Connor and M. F. Kyne, University College, Galway.

**Energy is always topical and never more so than now when certain sources of it (fuels) are in short supply. In any discussion of energy it is well to bear in mind that most people are usually less concerned about what is the primary source of that energy than about what the energy can do for them — keep them warm, cook their food, run their machines or transport them quickly and without effort.**

The "mix" of energy sources in Ireland relies primarily on the imported fossil fuels of oil and coal, with significant contributions from native sources of turf, natural gas and hydropower. The harnessing of solar energy, directly through solar panels or voltaic cells or indirectly through wind, wave or energy crops, has yet to emerge from the experimental stage into economic exploitation. In judging the economic aspects of various forms of energy it is necessary to take a wider view than the final cost to the consumer. The development of native sources of energy, whose exploitation provides secure employment opportunities in Ireland and also makes the country more self-sufficient, is obviously preferable to increasing imports and aggravating our balance of payment problems. Another aspect which requires consideration is the efficiency with which the primary energy is converted into the form in which it is required such as motive power or space heating. The questions of the environmental pollution impacts of a source and whether it is renewable or not are increasingly important.

This article will examine how the application of one form of technology — the heat pump — can make a significant contribution to the solution of Ireland's energy problems in the 1980's and beyond. It is based on research work carried out in University College, Galway in conjunction with local industry and national agencies such as the E.S.B. and the National Board of Science and Technology. After a brief look at how a heat pump can be applied to space and water heating we will consider the economic impact of its adoption in place of conventional heating systems for homes and installations in Ireland.

## Heat Pump

The technology of heat pumps is not new. The theoretical basis for them was established by Lord Kelvin around the middle of the last century. Their practical application has been largely in the refrigeration industry and more recently in air conditioning units. They have not been widely used in the "heating mode" for space and water heating because this could be done more cheaply and conveniently

by conventional electric or combustion processes. However, with the present escalation in energy costs it makes sense to examine closely a method which gets more than half of its energy output "free" from the environment.

The heat pump, as its name implies, is a device like a refrigerator for pumping thermal energy from one place to another. It can extract energy from a source of low grade heat such as ground water or outside air (even at sub-zero temperatures) and transfer it, at a higher temperature, to warm up say indoor air or water in a radiator system. It required an input of energy in a conventional form such as electricity or an internal combustion engine to drive a compressor and circulating fans. The great advantage of the heat pump however is that for the expenditure of one unit of electrical energy it can deliver two to five times this amount of equivalent energy in the form of heat depending on the application or temperature lift involved. In other words we now have the ability to pick up 50% or more of all our residential space and water heating requirements from energy available in our environment. We can use the earth's surface and the lower atmosphere as a giant collector of solar energy and thanks to the Gulf Stream and the moist south westerly air stream that often covers the country, we can 'import' a lot of Caribbean sunshine!

The efficiency of a heat pump is often expressed as its coefficient of performance (COP) which is roughly the ratio of the useful energy output to the energy expended in getting it. For an air-to-water heat pump suitable for the typical Irish house an average COP over the heating season might be 2.5. For applications such as swimming pool heating, horticulture, mariculture or some industries, especially if located convenient to ground water, rivers or the sea, the COP could be substantially higher. This obviously makes electricity, especially at an off peak rate, a very competitive form of heating.

Electricity is a high grade and versatile form of energy. It can be generated from many sources — in thermal stations burning the whole range of fuels from heavy residual oil, coal, gas, turf and biomass, in hydro-stations and possibly, in the future, from wind or waves or nuclear stations. A nationwide distribution system exists which is underutilized for much of the time. It suffers from the disadvantage that it cannot be stored directly and the



demand fluctuates considerably with the time of day. A system of using electricity efficiently for heating, which would not add a great burden to the electricity supply network during peak load periods, would offer obvious advantages for the more effective use of the network now and would give a large number of people easy access to any developments in the large scale harnessing of alternative energy sources in the future. Heat pumps offer a clean and elegant technology to tap the large renewable sources of heat energy all around us in air and water. Because of our mild moist climate we are geographically the best situated country in Europe to apply it.

#### **National implications: Fuel import costs.**

Whilst no definitive figures are yet available, Dr. Henry's 1976 report on Energy Usages in Ireland, the more recent Government white paper on Energy — Ireland and some current figures discussed by Messrs. Kearns and McGrath of the E.S.B. in their very timely and important paper on heat pumps recently read to the Institute of Electrical Engineers, indicate that approximately 60% of our total primary energy demand is for heating in one form or another. In 1977, this amounted to some 1.88 million tons oil equivalent for space and water heating in the domestic and commercial sectors.

The E.S.B. estimates that for 1980/1, space heating will create **2.23 million** tons of oil equivalent demand for domestic and commercial space heating. It would appear that of this approximately **1.6 million** oil equivalent tons will in fact be oil imports. This of course will be a mix of residual fuels for which the E.S.B. are currently paying in the order of £100/ton and refined products which by now are probably costing £150 a ton, or more, to import.

If these figures are reasonably close to the true situation, the oil import bill for this sector at current prices may be £160 to £240 million pounds. Assuming a doubling of prices by 1985 and a usage increase of 25%, oil imports for domestic and commercial heating may well be costing us £400 to £600 million by the middle of the decade.

#### **Fuel Utilization Efficiencies**

Our table attempts to highlight the implications of successfully implementing a national energy policy on heat pump development and usage. The left hand column shows the average percentage of the total energy content in each fuel or source which is usefully applied as heat for space and water heating over the full year. We would expect considerable objections to the efficiencies quoted for domestic oil fired central heating (55%) and gas fired central heating (60%) as the suppliers of these fuels regularly quote 75% efficiencies to the public. This latter level of efficiency is achieved in a new appliance, when it has heated up and is running under full load. When one deducts cycling losses, the loss of heat transfer caused by combustion deposits and the electrical energy consumed to drive fans and pumps — averaged over the full year, the lower efficiencies are those which are in fact realized. We would refer those interested to three major studies carried out in the U.S. which have established the lower figures to be much closer to the true utilization experienced in domestic installations. (Gordian Associates, Cassidy Kellog & Co. and the Segeler studies).

#### **Comparisons**

Examining the table, we can begin to see why it is so important to use reliable data.

Take an average four bedroom

insulated home. We should be able to heat this house for a year with the gross total energy contained in one ton of heating oil — 265 gls. provided we could recover all that energy.

Of course, we cannot — but if we could we would have obtained the equivalent heat which 12,800 kilowatt hours (units) of electricity would give us. (437 therms). In fact, a reasonably good oil fired installation will have a seasonal conversion efficiency of 55% and in order to realize the gross heat content of one ton of oil, the householder must burn 1.82 tons (482 gls.). His bill for this would be £334 and he will have incurred an import cost of £273 for the country. Had the same householder used off-peak electricity his bill will be £366 assuming he included 10% daytime electricity. However, the E.S.B. will have to burn 3.13 tons of mix to provide the gross content of 1 ton of oil in electrical energy. The import bill will now be £230 since 2.3 tons of the mix would be oil. The consumer who opts for a heat pump with a modest conversion efficiency of 2.2:1 and using nothing but daytime electricity will pay £252 for his heating season. But look now at the import implications. The E.S.B. have only to burn 45% of the fuel needed to provide the consumer with his seasonal requirements of 12,800 kilowatt hours and the import bill has dropped to £105 or less. This consumer has a clear and on-going advantage. Not alone has he a cheaper fuel bill, he is now hooked into a dependable, multiple-fuel-option system for 45% of his heating needs and the outdoor air for the other 55%. Most important of all, he is creating an import energy demand costing only 40% that of his "oil fired" neighbour. The heat pump coupled to the E.S.B. will provide us with such a system, yielding conversion efficiencies of 64% to 120% from fuel mixes which will always be cheaper than the refined oil

## **FUEL UTILIZATION**

**March 1980**

**\* 3:1 H.P. = Heat pump which has 3kW heat output for 1kW electrical input.**

**\*\* Assuming good control and maintenance.**

**\*\*\*. of E.S.B. fuel is imported oil.**



# ZONE

we are now burning at conversion efficiencies ranging from 35% to 65%. Here is one good anchor for a national energy policy! Apply the above reasoning to commercial applications, schools, water heating etc. where utilization efficiencies climb to 80% or better and we can begin to see really great potential for import savings and the stabilization of our long term energy demands in this sector.

What we are talking about is the introduction of an indigenous and undiminishing source of energy supply to provide 50% or more of all our space and water heating requirements for the future. We have now the means of reducing our fuel import bill to service this sector possibly by several hundred million pounds, by the end of the next decade and this potential must surely merit our keenest attention.

## Job Creation

Another aspect of the adaption of heat pumps as a heating system is the possibility of creating new job opportunities in Ireland for manufacturing and servicing them. Heat pumps are manufactured in various countries such as the U.S. and Germany but most of them are designed for different requirements and climatic conditions than Ireland. Hence there is a strong case for the development of an industry to provide heat pump systems suitable for the Irish market and for export.

Irish heat pump systems specifically deigned to cater not only for new houses and flats, but also to replace or supplement boilers in radiator systems when that necessity arises, might be expected to take over each year say 2½% of the market for space and water heating in homes, commercial buildings, industry and institutions. The investment required and the savings produced indicate

that a very substantial number of jobs would be created over the decade.

However, to create and sustain these jobs some specific and strategic decisions need to be made in the next eighteen months. We are not alone in our awakening sense of environmental energy opportunities. The move towards developing heat pumps is world wide and unless we move quickly, many of these job opportunities may be lost to us!

## Research Programme

Although the advantages of the wide-scale adoption of heat pump technology are obvious, we must hasten with considerable caution. In the public interest and to be accepted by such bodies as the E.S.B., Irish heat pumps will have to conform to strict engineering standards and these take time to develop and demonstrate. Experience warns us not to launch a vast clutch of mechanical orphans on the country before their time.

A good start has already been made. Late in 1973 research on air-source heat pumps in the Department of Physics in University College, Galway. This has continued with support from industry, the ESB, the National Board for Science and Technology, the Galway County Development Team and the Commission of the European Communities. Over much the same period the ESB has been conducting its own investigation into heat pumps and has installed some in private houses and in the swimming pool of their new sports complex. Officials of the N.B.S.T. have also made theoretical studies of the impact of heat pumps on the Irish energy scene with the benefit of a national energy model developed, under the auspices of the International Energy Agency, at the computer centre in Brookhaven near New York.

The results to date are sufficiently encouraging and the potential economic benefits so promising that we now need to mount a greatly increased national R & D effort involving industry, the Universities and the appropriate semi-state bodies. The next step is to build and install several engineering prototype systems for trial and demonstration over the next heating season. The major difficulties facing the commercialization of the technology are final production costs, single phase motor starting problems and noise level control. Target costs are £1400 for 2 kW input unit and £1600 for a 3 kW unit. We are now coming within sight of these. However, it is not likely that commercial quantities of Irish made residential heat pumps will become available for two to three years.

The application of custom designed heat pumps to energy conservation or recovery in industry is already a reality. A factory near Limerick for instance is extracting 470 kW of heat from previously discarded process cooling water to heat its warehouses, with an estimated saving of 135,000 litres of oil per year, worth £20,200 at today's price and who knows how much in years to come. Other commercial and institutional heat requirements such as swimming pools or glass houses could use heat pumps and pick up 50% to 80% of their energy needs "free" from outside air or from wells, lakes, rivers or the sea, when they are conveniently located to the point of use, with obvious economic advantages.

In these days of fuel shortages and rising prices, it seems most opportune to exploit the energy in our environment and reduce our fuel import bill. The possibility is real and within our reach — a gift from nature, our climate and reasarch. Let's grasp it.

**"A factory near Limerick for instance is extracting 470 kW of heat from previously discarded process cooling water to heat its warehouses, with an estimated saving of 135,000 litres of oil per year, worth £20,200 at today's price and who knows how much in years to come."**



# Companies Supplying Industrial and Commercial Boilers & Burners

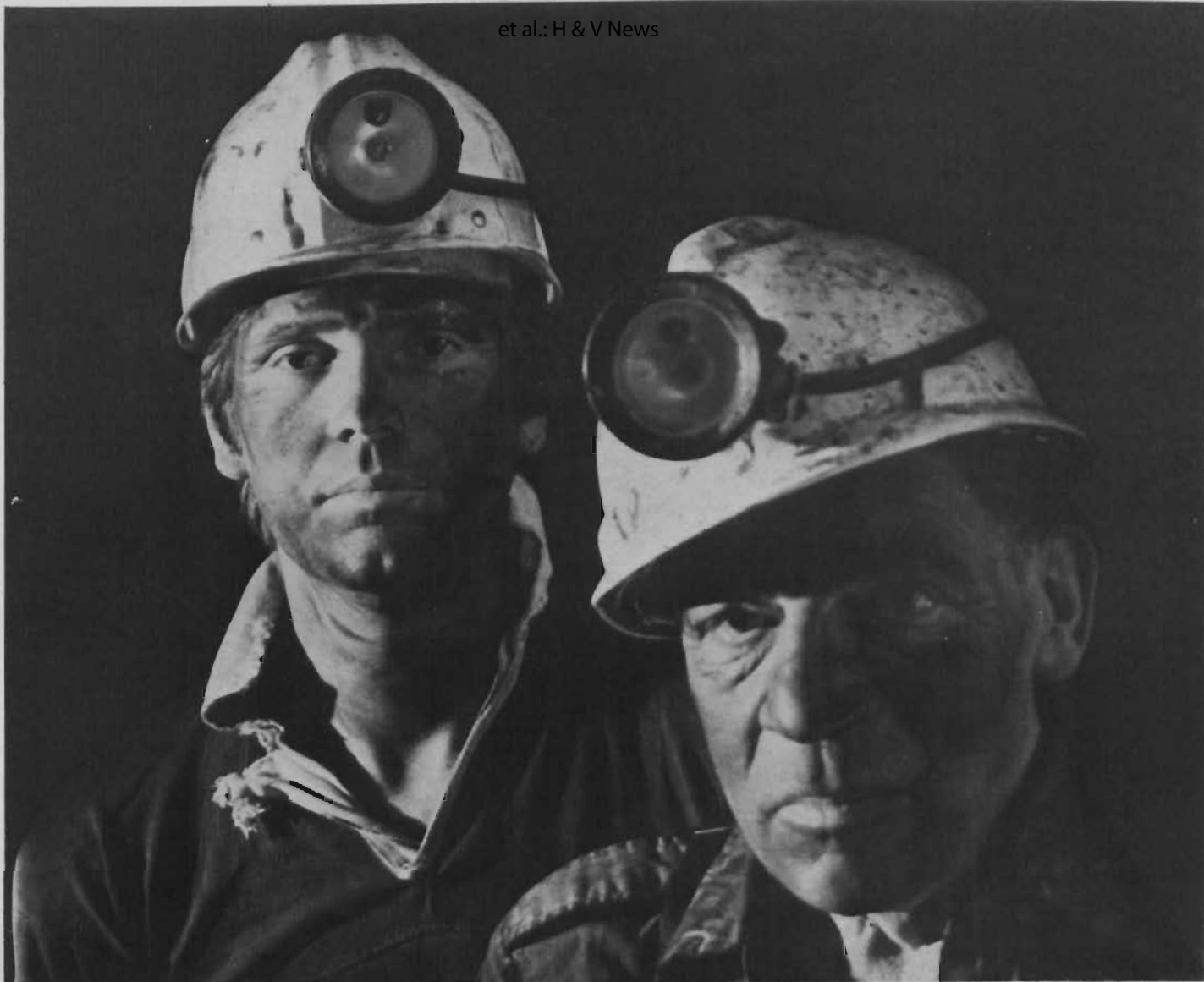
\*  
BITHIE MOUNT  
BELFAST  
TEL 50425

Company Name	Address	Tel. No.	Telex No.	Product Name
APV Desco (Irl) Ltd.	Galvone Industrial Estate, Limerick.	(061) 45211	6923	Fulton
Henry R Ayton Ltd	The Cutts, Dunmurry Belfast BT 17 9HS also at Broomhill Road,	618511 517922	74618 5190	B & E Boilers Stone Vapor Pacurns
* Ballentine Watson Ltd BLACKEN Bldg B M Heat Services	64 South Street, Newtown Ards, Co. Down	815991	-	DSV Boilers
Bourke & Son	7 The Parade, Donaghadee, Co. Down	-	-	Yarrow land Boilers
Castlereagh S M Engineering Co Ltd	Altona Road, Lisburn	Lisburn 6211	-	Castlereagh
C & F Ltd	Glenside Industrial Estate, Mill Lane, Palmerstown, Dublin 20	264917 264898	-	Hamworthy
Clarke Chapman Ltd	42 Sundrive Road, Dublin 12	971006	-	Thompson Cochran
also at	16-20 Rosemary St., Belfast BT11QD	27757	-	
Clyde Systems Ltd	John F Kennedy Drive, Dublin 12	507844	4321	York Shipley de Dietrich Ferroli
Cool Heat Ltd	16 Railway St., Lisburn BT281XG	76228	747086 Pace G	Kayanson Binns & Speight
Potter Cowan & Co (Belfast) Ltd	114-122 Henry St., Belfast BT151GG	20277	747549 Alfred	CTC, Heatrae, Alfred Allen Maxeta

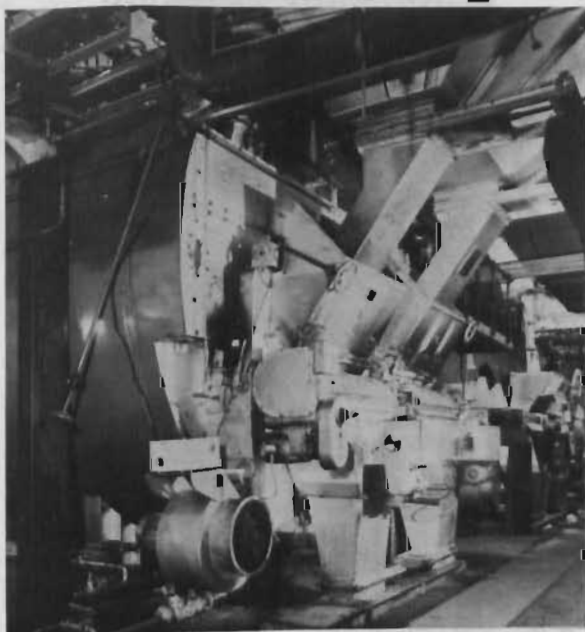


DW Products International	Office Suite No 1, Donaghmede Shopping Centre, Dublin 13	315028 316015 315006 814440	31716	Beaumont Teknigas
also at	Kittonga Industrial Estate, Belfast Road, Newtownards	747790		
Euro Engineering Co Ltd	35 Barrow St., Dublin 4	680746	-	Euro Fuelmaster
Euro Pumps	Cooleen, Laburnum Lawn, Cork	(021) 41388	-	Neca, Joannes, Maxheat
also at	21 Applewood Heights, Greystones, Co. Wicklow	876448		
Eurengo Sales Ltd	106, The Coombe, Dublin 8	755557	4147	Strebel, Biklim
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General Industrial & Marine Boilers Ltd	Frankfort, Dundrum Dublin 14	989433	-	Danks of Neatherton
Goudie Boiler Services	129 Applewood Heights, Greystones, Co. Wicklow	875142		Midcom
Hevac Ltd	Lomond Ave, Dublin 3 and branches	379673	587	Rio, Chapee Allen Ygnis
Heating Controls & Devices Ltd	6 Ballyoran Lane, Upper Newtownards Rd, Donald Belfast BT16OTL	5111	747536	Parkinson-Cowan, Powermaster, De Dietrich, Bradlee Powermatic
also at	Broomhill Close, Tallaght, Co. Dublin	521533		
Heating Wholesalers Ltd	Thomastown, Kilkenny	(056) 24171	8797	Pensotti Pal Kristal
Hendron Bros Ltd	Glen Tolka, 144 Richmond Rd, Dublin 3	376061		Parkinson-Cowan, Bradlee, GWB-Powermaster
IES Industrial (Ireland) Ltd	41 Dawson Street, Dublin 2	710142	-	Maxicon Westgarth, Clayton
also at	21 Station Rd, Belfast BT39QA	595091 56368		
J. Jamison	31 Beattie Park Central, Dunmurray, Belfast		-	Talisman (see also John Kelly Ltd)
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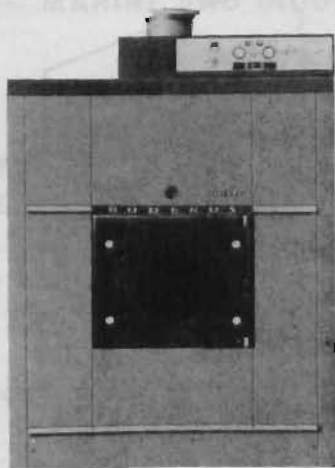
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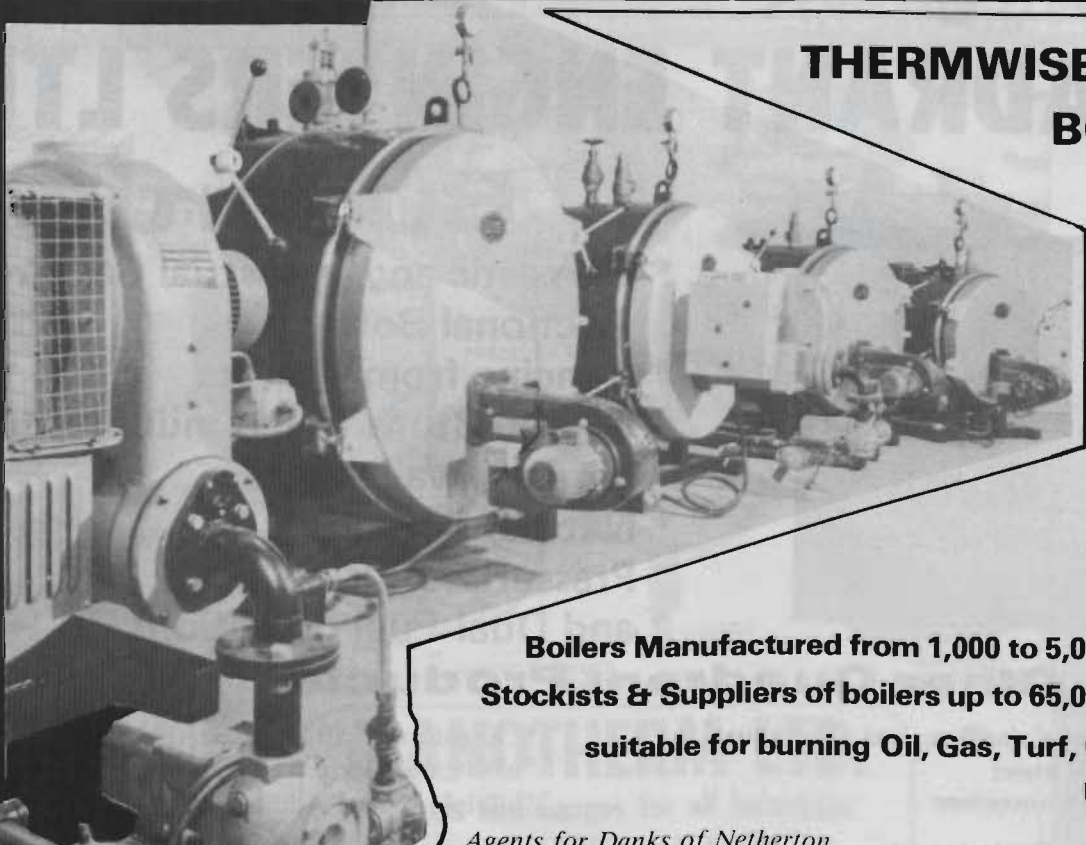
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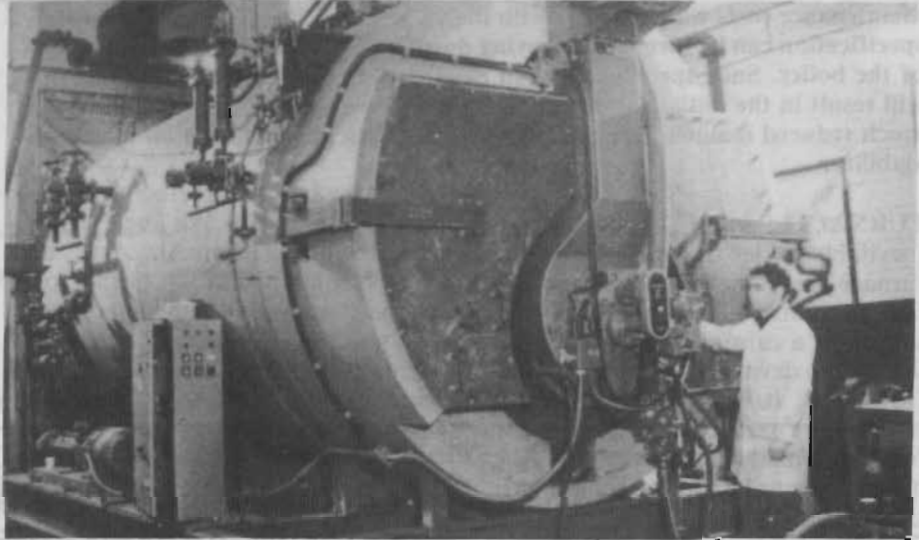
Wiltot Engineering  
Services Ltd

Leadhill House, Lead Hill, 59175  
Castlereagh, Belfast BT69RU

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Saacke

Index compiled from information received from companies and additional information from suppliers would be welcome.



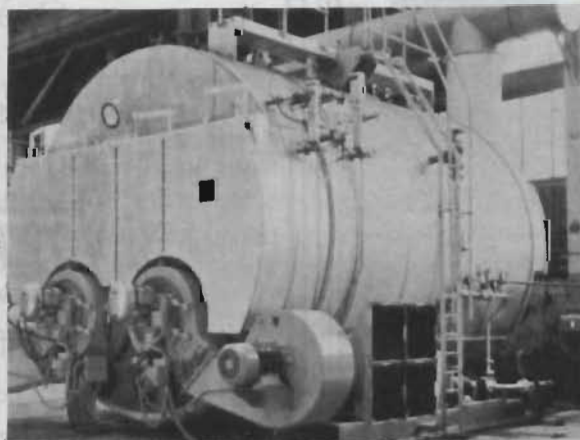
*A large steam boiler under test.*

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## Boilers & Burners — Industrial & Commercial

# Modern Boiler Design

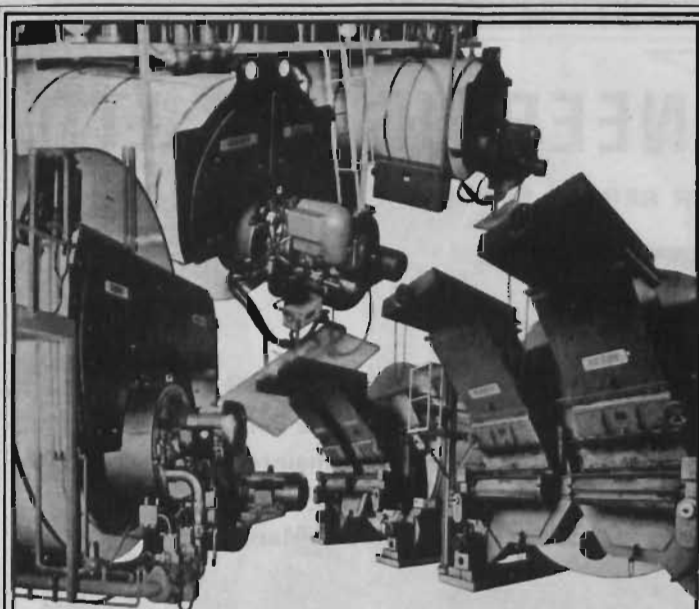
The choice and selection of a boiler and its associates design is an important step and if thoroughly considered should provide long and trouble-free operation with low maintenance cost. Regrettably the selection of boiler plant is often chosen on the basis of "cheapest tender" and whilst this may prove a cheaper solution to initial capital outlay, this saving can easily be eroded in the first few months of operation due to high running cost and possible failures. Such boilers are normally highly rated and result in higher operating and maintenance costs which remain with the life of the boiler. With this in mind, a specification can be formulated, laying down sensible guidelines for certain part of the boiler. Such specification will eliminate "tight design" and whilst this will result in the initial capital cost being higher, the lower running costs and much reduced maintenance cost will provide a package selected on long term viability.

### FURNACE

Inevitably boiler design starts in the furnace area. The size of the furnace tube in terms of diameter and length should be a careful "marriage" with the firing device to be offered and fuels fired. It has been the trend in recent years to place the responsibility for combustion squarely on the burner manufacturer's shoulders. However, "opting out" cannot

relieve the boiler manufacturer of his responsibilities towards such legislation as the "Clean Air Act" and "Stack Solids Control". Such "opting out" can result in bad or total mis-matching with calamitous results on site. With the higher grades of fuel oils now on the market with marked changes in asphaltting levels, more critical is the correct sizing of furnace to ensure complete combustion within the furnace tube proper.

Similarly, Natural Gas brings its own problem. Lacking in luminosity, the combustion cycle is much longer and as a result a longer furnace is desirable. To provide optimum flexibility one should combine these differing combustion techniques particularly where dual firing capability is a requirement. It is essential that a furnace design should accommodate the ability to be fired on both fuels without the need to de-rate the boiler output, particularly when firing Natural Gas. Due to this lack of luminosity when firing Natural Gas, higher furnace exhaust temperature will result and with those furnaces where little or no consideration has been given to this form of firing, damage can result, particularly at the first pass tube plate entry. It is in the furnace area that one should first seek to lay down specification requirements to avoid operating temperatures and critical burner settings. Furnace design can be expressed in terms of "furnace combustion intensity" or "furnace wall loading". The relationship of diameter to length of the furnace is equally important. However, one should combine these relationships for it would be possible



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Dramatic changes have occurred in the type of fuel being used for generating heat and electricity. With an increasingly realistic view being taken of the life of oil supply, manufacturers of heating, air conditioning, refrigeration and allied equipment have concentrated on energy conservation methods and solid fuel burning appliances.

IhVex '81 offers the first opportunity for the industry in Ireland to look at and discuss the many new types of equipment and systems that will be necessary for its survival in the future within the context of a major exhibition.

Many questions are being asked of the future — has fluidised bed combustion been fully developed? Has the heat pump a future in Ireland? Will the change over to solid fuel in domestic heating cause massive air pollution?

These and the many other questions raised can only be answered by the manufacturers and IhVex offers a perfect setting to put the facts to the entire Building Services Industry.

### Venue

Simmons Court Exhibition Complex,  
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Ballsbridge, Dublin 4.

### Dates

Tuesday February 17.  
Wednesday February 18.  
& Thursday February 19, 1981.

For full exhibition details contact:

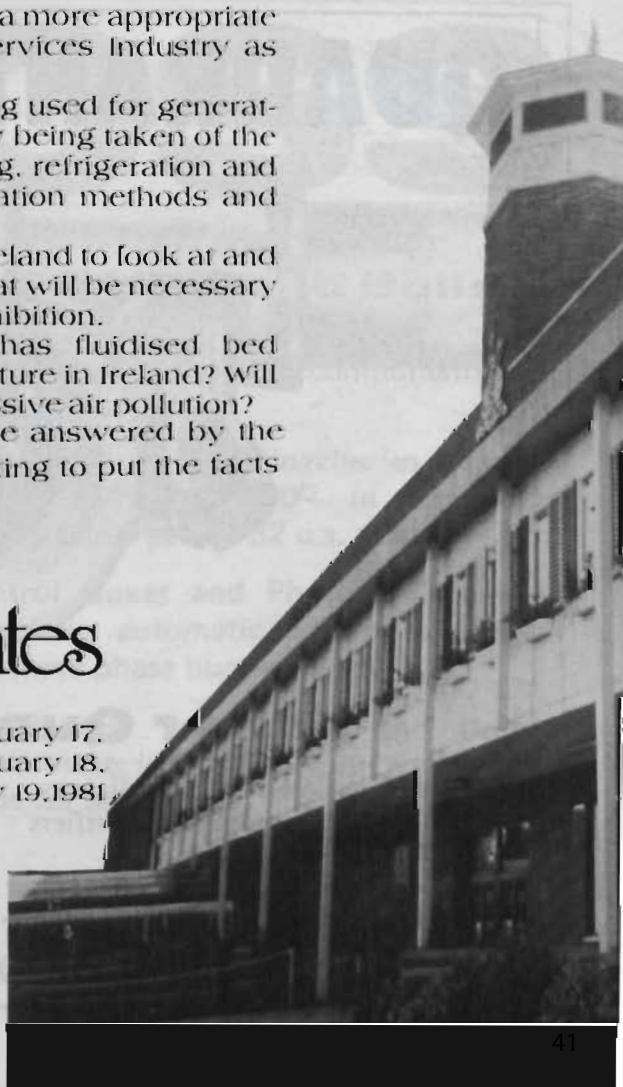
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## Boilers & Burners — Industrial & Commercial

to have an acceptable L/D ratio but retain a very high and unacceptable combustion intensity. For conventional treble pass boilers a combustion intensity within the furnace tube proper should be limited to 41.03-51.289 Kw (140,000-175,000 Btu/cu. ft) with a L/D ration of 3.5:1 - 4:1. In selecting such design parameters, the furnace exhausts and first pass tube inlet temperature will be lower. Burner settings become less critical, albeit for optimum combustion even on conservatively rated boilers such settings should be maintained adequately.

### CONVECTIVE PASSES

These are normally formed by banks of steel smoke tubes having thin wall sections. It is in these passes where further attention to design can result in improved boiler operation, higher efficiency and reduced running costs. Many boiler designs employ small diameter smoke tubes. This reduces the total convective heating surface and results in higher exhaust temperatures and pressure losses. It is common to find that with these types of boilers, efficiencies on oil are reduced to approximately 80% at

M.C.R. and, of course, still lower when firing gas.

In choosing larger diameter smoke tubes, one must be careful to assemble the number of tubes in each pass with a balanced mass flow and retain adequate turbulent transfer. This can result in a significant reduction in overall gas side pressure loss. The higher the pressure loss, the larger the burner combustion fan, resulting in large H.P. motors to drive the increased torque requirements. Limiting gas side pressure loss to the order of 50 - 100 mm (2 - 4 ins. w.g.) will enable the burner companies to use a standard fan sizing. A further benefit will be improved combustion stability over the turn down range.

### SCANTLING DESIGN

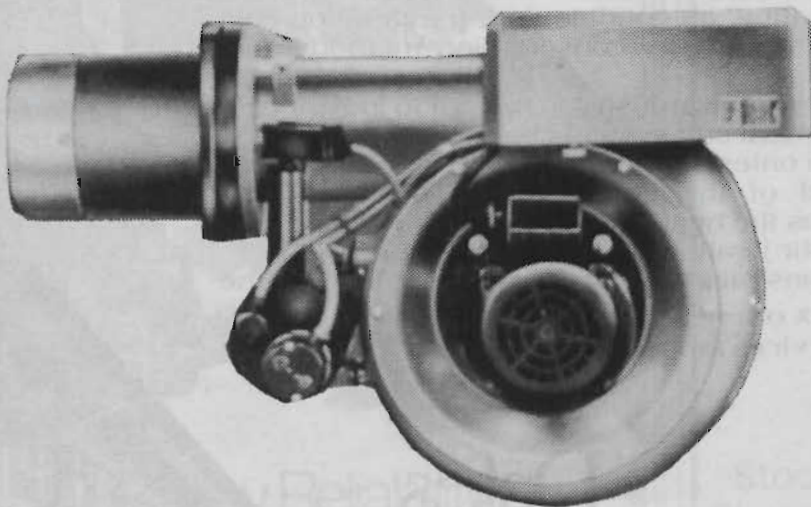
In assembling the shell design, it is always preferable for the furnace to be low set and thus avoid prime heating surfaces to cause heat surge destroying the water level as is evidenced by high positioned furnaces. It is essential to adopt wide waterways; this is particularly important around the furnace tube. The furnace tube will expand and contract at

different rates to that of the first pass tubes. A certain amount of flexibility is absorbed by the bowling hoops in the furnace. However, these are substantial points of support and it is far better to take the expansion through the wet back construction and tube plate zone. In doing so this flexibility must be accurately determined to avoid movement of tubes in the tube plate. Such measurement can be accurately predicted by use of complex computer techniques.

### STEAM SPACE DESIGN

This is an area where large cost savings can be made as a result of "tight design". Many manufacturers take licence of the actual evaporation rather than "F & A" rating. This approach is highly suspicious and it is doubtful that peak loads can be met and certainly the quality of steam or dryness fraction would be very low. The control of total dissolved solids levels would be difficult and the level of chemical control and blow-down would be very high and correspondingly expensive. A useful guideline is to specify steam disengagement velocity. This is given normally in the vertical plane at an approximate

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## Boilers & Burners — Industrial & Commercial

value of 0.04827-0.0508 M/Sec (9.5 - 10 ft/min). It is broadly stated that at 0.05589-0.0628 M/Sec (11 - 11.5 ft/min) carry-over will occur (priming). However, one cannot ignore entirely the effects of steam leaving the surface travelling horizontally before rising to the off-take area. Here again a value of 0.1778 - 0.2032 M/Sec (35-40 ft/Min) is relevant. Providing the steam space is sized to fall within both these limits, steam space sizing will result in good quality steam with acceptable and economic control of feed water.

### ACCESSIBILITY

Accessibility into the water and gas side surfaces is of prime importance. Insurance companies are becoming far more exacting during vessel inspections in manufacture and on site. Where limited access is provided, maintenance is severely restricted and the useful life of the boiler could suffer. Large manholes should be provided in the shell for water side access together with hand doors for flushing out in the lower tube plate areas. Full access should be provided to the gas side by removable doors in the front and rear smoke boxes.

Again this is important for insurance inspection and for reduction of down time during cleaning periods.

### ANCILLARY EQUIPMENT

We have so far discussed the broad parameters for effective boiler design. However, one should not ignore the potential savings that can be made by "good housekeeping" within the boilerhouse. Such equipment can comprise exhaust dampers, economisers and control instrumentation. The benefits of fitting this type of equipment will vary dependent on the load characteristic, operational period, quality of manning and indeed fuel fired. For instance, one would not contemplate the use of an exhaust economiser when firing high sulphur fuels. However, careful selection can result in large fuel savings with acceptable pay back periods.

### FUEL

We are all aware of the current difficulties with the choice and availability of fuel. In the past decade, we have witnessed a large swing from solid fuels to oil and gas. However, there now exists a great deal of apprehen-

sion about the availability of future energy supplies together with the continuing rises in fuel prices. Many customers are considering once again solid fuels such as coal or turf. This has resulted in a rapid re-think of firing methods and updating of old existing forms such as coking and chain grate stokers. With this form of stoking furnaces are required to be much larger in diameter to accommodate the stoker bed. More advanced forms of firing are evidenced by the rapid development of the fluidized bed technique which still remains in its early stages, certainly in terms of financial viability. Other types of stoker equipment are available, such as underfeed or more modern types such as fixed bed with drop feed sprinkler arrangement. These can provide advantages in financial terms over more conventional types such as chain or cooking stokers but they too are restricted to higher quality fuels. The drop tube method of firing with fixed bed requires manual de-clinking/ashing and thus downtime is increased. New materials are now available for use in conventional chain and coking stokers thus a wider range of fuel can be accommodated.

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## Boilers & Burners — Industrial & Commercial

Pneumatic/blown coal feed and ash removal systems can be installed giving increased automation and cleanliness of operation. However, having sized a furnace for the more

conventional types of stoker or indeed designed a boiler for eventual use with fluid bed, much of the previous comment on overall boiler design remains the same and it should be the

designer's "goal" at all time to provide a complete and acceptable package encompassing these various criteria.

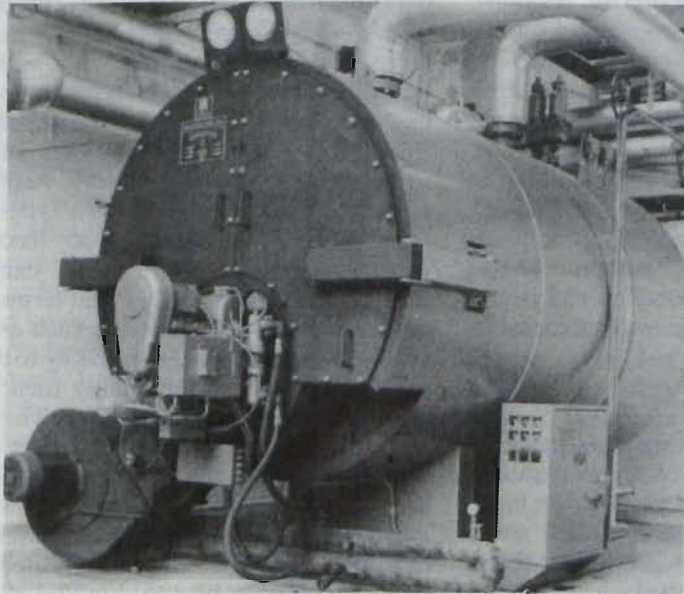
With energy conservation of concern to us all, B & E Boilers associate company, Burgess & Co. (Engineers) Ltd., manufacture units from the Burgess Metro-

water heating installations, the Beaumont's capital cost can normally be recovered within the first or second year of installation, while its revolutionary direct firing design allows up to 60% savings in annual water heating cost. Typical applications include hospitals, schools, office blocks, hotels and factories.

U-Fab's new space heating system is designed to avoid plant room and flue losses caused by the on/off effect of boilers at times of

modular boilers with a novel method of connecting the boilers to the heating flow and return. In order to maintain a heating operation when a new installation or emergency repairs are being carried out, U-Fab has developed a mobile Beaumont System so that work can continue in cheaper, normal working hours without customer disruption, on an inexpensive hire basis.

Further information from D. W. Products International Ltd.



*A B & E European hot water boiler.*

### B & E Coalmiser

The "Coalmiser" series is available in single and twin furnace designs up to 14,600 (32,000 lb/hr) when fired by drop feed sprinkler, chain or ram type stokers. However, one of the features of the "Coalmiser" range is that it is suitable for use with a medium depth fluid bed combustor thus providing the use with maximum flexibility for the future. Larger outputs can therefore be achieved. The "Coalmiser" is also suitable for turf firing. The larger "Twin Furnace Coalmiser" incorporates an "original" design concept in wet back design enabling one half of the boiler to be shut down avoiding stress and increasing turn down capability. Other products from B & E include a shell boiler from the B & E "Windsor" range which exemplifies the B & E tradition for quality of design and construction, giving long term trouble free operation at high effici-

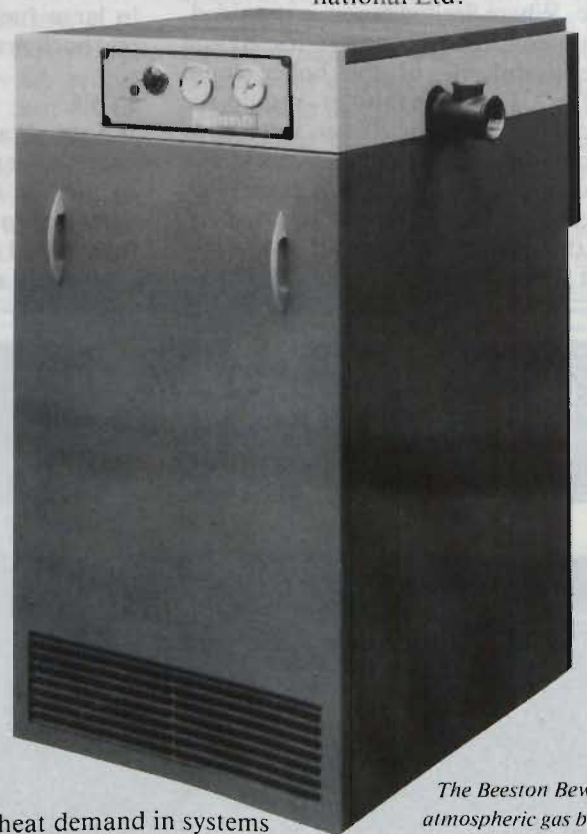
Flex boiler exhaust isolator range. The damper carries full patent rights and incorporates a unique sealing arrangement and safety link feature. The exhaust damper reduces fuel and electrical usage by up to 15% per annum with pay back periods normally under one year.

Further information from Hugh Siddall or Pierce Tiernan of B & E Boiler Ltd.

### Beaumont

U-Fab Limited, have recently launched the new Beaumont 1-15 heating system. A relatively inexpensive system designed for large

low heat demand in systems incorporating mixing valves. This is achieved by the use of a compensated heating control and



*The Beeston Bewley atmospheric gas boiler.*

### Beeston

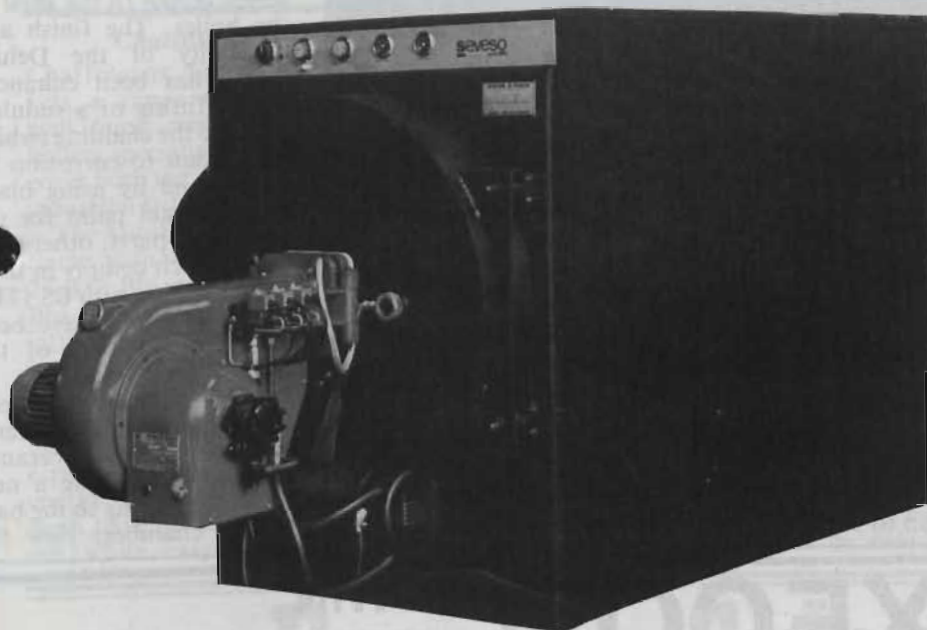
The Beeston Boiler Co. (Successors) Ltd. has launched 2 new boilers of cast-iron sectional design recently. The two new boiler ranges are the Broxley (dual oil/gas) and the Bewley (atmospheric gas), both offering new standards of efficiency and ease of maintenance. The Broxley series comprises 11 units covering outputs from 190 to 644 Kw (650,000 to 2,200,000 Btu/h). The units



*The Beaumont mobile hot water and heating unit.*



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## Boilers & Burners — Industrial & Commercial

are designed for pressure jet oil-firing, blown gas firing or dual fuel applications for central heating and indirect hot water and incorporate Dunphy burners. The series features a new concept in section design providing easy maintenance and a high efficiency of 80% based on the gross calorific value of the fuel.

The other addition to the Beeston range, the Bewley, comprises 8 units covering outputs from 44 to 147 Kw (150,000 to 500,000 Btu/h) and features new section design, pushed nipple assembly, atmospheric gas burners, improved insulation and jacket design, contributing to an operating efficiency of 78% based on the gross calorific value of the fuel.

The ever-popular Robin Hood range has positively thrived due to its reputation for reliability and flexibility, and continues to maintain a prominent position in Beeston's production schedules. The range can be supplied suitable for

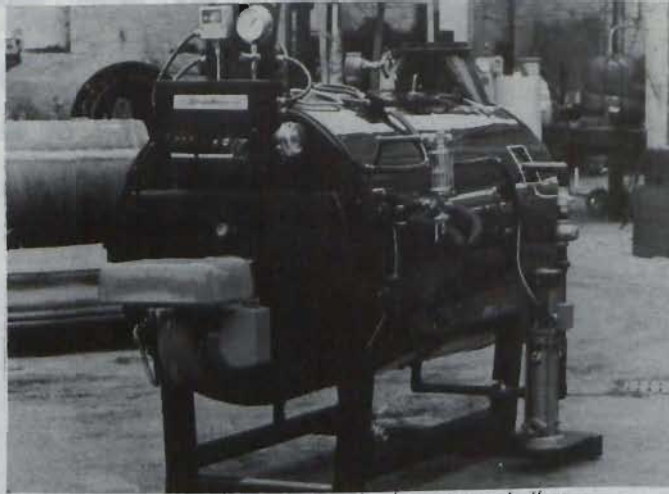
gas, oil or solid fuel firing and covers outputs from 66 to 682 Kw (224,000 to 2,326,000 Btu/h).

For further information contact Ummack Ltd.

available optionally as Class 1, 11, or 111 (150/105/55 psi). The boiler is probe-controlled and Riello gas or oil burners are fitted. The Deluxe model is specially designed — having an

openings on either the right-hand side or the left-hand side, this additional feature enables the boiler's very compact design to make the best use of valuable space on customers' premises. The Deluxe model also has greater access to the furnace — for inspection or cleaning — since all the inlet and outlet pipes are attached to removeable pads (of 4" square) which are themselves bolted to the shell of the boiler. The finish and durability of the Deluxe model has been enhanced by the fitting of a stainless cover to the cladding (which is resistant to corrosion by steam) and by using black heat-resistant paint for the remaining parts, other than those which comply in their colour coding with BS 1710. Other additions have been made to the trim of the boiler.

Improvements have been made to the Probe Chamber, using new ceramic probes, and adding a new anti-surge fitting to the base of the chamber. New fit-



One of Bradlee's new deluxe package steam boilers.

### Bradlee

The Bradlee boiler is a compact and efficient three-pass, return-flame, wet-back boiler. It is robustly built to BS 2790 in thirteen sizes, with outputs from 240 lb/hr up to 3,500 lb/hr and

extra man-hole at 5 o'clock and slightly higher feet — so that the shell can be cleaned out from the side as well as through the usual man-hole at the back of the shell. As Bradlee boilers can be built with fittings and

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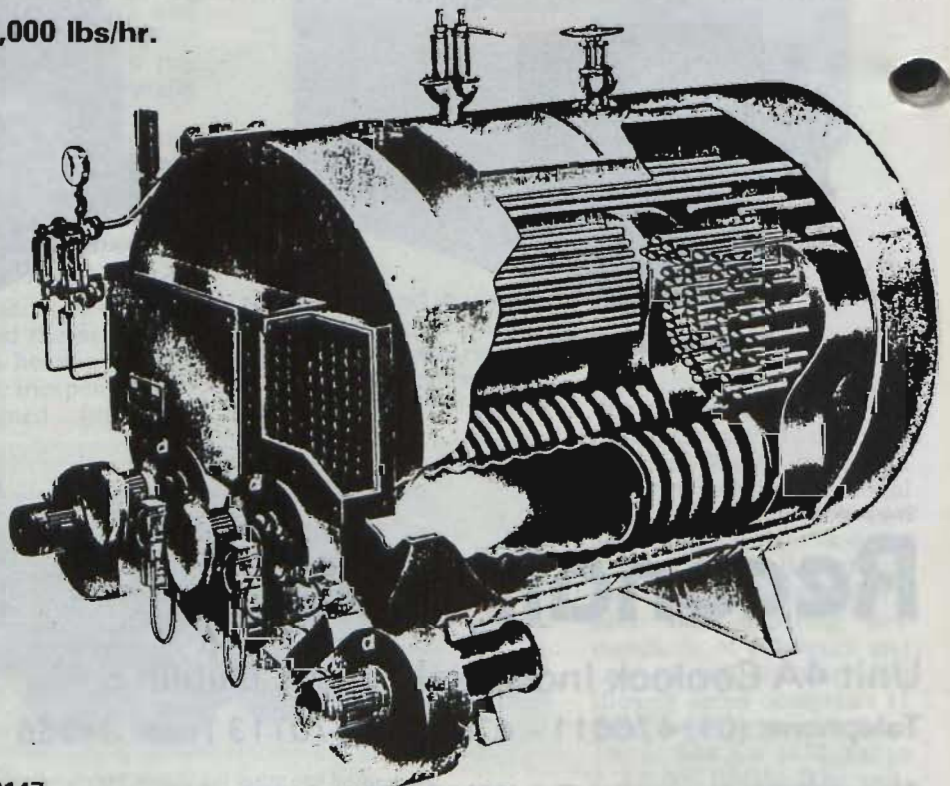
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(Ireland) Ltd.**

**Head Office:**

**Ian Robinson, Managing Director  
21 Station Street, Belfast BT3 9DA  
Tel: 732133/4**

**Dublin Office:**

**41 Dawson Street, Dublin 2, Tel: 710147**





## Boilers & Burners — Industrial & Commercial

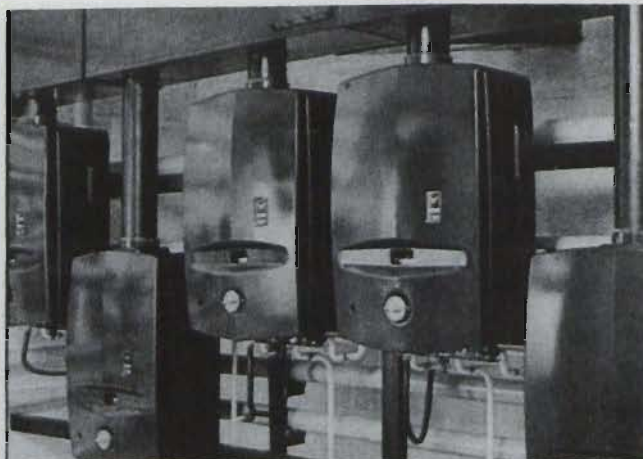
tings include a larger pressure gauge, a flue thermometer and the addition of a second bell. The Bradlee Deluxe Package Steam boiler is made and finished to higher standards in a number of respects than the basic Bradlee range.

For further information contact Heating Controls & Devices Ltd., Hendrons Bros. Ltd.

### Chaffoteaux

Chaffoteaux Limited markets a range of gas-fired wall hung central heating boilers specially designed to cover both the domestic and industrial fields.

The Miniflame and Maxiflame with outputs of 20-28,000 Btu and 40-60,000 Btu respectively were first introduced in 1975, and now updated as Miniflame II and Maxiflame II meet the requirements of the market perfectly well, and especially the new low-energy housing schemes. Both have an elegant modern white easy-clean case



FLEXIFLAME 35

saving valuable floor space and can be tucked away in any suitable spot around the house. Both are fitted with tinned copper heat exchangers and stainless steel burners and balanced flues. The Miniflame II, also manufactured as a conventional flue model, is admirably suited to the small house or flat, and the Maxiflame II for the larger flat or house.

Chaffoteaux have also recently introduced a new boiler, the Corvec 45, to fill

the gap between the Miniflame and Maxiflame. It is available either as a conventional flue or balanced flue model and has an output of 25/35/45,000 Btu. Corvec boilers are constructed in such a way that no electricians are required to be fitted to the boiler, and an important feature of the boilers is the unique water-differential gas master-control valve. Until there is sufficient water flowing through the heat exchanger, gas cannot be supplied to the

main burner. The pump etc. can be located in another area such as the airing cupboard.

Because of their simplicity, lightness and easy connections, the ease of installation, service and maintenance enables the heating engineer to keep costs down. The Flexiflame 35, suitable for the larger house or office central heating uses a single heating element to provide an output of 130,000 Btu. It is a conventionally flued boiler with draught diverter suitable for connection to a 150mm (6") diameter flue, which can be used with natural draught and with fan diluted/fan assisted flue. The Corvec boilers can also be supplied for use with LPG. Chaffoteaux products are distributed by Taney Distributors Ltd., Unit 4B Avonbeg Industrial Estate, Dublin 12, (Tel: 508120).

### Danks

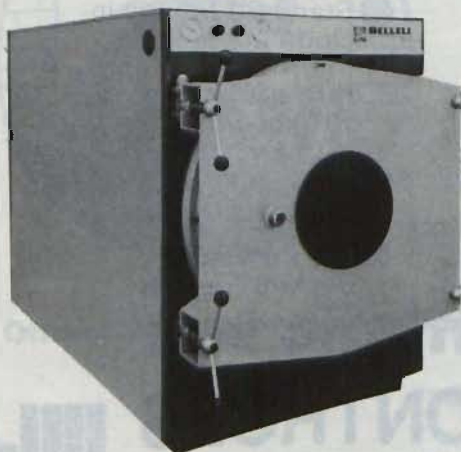
The highly successful range of oil, gas and coal fired

# Eurencos Sales Ltd.

*now appointed sole agents for*



## BIKLIM Boilers



PRI

520,000  
Btu/h to  
8 million  
Btu/h



TSI

224,000  
Btu/h to  
800,000  
Btu/h

Contact

## EURENCO SALES LTD

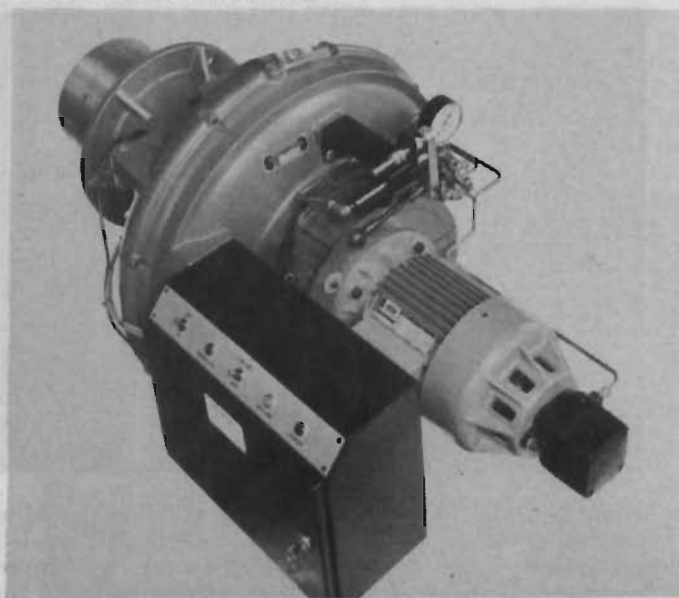
106 THE COOMBE, DUBLIN 8.  
Telephone: 755557. Telex: 4147



## Boilers & Burners — Industrial & Commercial

boilers designed and built by leading manufacturers, Danks of Netherton Limited, is now augmented by a range of coal fired boilers equipped with Incendo cone type burners. These burners offer an operating efficiency of up to 82% to give exceptional savings in energy. Primary and secondary air supplies produce extremely efficient combustion over the whole of the fire grate. Grits, extracted by an external arrestor, are returned for refiring as a further aid to efficiency. Another important feature is a patented banking device which allows the boiler to idle for long periods in a state of readiness to return to full fire conditions without the emission of dark smoke.

Details of this new range of coal fired Incendo type boilers and of the complete range of Danks boilers for gas, oil and burning, as well as boilers for waste heat recovery, can be obtained from General Industrial and Marine Boiler Ltd.



TL23ZHL light oil burner unit, 'T' Series (for light distillate oils up to 50 secs.) from Dunphy Oil & Gas Burners Ltd.

### Dunphy

Innovation has been the keynote at Dunphy Oil and Gas Burners Limited, Rochdale, Lancs., for the last two years during which period a completely new burner range has been developed. This is the "T" Series (the letter "T" repre-

senting the Company's patented Turbine design. The range covers ratings from 200,000 Btu/H (60 Kw.) to 30 million Btu/H (8,800 Kw.). Despite this wide range the Company has been able to condense the designs into only 5 basic frame sizes. In three years

the company has completely re-structured its production line to exploit the proven advantages of its unique, patented Turbine design. (Patent No. 1553767, 1979).

Fuels covered are:

- light distillate oils up to 50 secs Redwood No. 1 at 100°F.
- heavy oils up to 4,000 secs Redwood No. 1 at 100°F.
- natural gas
- dual fuel mode (natural gas/light oil)
- L.P.G.
- sludge gas

Dunphys fans are purpose-made to their own parameters; the vital task of balancing is not left to outsiders. Each fan is individually balanced, using sophisticated new plant, to a figure equal to, or better than, the smallest achievable residual unbalance permitted by I.S.O. 1940-1973 (E). The result - a marked reduction in sound levels and a machine that is vibration-free.

The company has recently introduced System 2000

**NEW**

# powrmatic boilers



Powrmatic Heaters also available.

HIGH EFFICIENCY

COMMERCIAL, INDUSTRIAL & LARGE DOMESTIC

- Compact - Free Standing - Sectional cast iron hot water boilers.
- Available as either oil or gas fired.

- Maximum combustion efficiency from 14 available models - 60,000 to 704,000 BTU's per hour.

- Standard fittings include boiler limit thermostat, temperature gauge and pre-wired control panel.

- Highly competitive price.

- Full Powrmatic Backup Service

**powrmatic from**

**HEATING CONTROLS & DEVICES (I) LTD.**



45 Broomhill Close, Tallaght, Co. Dublin. Telephone: 01 - 521533/521635

A SUBSIDIARY OF FERGUSON INDUSTRIAL HOLDINGS LTD.



## Boilers & Burners — Industrial & Commercial

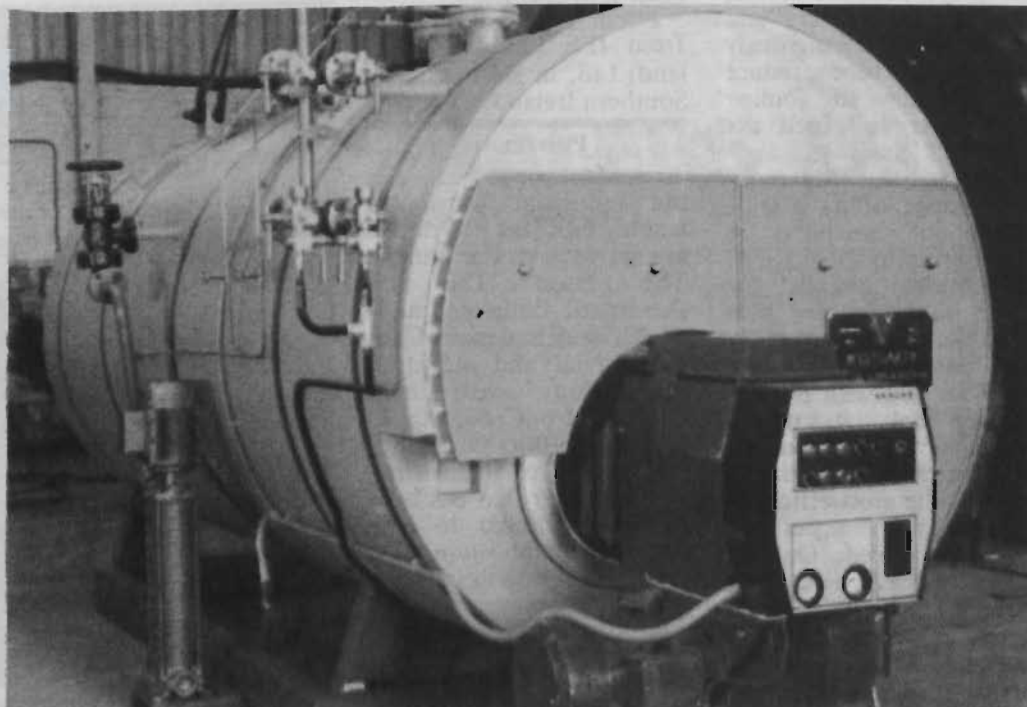
— a new concept in the provision of an A.O.T.C. steam boiler control panel. Produced by Dunphy engineers as a design aid for Package Steam Boiler manufacturers or for steam boiler conversions, it is available in 4 options all based on the same module

- suspended from the boiler top on a universally mounted tubular wiring conduit
- attached to the boiler casing
- attached to the boiler-house wall or built in to a main panel
- console mounted at floor level with lockable isolating cabinet (see photograph).

All options of System 2000 incorporate the standard 'pod'. This has a fascia setting out all the necessary functions to comply with A.O.T.C. requirements in 'mimic' form in colour. All control signals lights are in appropriate colours.

### Maxecon — Westgarth

The Westgarth range offers reliable performance at low



first cost. It ensures good overall efficiency at a standard pressure of 150 P.S.I.G. Designed as a three pass fully wet back single furnace boiler for use with oil and gaseous fuels. Its design criteria have been

proved and optimised by fully instrumented tests using light and heavy oils together with natural gas. Combined gas/oil burners can be supplied as required. The furnace is provided with convolutions to cater

for relative expansion. Conservative combustion intensities are used to meet current anti-pollution regulations. Satisfactory performance has been obtained without the use of small diameter tubes, with

# REFRACTORIES Of Bailieborough



THE FIREBRICK SPECIALISTS

Manufacturers of Burner Quarls ● Precast

Combustion Chambers for Sectional Boilers ● Firebacks etc.

Official Stockists for G. R. Stein's Scottish Firebricks ● Fireclays ● Jointing Cements ●

Castables ● Mouldables etc.

# REFRACTORIES IRELAND LTD.

Stonewall, BAILIEBOROUGH, Co. Cavan, Eire. Telephone 042-65123/65150.



## Boilers & Burners — Industrial & Commercial

their high pressure losses, excessive fan powers and noise levels. The generously dimensioned tubes reduce the tendency to fouling where heavy oil fuels are used.

The extended 'Maxecon' boiler range offers a wide choice of outputs at pressures up to 250 p.s.i.g., in addition, 'specials' for higher pressures are also available. Designed as a three pass fully wet back boiler for use with oil and gaseous fuels, its design criteria have proved in service over many years that it is one of the most efficient, reliable and accessible boilers produced. One of the features of the 'Maxecon' boiler is the ability, with twin furnace models, to operate for long periods on one furnace only. This gives high turn down ratios. If desired, an additional small panel gives the added facility of being carry out maintenance work on mechanical and electrical components of either burner and panel while the

other is in operation.

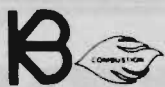
Further information from IES Industrial (Ireland) Ltd. in Northern and Southern Ireland.

### Powrmatic

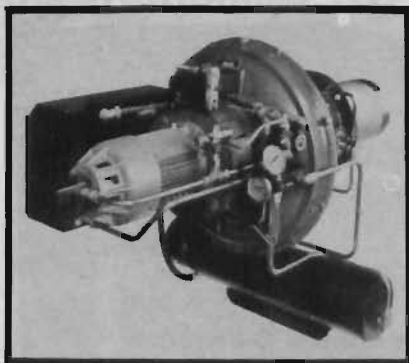
As a leader for some time in the industrial warm air heating business Powrmatic are set to take the plunge. The reason? The new Powrmatic Boiler. A range of 37 models designed for commercial and industrial applications with heat outputs from 60,000 to 700,000 Btu's. They'll supply them oil or gas fired with a burner that has been carefully selected to give optimum combustion efficiency. It probably won't come as any surprise to learn that these new boilers will be as well designed and constructed as everything else that comes from Powrmatic. Take the case for example. Two-colour self-interlocking stove enamelled steel panels that are made to take the knocks. Inside, the boiler is constructed of highly corrosion-



One of Powrmatic's new oil- or gas-fired commercial/industrial boilers available from Heating Controls & Devices Ltd. There are 50 models in the range, with outputs from 60,000 to 2,000,000 Btu/h.



## K. B. COMBUSTION LIMITED



The "Dunphy T"  
Series Heavy Oil  
Burner

SUPPLIERS AND INSTALLERS OF A COMPREHENSIVE  
RANGE OF OIL AND GAS FIRED BURNERS:-  
FROM 200,000 BTU/h to 30 MILLION BTU/h  
OR, 80 lb/hr STEAM to 26,000 lb/hr  
\*COMPLETE STEAM INSTALLATIONS\*  
SALES AND SERVICE OF STEAM BOILERS:-  
FROM 1000 lbs/hr to 50,000 lbs/hr and up  
to 350 P.S.I.

FOR TECHNICAL SERVICE AND DATA CALL KEN BIRNEY AT -



**K. B. COMBUSTION LIMITED**  
WHARTON HALL HAROLDS CROSS DUBLIN 6  
TEL: 972168. (3 lines)

resistant cast iron sections to ensure a long and efficient life. And to make sure you lose no more precious heat than is necessary the unit is well insulated with mineral wool. Maximum advantage is taken of radiation from the combustion chamber too. The boiler is designed to give the maximum heat exchange.

Further information from Powrmatic or Heating Controls & Devices Ltd.

### Robey

The new range of Incendo boilers is an addition to the existing comprehensive range of Lincoln boilers already marketed by Robey of Lincoln which are suitable for firing by the various types of fuel available. The Incendo boiler has been introduced into the Robey range in order to cater for an increasing market requirement for solid fuel

fired boilers and by its introduction now enables Robey to offer its customers a wide choice of combustion equipment for solid fuel.

The Robey Incendo has been developed in conjunction with Greenforge Limited, and in the majority of cases, the boilers will be available as packaged units although some items of equipment may require re-fitting at site. These boilers are of the three pass wet back design and will be available for outputs from 5000 to 25,000 lbs. of steam/hour, from and at 100 degs. C.

Robey boilers are available from S L Combustions Ltd.





# HEATING WHOLESALERS LTD

Thomastown, Co. Kilkenny, Tel: 056-24171 Telex 8797

## Pressurised

R4

R5



Ratings: R4 524,000 Btuh to 1,280,000 Btuh  
R5 1,440,000 Btuh to 2,840,000 Btuh

## Natural Draught



P4

P5

Ratings: P4 560,000 Btuh to 1,328,000 Btuh  
P5 1,336,000 Btuh to 2,328,000 Btuh

## Multifuel

Oil : Gas: Solid Fuel

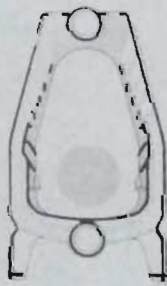
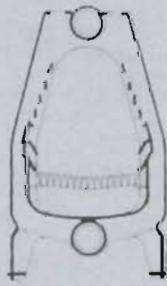
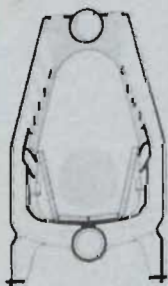
Ratings:

M4 420,000 Btuh to 896,000 Btuh  
M5 780,000 Btuh to 1,480,000 Btuh

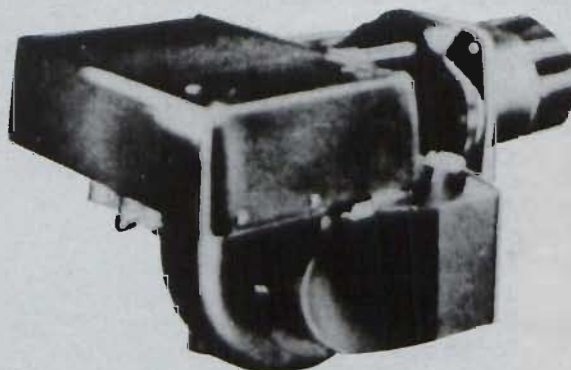
Gasoil

Solid Fuel

Gas



## Riello Burners



Press G Range  
Outputs up to 12 million  
Btu/h. Suitable for all leading  
makes of Boilers.

Enquiries: Northern Area Mr C. Billings Tel: 01-517703  
Southern Area Mr S. Doherty Tel: 056-24171



# HEATING WHOLESALERS LTD



# 'COALMISER'

The "COALMISER" Shell boiler range is offered in single and twin furnace designs for steam or hot water duties up to 13600 kg (30,000 lb/hr)/7620 kW (30,000,000 Btu/hr).

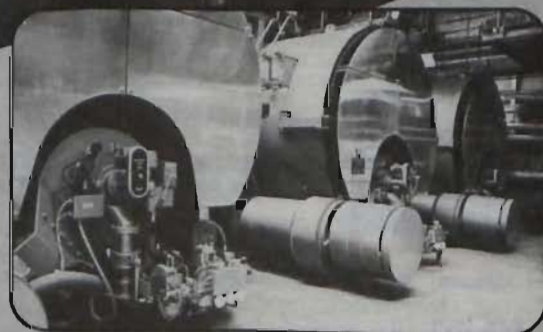
This range of coal fired boiler plant embodies unrivalled design features and quality of construction for firing a wide range of fuel using current firing techniques including sprinkler, chain grate and coking bed devices.

The larger "COALMISER TWIN" embodies an "original" design concept in wet back construction enabling one half of the boiler to be shut down, avoiding stress and increasing turn down capability.

The entire "COALMISER" range includes as standard:-

- ★ large furnace proportions
- ★ low overall heat transfer
- ★ large diameter smoke tubes
- ★ low gas side pressure losses
- ★ smaller electrical motors and reduced noise levels
- ★ automatic de-ashing
- ★ total gas and water side access including unique fully adjustable hinged front and rear doors
- ★ large steam space volumes for quick response to varying load demands
- ★ unique internal water circulation to avoid stratification and thermal shock on hot water boilers.

Fully automatic matched fuel feed and ash removal systems are offered to provide complete boilerhouse schemes.



Other products in the B & E range include the European steam and hot water boiler for duties up to 16300 kg (36,000 lb/hr)/12300 kW (36,000,000 Btu/hr) and the Windsor steam and hot water boiler for duties up to 5400 kg (11905 lb/hr)/3600 kW (12,280,000 Btu/hr).

Both ranges are suitable for gas or oil firing.



By Appointment to  
His Majesty The Queen  
B & E Boilers Ltd Boiler Makers  
Bracknell

**B & E Boilers Ltd**  
Easthampstead Road  
Bracknell, Berkshire  
England RG12 1NP

Tel. Bracknell (0344) 21341

Telex 847520



A member of the Richardson Westgarth Group