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H & V News

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

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

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

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

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

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

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

HEVAC LIMITED, LISTER COMPLEX, BALLYMOUNT ROAD, CLONDALKIN, CO. DUBLIN.
TELEPHONE: 518411.
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NEW PRODUCTS

PAGE 40
This month's section on new products is one of the largest in recent months as new products have been launched by several companies including Finheat, Marley, Heating Distributors, Walker Airconditioning, Redbro and other.
Cape Industries Acquire Newalls Insulation Limited

Agreement has been reached whereby Cape Industries Limited has acquired, through its wholly owned subsidiary Cape Insulation Limited, the insulation materials business operated by Newalls Insulation Company Limited (Newalls), a wholly owned subsidiary of Turner & Newall Limited.

The maximum consideration payable to Newalls is £13.3 million in cash, which figure will be reduced by any amount by which the book value of the net assets of Newalls' business at 29th September 1980, as audited, is less than 28th June 1980. An amount of £12.5 million of such consideration was paid today and any balance will be settled following completion of the audit.

Newall's product range will extend Cape Insulation's existing range to which will be added two modern processes for the manufacture of glass fibre insulation, one of which has overseas licensing potential. This combined product range will now enable Cape Insulation to provide the most comprehensive range of materials available for thermal insulation, from cryogenic through to refractory temperatures.

CIS Course in Cork

Coal Information Services Ltd., have recently completed another of their five day training courses for installers and others involved in solid fuel central heating.

The lectures were given in the School of Commerce in Cork by Denis Page of the UK based National Coal Board and were a great success. People from as far away as Dublin, Galway and Carlow came to Cork to attend the course, and again, as in Dublin earlier in the year, the course was overbooked. It is proposed to run a refresher one day course in Dublin, for those who have completed the earlier one, later in the year.

Cork now has a branch office of CIS and is fully staffed with a technical field officer and offers the same service as the Dublin office.

Other CIS activities for this winter include lectures to home farm managers through ACOT and of course the mobile outdoor exhibition will continue to go around the country visiting most of the major centres in its travels.

Gas Fires with Back Boilers

BSI has now published BS 5258 Safety of domestic gas appliances Part 8 Combined appliances: gas fire/back boiler, which will be of interest to manufacturers of domestic gas (including LPG) appliances, retailers and consumers. Part 8 specifies safety requirements and associated methods of test for combined appliances designed to be fitted into or against a fireplace recess, and comprising a gas fire operating in conjunction with a boiler or circulator for use both on open and sealed water systems. The combined appliances may be of integral construction or consist of substantially independent boiler (or circulator) and gas fire units. Appliances with fan-powered combustion circuits are not dealt with in the standard.

In specifying requirements for appliances burning 2nd family gases it is assumed that a meter governor will be fitted and, for those burning 3rd family gases, that the gas supply from the container will be governed by a pressure regulator complying with BS 3016.

It is anticipated that appliances complying with the new standard will be covered by a BSI safety mark scheme.

The remaining specification in this series is Part 9 Combined appliances: air heater/circulator, now in course of preparation.

Copies of BS 5258 Part 8 may be obtained from BSI Sales Department, 101 Pentonville Road, London N1 9ND. Price £10.40. (BSI Subscribers £5.20). (Prices in £'s sterling.

CHS on the Move

CHS Ireland Ltd have moved into new extensive premises at Stillorgan Industrial Park, Stillorgan, Co Dublin, (Tel: 952326).

Good luck Chris and Tony in your new H.Q.
'Class O': the better facing.

Better - because this new Fibreglass insulation facing is the only factory applied decorative finish to achieve a 'Class O' performance which satisfies Building Regulation (1976) E.15. It is the only 'Class O' facing which is also a vapour barrier. And it is the only 'Class O' facing available for both pipes and ducts, hot or chilled.

It never needs painting (dirt and grime are simply wiped from its specially coated surface); it looks good enough to be left exposed; it will not rot, age or sustain mould. In short, this new facing for Fibreglass insulation also combines all the advantages of aluminium foil, glass cloth and canvas. Yet it doesn't cost any more.

Fibreglass
the best way to say insulation

NEWS

ASHRAE ENERGY CONSERVATION AWARDS

An international competition to foster the efficient use of energy in new and existing buildings is being organized by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), an association of more than 40,000 engineers, scientists and researchers from some 120 countries. ASHRAE's approach to the competition is different from that of other energy conservation competitions; the objective is to discover and publicize the most innovative, tested, and effective designs in the field. Called the ASHRAE Energy Awards, the annual program is expected to encourage ASHRAE members to share some of the original ways in which they have achieved maximum utility from available energy sources. It is also designed to gain recognition both within and outside of ASHRAE for those engineers who have made significant contributions to relieving the current worldwide energy shortage.

Winning entries will be the subject of presentations made at Society meetings and articles published in the ASHRAE Journal, the Society's official monthly, as well as other periodicals, thereby insuring that information on award-winning design concepts is made available to building professionals around the world. And because projects must be in successful operation for at least one year at the time of entry, only proven energy savers will be recognized. A distinctive plaque will be presented to each entrant and each building/project owner who is honoured.

A total of nine awards, consisting of first, second, and third places in the following categories, will be made:

- Institutional/Commercial New Construction
- Institutional/Commercial Existing Structures
- Industrial

They will be chosen from selections made in regional competitions held across the United States and Canada and in an international competition which will consider entries from other countries. This system will bring to the "finals" the world's finest designs. All entries must be submitted by an ASHRAE member who has been actively involved in the project.

Winners of the first ASHRAE Energy Awards will be named at the Society's 1981 Semiannual Meeting in Chicago, January 25 to 29.

Inquiries concerning entrance to the regional and international competitions should be made in writing to Andrew T. Boggs, Executive Vice President, ASHRAE, 345, East 47 St., New York, N.Y. 10017.

ASHRAE is a non-profit, research-oriented organization whose areas of operation are heating, cooling, ventilation, and refrigeration. Since the rapid succession of OPEC oil price increases began, the Society has emphasized improved means of energy conservation and efficient energy utilization in buildings.

INSTAHEAT ANNOUNCEMENT

Mr. Erik White, Managing Director of the Instaheat Group has now located his operations at a new premises at Newtown Industrial Estate, Coolock. The business formerly carried on by D.W. Pro

-products International is now carried on by Martin P. Derby trading as Martin P. Derby & Associates Ltd., operating from Donaghmeade Shopping Centre, Raheny.

Name Changes for Consumer Services Ltd.

Multifuel Heaters Limited is the new and certainly more appropriate title for domestic boiler designers and manufacturers Consumer Service Ltd. whose offices and production facilities are located at 179 James's Street, Dublin. The operational policy of the firm, in which Merchants Warehousing Co. Ltd. are now the majority shareholders has been to exploit their unique patents relating to the combustion of solid fuel. Three appliances currently embody these patents—the popular 'Conservair' space heater and boiler; the 'Centrefire' back boiler and the burn-anything 'Gaelwood' multi-fuel central heating boiler. Multifuel Heaters Ltd. are also the sole distributers in Ireland for Smith & Wellstood and Ese Cookers.

COOLAIR'S SURGICAL SUIT AIR PANEL

A new ceiling mounted air distribution panel system, designed specifically for use in such areas as hospital operating theatres, has become available in Ireland through Coolair Ltd. Manufactured by Barber & Colman, the Surgical Suite Air Panel provides a constant supply of clean air to prevent contamination at the surgery area. The panels, with a "piston-effect" air pattern, use the supply air to develop a clean air curtain around the operating table and its personnel. The downward pattern of the supply air varies with the supply air temperature. The warmer the supply air, the slower the downward movement. The panels are available in a choice of painted steel, aluminium or stainless steel finishes and can be surface or flush mounted with a fixed or removable face. This laminar flow system can be provided as a complete assembly to incorporate openings for theatre lamp, medical gases and perimeter lighting track.

Pictured at the recent Energy Exhibition and Seminar in the Sands Hotel, Portmarnock, Co. Dublin were (L-R): Derek Morris, Managing Director, Multifuel Heaters Ltd.; Ray Burke, TD, Minister for the Environment, and Sean Keating, President, Malahide Junior Chamber of Commerce. The Portmarnock exhibition and seminar was organized by Malahide Junior Chamber of Commerce.
In 1965 Powrmatic took its first determined steps as a manufacturer of heating for the industries of Britain.

Today, fifteen years on, we have established ourselves as the number one manufacturer of industrial warm air heating.

It has been an extraordinary success story for a company who has its roots in the seemingly unlikely environment of South Somerset.

You don't have to look too hard however to discover the Powrmatic formula for success.

First and foremost is our range of products. Powrmatic can offer one of the biggest and best ranges in the business. Apart from our celebrated warm air heater range, we can supply heaters from our boiler and hot water and steam unit range. Together they make up one of the most impressive and comprehensive collections of industrial heating that you're likely to find.

The benefit of course is that with so much selection available under one roof, you can rest assured that you get the right heater to do the job.

For instance, where factory space is limited we've got the heaters to get you out of a tight corner.

The tough weather-proof E.A. (External Air) range of heaters for example operate from outside the factory.

There's the C.P. (Compact) floor standing range and our gas and oil unit heaters (G.U.H. & O.U.H.) for overhead installations.

On the other hand if you've got lots of space to heat, our best selling C.A. (Commercial Air) range offers heat outputs up to 1,500,000 Btu/hr. All these heaters are available gas or oil fired and the E.A., C.P., and C.A. can be installed for both free blowing and ducted applications.

An alternative to warm air is our boilers and hot water and steam unit heaters. Add to them our fan and natural convector and you have a range of products particularly suitable where there's a boiler plant producing hot water or steam. They can be simply connected into the supply at a minimum of inconvenience and expense.

When you buy Powrmatic you don't just get a better product. We give you an unbeatable back-up service too. Powrmatic have a nationwide network of stockists with products and spares in stock. This means that wherever you are you can usually get what you want when you want it.

If you think you like the sound of what we stand for send on for more details.

We will of course be happy to lend a specialist ear to anybody's heating problems.

And who knows? It could be the beginning of another warm relationship.

Powrmatic
Do business in the right atmosphere

Powrmatic Limited,
Winterhay Lane, Ilminster, Somerset TA19 9PQ Tel: 04605 3535

Contact R. Hutton, Area Manager (Ireland), 42 Wesley Lawns, Sandyford Road, Dublin. Tel: Dublin 681355.
Drumcondra and among its luxurious facilities are an indoor swimming pool, a sauna plus double sunbed and gym; a heated spa pool ideal for refreshing tired limbs is also available.

Des Stirrat is over 20 years involved in the heating and ventilating business and his expertise in the area of providing mechanical services is considerable. Des has very successfully promoted Cascade Swimming Pools (commencing this side of the business 10 years ago) when he recognized this opening in the market. Among his contracts have been the pools at the Marian College in Milltown and Mungret College in Limerick. He has also installed many spa baths and saunas in hotels throughout Ireland and can supply and fit Cascade in the ground swimming pools, Heatstar heat pump for heating pools, Hydrospa pools, overground swimming pools, saunas, solarium beds, garden furniture, barbecues, pool chemicals and services.

At the opening of the new Des Stirrat Leisure Centre were (L-R): Eddie Egan, Des Stirrat, Managing Director of the Leisure Centre; John Hamilton; Peter Johnston and John Doherty.

Stirrats Leisure Club

Des Stirrat who has made such an outstanding success of marketing Cascade Swimming Pools, has expanded his leisure interests by opening the first complete Leisure Centre on the north side of Dublin.

The new Richmond Leisure Club (catering for women only) is located at 128 Richmond Road.

At the opening of the new Des Stirrat Leisure Centre were (L-R): Eddie Egan, Des Stirrat, Managing Director of the Leisure Centre; John Hamilton; Peter Johnston and John Doherty.

Boilers Manufactured from 1,000 to 5,000 lbs per hour
Stockists & Suppliers of boilers up to 65,000 lbs per hour suitable for burning Oil, Gas, Turf, Coal and other Unusual Fuels.

Agents for Danks of Netherton
GRANT SCHEME FOR HOME INSULATION

Under the new scheme which came into effect from Monday, October 20th, grants of up to one third of the cost of insulating attics to a minimum depth of 4 inches (100mm), lagging hot water cylinders and weather stripping of doors and windows will be available from the Department of Energy. The maximum grant payable will be £50.

The grant will apply both to work done by contractors and to insulation fitted by householders themselves on a “Do It Yourself” basis. The Department of Energy will operate an inspection programme. The grant in respect of the lagging jacket and draught proofing is only payable in circumstances where the attic insulation is being installed or being increased to a level of 100mm (4 inches). It was estimated that as many as 600,000 houses in Ireland did not have proper attic insulation.

3-Year Guarantee on Hilti Drill

Hilti (Ireland) Ltd., have launched a special campaign which includes a special offer. Their popular TE 12 Electro-pneumatic Drilling Machine now carries a 3-year guarantee on parts and labour, for machines purchased before 15th December, 1980.

Quality is a primary criterion when buying a drilling machine and Hilti are prepared to prove that their machine, the TE 12, is a quality and reliable machine by offering this exceptional guarantee.

The TE 12 Electro-pneumatic Drilling Machine has many features such as light-weight, low vibration and reduced contact pressure. In this context operator fatigue is virtually eliminated. The range of drill bits is from 5mm to 16mm and in fact a hole 130mm deep can be drilled in half a minute. The TE 12 has a variable speed switch which allows for greater precision when drilling into glazed tiles and brittle materials. The machine is double insulated with a crack resistant casing, and a safety clutch protects both machine and operator. Supplied complete with depth gauge and 360° side handle, the TE 12 Electro-pneumatic drilling machine from Hilti is a worthwhile investment especially now with the 3-years guarantee.
MOY HOLDINGS ACQUIRE POLYZOTE

Moy Holdings Ltd recently announced that it has acquired Polyzote Ltd, the polystyrene manufacturers located near Enfield in Co. Kildare. Polyzote will operate within Moy’sInsulation Division which will now be in a position to supply Irish-made insulation for all elements of the housing and general construction markets. Polyzote is also active in the refrigeration and packaging markets, new fields for Moy. Mr. Michael McLoughlin, who has many years experience of the polystyrene industry, will remain on the board of Polyzote Ltd. and will be joined by Mr. L. R. Ball (Chairman), Mr. Patrick J. Duffy (Managing) and Mr. W. F. O’Gorman.

CIBS DINNER

At the CIBS Annual Dinner, Shelbourne Hotel recently were: (L-R) Michael McDonagh, Chairman, Republic of Ireland Branch, CIBS; David A. Russell, President, CIBS; and Tom Quinn, Assistant Director General, IIRS.

(R): David Kelly, R.I.C.S.; Paddy Duffy, Mechanical Services Contractors Association; Michael O’Donnell, College of Technology, Bolton St., and Michael McLoughlin, A.C.E.I.

A strong delegation from the Northern Ireland Branch, (L-R): Bill Hogg, Treasurer, N.I. Branch, CIBS; Stuart McEwen, Secretary, N.I. Branch, CIBS; Stanley Ferguson, Chairman, N.I. Branch, CIBS; and Michael McDonagh, Chairman, Republic of Ireland Branch, CIBS.

Hugh Monroe, Consulting Engineer; Harry Quigley, IDA; Gerry Curran, Temperature Control Services; and Larry Keane, Irish Estates.
The period of peak demand for electricity at present is between 5 p.m. and 7 p.m. daily. If you can alter your use of electricity to times outside this period, you can avail of non-peak rates and save money. These non-peak rates are (a) night rate and (b) off-peak day rate.

**Saving with Night Rate**

The night-rate offers cost-saving advantages where storage type heaters are suitable. Storage type heaters take in heat at night when cheap electricity is available and release it when needed during the day. Storage heating is, in fact, the ideal choice for commercial premises. It is cheap to install; clean in operation and requires no space for fuel storage. The night-rate also applies to insulated water storage cylinders and other electrical services.

**Saving with off-peak space heating rate.**

You can benefit from this specially reduced rate if your premises are heated by any type of electric heaters other than storage radiators. This rate is specially suitable for premises where supply interruption during peak hours (at present 5 p.m. to 7 p.m. in winter time) is acceptable. If your premises are used on an occasional or casual basis then this rate may be right for you.

**Saving with off-peak water heating rate.**

Another cost-cutting rate is that which covers water heating. This rate is particularly suitable where a peak time interruption of electricity supply (at present 5 p.m. to 7 p.m. in winter time) would not affect productivity.

*Non-peak rates are cheaper because when customers switch from peak time demand E.S.B. production costs are reduced. The resulting savings are passed on to customers in the form of cheaper non-peak rates.*
Aiming to boost its European sales of air conditioning products, Toshiba has announced the appointment of main distributors for Northern Ireland and the Republic.

In the south, the Japanese company’s equipment will be distributed by Saireco Limited, of Dublin, and in Ulster by B L Refrigeration and Air Conditioning Limited of Belfast. Announcing this move, Mr Beau O’Connor, National Sales Manager of the Air Conditioning Products Division of Toshiba (UK) Limited, says: “These companies have been granted distribution rights in their respective areas and will be responsible for sales and provision of service support and technical back-up”. Although Toshiba claims some 30 per cent of the Japanese domestic market for air conditioning, its challenge for world export markets is comparatively recent. The Air Conditioning Products Division of Toshiba (UK) — its British based marketing subsidiary set up in 1973 to sell TV, audio and hi-fi equipment — was formed only in 1979.

Toshiba currently markets a range of some 40 room air conditioning systems, including ceiling and wall mounted splits systems, ducted units and self contained models, with a range of cooling capacities up to 324,000 Btu/h (81,000 kcal/h).

Energy efficient heat pumps are also offered: “year round” systems capable of providing both cooling and reverse cycle heating. The attraction of these units is that in the heating mode they can provide around three kilowatts of heat for a kilowatt of electricity consumed, a cost-saving factor which explains why models like Toshiba’s latest micro-computer-controlled RAS-20 heat pump is currently in big demand. Saireco Managing Director Oliver Barry says: “We are delighted to take on the Toshiba distributorship — the Japanese company’s energy efficient heat pumps are already attracting enthusiastic interest from design consultants and from the retail and licensed catering trades.”

Full addresses of Toshiba’s newly appointed distributors are: Saireco Limited, 60 Fitzwilliam Sq., Dublin 2, (Tel: Dublin 763842 Telex: 30820. B L Refrigeration and Air Conditioning Limited, 151 Albertbridge Road, Belfast 5, (Tel: Belfast 53325 Telex: 748089).
If you're specifying heating, ventilating or air conditioning, you'll need down-to-earth facts about LENNOX - C&F HAVE THEM READY FOR YOU!

Lennox data sheets are straightforward technical publications designed to give you factual information on the specification, performance and purpose of all major items of Lennox equipment. Whether you're planning for commercial, industrial, or up-market domestic applications, if you want facts without frills, just tick the boxes and we'll do the rest.

Lennox direct single-zone outdoor unit, type DSS1
JORDAN VALVES MOVE INTO IRELAND

Agreement has been finalised between the American Jordan Valve Division of Richards International Inc. and Measurement Control and Automation Ltd. whereby the Dublin based company will market throughout the Republic of Ireland and Northern Ireland the Jordan range of products. The Cincinnati Ohio based company manufactures a unique range of pressure and temperature regulators as well as pneumatically and electrically operated control valves. The entire product range incorporates the exclusive sliding gate feature which in recent years has revolutionised the valve market. The tight shut off together with the reduced stem travel requirements of these valves contribute to their long life which far exceeds that of conventional products. Measurement and Control have found such acceptance for this product range that they now supply most of the range from stock and can guarantee forty eight hours delivery from Cincinnati for non stock items such as six inch control valves and large self-operated combined temperature and pressure regulators. The success of these products for the difficult applications of the chemical and Pharmaceutical industries in Ireland is indicative of their quality and their reliability.

WE'LL KEEP YOU ON THE STRAIGHT AND NARROW with our in line range of centrifugal duct fans

An exciting new concept from Roof Units Ltd packages all the best characteristics of their centrifugal fan units and presents them in slim line cases ready for connection to ducting or flexible hose systems. The elegantly designed external rotor motor matched to a backward curved impeller, gives quiet effortless performance against resistance and the important feature of full speed control allows the user to select precise performance in situ. The 'in line' or straight through air flow concept renders obsolete additional connecting ducting to the fan unit, and since the fan is housed within the duct then only marginal space is required to contain the power unit. No protruding motors, no pulleys, full speed control, quiet and powerful, straight from the carton and bolted or clipped in the system in minutes. Performances from 100 c.f.m. to 5,000 c.f.m. operating up to 1.5 ins. w.g and available from our nationwide stockists. It's easy to stay on the straight and narrow — send for a leaflet about the fabulous EUROFLOW 'IN LINE' duct fans.

https://arrow.dit.ie/bsn/vol19/iss11/1 DOI: 10.21427/D7TT4F
EURENCO
Industrial Tanks Ex Stock

Hot press moulded G.R.P. sectional cold water storage tanks.
Modular Design
Sizes Available:
1000mm x 1000mm
1000mm x 500mm

CONTACT:
Eurenco Sales Limited
106 The Coombe,
Dublin 8.
Tel: 755557 Telex: 4147

NEWS
Discussing the newly launched Da Vinci Brassware, four new colours plus other bathroom products during the full day Bathroom Exhibition held in the Burlington Hotel by Chloride Shires Ireland were: Roy McMonagle, Managing Director, Bodel Distributors, Shires newly appointed distributor for Northern Ireland; Tony Hackett, Regional Sales Manager, Shires Ireland; Bernard Lockley, Managing Director, Chloride Shires, U.K.; and Jack Restan, Managing Director, Jack Restan Displays who designed the exhibition.

Touring the recent Chloride Shires Ireland exhibition in the Burlington Hotel when Shires introduced their new Da Vinci brassware and four new colours were: Vincent Tierney, Financial Controller, and Susan Doyle, Chloride Shires; Patrick Linehan, Senior Architect, Dublin Co. Council; and Michael Hughes, Senior Architect, Dublin Corporation.

HORSES FOR COURSES?
The Euro Pumps Stable has a few Pedigrees that would suit your particular (water) courses. Remember... when the heat’s on to get the heat on — Call

Euro Pumps
Cooleven, Manor Ave., Greystones, Co. Wicklow, Phone: Dublin 876448

Euro Pumps Ltd.
Cooleven, Laburnum Lawn, Cork. Phone: Cork 43822

Published by ARROW@DIT, 1980
Companies Supplying Storage Tank & Pressure Vessels

Apollo Engineering Ltd
Baldoyle Industrial Estate, Dublin 13
Telephone 390230
Tanks

Arweld Steel Products
Finisklin Road, Sligo
Telephone: (071) 61516
Tanks

APV Desco (Ireland) Ltd
Long Mile Road, Dublin 12.
Telephone: 503566
Tanks — Pressure Vessels

BTR Permali RP Ltd
Jamestown Road, Dublin 8.
Telephone: 269911 Telex: 25764
Tanks — Hydroglas

Corrosion Control Plastics Ltd
Princes Dock, Belfast BT13AE.
Telephone: Belfast 751751
Tanks

Denhu Ltd
Walkinstown Avenue, Dublin 12.
Telephone: 503964
Tanks

Dunne Industries Ltd
Ballyboggan Industrial Estate, Dublin 12.
Telephone: 306001/306241
Tanks

Euromech Group Ltd
14 Carmen’s Hall, Dublin 8.
Telephone: 781199 Telex: 31668
Tanks

Europumps Ltd
Cooleen, Laburnum Lawn, Cork.
Telephone: (021) 41388
Also at:
21 Applewood Heights, Greystones,
Telephone: 876448
Pressure Vessels — Pressmain

Eurenco Co Sales Ltd
106 The Coombe, Dublin 8.
Telephone: 755557 Telex: 4147
Tanks — GRP

CHS Ireland Ltd
Stillorgan Industrial Estate, Co Dublin.
Telephone: 952326
Pressure Vessels

Fowler Bros
5 Mountgrove, Swords, Co Dublin.
Telephone: 401742
Tanks

Flow Ltd
Anglesea House, Carysfort Avenue,
Blackrock, Co Dublin.
Telephone: 881182
Pressure Vessels

GPE Teoranta
Annagry, Co Donegal.
Telephone: Annagry 27 Telex: 4396
Tanks

IAP Plastics (Glassfibre) Ltd
2 Hardwicke Street, Dublin 1.
Telephone: 518511
Tanks

Irish Industrial Tanks Ltd
5 Ballymount Industrial Estate,
Ballymount Road, Dublin 12.
Telephone: 507893
Tanks

Myson Ireland Ltd
Parkmore Industrial Estate, Long Mile
Road, Dublin 12.
Telephone: 509075 Telex: 4218
Pressure Vessels

H R Holfeld (Hydraulics) Ltd
Sandyford Industrial Estate, Dublin 18.
Telephone: 952001
Pressure Vessels — Supercell

HQS Engineering Ltd
Baltimore Road, Skibbereen, Co Cork.
Telephone: 028-21611
Tanks

Nu-Plast (Arklow) Ltd
South Quay, Arklow, Co Wicklow.
Telephone: 0402-2144 Telex: 4207
Tanks

C A Parsons of Ireland Ltd
Dublin Road, Howth, Co Dublin.
Telephone: 322693 Telex: 5503
Tanks

Renick Engineering Ltd
Frankfurt, Dundrum, Dublin 14.
Telephone: 969433
Tanks — Pressure Vessels

Rock (Ireland) Ltd
CIE Arches, Ossory Road, Dublin 3.
Telephone: 740180
Tanks

Russell Steel Products Co Ltd
Telephone: 343918
Tanks

Swan Plastics Ltd
Newrath, Waterford.
Telephone: 75514/76280
Tanks

Sprinkler Tanks of Ireland Ltd
Newcourt House, Strandville Ave,
Clontarf. Telephone: 339325
Tanks
Yes, even old Scrooge would have approved of the cost of a Braithwaite Sectional Tank.

You see, he was fed up with the cost of heating The Old Curiosity Shop, and the fact that the coal and wood purchased only heated one room.

However, if he had purchased a Braithwaite Sectional Tank, that same amount of fuel would have heated enough water stored in the tank to warm not only the shop, but the whole street as well.

So, if you are involved in a project concerning water storage for heating purposes, contact Braithwaite.

After all, old Scrooge enjoyed the creature comforts the same as the next man, but they had to be at the right price.

BRAINTWAITE SECTIONAL TANKS

—FOR VERSATILE, RELIABLE LIQUID STORAGE

FINHEAT LIMITED

34 Watling Street, Dublin 8. Phone: 778109/778120 Telex: 30751
## STORAGE TANKS & PRESSURE VESSELS

<table>
<thead>
<tr>
<th>Company</th>
<th>Address</th>
<th>Telephone</th>
<th>Telex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tonge &amp; Taggart Ltd</td>
<td>East Wall Road, Dublin 3.</td>
<td>786088</td>
<td>30993</td>
</tr>
<tr>
<td>Ward &amp; Goldstone Ltd</td>
<td>Bishopstown, Cork.</td>
<td>021-41834</td>
<td>6112</td>
</tr>
<tr>
<td>Wavin Pipes Ltd</td>
<td>Balbriggan, Co Dublin,</td>
<td>412240</td>
<td>5219</td>
</tr>
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<td>Unidare Ltd</td>
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<td>Gracdieu Road, Waterford.</td>
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<td>Ring Engineering Ltd</td>
<td>Raffeen House, Lr. Raffeen Road, Co Cork</td>
<td>021-84148</td>
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<td>Finheat Ltd</td>
<td>34 Watling Street, Dublin 8.</td>
<td>778109/77820</td>
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<td>Hammond Industries Ltd</td>
<td>PO Box 156, 111 Pearse Street, Dublin 2</td>
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<td>Phaser Ltd</td>
<td>Whitestown Industrial Estate, Tallaght, Co Dublin</td>
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<td>Pump Services Ltd</td>
<td>Wilbrook Road, Rathfarnham, Dublin 14</td>
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<td>Radley Engineering Ltd</td>
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<td>Shannon Piping &amp; Engineering Co Ltd</td>
<td>Ballybricken, Co Limerick.</td>
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<tr>
<td>Burlington Engineering Ltd</td>
<td>Unit T4, Stillorgan Industrial Estate, Stillorgan, Co Dublin</td>
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### FUEL OIL
STORAGE TANKS
OF REINFORCED CONCRETE
TILE-LINED
IDEAL FOR ALL GRADES OF OIL

### COLD WATER
STORAGE TANKS
OF REINFORCED CONCRETE
WITH SPECIAL LININGS

Built underground or in basements in any shape, size or capacity

IN FACTORIES, SCHOOLS, UNIVERSITIES, HOSPITALS, OFFICE BLOCKS, PUBLIC BUILDINGS, HOUSING SCHEMES (DISTRICT HEATING)

NO CORROSION—NO MAINTENANCE

Successfully in use since 1900

Erection on site — quick service
Many British and Continental references
Estimates and Representative’s visit free of charge
The choice of a suitable sectional tank is primarily dependent upon site conditions in relation to the volume of storage needed. The most economical tank is one constructed from plates 1220mm sq. with flanges arranged externally. Braithwaite sectional tanks are site bolted but they can also be welded at site. Depths of tanks do not usually exceed four plates, but deeper tanks can be specially designed.

Tanks can be enlarged in length, width and depth as storage demands increase. Care must be exercised that foundations and supports are suitable for any additional loads that may be induced. The scope of Braithwaite sectional tanks can be increased by the use of special plates, baffles and division plates.

For the rare occasions when an externally flanged tank cannot provide a required capacity at a particular site, a tank with externally flanged side plates and internally flanged base plates or with internally flanged plates throughout can be supplied. Depths of tanks so constructed should not exceed three plates.

In addition to its obvious merits in relation to the configuration of tanks the sectional method of construction enables transport costs to be kept to a minimum and for apparently uneconomic and unsuitable locations to be efficiently utilised for the storage of liquids.

The standard shop finish for Braithwaite Tanks is one coat of non-toxic black bituminous primer, this is intended to protect the components during transit. It is essential that tanks and structures be painted as soon as possible after assembly. Site painting is not always necessary for galvanised tanks.

Further information from Finheat Ltd.

BTR Permali have one of the world's major suppliers of GRP Sectional Tanks for more than 25 years. Because of their special properties and the flexibility of the modular system used, the application of these tanks is virtually limitless. The corrosion-resistant panels although extremely tough and durable are light and easy to transport and assemble even to sites with limited access or in difficult terrain. These tanks can be erected on sites varying from hill tops and deserts to mine workings and ships. They will adapt to vastly varying requirements - shops, stores, hotels, hospitals, commercial premises or flats. Impevious to the affects of heat and sunlight they can be used either outside or indoors. The applications of the tanks are as varied as their possible sites.

Their other qualities include resistance to the growth of algae, bacteria or fungi and they are particu-
STORAGE TANKS & PRESSURE VESSELS

larly suitable for the storage of softened and demineralized water, brine, sewage and other liquids of pH 2-10. The tanks are made of GRP panels 1.22m x 1.22m (4' x 4') and 1.22m x 0.61m (4' x 2') and can be erected in any convenient lengths or width in multiples of 0.61m (2') with a maximum height of 3.66m (12') giving capacities of up to and over a million gallons.

For further information contact BTR Permali RP Ltd.

A BTR Permali Sectional Tank.

New Novaflo MK IV Overfill Alarm.

The Eurogauge Novaflow Mk. IV is designed to overcome the problem of overfilling oil storage tanks by providing an audible warn-

EUROGAUGE
TANK CONTENTS GAUGES
HYDROSTATIC PNEUMATIC

EG 160 Permanent
Permanent reading gauge with airbell transmitter for remote indication up to a distance of 300 ft. (90 metres) from storage tank

EG 162 Popular
EG 162 Unitop
EG 162/9H
For remote indication up to a distance of 50 metres from storage tank.

MTF 500
For all standard domestic tanks between 2ft and 6ft in depth.

New Novaflo MK IV Overfill Alarm

Sole Irish Distributors

REDBRO

Unit 12G Cherry Orchard Industrial Estate,
Ballyfermot, Dublin 10.
Tel: 288877 Telex: 38998.
STORAGE TANKS & PRESSURE VESSELS

When a predetermined oil level is reached, the Novaflo sensor will automatically reset.

Due to the absence of any moving parts, the system has a high degree of reliability as well as incorporating its own test facilities.

The Novaflo Mk. IV is provided in a wall mounting weatherproof enclosure which can be located adjacent to the tank, or at a remote filling point.

Eurogauge Company Limited also supply a wide range of Hydrostatic, Mechanical Tank Contents Gauges as well as Level Controllers/Alarms for tanks, sumps etc.

For many years the use of waste oil has been a source of concern to many industrialists and fleet operators.

Atlas Oil Recyclers who operate an oil regenerating plant at Coledon in Co. Tyrone recently took the opportunity at the Wellington Park Hotel to explain the savings that could be made by the re-use of oil.

It is expected that Readlands will be the site chosen for the £2m search for geothermal springs at Larne, Co. Antrim.

Mr. David Howell, the Secretary of State for Energy announced at a luncheon at the Conway Hotel that it was intended to sink a 12,000 ft borehole in the hope of finding a geothermal reservoir.

Trial borings last year indicated that the Larne basin is one of the best possible sources of supply of hot water which is of course ideal for the supply of heat to district heating schemes. Such sources of energy have been frequently used on the Continent and it is felt that with the lack of common fuels in Ulster, geothermal heat may provide a useful and economical source of heat.

Cathcart Smith Agencies Ltd. have been appointed sales agents for Aidelle products manufacturers of extract fans.

Mr. Bob Johnston, who had a long association with Clyde (Successors) Ltd. of Ballymena has, following the winding up of the heating division of Clyde, joined Coolheat Ltd. of Railway Street, Lisburn.

Mr. Johnston with his long experience in the contractor field will be of valuable assistance to Coolheat, who have for some time been expanding their range of products.

James Maxton & Co., consulting engineers have moved to new offices at 21 Station Street, Belfast.

John Kelly Ltd. the Belfast coal and heating merchants have recently purchased Nicholl Morgan Ltd. of Londonderry and the two companies will now operate from the new site at Bay Road, Londonderry, which has been developed to the highest standard under the re-development plan for the area.

Eurenco

The ‘Eurenco’ industrial tank has been designed to incorporate a modular system using metric sizes in common with EEC countries. The materials used are the most technically advanced glass reinforced plastics commonly known as S.M.C., precision manufactured in matched metal tools. The S.M.C. is compression moulded at high pressure and under closely controlled temperature conditions and offers an accurate and consistent product with properties unequalled by hand or spray laminating processes. The panels, U.V. stabilised and pigmented to pale blue/grey to BS 5252 18 B 19, require no maintenance or special protection, and therefore are not subject to the damage that results to painted or plastic coated steel tanks during installation. The modular design incorporates two sizes of panel, one metre square or half by one metre. Fixing is by bolting externally or internally. If externally bolted the tanks can be erected in confined space provided 500mm is allowed around the outside of the tank. The shape of the completed tank can be infinitely varied although, in general, the two metre deep tank offer the most economic installation. Tanks may be installed on plinths, piers, underground, lofts or towers. If necessary erection staff are available from Eurenco. Further information from Eurenco Sales Ltd.
A new Dallas based company — Energy Sources Northern Ireland have received permission from the Dept. of Commerce to commence a search for oil off the Antrim coast — in the Rathlin Island basin.

The seismic studies are due to begin early next year and it is expected that it will be two or three years before the commercial possibilities of the studies can be assessed.

The area to be investigated stretches from Ballintry to Torr Head and north of Rathlin to south of Ballycastle.

On the board of the subsidiary company are a number of local personalities including Mr. Sam McCormick, Lord O’Neill, Mr. McGuickan and Mr. Ferguson Lacey.

Aerocowl continues to make news. The last few weeks has seen Aerocowl Marketing breaking into the lucrative European market with the signing of a contract between Aerocowl Marketing, John Kelly Ltd., the main distributors and a German firm of architects and builders for the supply and marketing of cowls in Germany.

We learn that a number of other European contracts are being negotiated ensuring a major development in the sales of the Aerocowl.

Bell Marketing Presentations must feel pleased after their first incursion into the Ulster exhibition scene. The Culloden Hotel Stewart Suite was chosen for their first show and the theme, Energy Heating and Ventilating Equipment Show.

The exhibition lasted two days and the many visitors were able to avail

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- Full range ex. stock.
  - 100,000 btu/h to 1 million btu/h
- Fitted with Riello Burners
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Dundonald 5111

A SUBSIDIARY OF FERGUSON INDUSTRIAL HOLDINGS LTD.
themselves of a free lunch or limited refreshment as the guest of the promoters and exhibitors.

Over seventy exhibitors were to be found spread over the twenty odd stands which included a number of new companies to the energy scene. Insulations was particularly well represented with Strangford Insulation Products showing their new line of thermal and acoustic insulation now being manufactured in their new factory. James P. Corry & Co. Ltd. and Norman Tremble Partnerships were two firms exhibiting special insulated roofing and heating materials; while Kernohans Joinery Works Ltd. showed their Tracal range of double glazing.

In the more traditional field, G W Monson & Son Ltd. were featuring a new selection of building services, pumps manufactured by Piellinger, while McCraig Collim Ltd. had a model of the new Greenforge Incendo solid fuel combustion equipment.

The now famous Aerocowl was displayed on the John Kelly Ltd. stand. Considerable attention was being shown in the Dewey Waters & Co. Ltd. G.R.P. sectional and one piece storage tanks on display at the B.S.S. Ltd. stand.

Coolheat Ltd. gave Mr. Barry Shaw an opportunity to introduce to many new and old friends his new member of staff, Mr. Bob Johnson or Clyde (Successors) Ltd., similarly it gave Bill Hogg of W. J. Hogg & Co. Ltd. an opportunity to let many of us realise the wide range of agencies his company now has.

Automatic Control & Temperature Equipment were to be found on the
The one criticism that could be offered of the show was that there was, due to the large attendance, a lack of space and some exhibitors had too much equipment on display, whereas the short duration of the show naturally created a situation whereby as many people as possible wished to attend.

It was interesting to see a number of people exhibiting who had not previously taken part in any previous show and maybe the success of this particular event will wet their appetites for future promotions.
Marley P.V.C. Gutters

The Raining Champions!

- Economical and easy to install.
- Absolutely maintenance free; unlike metal needs no painting—ever.
- Factory made to ensure quality and reliability.
- Undisputed market leader.
- Choice of colours and profiles.
- Available from large number of Stockists throughout the country.
- Easily adapted for extensions or alterations.
- Technical Advisory Service available.

Marley Plumbing

Manufactured in Ireland and marketed by MARLEY Flooring and Plumbing Ltd., Lucan, Co. Dublin.
Telephone: 01-280691.

Published by ARROW@DIT, 1980
Plumbers and builders' merchants will welcome the news. Sanbra Fyffe is back to full production with original Irish Instantor couplings. The range extends to around 300 parts for connecting either copper or polythene tubing. Irish made, they’re as good as you’ll find — anywhere — if not better. We’re back on the shelves and on the move.

_Sanbra Fyffe_
_Sanbra Fyffe, Santry Ave., Dublin 9. Tel: 379291. Telex: 25325._
EURO PUMPS — UNIQUE MARKETING CONCEPT

There is more to marketing than simply identifying what the customer wants and what the company can supply at an adequate profit for themselves. We all know the story of the company that appears to do its utmost to put you off placing business their way, simply because they have no concept of how goods are to be sold and how they are to be serviced afterwards. It is painfully easy to come up with examples of companies falling down on the job for what appears to the outsider to be very silly reasons.

Don Lauhoff

With such problems in mind Don Lauhoff and Liam Dennehy decided to launch an entirely new concept in marketing back in 1965 for the Euramo range of industrial and domestic circulating pumps. Before any product was sold the range was thoroughly checked for quality and reliability and the sole Irish selling rights were secured.

The new marketing strategy was to use Don Lauhoff's lifelong experience of the heating trade and take the product to the customer in whatever part of the country he operated in and on a weekly basis bring sales and service right to the customers door. This proved to be a far superior way to establish business and the Euramo van being driven by Don soon became an integral part of the scene. Thus from this simple but extremely effective method of marketing by van has sprung the force of Euro Pumps Ltd. Don Lauhoff's knowledge of the market at both wholesale merchant and installer level undoubtedly proved to be the most important factor in the beginning of the operation because Don was to drive the van and had to take the decision to set up the calls around the country so that everyone could be reasonably serviced as regularly and efficiently as was required. It was Don that mapped out the routes and it was Don who knew everyone on route — and more importantly was known by everyone. In this respect hardly any calls were cold calls and once the usual inhibitions had been broken down (ie price or quality or availability or whatever with existing suppliers) it was Don who eventually started to unload the van and carry the the pumps in to his clients premises for re-sale.

The Euramo range is vast — falling mainly into three very complete product groups.
Co. Profile

Jim Blatherwick

and is completely responsible for industrial sales nationwide.

In addition to the Euramo/Salmson ranges, Euro Pumps also act as sole Irish agents for Pressmain (Pressurisation) Ltd. and Zwicky Engineering Ltd. Pressmain are manufacturers of the largest range of hot water pressurisation units in Europe. Zwicky Engineering are perhaps best known as manufacturers of biplex and uniplex filters but are also sole agents for the Viking gear pump, Penberthy liquid level gauges and strainers up to 36”.

All Pressmain and Zwicky Engineering equipment is fully tested and experienced an upturn in demand it has been anticipated and the stock has been increased accordingly. The marketing concept may be over-simplified as making profit by means of repeatedly satisfying consumers. Many people find profit boring - if not vulgar, and they have a similar attitude towards customers. Selling is seen as trivial and unimportant.

Euro Pumps attribute their success to the fact that the customer has been courted and pleased. Good design, reliable performance and ready service will win every time provided they are supported by intelligent planning together with relevant advertising and sales promotions.

Euro Pumps Ltd. intend to provide at all times what the customer needs.

Frank McCarthy and Paddy Ring load up the Cork van.

Heating/hot water/pressurisation; cold water/pressure boosting and process/chemical pumps.

The domestic pump therefore only chipped a very small corner off the complete Euramo range which led Euro Pumps Ltd. to the inevitable step of broadening its own sales area.

As the popularity of the domestic pump increased so the interest in the industrial heating ranges gained momentum, as it soon became obvious that what was being made available was a very high quality super silent pump at a very competitive price.

The need for a Dublin office and depot soon became apparent and it was this particular goal in view that Jim Blatherwick joined the company in 1978. Jim has had over 22 years experience in the pumping industry.

pre-set in their respective works test houses before being despatched. So once more Euro Pumps are positive that the client is receiving top quality products at a competitive price in line with their main range of equipment.

It is intended to shortly open a facility for manufacturing the pressurisation units and boosters in this country. It follows that once this venture is underway there will be more versatility in the types of pumping equipment that can be offered in a quick turnaround time. There are many different combinations of pumping equipment which will be easy to assemble here once the premises are ready and this next stage in the ambitions of Euro Pumps Ltd. is looked forward to eagerly.

Basically, what Euro Pumps Ltd. have attempted (and succeeded) to do is improve on point of sale techniques simply by carrying stocks of equipment sufficient to meet demand.

More importantly, as they have verted and sales promotions.

Euro Pumps Ltd. intend to provide at all times what the customer needs.

Steven Quinn - Sales Co-ordinator.

Clem Cullen with 5” 12½ H.P. twin pump set bound for a site in Co. Tipperary. (The pump, not Clem!)
PERFORMANCE OF COOLERS

Part I

Uwe Schmitz of Kuba the German coil manufacturers, has prepared a two part article on the performance of coolers in which he examines the air and refrigeration side of coolers and also condensers and the selection of equipment.

The air coolers for cold rooms can be divided in natural and forced convection coolers. I would like to start with the originally used natural convection coolers.

Natural Convection Coolers

In this case the airflow is produced by gravity, this means density differences in the air. The intention is, to have low air movement and little dehumidification of the air surrounding the stored products. It can be easily shown that this is not achieved. The characteristics of these coolers are: 1. wide fin and tube spacing and 2. great temperature differences (TD) between room air and evaporation temperature in order to generate the air flow which is necessary to obtain the capacity. We offer fin spacings of 9,3 and 13mm. I personally think, that 9,3mm is by far enough. In order to use the applied surface best, these coils should be of small height. As a general thumb rule can be taken: the higher the coil, the greater the fin and tube spacing should be. The second characteristic is the great TD in order to get reasonable performance and coil size, it should be between 10 and 15 K (18/27°F). TD influences also the best fin and tube arrangement: the smaller TD — the greater the spacings should be. The great TD is the main application disadvantage. It causes bigger compressors and high water extraction from the air as will be shown later.

Another big problem is defrosting: because of the great fin spacing and lack of a casing, most of the heat introduced goes into the air instead of the frost. The indication of capacities is also a big problem, because installation conditions and storage of products influence capacity significantly. One obvious example is the application of the drip trays which influence air flow and consequently capacity. Finally you need a lot of space which costs also a lot of money to the end user.

Forced Convection Coolers (unit coolers)

The air flow through these coolers is produced by integral fans. This gives the possibility to choose within certain limits the ratio between air flow and capacity, one main advantage against gravity coolers. The other and most significant advantage are the smaller TDs that can be applied. They result in smaller compressors and smaller water extraction. Compared with the gravity coolers they have smaller fin and tube spacings which result in a by far more compact design although the fan needs additional space. Normally fin spacing should be between 4 and 5mm, in cases with heavy frost (freezing) 7 to 9mm could be necessary. In cases where the surface temperature lies above 0°C the optimum is somewhere between 3 and 3,5mm.

Sometimes rugged structures and slots in fins are applied in order to improve heat transfer. I think that this is not only useless but moreover bad because:
1) Increased turbulence not only causes increased heat transfer but also increased pressure drop which requires a bigger fan and higher power consumption or lower airflow and capacity.
2) In all cases, in which dirt or frost appears on the surface of the coil, the cooling effect of the coil only. You could imagine a cooler with a very large airflow and compact design where the power consumption equals the cooling capacity of the coil, which means, that there is no cooling effect on the cold room but the catalogues show the cooling effect of the coil only. With a good design the gross cooling capacity of the coil will be reduced by 5 to 10% as a function also of TD. The higher TD and consequently the capacity, the lower the ratio. There are two main design principles:
   a) push through
   b) pull through

Originally the push through design was used. Then somebody discovered that pull through was cheaper and claimed this variation to be the most progressive design. It was claimed that the air throw was greater because of the not so turbulent air flow behind the fan. But this is not true because the coil acts as a flow stratifier and equaliser. If you look at the remaining and real facts the features of both designs are:
   a. Push through: aa) more stratified air flow after the cooler and by far further air throw. ab) Less primary and dry air touches the stored goods. But ac) the length and height of the coil must not be considerably longer than the fan diameter in order not to cause recirculation of air inside the coil resulting in waste of surface. This means more fans and more expensive coolers especially at bigger air flows.
   b. Pull through: ba) as the distribution of velocity of the air inside the coil is not significantly influenced, greater face areas can be used for the same fan diameter. Although fan performance is decreased with a coil at its suction side, this has proved to result in cheaper coolers. bb) as the velocity is more even, there is almost even frost distribution on the surface which results in better efficiency of the defrosting. bc) the accessibility of the fans is better and simplifies installation and replacement. But bd) the air flow in the cold room is much less even and becomes worse with increasing frost on the coil: Main disadvantages!

Here should be said something about fan performance and airflow.
   a) Any air stream can be divided into a primary and a secondary stream. This means that there is more air movement in the room as the mere consideration of the primary airflow.
through the coil tells you. If the cooler is installed properly, the stored goods are only touched by secondary air.
b) Any air stream tends to travel along walls or ceilings.
c) The greater the resistance on the suction side becomes, the more the air on the discharge side of the fan distributes radially.

Another basic fact that we need to compare gravity and forced draught coolers is the main influence of the temperature difference on the water extraction from the air. As long as the temperature of the coil surface is above the dew point of the air, there is no water extraction regardless of the air movement around the goods.

1.2 Defrost

What concerns defrost there are two different methods of initiation:
a) According to capacity reduction
b) According to time intervals

From the technical view of efficiency I am in favour of method a) in a variation where you defrost according to the decrease of suction gas temperature at the evaporator outlet. In this case you can use the fact that first the compressor pulls down with increasing frost, that means decreasing capacity and second the superheat decreases because of the same reason. Thus you have a very strong change of the signal.

Method b) is most commonly used although nobody seems really satisfied; but it is simple. The mostly used methods for melting the frost are:
a) By air, flowing over the coil with shut off compressor at temperatures above +2 to +3°C.
b) Defrosting with additional energy below +2°C.

WHATEVER THE INDUSTRIAL IMMERSION HEATING PROBLEM SANTON HAVE ALREADY SOLVED IT

We've got the range
Water oil, caustic solutions, degreasing agents, inflammable gases and vapours - they all present the installer of industrial immersion heaters with problems. Problems that Santon have already solved.
Whatever the application, Santon have an electric immersion heater tailor made for the job — in ratings from 2 to 54kW.

We've got the expertise
Installing is your job. Providing you with the right immersion heater is ours. Our expertise will help you give your customers the right heater every time.

We've got the service
Stocks of standard industrial immersion heaters are held by Charles Nolan & Co. (Ireland) Ltd. who will give you advice on specification and installation problems. For further details contact the electrical engineering specialists.

Sole distributors in Ireland
CHARLES NOLAN & CO. (IRELAND) LTD.
Techna House, Terenure Road East, Dublin 6, Ireland.
Telephone: 962244 (5 lines)

Published by ARROW@DIT, 1980
b 1. Defrost by hot gas through the tubes provides the best efficiency because the heat is distributed very uniformly. If you apply hot gas you have only to provide that the drip tray is heated before the coil. The condensed refrigerant can be lead back through the refrigerant distributor without difficulties. No extra collecting headers are needed.

b 2. Defrost by electric heaters where the efficiency is very bad. But it is simple what concerns installation.

With electric defrost we think that the most efficient method is to distribute the heater uniformly in the coil and not only to attach them to the coil, especially if the coils are bigger. In order to get good contact with the fins we insert the heaters into tubes which are expanded in the same way as those are for the refrigerant.

The frost deposit on the surface influences also the selection of the tube and fin system. The most important point is to provide sufficient space (volume surface), in order not to need too many defrost cycles. We prefer arrangements with relatively low heat on the surfaces which results in high-efficiency coolers. This means relatively large surfaces at the required ratios of air flow rate and cooling capacity. You could also use high efficiency surfaces with small air flow rates and velocities which results also in big surfaces but then you get great temperature differences between cooler inlet and outlet air, which means uneven temperature distribution in the coldroom, an effect that nobody wants. There has always to be met a compromise between air-movement and temperature differences.

1.3 Refrigerant side

After dealing with the air-side it's necessary to have a look at the refrigerant side of a cooler and how it behaves in a refrigerant system.

The evaporator is situated between the expansion valve and the compressor. The valve supplies it with refrigerant and should provide a superheat that gives maximum performance of the compressor.

The superheat has great influence on the capacity of the evaporator. The greater the superheat, the smaller the capacity. The graph shows the average influence of superheat on the capacity. The bigger the superheat $A_{sh}$ becomes in comparison to TD the smaller the capacity. A good compromise is a ratio $A_{sh}/TD = 0.65$ where you get good valve performance and only approx. 10% of the coil surface have to be sacrificed to get this superheat.

In my opinion the expansion device — normally a thermostatic expansion valve — dictates more or less the TD. A normal TEV needs 3 K to start with opening and additional 2K to work properly. The system TEV + evaporator works stable at a ratio of about 0.65 between superheat and TD. Superheat is the difference between the real temperature of the refrigerant gas leaving the coil and the saturation temperature corresponding to the pressure at the same point, the point where our "Shrader-Valve" is posted. This means, that a TD below 5K/0.65 = 7.7 K is not possible without readjustment of the setting of the valve. This means also that performance data below roughly TD = 7 K are not realistic because a valve will normally create this TD of 7 K regardless of the size of the cooler.

The achievement of a proper superheat is normally very difficult if the capacity makes a refrigerant distributor necessary because the classic distributors normally do not distribute the flow into equal parts. This applies to all makes and is not influenced by the smoothness of the internal surfaces. That is why we developed a new system which will be explained afterwards. As a matter of fact the circuit that gets the most refrigerant influences primarily the superheat in the suction line and causes the valve to reduce the refrigerant flow which means, that the other circuits are underfed and the evaporator capacity can be reduced by up to 30% and sometimes even more. The reason of this malfunction is that there is some flash gas after the expansion-valve and this gas is not distributed evenly in the liquid and so logically some branches of the symmetrical distributor get more gas and others more liquid. The new system does not try to divide a mixture. It separates first the two phases divides each of them into equal flows and mixes them again at the various exits to the passages through the coil.

Another problem is different refrigerants that are used. Mostly catalogues say, that there is a certain percentage of difference between the various refrigerants. The following example shows that related to the point of operation of a cooler differences between the capacities with two refrigerants are not equal, neither in absolute values nor in percentage.

As a thumb rule it can be said, that an evaporator which is designed properly and tested with R 12 will give slightly but not uniformly better performance with R 22 as tests have shown — especially at lower temperatures because of the small pressure drop/temperature drop. According to theoretical calculations and field-experience R 502 should also be better. R 13 B 1 provides very low heat transfer-factors and high pressure drops which result in low heat flux. Normally unit coolers can also be delivered for operation with water, glycol-water and brines. With water the K-factor is higher than with refrigerants; with the other fluids mostly considerably worse. The higher the viscosity the higher the pressure drop but the lower the K-factor.

Normal oil contents do not influence capacity significantly with the exception of ammonia and direct expansion where the ammonia floats on top of the oil that remains to a great deal in the coil and reduces capacity seriously. With ammonia a pump-circulation should be used.

2. Application

A cooler is used mainly to maintain a certain room temperature, secondly to extract more or less water from the room air and also to cause a circulation of air around the stored goods. You can see the influence of ventilation easily if you put lettuce into a plastic sack were it will get rotten quickly, because it is not ventilated.

(Continued Next Month)
GOLF

BTU GOLF OUTING — BURMAH-CASTROL SPONSORED

Pictured with Denis Browne, the overall winner were (L-R) Aubrey Moriarty, Frank McArdle, Denis Browne and Peter Johnston.

Some of the class winners pictured with the sponsors Burmah at the BTU golf outing in Clontarf.

BTU GOLF OUTING — CLYDE SYSTEMS SPONSORED

The winning group and the sponsors, Clyde Systems, at the BTU golf outing at Hermitage.

Martin Kelly, Peter Johnston, and Liam Stenson at the Clyde sponsored BTU golf outing.

HENDRON BROS ANNUAL GOLF OUTING

At the presentation of the prize to the overall winner of the Hendron Bros. golf outing (L-R) Jack Clarke, Vincent Hendron, Liam Finlay (winner) and Michael Hannon.

Making a guest appearance with (L-R) Vincent Hendron and Michael Hannon was Sheik Twofreegallons Jack Clarke, at the Hendron Bros. golf outing.
<table>
<thead>
<tr>
<th>Co. Name:</th>
<th>Address:</th>
<th>Tel.</th>
<th>Telex</th>
<th>Brand:</th>
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</thead>
<tbody>
<tr>
<td>Airacs Ltd</td>
<td>20 Upper Jane Place, Dublin 1</td>
<td>747146</td>
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<td>Lightfoot</td>
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<tr>
<td>Anglo Irish Refrigeration Ltd</td>
<td>Balinstown Industrial Estate, Ballyboughal, Co Dublin</td>
<td>433312</td>
<td>31382</td>
<td>Costan, Verco Hill, Caddie Bonnetneuhaus Swedish Royal</td>
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<tr>
<td>Arctic Refrigeration Ltd</td>
<td>167 Upper Rathmines Road, Dublin 6</td>
<td>971277</td>
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<td>Frigopol</td>
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<tr>
<td>Brennan Group of Companies</td>
<td>Unit 60 Cookstown Industrial Estate, Tallaght, Co Dublin</td>
<td>514008</td>
<td>33339</td>
<td>McQuay, Friedrich</td>
</tr>
<tr>
<td>Burke &amp; Son Ltd</td>
<td>7 The Parade, Donaghadee, Co Down</td>
<td>882202</td>
<td></td>
<td>Howden</td>
</tr>
<tr>
<td>Access Refrigeration &amp; Shop Equipment Co Ltd</td>
<td>Marshallstown, Swords, Co Dublin</td>
<td>462127</td>
<td>401766</td>
<td>Electro Freeze</td>
</tr>
<tr>
<td>C&amp;F Ltd</td>
<td>Glenside Industrial Estate, Mill Lane, Palmerstown, Dublin 20</td>
<td>364917</td>
<td></td>
<td>Lennox</td>
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<tr>
<td>Commercial Refrigeration Ltd</td>
<td>13 Bridge Street, Waterford</td>
<td>75441</td>
<td>8560</td>
<td>Arneg, Pegasus Castle Mac Franger Frigor Mario Dorin</td>
</tr>
<tr>
<td>Coolair Ltd</td>
<td>Unit C, Cookstown Industrial Estate, Tallaght, Co Dublin</td>
<td>511244</td>
<td>31689</td>
<td>Daikin</td>
</tr>
<tr>
<td>Cool Heat Ltd</td>
<td>11 Derryvolgie, Belfast BT96FL</td>
<td>(084) 661837</td>
<td></td>
<td>Hall Thermotank Products</td>
</tr>
<tr>
<td>Cool Products Ltd</td>
<td>Balmoral Road, Balmoral Industrial Estate, Belfast BT12 6QD</td>
<td>(084) 664935</td>
<td>747559</td>
<td>RSL, Fridgadare, Poladaire</td>
</tr>
<tr>
<td>Cross Refrigeration Ltd</td>
<td>Unit 25 Cookstown Industrial Estate, Tallaght, Co Dublin. Also at Mallow Road, Cork</td>
<td>511915</td>
<td>31689</td>
<td>Boc, Icelander, Husquavarna, Foster Craig Nicol Revco, Coolbrook, Coolstream</td>
</tr>
<tr>
<td>Crossflow Airconditioning Ltd</td>
<td>The Colour Shop, Stillorgan Road, Blackrock, Co Dublin</td>
<td>881607</td>
<td>4121</td>
<td>Tate, Edpac Wright</td>
</tr>
<tr>
<td>Etscheid Ltd</td>
<td>Portlaoise</td>
<td>(0502) 21759</td>
<td></td>
<td>Etscheid</td>
</tr>
<tr>
<td>Electrical Refrigeration Co</td>
<td>Harcourt Lodge, Stephens Road, Dublin 8</td>
<td>752694</td>
<td>30446</td>
<td>Prince O'Burren Hemmings</td>
</tr>
</tbody>
</table>
Meet the energy team
-Carlyle from Walker-

1. The unbeatable range of energy miser heat pumps

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

3. Moduline VAV systems with inherent self-balancing savings

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

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

Walker Air Conditioning
Walker Air Conditioning Limited

Dublin Industrial Estate, Finglas Road, Dublin 11. Tel: Dublin 302844. Telex: 4862.
9a Cherryhill Road, Dundonald, Belfast BT16 0JR. Tel: Dundonald 5235. Telex: 747681.
Washington Road. Unit 10B, Abbotshir Industrial Estate, Paisley, PA3 4ET.
Tel: Glasgow 887 0551. Telex: 779406.
Carlyle Distributor for Ireland, Scotland and Northern England.

Published by ARROW@DIT, 1980
<table>
<thead>
<tr>
<th>Cold Stores &amp; Equipment</th>
<th>Address</th>
<th>Phone</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>J Norman Fulton</td>
<td>Balmoral Road, Balmoral Industrial Estate, Belfast</td>
<td>(084) 662111</td>
<td>Trane</td>
</tr>
<tr>
<td>Brian A Flynn Ltd</td>
<td>Newcastle West, Limerick</td>
<td>(061) 463241</td>
<td>Gram</td>
</tr>
<tr>
<td>Glowtherm Ltd</td>
<td>194 Whitehall Road, Dublin 6</td>
<td>513887</td>
<td>Luwa</td>
</tr>
<tr>
<td>Hall Thermotank (Ireland) Ltd</td>
<td>Hall House, Main Street, Rathcoole Co Dublin</td>
<td>580311</td>
<td>Hall Thermotank Deltaclima</td>
</tr>
<tr>
<td>Hammond Ltd</td>
<td>111 Pearse Street, Dublin 2</td>
<td>775861</td>
<td>Sadio Airo Freeze Scotsman, Prestcold, Serle, Fuju Koki, Halsey Taylor, Upo, Foster &amp; Westgate</td>
</tr>
</tbody>
</table>

NEW TO IRELAND
A Complete Range of Condensers and Coolers From West Germany’s Largest Manufacturer
## COLD STORES & EQUIPMENT

<table>
<thead>
<tr>
<th>Company</th>
<th>Address</th>
<th>Phone</th>
<th>Other Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>J L Insulation Co Ltd</td>
<td>19 Rutland Place, Dublin 1</td>
<td>741925</td>
<td>Cold Rooms</td>
</tr>
<tr>
<td>HRP Walker</td>
<td>Harmonstown Road, Artane, Dublin 5.</td>
<td>336056</td>
<td>Myson, Copeland, Teddington, Isceon Refrigerant, Armaflex, Ranco, LEC, Yorkshire copper tubes and fittings, DMP Aspera</td>
</tr>
<tr>
<td>(A Division of Walker Air Conditioning Ltd.)</td>
<td>9a Cherryhill Road, Dundonald, Belfast BT15 0JH.</td>
<td>747681</td>
<td>Aspera, Myson, Copeland, Teddington, Isceon Refrigerant, Armaflex, Ranco, LEC, Yorkshire Copper tubes and fittings, DMP</td>
</tr>
<tr>
<td>ICI (Ireland) Ltd</td>
<td>5/9 South Frederick Street, Dublin 2</td>
<td>765801</td>
<td>Arcton</td>
</tr>
<tr>
<td>M K Refrigeration (Ireland) Ltd</td>
<td>Unit 93a Dublin Industrial Estate, Dublin 1</td>
<td>301320</td>
<td>M K Refrigeration</td>
</tr>
</tbody>
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**brennan airconditioning ltd**

60 Cookstown Industrial Estate, Tallaght, Co. Dublin. Tel: (01) 514711 Telex: 33339 EI

**"FC" RANGE Product Coolers**

The Universal Heavy Duty Coolers have been designed to afford the engineer with a standardized pre-engineered range to cover the widest field of applications.

- The choice of fin spacing, blow-through or draw-through fin arrangements and motors rated for free discharge or ducted systems are just a few of the features which give these Units their appeal.
- The coils are circulated for R12, R22 or R502 refrigerants and incorporate electric, hot gas or water defrost systems.
- The Units may be ceiling or floor mounted as standard by using alternative brackets.

**"VEE SERIES" Air Cooled Condensers**

Direct drive fans with accessible motors.
- Standard or two choices of noise levels.
- Compact design and strongly built.

**Sole Irish Distributors for**

**Haynes Coils (Kettering) Ltd.**
<table>
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<tr>
<th>Company Name</th>
<th>Address</th>
<th>Phone</th>
<th>Code</th>
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<tbody>
<tr>
<td>P &amp; D Macfarlane Ltd</td>
<td>51/53 Ridgeway Street, Belfast BT43 JJ</td>
<td>(084) 667968</td>
<td>74219</td>
</tr>
<tr>
<td>Manotherm Ltd</td>
<td>4 Walkinstown Road, Dublin 12</td>
<td>783387</td>
<td>Penn</td>
</tr>
<tr>
<td>Masser Irish Food Machines Ltd</td>
<td>Kylemore Road, Dublin 10</td>
<td>364499</td>
<td>Sadia, Westgate</td>
</tr>
<tr>
<td>Mycold Ltd</td>
<td>Davitt Road, Dublin 12</td>
<td>508310</td>
<td>30272</td>
</tr>
<tr>
<td>Nicold Ltd</td>
<td>Beersbridge Road, Belfast BT5</td>
<td>(084) 50275</td>
<td>747977</td>
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<tr>
<td>O’Gorman (Ireland) Ltd</td>
<td>Unit 13, Dublin Industrial Estate, Dublin 11</td>
<td>300193</td>
<td>30981</td>
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<tr>
<td>R.S.L. (Ireland) Ltd</td>
<td>48F Robinhood Industrial Estate, Clondalkin, Co Dublin</td>
<td>508011</td>
<td>4818</td>
</tr>
<tr>
<td>Reconair Ltd</td>
<td>Unit 4a Coolock Industrial Estate, Dublin 5</td>
<td>470611</td>
<td>31356</td>
</tr>
<tr>
<td>Refrigeration Engineering Ltd</td>
<td>Irishtown, Kilkenny</td>
<td>(065) 21310</td>
<td>Esta-Van Swaay Vest frost</td>
</tr>
<tr>
<td>J J Sampson &amp; Son Ltd</td>
<td>Cherry Orchard Ind. Est. Dublin 6</td>
<td>268111</td>
<td>Danfoss</td>
</tr>
<tr>
<td>Sermet (NI) Ltd</td>
<td>11 Lisburn Road, Hillsborough, Co Down</td>
<td>682531</td>
<td>747796</td>
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<tr>
<td>Southern Refrigeration Ltd</td>
<td>149 North Strand, Dublin 3</td>
<td>749251</td>
<td>Inco Zeigra, Stal, York, Acro Kool, Torry, Revco, Satam Hussmann</td>
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<tr>
<td>Total Refrigeration Ltd</td>
<td>Robinhood Industrial Estate, Clondalkin, Co Dublin</td>
<td>507377</td>
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<tr>
<td>Cold Rooms Ltd</td>
<td>12 Kelly’s Row, Dublin 1</td>
<td>746889</td>
<td>Cold Rooms</td>
</tr>
<tr>
<td>Twomey O’Shea Refrigeration Ltd</td>
<td>70/71 Watercourse Road, Cork</td>
<td>(021) 506608</td>
<td>—</td>
</tr>
<tr>
<td>Unimack Ltd</td>
<td>James Place East, Dublin 2</td>
<td>789570</td>
<td>4147</td>
</tr>
</tbody>
</table>
Since the first IhVex in the early 70's there has never been a more appropriate time than now for an exhibition serving the Building Services Industry as IhVex so comprehensively does.

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 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
Simmonscourt Exhibition Complex, Royal Dublin Society, Ballsbridge, Dublin 4.

Dates
Tuesday February 17, Wednesday February 18, & Thursday February 19, 1981
### Cold Stores & Equipment

<table>
<thead>
<tr>
<th>Company</th>
<th>Address</th>
<th>Phone</th>
<th>Zip</th>
<th>City</th>
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<tr>
<td>Walker Air Conditioning Ltd</td>
<td>Dublin Industrial Estate, Dublin 11</td>
<td>300844</td>
<td>4862</td>
<td>Carlyle</td>
</tr>
<tr>
<td>Western Refrigeration Ltd</td>
<td>Tuam, Co Galway</td>
<td>(093) 24234</td>
<td>8303</td>
<td>Geneglac, Matal</td>
</tr>
<tr>
<td>Ace Refrigeration Ltd</td>
<td>5 Blackhall Place, Dublin 7</td>
<td>711166</td>
<td>-</td>
<td>Cold Rooms</td>
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</table>

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

## Brennan Airconditioning

Brennan Airconditioning Limited announce the introduction of their U.M. Series Motorcompressor Units, manufactured by McQuay Europa. The U.M. Motorcompressor Series are available in 5 sizes, covering a capacity range of 160,000 - 320,000 Kcallh (186 to 372 KW) and have been specially designed to meet medium temperature process cooling, encountered in the chemical, petroleum, dairy and allied industries including cascade system applications. The Motor compressor Unit consists of an open type McQuay Europa compressor, coupled to an electric motor by means of a universal joint. All Motor compressor Units are equipped with a control panel, including high and low pressure cut-out, differential oil pressure safety switch, high and low pressure gauges, oil pressure gauge and an oil heater signal lamp. As an optional extra, an electric control panel can be supplied, complete with mains, isolators, fuses and contactor. The MQC compressor Unit is equipped with a hydraulic capacity control actuated by a solenoid valve providing cylinder loading and unloading in response to the cooling demand, ensuring economical operation even at partial load.

Further information can be obtained from: Brennan Airconditioning Limited.

## Ranco

A versatile design of electronic digital commercial refrigeration thermostat offering either one or two stage switching with indication by Ranco. Known as the E49 series, this is stated to be the first commercially marketed electronic readout thermostat for commercial refrigeration use offered by a major controls company. Typical applications include cold rooms, blood banks, milk coolers, display cases, freezers and water chillers. The E49 is a self-contained unit, with clear LED read-out of sensor temperature, combining the function of two normally separate mechanical units, a thermostat and a thermometer. Already a desirable concept for the UK, this is becoming a mandatory requirement in some countries. Read-out itself is more visible than a normal mercury thermometer. The read-out and thermostat are housed in a DIN-standard enclosure designed for simple panel mounting. Remote sensing of up to 100m is possible, since the E49 works in conjunction with an NT C sensor located in the controlled medium. The digital LED read-out displays at all times the temperature at the sensor. As the temperature of the controlled medium rises and falls around the set point, an s.p.d.t. relay is energised and de-energised. (In the case of the two stage versions, the two stages switch sequentially). Signal lights are lit when the relay(s) is energised (when the sensor temperature is above or below set point). The relays are s.p.d.t. voltage free to permit independent switching and, if necessary, remote indicators or alarms. Input voltage range is 200-240V, 50-60Hz. Output relay rating is 10(5) amp, 250V (per relay). Control ranges presently available are -35°C to +10°C, and -10° to +35°C; but other ranges and voltages can be made.

Ranco products are available from RSL Ltd.

## HPP Walker

A computerised stock control system was introduced at HPP Walker a few years ago, and once the inevitable gremlins had been sorted out, the effect has been to make the company the most sophisticated and best stocked wholesaler in the business. When Tony Madden was appointed Manager of the company last year, he brought not only his own very considerable refrigeration engineering knowledge from Walker Air Conditioning, but a matter of planned policy in expanded the technical department to improve the service to contractors and other customers.

HRP Walker hold large stock of compressors, evaporators, piping, controls and components, in short the package of products for virtually any job. Among the franchise the company holds are, Iseco refrigerant, DWM Copeland condensing units, Myson coolers and condensors, Teddington thermostats and expansion valves, KMP driers, Imperial Grould servicing tools, Watso line valves, LEC condensing units and compressors, Ranco controls, Danfoss compressors and condensing units, Robinair tools and service equipment, Armaflex insulation, Yorkshire Imperial copper tube and Sabroe components.

But whatever the product it is vital for the wholesaler to have real product knowledge. Some manufacturers offer a seemingly bewildering choice, as a wholesaler with a list of alternatives to offer, HRP can be relied upon to recommend the right hardware for the job.

Trading terms can be a problem in these difficult times, but providing that a customer has a reasonable credit rating, then there is no problem at all. What is more, there is an advantage in buying from HRP Walker because all transactions...
are in Irish currency, and in these days of floating currencies it can be a real advantage to know exactly what something is going to cost.

Further information from HRP Walker Ltd.

**RSL**

Robinair Lectra Torch
This is becoming very popular with white goods service companies and other carrying out soldering or brazing in Supermarkets, kitchens, etc. where acetylene or propane is unwelcome or dangerous. No cylinders need refilling and you are using your customers power!

**R. 11 Flushing Pump**

Also from Robinair is a new R. 11 flushing and chemical washing pump. The pump is a twin diaphragm plasticated unit driven by an 0.75 h.p. electric motor. Flow is 20 litres/minute, and maximum pressure controlled by an adjustable unloading valve is 20 bar. The pronounced pressure ripple associated with this design of pump is particularly effective in flushing refrigeration systems. Filtration of both air into reservoir and return of R. 11 to reservoir is provided. Air filtration 40 microns, R. 11 125 microns. A panel incorporates discharge pressure gauge, on/off switch, ¼” inlet/outlet connections. The unit is supplied complete with a set of tools including spraying lance with valve so that it can be used for washing down external surfaces of such components as air cooled condensers, etc. Although water may be used a special concentrated detergent is available which is normally diluted in the ratio of 1:10.

Further information from RSL (Ireland) Ltd.

**J J Sampson**

J J Sampson Ltd. who are agents for Danfoss automatic controls offer a wide range of equipment for refrigeration applications including cold stores, fish processing factories, abattoirs, dairies, breweries, refrigerated transport etc. The range includes thermostatic expansion valves, solenoid valves, liquid level regulators, pressure switches, check valves, thermostats, filter driers, pilot valves, capacity regulators, etc.

For full information on the range contact J J Sampson Ltd.

**MANOTHERM**

The West WE01 Controller has been designed mainly for temperature applications where there is a requirement for precision control performance coupled with low capital investment.

**Main Features**

Plug in construction giving minimum plant downtime. Digital (pulse modulation) circuitry giving high stability control terms and increased reliability. PD + PI control action giving minimum warm up times coupled with low overshoot and no offset from set point. Indicator giving actual temperature indication at all times. No routine maintenance. All metal case. Splash proof. Optional cover to prevent unauthorised adjustments. Adjustable integral and derivative terms.

**Principle of Operation**

The controller is of the comparison type, i.e. it accepts a signal from a thermocouple or resistance thermometer and compares it with a stabilised reference signal determined by the positioning of the set point potentiometer slidewire. The slidewire operates at a high voltage level in order to minimise the effect of dust etc.

The difference between the reference signal and the sensor input is fed to the control amplifiers. The amplifiers modify the signal (see control form) and develop an output which is used to operate the final contactor, solid state switch or solenoid valve. The change in process temperature resulting from this action causes the input signal to change so that the difference between the input and reference signals is reduced essentially to zero.

Further information from Manotherm Ltd.
BRENNAN INTRODUCE
FRESH AIR
“SYSTEM AIR CONDITIONER”

Contrary to popular belief, this product is not just used in tropical environments to provide a cooling action. The economic effects of the oil crisis and the international need to conserve energy, whether fuel oil, electricity or gas have highlighted new applications for ceiling fans. The Relite ceiling fan is now recognised as an effective environmental controller. When a building is heated the hot air rises and creates a gradient with temperatures rising from working levels to a maximum at the upper levels. These high temperatures serve no useful function towards the conditions of occupancy and, in fact, not only adversely affect the environment by creating draughts but significantly increase the building fabric losses. This can be reversed if the warmer air is recirculated downwards by the use of a ceiling fan.

Further information from Redbro Ltd, Unit 12G Cherry Orchard Industrial Estate, Tallaght, Co. Dublin, (Tel: 514711 Telex: 3339).

RELITE
CEILING
FAN
FROM
REDBRO

DANFOSS

CONTROLS FOR
REFRIGERATION
SYSTEMS

- Pilot Operated Main Valves
- Pressure Regulators
- Solenoid Valves
- Water Valves
- Non Return Valves
- Distributors
- Pressure Switch
- Thermostats
- Oil Separators
- Thermostatic Expansion Valves
- Hermetic Compressors
- Condensing Units

Further Information and Catalogues from Irish Agents:

J.J. SAMPSON & SON LTD.
Cherry Orchard Industrial Estate, Dublin 10.
Tel: (01) 268111 (4 lines)
**Complete Industrial & Commercial Insulation by**

**G. B. SERVICES LTD.**
Heat, Cold and Sound Insulation Specialists
- Steam & process pipe work
- Vessels
- Tanks
- Boiler Flues
- Air Ducting
- Refrigeration plants and pipe work
- Cold Stores
- Generator and Compressor Houses
- Metal Cladding Specialists

We are the largest stockists of industrial insulation material in Munster.

**G. B. METALS LTD.**
Modern Metal Fabrication Services
- Air Ducting supply and erection
- Guttering
- Flashing
- Canopies
- Hoppers
- Silencers
- Roof Kerbs

Purpose made to client requirements in stainless, aluminium, galvanised steel, mild steel, copper, brass.

**G. B. SERVICES LTD.**
The Square, Ballincollig, Cork

Telephone: (021) 871380 Day, (021) 80428 Night
**NEW PRODUCTS**

**FINHEAT LAUNCH**

**CIRRUS UNIT HEATERS AND FAN CONVECTORS**

'Cirrus unit heaters are a development of S & P’s successful FBM range which, with the available variations and options, has become standard equipment in many schools, hospitals and other local authority establishments.

This SPM range has the same quality and strength characteristics, but being simpler and offering fewer options, it is more competitively priced. Choice of heating duties ranging from 4.8 to 13.0kW (16,400 to 44,00 Btu/hr) at standard conditions on a quiet running speed setting.

Further information from Finheat.

**FUEL SAVING SYSTEM FROM C&F**

An American invention "Stratotherm" which is guaranteed to cut fuel bills by at least 10% has now been introduced to Ireland by C&F Ltd. Stratotherm operates on the principle of setting up a natural re-circulation of warm air from ceiling level to floor level. A fan at the top of each unit draws in the warm air and it travels gently with little noise down tubing, to be redistributed at floor level. Once operational, mother nature takes over to set up thermal currents which repeat the cycle of warm air process over and over again.

Recent research has shown that around 75% of heat loss in factories and buildings is via the roof, and by making use of all the hot air at ceiling level, the Stratotherm system can cut that heat loss considerably.

The manufacturers claim that in addition to its bill saving capacities, the system is cheap to install, cheap to maintain, and costs less than a 75 watt light bulb to run. It is virtually draught free in operation, comes in standard lengths of 20 feet, with 10 feet and 20 feet extensions available, and can be adapted to fit any working environment.

Stratotel works on exactly the same principle as the Stratotherm but is designed to suit the office environment. Lower ceiling areas, ranging up to 20 feet high, can be covered by Stratotel, without the need for tubing.

C&F are offering the Stratotherm with a money back guarantee if fuel bills demand fall by at least 10% after installation.

S & P Coil’s SPM range of fan convecors is a logical development of their very successful FBM range which, with the available variations and options, has become standard equipment in many schools, hospitals and other local authority establishments.

Typical Stratotherm industrial installations.

S & P Coil’s SPM fan convector from Finheat Ltd.
A Condensed Guide to MANOTHERM activities

THOMMEN CALIBRATOR EM

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

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

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

West WE 01 process controller

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

Barksdale piston pressure switch for pressures up to 315 bar.

Platon Flowmeter.

Rueger thermometers.

MANOTHERM LTD.
Controls and Gauges for all industries

THE CONTROL CENTRES
4 WALKINSTOWN ROAD, DUBLIN 12
Phone: 522365, 522018, 522229. Telex: 24467

10 KNOCKBRACKEN PARK, BELFAST BT6 OHL
Phone 645966

Thermocouples & resistance thermometers
NEW PRODUCTS

DUNSLLEY LAUNCH THE ENTERPRISE

This entirely new fire and boiler package comes with some surprising features. Designed on a square firebox basis, with wrap-around high output fire-back boiler, the Enterprise provides more available heating area than the conventional wrap-around. Designed as a 16" firegrate, and manufactured to fit a standard fireplace installation, the square Enterprise boiler provides a full 29,500 BTU/h output. The unique layout of the Enterprise provides sufficient output to outperform many competitors 18" boilers. The stylish Enterprise fire is available in a choice of pewter or copper vitreous enamel finish. The deep and spacious burning area for the fire, assists in achieving higher outputs, and providing excellent area for overnight banking. The square firebox design offers more features than just high output. Below the scenes, the Enterprise provides much more area for ash than can be found in a conventional firegrate. The large square ashpit, requires emptying only once per day, under normal conditions. Access to the ashpit is through a conventional lift up/off door, opened by a nicely finished chrome handle.

The Dunsley Enterprise offers exceptional good value for the domestic or local authority installer alike with higher outputs, good looks, a sensible competitive price, and the Dunsley five year guarantee. Dunsley products are available from Heating Distributors Ltd.

LATEST TOSHIBA HEATPUMPS

With the introduction of three new self-contained models, Toshiba now offer a range of five energy-efficient heat pumps through their recently appointed Irish distributors.

Latest Toshiba heat pumps are three self-contained "through the wall" models, all offering two-stage variable fan speeds, choice of high or low heating or cooling settings, automatic temperature control and automatic disposal of condensed water. With a horizontal air circulation vent, the Toshiba RAC-21SHE3A unit has a cooling capacity of 9,300 btu/h (2,325 kcal/h) and heating capacity of 9,500 btu/h (2,375 kcal/h). This unit measures 600mm wide, 400mm high, and 650mm deep. With a lateral air circulation vent, the Toshiba RAC-30BHE3A has a 12,000 btu/h (3,000 kcal/h) capacity in either cooling or heating mode, while the third of the newcomers, the RAC-40BHE3A, has 16,000 btu/h (4,000 kcal/h) cooling or heating capacity.

Dimensions of both these units are: 680mm wide, 435mm high, 720mm deep. Like the RAS-20LKHE, all three new models are designed to operate from a single-phase 220/240 volts 50 Hz power supply, and incorporate highly efficient Toshiba rotary compressors. For full specification details, warranties and prices of the Toshiba range of room air conditioners and heat pumps, contact: For the Republic of Ireland Saireco Limited, 60 Fitzwilliam Square, Dublin 2, Tel: Dublin 763842 Telex: 30820. For Ulster B. L. Refrigeration & Air Conditioning Limited, 151 Albertbridge Road, Belfast 5, Tel: Belfast 53325 Telex: 748089.
NEW FROM MARLEY

At the recent Building Exhibition, CPI/Marley introduced an Irish designed and manufactured one-piece universal gully trap which will be of particular interest to house builders.

Some months ago, the Marley technical design team, knowing the problems of builders working to schedule and faced with the task of matching waste outlets of various sizes to a trap which more often than not requires packing or other modifications on site, concentrated their efforts on perfecting a gully which could accommodate inlet pipes from $\frac{1}{4}$" to 4" in diameter and with provision for height adjustment to suit ground or drain level. The result of their labour is the revolutionary multi-purpose one-piece gully trap which has been specially designed in PVC to provide a fast, economical answer to the widest variety of on-site applications.

The complete one-piece gully, manufactured at the company’s plant in Lucan, Co. Dublin, incorporates Boss upstands to suit waste, rainwater and drainage connections, with a unique knock-out centres to simplify installation.

Some situations have traditionally required the use of a gully riser or other method of making up the space between the top of the gully and ground level. With the “Universal” the need for a riser is eliminated by the “twin-socket” feature which allows the gully height to be increased by using an off-cut of 110mm pipe.

The twin-socket features also allow the top section of the Universal to be swivelled, thus permitting the boss upstands to face in any desired direction, with or without height adjustment. CPI/Marley also supply underground drainage pipes and fittings, rainwater systems in a range of profiles and sizes and complete soil and waste pipework systems for internal or external use.

Honeywell Air Cleaners from Walker

The entire range of Honeywell electronic air cleaners is available now from Walker Air Conditioning, Dublin and Belfast, sole distributor throughout Ireland.

Properly applied, electronic air cleaners can remove up to 95 per cent of airborne dust, smoke, fumes, mist and other pollution. There are different Honeywell models equally efficient at removing cigarette smoke from busy pubs and clubs as at removing heavy welding fumes, metal dust or oil and ink mists from industrial environments.

“Employers have an increased legal obligation to provide safe working environments”, said Walker Air Conditioning Sales Director, Michael Buckley, “at a time when exhausting pollutants in factories is becoming socially unacceptable. In addition the need to save energy increases almost weekly by week, and exhausting polluted air to the outside throws away valuable heat which has to be replaced. The alternative is to clean the air and recirculate it, something for which electrostatic air cleaning is suited perfectly”, he added.

The latest addition to the Honeywell range are the F50, F51 and F52 duct-mounted models for domestic and commercial forced air heating systems; two ceiling or wall mounted F54s for commercial and light industrial applications; an F56 portable unit for offices and homes; an industrial duct-mounted F47 (supplied with automatic in-built wash); and two F60 suspended models for heavy industrial applications. Capacities range from 190 to 10,000 cubic feet of air per min depending upon the model.

All Honeywell electronic air cleaners are available on fast delivery from Walker’s premises in Dublin and Belfast.
The Unibit is a remarkable tool carefully designed and manufactured in Wyoming, New York, U.S.A. This unique tool is a stepped drill made out of expensive, industrial-grade molybdenum high speed steel, heat treated and tempered for maximum strength. The step configuration of the Unibit is designed to drill a number of sizes of holes with a single bit. The five models range in capability from five to nine hole sizes on one bit. For example, with the Unibit I-M in 6.5mm (or larger) electric or pneumatic drill, the professional user or do-it-yourselfer can drill any of nine hole sizes, starting at 4mm diameter and proceeding by increments of 1mm up to the maximum 12mm diameter. Thus one drill bit does the work of many drill bits—a truly economical tool. For drilling a number of holes of the same size, the twist drill bit is still an excellent tool. But for producing a variety of hole sizes, the Unibit is a quality addition to the drill bits now used by the professional or the handyman.

Vokes Filter/Coalescers are available for the first time in Ireland through Walker Air Conditioning. They are a simple and reliable method of effectively removing water and particulates from a wide range of fuel, lubricating and hydraulic oils, and some applications in the process industry. Their rugged design, freedom from moving parts and replaceable filter cartridge make them ideal for the marine environment and many industrial applications, especially those subjected to continuous vibration and movement. Employed worldwide to cope with gas-turbine corrosion problems caused by water and sodium contamination in light fuel oil, the current range has been extended to include versions for the treatment of hydraulic and turbine lubricating oils. The cartridge design ensures that high differential pressures can be withstood without impaired performance. Various models cover the requirements of small installations as well as large process plants. They provide users with clean, water-free fluid that greatly improves machine performance, reliability and life. They can, in some cases, even re-condition oils not previously fit for further use. The basic units can be used to treat either fuel or non-detergent lubricating oil. Additionally, self-contained modules with pumps and thermostatically controlled steam jackets can also be supplied for the treatment of many highly viscous lubricating oils. The Vokes Filter/Coalescers are available from Walker Air Conditioning Limited, Dublin.
GYPGLAS is manufactured by Gyproc Glass Fibre Insulation Ltd., a member of the BPB Industries Group—a long established international group, which includes many familiar names such as British Gypsum, D. Anderson & Son, Artex and Scotboard. GYPGLAS products for thermal and acoustic insulation applications in the building and engineering industries rank with the best on the market.

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- Bird guard - design incorporates integral guard as standard.

Further information from Finheat Ltd., 34 Watling St., Dublin 8, (Tel: 778109/778120 Telex 30751).

DOMESTIC PIPE INSULATION FROM FIBREGLASS
Fibreflex, a new pipe insulation from Fibreglass Limited, has been specially developed to protect cold water pipes in domestic attics. The right thickness of loft insulation keeps heat in the living area and stops money being wasted in the attic. But that means cold water services have to be protected against freezing. Fibreflex is a continuous length, completely flexible, domestic cold water pipe insulation. It is manufactured from glass fibre, sprayed with modified PVC. It is made in a standard 19 mm nominal uncompressed wall thickness and is supplied for both 15 mm and 22 mm nominal od pipework, in 25 and 20 metre lengths respectively. The main advantages of Fibreflex are its non-combustible glass fibre base and a Class 1 surface spread of flame rating of its modified PVC facing, making the product fire-safe. Being completely flexible, light-weight, easy to handle, cut and install, Fibreflex is simply 'snapped' over pipework and secured by taping. The use of Fibreflex considerably reduces application time and labour costs. Fibreflex offers a high quality product to insulation contractors, builders, and other organisations involved in energy conservation on new and existing housing.

NEW VORTICE FAN RANGE LAUNCHED
Redbro Ltd have recently launched a range of extract fans for bathrooms, shops, offices etc and also table fans. The bathroom and toilet fans are available in 10, 12 and 15 cm models which cover both large and small ventilation systems. The fan consists of three basic parts with a double insulated motor and has a built-in unique solid state timer. The large Vortaer range for shops, offices etc are available in 12, 20 and 25 cm and are fitted with an iris type shutter and are designed for installation and use in ordinary single pane windows and with the appropriate, available fittings, can also be installed in double-glazed windows and walls.

Further information from Redbro Ltd.
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