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H & V News

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IRELAND'S BUILDING SERVICES MAGAZINE

H & V NEWS

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H&V NEWS
IRELAND'S BUILDING SERVICES MAGAZINE

DON'T FORGET IHVEX '81 AND ILECTRA '81 IN THE RDS DUBLIN 17, 18, 19th FEBRUARY

Contracting — The Year Ahead

Contracting, or to be more precise, sub-contracting, in the building services industry had always been a very competitive field and up to recently the sub-contractor was willing to accept the archaic methods of payment which had been imposed on him, but with the unprecedented rise in bank interest charges any monies outstanding for any length of time makes for a very shaky financial base for any company to depend on. Our cover story this month looks at the problem and makes some suggestions as to what should be done to relieve the problem.
As we start the second year of the eighties, every contractor must ask himself the question, "Why am I in business?". The only answer to this question must be to make a profit. Other answers such as "remaining in business to earn a living, to keep people employed or to be independent" are secondary to this, as without a profit any of these things cannot be realised.

To make a profit, the price has to be correct the first time. In other words, the quotation for the job must be realistic. It must ensure that a profit be made on the job without the help of extras or deviations.

Unfortunately, many firms believe that, if they can maintain their high turnover, irrespective of profit, they can hope to get over a bad patch. This works for a while until the turnover starts to drop or just level off, immediately the firm is in trouble and as they have no profit made to rescue them, the firm can no longer survive.

Slashing prices is not the way to be competitive, rather it is increased efficiency that will make every contractor ask himself "Do I know what the job will cost? How quickly or how slowly are the payments? What steps did and can I take to influence the speed or otherwise of the payments? How was the work programmed?"

Did the contractor plan the job carefully or is it just happen? Most contractors are familiar with planning in some form or another. Most general contractors use line charts or critical path analysis methods and the contractor has to comply with the building programme. Yet although work programmes are firmly adhered to (which is not easy), mention is rarely made of adhering to a programme of payments.

The system of payments to the contractors is archaic. We have the ridiculous situation which has been allowed to continue where the contractor is paid through a third party. It often has it happened that the contractor has a job, 90% completed before he is paid 50% of it? Indeed some times, he has it completed before he receives any payment.

Then we find that anything from 50%-80% of the total price of the job will go into the final account, and this, for many reasons, almost all of which outside the control of the contractor, can at best take three months and up to a year to agree.

This is a situation which the contractor cannot afford to allow to continue. The contractor must insist on direct payment and must further insist that his final account cannot be held up by the failure of any other contractor or sub-contractor, to agree on producing a final account. This means that the contractor must be highly efficient and must have all his paper work in order. He must have all his claims for increased costs up-to-date and presented with each claim and must also insist on them being taken and lifted with each claim.

The contractor must insist on direct payment and must further insist that his final account cannot be held up by the failure of any other contractor or sub-contractor, to agree on producing a final account.
Brennan Group
Air Handling Units

Because of the expense of shipping air handling units from abroad Brennan Group recently set up a manufacturing division to manufacture air handlers in Ireland. The company market the main components as separate items — viz. heating and cooling coils, and fans. These items are manufactured by Haynes Coils (Kettering) Limited and Neurog of Germany respectively. Units are now available in sizes up to 160,000 m³/hr and can also be made to measure to suit almost any application. Motors are of the T.E.F.C. type, up to 7.5 kW and thereafter Drip-Proof. Units can be fitted with IBY motors, flameproof motors or variable speed motors. Automatic control is achieved when exceptional pressurisation is required. Easy access is ensured with easily removable doors. All units are available in a fully weather-proofed version for outdoor mounting. Full details from Brennan Group of Companies (Manufacturing Division), 60, Cookstown Ind. Estate, Tallaght, Co. Dublin, (Tel: 514711; Telex 3333911.

H&V NEWS PRODUCT FEATURES FOR 1981

The following is a list of product features we hope to publish during 1981. For the first time we hope to travel to Munster and Ulster to do what will be the first special regional features in which we will look at the industry in that particular area. We will be going back to Ulster at the end of the year to the Heatair exhibition in Belfast and of course every month will see the pre IHVex issue of H&V News.

SPECIAL FEATURES PROGRAMME 1981

JANUARY
(1) WATER TREATMENT & BOILER DESCALING
(2) FILTERS, FANS, BLOWERS & AIR FILTERS

FEBRUARY
(1) IHVEX/ELECTRA CATALOGUE
(2) PIPEWORK & DRAINAGE

MARCH
(1) AIR CONDITIONING & VENTILATING EQUIPMENT
(2) PUMPS & CIRCULATORS

APRIL
(1) SAFETY & FIRE FIGHTING EQUIPMENT
(2) SPECIAL REGIONAL FEATURE — MUNSTER

MAY
(1) REFRIGERATION — INDUSTRIAL & COMMERCIAL
(2) RAINWATER SYSTEMS

JUNE
(1) BOILERS & BURNERS — INDUSTRIAL & COMMERCIAL
(2) GRILLES, LOUVRES & DUCTING

JULY
(1) RADIATORS & CONVECTORS
(2) CHIMNEYS & REFRACTORIES

AUGUST
(1) AIR HANDLING UNITS
(2) SPECIAL REGIONAL FEATURE — ULSTER
(3) INSULATION — THERMAL & SOUND

SEPTEMBER
(1) SANITARY WARE
(2) INSTRUMENTS & CONTROLS

OCTOBER
(1) DOMESTIC BOILERS
(2) HEAT AIR EXHIBITION

NOVEMBER
(1) COLD STORES & EQUIPMENT
(2) STORAGE TANKS & PRESSURE VESSELS

DECEMBER
(1) TUBES & FITTINGS
(2) PLUMBING EQUIPMENT & SUPPLIES
(3) SEASONS GREETINGS

Sanitation · Heating · Air-conditioning

Winning tomorrow's market — with energy

New technologies close supply gaps. Further developments awaken new needs. Energy and environment are the topics of the day. These branches are in the spotlight.

What: The complete review, as to practicable progress.

Where: ISH Frankfurt. The largest trade fair on this topical subject

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Trade Fair and travel information, admission tickets

LEP (IRELAND) LIMITED
11/16 Tara Street, Dublin 2
Tel. 77 1861, Telex: 5252
OIL — MINUS 9°C

Home heating oil is much less likely to freeze up this winter following the adoption of Government guidelines by the Irish Refining Company.

It was announced recently that the company is to start manufacturing gas and diesel oil at the Whitegate Refinery to a specification of minus nine degrees Celsius.

This will be consistent with the anti-freezing standards now operating in the United Kingdom and will, in fact, mean that there will be less chance of home heating oil freezing in this country than in Britain because of the milder climate we enjoy here.

A controversy arose in recent weeks as a result of the failure of the major oil companies to introduce the Government recommendations geared to prevent domestic heating oil "turning to jelly" during periods of low temperatures.

There were allegations that the oil companies had failed to implement the Government guidelines and were, therefore, responsible for considerable inconvenience which had been caused to domestic customers.

A spokesman for one of the oil companies said that while the new system did not provide a blanket guarantee that home heating oil would not freeze up it at least meant that the consumers in this country are now better protected in this area than their counterparts in Britain.
Following the presentation of the paper indicating the Government policy as regards the winding up of the N.I. gas industry, the L.P. Gas Association of N.I. held a new conference to draw attention to the fact and their displeasure that no compensation was proposed for those who decide to replace their town gas appliance with one using L.P.G.

A campaign will be launched to gather support for the Associations point of view.

Two of the best supported lectures for some time have recently been held in Belfast. The first, sponsored by the N.I. Section of the Institute of Energy was given by Dr. Les Brealey, of the Mechanical Engineering Development Section of N.E.I. John Thompson — Clark Chapman Mr. Brealey spoke of the development to which his company has undertaken the provision of fluidised beds for shell boilers.

Before the meeting few people knew much about fluidised beds and indeed were sceptical about them being fitted to shell boilers in the foreseeable future.

At the end of an hour they not only knew a lot about the beds but also realised that there was a strong possibility that a shell boiler complete with a fluidised bed may be 'with us very much sooner than expected.

possibility that a shell boiler may be 'with us very much sooner than expected.

Mr. McGriskin gave details of the work which had been undertaken by his conservation units as a result of which impressive energy savings had been achieved at the Dundalk factory.

Listeners were impressed to hear of the savings which had been made particularly in view of the fact that the amount of capital involved had been minimal Mr. McGriskin also reported of the success which had been achieved by the installation of an incinerator.

Both Mr. McGriskin and Dr. Brealey know that their efforts had been appreciated when they each had to undertake a hard and sustained question time, which continued even after the closure of both meetings.

Unit Construction (NI) Ltd have announced the appointment of Mr. David Taylor as construction manager. Mr. Taylor was previously with Louings.

John Kelly Ltd. the Belfast Fuel distributors and heating merchants have acquired the whole of the share capital of Aerocowl Marketing Ltd. Directors of the new company are W. Devlin, J. Hingston and R. McChesney with Dr. A. Mitchell inventor of the Aerocowl retained as a consultant to the company.

Thos. K. Webster of Newark on Trent manufacturers of the Webco range of sectional chimneys and flue ducting have appointed P & D Macfarlane Ltd. 51/53 Ridgeway Street Belfast to be their Northern Ireland agents.

Chimney's of stainless steel insulated sections can be erected to form a complete chimney either on the outside of a building or in the cased multi-flue system.

Macfarlanes will if requested erect the chimneys in addition to which a full design service is available.

Full details are available from Donald McSheay of P & D Macfarlane Ltd.

The Northern Ireland Training Executive in cooperation with the N.I. Energy Managers Group have completed their first Energy Managers Course.

The first course held in the Training Board Centre at Newtown Corner was designed for energy managers plant and maintenance engineers where for two days they heard a series of lectures designed to focus on the daily problems of energy management and conservation.

One day was spent dealing with the problems of heating, ventilation, insulation and lighting while the second was devoted to boiler plants, burner controls etc.

The lectures were drawn from local and cross channel industry and concentrated on the practical problems being experienced in a normal factory or commercial premises.

The courses are confined to 25 listeners at a time thus allowing for closer discussion. Following the success of this initial programme it is intended to run a further series details of which are available from B. Page Esq., 17.B. House, Glennmont Road, Church Road, Newtownab­ney.

Anglo International Mining, a Hague based British company, have taken over one of Ulster's major civil engineering, J.M.T. Contractors Ltd. J.M.T. formed a number of years ago, have proved to be one of Ulster's most successful new companies, carrying out major contracts in the South of Ireland, the Scottish offshore activities and overseas.

Mr. Sam Nutt, Managing Director in confirming the take over stated that it was principally a take over of the companies share holdings and would not mean any material change in either the work force or the companys activities.

An interesting survey just completed shows that there appears to be a strong preference in N.I. for solid fuel heating.

The survey showed that 67% or 317,000 homes used coal, 13.9% or 65,900 homes, electricity 12.6% or 59,000, town gas 5.6% or 26,700 while bottled gas had 1.6% or 4,700 homes.

Pipeline Components of Ballyna­hinch have been appointed sole N.I. distributors for Neptune Glenfield's range of valves, hydrants and flow control products.

This is not a market which see many changes over the years and the equipment used is basic and changes only occur in the efficiency of the products but an interesting development in the market is the manufacture of traditionally imported goods by companies like Glowtherm who make air filters, and Inanco Ltd a very recently established Irish company who are making fans.

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

**McKENNA DISTRIBUTORS**

Aidelle Products are introducing a new modern look for their large Loovent extractor fans. The units are designed for ease of installation and can be fully or partly recessed into walls or ceilings to make them totally unobtrusive.

The large Loovent models have been integrated into the very successful Wall­fan 6 housing, utilising the same casing, chassis and fan moulding. Powerful centrifu­gal fans provide the necessary performance for efficient extraction, easily overcoming high system resistance due to long lengths of ducting and outside wind pressure.

Specifiers and installers

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**ULSTER NEWS**

Visiting the Calor Kosangas (NI) Ltd stand were: Mr J Daffy (G&J Derry Prods Ltd); T Baxter (Calor); M McMahon; G Derry (G&J Derry Prods Ltd).
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

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THAT'S
INSTANT
HEAT

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10 HVN, January 1981
Published by ARROW@DIT, 1981

PRODUCT REVIEW: FILTERS, FANS, BLOWERS AND AIR HEATERS

will be pleased to hear that the new design enables greater flexibility in positioning and installing the unit. The casing measures 9 in x 6 in — the same size as a standard air-brick — and when recessed only the grille and bezel are seen, giving a modern and attractive appearance.

The Loovent incorporates an exhaust spigot for use with standard 110 mm O.D. (4 in nominal) plastic pipe and is capable of extracting through systems with up to 15 m (50 ft) of ducting. Large Loovent Extractors can be wall or ceiling mounted and may also be installed on the partition wall between bathroom and toilet to ventilate two rooms simultaneously.

Further information from McKenna Distributors Ltd, 2 Aston Quay, Dublin 2, (Tel: 773132).

AAF

AAF Ltd supplies the building services industry with a range of filtration equipment covering every efficiency requirement from those demanded by occupied air conditioned spaces to the most stringent Clean Rooms specification.

A complete selection is offered which includes primary filters to trap the majority of larger airborne dust particles, secondary stage filters which capture the vast quantity of small contaminants, and AAF's Astrocel HEPA filters which are capable of removing virtually 100% of sub-micron sized particles.

AAF's primary filters encompass disposable pads, panels and automatic rolls, a washable panel and a self cleaning unit.

The expensive AMER-glas cell is a heavy duty viscous impregnation panel filter. Filtering media consists of continuous strands of interlaced glass filaments constructed in a graduated density, bonded together and coated in AAF's Viscosine adhesive. When the panel has collected its dust load it is simply discarded and replaced.

AAF Ltd manufacture the Roll-O-Matic, the most versatile renewable roll type filter on today's market which is available in an extensive range of options. It has the advantage of low installation and maintenance costs, offers a constant resistance to air movement and has a high dust holding capacity.

A primary filter highly recommended for use in locations where average dust concentrations occur, for example the Middle East, is AAF's Multi-Day. The unit comprises a continuous overlapping panel curtain which passes through an oil bath where dust is automatically removed and the Viscosine coating renewed.

Increasingly popular for incorporation within air handling systems is the DRI-Pak cartridge. Offering efficiencies from 30% to 95% by the Dust Spot Test according to ASHRAE 52-76 (Eurovent 4/5) using atmospheric dust, the DRI-Pak (second stage) extended surface filter is used extensively in hospitals, computer suites and manufacturing processes where the requirement for clean air is critical. Especially suitable for building service this filter stops microscopic particles of carbon, smoke, fly ash and other contaminants from staining ceilings, walls, curtains and light fittings. Up to 12m2 of super fine media is used in the bag construction of each cartridge, which are available in five efficiency ranges and a large variety of sizes.

High efficiencies with long operating hours characterise the Rollotron, a dry plate electrostatic agglomerator combined with roll filter. Supplied in either compact vertical or horizontal formats, the latter being ideal for filtration requirements in air handling systems where headroom is often a limiting factor. Access from both sides effectively eliminates the need for a plenum access, enabling the Rollotron to be housed completely inside ductwork.

The SA unit is predrilled to match AAF air handling
A HEAVY DUTY NEURO FAN FOR ALL REASONS

Reasons like robust design, reliability, flexibility and fast delivery (from stockists throughout the country)

Maximum performance in the minimum space from RAF, for package units or air systems

Dimensions in the range 180mm to 1450mm, and a volume range 300m³/h to 150,000m³/hr.

Just four examples from a complete range of standard and specialist fans, and radial fan ancillaries. Whatever your reason, call BAC for full information.

We also manufacture air handling units using these famous fans.

We supply distributors for Ireland

brennan airconditioning limited.

66 rookerpark industrial estate
tallaght or dublin

DAN CHAMBERS

A 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. Speed controllers are available. The elegantly designed external rotor motor matches to a backward curved impeller, gives quiet efficient performance against resistance and the important feature of full speed control allows the user to select precise performance in site.

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 carbon and bolted or clipped in the system in minutes.

Performance from 100 c.f.m. to 5,000 c.f.m. operating up to 1.5 ins. w.g.

Further information from Dan Chambers Ltd, 57/58 North Brunswick St., Belfast BT1 2QF (Tel: 720971) and Environmental Supply Co (Tel: Belfast 54429).

The Electro-Cell has been designed to provide maximum secondary filtration to the higher velocity air flows demanded in heating and cooling coil systems. This stationery plate electrostatic precipitator has the advantage of automatic washing and oiling of the collector plates.

The Astrocel range of High Efficiency Particle Filters provide ultimate final stage filtration. Using a high density media of sub-micron fibres, folded into a closely pleated pack and supported by media ribbons or spacers, they are available in a wide variety of sizes, capacities and construction materials. Astrocels are used in critical locations such as nuclear laboratories, hospital operating theatres and clean rooms for the electronics and pharmaceutical industries. Each filter is individually tested providing efficiencies of 99.9%, 99.99% and 99.999% by BS3928 Sodium Flame Test.

Astrocle III has been developed for standard applications where face velocities of .65 m/s and 1.25 m/s are required.

Astrocle 11 has been introduced for .65 m/s applications where a small depth of filter is of overriding importance. Specifically designed to accommodate the filter is the C11 Module for use with "lay in" type inverted tee-bar suspended ceilings. The module is widely used in Class 100 Clean Rooms and also as a supply module for Class 1000, 10,000 and 100,000 controlled areas, as defined in Federal Standard 209b (equivalent to BS5295, Class 1, 2, 3 & 4 respectively).

Astrocle III is a large capacity DEPA unit which offers lower installation costs as only half as many cells are required to handle the same volume as standard 1.25 m/s filters. Specially designed models are available for nuclear applications.

Quality ofAAF Ltd filtration equipment is assured being part of the worldwide Allis-Chalmers Corporation. It has access to the world's most sophisticated test and research centre at Manchester, AAF-Ltd, has its Irish Regional Sales Office in Belfast at the Boucher Office Centre, Boucher Road, Telephone Belfast 669416 with additional representation on Dublin 762626.

PRODUCT REVIEW: FILTERS, FANS, BLOWERS AND AIR HEATERS

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Buildi ng S ervices News, Vol. 20, Iss. 1 [1981], Art. 1

Building Services News, Vol. 20, Iss. 1 [1981], Art. 1
Included in the range are the well known Woods of Colchester regulatable Aerofoil fans 150mm to 800mm diameter, fume cupboard fans 150mm to 315mm, portable cooling fans, galvanised and fibre-glass roof units for curb and purlin mounting with capacities in excess of 40,000 cfm and now available with soaker sheets 235mm to 800mm. The mixed flow fibreglass roof unit is capable of handling duties at 500 N/m². Also new to the range is the UDC upward discharge roof unit and the DUC downward discharge roof unit. The popular GP propeller fan is also available ex stock in sizes 250mm to 800mm diameter in four pole and six pole speeds suitable for manual or electronic regulation.

In pride of place is the Woods Varifoil fan which can perform the function required of a variable air volume (VAV) air-conditioning system, where there is a constant pressure requirement for the terminal units and a varying pressure following a square law function is imposed by the distribution ducting and air-handling equipment, and also ensures maximum energy conservation.

Keith Blackman Ltd. offer a large selection of quality centrifugal fans, dust collection units and Xpelair offer a wide range of controlled ventilation and heating equipment that makes living and working a fresher, cleaner business.

The range consists of 6", 9" and 12" diameter for window wall and roof units together with ceiling fans, cooker hoods, humidifiers, oscillating fans and toilet duct fans. Most of the range is suitable for both individual and group control. The delay units are also available.

New to the range is the Xpelair roof mounting plates available in 8", 9" and 12" roof models.

For further information contact GEC Distributors (Ireland) Ltd, 15/19 Hendrick St, Dublin 7, (Tel: 775433; Telex: 5658).

### GKN AUTOPARTS

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

Accessories ex-stock include: Roof plate assemblies (for flat or pitched roofs), corrugated soaker flange sheets to suit most profiles, ceiling housings (for ceiling void or concealed ventilation), egg crate grilles, non vision door grilles and external weather louvres, PVC flexible ducting in sizes 102mm, 178mm, 229mm, 254fm, 305mm, and 406mm and the corresponding worm drive clips.

Adaptor kits for splitting Vent-Axia fans to accommodate a large fixing thickness between the two are also available. Poor core white PVC cable is also supplied.

A comprehensive ventilation manual can be obtained from Vent-Asia Division, GKN Autoparts (Ire) Ltd, Camac Close, Emmet Road, Inchicore, Dublin 8, (Tel: 781700, Telex: 30830).

### EURENCO SALES

Eureno Sales Ltd. is a comparatively new company in the heating and ventilating equipment sales. They have a complete range of ventilation equipment from J.J. Ventilation Ltd., Bristol. On the powered ventilation side a range of all fitted with Airstream’s new dual wound Class F motors, developed in conjunction with Brook Crompton Parkinson Motors Limited and designed to give a minimum 15 year service life in harsh industrial conditions. The components of the units are manufactured in aluminium and with flanged connections — enabling assembly in virtually any combination. Consulting engineers for all mechanical services are Abbott & Partners of Belfast and installation work was carried out by a number of locally based companies.

Further information: Jim McFadden (NI) Limited, (Tel: 0846 682533) or Reggie Kidd (Dublin) Limited, (Tel: 01 801964).

### SERMET

Airstream Environmental Products is a Bristol based company manufacturing a full range of industrial ventilating and heating products. During 1979 Sermet (NI) Limited and Sermet (Dublin) Limited were appointed sole agents for the full range of equipment throughout Ireland. The first major contract secured was for the new De Lorean car factory in Belfast in which a combination of 80 Airstream recycling ventilation and heater units and 70 air handling units are providing a clean, warmed, filtered air. The principal part of the system is the two ducted air handling units which a combination of 80 Airstream recycling ventilation and heater units, built from standard Airstream inlet modular components. Each unit comprises an inlet section, washable filters, hot water heater battery, fan and a high level discharge grille. These units collect the fresh air or heat provided by 70 Airstream air handling units mounted at high level. The total system provides a constant circulation of clean air at an even temperature, creating a good working conditions and making maximum use of the energy consumed. The fan sections used in the equipment are
PRODUCT REVIEW: FILTERS, FANS, BLOWERS AND AIR HEATERS

FINHEAT

‘Cirrus’ unit heaters are a development of S & P’s successful FT range, with re-styled fan and guard and a new colour scheme, but retaining all the other well proved structural and trouble-free performance characteristics. The range of ‘Cirrus’ types, sizes and heat exchanger arrangements is so comprehensive that, where unit heaters are the preferred equipment, practically any heating requirement can be satisfied efficiently and economically. There are horizontal and vertical types each of which is available in five sizes, offering outputs of up to 120kW (400,000 Btu/hr), and with a choice of three different types of heat exchanger, a choice of fan speeds.

S & P Coll’s SPM range of fan convectors 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.

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 44,000 Btu/hr) at standard conditions on a quiet running setting speed.

Further information from Finheat, 34 Watling St, Dublin 8 (Tel: 778120).

COMPLETE FILTRATION FROM GLOWTHERM

Guaranteed Irish Panel, Washable, Grease and Bag Filters

FARR FILTERS

* Extended Media * Carbon Filters * High Efficiency Bag Filters * Stainless Steel Grease Filters * Tenkay Dust Collectors.

Luwa

Ultrafilters, Free Dust Filters, Safe Change Housings, Filtrasplot Terminal Units, Positive Shut-off Valves.

LANCASTER GLASS — Complete range of replacement auto roll refills for all models.

AUCHARD DEVELOPMENT CO — Acrylic fibre media as supplied to all major car manufacturers in Ireland.

(CLEAN ROOM CONSTRUCTION LTD)

Design, construction and equipment for all types of — contamination control including laminar flow clean rooms completely serviced portable clean rooms are also available on request. * Monitoring service for clean areas.

Further information available from the sole all Ireland agents:

GLOWTHERM FILTRATION LTD.

Perrystown House, Whitehall
Cross, Terenure, Dublin 12.
Tel: 513887/516521/516644.
Telex: 30841

Multi-duct ventilation: purpose-designed by Vent-Axia

Vent-Axia means more effective—and more cost-effective—solutions to many different ventilation problems.

For example, in ventilating internal rooms (particularly individual lavatory cubicles), the use of a multi-duct system often means that a single Vent-Axia unit can provide extract ventilation for a number of cubicles.

The installation featured here is typical of many: a series of four lavatory cubicles are ventilated by a single Vent-Axia unit fitted through the roof of the building. In each cubicle, stale air is drawn through a grille in the suspended ceiling, passing through flexible ducting connected to a four-branch spigot plate mounted under a housing directly below the Vent-Axia unit. The result is effective ventilation at relatively low capital cost, with minimum disruption during installation.

Multi-duct systems such as this can use horizontal or vertical duct configurations in conjunction with Vent-Axia units in roofs or walls.

Multi-duct ventilation: proven reliability (we know of units installed twenty and more years ago which are still performing to peak efficiency, day in, day out), coupled with quiet operation and ease of maintenance, make Vent-Axia Universal or Standard units the ideal choice for multi-duct internal ventilation.

GKN Autoparts offer a design service and will be pleased to advise on the ventilation of internal rooms, and to draw up specifications if required.

Multi-duct ventilation. Just one of the many applications that add up to Vent-Axia: versatility in ventilation, with Universal and Standard units in four impeller sizes: 6" (152 mm), 7½" (191 mm), 9" (229 mm) and 12½" (323 mm).
HEAT RECOVERY

This is the first in a series of articles on the utilisation of heat from the high pressure side of a refrigeration system and was written by Ole Larsen B.Sc., who is an engineer with Danfoss Ltd.

Utilization of Heat from High Pressure Side of Refrigeration Systems

In principle, a refrigeration system is a system in which heat is moved from a lower to a higher temperature by means of mechanical work. Since the energy crisis, a great interest has been taken in utilising this heat which is available at a relatively high temperature level. It can be done by heat recovery or by the use of heat pumps.

These designations are often used at random which is not very expedient. We have, therefore, found it suitable to use the following definitions:

- Heat pumps: Systems where the primary aim is optimum utilisation of the condenser heat. Utilisation of the cooling effect is, normally, of little or no importance at all, at any rate in winter.

- Heat recovery systems: Systems where the primary aim is optimum utilisation of the cooling effect, and where it is tried, at the same time, to utilise part of, or all, the condenser heat for heating purposes.

At times, it can incidentally be hard to make a sharp distinction between the two concepts. By way of example, refrigeration systems can be mentioned in which the cooling effect is used for freezing an ice-cream, and the condenser output is used for heating a swimming pool.

Fig. 1 shows the basic design of a refrigeration system with compressor, condenser, expansion valve, and evaporator, with symbols drawn in for the liquid and gaseous phases. The process inside the refrigeration circuit is shown on a pressure/enthalpy diagram.

A refrigerant in the liquid state will absorb heat during evaporation. It can be shown from the enthalpy diagram that the heat taken up by the refrigerant in the evaporator plus the heat originating from the compression work (fig. 2) is transmitted to the surroundings as a result of the pressure reduction and, therefore, reduces the condensing temperature. In the condenser, the refrigerant is cooled down with mechanical work. Since the condenser output is used for heating a swimming pool, the condensate contains the same amount of energy as the condenser heat.

The amount of heat to be emitted is the heat taken up by the refrigerant in the condenser, plus the energy required to cool the condenser output to the condensing temperature.

In a refrigeration system, the condenser heat is used for heating purposes. Where it is tried, at the same time, to utilise part of, or all, the condenser heat for heating purposes, the condenser heat will then be utilised in the best possible way. To this end, the following steps among others can be taken:

A correctly sized evaporator system with good transmission coefficients.

Modern compressors with good efficiency.

The pressure ratio $P_k$ should be as low as possible, which again means that it is advantageous to work with an evaporating temperature as high as possible and with a condensing temperature as low as possible.

A well-sized fan in the cold store; if required, air baffle plates can be fitted.

- Removal of any air and moisture from the system.

- Preventing the oil entering the system.

- Systematic tending, maintenance, and cleaning of the system.

Looking at a refrigeration system with heat recovery, it is possible to derive a special $E_{vg}$ value, which is called $E_{vg}$ for this system. $E_{vg}$ is defined as follows:

$$E_{vg} = \frac{Q_h}{Q_m}$$

where $Q_h$ stands for the condenser output. When the designations from the Moller diagram are used, the following equation results:

$$E_{vg} = \frac{h_c - h_{v_a}}{h_d - h_c} \times E_{mg}$$

The above formulas are used in the following section dealing with selection of condensing temperature.

3. Selection of condensing temperature

It is necessary to know the condensing temperature in order to plan a heat recovery system. Imagine that you have a system with a condensing temperature of 35°C, but require a condensing temperature of 55°C in order to obtain the adequate water temperature, exclusively by means of the condenser heat from the refrigeration system. The evaporating temperature is 5°C in either case.

Under such conditions, should the condensing temperature be raised, or should extra energy be supplied in the form of e.g. electric heating?

Looking at the Moller diagram for the two situations and assuming the same evaporating pressure, show directly that the higher condensing temperature is conditional on a higher power input. $E_{vg}$ can be calculated for both cases (refrigerant R 12):
It will be seen that the energy supplied is utilized less efficiently, the higher the condensing temperature becomes. The increased power at the high condensing temperature is used only for increasing the condensing pressure. Since the efficiency is reduced at the same time, and it will be necessary to reckon with an increased operating time for the system, it can be established, generally, that if the system is to be used primarily as a refrigeration system, the condensing temperature should be as low as possible, but a sufficient pressure must, however, be maintained before the expansion valve.

If temperatures high than the condensing temperature are required, it should be tried to utilize the superheat instead which is, normally, 8% to 16% of the total condenser output. It can also be illustrated in the following example.

3.1 Examples

A refrigeration system for a fruit and vegetable store is reckoned with. The system has a cooling requirement of 100,000 kcal/24 hours at an evaporating temperature of -5°C. The system is designed for refrigerant R12 and has the following data:

- Condensing temperature \( t_k = 35°C \)
- Cold output \( Q_0 = 9.300 \text{ kcal/h} \) (see fig. 6)
- Power input \( P = 3.3 \text{ kW} \) (see fig. 7)
- Condenser output \( Q_k = 12.140 \text{ kcal/h} \)

Part 2 next month

The following article was supplied by the Blackmer Pump Corporation.

LPG, PUMPS AND VAPOURISATION

Butane, propane and anhydrous ammonia are gases in their natural state, but they are compressed into a liquid for transport and storage. When liquefied, propane and ammonia are always at their boiling point at normal temperatures. The slightest drop in pressure or the least addition of heat will cause them to boil and give off vapor or gas. This characteristic becomes critical when considering the transfer of liquefied gases from one tank to another.

When you compress vapor or gas, you raise its temperature. (That's why the bottom of a bicycle tire pump heats up.) Conversely when you release this pressure, the temperature drops as the gas expands. Compressed vapours condense into liquids much more readily if the heat of compression can be dissipated rapidly.

When liquid is pumped into the bottom of a receiving tank, the rising liquid compresses the gas above it, raising its pressure and also its temperature. On a hot summer's day when the normal vapour pressure of liquefied gas is quite high, this increasing pressure of the compressed vapor could approach the popoff pressure of the safety valve and could prevent filling the container to its normal liquid level. That's why many of today's tanks utilize a stray-fill loading valve. This valve sprays the incoming liquid through the vapour, helping to keep its temperature down, even though it is being compressed by the rising liquid.

When filling an older type tank with a fill connection at the bottom or with a top connection which has a dip tube carrying the liquid to the bottom, a vapour return line is desirable. This reduces the pressure build-up in the receiving tank, thus reducing the pressure on the pump and allowing the receiving tank to be filled to the proper level. Without a vapour return line, the pressure in the receiving tank on a hot day could cause the safety relief valve to open.

When you transfer liquefied gas from one tank to another, as the liquid level drops, the vapour above expands, and its temperature and pressure drop. Immediately, the liquid begins to boil, creating vapour bubbles. The velocity of liquid entering the intake pipe carries some of these gas bubbles with it. Each restriction in the intake pipe drops the pressure of the liquid-vapor mixture causing the vapour bubbles to expand and causing more boiling and more vapour bubbles to form. That's why the pumping system almost never delivers as much actual liquid as its rated delivery would seem to promise. A globe valve increases the amount of vapourisation. We recommend ball or gate type valves for minimum vapourising effect.

The vapours entering the pump cause noise and vibration in most types of pumps. Blackmer pumps incorporate a hydraulic "cavitation suppression" which minimizes the effect of vapourisation, resulting in smoother operation under adverse conditions. Excessive vapourisation in the intake line also shortens the life of the pump vanes. However, there is always some vapourisation and cavitation whenever liquefied gases are pumped. If the amount of vapourisation is moderate, the pump vanes will have a reasonably long life.

LPG pumps are manufactured for a wide variety of liquids. For instance, kerosene, gasoline, diesel fuel and other Unusual Fuels. 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

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Frankfort, Dundrum Road, Dublin 14
Tel. 789021; Telex 30870

Agents for Danks of Netherton

Building Services News, Vol. 20, Iss. 1 [1981], Art. 1
Published by ARROW@DIT, 1981

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

A H CULLEN

A H Cullen & Co Ltd sole distributor in Ireland for Culligan water treatment plant offer a large range of package systems, water softeners, filters, reverse osmosis, deionisers, dealkalisers, potabilisation systems and chemical dosing pumps.

Backed by Culligan International's world wide experience in water treatment problems in almost 100 different countries throughout the world, this Irish Company can provide the necessary expertise to cope with the most demanding water quality requirements.

Standard automatic equipment includes:
- Water softeners: Flow rates from 0.8 M^3/hr to 22 M^3/hr.
- Water filters: Flow rates from 1 M^3/hr to 175 M^3/hr.
- Reverse osmosis: Flow rates from 3 litres/hr to 24 M^3/hr.
- Deionisers: Flow rates from 0.2 M^3/hr to 20 M^3/hr.
- Dealkalisers: Flow rates from 3 M^3/hr to 20 M^3/hr.
- Potabilisation systems: Flow rates from 2 M^3/hr to 90 M^3/hr.

Culligan water treatment plant installed in Ireland over the past 15 years provides quality water to industrial users in pharmaceuticals, airports, soft drink manufacture, hospitals, hotels, poultry farms, meat factories, electronic component factories, car washes, and dairies.

In addition there are many thousands of Culligan domestic units installed throughout the country providing soft, filtered and conditioned water to the household.

The latest addition to the Culligan range is the Omnifiltration system incorporating granule activation. An Omnifiltration system consists of two filtering tanks. Each tank contains three layers of filtering minerals having different granule size and bulk density.

Eight diaphragm valves control the water flow which, either at set times or activating due to a differential pressure sensor, open and close them automatically in a sequence.

Each tank is conditioned by oxidizing and coagulating solutions. Automatic dosing pumps, ahead of the first filter tank, inject chlorine solution at the rate indicated by the raw water chlorine demand and alum solution at the maximum rate of 10 ppm. Ahead of the second tank, a third pump injects either alum at the maximum rate of 4 ppm or a polymer at the rate of 0.02 ppm.

The Omnifiltration system is ideal for treatment of river or lake water with suspended solids up to 300 mg/l without the necessity of pre-settling. In average conditions it will deliver

PRODUCT REVIEW: WATER TREATMENT AND CONDITIONING

AGENT FOR

BRAITHWAITE

Sectional Tanks

- Ability to store almost any liquid.
- Adaptable to special requirements.
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New protective finishes.

Economical, to erect, dependable, versatile and strong the Braithwaite Sectional Tank has all these features and many more.

If you have a liquid storage requirement call Finheath for a speedy answer.

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Agents For

UK agents for Blackmore are
George Meller Ltd and Irish agents are Pump Services Ltd.
The choice of a suitable sec­
tion is primarily dependent upon site condi­
tions in relation to the
volume of storage needed. The most economical tank
is one constructed from
plates 1,2,3,4,5,6,7 or so give a
homogeneous solution. This
merits in relation to the
construction of tanks of
sectional method of construc­
tional usefulness transporta­
tion costs to be kept to a
minimum and for apparent­
ly economic and suitabil­
ity 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 galv­
amised tanks.

Further information from
Finheat Ltd, 34 Wat­
ing Street, Dublin 8, (Tel: 778109).

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answer.

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prevents scale deposits in your expensive installations

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The Hydro-Press, a modular system which incorporates the continuous belt press principle and is remarkable in that it is constructed from stainless steel and GRP, gives good corrosion resistance, and even more remarkably, its power requirement is only 0.37 kW. In fact the whole system, including chemical dosing, flocculation, dewatering and sludge conveying can operate at a power requirement equivalent to that of a normal domestic electric fire.

In the same stable as the Hydro-Press, ISTS have developed a new flotation system, for use in effluent pre-treatment called the Hydro-Press Floatation system.

Again its characteristics are low capital cost, low running cost and simplicity. The company claims that major advantages over dissolved air flotation are the automatic removal of fat and grease and the flotation of solids and chemical floc. By use of a unique high pressure, low bubble aerator the Hydro-Float produces effective flotation without the need for air compressors, pressure vessels or recirculation pumps and can operate at one tenth the power requirement of a DAF system.

The process has an impressive track record, for instance, with the treatment of dairy wastes, operating at flow rates in excess of 1000 m³/h, ISTS claim that the introduction of this equipment at a pre-treatment stage results in a substantial increase in secondary plant efficiency, without the problems of blocking, often associated with DAF. When used for the treatment of tannery wastes the Hydro-Float can provide a sulphide oxidation, together with the automatic removal of floatable materials. Further experimentation convinced the relatively low capital and running costs of their Hydro-systems result in economic sense even in these difficult times. For instance, the greatly reduced sludge transport costs and manual involvement associated with their Hydro-Press system can often completely offset the cost of the capital equipment.

For further information contact Irish Specialist Treatment Systems Ltd., Greenvale Mill, Ardee, Co. Louth, (Tel: 041 53772).

Houseman

The Standard Plant Division of Houseman (Burnham) Limited, part of the Portals Water Treatment Group, have recently been awarded a substantial contract with ITT Semiconductors for the provision of reverse osmosis and demineralisation equipment. The contract is for the installation of equipment adding to the existing system installed by Houseman, commissioned in the latter part of 1977, providing a daily flow of 30,000 gallons of purified water. The initial system was designed to accept the addition of further equipment to make the total capacity 60,000 gallons a day. The contract, which also includes point-of-use polishing, is worth approximately £120,000, and will be completed during the first quarter of this year.

The production of semiconductor chips is a highly complex and precision process which requires rinsing of the chips to remove any surface deposits. Any trace of dissolved solids or bacteriological contamination will cause bridging of the conductive mediums, resulting in an unacceptably rejection rate. The treatment, therefore, of both natural and mains water is essential. The production of semiconductor chips is such that it encompasses water softening, reverse osmosis demineralisation and water treatment, reverse osmosis units which remove up to 90% of dissolved solids originally present in the water. The Reverse Osmosis units use the Dupont 19 aromatic polyamide membrane which has a wide pH tolerance combined with a long membrane life.

The process uses high pressure pumps (400 psi) to provide the driving energy which separates the feed water into two streams, a pure water stream and a concentrated stream which carries away the dissolved salts. The rejected water is re-used within the ITT complex for cooling applications, providing further economies in the operation.

The financial savings brought about by the introduction of the Reverse Osmosis plant are the increased period between regeneration of the existing demineralisation units and, ultimately, prolonged life of the .22 micron filters at the point of use.

The main advantages of the Reverse Osmosis plant could be listed as follows:

- Up to 90% saving in cost per cubic metre of water, over conventional demineralisation and ion-exchange regeneration.
- Increased reliability by removing the risk of contamination of the units to the hydraulic output of the equipment.
- Reduction in water and salt waste fluctuations in the water quality.
- Extension of resin life.
- Decreased labour intensity.
- Increase in final point-of-use filter life.
- The additional unit to increase capacity to 60,000/80,000 gallons daily is a Houseman 34/35-4 unit, handling 100,000 litres per hour, providing a daily flow of 60,000 gallons of highly purified water every day.

With costs rising daily it seem ridiculous to throw away water that is costing you money, when it is not necessary. In fact, water used for cooling in production need not be so cheap. As an example of how much you can save think to the 'Cooltech' Cooling Tower, costs can be cut dramatically. Over 50 per cent savings can easily made and capital costs can be saved in less than twelve months in most cases.

So, when it's a question of cooling towers for industries large or small, involving widely-varying processes and applications, available on dependable delivery, the answers come from Cool Technology Ltd. Ranking high among leading manufacturers, Cool Technology's range of cooling towers starts with 'Cooltech' packaged units of approx. 8TR (30,000 Kgs) through to very large, standard capacities up to 200,000 g.p.h. Custom-built units, too, in materials to suit special requirements.

Cool Technology are not merely manufacturers of cooling towers, heat exchangers and pressure vessels but style themselves as 'problem solvers' - and would welcome your cooling problems to solve.

For further information or technical details please contact: R.S. WHITE LTD.

The Crescent, Donnybrook, Dublin 4. Telephone: 01 6831144.

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Hot press moulded G.R.P. sectional cold water storage tanks.

Modular Design

Sizes Available:
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- 1000mm x 500mm

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

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**PRODUCT REVIEW: WATER TREATMENT AND CONDITIONING**

Lid are represented by R S White Ltd in Dublin and Henry R Ayton in Belfast.

**FLUID DYNAMICS**

Fluid Dynamics was founded in 1973 for the purpose of manufacturing and exporting water treatment equipment which it now does to ten countries. They have recently moved into a new factory on the Sandyford Industrial Estate in South County Dublin and extending the range it offers from the original Colloid-A-Tron hard water treatment equipment to include Levis Water Filters (manufacturing rights acquired in 1979) and also a full range of Domestic and Industrial water filters and water softeners as well as the contract manufacture of effluent treatment plants for the food processing industry.

Fluid Dynamics have also concluded a technical cooperation agreement with one of the leading sewage effluent treatment plan manufacturing companies in France. Under the agreement, Fluid Dynamics will manufacture and build sewage and effluent treatment plants concentrating on the smaller end of the market, towns and villages of up to 1,000 persons as well as for hotels and campsites.

With particular emphasis on compact, economical and flexible package schemes the Company will encourage the use of Butyl rubber sheet as a liner as opposed to the more traditional concrete basins wherever possible. The use of these sheets with a guaranteed life of 10 years has the effect of reducing costs by up to 50% on a small project.

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**Permutit**

**Standard plant division of Houseman**

**present an advanced range of automatic water softeners**

Years of experience in the water treatment industry, plus very advanced technology, have enabled Permutit to offer a completely new and competitive range of automatic water softeners.

Available in 8 standard sizes with outputs of up to 15m³/hour (3,300 gallons/hours) the water softeners prevent the formation of scale deposits in boilers, cooling systems, heating systems, laundries, hospitals and many industrial processes where water softening is required.

The range offers many features, including:
- Mechanical valve operation allowing low operating pressure during service flow.
- Construction that uses only corrosion resistant materials.
- Time clock, water meter or manually initiated regeneration.
- Duplex plants available in all sizes where storage is limited.
- Tested to a maximum pressure of 12 bar 175 psi.
- Designed for ease of installation, maintenance and servicing.

An advanced range at competitive prices backed by a highly reputable name with full servicing and maintenance facilities.

For full details send for our catalogue. You won't get softer water at better prices.

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**MYSON**

MYSON RCM LIMITED, FOURTH WAY, WEMBLEY TRADING ESTATE, WEMBLEY, MIDDLESEX HA9 OHS, ENGLAND. TELEPHONE: 01-903 0444

Myson RCM Limited, Fourth Way, Wembley Industrial, Wembley, Middlesex. Manufacturers of well known grilles, diffusers, louvres, dampers and fire dampers, are looking for a suitable Company in the Northern Ireland area, preferably Belfast, who are capable of offering stockist facilities. Applications in writing to the Sales Manager at the above address.
NEW PRODUCTS

New Danfoss Motor-Operated Valve

As a supplement to the existing range of motor-operated valves, Danfoss has introduced a new version type GEV4 so that the series now includes four different types. The GEV motor units are then obtainable in the following versions:

GEV1 with a single opening and closing sequence
GEV2 with an adjustable starting load position in the opening sequence
GEV3 with an adjustable part load position in both opening and closing sequences
GEV4 with a adjustable starting load position and part load position in the opening and closing sequences

For further information, please contact J. J. Sampson & Son Ltd., Cherry Orchard Industrial Estate, Dublin 18, (Tel: 268111 (4 lines)).

New Addition to Jotul Range

A new and versatile stove has been added to the range of Jotul stoves in Ireland. The system 17 is different from the existing range; the newly designed stove is mounted on a plinth and then enclosed by firebricks. Specially designed air vents mean that cold air is drawn either from inside the room or outdoors and circulates around the stove before re-entering the room as warm air. Like other Jotuls the construction of the system 17 ensures a long period of heat retention with the minimum of heat being lost up the chimney. It will burn wood/turf and can be used either as an open fire or as a slow combustion stove for overnight burning when the doors are closed. However, a basket can also be supplied for coal or coke. As with all Jotuls, there is a ten year guarantee with the new model.

One of the advantages of this new system is the variety of finishes available. For instance, the design of the fireplace can be adapted to suit the surroundings in which it will be situated, e.g. corner or conventional chimneys. This makes it ideal for use in both new and the older type of house.

A water heating kit is also available, consisting of a copper boiler installed in the stoves' firebricks which will provide domestic hot water for an average sized family.

Further information on this new and adaptable design of woodstove may be obtained from David Cooper of Tyrellspass, Co. Westmeath, (Tel: 044 23114).

• Unusual sitting for Jotul 17 solid fuel stove with specially designed air vents for quick heating, using conventional chimney Jotul stoves are distributed by Grantaid Limited.
**NEW PRODUCTS**

### Walker Drier Range Extended

The Walkair range of condense driers, manufactured in Denmark and distributed by Walker Air Conditioning Limited, has been extended to include a new model, designated the CD2500. This new model is a further development of the tried and tested portable models CDT2000, CDT3000 and the stationary models CDS.

The CD2500 incorporates the same heat pump principle of operation and electronic control as the other models in the range, giving optimum efficiency under all conditions and protection against the harsh treatment meted out on building sites and similar places. The condense drier operates by cooling down the humid air drawn into the unit, to a temperature below the dew point, so that the water moisture is condensed into water drops which are drained. Then the air is re-heated by the heat released during the cooling process. The discharge air is then re-heated and is able to absorb moisture again. The basic dimensions of the new unit are 60 x 60 cm by 115 cm high, making it easy to move around. However, in spite of its compact size, the CD2200 has a capacity of 84 litres per 24 hours. This model, like all others in the Walkair range, is controlled by a mini computer to provide for continuous running as defrosting takes place only when required. Delivery is ex stock.

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### Bentone Oil Burners

**NEW AND IMPROVED MODELS TO OVERCOME OIL PROBLEMS.**

Type FC2F. The new domestic burner with a built-in preheater has the following advantages:

- Complete atomisation of oil through the nozzle from 4cSt/36 sec Redwood up to a viscosity of 8 cSt or 46 sec. Redwood No. 1 at 100°F.
- Pump pressure as low as 100 P.S.I. (max is 120 P.S.I.) reduces noise and saves wear. At the moment many burners operate at 180 psi. This is necessary to atomise some of the gas oil now on the market.
- Total reliability with cold oil provided the oil reaches burner.
- Longer running periods and shorter off periods at lower capacity gives optimum efficiency due to lower flue gas temperature and higher CO2.
- Modification kit available for all FC4 EC4 and DC4 burners i.e. back to about 1973. No change of control box normally required.

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### New Danfoss Oil Preheater

The principle of preheating fuel oil for large industrial burners can also be applied with advantage to small domestic burners, especially today where the trend is towards oils of higher viscosity and at the same time an even increasing demand for burners of lower capacity. Generally, if the viscosity is lowered by preheating the oil, the capacity of the oil nozzle will be reduced. A thin oil has a lower atomisation limit. The pump pressure can be lowered and this reduces the nozzle capacity further. To meet these demands, Danfoss is now introducing an oil preheater, type FPH4, for installation in both existing and new domestic burners for light fuel oil. The preheater is soldered onto the nozzle tube. As a heat emitter, it uses a PTC semiconductor element which has the characteristic that when a certain temperature is reached it increases its own resistance. This ensures that the temperature of the trapped oil, in the event of operational disturbance, will not exceed this limit value. Another characteristic feature is that the wattage consumption of this preheater adapts itself to both the initial oil temperature and the flow volume, instead of being constant as normal.

**Technical data:** Capacity, 2.5 litres/hr to 70°C; pressure max. 15 bar (217.5 P.S.I.); power consumption max. 79 W and heating time from cold plant approximately 30 sec.

For further information contact Danfoss Irish agents and distributors, J. J. Sampson & Son Ltd., Unit 71, Cherry Orchard Industrial Estate, Ballyfermot Road, Dublin 10, (Tel: 268111).

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**AN ENERGY BONUS FROM BEVERLEY COMTRO**

Pollution free combustion of waste with heat recovery

From the 'starved air' combustion of 600 lbs/hr of general packing waste, including cellophane and plastic, the plant illustrated will generate 4000 lbs/hr of steam. A further 6000 lbs/hr of steam may be generated alternatively or simultaneously using the Composite Boiler principle.

Savings on conventional fuels being such that capital payback will be achieved in 2 years.

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**Precision Heating Equipment Ltd.** Church Road, Santry, Dublin 9. Tel: 374300 374437

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**Published by ARROW@DIT, 1981**
SALE OF GOODS AND SUPPLY OF SERVICES ACT, 1980

The Sale of Goods and Supply of Services Act, 1980 which was ever comes into force on the 1st January, 1981. The Act, in the main, deals with amendments to the law relating to the sale of goods and hire purchase agreements. However, as the name of the Act implies, it also deals with the supply of services; for the first time terms are implied into contracts for the supply of services.

Section 38, Implied Undertakings as to Quality of Service, sets out the terms which are to be implied in every contract for the supply of a service where the supplier is acting in the course of a business. These terms are:

(a) that the supplier has the necessary skill to render the service,
(b) that he will supply the service with due skill, care and diligence,
(c) that, where materials are used, they will be sound and reasonably fit for the purpose for which they are required, and
(d) that, where goods are supplied under the contract, they will be of merchantable quality.

Section 40 sets out the circumstances in which these terms may be "negatived or varied", being
(a) by an express terms of the contract, or
(b) by the course of dealings between the parties, or
(c) by usage, if the usage be such as to bind both parties to the contract.

The section does provide the further qualification that where the recipient of the service "deals as consumer" it must be shown that express term is fair and reasonable and has been specifically brought to his attention. Section 3 of the Act provides a definition of the words "deals as consumer".

A party to a contract is said to deal as a consumer in relation to another party if:
(a) the neighbor makes the contract in the course of a business nor holds himself out as doing so, and
(b) the other party does not make the contract in the course of a business, and
(c) the goods and services supplied under or in pursuance of the contract are of a type ordinarily supplied for private use or consumption.

In the case of sale by competitive tender or in relation to auctions of a type to be defined by the Minister by order, the buyer is not regarded as dealing as consumer. It follows that the Act does not affect the freedom of parties to agree their own terms and to exclude and restrict the terms implied by the Act where neither deals as coconsumer. At least in so far as consumer transactions are concerned the impact of these provisions will to a large extent depend upon the judicial interpretation of what is fair and reasonable. The Act does provide its own interpretation of sorts: Section 23(3) provides that where a question arises as to whether a term, agreement or provision is fair and reasonable regard shall be had to the criteria set out in the schedule, which in turn states that in determining if a term is fair and reasonable the test is whether the term is a fair and reasonable one to be included having regard to the circumstances which were, or ought reasonably to have been, known to or in contemplation of the parties when the contract was made.

Regard is to be given particularly to the following:
(a) the strength of bargaining positions of the parties relative to each other;
(b) whether the customer received an inducement to agree to the term, or in accepting it had the opportunity of entering into a similar contract with other persons, without having to accept a similar term;
(c) whether the customer knew or ought reasonably to have known of existent and extent of the term;
(d) where the term excludes any relevant liability if some condition is not complied with, whether it was reasonable at the time of the contract to expect that compliance with that condition would be practicable;
(e) whether any goods involved were manufactured, processed or adapted to the special order of the customer.

The Act goes further than imposing terms. Section 40 applies to any statement likely to be taken as indication that a right or the exercise of a right conferred by, or a liability arising by, virtue of Section 38 is restricted or excluded otherwise than under section 40. It is an offence under this section for a person in the course of a business to:
(a) display a notice that includes any such statement; or
(b) to publish or cause to be published an advertisement which contains any such statement; or
(c) to supply goods bearing, or goods in a container bearing, any such statement; or
(d) otherwise to furnish or to cause to be furnished a document including any such statement.

A person guilty of an offence under the Act may be liable on summary conviction to a fine not exceeding £500.00 and/or a term of imprisonment not exceeding six months or on conviction on indictment to a fine not exceeding £10,000 and/or to a term of imprisonment not exceeding two years.

These provisions are severe but much will depend on the attitude of the courts and how the Act will operate, when it comes into force.

Building Services News, Vol. 20, Iss. 1 [1981], Art. 1

SLUDGE PROBLEMS SOLVED... economically

The solution to economic dewatering of sludge is now available in Ireland, using the revolutionary Hydro-Press. Successful in dewatering biological sludges from both industrial and municipal effluent treatment works, the Hydro-Press produces a solid cake from liquid sludge.

The Hydro-Press is a continuous belt dewatering press, which can totally eliminate the necessity for drying beds and reduces or removes the necessity for sludge storage. Running costs, with a power requirement of only 0.37 kw, are minimal. Maintenance is virtually eliminated with self-lubricating bearings and corrosion free stainless steel & GRP components.

Backed by our specialist consultancy service, we can arrange an on-site trial, with our mobile unit, immediately. Contact us today.

IRISH SPECIALIST TREATMENT SYSTEMS LTD. 
Hevac

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

**CHAPPEE**

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

**Allen Ygnis**

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

**Sime**

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

**Radiant Superjet**

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

**Schwank**

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

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.

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