


1-1-1978

Irish H & V News Incorporating Zone

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IRISH NEWS+ REVIEWS

Incorporating ZONE: Environmental Engineering in Ireland.

JANUARY 1978

VOL. 17 NO. 2

News Briefs

As we went to press the legal wrangle between the IDA and the liquidator of MCB (Galway) Ltd concerning the sale of the company to its former Manager had still not been resolved. The IDA owns the factory premises on the Galway Industrial Estate and is challenging the liquidator's right to sell the lease.

At the latest CIBS meeting of the Engineers Club in Clyde Road, Dublin, Jim Anderson delivered a lecture on heat pumps concentrating on such aspects as how it works, selecting the proper size of unit and the operating costs involved.

Standard & Pochin, the Leicester-based manufacturers of fans and air movement equipment, have had to extend their premises to cope with the increased demand for their expanding range of products.

Dublin Gas has introduced a new billing scheme for its 60,000 or so consumers — from now on they will receive a demand for payment every two months and not quarterly as has been the case up to now.

Poul Due Jensen, Chairman of Grundfos, died recently in Denmark. He founded the Grundfos Group in 1945 and guided its growth down through the years to make it one of the world's largest pump manufacturers.

Interclima '79 and Expoclima '79 will now be held in conjunction with one another under the title "Expoclima 79 jumele avec Interclima 79" at the Parc des Expositions, Porte de Versailles, Paris, late next year.

"District/group heating schemes in the UK — an appraisal of the state of the art" was the title of a paper delivered at a DHA1 meeting this month by Mr F H Lane, Associate Partner, Steensen Varming Mulcahy & Partners, London.

PRICES COMMISSION REVIEWS FUEL COSTS

The latest monthly report from the National Prices Commission covering November last year reveals that the retail price of the most popular sized bottled gas cylinder has increased by 71% since 1974 while central heating oil supplied by the four major principal companies in the market has gone up by an average of 167%.

The Commission conducted the investigation into the prices of domestic heating fuels following an application from importers at all coal importing ports in the Republic to increase their prices for Polish and English coals by as much as £5 per tonne. In the case of five ports the applications also sought to recover increased internal costs of

Bord Na Mona prices were found to have increased by amounts ranging from 63% for retail brigettes to 103% for loose sod turf. Thus, the report states, turf continues to be relatively cheaper than coal in real terms.

These increases were then compared with the two other domestic heating fuels — bottled gas and central heating oil — and it emerged that the former was proving to be the cheapest form of domestic heating.

However, the retail price of bottled gas is controlled by a Maximum Retail Prices Order and the Commission's

IHVN regrets that, due to a local dispute which temporarily stopped postal deliveries in the Blackrock area, some material sent to us for publication in this issue could not be included.

New Dimplex Company Formed

As reported last month the Receiver, who has been managing the assets of Dimplex Ltd for the past seven months, has successfully concluded the sale of part of these assets to Glen Electric Ltd of Newry.

A new company has been formed, Dimplex Heating Ltd, with factory and offices still on the Millbrook Industrial Estate in Southampton.

Dimplex Heating Ltd will operate as an autonomous company with its own management, and will be accepting responsibility for all product warranties and spare parts service from its predecessor, Dimplex Ltd.

While the Dimplex Heating Ltd operation is smaller than its predecessor, most of the range will be manufactured in Southampton and the rest in Newry, in

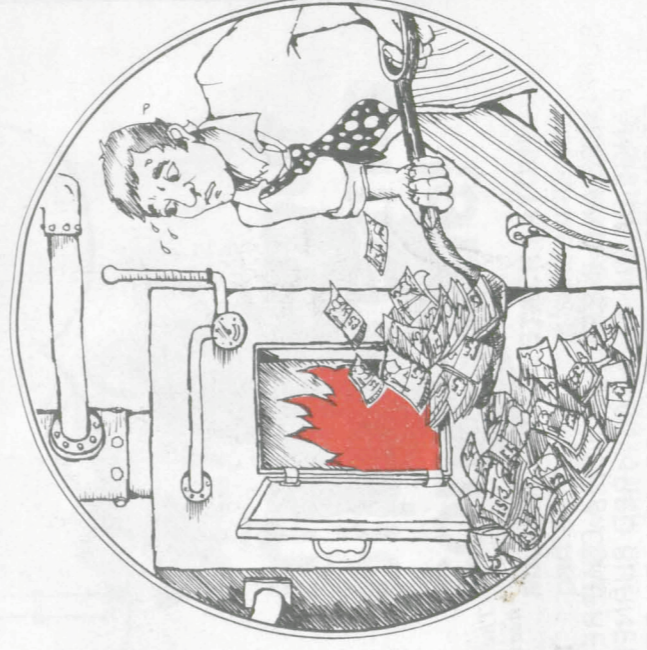


Ronnie O'Connor and Gerry Tobin of P J Matthews with Michael Usher of Dockrells and Digby Turpin of Heiton McFerran at the CPI dinner held recently in New Jurys Hotel.

view of a similar control in the area of Polish coal is that it should be to ensure that "we in this country do not have to pay more than is necessary to secure supplies of coal and to see that coal is handled and distributed as efficiently as possible so that domestic distribution costs are kept to a minimum".

To achieve this aim there is a need for detailed information on the overseas supply position with regard to prices and various types and qualities of domestic coal used here. Therefore, the Commission recommends that, since the Minister is now responsible for energy as well as prices, he consider asking the Energy Division of the Department to prepare a report to provide the required information.

You'll never get as much out of an old boiler...

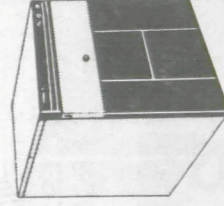


...as you will out of a new Clyde/De Dietrich

High efficiency and low initial cost are the features of the new Clyde/De Dietrich range of pressurised boilers. Manufactured of special cast iron the De Dietrich comply with the most stringent European standards and are specified by leading consultants every where.

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JOHN F. KENNEDY ROAD, DUBLIN 12.

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International Building and Construction Exhibition POOR IRISH REPRESENTATION AT INTERBUILD

Interbuild, the 37th International Building and Construction Exhibition held at Birmingham's National Exhibition Centre in November, attracted over 123,000 trade and professional visitors from 72 countries and was the scene for the launch of many new products, IHVN reports.

Figures for attendance from Ireland were not available at the time of writing but several Irish company representatives on stand duty reported that numbers had been relatively low. Few Irish companies took stands in their own right, although those with agency agreements were to be found on their principals' stands.

Coras Trachtála succeeded in attracting only four companies to take part in the Irish stand - Moloney's of Cappagh Ltd, Teroydecor of Ireland Ltd, Quality Plastics Ltd, and Webster Hardware International.

In ironmongery, B Lilly & Sons reported the best show they've ever had and were proudly exhibiting the Eros trophy presented for their Sadler Suite range by the British Aluminium Co Ltd in conjunction with the Guild of Architectural Ironmongers. Also designed by Kenneth Sadler is the Ergo range of



The Midland International stand at the recent Interbuild Exhibition in Birmingham where the company's UK subsidiary - M I Plastics successfully established contact with 300 potential new distributors for its Flair range of bathroom products and shower units. Through the Exhibition Midland International opened negotiations with interested distributors in Europe, Africa and the Middle East.

children. Both ranges are available in Ireland through Lilly's agent, K M Reynolds Ltd.

The GAI's 1977 design-award went to G & S Allgood for their Holscher & Tye designed Modric range of architectural hardware which includes the newly launched Limbar handle system operated by the forearm and primarily intended for use in hospitals.

Josiah Parkes presented several

The new "Vermont" super-luxury acrylic bath featured by Armitage Shanks, available with tapholes at corner and controls on centre inside ledge, this is not offered for peninsula or island positions. It is sold ready cartoned for extra protection.

householder to choose the level of security he requires, a new fire door release, and a card-operated front door release mechanism.

The Concord Lighting stand, built using Tubetrack 7 components, included several new items including Lytesphere major minor and mini and Bullet major white and mini fittings in polished, white or holly green finish, the white replacing the previous off-white which is now discontinued, and Lystespan 3 and Tubetrack 7 cone downlighters with silver or gold reflectors or black apertures.

In the bathroom sector, Midland International introduced a new Flair cabinet with soap and toiletries recesses, Deltaflow reported that new performance standard Spa fittings would be launched here sometime in 1978, Glywedd, who have recently appointed Waterford Ironfounders as their Irish agent, will be launching new Vogue Spa ranges in March, and Aquatron Showers, who are

Continued on page 3

IRISH H&V NEWS + ZONE

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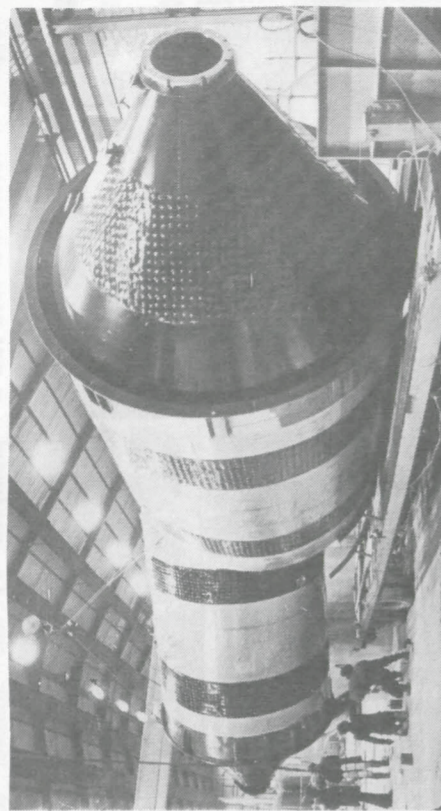
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BRIEFLY

AWS: Advanced Water Services Ltd, High Wycombe, announce the appointment of W McCarthy, LRIC, FISE, FRSA, MIVES as Deputy Managing Director with responsibility for Advanced Water Services Ltd. Advanced Pumping Systems Ltd and Cubicon Ltd.

British Uralite are now incorporating a surface sealing treatment in the production of Uralstone asbestos cement flue goods. This refinement, undertaken purely for the handling convenience, in fact anticipated the recommendations of the UK Gas Industries National Joint Council, whose new Code of Practice on the use and handling of asbestos products recommends that all asbestos goods be supplied with sealed surfaces wherever possible.

Murphy's Brewery Takes Delivery of £150,000 Order



Looking like the nose-cones of space rockets, two conical fermenters are loaded onto transporters at Golden Vale Engineering prior to delivery to the Heineken Brewery being built by Murphy's Brewery in Cork.

The second phase of a £150,000 order from Murphy's Brewery for large fermenting vessels was completed this month by Golden Vale Engineering, Charleville, Co Cork.

Golden Vale delivered five conical fermenters with a capacity of 8,360 gallons each on the week-end of 16 December last. A further two 300 barrel fermenters were delivered on the morning of Sunday 18 December.

This latest consignment comprises a total order for ten stainless steel 8,360 gallon conical fermenters and one larger 600 barrel vessel. The ten conical fermenters have been installed in the new Heineken Lager brewery being built by Murphy's and represent a lagar brewing capacity well in excess of a half-million pints.

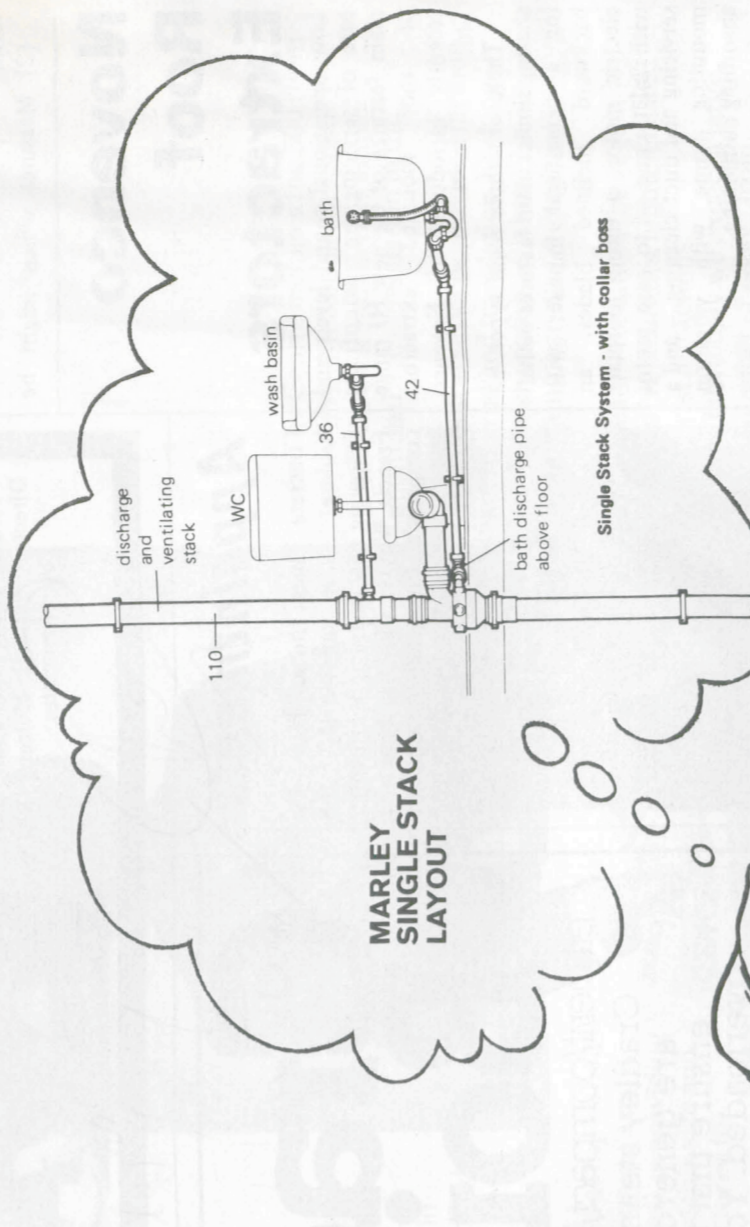
In a statement, Mr. Michael Long, managing director of Murphy's Brewery, paid tribute to the high standard of Golden Vale Engineering's work and pointed out that his company has a firm policy of placing its engineering purchases with Irish firms wherever possible.

AAF Opens Irish Office

AAF-Ltd, the UK manufacturing and marketing subsidiary of American Air Filter Co, Inc, have opened a regional sales office for Ireland at premises in the new Boucher Centre, Boucher Road, Belfast. Northumberland based AAF-Ltd, have operated in Ulster and Eire for the past 10 years, marketing their range of air filtration, air pollution control, sound attenuation and heating and air conditioning equipment through an agency arrangement with M H Coote & Co Ltd.

Mr T B Montgomery, who joined the M H Coote organisation approximately seven years ago, specifically to look after AAF's affairs in Ireland and who was later appointed a director of M H Coote & Co, has joined AAF as Regional Sales Manager, Ireland.

AAF have been extremely successful throughout Ireland and believe the new office will not only materially assist in future developments but will substantially improve the after-sales service offered to their customers.



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SESI Calls for Government Inquiry

The Solar Energy Society of Ireland has urged the Department of Industry Commerce and Energy to establish a Commission of Inquiry into developments and policy in relation to the supply and demand for all forms of energy in Ireland. Such a Commission, says SESI, would be given a restricted time-scale, would be empowered to hold commission studies and to hold public hearings, and would be recommended to report and make recommendations on the following matters:

- (1) Legislative requirements, financial incentives and education programmes designed to promote conservation of energy in all its forms.
- (2) Measures which might be

adopted to ensure that each fuel is used with maximum effectiveness for the most appropriate purposes.

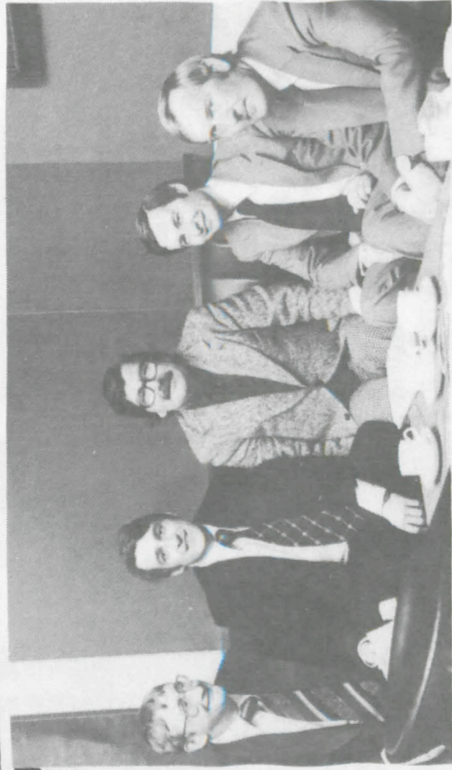
(3) Social, economical and technical implications of feasible energy sources for the future, particularly in the light of their impact on the environment and dependence on foreign or rapidly depleting resources.

(4) In the light of the foregoing, to advise on energy policy options for Ireland, while making provision for review of policy in relation to energy on a continuing basis.

SESI's call for an inquiry was prompted by the Minister for Industry, Commerce and Energy recently telling the Dail that a decision whether or not to proceed with a nuclear power station at Carnsore Point would be announced "within a matter of weeks".

BRIEFLY

John Bell has joined the Board of Appliance Components Ltd of Maidenhead as Marketing Director. This is a new appointment within ACL and is part of a consolidation programme for the company, who manufacture and market industrial controls and components. Mr. Bell joins ACL from Dawe Instruments Ltd, a Lucas group company, where he was director of sales and marketing.



At the recent CIBS lifts' meeting in Clyde Road were Joseph Murphy, Partner, McArdle McSweeney O'Malley, David Hopkins, General Manager, Otis Elevator Co (Ireland) Ltd; P J Clonan, Honorary Secretary, CIBS (republic of Ireland Branch); Herbert Taylor, Lighting Manager, GEC; and John Doyle, Director, Varming Mulcahy Reilly Associates.

Novenco Roof Extractors

Low operational sound levels and ease of servicing are two of the main features of the new HJ range of roof mounted extractors recently introduced by Novenco Ltd.

There are three main types, all sharing similar main features including a centrifugal impeller with backward inclined blades, an electric motor, a tilting footplate with inlet cone - to ease motor servicing and duct cleaning - and a mounting frame with vibration absorbing cushioning.

Construction is of galvanised sheet steel, although the HJB and HJE roof hood can also be supplied in stainless steel, to give extra protection against corrosion under severe operating or climatic conditions.

Applications for these extractors include office buildings, hospitals, schools and industrial buildings, as well as residential blocks.

A total of 21 models is available to provide air handling capacities from 0.05 m³/s to over 2.7 m³/s at system resistances of up to 400 Pa. Further information is available from Dan Chambers Ltd, 3 Echlin Street, off James' Street, Dublin 8, (Tel: 720448).

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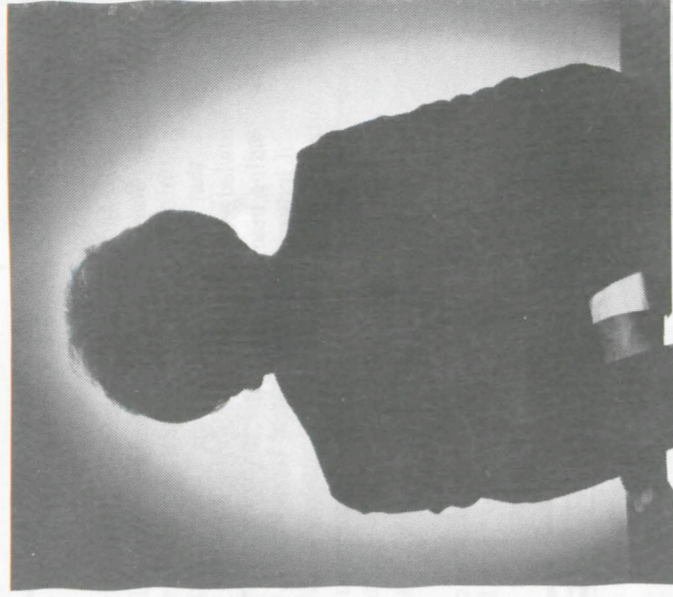
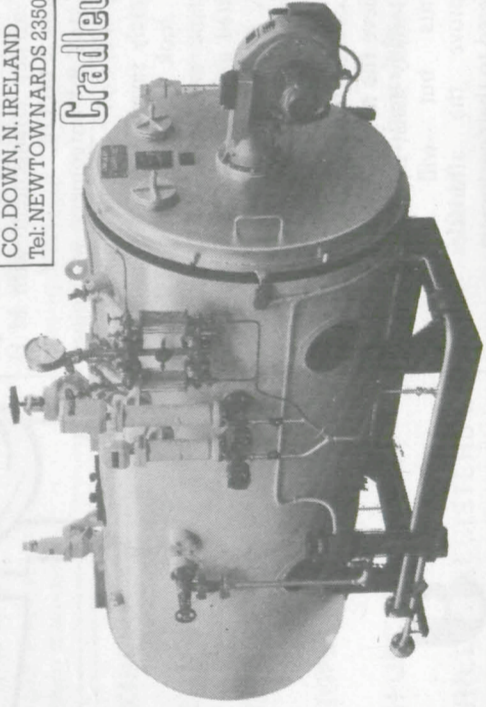
Oil and gas fired models are available with outputs from 500 lb. to 20,000 lb. per hour. **CRADLEY—boilers to rely on.**

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Cradley



Hevac '78 will be Europe's premier event for the whole industry. Indeed it will be the only specialist environmental engineering event of international importance to be held during the year covering all aspects of industrial and domestic heating, ventilation, air-conditioning and refrigeration.

Once again Hevac will be held at the National Exhibition Centre, Birmingham, Europe's most modern exhibition complex. As well as providing an ideal setting for an exhibition of this size and status, the NEC is especially structured to welcome and service the foreign visitor.

It is immediately adjacent to Birmingham Airport and, for visitors who come via London, it has its own railway station with fast (80 minute) frequent connections with the Capital.

The Centre includes the 500 room luxury hotel Metropole, the small hotel Warwick and there is ample additional accommodation in the vicinity.

Central services provided include secretarial and translation, banking, car-hire, shopping and there are restaurants, bar, conference and private meeting facilities.

If you do have time for relaxation, the region offers a wealth of restaurants, nightclubs and famous tourist attractions.

Obviously we expect a large number of people from Ireland so we have our own contact here to help you with any information or arrangements you may need.

Post the coupon and he will send you full details about the contents and structure of the exhibition and will also make any travel, accommodation or other arrangements for your visit.



Hevac 78

Mr. B. Healey, The Ryan Tourist Group,
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Hevac 78 Our contact in Ireland tells all.

New Agency for Instaheat

Instaheat Sales Ltd who have offices in Dublin and Belfast, have recently been appointed agents in Ireland for Drugasar. The move formalises a long standing friendship between the principals of both companies, namely Don Vass, Sales Manager of Drugasar, and Martin Derby of Instaheat.

As appointed agents for the range of Drugasar industrial and domestic balanced flue unit heaters, Instaheat will be offering yet another first class product and back-up service. Drugasar are one of the leading European companies marketing balanced flue gas heaters, with a well founded reputation for reliability, strength and precise control.

After establishing themselves over some years in the UK as the leading name in the commercial/industrial field, by the installation of through the wall units in churches, schools, hotels and restaurants, Drugasar are making rapid progress towards capturing a substantial share of the domestic balanced-flue market.

This is an expanding market in itself. Balanced flue gas heaters have many advantages over other forms of heating. They are said to

be highly efficient, don't contaminate the room atmosphere, can be simply controlled by thermostats and/or time clock, and incorporate built in ignition and safety devices.

The commercial/industrial range provides five heaters with an output ranging from 2.9 kW up to 11 kW. This range is slightly limited when using town gas. The heaters are finished in a warm grey colour. The domestic range provides four heaters giving outputs of 2 kW up to 5.7 kW, three models with teak veneered end panels and anodized gold trim.

New Heaters from Standard & Pochin

It is now 60 years since Standard Pochin introduced the Stanlock unit heating system onto the British market. Since that time they have been acknowledged as one of the countries leading manufacturers of this form of industrial heating which necessitates a knowledge of fan engineering and heat transfer techniques which are the two principle strengths of Standard & Pochin.

With the re-organisation of the Halma Group, Standard & Pochin have taken over from sister com-

pany Fenton Byrn the manufacture and marketing of the well known Tannaire units, which considerably extends their range covering commercial applications as well as 3ph or 1ph electrical supply this making the range extremely versatile.

A number of optional extras are available including flameproof motors and a unique motorised mixing box which permits mixing of fresh air and recirculation.

The FT range as it is known,

consists of four casing styles in six casing sizes suitable for operation on steam LPHW & MPHW, each size is available with three motor speeds suitable for either 3ph or 1ph electrical supply this making the range extremely versatile.

A number of optional extras are available including flameproof motors and a unique motorised mixing box which permits mixing of fresh air and recirculation.

The FT range as it is known,

STANDARD SINGLE INLET BLOWERS

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General Description

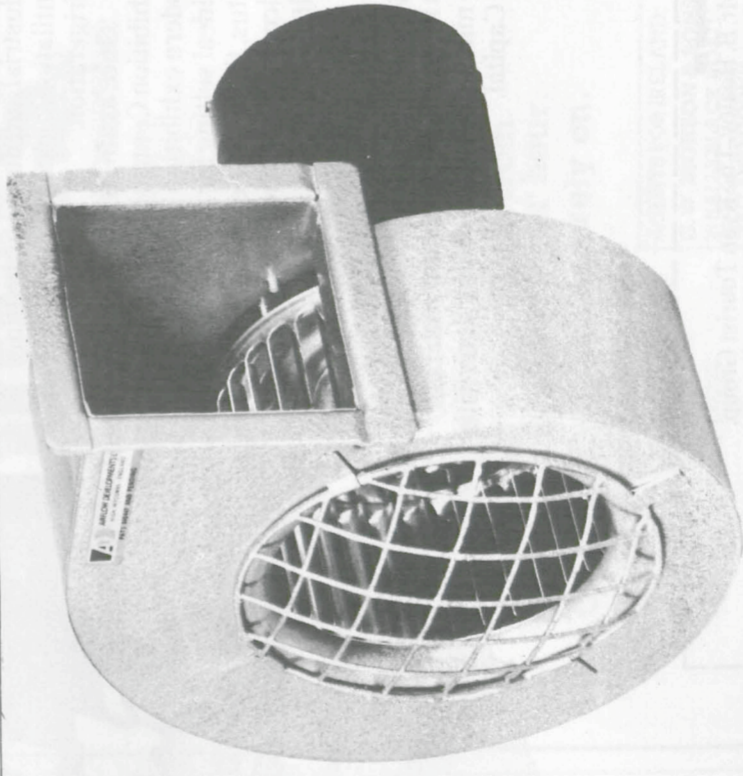
A range of small forward curved, directly driven centrifugal blowers which can be used in a variety of applications. The motors used vary according to size of fan as follows: Open frame shaded pole type for 21 AT and 26 BT, ventilated shaded pole type for the 40 BTF and 45 CT, and ventilated capacitor start and run type for the 52 BTXL and 57 BXL. All run at 2 pole speed (nominally 2800 rpm) and standard voltage is 240/1/50Hz.

Construction

All fans in this range have multi-vane aluminium impellers and are housed in three types of scroll cases, 21 AT and 26 BTC in cast aluminium with integral outlet flange; 26 BTM in moulded ABS plastic with integral outlet flange; the remainder have fabricated mild steel cases also fitted with an outlet flange. The casings on these fans are zinc coated to resist corrosion and finished with a tough stove enamel paint.

Application

The blowers are designed to handle air in the approximate range 0-400C and are suitable for all angle discharge with motor axis horizontal. A degree of speed control is possible by voltage reduction. In normally clean environments no maintenance is required. Many non-standard air blowers can be supplied for contract and other quantity applications.



These blowers are manufactured by AIRFLOW DEVELOPMENTS LTD.

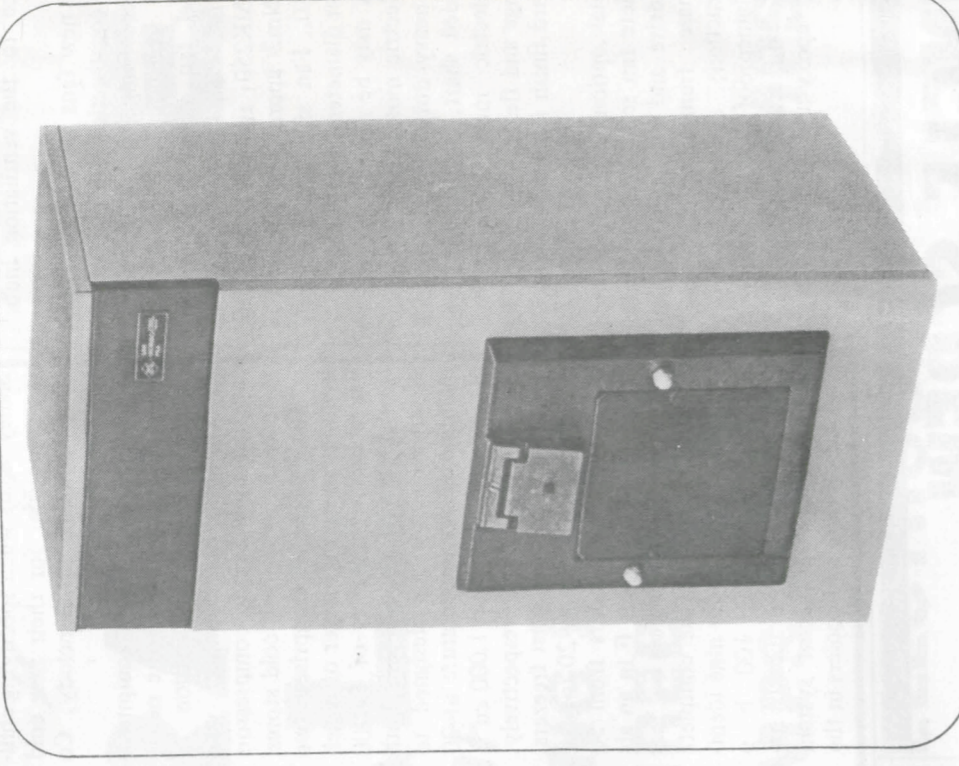
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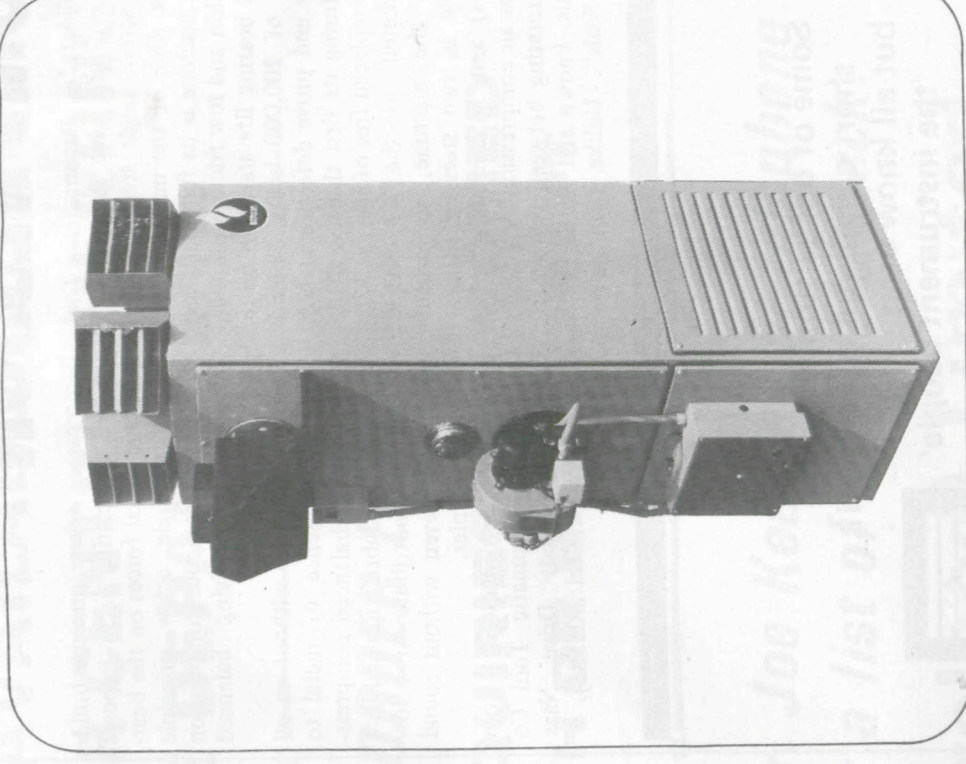
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Model WH60 200,000 Btu's

Breeza Metric Fans

A new range of Breeza metric MK forward curved multivane fans has been developed by The London Fan Company Ltd from their original imperial range of units which has given 70 years of reliable service to the ventilation industry.

The new fans are of robust mild steel construction with accurately balanced impellers and flanged inlets and outlets as standard. Typical fan duties vary between 14m³/min. at 62.5 Nm² for the size MK250 and 453m³/min at 750 Nm² approximately for size MK810. Fan sizes relate directly to inlet diameters in millimetres.

Fans may be directly coupled to the electric motor, vee belt driven with heavy duty ball bearing and extended shaft, or directly driven by electric motor through ball bearings and flexible coupling. The standard finish is semi-gloss enamel paint.

Special options available include complete fan sets - fan and motor with drive and guard, all mounted on base frame; stainless steel construction; anti-spark features and flameproof motor if required; shaft seal; access panel in fan scroll; epoxy-resin or galvanised finish.

SINGLE SCREW COMPRESSOR

Consolidated Pneumatic Tool Company Ltd have introduced a single screw, single stage air compressor. One of the main features of the machine is its fully balanced operation and low friction running, with a bearing life stated to be in excess of 200,000 hours. Should the air end prove defective at any time during its first three years, it will be replaced free of charge.

Marketed as the CP Single Screw, the machine, at present available in two sizes of 140cfm (66 1/s) and 185cfm (87.3 1/s), achieves air compression by a single screw rotating between two rotating seals, known and registered as "Roto-Seals". Unlike twin screw

compressors, where pressure build-up on the mating faces imposes axial and radial forces on the bearings, the single screw principle provides simultaneous compression on both sides giving balanced performance.

Oil is circulated without an oil pump, and absence of metal to metal contact, balanced compression, oil flooded lubrication and lack of gears all contribute to a low noise output even without sound absorbing canopies.

Further information from Consolidated Pneumatic Tool Co Ltd, J F Kennedy Drive, Naas Road, Dublin 12. (Tel: 505586).

Some of our customers short-circuit our name to IIL but all know us as 'the instrument people'



Industrial Instruments Ltd
6 HERBERT PLACE, DUBLIN 2. PHONE 761691

WALKERS IN COLD STORAGE

Speed of design and equipment supply were of vital importance to Slaney Meats when specifying chilling equipment for their new cold store complex at Bunclody, Co Wexford.

The contract for the equipment supply was awarded to the newly formed refrigeration division of Walker Air Conditioning, who supplied nine Carlyle compressors to serve the abattoir's cold stores.

The complex comprises two holding rooms, the larger of which has a holding capacity of 11,200 tons and the smaller 600 tons. Both of these stores are designed to maintain an air temperature of 20 degrees and measure 131,000 cu ft and 54,000 cu ft respectively. There are also three blast freezers, each capable of freezing 20 tons of boned beef in 22 hours from 50 degrees F to 0 degrees F in an air temperature of -40 degrees F.

Refrigeration for the complete complex is provided by nine identical Carlyle 5HI20 100 h p compressors using a direct expansion R502 refrigerant system with ceiling mounted coolers in the

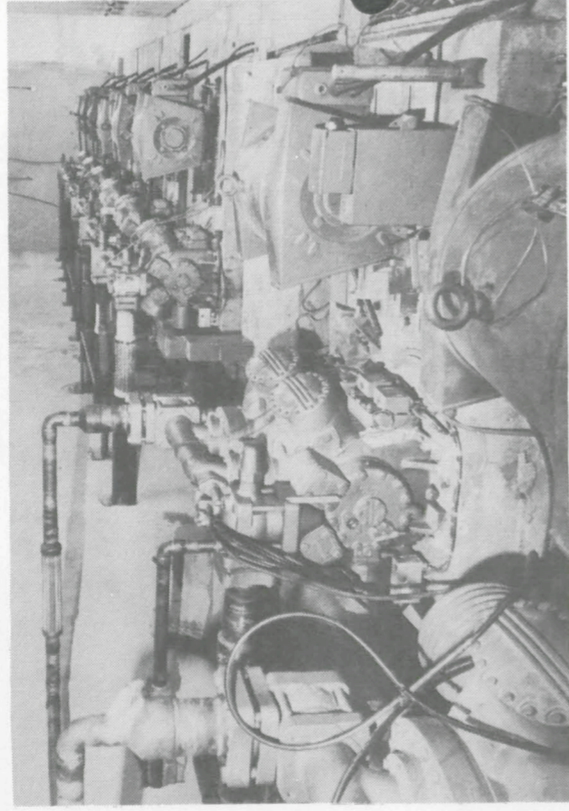
compressors, Walker Air Conditioning fulfilled another customer requirement - that the system should be flexible. In this way there is a certain amount of standby capacity and in the unlikely event of compressor failure during servicing, operation can be switched from one compressor to another.

All the equipment was delivered to site by Walker Air Conditioning within the six week delivery period and the equipment was installed and operational within 14 weeks of the signing of the contract. The installation was carried out by John Houghton of Houghton Engineering and Cecil Rothwell was responsible for the electrics.

By specifying nine identical

size would have used ammonia, but Walker Air Conditioning have recommended the use of R.502 as a cooling medium in this instance to minimise required plant space, ease of installation and the added advantage of requiring minimal servicing and repair downtime.

By specifying nine identical



A row of Carlyle 5-series compressors, which provide refrigeration for Slaney Meats' new cold store complex in Bunclody, Co. Wexford.

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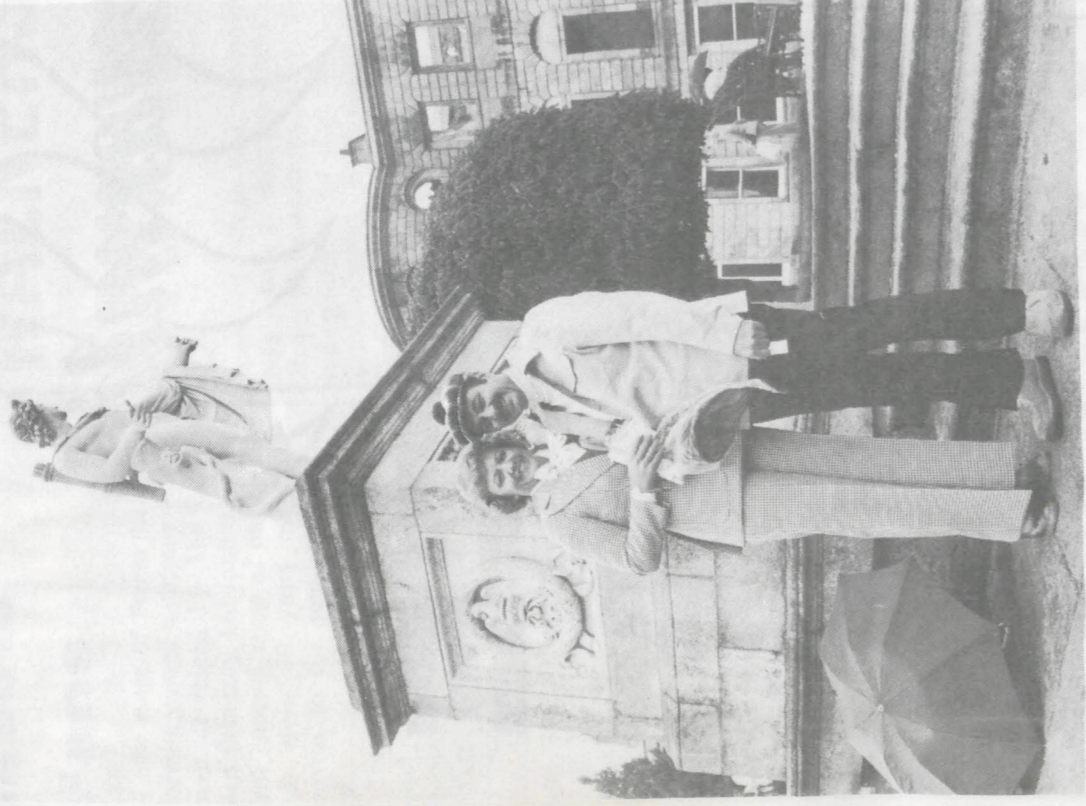
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For the First Time...



Michigan York dealer Harry Perpich and his wife Marge who had not travelled by rail since 1942, before coming to Ireland on the recent York trip.

Jones Group Announce Board Appointments

The Board of the Jones Group Ltd. the setting-up and the commissioning of Tube Rollers Ltd's factory. Peter Nolan, who is a Director of H A O'Neill Ltd, has been with the Group since 1962. He has had responsibility for major industrial projects and for industrial relations in the contracting division.

Kevin Ryan, Director and General Manager of Climate Engineering Ltd. Mr Ryan joined the Group in 1965. He has managed the development of Climate Engineering since 1968. He also has responsibility for Group operations in Saudi Arabia.

Walter Connor, Director and General Manager of Runtalrad Ltd. and Tube Rollers Ltd. Mr Connor joined the Group in 1969 and is in charge of the manufacturing division. He was responsible for

Signa Double Glazing

Signa is a newly developed Danish double glazing system with the advantages of a complete sealed double-glazed unit but which can be fitted at half the cost. A rectangular hollow aluminium sealing spacer, with front and back sides coated with 1.5mm of butyl, is used to hermetically seal an extra pane of glass to the existing pane without any alteration to the existing frame.

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Cost-Effective Factory Services— Heating, Ventilating and Lighting

Continuing the "Cost-effective factory service" theme begun in last month's page 2 feature, M A Thomas, Senior Consultant with Colt International Ltd, explains why the initial cost of a particular unit should not be the sole deciding factor in its choice over another.

To begin with, its necessary to define what we mean by "cost effective factory service". On many occasions I am sure we have all heard, during a discussion on the cost of particular equipment, "they both have roughly the same specification, but I think we should go for this one as it is cheaper". But as we all know, it's not just a question of initial cost.

We should also be asking what is the guarantee period? How much does it cost to service? How much does it cost to run? Can someone attend to a breakdown quickly if it occurs? Are spare parts readily available?

The best way of checking these points is by visiting the manufacturers' premises and observing the way the equipment is put together. To back this up, I would suggest that you also ask for a list of other users nearby who you can telephone or visit. By this method you can see the equipment working and discuss the running etc, with the people who operate it.

I would like now to spend a little time discussing two of the fields in which my own company specialises, namely heating and ventilation. Let us take heating first.

The initial consideration must be what form of heating medium is to be used. Unless the manufacturing process requires steam or water, this method of heating can be discounted from the start. Not only is it uneconomical to heat water to pump around a building, particularly as you must then either blow air through a heater battery or install large plenum type units, but maintenance costs are usually high. Any form of industrial heating by electricity can almost certainly be discounted due to cost. This leaves oil or gas for direct or indirect heating.

One should also consider the type of process to be carried out in the building and, if it is continuous throughout the working day, can it be allowed for in the heating load?

Most certainly it should be, particularly if it does not give off fumes etc. into the factory atmosphere.

It may be that the building is large but has very few operatives. In this case, consideration should be given to local heating where operatives work. This may take the form of warm air or radiant strips over the work stations.

As a company, Colt undertake many thousands of site surveys every year, and it may be helpful just to look at part of the heating questionnaire which is completed during every site survey.

"Again the single most important factor is the correct survey and technical design of the scheme".

(1) Has the building orientation been checked? This will be important if all the north side is glazed;

(2) How many doors are there? What size are they and how often are they used? This will highlight the need for air-curtains or air locks. While Colt does not manufacture air locks or special doors, this type of advance will be included in the survey recommendations;

(3) Is there any plant extraction and is this continuous? This will highlight the need for perhaps direct-fired gas make-up air units close to the extraction source;

(4) Are there any process heat gains present?—if so, can they be allowed to help to heat the building;

(5) Are there any toxic or inflammable hazards in the building which would be exaggerated by a particular heating method?

(6) What is the fire risk? Heaters may require siting outside the building in special chambers;

(7) If the system is to be oil

fired, can the heaters be fed on a gravity system, or do they require a system under pressure, either ring main or pressure legs?

(8) For free-standing oil or gas fired warm air units, can these be sited on the floor, or does the production method and room available dictate that the heaters must be suspended in the roof area? If they are to be at high level, then access platforms must be provided for maintenance purposes;

(9) The height of the building will affect the cost of the system. Based on the CIBS method of calculation, a percentage of the heat load should be allowed to compensate for the building height. A cost saving can probably be achieved in a high building by allowing for "wastemaster" or recirculation units at high levels. The only time this may not be possible is if there are fumes or pollutants collecting at high levels;

(10) Is the production continuous or do they only work an eight hour day? If the production is continuous then further savings can be made, as normally 30% of the heating load is allowed as an

extra for intermittent heating allowance.

As we can see, all these considerations will affect the overall cost of the scheme. While Colt could discuss many other aspects certainly all those already covered in much more detail than time allows, the most important single factor in cost effective factory heating must be a correct and careful survey with proper scheme design and recommendations.

Let us now consider ventilation. Ventilation to some people means as soon as the hot weather arrives and complaints are received from the shop floor, maintenance men rush up to the roof and remove some of the roof glazing. While natural ventilation is very economical, this is not a very economical way of providing it. There is also a very real hazard of damage to plant and products from rain entry into the building.

"It's not just a question of initial cost: We should also be asking what is the guarantee period? How much does it cost to service? How much does it cost to run? etc etc".

In ventilation, just as in heating, there is a fundamental choice — either natural ventilation or powered ventilation. The econom-

Continued on page 14

IF YOU'RE TRYING - TO SAVE MONEY - MAKE USE OF BETTER USE OF Electricity

When people are comfortable they give more attention to their work. That's one good reason why the installation of an electric night-rate heating system should be seen as an investment as much as part of ordinary overheads. In most ways electric heating comes out very well in comparison with other fuels.

(HEATING WATER BY ELECTRICITY)

Electric water heating is also automatically controlled. A water heating system is necessary in a situation where cleanliness and hygiene are important. The cost of an electric system represents good value for outlay.

Installation costs are low and night-rate running costs moderate. Where electricity clearly scores is in its cleanliness and freedom from fuel storage requirements.

The controllability of electric heating reduces heat wastage. Controls - such as thermostats - are automatic.

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

There is neither cost nor obligation in this design service, which also covers cooking, baking, lighting, water-heating and air-conditioning. So mail the reply paid card in this magazine today to the E.S.B.

EXCEL WITH ELECTRICITY

N.B. Night-rate running costs for space heating are lower than the daily rate because stored energy from a valley period is used.

Continued from page 12
 ics of the choice are governed by various factors. If we consider extraction and first take natural extraction, the following points will apply:

Natural ventilation is noiseless in operation. On the other hand, mechanical extraction requires an increase in the size of fan used to accommodate an increase in the volume extracted and is, therefore, directly related to the noise produced;

Natural extraction will provide dual purpose ventilation, ie. fire humidistat, time clocks, weather-beater rain sensors and smoke detectors and sprinkler flow switches for fire ventilation schemes. Gas and fume detectors can be fitted in specialised plants to meet the eventuality of a leak. Noise detectors can also be fitted if there is a need to control the noise levels outside the building at any time;

Normally, natural extraction is less costly than a fan-powered equivalent;

Natural extraction such as louvred ventilators will provide escape for low frequency radiant plant heat;

Negligible operating costs. The natural extract ventilation scheme only requires power for the control system;

Psychological relief is a benefit of natural louvred ventilation, as it opens the roof giving a clear view of the sky; this can be very important in large buildings where operatives are a long way from doors and

straightforward louvres for solar heat and fire ventilation. If controlled by pneumatics a natural ventilation scheme is subject to 52% Corporation Tax relief as it is classed as plant and equipment;

Mechanical ventilation offers the following advantages:—
 (1) Powered extract ventilation will exhaust at a steady rate regardless of temperature differences. This may be vital in dealing with air contaminants which are generated without any corresponding heat emission;

(2) The powered extract ventilator will exhaust at a steady rate irrespective of stack height. Any air contaminants which are heavier than air and without heat source should be extracted from low level;

(3) A relatively small opening is required to exhaust a large volume of air. This may be important in a concrete structure where creating the opening would be costly;

(4) Powered extraction can be cheaper in low buildings if noise levels are acceptable;

(5) It will more easily overcome inlet deficiencies, but it should be borne in mind that insufficient replacement air will reduce efficiency and increase the noise levels. Excessive draughts may also result at working level.

With all ventilation schemes it must be remembered that the extraction will only work efficiently if there is adequate inlet. Inlet can also be provided by natural or mechanical means. It will be found

"Normally, natural extraction is less costly than a fan-powered equivalent".

Natural ventilation can be provided to give all weather ventilation where plant heat is a problem, or

that in central areas a powered inlet will be necessary to provide positive air movement and reduce the effective temperature by air movements.

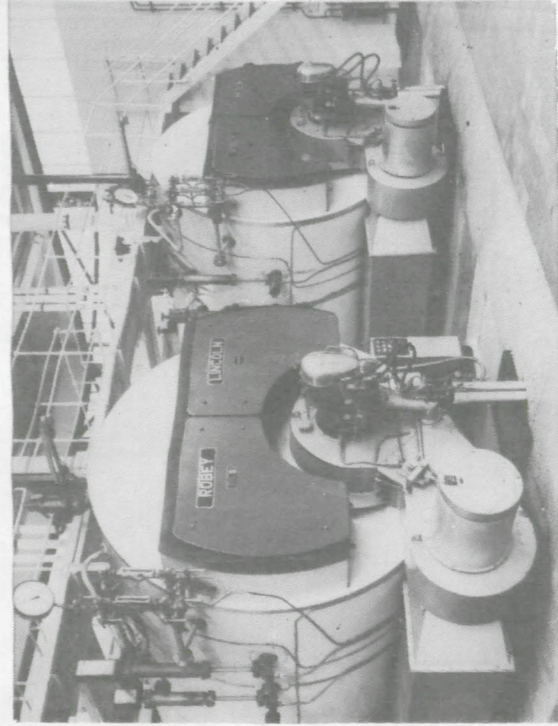
Again the single most important factor will be the correct survey and technical design of the scheme. Colt use many instruments during the survey including velometer, psychrometer (Wet and Dry Bulb Thermometer), globe thermometer, drager samples, noise meters and thermocouples. They are also very involved in industrial hygiene which is becoming vital in the solution of many problems encountered in industry today.

The above paper was given at the International Plant Engineering & Maintenance conference held in Birmingham in November. Copies of the papers are available at £42.00 per complete set or £4.00 per session (postage included) from the PEMEC Conference Secretariat, Monks Hill, Telford, Farnham, Surrey GU10 1AJ.

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product review : Water Treatment and Water Conditioning

Cost Effective Water Treatment

Obviously the major cost of running a steam boiler is the cost of the fuel to raise the steam and only a few years ago one could reckon "ten bob a thousand pounds". But this is no longer the case — non fuel costs contribute almost 5 per cent to the total. If this could be reduced by only 50 per cent, then it would represent a saving of £5,000 for what used to be called 10,000 lb/h average evaporation boiler.

Condensate return is the best way of achieving this as it reduces not only blowdown but also the make up water, thus increasing the return reduces both factors of non fuel cost.

In the south east of England there is on average about 350-400 ppm of dissolved solids in the raw water. Of this about 60-65 per cent is present as temporary hardness and if this could be removed completely a comparable reduction in blowdown could be achieved. However, base exchange softening will give soft water but the dissolved solids are unchanged. What can be used is a three-stage process called de-alkalisation. In the first stage a weak cation resin is regenerated with hydrochloric acid which selectively replaces the calcium and magnesium associated with the temporary hardness with hydrogen ions. The water leaving the column is in effect a weak solution of carbonic acid or carbon dioxide and this is very easily removed from solution by stripping with air. The water is sprayed into the top of a tower which is packed with plastic rings to give a larger surface area. A current of air passes up the tower and this strips the carbon dioxide from the water.

De-alkalisation will achieve all these results; it will reduce the dissolved solids, it will reduce condensate line corrosion, and it will improve the operation of the boiler by reducing foaming and priming.

What does the plant look like? Reduced in blowdown could be achieved. However, base exchange softening will give soft water but the dissolved solids are unchanged. What can be used is a three-stage process called de-alkalisation. In the first stage a weak cation resin is regenerated with hydrochloric acid which selectively replaces the calcium and magnesium associated with the temporary hardness with hydrogen ions. The water leaving the column is in effect a weak solution of carbonic acid or carbon dioxide and this is very easily removed from solution by stripping with air. The water is sprayed into the top of a tower which is packed with plastic rings to give a larger surface area. A current of air passes up the tower and this strips the carbon dioxide from the water.

RAISING THE pH

At this stage therefore the water is reduced in dissolved solids by the amount of alkalinity (temporary hardness) in the raw water and it contains only some sodium salts, which are innocuous. The remaining permanent hardness can be exchanged to the sodium form by base-exchange softening. However before this third stage it is usual to raise the pH to approximately 8 to 8.5 by adding a few parts per million of caustic soda. The result is an almost ideal boiler make up water; it is low in dissolved solids, it contains no hardness and is at the optimum pH. De-alkalisation

The membrane is a form of nylon (polyamide) which is spun as long hollow fibres (80 microns OD 40 microns ID), each thinner than a human hair. More than one million fibres are formed into a fibre glass casing built to withstand the driving pressure. Raw water flows over the outside of the fibres and pure water is forced through the fibre walls and flows to service along the bore.

BLEEDING OFF

In order to prevent the concentration of dissolved solids rising too high in the casing it is necessary to bleed off a proportion (similar to blowdown). The amount rejected will vary with the water analysis and plant design but will normally be in the range 30-40 per cent. This might sound too much but when one considers a demineralisation plant will reject 15-20 per cent as a high contaminated effluent whereas it is possible to reuse the RO reject in certain cases eg. floor washing or toilet flushing.

Here then is another apparently ideal process for boiler feed, in fact on waters of low alkalinity or high dissolved solids it has even lower

Continued on next page

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Water Treatment and Water Conditioning

Continued from previous page
running cost than de-alkalisation. What then are the disadvantages? Firstly, the membranes are prone to fouling. This can come about in three ways, iron and organic acids in the water and by precipitation of hardness salts onto the membrane.

The degree of pre-treatment required obviously depends on the raw water analysis but, most supplies in the UK can be satisfactorily treated by base exchange softening and in some cases, in conjunction with filtration for removal of suspended matter. The RO running costs quoted earlier include the cost of pre-softening.

Is there another disadvantage? Unfortunately the answer is yes. Put simply, an RO plant is expensive. A league table of capital costs would look like this: Base exchange 1; De-alkalisation 10; Reverse Osmosis 25.

The savings on running costs would have to be very high indeed to recoup the capital cost. However, one case is where the raw water is brackish (i.e. TDS 1500-5000 ppm). It is obviously not possible to use this water as boiler feed without substantial TDS reduction.

Demineralisation has, until RO became available, been the only available treatment. But the running cost of demineralisation is very

high, hourly running cost for 454 kg/h (1000 lb/h) would be £30 when treating 3500 ppm water with zero condensate return. As the cost of running reverse osmosis is only slightly affected by TDS the cost of running a boiler under similar conditions would be approximately £2.58. Under these conditions one can see that RO plant will very soon pay for itself. These figures apply to UK. In the Middle East where such waters are most often found, the difference is even more marked and pay back periods can be very short indeed.

A final word before leaving the subject of steam boilers. Having gone to great lengths (and cost) to reduce the TDS please do not fill it up again with inorganic boiler treatment chemicals.

Whatever the external process used some form of internal conditioning will be necessary. A tannin based treatment which combines the effects of oxygen scavenging and scale and sludge control is ideal. It has been used for many years but it works and it is very cost effective.

DEMINERALISATION

It is well known that it is necessary to reduce the dissolved solids in the make up water to high temperature hot water (HTHW)

systems.

Because the amount of make up is low, usually 1-2 per cent of the system capacity per week, it has, in the past, been the practice to demineralise the make up completely. By doing so, one is, in fact, supplying a water of quality higher than absolutely necessary. It does not harm of course but is expensive and it is necessary to have facilities for handling the regenerant and for neutralising the effluent that results.

NEED FOR A BUFFER

In the previous section we described how Reverse Osmosis reduces the dissolved solids by over 90 per cent. A water with a TDS of 375-400 ppm eg London would, after treatment, have a residual solid content of approximately 35-40 ppm. This is absolutely ideal for HTHW systems, it is completely soft and low in TDS. The usually accepted upper limit of 100 ppm is well above the output of the RO plant so that there are adequate margins for concentration in the system should it occur.

In addition, the few ppm of residual act as a buffer to chemical changes; demineralised water being very low in dissolved solids has no such buffer and is adversely affected by even small changes in the operating conditions for ex-

ample, the pH can swing wildly until sufficient buffering action has built up.

SIMPLICITY

The cost advantages of reverse osmosis are very marked indeed. When compared with a demineralisation plant, the capital cost of RO for 1000-2000 gal per day is similar or only slightly higher but the running costs are reduced by 70 or 80 per cent. But even this is not the main attraction. The principle advantage is the simplicity of operation.

Being a physical operation, the reverse osmosis plant does not need to be regenerated. True, the pre-softener does, but this is a well proven fully automatic operation. The only chemical needed for routine operation is salt for the softener, topped up say once every two weeks. There is therefore no necessity for effluent bulking and treatment. Usually where the plant is to be installed, there is no skilled operator. The RO plant, being fully automatic, does not need day to day attention and therefore is ideal in such situations.

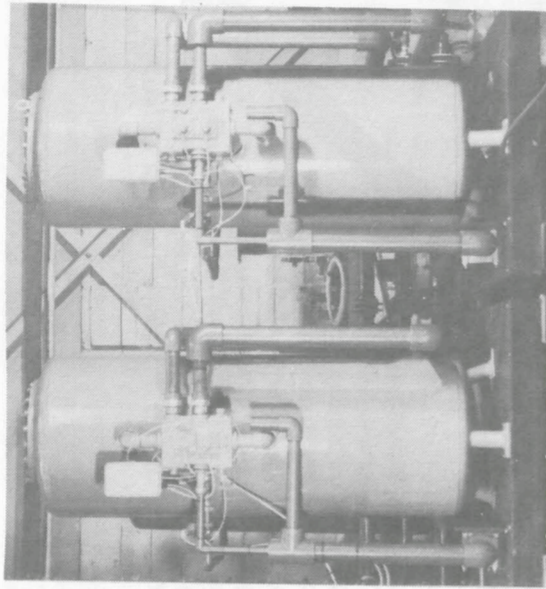
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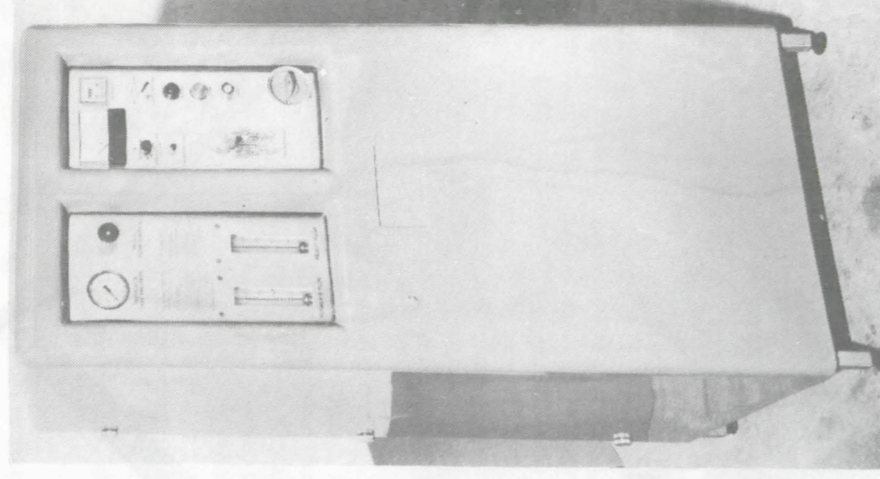
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4.5 m³ per day-240 m³ per day

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Above plant available ex stock

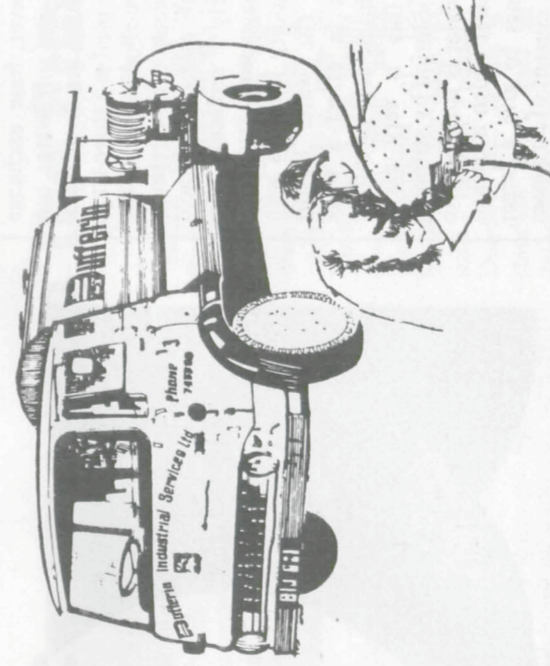
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EWT + ENPOCON

EFFLUENT AND WATER TREATMENT (EWT) AND THE ENVIRONMENTAL POLLUTION CONTROL EXHIBITION (ENPOCON)

The next EWT + ENPOCON Exhibition will again be held at the National Exhibition Centre, Birmingham, England, from November 13-18, 1978.

In 1976, 120 exhibitors took over 4000m² of stand space and their stands were seen by over 16,000 registered visitors, many from overseas.

The 1978 events will again run concurrently with the Public Works Exhibition, each exhibition having its own area in the NEC. This means that an audience of tens of thousands will have the opportunity to visit EWT + ENPOCON exhibitors (at the last Public Works Exhibition there was an audited attendance of 73,332 influential visitors from 62 countries).

The Effluent and Water Treatment Exhibition will deal with four main categories, industrial water treatment, industrial effluent treatment and disposal, water supply and sewage treatment. All plant equipment systems, technical services and instruments associated with these categories will be included. The ever increasing world demand for water for both

domestic and industrial use means turning to non-traditional areas of supply. This requires new technology, for both the extraction and treatment of water to acceptable standards as well as its conservation.

With the introduction of the Control of Pollution Act in the U.K. and similar statutory rulings in other countries the discharge of effluent, again both from industrial and domestic sources, is becoming an increasing area of concern. The exhibition will cover all these important aspects of a market which can only grow in the future.

ENPOCON will cover all equipment, plant, products, services, systems and supplies associated with the fight against pollution - including pollution of land, air, sea and waterways. Main categories will be solid-waste pollution, air pollution, noise and vibration pollution, radiation pollution and sea and waterways pollution.

Conventions will be held for both EWT and ENPOCON and these will present papers of international interest.

13-18 NOVEMBER 1978
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Water Treatment and Water Conditioning

Dearborn Chemicals

The primary objective of the Dearborn field specialist is to maintain plant at peak efficiency by the prevention of surface deposition and corrosion - whether the plant be used for steam generation, cooling, process, air conditioning or general plant services.

Recent innovations in this area include easy-to-use liquid formulations which incorporate Dearborn's exclusive polymers with the latest organic sequestering and complexing agents. The products produce fluid, non-adhering particles easily removed through routine blow-down. This approach has been employed to develop the first truly effective multi-functional boiler treatments.

Dearborn research and development pioneered the development of filming amines, neutralising amines and sophisticated combinations of both.

Continuing developments have resulted in advances and improvements in the entire product line making these treatments more effective and easier to use. Dearborn can offer clients the right

treatment to solve any particular steam or condensation line corrosion problem.

Dearborn pioneered the introduction of cathodic corrosion inhibition in cooling systems, whereby both the anodic and cathodic sites of the corrosion cells are stifled. This concept rapidly replaced the former convention of relying on the use of pH control in conjunction with natural organic materials, sometimes blended with polyphosphates - a practice which undoubtedly was the cause of many cooling system deposition problems.

Emphasis in recent years has moved towards realising the potential of water treatment technology in the sphere of energy and water conservation. To this end Dearborn provide a comprehensive range of presoftening plant, chemical dosage and control equipment and fully integrated boiler blowdown heat recovery systems.

The Dearborn water treatment service is structured as a multi-phase programme to ensure the maintenance of maximum performance from clean and corrosion free plant.

Phase 1 - an initial survey of the system and associated plant is carried out, free of charge, by the locally based Dearborn consultant, whose specific assignment will be to provide the Dearborn service on

a continuing basis. Phase 2 - evaluation of the survey and comprehensive analysis of the data collected is then carried out, usually involving additional laboratory studies. Phase 3 - a detailed proposal is prepared, recommending the most appropriate chemical treatment programme and equipment. Phase 4 - upon acceptance of the recommended programme, the appropriate equipment and initial supply of chemicals are arranged. Phase 5 - an integral part of all Dearborn programmes is the regular scheduled service visit by the Dearborn consultant, to review plant operating records, etc.

Dearborn have also devised a special two-day practical training programme to teach operating personnel how to understand and apply water treatment correctly. This course, already taken up by two leading multi-national companies in Ireland, consists of four audio visual modules together with practical work and covers:-

- (1) The chemistry of scale control and softening;
- (2) The problem of corrosion control;
- (3) Water testing;
- (4) The operators role in interpreting water tests to maintain clean scale and corrosion free plants.

Further information is available from Dearborn Chemicals Ltd, 97 Lower Baggot Street, Dublin 2, (Tel: 761613).

Mahon & McPhillips

Mahon & McPhillips are a Kilkenny based company specialising in the design, manufacture and installation of water, sewage and effluent treatment plants. The service offered includes all stages from design through to fabrication, installation and after-sales care.

In water treatment, this would include pumping, coagulation; settling; filtration; chlorination; fluoridation; softening; pH correction; dissolved air flotation; electrical installation and instrumentation. The same wide service applies to waste water treatment.

The company employs approximately 200 people including chemical, electrical, mechanical and civil engineers, biologists and biochemists. Many of these work in the laboratories in Kilkenny where a number of new developments in water and effluent treatment have been pioneered, particularly in the use of plastics and aluminium and in the development of automation.

Mahon & McPhillips were responsible for one of the largest effluent treatment plants for milk processing wastes in Europe. Avon-

Continued on next page



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Continued from previous page
gate Milk Products of Ballyragget incorporates alternating double filtration preceded by high-rate biofiltration and pre-treatment.

The company has provided services for many local authorities, semi-state bodies and private industry such as Pfizer, Syntex, Abbot Laboratories and Burlington Industries. They also have a particularly good UK after-sales service which is co-ordinated from a base in Stratford-on-Avon.

Further information is available from Mahon & McPhillips (Water Treatment) Ltd, Larchfield, Kilkenny. (Tel: 056 22152).

Nalfloc

Nalfloc Ltd is a subsidiary company of ICI Ltd and Nalco Chemical Company, Chicago — two of the most respected in today's chemical industry. The expertise and experience of these two companies in the field of water treatment technology is carried on by Nalfloc Ltd whose services are used by the larger industrial concerns in Ireland.

With its established team of highly trained and qualified technical representatives, Nalfloc Service has been extended to medium and even small industries where special products and testing facilities are provided so that the plants can be operated without the expensive loss in efficiency that result from a poorly designed and controlled system of treatment.

The need for water treatment and conditioning is well known and accepted by competent design enquiries, but Nalfloc's experience has shown that the smaller modern industries just cannot afford the time to carry out application of chemicals which involves a high labour content, accurate weighing and precise analytical control. However boiler manufacturers continue to make smaller, more efficient boilers for these plants, whose high rate of heat transfer require absolutely clean heat transfer surfaces.

Traditional methods of water treatment for such plants, unless commitment to the scheme is totally achieved, simply do not work. Nalfloc's wide range of softening equipment, new liquid SCA (scale control agent) treatments, automatic dosing equipment

The closing weeks of 1977 have seen a large surge of interest in the 1978 EWT & ENPOCON Exhibitions — The Effluent & Water Treatment Exhibition, 1978 — and the Environmental Pollution Control Exhibition, 1978. These events will be held, jointly, at the National Exhibition Centre (Hall Number 2), from 13 to 18 November, 1978.

By the end of November — one year ahead of opening date — reservations in hand accounted for just over 50% of the available space for the joint event, with negotiations in hand for very nearly a quarter of the remaining space. Of particular interest is the early indication of heavy foreign exhibitor participation, including several group or national stands.

Another unusual aspect of the 1978 presentation is the rapidly increasing flow of visitors enquiries — both from the UK and abroad. Visitor-enquiries are now coming in to the organiser's office in a steadily-increasing volume and it is highly unusual to have visitor-enquiries arriving in bulk so far ahead of opening-date.

The Convention Committee have announced plans for the 1978 appearance of the Convention. This will be held at the Albany Hotel, Birmingham, during the open period of the Exhibition. The

can tailor the scheme of treatment to the capabilities of the operators, while keeping time involvement to a minimum.

Nalfloc's approach begins with a survey of the plant. Recommendations are prepared detailing the appropriate external treatment plant and dosing equipment. In the preparations of these proposals, consideration is given to the overall efficiency of the plant and will often include recommendations for filtration or extra softening, mechanical de-aeration or heat recovery supported by cost calculations based on up-to-date information, and using sound, proven equipment.

On acceptance of the proposals the Nalfloc technical representative

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Water Treatment and Water Conditioning

EWT and Enpocon : Soaring Demand for Space Reported

overall theme of the 1978 appearance will be 'The Changing Face Of Toxic Waste Disposal' and two exhibitions will be mounted in Hall number 2 at the National Exhibition Centre, affording a gross area of approximately 11,500 sq m. On the same dates, in Halls numbers 1, 4, 5, 6 and outside areas will be the 1978 Public Works & Municipal Services Exhibition.

The 1976 appearance of EWT and ENPOCON was the most successful in the history of the two exhibitions to date — with a visitor-attendance of over 16,000 including foreign visitors from North and South America, Japan, Australasia, The USSR and many Middle-East, Far-East and African countries, in addition to a heavy visitor attendance for every member-country of the Common Market and other European countries.

All enquiries concerning arrangements for the 1978 EWT and ENPOCON Exhibitions, including applications for space, general information, visitors' arrangements, hotel-bookings and travel information etc. — together with details of the EWT Convention, should be addressed to Howard Phillips, Organiser, EWT and ENPOCON Exhibitions, 1978, at Brintex Exhibitions Ltd, 178 - 202 Great Portland Street, London, W1N 6NH, (Tel: London 637 2400).

will visit the plant to help the client initiate the water treatment programme.

ramme, Nalfloc's policy to ensure

Continued on page 21

HYDROCHEM LTD.

Engineering and Chemical Consultants

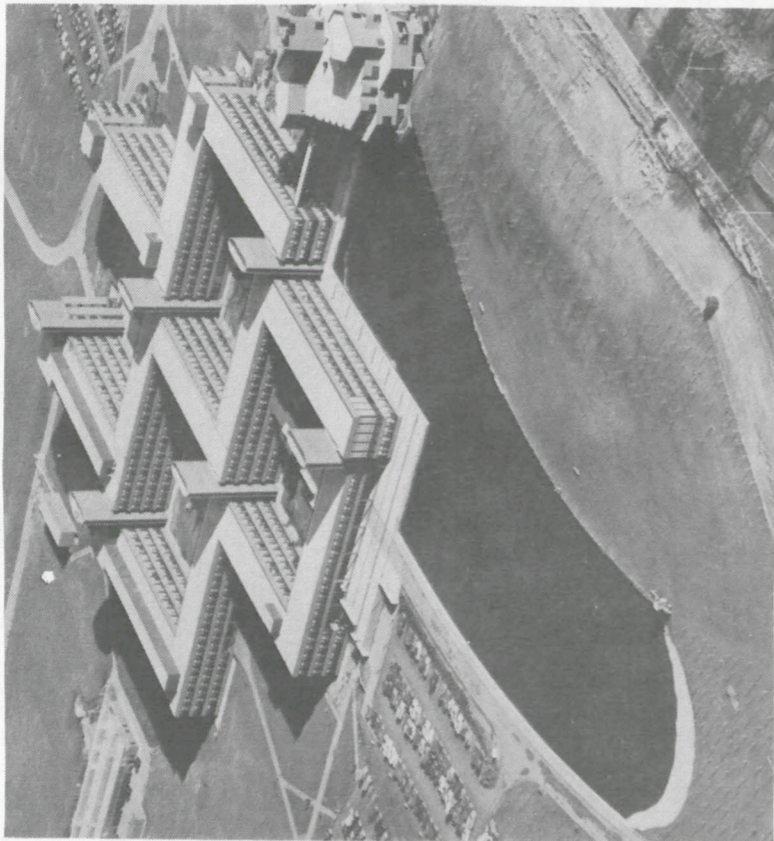
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For Architects

Since October Hydroglas have been appointed sole Irish Agents for Atlantic Rubber Ltd who are Fabricators of Waterproof Membranes. Butyl, has a variety of proven uses ranging from small garden pools, storage tanks for treated water, oxidation ditches, lakes, reservoirs, to tanking out and roof membranes, to other specialised applications.

The initial economical cost, and the established chemical and mechanical properties of Butyl rubber favours its increasing use in the industrial field of Civil Engineering and Agriculture.

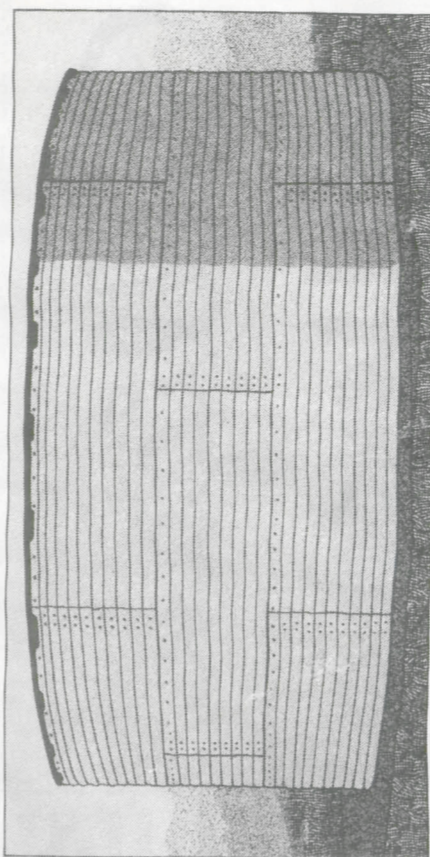


For Industry

Atlantic Rubber storage tanks for irrigation systems, are lined with 030" Butyl and are supplied ready for installation on site.

The tanks are made from corrugated, galvanised, curved steel panels. Capacities range from 3.5 thousand gallons to 100 thousand gallons.

Ideal for storage of practically all types of water sources chemicals and solvents and is non-toxic. Butyl remains flexible and is unaffected by temperature changes. Butyl has a high resistance to chemicals and biological attack and insures a safe and permanent installation.



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Water Treatment and Water Conditioning

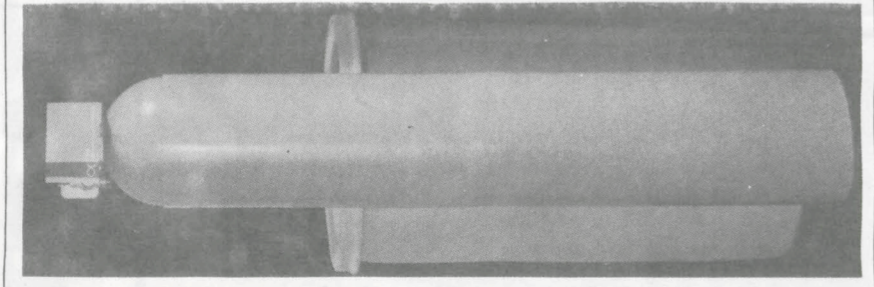
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continuance of the good reputation it has inherited, is to provide regular continued service to plants using Nalfloc chemicals, to establish that optimum water conditions are being maintained. These visits, which include extensive on-site analytical testing, are confirmed in a written report to the client and indicate the action that is required for the continuing successful operation of the plant.

Similar Nalfloc water treatment programmes are available for cooling systems, air conditioning and humidifying plants and Nalfloc Ltd is involved in many other aspects of water treatment and ancillary processes.

Further information is available from Nalfloc Ltd, P O Box 245A, 5 - 9 South Frederick Street, Dublin 2, (Tel: 765831); and 50 University Street, Belfast BT1748, (Tel: 084 26050).

Carbon Chemicals

Carbon Chemicals, who were established approximately 14 years ago, are capable of dealing with all sorts of water problems and offer an expert advice and consultancy service free of charge to all their clients.



Automatic Water Softener from the enlarged XL series available from Carbon Chemicals.

A wide range of automatic regeneration systems is available for particular applications while fully automatic water softeners, which are easy to install and trouble-free in operation, can be supplied for

the more common type of problem. The use of modern laboratory equipment for water analysis has helped Carbon Chemicals establish themselves as one of the leading suppliers in the industry and a special interest in environmental conservation has led to the development of the only Irish manufactured and approved oil dispersant.

Further details are available from Carbon Chemicals Ltd, Killumney, Co Cork (Tel: (021) 871524).

Industrial

Water

Management

Industrial Water Management are a typical example of how an Irish company can compete successfully in the highly competitive and technical field of industrial water treatment.

Their facilities, together with their close association with the American Association of Independent Water Treatment Companies, ensures the high standards of their products and further ensures their continued ability to develop and formulate new and improved products for industry.

As standard practice, on-site evaluations are carried out by Industrial Water Management in order to determine the exact requirements for the solution and prevention of water problems. With this information the correct combination of products can be chosen and applied. This is then followed up regularly with analysis carried out on site by the chemist involved with the particular project. The aim of these checks is to ensure that optimum conditions are being maintained.

The company also supply chemical dosing pumps and pre-treatment softening equipment where it is required. Quite often with systems, particularly boiler systems, there is an advantage in installing a de-alkalisation unit. This will lower the total dissolved solids in the water considerably so reducing the volume of water which must be blown down in order to contain the concentration of solids.

WATER TREATMENT

A professional service from the people with the know how. Leaders in Water Softening in Ireland.
WATER SOFTENERS - DEAL KALISERS
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1 Clonmore Road, Ballybough, Dublin 3.
Telephone 786455/786059

Water Treatment and Water Conditioning

prior to being pumped around a recirculating ring main which includes a series of mixed bed deionisers, ultra violet sterilisation, and sub-micron particle filters, to act as final polishers and prevent the possibility of recontamination in the pipes. A high proportion of the spent water from the rinsing bays is recirculated through this latter part of the system, ensuring the maximum economic use is made of the purification process.

The complete system at Limerick, which is the largest and most modern water purification system in this country, including associated pumps, pipe work, float switches and a central console, was designed, supplied, installed and commissioned by the Elga and Gilroy Automation Ltd staff.

Further information is available from Gilroy Automation Ltd, Ballybricken House, Ringaskiddy, Co Cork, (Tel: 021 841525).

A.H. Cullen

A H Cullen & Co Ltd, are the sole distributors in Ireland for the entire range of Culligan water treatment plant. Water softeners, manual and automatic, are available to meet the smallest domestic requirement, and a comprehensive stock of comm-

Continued on next page

Continued from previous page
Devices Inc. of Norwood, Massachusetts, USA for the erection of a production facility, manufacturing integrated electronic circuits ultimately destined for computer components. The consultants responsible for commissioning the factory designed a conventional system to purify water for rinsing bays and asked for quotations for the necessary equipment. The Elga Group of Lane End, Bucks, through their Irish agents Gilroy Automation Ltd, were among the companies asked to tender. It was agreed to submit a quotation but the provision was made that the company would not be committed until a chemist had been sent to perform site tests on the local water supply.

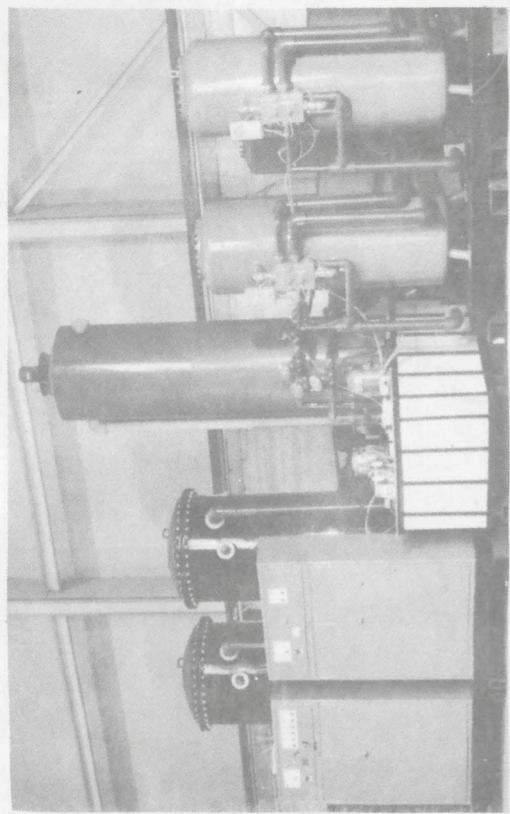
A chemist with a pilot plant especially designed for this type of testing visited the Limerick site and confirmed the company's suspicions. Mineralogically the raw water supply was very good and posed no special problems, but due to the peaty terrain with its humic and fulvic acid content, there was a large concentration of organic colloidal material present in the supply, resulting in a high reading on the Fouling Index.

High colloidal contamination in a raw water supply is not easily removed and in this case, it was necessary to design a special method of organic scavenging in the

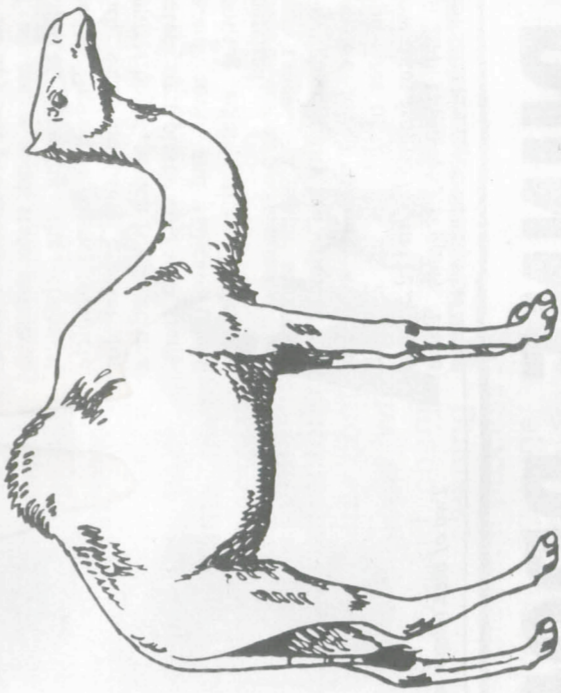
pretreatment area of their system to reduce the Fouling Index to an acceptable level before the purification process.

This requirement was achieved through a system of equipment which treats the water by scavenging, base exchange, softening, and Elga Intercept RO7 reverse osmosis plants which incorporate polyamide membranes.

Reverse Osmosis represents the most up to date technology in water purification, removing organic impurities by forcing the water under pressure through hollow hair-like membranes. The impurities are separated at the membrane surfaces, and purified water passes into the hollow in the fibre's centre to be fed on through the system. Ion exchange is the next process in the system and water is passed through two Elgamat Duo bed deionisers where any remaining inorganic scales and minerals are removed as the water passes through cation and anion resins. The purified water then undergoes ultra violet sterilisation



The Houseman Hegro HDS de-alkalisation system available from R.S. White.



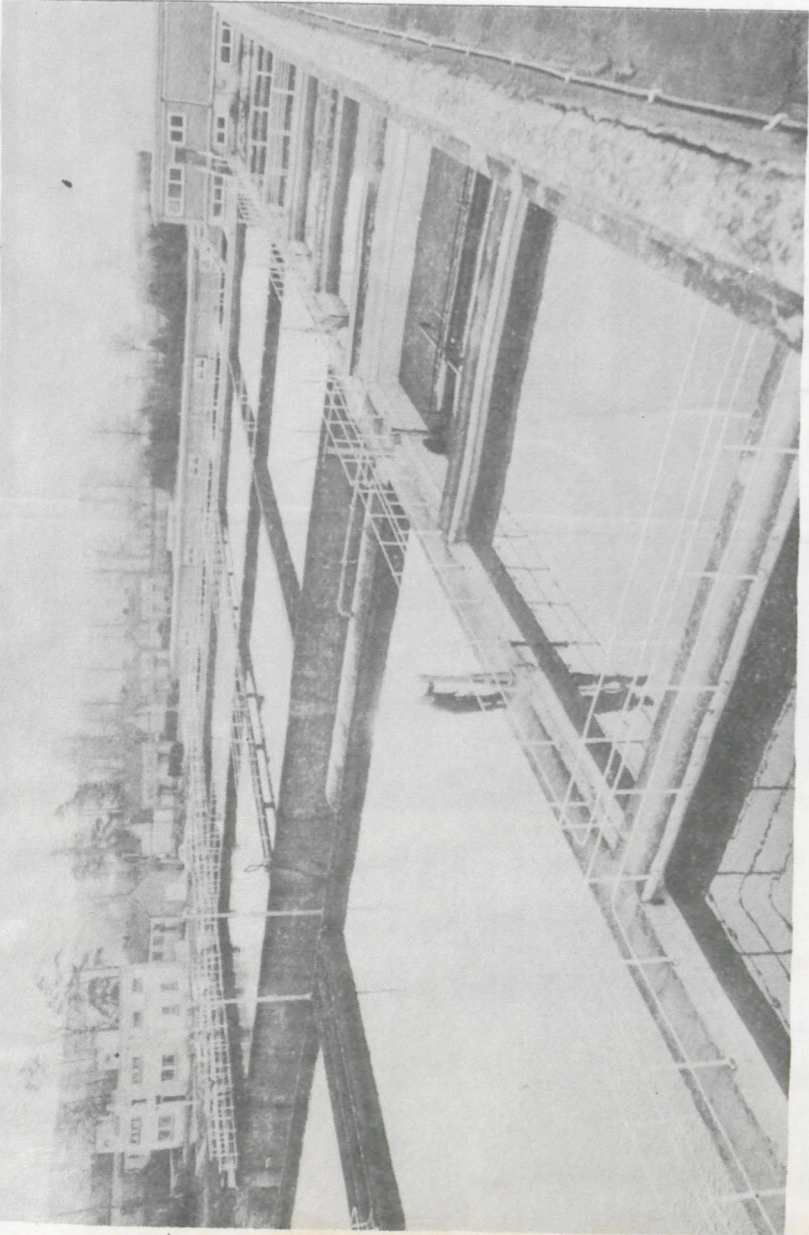
**Just about the only water system
Mahon + McPhillips haven't installed.**



Mahon + McPhillips
Good ideas on tap

Mahon + McPhillips (Water Treatment) Ltd,
Larchfield, Kilkenny, Ireland. Tel: Kilkenny 22152. Telex: 8765.

Water Treatment and Water Conditioning



Ballymore, Eustace, Co. Kildare, the largest water treatment plant in Ireland. It was built and installed by Malton & McPhillips (Water Treatment) Ltd, and is claimed to be the first major plant in Ireland to incorporate upward flow, flat-bottomed settling tanks.

are ideal for use on water with large amounts of sand and other coarse particulate matter with a specific gravity greater than 1.0.

Water pressure forces water through the intake part of the cyclone separator at the top of the chamber. As water is spun around the chamber at high velocity, the centrifugal action forces the heavier particulate matter toward the walls of the chamber and then downward. Clean water is discharged at the top. No electrical power is required, and there are no moving mechanical parts in the separator. The separators can be fitted in parallel to handle high flow rates.

A H Cullen & Co Ltd are also sole distributors in Ireland for Chem-Tech dosing pumps and solution tanks and will welcome trade enquiries for these units.

Further information is available from A H Cullen & Co Ltd, 1 Clonmore Road, Ballybough, Dublin 3, (Tel: 786455).

Continued from previous page
cial and industrial units are usually available for immediate delivery.

Water filters with capacities from four galls/min to 700 galls/min for turbidity, taste, odour, iron and manganese removal are standard items.

Cullen & Co will design a complete water treatment system using standard or custom built plant to cope with any requirement, de-ionisation, potabilisation, de-alkalisation, reverse osmosis and chemical dosage. Backed by a first class after sales service and world wide technical "know how", Culligan equipment ensures complete satisfaction.

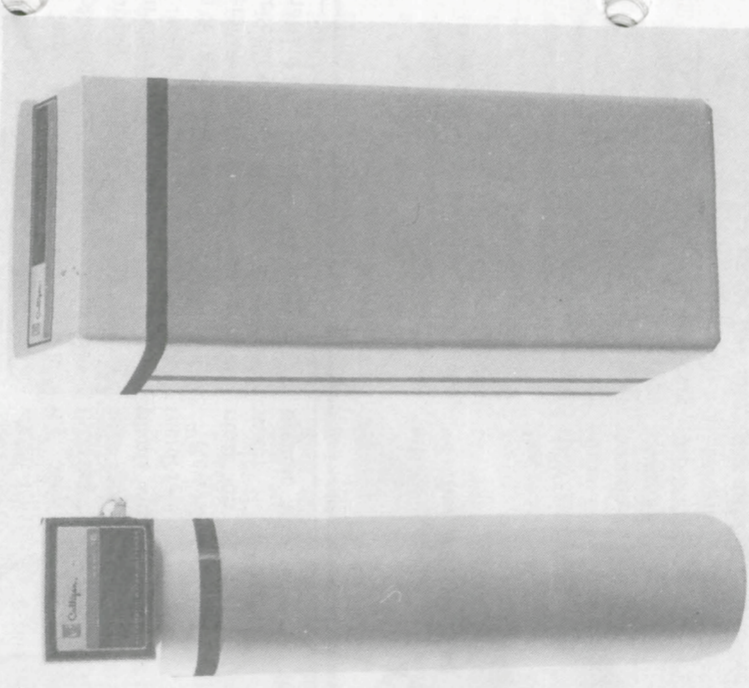
New this year is the Culligan chemical feeder "Pacer System". The system operates proportionally to the water flowing through a

plastic housed water meter body. A special sensing head containing integrated circuits counts the magnetic pulses generated by a magnet whose rotation is proportional to the flow of water through the meter.

At any one pre-selected number of counts, a solid state switch is impulsed starting the chemical feeder. The system comes complete with wall mounting bracket for control board, which is housed in a water proof plastic case with transparent cover and indicator light showing when the feeder is energised.

A range of Cyclone separators for high turbidity reduction at low pressure losses is now available, pipe sizes of 1", 1½" & 2" with flow rates from 57 l/m (12.5 gpm) to 284 l/min (62.5 gpm). These

Two of the Culligan water softeners available from A.H. Cullen.



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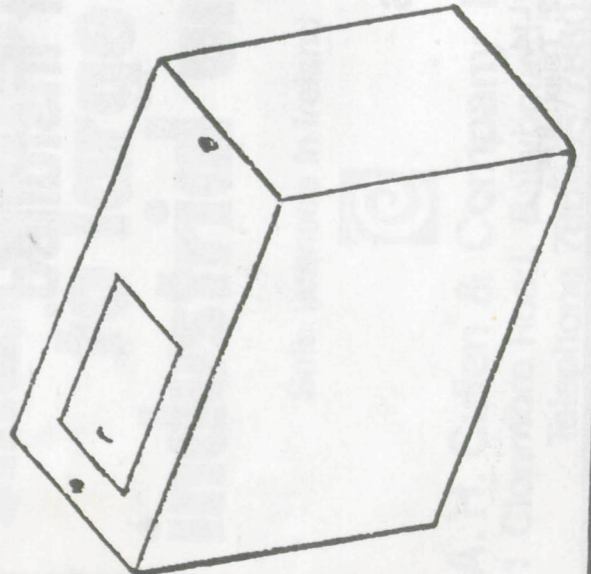
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On-the-spot advice for all water treatments from NALFLOC

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NALFLOC LIMITED, P.O. Box No. 11, Winnington, Northwich, Cheshire, CW8 4DX

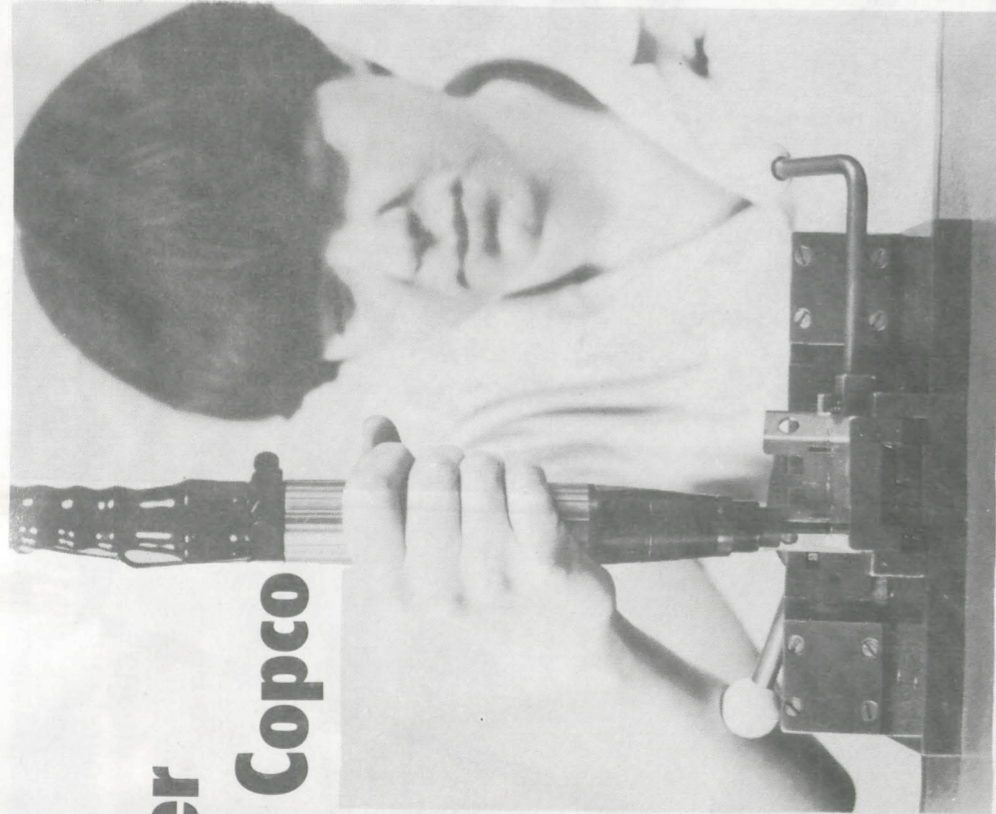
Nalfloc Limited is jointly owned by I.C.I. and Nalco Chemical Company

Noiseless Screwdriver from Atlas Copco

A new range of virtually noiseless screwdrivers, the LUMII range, has now been introduced by Atlas Copco to meet increased demands from the electro-mechanical industry for speed, efficiency and easier working conditions for operators on their assembly lines.

Design changes from previous ranges have decreased the sound level to 58dB(A), which means that the screwdrivers can hardly be heard in use on a normal assembly line, and this improves the operator's environment. The very low weight combined with low noise and piped-away exhaust fumes make the LUMII range revolutionary in their field.

Other important characteristics of the LUMII range of screwdrivers are the high torque accuracy, low



One of the screwdrivers in the LUMII range from Atlas Copco.

air consumption, compact dimensions and overall high quality of manufacture.

Major Whessoe Contracts

Whessoe (Ireland) Ltd are pleased to announce the following orders. The first contract was awarded by the ESB for bulk fuel oil storage at the Poolbeg Extension at Dublin Port site and is valued in the region of £500,000.

The contract is for one 200' diameter x 48' high column supported roof storage tank which will be added to the existing seven tanks completed by Whessoe in 1970. Approximately 700 tons of steel will be used and the existing storage capacity will be increased by nearly 42,000 tons. The tank is due for commissioning in the Autumn of 1978.

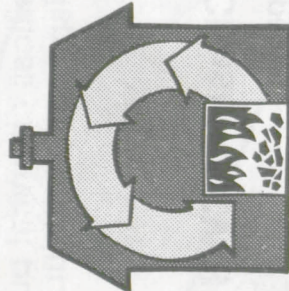
The second contract, valued in the region of £400,000, was placed by the West German company Maschinenfabrik Augsburg-Nürnberg Aktiengesellschaft, Work Nurnberg and covers the fabrication and supply to site of 600 tons mild steel ducting for the transmission of flue gases and hot air, cold air at the Electricity Supply Board's new power station - Aghada 1.

Work has commenced at Whessoe's Finglas Plant and completion is scheduled for 1979. This is the third contract of its type awarded to Whessoe by the West German company.

Lowest cost central heating COALIS No.1 CHOICE

Today the open coal fire is providing central heating to thousands of Irish homes. Why is it fast becoming the most popular form of heating?

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COAL INFORMATION SERVICES

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Telephone (01) 776246
or (01) 779137

The 'Optimiser' Saves it

McCaig, Collim Ltd, distributors and stockists for the heating, ventilating and insulation industry, of Greenwood Avenue, Belfast, are to market, throughout Ireland, a new fuel-saving electro-mechanical control unit for space-heating systems in commercial, educational and industrial buildings.

The control unit — the Optimiser — was developed by Chalvey Engineering Ltd, of Slough, Berkshire, where it is now in production.

It produces fuel savings of up to ten per cent on heating systems already employing intermittent control programmes by varying the start-up times according to the temperature of the day. Savings of up to 30% can be achieved on heating systems without intermittent control.

The unit works by monitoring inside and outside temperatures. Programmed by this information it will, during mild weather, delay the start-up of the boiler plant without diminishing the pre-determined warmth. In colder weather, start-up time is advanced. There is also an automatic one-hour early start for Mondays.

Temperature sensing is by capillary thermostats pre-wired

within the unit but with external and internal sensors. They are an integral part of the Optimiser, which is housed in a steel box. The unit weighs 16½lbs (7.5 Kg) and is 18½" (470 mm) long, 5½" (145 mm) deep and 9" (230 mm) high.

Technically the optimiser is an electro-mechanical device and has no electronic components. It consists of a sturdy, mild steel, lockable box containing a time switch driven by a synchronous motor with 72 hours spring reserve, a timer unit driven by a second synchronous motor, two 2-stage

NORTHERN IRELAND REVIEW

capillary thermostats with remote sensors and two ordinary plug-in octal, two-pole changeover relays.

Neon indicator lights on the front panel show the mode of operation at any time. An isolating and test switch activates and deactivates the unit when the cabinet is opened

commercial/industrial boilers, these models will also be available with Clyde-Combinations, Nu-Way and Selectos gas or oil burners; on/off operation is standard with gas fired models, while oil-fired will have low flame start with air control.

The addition of these sizes enlarges the 351 range to 12 models (from 5 to 16 sections) with a maximum rating of 498.2 kW (1,700,000 Btu/h). Deliveries are currently ex-stock and the normal range of acoustic equipment (burner hoods, chimney silencers and anti-vibration bases) is also available for these boilers.

Further information is available from McCaig Collim Ltd, 6/8 Greenwood Avenue, Belfast BT4 3JJ. (Tel: Belfast 656212).

Clyde Fuel Systems Ltd, Glasgow and Combinations Ltd, Chessington, Surrey have extended the Clyde-Combinations G351 (gas) and P351 (oil) boiler range with the introduction of the five-and six-section models rated at 111.4 kW (380,000 Btu/h) and 146.5 kW (500,000 Btu/h) respectively.

As with all Clyde-Combustion



Pictured at a press conference to launch the 'Optimiser' in Belfast recently were Mr. N McCaig, Director McCaig Collim Ltd; Mr. R. J. Williams, Chalvey Engineering; and Mr. A. G. Strain, McCaig Collim.

Of course price is important ... but then so is quality.

Take our type 'K' close coupled pumps — so much effort has gone into getting them just right, it's unlikely that you'll have anything much in the way of repair bills for some time after their installation. And even when you do feel that a check-up is desirable, an original back pull-out design enables inspection and maintenance to be carried out cheaply and quickly without disturbing pipework or baseplate connections.

Pullen type 'K' pumps are ideal for a wide range of applications such as heating, hot water supply, chilled water, cold water boosting and first aid fire fighting. Manufactured in sizes up to 250mm with flow rates up to 227 lit./sec and heads up to 1500 kN/m², they can be used for vertical or horizontal discharge.

Economy, performance and design flexibility don't often come together in the same pump... except in Pullen type 'K's.



PULLEN PUMPS LTD

58 Beedington Lane, Croydon, Surrey CR9 4PT.

Tel: 01-684 9521

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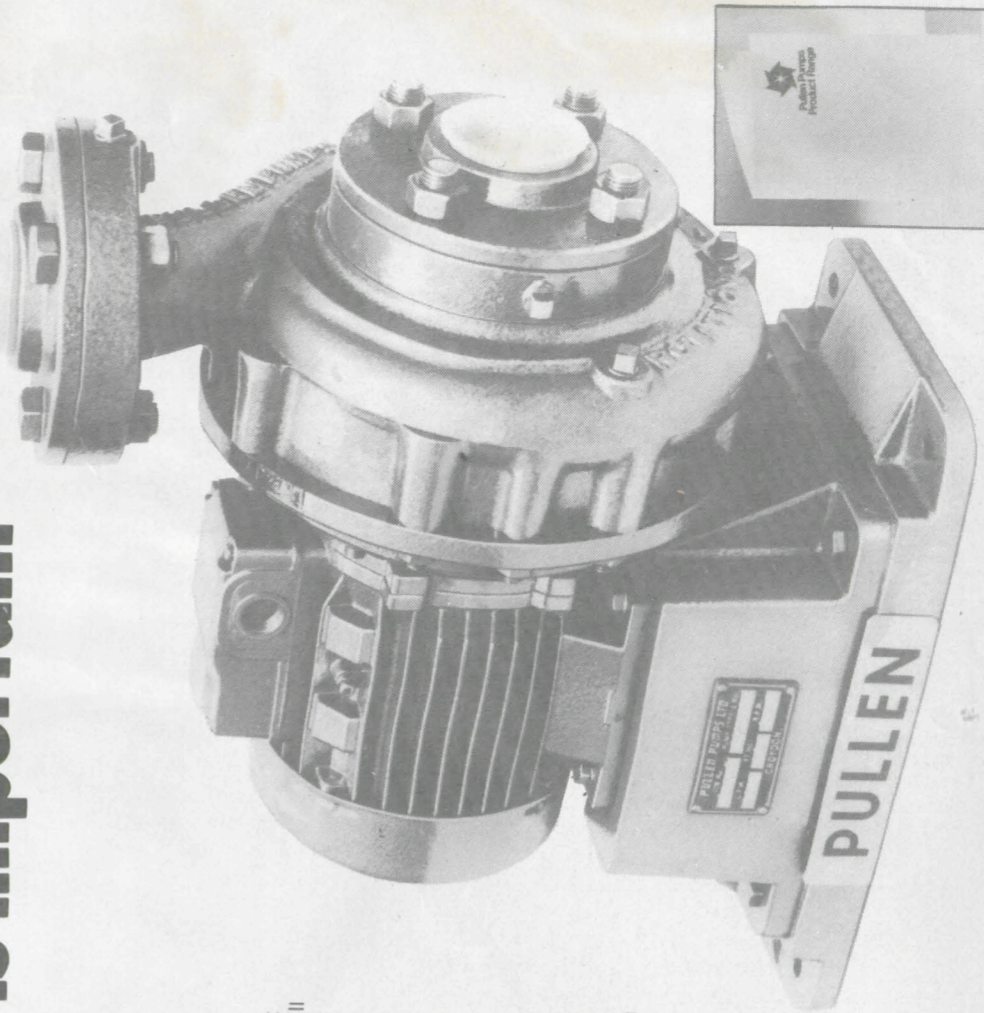
6-8 Greenwood Avenue, Belfast, BT4 3JJ.

Tel: 0232 646212.

M.C.W. Ltd.

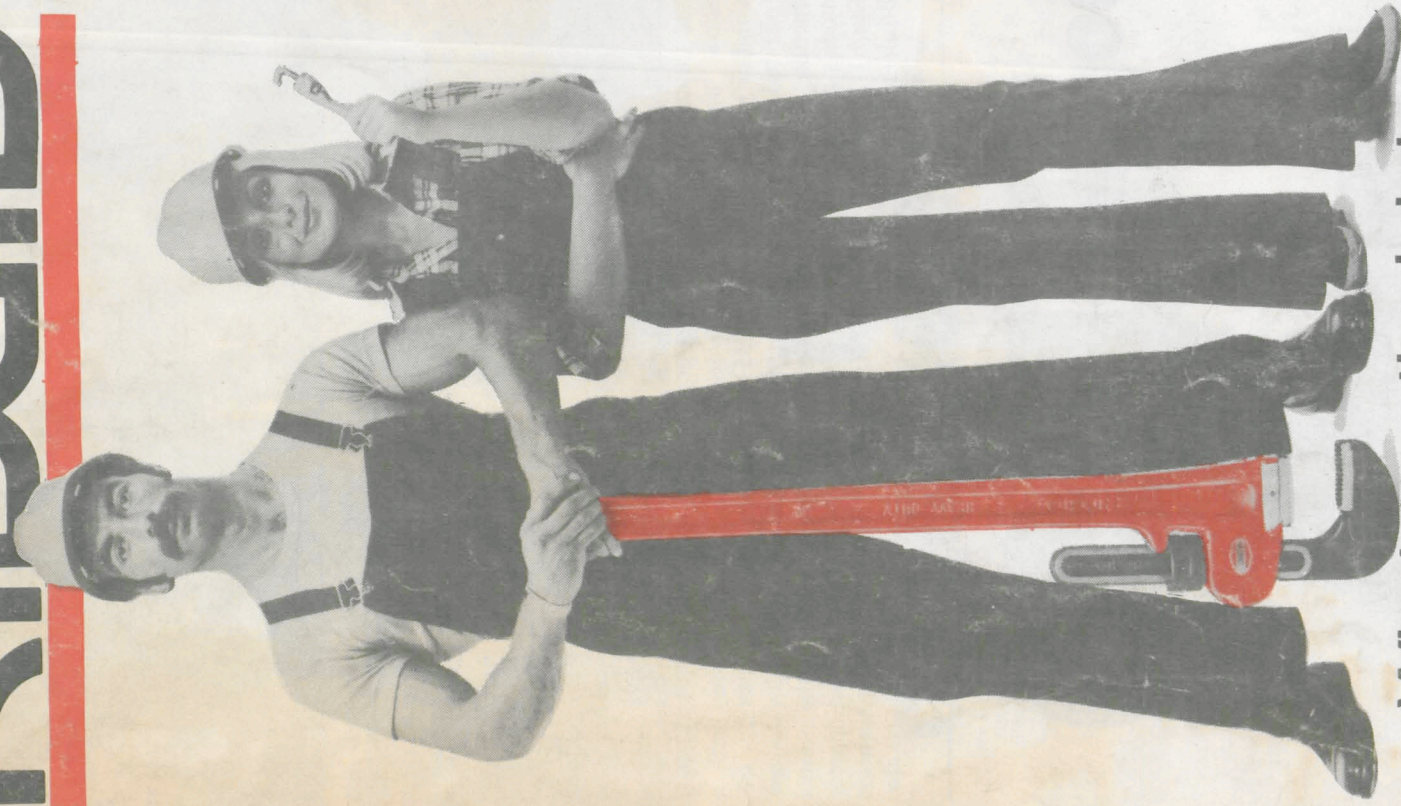
9 Wymfield Road, Rathmines, Dublin 6.

Tel: 111 976 7.



There are many pumps and pumping systems covered in the Pullen product range brochure — why not send for it.

RIDGID

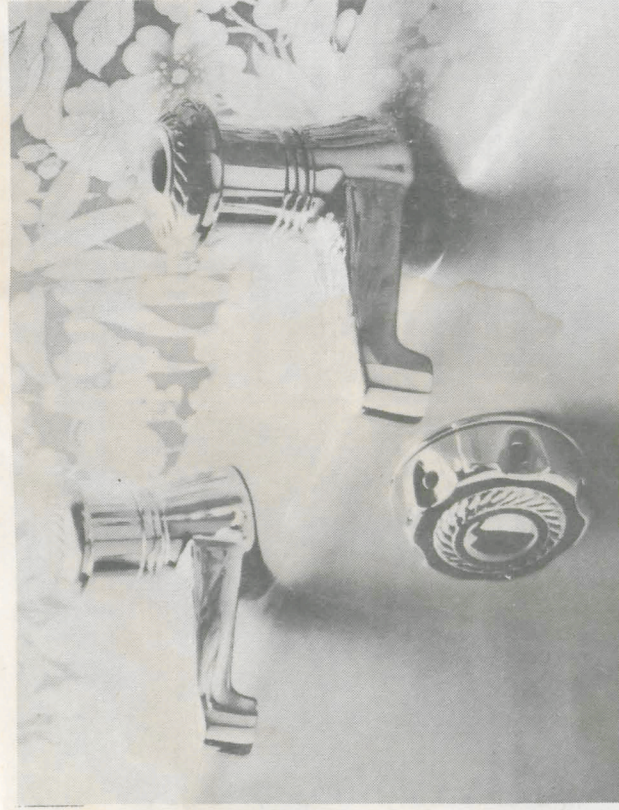


Whatever the job in hand, the RIDGID range of Work Saver Tools gives you all the strength you need.

Send for complete, fully illustrated RIDGID catalogue. **Ridge Tool (U.K.) Limited,** Royston Road, Baldock, Herts. Tel. Baldock 3421

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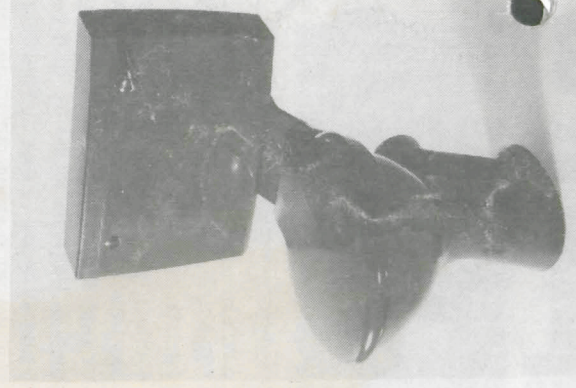
Pillar taps for bath and basin are now available in Beardmores' Old Gold gold plated range of luxury bathroom fittings.

International Building and Construction Exhibition

Continued from page 2
currently appointing Irish agents, North and South, launched the Aquatron 7000 7/4kW heater with plasticised mirror and soap holder and a new Hi-Lo shower.

Chloride Shires presented a new Harmony finish in green and brown for ceramic sanitary fittings and matching acrylic baths, based on a patented process, Ideal Standard showed their Michelangelo suite which was also used exclusively on the highly impressive CREDIT stand of modern, abstract tile designs, while Armitage Shanks launched their 1900 x 1000mm Vermont bath, the six-sided Hawaii, their Versailles Decor gold filigree, and the Cavandish dressing room unit.

Worcester Engineering exhibited a complete range of gas and oil fired boilers but the main feature of their display was the Heatslave — the gas fired combination unit for

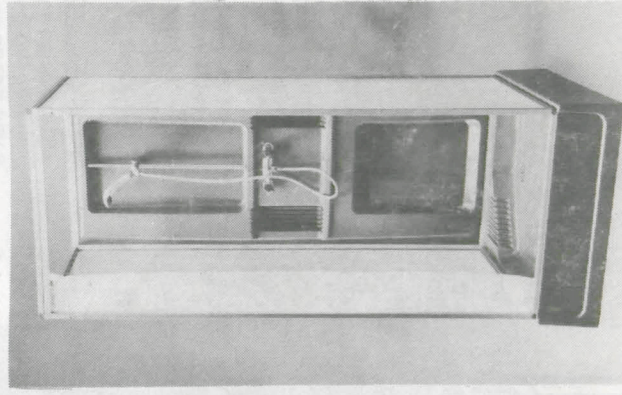


The "UNIROYAL" close-coupled, horizontal outlet WC suite, with slim cistern, and an overall projection of 610mm was also featured on the Armitage Shanks stand.

domestic central heating and hot water. It is designed to be directly connected to the cold water main, eliminating hot and cold water storage and enabling reductions to be made in space, installation and running costs while offering the benefits of mains pressure hot water.

Still in the heating sector, the new Thermalpanel convector radiator, an addition to the Thermalrad range, was featured by Anglo-Nordic. This is an entirely new radiator using a principle of heat distribution proved to be more efficient than ordinary panel radiators. In all there are 35 sizes to choose from and each panel may be used with shallow or deep hanging brackets. This feature provides each panel with two outputs, giving a total range of 70 panels.

There were also a number of other major market areas represented at Interbuild such as plastics and tools.



The "Flair" C8/3/MT8 shower cabinet from Midland International fitted with the newly designed shower head giving a universal range of shower spray positions with a turn of 360 degrees.