Building Services Engineering

Volume 3 | Issue 10 Article 1

1-1-1964

The Irish Plumbing and Heating Engineer, January 1964 (complete issue)

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

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

Recommended Citation

(1964) "The Irish Plumbing and Heating Engineer, January 1964 (complete issue)," *Building Services Engineering*: Vol. 3: Iss. 10, Article 1.
doi:10.21427/D7HD9D
Available at: https://arrow.tudublin.ie/bsn/vol3/iss10/1

This Article is brought to you for free and open access by the Journals at ARROW@TU Dublin. It has been accepted for inclusion in Building Services Engineering by an authorized editor of ARROW@TU Dublin. For more information, please contact arrow.admin@tudublin.ie, aisling.coyne@tudublin.ie, gerard.connolly@tudublin.ie, vera.kilshaw@tudublin.ie.

et al.: The Irish Plumbing and Heating Engineer, January 1964 (complete i

IRISH PLUMBING & HEATING
ENGINEER

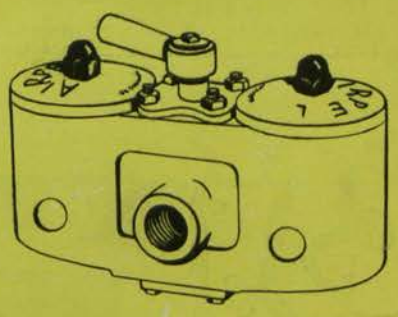
The British Steam Specialties Ltd

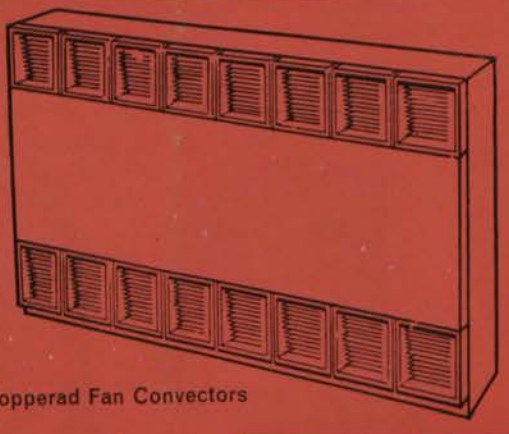
upply heating and pipeline quipment for factories, stores, ffices and public buildings

S.S. Ltd. can supply complete uipment for heating installations d all ancillary equipment for steam, ater, gas, oil and compressed air pelines.

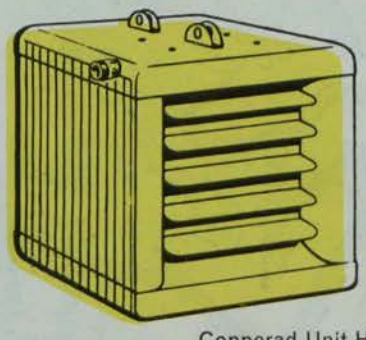
.S.S. Ltd. have large stocks available om branches at Dublin and Belfast

S.S. Ltd. hold stocks of Copperad rinthian Pressed Steel Radiators Dublin.


Airpel Filter


Copperad Fan Convectors

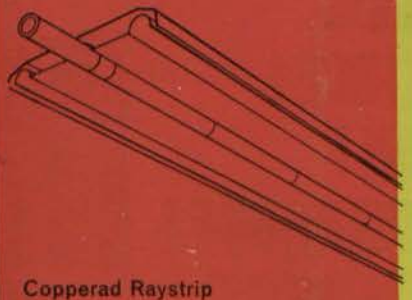

Vee-Reg Valves

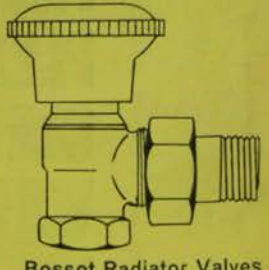

Copperad Unit Heaters

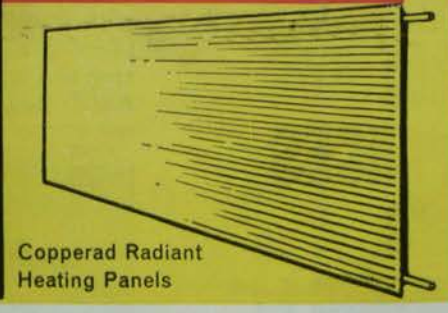
BSS

DUBLIN
33 Leeson Park
Dublin, 6
Dublin 66961-2-3-4
Telex 317

BELFAST
Distillery Street
Belfast, 12
Belfast 28031 (3 lines)
Telex 74561


Copperad Raystrip


Bossot Radiator Valves

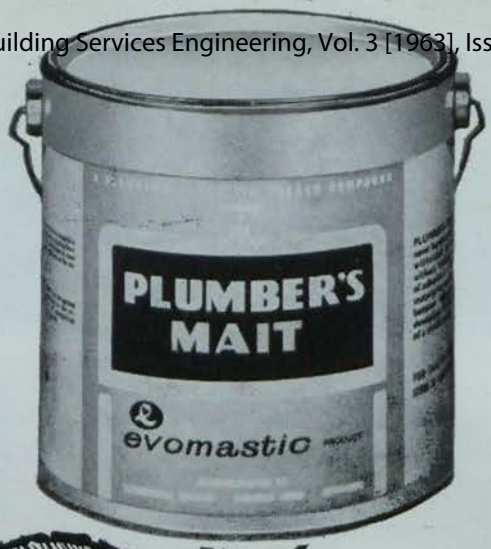

Copperad Radiant Heating Panels


Velan Steam Traps

JANUARY 1964
VOL 3 NO 10

Special Supplement
Industrial Heating & Ventilating in Ireland

Published by ARROW@TU Dublin, 1963





EVERY PLUMBER NEEDS HIS MAIT!

It's PLUMBER'S MAIT – an amazing, flexible sealing compound which has wonderful qualities of adhesion and yet is clean and easy to handle.

FAST!
FLEXIBLE!
CLEAN!
WATERPROOF!
PLUMBER'S MAIT
REPLACES RIGID JOINTING!!



PLUMBER'S MAIT will withstand excessive movements which often lead to failure with traditional jointing materials. This is because Plumber's Mait is flexible thus allowing movement within the joint. Plumber's Mait is ideal for sealing W.C. pans, taps and waste pipes, gutters, downpipes and drains, overlap joints in structures of metal, wood, glass, ceramic or plastic—on any job in fact which requires a flexible, waterproof joint, giving permanency, maximum efficiency, and all round economy.

Don't be without
PLUMBER'S MAIT
FILL IN AND POST THIS COUPON FOR FULL DETAILS NOW!

Please send full details and free sample of PLUMBER'S MAIT

NAME .....

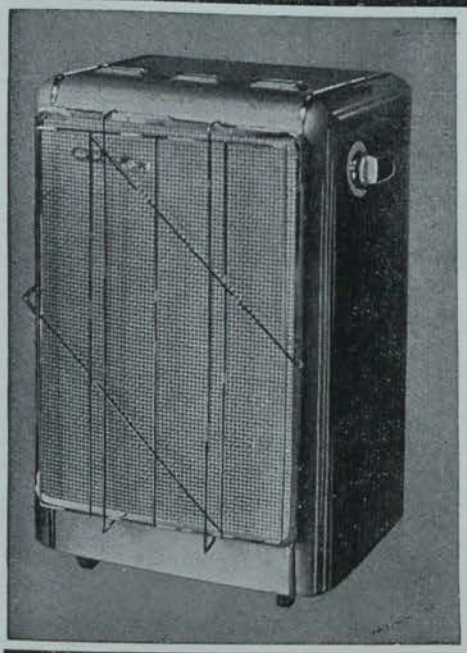
ADDRESS .....

PLUMBER'S MAIT
another success story from **EVODE INDUSTRIES LTD.** SWORDS, CO. DUBLIN. Phone 331/2/3

https://arrow.tudublin.ie/bsn/vol3/iss10/1
DOI: 10.21427/D7HD9D

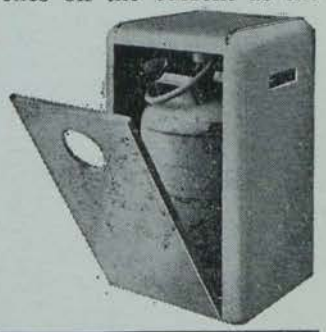
THIS IS FLAMELESS HEAT

CATALOR LIQUID-GAS thermo-reactor for domestic, office or industrial heating.



"Catalytic Heating"—What It Means And How It Works. When liquid propane or butane meet a pre-heated platinised "catalyst" they are oxydised into carbon dioxide and steam; heat is generated in the process, and the (patent) "CATALOR" heater gives off this heat as 46 per cent. radiation and 54 per cent. convection. The heating element does not ignite or glow; it simply pours out penetrating heat which is healthy, clean and SAFE. Even a naked flame held near the CATALOR element is extinguished. The larger models need only a few minutes of electric pre-heating; then an automatic cut-out switches off the current as the element grows hotter.

Left: Model 6035 CATALOR 'Housemaster' Domestic Heater, £25-12-0.



NO PIPES OR WIRES

CATALOR Heater is self-contained, holds butane or propane bottle, runs on smooth castors.

W. & L. CROWE LTD.

East Wall, Dublin, 3. Phone 43101.

Sole Distributors of CATALOR (Patent) Liquid-Gas Heaters throughout Ireland.

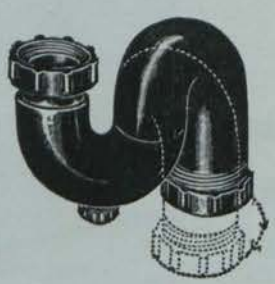
A NEW PRODUCT

"THE DUBOIS PLASTIC TRAP" (Regd.)

A NEW PRODUCT

Provn. Pat. No. 38070/60.

1¼" and 1½" diam. x 1½" seal "S" and "P" BLACK HIGH DENSITY PLASTIC TRAPS



Orthodox Shape!
Smooth Bore Tubular construction.
Outlets can be turned through 220°.
A two-piece trap at a one-piece price.
Outlet on 'S' trap turned to inlet forms a through-bore bottle trap.
Frost and damage resisting.
Light weight = lower transportation costs.



Manufactured by:—

THE DU BOIS COMPANY LIMITED
15 Britannia Street, London, W.C.1

Telephone No.: TERminus 6624-5. **Telegraphic Address: "Bleitrap, London."**

Published by ARROW@TU Dublin, 1963

Building Services Engineering, Vol. 3 [1963], Iss. 10, Art. 1



LITTLE BEAUTY

The new International Gas-Pak 35 boiler measures a mere 36" x 14" x 15½", develops 35,000 BTU/Hour, and is beautiful to look at. This remarkable compactness has been achieved by omitting the central heating pump and controls. This is all boiler—perfect for replacing solid fuel types, for providing hot water only, and for small-house central heating when space is cramped and controls remote.

Here is the convenience of gas at its most efficient and unobtrusive. The retail price is £48 5s. 0d. And the Little Beauty has a big sister—the new Gas-Pak 50 boiler (50,000 BTU/Hour) at £58 retail. Both boilers are fully approved by the Gas Council, and carry full safety controls. Write for technical information to the address on the right.

International

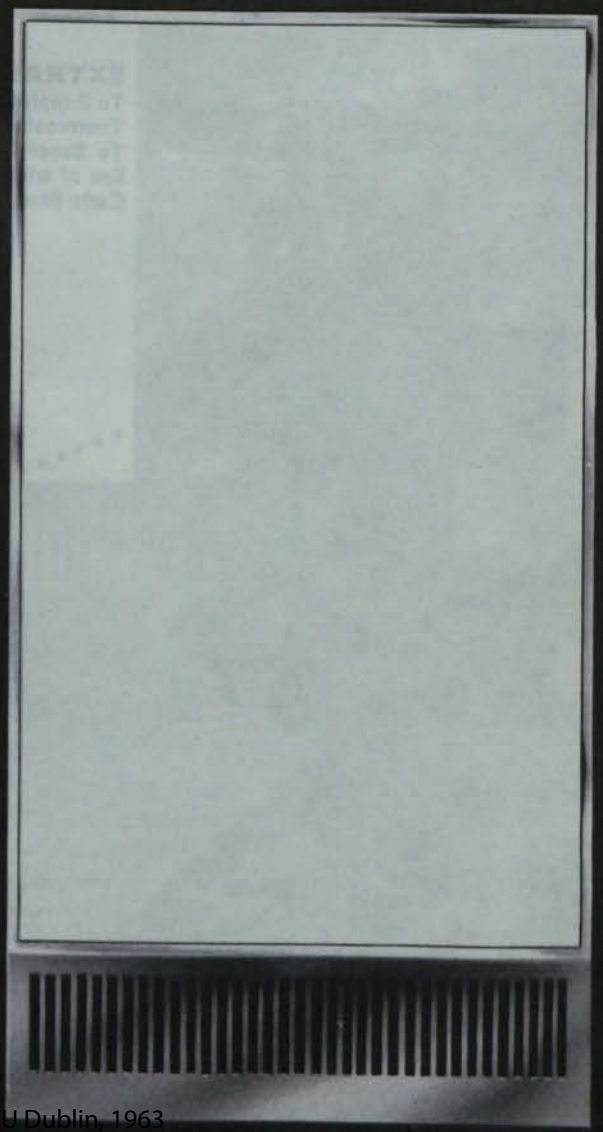
BOILERS AND RADIATORS LTD

Terminal House, Grosvenor Gardens, London, S.W.1
(Tel: Sloane 2201, Telex: 25877, Telegrams: Interad)
EIRE DISTRIBUTORS: Monsell Mitchell & Co. Ltd., 67/73 Townsend Street, Dublin. Price shown is subject to 5% increase to cover carriage, etc.

https://arrow.tudublin.ie/bsn/vol3/iss10/1
DOI: 10.21427/D7HD9D

et al.: The Irish Plumbing and Heating Engineer, January 1964 (complete i

COME ON IN...



Published by ARROW@TU Dublin, 1963

3 GREAT INT

NOW IN QUANTITY PRODUCTION — AND A



NEW SILENTFLO

Operates in any position. Fixed-head model with high torque winding for easy starts. Simple construction, only one sealing joint. Quick-release coupling, easily removable units and rotating elements (sealed against corrosion). Fully impregnated stators for quiet running. Iron connections standard but copper available at small extra cost. 200-250 volts AC 40-60 cycle. Retail price £16.10.0.



MULTIFLO

Similar to the New Silentflo but has a variable head feature. No 'throttling' of the throughput and thus quiet running at any setting, during any adjustment. No calculations, no trouble. Suitable for virtually any domestic system; probably the finest accelerator pump being built in the world today. Retail price £18.0.0.

MANY ACCESSORIES

CLIP-ON TOWEL AIRER, chromium-plated. In sizes to suit all sizes of radiators. From £1.13.11 list.

RADIATOR SHELVES, neat and secure, to suit all sizes of radiators. From £1.3.0 list.

NEW COMPACT 'SETFLO' VALVES, small, smart and simple; chromium finish over brass. 5 marked settings, easy-grip silver-grey caps.

SKIRTING HEATERS, with the higher output. In singles and doubles. From £3.18.6 list.

DESIGN SERVICE—the International Drawing Office will plan layouts from specifications supplied, at a nominal charge.

BEST-SELLING BOOKLET—send 3/6 for copy of "PRINCIPLES OF FORCED CIRCULATION IN HOT WATER SYSTEMS", becoming a standard reference text in the trade.



https://arrow.tudublin.ie/bsn/vol3/iss10/1
DOI: 10.21427/D7HD9D

RNATIONAL PUMPS

ADY WITH QUANTITY SALES AND FIELD TESTED THROUGHOUT THE COUNTRY.



THERMOFLO

Specifications as Multiflo, but additionally includes a built-in mixing valve to deliver correct volume of water for any installation at any temperature; instant selection from full boiler temperature to 50°F below this. Retail price £23.0.0.



THERMOPAK

The famous tried and tested Reliable, always specified by heating engineers who know! In many sizes for all installations.





POWERGLO

electric—portable

Auxiliary radiators to supplement built-in system. Oil-filled, sealed, thermostatically controlled. Ratings: ¾, 1, 1.4 and 2 kw. Heights 22½" and 29". Bronze Hammer or Silver Birch finish. Retail prices begin at only £15.17.3. list including purchase tax.

Building Services Engineering, Vol. 3 [1963], Iss. 10, Art. 1

NEW THROUGH INTERNATIONAL
DELMORE

OIL-FIRED DOMESTIC BOILERS FOR SMALL-BORE OR GRAVITY SYSTEMS



Left to right: 120 De Luxe, £195 list • 80 Domestic, £158 list • 60 De Luxe Electric, £130 list • 40 De Luxe, £98 list • 30 Domestic, £80 list. *All are exceptionally trouble-free, quiet and completely odourless. All offer natural draught operation with thermostatic control. All are suitable for kitchen installation and can be equipped for electric control (enabling the installer to fit automatic time switch control) or to operate entirely independently of mains electricity.*

THESE FIVE WIDELY-ACCEPTED AND WELL-PROVEN DELMORE BOILERS will now be marketed through International. The nationwide resources and service facilities of the new and wider organisation will now support and develop the high reputation, amongst installers and owners both, already earned by these high-performance units.

International
BOILERS AND RADIATORS LTD

TERMINAL HOUSE, GROSVENOR GARDENS, LONDON, S.W.1. (TEL: SLOANE 2201, TELEX 25877 TELEGRAMS: INTERAD)
Works: Earlsway, Team Valley, Gateshead. (Tel: Low Fell 78551, Telex 53265, Telegrams: Interborad)
Also at Edinburgh, Cheltenham, Cardiff, Birmingham, Manchester and Belfast

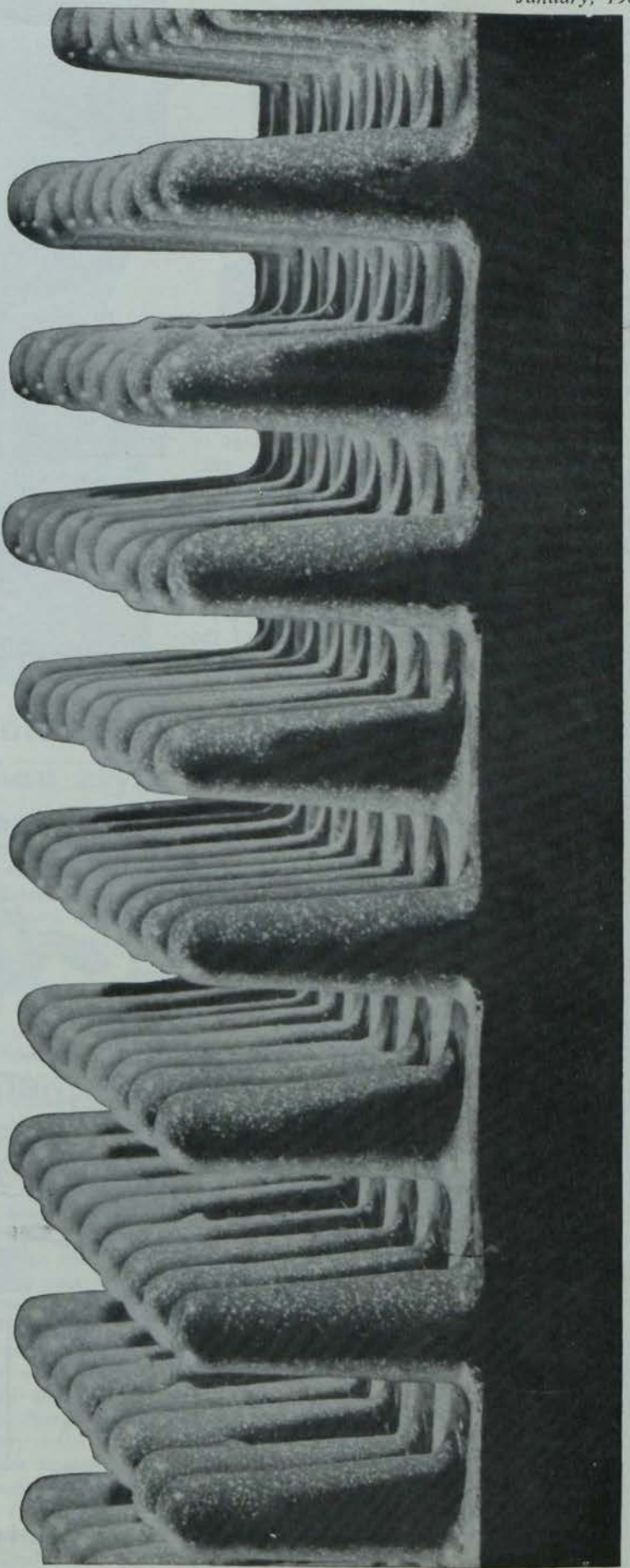
SOLE AGENTS FOR THE REPUBLIC OF IRELAND: MONSELL, MITCHELL & CO. LTD., 67/73 TOWNSEND STREET, DUBLIN

The new Interr
mere 36" x 14
and is beautif
pactness has b
heating pump
for replacing
water only, a
when space is
Here is the co
and unobtrusiv
the Little Beaut
boiler (50,000
boilers are full
carry full safety
ation to the ac

https://arrow.tudublin.ie/bsn/vol3/iss10/1
DOI: 10.21427/D7HD9D

et al.: The Irish Plumbing and Heating Engineer, January 1964 (complete i

HOT-ROD



This is a close up of the Hot-Rod cast-iron heat exchanger of the International 'Capital' and 'Gas-Pak' boilers.
The extra heating surface of the Hot-Rod filaments gives faster heat transference, greater boiler efficiency and, of course, a very compact boiler. The perfect partner for High Speed Gas.
Get the full story from International. These are the boilers that, on performance and looks, are all set to dominate the domestic market.

International
CAPITAL
gas-fired boilers

Published by ARROW@TU Dublin, 1963

Building Services Engineering, Vol. 3 [1963], Iss. 10, Art. 1

EASY COMPACT INSTALLATION

FOR WATER SUPPLY





Self-priming with a suction lift of 25 feet, the electric driven M range of Mono Pumps are compactly constructed, flange mounted to a motor of very low power consumption.
Its silent operation permits installation in any convenient position and the non-pulsating, steady flow will not transmit noise through the pipeline. No oiling or greasing of the pumping element is required and no foot valve necessary.

The MONO pump

Attractive terms to Dealers

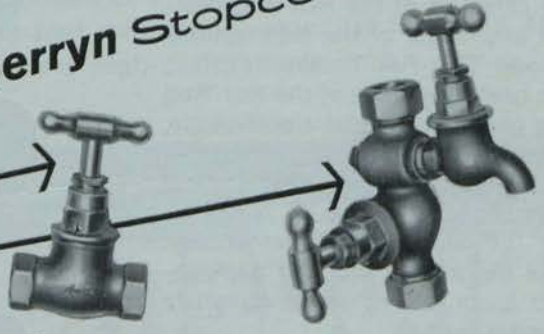
MONO PUMPS LIMITED, 31b CENTRAL HOTEL CHAMBERS, 7/9 DAME COURT, DUBLIN.
Telephone Number: Dublin 70843. MP251







Sperryn Stopcocks & Bibcocks



Agent for the Republic of Ireland:
C. B. Sheridan
10 Herbert Pl.,
Dublin, 2.

A new brochure describing the full range of Sperryn Stopcocks and Bibcocks is now available. Send for your copy today.

BROCHURE Ref. W468

B.S.1010 no. 27

I.C.S.W.R.

DENTA GROUP

Makers of Fine Quality Plumbers Brassfoundry since 1889

Sperryn & Company Limited

GREAT SUFFOLK ST., LONDON, S.E.1.
Tel.: WATerloo 6418.

MOORSOM ST., BIRMINGHAM 6
Tel.: ASTon Cross 4011 (6 lines)
Telex: 33724.

https://arrow.tudublin.ie/bsn/vol3/iss10/1
DOI: 10.21427/D7HD9D

et al.: The Irish Plumbing and Heating Engineer, January 1964 (complete i

trade Topics

MINISTER PRAISES OUR APPRENTICES

THE Minister for Justice, Mr. Haughey, had high praise for our apprentices when he presented them with medals awarded to successful building trade competitors in the 12th international trade competitions for apprentices held in Dublin in July. He said that with the right training and experience our young people could hold their own against any country.

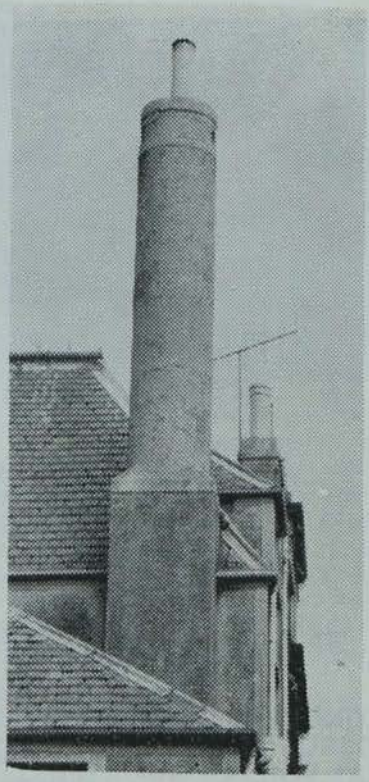
At the presentation function in the Building Centre last month, the Minister said that the volume of Irish industries would reach a great magnitude during the next half year. "This poses a great question for all those engaged in these industries. Will the skill at their disposal be sufficient to meet the demand and will the managements think progressively enough?" he asked.

He said that we should be proud that our apprentices won more awards in the international competition than any other country. "These are the best that the country can put forward and they represent a very high standard among our apprentices," he said. "But there are many who have not achieved this high standard and we must see that all get the training which has enabled these boys to gain these awards."

Mr. Haughey congratulated the apprentices on their achievements and praised the National Building Centre on the decision to award these incentives to the trade.

Mr. Don MacGreevy, director, National Building Centre of Ireland, said that they were encouraged by the high standard achieved by the appren-

Continued overleaf



Central heating Roman style

A heating system with a difference was recently discovered when builders moved in to convert a house in Falkirk, Scotland, into an hotel. The system was the same as was used by the Romans of ancient times!

A leading architect, called in to examine the find, declared: "It is certainly the only known system of its kind in Scotland."

Its existence has come as a surprise to experts because the house was built in the 19th century at a time when these houses were being heated by open fires.

The air in a small room in the basement was heated by a boiler. Small vents sited at floor level in each of the three floors allowed the heated air to pass through the house by means of the normal convection current and eventually escape by means of the special chimney shown in the picture.

When the small room in the basement was first discovered its purpose was a mystery until the air ducts and vents were noticed.

Apparently the house's first owner, a doctor, was familiar with the old Roman system and decided to incorporate it in his own home.

IRISH PLUMBING & HEATING ENGINEER

Vol. 3. No. 10. JANUARY

THE IRISH PLUMBING AND HEATING ENGINEER is the only publication produced in Ireland catering exclusively for the heating, plumbing and ventilation industries with a guaranteed circulation covering the Republic of Ireland and Northern Ireland every month.

This month sees the introduction of the Engineer's new industrial section. It has been produced as an independent section and appears in the centre of this issue.

Of vital interest to all installers of domestic heating systems is a brilliant new series by W. J. R. Couchman. The Seven Deadly Sins of domestic heating installation is this new contributor's general heading.

In more or less the same field of operations John G. Bolton resumes his series on small bore design.

Also of interest to the plumber is another H. L. Townsend contribution. He deals this month with hot water supplies.

Trade Topics as usual review the month's news in easy-to-read form.

●

Published monthly by Irish Trade & Technical Publications Ltd. Annual subscription, 21/-, post free. Single copies, 1/9, post free.

●

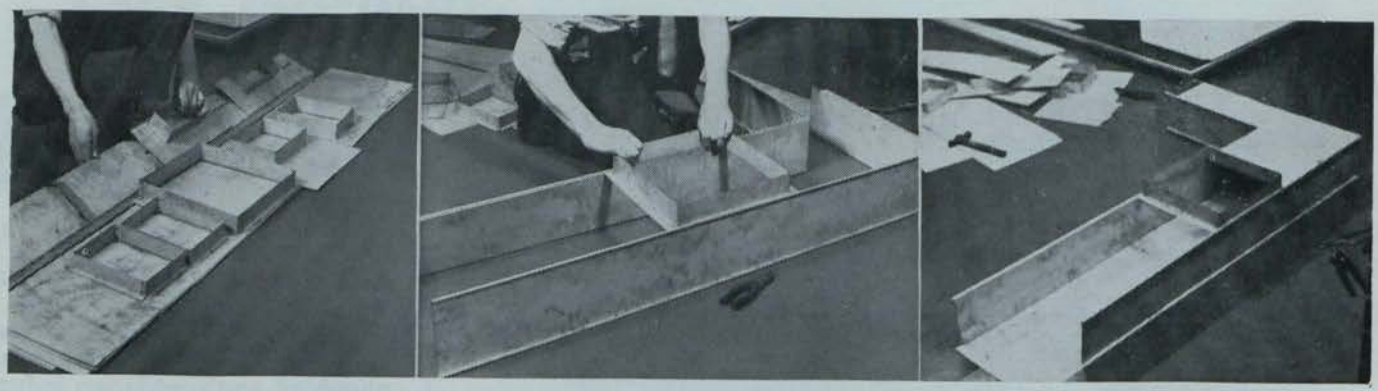
Editorial and advertising offices:

Callaghan Chambers, 13/15 Dame Street, Dublin 2. Tel. 56465-6.

London: J. T. Robson & Son Ltd., 30 Fleet Street, London, E.C.4. Tel.: Fleet Street 4438.

Belfast: Allen McDowell, 43 Horn Drive. Belfast 11. Phone 614606.

Published by ARROW@TU Dublin, 1963



trade Topics

INSCRIBED WATCHES TOO!

A VERY pleasant feature of the staff party of Messrs. H. A. O'Neil Ltd., 162, Lr. Rathmines Road, Dublin, held last month at Powers Royal Hotel, was the presentation of two inscribed watches to Messrs. Michael McDaid and Patrick Higgins.

In making the presentation Mr. Christopher Jones, Managing Director, stated that the watches were a token of appreciation by the Company of the wonderful performance of these men in the International Trade Competitions for Apprentices. Michael McDaid had been awarded the Gold Medal for Plumbing at the International Competitions in Germany in 1962 and Patrick Higgins had gained a similar award in Dublin in 1963.

It was gratifying, said Mr. Jones, that our tradesmen could do so well in International Competitions and their performance reflected great credit on the high standard of workmanship in Ireland and the excellent tuition afforded by our College of Technology, Bolton Street, Dublin.

* * *

CONCORD: IDEAL'S NEW GAS BOILER

THE "Concord" gas boiler is a major step forward in the drive to bring central heating to the average home. At an attractive low price, it offers all the features most wanted in a heating boiler—easy installation and servicing, reliable operation, automatic control and clean modern design.

There are two sizes, selected to suit the thousands of smaller homes which form the growing mass market for central heating. In this market, the low price of the "Concord" is a vital factor.

The two sizes of "Concord" gas boiler are: 35,000 B.t.u.'s per hour and 45,000 B.t.u.'s per hour.

The cast-iron boiler body is of sectional construction and designed to give high efficiency. Clean-out covers enable the boiler to be used in direct as well as indirect systems and it is available bower barffed to special order. There is a composite gas control incorporating thermocouple operated flame failure valve, gas governor and control valve.

A fifteen day hand-wound clock controller can be supplied fitted within the jacket. The boiler is suitable for small-bore installations employing an externally fitted accelerator.

The good-looking stove enamelled jacket is white and the door is available in white, Dresden blue, primrose yellow and cardinal red. The base and draught diverter are vitreous enamelled grey.

* * *

DUCTING MADE EASY

THIS series of pictures shows Radation' new Flat-Pak Ductair metal ducting in action. It simplifies and greatly reduces the cost of installing ducting for warm air central heating systems.

The compactness of the twenty standard components—in only nine basic shapes—is demonstrated by this set delivered on site (first picture).

The other pictures show Flat-Pak assembly. This work is done with a few simple tools and can easily be executed quickly on site.

No detail drawings for the metal worker are required, say Radiation. Mr. L. F. Young is the Irish area manager and the Twenty-six County distributors are Tedcastle McCormick & Co. Ltd.

Special Medal for Michael Scott

from previous page

tices in the competitions. He said that they were the building site managers of the future. The decision to present such incentives would lend itself to manufacturers to encourage their apprentices.

Mr. Michael Scott, chairman of the Building Centre, presided, and was presented with a medal to mark the work he has done for the centre and [illegible]

Mr. Scott said that there was a lot of confusion and waste in the building industry at present and more in the past. He hoped that this would be removed and that what they did in the industry would be very rewarding. He congratulated the apprentices and praised their teachers—who seldom received a word of praise.

Medal Winners.—Among those who received awards were:—Gold medals, plumbing, Patrick Higgins, Dublin; electrical welding, Patrick Sand. Silver medals: plumbing, William Jackson, Dublin; welding, Thomas Doherty, Dublin, and Charles Roe, Dublin.

● **Each month the Irish Plumbing and Heating Engineer will contain a comprehensive survey of the month's trade news under the "Trade Topics" heading.**

We invite contributions to this column by way of news of new product introductions, of product promotions, of developments within your organisations and of appointments, to list a few.

https://arrow.tudublin.ie/bsn/vol3/iss10/1
DOI: 10.21427/D7HD9D

et al.: The Irish Plumbing and Heating Engineer, January 1964 (complete i

the 7 deadly sins of domestic installation

THE seven deadly sins, Pride, Covetousness, Lust, Anger, Gluttony, Envy, and Sloth, which, we are told, beset all mankind, are evils from which none of us can hope to be immune. It is accepted that any preacher or writer discussing the frailties of mankind will draw to some extent on his own experience of his failings. In the series of articles, of which this is the first, on the venial, but still important errors that are common to the designers and installers of domestic heating systems, I shall, as often as not, be recalling my own mistakes.

It is not intended that these articles should refer to the larger scale of heating installations. Domestic heating is a complete and separate subject and should be treated as such. However, it is not a subject that should be treated as a matter of mere nuts and bolts. Human relationship, office procedures and business organisation are all part of the installers living and a man may be first class technically but still find life difficult because of some other, equally important, aspect of the job that he has yet to master.



Probably all of the different aspects of the installers' work show themselves if we consider the normal course of a typical installation. Starting with the first indication that there is a potential customer who may want central heating for his home, there will next be a meeting, probably followed by some sort of survey of the house. The estimate goes in, a detailed design may come first or may follow the estimate, depending on the installer's method of working.

If the estimate is accepted, then the materials are bought in and all necessary preliminary work is carried out to ensure that the men and materials are on the spot when they should be. The work ltself is carried out, its profitability will largely depend on how much care has been taken before ever the fitters arrive. Finally (we hope) the installer collects his account.

Once in a while if he is unlucky, maybe more often if he is something worse than unlucky, he will get a "call back" to deal with some com plaint that has arisen.

Well, that's about the order of things; if the installer errs at any one of the stages the chances are that he will pay dearly for it. Haven't we all? The first stage then is making contact with the customer and our first "deadly sin" is to fail to win the customer's confidence.

WINNING THE CUSTOMER'S CONFIDENCE.—Most installers are in business in places where they have lived for many years, maybe all their lives. Therefore they are often dealing with people who know them well. If a man knew you as a boy at school, either you have got his confidence or you havn't. If he thinks well of you he may not even want an estimate before asking for the job. If he thinks badly of you, well you won't change the opinion of years in five minutes. But sooner or later the installer runs out of in-laws and people he was at school with and starts dealing with strangers.

Winning the confidence of a stranger is at once difficult and easy. It is difficult because, where business is concerned, a strange customer is very much on his guard. He is proposing to spend what is, to him, probably a very large sum on a heating installation. He is spending the money with a stranger, who is going to put men into his home to instal specialised equipment that he, the customer, is going to have to live with.



No wonder he is on his guard Yet, in a way, it is easy to win the man's confidence. It means keeping on your toes when you are with him, perhaps, but then you will not be with him for long. You have the advantage of knowing a lot more about the job than he does and of dealing with the same situation quite often.

It is, I think, possible to list the main reasons for loss of confidence—which, of course, leads to loss of business from the customer. I suggest they are as follows: Lack or apparent lack of interest; failing to find out what is really wanted; and failing to keep promises.

LACK OF INTEREST.—The customer expects you to be interested; that which, to you, is just one more job of a series is a very big thing indeed to him. Maybe he understands that you can't get quite as excited about things as he is but if you don't remember his requirements, or answer his letters promptly or keep appointments punctually, then he wonders if you want his business at all. Maybe you do want his business, but remember the man is a stranger, and he can only judge by what he sees.

Continued overleaf

THIS sparkling and well-informed series is by W. J. R. COUCHMAN. His name will not be unfamiliar to many readers, as Mr. Couchman maintains close contact with the trade throughout Ireland and is ideally informed to compile this new series.

Published by ARROW@TU Dublin, 1963

domestic installation

from previous page

THE CUSTOMER'S NEEDS.—If you do not find out the customer's needs, or if, having heard them, you fail to meet them or explain why they cannot be met, then again the customer is entitled to think that you are not interested. The first meeting with a customer usually is, I think rightly, taken up mostly by the customer explaining what he wants, and what he can afford, which is not always the same thing.



After such a meeting, nothing is more annoying for a man than to find that all he has said seems to have been forgotten or ignored.

KEEPING PROMISES. — In my present job I meet a lot of installers and a lot of customers, so I hear the complaints from both sides. The broken promise, in one form or another, is one of the bitterest complaints that I hear from the customer and this can spoil things for the installer in the earliest stages of the job.

Of course it is difficult to give, for example, a starting date and to keep to it precisely. But it is far better to give a provisional date and maybe bring it forward a little than to give a date, say, two months ahead when you know very well that there is ten weeks delivery on radiators.

Again, it may very well be that you want the job and that you have the intention and the capacity to do a first-class job. But the customer is a stranger: he cannot know this; he only knows that he has been let down.

So far I have been discussing customer relationship in a rather negative way. Changing the approach, therefore, to the positive, we can follow through the first stages of an enquiry, leaving aside for the moment the technicalities of the survey and estimate.

The first contact with the customer may come by telephone or letter. Unless you, or anyone else who uses your telephone has a particularly good memory it is vital that all incoming messages should be properly recorded. This is an obvious and simple point, but forgotten telephone calls lose friends and lose business.

If the first move from the customer comes via a letter, then nothing will impress him as much as an answer by return. There is something particularly impressive about such a prompt reply; just a few minutes spent on a letter can get you off to a flying start with the customer. Notepaper is important too; a good quality headed notepaper is well worth while.

To show what I mean, I know a firm of furniture removers and on their notepaper appear the words "furniture carefully removed in covered lorries." As it happens this is a very good firm, but my guess is that they actually lose business at times because they use the same letter heading that was used in the nineteen-twenties, when a covered lorry was, perhaps, something rather special. A better slogan for the nineteen-sixties would be: "All we need is your latchkey," or, if in doubt, eliminate the slogan altogether.

Reverting, for the moment, to the telephone enquiry, if your firm is large enough to employ full-time office staff it is worth while ensuring that all incoming calls are met with the name of your firm and a greeting, "Doyle and Company, Good Morning," sound so much better than the book telephone number or, worse still, just "hello."

So much for the "pre-meeting" stage with the customer. When you meet him, obviously you will have some notion of what he wishes to discuss and it is a good idea to be well provided with leaflets showing the kind of equipment that will interest him. It is also a good idea to have some photographs, possibly "before and after" of past installations, although this can be overdone.



In discussions with customers the same questions come up time after time: "Why can't you use the old direct cylinder?" "Why can't you give me a better allowance on the old boiler?" and so on. These can get a bit boring but such questions are important to the customer and should be dealt with accordingly.

From time to time a competitor's name may come up; remember a good salesman never criticises the other man or the work that he does. The positive approach is to fairly decribe what you offer and leave it at that.

Finally, in all this it is necessary to be one's self; it is fatal to put on an act or to be too anxious to please. And if, after meeting him, you have made a friend of your customer, then, if you mean to keep his confidence you must keep him on your side right through the job and after the job is done. Because your next job is likely to arise directly from your last one.

(Another article next month).



IN future the Building Centre at Baggot Street, Dublin, will be closed on Saturdays. It will be open every Thursday until 9 p.m.

* * *

MR. W. T. BLANDFORD, a senior executive of Cisterns Ltd., of Ilkley, Yorkshire, has resigned from the Company. Mr. Blandford, who for many years was a prominent figure in the plumbers' merchants industry, has now been appointed Company Secretary and Director of Bathtubs Ltd., of Ilkley, Yorkshire, manufacturers of plastics baths. Mr. G. W. Harrison, for many years a leading figure in the cisterns industry, has been appointed Chairman and Managing Director of Bathtubs Ltd.

* * *

FOLLOWING its acquisition in February last by Armitage Ware Ltd., the Johnson Fireclay Company Ltd. has changed its name to Armitage Excelsior Limited.

* * *

THE well-known firm of heating and plumbing engineers, O'Reilly Draddy & Co. Limited, has changed its name to P. J. O'Reilly & Sons Limited.

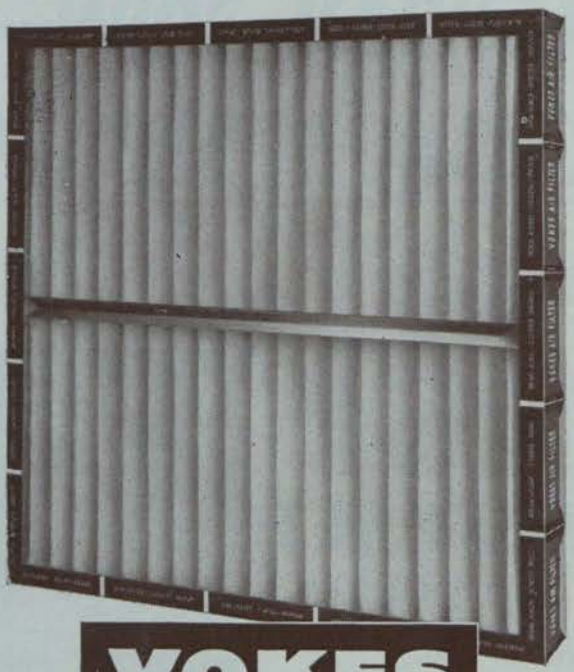
* * *

IN his annual report on his firm's trading for the last year, Mr. Frank Meldon, M.I.A.A., of the Albert Estate Agency, Sandycove, notes that "central heating is practically a 'must' now in all new houses."

The rest of your favourite regular I.P.H.E. features are continued from page twenty-nine onwards.

https://arrow.tudublin.ie/bsn/vol3/iss10/1 For
DOI: 10.21427/D7HD9D

COMBATS
ATMOSPHERIC POLLUTION
with guaranteed 96%
efficiency at minimum cost



VOKES
Super-Vee*

Vokes Super-Vee is an inexpensive, expendable air filter which, because of its unique medium, can offer up to 25% greater capacity compared with similar filters of the same size. This medium, impregnated with a specially developed adhesive, combines high filtration efficiency (guaranteed 96% against Aloxite 50 Test Dust) with long life. Unaffected by moisture, non-cracking, and resistant to fungal growth, it is ideal for the collection of sooty or tarry deposits, without any danger of Fibre migration. Vokes Super-Vee, which is fully interchangeable with other filters of its type, is already widely used in applications such as paint finishing plant, chemical laboratories, textile plant, distilleries and heating and ventilation installations. Write for details of how it can give you high filtration efficiency at lowest possible cost.

THE
LEINSTER ENGINEERING CO.
LIMITED
158-159 CHURCH STREET, DUBLIN



OUR PRIMARY aim and obligation—indeed the sole reason for this journal's existence — is to provide complete coverage of the plumbing, heating and ventilating industries in Ireland.

This, in a word, sums up our policy. It too is the reason for the launching, with this January issue, of "Industrial Heating and Ventilating In Ireland."

The obvious necessity and demand for an exclusively industrial section has been apparent to us for some time now, and we feel that this editorial development will be both welcomed and appreciated.

And it will be especially welcomed by those numerous leading trade figures, who have long since recognised the all-round benefit of segregating readership interests into separate, complete and authoritative sections.—Editor.

* * *

IN THIS inaugural industrial section two special review features look at (i) burners, combustion equipment and stokers; and (ii) boiler instruments and controls.

The first of a panel of contributors to the new section— Daniel Heeney — begins a series of articles under the heading: Mechanical Refrigeration To-day.

A report on how an American instrument company heated and air conditioned their underground factory is given by the company's president.

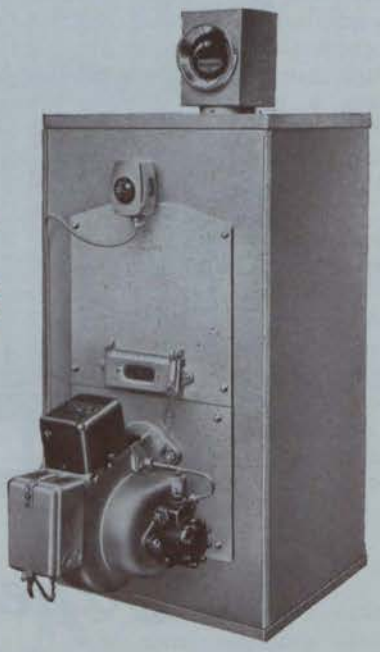
NUMBER 1 — Presented with the January, 1964, issue of the Irish Plumbing and Heating Engineer.



Beeston EARLEYMIL

AUTOMATIC SOLID FUEL BOILER

in sizes from 252,400 Btu/hr. to 1,415,500 Btu/hr.



BEESTON
ROBIN HOOD

ENSIGN Mk 3

OIL-FIRED BOILER

in sizes from
100,000 Btu/hr to
220,000 Btu/hr.



BEESTON
ROBIN HOOD

MATCHED BOILER SETS

(OIL-FIRED)

in sizes from 224,400 Btu/hr. to 1,354,000 Btu/hr.

FOR FULL DETAILS APPLY TO:

THE BEESTON BOILER CO., LTD.

P.O. BOX No. 2, BEESTON, NOTTINGHAM, ENGLAND

Telephone: NOTTINGHAM 254271.

https://arrow.tudublin.ie/bsn/vol3/iss10/1
DOI: 10.21427/D7HD9D

et al.: The Irish Plumbing and Heating Engineer, January 1964 (complete i

MONTHLY SPECIAL REVIEW

BURNERS, COMBUSTION EQUIPMENT AND STOKERS

WIDE VARIETY OF FIRING EQUIPMENT MEETS MANY NEEDS

TO meet the requirements of industrial heating, a wide variety of firing equipment is required. Each fuel has its own characteristic, and the firing equipment must be properly matched to these if efficiency and reliability are to be obtained.

The fuels commonly used at present in Ireland are summarised below.

Many years of research and development have been devoted to the burning of each of these fuels and a vast amount of literature is available on the subject. Where this literature is not accessable, advice on all aspects is available from manufacturers, supply companies and consulting engineers.

OIL BURNERS.—The function of an oil burner is to prepare the oil for combustion by automisation, and to introduce the air for combustion in such a manner as to promote good mixing with the atomised fuel and provide the flame characteristics required. In the pressure jet burner, the energy required for atomisation is imparted to the oil itself; in blast type burners, the energy is supplied to a secondary medium, i.e., air or steam. Blast type burners are classified as high, medium or low pressure, according to the pressure of the atomising medium.

PRESSURE JET BURNERS.—In this popular burner, the oil is atomised by being forced through a nozzle at high pressure, emerging as a cloud of small particles. The oil has a rapid rotation imparted to it in a swirl chamber so that it leaves the orifice as a hollow cone with a small core of air in the centre. The viscosity of the oil at burning must be below 100 seconds Redwood No. 1. Preheating is, therefore, necessary for the heavier grades of oil. Proper filtering is essential to prevent choking of the jets.

A high pressure oil pump, single or double stage gear type, is used on this burner, and this normally has a capacity greater than the oil consumption rate. The surplus fuel is allowed to bypass through an adjustable spring loaded valve.

LOW PRESSURE OIL BURNER.—Air is supplied from a centrifugal fan at a pressure between 10 and 30 ins. w.g. Usually 25 to 40 per cent. of the supply air passes directly through the burner, atomising the fuel in two stages within the oil tube. Some of the atomising air enters the central tube effecting preliminary atomisation. The rest is then given a rotational velocity and meets the oil-air mixture at the mouth of the burner.

A variation of this type is the rotary cup. The oil is distributed over the air blast from the lip of a rapidly rotating cup. This serves the dual purpose of ensuring even distribution of the oil and also initiates atomisation. The low pressure burner offers the advantage of forced draught and may conveniently be used on furnaces with a positive internal pressure.

MEDIUM PRESSURE AIR BURNER.—In these burners, 3 to 5 per cent. of the air for combustion is sufficient for atomisation. This air is supplied at a pressure of 3 to 10 p.s.i. from a small rotary blower. The oil enters along the axis of the burner and is atomised in two stages, the first stage being the central tube and the second stage at the mouth of the burner.

THIS burner is widely used in industrial work where high temperatures are required. The air which does not pass through the burner, i.e., up to 97% of the total, may be highly preheated and the small amount of unheated air passing through the burner avoids damaging the burner and over heating the oil.

Continued page thirteen

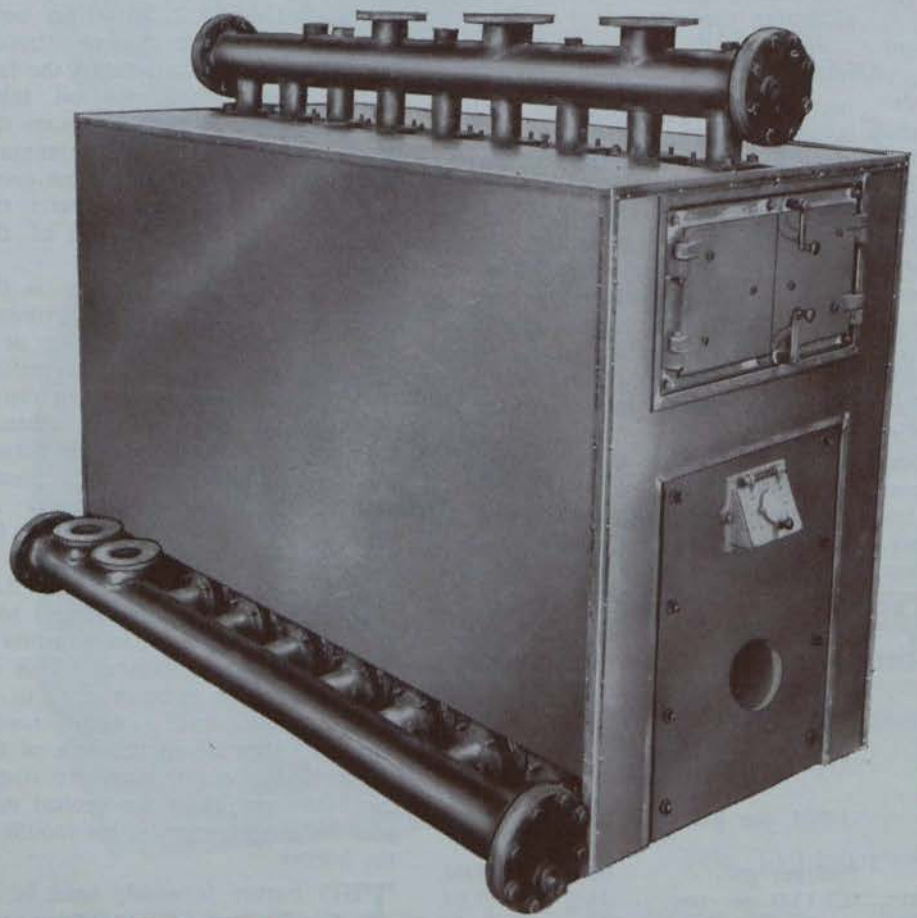
FUEL	GROSS CALORIFIC VALUE APPROX. B.T.U.	APPROX. COST *	"BOGEY" EFFICIENCY	COST PER THERM
Heavy Fuel Oil 3,000 secs.	18300/lb.	11d. per gal.	82%	7.6d.
Medium Fuel Oil 950 secs.	18500/lb.	11⅞d per gal.	82%	8.3d.
Light Fuel Oil 200 secs.	18700/lb.	1/0⅞d. per gal.	82%	9.0d.
Gas Oil	19600/lb.	1/5 per gal.	80%	13.0d.
Turf	6650/lb. at 30% m.c.	*£3/13/0 per ton.	75%	7.8d.
Briquettes	8350/lb. at 12% m.c.	*£5/1/0 per ton.	75%	8.6d.
Coal	12800/lb.	£10/0/0 per ton	75%	11.1d.
Coke	12500/lb.	£11/15/0 per ton.	75%	13.4d.
Anthracite	14850/lb.	£12/10/0 per ton.	75%	12.0d.
Gas	475/ft.3	2/5d. per therm.	95%	2/6½d.

*Rebates not taken into account
Solid fuel prices delivered Dublin

Published by ARROW@TU Dublin, 1963

Top people demand top quality...

...and now! to meet a demand—



THE M.S.C STEEL SECTIONAL BOILER

Joining a team which covers the central heating field—

'Oilex', 'Metropolitan', 'M.S.C.'



write for this concise descriptive leaflet.

Manufactured by:

HARTLEY & SUGDEN LTD.

EST. 1867

HALIFAX, ENGLAND. Tel: 3238. London Office: 54/62 REGENT ST., W.1. Tel: GER 3965

Irish Agent. MICHAEL D. McGRATH, 48 TOWNSEND ST., DUBLIN. Tel: DUBLIN 78501

https://arrow.tudublin.ie/bsn/vol3/iss10/1
DOI: 10.21427/D7HD9D

et al.: The Irish Plumbing and Heating Engineer, January 1964 (complete i

HIGH PRESSURE AIR BURNER.—The atomising medium in these burners is compressed air, 15 p.s.i. to 50 p.s.i. pressure or, more commonly, steam. Mixing takes place entirely external to the burner, the oil being introduced into a high velocity stream of air or gas from an injector or over a weir. An appreciable percentage (4—5% at least) of the generated steam is required for atomisation, but as no fans or compressors are required, there is a saving in electrical power.

STOKERS.—About five basic types

SPECIAL REVIEW

from page eleven

of stokers are used for solid fuel. Although similar in principle, stokers are nevertheless highly selective and must be designed for a specific grade and quality of fuel. If this grade is not maintained, efficiency will fall and the boiler rating may not be maintained.

GRAVITY FEED STOKERS.—These are used on boilers of small ratings only. Familiar examples are turf-fired hopper units and anthracite preburner units. Control is generally by means of a modulating primary air damper or a thermostatically operated F.D. fan.

SPRINKLER STOKERS.—These throw fuel on the grate by means of shovels, flippers or rotary distributors, imitating the spreading method of hand firing. The firebars may be stationary or have a self-cleaning motion. Supervision is required to maintain a uniform fuel bed so fully automtaic operation is not generally possible. Grit emission occurs with light fuels or fuel containing fires.

COKING STOKERS.—These stokers deposit the fuel on the front of the grate by means of a reciprocating ram placed under a feed hopper. The fuel is carried slowly along the grate by the grate bars, which are actuated by a special mechanism. The volatile matter is distilled off on the front portion of the grate from which it has a long travel over the incandescent fire-bed, thus producing complete combustion and obviating smoke. Fuels with fires such as crushed turf are burned very successfully in the coking stoker.

UNDERFED STOKERS.—The fuel is fired mechanically to the bottom of the fuel bed by means of screws or rams, the air for combustion being supplied near the entry point of the fuel by a forced draught fan. As the fuel rises, volatile matter is given off and is burned as it passes upwards through the burning fuel on the surface layer.

These stokers are suitable for free-burning bituminous coals, semi-anthracite and briquettes.

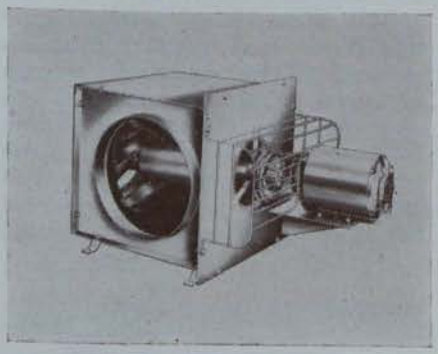
CHAIN GRATE STOKERS.—These stokers are mostly for water-tube boilers in contrast to those described above, which are generally used for shell boilers. The fuel is gravity fed onto the front of the grate and is carried forward, first under a brick arch which assists ignition and then into the main combustion chamber. The ash is discharged over the end of the grate.

Chain grate stokers are widely used in very large industrial boilers and in power stations.

GAS BURNERS.—Town gas is widely used in industry on account of its cleanliness, and ease of control. Three basic types of burner are used, the main distinction between them lying in the method of introducing the air.

Continued page fifteen

TWO BIG COST SAVERS!



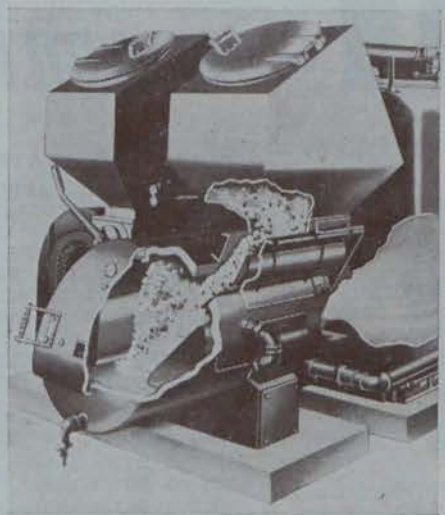
Wing Draft Inducers

ELIMINATE THE USE OF TALL CHIMNEY STACKS . .

- ★ Savings can be over 25% of tall stack costs.
- ★ Ensures adequate draught conditions — saving on fuel consumption.
- ★ No high maintenance costs.
- ★ Suitable for oil or solid fuel firing.
- ★ Range of sizes available.
- ★ Produces draught only at times when required.
- ★ Send for full information.

LOWER BOILER OPERATING COSTS WITH THE

UNICORN AUTO BURNER



Economic operating on cheap, small coke, other low grade fuels and Anthracite.
Efficiency 80% or more.
Less supervision. From once per shift to once per day.
Automatic Temperature Control. Thermostat or Pressure Stat.
Gravity Fuel Feed. Various hoppers available.
Minimum maintenance and virtually no replacement.
Easy to install. Fits boilers of almost all types and makes.
Water Jacketed Combustion Chamber.
Seven sizes — 200,000 to 2,400,000 B.T.U.'s per hour.
In the event of electrical failure will operate at reduced output.

MANUFACTURED BY CURWEN & NEWBERY LTD. (one of the Applegate Group of Companies), UNICORN WORKS, LONDON ROAD, DEVIZES, WILTSHIRE. Telephone: Devizes 973/4.

Details and Leaflets from Main Agents:

W. FINUCANE & CO.

5 Upper Pembroke St., Dublin, 2

Telephone: Dublin 63634.

Published by ARROW@TU Dublin, 1963

WELDRYTE CAN HELP YOU SAVE MONEY!!

TEMP-O TYPE-W OILBURNERS
ARE DESIGNED FOR FIRING SECTIONAL BOILERS

★ STAINLESS STEEL PRECOMBUSTION FLAME FUNNEL
★ REFRACTORY BRICKING GREATLY REDUCED
★ VERY HIGH COMBUSTION EFFICIENCY
★ UNAFFECTED BY POOR DRAUGHT CONDITIONS

RATINGS: 50—200,000 BTU/hr., 180—400,000 BTU/hr., 400—800,000 BTU/hr., 800—2,000,000 BTU/hr.

WELDRYTE AIRHEATERS
ARE THE MOST PRACTICAL AND ECONOMICAL MEANS OF HEATING FACTORIES AND GARAGES

★ SIMPLE TO INSTALL
★ FULLY AUTOMATIC
★ GUARANTEED EFFICIENCY

Now available through Irish Shell and BP Ltd.—Mercantile Credit Co. Ltd. Loan Plan over 5 years. Low interest rate.

OUTPUTS: 200,000 BTU/hr., 300,000 BTU/hr., 500,000 BTU/hr., 750,000 BTU/hr.

for central heating

APPOINTED INSTALLER FOR IRISH SHELL AND BP LTD.

WELDRYTE LTD.

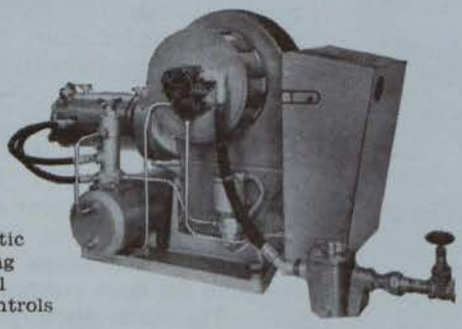
SOUTH QUAY - ARKLOW. Phone 150/155.

CLYDE

THE **BIG** NAME IN **HEATING** FOR **RELIABILITY & ECONOMY**

CLYDE OIL BURNERS

★ Clyde 'Hob' Burners are suitable for heavy fuel oils
★ Thermostatically controlled
★ Fully Automatic
★ Silent Running
★ Easy to install
★ Electronic Controls



All high/low flame burners are supplied with our 'COMPOSITE' head to give high combustion efficiency and maximum turn down ratio.

CLYDE AIR HEATERS

★ FULLY AUTOMATIC
★ RAPID TEMPERATURE RISE
★ FLEXIBLE HEAT DELIVERY
★ CONTROLLED AIR CIRCULATION
★ RELIABLE AND EFFICIENT
★ THE MOST EFFECTIVE METHOD OF HEATING LARGE BUILDINGS
★ HORIZONTAL UNITS USING LIGHT OR HEAVY FUEL OILS CAN ALSO BE SUPPLIED

Sizes available:

Heat Output	Model
150,000 BTU's/hour	CH 1
250,000 BTU's/hour	CH 2
400,000 BTU's/hour	CH 3
700,000 BTU's/hour	CH 4



Write for full details to:—

Also manufacturers of all systems of oil firing.

CLYDE FUEL SYSTEMS LIMITED

Queen Elizabeth Avenue, GLASGOW, S.W.2. - **6 Mount Street Crescent, DUBLIN, 2. Tel. 66489.**
80 Holywood Road, BELFAST, 4. Tel. 656365. **Hardcock House, 30-31 Marlboro St., CORK. Tel. 21729.**
Service Centres: Londonderry, Armagh and Limerick.

https://arrow.tudublin.ie/bsn/vol3/iss10/1
DOI: 10.21427/D7HD9D

et al.: The Irish Plumbing and Heating Engineer, January 1964 (complete i

IN this equipment review we take a look at new developments in the fields covered by the foregoing special review. (All claims are those of the manufacturers).

AMONG the wide range of new products introduced during the past year by the Beeston Boiler Co. Ltd. of Beeston, Nottingham, is Beeston-Nu-way range of matched boiler sets (See picture).

Beeston-Nu-way matched boiler sets consist of boiler units ordered from and supplied by the Beeston Boiler Co. Ltd., and burner and control equipment and combustion chamber materials ordered from and supplied direct by Nu-way Heating Plants Ltd.

The object of the matched boiler set is to provide an integrated central-heating boiler unit complete with firing and control equipment, retaining, at the same time, the advantages of the boiler and burner manufacturers supplying direct to the trade. Joint specifications have been drawn up covering the boiler, burner, combustion chamber, and control system to provide the optimum operating performance. The specifications have been proved by extensive tests, and by using equipment to these specifications the installer is assured of the best possible combination of equipment.

The burner unit is of the pressure-jet type with control box and control and limit thermostats (or high-low control equipment) all provided.

The Beeston Robin Hood "Senior 3" boiler sections have the same external dimensions as the existing New "Senior" boiler, but additional secondary heating surface has been added to give an increased output. The gas passes have been re-proportioned to increase the general operating efficiency, and improvements have been made to the sealing between sections and between sections and the boiler stand.

* * *

THE OLDBURY "Airspin" oil burner from the range of Edwin Danks & Co. (Oldbury) Ltd., Oldbury, Birmingham, is designed to handle at maximum efficiency a wide range of fuels, particularly heavy fuel oils, with a minimum of pre-heating. The basic simplicity of the air driven spinning cup atomiser with only one moving part and the absence of small orifices enables long periods of continuous full load conditions to be met without shutdown.

With the awareness of the benefits of forced draught becoming increasingly known, this burner has incorporated as standard a built-in secondary air fan, thus providing higher air velocities, and therefore turbulent combustion and a corresponding shorter flame with a better turn-down ratio. Fully automatic or semi-automatic or hand control arrangements, all incorporating fuel/air ratio control, are available.

Also of interest from the Oldbury range is the "Minor" stoker — a small edition of its well known counterpart. It is specifically designed for use in cast-iron sectional boilers for the heating of offices, blocks of flats and horticultural purposes. It is also being used increasingly in vertical boilers with considerable success. It has all the important features of the "Oldbury" stoker and is fitted with a simple automatic control which can be integrated into the temperature control of the building in which it is installed. It will burn the same wide range of fuels that can be dealt with on the "Oldbury" stoker.

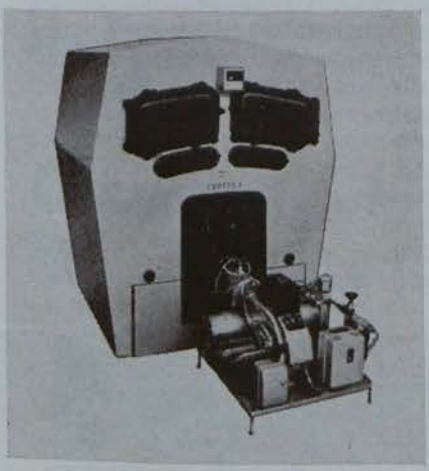
* * *

THE HARTLEY & Sugden Ltd., Halifax, M.S.C. boilers meet the requirements for a free-standing, waterway base, sectional boiler specifically designed for oil firing. Each section has its particular function in the unit as a whole. The sections are stabilised by long bolts and interconnected by flow and return headers. The return headers can be provided on the left or right as required.

There is a removable cleanout cover at each end of the headers. Access to the waterways for cleaning is available by means of single bridged, forged steel covers. Hinged cast iron double doors at the front and two covers with wing bolts at the rear of the boiler provide easy access to the plate and tube surfaces for cleaning by means of brush and scraper.

The doors are completely proof

Continued page sixteen



SPECIAL REVIEW

from page thirteen

LOW PRESSURE BURNERS— These are by far the simplest and most common burner type. They are used for boilers, air heaters, etc. Gas is supplied at pressures between 4 and 8 inches w.g. and the air pressure may be used to 5 or 6 p.s.i. Gas and air supplies are separately controlled and a cone shaped refractory black is generally used to give the correct form of flame and to maintain combustion. This type of burner has excellent regulation.

HIGH PRESSURE BURNERS.— With these burners the gas is supplied at mains pressure and is entrained into a stream of high pressure air in an injector which acts on the venturi principle.

This burner is very suitable where an intense local heat is required. Backfiring may occur at low loads so a wide range of temperature cannot be catered for.

PRE-MIXING BURNERS. — This popular form of burner has the gas and air delivered to the throat ready mixed. It is very suitable for furnaces as the combustible mixture can be distributed to a number of different points to produce the required temperature distribution. The aeration of the gas is effected in an injector, the gas pressure being stabilised by the use of a governor. The velocity of gas in the distributing mains must be above the velocity of flame propaga tion to safeguard against backfiring.

SUMMARY. — The above is intended only as a general guide. Many of the details of particular equipment vary from manufacturer to manufacturer and these should be studied closely before purchasing. The assistance of reputable manufacturers, supply companies and consultants should be availed of, since very satisfactory results can generally be obtained only from a carefully planned and executed installation.

Published by ARROW@TU Dublin, 1963

against leakage of the flue gases. Where needed for the working pressure, welded stays are passed through the waterway. The flue gas outlet is at low level on the rear face of the boiler and is provided with a damper and locking quadrant. A mild steel front plate with openings for oil burner is provided and this is fitted with a cast-iron self-closing relief door with sight glass.

* * *

LOWER boiler operating costs with solid, smokeless fuel, and an 80 per cent. efficiency is claimed with the C. and N. Auto Burner. The manufacturers of the burner are Curwen & Newbury Ltd.—one of the Applegate Group of Companies—London Road, Devizes, Wiltshire.

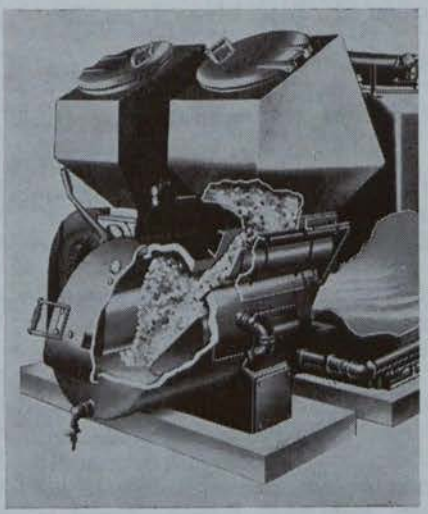
The burner provides a simple method of automatic boiler firing, using a wide variety of solid fuel which is gravity fed into the combustion chamber. There are no moving parts with the exception of the fan. This is an important feature which minimizes wear on the burner and consequently long periods of service are obtained without need for costly, skilled maintenance.

The C. and N. auto burner can be used in conjunction with a very wide range of boilers such as cast iron and sectional steel boilers, low pressure steam boilers, and in special instances, high pressure steam boilers. It is ideally suited for automatic firing of cast iron sectional boilers fitted with water cooled fire bars.

The unit is being used successfully on Malt Kilns, Drying Kilns and other

PRODUCT REVIEW

from previous page



special heating applications. Special hoppers can be provided to suit clients' requirements, and special hinged hoppers for cleaning boiler flues can also be obtained. At the present time, burners are supplied in seven different sizes, ranging from 200,000 B.t.u.'s output on coke to 2,400,000 B.t.u. output on anthracite.

Also from the range of Curwen & Newbert Ltd. is the Wing 10D1 Draft Inducer which is now being manufactured to fit 10" diameter flues and is also adaptable through discharge connections for flues from 6" to 9" diameter.

* * *

THE ENNIS Engineering Co. Ltd., 55 Mary St., Dublin, who are exclusive agents for the Smiths Debutante fan assisted vapouring boilers, 30,000—60,000 B.t.u./hr. capacity, and Camron pressure jet boilers (50,000—120,000 B.t.u./hr. capacity), are now in a position to supply the Camron range of pressure jet oil burners, both domestic and industrial.

The Industrial Emulsifying Burners range consists of:—

Model EB1: 175,000 to 525,000 B.t.u./hr., fitted with on/off controls (£265).

Model EB2' 140,000 to 1,000,000 B.t.u./hr., fitted with high/low controls (£285).

Model EB3: 800,000 to 2,400,000 B.t.u./hr., fitted with high/low controls (£395), or with modulating controls (£425).

Model EB4: 2,000,000 to 4,000,000 B.t.u./hr., fitted with high/low controls (£475), or with modulating controls (£505).

Model EB5: 3,000,000 to 7,250,000 B.t.u./hr., fitted with high/low controls (£595), or with modulating controls (£625).

The controls consist of Satchwell Del. 15/Le. 3, Crabtree motor starters with overload delay, Satchwell thermostats, standard quarl, filter and flexible oil connector.

In the case of high/low controls two thermostats are used.

All prices are ex-works and are for 3-phase electrical supply. Single phase can be supplied at extra cost.

Burners can be supplied for steam raising with pressure switches in lieu of thermostats at additional cost.

* * *

FELCOIL Burners Limited, Merton High Street, London, oil burner manufacturers, and specialists in combustion and boiler-house construction, have recently introduced a wide range of equipment now available to the Irish market. The firm is also interested in contacting suitably experienced and reputable companies in this country who may be interested in distributorships or a sole agency.

From the range we note the Felcoil FGB, a compact and quiet running fully automatic light oil pressure jet burner machined from an integral casting of corrosion resisting aluminium alloy. Three smaller models are designed for flange mounting, but may optionally be arranged for pedestal mounting. On all models, a quickly detachable cover permits easy removal of the nozzle and electrode assembly for servicing, and on the three smaller

Smiths Debutante Fan-Assisted Vapourizing Boilers

50,000 BTU/hr. **£117-10-0**
60,000 BTU/hr. **£127-10-0**

Camron Pressure Jet Boilers

50,000 to 70,000 BTU/hr. **£127-10-0**
75,000 to 120,000 BTU/hr. **£132-10-0**

Available ex stock.

Camron Domestic and Industrial Burners

From 40,000 to 2,400,000 BTU/hr.

Write or telephone for further technical information.

ENNIS ENGINEERING CO. LTD.

55 MARY STREET, DUBLIN. Tel. 49878.

https://arrow.tudublin.ie/bsh/vol3/iss10/1
DOI: 10.21427/D7HD9D

PRODUCT REVIEW

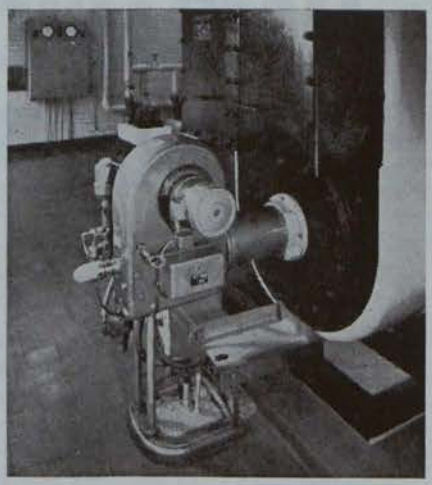
from previous page

models this is combined with a sight glass for flame inspection. The design and performance are ideal for domestic and larger boilers for heating and steam raising, and the burner is eminently suitable for application to air heaters, grain dryers and a wide range of industrial uses.

* * *

THE SWISS designed range of Elco pressure jet burners, one of the widest on the market, includes models for applications with fuel oils from 35 seconds to 3,500 seconds Redwood No. 1 at 100 F. and for on/off, high/low or fully modulating operations. This range, including burners suitable for boilers with ratings from 45,000 B.t.u.'s/hr. up to 12 million B.t.u.'s/hr. are manufactured and marketed by Messrs. Corrie Maccoll & Son, Ltd., Ipswich Road, Trading Estate, Slough, Bucks., England.

Our illustration shows an oil firing installation at one of the largest pharmaceutical companies in Britain, and chosen as the best means of heating and providing hot water for the company's new two-storied block. Elco oil burners were installed, the main



boiler being a Kayenco NAO-15 rated at 1,650,000, is fitted with an an Elco standard 111.70 DVR/e high/low burner running on 200 seconds fuel oil. The second boiler, a Kayenco LRD/1 rated at 350,000, is fitted with an Elco standard 1.12 running on 35 seconds gas-oil.

From the range, we also note the Elco KA 111.155 UNI-E burner fitted to 2 Allen-Ygnis hot water/steam boilers of 4,000,000 B.t.u.'s per hour each, and operating on 950 seconds fuel oil Redwood No. 1 at 100 degrees F.

trade Topics

NEW RANGE OF FLOW REDUCERS

A RANGE of flow inducers now available for pumping, dosing or metering at rates of up to 2,000 gallons (9,080 litres) per hour have no glands or valves and can handle acids, alkalies, sterile fluids, essences, solvents, creams, oils, gases and vacuum.

This equipment makes use of a plain elastic tube through which fluid is forced by means of three rotating rollers. A wide range of tube sizes is available, each bore providing a different flow rate without modification. The absence of a gland means that leakage and aeration are eliminated and since there is no non-return valve or mechanism of any kind in the path of the fluid, nothing can stick or corrode.

The new equipment is manufactured by The Watson-Marlow Air Pump Company, Marlow, Bucks.

Consult IRISH TECHNICAL & PRODUCTION Co. Ltd.
For Steam Or Hot Water Installations



FROM 70,000 TO 6,000,000 BTU/h. FOR LIGHT OR HEAVY OIL.

FRANCIA
Oil Burners

VAPOR STEAM GENERATORS
for light or heavy oil.

- Our equipment is covered by a first-class service organisation.
- List of Industrial Installations may be had on request.

70,000 BTU/h. to 6,000,000 BTU/h.
G.C. SERIES INDUSTRIAL

25 Upper Mount Street, Dublin.

Telephone: 62636 & 63421.

Published by ARROW@TU Dublin, 1963

MECHANICAL REFRIGERATION TO-DAY

By

DANIEL HEENEY

An Applications Engineer with a leading Dublin specialist firm.

MECHANICAL refrigeration has recently been described as the handmaiden of industry. A little reflection will show that this is a true statement. To do no more than list the industries which rely on it would fill a good page of any magazine.

Therefore to describe the theory, practice, and applications of mechanical cooling in a short series of articles, which I hope to do, will involve saying a little about everything or possibly not a lot about anything. This month's article will attempt to describe the simple vapour compression system. Subsequent articles will deal with refrigerants in common use, the design of refrigerating equipment and cold stores, and general applications, with special reference to air conditioning and the theory and application of the heat pump principle.

Fundamentally the refrigeration process is based on the fact that if an easily vaporised liquid is allowed to evaporate, it will take heat from a surrounding body. If you spill a little petrol or ether on the hand it will feel cold: these liquids are evaporating and the heat necessary for this change of state is being taken from the hand, with the resultant chilling effect. In a refrigerator the working fluid is evaporated under low pressure at controlled conditions, and a cooling effect is produced in the evaporator or cooler.

FIG. 1 shows the basic components of the vapour compression cycle. Vapour is drawn into the compressor suction where it is raised to a high pressure and resultant high temperature prior to its discharge to the condenser. Here the high pressure vapour gives up part of its heat content to the cooling medium, either air or water, and it condenses to a warm liquid at a temperature about 20° F. above the temperature of the coolant. The liquid refrigerant passes to the expansion valve, where it is allowed to expand, at a controlled rate, from the small volume of the liquid pipe to the relatively large volume of the evaporator. Here, due to the low pressure maintained by the pumping action of the compressor, the liquid vaporises.

In expanding, the refrigerant takes up latent heat of vaporisation at the expense of its sensible heat and thus a temperature low enough to provide a cooling effect on the medium to be refrigerated is attained in the evaporator. The subsequent transfer of heat from this medium to the cooling unit causes the evaporation of the balance of the liquid admitted at the expanison valve, and the vapour is drawn into the compresser to be recompressed, condensed and evaporated.

Basically then, the function of a mechanical refrigerator is to absorb heat at a low temperature in the evaporator, and discard this heat at a high temperature from the condensor.

Fig. 2 is a type of chart commonly used for analysis of refrigeration systems. Five properties of the refrigerant are clearly shown and if any two of these are known the others can be found from the chart. Absolute pressure is marked on the vertical axis and heat content in B.t.u./lb. on the horizontal axis. The saturated liquid line is the locus of states at which the fluid is in liquid form but saturated with heat; flow of heat, while pressure is constant, to the the fluid at a state on this line will result in evaporation.

Similarly, the saturated vapour line is the locus of states for which the vapour is saturated with heat; flow of heat, to the vapour, while pressure is constant will result in superheating or drying out and removal of heat will, of course, cause partial condensation. Any point between these lines will represent a mixture of liquid and vapour. The other properties shown are states of constant entropy, constant temperature and constant volume.

TO illustrate the working of the ideal compression cycle on such a chart we must make three assumptions: that no heat enters or leaves the system at any point, except in the condenser and evaporator; that there are no pressure losses through the compressor valves, condenser, evaporator and connecting pipe work, and that compression follows an isentropic path. Once the cycle analysis has been established for the ideal cycle it is of assistance in explaining efficiency losses in practical operations, and how they are overcome.

The basic cycle shown on the skeleton chart in Fig. 3 assumes that the refrigerant enters the compressor as a saturated vapour and leaves the condenser as a saturated liquid. With a suction pressure of 25 p.s.i.a. the refrigerant enters the compressor at point S on the saturated vapour line. Compression takes place isentropically and can be represented on the chart as a line of constant entropy, starting at S and ending at D. The gas is discharged at constant pressure, Pd", to the condenser, where heat, representing the heat gain in the evaporator

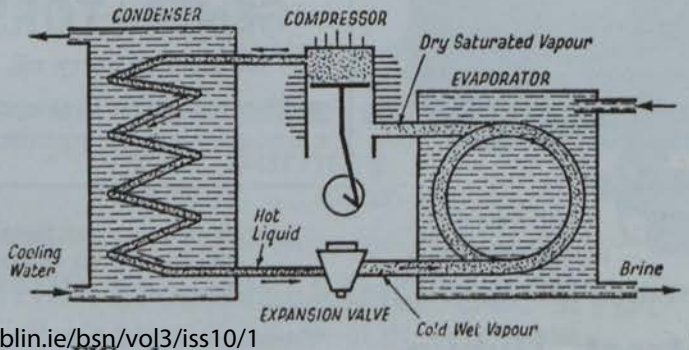
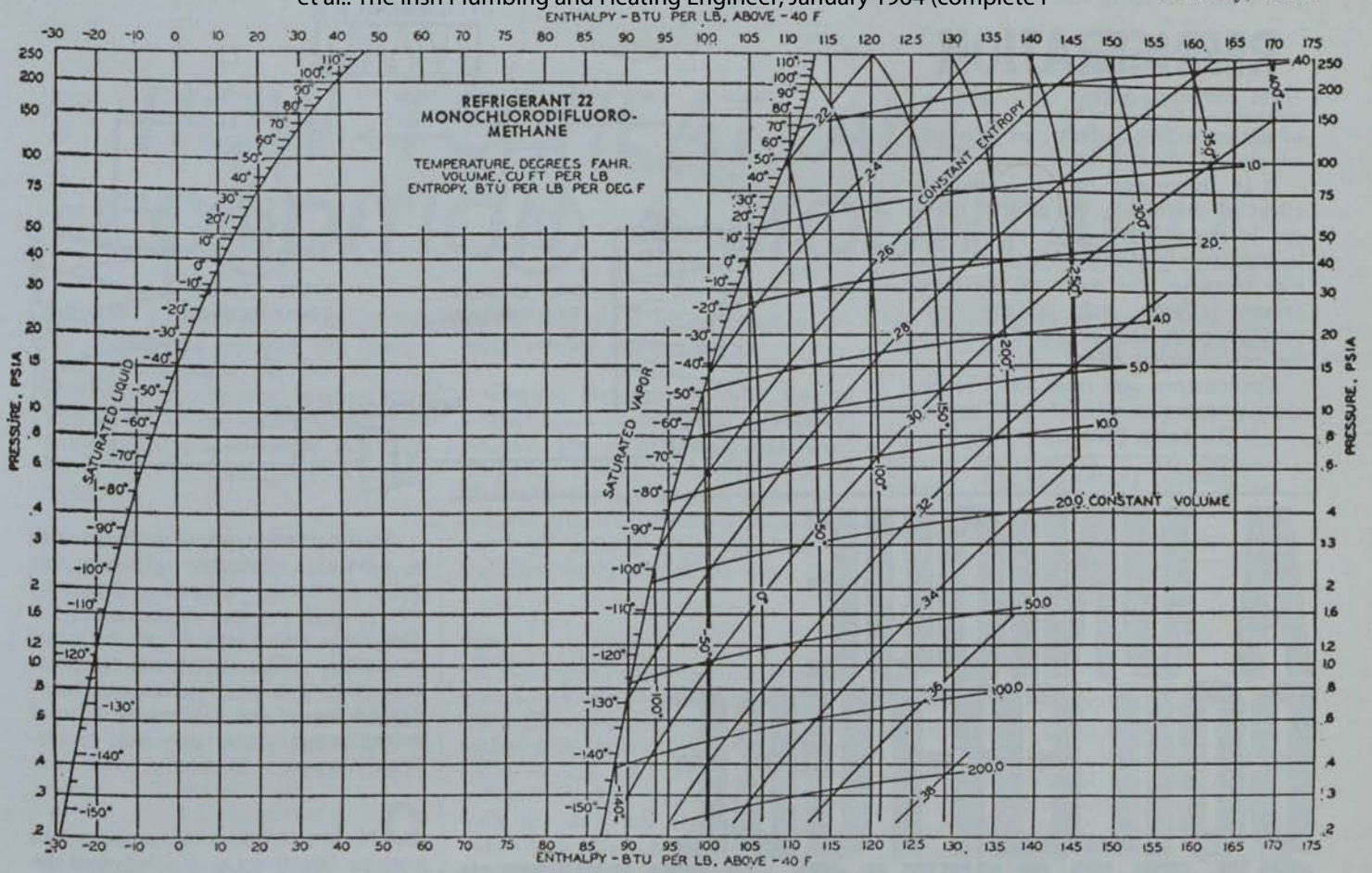


FIG. 1

https://arrow.tudublin.ie/bsn/vol3/iss10/1
DOI: 10.21427/D7HD9D



from previous page

and the work of compression, is dissipated.

The section of the line between d' and the saturated vapour line represents the removal of the superheat added during compression. At the saturated vapour line, condensation starts and is complete when point C' is reached on the saturated liquid line. The expansion valve process is represented by the vertical line from C' to E" on the suction pressure ordinate and shows plainly the drop in pressure from the condenser to the evaporator, through the valve. This pressure drop takes place at constant total heat and has the effect of vaporising part of the refrigerant admitted at the valve and producing a low temperature in the evaporator. The line from e" to S shows the change from a mixture of liquid and vapour to a fully saturated vapour and the increase in heat content of the fluid from e" to S on the horizontal scale gives the amount of heat absorbed in the evaporator or the nett refrigerating effect.

THIS effect then is the amount of heat required to evaporate the balance of the liquid part of 1lb. of the refrigerant admitted by the expansion valve. It is not the total latent heat per pound of refrigerant, however, as part of the required latent heat was taken from the sensible heat of the warm liquid when it was allowed to flash through the expansion valve.

The coefficient of performance for the refrigerant at suction pressure Ps and discharge pressure Pd" is given by

$$\frac{hs - he''}{hd' - hs}$$

or the nett refrigerating effect divided by the work input to the compressor. If the process starts at a lower suction pressure, Ps', two factors will reduce this coefficient. The range of compression is increased to lift the vapour pressure to a suitably high figure for condensation to occur, and the nett cooling effect is reduced.

It is, therefore, important to maintain the highest suction pressure and hence temperature, that will give the required heat extraction from the medium or product to be cooled.

The discharge pressure and temperature is fixed by the temperature of the cooling medium for the condenser, whether water or air. As seen from Fig. 3 the higher condenser pressure d' means a slight loss of refrigerant available for cooling because more liquid will have to be flashed off at the expansion valve to reduce the temperature of the liquid-vapour mixture entering the evaporator, to the low temperature required in this part of the plant. Since the discharge pressure is increased, the work done in compressing the vapour will also be increased. The condenser should always be liberally sized and care should be taken to provide a sufficient water supply or, in the case

Continued overleaf

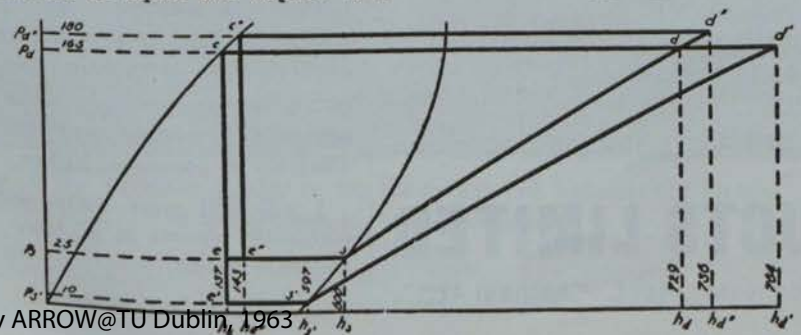


FIG. 3.

Published by ARROW@TU Dublin, 1963

Building Services Engineering, Vol. 3 [1963], Iss. 10, Art. 1

REFRIGERATION

from previous page

of air cooled equipment, an adequate supply of cooling air.

It is important to note, that the effect of decreasing the suction pressure is more severe than an increase in discharge pressure because the former increases the work of the compresser at both ends of the compression path and drastically reduces the refrigerating effect.

The compression ratio for a refrigerating compresser is defined as the

$$\frac{\text{Discharge Pressure PSIA}}{\text{Suction Pressure PSIA}}$$

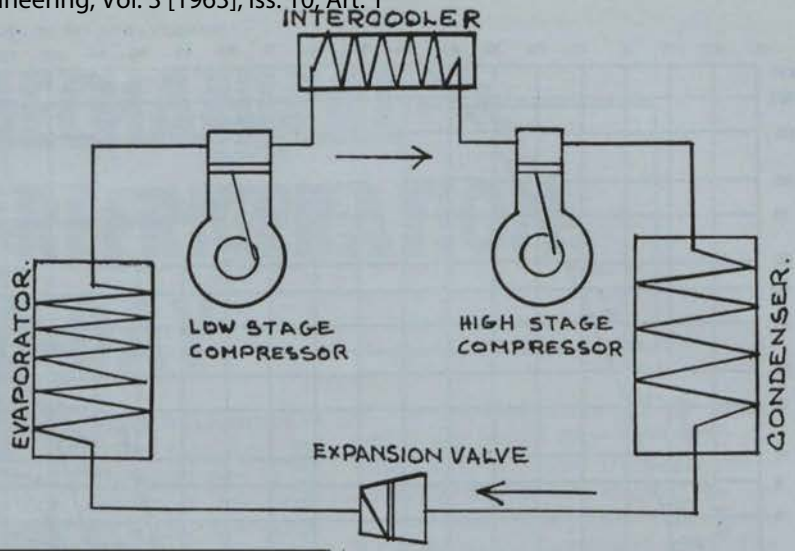


FIG. 4

As the suction pressure drops with a constant discharge pressure this ratio increases. Beyond a figure of 10 : 1 single stage compression for Ammonia and Freon 22 plants is not economic. The compressor temperature rises to a point which can cause breakdown of the lubricating oil and power requirements per ton of refrigeration rise drastically.

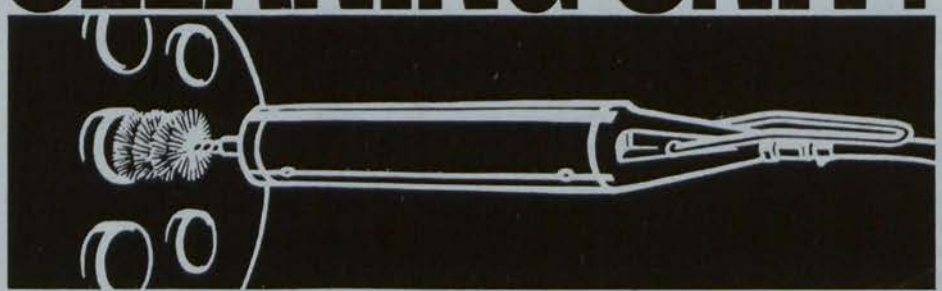
ON low temperature applications such as fast freezing of foods and the storage of frozen produce where suction temperatures may be of the order of −15°F. to −50°F., the compound compresion system is employed. This is illustrated diagramatically in Fig. 4. Suction vapour at low pressure and temperature is drawn into the first or low stage compressor where it is raised to a pressure between that of the evaporator and the final condenser pressure. At this intermediate pressure it is passed to an intercooler. Here, by means of water or other coolants, its temperature and volume are reduced. It then passes to the second or high stage compressor where the pressure is raised to a level high enough for condensation to take place.

The advantages of this system are twofold. Firstly, by reducing the pressure lifts required of each compressor, a better overall volumetric efficiency is achieved. By removing part of the heat content during intercooling, high compressor body temperatures are avoided, better plant operation is assured, and the cycle efficiency is somewhat higher.

I will deal more fully with the compound system in a later article on plant design.

(To be continued)

A UNIQUE BOILER-TUBE CLEANING UNIT!



The Ferret is a completely unique type of boiler-tube cleaning unit. Attach it to a standard tube brush and it will creep along the tube — *without revolving* — and without any need for manual pushing and pulling! When it reaches the tube end, the double thrust action then reverses and the Ferret returns — ready for the next tube!

THE FERRET *Cuts labour time—no manual pushing and pulling
*Does away with extension rods.
*Gives cleaner tubes.
*Works quickly.

For full details, or a demonstration in your own plant, contact —

AIRNESCO PRODUCTS LIMITED

4 New Road, Rochester, Kent. Chatham 42217.

https://arrow.tudublin.ie/bsj/vol3/iss10/1
DOI: 10.21427/D7HD9D

et al.: The Irish Plumbing and Heating Engineer, January 1964 (complete i

HOW TO HEAT AND AIR CONDITION A MOUNTAIN!

FROM a limestone bluff, and a dream, has emerged the unique underground plant of the Brunson Instrument Company, Kansas City. This plant is so located and constructed that it is relatively safe from flood, tornado, earthquake or atomic bomb.

At the conclusion of World War II. Brunson Instrument Company started planning for a new plant which would allow for future expansion of the rapidly growing company. An underground plant was considered because we felt it would offer relative security in the event of future hostilities and would also offer many advantages in the manufacture of precision instruments.

Face quarry operations has been done on a limestone bluff, which I passed on the way to and from work, and it seemed attractive for such a plant. Our own engineering staff, together with a consulting engineer, conducted the evaluation and made preliminary design studies. The property was acquired in 1948. At this time we planned on approximately 65,135 square feet of manufacturing area. In the final plant we have approximately 140,000 square feet.

General Description.—The general configuration of the plant consists of six east and west tunnels and seven north and south tunnels, with columns fifteen by ninety feet between tunnels. A sheer cliff approximately sixty-seven feet high extends from the floor of the plant to the top of the front face.

THE factory concrete floor is sealed with a concrete sealer to prevent dust. The walls and ceilings are natural rock, sealed with Latex. Where necessary for a straight wall we have installed concrete blocks. In some cases these walls are only five feet high, and in others they extend to the ceiling. The entire area is painted white and all surfaces in both plant and offices can be washed with water or vacuum cleaned.

In the office, which consists of 7,750 square feet plus 1,000 square feet of equipment area, the floors are concrete with asphalt tile. The suspended acoustical ceiling is hung from the rock above, with approximately three feet of air space between. The ceiling high partitions are joined to the acoustical ceiling.

Of particular interest are the heating and air conditioning aspects of the underground factory. As soon as blasting operations were well under way studies on the requirements for heating and air conditioning were begun. The average inside temperature was approximately 54° F. and the relative humidity varied from 30 per cent. to 90 per cent., depending upon the season of the year.

The equipment required to air condition an underground area for use as storage, manufacturing facilities and office space does not differ materially from that required for structures above ground. The application and design of the equipment is vastly effected, however, by the surrounding temperature conditions and other factors that are favourable in underground areas but not found in above ground installations. In above ground installations the factors effecting the selection of equipment have to do with exposure on roof areas, glass, etc., to the sun, and variable outside ambient temperatures throughout the twelve month period. In the underground area we had practically a fixed temperature, with only the humidity ranges to consider.



One of the workshop-tunnels in the air-conditioned underground factory of the Brunson Instrument Company.

SINCE our particular area was reasonably dry, then it remained only to select equipment of sufficient capacity to produce the final desired internal wet and dry bulb temperatures we wished to maintain. The internal sensible heat load, which consists of lights, motors, personnel and make-up air, amounted to 472,300 B.T.U. A proper supply of outside fresh air must be maintained for ventilation commensurate with the requirements based on the number of people working in the area. At the present time we have in excess of 125 employees

Continued overleaf

Published by ARROW@TU Dublin, 1963

THIS report of how a dream became a reality with the construction of a unique underground plant is told by A. N. Brunson, President of the Brunson Instrument Company.

from previous page

and the latent heat load was determined at 75,600 B.T.U. Thus a total of 547,900 B.T.U. is required for proper balance of heat, humidity, and fresh air.

The equipment selected for our installation was direct natural gas-fired duct type heaters, and mechanical refrigeration equipment using Freon-22.

For the office area a heater having a capacity of 150,000 B.T.U. per hour was installed. For the factory two 300,000 B.T.U. hot air gas furnaces were installed. They are so connected that one runs by itself and the other cuts in when necessary. Within each of these furnaces is two separate burner sections which will automatically cut on and off as the heat load fluctuates with the temperature of the air coming into the furnace. Actually, we have four-step control—two steps for each unit in the furnace.

The refrigerator equipment consists of a York 50-ton, Freon-22 refrigerating type condensing unit for the factory. This unit operates on an 8-row coil handling unit of approximately 16,000 c.f.m. capacity and is capable of pulling 1 pound of water out of the air every eleven seconds, at 60 per cent. humidity. For the office a separate 7½-ton air conditioning unit, operating under its own controls, was installed. Both units are equipped with proper bypass and automatic controls for maintaining a proper leaving temperature of the air distributed throughout the conditioned space. When outside atmospheric conditions are suitable both the heating and the air conditioning units can be bypassed, and natural outside air circulated at the capacity of the air handling units.

This equipment has proven adequate for ventilation and heat removal for the entire 140,000 square feet of factory space, at its present personnel load. The entire space was brought under the control of the unit by stages as stable conditions were established in the original area for which it was designed. In other words, one of the features of the plant is the fact that with equipment designed to supply suitable air, heat and dehumidification for 65,135 square feet we now find the same equipment is adequate for the entire 140,000 square feet.

All air is filtered regardless of whether it is fresh air from the outside or recirculated air from the factory. Galvanized iron ductwork carries the conditioned air throughout the areas. And, because of the manner in which the plant was excavated, all of the tunnels form natural air flow ducts so that we have a constant air flow to all parts of the plant, without any dead spots.

As the factory stands to-day we could close all the doors, turn off the heat and ventilating system, and it would require between six and eight months for it to cool down to 60°.

HOLFELD REPORT PROGRESS

H. R. HOLFELD Ltd. report an upward sales curve for their Loewe Silenta glandless heating accelerator. These accelerators are available for different capacities and heads and—amongst other installations—have proved themselves in the Intercontinental Hotels at Cork and Limerick. It is available ex stock.

= SCHUMACHER =

Porous Ceramic Filters For All Liquids And Gases

SPECIALISTS IN FILTRATION OF WATER SUPPLIES FOR INDUSTRIAL, HOSPITAL AND DOMESTIC USE

Schumacher Filters for removal of moisture, oil and impurities from compressed air systems.

Porous Ceramic Tiles for Aeration and Fluidisation.



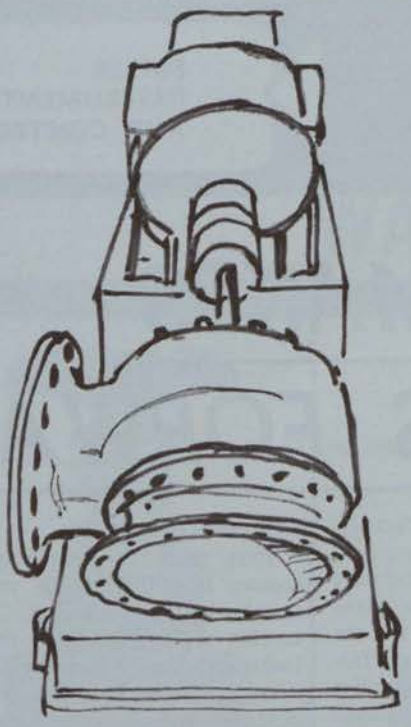
HALPIN & HAYWARD LTD.,

Unity Buildings, 16/17 Lr. O'Connell St., Dublin, 1. Phone 48638.

Bedford Buildings, 7 Bedford Street, Belfast. Phone 26343.

https://arrow.tudublin.ie/bsn/vol3/iss10/1
DOI: 10.21427/D7HD9D

"Who can tell us exactly how much?" they said -



"Worthington-Simpson," they said

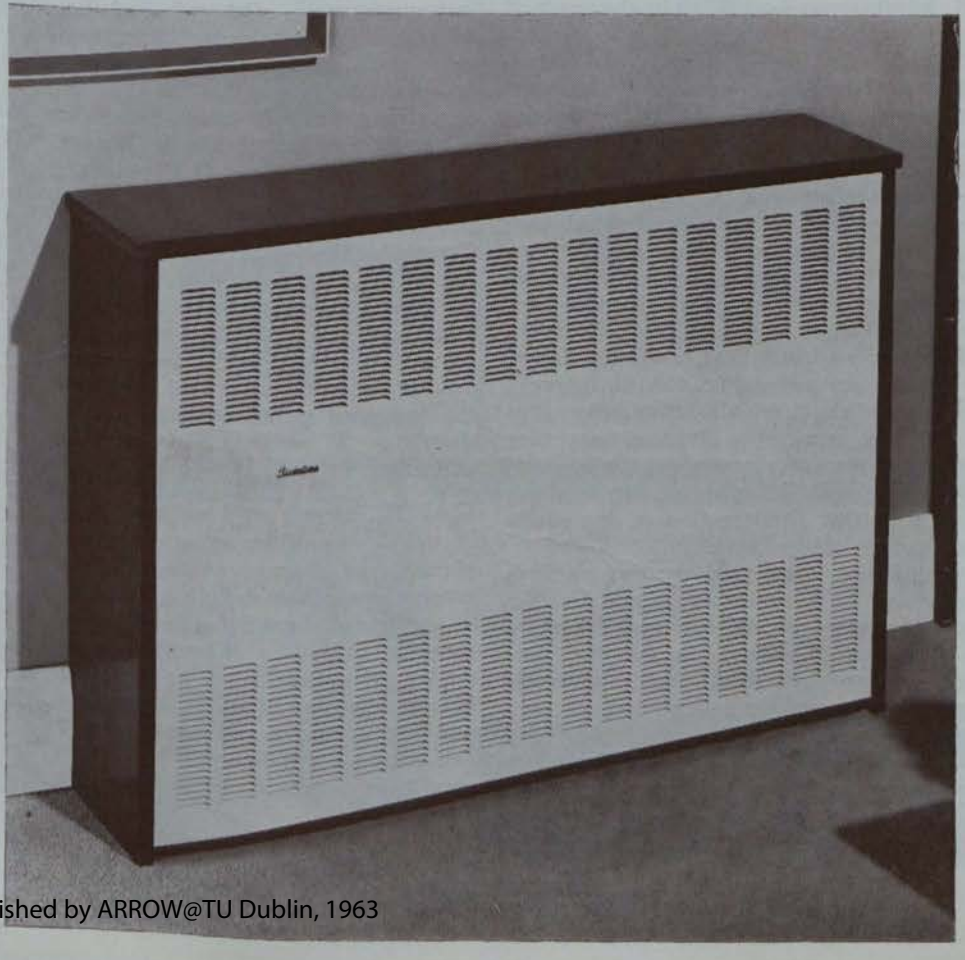
Call our local representatives in on pumping problems and they can quote performance, price and delivery, "off the cuff" in most cases. Our standard ranges, including the famous 'Monobloc' variations, cover capacities up to 16,000 g.p.m. and heads up to 600 feet. Materials of construction include cast iron, gunmetal, stainless steel, 'Worthite' and nickel based alloys of the Hastelloy type.

* *Our general pump leaflet WS-5177 describes briefly all the ranges and quotes specific leaflet numbers from which full information and guide to pump selection can be obtained.*

Worthington-Simpson Ltd
NEWARK NOTTS

Pumps, Compressors and Heat Exchange Equipment

P9008



17 TIMES MORE HEAT* FROM THE SAME HOT WATER SYSTEM

*

You would need 150 sq. ft. (say 3 ft. high by 50 ft. long) of conventional radiator to give the same amount of warmth as this F.B. Heater.

For full details of this Heater, ask the manufacturers:

Fenton Byrn FB

Fenton Byrn & Co. Ltd.,
West Molesey, Surrey.
Tel.: Molesey 7777.

HEATING AND VENTILATING EQUIPMENT SPECIALISTS
or
W. FINUCANE & CO.,
5 Upper Pembroke St., Dublin, 2.

Building Services Engineering, Vol. 3 [1963], Iss. 10, Art. 1

MONTHLY SPECIAL REVIEW

BOILER INSTRUMENTS AND CONTROLS

THIS INDUSTRY MAKES GREAT STRIDES FORWARD

FEW branches of engineering have made such strides in recent years as that of instrumentation and automation. Alone it has been estimated that it accounts for an annual production of £400,000,000 in Britain, and this figure is growing rapidly. This is the result of the rapid industrial advance and the demand for ever higher degrees of automation.

Instrumentation as we know it today can be said to have started in the boiler house, with the earliest pressure and temperature measuring instruments. The rapid advances of recent years have been as a result of the dehands of industrial and aeronautical engineering, and these fields have achieved a degree of sophistication higher than that generally found in heating and boiler practice. The latter field, nevertheless, is in a state of continuous development and it still forms the fundamental basis of instrumentation. New instruments and controls are produced almost every week, and one of the greatest problems for the heating engineer is the selection of the one best suited for his purpose. The problem is a common one and arises also in the application of instruments to chemical and mechanical engineering, and to process work.

ENGINEERS in these fields seldom have detailed knowledge of instrument and control technology, while instrument engineers do not always appreciate the subtleties of all the processes to which their instruments are applied. The chemical industry, where instruments are now all important to the success of the process, has seen the emergence of the process control engineer in an endeavour to bridge the gulf.

In the heating field, a very close [illegible] be [illegible] ment maker and user, if the results are to be satisfactory. The number of sophisticated electronic controllers to be found in industry with the fuse removed and the plant manually regulated testifies to the absence of co-operation that frequently occurs between the supplier and user. Unless full and accurate information concerning the plant and its operating characteristics are supplied by the user, and unless the limitations of a given instrument are outlined by the supplier, the chances of failure are high.

THE failure of instruments to operate satisfactorily or to give the effects desired can often be the result of poor maintenance. Irish firms are generally too small to employ an instrument technician, and realising that servicing should certainly not be carried out by inexperienced personnel, many of them have signed maintenance contracts with specialist firms in this field, or with local representatives of instrument suppliers who employ service technicians. Regular routine maintenance of instruments is essential, as it is found that operators, when an instrument has been out of order for some time, tend to ignore it or switch it off altogether when it is finally serviced. Such a happening tends to make matters worse as long periods of "lying-up" can only result in further deterioration of the equipment.

Boiler house and heating controls serve two main functions, i.e., the promotion of efficiency and the maintenance of safety. In the first category are instruments for the measurement, recording and control of temperature, humidity, draught, flow and gaseous content. The second category comprises flame failure controls, fire detectors, pressure gauges, and the various forms of motor protection equipment.

That there is great scope for increases in efficiency in many boiler installations is undenied. A survey carried out in Britain by the National Industrial Fuel Efficiency Services indicated that fuel savings economically possible in all industries surveyed averaged 15%, but some sectors averaged over 20%. The commonest causes of inefficiency were stated to be poor combustion conditions in boilers and furnaces, and inefficient utilisation of process plant. A necessary step in the remedy of both these defects is the provision of proper instrumentation. Otherwise ad hoc adjustments made to the plant may only make matters worse. There is no reason to believe that the situation concerning fuel efficiency in Ireland is appreciably better than in Britain. A paper by Mr. Eoin O Cionnaoith, Consulting Engineer, entitled "Fuel and Industry," published in "Irish Contracts Weekly" in 1957, gave the annual usage of fuel in Irish industry as approximately £9 million per annum, and estimated that savings of £1 million per annum were possible in this figure. This would represent the increased profits available to industry as a result of proper fuel utilisation.

SAFETY of personnel and equipment require particular attention. Most plants must operate unattended and components whose failure could lead to dangerous conditions must be designed to fail safe. Where necessary, duplicate controls must be installed. Fire remains one of the great hazards, and fire detectors must be carefully and correctly installed. The circuits should be arranged so that, in the

Continued page twenty-six

https://arrow.tudublin.ie/bsn/vol3/iss10/1
DOI: 10.21427/D7HD9D

et al.: The Irish Plumbing and Heating Engineer, January 1964 (complete i

BARWELL VALVES in Gunmetal FOR STEAM, OIL AND WATER SERVICE

Fig. 1609



Gunmetal Gatevalve BS 1952 — Class 200
W.P. 200 PSI at 388°F.

Fig. 3097



Union Bonnet Wheelvalve
BS 2060 – Class 250 Stainless Steel
Seat and Valve W.P. 250 PSI at 406°F.

Fig. 1631



Flanged Gunmetal Gatevalve
Spindle dia. & Face to Face to
BS 1952 Class 200
W.P. 150 PSI at 366°F.

Fig. 3096



Renewable Disc Wheelvalve BS 2060
— Class 200 W.P. 200 PSI at 388°F.

Fig. 3133



Gunmetal Steam Gland Cock
W.P. 150 PSI at 366°F.

Fig. 1532



Horizontal Swing Check Valve
BS 1953 : 1956 — Class 150 at 366°F.

Fig. 1961
FOOTVALVES
$\frac{3}{4}$", 1", 1$\frac{1}{4}$" — 1958 — 1$\frac{1}{2}$", 2".
Gunmetal body.
Heavy Brass Screen.
Max. operating temp. 180°F.



In addition to the valves illustrated, Barwells make a wide range of Gate, Wheel and Renewable Disc Valves for most industries. Threads can be supplied to BSP, ANP or API as requested.

BARWELL

JAMES BARWELL LTD., GREAT HAMPTON STREET, BIRMINGHAM 18. Telephone: Nor 1307 pbx
Telegrams: BARBELLS, BIRMINGHAM • LONDON Office: PHOENIX HOUSE, 19 OXFORD STREET, LONDON W.1. Tel: Gerrard 0091

Published by ARROW@TU Dublin, 1963

event of fire, oil pumps and burners should be switched off, oil lines isolated by spring or weight activated valves, and fans which could propogate the fire switched off. Fuseable link fire valves are not recommended for larger installations, and if used should have a contact block for electrical interlocking.

EXCESS pressure and temperature on boilers or calorifiers are buest guarded against by two independent controls. A large variety of thermostats and pressure switches are available for this purpose and should be carefully selected on the basis of reliability, degree of accuracy and switching differential, and of servicing and testing facilities available.

Electrical interlocking of starters gives a simple method of providing shutdown of parts of the plant in case of failure. Burners and stokers should, for instance, be interlocked with circulating pumps and induced draught fans, fire detectors with burners, fans, etc., flame failure control with oil circulating pumps. Contactor type starters should be used to permit such interlocking. Overload relays for all motors should be accurately set to

SPECIAL REVIEW

from page twenty-four

prevent motor burn-out.

Practice for many years has been in favour of centralisation of all instruments and controls on a single panel. Mounting, wiring and testing of all components is factory done, thus greatly simplifying sitework and eliminating the possibility of error. The appearance of the boiler house installation is also greatly enhanced.

Miniature instruments, which have occupied the attention of makers for some years, do not seem to have found general favour in heating practice. Greater accuracy and robustness are more important characteristics and these are found in many of the wide range of instruments and controls available. Certainly lack of efficiency and safety in industrial heating cannot now be blamed on non-availability of suitable instruments and controls.

PRODUCT REVIEW opposite

NEXT MONTH

Next month, and every month, the Industrial Section will include special reviews.

FEBRUARY—Review of Water Treatment, Descaling, Anti-Corrosion Compositions.

MARCH—Review of Calorifiers & Cylinders, Pressure Vessels, Tanks.

APRIL—Review of Heaters (Radiators & Convectors).

MAY—Review of Air Conditioning & Refrigeration, Ventilation, Ducting.



This special Industrial Section review was prepared by technical expert, Michael J. Walsh.

TYLOR Meters

Liquid Control at Low Cost



● **Tylors Model LL-3. Robust meter for oil-consumption in burners.**

★ **BLENDING AND BATCHING OF INDUSTRIAL LIQUIDS FOR AUTOMATIC OR MANUAL CONTROL.**

★ **REMOTE CONTROL OF COMPLETE PROCESSES FROM A CENTRAL POINT.**

★ **MEASURING OIL CONSUMPTION FOR BOILER HOUSE PLANT.**

★ **RATE OF FLOW INDICATION.**

★ **WATER METERS FOR ALL DUTIES.**

TYLORS

THE SYMBOL OF TRUE MEASURE

55 RATHGAR AVENUE, DUBLIN.

'Phone: Dublin 904603. 'Grams: "Tyland," Dublin.

https://arrow.tudublin.ie/bsn/vol3/iss10/1
DOI: 10.21427/D7HD9D

et al.: The Irish Plumbing and Heating Engineer, January 1964 (complete i

IN this equipment review we take a look at new developments in the fields covered by the foregoing special review. (All claims are those of the manufacturers).

THE "C.N." double mixing valve manufactured by Drayton Controls Limited, Bridge Works, West Drayton, Middlesex, is designed for use on low pressure hot water central heating systems and comprises two mixing valves within one body casing.

As well as carrying out the normal duties of a normal three-way mixing valve by permitting the temperature of the water supply to the radiators to be varied to suit the outside seasonal temperature change, it offers a major advantage in that at the same time it keeps the temperature of the water return to the boiler constant and high enough to prevent condensation and subsequent boiler corrosion.

Mixing valve "A" mixes hot water from the boiler with return water from the heating circuit to maintain the temperature of the water returned to the boiler above the corrosion danger level of 130 degrees F. Mixing valve "B" mixes hot water from the boiler with return water from the heating circuit to maintain the desired heating circuit temperature.

When mixing valve "B" is positioned so that the hot flow from the boiler to the radiators is shut off completely —water from the heating circuit is recirculated by the pump. Circulation from the boiler through mixing valve "A" and thence to the boiler.

The construction of valve "A" is such that as water is deflected into the boiler return by the angled disc—some of the hot water from the boiler is induced into the boiler return circuit to assist the normal gravity circulation.

* * *

THE WIDE Arkon range of industrial instruments manufactured by Messrs. Walker Crosweller & Co. Ltd. are available in this country through their representatives, Modern Plant Limited, Crumlin Road, Dublin. Of particular interest is the new type of Arkon Flow Indicator (Type V.F.).

The working principle incorporates the spinning of a chromium plated ring under a glass dome, by the liquid as it passes. If the flow stops the ring stops spinning and warns that the liquid is not circulating. The movement is so decided that it cannot be mistaken or misread. It can be clearly seen from a distance even in bad light.

The new indicator is available for sizes ½" to 2" and can be adjusted for high or low velocities of flow. The spindle impeller assembly is fitted into a cartridge housing which is easily removed and reset. Indicators are set for the flow range specified in the order. Because of the new cartridge construction they can easily be reset for the alternative flow-range or after installation.

From a maintenance point of view an important feature of this construction is that the complete cartridge assembly is interchangeable between the different sizes of Indicator—the ½", ¾", 1", 1¼", 1½", and 2" sizes. The Arkon Flow Indicator is supplied in sizes from ½" to 3". Sizes ½" to 2" have female screwed connections (B.S.P.T.) Size 3" has flanged connections 8" diameter. The indicator is suitable for operating at pressures up to about 40/50 lb. sq., and is for installation in horizontal pipe lines. Indicators can be fitted with a high pressure cap assembly for working pressures up to

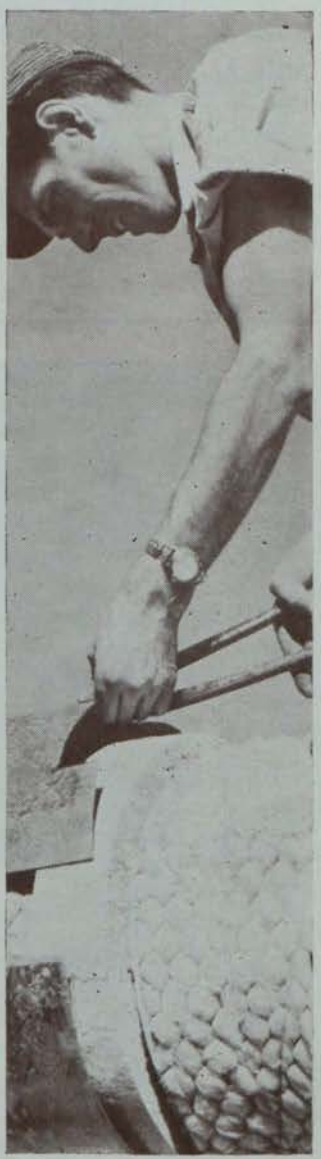
Continued overleaf

MEN IN THE BUSINESS KNOW

boylans

OF HARCOURT STREET





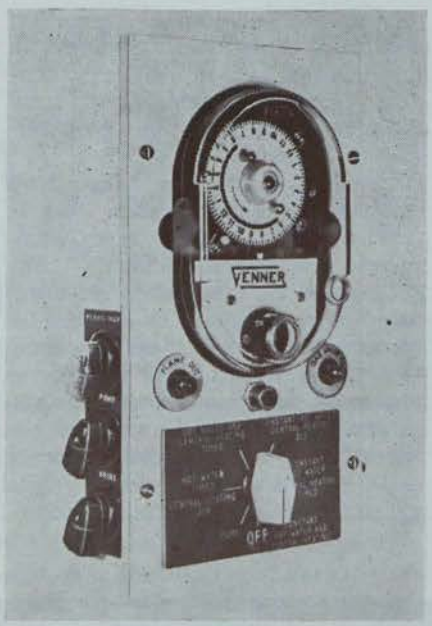
Boylans of Harcourt Street are sole agents for the insulation products of the Cape Asbestos Group of Companies.
The range of products includes: Rocksil and Rocksil-K rockwool materials, Caposite Asbestos Materials, Caposil HT and Caposil 1400 Calcium Silicate Materials, Asbestos Compositions, Rope Lagging and Cloth. Asbestolux Insulating Board.
Consult us with your insulation problems.

M. A. Boylan Ltd
50a Harcourt Street · Dublin · Tel: 55408
A member of the Cape Asbestos Group of Companies
TW494

Published by ARROW@TU Dublin, 1963

Building Services Engineering, Vol. 3 [1963], Iss. 10, Art. 1

PRODUCT REVIEW



200lb. sq. in. The indicators are suitable for temperatures up to 180 degrees F. (82 C.). Domeguards can be fitted upon request.

Sole distributors for the Republic are Modern Plant Ltd., of Crumlin Road, Dublin.

* * *

THIS IS the Venner type PBCU/P packaged boiler control unit from Venner Ltd. It is particularly suitable for the control of oil or gas-fired installations.

It comprises a panel fitted with time switch and 6-way rotary switch providing instant selection of seven economy combinations of hot water and central heating to suit all domestic or seasonal conditions. Time switch controls one or two on/off adjustable switch periods daily. Irish agents are Roper Bros. Ltd.

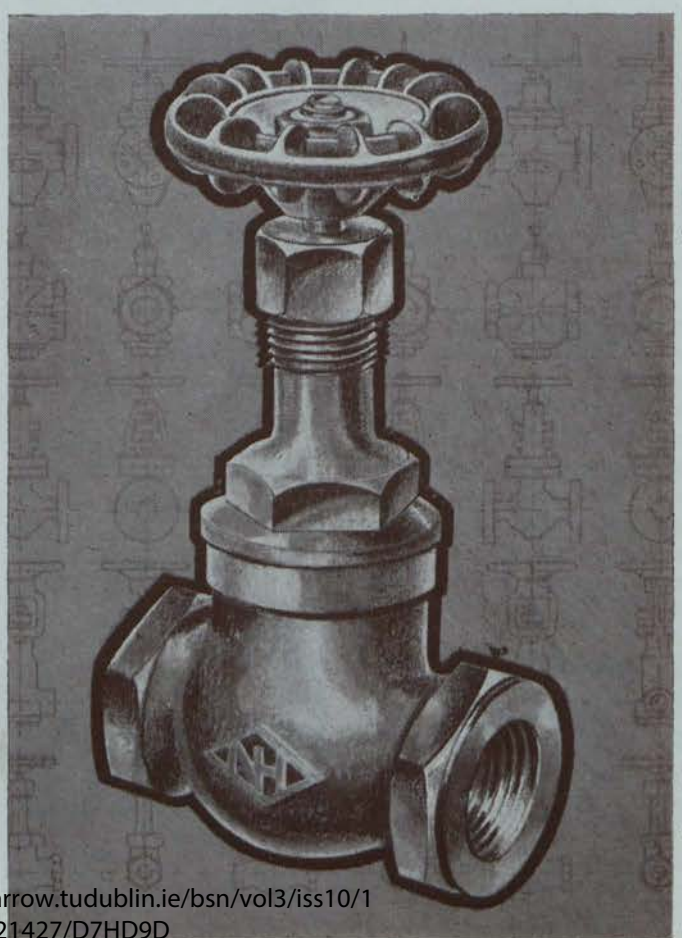
* * *

THE NEW Honeywell bellows meter body is a mercuryless unit which converts differential pressure changes into motion to operate an indicator, recorder, controller, or transmitter. Flow readings are square root or expanding scale; differential pressure readings are linear. The manufacturers are Honeywell Controls Limited, whose Dublin office is at 38 Upper Mount Street.

Fast and accurate damping adjustment are features of the meter. Pulsation damping can be adjusted quickly and accurately because the newly designed pulsation check has a rectangular orifice to give an essentially linear adjustment. This adjustment can be made from outside the meter body with the instrument in operation.

Bellows are hydraulically formed and seamless. There is no welding to lower corrosion resistance. It is automatically stabilised for static pressure and temperature variations. When variations in temperature static pressure change the volume of the liquid fill, there is no change in the position of the output shaft because a stabilising spring lets the low pressure bellows move independently of the high pressure bellows. The meter operates efficiently in ambient temperatures of minus 40 degrees F. to plus 250 degrees F. Fifteen different ranges are available.

The Honewell "Servotronik" electronic potentiometer indicating controller is a thermocouple, resistance thermometer or millivolt actuated con troller, which provides on/off, three zone or anticipatory control action. It is a true null balance potentiometer indicating controller.



NEWMAN HENDER
VALVES AND FITTINGS

Known throughout the world for the dependability and quality of their wide range of valves and fittings you cannot do better than ask Newman Hender *first* for the valve or fitting you require.
Stocks are held in Dublin of many patterns to meet constant and urgent demands.

VALVES ARE OUR BUSINESS

. . . in most types and sizes
. . . for most temperatures and pressures
. . . for most industries all over the world.

NEWMAN HENDER & CO. LTD.
WOODCHESTER · STROUD · GLOS. · ENGLAND

AGENTS & STOCKISTS
C. H. LOCKHART LIMITED
75, MIDDLE ABBEY STREET, DUBLIN *Phone:* DUBLIN 43484

https://arrow.tudublin.ie/bsn/vol3/iss10/1
DOI: 10.21427/D7HD9D

MORE ABOUT SMALL BORE DESIGN

the author

John G. Bolton

Lecturer in Plumbing and Heating at the College of Technology, Bolton Street, Dublin.

IN our previous article, the small bore pump with its glandless construction and silent operation, was seen as the heart of the whole system. This unit gives great flexibility in layout, and less emphasis on the need for venting and for maintaining exact levels such as is necessary for gravity circulation.

The definite circulation pressure provided by the pump means that we can use pipes of ½-inch diameter, which, of course, ensures lower water content and so quicker response to heat demands from the operation of room thermostats or the manual operation of radiator valves.

In most small bore jobs, ½-inch copper tube with compression or capillary couplings is used for the circuit as it is neat in appearance, and for the average craftsman very easy to work. Mild steel tube can, of course, be used if preferred—in fact many installers do so, and weld the branches for the rads, etc., so eliminating the need for tees and unions on the ⅜-in. pipe.

WHERE the welding of branches is involved, great care should be taken to prevent any obstruction of the tube bore. Weld penetration that might be allowable on larger pipes, would, in the case of small bore steel tube of ⅜-in. bore cause serious obstruction. Copper tube will, on the other hand, require clipping at shorter intervals — particularly on skirting boards where children might stand on it.

Having more or less decided on the piping to be used, we next set about the design of the job.

The customer will, of course, usually have only vague ideas apart from the fact that he wants his house heated.

First and foremost, a survey of the job must be made, and many points discussed. For instance, what type of fuel is to be used? In what position is the boiler to be installed? Can the fuel be easily fed or brought to this point? Is automatic control to be adopted or will hand operation of circulation temperature be sufficient? Is the domestic hot water to be supplied from the system, and in summer-time will the boiler be still in use, or will an electrical immersion heater then provide the hot water needs?

Again, we must check if the flue to which the boiler is to be connected is of sufficient size and height; or is it, unfortunately, in such an external position as to be subjected to excessive cooling and consequent condensation?

On the subject of radiators, the customer will probably have some ideas. Are they feasible? Can the radiators be placed unobtrusively under the windows, or must they be on walls where staining or convection smudges might occur on wallpaper? What type of panel or other radiator is preferred? Is there any objection to the position of the pipes supplying the radiators?

If the pipes are to be concealed under the floor boards, as may occur in upstairs rooms—in what direction are the floor boards running? Can the joists be notched safely, or, better still, can the pipe be fed under the boards to run with the joists?

ALL these questions must be discussed so that the contractor has a clear idea of what is required. In this way, satisfaction is given to both parties and later "quibbles" avoided. On this aspect, one contractor of my acquaintance always makes it a point, where the boiler is installed in an outbuilding, to whiten the walls with water paint, etc. This costs him about £1 or so, but in goodwill value is worth many timese more. Small points like this often leads to other customers.

When all the facts have been ascertained, the design of the system can commence. In general all our calculations will be based on an outside temperature of 30°F. and an average indoor temperature of 60-65°F.

The 30°F. is customarily used for the outside temperature conditions in Ireland, but on a few occasions in the year, temperatures below this may be experienced, particularly at night. However, the thermal capacity of the house and its contents will offset this for short periods, so that the design figure will not be affected.

THE recommended inside design temperatures are as follows, but, of course, individual likes and dislikes must be taken into account:—

Living Rooms	**65°F.**
Bedrooms	**60°F.**
Halls, etc.	**55°F.**
Store Rooms	**50°F.**

Where an "open plan" type of house is to be heated, it is generally necessary to maintain a temperature of 70°F. to provide economic heating without "cold spots" or draughts.

Another point to be considered, if comfort is to be obtained, is a supply of air. This is normally obtained by openable windows, but, of course, air infiltration through doors, etc., is occurring all the time, and so, for the purpose of our calculations, it is assumed that the ir in a room changes in its entirety a given number of times per hour. The recommended number of air changes per hour is usually taken as follows:—

Living Room	**1½**
Bedroom	**1½**
Halls, etc.	**2**
Store Rooms	**1**

Continued page thirty-five

Published by ARROW@TU Dublin, 1963

Building Services Engineering, Vol. 3 [1963], Iss. 10, Art. 1

All-steel bath new from Curran

THE CURRAN all-steel bath was on show to the trade in Dublin early this month. Afterwards Curran Limited of Clonmel reported keen interest in the new range during the two-day trade showing.

The baths are made from a single sheet of steel completely covered in genuine vitreous enamel. Finish is in an attractive colour range and white to B.B.M.A. standards.

Features of the bath are its strength, 14 gauge steel throughout; its lightness, weight is only 94 lbs.; and its design, low line and flat bottom for safety and comfort when used by any age group.

The new bath is 5ft. 6ins. long, 2ft. 4ins. wide and 15ins. deep at waist. No dimensional tolerance is required. The bath is supported by cradles which fix securely to bath and floor.

INDEX TO ADVERTISERS

Airnesco Products Ltd.	20
Barwell, James, Ltd.	25
Beeston Boiler Co. Ltd., The	10
Boylan, M.A., Ltd.	27
British Steam Specialties Ltd., The	Cover i
Bryterlite Electrical Co. (Belfast) Ltd.	34
Clyde Fuel Systems Ltd.	14
Crowe, W. & L., Ltd.	1
Curwen & Newbury Ltd.	13
Du Bois Co. Ltd., The	1
Evode Industries Ltd.	Cover ii
Fenton Byrn & Co. Ltd.	23
Halpin & Hayward Ltd.	22
Hartley & Sugden Ltd.	12
Hilmor Ltd.	32
International Boilers & Radiators Ltd.	Gatefold
International Boilers & Radiators Ltd.	2-3
Irish Technical & Production Co. Ltd.	17
Leinster Engineering Co. Ltd.	9
McMullans Kosangas Ltd.	35
Mono Pumps Ltd.	4
Monsell Mitchell & Co. Ltd.	Cover iii
Newman Hender & Co. Ltd.	28
Rennert & Co. GMBH	30
Sanbra Fyffe Ltd.	Cover iii
Sperryn & Co. Ltd.	4
Tylors of Ireland Ltd.	26
Viking Engineering Co. Ltd.	16
Wavin Pipes Ltd.	Cover iv
Weldryte Ltd.	14
Worthington-Simpson Ltd.	23

Circulation embraces: (i) Plumbing and Domestic Heating—Plumbing Contractors, Heating Contractors and Installers, Electrical Contractors, Builders' Providers and Merchants, Manufacturers, Agents, Representatives and Distributors of fittings and equipment to the trades; (ii) Industrial Heating, Air Conditioning and Ventilating—Architects, Consulting Engineers, Corporation and Co. Council Engineers, Heating and Plant Engineers, Building Contractors, Insulation & Ventilation Engineers.

A Newcomer To The Irish Market

RENNERT & CO., Gmbh., Dusseldorf

BC

Manufacturers of Sanitary Fittings since 1919

• MAKERS OF QUALITY FITTINGS FOR BATHS, BASINS, SINKS, ETC.

• temperfix

THERMOSTATIC VALVES

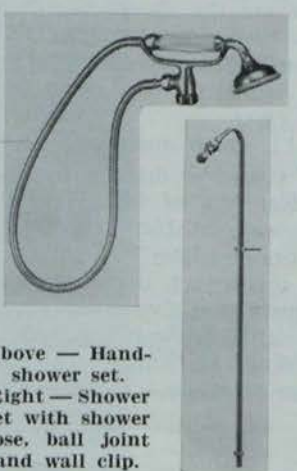
Agent for Ireland:

G. F. Morley Ltd.

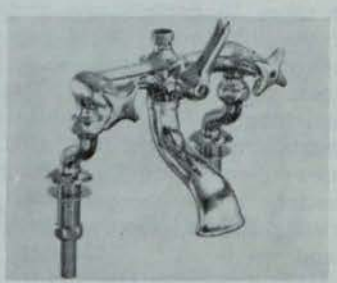
45 Quinn's Lane, Fitzwilliam Sq.,

Dublin, 2. Telephone: 66949.

Bath Shower Sets



Above — Hand-shower set. Right — Shower set with shower rose, ball joint and wall clip.



Above — Mixer for bath and shower.



Right: Shower set.

https://arrow.tudublin.ie/bsn/vol3/iss10/1
DOI: 10.21427/D7HD9D

et al.: The Irish Plumbing and Heating Engineer, January 1964 (complete i



A. L. TOWNSEND
M.R.P., M.R.S.H.

The author, a lecturer at Oxford College of Technology, continues the first part of a four stage course on plumbing.

THIS MONTH: HOT WATER SUPPLIES IN DETAIL

AN adequate supply of hot water is to be regarded as an essential of modern living. There are a great many types of system, and when one is to be chosen the following points must be carefully considered.

i. The type of fuel to be used (oil, gas, electricity or solid fuel).
ii. The quantities of hot water needed; the temperature that will be required; the time available in which to heat the water; and the frequency with which the water will be needed.
iii. The extent to which automatic control is desirable, as opposed to the manual work involved in stoking, etc.
iv. The extent to which atmospheric pollution by smoke is to be avoided.
v. The cost of the system components, accessories and pipework, and the cost of installing these.

And finally, but by no means least:

vi. The cost of running the system when it is installed.

When these points have been discussed with the customer and decided, the plumber must plan the system that has been chosen. He must consider the size of the components parts, since these must be large enough to meet all the demands likely to be imposed on the system. He must work out pipe sizes and the most efficient and economical way to arrange them.

EVENTUALLY, when all the factors have been carefully weighed and all the plumber's technical know-how applied, a suitable design emerges and he can order his materials. Now begins the interesting work of installing the system—a process that will need as much practical and technical skill as the actual design.

As an introduction to this very interesting and challenging aspect of plumber's work consider a simple "boiler-cylinder" hot water system, which is very popular and quite satisfactory for small domestic dwellings. At the moment one is concerned chiefly with its layout, the names of its component parts, and their functions. Discussion of the actual system design must be left to a later book in this series, together with many other interesting and important points which will arise as we examine our simple system now.

A diagram of the system is shown here. It has three major components: the boiler to heat the water; the hot store cylinder to store the heated water until it is needed; and, at higher level, a cold feed cistern to provide the "head" pressure necessary to push the water out of the taps. This also provides a reserve of cold feed water in case the supply mains are shut off for a time.

Because the heated water is stored until it is drawn off for use, this arrangement is called a "storage" type of domestic hot water supply. Compare it with an instantaneous gas water heater, where the water is heated as it passes through the appliance and not stored, and you will see the difference between the "storage" and "non-storage" systems.

The Boiler: When a back boiler is put in the grate the fire heats both it and the room. Boilers in solid fuel cookers share the heat with the cooking service. Boilers which do nothing but heat water, apart from perhaps providing a small amount of heat in the kitchen, are independent of all other heat services, and are called independent boilers.

THEY are usually made of cast iron, and the more expensive ones have an enamelled jacket. This not only improves their appearance but also their efficiency, for the jacket is designed to prevent unnecessary loss of heat from the boiler to the surrounding air.

Suppose the system has an independent boiler. It must be carefully put together, according to the makers' instructions, and erected on a level fireproof base. When all the necessary work in connection with the smoke pipe and flue has been attended to, one can proceed with the placing and fixing of the other components.

The Hot Store Cylinder: The Bye-Laws of the local Water Undertaking prescribe minimum sizes for hot store vessels and cold feed cisterns. A 30 gallon hot store cylinder will satisfy their requirements and will provide adequate storage of hot water for a normal household.

It may be constructed from galvanised mild steel to B.S. 417, or from sheet copper to B.S. 699. The choice of material will largely depend upon the character of the water to be stored. Copper, being more resistant to corrosion, is commonly used in soft water districts where the water may be aggressively corrosive. Copper cylinders can be used in "hard" water districts,

Continued overleaf

Published by ARROW@TU Dublin, 1963

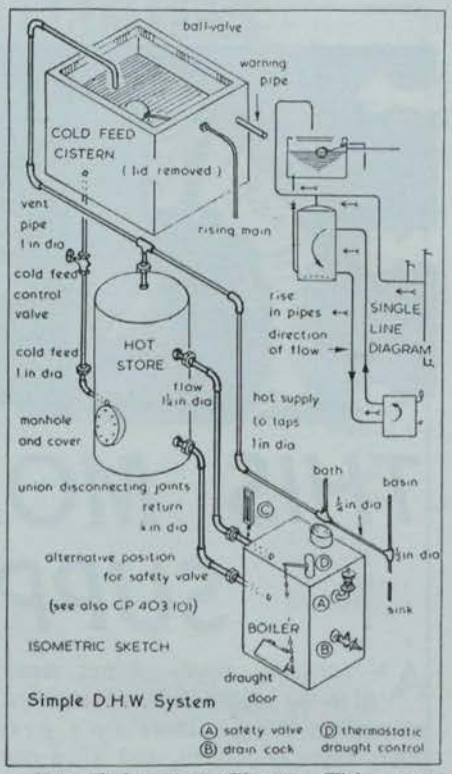
HOT WATER SUPPLIES

from previous page

but care should be taken to see that there is easy access for the periodic removal of the "furr" deposits which are bound to form inside the cylinder when used with such water.

The cylinder should be mounted upright so that the lighter, heated water can "layer out" or stratify over the heavier, colder layers to a greater depth than they could if the cylinder were fixed horizontally. (This will be more fully dealt with in a later issue).

The cylinder will most probably be fitted in an airing cupboard in the bathroom above the kitchen. It will be conveniently supported by the bathroom floor but it should not stand directly on the floor. It should be supported off the floor by two blocks of wood 3" to 4" square, and as long as the cyclinder is wide. This will allow air currents to pass under the cylinder bottom and so prevent moisture in the atmosphere from condensing into water, which could corrode the metal cylinder.



The Cold Feed Cistern: This must have a minimum "actual" capacity (i.e., the water capacity as measured to its working water level, and not the amount it would hold if filled to its top edges, which is called its "nominal" capacity) of 25 gallons. If it is to supply cold water taps as well as feed cold water to the hot water system, then its "actual" capacity must be at least 50 gallons.

Suppose the cistern has an "actual" capacity of 40 gallons. When filled to its working water level its water content alone will weigh:—

40 gallons × 10 lbs./gallon. 1 = 400 lbs. or nearly 4 cwt.

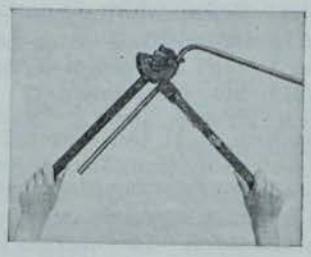
The need for proper support of this weight is clear.

The cistern should be fitted with a close-fitting but not airtight lid to prevent dust or dirt from entering and contaminating the water. It must be fitted with a suitable ballvalve and, of course, a warning pipe to convey any overflow water to a spot where it can be clearly seen, so that if any defect occurs to prevent the ballvalve from stopping the water flow when it has reached the proper working water level in the cistern, it is obvious at once.

NEXT MONTH

A. L. TOWNSEND will continue his discussion of hot water supplies when he will deal with pipework, etc.

PORTABLE TUBE BENDERS



LIGHTWEIGHT BENDING TOOLS
Types GL.O and GL. Minor

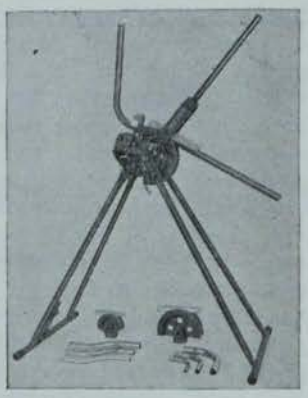
Compact machines to produce good quality sets, compound bends, etc., in non-ferrous tube. Robustly built, they can be carried in tool bag and are particularly suitable for small bore heating and similar types of installation.

CAPACITY: GL. O — ¼", ⅜" and ½" dia. copper tube.
GL. Minor — ½" and ¾" dia. copper tube.

FOLDING STAND MODELS
Types GL. 2B and GL. 3B

The original and most efficient portable benders made for bending light gauge copper tube. Require no fixing or bolting down and produce good quality bends, cold and unfilled, to exact measurement on standard radii.

CAPACITY: GL. 2B — ½", ¾" and 1" dia. copper tube.
GL. 3B — ½", ¾", 1", 1¼" and 1½" dia. copper tube.





EASY-WORK RATCHET BENDER
Type RP. 5B

A machine of new design with a rotary bending action through a powerful ratchet operated screw. Completely portable, produces good quality bends speedily, accurately and with minimum of manual effort.

CAPACITY: ½" to 2" dia. copper tube.
½" to 1½" o.d. conduit.
¼" to 1" nom. bore gas and steam.

SEE OUR PERMANENT EXHIBITION AT THE BUILDING CENTRE OF IRELAND, DUBLIN.

FIRST MADE **HILMOR TUBE BENDING MACHINERY** *FINEST MADE*

For details of range of hand-operated, hydraulic and motorised machines handling up to 8" dia. tube, apply to local stockist or write to:—
HILMOR LTD. (Sales and Service), CAXTON WAY, STEVENAGE, HERTS.

https://arrow.tudublin.ie/bsn/vol3/iss10/1
DOI: 10.21427/D7HD9D

et al.: The Irish Plumbing and Heating Engineer, January 1964 (complete i

1964 DIRECTORY of MANUFACTURERS AGENTS, REPRESENTATIVES and DISTRIBUTORS

★ The June 1964 Register of Manufacturers, Agents, Representatives and Distributors of Domestic and Industrial Plumbing, Heating, Air Conditioning, Ventilation and Insulation equipment and materials available in the Republic of Ireland and Northern Ireland is now being prepared. The Directory this year will again be enlarged to accommodate the many additional entries under the industrial heading.

If you come under the heading of any of the categories listed here and have not supplied information already, or wish to make amendments or alterations to last year's entries, we would ask you to do so without delay. Names and addresses of Agents and/or Representatives should be included with all entries. If you require an Agent, please indicate accordingly.

Please Note!

CLOSING DATE Saturday, 2nd May, 1964

Please Check This List Of Categories

— LIST NO. 1 —

- Air Cleaners, Electronic
- Air Conditioning Equipment
- Air Vents
- Air Washers
- Autoclaves
- Automatic Clock Controllers
- Blowers and Exhausters
- Boiler Controls
- Boiler Fittings
- Boilers (Domestic & Industrial)
- Burners, Gas/Oil/Solid Fuel
- Baths, Basins, Bidets and Sinks
- Calorifiers
- Chimneys, Tops and Cowls
- Cisterns, Tanks and Cylinders
- Cocks
- Coils
- Combustion Equipment
- Compressors, Air and Gas
- Control Equipment and Controllers
- Control Panels
- Convectors
- Coolers
- Cyclones
- Drainage and Sanitation-Traps and Wastes
- Damper Regulators and Quadrants
- Dehumidifiers
- Draught Stabilisers
- Drying Apparatus
- Ducting
- Duct Heaters
- Dust Collection Plant

trade Topics

P.D. HAVE NEW AIR HEATER

A NEW gas-fired ducted warm air heater designed to give fully automatic and thermostatically controlled comfort heating for the smaller two, three or four bedroom house or flat, is announced by Powell Duffryn Heating Limited, of Camberley.

Produced in two sizes, 25,000 B.t.u./hr. and 35,000 B.t.u./hr., and known as the Powell Duffryn G25 and G35 respectively, the new heaters can also provide background heating for larger houses and can be wall mounted to avoid the use of precious floor space.

Compact and attractively designed, the new units take up no more space than a small wall cabinet and are fitted with a built in down draught diverter to eliminate awkward projections.

A plug-in five speed fan selector enables the householder to control the air velocity into the rooms for good temperature distribution. A summer switch is also attached to allow the fan to circulate cool air during the summer.

* * *

STAINLESS STEEL FLUE LINER

A NEW stainless steel flue liner has been designed to overcome the problem of condensation, the cause of corrosion and crumbling of brickwork in chimneys serving central heating installations.

It is of rugged construction, unaffected by high temperatures, all metal throughout, extremely flexible, easy to instal and suitable for oil, gas and solid fuel systems.

Marketed under the trade name "Fluflex," it is available in sizes 3" to 8" in internal diameter and is manufactured by the United Flexible Metallic Tubing Co. Ltd., South Street, Enfield, Middlesex.

Sole concessionaires in the Twenty-six Counties are James J. Doherty, Ltd., 36 Lower Gardiner Street, Dublin 2.

Published by ARROW@TU Dublin, 1963

Lisburn has first gas-fired council house

THE first council house in Ireland to be installed with a gas-fired, warm air heating system was officially opened in Lisburn, Co. Antrim, last month.

And it was a big day for Radiation Central Heating Ltd. Using the Ductair G.105/23, the firm's revolutionary heating unit, the new residents of the Warren Park Estate are the first council house tenants in Ireland to enjoy the comfort of central heating.

Flexibility is one of the unit's greatest assets. Extremely economic operation can be achieved by virtue of the thermostatic control and inlet registers to each room. They can be opened or closed as required to give quick selective heating in any part of the house.

The unit is contained in a neat rectangular cabinet and is mounted—remarkably unobtrusive—high on the kitchen wall. In spite of its small size (32" long, 23½" high, and 14½" deep) and modest gas consumption, the G.105/23 provides full heating downstairs and ample warm air to the 2-3 bedrooms and a drying cupboard.

Paying his first visit to "this part of Ireland" and speaking at a lunch which preceded the formal opening of the house, Mr. S. A. Radley, general manager of Radiation Central Heating Ltd., said that he hoped many other urban district councils would follow the example of Lisburn.

In reply, Mr. James Howard, chairman of Lisburn U.D.C., thanked the Radiation Group for the luncheon and stated that he hoped "very shortly" to be in a position to have a complete estate fitted with Radiation's central heating products. (There are 12 houses at present).

Among the guests invited were Mr. G. E. Jeffs, manager and director of Ascot Gas Water Heaters Ltd.; Radiation Group Services was represented by Messrs. S. A. Radley, L. F. Young, S. Davidson, W. Black, while Mr. Charles Robinson [illegible] sure

NORTHERN Notes

Were at celebration luncheon . . .



A group taken before the luncheon. Left to right: Messrs. G. E. Jeffs (Ascot Gas Water Heaters Ltd), T. R. Cameron, G. Stewart, J. Howard, Chairman of Lisburn Urban Council; S. A. Radley (Radiation Central Heating Ltd.), and H. G. Bass.

the exhibition house was "coming down" with the complete New World range of cookers, space heaters and water heaters.

Other bodies represented were Messrs. J. Cairncross, chief architect of the N.I. Housing Trust; E. Simpson, Belfast Gas Department, installation engineer, and James Dow, general manager, while city architects and many urban district councillors also made up the 100 odd gathering. The installation of the units was carried out by Adam Orr Ltd., the go-ahead young Belfast firm of plumbing and heating contractors.

BRYTERLITE

ELECTRICAL CO. (Belfast) LTD.

146 Cullingtree Road, Belfast, 12 (Now locally owned and managed)

INVITE ENQUIRIES AND ORDERS FROM THE ELECTRICAL TRADE

COMPLETE RANGES OF ALL WELL-KNOWN BRANDED PRODUCTS AVAILABLE

• Ample Car Parking Facilities At Our Showrooms

TELEPHONE 24333 FOR PROMPT ATTENTION

https://arrow.tudublin.ie/bsn/vol3/iss10/1
DOI: 10.21427/D7HD9D

et al.: The Irish Plumbing and Heating Engineer, January 1964 (complete i

Northern Notes



LAST MONTH'S report on the factory built and revolutionary type of home, The "America Line" bungalow, attracted keen interest and in response to requests we show here a picture of the first of these houses opened recently in Lisburn. The young and enterprising firm concerned with the project is the Harkness Construction Company, Belfast.

CENTRAL heating is certainly hitting a boom period if one can gauge from the new showrooms opening all over the Province.

Latest firm to move with the times is that of Charles Corry & Sons of Belfast, who started business in the plumbing and heating field 42 years ago.

Mrs. 1970, otherwise known as Mrs. June Ganley, the attractive ambassadress of Shell Mex and B.P., opened the new premises where all the oil-fired heating units on display were working models. Phew!

* * *

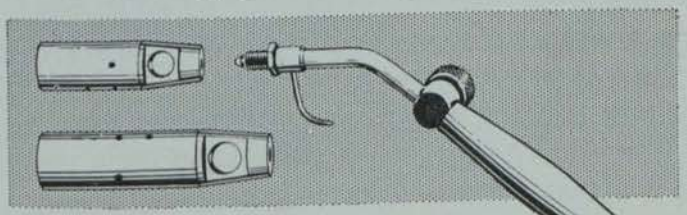
THERMAXUS Limited of Leeds have opened a branch office in Belfast. Concerned mainly with the insulation of domestic central heating systems as well as office blocks, hospitals, etc., the firm is probably best known as agents for Warmex Ltd.

Their address is 35 Dublin Road, and the office is under the management of Mr. Michael Wadham.

Allen McDowell

Kosangas Blow-Torches

for every plumbing job!





There's a wide range of Kosangas blow-torches, for all types of plumbing work. They're far more efficient than the conventional types.
The Kosangas TH3 and TH4 high pressure blow-torches are specially designed for *paint-burning, pre-heating and soldering.*
The Bullfinch Mark II has a full range of heads, including soldering attachment. Use Kosangas blow-torches, with the small Kosangas portable cylinder, also for *roof-felting, jointing of plastic pipes, and other heating needs.*
A plumber's portable furnace with wind protected burner is available.
Send for details to: McMullans Kosangas Ltd., 1 Upper O'Connell St., Dublin. Tel: Dublin 40761-4.

Small bore design

Continued

IN existing houses, these air changes will often be much greater, especially if open fireplaces exist, so that steps must be taken to avoid this loss. It is interesting to note that in the case of a radiator heated room with an open fireplace, should a fire be lit, the temperature of the room will begin to drop!

This, of course, is due to the flow of heated air passing up the chimney. This loss can be reduced by the installation **and use** of an adjustable-throat restrictor in the flue. This should be of a kind that, when the open fire is not in use, it can be closed completely to cut off the up-rush of air through the flue, and at other times readily adjusted to the burning rate to prevent escape of warmed air in excess of that required for combustion. A good point also, if it can be done, is to take a supply of air direct from the outside to a point near the fire. This will prevent air already warmed in the room being drawn up the chimney; it will also reduce draughts.

As mentioned earelier, the heat lost from any building is considerable—even a 24-in. thick wall will allow heat to escape! We must then have some data on which to base our calculations. This has resulted in the publication of Tables of Heat Transmission Co-efficients, more widely known as U values. These tables show the number of B.t.u. passing through one square foot of a wall, floor, door, window or roof in one hour for every degree in difference (Fahrenheit) between the air inside the building and the air outside.

IF the building or house is situated on a site where the degree of exposure to the prevailing weather is variable, the U value will, of course,

Continued overleaf

Published by ARROW@TU Dublin, 1963

alter with the position. Normally houses are classified as sheltered, normal, and exposed.

Although the Uvalue can be calculated, it is more usually obtained from tables, and these are quoted in most heating text books. The Copper Development Association, 55 South Audley Street, London, W.1, issue a publication (No. 55) on small bore heating which includes a synopsis of these tables, and copies can be obtained free of charge by those engaged in the trade.

When considering these U values, it is important to remember that for an efficient heating system the structure of the house is such as to retain the heat as far as possible. The inner surface of the walls should be of such material that it can be warmed up speedily. To achieve this a high standard of insulation is necessary, and it is essential that doors and windows should fit well so as to ensure a controlled supply of fresh air.

High standard of insulation necessary

from previous page

THE problem of insulation is a very complex one, but in general it will suffice to divide insulating materials into two main groups. Those which depend on reflection, such as aluminium foil or aluminium faced plaster board, etc., and those which depend on the formation of layers or pockets of still air, such as cork board and similar slabs and flocculent materials which are loose or woven into lightly bonded rolls. These latter type are very suitable for loft or attic insulation, and indeed are an essential where small bore is installed. Having weighed up all these factors, it only remains to work out the total heat needed.

This can be done by taking each room separately, assessing its U values, and finally working out its heat requirements by the traditional method.

Another, and perhaps more akin to modern ideas, is to use a calculator. This instrument saves much time, and in my experience gives very good results. An excellent calculator of [illegible] is produced by Sigmund Pumps Ltd., and gives heat requirements, radiator sizes, circuit lengths, and boiler ratings, all in a matter of minutes.

FINALLY, a third method (but giving approximate heat requirements only) is by taking the volume of the room and multiplying by a factor which depends on the difference between the air temperature in the house and that outside.

The method is devised by Sigmunds and is as follows:—

35°F. rise—4.3 B.t.u.'s per cubic foot of the room.
30°F. rise—3.7 B.t.u's ,,
25°F. rise—3.1 B.t.u.'s ,,
20°F. rise—2.5 B.t.u.'s ,,

It is intended to cover all normal houses with 11" cavity walls, average sized windows, and two external walls. For rooms with three external walls or outsize windows, it is necessary to increase the above figures by 25%.

NEXT MONTH

In our next issue it is intended to take a typical design of house and work out its requirements in detail.

NEXT MONTH

ATTENTION MANUFACTURERS, SUPPLIERS!

Each month The Irish Plumbing and Heating Engineer will contain a comprehensive survey of the month's trade news under the "Trade Topics" heading.

We invite contributions to this column by way of news of new product introductions, of product promotions, of developments within your organisations and of appointments, to list a few.

But we must have your details in good time. For inclusion in the following month's issue we must have your material in hand during the second week of the month previous.

We like to have good notice of trade functions, too.

["Trade Topics" is compiled from material submitted to us and all claims made there are those of the manufacturers.]

The same general rules apply to the series of Special Survey features which appear each month.

In this case, too, we stress the need for early despatch of material for inclusion in these features.

.....SALES POINT

HERE'S A HEATING SALES POINT FOR THE MONTH: EVERYBODY TAKES CARE TO SEE THAT THEIR LIVING ROOM IS KEPT WARM DURING THE WINTER MONTHS; TO A LESSER DEGREE THEY TAKE STEPS TO WARM THEIR BEDROOMS. FEW PEOPLE, IT SEEMS, WORRY ABOUT KEEPING THEIR BATHROOMS WARM AND COMFORTABLE.

The advantages of warming bathrooms are two-fold: in the first place there is nothing worse than stepping out of a hot bath into a cold atmosphere; secondly, if the bathroom is cold when the bath is run then condensation occurs, water runs down the walls and towels get damp and uncomfortable to use. Sell a towel radiator which can be used with a hot water central heating system or as a permanently sealed, oil-filled electric radiator.

https://arrow.tudublin.ie/bsn/vol3/iss10/1
DOI: 10.21427/D7HD9D

CENTRAL HEATING

CAST IRON SECTIONAL BOILERS, for use with Oil or Solid Fuel; also RADIATORS AND VALVES; ACCELERATOR PUMPS; MIXING VALVES; CAST IRON and G.M. VALVES, all sizes; DRAUGHT STABILIZERS; PIPE and BOILER INSULATION; COPPER INDIRECT CYLINDERS.

. . . in fact, everything for Central Heating at

MONSELL MITCHELL & CO. LTD.

67/73 TOWNSEND STREET, DUBLIN. TELEPHONE: 76282

See Sanbra Fyffe first

FOR ALL REQUIREMENTS IN PLUMBING AND HEATING SERVICES

THE SANBRA FYFFE RANGE INCLUDES:—

- CONEX - INSTANTOR Compression Joints and Fittings for Copper Tube.
- Valves, Stopcocks and Drawn Copper Traps.
- SANBRA FYFFE Brassware—including the renowned 'Easilyne' and 'Aqualyne' Luxury Taps and Fittings—as well as Pillarcocks, Bibcocks, Wastes, Plugcocks, etc.



'Aqualyne' High-Necked Pillarcock



'Setflo' Radiator Valve



Tee-Piece



'Easilyne' Combination Bath Mixer



Gate Valve



Combined Fitting

SANBRA FYFFE products are approved by the leading Architects, Surveyors, Plumbers, Contractors, Government Departments, Municipal Authorities and Water Works throughout Ireland.

YOU CAN DEPEND ON Sanbra Fyffe QUALITY FOR LIFE!

SANBRA FYFFE LIMITED, CONEX WORKS, SANTRY AVENUE, DUBLIN, 9.

Telephone: Dublin 375131 (5 lines). Telegrams: SANBRA, DUBLIN. Telex: 5325.

Published by ARROW@TU Dublin, 1963

"Still living in the thirties, Dad?"



Look, the way to make money in plumbing is to cut your costs of materials. Right? And cut your labour-time. Right?

RIGHT! It's easy. Turn to the Wavin system and forget all other forms of piping. Why?

YOU SAVE ON MATERIAL— You can buy Wavin hard PVC Pipe for as little as 2d½ a foot.

YOU SAVE ON TIME—Wavin is easy to transport and handle. It can be joined—permanently—in seconds.

YOU HAVE A COMPLETE RANGE— Wavin is a complete system. Your stockist carries everything a plumber needs for any job.

YOU SAVE YOURSELF TROUBLE— All the modern Plumber needs is a hacksaw and a tin of cement. In short, for a water or chemical plumbing job, Wavin is the cleanest, quickest, neatest, most convenient money-earner. Quote on Wavin!



wavin

worth looking into . . .

WAVIN PIPES LIMITED (Head Office and Works) BALBRIGGAN. Telephone 212260.
Also at London, Liverpool, Lisburn.

https://arrow.tudublin.ie/bsn/vol3/iss10/1
DOI: 10.21427/D7HD9D