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Gerry Phelan —
An Appreciation

Published by ARROW@TU Dublin, 2003
The more intelligent system wins.

The fastest underwater hunter is the shark. Its skin possesses excellent characteristics which enable the resistance to tides and currents to be minimised. The skin's surface is not smooth but scaly. Today airbuses are encased in a similarly-structured film, which results in a saving of up to 10% of kerosene.

Mother Nature demands top performance at all times in all places while expecting, at the same time, the lowest energy consumption. This is the ambitious goal that WILO also aims at in its research and development programmes. With its high-efficiency pump, Stratos, WILO has introduced a new yardstick.

Experience the technology of the future. The Wilo Stratos pump saves up to 80% of energy. It heralds the beginning of a new era of pumps, the generation of the high-efficiency pumps. Place your order for the High Efficiency folder with its wealth of information. And on Wilo’s “Green Pages” on the Internet, you can find a list of qualified High Efficiency engineers and analysts.

Further details can be obtained from:
Phone: 061-410983
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In addition, Irish Building Services News circulates to independent building services contractors and key executives in industry, Government, Semi-State and local authority bodies. Essentially, our circulation is virtually saturation coverage of all those with an interest

Published by ARROW@TU Dublin, Ireland.
Wilo Acquires EMU

Wilo AG, Dortmund, a world market leader for pumps and pump systems for building services with a turnover of €535 million, took over EMU Submersible Pumps Group in Hof, Germany as of 1 January, 2003.

EMU is a renowned supplier of pumps and technical machinery for municipal and industrial water supply as well as sewage disposal and treatment. The group, which includes EMU Unterwasserpumpen GmbH and EMU Anlagenbau GmbH, together with 11 other associated companies, earned provisional sales of €50 million in 2002. Ambitious growth is planned with the utilisation of Wilo's worldwide sales organisation for the sale of EMU's products. The Wilo and EMU product ranges complement each other without any overlaps. "This acquisition has now given us the foundation for joining the market leaders for sewage pumps and sewage technology as well," says Michel Laroche, CEO of Wilo AG.

The transaction still requires approval from the offices of fair trade concerned.
Contact: Tony Cusack, Wilo Engineering.
Tel: 061 - 410 963;
email: sales@wilo.ie

The energy performance coefficients of Trane Voyager roof top units put them among the most efficient machines in the market. For cooling systems alone, performance coefficients are said to be between 2.73 and 2.99, compared to average performance coefficient levels of less than 2.7 for many competitors.

Ease of installation and maintenance are key features, and can be summarised as a "plug and play" operation. All components are accessible from one side. In its various versions, the Voyager™II is suitable for many different applications. For example, four modes of heating are available: heat pump, gas burner, electric or hot-water coil. In addition, Trane offers a wide range of factory-fitted options, while an extensive range of air flows and pressures is also available. All these elements, by conferring greater product flexibility, mean that it can be installed on any kind of building, whether new or existing.

Air quality and safety are two key aspects for the health and comfort of the occupants of any building. Temporary filters are used during the first hours of operation. This is a period when the filters catch all the impurities present on the site. This solution avoids the need for early replacement with more elaborate and more expensive filters. This represents a significant saving. Once this initial operating period is complete, the client then may install the definitive Trane filters.

The insulating material is cleanable aluminium faced, which removes the risk of insulation fibres being trapped in the units processed air. This is especially useful for restaurants and kitchens. There are also sloping drain pans, which remove the risk of any growth of bacteria, which may arise in the residual condensed water.

Other features include manual or motorised air dampers, which can be controlled remotely, the "free cooling" function creating energy savings; a quality check on the processed air using CO2 or VOC (Volatile Organic Components) sensors; a factory-assembled and configured smoke detector, saving installation time at the site; and an optional fire detector, which shuts off the unit when the air temperature exceeds the pre-set value.

The Voyager™ range is fitted with scroll compressors, while the electronic control system used as standard ensures even greater reliability.

Contact: Maria Furlong, Trane Ireland Ltd.
Tel: 01 - 460 6030
Handheld Thermocouple Calibrator

Used to source and measure Type K thermocouple output valves, Dwyer Instruments, CA10 thermocouple calibrator from Manotherm can be used as a secondary calibration source for many applications using Type K thermocouples. The Model CA10 is able to source and measure temperatures from -40 to 1400°F (-40 to 760°C). This unit has an accuracy of ±0.1% and a reading rate of 2.5 times per second. The resolution is user selectable for either 1° or 0.1°. Quickly select the output using the rotary switch and the fine course adjustments on the front of the unit. Measurements are displayed on a 3.5 Digit backlit LCD. Model CA10 accepts one or two Type K thermocouples. This unit also features data hold and max functions. Each unit includes a 4" (100m) Type K bead wire temperature probe, calibration cable, and 9V battery and instruction manual.

Contact: Bob Gilbert or Brian Harris, Manotherm. Tel: 01 - 452 2355; email: manotherm@eircom.net

AcTech Europe Awards

AcTech Europe has recently been awarded the design, manufacture and installation of several prestigious contracts including — Dell Computers; ESB (Castlebar and Baldoyle); Ballyfermot Senior College; Swords Laboratories; Gaiety Cinema Complex, Sligo. AcTech Europe Ltd offers a one-stop-shop to provide custom acoustic solutions to suit all requirements. AcTech Europe recently exhibited at Plan Expo 2002 and received two awards for Best Interior Building Product and Best Interior Design Product for Arch-Trends™, which is an acoustic wall and ceiling panel system. It can tackle disruptive frequencies omitted by services while, at the same time, maintaining clarity of speech within a space.

Contact: Brian Topping, AcTech. Tel: 045 - 851 500; email: info@actech-group.com

Fläkt Woods & Cylon Sign Agreement

Fläkt Woods (Ireland) recently re-established its agency agreement with Cylon Controls. Fläkt Woods are one of the main authorised dealers for Cylon Building Management Systems in Ireland and the signing of the agreement took place at the Cylon head office in Clonshaugh. Cylon Building Management System has been a long-standing segment of the Fläkt Woods product portfolio. Specialising in bringing energy management to small and large premises, Cylon Controls offer the highest reliability with low operational costs, ensuring buildings are controlled both economically and efficiently. Cylon and Fläkt Woods both look forward to a successful business year ahead, and to strengthening their business relationship in the future.

Contact: Fläkt Woods (Ireland). Tel: 01 - 4634 600; Web: www.flaktwoods.com
Two York model YCAS0335 Style B optimised air-cooled screw chillers were at the heart of the Christmas ice rink in Dublin. Sold to a hire company in the UK, they were in turn sold as part of the complete ice rink package to Dublin Corporation. York Ireland service put the chillers into operation at local level and supplied 24-hour cover. York Ireland now has 18 fully-trained service engineers on the road providing customers throughout Ireland with a 2-3 hour response time. Southern Ireland is served from the Cork office located at Wilton with Cork District Manager Brendan Tyrrell, in charge. Overall responsibility for York Ireland service operations lies with Director of Service Philip Masterson.

“York’s approach to customer lifetime value ensures that the customer enjoys the experience of dealing with York and it’s people throughout the relationship”, says Masterson.

“Many customers now see York as a trusted advisor rather than just commodity provider and, whether a global account spanning many geographies where consistency and reliability are key, or a more local operation, York provides the total solutions that customers now seek.” Contact: Philip Masterson, York ACR. Tel: 01 - 466 0177.
GT Phelan Looks to 2003 & Beyond

Despite the untimely death of Gerry Phelan (see pages 9), GT Phelan Ltd is confidently looking to the future. While Gerry was instrumental in establishing and spearheading the growth and development of the company over the early years, sons Rodney, Derek and Kevin have been very much to the forefront in recent years. Indeed, between them they have 60 years service with the company and have been virtually running the business for the last couple of years while Gerry took more of a back seat. All are directors of GT Phelan Ltd and, while they work very closely on all strategic matters, day-to-day responsibilities are reflected in their respective titles under the new management structure. Rodney is Managing Director, Derek is Sales & Marketing Director, and Kevin is Operations & Service Director.

Contact: Rodney Phelan, GT Phelan Ltd. Tel: 01 - 286 4377; email: gtphelan@eircom.net

Honeywell Valves Regulate Hospital Water Supplies

The new Great Western Hospital in Swindon in the UK has been equipped with over 60 Honeywell pressure-reducing valves — in sizes from 0.5 to 6 inch diameter — to ensure water is delivered from all outlets at the ideal pressure of 2 bar. The scale of the demands on the valves concerned is evidenced by the fact that the hospital comprises a floor area of 55,900 sq m made up of 464 in-patient beds, 87 day-care beds, 10 operating theatres, offices and stores.

Adequate water supplies at a uniform pressure are crucial to the hospital’s operation, be it for drinking; for its 1,222 washbasins and 169 sinks; to flush its 516 toilets; and to supply equipment. The water system is fed at 6 bar by a booster set to ensure delivery at adequate pressure at the top of the six-floor building. But, without regulation, the pressure would be higher on each floor, from top downwards, with taps on the ground and lower ground floors delivered at the full 6 bar — much too high for washbasins, sinks, toilets, laundry and kitchen equipment.

Cold water supplies to the hospital’s hot water system are regulated by 3 to 6 inch diameter Honeywell valves installed in the hospital plant room. Each department has its own cold water feed, so numerous small and intermediate-sized valves — from 0.5 to 2 inch diameter — are installed in the ceiling void on each floor to regulate individual supplies. The smaller valves are from Honeywell’s D06F series, which features a unique mechanism that enables accurate setting without the need of a gauge; while the larger sizes are from the Honeywell’s D205 pilot-operated pressure regulator range.

The hospital’s heating and utility services are provided by its Energy Centre, situated 250 metres from the main building on the 32-acre site. A six-inch diameter Honeywell D205 pressure regulation valve is installed on the mains water feed to the softening plant, which delivers to two 42,750 litre capacity soft water storage tanks.
Wilo Pump Sales — Business As Usual

The Wilo AG group of pump companies — of which Wilo Pumps Ltd and Wilo Engineering Ltd are subsidiaries — has announced the relocation of production of electric motors from its Wilo Pumps Ltd facility at Raheen Business Park in Limerick to France. However, pump production will continue in Limerick. This rationalisation is necessary to help achieve required cost efficiencies, logistic advantages and improved economies of scale for the overall group. Clearly, it does not affect Wilo Engineering Ltd, which is the sales company for the Irish market, and a totally separate Group company operating from another location in Limerick. Wilo Engineering Ltd was established in 1980 to serve the Irish Market with sales and after sales support, and currently employs 12 staff in Dublin and Limerick.

“We will continue to provide the Irish market with the high quality of sales and after-sales support for which we are renowned”, says Managing Director Tony Cusack, “and indeed, it is our intention to increase our investment in facilities and staff to ensure an enhanced level of service.” Contact: Tony Cusack, Managing Director, Wilo Engineering.
Tel: 061 - 410963; email: tony.cusack@wilo.ie

SALES ENGINEER

We require a Sales Engineer to sell Mitsubishi Electric City Multi VRF systems.

Applicants with proven sales ability, who are currently selling to service(s) consultants, mechanical contractors and main contractors, only need apply. A knowledge of the Irish VRF market would be an advantage, though not essential.

If you fit our needs and achieve targeted results the rewards will be substantial.

Applications by post only please to:
Dan Heeney
Crossflow Airconditioning Ltd
Unit CI, Three Rock Road
Sandyford Industrial Estate
Dublin 18
Nuaire Constant Pressure Fans

Traditionally, central extract systems have provided an efficient and convenient method of ventilating multiple-dwelling buildings such as apartment blocks, offices, hotels, etc. However, these systems can suffer from the universal problem that they have to operate continuously at the full design extract rate, thereby wasting energy. Now, the Nuaire Ecosmart constant extract pressure system offers an alternative solution to this problem. Fully automatic occupancy-activated extract terminals are fitted in each ventilated room. These terminals have an integral 2-position damper providing trickle and boost ventilated rates for the room. The system matches the actual total extract flow rate at any time to the occupancy levels in the ventilated rooms, by sensing and maintaining a constant pressure system.

Contact: John Ennis, Redbro. Tel: 01 - 294 0321; email: redbro@indigo.ie

S&P Sickle-Bladed Axial Fans

The new S&P range of plate-mounted sickle-blade axial fans from Ventac comprises 30 model sizes with nominal diameters between ø 250mm and ø 710mm. All models are available in single or 3-phase motors in 2, 4 or 6-pole speeds. Airflow performances range between 1300 and 16,700m³/hr. Suitable for both general and industrial ventilation, the new range caters for virtually all requirements, including:
- General Ventilation — Shops, offices, cafes/bars, warehouse premises, garages and commercial/industrial kitchens;
- Industrial Ventilation — Refrigeration equipment, air conditioning equipment and OEM equipment manufacture.

Contact: Mark Moran, Ventac.
Tel: 045 - 851 500;
email: mmoran@ventac.com

Unipipe Ready-Insulated Pipe in Rolls

Some of the best ideas are so obvious you often wonder why they haven't been done before! Another timesaving innovation from Unipipe is the ready-insulated pipe in rolls. Available in 16, 20 and 25mm sizes, in 75M rolls, the piping is ideal for first fixing water and heating services. The pipe/insulation can be fixed using a clever one-piece clasp that holds without the need for screws and plugs. Long runs without joints are possible within minutes.

One contractor carrying out a radiator installation in 180 Dublin apartments reckons to have saved in excess of 100 days labour for his crew of eight. Unipipe can be joined using Unipipe press fittings in sizes from 12mm right through to 110mm. The smaller sizes also adapt to compression fittings.

Contact: Paul O'Donnell, Unipipe (Ire).
Tel: 01 - 286 4888;
email: info@unipipe.ie
AN APPRECIATION

Gerry Phelan ...

Gentleman & Gentle Man

The public perception of Gerry Phelan is one of a very successful business man who built his company with meticulous attention to detail, honesty, sincerity and a sense of fair play to everybody he dealt with, leaving no stone unturned to make sure that no hint of criticism could be levelled against him or his company. All of this is true but I will try to give you an insight into Gerry my friend, the gentleman, and a gentle man.

He served his apprenticeship in H.A.O’Neil Ltd. During those years he was very active in the PCA and an expert rifle shot. He emigrated and became a bobby in the English Police. He then went to Nigeria where he spent some time in the mechanical engineering business. He came back to Ireland and worked as a representative for Heitons. He eventually set up GT Phelan Ltd as a small heating contractor business with his brother Paddy. He later took on the Toshiba air conditioning agency in the early eighties and the rest they say, is history. He was very proud of the fact that in all his years in business, he never had to sack anyone. We have known one another for over thirty years and his first priority was always Anne and his three sons, Derek, Kevin and Rodney. He was constantly thinking of them, even during the last week of his life. He was rightfully proud of what he and they had achieved, but if you mentioned anything like that to him, he would smile shyly and try to dismiss it.

If you were a friend of Gerry’s you were one for life, as witnessed by the number of friends he still had from his youth. We met through business and later took up golf together. He became captain of Variety Club, Cinema & Theatre and of course, the BTU Golf Societies, showing how popular he was with a vast cross section of people. He played most of the top courses in Europe and won a lot of trophies but his greatest pleasure was taking the money from Bracken. One of the last games he played was in Trim where he beat Sean Smith and myself. When I visited him in hospital shortly after he was diagnosed he said: “Well at least I beat you on your own course”. I said: “Yeah, and I paid you”. “God” he said, “two miracles in the one day – now all I need is the third”. He never lost his sense of humour.

As I said, Gerry was very private about his personal life but when we were alone together we would talk about our grandchildren and how they gave us so much fun and pleasure. He looked forward to taking a back seat in the business and enjoying his retirement with Anne, playing golf without having to check into the office as soon as the game was over.

Unfortunately he was taken away from us way too early but he will always be remembered as Mr Toshiba, my friend Gerry Phelan. Go dtuag Dia suaimhneas da anam.

Brendan Bracken.
Grundfos
Wastewater Solutions

By Gordon Barry, Grundfos (Ireland) Ltd.
Tel: 01 - 295 4926; email: gbarry@grundfos.com

All forms of human habitation produce wastewater and Grundfos has the perfect discharge solution, whatever the scale of the building or application, be it commercial, industrial or domestic. Already renowned as an industry innovator in producing solutions to bring water into buildings, and to circulate it within them, the same depth of research and development has now been applied to devising wastewater discharge solutions. The result is the current portfolio of technologically-advanced products which can cater for all conceivable situations. All the key market segments are catered for, brief details of each being as follows:

PORTABLE DEWATERING PUMPS

Demands on portable dewatering pumps are very high and hence only the hardest-wearing, high-grade, non-corrosive, materials are used by Grundfos who offers a complete range of highly-efficient dewatering pumps, from 0.8kW to 20kW, with a flow rate of 100 ltr/sec.

The design emphasis across the entire DW Series is exacting, not only to ensure maximum performance, but also to ensure that wear parts can be easily replaced without the use of special tools; and that quick-coupling discharge ports make for easy transport and installation.

The DW Series of pumps is suitable for all manner of applications, including construction sites, tunnels, mines, quarries, gravel pits, steel worked, and fish ponds.

SEG GRINDER PUMPS

The Grundfos range of submersible SEG grinder pumps is specifically designed for use in pressurised systems for pumping domestic untreated sewage and other liquid effluent with a pH value of 4 to 10 in permanent installations. They are also suitable for temporary, free-standing portable use and incorporate a specially-designed carrying handle.

Designed for vertical installation with a horizontal discharge port, the SEG ranges comprises models for single-phase or 3-phase voltage supply, with voltage tolerances of -10% to +6%. They are suitable for fully-submerged continuous operation or partly-submerged, intermittent operation, with a maximum of 30 starts per hour.

A unique clamp system enables quick and easy detachment of the motor unit from the pump housing. The motor can be turned either way, through 180°, on the pump housing.
MUNICIPAL APPLICATIONS

Following the recent acquisition of Arnold AG, the acclaimed Swiss manufacturer of mixers and flow-makers, Grundfos can now supply every wastewater product that public utilities, or private firms providing such services, will ever need. Included are solutions for municipal sewage, raw water and industrial effluents, the common denominator being reliability, high-performance, low-maintenance, and reduced energy consumption.

Intake Systems — A full range of solutions allows for perfect inflow regulation and transfer at all times. With pump capacities up to 600 kW and flow up to 3,500 l/s, even heavy-duty applications can be handled with ease.

Discharge Systems — For the discharge of treated wastewater, the best choice depends on variables such as flow requirements, head and location, and of course cost considerations. Grundfos has the optimum solution, combining easy installation, cost effectiveness, and reliability.

Wastewater Pumping Stations — Some stations experience greater extremes of flow than others, with intense peak periods followed by periods of relative calm. This presents many challenges, but again Grundfos can configure the optimum solution to meet any volume of wastewater.

Storm Water Stations — Storm water stations tend to impose high requirements on capacity while presenting low head conditions. The innovative range of submersible Grundfos pumps offers reliability and a unique combination of high efficiencies with low power consumption, even when handling vast columns of water.

HEAVY DUTY & SUPER HEAVY DUTY APPLICATIONS —

Grundfos has a full range of extremely powerful pumps for handling unscreened raw sewage and similar, extreme-demand applications. There are three ranges — the Series 1.65 kW to 29 kW; the Series 15 kW to 155 kW; and the Super Heavy Duty Series.

All are designed for continuous pumping under the most difficult conditions. The inherent non-clogging design of the Super-Vortex impeller pumps, and the excellent solids handling capability of the channel-impeller pumps, guarantee maximum operating time and substantial reductions in maintenance costs by minimising pump jamming and clogging.

Downtime costs are kept to a minimum, as are energy consumption costs, yet peak efficiency is assured throughout the entire lifetime of the system. Innovative features such as the unique SmartTrim adjustment of impeller clearance also contribute to a reduction in the cost of ownership.

Stainless Steel Pumps

High-quality stainless steel pumps have been a speciality of Grundfos for decades and this wealth of knowledge and experience has now been applied to produce a complete range of stainless steel pumps for drainage water, surface water, effluent and sewage.

The range comprises two series of pumps — the KP Series of lightweight, portable pumps suitable for drainage jobs and pumping of grey wastewater with solids up to 10 mm without fibres; and the AP Series, designed for handling all kinds of drainage water and domestic wastewater with solids up to 50 mm size.

LIFTING STATIONS

Grundfos offers a range of highly-efficient, low-maintenance, wastewater lifting stations for a multitude of applications. They vary from the Sololift 3-0 sewage removal unit for one-family houses or other, similar, limited discharge requirements, up to the powerful, dual-pump, Multilift series designed for handling large volumes of wastewater and sewage with volume capacities up to 1200 litres. All are designed to reduce operating and installation costs, while optimising operating efficiencies.
Europak Customised Packaged Pumping Systems

Operating out of a purpose-built facility in Ballymount, West Dublin, Eurofluid Handling Systems offers total solutions on pumping applications to both the design engineer and the mechanical contractor.

With a combined total of over 50 years pumping experience, coupled with a flexible approach to the manufacturing process, Eurofluid can assist in plant selection through to final supply and commissioning.

The advances made in pump system design incorporating frequency invertors and plc controllers are included as standard on the packaged equipment manufactured by Eurofluid under the “Europak” name.

This range includes:
- mains water packaged booster sets;
- fire hose reel booster sets;
- oil transfer pumpsets;
- condense recovery sets;
- pressurisation equipment;
- packaged hot water transfer sets;
- packaged steam/water transfer sets.

Prestigious projects Eurofluid has been involved with include: Wyeth Medica; MFN; Croke Park Re-Development; Expeditors; Allergan, Westport; K-Club, Kildare; George’s Quay Development; Dublin Airport; Cherrywood Office Development; Port Tunnel; Citywest Hotel Development; Parkwest Office Development; Docklands Development; Microsoft; State Labs; Our Ladies Hospital; St Vincents’ Hospital; Pepsi Cola.

With the support of major suppliers like Grundfos Pumps (for whom Eurofluid is a major distributor), Sondex Heat Exchangers, ACV Hot Water Generators, Armstrong Pressurisation, Flamco Pressurisation Air/Dirt Separation — and continued investment in modern technology — Eurofluid will consolidate its dominant position in the marketplace, and continue to supply quality equipment.

Contact: Bernard Costelloe, Eurofluid Handling Systems.
Tel: 01 - 460 0352; Fax: 01 - 450 7634; email: eurofluid@eircom.net

The CHV and CHNN ranges are typical of the advanced-calibre pumping solutions from Grundfos, available from Eurofluid.
Pumps from Potterton Myson

Potterton Myson’s pump range is extensive, offering all manner of pumping solutions across the entire building services spectrum. Range details are as follows:

The “Compact” range of domestic heating circulators offers the installer assured reliability, high performance, and ease of installation for all domestic heating systems. Special features include: 3-speed pump with a static head range of 2-6 metres; Manual re-start knob; Large terminals with clearly-marked captive screws; Automatic vent on initial start-up; Motor head can be replaced or repositioned without moving the pump from the system. Uniquely, all compact pumps are guaranteed for 30 months.

The “SE” pump range offers a comprehensive selection of pumps as cast iron light commercial circulators, or secondary hot water commercial circulators. Special features include: 3-speed pump with a static head range of 2-6 metres; Manual re-start knob; Large terminals with clearly-marked captive screws; Automatic vent on initial start-up; Motor head can be replaced or repositioned without moving the pump from the system. The use of a single static “O” ring seal eliminates the need for time-consuming, routine seal maintenance. In addition, Potterton Myson offers a range of high-performance shower pumps for boosted water pressure called Aquaboost.

With a specialist team of field and in-house technical engineers to take customer queries, Potterton Myson has been providing expert advice on specification and installation for 30 years. Full after-sales service and spares are available, and these are complemented by the company’s unique training facility which is located at its headquarters on the Belgard Road, Dublin.

Contact: Potterton Myson (Irl),
Tel: 01 - 459 0870; Fax: 01 - 459 0880; email: post@potterton-myson.ie

Compact Range
Variable speed domestic heating circulator pumps

SE Range
Cost iron light commercial circulators
Bronze secondary hot water commercial circulators

Aquaboost Range
High performance shower pumps for boosted water pressure

Potterton Myson (Irl)
Belgard Road, Tallaght, Dublin 24.
Tel: 01 - 459 0870
Fax: 01 - 459 0880
FINANCIALLY ATTRACTION

NEW GRUNDFOS MAGNA – MAGNETIC POWER

The Grundfos MAGNA is equipped with a permanent magnetic motor for significantly improved motor efficiency. Operating at optimal efficiency at any output, Grundfos MAGNA offers potential power savings of over 70%. The new Grundfos MAGNA – the best for you, your customer and the environment.

Innovative magnetic motor, sophisticated electronics and all-round optimal performance. Welcome to the MAGNA revolution: self-regulating UPE circulator pumps for heating systems.

www.grundfos.com
70% savings on power
What Is The Life-Cycle Cost Of A Pump?

"It is not the purchase price that matters ... consider the road ahead", says Tony Cusack, Managing Director Wilo Engineering Ltd. Not only in industrial applications, but also when purchasing technical building equipment, all costs that the product will generate over the course of its complete life-cycle must be taken into account. When choosing a circulating pump, the Wilo-Stratos stands out over all the rest.

Over the last 10 years guidelines have been developed by the international institutions of the Hydraulic Institute and EURO-PUMP, which enable the planner and the purchaser of a pump to calculate the life-cycle costs of the pump (Life Cycle Cost = LCC) by means of a standardised procedure. This procedure can be applied without any problems to circulating pumps in the water circuits of building heating and air-conditioning systems. Why it makes sense to take into account the subsequent costs of these pumps, in addition to the purchase costs, is immediately apparent as soon as one considers the operating hours ... 6,800 hours operating time per year is quite normal in a central European climate. This means consumption of expensive electrical energy, which on average makes up 10% and more of the total electrical consumption of a building.

The individual LCC elements are as follows:
- Initial investment for the purchase of the pump
- Costs of installation and commissioning
- Energy costs
- Costs of monitoring operation
- Maintenance and repair costs
- Costs of production losses in the event of breakdowns
- Costs of environmental contamination
- Disposal costs

Some of these cost elements are not available in a measured form for circulating pumps in heating and air-conditioning systems. These are the costs for operational monitoring, costs of production losses in the event of breakdowns, and costs of environmental contamination. Other elements such as initial investment, costs of installation and commissioning, and repair and disposal costs, are either well known or can be accurately estimated.

In order to define the largest cost area of energy costs, one must take into account the method of operation and the load on the pumps over the course of a specific heating period, since varying weather conditions and external temperatures, heat input from solar radiation and internal sources of heat such as people and other equipment in the building mean that the maximum load on the pump and the heating system is only reached on a few days throughout the year. The normal case is low-load operation well below half of the possible maximum load.

Blue Angel Load Profile

Various theoretical studies over recent years and practical investigations on buildings have led to a standard load model (see Figure 1), also known as the "Blue Angel" load profile (the environmental symbol of the Federal German Environment Office, Berlin).

The model states that the required supply current of the pump only comes up to 100% during 6% of the total time throughout the year, and only 25% during 44% of the time. With the aid of this standard load model, it is possible to calculate the annual anticipated power consumption and energy costs of the pump:
1. The supply current is marked in 25% steps in the manufacturer's performance envelope;
2. The power consumption of the pump is read off at the different supply current levels;
3. The normal case is low-load operation well below half of the possible maximum load.

Blue Angel Load Profile: A heating pump only requires the maximum energy of 100% on 6% of days throughout the year.
Manufacturers of Europak

- Mains Water Packaged Booster Sets
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- Oil Transfer Pumpsets
- Condense Recovery Sets

- Pressurisation Equipment
- Packaged Hot Water Transfer Sets
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- DICKOW: Magnetic drive sealless pumps
- EMU: Submersible, sewage and sump pumps
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- FTI: Drum pumps, plastic magnetic drive sealless pumps
- GILKES: Self priming and end suction pumps
- GRUNDFOS: Circulators, vertical multistage, submersible pumps
- HAWKER: Full range of level control systems
- HOLPAK: Bespoke range of packaged pumpsets
- KOLMEKS: Industrial circulating pumps
- LEWA: Dosing, metering and process pumps
- ORBIT: Progressive cavity pumps
- VERSA-MATIC: Air operated diaphragm pumps

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3) The power consumption at the different supply levels is multiplied by the relevant proportion of time compared to the total operating time according to the load model, and all the results are then added together (Figure 2).

The result? — The total energy consumption of the pump in kWh, or annual energy costs of the pump in Euro, if the annual consumption is multiplied by the specific current energy price.

**Compare the difference**

If one compares the average annual consumption* of the Wilo-Stratos 40/1-8 with Wilo types TOP-S 40/10 and TOP-E 40/1-10, the result shows convincingly what sort of electricity savings can be achieved with the new generation pumps. In addition to a considerably-improved level of efficiency, it is above all the intelligent control algorithms that automatically and accurately reduce the pump performance to the minimum level required. The LCC calculations shown here (Figure 3) apply to central and northern Europe, with an assumed working life for the pump of 12 years. In more southerly countries, the annual operating time could be further reduced. Energy prices also vary between different countries and regions. In this example, a price of 0.10 Euro per kWh has been used. Repair costs have been set at about 1 to 1.5% of the purchase cost per year, and installation and disposal costs at a fixed amount of €30.

The result is however clear (under these operating conditions): for wet-running pumps, and under these strictly-economical considerations, the Wilo-Stratos is the clear leader in the LCC analysis. This applies not only in comparison to other Wilo products, but also in comparison to pumps made by other manufacturers.

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*Pump Life Cycle Costs: A Guide to LCC Analysis for Pumping Systems*

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### Costs in EURO

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<th>LCC-element</th>
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Figure 3 — *Calculated under identical operating conditions in kWh, running time 6840 h/a, “Blue Angel” model, variable differential pressure, operating life 12 years*
While domestic hot water circulation systems are traditionally statically balanced, Danfoss has developed a new multi-functional thermostatic circulation valve called MTCV to provide thermal balance in hot water systems by keeping a constant temperature in the system, thus limiting the flow in the circulation pipes to the minimum required level. Apart from the balanced temperature and limited circulation of hot water, other benefits include energy reductions as water is only circulated when necessary; water savings as correct temperature water hits the taps almost instantly; a reduction in the risk of legionella as the water minimum temperature stays constant; and a reduction in wear and heat losses as flow is reduced.

MTCV is a thermostatic, self-acting, proportional valve. It provides thermostatic balancing of hot water systems within the temperature range of 40°C to 60°C (the basic version). It also enables accurate temperature measurement and was designed to prevent unwanted tampering.

A shut-off of the circulation riser is possible by means of optional fittings with a built-in ball valve. Modular upgrading of the MTCV valve is also possible during operation under pressurised conditions. When servicing becomes necessary, the calibrated thermoelement can be replaced.

For systems where periodical thermal disinfection is required, the basic valve can be easily upgraded with the following modules:

- **Automatic, self-acting, thermal disinfection module** — This module incorporates a thermo element which opens the valve to a pre-set disinfection flow when the water temperature in the riser increases above 65°C. Furthermore, it has a safety function that closes the flow completely when the water temperature increases above 75°C.

In response to this situation, more systems are now incorporating highly-flexible thermal balancing principles. The flow in the circulation is facilitated only when it is needed to sustain the constant temperature at end-user taps.

**Electronically-controlled automatic disinfection module** — This valve is upgraded with thermo actuators and temperature sensors, which are connected to an CCR electronic controller. CCR constantly monitors the domestic hot water system to provide full control over the disinfection process in each riser. The duration and temperature of the disinfection process can be programmed to accommodate any requirement.

To disinfect the system, modules alone are not enough. Water in the system must first be overheated to a "disinfection temperature" and maintained at this temperature for a certain period of time. The modules are prepared for upgrade under the operating conditions, without shutting off the water supply.

**Application Areas**

- Heating automatic 2-pipe
- Heating automatic single-pipe
- Heating manual 2-pipe
- Heating automatic manifold
- Air conditioning
- Chilled water systems
- Fan coil systems
- Domestic hot water
- Floor heating

Contact: Brian F Maguire, Sales Manager, Heating Controls & HVAC Sales Division, Danfoss Ireland.
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Quantum Technology is the optimum plastic material for use in underground drainage systems. Strong, efficient and light to work with, it is marketed in Ireland by MFP. PVC-u twin-wall manufacturing process, combined with a corrugated outer wall with a smooth inner bore, gives Quantum strength, hydraulic efficiency and lighter weight than comparable products. Thoroughly tried and tested, Quantum has been awarded the BBA Certification, as well as the Water Industry Product Assessment Mark of Approval, and the BS EN 29002 qualification. Two versions of Quantum are available — one for highway drainage and one for adoptable sewers.

The Multikwik Push-Fit Rainwater Adaptor connects square and round (65mm/68mm) downpipes to standard 100mm pipes. No solvent weld is required, just a simple push fit. Additionally, tests have shown that the joint has withstood over 0.5m head of water, far in excess of the requirements of the application. The Multikwik Rainwater Adaptor (MKRAB) follows closely on the heels of the Universal Adaptor which has seen great success in Ireland since its launch.

Contact: MFP Sales. Tel: 01 - 630 2500; Fax: 01 - 628 1119; email: sales@mfp.ie
et al.: BS News

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Wavin solution to managing stormwater

In recent times Ireland, like most of Europe, has been experiencing more frequent storm flooding. The recent newspaper photograph of An Taoiseach with his overcoat practically floating on water will be a recurring reminder of this fact to people in Ireland. You have to go back almost 70 years to find the longest spell without rain in Ireland. This was 33 days in 1938 ... and you have to go back over 100 years, to 1887, to find the driest year on record. While it may not rain 365 days of the year in Ireland, the average number of wet days (days with more than 1mm of rain) ranges from about 150 days a year along the east and south-east coasts, to about 225 days a year in parts of the west.

Add to this level of rain the huge building and infrastructural developments which we have experienced, particularly during the 90s, and you have a situation which requires new approaches to water management. The replacement of green fields with impermeable surfaces such as roofs, car parks and roads, has a significant effect on the path of storm water. When rain falls on fields only about 20% runs directly off the surface into watercourses. Most of the water soaks into the ground and slowly infiltrates to either ground water or to streams and rivers. Some of that water which soaks in is removed by evapotranspiration from plants. In contrast, when rain falls on impermeable surfaces most of the water quickly runs off to drains. Surface water runoffs therefore increases up to 80%. As a direct consequence during heavy rain watercourses — which receive the run-off — have to cope with larger and more intense flows. This greatly increases the risk of flash flooding.

Storm water must be controlled and it can be. The solution is to manage the outflow and provide storage for the excess unwanted surge of water, or to providing soakaways to allow the storm water infiltrate back into the surrounding ground. This also helps recharge the local groundwater.

**Source control from Wavin**

The Aquacell Stormwater Management System from Wavin has been developed to provide a method of source control in two ways. One is by providing temporary storage for excess flows and limiting outflows to streams and rivers, and the second is by providing soakaways to infiltrate stormwater back into the ground. Whatever the type or size of site, from houses to the largest commercial development, the modular nature of the Aquacell system means that it can be tailored to suit the specific requirements of each site.

**Aquacell elements**

The Aquacell system is made up of individual polypropylene modules assembled together to form an underground structure used for stormwater storage or as a soakaway. Conventional pipework is connected to the units by means of a number of adaptors. The units can be wrapped in a geomembrane and top soil or hardcore placed on top to make an amenity area, or car parking facility, within the site. A chamber controls flow volumes in downstream pipe, or directs excess flows to storage or soakways. Either a Wavin Garastor or a concrete chamber with a Wavin orifice plate can be used.

How it works

Stormwater volume exceeding conventional drainage capacity is intercepted by the control manhole. The water is channelled into the assembly of infiltration units that form the stormwater reservoir. The interior profile of each modular unit is designed to bring surging water under control and hold it in temporary storage. The geotextile wrapping of the assembled units may be permeable, allowing controlled release of the collected stormwater to the local ground water. Controlling stormwater at source and recharging the local groundwater not only eases the pressure on conventional drainage systems, but benefits the local environment as well.

Contact: Wavin Ireland.

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The comprehensive range of products from MFP conforms to national and international standards.
Internet & Networking

Internet for networking and better building operation was the title of the address given jointly by Tim Dwyer of South Bank University and Conor Clarke of the OPW's Energy Conservation Unit. Tim began the proceedings with a fast-track overview of the jargon that increasingly confronts users on a daily basis and then Conor went on to look at a real world application, explaining the advantages and disadvantages of a network of 200 buildings linked to one central point. The excellent turnout on the evening — especially given the horrific weather and flooding on the day in question — clearly illustrated the interest in this subject. In this respect the attendance of Tom O'Brien and Allan Griffiths from Waterford is particularly worth mentioning. The extended Q&A session which followed the presentations was the perfect conclusion.

Patrick Benson Memorial Lecture

Michael Crowley of the Department of Building Services Engineering in DIT Bolton Street delivered this year’s Patrick Benson Memorial Lecture. Subject matter was the development of an improved solver for building energy simulation, with the emphasis on numerical solution techniques which are considered the most flexible. This was a fascinating presentation which drew, by way of introduction, on modelling and simulation in a wider context, including weather forecasting, global warming, planet and galaxy formation, and even cosmology.
Celebrity Lunch

The guest speaker at this year’s CIBSE Celebrity Lunch was Seamus Homan who has been an inspiration to the whole industry by way of his active involvement in, and dedication to, the promotion of the “Art and Science of Building Services Engineering”. Seamus always has something interesting to say and the large attendance on the day was not disappointed — either by the content of his address or his excellent oratory skills. Thank you Seamus for an enlightening and entertaining presentation.

John Doherty with Brendan O’Toole and Joe Hogan

Michael Cleary with Ted Bourke

Michael Lynch with John McCarthy and Brian Sterling

Philip Cleary with Herbert Taylor

Sean Smith with Brian Geraghty and Justin Phelan

Kevin Treacy with Dave Egan

John Purcell with Greg Traynor and Brendan Stack
High Efficiency Boilers
The Way Forward

So, what exactly do we mean by high efficiency boilers? Well, since the introduction of the European Boiler Efficiency Directive in 1997, all boilers had to meet the minimum requirement of 79% at normal system temperature. Today, traditional boilers tend to have cast iron heat exchangers with a gross efficiency of approximately 80 – 82%. At normal system temperatures it is not possible to release the latent heat in the flue gases which is what condensing boilers do, enabling them to achieve high performance efficiencies. However, to do this the system temperature has to be suppressed to below 50°C.

Typically, condensing boilers operating in condensing conditions will achieve a full and part load efficiency of up to 100% gross. However, at normal system temperatures typical efficiencies at full load fall to as little as 86% gross, at part load.

High efficiency boilers, such as Hamworthy’s Wessex and Sherborne ranges, have a full load efficiency up to 84% gross at full load and up to 91% gross at part load, clearly providing a genuinely energy-efficient solution for normal temperature heating and hot water systems.

So, like condensing boilers, high efficiency boilers offer considerable operating efficiencies over cast iron boilers. They comply easily with Part L and this allows the specifier to compensate for other factors in the building, such as insulation and glazing, should they not meet the new requirements.

The single biggest driver of commercial boilers sales in the UK is boiler replacement, accounting for over 70% of the market. Obviously, a replacement boiler has to match the needs of the existing system and now must comply with the requirements of the Building Regulations Part L. In an attempt to achieve optimum energy efficiency, more and more specifiers are...
choosing condensing boilers. The downside to the “simplistic” specification of condensing boilers for replacement situations is that if the system doesn’t suit a condensing boiler, the boiler won’t be able to condense and the full benefits of the condensing solution will not be realised. If the system is a normal temperature radiator system, water temperature returning to the boiler is likely to be higher than 55°C, the dew point of flue gases. Quite simply, condensing boilers only operate at condensing efficiency when return water temperature is below 55°C — above that and a condensing boiler operates in conventional mode.

In a normal temperature system, with return flow temperature at 55°C or more, the better option is a “high efficiency” boiler. This boiler type is not classified as condensing, but offers impressive gross efficiency figures of 84% at full load and even higher on part load. A Hamworthy high efficiency boiler features a fabricated copper finned heat exchanger with greater surface area and far less water in it than a conventional boiler. The reduced water volume ensures substantially quicker response times, and therefore greater energy efficiency at start up times. Moreover, the copper construction of Hamworthy’s high efficiency boilers — proven in over 20 years of service — ensures they cope, without corrosion, with any condensation which may occur at certain times or seasons, even in a normal temperature system.

Hamworthy Heating has two ranges of high-efficiency boilers; the wall-mounted Sherborne or the compact, floor-standing Wessex range, and all models are suitable for either open vented or sealed system applications. Hamworthy has continued to improve the proven technology of the Wessex boiler and recently launched the Wessex 220 M series. This unique compact design of boiler enables a 660kW to be delivered fully assembled and able to pass through a standard doorway. In modular configuration, the Wessex 220 M Series can provide up to 880kW per sq m of footprint.

In conclusion, high-efficiency boilers provide an effective solution to combat increasing fuel costs. They exceed the requirements of the Building Regulations Part L, both now and for predicted future tightening of the requirements.

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Managing the Odyssey Centre

Since the Odyssey opened its doors in December 2000 it has developed a reputation as being the hippest entertainment venue north of the border. This year it is expected to attract some 2.4 million visitors ... families by day and Belfast's trend-setters by night.

Irish Estates were awarded the contract to manage the section of the Centre where the restaurants, bars and retail outlets are located — the Odyssey Pavilion. Would you have thought of Property Managers as being providers of fire-eaters, jugglers and even staging television shows?

The Odyssey Centre is made up of The Pavilion, the W5 Discovery Centre and the Arena for which it is most well known. It is where the ice rink is located and home to Ireland's only professional ice hockey team, the Belfast Giants. The Arena can seat up to 10,000 people and in its short history to date has hosted a variety of different events including Westlife, Cliff Richards, Elton John, David Graves, Ronan Keating, not to mention the World Boxing Championships, the Supercross, the Wrestling and the Ballet!

Watch out also for news of Wayne McCullough's fight and the European Indoor Athletics. Nor does the entertainment stop when the curtains come down as the Centre boasts some of the coolest bars and restaurants in Ireland, including the stylish Bar Seven and restaurants such as the Hard Rock Café; The Red Panda (Chinese); Salsa (Mexican); Soda Joe's (American diner); Indian Ocean; Pizza Hut (Italian); The Streat (sandwiches & deli); and La Tasca (Spanish Tapas). Without leaving the complex you can continue your night into the small hours at either of the two new nightclubs — the select members-only Precious, or The Refinery, which is open every night of the week and boasts a massive 47ft bar.

During the day the Centre offers a variety of entertainment for families, including the W5 Scientific Discovery Centre which is a delight to adults as well as children. The first floor houses the 12-screen Warner Village and the IMAX cinema with a screen that extends six storeys high! Something exciting is regularly happening in the Pavilion area, such as fire eaters, jugglers, car shows, Stars in Their Eyes, or the Children in Need fund-raising event.

Irish Estates became involved in The Odyssey Pavilion during the latter part of the construction stage when we became part of the project team. The benefit of this was that it enabled us, as property managers, to put in place a proactive strategy for the effective management of the Centre, and also to provide insight into the long-term implications of finishes used within the development.

Part of this strategy included the drafting of detailed Tenant Handbooks. These handbooks provide tenants with information on all matters relating to the day-to-day life of the Odyssey.

Irish Estates has an on-site team managing the day-to-day running of the Pavilion. Issues that arise are similar to those of a large shopping centre with the obvious exception being that peak times are in the evening between 6pm and 1am. The long opening hours and the mix of visitors and uses lead to a variety of issues which provide the management team with a challenge to ensure that the show goes on.

The Odyssey Pavilion is one of Irish Estates' largest projects in Northern Ireland, while the company also manages numerous properties on behalf of Irish Life & Permanent plc and Laganside Corporation.
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