



**WORLD-CLASS PUMPING SOLUTIONS
TO OPTIMISE PUMP USAGE
MAY 10, 2016**



CRANE

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INTRODUCING TOMLINSON HALL

- Based in Billingham
- 27 staff across sales, engineering and administration
- Distributor of major industrial pump brands nationally and internationally
- Have developed our own liquid ring vacuum pump, Liquivac
- Extensive workshop facilities
- Member of NEAA, NEPIC and NECC



OUR HISTORY

- **Founded in 1919 by Alfred Tomlinson and Frank Hall**
- **Co-founder of Pump Distributors Association**
- **In 1994, achieved accreditation to ISO 9002 – we now hold ISO 9001: 2008 accreditation**
- **In 1997, Tony Keville, grandson of Alfred Tomlinson, appointed Chairman and Managing Director**
- **In 2006, moved from Stockton to Cowpen Lane Industrial Estate, Billingham**
- **In 2006 commenced the first sole UK distributorship agreement for CRANE ChemPharma Solutions**



SERVICES OFFERED BY TOMLINSON HALL...

- Pump selection and supply
- Problem solving and consultancy
- Servicing
- Testing
- Site visits, surveying and reporting
- Laser alignment of coupling and drives
- Engineering supplies



OUR SUCCESS

- Winner of the Pump Distributor of the Year Award in the British Pump Industry Awards five times, most recently in March 2016
- Winner of the SME of the Year Award in the NEPIC Annual Awards 2015
- Named 'Best Small Business' in the Teesside Business Awards 2015
- Winner of the Small Business Award in the North East Business Awards 2015



UK AND WORLDWIDE PUMP DISTRIBUTION

Just some of the pump brands we supply...



GRACO



LIQUIVAC – MANUFACTURED BY TOMLINSON HALL

- **Liquivac pumps can handle combinations of liquids, gases and fine solids**
- **Innovative liquid ring vacuum design - can accommodate solids of up to 2mm in diameter**
- **Processing, priming, water transfer and cooling applications.**
- **Portable, versatile, robust and easy to install**
- **Can operate with long suction lines**
- **Has numerous industrial applications**



AUTOMOTIVE SECTOR APPLICATIONS FOR PUMPS

- Paint transfer
- Pre-paint and parts treatment
- Fume removal
- Carry-over removal
- Clean-up/spill recovery
- Cooling for injection moulding machines
- Filling vehicles with essential fluids, ie brake fluid
- Filtration
- Part washing
- Tanker loading/unloading
- Grease pumping
- Sump/bund emptying
- Dosing





GRUNDFOS

Grundfos – Tomlinson Hall

‘Together In Industry’

Simon Smart
Area Sales Manager
Industrial Distribution



Grundfos: The Core of our Business

- **Founded 1945 By Poul Due Jenson**
- **True Global Company with 19,000+ employees**
- **Annual Production in excess 16 million units**
- **Global Turnover excess Euros 3 Billion in 2014**
- **Sales offices Global :- 47**
- **Manufacturing plants Global :- 32**
- **Grundfos primarily manufactures:**
 - Circulator pumps
 - Water booster pumps/systems
 - Submersible pumps inc Mixer / Blowers
 - Industrial pumps
 - Dosing pumps & Disinfection System.



The total amount of electricity consumed by pumps adds up to far more than most people realise


Pumps account for a massive 10% of the world's electricity consumption – way too much is pure waste



If you think pumps are expensive, consider the costs of running them



*You don't have
to
do the maths!*



**ENERGY
CHECK**

be
think
innovate

GRUNDFOS 

The Grundfos Energy Check Process

IT IS EASY – HERE IS WHAT IS INVOLVED



1.

Book Energy Check meeting with the customer



2.

Energy Check visit, 3-4 hours tour of facilities with in-house engineer/technician, registration of pumps.



3.

Upload of data via App, data processing by Grundfos technical Back Office specialists, preparation of Energy Check Report



4.

Energy Check Report for your approval



5.

Installation of new low energy pump solution

The Energy Check Report

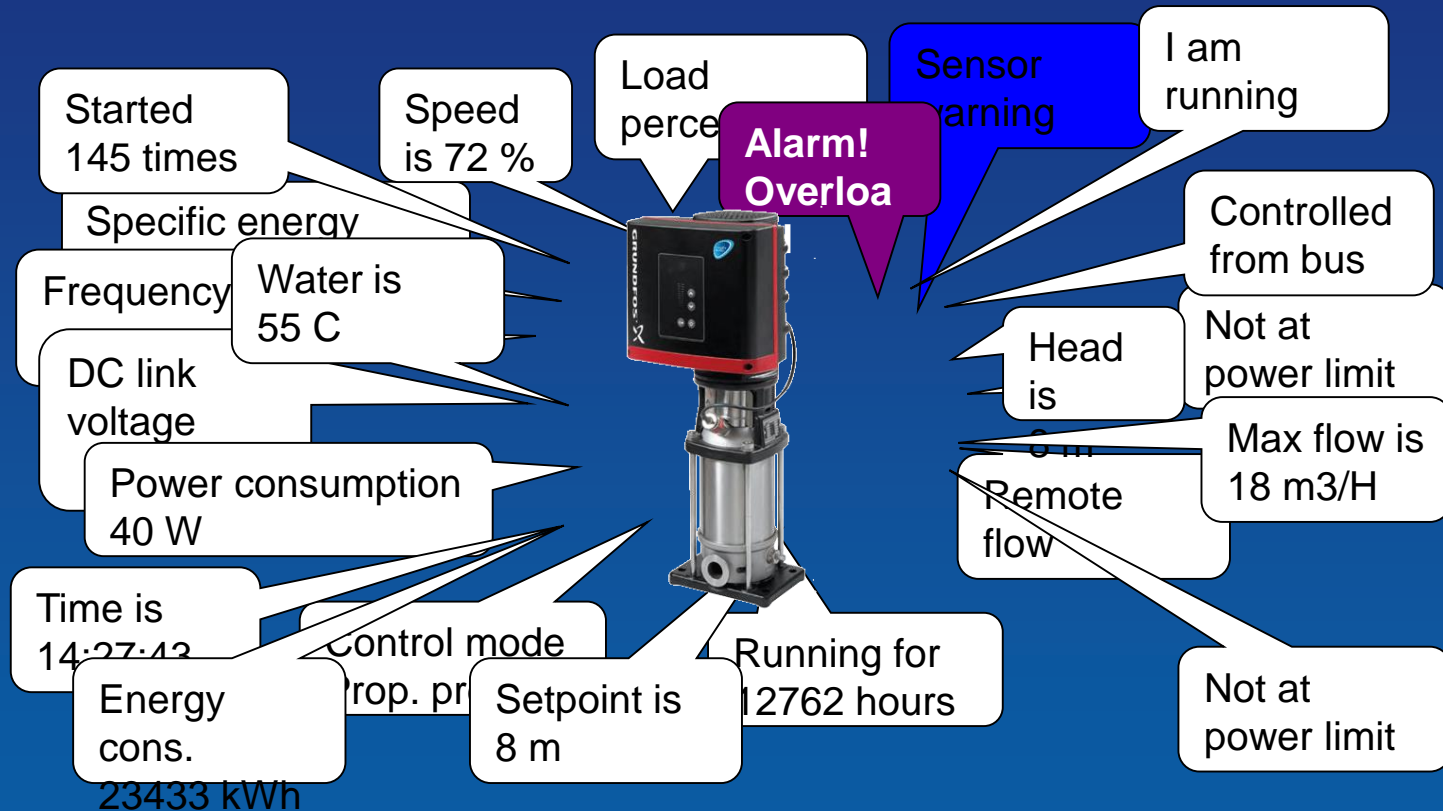
The Energy Check Report is prepared by the Grundfos specialist Back Office.

THE REPORT CONTAINS:

- A prioritised overview of your pumps, energy consumption, etc.
- Recommendations to pump upgrades
- Potential savings kWh and CO₂ + other benefits
- Pay-back time
- Recommendations to step by step action plan – prepared in close collaboration with you!



Grundfos E Pumps



The CUE frequency drive offers the following features and benefits:

Energy-efficient operation

- reduced life cycle cost and reduced CO₂ emission

Soft start

- ensures long life and no water hammering

Start-up guide and CUE wizard

- facilitates setting and configuration

Two digital relay outputs

- can be set to report running, alarm and warning



Efficient protection

- protects pump, motor and electronics against stress and overload

Easy setting

- via intuitive start-up guide

Easy connection

- to Grundfos Remote Management (GRM) and communication to SCADA systems

Radio Frequency Interference filter

- ensures clear signal in domestic areas

Smart control

- intelligent control features such as constant flow, constant pressure and constant water level

Thank You





**CRANE
CHEMPHARMA
FLOW
SOLUTIONS**

CRANE[®]

ChemPharma Flow Solutions

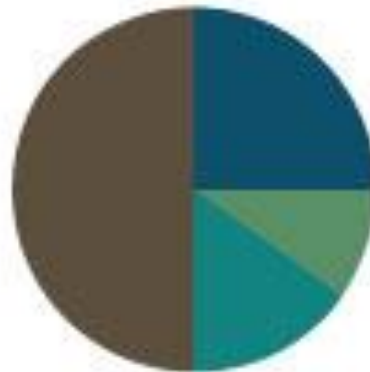


Maximising PTFE Diaphragm Life in Air Operated Diaphragm Pumps

10th May 2016
David Lindsay
Regional Sales Manager - Nordic

Crane is a global leader within the fields of:

- Aerospace & Electronics
- Engineered Materials
- Merchandising Systems
- Fluid Handling



2013 net sales | \$2.6 billion

Fluid Handling | \$1,289 million

Aerospace & Electronics | \$694 million

Engineered Materials | \$232 million

Merchandising Systems | \$381 million

brands you trust.

CRANE ChemPharma Flow Solutions

XOMOX

revo

RESISTOFLEX

TUFINE

Saunders[®]
the science inside

PSI

DEPA

ELRO

ResistoPure[®]
by RESISTOFLEX

CRANE Nuclear/Energy Flow Solutions

CRANE[®]
(Industrial)

STOCKHAM

ALOYCO[®]

CENTER LINE

DUO-CHEK[®] II

Pacific
VALVES

FLOWSEAL

NOZ-CHEK[®]

VALVEWATCH[®]

FK[®]
KROMBACH
ARMATUREN

CRANE Building Systems & Utilities

CRANE[®]
(Commercial)

Hattersley
Quality Resources & Service Assets

VIKING JOHNSON

WASK

Wide range of materials to enable handling of all fluids



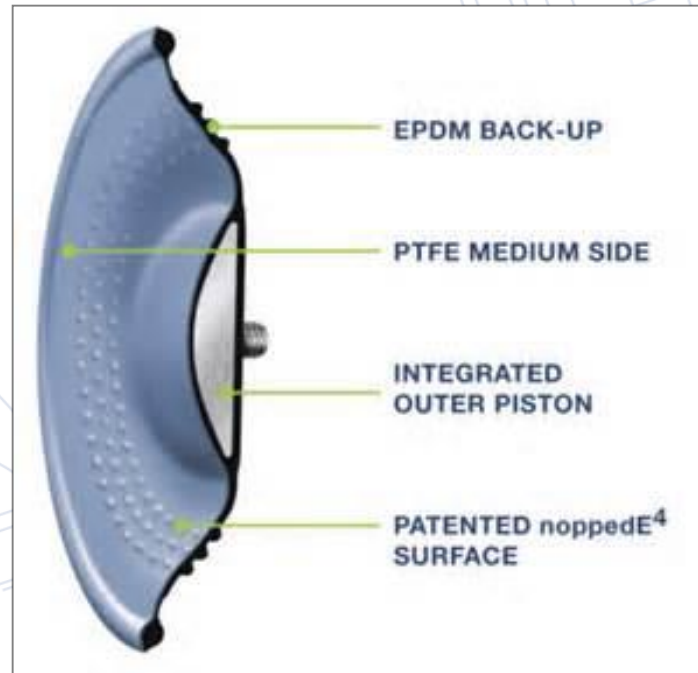
- Aluminium, Cast Iron & St. Steel
- Polypropylene, PVDF & PTFE
- Electro-conductive Polypropylene
- Electro-conductive PTFE
- Hastelloy C
- Polished Stainless Steel 304 & 316L

DEPA Air Operated Diaphragm Pumps Accessories

Slow Start-up Valve



E⁴ PTFE Diaphragm



Runaway Valve



START-UP

Sechskantschraube - Messing

OPERATION

STOP

DEPA Accessories – Slow Start-up Valve

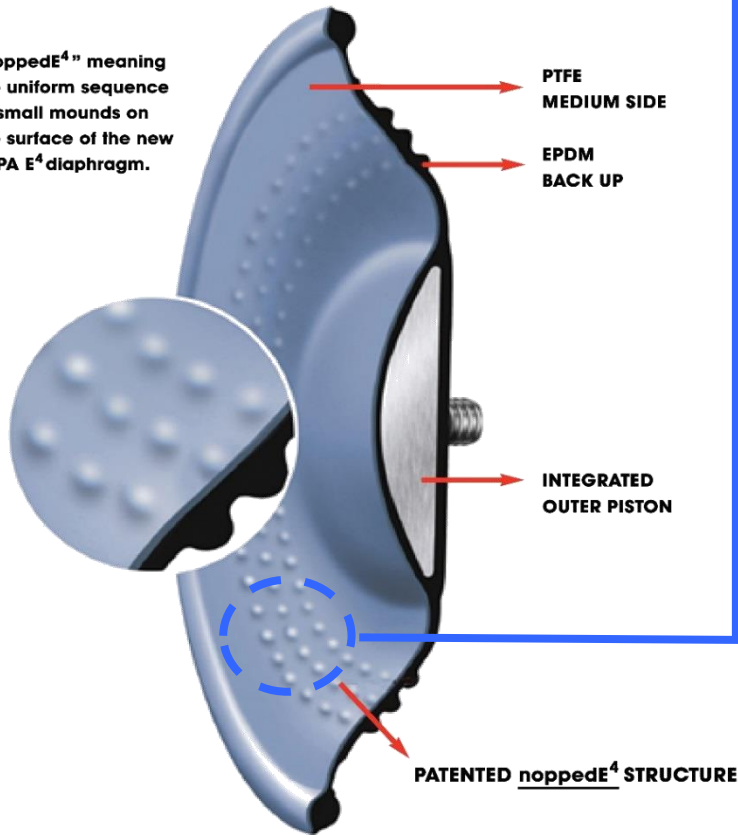
START-UP



- Gently applies compressed air to the pump
- Air supply bleed can be set to between 2 and 10 seconds
- Operates up to 16 bar
- Improves diaphragm life by reducing stress on start up
- Improves dry suction lift ability
- Reduces intervals between pump services
- Can be fitted to any make of diaphragm pump
- Easily installed into compressed air supply
- Atex certified for use in hazardous areas
- Reduces stress to pump body components
- Reduces 'hammer' on start up on hard pipe installations
- Reduces risk of damage to measuring/control equipment

OPERATION

"noppedE⁴" meaning the uniform sequence of small mounds on the surface of the new DEPA E⁴ diaphragm.



E⁴ PTFE Diaphragm

Extra Life

Extra Clean

Extra Flow

Extra Safe

STOP

- Cuts off compressed air to pump when fluid transfer has been completed
- Prevents increased wear and stress on pump & pump installation
- Saves on compressed air costs
- Helps to reduce pump service intervals
- For use from 20 to 120 psi (1.4 to 8.4 bar)
- Can be fitted to any make of diaphragm pump
- Can be easily installed in to compressed air supply
- Manual reset
- Not ATEX Certified



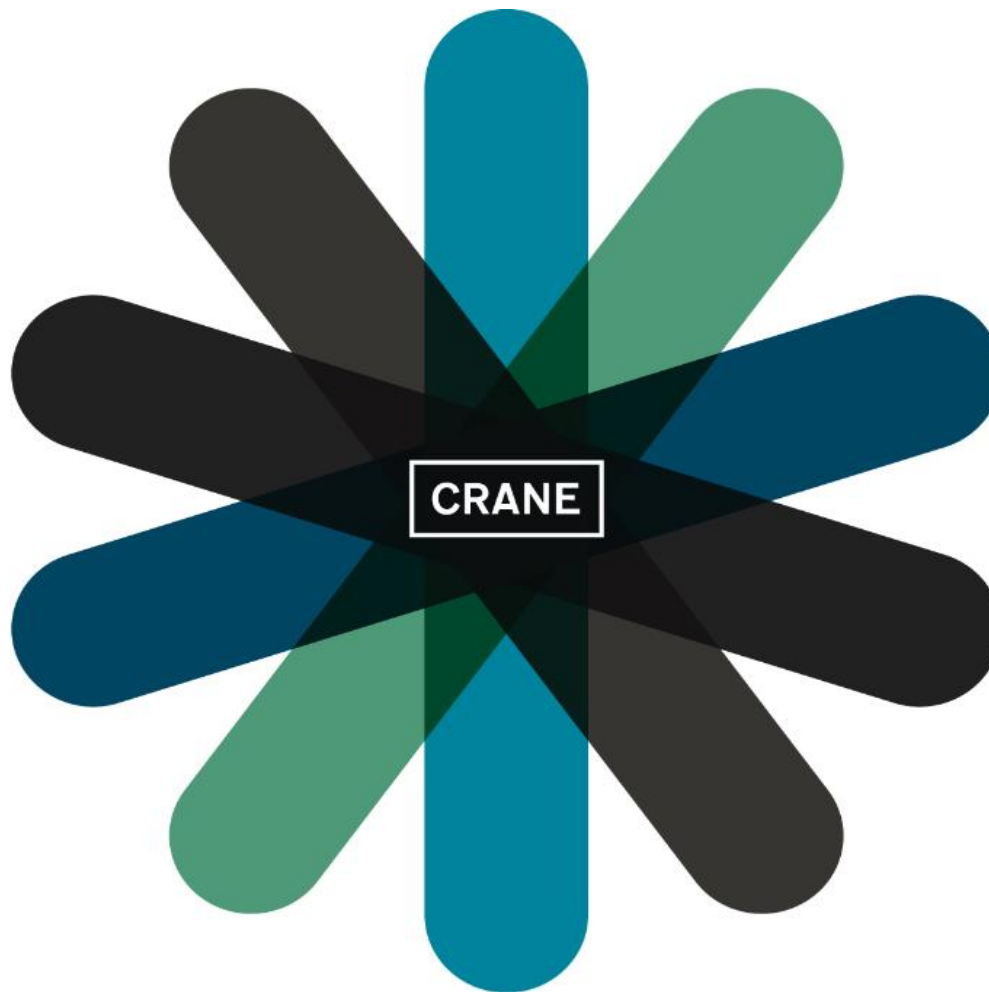
- By reducing stress on PTFE diaphragms on start-up and installing high quality, long life PTFE diaphragms and stopping the pump when it has completed it's transfer you will;
 - ✓ **Reduce pump downtime**
 - ✓ **Reduce production losses**
 - ✓ **Reduce your spare parts usage**
 - ✓ **Reduce compressed air consumption**
 - ✓ **Reduce maintenance time**
 - ✓ **Reduce the number of orders/invoices that are handled**

CRANE

®

ChemPharma Flow Solutions

Thank you!



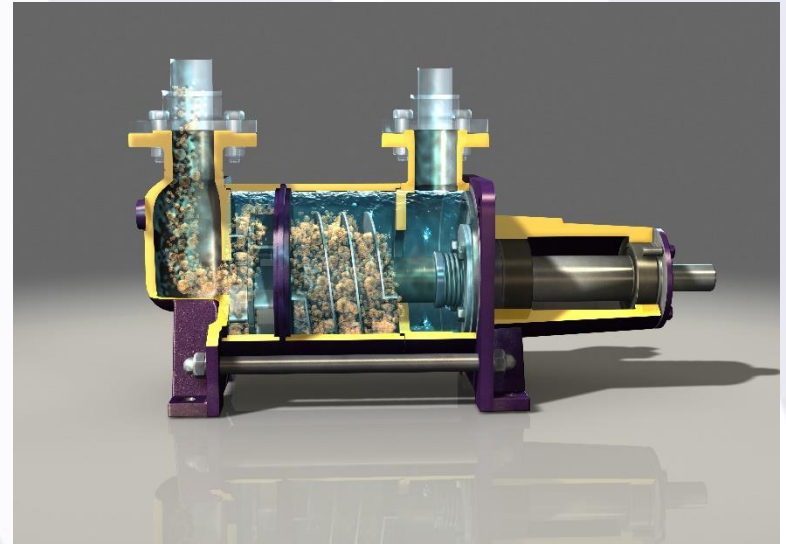
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CASE STUDIES

TOMLINSON HALLCASE STUDY – MANN + HUMMEL / FORD

- Mann + Hummel required a solution for Ford in Cologne
- Ford was grinding cylinder head valves using grindstones with very high surface speeds
- Resultant coolant became a foam which conventional pumps couldn't handle
- Tomlinson Hall supplied Liquivac pumps which were able to remove foam
- Using additional coolant, returned the foam to a liquid for recycling
- Liquid was a mixture of soluble oil and carborundum and steel dust



GRUNDFOS CASE STUDY – BRIVTIC SOFT DRINKS

- Brivtic commissioned Grundfos to produce a pump audit on its main water supply system
- The results revealed savings in operational costs as well as reducing Brivtic's CO2 emissions
- Brivtic's 30 year-old 45kW Worthington Simpson water pumps replaced by new variable speed Booster sets from Grundfos
- Solution reduced costs by 63%
- Payback: 16 months including installation and decommission CO2 saving (GAS) of 63t per annum



TOMLINSON HALL CASE STUDY – FEDERAL - MOGUL

- **Tomlinson Hall supplied filtration and circulation equipment for machinery used to grind piston rings**
- **Discovered microscopic amounts of steel smeared onto the carborundum dust enabled use of magnetic separation**
- **This benefited the system which circulated coolant liquid around the column of the machine**
- **Ensured temperature variations in the machine did not affect dimensional accuracy resulting, in lower reject rate and lower cost**





OPTIMISING PUMP USAGE – TIPS AND TRENDS

OPTIMISING PUMP USAGE – TIPS AND TRENDS

1. PUMPS ARE THE BIGGEST SINGLE USERS OF ENERGY IN THE EU

The EU is working through Lot 11 and forcing manufacturers to drop their least efficient ranges. AOD pumps, process pumps, PD and vacuum are excluded.

2. PURCHASE COST IS 5% OF LIFE COST

...therefore spending money at the outset on higher efficiency represents a very small premium on the whole life costs.

3. CORRECT SYSTEM DESIGN

Power drawn by the motor is proportional to the flow multiplied by head/pressure. Head losses are proportional to flowrate to the power of 4 and to 1/pipe diameter to the power of 4.

Going up a pipe size can make huge differences to your head, thus reductions in power.

...see Tomlinson Hall for more information!

OPTIMISING PUMP USAGE – TIPS AND TRENDS

4. ROOT CAUSE ANALYSIS

Don't always blame the pump – look deeper at the symptoms and look for the cause.

5. USE OEM SPARES

Always use OEM spares – use of 'pirate' spares could cost you dearly, both in terms of longevity of repair and if someone is hurt.



OPTIMISING PUMP USAGE – TIPS AND TRENDS

6. LAW OF FRED

Do not add unjustifiable margins to design calculations – this can lead to excess power and cavitation, to name just two problems!

7. INVERTORS – PANACEA OR PROBLEM?

Some sales people say invertors will cure all of your problems? Sounds like the hunt for a perpetual motion device...

- Always check the pump characteristic
- Only use quadratic relationship inverters on centrifugal pumps/fans, never on PD pumps
- Only use constant torque inverters on PD pumps

8. AIR IS EXPENSIVE

Air is an expensive commodity – use it wisely and don't waste it by using too high a pressure when it's not needed.

OPTIMISING PUMP USAGE – TIPS AND TRENDS

9. USE QUALIFIED AND TRAINED PERSONNEL

Check that the people repairing your pumps are suitably trained and qualified. Motor repairers tend to repair the motor and then look for the pump spares when they could well be obsolete.

10. CALL TOMLINSON HALL ON 01642 379 500

...for independent pump supply and repairs.



Thank You



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