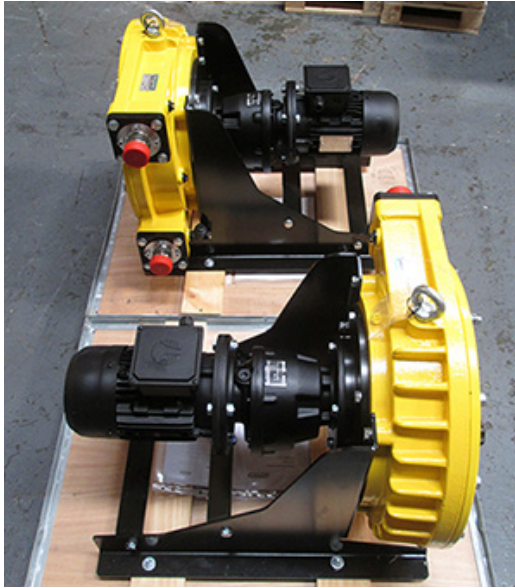




## Chemical Production - Case Study



### Case Study Information

Customer	Chemical Production Company
Location	UK
Enquiry Received	19th June
Order Placed	21st June
Order Dispatched	25th July

### Equipment Supplied:

#### 2 x 1 ½" Horizontal Monobloc Peristaltic Pump

Model	FMP-40
Drive Details	0.55Kw, 3 Phase, 50Hz Electric motor, IP55
Application	Tank to tank transfer
Fluid	Water with Aluminium sulphate; a chemical compound with the formula Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> including 2 - 3 % solids content
Flow	1.495 l/h @ 29RPM
Discharge Pressure	2 bar
Hose	NR (Natural rubber)
Pump Body	Cast Iron + Polyester powder coating
Connections	Stainless Steel AISI-316

### Enquiry:

- ✓ Castle pumps received an enquiry from a new UK customer looking to transfer Aluminium sulphate from tank to tank in a chemical process. The pump needed to transfer the chemical at a low flow rate in a process that was vital for production of various chemicals.

### Solution:

- ✓ We offered a peristaltic pump knowing this pump could be slowed down to the required flow, handle any solid particulates and also be resistant to the chemical, as only the hose comes into contact with the fluid. The hose is also the only wearing part within the pump and running it at such low speed would greatly extend the life of not only the hose but the motor as well. The customer purchased a long term reliable solution for the vital process within the production that was dispatched within 5 working weeks of placing an order.



## Nuclear Laboratory - Case Study



### Case Study Information

Customer	Nuclear Laboratory
Location	United Kingdom
Enquiry Received	6th August 2015
Order Placed	4th September 2015
Order Dispatched	12th October 2015

### Equipment Supplied:

#### 1 x H-IBC Portable Centrifugal Magnetic Drive Pump

Type	Magnetic Drive Centrifugal Portable Pump
Model	H-IBC w/ HTM 10PP Complete with Motor
Fluid	Zinc Bromide (77% concentration)
Max Capacity	13 m <sup>3</sup> /h
Max Head	14 mlc
Single Phase, 110v, 50Hz, 0.55kW	
Inclusive of baseplat	

### Enquiry:

- ✓ A Nuclear Laboratory in the UK required a portable magnetic drive pump for transferring Zinc Bromide from IBC's into radiation screens. The pump needed to be lightweight, fitted to a carry frame and have a single phase 110V motor.

### Solution:

- ✓ Castle Pumps has access to a high quality range of portable chemical transfer pumps. These pumps are magnetic drive and come complete with a carry frame, drip tray and start/stop control panel. This is a complete solution for anyone that requires a portable pump for harsh chemicals. The only issue with the customer's request was the 110V motor; this is not standard supply, so therefore has a much longer lead time than normal.



## Veterinary College - Case Study



### Case Study Information

Customer	The Royal Veterinary College
Location	United Kingdom
Enquiry Received	4th August 2014
Order Placed	30th September 2014
Order Dispatched	4th November 2014

### Equipment Supplied:

#### 1 x ATEX Rated Hand Pump suitable for -21°C Acetone

Manual Pump N°1	ATEX II 2 GD T4 (Tf < 120°C)
Fluid	-21°C Acetone
Flow	900 l/hour
Parts	½" Coupling, Cast Iron Body & Cover, Internal Mechanism in Brass, 300 Microns Filter, Cable Length 2m with Clamp For Earthing
Suction	Tube Stainless Ø ¾", length 60cm with bung 2"
Delivery	Stainless Elbow, 2m Hose in Cross-Linked Polyethylene (UPE) (conductor) & Stainless Spout

### Enquiry:

- ✓ We were contacted by the Royal Veterinary College with a unique enquiry, they required an ATEX rated hand pump for transferring -20°C acetone. The acetone is used to freeze animal carcasses in their laboratory.

### Solution:

- ✓ Castle Pumps has an excellent range of ATEX rated hand pumps, the only issue was ensuring the tubeset was cut to the correct length to suit the drum. The customer emailed us photos of the drum with dimensions and we ensured that the tubeset was cut to the appropriate length. The pump was supplied with discharge hose and nozzle to make the operation as easy as possible for the customer.



## University - Case Study



### Case Study Information

Customer	University
Location	UK
Enquiry Received	28th May 2014
Order Placed	30th June 2014
Order Dispatched	18th July 2014

### Equipment Supplied:

#### 2 x Peristaltic Pumps (Boyser AMP Range)

Application	Transfer of Saline Solution
Fluid	Saline Solution
Flow	100 l/h
Discharge	< 2 bar
Temperature	20°C
Viscosity	< 1.004 cPs
Suction Connection	3/8" BSP
Discharge Connection	3/8" BSP
Design Pressure	8 bar
Hose	Natural Rubber
Connections	Polypropylene
Pump Casing	Aluminium + Polyester Powder Coating
Drive Type	Gear Reducer
Power Installed	0.25 kW
Electrical Motor-Speed	1.450 rpm
Output Speed	46 rpm
Voltage	220v (Single Phase)
Frequency	50 Hz
Protection	IP-55

### Enquiry:

- ✓ Castle Pumps were contacted by a University with a requirement for a pump to transfer a concentrated saline solution to a header tank that was situated 12 metres above the pump. The flow rate performance required was very low at only 100 l/hr, which limited the amount of pumps suitable.

### Solution:

- ✓ The required flow rate of 100 l/hr indicated to us that a peristaltic pump would be most suitable for this application. The slow operating speed and smooth non-pulsating pumping action of the peristaltic pump allows very low flow rates to be achieved. We selected a peristaltic pump coupled to a 0.25Kw motor complete with gear reducer; the gear reducer allows the pump to operate at a speed of only 46 RPM.

Peristaltic pumps only have a few wearing parts meaning that spare part requirements are very low. The only component that comes into contact with the fluid is the hose, which permits the selection of lower cost casing materials that are not compatible with salt solutions.



## Aerospace - Case Study



### Case Study Information

Customer	Aerospace Company
Location	UK
Enquiry Received	19th February 2014
Order Placed	2nd April 2014
Order Dispatched	29th April 2014

### Equipment Supplied:

#### 1 x Horizontal Positive Displacement Vane Pump - Bombas Trief BAL Series Range

Application	Very Low Temperature Coolant Circulating Pump
Fluid	Anti-Freeze (Water + Ethylene Glycol)
Concentration	40 / 60%
Temperature	-40°C
Viscosity	100 cPs
SG	1.3 - 1.5
Suction	Flooded
Flow Rate	500 L/min
Discharge Pressures	1 Bar
Geared Motor	4 kW / 220-400v / 3 Phase / 50 Hz / IP55
Output Speed	640 rpm
Body Material	Cast Iron
Shaft	F-114
Sealing	Mechanical w/ EPDM O-Rings

### Enquiry:

- ✓ An Aerospace company was having issues sourcing a circulating pump for a test rig that could handle the extremely low fluid temperatures of -40°C. The idea for the test bed was to simulate the operating characteristics of an aircraft's coolant line at high altitudes and therefore low ambient temperatures.

Most pump manufacturers and suppliers could only supply a circulator pump suitable for temperatures down to -5°C.

### Solution:

- ✓ Having previously assisted the customer with other special requirements we were happy to take up the challenge. After determining that the fluid was indeed a fluid at the operating temperature and concentration we then examined what type of circulator pump would be required to handle both the specific gravity and extreme temperature of the fluid. We selected a robust positive displacement vane pump with an oversized motor suitable for use with an inverter to enable ultimate control of the pump during their testing programme. The mechanical seal and shaft were selected to suit the arduous fluid temperature.

We subsequently offered and supplied bespoke fittings and connections to facilitate easy installation into the customers test rig therefore facilitating a "Plug and Play" supply.

Castle Pumps understood how important this positive displacement vane pump was to the client's operation, and we had confidence that we could supply them with a solution quickly, for a reasonable price and that was easily integrated into their set-up. The customer was happy with the relative ease that we selected such a bespoke solution within such a small time frame as well as the price!