



Veterinary College - Case Study



Case Study Information

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

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:

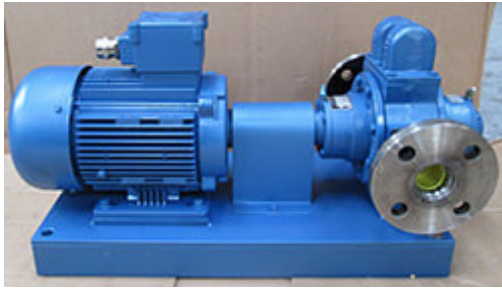
- ✓ We were contacted by the Royal Veterinary College with a unique enquiry, they required an ATEX rated hand pump for transferring -20°C acetone. The acetone is used to freeze animal carcasses in their laboratory.

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.

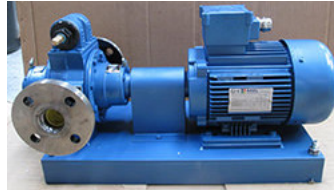
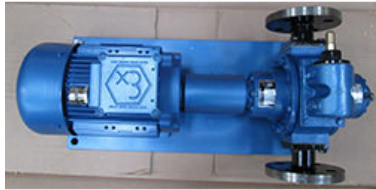


Oil Manufacturer - Case Study



Case Study Information

Customer	Oil Manufacturer
Location	United Kingdom
Enquiry Received	5th February
Order Placed	6th February
Order Dispatched	3rd March



Equipment Supplied:

1 x Horizontal Vane Pump BAL12R

Fluid	Furnace Oil
Installation	Horizontal
Flow	43 L/min
Discharge Head	3 bar
0.55kW / 400v / IP55 / 750 rpm / 50Hz / ATEX Motor	

Enquiry:

- ✓ A UK oil manufacturer wanted a vane pump for transferring furnace oil from tanks to vehicles, and also required the pump to clear the lines and dry run for short periods of time. The customer had received a quote from elsewhere but the lead time was 6-7 weeks and wanted to see what we could offer from our Vane pump range.

Solution:

- ✓ Castle Pumps supplied a Horizontal BAL12R Vane pump fitted with duravanes which are used by many market leading manufacturers of Vane pumps, which automatically adjust clearances, whilst maintaining high levels of flow performance for a longer period of time (compared to that of a standard vane). The pump has external oil lubricated bearings and was fitted with twin mechanical seals. The pump was fitted with PN10 welded flanges as well as an ATEX motor, enabling the pump to be future proof and used within other areas on site. A pressure relief valve was also fitted, ensuring the pump would not sustain damage should the pump experience a closed outlet. The pump was delivered within 4 weeks and was baseplate mounted.



Aviation Company - Case Study



Case Study Information

Customer	Aerospace Company
Location	UK
Enquiry Received	19th November
Order Placed	29th July
Order Dispatched	23rd September

Equipment Supplied:

2 x Horizontal Long Coupled Side Channel Pump w/ Explosion Proof Motor, Baseplate & custom port arrangement (2")

Liverani Range

Service	Aviation Fuel Transfer Pump
Fluids	Aviation Fuel JET A1 (Unleaded Kerosne 804 kg/m ³ @ 15°C) & TS1 (Similar to A1 but with a flash point of 28°C, 787 kg/m ³ @ 15°C)
Auto-Ignition Temperature	200°C
Operating Fuel Temperature	-50°C to +60°C
Capacity	175 l/min @ 15 PSI D
Power	1.5 kW
Voltage	230-400-III
Frequency	50 Hz
RPM	1400 rpm
Protection	II 2G EExd IIC T4
Execution	Horizontal
Pump Casing	Stainless Steel AISI 316
Impeller	Brass
Shaft	Stainless Steel AISI 316

1 x Horizontal Long Coupled Side Channel Pump w/ Explosion Proof Motor & Baseplate

Service	Aviation Fuel Transfer Pump
Fluids	Aviation Fuel JET A1 (unleaded Kerosine 804 kg/m ³ @ 15°C) & TS1 (Similar to A1 but with a flash point of 28°C, 787 kg/m ³ @ 15°C)
Auto-Ignition Temperature	200°C
Operating Fuel Temperature	-50°C to +60°C
Capacity	175 l/min @ 15 PSI D
Power	0.25 kW
Voltage	230-400-III
Frequency	50 Hz
RPM	1400 rpm
Protection	II 2G EExd IIC T4
Execution	Horizontal
Pump Casing	Stainless Steel AISI 316
Impeller	Brass
Shaft	Stainless Steel AISI 316
Sealing	Bi-Directional Mechanical Seal - Ceramic / Graphite / Viton
Connections	3/4" BSPM G



Enquiry:

- ✓ The client wanted to develop some aviation fuel test rigs which would incorporate pumps that could handle aviation fuel at varying temperatures (-50°C to +60°C), varying flow rates (30 – 100% of rated duty) within an ATEX Zone 2 environment. Further to this the client wanted pumps which would minimise the heat input into the fuel during operation, have air cooled motors which could operate with ambient air temperatures of -10°C – 35°C and also allow fuel to flow through them whilst the pumps were idle.
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Solution:

- ✓ Castle Pumps were able to select and customise suitable pumps from their extensive ATEX side channel pump range that fitted the exacting specification of the client and supply under their approved budget for the rigs. CAD drawings for the custom port configuration were made and supplied to the client during the quoting process and photos of the finished pumps sent to the client for their final approval ahead of delivery.

Within a matter of 3.5 working weeks, the pumps were fabricated, tested and delivered to the customers facility for integration into their testing rigs and put into successful operation (10 hrs on / 2 hrs off).



Aerospace (ATEX) - Case Study



Case Study Information

Customer	Aerospace Company - ATEX
Location	UK
Enquiry Received	4th May
Order Placed	30th August
Order Dispatched	22nd November

Equipment Supplied:

1 x Self Priming, ATEX Zone 1 Side Channel Pump - Sero SOHB Range

Application	Test Rig Pump
Fluid	Aviation Fuel T4
Temperature	10 - 59°C
Specific Gravity	0.804
Viscosity	1 mm ² /s
Vapour Content Ratio	1.5:1
Suction	Self Priming to 4.2m - Max Requirement
Flow Rate	3.4 m ³ /hr (+/- 10%)
Discharge Pressures	1.5 - 4 Bar
Motor	0.75 kW / 230 - 400 v / 3 Phase / 1450 rpm / IP55 / EExdeIICT4
Casing, Stages & Base	Ductile Iron GGG 40
Shaft	1.4021
Impellers	1.4059

Enquiry:

- ✓ An Aerospace company approached us with the idea that they wanted to simulate and test the effects that a helicopter's pitch and roll in flight would have on the aviation line, specifically the fuel delivery system. Due to where the client wanted to fix the pump as well as the varying position and fluid levels in the tank (supply reservoir pressure was to be progressively reduced down to a minimum of 6.5 PSIA), there was expected to be a high amount of vapour pressure as well as suction lift for the pump to perform. This, coupled with the fact that the equipment needed to be located in an ATEX Zone 1 environment, meant that this selection was particularly problematic and required a very specific type of pump.

Solution:

- ✓ We selected a self priming side channel pump for this arduous application based on the knowledge that these pumps can handle up to 50% entrained gases and were capable of performing within the differential pressure range required. We were also able to supply this unit in a close coupled arrangement which meant that the unit would quite easily sit within the frame of the test rig. After careful friction loss and weight calculations, we recommended to ultimately move the pump closer to the feed tanks which facilitated an easier suction lift and lightened the load on the tail of the rig assembly.

Furthermore, by supplying the motor with PTC thermistors the client was able to accurately control the flow rate and pressure of the side channel pump, consequently enabling them to test the pump under a wide range of flow rates and pressures.

The client was so impressed with our in house knowledge, fast response and ability to understand their bespoke request that they subsequently referred us to other partners and also registered us on their preferred supplier data base.