Albany Pumps

WATER POWERED FOAM PUMPS

‘Where reliability is crucial’

www.albany-pumps.co.uk
WATER POWERED FOAM PUMPS FPR FIRE FIGHTING EQUIPMENT

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Albany Pumps

Foam Pumps for the Fire Industry

- Foam concentrate injection pumps
- Foam transfer pumps
- VdS approved models

Albany specialises in manufacturing foam concentrate pumps for the Fire industry. A wide range of models of gear pumps are available, with many drive and mounting options. Albany's engineering expertise includes a high level of customisation, ensuring that pumps can be supplied to meet the exacting needs of the fire fighting market.

**Foam Pumps for Fire Trucks & Fixed Installations for Pressures up to 20 Bars**

**Construction:**

- **Pump Casing:** Gunmetal, cast iron and stainless steel 316 option. Flanges to ASA or DIN standards. Screwed BSP (Female) branches: NPT available to choice.
- **Rotors:** Phosphor bronze or stainless steel.
- **Shafts:** Stainless steel 316 with hard coatings.
- **Bearings:** Product lubricated bush bearings.
- **Relief Valve:** If required mounted in the pump body for internal circulation.
- **Shaft Sealing:** Lip seals, mechanical seals and Packed glands available. An internal pressure relief system reduces pressure in the seal area.
- **Reversible:** Flow can be reversed.

- NFPA 20: Albany pumps can be supplied to comply with the latest edition (2013)
- Pumps can run dry for 10 minutes

where reliability is crucial
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* AP7, AP9 & HD5 models that are approved by VdS can be supplied for use in stationary water extinguishing systems.

Above flows based on foams of 12-14 cst & S.G. Viscosity range 3 cps to 2000 cps can be accommodated, please supply details of foam and viscosity with enquiry.

- **DRIVES**

  When pumps are fitted to fire tender vehicles, drive is normally from PTO but may be via hydraulic motor or a separate engine. Fixed installations normally employ electric motors or diesel engine drives. However, there is an increasing preference for water turbine drives for foam concentrate pumps, which Albany cover with their Pelton units.

- **APPROVALS – QA**

  Albany holds BS EN ISO 9001:2008 approval. World-wide, many installations of its pumps fulfil rigorous test and service conditions. We meet the QA and documentation requirements of the oil and gas industry.

  VdS approval is held for the AP7, AP9 & HD5 families of pumps used on fixed installations.

- **TESTING**

  All Albany pumps are performance tested to ensure they meet the specification.

- **THIXOTROPIC FOAM CONCENTRATES**

  Albany pumps will handle thixotropic foam liquids. Pumps may be run at normal speeds, as the shear rate within the inlet pipe and pump is sufficient to reduce viscosities. Suction lines should be as short as possible and of generous diameter since some of these liquids have a high resistance to flow.

- **SPARES**

  Spares are held for all standard pumps. Please contact for details and prices, quoting the serial number stamped on the pump body.
There is an increasing preference for water turbine drives for foam concentrate pumps. These offer the ultimate solution for reliability and safety. A small proportion of the main water flow is used to power the Pelton wheel, which in turn powers the foam injection pump. Albany pumps will handle thixotropic foam liquids. The shear rate within the pump is sufficient to reduce the viscosity. Suction lines should be as short as possible and of generous diameter since these liquids have a high resistance to flow.

WATER POWERED FOAM LIQUID PUMPS – where safety is paramount

FOR USE:  Offshore, Jetties  Fixed installations in tank farms and refineries
The oil & gas industry  Shipboard fire protection

- Foam concentrate pressures from 8 to 19 bars
- Using water supply pressure 7 to 18 bars

where reliability is crucial
CLOSE COUPLED FOAM LIQUID PUMPS
Flows 17 – 216 l/min (1 to 13 m³/hr)

Albany pump sizes AP5N to AP9 with ¾” to 1½” connections. Compact pumpsets are supplied in bronze. The maximum water requirement is 45m³/hr.

VdS approved models: AP7 & AP9

CLOSE COUPLED FOAM LIQUID PUMPS
Flows 250 – 600 l/m (15 – 36 m³/hr)

Albany pump sizes AP9, AP11.5 & HD5. Albany’s 3” Model HD5 foam concentrate pump uses a newly developed Pelton Wheel turbine. The water inlet is flanged 4” ASA, maximum water requirement is 115 m³/hr.

VdS approved model: HD5

BEDPLATE-MOUNTED UNITS
Foam liquid flows 650 – 1400 l/min (40 to 84 m³/hr)

We use Albany’s 3” or 4” flanged foam concentrate pumps: AP12 to HD8.

The pumps are coupled to large Pelton wheel turbines developing up to 30 kW.

Note: Water supply pressure must be measured at the inlet to the turbine

Albany can also supply electric motor or diesel engine driven pumps.

• APPROVALS – QA
Albany holds BS EN ISO 9001:2008 approval. Worldwide, many installations of its pumps fulfil rigorous test and service conditions. We meet the QA and documentation requirements of the oil and gas industry.

VdS approval is held for the AP7, AP9 & HD5 families of pumps used on fixed installations.

• TESTING
Albany tests all its water turbine driven pump sets.

• SPARES
Spares are held for all standard pumps. Please fax for details and prices, quoting the serial number stamped on the pump body.

• DOCUMENTATION
Albany publishes a comprehensive instruction and maintenance manual. Customised instructions are provided for customers when required.

NFPA 20: Albany pumps comply with the latest edition (1999)
WATER POWERED FOAM PUMP RANGE GROWS

Used offshore and on big storage and loading areas in the oil & gas industry Albany's newly developed 3" foam concentrate pump is a real winner.

The water powered pump offers economy and greatly reduced space requirements. This is critical for offshore fire protection.

The unit supplies 600l/m at up to 18 bars pressure with complete spark-proof safety.

The smallest water powered pumps are portable and used offshore. Medium sized units of 100 – 200 l/m protect helidecks on platforms and ships and Naval vessels.

Albany's foam pump range extends to 1400l/m with our gear pumps and above 3000 l/m with our ranges of twin screw pumps.

ALBANY “FIGHT” TO SECURE ORDER FOR SINGAPORE CIVIL DEFENCE

After fierce competition Albany secured an order from a major Singapore fire fighting & protection equipment specialist. The requirement was for pumps to handle 1400 litres/minute of fire fighting foam concentrate.

Eight model HD8 relief valve extended bearing pattern Albany pumps with 4-inch flanged connections and bare drive shafts were supplied for building into skids out in Singapore, (photographs show the units under construction).

The roll-on/roll-off skids incorporated the Albany pump coupled to a diesel engine, foam tank, pipe work and control gear. This enables the Singapore Civil Defence to place the unit at any strategic point to facilitate the fighting of fires.
VEHICLE FOAM LOADING AND TRANSFER PUMPS

Right: the Unipower Rapid Intervention Vehicle (RIV) is a first response airfield crash, fire and rescue vehicle. It has exceptional performance and can operate in extremes of climate. Unipower of Coventry (formerly Alvis Motors) chose a DC motor-driven Albany FL5 to pump foam concentrate into the water stream. Albany make a range of DC or AC driven and air or hydraulic powered foam transfer pumps for use on all types of fire vehicles.

ALBANY THINK – ’FIRE PROTECTION’

This close up picture shows the Albany foam pump in action. Please note the water falling from the Pelton Wheel.

The Angus Fire skid sits on a concrete foundation with a tundish moulded into concrete to ferry the water away to a drain point.

In many applications the water is piped back to the main water pump suction or to the water storage tank.

 Millions of people pass through airports and never give a thought to the fire fighting equipment. The good news is that Albany have given a lot of thought to the design, manufacture and performance of their pumps used on foam concentrate used in fighting aviation fuel fires.

When the fuel storage facilities at a major European airport needed extending Angus Fire were contacted to supply the foam unit skid. This unit was designed to cover the requisite demand of foam for the base injection system on the new storage tanks. An integral and vital part of the unit was a water powered foam pump. Angus, working closely with Albany at the calculation and design stage, incorporated one of Albany's pump units knowing that it would meet the performance requirements specified.

Every foam pump Albany manufacture and supply is thoroughly tested. The water turbine units are fine tuned at the test stage to ensure the foam flow rate at the required discharge pressure is achieved at the stated water pressure. So everyone can rest assured that an Albany pump will perform if and when called upon.

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www: albany-pumps.co.uk

Quality Assurance to
BS EN ISO 9001:2008
Certificate No. FM 20086
Albany manufacture a range of water powered Pelton wheel pumps for foam concentrate. The models available are:

- AP5
- AP7 Also available as a VdS approved version
- AP9 Also available as a VdS approved version
- AP11.5
- HD5 Also available as a VdS approved version

All these Pelton wheel driven models are compact units with the pump flange mounted on the side of the Pelton wheel housing and direct driven utilizing a one piece shaft. They are suitable for operation with water pressures between 5 and 18 bar g which enables the foam to be supplied at a 1 to 2 bar g Pressure above the water pressure.

There are a number of advantages in selecting this type of unit and they include:

- Ideal for hazardous areas
- Lower installation costs, especially at the end of jetties
- No need for standby diesel engine driven pump
- Will always operate if fire water available
- Can be selected to run at a speed to give exact flow rate required

For further information please see Albany’s “Water Powered Foam Pumps” information pack.
ALBANY FOAM PUMPS & NFPA 20

The NFPA 20 Standard includes requirements for foam concentrate pumps. There are three sections which Albany can comply with and they are listed below with comments.

**Relief Valves**

NFPA 20 requires foam pumps to be plain pumps. It stipulates that a Pipeline Relief Valve is to be fitted in the discharge line with it relieving back to the foam tank.

Albany can comply by supplying a plain (non-relief valve) pump. However, an integral relief valve pump saves weight and the cost and space needed for pipeline mounted relief valves and the piping. Albany pumps with in-built relief valves can be factory set to the relieving pressure required. Please also note that models AP5N2 to AP9 with in-built relief valves can be supplied with an external relieving feature and connection at no extra cost. Models AP10 and larger can be modified to external relief at extra cost if required.

**Pump Drive Shaft Sealing**

NFPA 20 states that pumps with packed glands should not be used. Albany can comply by fitting lip seals at no additional cost.

**Dry Running**

NFPA 20 requires that foam pumps will run dry for 10 minutes without any damage. They clarify “running dry” in the following way: When the foam pump has emptied the foam tank the pump must be capable of running on for a further 10 minutes without any detrimental effect on the pump.

Albany foam pumps use internal bush bearings that have been run for 30 minutes after AFFF foam has been exhausted, these bushes have been utilized for over 40 years. Albany pumps do comply with this requirement.
Anerkennung
von Bauteilen und Systemen
Approval
of Components and Systems

Inhaber der Anerkennung
Holder of the Approval
The Albany Engineering Company Ltd.
Church Road
GB- Lydney, Glos. GL15 5EQ

Anerkennungs-Nr.  Approval No
Anzahl der Seiten  No. of pages
P 4050053  4

gültig vom valid from
07.11.2013 06.11.2017

Gegenstand der Anerkennung
Subject of the Approval
Schaummittelpumpe/ Foam Concentrate Pump
"AP7"; "AP9"

Verwendung
Use
in ortsfesten Wasserlöschanlagen
in stationary water extinguishing systems

Anerkennungsgrundlagen
Basis of the Approval
VdS 2344:2012-07
VdS 2100-07:2013-05

Köln, den 26.11.2013

Reinermann
Geschäftsführer
Managing Director

Wilms-Vahrenhorst
Leiter der Zertifizierungsstelle
Head of Certification Body
zur Anerkennungsnummer/ to Approval No. P 4050053 vom/ dated 26.11.2013

Der Gegenstand der Anerkennung umfasst folgende Bestandteile. The subject of the approval comprises the following parts.

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zur Anerkennungsnummer/ to Approval No. P 4050053 vom/ dated 26.11.2013

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Anlage / Enclosure 3

zur Anerkennungsnummer/to Approval No. P 4050053 vom/ dated 26.11.2013

Hinweise für die Anwendung des Gegenstandes der Anerkennung nach Anlage 1.
Instructions for the application of the subject of approval [see enclosure 1].

Die in den Kennlinienblättern 00360 und 00361 ausgewiesenen Leistungsdaten gelten für newtonsche Flüssigkeiten bis zu einer Viskosität von 36 bzw. 45 cst. Die, durch Schaum-
mittel mit höheren Viskositäten, bedingten Leistungsdaten sind bei der Auslegung gesondert zu berücksichtigen.

Bei Einsatz der Schaummittelpumpe mit Antrieb durch Pelonturbine ist ein Notlaufförderstrom von mindestens 5 % des Auslegungsvolumenstromes sicherzustellen.

The performance data shown in data sheets 00360 and 00361 is valid for Newtonian fluids up to a viscosity of 36 respective 45 CST. Power consumption caused by foam concentrate with higher viscosities must be considered separately for motor rating.

When the foam concentrate pump is driven by Pelton turbine a minimum circulation flow of 5 % of rated flow must be ensured.
Anerkennung
von Bauteilen und Systemen

Approval
of Components and Systems

Inhaber der Anerkennung
Holder of the Approval
The Albany Engineering Company Ltd.
Church Road
GB- Lydney, Glos. GL15 5EQ

Anerkennungs-Nr. Approval No.
P 4090016
Anzahl der Seiten No. of pages
4
gültig vom valid from
23.06.2013 (77. MM. YYYY)
gültig bis valid until
22.06.2017 (77. MM. YYYY)

Gegenstand der Anerkennung
Subject of the Approval
Schaummittelpumpe/ Foam Concentrate Pump
"HD5 DH/78"

Verwendung
Use
in ortsfesten Wasserlöschanlagen
in stationary water extinguishing systems

Anerkennungsgrundlagen
Basis of the Approval
VdS 2344:2012-07
VdS 2100-07:2013-05

Köln, den 31.07.2013

Reinermann
i. V. Hesels

Managing Director
Head of Certification Body

Die Anerkennung umfasst nur das angegebene Bauteil/System in der zur Prüfung eingereichten Ausführung
- mit den Bestandteilen nach Anlage 1,
- dokumentiert in den technischen Unterlagen nach Anlage 2,
- zur Verwendung in den angegebenen Einrichtungen der Brandschutz- und Sicherungstechnik.
Bei der Anwendung des Gegenstandes der Anerkennung sind die Hinweise nach Anlage 3 zu beachten.


This Approval is valid only for the specified component/system as submitted for testing
- together with the parts listed in enclosure 1
- documented in the technical documents according to enclosure 2
- for the use in the specified fire protection and security installations.

When using the subject of the approval the notes of enclosure 3 shall be observed.

This certificate may only be reproduced in its present form without any modifications including all enclosures. All changes of the underlying conditions of this approval shall be reported at once to the VdS certification body including the required documentation.

VdS Schadenverhütung GmbH
Zertifizierungsstelle
Amsterdamer Str. 174
D-50735 Köln

Ein Unternehmen des Gesamtverbandes der Deutschen Versicherungswirtschaft e.V. [GDV], durch die DAKKs akkreditiert als Zertifizierungsstelle für Produkte in den Bereichen Brandschutz und Sicherungstechnik

A company of the German Insurance Association [GDV] accredited by DAKKs as certification body for fire protection and security products
zur Anerkennungsnummer/ to Approval No. P 4090016 vom/ dated 31.07.2013

Der Gegenstand der Anerkennung umfasst folgende Bestandteile.
The subject of the approval comprises the following parts.

<table>
<thead>
<tr>
<th>Bezeichnung des Gegenstandes</th>
<th>Typ</th>
<th>Kenn-Nr. des Inhabers</th>
<th>Anerkennungsnummer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description of Subject</td>
<td>Type</td>
<td>Holder's Registration</td>
<td>Approval No.</td>
</tr>
</tbody>
</table>

Schaummittelpumpe
Foam concentrate pump
positive displacement

Einstufig/ Single stage

Drehzahl/ Speed: 500 - 1850 U/min.

mit freien Wellnende zum
Antrieb durch E- oder
Dieselmotoren oder durch
Peltonturbine 700 P/
Bare shaft type to be driven by
E- or Diesel engines or by
Pelton turbine 700 P
Der Gegenstand der Anerkennung wird durch folgende Unterlagen beschrieben.  
The subject of the approval is described by the following documents.

<table>
<thead>
<tr>
<th>Art der Unterlage</th>
<th>Kennzeichnung der Unterlage</th>
<th>Datum</th>
<th>Seiten</th>
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<tr>
<td>Type of Document</td>
<td>Identification of document</td>
<td>Date</td>
<td>Pages</td>
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<tr>
<td>Zusammenstellzeichnungen mit den darin enthaltenen Stücklisten sowie die in den darin enthaltenen Stücklisten aufgeführten Einzelteilzeichnungen / Assembly drawings including parts lists as well as the detail drawings specified therein</td>
<td>14906</td>
<td>21.08.2008</td>
<td>1</td>
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<td></td>
<td>14907</td>
<td>22.08.2008</td>
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<td>Kennlinienblatt /</td>
<td>00298</td>
<td>20.11.2008</td>
<td>1</td>
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<tr>
<td>Family of characteristics</td>
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<td>000400</td>
<td>18.11.2008</td>
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<tr>
<td>Installationsanleitungen / Installation instructions</td>
<td>July 2005</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>July 2005</td>
<td>4</td>
</tr>
</tbody>
</table>
Hinweise für die Anwendung des Gegenstandes der Anerkennung nach Anlage 1.
Instructions for the application of the subject of approval (see enclosure 1).

Die in den Kennlinienblättern 00298 und 000400 ausgewiesenen Leistungsdaten gelten für
newtonsche Flüssigkeiten bis zu einer Viskosität von 17 cst. Die, durch Schaummittel
mit höheren Viskositäten, bedingten Leistungsdaten sind bei der Auslegung gesondert zu
berücksichtigen.

Bei Einsatz der Schaummittelpumpe mit Antrieb durch Pelton turbine ist ein
Notlaufförder-
strom von mindestens 5 % des Auslegungsvolumenstromes sicherzustellen.

The performance data shown in the data sheets 00298 and 000400 are valid for Newtonian
fluids up to a viscosity of 17 cst. Power consumption caused by foam concentrate with
higher viscosity have to be considered separately for motor rating.

When the foam concentrate pump is driven by a Pelton turbine a minimum circulation flow
of 5 % of the rated flow must be guaranteed.
## Technical Information Sheet for Albany Foam Pumps

### Water Powered Pelton Wheel Models

**The Albany Engineering Co. Ltd.**

<table>
<thead>
<tr>
<th>PUMP</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model: AP5 with PW140 Pelton wheel and single nozzle</td>
<td>None</td>
</tr>
<tr>
<td>Rotor Type: Straight Spur</td>
<td>None</td>
</tr>
<tr>
<td>Mounting: Pump built directly onto Pelton wheel housing which is foot mounted</td>
<td>None</td>
</tr>
<tr>
<td>Branches: Screwed 3/4&quot; BSP Female</td>
<td>NPT</td>
</tr>
<tr>
<td>Integral RV: No</td>
<td>RV Version</td>
</tr>
<tr>
<td>Bearings: Extended DU</td>
<td>None</td>
</tr>
<tr>
<td>Shaft Sealing: Double Lip Seal, grease lubricated and pressure relieved</td>
<td>None</td>
</tr>
<tr>
<td>Water Inlet Connection: 1&quot;BSP Male</td>
<td>None</td>
</tr>
</tbody>
</table>

### Materials of Construction

- **Body:** Gunmetal
- **Front Cover:** Gunmetal
- **Back Cover:** Gunmetal
- **Rotors:** Phosphor Bronze
- **Shafts:** 316 Stainless Steel hard chrome plated in bearing and seal areas
- **Bearings:** DU type, PTFE coated on sintered backing
- **Pelton wheel housing:** Gunmetal Cast Iron with single coat epoxy paint

### Performance Details

- **Speed range:** 1200 to 2800 rev/min
- **Output range:** approx. 25 to 60 l/m
- **Discharge pressure range:** 6 to 20 bar g

**Foam Viscosity range:** This is the viscosity of the foam when entering the pump and the range is dependent on speed and pressure, with a discharge pressure of 16 bar g the minimum viscosity at 1200 rev/min is 40 cst and at 1800 rev/min is 26 cst.

For foams with viscosities below these figures please contact Albany Sales Office.

### Notes! Pumps with Pelton Wheel Drive

With water pressures between 5 and 18 bar g the unit is built to pump foam at 1 to 2 bar g above the water pressure.

Albany Foam Pumps are designed to pump foam concentrate. If they are to be tested on water it must be within Albany's recommended limits as running on water and low viscosity foams will reduce the life of the pump.

The power water has to be able to freely discharge from the underside of the Pelton wheel housing, anything preventing it from doing so will affect the performance of the pump.
Pump Performance Graph

| Pump Type | AP5 | Test Engineer | Jonathan Gulliver | Temperature | Fluid | EM32 oil | Date | 09/09/2014 | Viscosity | 15 CST centistokes | Customer | Albany Test. |
NOTE: CARTIDGE BENDING ITEM 17 MUST BE MOUNTED WITH THE LUBRICATOR ONホKE CENTRE LINE.

SuCTION & DELIVERY BRANCHES SCREWED 3/4"BSPT

After setting the nozzle position, drill & tap through lock nut item 41 into holder item 40 & fit 2 off 2BA GRUBSCREWS.

GENERAL ARRANGEMENT
APS EXTENDED BOP PUMP
MOUNTED TO 40CP ELTON WHEEL UNIT
WATER POWERED PELTON WHEEL MODELS

The Albany Engineering Co. Ltd.

**PUMP**

<table>
<thead>
<tr>
<th>Option</th>
<th>Model: AP7 with PW235 Pelton wheel and single nozzle</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rotor Type: Straight Spur</td>
</tr>
<tr>
<td></td>
<td>Mounting: Pump built directly onto Pelton wheel housing which is foot mounted</td>
</tr>
<tr>
<td></td>
<td>Branches: Screwed 1&quot; BSP Female</td>
</tr>
<tr>
<td></td>
<td>Integral RV: No</td>
</tr>
<tr>
<td></td>
<td>Bearings: Extended DU</td>
</tr>
<tr>
<td></td>
<td>Shaft Sealing: Double Lip Seal, grease lubricated and pressure relieved</td>
</tr>
<tr>
<td></td>
<td>Water Inlet Connection: 2&quot;BSP Male</td>
</tr>
</tbody>
</table>

**Materials of Construction**

- Body: Gunmetal
- Front Cover: Gunmetal
- Back Cover: Gunmetal
- Rotors: Phosphor Bronze
- Shafts: 316 Stainless Steel hard chrome plated in bearing and seal areas
- Bearings: DU type, PTFE coated on sintered backing
- Pelton wheel housing: Gunmetal
- Single bearing design
- Cast Iron with single coat epoxy paint

**Performance Details**

- Speed range: 1200 to 2800 rev/min
- Output range: approx.68 to 160 l/m
- Discharge pressure range: 6 to 20 bar g

**Foam Viscosity range:**

This is the viscosity of the foam when entering the pump and the range is dependent on speed and pressure, with a discharge pressure of 16 bar g the minimum viscosity at 1200 rev/min is 17 cst and at 1800 rev/min is 12 cst.

For foams with viscosities below these figures please contact Albany Sales Office.

**Notes! Pumps with Pelton Wheel Drive**

- With water pressures between 5 and 18 bar g the unit is built to pump foam at 1 to 2 bar g above the water pressure.
- Albany Foam Pumps are designed to pump foam concentrate. If they are to be tested on water it must be within Albany's recommended limits as running on water and low viscosity foams will reduce the life of the pump.
- The power water has to be able to freely discharge from the underside of the Pelton wheel housing, anything preventing it from doing so will affect the performance of the pump.

**Approvals**

- The AP7 model can be supplied as a fully approved pump.
- Approval is by VdS - see separate Technical Information Sheet.
**Albany Pumps**

**Pump Performance Graph**

**Graph No.:** AP7-RV-SS-2000-15CST-1

<table>
<thead>
<tr>
<th>Pump Type</th>
<th>AP7 SS</th>
<th>Test Engineer</th>
<th>Jonathan Gulliver</th>
<th>Temperature</th>
<th>Fluid</th>
<th>EM32 oil</th>
<th>Date</th>
<th>09/09/2014</th>
<th>Viscosity</th>
<th>15 CST centistokes</th>
<th>Customer</th>
<th>Albany Test.</th>
</tr>
</thead>
</table>
# TECHNICAL INFORMATION SHEET FOR ALBANY FOAM PUMPS
## WATER POWERED PELTON WHEEL MODELS

The Albany Engineering Co. Ltd.

<table>
<thead>
<tr>
<th>PUMP</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model: AP7 with PW235 Pelton wheel and single nozzle with VdS Approval</td>
<td></td>
</tr>
<tr>
<td>Rotor Type: Straight Spur</td>
<td>None</td>
</tr>
<tr>
<td>Mounting: Pump built directly onto Pelton wheel housing which is foot mounted</td>
<td></td>
</tr>
<tr>
<td>Branches: Screwed 1” BSP Female</td>
<td>None</td>
</tr>
<tr>
<td>Integral RV: No</td>
<td>None</td>
</tr>
<tr>
<td>Bearings: Extended DU</td>
<td></td>
</tr>
<tr>
<td>Shaft Sealing: Double Lip Seal, grease lubricated and pressure relieved</td>
<td>None</td>
</tr>
<tr>
<td>Water Inlet Connection: 2”BSP Male</td>
<td></td>
</tr>
</tbody>
</table>

### Materials of Construction
- **Body:** Gunmetal
- **Front Cover:** Gunmetal
- **Back Cover:** Gunmetal
- **Rotors:** Phosphor Bronze
- **Shafts:** 316 Stainless Steel hard chrome plated in bearing and seal areas
- **Bearings:** DU type, PTFE coated on sintered backing
- **Pelton wheel housing:** Gunmetal Cast Iron with single coat epoxy paint

### Performance Details
- **Speed range:** 1200 to 2800 rev/min
- **Output range:** approx. 68 to 160 l/m [See curve: AP7-RV-SS-2000-15CST-1]
- **Discharge pressure range:** 6 to 20 bar g

**Foam Viscosity range:** This is the viscosity of the foam when entering the pump and the range is dependent on speed and pressure, with a discharge pressure of 16 bar g the minimum viscosity at 1200 rev/min is 17 cst and at 1800 rev/min is 12 cst.

For foams with viscosities below these figures please contact Albany Sales Office.

### Notes! Pumps with Pelton Wheel Drive

With water pressures between 5 and 18 bar g the unit is built to pump foam at 1 to 2 bar g above the water pressure.

Albany Foam Pumps are designed to pump foam concentrate. If they are to be tested on water it must be within Albany's recommended limits as running on water and low viscosity foams will reduce the life of the pump.

The power water has to be able to freely discharge from the underside of the Pelton wheel housing, anything preventing it from doing so will affect the performance of the pump.

### Approvals
- **VdS Number P4050053**
## TECHNICAL INFORMATION SHEET FOR ALBANY FOAM PUMPS
### WATER POWERED PELTON WHEEL MODELS

The Albany Engineering Co. Ltd.

<table>
<thead>
<tr>
<th>PUMP</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model: AP9 with PW235 Pelton wheel and single nozzle</td>
<td></td>
</tr>
<tr>
<td>Rotor Type: Straight Spur</td>
<td>Double helical</td>
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<tr>
<td>Mounting: Pump built directly onto Pelton wheel housing which is foot mounted</td>
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<tr>
<td>Branches: Screwed 1 1/2&quot; BSP Female</td>
<td>NPT</td>
</tr>
<tr>
<td>Integral RV: No</td>
<td>RV Version</td>
</tr>
<tr>
<td>Bearings: Extended DU</td>
<td></td>
</tr>
<tr>
<td>Shaft Sealing: Double Lip Seal, grease lubricated and pressure relieved</td>
<td>None</td>
</tr>
<tr>
<td>Water Inlet Connection: 2&quot;BSP Male</td>
<td></td>
</tr>
</tbody>
</table>

### Materials of Construction
- Body: Gunmetal
- Front Cover: Gunmetal
- Back Cover: Gunmetal
- Rotors: Phosphor Bronze
- Shafts: 316 Stainless Steel hard chrome plated in bearing and seal areas
- Bearings: DU type, PTFE coated on sintered backing
- Pelton wheel housing: Gunmetal (Single bearing design)
- Cast Iron with single coat epoxy paint

### Performance Details
- Speed range: 1200 to 2800 rev/min
- Output range: approx. 180 to 380 l/m
- Discharge pressure range: 6 to 20 bar g
- Foam Viscosity range: This is the viscosity of the foam when entering the pump and the range is dependent on speed and pressure, with a discharge pressure of 16 bar g the minimum viscosity at 1200 rev/min is 12 cst and at 1800 rev/min is 8 cst
  
  For foams with viscosities below these figures please contact Albany Sales Office.

### Notes! Pumps with Pelton Wheel Drive
With water pressures between 5 and 18 bar g the unit is built to pump foam at 1 to 2 bar g above the water pressure.

Albany Foam Pumps are designed to pump foam concentrate. If they are to be tested on water it must be within Albany’s recommended limits as running on water and low viscosity foams will reduce the life of the pump.

The power water has to be able to freely discharge from the underside of the Pelton wheel housing, anything preventing it from doing so will affect the performance of the pump.

### Approvals
The AP9 model can be supplied as a fully approved pump.
Approval is by VdS - see separate Technical Information Sheet.
Pump Performance Graph

<table>
<thead>
<tr>
<th>Pump Type</th>
<th>Test Engineer</th>
<th>Fluid</th>
<th>Date</th>
<th>Temperature</th>
<th>Viscosity</th>
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<tr>
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<td>Steve Barnes</td>
<td>EM32 oil</td>
<td>05/09/2014</td>
<td>20°C</td>
<td>15 CST centistokes</td>
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<tr>
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<td>Description</td>
<td>Qty</td>
<td>Mfr.</td>
<td>Part No.</td>
<td>Description</td>
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<tr>
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<td></td>
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<td>Collar</td>
<td>28</td>
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<td>28582</td>
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<td>20</td>
<td>Grub screw</td>
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<td>5/16&quot;UNC x 3/4&quot;</td>
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<td>21</td>
<td>Cover</td>
<td>27</td>
<td></td>
<td>33242</td>
<td></td>
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<td>32</td>
<td></td>
<td>2377/01</td>
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<tr>
<td>23</td>
<td>Spring washer</td>
<td>43</td>
<td></td>
<td>9/16&quot;</td>
<td></td>
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<tr>
<td>24</td>
<td>NPT valve housing</td>
<td>44</td>
<td></td>
<td>30086</td>
<td></td>
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<tr>
<td>25</td>
<td>Set screw</td>
<td>43</td>
<td></td>
<td>1/2&quot;UNC x 3/4&quot;</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Key</td>
<td>34</td>
<td></td>
<td>1/4&quot;x3/8&quot;</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Bush</td>
<td>35</td>
<td></td>
<td>30259</td>
<td></td>
</tr>
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<td>8</td>
<td>Set screw</td>
<td>36</td>
<td></td>
<td>28592</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Set screw</td>
<td>37</td>
<td></td>
<td>5/16&quot;UNC x 3/4&quot;</td>
<td></td>
</tr>
</tbody>
</table>

**Pump Rotation: Top Drive / Clockwise (Drg.28817 - Option 'A')**

**Sectional Arrangement**
- APS Extended Bearing Pump
- Coupled to 700f Pelton Wheel

**Pump Suction & Delivery Branches Flanged**
- 13/4" x 1/2" x 1/2" x 1/2"
- 5" Dia (125mm) with 4 x 9/16" (14mm) dia holes on 3.75" (98mm) pitch

**Water inlet to Pelton Wheel**
- Threaded 2" BSP N

**After setting the nozzle**
- Position drill & tap thru, locknut into the holder
- 2 places, 8.0 x 0.75 x 2.78 mm screws

**Dimensions**
- P: 300 [600mm]
- P: 30 [150mm]
- P: 20 [150mm]
- P: 20 [500mm]
- P: 40 [500mm]
- P: 10 [100mm]
- P: 10 [160mm]
- P: 14 [300mm]
- P: 14 [150mm]
- P: 8 [150mm]
- P: 10 [200mm]
- P: 5 [150mm]
## TECHNICAL INFORMATION SHEET FOR ALBANY FOAM PUMPS

### WATER POWERED PELTON WHEEL MODELS

The Albany Engineering Co. Ltd.

### PUMP Option

<table>
<thead>
<tr>
<th>PUMP</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model: AP9 with PW235 Pelton wheel and single nozzle with VdS approval</td>
<td>None</td>
</tr>
<tr>
<td>Rotor Type: Straight Spur</td>
<td>None</td>
</tr>
<tr>
<td>Mounting: Pump built directly onto Pelton wheel housing which is foot mounted</td>
<td>None</td>
</tr>
<tr>
<td>Branches: Screwed 1 1/2&quot; BSP Female</td>
<td>None</td>
</tr>
<tr>
<td>Integral RV: No</td>
<td>None</td>
</tr>
<tr>
<td>Bearings: Extended DU</td>
<td>None</td>
</tr>
<tr>
<td>Shaft Sealing: Double Lip Seal, grease lubricated and pressure relieved</td>
<td>None</td>
</tr>
<tr>
<td>Water Inlet Connection: 2”BSP Male</td>
<td></td>
</tr>
</tbody>
</table>

### Materials of Construction

- **Body:** Gunmetal
- **Front Cover:** Gunmetal
- **Back Cover:** Gunmetal
- **Rotors:** Phosphor Bronze
- **Shafts:** 316 Stainless Steel hard chrome plated in bearing and seal areas
- **Bearings:** DU type, PTFE coated on sintered backing
- **Pelton wheel housing:** Gunmetal Cast Iron with single coat epoxy paint

### Performance Details

- **Speed range:** 1200 to 2800 rev/min
- **Output range:** approx.180 to 380 l/m
- **Discharge pressure range:** 6 to 20 bar g
- **Foam Viscosity range:** This is the viscosity of the foam when entering the pump and the range is dependent on speed and pressure, with a discharge pressure of 16 bar g the minimum viscosity at 1200 rev/min is 12 cst and at 1800 rev/min is 8 cst.
  
  For foams with viscosities below these figures please contact Albany Sales Office.

### Notes! Pumps with Pelton Wheel Drive

With water pressures between 5 and 18 bar g the unit is built to pump foam at 1 to 2 bar g above the water pressure.

Albany Foam Pumps are designed to pump foam concentrate. If they are to be tested on water it must be within Albany's recommended limits as running on water and low viscosity foams will reduce the life of the pump.

The power water has to be able to freely discharge from the underside of the Pelton wheel housing, anything preventing it from doing so will affect the performance of the pump.

### Approvals

VdS Number P4050053
## TECHNICAL INFORMATION SHEET FOR ALBANY FOAM PUMPS
### WATER POWERED PELTON WHEEL MODELS

**The Albany Engineering Co. Ltd.**

### PUMP Option

<table>
<thead>
<tr>
<th>Model:</th>
<th>AP9 with PW235 Pelton wheel and single nozzle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotor Type:</td>
<td>Straight Spur</td>
</tr>
<tr>
<td>Mounting:</td>
<td>Pump built directly onto Pelton wheel housing which is foot mounted</td>
</tr>
<tr>
<td>Branches:</td>
<td>Screwed 1 1/2” BSP Female</td>
</tr>
<tr>
<td>Integral RV:</td>
<td>No</td>
</tr>
<tr>
<td>Bearings:</td>
<td>Extended DU</td>
</tr>
<tr>
<td>Shaft Sealing:</td>
<td>Double Lip Seal, grease lubricated and pressure relieved</td>
</tr>
<tr>
<td>Water Inlet Connection:</td>
<td>2 x 2”BSP Male</td>
</tr>
</tbody>
</table>

### Materials of Construction

- **Body:** Gunmetal
- **Front Cover:** Gunmetal
- **Back Cover:** Gunmetal
- **Rotors:** Phosphor Bronze
- **Shafts:** 316 Stainless Steel hard chrome plated in bearing and seal areas
- **Bearings:** DU type, PTFE coated on sintered backing
- **Pelton wheel housing:** Gunmetal Cast Iron with single coat epoxy paint

### Performance Details

- **Speed range:** 1200 to 2800 rev/min
- **Output range:** approx. 200 to 400 l/m  
  See curve: AP9-RV-SS-2000-15CST-1
- **Discharge pressure range:** 6 to 20 bar g

**Foam Viscosity range:** This is the viscosity of the foam when entering the pump and the range is dependent on speed and pressure, with a discharge pressure of 16 bar g the minimum viscosity at 1200 rev/min is 12 cst and at 1800 rev/min is 8 cst.

For foams with viscosities below these figures please contact Albany Sales Office.

### Notes! Pumps with Pelton Wheel Drive

With water pressures between 5 and 18 bar g the unit is built to pump foam at 1 to 2 bar g above the water pressure.

Albany Foam Pumps are designed to pump foam concentrate. If they are to be tested on water it must be within Albany’s recommended limits as running on water and low viscosity foams will reduce the life of the pump.

The power water has to be able to freely discharge from the underside of the Pelton wheel housing, anything preventing it from doing so will affect the performance of the pump.
### TECHNICAL INFORMATION SHEET FOR ALBANY FOAM PUMPS

**WATER POWERED PELTON WHEEL MODELS**

The Albany Engineering Co. Ltd.

<table>
<thead>
<tr>
<th>PUMP</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model: AP11.5 with PW235 Pelton wheel and twin nozzle</td>
<td>None</td>
</tr>
<tr>
<td>Rotor Type: Double Helical</td>
<td></td>
</tr>
<tr>
<td>Mounting: Pump built directly onto Pelton wheel housing which is foot mounted</td>
<td></td>
</tr>
<tr>
<td>Branches: Flanged 3&quot; ASA 150 lbs FF</td>
<td>None</td>
</tr>
<tr>
<td>Integral RV: No</td>
<td>RV Version</td>
</tr>
<tr>
<td>Bearings: Extended DU</td>
<td></td>
</tr>
<tr>
<td>Shaft Sealing: Double Lip Seal, grease lubricated and pressure relieved</td>
<td>None</td>
</tr>
<tr>
<td>Water Inlet Connection: 2 x 2&quot; BSP Male</td>
<td></td>
</tr>
</tbody>
</table>

### Materials of Construction

- **Body:** Gunmetal
- **Front Cover:** Gunmetal
- **Back Cover:** Gunmetal
- **Rotors:** Phosphor Bronze
- **Shafts:** 316 Stainless Steel hard chrome plated in bearing and seal areas
- **Bearings:** DU type, PTFE coated on sintered backing
- **Pelton wheel housing:** Gunmetal Cast Iron with single coat epoxy paint
- **Double bearing design**

### Performance Details

- **Speed range:** 1200 to 2000 rev/min
- **Output range:** approx. 300 to 470 l/m
- **Discharge pressure range:** 6 to 20 bar g

**Foam Viscosity range:** This is the viscosity of the foam when entering the pump and the range is dependent on speed and pressure, with a discharge pressure of 16 bar g the minimum viscosity at 1200 rev/min is 12 cst and at 1800 rev/min is 8 cst.

For foams with viscosities below these figures please contact Albany Sales Office.

### Notes! Pumps with Pelton Wheel Drive

With water pressures between 5 and 18 bar g the unit is built to pump foam at 1 to 2 bar g above the water pressure.

Albany Foam Pumps are designed to pump foam concentrate. If they are to be tested on water it must be within Albany’s recommended limits as running on water and low viscosity foams will reduce the life of the pump.

The power water has to be able to freely discharge from the underside of the Pelton wheel housing, anything preventing it from doing so will affect the performance of the pump.
### Albany Pumps

#### Pump Performance Graph

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Pump Type</th>
<th>Viscosity</th>
<th>Temperature 20°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil</td>
<td>AP11.5 DH</td>
<td>15 centistokes</td>
<td></td>
</tr>
</tbody>
</table>
### TECHNICAL INFORMATION SHEET FOR ALBANY FOAM PUMPS

#### WATER POWERED PELTON WHEEL MODELS

The Albany Engineering Co. Ltd.

<table>
<thead>
<tr>
<th>PUMP</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model: AP11.5 with PW235 Pelton wheel and multi-nozzle</td>
<td></td>
</tr>
<tr>
<td>Rotor Type: Double Helical</td>
<td>None</td>
</tr>
<tr>
<td>Mounting: Pump built directly onto Pelton wheel housing which is foot mounted</td>
<td></td>
</tr>
<tr>
<td>Branches: Flanged 3&quot; ASA 150 lbs FF</td>
<td>None</td>
</tr>
<tr>
<td>Integral RV: No</td>
<td>RV Version</td>
</tr>
<tr>
<td>Bearings: Extended DU</td>
<td></td>
</tr>
<tr>
<td>Shaft Sealing: Double Lip Seal, grease lubricated and pressure relieved</td>
<td>None</td>
</tr>
<tr>
<td>Water Inlet Connection: 4&quot; ASA 150 lbs FF</td>
<td></td>
</tr>
</tbody>
</table>

#### Materials of Construction

- **Body**: Gunmetal
- **Front Cover**: Gunmetal
- **Back Cover**: Gunmetal
- **Rotors**: Phosphor Bronze
- **Shafts**: 316 Stainless Steel hard chrome plated in bearing and seal areas
- **Bearings**: DU type, PTFE coated on sintered backing
- **Pelton wheel housing**: Gunmetal Cast Iron with single coat epoxy paint

#### Performance Details

- **Speed range**: 1200 to 2000 rev/min
- **Output range**: approx. 340 to 550 l/m
- **Discharge pressure range**: 6 to 20 bar g
- **Foam Viscosity range**: This is the viscosity of the foam when entering the pump and the range is dependent on speed and pressure, with a discharge pressure of 16 bar g the minimum viscosity at 1200 rev/min is 12 cst and at 1800 rev/min is 8 cst.

For foams with viscosities below these figures please contact Albany Sales Office.

#### Notes! Pumps with Pelton Wheel Drive

With water pressures between 5 and 18 bar g the unit is built to pump foam at 1 to 2 bar g above the water pressure.

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# TECHNICAL INFORMATION SHEET FOR ALBANY FOAM PUMPS

## WATER POWERED PELTON WHEEL MODELS

The Albany Engineering Co. Ltd.

## PUMP

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model:</td>
<td>HDS with PW235 Pelton wheel and multi-nozzle</td>
</tr>
<tr>
<td>Rotor Type:</td>
<td>Double Helical</td>
</tr>
<tr>
<td>Mounting:</td>
<td>Pump built directly onto Pelton wheel housing which is foot mounted</td>
</tr>
<tr>
<td>Branches:</td>
<td>Flanged 3&quot; ASA 150 lbs FF</td>
</tr>
<tr>
<td>Integral RV:</td>
<td>No</td>
</tr>
<tr>
<td>Bearings:</td>
<td>Extended DU</td>
</tr>
<tr>
<td>Shaft Sealing:</td>
<td>Double Lip Seal, grease lubricated and pressure relieved</td>
</tr>
<tr>
<td>Water Inlet Connection:</td>
<td>4&quot; ASA 150 lbs FF</td>
</tr>
</tbody>
</table>

## Materials of Construction

| Body: | Gunmetal |
| Front Cover: | Gunmetal |
| Back Cover: | Gunmetal |
| Rotors: | Phosphor Bronze |
| Shafts: | 316 Stainless Steel hard chrome plated in bearing and seal areas |
| Bearings: | DU type, PTFE coated on sintered backing |
| Pelton wheel housing: | Gunmetal Cast Iron with single coat epoxy paint |
| Double bearing design |

## Performance Details

| Speed range: | 1200 to 2000 rev/min |
| Output range: | approx. 440 to 700 l/m |
| Discharge pressure range: | 6 to 20 bar g |

Foam Viscosity range: This is the viscosity of the foam when entering the pump and the range is dependent on speed and pressure, with a discharge pressure of 16 bar g the minimum viscosity at 1200 rev/min is 11 cst and at 1800 rev/min is 7 cst.

For foams with viscosities below these figures please contact Albany Sales Office.

## Notes! Pumps with Pelton Wheel Drive

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## Approvals

The HD5 model can be supplied as a fully approved pump.

Approval is by VdS - see separate Technical Information Sheet.
## TECHNICAL INFORMATION SHEET FOR ALBANY FOAM PUMPS
### WATER POWERED PELTON WHEEL MODELS

The Albany Engineering Co. Ltd.

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<table>
<thead>
<tr>
<th>Option</th>
<th>Model: HDS with PW235 Pelton wheel and multi-nozzle with VdS approval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rotors: Double Helical</td>
</tr>
<tr>
<td></td>
<td>Mounting: Pump built directly onto Pelton wheel housing</td>
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<td></td>
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### Approvals

- **VdS Number:** 4090016
Albany Pumps

Pump Performance Graph

<table>
<thead>
<tr>
<th>Pump Type</th>
<th>HD5 DH</th>
<th>Viscosity 15 centistokes</th>
<th>Temperature 20°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid</td>
<td>Oil</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>