

Flexible Pipelines



The flexible pipelines solutions provider

Angus Flexible Pipelines is a global leader in providing solutions for fluid transfer applications, and has maintained its position at the forefront of layflat hose technology through continuous investment in research and development.

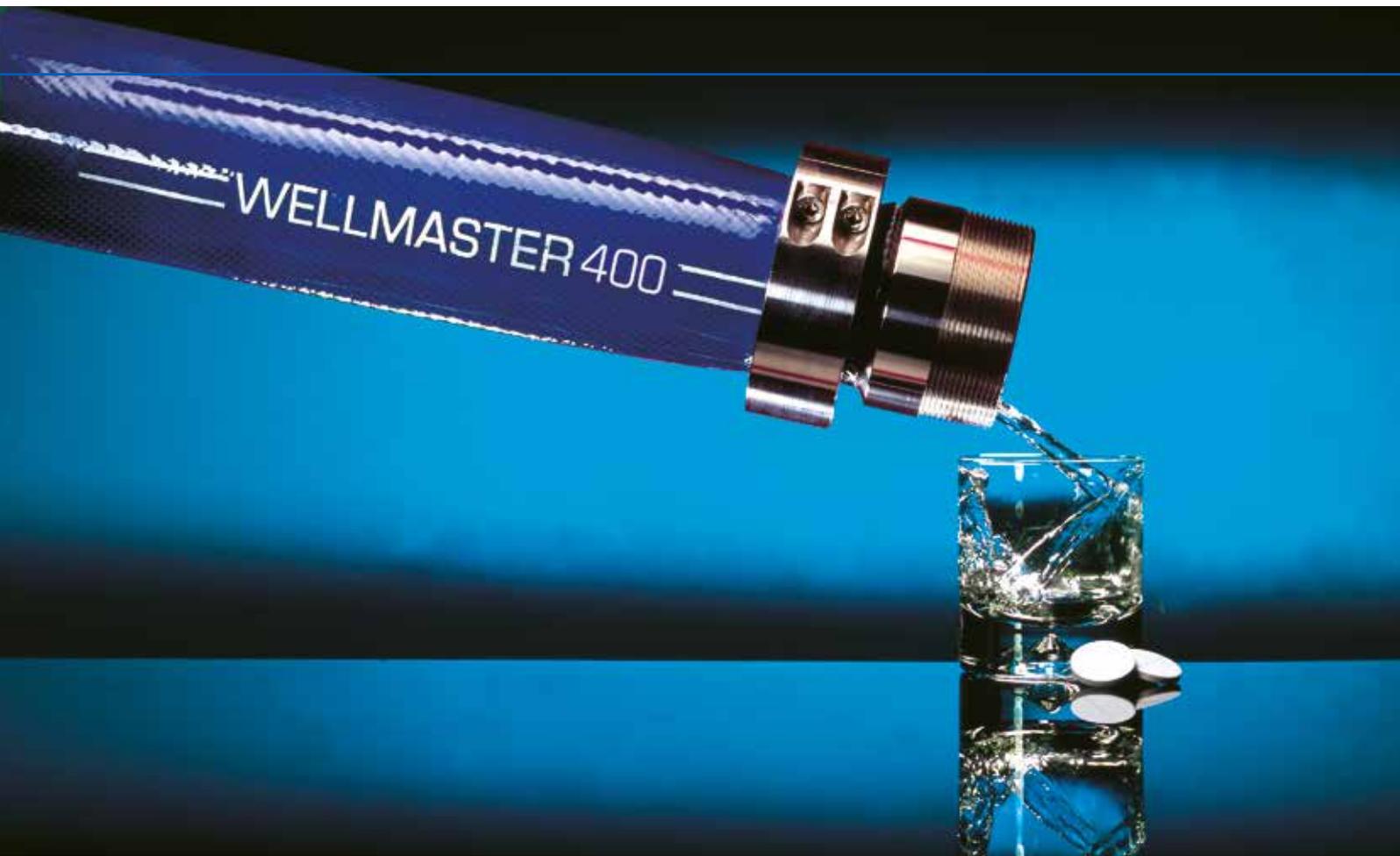
Angus Flexible Pipelines manufactures layflat hose from high tensile synthetic yarns which are circular woven and then totally encapsulated in a tough elastomeric cover and lining. Different yarns and covers are used for different applications, but what they all have in common is exceptional strength and superior hydraulic performance, ease of storage and transport, rapid installation and retrieval, cost-effective set-up and operation, and long service life.



Angus Flexible Pipelines has been at the forefront of hose technology for over thirty years. Formed in 1970 as a division of Angus Fire, the global fire fighting technology company, it was created to develop the company's layflat fire hose technology into non-fire related industrial markets. During the 1970's Angus Flexible Pipelines pioneered the development of Irrigation Hose, a high tensile, long length hose for use with travelling irrigators. This was soon followed by Chemicoil for delivering fuel and chemicals, Super Aquaduct for delivering potable water, and Wellmaster, which is now the world's premier flexible rising main. Recent developments include Chemicoil 1200 for long distance high pressure fuel transfer systems and Wellmaster 400 for deep groundwater abstraction.



- 1970 *Angus Flexible Pipelines formed as a division of Angus Fire*
- 1970s *Introduction of Irrigation hose, high tensile long-length hose for use with travelling irrigators*
Launch of Chemicoil™, for fuel and chemical delivery
Launch of Super Aquaduct™ for potable water transfer
- 1980 *Introduction of Wellmaster™ - the World's premier flexible rising main*
Offshore 850 platform supply hose introduced
- 1990 *12" Super Aquaduct XLDH – Large Diameter hose systems developed*
- 2000 *Chemicoil 1200 released – The first high pressure layflat fuel transfer and pipeline bypass hose*
- 2010 *Wellmaster and Super Aquaduct gain Regulation 31 UK drinking water approval*
- 2011 *Introduction of Wellmaster 400 for deep groundwater abstraction*



WELLMASTER 400

A responsible corporate outlook

Angus Flexible Pipelines has a long established track-record of incorporating environmental technology into its new product development.

Environment

The company's commitment to minimising the environmental impact of its products is integrated back into managing and monitoring sound environmental practices at all its manufacturing plants. These practices include energy management, waste minimisation, raw materials management and minimising environmental emissions. The company is approved to ISO 14001 Environmental Management Standard. This provides customers with the assurance that environmental management is a vital element in the company's production processes.

Employees

Many of the company's technical staff are acknowledged experts in their fields and are members of national and international standards committees such as NFPA, CEN and ISO.

Corporate Responsibility & Ethics

Angus Flexible Pipelines is committed to delivering effective solutions for fluid transfer, and it is why we work every day on improving

our products and developing new technologies. We apply a broad ranging code of ethics to our business decisions and employ professionals to guide our managers and employees on ethical business practices.

Achieving Competitive Excellence (ACE)

Angus Flexible Pipelines is committed to Achieving Competitive Excellence (ACE). ACE is our proprietary operating system to ensure world-class quality in our products and processes. With relentless focus on increasing efficiency and reducing waste, ACE is integral to the company's performance model. Our facilities worldwide are using the operating system to improve quality and customer satisfaction.

Quality

The majority of our products are approved by international organisations, and we hold third party accreditation to BS EN ISO 9001 Quality Management System BS EN ISO 14001 Environmental Management System.

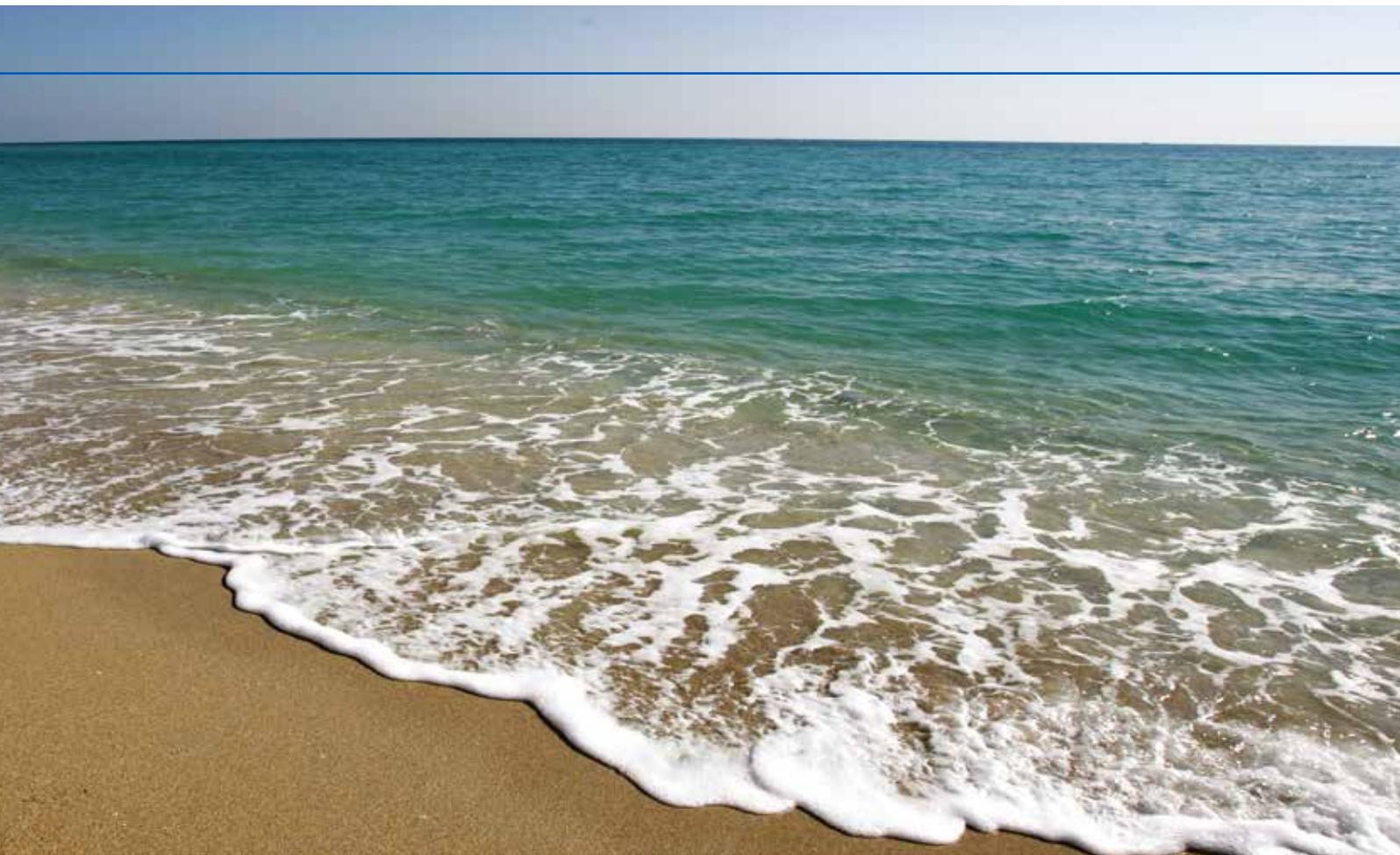


FM 595473



EMS 607290





Fluid transfer applications





Water transfer applications

Groundwater Abstraction

Wellmaster is the world's premier flexible rising main system designed for use with submersible pumps in potable and mineral groundwater borehole abstraction. It has been used with outstanding success for over 30 years in over 70,000 installations around the world.

Mine Dewatering and Land Stabilisation

Wellmaster is ideal for pumping excess ground, rain, and river water out of mines and quarries, and is especially useful for land stabilisation in open-cast gold and copper mines.

Landfill Leachate Extraction

Wellmaster, used in conjunction with submersible pumps, can be used in extracting leachate from landfill sites, including disused



quarries, mines or purpose-built tips. Wellmaster is inert to leachate – a corrosive liquid that attacks steel pipes – and so is ideal for these extraction applications.

Desalination Plants

Wellmaster is the perfect choice for transferring water from supply wells to reverse osmosis desalination plants. The corrosive nature of the water supplied to reverse osmosis desalination plants makes this an important application for Wellmaster as it is totally unaffected by high salinity and resistant to corrosion and scaling.

Onshore Oil and Gas Exploration

Mobile land-based drilling rigs require large quantities of water, which will often be extracted from a borehole using Wellmaster. The water is



then transferred from the well to the rig, often over difficult terrain, using Armourline 600.

Industrial Wastewater Transfer

Armourline is the flexible layflat hose for all types of non-potable or wastewater transfer operations. It offers major cost savings and performance advantages over conventional rigid polyethylene, PVC, glass fibre and galvanised pipe. Armourline is ideal for drill water supply to mobile onshore rigs, and for water relay operations and flood relief.

Hydrofracking Operations

Super Aquaduct XLDH is used for supplying large quantities of water required for hydrofracking operations, eliminating the need for rigid metal pipelines or road tankers, and reducing environmental impact.

Potable Water Delivery

Super Aquaduct is a flexible layflat pipeline for all temporary drinking water delivery operations, and holds numerous potable water listings, including Regulation 31 in the UK and NSF in the USA. It offers major cost savings and performance advantages over conventional rigid pipe. It is easy to store and transport, fast to deploy and retrieve, cheap to set-up and

operate, and offers long service life and superior hydraulic performance.

Emergency Water Supply

Super Aquaduct XLDH products are the most technologically advanced fluid transfer hoses in the world. Available with a wide range of deployment and retrieval equipment options, applications are numerous: immediate solutions for municipal water suppliers as an emergency water main, possibly following earthquakes or terrorist activities; industrial fire fighters using large-scale monitors; and as a temporary by-pass during renovation work in heavy industry.

Agricultural Irrigation

Irrigation hose is specially designed for use with travelling and linear irrigation systems.



Dragmaster irrigation hose is easy to store and transport, and fast to deploy and retrieve. Highly resistant to agricultural chemicals, it provides the very best in ozone and ultraviolet resistance, and unsurpassed abrasion resistance to ensure it lasts longer than any other hose on the market. Low pressure loss ensures maximum spraying area and reduced energy costs. Dragmaster exceeds the minimum performance requirements of the American Society of Agricultural Engineers (ASAE) Standard 394.

Sludge and Slurry Disposal

Dragmaster and PU2000 are extensively used for industrial sludge and agricultural slurry disposal. Dragmaster and PU2000 are easy to store and transport, fast to deploy and retrieve, and offer low operating costs. Constructed from a synthetic circular woven jacket encapsulated in tough rubber (Dragmaster) or abrasion-resistant polyurethane (PU2000) with high resistance to industrial and agricultural chemicals.

Maintenance Activities

GP Hose is a General Purpose hose that is suitable for all types of industrial maintenance, washdown and other water transfer operations. Its lightweight construction allows it to be quickly and easily cleaned with no need for drying out.



Fuel and chemical transfer applications

Military Operations

Chemicoil is a cost-effective layflat hose for long distance, high pressure fuel delivery in the harshest of environments. It is ideal for supporting vehicles involved in fast moving troop movements, as well as aircraft refuelling. Long continuous lengths can be quickly deployed and retrieved using power driven reels.

Refineries and Chemical Plants

Chemicoil is well suited to many tasks in the petrochemical industry, including tank-to-tank transfer, tank cleaning and pipeline bypass during maintenance operations. Low resistance static discharge metal wires woven into the body of the hose allow electrical continuity through couplings, an essential requirement when transferring fuels.



Industrial Plants

Chemicoil's multipurpose capability makes it an ideal choice for a wide range of industrial applications, including crude oil transfer, inert gas handling, loading and unloading of railcars and dry powder handling. It combines the lightweight and compact features of PVC hose with the durability and abrasion resistance of heavy rubber hose, which offers major cost savings and performance advantages over conventional rigid pipe.

Pollution Control and Clean-Up

Designed for long life and maintenance free service in even the harshest environments, Chemicoil is tough and durable with exceptional resistance to abrasion and cutting. It does not corrode or scale, and is resistant to heat, fuels,



chemicals, UV, ozone, weathering, hydrolysis, and microbiological attack, making it ideal for clean-up operations.

Marine and Offshore Supply

Offshore 850 is the longest, lightest and strongest flexible layflat supply hose for all types of marine and offshore operations. It is easy to store and transport, fast to deploy and retrieve, and offers low pressure loss for efficient and cost-effective pumping.

Ship-to-Shore Transfer

Offshore 850 is capable of operating continuously at high pumping pressures with minimal maintenance even in the harshest ground or sea conditions. It has a floating capability and is available in versions with or without static discharge bonding wires.

The version with bonding wires is suitable for transferring fuels, oils, oil-based muds, drilling muds, barytes, cement and bulk powders; and allows electrical continuity through the couplings. The non-wire-bonded version is suitable for transferring hot and cold potable water, brackish water, sea water, foodstuffs and drillwater.





INTERNATIONAL SALES

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