

Oil Recirculation Systems

Complete Design, Engineered & Manufactured Solutions



Our Company

Denco Fluid Systems is well established as one of the leading companies in the supply of Oil Recirculation Systems and equipment for the optimum lubrication of bearings and gear trains.

Reliability has been the key to our success, achieved by utilising proven design techniques, coupled with product quality and competitive pricing.

Features:

- + Design of Systems
- + Engineering
- + Manufacture
- + Supply & Installation
- + Commissioning
- + Flushing Facilities
- + The Full Spectrum



DENCO FLUID SYSTEMS

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Design of Systems



Denco Fluid Systems has recognised that the reliability and efficiency of a successful Oil Recirculation System requires it to fulfil the following key functions:

Lubrication:

Supplying the appropriate quantity of lubricant at the required viscosity, temperature and pressure to a bearing or gear train to prevent failure.

Cooling:

By maintaining the system oil temperature and flow rate at the required parameters, the heat generated by the motion and load of bearings and gear trains is removed, ensuring that lubrication is provided at the optimum performance level.

Filtration:

It is critical to remove contaminants such as dust, wear particles, water and other extraneous materials that build up during the operation of bearings and gear trains. The lubricant needs to be continually filtered to the correct cleanliness level prior to being recirculated. Denco Fluid Systems 'Design and Support Teams' work closely with customers, component suppliers and lubricant manufacturers to ensure our Oil Recirculation Systems achieve the system performance levels required.

Complete Design Solutions:

We pride ourselves on our ability to deliver the complete engineered design solution. Using the latest CAD technology our innovative design team work together to bring your specifications to life.

Through the use of technical drawings, 2D and 3D modelling, our designers ensure all specifications are met with precision without ever compromising the systems efficiency or the manufacturing process. With over 70 years commercial experience our dedicated team can cater for any set up requirements and will guide you every step of the way from concept through to completion.

Typical System Parameters:

Suitable for Mineral Oil

Applications	Industrial & API
Oil Viscosities	Up to and incl. 680 cSt @ 40 °C
Oil Flows	1 to 2000+ LPM
Maximum Pressure	20 Bar+
Motor Power	Up to 75 kW
Voltage	380 / 400 / 440 / 460 / 480 V
Phase	Single & 3 Phase
Frequency	50 Hz / 60 Hz
Filtration	Simplex & Duplex: 3, 6, 10, 16 & 25 Micron - absolute and nominal ranges
Oil Coolers	Shell & Tube and Plate
Monitoring	Level, flow, pressure, temperature switches, transmitters and visual

Engineering: Oil Recirculation Systems



In providing the key functions of an Oil Recirculation System, the system is built from primary equipment as illustrated above.

Reservoir or Tanks:

To allow for settlement, de-aeration and heating with the ability to facilitate a change of lubricant at the appropriate interval. Tank materials are typically carbon steel or stainless steel, and sized based on the system flow rate and application.

Pumps:

Normally gear or screw type, motor driven to ensure the correct amount of lubricant is delivered to the friction points. In many cases, standby pumps are provided as part of the integrated design. These can be electrical or shaft driven, dependent on the application.

Heaters and Coolers:

To ensure the lubricant reaches the points of application at the required viscosity. The heaters can be tank mounted electric, steam or inline. The coolers can be plate type or shell and tube with the medium being water or water / glycol. Air can also be utilised for cooling using a fan and radiator.

Filtration and Straining Equipment:

To maintain the system cleanliness. Typical oil filters will be either simplex or duplex type in the delivery line, suction line strainers, return line strainers and tank breather / filters.

Jacking Oil Panels:

Jacking Oil Panels produce a small flow rate of oil at high pressure to lift the shaft of a bearing before it starts to rotate. Typical applications are large generators, cement kilns and ball mills.



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Engineering: Optional System Components



In addition to the main primary equipment, a number of optional system components can be included, depending on the customer specification and technical requirements:

Reservoir Level Monitoring:

Visual indicators, electrical switches and/or transmitters to alert the operator of low or high oil level, and protect the pump and tank immersion heater(s) from operating when the oil level is too low.

Pressure Monitoring:

Visual gauges, electrical switches and/or transmitters to alert the operator of low or high pressures in the oil system delivery circuit, and similar pressure differential instruments to monitor the pressure drop across the main supply filter.

Temperature Monitoring:

Visual gauges, electrical switches and/or transmitters to monitor the reservoir and delivery line oil temperatures.

Flow Monitoring:

Visual indicators, electric switches and/or transmitters to monitor the oil flow to the friction point(s), oil return to the reservoir and cooling water supply. To support this Bijur Delimon have developed the DS405 iPM Lubrication Monitor; a highly configurable product that can be used on Oil Recirculation Systems and Total Loss Oil or Grease systems respectively for real-time monitoring of the flow rate of oil, typically through an oval gear flowmeter.

Control Valves:

Pump relief valves to protect the pump against excessive back pressure, system pressure control valves to control the flow and pressure of the lubricant to the friction point(s), and temperature control valve to either modulate the water flow to the water/oil cooler or by-pass the cooler when fitted in the oil supply line when the oil does not require cooling.

Isolation Valves / Check Valves:

To isolate the oil or water supply, and prevent the oil from returning to the reservoir.

Air Pressure Vessels:

Used in large systems to ensure sufficient pressure exists in the system to provide lubrication to all application points during operation and run down of the parent machine in the event of a power cut.

Run Down Tanks:

To provide lubrication to all application points during run down of the parent machine in the event of a power cut.

Manufacture



Overview:

- + Dedicated workshop (2000 m²) for the fabrication and assembly of bespoke systems.
- + Qualified welders approved to ASME IX and BS EN287-1 standards are capable of producing stainless & carbon steel systems to exacting requirements such as those of API 610 and 614.
- + Three dedicated test bays allow systems to be pressure tested up to 600 bar with both 50 and 60Hz AC electrical input as well as DC up to 120v.

Welding:

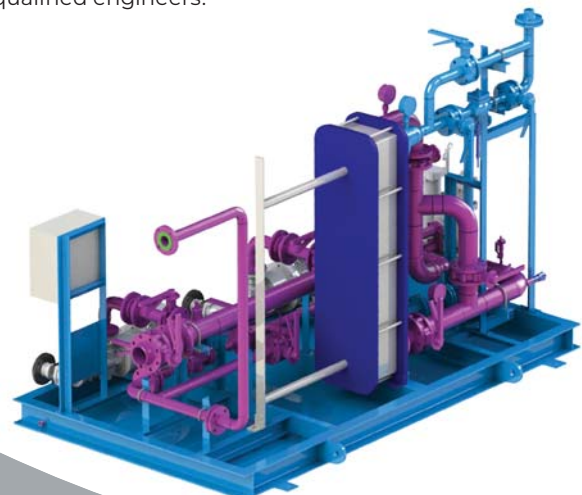
- + On and Off site
- + Ferrous & Non Ferrous
- + ASME IX & BS EN287-1
- + TIG
- + MIG
- + Synergic Pulse
- + MMA
- + In-house NDT

Electrical Control Panel Assembly:

Our in-house electrical engineering team are able to provide bespoke solutions for electrical installation. As part of our installation package, we can offer a full electrical design service from power supply to control panel and beyond.

As standard, our systems are pre-wired from our Hereford factory, but where required, site wiring and electrical installation of equipment is carried out, including connection to BMS systems, remote cooler wiring and on site sensors.

All installations are carried out in accordance with local regulation and to the highest standards by professional, qualified engineers.



Supply & Installation



All Denco Fluid System projects are available with total turnkey installation.

Pipework specification is supplied in a wide variety of materials including stainless and carbon steels, copper and ABS. We are able to take care of siting equipment, pipework, electrical installation and commissioning. Major installation contracts are carried out in all industries including steel works, power stations, cement works, paper mills, automotive plants etc.

We can also supply engineers to oversee systems installation and commissioning outside the United Kingdom, where local fitters are used.

Installations are carried out with the following capabilities:

- + Employer's Liability Insurance to £10m, Public and Product Liability to £5m
- + In house Safety Advisors qualified to NEBOSH and IOSH standards
- + Qualified Welders to ASME IX and BS EN287-1
- + ISO 9001 Accreditation
- + Client Contractors National Safety Group - CCNSG

- + MEWP operator trained
- + PASMA trained for mobile scaffolding
- + Asbestos removal & risk assessment for CAF gaskets
- + Confined space trained
- + Safe Contractor Accreditation
- + Pacific Industrial Contractor Screening - PICS
- + Achilles Accreditation.

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Commissioning



When correctly installed, commissioned and maintained at the specified intervals, a Denco Fluid Systems system will give dependable service for many years to come. Using our trained technicians, under the supervision of an experienced installation and service engineer, guarantees the correct installation and commissioning of the system.

We can also supply engineers to oversee system installation and commissioning outside the United Kingdom where local teams are used.



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Flushing Facilities



When large amounts of contaminants are introduced to a machine the need to flush and clean the system is of paramount importance.

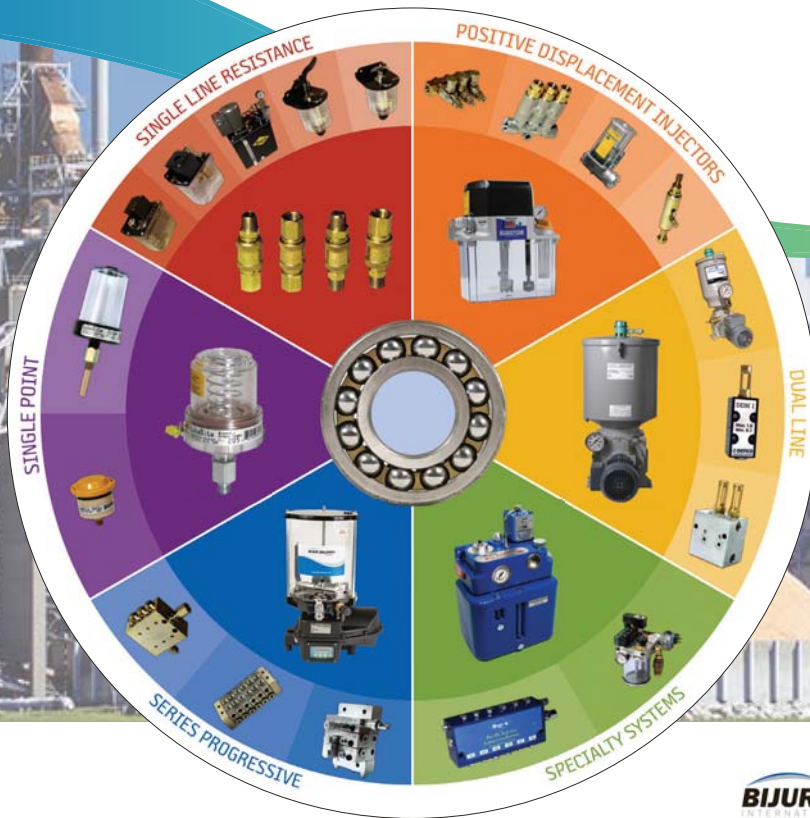
Our flushing rig is available for hire on a daily or weekly basis at competitive rates and our service team is on hand to install and remove at your site. Alternatively you can install/remove by fork lift or crane at your convenience.

In addition to this we also offer design and supply of interconnecting flushing valves, piping and hoses if required.







Features:

- + Flow rates up to 350 LPM
- + Nas Class 25 to Nas Class 3 cleanliness
- + ISO 4406: 1999 - 17/15/12
- + 2.6 kW Heater to reduce viscosity of oil resulting in a more effective process
- + 25 micron to 3 micron feed and return filter
- + Pneumatic scavenge pump option available
- + Bespoke control panel for intelligent control / monitoring and system alarms.

The Full Spectrum



BIJUR DELIMON
INTERNATIONAL

SYSTEM TYPE	DESCRIPTION
 POSITIVE DISPLACEMENT INJECTORS	Precise outputs and flexible design for oil and fluid grease systems to support a wide variety of industrial and mobile machinery.
 DUAL LINE	The most respected name in the industry for dual line divider valves, now featuring high-pressure central pumping stations.
 SPECIALITY	Air/Oil, spray mist and fluid recovery systems give you total control over your lubrication requirements.
 SERIES PROGRESSIVE	Positive displacement non-adjusting divider valves with fail-safe monitoring and robust lubricators to support oil and grease applications.
 SINGLE POINT	Tough polycarbonate reservoirs and spring-driven greasers, along with wick oilers for individual bearing lubrication.
 SINGLE LINE RESISTANCE	Low-prices, small-sized / compact, low pressure oil systems for use with meter and control units on small to medium sized machinery.



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Cooling Water Systems

Denco Fluid Systems is at the forefront of cooling technology, providing design, manufacture, service and support for water, oil and specialist fluid based cooling and chiller systems; our clients operate across multiple industries including steel mills, oil refineries and specialist manufacturers to aerospace and defence. Our systems can be found on furnaces, machine tools, bearings, heat recovery systems and beyond. The combination of a proven product range with bespoke design and installation provides a flexible and cost effective cooling solution for light and heavy industries.

Grease Systems

Denco Fluid Systems is one of the leading global manufacturers of automatic lubrication systems installed across many industries including Automotive, Conveyor, Petrochemical, Steel, Power Generation, Cement, Paper, Pharmaceutical, Marine and Agriculture to name but a few. Systems are custom designed to suit the individual machine/plant to ensure they deliver 'the right quantity of lubricant to the right place at the right time'. System types offered are: Dual Line, Single Line, Progressive, Direct Feed (multi-line), Spray Systems, Air-Oil System, etc.

Conveyor & Chain Lubrication Systems

Denco Fluid Systems offer the complete solution with a range of automatic oil or grease lubrication systems for conveyor chains, with or without air. Our customised systems are controlled & monitored via bespoke control units and intelligent software to ensure chains operate in the optimum level whilst providing a safe, environmentally friendly process.

PROtLM

Denco Fluid Systems has developed its PROtLM (Plant Reliability Optimised through Lubrication Management) service over many years. Application of lubricants in measured quantities at specific times is the corner stone for optimising machine performance. This can only be achieved by an effective lubrication program, delivered by a dedicated team of lubrication engineers, using an interactive electronic scheduling system.

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