

Overbraided hose

Durable, stainless steel overbraided polytetrafluoroethylene (PTFE) hose from **NewAge Industries** is used for air- and fluid-transfer applications in the OEM, industrial, aerospace, and automotive industries. It contains a smooth, inert core with a low coefficient of friction that will not impart taste or



odor to substances flowing through it. The outer jacket of series 300 stainless steel provides for higher pressure use, reduces the possibility of kinking, and protects the PTFE core. The hose offers a service temperature range of -65 to +450°F (-54 to +232°C) and a working pressure range from 3000 psi (207 bar) at 70°F (21°C) for the 3/16 in (4.8 mm) nominal hose size to 750 psi (52 bar) for the 1-1/4 in (31.2 mm) hose size.

For more information, circle 93

Hydraulic filter

Pall Corp.'s Ultipleat SRT (stress-resistant technology) filters combine a compact element design with filtration media that improves fluid cleanliness to increase the reliability and longevity of hydraulic systems. The filters incorporate a curved pleat technology with stress-resistant and anti-static



media for cleanliness control. The pleats are in direct support of each other and create an even flow-path for uniform collection of contaminants including metal, dust particles, and debris caused by the wear of components. The stress-resistant media mitigate filter problems created by normal operating systems, such as variable flow and pressure.

For more information, circle 94

Hydraulic fittings

Brennan Industries offers a line of more than 260 DIN hydraulic fittings in various styles and sizes for extreme pressure applications. The fittings are available in carbon steel, stainless steel, and brass and range in size from 0.125 to 2.5 in



(3.2 to 63.5 mm). The products include pipe and straight-thread fittings, O-rings, and adapter units. Most meet or exceed JIC and SAE specifications.

For more information, circle 95

Piston pump

An electronic proportional compensator (EPC) for **Denison Hydraulics'** PV series of hydraulic piston open-circuit pumps is suited for applications with varying pressures, or when multiple pressure settings are required. The bolt-on EPC control is field-retrofittable to existing pumps with standard C, F, and L compensators and requires no external plumbing or additional drain lines. The PV line includes pumps with flows of



6, 10, 15, 20, and 29 gal/min (23, 38, 57, 76, and 110 L/min) at 1800 rpm. Four of the five pumps are rated at 3500 psi (240 bar) continuous and 4500 psi (310 bar) intermittent, and all can operate on water glycol fluid.

For more information, circle 96

Manifold block

Custom designed manifold blocks from **Sterling Hydraulics Ltd.** incorporate proportional valves to improve control of hydraulically operated clutches. Controlled by electrical signals from pulse width modulated drivers, the valves feature quick response and low



hysteresis for repeatable operation. A compact, one-piece assembly built around a lightweight aluminum casting facilitates handling during servicing, while solenoid valve coils that incorporate push-on electrical connectors reduce connection/disconnection time and operate in harsh environments such as agricultural applications.

For more information, circle 97

Circuit valve

Integrated Technologies Inc.'s Oleodinamica LC circuit selector valve features a balanced spool that accommodates a small coil and enables it to switch under full-pressure load and full-flow without external drain. It eliminates the use of three-way valves in parallel to control multiple bi-directional



circuits. Joystick accessories make it possible to control several functions on a machine with a one-directional valve as opposed to multiple levers. The selectors are available in four-, six-, and eight-way configurations and can be stacked for up to 20-way circuits. Flows up to 48 gal/min (182 L/min) and pressures up to 4500 psi (310 bar) are offered. Two of the models can be actuated by electric coil, hydraulic or pneumatic pilot, or by lever or cam.

For more information, circle 98

Hydraulic valves

Custom, space-saving manifold blocks that reduce assembly time and costs are available from **Sterling Hydraulics Ltd.** They are designed for electro-



proportional control of clutches in the transmission systems of agricultural tractors as well as for the centralization of the hydraulic services associated with articulated trucks, and improve the reliability of hydraulic systems according to the company. Aluminum, steel, and cast-iron manifolds are offered with masses up to 57 kg (126 lb).

For more information, circle 99

Control unit

Bosch Rexroth Corp. has added two new control unit sizes to its RC family of electronic control units, designed for mobile machines. The units feature from two to 12 proportional outputs and up to 18 switching outputs as well as a shock-, steam jet-, salt-, and dirt-resistant aluminum pressure cast housing. Other



features include thermostability from -40 to +85°C (-40 to +185°F), shock resistance up to 25 g and electromagnetic compatibility up to 100 V/m. Potentiometer monitors are included, while inputs and outputs are short-circuit resistant, protected against polarity, and have integrated protective diodes to ensure function reliability. This unit can be defined with analog, digital, or frequency inputs and can be used simultaneously or independently.

For more information, circle 100

Hydraulic cylinder position

MTS Sensors Corp.'s MH magnetostrictive position sensor features rugged construction and reliable, noncontact measurement for use inside mobile hydraulic cylinders. Each sensor contains the magnetostrictive sensing element,



sensing electronics, and a robust application housing that protects the internal components from environmental conditions. The pressure housing comes in two diameters, 7 and 10 mm (0.3 and 0.4 in), with a static pressure rating of 4300 and 5000 psi (300 and 340 bar), respectively.

For more information, circle 101

Pump drives

Next-generation hydraulic pump drives from **Durst** are built for construction, mining, and material-handling equipment. Features include a modular design with bearings and gears that are self-contained in cast iron split housings. All



gears, bearings, seals, and output/input groups are common in every model, improving flexibility for a wider range of applications and reducing production time. Class 10, solid on-shaft gears provide quiet operation and uniform alignment, while a wet spline design provides constant oil flow. The line consists of nine models rated from 495 to 1025 hp, and four product styles that include single-, two-, three-, and four-pad designs.

For more information, circle 102

Steering control

Eaton Corp. and its hydraulics business unit offer VersaSteer technology to improve hydraulic steering and flexibility. The technology, allows operators to choose between quick steering or traditional hydraulic steering at any time via button or

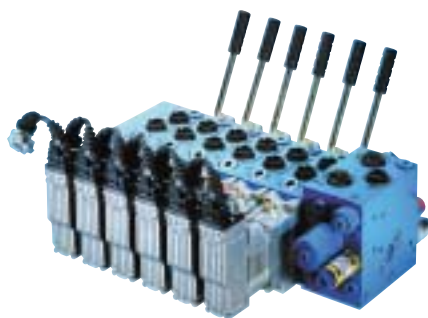


switch. The quick steering mode reduces operator effort by shortening the turning spectrum and decreasing wheel turning, whereas the traditional hydraulic steering mode improves roadability and emergency steering capabilities. VersaSteer also offers cost efficiency by eliminating the need for a separate joystick system. The steering wheel functions as both wheel and joystick. The technology can be used in load-sensing, open-center, or closed-center systems.

For more information, circle 103

Control blocks

Flexible M4 high-pressure control blocks from **Bosch Rexroth AG** are suitable for applications including forestry machinery, drilling equipment, and special-purpose machines. The blocks can be used for stable control of work movements or for the control of open drive systems. The M4 features up to 10 valve elements and is available in both closed- and open-center systems. An integrated pressure compensator and



load-sensing pressure control allow each actuator to be independent from the load pressure, improving operation and control. Each can be operated mechanically, hydraulically, or electro-hydraulically. Blocks are offered in sizes 12 and 15 for inlet flows of 150 or 200 L/min (40 or 53 gal/min). Pressure range for both is 350 bar (5076 psi) on the pump side and 420 bar (6092 psi) on the actuator side. Onboard electronics can be attached to any control-valve element to control flow at the M4 control block via an analog or digital signal, reducing the required wiring.

For more information, circle 104

Cartridge valve

Sauer-Danfoss' counterbalance cartridge valve CB10 can be used in a custom manifold to create a hydraulic integrated circuit (HIC), which provides a compact package for hydraulic control with reduced plumbing, improved installation and service, and fewer leak points than traditional systems, according to the company. Typical applications for the



CB10 include boom lifts, scissor lifts, winches, and cranes as well as mobile equipment for the road, building, agricultural, construction, and forestry industries. Used to control and modulate the motion of a load in a hydraulic system, the CB10 gives machine operators more control and lengthens machine life by reducing instability and improving performance. The threaded valves can be directly mounted on cylinders, high torque motors, or any other HIC, while an optional atmospheric vent eliminates the effects of back-pressure for use in a series circuit such as a scissor lift.

For more information, circle 105

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Stabilization module

Bosch Rexroth AG offers stabilization modules designated RSM in various sizes to reduce the pitching oscillation on wheeled vehicles caused when the shovel load acts as a mass around the pivot point of the front axle during transport. System advantages include reduced physical stresses for the driver, improved driver safety and handling, improved performance, steering stability, and shortened braking distance. A passive-ride



control system, the RSM is installed between the lifting cylinder and the control block and works by isolating two masses from one another. It requires hydraulic accumulators, while a second-generation version, which is pictured, the RSM2, is equipped with a pressure relief-valve and designed for use in wheel loaders and telehandlers. RSM2 is available in sizes 10, 16, and 25 with flow rates of 80, 150, and 300 L/min (21, 40, and 80 gal/min), respectively. Pressure levels of 350 bar (5076 psi) on the accumulator connectors and 420 bar (6092 psi) on the actuator side are offered.

For more information, circle 106

Vortex pumps

The Vortex series of oil-less articulated piston pumps from **Rietschle Thomas** Vortex includes vacuum versions as well as



direct current motors, suited for use in mobile applications. All units feature an all-aluminum crankcase and cylinder that runs cool, provides extended life and reduced maintenance, and is 15% lighter than the average cast-iron construction. A 90° V-design decreases noise and vibration while improving capacity and efficiency, according to the company. Permanently lubricated and sealed bearings and industrial-duty motors are included. The pumps provide up to 125 psi (8.6 bar) of pressure, and, with the optional vacuum adapter kit, up to 27.5 in Hg (932 mbar) of vacuum. Maximum flow is rated at 96 gal/min (363 L/min). Three-phase ac or single-phase motors and 12-V permanent-magnet dc motors are available.

For more information, circle 107

Hydraulic motor

Sauer-Danfoss offers motors for off-highway hydraulic mobile equipment including the L Frame cartridge mount motor (LC), and the larger K Frame motor, cartridge. Both the L and K frames



are packaged in a compact envelope for improved production and reduced lead time, and for maximized use of raw materials. Features include smooth and predictable shift performance and less noise with the choice of five pressure/displacement ratings. The two-position motors are designed to meet the requirements of medium power-wheel applications, including skid steer loaders, small agricultural equipment, and light construction and road-building

machines. Zero-degree displacement capability provides application flexibility when used in multiple motor circuits. To improve installation, full access to the mounting bolt holes is possible, and all main hydraulic connections can be located on one side for bundling of hoses.

For more information, circle 108

Hydraulic pumps

A range of variable-displacement axial piston pumps targeting mobile and industrial applications from **HAWE Hydraulik GmbH** include the V60N, a compact pump designed for direct-mounting at the auxiliary drive of commercial vehicles and for standard mounting via an SAE-C flange. Features



include rugged construction, high self-priming rate, and a reduced noise level, as well as a pressure rating of 350 to 400 bar (5076 to 5800 psi). A directly mounted load-sensing controller with pressure limitation optimizes the control system's characteristics. The pumps are suitable for use on log handlers, construction equipment, and truck-mounted cranes. For higher flow but the same demands on quality and noise level, the V30E is available in four sizes with a wider range of pressure, load-sensing, flow, and power controllers. V30E pumps can be installed without dismantling the basic pump and are suitable for forest machinery, excavators, and drilling equipment.

For more information, circle 109

Pump line

Two additions to the **Sauer-Danfoss** Series 45 axial piston open-circuit pump family, Frame E offers a compact size to make space for other components on the application in addition to Frame J. The servo pistons are located close to the pump controls to increase response time, and low noise levels meet regulatory requirements and reduce operator fatigue.



A single-piece housing assembly minimizes potential leak points at installation and after service. Displacements range from 45 to 75 cm³/rev (2.74 to 4.57 in³/rev) for Frame J and from 100 to 147 cm³/rev (6.10 to 8.97 in³/rev) for Frame E. Maximum pressures for both are 310 bar (4496 psi) continuous and 400 bar (5800 psi) peak. Typical applications include cranes, telehandlers, forklift trucks, backhoe loaders, and forestry and agricultural machinery.

For more information, circle 110

Hydraulic cylinder

The Industrial Hydraulics business unit of **Bosch Rexroth Corp.** offers a CDT1 Series NFPA hydraulic cylinder with a nominal pressure up to 1500 psi (103 bar), a bore diameter from 1 to 8 in (25 to 203 mm), and a piston rod diameter from 0.5 to 5.5 in (13 to 140 mm). The



cylinder accepts hydraulic fluids, including mineral oil, phosphate ester, and water glycol, with a fluid temperature range of -4 to +176°F (-20 to +80°C). Technical advantages include leak-free fluid connection ports and reduced wear and extended service life obtained from a

one-piece, extra-long bearing made of ductile iron for tighter tolerances. Other features include 18 standard NFPA mountings, a stroke up to 120", and an SAE straight-thread standard connection port, with other options available.

For more information, circle 111

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Circle 243

Screw drive system

TranTek Drive Systems, Inc.'s screw drive system consisting of an electric-servo drive, 4-in (102-mm) high-lead screw, and dri-tran polymer nut assembly is a replacement for hydraulically actuated rack-and-pinion systems. In most cases, the system can use the existing structure and frame, and the



used shuttles are shipped to TranTek for refurbishing. The transfer devices are taken apart and hydraulic devices are removed. Then the high-lead screws and dri-tran polymer nut are installed, and new bearings, cam followers, and rails are provided as needed. The interface between the polymer and screw generates negligible sound compared to multiple pinions engaging with racks, reducing noise pollution.

For more information, circle 112

Hydraulic pump drives

Technodrive hydraulic pump drives from **EngineTech Industries, L.L.C.** include single-pad pump-drives from the SAE 5, 6.5-in (165-mm) versions, to the SAE 1, 14-in (356-mm) versions, using curved housings and rubber block drive couplings. The line also includes multiple-pad hydraulic pump drives, with two-, three-, four-, and six-pad drive assemblies. The pump-drive pad designs



are compatible with every type of hydraulic pump available worldwide, according to the company.

For more information, circle 113

Pump noise reduction

David Brown Hydraulics' Q series of spur and helical gear pumps have a cast iron casing and steel gears supported by hydrodynamic plain bearings. Four frame sizes are available, with displacements spanning 16 to 248 cm³/rev (0.98 to 15 in³/rev). The pumps work to peak pressures up to 280 bar (4060 psi). They feature noise levels below that of both standard-vane pumps and internal-gear pumps. Pump life is enhanced via ultra-efficient bearing lubrication, ensuring that cooler oil available at the inlet port is drawn across the bearing surfaces.

For more information, circle 114

Hose and pipe systems

Stauff's clamp-module system is compatible with hose and pipe diameters ranging from 6 to 102 mm (0.24 to 4 in). The clamp fittings are of modular design and made of high-grade synthetic material. They ensure that hydraulic hoses



and pipework run properly, simplify assembly and servicing, and help to avoid leakage and failures resulting from defective hydraulic lines, according to the company. A heavy-duty series and versions with integrated-vibration absorbers are included. The fittings can be adapted to individual construction machines.

For more information, circle 115

Pressure-relief valves

Bi-directional A04J2 pressure relief valves from **Sterling Hydraulics** feature a single-cavity design, poppet-style construction, and pressure capability up to 350 bar (5076 psi). They include CE-marked versions that are suitable for equipment required to comply with the PED



(pressure equipment directive) 97/23/EC. The PED relates to equipment that has a high-stored energy level, including nitrogen-charged accumulators that retain pressurized oil for release on demand to operate a hydraulic service such as a vehicle braking system. The valves are rated for Category IV and thus are also suitable for use in systems with hazard ratings that fall into Categories I, II, and III.

For more information, circle 116

Brake series motor

The Char-Lynn T-Brake series motor from **Eaton Corp.** offers load-holding performance in a compact design, and can incorporate up to four inventory items in a single assembly including a motor, brake, counter-balance, and brake release line. It has a preset load-holding capacity



that is set at the factory to match the performance requirements of the application. The integrated rear-mounted brake offers a 6:1 torque advantage. The brake is a spring-applied, hydraulically released wet disc design. An access port enables manual brake release to override the brake in the event of loss of release pressure.

For more information, circle 117

Hydraulic filters

Stauff's hydraulic filters for mobile machinery include bypass filters, return-flow filters, and spin-off filters. The bypass filters remove dirt and water from the hydraulic system. They are designed for a



nominal flow rate of 2.1 L/min (0.074 ft³/min), and can be equipped with a separate heating system. The return-flow filters are tank mounted and feature nominal flow rates up to 500 L/min (18 ft³/min). Spin-off filters are frequently used for mobile filters and are available with a variety of connections, filter heads, filter media, and sealing materials for nominal flow rates of up to 460 L/min (16 ft³/min).

For more information, circle 118

Manifold block

A redesigned CMB (custom manifold block) from Sterling Hydraulics is a single assembly that replaces separate piped hydraulic systems for brake-charge,



fan-drive, body-tipping, and steering-priority circuits. The system uses a new type of cartridge-style unloading valve, which allows the accumulator charging function for the truck's brakes to be incorporated into the main control CMB. A reduction in pipework reduces damage to hydraulic systems and complex maintenance, according to the company.

For more information, circle 119

Fluid-power storage

Accumulators from Bosch Rexroth Corp.'s Industrial Hydraulics unit are designed to store fluid-power for inter-



mittent duty-cycles, economizing pump-drive power. They provide emergency- or standby-power, compensate for leakage-loss, dampen periodic pulsations and shocks, and aid vehicle suspensions. They save energy by storing pump output-flow when the system demand is low, and supplementing output when system demand is high. The units are available in a range of diaphragm and bladder types, using pressurized nitrogen to supplement hydraulic system pressure.

For more information, circle 120

Hydraulic remote controls

Eaton Corp.'s Series 50 hydraulic remote controls situate the main control-valve away from the operator, providing an



environment that has less noise and heat eliminating the need for complex and costly mechanical linkages. The controls are available in hand-, foot-, and mechanically operated versions. Product selection includes half-function, single-function, and double-function choices. Eaton's STC (snap-to-connect) direct port technology is an option that enables fast, reliable one-hand connections without assembly tools. It provides an alternative to threaded fittings, eliminating connector leakage, the company claims.

For more information, circle 121

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