



Quick guide

HYDRAULICS & PNEUMATICS PROTECTION IN **SPECIALIST VEHICLES**



Construction, agricultural and mining vehicles spend more time on sites than on the road. For all three; demand for reliable operations, reduced downtime and low maintenance costs mean build quality is critical. These vehicles need to be durable and perform in the most demanding environments, whilst meeting safety and environmental regulations. Pneumatics and hydraulics play a critical role in the operation of these machines and their importance is not to be underplayed. Original Equipment Manufacturers (OEMs) need value in their components – quality, competitive pricing and fast response to get the vehicles to market.

We've put together this guide to help design engineers, OEMs and hydraulic designers to choose the small components they'll need. Most of our recommendations can be used across construction, agricultural and mining vehicles. The hose protection you need for concrete mixer truck hydraulic systems or

pneumatic mining drills and mining vehicles can also be used for tractor hydraulic hoses.

If you're not sure which solutions will work best for your application, let us know. We're happy to provide guidance and expert advice.



FREE SAMPLES AND CAD DOWNLOADS

To make your job easier, we've also made available [free samples](#) on most of our solutions, so you can try before you buy. You can also [download free CADs](#) of our solutions to help with your designs.

CONSTRUCTION AND MINING VEHICLES



Downtime due to failed vehicle parts will not only add to the user’s operating costs but damage your reputation. To help ensure high performance, you’ll need to consider protection for your pneumatic and hydraulic design. Our quality components are durable and available in materials that stand up to the rigorous demands of off-highway vehicles and their systems. Just some examples include:

Bulldozers and hydraulic bulldozer systems: typically used for shallow digging and ditching; transportation of material in short distances; spreading soil dumped from trucks; rough grading; and removing stumps and boulders.

Concrete mixer trucks and concrete mixer truck hydraulic systems: combines cement, aggregate and water to form concrete. The hydraulic system transforms the engine power to hydraulic power, supplying power to the mixer drum rotation.

Backhoes and backhoe hydraulic systems: backhoe loaders use hydraulics, usually oil, to transmit force from one point to another.

Hydraulic truck conveyor: mounts easily to road graders, loaders and tractors to widen roads, install pipe bedding and fill trenches, just to name some of its capabilities. The unit for efficient delivery of both free-flowing and large chunky materials.

Pneumatic conveyor: moves bulk materials by means of air through pipelines. Commonly used in the mining industry.

Here are the components you’ll need for your construction or mining applications:

SPIRALGUARD® HOSE PROTECTORS

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Tough, durable Spiralguard protects hydraulic and pneumatic hose assemblies in applications ranging from hydraulic arms, pneumatic brake lines and dump-truck tray bed lifts to forklift hydraulic hoses, a hydraulic haul bay handler and tractor hydraulic hoses. Excellent recovery memory to maximise hose coverage and exceptional anti-crushing performance to reduce downtime. Maintains a high-abrasion resistance and proven in harsh conditions. Good resistance to UV rays. Suitable for wrapping single hoses or multiple hose bundles. HDPE. Flame-retardant and anti-static [mining safety-approved Spiralguard®](#) also available.



HOSE PROTECTION SLEEVES – TEXTILE, MINING SAFETY APPROVED

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Mining-safety-approved hose protection sleeves are robust, but lightweight for optimum UV burst diffusion. This hydraulic hose burst-diffusion wrap safeguards against pin hole punctures by diffusing the fluid or air in backhoe hydraulic hoses and front-end loader hydraulic cylinders. Meets ISO 6945 abrasion standard, Fed-STD-191 test method 5309 and ASTM D6770. Nylon 6/6.



T-BOLT HOSE CLAMPS

[View online](#)

Hydraulic hose clamps and pneumatic hose clamps, sized to SAE standards and designed to provide a dependable seal on larger diameter hoses where high vibration occurs, such as in excavator hydraulic hose and pneumatic trench shoring equipment. 301 stainless steel. Also available: [worm-drive hose clamps](#) in carbon steel or stainless steel.



HOSE WEAR PROTECTORS

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Protects hoses against point-of-contact wear with abrasive surfaces. Typically used on hydraulic hoses, fuel or oil lines, brake systems, wiring harnesses and battery cables. Hose protectors are easy to assemble or remove. Moulded grooves are designed to fit with cable ties. Made of durable PVC.



GROMMETS

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Ideal for your hydraulic boom crane designs or as one of your hydraulic compactor parts. Protects cables, wires, tubing and hoses. Installs instantly by simply snapping into holes. Excellent adhesion and designed to fit standard sheet metal holes. Available in TPR, PVC and EPDM.



THREADED SEALING CAPS – UNF THREADS

[View online](#)

Resists solvents and potential shearing. Includes an internal neoprene rubber sealing disk for the cap to limit fluid leakage and entry of particles, protecting dump trucks and hydraulic front loaders. Hand tightening is recommended.



STEEL P-CLAMP WITH RUBBER CUSHION

[View online](#)

P-clamps for cables are also ideal for clamping pipes, hoses and wires. The rubber cushion provides some protection for the hose while the steel component and screw mount application result in a secure fastening. Operating temperature range: -60°C to 95°C.



CABLE TIES – LOCKING, WEATHER RESISTANT

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Durable weather-resistant cable ties have all of the same benefits as our standard ties plus UV-resistance for outdoor use. Ideal as one of your bulldozer components, backhoe brake parts or any other ground-engaging tools (GET). UL94 V-2, nylon 6/6. See our [complete range of cable ties](#), from heat-stabilised cable ties to 316 [stainless-steel cable ties](#).



TAPERED CAPS AND PLUGS

[View online](#)

Designed for each part to cap multiple O.D.s or plug multiple I.D.s. Tapered plugs and caps are made of LDPE material to protect against damage, dirt, moisture and corrosion during storage and shipping.



AGRICULTURE



Crops, livestock and forestry vehicles are often multi-purpose, used with many different attachments and subject to increasingly harsh environments, so quality is key.

If your vehicle has a hydraulic system design, hydraulic circuit design will play a part. You'll need to evenly distribute hydraulic flow to all subcircuits, yet you'll also have to maintain the ability to bring that hydraulic power to work on motor functions for fast travel. Energy efficiency, easy operation and maintenance and reliability should be your first concerns for the vehicles and systems you're designing and manufacturing, such as:

Farm tractor hydraulic systems: All tractors rely on hydraulic control systems that use hydraulic oil to raise and lower parts, provide power to motors and other devices.

Combine harvester hydraulic system: The combine harvester's very name comes from the machine's ability to carry out multi-functions. The pumps and motors operate various functions. The first pump and motor might operate at least a crop-cutting knife, while the second pump and motor can be used to operate at least one conveyor. Both

pumps and motors work within hydraulic circuits. They share hydraulic fluid with machine's hydraulic fluid reservoir. In turn, this reduces system weight and maintenance requirements while making the machine easier to operate.

Hydraulic hay bale handler: The hydraulic system monitors the pressure on belts exerted by hay. When signalled that a predetermined tension is reached, the tractor operator stops and the bale is wrapped. The hydraulic cylinders then open the rear of the baler and the bale is dropped.

Here are the high-quality components you'll need for agricultural applications:

HYDRAULIC QUICK-RELEASE CAPS AND PLUGS

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Suitable to cap or plug male or female ISO 7241-1 series A and B quick couplings. Designed to remain attached to the hose and provides excellent protection from dirt, moisture and corrosion. A must-have if your design includes a tractor front-end loader hydraulic pump. Ideal as tractor hydraulic dust caps or tractor hydraulic dust plugs. Available in blue, yellow, red and green. TPE.



THREADED PROTECTION PLUGS – JIC AND BSP/GAS THREADS

[View online](#)

Knurled head designs for easy installation or removal. 37 JIC flared fitting plugs act as sealing plugs for light pressure requirements on 37 JIC flared fittings. Plugs for BSP protect and prevent dirt, dust and debris ingress.



CABLE GLANDS

[View online](#)

These nylon cable glands are designed for superior sealing and protect cables from movement. IP68 rating for excellent protection against the environment. UL94 V-2, nylon.



CINCH STRAPS

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Ideal for hydraulic machine designs. Cinch straps consist of a hook-and-loop closure that holds hoses securely while allowing the hoses to expand or contract during start-up or shutdown of the equipment. Add, remove or adjust the hose quickly and cut normal hose assembly installation time in half. Excellent UV properties and weather resistant. Nylon woven hook & loop with nylon or steel buckles.



BLANKING PLUGS

[View online](#)

A quick solution for obtaining a clean finish, protecting against sharp edges. They come in a large offering to suit most common hole diameters and panel thicknesses for closing panel cavities. Available in PVC or TPE.



HOSE PROTECTION QUICK-ASSEMBLY SLEEVE

[View online](#)

Tractor hydraulic hose covers are easy to assemble or remove with the hook-and-loop closure, which promotes quick and easy bundling. Excellent for use in the field for applications where winding a spiral-formed product is very difficult or where the hose assembly cannot be removed easily. These hydraulic hose sleeves are close-quarter-operator-protection from hose bursts and can contain multiple hoses with a tighter hose bundling capability over standard sleeve. Hose protection sleeves available. Comes in polyester, PVC or ballistic nylon with a nylon hook and loop.



MOUNTING CABLE TIES – PUSH-IN, TENSION WINGS

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These push-in cable tie mounts offer fast installation and also have the added support of tension wings. Ideal for tractors and other agricultural vehicles.



THREADED O-RING PLUGS, UNF THREADS

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Threaded o-ring plugs for UNF threads provide a watertight seal for superior leak protection. Can be applied or removed by hand, hex wrench or screwdriver. Available in PP, HDPE, nylon and glass-filled nylon. Nylon and glass filled nylon plugs can be tightened by hand, socket or with an impact wrench for large volume applications.



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