

Linde: Providing a New Angle for High Pressure Performance



New high pressure 02 series design starts with the piston.

To design a new series of high pressure pumps and motors, Linde engineers started with the piston. The revolutionary break through is the position of the piston ball as part of the slipper and its steel on steel swedge swivel joint. This super strong connection makes it possible for the swash plate in the 02 Series to tip beyond the customary 18° that is common among most hydraulic component manufacturers. With a steeper 21° swash plate angle, the 02 series piston travels farther in its cylinder barrel, achieving greater displacements with a smaller rotating group at greatest efficiency.

Linde Engineers provide new evolution in swash plate design.

Enhancing the compactness of the new 02 Series is the elimination of a separate swash plate cradle, which is now integral to the unit's housing. This reduces parts, weight and bulk. Further reducing the overall component size is the exclusive use of two bolt, SAE mounts.

By taking advantage of this new evolution in swash plate design, Linde can now offer pumps and motors of similar swash plate construction. Production cost is less because the number of different parts between pumps and motors has been reduced. In the meantime, production runs of similar components have increased. This production economics has resulted in a cost savings to Linde's customers.

With reduced parts, weight and size of the 02 Series, engineers and designers are able to specify Linde 02 Series components that are on the average 18% more compact in size, while improving power delivery.

Steel-on-steel swedge joint permits 21° swivel construction allowing for a steeper swash plate angle that:

- improves operational efficiencies
- provides starting torques equal to or better than bent axis
- achieves higher displacements with smaller rotating group

The 21° construction and improved operating efficiencies facilitate improved swash plate designs that are inherently:

- smaller in size
- less expensive



Linde's exclusive 21° piston on the right allows for a steeper swash plate angle than the conventional swash plate piston on the left.

Linde's compact 02 Series decreases overall package size without sacrificing performance and adaptability.

Linde engineers were given the challenge of designing a new series of high efficiency, high-pressure pumps and motors that are better than their previous series components. This challenge was met with the advanced 02 Series design which is a more compact, modular line of high performance pumps and motors able to carry Linde's success in fluid power applications into the 21st Century. The key to the 02 Series design is the swash plate's ability to travel beyond a conventional 18° stroke angle to a steeper 21° angle, thus improving on traditional swash plate operating efficiencies and achieving higher displacements with a smaller rotating group. The compact design of the 02 Series



offers a high power density ratio with an impressive ability to handle 6000 psi nominal pressure and 7250 psi peak pressure.

Linde's new high-pressure hydraulic 21° pump on the right is more compact in size than the previous model shown on the left.

Linde's 02 Series permits application flexibility with interchangeability of parts controls.

To enhance design versatility and cost effectiveness of the 02 Series, component parts and controls can be interchanged within the pump or motor series. For example, on the 02 closed loop series, cam control, hydraulic remote and electro-hydraulic controls are interchangeable. This provides a cost effective means of inventory for stocking distributors and discerning OEM's who want application flexibility in their hydraulic equipment.

Linde 02 Series makes it a whole new ball game

- Piston design is used in Common Rotating Groups for Both Pumps and Motors
- Extreme Compactness with High Power Density
- Suitable for Closed and Open Loop Circuits
- Common Installation Configurations
- High Performance and Efficiency
- Integrated System Protection
- Reliability and Durability
- Modular Construction
- Low Noise Level
- Cost Effective
- More Oil/Stroke
- Allows Overall Unit Compactness
- Less Footprint Area
- High Starting Efficiency Compared to Bent Axis

Linde has the right high pressure combination for your application. Contact Linde today for more information.



Linde 02 High Pressure Hydraulic Series

Model	Type	Style		Control Type	Maximum Speed
		Open Loop	Closed Loop		
HPR-02	Pumps	■		Regulated	2300 up to 2600
HPV-02	Pumps		■	Variable	2600 up to 3500
HMF-02	Motors	■	■	Fixed	3200 up to 4500
HMV-02	Motors	■	■	Variable	3000 up to 4600
HMR-02	Motors	■	■	Regulated	3000 up to 4600



LINDE HYDRAULICS CORPORATION

330/533-6801 ■ FAX 330/533-8383 ■ www.lindeamerica.com