

# ROL-SEAL Hydraulic Motors OVERVIEW DOCUMENT

METRIC. (For English data, see [www.vonruden.com/hydraulic\\_motors/rolseal/rol-seal\\_oview\\_eng.html](http://www.vonruden.com/hydraulic_motors/rolseal/rol-seal_oview_eng.html))



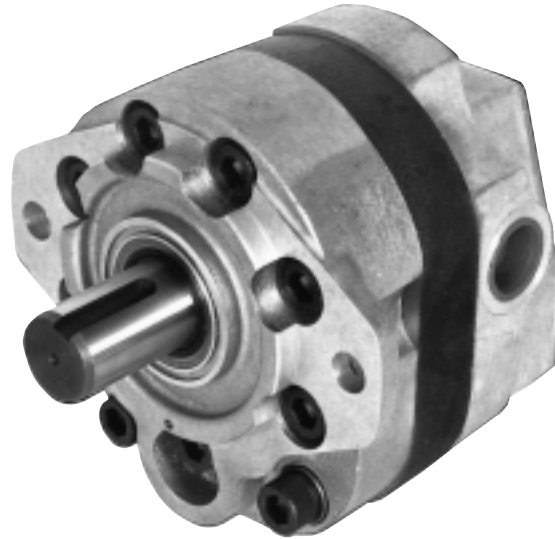
06.09.03

For almost 40 years, VonRuden's Rol-Seal Rotary Abutment hydraulic motors have been the preferred choice for designers throughout the world. They deliver exceptionally high starting and running torques, low breakaway pressures, and a proven ability to perform under adverse conditions.

Today, we build a variety of models to meet most applications; and to simplify your design project, we also build compatible Motor Brakes and Planetary Gear Boxes.

For applications where concerns for precision and repeatability are paramount, our line of Axial Vane hydraulic motors is also available.

Complete technical data for all these is on our site. However, we and our global network of representatives always welcome the opportunity to answer any questions you might have and make recommendations that could help simplify your task. Consider us to be always at your service.



## ROL-SEAL GENERAL PERFORMANCE SPECIFICATIONS

		DISPLACEMENT (cm <sup>3</sup> /rev.)						
		Models RSA & RSB				Model RSC		
		32,8	49,2	65,6	82,0	98,4	131,2	164,0
Flow (LPM)	Continuous	68	76	68	65	148	159	148
	Intermittent	118	148	167	148	197	224	231
Max. Speed (RPM)	Continuous	2000	1500	1000	750	1500	1200	900
	Intermittent	3500	3000	2500	1800	2000	1700	1400
ΔPressure (BAR)	Continuous	172	155	138	138	138	138	138
	Intermittent	207	207	207	207	207	207	207
	Peak	258	258	241	241	241	241	241
Max. Theoretical Torque (daNm)	Continuous	9,0	12,1	14,4	18,0	21,6	28,8	36,0
	Intermittent	10,8	16,2	21,6	27,0	32,0	43,2	54,0
Weight (Kg.)		5.9	6.3	6.8	7.2	16,2	17,6	18,9

Notes:

1. Intermittent conditions are to be less than 10% of every minute.
2. Peak conditions are to be less than 1% of every minute.
3. Intermittent speed and peak pressure must not occur simultaneously.
4. Inlet and return pressures are not to exceed ratings listed above.

## ROTATIONAL MOMENT OF INERTIA (WK<sup>2</sup>)

Model	Displacement (cm <sup>3</sup> /rev)	Kgm <sup>2</sup>
RSA/RSB	32,8	,0003
RSA/RSB	49,2	,00041
RSA/RSB	65,6	,00046
RSA/RSB	82,0	,00052
RSC	98,4	,00021
RSC	131,2	,00023
RSC	164,0	,00026

## SHAFT RADIAL AND THRUST LOAD CAPACITY

Model	Radial	Thrust
RSA/RSB	267 daN	267 daN
RSC	445 daN	445 daN

Radial load capacity is based on load located 2,54 cm from mounting flange for RAS/RSB and 3,81 cm from mounting flange for RSC.

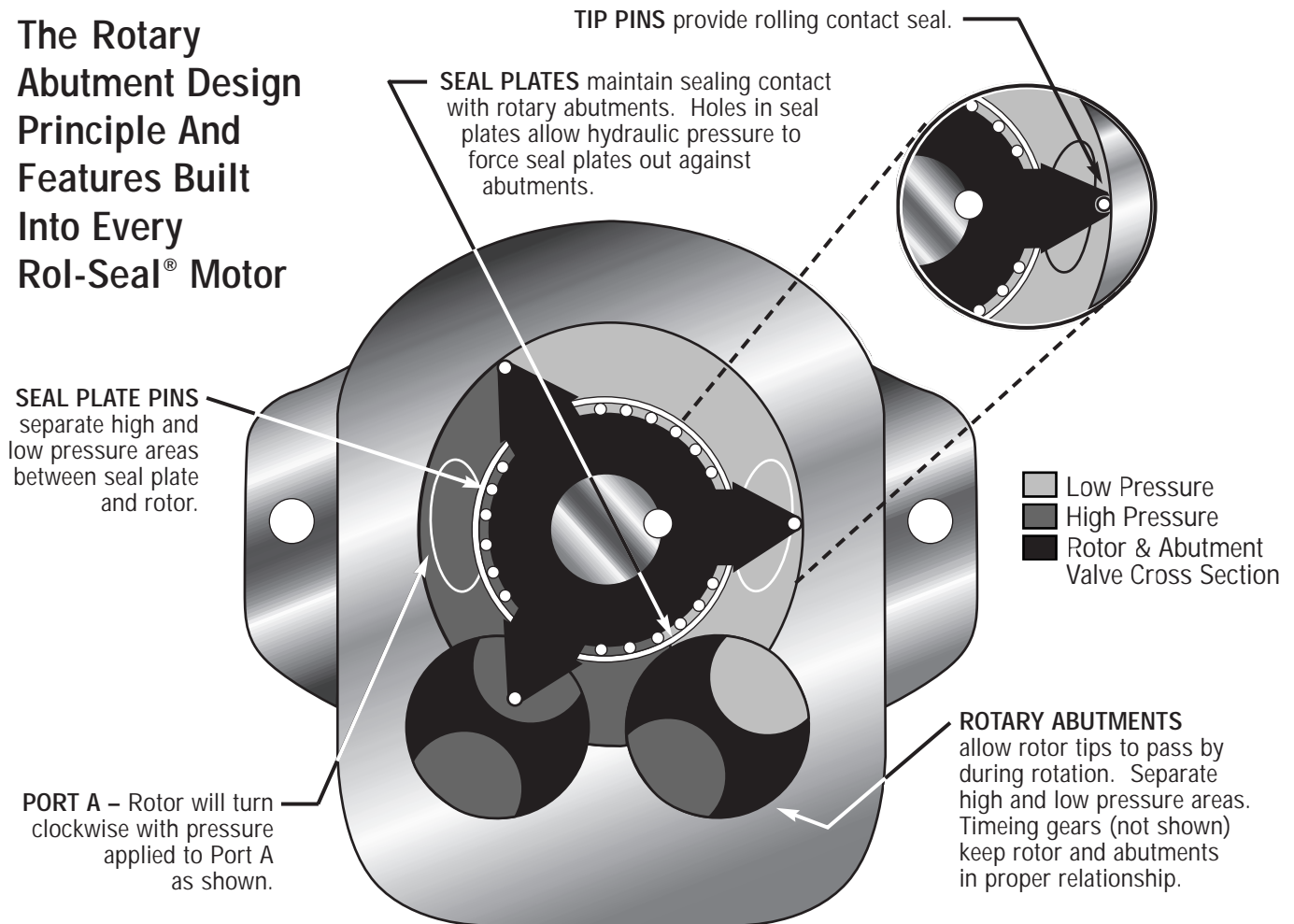
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## The Rotary Abutment Design Principle And Features Built Into Every Rol-Seal® Motor



When Von Ruden introduced the first hydraulic motors built on our Rotary Abutment principle, their performance and durability advantages were obvious. Today, that same set of benefits is just as valid. Regardless of size, each model delivers:

- 1. High Starting Torque:** Typically this is in the 92-94% range. That means overall hydraulic systems savings because designers can use smaller motors. Higher starting torque also means increased vehicle gradeability and more drawbar pull.
- 2. High Running Torque:** Friction loss and viscous drag at high speed are both lower due to the internal rolling contact seal elements. Large flow passages reduce internal pressure drop. Typical breakaway pressure at a no load condition is less than 10 psi.

**3. More Useable Speed:** Smooth running at low speed (less than 10 RPM) with minimal performance loss at high speeds (up to 3500 RPM). Smooth performance over an unusually wide speed range. Low speed characteristics often eliminate the need for additional speed reduction.

**4. Long Life:** Performance stays relatively constant over the motor's working life. The internal rolling seal elements are essentially frictionless and wear compensating. The rolling seal element design also tolerates a high degree of contamination so the motors perform well in free-wheeling applications.

**The Rol-Seal's Rotary Abutment Advantage:** The positive contact provided by rolling seals between rotor and housing and between abutments and seal plates creates relatively frictionless operation that makes these motors relatively insensitive to wear over their exceedingly long working life.

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## ROL-SEAL GENERAL MAINTENANCE ISSUES

### Fluids:

We recommend a premium quality, anti-wear type mineral based hydraulic fluid with a minimum oil viscosity of 70 ssu. Maximum operating temperature is 96 degrees C.

### Filtration:

A fluid cleanliness level of ISO 17/14 should be maintained at all times. Nominal filtration must be 25 micron or better.

### Case Drain:

These motors are provided with a case drain port that must be connected to the reservoir with no more than 17,2 BAR surge pressure. Internal cross port check valves (option-24) can be provided when motors are not subject to instantaneous shock pressures (such as with dynamic braking).

## COMPLETE, OFF-THE-SHELF OR CUSTOM ENGINEERED DRIVE PACKAGES

For customers whose applications require a subassembly of pre-engineered hydraulic drive components, Von Ruden Manufacturing offers a full line of compatible products. By combining a Rol-Seal motor with either (or both) the brake and gear box components referenced earlier on these pages, we can deliver a single unit that simplifies your inventory and lowers your assembly costs.

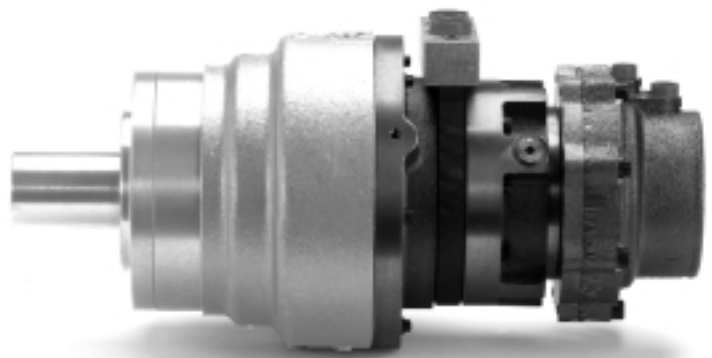
If the Rol-Seal motors described here do not meet the requirements of your application, we suggest you also review the specifications of our Axial Vane motors. Often, these are the ideal solution when highly accurate and repeatable positioning is paramount. They too can be mated to our brakes and gear boxes when subassemblies are preferred.

We also have a complete line of Overhung Load Adapters for applications that include high radial and thrust loads on the motor. In many situations they also provide a maintenance advantage by simplifying motor removal and protecting the motor shaft seal from contamination.

When required, you'll also find that our extensive line of right angle and speed reduction gearboxes meet the same high performance and quality standards as all of Von Ruden Manufacturing's products.

Finally, if yours is an application that requires a custom built component of the type we manufacture, our engineers always welcome the opportunity to discuss those needs. Von Ruden's new manufacturing facilities are fully equipped to handle a wide variety of that type work.

Complete engineering data on all our products is available on our web site, through your local Von Ruden representative, or by contacting our factory directly at the number below.



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