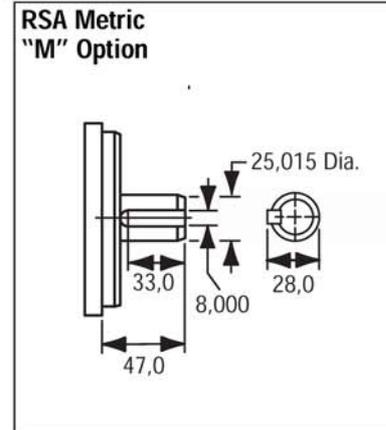
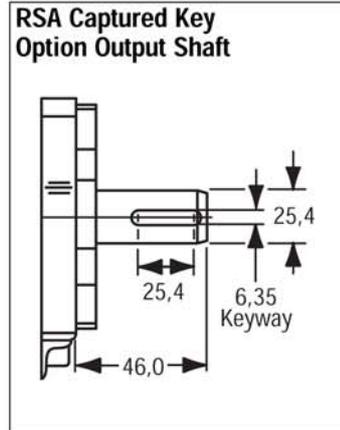
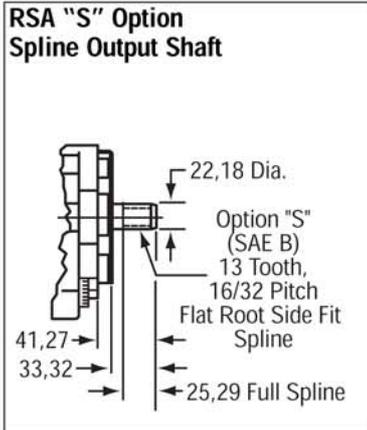




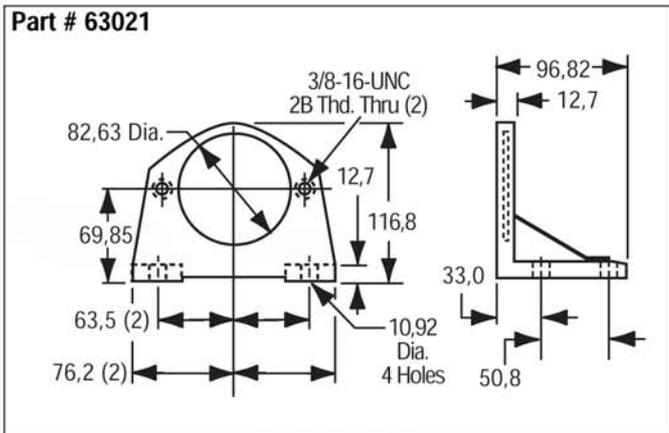
Hydraulic Motors, Rol-Seal Units RSA Series - DIMENSIONS & PERFORMANCE DATA

METRIC

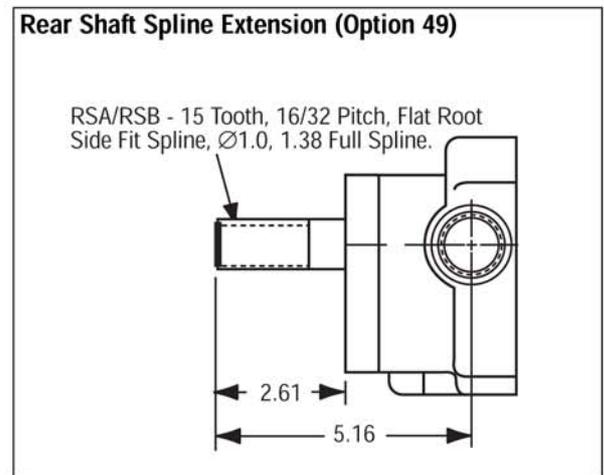
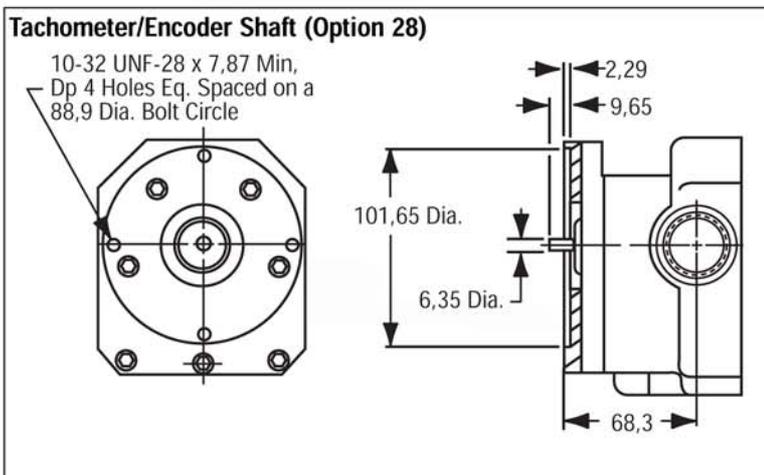
OUTPUT SHAFT OPTIONS



AVAILABLE FOOT MOUNTING BRACKET



REAR SHAFT EXTENSION OPTIONS



Note: 1. All dimensions in mm and subject to change without notice. Always confirm with us that you are working with the most current data.
2. Consult factory for specific machining tolerances.



Hydraulic Motors, Rol-Seal Units RSA Series - DIMENSIONS & PERFORMANCE DATA

METRIC

PERFORMANCE OVERVIEW FOR ROL-SEAL MOTORS

		DISPLACEMENT (cm ³ /rev.)						
		Models RSA & RSB				Model RSC		
		32,8	49,2	65,2	82,0	98,4	131,2	164,0
Flow (LPM)	Continuous	68	76	67	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.

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.

Rotational Moment of Inertia (WK²)

Model	Displacement (cm ³ /rev)	
	cm ³ /rev	Kgm ²
RSA & RSB*	32,8	,0003
RSA & RSB*	49,2	,00041
RSA & RSB*	65,6	,00046
RSA & RSB*	85,0	,00052
RSC*	98,4	,000021
RSC*	131,2	,00023
RSC*	164,0	,00026

* Regarding RSB and RSC Series Motors: Though dimensioned differently, RSB motors have the same performance characteristics as the RSA motors described on these pages. RSC motors are designed for heavier applications.

Torque Ranges Shown as "daNm @ rpm" for

32,8 cm³/revolution displacement RSA & RSB units

Continuous Operation

Intermittent Operation - Less than Six Sec. / Min.

		17,2 BAR	34,5 BAR	69 BAR	103,4 BAR	137,9 BAR	172,4 BAR	206,8 BAR
FLOW RATE	0,95 LPM	0,76 @ 9						
	1,9 LPM	0,76 @ 38	1,65 @ 23					
	3,8 LPM	0,75 @ 95	1,65 @ 81	3,31 @ 57	4,97 @ 28			
	7,6 LPM	0,75 @ 210	1,63 @ 196	3,27 @ 156	4,94 @ 140	6,61 @ 99	8,31 @ 56	10,00 @ 6
	15,1 LPM	0,72 @ 440	1,56 @ 431	3,22 @ 389	4,90 @ 376	6,57 @ 330	8,26 @ 289	9,94 @ 237
	30,3 LPM	0,67 @ 902	1,50 @ 869	3,16 @ 857	4,84 @ 830	6,51 @ 785	8,20 @ 742	9,90 @ 694
	45,4 LPM	0,62 @ 1360	1,46 @ 1320	3,11 @ 1299	4,80 @ 1282	6,46 @ 1227	8,15 @ 1182	9,85 @ 1133
	60,6 LPM	0,58 @ 1812	1,41 @ 1772	3,07 @ 1750	4,75 @ 1734	6,41 @ 1679	8,11 @ 1634	9,81 @ 1585
	75,7 LPM	0,53 @ 2264	1,36 @ 2224	3,03 @ 2202	4,71 @ 2186	6,37 @ 2130	8,06 @ 2085	9,76 @ 2035
	94,6 LPM	0,47 @ 2829	1,31 @ 2789	2,97 @ 2767	4,65 @ 2750	6,31 @ 2694	8,01 @ 2650	9,71 @ 2599
	113,6 LPM	0,42 @ 3393	1,25 @ 3353	2,91 @ 3331	4,59 @ 3314	6,26 @ 3258	7,96 @ 3213	9,65 @ 3165
	132,5 LPM							
	151,4 LPM							

Notes: 1. Performance data shown above is typical at 33cSt fluid viscosity. Actual data may vary slightly from unit to unit in production.

2. All numbers subject to change without notice. Always confirm with us that you are working with the most current data.



Hydraulic Motors, Rol-Seal Units RSA Series - DIMENSIONS & PERFORMANCE DATA

METRIC

Torque Ranges Shown as "daNm @ rpm" for

49,2 cm³/revolution displacement RSA & RSB units

Continuous Operation

Intermittent Operation - Less than Six Sec. / Min.

		17,2 BAR	34,5 BAR	69 BAR	103,4 BAR	137,9 BAR	172,4 BAR	206,8 BAR	
FLOW RATE	0,95 LPM	1,22 @ 4							
	1,9 LPM	1,22 @ 23		2,55 @ 10					
	3,8 LPM	1,21 @ 61	2,54 @ 48	5,10 @ 29					
	7,6 LPM	1,18 @ 137	2,51 @ 125	5,06 @ 96	7,62 @ 67	10,15 @ 39		12,66 @ 10	
	15,1 LPM	1,12 @ 291	2,45 @ 279	5,01 @ 250	7,56 @ 220	10,09 @ 192		12,60 @ 163	15,12 @ 134
	30,3 LPM	1,01 @ 598	2,34 @ 587	4,89 @ 558	7,45 @ 528	9,98 @ 500		12,49 @ 470	15,01 @ 442
	45,4 LPM	0,89 @ 907	2,23 @ 895	4,78 @ 865	7,33 @ 835	9,86 @ 808		12,37 @ 778	14,89 @ 750
	60,6 LPM	0,78 @ 1217	2,11 @ 1203	4,67 @ 1172	7,22 @ 1140	9,75 @ 1114		12,26 @ 1085	14,78 @ 1055
	75,7 LPM	0,67 @ 1523	2,00 @ 1510	4,55 @ 1481	7,11 @ 1450	9,64 @ 1422		12,15 @ 1394	14,67 @ 1361
	94,6 LPM	0,52 @ 1907	1,85 @ 1895	4,41 @ 1864	6,96 @ 1832	9,49 @ 1800		12,00 @ 1775	14,52 @ 1745
	113,6 LPM	0,37 @ 2290	1,75 @ 2279	4,26 @ 2245	6,81 @ 2216	9,35 @ 2182		11,85 @ 2155	14,37 @ 2128
	132,5 LPM	0,23 @ 2675	1,56 @ 2664	4,11 @ 2627	6,67 @ 2595	9,20 @ 2565		11,71 @ 2538	14,22 @ 2509
151,4 LPM	0,08 @ 3061	1,41 @ 3048	3,97 @ 3010	6,52 @ 2978	9,05 @ 2946		11,56 @ 2919	14,07 @ 2890	

Torque Ranges Shown as "daNm @ rpm" for

65,5 cm³/revolution displacement RSA & RSB units

Continuous Operation

Intermittent Operation - Less than Six Sec. / Min.

		17,2 BAR	34,5 BAR	69 BAR	103,4 BAR	137,9 BAR	172,4 BAR	206,8 BAR	
FLOW RATE	0,95 LPM	1,67 @ 2							
	1,9 LPM	1,67 @ 17		3,54 @ 8					
	3,8 LPM	1,65 @ 45	3,51 @ 37	6,92 @ 16					
	7,6 LPM	1,62 @ 102	3,48 @ 94	6,88 @ 80	10,28 @ 61	13,68 @ 42		17,09 @ 29	
	15,1 LPM	1,54 @ 216	3,40 @ 207	6,80 @ 195	10,22 @ 179	13,62 @ 157		17,02 @ 139	20,42 @ 105
	30,3 LPM	1,39 @ 442	3,25 @ 433	6,66 @ 418	10,06 @ 399	13,46 @ 380		16,86 @ 360	20,26 @ 325
	45,4 LPM	1,24 @ 669	3,11 @ 660	6,51 @ 639	9,91 @ 620	13,31 @ 601		16,71 @ 581	20,11 @ 546
	60,6 LPM	1,10 @ 891	2,96 @ 881	6,36 @ 860	9,76 @ 840	13,16 @ 821		16,57 @ 802	19,97 @ 766
	75,7 LPM	0,95 @ 1113	2,81 @ 1104	6,22 @ 1081	9,62 @ 1060	13,02 @ 1042		16,42 @ 1023	19,82 @ 987
	94,6 LPM	0,77 @ 1392	2,63 @ 1382	6,03 @ 1357	9,44 @ 1337	12,84 @ 1318		16,24 @ 1299	19,64 @ 1263
	113,6 LPM	0,59 @ 1668	2,45 @ 1657	5,85 @ 1633	9,25 @ 1613	12,66 @ 1594		16,06 @ 1575	19,46 @ 1539
	132,5 LPM	0,41 @ 1944	2,27 @ 1934	5,67 @ 1909	9,07 @ 1889	12,48 @ 1870		15,88 @ 1850	19,28 @ 1815
151,4 LPM	0,23 @ 2220	2,09 @ 2209	5,49 @ 2184	8,89 @ 2165	12,29 @ 2146		15,70 @ 2126	19,10 @ 2091	

Notes: 1. Performance data shown above is typical at 33cSt fluid viscosity. Actual data may vary slightly from unit to unit in production.

2. All numbers subject to change without notice. Always confirm with us that you are working with the most current data.



Hydraulic Motors, Rol-Seal Units RSA Series - DIMENSIONS & PERFORMANCE DATA

METRIC

Torque Ranges Shown as "daNm @ rpm" for
81,9 cm³/revolution displacement RSA & RSB units

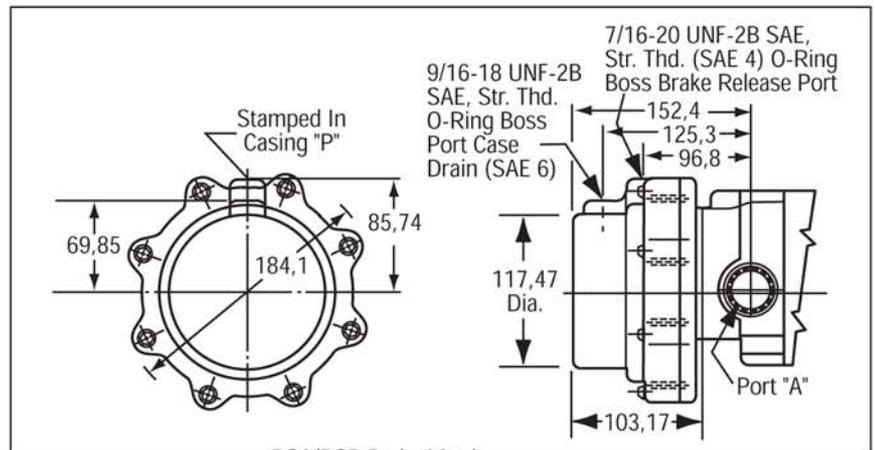
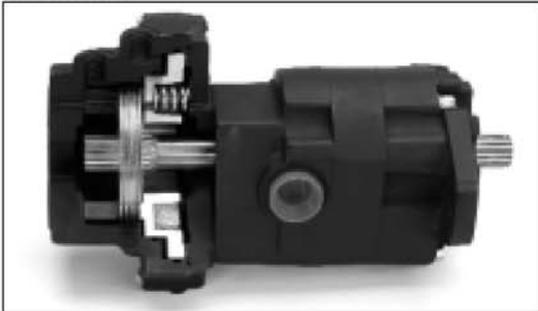
Continuous Operation Intermittent Operation - Less than Six Sec. / Min.

	17,2 BAR	34,5 BAR	69 BAR	103,4 BAR	137,9 BAR	172,4 BAR	206,8 BAR
0,95 LPM							
1,9 LPM	2,03 @ 11	4,16 @ 6					
3,8 LPM	2,03 @ 34	4,18 @ 29	8,53 @ 2				
7,6 LPM	2,01 @ 79	4,14 @ 74	8,54 @ 49	12,69 @ 30	16,95 @ 9		
15,1 LPM	1,98 @ 169	4,05 @ 165	8,48 @ 144	12,60 @ 123	16,90 @ 102	21,02 @ 83	25,09 @ 59
30,3 LPM	1,80 @ 350	3,86 @ 344	8,29 @ 324	12,42 @ 303	16,72 @ 283	20,84 @ 261	24,91 @ 239
45,4 LPM	1,62 @ 530	3,68 @ 522	8,08 @ 507	12,24 @ 486	16,54 @ 465	20,70 @ 444	24,72 @ 422
60,6 LPM	1,44 @ 712	3,50 @ 705	7,93 @ 688	12,06 @ 667	16,36 @ 646	20,52 @ 625	24,54 @ 602
75,7 LPM	1,25 @ 895	3,33 @ 885	7,75 @ 867	11,88 @ 848	16,18 @ 827	20,34 @ 806	24,36 @ 784
94,6 LPM	1,03 @ 1120	3,11 @ 1110	7,53 @ 1094	11,65 @ 1073	15,96 @ 1053	20,11 @ 1033	24,13 @ 1009
113,6 LPM	0,79 @ 1345	2,88 @ 1334	7,30 @ 1321	11,42 @ 1301	15,73 @ 1279	19,89 @ 1258	23,91 @ 1235
132,5 LPM	0,58 @ 1570	2,66 @ 1558	7,07 @ 1546	11,20 @ 1526	15,50 @ 1505	19,66 @ 1484	23,67 @ 1462
151,4 LPM	0,34 @ 1795	2,43 @ 1785	6,85 @ 1773	10,97 @ 1751	15,28 @ 1731	19,42 @ 1710	23,46 @ 1687

Note: Performance data shown on chart at top is typical at 33cSt fluid viscosity. Actual data may vary slightly from unit to unit in production.

POWER TRAIN ACCESSORIES

Motor Brakes



All Rol-Seal' motors can be equipped with a rear-mounted, normally on, wet friction disc type brakes. They will prevent creep under high static loads which might result from system leakage. They also should be used where positive locking of the motor shaft is required.

Maximum Release Pressure: 206,85 BAR

Oil Volume: 9,8 cm³ for full release

Minimum Holding Capacity: See chart. Note that chart data assumes the use of mineral-based oil with no back pressure in release line .

In applications where excessive holding torque is a concern, please consult factory.

Brake Model	Minimum Holding Capacity at 17,2 BAR Release Pressure	Brake Model	Minimum Holding Capacity at 8,61 BAR Release Pressure
222	10,62 daNm	232	5,3 daNm
223	15,9 daNm	233	7,9 daNm
224	21,3 daNm	234	10,6 daNm
226	31,8 daNm	236	15,9 daNm
228	42,4 daNm	238	31,3 daNm
220	58,4 daNm	230	29,2 daNm

Notes: 1. Dimensions shown are in mm. Always confirm with us that you are working with the most current data.
2. All numbers are subject to change without notice.



Hydraulic Motors, Rol-Seal Units RSA Series - DIMENSIONS & PERFORMANCE DATA

METRIC

Planetary Gear Boxes

In addition to brakes, Lösi GmbH also can equip any of our Rol-Seal motors with a wide variety of Planetary Gearboxes. As you can see from the chart below, RSA Series units can be configured to meet virtually any application.

For those where space is a primary consideration, please take special note of our Series 200 offering. By incorporating the available Gear Reduction option, a 32,8, 49,2, 65,5, or 81,9 in³ displacement RSA motor and Series 200 gearbox can produce amazing torques from a surprisingly small overall package.

Complete dimensional and performance data for all our planetary gearboxes is available in either English or Metric



Gearbox Series	Maximum Output Torque N-M		Maximum Input Speed at No Load RPM	Maximum Shaft Radial Load/Inward Thrust Load in KG, (Reference Only)	Reduction Stages	Available Gear Reduction Ratios				
	Continuous/Intermittent									
200	1412/2372		2,000	2,948/1,814	SINGLE	5.19	5.86			
	1638/2711		2,500			7.07				
	1694/2824		2,000			8.06	9.95			
220	1130/2260		3,000	6,350/4,536	SINGLE	4.08	5.05			
			3,000		DOUBLE	16.65	20.62	25.53		
			3,000		TRIPLE	67.91	84.1	104.51	128.98	
					(Other ratios available up to 3284:1)					
280	1582/3164		3,000	6,350/4,536	SINGLE	4.08	5.05			
			3,000		DOUBLE	16.65	20.62	25.53		
			3,000		TRIPLE	67.91	84.1	104.51	128.98	
					(Other ratios available up to 3284:1)					
500	2825/5649		3,000	9,979/6,804	SINGLE	4.08	5.05			
			3,000		DOUBLE	16.65	20.62	25.53		
			3,000		TRIPLE	67.91	84.1	104.51	128.98	
					(Other ratios available up to 3284:1)					
616	2824/3728		1,800	8,165/3,538	SINGLE	5.2				
1300	7344/14689		3,000	20,412/13,608	SINGLE	4.42	6.00			
			3,000		DOUBLE	19.54	26.32	33.15	36	45
			3,000		TRIPLE	86.35	47.21	159.12	216	
					(Other ratios available up to 2276:1)					
2500	14,125/28,250		3,000	16,330/17,690	DOUBLE	20.25	25.88	29.58		
						37.80	40.25	51.43		
						(Other ratios available up to 6630:1)				
2520	14,125/28,250		3,000	23,134/19,958	DOUBLE	20.25	25.88	29.58		
						37.80	40.25	51.43		
						(Other ratios available up to 6630:1)				
6000	33894/67788		4,000	25,855/40,824	DOUBLE	24.66	38.56	60.29		
			4,000			70.39	89.38			
			4,000			110.08	139.76			
						(Other ratios available up to 90,000:1)				
10000	56480/112980		4,000	25,855/40,824	DOUBLE	26.48	41.41			
			4,000			75.60	96.00			
			4,000			(Other ratios available up to 62,000:1)				

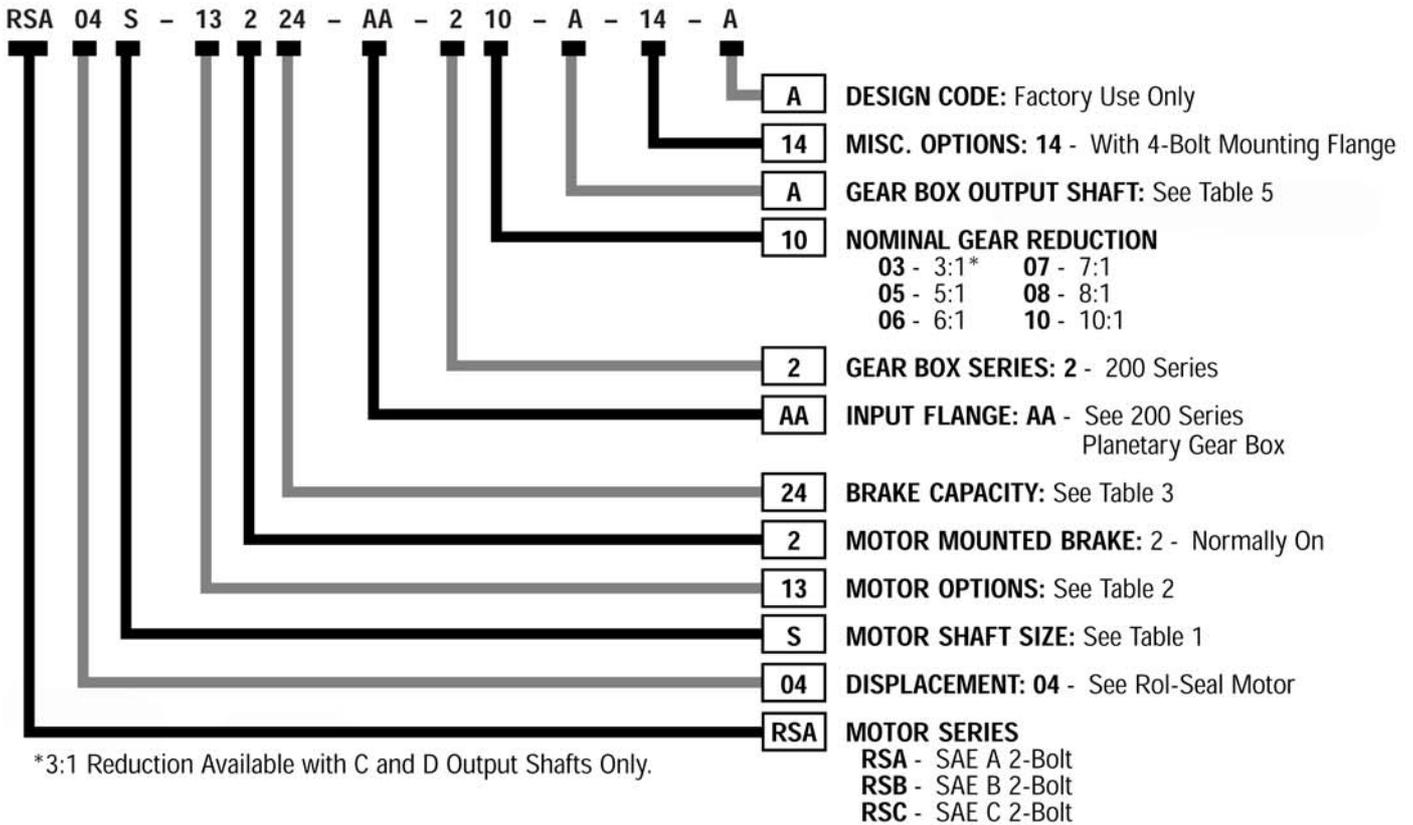
Notes: All data subject to change without notice. Always confirm with us that you are working with the most current data.



Hydraulic Motors, Rol-Seal Units RSA Series - MODEL CODES/ORDERING

METRIC

ROL-SEAL MOTORS/BRAKES/SAE GEAR BOXES



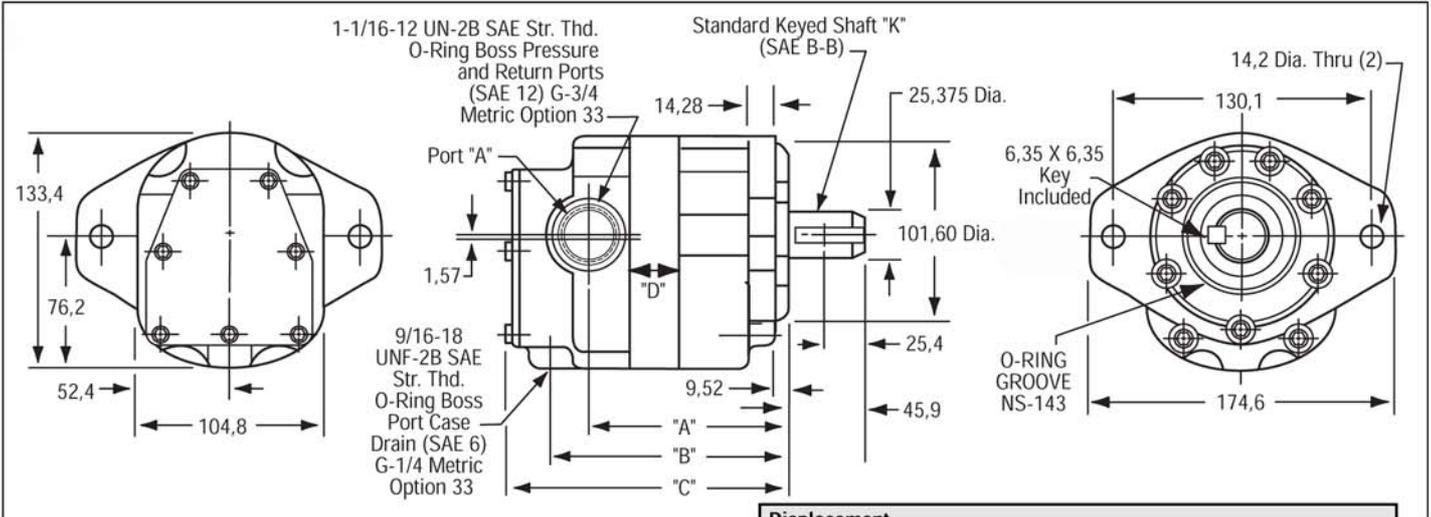
<p>Table 1 MOTOR SHAFT SIZES</p> <p>RSA K - ø 25,4 Keyed (6,35 key) S - 13 Tooth 16/32 Pitch Spline ø 22,2</p> <p>RSB K - ø 25,4 Keyed (6,35 key) S - 13 Tooth 16/32 Pitch Spline ø 22,2</p> <p>RSC K - ø 38,1 Keyed (9,52 key) S - 14 Tooth 12/24 Pitch Spline ø 31,75</p> <p>METRIC M - 25mm Keyed - RSA/B (8x7x32) 35mm Keyed - RSC (10x8x36)</p> <p>KEYS INCLUDED</p>	<p>Table 2 MOTOR OPTIONS</p> <p>13 - Viton Seals 24 - Internal Drain 27 - Front Sealing Cap (RSB & RSC Only) 28 - Tach. Adapter 33 - Side Ports 180° Metric (BSPP) RSA/B Work Ports G 3/4 Drain Port G 1/4 RSC Work Ports G 1 Drain Port G 1/2</p> <p>34A - Manifold, .62" Ports, 4 Bolt 34B - Manifold, .62" Ports, 3 Bolt 34C - Rear Ports, SAE 12 34D - Side Ports, SAE 12 34AM - Manifold, Metric 15,7 Ports, 4 Bolt 34BM - Manifold, Metric 15,7 Ports, 3 Bolt 34CM - Metric Rear Ports G 3/4 34DM - Metric Side Ports Ports G 3/4 49 - Splined Rear Shaft Extension Steel Timing Gears (RSA/RSB, Standard on RSC Series) 50 - 52 - For 95/5 Fluids</p>	<p>Table 3 BRAKE CAPACITY</p> <table border="1"> <thead> <tr> <th>17,2 BAR Release</th> <th>8,61 BAR Release</th> </tr> </thead> <tbody> <tr> <td>22 10,62 daNM</td> <td>32 5,3 daNM</td> </tr> <tr> <td>23 15,9 daNM</td> <td>33 7,9 daNM</td> </tr> <tr> <td>24 21,3 daNM</td> <td>34 10,6 daNM</td> </tr> <tr> <td>26 31,8 daNM</td> <td>36 15,9 daNM</td> </tr> <tr> <td>28 42,4 daNM</td> <td>38 31,3 daNM</td> </tr> <tr> <td>20 58,4 daNM</td> <td>30 29,2 daNM</td> </tr> </tbody> </table> <p>Table 5 GEAR BOX OUTPUT SHAFTS</p> <p>A - ø 53,97 Straight Keyed (12,7 key) B - 16 Tooth 8/16 Pitch Spline ø 53,97 C - ø 47,6 Straight Keyed (12,7 key) D - 13 Tooth 8/16 Pitch Spline ø 44,4</p>	17,2 BAR Release	8,61 BAR Release	22 10,62 daNM	32 5,3 daNM	23 15,9 daNM	33 7,9 daNM	24 21,3 daNM	34 10,6 daNM	26 31,8 daNM	36 15,9 daNM	28 42,4 daNM	38 31,3 daNM	20 58,4 daNM	30 29,2 daNM
17,2 BAR Release	8,61 BAR Release															
22 10,62 daNM	32 5,3 daNM															
23 15,9 daNM	33 7,9 daNM															
24 21,3 daNM	34 10,6 daNM															
26 31,8 daNM	36 15,9 daNM															
28 42,4 daNM	38 31,3 daNM															
20 58,4 daNM	30 29,2 daNM															



Hydraulic Motors, Rol-Seal® Units RSB Series - DIMENSIONS & PERFORMANCE DATA

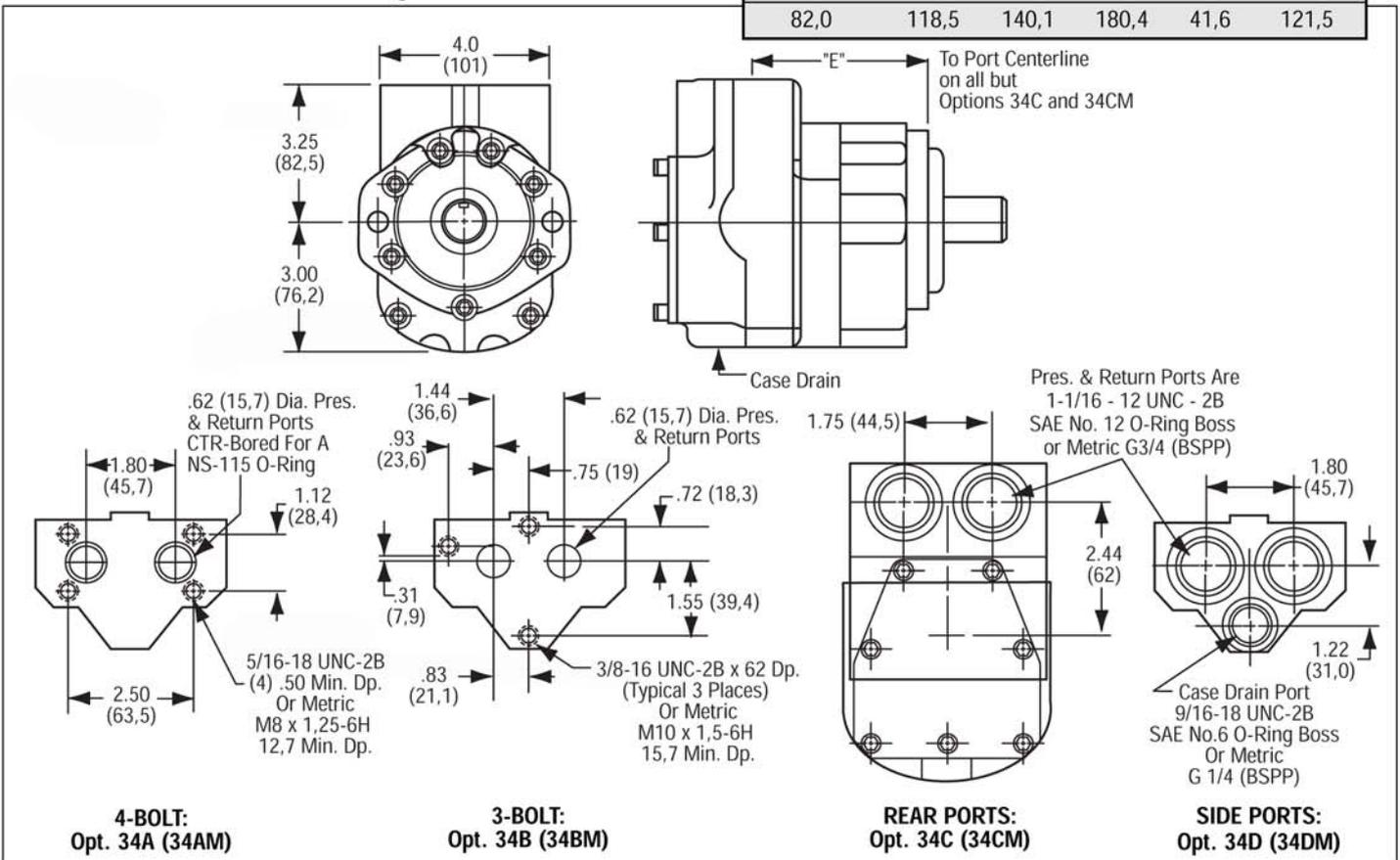
METRIC

WITH SAE B 2-BOLT FLANGE & SIDE PORTS @ 180°



Displacement cm ³ /Rev.	A	B	C	D	E
32,8	96,4	114,9	115,3	16,5	96,4
49,2	102,0	123,6	163,9	25,1	105,0
65,6	110,1	131,7	172,0	33,2	113,2
82,0	118,5	140,1	180,4	41,6	121,5

WITH MANIFOLD MOUNT and END OR SIDE PORTS - English & (Metric)



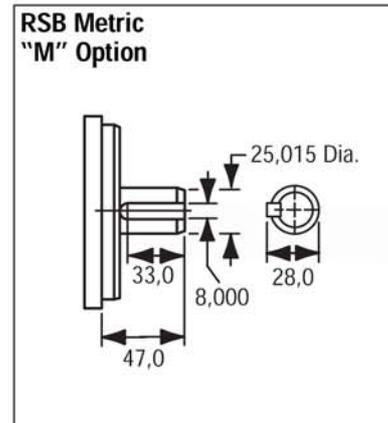
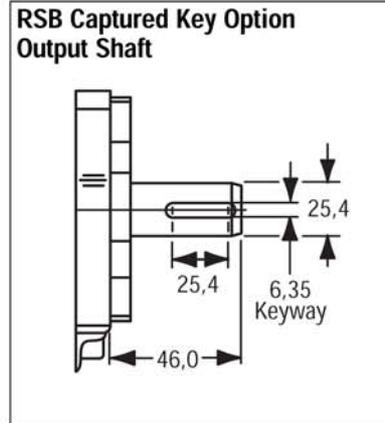
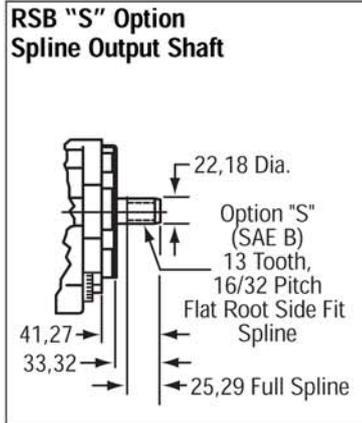
Note: 1. All dimensions in mm and subject to change without notice. Always confirm with us that you are working with the most current data.
2. Consult factory for specific machining tolerances.



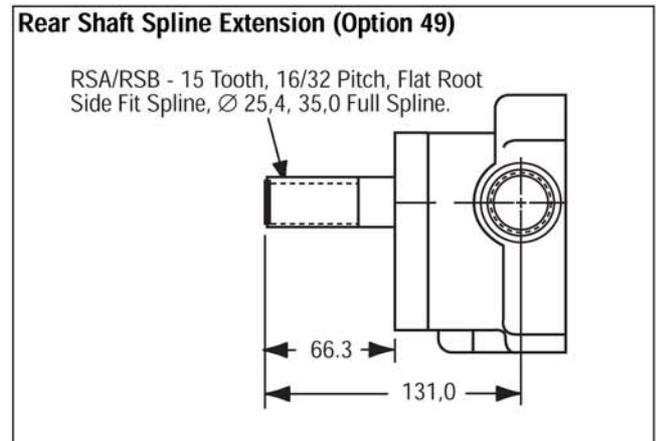
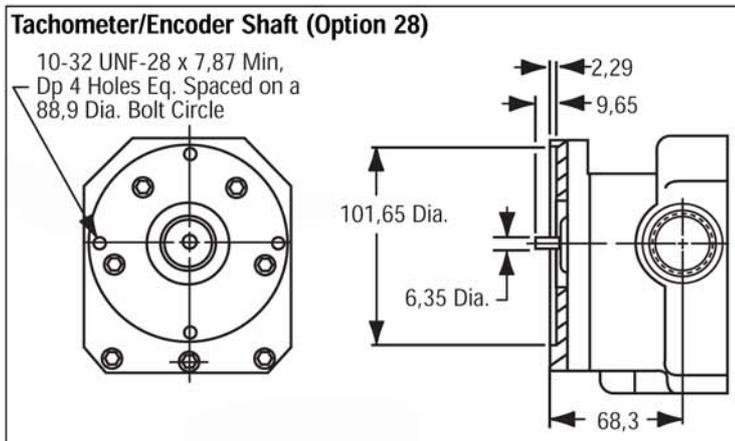
Hydraulic Motors, Rol-Seal Units RSB Series - DIMENSIONS & PERFORMANCE DATA

METRIC

OUTPUT SHAFT OPTIONS

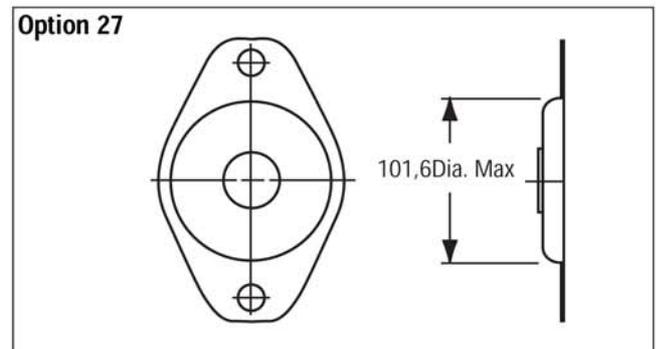


REAR SHAFT EXTENSION OPTIONS



FRONT SEALING CAP OPTION

RSC AND RSB motors have mounting flange pilot diameters that are interrupted by bolt holes. If another device (for example, a gearbox) is going to be mounted, an O-ring gasket on the pilot diameter will not produce a seal between the two. If the gear box or other such device does not have its own dynamic seal on its input shaft, then this motor option (#27) should be specified. Your motors then will have turned-down pilot diameters and this front sealing cap (with O-rings between the sealing cap and motor).



Note: 1. All dimensions in mm and subject to change without notice. Always confirm with us that you are working with the most current data.
2. Consult factory for specific machining tolerances.



Hydraulic Motors, Rol-Seal Units RSB Series - DIMENSIONS & PERFORMANCE DATA

METRIC

PERFORMANCE OVERVIEW FOR ROL-SEAL MOTORS

		DISPLACEMENT (cm ³ /rev.)						
		Models RSA & RSB				Model RSC		
		32,8	49,2	65,2	82,0	98,4	131,2	164,0
Flow (LPM)	Continuous	68	76	67	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:

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

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.

Rotational Moment of Inertia (WK²)

Model	Displacement (cm ³ /rev)	Kgm ²
RSA & RSB*	32,8	,0003
RSA & RSB*	49,2	,00041
RSA & RSB*	65,6	,00046
RSA & RSB*	85,0	,00052
RSC*	98,4	,000021
RSC*	131,2	,00023
RSC*	164,0	,00026

* Regarding RSB and RSC Series Motors: Though dimensioned differently, RSB motors have the same performance characteristics as the RSA motors described on these pages. RSC motors are designed for heavier applications.

Torque Ranges Shown as "daNm @ rpm" for 32,8 cm³/revolution displacement RSA & RSB units

FLOW RATE	Continuous Operation					Intermittent Operation - Less than Six Sec. / Min.		
	17,2 BAR	34,5 BAR	69 BAR	103,4 BAR	137,9 BAR	172,4 BAR	206,8 BAR	
0,95 LPM	0,76 @ 9							
1,9 LPM	0,76 @ 38 1,65 @ 23							
3,8 LPM	0,75 @ 95 1,65 @ 81 3,31 @ 57 4,97 @ 28							
7,6 LPM	0,75 @ 210 1,63 @ 196 3,27 @ 156 4,94 @ 140 6,61 @ 99 8,31 @ 56 10,00 @ 6							
15,1 LPM	0,72 @ 440 1,56 @ 431 3,22 @ 389 4,90 @ 376 6,57 @ 330 8,26 @ 289 9,94 @ 237							
30,3 LPM	0,67 @ 902 1,50 @ 869 3,16 @ 857 4,84 @ 830 6,51 @ 785 8,20 @ 742 9,90 @ 694							
45,4 LPM	0,62 @ 1360 1,46 @ 1320 3,11 @ 1299 4,80 @ 1282 6,46 @ 1227 8,15 @ 1182 9,85 @ 1133							
60,6 LPM	0,58 @ 1812 1,41 @ 1772 3,07 @ 1750 4,75 @ 1734 6,41 @ 1679 8,11 @ 1634 9,81 @ 1585							
75,7 LPM	0,53 @ 2264 1,36 @ 2224 3,03 @ 2202 4,71 @ 2186 6,37 @ 2130 8,06 @ 2085 9,76 @ 2035							
94,6 LPM	0,47 @ 2829 1,31 @ 2789 2,97 @ 2767 4,65 @ 2750 6,31 @ 2694 8,01 @ 2650 9,71 @ 2599							
113,6 LPM	0,42 @ 3393 1,25 @ 3353 2,91 @ 3331 4,59 @ 3314 6,26 @ 3258 7,96 @ 3213 9,65 @ 3165							
132,5 LPM								
151,4 LPM								

- Notes: 1. Performance data shown on this page is typical at 33cSt fluid viscosity. Actual data may vary slightly from unit to unit in production.
2. All numbers subject to change without notice. Always confirm with us that you are working with the most current data



Hydraulic Motors, Rol-Seal Units RSB Series - DIMENSIONS & PERFORMANCE DATA

METRIC

Torque Ranges Shown as "daNm @ rpm" for

49,2 cm³/revolution displacement RSA & RSB units

Continuous Operation

Intermittent Operation - Less than Six Sec. / Min.

	17,2 BAR	34,5 BAR	69 BAR	103,4 BAR	137,9 BAR	172,4 BAR	206,8 BAR	
FLOW RATE	0,95 LPM	1,22 @ 4						
	1,9 LPM	1,22 @ 23					2,55 @ 10	
	3,8 LPM	1,21 @ 61	2,54 @ 48	5,10 @ 29				
	7,6 LPM	1,18 @ 137	2,51 @ 125	5,06 @ 96	7,62 @ 67	10,15 @ 39	12,66 @ 10	
	15,1 LPM	1,12 @ 291	2,45 @ 279	5,01 @ 250	7,56 @ 220	10,09 @ 192	12,60 @ 163	15,12 @ 134
	30,3 LPM	1,01 @ 598	2,34 @ 587	4,89 @ 558	7,45 @ 528	9,98 @ 500	12,49 @ 470	15,01 @ 442
	45,4 LPM	0,89 @ 907	2,23 @ 895	4,78 @ 865	7,33 @ 835	9,86 @ 808	12,37 @ 778	14,89 @ 750
	60,6 LPM	0,78 @ 1217	2,11 @ 1203	4,67 @ 1172	7,22 @ 1140	9,75 @ 1114	12,26 @ 1085	14,78 @ 1055
	75,7 LPM	0,67 @ 1523	2,00 @ 1510	4,55 @ 1481	7,11 @ 1450	9,64 @ 1422	12,15 @ 1394	14,67 @ 1361
	94,6 LPM	0,52 @ 1907	1,85 @ 1895	4,41 @ 1864	6,96 @ 1832	9,49 @ 1800	12,00 @ 1775	14,52 @ 1745
	113,6 LPM	0,37 @ 2290	1,75 @ 2279	4,26 @ 2245	6,81 @ 2216	9,35 @ 2182	11,85 @ 2155	14,37 @ 2128
	132,5 LPM	0,23 @ 2675	1,56 @ 2664	4,11 @ 2627	6,67 @ 2595	9,20 @ 2565	11,71 @ 2538	14,22 @ 2509
	151,4 LPM	0,08 @ 3061	1,41 @ 3048	3,97 @ 3010	6,52 @ 2978	9,05 @ 2946	11,56 @ 2919	14,07 @ 2890

Torque Ranges Shown as "daNm @ rpm" for

65,5 cm³/revolution displacement RSA & RSB units

Continuous Operation

Intermittent Operation - Less than Six Sec. / Min.

	17,2 BAR	34,5 BAR	69 BAR	103,4 BAR	137,9 BAR	172,4 BAR	206,8 BAR	
FLOW RATE	0,95 LPM	1,67 @ 2						
	1,9 LPM	1,67 @ 17					3,54 @ 8	
	3,8 LPM	1,65 @ 45	3,51 @ 37	6,92 @ 16				
	7,6 LPM	1,62 @ 102	3,48 @ 94	6,88 @ 80	10,28 @ 61	13,68 @ 42	17,09 @ 29	
	15,1 LPM	1,54 @ 216	3,40 @ 207	6,80 @ 195	10,22 @ 179	13,62 @ 157	17,02 @ 139	20,42 @ 105
	30,3 LPM	1,39 @ 442	3,25 @ 433	6,66 @ 418	10,06 @ 399	13,46 @ 380	16,86 @ 360	20,26 @ 325
	45,4 LPM	1,24 @ 669	3,11 @ 660	6,51 @ 639	9,91 @ 620	13,31 @ 601	16,71 @ 581	20,11 @ 546
	60,6 LPM	1,10 @ 891	2,96 @ 881	6,36 @ 860	9,76 @ 840	13,16 @ 821	16,57 @ 802	19,97 @ 766
	75,7 LPM	0,95 @ 1113	2,81 @ 1104	6,22 @ 1081	9,62 @ 1060	13,02 @ 1042	16,42 @ 1023	19,82 @ 987
	94,6 LPM	0,77 @ 1392	2,63 @ 1382	6,03 @ 1357	9,44 @ 1337	12,84 @ 1318	16,24 @ 1299	19,64 @ 1263
	113,6 LPM	0,59 @ 1668	2,45 @ 1657	5,85 @ 1633	9,25 @ 1613	12,66 @ 1594	16,06 @ 1575	19,46 @ 1539
	132,5 LPM	0,41 @ 1944	2,27 @ 1934	5,67 @ 1909	9,07 @ 1889	12,48 @ 1870	15,88 @ 1850	19,28 @ 1815
	151,4 LPM	0,23 @ 2220	2,09 @ 2209	5,49 @ 2184	8,89 @ 2165	12,29 @ 2146	15,70 @ 2126	19,10 @ 2091

- Notes: 1. Performance data shown on this page is typical at 33cSt fluid viscosity. Actual data may vary slightly from unit to unit in production.
2. All numbers subject to change without notice. Always confirm with us that you are working with the most current data



Hydraulic Motors, Rol-Seal Units RSB Series - DIMENSIONS & PERFORMANCE DATA

METRIC

Torque Ranges Shown as "daNm @ rpm" for
81,9 cm³/revolution displacement RSA & RSB units

Continuous Operation

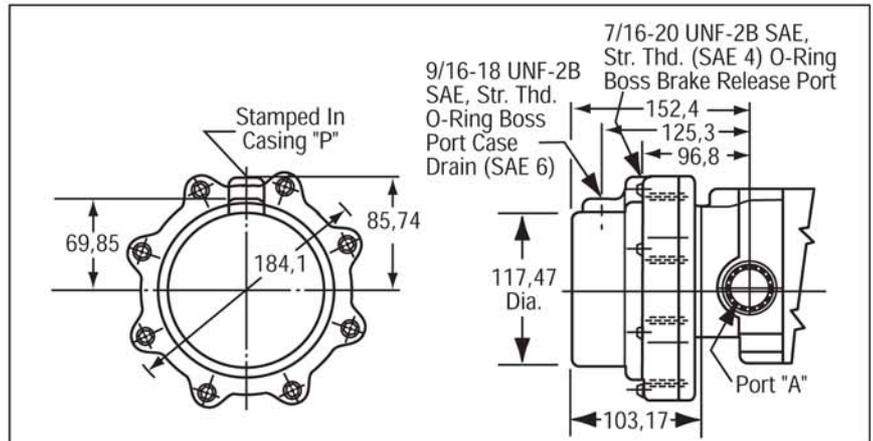
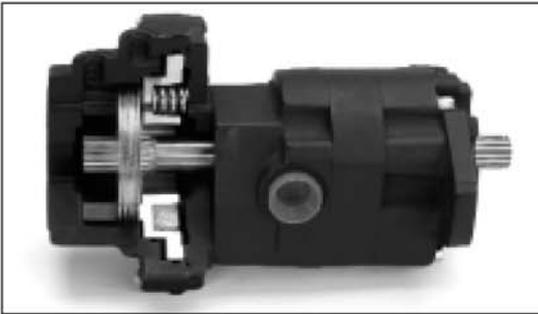
Intermittent Operation - Less than Six Sec. / Min.

	17,2 BAR	34,5 BAR	69 BAR	103,4 BAR	137,9 BAR	172,4 BAR	206,8 BAR
0,95 LPM							
1,9 LPM	2,03 @ 11	4,16 @ 6					
3,8 LPM	2,03 @ 34	4,18 @ 29	8,53 @ 2				
7,6 LPM	2,01 @ 79	4,14 @ 74	8,54 @ 49	12,69 @ 30	16,95 @ 9		
15,1 LPM	1,98 @ 169	4,05 @ 165	8,48 @ 144	12,60 @ 123	16,90 @ 102	21,02 @ 83	25,09 @ 59
30,3 LPM	1,80 @ 350	3,86 @ 344	8,29 @ 324	12,42 @ 303	16,72 @ 283	20,84 @ 261	24,91 @ 239
45,4 LPM	1,62 @ 530	3,68 @ 522	8,08 @ 507	12,24 @ 486	16,54 @ 465	20,70 @ 444	24,72 @ 422
60,6 LPM	1,44 @ 712	3,50 @ 705	7,93 @ 688	12,06 @ 667	16,36 @ 646	20,52 @ 625	24,54 @ 602
75,7 LPM	1,25 @ 895	3,33 @ 885	7,75 @ 867	11,88 @ 848	16,18 @ 827	20,34 @ 806	24,36 @ 784
94,6 LPM	1,03 @ 1120	3,11 @ 1110	7,53 @ 1094	11,65 @ 1073	15,96 @ 1053	20,11 @ 1033	24,13 @ 1009
113,6 LPM	0,79 @ 1345	2,88 @ 1334	7,30 @ 1321	11,42 @ 1301	15,73 @ 1279	19,89 @ 1258	23,91 @ 1235
132,5 LPM	0,58 @ 1570	2,66 @ 1558	7,07 @ 1546	11,20 @ 1526	15,50 @ 1505	19,66 @ 1484	23,67 @ 1462
151,4 LPM	0,34 @ 1795	2,43 @ 1785	6,85 @ 1773	10,97 @ 1751	15,28 @ 1731	19,42 @ 1710	23,46 @ 1687

Notes: 1. Performance data shown on this page is typical at 33cSt fluid viscosity. Actual data may vary slightly from unit to unit in production.
2. All numbers subject to change without notice. Always confirm with us that you are working with the most current data

POWER TRAIN ACCESSORIES

Motor Brakes



All Rol-Seal[®] motors can be equipped with a rear-mounted, normally on, wet friction disc type brakes. They will prevent creep under high static loads which might result from system leakage. They also should be used where positive locking of the motor shaft is required.

Maximum Release Pressure: 206,85 BAR

Oil Volume: 9,8 cm³ for full release

Minimum Holding Capacity: See chart. Note that chart data assumes the use of mineral-based oil with no back pressure in release line.

In applications where excessive holding torque is a concern, please consult factory.

Brake Model	Minimum Holding Capacity at 17,2 BAR Release Pressure	Brake Model	Minimum Holding Capacity at 8,61 BAR Release Pressure
222	10,62 daNm	232	5,3 daNm
223	15,9 daNm	233	7,9 daNm
224	21,3 daNm	234	10,6 daNm
226	31,8 daNm	236	15,9 daNm
228	42,4 daNm	238	31,3 daNm
220	58,4 daNm	230	29,2 daNm

Notes: 1. Dimensions shown are in mm. Always confirm with us that you are working with the most current data.
2. All numbers are subject to change without notice.



Hydraulic Motors, Rol-Seal Units RSB Series - DIMENSIONS & PERFORMANCE DATA

METRIC

Planetary Gear Boxes

In addition to brakes, Lösi GmbH also can equip any of our Rol-Seal motors with a wide variety of Planetary Gearboxes. As you can see from the chart below, RSA Series units can be configured to meet virtually any application.

For those where space is a primary consideration, please take special note of our Series 200 offering. By incorporating the available Gear Reduction option, a 32,8, 49,2, 65,5, or 81,9 in³ displacement RSA motor and Series 200 gearbox can produce amazing torques from a surprisingly small overall package.



Gearbox Series	Maximum Output Torque N-M Continuous/Intermittent	Maximum Input Speed at No Load RPM	Maximum Shaft Radial Load/Inward Thrust Load in KG, (Reference Only)	Reduction Stages	Available Gear Reduction Ratios				
200	1412/2372	2,000	2,948/1,814	SINGLE	5.19	5.86			
	1638/2711	2,500			7.07				
	1694/2824	2,000			8.06	9.95			
220	1130/2260	3,000	6,350/4,536	SINGLE	4.08	5.05			
		3,000		DOUBLE	16.65	20.62	25.53		
		3,000		TRIPLE	67.91	84.1	104.51	128.98	
					(Other ratios available up to 3284:1)				
280	1582/3164	3,000	6,350/4,536	SINGLE	4.08	5.05			
		3,000		DOUBLE	16.65	20.62	25.53		
		3,000		TRIPLE	67.91	84.1	104.51	128.98	
					(Other ratios available up to 3284:1)				
500	2825/5649	3,000	9,979/6,804	SINGLE	4.08	5.05			
		3,000		DOUBLE	16.65	20.62	25.53		
		3,000		TRIPLE	67.91	84.1	104.51	128.98	
					(Other ratios available up to 3284:1)				
616	2824/3728	1,800	8,165/3,538	SINGLE	5.2				
1300	7344/14689	3,000	20,412/13,608	SINGLE	4.42	6.00			
		3,000		DOUBLE	19.54	26.32	33.15	36	45
		3,000		TRIPLE	86.35	47.21	159.12	216	
					(Other ratios available up to 2276:1)				
2500	14,125/28,250	3,000	16,330/17,690	DOUBLE	20.25	25.88	29.58		
					37.80 40.25 51.43				
					(Other ratios available up to 6630:1)				
2520	14,125/28,250	3,000	23,134/19,958	DOUBLE	20.25	25.88	29.58		
					37.80 40.25 51.43				
					(Other ratios available up to 6630:1)				
6000	33894/67788	4,000	25,855/40,824	DOUBLE	24.66	38.56	60.29		
		4,000			70.39	89.38			
		4,000			110.08	139.76			
					(Other ratios available up to 90,000:1)				
10000	56480/112980	4,000	25,855/40,824	DOUBLE	26.48	41.41			
		4,000			75.60	96.00			
					(Other ratios available up to 62,000:1)				

Notes: All data subject to change without notice. Always confirm with us that you are working with the most current data.



Hydraulic Motors, Rol-Seal Units RSB Series - MODEL CODES/ORDERING

METRIC

ROL-SEAL MOTORS/BRAKES/SAE GEAR BOXES

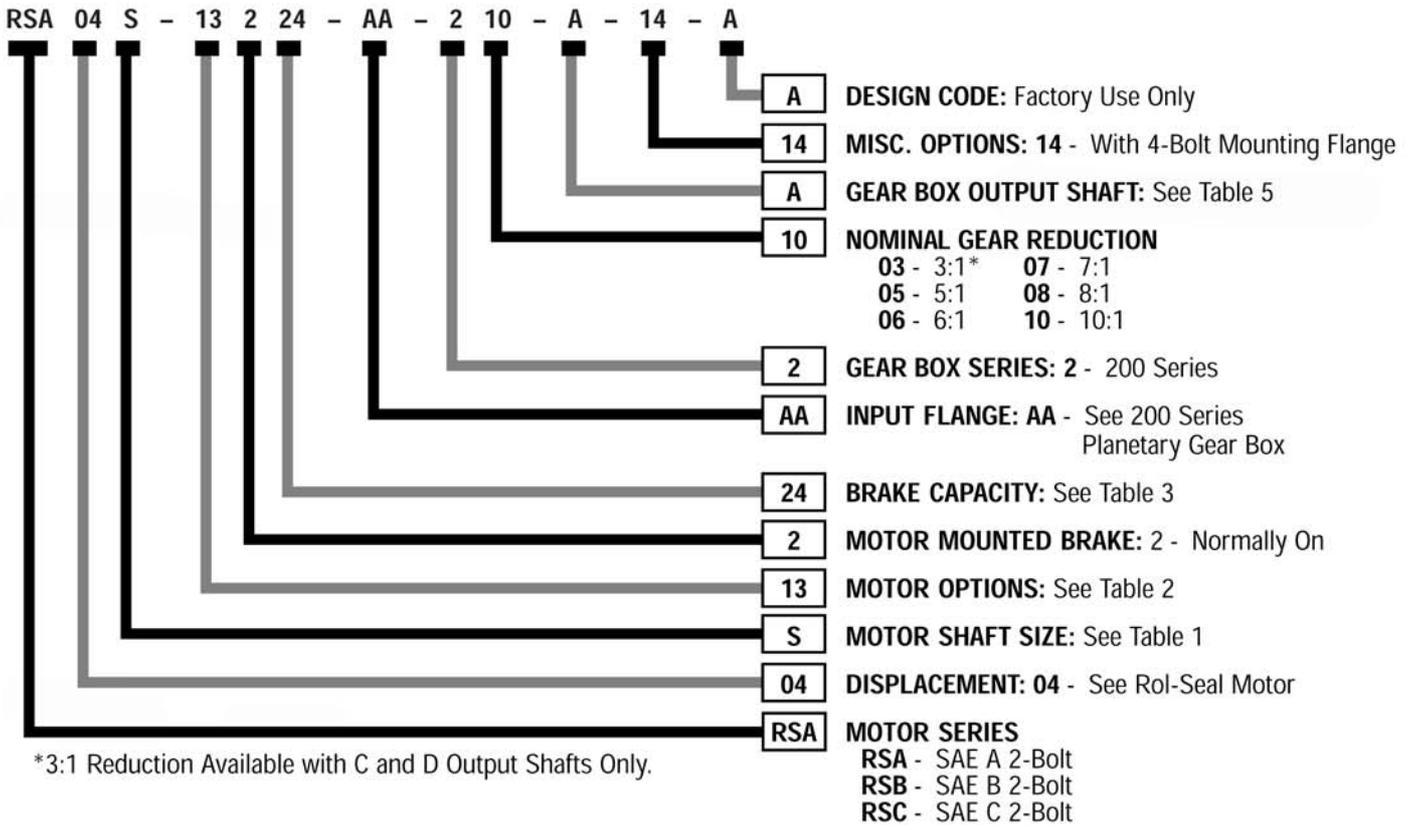


Table 1 MOTOR SHAFT SIZES	
RSA	
K -	ø 25,4 Keyed (6,35 key)
S -	13 Tooth 16/32 Pitch Spline ø 22,2
RSB	
K -	ø 25,4 Keyed (6,35 key)
S -	13 Tooth 16/32 Pitch Spline ø 22,2
RSC	
K -	ø 38,1 Keyed (9,52 key)
S -	14 Tooth 12/24 Pitch Spline ø 31,75
METRIC	
M -	25mm Keyed - RSA/B (8x7x32)
	35mm Keyed - RSC (10x8x36)
KEYS INCLUDED	

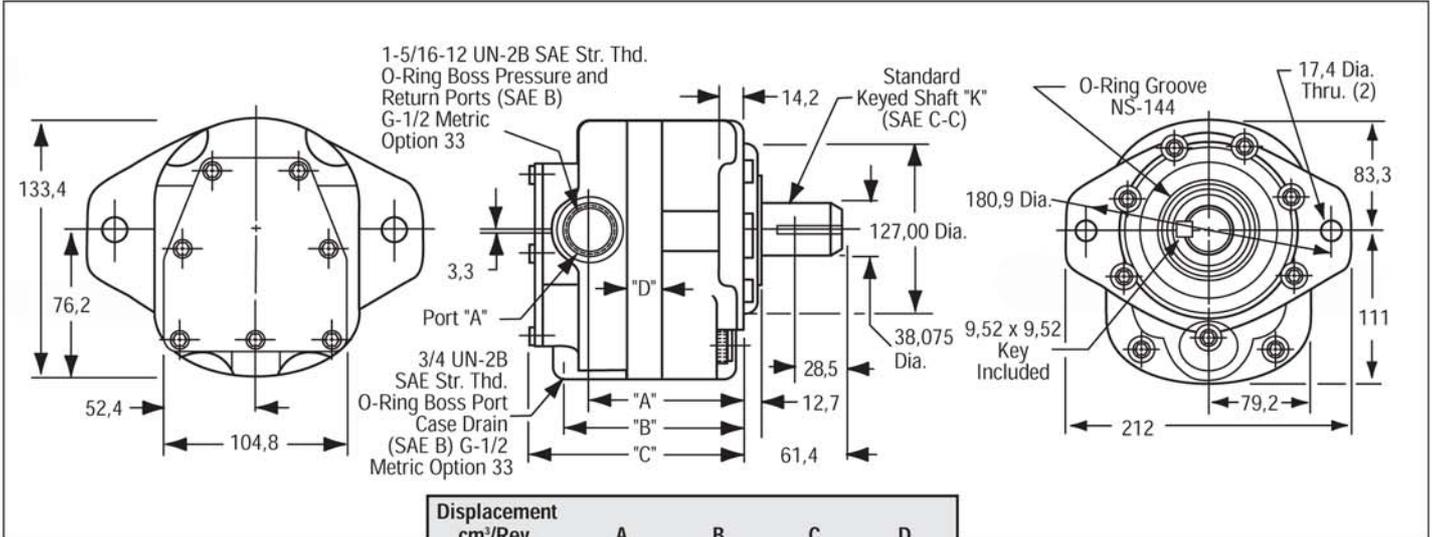
Table 2 MOTOR OPTIONS	
13 -	Viton Seals
24 -	Internal Drain
27 -	Front Sealing Cap (RSB & RSC Only)
28 -	Tach. Adapter
33 -	Side Ports 180° Metric (BSPP)
	RSA/B Work Ports G 3/4 Drain Port G 1/4
	RSC Work Ports G 1 Drain Port G 1/2
34A -	Manifold, .62" Ports, 4 Bolt
34B -	Manifold, .62" Ports, 3 Bolt
34C -	Rear Ports, SAE 12
34D -	Side Ports, SAE 12
34AM -	Manifold, Metric 15,7 Ports, 4 Bolt
34BM -	Manifold, Metric 15,7 Ports, 3 Bolt
34CM -	Metric Rear Ports G 3/4
34DM -	Metric Side Ports Ports G 3/4
49 -	Splined Rear Shaft Extension
50 -	Steel Timing Gears (RSA/RSB, Standard on RSC Series)
52 -	For 95/5 Fluids

Table 3 BRAKE CAPACITY			
17,2 BAR Release		8,61 BAR Release	
22	10,62 daNM	32	5,3 daNM
23	15,9 daNM	33	7,9 daNM
24	21,3 daNM	34	10,6 daNM
26	31,8 daNM	36	15,9 daNM
28	42,4 daNM	38	31,3 daNM
20	58,4 daNM	30	29,2 daNM

Table 5 GEAR BOX OUTPUT SHAFTS	
A -	ø 53,97 Straight Keyed (12,7 key)
B -	16 Tooth 8/16 Pitch Spline ø 53,97
C -	ø 47,6 Straight Keyed (12,7 key)
D -	13 Tooth 8/16 Pitch Spline ø 44,4



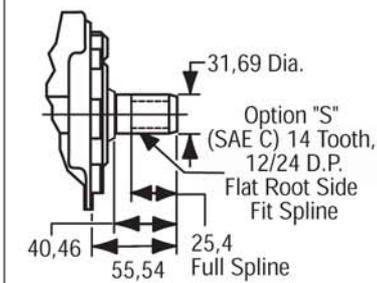
WITH SAE C 2-BOLT FLANGE & SIDE PORTS @ 180°



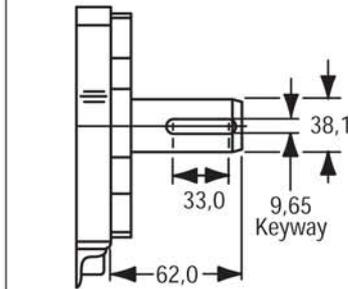
Displacement cm ³ /Rev.	A	B	C	D
98,3	106,34	130,96	164,28	22,60
131,2	113,48	138,00	174,45	29,97
160,0	120,65	146,05	149,37	136,83

OUTPUT SHAFT OPTIONS

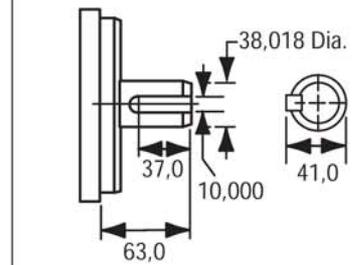
RSC "S" Option Spline Output Shaft



RSC Captured Key Option Output Shaft



RSC Metric "M" Option



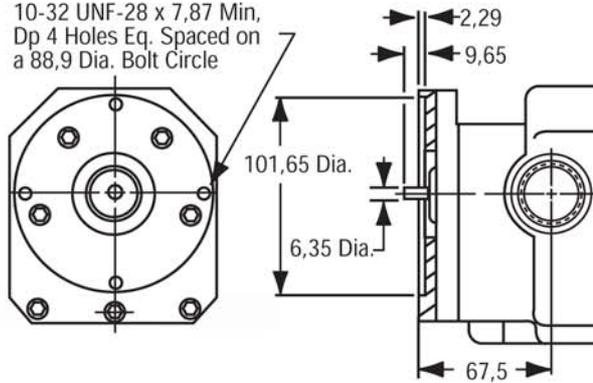
- Note: 1. All dimensions in mm and subject to change without notice. Always confirm with us that you are working with the most current data.
2. Consult factory for specific machining tolerances.



REAR SHAFT EXTENSION OPTIONS

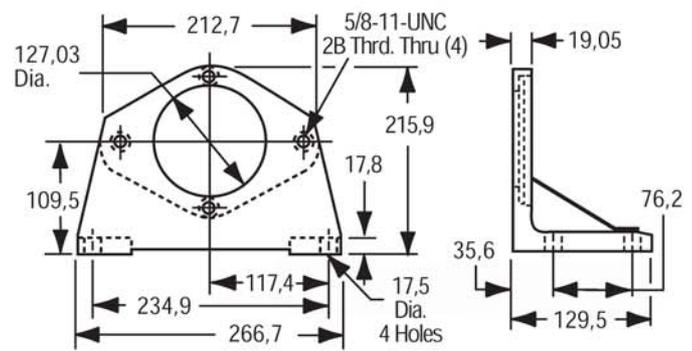
Tachometer/Encoder Shaft (Option 28)

10-32 UNF-28 x 7,87 Min,
Dp 4 Holes Eq. Spaced on
a 88,9 Dia. Bolt Circle



AVAILABLE FOOT MOUNTING BRACKET

Part # 63046



Note: 1. All dimensions in mm and subject to change without notice. Always confirm with us that you are working with the most current data.
2. Consult factory for specific machining tolerances.

PERFORMANCE OVERVIEW FOR ROL-SEAL MOTORS

		DISPLACEMENT (cm ³ /rev.)						
		Models RSA & RSB				Model RSC		
		32,8	49,2	65,2	82,0	98,4	131,2	164,0
Flow (LPM)	Continuous	68	76	67	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.

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.

Rotational Moment of Inertia (WK²)

Model	Displacement (cm ³ /rev)	Kgm ²
RSA & RSB*	32,8	,0003
RSA & RSB*	49,2	,00041
RSA & RSB*	65,6	,00046
RSA & RSB*	85,0	,00052
RSC*	98,4	,00021
RSC*	131,2	,00023
RSC*	164,0	,00026

* Regarding RSB and RSC Series Motors: Though dimensioned differently, RSB motors have the same performance characteristics as the RSA motors described on these pages. RSC motors are designed for heavier applications.



**Torque Ranges Shown as "daNm @ rpm" for
98,3 cm³/revolution displacement RSC units.**

Continuous Operation

Intermittent Operation - Less than Six Sec. / Min.

	17,2 BAR	34,5 BAR	69 BAR	103,4 BAR	137,9 BAR	172,4 BAR	206,8 BAR
3,8 LPM	2,46 @ 27	4,99 @ 17					
7,6 LPM	2,47 @ 64	4,99 @ 55	10,15 @ 23	15,46 @ 10			
15,1 LPM	2,47 @ 138	4,97 @ 128	10,10 @ 100	15,42 @ 87	20,62 @ 68	25,50 @ 42	
30,3 LPM	2,36 @ 283	4,87 @ 272	9,99 @ 243	15,31 @ 232	20,51 @ 213	25,40 @ 186	30,61 @ 147
45,4 LPM	2,26 @ 434	4,77 @ 424	9,89 @ 394	15,21 @ 381	20,41 @ 362	25,29 @ 335	30,50 @ 297
60,6 LPM	2,15 @ 581	4,66 @ 572	9,77 @ 544	15,10 @ 534	20,29 @ 512	25,17 @ 486	30,40 @ 445
75,7 LPM	2,05 @ 732	4,54 @ 722	9,65 @ 694	14,98 @ 682	20,17 @ 663	25,06 @ 636	30,30 @ 445
94,6 LPM	1,91 @ 921	4,41 @ 910	9,51 @ 881	14,84 @ 870	20,02 @ 851	24,94 @ 824	30,17 @ 784
113,6 LPM	1,77 @ 1111	4,26 @ 1102	9,37 @ 1070	14,71 @ 1059	19,90 @ 1038	24,79 @ 1012	30,02 @ 973
132,5 LPM	1,64 @ 1298	4,14 @ 1289	9,24 @ 1258	14,59 @ 1244	19,78 @ 1226	24,66 @ 1200	29,89 @ 1162
151,4 LPM	1,48 @ 1481	4,00 @ 1472	9,10 @ 1444	14,44 @ 1432	19,63 @ 1413	24,50 @ 1386	29,75 @ 1348
189,5 LPM	1,21 @ 1857	3,04 @ 1847	8,84 @ 1818	14,18 @ 1805	19,36 @ 1788	24,25 @ 1760	29,47 @ 1723
227,4 LPM	0,95 @ 2233	3,46 @ 2222	8,57 @ 2194	13,90 @ 2182	19,10 @ 2163	23,98 @ 2135	29,22 @ 2097

**Torque Ranges Shown as "daNm @ rpm" for
131,2 cm³/revolution displacement RSC units**

Continuous Operation

Intermittent Operation - Less than Six Sec. / Min.

	17,2 BAR	34,5 BAR	69 BAR	103,4 BAR	137,9 BAR	172,4 BAR	206,8 BAR
3,8 LPM	3,37 @ 12	6,88 @ 5					
7,6 LPM	3,32 @ 41	6,85 @ 34	13,76 @ 17				
15,1 LPM	3,30 @ 99	6,78 @ 91	13,75 @ 74	20,79 @ 59	27,69 @ 40	34,24 @ 19	
30,3 LPM	3,15 @ 212	6,63 @ 205	13,61 @ 186	20,65 @ 173	27,62 @ 153	34,18 @ 131	40,23 @ 103
45,4 LPM	3,01 @ 310	6,49 @ 302	13,46 @ 285	20,50 @ 270	27,47 @ 250	34,04 @ 227	40,08 @ 199
60,6 LPM	2,86 @ 440	6,35 @ 432	13,32 @ 416	20,36 @ 401	27,32 @ 382	33,89 @ 360	39,82 @ 330
75,7 LPM	2,72 @ 554	6,20 @ 546	13,18 @ 530	20,22 @ 513	27,18 @ 495	33,74 @ 474	39,78 @ 444
94,6 LPM	2,54 @ 696	6,02 @ 690	13,00 @ 670	20,02 @ 657	27,00 @ 638	33,56 @ 615	39,60 @ 587
113,6 LPM	2,36 @ 838	5,84 @ 831	12,80 @ 814	19,84 @ 798	26,81 @ 779	33,38 @ 756	39,41 @ 728
132,5 LPM	2,18 @ 980	5,65 @ 972	12,62 @ 956	19,66 @ 942	26,62 @ 922	33,37 @ 900	39,23 @ 872
151,4 LPM	2,00 @ 1122	5,48 @ 1115	12,45 @ 1097	19,49 @ 1083	26,44 @ 1064	33,02 @ 1040	39,05 @ 1012
189,5 LPM	1,64 @ 1046	5,12 @ 1406	12,08 @ 1380	19,12 @ 1367	26,08 @ 1348	32,66 @ 1326	38,69 @ 1295
227,4 LPM	1,28 @ 1691	4,76 @ 1682	11,72 @ 1665	18,72 @ 1650	25,72 @ 1632	32,30 @ 1610	38,33 @ 1556

- Notes: 1. Performance data shown on this page is typical at 33cSt fluid viscosity. Actual data may vary slightly from unit to unit in production.
2. All numbers subject to change without notice. Always confirm with us that you are working with the most current data.



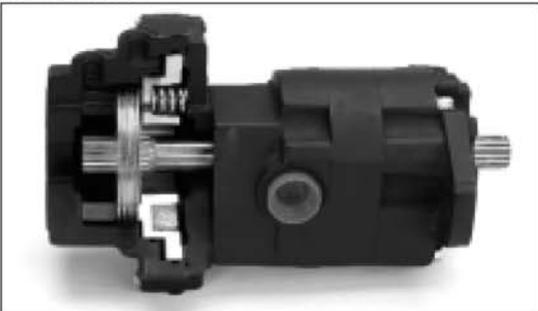
Torque Ranges Shown as "daNm @ rpm" for 164,0 cm³/revolution displacement RSC units

FLOW RATE	Continuous Operation					Intermittent Operation – Less than Six Sec. / Min.	
	17,2 BAR	34,5 BAR	69 BAR	103,4 BAR	137,9 BAR	172,4 BAR	206,8 BAR
3,8 LPM	4,18 @ 16	8,59 @ 7					
7,6 LPM	4,20 @ 38	8,68 @ 31	17,46 @ 22				
15,1 LPM	4,18 @ 84	8,64 @ 78	17,40 @ 69	26,44 @ 42	35,01 @ 28	43,21 @ 16	
30,3 LPM	4,00 @ 169	8,46 @ 163	17,23 @ 148	26,22 @ 135	35,02 @ 122	43,17 @ 111	51,25 @ 81
45,4 LPM	3,82 @ 258	8,28 @ 252	17,03 @ 238	26,08 @ 226	34,85 @ 212	42,99 @ 200	51,06 @ 182
60,6 LPM	3,65 @ 353	8,10 @ 344	16,86 @ 332	25,88 @ 318	34,67 @ 305	42,77 @ 292	50,85 @ 274
75,7 LPM	3,46 @ 443	7,91 @ 436	16,67 @ 424	25,71 @ 412	34,47 @ 398	42,60 @ 386	50,66 @ 367
94,6 LPM	3,22 @ 556	7,71 @ 550	16,42 @ 536	25,47 @ 522	34,26 @ 510	42,40 @ 498	50,45 @ 480
113,6 LPM	3,01 @ 671	7,48 @ 666	16,22 @ 652	25,26 @ 639	34,01 @ 625	42,15 @ 612	50,24 @ 594
132,5 LPM	2,77 @ 784	7,23 @ 780	15,99 @ 765	25,04 @ 752	33,80 @ 739	41,93 @ 727	50,03 @ 707
151,4 LPM	2,55 @ 902	6,99 @ 894	15,77 @ 882	24,79 @ 868	33,56 @ 855	41,72 @ 844	49,78 @ 825
189,5 LPM	2,09 @ 1125	6,57 @ 1119	15,32 @ 1105	24,34 @ 1093	33,12 @ 1080	41,25 @ 1068	49,32 @ 1049
227,4 LPM	1,65 @ 1350	6,10 @ 1346	14,83 @ 1331	23,87 @ 1322	32,66 @ 1308	40,77 @ 1296	48,85 @ 1276

Notes: 1. Performance data shown on this page is typical at 33cSt fluid viscosity. Actual data may vary slightly from unit to unit in production.
2. All numbers subject to change without notice. Always confirm with us that you are working with the most current data.

POWER TRAIN ACCESSORIES

Motor Brakes



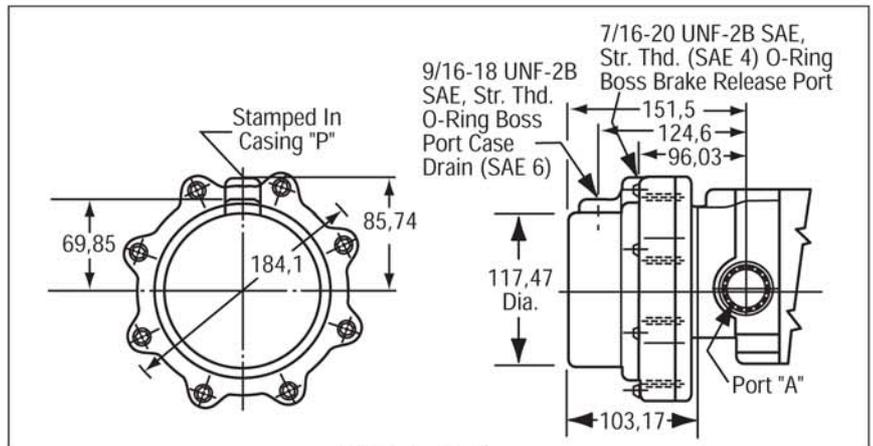
All Rol-Seal® motors can be equipped with a rear-mounted, normally on, wet friction disc type brakes. They will prevent creep under high static loads which might result from system leakage. They also should be used where positive locking of the motor shaft is required.

Maximum Release Pressure: 206,85 BAR

Oil Volume: 9,8 cm³ for full release

Minimum Holding Capacity: See chart. Note that chart data assumes the use of mineral-based oil with no back pressure in release line.

In applications where excessive holding torque is a concern, please consult factory.



Brake Model	Minimum Holding Capacity at 17,2 BAR Release Pressure	Brake Model	Minimum Holding Capacity at 8,61 BAR Release Pressure
222	10,62 daNm	232	5,3 daNm
223	15,9 daNm	233	7,9 daNm
224	21,3 daNm	234	10,6 daNm
226	31,8 daNm	236	15,9 daNm
228	42,4 daNm	238	31,3 daNm
220	58,4 daNm	230	29,2 daNm

Notes: 1. Dimensions shown are in mm. Always confirm with us that you are working with the most current data.
2. All numbers are subject to change without notice.



Planetary Gear Boxes

In addition to brakes, LÖSI GmbH also can equip any of our Rol-Seal motors with a wide variety of Planetary Gearboxes. As you can see from the chart below, RSA Series units can be configured to meet virtually any application.

For those where space is a primary consideration, please take special note of our Series 200 offering. By incorporating the available Gear Reduction option, a 98,3, 131,0 or 164,0 cm³ displacement RSA motor and Series 200 gearbox can produce amazing torques from a surprisingly small overall package.



Gearbox Series	Maximum Output Torque N-M		Maximum Input Speed at No Load RPM	Maximum Shaft Radial Load/Inward Thrust Load in KG, (Reference Only)	Reduction Stages	Available Gear Reduction Ratios				
	Continuous	Intermittent								
200	1412	2372	2,000	2,948/1,814	SINGLE	5.19	5.86			
	1638	2711	2,500			7.07				
	1694	2824	2,000			8.06	9.95			
220	1130/2260		3,000	6,350/4,536	SINGLE	4.08	5.05			
			3,000		DOUBLE	16.65	20.62	25.53		
			3,000		TRIPLE	67.91	84.1	104.51	128.98	
						(Other ratios available up to 3284:1)				
280	1582/3164		3,000	6,350/4,536	SINGLE	4.08	5.05			
			3,000		DOUBLE	16.65	20.62	25.53		
			3,000		TRIPLE	67.91	84.1	104.51	128.98	
						(Other ratios available up to 3284:1)				
500	2825/5649		3,000	9,979/6,804	SINGLE	4.08	5.05			
			3,000		DOUBLE	16.65	20.62	25.53		
			3,000		TRIPLE	67.91	84.1	104.51	128.98	
						(Other ratios available up to 3284:1)				
616	2824/3728		1,800	8,165/3,538	SINGLE	5.2				
1300	7344/14689		3,000	20,412/13,608	SINGLE	4.42	6.00			
			3,000		DOUBLE	19.54	26.32	33.15	36	45
			3,000		TRIPLE	86.35	47.21	159.12	216	
						(Other ratios available up to 2276:1)				
2500	14,125/28,250		3,000	16,330/17,690	DOUBLE	20.25	25.88	29.58		
						(Other ratios available up to 6630:1)				
2520	14,125/28,250		3,000	23,134/19,958	DOUBLE	20.25	25.88	29.58		
					37.80	40.25	51.43			
					(Other ratios available up to 6630:1)					
6000	33894/67788		4,000	25,855/40,824	DOUBLE	24.66	38.56	60.29		
			4,000		70.39	89.38				
			4,000		110.08	139.76				
						(Other ratios available up to 90,000:1)				
10000	56480/112980		4,000	25,855/40,824	DOUBLE	26.48	41.41			
			4,000		75.60	96.00				
						(Other ratios available up to 62,000:1)				

Notes: All data subject to change without notice. Always confirm with us that you are working with the most current data.



Hydraulic Motors, Rol-Seal Units RSC Series - MODEL CODES/ORDERING

METRIC.

ROL-SEAL MOTORS/BRAKES/SAE GEAR BOXES

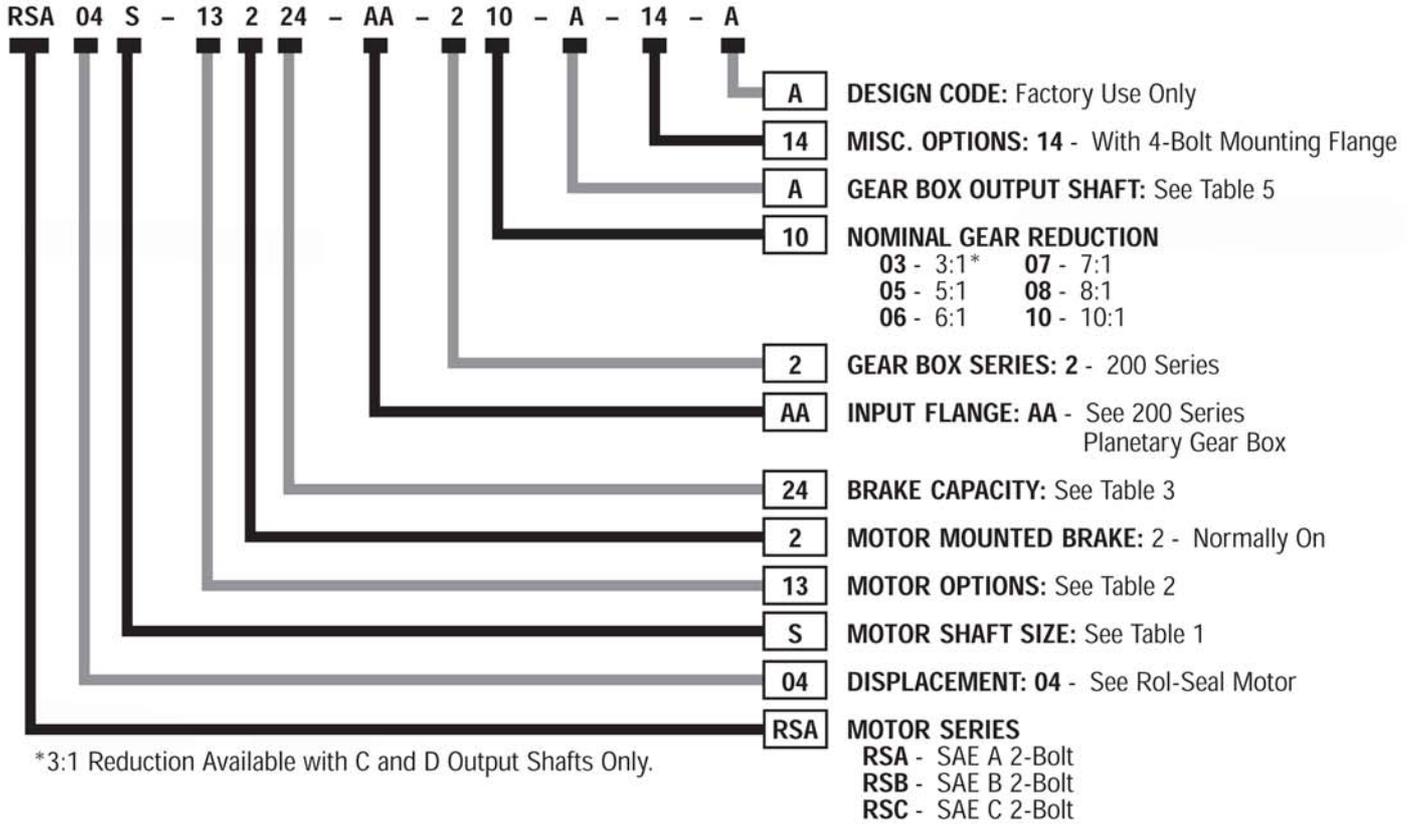


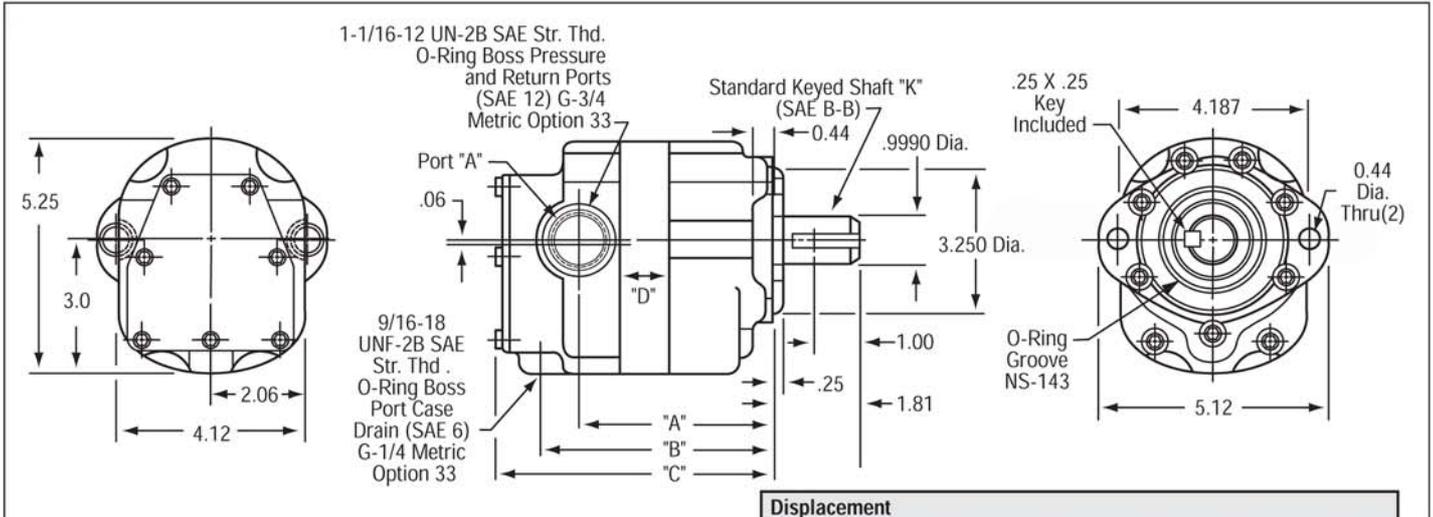
Table 1 MOTOR SHAFT SIZES	Table 2 MOTOR OPTIONS	Table 3 BRAKE CAPACITY														
RSA K - ø 25,4 Keyed (6,35 key) S - 13 Tooth 16/32 Pitch Spline ø 22,2 RSB K - ø 25,4 Keyed (6,35 key) S - 13 Tooth 16/32 Pitch Spline ø 22,2 RSC K - ø 38,1 Keyed (9,52 key) S - 14 Tooth 12/24 Pitch Spline ø 31,75 METRIC M - 25mm Keyed - RSA/B (8x7x32) 35mm Keyed - RSC (10x8x36) KEYS INCLUDED	13 - Viton Seals 24 - Internal Drain 27 - Front Sealing Cap (RSB & RSC Only) 28 - Tach. Adapter 33 - Side Ports 180° Metric (BSPP) RSA/B Work Ports G 3/4 Drain Port G 1/4 RSC Work Ports G 1 Drain Port G 1/2 34A - Manifold, .62" Ports, 4 Bolt 34B - Manifold, .62" Ports, 3 Bolt 34C - Rear Ports, SAE 12 34D - Side Ports, SAE 12 34AM - Manifold, Metric 15,7 Ports, 4 Bolt 34BM - Manifold, Metric 15,7 Ports, 3 Bolt 34CM - Metric Rear Ports G 3/4 34DM - Metric Side Ports Ports G 3/4 49 - Splined Rear Shaft Extension 50 - Steel Timing Gears (RSA/RSB, Standard on RSC Series) 52 - For 95/5 Fluids	<table border="1"> <thead> <tr> <th>17,2 BAR Release</th> <th>8,61 BAR Release</th> </tr> </thead> <tbody> <tr> <td>22 10,62 daNM</td> <td>32 5,3 daNM</td> </tr> <tr> <td>23 15,9 daNM</td> <td>33 7,9 daNM</td> </tr> <tr> <td>24 21,3 daNM</td> <td>34 10,6 daNM</td> </tr> <tr> <td>26 31,8 daNM</td> <td>36 15,9 daNM</td> </tr> <tr> <td>28 42,4 daNM</td> <td>38 31,3 daNM</td> </tr> <tr> <td>20 58,4 daNM</td> <td>30 29,2 daNM</td> </tr> </tbody> </table>	17,2 BAR Release	8,61 BAR Release	22 10,62 daNM	32 5,3 daNM	23 15,9 daNM	33 7,9 daNM	24 21,3 daNM	34 10,6 daNM	26 31,8 daNM	36 15,9 daNM	28 42,4 daNM	38 31,3 daNM	20 58,4 daNM	30 29,2 daNM
17,2 BAR Release	8,61 BAR Release															
22 10,62 daNM	32 5,3 daNM															
23 15,9 daNM	33 7,9 daNM															
24 21,3 daNM	34 10,6 daNM															
26 31,8 daNM	36 15,9 daNM															
28 42,4 daNM	38 31,3 daNM															
20 58,4 daNM	30 29,2 daNM															
		Table 5 GEAR BOX OUTPUT SHAFTS A - ø 53,97 Straight Keyed (12,7 key) B - 16 Tooth 8/16 Pitch Spline ø 53,97 C - ø 47,6 Straight Keyed (12,7 key) D - 13 Tooth 8/16 Pitch Spline ø 44,4														



Hydraulic Motors, Rol-Seal® Units RSA Series - DIMENSIONS & PERFORMANCE DATA

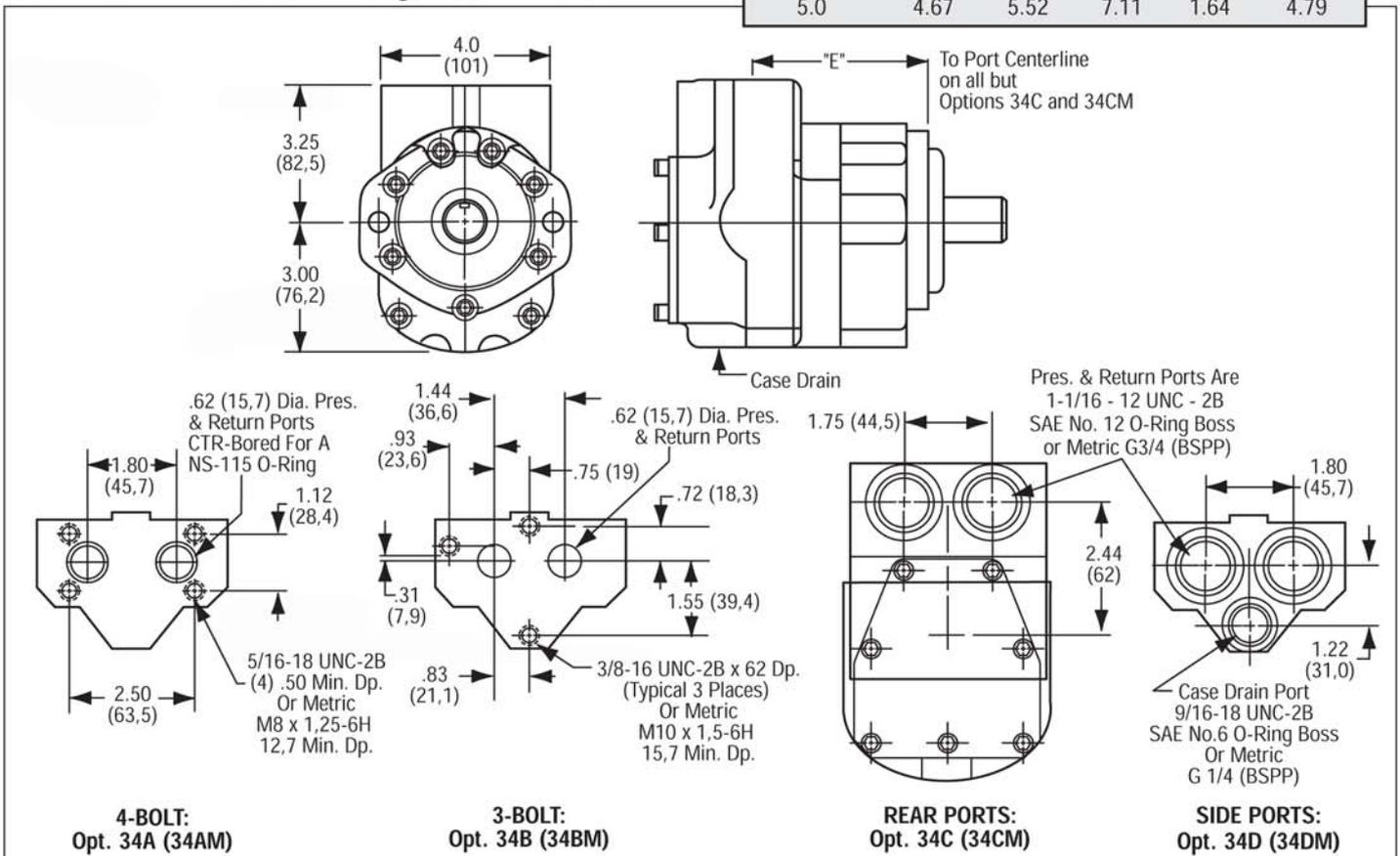
ENGLISH.

WITH SAE A 2-BOLT FLANGE & SIDE PORTS @ 180°



Displacement in³/Rev.	A	B	C	D	E
2.0	3.68	4.53	6.12	.65	3.80
3.0	4.02	4.87	6.46	.99	4.14
4.0	4.34	5.19	6.78	1.31	4.46
5.0	4.67	5.52	7.11	1.64	4.79

WITH MANIFOLD MOUNT and END OR SIDE PORTS - English & (Metric)



Note: 1. All dimensions in inches and subject to change without notice. Always confirm with us that you are working with the most current data.
2. Consult factory for specific machining tolerances.

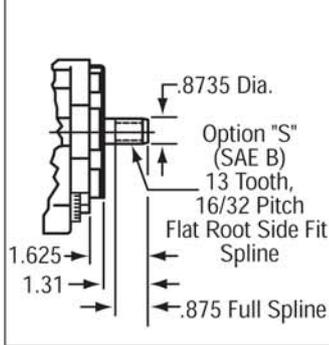


Hydraulic Motors, Rol-Seal Units RSA Series - DIMENSIONS & PERFORMANCE DATA

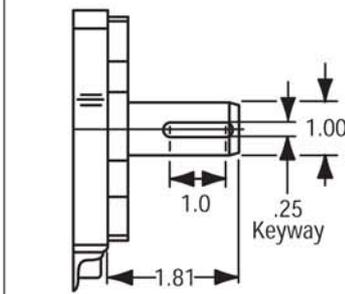
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OUTPUT SHAFT OPTIONS

**RSA "S" Option
Spline Output Shaft**

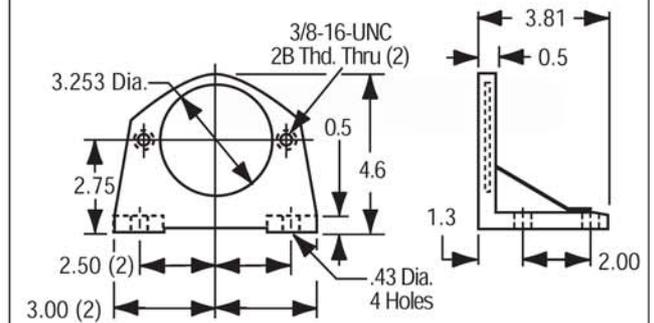


**RSA Captured Key Option
Output Shaft**



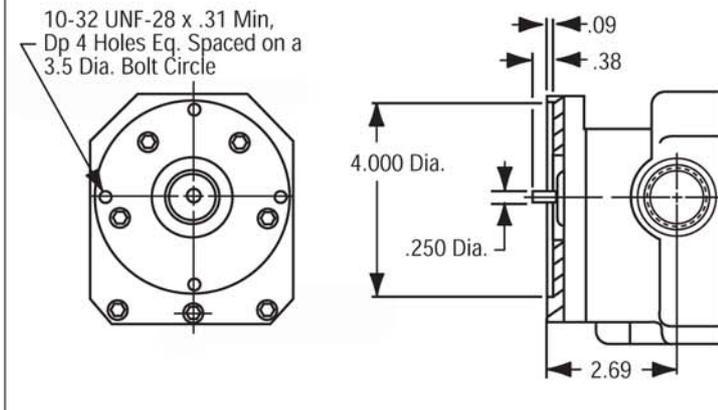
AVAILABLE FOOT MOUNTING BRACKET

Part # 63021

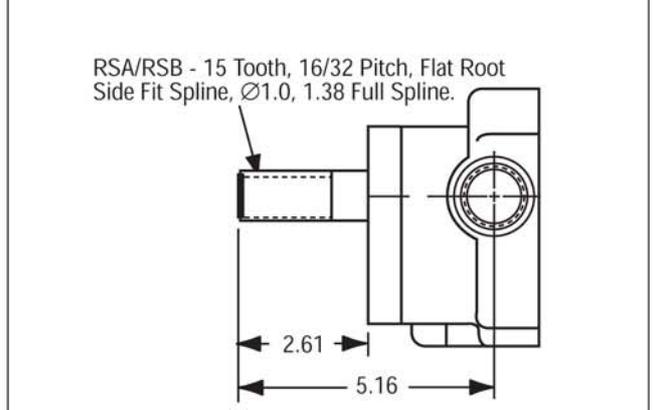


REAR SHAFT EXTENSION OPTIONS

Tachometer/Encoder Shaft (Option 28)



Rear Shaft Spline Extension (Option 49)



Note: 1. All dimensions in inches and subject to change without notice. Always confirm with us that you are working with the most current data.
2. Consult factory for specific machining tolerances.



Hydraulic Motors, Rol-Seal Units RSA Series - DIMENSIONS & PERFORMANCE DATA

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PERFORMANCE OVERVIEW FOR ROL-SEAL MOTORS

		DISPLACEMENT (in ³ /rev.)						
		Models RSA & RSB				Model RSC		
		2.0	3.0	4.0	5.0	6.0	8.0	10.0
Flow (GPM)	Continuous	18	20	18	17	39	42	39
	Intermittent	31	39	44	39	52	59	61
Max. Speed (RPM)	Continuous	2000	1500	1000	750	1500	1200	900
	Intermittent	3500	3000	2500	1800	2000	1700	1400
ΔPressure (PSI)	Continuous	2500	2250	2000	2000	2000	2000	2000
	Intermittent	3000	3000	3000	3000	3000	3000	3000
	Peak	3750	3750	3500	3500	3500	3500	3500
Max. Theoretical Torque (lb. in.)	Continuous	796	1075	1273	1592	1910	2547	3184
	Intermittent	955	1433	1910	2388	2866	3821	4777
Weight (lb.)		13	14	15	16	36	39	42

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.

Shaft Radial and Thrust Load Capacity

Model	Radial	Thrust
RSA & RSB*	600 lbs.	600 lbs.
RSC*	1000 lbs.	1000 lbs.

Radial load capacity is based on load located 1" from mounting flange on RSA & RSB Series units and 1.5" from mounting flange on RSC units.

Rotational Moment of Inertia (WK²)

Model	Displacement (in ³ /rev)	lb-in ²
RSA & RSB*	2.0	1.23
RSA & RSB*	3.0	1.42
RSA & RSB*	4.0	1.61
RSA & RSB*	5.0	1.80
RSC*	6.0	7.25
RSC*	8.0	8.15
RSC*	10.0	9.04

* Regarding RSB and RSC Series Motors: Though dimensioned differently, RSB motors have the same performance characteristics as the RSA motors described on these pages. RSC motors are designed for heavier applications.

Torque Ranges Shown as "lb. in. @ rpm" for 2.0 in³/revolution displacement RSA & RSB units

FLOW RATE	Continuous Operation				Intermittent Operation - Less than Six Sec. / Min.		
	250 PSI	500 PSI	1000 PSI	1500 PSI	2000 PSI	2500 PSI	3000 PSI
.25 GPM	67 @ 9						
.5 GPM	67 @ 38	146 @ 23					
1 GPM	66 @ 95	146 @ 81	293 @ 57	440 @ 28			
2 GPM	66 @ 210	144 @ 196	290 @ 156	438 @ 140	585 @ 99	735 @ 56	
4 GPM	64 @ 440	138 @ 431	285 @ 389	434 @ 376	581 @ 330	731 @ 289	885 @ 237
8 GPM	59 @ 902	133 @ 869	280 @ 857	429 @ 830	576 @ 785	726 @ 742	876 @ 694
12 GPM	55 @ 1360	129 @ 1320	276 @ 1299	425 @ 1282	572 @ 1227	722 @ 1182	872 @ 1133
16 GPM	51 @ 1812	125 @ 1772	272 @ 1750	421 @ 1734	568 @ 1679	718 @ 1634	868 @ 1585
20 GPM	47 @ 2264	121 @ 2224	268 @ 2202	417 @ 2186	564 @ 2130	714 @ 2085	864 @ 2035
25 GPM	42 @ 2829	116 @ 2789	263 @ 2767	412 @ 2750	559 @ 2694	709 @ 2650	859 @ 2599
30 GPM	37 @ 3393	111 @ 3353	258 @ 3331	407 @ 3314	554 @ 3258	704 @ 3213	854 @ 3165
35 GPM							
40 GPM							

Notes: 1. Performance data shown above is typical at 156 SSU fluid viscosity. Actual data may vary slightly from unit to unit in production.
2. All numbers subject to change without notice. Always confirm with us that you are working with the most current data.



Hydraulic Motors, Rol-Seal Units RSA Series - DIMENSIONS & PERFORMANCE DATA

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Torque Ranges Shown as "lb. in. @ rpm" for
3.0 in³/revolution displacement RSA & RSB units

Continuous Operation

Intermittent Operation - Less than Six Sec. / Min.

	250 PSI	500 PSI	1000 PSI	1500 PSI	2000 PSI	2500 PSI	3000 PSI	
FLOW RATE	.25 GPM	108 @ 4						
	.5 GPM	108 @ 23		226 @ 10				
	1 GPM	107 @ 61	225 @ 48	451 @ 29				
	2 GPM	104 @ 137	222 @ 125	448 @ 96	674 @ 67	898 @ 39	1120 @ 10	
	4 GPM	99 @ 291	217 @ 279	443 @ 250	669 @ 220	893 @ 192	1115 @ 163	1338 @ 134
	8 GPM	89 @ 598	207 @ 587	433 @ 558	659 @ 528	883 @ 500	1105 @ 470	1328 @ 442
	12 GPM	79 @ 907	197 @ 895	423 @ 865	649 @ 835	873 @ 808	1095 @ 778	1318 @ 750
	16 GPM	69 @ 1217	187 @ 1203	413 @ 1172	639 @ 1140	863 @ 1114	1085 @ 1085	1308 @ 1055
	20 GPM	59 @ 1523	177 @ 1510	403 @ 1481	629 @ 1450	853 @ 1422	1075 @ 1394	1298 @ 1361
	25 GPM	46 @ 1907	164 @ 1895	390 @ 1864	616 @ 1832	840 @ 1800	1062 @ 1775	1285 @ 1745
	30 GPM	33 @ 2290	151 @ 2279	377 @ 2245	603 @ 2216	827 @ 2182	1049 @ 2155	1272 @ 2128
35 GPM	20 @ 2675	138 @ 2664	364 @ 2627	590 @ 2595	814 @ 2565	1036 @ 2538	1259 @ 2509	
40 GPM	7 @ 3061	125 @ 3048	351 @ 3010	577 @ 2978	801 @ 2946	1023 @ 2919	1246 @ 2890	

Torque Ranges Shown as "lb. in. @ rpm" for
4.0 in³/revolution displacement RSA & RSB units

Continuous Operation

Intermittent Operation - Less than Six Sec. / Min.

	250 PSI	500 PSI	1000 PSI	1500 PSI	2000 PSI	2500 PSI	3000 PSI	
FLOW RATE	.25 GPM	148 @ 2						
	.5 GPM	148 @ 17		313 @ 8				
	1 GPM	146 @ 45	311 @ 37	612 @ 16				
	2 GPM	143 @ 102	308 @ 94	609 @ 80	910 @ 61	1211 @ 42	1512 @ 29	
	4 GPM	136 @ 216	301 @ 207	602 @ 195	904 @ 179	1205 @ 157	1506 @ 139	1807 @ 105
	8 GPM	123 @ 442	288 @ 433	589 @ 418	890 @ 399	1191 @ 380	1492 @ 360	1793 @ 325
	12 GPM	110 @ 669	275 @ 660	576 @ 639	877 @ 620	1178 @ 601	1479 @ 581	1780 @ 546
	16 GPM	97 @ 891	262 @ 881	563 @ 860	864 @ 840	1165 @ 821	1466 @ 802	1767 @ 766
	20 GPM	84 @ 1113	249 @ 1104	550 @ 1081	851 @ 1060	1152 @ 1042	1453 @ 1023	1754 @ 987
	25 GPM	68 @ 1392	233 @ 1382	534 @ 1357	835 @ 1337	1136 @ 1318	1437 @ 1299	1738 @ 1263
	30 GPM	52 @ 1668	217 @ 1657	518 @ 1633	819 @ 1613	1120 @ 1594	1421 @ 1575	1722 @ 1539
35 GPM	36 @ 1944	201 @ 1934	502 @ 1909	803 @ 1889	1104 @ 1870	1405 @ 1850	1706 @ 1815	
40 GPM	20 @ 2220	185 @ 2209	486 @ 2184	787 @ 2165	1088 @ 2164	1389 @ 2126	1690 @ 2091	

Notes: 1. Performance data shown above is typical at 156 SSU fluid viscosity. Actual data may vary slightly from unit to unit in production.
2. All numbers subject to change without notice. Always confirm with us that you are working with the most current data.



Hydraulic Motors, Rol-Seal Units RSA Series - DIMENSIONS & PERFORMANCE DATA

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Torque Ranges Shown as "lb. in. @ rpm" for
5.0 in³/revolution displacement RSA & RSB units

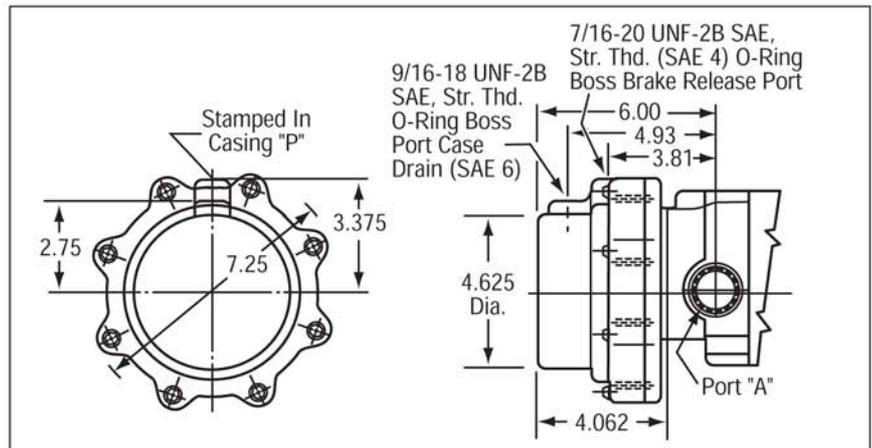
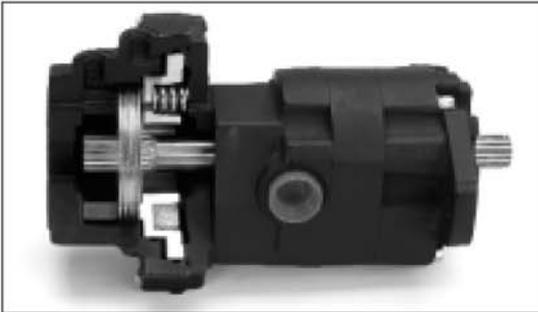
Continuous Operation Intermittent Operation - Less than Six Sec. / Min.

	250 PSI	500 PSI	1000 PSI	1500 PSI	2000 PSI	2500 PSI	3000 PSI
FLOW GPM							
.25 GPM							
.5 GPM	180 @ 11	368 @ 6					
1 GPM	180 @ 34	370 @ 29	755 @ 2				
2 GPM	178 @ 79	366 @ 74	756 @ 49	1123 @ 30	1500 @ 9		
4 GPM	175 @ 169	358 @ 165	750 @ 144	1115 @ 123	1496 @ 102	1860 @ 83	2220 @ 59
8 GPM	159 @ 350	342 @ 344	734 @ 324	1099 @ 303	1480 @ 283	1844 @ 261	2204 @ 239
12 GPM	143 @ 530	326 @ 522	718 @ 507	1083 @ 486	1464 @ 465	1832 @ 444	2188 @ 422
16 GPM	127 @ 712	310 @ 705	702 @ 688	1067 @ 667	1448 @ 646	1816 @ 625	2172 @ 602
20 GPM	111 @ 895	295 @ 885	686 @ 867	1051 @ 848	1432 @ 827	1800 @ 806	2156 @ 784
25 GPM	91 @ 1120	275 @ 1110	666 @ 1094	1031 @ 1073	1412 @ 1053	1780 @ 1033	2135 @ 1009
30 GPM	70 @ 1345	255 @ 1334	646 @ 1321	1011 @ 1301	1392 @ 1279	1760 @ 1258	2116 @ 1235
35 GPM	51 @ 1570	235 @ 1558	626 @ 1546	991 @ 1526	1372 @ 1505	1740 @ 1484	2095 @ 1462
40 GPM	30 @ 1795	215 @ 1785	606 @ 1773	971 @ 1751	1352 @ 1731	1719 @ 1710	2076 @ 1687

Note: Performance data shown on chart at top is typical at 156 SSU fluid viscosity. Actual data may vary slightly from unit to unit in production.

POWER TRAIN ACCESSORIES

Motor Brakes



All Rol-Seal[®] motors can be equipped with a rear-mounted, normally on, wet friction disc type brakes. They will prevent creep under high static loads which might result from system leakage. They also should be used where positive locking of the motor shaft is required.

Maximum Release Pressure: 3000 PSI

Oil Volume: .6 in.³ for full release

Minimum Holding Capacity: See chart. Note that chart data assumes the use of mineral-based oil with no back pressure in release line.

In applications where excessive holding torque is a concern, please consult factory.

Brake Model	Minimum Holding Capacity at 250 PSI Release Pressure	Brake Model	Minimum Holding Capacity at 125 PSI Release Pressure
222	940 lb/in	232	470 lb/in
223	1410 lb/in	233	705 lb/in
224	1885 lb/in	234	940 lb/in
226	2820 lb/in	236	1410 lb/in
228	3760 lb/in	238	1885 lb/in
220	5170 lb/in	230	2585 lb/in

Note: 1. All dimensions in inches and subject to change without notice. Always confirm with us that you are working with the most current data.
2. Consult factory for specific machining tolerances.



Hydraulic Motors, Rol-Seal Units RSA Series - DIMENSIONS & PERFORMANCE DATA

ENGLISH.

Planetary Gear Boxes

In addition to brakes, Lösi GmbH also can equip any of our Rol-Seal motors with a wide variety of Planetary Gearboxes. As you can see from the chart below, RSA Series units can be configured to meet virtually any application.

For those where space is a primary consideration, please take special note of our Series 200 offering. By incorporating the available Gear Reduction option, a 2, 3, 4, or 5 in³ displacement RSA motor and Series 200 gearbox can produce amazing torques from a surprisingly small overall package.

Complete dimensional and performance data for all our planetary gearboxes is available in either English or Metric



Gearbox Series	Maximum Output Torque LB-Inches Continuous/Intermittent	Maximum Input Speed at No Load RPM	Maximum Shaft Radial Load/Inward Thrust Load in lbs, (Reference Only)	Reduction Stages	Available Gear Reduction Ratios				
200	12,500/21,000	2,000	6,500/4,000	SINGLE	5.19	5.86			
	14,500/24,000	2,500			7.07				
	15,000/25,000	2,000			8.06	9.95			
220	10,000/20,000	3,000	14,000/10,000	SINGLE	4.08	5.05			
		3,000		DOUBLE	16.65	20.62	25.53		
		3,000		TRIPLE	67.91	84.1	104.51	128.98	
					(Other ratios available up to 3284:1)				
280	14,000/28,000	3,000	14,000/10,000	SINGLE	4.08	5.05			
		3,000		DOUBLE	16.65	20.62	25.53		
		3,000		TRIPLE	67.91	84.1	104.51	128.98	
					(Other ratios available up to 3284:1)				
500	25,000/50,000	3,000	22,000/15,000	SINGLE	4.08	5.05			
		3,000		DOUBLE	16.65	20.62	25.53		
		3,000		TRIPLE	67.91	84.1	104.51	128.98	
					(Other ratios available up to 3284:1)				
616	27,500/33,000	1,800	18,000/7,800	SINGLE	5.2				
1300	65,000/130,000	3,000	45,000/30,000	SINGLE	4.42	6.00			
		3,000		DOUBLE	19.54	26.32	33.15	36	45
		3,000		TRIPLE	86.35	47.21	159.12	216	
					(Other ratios available up to 2276:1)				
2500	125,000/250,000	3,000	36,000/39,000	DOUBLE	20.25	25.88	29.58		
					37.80	40.25	51.43		
					(Other ratios available up to 6630:1)				
2520	125,000/250,000	3,000	51,000/44,000	DOUBLE	20.25	25.88	29.58		
					37.80	40.25	51.43		
					(Other ratios available up to 6630:1)				
6000	300,000/600,000	4,000	57,000/90,000	DOUBLE	24.66	38.56	60.29		
		4,000			70.39	89.38			
		4,000			110.08	139.76			
					(Other ratios available up to 90,000:1)				
10000	500,000/1,000,000	4,000	57,000/90,000	DOUBLE	26.48	41.41			
		4,000			75.60	96.00			
					(Other ratios available up to 62,000:1)				

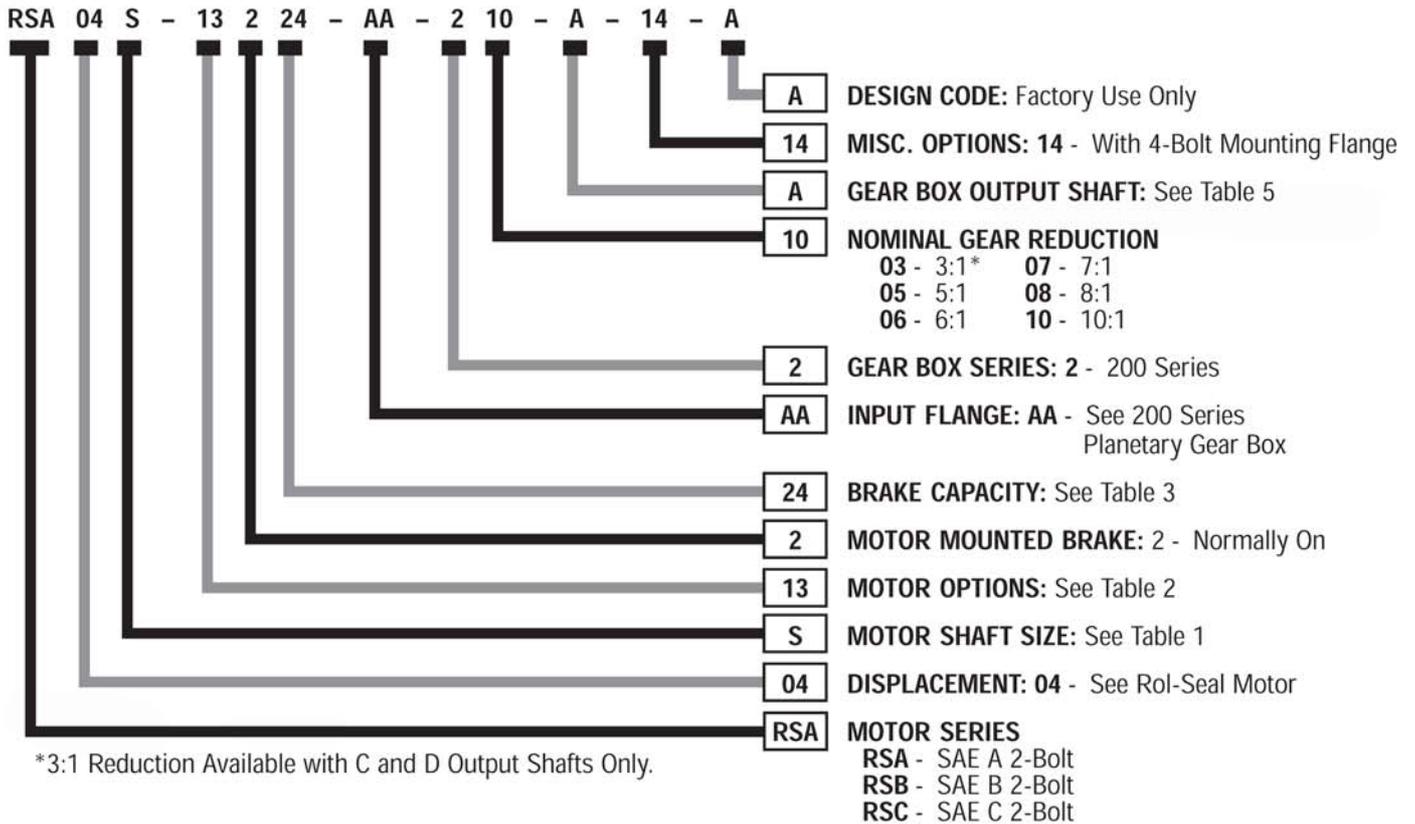
Notes: All data subject to change without notice. Always confirm with us that you are working with the most current data.



Hydraulic Motors, Rol-Seal Units RSA Series - MODEL CODES/ORDERING

ENGLISH.

ROL-SEAL MOTORS/BRAKES/SAE GEAR BOXES



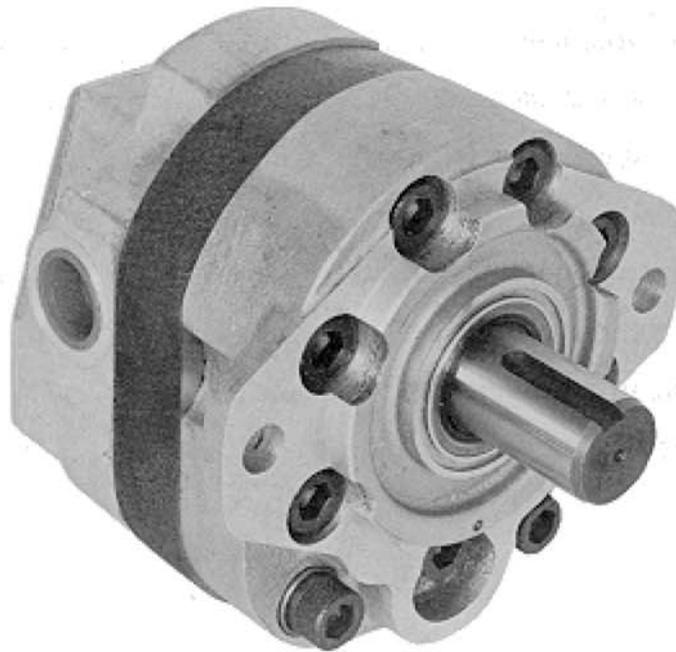
<p>Table 1 MOTOR SHAFT SIZES</p> <p>RSA K - ø1" Keyed (.25" key) S - 13 Tooth 16/32 Pitch Spline ø .875"</p> <p>RSB K - ø1" Keyed (.25" key) S - 13 Tooth 16/32 Pitch Spline ø .875"</p> <p>RSC K - ø 1.5" Keyed (.375" key) S - 14 Tooth 12/24 Pitch Spline ø 1.25"</p> <p>METRIC M - 25mm Keyed - RSA/B (8x7x32) 35mm Keyed - RSC (10x8x36)</p> <p>KEYS INCLUDED</p>	<p>Table 2 MOTOR OPTIONS</p> <p>13 - Viton Seals 24 - Internal Drain 27 - Front Sealing Cap (RSB & RSC Only) 28 - Tach. Adapter 33 - Side Ports 180° Metric (BSPP) RSA/B Work Ports G 3/4 Drain Port G 1/4 RSC Work Ports G 1 Drain Port G 1/2</p> <p>34A - Manifold, .62" Ports, 4 Bolt 34B - Manifold, .62" Ports, 3 Bolt 34C - Rear Ports, SAE 12 34D - Side Ports, SAE 12 34AM - Manifold, Metric 15,7 Ports, 4 Bolt 34BM - Manifold, Metric 15,7 Ports, 3 Bolt 34CM - Metric Rear Ports G 3/4 34DM - Metric Side Ports G 3/4 49 - Splined Rear Shaft Extension 50 - Steel Timing Gears (RSA/RSB, Standard on RSC Series) 52 - For 95/5 Fluids</p>	<p>Table 3 BRAKE CAPACITY</p> <table border="1"> <thead> <tr> <th>250 PSI Release</th> <th>125 PSI Release</th> </tr> </thead> <tbody> <tr> <td>22 940 lb/in</td> <td>32 470 lb/in</td> </tr> <tr> <td>23 1410 lb/in</td> <td>33 705 lb/in</td> </tr> <tr> <td>24 1885 lb/in</td> <td>34 940 lb/in</td> </tr> <tr> <td>26 2820 lb/in</td> <td>36 1410 lb/in</td> </tr> <tr> <td>28 3760 lb/in</td> <td>38 1885 lb/in</td> </tr> <tr> <td>20 1570 lb/in</td> <td>30 2585 lb/in</td> </tr> </tbody> </table> <p>Table 5 GEAR BOX OUTPUT SHAFTS</p> <p>A - ø 2.125" Straight Keyed (.5" key) B - 16 Tooth 8/16 Pitch Spline ø 2.125" C - ø 1.875" Straight Keyed (.5" key) D - 13 Tooth 8/16 Pitch Spline ø 1.75"</p>	250 PSI Release	125 PSI Release	22 940 lb/in	32 470 lb/in	23 1410 lb/in	33 705 lb/in	24 1885 lb/in	34 940 lb/in	26 2820 lb/in	36 1410 lb/in	28 3760 lb/in	38 1885 lb/in	20 1570 lb/in	30 2585 lb/in
250 PSI Release	125 PSI Release															
22 940 lb/in	32 470 lb/in															
23 1410 lb/in	33 705 lb/in															
24 1885 lb/in	34 940 lb/in															
26 2820 lb/in	36 1410 lb/in															
28 3760 lb/in	38 1885 lb/in															
20 1570 lb/in	30 2585 lb/in															



ROL-SEAL® MOTOR

**ROLLING ABUTMENT TYPE
MODELS RSA, RSB AND RSC**

MAINTENANCE AND PARTS MANUAL





MODELS RSA, RSB AND RSC

ROL-SEAL® MOTOR

INSTRUCTION MANUAL

INTRODUCTION

The ROL-SEAL® Motor was designed to give both high volumetric and high torque efficiencies. It is manufactured with good quality workmanship and a design concept that allows it to be mass produced. Because of its low breakaway and low leakage characteristics it is understandable why this motor is desired in this energy conservation time.

PREVENTIVE MAINTENANCE

Maintain cleanliness in your hydraulic system. Be careful when adding to the reservoir that clean oil is added and the container being used is clean. Proper filtration does not guarantee a contaminate-free system if the filters aren't serviced at regular intervals. Make sure that proper care is taken when installing the motor. If a flexible coupling is used, alignment must be within the coupling range. Do not exceed radial or thrust load rating of the shaft.

For hydraulic surge pressures applied to or by the motor, a close-coupled direct-acting relief valve must be provided in the circuit. The motor must be protected from any pressure surges that exceed twice the continuous pressure rating of the motor.

DISASSEMBLY

Cleanliness is extremely important when repairing the ROL-SEAL® Motor. Before you remove the motor from the system, clean as much debris off of the exterior as possible. The area around the ports is most important. Upon disconnecting, cap the ends of the hydraulic lines to prevent contamination of the system.

Remove the key. Carefully remove all burrs from the shaft. Make sure there are no sharp corners around the keyway, to prevent the shaft seal from being cut upon removal of the end cap. If there is any rust present, remove using 180 grit emery cloth.

The tools that are recommended for a successful repair job are as follows:

"A" AND "B" FRAME MOTORS

1. Soft face hammer or mallet.
2. Torque wrench with at least 50 ft. lbs. capacity.
3. $\frac{5}{16}$ " Allen wrench adaptable to torque wrench.
4. No. 03 internal snap ring pliers.
5. $\frac{3}{16}$ " Allen wrench for gear cover.

"C" FRAME MOTOR

1. Soft face hammer or mallet.
2. Torque wrench with at least 175 ft. lbs. capacity.
3. $\frac{1}{2}$ " Allen wrench adaptable to torque wrench.
4. No. 06 external snap ring pliers.
5. No. 05 internal snap ring pliers.
6. $\frac{3}{16}$ " Allen wrench for gear cover.

A bench vise is very helpful in the disassembly and assembly of the ROL-SEAL® Motor. Our instructions will be based on the assumption that this item is available.



MODELS RSA, RSB AND RSC

DISASSEMBLY

ROL-SEAL® MOTOR

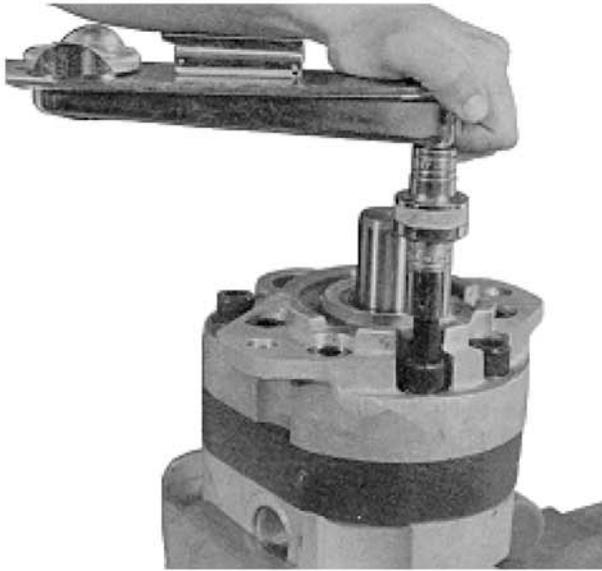


FIGURE 1

1.) Place motor in vise as shown in Fig. 1, tightening vise enough to prevent motor from rocking out. Excessive clamping pressure could damage the inlet and outlet ports. Jaws should not contact spotface of ports.

2.) Unfasten the nine cap screws holding the end caps and housing together. (Fig.1.) Remove the cap screws completely.

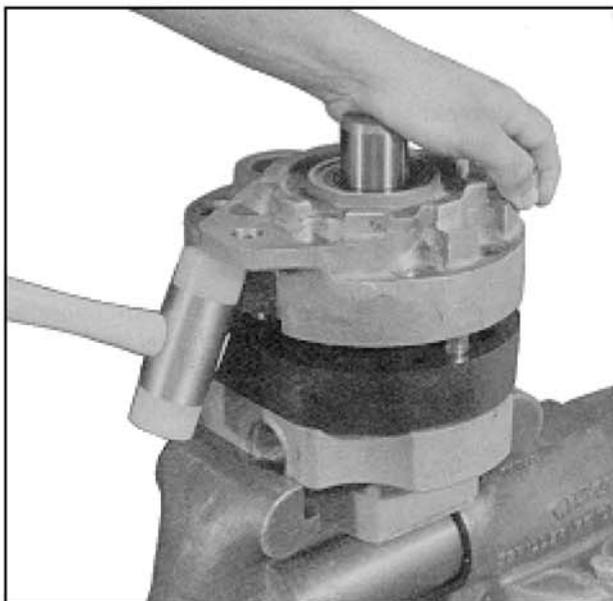


FIGURE 2

3.) Using the soft-faced hammer or mallet, tap upward on the ear of the SAE mounting flange. (Fig. 2) By putting the heel of your hand over the output shaft and your fingers on the opposite ear you can keep the front end cap from falling back down after each successive rap.

When you get beyond the dowel pin engagement there should be no further requirement for the hammer. Simply lift the end cap off of the assembly.

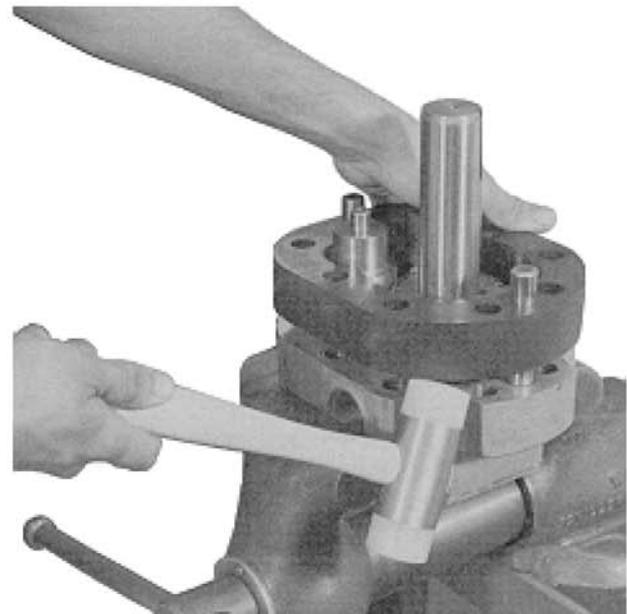


FIGURE 3

4.) Removal of the displacement housing. (Fig. 3) the dark center portion of the assembly, is carried out similar to step 3. There are two scallops in the rear end cap. It is this area that you tap to remove the housing. (Fig. 3) Never use screwdriver or pinch bar to remove this part. It is extremely easy to damage the end cap faces. The dowel pins will remain the the displacement housing. Unless you are replacing the housing, leave them intact. The dowels are a press fit.

NOTE

The remaining steps can be performed on a bench.



MODELS RSA, RSB AND RSC

DISASSEMBLY

ROL-SEAL® MOTOR

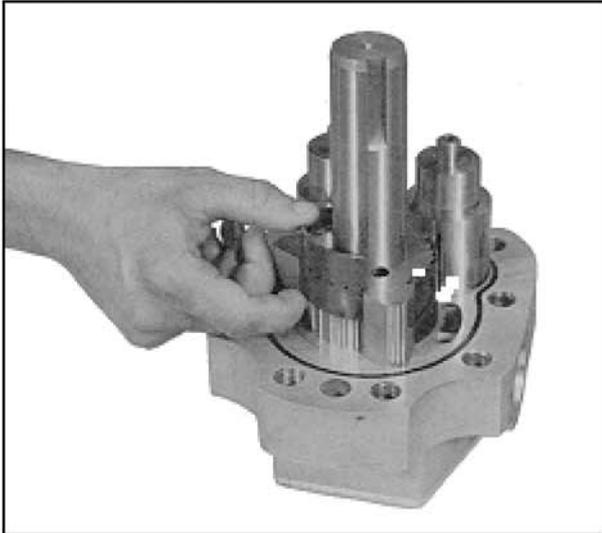


FIGURE 4

5.) Remove seal plates (Fig. 4)

7.) Unfasten the seven socket head cap screws which hold the Model Code and Serial No. plate on the rear end cap.

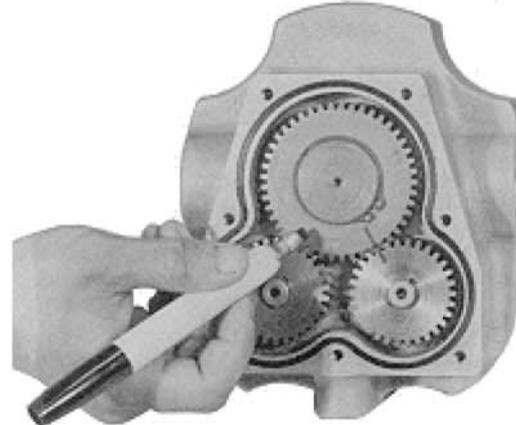


FIGURE 6

8.) The previous step exposed a set of timing gears. Before removing these parts you must mark them (Fig. 6). The two small gears should also be marked left and right.

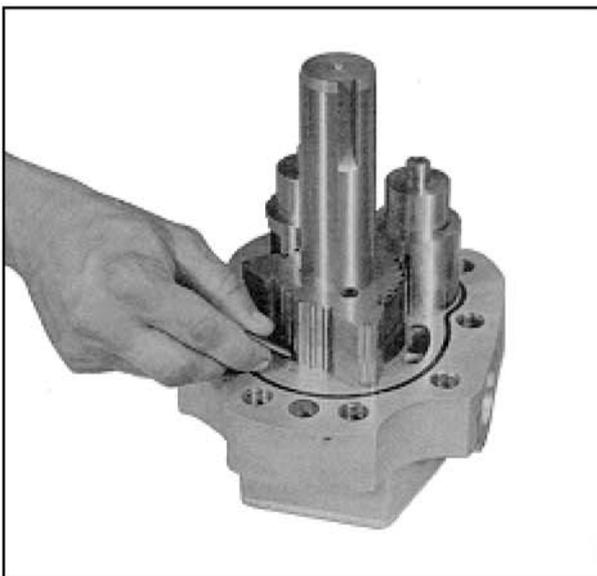


FIGURE 5

6.) Remove seal rollers (Fig. 5). The motors have two sizes. The seal rollers in the rotor tip are larger in diameter than those behind the seal plates.

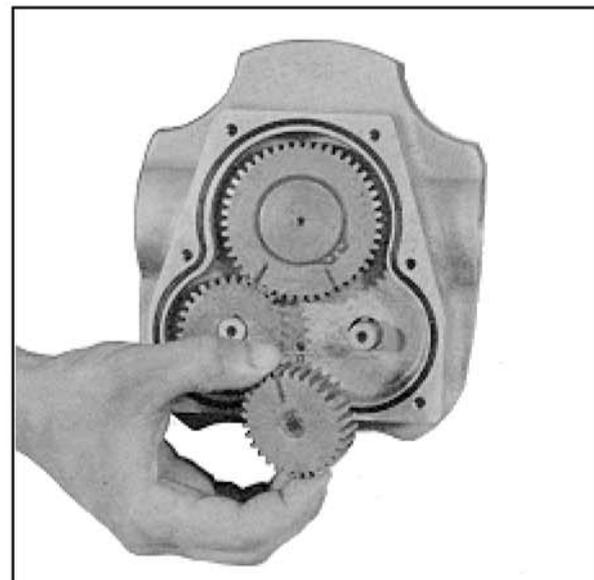


FIGURE 7

9.) Remove the snap rings that retain the gears, (Fig. 8) and remove the gears.



MODELS RSA, RSB AND RSC

DISASSEMBLY

ROL-SEAL® MOTOR

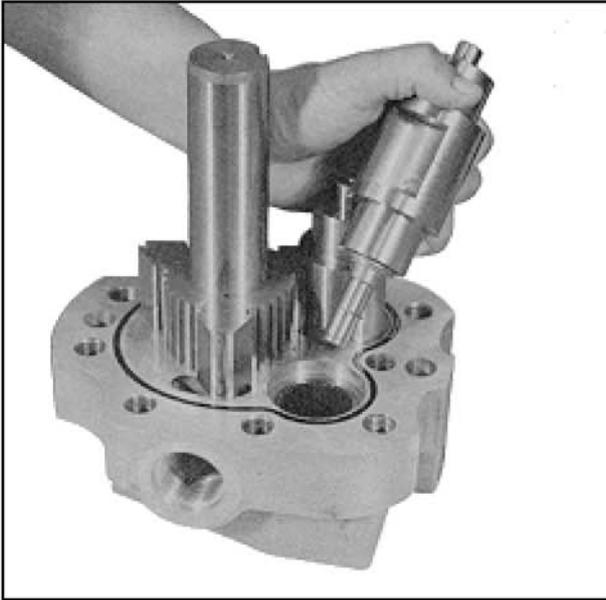


FIGURE 8

10.) By positioning the rotor as in Figure 8, you can lift one of the abutment valves out. Rotate the shaft and remaining abutment until the lobe of the rotor leaves the abutment cavity. You now can remove this abutment.

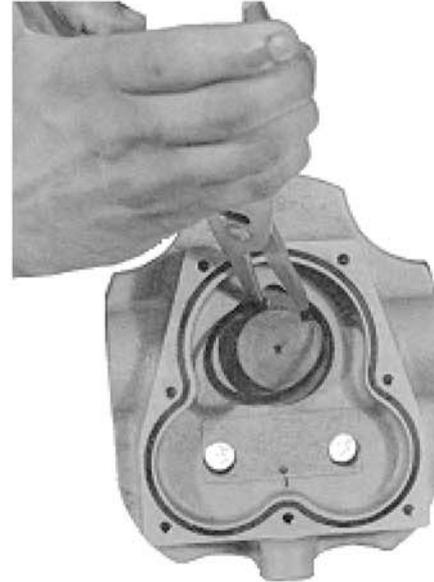


FIGURE 10

12.) Remove the snap ring which retains the shaft and thrust bearing. (Fig. 10)

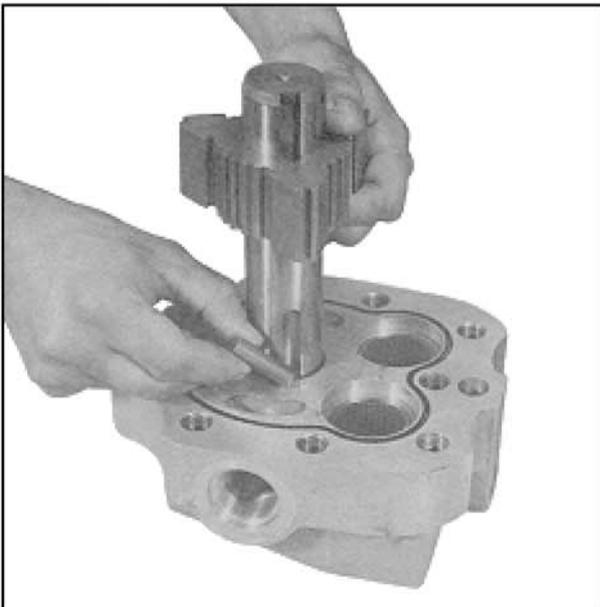


FIGURE 9

11.) Lift the rotor up, which will expose the drive key. Remove the drive key. (Fig. 9)

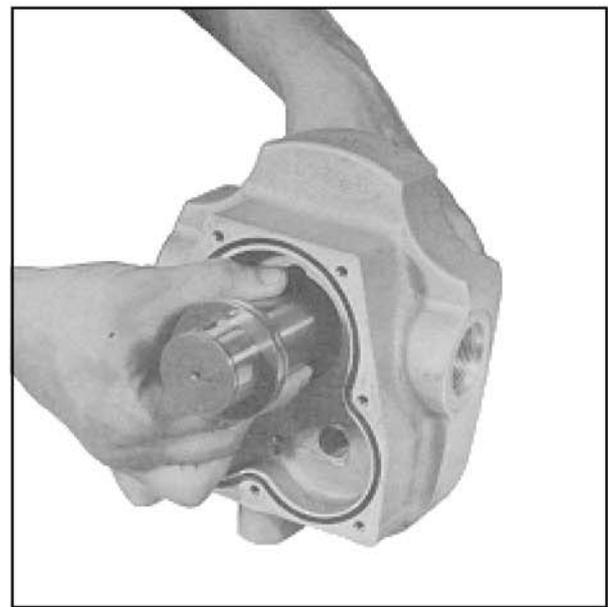


FIGURE 11

13.) Remove the shaft from the rear end cap. (Fig. 11)



MODELS RSA, RSB AND RSC

DISASSEMBLY

ROL-SEAL® MOTOR

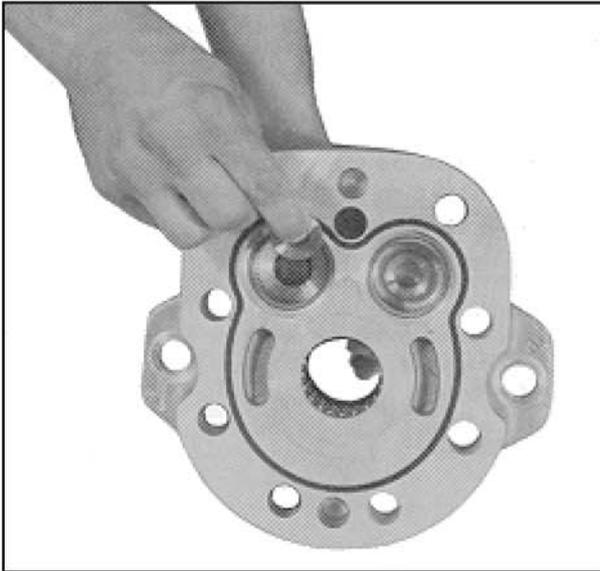


FIGURE 12

14.) The step bearing that remains in the front end cap should be taken out and inspected. There is an O-ring and Teflon back-up ring under this part. (Fig. 12)

15.) Check all mating metal-to-metal parts for scratches or burrs which could cause leakage. Replace all parts on which excessive damage is found. Use the following procedure to be sure that all these surfaces are perfectly smooth:

16.) Clean all parts in solvent and let them air-dry. All O-rings and shaft seals should be replaced. If conditions are such that you have to use the old seals they should be washed in a mild soap and water solution.

REASSEMBLY

1.) Install shaft with thrust bearing and races through the back of the rear end cap.

2.) Install snap ring to retain shaft.

3.) Put spacer over shaft end, and assemble the larger timing gear to the shaft.

4.) Assemble snap ring to retain gear.

5.) Turning this subassembly and setting it on the rear cover face, you can install one abutment valve. Install new back-up ring and O-ring first. A light film of oil should be applied to all new seals.

6.) Reassemble the round drive key in the key seat and slip rotor over key.

7.) Set the subassembly on its side and proceed with the alignment and timing of the abutment and rotor. Either one of the abutments can be assembled.

8.) Rotate the shaft so the second abutment can be installed. Align the timing marks. If the shaft can be rotated one complete revolution, it is likely that the proper assembly has been carried out. NOTE: when properly timed, the rotor tip will pass directly through the center of

the abutment cavity.

9.) Proceed to assemble the snap rings to retain the gears assembled in the previous step.

10.) Set the assembly back on the rear cover face. Install the seal plates and the seal pins in the rotor.

11.) Place the new O-ring in the groove of the end cap. A light film of gun grease will help keep the O-ring from slipping out of the groove.

12.) Install the housing. If binding occurs take a soft faced hammer and tap on the housing to free it.

13.) Install new O-rings and back-up rings in the front end cap. Put the step bearings in place. Apply a light film of gun grease to the large static seal, and place it in the groove.

14.) Install the front end cap by carefully slipping it over the shaft to insure that the static seal remains in place. Tapping lightly with a soft face hammer may be required to seat the front end cap.

15.) Set the body cap screws in place and tighten to recommended torque values using a crisscross pattern. Torque settings are for lubricated threads. (see chart on following page)



MODELS RSA, RSB AND RSC

REASSEMBLY

ROL-SEAL® MOTOR

FRAME SIZE	DISPLACEMENT	TORQUE
"A" and "B"	2 cu/in.	500 in. lbs. (56 N-M)
"A" and "B"	3 cu/in.	500 in. lbs. (56 N-M)
"A" and "B"	4 cu/in.	500 in. lbs. (56 N-M)
"A" and "B"	5 cu/in.	500 in. lbs. (56 N-M)
"C"	6 cu/in.	150 ft. lbs. (203 N-M)
"C"	8 cu/in.	150 ft. lbs. (203 N-M)
"C"	10 cu/in.	175 ft. lbs. (237 N-M)
Serial Cover Plate	All	150 in. lbs. (17 N-M)

16. Assemble Model Code and Serial No. plate to back of the motor along with new static seal.

17.) Before installing new shaft seal, make sure that shaft turns. Then proceed to install new seal and replace snap ring. Note: Remove any burrs or raised edges from shaft keyway and cover shaft keyway with a single wrap of electrical tape as not to damage seal lip.

18.) Replace motor in the system and run unit through normal operating cycle.

SEAL REPLACEMENT

1.) Clamp the motor in a vise. Remove the key and all burrs or sharp edges which may have developed. Use 400 grit emery cloth to remove all rust from the shaft.

2.) Remove the snap ring.

3.) Remove front end cap as in steps 1-3 of the disassembly procedure.

4.) Turn end cap with sealing face up. Use a large screwdriver blade inserted between the seal lip and shell. Proceed to pound out seal alternating from side to side so as not to damage the end cap bore.

5.) Replace end cap and torque body bolts to recommended torque, (see chart above).

6.) Apply a thin film of grease to the lip of the new seal. Cover shaft keyway with a single wrap of electrical tape. Slide over shaft to face of end cap.

7.) The seal must be installed without cocking it. The best procedure is to obtain a short peice of tubing or pipe which is square on the ends and will contact the outer shell of the seal. If the tubing is too small it will damage the seal.

8.) Press seal in just far enough so the snap ring will stay in the seal bore. Using the snap ring to seat will prevent you from pressing the seal in too deep. When the snap ring pops into the groove the seal is properly seated.



MODELS RSA, RSB AND RSC

TROUBLE SHOOTING

ROL-SEAL® MOTOR

The following chart lists the possible troubles that may be encountered, the probable cause and the remedial action.

TROUBLE SHOOTING CHART		
Trouble	Probable Cause	Remedy
No Pressure	1.) Loose coupling. 2.) System relief open.	1.) Repair or replace coupling. 2.) Clean, adjust, or replace if necessary.
Noisy system	1.) Cavitation at pump. 2.) Reservoir low.	1.) Check for inlet air leaks. Check pump inlet for restriction. 2.) Fill to recommended level
Motor will not develop torque.	1.) System relief unloading. 2.) Worn out. 3.) High temperature operation.	1.) Disassemble, clean, adjust. 2.) Repair or replace. 3.) Change to fluid with high viscosity index.
Blown rear cover	1.) Drain restriction. 2.) High case drain.	1.) Drain directly to tank. 2.) Repair motor.
Leakage around shaft.	1.) Damaged shaft seal	1.) Replace
Motor turns in wrong direction.	1.) Hose connection wrong.	1.) Reverse connections.



MODELS RSA, RSB AND RSC

ROL-SEAL® MOTOR

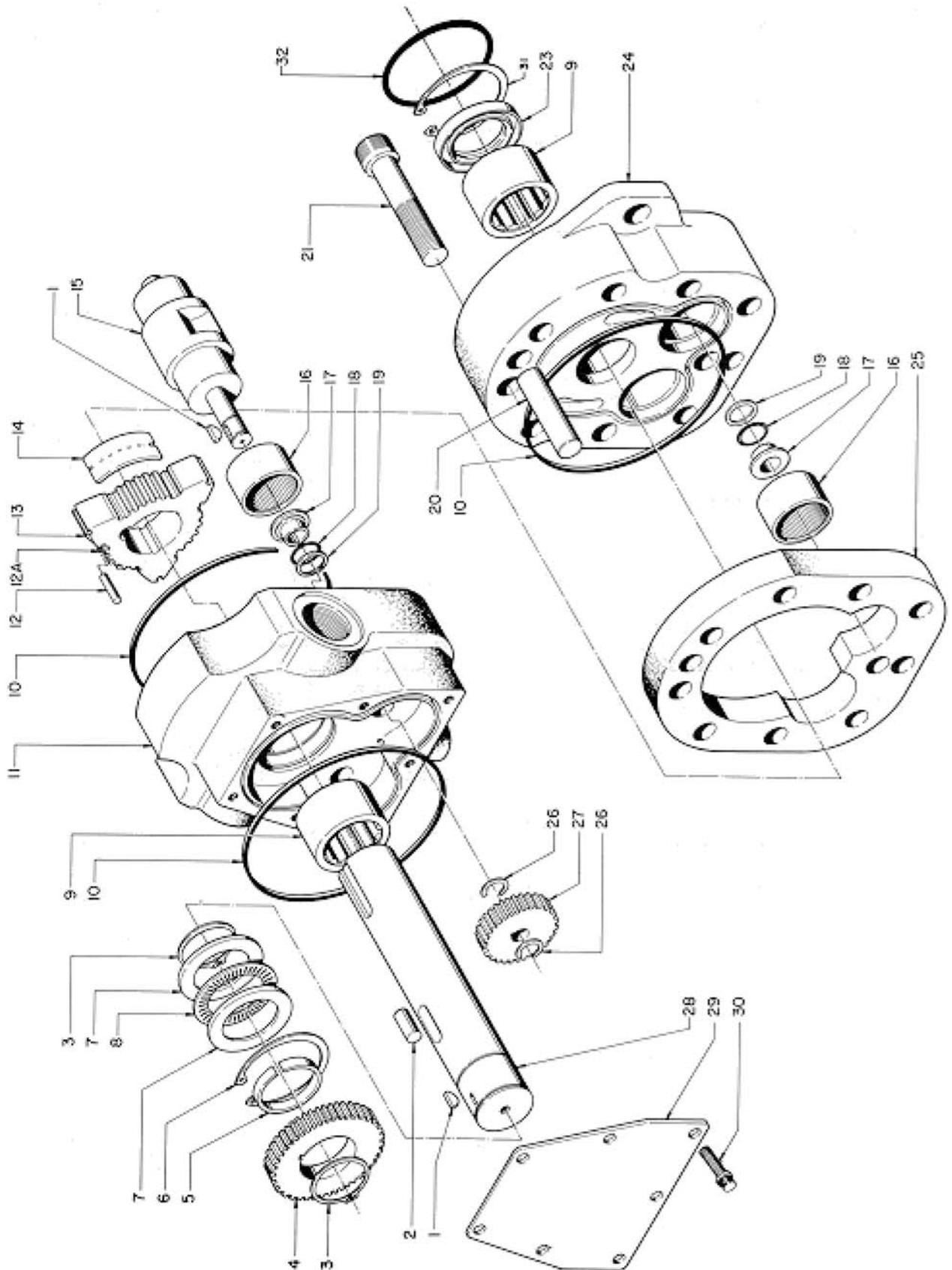


FIGURE 13. ROL-SEAL MOTOR EXPLODED VIEW



MODELS RSA, RSB AND RSC

PARTS LIST

ROL-SEAL® MOTOR

REPLACEMENT PARTS LIST - ROL-SEAL® MOTOR

NOTE

When Ordering Replacement Parts, Give Model Number, Serial number, Item Number, Description and Quantity.

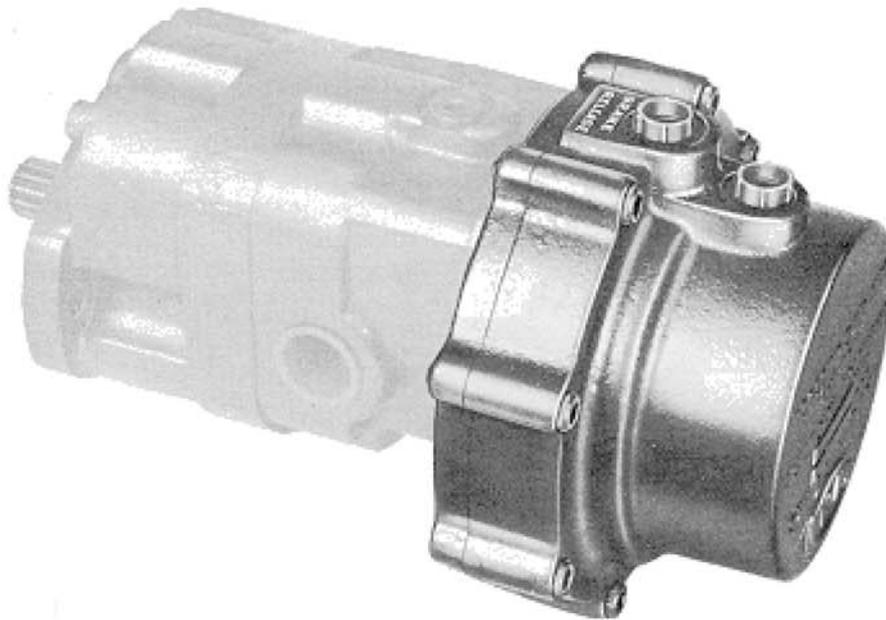
Item	Description	Quantity
1	Key, Woodruff	3
2	Pin, Drive	1
3	Ring, Retaining	2
4	Gear, Drive	1 α 3
5	Spacer	1
6	Ring, Retaining	1
7	Race, Bearing Thrust	2
8	Bearing, Thrust	1
9	Bearing, Roller	2
10	Seal, O-Ring	3
11	Cap, Rear	1
12	Pin, Rotor Tip	3
12 A	Pin, Seal Plate	18
13	Rotor	1
14	Plate, Seal	3
15	Valve, Rotary Abutment	2
16	Bearing, Needle	4
17	Bearing, Step	4
18	Seal, O-Ring	4
19	Ring, Teflon Backup	4
20	Pin, Dowel	2
21	Screw, Cap	9
22	Washer (Not Shown)	9
23	Seal, Shaft	1
24	Cap, Front	1
25	Housing, Displacement	1
26	Ring, Retaining	4
27	Gear, Timing	2 α 6
28	Shaft, Power	1
29	Cover, Gear	1
30	Screw, Cap	7
31	Ring, Retaining	1
32	O-Ring, Front Cap Seal	1



ROL-SEAL® BRAKE

**REAR-MOUNTED, MULTI-DISC
TYPE FOR RSA, RSB AND
RSC MOTORS**

MAINTENANCE AND PARTS MANUAL





ROL-SEAL® BRAKE

INSTRUCTION MANUAL

INTRODUCTION

This Wet Disc Type Brake was designed to fit on the Von Ruden ROL-SEAL® Motor to provide static holding torque during system shut-down. The brake is spring applied or "normally on", requiring hydraulic pressure to release. A number of disc brake sets are used to provide for the various motor displacement torques.

PREVENTIVE MAINTENANCE

Maintain cleanliness in your hydraulic system. Be careful when adding to the reservoir that clean oil is added and the container being used is clean. Proper filtration does not guarantee a contaminate-free system if the filters aren't serviced at regular intervals. Caution should be used when connecting the brake release pressure port to the brake housing inasmuch as the drain port is adjacent to the pressure port.

CASE DRAIN

These brakes are provided with a case drain connection. A line must be provided to return case drain flow to the reservoir at no more that 250 PSI surge pressure.

OTHER BRAKE SPECIFICATION

Wt of brake.....	2.6 lb. in. ²		
Volume of oil to release brake.....	0.6 in. ³		
capacity... <u>2 in.³</u>	<u>3 in.³</u>	<u>4 in.³</u>	
	940 lb.in.	1410 lb.in.	1880 lb.in.



DISASSEMBLY

ROL-SEAL® BRAKE

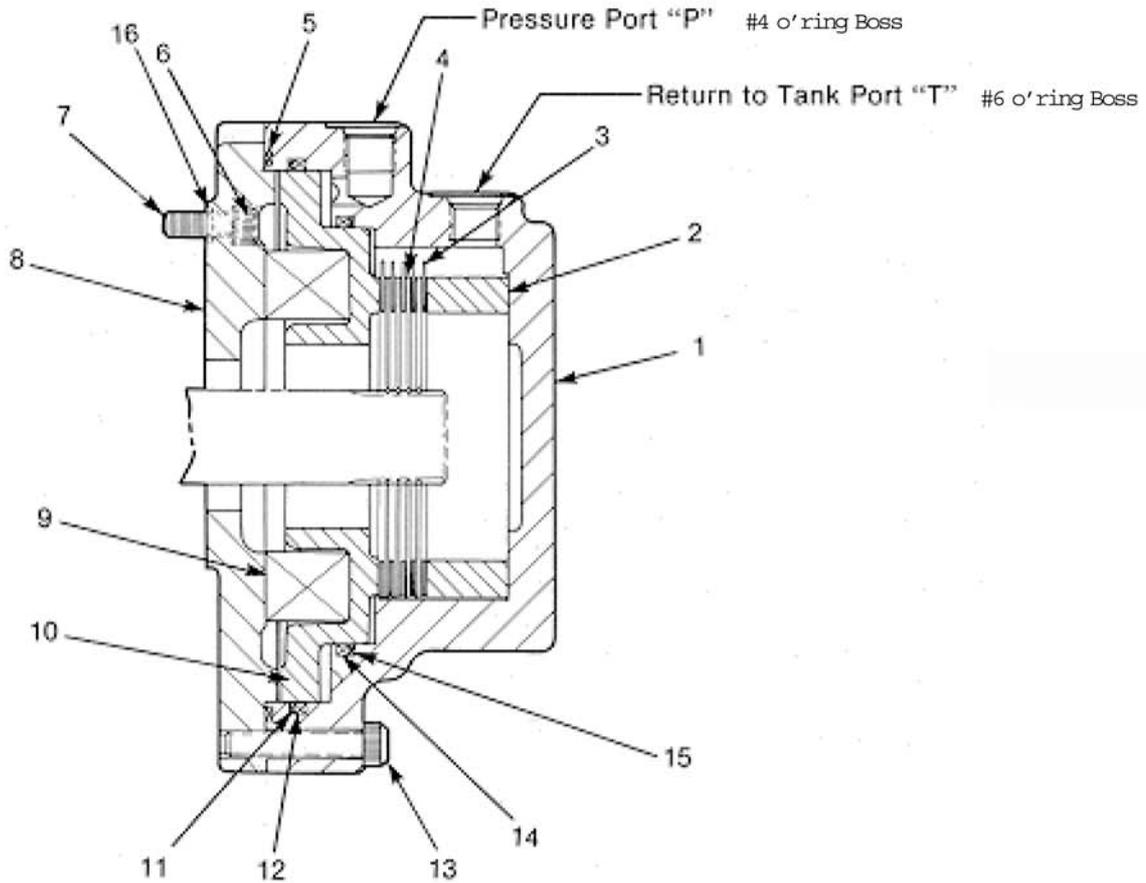


FIGURE 1. SECTIONAL VIEW, ROL-SEAL® BRAKE

REAR MOUNTED BRAKE ASSEMBLY

TOOLS REQUIRED: $\frac{1}{4}$ allen wrench.

Note: If it is necessary to remove adapter plate (8) a $\frac{3}{16}$ allen wrench and centering fixture (available from factory) will be required.

DISASSEMBLY (Figure 1)

1. Thoroughly clean the exterior of the assembly and hydraulic lines before attempting removal.
2. Disconnect hydraulic lines and cap them to prevent loss and contamination of fluid.
3. Remove the eight cap screws (13), and separate the brake housing (1), from the adapter plate (8). Discard O-ring (5).
4. Remove remaining brake components.

(To remove brake piston (10), it may be necessary to inject shop air (80 PSI max.) into pressure port "P". PLEASE NOTE: If air is used, precautions must be taken to retain piston so as to terminate the possibility of injury!)

5. Remove the back-up rings (11, 15), and O-rings (12, 14) from the housing (1).
6. If it's necessary to remove the adapter plate (8) from the motor, remove the seven cap screws (7).
7. Clean all components in solvent and dry.
8. Inspect all components for wear and damage. Replace components unfit for service. Note quantities of friction discs (3) and drive plates (4) in parts lists on following pages.



REASSEMBLY

ROL-SEAL® BRAKE

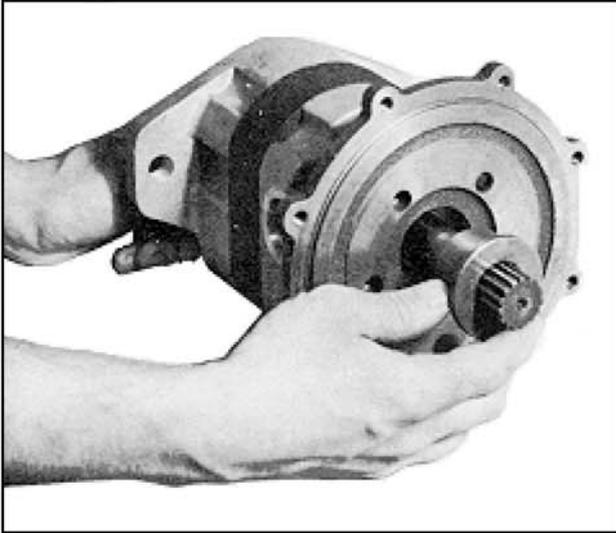


FIGURE 2. CENTERING FIXTURE

1. If adapter plate (8) is removed, reassemble on the motor using a centering fixture available from factory. Install capscrews (7) with washers (6) including O-rings (16) for RSC brake and torque to 150 in. lb.

2. Install new O-ring (12, 14) and back-up rings (11, 15) in the housing (1). Make sure the ends of the back-up rings are flush and not overlapped.

NOTE: Back-up rings (11, 15) must be in position as shown in sectional view.

3. Lubricate all components with clean hydraulic fluid.

4. Position the spacer rings (2) in the housing (1).

5. Locate friction disc (3) in the housing; then a driver plate (4); then another friction disc (3); and so on depending on model, making sure driver plate splines are aligned.

6. Carefully install the pressure plate (10) in the housing so as not to damage the O-rings (12, 14). Place the eight die springs (9) in the pressure plate.

7. Position a new O-ring (5) in the housing using a little grease to hold it in place.

8. To assemble motor to brake, carefully drop shaft while engaging the plate drivers (4) with the splined motor shaft.

9. Secure the housing to the adapter plate with the eight cap screws (13). Tighten and torque the cap screws to 600 in. lbs.

10. Connect the hydraulic lines.

11. Test the brake for operation and leaks.



PARTS LIST

ROL-SEAL® BRAKE

ROL-SEAL® BRAKE

REPLACEMENT PARTS LIST - REAR MOUNTED BRAKE ASSEMBLY MODELS RSA, RSB, RSC BRAKE

NOTE

When ordering replacement parts, give model number, serial number, item number, part number, description and quantity.

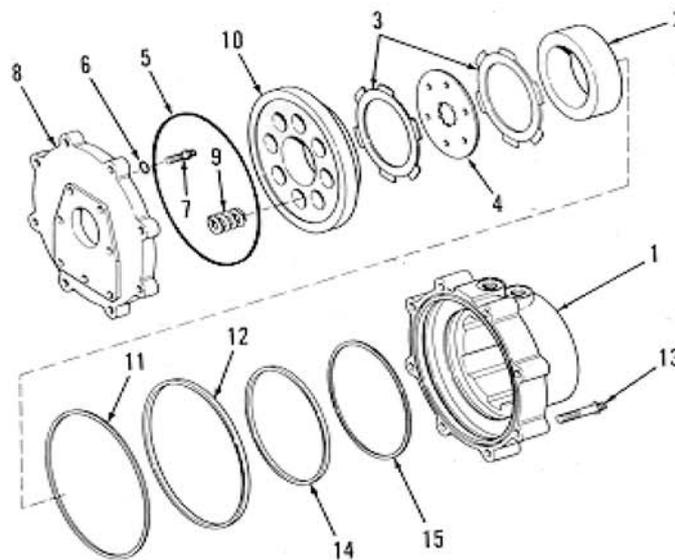


FIGURE 3. EXPLODED VIEW RSA, RSB AND RSC SERIES BRAKE

Item	Description	Quantity
1	Housing	1
2	Spacer Ring	1
3	Friction Disc	*
4	Plate Driver	*
5	O-Ring	1
6	Brass Washer	7
7	Cap Screw - Socket Head	7
8	Adapter Plate	1
9	Die Spring	8
10	Pressure Plate	1
11	Back-Up Ring	1
12	O-Ring	1
13	Cap Screw - Socket Head	8
14	O-Ring	1
15	Back-Up Ring	1

* Item quantity is dependant on model coding.