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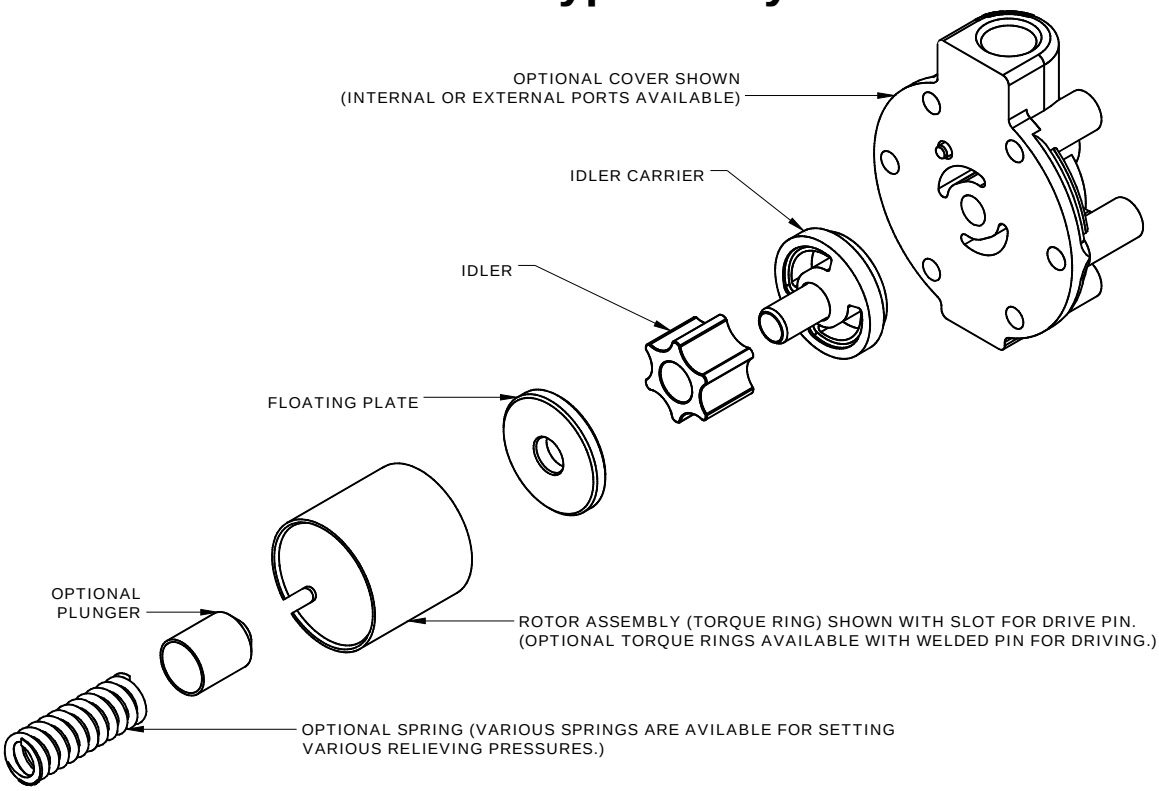
TR PUMP ENGINEERING DATA PACK

Contents:

TR Series

TR Series Typical Layout

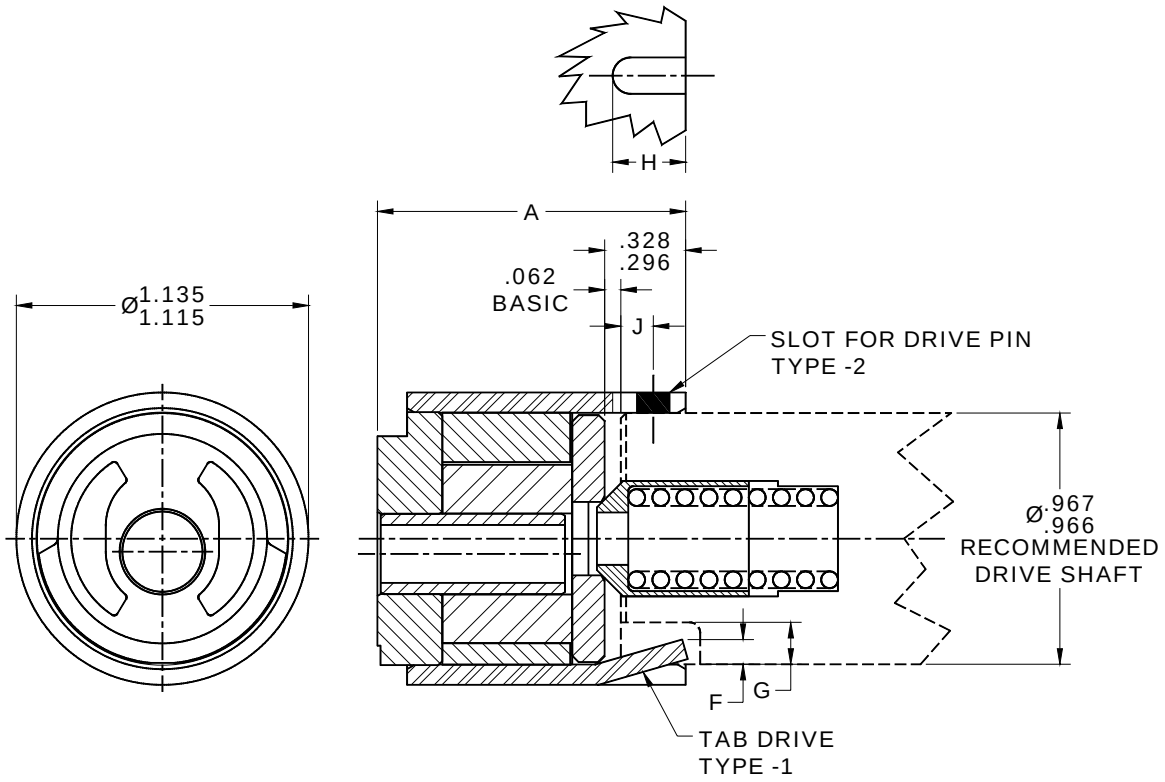


General Pump Operation:

In operation all parts of the pump assembly rotate with the drive shaft except the idler gear, idler carrier, and cover. Driven by the rotor assembly, the idler gear turns on the idler pin, and because it has one less tooth than the rotor gear with which it meshes, pumping action is created. The idler carrier is positioned against the cover. When the drive shaft changes rotation, the idler carrier rotates 180° degrees, maintaining the same direction of flow.

The relief valve spring (or pre-compressed spring assembly) keeps all parts of the pumping unit together at less than relief valve settings. When relief pressure is reached the spring compresses and pump clearances increase, allowing oil to bypass between the idler carrier and the gear set, and this oil is relieved externally of the pump.

Pump Mounting Dimensions for TRA Model Pumps

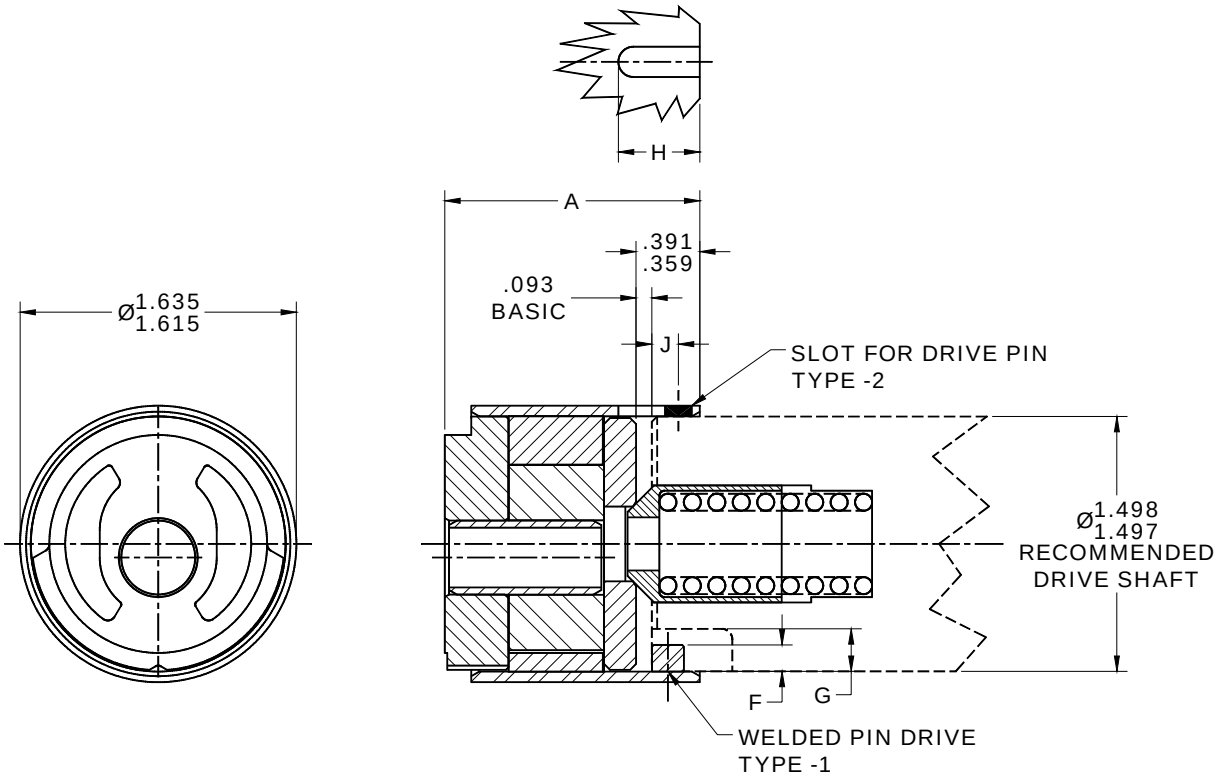


MODEL	SIZE	CUBIC IN/ REV.	GPM AT 0 PSI			A	TAB DRIVE		PIN DRIVE	
			1200 RPM	1800 RPM	3600 RPM	± .015	F	G	H	J
TRA	12	.0256	.133	.200	.400	.812	.100 X .109 WIDE	.187 X .187 WIDE	.281 X .140 WIDE	.125 - 1/8 PIN
	25	.0512	.266	.400	.800	.937				
	37	.0768	.400	.600	1.200	1.062				
	50	.1024	.533	.800	1.600	1.187				

Note:

- Pumps can be used at lower speeds.
- Capacity in GPM = cu. In/REV. x RPM ÷ 231

Pump Mounting Dimensions for TRC Model Pumps

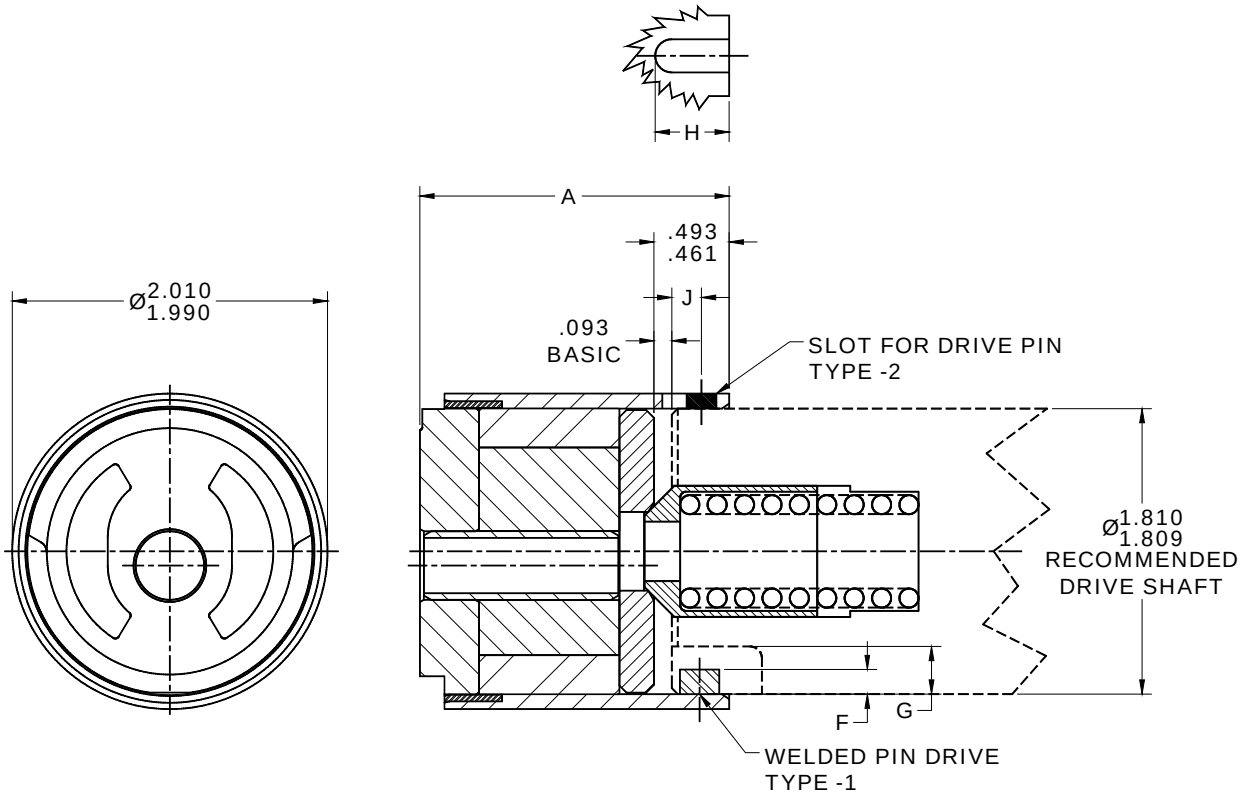


MODEL	SIZE	CUBIC IN/ REV.	GPM AT 0 PSI			A	TAB DRIVE		PIN DRIVE	
			1200 RPM	1800 RPM	3600 RPM	± .015	F	G	H	J
TRC	19	.097	.500	.750	1.500	1.129	.156 X .173 WIDE	.25 X .25 WIDE	.390 X .178 WIDE	.156 - 5/32 PIN
	37	.192	1.000	1.500	3.000	1.313				
	56	.288	1.500	2.250	4.500	1.501				
	75	.384	2.000	3.000		1.688				
	90	.512	2.666	4.000		1.939				

Note:

- Pumps can be used at lower speeds.
- Capacity in GPM = cu. In/REV. x RPM ÷ 231

Pump Mounting Dimensions for TRL Model Pumps

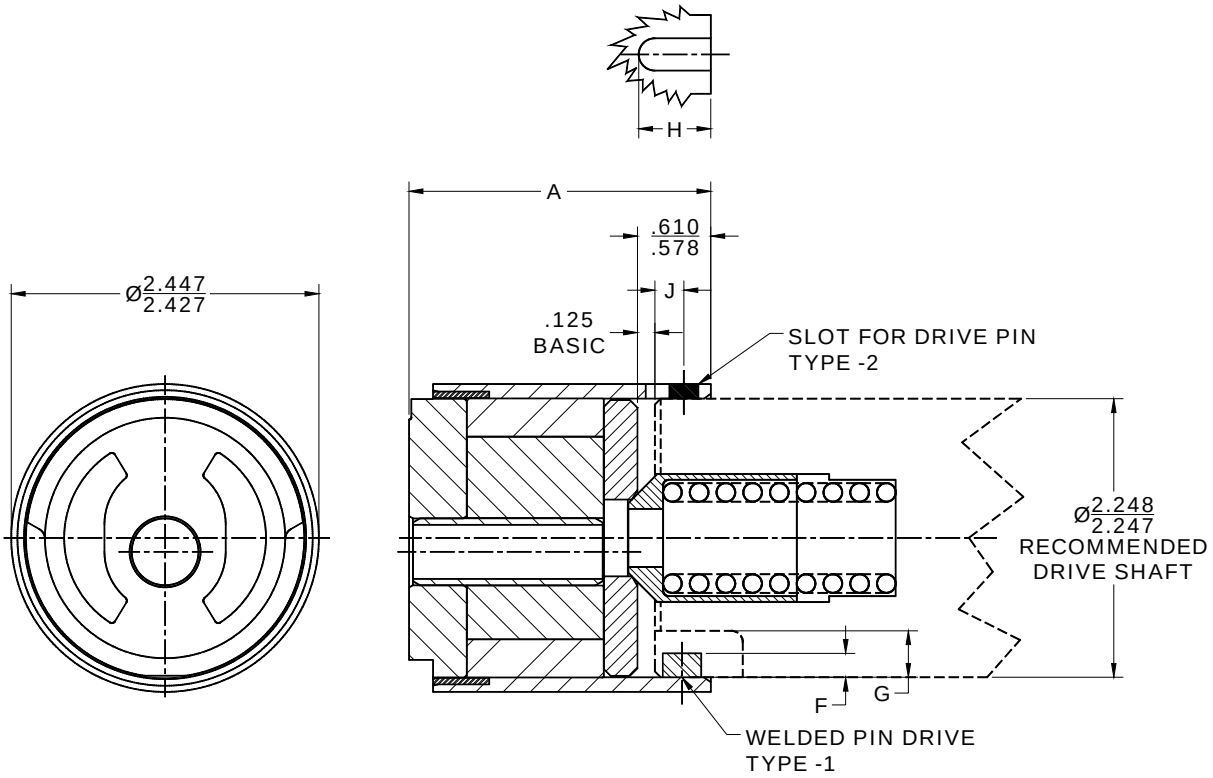


MODEL	SIZE	CUBIC IN/ REV.	GPM AT 0 PSI			A	TAB DRIVE		PIN DRIVE	
			1200 RPM	1800 RPM	3600 RPM	± .015	F	G	H	J
TRL	18	.128	.666	1.000	2.000	1.249	.172 X .234 WIDE	.281 X .312 WIDE	.468 X .210 WIDE	.188 - 3/16 PIN
	31	.224	1.166	1.750	3.500	1.382				
	54	.385	2.000	3.000	6.000	1.606				
	89	.642	3.333	5.000		1.962				

Note:

- Pumps can be used at lower speeds.
- Capacity in GPM = cu. In/REV. x RPM ÷ 231

Pump Mounting Dimensions for TRS Model Pumps

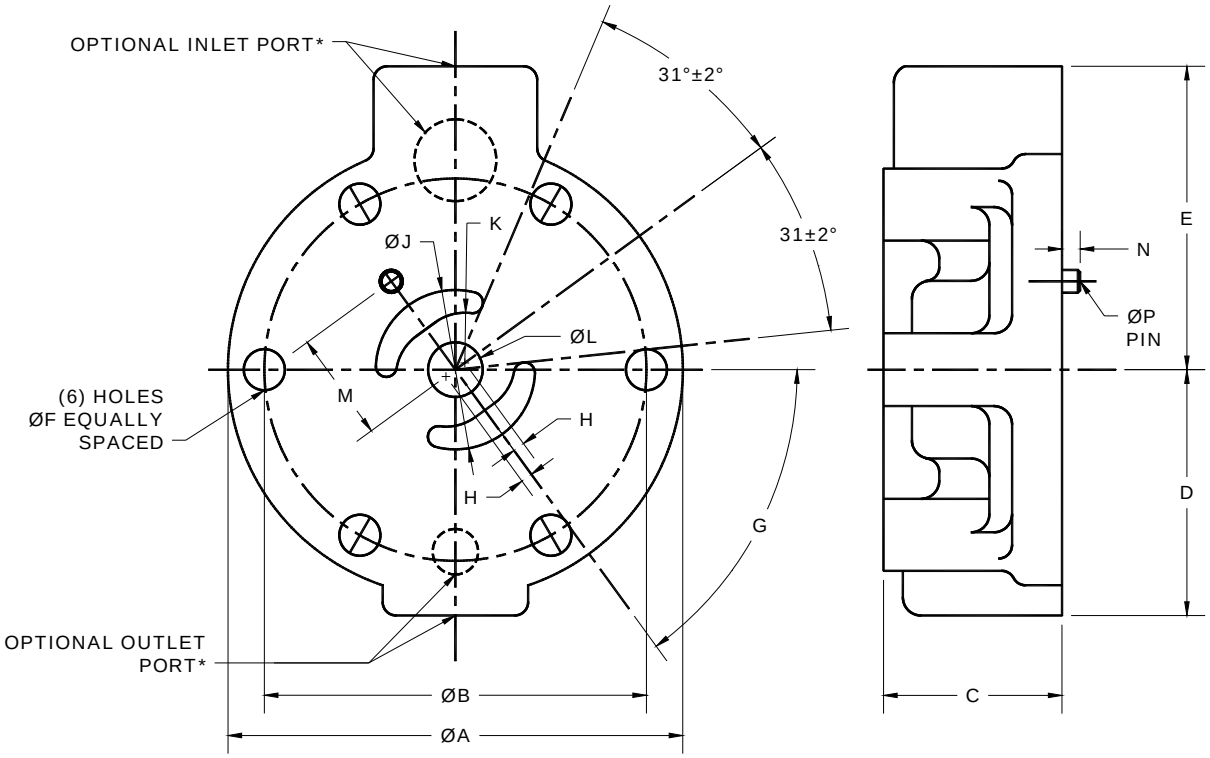


MODEL	SIZE	CUBIC IN/ REV.	GPM AT 0 PSI			A	TAB DRIVE		PIN DRIVE	
			1200 RPM	1800 RPM	3600 RPM	± .015	F	G	H	J
TRS	50	.58	3.00	4.500	9.000	1.844	.220 X .297 WIDE	.312 X .375 WIDE	.625 X .272 WIDE	.250 - 1/4 PIN
	75	.87	4.50	6.750	13.500	2.094				
	90	1.16	6.00	9.000		2.344				
	92	1.45	7.50	11.250		2.594				
	95	1.74	9.00	13.500		2.844				

Note:

- Pumps can be used at lower speeds.
- Capacity in GPM = cu. In/REV. x RPM ÷ 231

Cover Mounting Dimensions for (TRC & TRS) Models

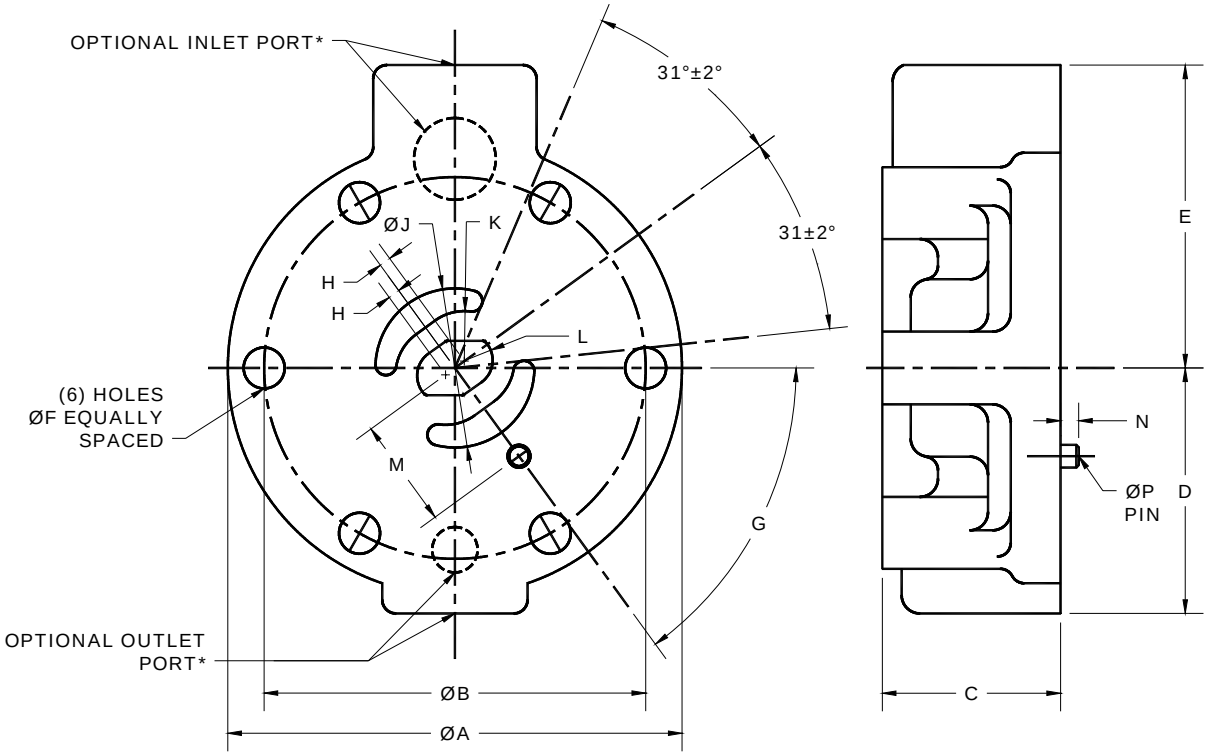


Model	A ± .030	B ± .005	C ± .015	D ± .030	E ± .030	F BASIC	G BASIC	H ± .010	J BASIC	K BASIC	L BASIC
TRC	3.125	2.625	1.125	1.688	2.094	.272	54°	.080	1.094	.344	.375
TRS	4.375	3.625	1.625	2.469	2.969	.397	60°	.120	1.625	.515	.562

Model	M ± .005	N + .010	P BASIC
TRC	.750	.125	5/32
TRS	1.125	.170	1/4

Note:
Combinations of drilled holes to communicate with the cored openings for internal or external ports are available. Covers with cored inlet port also available – please contact factory.

Cover Mounting Dimensions for TRL Models

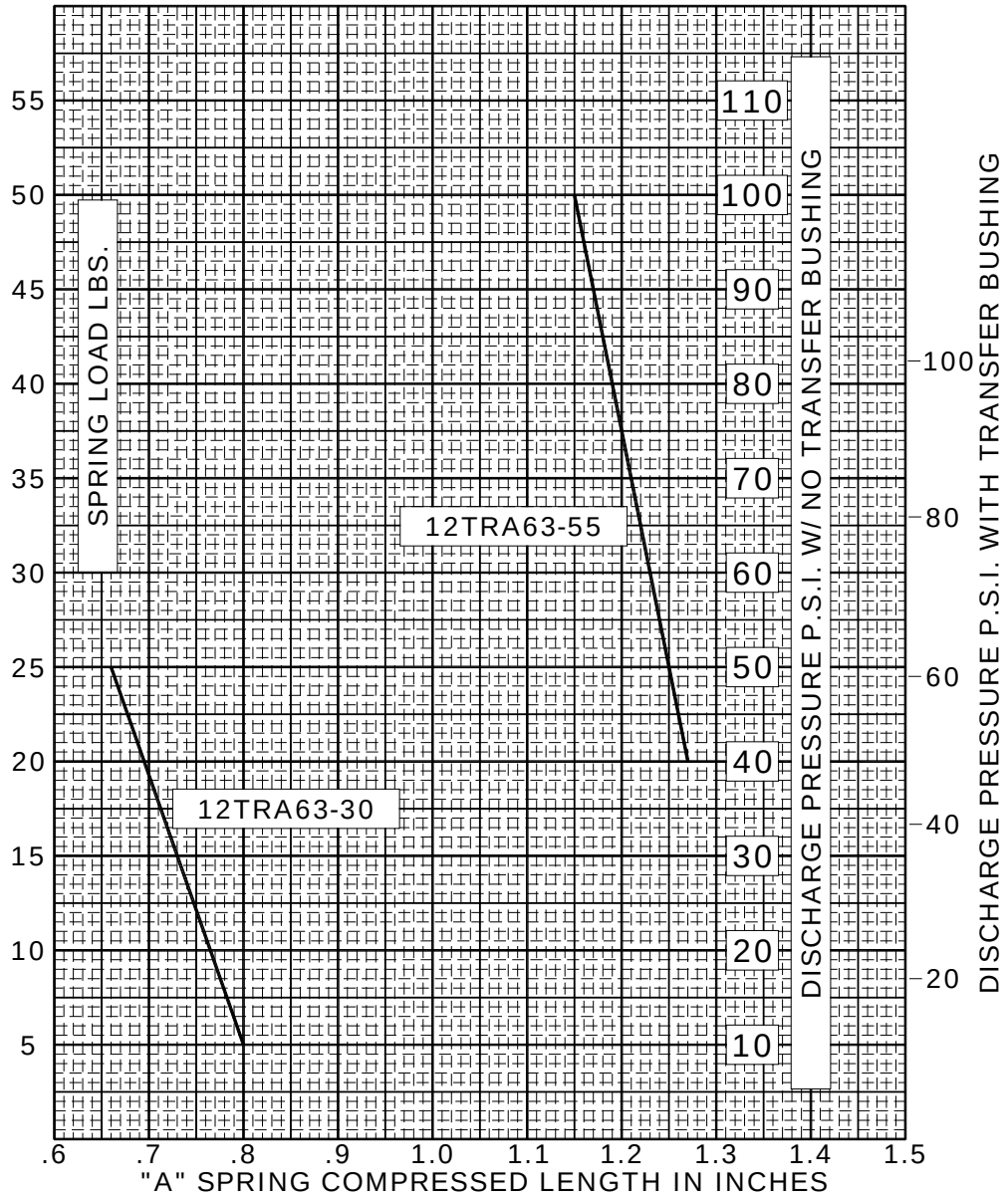


Model	A ± .030	B ± .005	C ± .015	D ± .030	E ± .030	F BASIC	G BASIC	H ± .010	J BASIC	K BASIC	L BASIC
TRL	3.625	3.000	1.281	2.000	2.250	.332	54°	.090	1.312	.394	.187

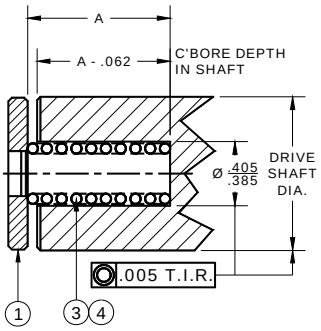
Model	M ± .005	N + .010	P BASIC
TRL	.906	.125	3/16

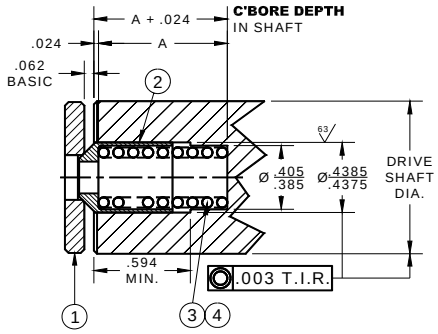
Note:
Combinations of drilled holes to communicate with the cored openings for internal or external ports are available. Covers with cored inlet port also available – please contact factory.

Spring Data Chart for TRA Models

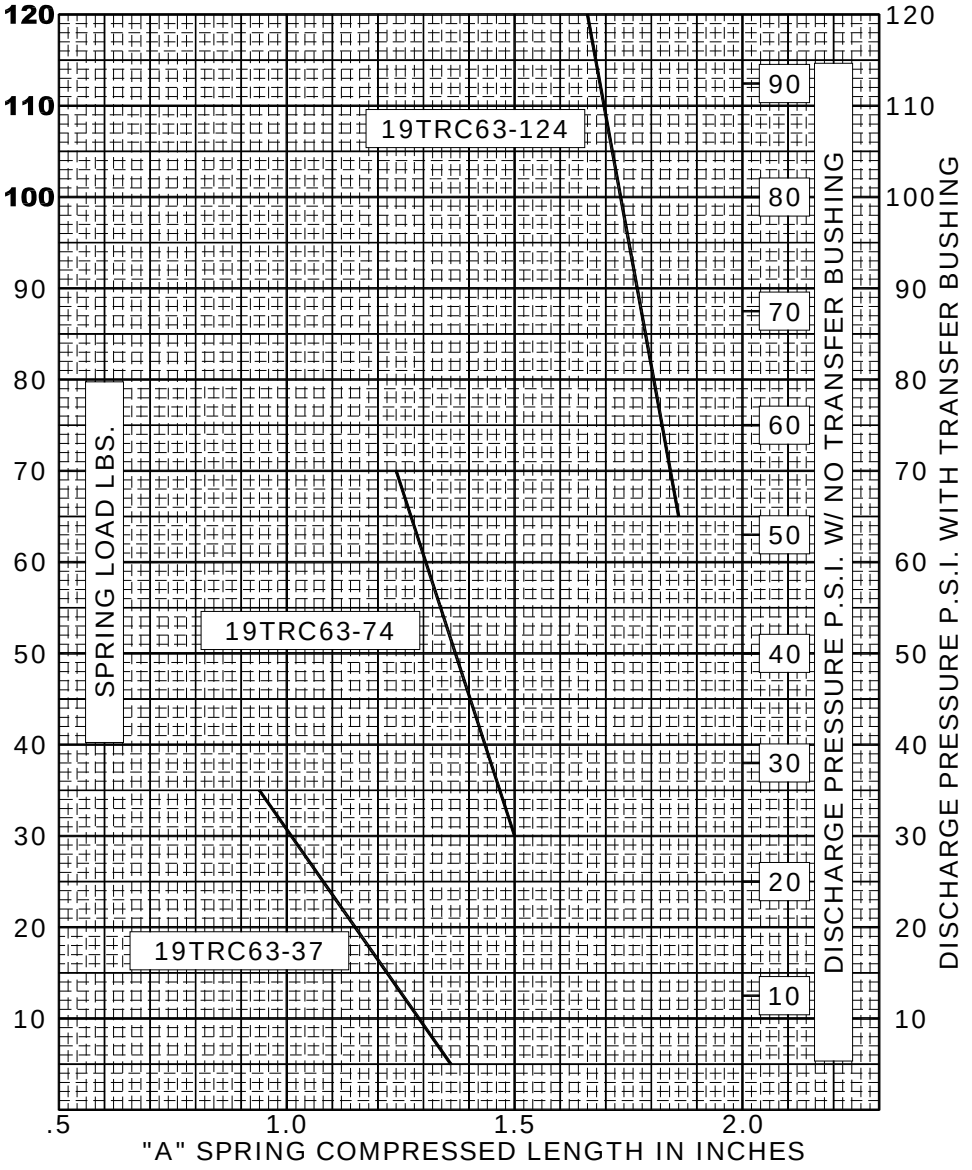


Ref No.	Part Name	Part No.
1	Floating Plate	12TRA25
2	Transfer Bushing	12TRA58
3	Spring #55	12TRA63-55
4	Spring #30	12TRA63-30

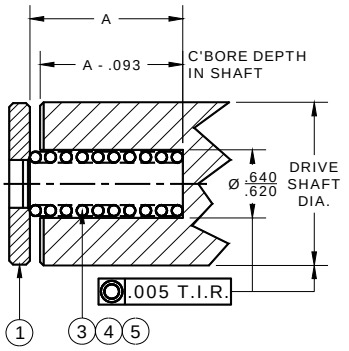


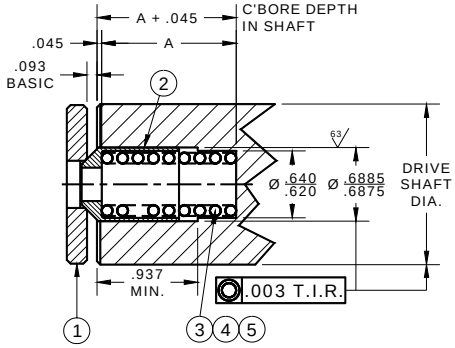


Spring Data Chart for TRC Models

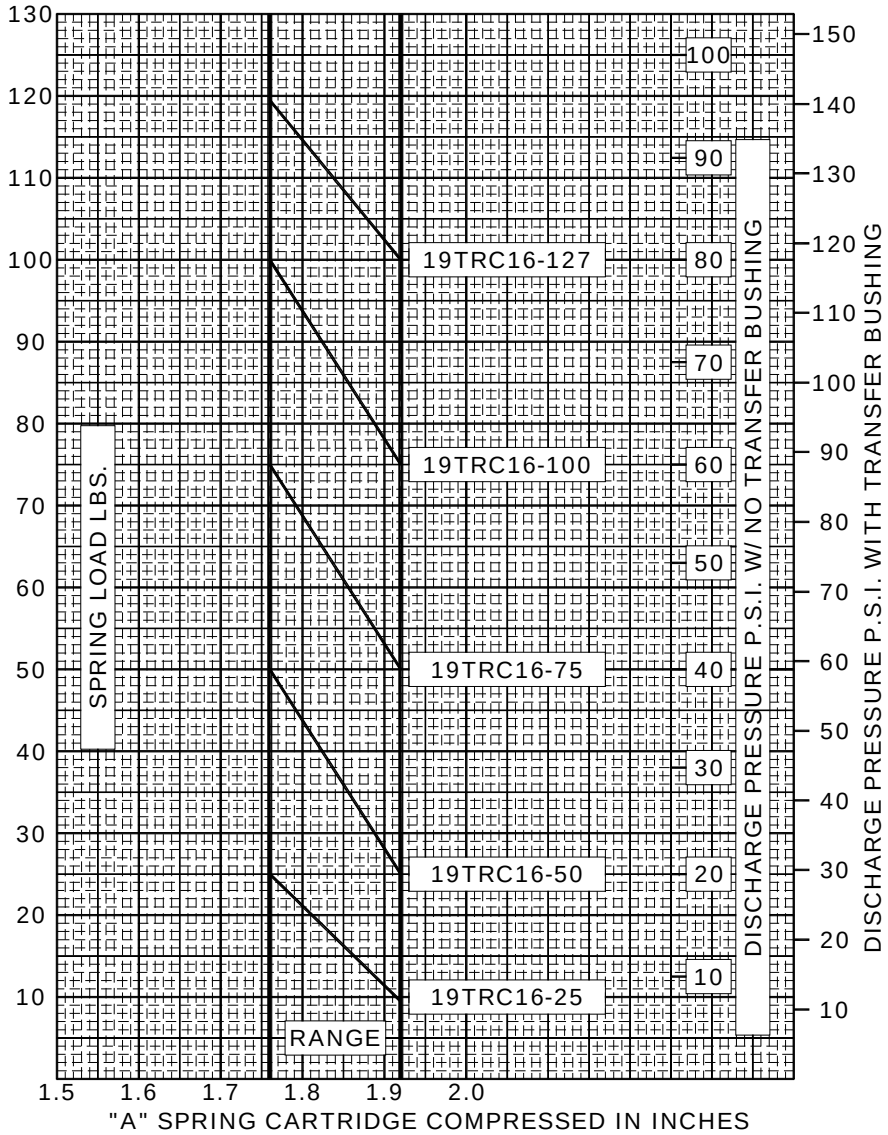


Ref No.	Part Name	Part No.
1	Floating Plate	19TRC25
2	Transfer Bushing	19TRC58
3	Spring #37	19TRC63-37
4	Spring #74	19TRC63-74
5	Spring #124	19TRC63-124

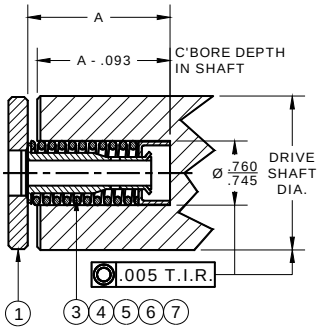


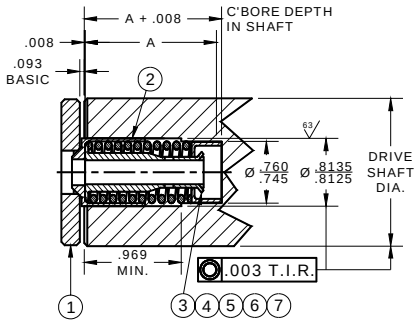


Spring Data Chart for TRC Pumps (Using Precompressed Spring Assemblies)

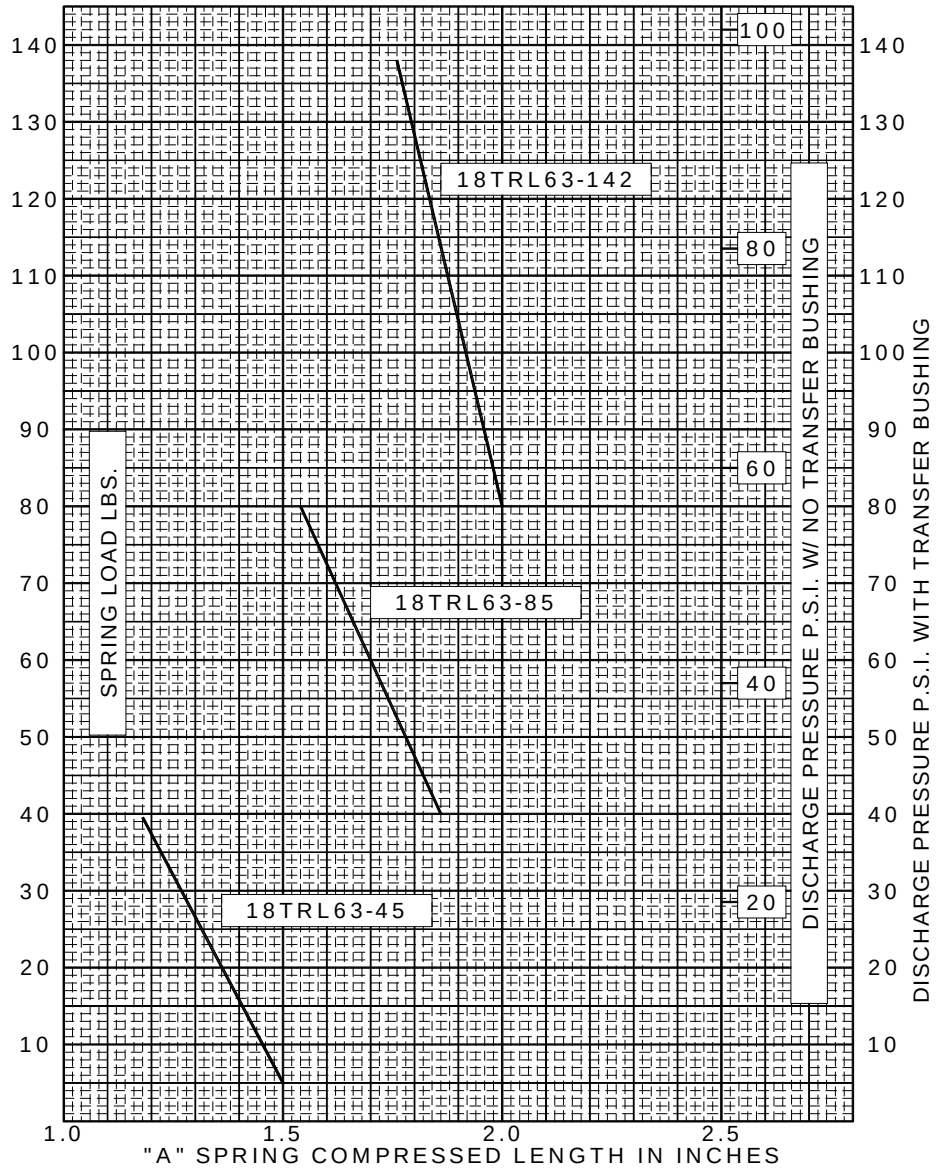


Ref No.	Part Name	Part No.
1	Floating Plate	19TRC25
2	Transfer Bushing	19TRC58-A
3	Spring Assembly #25	19TRC16-25
4	Spring Assembly #50	19TRC16-50
5	Spring Assembly #75	19TRC16-75
6	Spring Assembly #100	19TRC16-100
7	Spring Assembly #127	19TRC16-127

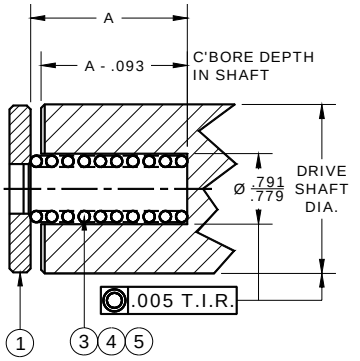


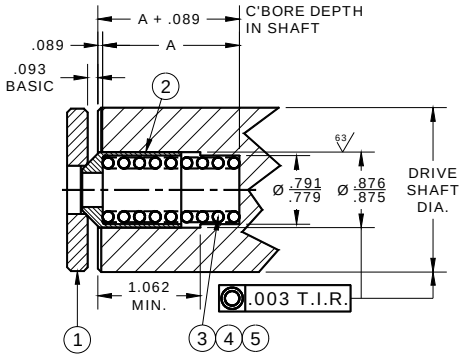


Spring Data Chart for TRL Models

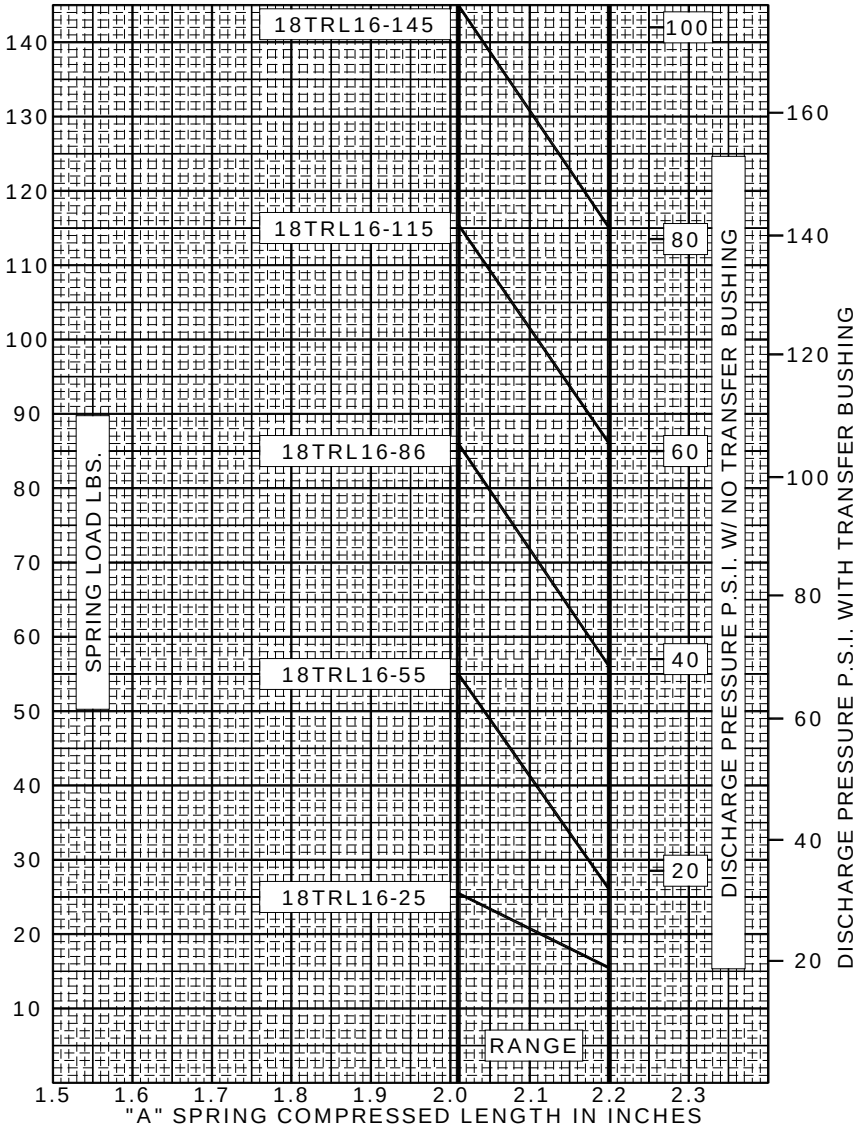


Ref No.	Part Name	Part No.
1	Floating Plate	18TRL25
2	Transfer Bushing	18TRL58
3	Spring #45	18TRL63-45
4	Spring #85	18TRL63-85
5	Spring #142	18TRL63-142

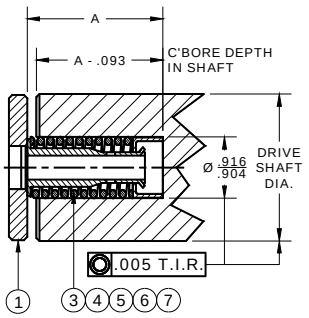


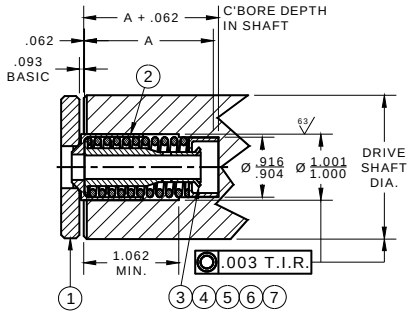


Spring Data Chart for TRL Pumps (Using Precompressed Spring Assemblies)

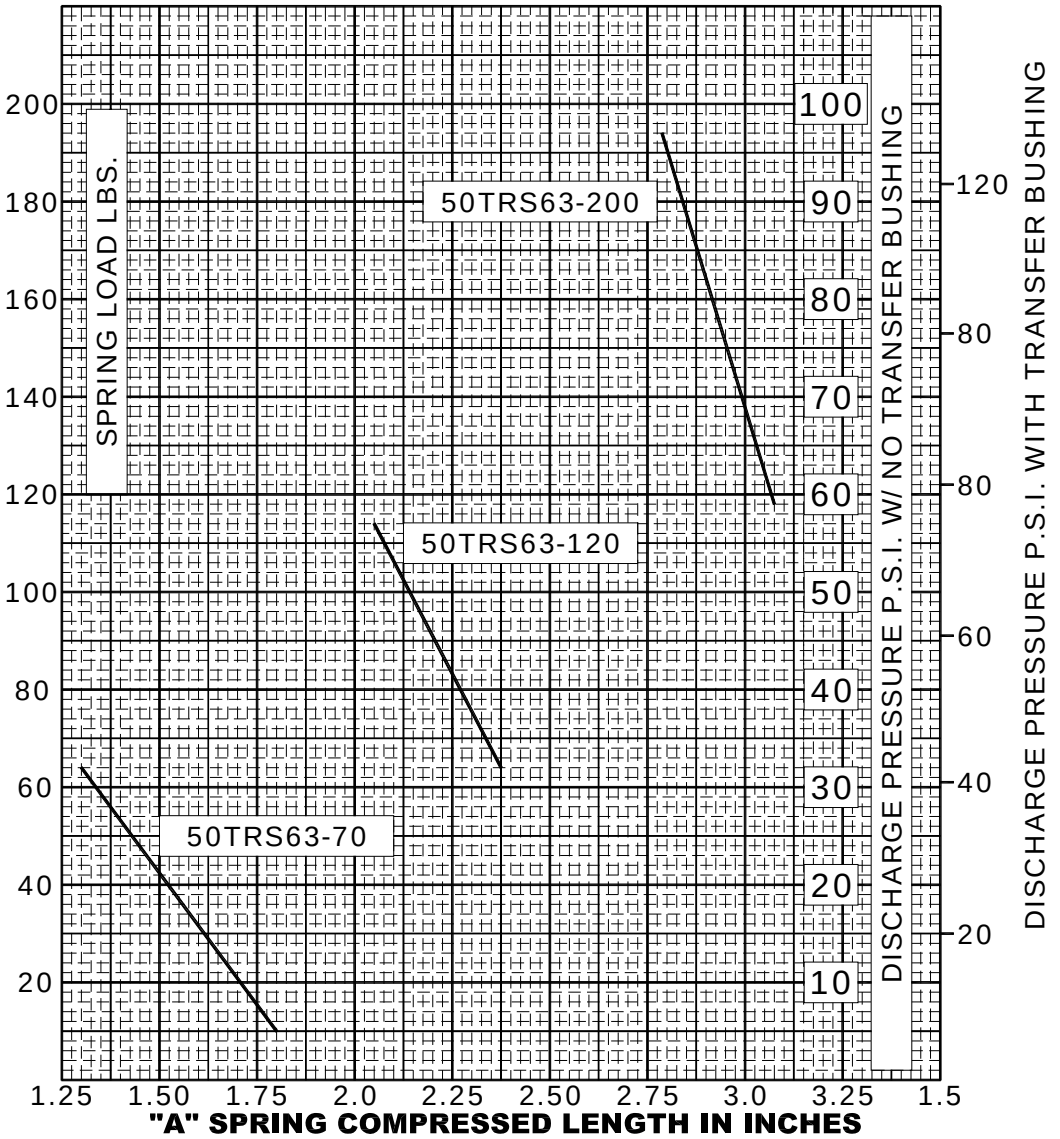


Ref No.	Part Name	Part No.
1	Floating Plate	18TRL25
2	Transfer Bushing	18TRL58-A
3	Spring Assembly #25	18TRL16-25
4	Spring Assembly #55	18TRL16-55
5	Spring Assembly #85	18TRL16-86
6	Spring Assembly #115	18TRL16-115
7	Spring Assembly #145	18TRL16-145





Spring Data Chart for TRS Models



"A" SPRING COMPRESSED LENGTH IN INCHES

Ref No.	Part Name	Part No.
1	Floating Plate	50TRS25
2	Transfer Bushing	50TRS58
3	Spring #70	50TRS63-70
4	Spring #120	50TRS63-120
5	Spring #200	50TRS63-200