



## Air Starters

# ST700/ST900 Series



**For engine displacement of:** Diesel-1000 to 20,000 CID (16 to 320 liters)  
Carburated-2000 to 40,000 CID (32 to 660 liters)

### Features/Benefits

- Robust gearing handles extended crank cycles
- Sealed for use in gas and air applications
- Powerful 64 hp turbine motor uses no external lubrication
- Quiet turbine motor requires no external lubrication

### Versatile

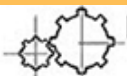
- Left- or right-hand rotation available
- 4 inlet, 4 exhaust, and 16 housing orientations
- 30-150 psi (2.1-10.3 bars) operation
- Inertia and pre-engaged drives available



*The ST999BP03R31 starter is ready for use on a Cat 3608 engine.*



*The ST799GCDP03R31 starter is piped for use with gas on a Waukesha F3521GU used for power generation.*



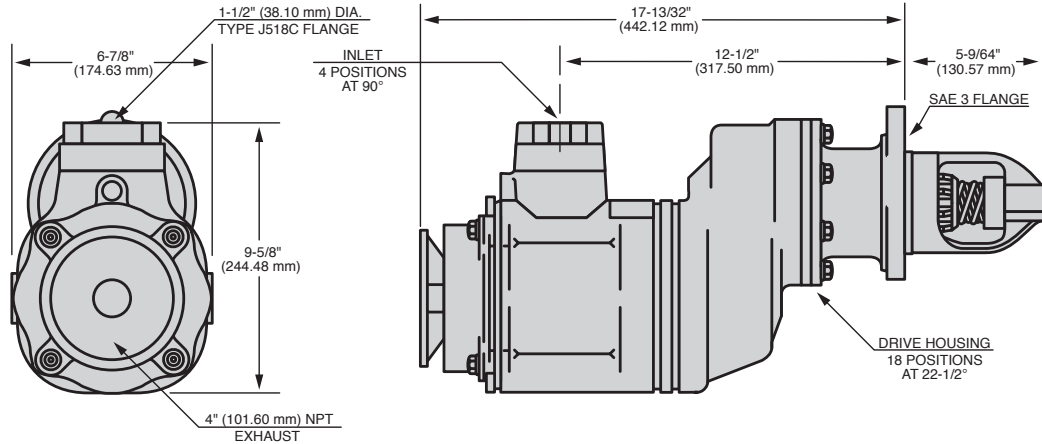
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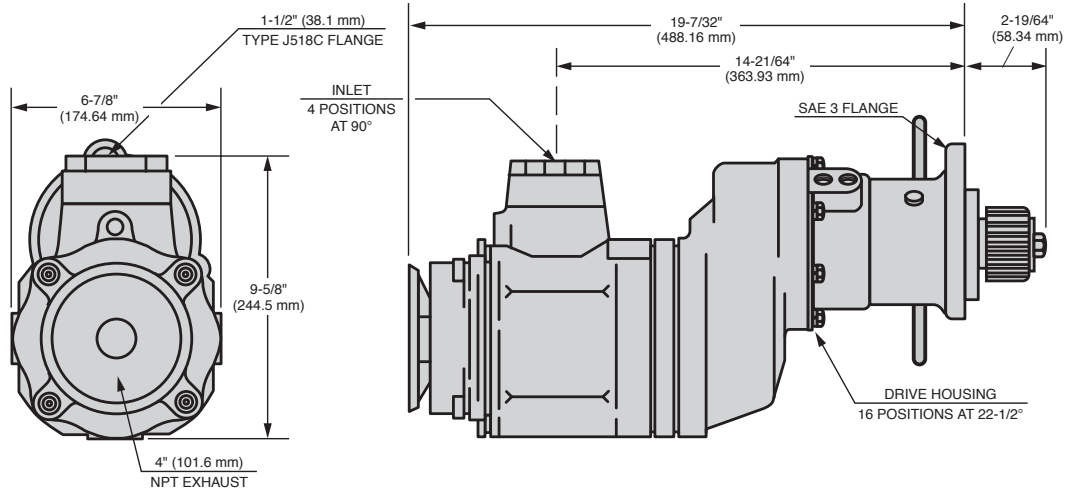
## ST750/ST799GBI & ST950/ST999BI Inertia DIMENSIONS

Weight lbs (kg)	
ST750/ST799GBI	62 (28.1)
ST950/ST999BI	62 (28.1)



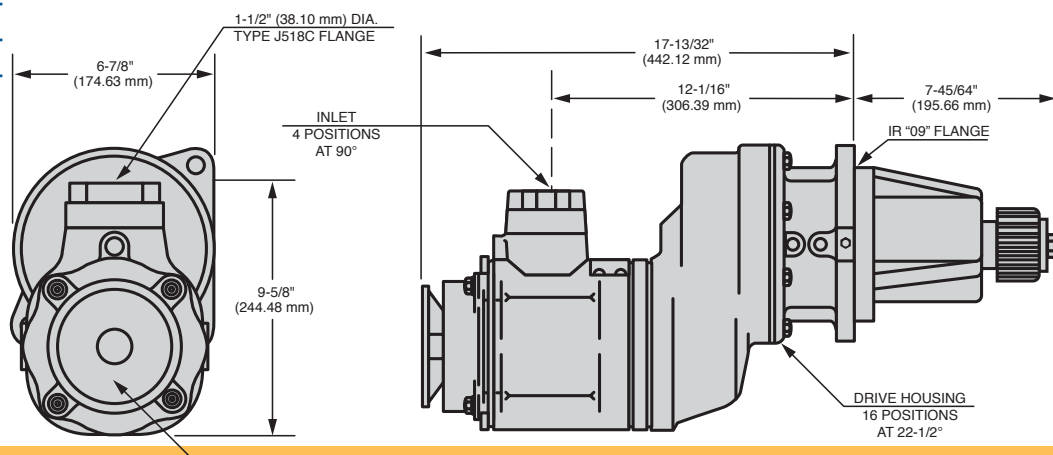
## ST750/ST799 & ST950/ST999 "B" & "C" Ratio Pre-engaged DIMENSIONS

Weight lbs (kg)	
ST750/ST799GBPD	63 (28.6)
ST950/ST999BP	63 (28.6)



## ST750/ST799GDDP & ST950/ST999DP DIMENSIONS

Weight lbs (kg)	
ST750/ST799GDDP	92 (41.7)
ST950/ST999DP	92 (41.7)



# ST700/ST900 Series

## ST750/ST950 B Ratio (Inertia & Pre-engaged) Performance Information

Pressure PSI (bar)	Breakaway Torque ft-lb (Nm)	Speed @ Max HP RPM	Max Power HP (kw)	Flow @ Max HP SCFM (L/s)
90 (6.2)	160 (217)	1950	30 (22)	850 (401)
120 (8.3)	225 (305)	2100	45 (34)	1100 (519)
150 (10.3)	250 (339)	2350	55 (41)	1300 (614)

## ST799/ST999 B Ratio (Inertia & Pre-engaged) Performance Information

Pressure PSI (bar)	Breakaway Torque ft-lb (Nm)	Speed @ Max HP RPM	Max Power HP (kw)	Flow @ Max HP SCFM (L/s)
30 (2.1)	110 (149)	1750	18 (13)	700 (330)
60 (4.1)	195 (264)	1950	36 (27)	1200 (566)
90 (6.2)	310 (420)	2250	66 (49)	1700 (802)

## ST750/ST950 C Ratio (Pre-engaged) Performance Information

Pressure PSI (bar)	Breakaway Torque ft-lb (Nm)	Speed @ Max HP RPM	Max Power HP (kw)	Flow @ Max HP SCFM (L/s)
90 (6.2)	190 (257)	1675	30 (22)	850 (401)
120 (8.3)	260 (352)	1800	45 (34)	1100 (519)
150 (10.3)	285 (386)	2000	55 (41)	1300 (614)

## ST799/ST999 C Ratio (Pre-engaged) Performance Information

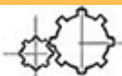
Pressure PSI (bar)	Breakaway Torque ft-lb (Nm)	Speed @ Max HP RPM	Max Power HP (kw)	Flow @ Max HP SCFM (L/s)
30 (2.1)	130 (175)	1500	18 (13)	700 (330)
60 (4.1)	225 (305)	1630	36 (27)	1200 (566)
90 (6.2)	360 (485)	1935	66 (49)	1700 (802)

## ST750/ST950 D Ratio (Pre-engaged) Performance Information

Pressure PSI (bar)	Breakaway Torque ft-lb (Nm)	Speed @ Max HP RPM	Max Power HP (kw)	Flow @ Max HP SCFM (L/s)
90 (6.2)	255 (346)	1250	30 (22)	850 (401)
120 (8.3)	355 (481)	1350	45 (34)	1100 (519)
150 (10.3)	390 (528)	1500	55 (41)	1300 (614)

## ST799/ST999 D Ratio (Pre-engaged) Performance Information





Pressure PSI (bar)	Breakaway Torque ft-lb (Nm)	Speed @ Max HP RPM	Max Power HP (kw)	Flow @ Max HP SCFM (L/s)
30 (2.1)	175 (237)	1100	18 (13)	700 (330)
60 (4.1)	305 (413)	1250	36 (27)	1200 (566)
90 (6.2)	485 (657)	1450	66 (49)	1700 (802)



# Air Starters

## ST700/ST900 Series Accessories

See catalog pages J-1 to J-18 for detailed Accessory information.

IR Part #	Description	Picture
<b>1</b> 150BMP-1051B	1/4" 12 V Solenoid Valve	
<b>2</b> 150BMP-2451B	1/4" 24 V Solenoid Valve	
<b>3</b> SMB-618	Push Button Valve	
<b>4</b> SMB-G618	Gas Rated Push Button Valve	
<b>5</b> SRV150	1-1/2" Relay Valve For Air	
<b>6</b> SRV150SS	1-1/2" Gas Rated Relay Valve	
<b>7</b> 150BMP-1058	Gladhand	
<b>8</b> 150BMP-1064	1/8", 150 psi Pressure Gauge	

IR Part #	Description	Picture
<b>9</b> ST900-267-24	1-1/2" Strainer (300 Mesh)	
<b>10</b> ST900-267-32	2" Strainer (300 Mesh)	
<b>11</b> ST900-266-24	1-1/2" Strainer Element (300 Mesh)	
<b>12</b> ST900-266-32	2" Strainer Element (300 Mesh)	
<b>13</b> 150BMP-1056	1/2" Check Valve	
<b>14</b> 150BMP-1067	1/2" Drain Valve	

Red item numbers correspond to numbers in diagrams on page D-5.

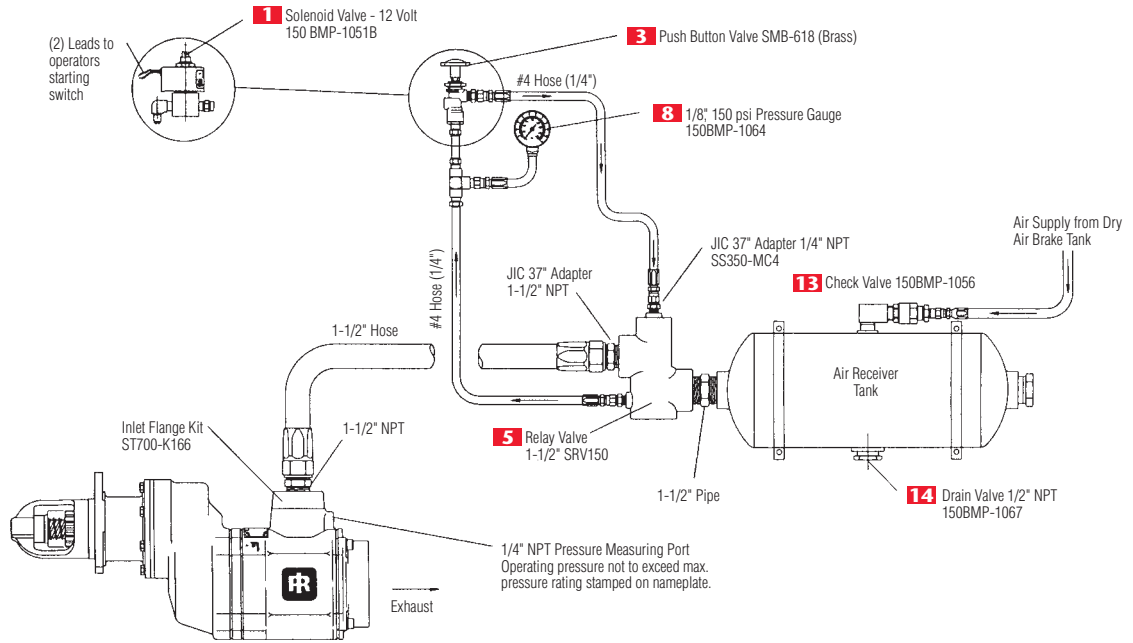
## ST700/ST900 Number of Starts per Tank

(Assuming 1-Second Crank Time @ 90 PSI)

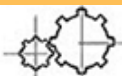
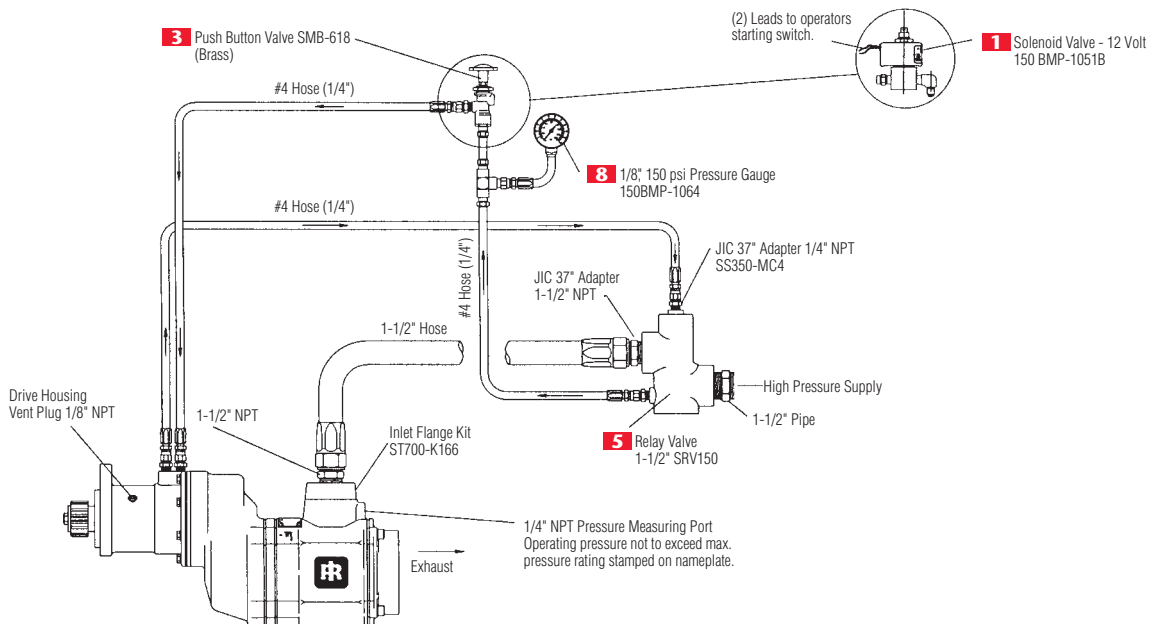
	7	8	10	11	13	15	16	18	20	
	6	7	9	10	11	13	14	16	18	
<b>Max Tank Pressure (psi)</b>	5	6	7	9	10	11	12	14	16	<b>Max Tank Pressure (bar)</b>
	4	5	6	7	8	9	10	11	14	
	3	4	5	6	7	7	8	9	12	
	2	3	4	4	5	6	6	7	10	
	2	2	2	3	3	4	4	5	8	
	1	1	1	1	2	2	2	2	6	
	80	100	120	140	160	180	200	220		<b>Gallons</b>
	302	378	454	529	605	680	756	832		<b>Liters</b>
	<b>Tank Size</b>									

# ST700/ST900 Series

## ST700/ST900 Inertia Installation

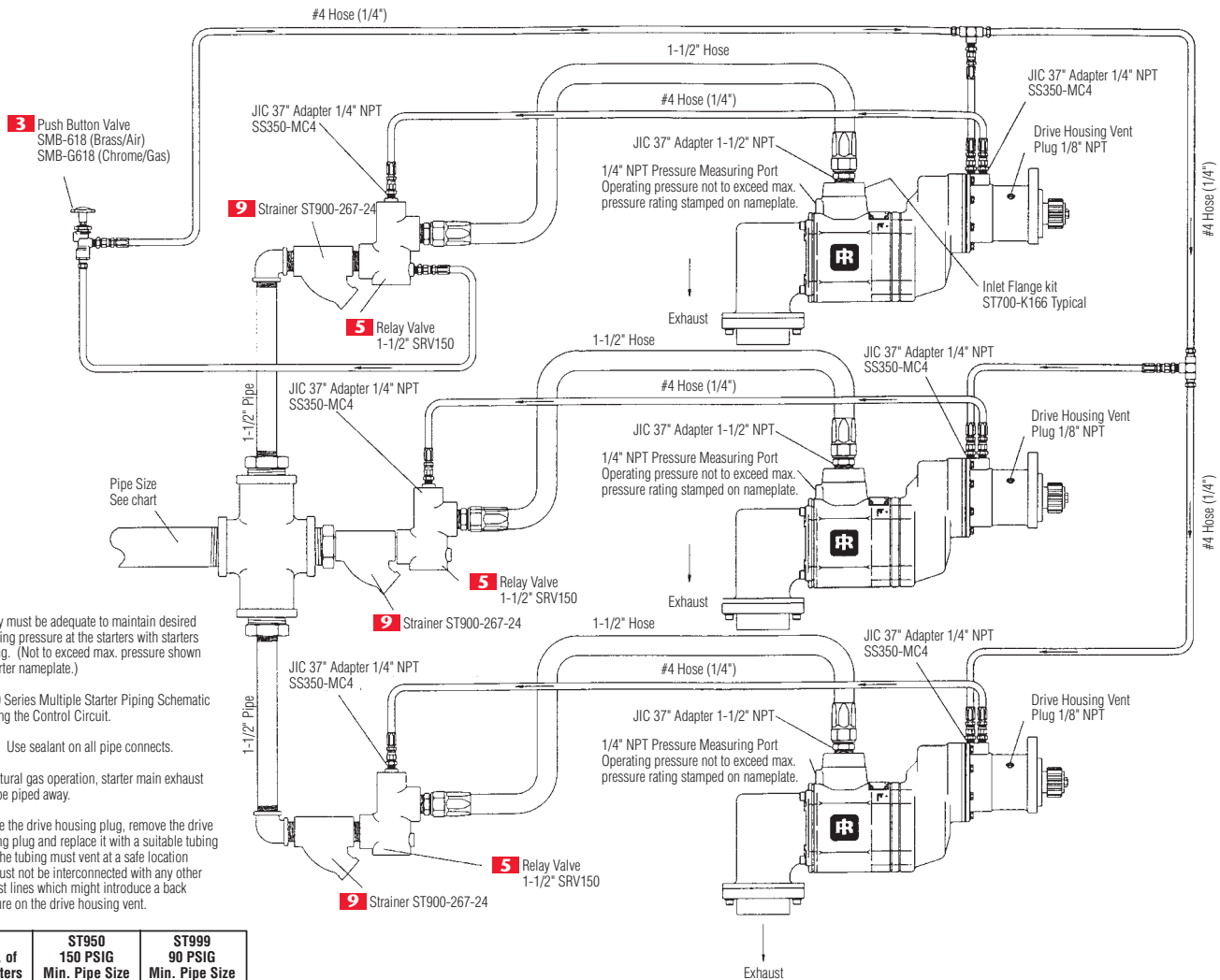


## ST700/ST900 Typical Stationary Installation



# Air Starters

## ST700/ST900 Typical Multiple Starter Application Installation



Supply must be adequate to maintain desired operating pressure at the starters with starters running. (Not to exceed max. pressure shown on starter nameplate.)

ST900 Series Multiple Starter Piping Schematic showing the Control Circuit.

NOTE: Use sealant on all pipe connects.

For natural gas operation, starter main exhaust must be piped away.

To pipe the drive housing plug, remove the drive housing plug and replace it with a suitable tubing line. The tubing must vent at a safe location and must not be interconnected with any other exhaust lines which might introduce a back pressure on the drive housing vent.

No. of Starters	ST950 150 PSIG Min. Pipe Size	ST999 90 PSIG Min. Pipe Size
2	2-1/2"	3"
3	3"	3-1/2"
4	3-1/2"	4"
5	3-1/2"	4"



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# ST700/ST900 Series

*Bold Model Numbers indicate that a remanufactured model is available with the same part number (add an "R" to the number).*

## ST700/ST900 Series Crossover Model Numbers

**Most Obsolete Units ▶**

<b>ST900 Turbine Current Units</b>	<b>ST700 Turbine Current Units</b>	<b>SS800 Crossover Units</b>	<b>SS800 Obsolete</b>	<b>SS660 Obsolete</b>	<b>SM450 Obsolete</b>	<b>20BM Obsolete</b>
ST950BI03L32	ST750GBDI03L32	SS810GB03L32	SS800GB03L32	SS660LB991A02	SM450LB991A02	20BMB47LH-4
ST950BI03R31	ST750GBDI03R31	SS810GB03R31		SS660RB991A01	SM450RB991A01	20BMB41RH-1
ST950BP03L32	ST750GBDP03L32	SS815FGB03L32				
ST950BP03R31	ST750GBDP03R31	SS815FGB03R31				
ST950BP03L32	ST750GBDP03L32	SS815GB03L32	SS800GB03L32	SS660LB991A02	SM450LB991A02	20BMB47LH-4
ST950BP03L92	ST750GBDP03L92	SS815GB03L92-1738				
ST950BP03R31	ST750GBDP03R31	SS815GB03R31				
	ST750GBDP03R91	SS815GB03R91	SS800GB03R91	SS660RB991A08		
ST950BPJ3R493	ST750GCDPJ3R493	SS815GBDPJ3R493				
ST950CP03L26	ST750GCDP03L26	SS825FGC03L26				
ST950CP03R25	ST750GCDP03R25	SS825FGC03R25				
ST950CP03L26	ST750GCDP03L26	SS825GC03L26		SS660LB981A04	SM450LB981A04	20BM21LH-22
ST999CP03L52	ST750GCDP03L52	SS825GC03L52-21C				
ST950CP03R25	ST750GCDP03R25	SS825GC03R25		SS660RB981A03	SM450RB981A03	20BMB21RH-19
ST950BP03R31	ST750GCDP03R31	SS825GC03R31				
ST950DP09L52	ST750GDDP09L52	SS850GD09L52		SS660LD971A06	SM450LD971A06	20BMD52LH-26
ST950DP09R51	ST750GDDP09R51	SS850GD09R51		SS660RD971A05	SM450RD971A05	20BMD52RH-25

ST700 starters do not include an exhaust elbow.

All ST900 starters include an exhaust elbow. The letter "S" should be added to the part numbers to have the elbow removed.



# Air Starters

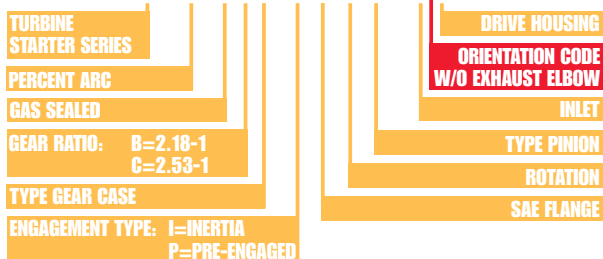
This chart is a condensed list of engines that can be cranked with an IR starter. For a complete list, please contact IR.

## ST700/ST900 Series Engine Selection Guide

Manufacturer	Engine	CID	Liter	CYL	Type	Turbine Starter
<b>CATERPILLAR</b>	3616	18016	295	16	Diesel	ST775GCDP03R25
	3618	20291	332.6	18	Diesel	ST775GCDP03R25
	G3516	4210	69	16	Nat. Gas	ST950BP03R31
	G3616	18036	295.6	16	Nat. Gas	ST950CP03R25S
	G-399	3927	64.4	16	Nat. Gas	ST950BP03R31
<b>CES-BESSEMER</b>	10W330	50894	834	14	Nat. Gas	4-ST950DP09L52
	12V-250			12	Nat. Gas	3-ST950DP09L52
	GMVA	21550	353	10	Nat. Gas	2 - ST950DP09L52
	GMVA	25860	423.8	12	Nat. Gas	2 - ST950DP09L52
	GMVW				Nat. Gas	3-ST950DP09L52
	GMWC	81388	1,333.70	16	Nat. Gas	5 - ST950DP
	GMXF	3134	51.4	4	Nat. Gas	ST950DP09L52
<b>DRESSER-RAND</b>	512KV	53080	869.8	12	Nat. Gas	ST950BP03R25
	PSVG-12	16590	271.9	12	Nat. Gas	ST950BP03R25
<b>EMD GM</b>	12-278	6809	111.6	12	Diesel	ST950DP09R51
	12-498	7576	124.1	12	Diesel	ST950DP09R51
<b>WARTSILA</b>	34SG	38560	632	16	Nat. Gas	ST775GCDP03R91
	34SG	43380	711	18	Nat. Gas	ST775GCDP03R91
<b>WAUKESHA</b>	12VAT25GL	10784	176.7	12	Nat. Gas	ST950CP03R25S (70-150 psi) ST999CP03R25S (30 - 90 psi)
	16VAT25GL	14378	235.6	16	Nat. Gas	ST950CP03R25S
	2895G (SI/L)	2894	47	6L	Nat. Gas	ST950BP03R25S
	7042G (SI/L)	7040	115	12V	Nat. Gas	ST950CP03R25S
	8LAT27GL	8699	143	8	Nat. Gas	ST950CP03R25S
	F2895	2894	47.4	6	Nat. Gas	ST950CP03R25S (70-150 psi) ST999CP03R25S (30 - 90 psi)
	F3521	3520	58	6L	Nat. Gas	ST950CP03R25S (70-150 psi) ST999CP03R25S (30 - 90 psi)
	H24GL (D)	1462	24	8L	Nat. Gas	ST950BP03R31
	L36GL (D)	2193	36	12V	Nat. Gas	ST950CP03R25S (70-150 psi) ST999CP03R31S (30 - 90 psi)
	L7040G	7040	115.4	6	Nat. Gas	ST950CP03R25S
	P9390G (L) (SI)	9388	153.8	16	Nat. Gas	ST950CP03R25

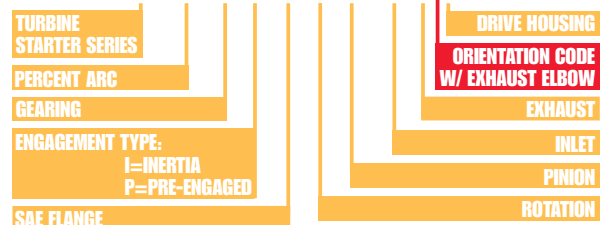
### ST700 SERIES MODEL CODING

ST7 50 G B D P 03 R 31 - 2 P



### ST900 SERIES MODEL CODING

ST9 50 B P 03 R 31 - 0 2 G

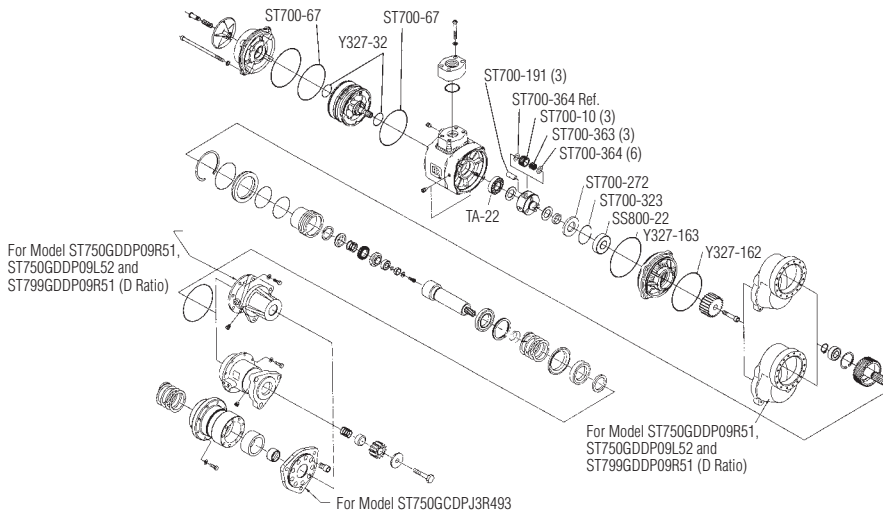


For non-standard positions order orientation "-POS"



## ST700/ST900 Series Genuine Ingersoll-Rand Replacement Kits

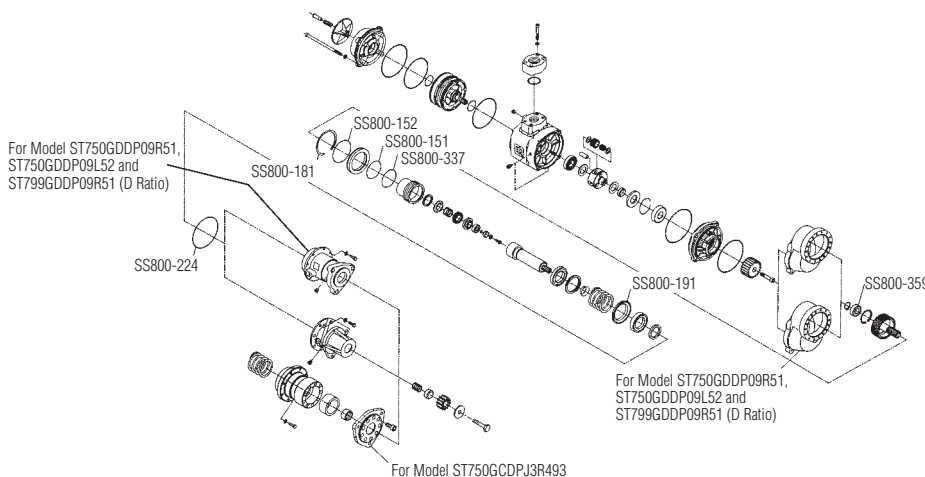
Tune Up Kit Part Number	Description
ST700-TK1	ST700 Tune Up Kit
ST700I-TK6	ST700 Inertia Front End Tune Up Kit
ST700P-TK7	ST700 Pre-Engaged Front End Tune Up Kit
ST700D-TK8	ST700 and ST900 D Ratio Kit (4 O-Rings, 1 Retainer Ring)
ST750R-TK2	ST700-TK1 and ST750R-A53 motor assembly for RH ST750 starters
ST750L-TK3	ST700-TK1 and ST750L-A53 motor assembly for LH ST750 starters
ST799R-TK4	ST700-TK1 and ST799R-A53 motor assembly for RH ST799 starters
ST799L-TK5	ST700-TK1 and ST799L-A53 motor assembly for LH ST799 starters
ST900-GK1	ST900 Gear Kit
ST900-SK1	ST900 Seal Kit



Exploded View of ST700-TK1 Part Location



ST700-TK1 Parts



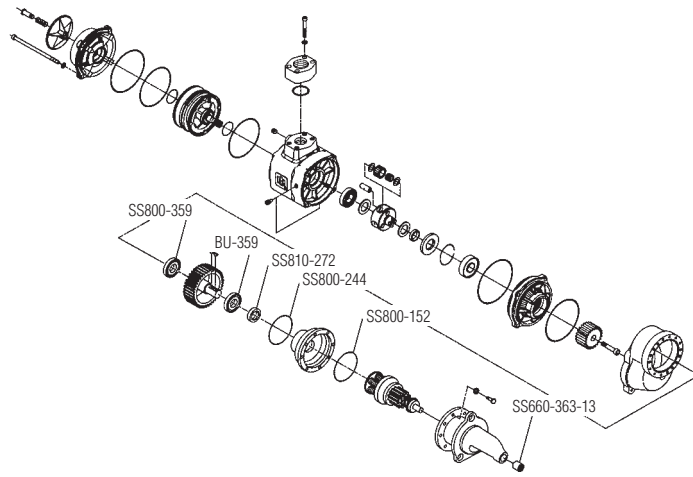
Exploded View of ST700P-TK7 Part Location



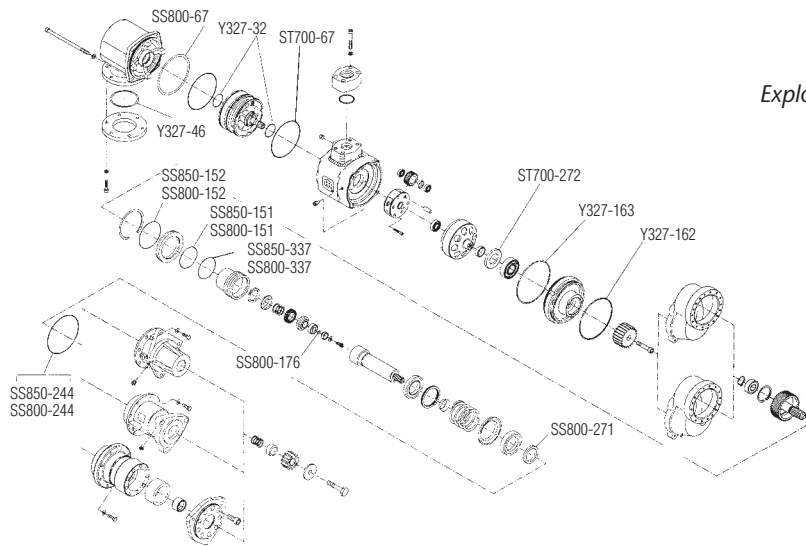
ST700P-TK7 Parts



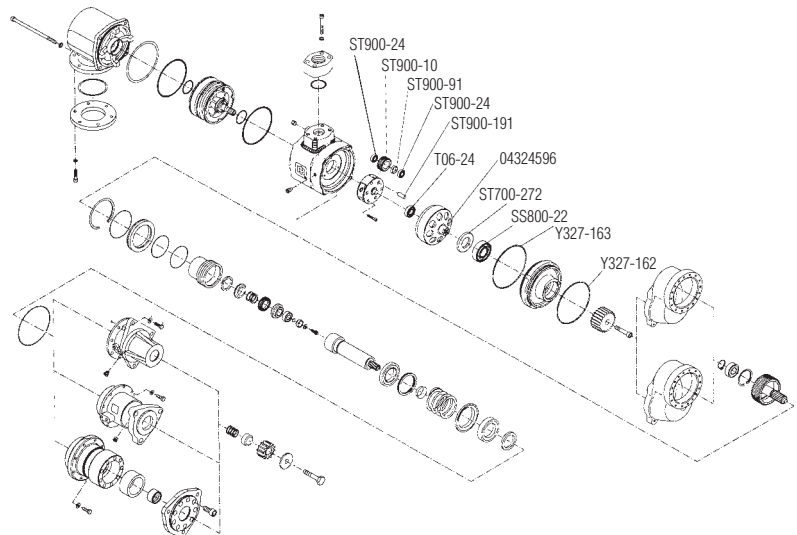
# ST700/ST900 Series Air Starters



*Exploded View of ST700I-TK6 Part Location*



*Exploded View of ST900-SK1 Part Location*



*Exploded View of ST900-GK1 Part Location*

