



## Air Starters

# ST600 Series

**#1** Starter in the mining industry —  
for use with air only



**For engine displacement of:** Diesel—1000 to 5000 CID (16 to 80 liters)  
Carburated—2000 to 10,000 CID (32 to 160 liters)

### Features/Benefits

- Powerful 67 hp turbine motor uses no external lubrication
- Extended pilot for easier installation
- Offset pre-engaged ports for greater fitting positioning
- Quiet operation turbine motor requires no muffler
- Smooth pre-engagement for limited ring gear wear
- 39 lb (17.7 kg) weight makes it the lightest starter in its class

### Versatile

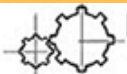
- Left- or right-hand rotation available
- 8 orientation options
- 30-150 (2.1-10.3 bars) psi operation



An *ST650BP03R31* starter is shown being mounted on a CAT3512 used on a mine haul truck.



An *ST650BP03R31* starter is shown mounted on a Detroit Diesel 12V-149R.



**LOUZAMPINI & ASSOCIATES**

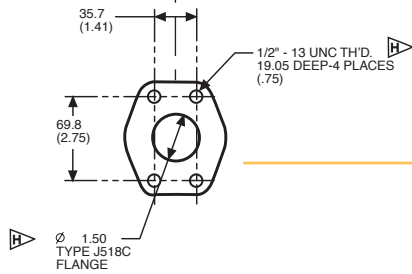
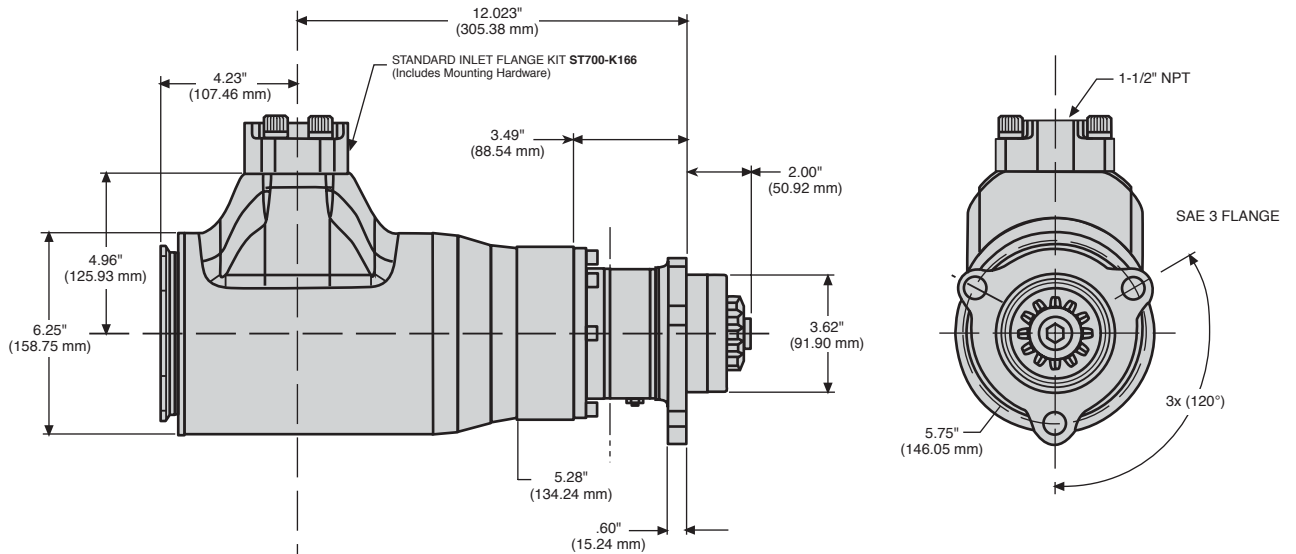
Five Star Desoutter  
Factory Authorized Dealer

Please Call **1-800-353-4676** for questions, pricing, or to order. We will be happy to assist you.

# Air Starters

## ST600 Series DIMENSIONS

Weight lbs (kg)	
ST600	39 (17.7)



## Inlet Flange Kit (ST700-K166) DIMENSIONS

Weight lbs (kg)	
ST700-K166	4.5 (2.0)



# ST600 Series

## ST650B 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)	155 (210)	2300	34 (25)	850 (401)
120 (8.3)	225 (305)	2350	50 (37)	1150 (543)
150 (10.3)	260 (352)	2600	65 (49)	1450 (684)

## ST699B 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)	1950	20 (15)	600 (283)
60 (4.1)	195 (264)	2200	41 (31)	1150 (543)
90 (6.2)	290 (393)	2400	67 (50)	1700 (802)

**NOTE:** Overtorque safety clutch set between 330 to 440 ft-lb (447 to 596 Nm)

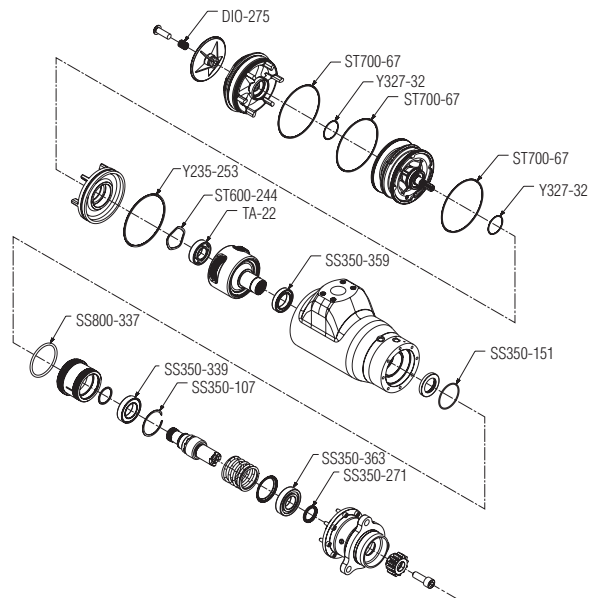
## ST650 Number of Starts per Tank

(Assuming 2-Second Crank Time @ 90 PSI)

<b>Max Tank Pressure (psi)</b>	300	6	7	9	10	12	13	15	16	20	<b>Max Tank Pressure (bar)</b>
	270	5	7	8	9	10	12	13	14	18	
	240	4	6	7	8	9	10	11	12	16	
	210	4	5	6	7	7	8	9	10	14	
	180	3	4	4	5	6	7	7	8	12	
	150	2	3	3	4	4	5	6	6	10	
	120	1	2	2	3	3	3	4	4	8	
	90	1	1	1	1	1	2	2	2	6	
		80	100	120	140	160	180	200	220		
		302	378	454	529	605	680	756	832		
	<b>Tank Size</b>									<b>Gallons</b>	<b>Liters</b>

## ST600 Genuine Ingersoll-Rand Replacement Kits

Tune Up Kit Part Number	Description
ST600-TK1	ST600 Starter Tune Up Kit
ST600-SK1	ST600 Starter Seal Kit



Exploded View of ST600-TK1 Part Location

## ST600 Series Accessories

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

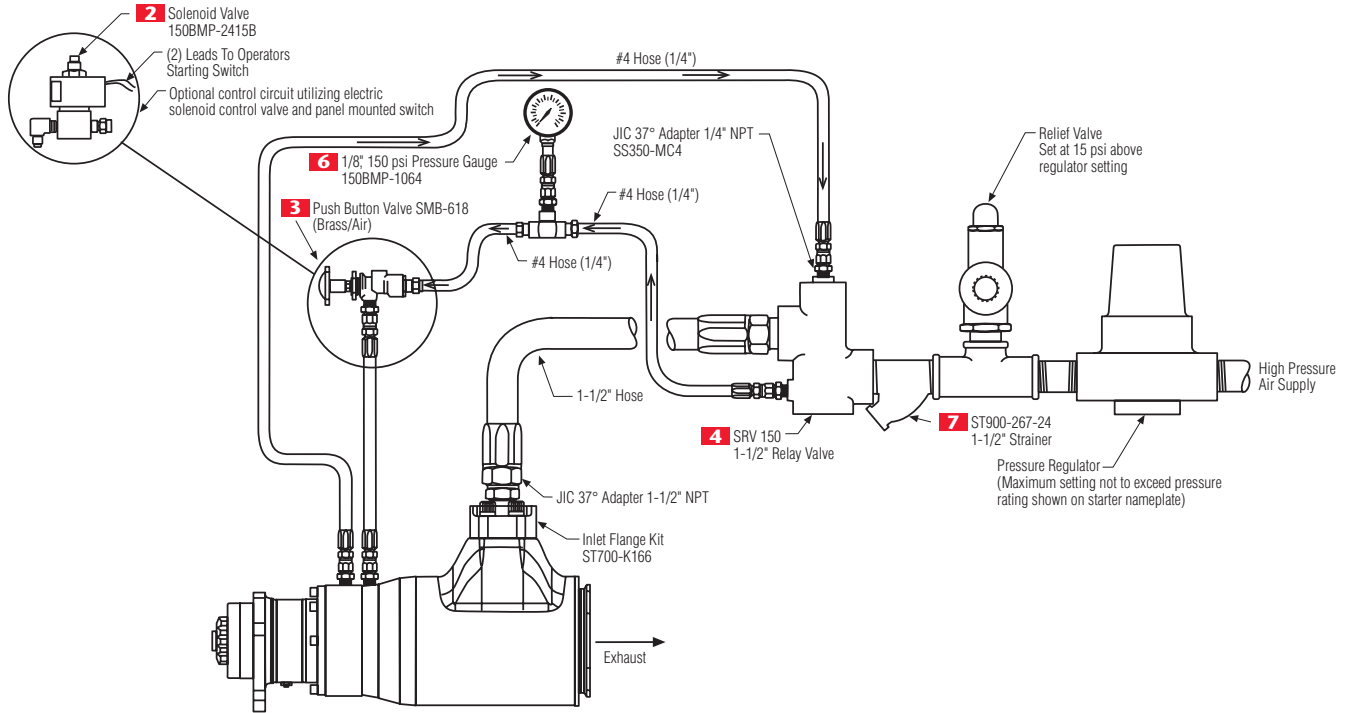
IR Part #	Description	Picture
<b>1</b> 150BMP-1051B	1/4" 12 V Solenoid Valve	
<b>2</b> 150BMP-2451B	1/4" 24 V Solenoid Valve	
<b>3</b> SMB-618	Push Button Valve	
<b>4</b> SRV150	1-1/2" Relay Valve	
<b>5</b> 150BMP-1058	Gladhand	

IR Part #	Description	Picture
<b>6</b> 150BMP-1064	1/8", 150 psi Pressure Gauge	
<b>7</b> ST900-267-24	1-1/2" Strainer (300 Mesh)	
<b>8</b> ST900-266-24	1-1/2" Strainer Element (300 Mesh)	
<b>9</b> 150BMP-1056	1/2" Check Valve	
<b>10</b> 150BMP-1067	1/2" Drain Valve	

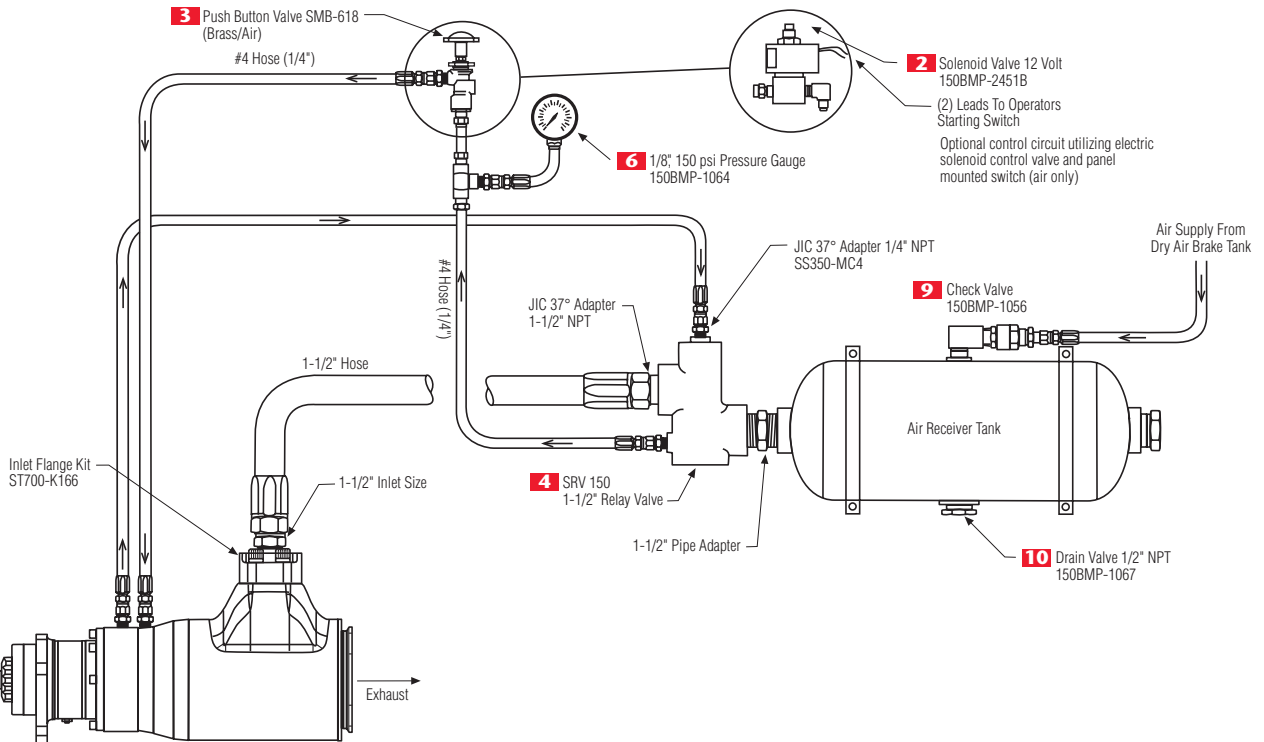
Red item numbers correspond to numbers in diagrams on page C-5.

# ST600 Series

## ST600 Diagram for a Typical Stationary Installation: Pre-engaged



## ST600 Diagram for a Typical Vehicular Installation: Pre-engaged





# ST600 Series Air Starters

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

**Most Obsolete Units** ▶

## ST600 Series Crossover Model Numbers

ST600 Available Units	ST900 Crossovers	ST700 Crossovers	SS800 Crossovers	Obsolete Units	Obsolete Units	Obsolete Units	Obsolete Units
ST650BP03R31	ST950BP03R31	ST750GBDP03R31	SS815GB03R31	SS800GB03R31	SS660RB991A01	SM450RB991A01	20BMB41RH-1
ST650BP03L31	ST950BP03L32	ST750GBDP03L32	SS815GB03L32	SS800GB03L32	SS660LB991A02	SM450LB991A02	20BMB47LH-4
ST650BP03R91		ST750GBDP03R91	SS815GB03R91	SS800GB03R91	SS660RB991A08		

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

## ST600 Series Engine Selection Guide

Manufacturer	Engine	CID	Liter	CYL	Type	Turbine Starter
<b>CATERPILLAR</b>	3508	2105	34.5	8	Diesel	ST650BP03R31
	3512	3158	51.8	12	Diesel	ST650BP03R31
	3516	4210	69	16	Diesel	ST650BP03R31
	D-353	1473	24.1	6	Diesel	ST650BP03R31
	D-364	1662	27.2	8	Diesel	ST650BP03R31
	D-399	3927	64.4	16	Diesel	ST650BP03R31
<b>CUMMINS</b>	K19 SERIES	1150	18.8	6	Diesel	ST650BP03R31
	K38 SERIES	2300	37.7	12	Diesel	ST650BP03R31
	QSK45	2746	45	12	Diesel	ST650BP03R31
	QSK60	3660	60	16	Diesel	ST650BP03R31
	QST30	1861	30	12	Diesel	ST650BP03R31
<b>DETROIT DIESEL</b>	12V-92	1104	18.1	12	Diesel	ST650BP03R31
	12V-149	1788	29.3	12	Diesel	ST650BP03R31
	16V-149	2384	39.1	16	Diesel	ST650BP03R31
	16V-71	1136	18.6	16	Diesel	ST650BP03R31
	16V4000		60	16	Diesel	ST650BP03R31
<b>WAUKESHA</b>	12VAT25D	10784	176.7	12	Diesel	2-ST650BP03R31
	6AT25D	5392	88.4	6	Diesel	ST650BP03R31
	F2896D	2894	47.4	6	Diesel	ST650BP03R31
	F3335D	3335	54.7	6	Diesel	ST650BP03R31
<b>WHITE ENGINES</b>	DNX-V8C	1348	22.1	8	Diesel	ST650BP03R31
	DNX-V8D	1468	24.1	8	Diesel	ST650BP03R31

## ST600 SERIES MODEL CODING

**ST6 50 B P 03 R 31**

