

Transporter® LP

Operations & Installation Guidelines



Rev. 07/09

TRANSPORTER® LP TOOLING DESIGN AND SET-UP REQUIREMENTS

Valve Type:

Standard TPLP: 3/2-poppet valve (use the chart below to calculate valve requirements and size). These magnets require an instantaneous, high inrush of compressed air to release properly.

Double Action TPLP: 4-Way, 3 position valve with blocked pressure port.

Tubing Specifications:

- Minimum tubing size to the **Standard TPLP** magnet is 3/8" O.D. tubing with 0.050" wall thickness (see diagram below).
- Minimum tubing size to the **Double Action TPLP** magnet is 1/4" O.D.
- Tubing from the valve outlet to the manifold must be the same size as the piping to the valve inlet.

Magnet timing and control considerations:

- If the valve is staying open longer than necessary to release the part, look at the control sequence and adjust the timing. For most applications, air only needs to be applied long enough to release the part and allow the tooling arm to begin moving away from the part.
- If the part shifts or the magnet sticks to the part before the tooling arm is in the proper position for attachment, it may be necessary to apply air to the magnet while the tooling arm moves into position. This will prevent the magnets from shifting the part where precise positioning is critical.

Magnet placement on part:

- To ensure optimum magnetic hold on the part, place the magnets on a flat location on the part where the magnet face can sit flush.
- Avoid areas where part will flex or bounce and peel away from the face of the magnet.
- Try to distribute the weight of the part equally between the magnets on the tooling arm.

SPECIFICATIONS

Supply air pressure must not exceed 60 PSI at the Transporter® LP inlet. Operating at pressures above 60 PSI will lead to premature failure of the magnet. Air must be clean, dry and non-lubricated. Air pressure should never be applied to the Transporter® LP during a transfer cycle. This will cause the loss of a part. Apply air when in position to release the part. In some applications, air may need to be applied to retract the magnet before contacting the part. If the magnet "reach out" lifts the part from the guides before making contact, causing loss of part position, apply air to the Transporter® LP prior to lifting the part.

EXAMPLE: 4 Transporter® LP Magnets On A Spreader Bar

1. Air Line Requirements

3/8" O.D. Minimum w/ 0.050" wall. 1/4" OD for Double Action TPLP.

Tubing from the Manifold to the Magnets should be all the same length.

2. Manifold (4 Ports Maximum)

3/8" NPT Minimum Ports.

3. 1/2" O.D. Minimum Incoming Air Line

4. Filter/Regulator (Sized to suit incoming line)

5. Pilot Air Line (Optional)

6. Pilot Control Valve (Optional)

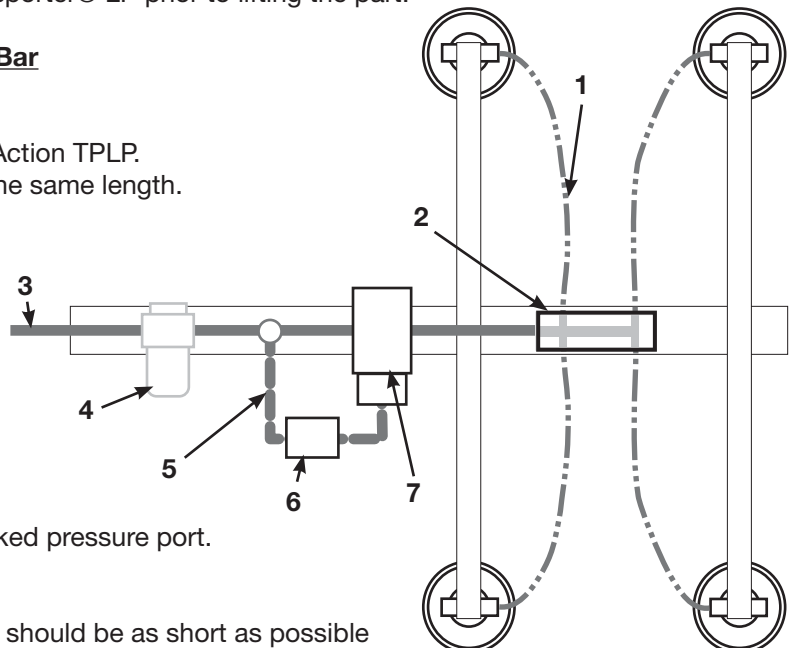
7. 3-Way Inline Valve (1/2" Port Minimum)

Electric Solenoid or Air Pilot Operation

(2 Way Valve can also be used)

$C_v \geq 5.0$ (C_v = measurement of airflow through a valve)

Double Action TPLP: 4-Way, 3 position valve with blocked pressure port.



NOTE:

Distance between **Manifold (#2)** and **Filter/Regulator (#4)** should be as short as possible and the largest diameter line possible (1/2" or 3/4" Hard Black Pipe is optimal).

INDUSTRIAL MAGNETICS, INC. • 1385 South M 75 • Boyne City, MI 49712 • USA

TOLL FREE 888.582.0823 PHONE 231.582.3100 FAX 231.582.2704 WEB WWW.MAGNETICS.COM

SPECIFICATIONS cont'd • Intermittent Air Consumption (Flow in SCFM)

Pressure (PSI)	TPLP15	TPLP30	TPLP50
30	2.70	2.60	3.50
35	3.00	2.95	3.90
40	3.25	3.25	4.25
45	3.50	3.50	4.50
50	3.75	3.75	4.75
55	3.85	4.00	5.00
60	4.00	4.25	5.25

MAXIMUM LIFTING CAPACITY (LBS.)

ga./in.	mm	TPLP15		TPLP30		TPLP30DS		TPLP30ES		TPLP50		TPLP50DS	
		Plain	Boot/Pad	Plain	Boot/Pad	Plain	Boot/Pad	Plain	Boot/Pad	Plain	Boot/Pad	Plain	Boot/Pad
		0.00	0.035	0.00	0.035	0.00	0.035	0.00	0.035	0.00	0.035	0.00	0.035
26 ga (.018)	0.5	10	7	21	19	24	19	25	20	38	33	29	23
22 ga (.030)	0.7	14	9	33	30	36	24	39	31	61	54	47	29
18 ga (.0478)	1.2	16	9	50	41	44	28	59	46	93	82	57	39
16 ga (.060)	1.5	16	10	59	44	47	28	70	51	115	100	61	40
14 ga (.075)	1.9	17	10	60	44	48	28	78	52	133	113	65	42
12 ga (.100)	2.5	17	10	60	44	51	29	79	54	144	122	67	42
0.1875"	5.0	17	10	64	46	52	29	82	55	153	122	67	42
2" plate	50.8	17	10	69	46	53	29	82	55	162	124	74	43

NOTE: Pull force listed is NOT derated. Proper system design must include no less than 3/1 safety factor. (typical systems 3/1 to 6/1)
 Gray shaded areas should not be used in a destacking application.

VALVING SPECIFICATIONS, AIR CONSUMPTION REQUIREMENTS & INSTALLATION INFORMATION

Manifold to Magnet Line size		No. Of Magnets for TPLP 15, 30, & 30ES	Pressure Required at Inlet to system					Air Flow to Release			
Tubing Length	Tubing OD		Valve Size • Minimum Cv-5.0			No. of Magnets for TPLP50	TPLP50	Pressure (PSI)	Flow (SCFM)		
			TPLP15	TPLP30	TPLP30ES				TPLP15	TPLP30	TPLP50
8 ft.	3/8"	2	30	35	45	1	50	30	2.70	2.60	3.50
		4	35	40	50	2	60	35	3.00	2.95	3.90
		6	40	45	55	3	70	40	3.25	3.25	4.25
		8	40	45	55	4	NR	45	3.50	3.50	4.50
	1/2"	2	30	40	45	1	45	50	3.75	3.75	4.75
		4	35	45	50	2	50	55	3.85	4.00	5.00
		6	40	50	60	3	60	60	4.00	4.25	5.25
		8	40	50	60	4	NR	NR =	Not Recommended		

NOTE: (1). Tested using 3/16" material.
 (2). Double Action option requires a minimum of 1/4" OD tubing to magnet(s).

INSTALLATION

Apply thread lock to a male 3/8" NPT air fitting. Hand tighten the threaded mounting hole of the Transporter® LP onto the male 3/8" NPT air fitting. Once hand tightened, use a 1-1/8" open-end wrench to snug the Transporter® LP onto the fitting. Do not over tighten, as damage to the threads may occur. If installing an optional low skid boot onto the Transporter® LP, carefully stretch the boot over the bottom of the Transporter® and make sure the lip on the top of the boot fits snugly over the top edge of the cup portion of the magnet. Make sure no air is trapped inside of the bottom of the boot. Pipe the Transporter® LP to a three-way valve. Provide pressure to the magnet to disengage the part. Pressure should only be applied until the magnet releases and is moved off of the part. Close the valve and exhaust to atmosphere once part is released. The Transporter® LP will exhaust through vents in the housing. However, eliminating any back-pressure through valving will allow the Transporter® LP to release faster when a quick response time is critical.

TROUBLESHOOTING

Parts won't release -

- Check line sizes throughout the system. Minimum restriction size is 3/8" including tubing, valves, switches and all fittings.
- Check line length and make sure all Transporter line lengths are equal for the same tooling. (No more than 8' Long)
- *Check air pressure at each magnet.
- Check part for surface coatings. Sticky coatings may cause lightweight parts to adhere to the magnet face.

Magnets use too much air -

- Valve is staying open too long. Look at control sequence and adjust timing. Air should only be applied long enough to release part.
- Some applications require that the magnet be in the "release" state in order to position the magnet over (or under) the part to prevent the part from changing location by "jumping" to the magnet.

* Air pressure required depends on thickness of steel. 12 gauge steel requires approximately 40 PSI for positive release of the magnet. Thin steel (thinner than 12 gauge) requires less pressure and thick steel (thicker than 12 gauge) requires more pressure.

60 PSI IS THE MAXIMUM ALLOWABLE PRESSURE. Running TPLP's at lower pressures extends the life of the product.

INDUSTRIAL MAGNETICS, INC. • 1385 South M 75 • Boyne City, MI 49712 • USA

TOLL FREE 888.582.0823 PHONE 231.582.3100 FAX 231.582.2704 WEB WWW.MAGNETICS.COM