



Technical and Operational Information Pneumatic Powered Plunger Pumps



TM

Model 40/60/80 Series



Model 44/64/84/164 Series



TM

Model 42/62/82 Series

Sidewinder Pumps Inc.-Lafayette, Louisiana

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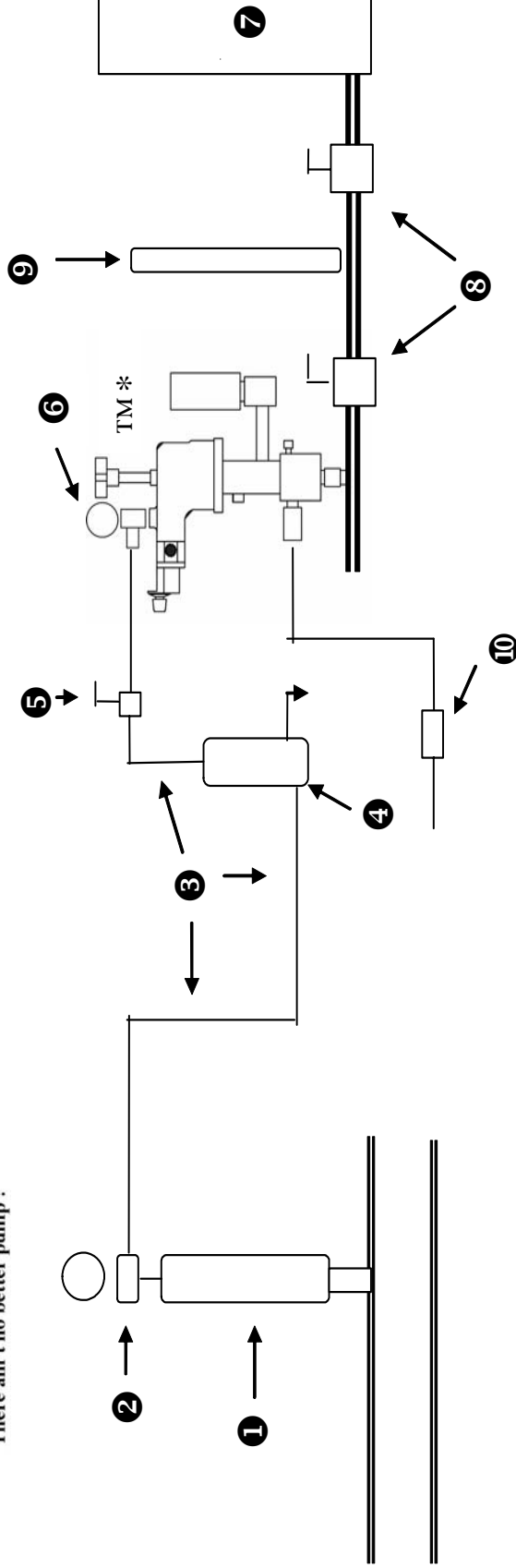
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There ain't no better pump !

Suggested Pump Installation and System Set Up



- 1 Scrubber unit installed on supply flow line
- 2 Step down regulator with pressure gauge
- 3 Supply line - 3/8 inch tubing
- 4 Volume bottle / drop out tank with drain
- 5 3/8 inch tubing ball valve - pump supply shut off
- 6 1/4 inch tee at pump supply inlet with pressure gauge
- 7 Chemical supply drum/tank
- 8 Ball Valves -isolation valves for tank/drum, pump setting gauge, & pump
- 9 Pump setting/calibration gauge
- 10 In line discharge check valve

*Sidewinder Pumps Inc. asserts Trade Mark Rights in and to the distinctive appearance of Sidewinder Model 40, 42, 60, 62, 80, & 82 series pumps

SIDEWINDER PUMP MODEL NUMBER CHART

Fill in boxes below to determine Sidewinder Pump Size and Material Requirements

<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto;"></div>	<div style="background-color: black; width: 40px; height: 20px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto;"></div>	<div style="background-color: black; width: 40px; height: 20px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto;"></div>																																		
<p>Plunger Size</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 10%;">04</td><td style="width: 90%;">0.250"</td></tr> <tr><td>06</td><td>0.375"</td></tr> <tr><td>08</td><td>0.500"</td></tr> <tr><td>16</td><td>1.00"</td></tr> </table>			04	0.250"	06	0.375"	08	0.500"	16	1.00"			<p>Check Valve & Body Material</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 10%;">316 SS (Standard)</td><td style="width: 90%;">2</td></tr> <tr><td>Hastelloy</td><td>5</td></tr> <tr><td>Titanium</td><td>6</td></tr> </table>			316 SS (Standard)	2	Hastelloy	5	Titanium	6																					
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<p>Piston Size</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 10%;">0</td><td style="width: 80%;">1.25"</td><td style="width: 10%;">F</td></tr> <tr><td>2</td><td>2.25"</td><td>C</td></tr> <tr><td>4</td><td>4.00"</td><td>C</td></tr> </table>			0	1.25"	F	2	2.25"	C	4	4.00"	C	<p>Production Series</p>		<p>Plunger Packing</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 10%;">0</td><td style="width: 90%;">Teflon Graphite Uniseal</td></tr> <tr><td>1</td><td>Techno Uniseal (Polyimede)</td></tr> <tr><td>2</td><td>Viton O-ring</td></tr> <tr><td>3</td><td>Buna O-ring</td></tr> <tr><td>4</td><td>Teflon Uniseal</td></tr> <tr><td>4B</td><td>Teflon Uniseal w/Buna O-ring Insert</td></tr> <tr><td>4V</td><td>Teflon Uniseal w/Viton O-ring Insert</td></tr> <tr><td>5</td><td>Chemraz O-ring</td></tr> <tr><td>6</td><td>Hitec O-ring (Aflas)</td></tr> <tr><td>7</td><td>Virgin Teflon O-ring</td></tr> <tr><td>8</td><td>Polyblend Uniseal (UHMW)</td></tr> <tr><td>9</td><td>Special</td></tr> </table>			0	Teflon Graphite Uniseal	1	Techno Uniseal (Polyimede)	2	Viton O-ring	3	Buna O-ring	4	Teflon Uniseal	4B	Teflon Uniseal w/Buna O-ring Insert	4V	Teflon Uniseal w/Viton O-ring Insert	5	Chemraz O-ring	6	Hitec O-ring (Aflas)	7	Virgin Teflon O-ring	8	Polyblend Uniseal (UHMW)	9	Special		
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<p>Special Options</p>			<p>2-Viton Piston U-Cup</p>																																							
			<p>4-Ceramic Check Valve Balls</p>																																							
			<p>MP- Ni Cobalt Moly Return Spring</p>																																							

PUMP PERFORMANCE CHART

Model Number	Plunger Size	Piston Size	Amplification Ratio	Supply Pressure PSI	Discharge Pressure PSI(a)	Max Full Strokes per minute	Output Volume Qts./Day(b)
40	0.250"	1.25"	25:1	15 to 150	0 to 3,750	60	0 to 90
42	0.250"	2.25"	80:1	10 to 150	0 to 10,000	55	0 to 70
44	0.250"	4"	240:1	10 to 45	0 to 10,000	35	0 to 30
60	0.375"	1.25"	11:1	15 to 150	0 to 1,600	60	0 to 200
62	0.375"	2.25"	36:1	10 to 150	0 to 5,400	55	0 to 155
64	0.375"	4"	110:1	10 to 150	0 to 10,000	30	0 to 67
80	0.500"	1.25"	6.25:1	15 to 150	0 to 935	60	0 to 360
82	0.500"	2.25"	20:1	10 to 150	0 to 3,000	55	0 to 275
84	0.500"	4"	60:1	10 to 150	0 to 9,000	30	0 to 120
164	1.000"	4"	16:1	10 to 150	0 to 2,400	40	0 to 680

SIDEWINDER PUMP SELECTION QUESTIONNAIRE

Date _____

Distributor _____ Contact _____

Location _____ Phone _____

Customer _____ Contact _____

Location _____ Phone _____

OPERATING CONDITIONS

Type of Fluid _____ Viscosity (thick / thin) _____

Discharge Pressure _____ Suction Conditions _____

Fluid Temperature _____ Required Flow Rate _____

ELECTRIC

Voltage _____ Phase _____

Hz _____ Enclosure _____

Wet end mtl construction _____ Seal _____

PNEUMATIC

Type Supply (Air / Gas) _____ Distance from air source to pump _____

Condition of supply air / gas _____ Distance from regulator to pump _____

Available supply pressure at the pump _____ Supply pressure into the regulator _____

Will there be other pumps on supply line? _____ Will there be other components on the supply line? _____

What type components & how many? _____

Type Regulator & size (cfm) _____ Supply line size _____

Supply Pressure Required = Discharge pressure ÷ by pump amplification ratio + 15 PSI _____

NOTE: Ideal discharge pressure is 85% or less of maximum discharge pressure rating of pump

Stroke rate (SPM) to achieve required flow rate at maximum stroke length _____

SPM =
$$\frac{\text{Unkown stroke rate (X)}}{\text{maximum pump rated full strokes per min}} \times \frac{\text{Required flow (quarts per day)}}{\text{Maximum pump rated flow (quarts per day)}}$$

NOTES:

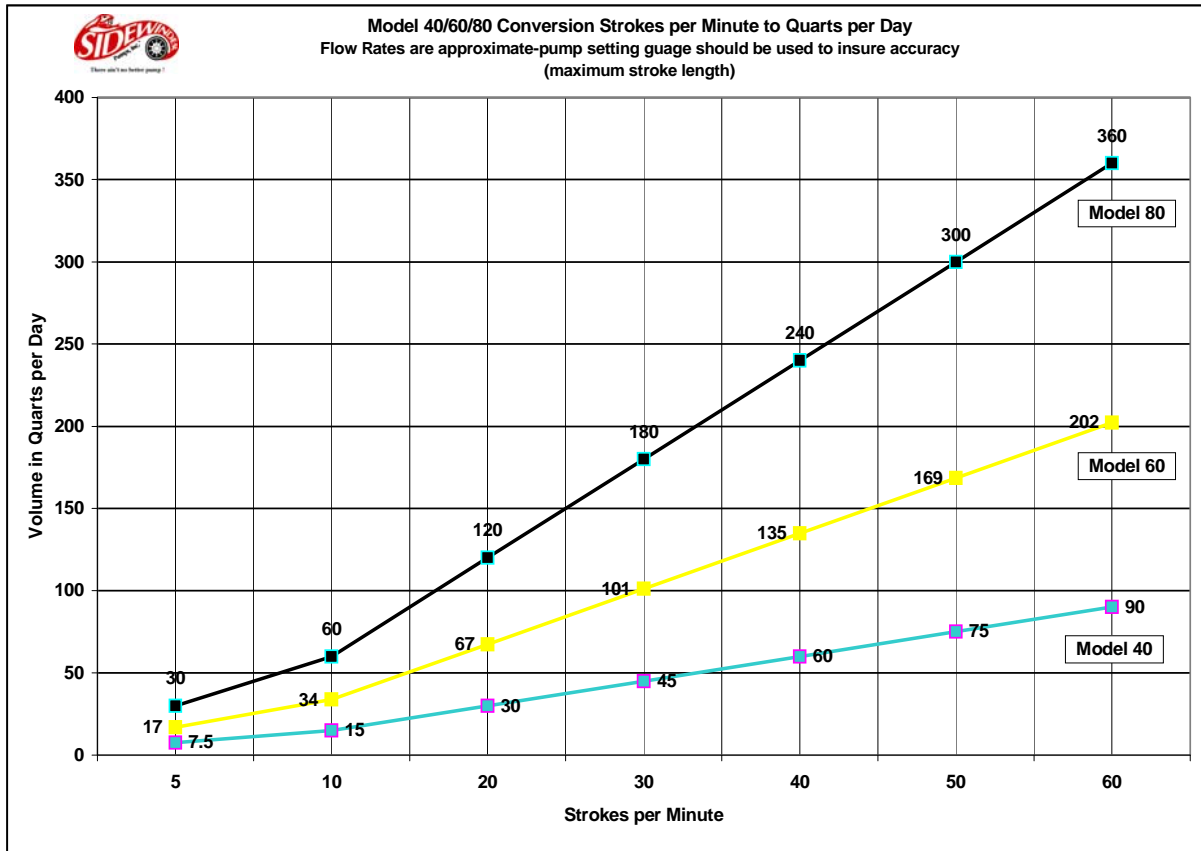
(A): Ideal stroke rate is 70% of maximum pump stroke rate

(B): For flow rates less than 3 strokes per minute - suggest to increase stroke rate & decrease stroke length to obtain desired flow rate.

(C): For discharge pressures of 1500 PSI or less - consider o-ring with back up rings for seal arrangement

(D): Viton is not acceptable for Methanol service

Model 40/60/80 Flow Graph and Flow Conversion Formulas



Flow Rating (maximum stroke length)

- Model 40: 1 stroke per minute = approximately 1.52 quarts per day
 Model 60: 1 stroke per minute = approximately 3.37 quarts per day
 Model 80: 1 stroke per minute = approximately 6.0 quarts per day

Formulas

Calculating flow rate (maximum stroke length)

Strokes per minute x flow rating of pump model = total flow in quarts per day

Example: Model 60 pump flow rating is 3.37 quarts per day per stroke
 Stroke rate is 30 strokes per minute
 $30 \times 3.37 = 101.1$ quarts per day

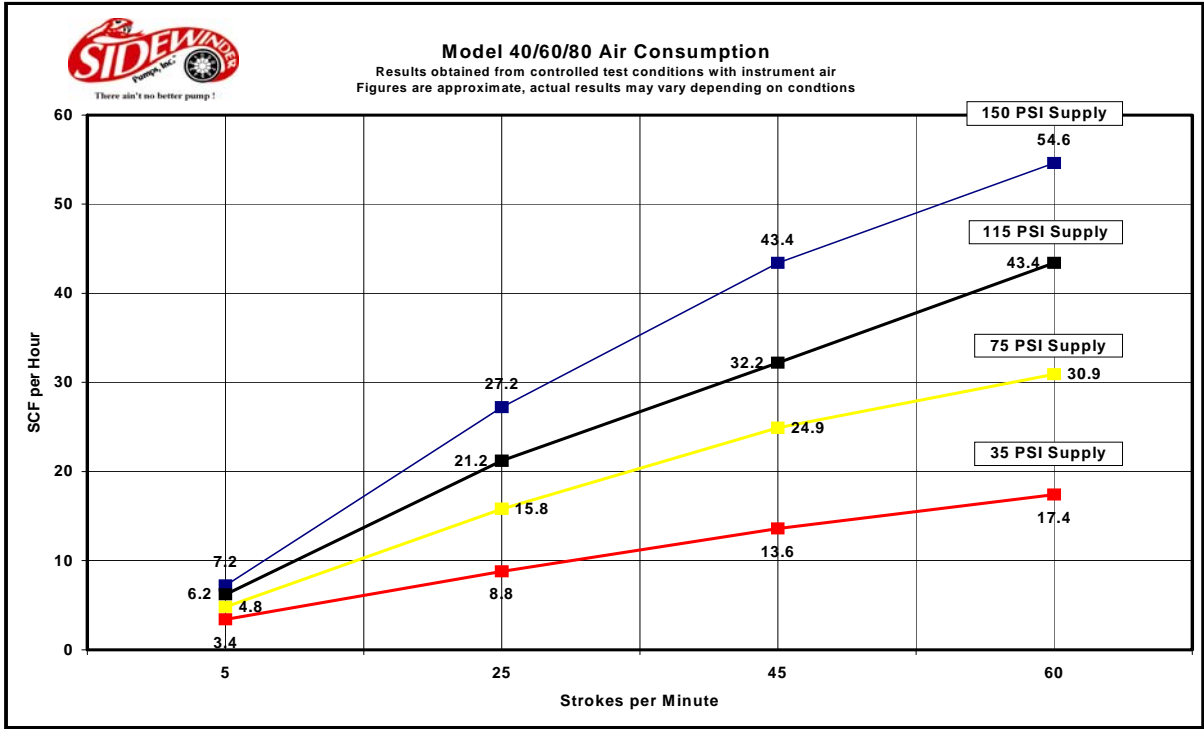
Calculating required stroke rate (maximum stroke length)

Required flow divided by flow rate of pump = Stroke rate in strokes per minute

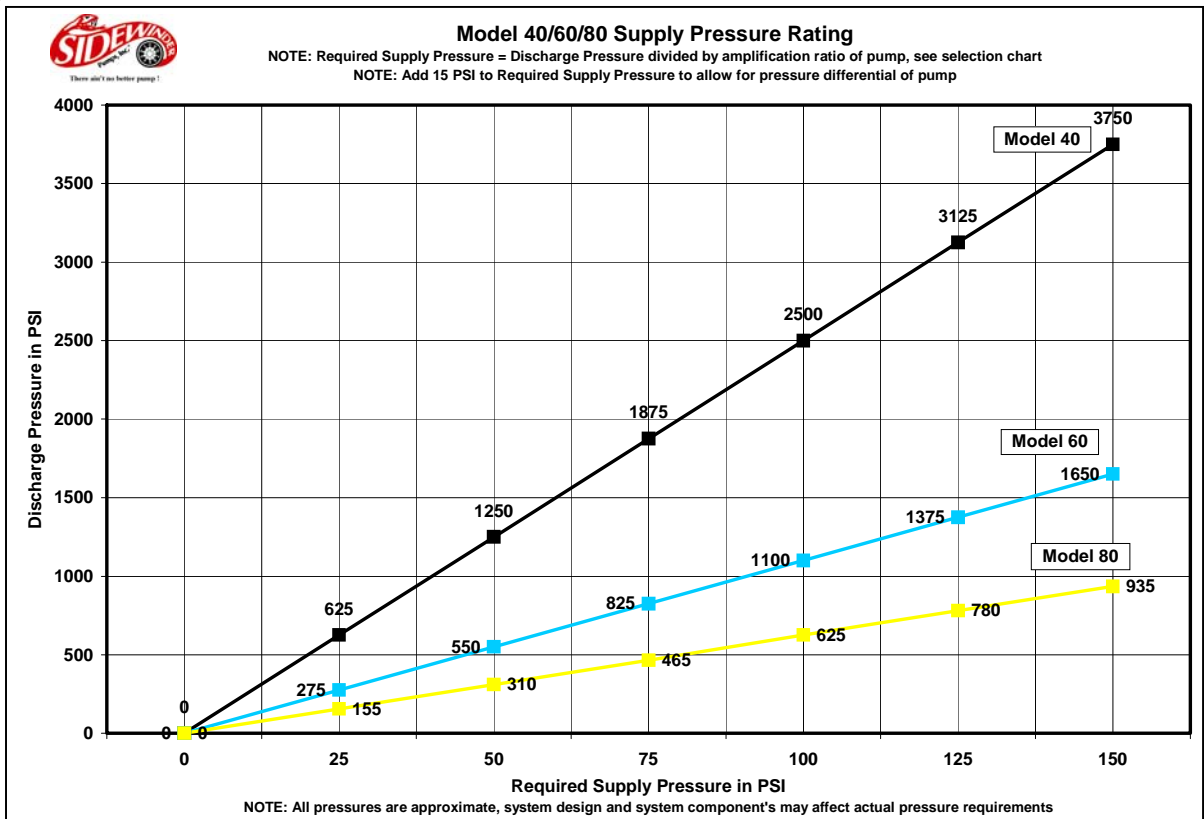
Example: Model 40 pump flow rating is 1.52 quarts per day per stroke
 Required flow rate is 50 quarts per day
 $50 \div 1.52 = 33$ strokes per min

NOTE: Flow ratings are approximate. Sidewinder Pumps, Inc. recommends the use of a pump setting gauge to insure accuracy.

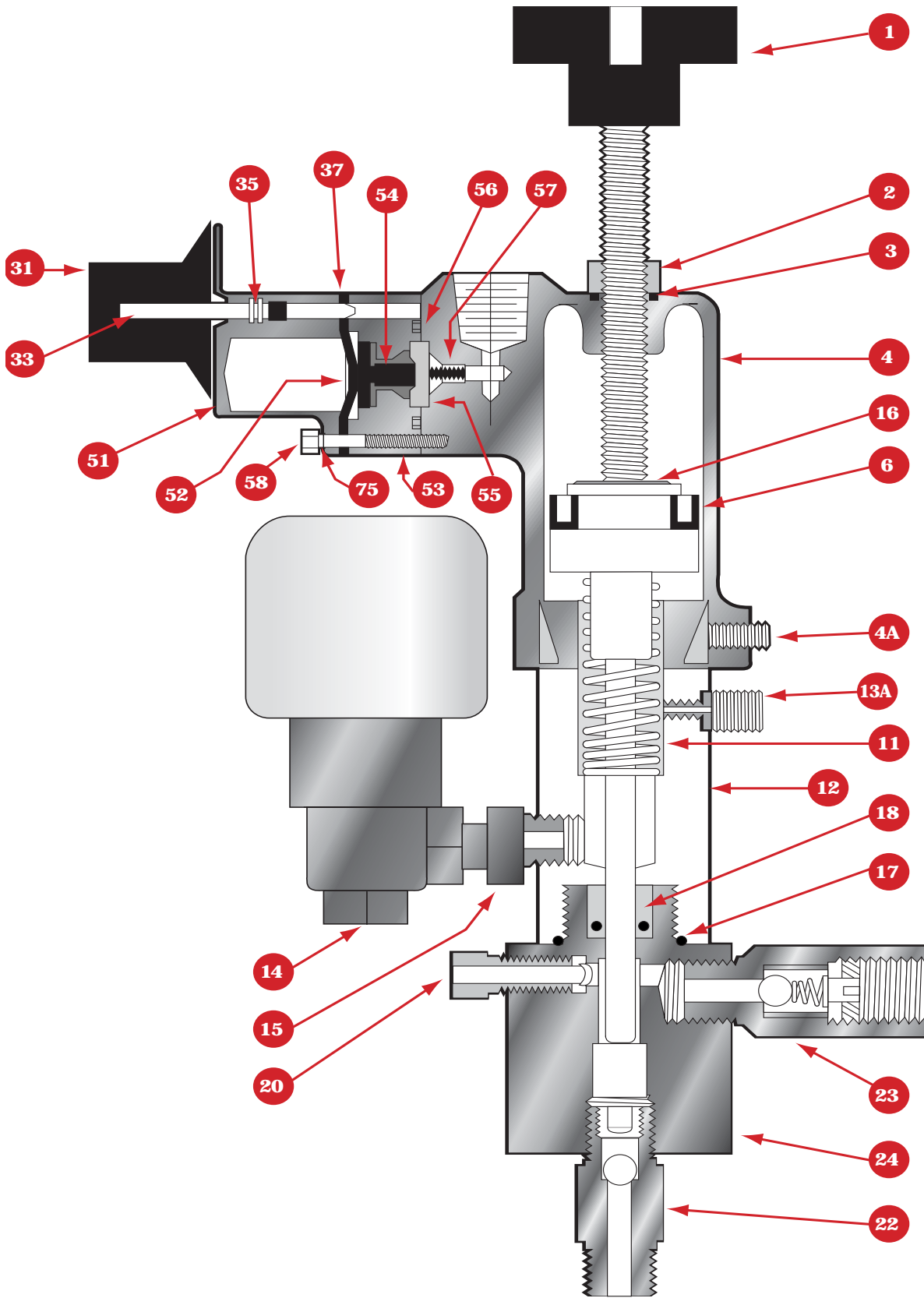
Model 40/60/80 Supply Air/Gas Consumption



Model 40/60/80 Supply Air/Gas Pressure Requirements



Model 40/60/80 Parts Diagram



Sidewinder Pumps Inc. asserts Trade Mark Rights in and to the distinctive appearance of Sidewinder Model 40, 42, 60, 62, 80, and 82 pumps

Model 40/60/80 Parts List

\ No.	Qty Req	Part Description	Part # Model 40	Part # Model 60	Part # Model 80
1	1	Stroke Adjuster	1-40-C	1-40-C	1-40-C
2	1	Locknut-Stroke Adjuster	2-40	2-40	2-40
3*	1	Seal-Stroke Adjuster	3-40	3-40	3-40
4	1	Powerhead	4-40-2	4-40-2	4-40-2
4A	3	Lockscrews	4A-42-B	4A-42-B	4A-42-B
6*	1	U-Cup - Standard Material Buna N Construction	6-40	6-40	6-40
6*	1	U-Cup - Option Material Viton Construction	6-40-2	6-40-2	6-40-2
11*	1	Return Spring Standard	11-42	11-42	11-42
11*	1	Return Spring Option Ni Cobalt Moly Construction	11-42-MP	11-42-MP	11-42-MP
12	1	Mounting Tube	12C-40	12C-60	12C-80
13A	1	Vent	13A-42	13A-42	13A-42
14	1	Lubricator	14-430	14-430	14-430
15	1	Lube Tube	15-40	15-40	15-40
16*	1	Piston-Plunger-17-4 SS	16-40	16-60	16-80
		Piston-Plunger 316 SS	16-40-2	16-60-2	16-80-2
		Piston-Plunger-440 SS	16-40-3	16-60-3	16-80-3
		Piston-Plunger-Ceramic	16-40-4	16-60-4	16-80-4
		Piston-Plunger-Hastelloy	16-40-5	16-60-5	16-80-5
		Piston-Plunger-Titanium	16-40-6	16-60-6	16-80-6
		Piston-Plunger-SS w/ chrome plating	16-40-7	16-60-7	16-80-7
		Piston-Plunger-SS w/ electroless nickel plating	16-40-8	16-60-8	16-80-8
		Customer Specified Special	16-40-9	16-60-9	16-80-9
17*	1	O-Ring Mounting Tube	17-42	17-42	17-42
18*	1	Plunger Seal-Teflon Carbon Filled Graphite Uniseal	18-42	18-62	18-82
		Plunger Seal-Techno Uniseal (Polyimide)	18-42-1	18-62-1	18-82-1
		Plunger Seal-Viton O-Ring	18-42-2	18-62-2	18-82-2
		Plunger Seal-Buna O-Ring	18-42-3	18-62-3	18-82-3
		Plunger Seal-Virgin Teflon Uniseal	18-42-4	18-62-4	18-82-4
		Plunger Seal-Virgin Teflon Uniseal w/Buna Insert	18-42-4B	N/A	18-82-4B
		Plunger Seal-Virgin Teflon Uniseal w/Viton Insert	18-42-4V	18-62-4V	18-82-4V
		Plunger Seal Chemraz O-Ring (Kalrez equivalent)	18-42-5	18-62-5	18-82-5
		Plunger Seal-Hitec O-Ring (Aflas)	18-42-6	18-62-6	18-82-6
		Plunger Seal Virgin Teflon O-Ring	18-42-7	18-62-7	18-82-7
		Plunger Seal-Polyblend Uniseal	18-42-8	18-62-8	18-82-8
		Customer Specified Material	18-42-9	18-62-9	18-82-9
<i>NOTE: O-ring seals for Model 40 pumps require (1) O-ring and two (2) narrow back up rings. (18D-42). Model 60 pumps require (2) O-rings and three (3) narrow back up rings. (18D-62). Model 80 pump require (1) O-ring and two back up rings (18D-82). Uniseals do not require back up ring</i>					
20	1	Bleeder Valve	20-42-2	20-42-2	20-42-2
22*	1	Suction Check Valve	22-42-2	22-82-2	22-82-2
23*	1	Discharge Check Valve	23-42-2	23-42-2	23-42-2
24	1	Pump Chamber	24-42-2	24-62-2	24-82-2
31	1	Control Knob	31-42	31-42	31-42
33	1	Timer Stem (For Pumps Prior to s/n # 40755 - Nov '05)	33-42	33-42	33-42
33	1	Timer Stem (For Pumps After s/n # 40755 - Nov '05)	33-42C	33-42C	33-42C
35**	1	O-Ring Stem	35-42	35-42	35-42
37**	1	Timer Seat O-Ring (Teflon) (Deleted on pumps after ser # 40755, Nov '05)	37-42	37-42	37-42
51	1	Control Valve Cover with Timer (Prior to s/n 40755) Replace w/ 51T-42C-2	N/A	N/A	N/A
51	1	Control Valve Cover with Timer (Pumps after #40755 Nov '05)	51T-42C-2	51T-42C-2	51T-42C-2
52**	1	Diaphragm	52-42	52-42	52-42
53	1	Control Valve Body	53-42-2	53-42-2	53-42-2
54**	1	Actuator	54-42	54-42	54-42
55**	1	Poppet	55-42	55-42	55-42
56**	1	Body Seal	56-42	56-42	56-42
57**	1	Spring	57-42	57-42	57-42
58**	2	Mounting Screw	58-42	58-42	58-42
75**	2	Mounting Screw Washer	75-42	75-42	75-42
92*	1	Plunger Lube (2 o.z.)	92-42	92-42	92-42

Notes

*Parts included in a pump end repair kit. Also included is a 91-42 Silicone Piston Grease. This kit is designated by a "K" preceding the pump model number. The D & F series in the Model 40/60/80 use the same Pump End Repair Kit.

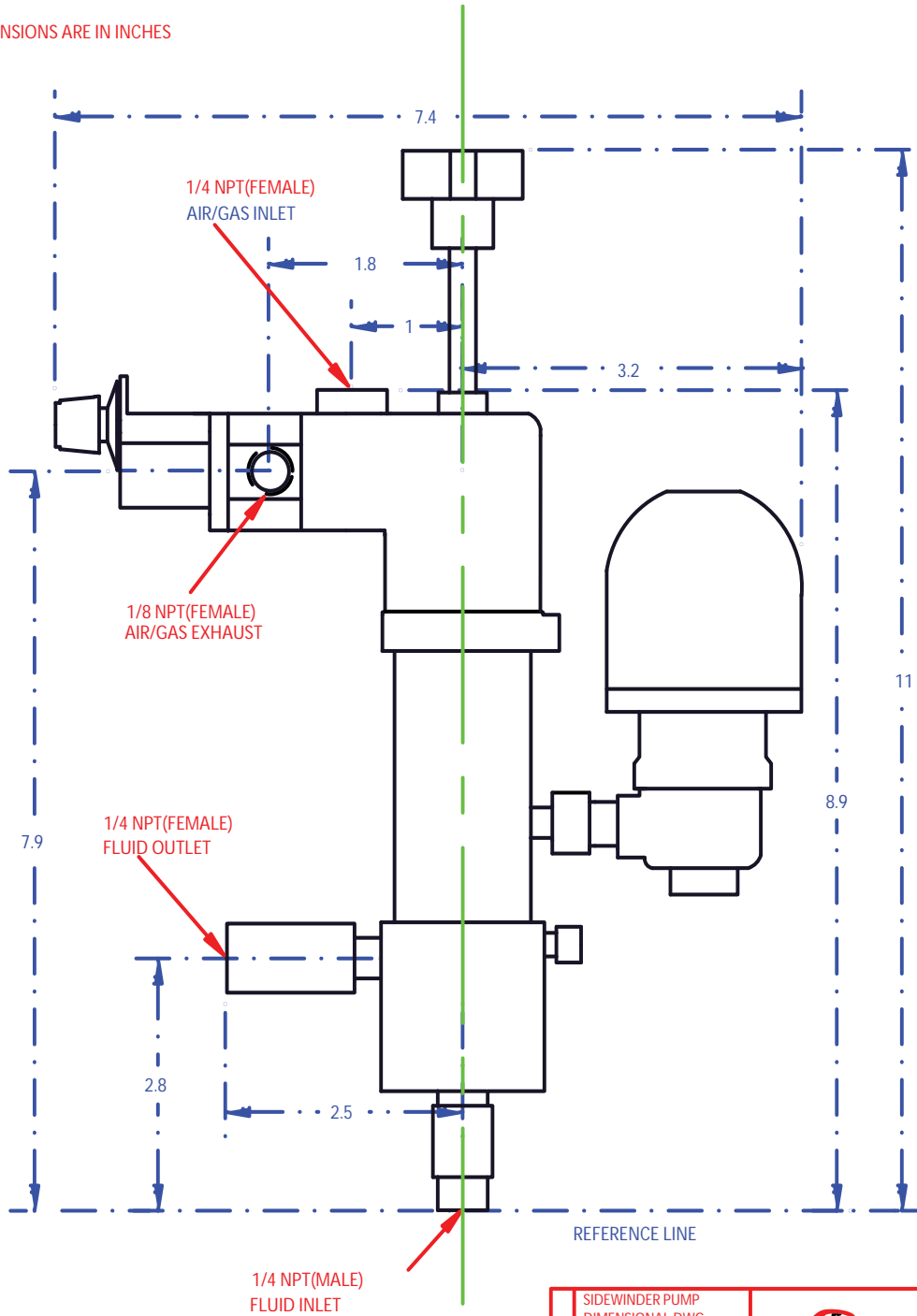
** Parts included in a timer valve repair kit. This part number is KVC-40 for the Model 40, Model 60 and Model 80 pumps prior to s/n 40755 - for pumps after s/n 40755 - Nov '05 kit part number is KVC-40F.

NOTE: First generation Model 40 & Model 80 Sidewinder Pumps are denoted by serial numbers before 5821. These models require a 9-40 Spiral Ring and only one 4A-40 Lockscrew.


Model 40 Dimensional Drawing

NOTES

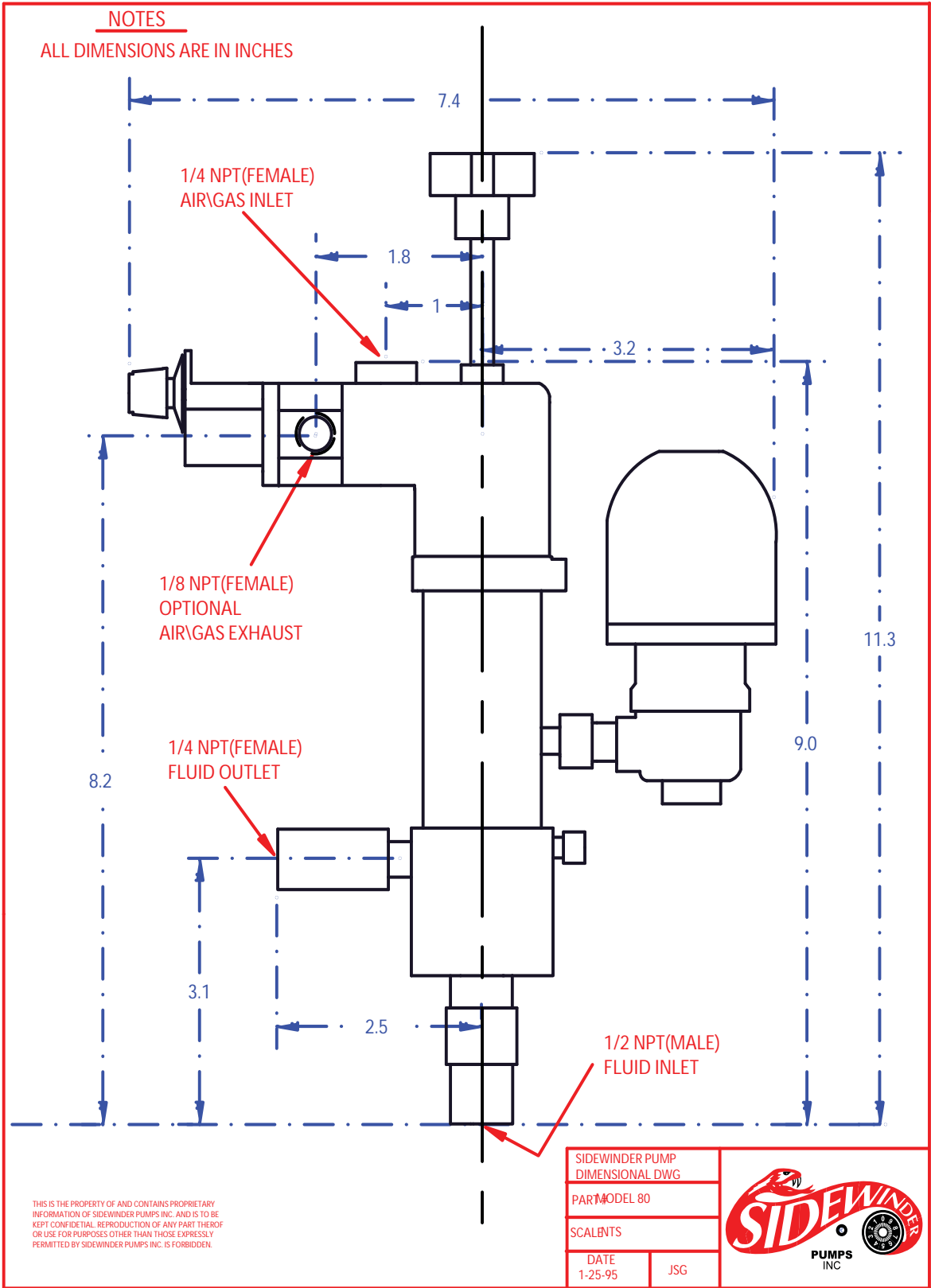
ALL DIMENSIONS ARE IN INCHES



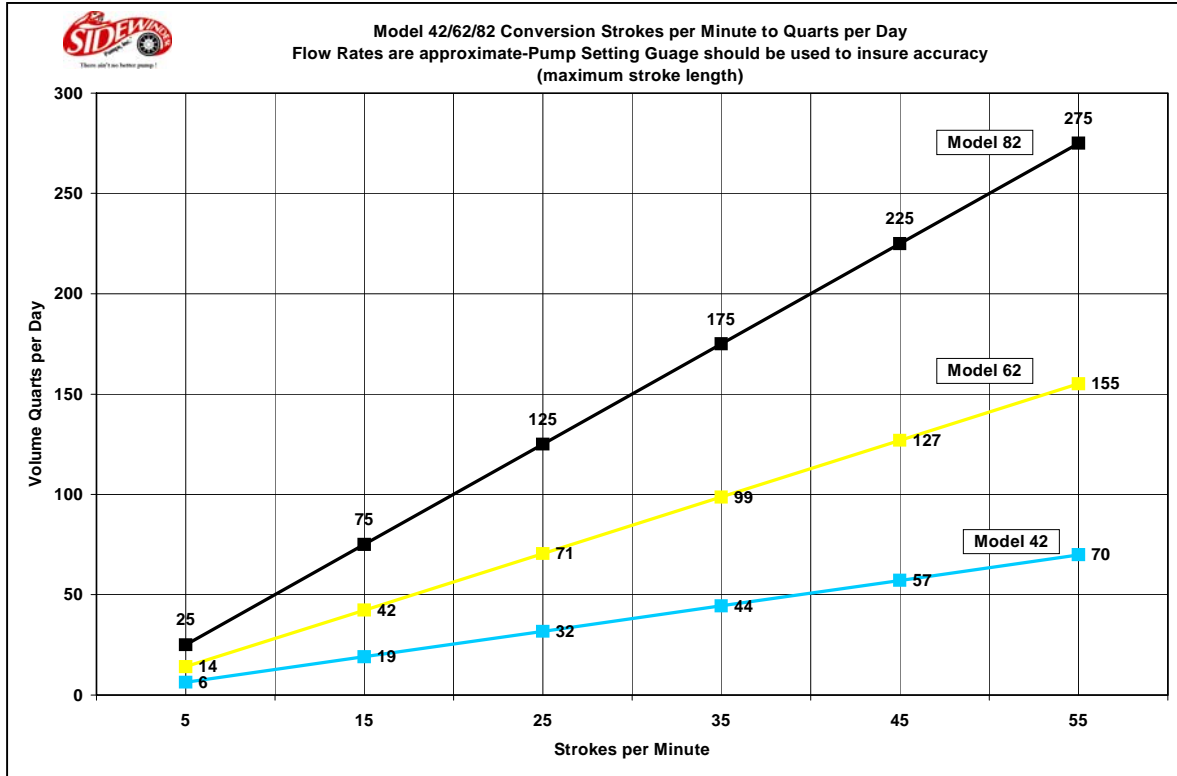
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SIDEWINDER PUMP DIMENSIONAL DWG		 <p>SIDEWINDER PUMPS INC</p>
PART: MODEL 40		
SCALE: NTS		
DATE 1-24-95	JSG	

Model 60 & 80 Dimensional Drawing



Model 42/62/82 Flow Graph and Flow Conversion Formulas



Flow Rating (maximum stroke length)

Model 42: 1 stroke per minute = approximately 1.27 quarts per day

Model 62: 1 stroke per minute = approximately 2.82 quarts per day

Model 82: 1 stroke per minute = approximately 5.0 quarts per day

Formulas

Calculating flow rate (maximum stroke length)

Strokes per minute x flow rating of pump model = total flow in quarts per day

Example: Model 62 pump flow rating is 2.82 quarts per day per stroke

Stroke rate is 30 strokes per minute

$$30 \times 2.82 = 84.6 \text{ quarts per day}$$

Calculating required stroke rate (maximum stroke length)

Required flow divided by flow rate of pump = Stroke rate in strokes per minute

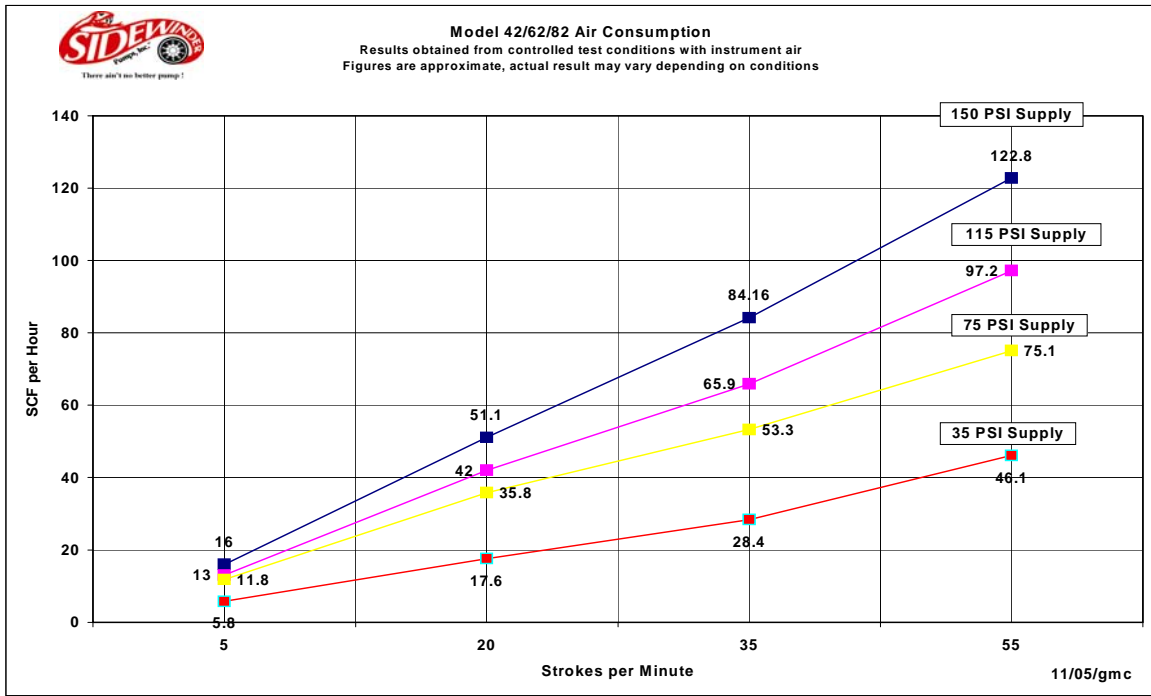
Example: Model 42 pump flow rating is 1.27 quarts per day per stroke

Required flow rate is 50 quarts per day

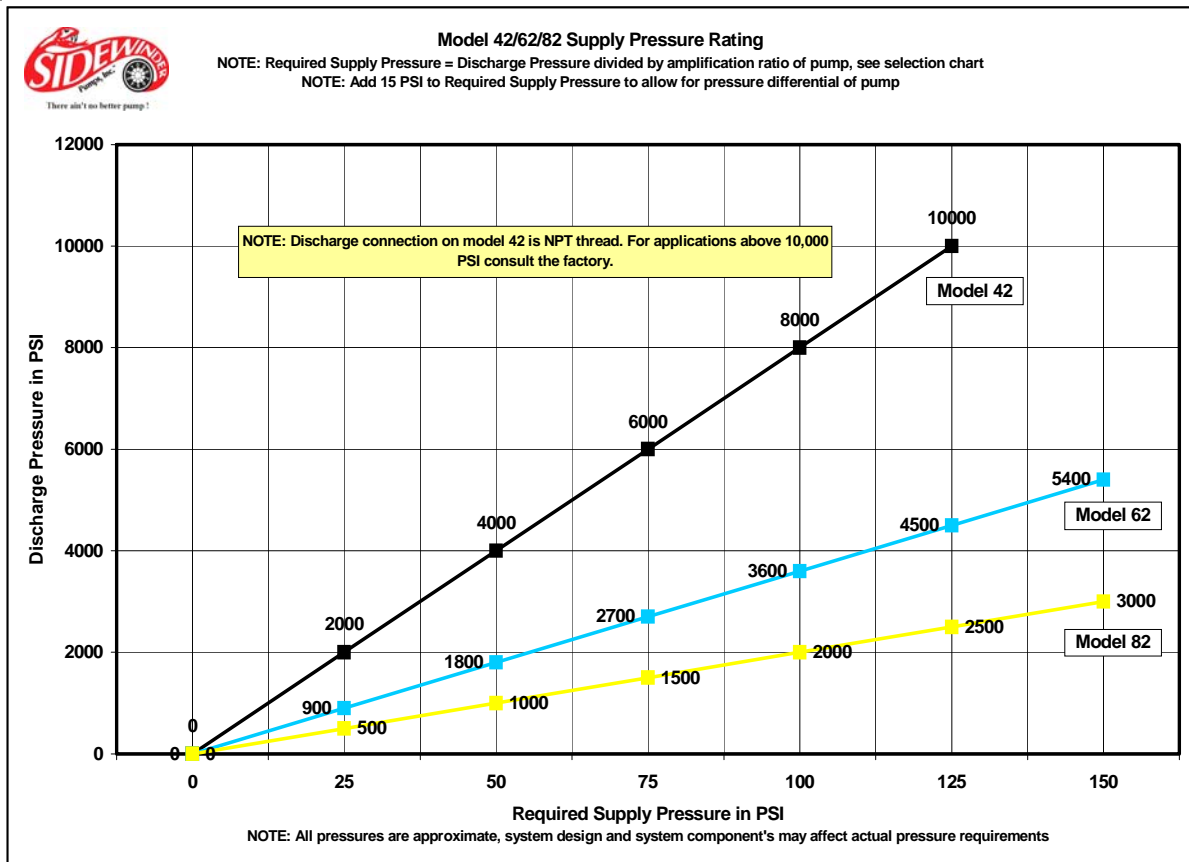
$$50 \div 1.27 = 40 \text{ strokes per min}$$

NOTE: Flow ratings are approximate. Sidewinder Pumps, Inc. recommends the use of a pump setting gauge to insure accuracy.

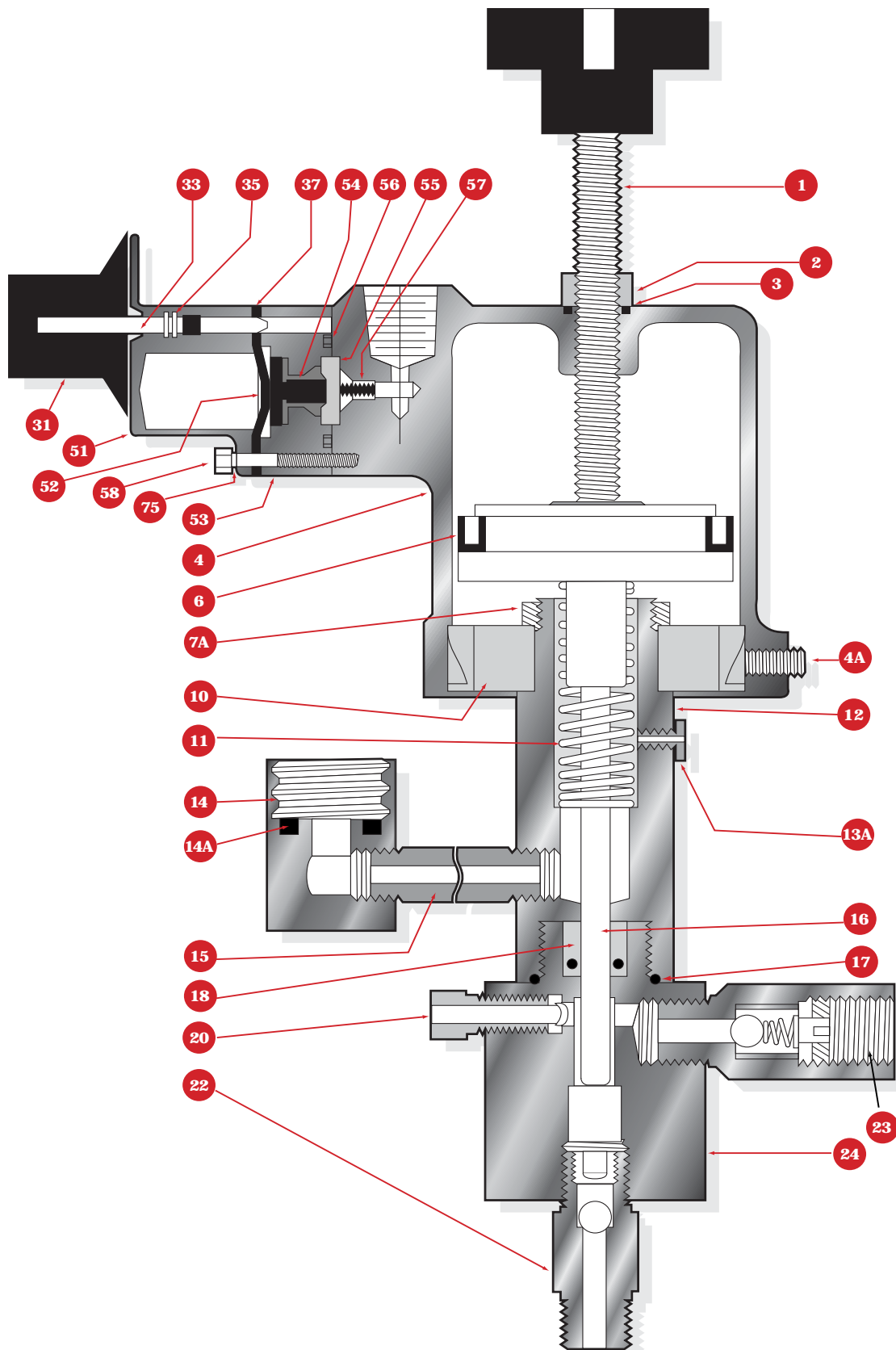
Model 42/62/82 Supply Air / Gas Consumption



Model 42/62/82 Supply Air/Gas Pressure Requirements



Model 42/62/82 Parts Diagram



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Model 42/62/82 Parts List

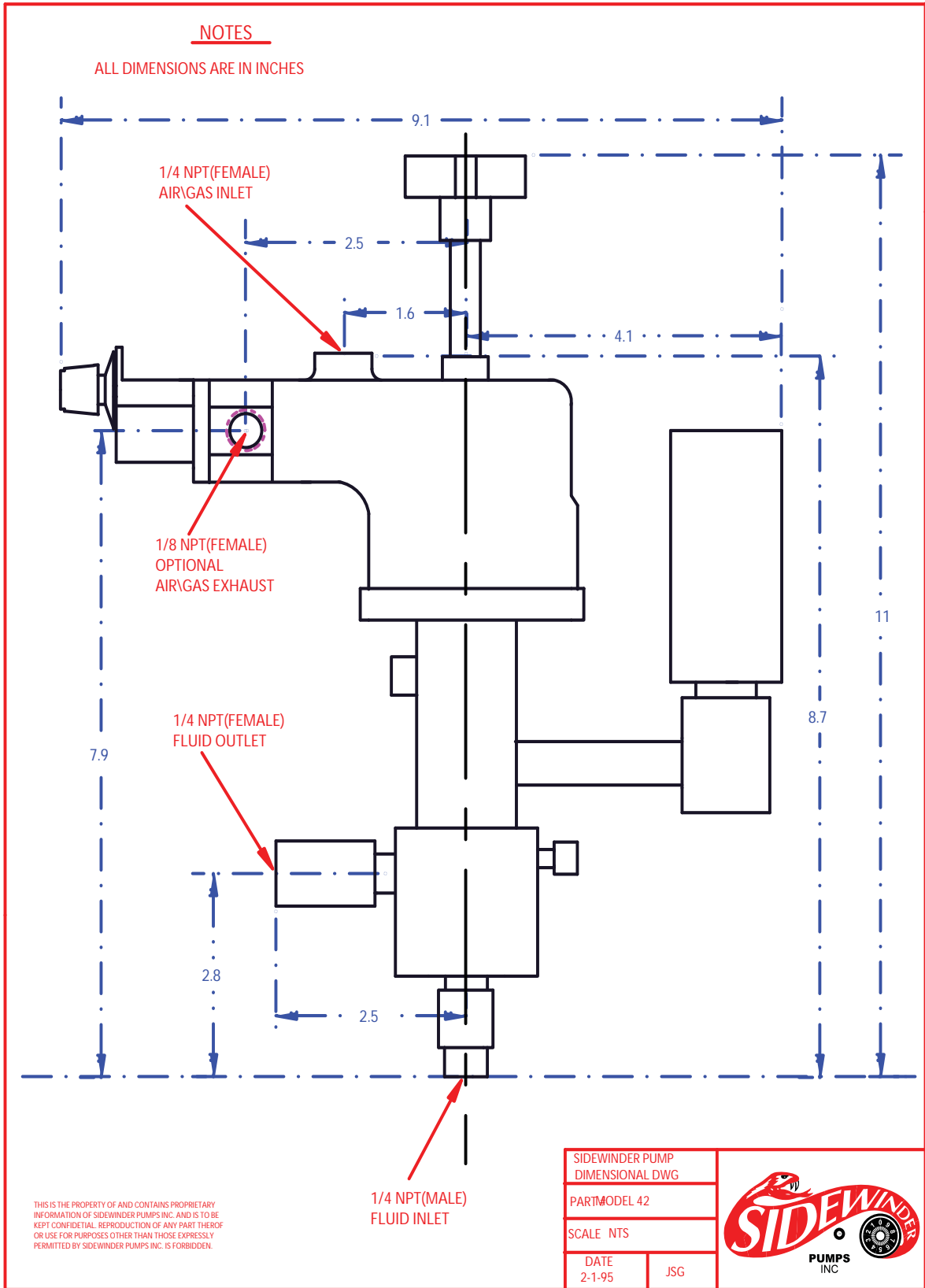
Item No.	Qty Req	Part Description	Part Number		
			Model 42	Model 62	Model 82
1	1	Stroke Adjuster	1-42-B	1-42-B	1-42-B
2	1	Locknut-Stroke Adjuster	2-42	2-42	2-42
3*	1	Seal-Stroke Adjuster	3-42	3-42	3-42
4	1	Powerhead	4-42-2	4-42-2	4-42-2
4A	3	Lockscrews	4A-42-B	4A-42-B	4A-42-B
6*	1	U-Cup Standard Buna N Constuction	6-42	6-42	6-42
6*	1	U-Cup Option Viton Constuction	6-42-2	6-42-2	6-42-2
7A	1	Mounting Tube Locknut	7A-42	7A-42	7A-42
10	1	303 SS Mounting Flange	10-42-B	10-42-B	10-42-B
11*	1	Return Spring	11-42	11-42	11-42
11*	1	Return Spring Option Ni Cobalt Moly Constuction	11-42-MP	11-42-MP	11-42-MP
12	1	Mounting Tube	12C-42	12C-62	12C-82
13A	1	Vent	13A-42	13A-42	13A-42
14	1	Lubricator	14-42	14-42	14-42
14A*	1	Lube Body O-Ring	14A-42	14A-42	14A-42
15	1	Lube Tube	15-42	15-42	15-42
16*	1	Piston-Plunger-17-4 SS	16-42	16-62	16-82
		Piston-Plunger 316 SS	16-42-2	16-62-2	16-82-2
		Piston-Plunger-440 SS	16-42-3	16-62-3	16-82-3
		Piston-Plunger-Ceramic	16-42-4	16-62-4	16-82-4
		Piston-Plunger-Hastelloy	16-42-5	16-62-5	16-82-5
		Piston-Plunger-Titanium	16-42-6	16-62-6	16-82-6
		Piston-Plunger-SS w/ chrome plating	16-42-7	16-62-7	16-82-7
		Piston-Plunger- SS w/ electroless nickel plating	16-42-8	16-62-8	16-82-8
		Customer Specified Special	16-42-9	16-62-9	16-82-9
17*	1	O-Ring Mounting Tube	17-42	17-42	17-42
18*	1	Plunger Seal-Teflon Carbon Filled			
		Graphite Uniseal	18-42	18-62	18-82
		Plunger Seal-Techno Uniseal	18-42-1	18-62-1	18-82-1
		Plunger Seal-Viton O-Ring	18-42-2	18-62-2	18-82-2
		Plunger Seal-Buna O-Ring	18-42-3	18-62-3	18-82-3
		Plunger Seal-Virgin Teflon Uniseal	18-42-4	18-62-4	18-82-4
		Plunger Seal-Virgin Teflon Uniseal w/Buna Insert	18-42-4B	N/A	18-82-4B
		Plunger Seal-Virgin Teflon Uniseal w/Viton Insert	18-42-4V	N/A	18-82-4V
		Plunger Seal Chemraz O-Ring	18-42-5	18-62-5	18-82-5
		Plunger Seal-Hitec O-Ring	18-42-6	18-62-6	18-82-6
		Plunger Seal Virgin Teflon O-Ring	18-42-7	N/A	18-82-7
		Plunger Seal-Polyblend Uniseal	18-42-8	18-62-8	18-82-8
		Customer Specified Material	18-42-9	18-62-9	18-82-9
		<i>NOTE: O-ring seals for Model 42 pumps require (1) O-ring and two (2) narrow back up rings. (18D-42). Model 62 pumps require (2) O-rings and three (3) narrow back up rings. (18D-62). Model 82 pump require (1) O-ring and two back up rings (18D-82). Uniseals do not require back up ring</i>			
20	1	Bleeder Valve	20-42-2	20-42-2	20-42-2
22*	1	Suction Check Valve	22-42-2	22-82-2	22-82-2
23*	1	Discharge Check Valve	23-42-2	23-42-2	23-42-2
24	1	Pump Chamber	24-42-2	24-62-2	24-82-2
31	1	Control Knob	31-42	31-42	31-42
33	1	Timer Stem (For Pumps Prior to s/n # 40755 - Nov '05)	33-42	33-42	33-42
33	1	Timer Stem (For Pumps After s/n # 40755 - Nov '05)	33-42C	33-42C	33-42C
35**	1	O-Ring Stem	35-42	35-42	35-42
37**	1	Timer Seat O-Ring (Teflon) (Deleted on pumps after ser # 40755, Nov '05)	37-42	37-42	37-42
51	1	Control Valve Cover with Timer (Prior to s/n 40755) Replace w/ 51T-42C-2	N/A	N/A	N/A
51	1	Control Valve Cover with Timer (Pumps after #40755 Nov '05)	51T-42C-2	51T-42C-2	51T-42C-2
52**	1	Diaphragm	52-42	52-42	52-42
53	1	Control Valve Body	53-42-2	53-42-2	53-42-2
54**	1	Actuator	54-42	54-42	54-42
55**	1	Poppet	55-42	55-42	55-42
56**	1	Body Seal	56-42	56-42	56-42
57**	1	Spring	57-42	57-42	57-42
58**	2	Mounting Screw	58-42	58-42	58-42
75**	2	Mounting Screw Washer	75-42	75-42	75-42
92*	1	Plunger Lube (2 o.z.)	92-42	92-42	92-42

*Parts included in a pump end repair kit. Also included is a 91-42 Silicone Piston Grease. This kit is designated by a "K" preceding preceding the pump model number. The B & C series in the Model 42/62/82 uses the same pump end repair kit.

** Parts included in a timer valve repair kit. This part number is KVC-40 for the Model 42, Model 62 and Model 82 pump prior to s/n 40755 - for pumps after s/n 40755 - Nov '05 kit part number is KVC-40F.

NOTE: First generation Model 42 & Model 82 Sidewinder Pumps are denoted by serial numbers before 7935. These models require 9-40 Spiral Ring and only one 4A-40 Lockscrew

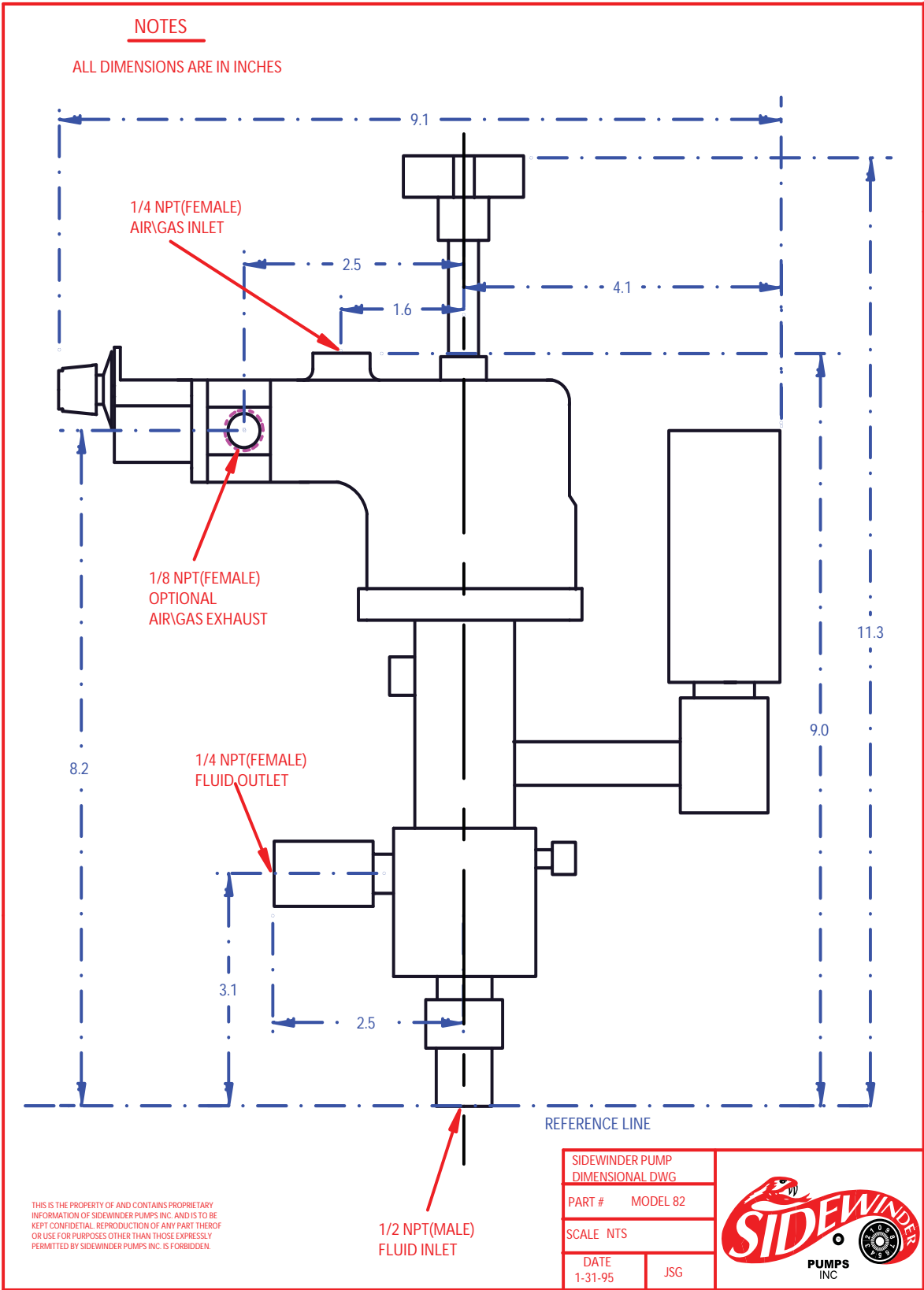
Model 42 Dimensional Drawing



Model 62 & 82 Dimensional Drawing

NOTES

ALL DIMENSIONS ARE IN INCHES

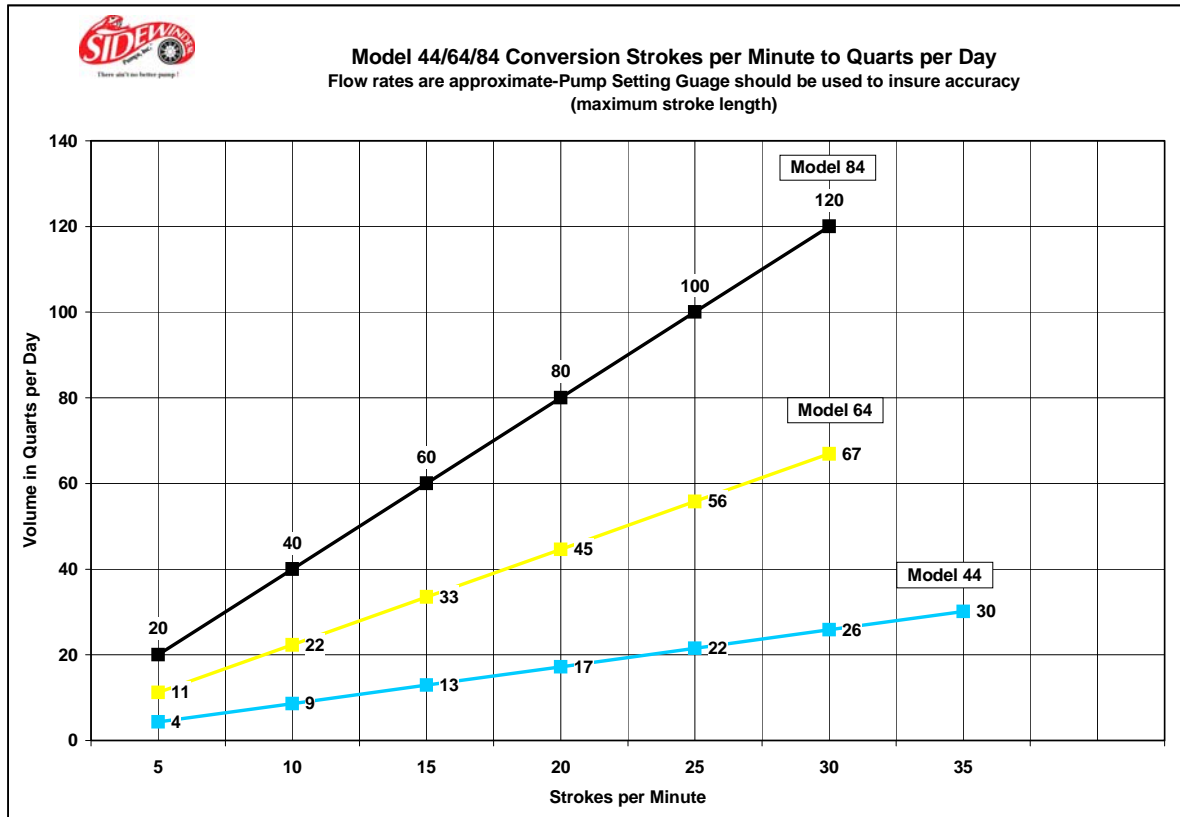


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SIDEWINDER PUMP DIMENSIONAL DWG	
PART #	MODEL 82
SCALE NTS	
DATE	JSG
1-31-95	



Model 44/64/84 Flow Graph and Flow Conversion Formulas



Flow Rating (maximum stroke length)

- Model 44: 1 stroke per minute = approximately 0.86 quarts per day
 Model 64: 1 stroke per minute = approximately 2.23 quarts per day
 Model 84: 1 stroke per minute = approximately 4.0 quarts per day

Formulas

Calculating flow rate (maximum stroke length)

Strokes per minute x flow rating of pump model = total flow in quarts per day

Example: Model 64 2 pump flow rating is 2.23 quarts per day per stroke
 Stroke rate is 15 strokes per minute
 $15 \times 2.23 = 33.4$ quarts per day

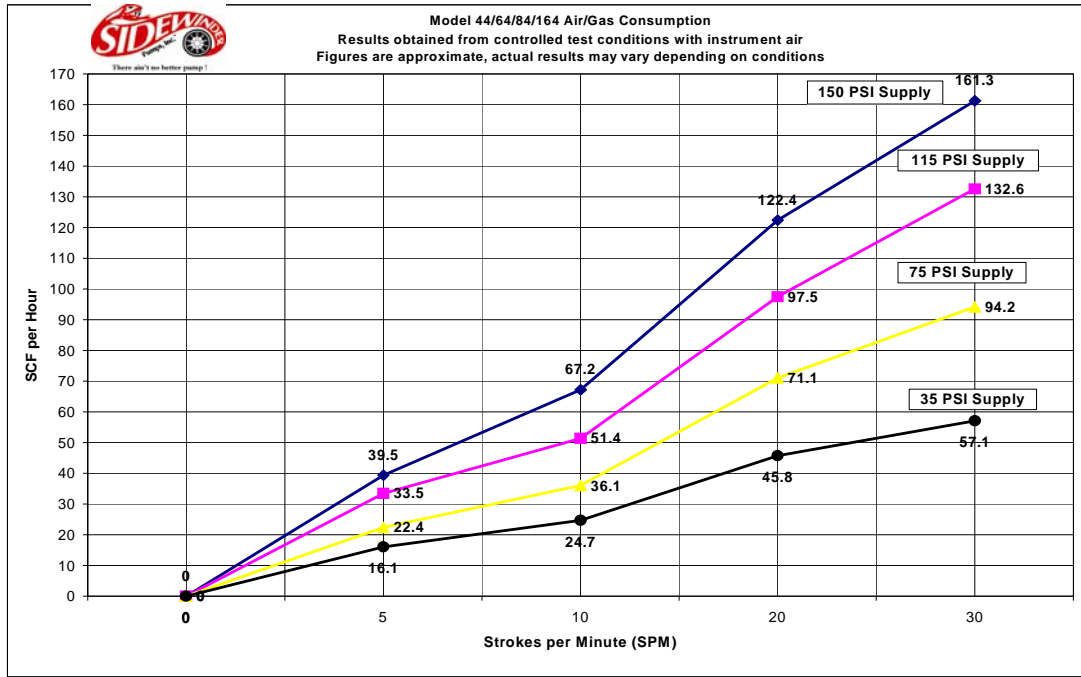
Calculating required stroke rate (maximum stroke length)

Required flow divided by flow rate of pump = Stroke rate in strokes per minute

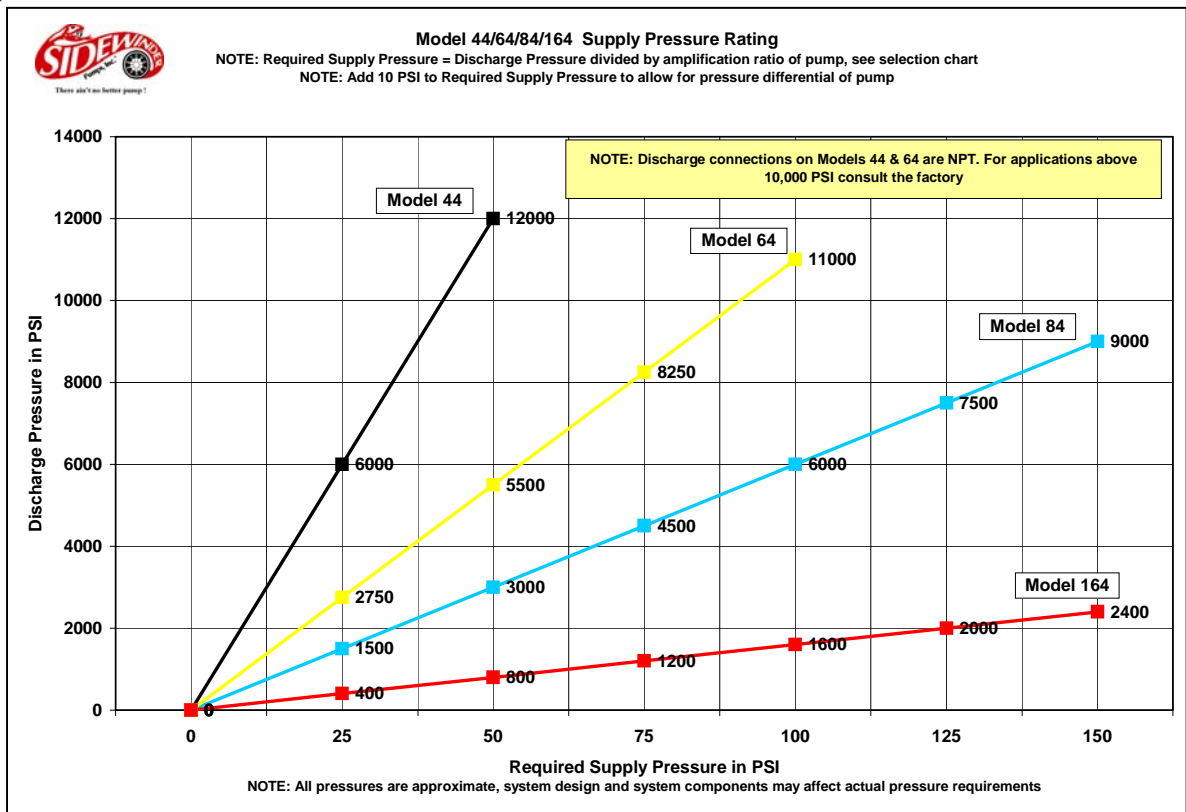
Example: Model 44 pump flow rating is 0.86 quarts per day per stroke
 Required flow rate is 15 quarts per day
 $15 \div 0.86 = 18$ strokes per min

NOTE: Flow ratings are approximate. Sidewinder Pumps, Inc. recommends the use of a pump setting gauge to insure accuracy.

Model 44/64/84/164 Supply Air/Gas Consumption

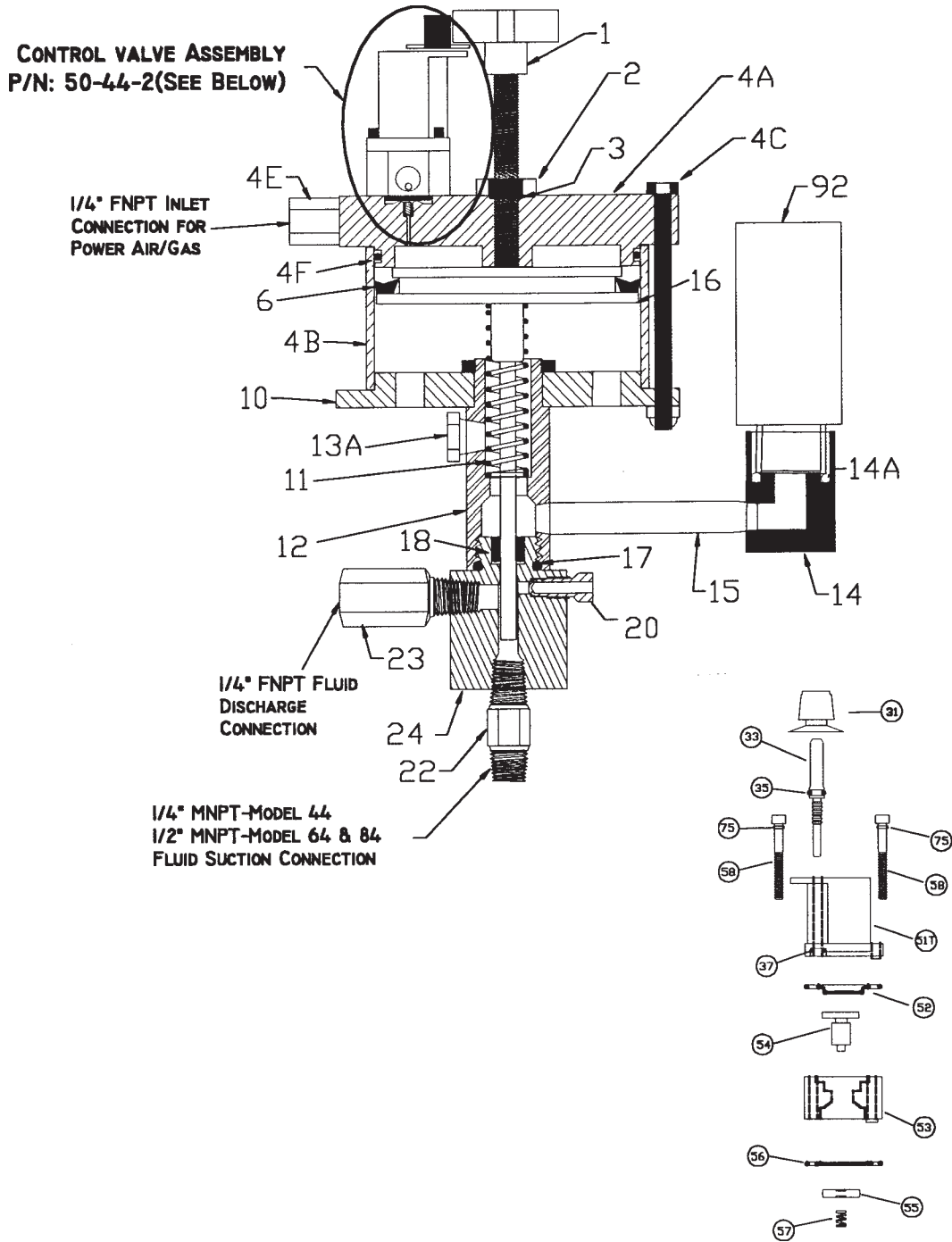


Model 44/64/84/164 Supply Pressure Requirement



Model 44/64/84 Parts Diagram

USE CUTAWAY WITH SERIAL NOS. 26184 OR GREATER



Model 44/64/84 Parts List

Use this parts list with Serial No.'s 26184 & greater.

Item #	Qty ReQ	Part Description	Model 44	Model 64	Model 84
1	1	Stroke Adjuster	1-42	1-42	1-42
2	1	Locknut-Stroke Adjuster	2-42	2-42	2-42
3*	1	Seal-Stroke Adjuster	3-42	3-42	3-42
4A	1	4.00" Powerhead Cap	4A-44-2	4A-44-2	4A-44-2
4B	1	Powerhead Cylinder	4B-44-2	4B-44-2	4B-44-2
4C	6	Powerhead Tie Bolt	4C-44-2	4C-44-2	4C-44-2
4D	6	Powerhead Tie Bolt Nut	4D-44-2	4D-44-2	4D-44-2
4E	1	Powerhead Inlet Connector Fitting	4E-44-2	4E-44-22	4E-44-2
4F*	1	Powerhead Cap O-Ring	4F-44	4F-44	4F-44
6*	1	U-Cup Standard Buna N Material of Construction	6-44	6-44	6-44
6*	1	U-Cup Option Viton Material of Construction	6-44-2	6-44-2	6-44-2
7A	1	Mounting Tube Locknut	7A-42	7A-42	7A-42
10	1	Mounting Flange	10-44-B	10-44-B	10-44-B
11*	1	Return Spring	11-44	11-44	11-44
12	1	Mounting Tube	12C-42	12C-62	12C-82
13A	1	Vent	13A-42	13A-42	13A-42
14	1	Lube Body	14-42	14-42	14-42
14A*	1	Lube Body O-Ring	14A-42	14A-42	14A-42
15	1	Lube Tube	15-43	15-43	15-43
16*	1	Piston-Plunger Assembly			
		17-4 ph Stainless Steel	16-44	16-64	16-84
		316 Stainless Steel	16-44-2	16-64-2	16-84-2
		440 'C' Stainless Steel	16-44-3	16-64-3	16-84-3
		Ceramic	16-44-4	16-64-4	16-84-4
		Hastelloy	16-44-5	16-64-5	16-84-5
		Titanium	16-44-6	16-64-6	16-84-6
		Stainless Steel w/ Chrome Plating	16-44-7	16-64-7	16-84-7
		Stainless Steel w/ Electroless Nickel Plating	16-44-8	16-64-8	16-84-8
		Customer Specified Special (Consult Factory)	16-44-9	16-64-9	16-84-9
17*	1	Mounting Tube O-Ring	17-42	17-42	17-42
18*	1	Plunger Seal			
		Teflon Graphite Uniseal	18-42	18-62	18-82
		Techno Uniseal	18-42-1	18-62-1	18-82-1
		Viton O-Ring	18-42-2	18-62-2	18-82-2
		Buna-N O-ring	18-42-3	18-62-3	18-82-3
		Virgin Teflon Uniseal	18-42-4	18-62-4	18-82-4
		Virgin Teflon Uniseal with Viton O-Ring Insert	18-42-4V	N/A	18-82-4V
		Virgin Teflon Uniseal with Buna-N O-Ring Insert	18-42-4B	N/A	18-82-4V
		Chemraz O-Ring	18-42-5	18-62-5	18-82-5
		Hitec O-Ring	18-42-6	18-62-6	18-82-6
		Virgin Teflon O-Ring	18-42-7	N/A	18-82-7
		Polyblend Uniseal	18-42-8	18-62-8	18-82-8
		Customer Specified Special (Consult Factory)	18-42-9	18-62-9	18-82-9
20	1	Bleeder Valve (316 SS)	20-42-2	20-42-2	20-42-2
22*	1	Suction Check Valve (316 SS)	22-42-2	22-82-2	22-82-2
23*	1	Discharge Check Valve (316 SS)	23-42-2	23-42-2	23-42-2
24	1	Fluid Pump Chamber (316 SS)	24-42-2	24-62-2	24-82-2
31	1	Time Knob	31-42	31-42	31-42
33	1	Timer Stem (For Pumps Prior to s/n # 40755 - Nov '05)	33-42	33-42	33-42
33	1	Timer Stem (For Pumps After s/n # 40755 - Nov '05)	33-42C	33-42C	33-42C
35**	1	Timer Stem O-Ring	35-42	35-42	35-42
37**	1	Timer Seat O-Ring (Teflon) (Deleted on pumps after ser # 40755, Nov '05)	37-42	37-42	37-42
51	1	Control Valve Cover with Timer (Prior to s/n 40755) Replace w/ 51T-42C-2	N/A	N/A	N/A
	1	Control Valve Cover with Timer (Pumps after #40755 Nov '05)	51T-42C-2	51T-42C-2	51T-42C-2
52**	1	Control Valve Diaphragm	52-42	52-42	52-42
53	1	Control Valve Body	53-44-2	53-44-2	53-44-2
54**	1	Control Valve Actuator	54-42	54-42	54-42
55**	1	Control Valve Poppet	55-42	55-42	55-42
56**	1	Control Valve Body Seal	56-42	56-42	56-42
57**	1	Control Valve Spring	57-42	57-42	57-42
58**	2	Control Valve Mounting Screw	58-42	58-42	58-42
75**	2	Control Valve Mounting Screw Locknut	75-42	75-42	75-42
91*	1	Piston Grease (not shown)	91-42	91-42	91-42
92*	1	Plunger Lube (2 Oz.)	92-42	92-42	92-42

NOTES

* Parts included in a pump end repair kit. Also included is a 91-42 Silicon Piston Grease. This kit is designated by a "K" preceding the pump model number

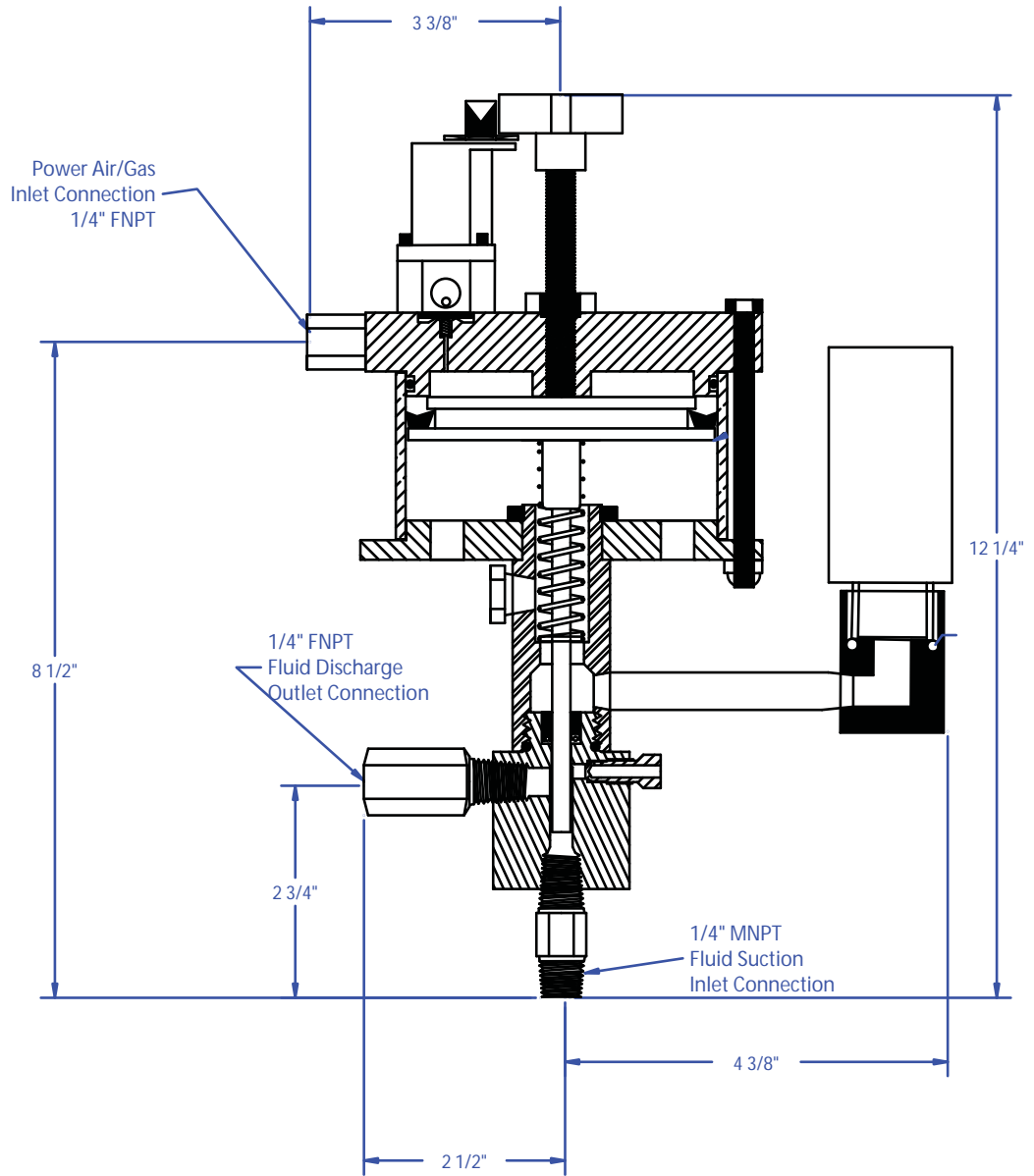
** Parts included in a timer valve repair kit. This part number is KVC-40 for the Model 44, Model 64 and Model 84 pump prior to s/n 40755 - for pumps after s/n 40755 - Nov '05 kit part number is KVC-40F

All O-ring seals require narrow back up rings. The Model 44 requires (2) each back up rings part number 18D-42; Model 64 requires (3) each back up rings part number 18D-62; Model 84 requires (2) each back up rings, part number 18D-82.

Uniseals do not require back up rings

Model 44 Dimensional Drawing

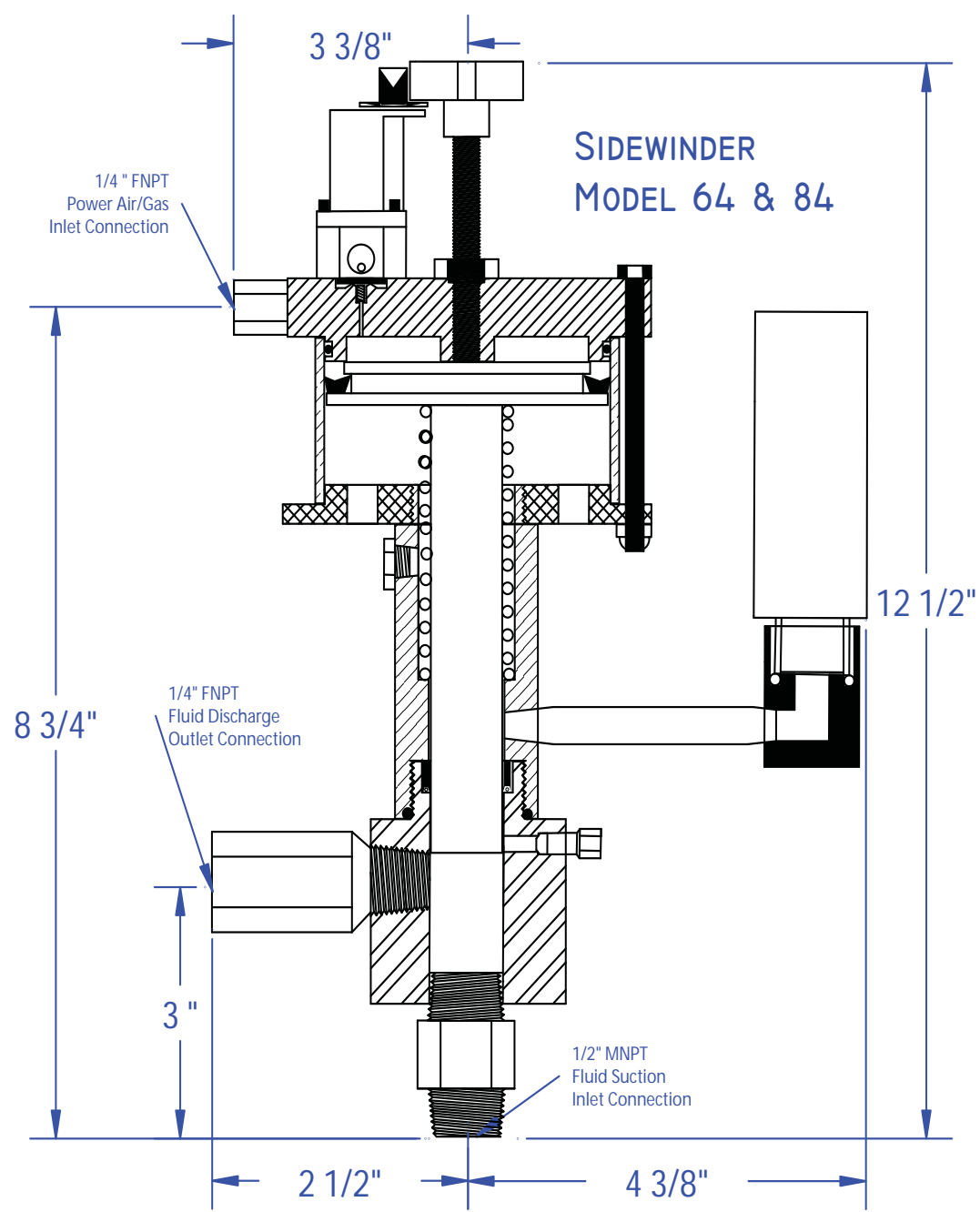
Sidewinder Model 44 Pump Dimensions



Model 44 Dimensional	
PART #	Model 44
SCALE	NTS
DATE	4/12/2006 WPG



Model 64 & 84 Dimensional Drawing



1/4" FNPT
Power Air/Gas
Inlet Connection

**SIDEWINDER
MODEL 64 & 84**

1/4" FNPT
Fluid Discharge
Outlet Connection

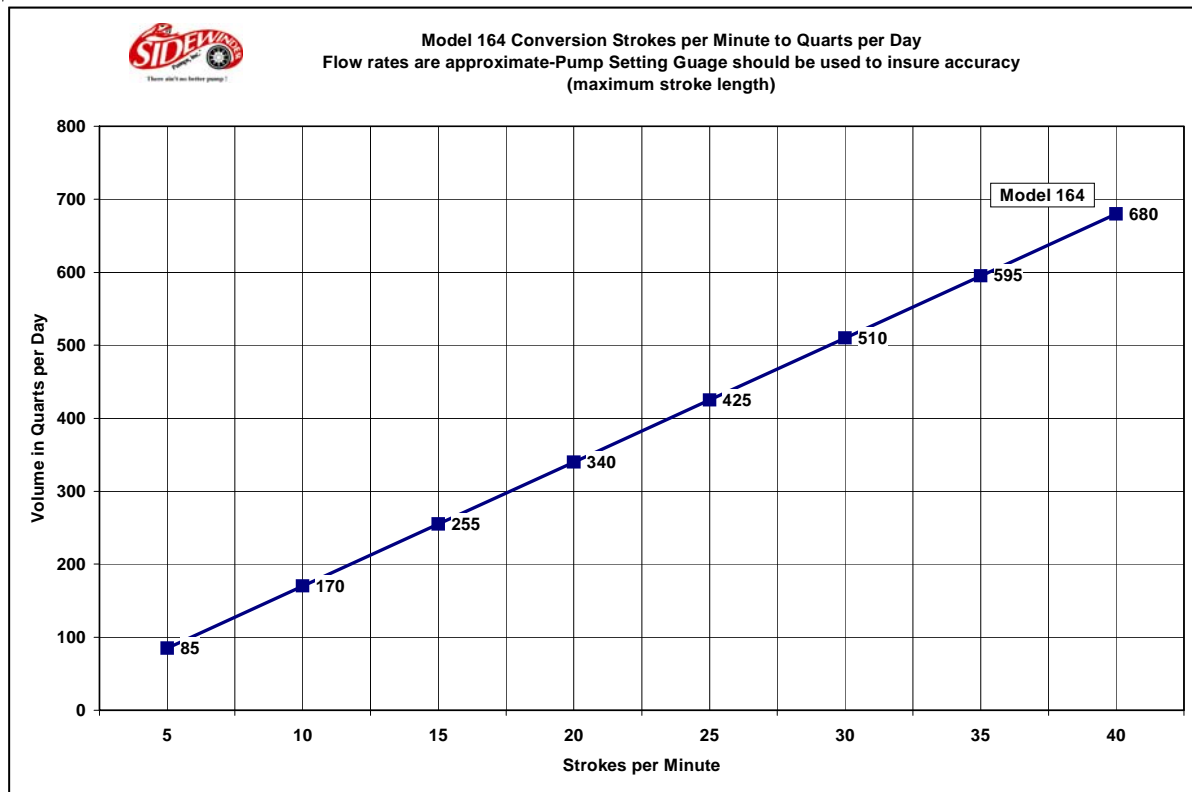
1/2" MNPT
Fluid Suction
Inlet Connection

Use Cutaway with
Serial No. 26184 & up.

Model 64 & 84 Dimensional	
PART #	64 & 84 Pump
SCALE	NTS
DATE	4/12/2006 WPC



Model 164 Flow Graph and Flow Conversion Formulas



Flow Rating (maximum stroke length)

Model 164: 1 stroke per minute = approximately 17 quarts per day

Formulas

Calculating flow rate (maximum stroke length)

Strokes per minute x flow rating of pump model = total flow in quarts per day

Example: Model 164 pump flow rating is 17 quarts per day per stroke
Stroke rate is 30 strokes per minute
 $30 \times 17 = 510$ quarts per day

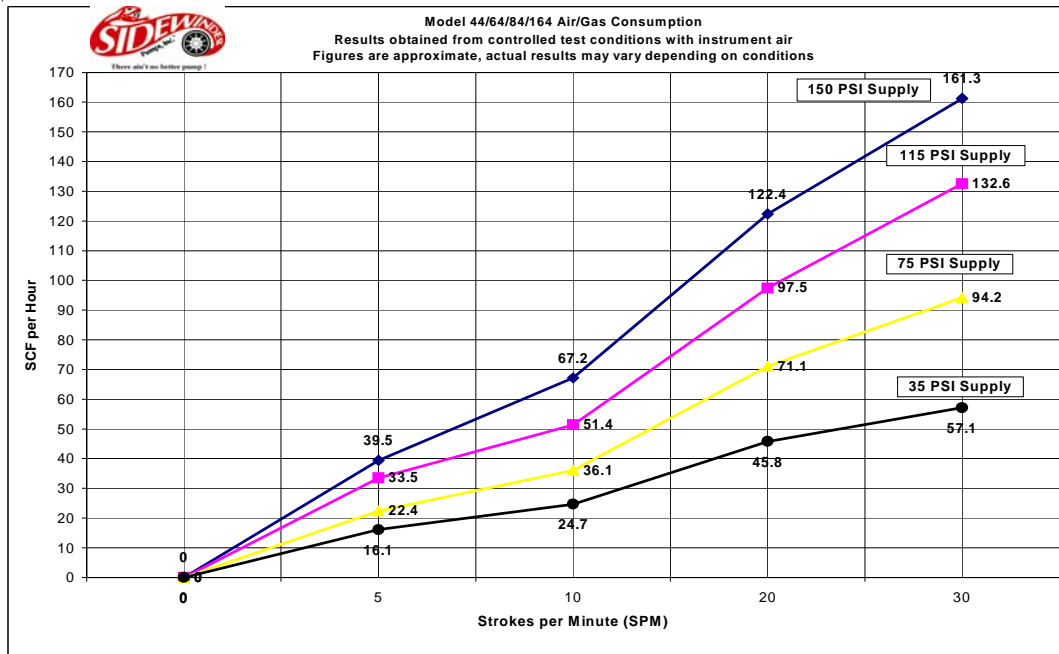
Calculating required stroke rate (maximum stroke length)

Required flow divided by flow rate of pump = Stroke rate in strokes per minute

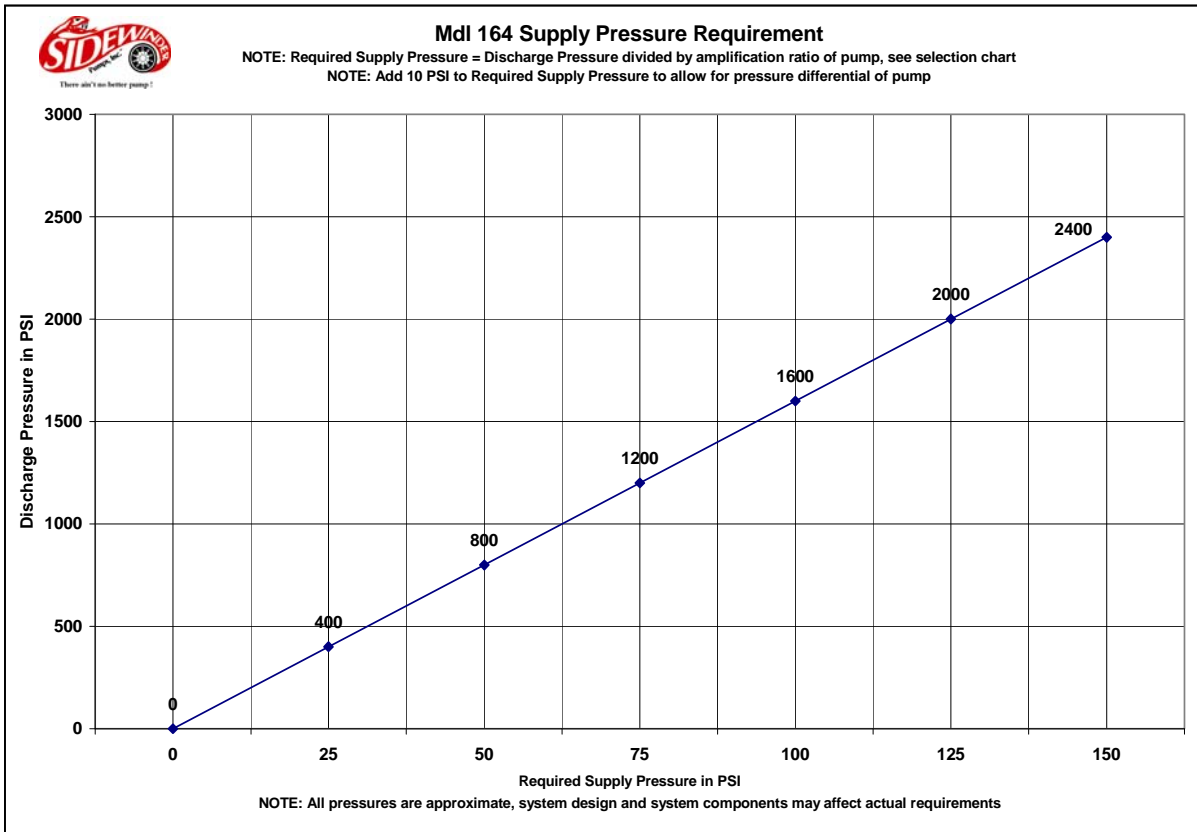
Example: Model 164 pump flow rating is 17 quarts per day per stroke
Required flow rate is 200 quarts per day
 $200 \div 17 = 12$ strokes per min

NOTE: Flow ratings are approximate. Sidewinder Pumps, Inc. recommends the use of a pump setting gauge to insure accuracy.

Model 164 Air Consumption

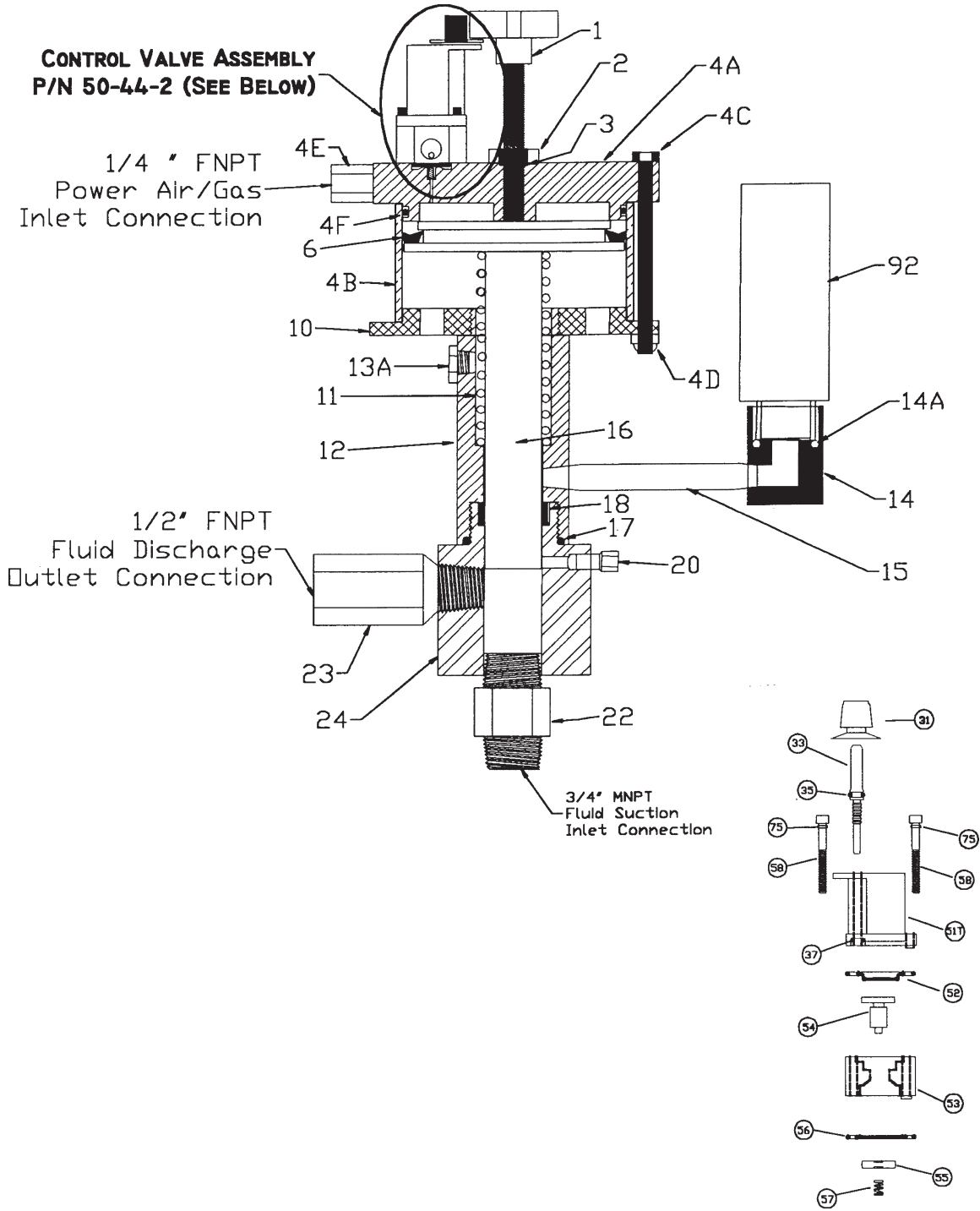


Model 164 Supply Pressure Requirement



Model 164 Parts Diagram

USE CUTAWAY WITH SERIAL NOS. 26184 OR GREATER



Model 164 Parts List

Use this parts list with Serial No.'s 26184 & greater.

Item #	Quantity Required	Part Description	Model 164 'B'
1	1	Stroke Adjuster	1-42
2	1	Locknut-Stroke Adjuster	2-42
3*	1	Seal-Stroke Adjuster	3-42
4A	1	4.00" Powerhead Cap	4A-44-2
4B	1	Powerhead Cylinder	4B-44-2
4C	6	Powerhead Tie Bolt	4C-44-2
4D	6	Powerhead Tie Bolt Nut	4D-44-2
4E	1	Powerhead Inlet Connector Fitting	4E-44-22
4F*	1	Powerhead Cap O-Ring	4F-44
6*	1	U-Cup Standard Buna N Material of Construction	6-44
6*	1	U-Cup Option Viton Material of Construction	6-44-2
7A	1	Mounting Tube Locknut	7A-42
10	1	Mounting Flange	10-164-B
11*	1	Return Spring	11-164
12	1	Mounting Tube	12-164
13A	2	Vent	13A-42
14	1	Lube Body	14-42
14A*	1	Lube Body O-Ring	14A-42
15	1	Lube Tube	15-43
16*	1	Piston-Plunger Assembly	
		17-4 ph Stainless Steel	16-164
		316 Stainless Steel	16-164-2
		440 'C' Stainless Steel	16-164-3
		Ceramic	16-164-4
		Hastelloy	16-164-5
		Titanium	16-164-6
		Stainless Steel w/ Chrome Plating	16-164-7
		Stainless Steel w/ Electroless Nickel Plating	16-164-8
		Customer Specified Special (Consult Factory)	16-164-9
17*	1	Mounting Tube O-Ring	17-164
18*	1	Plunger Seal	
		Teflon Graphite Uniseal (Polyimide)	18-164
		Techno Uniseal	18-164-1
		Viton O-Ring	18-164-2
		Buna-N O-ring	18-164-3
		Virgin Teflon Uniseal	18-164-4
		Virgin Teflon Uniseal with Viton O-Ring Insert	N/A
		Virgin Teflon Uniseal with Buna-N O-Ring Insert	N/A
		Chemraz O-Ring (Kalrez equivalent)	18-164-5
		Hitec O-Ring (Aflas)	18-164-6
		Virgin Teflon O-Ring	N/A
		Polyblend Uniseal	18-164-8
		Customer Specified Special (Consult Factory)	18-164-9
20	1	Bleeder Valve (316 SS)	20-42-2
22*	1	Suction Check Valve (316 SS)	22-164-2
23*	1	Discharge Check Valve (316 SS)	23-164-2
24	1	Fluid Pump Chamber (316 SS)	24-164-2
31	1	Time Knob	31-42
33	1	Timer Stem (For Pumps Prior to Ser# 40755 - Nov '05)	33-42
33	1	Timer Stem (For Pumps After Ser# 40755 - Nov '05)	33-42C
35**	1	Timer Stem O-Ring	35-42
37**	1	Timer Seat O-Ring (Teflon) (Deleted on pumps after ser # 40755, Nov '05)	37-42
51	1	Control Valve Cover with Timer (Obsolete- replace w/ 51T-42C-2)	51T-42-2
51	1	Control Valve Cover with Timer (Pumps after #40755 Nov '05)	51T-42C-2
52**	1	Control Valve Diaphragm	52-42
53	1	Control Valve Body	53-44-2
54**	1	Control Valve Actuator	54-42
55**	1	Control Valve Poppet	55-42
56**	1	Control Valve Body Seal	56-42
57**	1	Control Valve Spring	57-42
58**	2	Control Valve Mounting Screw	58-42
75**	2	Control Valve Mounting Screw Locknut	75-42
91*	1	Piston Grease (not shown)	91-42
92*	1	Plunger Lube (4 Oz.)	92-122

NOTES

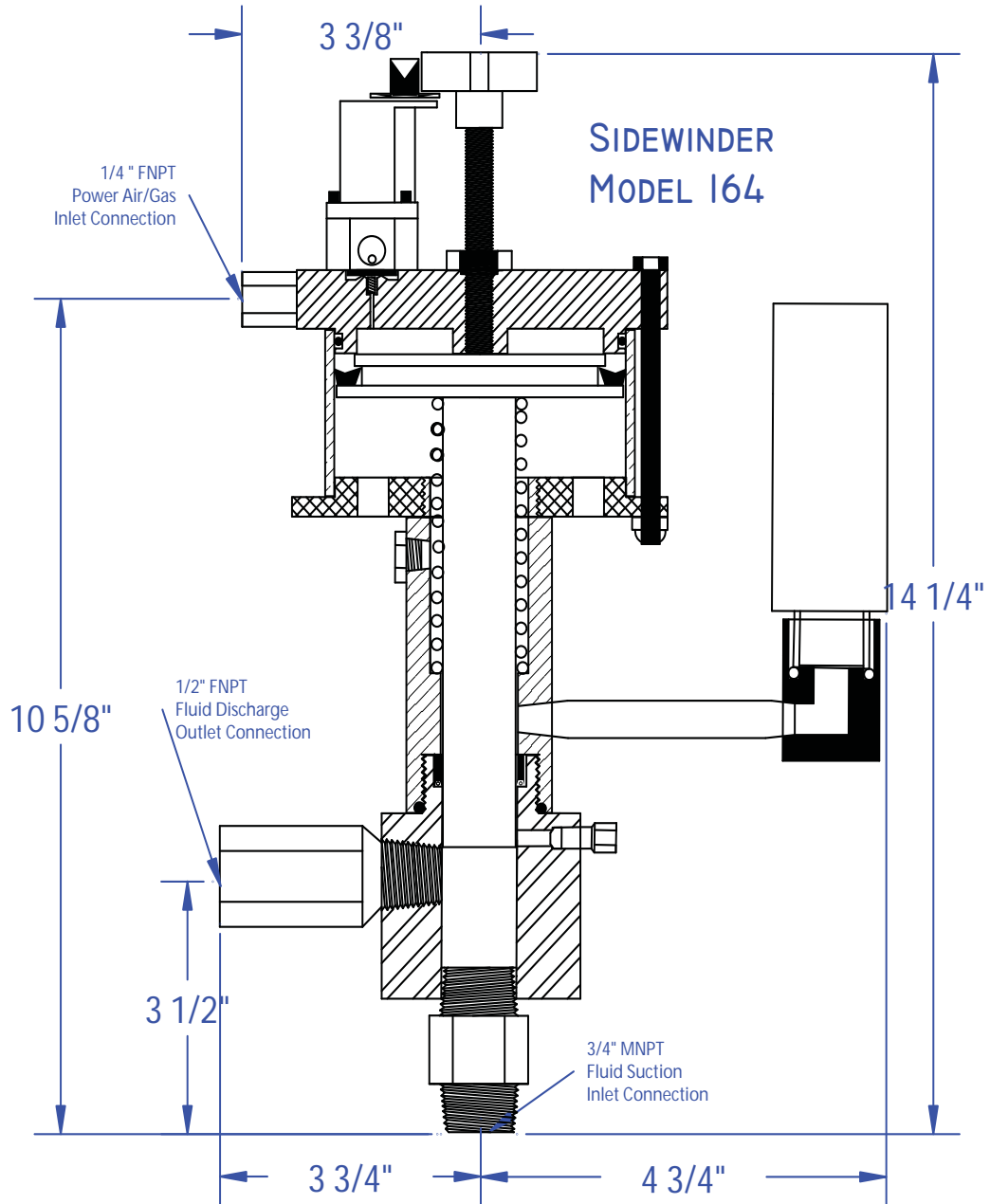
* Parts included in a pump end repair kit. Also included is a 91-42 Silicon Piston Grease. This kit is designated by a "K" preceding the pump model number

** Parts included in a timer valve repair kit. This part number is KVC-40 for Model 164 pump prior to s/n 40755 / KVC40-F after s/n 40755

All O-ring seals require narrow back up rings. The Model 164 requires (2) each back up rings part number 18D-164;

Uniseals do not require back up rings.

Model 164 Dimensional Drawing



Use Cutaway with
Serial No. 26184 & up.

Model 164 Dimensional	
PART #	164 Pump
SCALE	NTS
DATE	4/12/2006 WPG



Install & Start Up Procedure - Pneumatic Plunger Pumps

1. Install Sidewinder Chemical Metering Pump in a vertical position with suction check valve (#22) on bottom. *NOTE:* Pump requires flooded suction for operation.
2. Connect discharge line to discharge check valve (#23). *NOTE:* For safety, a Sidewinder line check valve (LC-4S) is recommended for installation where discharge line connects to process line.
3. *Option:* Install the (2) vents (#13A) in the 1/8 inch NPT ports on the mounting tube (#12) and control valve body (#53).
4. Connect power gas/air line to supply inlet. *NOTE:* Pumps should have supply line size of 3/8 inch tubing minimum. The Sidewinder pump accepts 10 to 150 PSI. Check specific pump model technical information for required supply pressure for application. *NOTE:* For safety reasons it is recommended that a shut off valve be installed between supply regulator and pump.
5. Turn lube body (#14) 180 degrees. Screw container of lube oil on to lube body and rotate back until lube container is on top. Lubricant will equalize in the pump chamber. *CAUTION:* Do not squeeze or puncture lube oil container.
6. Open bleeder plug (#20) to remove air from pump chamber, then close bleeder plug.
7. *CAUTION:* Pumps with ceramic plunger have separate start up procedure; refer to installation document that came with pump.
8. Set supply regulator to provide sufficient supply pressure of gas/air to firmly stroke pump against prevailing discharge pressure. *NOTE:* See specific pump model technical information to determine required supply pressure for application. *NOTE:* If supply volume is restricted due to either too small or too long supply line, pump control valve will blow through. See Trouble Shooting section.
9. Open supply pressure to pump, adjust speed of pump by rotating timer control dial (#31) on side of pump head. Clockwise rotation decreases speed of pump (strokes per minute), Counter Clockwise rotation increases speed of pump (strokes per minute). See specific pump model technical information to determine approximate strokes per minute to obtain desired flow rate.
10. Further volume control can be obtained by varying the length of the plunger assembly stroke with the stroke length adjuster screw (#1) on top of power head (#4). Turning clockwise shortens the stroke and reduces volume.
11. It is recommended that a pump calibration gauge be installed to accurately determine the pump's flow rate.

Model 40/60/80/42/62/82 Ceramic Plunger Pumps Start Up & Repair

1. This is a solid ceramic plunger. It is very brittle and **must** be handled with extreme care before & during use in a Sidewinder Pump.
2. When installing:
 - a) Be sure the Pump Chamber (Item #24) is separated from the Mounting Tube (Item #12).
 - b) Be sure the Powerhead (Item #4) is removed from Mounting Flange(for Models 42,62,82) or Mounting Tube(for Models 40,60,80).
 - c) **Model 42,62,82 only:** Mounting Flange (Item #10) should still be connected to the Mounting Tube (Item #12) by the Mounting Tube Locknut (Item #7A).
 - d) Place Piston U-cup (Item #6) on piston with "U" facing away from plunger side.
 - e) Upon assembly be sure the Powerhead (Item #4) is lubricated with Piston Grease (P/N 91-42). Grab the Ceramic Piston Plunger Assembly (Item #16) by the metal shank above the ceramic plunger and insert the piston into the Powerhead (Item #4) by cocking the assembly then straightening it. Be sure the Piston U-cup (Item #6) is not crimped or folded over.

Note: Never grab the Piston Plunger Assembly by the ceramic plunger.

 - f) Once the Ceramic Piston Plunger Assembly (Item #16) is inserted into the Powerhead (Item #4), push it to the top of the cylinder bore. Install the Return Spring (Item #11) around the metal shank portion of the Piston Plunger Assembly (Item #16) being sure it is slides into position against the piston portion of the assembly.
 - g) Mount the Powerhead & the Piston Plunger Assembly with Return Spring in place onto & into Mounting Flange & Mounting Tube, respectively. **Caution should be used as the ceramic plunger passes through the seal retainer hole in the lower portion of the Mounting Tube (Item #12). Too much side-to-side motion can bind the plunger causing it to break.**
 - h) Once Powerhead (Item #4) is fully in place on the Mounting Flange(for Models 42,62,82) or Mounting Tube(for Models 40,60,80) secure it by screwing in the three radial Lockscrews (Item #4A) evenly until tight.
 - i) Screw the Pump Chamber (Item #24) onto the Mounting Tube (Item #12) insuring that the Plunger Seal (Item #18) & Mounting Tube O-ring (Item #17) are installed into and onto the Pump Chamber, respectively. The Pump Chamber and Mounting Tube connection is designed to be hand tight. **Caution: Tightening the Pump Chamber (Item #24) and the Mounting Tube (Item #12) with wrenches can cause the two pieces to gall.**
- 3) When starting pump into operation:
 - a) Open the Bleeder Valve (Item #20) to prime pump.
 - b) Make sure the Control Knob (Item #31) is screwed in all the way to insure that the pump is off.
 - c) Back off on the air/gas supply regulator to 0 PSI.
 - d) Slowly bring the supply pressure up to 10 PSI(regardless of fluid injection pressure).
 - e) Slowly begin to unscrew the Control Knob (Item #31) until the pump begins to stroke at a rate of 1 stroke every 3-4 seconds.
 - f) Allow the pump to run in this condition until the injection lines fill and pump stalls against the injection pressure. (When pump stalls, the Control Valve will continue to shift and in fact speed up slightly, but the Piston Plunger Assembly (Item #16) will no longer be moving up and down. This can be confirmed by removing the Vent (Item #13A) on the Mounting Tube (Item #12) and observing. If the Control Valve blows a continuous stream of air instead of cycling, increase the air/gas supply pressure slightly. **NOTE:** If after raising the air/gas supply pressure slightly the Control Valve continues to blow a continuous stream of air/gas it will be necessary to place a solid object over the exhaust port, interrupting the flow of air/gas for one second to reset the Control Valve.
 - g) Once the pump stalls, slowly increase the air/gas supply regulator pressure until movement of the Piston Plunger Assembly begins. **Do not use more air/gas supply pressure than needed to cycle the pump.** Too much air/gas supply pressure will cause the Piston Plunger Assembly to slam down which can break the ceramic plunger portion of the assembly.
 - h) Increase or decrease pump volume by using either or both the Control Knob (Item #31) and the Stroke Adjuster (Item #1).

Model 44/64/84 Ceramic Plunger Pumps Start Up & Repair

1. This is a solid ceramic plunger. It is very brittle and **must** be handled with extreme care before & during use in a Sidewinder Pump.
2. When installing:
 - a) Be sure the Pump Chamber (Item #24) is separated from the Mounting Tube (Item #12).
 - b) Disassemble powerhead assembly by removing the six-Powerhead Tie Bolt Nuts (Item #4D) from the six-Powerhead Tie Bolts (Item #4C).
 - c) Remove the Powerhead Cap (Item #4A) from the Powerhead Cylinder (Item #4B). The two parts are sealed together by an o-ring and may require some prying to separate.
 - d) The Powerhead Cylinder (Item #4B), the Mounting Flange (Item #10), and the Mounting Tube (Item #12) should remain assembled.
 - e) With the Powerhead Cylinder (Item #4B) assembled with the Mounting Flange (Item #10) and Mounting Tube (Item #12), the old Piston-Plunger Assembly (Item #16) removed and the Powerhead Cap (Item #4A) removed, install the new Ceramic Piston-Plunger Assembly (Item #16), plunger first, into the Mounting Tube (Item #12). **Do not forget** to place the Return Spring (Item #11) around the ceramic plunger portion of the Piston-Plunger Assembly (Item #16).
 - f) Replace the Powerhead Cap (Item #4A) and secure with the six-Powerhead Tie Bolts and Nuts (Items #4C & 4D).
 - g) Replace the Pump Chamber (Item #24) onto the Mounting Tube (Item #12) being careful as the Plunger Seal (Item #18) in the Pump Chamber (Item #24) is placed around the extended ceramic portion of the Piston-Plunger Assembly (Item #16).
 - h) Pump Chamber (Item #24) and Mounting Tube (Item #12) are to be threaded together **hand tight only**.
3. When starting pump into operation:
 - a) Open the Bleeder Valve (Item #20) to prime pump.
 - b) Make sure the Control Knob (Item #31) is screwed in all the way to insure that the pump is off.
 - c) Back off on the air/gas supply regulator to 0 PSI.
 - d) Slowly bring the supply pressure up to 10 PSI (regardless of fluid injection pressure).
 - e) Slowly begin to unscrew the Control Knob (Item #31) until the pump begins to stroke at a rate of 1 stroke every 3-4 seconds.
 - f) Allow the pump to run in this condition until the injection lines fill and pump stalls against the injection pressure. (When pump stalls, the Control Valve will continue to shift and in fact speed up slightly, but the Piston Plunger Assembly (Item #16) will no longer be moving up and down. This can be confirmed by removing the Vent (Item #13A) on the Mounting Tube (Item #12) and observing. If the Control Valve blows a continuous stream of air instead of cycling, increase the air/gas supply pressure slightly. After raising the air/gas supply pressure slightly the Control Valve continues to blow a continuous stream of air/gas it will be necessary to place a solid object over the exhaust port, interrupting the flow of air/gas for one second to reset the Control Valve.
 - g) Once the pump stalls, slowly increase the air/gas supply regulator pressure until movement of the Piston Plunger Assembly begins. **Do not use more air/gas supply pressure than needed to cycle the pump.** Too much air/gas supply pressure will cause the Piston Plunger Assembly to slam down which can break the ceramic plunger portion of the assembly.

Increase or decrease pump volume by using either or both the Control Knob (Item #31) and the Stroke Adjuster (Item #1).

Trouble Shooting Guide - Pneumatic Plunger Pumps

Problem	Possible Cause	Action
Control Valve Not Cycling	1) No supply pressure	1) Check gauge on supply line near pump to verify adequate supply pressure - 10 to 150 PSI
	2) Pump speed control closed	2) Rotate dial CCW three turns from full in position and then set desired rate. Rotate CW to slow rate pump rate
	3) Leak in control or valve	3) Check for leak, pinched or missing seals, broken diaphragm or loose mounting screws.
	4) Supply gas blowing through to exhaust due to speed control too wide, trash under valve seat or restriction in air gas/supply line	4) Rotate control dial CW to decrease setting. Block exhaust momentarily and then release. DO NOT USE BARE FINGERS. If this does not work replace Timer Seat O-ring #37 or increase supply line size and move pump closer to air/gas supply source
Piston Not Stroking	1) Return spring broken	1) Replace Spring
	2) Piston stuck due to lack of Piston or Plunger Lube	2) Clean and lubricate power head and piston with Piston Lube #91-42. Clean Plunger Lube Chamber and fill with Plunger lube (#92). Change Piston and plunger seals if needed
	3) Supply pressure too low to buck process line pressure	3) Divide process line pressure by amplification ratio (see Performance Chart). Supply pressure must exceed this result. Standard Sidewinder Control operates from 10 to 150 PSI
	4) Stroke Length Adjuster screwed too far in	4) Back out on stroke adjuster to desired setting.
No Fluid Discharge With Timer Control Cycling and Piston Stroking	1) Air or vapor in pump chamber	1) Open bleeder valve, fill chamber with fluid only, then close bleeder valve.
	2) Fluid flow to pump blocked by plugged line, closed valve, extremely high viscosity or lack of fluid supply	2) Provide free flow of fluid to pump suction.
	3) Suction or discharge check valve leaking	3) Use drum gauge with handle in test position to determine which valve is leaking. Clean or replace faulty valve
	4) Discharge line plugged	4) Clear or replace line.
Premature Seal Failure	1) Chemical incompatibility between seal and material being pumped	1) Check a Compatibility Chart or consult chemical manufacturer, and install seal made from compatible material
	2) Scored or damaged plunger	2) Replace plunger.
	3) Abrasive material in chemical	3) Install suction filter.
	4) No lubricant or incorrect lube	4) Use Sidewinder Lube #91-42 on piston and #92-122 on plunger. Periodically check lube level.

Trouble Shooting Guide Questionnaire

Date _____

Distributor _____ Contact _____

Location _____ Phone _____

*Pump Model # _____ *Serial # _____

User _____ User Contact _____

Location _____ Phone _____

Operating Conditions

*Type of fluid _____ *Viscosity (thick / thin) _____

*Discharge pressure _____ *Suction conditions _____

Fluid temperature _____ *Required flow rate _____

*Type of supply (air / gas etc) _____ *Actual flow rate _____

*Supply pressure at the pump _____ *Condition of Supply _____
(wet , dry etc)

*Cycles per Minute (one suction stroke plus one discharge stroke = one cycle) _____

Analysis

*Description of problem _____

*Description of seal condition _____

*Description of plunger condition _____

*Has pump been repaired before? _____ *How long since repair? _____

*Was pump repaired with the same type seal, plunger etc as original? _____

*If not please give description of the components and why the change.

*** Must fill in information in these fields**

See page 2 for further evaluation questions

Trouble Shooting Guide Questionnaire (continued)

Air Motor Assessment

Is the pump air motor cycling? Yes _____ No _____

If not:

A) is air/gas blowing out exhaust port continuously? Yes _____ No _____

B) is air/gas being exhausted at all? Yes _____ No _____

C) is cycle erratic Yes _____ No _____

D) is air/gas escaping from around stroke adjuster Yes _____ No _____

E) is air/gas escaping from around valve body sea Yes _____ No _____

PUMP END ASSESSMENT

Air motor cycles but pump does not move fluid or build pressure

Is there a pump setting / calibration / drum gauge in the system? Yes _____ No _____

Is there a pressure gauge on the air/gas supply at the pump Yes _____ No _____
If yes, what is the pressure reading? _____

Is there a pressure gauge on the discharge line of the pump? Yes _____ No _____
If yes what is the pressure reading? _____

Does the pump lose flow when the system starts to pressurize? Yes _____ No _____

Is the plunger moving up & dc Yes _____ No _____
Observe plunger thru the breather port under the power head.

Is chemical appearing in the lube bottle? Yes _____ No _____

Isolating the pump setting / calibration gauge / drum gauge with the pump running:
Does the fluid in the gauge fluctuate up & down? Yes _____ No _____

Does the fluid in the gauge move? Yes _____ No _____

Notes

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