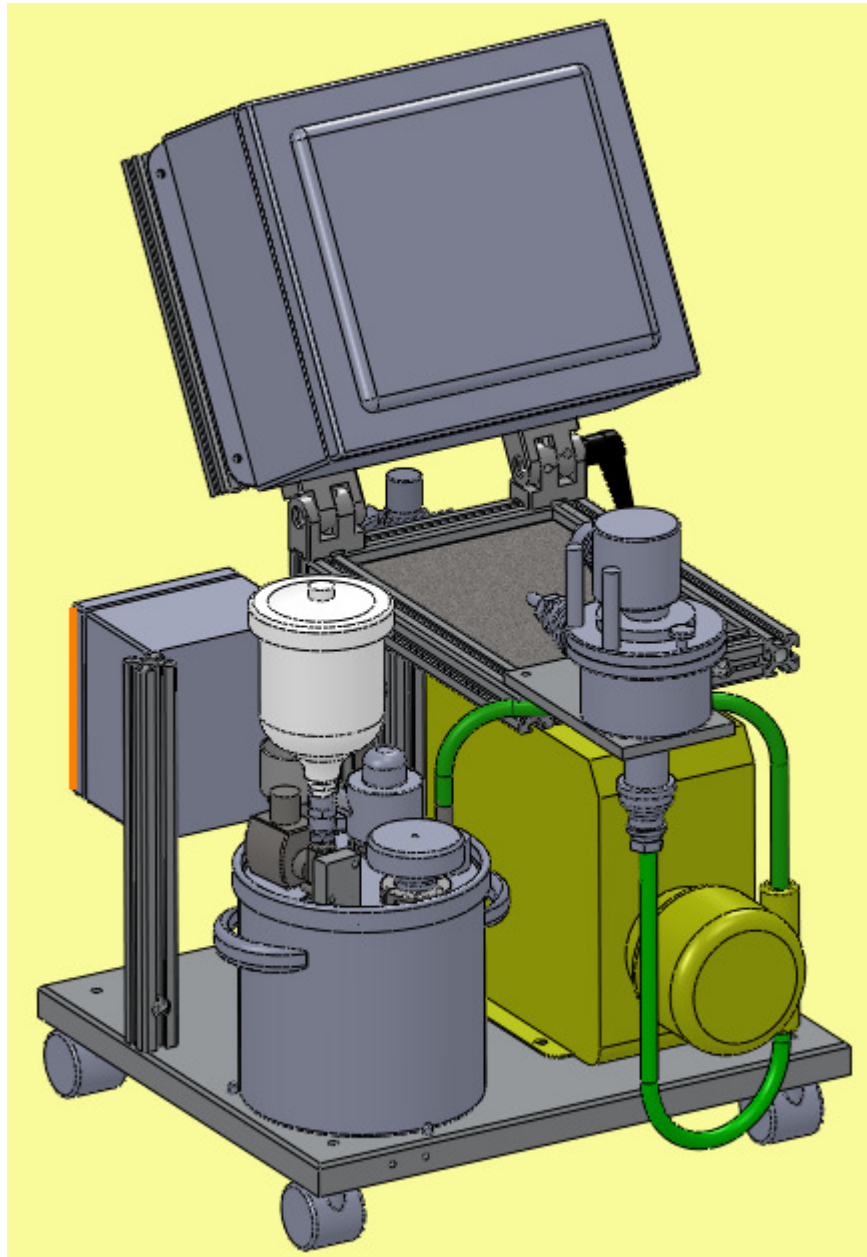


Ink Pump System

Model Number – 9680-01-000

Rev. C



1

Trusted Partner for Your Product Decorating Needs

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Foreward

Congratulations on your purchase of this ITW Trans Tech equipment. We are a company dedicated to providing quality, reliability and design innovation in custom printing and automation equipment. To provide you with the highest possible quality, our products combine creative engineering designs with proven printers, and dependable off the shelf components. Our hallmark is innovative automation equipment that "works".

This manual will help you get the best possible service from this equipment. It contains operating instructions to get you "up and running" quickly, maintenance and preventive maintenance instructions to keep you running smoothly and troubleshooting suggestions should a problem occur. Although this equipment was built to meet the highest standards in the automation industry, even a well built machine needs periodic service. Follow the instructions in the preventive maintenance section of this manual to reduce your need for service. The information in troubleshooting will help to get your equipment back in operation quickly should a problem occur.

Be aware that the information in this manual is considered confidential. This information is only intended for use by equipment purchasers of ITW Trans Tech, and our authorized agents.

If the need for service arises, contact our Carol Stream office. Our service engineers are ready to give you prompt and reliable service. This service covers technical assistance, installation, preventive maintenance and equipment repair.

When you need assistance, call our main office and request the appropriate department. **00-1-630-752-4000**

Contents

1. Safety	3
1.1 Introduction.....	5
1.2 Hazard Prevention	5
2. Ink Pump Set-up & Specifications	7
2.1 Equipment Set-up	7
2.2 Supply Specifications	7
2.2.1 Electrical	7
2.2.2 Pneumatics	7
3. System Overview	8
3.1 Operational Overview	8
3.2 Recommended Maintenance	8
4. Recommended Spares	9
5. Mechanical Assembly Drawing & BOM	10

1. Safety

CAUTION

**THIS EQUIPMENT IS TO
BE OPERATED AND
SERVICED BY TRAINED
AND QUALIFIED
PERSONNEL ONLY!!!**

1.1 Introduction

We recommend that you read and thoroughly understand the information in this section before operating or servicing this equipment. Our emphasis on safety is meant to make you safety conscious. Your safety is one of the main concerns in the design of our equipment.

A safe workplace needs the awareness of all concerned; management as well as operating and maintenance personnel.

1.2 Hazard Prevention

- (1) Familiarize yourself with the rules of your workplace and the equipment you operate. Also, know who to contact when an emergency occurs and when you have questions concerning safety and the operation of your equipment.
- (2) Only operate equipment for which you received authorization and full training. Many accidents occur because the operator is unfamiliar with the equipment being used. Both operating and service personnel must know what to expect from each control and the safety devices provided for this equipment.
- (3) Before starting this equipment, check with supervision and the crew of the previous shift to determine if any safety issues or unusual operating conditions were noted.
- (4) If a malfunction occurs, immediately notify your supervisor. Before starting to service the equipment, turn the input power OFF.
- (5) Check the immediate work area and make sure it provides safe footing. It should be dry and clear of all obstructions. If you notice any debris, pick it up and deposit it in an appropriate container. Wipe up all spills.
- (6) Always work within sight and hearing of another person, never alone. Someone should always be nearby to give aid if needed.
- (7) Never operate this or any other equipment if you are taking medicine that might make you drowsy.
- (8) Wear protective glasses, shoes and appropriate safety attire.
- (9) Before servicing this equipment, turn power OFF. Never service the equipment if the power line is connected.

- (10) Never try to clean or lubricate near moving or rotating parts. You could be seriously injured if you become entangled in moving parts.
- (11) If you are using a cleaning solvent, check its properties to determine if it's flammable and/or toxic. Keep all flammable solvents and fluids away from excessive heat, flames, sparks etc., and make sure area is well ventilated. Also, wear safety glasses to protect your eyes and, if the solvent or fluid is toxic, wear nonabsorbent gloves.
- (12) Only store and use solvents and chemicals according to the manufacturer's instructions. Do this to avoid the possibility of injury or harm from a fire, explosion, burns or other hazards. Always follow the manufacturer's instructions carefully.
- (13) Follow good hygiene practices when handling chemicals or solvents that are toxic, or suspected of being toxic. Wash hands and affected areas thoroughly as a minimum precaution. If you have doubts regarding the safety of a substance, request a Material Safety Data Sheet from the distributor or manufacturer of the substance.
- (14) When using chemicals, make sure area is well ventilated. Make sure concentrations of toxic vapors do not exceed OSHA or local regulations. Also, even if chemical is not toxic, it can displace normal air levels causing suffocation due to lack of oxygen.
- (15) Report all injuries from accidents. When an injury occurs, make sure the person receives prompt medical attention.
- (16) Always be alert and use COMMON SENSE.

2. Ink Pump Set-up & Specifications

2.1 Equipment Set-up

It is very important to thoroughly read the manuals for the AST-100TSY viscometer and the AST-310SY Controller to be familiar with the operation and proper maintenance requirements of these devices.

Check that all of the hoses are securely connected.

The ideal quantity of ink to be placed into the reservoir is 1.5 to 2.5 liters. The reservoir capacity is 4 liters. Once the pump motor is turned on, the level in the reservoir will naturally drop slightly because of some of the ink being pulled up into the system.

DO NOT PUT MORE THAN 3 LITERS OF INK IN THE RESERVOIR AS THIS WILL MAKE THE CLEANING PROCESS DIFFICULT.

To check the ink level in the reservoir, turn off the pump motor. Let the unit sit idle for about 2 minutes. Remove the dip stick and wipe it off with a clean towel. Re-insert it into the reservoir, remove it and view the position of the ink level on the dip stick. Add ink as necessary.

2.2 Supply Specifications

2.2.1 Electrical

The mains supply specifications are as follows:

110/120 VAC $\pm 10\%$, 1 \emptyset , 50/60 Hz.

2 Amps

2.2.2 Pneumatics

The main compressed air line feeds the system filter regulator combination units. The mains supply specifications are as follows:

75 PSI $\pm 10\%$

1 SCFM

3. System Overview

3.1 Operational Overview

This ink pump system is designed to deliver a continuous supply of printing ink to a rotary print head system.

When first starting up the system it is recommended that the ink used to initially fill the reservoir, be pre-mixed with the proper amount of thinner. Doing this will greatly reduce the waiting time for the viscosity system to check and adjust as necessary, the viscosity of the ink. Also fill the solvent reservoir with the appropriate type of solvent. As long as the power is kept on, the ink will be continuously recirculated and the viscosity maintained. Set the pressure regulator so that the mixer motor is revolving at approximately 40 to 50 RPM.

Once the display screen indicates that the ink is at the proper viscosity, you can proceed with normal operation. The viscosity will be maintained within the preset range as shown on the display screen.

3.2 Recommended Maintenance

The “Povinal” (green) tubing for conveying the ink is resistant to the effects of the chemicals that are in the ink mixture. Over time, the tubing will succumb to the effects of the ink. Monitor the tubing for signs of decay. The easiest test is to compare the tubing in use on the pump assembly to a new piece. When the used tubing is noticeably softer than the new tubing, it should then be replaced.

Another issue is the tubing which is placed inside of the peristaltic chamber on the front of the pump assembly. This tubing will be affected over time, to the constant rolling action of the impeller. The tubing will eventually fail due to fatigue. This tubing should be monitored daily for wear and replaced as necessary. The recommended replacement interval is once a week. This interval may need to be modified based on the condition of the tube at the time of replacement.

Only silicone based grease should be used to lubricate the green tube during tube installation.

If the tubing is allowed to be run for too long a time it will eventually fail and ink will spill out of the pump head.

It is recommended that a spare pump head be purchased and kept at the ready.

Periodic cleaning of the ink tank, mixer impeller and solvent feed pipe is recommended.

4. Recommended Spares

Part Number	Quantity	Description
299-05-041	50ft.	Povinal tubing, 3/8" ID x 5/8" OD
299-05-004	1	Graymills pump, Replacement head

5. Mechanical Assembly Drawing & BOM Section

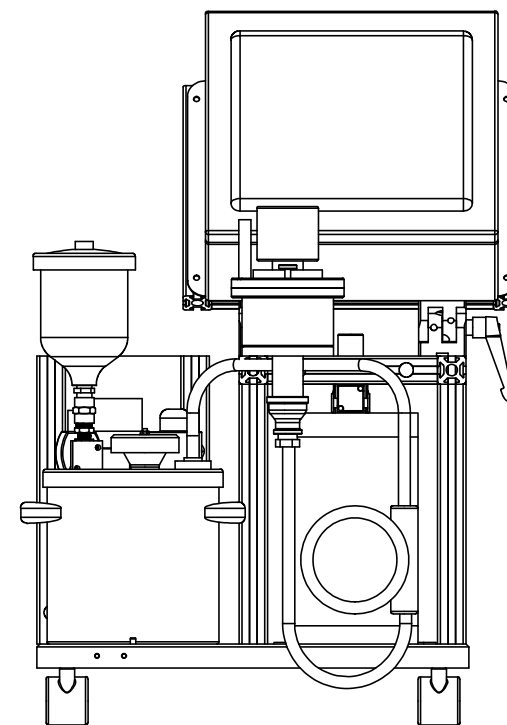
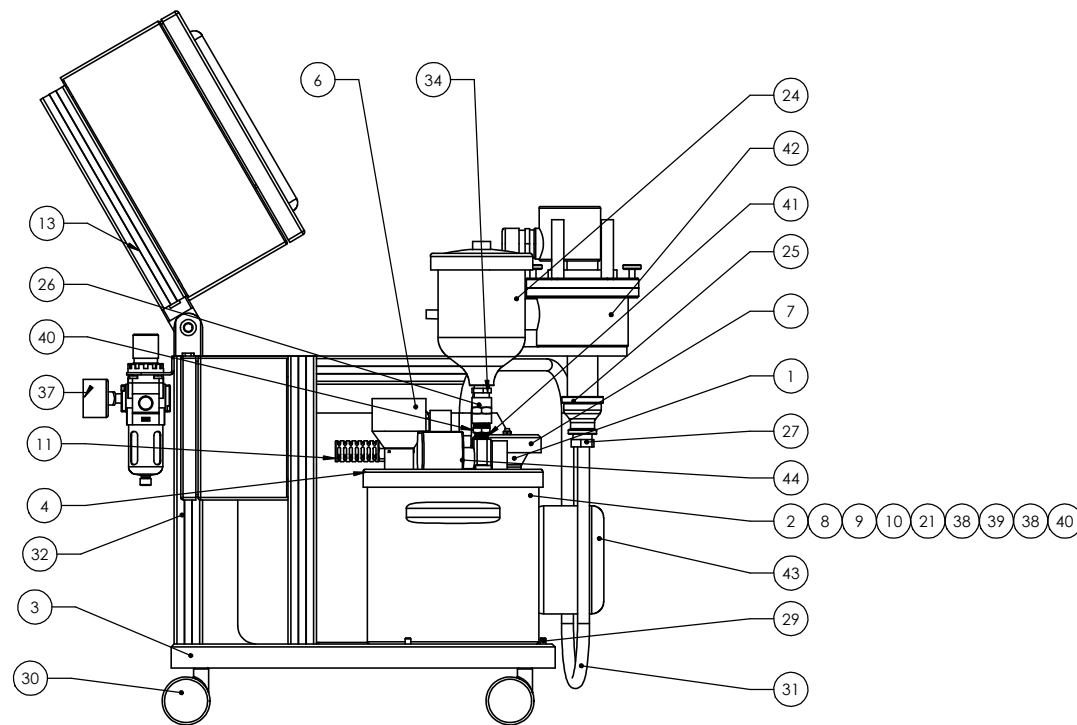
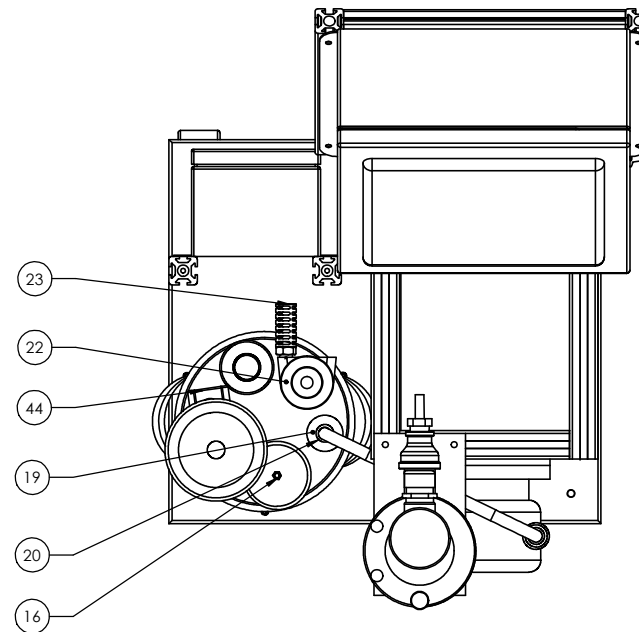
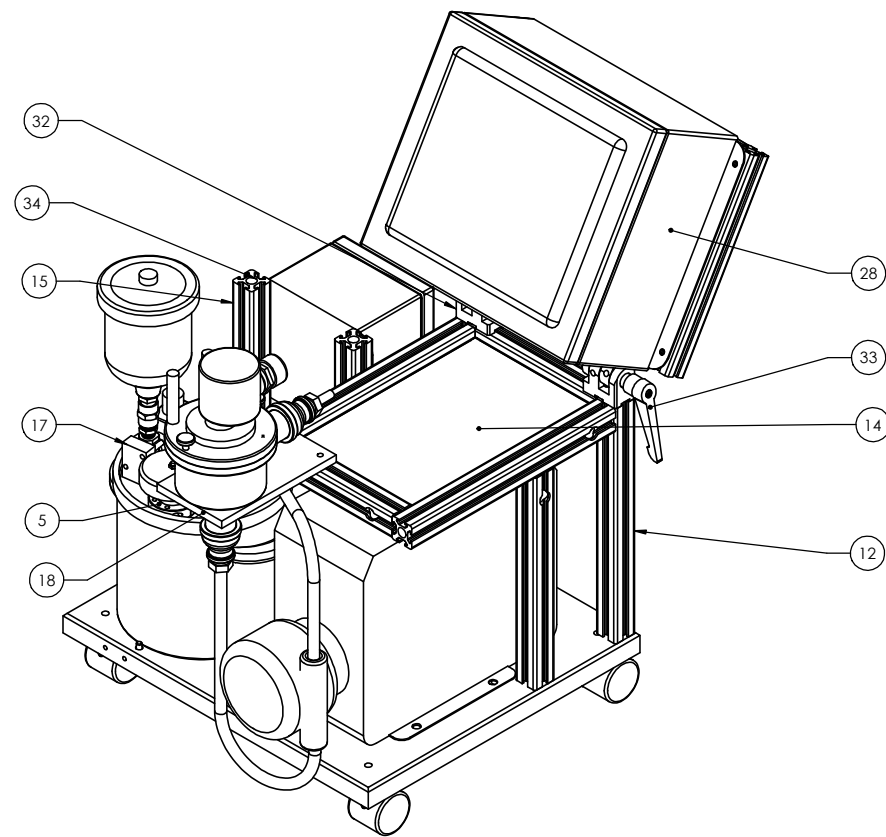
9680-01-000**INK PUMP**

<u>Item#</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
1	7628-04-011	1	INK RETURN BELL REDUCER
2	9680-01-004	1	Ink Pump Base Plate
3	9680-01-005	1	Pump Lid Modification
4	9680-01-008	3	AIR MOTOR MOUNT BRACKET
5	9680-01-009	1	INK PUMP LID BELL ASSY.
6	9680-01-010	1	CAP, FILL PORT, INK PUMP LID
7	9680-01-011	1	IMPELLER SHAFT INK PUMP
8	9680-01-012	1	IMPELLER SLEEVE INK PUMP
9	9680-01-013	1	IMPELLER MODIFICATION INK PUMP
10	9680-01-014	1	AIR MOTOR MUFFLER MODIFICATION
11	9680-01-015	1	INK PUMP FRAME LOWER
12	9680-01-016	1	FRAME, CONTROL PANEL VISCOSITY
13	9680-01-017	1	REAR COVER INK PUMP FRAME
14	9680-01-018	2	SIDE SKIRT INK PUMP FRAME
15	9680-01-019	1	TOP COVER INK PUMP FRAME
16	9680-01-020	2	MOUNT RAILS ELECTRICAL PANEL
17	9680-02-001	1	PLATE MODIFIED
18	911215-23-001	1	FEED TUBE MOUNT
19	911215-23-002	1	FEED TUBE WELDMENT
20	299-05-050	1	Type 316L SS Batch Can W/Handles and Clamp-Down Cover, 1-3/32 Gal Cap, 7-5/8" Top OD
21	299-05-015	1	Air-Powered Motor Hub Mount Lubrication-Free, 0.18 hp @ 80 PSI, Counter-Clockwise
22	204-04-005	1	Silencer (Muffler), 1/8 Npt (Nan)
23	299-04-002	1	DeVILBISS 20 oz . Acetal Gravity Feed Cup
24	216-01-110	2	Coupling,1"-3/8"NPT,Brass
25	216-01-057	1	Coupling,3/8 x 3/8 npt,fem,brass
26	216-01-120	2	Hose Barb,3/8NPT-3/8Hose,S.S.

945745-14-000**INK PUMP**

<u>Item#</u>	<u>Part Number</u>	<u>Qty.</u>	<u>Description</u>
27	299-09-011	1	Controller for Viscosity sensor
28	501-21-048	3	Dowel Pin, M6X18, Ss (Din 7-A1)
29	299-05-005	1	Peristaltic Pump, CE cert.
30	604-03-001	4	Caster, Dual Wheel 2.00' Dia W/ 3/4" Lg 3/8-16 Stud
31	299-09-012	1	Viscometer, 230v 50/60Hz
32	299-05-041	1	Povinal Tubing,3/8IDx5/8OD, (for ink pump) sold in 50ft roll
33	541-06-001	1	MayTec 30mm x 30mm JOINT End Mount
34	541-06-002	1	MayTec 30mm x 30mm JOINT With Clamp End Mount
35	204-01-171	1	Seal Ring, 3/8 Iso, Aluminum

36	205-14-010	1	Clamp, Hose (Box of 10)
37	299-05-051	1	Fawcett Part #MF-21H Mixed Flow Impeller 1-7/8" Dia High Lift Impeller with 5/16" Dia Bore
38	203-00-016	1	Filter/Regulator W/Gauge 1/4"
39	9680-01-002	1	SOLVENT SOLENOID MOUNT BRKT.
40	9680-01-001	1	45 Deg Orifice Receptical
41	344-02-001	1	Valve, special, 1/4", for solvent, 240vac.
42	9680-01-024	1	Solenoid Mount
43	216-01-331	1	Nipple, Pipe, 1/8" Npt X 4" (Brass)
44	204-03-033	1	Bushing, Male To Female, 3/8 X 1/4
45	216-01-333	1	Nipple, Pipe, 1/4" Npt X 7/8" (Brass)



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	7628-04-011	INK REDUCER BELL REDUCER	1
2	9680-01-001	45 DEG. ORIFICE RECEPTICAL SOLENOID EXIT	1
3	9680-01-004	INK PMP BASE PLATE	1
4	9680-01-005	PUMP LID MODIFICATION	1
5	9680-01-008	AIR MOTOR MOUNT BRACKET	3
6	9680-01-009	INK PUMP LID BELL ASSY.	1
7	9680-01-010	CAP, FILL PORT, INK PUMP LID	1
8	9680-01-011	IMPELLER SHAFT INK PUMP	1
9	9680-01-012	IMPELLER SLEEVE INK PUMP	1
10	9680-01-013	IMPELLER MODIFICATION INK PUMP	1
11	9680-01-014	AIR MOTOR MUFFLER MODIFICATION	1
12	9680-01-015	INK PUMP FRAME LOWER	1
13	9680-01-016	FRAME, CONTROL PANEL VISCOSITY	1
14	9680-01-019	TOP COVER INK PUMP FRAME	1
15	9680-01-020	MOUNT RAILS ELECTRICAL PANEL	2
16	9680-01-021	DIP STICK	1
17	9680-01-024	SOLENOID MOUNT	1
18	9680-02-001	PLATE MODIFIED	1
19	911215-23-001	FEED TUBE MOUNT	1
20	911215-23-002	FEED TUBE WELDMENT	1
21	299-05-050	Type 316L SS Batch Can W/Handles and Clamp-Down Cover, 1-3/32 Gal Cap, 7-5/8" Top OD	1
22	299-05-015	AIR MOTOR, INK STIRRING	1
23	204-04-005	SILENCER (MUFFLER), 1/4 NPT (Nan)	1
24	299-04-002	GRAVITY FEED CUP	1
25	216-01-110	REDUCER, 1" NPT TO 3/8" NPT, F TO F (STEEL)	2
26	216-01-057	Coupling, 3/8npt x 3/8npt fem., brass	1
27	216-01-120	Hose Barb, 3/8NPT-3/8Hose, S.S.	2
28	299-09-011	Controller for Viscosity sensor	1
29	501-21-048	Dowel Pin, M6X18, Ss (Din 7-A1)	3
30	604-03-001	Caster, Dual Wheel 2.00" Dia W/ 3/4" Lg 3/8-16 Stud	4
31	299-05-041	Povinal Tubing, 3/8IDx5/8OD, (for ink pump) sold in 50ft roll	1
32	541-06-001	Maytec 30mm x 30mm JOINT End Mount	1
33	541-06-002	Maytec 30mm x 30mm JOINT With Clamp End Mount	1
34	204-01-171	Seal Ring, 3/8 Iso, Aluminum	1
35	205-14-010	Clamp, Hose (Box of 10)	1
36	299-05-051	Fawcett Part #MF-21H Mixed Flow Impeller 1-7/8" Dia High Lift Impeller with 5/16" Dia Bore	1
37	203-00-016	Filter/Regulator W/Gauge 1/4"	1
38	216-01-002	Bushing, Hex 1/4 X 1/8 (Brass)	1
39	216-01-331	PIPE NIPPLE, 1/8 NPT, 4" LG, BRASS	1
40	204-03-003	Bushing, Male To Female, 3/8 X 1/4	1
41	216-01-333	NIPPLE, PIPE, NICKEL PLATE, 1/4 NPT	1
42	299-09-010	SENSOR, VISCOSITY	1
43	299-05-003	Peristaltic Pump	1
44	344-02-002	Valve, special, 1/4", for solvent, 120vac.	1

MATERIAL:		INTERPRET PER ANSI Y14.5M	
FINISH:		DRAWN : PSB	DATE : 9/22/12
DIMENSIONS IN INCHES (mm)		APPROVED :	RELEASE DATE :
TOLERANCES UNLESS SPECIFIED		SCALE : 1:8 QTY PER ASSEMBLY : 1	
.0 ± .02 [0.5]	.00 ± .01 [0.3]	INK PUMP	
.000 ± .005 [0.13]	.0000 ± .0005 [0.013]	DRAWING: 9680-01-000	
ANGLES ± 1/2		REV C SIZE D SHEET 1 OF 1	
MACHINED SURFACES $\sqrt{R=0.005}$			
BREAK CORNERS .020 [0.5] MAX			
<small>NOT FOR PUBLICATION. THIS DRAWING IS PROPERTY OF ITW TRANS TECH. ITS USE IS CONDITIONED UPON USER AGREEMENT NOT TO COPY OR REPRODUCE THE DRAWING IN WHOLE OR IN PART OR TO USE THE DRAWING TO REPRODUCE THE MATERIAL DESCRIBED THEREIN OR ANY OTHER PURPOSE WITHOUT WRITTEN PERMISSION FROM ITW TRANS TECH.</small>			
3rd ANGLE PROJECTION			

NOTES:



Vendor's Literature

Ink Dispensing Pump System

Model# [9680-01-000](#)