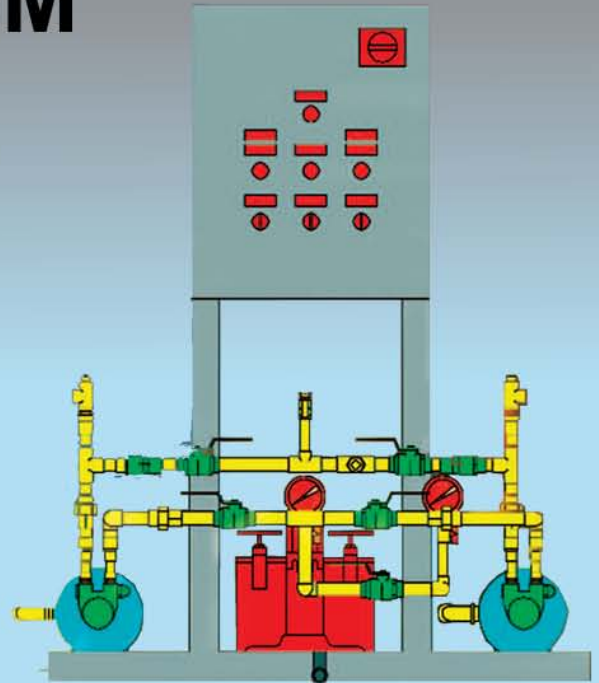


FLO FAB

Fuel Oil Transfert System

Series FOM



www.flofab.com

Manufacturer of Pumps, Tanks, Heat Exchangers & Accessories
for HVAC Market After-Sales Parts and Services

Fuel Oil Transfert System
Series FOM

FLO FAB INC
LAKE WORTH,
FLORIDA, USA

FLO FAB S- FOM, D-FOM or Q-FOM Pumping Sets offer several advantages over jobsite assembly of components. Most important is the sole responsibility of the manufacturer for providing predetermined results. One organization selects and coordinates components, fabricates the steel baseplate, the pipe fittings and installs the electrical control panel.

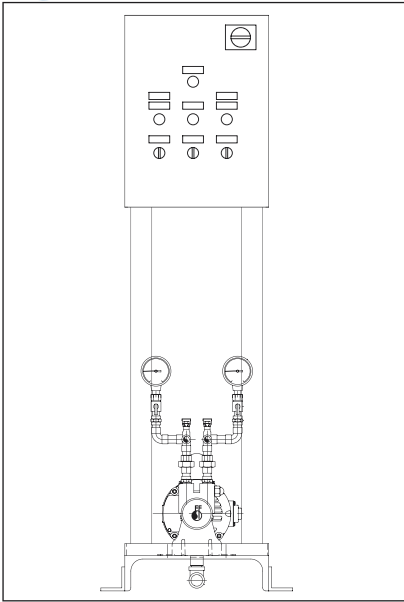
Duplex models are normally-stocked to cover most applications. Other models can be manufactured to meet the requirements for a specific application. A shop drawing and a wiring diagram, both incorporating a list of components, are prepared for approval prior to fabrication. The electrical control system includes one magnetic starter for each pump, indicating lights, a control transformer and a system control pressure switch (see EP panel for complete details). When pump operation is intermittent a control is frequently used to alternate the pumps (on duplex units only) and automatically turn on the back-up pump in case of malfunction.

Models **CYS** are industrial pumps. These pumps have become the industry standard in fuel oil transfer units. Models **CYS** pumps feature a new open-core design that provides improved performance at higher speeds and pressures. The rotor heads are hydraulically-balanced to provide minimum end clearance, assuring instant priming and instant capacity over a wide viscosity and pressure range. The pump is provided with a new improved mechanical face-type seal and Teflon impregnated outboard designed for direct drive. They are capable of handling inlet pressures as high as 200 PSI at standard 1750 RPM motor speeds. As shown in the tables herein, pumps are provided in five sizes. Each pump is provided with an internal relief valve. FLO FAB duplex fuel oil transfer units are ideal in fuel oil transfer systems and generators.

FEATURES

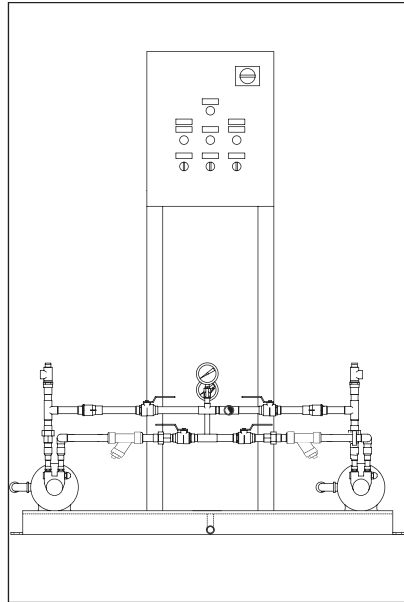
1. For each fuel oil transfer system, you should have a FLO FAB Series "**FOM**" unit. This system is used to automatically maintain the fuel oil level in a secondary tank.
2. Each unit has the following items:
 - Low-level float and internal pump relief valve
 - A separate external relief valve to return the fuel oil to the main tank (piped by others)
3. Systems have stainless steel rotary vane type pump(s) with electric closed coupled motor(s) :

<ul style="list-style-type: none"> - Control panel Nema 1 with piston type pressure switch(es) - 3 position selector (H.O.A.) - Low-level indicator light - High-level shut-off float (by others) - Dry contact for remote low level alarm signal (5 amps) (see EP panel for complete details) - Type "Y" strainer(s) (one for each pump) 	<ul style="list-style-type: none"> - Duplex basket strainer - Isolating ball valve(s) - Pump discharge check valve(s) - Liquid filled pressure gauge(s) - Factory-assembled, wired and tested prior to shipping
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------



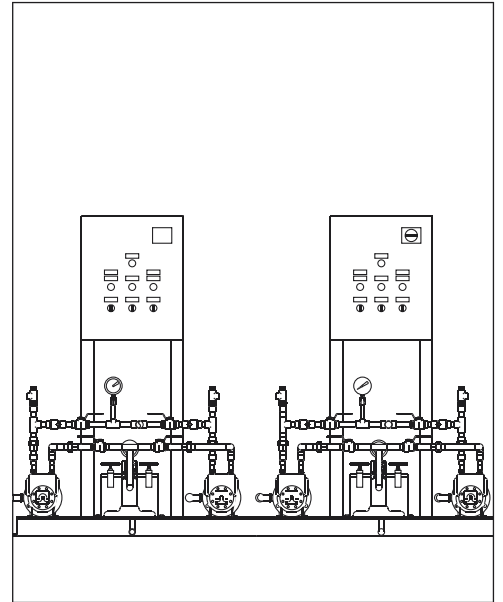
Series Pump Model

Simplex: S - FOM - CYS16 - ____
 Example: S - FOM - CYS16 - 170



Series Pump Model

Duplex: DY - FOM - CYS16 - ____
 Example: DY - FOM - CYS16 - 170



Series Pump Model

Quadruplex: Q - FOM - CYS16 - ____
 Example: Q - FOM - CYS16 - 170

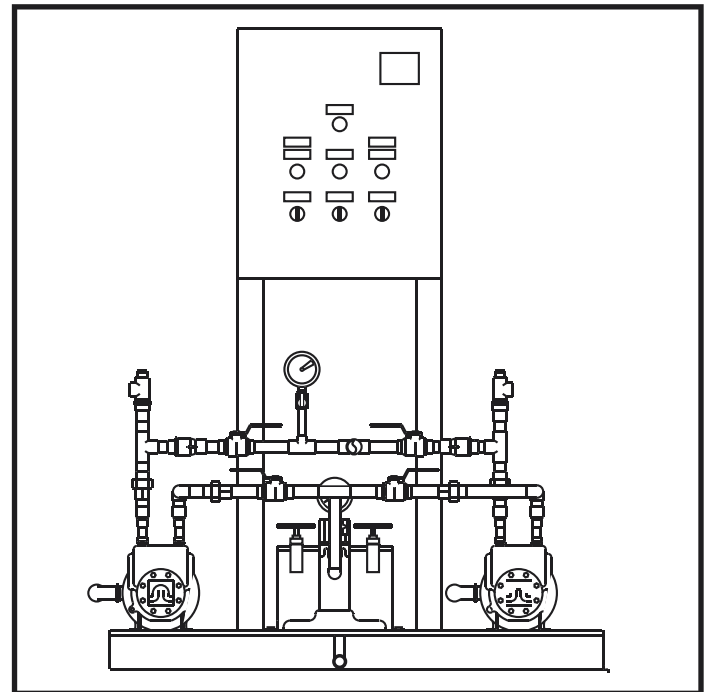
FEATURES

- Simplex, Duplex or Quadruplex Units
- Self-feed transfer unit
(transfers fuel oil from main tank to the secondary tank)
- Ability to fill system directly from an external supply

COMPONENTS

- | | |
|----------------------------------------------------------------------------------------|------------------------------------------------------|
| 1. Pump(s) Closed-coupled rotary vane | 8. Duplex Basket Strainer |
| 2. Motor(s) | 9. Liquid filled Pressure Gauge(s) |
| 3. Simplex, Duplex and Quadruplex Control Panel
(see EP panel for proper selection) | 10. Ball Valve(s) |
| 4. System Pressure Switch(es) | 11. Check Valve(s) |
| 5. Pump internal Relief Valve(s) | 12. Copper Piping |
| 6. External Pressure Relief Valve(s) | 13. Steel base-plate for pump(s) and motor(s) |
| 7. Type "Y" Strainer(s) | 14. Electrical connection between panel and motor(s) |

Series Pump Model
Duplex: DP - FOM - CYS16 - ____
 Example: DP - FOM - CYS16 - 170



Duplex model shown

DESCRIPTION

Rotary vane positive displacement pumps run quietly and require no maintenance, for clean fluids at low flow and high pressure. Pumps are designed for pumping moderately aggressive liquids. The 304 Stainless Steel pump is superior for non-abrasive liquids that are compatible with pump component materials. Maximum operating temperature is 180°F.

APPLICATIONS

- Carbonated water for beverage dispensers
 - Ultra-filtration
 - Deionized water
 - Reverse-osmosis systems
 - Espresso coffee machines
 - Lubrication spraying
 - * Light fuel oil
 - Insecticide spraying
 - Dispensing soap
 - Glycol Feed
 - Distilled water
 - Fire resistant fluids
 - * Hydraulic oil
 - Steam cleaning machines with clean water
 - Cooling circulation
 - Pressure booster
 - Atomizing misting humidification systems
 - Laboratory pumps
 - Pilot plants
 - Boiler feeds
 - Water purification
 - Jockey fire pumps
- and many more applications...*

CONSTRUCTION

- Two piece 304 Stainless Steel body
- Built-in bypass relief valve
- Carbon graphite pump chamber and vanes
- Available with or without built-in cleanable strainer
- 71 Mesh Filter
- 304 Stainless Steel
- Hub dimensions for special FLO FAB pump motors
- Clamp included 304 Stainless Steel body
- Carbon graphite pump chamber
- 304 Stainless Steel rotor and shaft
- Carbon graphite vanes
- Carbon rotating seal
- Ceramic stationary seal with Buna N bellows
- Stainless Steel spring

OPERATION

This unit is used to automatically transfer fuel oil from a main tank to a secondary tank. The level float has an adjustable level range for various level requirements. Should the pressure increase to above the setting of the adjustable set range, the relief valve will open allowing the excess pressure/fluid to return to the main tank. When the level float has reached its set point, the pump is turned off. The pump can also operate continuously if the selector switch is in the manual position

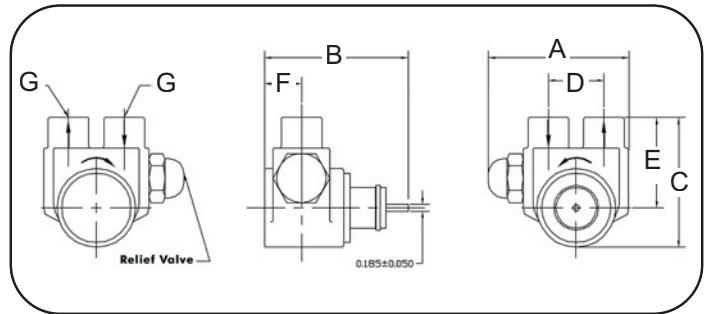
Voltage: _____

GALLONS PER HOUR AT PRESSURE IN POUNDS PER SQUARE INCH GAUGE (PSI)*											
Models	In / Out	20 PSI	40 PSI	60 PSI	80 PSI	100 PSI	120 PSI	140 PSI	160 PSI	180 PSI	200 PSI
Stainless Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CYS16-170	3/8"	49 - 1/4hp	48 - 1/4hp	47 - 1/4hp	46 - 1/4hp	45 - 1/4hp	43 - 1/4hp	42 - 1/4hp	41 - 1/4hp	40 - 1/4hp	39 - 1/4hp
CYS16-295	3/8"	111 - 1/4hp	110 - 1/4hp	109 - 1/4hp	108 - 1/4hp	107 - 1/3hp	105 - 1/3hp	104 - 1/3hp	103 - 1/3hp	102 - 1/2hp	101 - 1/2hp
CYS16-377	3/8"	144 - 1/4hp	143 - 1/4hp	142 - 1/4hp	141 - 1/3hp	140 - 1/3hp	138 - 1/3hp	137 - 1/2hp	136 - 1/2hp	135 - 1/2hp	134 - 1/2hp
CYS16-560	1/2"	201 - 1/4hp	200 - 1/3hp	198 - 1/3hp	197 - 1/3hp	196 - 1/3hp	195 - 1/2hp	194 - 1/2hp	193 - 1/2hp	192 - 1/2hp	190 - 1/2hp
CYS16-1026	1/2"	327 - 1/3hp	326 - 1/3hp	324 - 1/2hp	323 - 1/2hp	322 - 1/2hp	321 - 3/4hp	320 - 3/4hp	318 - 3/4hp	317 - 3/4hp	316 - 3/4hp

* Performance based on water at 68°F, no inlet pressure, motor speed of 1725 RPM. Flows will change in direct proportion to new speed vs. old speed

PUMP STANDARD SPECIFICATIONS

Body	Stainless Steel
Capacity	49 to 316 gallons/hour
Nominal Speed	1725 RPM
Maximum Discharge Pressure	200 PSI
Rotation	Clockwise
Net Weight	2.75 lbs
Self Priming (Fuel oil)	max. 6 feet



DIMENSIONS

Model	A		B		C		D		E		F		G (NPT)	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
CYS16-170	3 7/16	91	3 7/8	99	3 1/2	95	1 1/2	40	2 7/16	61	1	25	3/8	9
CYS16-295	3 7/16	91	3 7/8	99	3 1/2	95	1 1/2	40	2 7/16	61	1	25	3/8	9
CYS16-377	3 7/16	91	3 7/8	99	3 1/2	95	1 1/2	40	2 7/16	61	1	25	3/8	9
CYS16-560	4 3/16	105	4 3/8	109	3 7/8	99	1 7/8	47	2 1/2	65	1 1/4	32	1/2	15
CYS16-1026	4 3/16	105	4 3/8	109	3 7/8	99	1 7/8	47	2 1/2	65	1 1/4	32	1/2	15

TYPICAL SPECIFICATIONS

The contractor shall furnish and install a Simplex, Duplex or Quadruplex fuel oil transfer system models **S-FOM**, **D-FOM** or **Q-FOM** as designed and manufactured by FLO FAB. The system shall be capable of automatically transferring fuel oil from a main tank to a secondary tank. Maximum discharge pressure shall not exceed 200 PSI and maximum operating temperature is 180°F.

The system shall be a factory-manufactured one-piece assembly and shall contain: pump(s), check valve(s), ball valve(s), type "Y" strainers or Duplex basket strainer, independent mounted relief valve(s), control panel(s), a low-level switch and all necessary electrical controls and accessories for a completely automatic operation.

PUMP

The rotary vane positive displacement pump(s) series **FOM** shall be constructed of 304 stainless steel, and will have a built-in By Pass relief valve as manufactured by FLO FAB. The pump(s) shall have carbon graphite vanes, carbon rotating seal, ceramic stationary seal with Buna N bellows and stainless steel spring. The electric close-coupled motor(s) shall be open-drip-proof type motor, standard NEMA construction. Single-phase fractional H.P. motor to include built-in thermal overload protection and stainless steel shaft. Motor bearings shall be sealed and factory greased for extra long trouble-free operation.

RELIEF VALVE

Adjustable pressure relief valve (with discharge piped to tank by others)

BALL VALVES

All ball valves shall be of bronze construction series LBV as manufactured by FLO FAB and shall be sized to minimize the pressure drop through the system.

SILENT CHECK VALVE

On each pump discharge a silent bronze check valve series STB FLO FAB shall be installed.

PRESSURE GAUGE

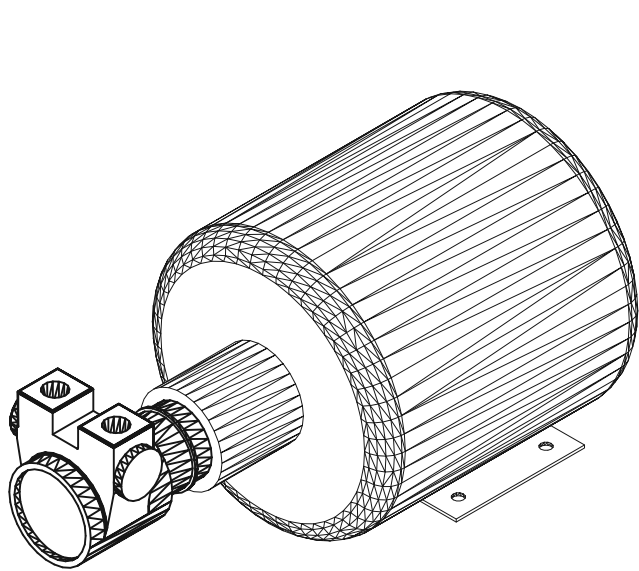
Liquid-filled FLO FAB pressure gauges shall be installed on the suction and discharge of the pump(s).

STRAINERS

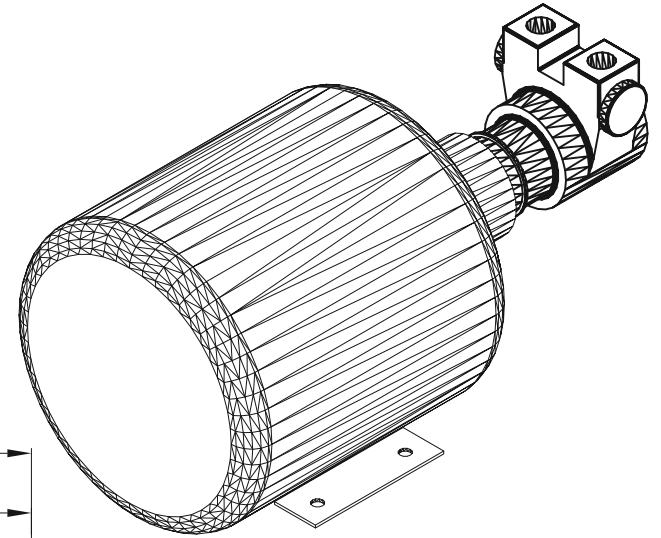
Duplex basket strainer FLO FAB model DBS with a stainless steel basket or type "Y" strainers FLO FAB model LCTY (will be installed at pump(s) inlet)

CONTROLLER(S)

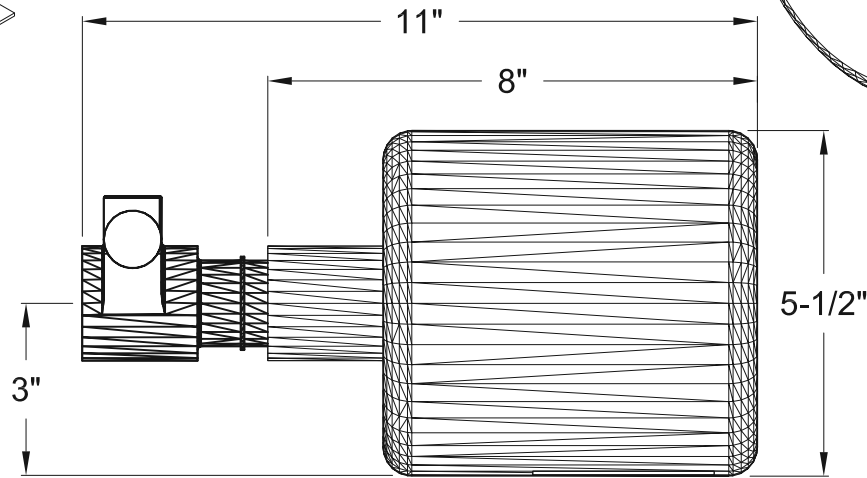
NEMA 1 Simplex or duplex control panel(s) shall include: manual transfer, HOA, pilot lights, low-level shut-off float. The system level float shall have an adjustable level range in order to increase and decrease the level according to the tank requirements. When the level float has reached its set point, the pump is turned off. The low-level float installed in the tank shall disable the pump(s) and send an alarm signal should the fuel oil level become dangerously low.



FRONT VIEW

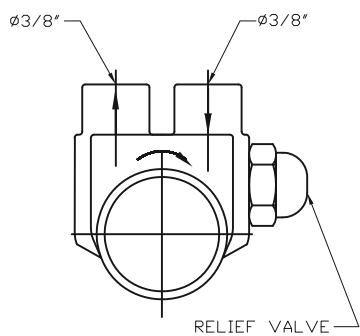


BACK VIEW

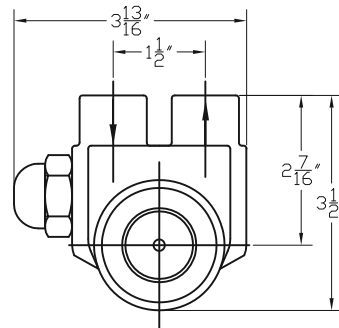
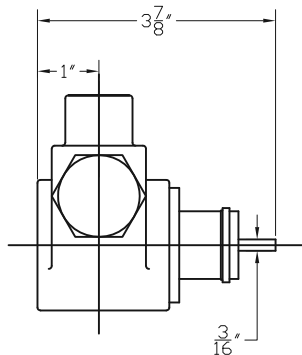


SIDE VIEW

STANDARD	<input type="checkbox"/>	SY-FOM-CYS16-170
	<input type="checkbox"/>	SY-FOM-CYS16-295
	<input type="checkbox"/>	SY-FOM-CYS16-377
	<input type="checkbox"/>	SY-FOM-CYS16-560
	<input type="checkbox"/>	SY-FOM-CYS16-1026



RELIEF VALVE



DETAILS

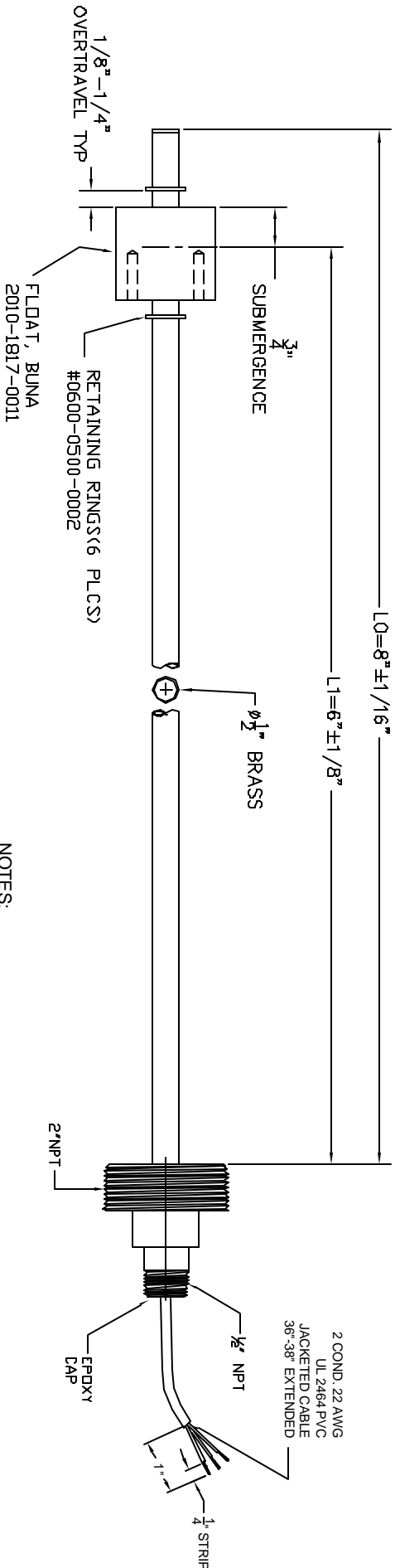
DESSIN TYPIQUE, LES DIMENSIONS FINALES ET LE DESIGN PEUVENT VARIER.
TYPICAL DRAWING, FINALE DIMENSIONS AND DESIGN MAY VARY

TITLE / TITRE	FLO FAB PUMP SERIES CYS16		
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	PROJECT/PROJET		
	CUSTOMER / CLIENT		
860 BOULEVARD INDUSTRIEL BOIS-DES-FILION, QC J6Z 4V7, (450) 621-2995	PART LIST N° / LISTE DE MATERIEL N°	DATE / DATE	
DRAWN BY / DESSINATEUR	SCALE / ECHELLE	DRAWING N° / N° DESSIN	REV
M. LYMBURNER	N / A	CYS16	0

1 2 3 4

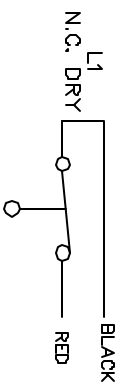
REVISION BLOCK				
ZONE	REV	DESCRIPTION	DATE	APPROVED



NOTES:

1. ELECTRICAL RATING: 100 WATT MAX; 240 VOLTS MAX; 1.0 AMP MAX.
2. TEMPERATURE LIMIT: 180°F MAX.
3. PRESSURE LIMIT: 150 PSIG.
4. WETTED MATERIALS: STEM ASSY BRASS
FLOAT ASSY BUNA
GRIPRING BE-CU
5. MINIMUM MEDIA SPECIFIC GRAVITY: .57 S.G.

WIRING SCHEMATIC

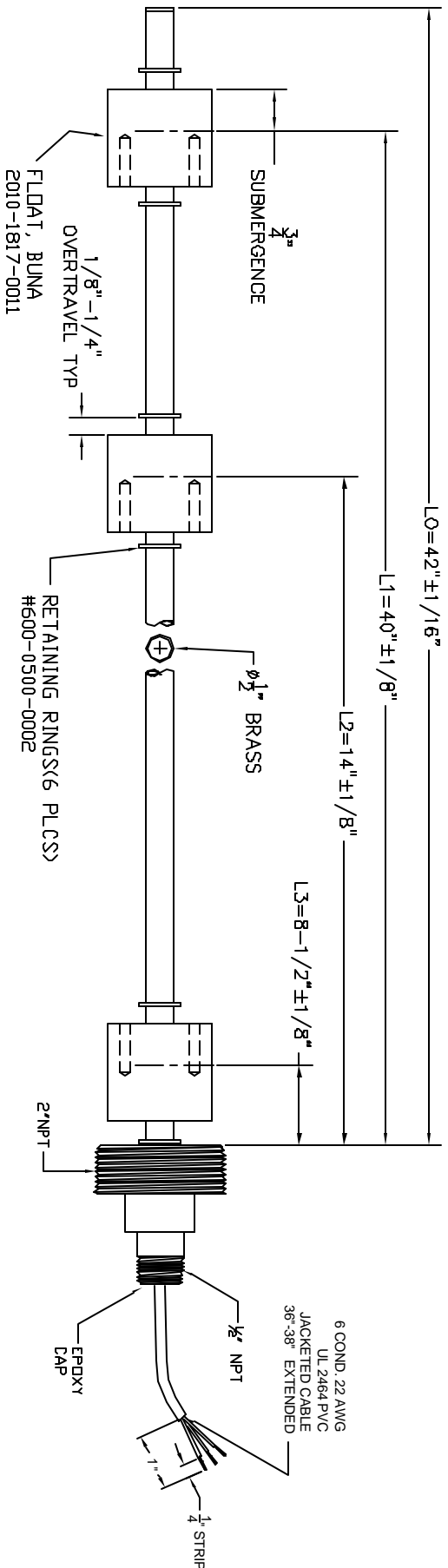


ITEM QTY	PART NUMBER	DESCRIPTION	SPEC
01			
UNLESS OTHERWISE SPECIFIED			
DIMENSIONS ARE IN INCHES			
.X±0.1 .XX±0.01 .XXX±0.005			
FRACTIONS ±1/8 ANGLES ±30°			
MACHINED SURFACES: $\sqrt{63}$ RMS			
MATERIAL: XXXXX		NEXT ASSY	
SCALE NONE		DRN: MD	DATE: 2/7/05
SIZE: B		DWG NO:	SHEET: 1 OF 1
REV: 00			

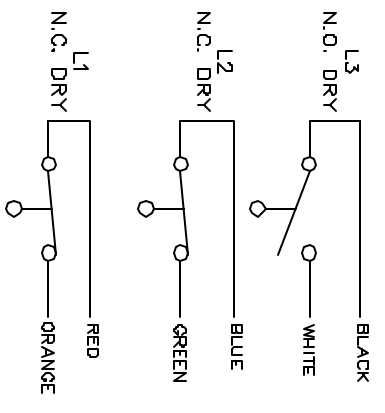
1 2 3 4

LEVEL SWITCH, L500,
BRSS/BUNA, 1 LVL, 2" NPT

REVISION BLOCK				
ZONE	REV	DESCRIPTION	DATE	APPROVED



WIRING SCHEMATIC



NOTES:

1. ELECTRICAL RATING: 100 WATT MAX; 240 VOLTS MAX; 1.0 AMP MAX.
2. TEMPERATURE LIMIT: 180°F MAX.
3. PRESSURE LIMIT: 150 PSIG.
4. WETTED MATERIALS: STEM ASSY BRASS FLOAT ASSY BUNA GRIPRING BE-CU
5. MINIMUM MEDIA SPECIFIC GRAVITY: .57 S.G.

ITEM QTY	PART NUMBER	DESCRIPTION	SPEC
01		LEVEL SWITCH, L500, BRSS/BUNA, 3 LVL, 2" NPT	

DIMENSIONS ARE IN INCHES
 .X±0.1 .XX±0.01 .XXX±0.005
 FRACTIONS ±1/8 ANGLES ±30°
 MACHINED SURFACES: 63 √ RMS
 MAT'L: XXXXX

SCALE	NONE	DRN	MD	E/7/05	SECT	1	DF	1
REV	00							

1 2 3 4

INSTRUCTIONS

Complete Process Conditions (Table 1). Select float design, stem material and watt rating (Table 2). Select mounting configuration (Table 3). Provide required dimensions and switch operation (Table 4). Mail or fax with purchase order to Madison Company.

All measurements in parentheses are in millimeters.

TABLE 1 PROCESS CONDITIONS

MAX. TEMP. _____ MIN. TEMP. _____
 MAX. PRESSURE _____ SPECIFIC GRAVITY _____
 FLUID _____
 SPECIAL COND. _____
 QUANTITY _____ WIRE LENGTH _____
 24" (609.6 mm) standard

TABLE 3 MOUNTING CONFIGURATIONS*

MALE THREAD	MALE PIPE PLUG	FLANGE
<input type="checkbox"/> 1/8" NPT	<input type="checkbox"/> 2"	<input type="checkbox"/> SPECIFY SIZE: _____
<input type="checkbox"/> 1/4" NPT	<input type="checkbox"/> 1-1/2"	
<input type="checkbox"/> 3/8" NPT	<input type="checkbox"/> 1-1/4"	BULKHEAD FITTING
<input type="checkbox"/> 1/2" NPT		<input type="checkbox"/> BULKHEAD
<input type="checkbox"/> 3/4" NPT		

*See Typical Installations on previous page.

TABLE 4 LENGTH & OPERATING POINT

For switches with bent stems, specify horizontal distance.

Please specify lengths and switch operation in chart below, always starting with the bottom switch (L5).

LENGTHS REQUIRED	SWITCH OPER. NO/NC	SPDT*	SLOSH SHIELD
L1 _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L2 _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L3 _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L4 _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L5 _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L (Total) = _____			

Refer to Switch Set-up Criteria on page 5 in order to determine lengths required.

* Full size floats only.

TABLE 2

FLOAT DESIGN	AVAILABLE STEM MATERIALS	MODEL NO.
Full Size Floats		
SPST 60 WATTS SPST 100 WATTS		SPDT 25 WATTS <i>*Rated for hazardous locations.</i>
<input type="checkbox"/> STAINLESS STEEL 	<input type="checkbox"/> STAINLESS STEEL <input type="checkbox"/> BRASS	*M5602 M5402
<input type="checkbox"/> POLYPROPYLENE 	<input type="checkbox"/> POLYPROPYLENE <input type="checkbox"/> STAINLESS STEEL <input type="checkbox"/> BRASS	M8802 M8602 M8402
<input type="checkbox"/> BUNA-N 	<input type="checkbox"/> STAINLESS STEEL <input type="checkbox"/> BRASS	M4602 M4302
<input type="checkbox"/> KYNAR 	<input type="checkbox"/> KYNAR	M9802
Miniature Size Floats SPST 30 WATTS		
<input type="checkbox"/> STAINLESS STEEL 	<input type="checkbox"/> STAINLESS STEEL <input type="checkbox"/> BRASS	M5002 M5042
<input type="checkbox"/> POLYPROPYLENE 	<input type="checkbox"/> POLYPROPYLENE <input type="checkbox"/> STAINLESS STEEL <input type="checkbox"/> BRASS	M8080 M8002 M8042
<input type="checkbox"/> BUNA-N 	<input type="checkbox"/> STAINLESS STEEL <input type="checkbox"/> BRASS	M4402 M4502
<input type="checkbox"/> KYNAR 	<input type="checkbox"/> KYNAR	M9090

For Future Use

For Future Use

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FLO FAB



**Manufacturer of Pumps, Tanks, Heat Exchangers & Accessories
for HVAC Market After-Sales Parts and Services**

www.flofab.com

FLO-FAB INC
LAKE WORTH,
FLORIDA, USA

SEPTEMBER 2009