Fed 6.24

Miller O'Hern CONSTRUCTION

SUBMITTAL TRANSMITTAL

RICHEY FUEL TANK REPLACEMENT

June 24, 2011

To: M3 ENGINEERING AND TECHNOLOGY
2051 W. Sunset Road, Suite 101
Tucson, Arizona 85704

From: Miller O'Hern Construction, LLC
2200 S. Avenida Los Reyes
Tucson, Arizona 85748

MILLER O'HERN CONSTRUCTION has reviewed this submittal and believes it to be in substantial compliance with the contract documents.
By: _____
Date: 6-24-11
Miller O'Hern Construction , LLC 520-395-9479

Subcontractor: A and H Contracting Services
Manufacturer: Various
Supplier:

Specification Section: 15192 Valves, Submersible Pumps, Leak Detectors

Submittal Purpose:
- [X] For Approval
- [ ] For Information Only

Number of Copies

Submittal Type
- [X] Product Data
- [ ] Shop Drawing
- [ ] Sample

Remarks:

Signature _____

16 pages

15192 2.5A

Apollo Valves

PROUDLY MADE IN USA — 5 YEAR WARRANTY

77C-100 Series

Bronze Full Port Ball Valve (Threaded)
"Contractor" Series

Threaded, 600 psig CWP, 150 psig SWP. (See referenced P/T chart)
Vacuum Service to 29 inches Hg.
Federal Specification: WW-V-35C, Type: II, Composition: BZ, Style: 3.
MSS SP-110 compliant.

FEATURES

- American Made Bronze Castings
- Machined Solid Chrome-Plated Ball
- Multi-Fill PTFE Seats & Seals
- Blow-out-proof stem design
- Adjustable packing gland
- Full Port Design Through 2"

STANDARD MATERIAL LIST

1. Gland	B16 Brass	6. Ball	B16 (chromium plated)
2. Nut	Zinc Plated Steel	7. Retainer	B584 Bronze*
3. Packing	MPTFE	8. Body	B584 Bronze
4. Seat	MPTFE	9. Handle	Zinc Plated Steel/Vinyl
5. Stem	B16 Brass		

*1/4" - 1/2" B16 Brass

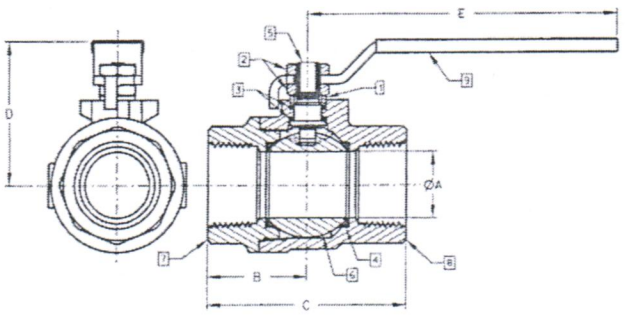
VARIATIONS AVAILABLE:

77C-140 Series (316 SS Ball & Stem)
77C-150 Series Balancing Stop
77CLF-100 Series Lead-Free* Materials

* 0.25 max.lead content of wetted surfaces by weighted average.

OPTIONS AVAILABLE:

(SUFFIX)	OPTION	SIZES
-04-	2-1/4" CS Stem Extension	1/4" to 2"
-07-	Steel Tee Handle	1/4" to 2"
-11-	Therma-Seal™ Insulating Tee Handle	1/4" to 2"
-27-	SS Latch-Lock Lever & Nut	1/4" to 2"
-47-	SS Oval Latch-Lock Handle & Nut	1/4" to 2"
-94-	2-1/4" Stem Ext. & Balancing Stop	1/4" to 2"



BRONZE FULL PORT BALL VALVE

NUMBER	SIZE	A	B	C	D	E	Cv	Wt.**
77C-101	1/4	0.37	0.95	1.97	1.76	3.74	4.5	0.6
77C-102	3/8	0.37	1.07	2.09	1.76	3.74	7.2	0.6
77C-103	1/2	0.50	1.15	2.25	1.79	3.74	15.5	0.6
77C-104	3/4	0.75	1.32	2.65	2.00	4.88	35.6	1.1
77C-105	1	1.00	1.53	3.07	2.19	4.88	68.1	1.8
77C-106	1-1/4	1.25	2.04	4.08	3.13	7.06	125.0	4.2
77C-107	1-1/2	1.50	2.21	4.43	3.29	7.06	177.0	4.6
77C-108	2	2.00	2.76	5.29	3.83	7.06	389.0	8.1
77C-109	2-1/2	2.50	3.12	6.37	4.51	8.06	503.0	16.2

**Weights are based on standard configuration 77C-10X-01.

For Pressure/Temperature Ratings, Refer to Page M-8, Graph No. 4

FLOW DATA

For Apollo® Ball Valves

The listed Cv "factors" are derived from actual flow testing, in the Apollo® Ball Valve Division, Conbraco Industries, Inc., Pageland, South Carolina. These tests were completed using standard "off the shelf" valves with no special preparation and utilizing standard schedule 40 pipe. It should be understood that these factors are for the valve only and also include the connection configuration. The flow testing is done utilizing water as a fluid media and is a direct statement of the gallons of water flowed per minute with a 1 psig pressure differential across the valve/connection unit. Line pressure is not a factor. Because the Cv is a factor, the formula can be used to estimate flow of most media for valve sizing.

Flow of Liquid

$$Q = Cv\sqrt{\frac{\Delta P}{SpGr}}$$

or $$\Delta P = \frac{(Q)^2\ (SpGr)}{(Cv)^2}$$

Where:
Q = flow in US gpm
ΔP = pressure drop (psig)
SpGr = specific gravity at flowing temperature
Cv = valve constant

Flow of Gas

$$Q = 1360\ Cv\sqrt{\frac{(\Delta P)\ (P_1)}{(SpGr)\ (T)}}$$

or $$\Delta P = \frac{5.4 \times 10^{-7}\ (SpGr)\ (T)}{\frac{(Q)^2}{(Cv)^2\ (P_2)}}$$

Where:
Q = flow in SCFH
ΔP = pressure drop (psig)
SpGr = specific gravity (based on air = 1.0)
P_1 = outlet pressure–psia (psig + 14.7)
T = (temp. °F + 460)
Cv = valve constant

Cv FACTORS
SERIES:
70-100, 71-100, 71AR, 73A-100,
74-100, 76-100, 76AR, 80-100
81-100, 89-100

SIZE		1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
OPEN	90°	8.4	7.2	15	30	43	48	84	108	503	370	670

Cv FACTORS
76F, 77, 77AR, 77C, 77D SERIES

SIZE		1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"
OPEN	90°	8.1	15	15	51	68	125	177	389	503

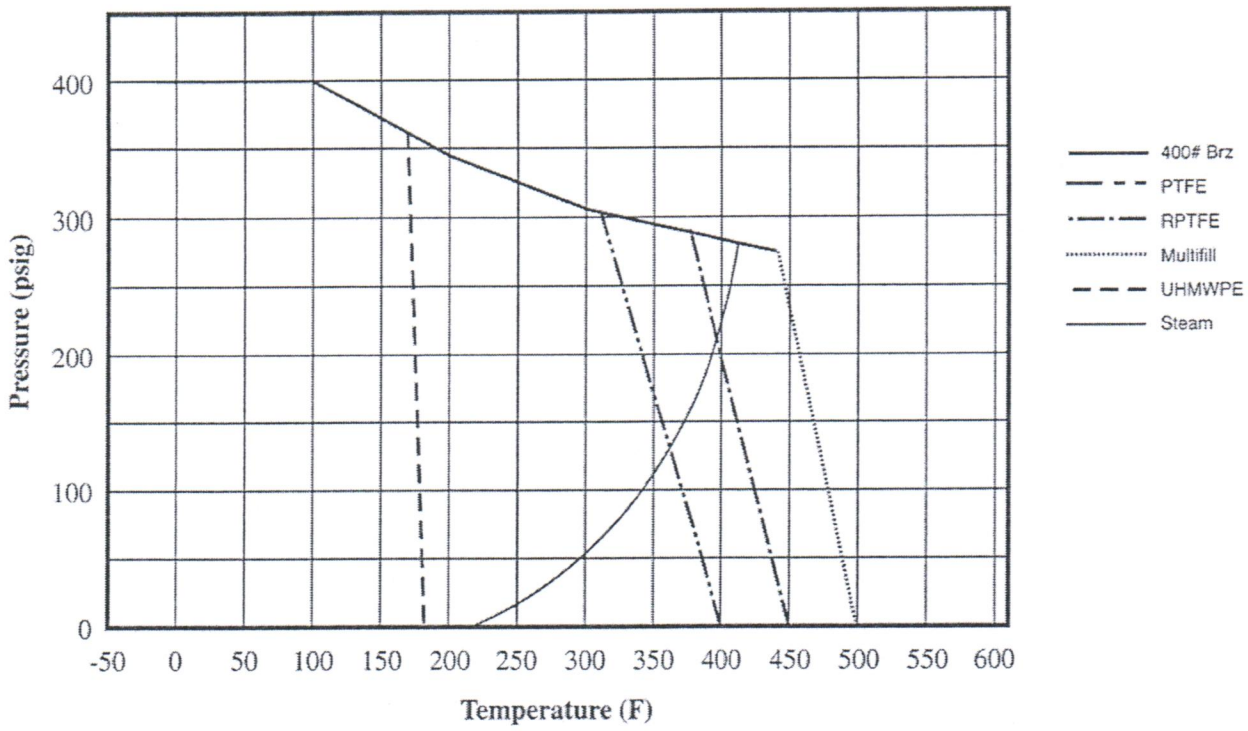
Cv FACTORS
82-100/200, 83R-100/200/700,85R-100/200,86R-100/200/700,83-500/600,86-500/600/900 SERIES

SIZE		1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
OPEN	90°	8.1	14	26	51	68	120	170	376	510	996	1893

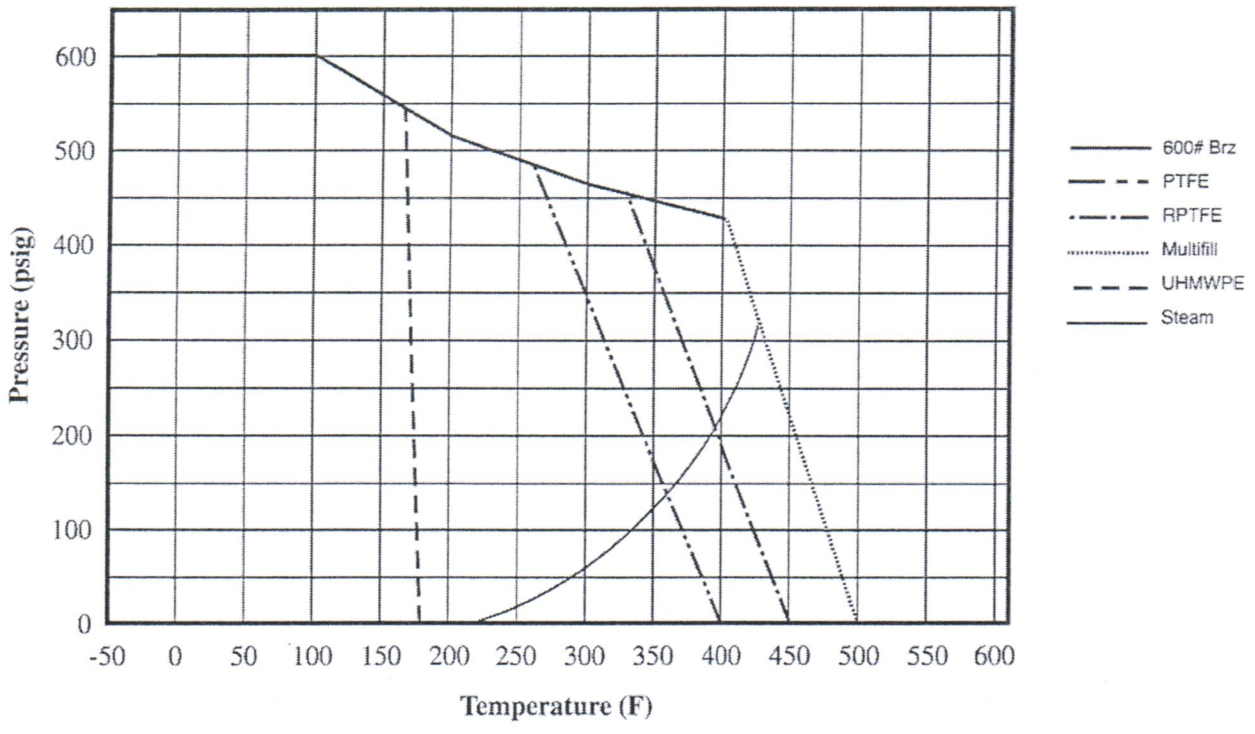
Cv FACTORS
83A/83B, 86A/86B, 86C SERIES

SIZE		1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
OPEN	90°	8.1	14	26	51	68	120	170	376

400# Bronze P-T Rating
(Graph 3)



600# Bronze P-T Rating
(Graph 4)



70-100 Series

Bronze Ball Valve

5 YEAR WARRANTY

Threaded, 600 psig WOG, Cold Non-Shock. 150 psig Saturated Steam. (See referenced P/T charts)
Vacuum Service to 29 inches Hg.
Federal Specification: WW-V-35C, Type: II, Composition: BZ, Style: 3.
MSS SP-110; Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.

FEATURES

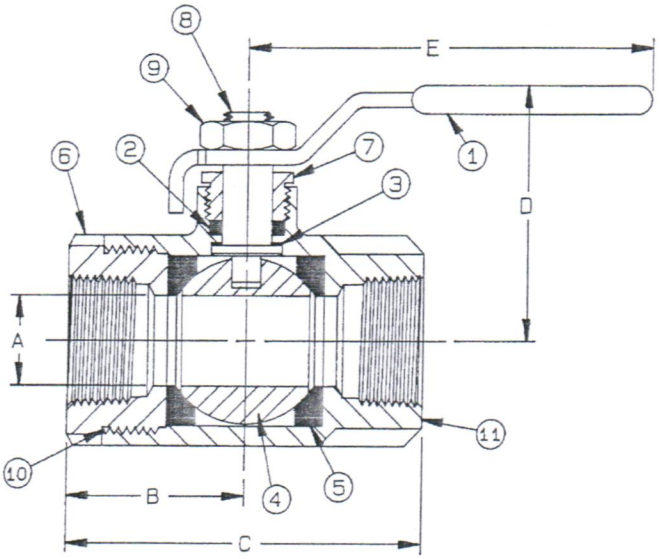
- Two-piece body
- Reinforced seats
- Blow-out-proof stem design
- Adjustable packing gland

STANDARD MATERIAL LIST

1. Lever and grip	Steel, zinc plated w/vinyl	7. Gland nut	B16
2. Stem packing	MPTFE	8. Stem	B16
3. Stem bearing	RPTFE	9. Lever nut	Steel, zinc plated
4. Ball	B16, chrome plated	10. Body seal (1-1/4" to 4")	PTFE
5. Seat (2)	RPTFE		
6. Retainer	B16 (1/4" to 1") B584-C84400 (1-1/4" to 4")	11. Body	B584-C84400

VARIATIONS AVAILABLE:

70-140 Series (316 SS Ball & Stem)
70-190 Series (Locked Retainer)



BRONZE BALL VALVE

NUMBER	SIZE	A	B	C	D	E	Wt.
70-101-01	1/4"	.37	1.03	2.06	1.75	3.87	.60
70-102-01	3/8"	.37	1.03	2.06	1.75	3.87	.56
70-103-01	1/2"	.50	1.12	2.25	1.75	3.87	.63
70-104-01	3/4"	.68	1.50	3.00	2.12	4.87	1.39
70-105-01	1"	.87	1.68	3.37	2.25	4.87	1.72
70-106-01	1-1/4"	1.00	2.00	4.00	2.62	5.50	3.26
70-107-01	1-1/2"	1.25	2.18	4.37	3.06	8.00	4.61
70-108-01	2"	1.50	2.34	4.68	3.25	8.00	6.06
70-109-01A	2-1/2"	2.00	3.12	6.25	3.72	8.00	17.25
70-100-01	3"	2.50	3.37	6.75	4.12	8.00	18.60
70-10A-01	4"	3.12	3.69	7.37	5.25	9.94	25.50

OPTIONS AVAILABLE:

(SUFFIX)	OPTION	SIZES
-02-	Stem Grounded	1/4" to 4"
-03-	1-1/4" CS Stem Extension	1/4" to 3"
-04-	2-1/4" CS Stem Extension	1/4" to 3"
-05-	Plain Ball	1/4" to 3"
-07-	Steel Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	1/4" to 3"
-10-	SS Lever & Nut	1/4" to 3"
-11-	Therma-Seal™ Insulating Tee Handle	1/4" to 2"
-14-	Side Vented Ball (Uni-Directional)	1/4" to 4"
-15-	Wheel Handle, Steel	1/4" to 2"
-16-	Chain Lever - Vertical	3/4" to 2"
-17-	Rough Chrome Plated - Bronze Valves	1/4" to 3"
-21-	UHMWPE Trim (Non-PTFE)	1/4" to 3"
-24-	Graphite Packing	1/4" to 3"
-27-	SS Latch-Lock Lever & Nut	1/4" to 3"
-30-	Cam-Lock and Grounded	1/4" to 2"
-32-	SS Tee Handle & Nut	1/4" to 2"
-35-	VTFE Trim	1/4" to 3"
-36-	SS Hi-Rise Round Handle, SS Nut	1/4" to 2"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	1/4" to 2"
-40-	Cyl-Loc and Grounded	1/4" to 2"
-41-	Automatic Drain (Bronze Valves Only) see page J-8	1/4" to 2"
-45-	Less Lever & Nut	1/4" to 3"
-46-	Latch Lock Lever - Lock in Closed Position Only	1/4" to 3"
-47-	SS Oval Latch-Lock Handle & Nut	1/4" to 1"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-49-	Assembled Dry	1/4" to 4"
-50-	2-1/4" CS Locking Stem Extension	1/4" to 3"
-56-	Multifill Seats & Packing	1/4" to 3"
-57-	Oxygen Cleaned	1/4" to 4"
-58-	Chain Lever - Horizontal	3/4" to 2"
-60-	Static Grounded Ball & Stem	1/4" to 3"
-63-	NPT x Solder/Socket Weld	3/8" to 4"
-64-	250# Steam Trim	1/4" to 3"
-92-	Balancing Stop	1/4" to 3"
-P01-	BSPP (Parallel) Thread Connection	1/4" to 3"
-T01-	BSPT (Tapered) Thread Connection	1/4" to 3"

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$(Cv)^2\ (P_2)$

Where:
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T = (temp. °F + 460)
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Cv FACTORS
82-100/200, 83R-100/200/700,85R-100/200,86R-100/200/700,83-500/600,86-500/600/900 SERIES

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Cv FACTORS
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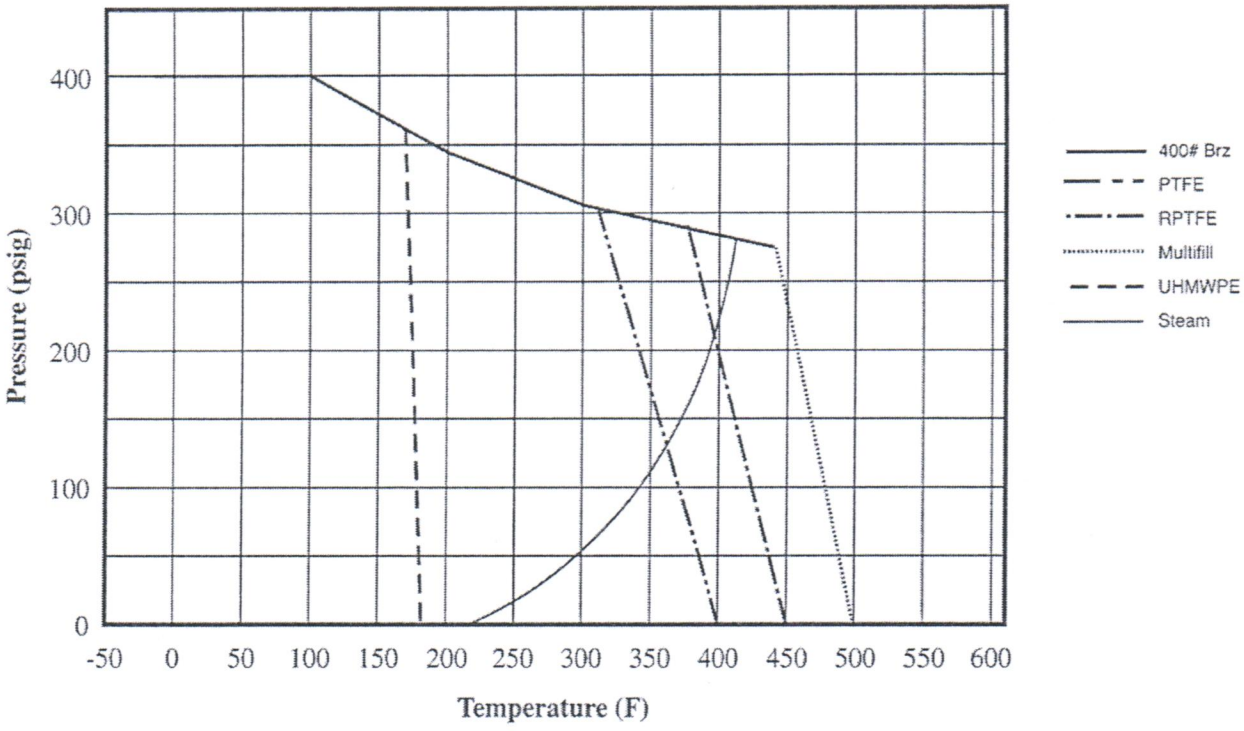
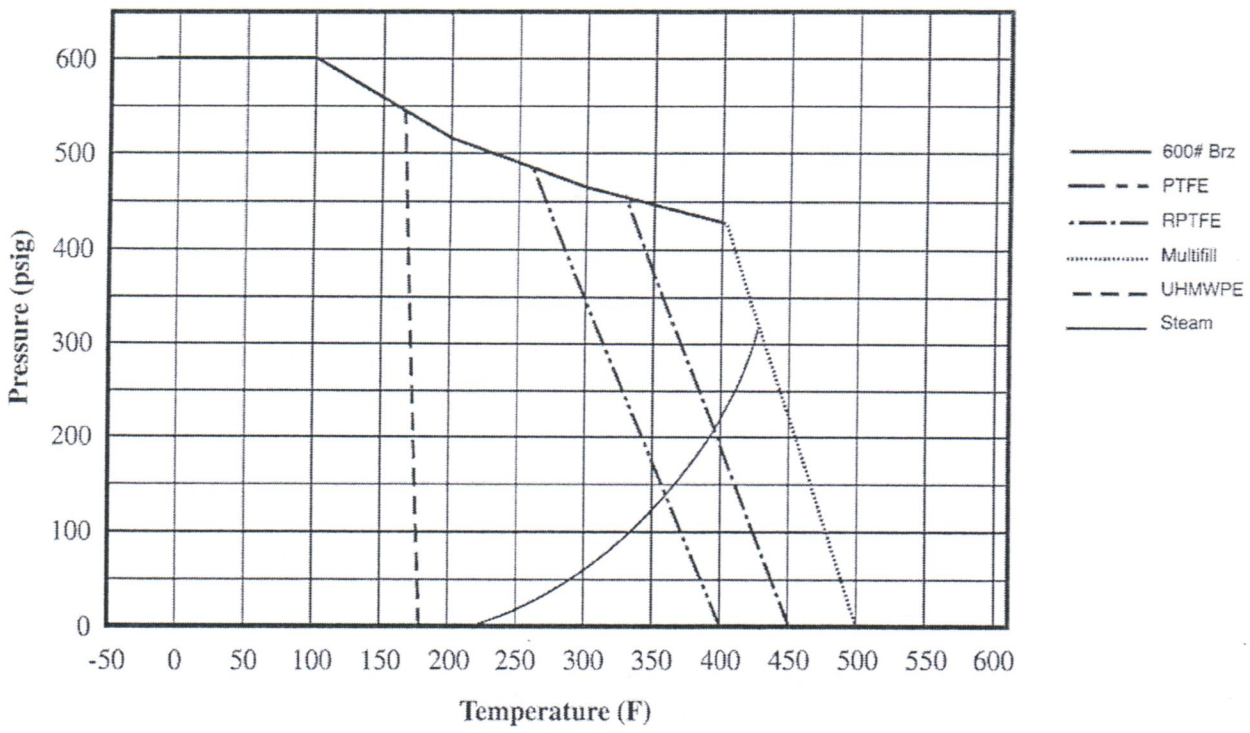
400# Bronze P-T Rating
(Graph 3)



600# Bronze P-T Rating
(Graph 4)



15192 2.6A

Morrison Bros. Co.

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Fig. 76DI & 78DI Expansion Relief Valves

Specification Sheet

Fig. 076DI & Fig. 078DI

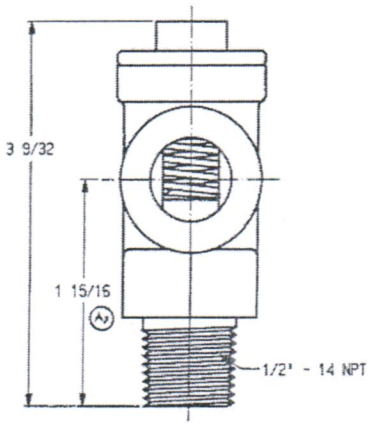

Fig. 078DI

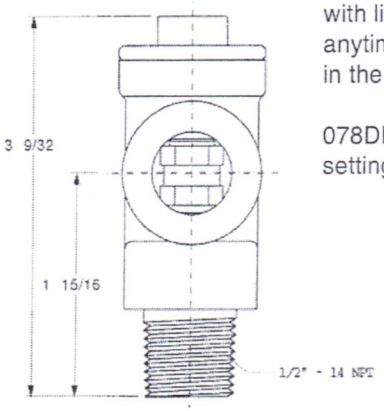

Fig. 076DI

DESCRIPTION

Expansion Relief Valves are used on AST piping for relief of excess pressure caused by thermal expansion of liquid. The Valve allows product to return back to the storage tank.

076DI...Specify 25 or 50 PSI. Primarily for use with line leak detection systems. Use Fig. 76DI anytime you need to maintain precise pressures in the piping system.

078DI...Specify 25, 40 or 100 PSI. Pressure settings are approximate.

I.D. NUMBER	A	B	C	D	E	F	G	WT.
076DI-0100 AV	.5"	25	DI	SS	SS/TF	NA	NA	0.75
076DI-0200 AV	.5"	50	DI	SS	SS/TF	NA	NA	0.75
078DI-0100 AV	.5"	25	DI	SS	NA	SS	SS	0.75
078DI-0200 AV	.5"	40	DI	SS	NA	SS	SS	0.75
078DI-0300 AV	.5"	100	DI	SS	NA	SS	SS	0.75

SPECIFICATION OPTIONS:

A—Size
B—PSI Setting
C—Body Material: DI (Ductile Iron)
D—Cap Material: SS (Stainless Steel)
E—Expansion Relief Valve Material: SS/TF (Stainless Steel/Teflon), NA (Not Applicable)
F—Spring Material: SS (Stainless Steel), NA (Not Applicable)
G—Check Ball Material: SS (Stainless Steel), NA (Not Applicable)
WT.—Weight

Morrison Bros. Co.
Established 1855

P.O. Box 238 • Dubuque, Iowa 52004-0238
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www.morbros.com

15192 2.6 C

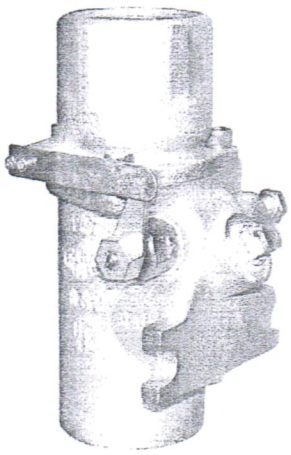
662 Emergency Shut-off Valves

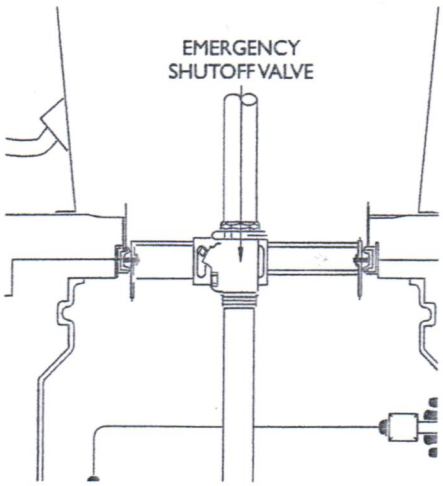
EBW emergency shut-off valves immediately stop product flow in the event of fire or collision at the dispenser. A patented adapter shears clean upon impact, causing the poppet to seal on the valve body preventing fuel spillage. When fire occurs, a fusible link releases the fulcrum arm, engaging the poppet. Standard 1-1/2" NPT openings allow minimal flow restriction and a pre-drilled test plug is included for line pressure testing. The valve can be boss or U-bolt mounted. Easy-to-replace adapters slide on and off valve base without lifting the dispenser. Adapters are available in male, female or union connections.

Single poppet models stop product flow from the pump. Double poppet models stop flow from the pump and dispenser piping.

Note: The closing feature of an automatic shut-off valve must be checked at least once per year by manually tripping and holding linkage.

NFPA WARNING: Annually test auto shut-off. Electrical supply to the submersible pump must always be disconnected before servicing meters, dispensers or emergency shut-off valves. Do not apply more than 50 psi to valve with poppet in its closed position. Valve seat and disc damage may occur.





Union Adapter Models

Model	Size	Poppet	Application	Replacement Adapter	List
662-410-01	1-1/2"	Single	Pressure	662-118-01	
662-440-01	1-1/2"	Double	Pressure	662-241-01	

Female Adapter Models

Model	Size	Poppet	Application	Replacement Adapter	List
662-410-02	1-1/2"	Single	Pressure	662-118-02	
662-440-02	1-1/2"	Double	Pressure	662-242-01	
662-440-15*	1-1/2"	Double	Pressure		
662-461-02	1-1/2"	Double	Suction	662-252-01	

*Biofuel approved model (E85 and biodiesel). May require three week lead time.

Male Adapter Models

Model	Size	Poppet	Application	Replacement Adapter	List
662-410-03	1-1/2"	Single	Pressure	662-118-03	
662-440-03	1-1/2"	Double	Pressure	662-240-01	

*Biofuel approved model (E85 and biodiesel).

Advantages

- Fusible link closes poppet in the event of a fire (165.0 °F and 73.9 °C).
- Single and double poppet.
- Main poppet seals in valve body, preventing accidents when replacing adapters.
- Zinc plated body corrosion protection.
- Solid 3/8" test plug area prevents body from cracking if plug is over-tightened.
- Meets NFPA 30A requirements.

Materials

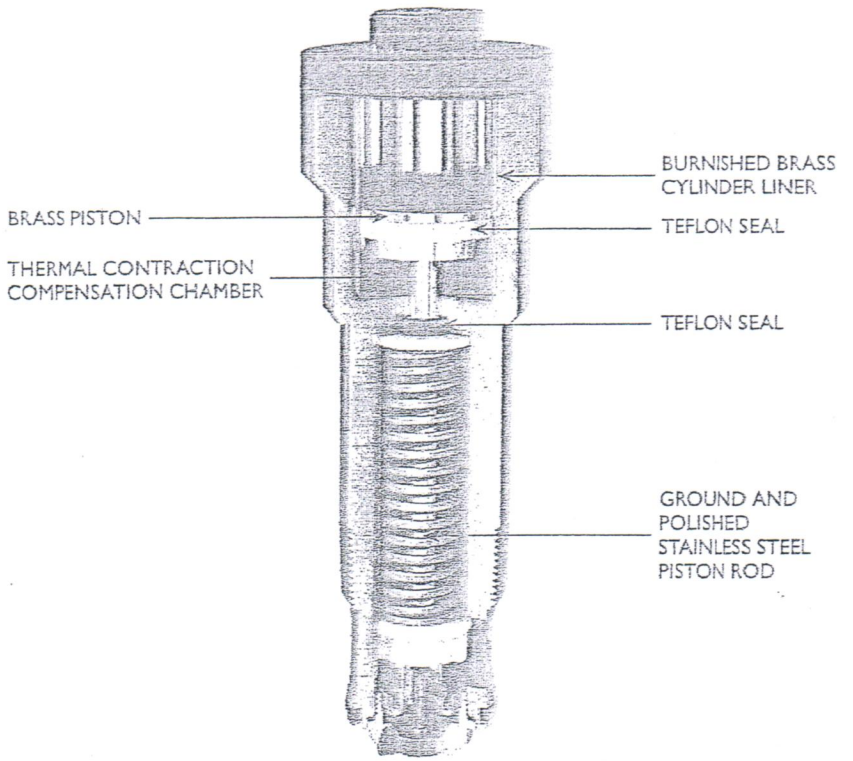
- Top: zinc plated cast iron.
- Body: zinc plated cast iron.
- Poppet: fluorocarbon.
- Carrier: zinc plated steel.
- Stem: stainless steel.
- Poppet spring: stainless steel.
- O-ring: fluorocarbon.
- Packing nut: brass.
- Inlet and outlet thread: 1-1/2" NPT.
- BSPT threads available.

15192-2.610

FE PETRO

Mechanical Line Leak Detector

For use with 4" STPs, the MLD product line is precision built, with unique construction features that provide busy stations with maximum flow rates and long service life. The MLD is offered in three models to match your exact application, ensuring accurate, nuisance-free operation critical to profitable station operation.



Specifications:

- Three models: STP-MLD (blue) for gasoline, STP-MLD-D (tan) for diesel and STP-MLD-E (grey) for some expandable pipe applications.
- Solid brass piston has 1-5/8" of travel to move the leak detection poppet fully out of the flow, offering minimum flow restriction and maximum flow rates.
- Burnished brass cylinder liner and polished stainless steel piston rod ensure smooth operation and long life from the Teflon seal.
- Thermal compensation chamber of 5¾ cubic inches helps minimize thermal contraction nuisance tripping.

Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60 °F (15 °C).
- STP-MLD and STP-MLD-E models are compatible with fuel mixtures containing up to 100% ethanol or methanol, and 20% MTBE, 20% ETBE or 17% TAME with gasoline, as well as diesel fuels, fuel oils, kerosene, Avgas and jet fuels.
- STP-MLD-D models are listed for diesel fuels or kerosene only.

Approvals

- Third party certified to comply with US EPA requirements 280.41 (B) and 280.44 (A) for continuous monitoring of pressurized piping.
- Consult factory for other applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

Advantages

- All models are capable of detecting line leaks equivalent to 3 gph at 10 psi when installed properly with the appropriate fuels. All models will signal detection of leaks by restricting product delivery to less than 3 gpm and taking more than 4 seconds to open.
- All models require 2 to 3 seconds to make a line test when no line leaks exist and air is purged from piping between the discharge of the MLD and the dispenser solenoid.
- All models will remain in the "open" position during product delivery to manifold, with discharge pressures as low as 1 psi. All models will reset to "tripped" when line pressure delay is below 3 psi with pump off.
- All models will detect leaks up to 10 feet above the MLD installation point.

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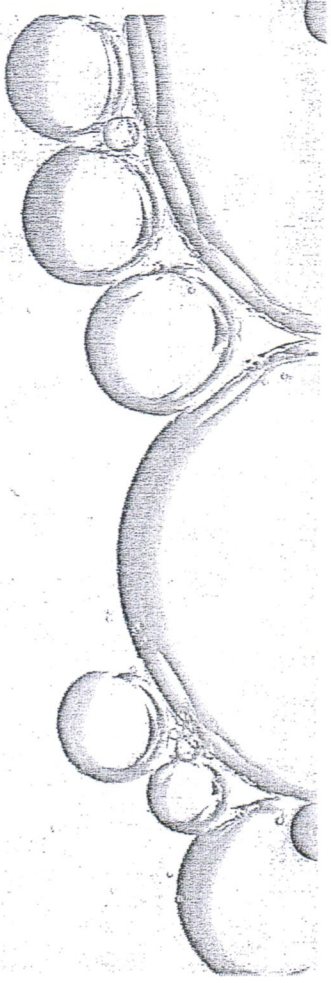


Mechanical Line Leak Detector
(for use with 4" STPs)*

Single Pack

Part Number	Description	List
400500901	STP-MLD for gasoline, blue	
400501901	STP-MLD-D for diesel or kerosene, tan	
400502901**	STP-MLD-E for expandable piping, grey	

Three Pack

Part Number	Description	List
400500903	STP-MLD for gasoline	
400501903	STP-MLD-D for diesel or kerosene	
400502903**	STP-MLD-E for expandable piping	
400503903	COMBO, contains two STP-MLDs and one STP-MLD-D	

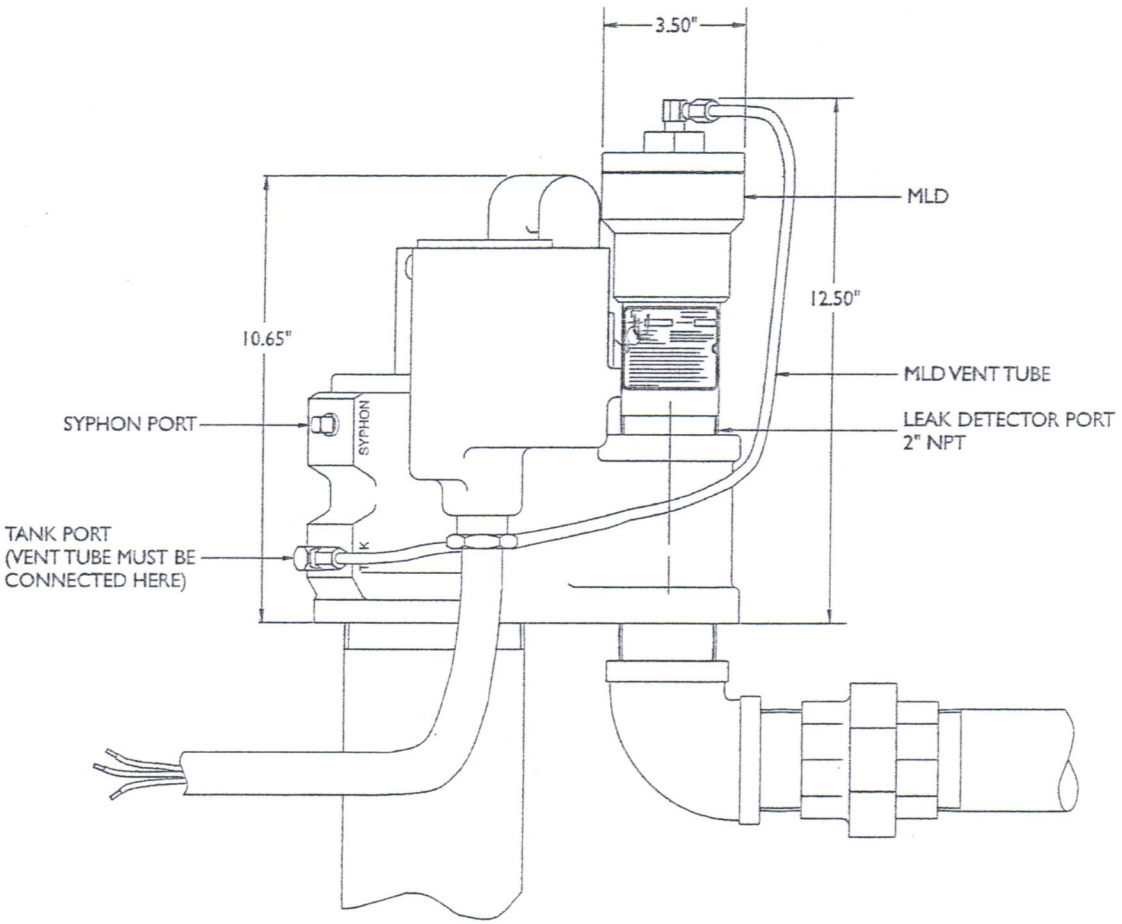
Notes: 1. MLD and MLD-E models are compatible with fuel mixtures containing up to 100% ethanol or methanol with gasoline, diesel fuels, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
2. MLD-D models are listed for compatibility with diesel fuels and kerosene applications only.
3. All above models will only mount in the 2" NPT leak detector port of a 4" submersible turbine, including competitive models, or in a leak detector adapter tee (sold separately below).

*Designed for limited flexible piping systems with low bulk modulus, consult factory before ordering.

**Refer to STP-MLD installation manual for complete compatibility specifications.

MLD Repair Parts and Accessories

Part Number	Description	List
400440101	MLD vent tube	
400449901	MLD hardware pack, fittings and documentation	
400518001	Leak detector adapter tee	

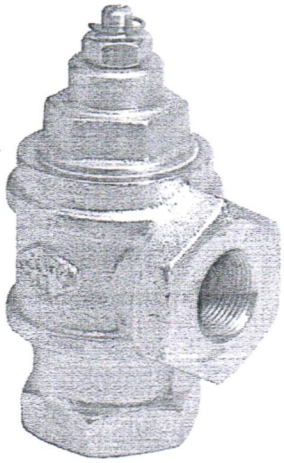


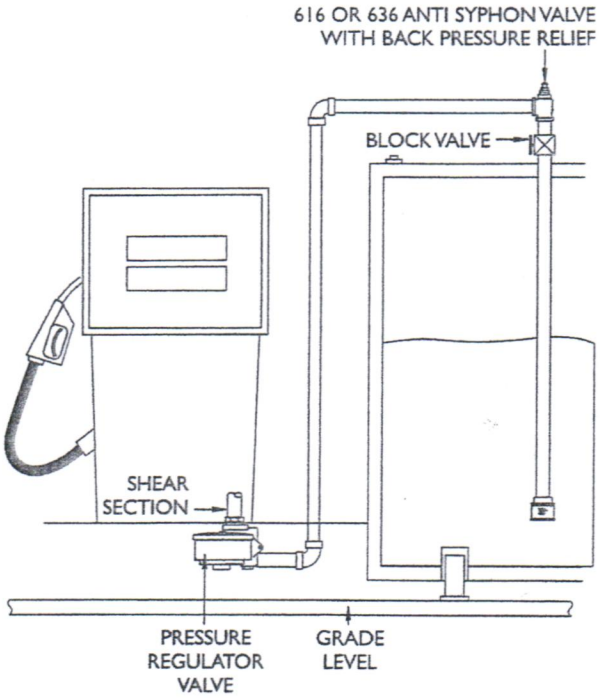
15192 2.10H

605, 606, 616 and 636 Anti Syphon Valves

EBW anti syphon valves are recommended for all aboveground storage applications to prevent fuel from exiting the storage tank in the event of a broken line or leak.

The anti syphon valves shut off product flow when lines are broken, preventing fuel spillage and fire hazards. Each valve has an adjusting mechanism allowing for various liquid head pressure settings within the valve range. The adjusting mechanism is lockable after the preferred setting is made. EBW anti syphon valves are set to maximum head pressure when shipped from the factory. The anti syphon valve also includes a pressure relief valve, eliminating thermal expansion of fluid in the lines.





Advantages

- Hydrostatic pressure adjusting mechanism with durable weather cap.
- Built in thermal expansion pressure relief valve.
- 3/4" and 1" models are ideal for fuel oil and generator applications.
- Can be installed in horizontal or vertical position.
- Can be used in pressure systems.
- NFPA 30.
- API/RP 2000.

Materials

- Body: ductile iron-zinc plated.
- Cap: brass.
- Spring: zinc plated steel.
- Poppet: brass.
- Seat: brass.
- Adjustment screw: stainless steel.
- Disc: fluorocarbon seal.

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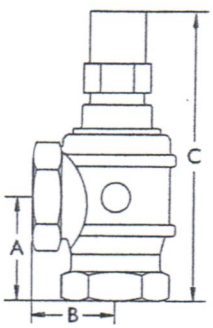
Model	A		B		C	
	In.	mm	In.	mm	In.	mm
605	2.22	56.38	1.80	45.72	5.94	150.88
606	2.22	56.38	1.80	45.72	5.94	150.88
616	2.61	66.29	55.62	55.62	6.56	141.22
636	2.66	67.56	68.32	68.32	6.97	151.63



Model	Size		Head Pressure Range	Weight		List
	In.	mm		Lbs.	Kg	
605-300-01	0.75	19.02	0' to 12'	3.40	1.54	
606-300-01	1.00	25.40	0' to 12'	3.20	1.45	
616-300-01	1.50	38.10	5' to 12'	4.60	2.09	
616-300-02	1.50	38.10	12' to 25'	4.60	2.09	
616-300-03	1.50	38.10	0' to 5'	4.60	2.09	
636-300-01	2.00	50.80	5' to 12'	7.20	3.27	
636-300-02	2.00	50.80	12' to 25'	7.20	3.27	

15192 2.11A

1/3 and 3/4 HP Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length Range	List Without Riser	List With Riser
STP33-VL1	1/3 hp fixed speed	VL1	55"-83"		
STP33-VL2	1/3 hp fixed speed	VL2	86"-147"		
STP33-VL3	1/3 hp fixed speed	VL3	118"-209"		
STP75-VL1	3/4 hp fixed speed	VL1	57"-86"		
STP75-VL2	3/4 hp fixed speed	VL2	88"-149"		
STP75-VL3	3/4 hp fixed speed	VL3	120"-212"		

Alcohol-Gasoline Model	Description	Model Length Range Number	Model Length Range	List Without Riser	List With Riser
STPAG33-VL1	1/3 hp AG fixed speed	VL1	55"-83"		
STPAG33-VL2	1/3 hp AG fixed speed	VL2	86"-147"		
STPAG33-VL3	1/3 hp AG fixed speed	VL3	118"-209"		
STPAG75-VL1	3/4 hp AG fixed speed	VL1	57"-86"		
STPAG75-VL2	3/4 hp AG fixed speed	VL2	88"-149"		
STPAG75-VL3	3/4 hp AG fixed speed	VL3	120"-212"		

Notes: 1. STP models are compatible with fuel mixtures containing up to 15% ethanol or methanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
STPAG models are compatible with fuel mixtures containing up to 100% ethanol or methanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
2. All models are supplied with a standard check valve unless factory option "R" or "W" is specified.
3. All above models require single-phase, 208-230 VAC, 60 Hz incoming power.
4. 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.
5. For riser pipe lengths 31" to 69", add $41.00 list price.
6. STPAG models are UL listed for compatibility with fuel mixtures containing up to 85% ethanol with gasoline.

*Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet.

Factory Installed Options
(specified in model number at time of STP order)

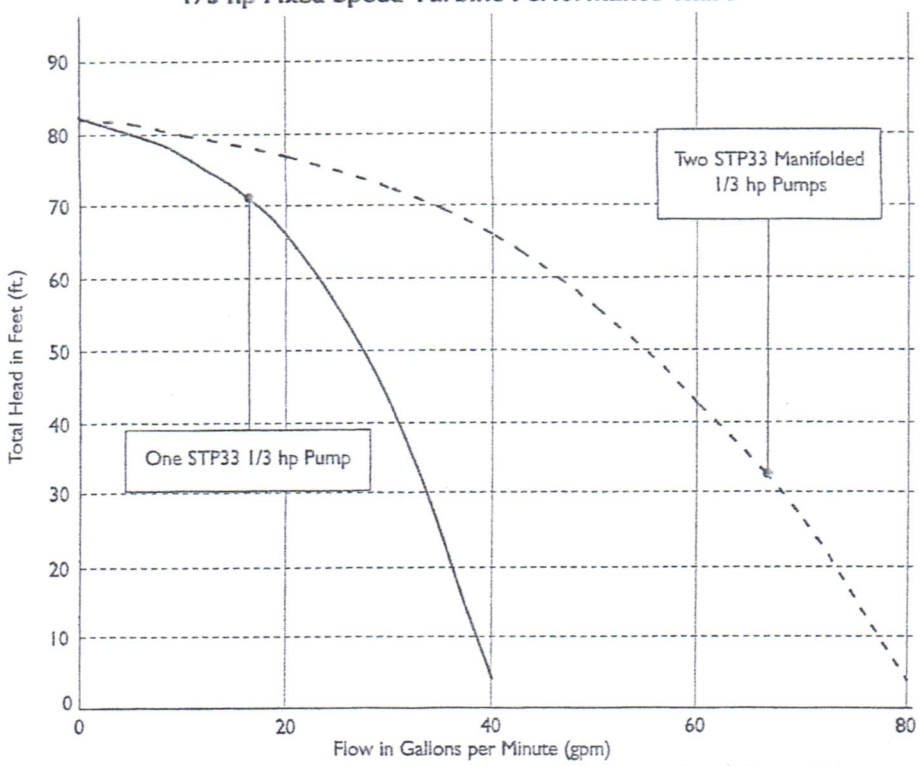
Designation	Description	List
F	Floating suction adapter, 1½" NPT female, must be factory installed	
K	IFS (intake filter screen), factory assembled to pump motor assembly	
R	Model R check valve, factory installed, for Veeder Root PLLD Line Leak	
W	Model W check valve, factory installed, for Red Jacket PPM4000 Line Leak	

Field Installed Options
(1/3 and 3/4 hp fixed speed specific accessories)

Part Number	Description	List
400137908	Syphon check valve, alcohol-gasoline compatible (when ordered with STP)	
400818921	STP-CBS, single-phase control box with lockout switch, 110 Volt coil	
402312921	STP-DHI-SCI, combo DHI with factory wired STP-SCI (when purchased with a 4" STP)	
402312921	STP-DHI-SCI, combo DHI with factory wired STP-SCI (when purchased without a 4" STP)*	
402313921	STP-DHI-CBS, combo DHI with factory wired STP-CBS	
402459931	Model 65 psi check valve (for slave of manifolded STPs with Veeder Root PLLD)	
402507930	Secondary syphon kit (when two syphon primes are required for one STP)	
5800100215	STP-SCI, single-phase smart controller (when purchased without a 4" STP)	
5800100215	STP-SCI, single-phase smart controller (when purchased with a 4" STP)*	
5800300100	STP-DHI, dispenser hook isolation for 110 Volt dispenser handle switches, up to eight each	

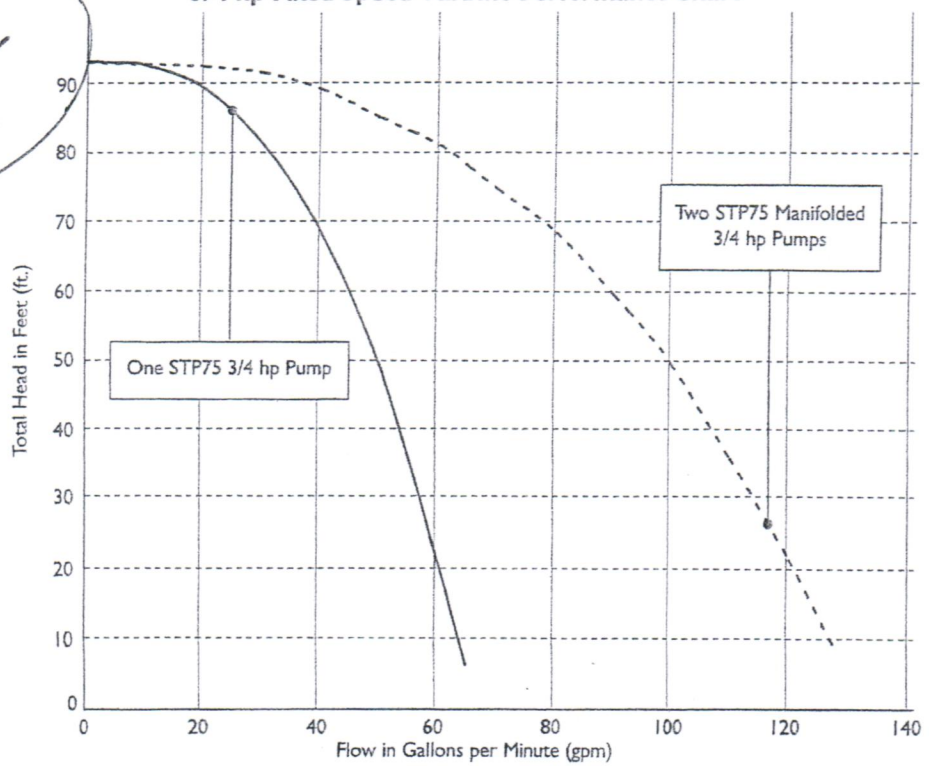
*When purchasing STP-SCI or STP-DHI-SCI in equal quantities of fixed speed 4" STPs, the STP-SCI or STP-DHI-SCI will be invoiced at special discount pricing.

1/3 hp Fixed Speed Turbine Performance Chart



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. STP33 models are powered by a single-phase, 60 Hz, 208/230 Volt power supply.

3/4 hp Fixed Speed Turbine Performance Chart



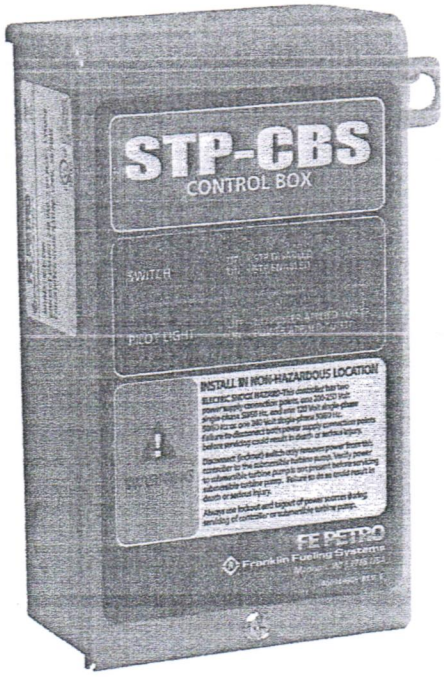
Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. STP75 models are powered by a single-phase, 60 Hz, 208/230 Volt power supply.

15/92 2.11C

FE PETRO

Single-Phase Control Box

The FE Petro standard single-phase control box latches line power to the submersible when the relay is energized by a dispenser signal. Compatible with FE Petro and competitive makes of single-phase, fixed speed submersible turbines up to 2 hp.



Part Number	Description	List
400818921	STP-CBS, single-phase control box, with switch and lockout, 120 Volt coil	$115.00
402313921	STP-DHI-CBS, combo dispenser hook isolation with factory wired STP-CBS	$357.00

Notes: 1. CBS models are compatible for use on all single-phase FE Petro submersibles and competitive makes.
2. One CBS required per submersible, relay rated for 30 Amps up to 2 hp.
3. Incorporates pump "ON" indicator light.
4. Relay rated for 220 Volt pumps up to 2 hp, 30 Amps.

Advantages

- Incorporates an "ON/OFF" lockout switch.
- Relay energized with 110 Volt dispenser/hook signal.
- Franklin Fueling Systems is an ISO 9001 certified manufacturer.
- Consult factory for applicable approvals.

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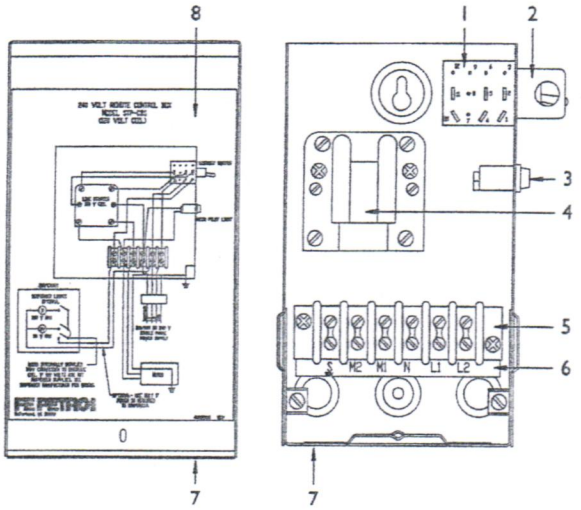
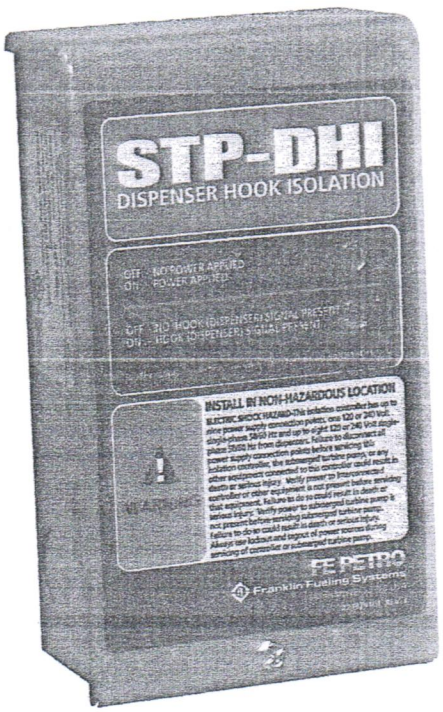
STP-CBS Repair Parts and Accessories



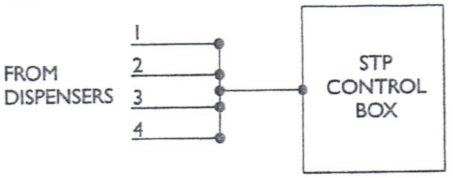
Item	Part Number	Description	List
1	400575001	Power switch for CBS and CBBS models	
2	400574001	Power switch bracket	
3	400158901	Light assembly, 120 Volt	
4	400215931	Relay, 30A, 120 Volt coil	
5	400278005	Six position terminal strip	
6	402410001	CBS terminal strip label	
7	400817901	Cover and enclosure	
8	400819001	CBS wiring diagram	

Dispenser Hook Isolation

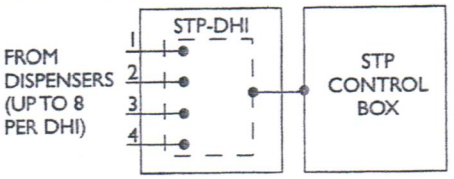
The FE Petro dispenser hook isolation device prevents electrical feedback between dispenser hook circuits as required by most electrical codes.



Conventional



STP-DHI



Specifications:

- Enclosure size: 8½" x 5" x 3" (215 mm x 127 mm x 76 mm).
- Eight optically isolated inputs from dispenser.
- One STP-DHI required per product grade for up to eight dispensers.
- STP-DHI: 120V 30VA input from supply, eight 120V 10mA inputs from dispensers.
- Output fuse rating: 250V 1A, fast-acting.
- 300 Volt surge protection.
- Maximum ambient temperature rating: 120 °F.
- LEDs indicate when source power is applied and dispenser hook signals are present.
- Compatible with any submersible pump controller.

Approvals

- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

Advantages

- Optically isolates inputs from up to eight dispensers preventing damage to dispenser relay boards caused by cross-phasing.
- Prevents electrical feedback between dispenser hook circuits during periods of maintenance and service as required by NEC 514-6, 1999 and other international codes.
- Can be supplied factory-wired in tandem with the FE Petro Smart Controller or the FE Petro standard control box.
- Eliminates false STP run due to voltage leakage of multiple dispensers connected in parallel.
- Fuse-protected output to submersible pump controller.
- The STP-DHI can retrofit to any existing site.

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