



Thermaflo JVV Electronic Segmented V IOM and Data Booklet



JVV V Fail Safe Electronic Control Valve



JV V SERIES ELECTRONIC “V BALL” STEAM AND HIGH-TEMPERATURE HOT WATER CONTROL VALVES

The Thermaflo JVV V Ball Series Control Valve is designed for high speed 100% duty for temperature, pressure and level control applications. Specifically designed for steam, high-temperature hot water, and other rigorous control applications.

The equal percentage segmented V inner ball design provides the user with accurate control over a 300:1 flow turndown rangeability. Half the size and weight of any conventional globe control valve, and the JVV is simple to install. The high-speed electronic actuator fails closed on power loss and totally eliminates air supply. The fully programmable actuator accepts 0-10V or 4-20 ma input control signal and can be split range controlled when required. The JVV Series high flow CVs reduces valve size, space and overall weight of any application in your piping system.

JVV SEGMENTED V FEATURES

**PRECISION MACHINED 316 STAINLESS
STEEL CONTROL SHAFT**

**ENGINEERED HIGH TEMPERATURE EXTENDED
MOUNTING BRACKET**

**HIGH SPEED FAIL SAFE MODULATING ACTUATOR 0-10V
OR 4-20MA CONTROL SIGNAL INPUT**

**HIGH TEMP CHEVRON STEM SEALS IN A ISO
MACHINED BASE MOUNT**

**COMPLETE 316 STAINLESS STEEL
BODY, BALL, AND STEM CONSTRUCTION**

**BUBBLE TIGHT CLASS VI STEAM AND HOT
WATER SHUTOFF**

**HIGH V PORT CV FLOW CAPACITIES
AND EXCELLENT EQUAL PERCENTAGE
CHARACTERIZED FLOW**

VALVE POSITION FEEDBACK AND ALARMS



MAX OPERATING PRESSURE/TEMPERATURE

NPT 1/2" - 2" STANDARD 150 PSIG 00 400F

150 LB 1/2" - 6" STANDARD 150 PSIG 00 400F

300LB 1/2" - 6" STANDARD 200 PSIG 00 400F

MAXIMUM AMBIENT TEMPERATURE: 130F

CUSTOM SLOTTED BALL AND CVS AVAILABLE

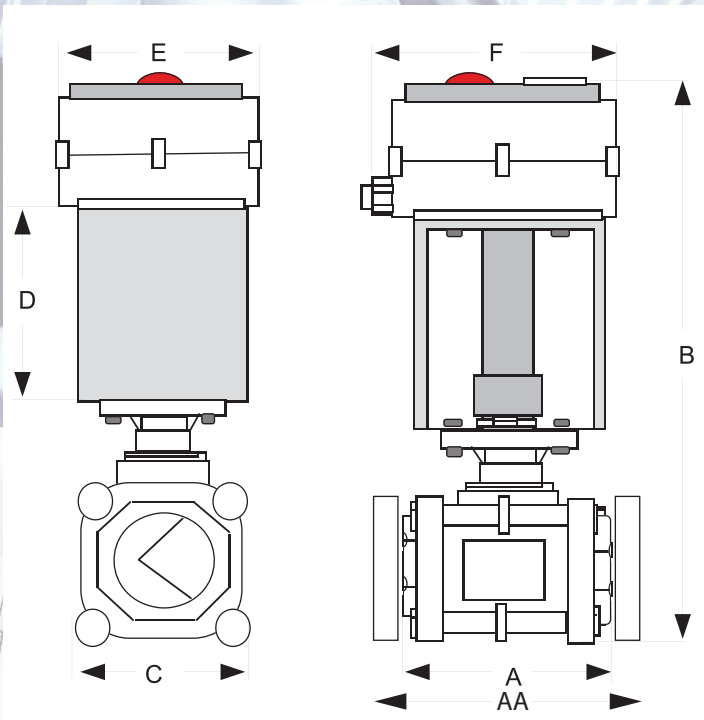
SIZES: 1/2" THRU 2" NPT/150 lb / 300 lb
2.5" - 6" 150 lb / 300 lb

MATERIALS OF CONSTRUCTION: 316 STAINLESS
STEEL BODY, BALL, AND STEM

REINFORCED HIGH TEMPERATURE TEFLON SEATS

ANTI CAVITATION OUTLET ORIFICE AVAILABLE

SIZING NOTES:
 1. OPTIMUM CONTROL RANGE 30% TO 90%.
 2. CV REDUCED 30% WHEN INSTALLING IN A PIPE WHERE VALVE SIZE IS MORE THAN HALF THE PIPE SIZE. EXAMPLE 2" PIPE AND CONTROL VALVE SIZE 3/4"



DIMENSIONS (Shown in Inches)

VALVE SIZE	A	B	C	D	E	F	AA
1/2"	2.5	14	2	8	5	5.6	4.2/5.5
3/4"	2.9	14	2	8	5	5.6	4.6/6
1"	3.4	14.5	2.2	8	5	5.6	5/6.5
1.25"	3.7	14.6	2.9	8	5	5.6	5.5/7
1.5"	4.3	15	3.2	8	5	5.6	6.5/7.5
2"	5.8	15.3	3.5	8	5	5.6	7/8.5
2.5"	—	22	2.7/7.5	8	5	5.6	7.5/9.5
3"	—	22.7	7.5/8	8	8	8.9	8.0/11.12
4"	—	23	9/10	8	8	8.9	9.0/12.0
6"	—	27	11/12.5	8	8	8.9	15.5/15.9

NOTE: Dimensions may change with inlet pressures over 150 psig due to actuator selection. Consult Factory.

POWER REQUIREMENTS

S80 60w at 24 VDC

2 AMPS MIN

Install Notes:

1. Never insulate the JVV Control Valve, Bracket or Actuator.
2. Always install the valve so that the actuator is at a 3:00 or 9:00 position to avoid heat migration to the actuator.
3. Install a strainer and main drip trap at the inlet for steam service.

FLOW PERFORMANCE DATA VALVE
 CV % of Opening 90% Segmented V

SIZE	30%	50%	80%	100%
1/2"	0.4	0.9	3.8	14
3/4"	0.8	2	8	20
1"	1.8	5.1	16	29
1.25"	2	8	28	65
1.5"	3.5	13	42	90
2"	6	22	70	167
2.5"	7	28	106	218
3"	8	35	135	359
4"	16	75	295	670
6"	35	160	650	1480

JVV V BALL SERIES MODEL NUMBER DESIGNATION

VALVE SIZE: 1/2", 3/4", 1", 1.25", 1.5", 2", 2.5", 3", 4", 6"
 VALVE CONSTRUCTION: S 316 STAINLESS STEEL

ALL TRIMS ARE 316 STAINLESS STEEL BALL AND STEM
 VALVE SEATS RT REINFORCED TEFLON 400F

END CONNECTIONS SE SCREWED ENDS 150 LB 300 LB ANSI

SW SOCKET WELD FAIL POSITION FC FAIL CLOSED

FO FAIL OPEN CONTROL PORT V90 90 DEGREPORT

INPUT SIGNAL

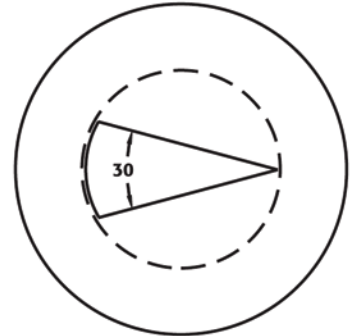
1 0-10 VOLTS 2 4-20 MA

JVV-1" SRT-SE-FCV90-1 NEMA 2 4 (OPTIONAL)

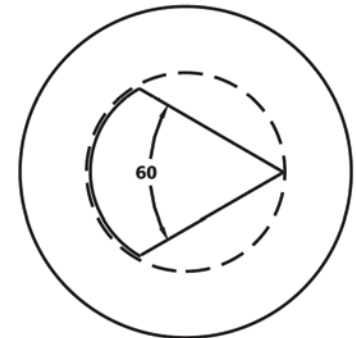
% OPEN JVV-PORT CV CHART

VALVE SIZE	BALL ANGLE	0%	15%	20%	30%	40%	50%	60%	70%	80%	90%	100%
1/2"	30	0	0.1	0.1	0.2	0.3	0.5	0.8	1.1	1.6	2.2	2.6
	60	0	0.1	0.1	0.3	0.5	0.9	1.4	2	3.3	4.4	6
	90	0	0.1	0.2	0.4	0.6	0.9	1.5	2.2	3.8	9.4	14
3/4"	30	0	0.1	0.2	0.5	0.7	1.1	1.8	2.4	3.3	4.5	5.4
	60	0	0.1	0.2	0.7	1	1.7	2.8	4	6.5	9	12
	90	0	0.2	0.4	0.8	1.2	2	3.1	4.6	8	13.3	20
1"	30	0	0.1	0.3	0.8	1.3	2.3	3.5	5.1	9.8	8.5	10
	60	0	0.2	0.4	1.1	1.8	3.4	5.3	7.9	12.3	15.3	21
	90	0	0.2	0.6	1.8	3.4	5.1	8.1	11.4	16	21	29
1 1/4"	30	0	0.2	0.4	1.1	2	3.7	5.5	8	10	13	15
	60	0	0.2	0.6	1.8	3	5.5	9.5	12.8	19	26	39
	90	0	0.3	0.8	2	5	8	14	19	28	39	65
1 1/2"	30	0	0.3	0.6	1.6	3	5	7.5	11	14	17	20
	60	0	0.4	0.8	2.5	4	8	13	19	27	40	52
	90	0	0.4	0.9	3.5	7	13	20	31	42	63	90
2"	30	0	0.4	1	4	8	12	18	28	37	62	75
	60	0	0.4	1.5	5	10	21	34	53	75	103	150
	90	0	0.5	2	6	12	22	35	45	70	125	167
2 1/2"	30	0	0.4	1	4	8	12	18	28	37	62	75
	60	0	0.4	1.5	5	10	21	34	53	75	103	150
	90	0	0.5	1.7	7	14	28	48	70	106	160	218
3"	30	0	0.5	1.2	4	8	14	23	33	46	65	82
	60	0	0.5	2.5	6	14	25	40	65	91	128	165
	90	0	0.7	3.5	8	18	35	60	90	135	205	359
4"	30	0	0.6	2	6	15	29	48	71	100	130	159
	60	0	0.7	3	11	25	40	59	90	141	212	356
	90	0	1	3.5	16	40	75	125	190	295	442	670
6"	30	0	0.9	3.2	14	33	60	103	155	220	280	350
	60	0	2	5	22	60	110	190	285	416	586	800
	90	0	2	8	35	90	160	280	425	650	970	1480

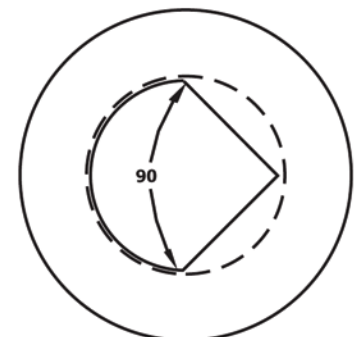
* 2.5"-6" Valves are 150lb or 300lb Flanged Construction



30 V-Port

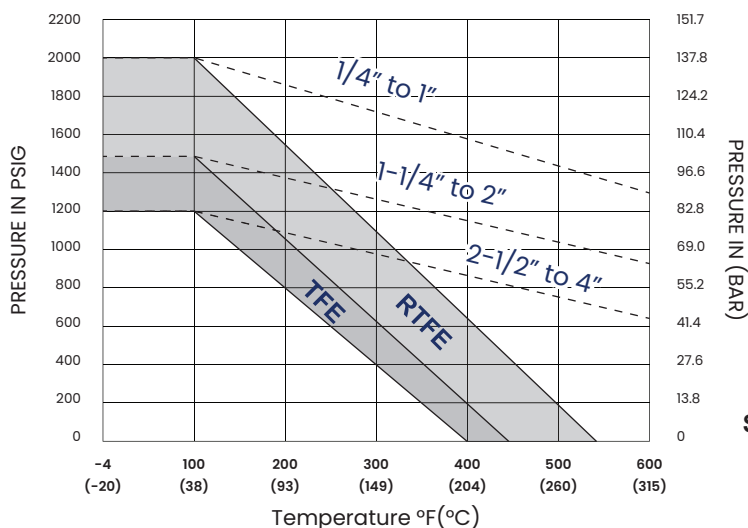


60 V-Port



90 V-Port

PRESSURE VS. TEMPERATURE CHARTS (1/2" - 6")



Thermaflo Inc.
2880 Fair Avenue
Newberry, S.C. 29108
Phone 704-940-1228

3 PIECE
Segmented V30
1/2"-2" Size





Note: The capacities shown in this chart are based on CV and velocity for steam pressure reducing applications. Valves sized for temperature control applications on CV can be higher.

THERMAFLO TYPE JVV ELECTRONIC PRV STEAM CAPACITY CHART

STEAM (POUNDS/HOUR), VELOCITY CHART 1

Initial Pressure PSIG	Final Pressure PSIG	VALVE SIZE								
		1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4
15	10	139	277	620	897	1539	3290	3917	4156	7619
15	5	187	373	700	1074	1700	3800	4201	5601	10268
15	3-1	214	428	802	1230	1904	3908	4811	6415	11761
20	12	186	372	698	1070	1396	3493	4489	5585	10239
20	8	220	441	827	1268	1653	3907	4960	6614	12125
20	5-1	250	500	937	1437	1874	4148	5621	7495	13741
25	15	221	443	830	1272	1660	3619	4979	6639	12171
25	10	261	522	979	1501	1958	4016	5874	7832	14359
25	7-1	286	572	1072	1644	2144	4588	6431	8575	15721
30-35	20	237	473	888	1361	1775	3550	5326	7101	13018
30-35	15	281	561	1052	1614	2105	4609	6314	8418	15434
30-35	12-1	322	644	1207	1851	2414	5928	7241	9655	17701
40-50	40	290	581	1088	1669	2177	4854	6531	8708	15964
40-50	30	393	786	1473	2259	2947	6094	8841	11788	21611
40-50	21-1	466	932	1747	2679	3494	7988	10481	13975	25621
60-70	45	377	754	1414	2169	2829	6657	8486	11315	20744
60-70	35	468	937	1757	2694	3514	8027	10540	14053	25765
60-70	27-1	538	1076	2017	3093	4034	9068	12101	16135	29581
75-95	60	417	834	1564	2399	3129	6257	9386	12514	22942
75-95	50	522	1044	1957	3001	3914	8828	11742	15656	28704
75-95	35-1	646	1292	2422	3714	4844	10988	14531	19375	35521
100-125	80	544	1087	2039	3126	4077	8154	12231	16308	29898
100-125	60	731	1462	2742	4204	5484	11967	16451	21934	40213
100-125	50-1	826	1652	3297	4849	6794	13188	19581	27775	50421
135-150	125	733	1466	2748	4213	5496	10992	16487	21983	40303
135-150	100	993	1986	3723	5709	7446	14893	22339	29785	54606
135-150	76-1	1186	2372	4447	6819	8894	17088	26681	35575	65221

NOTE: The capacities are based on 5% accuracy of setpoint and pipeline flow velocities of 8000-10000 ft/min on the inlet and outlet of the valve reducing size at the direct inlet and increasing size on the direct outlet. Example illustrates an inlet pressure of 100 psig and a delivery pressure of between 50 psig and 1 psig and a capacity required of 3,000lbs/hr Select 1" valve. Consult the factory for steam pressures below 15 psig and above 150 psig. Above charts based on V90 Trim.

JVV V-BALL SERIES CONTROL VALVE IOM BULLETIN



THERMAFLO 

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THERMA FLO JVV V-BALL CONTROL VALVE

INSTALLATION | OPERATION | MAINTENANCE BULLETIN

The ThermaFlo JVV V-Ball Series Control Valve is designed for high speed 100% duty for temperature pressure and level control applications. Specifically designed for steam, high temperature hot water, and other rigorous control applications. Dead tight 100% Class VI Shutoff Flow.

The equal percentage segmented and V inner ball design provides the user with accurate control over a 100:1 flow turndown rangeability and 1000:1 actuator rangeability. Half the size and weight of any conventional globe control valve, the JVV is simple to install. The high-speed electronic actuator accepts 0-10v or 4-20 ma input control signal and can be split range control when required. The JVV Series high flow CV reduces valve size, space and overall weight of any application in your piping system.

JVV V-BALL STANDARD FEATURES

**MACHINED 316
STAINLESS STEEL CONTROL
SHAFT NON SLIP KNURL PAD**

**ENGINEERED HIGH TEMPERATURE
EXTENDED STAINLESS STEEL
MOUNTING BRACKET**

**HIGH SPEED FAIL SAFE
MODULATING ACTUATOR 0-10V OR
4-20MA CONTROL SIGNAL INPUT**

**HIGH TEMP CHEVRON SEAT AND SHAFT
SEALS IN A MACHINED BASE MOUNT**

**COMPLETE 316 STAINLESS STEEL
BODY, BALL, AND STEM CONSTRUCTION**

**BUBBLE TIGHT CLASS VI STEAM
AND HOT WATER SHUTOFF**

**HIGH V PORT CV FLOW CAPACITIES
AND EXCELLENT EQUAL PERCENTAGE
CHARACTERIZED FLOW**



**Standard Input Control
Signal is 0-10V**

**Actuator Standard
Speed is 8 Seconds**



**MAX OPERATING PRESSURE/TEMPERATURE 450°F
@250 PSIG (HIGHER RATINGS AVAILABLE)**

MAXIMUM AMBIENT TEMPERATURE: 130°F

CUSTOM SLOTTED BALL AND CVS AVAILABLE

**SIZES: 1/2 "THRU 2" CONNECTIONS: NPT OR SOCKET WELD
3"- 8" 150LB OR 300LB AVAILABLE**

**MATERIALS OF CONSTRUCTION: 316 STAINLESS
STEEL BODY, BALL, AND STEM**

REINFORCED TEFLON SEATS

READ THIS INFORMATION CAREFULLY

HELPFUL PIPING HINTS

Never Insulate the Valve Body, Actuator or Mounting Bracket

Always install on a horizontal mounting position so that heat does not migrate up the actuator shaft. If the valve can not be installed on a horizontal (3:00 or 9:00 o'clock) position, at minimum, install at a 2:00/11:00 position. The extended mounting bracket allows the actuator to operate below 200°F in steam and hot fluid applications up to 450°F. With any steam control valve installation a proper steam trap drip should be located as close to the intel as possible. If the JVV V-Ball is being used for flow turndowns in excess of 20:1 a ThermFlo HSS steam separator should be installed to remove all entrained condensate and avoid seat wear. The first choice for a drain steam trap will be the ThermaFlo FT42 series and second choice the ThermaFlo 421 Thermodynamic series.

Sizing Notes:

- 1. Optimum Control Range 20% to 80%.
- 2. CV Reduced 40% when installed in a pipe where valve size is more than half the pipe size.
- Example: 2" Pipe and Control Valve Size 3/4"
- 3. When sizing for steam pressure control refer to the JVV pressure reducing sizing chart for lbs/hr capacity.

DIMENSIONS (Shown in Inches)

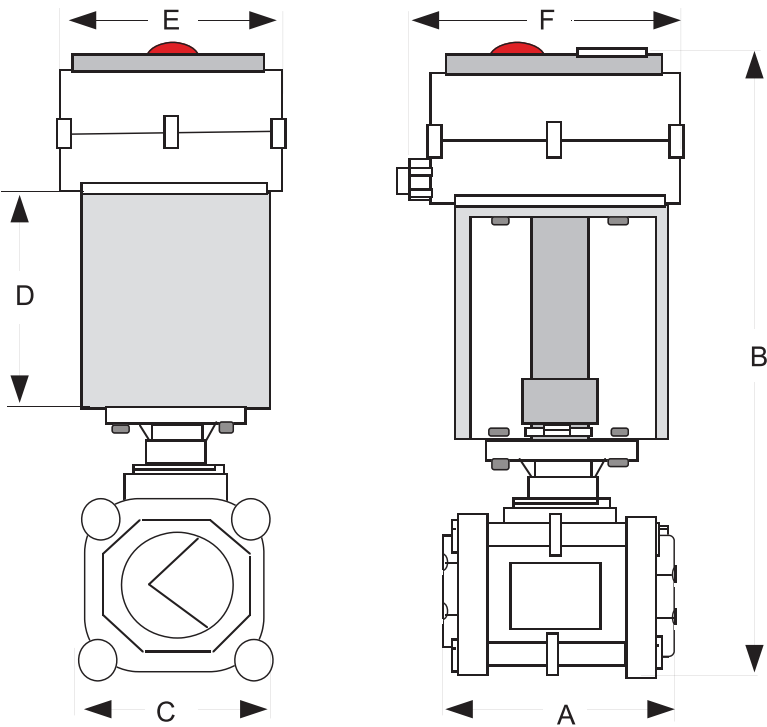
VALVE SIZE	A	B	C	D	E	F
1/2"	2.5	14	2	6	3	4
3/4"	2.9	14	2	6	3	4
1"	3.4	14.5	2.2	6	3	4
1.25"	3.7	14.6	2.9	6	4	6
1.5"	4.3	15	3.2	6	4	6
2"	5.8	15.3	3.5	6	4	6

NOTE: Dimensions may change with inlet pressures over 150 psig due to actuator selection. Consult Factory.

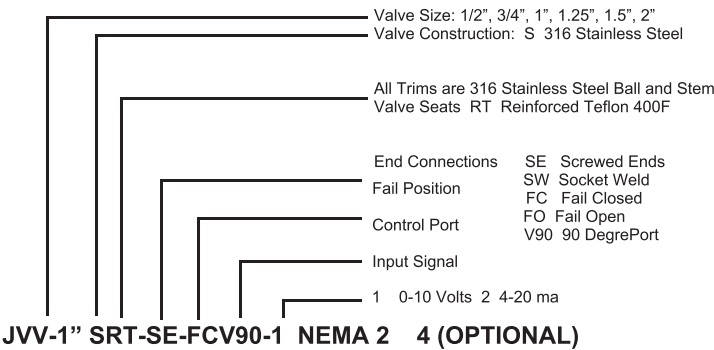
FLOW PERFORMANCE DATA VALVE CV % of Opening 90% Segmented V

SIZE	30%	50%	80%	100%
1/2"	.85	2	8	14
3/4"	1	2.6	10	20
1"	2.7	7.7	24	43
1.25"	3	10.2	34	65
1.5"	3	14	48	90
2"	7.2	25	87	167
3"	38	89	188	340

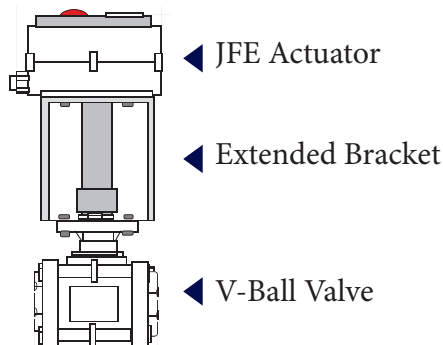
3"- 8" 150lb or 300lb Available



JVV V Ball Series Model Number Designation



THERMA FLO INSTALLATION, OPERATION & MAINTENANCE FOR JVV SEGMENTED V VALVES



GENERAL

ThermaFlo JVV V-Ball valves have been designed and engineered to provide long lasting and trouble free service when used in accordance with the instructions and specifications herein. The following instructions refer only to JVV V-Ball Control Valves. Keep protective cover in place until moment of installation. Valve performance depends upon preventing of damage to ball surface. Upon removal of cover, make sure that the valve is completely open and free of obstruction. If requested, valves can be shipped from the factory containing a silicon based lubricant which aids in the assembly of the valve. This may be removed with a solvent if found intolerable. Certain ferrous valves are phosphate and oil dipped during the course of manufacture, but they are completely non-toxic and the valves are quite safe to use for edible or potable products.

STORAGE

All manual valves are shipped in the fully open position with protective end caps (covers). Keep all protective packaging, flange covers, or end caps attached to the valves during storage. To avoid damage to the seat due to contact with the ball's edge, leave the valve in the fully open or closed position during storage. It is recommended to keep the valves in a clean and dry environment until ready for use.

NEVER REMOVE ACTUATOR TOP

CAUTION

!!!SAFETY PRECAUTION!!!

BEFORE REMOVING VALVE FROM PIPELINE NOTE THAT:

Media flowing through a valve may be corrosive, toxic, flammable, a contaminant or harmful nature. Where there is evidence of harmful fluids having flowed through the valve, the utmost care must be taken. It is suggested that the following minimal safety precautions be taken when handling valves.



ALWAYS WEAR EYE
SHIELDS



ALWAYS WEAR GLOVES
AND OVERALLS



WEAR PROTECTIVE
FOOTWEAR



WEAR PROTECTIVE
HEADGEAR



ENSURE THAT RUNNING
WATER IS READILY
ACCESSIBLE



HAVE A SUITABLE FIRE
EXTINGUISHER READY IF
MEDIA IS FLAMMABLE

7 Be sure that you are aware of the fluid that has been passing through the valve before opening or dismantling any valve. Require MSDS information.

READ INSTALLATION CAREFULLY

By checking line gauges, ensure that no pressure is present at the valve. Ensure that any media is released by operating valve slowly to half open position. Ideally, the valve should be decontaminated when the ball is in the half open position.

These valves, when installed, have body connectors which form an integral part of the pipeline and the valve cannot be removed from the pipeline without being dismantled.

Valves and accessories must not be used as a sole support of piping or human weight. Safety accessories such as safety relief (overpressure) valves are the responsibility of the system designer.

It is the user/system designer's responsibility to use insulation in high temperature applications. Refer to OSHA documents for more details.

INSTALLATION

Always install a 100 to 80 Mesh Strainer as close to the inlet as possible to be sure no debris, weld slag, pipe shavings or dirt get to the seats. Also install a steam trap directly at the valve inlet when used on steam. This will eliminate seat wash out due to flashing condensate. Never insulate the valve, shaft, bracket or actuator. Insulating causes heat to migrate up the shaft and overheats the actuator over time shorting the life. Install at a 3:00 or 9:00 position if possible

OPERATION

JVV valves provide tight shut off when used under normal conditions and in accordance with JVVs published pressure/temperature chart. If these valves are used in a partially open (throttled) position seat life may be reduced. JVVs have $\frac{1}{4}$ turn operation closing in a clock-wise direction. It is possible to see when the valve is open or closed by the position of the wrench handle. When the wrench is inline with the pipeline, the valve is open. Any media which might solidify, crystallize or polymerize should not be allowed to stand in the ball valve cavities unless regular maintenance is provided. If minimal maintenance is re-quired, JVVs offers steam jacketed ball valves.

TORQUE REQUIREMENTS

Torque ratings are subject to variations depending on the length of time between cycles and the media in the system. Breakaway torque is that force which must be exerted to cause the ball to begin to open. Operating torque requirements will vary depending on the length of time between cycles, media in the system, line pressure and type of valve seat.

MAINTENANCE

With self-wiping ball/seats, JVVs valves have a long, trouble free life, and maintenance is seldom required. When necessary, valves may be refur-bished, using a small number of components, none of which require machining. JVVs valves are designed for easy service and assembly in the field. The following checks will help to extend valve life, or reduce plant problems. JVVs ball valves utilize live-loaded stem seals featuring Belleville Wash-ers (disk springs) that maintain constant pressure on the Stem Seal area even under a wide range of pressure and temperature fluctuations. If stem leakage is evident proceed as follows:

STEM LEAKAGE

Examine the disk springs (Belleville washers) for damage. If in good condition tighten the gland nut until disk springs are firmly compressed, then back nut off $\frac{1}{16}$ th of a turn. If damaged, dismantle the stem down to the gland, fit new disk springs with their outer edges touching, replace and retighten using gland nut. Further maintenance necessitates dismantling of the valve.

LEAKAGE AT BODY JOINT

Check for tightness at the body connector bolts. If loose, tighten body bolts. Excessive force will damage the bolts (see Table A). If there is still leakage, it will be necessary to dismantle the valve and replace the body seals. Piping expansion force will cause body leaks if not properly supported.

Check that the valve is fully closed. If leakage occurs while the valve is in the closed position, a seat or ball sealant surface may be damaged and it will be necessary to disassemble the valve.

NOTE: If stem leakage and leakage at the body joint are not cured by simple means described above, it will be necessary to dismantle the valve. If there is no stem leakage the stem assembly should not be touched.

REBUILDING

Before rebuilding, check that all the correct components are available and that they are fit for reassembly. When rebuilding, cleanliness is essential to allow long valve life and provide cost effective maintenance.

CAUTION:
NO BODY OR STEM SEALS ARE REUSABLE.

Care must be taken to avoid scratching the seats and seals during installation. NOTE: Caution must be taken with valves that have been in hazardous media. They must be decontaminated before disassembly by relieving the line pressure and flushing the line with the valve in the partially open position. Protective clothing, face shields, gloves, etc., **MUST BE USED** for this operation. Generally if a valve has been in steam service for over 10 years, it should be totally replaced.

A DISASSEMBLY OF VALVE REMOVED FROM LINE

1. Remove the End Connectors (#1) by removing the Body Bolts (#6A) and Body Bolt Nuts (#6B).
2. Once the End Connectors (#1) have been separated from the Body (#2), remove the Body Seals (#5), Seats (#4), and Seat Retainer, if applicable (#17).
3. Make sure the Ball is in the closed position, thus the Ball (#3) can be taken out easily from the Body (#2).

B REMOVING STEM ASSEMBLY 1/4" – 2"

1. Remove Handle (#12) by removing Handle Nut (#14) along with the Lock Washer (#13).
2. Remove the complete chevron packing seals. Push the Stem (#10) down into the body cavity to remove. Once removed take off the Thrust Washer (#7).

C INSPECTION

1. The ball and the surfaces of the seats should be free of pit marks and scratches. Light marring from the action of the ball against the seats is normal and will not affect the operation of the valve.
2. The stem and body surfaces, which the thrust and washer make contact with, should be free of pit marks and scratches.

D REASSEMBLY

1. Apply an adequate amount of lubricant compatible with the media being handled around the Ball (#10), Seats (#4), Body Seals (#6), Stem (#4), and Thrust Washer (#18).
2. For stem reassembly, disassembly procedure should be followed in reverse order.
3. When stem assembly is complete, tighten Stem Nut according to the values in Table A.
4. With the Stem (#10) in the closed position, insert the Ball (#3) into Body (#1) so that stem slot engages with the tang at the base of the stem.
5. Make sure the Body Seals (#6) rests squarely on the center seal surface of the Body (#1).
6. Insert Seats (#5) into the Body (#1). Make sure seats rest firmly on back surface of each recess.
7. Merge the End Connectors (#2) with the Body (#1).
8. Insert and tighten the Body Bolts (#16) diagonally, in accordance to the cross pattern procedure shown on page 5 for sizes 1/4" to 2-1/2" or page 6 for size 3."
9. In the final assembly step, ensure that the Body Bolts (#6A) are tightened according to torque values in Table A.

INSTALLATION, OPERATION & MAINTENANCE FOR JVV SEGMENTED V VALVES

TORQUE SPECS

Certain precautions need to be followed when tightening bolts down to their corresponding torques to help prevent bolt galling. There are two passes each bolt has to undergo during the process, first pass and the final pass. Once every bolt has met the first pass requirement, the final pass can be initiated. When tightening down bolts it is necessary to follow the corresponding bolt pattern shown below.

TABLE A TORQUE REQUIREMENTS
IN - LBS

Valve Size	Bolt Pattern	BODY BOLTS				Stem Nuts
		Stainless Steel		Carbon Steel		
		First Pass	Final Pass	First Pass	Final Pass	
1/4"	4	48	80	53	88	35
3/8"	4	48	80	53	88	35
1/2"	4	48	80	53	88	35
3/4"	4	48	80	53	88	35
1"	4	101	168	117	195	80
1-1/4"	4	101	168	117	195	80
1-1/2"	4	207	345	240	400	115
2"	4	207	345	240	400	115

TABLE B GENERAL REPAIR KIT
1/4" ~ 3"

Part	Quantity
Thrust Washer	1
Stem Seals	2
Chevron Packing	2
Seats	2
Body Seals	2

REPAIR KIT

Repair Kits are available from ThermaFlo. Table B below shows what the kits consist of. When ordering a Repair Kit, please be sure to specify the type, size and seating material of the valve. When repairing a valve use only ThermaFlo Inc., authorized spare parts including; bolts and nuts, etc. In addition to maintenance kits, spare parts are available from ThermaFlo. They are: balls, stems and glands. If additional parts are required (body and ends), it is normally recommended that the complete valve be replaced. Components from a different valve series should not be used with the repair of any other valve. If the valve is altered in any way, no liability can be accepted by ThermaFlo Inc.

TABLE C

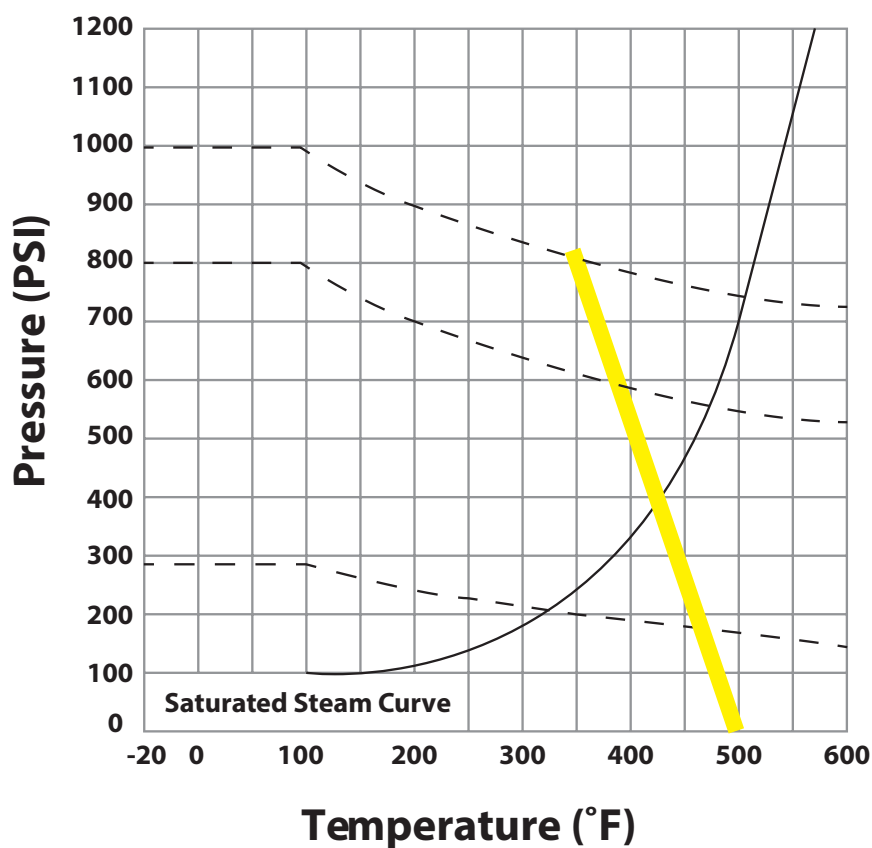
R8	B8
1/4"	-
3/8"	-
1/2"	-
3/4"	1/2"
1"	3/4"
1-1/4"	1"
1-1/2"	1-1/4"
2"	1-1/2"

NOTE: When ordering parts, keep in mind that standard port valves and full port valves use interchangeable parts. Refer to Table C to see the valve size comparison.

THERMAFLO GENERAL REPAIR KIT PART NO JVV-S316IN SPECIFY SIZE VALVE AND SERIAL NUMBER

THERMA FLO

JVV PRESSURE AND TEMPERATURE CHART



PTFE-S

USED FOR STEAM APPLICATIONS TO 150 PSIG

TORQUE VALUES

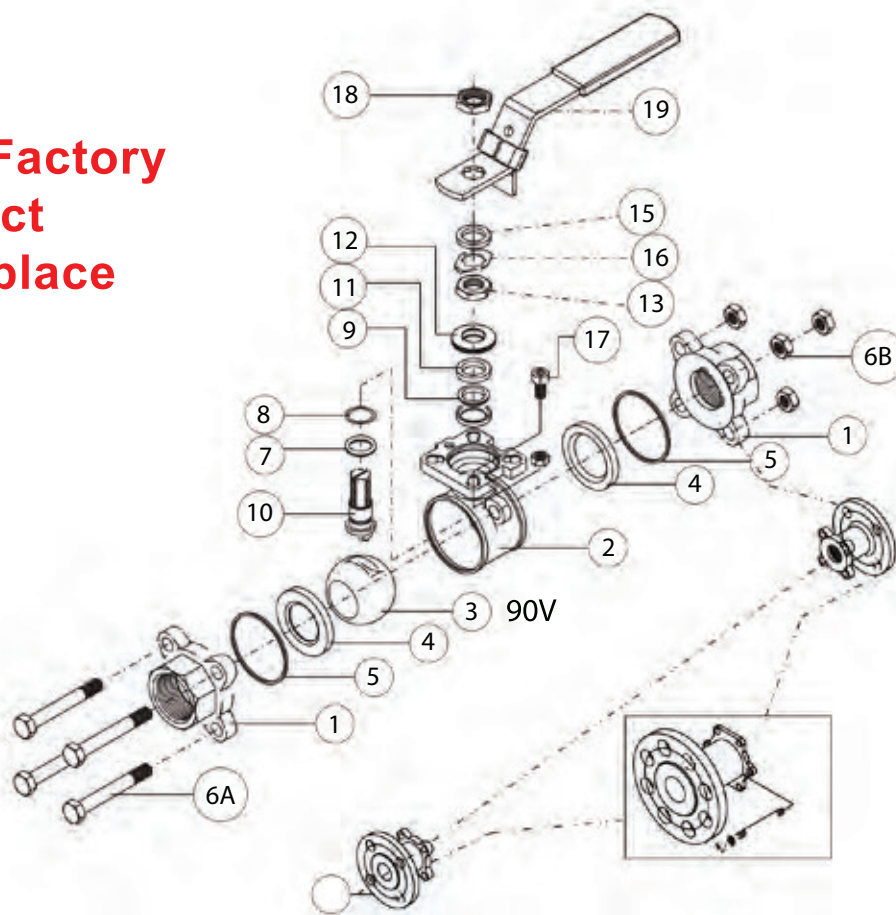
SIZE	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
GREASE	31	31	44	49	62	97	150	204

NOTE: Increase Torque value is increased by 40% when sizing JFE actuator for V-Ball.
Contact Thermaflo for 3" and Above

THERMA FLO

REPLACEMENT PARTS IDENTIFICATION

**Consult Factory
for Correct
Parts Replace**



No	Part Name	Materials
1	End Cap	CF8M/WCB
2	Body	CF8M/WCB
3	V Ball	SS316
4	Seat	TFM
5	Gasket	TFM
6A	Bolt	SS304
6B	Nuts	SS304
7	Thrust Washer	TFM
8	O-Ring	Viton
9	Stem Packing	TFM
10	Stem	SS316
11	Gland	SS304
12	Disk Washer	SS301

No	Part Name	Materials
13	Stem Nut	SS304
14	Nut Stop	SS304
15	Space Washer	SS304
16	Plater	SS304
17	Stop Pin	SS304
18	Handle Nut	SS304
19	Handle	SS304
20	Handle Cover	Plastic
21	Set Bolt	SS304
22	Lever Head	CF8
23	Lever	Steel Pipe



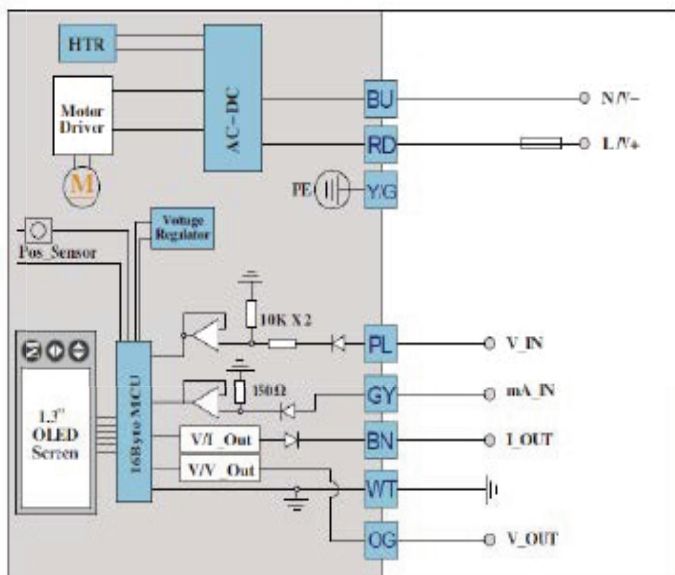
Operation Indicator Light
Added 2023 Blue Color

1/2" - 2" Valve Sizes

INTELLIGENT MODULATING ACTUATOR USAGE INSTRUCTIONS

**NEVER REMOVE THE TOP HOUSING OF THE ACTUATOR
OR YOU WILL VOID THE WARRANTY CONTACT
704-940-1228 FOR HELP**

WIRING DIAGRAM



- 1 BLUE
- 2 RED
- 3 YELLOW/GREEN
- 4 PURPLE
- 5 ORANGE
- 6 WHITE

SET V % open set from the control signal.
ANGLE Actual Valve Position
IDLE Screen will appear when the valve input signal is holding constant. This will toggle off to normal screen and toggle every 30 seconds

LED Power Light
Valve Indicator
RED is Closed
Yellow is Open



24VDC Power is Recommended
FORMELY 06T

POWER REQUIREMENTS

S80 Series 60W @ 24vdc

S80 (Formely 06T)	Valve Sizes . 5" to 2"
RED	24V DC DC ONLY
BLUE	NEUTRAL - Volt
PURPLE	0-10V Control INPUT SIGNAL
WHITE	COMMON
GREEN /YELLOW	GROUND
ORANGE	SIGNAL FEEDBACK

NOTE: Factory Control Signal is 0-10V
Calibrated
Input and Output

24VAC can be used. However 24VDC will enable the actuator to be 100% duty cycle.

If the actuator fails to power up apply a volt meter set for 24VDC and check Red and White wire for voltage supply. If no power check 24V source.

If no modulation apply volt meter to the purple wire and blue wire for 0-10V.

Note:

Whenever the actuator is first powered up at anytime it will take approx 45-60 seconds to fully charge the internal capacitor. This will be noticed on the top actuator screen and the green indicator light will come on.

It is advisable to at times employee a heat gun and check the temperature at the top of the actuator shaft at the bottom of the S-80 actuator, temperature should not exceed 200F.

THERMA FLO

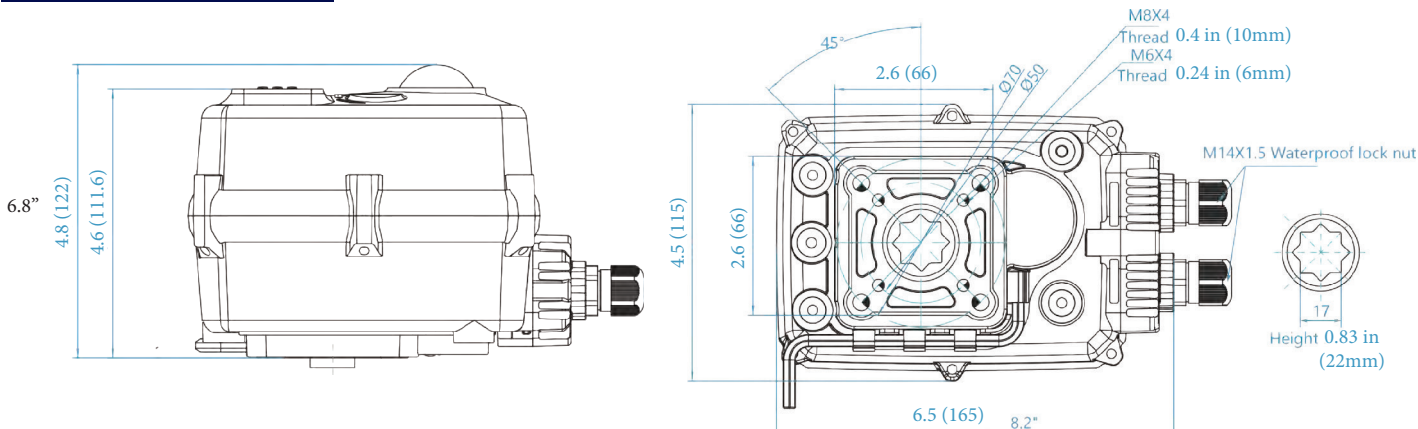
TFE-S80 ALL SERIES

INTELLIGENT MODULATING ACTUATOR USAGE INSTRUCTIONS

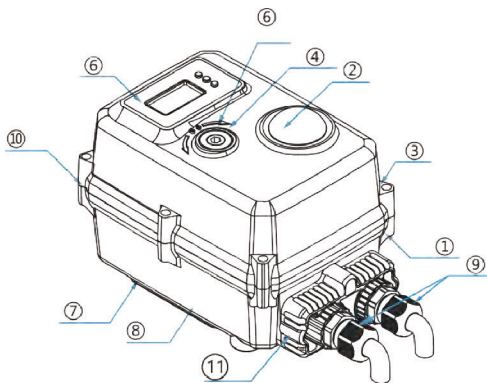
DIMENSIONS

FEMALE OCTAGON

UNIT: INCHES (MM)



MAIN PARTS



Operation Indicator Light (After 2022)

Visual Indicator:
Full Red Valve is Closed
Full Yellow Valve is Open
50% Yellow 50% Red Valve is 50%
Open and Modulating

Six PIN Connector Cord after 2022

	Parts	Material		Parts	Material
1	Actuator	ABS or Casting Aluminum	8	Hexagon wrench	Tool Steel
2	Indicator	TransparentAS	9	Waterproof Cable Connector	Nil on
3	Screwx4	304	10	Seal Part between Up and Down Cover	NBR
4	Manual Shaft	304	11	Terminal Cover	ABS
5	Oil Seal	NBR			
6	Label	PVC			
7	Wrench Fixed	ABS			

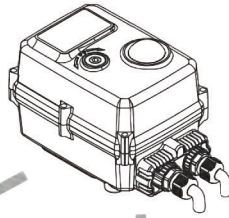
NOTE: No. 5, "Oil Seal" is an inner gasket.

THERMA FLO JFES80 SERIES

INTELLIGENT MODULATING ACTUATOR USAGE INSTRUCTIONS

MOUNTING INSTRUCTIONS

Always use extended bracket for steam or fluid medium above 180°F and mount the actuator on a horizontal plane to avoid all heat radiation.



1. When assembly with valve, to use spring washer add flat washer in order to fasten the screw and nut.
2. It's recommend to use 704 silica gel or instant cement instead of anaerobic adhesive and UV glue.
3. Please keep the actuator housing away from organic solvents, such as: kerosene, butanone, tetrachlormethane etc., or the housing will crack.



Diagram | With Bracket
UPVC plastic ball
valve+bracket assembly

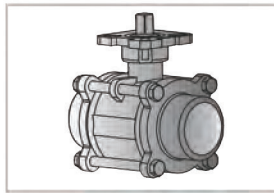


Diagram | Direct Mount
3 piece stainless steel ball
valve assembly

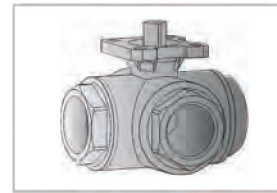


Diagram | Direct Mount
3 piece stainless steel
3-way ball valve assembly

INSTALLED VALVE TECHNICAL REQUIREMENTS

1. If the JVV V-Ball Valve is out of operation for a long time, and the torque value of first on or off is the max torque. Or you can choose ball valve with elastic sealing.
2. When installing JVV valve, the max torque. Because the torque value will increased by 20-4% after installing.
3. When installing direct mount model valve, the hole deep ≤ 20 mm. It requires cutting if the output shaft is longer than 20mm. **Never install a S80 actuator on any fluid above 120F without extended mounting bracket.**
4. Please pay attention to the following items if you install the bracket and coupling by yourself:
 - The intensity of bracket should meet the using requirements: the bracket twisting extent ≤ 0.2 mm in the process of on or off.
 - The parallelism of bracket ≤ 0.5 mm.
 - When processing the shaft hole at both end of the coupling, it is necessary to ensure the accuracy and concentricity. The purpose is to make sure the mechanical hysteresis $\leq 10^\circ$, otherwise it will cause the actuator unable to work.
5. It is available to use Lock Tight on all small screws used for mounting this actuator.

JVV V-BALL SERIES CONTROL VALVE

The ThermaFlo JV V-Ball Series Control Valve is designed for high speed 100% duty for temperature, pressure and level control applications. Specifically designed for steam, high temperature hot water, and other rigorous control applications.

The equal percentage segmented V inner ball design provides the user with accurate control over a 300:1 flow turn-down range-ability. Half the size and weight of any conventional globe control valve, the JV V is simple to install. The high-speed electronic actuator fails closed on power loss and totally eliminates air supply. The fully programmable actuator accepts 0-10V input control signal and can be split range controlled when required.

The JV V Series high flow CVs reduces **the need for large pipe size type control valves.**



**CONSULT THERMAFLO SERVICES GROUP
FOR TECHNICAL ASSISTANCE WITH THIS PRODUCT
704-940-1228 or Your Representative**

THERMA FLO



2880 FAIR AVE. NEWBERRY, SC.
PHONE: 704-940-1228

PROJECT QUOTES: QUOTES@THERMAFLOENGINEERING.COM

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INVOICING: ACCOUNTING@THERMAFLOENGINEERING.COM