

## VMP® SERIES:

VMP-60

60 HP

Vertical Multi-Port Steam Boiler

Designed for heavy-duty applications, the VMP® is Fulton's Vertical Multi-Port steam boiler. The rugged, robust, and reliable vertical design of the VMP® has been proven through decades of successful installations and provides exceptional value over the lifetime of the boiler. The VMP® is a proven pressure vessel coupled with modern state of the art burners and combustion controls to ensure maximum efficiency. It provides specifiable steam quality greater than 99%, making it ideal for humidification, sterilization, and food processing applications.



### STANDARD FEATURES:

- Vertical Heat Exchanger
- 85% operating efficiency
- 150 PSIG maximum allowable working pressure
- Compact footprint
- Thick walled construction
- Tubeless construction- Schedule 80 vertical pipes
- Near zero jacket loss
- Integral combustion air preheater
- Integral burner
- Linkage-less controls
- Full factory test fire and control programming
- Fuels available: natural gas, propane, biogas, #2 fuel oil
- 3:1 turndown as standard when firing on natural gas, with 5:1 turndown available
- 2:1 turndown when firing on #2 oil
- Operating and high pressure limit switches
- Two (2) low water cut off probes, (1) with auto reset, (1) with manual reset
- NEMA 1 enclosure with locking electrical panel
- Low NOx emissions options down to <9ppm on natural gas
- Safety interlock contacts for external device
- Emergency-stop contacts
- 5 year pressure vessel warranty expandable to 10 years\*\*
- 1 year burner warranty

### OPTIONS:

- ☐ Conductivity based surface blowdown
- ☐ Timer based bottom blowdown
- ☐ Control panel with non-fused disconnect
- ☐ High water overflow protection
- ☐ Reflex type sight glass
- ☐ Boiler alarm package
- ☐ Boiler gauge kit
- ☐ Remote E-stop
- ☐ MM-150 ALWCO
- ☐ MM-157 PWLCO and pump control
- ☐ MM-193-7B PWLCO modulating level control
- ☐ On/off motorized FW valve & 3-valve bypass
- ☐ On/off FW solenoid valve
- ☐ Differential pressure level control
- ☐ Modbus integration gateway
- ☐ BACnet integration gateway
- ☐ Up to 300 PSIG design
- ☐
- ☐
- ☐

### PROJECT DETAILS:

Project Name	
Date Submitted	
Fulton Representative	

City, State (Province)	
Engineer of Record	
Contractor	

### LISTINGS & COMPLIANCE:

- ASME Section I code\*
- UL approved to UL-795
- CSD-1 and CSA Controls and Fuel Train
- GAPS Compliant; Supersedes IRI
- FM Compliant Fuel Train Components
- Control panel wired in a UL 508 facility

### TRIM KIT ITEMS:

- ASME Safety Relief Valve
- Pressure Gauge
- Installation, Operation and Maintenance Manual
- Gauge Glass and Protector Rods
- Touch-up Spray Paint

\*ASME Section IV code available- consult factory

\*\*with engineered system per Fulton Warranty Statement

Information provided in this document is based on standard boiler configurations only. Custom configurations may result in deviations.

**CAPACITIES: STANDARD NATURAL GAS; APPLIES TO ELEVATIONS UP TO 2,000 FT)**

VMP®		VMP-60
Rated Input	<b>BTU/hr</b>	<b>2,392,000</b>
	<i>kWh</i>	701
Rated Output (At 0 psig operating pressure and 212F feedwater temperature)	<b>BTU/hr</b>	<b>2,009,000</b>
	Boiler HP	60
	lbs/hr	2,070
	kg/hr	939
	<i>kWh</i>	589

**CONNECTION SIZES:**

VMP®		VMP-60
Steam Outlet Operating at <75 psig	<b>inches</b>	<b>4</b>
	<i>mm</i>	102
Steam Outlet Operating at >=75 psig	<b>inches</b>	<b>3</b>
	<i>mm</i>	76
Feedwater Inlet	<b>inches</b>	<b>1</b>
	<i>mm</i>	25
Bottom Blowdown (x2)	<b>inches</b>	<b>1-1/2</b>
	<i>mm</i>	38
Natural Gas/LP Inlet	<b>inches</b>	<b>2</b>
	<i>mm</i>	51
Oil Inlet	<b>inches</b>	<b>1/4</b>
	<i>mm</i>	6
Surface Blowdown	<b>inches</b>	<b>3/4</b>
	<i>mm</i>	19
Stack Connection	<b>inches</b>	<b>12</b>
	<i>mm</i>	305
Water Column Drain	<b>inches</b>	<b>1</b>
	<i>mm</i>	25
Sight Glass Drain	<b>inches</b>	<b>1/4</b>
	<i>mm</i>	6
Safety Valve Inlet x Outlet* Section I 15 psi trim	<b>inches</b>	<b>1-1/2 x 2</b>
	<i>mm</i>	38 x 51
Safety Valve Inlet x Outlet* Section I 30 psi trim	<b>inches</b>	<b>1-1/4 x 1-1/2</b>
	<i>mm</i>	32 x 38
Safety Valve Inlet x Outlet Section I 50 psi trim	<b>inches</b>	<b>1-1/2 x 2</b>
	<i>mm</i>	38 x 51

\*Two (2) safety valves will be provided

## CONNECTION SIZES (CONT):

VMP®		VMP-60
Safety Valve Inlet x Outlet Section I 75-100 psi trim	<b>inches</b> <i>mm</i>	<b>1-1/4 x 1-1/2</b> 32 x 38
Safety Valve Inlet x Outlet Section I 125-150 psi trim	<b>inches</b> <i>mm</i>	<b>1 x 1-1/4</b> 25 x 32

## FUEL REQUIREMENTS: PRESSURE REQUIREMENTS AT RATED INPUT

VMP®		VMP-60
Fuel Usage at Rated Input (Natural Gas)	<b>SCFH*</b> <i>m³/hr</i>	<b>2,392</b> 68
Fuel Usage at Rated Input (Propane)	<b>SCFH**</b> <i>m³/hr</i>	<b>957</b> 27
Minimum Gas Pressure (NG or LP) STD emissions/<20ppm	<b>in W.C.</b> <i>kPa</i>	<b>9</b> 2
Maximum Gas Pressure (NG or LP) STD emissions/<20ppm	<b>in W.C.</b> <i>kPa</i>	<b>138</b> 34
Minimum Gas Pressure (NG) <9ppm low emissions	<b>in W.C.</b> <i>kPa</i>	<b>40</b> 10
Maximum Gas Pressure (NG) <9ppm low emissions	<b>in W.C.</b> <i>kPa</i>	<b>138</b> 34
Fuel Usage at Rated Input (#2 Fuel Oil)	<b>GPH***</b> <i>lph</i>	<b>17.1</b> 64

\*SCFH based on 1,000 BTU/ft³

\*\*SCFH based on 2,500 BTU/ft³

\*\*\*GPH based on 140,000 BTU/gallon

## ELECTRICAL REQUIREMENTS: FLA IS SUBJECT TO CHANGE BASED ON OPTIONS, CONSULT FACTORY FOR JOB SPECIFIC FLA

VMP®		STD NG	<30ppm	<20ppm	<9ppm
Burner Motor (Gas)	<b>HP</b> <i>kW</i>	<b>1.5</b> 1.1	<b>5</b> 3.7	<b>5</b> 3.7	<b>5</b> 3.7
Full Load Amps (Gas)	<b>208/60/3</b>	<b>11.5</b>	<b>22</b>	<b>22</b>	<b>22</b>
	<b>230/60/3</b>	<b>9.5</b>	<b>18.5</b>	<b>18.5</b>	<b>18.5</b>
	<b>460/60/3</b>	<b>5</b>	<b>9.5</b>	<b>9.5</b>	<b>9.5</b>
	<b>575/60/3</b>	<b>4</b>	<b>7.5</b>	<b>7.5</b>	<b>7.5</b>

**ELECTRICAL REQUIREMENTS: FLA IS SUBJECT TO CHANGE BASED ON OPTIONS, CONSULT FACTORY FOR JOB SPECIFIC FLA**

VMP®		#2 Oil-Combo
Burner Motor (#2 Oil-Combo)	<b>HP</b>	<b>2</b>
	<i>kW</i>	<i>1.5</i>
Full Load Amps (#2 Oil-Combo NG/#2 Oil)	<b>208/60/3</b>	<b>14</b>
	<b>230/60/3</b>	<b>12</b>
	<b>460/60/3</b>	<b>6</b>
	<b>575/60/3</b>	<b>5</b>

**GAS EMISSIONS: CORRECTED TO 3% O<sub>2</sub>, CO TO BE 25ppm OR LESS**

VMP®		STD	<30ppm	<20ppm	<9ppm
NO <sub>x</sub>	<b>lbs/hr</b>	<b>0.169</b>	<b>0.0788</b>	<b>0.0506</b>	<b>0.0225</b>
	<i>kg/hr</i>	<i>0.077</i>	<i>0.0357</i>	<i>0.0230</i>	<i>0.0102</i>
SO <sub>x</sub>	<b>lbs/hr</b>	<b>0.0014</b>	<b>0.0014</b>	<b>0.0014</b>	<b>0.0014</b>
	<i>kg/hr</i>	<i>0.0006</i>	<i>0.0006</i>	<i>0.0006</i>	<i>0.0006</i>
Volatile Organic Compounds	<b>lbs/hr</b>	<b>0.0132</b>	<b>0.0132</b>	<b>0.0132</b>	<b>0.0132</b>
	<i>kg/hr</i>	<i>0.0060</i>	<i>0.0060</i>	<i>0.0060</i>	<i>0.0060</i>
Total Particulates	<b>lbs/hr</b>	<b>0.0182</b>	<b>0.0182</b>	<b>0.0182</b>	<b>0.0182</b>
	<i>kg/hr</i>	<i>0.0083</i>	<i>0.0083</i>	<i>0.0083</i>	<i>0.0083</i>
CO	<b>lbs/hr</b>	<b>0.0436</b>	<b>0.0436</b>	<b>0.0436</b>	<b>0.0436</b>
	<i>kg/hr</i>	<i>0.0198</i>	<i>0.0198</i>	<i>0.0198</i>	<i>0.0198</i>

**#2 FUEL OIL EMISSIONS: ASSUMING 15PPM SULFUR CONTENT OF OIL**

VMP®		STD
NO <sub>x</sub>	<b>lbs/hr</b>	<b>0.347</b>
	<i>kg/hr</i>	<i>0.157</i>
SO <sub>x</sub>	<b>lbs/hr</b>	<b>0.0004</b>
	<i>kg/hr</i>	<i>0.0002</i>
Volatile Organic Compounds	<b>lbs/hr</b>	<b>0.0009</b>
	<i>kg/hr</i>	<i>0.0004</i>
Total Particulates	<b>lbs/hr</b>	<b>0.0557</b>
	<i>kg/hr</i>	<i>0.0253</i>
CO	<b>lbs/hr</b>	<b>0.0690</b>
	<i>kg/hr</i>	<i>0.0313</i>

**VENTING REQUIREMENTS: WHEN OPERATING ON NATURAL GAS**

	VMP®	STD	<30ppm	<20ppm	<9ppm
Typical Combustion Air Intake Flow Rate	<b>SCFM</b>	<b>492.2</b>	<b>530</b>	<b>530</b>	<b>567.9</b>
	<i>m³/hr</i>	836.3	900.5	900.5	964.9
Stack Flow Rate @ 135 PSIG operating	<b>SCFM</b>	<b>532.01</b>	<b>569.9</b>	<b>569.9</b>	<b>607.7</b>
	<i>m³/hr</i>	1,002.6	1,074	1,074	1,145.3
Required Draft Pressure running hot @ flue outlet	<b>in W.C.</b>	<b>-0.04 to -0.08</b>	<b>-0.04 to -0.08</b>	<b>-0.04 to -0.08</b>	<b>-0.04 to -0.08</b>
	<i>kPa</i>	-0.01 to -0.02	-0.01 to -0.02	-0.01 to -0.02	-0.01 to -0.02
Required Draft Pressure standing hot @ flue outlet	<b>in W.C.</b>	<b>-0.02 to -0.04</b>	<b>-0.02 to -0.04</b>	<b>-0.02 to -0.04</b>	<b>-0.02 to -0.04</b>
	<i>kPa</i>	-0.005 to -0.01	-0.005 to -0.01	-0.005 to -0.01	-0.005 to -0.01

**WEIGHTS AND VOLUMES:**

	VMP®	VMP-60
Operating Weight at Normal Working Level	<b>lbs</b>	<b>9,120</b>
	<i>kg</i>	4,137
Flooded Weight	<b>lbs</b>	<b>9,610</b>
	<i>kg</i>	4,359
Water Volume at Normal Working Level	<b>gallons</b>	<b>245</b>
	<i>liters</i>	928

**SOUND DATA: MEASUREMENTS TAKEN FROM FIVE FOOT FROM THE FRONT OF THE BOILER**

	VMP®	VMP-60
Sound Level at High Fire	<b>dBa</b>	<b>79</b>

**DIMENSIONS:**

Refer to the Product Data Submittal Drawing for dimensions.