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250 HP FIRETUBE BOILER

Maximum BTU/hr Input (ie: Rated Input @ High Fire / 100% Input Rating)	$250 \times 42,000 = 10,500,000$ BTU
Cubic Feet of Natural Gas Required	$10,500,000 \div 1,000 = 10,500$ Cu Ft
Cubic Feet of Vaporized Propane Required	$10,500,000 \div 2,500 = 4,200$ Cu Ft
Gallons of Liquid Propane Required	$10,500,000 \div 91,600 = 114.63$ Gallons
Gallons of #2 Diesel Oil Required	$10,500,000 \div 140,000 = 75$ Gallons
Minimum BTU/hr Input at a 4:1 Turndown Ratio (Low Fire)	$10,500,000 \div 4 = 2,625,000$ BTU
Cubic Feet of Natural Gas Required	$2,625,000 \div 1,000 = 2,625$ Cu Ft
Cubic Feet of Vaporized Propane Required	$2,625,000 \div 2,500 = 1,050$ Cu Ft
Gallons of Liquid Propane Required	$2,625,000 \div 91,600 = 28.65$ Gallons
Gallons of #2 Diesel Oil Required	$2,625,000 \div 140,000 = 18.75$ Gallons
Maximum Steam Production in lbs/hr (High Fire)	$250 \times 34.5 = 8,625$ lbs/hr
Maximum Water Evaporation Rate	$250 \times .069 = 17.25$ GPM
Minimum Feedwater Pump Flow (on / off pump strategy)	$17.25 \times 2 = 34.5$ GPM
Minimum Feedwater Pump Flow (modulating pump strategy)	$17.25 \times 1.5 = 25.875$ GPM
Minimum Feedwater Tank Storage Requirement	170 Gallons
Steam Temperature at <u>85 psi</u> Saturated	250.33 °F
BTU/hr Output, Based on 80% Efficiency at High Fire	$10,500,000 \times .80 = 8,400,000$ BTU
BTU/hr Output, Based on 80% Efficiency at Low Fire	$2,625,000 \times .80 = 2,100,000$ BTU
Square Feet Heating Surface (sq. ft. HS) at 5 sq. ft. per HP	$250 \times 5 = 1,250$ Sq Ft
Minimum Steam Safety Relief Valve Capacity at Boiler Design	$8,625 \times 1.10 = 9,487.5$ lbs/hr
Minimum Water Softener Flow Capacity at High Fire (always based upon 100% input)	$17.25 \times 2 = 34.5$ GPM

HQ - Fremont, CA (510) 490-7100 / Sales Office - Visalia, CA (559) 623-9318
Controls Division - Pacific Combustion Engineering - Washougal, WA (360) 335-1443
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