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700 HP FIRETUBE BOILER

Maximum BTU/hr Input (ie: Rated Input @ High Fire / 100% Input Rating)	$700 \times 42,000 = 29,400,000$ BTU
Cubic Feet of Natural Gas Required	$29,400,000 \div 1,000 = 29,400$ Cu Ft
Cubic Feet of Vaporized Propane Required	$29,400,000 \div 2,500 = 11,760$ Cu Ft
Gallons of Liquid Propane Required	$29,400,000 \div 91,600 = 321$ Gallons
Gallons of #2 Diesel Oil Required	$29,400,000 \div 140,000 = 210$ Gallons
Minimum BTU/hr Input at a 4:1 Turndown Ratio (Low Fire)	$29,400,000 \div 4 = 7,350,000$ BTU
Cubic Feet of Natural Gas Required	$7,350,000 \div 1,000 = 7,350$ Cu Ft
Cubic Feet of Vaporized Propane Required	$7,350,000 \div 2,500 = 2,940$ Cu Ft
Gallons of Liquid Propane Required	$7,350,000 \div 91,600 = 80.24$ Gallons
Gallons of #2 Diesel Oil Required	$7,350,000 \div 140,000 = 52.5$ Gallons
Maximum Steam Production in lbs/hr (High Fire)	$700 \times 34.5 = 24,150$ lbs/hr
Maximum Water Evaporation Rate	$700 \times .069 = 48.3$ GPM
Minimum Feedwater Pump Flow (on / off pump strategy)	$48.3 \times 2 = 96.6$ GPM
Minimum Feedwater Pump Flow (modulating pump strategy)	$48.3 \times 1.5 = 72.45$ GPM
Minimum Feedwater Tank Storage Requirement	483 Gallons
Steam Temperature at 205 psi Saturated	389 °F
BTU/hr Output, Based on 80% Efficiency at High Fire	$29,400,000 \times .80 = 23,520,000$ BTU
BTU/hr Output, Based on 80% Efficiency at Low Fire	$7,350,000 \times .80 = 5,880,000$ BTU
Square Feet Heating Surface (sq. ft. HS) at 5 sq. ft. per HP	$700 \times 5 = 3,500$ Sq Ft
Minimum Steam Safety Relief Valve Capacity at Boiler Design	$24,150 \times 1.10 = 26,565$ lbs/hr
Minimum Water Softener Flow Capacity at High Fire (always based upon 100% input)	$48.3 \times 2 = 96.6$ GPM

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