

COMMON CONVERSIONS

The following assumes a nominal boiler efficiency of 80%, and capacity from and at 212°F for steam boilers as cataloged in most boiler manufacturer's data and performance sheets:

Boiler Horsepower (BHP)	x 34.5	= LB/STM/HR
Boiler Horsepower (BHP)	x 0.069	= GPM (evaporation rate)
Boiler Horsepower (BHP)	x 33,479	= BTUH (gross output)
Boiler Horsepower (BHP)	x 0.3	= GPH No.2 Fuel Oil
Boiler Horsepower (BHP)	x 0.28	= GPH No.5/6 Fuel Oil
Boiler Horsepower (BHP)	x 42	= CFH Natural Gas
Boiler Horsepower (BHP)	x 139	= SQ/FT EDR
Boiler Horsepower (BHP)	x 9.809	= KW
KW	x 0.10	= BHP
LB/STM/HR	x 0.002	= GPM
LB/STM/HR	x 1000	= BTU/HR (gross output)
Gallon of Water @ 70°F	x 8.34	= LB of water
PSIG	x 2.31	= FT of water
PSIG	x 6.9	= kPa
BTU	X 1054.8	= joules

1) TYPICAL VALUES FUEL VALUES:

1 GAL No.2 Fuel Oil = 140,000 BTU/GAL

1 GAL No.5/6 Fuel Oil = 150,000 BTU/GAL

1 CU/FT of Natural Gas @ 60°F = 1000 BTU/CU/FT (typical @ .60 SG)

1 GAL of LPG (propane) @ 60°F = 91,600 BTU/GAL

1 CU/FT of LPG vapor (propane - raw) @ 60°F = 2500 BTU/CU/FT (typical @ 1.53 SG)

2) BASIC HEATING FORMULA FOR WATER:

$GPM / 2 \times \text{DELTA-T} = \text{LB/STM/HR}$

(Example: $34.5 \text{ GPM} / 2 \times 140^\circ\text{F rise} = 2,415 \text{ LB/STM/HR required}$)

or

$GPM \times 500 \times \text{DELTA-T} = \text{BOILER BTU/HR OUTPUT}$ (Example: $34.5 \text{ GPM} \times .500 \times 140^\circ\text{F rise} = 2,415 \text{ MBH gross boiler output required}$)