

# ABMA and ASME Guidelines for Steam Purity

## ABMA for Water Tube Boilers

	Drum pressure, psig	Total dissolved solids <sup>a</sup> in boiler water, ppm (max.)	Total Alkalinity <sup>c</sup> in boiler water, ppm	Suspended solids in boiler water, ppm (max.)	Total dissolved solids <sup>a,c</sup> in steam, ppm (max. expected value)
Drum-type boilers	0-300	700-3500	140-700	15	0.2-1.0
	301-450	600-3000	120-600	10	0.2-1.0
	451-600	500-2500	100-500	8	0.2-1.0
	601-750	200-2000	40-400	3	0.1-0.5
	751-900	150-1500	30-300	2	0.1-0.5
	901-1000	125-1250	25-250	1	0.1-0.5
	1001-1800	100	variable <sup>d</sup>	1	0.1
	1801-2350	50	variable <sup>d</sup>	N/A	0.1
	2351-2600	25	variable <sup>d</sup>	N/A	0.05
	2601-2900	15	variable <sup>d</sup>	N/A	0.05
Once-through boilers	1400 & above	0.05	N/A	N/A	0.05

<sup>a</sup> Reprinted (with permission) from "Boiler Water Limits and Steam Purity Recommendations for Watertube Boilers," American Boiler Manufacturers Association, 1982.

<sup>b</sup> Actual values within the range reflect the TDS in the feedwater. Higher values are for high solids; lower values are for low solids in the feedwater.

<sup>c</sup> Actual values within the range are directly proportional to the actual value of TDS of boiler water. Higher values are for high solids; lower values are for low solids in the boiler water.

<sup>d</sup> Dictated by boiler water treatment.

<sup>e</sup> These values are exclusive of silica.

## Feed / Boiler Water Limits Review

*use, for example, ASME Consensus table 3:*

<b>Drum Operating Pressure</b> psig (MPa)	<b>0 – 300 (0 – 2.07)</b>
<b>Feedwater</b>	
DO ppm (mg/l) O <sub>2</sub> before oxygen scavenger	<0.007
Total iron ppm (mg/l) Fe	<0.1
Total copper ppm (mg/l) Cu	<0.05
Total hardness ppm as CaCO <sub>3</sub>	<1.0
pH @ 25°C	8.3 to 10.5
Non-volatile TOC ppm (mg/l) C	<10
Oily matter ppm (mg/l)	<0.1
<b>Boiler Water</b>	
Silica ppm (mg/l) SiO <sub>2</sub>	<150
Total alkalinity ppm as CaCO <sub>3</sub>	<700
Free OH alkalinity ppm as CaCO <sub>3</sub>	not specified
Conductance μS/cm @ 25°C	<7000

