

Instructions for Computing Water Softener Size/Capacity

You/Nimbus will need a water analysis to complete this, or will use worst case scenario from guide @ >180ppm or +- 10.5grains/gpg. Nimbus can assist to refer raw source water for testing.

** See conversion schedule page 3

All supplier specifications to US data and apply the calculations to US data & then convert to SA requirements, using conversions as on page 3.

If you feel this method is too complicated, use our line by line Worksheet Method that follows this section, instead. (It's much longer but more fool proof.)

First, find out your water Total Hardness in GPG: Total Hardness (in ppm) divided 17.1 = Total Hardness in GPG. For example San Antonio = approx. 18 Grains.

Then, Adjust for Iron: Add 4 grain Hardness per 1 ppm of Iron detected (round up). For example, San Antonio = 139.0 ppb = 0.139 ppm $\times 4 = .278$ extra Grains, so round up to 1 Grain.

Then, Adjust for Manganese: Add 4 grain Hardness for per 1 ppm of Manganese detected (round up). For example, San Antonio = 2 ppm $\times 4 = 8$ extra Grains

This tells you the **ADJUSTED TOTAL HARDNESS. Write it Here: _____ Grains**

- 1) **Multiply (number of people in house) $\times 80 - 100$ gallons (hot climates, pools, can use more water) to determine Household Daily Average Use (Gal.).
- 2) Multiply this (Household Daily Average Use Gal.) \times (ADJUSTED TOTAL HARDNESS)
- 3) Multiply this number by the (number of days Desired between regeneration cycles). Maximum days is 3 days.
- 4) This is the minimum softener capacity (in Grains) needed to handle your average household water demand.

Insider Tip from the manufacturing engineers: Use the Minimum Hardness Capacity (MHC) of a softener (not the maximum capacity) to gain a 40% salt savings advantage.

Typical Mineral Tank/Vessel Sizes and **Typical** Minimum Hardness Capacity (MHC):

9 x48" Tank = 1 cubic foot = Typ. MHC: 20,000 Grains	=Max. Capacity: 30,000 GPR
10x54 Tank = 1.5 cu.ft.	=MHC: 30,000 Grains =Max. Capacity: 45,000 GCR
12x52 Tank = 2 cu.ft.	=MHC: 40,000 Grains =Max. Capacity: 60,000 GCR
14x65 Tank = 3 cu.ft.	=MHC: 60,000 Grains =Max. Capacity: 90,000 GCR
16x65 Tank = 4 cu.ft.	=MHC: 90,000 Grains =Max. Capacity: 120,000 GPR

18x65 Tank = 6 cu.ft.	=MHC; 120,000 Grains =Max capacity; 140,000 GPG
21x62 Tank = 7 cu.ft.	=MHC: 140,000 Grains =Max. Capacity: 210,000 GPR

Larger unit requirement & DUPLEX systems, quote on request.

*GCR = Grains Capacity until next Regeneration

Long Worksheet for Choosing a Water Softener Size/Capacity-Page 2

Long Worksheet for Choosing a Water Softener Size/Capacity

These are engineering calculations, so grab your calculator, pen, and print this out. Just take your time and double check your work when finished. **(This is for standard water softeners that use salt.**

You will first need to find out what is your:

- Total Hardness (ppm, GPG, or Grains)
- Iron (ppm or ppb)
- Manganese (ppm, if available)

Get this from your municipal water supply authority or from a water analysis of your private well water. You cannot proceed without this important info.

*to convert **ppb** to **ppm** simply move the decimal point 3 positions to the left. So for example 139.0 ppb = 0.139 ppm

Insider Tip from the manufacturing engineers: You choose a water softener size according to it's Minimum Capacity (NOT the maximum capacity) in order to gain a 40% salt savings advantage. When you push a water softener to it's maximum capacity, it ends up wasting (and discharging) a LOT of salt.

First, find your water's Total Hardness in Grains:

(Total Hardness in ppm) divided by 17.1 = Total Hardness in GPG. (Grains Per Gallon)

This info would come from your local water provide or a water analysis.

Write answer on **Line A:** _____ Grains of Total Hardness (GPG)

Adjust for Iron: Add 4 grains Hardness per 1 ppm of Iron detected (round up)

For example (for S.A.) 139 ppb = .139 ppm * **x 4** = .556 extra Grains = 1 extra Grain (when rounded up) This info would come from your local water provider or a water analysis.

Write Answer on **Line B:** _____ extra Grains due to Iron

Adjust for Manganese: Add 4 grains Hardness for every 1 ppm of Manganese detected (round up) [So (for S.A.) 2 ppm **x 4** = 8 extra Grains] This info would come from your local water provider or a water analysis. (Use 1 grain if info is unavailable.)

Write Answer on **Line C:** _____ extra Grains due to Manganese.

Calculation: **Add Lines A+B+C** to get your ADJUSTED TOTAL HARDNESS.

Write answer here on **Line D:** _____ Grains Adjusted Total Hardness.

Write the number of people using water in the house

Write answer here on **Line E:** _____ people using water in the house

Estimate how much water each person uses per day using only these numbers provided:

Typical average average US consumption= 80 gallons (per person per day)

We are maybe a little above average consumption = 90 gallons

We are definitely above average, swimming pool, hot tub, watering, etc. = 100 (or more) gallons

Write the answer here on **Line F:** _____ Gallons per Person per Day

Calculation: **Multiply Line E x Line F** to determine Household Daily Average Use (Gal.)

Write your answer here on **Line G:** _____ Gallons

Calculation: Multiply Line G x Line D:

Write your answer here on **Line H:** _____

You can have your softener regenerate every 2, 3, or 4 days. Choose one of these numbers and write your answer here on **Line I:** _____ days between regeneration cycles. Remember each regeneration cycle consumes water and salt.

Calculation: Multiply Line H x Line I

Write your FINAL ANSWER here on **Line J:** _____ **Minimum Softener Capacity.**

This is the Minimum Softener Capacity (in Grains) needed to handle your average household water demand and experience a maximum efficiency in salt consumption and minimize your salt discharge to the drain.

Finally, **Match the value on Line J to a Minimum Capacity on the table below.**

Now select your softener according to the Maximum Capacity that corresponds to the Minimum Capacity. For example, if your calculations show you that you need a MHC of 35,00 Grains, then round up to the MHC 40,000 Grains size, and then notice that it has a corresponding Max. Capacity of 60,000 Grains. Buy a 60,000 Grain Max. Capacity Unit.

Typical Mineral Tank Sizes and Typical Minimum Hardness Capacity (MHC):

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**GCR = Grains Capacity until next Regeneration.*

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****CONVERSIONS;**

1 cu.ft = 0.028316 cu.meters

1 cu.ft = 28.316 litres

1 litres = 0.035314 cu.ft

1 [one] US Gallon = 3.75 litres [CSIR guide usage SA is ppd is 200-220lt = 53-50 gallons] – or can use actual average daily water usage, i.e. 800-1000lt p/d = 266 gallons divided by 4 persons = 67 gallons per person.

Source; www.onlineconversion.com



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