



## INLINE CAUSTIC DILUTION

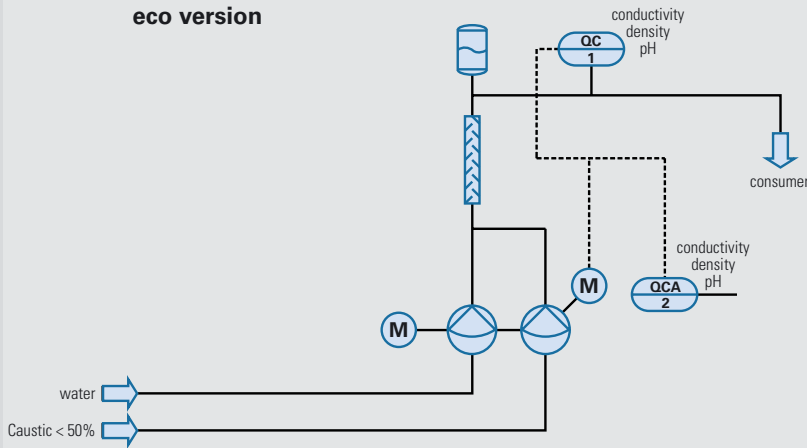


- Suitable for all grades.
- Simplified on-demand process.
- Process runs in either manual or automatic, unmanned, mode.
- Dual analyzers – for process control, and for concentration verification and reporting.
- Optional temperature controls to prevent precipitation.

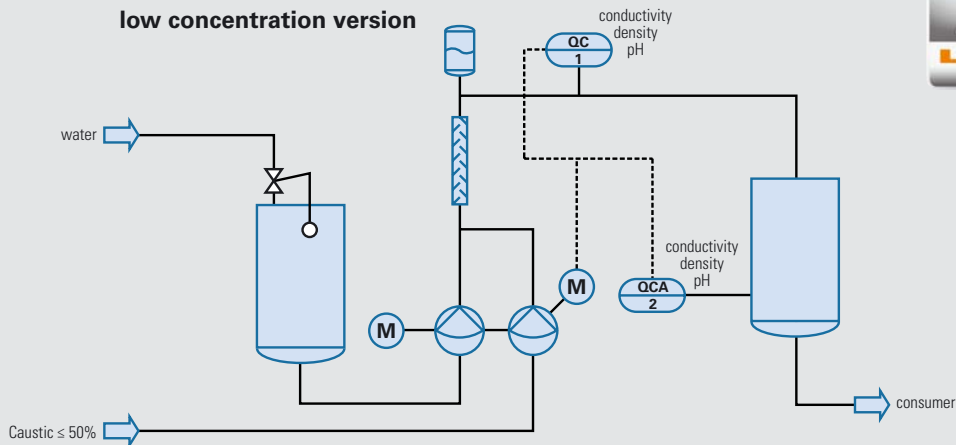
# INLINE CAUSTIC DILUTION

Flow diagrams of three typical versions of the inline caustic dilution module

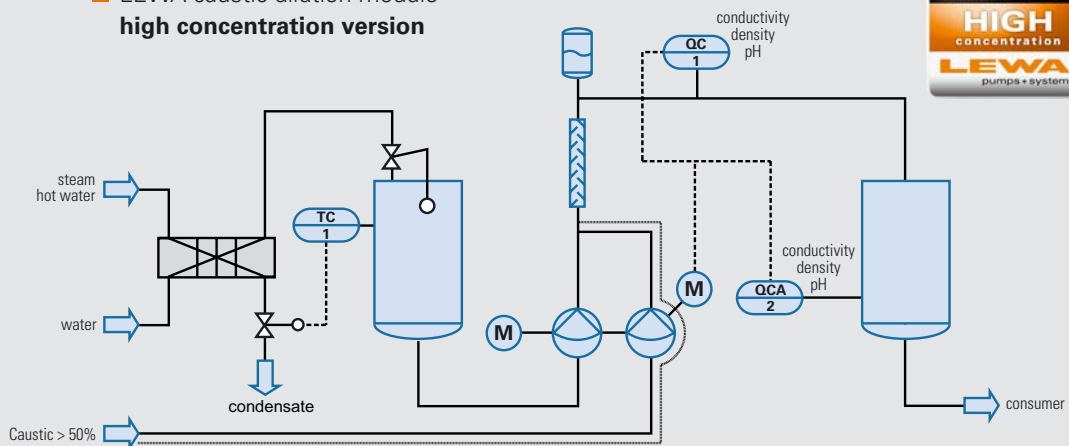
LEWA caustic dilution module  
**eco version**



LEWA caustic dilution module  
**low concentration version**



LEWA caustic dilution module-  
**high concentration version**

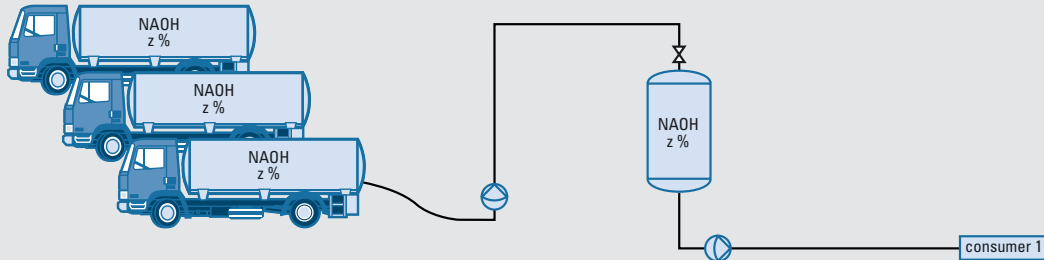


Customized layout is available too.

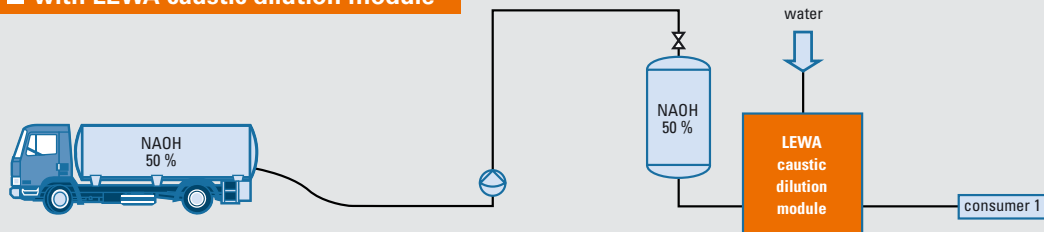
## INLINE CAUSTIC DILUTION

Two typical versions with or without the inline caustic dilution module

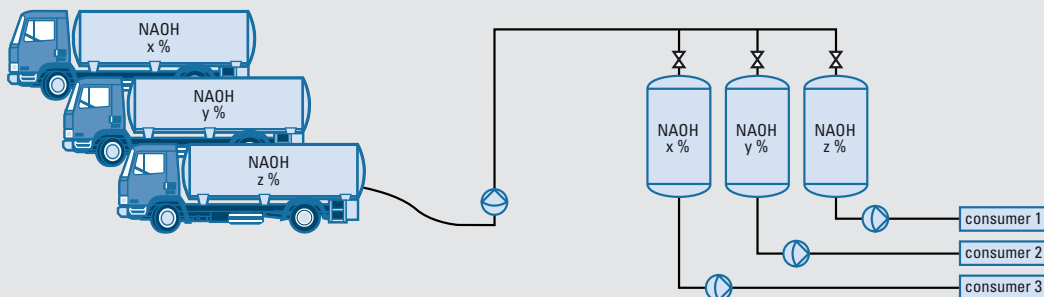
without LEWA caustic dilution module



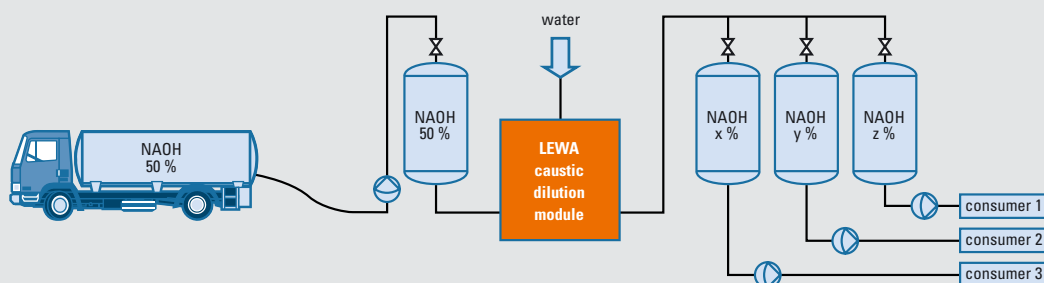
with LEWA caustic dilution module



without LEWA caustic dilution module



with LEWA caustic dilution module



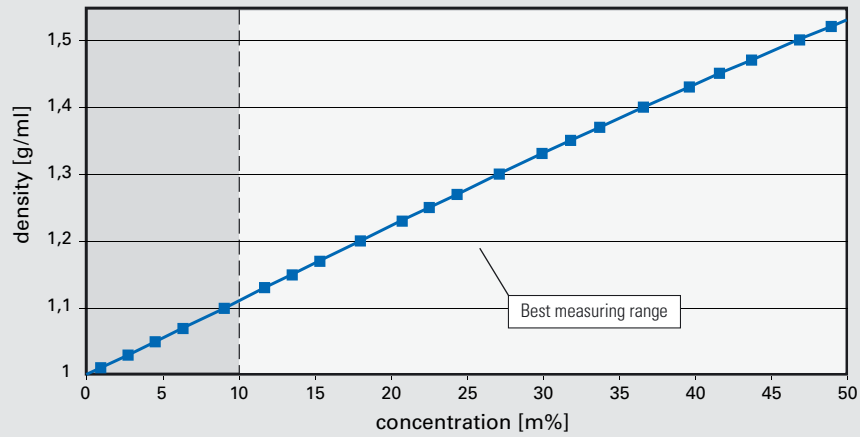
Your benefits:

- Save costs (ask for calculations)
- More independence
- More flexibility in production
- Much longer supply depot

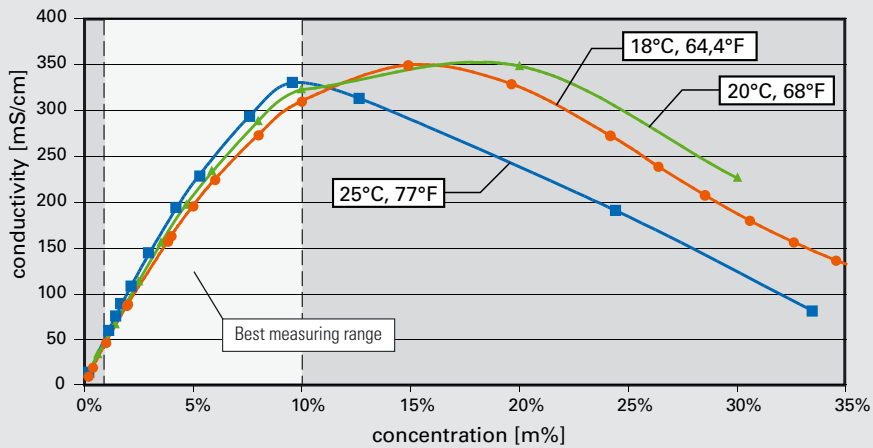
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Typical analyzer ranges:

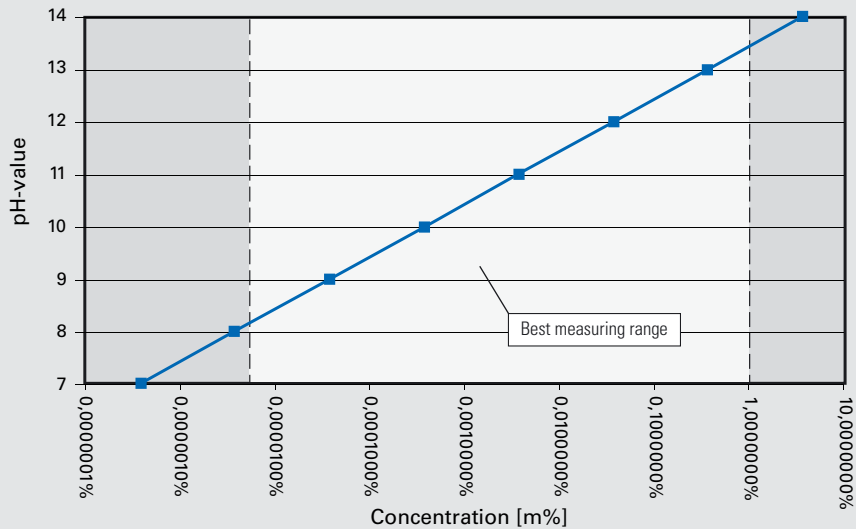
■ Density of aqueous solution of Sodium Hydroxide (NaOH)



■ Conductivity of aqueous solution of Sodium Hydroxide (NaOH)



■ pH value of aqueous solution of Sodium Hydroxide (NaOH)



## INLINE CAUSTIC DILUTION

Caustic solutions such as Sodium hydroxide, lye and caustic soda are commercially available, typically in concentrations of 50% and above. The LEWA inline caustic dilution module is well suited for any of these solutions. The dilution of caustic is a controlled process that eliminates precipitation and/or excessive exothermic reactions. The knowledge and experience gained by LEWA is behind the development of proportioning equipment that meets your most stringent process needs.

Typical applications:

- Water treatment
- Food processing
- Soap and detergent manufacturing
- Mining
- Glass processing
- Vegetable oil processing
- Chemical manufacturing (pH-Control)
- Disinfectants
- Sodium hypochloride

| customer:  |                | COMPARISON OF COSTS<br>INLINE DILUTION OF CAUSTIC |        |      |                          |              |             |
|--|----------------|---|--------|------|--------------------------|--------------|-------------|
| BASIC DATA   |                |   |        |      |                          |              |             |
| concentration of caustic needed:                           | <b>4</b>       | %   |        |      |                          |              |             |
| consumption of caustic 4% per year:                        | <b>250,000</b> | kg  |        |      |                          |              |             |
| volume of vessel:  | <b>20</b>      | m <sup>3</sup>                                    |        |      |                          |              |             |
| no of tank refillings with caustic 4%:                     | 12,5           | tanks   |        |      |                          |              |             |
| volume of water per year:                                  | 240,000        | kg water  |        |      |                          |              |             |
| volume of sodium hydroxide per year:                       | 10,000         | kg of sodium hydroxide                            |        |      |                          |              |             |
| concentration of caustic to buy:                           | <b>50</b>      | %   |        |      |                          |              |             |
| production capacity of LEWA caustic dilution module:       | <b>1,000</b>   | kg/h  |        |      |                          |              |             |
| electrical power capacity of LEWA caustic dilution module: | <b>8</b>       | kW  |        |      |                          |              |             |
| consumption of caustic 50 % per year:                      | 20,000         | kg of caustic 50 % per year                       |        |      |                          |              |             |
| required tank fillings of caustic 50 % per year:           | 1              | tanks   |        |      |                          |              |             |
| COSTS  |                | INSTALLATION CAUSTIC 50 %                         |        |      | INSTALLATION CAUSTIC 4 % |              |             |
| Costs per kg caustic:                                      | <b>0,155</b>   | Euro  |        |      |                          | <b>0,120</b> | Euro        |
| costs per liter water:                                     | <b>0,010</b>   | Euro / liter                                      |        |      |                          |              |             |
| labour costs:  | <b>40</b>      | Euro / hour                                       |        |      |                          | <b>40</b>    | Euro / hour |
| costs energy:  | <b>0,09</b>    | Euro / kW   |        |      |                          |              |             |
| COSTS OF PRODUCTION 250,000 KG CAUSTIC AT 4%               |                |   |        |      |                          |              |             |
| time to prepare tank                                       | <b>2</b>       | hour  | 80     | Euro | <b>2</b>                 | hour         | 1,000 Euro  |
| time to work on tank                                       | <b>0,5</b>     | hour  | 20     | Euro | <b>0,5</b>               | hour         | 250 Euro    |
| time for administration per tank                           | <b>0,5</b>     | hour  | 20     | Euro | <b>0,5</b>               | hour         | 250 Euro    |
| power consumption  | 250            | hour  | 180    | Euro |                          |              | 0 Euro      |
| costs of water   | 240,000        | liter   | 2,400  | Euro |                          |              | 0 Euro      |
| costs of caustic   | 0,16           | Euro  | 3,100  | Euro | 0,12                     | Euro         | 30,000 Euro |
| DIFFERENCE   |                |   |        |      |                          |              |             |
| production costs per year:                                 |                |   | 5,800  | Euro |                          |              | 31,500 Euro |
| costs per kg caustic                                       |                |   | 0,02   | Euro |                          |              | 0,13 Euro   |
| difference per kg:   |                |   | 0,10   | Euro |                          |              |             |
| difference per year:                                       |                |   | 25,700 | Euro |                          |              |             |
| INVESTMENT   |                |   |        |      |                          |              |             |
| Investment costs LEWA inline caustic dilution module:      | <b>52,000</b>  | Euro  |        |      |                          | existing     |             |
| Investment costs for add. Tank                             | <b>0</b>       | Euro  |        |      |                          | existing     |             |
| Investment costs transfer pump                             | <b>0</b>       | Euro  |        |      |                          | existing     |             |
| Investment costs piping                                    | <b>0</b>       | Euro  |        |      |                          | existing     |             |
| Total  |                |   |        |      |                          |              | 52,000 Euro |
| AMORTIZATION   |                |   |        |      |                          |              |             |
| payback time   | <b>2</b>       | years   |        |      |                          |              |             |
| benefit  | <b>25,700</b>  | Euro / year                                       |        |      |                          |              |             |

For further information please contact: