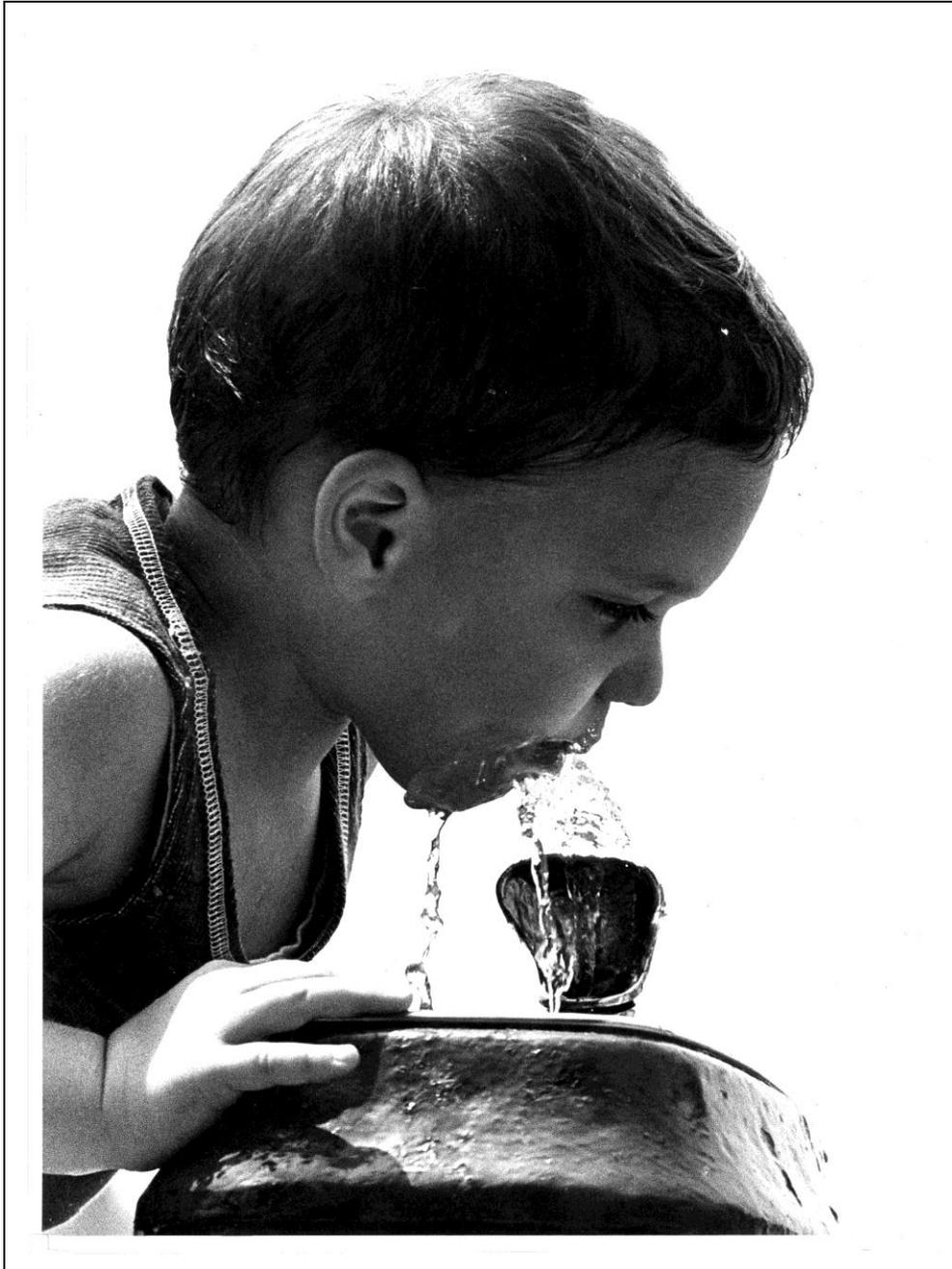


# Package Clarification Plants

Clean and clear water potable or industrial use.



The Hydrex package Clarification Plants are ideal for removal of turbidity, color, alkalinity, hardness, iron, odor and taste from water. They are designed to produce an exceptionally high quality water suitable for potable, industrial, soft drink or bottling use.

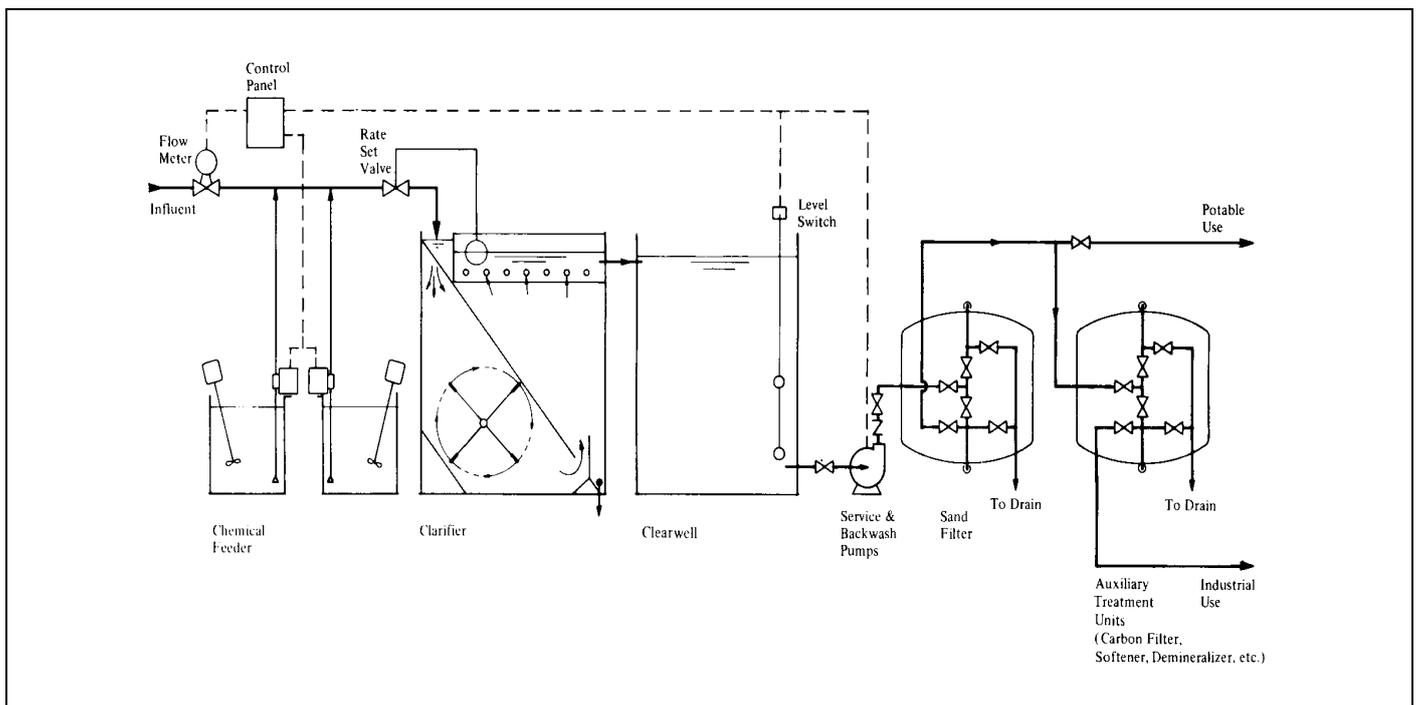
A wide range of systems from 5 up to 60m<sup>3</sup>/hr is available for modular installation to suit most requirement for small to medium size plant.

# Package Clarification Plants

Hydrex Package Clarification Plants are designed to removed turbidity, dirt, color, odor, alkalinity, hardness and iron from water by means of coagulation and filtration. These plants produce a sparkling clean water suitable for potable or industrial use. They are economical to use, simple to operate and require very little maintenance.

A Hydrex Package Clarification Plant is a complete and self-contained water treatment system. It includes flow meter, rate set valve, chemical feeders, clarifier pumps, filters and control panel. Other auxiliary treatment units, if required, could be to assume efficient treatment. Steel tanks are epoxy linked to prevent corrosion and provide long service life.

## Schematic Diagram ~ Package Clarification Plants



## PROCESS DESCRIPTION

### FLOW METER

Raw water enters the system through a float operated inlet valve that ensures the clarifier receives a constant flow at the desired rate at all times.

A flow meter installed at the inlet measures the quantity of raw water and the meter contactor actuates timers which activate the chemical pumps to introduce a pre-determined quantity of chemicals for a measure volume of water.



### Chemical Feeders

Chemicals- coagulant, alkali chlorine, etc. – are prepared in the solution tanks and pumped into the clarifier inlet pipe. Fiberglass tanks are supplied with electric mixers for ease of preparing the solutions and maintaining the chemicals at a uniform strength. Each feeder assembly includes a diaphragm type metering pump for accurate dosing of chemicals. Thus the meter activated, time controlled chemicals feeders provide for automatic and proportional feeding of chemicals at an exact and controlled rate.



### Clarifier

The heart of the system is an upflow, sludge blanket, horizontal clarifier that offers a most efficient means of removing impurities from water. This is done by combing mixing,

coagulation, flocculation, settling and clarification into a single treatment unit.

The sludge blanked principle plus precise hydraulic design ensures efficient chemical usage, accelerated floc growth, an optimum settling rate and a high overflow rate.

The water-chemical mixture enters the mixing zone of the clarifier in a uniform manner along its entire length through orifices in the inlet distribution channel.

The variable speed, slow moving agitator completely mixes the water and chemicals and brings them into intimate contact with the previously formed flocs in the mixing zone. These flocs furnish nuclei for formation of larger and heavier precipitates.

Flocculated water and precipitates pass from the mixing zone into the sludge blanked zone. The sludge blanked acts as a filter to remove impurities and light particles. Precipitated impurities fall into the sludge concentrator for removal.

Treated water rise upward through the sludge blanket and is uniformly collected at the surface through submerged orifices in the overflow collection flume and delivered by gravity to the clearwell over the overflow control weir.

### Pumps

Service and backwash pumps, sized for the plant flow rate and filter backwash rate, are supplied with each plant to suit the local conditions and system pressure requirement.

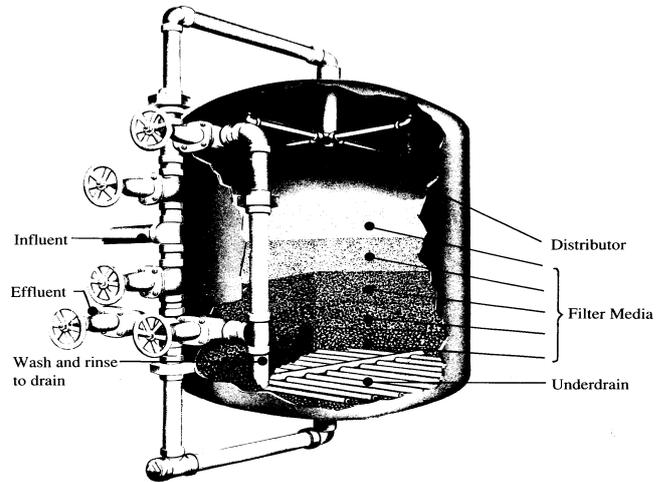
## Control Panel

All Hydrex Package Clarification Plants are equipped with a completely pre-wired and assembled control panel that allows for the centralized operation of the plant. The panel contains the starters circuit breakers, indicating lights, selector switches, relays, timers, terminal blocks and controls for the chemical pumps, chemical mixers, clarifier agitator and transfer pump.

## Filters

Clarified water is pumped from the clearwell through a pressure sand filter to remove any suspended solids that may have passed through the clarifier, producing a sparkling clear and clean water.

In some industrial applications such as beverage industry, the filtered water is passed through an activated carbon filter to remove excess chlorine, color and organics molecules including those that could re-introduce taste and odor into water. Refer to Bulletin No.113-02-R1 for full information on Hydrex sand and carbon filters.



In some industrial applications such as beverage

**Selection Table ~ Package Clarifier**

MODEL NO.	SIZE m W x L x D	AREA m <sup>2</sup>	VOLUME		CAPACITY									OPERATING WEIGHT m tons
					60 Min. Det.			75 Min. Det.			90 Min. Det.			
					gal	m <sup>3</sup>	gpm	gph	m <sup>3</sup> /h	gpm	gph	m <sup>3</sup> /h	gpm	
HPC- 1	2.1 x 1.5 x 2.6	3.15	2,000	7.5	33	2,000	7.5	27	1,600	6	22	1,330	5	9.5
HPC- 2	2.1 x 3.0 x 2.6	6.30	4,000	15.1	67	4,000	15.0	53	3,200	12	44	2,660	10	18.1
HPC- 3	2.1 x 4.5 x 2.6	9.45	6,000	22.7	100	6,000	22.5	80	4,800	18	67	4,000	15	26.8
HPC- 4	2.1 x 6.0 x 2.6	12.60	8,000	30.2	133	8,000	30.0	107	6,400	24	88	5,330	20	35.0
HPC- 5	2.4 x 4.5 x 3.0	10.80	8,000	30.2	133	8,000	30.0	107	6,400	24	88	5,330	20	34.8
HPC- 6	2.4 x 6.0 x 3.0	14.40	10,600	40.3	175	10,500	40.0	133	8,000	32	111	7,000	27	46.0
HPC- 7	2.4 x 7.5 x 3.0	18.00	13,300	50.4	217	13,000	50.0	175	10,500	40	145	8,660	33	57.2
HPC- 8	2.4 x 9.0 x 3.0	21.60	16,000	60.5	267	16,000	60.0	214	12,800	48	175	10,500	40	68.4

### FOR FURTHER INFORMATION

A full range of water and wastewater treatment systems and equipment are available from Hydrex. For further information, please contact us or our authorized agent.

Authorized Agent:

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