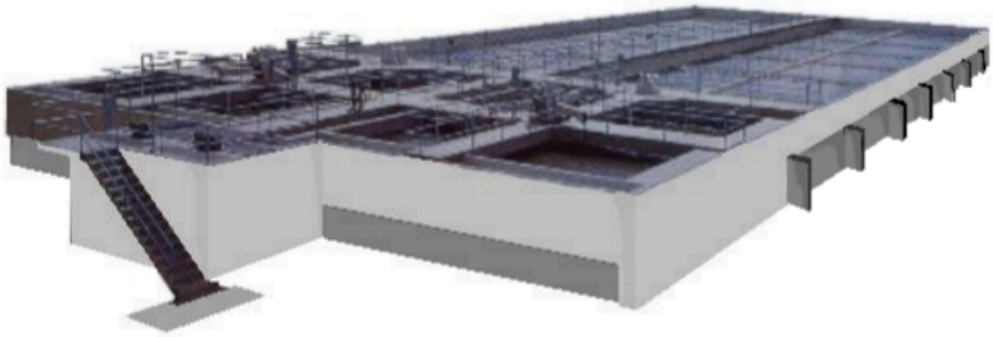
epeco

epST-c

compact wastewater treatment & recycling systems

in monobloc modules
up to 500 m^3/day



treated effluent
can be used for:

landscape &
forestry irrigation,
fire suppressant water and
aquifer recharge.

for resorts,
creation centers,
hotels,
residential complexes,
and.....more

epST-c technology, Why?

Mono-block structure, for under or above ground installation.

Available in concrete, steel or fiber glass structure.

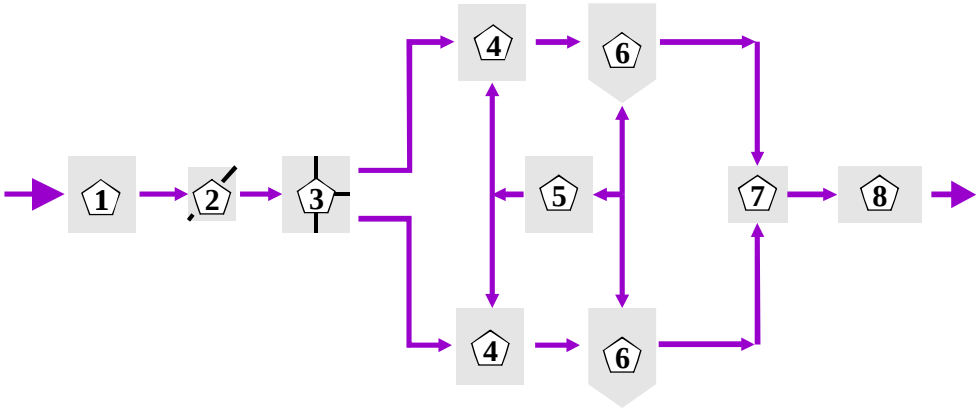
Producing consistent treated effluent quality, suitable for most wastewater reuse applications.

Low power consumption.

epST-c systems are built in two streams which allows for efficient operation at 50% of full load. By implementing EPECO's super nutrition control technology, each **epST-c** stream can work efficiently at 40% load which allows the total **epST-c** system to work at 20% of the maximum average daily flow capacity, without sacrifice of efficiency or treated effluent quality. This feature is useful, especially in seasonal operations such as resorts, summer camps,...etc.

epST-c systems produce treated effluent quality with low levels of BOD_5, COD, nitrogen, phosphorus, suspended solids and microbial contamination. The treated effluent from **epST-c** systems are normally suitable for irrigation, safe disposal to water canals and discharge into the aquifer.

epST-c, the process



1 Balancing Tank

2 Screen

3 Split Box

4 Aeration Tank

5 Sludge Holding

6 Clarifier

7 Chlorination

8 Irrigation Tank

Raw wastewater flows to the Balancing Tank, designed to regulate the feed rate to the **epST-c** system. Lifting Pumps rated at average daily flow capacity are feeding epST-c system, meanwhile controlled according to the wet level in tha tank.

The wastewater passes through Coarse Screen which separates large particles->40 mm in diameter. The coarse screened wastewater passes through Fine Screen, which separates fine particles->10 mm in diameter. The Screen basins are aerated to avoid septic action of screenings. From time to time, screenings are manually evacuated.

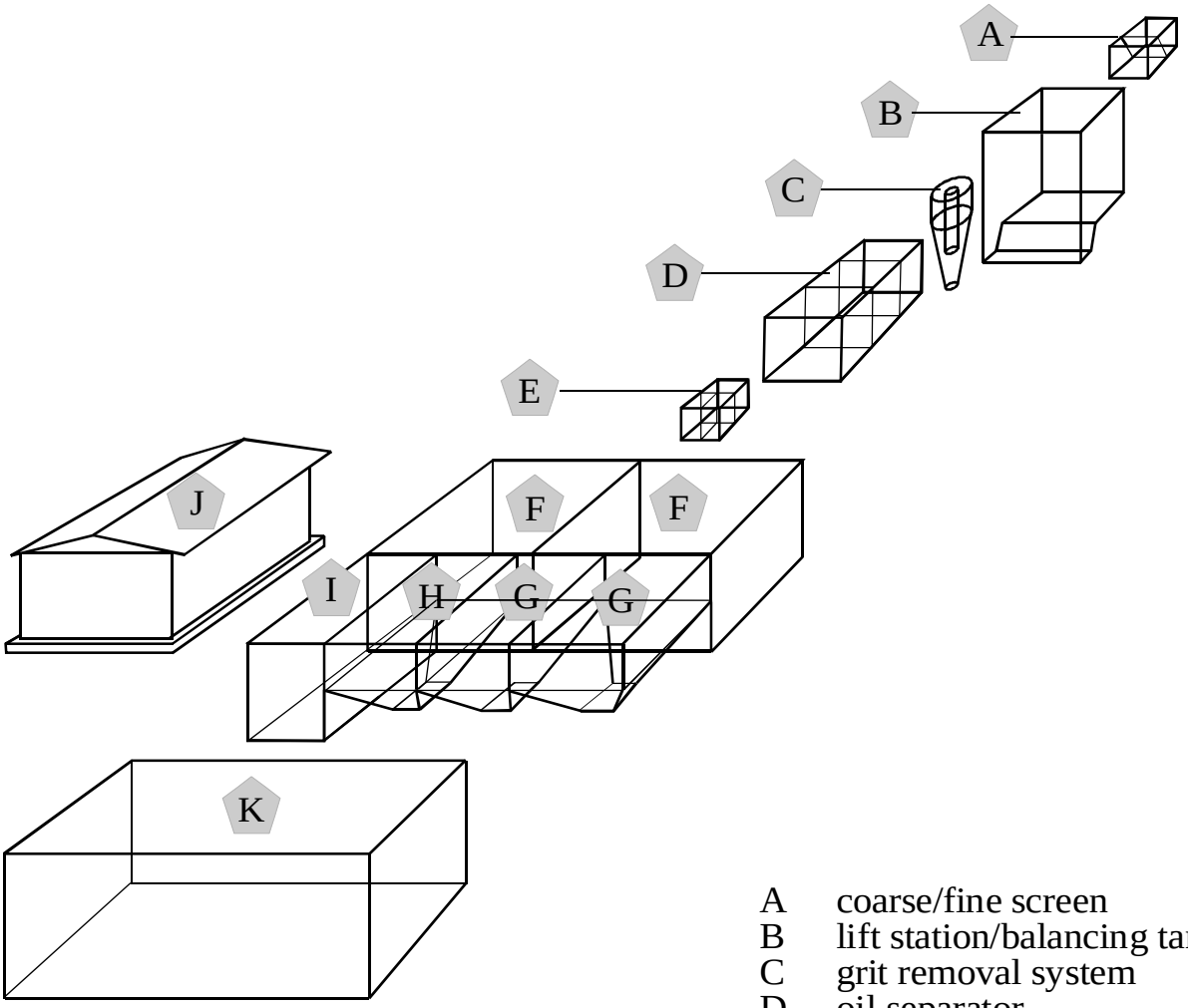
The screened wastewater is split into two streams, each directed to one **epST-c** stream. Capacity of each stream is controlled by a weir opening. In each stream, wastewater is fully mixed and aerated in the following Aeration Tank. In the aeration tank. The mixed liquor suspended solids is maintained at 3000 mg/l, with average dissolved oxygen content of 3 mg/l or more. Due to extended sludge activation in the aeration tank, the pollutants are reduced (BOD_5 & COD from 400 mg/l to nearly 30 mg/l or less for each. Meanwhile the suspended solids is flocculated and forming larger particles, but fully mixed and suspended.

The fully mixed and aerated wastewater, with flocculated suspended particles are directed to the following Clarifier. In the Clarifier, the wastewater is fed at 12 m^3/m^2/day, which will allow the suspended particles settle. The clear wastewater is skimmed from the top and directed to the following Chlorine Contact Tank. Periodically, part (10% of the average daily flow) of the settled particles is returned to the Aeration Tank. The remaining settled particles are discharged to the Sludge Holding Tank.

The wastewater is mixed with sodium hypochlorite solution and kept in the Chlorination Tank for 30 minutes as a minimum. Most micro-organisms are inactivated in this phase.

The Chlorinated wastewater is pumped to the following Multimedia Filters, where BOD_5 & SS are reduced to 10 & 10 mg/l respectively. The tertiary treated effluent flows to the effluent tank (irrigation, reuse, disposal,...etc.). Further Sodium Hypochlorite dose can be (optionally) injected in the feed line to the Effluent Tank, to meet certain application requirements. Optional Ultra-Violet Sterilizations system, can be implemented to improve microbiological contamination, if required.

epST-c, the installation



A	coarse/fine screen
B	lift station/balancing tank
C	grit removal system
D	oil separator
E	split box
F	aeration tanks
G	clarifiers
H	sludge holding tank
I	chlorine contact tank
J	Plant room
K	irrigation water tank

epST-c

in concrete structure
for above or underground installation

Technical specifications

		C 100	C 200	C 300	C 400	C 500
average daily flow	m^3/day	100	200	300	400	500
peak flow	m^3/hr	12.5	25	37.5	50	62.5
personal equivalent		300	600	900	1200	1500
BOD_5 loading *	kg/day	35	70	105	140	175
air supply	m^3/hr	194	388	583	777	972
power consumption **	kw	7.5	12.5	20.0	25.0	30.0
dimensions ***						
length L	*m*	10.5	12.8	14.5	16.0	18.0
width W	*m*	8.5	8.8	12.8	14.0	15.0
depth H	*m*	3.0	3.0	3.3	3.0	3.0

* for inflow BOD_5 : 350 mg/l.
** excluding lifting pumps, tertiary quipment, sludge conditioning or irrigation pumps.
*** main block-internal dimensions only.

			Inflow	Outflow
total suspended solids	TSS	mg/l	350	10
biochemical oxygen demand	BOD_5	mg/l	350	10
chemical oxygen demand	COD	mg/l	350	10

optional

- lifting pumps
- tertiary treatment equipment for BOD_5 , COD, TSS product=5,5 and 5 respectively.
- Ultraviolet Sterilization for germ free Effluent.

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