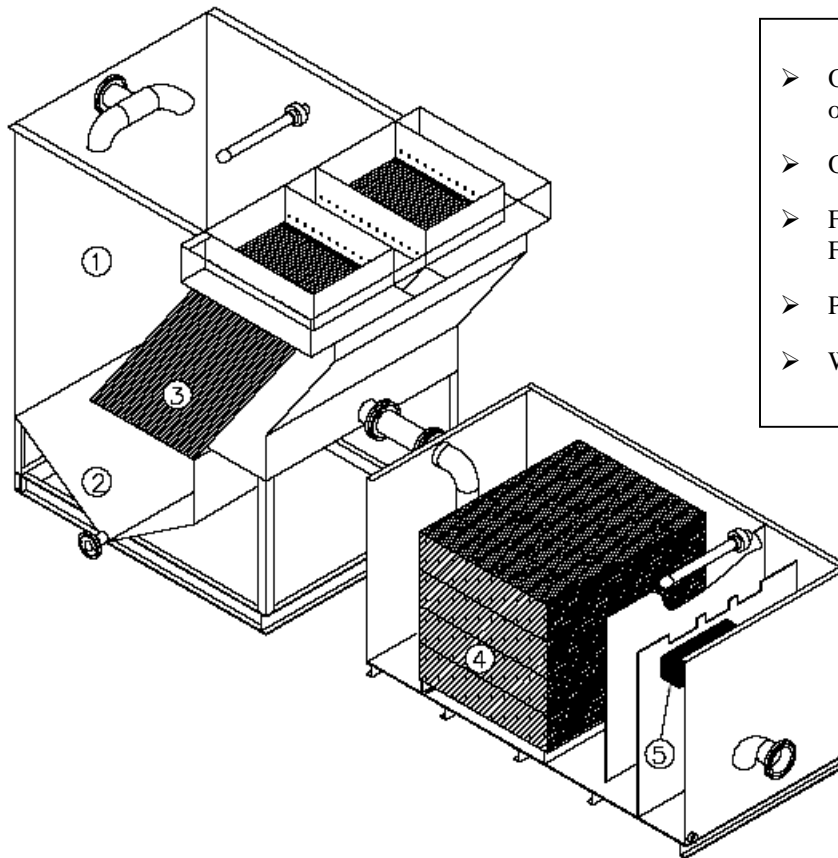




HQI CLARIFICATION SYSTEM Achieves Improved Performance

(BAT) Best Available Technology to date for pretreatment of produced water and flowback water has been the use of a CPI (Corrugated Plate Interceptor). The CPI Separator can separate free oil 60 micron in size or greater and settleable solids. However, a significant amount of dispersed oil, suspended solids, and stable emulsions would pass between the plates and remain in the flow to the clean water compartment. Unlike CPI separators, the HQI Clarification System has 5 stages of separation.

HQI Clarification Systems are a horizontal gravity flow treatment systems designed to separate settleable solids (specific gravity greater than water), suspended solids (specific gravity the same as water), and free and dispersed oil.



Applications:

- On shore and off shore drilling operations
- Oil Refineries
- Flowback Water from Hydraulic Fracturing
- Produced Water
- Waste Oil Processing Facilities

1. First, the free oil (150 micron in size or greater) is separated in the inlet quiescent zone. (Pipe skimmer provided to decant oil).
2. Second, the settleable solids will flow downward into the hopper section for removal.
3. Third, the suspended solids and dispersed oil will flow upward through the inclined plates section, where most of the suspended solids will slide down the plates into the hopper (based on a design of .25 gpm per square foot of projected plate surface area).
4. Fourth, the remaining suspended solids and dispersed oil will flow into the separation compartment where the coalescing plates will separate the oil 30 micron or greater to the surface for removal and the remaining suspended solids will be captured in the coalescing plates. The amount of solids in the plates will determine the frequency of plate cleaning. (Pipe skimmer for removal of separated oil).
5. Fifth, the flow of water will go over the overflow weir plate into the clean water compartment where absorption bags will prevent any carry over from being discharged.

Weights, Dimensions, and Capacities

BPD (Barrels Per Day)	Model		Inlet Outlet Dia	Width	Length	Height	Clarifier Projected Plate Ft2	Separator Cu. Ft Coalescing	GPM	Sludge Volume (Gal)	Capacity (Gal)	Ship Weight (Lbs)	Oper. Wght (Lbs)
5,142	CS150	C	6"	6'-6"	10'-0"	9'-0"	600	-	150	300	2,754	5,700	28,200
		S	6"	4'-6"	10'-0"	5'-4"	-	64		-	1,496	2,800	15,100
6,857	CS200	C	6"	6'-6"	10'-0"	10'-0"	800	-	200	300	3,060	6,300	31,400
		S	6"	5'-6"	10'-0"	5'-4"	-	80		-	1,870	3,500	18,800
8,571	CS250	C	8"	7'-6"	10'-6"	10'-0"	1,000	-	250	350	3,568	7,700	36,950
		S	8"	6'-6"	10'-0"	5'-4"	-	96		-	2,244	4,200	22,600
10,285	CS300	C	8"	8'-6"	10'-6"	10'-0"	1,200	-	300	400	4,078	8,800	42,300
		S	8"	6'-6"	11'-0"	6'-4"	-	120		-	2,962	5,500	29,500
12,000	CS350	C	8"	8'-6"	11'-0"	10'-0"	1,400	-	350	425	4,250	9,200	44,050
		S	8"	6'-6"	12'-0"	6'-4"	-	150		-	3,231	6,000	32,500
13,714	CS400	C	8"	8'-6"	11'-6"	11'-0"	1,600	-	400	500	5,000	10,600	51,600
		S	8"	6'-6"	13'-0"	6'-4"	-	150		-	3,500	6,500	35,200
15,428	CS450	C	8"	9'-6"	12'-0"	11'-0"	1,800	-	450	525	5,625	12,500	58,625
		S	8"	7'-6"	14'-0"	6'-4"	-	175		-	4,398	8,000	44,100
17,142	CS500	C	8"	9'-6"	12'-6"	11'-0"	2,000	-	500	550	6,250	13,000	64,250
		S	8"	7'-6"	14'-0"	6'-4"	-	210		-	4,398	8,250	44,500
18,857	CS550	C	8"	9'-6"	13'-0"	12'-0"	2,200	-	550	675	6,875	14,750	71,125
		S	8"	7'-6"	15'-0"	6'-4"	-	210		-	4,712	8,575	47,200
20,570	CS600	C	10"	9'-6"	13'-6"	12'-0"	2,400	-	600	700	7,500	15,400	76,900
		S	10"	8'-6"	16'-0"	6'-4"	-	240		-	5,745	10,450	57,600
24,000	CS700	C	10"	10'-6"	14'-0"	12'-0"	2,800	-	700	750	8,750	17,750	89,500
		S	10"	8'-6"	16'-0"	7'-4"	-	288		-	6,702	12,200	67,200
27,428	CS800	C	10"	10'-6"	14'-6"	12'-6"	3,200	-	800	775	10,000	18,500	100,500
		S	10"	9'-6"	16'-6"	7'-4"	-	324		-	7,540	13,725	75,600
30,850	CS900	C	12"	10'-6"	15'-0"	13'-0"	3,600	-	900	800	11,250	19,900	112,150
		S	12"	9'-6"	17'-6"	7'-4"	-	324		-	8,011	14,600	80,250

Oil Removal of 30 Micron Based on Flow Rates
Clarifier Projected Plate based on .25 gpm per sq. ft.
Design Temperature 40 degrees F (5 degrees C)