

Water Quality Guidelines For Counterflow Fill Selection



C. E. Shepherd Company

The following guidelines will help guide the choice of which fill to use as a function of total suspended solids, biological control, oil & grease content and whether waterborne fibers are present.

Use CES-190 or High Efficiency Fill:

- TSS < 25 PPM
(<100 PPM where bacterial activity is very low)
- Make-up from uncontaminated sources
- Biological water treatment program in use
- Low cycles of concentration
- Good scale control
- Minimal airborne contaminants
- Little to No greases or oils

Use CES-VE210 - Low Fouling Fill:

- TSS < 50 ppm
- (<200 ppm if bacterial activity is low)
- Make-up from uncontaminated sources
- Good to fair biological & scale control
- Minimal airborne contaminants
- Oils or greases in system up to 1 ppm

Use CES-310 Low/Non Fouling Fill:

- TSS >200 ppm but <1000 ppm
(<300 ppm if oil or grease, or poor biological control)
- Make-up from surface waters
- Fair biological control
- Oils or greases in system up to 10 ppm

Use CES-VF190+ Low/Non Fouling Fill:

- TSS >100 ppm but <500 ppm
(<200 ppm if oil or grease, or poor biological control)
- Make-up from surface waters
- Good to fair biological control
- Oils or greases in system up to 5 ppm

Use CES-HPS20.2 Modular Splash Fill:

- TSS ≤300 ppm (Continuous Operation)
≤500 ppm (Short Term – 10 hours or less)
- Make-up from surface waters
- Good to fair biological control
- Oils or greases in system up to 5 ppm
- Durable surface required

Summary Table

	CES-190	CES-VE210	CES-VF190+	CES-310	CES HPS20.2
TSS (ppm): w/high Bio:	<100 <25	<200 <50	<500 <200	<1000 <300	≤300 (Continuous) ≤500 (Short Term)
Bio & Scale Control	Good	Good/Fair	Good/Fair	Fair	Good
Oil & Grease (ppm)	None	<1	<5	<10	<5
Fibers	None	None	None	Some	None
Relative Efficiency	100%	98%	90%	85%	95%

CE Shepherd Company L.P.

2221 Canada Dry Street | Houston, TX 77023

713.924.4300 (Main) | 713.928.2559 (Fax)

Email: coolingtowers@ceshepherd.com

