

MULTIPLE-EFFECT WATER DISTILLATION PLANT

Introduction:

Star Engineering Services designed the Multi-effect distillation plants to produce the sterile and pyrogen-free distilled water of very high quality with a very low consumption of energy and cooling water.

"Multiple-effect" distillation gets its name from the fact that more than one boiling chamber or "effect" is used to produce distilled water. With multiple-effect technology, the water in subsequent boiling chambers. This recycling of energy provides the energysaving feature of multiple-effect distillation.

Technical Specification:

Steam source pressure – Primary steam to pure steam Design temperature, Watersource pressure and Working temperature according to the capacity of unit. Pure steam generated at pacific level.

Distillate Quality:

PH 6.8 – 7.0

Specific conductivity 0.3 – 0.5 µ Siemens-cm

Distillate temperature 98 deg. C

Feed water quality deionized

Models Designed by Star Engineering Services:

1- Multi-effect Steam Heated Type 100 MS

Capacities and consumption

Primary Steam Pressure bar(g)	Distilled Water Production t/h	(Alternative) Pure Steam Production Max. kg/h		Feed Water Consumption t/h	Steam Consumption (at 20° C feed water temp.) Kg/h							Cooling Water Consumption (at 15° C cooling water temp.) t/h					
		Pure Steam Temp.			(number of effects)							(number of effects)					
		120°	135°		3	4	5	6	7	3	4	5	6	7			
3	100	60	40	130	40	30	25						145	85	40		
4	125	70	50	140	50	40	35						190	100	50		
5	155	70	80	180	45	30	40						240	125	60		
6	180	70	80	200	75	60	50						235	130	70		
7	210	70	80	230	90	70	60						235	130	70		
8	230	70	80	245	95	75	60						235	135	85		

Plat Height mm	Product Outlet Height mm	Plat Width mm	Plat Length mm (number of effects)							Plat Weight net kg (number of effects)					
			3	4	5	6	7	3	4	5	6	7			
2000	1875	730	1000	1300	1500				430	500	580				

2- Multi-effect Steam Heated Type 200 MS

Capacities and consumption

Primary Steam Pressure bar(g)	Distilled Water Production t/h	(Alternative) Pure Steam Production Max. kg/h		Feed Water Consumption t/h	Steam Consumption (at 20° C feed water temp.) Kg/h							Cooling Water Consumption (at 15° C cooling water temp.) t/h					
		Pure Steam Temp.			(number of effects)							(number of effects)					
		120°	135°		3	4	5	6	7	3	4	5	6	7			
3	200	120	80	220	80	65	55						290	130	80		
4	250	160	120	275	105	80	70						380	200	95		
5	310	160	140	340	115	105	85						480	230	120		
6	360	160	180	400	125	120	95						530	250	140		
7	410	160	180	460	130	140	115						600	300	170		
8	440	160	180	490	135	150	125						710	330	185		

Plat Height mm	Product Outlet Height mm	Plat Width mm	Plat Length mm (number of effects)							Plat Weight net kg (number of effects)					
			3	4	5	6	7	3	4	5	6	7			
2200	2075	800	1140	1430	1500				530	580	630				

3- Multi-effect Steam Heated Type 400 MS

Capacities and consumption

Primary Steam Pressure bar(g)	Distilled Water Production t/h	(Alternative) Pure Steam Production Max. kg/h		Feed Water Consumption t/h	Steam Consumption (at 20° C feed water temp.) Kg/h							Cooling Water Consumption (at 15° C cooling water temp.) t/h					
		Pure Steam Temp.			(number of effects)							(number of effects)					
		120°	135°		3	4	5	6	7	3	4	5	6	7			
3	400	240	160	440	160	130	110						560	340	160		
4	500	280	200	520	210	160	130						740	420	200		
5	620	280	240	600	270	210	170						960	500	240		
6	720	280	300	680	330	240	180						1040	580	280		
7	820	280	300	760	390	270	200						1200	660	340		
8	880	280	340	840	385	295	220						1420	740	370		

Plat Height mm	Product Outlet Height mm	Plat Width mm	Plat Length mm (number of effects)							Plat Weight net kg (number of effects)					
			3	4	5	6	7	3	4	5	6	7			
2300	2255	930	1380	1750	2200				800	1040	1140				

4- Multi-effect Steam Heated Type 500 MS

Capacities and consumption

Primary Steam Pressure bar(g)	Distilled Water Production t/h	(Alternative) Pure Steam Production Max. kg/h		Feed Water Consumption t/h	Steam Consumption (at 20° C feed water temp.) Kg/h							Cooling Water Consumption (at 15° C cooling water temp.) t/h					
		Pure Steam Temp.			(number of effects)							(number of effects)					
		120°	135°		3	4	5	6	7	3	4	5	6	7			
3	500	300	200	510	200	160	130						720	420	200		
4	620	350	250	590	260	200	150						920	500	250		
5	750	350	300	670	320	230	170						1200	620	300		
6	850	350	350	750	380	260	180						1380	700	350		
7	950	350	350	830	440	290	200						1560	780	400		
8	1000	350	350	910	475	320	220						1770	860	450		

Plat Height mm	Product Outlet Height mm	Plat Width mm	Plat Length mm (number of effects)							Plat Weight net kg (number of effects)					
			3	4	5	6	7	3	4	5	6	7			
2600	2300	800	1500	2000	2600	3000			930	1050	1220				

5- Multi-effect Steam Heated Type 800 MS

Capacities and consumption

Primary Steam Pressure bar(g)	Distilled Water Production t/h	(Alternative) Pure Steam Production Max. kg/h		Feed Water Consumption t/h	Steam Consumption (at 20° C feed water temp.) Kg/h							Cooling Water Consumption (at 15° C cooling water temp.) t/h					
		Pure Steam Temp.			(number of effects)							(number of effects)					
		120°	135°		3	4	5	6	7	3	4	5	6	7			
3	800	500	300	920	350	280	230						1120	640	320		
4	1000	560	400	1050	450	350	280						1480	760	420		
5	1200	560	480	1180	550	400	320						1840	900	500		
6	1350	560	540	1310	650	450	360						2200	1040	600		
7	1500	560	540	1440	750	500	400						2560	1180	700		
8	1650	560	640	1570	850	550	450						2920	1320	800		

Plat Height mm	Product Outlet Height mm	Plat Width mm	Plat Length mm (number of effects)							Plat Weight net kg (number of effects)					
			3	4	5	6	7	3	4	5	6	7			
2800	2600	900	2000	2600	3100	3600			930	1050	1220				

6- Multi-effect Steam Heated Type 1000 MS

Capacities and consumption

Primary Steam Pressure bar(g)	Distilled Water Production t/h	(Alternative) Pure Steam Production Max. kg/h		Feed Water Consumption t/h	Steam Consumption (at 20° C feed water temp.) Kg/h							Cooling Water Consumption (at 15° C cooling water temp.) t/h					
		Pure Steam Temp.			(number of effects)							(number of effects)					
		120°	135°		3	4	5	6	7	3	4	5	6	7			
3	1000	600	400	1100	450	360	310						1440	840	420		
4	1250	660	500	1250	550	420	360						1920	1000	500		
5	1500	740	580	1400	650	480	410						2400	1160	600		
6	1700	740	680	1550	750	540	460						2880	1320	700		
7	1900	740	680	1700	850	600	510						3360	1480	800		
8	2100	740	680	1850	950	660	560						3840	1640	900		

Plat Height mm	Product Outlet Height mm	Plat Width mm	Plat Length mm (number of effects)							Plat Weight net kg (number of effects)					
			3	4	5	6	7	3	4	5	6	7			
2800	2600	900	2000	2600	3100	3600			1000	1120	1290				

7- Multi-effect Steam Heated Type 1500 MS

Capacities and consumption

Primary Steam Pressure bar(g)	Distilled Water Production t/h	(Alternative) Pure Steam Production Max. kg/h		Feed Water Consumption t/h	Steam Consumption (at 20° C feed water temp.) Kg/h							Cooling Water Consumption (at 15° C cooling water temp.) t/h					
		Pure Steam Temp.			(number of effects)							(number of effects)					
		120°	135°		3	4	5	6	7	3	4	5	6	7			
3	1500	900	600	1300	600	480	410						1920	1120	560		
4	1875	1050	700	1470	720	570	480						2520	1320	660		
5	2250	1050	1000	1650	840	660	550						3120	1520	760		
6	2700	1050	1200	1830	960	750	620						3720	1720	860		
7	3060	1050	1200	2010	1080	840	690						4320	1920	960		
8	3300	1050	1200	2190	1200	930	760						4920	2120	1060		

Plat Height mm	Product Outlet Height mm	Plat Width mm	Plat Length mm (number of effects)							Plat Weight net kg (number of effects)					
			3	4	5	6	7	3	4	5	6	7			
3000	2800	1000	2300	3000	3700				1000	1120	1290				

8- Multi-effect Steam Heated Type 1800 MS

Capacities and consumption

Primary Steam Pressure bar(g)	Distilled Water Production t/h	(Alternative) Pure Steam Production Max. kg/h		Feed Water Consumption t/h	Steam Consumption (at 20° C feed water temp.) Kg/h							Cooling Water Consumption (at 15° C cooling water temp.) t/h					
		Pure Steam Temp.			(number of effects)							(number of effects)					
		120°	135°		3	4	5	6	7	3	4	5	6	7			
3	1800	1000	800	1500	750	600	520						2400	1400	700		
4	2250	1100	1000	1700	900	700	600						3120	1600	800		
5	2700	1100	1300	1900	1050	800	680						3840	1800	900		
6	3150	1100	1600	2100	1200	900	760						4560	2000	1000		
7	3600	1100	1600	2300	1350	1000											