

INQUIRY FORM - SURFACE WATER INTAKE SCREENS

One of the great advantages of Johnson intake systems is how well they can adapt to specific site requirements. So that we can help you design the optimum system for your site, we offer you this design guide. Fill it out as completely as possible and mail or fax a copy of it to us at 651.638.3177. Our application engineers can then assist you with a final product design.

Photocopy, fill out and return for price quotation

TO: Johnson Screens
 ATTN: Estimating Department
 PHONE: 651.638.3218
 FAX: 651.638.3177

FROM: _____

PHONE: _____

FAX: _____

NO. OF PAGES: _____

MESSAGE: _____

Project Reference _____

Name of Water _____

Location _____

Type of Debris to be Excluded

Water Source

Reservoir

River

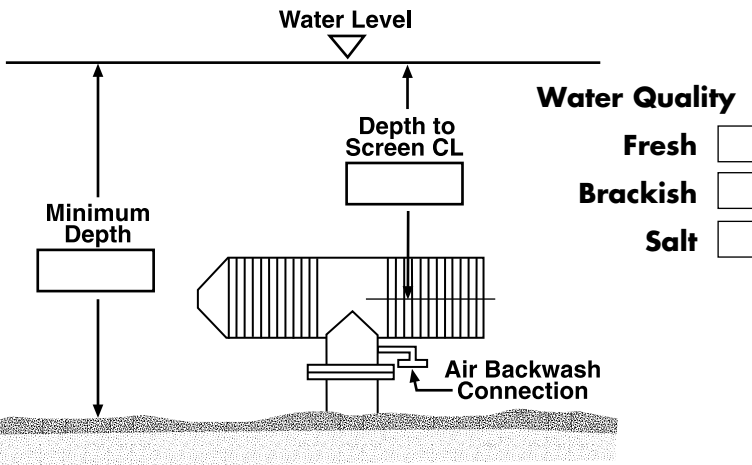
Marine

Water Movement

Current

Tide

Velocity



Capacity (GPM) Max _____ **Min** _____ **Design** _____

Number of Screens _____

Screen Slot Opening Size _____

Screen Collapse Pressure _____ **Material** _____

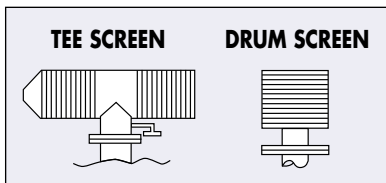
Screen Connection: Type _____ **Size** _____

Hydroburst® Air Backwash? Yes No

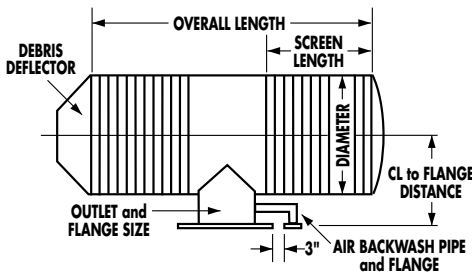
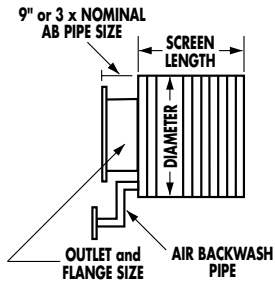
(If yes, length of air line from screen to accumulator

Time in minutes between backwash cycles _____

Other considerations: _____



NOTE: This publication is intended for general planning only. The data shown herein are subject to change which may affect the final product design. Most recent change: March, 2001.



SINGLE SCREENS

MOD. NO.	SCREEN DIAMETER		OVERALL LENGTH		OUTLET SIZE		MINIMUM DEPTH		APPROXIMATE WEIGHT		AIR B/W CONNECTION		CL TO FLANGE	
	IN	MM	IN	MM	IN	MM	FT	MM	LBS	KG	IN	MM	IN	MM
S-12	12	305	14	356	6	150	2.00	610	30	14	1.0	25	9	229
S-16	16	406	18	457	8	200	2.67	811	40	18	1.5	40	9	229
S-18	18	457	20	508	10	250	3.00	914	55	25	1.5	40	9	229
S-21	21	533	23	584	12	300	3.50	1067	85	39	1.5	40	9	229
S-24	24	610	26	660	12	300	4.00	1220	110	50	2.0	50	9	229
S-27	27	686	29	737	14	350	4.50	1372	150	68	2.0	50	9	229
S-30	30	762	32	813	16	400	5.00	1524	190	86	2.0	50	9	229
S-33	33	838	35	889	18	450	5.50	1676	245	111	3.0	80	11	279
S-36	36	914	38	965	18	450	6.00	1829	340	154	3.0	80	11	279
S-42	42	1067	48	1219	24	600	7.00	2134	370	168	4.0	100	14	356
S-48	48	1219	55	1397	24	600	8.00	2438	500	227	4.0	100	14	356
S-54	54	1372	62	1575	30	800	9.00	2743	625	284	6.0	150	20	508
S-60	60	1524	68	1727	30	800	10.00	3048	775	352	6.0	150	20	508
S-66	66	1676	76	1930	36	900	11.00	3353	1050	477	—	—	26	660
S-72	72	1829	82	2083	36	900	12.00	3658	1200	545	—	—	26	660
S-78	78	1981	89	2261	42	1000	13.00	3962	1475	670	—	—	26	660
S-84	84	2134	96	2438	42	1000	14.00	4267	1700	772	—	—	26	660

TEE-SCREENS

MOD. NO.	SCREEN DIAMETER		OVERALL LENGTH		OUTLET SIZE		MINIMUM DEPTH		APPROXIMATE WEIGHT		AIR B/W CONNECTION		CL TO FLANGE	
	IN	MM	IN	MM	IN	MM	FT	MM	LBS	KG	IN	MM	IN	MM
T-12	12	305	39	991	10	250	2.00	610	100	45	1.0	25	10	254
T-16	16	406	51	1295	12	300	2.67	811	135	61	1.5	40	14	356
T-18	18	457	57	1448	14	350	3.00	914	170	77	1.5	40	15	381
T-21	21	533	66	1676	16	400	3.50	1067	290	132	2.0	50	18.5	470
T-24	24	610	75	1905	18	450	4.00	1220	375	170	2.0	50	20	508
T-27	27	686	84	2134	20	500	4.50	1372	460	209	2.0	50	21.5	546
T-30	30	762	93	2362	24	600	5.00	1524	640	291	3.0	80	26	660
T-33	33	838	102	2591	24	600	5.50	1676	780	354	3.0	80	27.5	699
T-36	36	914	111	2819	30	800	6.00	1829	1050	477	3.0	80	29	737
T-42	42	1067	139	3531	30	800	7.00	2134	1200	545	4.0	100	35	889
T-48	48	1219	159	4039	36	900	8.00	2438	1600	726	4.0	100	38	965
T-54	54	1372	179	4547	36	900	9.00	2743	2000	908	6.0	150	47	1194
T-60	60	1524	199	5055	42	1000	10.00	3048	2500	1090	6.0	150	50	1270
T-66	66	1676	218	5537	48	1200	11.00	3353	3700	1680	—	—	59	1499
T-72	72	1829	237	6020	48	1200	12.00	3658	4300	1952	—	—	62	1575
T-78	78	1981	256	6502	54	1400	13.00	3962	5100	2315	—	—	65	1651
T-84	84	2134	275	6985	60	1600	14.00	4267	6000	2724	—	—	75	1905

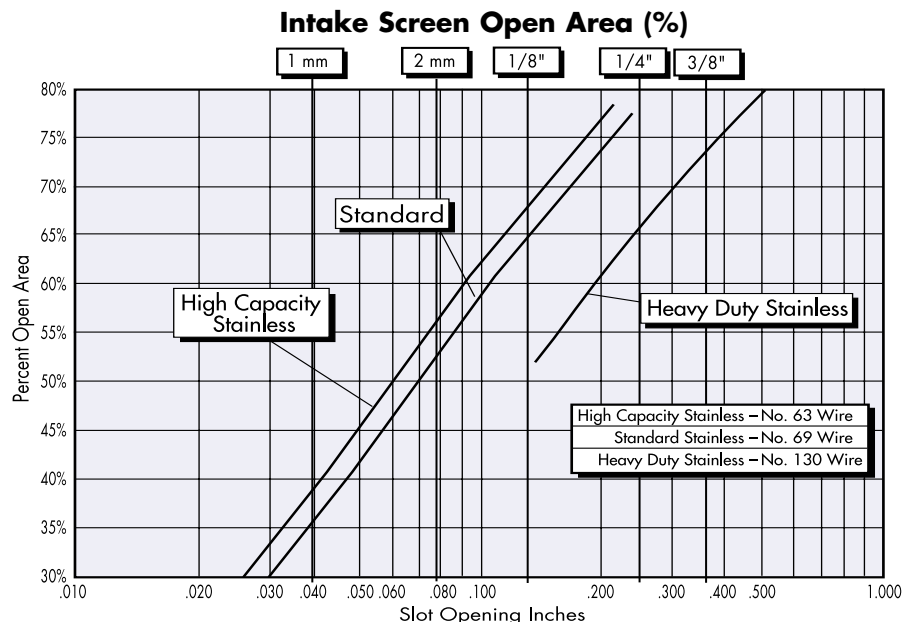
DETERMINING THE OPEN AREA
PERCENTAGE OF JOHNSON SCREENS

Screen size is a function of the open area percentage and the water withdrawal rate. These charts will let you find the correct screen quickly and easily.

The slot opening size of the screen is determined by site conditions, and is the starting point in screen selection. After finding the slot opening of your screen on the horizontal axis, read upward to the appropriate curve to find the percent open area of the screen. There are three different open area curves because Johnson intake screens can be made with three different width wires.

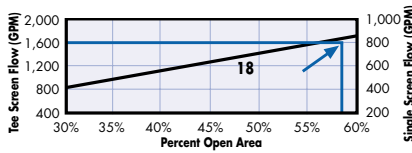
FOR EXAMPLE: Assume 0.100" slot opening on three different screen constructions:

- High capacity stainless steel = 62.5% open area
- Standard construction stainless steel screen = 58% open area
- Heavy duty stainless steel = 43% open area
- Z-Alloy™ available for high capacity. Call for other requirements

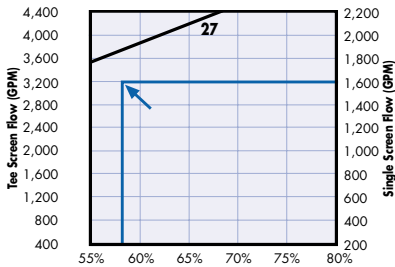


After determining the open area percentage, consult the three screen sizing charts.

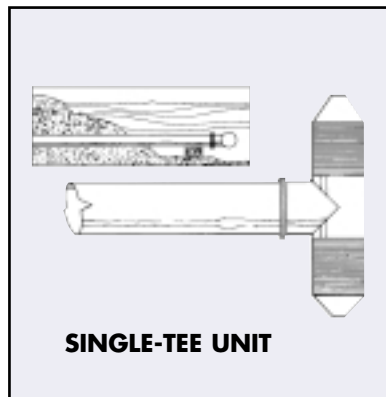
FOR EXAMPLE: You have determined from the Open Area Chart that you need a screen with 58% open area. You also plan for a water withdrawal rate of 1,600 gpm. Looking at the chart at the right you note that, reading from the left vertical axis, 1600 GPM through 58% open area can be satisfied with an 18-inch diameter Tee Screen.



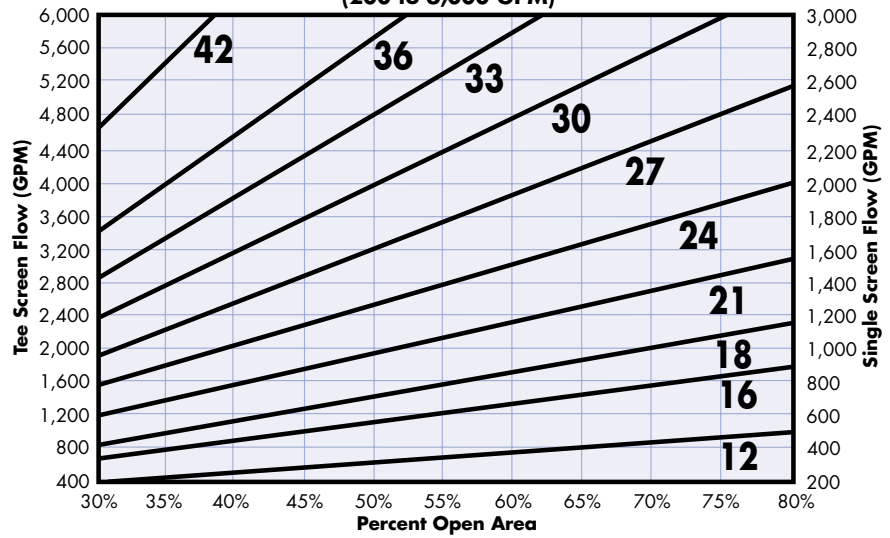
Reading from the right axis, 1600 GPM and 58% open area can also be accommodated by a 27-inch diameter Single Screen.



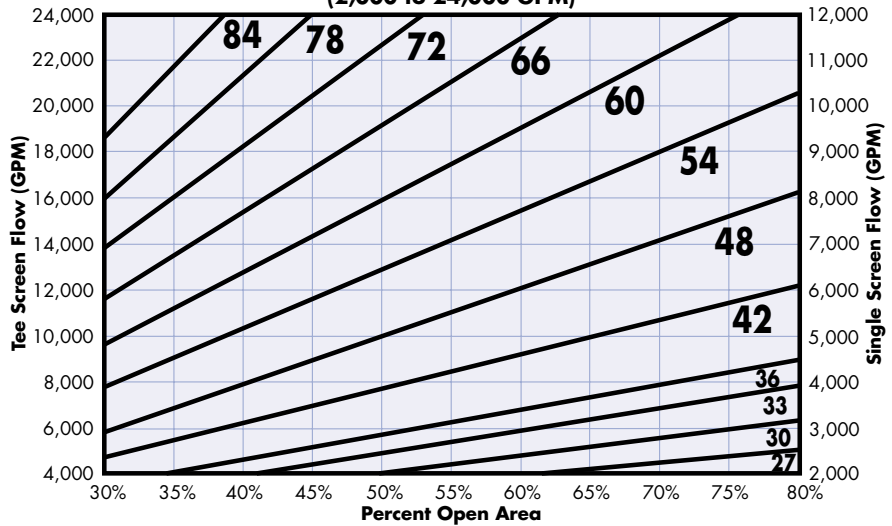
The choice of which to use depends on site conditions such as water depth, ambient currents, etc.



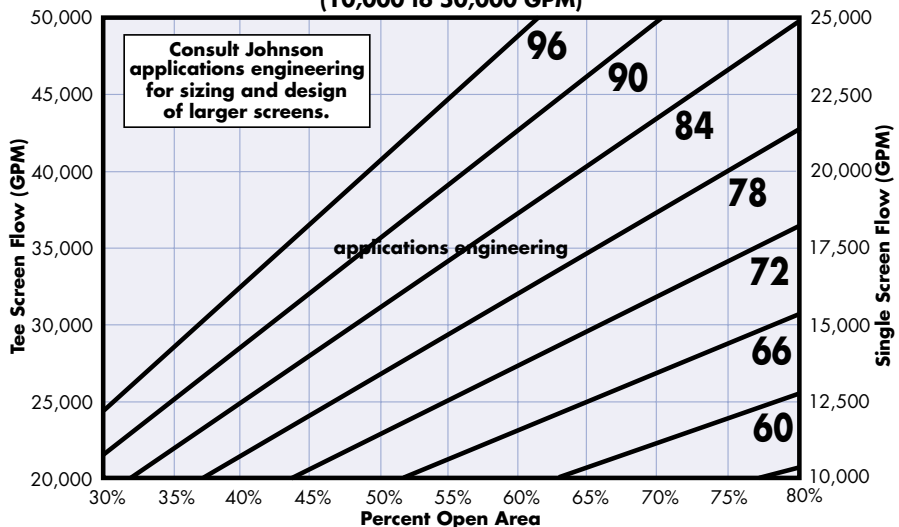
**HIGH CAPACITY INTAKE SCREEN
Screen Sizing Chart-Low Flow
(200 to 6,000 GPM)**



**HIGH CAPACITY INTAKE SCREEN
Screen Sizing Chart - Intermediate Flow
(2,000 to 24,000 GPM)**



**HIGH CAPACITY INTAKE SCREEN
Screen Sizing Chart - High Flow
(10,000 to 50,000 GPM)**



General

The intake screen shall be of all-welded continuous slot Vee-Wire® construction to provide both maximum open area and the strength requirements identified herein. The inlet slots shall widen inwardly from the screen surface so as to minimize the chance of debris entrapment in the screen openings. The intake assembly shall include internal flow modifiers to provide a low head loss uniform flow field over the entire screen surface. To insure integrity of the intake assembly, welders certified to ASME Section IX shall perform all welding and copies of such certification shall be provided upon request. The intake assembly shall be a JOHNSON SCREEN as manufactured by USF/Johnson Screens or equal approved prior to bidding by the engineer.

Capacity

The intake assembly capacity shall be ____ gallons per minute at a maximum through-slot velocity, as a result of water withdrawal, of 0.5 feet per second. The corresponding average through-slot velocity shall be 90% or more of the maximum velocity. At this flow rate the pressure drop through the clean screen surface shall not exceed 0.1 psi. Pressure drop through the entire intake assembly shall be in the range of $\frac{3}{4}$ to 1 foot of water at the rated flow.

Strength

The intake assembly shall be designed to withstand a differential hydrostatic collapse pressure of ____ psi (____ feet of water). Design stress used for determining strength of the assembly shall be no more than 90% of the published yield strength of the material used. Strength calculations verifying compliance with these criteria shall be provided on request.

Construction

The intake assembly screen surface wire shall be JOHNSON Vee-Wire® Number _____. The surface wire, support beam and stiffener structure shall be an all-welded matrix designed to provide the specified strength with minimal interference with the through screen flow pattern. End plates and tee body shall be a minimum of 0.15" thick. All structural butt welds shall be full penetration; structural fillet weld size shall be the thickness of the thinner component.

Slot

The screen slot size shall be ____ inches. The open area for this slot opening shall be ____%. Slot size shall be controlled and continuously monitored during manufacture. For slot openings of 0.040" through 0.100" the mean slot size shall be within ± 0.002 " with a standard deviation no greater than 0.002" throughout the assembly. For slot openings greater than 0.100" the mean slot size shall be within ± 0.003 " with a standard deviation no greater than 0.003" throughout the entire assembly.

Materials and Fittings

The intake screen assembly shall be manufactured of _____ material. The main outlet flange shall mate with a ____ inch flange with a flange pattern equal to AWWA C-207, Table 1, Class D.

Submittals

Upon request the intake screen manufacturer shall submit:

- Drawing(s) showing screen diameter, screen length, assembly length, interface dimensions for outlet and air backwash connections, materials of construction, and assembly weight.
- Welder certifications.
- Evidence of a statistical control program.
- Evidence of experience in having supplied assemblies of similar size which have been in successful service for at least three years.
- Provide supporting flow distribution data. (Calculation method to be verified by physical flow distribution tests.)

