GeoInsight Small Diameter Well Products "Cheat Sheet" — 2001

INTAKE DEVICES	Length (feet)	ID / OD (inches)	Fits Inside Drive Casing (" OD)	Filter Media (Outer / Annular / Inner)	Open Area	Smallest Filtration Capacity
PrePak Well Screen 65 mesh stainless steel screen over 0.010" slotted PVC w/ 20x40 filter sand between.						
3/4" Pipe Size	2.5, 5	0.81 / 1.4	2, 2-1/8	SS Mesh/Sand/Slotted PVC	2%	Fine Sand
1" Pipe Size	2.5, 5	1.03 / 1.7	3-1/4, 3-1/2	SS Mesh/Sand/Slotted PVC	2%	Fine Sand
1-1/4" Pipe Size	2.5, 5	1.34 / 2.4	3-1/4, 3-1/2	SS Mesh/Sand/Slotted PVC	2%	Fine Sand
1-1/2" Pipe Size	2.5, 5	1.59 / 2.4	3-1/4, 3-1/2	SS Mesh/Sand/Slotted PVC	2%	Fine Sand
2" Pipe Size	2.5, 5	2.05 / 2.8	3-1/2	SS Mesh/Sand/Slotted PVC	2%	Fine Sand
Plus 10 PrePak Screen *(Patent pending)* Inner & outer stainless steel mesh screens w/ sand between, over 0.25" slotted PVC screen.						
3/4" Pipe Size	2.5, 5	1.04 / 1.4	2, 2-1/8	SS Mesh/Sand/SS Mesh/Slotted PVC	>20%	Silt
1-1/4" Pipe Size	2.5, 5	1.69 / 2.4	3-1/4, 3-1/2	SS Mesh/Sand/SS Mesh/Slotted PVC	>20%	Silt
1-1/2" Pipe Size	2.5, 5	1.94 / 2.4	3-1/4, 3-1/2	SS Mesh/Sand/SS Mesh/Slotted PVC	>20%	Silt
2" Pipe Size	2.5, 5	2.40 / 2.8	3-1/2	SS Mesh/Sand/SS Mesh/Slotted PVC	>20%	Silt
PrePak Jacket *(Patent pending)* Inner & outer stainless steel mesh screens w/ choice of sand between. User supplies screen.						
3/4" Pipe Size	2.5	1.4 OD	2, 2-1/8	SS Mesh/Sand/SS Mesh	up to 20%	Silt
1-1/4" Pipe Size	2.5	2.4 OD	3-1/4, 3-1/2	SS Mesh/Sand/SS Mesh	up to 20%	Silt
1-1/2" Pipe Size	2.5	2.4 OD	3-1/4, 3-1/2	SS Mesh/Sand/SS Mesh	up to 20%	Silt
2" Pipe Size	2.5	2.8 OD	3-1/2	SS Mesh/Sand/SS Mesh	up to 20%	Silt
Red Dog Economy Screen† and **High Performance Super Screen**†† Fiber filter media over 0.25" slotted PVC screen.				*†(Inert woven fiber filter media)* *††(Ultra-pure medical grade media)*		
3/4" Pipe Size	2.5, 5	0.81 / <1.4	2, 2-1/8	Poly Mesh/Fiber Filter/Slotted PVC	>20%	Silt/Fine Sand
1" Pipe Size	2.5, 5	1.03 / 1.7	3-1/4, 3-1/2	Poly Mesh/Fiber Filter/Slotted PVC	>20%	Silt/Fine Sand
1-1/4" Pipe Size	2.5, 5	1.34 / <2.4	3-1/4, 3-1/2	Poly Mesh/Fiber Filter/Slotted PVC	>20%	Silt/Fine Sand
1-1/2" Pipe Size	2.5, 5	1.59 / <2.4	3-1/4, 3-1/2	Poly Mesh/Fiber Filter/Slotted PVC	>20%	Silt/Fine Sand
2" Pipe Size	2.5, 5	2.05 / <2.8	3-1/2	Poly Mesh/Fiber Filter/Slotted PVC	>20%	Silt/Fine Sand
Flow Thru Screen Stainless steel mesh screen over 0.25" slotted PVC screen. Small diameter option.						
3/4" Pipe Size	2.5, 5	0.81 / 1.06	2, 2-1/8	SS Mesh/Slotted PVC	>20%	Fine Sand
1-1/4" Pipe Size	2.5, 5	1.34 / 1.7	3-1/4, 3-1/2	SS Mesh/Slotted PVC	>20%	Fine Sand
1-1/2" Pipe Size	2.5, 5	1.59 / 1.95	3-1/4, 3-1/2	SS Mesh/Slotted PVC	>20%	Fine Sand
2" Pipe Size	2.5, 5	2.05 / 2.4	3-1/2	SS Mesh/Slotted PVC	>20%	Fine Sand

ANNULAR SEALS	Length (feet)	Original Diameter (inches)	Fills Hole ? Diam. (inches)
Expanding Foam Bridge Use above or below water table. Expands instantly. Stops solid particles.			
3/4" Pipe Size	0.5	1.4	2.5
1-1/4" Pipe Size	0.5	2.4	3.5
1-1/2" Pipe Size	0.5	2.4	3.5
2" Pipe Size	0.5	2.8	4
Quick Seal Sleeve Use below water table. Prevents grout intrusion in approximately 1/4 to 3/4 hour.			
3/4" Pipe Size	2.5	1.4	2.5
1-1/4" Pipe Size	2.5	2.4	3.5
1-1/2" Pipe Size	2.5	2.4	3.5
2" Pipe Size	2.5	2.8	4
Bentonite Sleeve Use below water table. Makes watertight seal in approximately 6 hours.			
3/4" Pipe Size	2.5	1.4	2.5
1-1/4" Pipe Size	2.5	2.4	3.5
1-1/2" Pipe Size	2.5	2.4	3.5
2" Pipe Size	2.5	2.8	4

EXPENDABLE DRIVE POINTS

**(Patent pending)*

2" CMP AT* (aluminum)	2" to 2-1/4" point fits most 1.75 to 2.25" OD casing. External threads lock onto 1/2, 3/4 and 1" PVC pipe.
2" CMP* (aluminum)	2" to 2-1/4" points fit most 1.75 to 2.25" OD casing (1.475 - 1.75" ID). No locking threads for PVC pipe.
2" UDP (steel)	2" point fits PowerPunch, HydroPunch II, or 1.564" ID point holder. Internal threads lock onto 3/4 and 1" PVC pipe.
1-3/4" CMP* (aluminum)	Fits Geoprobe® Screen Point 15 and other water samplers, rod or casing with point holders from 1.05 to 1.4" ID.

GENERAL SPECIFICATIONS

GeoInsight PrePak Screen Purge Volume

(Includes saturated filter pack. Direct measurement.)

Nominal Pipe Size	I.D. (inches)	O.D. (inches)	Gal/Ft. of PrePak	Liters/Ft. of PrePak
3/4 inch	0.81	1.4	0.038	0.15
1 inch	1.029	1.7	0.06	0.22
1-1/4 inch	1.36	2	0.09	0.32
1-1/2 inch	1.59	2.4	0.12	0.48
2 inch	2.05	2.8	0.2	0.76

Volume in Schedule 40 Casing

Nominal Pipe Size	I.D. (inches)	O.D. (inches)	Gal/Ft. of Casing	Liters/Ft. of Casing
3/4 inch	0.81	1.06	0.026	0.1
1 inch	1.029	1.375	0.043	0.16
1-1/4 inch	1.36	1.666	0.075	0.28
1-1/2 inch	1.59	1.9	0.103	0.39
2 inch	2.05	2.375	0.171	0.65

GeoInsight Thread Pattern

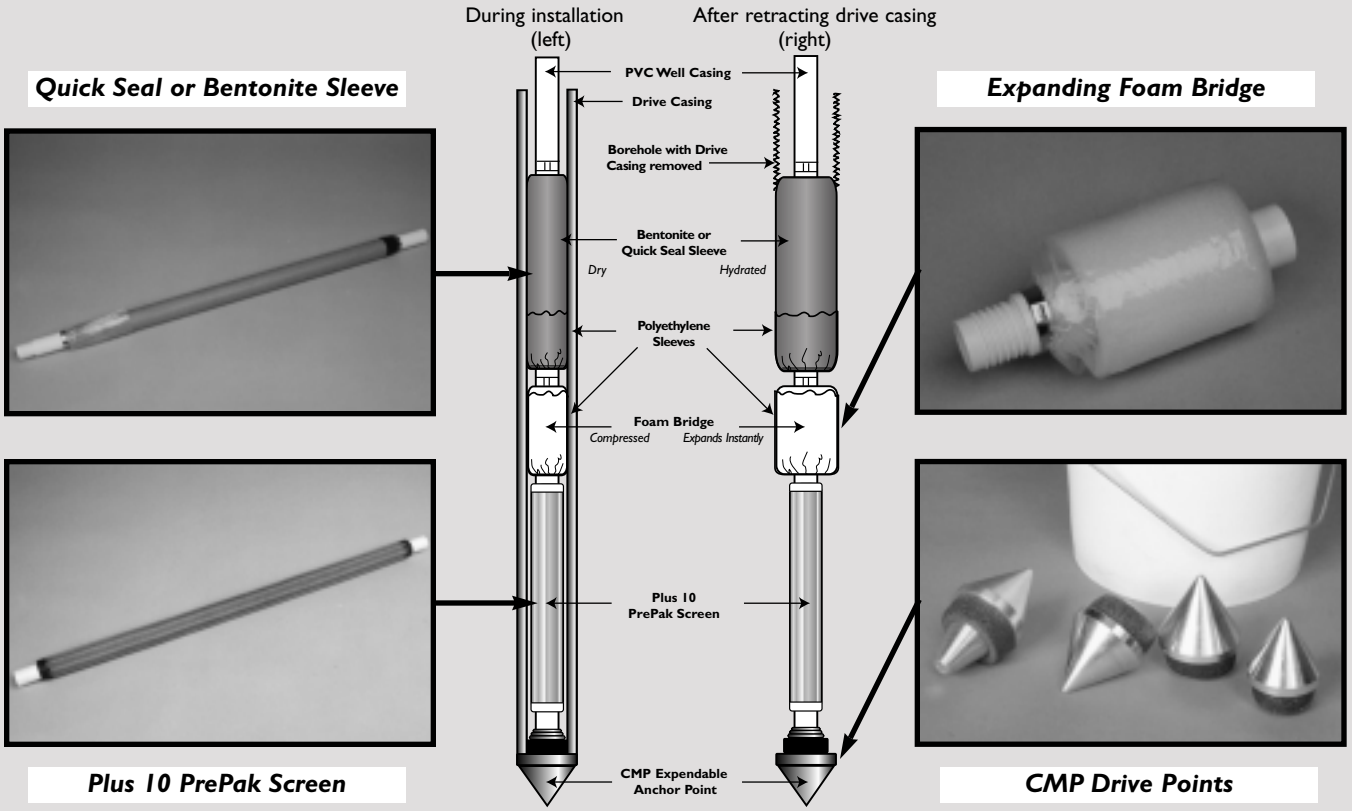
3/4 inch	ASTM 480	8 thread/inch
1 inch	ASTM 480	8 thread/inch
1-1/4 inch	ASTM 480	8 thread/inch
1-1/2 inch	ASTM 480	8 thread/inch
2 inch	ASTM 480	2 thread/inch

GeoInsight Filter Sand Specifications

Standard	S	20x40 Silica
Fine	F	40x70 Silica
UltraFine	UF	100x120 Silica

We can provide custom filter packs on request.

GeoInsight Small Diameter Well Components



LITTLE KNOWN FACTS

about Small Diameter Wells and Direct Push Sampling

Filter packs need to be only two to three sand grains thick to retain and control the formation, according to Fletcher Driscoll, author of "Groundwater and Wells."

Although they are more difficult to manufacture, we provide the maximum internal screen diameter possible while minimizing the outside diameter of our **PrePak Screens** to fit inside standard drive casing. This provides several advantages, including better communication with the aquifer, larger diameter usable sampling tools, substantially reduced shipping costs, and more durable products. The narrower design also facilitates installation of small diameter wells to greater depths.

A well using a 0.010" slotted screen and the finest filter sand possible will not reduce turbidity resulting from silt and clay size particles.

Sand fine enough to retain silt size particles will pour through the slots of a 0.010" screen. The UltraFine (100x120 mesh) sand used in the GeoInsight **Plus 10 PrePak Screens*** and **PrePak Jackets*** can retain silt size particles and will reduce well turbidity by orders of magnitude. All GeoInsight PrePak intake devices come preassembled — so you don't waste expensive rig time filling with sand in the field.

Recent advances in the sensitivity of laboratory instrumentation have made it possible for select labs to cut sample volume requirements by 90% and still satisfy regulatory reporting limits.

A 3/4" well using PrePak Screens installed inside 2" direct push casing contains approximately 1/20th (5%) of the quantity of water in the saturated filter pack and casing as the same 2" well installed using a hollow stem auger.

This means less purge volume and faster stabilization of indicator parameters (pH, DO, EC, etc.). Sampling teams often find it faster to sample small diameter wells, while generating far less purge water than 2" and larger wells sampled on the same site. Because of their close contact with the aquifer, small diameter wells normally stabilize faster than 2" and larger drilled wells when monitoring indicator parameters for low flow sampling.

Recently, miniature bladder pumps that fit inside 3/4" wells have become available as sampling tools.

This makes it easier to perform low flow sampling and collect pumped samples from deep water table conditions using small diameter wells. Other downsized tools available to fit in 3/4" wells include interface probes, pressure transducers, bailers, and water level indicators.

A comprehensive, multi-well study conducted by the US Navy confirms that there is no statistical difference between samples collected from small diameter direct push wells and wells installed using hollow stem augers.

* Patent pending

GeoInsight

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