




*The German
spirit of quality
since 1854*



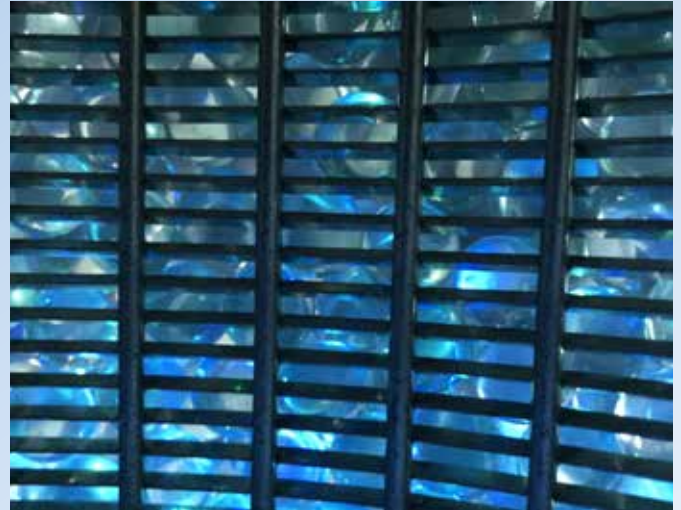
SiLibeads® Filter Pack Media stand out for their quality and durability in drinking water extraction. As engineered Glass Beads, their smooth, chemically resistant surfaces ensure uniform filtration, reduce deposits, and minimize maintenance. Their high break resistance enables efficient, sustainable well operation.



SiLibeads®
... crystal clear water

Application Overview

Tailored solutions for demanding industries



SiLibeads® Filter Pack Media for durable, low-maintenance drinking water wells

- **Supporting Layer in Drinking Water Wells**

SiLibeads® glass beads are used as an effective supporting layer. Their precisely spherical, homogeneous structure prevents bridging, ensures stable pores, and provides uniform permeability. Compared to gravel or sand, they reduce clogging and optimize water flow.

- **Well Regeneration & Maintenance**

The smooth, chemically inert beads make well filter regeneration easier. They are extremely robust—up to six times stronger than gravel—significantly reducing material loss and blockages. This results in longer maintenance intervals, lower chemical use, and reduced operating costs.

- **Flexible Application**

With a wide range of grain sizes, SiLibeads® can be adapted to different well types and hydro-geological conditions, ensuring optimal filtration performance throughout the well's lifetime.

- **Sustainability & Cost-Efficiency**

The glass beads are durable, regenerable and chemically stable. They save energy through optimized permeability, reduce maintenance needs and minimize environmental impact by lowering material consumption.

- **Well Start-Up & Sand Removal**

SiLibeads® support sand removal and initial operation of new or regenerated wells. Their uniform grain size and smooth surface enable efficient particle removal, prevent channeling and create a stable supporting layer. This makes start-up faster, safer and less maintenance-intensive.

- **Improved Water Quality & Hygiene**

The smooth, chemically stable surfaces of the beads reduce biofilm, bacteria, and algae formation in the filter bed. This ensures safe drinking water and reduces the need for chemical disinfection, improving both water quality and well operational safety.

Customised solutions for every industry

We provide solutions tailored to your specific requirements. Discover the benefits of our products across a wide range of applications. Arrange a free consultation with our SiLi team:









+49 9277 9940 or silibeads@sili.eu.

Filter Pack Media

Sustainable. Robust. Innovative.

With SiLibeads® Filter Pack Media, you can sustainably optimize your drinking water wells. Their round shape ensures stable flow, fewer deposits and longer operating times – for clean water and cost-effective operation.

SiLibeads® Glass Beads instead of filter gravel: Benefits at a glance

-  **Chemically neutral and micro-biologically pure:** Acid-resistant, no disinfection required
-  **Efficient:** Ensures optimal flow, stable permeability and consistently high filtration performance
-  **Precisely spherical and homogeneous:** Prevents bridging, ensures a stable pore structure
-  **Flexible:** Wide grain size range for individual adaptation and optimal performance
-  **Extremely robust and break-resistant:** Up to 6x stronger than gravel, no breakage or clogging
-  **Economical and sustainable:** Lower energy, reduced maintenance, longer service life
-  **Low maintenance:** Smooth surface reduces biofilm, iron, and manganese
-  **Regenerable and durable:** Supports efficient well maintenance and sustainable operation

SiLibeads® FPM – Gradations & Grain Sizes to EU & US Standards

Article	Diameter [mm]	Mesh Sizes (approx.)	Compressive Resistance (Reference values for middle diameter)	Bulk density		Certification NSF 61
				[kg/l]	[lbs./ft. ³]	
4501R	0.25 - 0.50	60 - 35	N/A	1.46	91.14	
45015R	0.40 - 0.60	40 - 30	N/A	1.47	91.77	
45021R	0.60 - 0.90	30 - 19	N/A	1.49	93.02	
4503R	0.80 - 1.00	22 - 18	170 N	1.50	93.64	
4504R-SiLi-NA	1.00 - 1.30	18 - 15	265 N	1.51	94.27	●
4505R	1.25 - 1.65	16 - 12	370 N	1.51	94.27	
450506R-SiLi-NA	1.25 - 1.85	15 - 11	390 N	1.51	94.27	●
4506R	1.55 - 1.85	13 - 11	520 N	1.52	94.89	
4507R	1.70 - 2.10	12 - 9	620 N	1.52	94.90	
450708R-SiLi-NA	1.70 - 2.50	12 - 8	660 N	1.52	94.90	●
4508R-SiLi-NA	2.00 - 2.40	10 - 8	770 N	1.53	95.51	●
4510R	2.40 - 2.90	8 - 7	920 N	1.53	95.52	
451011R-SiLi-NA	2.50 - 3.50	8 - 6	1150 N	1.53	95.52	●
4511R	2.85 - 3.45	7 - 6	1,270 N	1.53	95.53	
4512R	3.40 - 4.00	6 - 5	1,550 N	1.53	95.54	
451213R-SiLi-NA	3.50 - 4.50	6 - 4 1/2	1900 N	1.53	95.54	●
4513R	3.80 - 4.40	5 1/2 - 4 1/2	1,900 N	1.53	95.55	
4514R	4.50 - 5.50	4 1/2 - 3 1/2	2,350 N	1.49	93.02	
451415R-SiLi-NA	4.50 - 6.00	4 1/2 - 3 1/4	2350 N	1.49	93.02	●
4515R	5.00 - 6.00	3 3/4 - 3 1/4	3,150 N	1.47	91.77	

Article	Diameter [mm]	Mesh Sizes (approx.)	Compressive Resistance (Reference values for middle diameter)	Bulk density	
				[kg/l]	[lbs./ft. ³]
5016-B	9.40 - 10.60	3/8" - 7/16"	6,000 N	1.45	90.52
5017-B	10.50 - 11.50	13/32" - 15/32"	7,500 N	1.45	90.52
5018-B	11.50 - 12.50	7/16" - 1/2"	10,500 N	1.45	90.52
5021-B	13.50 - 14.70	17/32" - 9/16"	13,200 N	1.43	89.27
5023-B	15.30 - 16.70	19/32" - 21/32"	16,500 N	1.43	89.27

Other diameters and tolerances available upon request.



Ø = 1.0 - 1.30 mm
SiLi-NA

Type S
4504R



Ø = 1.70 - 2.50 mm
SiLi-NA

Type S
450708R



Ø = 2.0 - 2.4 mm
SiLi-NA

Type S
4508R



Ø = 2.5 - 3.5 mm
SiLi-NA

Type S
451011R



Ø = 4.5 - 6.0 mm
SiLi-NA

Type S
451415R



Learn more about
Glass Beads for Water Wells here:
<https://www.sili.eu/en/applications/applications/water/>

Filter Pack Media

Type S
4504 R



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SiLi-NA

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450708 R



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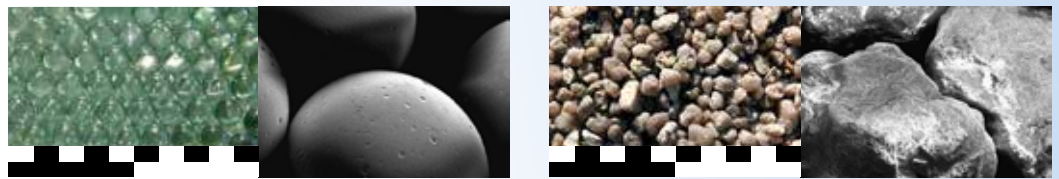


Ø = 4.5 - 6.0 mm
SiLi-NA

Comparative Lifecycle Costs, Water Well

	Alluvial formation, depth 25 m natural gravel vs. glass beads as filtermaterial				Bed rock, depth 50 m natural gravel vs. glass beads as filtermaterial			
	SiLibeads® Glass beads	Gravel	SiLibeads® Glass beads	Gravel	SiLibeads® Glass beads	Gravel	SiLibeads® Glass beads	Gravel
Capital expenditure								
Years	25	25	40	40	25	25	40	40
Currency	EURO	EURO	EURO	EURO	EURO	EURO	EURO	EURO
Construction site set up	15,000	15,000	15,000	15,000	20,000	20,000	20,000	20,000
Well drilling	7,800	7,800	7,800	7,800	15,000	15,000	15,000	15,000
Installations (well screens, etc.)	72,000	72,000	72,000	72,000	101,750	101,750	101,750	101,750
Gravel	50	1,800	50	1,800	1,250	2,500	1,250	2,500
Glass beads	6,000	0	6,000	0	8,000	0	8,000	0
Pumping test	14,650	14,650	14,650	14,650	600	1,300	600	1,300
Clean out pumping	400	2,400	400	2,400	225	450	225	450
Sand removal pumping	150	500	150	500	-	-	-	-
Total capital expenditure	116,050	114,250	116,050	114,250	146,825	141,000	146,825	141,000
Differences	1,800	-	1,800	-	5,825	-	5,825	-
Percentage total	102%	-	102%	-	104%	-	104%	-
Operating costs								
Energy	44,794	59,725	71,670	95,560	62,370	86,625	99,792	138,600
Well rehabilitation (à 10,000)	25,000	50,000	50,000	100,000	30,000	60,000	50,000	100,000
Total operating costs	69,794	109,725	121,670	195,560	92,370	146,625	149,792	238,600
Total costs during lifecycle	185,844	223,975	237,720	309,810	239,195	287,625	296,617	379,600
Percentage total	83%	-	83%	-	83%	-	78%	-
Cost saving	38,131	-	72,090	-	48,430	-	82,983	-
Percent	17%	-	23%	-	17%	-	22%	-

Packing Density & Surface Compared to Sand & Gravel



Accurate Volume Calculations

Sphericity/Roundness: ≥ 0.95
(simultaneous measurement of roundness through digital image processing (Retsch-Camsizer, value b/13))

Free of Silanes / Glycol / Epoxy
We hereby confirm that Silanes, Glycol or Epoxy are not used during the production and packaging process.

Calculating Annular Volume → $(R^2 - r^2) \times \pi \times h$
R² = Outer Cylinder Radius or Borehole Radius
r² = Inner Cylinder Radius or Casing
π = 3.14159265359
h = Height of Filling

Approximate Metric and Imperial Conversion Data

1 Cubic Feet = 1,728 Cubic Inches = 28.32 liters
1 US Liquid Gallon = 3.785 liters
1 liter = 0.035 Cubic Feet
1 Cubic Yard = 27 Cubic Feet = 0.76 Cubic meters
1 kg = 2.2046 lbs. or 1 lb. = 0.454 kgs
1 Cubic Meter = 1,000 liter = 35.315 Cubic Feet

Bead Sizing - Helpful Formula → $D = d_g \times F_g$
With: $U = d_{60} / d_{10}$
 $F_g = 5 + U$ for $U < 5$ & $F_g = 10$ for $U > 5$

Derived from uniformity coefficient (U), characteristic grain size (d_g) and filter factor (F_g) based on reliable formation sieve analysis.



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