

Sand control simplified for CCUS applications in aquifer and depleted reservoirs.

3M™ Ceramic Sand Screens

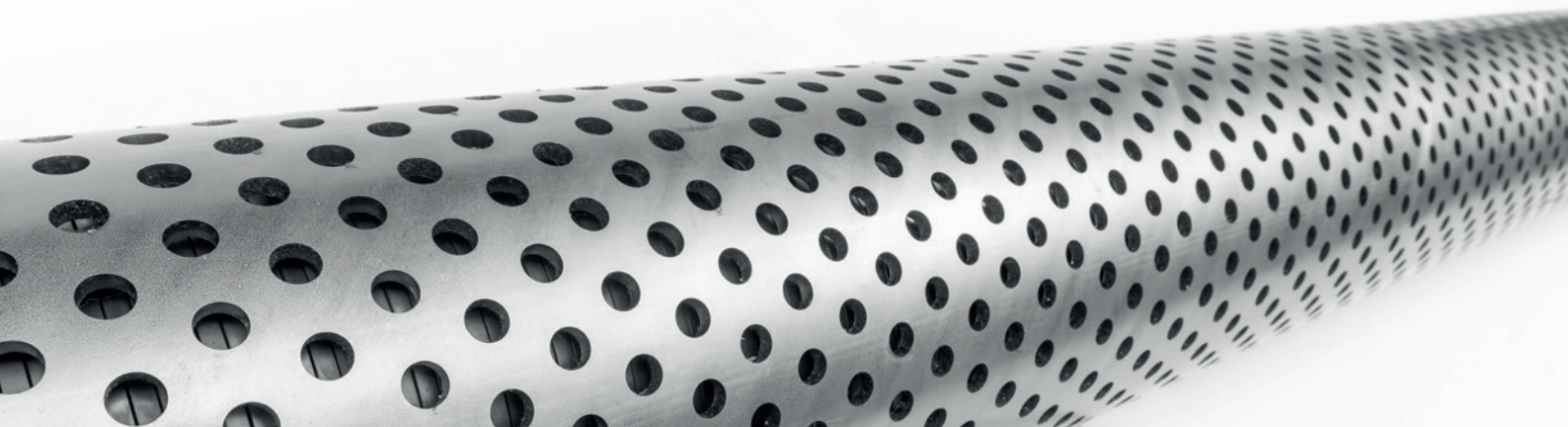
Oilfield sand control completion methods are applied to Carbon Capture, Utilisation and Storage (CCUS) projects to mitigate generic solids control issues with production and injector wells. For example, enabling maximised production from pressure relief wells for aquifer storage or hammer effect in injector wells. CCUS projects also bring special challenges related to corrosion caused by acidification and scale removal treatments over the life of the project. The erosion and corrosion resistance of 3M Ceramic Sand Screens can offer an advantage over traditional sand control methods.



Application challenges

3M™ Ceramic Sand Screen solution

Effective sand control for pressure relief wells (aquifer type)	→	Cost effective stand-alone screen (SAS) solution with a proven track record for the most demanding reservoir types
Optimise CO ₂ injection by maximising pressure relief well production rates	→	3M™ Ceramic Sand Screens erosion resistance prevents rate limitations imposed to prevent sand control erosion risks
Effective scale management to maximise CO ₂ injection rates	→	Ceramic components are resistant to corrosive chemical treatments e.g., scale squeeze
Sand control selection capable of mitigating hammer effect on injection wells (aquifer and depleted reservoir type)	→	Cost effective SAS solution with a proven track record for the most demanding reservoir types
Corrosion concerns over CO ₂ , NO _x and SO _x acidification	→	Ceramics components are resistant to corrosive reservoir conditions



3M™ Ceramic Sand Screen material description (Not for specification purposes)

Maximum Screen OD	Unit	3.287	3.539	4.287	4.917	5.571 ²	5.496	5.811	7.809	7.809 ²
Base pipe OD ¹	Inch	1.900	2 3/8	2 7/8	3.5	3.5	4	4.5	5.5	5.5
Base pipe weight	lbs/ft	2.75	4.60	6.40	9.20	9.20	9.50	12.60	17.00	17.00
Screen ID	Inch	1.610	1.995	2.441	2.992	2.992	3.548	3.958	4.892	4.892
Connections	API NUE PIN/BOX	1.9	2 3/8	2 7/8						
	VAM/TOP Tubing				3.5	3.5	4	4.5		
	VAM/TOP HC								5.5	5.5
Metallurgy	Base pipe	316/316L	L80Cr-13/L80							
	Metal parts		316/316L/S355J2							
Maximum joint length		R1	R2	R2	R2	R2	R2	R3	R3	R3
Slot opening	Micron	150, 200, 250, 300 and 350 µm								
Average weight of screen	lbs/ft	8.05	9.53	12.94	17.17	23.82	19.68	21.75	37.00	41.49
Diameter perforation	Inch	0.236	0.374	0.433	0.433	0.433	0.492	0.492	0.492	0.492
Perforations base pipe	Avg perfs/ft	88	88	76	76	76	69	69	69	69
Documentation		According to 3M standard STA7_SC-A-600-00 (Based on ISO 17824 2009 E)								
Minimum collapse pressure ³	psi	4500	4500	4500	4500	4500	4500	4500	4500	4500
Minimum burst pressure ³	psi	1500	1500	1500	1500	1500	1500	1500	1500	1500
End ring pushoff ⁴	tons	17	20	23	26	26	30	32	38	38
DLS	%/100 ft	12	12	12	12	12 ⁵	12	12	12	12 ⁵

- 1 Base pipe Outer Diameter (OD) and Inside Diameter (ID) tolerances according to API Spec 5CT.
- 2 Additional shroud compaction strength for open hole stand-alone screen completions.
- 3 Collapse and burst values are tested in alignment to ISO17824 and API19SS with no screen failure/no loss of sand control.
- 4 Requirements according to Statoil TR2385, Ver. 2.
- 5 Calculated.

Standard 3M™ Ceramic Sand Screens rated for temperatures up to 150°C

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The management system has been certified according to DIN EN ISO 9001, DIN EN ISO 50001, DIN EN ISO 14001.

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