

1. Product Description

StenSeal® SI 111 is a single-component, cold-applied, non-sagging, low modulus silicone joint sealant. It is specially formulated for use in outdoor concrete pavements and provides excellent resistance to all elements, heavy traffic conditions, jet blast, and intermittent chemical contact. **StenSeal® SI 111** is highly durable and remains resistant to fuels, hydraulic fluids, and oils, as well as dynamic movement.

It is also highly resistant to UV radiation and extreme temperatures. **StenSeal® SI 111** is fully compliant to ASTM D 5893, Type NS, ASTM C 920, Type S, Grade NS, Movement Class 100 and EN 14188-2, System S, Class A, Type NS. Compliance with ASTM D 5893 has been certified by PRI.

2. Uses

StenSeal® SI 111 can be used for joints and cracks with irregular cross sections or variable widths. It is particularly well-suited for use in the joints of airports, roads, bridges, refineries, and chemical facilities, as well as for expansion and contraction joints in asphalt or cement concrete pavements. **StenSeal® SI 111** adheres to properly prepared joints without a primer.

StenSeal® SI 111 is ideal for use in sloped or vertical joints, and for joints and cracks with non-uniform shapes. For use in horizontal concrete joints with a constant width and straight edges, the self-leveling **StenSeal® SI 110** may be more suitable.

3. Joint Design

The pavement should be designed and joints sized so that the maximum extension and compression do not exceed +100% and -50%, respectively. Joint spacing, the coefficient of thermal expansion of the pavement, expected temperature range, and the anticipated temperature at the time of sealing must all be considered. For controlling the cracks caused by contractions that will occur at new concrete pavements, distance, width, depth, and sealing time of the contraction joints are all crucial.

Refer to our technical document on joint design for additional information on joint design and crack mitigation. The minimum width of a joint should be at least twice the expected movement of the pavement. The width of the joints should be between 6.35 mm and 38.1 mm.

For joint widths outside of these bounds, contact **Stenkim®**. The depth of the joint should be half of the width and between 6.35 mm and 12.7 mm. If the calculated depth is outside of these bounds, it should be adjusted to the nearest limit.

Single-Component, Non-Sagging Silicone Joint Sealant

Highlights

- Silicone-based, single-component
- Low hardness and high elongation
- Movement Class 100/50
- Ideal for sloped and vertical joints
- Primer-free application
- Adheres to asphalt and cement concrete
- Long-lasting
- Resistant to jet fuels, oils, diluted acids and bases, and various chemicals
- Resistant to UV radiation, does not discolor
- Resistant to jet blast and high temperature
- Ready to use and easy to apply
- Ideal for airports, highways and large outdoor pavements



Joint Width - mm	8	10	12	14	16	18	20	24	28	32	36
Sealant Thickness - mm	7	7	7	7	8	9	10	12	13	13	13
Sealant Recess - mm	7	7	7	8	9	10	11	13	13	13	13
Backer Rod Diameter - mm	10	13	15	18	20	23	25	30	35	40	45
Minimum Backer Rod Depth - mm	14	14	14	15	17	19	21	25	26	26	26
Consumption - metres / cartridge	15	12	10	8	6	5	4	2	2	2	1
Consumption - metres / can	337	270	225	193	147	116	94	65	51	45	40

4. Application

4.1. Surface Preparation

The joint surfaces must be clean and dry, and any oil, grease, bitumen, or sealant remains must be completely removed. Loose materials on the joint walls must be removed; broken joint walls must be repaired. The surfaces can be sandblasted for better adhesion.

StenSeal® SI 111 does not adhere to wet surfaces as well as dry surfaces, so the joints must be dry and the sealant must not contact water until the end of the skin-over time.

4.2. Primer

StenSeal® SI 111 should be applied to cement concrete and asphalt concrete joints without a primer. For other types of surfaces, a primer may be necessary. Contact **Stenkim®** for guidance.

4.3. Backer Material

To attain the sealant depth and recess, a rod, which preferably does not adhere to the sealant, must be placed in the joint. Since the joint will not be filled to the top edge, the backer rod must be positioned at a depth equal to the calculated sealant depth plus the recess depth. Closed-cell polyethylene foam rods are suitable for this purpose.

The diameter of the rod must be 10-25% larger than the joint width, and the rod must be placed tightly in the joint. In wide joints, semi-rigid materials, such as polystyrene foam, can be used instead of a backer rod. In such cases, it is helpful to place a polyethylene tape over the backing material to prevent adhesion to the sealant.

4.4. Application

The sealant can be installed from 4.4 °C to 40.6 °C, but the temperature must be above the dew point. The sealant must be protected from rain, liquids and dust until the skin-over time has elapsed. The skin-over time for **StenSeal® SI 111** is 60-90 minutes, and the time to reach ultimate properties is 2 weeks.

Higher temperatures and humidity speed up skin over and full cure. The sealant can be applied directly from 18.1 L cans or 189 L or 199.5 L drums using a pump, or it can be transferred to a hand pump. 600 ml sausages should be cut on one end and placed in a caulking gun.

Cartridges are ready to use. While the sealant is being applied, the tip of the gun or cartridge must be moved forward by sliding over the backer rod in the joint. The application pump or the caulking gun must have a nozzle appropriate to the joint width.



During sealant application, minimize interruptions. The flow speed of the sealant and movement speed of the tip must be varied as little as possible to ensure a smooth, continuous application. There must be no air gaps under the sealant or between joint walls and the sealant.

Minimize such voids during application. The sealant must be tooled immediately to get rid of any air pockets and to ensure proper adhesion. Once the sealant has been applied, it can be tooled to create a smooth, even surface with required profile.

The middle of the sealant must recess approximately 6.35 mm to 12.7 mm from the top. Adequate ventilation is required for indoor applications. **StenSeal® SI 111** should not be used in unventilated spaces.

5. Application Tools

Drum pumps, application guns or sausage guns, and spatulas are necessary for proper application. Professional quality tools must be used.

6. Cleaning

Application and other sealant-smudged devices must be cleaned before the sealant cures. For that purpose, tools first wiped with a cloth or rag must be cleaned with **StenSolver CL** or aromatic solvents such as toluene and xylene. Proper protective equipment and ventilation should be used when handling these solvents.

Cured **StenSeal® SI 111** can only be removed by mechanical means.

7. Safety

Applicators and supervisors must read the Material Safety Data Sheet (SDS) carefully and follow the instructions provided. Emptied packages must be handled in compliance with relevant regulations and laws. The application must be carried out by skilled workers under supervision of experts and the applicators must use all kinds of protective equipment required for the worksite and the task such as goggles, mask and gloves.

8. Storage

StenSeal® SI 111 must be kept in dry indoor storage with a recommended temperature range of 10 °C to 32.2 °C. If stored unopened in these conditions, the shelf life is at least 12 months. Avoid storing the sealant in high humidity conditions or at temperatures above 37.8 °C for prolonged periods of time.

If the sealant has been stored inappropriately, or the storage period has been exceeded, the product should be checked before use.

9. Disclaimer

This document is provided for general information and reflects **Stenkim®**'s laboratory data and field experience at the time of publication. **Stenkim®** reserves the right to revise this information at any time without notice.

Stenkim® warrants that its products conform to the stated specifications on delivery. The buyer is responsible for determining the product's suitability for the intended application and for all conditions of transport, storage, handling, and use. **Stenkim®** accepts no liability for results obtained under conditions outside its control. **Stenkim®**'s liability under this warranty is limited to replacement of non-conforming product and excludes any consequential or indirect damages.



10. Technical Data

Property	Method	Result
Base Polymer		Single-Component Silicone
Solids Content		98%
Color		White / Gray / Black / Red / Blue
Density	ASTM D 1475	1.27 ± 0.05
Rheological Properties (flow)	ASTM D 2202	Non-sag
Extrusion Rate	ASTM C 1183	> 100 ml/min
Tack-Free Time @20 °C	ASTM C 679 / EN 14187-1	< 90 minutes
Cure Rate @20 °C		3.2 mm/day (1/8 inch/day)
Weight Loss on Heat Aging	ASTM C 792	< 6%
Hardness	ASTM C 661	> 55 Shore OO (@23 °C) / < 20 Shore A (@-29 °C)
Flow at High Temperature (93 °C)	ASTM D 5329	No flow
Elongation at Break	ASTM D 412 / EN ISO 8339	> 700%
Tensile Stress at 150% Elongation	ASTM D 412 / EN ISO 8339	< 45 psi (< 0.31 MPa)
Resilience	ASTM D 5893	> 90%
Accelerated Weathering (5000 hours)	ASTM C 793	Pass
Bond Strength (room conditions, -29 °C, 100% extension, 5 cycles)	ASTM D 5893	Pass
Bond Strength (water-immersed, 5 cycles)	ASTM D 5893	Pass
Bond Strength (heat-aged, 5 cycles)	ASTM D 5893	Pass
Flame Resistance (260 °C, 120 s)	SS-S-200E (3.4.8)	Pass
Movement Capability (extension/compression)	ASTM C 920 / EN ISO 11600	+100% / -50% (Class 100)
Staining and Color Change (after 100 h UV + 14 days immersion)	ASTM C 510	No staining/color change
Adhesion/Cohesion Under Cyclic Movement (Hockman, +100%/-50%, 10 cycles)	ASTM C 719	Pass



Peel Strength (dry/wet)	ASTM C 794	≥ 10 lbf/in (≈ 1.75 N/mm)
Continuous Water Immersion (10 weeks)	ASTM C 1247	Pass
Adhesion and Cohesion	EN 14188-2	No failure (System S, Class A, Type SL)
Hydrolysis Resistance (< 50% hardness change)	EN 14187-5	Pass
Shelf Life		12 months
Packaging		18.1 L (4.8 gal) cans, 189 L (50 gal) and 199.5 L (52.7 gal) drums, 600 ml (20.3 fl oz) sausages
Related Standards		ASTM D 5893 (Type NS), ASTM C 920 (Type S, Grade NS, Movement Class 100), EN 14188-2 (System S, Class A, Type NS), EN 14187-5, SS-S-200E

