



BUILDING TRUST



PRODUCT DATA SHEET

BG System

For positive-side below-grade wall, blind-side formed foundation walls, and under slabs

US Patents: 9,850,662 | 10,851,542



BG-0400-P shown in underslab orientation

Product Description

The **BG System** by Sika Emseal is a heavy-duty, double-celled, extruded, thermoplastic rubber gland flanked by integral side flashing flanges.

The **BG System** consists of:

- 1) Thermoplastic (heat-weldable) BG sealing insert and dual level, side flashing flanges
- 2) Termination bar and special anchors

The above components are combined in the field with a waterproofing membrane and accessories offered by the waterproofing membrane manufacturer for use in integrating the BG System to waterproofing membranes in backfilled wall, blind-side wall, and under-slab conditions.

(Note: Termination bar and anchors are optional at the discretion of the membrane manufacturer when the BG System is fully welded into a compatible PVC or PVC-backed membrane.)

BG System is available in three sizes for joints up to 7-inches (175mm). For larger sizes consult Sika Emseal.

BG-0200, BG-0400 and BG-0600 represent a significant development in its BG System product range. The BG System is now available for use in positive side foundation wall waterproofing as well as for use in its traditional role in blind-side wall and under-slab applications.

This development comes as a result of a new extrusion featuring dual-level flanges which afford redundancy in anchoring and membrane integration. The extrusion is the same one used in Sika Emseal's [RoofJoint](#) product. Consequently it can be welded continuously with RoofJoint across tunnel roofs and under soft-scaped plazas.

In hard-scaped plaza and split-slab conditions, the new BG System glands can also be welded to the rubber sealing components (central insert and side flashing sheets) of our other [FP \(For Plaza\)](#) Systems including [MIGUTAN](#), [SJS-FP](#), [DSM-FP](#), and [SJS-FP-FR](#) to ensure [continuity of seal](#).

[Transition](#) from below grade walls to [above grade walls](#) sealed with [Seismic Colorseal](#) is also practically achieved using the appropriate detail for this condition from Sika Emseal.

Uses and Applications

Structural expansion joints in foundation and tunnel walls and slabs both in backfilled and blind side construction.

Cast concrete walls where access to the positive side is possible (backfilled conditions)

Cast concrete walls where access to the positive side is not possible after casting (lagging or single-side forming conditions)

Foundation and tunnel under-slab conditions (slab is cast onto waterproofing membrane and BG System)

Where access to walls is possible and the joint runs through the floor slab, the BG System would be used on the underside of the floor slab and would transition through a factory-welded outside-90 to BG System installed into the wall joints.

At the top of foundation walls, the BG System would transition to [RoofJoint](#) in softscapes.

Limitations: The BG System has a long track-record of successful service in applications below grade. Selection and specification of the BG System and design of conditions of application is the responsibility of the designer and specifying authority.

Features

- Watertight System for blind side wall & under-slab waterproofing
- Watertight System for positive side, below-grade wall joints
- High movement
- Redundant sealing
- Double-level membrane integration flanges
- Welds to PVC or PVC-backed membranes
- Compatible with all commonly used waterproofing materials
- Redundant fastening—adhesion or welding & termination bar
- Factory-welded transitions at tees, crosses, outside and inside-90's
- Watertight transition to Sika Emseal wall joints
- Watertight transition to FP plaza deck joints
- BG System includes necessary termination bar and fasteners required for installation.

Sizes and Movement Capabilities:

| Model | Joint Gap in Field | Movement Capability* |
|---------|----------------------------|----------------------------|
| BG-0200 | 2-3 inches (50-75 mm) | 2 1/2 inches (60 mm) |
| BG-0400 | 3-5 inches (75-125 mm) | 5 inches (125 mm) |
| BG-0600 | 5-7 inches (125-175 mm) | 7 inches (min) (175 mm) |

*Note: Values stated are for lateral movement only. The amount of compression and extension movement in each application can be affected by the as-built joint opening, temperature at time of joint forming, concrete shrinkage, pressures on the joint that result in deformation of the sealing gland, and other factors that must be taken into consideration and are the sole responsibility of the designer or specifying entity.
For questions regarding movement in a specific condition, consult Sika Emseal.

Wall and Underslab Orientation



BG-0200 shown in underslab orientation



BG-0200 shown in positive side wall orientation.



BG-0400 shown in underslab orientation



BG-0400 shown in positive side wall orientation.

Test Results*

| Table 1: Typical Physical Properties of BG Material | | |
|--|--|-------------------------|
| Properties | Result (Average) | Test Method |
| Tensile Strength, (psi) Die C specimens; Cond.: Min. 3h @ 73.4±4°F & 50±2% RH; Test: 73.4±3.6°F & 50±2% RH; Rate = 20 in./min; | MD = 2,320 / Std. Dev. 40 | ASTM D 412 |
| Elongation, Ultimate (%) Die C specimens; Cond.: Min. 3h @ 73.4±4°F & 50±2% RH; Test: 73.4±3.6°F & 50±2% RH; Rate = 20 in./min; | MD = 380 / Std. Dev. 20 | ASTM D 412 |
| Tensile Set, (%) Die C specimens; Cond.: Min. 3h @ 73.4±4°F & 50±2% RH; Test: 73.4±3.6°F & 50±2% RH; Rate = 20 in./min; 50% Elongation; | MD = 0.0 / Std. Dev. 0.0 | ASTM D 412 |
| Dynamic Puncture Resistance, (J) 9.8" x 9.8" specimens; Cond.: 8h @ 73±2°F; Load @ 73±2°F over Type IX EPS; | 27.5 | ASTM D 5635 |
| Static Puncture Resistance, (lbf) 7.9" x 7.9" specimens; Cond.: 8h @ 73±2°F; Load for 24±0.25h @ 73±2°F; Type IX EPS; | 53 | ASTM D 5602 |
| Tear Resistance, (lbf/in.) Die C specimens; Cond.: Min. 3h @ 73.4±4°F & 50±2% RH; Test: 73.4±3.6°F & 50±2% RH; Rate = 20 in./min; | MD = 304 Std. Dev. 12 | ASTM D 624 |
| Low Temperature Bend, (Pass/Fail) 1" x 4" MD Specimens; Cond. 4h & Test @ -40±1°F; Bend 180° over 3mm Ø rod; Examine under 5x magnification; | -40 | ASTM D 2136 |
| Ozone Resistance [Pass/Fail] Static Strain 50% elongation; Test: P(O3)=100mPa @ 104°F; Exposure for 166h; Inspect @ 7x; | Pass | ASTM D 1149 Method B |
| Water Absorption (mass %) 1" x 2" specimens; Test Liquid = water; Exposure for 166h @ 158°F; | Ave. = 1.4 Std. Dev. = 0.0 | ASTM D 471 |
| Water Vapor Permeance, (Perms) Desiccant Method; Test @ 73.4±3.6°F & 50±5%RH; | Ave. = 0.04 Std. Dev. = 0.01 | ASTM E 96 Proc. A |
| Seam Strength, (psi) 1" x 12" across factory seam; Cond.: 24h @ 73±4°F & 50±2%RH; Test: 73.4±3.6°F & 50±2% RH; Rate = 2 in./min; | Ave. = 691 Std. Dev. = 17 | ASTM D 816 Method B |
| Solar Reflectance, [Reading] Test Condition 73.4±3.6°F & 50±5%RH; | Ave. = 0.05 Std. Dev. = 0.00 | ASTM C 1549 |
| Thermal Emittance, [Reading] Test Condition 73.4±3.6°F & 50±5%RH; | Ave. = 0.90 Std. Dev. = 0.00 | ASTM C 1371 |
| Solar Reflectance Index (SRI) | Low Wind = -1 Med Wind = 0 High Wind = 1 | ASTM E 1980-11 |

*The above test results and physical properties are of the BG material only and do not reflect any performance testing of the installed system. Design teams are responsible for determining whether the BG System is appropriate for a specific project or application, based on project-specific factors.



Blind Side Installation

Where the structural joint extends through the foundation slab, the waterproofing membrane is installed on the ground over the mud-slab, compacted fill or gravel as prescribed by the designer or waterproofing membrane manufacturer, as well as onto the lagged walls in accordance with the waterproofing membrane manufacturer's instructions.



The BG System sealing gland is laid over the waterproofing membrane at the centerline location of the structural expansion joint opening to be formed and cast later.

The underside of the wider of the two BG System integration flanges are welded or adhered to the installed waterproofing membrane using accessories and methods provided by the waterproofing membrane

manufacturer as tested and approved for this purpose.

(Image: BG System fully integrated into waterproofing membrane and installed onto lagged wall.)

Another layer of the waterproofing membrane is welded or adhered over the top of the lower BG System integration flange and carried out to a width which is wider by at least six inches than the BG System integration flanges.

The upper (narrower) BG System integration flange is welded or adhered to the membrane below.

Another full width layer of waterproofing membrane is firmly, and without any voids, welded or adhered to the waterproofing membrane thereby completing a sandwich of the BG System side flashing flanges and the waterproofing membrane.

The BG System termination bar and anchors are installed to hold the System in place prior to pouring concrete. (NOTE: in welded systems the termination bar and anchors may not be required--consult waterproofing membrane manufacturer).

A form is positioned over the belly of the BG System extrusion and the concrete is poured over the waterproofing membrane and BG System sandwich.

The net result is the integration of the below-grade waterproofing membrane and expansion joint System on the positive side (the side that water reaches first) of the wall or floor while ensuring that movement at the joint-gap is properly accommodated.

Termination at Footings (No joint in slab)

Where the structural joint is designed only in the walls and does not continue through the foundation slab, the BG System is integrated into the waterproofing membrane on the walls and must terminate at the concrete footings at a point designed to be below the elevation of the slab and into a properly designed, active, perimeter drainage System. Details of flashing skirts for footing termination are available from Sika Emseal.

Backfilled Installation

Where the construction method is to form free-standing foundation walls leaving access for installation of the waterproofing membrane from the positive (outside) of the foundation wall, the waterproofing membrane is installed up to the joint opening in accordance with the membrane-manufacturer's instructions.

The BG System is installed into the joint. The lower flange is welded or adhered to the outside face of the membrane. Termination bars and anchors are installed over the lower flange of the BG System extrusion to mechanically fasten the BG extrusion to the wall.

The upper flange of the BG extrusion is welded or adhered to the waterproofing membrane to encapsulate the termination bar, anchors and lower flanges. Another layer of waterproofing membrane is installed and adhered or bonded over the upper flanges of the BG System. A protection course and/or drainage board is installed over the entire waterproofing membrane and integrated BG System as prescribed for the application by the waterproofing membrane manufacturer and/or designer. The walls and waterproofing System are then backfilled.

CAD & Guide Specs

Guide Specifications and [CAD details](#) are available online at emseal.com or by [contacting Sika Emseal](#).

Warranty

Standard limited material only warranties are available from Sika Emseal on request.

Availability & Price

BG is available for shipment domestically and internationally. Prices are available from local representatives and/or directly from the manufacturer. Sika Emseal reserves the right to modify or withdraw any product without prior notice.

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