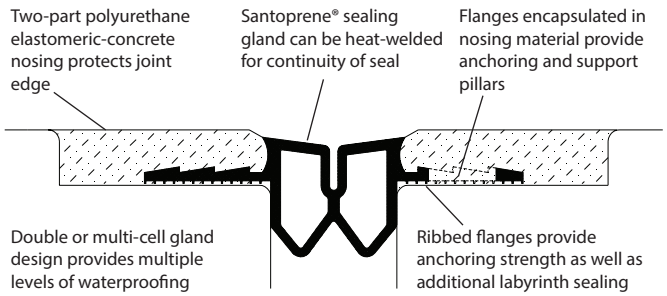
TECH DATA **Thermaflex**

Watertight Parking-Deck and Stadium Expansion Joint Systems

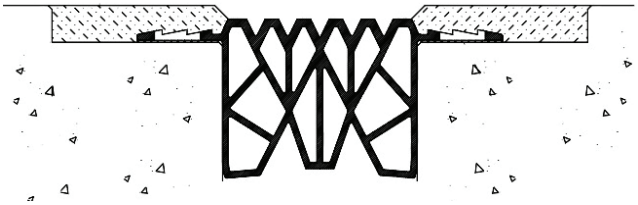
Product Description

- **Thermaflex** consists of extruded thermoplastic Santoprene® rubber sealing gland with punched flanges embedded in a high-strength, flexible, impact-absorbing elastomeric concrete nosing (Emcrete).
- The thermoplastic Santoprene sealing glands are heat-weldable, making transitions through changes in direction and plane not only practical but watertight.
- The elastomeric concrete is composed of two-part polyurethane reinforced with silica sand and fiberglass.
- The silica-free aggregate provides compressive strength while preserving flexibility.
- The system is mounted in blockouts on each side of the joint-gap.
- The sealing gland is placed in the joint-gap and the blockouts are filled with the elastomeric concrete which encapsulates the flanges.
- The nosing material flows through holes punched in the flanges thereby forming a row of "pillars" for secure fastening and load bearing.
- The system becomes integral with the deck as the nosing material develops a bond to the concrete.

System Features:
TM Series



TCR Series



Uses and Applications

- **Parking Decks –** Watertight, vehicular-traffic-durable seal in structural and perimeter expansion joints in cast-in-place, precast, and post-tensioned parking structures.
- **Precast Decks –** Thermaflex™ series glands are uniquely suited to sealing precast decks where differential vertical deflection is common.
- **Stadiums –** Concourses, treads/risers, helixes and pedestrian walkways.
- **Plaza Decks –** See EMSEAL's FP (For Plaza Deck) product range: Migutan, DSM-FP; DFR-FP, SJS-FP; SJS-FP-FR.
- Other conditions — consult EMSEAL.

Advantages

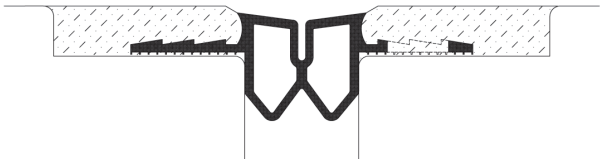
- Watertight, ADA compliant
- Flanges, nosing material and concrete combine to form an integral system that ensures integrity of seal
- Available multi-cell sealing-gland designs provide multi-barrier sealing
- Exceptionally durable under vehicular traffic in extreme weather conditions
- Heat-weldable Santoprene thermo-plastic rubber membrane permits continuous lengths and a continuous seal through transitions and terminations
- Tees, crosses, directional changes, column details, terminations, and changes in plane are available as factory-fabricated, factory-leak-tested units
- Material lengths may be supplied for exact length of joint
- Differential vertical deflection, lateral movement, and seismic shock are accommodated by the flexibility of the seal
- Accepts traffic in as little as 3 hours at 75°F or higher temperatures — thereby facilitating lane-by-lane retrofits with minimal parking revenue loss
- The elastomeric concrete provides a durable impact-absorbing nosing that:
  - mixes rapidly
  - flows readily to fill voids and irregularities
  - has excellent adhesion to concrete and metal
  - does not require use of heat during installation or curing
  - has excellent strength and impact absorption properties
  - has excellent low temperature flexibility
  - is compatible with traffic-bearing deck coatings facilitating total protection of the deck and continuity of appearance

EMSEAL JOINT SYSTEMS, LTD 25 Bridle Lane, Westborough, MA 01581 USA
EMSEAL, LLC 111 Royal Group Crescent, Woodbridge, ON L4H 1X9 Canada

PH: 508.836.0280 **FX:** 508.836.0281
PH: 416.740.2090 **FX:** 416.740.0233

Available Models

System of Choice: TM Series

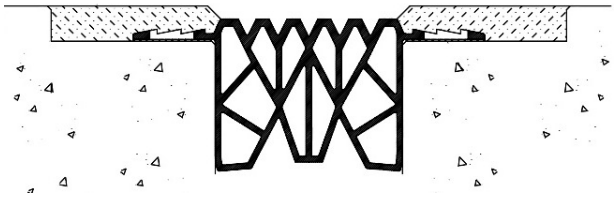


Advantages

- Latest in gland design evolution.
- Greater movement range than multi-cell glands for comparable joint sizes while retaining sealing redundancy.
- Handles vertical differential deflection movement typical of precast-tee construction by "hinging" on reinforced center — consult EMSEAL for limits.
- Finite Element Analysis (FEA)-developed section having generous movement capability and low-stress allows use of a higher durometer grade of Santoprene than is typically used in multi-cell glands. This results in enhanced abrasion, flex-fatigue, and point-load resistance.
- Primary and secondary barriers provide double-barrier sealing.
- Uncomplicated internal geometry facilitates properly welded transitions and terminations.

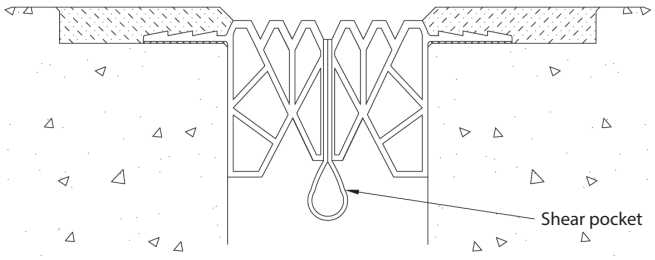
NOTE: For a complete discussion of sealing-gland design and the advantages of double-barrier seals, see "The Evolution of Extruded Parking-Deck Expansion Joint Seals" in Knowledge article listing at www.emseal.com

Large Joints: TCR Series



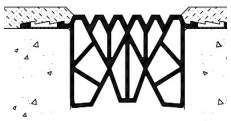
Multi-cell extrusion provides internal support for spanning larger joint gaps.

Shear-Pocket Technology



Strain-relieving shear-pockets, an EMSEAL innovation, allow for full movement-range capability, free of tensile stress. Shear pockets are ideal at jogs around columns, at tees, and other high-movement transitions.

Table 1: Selection Guide

	Model No.	Total Movement	Maximum Joint-Gap Size	Minimum Joint Gap Size	Installation Width* min.	Installation Width* preferred	Installation Width* max.	Blockout Dimensions (each side of joint-gap)
	TM 1.5	2-1/2 in (63mm)	3 in (75mm)	1/2 in (12mm)	1 (25mm)	1 1/4 in (30mm)	2 in (50mm)	3/4 in x 3 in (20 x 75mm)
	TM 2.5	3-1/4 (100mm)	4 (100mm)	3/4 (20mm)	1 1/4 (30mm)	2 1/4 (55mm)	2 3/4 (70mm)	3/4 x 3 (20 x 75mm)
	TCR 300	1-7/8 in (47mm)	3 in (75mm)	1 1/8 in (27mm)	1 7/8 in (47mm)	2 1/8 in (53mm)	2 3/4 in (70mm)	3/4 x 3 1/2 (20 x 90mm)
	TCR 400	2-3/8 (60mm)	4 (100mm)	1 5/8 (40mm)	2 1/4 (57mm)	2 3/4 (70mm)	3 3/4 (95mm)	3/4 x 3 1/2 (20 x 90mm)
	TCR 500	3 (75 mm)	5 (125mm)	2 (50mm)	3 (75mm)	3 1/2 (90mm)	4 3/4 (120mm)	3/4 x 3 1/2 (20 x 90mm)
	TCR 600	2 3/4 (70mm)	6 (150mm)	3 1/4 (80mm)	4 1/2 (115mm)	4 3/4 (120mm)	5 1/2 (140mm)	3/4 x 3-1/2 (20 x 90mm)

*Installation at other than preferred joint-gap width may require special handling.

Limitations

- System will not perform where there is unsound substrate or improper blockout preparation. The joint-gap and the blockout area must be perfectly clean and dry.
- Minimum substrate temperature at time of installation and for 4-hours following installation is 45°F (7°C).

Fire Rated

- All EMSEAL deck joint systems are available with UL fire rating configurations where necessary. Contact EMSEAL.

EMSEAL JOINT SYSTEMS, LTD 25 Bridle Lane, Westborough, MA 01581 USA
EMSEAL, LLC 111 Royal Group Crescent, Woodbridge, ON L4H 1X9 Canada

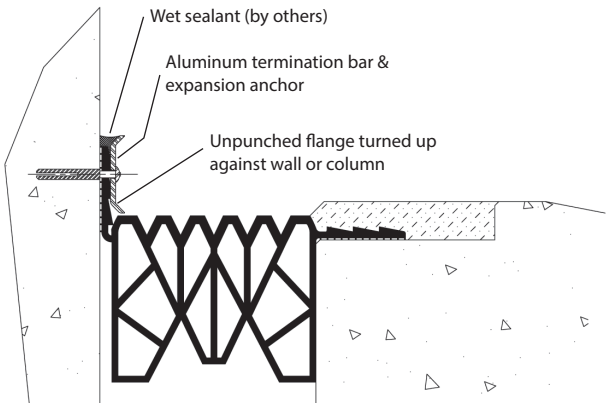
PH: 508.836.0280 **FX:** 508.836.0281
PH: 416.740.2090 **FX:** 416.740.0233

Watertight Transitions & Terminations — Continuity of Seal

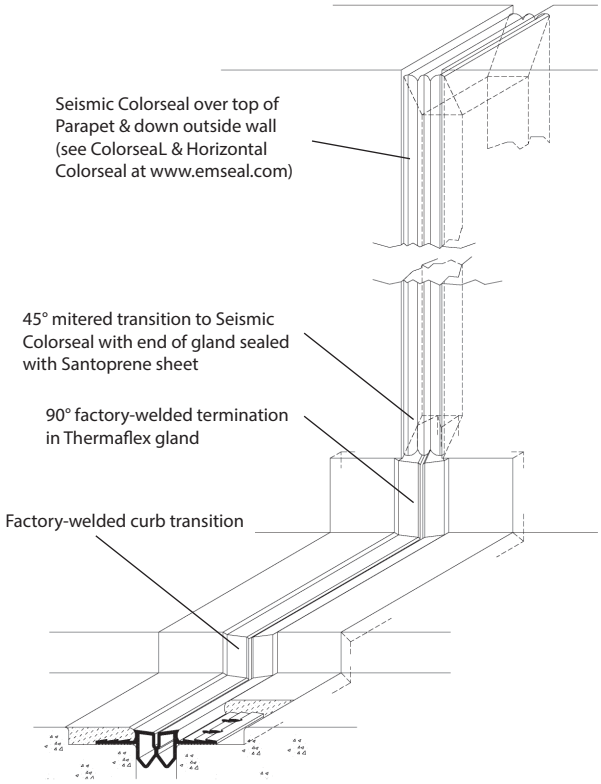
With the evolution of extruded expansion joint seals from thermoset rubbers (neoprene and EPDM) to heat-weldable thermoplastic rubber, watertightness through virtually any transition in plane or termination is both possible and practical. Shown are some of the many standard and custom transition and termination fabrications EMSEAL offers for waterproofing joints where they intersect walls, curbs, columns, etc.

Contact EMSEAL for custom details specific to your project.

Typical Deck-To-Wall/Column Detail



Curb-Sidewalk-Parapet Detail



Installation Summary

- Remove all unsound concrete in or around the blockouts. The horizontal blockout base must be level and all major spalls must be repaired. Proper preparation geometry and suitable patching materials compatible with the nosing must be used.
- The blockout must be thoroughly clean and dry prior to installation.
- Apply Emprime primer on concrete allowing 30 minutes to dry.
- Thoroughly solvent-clean sealing gland and position in joint-gap.
- Mask-off deck and top surface of sealing gland.
- Mix Emcrete ingredients according to the supplied instructions.
- Pour the Emcrete nosing material into the blockouts, behind and over the punched flanges.
- Using margin trowels, lift the flanges and force the Emcrete nosing material under flanges all the way up to the side of the gland ensuring they are firmly embedded and that there are no air pockets or unfilled voids under the flanges.
- Once poured, Emcrete requires little if any finishing. Air bubbles introduced by the mixing process will gradually surface. To achieve a consistent appearance, at the point that the material is no longer movable, drag the tip of a margin trowel across the surface to break the bubbles, leaving a matte finish.
- Remove masking tape.
- Substrate temperature must not drop below 45°F (7°C) for at least 4-hours after pouring of nosing material.

NOTE: Install in accordance with detailed Install Data that accompany each order and are available separately at www.emseal.com or from EMSEAL.

Maintenance

In the event of damage to the nosing, the damaged section can be removed, the area primed, and replaced with freshly mixed material. Since the product develops good adhesion to itself, the newly applied section becomes an integral part of the nosing section. The contact surface of the cutout must be free of loose debris, dust, dirt, moisture, and other contaminants.

Should the sealing gland be damaged replacement sections or patches can, in many cases, be field welded into position.

For general maintenance guidelines, request document "Maintenance Summary" from EMSEAL.

CAD & Guide Specs

Guide specifications and CAD details are available online at emseal.com or by contacting EMSEAL.

Warranty

Standard or project-specific warranties are available from EMSEAL on request.

Availability & Price

EMSEAL products are available throughout the United States and Canada. Prices are available from local representatives or direct from the manufacturer. The EMSEAL product range is continually being updated. Accordingly, we reserve the right to modify or withdraw any product without prior notice.

EMSEAL JOINT SYSTEMS, LTD 25 Bridle Lane, Westborough, MA 01581 USA
EMSEAL, LLC 111 Royal Group Crescent, Woodbridge, ON L4H 1X9 Canada

PH: 508.836.0280 **FX:** 508.836.0281
PH: 416.740.2090 **FX:** 416.740.0233

Typical Physical Properties of Rubber Sealing Glands			
Property	**121-67 (TCR Series)**	**121-73 (TM Series)**	**Test Method**
Tensile Strength (psi/Mpa)	1000/6.9	1200/8.3	ASTM D 412
Ultimate Elongation (%)	440	440	ASTM D 412
Hardness (Shore A)	67 ± 3 Shore A	73 ± 3 Shore A	ASTM D 2240
Ozone Resistance	No Cracks	No Cracks	ASTM D 1170
Low Temperature Recovery (%)	100	100	50% Deflection 22 hours @ -22°F (-29°C)
Fluid resistance – 10% Hydrochloric Acid	1% weight change	1% weight change	ASTM D 471
Fluid resistance – 50% Sodium Hydroxide	1% weight change	1% weight change	ASTM D 471
Fluid resistance – 15% Sodium Chloride	1% weight change	1% weight change	ASTM D 471
Fluid resistance – 50% Ethylene Glycol	1% weight change	1% weight change	ASTM D 471
SCOF — Standard Coefficient of Friction	Dry: 0.8417	Wet: .06212	ASTM C 1028

Performance Properties — Emcrete Elastomeric-Concrete Nosing Material

IMPORTANT: When comparing elastomeric concrete materials it is vital to compare the data of the fully mixed material. Resin-only data is irrelevant as the material is not used without aggregate. Aggregate increases compressive strength at the expense of flexibility. Heavy aggregate loading, while it reduces cost, is detrimental to performance of the material as an impact-absorbing nosing and patching material. The following are properties of Emcrete (resins, sand, and chopped fiberglass) at as-supplied ratios.

AGGREGATE RATIO
Ratio of Resin to Aggregate by Weight — Does not exceed 1:2

ADHESION: Pull Off Strength
Concrete (abraded, wiped, primed) — 413 psi
Steel (abraded, wiped, primed) — 492 psi
Galvanized Steel (wiped, primed) — 417 psi

TENSILE Strength
Tensile Strength — 651 psi
Elongation — 20%

COMPRESSIVE Strength
Compressive Strength — >4000 psi
Compressive Modulus — 11.27 ksi

VISCOSITY
Viscosity @ 50 rpm (mixed resin) — 1560 cP

IMPACT: Ball Drop Test

1-pound steel ball dropped onto 3/8" thick (8mm) x 2.75" diameter (70mm) disk from 17 feet:

At room temperature (69˚F; 20˚C) — no cracks
At -4˚F; -20˚C) — no cracks

HARDNESS: ASTM D 2240 at 77˚F (25˚C) — 98 Shore A / 57 Shore D

SCOF – Standard Coefficient of Friction ASTM C 1028 — Dry: 0.7393 / Wet: 0.6505

Note: ADA suggests surfaces have SCOF of 0.6 or greater.

Emcrete Supply

Emcrete elastomeric concrete is sold by the unit. Each unit is comprised of pre-measured containers which hold the liquids (Parts A & B), a pail of silica-free fiber, and a container of Emprime primer.

Yield* 1 Unit: 9,766 cubic cm (596 cubic inches) *account for a 5% waste factor

EMSEAL JOINT SYSTEMS, LTD 25 Bridle Lane, Westborough, MA 01581 USA
EMSEAL, LLC 111 Royal Group Crescent, Woodbridge, ON L4H 1X9 Canada

PH: 508.836.0280 **FX:** 508.836.0281
PH: 416.740.2090 **FX:** 416.740.0233