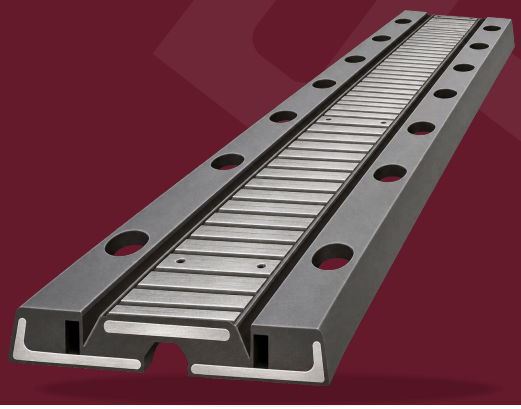
UNIJOINT RJ

STEEL / ELASTOMER MODULE BRIDGE DECK EXPANSION JOINT



Product Features

UNIJOINT RJ is a modular bridge deck expansion joint made of steel angles and a steel bridging plate encased in a flexible elastomer. It is supplied in module lengths that are bolted to the structural deck on either side of the expansion joint.

A range of models is available to accommodate total movements from 50 mm up to 330 mm, and skew angles. The joint is substantially waterproof and gives a smooth, wear-resistant running surface.

The modules are set between **UNISEAL AP77** nosings on both sides, which form the transition to the premix surfacing.

Advantages

- **Heavy Duty:** Steel angles and bridging plate for long durability under traffic.
- **Movement up to 330 mm:** Seven models from RJ 50 to RJ 330.
- **Corrosion Resistant:** Steel fully encased in elastomer.
- **Watertight & Anti-Skid:** Substantially waterproof joint with a skid-resistant surface.
- **Smooth Running Surface:** Wear-resistant surface for a smooth ride.
- **Modular:** Modules bolted to the deck; skew angles accommodated.

Fields of Application

Bridge Deck Expansion Joints	Viaducts & Elevated Roads
Highway Bridges & Flyovers	Bridge Joint Replacement

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Material Specification

Property	Test Method	Unit	Result
Hardness	ASTM D2240	Shore A	60 ± 5
Tensile Strength	ASTM D412	MPa	15 min.
Elongation at Break	ASTM D412	%	350 min.
Bond Strength	ASTM D429 (Method B)	N/cm	7 min.
Compression Set	ASTM D395	%	25 max.
Ozone Resistance (7x magnification)	ASTM D1149	–	No crack
Abrasion Resistance (relative volume loss)	ISO 4649 (Method A)	mm^3	120 max.

All values are subject to a 5 – 10% tolerance.

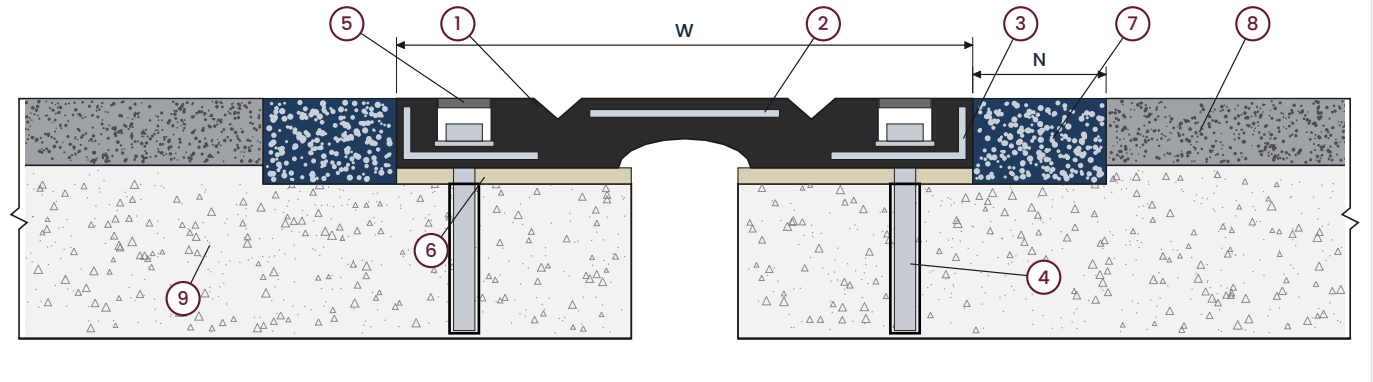
Model Selection

Model	Total Movement	Module Length	Module Width	Module Depth	Stud Diameter	Module Weight	Max. Stud Height Above Shelf	Bolt Torque
RJ 50	50 mm	2000 mm	274 mm	40 mm	12 mm	52 kg	32 mm	45 Nm
RJ 65	65 mm	2000 mm	356 mm	49 mm	16 mm	74 kg	40 mm	100 Nm
RJ 80	80 mm	2000 mm	432 mm	52 mm	16 mm	96 kg	41 mm	150 Nm
RJ 100	102 mm	2000 mm	590 mm	54 mm	20 mm	150 kg	42 mm	175 Nm
RJ 165	165 mm	2000 mm	724 mm	75 mm	24 mm	272 kg	51 mm	190 Nm
RJ 230	230 mm	2000 mm	890 mm	93 mm	24 mm	375 kg	60 mm	275 Nm
RJ 330	330 mm	1220 mm	1207 mm	127 mm	30 mm	451 kg	70 mm	300 Nm

Anchor studs: diameter as the table, grade 8.8, fixed with bonding chemical; spring and oblong washer under each nut.

Typical Drawing

1 UNIJOINT RJ 80 – TYPICAL SECTION — Not to scale



LEGEND

1. RJ module (elastomer)
2. Steel bridging plate
3. Steel angle
4. Anchor stud, nut & washers
5. Bolt hole sealant
6. Levelling mortar
7. UNISEAL AP77 nosing
8. Premix surfacing
9. Concrete deck

W = module width (Model Selection table) N = nosing width (100 typical) Construction gap by the engineer

Illustrations only – not for construction. Refer to drawing UR-JT-05.

This technical data sheet is given in good faith and does not guarantee the application work. All Unity Reliance technical data sheets & method statements are updated on a regular basis and can be subject to change without notice. It is the user's responsibility to obtain the latest version of the information required.

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Installation Procedures

1 Prepare Recess | 2 Levelling & Studs | 3 Fix Modules | 4 Seal & Nosing

Installation Procedures

Step 1

PREPARE RECESS

Set out the joint line on the road surface and mark the recess width – module width W plus the nosing on each side. Saw-cut the premix along both lines to its full depth so the edges stay straight and unbroken.

Remove the surfacing and break out the concrete to a sound, flat and level recess at the required depth. Check that the construction gap is clear of debris and formwork along the full length.

Hack the recess and clean it with an air blower and hot air burner, removing all dust, laitance, loose and sub-standard material. The recess must be clean and dry before the next step.

Step 2

LEVELLING & STUDS

Apply levelling mortar to both shelves so the modules will sit fully supported on a flat bed, with their top level with the premix surfacing. Check the level with a straight edge and let the mortar gain strength before drilling.

Lay the modules out as a template and mark the bolt centres on both sides of the gap. Drill the holes to the diameter and depth recommended by the bonding chemical manufacturer, and blow them clean.

Fix the anchor studs vertically with bonding chemical, at the diameter and maximum height above the shelf given in the Model Selection table. Do not disturb or load the studs until the chemical has fully cured.

Step 3

FIX MODULES

Place the **UNIJOINT RJ** modules over the studs, starting from one end of the joint. Butt each module tight against the last so the running surface is continuous, and check that the modules are level and in line with the joint.

Fit the spring and oblong washers and tighten the nuts with a torque wrench to the bolt torque in the Model Selection table. Re-check the levels after tightening.

Step 4

SEAL & NOSING

Clean out the bolt holes and fill them flush with sealant to keep water and grit off the anchorage.

Pour the **UNISEAL AP77** nosing into the trench between the module and the premix on both sides, finished flush with the road surface, in accordance with the AP77 technical data sheet.

Open to traffic only when the AP77 nosing has cooled.

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