

HITOP

bridge joint device | Non-slip | Seismic reinforcement
shear key

HI TOP

A CONSTANT CHALLENGE FOR A BETTER FUTURE

A constant challenge for a better future

HiTop Co., Ltd. has researched and developed bridge bearings and expansion joints, essential for bridge construction, and holds numerous patents. This has led to the commercialization of innovative and superior products.

We will strive to be a company that prioritizes customers, not a company solely focused on profit, always striving for excellence and continuously conducting research and development.

| patent certificate



PRODUCT LINE UP

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bridge joint device

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Non-slip

Excellent non-slip product 28

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HITOP

ALWAYS BE WITH
OUR CUSTOMERS

01

PRODUCT LINE UP

bridge joint device

HT - NMC

HT - NFJ

HT - SFJ

HT - MCL

HT - SWJ

MONOCELL JOINT



제원표 모델명 전체 수정(엑셀파일)

Monocell joint



durability

The top plate is made of round steel, which reduces shock and provides excellent product durability.



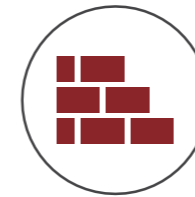
waterproof

Improved waterproofing by installing a connection reinforcement device with improved reliability



Maintainability

The entire product is galvanized to prevent rust and provide excellent maintainability.

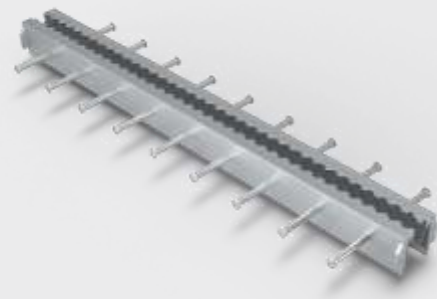


Constructability

It can be manufactured in segments to fit the lane width and is very easy to construct due to its simple structure.

Specification table

MODEL	Product identification number	amount of expansion	intermittent			Standard dimensions			Standard material quantity (per 1m)		
			Min	Mid	Max	A	B	C	concrete	amount of rebar	welding amount
HT-NMC-30H	24694287	30	25	40	55	100	200	300	0.09m ³	17.47kg	1.56m
HT-NMC-50H	24694288	50	25	50	75	120	200	300	0.09m ³	17.47kg	1.56m
HT-NMC-60H	24694289	60	35	65	95	120	200	330	0.099m ³	19.28kg	1.56m
HT-NMC-80H	24694290	80	40	80	120	135	200	350	0.105m ³	19.28kg	1.56m
HT-NMC-100H	24694291	100	40	90	140	145	250	370	0.111m ³	19.28kg	1.56m

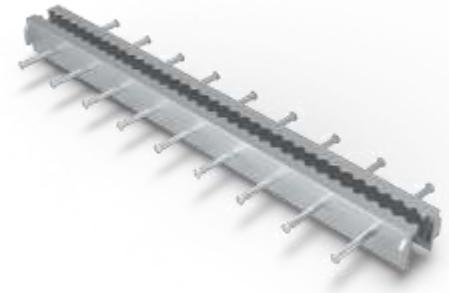


HT-NMC

Monocell joint

The top plate is made of round steel, providing superior drivability and durability. This product also improves joint reliability, resulting in improved constructability and waterproofing.

Monocell joint

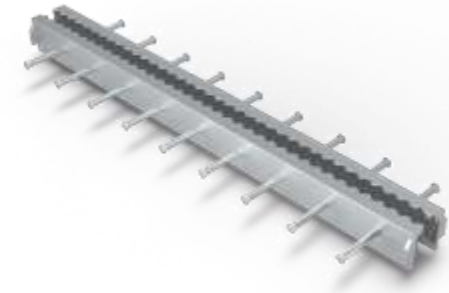


Monocell joint

HT-NMC-30H

identification number 24694287

standard 1800 X 90 X 102mm

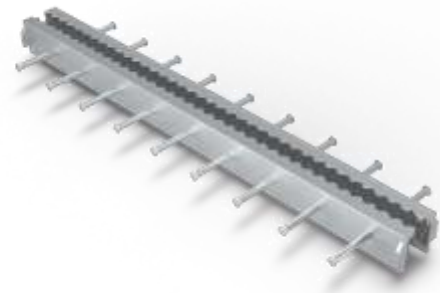


Monocell joint

HT-NMC-80H

identification number 24694290

standard 1800 X 135 X 102mm

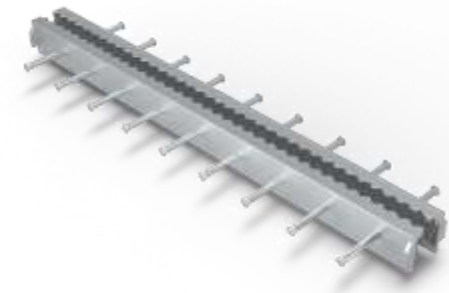


Monocell joint

HT-NMC-50H

identification number 24694288

standard 1800 X 100 X 102mm

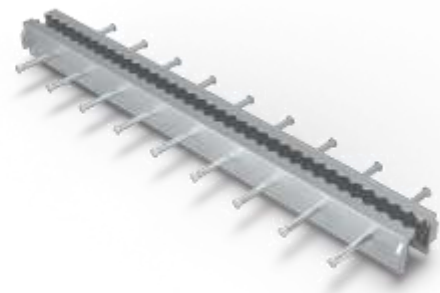


Monocell joint

HT-NMC-100H

identification number 24694291

standard 1800 X 145 X 102mm



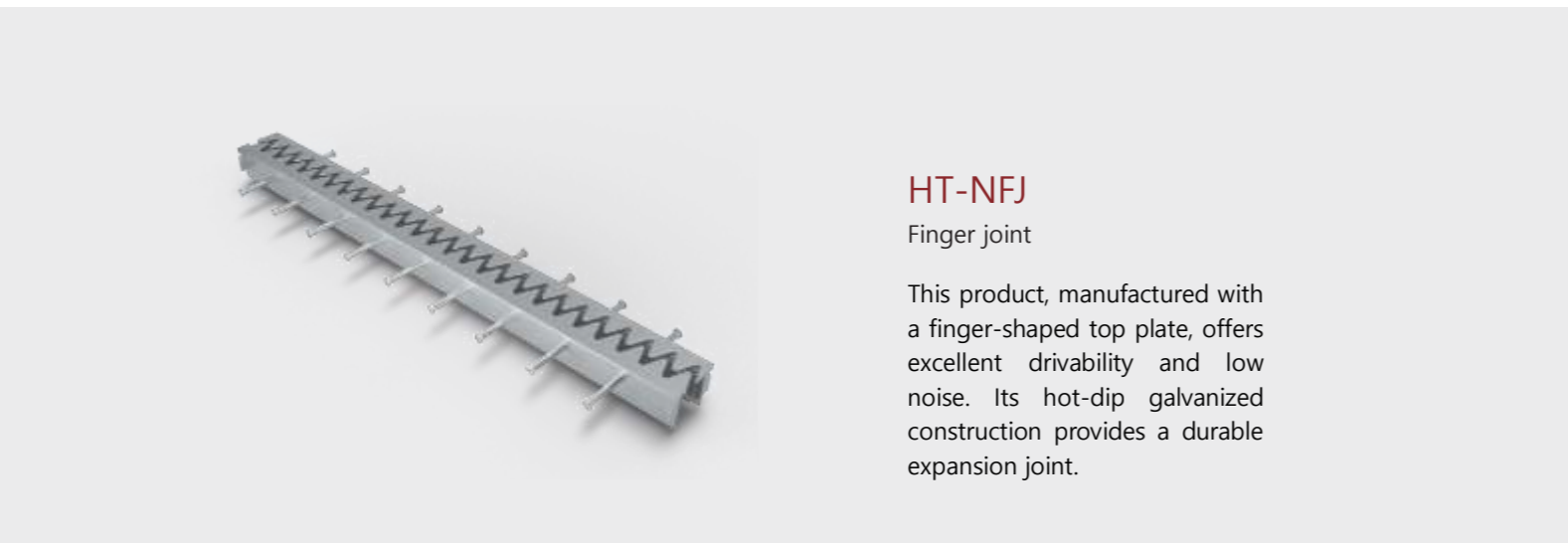
Monocell joint

HT-NMC-60H

identification number 24694289

standard 1800 X 115 X 102mm

FINGER JOINT



HT-NFJ

Finger joint

This product, manufactured with a finger-shaped top plate, offers excellent drivability and low noise. Its hot-dip galvanized construction provides a durable expansion joint.

| Finger joint



durability

The application of reinforcement to the joint makes the joint very strong, improving the durability of the expansion joint.



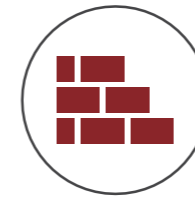
waterproof

Excellent waterproofing due to installation of a connection reinforcement device with improved reliability



Maintainability

The entire product is galvanized to prevent rust and provide excellent maintainability.

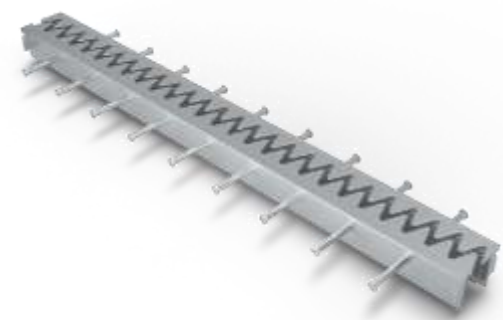


Constructability

It can be manufactured in segments to fit the lane width and is very easy to construct due to its simple structure.

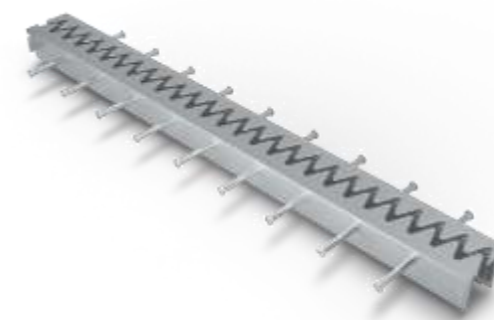
| Specification table

MODEL	Product identification number	amount of expansion	intermittent			Standard dimensions		
			Min	Mid	Max	A	B	C
HT-NFJ-30H	24694292	30	25	35	60	150	310	200
HT-NFJ-50H	24694293	50	25	50	75	170	330	200
HT-NFJ-80H	24694294	80	40	80	120	220	330	200
HT-NFJ-100H	24694295	100	50	100	150	240	350	200
HT-NFJ-120H	24394889	120	60	120	180	280	350	250
HT-NFJ-150H	24694297	150	80	160	240	345	350	250
HT-NFJ-160H	246394298	160	80	160	240	345	345	144



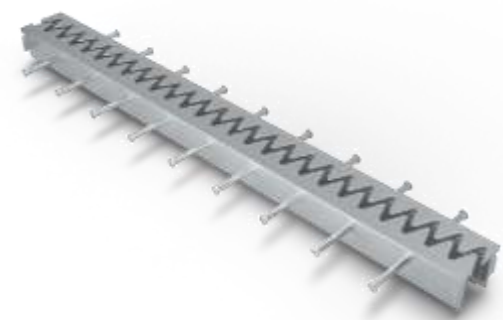
Finger joint
HT-NFJ-30H

identification number 24694292
standard 1800 X 150 X 141mm



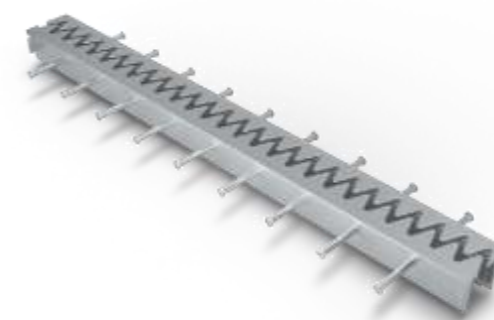
Finger joint
HT-NFJ-120H

identification number 24694296
standard 1800 X 290 X 144mm



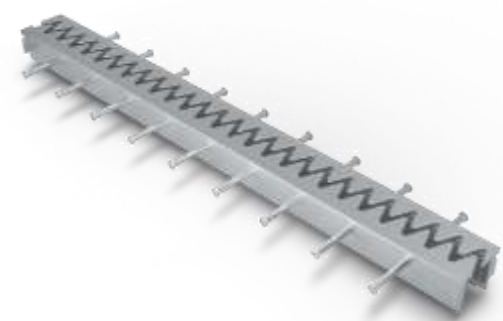
Finger joint
HT-NFJ-50H

identification number 24694293
standard 1800 X 170 X 137mm



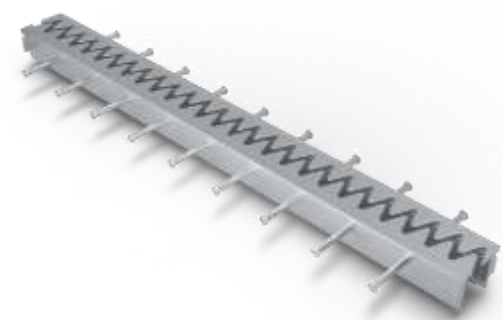
Finger joint
HT-NFJ-150H

identification number 24694297
standard 1800 X 335 X 144mm



Finger joint
HT-NFJ-80H

identification number 24694294
standard 1800 X 230 X 141mm



Finger joint
HT-NFJ-100H

identification number 24694295
standard 1800 X 250 X 144mm



Finger joint
HT-NFJ-160H

identification number 24694298
standard 1800 X 345 X 144mm

STEEL FINGER JOINT



HT-SFJ

Steel finger joint

This product, capable of accommodating large expansion volumes, features a rubber sheet manufactured integrally to match the bridge length, offering excellent water resistance and drivability.

| Steel finger joint



durability

The product top is made of steel and has anti-loosening bolts for superior durability.



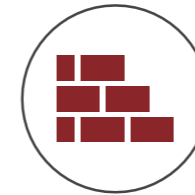
waterproof

It is manufactured in one piece to fit the width of the bridge without any joints, so it has excellent waterproofing properties.



Maintainability

It is easy to construct and advantageous in shortening the construction period as it can be delivered after factory assembly according to the on-site conditions.



Constructability

Maintainability is excellent as it prevents safety accidents due to separation of the top plate by applying anti-loosening bolts.

| Specification table

MODEL	Product identification number	amount of expansion	joint spacing		length	intermittent	block out	
			Min	Max			W	H
HT-SFJ-50H	24694299	50	25	75	995	25~75	180	250
HT-SFJ-80H	24694300	80	40	120	995	40~120	210	250
HT-SFJ-100H	24694301	100	50	150	995	50~150	295	250
HT-SFJ-120H	24694302	120	60	180	995	60~180	310	250
HT-SFJ-150H	24351140	150	460	610	995	50~220	400	270
HT-SFJ-160H	24351141	160	470	630	995	50~210	400	270
HT-SFJ-200H	24351142	200	550	750	995	50~250	400	270
HT-SFJ-240H	24351143	240	565	815	995	140~380	400	250
HT-SFJ-250H	24351144	250	565	815	995	140~390	400	250
HT-SFJ-300H	24351145	300	630	930	995	165~465	420	250
HT-SFJ-350H	24351146	350	675	1025	995	195~545	430	300
HT-SFJ-400H	24351147	400	740	1140	995	220~620	450	300
HT-SFJ-450H	24351148	450	490	1240	995	250~700	460	330
HT-SFJ-500H	24351149	500	840	1340	995	280~780	470	350
HT-SFJ-550H	24351150	550	890	1440	995	305~855	480	350
HT-SFJ-600H	24351151	600	960	1560	995	335~935	500	350

01 bridge joint device Steel finger joint



Steel finger joint
HT-SFJ-50H

identification number 24694299
standard 995 X 400 X 35mm



Steel finger joint
HT-SFJ-150H

identification number 24694303
standard 995 X 550 X 40mm



Steel finger joint
HT-SFJ-80H

identification number 24694300
standard 995 X 450 X 35mm



Steel finger joint
HT-SFJ-160H

identification number 24694304
standard 995 X 550 X 40mm



Steel finger joint
HT-SFJ-100H

identification number 24694301
standard 995 X 450 X 35mm



Steel finger joint
HT-SFJ-200H

identification number 24694306
standard 995 X 625 X 40mm



Steel finger joint
HT-SFJ-120H

identification number 24694302
standard 995 X 500 X 35mm



Steel finger joint
HT-SFJ-240H

identification number 24694306
standard 995 X 700 X 45mm

01 bridge joint device Steel finger joint



Steel finger joint
HT-SFJ-250H

identification number 24694307
standard 995 X 700 X 45mm



Steel finger joint
HT-SFJ-450H

identification number 24694311
standard 995 X 1015 X 60mm



Steel finger joint
HT-SFJ-300H

identification number 24694308
standard 995 X 775 X 45mm



Steel finger joint
HT-SFJ-500H

identification number 24694312
standard 995 X 1090 X 65mm



Steel finger joint
HT-SFJ-350H

identification number 24694309
standard 995 X 850 X 50mm



Steel finger joint
HT-SFJ-550H

identification number 24694313
standard 995 X 1165 X 65mm



Steel finger joint
HT-SFJ-400H

identification number 24694310
standard 995 X 940 X 55mm



Steel finger joint
HT-SFJ-600H

identification number 24694314
standard 995 X 1260 X 70mm

LONGITUDINAL JOINT



HT-NMCL longitudinal joint

This product is applied to bridge expansion sections and has a narrow gap, and the deck is manufactured horizontally to the driving direction, providing excellent driving performance. The entire product is hot-dip galvanized, providing excellent maintainability.

| longitudinal joint



stability
By applying reinforcement to the joint, the joint fastening is improved, resulting in excellent structural stability.



waterproof
Improved waterproofing by installing a connection reinforcement device with improved reliability



Maintainability
The entire steel is hot-dip galvanized, so it is a rust-free product with excellent maintainability.



drivability
The top plate is manufactured horizontally to the vehicle's driving direction, resulting in excellent driving performance and low noise.

| Specification table

MODEL	Product identification number	amount of expansion	width	length	thickness
HT-NMCL-20H	24694285	20	90	1800	102
HT-NMCL-30H	24694286	30	100	480	40



longitudinal joint HT-NMCL-20H

identification number 24694285
standard 1800 X 90 X 102mm



longitudinal joint HT-NMCL-30H

identification number 24694286
standard 1800 X 100 X 102mm

SIDE WALK JOINT



HT-SWJ footbridge joint

This product is installed in the bridge sidewalk section. The top plate is made of durable stainless steel, making it easy to maintain and has an excellent appearance.

| footbridge joint



durability

The top is made of corrosion-resistant stainless steel, providing excellent durability.



waterproof

It is manufactured without joints to fit the width of the press, so it has excellent waterproofing properties.



Maintainability

Simple structure allows for quick construction and is corrosion-resistant, making it easy to maintain.



usability

This product has no play on the top plate, so there is no need to worry about shoes or bicycle wheels coming off, making it easy to use.

| Specification table

MODEL	Product identification number	A	B	C	D	E	H
HT-SWJ-20-80	24710705	150	250	50	120	150	80
HT-SWJ-100-160	24710706	150	250	50	120	150	80

RAIL SEAL JOINT(ROAD)



| rail joint



Safe transmission of traffic loads
Safe transmission of vertical and horizontal loads with steel beams and stud anchors



Robust connector
The stud anchor connection supported on concrete and the rigid connection of the beam distribute the load transmitted from above to the bottom.



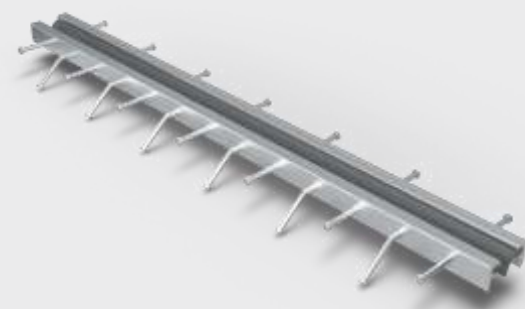
Maintainability
Simple structure allows for quick construction and is corrosion-resistant, making it easy to maintain.



Ride comfort and traffic safety
Compared to the flow generated by vehicle traffic, the exposed expansion joint surface is small, providing excellent riding comfort and providing a safe driving surface by adapting to changes in road slope.



Robust waterproof connection
Waterproofing using seals for rigid connections to beams to protect the structure from the ingress of foreign matter and water seeping into the surface.



RAIL SEAL JOINT (ROAD) rail joint

This product is installed in the bridge sidewalk section. The top plate is made of durable stainless steel, making it easy to maintain and has an excellent appearance.

| Specification table

Product identification number	amount of expansion	joint spacing		length
		Min	Max	
-	30	30	80	995
-	50	50	100	995
-	80	80	130	995
-	100	100	150	995

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HITOP
BUILDS TRUST AND
SAFETY

02

PRODUCT LINE UP

Non-slip



Non-slip
HT-NS-01

identification number 24615837

standard 1000 X 62 X t2.5mm
Forefoot length 0mm



Non-slip
HT-NS-06

identification number 24615840

standard 1000 X 65 X t2.5mm
Forefoot length 25mm



Non-slip
HT-NS-04

identification number 24615838

standard 1000 X 62 X t2.5mm
Forefoot length 0mm



Non-slip
HT-NS-07

identification number 24615841

standard 1000 X 65 X t2.5mm
Forefoot length 25mm



Non-slip
HT-NS-05

identification number 24615839

standard 1000 X 65 X t2.5mm
Forefoot length 25mm

HITOP

ALWAYS DO OUR
BEST AND
CONSTANTLY
RESEARCH
AND DEVELOP

03

PRODUCT LINE UP

Seismic reinforcement
shear key

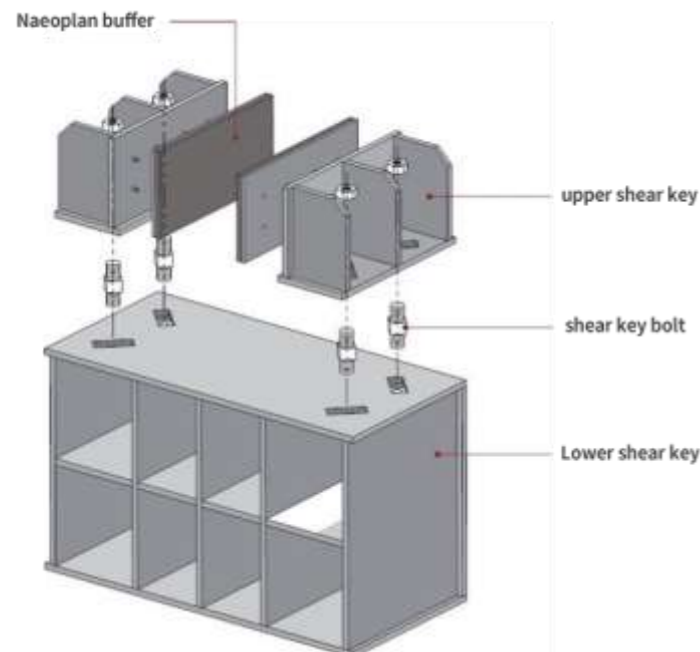
Seismic reinforcement shear key

Construction photos

| Seismic reinforcement shear key

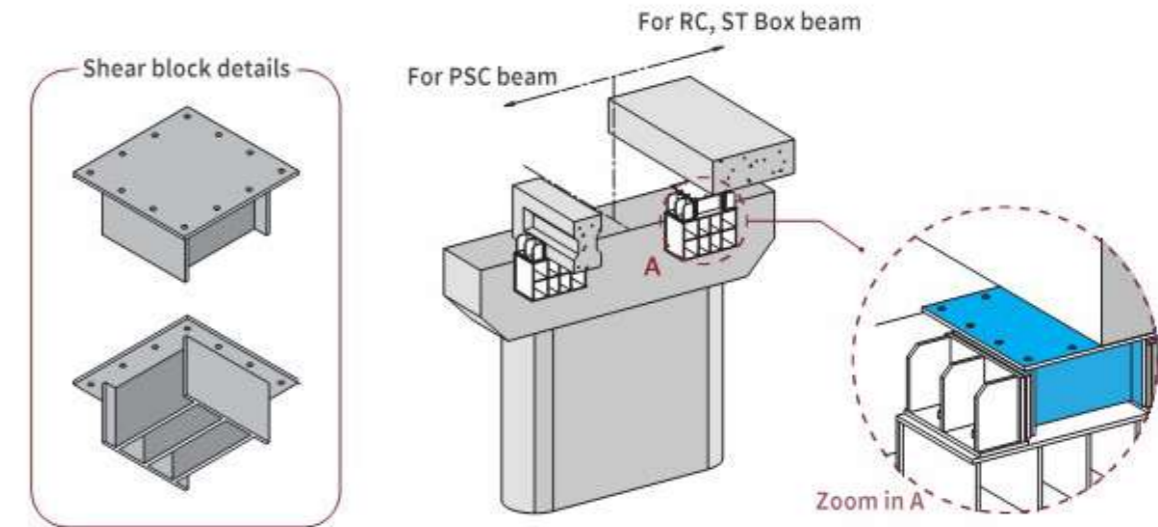
Seismic reinforcement shear keys that prevent damage to the superstructure and allow for fine adjustment

| Shear key schematic



| Schematic diagram of shear key installation method

RC Slab Bridge or Steel Box Bridge, which has no protruding part of the superstructure like PSC beam bridge, and the fixed type of PSC beam bridge in the axial direction are structures that resist the horizontal seismic force by fixing the shear block to the lower part of the superstructure with anchor bolts or welding so that the upper shear key and shear block are supported

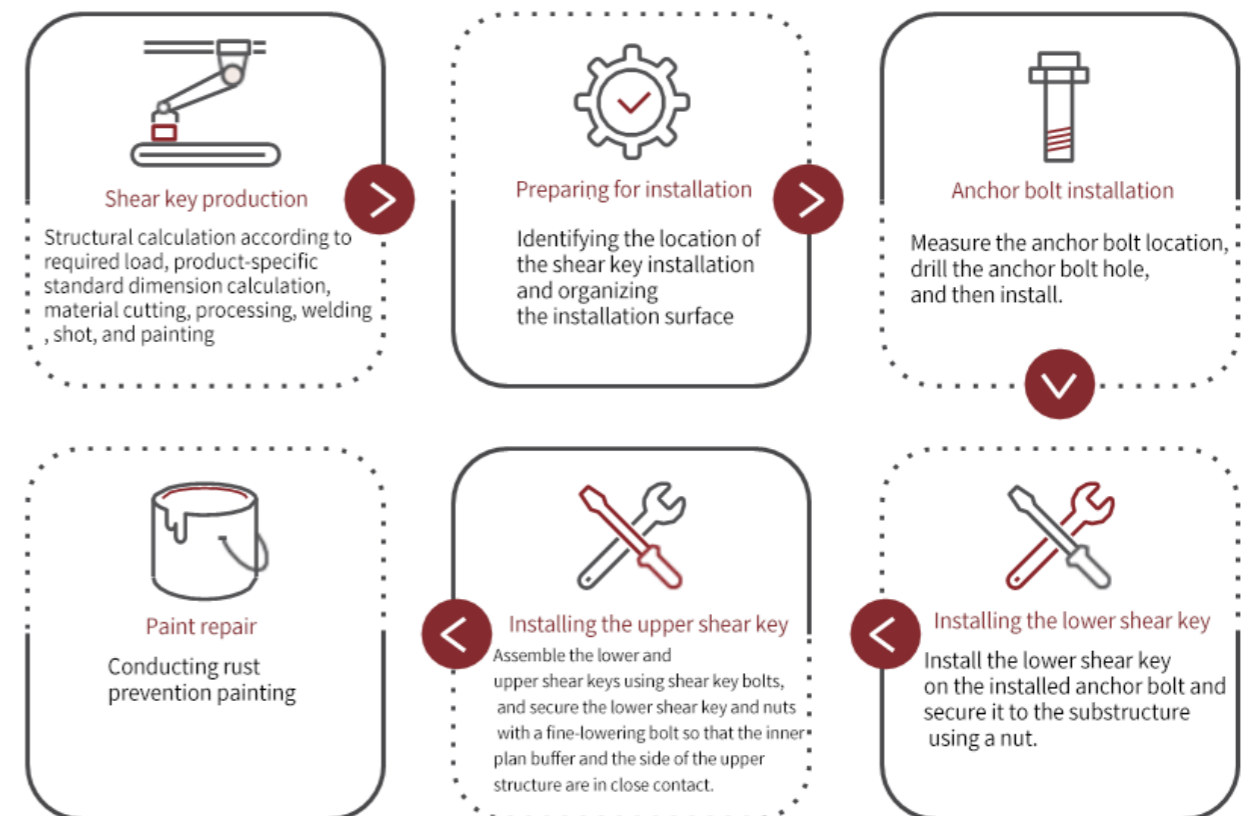


| Shear key installation order

01. Seismic reinforcement device and construction method using the same to prevent the superstructure from falling due to horizontal force generated during an earthquake when a bridge support device is not installed or the horizontal seismic force is insufficient
02. The gap between the upper beam and the shear key that may occur during shear key construction is eliminated (by using shear key bolts that can be assembled by fine-tuning on-site between the upper and lower shear keys), thereby preventing the impact load between the structure and the shear key that occurs during an earthquake.
03. A detachable inner plan buffer is assembled and fixed with bolts on the side of the upper shear key by vulcanizing and bonding the steel plate between the upper shear key and the upper beam, thereby preventing the inner plan buffer from falling off from the shear key at all times and preventing damage to the upper beam when the upper beam and the side of the upper shear key come into contact.
04. The upper shear keys assembled on both sides on the lower shear keys are not fixed by drilling holes in the PSC upper beam, but are fixed with the lower shear keys and shear key bolts and then tightly attached to the upper beam to prevent damage to the upper structure due to the installation of the shear keys and to prevent damage to the upper beam and falling of the bridge when an earthquake horizontal force is applied.



특허 제 10-1899834 호



05 Seismic reinforcement shear key Construction photos

Gumicheon Bridge Seismic Reinforcement Project by the Korea Railroad Corporation

Shear key under construction



After shear key construction



RC SLAB construction photos



T-BEAM construction photos



After RC SLAB construction



Plate girder bridge construction photos



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