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 **ISEDIO**

IseDIO ArmourJoint Adjustable

Floor jointing solutions for industrial floors

Isedio ArmourJoint Adjustable

Isedio ArmourJoint Adjustable is an arris protection, load transfer and leave-in-place formwork joint system suitable for heavy duty industrial concrete floors.

The joint system comprises two top strips, an upper divider plate, a lower divider plate, load transfer plate dowels and sleeves. The lower divider plate is attached to the upper divider plate by a special fastener that requires no tools for adjustment. This innovation is protected by a patent.

The joint is designed such that, once cast, the two slab panels either side of the joint begin to shrink independently. One panel includes the dowel sleeve and one of the top strips. The other top strip, the divider plate and the dowel are included in the other part of the slab. The dowel bridges the joint and is embedded in both slab panels.

Formwork for casting a concrete slab is achieved by the vertical divider plates, which supports the top strip edge protection and load transfer plate dowels.

Slab arris protection is provided by way of cold drawn steel top strips with shear studs that anchor the top strips in the concrete.

The special Isedio stud welding machine tests the quality of stud welds one by one to ensure the relevant specifications are met.





Load transfer across the joint is achieved by asymmetric plate dowels and sleeves. The plate dowels are attached to the vertical divider plate and the sleeves are held in place under friction. The sleeves allow movement as the joint expands and contracts.

ArmourJoint Adjustable allows for a maximum 30mm joint opening and 20mm lateral movement. For any joint opening of more than 15mm, the dowel bending failure should be investigated by the design engineer. Please refer to page 9 for more detailed information.



Easy Installation



Based on TR34.4



Load Transfer Through Plate Dowels



Arris Protection



Engineering Support



Safe Installation



Minimise Joint Maintenance Costs

Isedio ArmourJoint Adjustable

Material Specification

Component	Material
Top Strips	Cold drawn steel to BS EN 10277-2:2008 (can be supplied in stainless steel or hot-dip galvanised)
Frangible Fastener	Nylon
Load Transfer Plate Dowel	6mm, 8mm & 12mm - S275 & S355 Steel to BS EN 10025-2:2004
Sleeve	6mm, 8mm & 12mm - PP
Lateral Movement Allowance	20mm in each direction

Dimensions

Description	Dimension & Tolerance
Joint Length	3000mm, +/-2.0mm
Straightness	+/-1mm in 1000mm
General Dimensional Tolerance	Dimensions < 12mm +/- 0.5mm Dimensions > 12mm +/- 2.0mm

ArmourJoint Fixed

ArmourJoint Fixed utilises a fixed height divider plate to suit the required slab thickness. Standard ArmourJoint Fixed is available in joint heights from 130mm to 190mm with 10mm increments. Alternatively, it can be manufactured to order in other heights to meet individual project specifications. Contact the Leviat technical team for more information.



Packaging Information

5 x 6mm Dowels (600mm centres)			
Joint (mm)	Quantity and metres of joint per bundle	Approx. bundle weight inc. packaging (kg)	Max. no. of bundles, weight and metres per truck
100 - 130mm	50 off - 150m	1,673kg	15 Bundles - 23,417kg - 2,250m
130 - 150mm	49 off - 147m	1,723kg	13 Bundles - 22,404kg - 1,911m
150 - 200mm	49 off - 147m	1,758kg	13 Bundles - 22,854kg - 1,911m
200 - 250mm	35 off - 105m	1,359kg	16 Bundles - 21,739kg - 1,680m
250 - 300mm	28 off - 84m	1,243kg	15 Bundles - 18,650kg - 1,260m
300 - 350mm	21 off - 63m	1,018kg	16 Bundles - 16,287kg - 1,008m

5 x 8mm Dowels (600mm centres)			
Joint (mm)	Quantity and metres of joint per bundle	Approx. bundle weight inc. packaging (kg)	Max. no. of bundles, weight and metres per truck
100 - 130mm	50 off - 150m	1,760kg	13 Bundles - 22,877kg - 1,950m
130 - 150mm	49 off - 147m	1,809kg	13 Bundles - 23,515kg - 1,911m
150 - 200mm	49 off - 147m	1,843kg	13 Bundles - 23,965kg - 1,911m
200 - 250mm	35 off - 105m	1,420kg	16 Bundles - 22,715kg - 1,680m
250 - 300mm	28 off - 84m	1,292kg	15 Bundles - 19,238kg - 1,260m
300 - 350mm	21 off - 63m	1,055kg	16 Bundles - 16,873kg - 1,344m

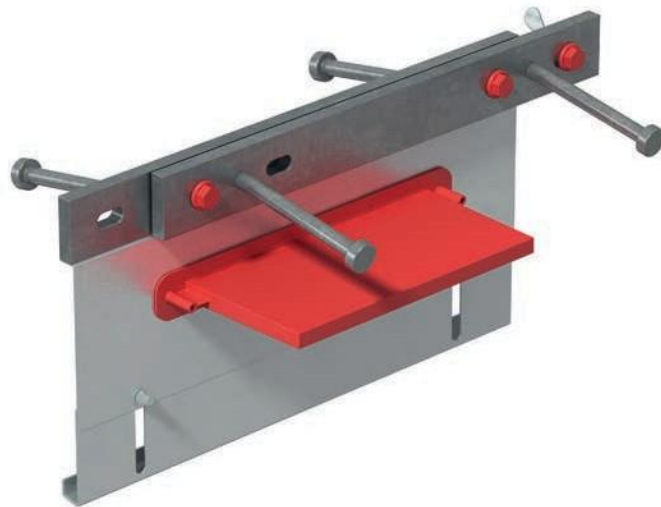
5 x 12mm Dowels (600mm centres)			
Joint (mm)	Quantity and metres of joint per bundle	Approx. bundle weight inc. packaging (kg)	Max. no. of bundles, weight and metres per truck
100 - 130mm	50 off - 150m	1,548kg	15 Bundles - 23,326kg - 1,800m
130 - 150mm	49 off - 147m	1,681kg	14 Bundles - 23,833kg - 1,764m
150 - 200mm	49 off - 147m	1,719kg	13 Bundles - 22,712kg - 1,638m
200 - 250mm	35 off - 105m	1,793kg	15 Bundles - 23,125kg - 1,575m
250 - 300mm	28 off - 84m	1,673kg	14 Bundles - 19,456kg - 1,176m
300 - 350mm	21 off - 63m	1,128kg	16 Bundles - 18,044kg - 1,008m

Isedio ArmourJoint Adjustable

Load Transfer Capacities

The use of Isedio ArmourJoint ensures that shear loads are safely transferred across the joint through dowels. We recommend referring to TR34 – Fourth Edition – Concrete Industrial Ground Floors to determine the dowel capacity.

Section 6.5 of TR34 provides guidance on the calculation of dowel capacities for the following failure modes.



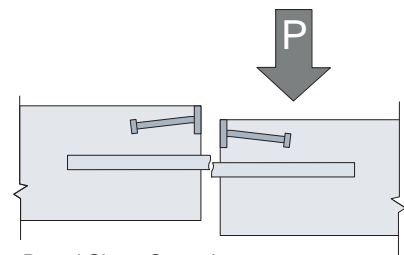
Dowel Shear Capacity

The shear capacities for the plate dowels provided in the table below have been calculated using equation 18 of TR34.

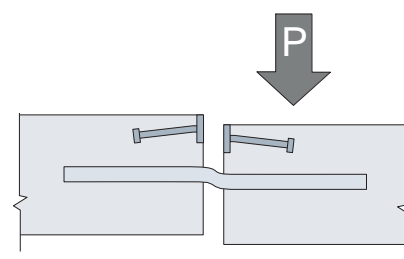
Dowel Type	Thickness (t) (mm)	Finish*	Shear Area (0.9xA) (mm ²)	Capacity (P _{sh,plate}) (kN)
150 x 150 x 6	6	Black	810	116.2
150 x 150 x 8	8	Black	1080	200.0
150 x 150 x 12	12	Black	1620	300.1

* Dowels are available in HDG and stainless steel up on request.

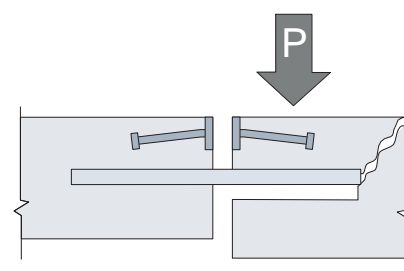
In most situations, at the point of ultimate load, the concrete would typically fail before the dowel.



Dowel Shear Capacity



Dowel Bearing/Bending Capacity



Punching Shear (Bursting Forces)

Dowel Bearing/Bending Capacity

Bearing/Bending is a combined failure mode that checks the bending capacity of the dowel as well as the bearing capacity of the surrounding concrete. Equation 19 of TR34 defines the bearing/bending capacity of a dowel.

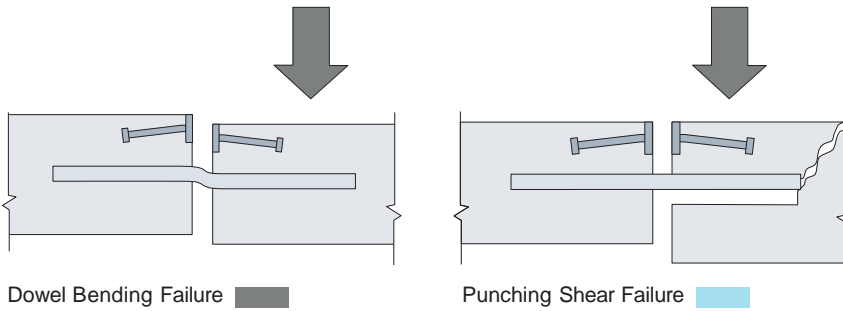
Please find the dowel bearing/bending capacities for different conditions in the combined capacity tables on page 10. For any other configurations, please contact Leviat.

Punching Shear (Bursting Forces)

Section 6.5.3 of TR34 recommends calculating the bursting load of the concrete by adapting the EC2 approach for punching failure using an effective depth of 0.75 times the depth between the dowel and the surface of the concrete slab.

Please find the punching shear capacities for different conditions in the combined capacity tables on page 10.

Design Capacity Tables



Dowel Bending Failure

Punching Shear Failure



Design shear capacity of Iседio ArmourJoint Adjustable in C32/40 concrete with a dowel spacing of 600mm (kN/m)

Dowel Size mm	Joint Opening mm	Joint Size 100 - 130 Slab Depth (mm)			Joint Size 130 - 150 Slab Depth (mm)		
		100	110	120 - 130	130	140	150
150 x 150 x 6	10	13.0	17.8	19.7	20.5	26.4	28.6
	20	13.0	17.8	19.7	20.5	26.4	28.6
	30	12.9	17.7	19.6	20.4	26.2	28.4
150 x 150 x 8	10	12.5	17.3	19.1	19.9	25.8	27.9
	20	12.5	17.3	19.1	19.9	25.8	27.9
	30	12.4	17.2	19.1	19.9	25.6	27.7

Dowel Size mm	Joint Opening mm	Joint Size 150 - 200 Slab Depth (mm)			Joint Size 200 - 250 Slab Depth (mm)			
		150	160	170 - 200	200	210	220	230 - 250
150 x 150 x 6	10	26.4	32.9	35.3	39.4	47.1	55.5	60.5
	20	26.4	32.9	35.3	39.4	47.1	46.9	46.9
	30	26.2	30.4	33.5	33.5	33.5	33.5	33.5
150 x 150 x 8	10	25.8	32.2	34.6	38.5	46.3	54.6	59.6
	20	25.8	32.2	34.6	38.5	46.3	54.6	59.6
	30	25.6	32.0	34.4	38.4	46.1	54.5	59.3
150 x 150 x 12	10	24.5	30.9	33.2	37.1	44.7	53.0	57.8
	20	24.5	30.9	33.2	37.1	44.7	53.0	57.8
	30	24.4	30.7	33.1	36.9	44.5	52.8	57.5

Dowel Size mm	Joint Opening mm	Joint Size 250 - 300 Slab Depth (mm)				Joint Size 300 - 350 Slab Depth (mm)			
		250	260	270	280 - 300	300	310	320	330 - 350
150 x 150 x 6	10	60.0	69.4	73.7	73.7	73.7	73.7	73.7	73.5
	20	46.9	46.9	46.9	46.9	46.9	46.9	46.9	46.9
	30	33.5	33.5	33.5	33.5	33.5	33.5	33.5	33.5
150 x 150 x 8	10	59.0	68.5	78.5	84.3	83.7	94.7	106.4	113.1
	20	59.0	68.5	78.5	84.3	83.7	94.7	95.2	95.2
	30	58.9	68.2	71.6	71.6	71.6	71.6	71.6	71.6
150 x 150 x 12	10	57.3	66.5	76.5	82.2	81.7	92.5	104.0	110.6
	20	57.3	66.5	76.5	82.2	81.7	92.5	104.0	110.6
	30	57.1	66.3	76.2	81.8	81.3	92.1	103.8	110.3

Note: For any other configurations and for Iседio ArmourJoint Fixed capacities, please contact the Leviat technical team on 01458 270 600 or email info.isedio.uk@leviat.com.

Istedio ArmourJoint Adjustable

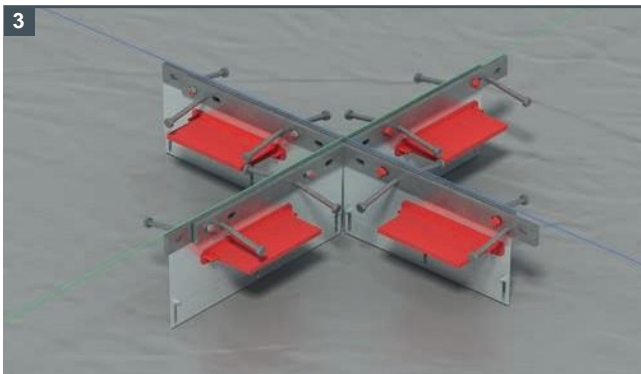
Installation



1 Set up the site. Laser dumpy level set up, finished floor level datum taken, membrane laid, hand tools available



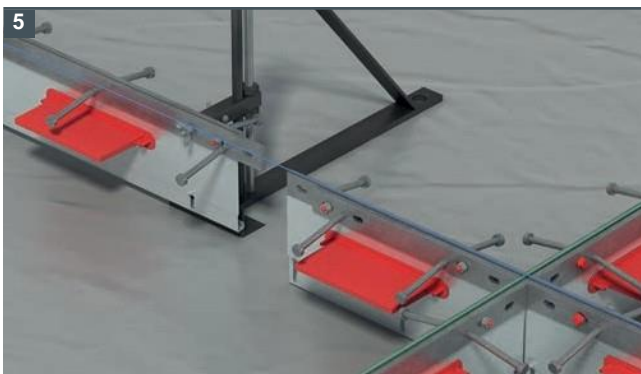
2 Measure the distances to the walls and edges. Set up the string line following the joint location.



3 If required, place the intersection (4-way, 3-way or corner).



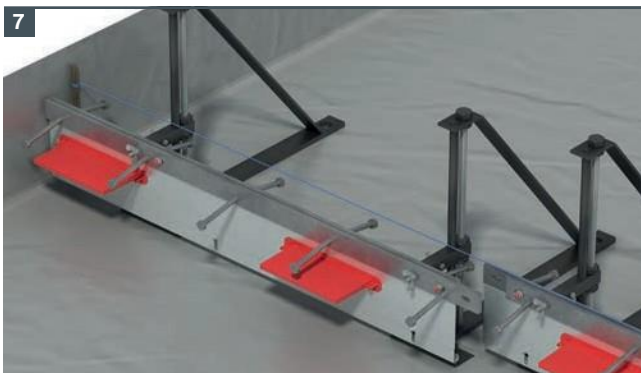
4 Fit ArmourJacks to the ArmourJoint top strips.



5 Position the ArmourJoints (with the jacks fitted) and attach them to the intersection.



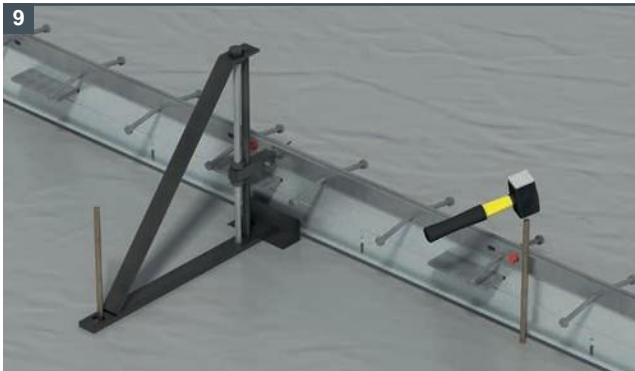
6 Continue to fit the ArmourJoints. Ensure the lapped joints are butted end to end tightly. Fit the plastic bolt and wing nut at the lapped joint.



7 Measure final distance and cut ArmourJoint to suit, allow space for mitherne between end joint and wall.



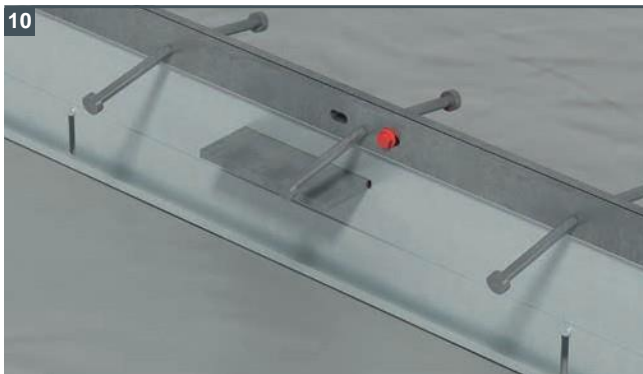
8 Manually position ArmourJoints in line with string lines.



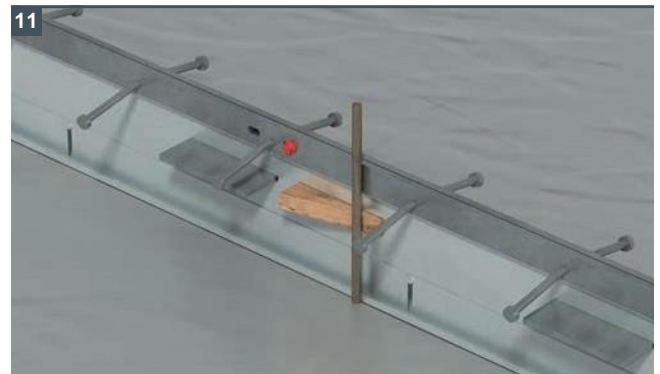
9 Pin the ArmourJacks into place and drive the pins behind the ArmourJoint in between the jacks.



Scan the QR code or visit our website to watch the installation video.



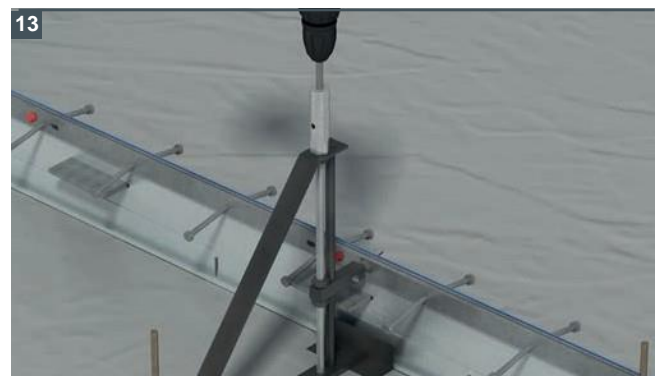
10 Ensure the lower divider plate is pushed fully down to sub-base.



11 Fit the wooden wedges behind the pin to lock the joint in place.



12 Check the height and adjust where necessary using the nut on the jack.



13 Final visual inspection, adjust the position and height of the joint if required.



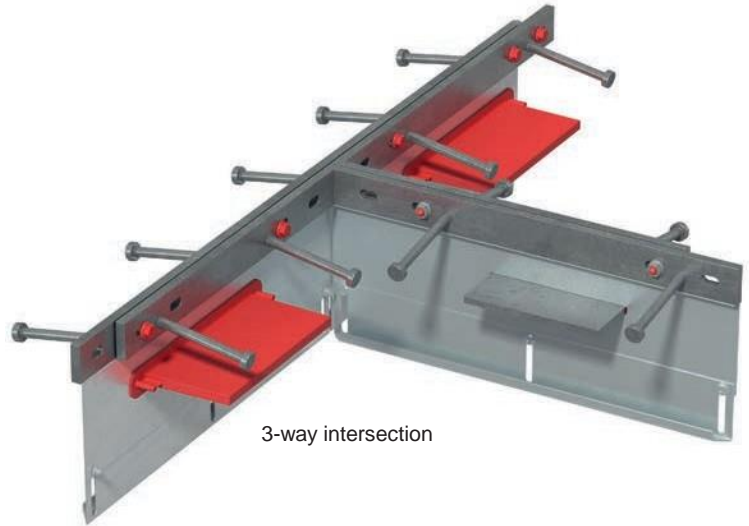
14 Pour the concrete while checking the height and position of the joint.

Prefabricated Intersections

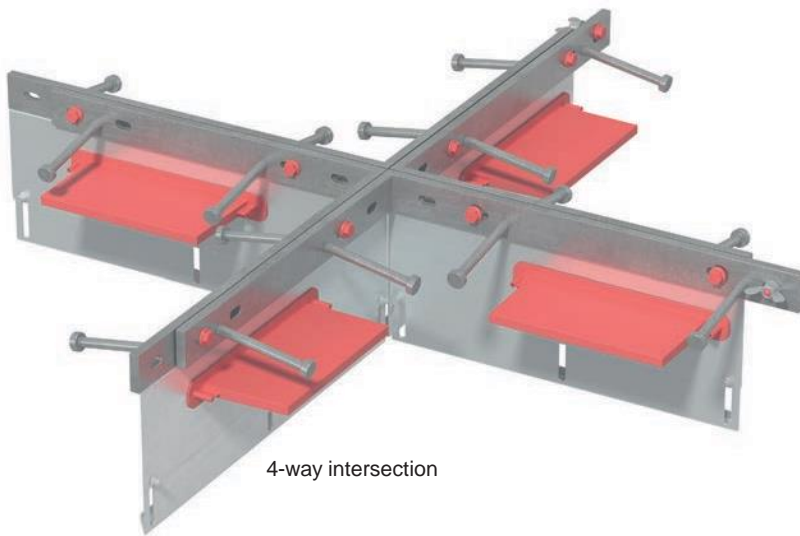
Corner, 3-way and 4-way intersections are available to simplify installation. These components will be manufactured with the same height and plate dowel specifications to suit ArmourJoint Adjustable and ArmourJoint Fixed.



Corner intersection
(available with both internal and external sleeve orientation)



3-way intersection



4-way intersection

Installation Jacks

Installation Jacks are reusable items that facilitate speedy and accurate installation of ArmourJoint. Use of installation jacks eliminates the risks associated with the conventional 'pin and weld' method, in particular the risk of cracking posed by the pins restraining movement at the joint opening.



Isedio Product Range

ShieldJoint

ShieldJoint is an innovative, leave-in-place joint system designed specifically to meet the demanding needs of today's industrial concrete floors. ShieldJoint is a zero impact, sealant-free joint system.



ArmourJoint-Lite

ArmourJoint-Lite is another variation of the ArmourJoint family suitable for light duty industrial concrete floors that are traversed by pneumatic wheeled equipment.



GuardJoint Adjustable

GuardJoint Adjustable eliminates impact across the joint from Mechanical Handling Equipment (MHE). The shape of the wave is engineered such that even the smallest pallet wheeled trucks do not cause an impact.



SteelDeckJoint

SteelDeckJoint is a revolutionary floor joint solution, which solves many of the complexities and time consuming elements of more traditional methods of forming a construction joint using timber formwork.



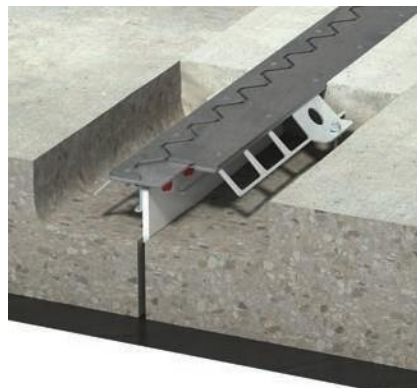
ExpaJoint

ExpaJoint is a leave-in-place formwork, load transfer and edge protection joint system suitable for external concrete pavements and yards.



ShieldJoint Arris Repair

ShieldJoint Arris Repair is specifically designed for the repair of construction joints where the concrete either side of the joint has become damaged through traffic impact.



Armourstrip Double

Armourstrip Double is an edge protection system suitable for heavy duty industrial concrete floors and is compatible with timber formwork.



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