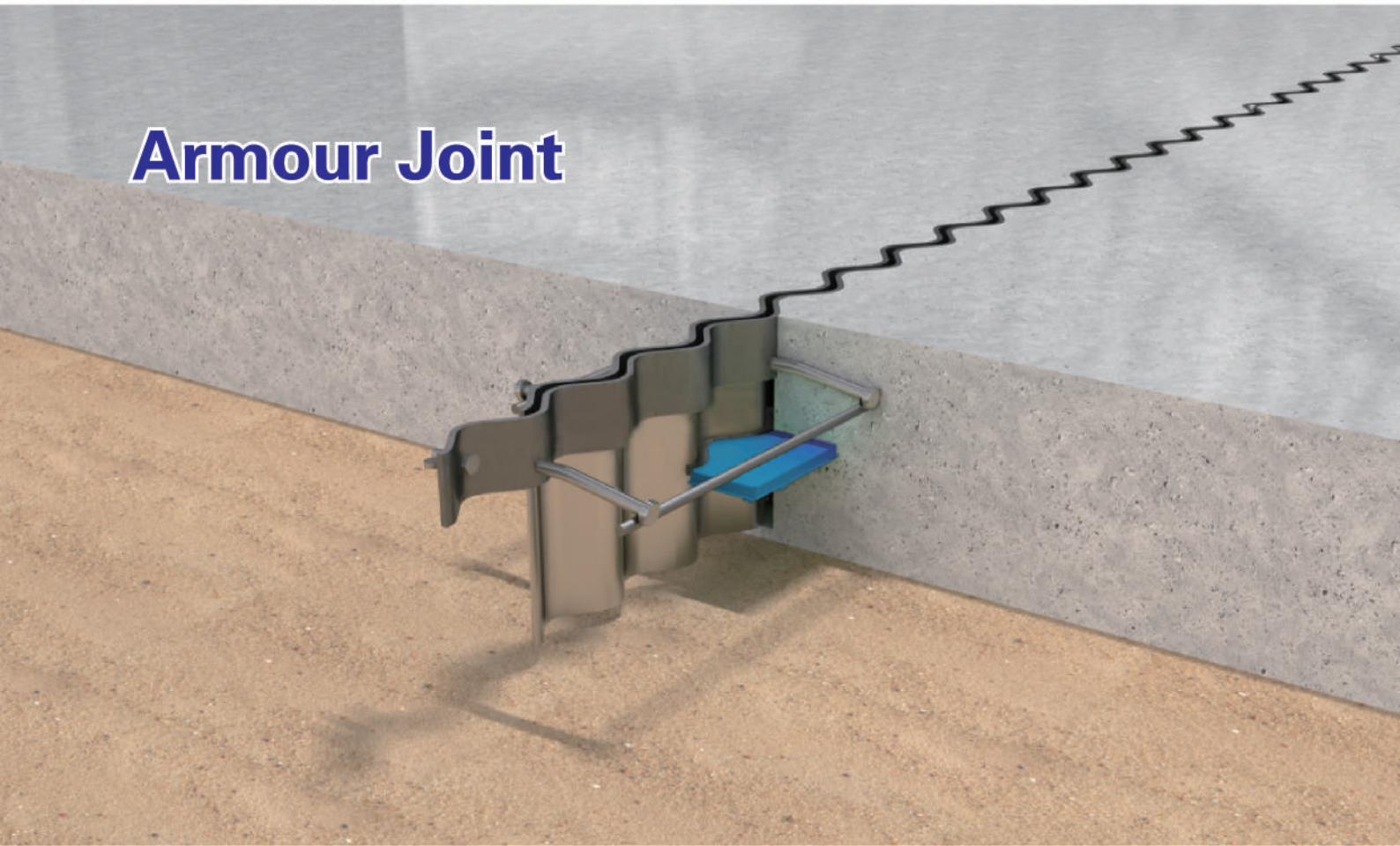




PT KARYA
EVEREST PACIFIC

Armour Joint



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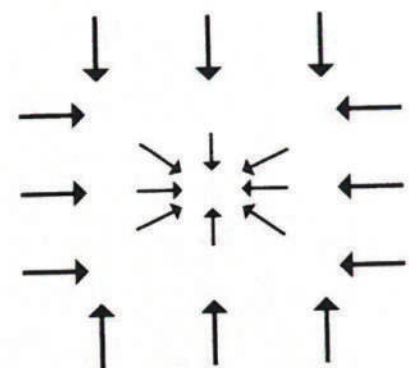
ARMOUR JOINTS

Why use Armoured Joints at all?

Construction joints are an essential part of creating a concrete floor. But left unprotected, they will quickly become damaged once the building is brought into use – leaving the building owner or operator with repair costs and expensive down-time. A damaged construction joint is more than just unsightly. Materials handling vehicles can suffer costly damage too on an uneven surface; and it can even present a health and safety issue for forklift drivers. The best solution is to armour joint arrises during construction, to build in protection from the start. It is easy and cost-effective, and reaps benefits for the lifetime of the building.

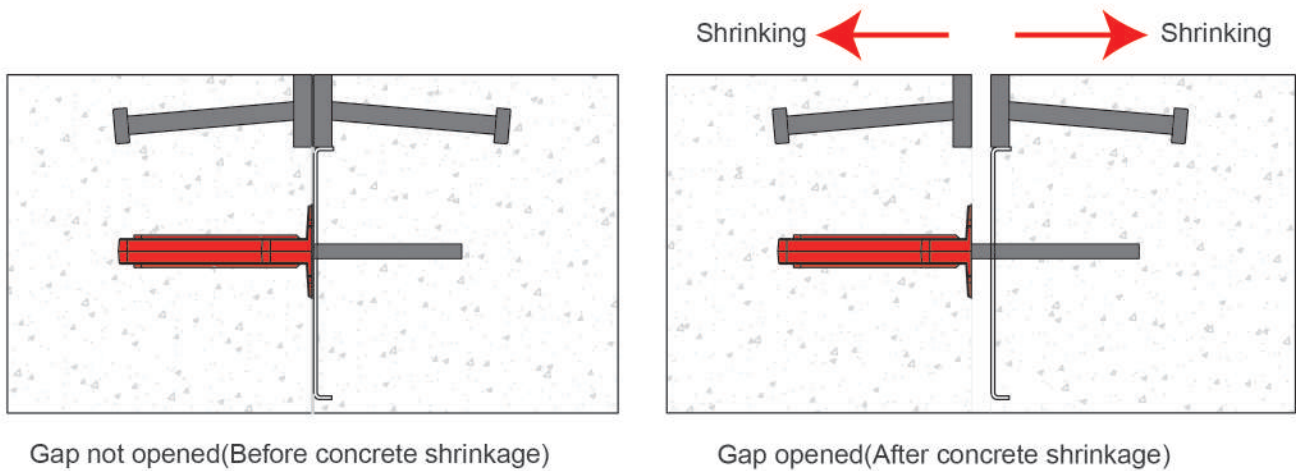
How do Armoured Joints work?

Each joint consists of two edge protection steel arrises (cold drawn flat bars), which are tied together by breakable nylon bolts. Each flat bar is welded with Shear studs at a certain space ($\leq 230\text{mm}$) to anchor into the concrete floor during the concrete pouring process; The lower part of one of the two flat bars is welded with formwork sheet steel, which is used as a formwork in construction on the one hand, and also plays the role of fixing the dowel plates on the other hand. The dowel plate is arranged at half of the floor thickness according to the designed spacing, welded together with formwork sheet steel, and in the direction of the adjacent floor, all dowel plates are equipped with dowel sleeves. After the concrete is poured, it dries and shrinks, and the breakable nylon tie bolts that fix the edges are pulled off, and the two flat bars are separated and located on adjacent floor bays, thus forming shrinkable joints. Shrinkable joints allow floor bays to move freely with the ambient temperature in all seasons and in both directions. The dowel plate is used to transfer the vertical load of the floor adjacent to the expansion joint, so that the relative height difference displacement of the floor on both sides of the expansion joint is minimized, therefore the height difference caused by uneven force and settlement will not be formed. Typically, the maximum vertical load transfer is determined by the impact shear force of the concrete. According to the British Concrete Institute standard TR34.4, the load transfer system does not exceed 50% of the total load to be transferred, and the rest of the load is transferred by the concrete floor itself.

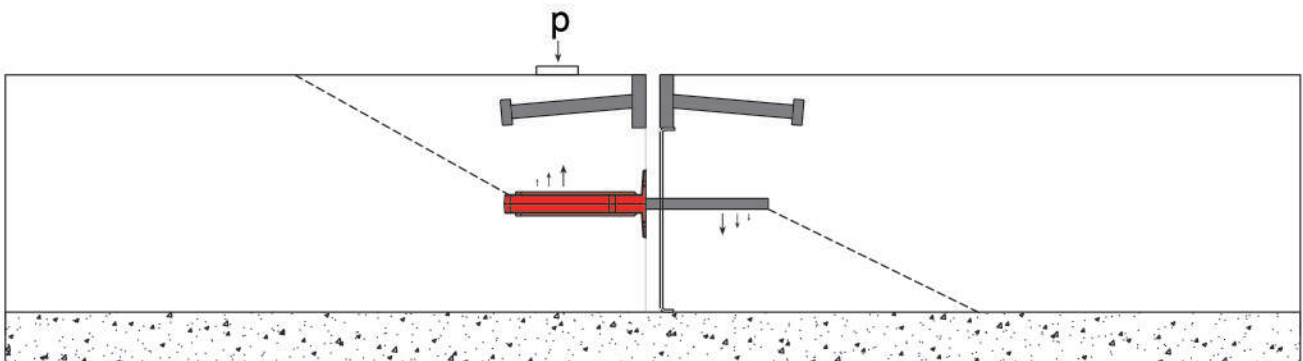


Shrinkage toward the center of concrete slab

Armour Joint Opened



Load Transfer Through Dowel Across Joint



Prefabricated armoured floor joint system is designed as per TR34.4 to meet the demanding needs of today' s industrial concrete ground bearing and piled floors.

Features

- Prefabricated leave-in-place free movement joint system with a function of Form-work.
- A wide range of integral load transfer mechanisms to suit all floor loading.
- Heavy Duty performance with cold drawn steel for extreme armour of joint arrises.
- Easy and fast installation with a help of fixing devices
- The system enables flooring contractors to cast industrial concrete floors for the high flatness category and super flat floor construction.

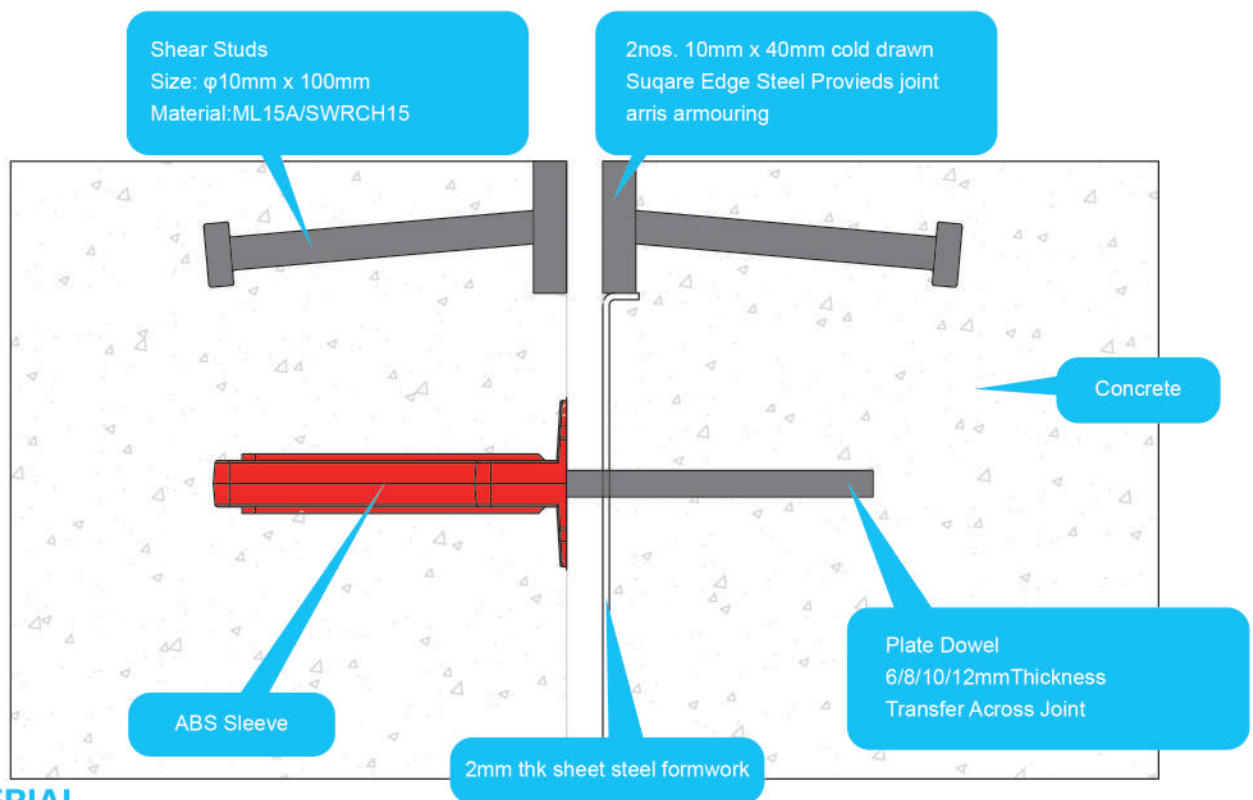
MSARJ CLASSIC FLOOR ARMOUR JOINT FIXED



MSARJ armor joint is a classic design and popular in many projects due to its strength and versatility. This joint consists of heavy duty aris armoring, permanent formwork, and a load transfer system. It is ideal for floor slab thickness from 100mm to 300mm and joint opening up to 20mm. Meishuo can also design and supply the joints according to clients' slab thickness and joint opening. Different materials are also available for MSARJ joints such as plain steel, hot dip galvanized steel and stainless steel. MSARJ joints are not only includes all standard products but also intersection joints such as 4-way section, 3-way section, "L" 2-way section and rounded section.

Application: mainly used for industrial building construction joint, transfer aisle and threshold position.





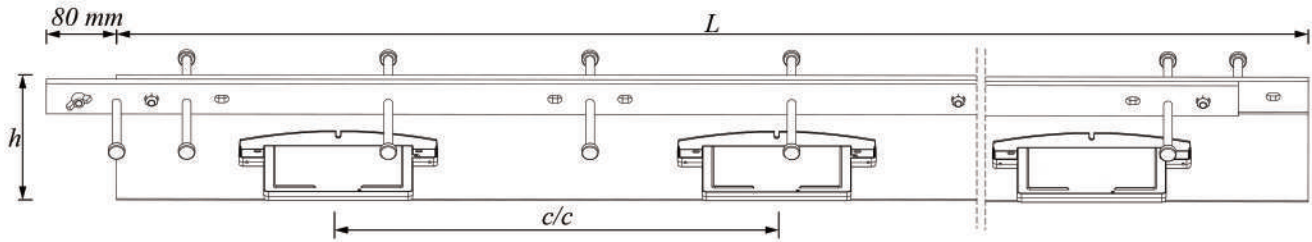
MATERIAL

Version	Joint Aris Armouring	Steel Divider	Dowel Plate	Shear Stud	Sleeve	Environmental Condition
MSARJ	Q235B S235JRC+C	DCO1 HDG	Q355B S355J2+N	ML15A/SWRCH15 AS275JR	ABS	Dry Internal
MSARJ	Q235B HDG S235JRC+C HDG	DCO1 HDG	Q355B S355J2+N	ML15A/SWRCH15 AS275JR	ABS	Occasionally wet
MSARJ	SS304 1.4301	DCO1 HDG	Q355B S355J2+N	ML15A/SWRCH15 AS275JR	ABS	Water + aesthetically demanding
MSARJ	SS316 1.4401	SS316 1.4401	SS316 1.4401	SS304 1.4301	ABS	Salt/water/acid + aesthetically demanding

MSARJ WITH FOAM

Meishuo can deliver MSARJ with closed cell polyethylene foam to the places where slabs are cast in the cool condition and thermal expansion is significant. The thickness of the foam can be 5 / 10 / 15 mm.

DIMENSION



MSARJ Type	Joint Height H(mm)	Dowel Plate	Dowel Centers C/C (mm)	Joint Length L(mm)	Suitable slab Thickness(mm)
MSARJ6-90-3000	90	ARJD6 (6mm)	500	3000	100 ~ 120
MSARJ6-115-3000	115	ARJD6 (6mm)	500	3000	120 ~ 145
MSARJ6-135-3000	135	ARJD6 (6mm)	500	3000	145 ~ 170
MSARJ6-160-3000	160	ARJD6 (6mm)	500	3000	170 ~ 195
MSARJ6-180-3000	180	ARJD6 (6mm)	600	3000	195 ~ 225
MSARJ6-215-3000	215	ARJD6 (6mm)	600	3000	225 ~ 250
MSARJ6-230-3000	230	ARJD6 (6mm)	600	3000	245 ~ 270
MSARJ6-245-3000	245	ARJD6 (6mm)	600	3000	260 ~ 300
MSARJ10-90-3000	90	ARJD10 (10mm)	500	3000	100 ~ 120
MSARJ10-115-3000	115	ARJD10 (10mm)	500	3000	120 ~ 145
MSARJ10-135-3000	135	ARJD10 (10mm)	500	3000	145 ~ 170
MSARJ10-160-3000	160	ARJD10 (10mm)	500	3000	170 ~ 195
MSARJ10-180-3000	180	ARJD10 (10mm)	600	3000	195 ~ 225
MSARJ10-215-3000	215	ARJD10 (10mm)	600	3000	225 ~ 250
MSARJ10-230-3000	230	ARJD10 (10mm)	600	3000	245 ~ 270
MSARJ10-245-3000	245	ARJD10 (10mm)	600	3000	260 ~ 300

Figure	Section Type	Joint Height h(mm)	Size A(mm)	Size B(mm)
Technical drawing of a joint assembly. The drawing shows a side view of a joint with a height h and a length L. The distance between the centers of the dowels is labeled c/c. A dimension of 80 mm is indicated for the width of the joint.	ARJ+90	90	400	400
	ARJ+115	115	400	400
	ARJ+135	135	400	400
	ARJ+160	160	400	400
	ARJ+180	180	400	400
	ARJ+215	215	400	400
	ARJ+230	230	400	400
	ARJ+245	245	400	400

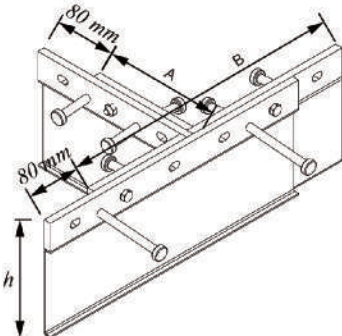
Figure	Section Type	Joint Height h(mm)	Size A(mm)	Size B(mm)
	ARJ T+90	90	160	400
	ARJ T+115	115	160	400
	ARJ T+135	135	160	400
	ARJ T+160	160	160	400
	ARJ T+180	180	160	400
	ARJ T+215	215	160	400
	ARJ T+230	230	160	400
	ARJ T+245	245	160	400

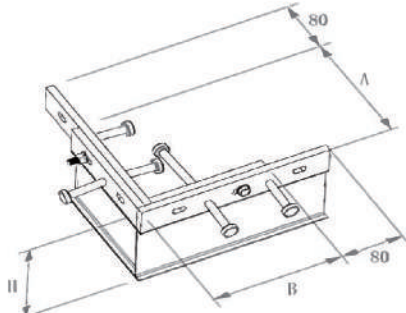
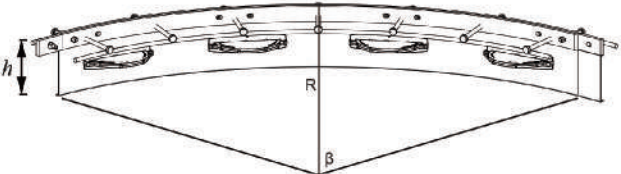
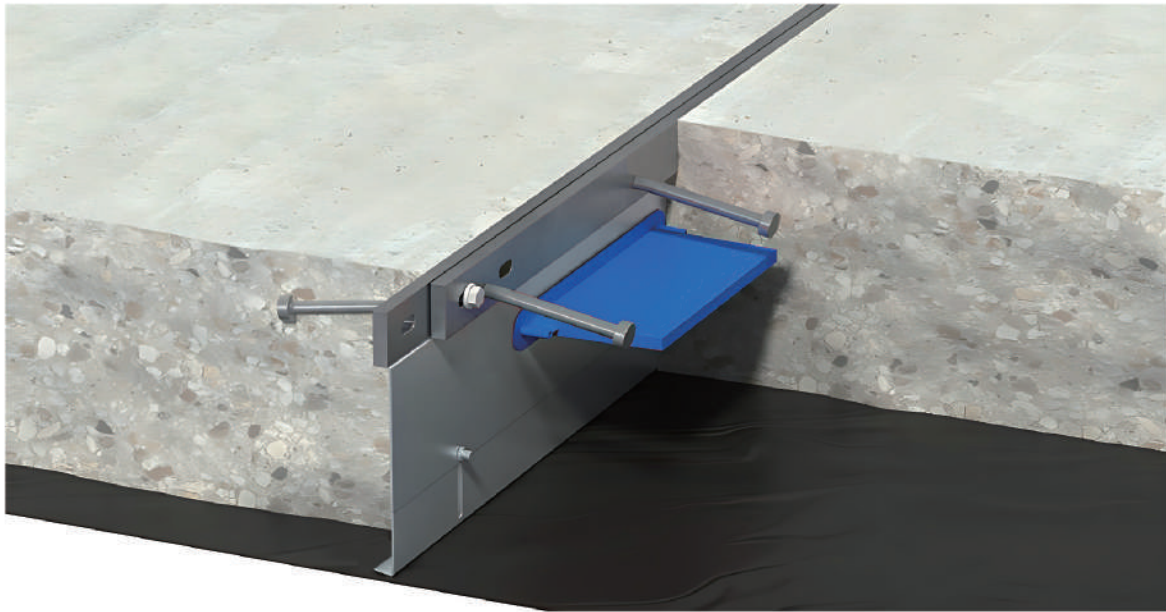
Figure	Section Type	Joint Height h(mm)	Size A(mm)	Size B(mm)
	ARJ L+90	90	160	400
	ARJ L+115	115	160	400
	ARJ L+135	135	160	400
	ARJ L+160	160	160	400
	ARJ L+180	180	160	400
	ARJ L+215	215	160	400
	ARJ L+230	230	160	400
	ARJ L+245	245	160	400

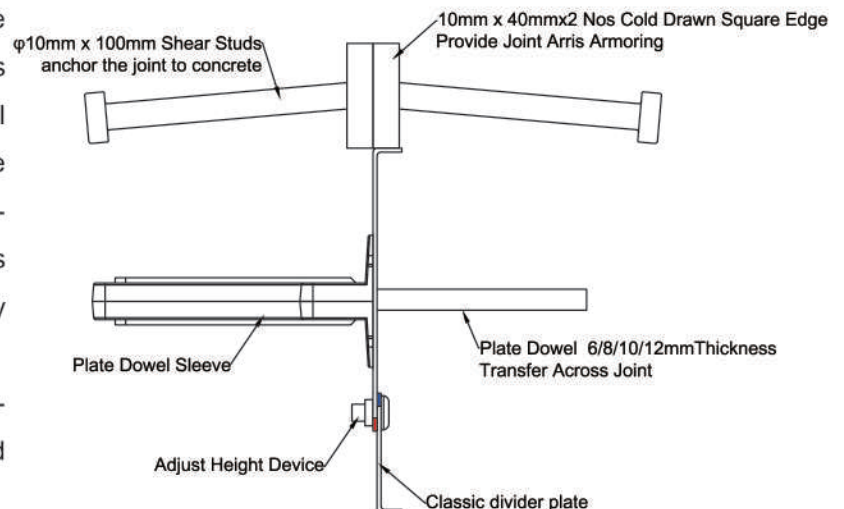
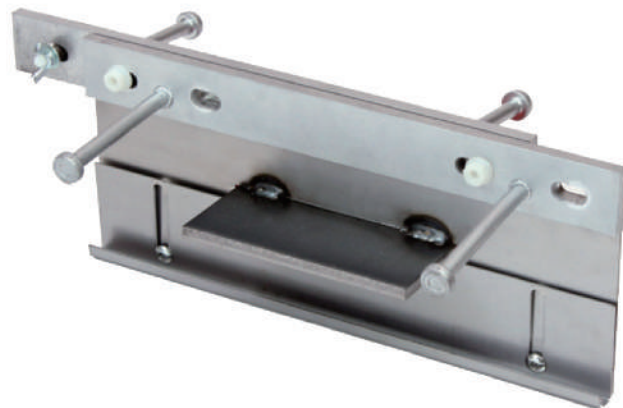
Figure	Section Type	Angle (°c)	Radius(mm)
	MSARJ6-90	β	R
	MSARJ6-115	β	R
	MSARJ6-135	β	R
	MSARJ6-160	β	R
	MSARJ6-180	β	R
	MSARJ6-215	β	R
	MSARJ6-230	β	R
	MSARJ6-245	β	R
	MSARJ10-90	β	R
	MSARJ10-115	β	R
	MSARJ10-135	β	R
	MSARJ10-160	β	R
	MSARJ10-180	β	R
	MSARJ10-215	β	R
	MSARJ10-230	β	R
	MSARJ10-245	β	R

MSARJA CLASSIC FLOOR ARMOUR JOINT ADJUSTABLE



MSARJA armor joint adjustable type consists of two top strips, an upper divider plate, a lower divider plate, load transfer plate dowels and sleeves. Compared with MSARJ armor joint classic type, its lower divider plate is attached to the upper divider plate by a special fastener that requires no tools for adjustment. This design makes the joint ideal for different slab thickness and height can be adjusted as the condition on construction site. Different materials are also available for MSARJA adjustable joints such as plain steel, hot dip galvanized steel and stainless steel. MSARJA adjustable joint are not only includes all standard products but also intersection joints such as 4-way section, 3-way section, "L" 2-way section and rounded section.

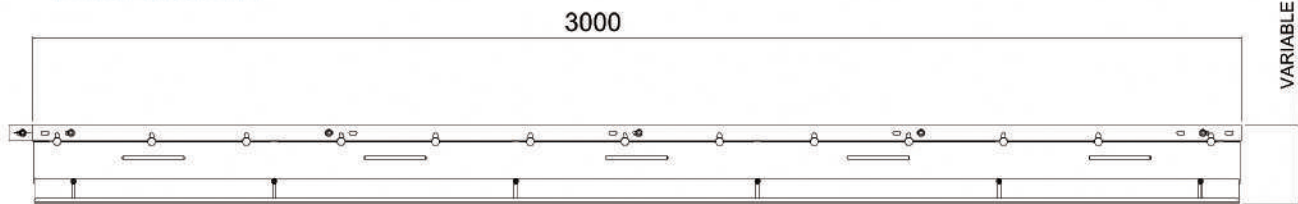
Application: mainly used for industrial building construction joint, transfer aisle and threshold position.



MATERIAL

Version	Joint Aris Armouring	Steel Divider	Dowel Plate	Shear Stud	Sleeve	Environmental Condition
MSARJA Plain Steel	Q235B S235JRC+C	DCO1 HDG	Q355B S355J2+N	ML15A/SWRCH15 AS275JR	ABS	Dry Internal
MSARJA HDG	Q235B HDG S235JRC+C HDG	DCO1 HDG	Q355B S355J2+N	ML15A/SWRCH15 AS275JR	ABS	Occasionally wet
MSARJA Stainless	SS304 1.4301	DCO1 HDG	Q355B S355J2+N	ML15A/SWRCH15 AS275JR	ABS	Water + aesthetically demanding
MSARJA Acid Proof	SS316 1.4401	SS316 1.4401	SS316 1.4401	SS304 1.4301	ABS	Salt/water/acid + aesthetically demanding

DIMENSION



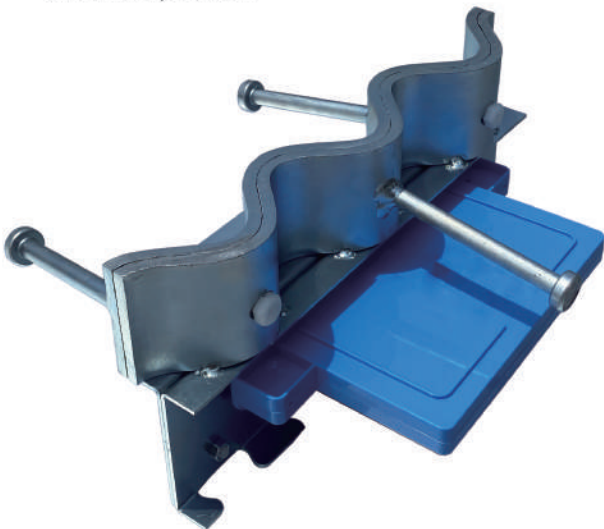
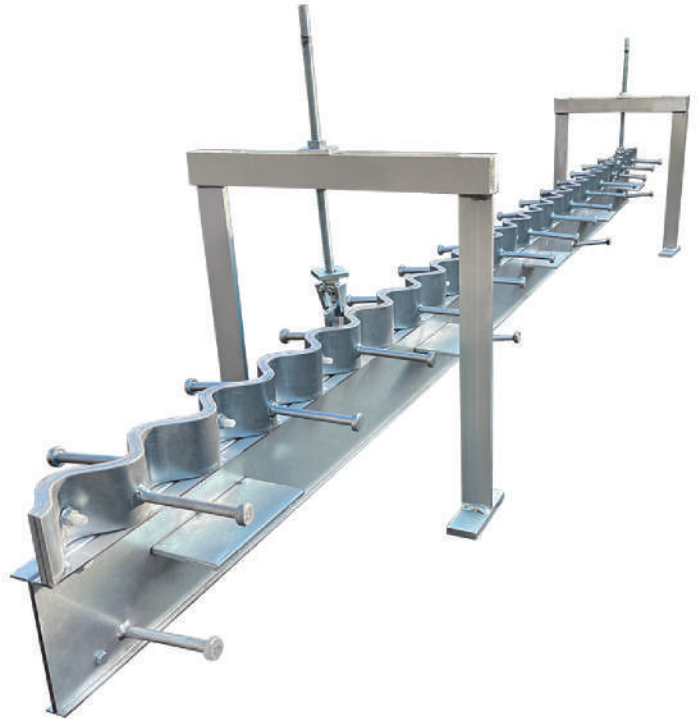
Type	Joint Height(mm)	Dowel Plate	Dowel Centers C/C(mm)	Joint Length(mm)	Suitable Slab Thickness(mm)
MSARJA -100-130- 3000	100-130	ARJD6	500	3000	110-160
MSARJA -130-150- 3000	130-150	ARJD6	500	3000	140-180
MSARJA -150-200- 3000	150-200	ARJD6	500	3000	160-230
MSARJA -200-250- 3000	200-250	ARJD6	500	3000	210-280
MSARJA -250-300- 3000	250-300	ARJD6	500	3000	260-330
MSARJA -300-350- 3000	300-350	ARJD6	500	3000	310-380

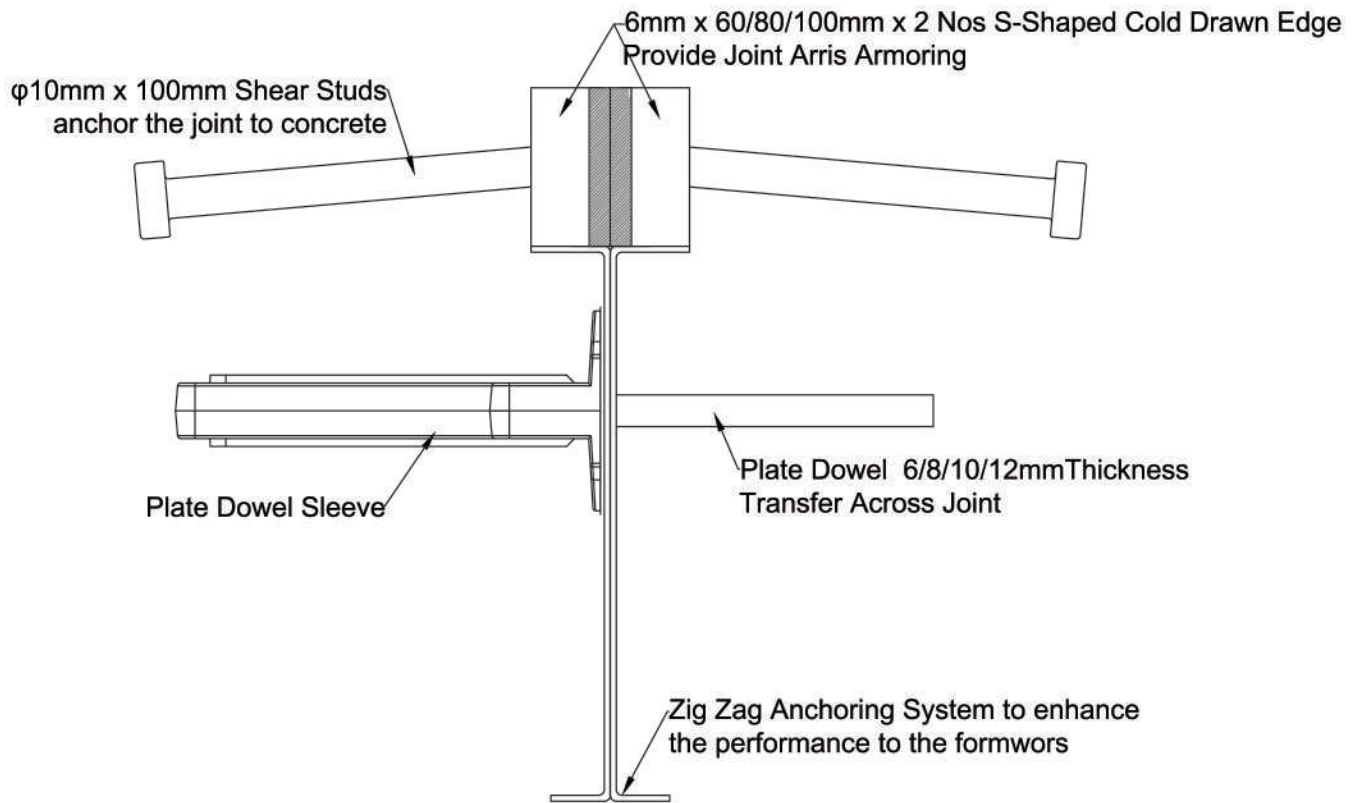
MSARJS SINUSOIDAL SLIDE ARMOUR JOINT

MSARJS Sinusoidal Slide Armour Joint is a newly design. It not only has traditional armor joint functions like concrete edge protection and force transfer with dowel plate system but also has a unique noise reduction function. When the wheels roll across the joint, joints will be free shock and significantly reducing the impact, there is no additional noise occurrence compared to traditional straight edge armor joint. The system transfers vertical loads between adjacent floor slabs and minimizes vertical displacement of the slabs. It is ideal for high-bay floor and the floor where the AGV vehicle moves.

Load transfer and resistances are guaranteed for joints with openings of up to 30 mm. It is suitable for slab depths from 100 mm to 300 mm, and for slab sizes of up to 50 m by 50 m.

Application: mainly used for industrial building construction joint, transfer aisle and threshold position





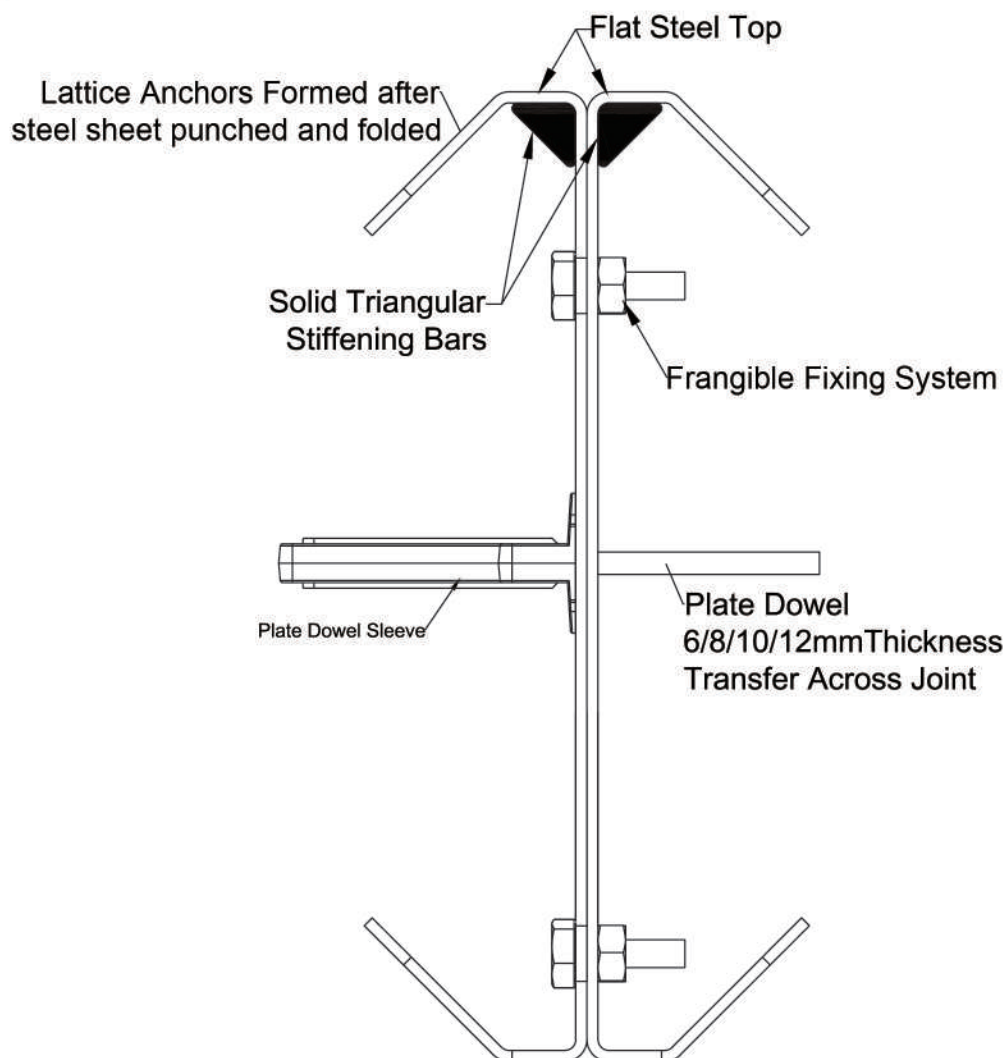
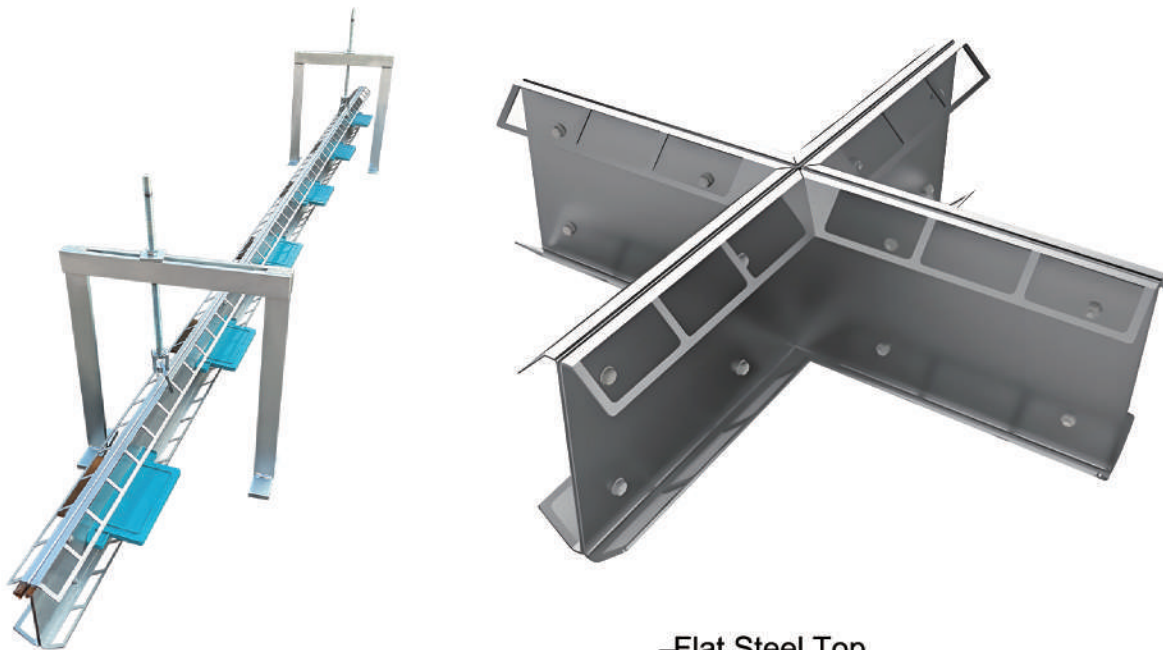
MATERIAL

Version	Joint Arris Armouring	Steel Divider	Dowel Plate	Shear Stud	Sleeve	Environmental Condition
MSARJS Plain Steel	Q235B S235JRC+C	DC01 HDG	Q355B S355J2+N	ML15A/SWRCH15 AS275JR	ABS	Dry Internal
MSARJS HDG	Q235B HDG S235JRC+C HDG	DC01 HDG	Q355B S355J2+N	ML15A/SWRCH15 AS275JR	ABS	Occasionally wet
MSARJS Stainless	SS304 1.4301	DC01 HDG	Q355B S355J2+N	ML15A/SWRCH15 AS275JR	ABS	Water + aesthetically demanding
MSARJS Acid Proof	SS316 1.4401	SS316 1.4401	SS316 1.4401	SS304 1.4301	ABS	Salt/water/acid + aesthetically demanding

DIMENSION

MSARJS Type	Joint Height H(mm)	Dowel Plate	Dowel Centers C/C (mm)	Joint Length L(mm)	Suitable slab Thickness(mm)
MSARJS-60-2800	60			2800	70~90
MSARJS-80-2800	80			2800	90~120
MSARJS6-100-2800	100	ARJD6 (6mm)	560	2800	120~135
MSARJS6-115-2800	115	ARJD6 (6mm)	560	2800	135~150
MSARJS6-135-2800	135	ARJD6 (6mm)	560	2800	150~175
MSARJS6-160-2800	160	ARJD6 (6mm)	560	2800	175~195
MSARJS6-180-2800	180	ARJD6 (6mm)	560	2800	195~215
MSARJS6-200-2800	200	ARJD6 (6mm)	560	2800	215~240
MSARJS6-220-2800	220	ARJD6 (6mm)	560	2800	240~260
MSARJS6-250-2800	250	ARJD6 (6mm)	560	2800	260~290
MSARJS6-270-2800	270	ARJD6 (6mm)	560	2800	290~310
MSARJS10-115-2800	115	ARJD10 (10mm)	560	2800	135~150
MSARJS10-135-2800	135	ARJD10 (10mm)	560	2800	150~175
MSARJS10-160-2800	160	ARJD10 (10mm)	560	2800	175~195
MSARJS10-180-2800	180	ARJD10 (10mm)	560	2800	195~215
MSARJS10-200-2800	200	ARJD10 (10mm)	560	2800	215~240
MSARJS10-220-2800	220	ARJD10 (10mm)	560	2800	240~260
MSARJS10-250-2800	250	ARJD10 (10mm)	560	2800	260~290
MSARJS10-270-2800	270	ARJD10 (10mm)	560	2800	290~310

MSARJBM TYPE FLOOR ARMOUR JOINT

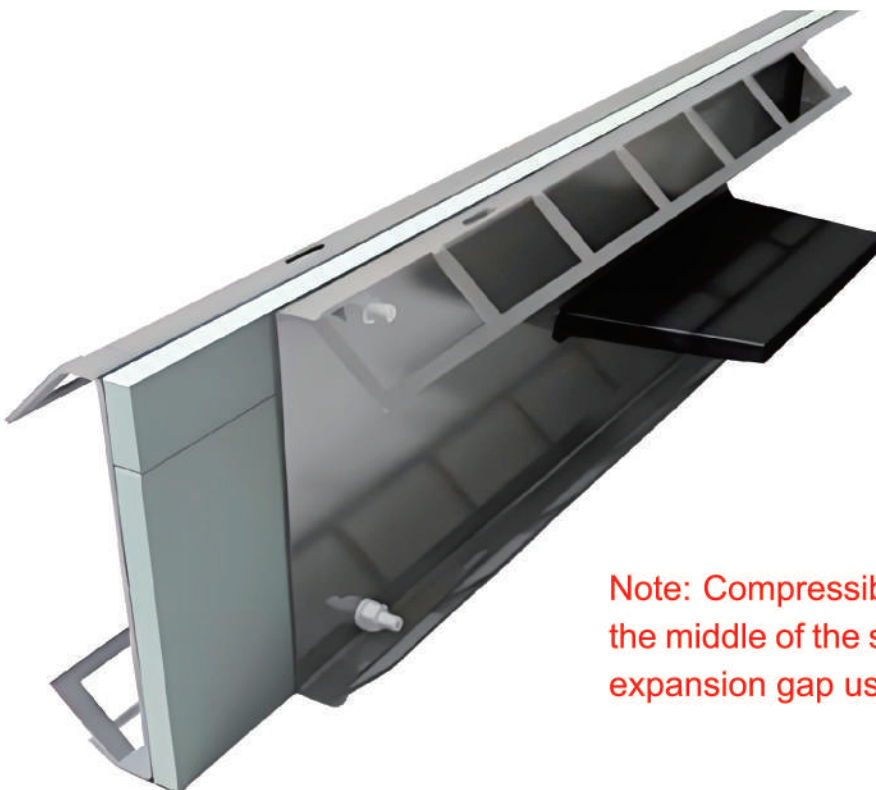


MSARJBM type floor armor joint is an economical design and can be used in many projects. The top triangular edge of this joint allows it to give extra support when vehicle wheels pass. The twin full-height divider plates, specially shaped at the dowel point, add to its strength and rigidity. It is ideal for floor slab thickness from 100mm to 300mm and joint opening up to 20mm. Meishuo can also design and supply the joints according to clients' slab thickness and joint opening. Different materials are also available for MSARJBM joints such as hot dip galvanized steel and stainless steel. MSARJBM joints are not only includes all standard products but also intersection joints such as 4-way section, 3-way section, and "L" 2-way section.

Application: mainly used for industrial building construction joint, transfer aisle and threshold position.

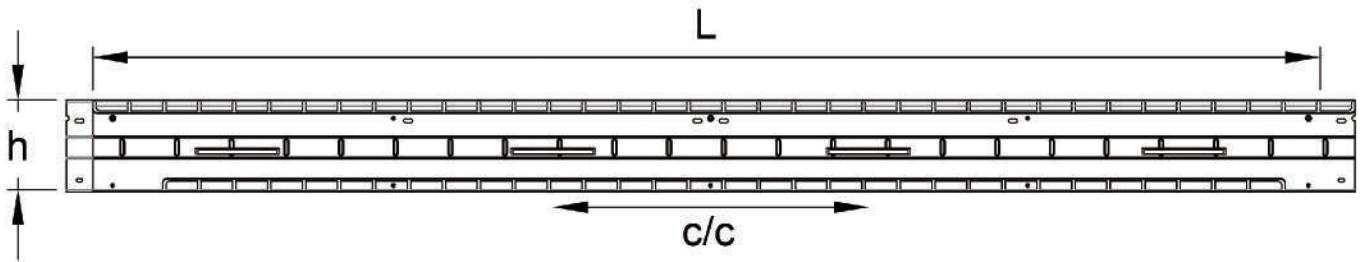
MATERIAL

Version	Steel Divider	Dowel Plate	Sleeve	Environmental Condition
MSARJBM HDG	DC01 HDG	Q355B S355J2+N	ABS	Occasionally wet
MSARJBM Stainless	DC01 HDG	Q355B S355J2+N	ABS	Water + aesthetically demanding
MSARJBM Acid Proof	SS316 1.4401	SS316 1.4401	ABS	Salt/water/acid + aesthetically demanding



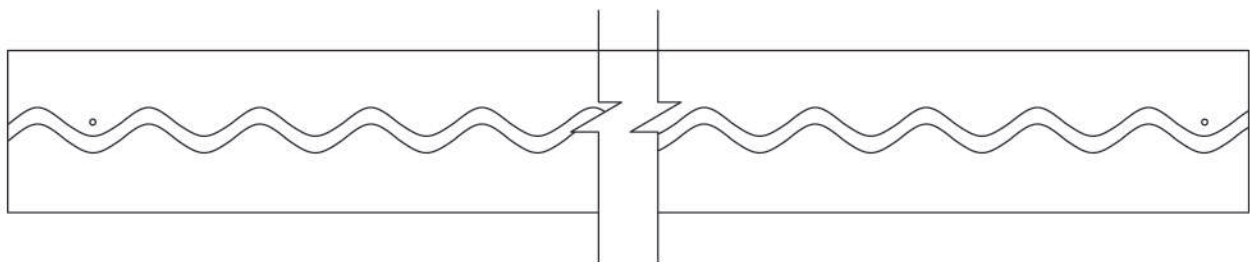
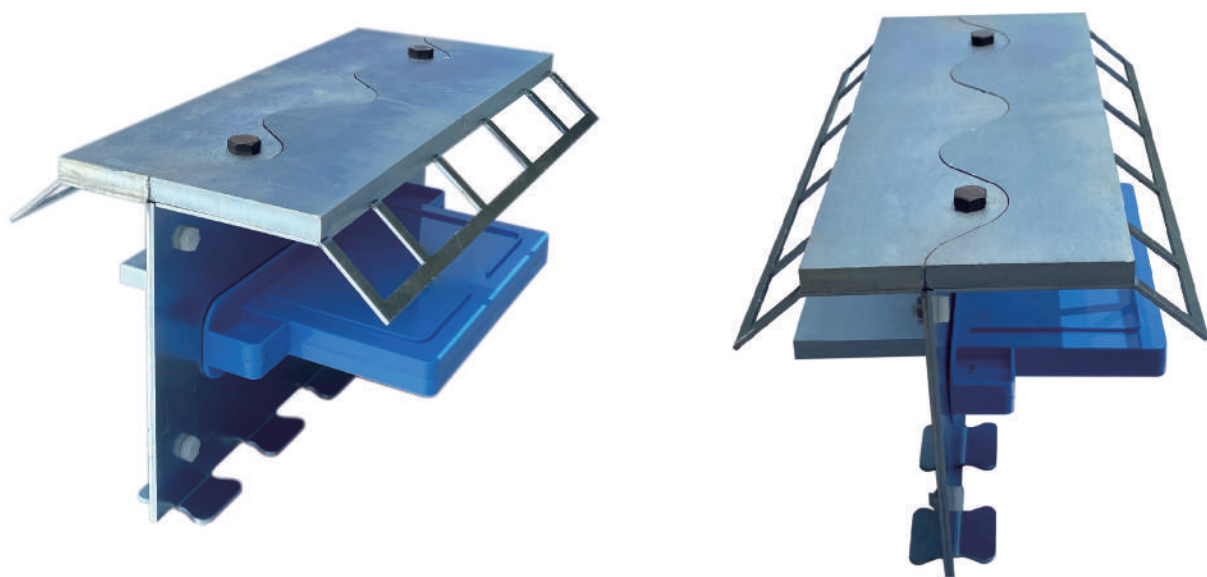
Note: Compressible foam can be added in the middle of the steel plate for outdoor and expansion gap using.

DIMENSION

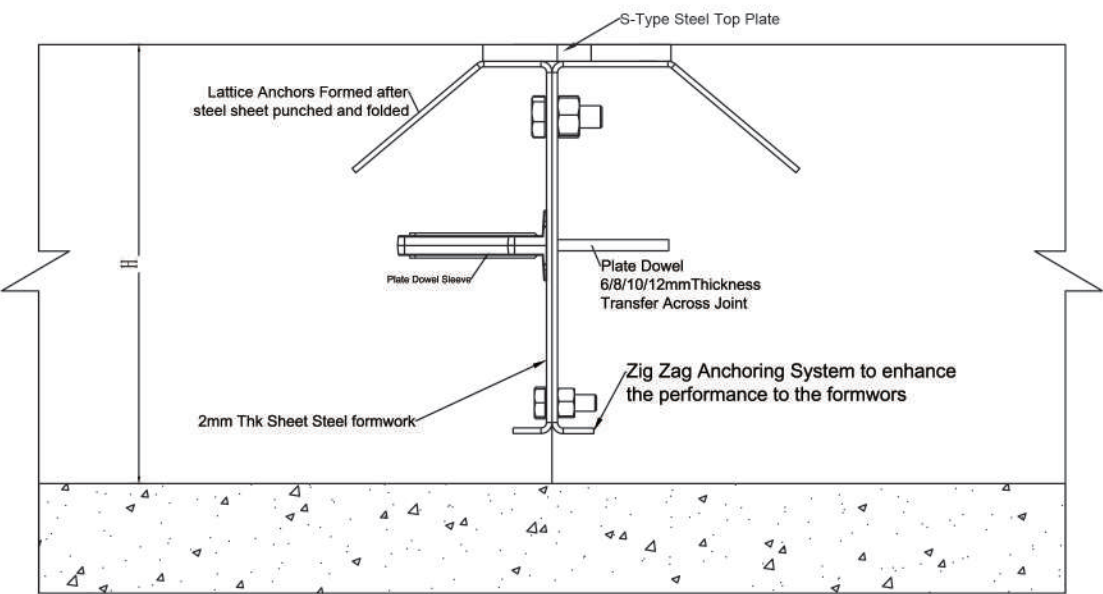


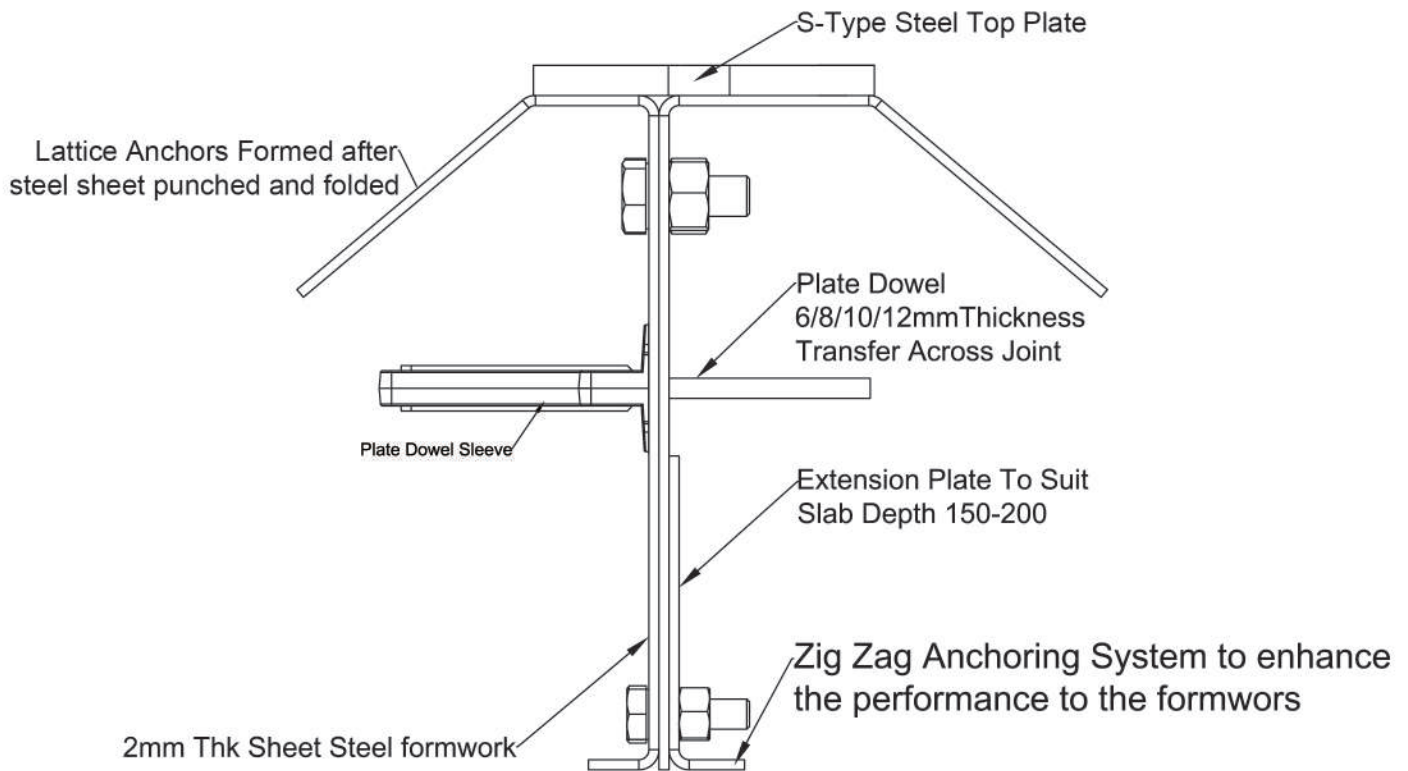
MSARJBM Type	Joint Height H(mm)	Dowel Plate	Dowel Centers C/C (mm)	Joint Length L(mm)	Suitable slab Thickness(mm)
MSARJBM6-90-3000	90	ARJD6 (6mm)	500	3000	100 ~ 120
MSARJBM6-115-3000	115	ARJD6 (6mm)	500	3000	120 ~ 145
MSARJBM6-135-3000	135	ARJD6 (6mm)	500	3000	145 ~ 170
MSARJBM6-160-3000	160	ARJD6 (6mm)	500	3000	170 ~ 195
MSARJBM6-180-3000	180	ARJD6 (6mm)	600	3000	195 ~ 225
MSARJBM6-215-3000	215	ARJD6 (6mm)	600	3000	225 ~ 250
MSARJBM6-230-3000	230	ARJD6 (6mm)	600	3000	245 ~ 270
MSARJBM6-245-3000	245	ARJD6 (6mm)	600	3000	260 ~ 300
MSARJBM10-135-3000	135	ARJD10 (10mm)	500	3000	145 ~ 170
MSARJBM10-160-3000	160	ARJD10 (10mm)	500	3000	170 ~ 195
MSARJBM10-180-3000	180	ARJD10 (10mm)	600	3000	195 ~ 225
MSARJBM10-215-3000	215	ARJD10 (10mm)	600	3000	225 ~ 250
MSARJBM10-230-3000	230	ARJD10 (10mm)	600	3000	245 ~ 270
MSARJBM10-245-3000	245	ARJD10 (10mm)	600	3000	260 ~ 300

MSSCJ STEEL SINUSODIAL TOP PLATE ARMOUR JOINT



Gap to be filled with elastic sealant protected from debris





Note: The extension plate can be set to adjust height from 150-200mm. It ensures that installers can choose the correct joint height on site.

MSSCJ sinusoidal top plate type floor armor joint is especially designed for large bay jointless concrete floors. It can accommodate gap size from 15mm up to 40mm.

This joint consists of a flat top steel plate with sinusoidal profiled, a lattice anchoring system, sheet formwork, dowel plates and zig zag anchoring system. The clever design incorporates two steel plates on top of each other. As the concrete contracts, the two plates slide across each other, one in either direction.

When the wheels roll across the joint, joints will be free shock and significantly reducing the impact, there is no additional noise occurrence compared to traditional straight edge armor joint. The system transfers vertical loads between adjacent floor slabs and minimizes vertical displacement of the slabs. It is ideal for high-bay floor and the floor where the AGC vehicle moves.

Application: mainly used for industrial building construction joint, transfer aisle and threshold position

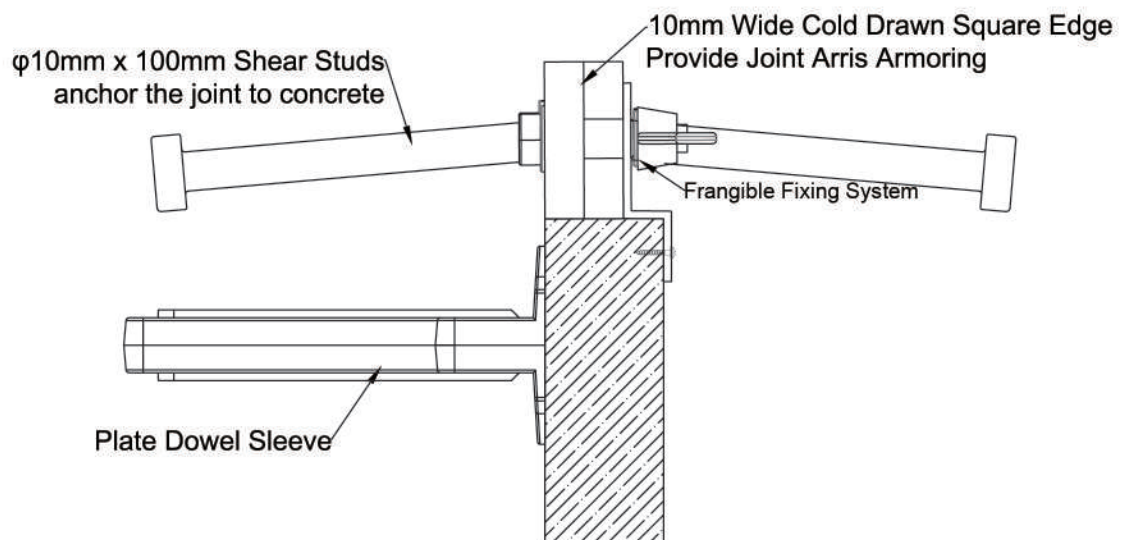
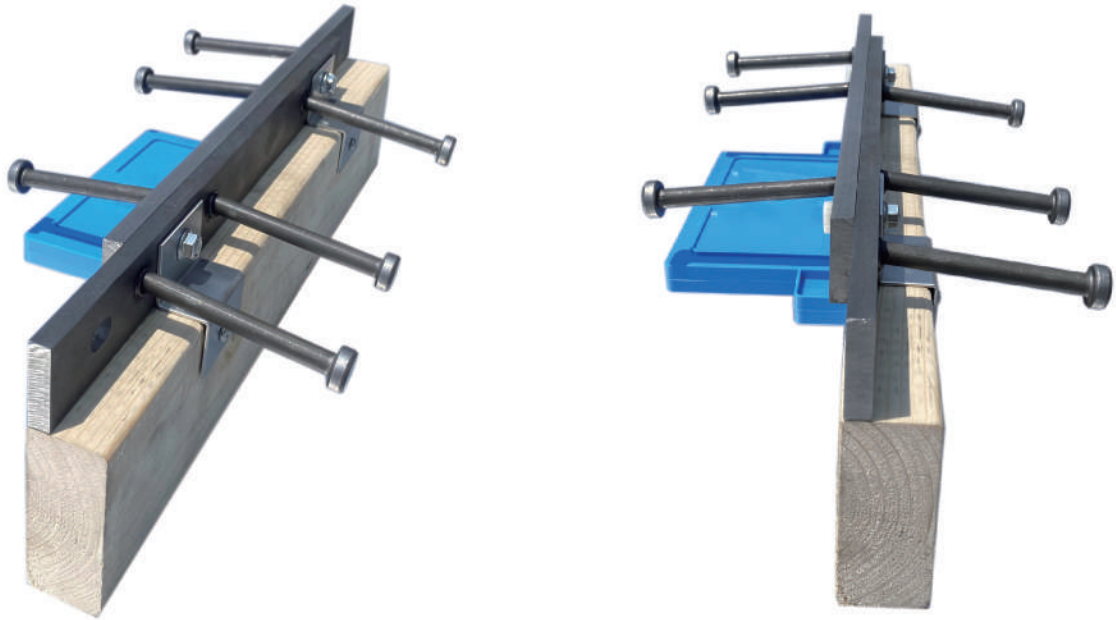
MATERIAL

Version	Joint Arris Armouring	Steel Divider	Dowel Plate	Lattice Anchor	Sleeve	Environmental Condition
MSSCJ Plain Steel	Q3555B S235J2+N	DCO1 HDG	Q355B S355J2+N	DCO1 HDG	ABS	Dry Internal
MSSCJ HDG	Q355B S235J2+N	DCO1 HDG	Q355B S355J2+N	DCO1 HDG	ABS	Occasionally wet
MSSCJ Stainless	SS304 1.4301	DCO1 HDG	Q355B S355J2+N	DCO1 HDG	ABS	Water + aesthetically demanding
MSSCJ Acid Proof	SS316 1.4401	SS316 1.4401	SS316 1.4401	SS316 1.4401	ABS	Salt/water/acid + aesthetically demanding

DIMENSION

MSSCJ Type	Joint Height H(mm)	Dowel Plate	Dowel Centers C/C (mm)	Joint Length L(mm)	Suitable slab Thickness(mm)
MSSCJ6-100-2000	100	ARJD6 (6mm)	500	2000	120~135
MSSCJ6-115-2000	115	ARJD6 (6mm)	500	2000	135~150
MSSCJ6-135-2000	135	ARJD6 (6mm)	500	2000	150~175
MSSCJ6-160-2000	160	ARJD6 (6mm)	500	2000	175~195
MSSCJ6-180-2000	180	ARJD6 (6mm)	600	2000	195~215
MSSCJ6-200-2000	200	ARJD6 (6mm)	600	2000	215~240
MSSCJ6-220-2000	220	ARJD6 (6mm)	600	2000	240~260
MSSCJ6-250-2000	250	ARJD6 (6mm)	600	2000	260~290
MSSCJ6-270-2000	270	ARJD6 (6mm)	600	2000	290~310
MSSCJ10-115-2000	115	ARJD10 (10mm)	500	2000	135~150
MSSCJ10-135-2000	135	ARJD10 (10mm)	500	2000	150~175
MSSCJ10-160-2000	160	ARJD10 (10mm)	500	2000	175~195
MSSCJ10-180-2000	180	ARJD10 (10mm)	600	2000	195~215
MSSCJ10-200-2000	200	ARJD10 (10mm)	600	2000	215~240
MSSCJ10-220-2000	220	ARJD10 (10mm)	600	2000	240~260
MSSCJ10-250-2000	250	ARJD10 (10mm)	600	2000	260~290
MSSCJ10-270-2000	270	ARJD10 (10mm)	600	2000	290~310

MSSAJ TYPE FLOOR STRIP ARMOUR JOINT

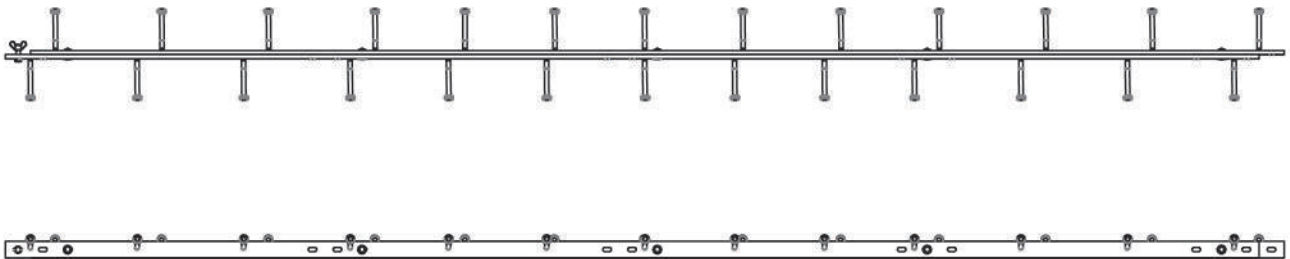


MSSAJ Type Strip Armor Joint is an economical design. It provides the benefits of heavy duty joint armoring where timber formwork is used. It consists of 1 or 2 40*10mm edge steels with shear studs. When used, it is fixed to the top of the timber by screw for the duration of the first concrete pour. It will remain in place once timber formwork is removed. Different materials are also available for MSSAJ joints such as plain steel, hot dip galvanized steel and stainless steel. Normally this strip joint is suitable for larger joint opening up to 30mm and ideal for a wide range of internal applications and all vehicle types.

MATERIAL

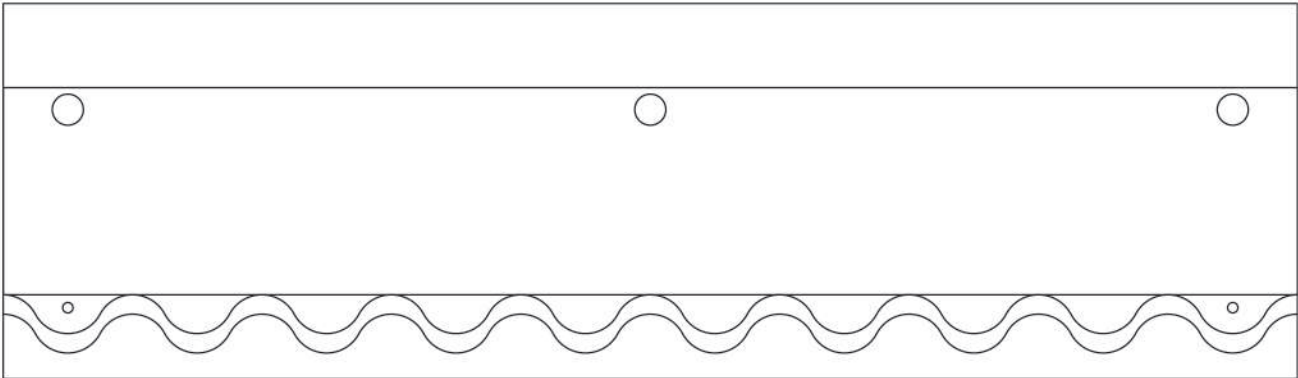
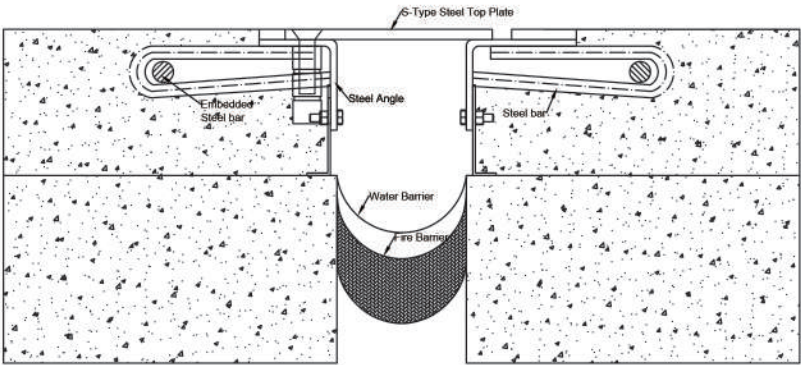
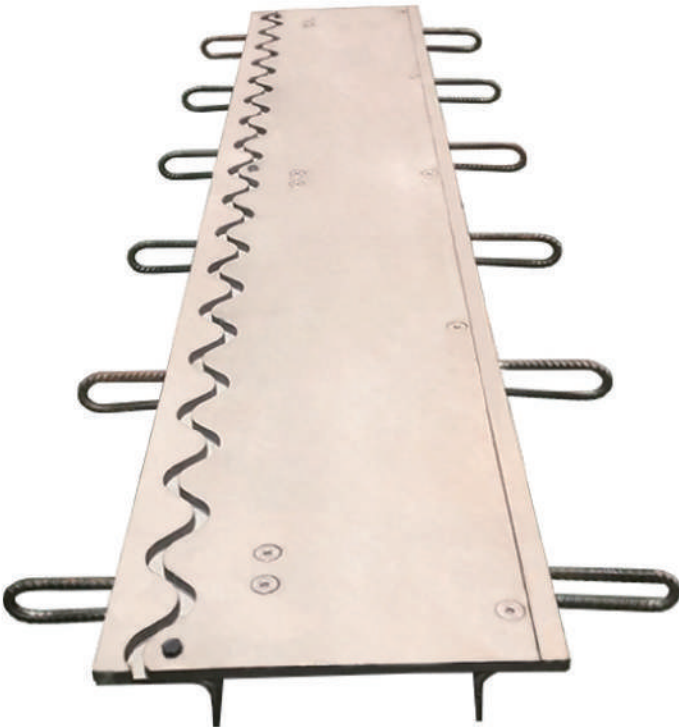
Version	Joint Arris Armouring	Shear Stud	Environmental Condition
MSSAJ Plain Steel	Q235B S235JRC+C	ML15A/SWRCH15 AS275JR	Dry Internal
MSSAJ HDG	Q235B HDG S235JRC+C HDG	ML15A/SWRCH15 AS275JR	Occasionally wet
MSSAJ Stainless	SS304 1.4301	ML15A/SWRCH15 AS275JR	Water + aesthetically demanding
MSSAJ Acid Proof	SS316 1.4401	SS304 1.4301	Salt/water/acid + aesthetically demanding

DIMENSION



Type	Joint Height(mm)	Dowel Centers C/C(mm)	Joint Length(mm)
MSSAJ	40	500	3000

MSBSL TYPE EXPANSION MOVEMENT JOINT



MSBSL Type cast - in Expansion Movement Joint with Sinusoidal Profiled Cover Plate , used for the position of structural joints in floor of buildings . The system is mainly composed of a cover plate , a special connecting steel angle , a shear studs or U - shaped steel bar . Among them , the cover plate is composed of three parts , the left and right sides of the cover plate and the connecting steel angle are embedded in the floor together to form a permanent arrises and supports , the middle part is a movable cover plate , the straight side and one side of the connecting angle steel is fixed with countersunk bolts , the S side sets on top of the other side angle for free movement

FEATURES

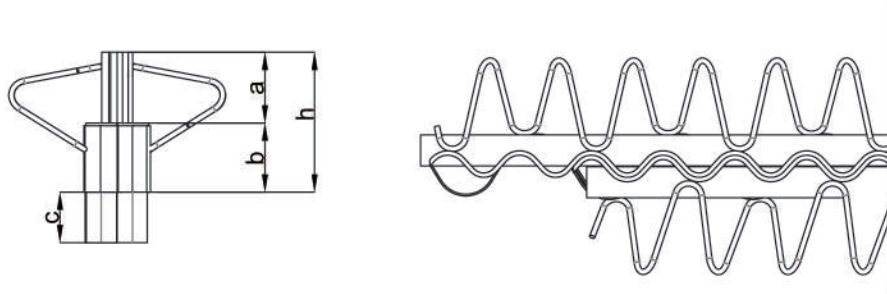
- Permanent arrises for edge protection
- Suitable for wider gap
- Noise reduction and shock free when AGV vehicle across the joint
- Time and labor cost efficiency
- Architectural aesthetics
- Lesser or zero maintenance

MATERIAL

Version	Joint Arris Armouring	Steel Divider	Supporting Angle	Shear Stud	Anchoring U-bars	Gutter	Water Barrier
MSBSL Plain Steel	Q355B S355J2+N	DC01 HDG	Q355B S355J2+N	ML15A/SWRCH15 AS275JR	HRB335	Aluminum Alloy	EPDM
MSBSL HDG	Q355B HDG S355J2+N	DC01 HDG	Q355B S355J2+N	ML15A/SWRCH15 AS275JR	HRB335	Aluminum Alloy	EPDM
MSBSL Stainless	SS201 SU201	DC01 HDG	SS201 SU201	ML15A/SWRCH15 AS275JR	HRB335	SS201 SU201	EPDM
MSBSL Stainless	SS304 1.4301	DC01 HDG	SS304 1.4301	ML15A/SWRCH15 AS275JR	HRB335	SS304 1.4301	EPDM
MSBSL Acid Proof	SS316 1.4401	SS316 1.4401	SS316 1.4401	SS304 1.4301	SS304 1.4301	SS316 1.4401	EPDM

Note: The customer needs to provide the floor thickness, joint width, load and environmental conditions and Meishuo will design and manufacture accordingly.

MSCSJ COSINUSOIDAL SLIDE ARMOUR JOINT



MSCSJ Cosinusoidal Slide Armour Joint is a newly design. It can be used in most industrial concrete floors. Compared with MSARJS Sinusoidal Slide Armour Joint, there are 2 main difference between them. 1, This joint does not have dowel plate. 2, Instead of traditional anchor studs, the joint is anchored into the concrete by a technologically advanced continuous rebar system which weaves itself along the total length of the joint. It consists of double wave slide system (2*5mm upper sinus wave slide and 2*2mm bottom cosinus wave slide). This system makes it transfer the vehicle load smoothly and there will be no stress concentrations and deflection on concrete. Except excellent dynamic load transfer, this joint can also handle with static load transfer perfectly. Different materials are also available for MSCSJ joints such as plain steel, hot dip galvanized steel and stainless steel.

Application: mainly used for industrial building construction joint, transfer aisle and threshold position

MATERIAL

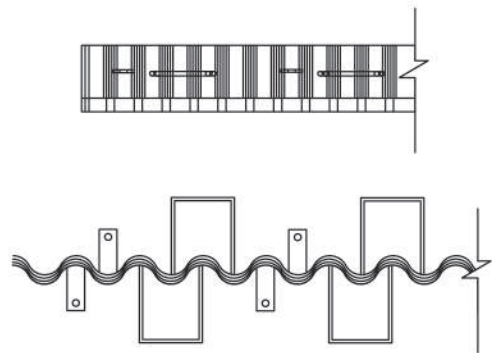
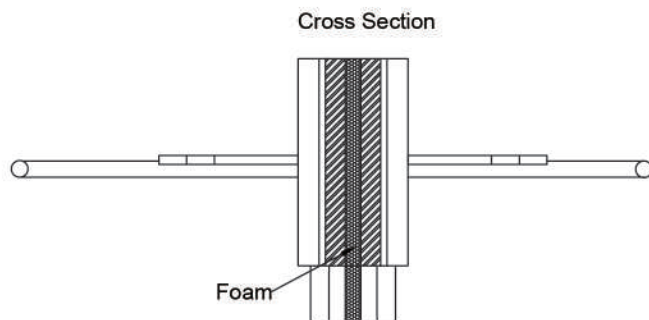
Version	Steel Plate	Environmental Condition
MSCSJ(Plain Steel)	Q235B S235JRC+C	Dry Internal
MSCSJ HDG	Q235B HDG S235JRC+C HDG	Occasionally wet
MSCSJ Stainless	SS304 1.4301	Water + aesthetically demanding
MSCSJ Acid Proof	SS316 1.4401	Salt/water/acid + aesthetically demanding

DIMENSION

Version	Slab Thickness h (mm)	Sinus a (mm)	Cosinus b (mm)	Adjustable Plate c(mm)	Length (mm)
90-120	90-120	50	35	40	2600
115-160	115-160	50	60	60	2600
160-215	160-215	80	75	75	2600
205-300	205-300	80	120	120	2600
255-370	255-370	80	170	170	2600
370-500	370-500	80	290	200	2600

MSSRJ SINUS SLIDE ARMOUR JOINT

The sinus slide joint is especially designed for repair joints that have been damaged. Nowadays , small hard wheels are widely used in modern environment. Traditional joints have a hard time holding up in such high traffic facilities. Therefore, it is common that there is serious damage to an industrial floor at the joint. To eliminate the cause of the damage, only a lasting repair is of use. The sinus slide joint is wise and efficient solution for it. This system has a unique 2*5mm sinus wave steel and 3mm flat rectangular bar for connecting of anchorage bolts. The joint opening can be up to 15mm. Different materials are also available for this repair joint such as plain steel, hot dip galvanized steel and stainless steel.



MATERIAL

Version	Steel Plate	Environmental Condition
MSSRJ(Plain Steel)	Q235B S235JRC+C	Dry Internal
MSSRJ HDG	Q235B HDG S235JRC+C HDG	Occasionally wet
MSSRJ Stainless	SS304 1.4301	Water + aesthetically demanding
MSSRJ Acid Proof	SS316 1.4401	Salt/water/acid + aesthetically demanding

Note: Pre-opening with polyethylene foam 5 mm Optional

DIMENSION

Type	Joint Height(mm)	Steel Thickness(mm)	Joint Length(mm)
MSSRJ 35	40	5	2600
MSSRJ 50	50	5	2600
MSSRJ 60	60	5	2600
MSSRJ 80	80	5	2600

MSSSJ PREFABRICATED STEEL ARMOUR JOINT

MSSSJ is a prefabricated steel armoured free movement joint system . It is especially designed for larger openings especially in cool rooms, freezers and post tension slabs. The sinus opening on the surface allows AGV wheels to roll smoothly over the joint. It is available as a full system including divider plate and dowel plate or as a top section only for use on PT slabs. This model is suitable for slab thickness from 150mm up to 300mm and can be used for joint openings up to 20mm wide. Different materials are also available for this joint such as plain steel, hot dip galvanized steel and stainless steel.



MATERIAL

Version	Top Rails+Anchors	Steel Divider	Dowel Plate	Sleeve	Environmental Condition
MSSSJ (Plain Steel)	Q355B S355J2+N	DC01 HDG	Q355B S355J2+N	ABS	Dry Internal
MSSSJ HDG	Q355B S355J2+N HDG	DC01 HDG	Q355B S355J2+N	ABS	Occasionally wet
MSSSJ Stainless	SS304 1.4301	DC01 HDG	Q355B S355J2+N	ABS	Water + aesthetically demanding
MSSSJ Acid Proof	SS316 1.4401	SS316 1.4401	SS316 1.4401	ABS	Salt/water/acid + aesthetically demanding

DIMENSION

Type	Height(mm)	Dowel Plate	Dowel Centers C/C(mm)	Joint Length(mm)
MSSSJ6-145-2400	145	ARJD6	480	2400
MSSSJ6-160-2400	160	ARJD6	480	2400
MSSSJ6-185-2400	185	ARJD6	480	2400
MSSSJ6-215-2400	215	ARJD6	480	2400
MSSSJ8-145-2400	145	ARJD8	480	2400
MSSSJ8-160-2400	160	ARJD8	480	2400
MSSSJ8-185-2400	185	ARJD8	480	2400
MSSSJ8-215-2400	215	ARJD8	480	2400
MSSSJ10-145-2400	145	ARJD10	480	2400
MSSSJ10-160-2400	160	ARJD10	480	2400
MSSSJ10-185-2400	185	ARJD10	480	2400
MSSSJ10-215-2400	215	ARJD10	480	2400
MSSSJ12-145-2400	145	ARJD12	480	2400
MSSSJ12-160-2400	160	ARJD12	480	2400
MSSSJ12-185-2400	185	ARJD12	480	2400
MSSSJ12-215-2400	215	ARJD12	480	2400

MSDP TYPE LOAD TRANSFER ARMOUR JOINT



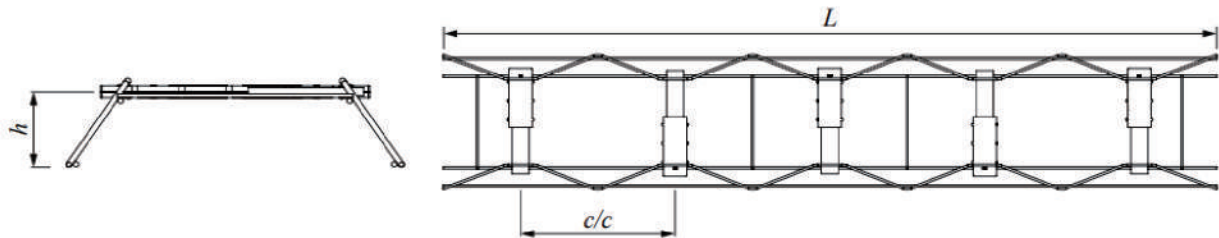
MSDP Type load transfer armor joint is prefabricated leave-in-place load transfer system dedicated to the construction of saw cut or induced contraction joints. The system consists of a positioning wire cradle and load transfer system. Dowels and sleeves are held by the cradle, aligned and suspended in position in the middle of the slab with the required dowel spacing, thereby ensuring correct positioning and alignment of the individual dowels and sleeves. The system is suitable for internal and external slabs with depths from 125 mm to 250 mm. Different materials are also available for MSDP joints such as plain steel, hot dip galvanized steel and stainless steel.

Application: mainly used for industrial building construction joint, transfer aisle and threshold position

MATERIAL

Version	Cradle	Dowel Plate	Sleeve
MSDP Plain Steel	Q195	Q355B	ABS
MSDP HDG	Q195	Q355B	ABS
MSDP Stainless Steel	Q195	SS316	ABS

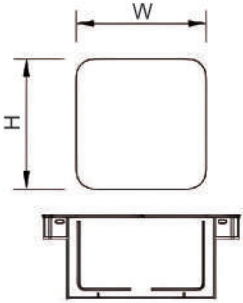
DIMENSION



Version	Height h	Dowel type	Dowel centres c/c	Length L	Advisable slab depth
MSDP 6-450-63	63mm	6 × 50 × 300 mm	450mm	2250mm	125mm
MSDP 6-450-75	75mm	6 × 50 × 300 mm	450mm	2250mm	150mm
MSDP 10-450-63	63mm	10 × 50 × 300 mm	450mm	2250mm	125mm
MSDP 10-450-75	75mm	10 × 50 × 300 mm	450mm	2250mm	150mm
MSDP 10-450-88	88mm	10 × 50 × 300 mm	450mm	2250mm	175mm
MSDP 10-450-100	100mm	10 × 50 × 300 mm	450mm	2250mm	200mm
MSDP 10-450-113	113mm	10 × 50 × 300 mm	450mm	2250mm	225mm
MSDP 10-450-125	125mm	10 × 50 × 300 mm	450mm	2250mm	250mm

DOWEL PLATE

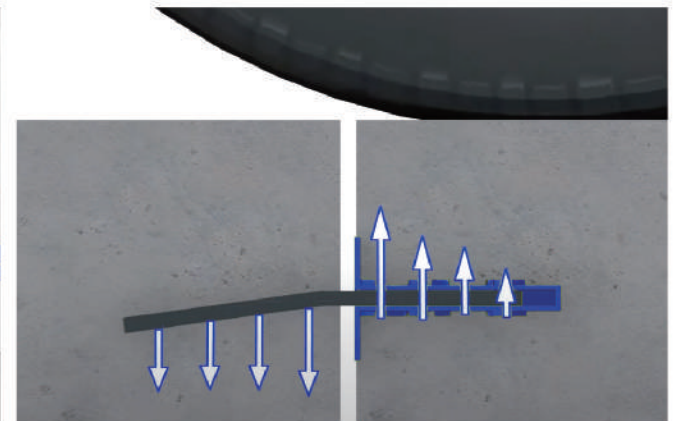
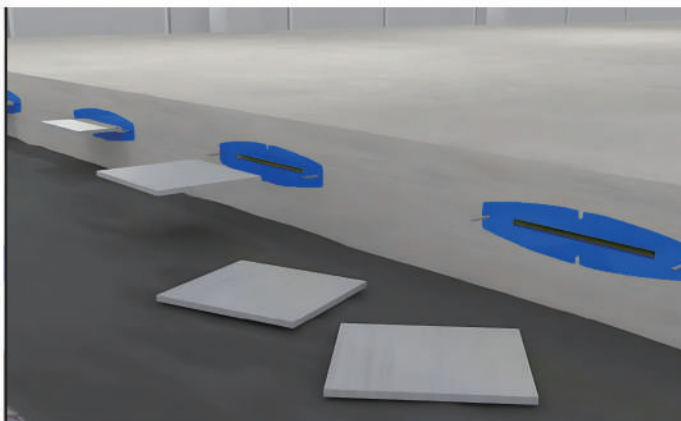
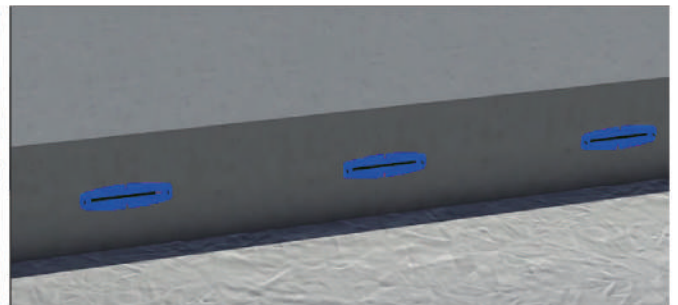
DOWEL PLATE AND SLEEVE

Figure	Dowel Plate	Size W*H	Plate Thickness(mm)	Joint Opening(mm)
	ARJD6	142mm*150mm	6	0~15
	ARJD8	142mm*150mm	8	0~15
	ARJD10	142mm*150mm	10	15~20
	ARJD12	142mm*150mm	12	≥15

Meishuo dowel plate and sleeve can consist of a cost-effective load transfer system for free-movement contraction joints in concrete floors designed for use with traditional methods of formed joint construction with timber formwork.

When installation, we fix the sleeve on the formwork first and pour concrete on it as photo. Then we remove formwork and insert dowel plate into it as photo below. There is support in the sleeve. With support, the sleeve will not get out of shape after concreting and it ensures the dowel plate can be inserted into sleeve successfully.

This system is recommended to be used for joint openings of up to 20 mm and is suitable for construction of all types of ground-level floor slabs, such as jointed or jointless, ground-bearing and pile-supported concrete floors. The sleeves allow the dowels to move longitudinally for 10 mm in either direction.



RESISTANCES FOR ARMOR JOINT

DESIGN RESISTANCES OF DOWELS IN SHEAR AND BEARING / BENDING [KN] ACCORDING TR34.4 FOR C35

Dowel Type	Concrete Grade	Joint Opening (mm)	Shear Psh (kN)	Bearing/Bending Pmax plate (kN)
ARJD 6	C35	15	141.9	40.7
ARJD 10	C35	20	236.5	77.4

DESIGN PUNCHING SHEAR RESISTANCE [KN] OF ARJD 6 ACCORDING TR34.4 FOR 15 MM JOINT OPENING

Slab thickness (mm)	Punching P C30	Punching P C35	Punching P C40	Punching P C45	Punching P C50
100	12.7	13.5	14.4	15.1	16.1
150	20.2	21.4	22.9	23.9	25.6
200	29	30.7	32.9	34.4	36.7
250	39.2	41.5	44.4	46.4	49.6
300	50.7	53.7	57.4	60	64.1

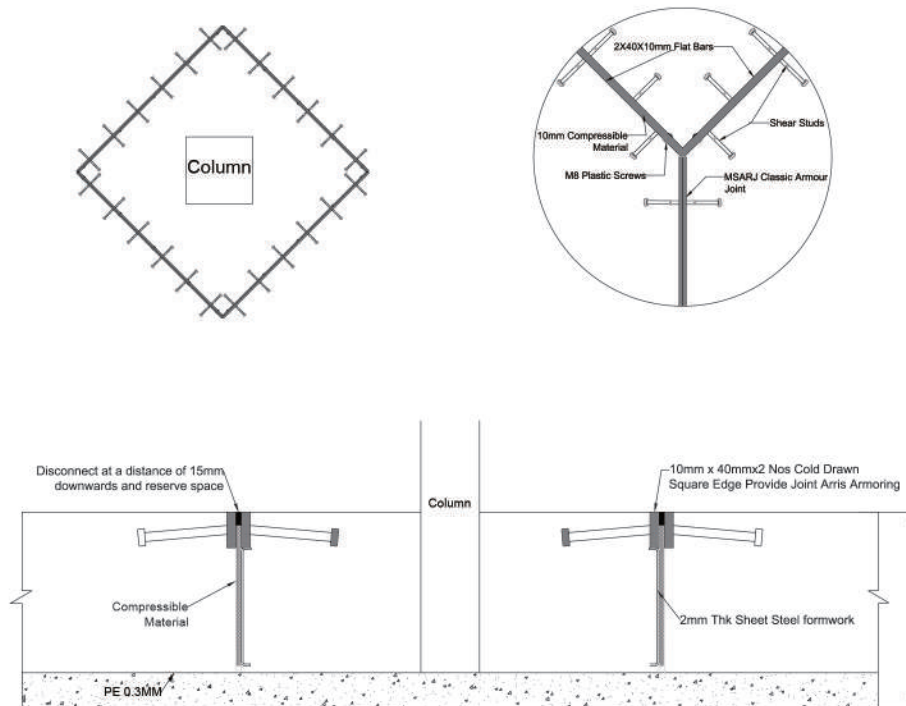
DESIGN PUNCHING SHEAR RESISTANCE [KN] OF ARJD 10 ACCORDING TR34.4 FOR 20 MM JOINT OPENING

Slab thickness (mm)	Punching P C30	Punching P C35	Punching P C40	Punching P C45	Punching P C50
100	12.6	13.3	14.2	14.9	15.9
150	20	21.2	22.6	23.7	25.3
200	28.8	30.5	32.6	34	36.4
250	38.9	41.2	44	46	49.2
300	50.4	53.3	57	59.6	63.7

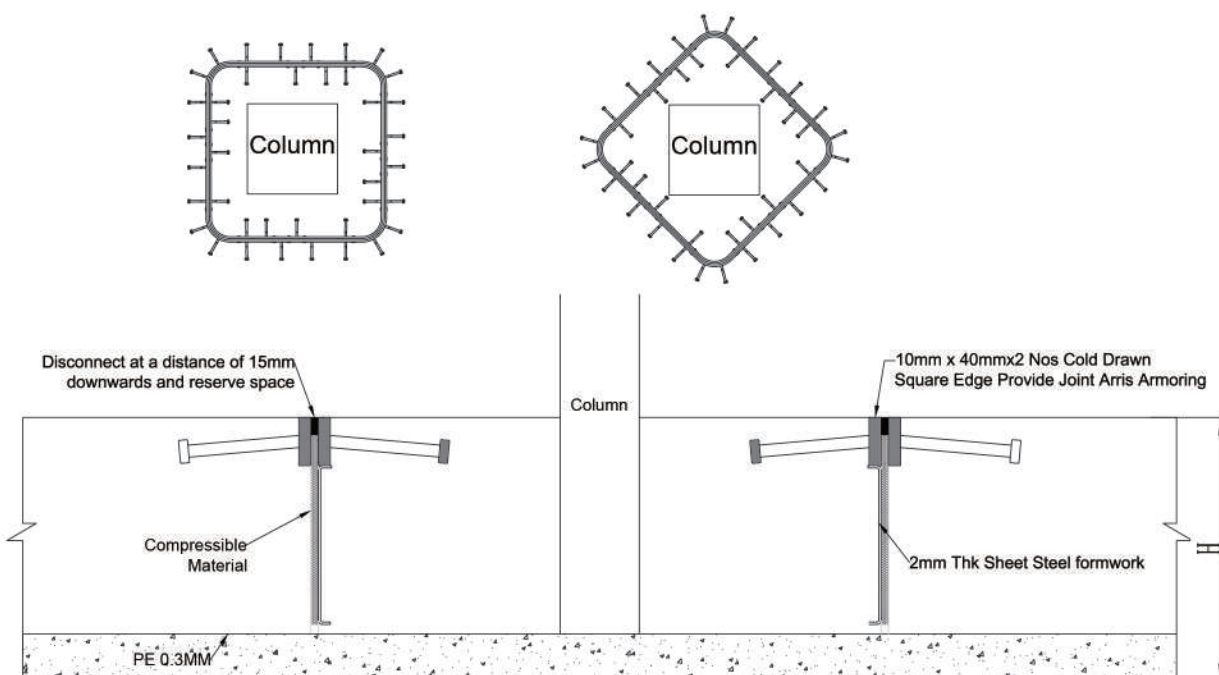
The punching shear resistances are calculated for plain concrete ONLY, and according TR34,4 should be used also for steel and macro-synthetic fiber reinforced concrete. Meishuo is able to design and manufacture ARJ Joint with resistances for other joint openings or concrete grades are needed.

COLUMN ISOLATORS

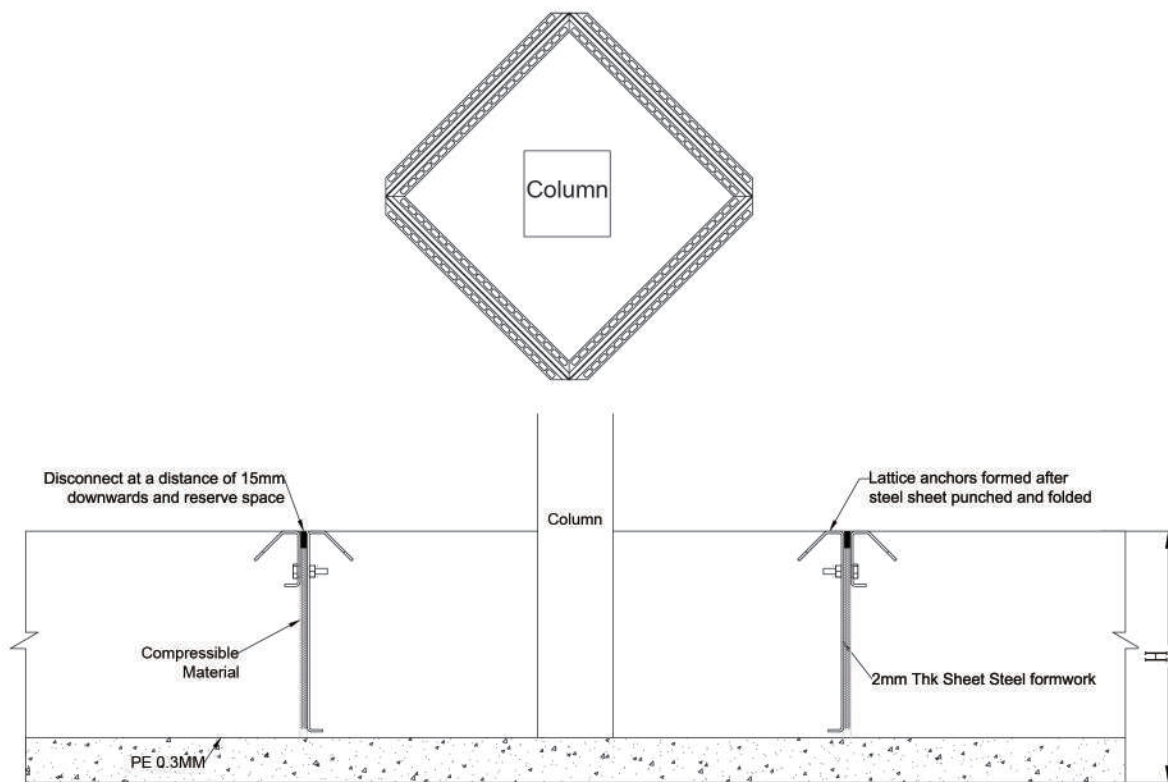
MSARJ DIAMOND ISOLATOR



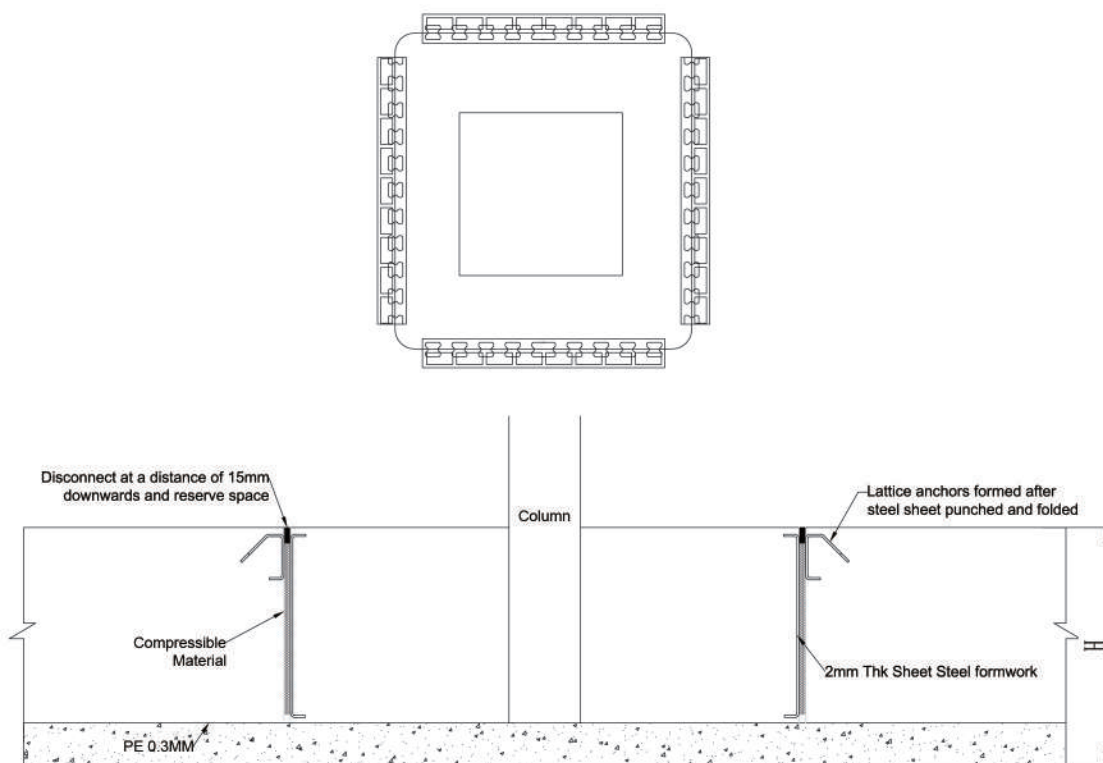
MSARJ RECTANGULAR ISOLATOR



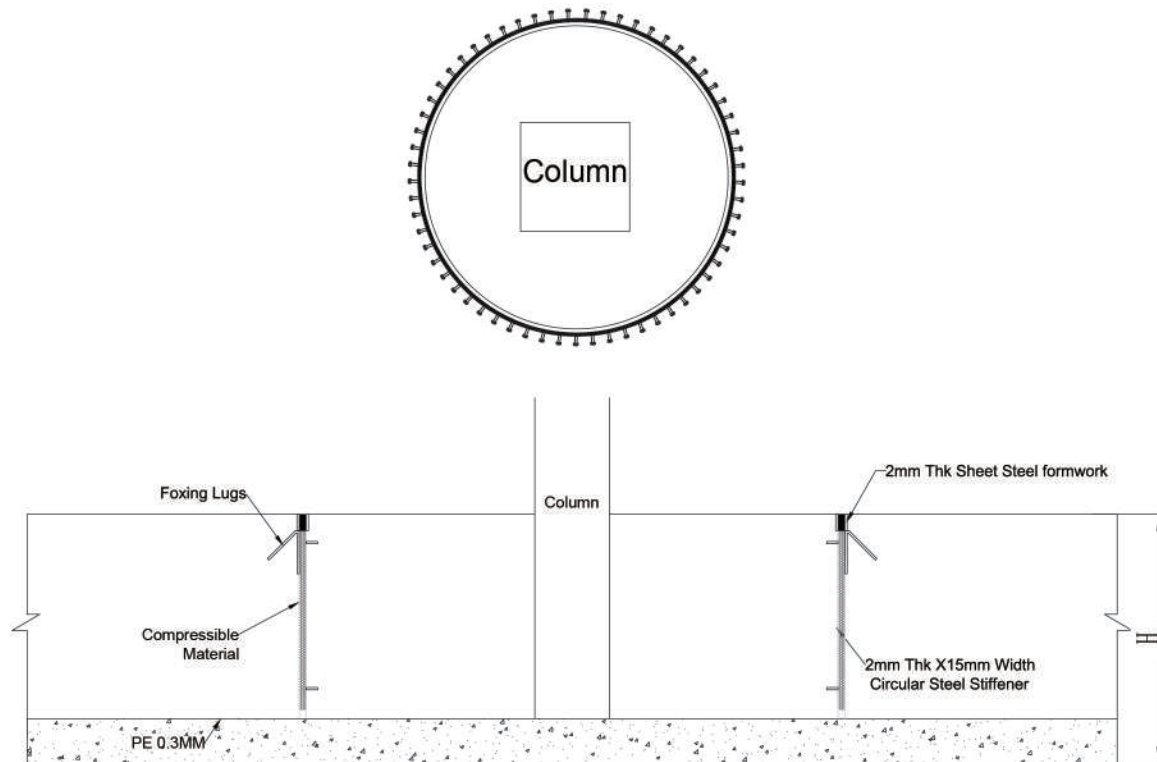
MSARJBM DIAMOND ISOLATOR



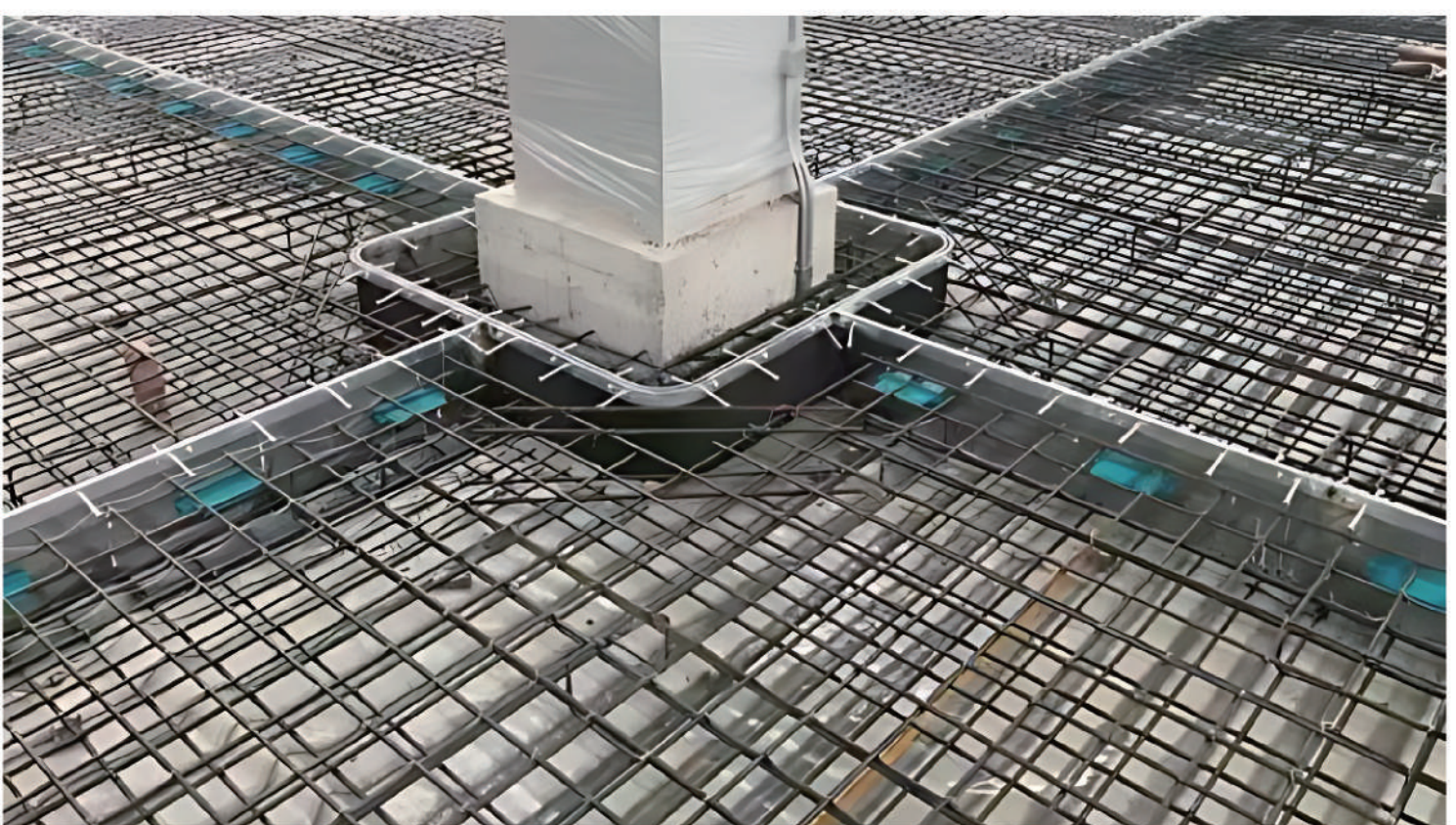
MSARJBM RECTANGULAR ISOLATOR



CIRCULAR ISOLATOR



Note: Dimensions of all column isolators can be customized as per customer requirements



TYPE AND MATERIAL FOR COLUMN ISOLATOR

Version	Joint arris armouring	Sheet steel divider	Shear stud	Lattice Anchor	Fixing lugs for anchoring	Compressivable material
DCI-A	Q235B S235JRC+C	DC01 HDG	ML15A/ SWRCH15AS275JR			EVA
	Q235B S235JRC+C HDG	DC01 HDG	ML15A/ SWRCH15AS275JR			EVA
	SS304 Stainless Steel 1.4301	DC01 HDG	ML15A/ SWRCH15AS275JR			EVA
	SS316 Stainless Steel 1.4401	SS316 Stainless Steel 1.4401	SS304 Stainless Steel 1.4301			EVA
RCI-A	Q235B S235JRC+C	DC01 HDG	ML15A/ SWRCH15AS275JR			EVA
	Q235B S235JRC+C HDG	DC01 HDG	ML15A/ SWRCH15AS275JR			EVA
	SS304 Stainless Steel 1.4301	DC01 HDG	ML15A/ SWRCH15AS275JR			EVA
	SS316 Stainless Steel 1.4401	SS316 Stainless Steel 1.4401	SS304 Stainless Steel 1.4301			EVA
DCI-B		DC01 HDG		DC01 HDG		EVA
		DC01 HDG		DC01 HDG		EVA
		DC01 HDG		DC01 HDG		EVA
		SS316 Stainless Steel 1.4401		SS316 Stainless Steel 1.4401		EVA
RCI-B		DC01 HDG		DC01 HDG		EVA
		DC01 HDG		DC01 HDG		EVA
		DC01 HDG		DC01 HDG		EVA
		SS316 Stainless Steel 1.4401		SS316 Stainless Steel 1.4401		EVA
CCI-B		DC01 HDG			DC01 HDG	EVA
		DC01 HDG			DC01 HDG	EVA
		DC01 HDG			DC01 HDG	EVA
		SS316 Stainless Steel 1.4401			SS316 Stainless Steel 1.4401	EVA

Note: The customer needs to provide the floor thickness, the base size of the column and machine foundation, and the environment conditions in which it is used, and Meishuo will design and manufacture the column isolator accordingly

Principles for Selecting Suitable Armor Joints

Here are some of the factors to consider when choosing an armoured joint.

Building use. Consider whether the building will have one use in its lifetime, or if this may change. You can future-proof the floor by choosing a versatile joint, such as MSARJS/MSS-CJ. These allow vehicles to cross the floor freely in any direction, now and in future.

Traffic. Consider the type of vehicle wheel being used, plus traffic frequency and speed ('duty'). Vehicle direction determines how much impact a joint endures. Straight joints such as MSARJ classic joints are fine where vehicles won't cross directly. Otherwise, choose a shaped joint such as MSARJS/MSSCJ to prevent impact.

Service. If cleaning chemicals are regularly used, a stainless steel joint will withstand these and look good for longer. If a joint is used on external slabs and/or likely to be regularly exposed to wet conditions, choose a galvanised finish.

Hazards. If the building handles substances which must not leach into the ground, or where the joint gap itself would pose a hazard to pedestrians, then cover the gap permanently with MSSCJ/MSBSL, or fill with a joint sealant.

Floor construction. 'Jointless' floors include armoured joints, but not saw-cut joints, so the gap sizes can be slightly larger. Take the likely gap size into account, and how it might be filled. MSSCJ/MSBSL handles larger gaps and ensures no joint gap is exposed.

What height of Armoured Joint do I need?

This depends on the depth of the concrete slab being poured. Normally you would choose a joint size 10~30mm less than the depth of your slab – so if your nominal slab depth was 180mm you would use a 160mm high joint.

PACKAGE&DELIVERY



PROJECTS









