

# ARFEN ARBRIDGE RUBBER EXPANSION SERIES



ARFEN BRIDGE AND CONSTRUCTION  
TECHNOLOGIES IND. TRADE. CO. LTD

[www.arfen.com.tr](http://www.arfen.com.tr)

## ARFEN BRIDGE AND CONSTRUCTION TECHNOLOGIES

### IND. TRADE. CO. LTD

#### ***CORPORATE***

Arfen has started to operation from 1999 for create trust as a company that finds solutions to the customer's technical needs and requirements.

Arfen made agreements with international partners, so that brings international experiences to our country about bridge bearings, bridge expansion joints, seismic isolators and post-tensioning etc.

Arfen as a construction material manufacturers, is exporting product to 35 countries internationally as well as nationally.

Arfen makes technical meetings with the customer to find solutions and most economical design for their needs in the subject of Arfen. It also makes required applications and maintenances in the construction site if client requests.

Arfen is a technical manufacturer uses more than 21 years of engineering experience, which is a company in Turkey with name and patent rights of self-developed products. Arfen brings revenue to our country by exporting engineering products to 35 different countries.

Arfen makes design and production to meet the requirements of international standards under ISO-9001 Quality Management System.

Arfen provides more economical alternatives for customers with experienced engineers and high technical knowledge.

All bearings are manufactured according to EN-1337-3 and all isolators are manufactured according to EN-15129. Bearings and isolators can be manufactured according to different national standards as well, if customer requests. All other products are manufactured in accordance to TSE (Turkish Standard Institute) and international standards. Quality control tests are carried out in the Arfen laboratory.

We will continue to give service to "Finding Solution" for our customers.

**Arfen Bridge and Construction Technologies Ind. Trade. Co. Ltd.**

## RUBBER EXPANSION JOINTS



*ARFEN* steel reinforced rubber bridge expansion joints (ARBRIDGE) is a joint system which consists of waterproof rubber and steel plates and can absorb expansion movements. These systems are formed by joining rubber elements and steel plates under high temperature and pressure in our factory. Strengthening plates made of steel are vulcanized with rubber material to form a composite and load-resistant system. As a result of this production system.

*ARFEN* bridge expansion joints offer a long-lasting solution guaranteed against corrosion. Natural rubber (NR) or neoprene (CR) rubber is used according to the requirement to be used as rubber material and according to the customer's request. The rubber surface is resistant to oil, grease, oil, sun rays, snow and saline chemistry. This method of production ensures that the expansion joints are very resistant to corrosion.



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*The ARBRIDGE expansion joints* are designed to absorb the deformation of the concrete and to damp the movements and expansion of the structure by changing its shape. The water ducts and proper drainage connections on these stems keep traffic safety at the top level. Thanks to their special design, the noise emitted during vehicle transitions remains at very low levels.

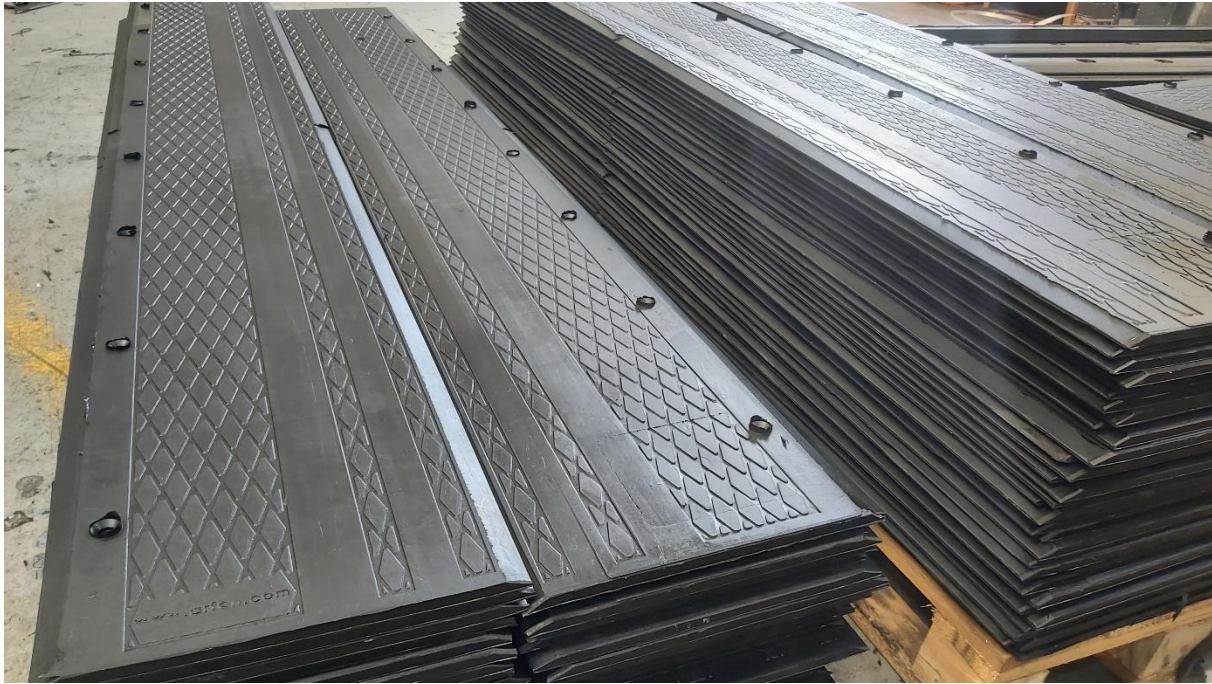


*Expansion joints* of different sizes are connected to the concrete by both sides by suitable corrosion-resistant galvanized anchor bolts and chemical dowels. Expansion joints absorb loads, heat reactions and mechanical vibrations. Horizontal loads (loads generated by brake forces of vehicles, earthquake loads, elongation and shortening due to thermal expansion) are compensated by friction between the rubber and concrete and changing the shape of the rubber.



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**ARFEN rubber bridge expansion joints** can also be applied on steel structures. There is less noise and vibration at the same time as the cause of the rubber surface. Due to earthquake loads, wind, thermal changes and brake loads, the bridge beams move, and therefore they need movable bearings and expansion joints.



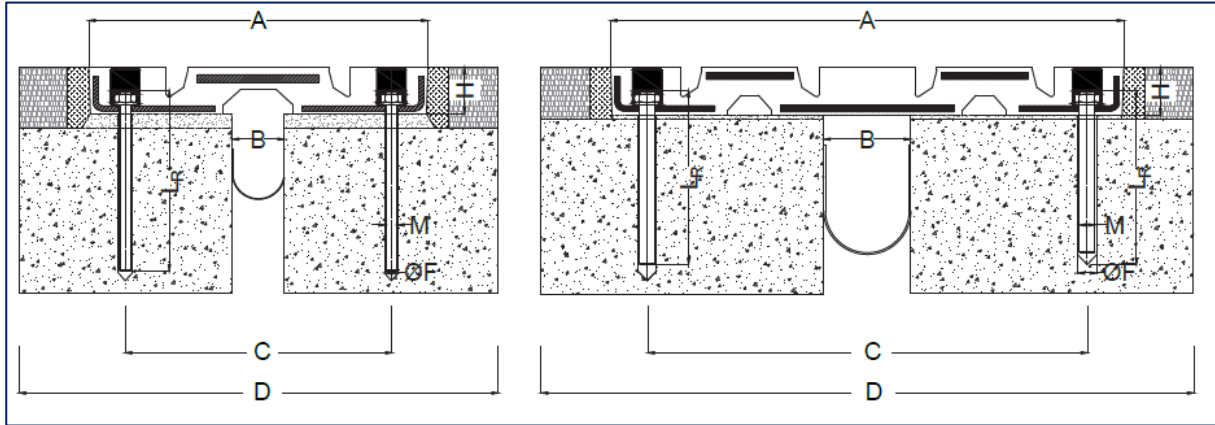
## **MATERIAL PROPERTIES**

Design and production of rubber joints are carried out in accordance with ETAG No: 032 Part: 05 (Mat Expansion Joints). ISO 9001: 2015 quality control standard is applied. Steel reinforcing plates conform to EN 10025; and connected to the rubber material with vulcanization method. The type of rubber used can be produced as Natural Rubber (NR) or Neoprene Rubber (CR) depending on the environment conditions where the product will be used. Natural Rubber may be preferred for standard use. Neoprene Rubber is recommended for use with salty water splash or under petroleum products effect.

<i>Properties</i>	<i>Test Method</i>	<i>Value</i>
Hardness	ISO 48	60±5
Tear strength	ISO 37 tip 2	≥15
Elongation at break (%)	ISO 37 tip 2	≥350
Set deformation (24 h, 70° C) %	ISO 815	≤30

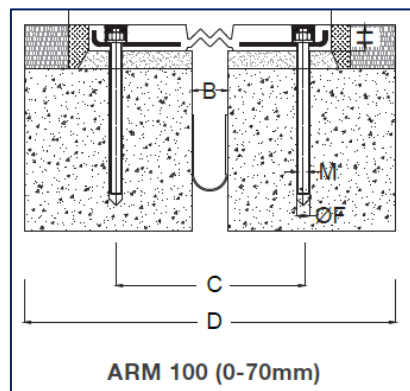
## TYPE AND SIZE

ARFEN rubber expansion joints also compensate for vertical displacements due to the rubber material. This characteristic is very important for movements and loads that cause vertical displacement. This type of bridge expansion joints can be combined with aluminum or rubber turning parts on the walkways. As the rubber expansion joint ARBRIDGE series, we have 12 types of models with different movement capacities.



Model Name	Movement Capacity (mm)	A (mm)	B (mm)	H (mm)	C (mm)	Weight (kg/m)
ARBRIDGE-01	50 (±25)	270	35	32	2000	21
ARBRIDGE-02	60 (±30)	270	40	42	2000	24
ARBRIDGE-21	80 (±40)	326	45	48	2000	26
ARBRIDGE-03	100 (±50)	390	60	53	2000	43
ARBRIDGE-04	140 (±70)	590	80	55	2000	65
ARBRIDGE-05	180 (±90)	750	100	75	2000	160
ARBRIDGE-06	270 (±135)	890	145	80	2000	170
ARBRIDGE-07	400 (±200)	1100	200	100	1000	270
ARBRIDGE-09	540 (±270)	1480	270	115,5	1000	410

Table 1 Sample Table for ARBridge



Model	Movement Capacity	A (mm)	B (mm)	H (mm)	L (mm)	ØF (mm)	M (mm)	L <sub>R</sub> (mm)	Weight (kg/m)
ARM 100	70 mm, ±35 mm	305	45	32	2000	14	Ø12	200	18

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## ADVANTAGES

### **Ease of Installation**

Arbridge series joints are produced in 2-meter blocks and are lightweight compared to other joint types; This makes it easy to assemble and makes the lowest the requirement of lifting machines.

### **Driving Comfort**

Flexibility of the joint adapts the structure movements and reduces the impact effect of driving. Thus presents comfortable driving.

### **Low Noise Level**

The joint displacement gaps on the upper surfaces are reduced by the special design and this shape reduces the noise level.

### **Anti Skid Surface**

The water channels and rubber properties reduce the skidding of the vehicle tires and improve driving safety.

### **Structure Safety**

The special surface design does not cause debris in the gaps so it prevents additional stresses in the structure.

### **Long Service Life**

It is produced from high-quality rubber raw material with high flexibility and impact resistance. Special design features formed by reinforcing steel with rubber are suitable for use in heavy traffic conditions. Rubber surface is resistant to UV, snow, and salt effects.

### **Watertightness**

ARBRIDGE Rubber joint modules form a waterproof joint with the female-male connection system. HYDROFLEX water stop can be applied to the bottom of the joint for additional water impermeability. A drain pipe can be used on both sides to prevent water leakage from the edges.

### **Restrictions on Use**

- For applications where displacement capacity does not exceed 260 mm.
- Where the joint mounting levels are not the same level for both sides.
- Where the joint cannot transfer the load from vehicles to substructure because of unstable and unparallel the structure surfaces.

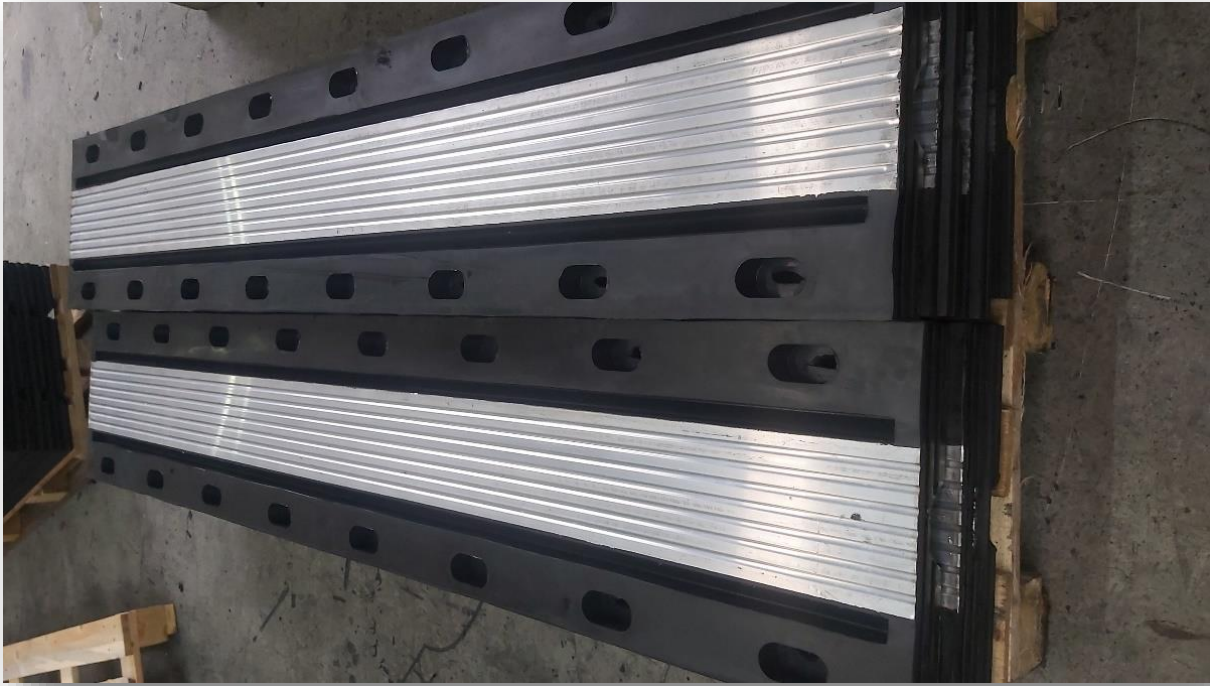


## Supplied Projects

*Turkey, Greece,  
Albania, Serbia,  
Ukraine,  
Uzbekistan, Arabia,  
Pakistan, Moldova,  
Libya, Tunisia,  
Iran,  
Pakistan,  
Iraq etc...*



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