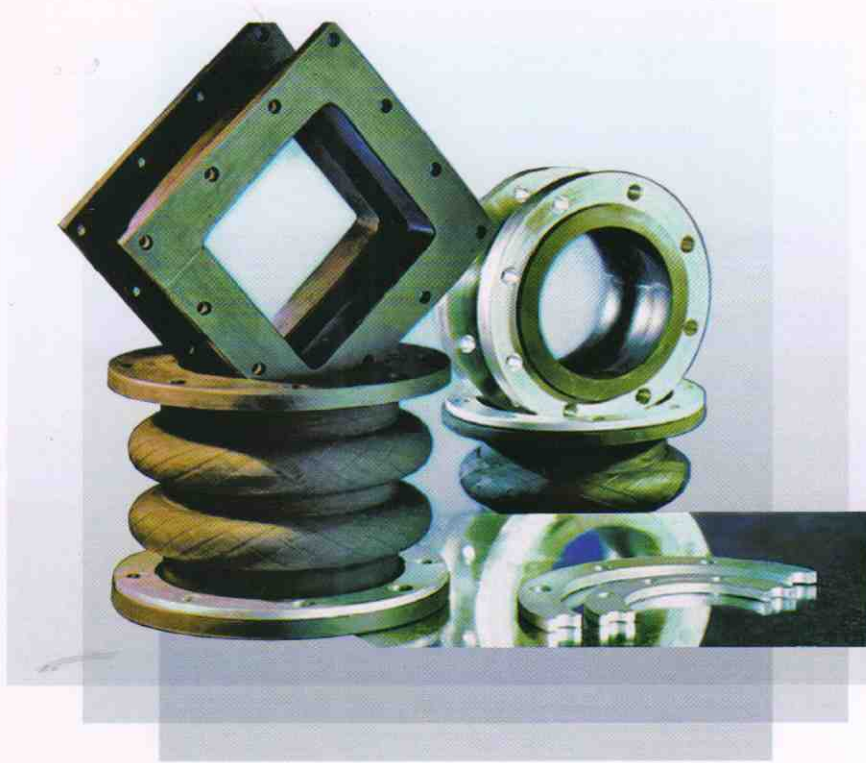


Flexibility
is our business

Flexocon Rubber Expansion Joint



High Performance
Expansion Joint Technology

INTRODUCTION

REJ's are installed to accomplish movement in piping from expansion reactions and insure efficient and economical on stream operation. REJ's provide time tested ways to accommodate pressure/vacuum loads, relieve movement stresses, reduce noise, isolate vibration, compensate for misalignment after plant goes on stream and prolong life of motive equipment. They are extensively used in all core and service sectors viz. Power, Primary metal, HVAC, Paper, Chemical etc.

FLEXOCON REJ's are designed to suit up to 50 bar and temperature up to 400° C. These are available up to circular size of 3000 mm NB. Rubber Expansion Joints(REJ's) can be molded up to 400 NB. Beyond that REJ's are hand built.

What is a Handbuilt Rubber Expansion Joint?

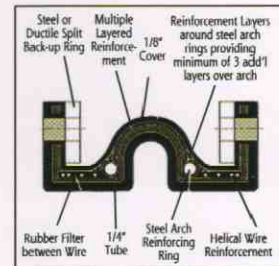
The right illustration shows a typical cross section. The ends are normally rubber flanges that will mate with the piping system. The arch is the flexible element that allows for expansion, contraction transverse motion and misalignment. The sealing element is the rubber tube on the inside, and this is backed by multiple layers of fabric reinforcement. The straight portion is reinforced with steel wire/ring/fabric re-inforcement and then fabric placed over that under the cover. While it is not absolutely mandatory, we find that the expansion joint holds up better if there are steel rings at the base of the arch to hold the arch shape. Since flange bolts would pull through the rubber flanges, we furnish steel back up rings. Ends can be built in weld nipples, slip on or any other mating arrangement. Regardless of whether the final shape is going to be round with a single arch, a rectangular ducting transition piece, elbow, tee or cross, eccentric or concentric reducer, or any other unusual shape, we start with a chord form that matches the inside steel contours of the finished product. This form or mandrel is mounted in a slow turning hand operated bobbin and built thereon.

ADVANTAGES

FLEXOCON REJ's are designed to FSA standard by designers with CAD/MATHCAD facilities to meet present day operating condition. Our design/engineering has kept abreast with the technological advances in rubber compounding and synthetic fabrics to make REJ's having following advantages: **1.MINIMAL FACE TO FACE DIMENSIONS-** This offers economics compared with costly expansion bends or loops to lower relative cost. **2.LIGHTWEIGHT-** REJ's are relatively light in weight requiring no special handling tools or equipment to position the REJ. **3.LOW SPRING RATE-** The inherent flexibility of REJ's permits almost limitless flexing. **4.REDUCED FATIGUE FACTORS-** Natural and synthetic elastomers are not subject to fatigue breakdown or embrittlement easily. **5.REDUCED HEAT LOSS-** FLEXOCON REJ's low heat loss gives long maintenance free service. **6.CORROSION,EROSION RESISTANT-** Material selection of REJ composite and making combinedly meet pressure/temperature load, corrosion, erosion, abrasion etc.

MEETING CUSTOMER NEEDS

This brochure is intended to give general information concerning the range of expansion joints and services available. Full details of individual products are available on request. **Flexocon Engrs.Pvt.Ltd.** will be pleased to advise on the application and installation of expansion joints to meet customers' particular requirements.



BUILT FOR RELIABILITY

FLEXOCON REJ's are constructed to FSA standards. They are built to take care of both *pressure and thermal loads* as well as pipe expansion/contraction axial and lateral loads. For the latter, *arch/sphere* design or other profiles are determined by our *validated Company standard*. This is an *add-on* to FSA standard. The thermal loads of basic elastomers are shown in the table at right FKM/VITON/EPDM, etc. are also manufactured to client's custom-need.

ENVIRONMENT	WET CHEMISTRY				
	Single	Acid	Base	Other	
DRY TEMPERATURE	Multiple or Mixture	AEGRS, Fluoroelastomer	AEGRS, EPDM	AEGRS, Fluoroelastomer, EPDM	
	Hot (>200°C)	Inert	AEGRS, Silicone	AEGRS, Fluoroelastomer, Silicone	
	Moderate (0-200°C)	Chemical	AEGRS, Fluoroelastomer, Silicone	AEGRS, Fluoroelastomer	AEGRS, Fluoroelastomer, Fluoroelastomer
		Plasma	AEGRS, Fluoroelastomer, Fluoroelastomer	AEGRS, Fluoroelastomer, Fluoroelastomer	Fluoroelastomer
		Inert	Fluoroelastomer, Silicone, Fluoroelastomer	Fluoroelastomer, Fluoroelastomer	Fluoroelastomer, Fluoroelastomer
	Cold (<0°C)	Inert	Fluoroelastomer, Silicone, Fluoroelastomer	Fluoroelastomer, Fluoroelastomer	Fluoroelastomer, Fluoroelastomer

FLANGE STANDARDS

The rubber flanges shown above are moulded or hand made as per mating flange drilling standards. Some such standards are ANSI B16.1, CLASS25/CLASS 125, B16.5 CLASS 150, AWWA C207, DN, PN, ISO or any other standards specified by customer. Usually custom standards are un-common.



QUALITY

FLEXOCON ENGINEERS PRIVATE LIMITED has quality system based on ISO 9001 2000. This means that the system include all links from selection and application of materials to engineering, production, packaging and site supervision and service. We strive to refine and develop our system through documentation and product compliance to meet specific implied needs of customers.



SPHERICAL MOULDED TYPE



RECTANGULAR TYPE



SINGLE SPOOL "ARCH" TYPE



MULTIPLE SPOOL "ARCH" TYPE



NB-range 20-400 Overall length (mm) 130 (max.) Fields of Application Plant constructions, Housing Technology, Waterworks and Purification Plants, Chemical.

Range 1200 X 1200 Overall length (mm) variable Field of applications: Plant construction, power stations, combustion gas desulphurization plants, purification plant, rain water systems, pipe wall penetrations, etc

NB-range 200 - 5000 Overall length (mm) 200 - 450 Fields of Application Power Stations, Commercial Plants, Purification Plants, Pipelines

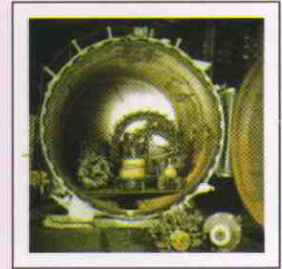
Fields of Application Power Stations, Commercial Plants, Purification Plants, Pipelines where large movements are in demand in a narrow space.

MANUFACTURING

Up to 400 NB expansion joint, the rubber and re-inforcing plies are laid sequentially in mould and then moulded by a hydraulic moulding press.

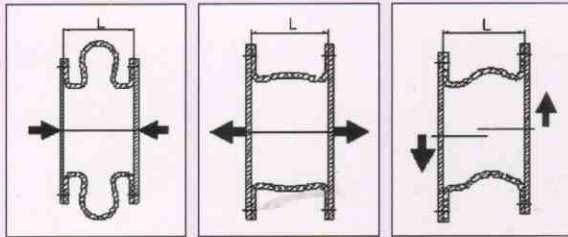
Beyond these Nb's, REJ's are mostly hand made.

1. Place a solid rubber arch form in the correct position on the mandrel. (After the joint is finished and cured, this rubber piece is pulled out to leave the arch opening.)
2. Cover the mandrel and the arch form with the rubber tube.
3. Add multiple plies of rubber impregnated tire cord, which forms the backing behind the tube.
4. Slide the arch reinforcing rings on from the ends and complete the wrapping of the reinforcement materials around these steel rings and up over the arch.
5. Add the helical wire reinforcement, if necessary.
6. Add the rubber filler between the wire rings.
7. Add the fabric reinforcement over the wire.
8. Bring the end fabric and rubber construction up vertically at the ends, and clamp these flanges between steel mold plates.
9. Wrap the assembly securely with Nylon tape to force the many layers together and maintain the shape during the curing process.
10. Place the wrapped product in a steam pressure vessel (autoclave) and cure it for about 3 hours at 170° C until vulcanized.
11. Remove the steel flange rings, nylon tape, etc. Drill the holes in the rubber flanges. Add the steel or ductile iron split back up rings.



TESTING

All FLEXOCON REJ's are tested for rated pressure, test pressure, movement etc. In our special jigs.



SPECIAL TYPES

Other than the types shown here, FLEXOCON also manufactures special type REJ's like eccentric reducer, dogbone, pressure balanced REJ's etc. to customers special needs. For further queries, Pl. Get in touch with us at www.flexoconindia.com



For details, please contact:

Flexocon



Flexocon Engineers Private Limited

Abakash Apartment, Flat 1C, 1st Floor, 14 MIG Housing Estate, Sodepur, Kolkata 700110

Phone: 033 2523 0864 / 2295, Fax: 033 2523 0866/ 2568 7450

E mail: info@flexoconindia.com, / flexocon@sify.com

Website: <http://www.flexoconindia.com>