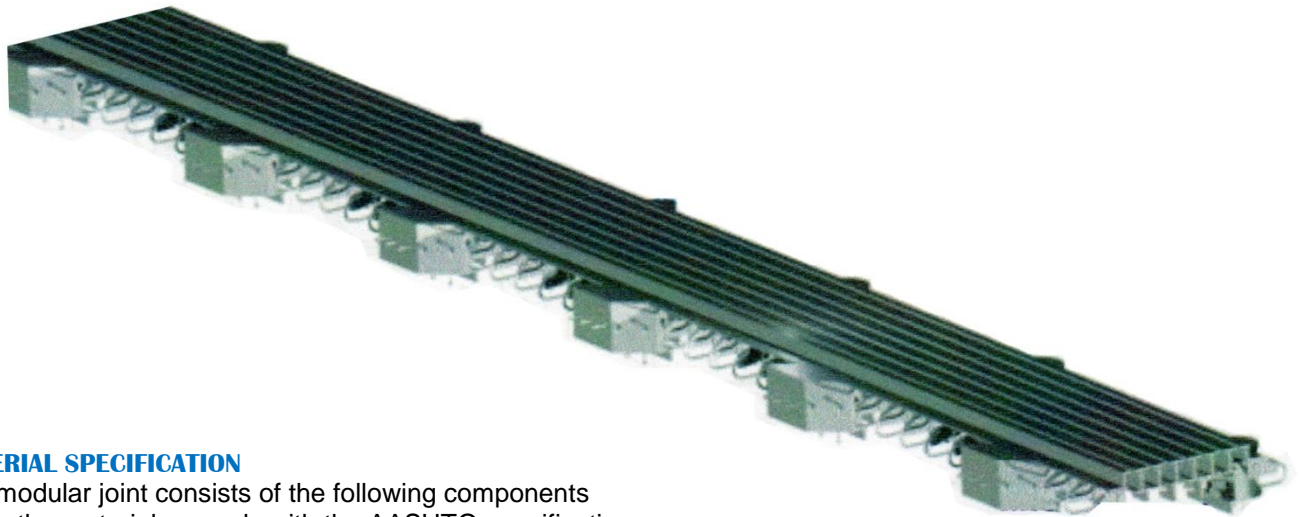


MODULAR JOINT (HMJ) SERIES**Structural Joint with Elastomeric Sealing System for large Movement****INTRODUCTION**

The HERCULES MODULAR JOINT consists of a modular with multiple elastomeric seal joint system. The seal shall consist of high grade preformed neoprene elastomeric seal which shall be assembled in place by steel edge and separation beams. For large movement, modular joint with swivel type support bars are utilized especially in the case of restricted space.

**MATERIAL SPECIFICATION**

The modular joint consists of the following components which the materials comply with the AASHTO specification.

The elastomeric seal, Structural steel, stainless steel & Polytetrafluorethylene (PTFE) shell comply to the following material specification:

Table 1 Material Specification

Material	Specification
Structural Steel	ASTM A588M, ASTM A572M Grade 345, ASTM A36M
Elastomeric Seal	Refer to Table 2. Material Specification.
Stainless Steel	ASTM A240 Type 304
Polytetrafluorethylene (PTFE)	100% virgin & conform to AASHTO LRFD
Bolts & Nuts	AASHTO M164 & AASHTO M298 (Galvanising)

INSTALLATION OF JOINT

The Hercules Modular Joint are designed to facilitate ease of installation and removal in the future without damaging any of the permanent bridge structure. The modular Joint shall be installed according to manufacturer's installation method statement.

The Elastomeric Seal shall comply to the following requirements which tested according to ASTM Test Methods.

Table 2 Physical Properties

Properties	Requirements	Test Method
Tensile Strength Mpa	13.8 Mpa	ASTM D412
Elongation at Break, %	250% min.	
Hardness, Shore 'A'	55±5	ASTM D2240
Compression Set, (70 hrs at 100°C), %	40 max.	ASTM D395-89 Method B
Oil Swell, 70 hrs at 100°C weight change, %	45 max.	ASTM D471
Ozone Resistance (70 hrs at 90°C, 20% strain, 300 pphm in air)	No Cracks	ASTM D1149
Over Aging 70 hrs at 100°C		ASTM D573
Change in Tensile Strength, %	-20 max.	
Change in Elongation at Break, %	-20 max.	
Change in Hardness	0 to + 10 points	

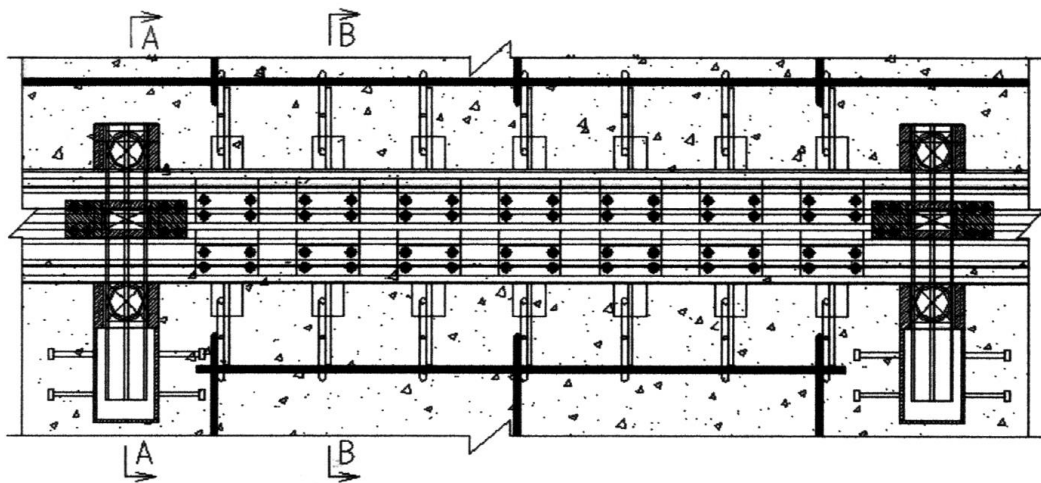
The Modular Joint was designed for large movement in the range from 160 mm. to 880 mm.

Movement Range:

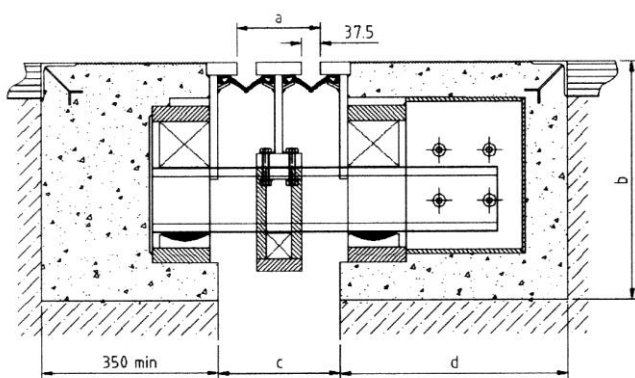
Hercules Part No.	Total Movement (mm)
HRJ - 160	160
HRJ - 240	240
HRJ - 320	320
HRJ - 400	400
HRJ - 480	480
HRJ - 560	560
HRJ - 640	640
HRJ - 720	720
HRJ - 800	800
HRJ - 880	880

Sungle Support Bars Modular Joints System

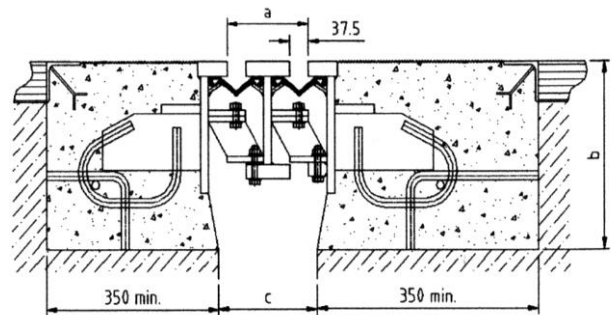
Construction Details



PLAN VIEW



SECTION A – A



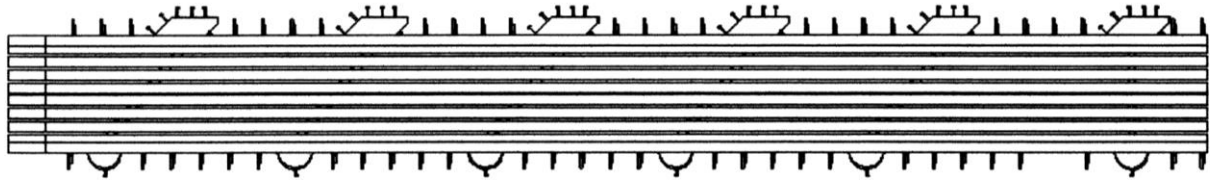
SECTION B – B

Part No.	No. of Seals	A, (mm)	B, (mm)	C, (mm)	D, (mm)
HRJ - 160	2	165	475	240	385
HRJ - 240	3	295	475	370	465
HRJ - 320	4	420	500	495	545
HRJ - 400	5	550	500	625	625
HRJ - 480	6	675	500	750	705
HRJ - 560	7	805	500	880	785
HRJ - 640	8	930	550	1005	865
HRJ - 720	9	1060	550	1135	945
HRJ - 800	10	1185	550	1260	1025
HRJ - 880	11	1315	550	1390	1105

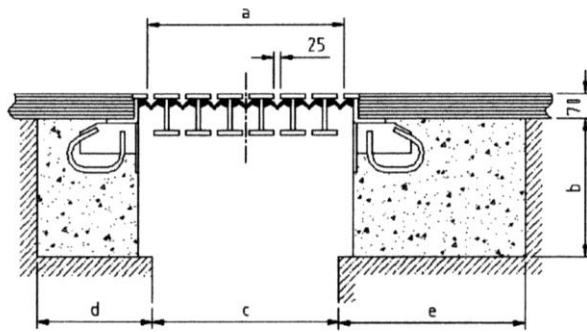
- The maximum movement based on 80 mm. max. gap per seal and zero skew

Swivel Support Bars Expansion Joint System

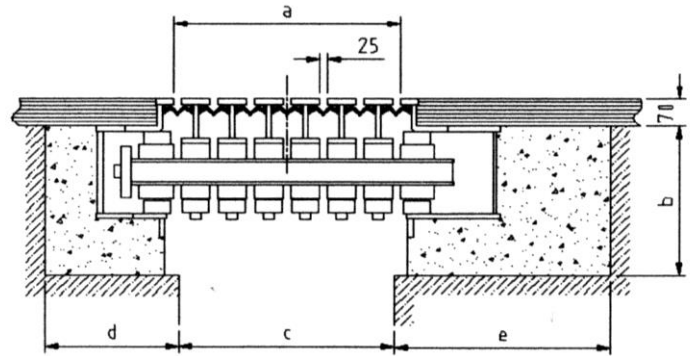
Construction Details



PLAN VIEW



SECTION AT ANCHORAGE



SECTION THROUGH SUPPORT BOX

Part No.	No. of Seals	A, (mm)	B, (mm)	C, (mm)	D, (mm)	E, (mm)
HRJ - 160	2	155	425	120	355	410
HRJ - 240	3	275	435	230	385	460
HRJ - 320	4	395	450	305	395	510
HRJ - 400	5	515	455	415	410	565
HRJ - 480	6	640	465	525	415	630
HRJ - 560	7	760	480	640	425	690
HRJ - 640	8	875	485	745	440	750
HRJ - 720	9	1000	500	860	445	810
HRJ - 800	10	1115	505	965	455	870
HRJ - 880	11	1230	510	1070	460	920

Structural Joint with Elastomeric Sealing System for Large Movement

FABRICATION OF HERCULES MODULAR JOINT



TESTING OF HORIZONTAL CONTROL SPRING

