

The construction of the arrester systems

Arrester devices are used to support bridges and railway superstructures and are manufactured from successive layers of rubber based on neoprene, interlaced by metal plates (reinforcements). These systems convey the load of the superstructure down into the road below. They are engineered to allow lateral movements of every nature within certain limits without creating additional stress on any of the elements of the bridge.

They can support concrete superstructures with openings up to 80 m for about 20 to 500 tons in temperatures that can go down to -35°C. The number of metal reinforcements may vary depending on the type of arrester starting with 1 metal plate up to 10 in total. There is a layer of neoprene of 5 mm from the edge of the arrester to the metal reinforcement in order to protect the metallic surface from corrosion of atmospheric agents.

The elastic layer

The elastic layer is manufactured from poly-chloroprene rubber to give the arrester very good elasticity during negative temperatures in winter time. Arresters are water, air, ozone, ageing and weather resistant.

Metal reinforcements

Metal reinforcements are manufactured from steel plates compliant with OL42 STAS 500-2/80 with a limit of elasticity of 240 N/mm² and tensile strength of 420 N/mm².

The thickness of the metal plates is between 3 mm and 4 mm depending on the type of arrester.

Type of mixture		Dimensions				Structure					Capacity			Maximum allowed deformation		
		u	b	h	d	Neoprene			Metal plates		R _c ^{max}	R _n ^{max}	R _n ^{min}			
						n	tn	T	nf	tf				U	e	
		mm	mm	mm	mm	buc	mm	mm	buc	mm	tf	tf	tf	mm	%	kg
1	F	100	150	19	1	1	8	8	2	3	20	18	3	7.2	19	0.90
2	M	100	200	30	1	2	8	16	3	3	30	24	5	14.4	34	1.80
3	F	150	300	19	1	1	8	8	2	3	65	54	10	7.2	6	2.75
4	M	150	300	41	1.5	3	8	24	4	3	65	54	10	21.6	18	5.70
5	F	200	300	30	1	2	8	16	3	3	90	72	12	14.4	6	5.70
6	M	200	300	41	1.5	3	8	24	4	3	90	72	12	21.6	10	7.65
7	F	200	350	30	1	2	8	16	3	3	105	84	14	14.4	6	6.65
8	M	200	350	52	1.5	4	8	32	5	3	105	84	14	28.8	12	11.20
9	F	200	400	30	1.5	2	8	16	3	3	120	96	16	14.4	4	7.60
10	M	200	400	63	1.5	5	8	40	6	3	120	96	16	36	14	15.50
11	F	230	450	41	1.5	3	8	24	4	3	150	124	21	21.6	6	13.30
12	M	230	450	63	1.5	5	8	40	6	3	150	124	21	36	10	20.15
13	F	300	500	27.5	1.5	2	11	22	3	3.5	225	160	30	19.8	5	12.30
14	M	300	500	81	2	5	11	55	6	3.5	225	180	30	49.5	14	35.80
15	F	400	500	37.5	1.5	2	11	22	3	3.5	300	240	40	19.8	3	23.20
16	M	400	500	110	2	7	11	77	8	35	300	240	40	69.3	9	64.50
17	F	400	600	52	1.5	3	11	33	4	35	360	286	48	29.7	3	37.80
18	M	400	600	110	2	7	11	77	8	3.5	360	286	48	69.3	3	77.60
19	F	500	600	52	1.5	3	11	33	4	3.5	450	360	60	29.7	2	47.40
20	M	500	500	110	2	7	11	77	8	3.5	450	360	60	69.3	5	97.20
21	F	550	650	54	1.5	2	11	33	4	4	530	428	75	29.7	2	62.05
22	M	550	650	129	2.5	8	11	88	9	4	530	428	75	79.2	4	143.15

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