TR ROCK BOX

TOKYO ROPE MFG. CO., LTD.

Construction Examples / Structual Functions

Soil-retaining Works

Erosion Control Construction

Stream Construction

TR ROCK BOX is a method most commonly used for rivers, paved roads, landslide prevention sites with erosion control as a Gabion construction method.

TR ROCK BOX has been constantly improved and modernized with the advancement of technology. With its flexibility, permeability, and the ease of construction, it is considered a far better solution than other constructions especially in urgent situations such as natural disaster and it is the indispensable method in civil engineering.

The large-scale Gabion not only has the same characteristics of Gabion construction, it enhances the resistance from pressure behind by using ϕ8.0 wire net, and ϕ13 or ϕ16 steel bar frame, strengthening and widening the frame, flexible as well as multi-purpose structure.

Mountainside soil-retaining construction / Retaining wall

Revetment Construction

Harbor Embarkment Mat Construction

Characteristics

-It adjusts flexibly to the shifting underlying ground – therefore excellent effect on weak/soft ground.

-It drains water between packed stones – therefore effective for stabilizing slopes with frequent water penetration.

-All parts are galvanized – therefore excellent anticorrosive weatherproof.

-Each parts are lightweight – therefore carrying and assembling is easy.

-The panels are assembled with metal fittings – Therefore no need for curing maintenance and saves manpower and able power-saving construction.

Application Range

-When quick completion is required.

-When construction is in the rainy season.

-When the use of large machinery is difficult.

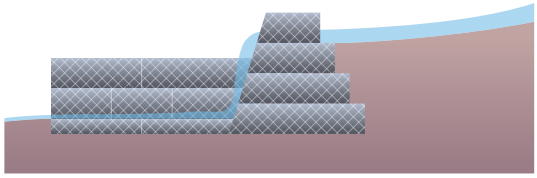
-When dewatering is difficult.

Use

Erosion Control Construction

-Relieves the slope of stream bed and makes it stable, and prevents vertical/horizontal corrosion.

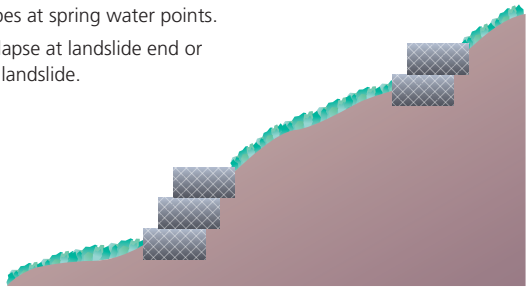
-Prevents ruining of riverbed/riverbank by mudflow, and deter the mudflow going to downstream.



Mountainside Earth Retaining Construction

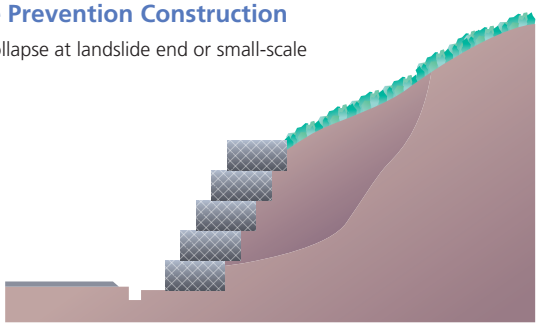
-Protect slopes at spring water points.

-Prevent collapse at landslide end or small-scale landslide.



Landslide Prevention Construction

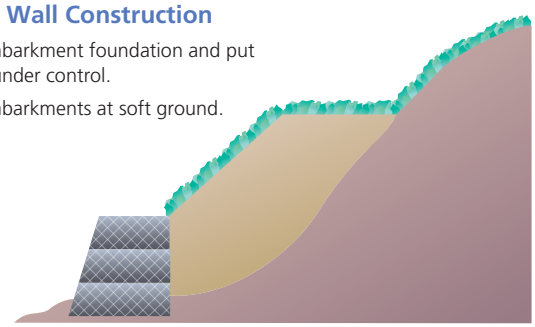
-Prevent collapse at landslide end or small-scale landslide.



Retaining Wall Construction

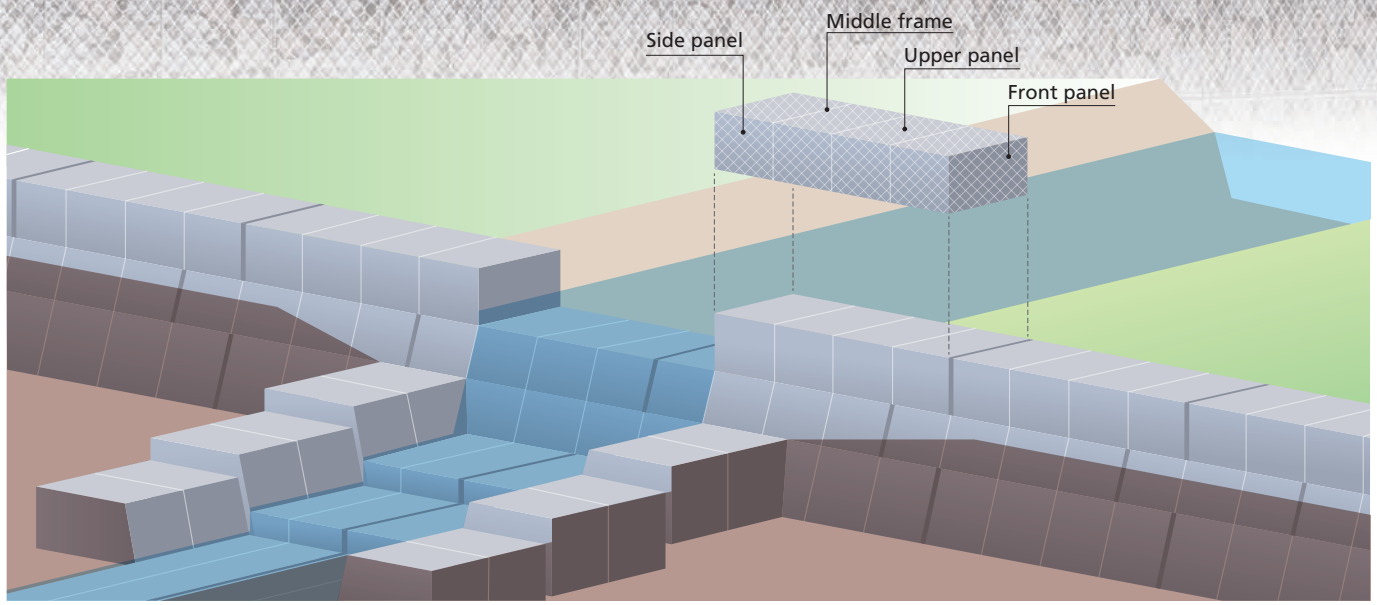
-Protect embarkment foundation and put landslide under control.

-Protect embarkments at soft ground.



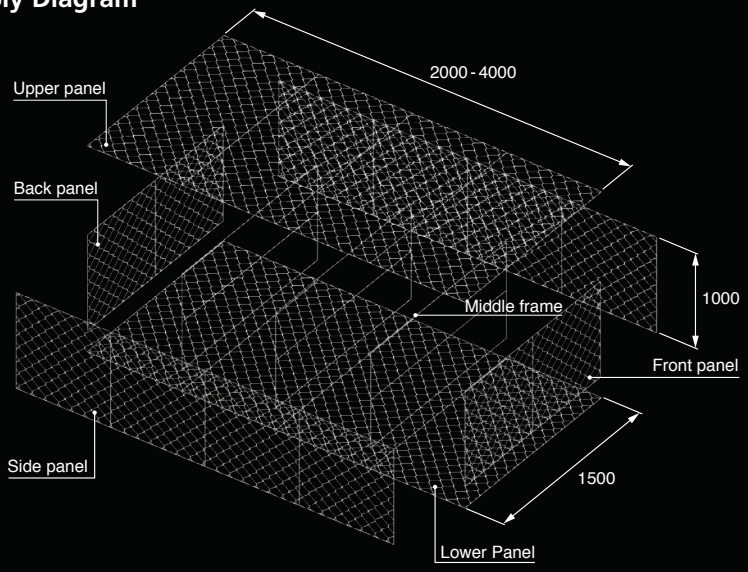
Other purposes such as: Mattress works / Shore protection works / Bed beaching works / Channel consolidation works

Perspective View of Structure



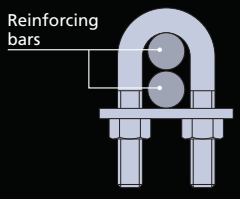
Panel Assembly Diagram

(mm)



Metal fittings

U Clip
Two fixed reinforcing bars



Erosion Control (Check dam) Construction

Specification

Material	Steel Used	Standard	Surface treatment
Chain-link fencing 10×10cm meshes 13×13cm meshes 15×15cm meshes	Galvanizing steel wire ϕ8.0mm	JIS G 3547 SWMGS-5	Galvanized volume 290g/m² or more
Main reinforcement ϕ13mm ϕ16mm	Steel bar	JIS G 3112 SR235 or above equivalent	Galvanizing JIS H 8641 HDZ55
Metal fittings	General Structure Rolled Steel	JIS G 3101 SS400	Galvanizing JIS H 8641 HDZ35
	Low Carbon Steel Wire Rod	JIS G 3505 SWRM	

Standard Specification / Number of U-clips used:

1.5m in width					2.0m in width				
Main reinforcement (mm)	Wire diameter (mm)	Mesh (cm)	Measurements (m)	Numbers Used (pieces)	Main reinforcement (mm)	Wire diameter (mm)	Mesh (cm)	Measurements (m)	Numbers Used (pieces)
ϕ13 ϕ16	ϕ4.0 ϕ8.0	10 13 15	0.5 x 1.5 x 2.0	58	ϕ13 ϕ16	ϕ4.0 ϕ8.0	10 13 15	0.5 x 2.0 x 2.0	62
			3.0	72				3.0	76
			4.0	86				4.0	90
			5.0	100				5.0	104
			0.75 x 1.5 x 2.0	64				0.75 x 2.0 x 2.0	68
			3.0	80				3.0	84
			4.0	96				4.0	100
			5.0	112				5.0	116
			1.0 x 1.5 x 2.0	68				1.0 x 2.0 x 2.0	72
			3.0	84				3.0	88
			4.0	100				4.0	104
			5.0	116				5.0	120
			1.5 x 1.5 x 2.0	74				1.5 x 2.0 x 2.0	78
			3.0	92				3.0	96
			4.0	110				4.0	114
			5.0	128				5.0	132

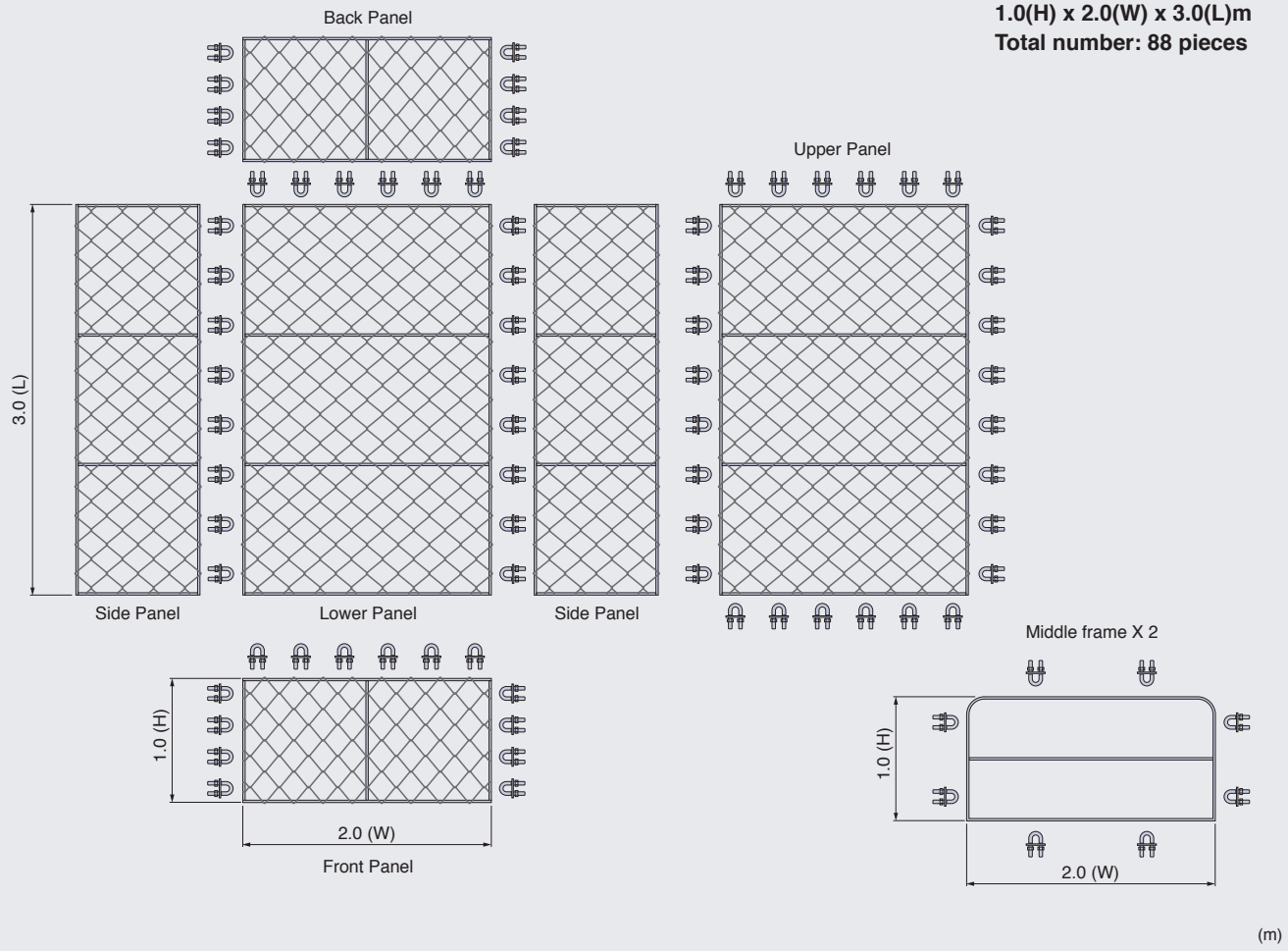
Weights

ϕ4 Chain-link fencing (kg)

Main reinforcement (mm)	Mesh (cm)	Heights (m)	1.5m in width				2.0m in width			
			Lengths (m)							
			2.0	3.0	4.0	5.0	2.0	3.0	4.0	5.0
ϕ13	15	0.5	88	122	155	188	102	142	182	222
		0.75	99	137	174	212	114	157	200	243
		1.0	109	148	188	228	124	169	214	259
		1.5	128	175	222	269	146	199	251	304
	13	0.5	91	126	160	195	106	147	189	230
		0.75	103	142	181	219	119	163	208	252
		1.0	113	154	195	237	129	176	223	270
		1.5	134	182	231	280	152	207	262	317

Main reinforcement (mm)	Mesh (cm)	Heights (m)	1.5m in width				2.0m in width			
			Lengths (m)							
			2.0	3.0	4.0	5.0	2.0	3.0	4.0	5.0
ϕ16	15	0.5	111	153	195	238	128	179	230	280
		0.75	124	172	219	267	143	197	251	306
		1.0	135	186	236	287	154	212	269	326
		1.5	160	219	279	338	181	248	315	382
	13	0.5	114	157	201	244	132	184	236	289
		0.75	128	177	225	274	147	203	259	315
		1.0	139	191	243	295	159	218	277	336
		1.5	165	226	287	348	187	256	325	394

Metal fittings(U-clip) installation points / Component material panels development:



ϕ8 Chain-link fencing (kg)

Main reinforcement (mm)	Mesh (cm)	Heights (m)	1.5m in width				2.0m in width			
			Lengths (m)							
			2.0	3.0	4.0	5.0	2.0	3.0	4.0	5.0
ϕ13	15	0.5	142	193	244	295	170	231	292	353
		0.75	161	218	275	332	189	256	323	390
		1.0	178	240	302	364	208	279	350	421
		1.5	215	287	359	431	247	327	407	487
	13	0.5	152	207	262	317	182	248	314	380
		0.75	173	235	297	359	205	277	349	421
		1.0	194	261	328	395	226	302	378	454
		1.5	234	312	390	468	269	355	441	527

Main reinforcement (mm)	Mesh (cm)	Heights (m)	1.5m in width				2.0m in width			
			Lengths (m)							
			2.0	3.0	4.0	5.0	2.0	3.0	4.0	5.0
ϕ16	15	0.5	163	223	283	343	196	267	338	409
		0.75	184	250	316	382	219	296	373	450
		1.0	204	276	348	420	239	321	403	485
		1.5	245	329	413	497	281	374	467	560
	13	0.5	174	238	302	366	209	285	361	437
		0.75	198	269	340	411	235	317	399	481
		1.0	220	297	374	451	257	344	431	518
		1.5	264	353	442	531	303	403	503	603

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