

Toyota Kohki Co., Ltd., Tokio, 183-0035 Japan

Water channel for environment preservation

Toyota Kohki Co., Ltd. is a mould manufacturer for precast concrete products and related manufacturing equipments. Since its establishment in 1966, Toyota Kohki has been contributed to the development of the concrete industry as a leading mould manufacturer in Japan. Technologies innovated by Toyota Kohki are able to provide customers with high quality, precise, durable, efficient, and easy-to-use moulds, and has got high opinions from customers around the world.



The width of water channel can be adjusted based on the condition at the construction site. These pictures show that Sectional Panel and HI-P Water Channel can be integrated well into the surrounding environment.

Japan, which is rich in rainwater resources, started rice cultivation 2500 years ago and developed ditch excavation along with the development of the agriculture. Over the years, the artificial waterway created its unique ecosystem.

After the year of 1600, Japan actively engaged in development of new paddy fields, and the waterway system played quite an important role in both citizen and regional environment.

In late years, as urban and residential lands more develops, the water channel has more expanded its role from agriculture-purposed water channel to the sewerage and drainage. This change indeed accelerated the concrete-made water channel because more flexibility in size and higher-function were required to the products.

Another circumstance of the shift to concrete-made water channel was from the aspect of improving hygiene. About 120 years ago, some regions in Japan were inflicted with parasite infestation. A research found that *Oncomelania nosophora*, a species of snail, is the intermediate host of this parasite. For the purpose of the disinfection of this snail, concrete-made water channel were widely used. As a result, Japan became the only country which succeeded in exterminating the schistosomiasis japonica. Toyota introduces the "Sectional Panel Water Channel" and "High Quality Precast Water Channel", called HI-P Water Channel, which provides high function on environment preservation and flood control. Each Sectional Panel Water Channel and HI-P Water Channel has different advantages and functions and is constructed

depending on the condition of construction sites.

Sectional Panel Water Channel is assembled by setting two U-shaped pillars at the bottom and panels on each side to hold landscape. It is easy to construct the wide water channel by using them. They can be also transported at low cost because they are knockdown design and therefore can be delivered in large quantity at one time.

On the other hand, HI-P Water Channel has its advantages at narrow areas. The integrated design system of HI-P Water Channel can increase more construction efficiency, economic efficiency, and working safety. They also enable to fasten the construction time and to prompt labor-saving by using construction equipment.

HI-P Channel is resistant to unequal settlement at soft ground due to the integrated structure and bolted connection piece by piece while Sectional Panel Water Channel is unconnected frame system with no bolted joints.

Both types of water channel have open space at the bottom, called 2 concrete-sides water channel. This space indeed provides additional environment preservation functions to the product.

Although normal U-shaped concrete water channel, called 3 concrete-sides water channel, can prevent from being swept soils away by flowing water, they perform poor on environmentally friendly. 2 concrete-



Fuji Concrete Industry Co., Ltd. uses these Toyotaforms for more than 30 years and still manufactures high quality concrete products.

sides water channel, however, is designed to automatically collect sediment to make the environment closer to the natural river. As one example, it is possible to create the natural-like river by laying stones on the bed. Depending on the production design, they produce an effect of permeating water from the river bed into the ground (soil), which prevents from floods by returning rainwater into ground.

Another performance is also reported. First, concrete was poured into the open space

of the bed up to the half thickness of the base after construction on site. Then, the concavity was accumulated gradually by the sediment flowing from the upper stream. As a result, the algae were reproduced on the sediment and the aquariums were found.

HI-P Water Channel, which was invented by the founder of Toyota Kohki about 30 years ago, has been highly popular products even today. This proves the high performance of this product.

To provide such high performance products at low cost and with large amount of quantity, high quality mould is a crucial item for manufacturing high quality finished products with maintaining high productivity.

Since the width of water channels varies depending on each construction site, the production size needs to meet their wide range of size as well. Toyotaforms can easily adjust the size by adding/removing the attachments and as a result, can lower the total mould costs. ■

FURTHER INFORMATION



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