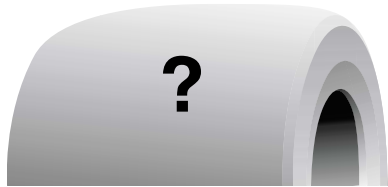


TOYO TIRE TALK

Subject: Tire Pattern Series—PCR ③ Design Factors of PCR patterns

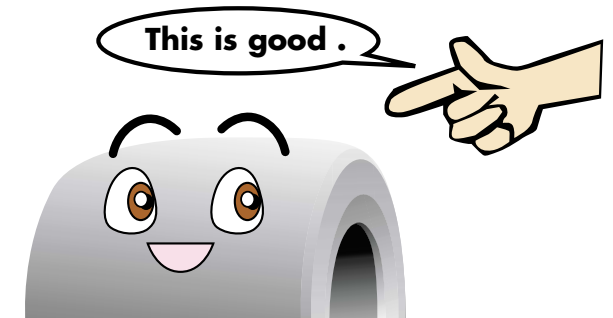


The detailed differences in casing construction and rubber compound are usually concealed within the tire.

Unlike these, the tread design is there to be seen and can be judged in its own right. At a glance, there are some criteria by which you can judge the probable performance in terms of noise, grip, aquaplaning and wear.

There are 4 primary functions of the tread design.

- 1) Providing grip in both wet and dry conditions
- 2) Improving driving stability
- 3) Preventing or reducing aquaplaning
- 4) Assuring adequate wear and irregular wear resistance and
- 5) Having an attractive appearance

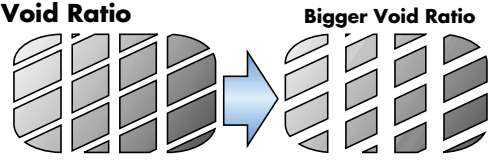
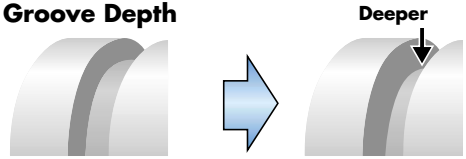
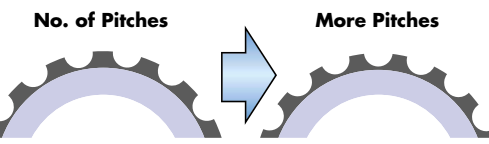

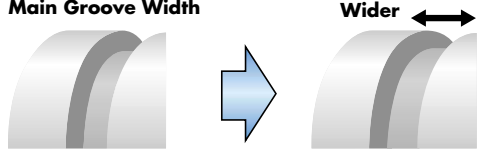


In this chapter, we introduce the relationship between the pattern design and the tire's performance.

We believe once you have studied these design factors, you will be able to judge the likely tire characteristics and performance from the pattern design alone.

TOYO TIRE TALK

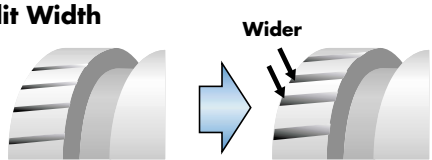
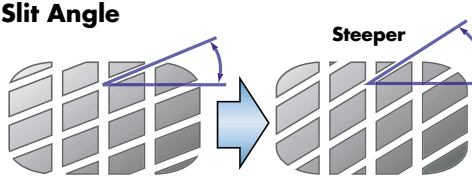
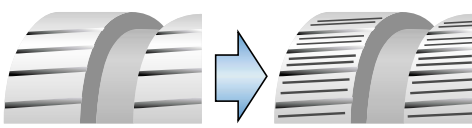
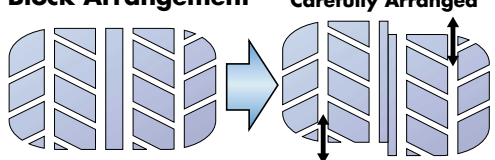
The following are the basic design factors of a tread pattern, and their related performance characteristics.

Pattern Design Factor ①	Performance Factor						
	Dry Stability	Wet Stability	Aquaplaning	Pattern Noise	Snow Traction	Wear Performance	Comfort
Void Ratio 	×		○	×	○	×	
Groove Depth 	×		○	×	○	○	
No. of Pitches 	×			○	○		○
Pitch Variable Ratio 				○			
Main Groove Width 	×	○	○	×		×	

○ : Improves × : Worsens

TOYO TIRE TALK

The following are the basic design factors of a tread pattern, and their related performance characteristics.

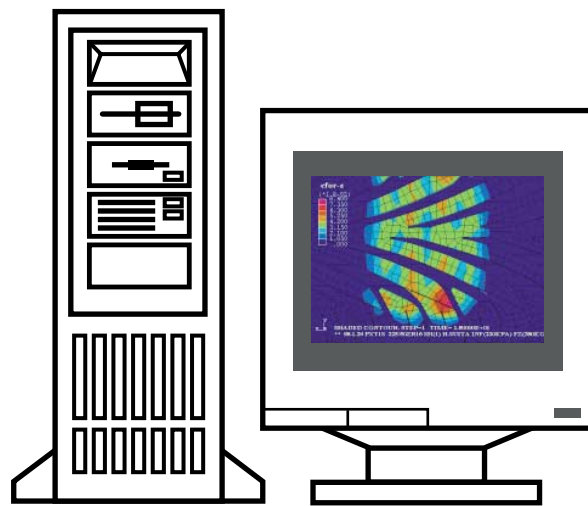
Pattern Design Factor ②	Performance Factor						
	Dry Stability	Wet Stability	Aquaplaning	Pattern Noise	Snow Traction	Wear Performance	Comfort
Slit Width 		○	○	×		○	
Slit Angle 			Higher Angle at Shoulder × at Center ○	○	×	○ (Heel/Toe wear resistance)	
Sipe Density 	×	○		○	○		○
Block Arrangement 				○			

○ : Improves × : Worsens

TOYO TIRE TALK

Nowadays, Toyo uses super computer analysis to help our designers to better understand the detail of the dynamic contact area, which could not have been previously seen, and therefore allowing more freedom to the designer.

This innovative approach enables us to define specific performance targets, and then design a tread pattern to meet the required performance levels.



Computer

