

***Presentation to***



**TA CHEN INTERNATIONAL, INC.**  
*Efficiency in Motion*

# ***POLKA PLATE***



**NIPPON YAKIN KOGYO CO., LTD.**

***Feb., 23<sup>rd</sup>, 2017***

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***Part I***    ***What is the Polka Plate?***

*Part II*    *Anti-slip properties*

*Part III*    *Cleaning properties*

*Part IV*    *Unit mass*

*Part V*    *Cursoriality in the cart*

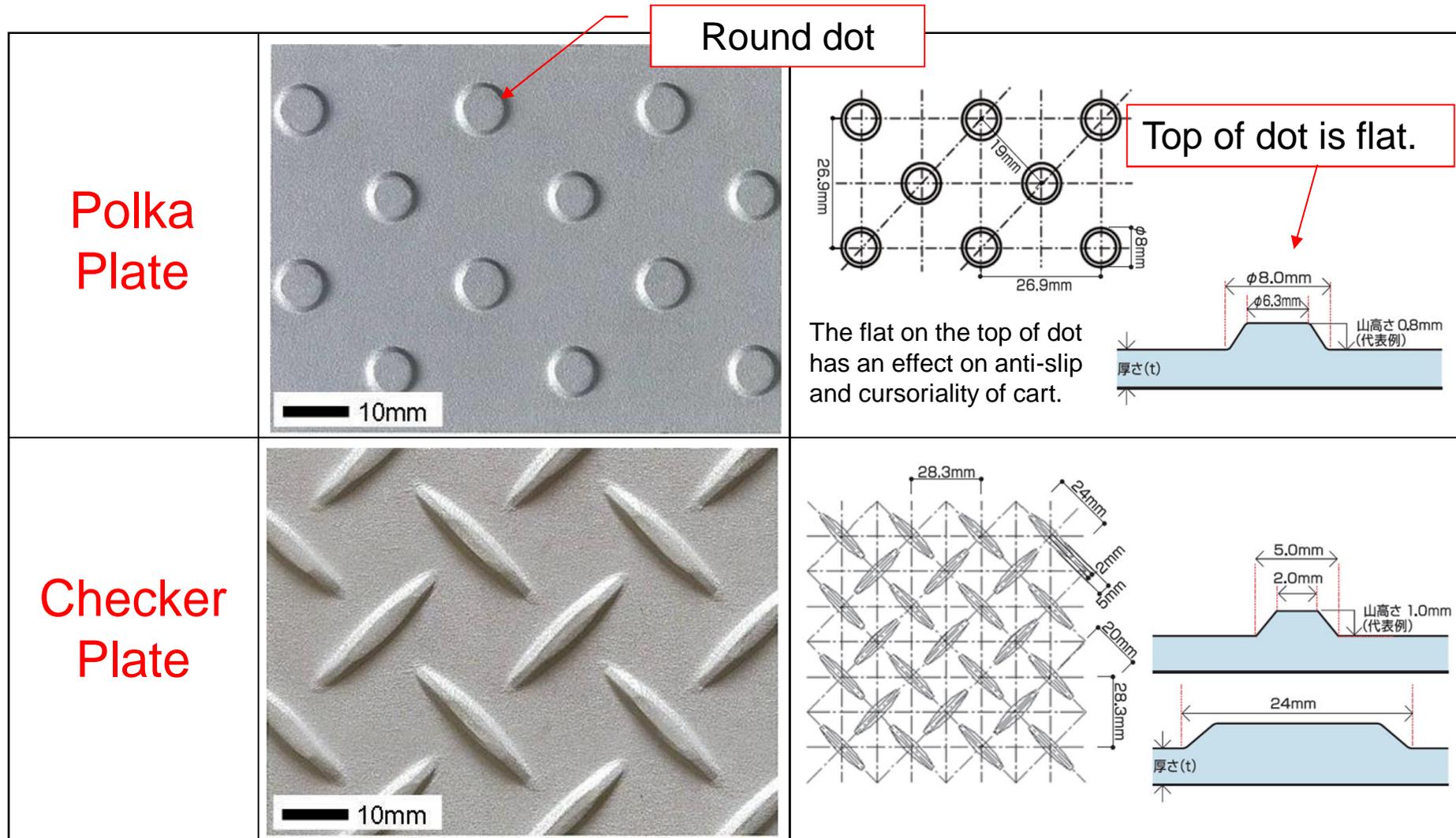
*Part VI*    *Workability*

*Part VII*    *Application example*

*Part VIII*    *Available Sizes*

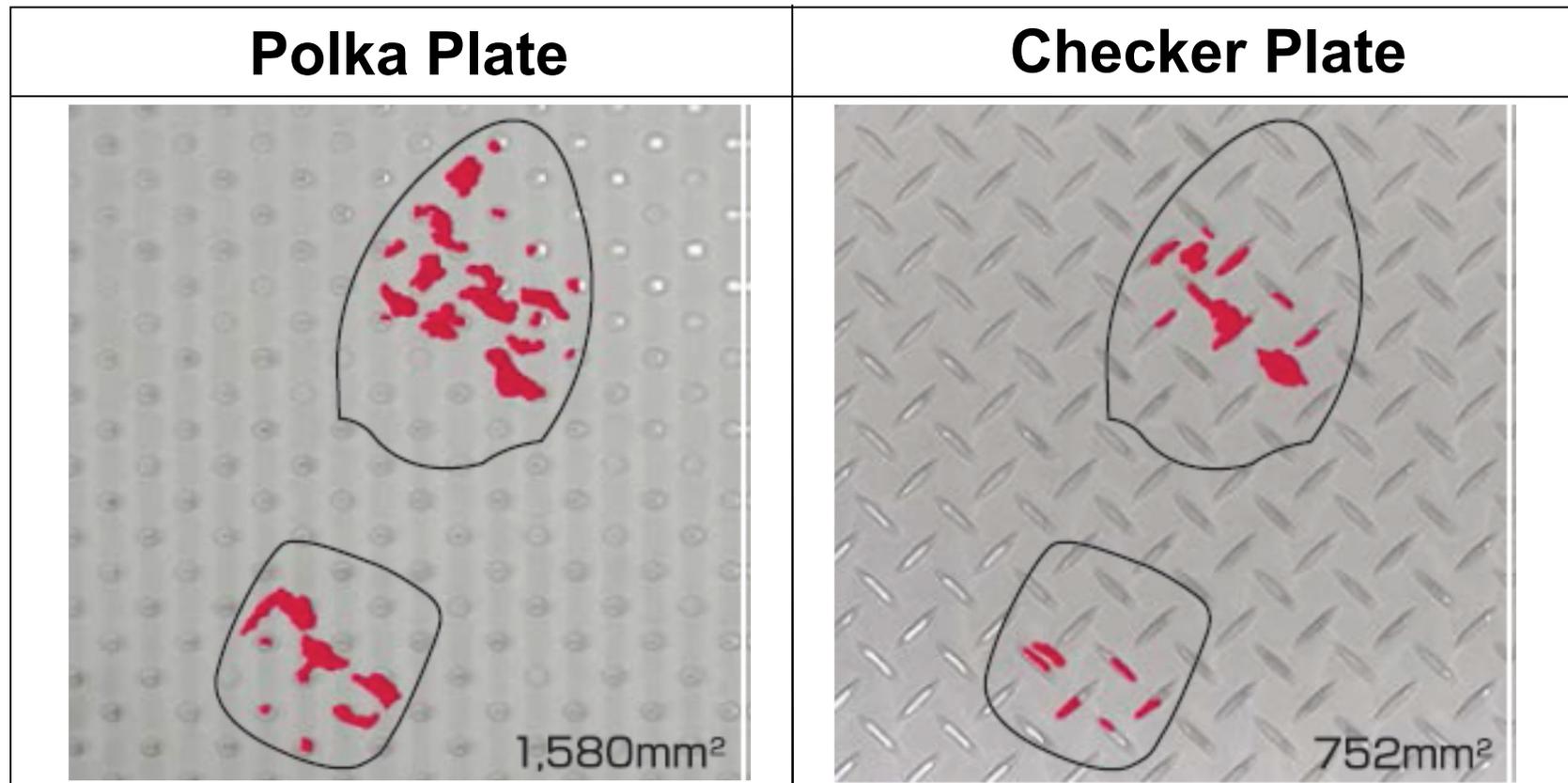
*Part X*    *Summary of Polka Plate's Features*

# What is the Polka Plate?



# Comparison of the ground contact area

- The area of the Polka Plate in contact with the sole of shoes is larger than one of the checker plate.  
⇒ **This feature reduces the load on worker's feet when working for long hours.**

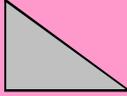
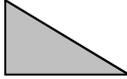
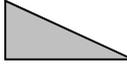


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# Anti-slip properties evaluation (DIN 51130)



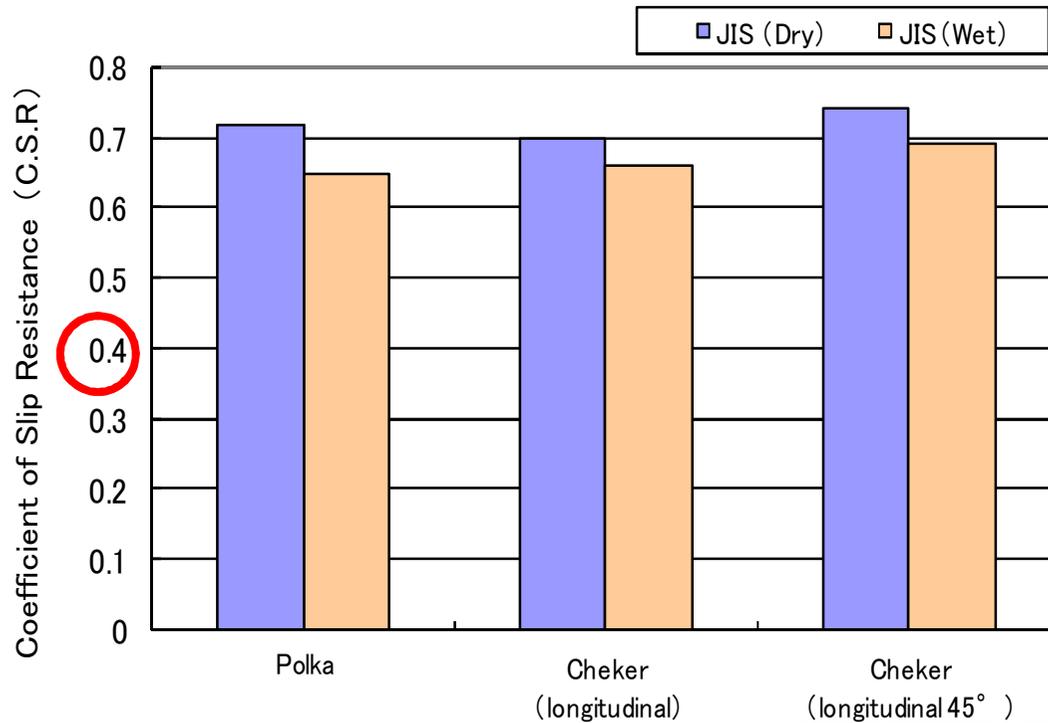
Test method in  
DIN51130

Classification (Rating Value)	Slip angle	Evaluation	Application example	Product
<b>R13</b> (★Highest class)	Over 35° 	Very high friction	Meat processing facility	Polka Plate Checker Plate
<b>R12</b>	27~35° 	High friction	Large kitchen floor	
<b>R11</b>	19~27° 	Increased friction	Store entrance	
<b>R10</b>	10~19° 	Normal friction	Floor of the public restroom	

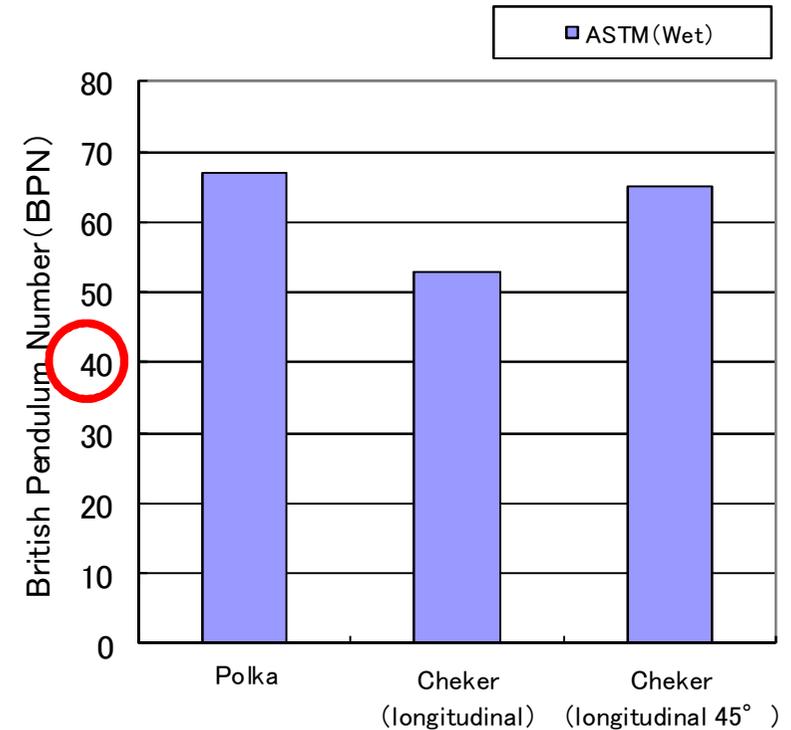
- A tester wearing shoes walks forwards and backwards across the floor covering coated with lubricant, which is initially in a horizontal position and then gradually tilted until the angle of gradient at which safe walking no longer occurs

# Anti-slip properties evaluation (JIS A 1451, ASTM E 303)

## JIS A1451

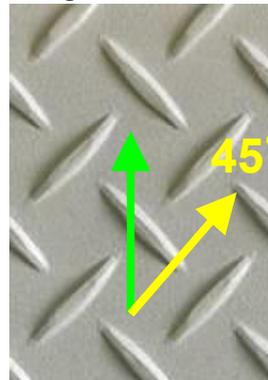


## ASTM E 303



**C.S.R:**

Over 0.4 is recommended in Tokyo municipal ordinance or barrier-free law



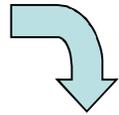
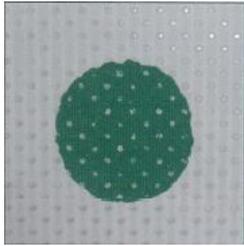
**BPN:**

Over 40 is recommended for the sidewalk pavement in Japan Interlocking Block Pavement Engineering Association or local authority .

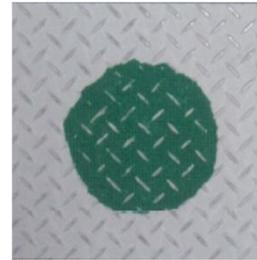
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# Cleaning properties

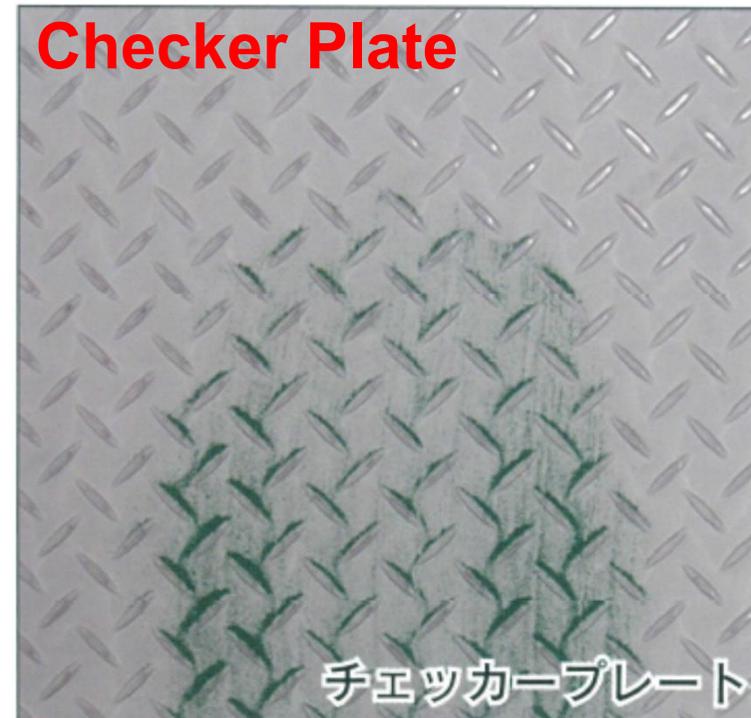
Sweep the powder represented as the dust with a broom



Sweep with broom  
in one direction



As for checker,  
Dust tends to collect by  
the sides of the projections.



As for Polka Plate, the round dots leave nowhere for dirt to hide.

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# Comparison of the unit mass

Thickness		Unit mass (kg/m <sup>2</sup> )		Weight difference A-B (kg/m <sup>2</sup> )	Ratio of the weight difference (A-B)/B
(mm)	( “ )	Polka Plate A	Checker Plate B		
2.38	3/32”	19.49	23.80	-4.31	-18.1%
3.18	1/8”	25.84	29.90	-4.06	-13.6%
3.96	5/32”	32.02	36.01	-3.99	-11.1%
4.76	3/16”	38.37	42.11	-3.74	-8.9%
6.35	1/4”	50.98	54.32	-3.34	-6.1%

※Unit mass of Checker Plate (ASTM Pattern B) : refer to ASTM A793 Table 1.

Polka Plate is **at least 3 kg/m<sup>2</sup> lighter** than Checker Plate !

⇒ **“Weight saving”** and **“Cost reduction”**

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# Comparison of cursoriality in the cart



Photo. Polka Plate  
(At 3:10~3:18 on the video)

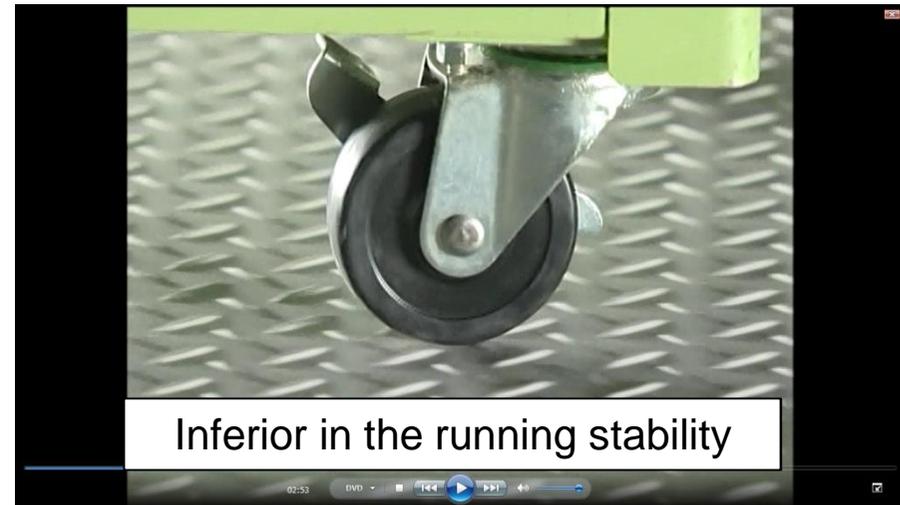


Photo. Checker Plate  
(At 2:50~2:57 on the video)

By the Polka Plate PR video in Nippon Yakin Kogyo's web site  
(<http://www.nyk.co.jp/en/products/patterned/polka/>)

# Comparison of the force when carrying a cart

This measurement shows the amount of force required to carry a push cart on both type of floor plates.



State of measurement  
(40kg load)

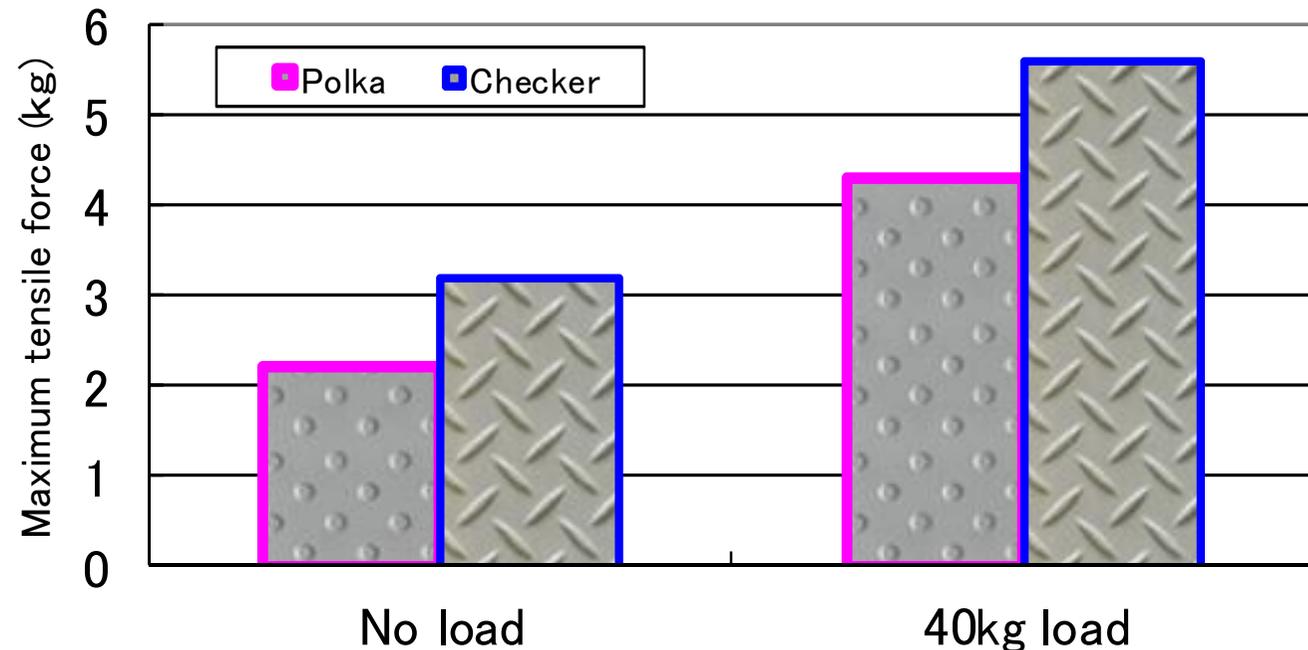


Fig. The measurement result of tensile force when the cart starts moving.

**A push cart can be moved on the Polka Plate floor with a minimal amount of effort !**

# Comparison of noise

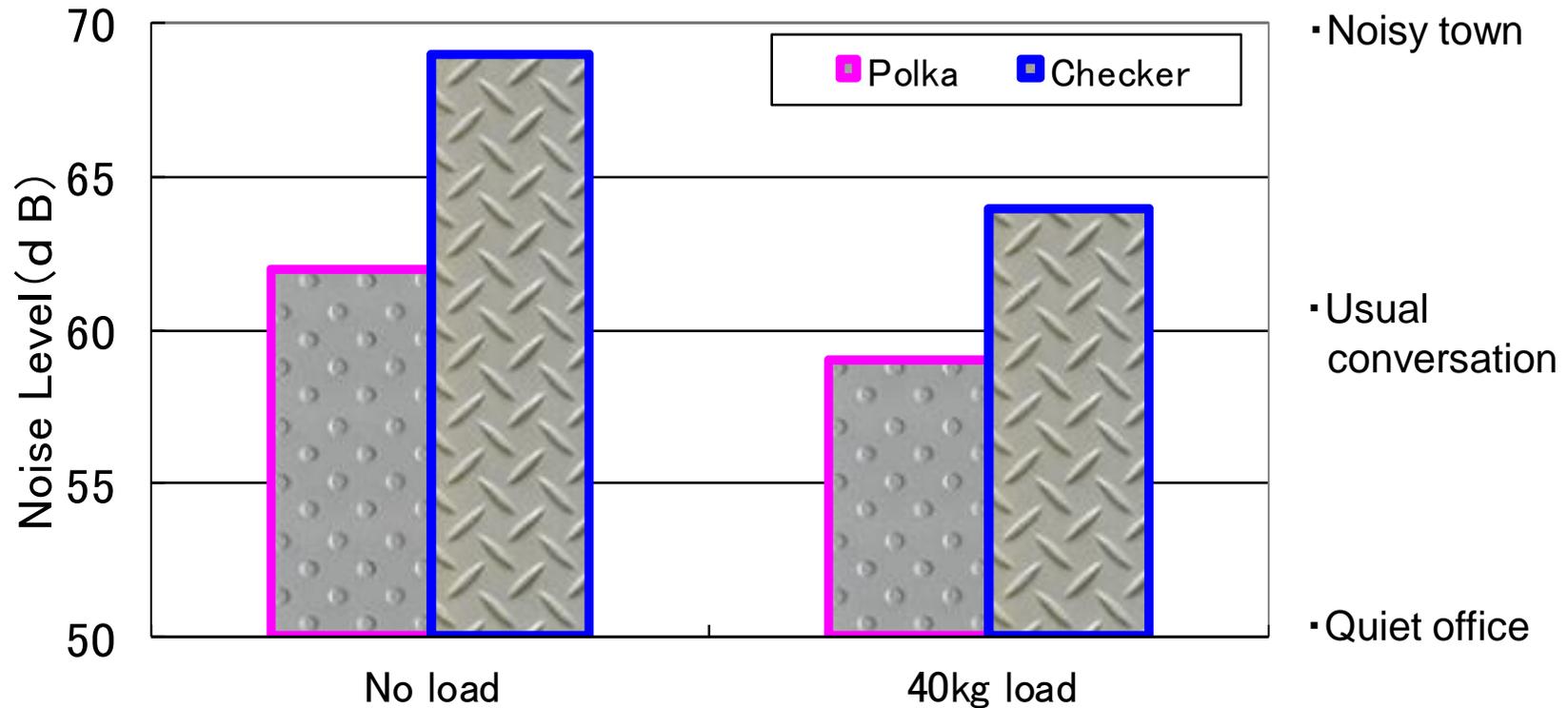


Fig. The measurement result of noise during carrying a cart (distance : 1m)



Measurement in the anechoic room

**A cart produces less noise on the Polka Plate floor !**

**→Also, don't be bumpy.**

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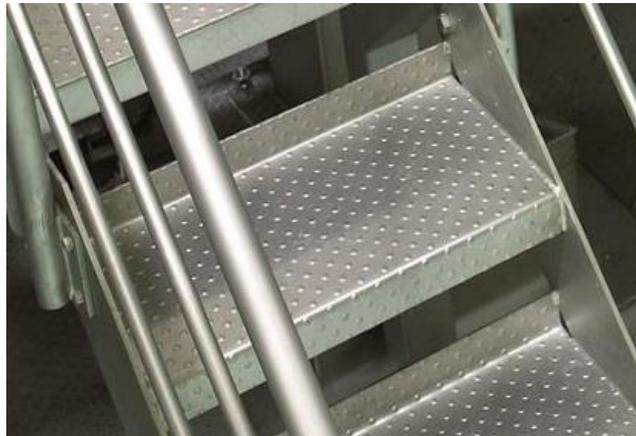
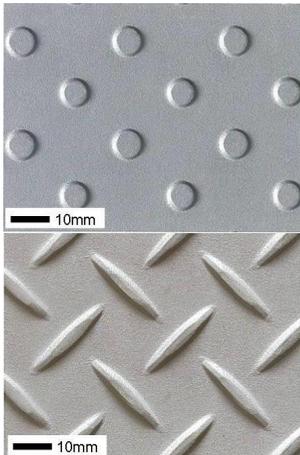
# Workability

## 【Welding】

- The welding procedure for polka plate is not different from checker plate.
- Flat area (base area) of polka plate is larger than one of checker plate. It makes it easier for the welding procedure.

## 【Bending & Cutting】

- Flat area of polka plate is larger than one of checker plate, which could be the advantage of any dimensions accuracy when bending and cutting.



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# Application example①

## The floor and stairs in the food factory

■ Polka is one of the most suitable material for the floor in the food factory.

■ Stage, stairs and counter are Polka's strong field.



# Application example②

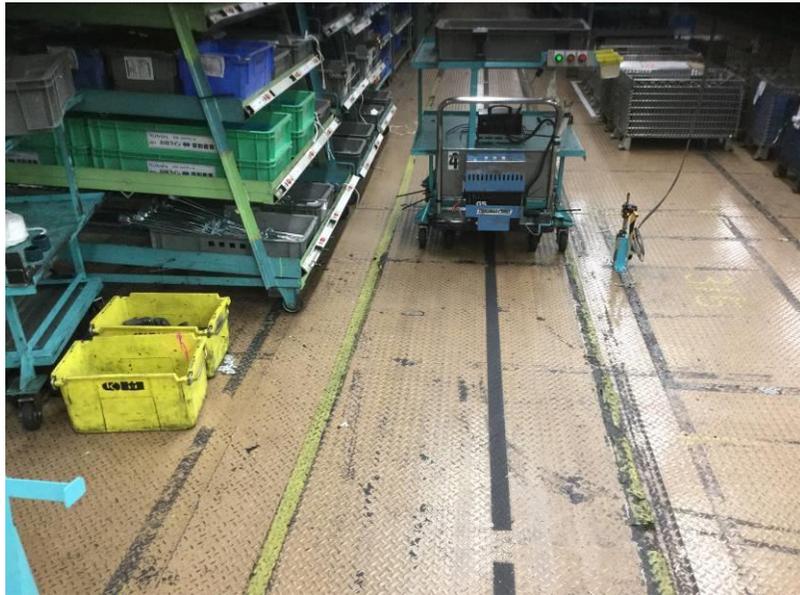


Pit cover



Service elevator

# Application example③



Before refurbishment



After refurbishment



To paint on carbon steel checker plate for refurbishment bridges the gap that exists between dots and makes it slippery.

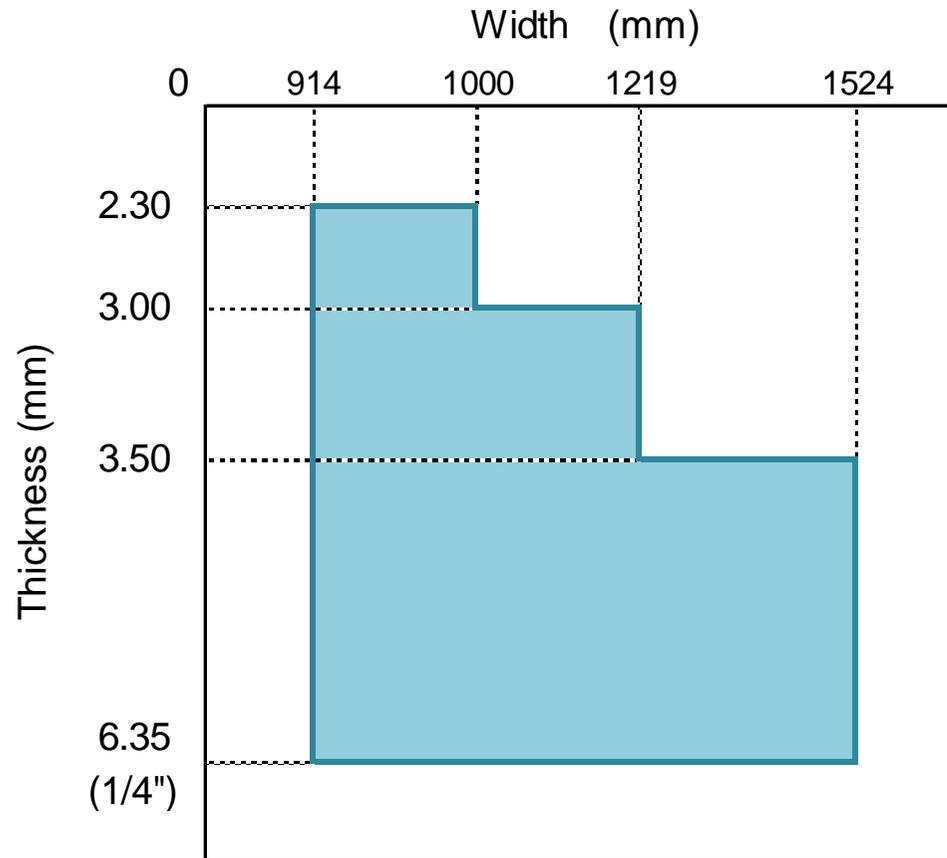
⇒ **In case of stainless steel, Not necessary to paint on their surface to prevent corrosion!**

⇒ **Improve work efficiency with not rattling along. (Polka could allow operation vehicle to run smoothly compared with standard checkered plate.)**

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# Available Sizes (Polka Plate)

【Type 304】



\* We welcome inquiries for other dimensions as well.

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# Summary of Polka Plate's Features

- Anti-slip properties evaluation is the highest class (R13) in DIN 51130.
- Make sweeping easy and leave nowhere for dirt to hide.
- Polka Plate is at least 3kg/m<sup>2</sup> lighter than Checker Plate in unit mass.
- Well-movability, less noise and no bumpy when carrying a cart. and Well-workability.
- Polka Plate are applied for the floor, the stairs and the counter in the food factory, chemical plant and pharmaceutical factory.

© Many customers have become repeaters.

