



# Fraunhofer

## TESTED<sup>®</sup> DEVICE

Hanshin Chain Co., Ltd.  
RACER PLUS SL-022  
**Report No. HA 1811-1082**

### Particle Emission

### Qualification Certificate

This is to certify that the product mentioned above, provided by

**Hanshin Chain Co., Ltd.**  
Siheung-Si, Korea

has been awarded a Fraunhofer certificate TESTED DEVICE  
bearing the report number HA 1811-1082.

The RoboChain RACER PLUS SL-022 (color: black) was assessed  
in compliance with ISO 14644-14. When operated under the  
specified test conditions, it is suitable for use in cleanrooms  
fulfilling the specifications of the following Air Cleanliness Classes  
according to ISO 14644-1:

Test parameter(s)	Air Cleanliness Class
$v_1 = 0.5 \text{ m/s}; a_1 = 1.0 \text{ m/s}^2$	2
$v_2 = 1.0 \text{ m/s}; a_2 = 2.0 \text{ m/s}^2$	1
$v_3 = 2.0 \text{ m/s}; a_3 = 4.0 \text{ m/s}^2$	1
<b>Overall result</b>	<b>2</b>

This document only  
applies to the named  
product in its original state  
and is valid for a period of  
5 years from the current  
date the document was  
issued. The document can  
be verified under  
**www.tested-device.com.**

Detailed information and  
parameters of the test  
environment can be found  
in the Fraunhofer IPA test  
report.

DUPLICATE

HA 1304-643  
Report No. first document

Stuttgart, June 12, 2013  
Place, date of first document issued

HA 1811-1082  
Report No. current document

Stuttgart, January 18, 2019  
Place, current date

on behalf of   
Dr.-Ing. Frank Bürger, Project Manager Fraunhofer IPA