



valid until: January 30, 2031

# Fraunhofer

## TESTED<sup>®</sup> DEVICE

Tsubakimoto Chain Co.  
TKR20H28

**Report No. TS 2511-1693**

### Single product Particle Emission in Cleanroom (atmospheric)

### Qualification Certificate

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

**Tsubakimoto Chain Co.**  
Kyoto, Japan

has been awarded a Fraunhofer certificate TESTED DEVICE bearing the report number TS 2511-1693.

The cable TKR20H28 (color: black) was assessed in compliance with ISO 14644-14. When operated under the specified test conditions (room temperature: 22 °C ± 0.5 °C; relative humidity: 45 % ± 5 %), 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
$v_1 = 0.5 \text{ m/s}; a_1 = 1.0 \text{ m/s}^2$	1
$v_2 = 1.0 \text{ m/s}; a_2 = 2.0 \text{ m/s}^2$	1
$v_3 = 2.0 \text{ m/s}; a_3 = 4.0 \text{ m/s}^2$	1
<b>Overall result</b>	<b>1</b>

Please note: Transport damages, incorrect installation, aging behavior etc. can influence the test result.

TS 2511-1693  
Report No. first document

Stuttgart, January 30, 2026  
Place, date of first document issued

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Report No. current document

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Place, current date

on behalf of   
Dr.-Ing. Frank Bürger, head of business unit Testing and Certification

This document only applies to the named product in its original state and is valid for a period of 5 years from the date the first document was issued. The document can be verified under [www.tested-device.com](http://www.tested-device.com).

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