

Inspection Certificate



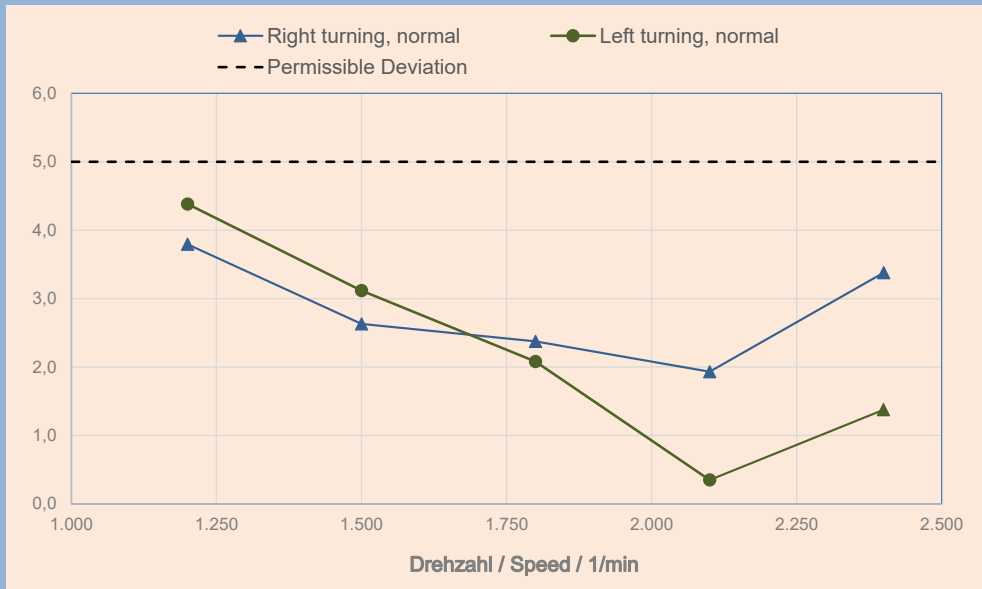
Test Certificate 3.1 acc. DIN EN 10204

Intelligent Balancing Solutions

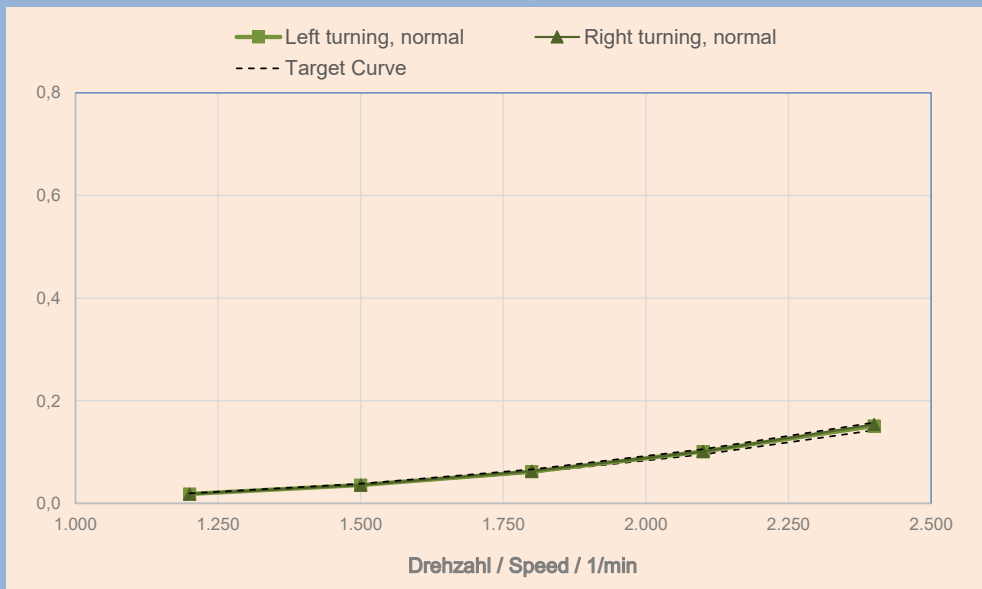
| | | | |
|----------------------------|--|-----------------------|---|
| Customer | Neo-Tec | | |
| Location | ul. Kobiałka 11a 09-411 Plock, Polen | | |
| Order-No. | A13-030074 | | |
| Machine Type | HS 23 | | |
| Pedestal Type | HS 23 | | |
| Unbalance Measuring System | Quasar 2 | | |
| Test Performed by | Hofmann Mess- und Auswuchttechnik GmbH & Co. KG Werner-von-Siemens-Str. 21, D-64319 Pfungstadt | | |
| Testing Device | Unbalance Shaker | | |
| Testing Device No. | PH-003601 | | |
| Max. Unbalance | 50.000,0 | | gmm |
| Test Unbalance | 10.000,0 | | gmm |
| Angle | 0,0 | | Grad |
| Perm. Deviation U, v | 5,0 | | % |
| Stiffness Pedestal 1 | | | |
| normal | 750,0 | | N/μm |
| Stiffness Pedestal 2 | | | |
| normal | 750,0 | | N/μm |
| Testing Method | Setup certified Hofmann unbalance exciter into the bearing head. Connect speed sensor to measuring system of HS installation. Check unbalance and vibration calibration at different speeds within the operational range of the unbalance exciter. Permissible values and deviations are given by manufacturer. | | |
| Comment | | | |
| Date of Test | 11/2021 | Next Recommended Test | 11/2022 |
| Test passed | yes | | |
| Date | 23.11.2021 | Signature | Stamp |
| Inspector | i.A. Alborz Aghdaie | | Hofmann Mess- und Auswuchttechnik GmbH & Co. KG Werner-von-Siemens-Str. 21 64319 Pfungstadt |

Diagrams Pedestal 1

Test of low-speed Unbalance Measurement

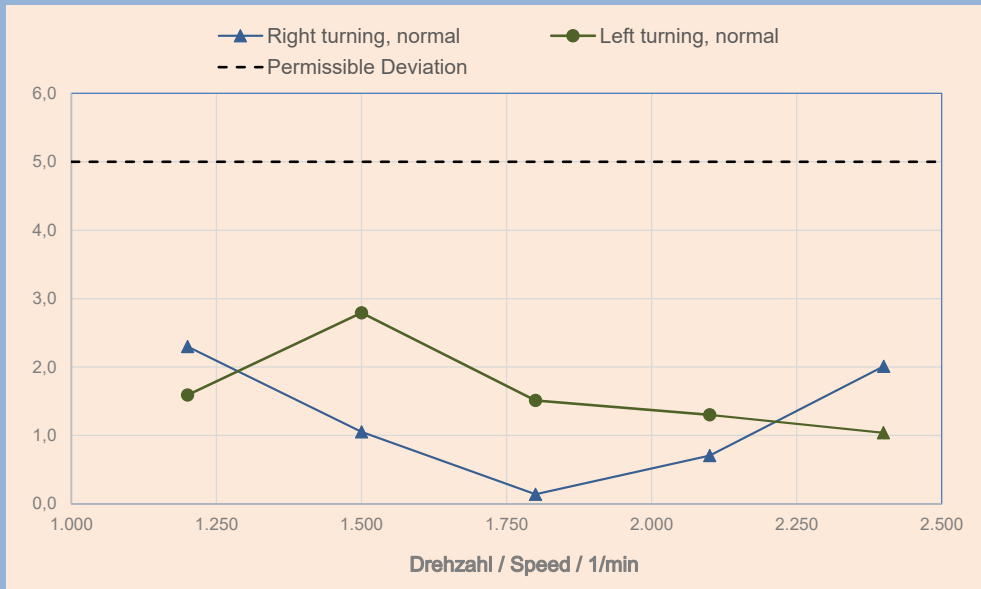


Test Vibration Velocity Measurement

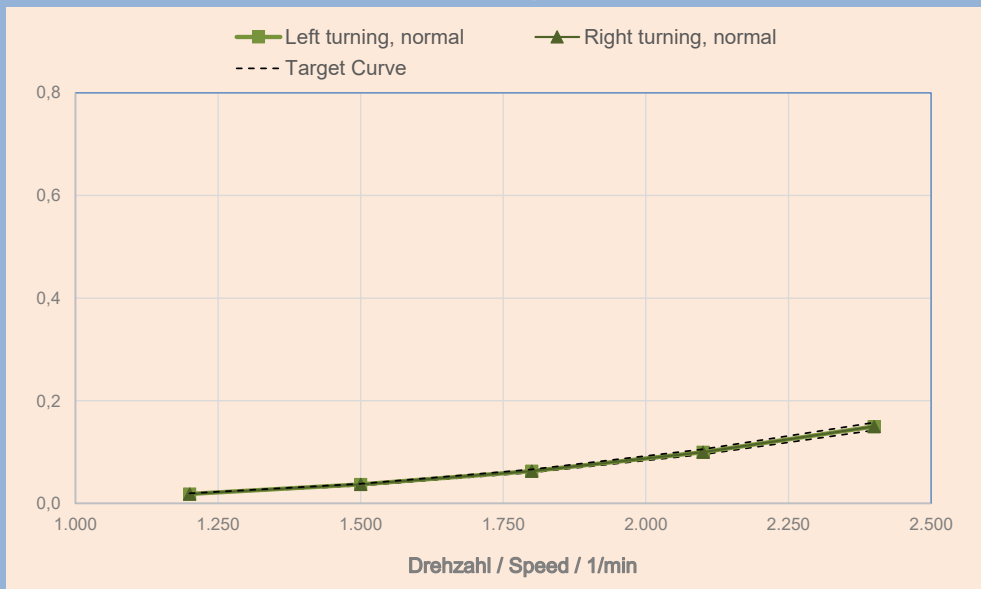


Diagrams Pedestal 2

Test of low-speed Unbalance Measurement



Test Vibration Velocity Measurement



Right turning, normal

| Unbalance U and Vibration Velocity v-RMS by Unbalance Measuring System | | | | | | | |
|--|---------------|--------------------|---------------|------------------|-----------------|--------------------|------------------------------------|
| Meas. Values | | Amount - Set Value | | Deviation Amount | | | |
| Amount | Angle | Amount | Angle | | Status | | |
| Pedestal 1 | | | | | | | |
| Speed 1/min | U gmm | W deg. | U gmm | W deg. | ΔU % | passed yes / no | Specification achieved yes / no |
| 1.200,0 | 9.810,0 | 1,9 | 10.000,0 | 0,0 | 3,8 | yes | yes |
| 1.500,0 | 9.970,0 | 1,5 | 10.000,0 | 0,0 | 2,6 | yes | |
| 1.800,0 | 10.068,0 | 1,3 | 10.000,0 | 0,0 | 2,4 | yes | |
| 2.100,0 | 10.190,0 | 0,2 | 10.000,0 | 0,0 | 1,9 | yes | |
| 2.400,0 | 10.326,0 | 359,5 | 10.000,0 | 0,0 | 3,4 | yes | |
| Speed 1/min | v-RMS mm/s | W deg. | v-RMS mm/s | | Δv % | passed yes / no | Specification achieved yes / no |
| 1.200,0 | 0,019 | 88,3 | 0,019 | | 1,4 | yes | yes |
| 1.500,0 | 0,036 | 89,0 | 0,037 | | 1,8 | yes | |
| 1.800,0 | 0,063 | 90,0 | 0,063 | | 0,5 | yes | |
| 2.100,0 | 0,101 | 87,8 | 0,101 | | 0,4 | yes | |
| 2.400,0 | 0,154 | 89,9 | 0,150 | | 2,6 | yes | |

| Pedestal 2 | | | | | | | |
|-------------------|---------------|-----------|---------------|-----------|-----------------|--------------------|------------------------------------|
| Speed 1/min | U gmm | W deg. | U gmm | W Grad | ΔU % | passed yes / no | Specification achieved yes / no |
| 1.200,0 | 10.035,0 | 358,7 | 10.000,0 | 0,0 | 2,3 | yes | yes |
| 1.500,0 | 10.009,0 | 0,6 | 10.000,0 | 0,0 | 1,1 | yes | |
| 1.800,0 | 10.014,0 | 0,0 | 10.000,0 | 0,0 | 0,1 | yes | |
| 2.100,0 | 10.010,0 | 359,6 | 10.000,0 | 0,0 | 0,7 | yes | |
| 2.400,0 | 10.058,0 | 358,9 | 10.000,0 | 0,0 | 2,0 | yes | |
| Speed 1/min | v-RMS mm/s | W deg. | v-RMS mm/s | | Δv % | passed yes / no | Specification achieved yes / no |
| 1.200,0 | 0,019 | 88,2 | 0,019 | | 1,4 | yes | yes |
| 1.500,0 | 0,037 | 87,9 | 0,037 | | 1,0 | yes | |
| 1.800,0 | 0,063 | 87,2 | 0,063 | | 0,5 | yes | |
| 2.100,0 | 0,100 | 86,0 | 0,101 | | 0,6 | yes | |
| 2.400,0 | 0,150 | 90,0 | 0,150 | | 0,1 | yes | |

Left turning, normal

| Unbalance U and Vibration Velocity v-RMS by Unbalance Measuring System | | | | | | | |
|--|---------------|--------------------|---------------|------------------|-----------------|--------------------|------------------------------------|
| Meas. Values | | Amount - Set Value | | Deviation Amount | | | |
| Amount | Angle | Amount | Angle | | Status | | |
| Pedestal 1 | | | | | | | |
| Speed 1/min | U gmm | W deg. | U gmm | W deg. | ΔU % | passed yes / no | Specification achieved yes / no |
| 1.200,0 | 9.645,0 | 1,5 | 10.000,0 | 0,0 | 4,4 | yes | yes |
| 1.500,0 | 9.767,0 | 1,2 | 10.000,0 | 0,0 | 3,1 | yes | |
| 1.800,0 | 9.845,0 | 0,8 | 10.000,0 | 0,0 | 2,1 | yes | |
| 2.100,0 | 10.001,0 | 0,2 | 10.000,0 | 0,0 | 0,3 | yes | |
| 2.400,0 | 10.133,0 | 359,8 | 10.000,0 | 0,0 | 1,4 | yes | |
| Speed 1/min | v-RMS mm/s | W deg. | v-RMS mm/s | | Δv % | passed yes / no | Specification achieved yes / no |
| 1.200,0 | 0,019 | 88,8 | 0,019 | | 1,4 | yes | yes |
| 1.500,0 | 0,036 | 89,0 | 0,037 | | 1,8 | yes | |
| 1.800,0 | 0,062 | 90,1 | 0,063 | | 2,1 | yes | |
| 2.100,0 | 0,101 | 90,1 | 0,101 | | 0,4 | yes | |
| 2.400,0 | 0,151 | 89,9 | 0,150 | | 0,6 | yes | |

| Pedestal 2 | | | | | | | |
|-------------------|---------------|-----------|---------------|-----------|-----------------|--------------------|------------------------------------|
| Speed 1/min | U gmm | W deg. | U gmm | W Grad | ΔU % | passed yes / no | Specification achieved yes / no |
| 1.200,0 | 10.159,0 | 0,0 | 10.000,0 | 0,0 | 1,6 | yes | yes |
| 1.500,0 | 10.094,0 | 1,5 | 10.000,0 | 0,0 | 2,8 | yes | |
| 1.800,0 | 10.057,0 | 0,8 | 10.000,0 | 0,0 | 1,5 | yes | |
| 2.100,0 | 10.044,0 | 0,7 | 10.000,0 | 0,0 | 1,3 | yes | |
| 2.400,0 | 10.056,0 | 0,5 | 10.000,0 | 0,0 | 1,0 | yes | |
| Speed 1/min | v-RMS mm/s | W deg. | v-RMS mm/s | | Δv % | passed yes / no | Specification achieved yes / no |
| 1.200,0 | 0,019 | 86,9 | 0,019 | | 1,4 | yes | yes |
| 1.500,0 | 0,037 | 90,0 | 0,037 | | 1,0 | yes | |
| 1.800,0 | 0,063 | 89,9 | 0,063 | | 0,5 | yes | |
| 2.100,0 | 0,100 | 89,1 | 0,101 | | 0,6 | yes | |
| 2.400,0 | 0,150 | 89,6 | 0,150 | | 0,1 | yes | |