

**ZÁPADOČESKÁ UNIVERZITA V PLZNI**

**FAKULTA STROJNÍ**

**Studijní program: B0715A270013 – Strojní inženýrství**

**Studijní specializace: Strojírenské materiály a technologie**

# **BAKALÁŘSKÁ PRÁCE**

**Zvyšování odolnosti ocelí vůči opotřebení – PŘÍLOHA 1**

**Autor: Vojtěch Bílek**

**Vedoucí práce: Doc. Ing. Ludmila Kučerová, Ph.D.**

**Akademický rok 2021/2022**

## Příložené soubory

**Tabulka míry opotřebení pro materiál MS1 Tepelně zpracované**

Název vzorku	Číslo vzorku	Úhel měření (°)	Naměřená vzdálenost (μm)	Průměrná vzdálenost (μm)	Odebraný objem V (mm <sup>3</sup> )	Míra opotřebení W (mm <sup>3</sup> /(N*mm))
MS1-820°C/1 hodiny, 490°C/6 hodin	1.1	0	603,78	599,6488	0,31397537	1,66569*10 <sup>-7</sup>
		45	593,97			
		90	600,85			
		135	603,05			
		180	603,79			
		225	602,18			
		270	597,18			
		315	592,39			
MS1-820°C/1 hodiny, 490°C/6 hodin	1.2	0	650,22	617,7488	0,323452515	1,71597*10 <sup>-7</sup>
		45	632,29			
		90	601,56			
		135	593,28			
		180	614,82			
		225	602,20			
		270	616,47			
		315	631,15			
MS1-820°C/1 hodiny, 490°C/6 hodin	1.3	0	724,11	707,69	0,370545618	1,96581*10 <sup>-7</sup>
		45	628,72			
		90	723,37			
		135	762,25			
		180	768,76			
		225	657,16			
		270	659,44			
		315	737,71			
MS1-940°C/2 hodiny, 490°C/6 hodin	2.1	0	837,45	823,958	0,431437537	2,28885*10 <sup>-7</sup>
		45	838,28			
		90	818,47			
		135	825,14			
		180	812,39			
		225	815,27			
		270	821,23			
		315	823,65			
MS1-940°C/2 hodiny, 490°C/6 hodin	2.2	0	653,18	627,3738	0,328492154	1,7427*10 <sup>-7</sup>
		45	623,45			
		90	611,87			
		135	620,78			
		180	600,12			
		225	611,44			
		270	650,28			
		315	647,87			
MS1-940°C/2 hodiny,	2.3	0	632,51	620,7275	0,325012159	1,72424*10 <sup>-7</sup>
		45	625,65			
		90	607,95			

490°C/6 hodin		135	617,18			
		180	613,34			
		225	622,08			
		270	622,23			
		315	633,88			
MS1- Precipitace 490°C/6 hodin	3.1	0	620,76	631,1375	0,330462822	1,75316*10 <sup>-7</sup>
		45	608,23			
		90	614,86			
		135	645,58			
		180	635,50			
		225	630,93			
		270	645,78			
		315	647,46			
MS1- Precipitace 490°C/6 hodin	3.2	0	600,08	600,3225	0,314328126	1,66756*10 <sup>-7</sup>
		45	586,33			
		90	586,82			
		135	595,48			
		180	598,6			
		225	604,73			
		270	608,92			
		315	621,62			
MS1- Precipitace 490°C/6 hodin	3.3	0	726,96	738,0325	0,386432913	2,05009*10 <sup>-7</sup>
		45	750,53			
		90	757,73			
		135	761,79			
		180	728,83			
		225	720,98			
		270	725,47			
		315	731,97			

#### **Tabulka míry opotřebení pro materiál MS1 Nitridace**

Název vzorku	Číslo vzorku	Úhel měření (°)	Naměřená vzdálenost (μm)	Průměrná vzdálenost (μm)	Odebraný objem V (mm <sup>3</sup> )	Míra opotřebení W (mm <sup>3</sup> /(N*mm))
MS1- Výchozí stav	1.1	0	309,59	325,9575	0,170670948	9,05437*10 <sup>-8</sup>
		45	317,12			
		90	336,12			
		135	342,18			
		180	349,22			
		225	326,17			
		270	319,23			
		315	308,03			
MS1- Výchozí stav	1.2	0	313,28	323,7413	0,169510548	8,99281*10 <sup>-8</sup>
		45	341,44			
		90	347,52			
		135	340,32			
		180	324,31			
		225	313,87			
		270	296,46			

		315	312,73			
MS1- 940°C/2 hodiny, 490°C/ 6 hodin	2.1	0	348,48	329,1725	0,172354318	9,14368*10 <sup>-8</sup>
		45	324,05			
		90	338,23			
		135	331,46			
		180	314,73			
		225	325,84			
		270	325,1			
		315	325,49			
MS1- 940°C/2 hodiny, 490°C/ 6 hodin	2.2	0	351,46	327,2288	0,171336599	9,08969*10 <sup>-8</sup>
		45	348,1			
		90	331,62			
		135	304,34			
		180	299,72			
		225	307,55			
		270	338,38			
		315	336,66			
MS1- 820°C/1 hodinu, 490°C/ 6 hodin	3.1	0	331,61	349,0375	0,182755608	9,69548*10 <sup>-8</sup>
		45	334,39			
		90	354,35			
		135	371,52			
		180	342,62			
		225	368,05			
		270	349,04			
		315	340,72			
MS1- 820°C/1 hodinu, 490°C/ 6 hodin	3.2	0	498,14	487,4913	0,255249848	1,35414*10 <sup>-7</sup>
		45	497,93			
		90	502,93			
		135	460,59			
		180	482,83			
		225	498,98			
		270	465,58			
		315	492,95			
MS1- 490°C/ 6 hodin	4.1	0	327,22	340,3075	0,17818459	9,45298*10 <sup>-8</sup>
		45	340,41			
		90	341,19			
		135	343,84			
		180	349,32			
		225	345,99			
		270	344,19			
		315	330,3			
MS1- 490°C/ 6 hodin	4.2	0	314,73	331,7325	0,173694731	9,21479*10 <sup>-8</sup>
		45	332,54			
		90	326,71			
		135	340,64			
		180	328,67			
		225	341,97			
		270	343,69			
		315	324,91			

**Tabulka míry opotřebení pro materiál MS1 Kuličkování**

Název vzorku	Číslo vzorku	Úhel měření (°)	Naměřená vzdálenost (μm)	Průměrná vzdálenost (μm)	Odebraný objem V (mm <sup>3</sup> )	Míra opotřebení W (mm <sup>3</sup> /(N*mm))
MS1- Výchozí stav	5.1	0	755,30	748,5775	0,391954262	2,07938*10 <sup>-7</sup>
		45	720,13			
		90	748,15			
		135	760,09			
		180	768,15			
		225	755,73			
		270	746,24			
		315	734,83			
MS1- Výchozí stav	5.2	0	691,49	676,7238	0,354331753	1,87979*10 <sup>-7</sup>
		45	691,24			
		90	714,56			
		135	720,09			
		180	668,00			
		225	632,97			
		270	623,76			
		315	671,68			
MS1- 490°C/ 6 hodin	6.1	0	577,96	580,9875	0,304204344	1,61385*10 <sup>-7</sup>
		45	590,97			
		90	602,29			
		135	586,55			
		180	575,10			
		225	571,77			
		270	565,31			
		315	577,95			
MS1- 490°C/ 6 hodin	6.2	0	601,55	594,3125	0,311181297	1,65087*10 <sup>-7</sup>
		45	596,91			
		90	607,45			
		135	577,66			
		180	567,76			
		225	592,12			
		270	597,13			
		315	613,92			
MS1- 940°C/2 hodiny, 490°C/ 6 hodin	7.1	0	560,27	604,016	0,316262195	1,67782*10 <sup>-7</sup>
		45	604,50			
		90	582,23			
		135	736,11			
		180	618,21			
		225	605,18			
		270	561,20			
		315	564,43			
MS1- 940°C/2 hodiny, 490°C/ 6 hodin	7.2	0	702,06	646,045	0,338268371	1,79457*10 <sup>-7</sup>
		45	636,05			
		90	645,62			
		135	679,07			
		180	656,10			

		225	596,86			
		270	600,64			
		315	651,96			
MS1- 820°C/1 hodinu, 490°C/ 6 hodin	8.1	0	728,36	687,215	0,359824933	1,90893*10 <sup>-7</sup>
		45	804,20			
		90	761,82			
		135	718,05			
		180	635,63			
		225	626,71			
		270	613,68			
		315	609,27			
MS1- 820°C/1 hodinu, 490°C/ 6 hodin	8.2	0	647,42	658,415	0,344745288	1,82893*10 <sup>-7</sup>
		45	644,51			
		90	616,98			
		135	649,91			
		180	693,11			
		225	692,95			
		270	678,53			
		315	643,91			

**Tabulka míry opotřebení pro materiál HO Kalení a popouštění**

Název vzorku	Číslo vzorku	Úhel měření (°)	Naměřená vzdálenost (μm)	Průměrná vzdálenost (μm)	Odebraný objem V (mm <sup>3</sup> )	Míra opotřebení W (mm <sup>3</sup> /(N*mm))
950°C/30min - 250°C/2 hodiny	V	0	567,68	562,1125	0,294321417	1,56142*10 <sup>-7</sup>
		45	560,78			
		90	537,02			
		135	559,36			
		180	567,15			
		225	569,41			
		270	559,10			
		315	576,50			
950°C/30min - 250°C/2 hodiny	S	0	523,02	524,0538	0,274393928	1,4557*10 <sup>-7</sup>
		45	528,88			
		90	534,09			
		135	531,19			
		180	506,21			
		225	518,65			
		270	526,03			
		315	524,36			
950°C/30min - 350°C/2 hodiny	V	0	585,44	590,6838	0,309281314	1,64079*10 <sup>-7</sup>
		45	572,82			
		90	592,78			
		135	599,18			
		180	586,91			
		225	593,09			
		270	598,66			
		315	596,59			
	S	0	607,46	609,2575	0,319006481	1,69238*10 <sup>-7</sup>

950°C/30min - 350°C/2 hodiny		45	597,92			
		90	582,19			
		135	611,63			
		180	611,85			
		225	619,06			
		270	613,47			
		315	630,48			
1000°C/30min - 250°C/2 hodiny	V	0	635,34	629,6388	0,329678105	1,749*10 <sup>-7</sup>
		45	638,07			
		90	632,03			
		135	630,62			
		180	603,78			
		225	636,13			
		270	617,13			
315	644,01					
1000°C/30min - 250°C/2 hodiny	S	0	613,49	619,9363	0,324597888	1,72204*10 <sup>-7</sup>
		45	617,03			
		90	618,46			
		135	623,14			
		180	625,79			
		225	615,75			
		270	629,48			
315	616,35					
1000°C/30min - 350°C/2 hodiny	V	0	647,80	641,5575	0,335918721	1,7821*10 <sup>-7</sup>
		45	644,73			
		90	636,04			
		135	659,51			
		180	643,42			
		225	622,67			
		270	639,16			
315	639,13					
1000°C/30min - 350°C/2 hodiny	S	0	650,73	646,8063	0,338666987	1,79668*10 <sup>-7</sup>
		45	658,01			
		90	645,70			
		135	639,63			
		180	639,73			
		225	651,00			
		270	644,87			
315	644,78					
1050°C/30min - 250°C/2 hodiny	V	0	606,10	599,6388	0,313970141	1,66566*10 <sup>-7</sup>
		45	598,98			
		90	615,08			
		135	596,57			
		180	580,32			
		225	600,38			
		270	597,19			
315	602,49					
1050°C/30min - 250°C/2 hodiny	S	0	664,71	653,9063	0,342384538	1,81641*10 <sup>-7</sup>
		45	648,38			
		90	656,07			

		135	645,93			
		180	644,91			
		225	650,30			
		270	658,90			
		315	662,05			
1050°C/30min - 350°C/2 hodiny	V	0	827,61	829,3538	0,434248634	2,30376*10 <sup>-7</sup>
		45	839,44			
		90	831,65			
		135	821,54			
		180	818,77			
		225	822,51			
		270	843,08			
		315	830,23			
1050°C/30min - 350°C/2 hodiny	S	0	763,76	742,7075	0,388880738	2,06308*10 <sup>-7</sup>
		45	779,81			
		90	729,02			
		135	724,23			
		180	737,19			
		225	730,40			
		270	728,70			
		315	748,55			

#### **Tabulka míry opotřebení pro materiál HO Nitridace**

Název vzorku	Číslo vzorku	Úhel měření (°)	Naměřená vzdálenost (μm)	Průměrná vzdálenost (μm)	Odebraný objem V (mm <sup>3</sup> )	Míra opotřebení W (mm <sup>3</sup> /(N*mm))
HO- Výchozí stav	V	0	436,57	439,5863	0,230166848	1,22107*10 <sup>-7</sup>
		45	444,2			
		90	444,68			
		135	441,69			
		180	435,96			
		225	438,19			
		270	437,57			
		315	437,83			
HO- Výchozí stav	S	0	435,079	445,1824	0,23309696	1,23662*10 <sup>-7</sup>
		45	446,51			
		90	445,38			
		135	451,92			
		180	449			
		225	443,62			
		270	448,69			
		315	441,26			
HO- 1000°C/30 min-	V	0	413,77	412,1713	0,215812388	1,14492*10 <sup>-7</sup>
		45	405,60			
		90	410,12			



250°C/ 2 hodin		135	410,84			
		180	406,55			
		225	418,80			
		270	413,04			
		315	418,64			
HO- 1000°C/30 min- 250°C/ 2 hodin	S	0	426,78	423,0538	0,221510452	1,17515*10 <sup>-7</sup>
		45	426,50			
		90	428,45			
		135	426,48			
		180	421,15			
		225	416,02			
		270	421,36			
		315	417,69			
HO- 1000°C/30 min- 500°C/ 30 minut	V	0	447,52	448,6988	0,234938142	1,24639*10 <sup>-7</sup>
		45	446,78			
		90	439,45			
		135	446,06			
		180	448,26			
		225	453,95			
		270	457,85			
		315	449,72			
HO- 1000°C/30 min- 500°C/ 30 minut	S	0	440,2	448,5025	0,23483536	1,24584*10 <sup>-7</sup>
		45	439,24			
		90	450,45			
		135	451,33			
		180	448,26			
		225	455,78			
		270	453,49			
		315	449,27			
HO- 1000°C/30 min	V	0	426,26	415,1238	0,217358313	1,15312*10 <sup>-7</sup>
		45	409,77			
		90	407,30			
		135	416,05			
		180	410,10			
		225	420,16			
		270	424,05			
		315	407,30			
HO- 1000°C/30 min	S	0	420,37	422,0925	0,221007116	1,17248*10 <sup>-7</sup>
		45	420,50			
		90	419,75			
		135	423,63			
		180	421,93			
		225	429,32			
		270	424,15			
		315	417,09			

**Tabulka míry opotřebení pro materiál HO Kuličkování**

Název vzorku	Číslo vzorku	Úhel měření (°)	Naměřená vzdálenost (μm)	Průměrná vzdálenost (μm)	Odebraný objem V (mm <sup>3</sup> )	Míra opotřebení W (mm <sup>3</sup> /(N*mm))
HO-K-VS	1	0	541,15	554,5075	0,290339448	1,5403*10 <sup>-7</sup>
		45	554,50			
		90	571,50			
		135	557,06			
		180	557,35			
		225	550,50			
		270	553,17			
		315	550,83			
HO-K-1000°C/30 min - 250°C/ 2 hodin	2	0	410,14	415,135	0,217364178	1,15315*10 <sup>-7</sup>
		45	421,09			
		90	411,45			
		135	421,81			
		180	411,45			
		225	414,71			
		270	408,62			
		315	521,81			
HO-K-1000°C/30 min - 350°C/ 2 hodin	3	0	475,66	477,135	0,249827302	1,32537*10 <sup>-7</sup>
		45	461,03			
		90	467,44			
		135	455,60			
		180	466,30			
		225	485,83			
		270	523,87			
		315	481,35			

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Anton Paar Strasse 20\par\par\par

8054 Graz - Austria\par\par\par

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**Anton Paar** par

Document1

# Group1

MS1\_vz\_1.3

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 23/02/2022 13:03:40

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: MS1\_1.3
- Cleaning: -

### Environment

- Lab temperature: 24,60 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 29,93 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

### Sample

Worn Track Section: 0,0 [μm<sup>2</sup>]  
Young's Modulus: 0,0 [GPa]  
Poisson Ratio: 0,000

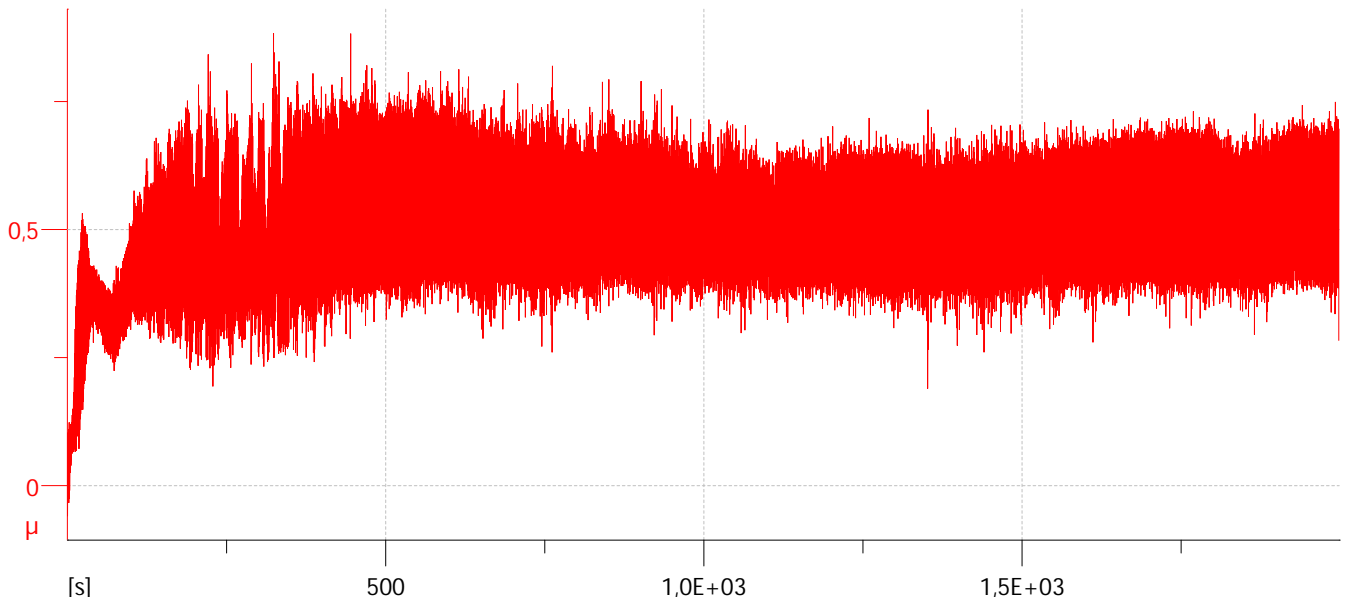
### Static partner

Worn Cap Diameter: 0,0 [μm]  
Young's Modulus: 0,0 [GPa]  
Poisson Ratio: 0,000

### Calculations

Sample Wear Rate: 0 [mm<sup>3</sup>/N/m]  
Partner Wear Rate: 0 [mm<sup>3</sup>/N/m]  
Max Hertzian Stress: 0 [GPa]

Start : -0,052    min : -0,059    max : 0,883    mean : 0,504    std. dev. : 0,097



Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 23/02/2022 14:07:22

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: MS1\_1.1
- Cleaning: -

Environment

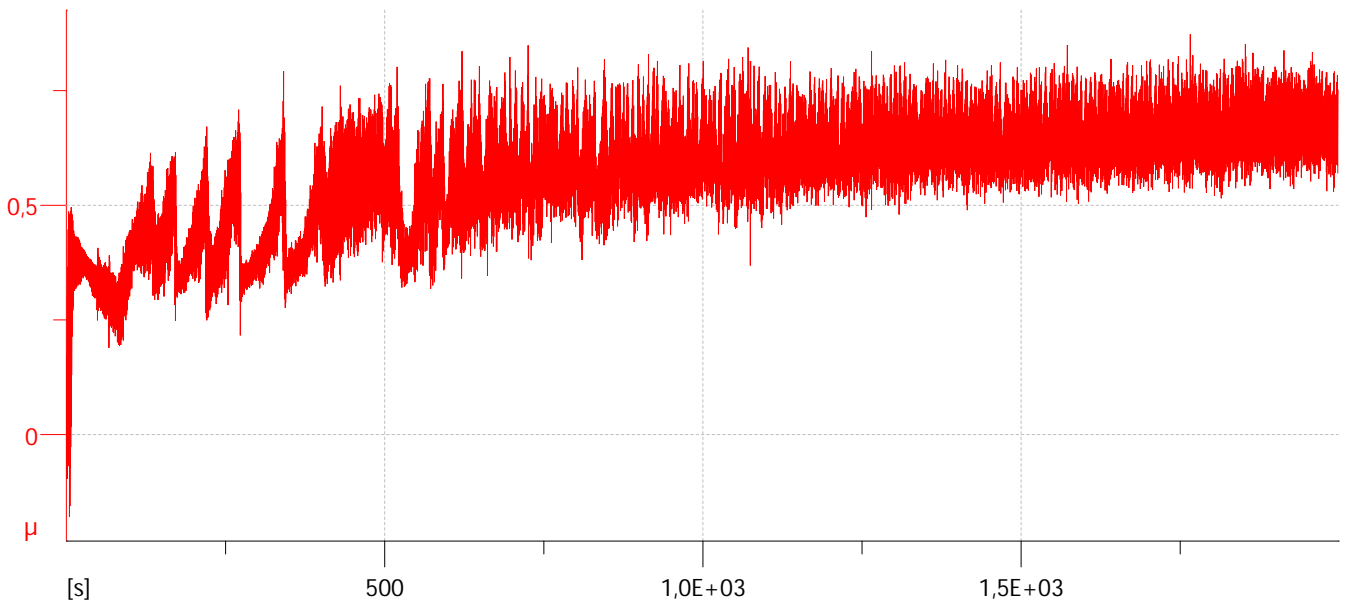
- Lab temperature: 25,84 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 30,08 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,096    min : -0,180    max : 0,873    mean : 0,574    std. dev. : 0,114



Friction Coef.

Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 23/02/2022 14:55:23

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: MS1\_1.2
- Cleaning: -

Environment

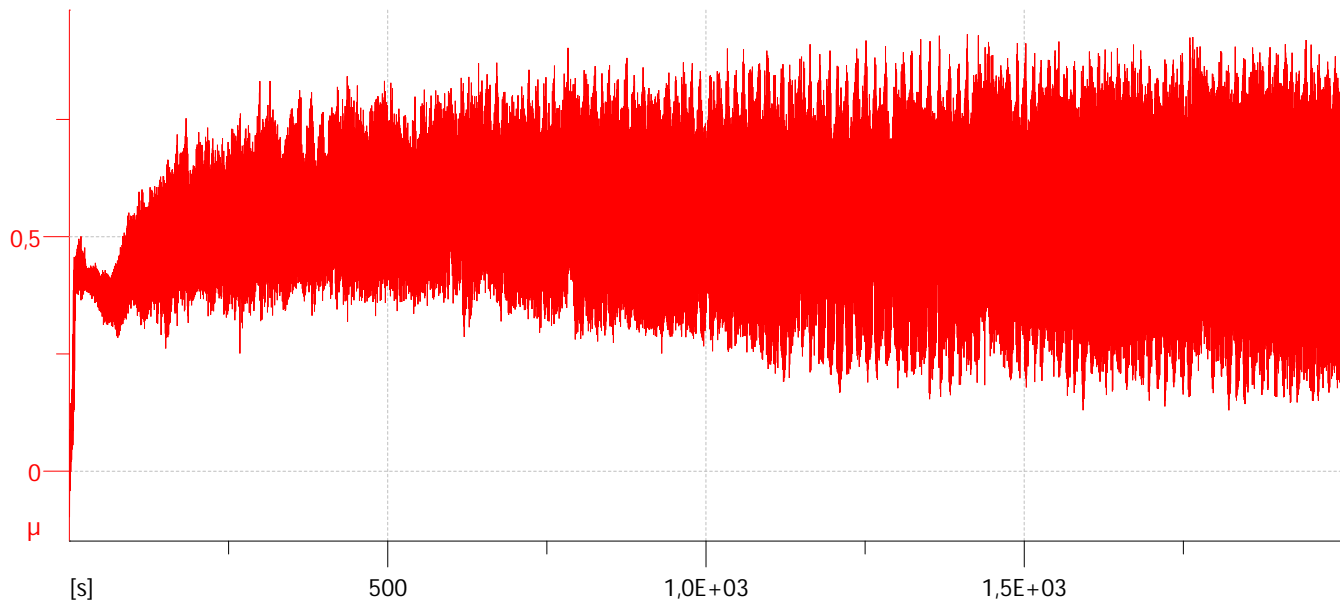
- Lab temperature: 26,90 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 28,41 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,098    min : -0,098    max : 0,932    mean : 0,555    std. dev. : 0,140



Friction Coef.

# MS1\_vz\_2.1

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 23/02/2022 15:49:12

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: MS1\_2.1
- Cleaning: -

### Environment

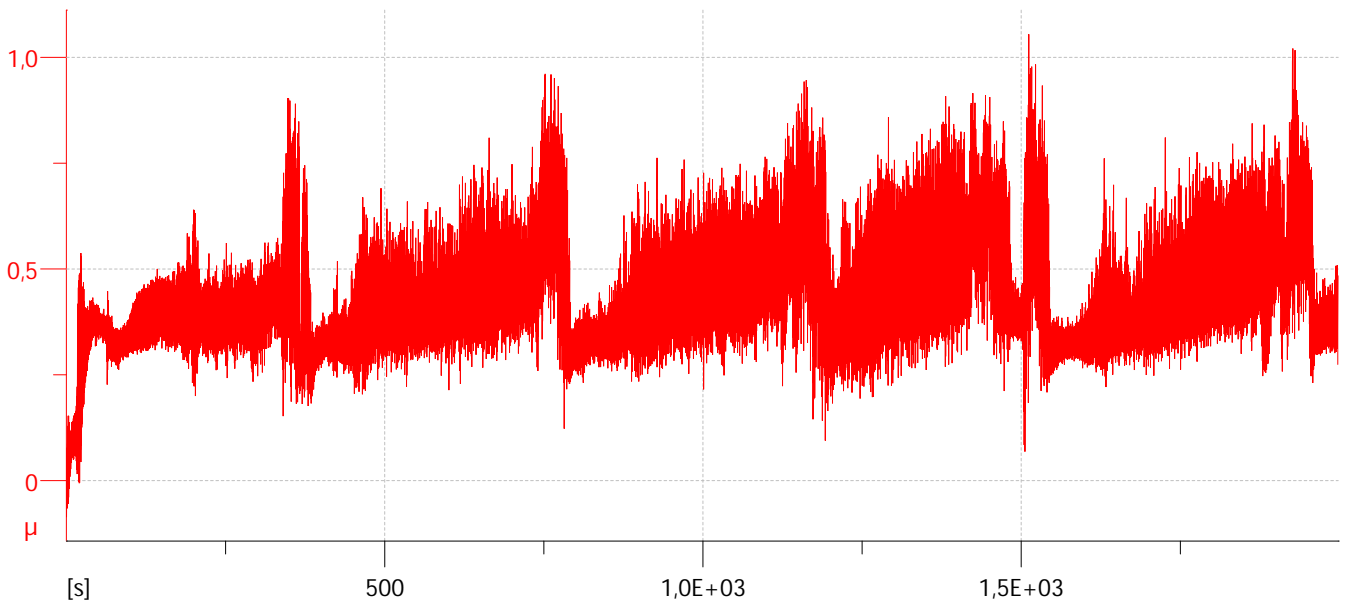
- Lab temperature: 27,84 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 26,96 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,086    min : -0,086    max : 1,055    mean : 0,434    std. dev. : 0,114



Friction Coef.

Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 24/02/2022 12:50:19

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: MS1\_2.2
- Cleaning: -

Environment

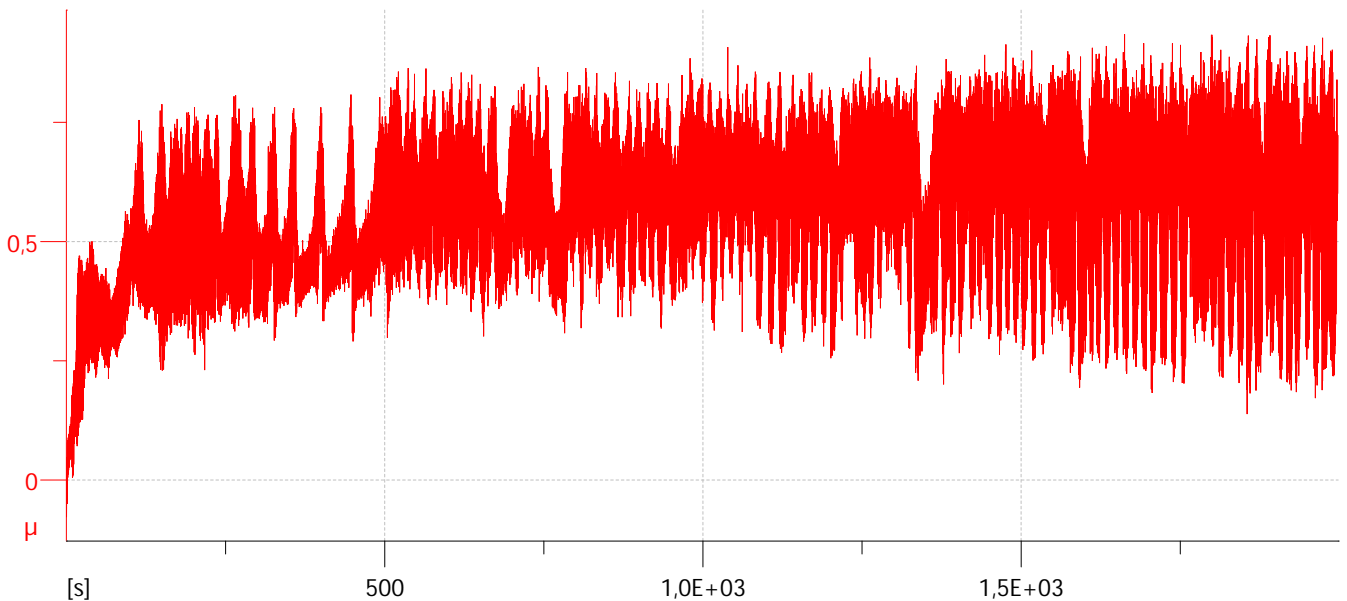
- Lab temperature: 28,57 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 25,91 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,077    min : -0,077    max : 0,935    mean : 0,576    std. dev. : 0,127



Friction Coef.



Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 25/02/2022 09:35:35

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: MS1\_2.3
- Cleaning: -

Environment

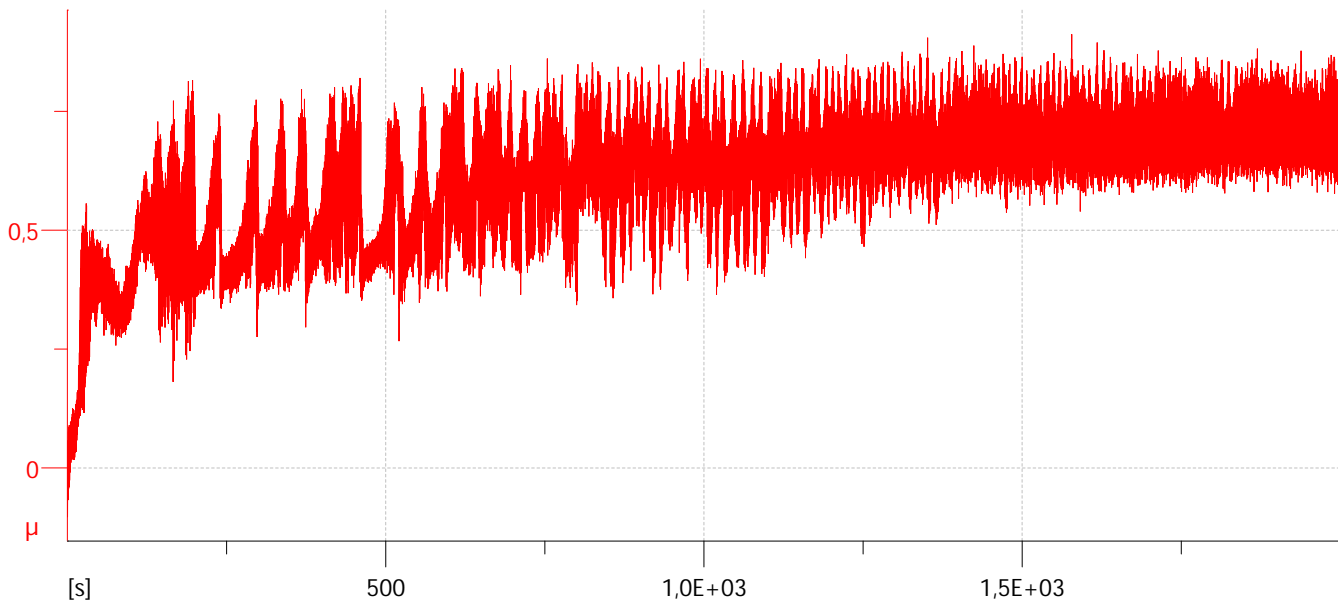
- Lab temperature: 29,04 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 25,03 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Herzian Stress: 0 [GPa]

Start : -0,103    min : -0,103    max : 0,912    mean : 0,613    std. dev. : 0,127



Friction Coef.

Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 25/02/2022 10:20:34

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: MS1\_3.1
- Cleaning: -

Environment

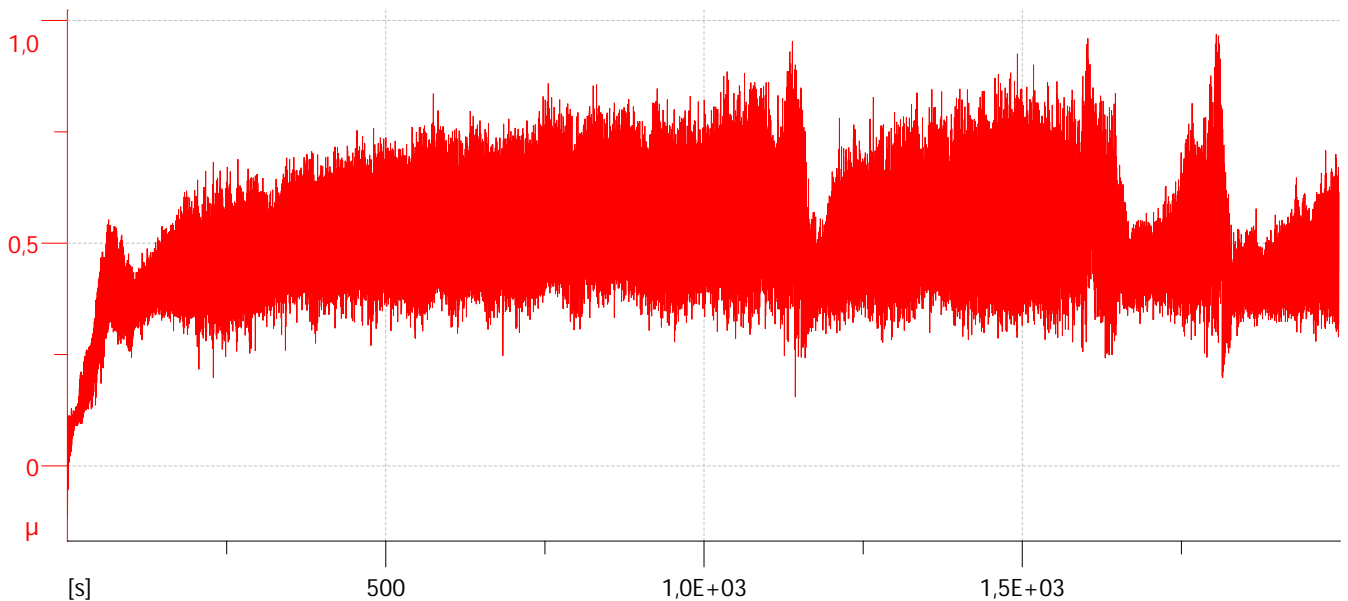
- Lab temperature: 29,20 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 25,92 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,115    min : -0,115    max : 0,969    mean : 0,496    std. dev. : 0,112



Friction Coef.

# MS1\_vz\_3.2

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 25/02/2022 11:00:51

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: MS1\_3.2
- Cleaning: -

### Environment

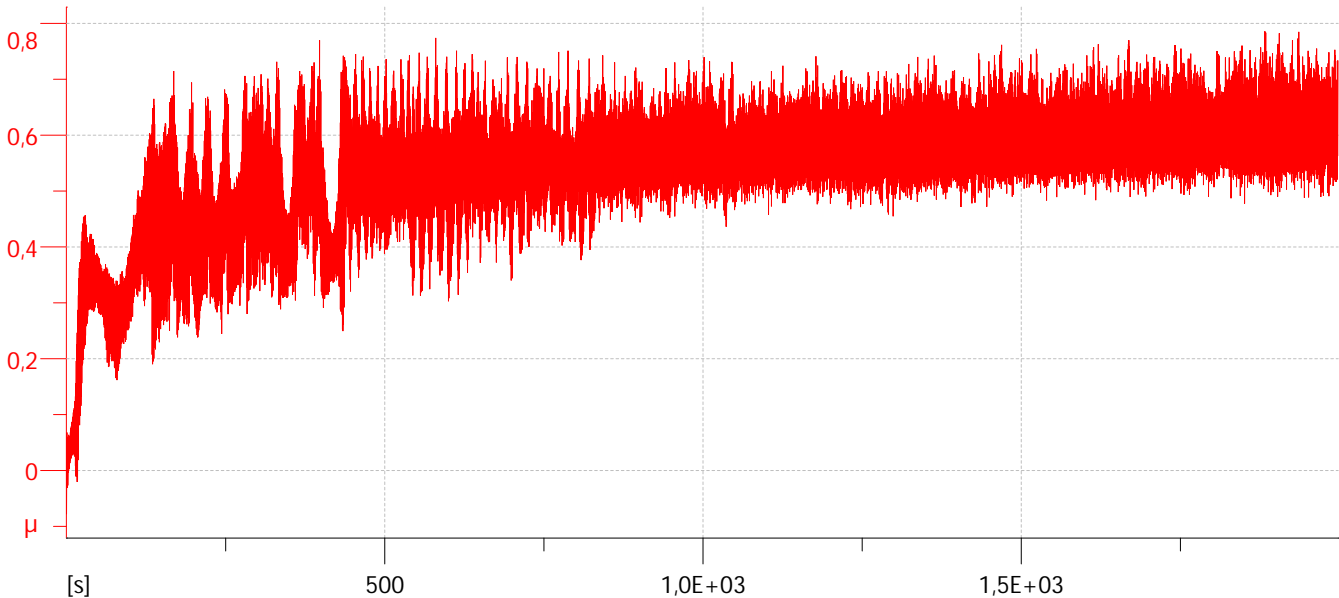
- Lab temperature: 29,54 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 24,19 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Herzian Stress: 0 [GPa]

Start : -0,078    min : -0,078    max : 0,786    mean : 0,541    std. dev. : 0,101



Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 25/02/2022 11:41:06

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: MS1\_3.3
- Cleaning: -

Environment

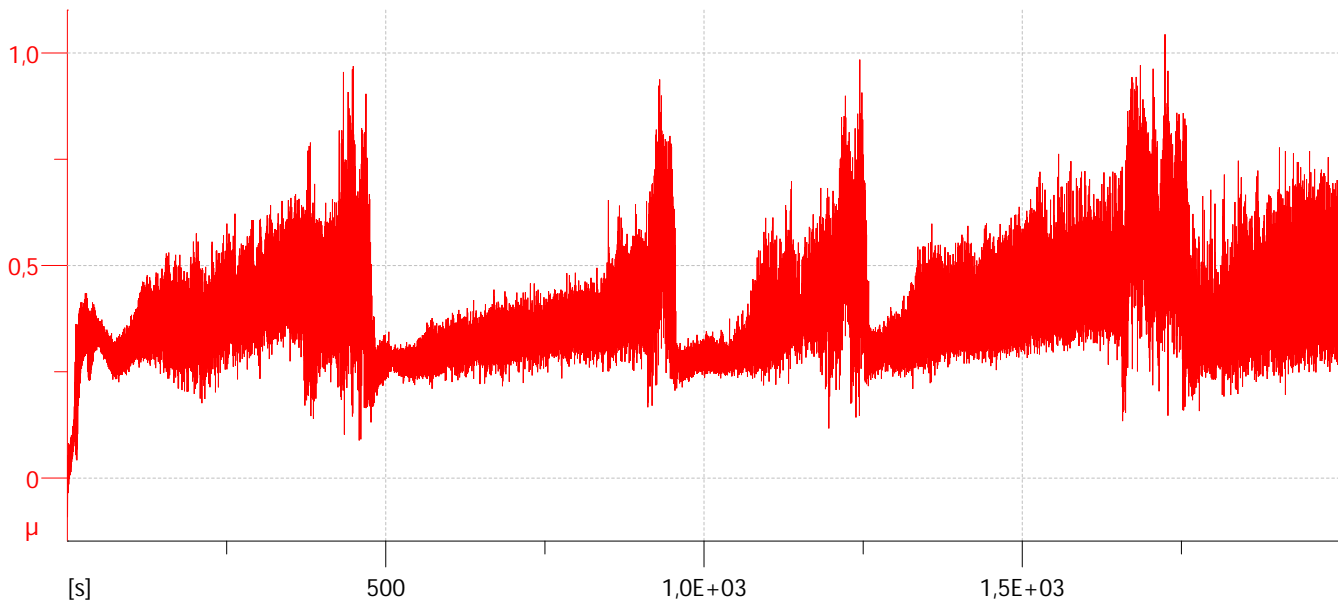
- Lab temperature: 29,84 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 24,50 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm²]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm³/N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm³/N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,091    min : -0,091    max : 1,044    mean : 0,390    std. dev. : 0,107



Friction Coef.

Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 25/02/2022 12:47:15

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: HO\_950\250\_V
- Cleaning: -

Environment

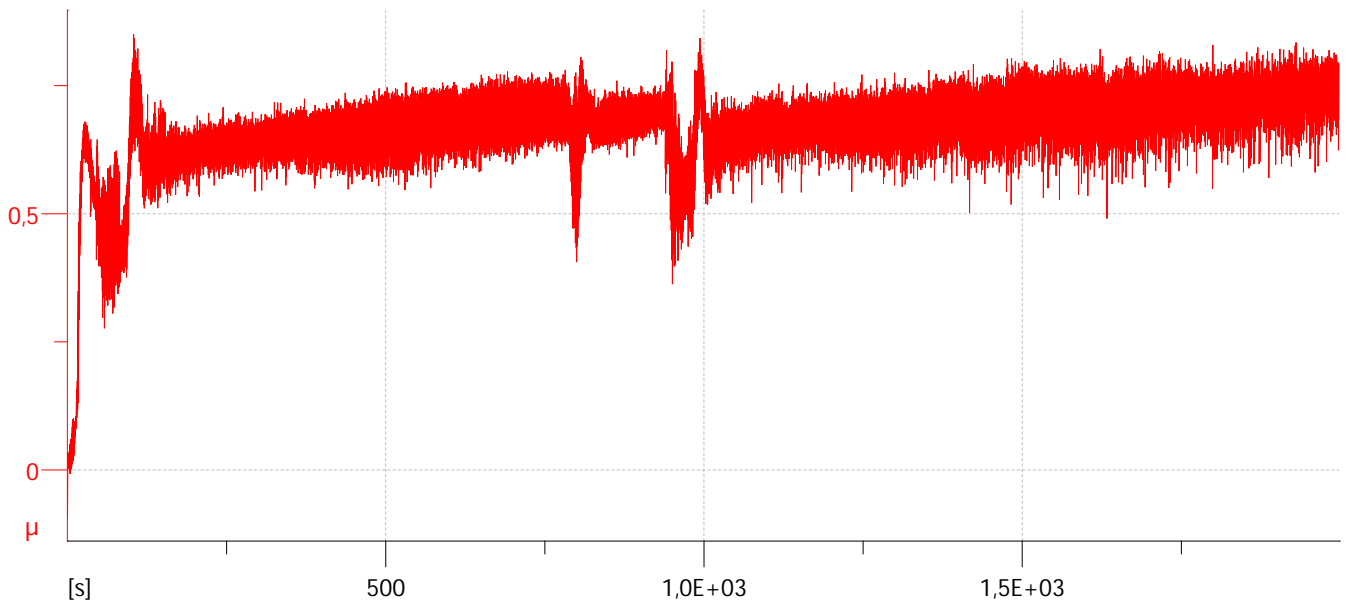
- Lab temperature: 30,11 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 23,55 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm²]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm³/N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm³/N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,092    min : -0,092    max : 0,850    mean : 0,668    std. dev. : 0,082



Friction Coef.

Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 25/02/2022 13:48:34

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: HO\_950\250\_S
- Cleaning: -

Environment

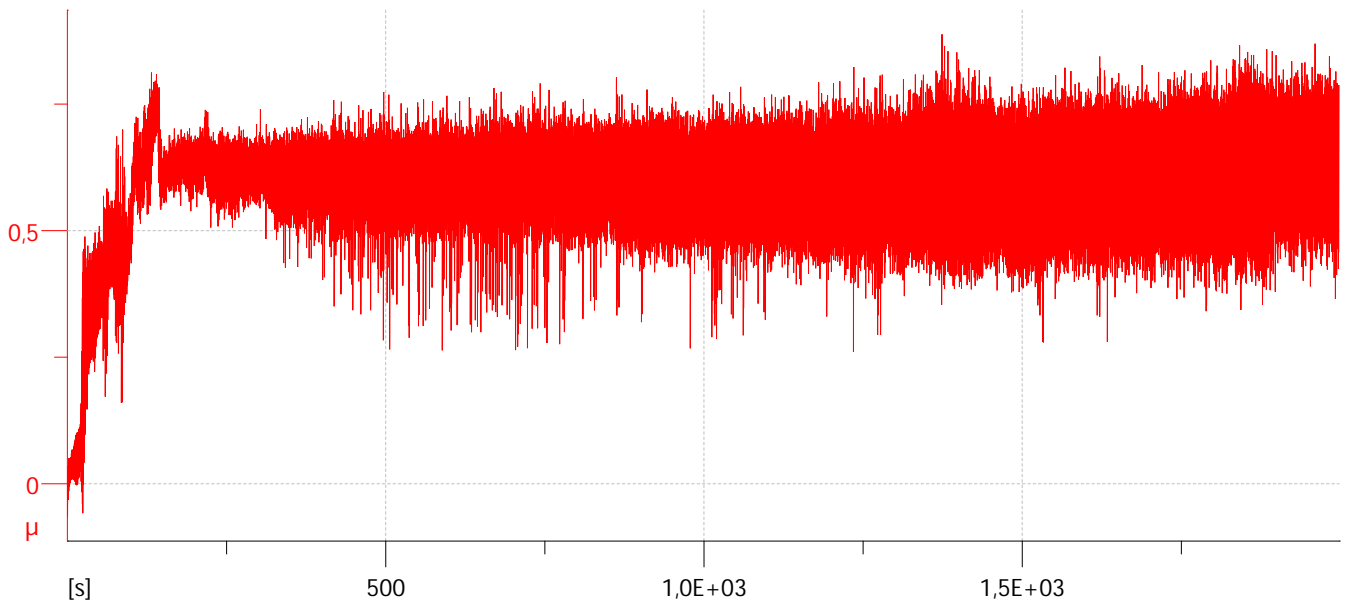
- Lab temperature: 29,56 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 22,57 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,066    min : -0,066    max : 0,888    mean : 0,599    std. dev. : 0,096



Friction Coef.

Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 28/02/2022 13:15:02

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: HO\_950\350\_V
- Cleaning: -

Environment

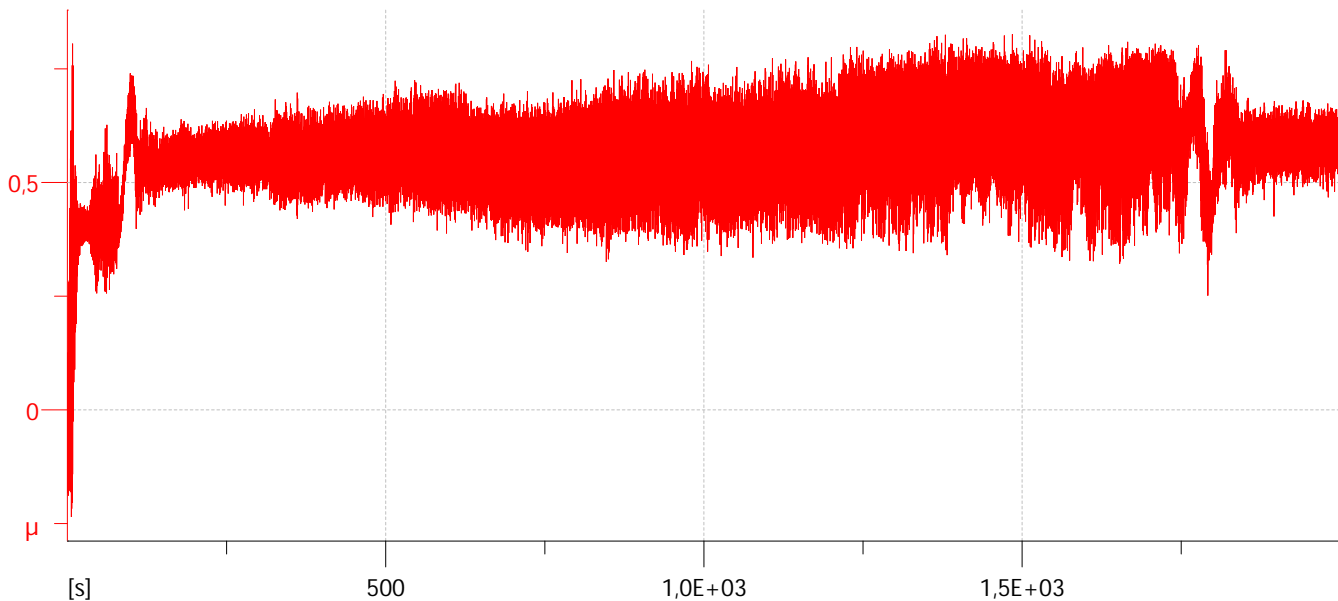
- Lab temperature: 26,67 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 22,69 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm²]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm³/N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm³/N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,093    min : -0,236    max : 0,826    mean : 0,581    std. dev. : 0,084



Friction Coef.

Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 28/02/2022 14:13:41

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: HO\_950\350\_S
- Cleaning: -

Environment

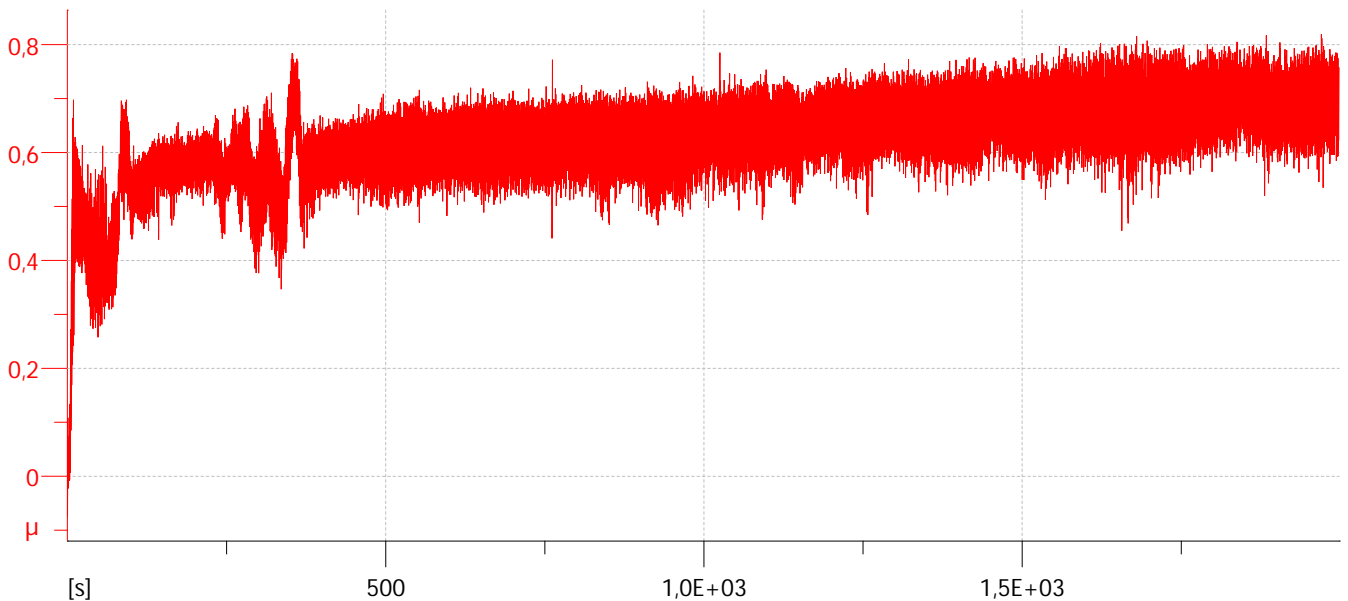
- Lab temperature: 27,55 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 23,79 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm²]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm³/N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm³/N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,075    min : -0,075    max : 0,819    mean : 0,631    std. dev. : 0,077





Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 28/02/2022 15:14:58

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: HO\_1000\250\_V
- Cleaning: -

Environment

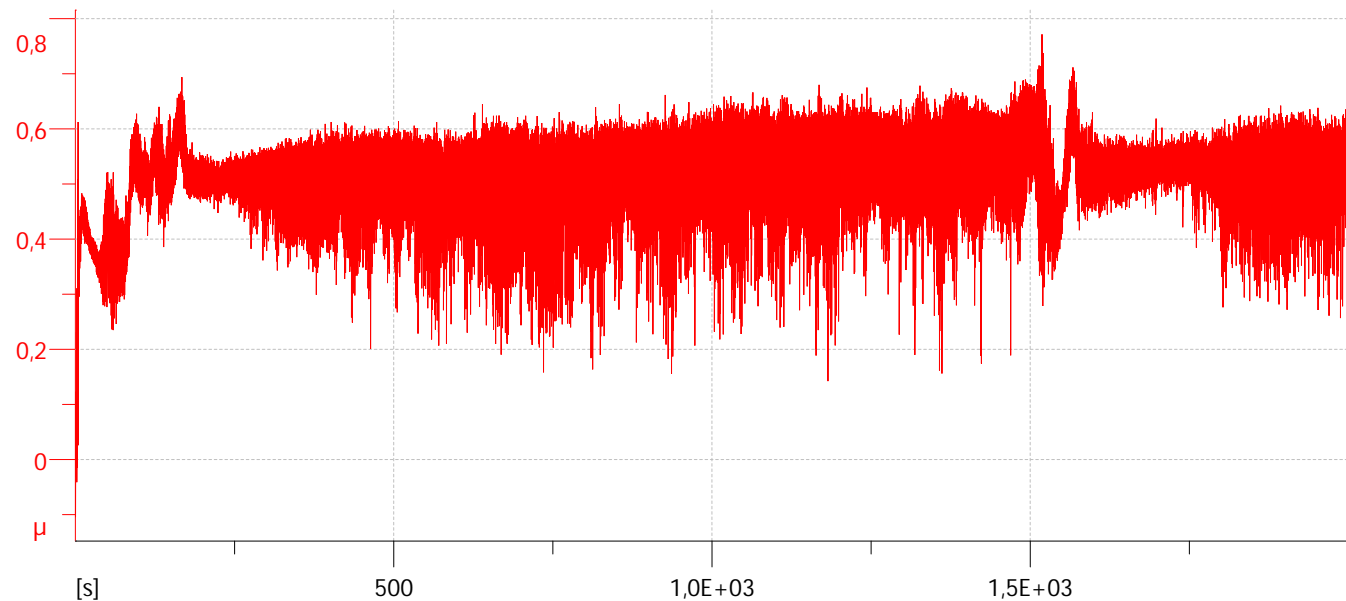
- Lab temperature: 28,44 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 24,94 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,104    min : -0,104    max : 0,772    mean : 0,527    std. dev. : 0,063



Friction Coef.

Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 01/03/2022 09:13:31

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: HO\_1000\250\_S
- Cleaning: -

Environment

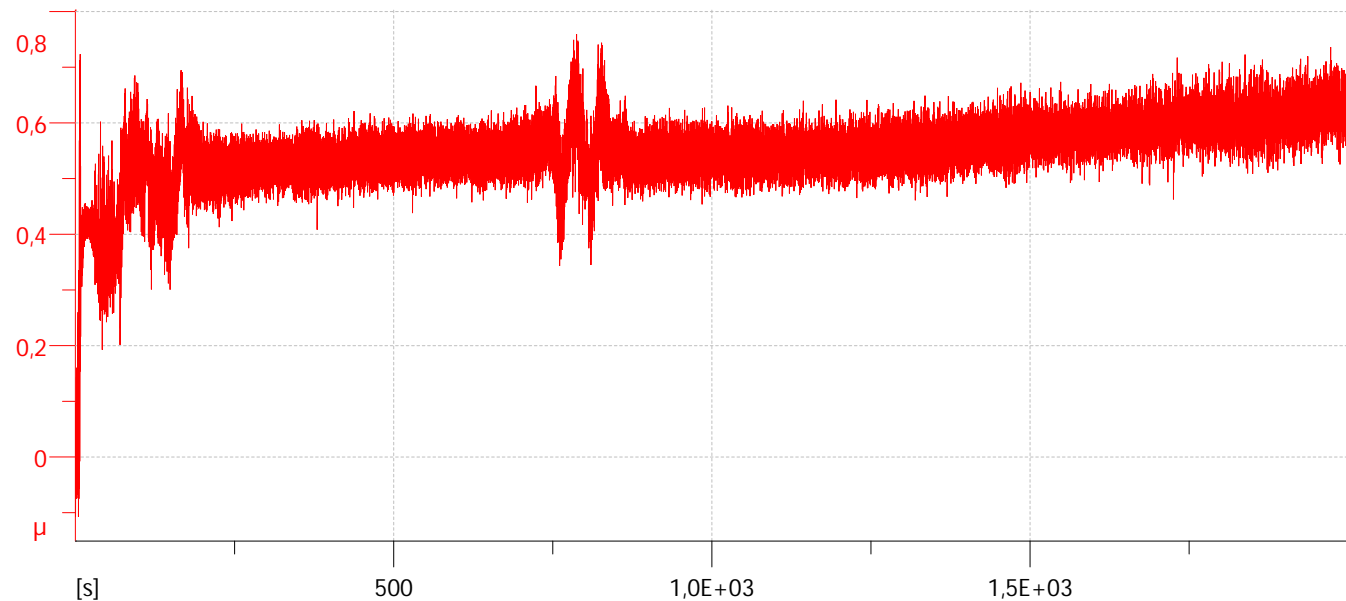
- Lab temperature: 24,50 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 25,40 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Herzian Stress: 0 [GPa]

Start : -0,107    min : -0,108    max : 0,759    mean : 0,549    std. dev. : 0,060



Friction Coef.

Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 01/03/2022 09:55:42

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: HO\_1000\350\_V
- Cleaning: -

Environment

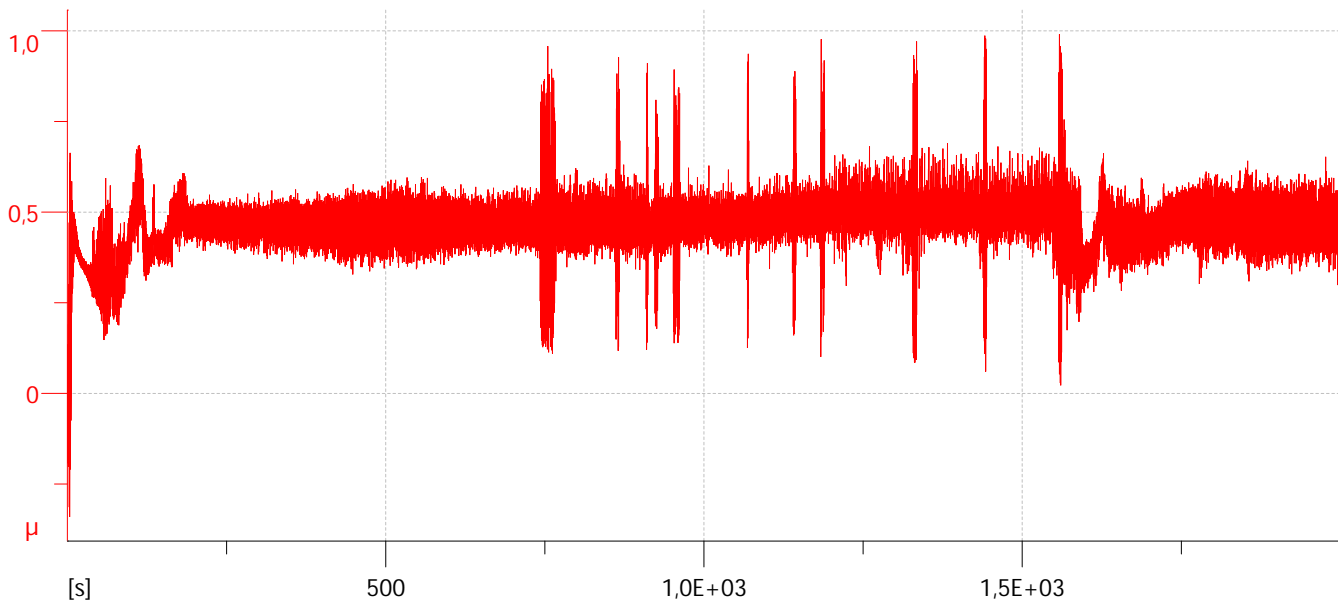
- Lab temperature: 25,28 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 25,33 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,082    min : -0,341    max : 0,991    mean : 0,470    std. dev. : 0,068



Friction Coef.

Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 01/03/2022 10:41:18

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: HO\_1000\350\_S
- Cleaning: -

Environment

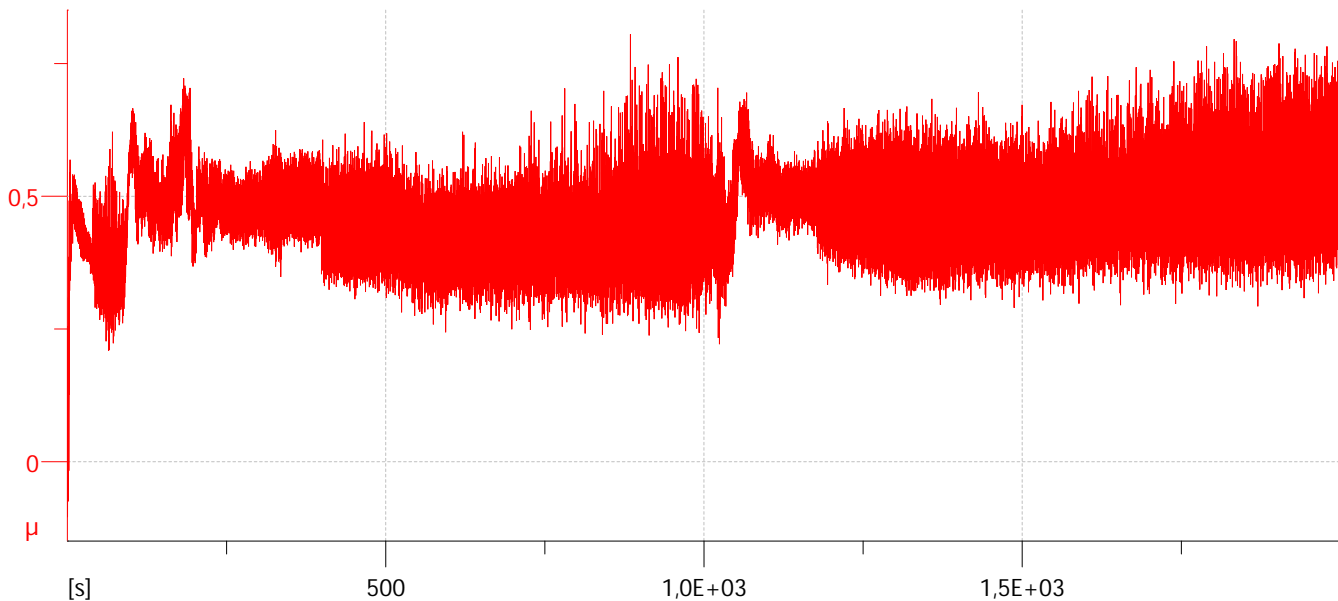
- Lab temperature: 26,59 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 24,53 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,104    min : -0,104    max : 0,805    mean : 0,466    std. dev. : 0,066



Friction Coef.

Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 01/03/2022 11:19:45

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: HO\_1050\250\_V
- Cleaning: -

Environment

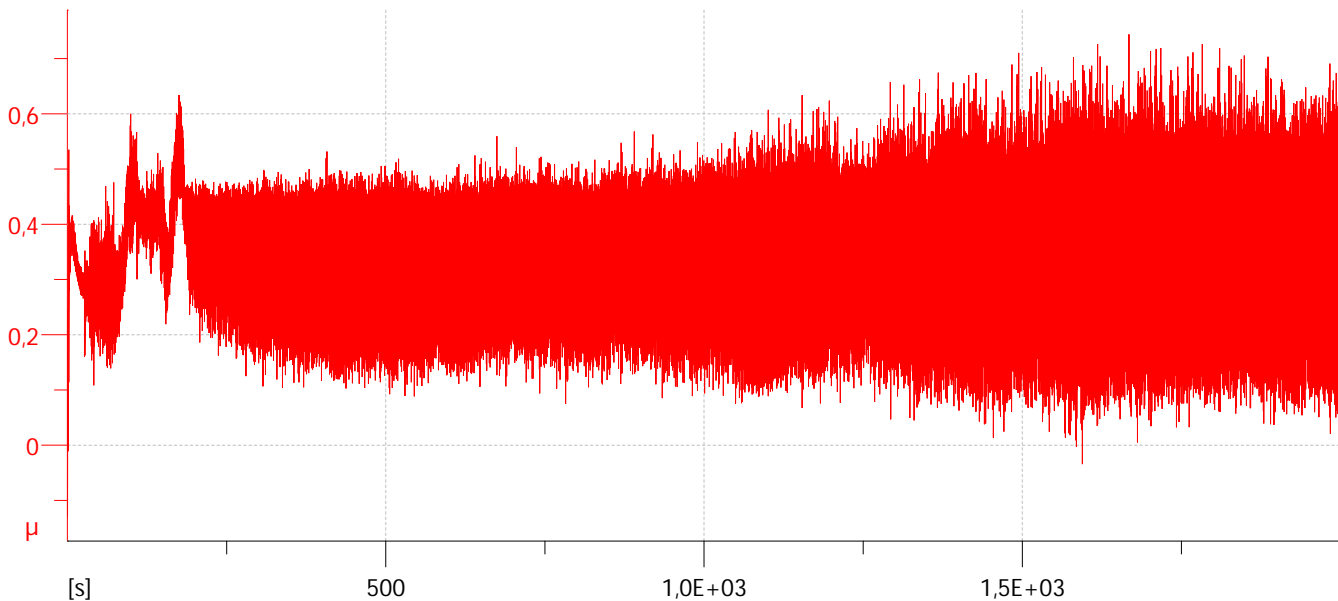
- Lab temperature: 27,51 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 23,30 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Herzian Stress: 0 [GPa]

Start : -0,130    min : -0,130    max : 0,744    mean : 0,356    std. dev. : 0,106



Friction Coef.

Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 01/03/2022 14:06:04

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: HO\_1050\250\_S
- Cleaning: -

Environment

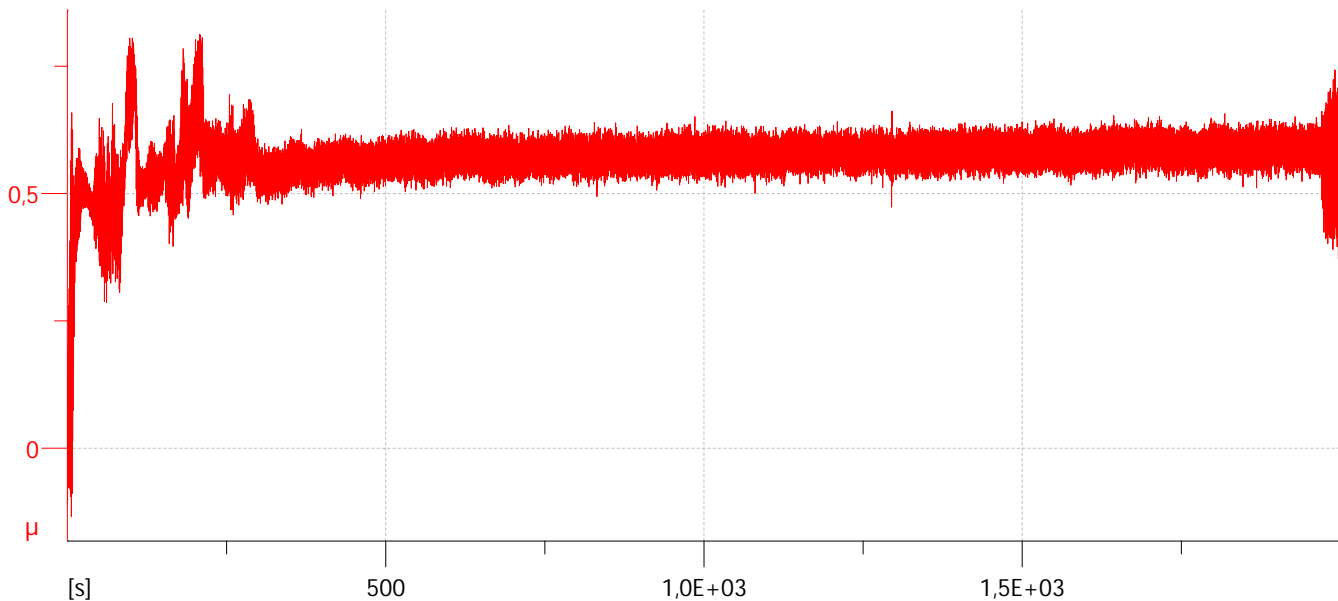
- Lab temperature: 28,61 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 22,36 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,111    min : -0,135    max : 0,813    mean : 0,571    std. dev. : 0,048



Friction Coef.

Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 01/03/2022 14:56:22

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: HO\_1050\350\_V
- Cleaning: -

Environment

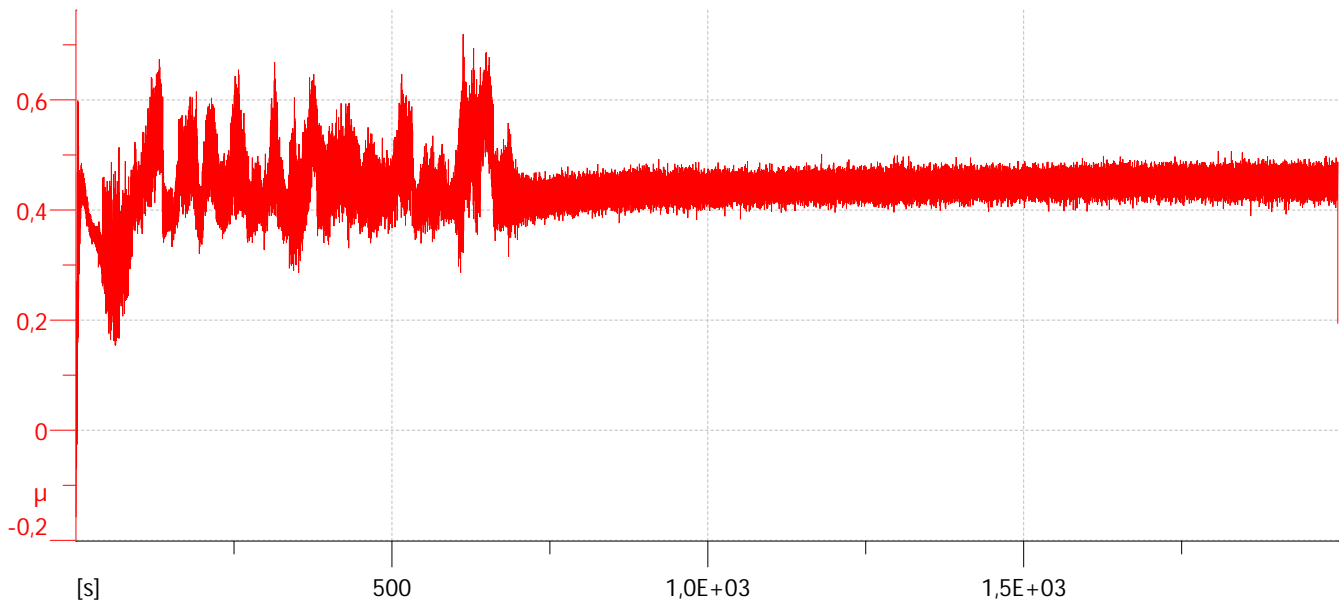
- Lab temperature: 29,02 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 22,58 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm²]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm³/N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm³/N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Herzian Stress: 0 [GPa]

Start : -0,157    min : -0,158    max : 0,719    mean : 0,444    std. dev. : 0,042



Friction Coef.

Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 02/03/2022 10:40:10

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: HO\_1050\350\_S
- Cleaning: -

Environment

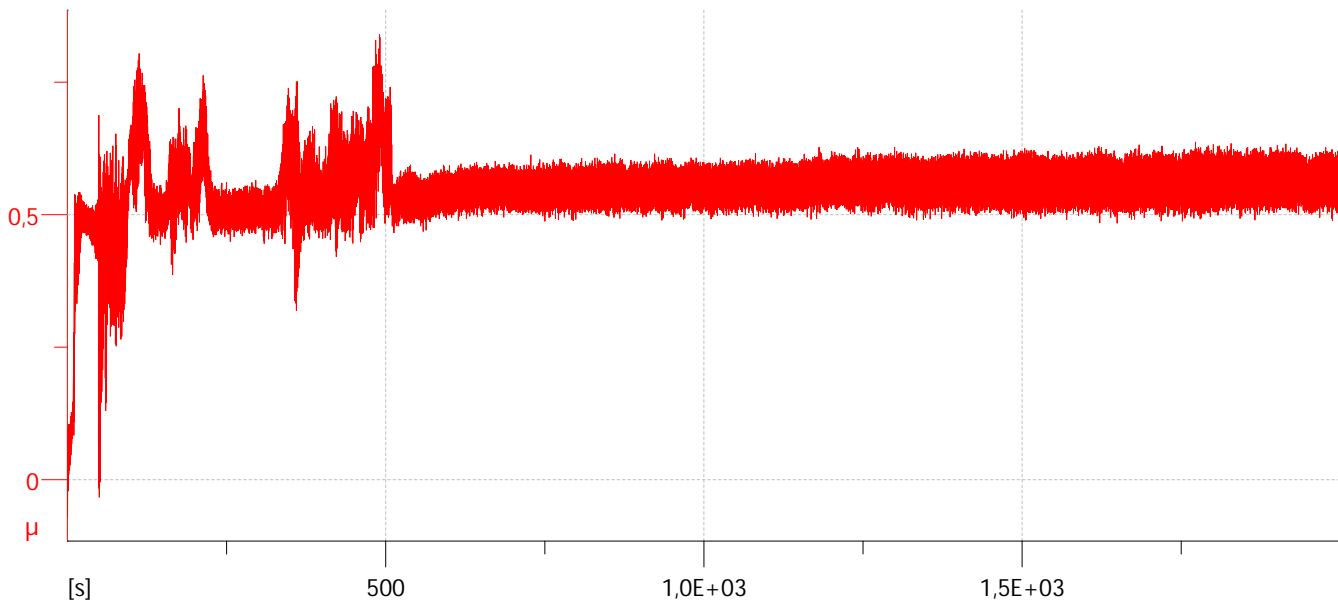
- Lab temperature: 25,05 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 25,51 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Herzian Stress: 0 [GPa]

Start : -0,070    min : -0,070    max : 0,840    mean : 0,550    std. dev. : 0,054



Friction Coef.



# MS1-N4-490

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 21/03/2022 11:59:06

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: MS1-N4-490
- Cleaning: -

### Environment

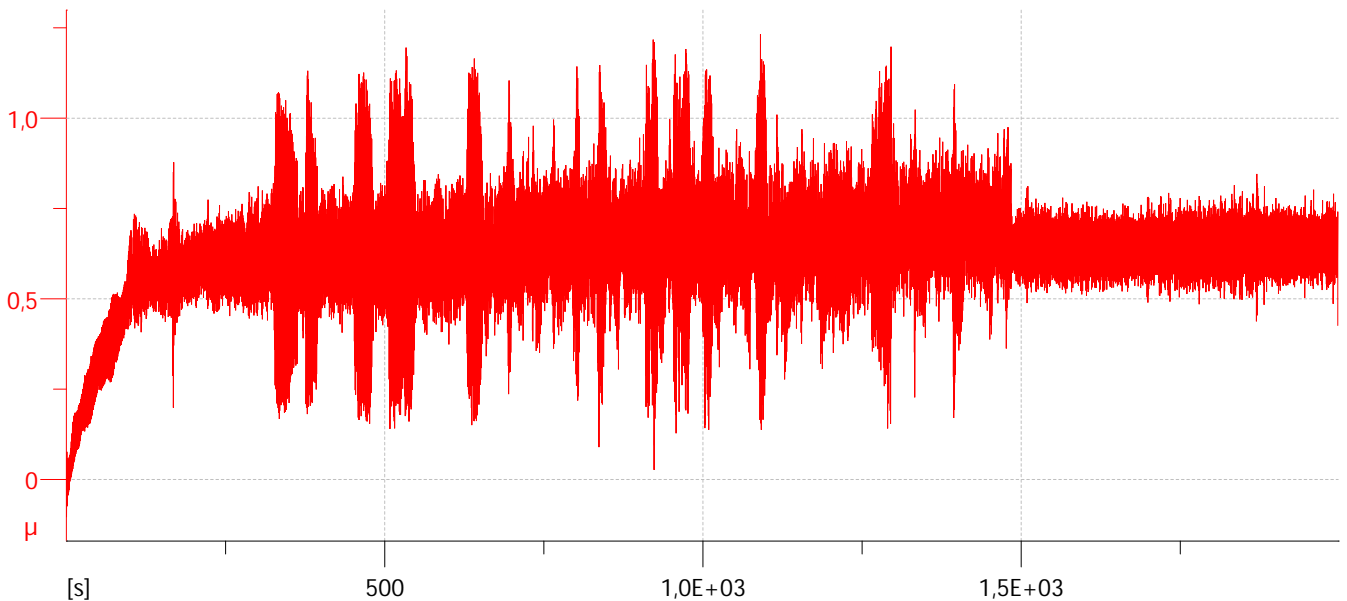
- Lab temperature: 25,95 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 24,02 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,104    min : -0,104    max : 1,232    mean : 0,629    std. dev. : 0,139



Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 21/03/2022 12:46:09

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: MS1-N2-490
- Cleaning: -

Environment

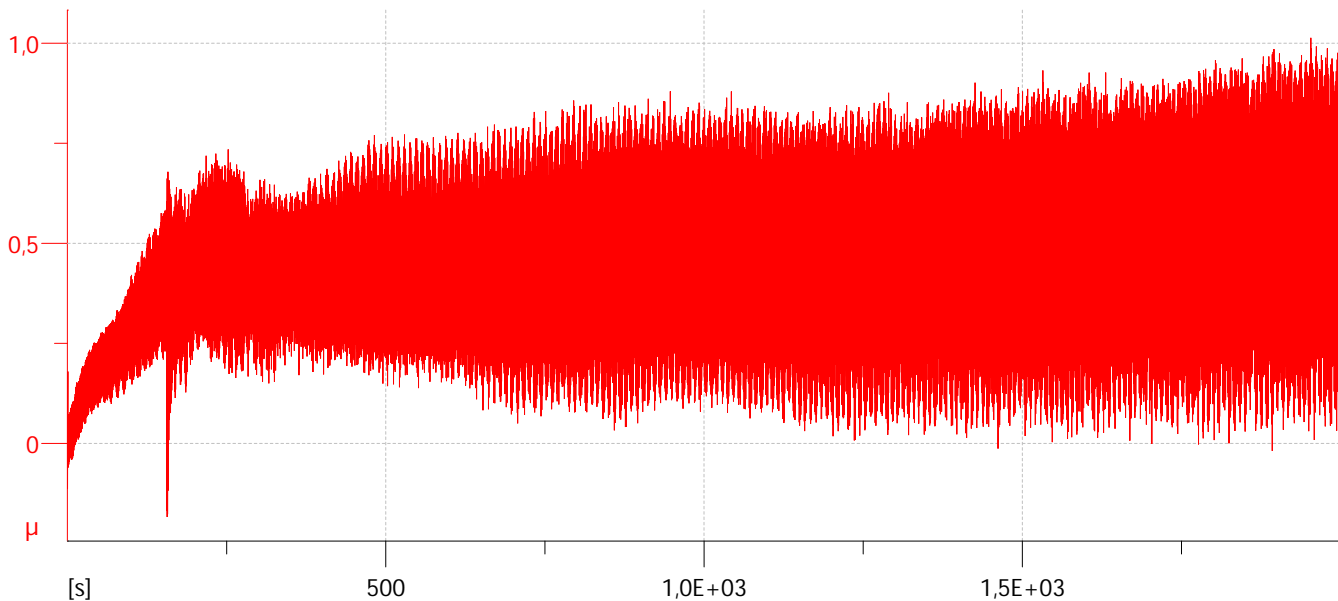
- Lab temperature: 26,94 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 21,97 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,043    min : -0,184    max : 1,022    mean : 0,462    std. dev. : 0,162



Friction Coef.

# MS1-N1-VS

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 21/03/2022 14:26:17

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: MS1-N1-VS
- Cleaning: -

### Environment

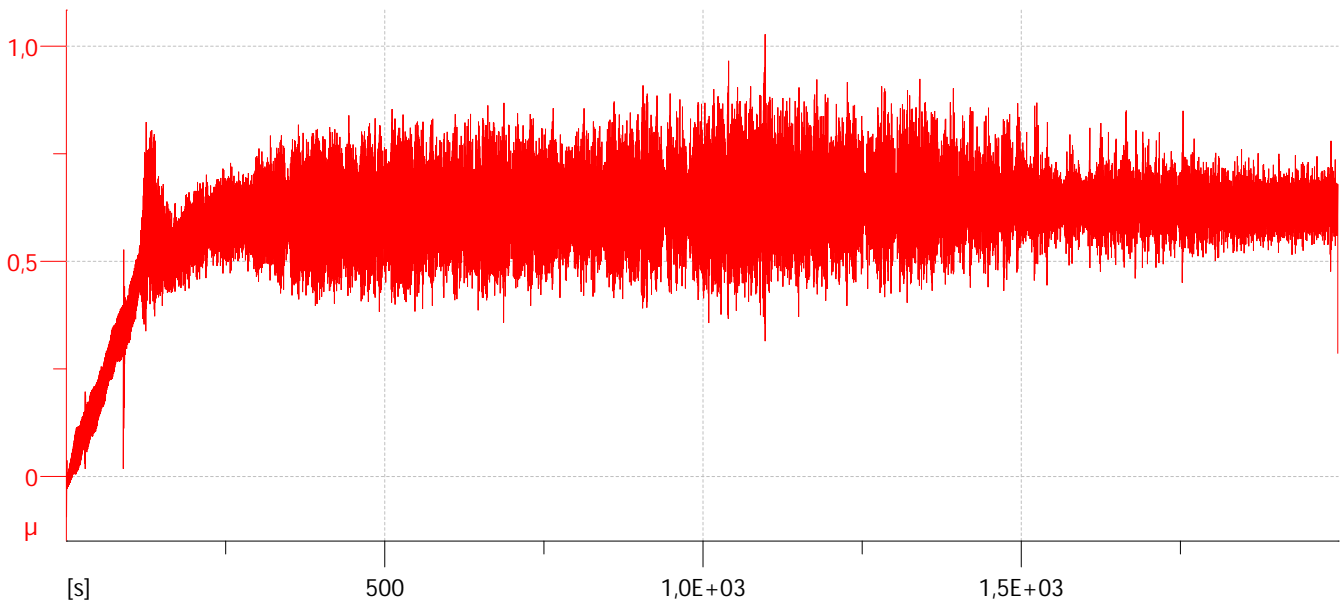
- Lab temperature: 28,03 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 21,38 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [μm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [μm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,094    min : -0,094    max : 1,028    mean : 0,600    std. dev. : 0,121



Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 21/03/2022 15:07:49

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: MS1-N3-820-490
- Cleaning: -

Environment

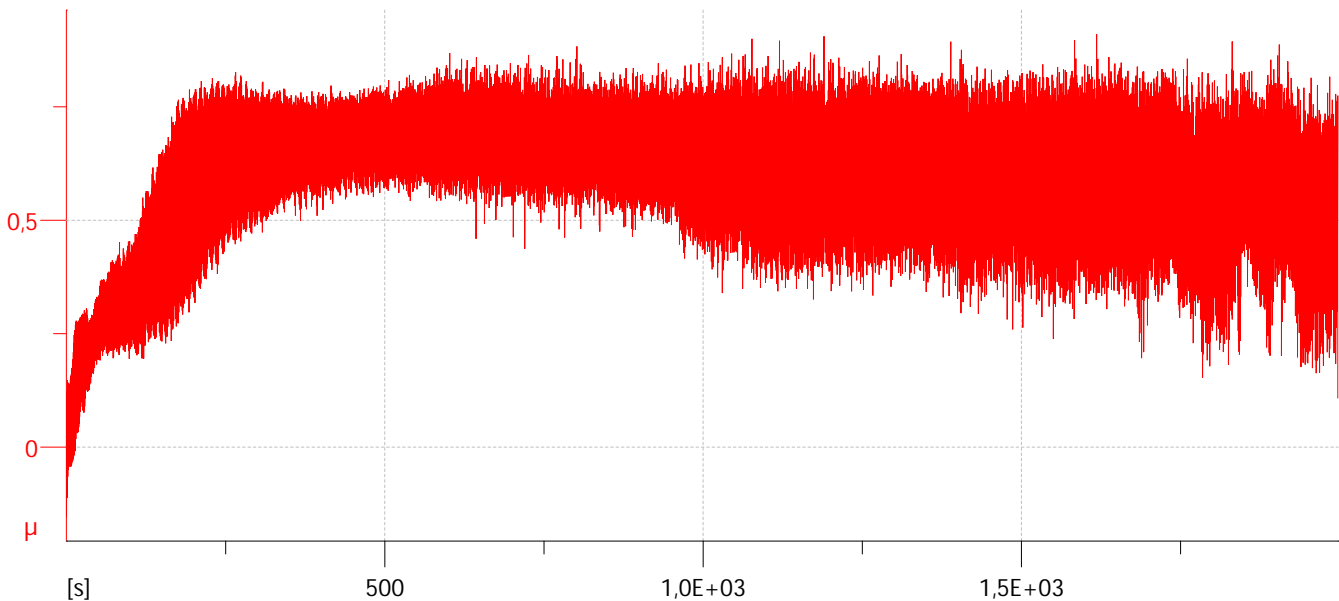
- Lab temperature: 28,28 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 19,92 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,154    min : -0,154    max : 0,910    mean : 0,597    std. dev. : 0,134



Friction Coef.

# HO-N-VS-V

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 21/03/2022 16:24:54

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: HO-N-VS-V
- Cleaning: -

### Environment

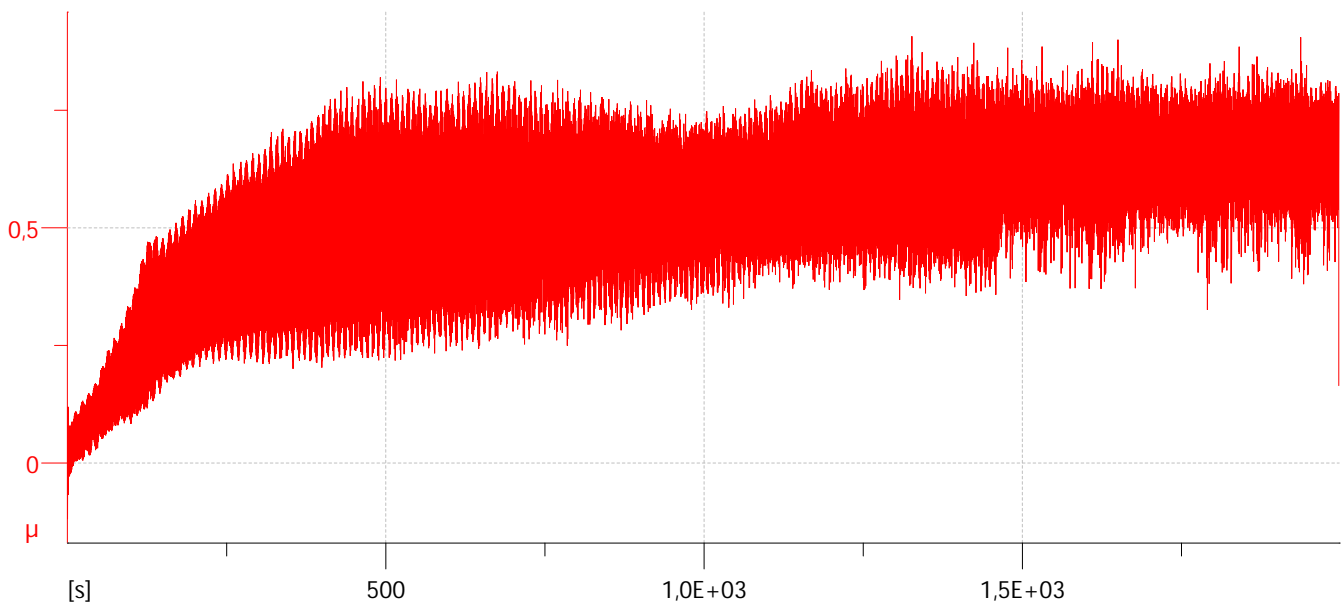
- Lab temperature: 28,39 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 18,00 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [μm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [μm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,119    min : -0,119    max : 0,907    mean : 0,527    std. dev. : 0,149



Friction Coef.

# HO-N-VS-S

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 22/03/2022 09:17:28

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: HO-N-VS-S
- Cleaning: -

### Environment

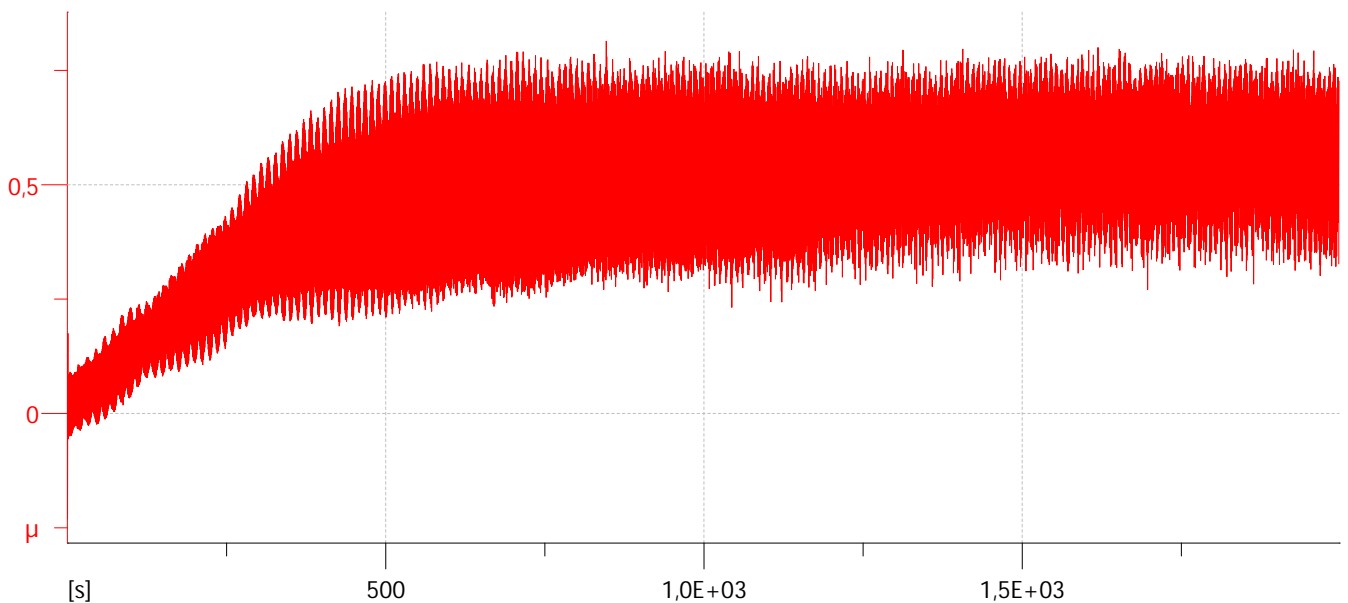
- Lab temperature: 23,91 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 28,14 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [μm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [μm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,231    min : -0,231    max : 0,825    mean : 0,473    std. dev. : 0,160



■ Friction Coef.

# MS1-K5-VS-1

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 11/04/2022 08:55:16

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: MS1-K5-VS-1
- Cleaning: -

### Environment

- Lab temperature: 24,46 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 31,77 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

### Sample

Worn Track Section: 0,0 [μm<sup>2</sup>]  
Young's Modulus: 0,0 [GPa]  
Poisson Ratio: 0,000

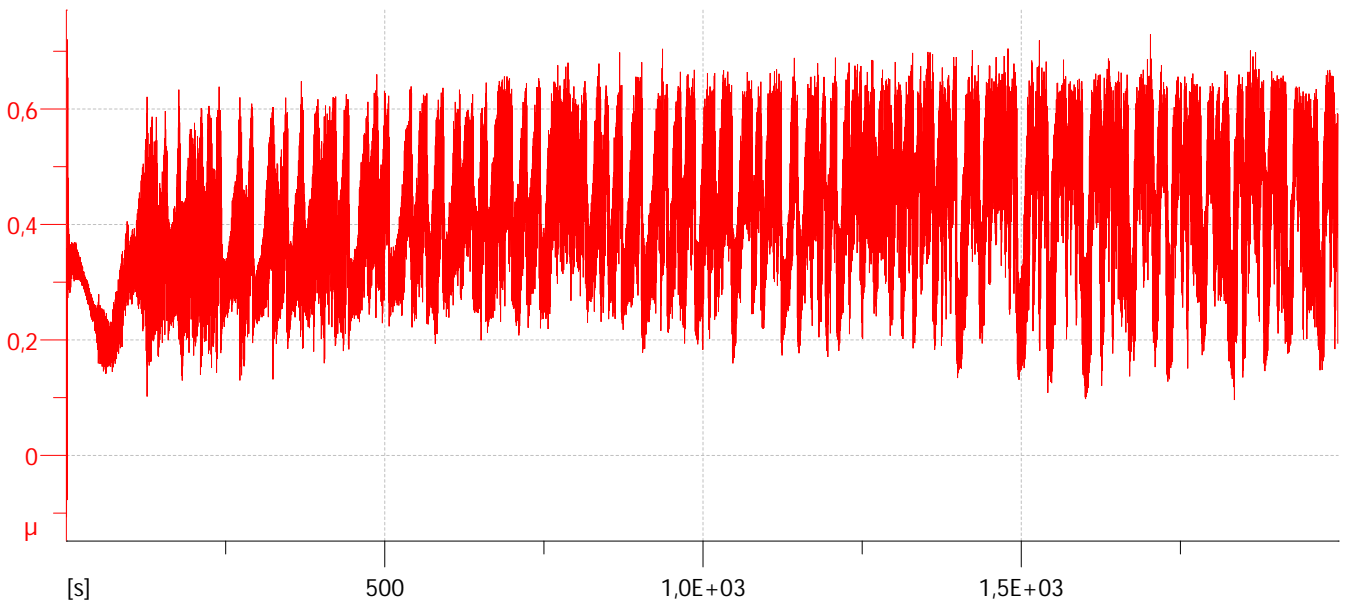
### Static partner

Worn Cap Diameter: 0,0 [μm]  
Young's Modulus: 0,0 [GPa]  
Poisson Ratio: 0,000

### Calculations

Sample Wear Rate: 0 [mm<sup>3</sup>/N/m]  
Partner Wear Rate: 0 [mm<sup>3</sup>/N/m]  
Max Hertzian Stress: 0 [GPa]

Start : -0,107    min : -0,107    max : 0,729    mean : 0,422    std. dev. : 0,113



Friction Coef.

# MS1-K5-VS-2

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 11/04/2022 09:40:36

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: MS1-K5-VS-2
- Cleaning: -

### Environment

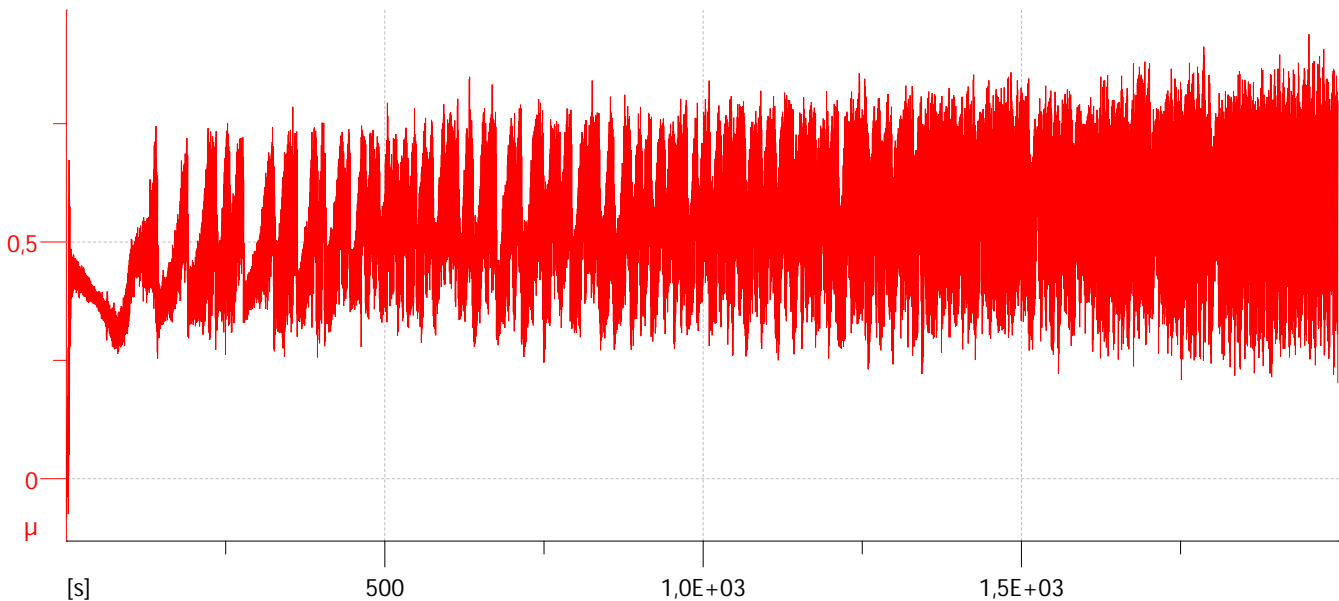
- Lab temperature: 25,32 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 28,00 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,081    min : -0,081    max : 0,939    mean : 0,552    std. dev. : 0,118





Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 11/04/2022 10:21:19

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: MS1-K6-490-1
- Cleaning: -

Environment

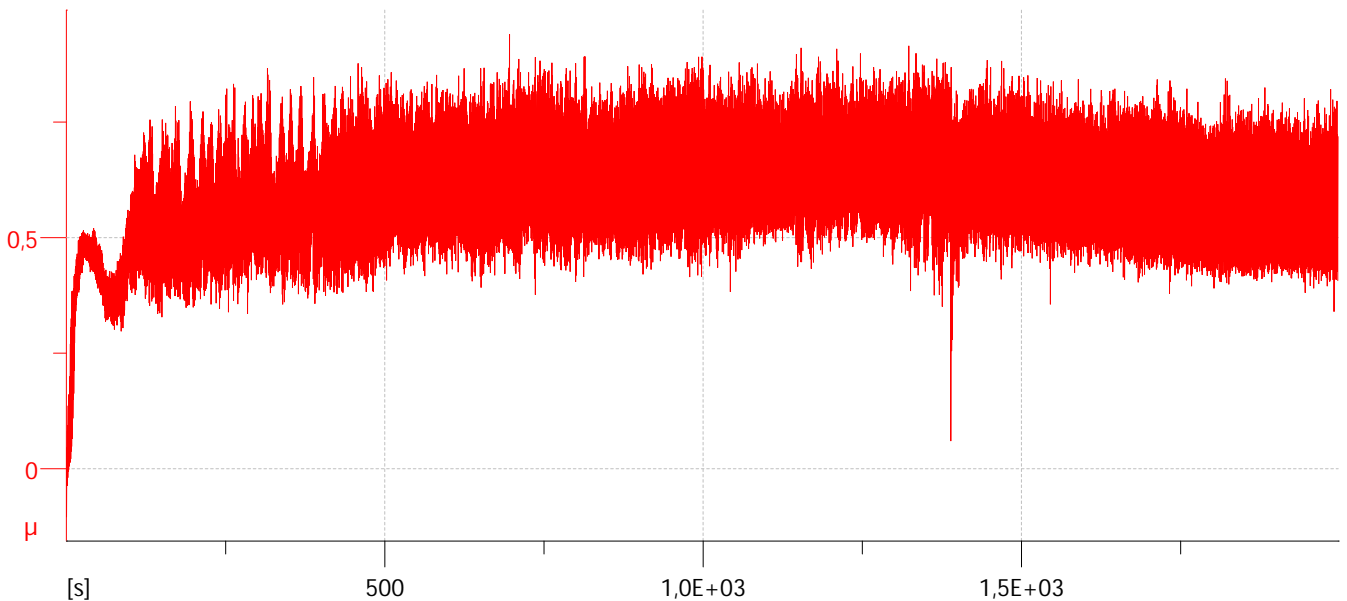
- Lab temperature: 26,34 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 24,82 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm²]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm³/N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm³/N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Herzian Stress: 0 [GPa]

Start : -0,104    min : -0,104    max : 0,940    mean : 0,596    std. dev. : 0,099



# HO-N-1000-S

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 22/03/2022 10:07:17

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: HO-N-1000-S
- Cleaning: -

### Environment

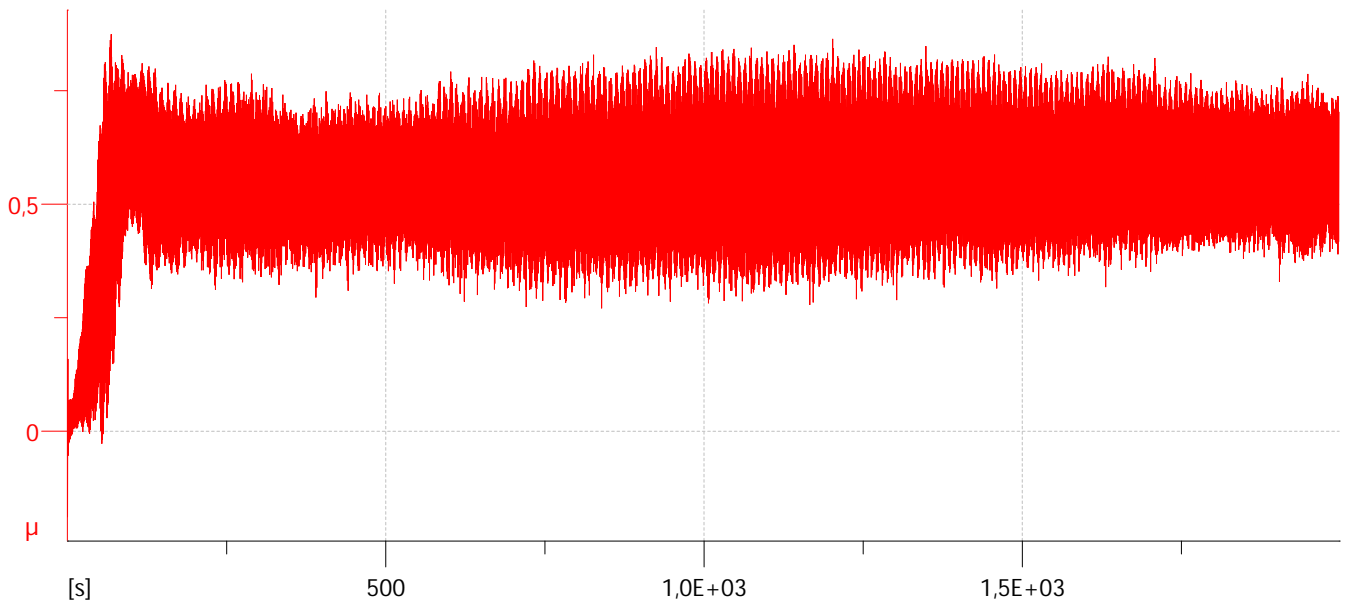
- Lab temperature: 24,81 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 24,92 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [μm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [μm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,109    min : -0,189    max : 0,874    mean : 0,551    std. dev. : 0,107



Friction Coef.

Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 11/04/2022 11:19:18

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: MS1-K6-490-2
- Cleaning: -

Environment

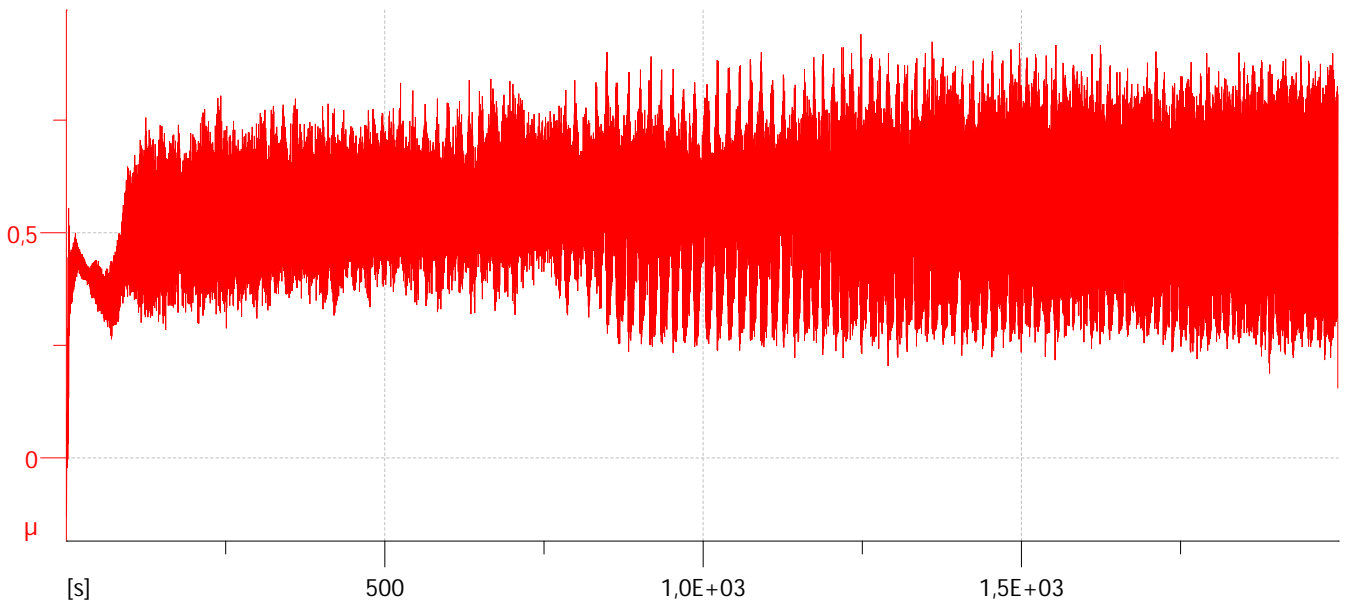
- Lab temperature: 27,47 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 25,68 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm²]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm³/N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm³/N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,131    min : -0,131    max : 0,941    mean : 0,543    std. dev. : 0,116



Friction Coef.

Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 11/04/2022 12:17:26

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: MS1-K8-820/490-1
- Cleaning: -

Environment

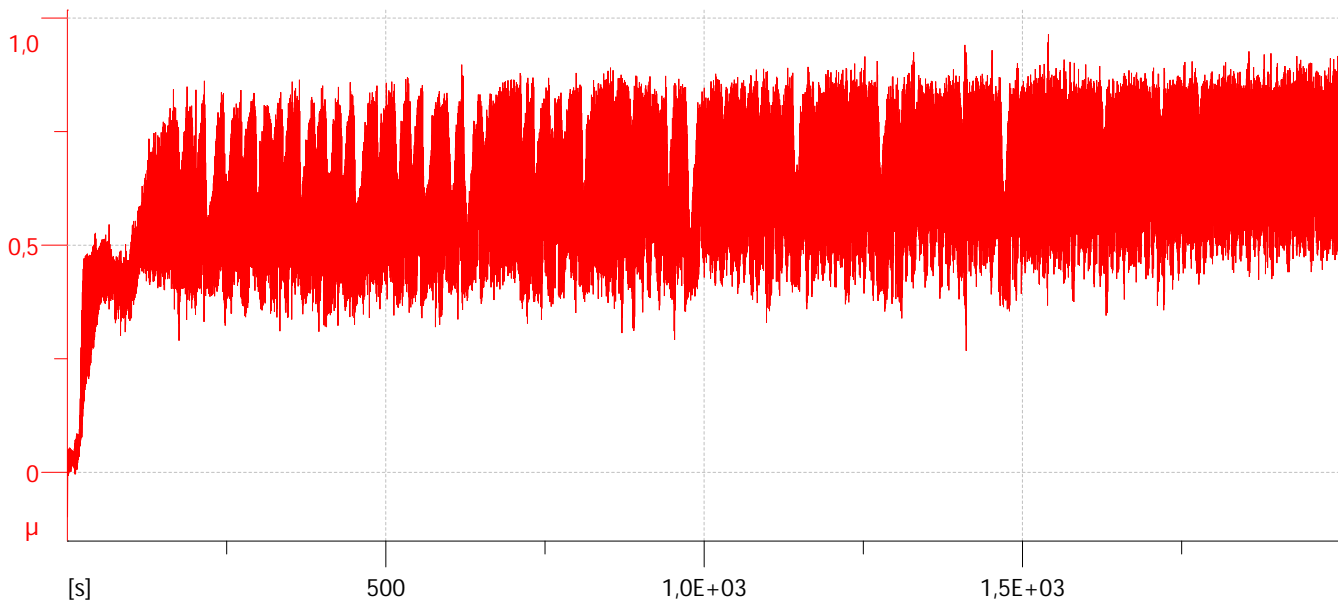
- Lab temperature: 28,19 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 24,44 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,098    min : -0,098    max : 0,964    mean : 0,615    std. dev. : 0,142



Friction Coef.

Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 11/04/2022 13:04:38

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: MS1-K8-820/490-2
- Cleaning: -

Environment

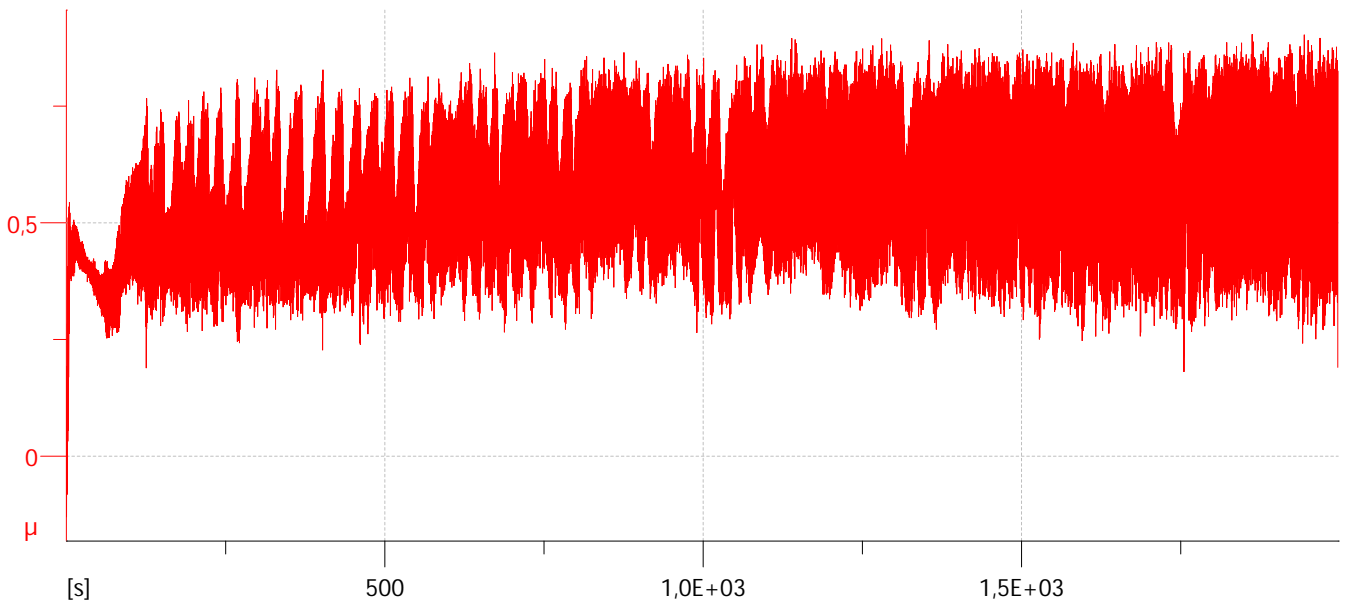
- Lab temperature: 28,33 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 25,31 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Herzian Stress: 0 [GPa]

Start : -0,130    min : -0,130    max : 0,904    mean : 0,566    std. dev. : 0,131



Friction Coef.

Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 11/04/2022 13:50:01

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: MS1-K7-940/490-1
- Cleaning: -

Environment

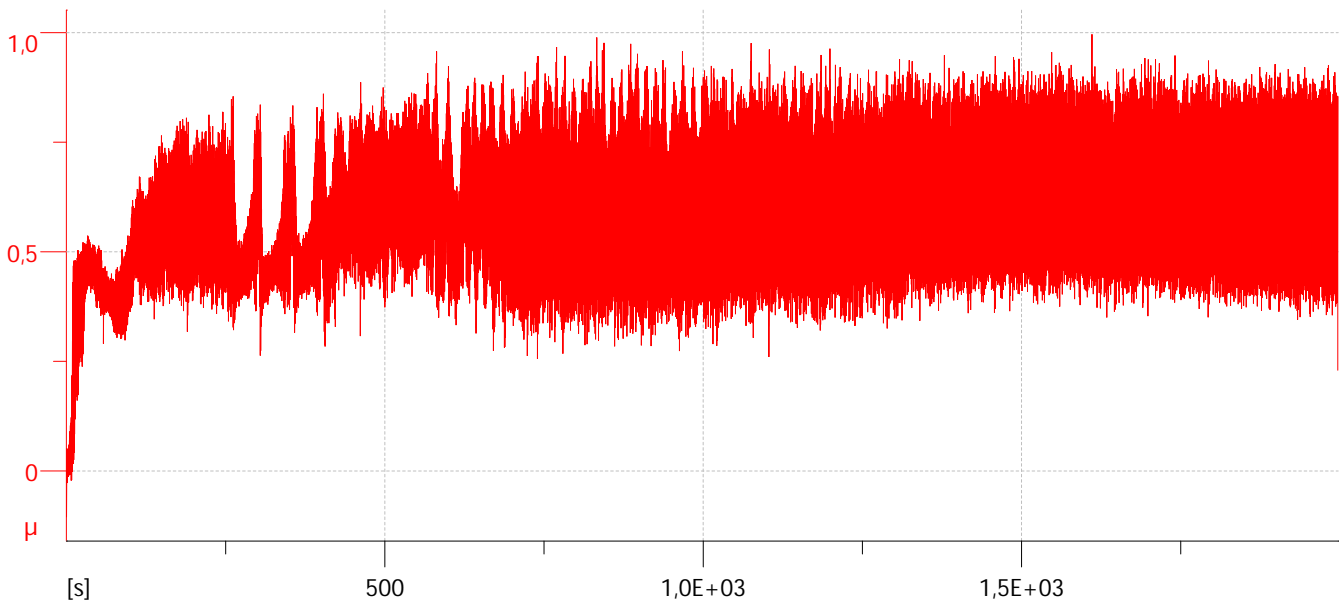
- Lab temperature: 28,72 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 24,76 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Herzian Stress: 0 [GPa]

Start : -0,105    min : -0,105    max : 0,996    mean : 0,589    std. dev. : 0,123



Friction Coef.

Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 11/04/2022 14:33:30

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: MS1-K7-940/490-2
- Cleaning: -

Environment

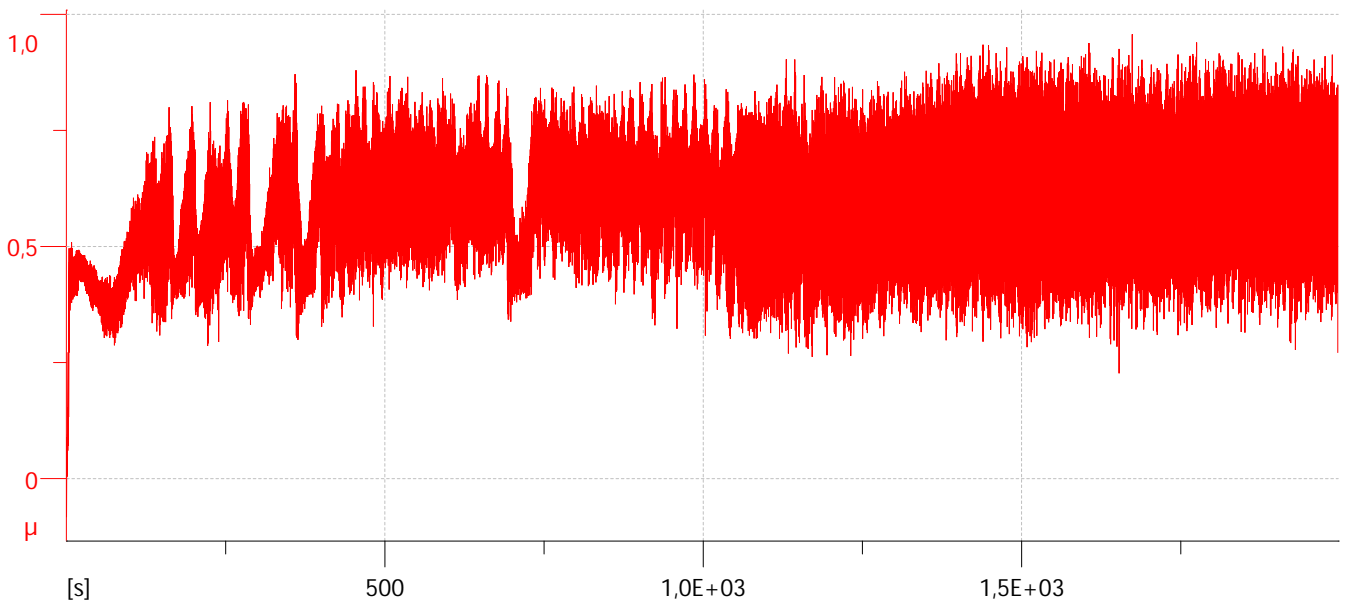
- Lab temperature: 28,89 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 24,27 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Herzian Stress: 0 [GPa]

Start : -0,082    min : -0,083    max : 0,957    mean : 0,594    std. dev. : 0,111



Friction Coef.

# HO-K-VS

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 12/04/2022 06:54:48

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: HO-K-VS
- Cleaning: -

### Environment

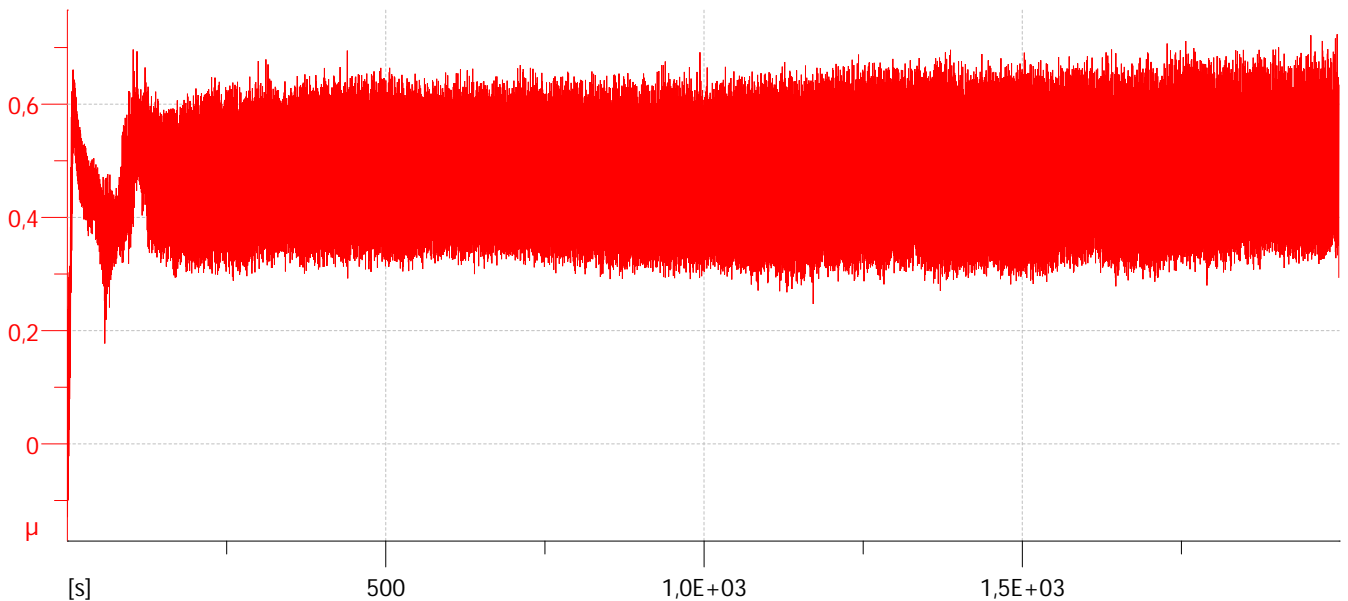
- Lab temperature: 24,36 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 30,54 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [μm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [μm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,129    min : -0,129    max : 0,723    mean : 0,473    std. dev. : 0,083



Friction Coef.



# HO-K-1000/250

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 12/04/2022 07:39:09

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: HO-K-1000/250
- Cleaning: -

### Environment

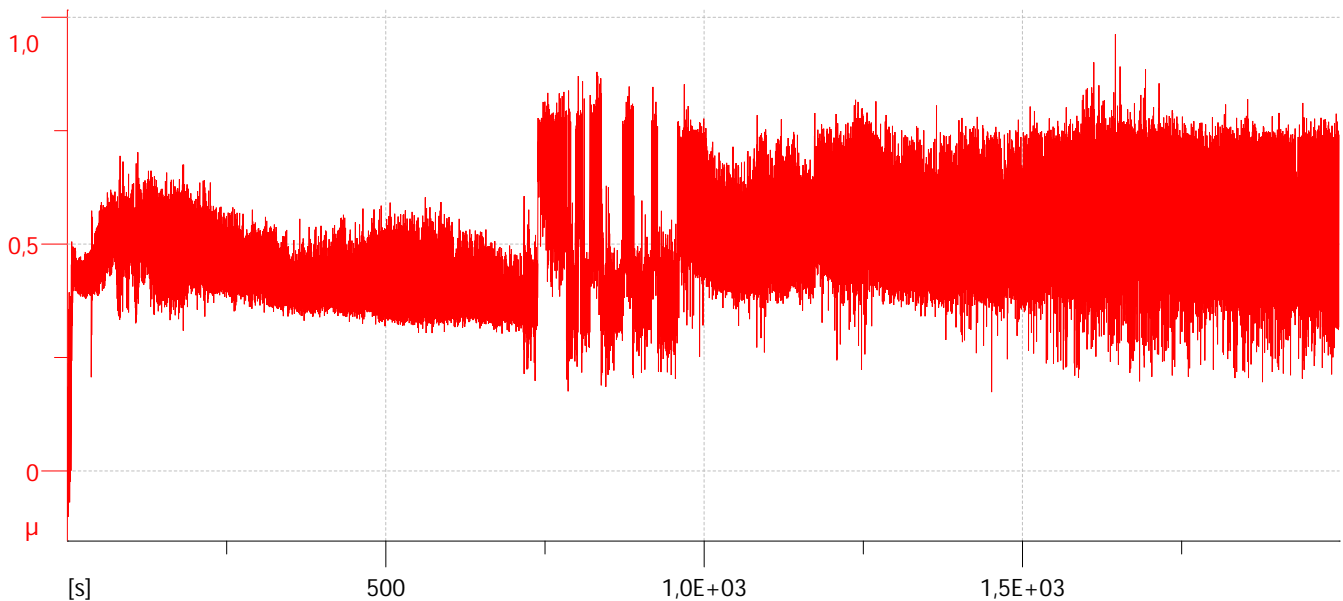
- Lab temperature: 25,20 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 29,17 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,082    min : -0,102    max : 0,963    mean : 0,500    std. dev. : 0,108



Friction Coef.

Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 12/04/2022 09:27:21

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: HO-K-1000/350
- Cleaning: -

Environment

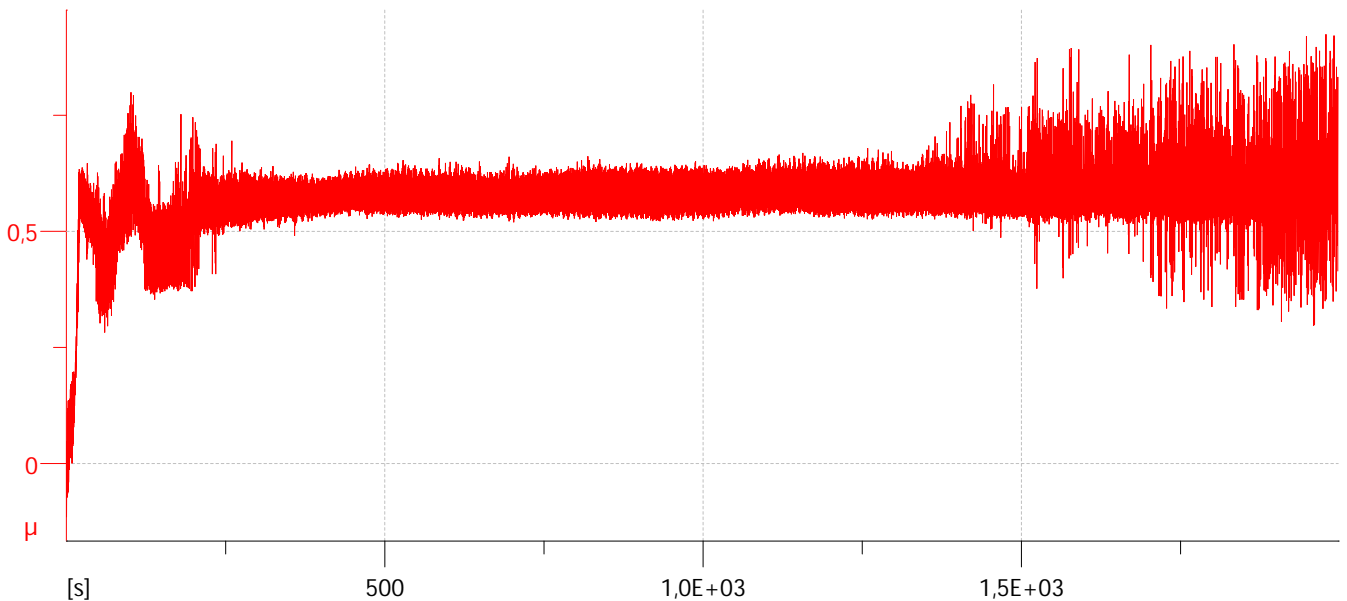
- Lab temperature: 27,46 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 26,32 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,115    min : -0,115    max : 0,924    mean : 0,570    std. dev. : 0,063



Friction Coef.

# HO-N-1000-V

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 19/04/2022 09:12:54

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: HO-N-1000-V
- Cleaning: -

### Environment

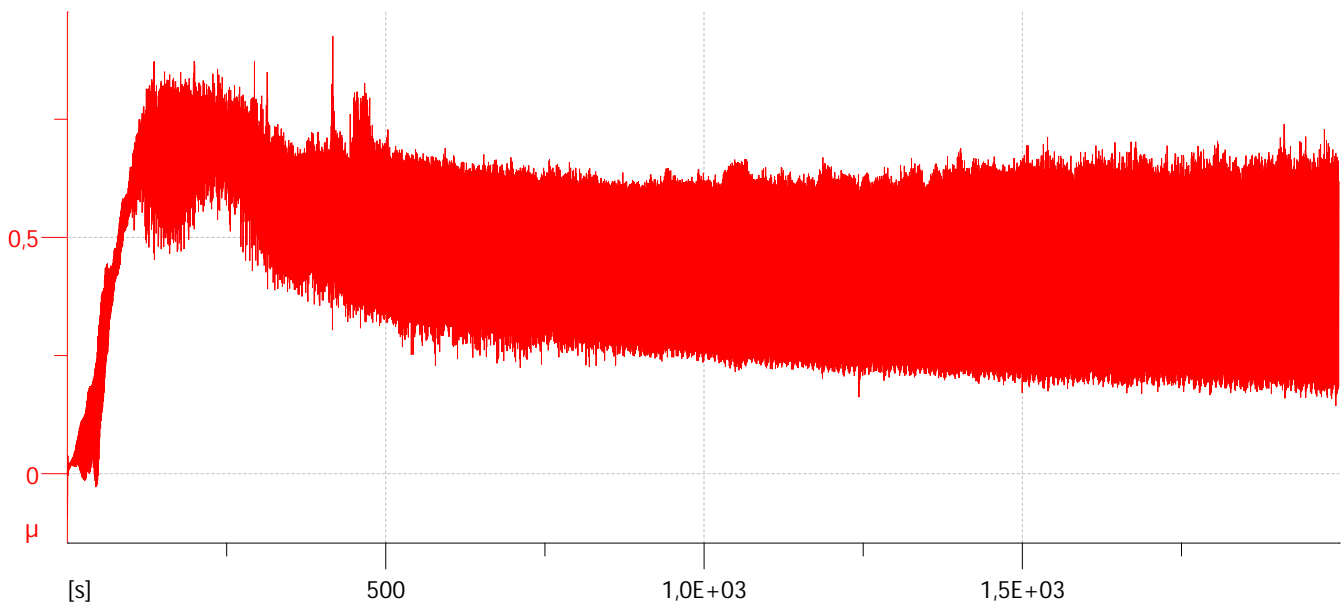
- Lab temperature: 26,62 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 29,42 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,096    min : -0,096    max : 0,926    mean : 0,455    std. dev. : 0,165



Friction Coef.

# HO-N-1000-S

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 19/04/2022 10:18:43

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: HO-N-1000-S
- Cleaning: -

### Environment

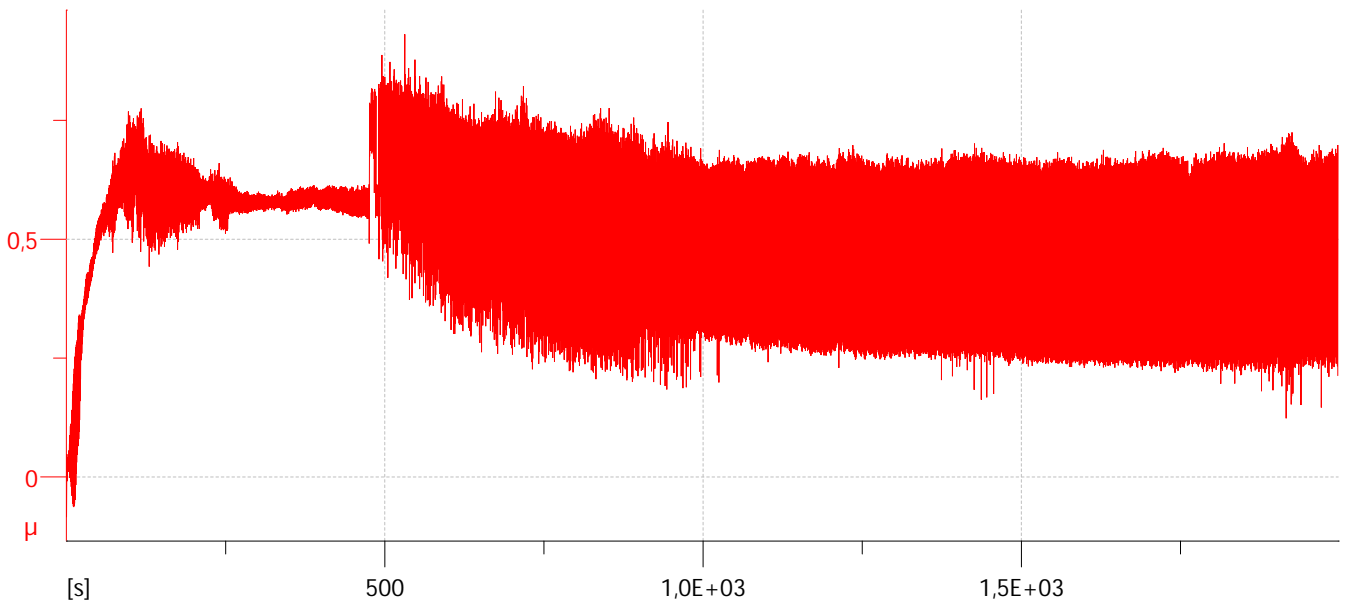
- Lab temperature: 27,26 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 27,98 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [μm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [μm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,084    min : -0,084    max : 0,931    mean : 0,505    std. dev. : 0,147



Friction Coef.

Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 19/04/2022 13:02:20

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: HO-N-1000-250-V
- Cleaning: -

Environment

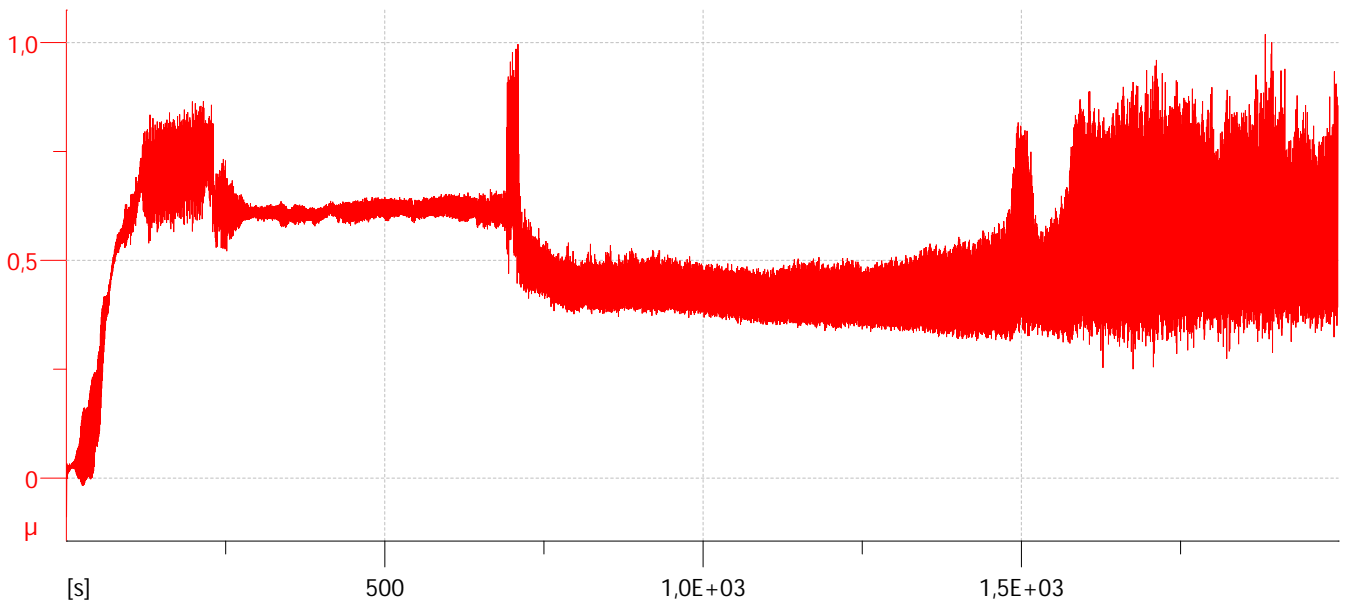
- Lab temperature: 28,43 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 26,10 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm²]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm³/N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm³/N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,089    min : -0,089    max : 1,019    mean : 0,510    std. dev. : 0,134



Friction Coef.

Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 19/04/2022 13:51:57

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: HO-N-1000-250-S
- Cleaning: -

Environment

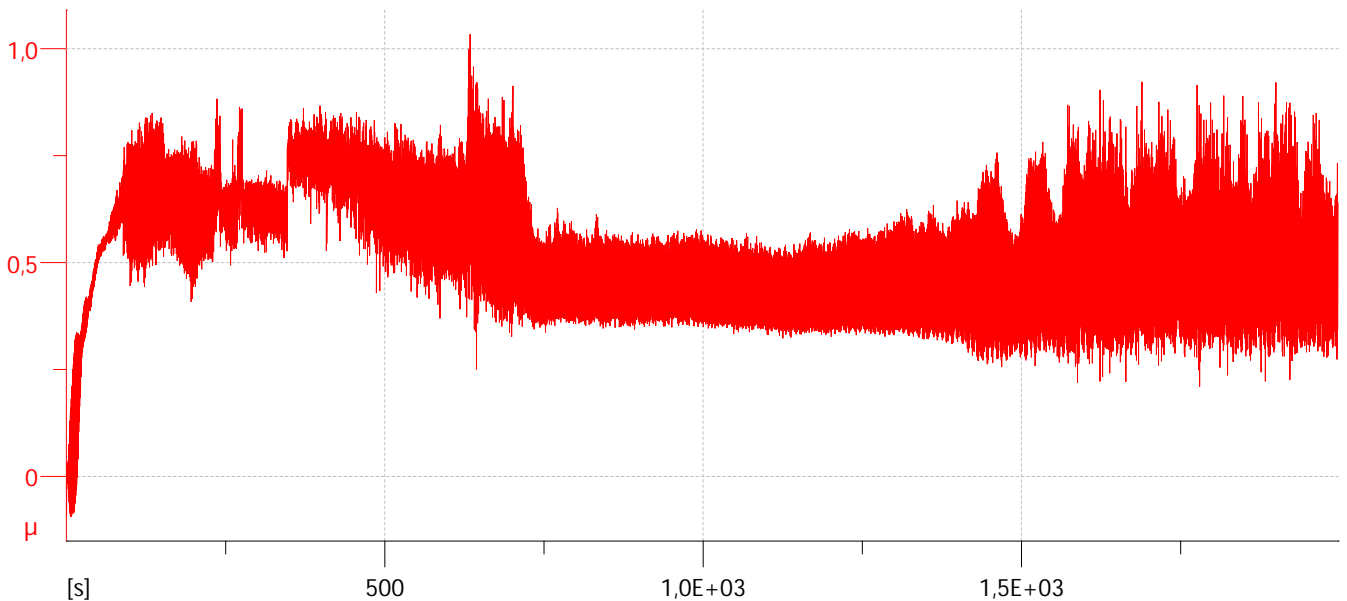
- Lab temperature: 28,30 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 25,45 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm²]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm³/N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm³/N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Herzian Stress: 0 [GPa]

Start : -0,092    min : -0,095    max : 1,034    mean : 0,539    std. dev. : 0,125



Friction Coef.

Standard parameters

Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 19/04/2022 14:38:30

Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

Sample

- Substrate: HO-N-1000-500-V
- Cleaning: -

Environment

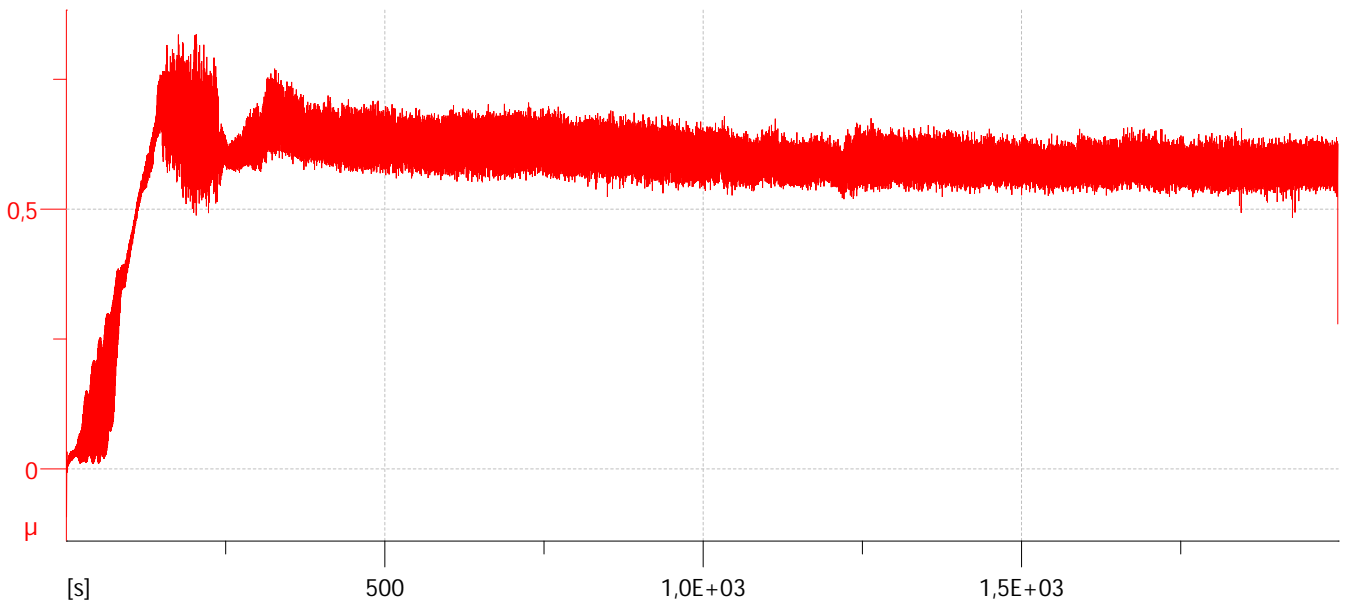
- Lab temperature: 28,61 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 25,19 [%]

Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm²]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm³/N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm³/N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,093    min : -0,093    max : 0,837    mean : 0,582    std. dev. : 0,109



Friction Coef.

# HO-N-1000-500-S

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 20/04/2022 07:12:00

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: HO-N-1000-500-S
- Cleaning: -

### Environment

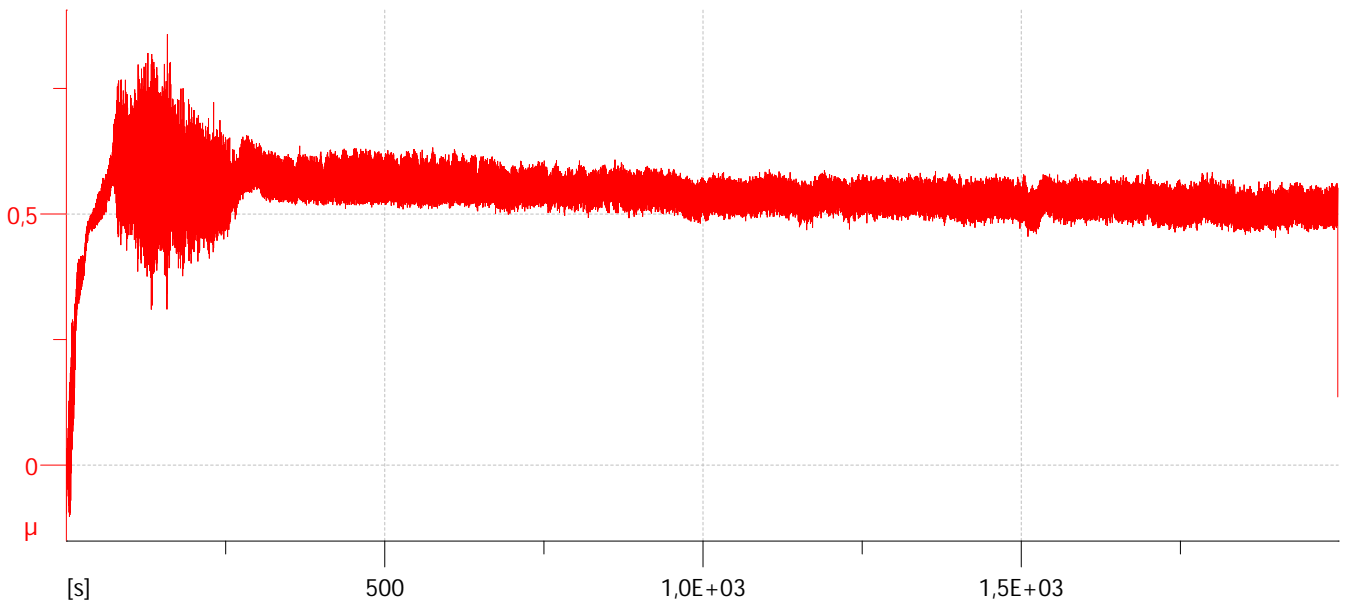
- Lab temperature: 24,33 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 30,39 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [μm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [μm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,097    min : -0,103    max : 0,858    mean : 0,537    std. dev. : 0,052



■ Friction Coef.



# HO-N-VS-V

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 20/04/2022 08:06:50

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: HO-N-VS-V
- Cleaning: -

### Environment

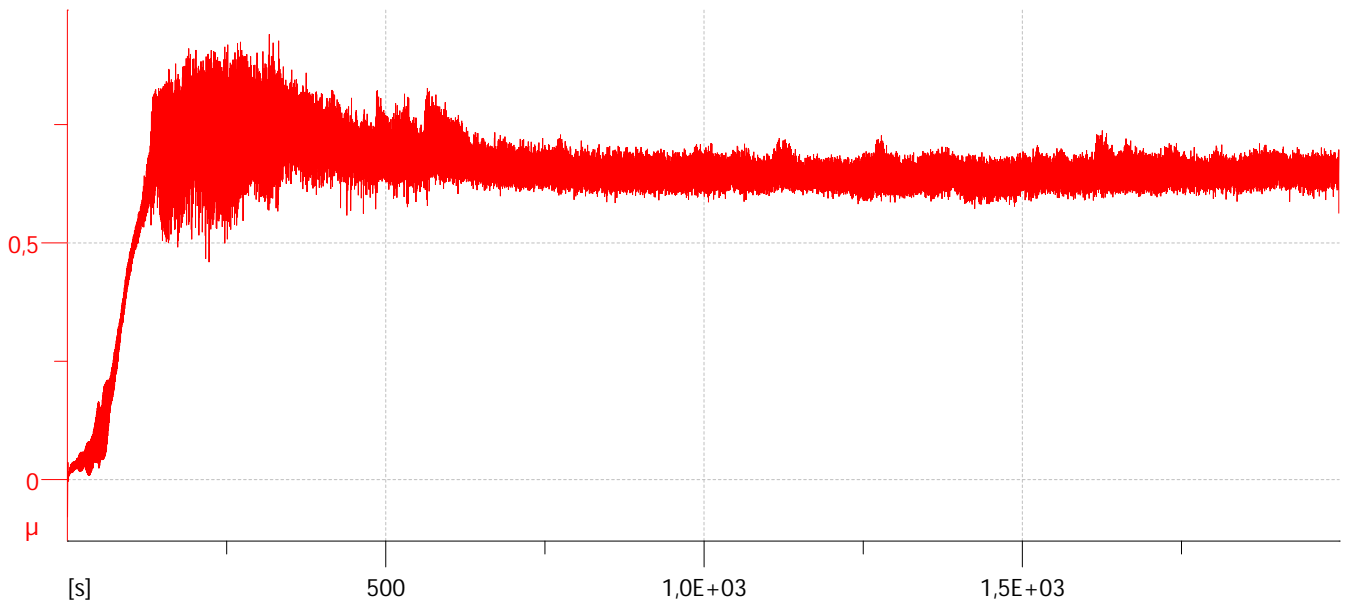
- Lab temperature: 25,53 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 29,79 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [μm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [μm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,079    min : -0,079    max : 0,941    mean : 0,637    std. dev. : 0,125



■ Friction Coef.

# HO-N-VS-S

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 20/04/2022 08:56:30

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: HO-N-VS-S
- Cleaning: -

### Environment

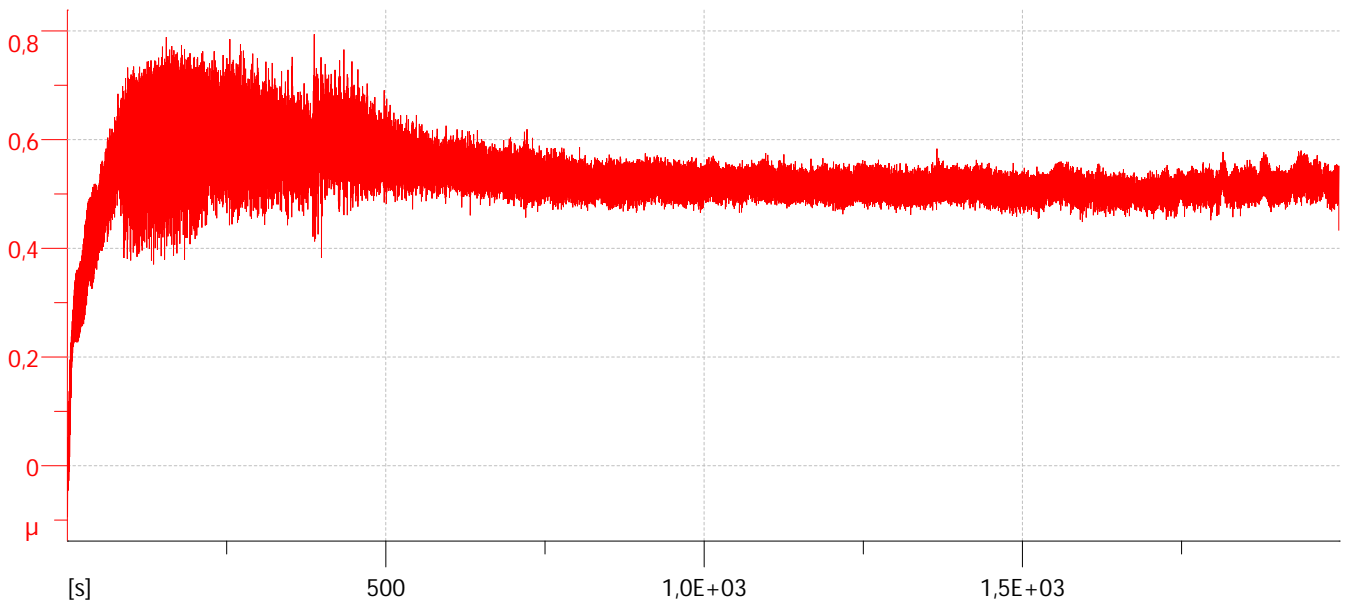
- Lab temperature: 26,67 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 27,63 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [μm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [μm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Herzian Stress: 0 [GPa]

Start : -0,094    min : -0,094    max : 0,794    mean : 0,532    std. dev. : 0,058



■ Friction Coef.

# MS1-N-1-VS-V

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 20/04/2022 13:09:32

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: MS1-N-1-VS-V
- Cleaning: -

### Environment

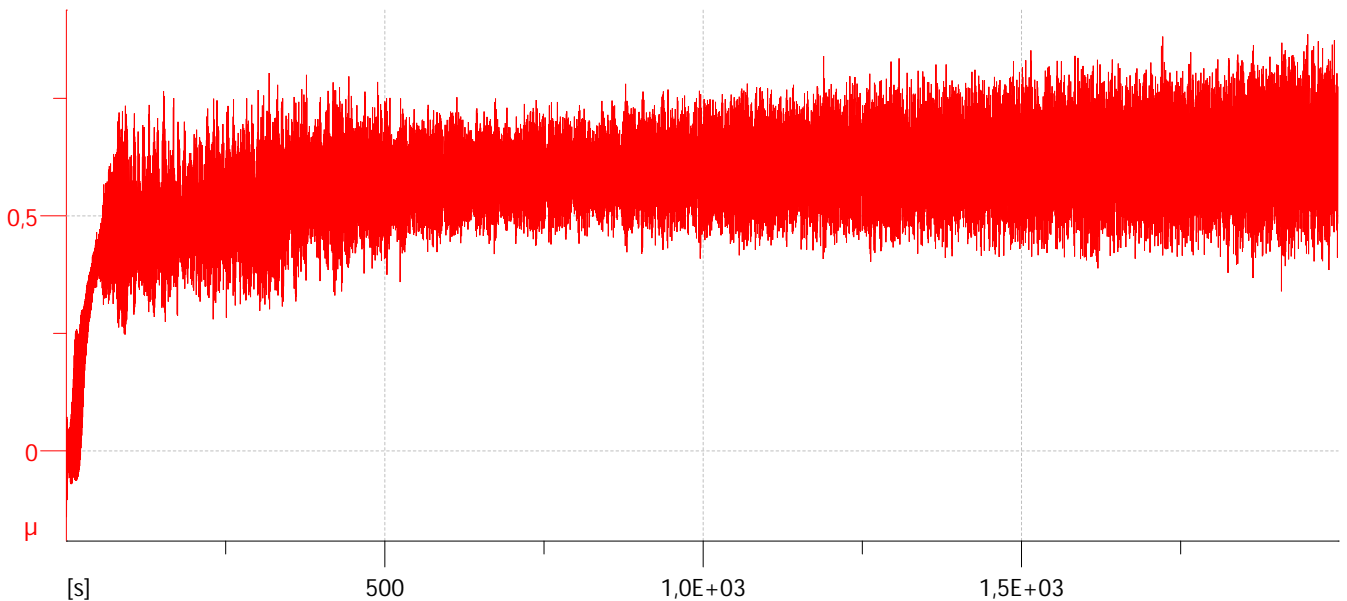
- Lab temperature: 27,75 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 24,66 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,141    min : -0,141    max : 0,886    mean : 0,573    std. dev. : 0,099



■ Friction Coef.

# MS1-N-1-VS-S

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 20/04/2022 12:22:29

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: MS1-N-1-VS-S
- Cleaning: -

### Environment

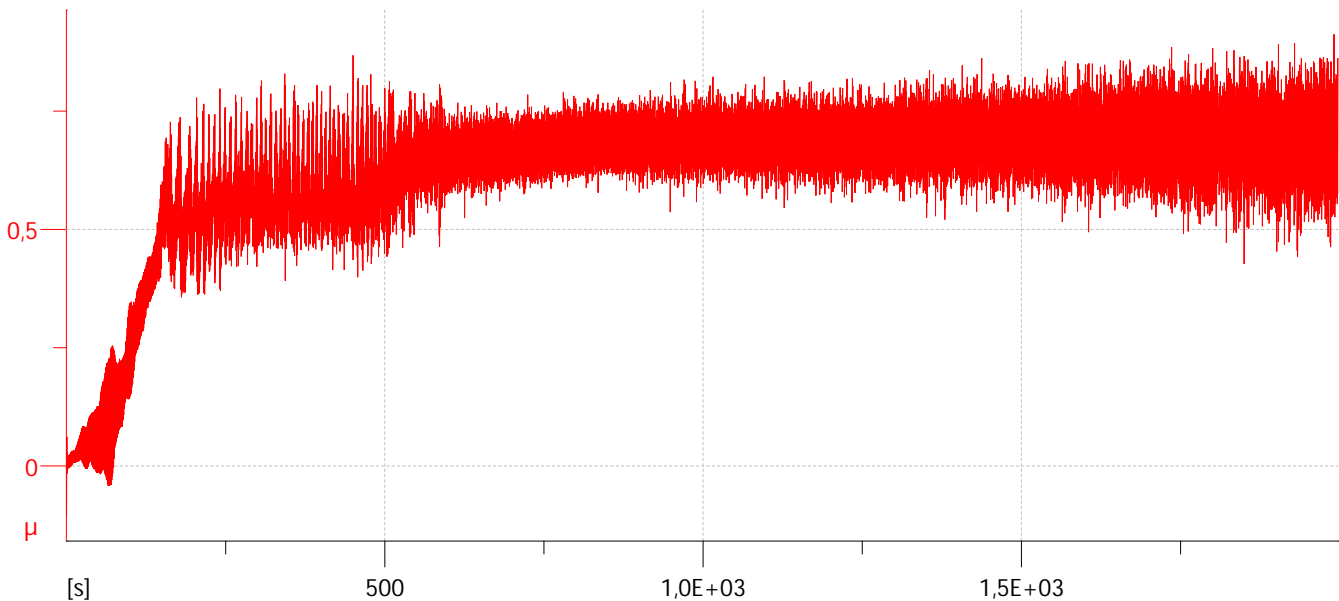
- Lab temperature: 26,94 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 22,38 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,108    min : -0,108    max : 0,912    mean : 0,626    std. dev. : 0,148



Friction Coef.

# MS1-N-2-V

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 20/04/2022 14:03:37

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: MS1-N-2-V
- Cleaning: -

### Environment

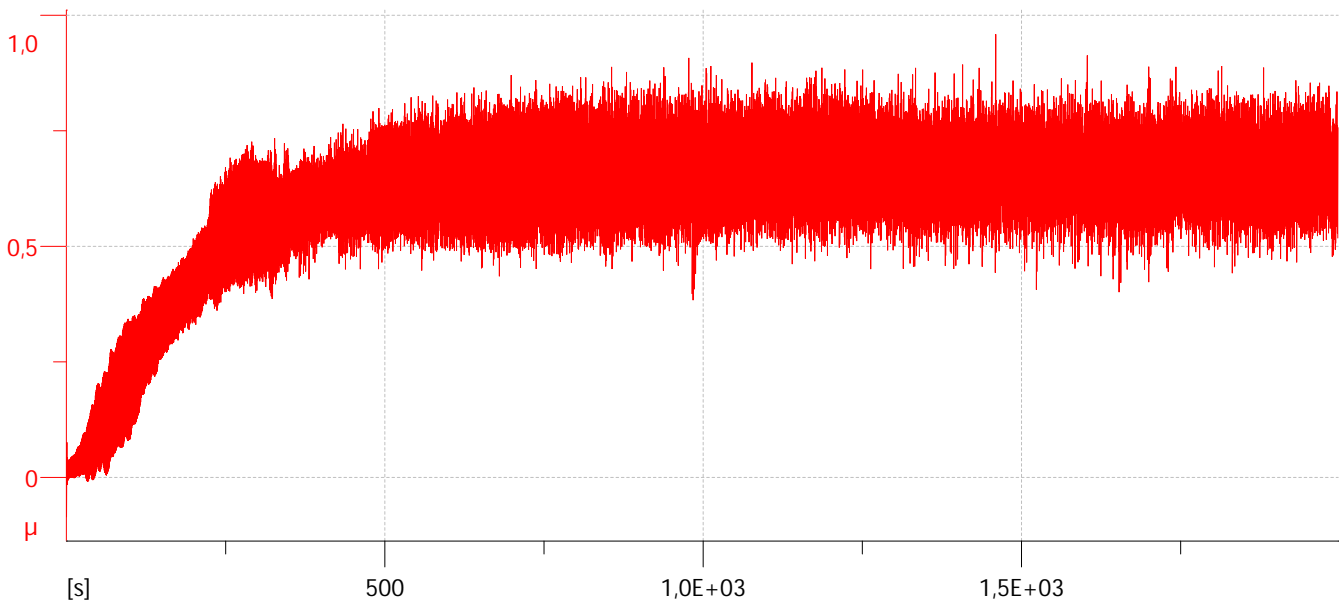
- Lab temperature: 28,54 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 24,27 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [μm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [μm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,085    min : -0,086    max : 0,959    mean : 0,600    std. dev. : 0,148



Friction Coef.

# MS1-N-2-S

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 20/04/2022 14:48:42

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: MS1-N-2-S
- Cleaning: -

### Environment

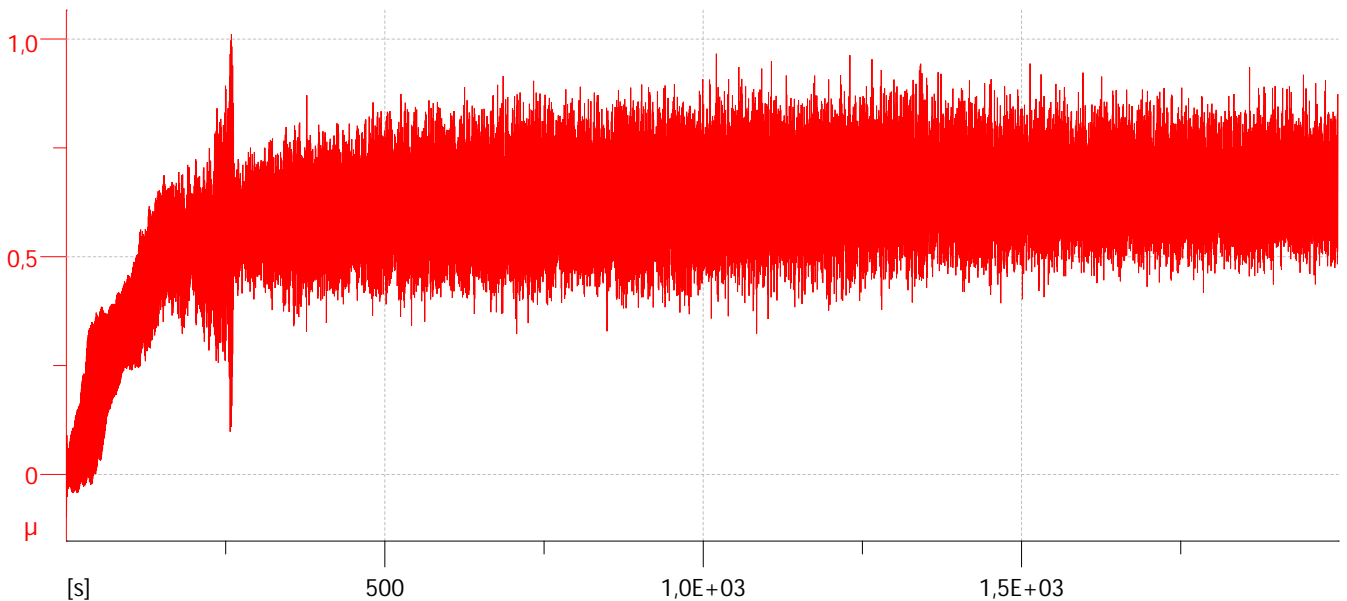
- Lab temperature: 28,72 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 24,31 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [μm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [μm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Herzian Stress: 0 [GPa]

Start : -0,098    min : -0,098    max : 1,011    mean : 0,602    std. dev. : 0,132



# MS1-N-3-V

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 22/04/2022 07:00:43

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: MS1-N-3-V
- Cleaning: -

### Environment

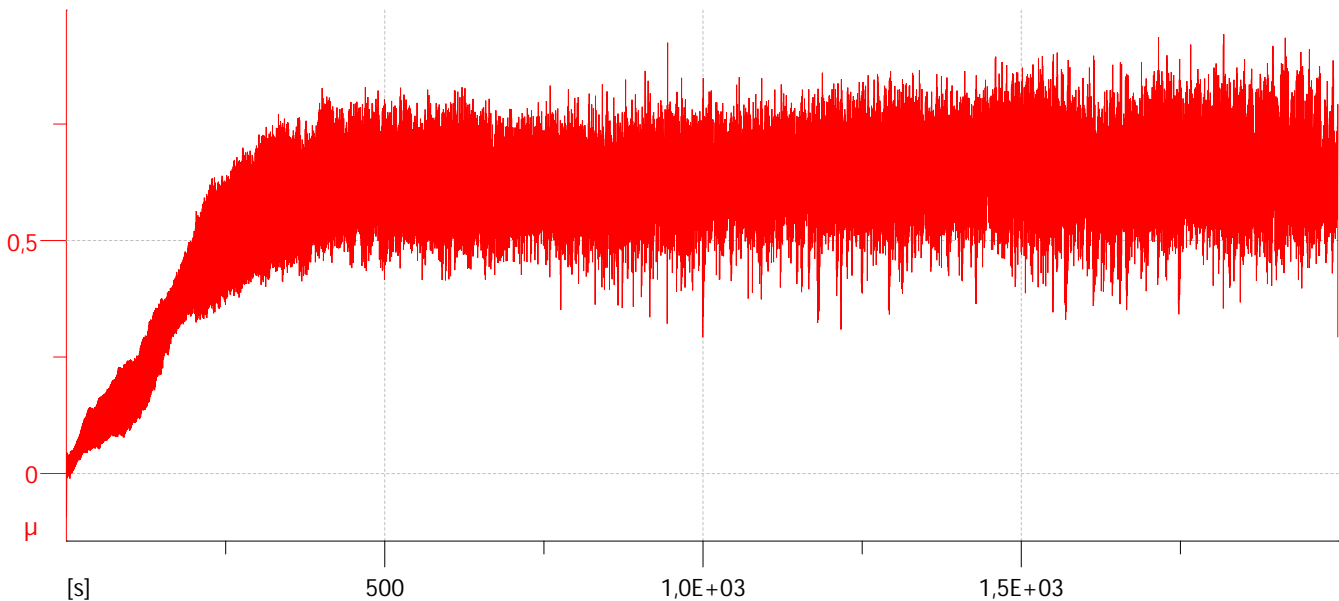
- Lab temperature: 24,47 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 33,90 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [μm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [μm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,093    min : -0,093    max : 0,943    mean : 0,583    std. dev. : 0,157



Friction Coef.

# MS1-N-4-V

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 22/04/2022 08:54:21

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: MS1-N-4-V
- Cleaning: -

### Environment

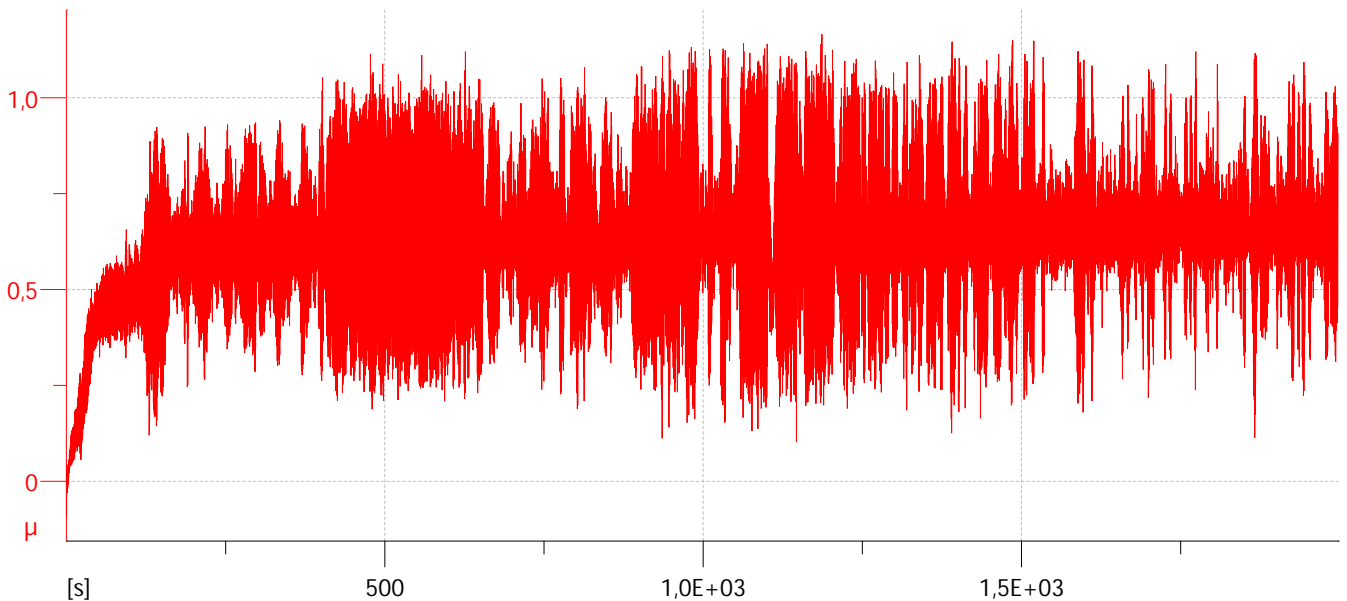
- Lab temperature: 26,86 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 30,02 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [µm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [µm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,093    min : -0,093    max : 1,165    mean : 0,628    std. dev. : 0,170



Friction Coef.



# MS1-N-3-S

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 22/04/2022 08:02:11

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: MS1-N-3-S
- Cleaning: -

### Environment

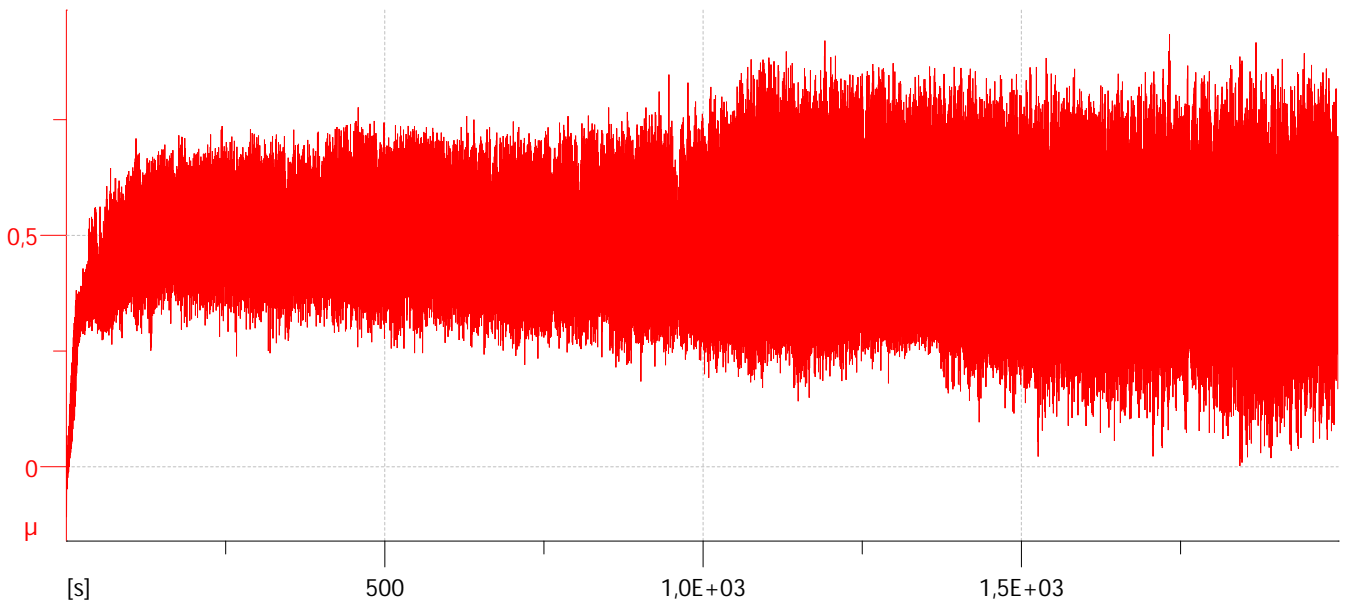
- Lab temperature: 25,59 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 31,36 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [μm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [μm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Herzian Stress: 0 [GPa]

Start : -0,109    min : -0,109    max : 0,935    mean : 0,482    std. dev. : 0,132



Friction Coef.

# MS1-N-4-S

## Standard parameters

### Instrument

- TRB3
- Serial number: 1000103043
- Tribometer / Version 8.1.10
- Date of measurement: 22/04/2022 09:48:36

### Static partner

- Substrate: Al2O3
- Cleaning: -
- Dimension: 6,00 [mm]
- Geometry: Ball

### Sample

- Substrate: MS1-N-4-S
- Cleaning: -

### Environment

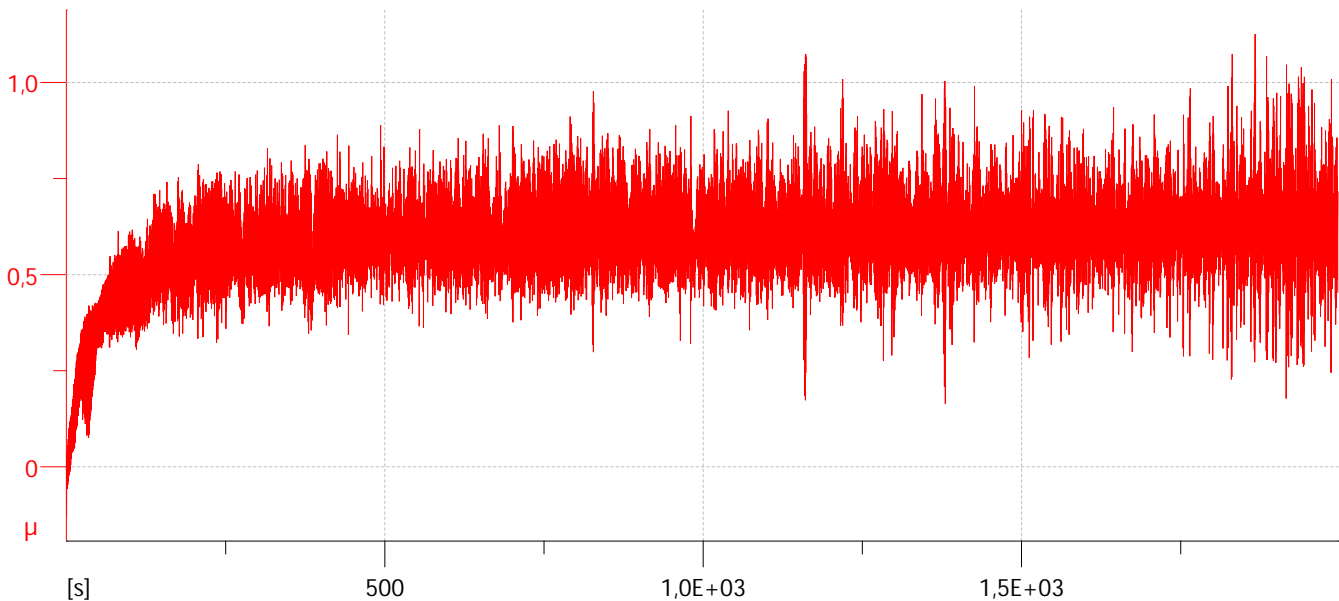
- Lab temperature: 27,80 [°C]
- Target temperature: 26,22 [°C]
- Humidity: 29,14 [%]

### Sequence

- Repetitions: 1
- Single-way mode
- Radius: 3,00 [mm]
- Lin. Speed: 9,42 [cm/s]
- Acquisition rate: 80,0 [Hz]
- Cycles sampled: 1/1
- Pause: 0 [s]
- Homing at begin: Yes
- Normal load: 10,00 [N]
- Unload at end: No
- Stop condit.: 10000,0 [lap]
- Effective Stop: Laps

Sample	Static partner	Calculations
Worn Track Section: 0,0 [μm <sup>2</sup> ]	Worn Cap Diameter: 0,0 [μm]	Sample Wear Rate: 0 [mm <sup>3</sup> /N/m]
Young's Modulus: 0,0 [GPa]	Young's Modulus: 0,0 [GPa]	Partner Wear Rate: 0 [mm <sup>3</sup> /N/m]
Poisson Ratio: 0,000	Poisson Ratio: 0,000	Max Hertzian Stress: 0 [GPa]

Start : -0,131    min : -0,131    max : 1,126    mean : 0,594    std. dev. : 0,105



Friction Coef.

# Summary

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