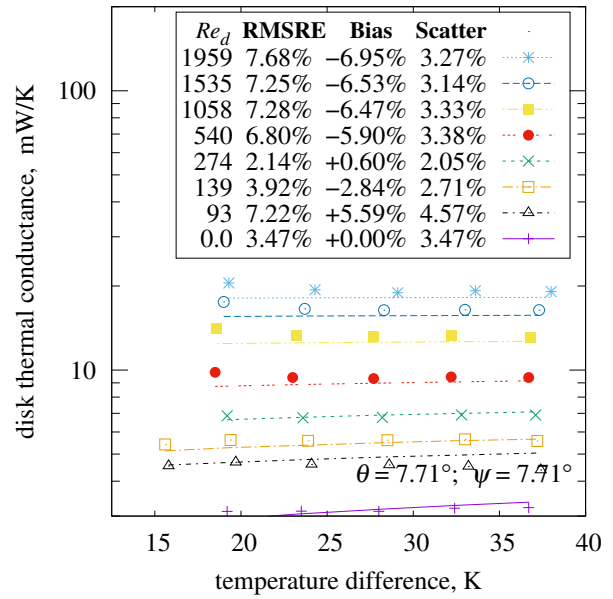
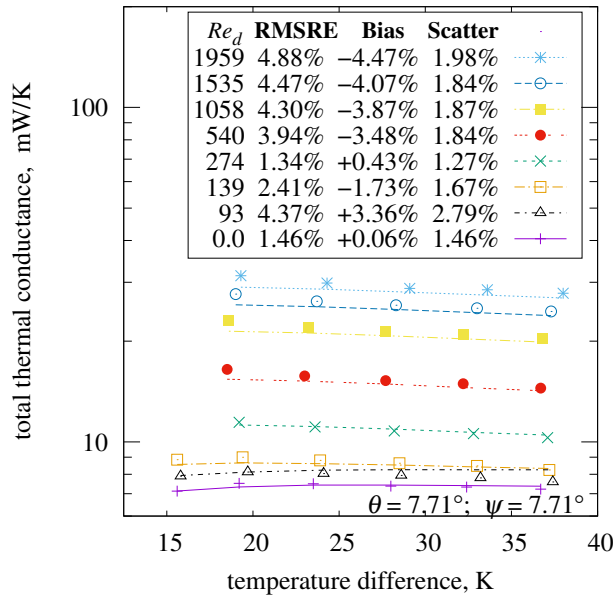
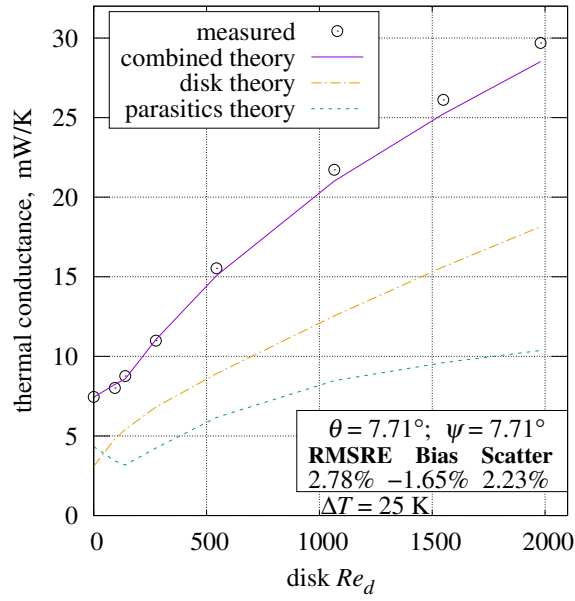
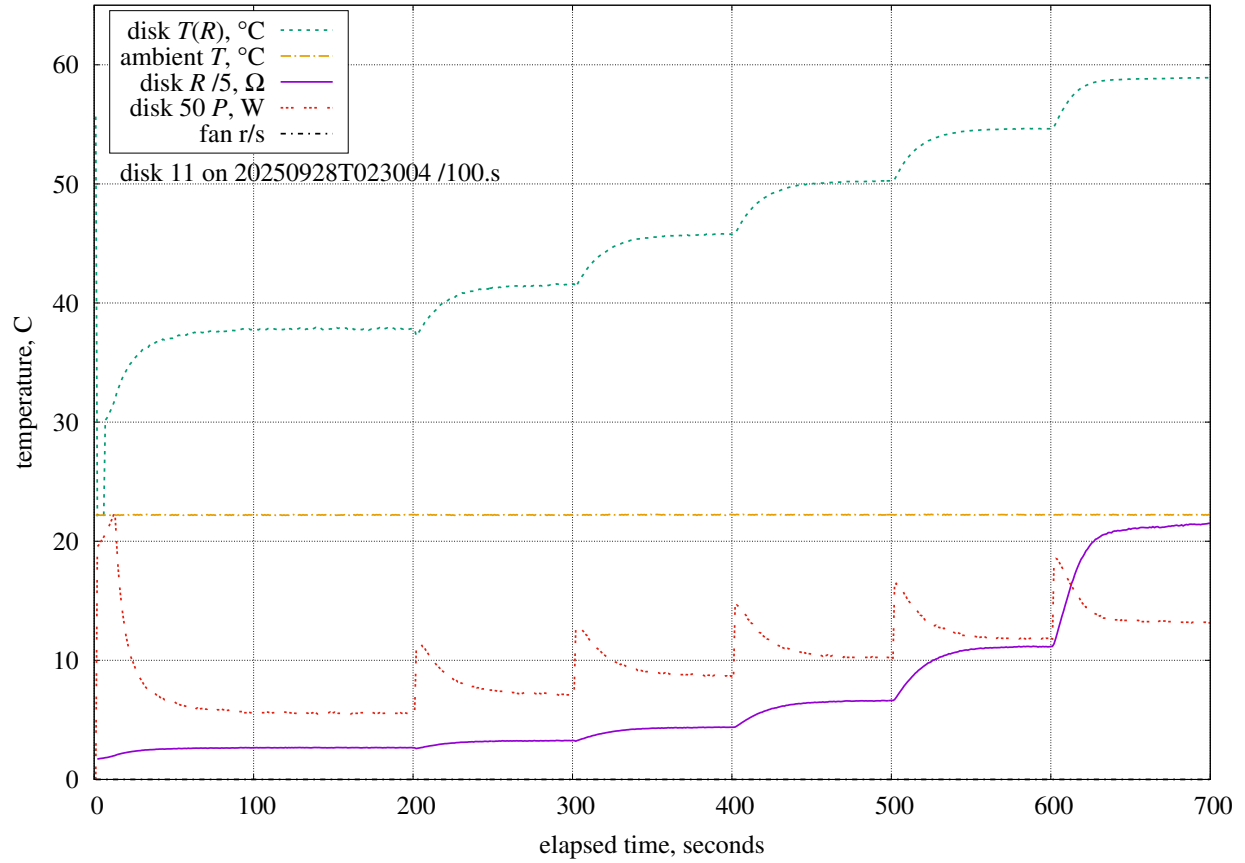


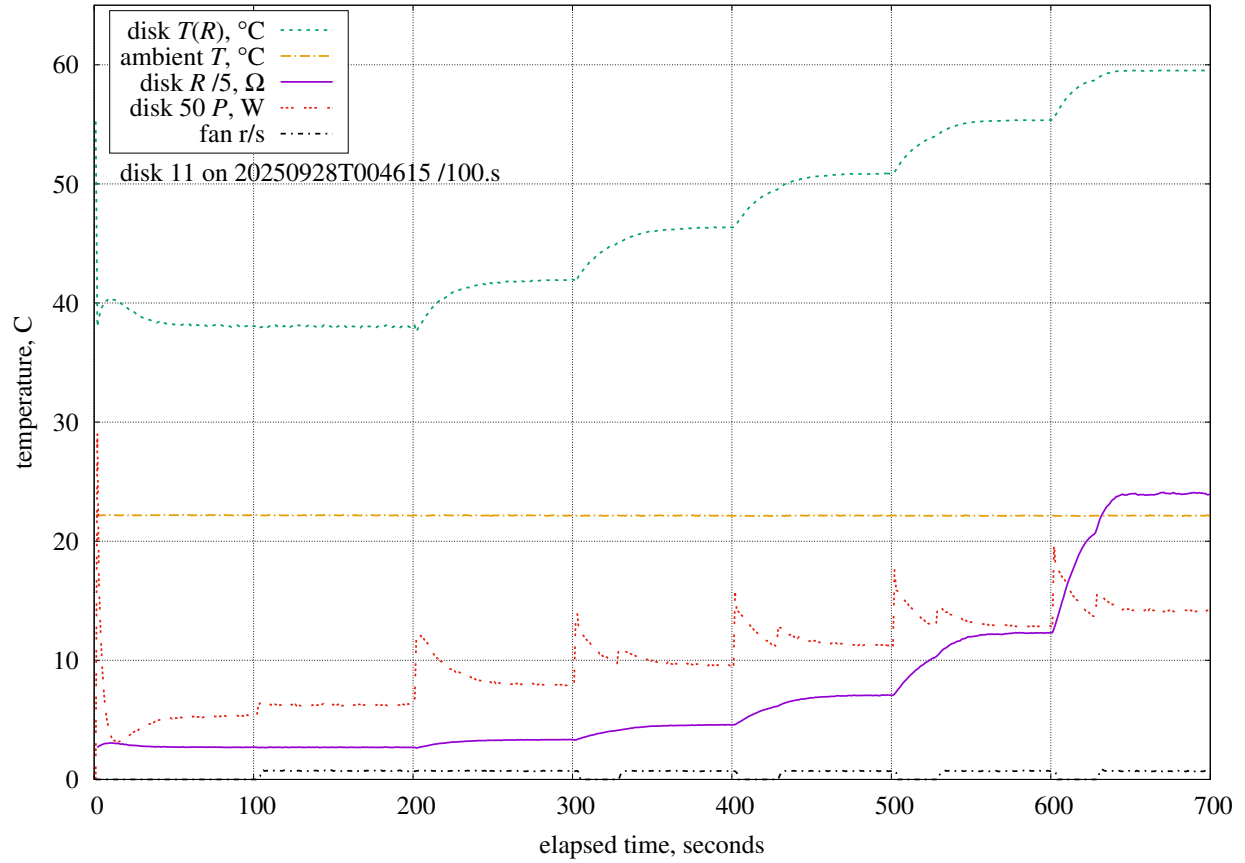




$\theta = 7.7^\circ$; $\psi = 7.7^\circ$; $V = 0.000$ m/s (0 r/min)

Estimated measurement uncertainties of natural convection at $\theta = 7.8$.

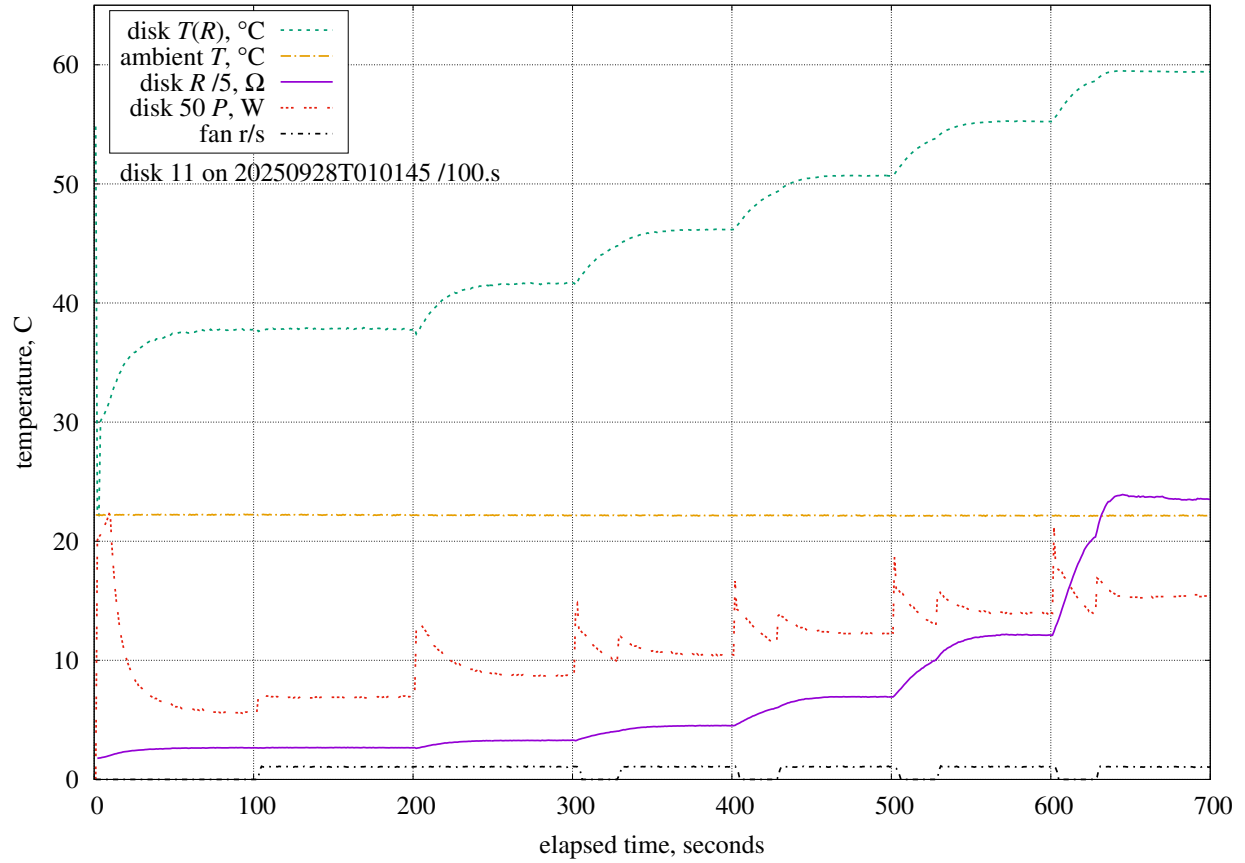
Symbol	Nominal	Sensitivity	Bias	Uncertainty	Component
ΔT	25.0.K	+4.43%/K	0.10.K	0.44%	LM35C differential
P	100.kPa	+0.0002%/Pa	1.5.kPa	0.29%	MPXH6115A6U air pressure
Re_0	600	+0.0050%	60	0.30%	integration lower-bound
D_o	2.81.mm	+3053%/m	500.um	1.53%	tube outer diameter
D_i	1.11.mm	+4711%/m	200.um	0.94%	tube inner diameter
D_g	166.um	-1032%/m	750.um	0.77%	tube air gap
L_{wire}	38.0.mm	+905%/m	500.um	0.45%	wire length
k_{ABS}	179. $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	+0.117%/ $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	9.0. $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	1.05%	ABS thermal conductivity
d	12.0.mm	+5208%/m	100.um	0.52%	disk diameter
				2.41%	combined bias uncertainty



$\theta = 7.7^\circ$; $\psi = 7.7^\circ$; $V = 0.129$ m/s (43 r/min)

Estimated measurement uncertainties at $Re = 94$.

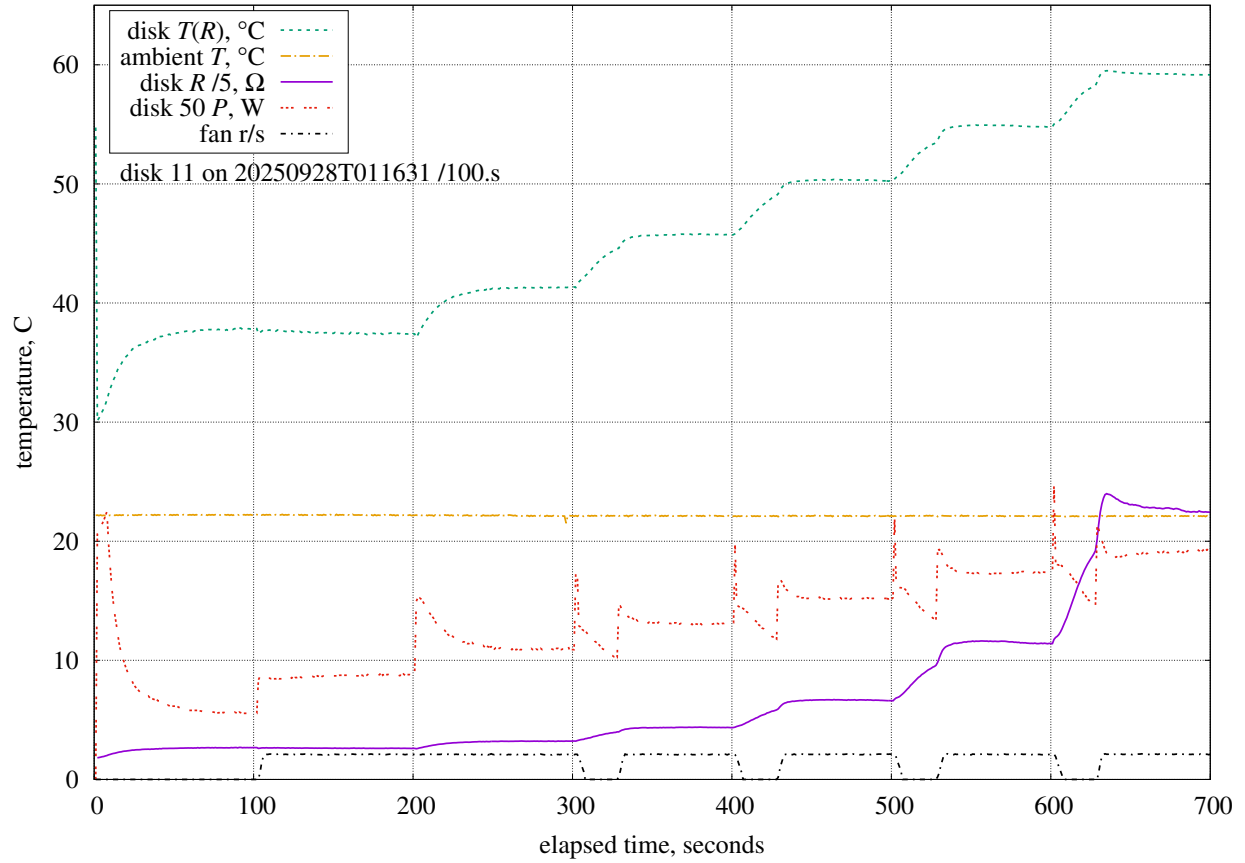
Symbol	Nominal	Sensitivity	Bias	Uncertainty	Component
ΔT	25.0.K	+4.48%/K	0.10.K	0.45%	LM35C differential
P	100.kPa	+0.0002%/Pa	1.5.kPa	0.34%	MPXH6115A6U air pressure
Re_0	600	+0.0090%	60	0.54%	integration lower-bound
C_B	0.541	-4.00%	0.100	0.40%	bypass coefficient
D_o	2.81.mm	+2341%/m	500.um	1.17%	tube outer diameter
D_i	1.11.mm	+4323%/m	200.um	0.86%	tube inner diameter
D_g	166.um	-1079%/m	750.um	0.81%	tube air gap
L_{wire}	38.0.mm	+947%/m	500.um	0.47%	wire length
k_{ABS}	179. $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	+0.115%/ $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	9.0. $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	1.03%	ABS thermal conductivity
d	12.0.mm	+5348%/m	100.um	0.53%	disk diameter
				2.26%	combined bias uncertainty
Symbol	Nominal	Sensitivity	Variability	Uncertainty	Component
ω	42.8.r/min	-0.044%/(r/min)	1.6.r/min	0.07%	fan rotation rate
				2.27%	RSS combined uncertainty



$\theta = 7.7^\circ$; $\psi = 7.7^\circ$; $V = 0.192$ m/s (64 r/min)

Estimated measurement uncertainties at $Re = 140$.

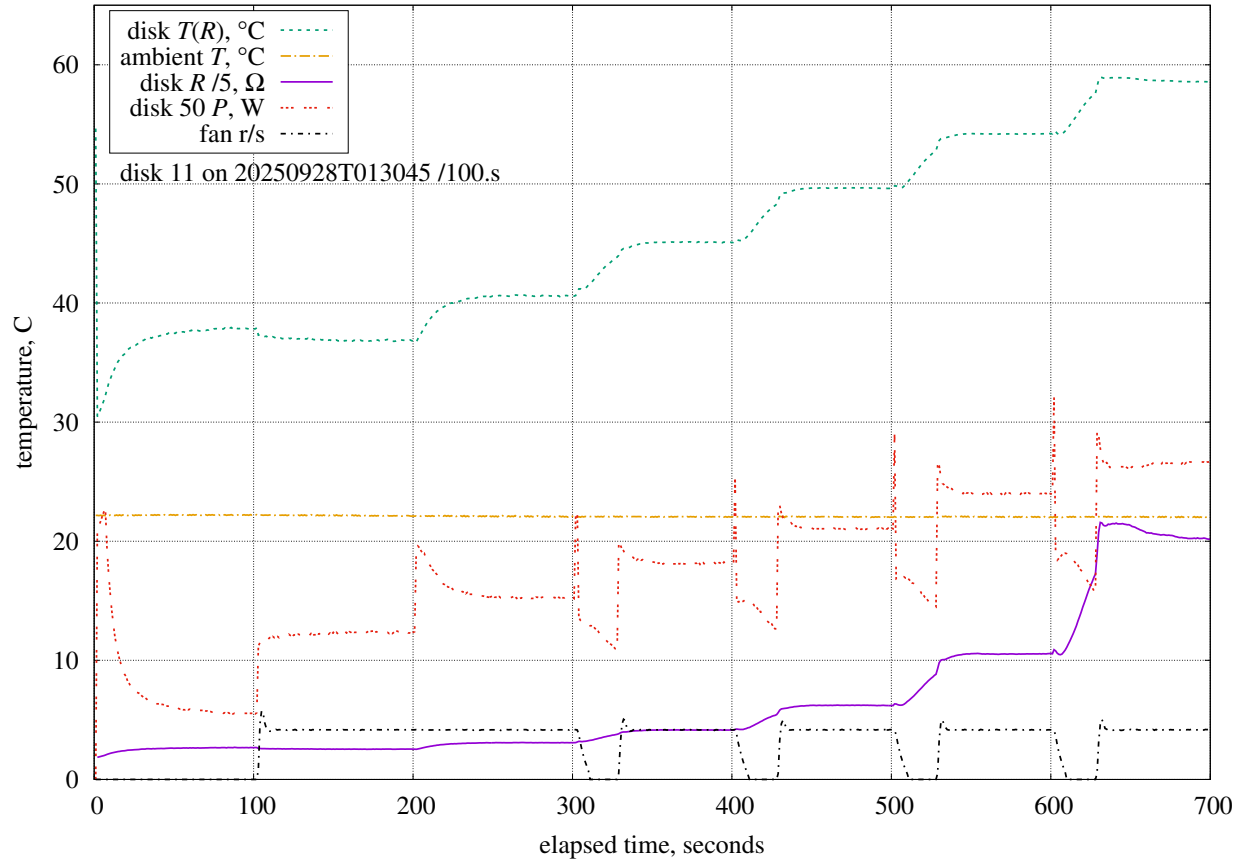
Symbol	Nominal	Sensitivity	Bias	Uncertainty	Component
ΔT	25.0.K	+4.21%/K	0.10.K	0.42%	LM35C differential
P	100.kPa	+0.0003%/Pa	1.5.kPa	0.47%	MPXH6115A6U air pressure
η	0.340	+60.5%	0.007	0.41%	anemometer calibration
D_o	2.81.mm	+1877%/m	500.um	0.94%	tube outer diameter
D_i	1.11.mm	+4889%/m	200.um	0.98%	tube inner diameter
D_g	166.um	-1199%/m	750.um	0.90%	tube air gap
L_{wire}	38.0.mm	+1052%/m	500.um	0.53%	wire length
k_{ABS}	179. $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	+0.119%/ $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	9.0. $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	1.07%	ABS thermal conductivity
d	12.0.mm	+5471%/m	100.um	0.55%	disk diameter
				2.22%	combined bias uncertainty
Symbol	Nominal	Sensitivity	Variability	Uncertainty	Component
ω	63.8.r/min	+0.322%/(r/min)	1.3.r/min	0.43%	fan rotation rate
				2.38%	RSS combined uncertainty



$\theta = 7.7^\circ$; $\psi = 7.7^\circ$; $V = 0.380$ m/s (126 r/min)

Estimated measurement uncertainties at $Re = 276$.

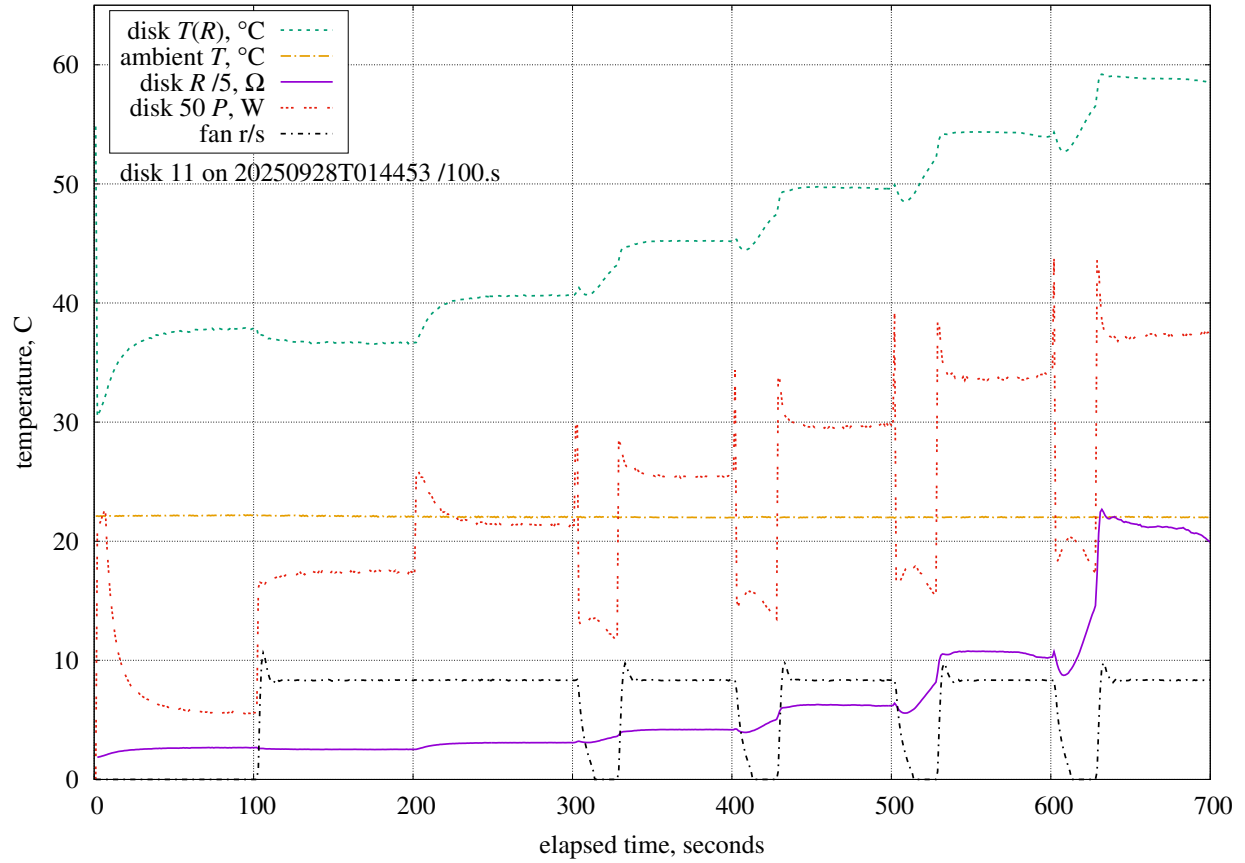
Symbol	Nominal	Sensitivity	Bias	Uncertainty	Component
ΔT	25.0.K	+3.98%/K	0.10.K	0.40%	LM35C differential
P	100.kPa	+0.0003%/Pa	1.5.kPa	0.40%	MPXH6115A6U air pressure
η	0.340	+83.3%	0.007	0.57%	anemometer calibration
Re_0	600	-0.0035%	60	0.21%	integration lower-bound
C_B	0.541	+2.83%	0.100	0.28%	bypass coefficient
D_o	2.81.mm	-5184%/m	500.um	2.59%	tube outer diameter
D_i	1.11.mm	+5845%/m	200.um	1.17%	tube inner diameter
D_g	166.um	-1394%/m	750.um	1.05%	tube air gap
L_{wire}	38.0.mm	+1223%/m	500.um	0.61%	wire length
k_{ABS}	179. $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	+0.127%/ $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	9.0. $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	1.13%	ABS thermal conductivity
d	12.0.mm	+5934%/m	100.um	0.59%	disk diameter
				3.46%	combined bias uncertainty
Symbol	Nominal	Sensitivity	Variability	Uncertainty	Component
ω	126.r/min	+0.225%/(r/min)	0.99.r/min	0.22%	fan rotation rate
				3.49%	RSS combined uncertainty



$\theta = 7.7^\circ$; $\psi = 7.7^\circ$; $V = 0.749$ m/s (250 r/min)

Estimated measurement uncertainties at $Re = 544$.

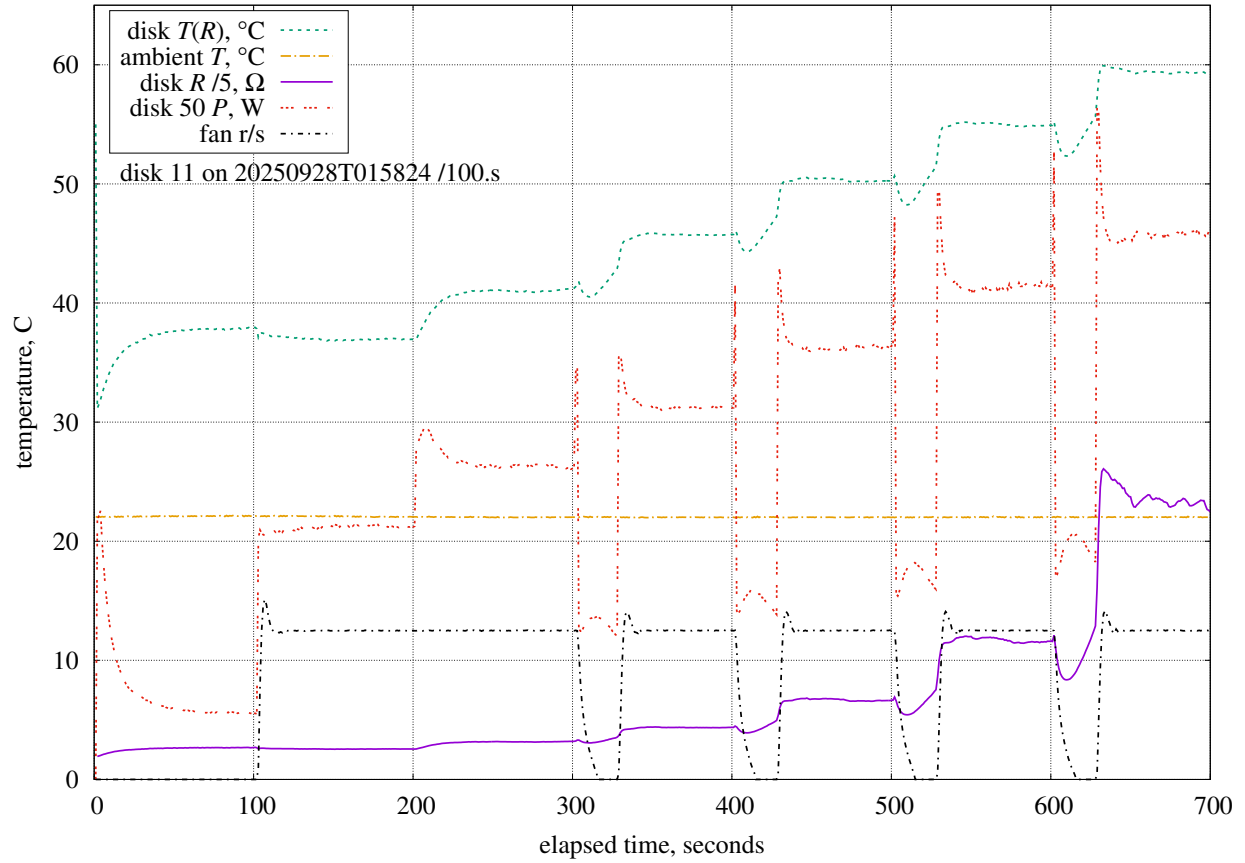
Symbol	Nominal	Sensitivity	Bias	Uncertainty	Component
ΔT	25.0.K	+3.99%/K	0.10.K	0.40%	LM35C differential
P	100.kPa	+0.0005%/Pa	1.5.kPa	0.76%	MPXH6115A6U air pressure
η	0.340	+151%	0.007	1.03%	anemometer calibration
Re_0	600	-0.0047%	60	0.28%	integration lower-bound
C_B	0.541	+4.92%	0.100	0.49%	bypass coefficient
D_o	2.81.mm	+1746%/m	500.um	0.87%	tube outer diameter
D_i	1.11.mm	+8054%/m	200.um	1.61%	tube inner diameter
D_g	166.um	-1696%/m	750.um	1.27%	tube air gap
L_{wire}	38.0.mm	+1488%/m	500.um	0.74%	wire length
k_{ABS}	179. $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	+0.131%/ $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	9.0. $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	1.17%	ABS thermal conductivity
d	12.0.mm	+6311%/m	100.um	0.63%	disk diameter
				3.07%	combined bias uncertainty
Symbol	Nominal	Sensitivity	Variability	Uncertainty	Component
ω	250.r/min	+0.206%/(r/min)	1.3.r/min	0.26%	fan rotation rate
				3.12%	RSS combined uncertainty



$\theta = 7.7^\circ$; $\psi = 7.7^\circ$; $V = 1.467 \text{ m/s}$ (500 r/min)

Estimated measurement uncertainties at $Re = 1066$.

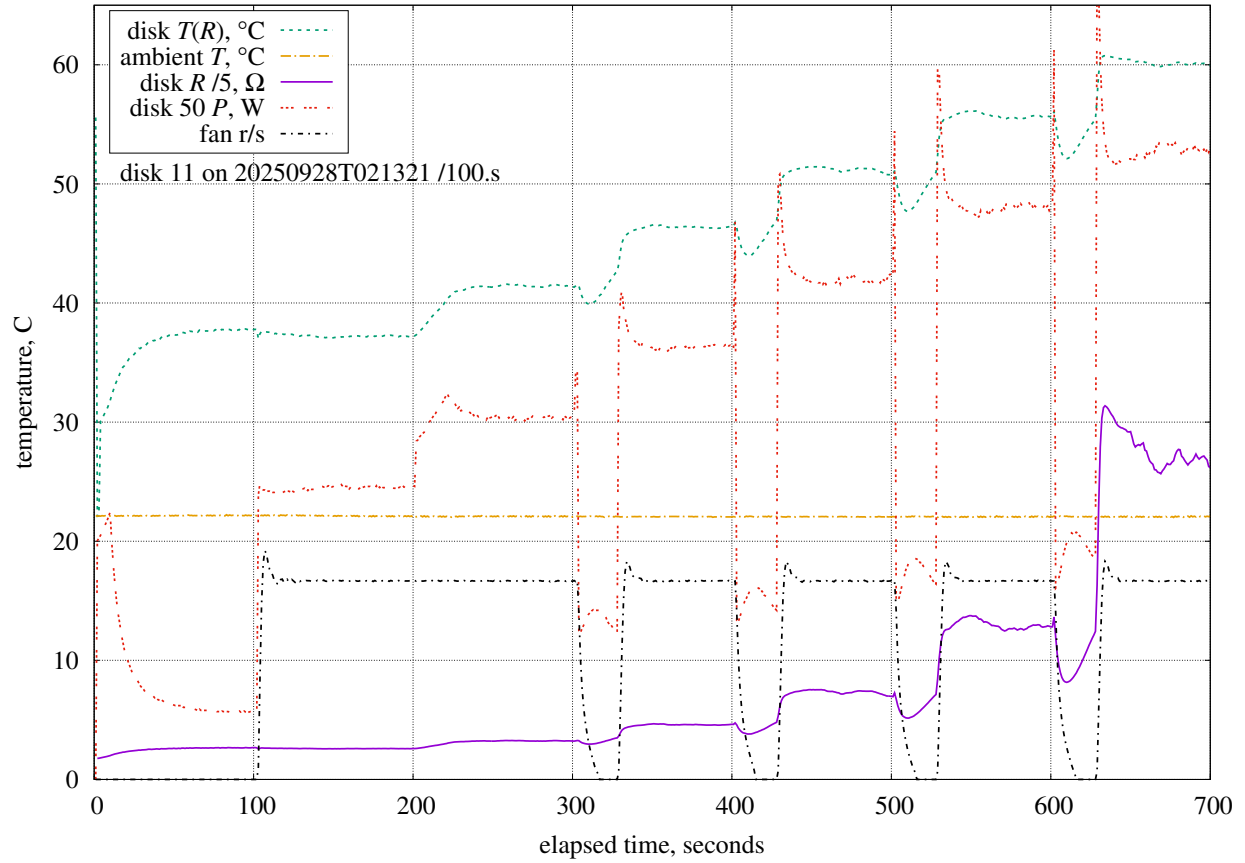
Symbol	Nominal	Sensitivity	Bias	Uncertainty	Component
ΔT	25.0.K	+3.97%/K	0.10.K	0.40%	LM35C differential
P	100.kPa	+0.0004%/Pa	1.5.kPa	0.63%	MPXH6115A6U air pressure
η	0.340	+126%	0.007	0.86%	anemometer calibration
Re_0	600	-0.0079%	60	0.48%	integration lower-bound
C_B	0.541	+7.07%	0.100	0.71%	bypass coefficient
D_o	2.81.mm	-3823%/m	500.um	1.91%	tube outer diameter
D_i	1.11.mm	+10080%/m	200.um	2.02%	tube inner diameter
D_g	166.um	-1955%/m	750.um	1.47%	tube air gap
L_{wire}	38.0.mm	+1715%/m	500.um	0.86%	wire length
k_{ABS}	179. $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	+0.133%/ $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	9.0. $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	1.19%	ABS thermal conductivity
d	12.0.mm	+7039%/m	100.um	0.70%	disk diameter
				3.81%	combined bias uncertainty
Symbol	Nominal	Sensitivity	Variability	Uncertainty	Component
ω	500.r/min	+0.086%/(r/min)	1.4.r/min	0.12%	fan rotation rate
				3.82%	RSS combined uncertainty



$\theta = 7.7^\circ$; $\psi = 7.7^\circ$; $V = 2.131 \text{ m/s}$ (750 r/min)

Estimated measurement uncertainties at $Re = 1549$.

Symbol	Nominal	Sensitivity	Bias	Uncertainty	Component
ΔT	25.0.K	+3.97%/K	0.10.K	0.40%	LM35C differential
P	100.kPa	+0.0004%/Pa	1.5.kPa	0.65%	MPXH6115A6U air pressure
η	0.340	+122%	0.007	0.83%	anemometer calibration
Re_0	600	-0.0086%	60	0.52%	integration lower-bound
C_B	0.541	+8.18%	0.100	0.82%	bypass coefficient
D_o	2.81.mm	-4349%/m	500.um	2.17%	tube outer diameter
D_i	1.11.mm	+10336%/m	200.um	2.07%	tube inner diameter
D_g	166.um	-1992%/m	750.um	1.49%	tube air gap
L_{wire}	38.0.mm	+1747%/m	500.um	0.87%	wire length
k_{ABS}	179. $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	+0.127%/ $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	9.0. $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	1.14%	ABS thermal conductivity
d	12.0.mm	+7591%/m	100.um	0.76%	disk diameter
				4.01%	combined bias uncertainty
Symbol	Nominal	Sensitivity	Variability	Uncertainty	Component
ω	750.r/min	+0.055%/(r/min)	1.1.r/min	0.06%	fan rotation rate
				4.01%	RSS combined uncertainty



$\theta = 7.7^\circ$; $\psi = 7.7^\circ$; $V = 2.726$ m/s (1000 r/min)

Estimated measurement uncertainties at $Re = 1980$.

Symbol	Nominal	Sensitivity	Bias	Uncertainty	Component
ΔT	25.0.K	+3.97%/K	0.10.K	0.40%	LM35C differential
P	100.kPa	+0.0004%/Pa	1.5.kPa	0.66%	MPXH6115A6U air pressure
η	0.340	+114%	0.007	0.78%	anemometer calibration
Re_0	600	-0.0086%	60	0.52%	integration lower-bound
C_B	0.541	+8.88%	0.100	0.89%	bypass coefficient
D_o	2.81.mm	-4524%/m	500.um	2.26%	tube outer diameter
D_i	1.11.mm	+10342%/m	200.um	2.07%	tube inner diameter
D_g	166.um	-1998%/m	750.um	1.50%	tube air gap
L_{wire}	38.0.mm	+1753%/m	500.um	0.88%	wire length
k_{ABS}	179. $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	+0.122%/ $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	9.0. $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	1.09%	ABS thermal conductivity
d	12.0.mm	+7953%/m	100.um	0.80%	disk diameter
				4.07%	combined bias uncertainty
Symbol	Nominal	Sensitivity	Variability	Uncertainty	Component
ω	1.00.kr/min	+0.039%/(r/min)	2.0.r/min	0.08%	fan rotation rate
				4.07%	RSS combined uncertainty