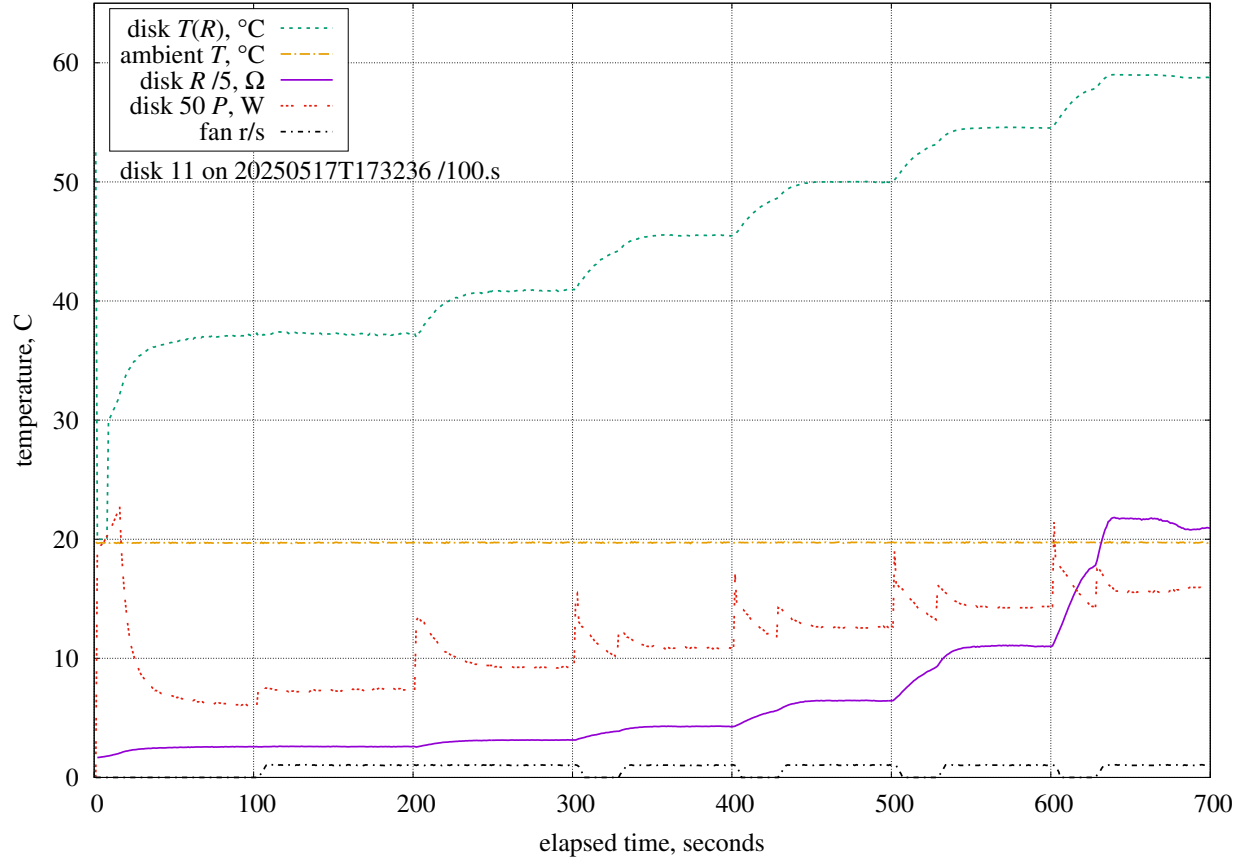


$\theta = 0.0^\circ$; $\psi = 82.3^\circ$; $V = 0.000 \text{ m/s}$ (0 r/min)

Estimated measurement uncertainties of natural convection at $\theta = 0.0$.

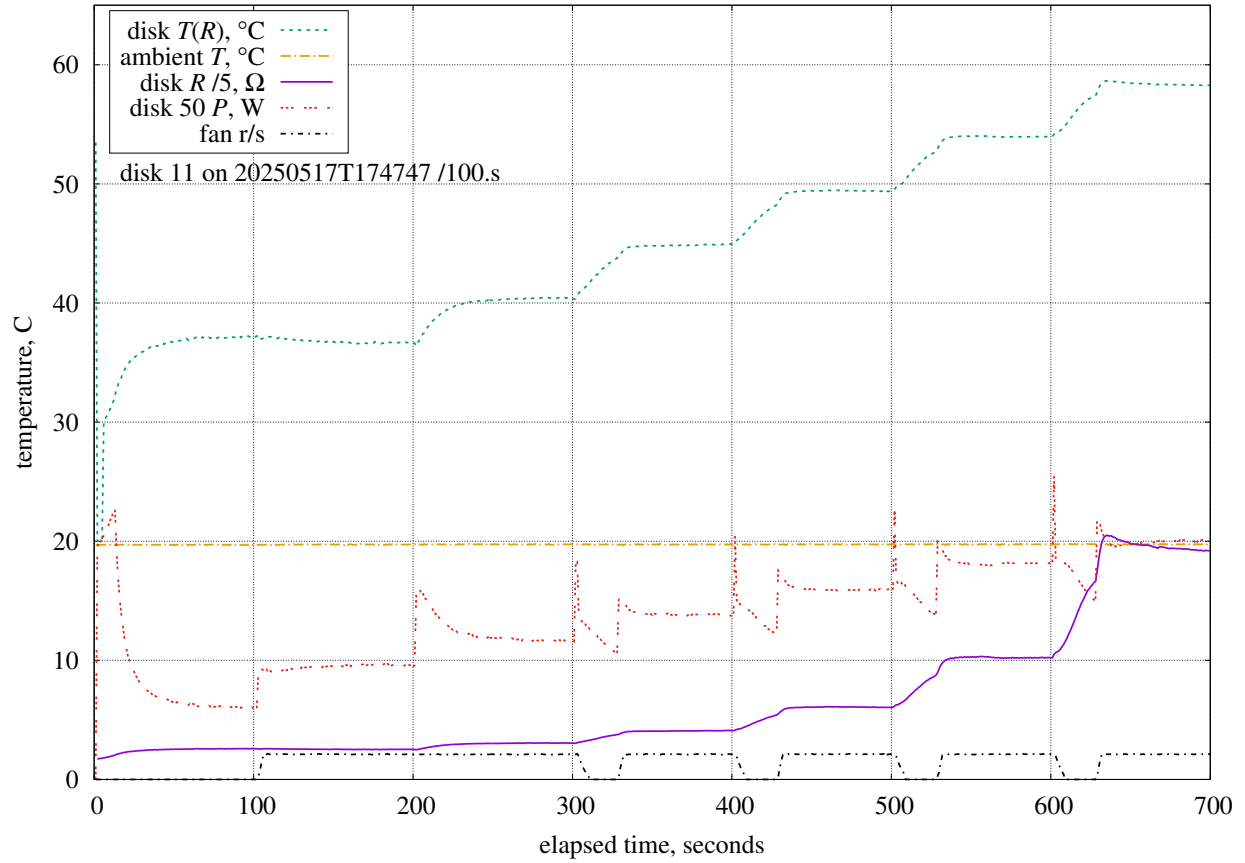
Symbol	Nominal	Sensitivity	Bias	Uncertainty	Component
ΔT	25.0.K	+4.35%/K	0.10.K	0.43%	LM35C differential
P	99.1.kPa	+0.0002%/Pa	1.5.kPa	0.29%	MPXH6115A6U air pressure
D_o	2.81.mm	+2925%/m	500.um	1.46%	tube outer diameter
D_i	1.11.mm	+4917%/m	200.um	0.98%	tube inner diameter
L_{wire}	38.0.mm	+965%/m	500.um	0.48%	wire length
k_{ABS}	179. $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	+0.118%/ $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	9.0. $\frac{\text{mW}}{\text{K}\cdot\text{m}}$	1.06%	ABS thermal conductivity
d	12.0.mm	+5218%/m	100.um	0.52%	disk diameter
θ	50.0.m°	+21.7%/°	0.20.°	4.35%	plate angle
				4.89%	combined bias uncertainty



$\theta = 0.0^\circ$; $\psi = 82.3^\circ$; $V = 0.186$ m/s (62 r/min)

Estimated measurement uncertainties at $Re = 135$.

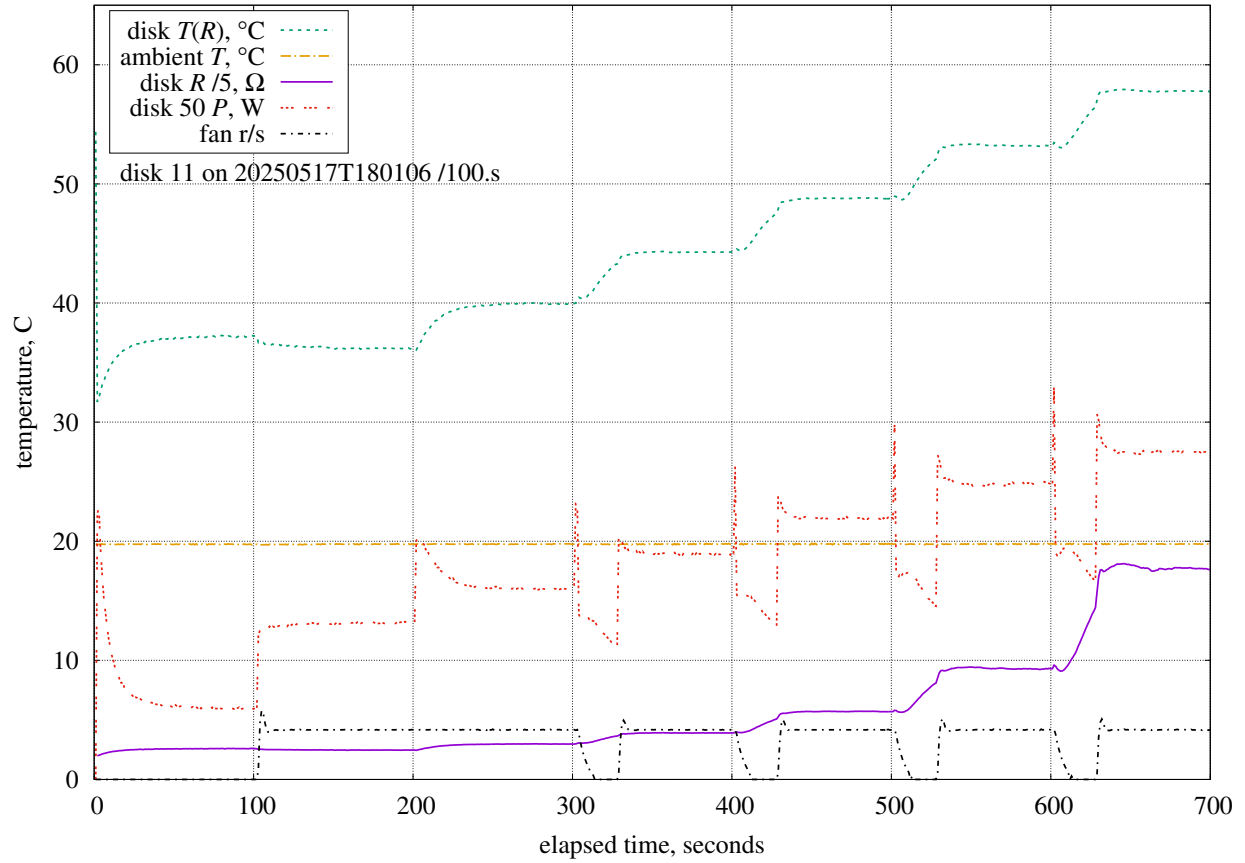
Symbol	Nominal	Sensitivity	Bias	Uncertainty	Component
T	305.K	$-0.404\%/K$	0.50.K	0.20%	LM35C temperature sensor
ΔT	25.0.K	$+4.12\%/K$	0.10.K	0.41%	LM35C differential
P	99.0.kPa	$+0.0005\%/Pa$	1.5.kPa	0.75%	MPXH6115A6U air pressure
η	0.340	$+115\%$	0.007	0.78%	anemometer calibration
Re_0	600	-0.0050%	60	0.30%	integration lower-bound
D_o	2.81.mm	$-6966\%/m$	500.um	3.48%	tube outer diameter
D_i	1.11.mm	$+9203\%/m$	200.um	1.84%	tube inner diameter
L_{wire}	38.0.mm	$+1000\%/m$	500.um	0.50%	wire length
k_{ABS}	$179. \frac{mW}{K \cdot m}$	$+0.145\% / \frac{mW}{K \cdot m}$	$9.0. \frac{mW}{K \cdot m}$	1.29%	ABS thermal conductivity
d	12.0.mm	$+5863\%/m$	100.um	0.59%	disk diameter
ϵ_{ABS}	0.920	-39.5%	0.010	0.39%	ABS emissivity
ϵ_{wt}	0.900	-39.7%	0.025	0.99%	wind-tunnel emissivity
θ	50.0.m°	$-3.64\%/^\circ$	0.20.°	0.73%	plate angle
				4.58%	combined bias uncertainty
Symbol	Nominal	Sensitivity	Variability	Uncertainty	Component
ω	61.9.r/min	$+0.629\%/(r/min)$	0.99.r/min	0.62%	fan rotation rate
				4.75%	RSS combined uncertainty



$\theta = 0.0^\circ$; $\psi = 82.3^\circ$; $V = 0.381 \text{ m/s}$ (127 r/min)

Estimated measurement uncertainties at $Re = 277$.

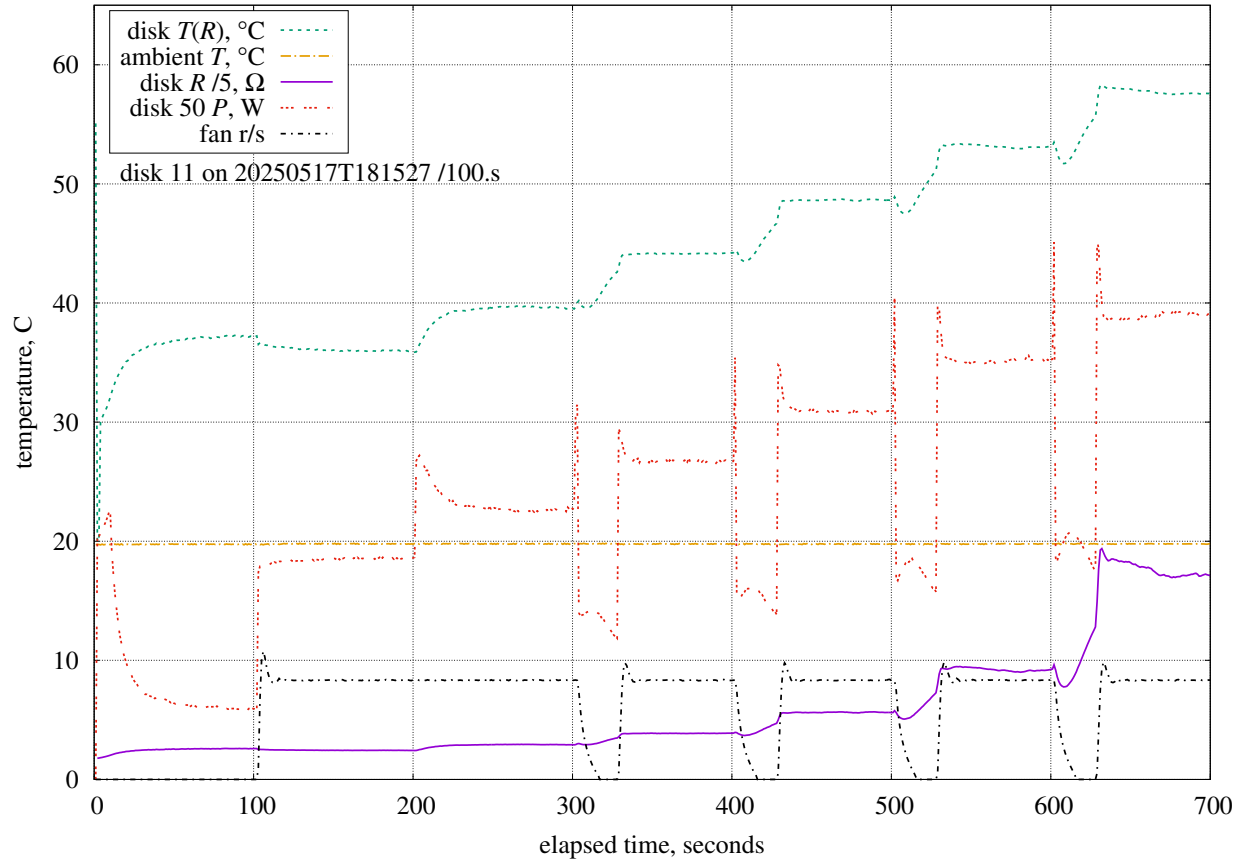
Symbol	Nominal	Sensitivity	Bias	Uncertainty	Component
T	305.K	$-0.453\%/K$	0.50.K	0.23%	LM35C temperature sensor
ΔT	25.0.K	$+3.99\%/K$	0.10.K	0.40%	LM35C differential
P	99.0.kPa	$+0.0005\%/Pa$	1.5.kPa	0.76%	MPXH6115A6U air pressure
η	0.340	$+127\%$	0.007	0.87%	anemometer calibration
Re_0	600	-0.0071%	60	0.42%	integration lower-bound
D_o	2.81.mm	$-10160\%/m$	500.um	5.08%	tube outer diameter
D_i	1.11.mm	$+13869\%/m$	200.um	2.77%	tube inner diameter
D_g	166.um	$-366\%/m$	750.um	0.27%	tube air gap
L_{wire}	38.0.mm	$+1525\%/m$	500.um	0.76%	wire length
k_{ABS}	$179. \frac{\text{mW}}{\text{K}\cdot\text{m}}$	$+0.176\%/ \frac{\text{mW}}{\text{K}\cdot\text{m}}$	$9.0. \frac{\text{mW}}{\text{K}\cdot\text{m}}$	1.58%	ABS thermal conductivity
d	12.0.mm	$+5419\%/m$	100.um	0.54%	disk diameter
ϵ_{ABS}	0.920	-43.9%	0.010	0.44%	ABS emissivity
ϵ_{wt}	0.900	-44.4%	0.025	1.11%	wind-tunnel emissivity
θ	$50.0.m^\circ$	$-4.87\%/^\circ$	$0.20.^\circ$	0.97%	plate angle
				6.41%	combined bias uncertainty
Symbol	Nominal	Sensitivity	Variability	Uncertainty	Component
ω	127.r/min	$+0.342\%/(r/min)$	1.0.r/min	0.35%	fan rotation rate
				6.45%	RSS combined uncertainty



$\theta = 0.0^\circ$; $\psi = 82.3^\circ$; $V = 0.749 \text{ m/s}$ (250 r/min)

Estimated measurement uncertainties at $Re = 543$.

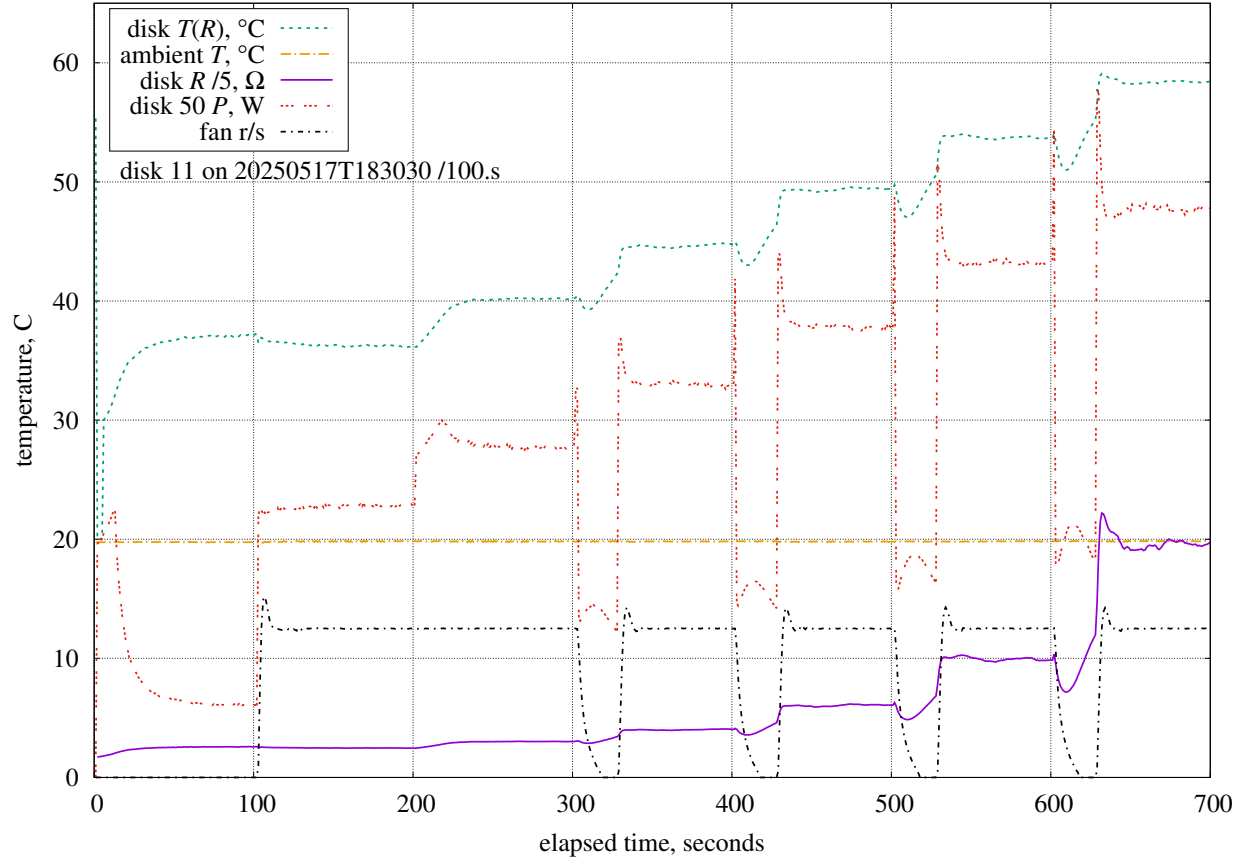
Symbol	Nominal	Sensitivity	Bias	Uncertainty	Component
T	305.K	$-0.467\%/K$	0.50.K	0.23%	LM35C temperature sensor
ΔT	25.0.K	$+3.86\%/K$	0.10.K	0.39%	LM35C differential
P	99.0.kPa	$+0.0005\%/Pa$	1.5.kPa	0.74%	MPXH6115A6U air pressure
η	0.340	$+129\%$	0.007	0.88%	anemometer calibration
Re_0	600	-0.0087%	60	0.52%	integration lower-bound
D_o	2.81.mm	$-13042\%/m$	500.um	6.52%	tube outer diameter
D_i	1.11.mm	$+18147\%/m$	200.um	3.63%	tube inner diameter
D_g	166.um	$-508\%/m$	750.um	0.38%	tube air gap
L_{wire}	38.0.mm	$+2116\%/m$	500.um	1.06%	wire length
k_{ABS}	$179. \frac{\text{mW}}{\text{K}\cdot\text{m}}$	$+0.201\%/\frac{\text{mW}}{\text{K}\cdot\text{m}}$	$9.0. \frac{\text{mW}}{\text{K}\cdot\text{m}}$	1.80%	ABS thermal conductivity
d	12.0.mm	$+5324\%/m$	100.um	0.53%	disk diameter
ϵ_{ABS}	0.920	-44.9%	0.010	0.45%	ABS emissivity
ϵ_{wt}	0.900	-45.6%	0.025	1.14%	wind-tunnel emissivity
θ	$50.0.m^\circ$	$-4.29\%/^\circ$	$0.20.^\circ$	0.86%	plate angle
				8.03%	combined bias uncertainty
Symbol	Nominal	Sensitivity	Variability	Uncertainty	Component
ω	250.r/min	$+0.175\%/(r/min)$	1.3.r/min	0.23%	fan rotation rate
				8.05%	RSS combined uncertainty



$\theta = 0.0^\circ$; $\psi = 82.3^\circ$; $V = 1.467 \text{ m/s}$ (500 r/min)

Estimated measurement uncertainties at $Re = 1063$.

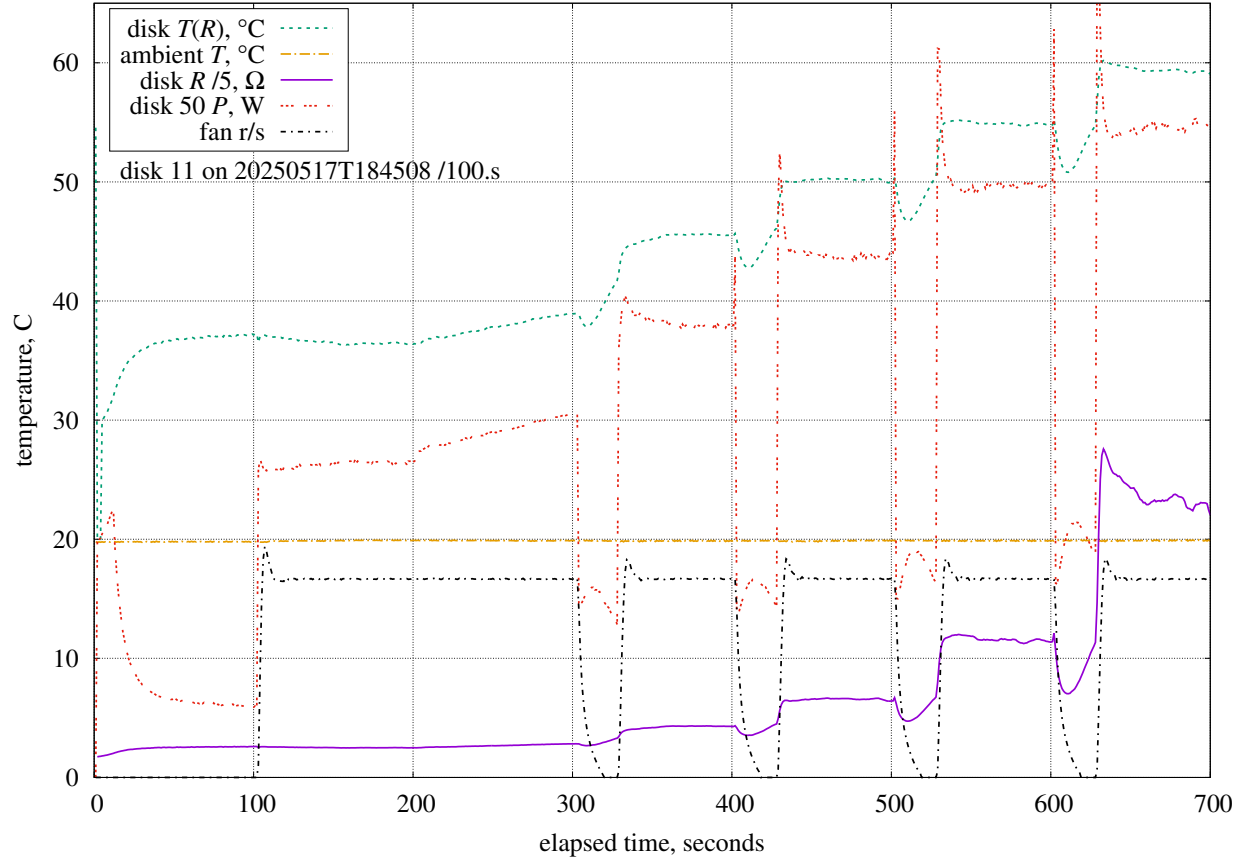
Symbol	Nominal	Sensitivity	Bias	Uncertainty	Component
T	305.K	$-0.477\%/K$	0.50.K	0.24%	LM35C temperature sensor
ΔT	25.0.K	$+3.69\%/K$	0.10.K	0.37%	LM35C differential
P	98.9.kPa	$+0.0005\%/Pa$	1.5.kPa	0.71%	MPXH6115A6U air pressure
η	0.340	$+122\%$	0.007	0.83%	anemometer calibration
Re_0	600	-0.0098%	60	0.59%	integration lower-bound
D_o	2.81.mm	$-16114\%/m$	500.um	8.06%	tube outer diameter
D_i	1.11.mm	$+21868\%/m$	200.um	4.37%	tube inner diameter
D_g	166.um	$-666\%/m$	750.um	0.50%	tube air gap
L_{wire}	38.0.mm	$+2774\%/m$	500.um	1.39%	wire length
k_{ABS}	$179. \frac{\text{mW}}{\text{K}\cdot\text{m}}$	$+0.218\%/ \frac{\text{mW}}{\text{K}\cdot\text{m}}$	$9.0. \frac{\text{mW}}{\text{K}\cdot\text{m}}$	1.95%	ABS thermal conductivity
d	12.0.mm	$+5481\%/m$	100.um	0.55%	disk diameter
ϵ_{ABS}	0.920	-45.8%	0.010	0.46%	ABS emissivity
ϵ_{wt}	0.900	-46.6%	0.025	1.16%	wind-tunnel emissivity
θ	$50.0.m^\circ$	$-3.39\%/^\circ$	$0.20.^\circ$	0.68%	plate angle
				9.70%	combined bias uncertainty
Symbol	Nominal	Sensitivity	Variability	Uncertainty	Component
ω	500.r/min	$+0.083\%/(r/min)$	1.4.r/min	0.11%	fan rotation rate
				9.70%	RSS combined uncertainty



$\theta = 0.0^\circ$; $\psi = 82.3^\circ$; $V = 2.131 \text{ m/s}$ (750 r/min)

Estimated measurement uncertainties at $Re = 1544$.

Symbol	Nominal	Sensitivity	Bias	Uncertainty	Component
T	305.K	$-0.491\%/K$	0.50.K	0.25%	LM35C temperature sensor
ΔT	25.0.K	$+3.55\%/K$	0.10.K	0.35%	LM35C differential
P	98.9.kPa	$+0.0005\%/Pa$	1.5.kPa	0.68%	MPXH6115A6U air pressure
η	0.340	$+112\%$	0.007	0.76%	anemometer calibration
Re_0	600	-0.010%	60	0.60%	integration lower-bound
D_o	2.81.mm	$-18096\%/m$	500.um	9.05%	tube outer diameter
D_i	1.11.mm	$+23590\%/m$	200.um	4.72%	tube inner diameter
D_g	166.um	$-763\%/m$	750.um	0.57%	tube air gap
L_{wire}	38.0.mm	$+3180\%/m$	500.um	1.59%	wire length
k_{ABS}	$179. \frac{\text{mW}}{\text{K}\cdot\text{m}}$	$+0.224\%/\frac{\text{mW}}{\text{K}\cdot\text{m}}$	$9.0. \frac{\text{mW}}{\text{K}\cdot\text{m}}$	2.01%	ABS thermal conductivity
d	12.0.mm	$+5633\%/m$	100.um	0.56%	disk diameter
ϵ_{ABS}	0.920	-47.3%	0.010	0.47%	ABS emissivity
ϵ_{wt}	0.900	-48.1%	0.025	1.20%	wind-tunnel emissivity
θ	$50.0.m^\circ$	$-2.93\%/^\circ$	$0.20.^\circ$	0.59%	plate angle
				10.72%	combined bias uncertainty
Symbol	Nominal	Sensitivity	Variability	Uncertainty	Component
ω	750.r/min	$+0.051\%/(r/min)$	0.84.r/min	0.04%	fan rotation rate
				10.72%	RSS combined uncertainty



$\theta = 0.0^\circ$; $\psi = 82.3^\circ$; $V = 2.726$ m/s (1000 r/min)

Estimated measurement uncertainties at $Re = 1974$.

Symbol	Nominal	Sensitivity	Bias	Uncertainty	Component
T	306.K	$-0.500\%/K$	0.50.K	0.25%	LM35C temperature sensor
ΔT	25.0.K	$+3.45\%/K$	0.10.K	0.35%	LM35C differential
P	98.9.kPa	$+0.0004\%/Pa$	1.5.kPa	0.67%	MPXH6115A6U air pressure
η	0.340	$+102\%$	0.007	0.69%	anemometer calibration
Re_0	600	-0.010%	60	0.60%	integration lower-bound
D_o	2.81.mm	$-19341\%/m$	500.um	9.67%	tube outer diameter
D_i	1.11.mm	$+24522\%/m$	200.um	4.90%	tube inner diameter
D_g	166.um	$-828\%/m$	750.um	0.62%	tube air gap
L_{wire}	38.0.mm	$+3449\%/m$	500.um	1.72%	wire length
k_{ABS}	179. $\frac{mW}{K \cdot m}$	$+0.227\%/ \frac{mW}{K \cdot m}$	9.0. $\frac{mW}{K \cdot m}$	2.03%	ABS thermal conductivity
d	12.0.mm	$+5762\%/m$	100.um	0.58%	disk diameter
ϵ_{ABS}	0.920	-48.3%	0.010	0.48%	ABS emissivity
ϵ_{wt}	0.900	-49.2%	0.025	1.23%	wind-tunnel emissivity
θ	50.0.m°	$-2.66\%/^\circ$	0.20.°	0.53%	plate angle
				11.35%	combined bias uncertainty
Symbol	Nominal	Sensitivity	Variability	Uncertainty	Component
ω	1000.r/min	$+0.035\%/(r/min)$	2.1.r/min	0.07%	fan rotation rate
				11.36%	RSS combined uncertainty