Key comparison EURAMET.M.FF-K6

MEASURAND : Relative error of a gas flow meter
GAS FLOW RATE : 2 m^3/h to 100 m^3/h
TRANSFER STANDARD : A rotary gas meter (see Section 3 of the Final Report)

x_i : relative error of the transfer standard as obtained by laboratory *i*
$x_i = 100\ [(V_t - V_s)/V_s]$
where V_t and V_s are the volumes indicated by the transfer standard (in m^3) and measured by the national reference standard (in m^3), respectively
U_i : expanded uncertainty ($k = 2$) of the measurement reported by laboratory *i*

	SMU		PTB		LNE-LADG		VSL		CMI		BEV		GUM		MHEH	
Flow	x_i	U_i	x_i	U_i	x_i	U_i	x_i	U_i	x_i	U_i	x_i	U_i	x_i	U_i	x_i	U_i
q (m^3/h)	%		%		%		%		%		%		%		%	
2	**-0.122**	0.120	**-0.082**	0.064	**-**	**-**	**-0.090**	0.094	**-0.080**	0.180	**-0.200**	0.300	**-0.170**	0.170	**0.020**	0.120
4.5	**-0.036**	0.120	**0.039**	0.064	**-**	**-**	**0.070**	0.094	**0.060**	0.180	**-0.020**	0.300	**-0.060**	0.160	**0.150**	0.120
6.6	**0.014**	0.120	**0.089**	0.064	**-**	**-**	**0.110**	0.094	**0.090**	0.190	**0.050**	0.300	**-0.030**	0.190	**0.170**	0.120
9.1	**0.051**	0.120	**0.104**	0.064	**-**	**-**	**0.140**	0.094	**0.150**	0.180	**0.080**	0.300	**0.010**	0.150	**0.260**	0.120
13.1	**0.088**	0.120	**0.122**	0.064	**0.152**	0.250	**0.160**	0.094	**0.190**	0.180	**0.080**	0.300	**0.030**	0.150	**0.300**	0.120
16	**0.107**	0.120	**0.139**	0.064	**0.178**	0.250	**0.180**	0.094	**0.180**	0.180	**0.090**	0.300	**0.040**	0.160	**0.290**	0.120
24	**0.144**	0.120	**0.161**	0.064	**0.195**	0.250	**0.200**	0.094	**0.190**	0.190	**0.120**	0.300	**0.070**	0.160	**0.220**	0.120
32	**0.170**	0.120	**0.154**	0.064	**0.215**	0.250	**0.220**	0.094	**0.210**	0.190	**0.160**	0.160	**0.100**	0.160	**0.210**	0.120
40	**0.191**	0.120	**0.170**	0.064	**0.234**	0.250	**0.230**	0.094	**0.220**	0.180	**0.190**	0.190	**0.120**	0.150	**0.170**	0.120
50	**0.213**	0.120	**0.189**	0.064	**0.241**	0.250	**0.250**	0.094	**0.240**	0.180	**0.220**	0.220	**0.150**	0.160	**0.220**	0.120
60	**0.231**	0.120	**0.209**	0.064	**0.241**	0.250	**0.270**	0.094	**0.270**	0.180	**0.240**	0.240	**0.140**	0.160	**-**	**-**
70	**0.246**	0.120	**0.240**	0.064	**0.255**	0.250	**0.280**	0.094	**0.260**	0.180	**0.260**	0.260	**0.180**	0.160	**-**	**-**
80	**0.258**	0.120	**0.253**	0.064	**0.246**	0.250	**0.290**	0.094	**0.270**	0.180	**0.270**	0.270	**0.190**	0.160	**-**	**-**
90	**0.267**	0.120	**0.253**	0.083	**0.258**	0.250	**0.300**	0.094	**0.280**	0.180	**0.270**	0.270	**0.180**	0.190	**-**	**-**
100	**0.274**	0.120	**0.268**	0.083	**0.256**	0.250	**0.300**	0.094	**0.280**	0.180	**0.270**	0.270	**0.140**	0.150	**-**	**-**

The standard uncertainty of the corrections and stability of the transfer standard is estimated to be equal to 0.031 % and is combined by root-sum-of-squares with the (U_i/2) values (see Section 5.6 of the Final Report). The resulting expanded uncertainty ($k = 2$), U_{iS}, is given in the following tables.

Key comparison EURAMET.M.FF-K6

MEASURAND : Relative error of a gas flow meter
GAS FLOW RATE : 2 m^3/h to 100 m^3/h
TRANSFER STANDARD : A rotary gas meter (see Section 3 of the Final Report)

x_i : relative error of the transfer standard as obtained by laboratory *i*
$x_i = 100\ [(V_t - V_s)/V_s]$
where V_t and V_s are the volumes indicated by the transfer standard (in m^3) and measured by the national reference standard (in m^3), respectively
U_i : expanded uncertainty ($k = 2$) of the measurement reported by laboratory *i*

	METAS		UME		EIM		IMBIH		DMDM		CEM		SP	
Flow	x_i	U_i	x_i	U_i	x_i	U_i	x_i	U_i	x_i	U_i	x_i	U_i	x_i	U_i
q (m^3/h)	%		%		%		%		%		%		%	
2	**-0.064**	0.170	**0.080**	0.200	**-**	**-**	**0.036**	0.300	**-0.630**	0.320	**-**	**-**	**-0.310**	1.130
4.5	**0.064**	0.170	**0.050**	0.200	**-**	**-**	**0.265**	0.280	**-0.270**	0.310	**-**	**-**	**0.230**	1.100
6.6	**0.113**	0.170	**0.030**	0.200	**-0.130**	0.630	**0.383**	0.280	**-0.150**	0.290	**0.260**	0.270	**0.200**	1.090
9.1	**0.088**	0.170	**0.050**	0.200	**0.080**	0.310	**0.372**	0.280	**-**	**-**	**0.340**	0.270	**0.020**	1.080
13.1	**0.062**	0.170	**0.040**	0.200	**0.270**	0.230	**0.427**	0.280	**0.000**	0.310	**0.330**	0.270	**0.060**	1.050
16	**0.117**	0.170	**0.040**	0.200	**0.290**	0.200	**0.424**	0.280	**0.040**	0.290	**0.340**	0.270	**-0.050**	1.060
24	**0.155**	0.170	**0.030**	0.200	**0.210**	0.230	**0.327**	0.280	**0.080**	0.290	**0.170**	0.270	**-0.480**	0.990
32	**0.145**	0.170	**0.020**	0.200	**0.120**	0.180	**0.556**	0.280	**0.030**	0.290	**0.180**	0.270	**-0.530**	0.960
40	**0.194**	0.170	**0.070**	0.200	**0.180**	0.410	**0.648**	0.280	**0.130**	0.290	**0.230**	0.270	**-0.500**	1.010
50	**0.247**	0.170	**0.060**	0.200	**-**	**-**	**0.380**	0.280	**-0.150**	0.390	**0.240**	0.270	**-0.410**	0.960
60	**0.254**	0.170	**0.040**	0.200	**-**	**-**	**0.474**	0.280	**-0.130**	0.390	**0.260**	0.270	**-0.360**	1.000
70	**0.252**	0.180	**0.160**	0.200	**-**	**-**	**0.570**	0.280	**-0.210**	0.390	**0.350**	0.270	**-0.370**	0.980
80	**0.262**	0.180	**0.240**	0.200	**-**	**-**	**0.660**	0.280	**0.120**	0.300	**0.350**	0.270	**-0.300**	0.960
90	**0.275**	0.170	**0.200**	0.200	**-**	**-**	**0.700**	0.280	**0.130**	0.300	**0.350**	0.270	**-0.210**	0.950
100	**0.277**	0.170	**0.300**	0.200	**-**	**-**	**0.760**	0.280	**0.050**	0.310	**0.310**	0.230	**-0.200**	0.950

The standard uncertainty of the corrections and stability of the transfer standard is estimated to be equal to 0.031 % and is combined by root-sum-of-squares with the $(U_i/2)$ values (see Section 5.6 of the Final Report). The resulting expanded uncertainty ($k = 2$), U_{is}, is given in the following tables.

Key comparison EURAMET.M.FF-K6

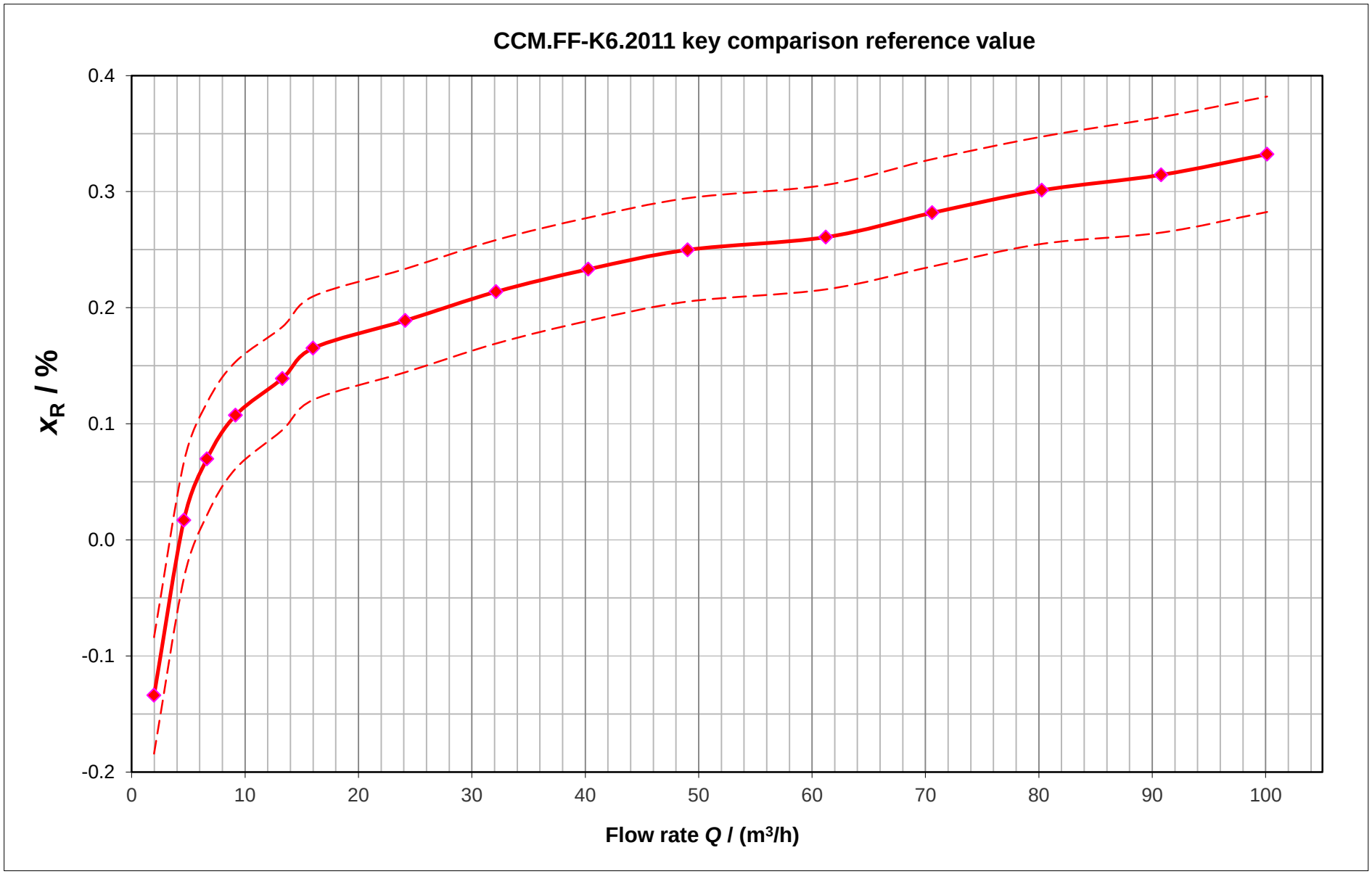
MEASURAND : Relative error of a gas flow meter
GAS FLOW RATE : 2 m^3/h to 100 m^3/h
TRANSFER STANDARD : A rotary gas meter (see Section 3 of the Final Report)

The results of EURAMET.M.FF-K6 are linked to those of CCM.FF-K6.2011 through the common participation of SMU, PTB and LNE-LADG in both key comparisons (see Section 6 of the EURAMET.M.FF-K6 Final Report). The computation of the CCM.FF-K6.2011 key comparison reference value, x_R, and of its standard uncertainty, u_R, is explained in Section 6 of the CCM.FF-K6.2011 Final Report.

Flow rate l (m^3/h)	x_R / %	u_R / %
2	-0.134	0.025
4.5	0.017	0.025
6.6	0.070	0.024
9.1	0.107	0.023
13.1	0.139	0.022
16	0.165	0.022
24	0.189	0.022
32	0.214	0.022
40	0.233	0.022
50	0.250	0.022
60	0.261	0.022
70	0.282	0.023
80	0.301	0.023
90	0.314	0.025
100	0.332	0.025

The degree of equivalence of laboratory i with respect to the CCM.FF-K6.2011 key comparison reference value is given by a pair of terms: D_i and its expanded uncertainty (k = 2) computed as explained in Section 6 of the EURAMET.M.FF-K6 Final Report. The normalized degrees of equivalence En_i are also computed according to equation 17 on page 16 of the same Final Report.

No pair-wise degrees of equivalence are computed for this key comparison.



The two red dash curves correspond to ($x_R + U_R$) and ($x_R - U_R$), where U_R is the expanded uncertainty ($k = 2$) of x_R

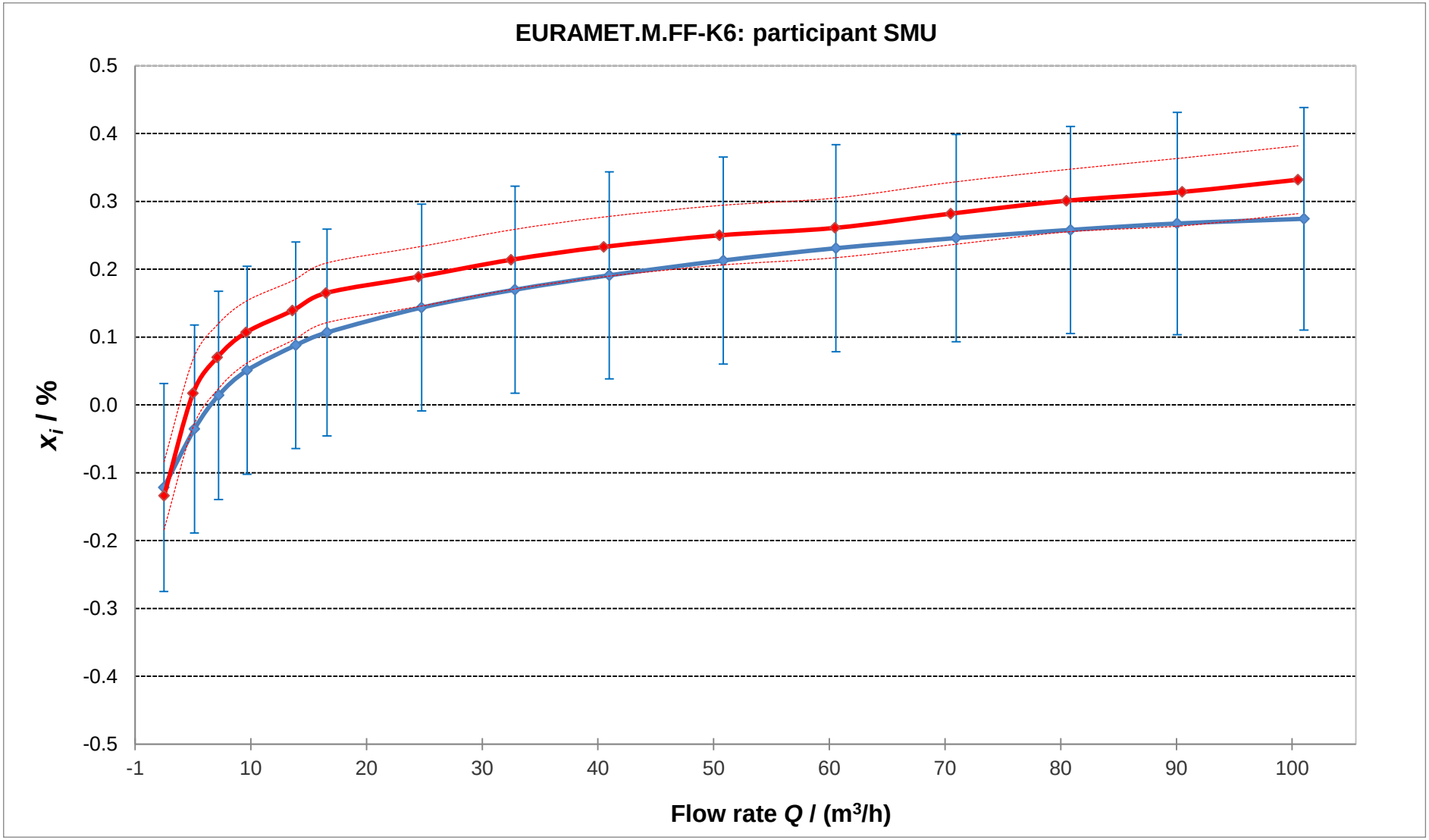
Key comparison EURAMET.M.FF-K6

MEASURAND : Relative error of a gas flow meter
GAS FLOW RATE : 2 m^3/h to 100 m^3/h
TRANSFER STANDARD : A rotary gas meter (see Section 3 of the Final Report)

In the following, equivalence is demonstrated by providing the D_i and En_i values for one participating laboratory all over the range of flow rates. The curve of the key comparison reference value is added on the graphs showing the values x_i and U_{is} obtained by each participant.

Participant: SMU (Slovakia)

Flow rate l (m^3/h)	x_i / %	U_i / %	U_{is} / %	D_i / %	En_i
1.983	**-0.122**	0.120	**0.153**	**-0.025**	0.156
4.629	**-0.036**	0.120	**0.153**	**0.000**	0.001
6.713	**0.014**	0.120	**0.153**	**-0.011**	0.070
9.180	**0.051**	0.120	**0.153**	**-0.017**	0.102
13.388	**0.088**	0.120	**0.152**	**-0.018**	0.108
16.087	**0.107**	0.120	**0.152**	**-0.036**	0.220
24.261	**0.144**	0.120	**0.152**	**-0.031**	0.189
32.335	**0.170**	0.120	**0.153**	**-0.011**	0.069
40.485	**0.191**	0.120	**0.153**	**-0.001**	0.005
50.338	**0.213**	0.120	**0.153**	**0.001**	0.008
60.070	**0.231**	0.120	**0.153**	**0.006**	0.040
70.466	**0.246**	0.120	**0.153**	**-0.005**	0.031
80.347	**0.258**	0.120	**0.153**	**0.002**	0.013
89.572	**0.267**	0.120	**0.164**	**0.013**	0.071
100.521	**0.274**	0.120	**0.164**	**0.022**	0.119



The solid blue curve represents the participant's results, x_i, with expanded uncertainty bars ($k = 2$), U_{iS}

The solid red curve represents the key comparison reference value

The two red dash curves correspond to ($x_R + U_R$) and ($x_R - U_R$), where U_R is the expanded uncertainty ($k = 2$) of x_R

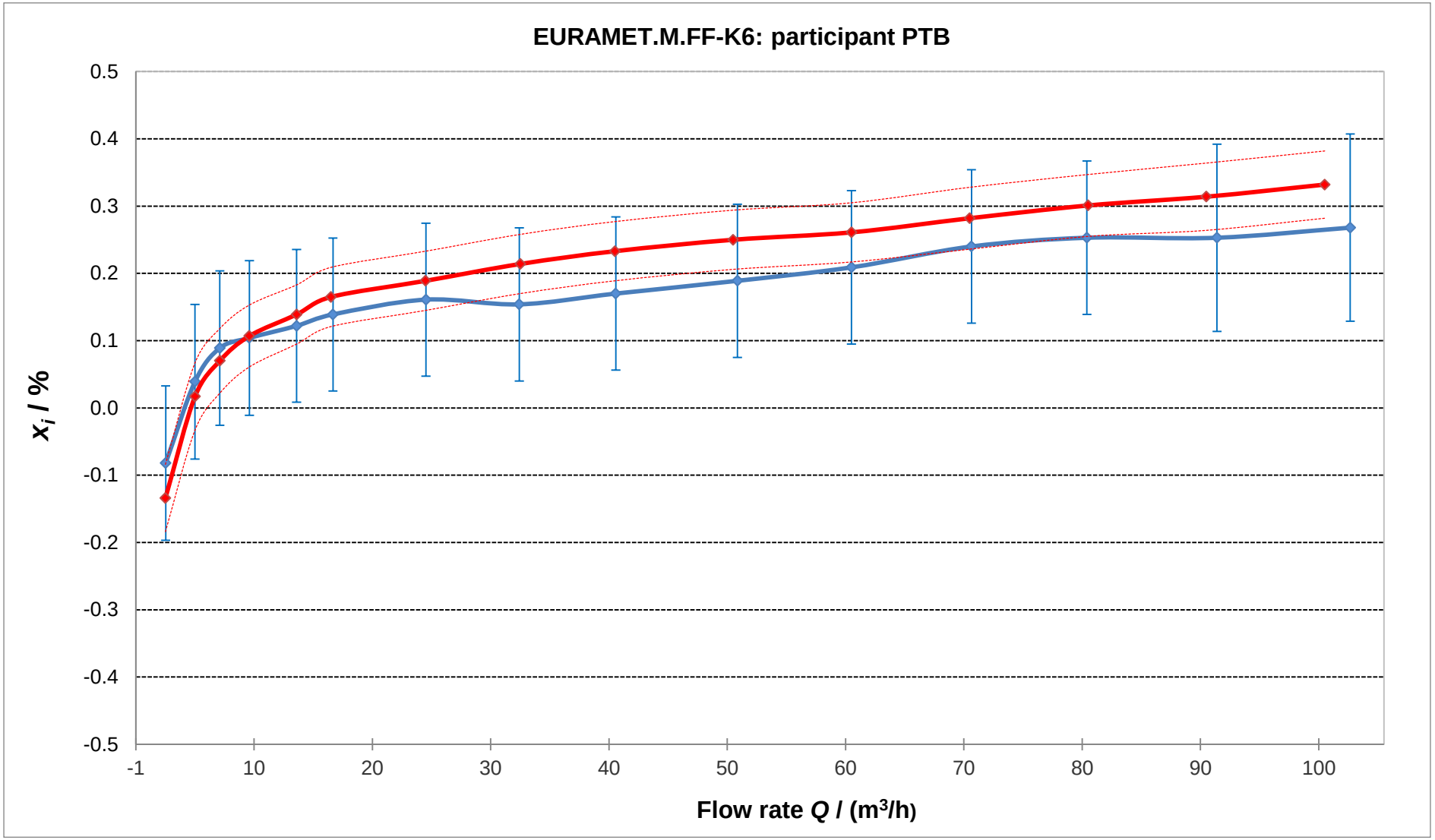
Key comparison EURAMET.M.FF-K6

MEASURAND : Relative error of a gas flow meter
GAS FLOW RATE : 2 m^3/h to 100 m^3/h
TRANSFER STANDARD : A rotary gas meter (see Section 3 of the Final Report)

In the following, equivalence is demonstrated by providing the D_i and En_i values for one participating laboratory all over the range of flow rates. The curve of the key comparison reference value is added on the graphs showing the values x_i and U_{is} obtained by each participant.

Participant: PTB (Germany)

Flow rate l (m^3/h)	x_i / %	U_i / %	U_{is} / %	D_i / %	En_i
2.023	**-0.082**	0.064	**0.115**	**0.014**	0.112
4.497	**0.039**	0.064	**0.115**	**0.074**	0.589
6.603	**0.089**	0.064	**0.115**	**0.063**	0.499
9.098	**0.104**	0.064	**0.115**	**0.036**	0.284
13.090	**0.122**	0.064	**0.114**	**0.016**	0.130
16.164	**0.139**	0.064	**0.114**	**-0.003**	0.027
24.024	**0.161**	0.064	**0.114**	**-0.013**	0.104
31.915	**0.154**	0.064	**0.114**	**-0.027**	0.214
40.074	**0.170**	0.064	**0.114**	**-0.022**	0.173
50.358	**0.189**	0.064	**0.114**	**-0.023**	0.179
59.996	**0.209**	0.064	**0.114**	**-0.016**	0.123
70.139	**0.240**	0.064	**0.114**	**-0.011**	0.087
79.901	**0.253**	0.064	**0.114**	**-0.003**	0.023
90.897	**0.253**	0.083	**0.139**	**-0.002**	0.010
102.158	**0.268**	0.083	**0.139**	**0.015**	0.095



The solid blue curve represents the participant's results, x_i, with expanded uncertainty bars ($k = 2$), U_{is}

The solid red curve represents the key comparison reference value

The two red dash curves correspond to ($x_R + U_R$) and ($x_R - U_R$), where U_R is the expanded uncertainty ($k = 2$) of x_R

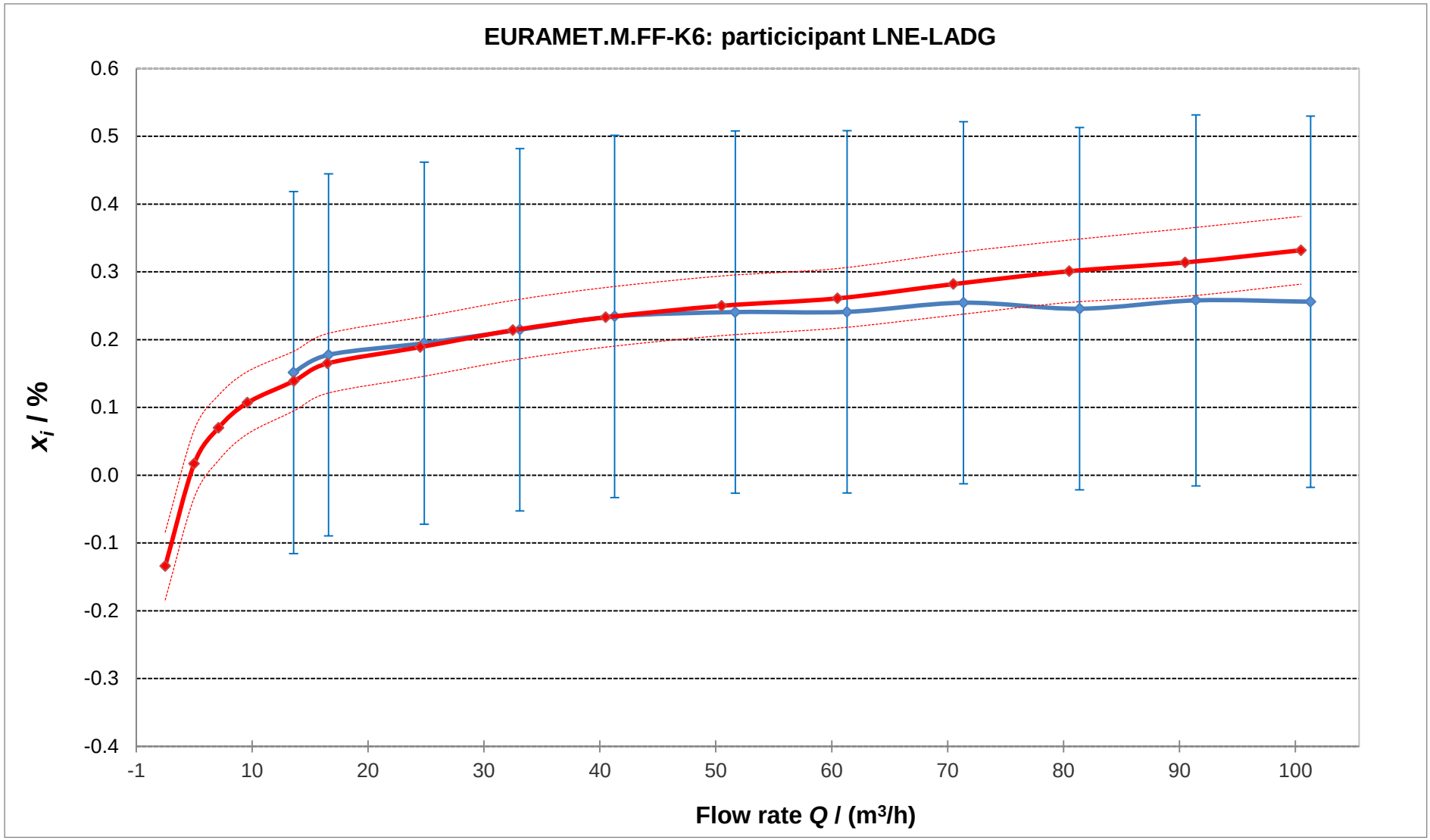
Key comparison EURAMET.M.FF-K6

MEASURAND : Relative error of a gas flow meter
GAS FLOW RATE : 2 m^3/h to 100 m^3/h
TRANSFER STANDARD : A rotary gas meter (see Section 3 of the Final Report)

In the following, equivalence is demonstrated by providing the D_i and En_i values for one participating laboratory all over the range of flow rates. The curve of the key comparison reference value is added on the graphs showing the values x_i and U_{is} obtained by each participant.

Participant: LNE-LADG (France)

Flow rate l (m^3/h)	x_i / %	U_i / %	U_{is} / %	D_i / %	En_i
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
13.073	**0.152**	0.250	**0.267**	**0.046**	0.169
16.092	**0.178**	0.250	**0.267**	**0.035**	0.129
24.347	**0.195**	0.250	**0.267**	**0.021**	0.076
32.598	**0.215**	0.250	**0.267**	**0.034**	0.123
40.778	**0.234**	0.250	**0.267**	**0.042**	0.156
51.181	**0.241**	0.250	**0.267**	**0.029**	0.106
60.825	**0.241**	0.250	**0.267**	**0.016**	0.060
70.872	**0.255**	0.250	**0.267**	**0.004**	0.013
80.886	**0.246**	0.250	**0.267**	**-0.010**	0.038
90.919	**0.258**	0.250	**0.274**	**0.003**	0.012
100.809	**0.256**	0.250	**0.274**	**0.003**	0.011



The solid blue curve represents the participant's results, x_i, with expanded uncertainty bars ($k = 2$), U_{is}

The solid red curve represents the key comparison reference value

The two red dash curves correspond to ($x_R + U_R$) and ($x_R - U_R$), where U_R is the expanded uncertainty ($k = 2$) of x_R

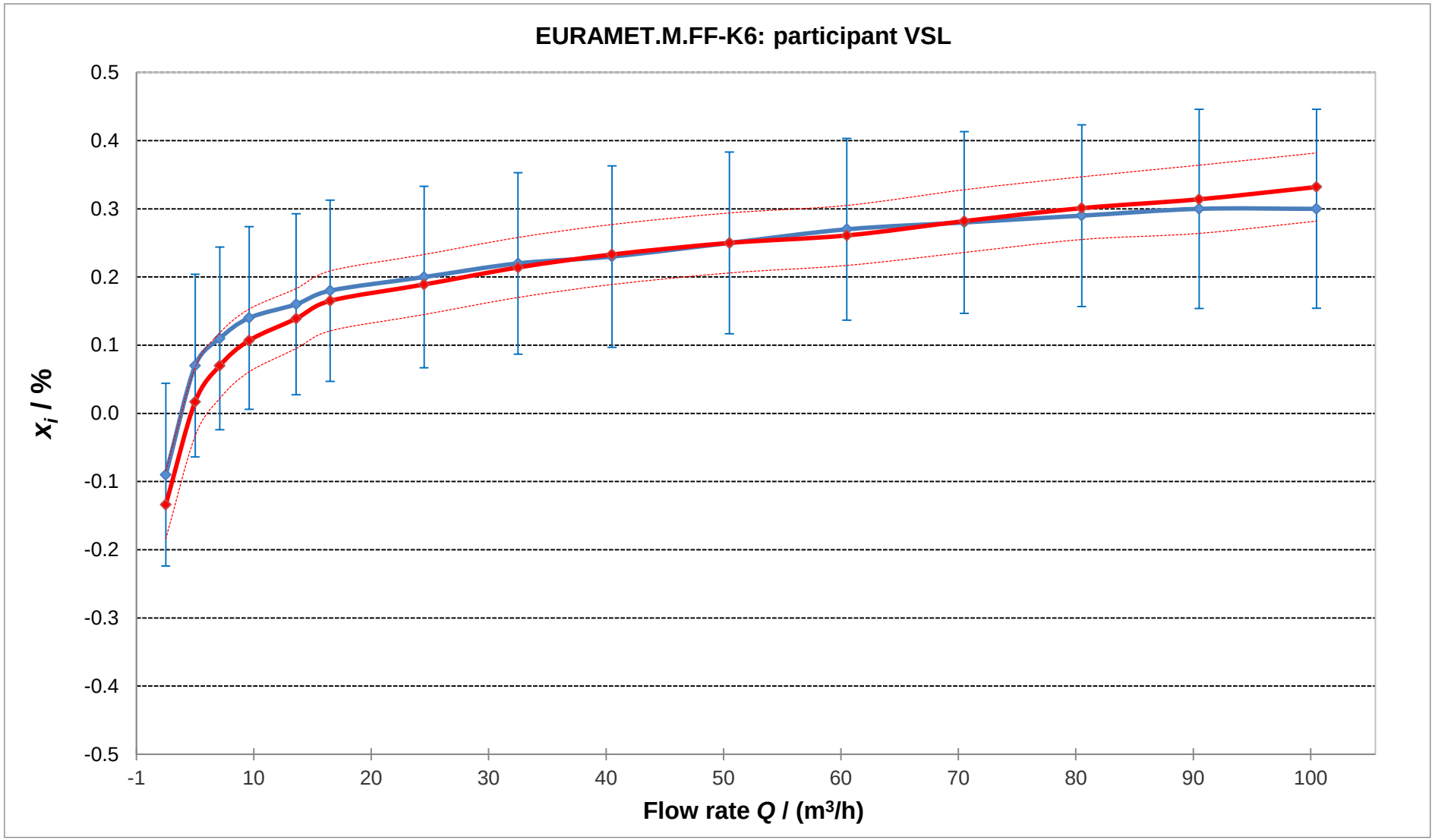
Key comparison EURAMET.M.FF-K6

MEASURAND : Relative error of a gas flow meter
GAS FLOW RATE : 2 m^3/h to 100 m^3/h
TRANSFER STANDARD : A rotary gas meter (see Section 3 of the Final Report)

In the following, equivalence is demonstrated by providing the D_i and En_i values for one participating laboratory all over the range of flow rates. The curve of the key comparison reference value is added on the graphs showing the values x_i and U_{is} obtained by each participant.

Participant: VSL (The Netherlands)

Flow rate l (m^3/h)	x_i / %	U_i / %	U_{is} / %	D_i / %	En_i
2.000	**-0.090**	0.094	**0.134**	**0.006**	0.039
4.500	**0.070**	0.094	**0.134**	**0.105**	0.657
6.600	**0.110**	0.094	**0.134**	**0.084**	0.529
9.100	**0.140**	0.094	**0.134**	**0.072**	0.454
13.100	**0.160**	0.094	**0.133**	**0.054**	0.348
16.000	**0.180**	0.094	**0.133**	**0.038**	0.240
24.000	**0.200**	0.094	**0.133**	**0.026**	0.165
32.000	**0.220**	0.094	**0.133**	**0.039**	0.248
40.000	**0.230**	0.094	**0.133**	**0.038**	0.243
50.000	**0.250**	0.094	**0.133**	**0.038**	0.243
60.000	**0.270**	0.094	**0.133**	**0.045**	0.289
70.000	**0.280**	0.094	**0.133**	**0.029**	0.184
80.000	**0.290**	0.094	**0.133**	**0.034**	0.216
90.000	**0.300**	0.094	**0.146**	**0.045**	0.252
100.000	**0.300**	0.094	**0.146**	**0.047**	0.262



The solid blue curve represents the participant's results, x_i, with expanded uncertainty bars ($k = 2$), $U_{i\,S}$

The solid red curve represents the key comparison reference value

The two red dash curves correspond to ($x_R + U_R$) and ($x_R - U_R$), where U_R is the expanded uncertainty ($k = 2$) of x_R

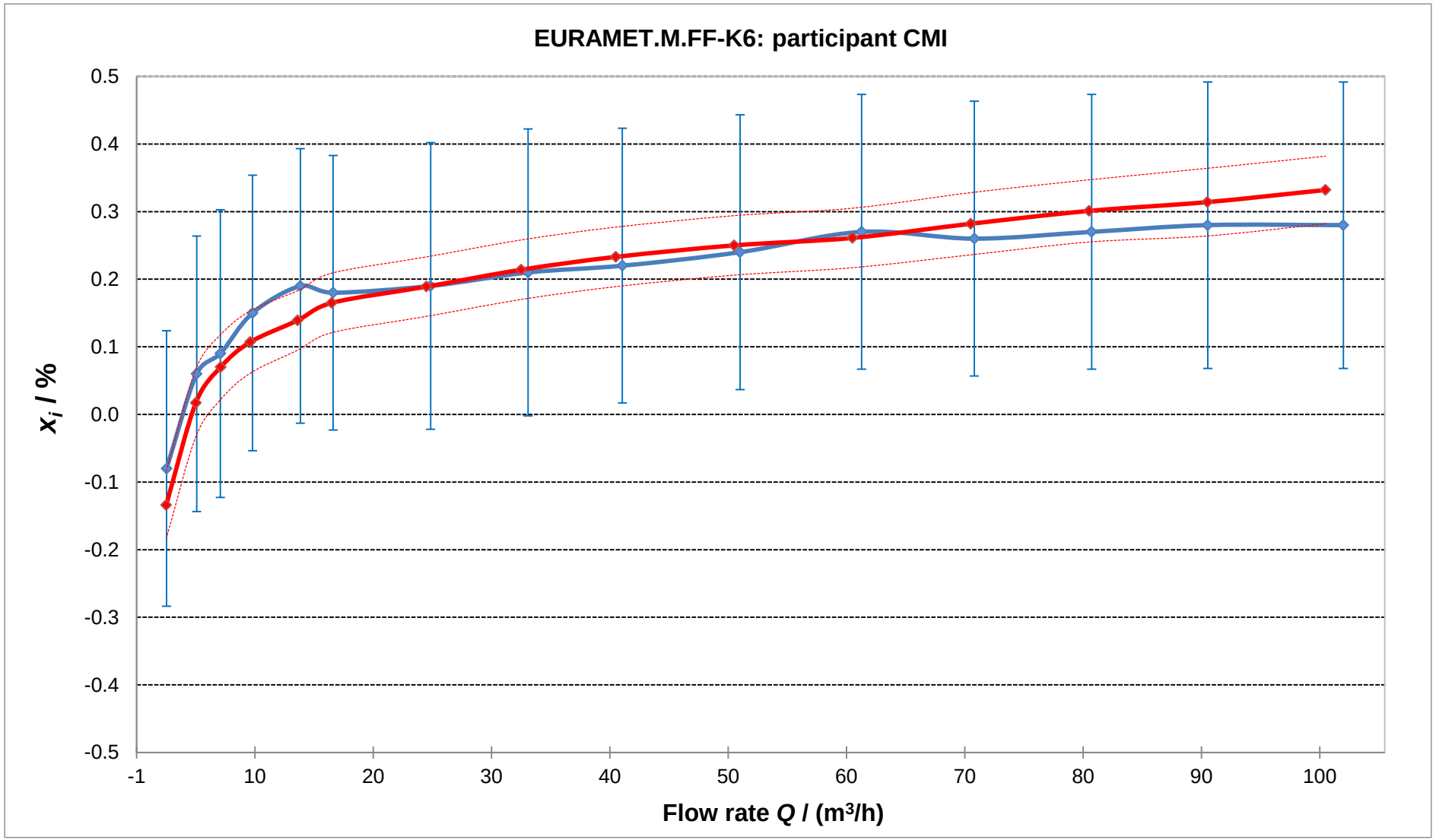
Key comparison EURAMET.M.FF-K6

MEASURAND : Relative error of a gas flow meter
GAS FLOW RATE : 2 m^3/h to 100 m^3/h
TRANSFER STANDARD : A rotary gas meter (see Section 3 of the Final Report)

In the following, equivalence is demonstrated by providing the D_i and En_i values for one participating laboratory all over the range of flow rates. The curve of the key comparison reference value is added on the graphs showing the values x_i and U_{is} obtained by each participant.

Participant: CMI (Czech Republic)

Flow rate l (m^3/h)	x_i / %	U_i / %	U_{is} / %	D_i / %	En_i
2.030	**-0.080**	0.180	**0.204**	**0.016**	0.073
4.570	**0.060**	0.180	**0.204**	**0.095**	0.430
6.580	**0.090**	0.190	**0.213**	**0.064**	0.281
9.300	**0.150**	0.180	**0.204**	**0.082**	0.372
13.340	**0.190**	0.180	**0.203**	**0.084**	0.385
16.110	**0.180**	0.180	**0.203**	**0.038**	0.171
24.350	**0.190**	0.190	**0.212**	**0.016**	0.069
32.590	**0.210**	0.190	**0.212**	**0.029**	0.127
40.560	**0.220**	0.180	**0.203**	**0.028**	0.128
50.510	**0.240**	0.180	**0.203**	**0.028**	0.129
60.780	**0.270**	0.180	**0.203**	**0.045**	0.207
70.310	**0.260**	0.180	**0.203**	**0.009**	0.041
80.220	**0.270**	0.180	**0.203**	**0.014**	0.064
90.040	**0.280**	0.180	**0.212**	**0.025**	0.107
101.500	**0.280**	0.180	**0.212**	**0.027**	0.115



The solid blue curve represents the participant's results, x_i, with expanded uncertainty bars ($k = 2$), U_{iS}

The solid red curve represents the key comparison reference value

The two red dash curves correspond to ($x_R + U_R$) and ($x_R - U_R$), where U_R is the expanded uncertainty ($k = 2$) of x_R

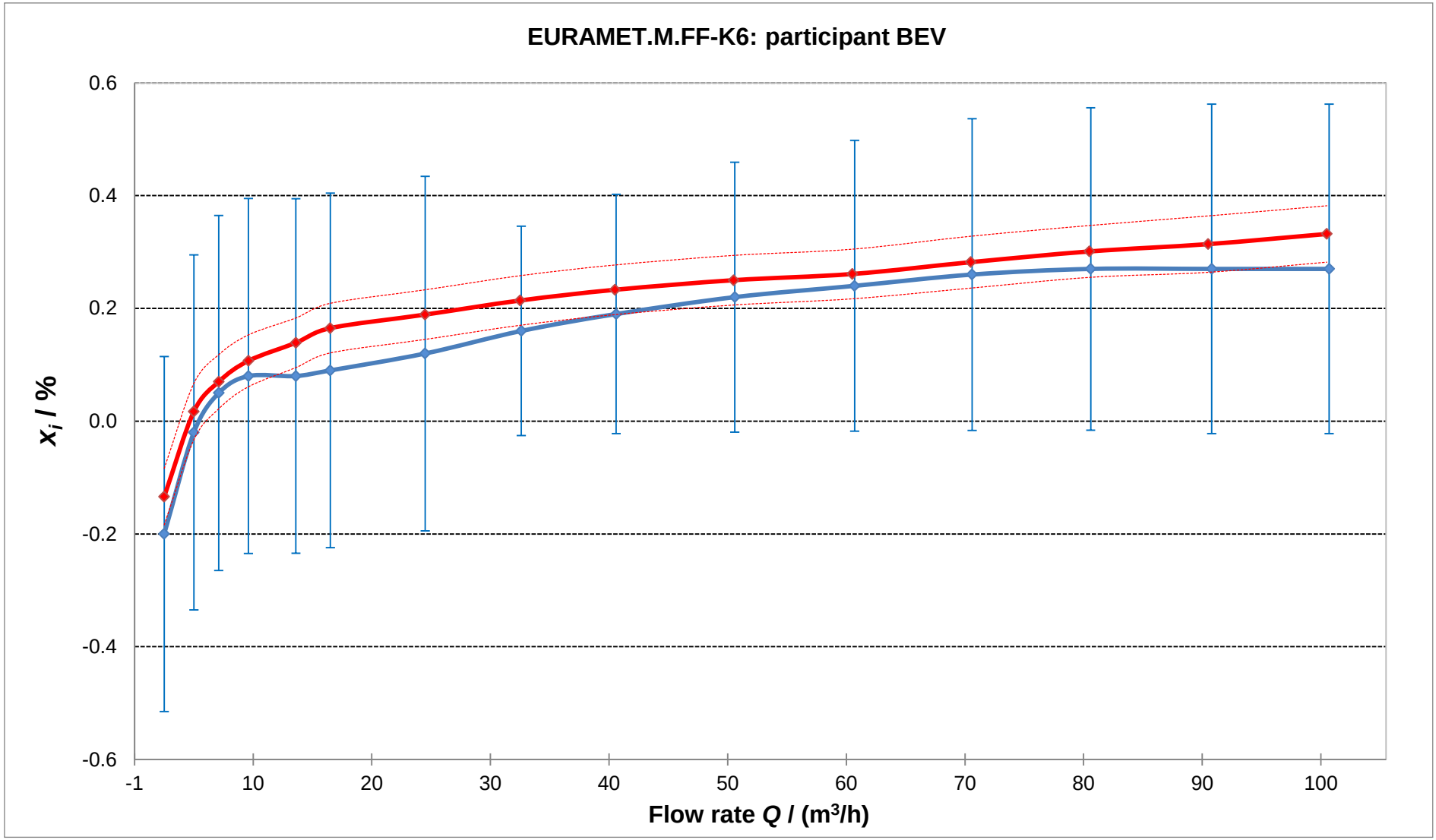
Key comparison EURAMET.M.FF-K6

MEASURAND : Relative error of a gas flow meter
GAS FLOW RATE : 2 m^3/h to 100 m^3/h
TRANSFER STANDARD : A rotary gas meter (see Section 3 of the Final Report)

In the following, equivalence is demonstrated by providing the D_i and En_i values for one participating laboratory all over the range of flow rates. The curve of the key comparison reference value is added on the graphs showing the values x_i and U_{is} obtained by each participant.

Participant: BEV (Austria)

Flow rate l (m^3/h)	x_i / %	U_i / %	U_{is} / %	D_i / %	En_i
2.000	**-0.200**	0.300	**0.315**	**-0.104**	0.318
4.500	**-0.020**	0.300	**0.315**	**0.015**	0.047
6.600	**0.050**	0.300	**0.315**	**0.024**	0.075
9.100	**0.080**	0.300	**0.315**	**0.012**	0.038
13.100	**0.080**	0.300	**0.314**	**-0.026**	0.079
16.000	**0.090**	0.300	**0.314**	**-0.052**	0.161
24.000	**0.120**	0.300	**0.314**	**-0.054**	0.167
32.100	**0.160**	0.160	**0.186**	**-0.021**	0.103
40.100	**0.190**	0.190	**0.212**	**-0.002**	0.008
50.100	**0.220**	0.220	**0.239**	**0.008**	0.033
60.200	**0.240**	0.240	**0.258**	**0.015**	0.057
70.100	**0.260**	0.260	**0.277**	**0.009**	0.031
80.100	**0.270**	0.270	**0.286**	**0.014**	0.047
90.300	**0.270**	0.270	**0.292**	**0.015**	0.050
100.200	**0.270**	0.270	**0.292**	**0.017**	0.055



The solid blue curve represents the participant's results, x_i, with expanded uncertainty bars ($k = 2$), U_{is}

The solid red curve represents the key comparison reference value

The two red dash curves correspond to ($x_R + U_R$) and ($x_R - U_R$), where U_R is the expanded uncertainty ($k = 2$) of x_R

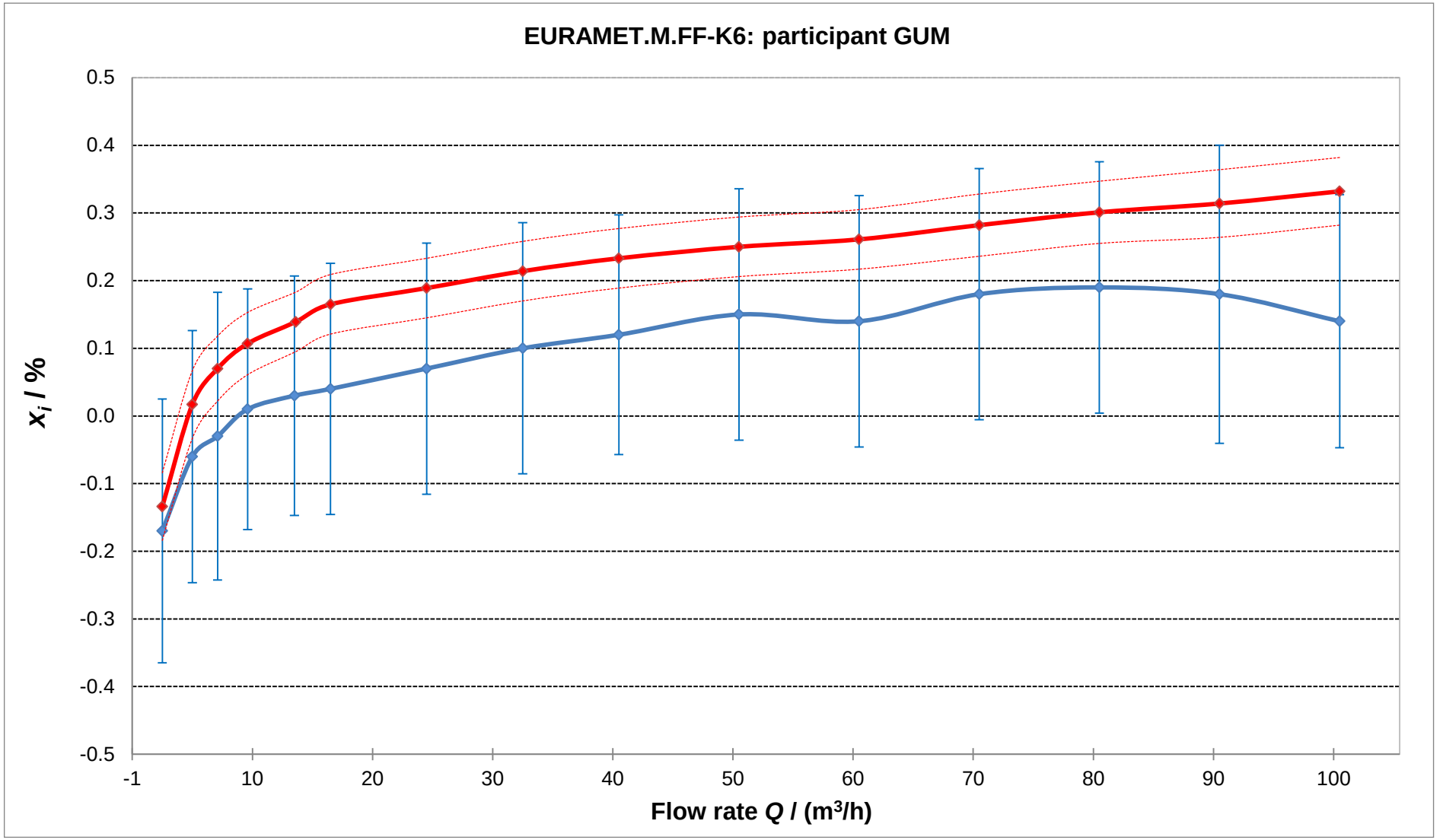
Key comparison EURAMET.M.FF-K6

MEASURAND : Relative error of a gas flow meter
GAS FLOW RATE : 2 m^3/h to 100 m^3/h
TRANSFER STANDARD : A rotary gas meter (see Section 3 of the Final Report)

In the following, equivalence is demonstrated by providing the D_i and En_i values for one participating laboratory all over the range of flow rates. The curve of the key comparison reference value is added on the graphs showing the values x_i and U_{is} obtained by each participant.

Participant: GUM (Poland)

Flow rate l (m^3/h)	x_i / %	U_i / %	U_{is} / %	D_i / %	En_i
2.000	**-0.170**	0.170	**0.195**	**-0.074**	0.345
4.500	**-0.060**	0.160	**0.186**	**-0.025**	0.119
6.600	**-0.030**	0.190	**0.213**	**-0.056**	0.242
9.100	**0.010**	0.150	**0.178**	**-0.058**	0.292
13.000	**0.030**	0.150	**0.177**	**-0.076**	0.387
16.000	**0.040**	0.160	**0.186**	**-0.102**	0.504
24.000	**0.070**	0.160	**0.186**	**-0.104**	0.512
32.000	**0.100**	0.160	**0.186**	**-0.081**	0.398
40.000	**0.120**	0.150	**0.177**	**-0.072**	0.367
50.000	**0.150**	0.160	**0.186**	**-0.062**	0.303
60.000	**0.140**	0.160	**0.186**	**-0.085**	0.415
70.000	**0.180**	0.160	**0.186**	**-0.071**	0.348
80.000	**0.190**	0.160	**0.186**	**-0.066**	0.323
90.000	**0.180**	0.190	**0.220**	**-0.075**	0.305
100.000	**0.140**	0.150	**0.187**	**-0.113**	0.525



The solid blue curve represents the participant's results, x_i, with expanded uncertainty bars ($k = 2$), U_{is}

The solid red curve represents the key comparison reference value

The two red dash curves correspond to ($x_R + U_R$) and ($x_R - U_R$), where U_R is the expanded uncertainty ($k = 2$) of x_R

Key comparison EURAMET.M.FF-K6

MEASURAND : Relative error of a gas flow meter
GAS FLOW RATE : 2 m^3/h to 100 m^3/h
TRANSFER STANDARD : A rotary gas meter (see Section 3 of the Final Report)

In the following, equivalence is demonstrated by providing the D_i and En_i values for one participating laboratory all over the range of flow rates. The curve of the key comparison reference value is added on the graphs showing the values x_i and U_{is} obtained by each participant.

Participant: MKEH (Hungary)

Flow rate l (m^3/h)	x_i / %	U_i / %	U_{is} / %	D_i / %	En_i
2.000	**0.020**	0.120	**0.153**	**0.116**	0.657
4.500	**0.150**	0.120	**0.153**	**0.185**	1.048
6.600	**0.170**	0.120	**0.153**	**0.144**	0.819
9.100	**0.260**	0.120	**0.153**	**0.192**	1.094
13.100	**0.300**	0.120	**0.152**	**0.194**	1.121
16.000	**0.290**	0.120	**0.152**	**0.148**	0.850
24.000	**0.220**	0.120	**0.152**	**0.046**	0.264
32.000	**0.210**	0.120	**0.153**	**0.029**	0.167
40.000	**0.170**	0.120	**0.153**	**-0.022**	0.126
50.000	**0.220**	0.120	**0.153**	**0.008**	0.047
-	**-**	-	**-**	**-**	-
-	**-**	-	**-**	**-**	-
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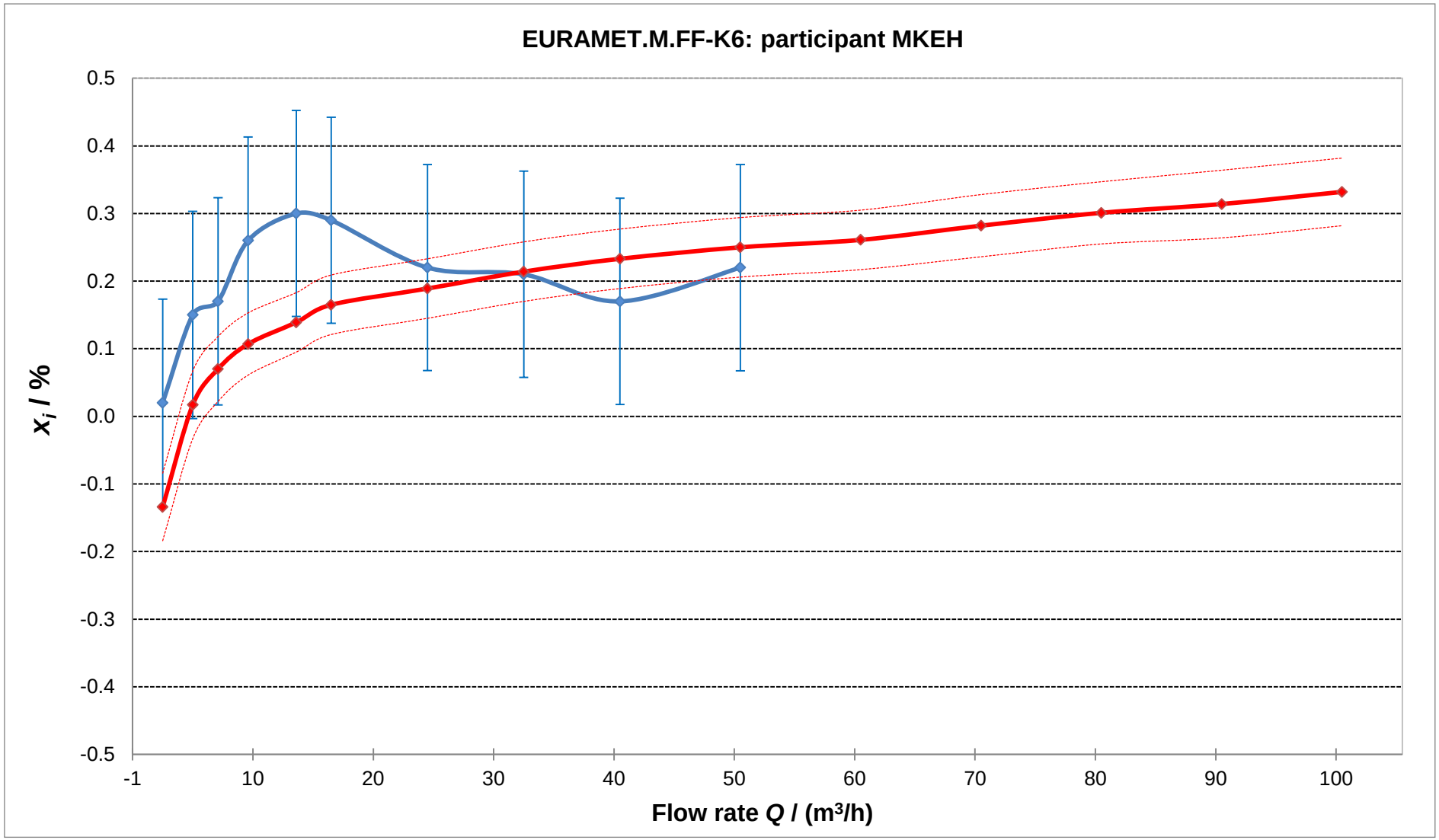


The solid blue curve represents the participant's results, x_i, with expanded uncertainty bars ($k = 2$), U_{iS}

The solid red curve represents the key comparison reference value

The two red dash curves correspond to ($x_R + U_R$) and ($x_R - U_R$), where U_R is the expanded uncertainty ($k = 2$) of x_R

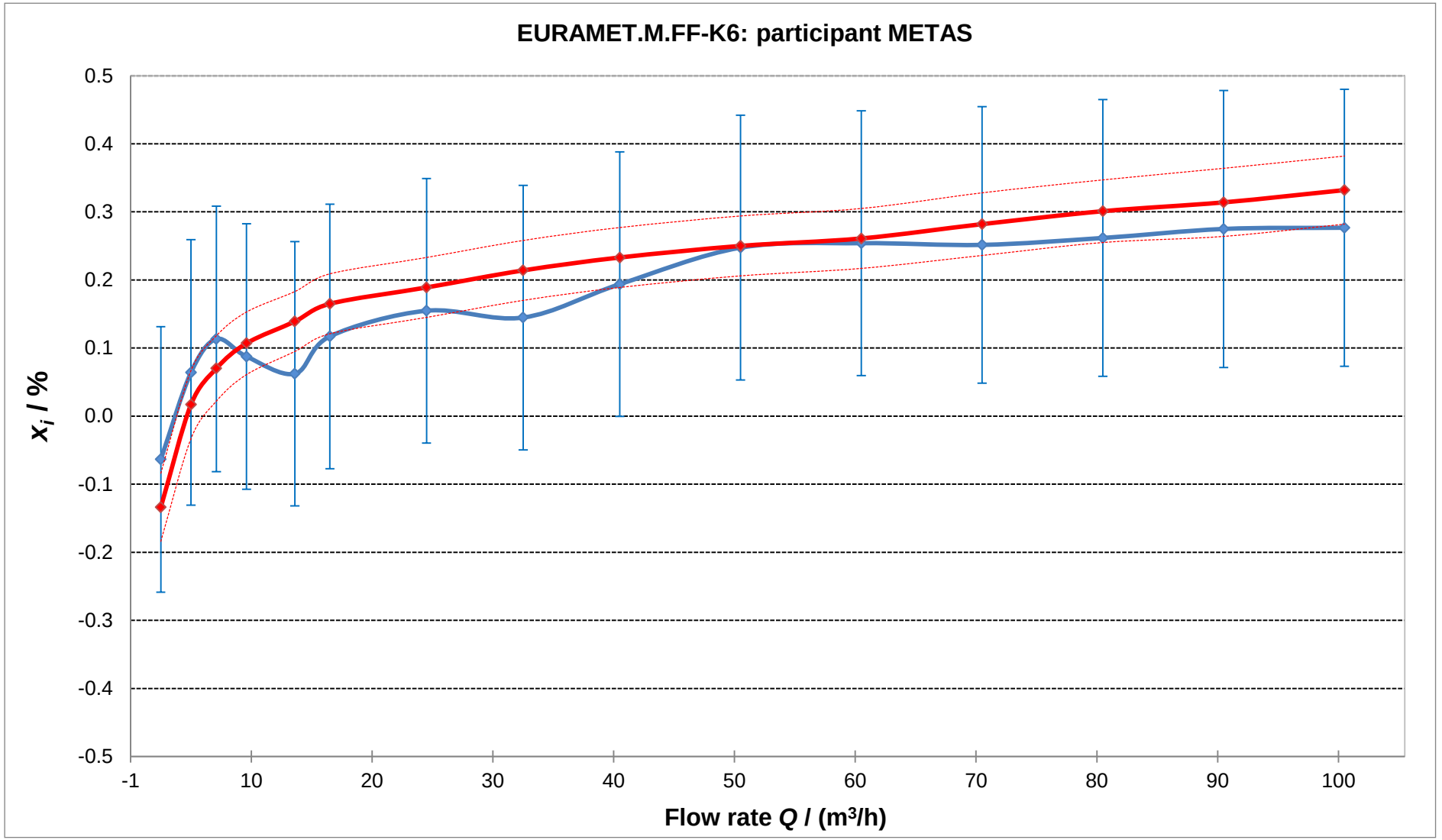
Key comparison EURAMET.M.FF-K6

MEASURAND : Relative error of a gas flow meter
GAS FLOW RATE : 2 m^3/h to 100 m^3/h
TRANSFER STANDARD : A rotary gas meter (see Section 3 of the Final Report)

In the following, equivalence is demonstrated by providing the D_i and En_i values for one participating laboratory all over the range of flow rates. The curve of the key comparison reference value is added on the graphs showing the values x_i and U_{is} obtained by each participant.

Participant: METAS (Switzerland)

Flow rate l (m^3/h)	x_i / %	U_i / %	U_{is} / %	D_i / %	En_i
2.000	**-0.064**	0.170	**0.195**	**0.033**	0.152
4.500	**0.064**	0.170	**0.195**	**0.100**	0.465
6.600	**0.113**	0.170	**0.195**	**0.088**	0.411
9.100	**0.088**	0.170	**0.195**	**0.020**	0.093
13.100	**0.062**	0.170	**0.194**	**-0.043**	0.205
16.000	**0.117**	0.170	**0.194**	**-0.025**	0.120
24.000	**0.155**	0.170	**0.194**	**-0.019**	0.091
32.000	**0.145**	0.170	**0.194**	**-0.036**	0.171
40.000	**0.194**	0.170	**0.194**	**0.002**	0.009
50.000	**0.247**	0.170	**0.194**	**0.036**	0.169
60.000	**0.254**	0.170	**0.194**	**0.029**	0.139
70.000	**0.252**	0.180	**0.203**	**0.001**	0.002
80.000	**0.262**	0.180	**0.203**	**0.006**	0.026
90.000	**0.275**	0.170	**0.203**	**0.020**	0.089
100.000	**0.277**	0.170	**0.203**	**0.024**	0.104



The solid blue curve represents the participant's results, x_i, with expanded uncertainty bars ($k = 2$), U_{is}

The solid red curve represents the key comparison reference value

The two red dash curves correspond to ($x_R + U_R$) and ($x_R - U_R$), where U_R is the expanded uncertainty ($k = 2$) of x_R

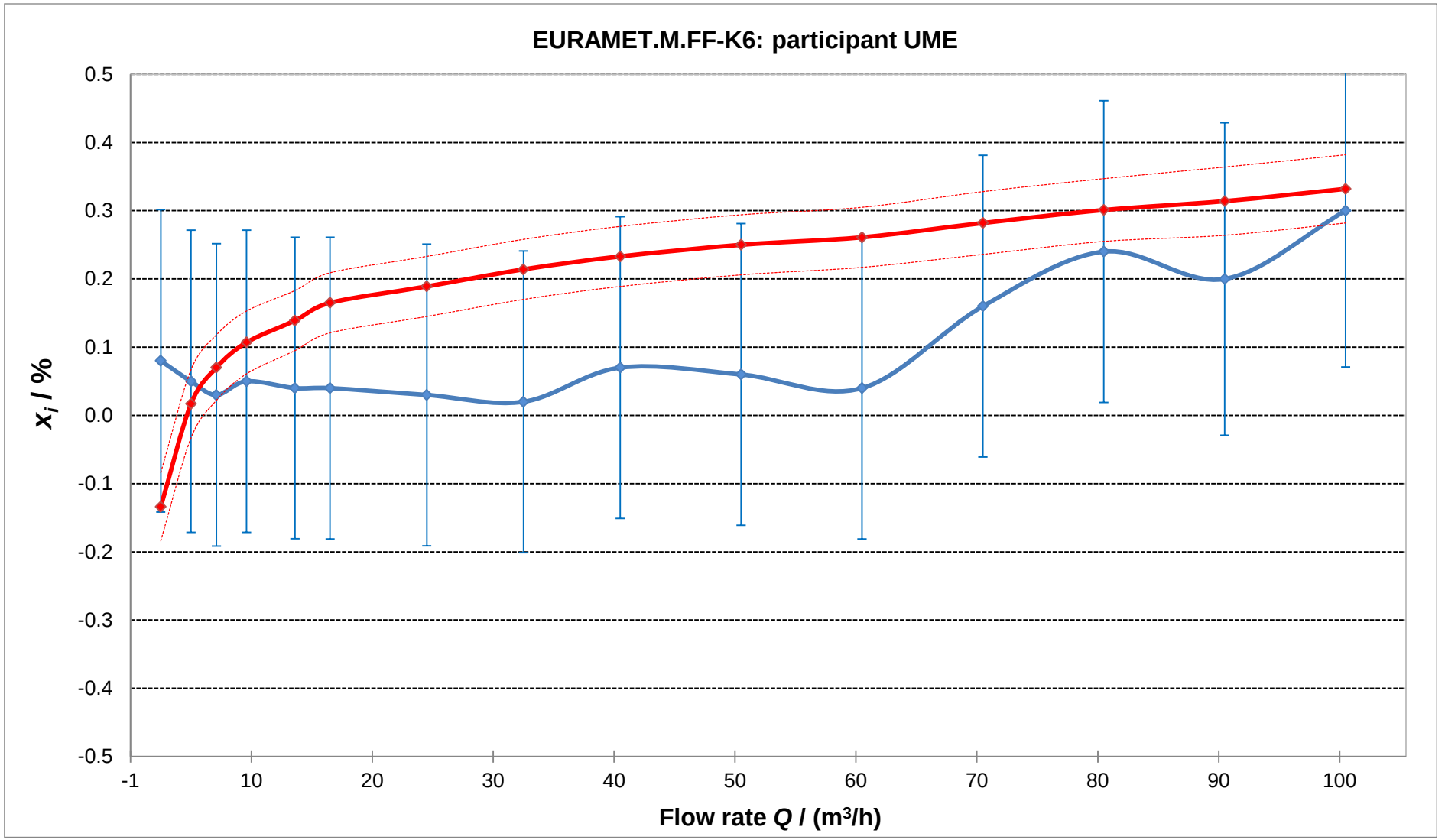
Key comparison EURAMET.M.FF-K6

MEASURAND : Relative error of a gas flow meter
GAS FLOW RATE : 2 m^3/h to 100 m^3/h
TRANSFER STANDARD : A rotary gas meter (see Section 3 of the Final Report)

In the following, equivalence is demonstrated by providing the D_i and En_i values for one participating laboratory all over the range of flow rates. The curve of the key comparison reference value is added on the graphs showing the values x_i and U_{is} obtained by each participant.

Participant: UME (Turkey)

Flow rate l (m^3/h)	x_i / %	U_i / %	U_{is} / %	D_i / %	En_i
2.000	**0.080**	0.200	**0.222**	**0.176**	0.739
4.500	**0.050**	0.200	**0.222**	**0.085**	0.358
6.600	**0.030**	0.200	**0.222**	**0.004**	0.019
9.100	**0.050**	0.200	**0.222**	**-0.018**	0.075
13.100	**0.040**	0.200	**0.221**	**-0.066**	0.278
16.000	**0.040**	0.200	**0.221**	**-0.102**	0.434
24.000	**0.030**	0.200	**0.221**	**-0.144**	0.610
32.000	**0.020**	0.200	**0.221**	**-0.161**	0.682
40.000	**0.070**	0.200	**0.221**	**-0.122**	0.516
50.000	**0.060**	0.200	**0.221**	**-0.152**	0.642
60.000	**0.040**	0.200	**0.221**	**-0.185**	0.781
70.000	**0.160**	0.200	**0.221**	**-0.091**	0.384
80.000	**0.240**	0.200	**0.221**	**-0.016**	0.067
90.000	**0.200**	0.200	**0.229**	**-0.055**	0.216
100.000	**0.300**	0.200	**0.229**	**0.047**	0.187



The solid blue curve represents the participant's results, x_i, with expanded uncertainty bars ($k = 2$), U_{is}

The solid red curve represents the key comparison reference value

The two red dash curves correspond to ($x_R + U_R$) and ($x_R - U_R$), where U_R is the expanded uncertainty ($k = 2$) of x_R

Key comparison EURAMET.M.FF-K6

MEASURAND : Relative error of a gas flow meter
GAS FLOW RATE : 2 m^3/h to 100 m^3/h
TRANSFER STANDARD : A rotary gas meter (see Section 3 of the Final Report)

In the following, equivalence is demonstrated by providing the D_i and En_i values for one participating laboratory all over the range of flow rates. The curve of the key comparison reference value is added on the graphs showing the values x_i and U_{is} obtained by each participant.

Participant: EIM (Greece)

Flow rate l (m^3/h)	x_i / %	U_i / %	U_{is} / %	D_i / %	En_i
-	-	-	-	-	-
-	-	-	-	-	-
6.600	**-0.130**	0.630	**0.637**	**-0.156**	0.242
9.300	**0.080**	0.310	**0.324**	**0.012**	0.037
13.300	**0.270**	0.230	**0.248**	**0.164**	0.628
16.200	**0.290**	0.200	**0.221**	**0.148**	0.625
24.400	**0.210**	0.230	**0.248**	**0.036**	0.137
31.100	**0.120**	0.180	**0.203**	**-0.061**	0.278
37.500	**0.180**	0.410	**0.421**	**-0.012**	0.028
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
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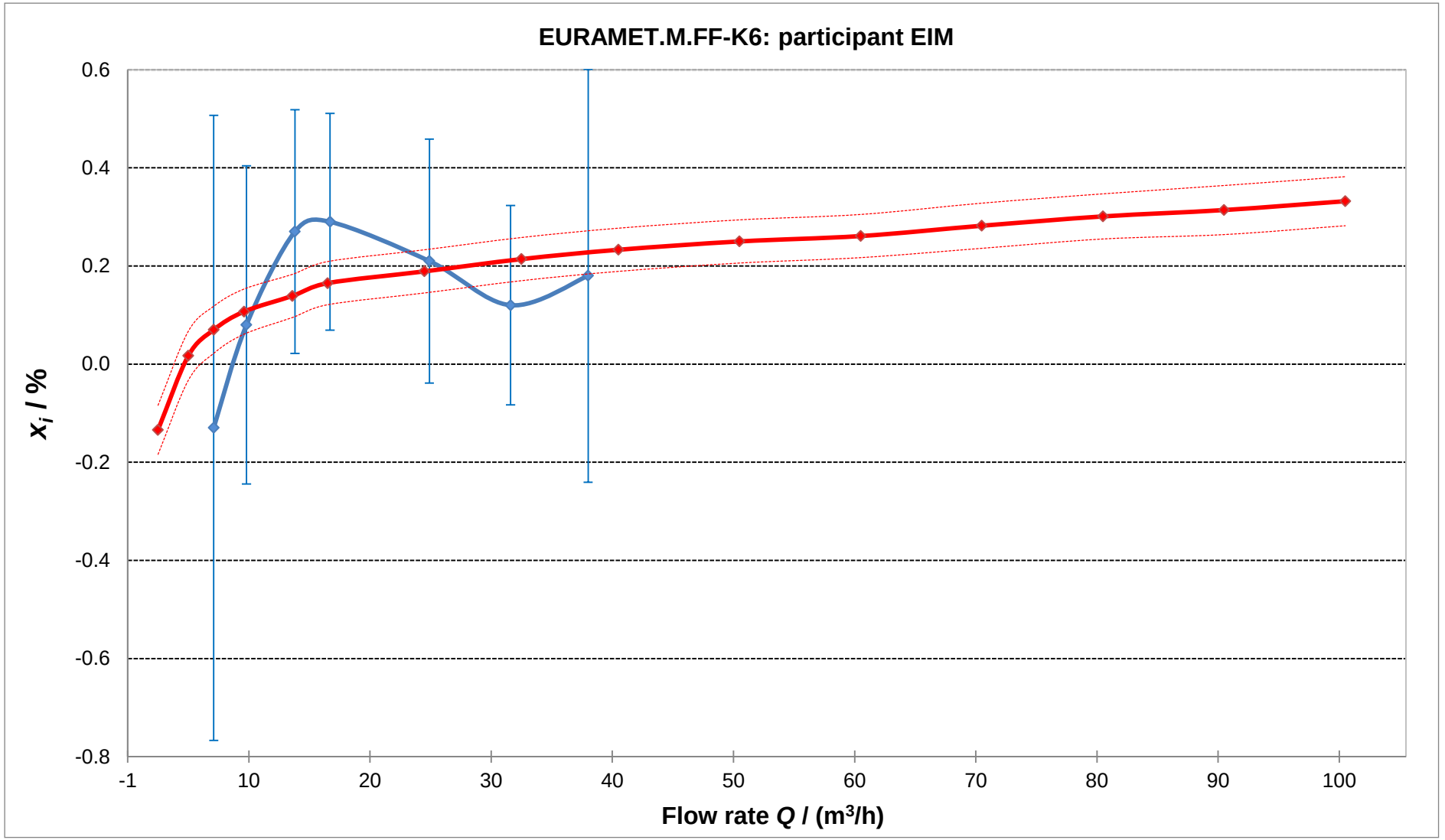


The solid blue curve represents the participant's results, x_i, with expanded uncertainty bars ($k = 2$), U_{is}

The solid red curve represents the key comparison reference value

The two red dash curves correspond to ($x_R + U_R$) and ($x_R - U_R$), where U_R is the expanded uncertainty ($k = 2$) of x_R

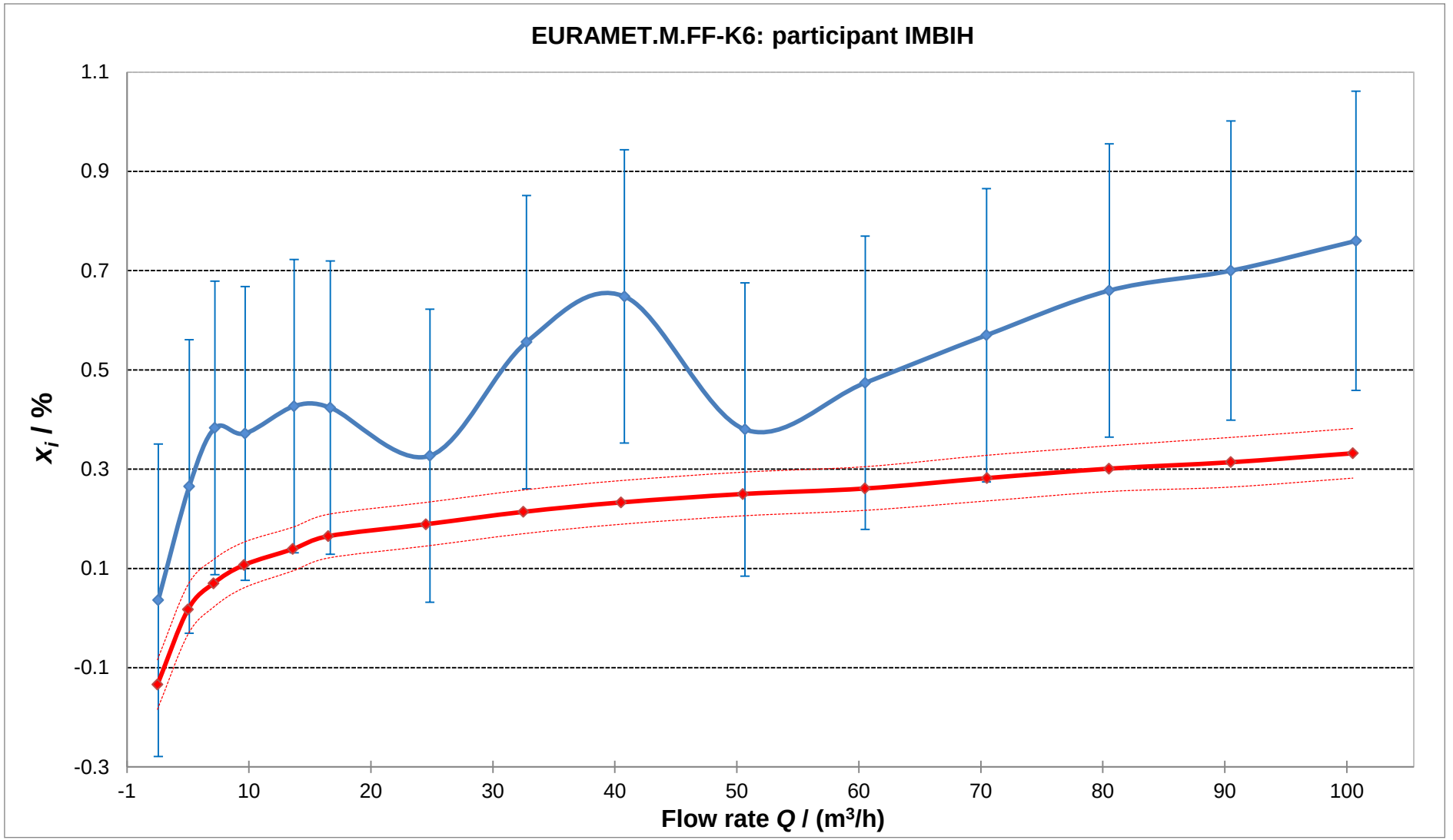
Key comparison EURAMET.M.FF-K6

MEASURAND : Relative error of a gas flow meter
GAS FLOW RATE : 2 m^3/h to 100 m^3/h
TRANSFER STANDARD : A rotary gas meter (see Section 3 of the Final Report)

In the following, equivalence is demonstrated by providing the D_i and En_i values for one participating laboratory all over the range of flow rates. The curve of the key comparison reference value is added on the graphs showing the values x_i and U_{is} obtained by each participant.

Participant: IMBIH (Bosnia and Herzegovina)

Flow rate l (m^3/h)	x_i / %	U_i / %	U_{is} / %	D_i / %	En_i
2.067	**0.036**	0.300	**0.315**	**0.132**	0.404
4.605	**0.265**	0.280	**0.296**	**0.300**	0.973
6.710	**0.383**	0.280	**0.296**	**0.357**	1.159
9.187	**0.372**	0.280	**0.296**	**0.304**	0.988
13.204	**0.427**	0.280	**0.295**	**0.321**	1.048
16.167	**0.424**	0.280	**0.295**	**0.282**	0.918
24.332	**0.327**	0.280	**0.295**	**0.153**	0.498
32.257	**0.556**	0.280	**0.295**	**0.375**	1.222
40.283	**0.648**	0.280	**0.295**	**0.456**	1.486
50.167	**0.380**	0.280	**0.295**	**0.168**	0.548
60.020	**0.474**	0.280	**0.295**	**0.249**	0.812
69.965	**0.570**	0.280	**0.295**	**0.319**	1.038
80.032	**0.660**	0.280	**0.295**	**0.404**	1.315
89.999	**0.700**	0.280	**0.301**	**0.445**	1.395
100.254	**0.760**	0.280	**0.301**	**0.507**	1.588



The solid blue curve represents the participant's results, x_i, with expanded uncertainty bars ($k = 2$), U_{is}

The solid red curve represents the key comparison reference value

The two red dash curves correspond to ($x_R + U_R$) and ($x_R - U_R$), where U_R is the expanded uncertainty ($k = 2$) of x_R

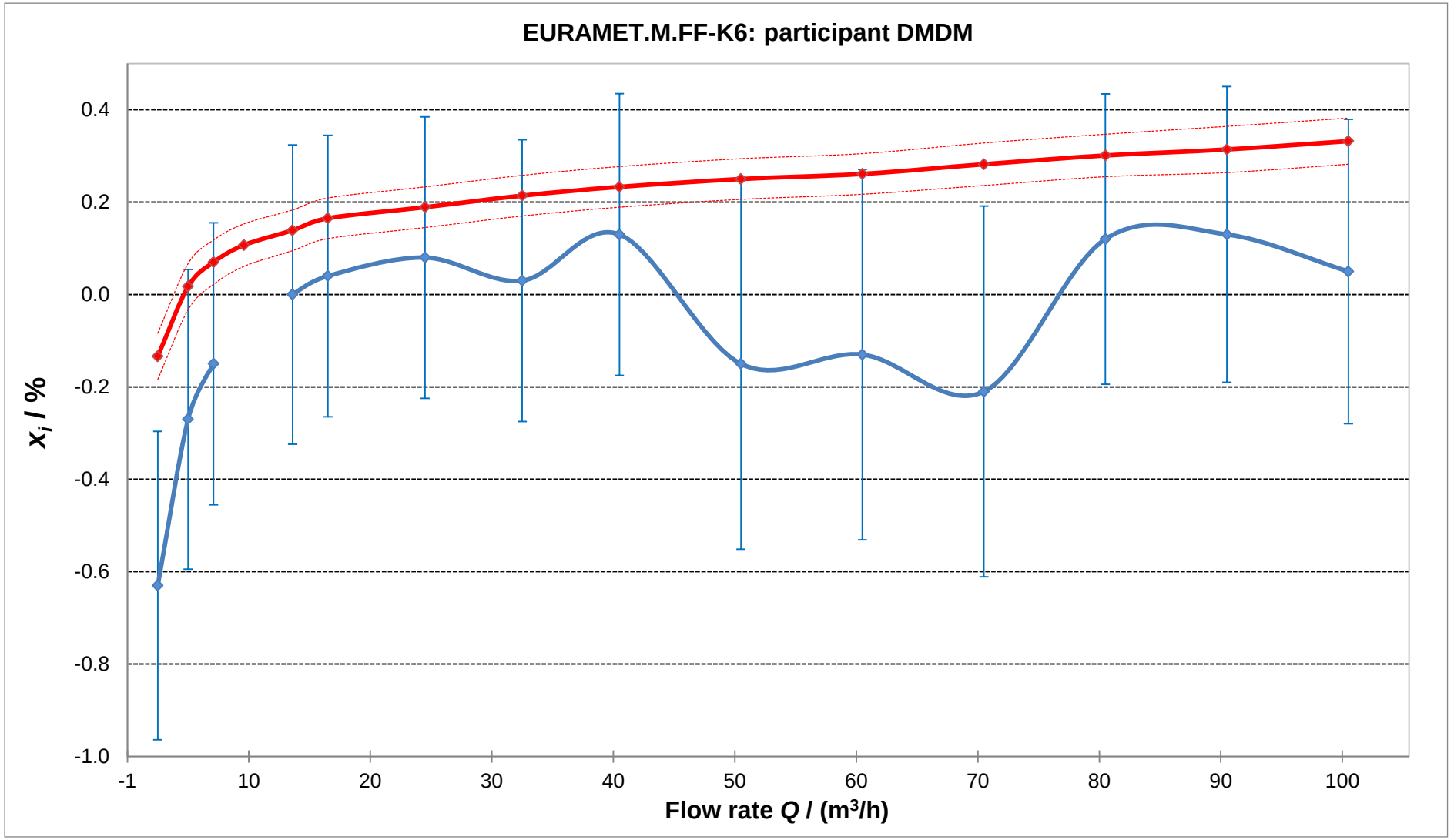
Key comparison EURAMET.M.FF-K6

MEASURAND : Relative error of a gas flow meter
GAS FLOW RATE : 2 m^3/h to 100 m^3/h
TRANSFER STANDARD : A rotary gas meter (see Section 3 of the Final Report)

In the following, equivalence is demonstrated by providing the D_i and En_i values for one participating laboratory all over the range of flow rates. The curve of the key comparison reference value is added on the graphs showing the values x_i and U_{is} obtained by each participant.

Participant: DMDM (Serbia)

Flow rate l (m^3/h)	x_i / %	U_i / %	U_{is} / %	D_i / %	En_i
2.000	**-0.630**	0.320	**0.334**	**-0.534**	1.546
4.500	**-0.270**	0.310	**0.324**	**-0.235**	0.698
6.600	**-0.150**	0.290	**0.305**	**-0.176**	0.553
-	**-**	-	**-**	**-**	-
13.100	**0.000**	0.310	**0.324**	**-0.106**	0.316
16.000	**0.040**	0.290	**0.305**	**-0.102**	0.324
24.000	**0.080**	0.290	**0.305**	**-0.094**	0.298
32.000	**0.030**	0.290	**0.305**	**-0.151**	0.478
40.000	**0.130**	0.290	**0.305**	**-0.062**	0.196
50.000	**-0.150**	0.390	**0.401**	**-0.362**	0.883
60.000	**-0.130**	0.390	**0.401**	**-0.355**	0.865
70.000	**-0.210**	0.390	**0.401**	**-0.461**	1.124
80.000	**0.120**	0.300	**0.314**	**-0.136**	0.417
90.000	**0.130**	0.300	**0.320**	**-0.125**	0.370
100.000	**0.050**	0.310	**0.329**	**-0.203**	0.586



The solid blue curve represents the participant's results, x_i, with expanded uncertainty bars ($k = 2$), U_{is}

The solid red curve represents the key comparison reference value

The two red dash curves correspond to ($x_R + U_R$) and ($x_R - U_R$), where U_R is the expanded uncertainty ($k = 2$) of x_R

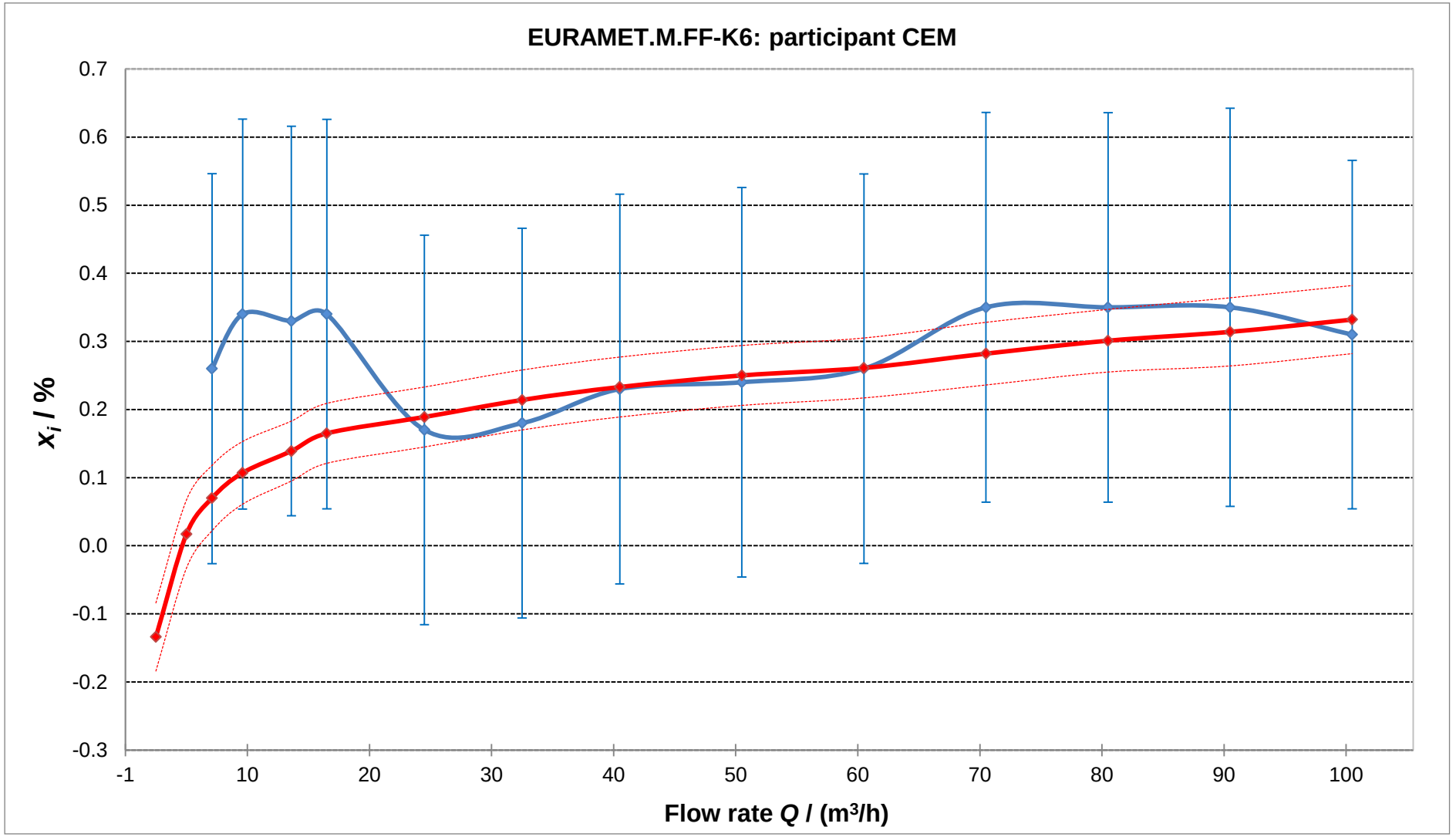
Key comparison EURAMET.M.FF-K6

MEASURAND : Relative error of a gas flow meter
GAS FLOW RATE : 2 m^3/h to 100 m^3/h
TRANSFER STANDARD : A rotary gas meter (see Section 3 of the Final Report)

In the following, equivalence is demonstrated by providing the D_i and En_i values for one participating laboratory all over the range of flow rates. The curve of the key comparison reference value is added on the graphs showing the values x_i and U_{is} obtained by each participant.

Participant: CEM (Spain)

Flow rate l (m^3/h)	x_i / %	U_i / %	U_{is} / %	D_i / %	En_i
-	-	-	-	-	-
-	-	-	-	-	-
6.600	**0.260**	0.270	**0.286**	**0.234**	0.804
9.100	**0.340**	0.270	**0.286**	**0.272**	0.933
13.100	**0.330**	0.270	**0.286**	**0.224**	0.771
16.000	**0.340**	0.270	**0.286**	**0.198**	0.679
24.000	**0.170**	0.270	**0.286**	**-0.004**	0.014
32.000	**0.180**	0.270	**0.286**	**-0.001**	0.004
40.000	**0.230**	0.270	**0.286**	**0.038**	0.131
50.000	**0.240**	0.270	**0.286**	**0.028**	0.097
60.000	**0.260**	0.270	**0.286**	**0.035**	0.122
70.000	**0.350**	0.270	**0.286**	**0.099**	0.340
80.000	**0.350**	0.270	**0.286**	**0.094**	0.323
90.000	**0.350**	0.270	**0.292**	**0.095**	0.315
100.000	**0.310**	0.230	**0.256**	**0.057**	0.214



The solid blue curve represents the participant's results, x_i, with expanded uncertainty bars ($k = 2$), U_{is}

The solid red curve represents the key comparison reference value

The two red dash curves correspond to ($x_R + U_R$) and ($x_R - U_R$), where U_R is the expanded uncertainty ($k = 2$) of x_R

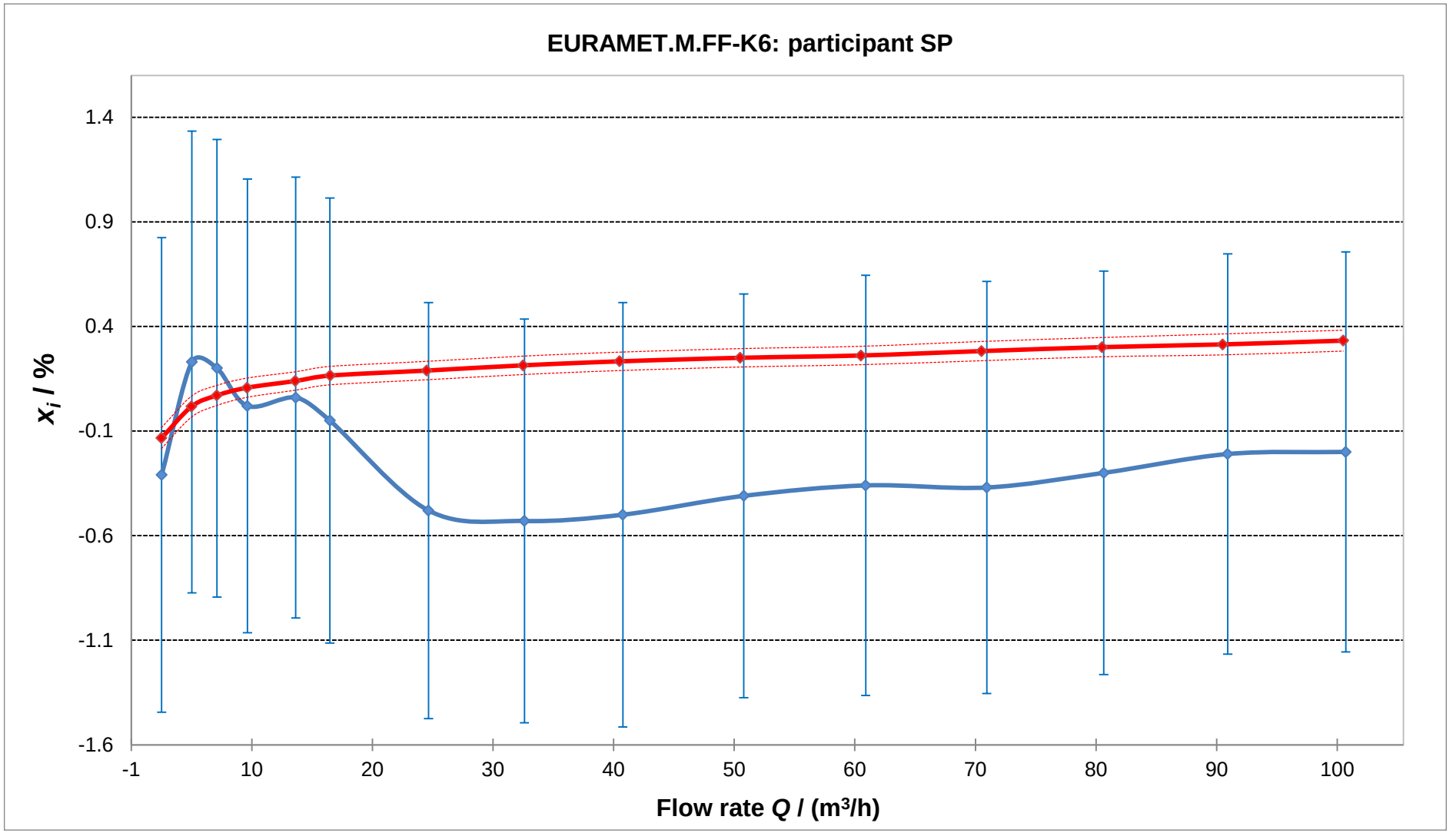
Key comparison EURAMET.M.FF-K6

MEASURAND : Relative error of a gas flow meter
GAS FLOW RATE : 2 m^3/h to 100 m^3/h
TRANSFER STANDARD : A rotary gas meter (see Section 3 of the Final Report)

In the following, equivalence is demonstrated by providing the D_i and En_i values for one participating laboratory all over the range of flow rates. The curve of the key comparison reference value is added on the graphs showing the values x_i and U_{is} obtained by each participant.

Participant: SP (Sweden)

Flow rate l (m^3/h)	x_i / %	U_i / %	U_{is} / %	D_i / %	En_i
2.020	**-0.310**	1.130	**1.134**	**-0.214**	0.188
4.530	**0.230**	1.100	**1.104**	**0.265**	0.240
6.610	**0.200**	1.090	**1.094**	**0.174**	0.159
9.130	**0.020**	1.080	**1.084**	**-0.048**	0.044
13.140	**0.060**	1.050	**1.054**	**-0.046**	0.043
15.970	**-0.050**	1.060	**1.064**	**-0.192**	0.181
24.150	**-0.480**	0.990	**0.994**	**-0.654**	0.657
32.100	**-0.530**	0.960	**0.965**	**-0.711**	0.736
40.260	**-0.500**	1.010	**1.014**	**-0.692**	0.681
50.290	**-0.410**	0.960	**0.965**	**-0.622**	0.643
60.400	**-0.360**	1.000	**1.004**	**-0.585**	0.581
70.440	**-0.370**	0.980	**0.985**	**-0.621**	0.630
80.140	**-0.300**	0.960	**0.965**	**-0.556**	0.575
90.420	**-0.210**	0.950	**0.957**	**-0.465**	0.484
100.210	**-0.200**	0.950	**0.957**	**-0.453**	0.472



The solid blue curve represents the participant's results, x_i, with expanded uncertainty bars ($k = 2$), U_{is}

The solid red curve represents the key comparison reference value

The two red dash curves correspond to ($x_R + U_R$) and ($x_R - U_R$), where U_R is the expanded uncertainty ($k = 2$) of x_R