Date	12 December 2018
Time	14:30:18
Test Number	HRSG Test 25
Mixture Composition	60/40 H2/CH4
Ambient Temperature	3.4 °C
Ambient Pressure	970
Wind Speed	4.9 m/s
Wind direction	SSW
Relative Humidity	98.00%
Mass Flow	9.9250 kg/s
Equivalence Ratio	0.65

General Comments: (weather, rig configuration)

Weather: Sunny and autumnal. Cold and crisp, light wind. Early mist cleared ahead of test.

Rig configuration: 4 x 3m circular duct; expansion section and HRSG attached. End Plate attached. Igniter 258mm from beginning of 2nd circular duct section

Engine Speed: 40%; 11,800 rpm

Test on 60% H2 40% H2 at an intended EQR of 0.65

The test gave a strong combustion event and most sensors provided an identifiable response.

Maximum overpressure of 842 mbar was seen on KU10 in HR6.

Max overpressure: 842 mbar

Max. gas temperature: 1306 °C

Initial gas temperature: 438 °C

Ionisation Probes

Max. flame speed: 413 m/s

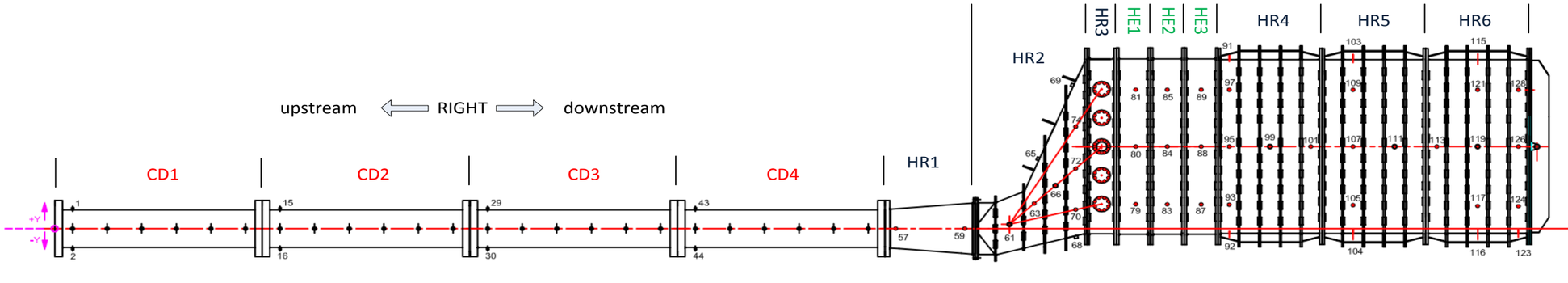
Ionisation Rakes

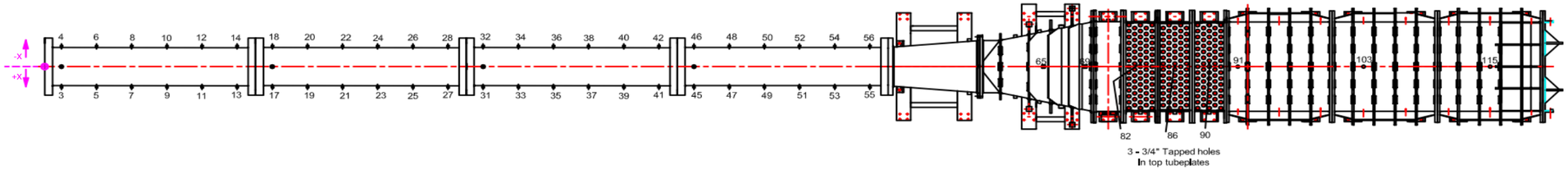
Max. flame speed: 288 m/s

Optical Probes

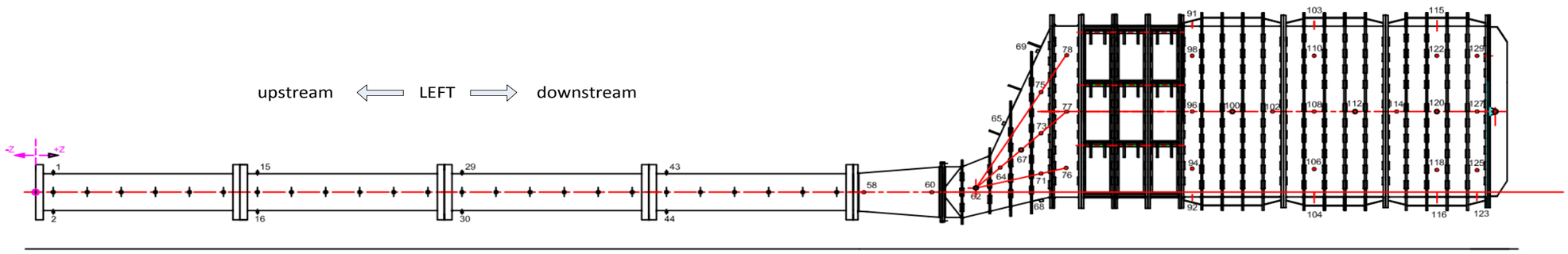
Max. flame speed: 357 m/s

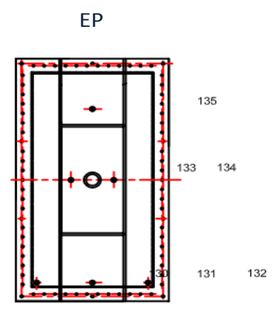
Location of Max. Overpressure		Location of Max. Temperature		Location of Max. Flame Speed		Location of Max. Flame Speed		Location of Max. Flame Speed	
sensor	KU10	sensor	TC4	sensor	IP21	sensor	RA3	sensor	OP1
label	HR6-L5L	label	CD3-R3	label	HR5-L2U	label	HR4-R3M	label	CD4-R6
distance	21165 mm	distance	7258 mm	distance	18775 mm	distance	17575 mm	istance	11758 mm





3 - 3/4" Tapped holes
In top tubeplates





VIEW ON END PLATE

INSTRUMENT PORTS

76 - INSTRUMENT PORTS IN ST ST 40mm HIGH
TAPPED THROUGH (50 - 3/4" BSPP, 15 - 1" BSPP & 11 - 11/4" BSPP)
HOLES THROUGH PLATE WILL BE 19mm & 25MM)
ON EACH HEAT EXCHANGER THERE IS 1 - 3/4" TAPPED HOLE
IN THE TOP TUBEPLATE

SECTION 1: 2 - 3/4" ON EACH SIDE OF SECTION 1

SECTION 2: 2 - 1" ON TOP, 1 - 1" ON BASE, 2 - 11/4" ON EACH SIDE, 4 - 3/4" ON EACH SIDE

SECTION 3: 1 - 11/4" ON CENTRE & 2 - 3/4" ALL ON REAR SIDE

HEAT EXCHANGERS: 3 - 3/4" ON ONE SIDE & 1 - 3/4" BSPP TAPPED HOLE IN TOP TUBEPLATE

SECTION 4: 1 - 1" ON TOP, 1 - 1" ON BASE, 1 - 11/4" ON CENTRE OF EACH SIDE, 4 - 3/4" ON EACH SIDE

SECTION 5: 1 - 1" ON TOP, 1 - 1" ON BASE, 1 - 11/4" ON EACH SIDE
3 - 3/4" ON EACH SIDE

SECTION 6: 1 - 1" ON TOP, 2 - 1" ON BASE, 1 - 11/4" ON EACH SIDE
6 - 3/4" ON EACH SIDE

END PLATE: 1 - 1" & 1 - 3/4" ON VERTICAL CENTRELINE
2 - 1" ON HORIZONTAL CENTRELINE
2 - 1" ON LOWER CORNERS (50mm in from corners)

Naming Convention

H R 1 - R 1 U

Section Identifier
i.e. HE, HR, CD or EP

Section Number (1-6)
Numbered from downstream to upstream

Side
i.e. R, L, T or B

Vertical position in section (sides only) i.e. U, M or L.
Absence of letter denotes centreline

Longitudinal position in section (numbered from 1)

Key

CD	Circular duct	**U**	Upper
HR	HRSG	**M**	Middle
HE	Heat Exchanger	**L**	Lower
EP	End Plate	**R**	Right Side (when viewed downstream from engine)
		L	Left Side
		T	Top
		B	Bottom

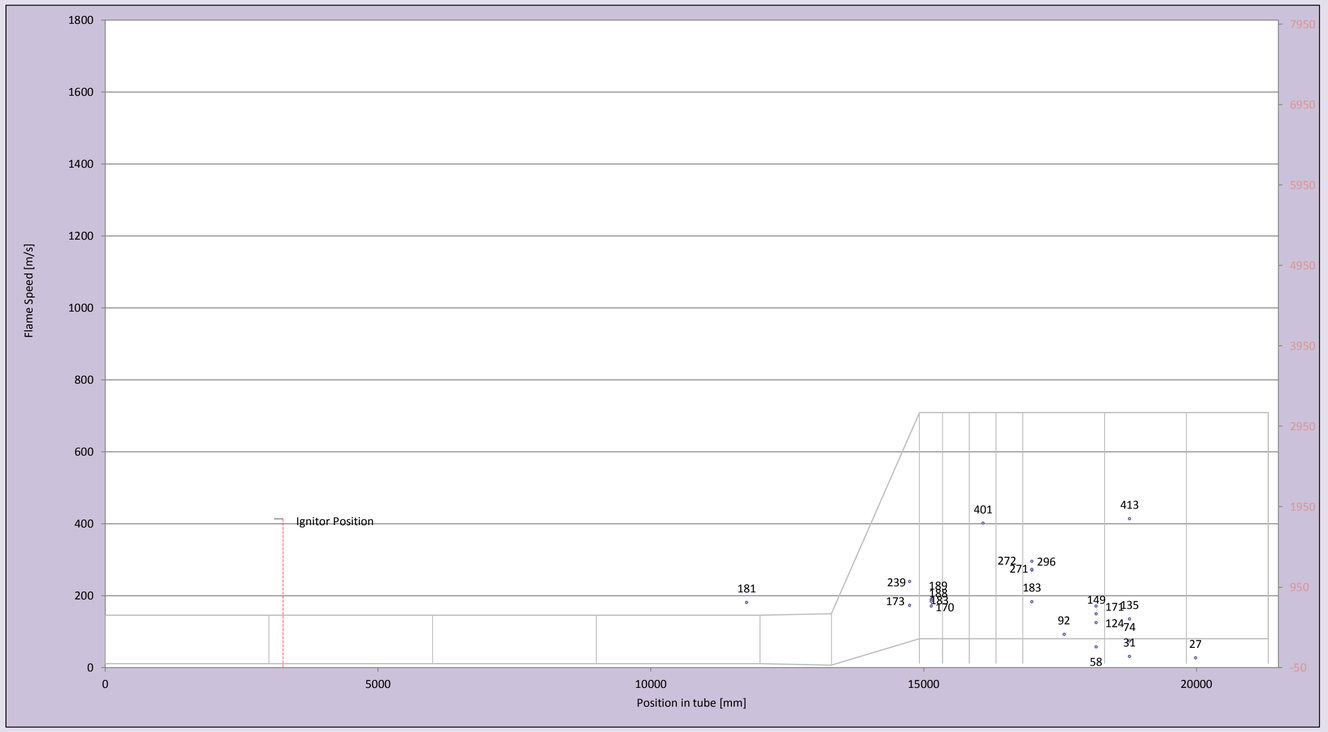
There are 13 sections on the rig

4	circular duct sections	(CD1 to CD4)
6	HRSG sections	(HR1 to HR6)
3	heat exchanger sections	(HE1 to HE3)
	located between HR3 and HR4	

Location of igniter 3258 mm **Time of ignition** 16.75810 seconds

IP Number	Location label	Data Name	Position in tube (mm)	Flame arrival time (s)	Avg Flame speed from last sensor (m/s)
IP0	CD4-L6	Ionisation probe 0	11758	16.80512	181
IP1	HR2-L5L	Ionisation probe 1	14745	16.81760	239
IP2	HR2-L5M	Ionisation probe 2	14745	16.82242	173
IP3	HR2-L5U	Ionisation probe 3	14745	16.84766	
IP4	HR3-R1L	Ionisation probe 4	15140	16.82102	189
IP5	HR3-R1LM	Ionisation probe 5	15140	16.82144	188
IP6	HR3-R1M	Ionisation probe 6	15140	16.82290	183
IP7	HR3-R1U	Ionisation probe 7	15140	16.82780	170
IP8	HR3-L1U	Ionisation probe 8	15140	NW	
IP9	HE2-R1M	Ionisation probe 9	16090	16.82527	401
IP10	HR4-L1L	Ionisation probe 10	16985	16.82587	271
IP11	HR4-L1M	Ionisation probe 11	16985	16.83000	296
IP12	HR4-L1U	Ionisation probe 12	16985	16.83312	183
IP13	HR4-R1U	Ionisation probe 13	16985	16.83458	272
IP14	HR4-R3U	Ionisation probe 14	17575	16.84099	92
IP15	HR4-L5L	Ionisation probe 15	18165	16.83278	171
IP16	HR4-L5M	Ionisation probe 16	18165	16.83948	124
IP17	HR4-L5U	Ionisation probe 17	18165	16.85361	58
IP18	HR4-R5M	Ionisation probe 18	18165	16.83918	149
IP19	HR5-L2L	Ionisation probe 19	18775	16.83730	135
IP20	HR5-L2M	Ionisation probe 20	18775	16.85924	31
IP21	HR5-L2U	Ionisation probe 21	18775	16.83745	413
IP22	HR5-R2U	Ionisation probe 22	18775	16.85719	74
IP23	HR6-L1M	Ionisation probe 23	19985	16.90421	27

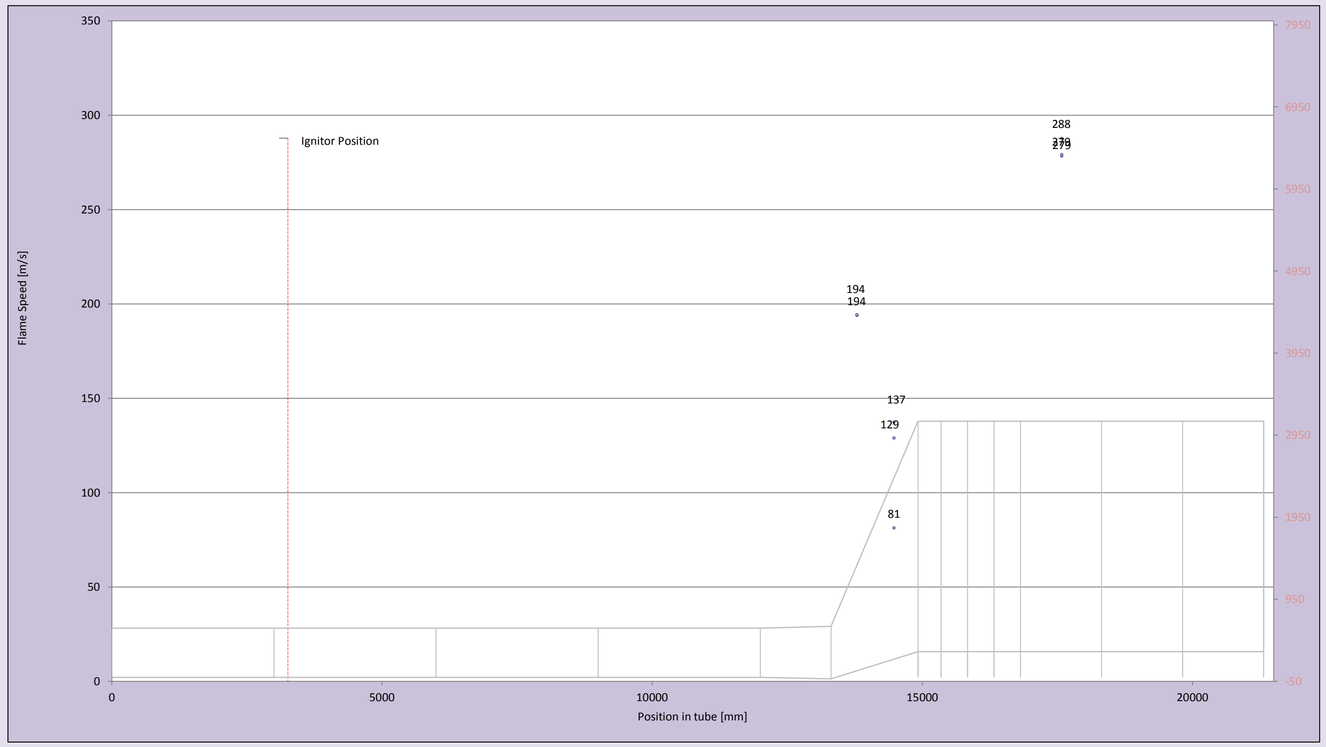
KEY: ND - not detected - sensor working but flame too weak to be picked up
NW - not working - sensor not working



Location of igniter 3258 mm **Time of ignition** 16.7581 seconds

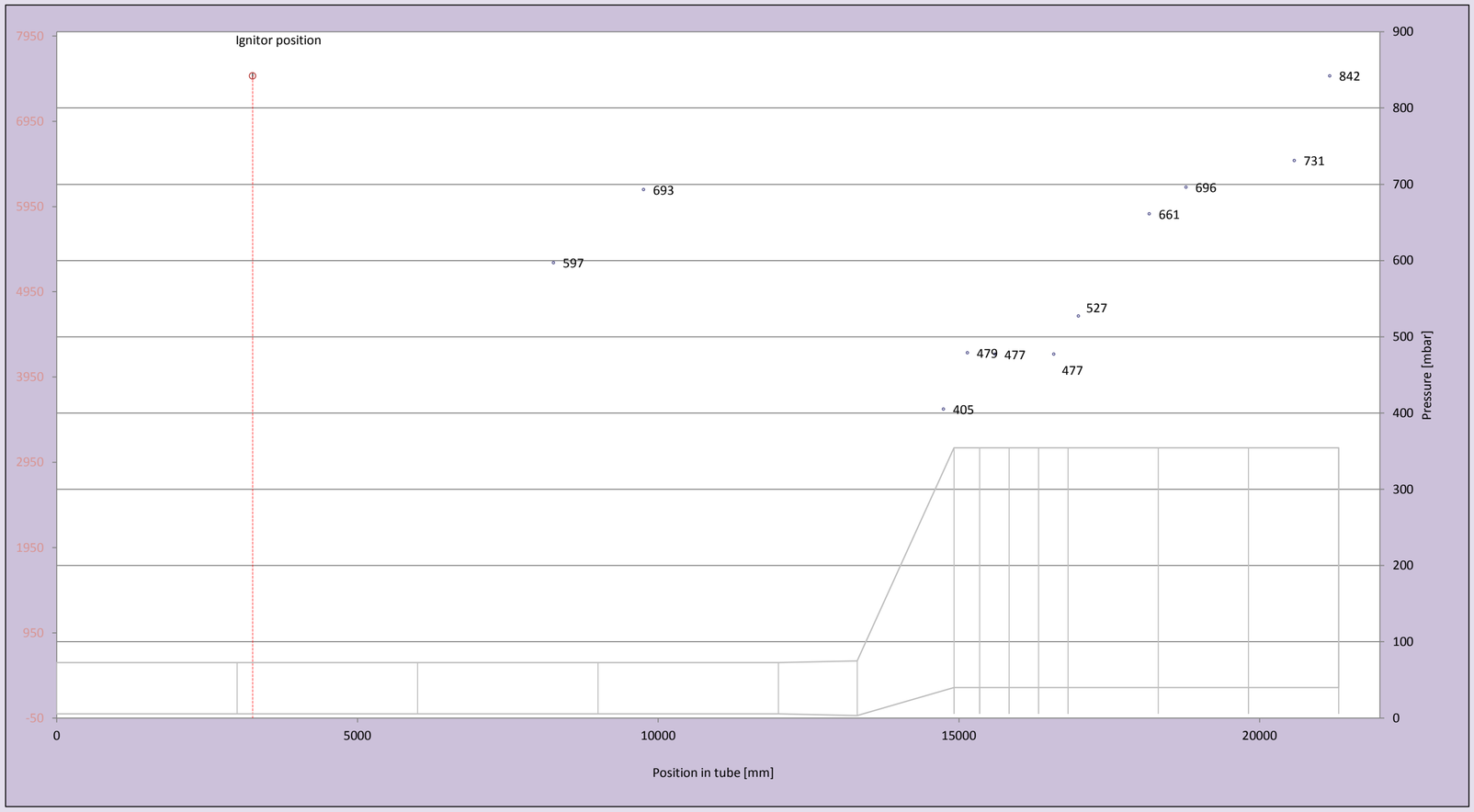
Rake Number	IP Number	Location label	Data Name	Position in tube (mm)	Flame arrival time (s)	Avg Flame speed from last sensor (m/s)
RA1	IP24	HR2-R2M	IP24	13785	16.8124	194
RA1	IP25	HR2-R2M	IP25	13785	16.8123	194
RA1	IP26	HR2-R2M	IP26	13785	NW	
RA2	IP27	HR2-R4M	IP27	14475	16.8209	81
RA2	IP28	HR2-R4M	IP28	14475	16.8173	137
RA2	IP29	HR2-R4M	IP29	14475	16.8176	129
RA3	IP30	HR4-R3M	IP30	17575	16.8320	279
RA3	IP31	HR4-R3M	IP31	17575	16.8284	279
RA3	IP32	HR4-R3M	IP32	17575	16.8284	288
RA4	IP33	HR4-R3L	IP33	17575	NW	
RA4	IP34	HR4-R3L	IP34	17575	NW	
RA4	IP35	HR4-R3L	IP35	17575	NW	

KEY: ND - not detected - sensor working but flame too weak to be picked up
NW - not working - sensor not working



Location of igniter 3258 mm

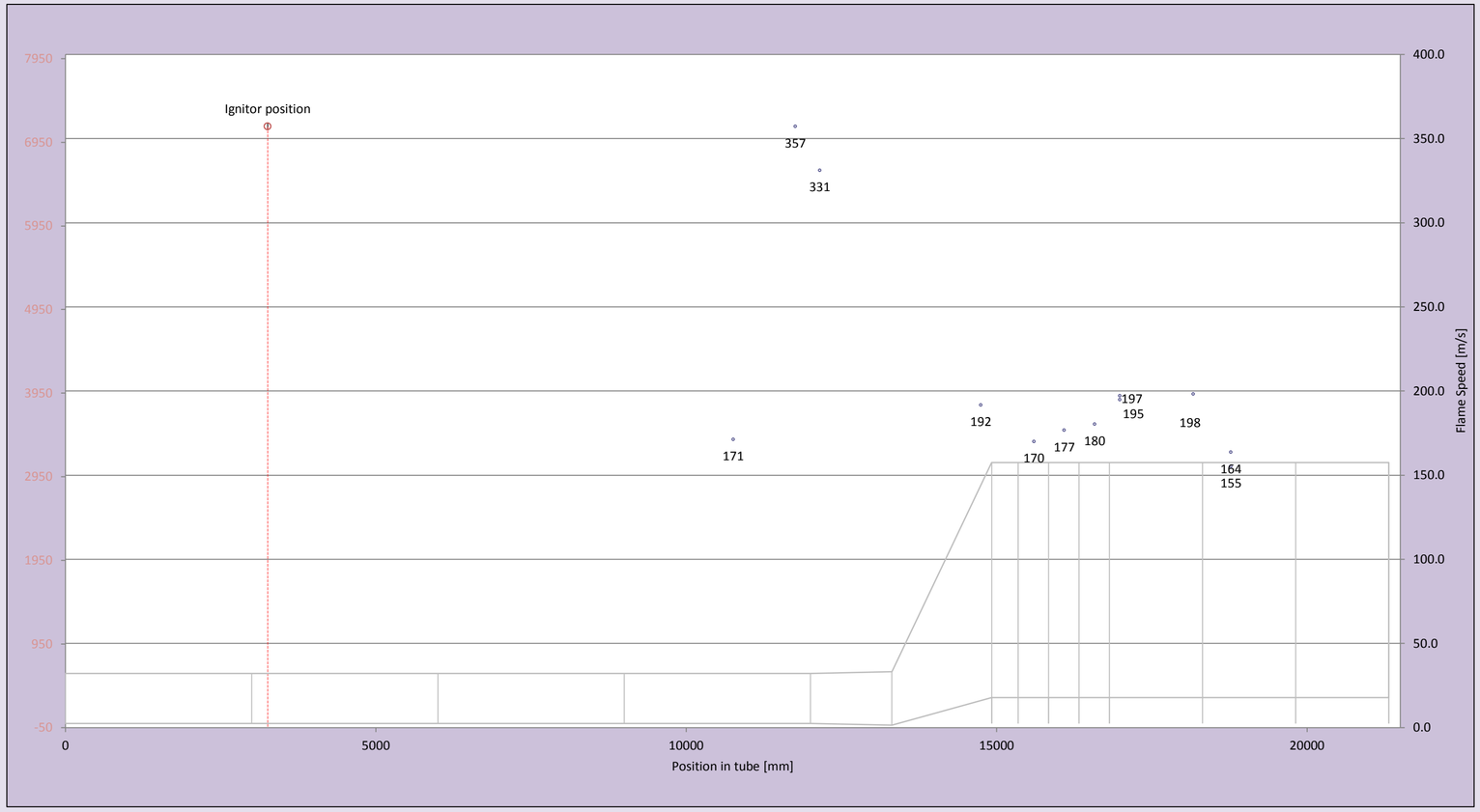
Transducer number	Location	Position in tube [mm]	DPmax [mbar]	TimeDPmax [sec]
KU0	CD3-R5	8258	597	16.8564
KU1	CD4-R2	9758	693	16.8557
KU2	HR2-T5	14745	405	16.8479
KU3	HR3-L1L	15140	479	16.8490
KU4	HE1-R1U	15600	477	16.8264
KU5	HE3-R1L	16580	477	16.8273
KU6	HR4-R1L	16985	527	16.8456
KU7	HR4-R5U	18165	661	16.8428
KU8	HR5-R2L	18775	696	16.8404
KU9	HR6-R3L	20575	731	16.8383
KU10	HR6-L5L	21165	842	16.8392



Location of igniter 3258 mm **Time of ignitio** 16.7581 seconds

OP Number	Location label	Position in tube (mm)	Flame arrival time (s)	Average flame speed (m/s)
OP0	CD4-L4	10758	16.8019	171.3
OP1	CD4-R6	11758	16.8047	357.1
OP2	HR1-R1	12152	16.8059	331.1
OP3	HR2-R5M	14745	16.8194	191.6
OP4	HE1-T1	15600	16.8307	170.0
OP5	HE2-T1	16090	16.8308	176.6
OP6	HE3-T1	16580	16.8320	180.3
OP7	HR4-T1	16985	16.8278	197.1
OP8	HR4-R1M	16985	16.8286	194.8
OP9	HR4-R5L	18165	16.8333	198.1
OP10	HR5-T2	18775	16.8529	163.6
OP11	HR5-R2M	18775	16.8582	155.1

KEY: ND - not detected - sensor working but flame too weak to be picked up
NW - not working - sensor not working

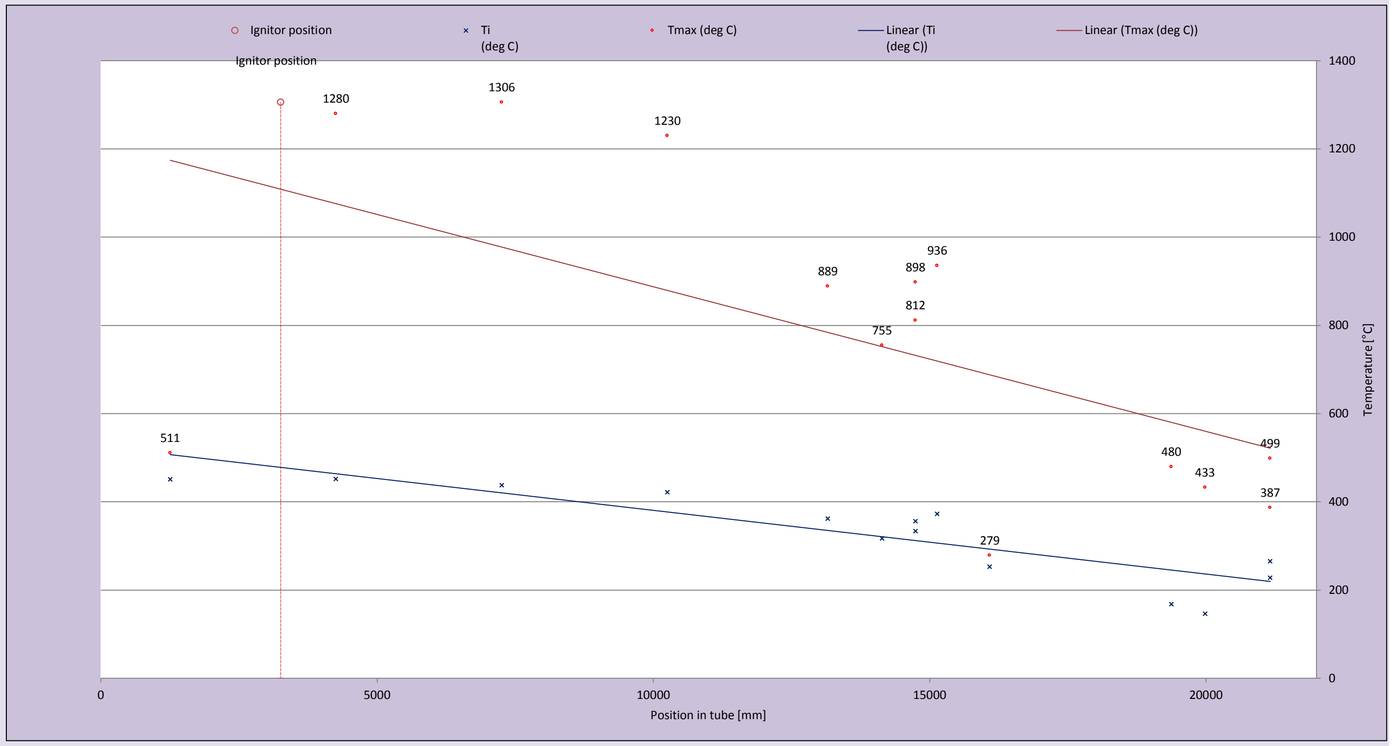


Location of igniter 3258 mm **Time of ignition** 16.75810 seconds

Thermocouple number	Location	Position in tube (mm)	Flame arrival time (s)	Average flame speed (m/s)	T_{max} (deg C)	T_i (deg C)
TC0	CD1-R3	1258			511	451
TC2	CD2-R3	4258	16.763	227	1280	452
TC4	CD3-R3	7258	16.765	625	1306	438
TC6	CD4-R3	10258	16.772	522	1230	422
TC8	HR1-R2	13160	16.791	306	889	362
TC16	HR2-R3M	14140	16.791	336	755	317
TC17	HR2-R5L	14745	16.790	366	898	356
TC18	HR2-R5U	14745	16.797	299	812	334
TC19	HR3-L1M	15140	16.805	256	936	373
TC20	HE2-R1L	16090				
TC21	HE2-R1U	16090	16.803	289	279	253
TC22	HR5-R4M	19375	16.872	142	480	168
TC23	HR6-R1M	19985	16.830	234	433	147
TC24	HR6-R5L	21165			387	228
TC25	HR6-R5U	21165			499	266

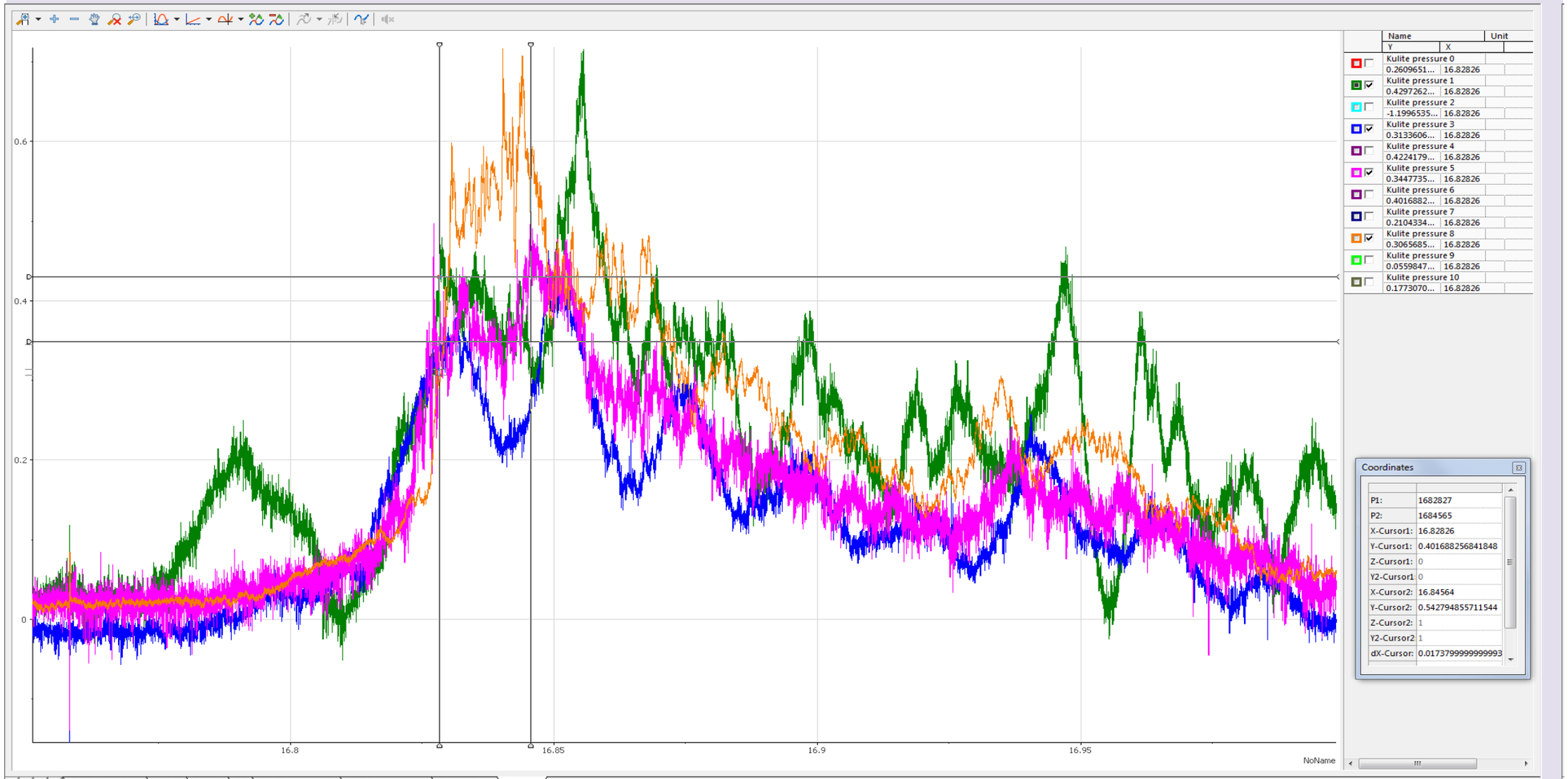
surface thermocouples [not plotted]

TC1	CD1-T2	1508	132	118
TC3	CD2-T2	4508	100	87
TC5	CD3-T2	7508	100	88
TC7	CD4-T2	10508	59	51



432	435	423	404	345	291	315	303	343	330	216	174	157	195	228

Pressure


Name
Unit
Y
X
Kulite pressure 0
0.2609651...
16.82826
Kulite pressure 1
0.4297262...
16.82826
Kulite pressure 2
-1.1996535...
16.82826
Kulite pressure 3
0.3133606...
16.82826
Kulite pressure 4
0.4224179...
16.82826
Kulite pressure 5
0.3447735...
16.82826
Kulite pressure 6
0.4016882...
16.82826
Kulite pressure 7
0.2104334...
16.82826
Kulite pressure 8
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16.82826
Kulite pressure 9
0.0559847...
16.82826
Kulite pressure 10
0.1773070...
16.82826
Coordinates
P1: 1682827
P2: 1684565
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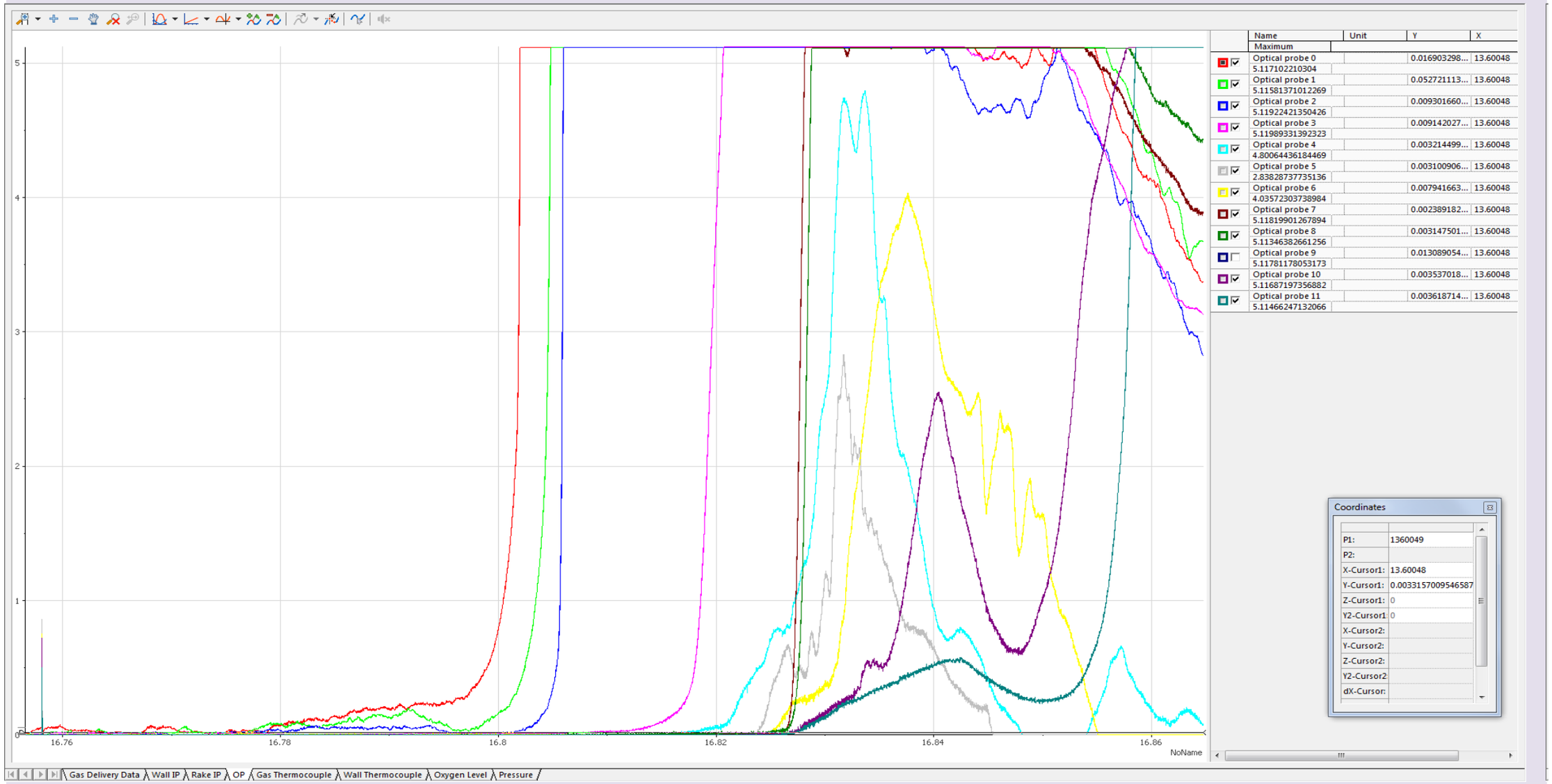
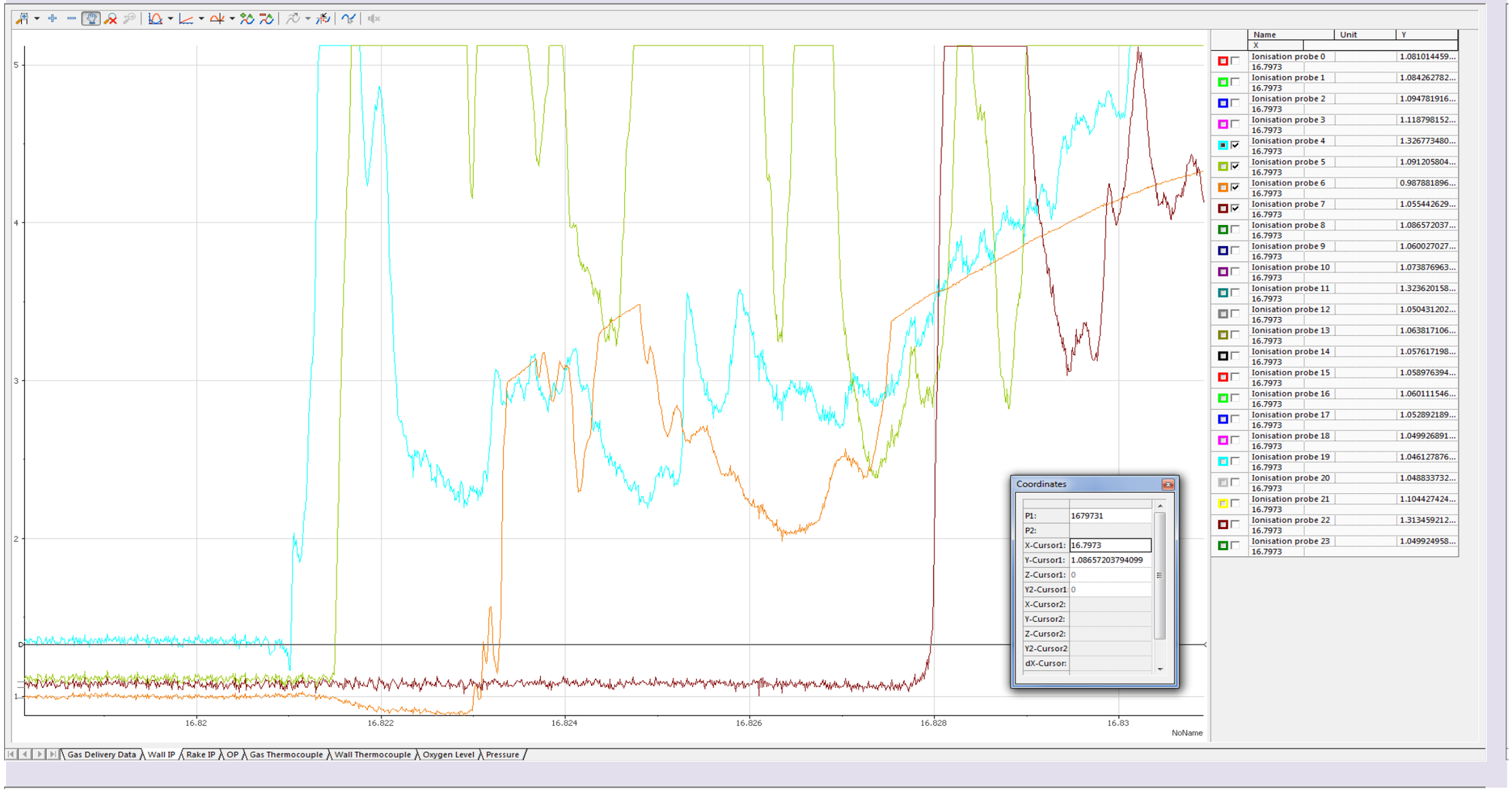
Y-Cursor1: 0.401688256841848
Z-Cursor1: 0
Y2-Cursor1 0
X-Cursor2: 16.84564
Y-Cursor2: 0.542794855711544
Z-Cursor2: 1
Y2-Cursor2 1
dX-Cursor: 0.0173799999999993
0.6
0.4
0.2
0
16.8
16.85
16.9
16.95
NoName
Gas Delivery Data
Wall IP
Rake IP
OP
Gas Thermocouple
Wall Thermocouple
Oxygen Level
Pressure

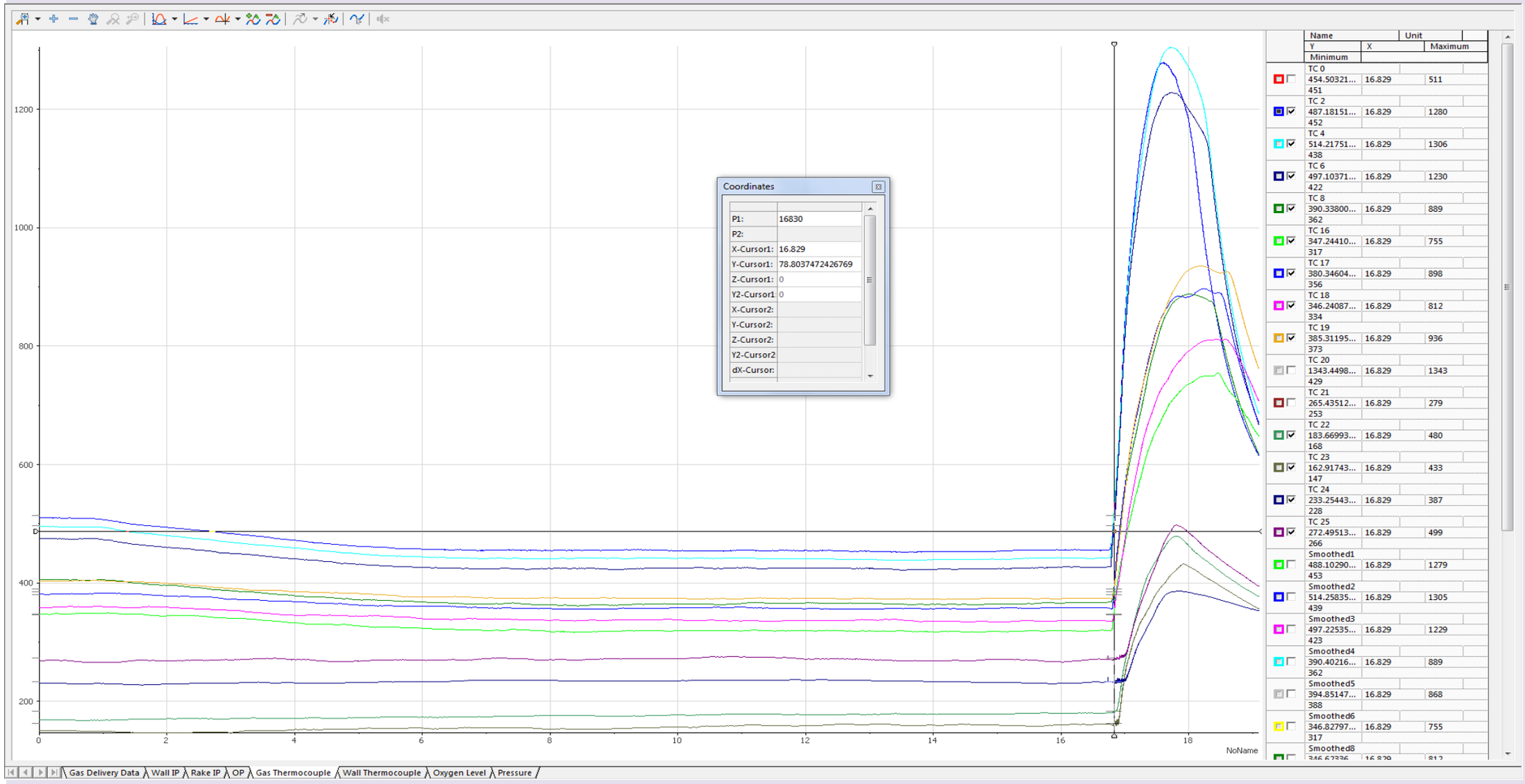
Optical Probes



Ionisation Probes



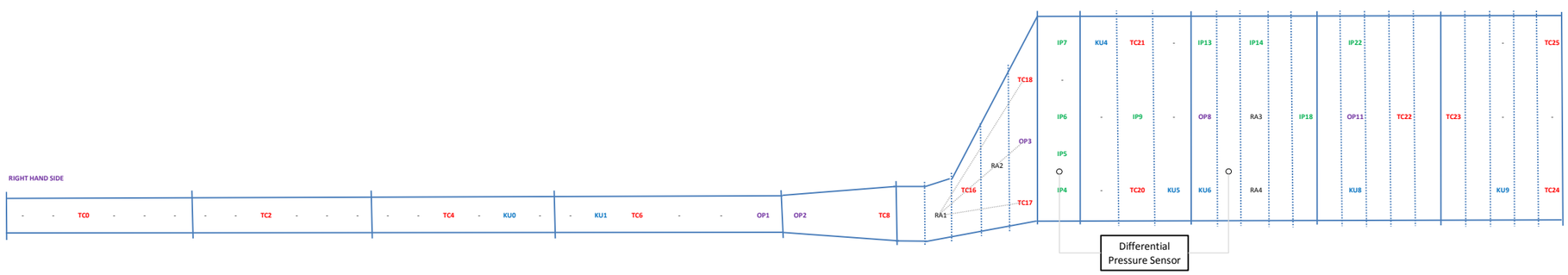
Temperature

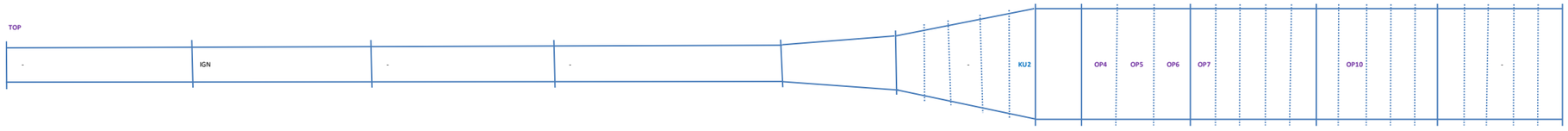


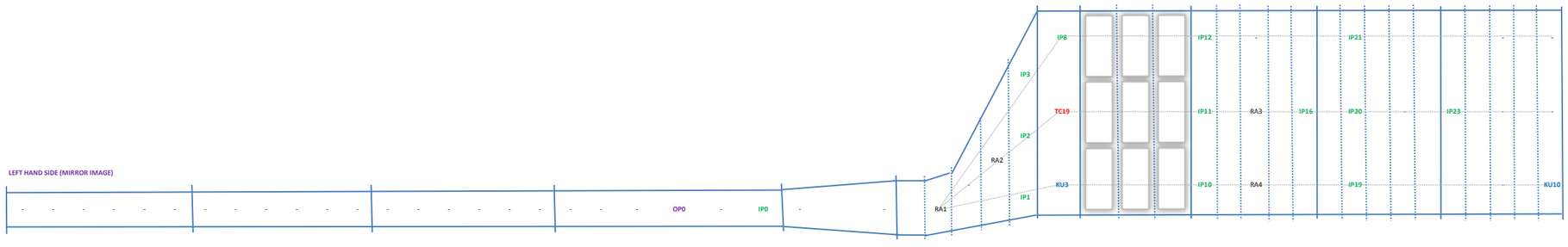
Sensor	OLD DESIGNATION	NEW DESIGNATION	Section	Section Number	Side	Horizontal Location	Vertical Location	PORT REF	SIZE	"X"	"Y"	"Z"
-		CD1-T1	CD	1	T	1		1	1" BSPP	0	298	258
TC1	TS1-1	CD1-T2	CD	1	T	2		NA	SURFACE	0	298	1508
-		CD1-B1	CD	1	B	1		2	1" BSPP	0	-298	258
-	NS1-1	CD1-R1	CD	1	R	1		3	3/4" BSPP	298	0	258
-	FS1-1	CD1-L1	CD	1	L	1		4	3/4" BSPP	-298	0	258
-	NS1-2	CD1-R2	CD	1	R	2		5	3/4" BSPP	298	0	758
-	FS1-2	CD1-L2	CD	1	L	2		6	3/4" BSPP	-298	0	758
TC0	NS1-3	CD1-R3	CD	1	R	3		7	3/4" BSPP	298	0	1258
-	FS1-3	CD1-L3	CD	1	L	3		8	3/4" BSPP	-298	0	1258
-	NS1-4	CD1-R4	CD	1	R	4		9	3/4" BSPP	298	0	1758
-	FS1-4	CD1-L4	CD	1	L	4		10	3/4" BSPP	-298	0	1758
-	NS1-5	CD1-R5	CD	1	R	5		11	3/4" BSPP	298	0	2258
-	FS1-5	CD1-L5	CD	1	L	5		12	3/4" BSPP	-298	0	2258
-	NS1-6	CD1-R6	CD	1	R	6		13	3/4" BSPP	298	0	2758
-	FS1-6	CD1-L6	CD	1	L	6		14	3/4" BSPP	-298	0	2758
IGN		CD2-T1	CD	2	T	1		15	1" BSPP	0	298	3258
TC3	TS2-1	CD2-T2	CD	2	T	2		NA	SURFACE	0	298	4508
-		CD2-B1	CD	2	B	1		16	1" BSPP	0	-298	2358
-	NS2-1	CD2-R1	CD	2	R	1		17	3/4" BSPP	298	0	3258
-	FS2-1	CD2-L1	CD	2	L	1		18	3/4" BSPP	-298	0	3258
-	NS2-2	CD2-R2	CD	2	R	2		19	3/4" BSPP	298	0	3758
-	FS2-2	CD2-L2	CD	2	L	2		20	3/4" BSPP	-298	0	3758
TC2	NS2-3	CD2-R3	CD	2	R	3		21	3/4" BSPP	298	0	4258
-	FS2-3	CD2-L3	CD	2	L	3		22	3/4" BSPP	-298	0	4258
-	NS2-4	CD2-R4	CD	2	R	4		23	3/4" BSPP	298	0	4758
-	FS2-4	CD2-L4	CD	2	L	4		24	3/4" BSPP	-298	0	4758
-	NS2-5	CD2-R5	CD	2	R	5		25	3/4" BSPP	298	0	5258
-	FS2-5	CD2-L5	CD	2	L	5		26	3/4" BSPP	-298	0	5258
-	NS2-6	CD2-R6	CD	2	R	6		27	3/4" BSPP	298	0	5758
-	FS2-6	CD2-L6	CD	3	L	6		28	3/4" BSPP	-298	0	5758
-		CD3-T1	CD	3	T	1		29	1" BSPP	0	298	6258
TC5	TS1-1	CD3-T2	CD	3	T	2		NA	SURFACE	0	298	7508
-		CD3-B1	CD	3	B	1		30	1" BSPP	0	-298	6258
-	NS3-1	CD3-R1	CD	3	R	1		31	3/4" BSPP	298	0	6258
-	FS3-1	CD3-L1	CD	3	L	1		32	3/4" BSPP	-298	0	6258
-	NS3-2	CD3-R2	CD	3	R	2		33	3/4" BSPP	298	0	6758
-	FS3-2	CD3-L2	CD	3	L	2		34	3/4" BSPP	-298	0	6758
TC4	NS3-3	CD3-R3	CD	3	R	3		35	3/4" BSPP	298	0	7258
-	FS3-3	CD3-L3	CD	3	L	3		36	3/4" BSPP	-298	0	7258
-	NS3-4	CD3-R4	CD	3	R	4		37	3/4" BSPP	298	0	7758
-	FS3-4	CD3-L4	CD	3	L	4		38	3/4" BSPP	-298	0	7758
KU0	NS3-5	CD3-R5	CD	3	R	5		39	3/4" BSPP	298	0	8258
-	FS3-5	CD3-L5	CD	3	L	5		40	3/4" BSPP	-298	0	8258
-	NS3-6	CD3-R6	CD	3	R	6		41	3/4" BSPP	298	0	8758
-	FS3-6	CD3-L6	CD	3	L	6		42	3/4" BSPP	-298	0	8758
-		CD4-T1	CD	4	T	1		43	1" BSPP	0	298	9258
TC7	TS1-1	CD4-T2	CD	4	T	2		NA	SURFACE	0	298	10508
-		CD4-B1	CD	4	B	1		44	1" BSPP	0	-298	9258
-	NS4-1	CD4-R1	CD	4	R	1		45	3/4" BSPP	298	0	9258
-	FS4-1	CD4-L1	CD	4	L	1		46	3/4" BSPP	-298	0	9258
KU1	NS4-2	CD4-R2	CD	4	R	2		47	3/4" BSPP	298	0	9758
-	FS4-2	CD4-L2	CD	4	L	2		48	3/4" BSPP	-298	0	9758
TC6	NS4-3	CD4-R3	CD	4	R	3		49	3/4" BSPP	298	0	10258
-	FS4-3	CD4-L3	CD	4	L	3		50	3/4" BSPP	-298	0	10258
-	NS4-4	CD4-R4	CD	4	R	4		51	3/4" BSPP	298	0	10758
OP0	FS4-4	CD4-L4	CD	4	L	4		52	3/4" BSPP	-298	0	10758
-	NS4-5	CD4-R5	CD	4	R	5		53	3/4" BSPP	298	0	11258
-	FS4-5	CD4-L5	CD	4	L	5		54	3/4" BSPP	-298	0	11258
OP1	NS4-6	CD4-R6	CD	4	R	6		55	3/4" BSPP	298	0	11758

Sensor	OLD DESIGNATION	NEW DESIGNATION	Section	Section Number	Side	Horizontal Location	Vertical Location	PORT REF	SIZE	"X"	"Y"	"Z"
IP0	FS4-6	CD4-L6	CD	4	L	6		56	3/4" BSPP	-298	0	11758
OP2		HR1-R1	HR	1	R	1		57	3/4" BSPP	308	0	12152
-		HR1-L1	HR	1	L	1		58	3/4" BSPP	-308	0	12152
TC8		HR1-R2	HR	1	R	2		59	3/4" BSPP	393	0	13160
-		HR1-L2	HR	1	L	2		60	3/4" BSPP	-393	0	13160
RA1		HR2-R2M	HR	2	R	2	M	61	11/4" BSPP	448	70	13785
RA1		HR2-L2M	HR	2	L	2	M	62	11/4" BSPP	-448	70	13785
TC16		HR2-R3M	HR	2	R	3	M	63	3/4" BSPP	528	410	14140
-		HR2-L3M	HR	2	L	3	M	64	3/4" BSPP	-528	410	14140
-		HR2-T3	HR	2	T	3		65	1" BSPP	0	1122	14215
RA2		HR2-R4M	HR	2	R	4	M	66	11/4" BSPP	598	700	14475
RA2		HR2-L4M	HR	2	L	4	M	67	11/4" BSPP	-598	700	14475
-		HR2-B5	HR	2	B	5		68	1" BSPP	0	-100	14745
KU2		HR2-T5	HR	2	T	5		69	1" BSPP	0	2315	14745
TC17		HR2-R5L	HR	2	R	5	L	70	3/4" BSPP	662	310	14745
IP1		HR2-L5L	HR	2	L	5	L	71	3/4" BSPP	-662	310	14745
OP3		HR2-R5M	HR	2	R	5	M	72	3/4" BSPP	662	975	14745
IP2		HR2-L5M	HR	2	L	5	M	73	3/4" BSPP	-662	975	14745
TC18		HR2-R5U	HR	2	R	5	U	74	3/4" BSPP	662	1660	14745
IP3		HR2-L5U	HR	2	L	5	U	75	3/4" BSPP	-662	1660	14745
KU3		HR3-L1L	HR	3	L	1	L	76	3/4" BSPP	-700	400	15140
TC19		HR3-L1M	HR	3	L	1	M	77	11/4" BSPP	-700	1335	15140
IP8		HR3-L1U	HR	3	L	1	U	78	3/4" BSPP	-700	2270	15140
IP4		HR3-R1L	HR	3	R	1	L	136	3/4" BSPP	700	400	15140
IP5		HR3-R1LM	HR	3	R	1	LM	137	3/4" BSPP	700	868	15140
IP6		HR3-R1M	HR	3	R	1	M	138	3/4" BSPP	700	1335	15140
-		HR3-R1UM	HR	3	R	1	UM	139	3/4" BSPP	700	1802	15140
IP7		HR3-R1U	HR	3	R	1	U	140	3/4" BSPP	700	2270	15140
-		HE1-R1L	HE	1	R	1	L	79	3/4" BSPP	700	400	15600
-		HE1-R1M	HE	1	R	1	M	80	3/4" BSPP	700	1335	15600
KU4		HE1-R1U	HE	1	R	1	U	81	3/4" BSPP	700	2270	15600
TC20		HE2-R1L	HE	2	R	1	L	83	3/4" BSPP	700	400	16090
IP9		HE2-R1M	HE	2	R	1	M	84	3/4" BSPP	700	1335	16090
TC21		HE2-R1U	HE	2	R	1	U	85	3/4" BSPP	700	2270	16090
KU5		HE3-R1L	HE	3	R	1	L	87	3/4" BSPP	700	400	16580
-		HE3-R1M	HE	3	R	1	M	88	3/4" BSPP	700	1335	16580
-		HE3-R1U	HE	3	R	1	U	89	3/4" BSPP	700	2270	16580
OP4		HE1-T1	HE	1	T	1		82	3/4" BSPP HOLE	-47	2735	15600
OP5		HE2-T1	HE	2	T	1		86	3/4" BSPP HOLE	0	2735	16090
OP6		HE3-T1	HE	3	T	1		90	3/4" BSPP HOLE	-47	2735	16580
OP7		HR4-T1	HR	4	T	1		91	1" BSPP	0	2735	16985
-		HR4-B1	HR	4	B	1		92	1" BSPP	0	-65	16985
KU6		HR4-R1L	HR	4	R	1	L	93	3/4" BSPP	700	400	16985
IP10		HR4-L1L	HR	4	L	1	L	94	3/4" BSPP	-700	400	16985
OP8		HR4-R1M	HR	4	R	1	M	95	3/4" BSPP	700	1335	16985
IP11		HR4-L1M	HR	4	L	1	M	96	3/4" BSPP	-700	1335	16985
IP13		HR4-R1U	HR	4	R	1	U	97	3/4" BSPP	700	2270	16985
IP12		HR4-L1U	HR	4	L	1	U	98	3/4" BSPP	-700	2270	16985
RA3		HR4-R3M	HR	4	R	3	M	99	11/4" BSPP	700	1335	17575
RA3		HR4-L3M	HR	4	L	3	M	100	11/4" BSPP	-700	1335	17575
RA4		HR4-R3L	HR	4	R	3	L	141	11/4" BSPP	700	400	17575
IP14		HR4-R3U	HR	4	R	3	U	142	3/4" BSPP	700	2270	17575
RA4		HR4-L3L	HR	4	L	3	L	143	11/4" BSPP	-700	400	17575
-		HR4-L3U	HR	4	L	3	U	144	3/4" BSPP	-700	2270	17575
IP18		HR4-R5M	HR	4	R	5	M	101	3/4" BSPP	700	1335	18165
IP16		HR4-L5M	HR	4	L	5	M	102	3/4" BSPP	-700	1335	18165
OP9		HR4-R5L	HR	4	R	5	L	145	3/4" BSPP	700	400	18165
KU7		HR4-R5U	HR	4	R	5	U	146	3/4" BSPP	700	2270	18165
IP15		HR4-L5L	HR	4	L	5	L	147	3/4" BSPP	-700	400	18165

Sensor	OLD DESIGNATION	NEW DESIGNATION	Section	Section Number	Side	Horizontal Location	Vertical Location	PORT REF	SIZE	"X"	"Y"	"Z"
IP17		HR4-L5U	HR	4	L	5	U	148	3/4" BSPP	-700	2270	18165
-		HR5-R1M	HR	5	R	1	M	NA	SURFACE	700	1200	18455
OP10		HR5-T2	HR	5	T	2		103	1" BSPP	0	2735	18775
-		HR5-B2	HR	5	B	2		104	1" BSPP	0	-65	18775
KU8		HR5-R2L	HR	5	R	2	L	105	3/4" BSPP	700	400	18775
IP19		HR5-L2L	HR	5	L	2	L	106	3/4" BSPP	-700	400	18775
OP11		HR5-R2M	HR	5	R	2	M	107	3/4" BSPP	700	1335	18775
IP20		HR5-L2M	HR	5	L	2	M	108	3/4" BSPP	-700	1335	18775
IP22		HR5-R2U	HR	5	R	2	U	109	3/4" BSPP	700	2270	18775
IP21		HR5-L2U	HR	5	L	2	U	110	3/4" BSPP	-700	2270	18775
TC22		HR5-R4M	HR	5	R	4	M	111	11/4" BSPP	700	1335	19375
-		HR5-L4M	HR	5	L	4	M	112	11/4" BSPP	-700	1335	19375
TC23		HR6-R1M	HR	6	R	1	M	113	3/4" BSPP	700	1335	19985
IP23		HR6-L1M	HR	6	L	1	M	114	3/4" BSPP	-700	1335	19985
-		HR6-T3	HR	6	T	3		115	1" BSPP	0	2735	20575
-		HR6-B3	HR	6	B	3		116	3/4" BSPP	0	-65	20575
KU9		HR6-R3L	HR	6	R	3	L	117	3/4" BSPP	700	400	20575
-		HR6-L3L	HR	6	L	3	L	118	3/4" BSPP	-700	400	20575
-		HR6-R3M	HR	6	R	3	M	119	11/4" BSPP	700	1335	20575
-		HR6-L3M	HR	6	L	3	M	120	11/4" BSPP	-700	1335	20575
-		HR6-R3U	HR	6	R	3	U	121	3/4" BSPP	700	2270	20575
-		HR6-L3U	HR	6	L	3	U	122	3/4" BSPP	-700	2270	20575
-		HR6-B5	HR	6	B	5		123	1" BSPP	0	-65	21165
TC24		HR6-R5L	HR	6	R	5	L	124	3/4" BSPP	700	400	21165
KU10		HR6-L5L	HR	6	L	5	L	125	3/4" BSPP	-700	400	21165
-		HR6-R5M	HR	6	R	5	M	126	3/4" BSPP	700	1335	21165
-		HR6-L5M	HR	6	L	5	M	127	3/4" BSPP	-700	1335	21165
TC25		HR6-R5U	HR	6	R	5	U	128	3/4" BSPP	700	2270	21165
-		HR6-L5U	HR	6	L	5	U	129	3/4" BSPP	-700	2270	21165
-		EP-1L	EP			1	L	130	1" BSPP	650	-15	21330
-		EP-2L	EP			2	L	131	1" BSPP	0	-15	21330
-		EP-3L	EP			3	L	132	1" BSPP	-650	-15	21330
-		EP-1M	EP			1	M	133	1" BSPP	250	1335	21330
-		EP-2M	EP			2	M	134	1" BSPP	-250	1335	21330
-		EP-1U	EP			1	U	135	3/4" BSPP	0	2270	21330


RIGHT HAND SIDE
TC0
TC2
TC4
KU0
KU1
TC6
OP1
OP2
TC8
RA1
TC16
TC18
RA2
OP3
TC17
IP7
KU4
TC21
IP13
IP14
IP22
TC25
IP6
IP9
OP8
RA3
IP18
OP11
TC22
TC23
IP5
IP4
TC20
KU5
KU6
RA4
KU8
KU9
TC24
Differential
Pressure Sensor


TOP
IGN
KU2
OP4
OP5
OP6
OP7
OP10


LEFT HAND SIDE (MIRROR IMAGE)
OP0
IP0
RA1
IP8
IP3
TC19
IP2
RA2
IP1
KU3
IP12
IP21
IP11
RA3
IP16
IP20
IP23
IP10
RA4
IP19
KU10