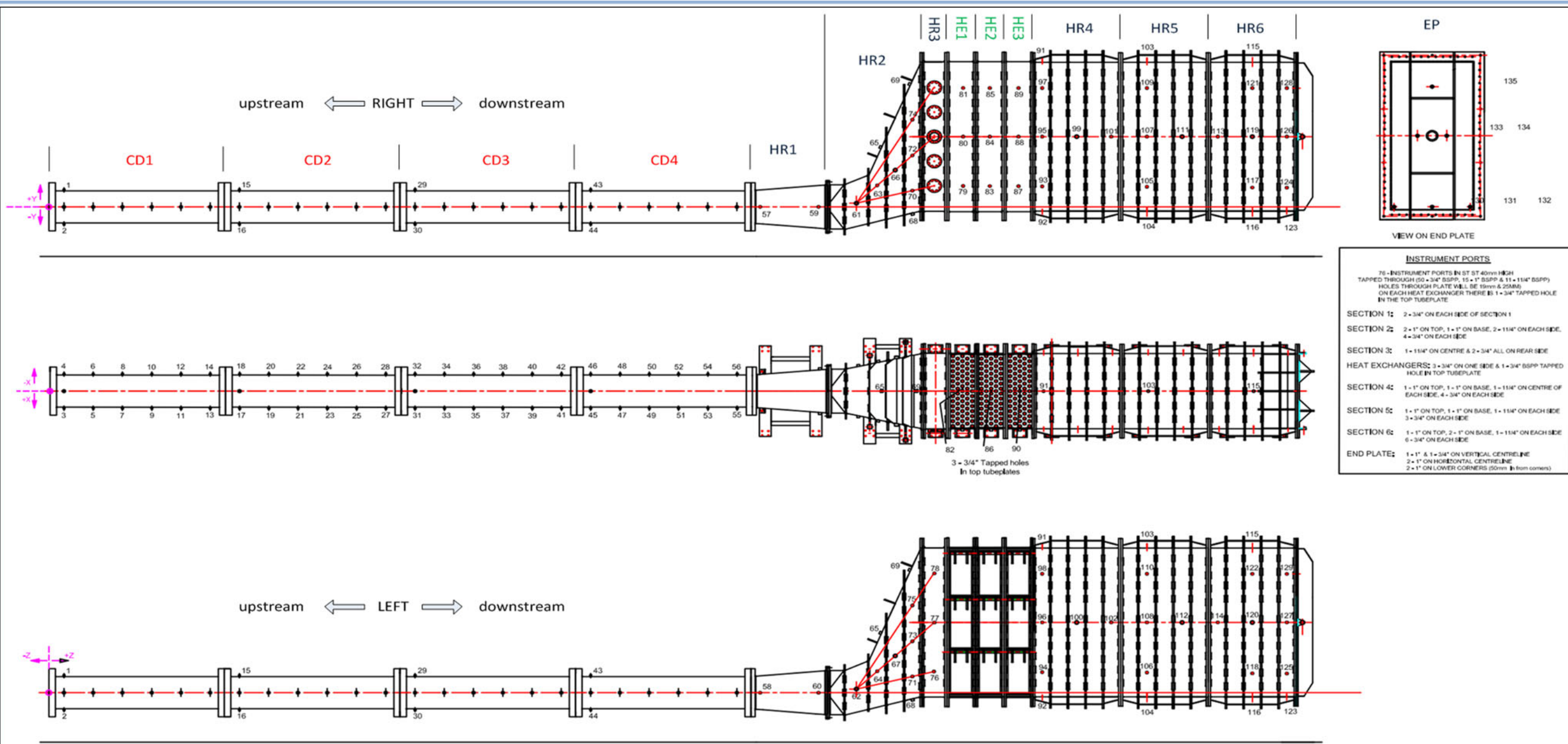


Date	22 May 2019	General Comments: (weather, rig configuration) Weather: Light wind. Cloudy with sunny spells. Rig configuration: 4 x 3m circular duct; expansion section and HRSG attached. End Plate attached. Igniter 258mm from beginning of 2nd circular duct section Engine Speed: 12.5%; 8,100 rpm Test on 60% H2 40% CO at an intended EQR of 0.40 LOW TEMPERATURE TESTS (NOMINAL 320 oC) Test gave a fairly strong combustion event which gave a good response on most sensors. Maximum overpressure of 898 mbar was in the circular duct on KU1
Time	11:56:27	
Test Number	HRSG Test 67	
Mixture Composition	40% CO 60% H2	
Ambient Temperature	12.9 °C	
Ambient Pressure	970.7 mbar	
Wind Speed	2.2 m/s	
Wind direction	SW	
Relative Humidity	64.00%	
Mass Flow	9.7530 kg/s	
Equivalence Ratio	0.39	

		Ionisation Probes		Ionisation Rakes		Optical Probes	
Max overpressure		Max. gas temperature		Max. flame speed		Max. flame speed	
898 mbar		1011 °C		136 m/s		223 m/s	
		Initial gas temperature				267 m/s	
		275 °C					
Location of Max. Overpressure		Location of Max. Temperature		Location of Max. Flame Speed		Location of Max. Flame Speed	
sensor	KU1	sensor	TC2	sensor	IP1	sensor	RA3
label	CD4-R2	label	CD2-R3	label	HR2-L5L	label	HR4-R3M
distance	9758 mm	distance	4258 mm	distance	14745 mm	distance	17575 mm
						sensor	OP1
						label	CD4-R6
						istance	11758 mm



Naming Convention

Section Identifier i.e. HE, HR, CD or EP	HR 1 - R 1 U	Vertical position in section (sides only) i.e. U, M or L. Absence of letter denotes centreline
Section Number (1-6) Numbered from downstream to upstream	Side i.e. R, L, T or B	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

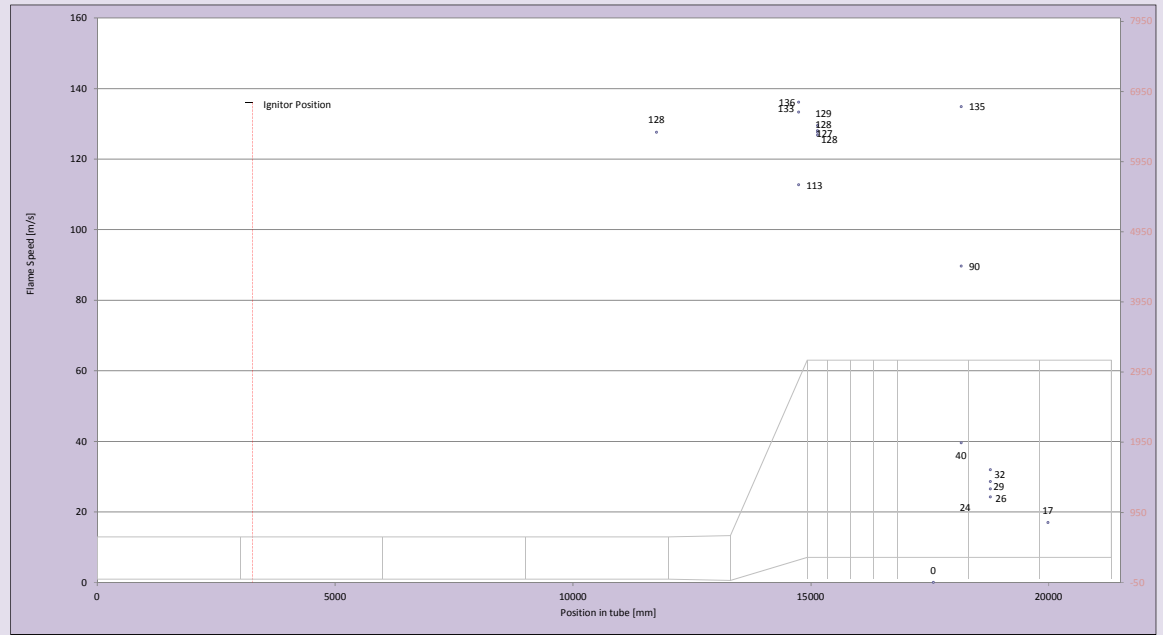
- 4 circular duct sections (CD1 to CD4)
- 6 HRSG sections (HR1 to HR6)
- 3 heat exchanger sections (HE1 to HE3) located between HR3 and HR4

Location of igniter 3258 mm

Time of ignition 20.45205 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	20.51870	128
IP1	HR2-L5L	Ionisation probe 1	14745	20.53646	136
IP2	HR2-L5M	Ionisation probe 2	14745	20.53823	133
IP3	HR2-L5U	Ionisation probe 3	14745	20.55399	113
IP4	HR3-R1L	Ionisation probe 4	15140	20.54385	129
IP5	HR3-R1LM	Ionisation probe 5	15140	20.54488	128
IP6	HR3-R1M	Ionisation probe 6	15140	20.54576	127
IP7	HR3-R1U	Ionisation probe 7	15140	20.54522	128
IP8	HR3-L1U	Ionisation probe 8	15140	20.55868	
IP9	HE2-R1M	Ionisation probe 9	16090	20.54254	
IP10	HR4-L1L	Ionisation probe 10	16985	20.54723	
IP11	HR4-L1M	Ionisation probe 11	16985	20.54911	
IP12	HR4-L1U	Ionisation probe 12	16985	20.55184	
IP13	HR4-R1U	Ionisation probe 13	16985	20.55226	
IP14	HR4-R3U	Ionisation probe 14	17575		ND
IP15	HR4-L5L	Ionisation probe 15	18165	20.55598	135
IP16	HR4-L5M	Ionisation probe 16	18165	20.56227	90
IP17	HR4-L5U	Ionisation probe 17	18165	20.58164	40
IP18	HR4-R5M	Ionisation probe 18	18165		
IP19	HR5-L2L	Ionisation probe 19	18775	20.57903	26
IP20	HR5-L2M	Ionisation probe 20	18775	20.58358	29
IP21	HR5-L2U	Ionisation probe 21	18775	20.60678	24
IP22	HR5-R2U	Ionisation probe 22	18775	20.60837	32
IP23	HR6-L1M	Ionisation probe 23	19985	20.65473	17

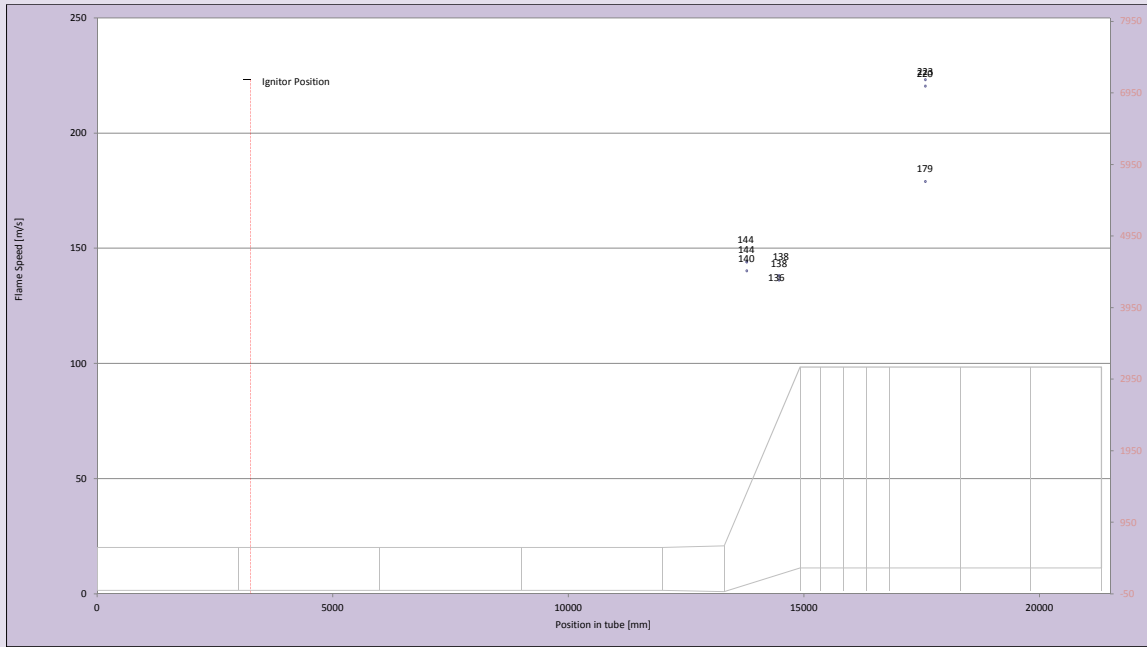
KEY: ND - not detected - sensor working but flame too weak to be picked up
 NW - not working - sensor not



Location of igniter 3258 mm Time of ignition 20.45205 seconds

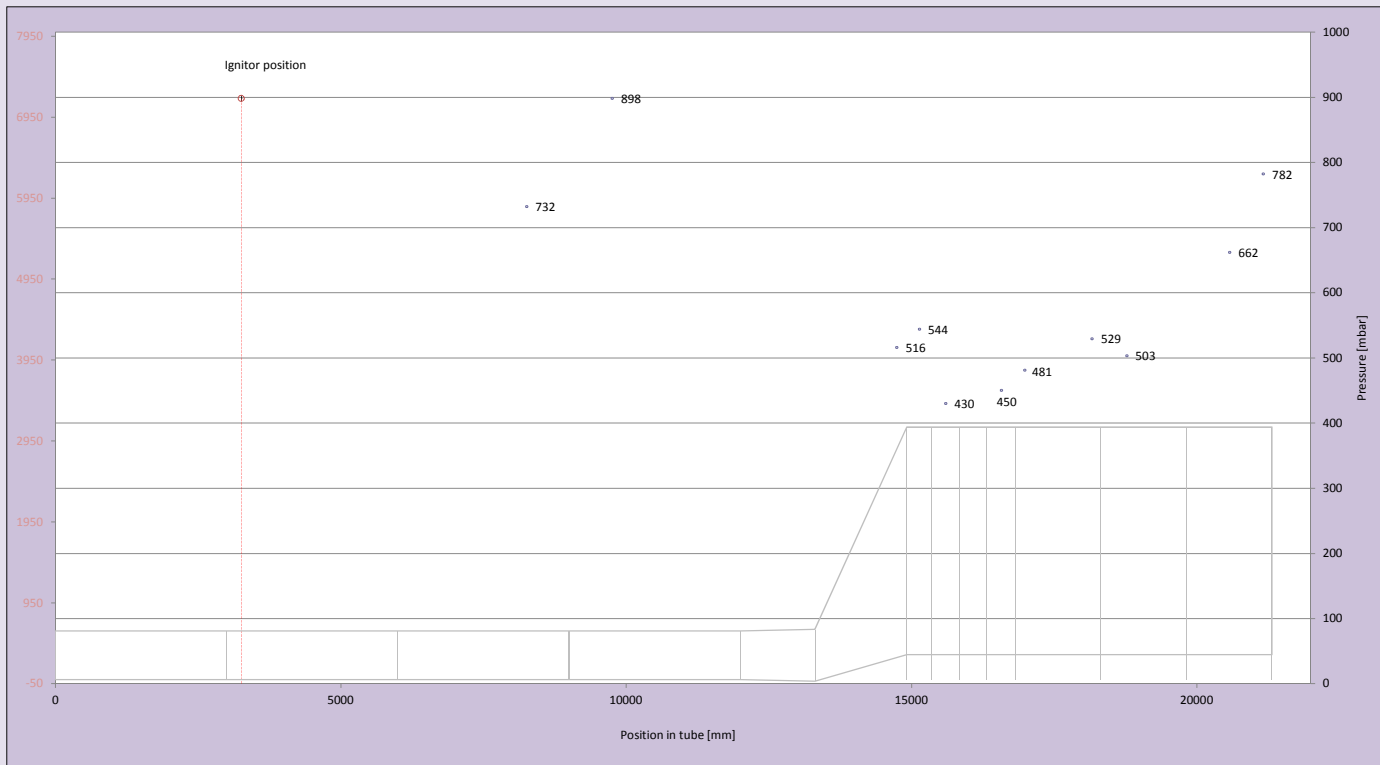
Rake Number	IP Number	Location label	Data Name	Position in tube (mm)	Flame arrival time (s)	Avg Flame speed from last sensor (m/s)
RA1	IP24	HR2-R2M	IP24	13785	20.5251	144
RA1	IP25	HR2-R2M	IP25	13785	20.5251	144
RA1	IP26	HR2-R2M	IP26	13785	20.5271	140
RA2	IP27	HR2-R4M	IP27	14475	20.5332	138
RA2	IP28	HR2-R4M	IP28	14475	20.5334	138
RA2	IP29	HR2-R4M	IP29	14475	20.5344	136
RA3	IP30	HR4-R3M	IP30	17575	20.5473	220
RA3	IP31	HR4-R3M	IP31	17575	20.5473	223
RA3	IP32	HR4-R3M	IP32	17575	NW	
RA4	IP33	HR4-R3L	IP33	17575	NW	
RA4	IP34	HR4-R3L	IP34	17575	NW	
RA4	IP35	HR4-R3L	IP35	17575	20.5517	179

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

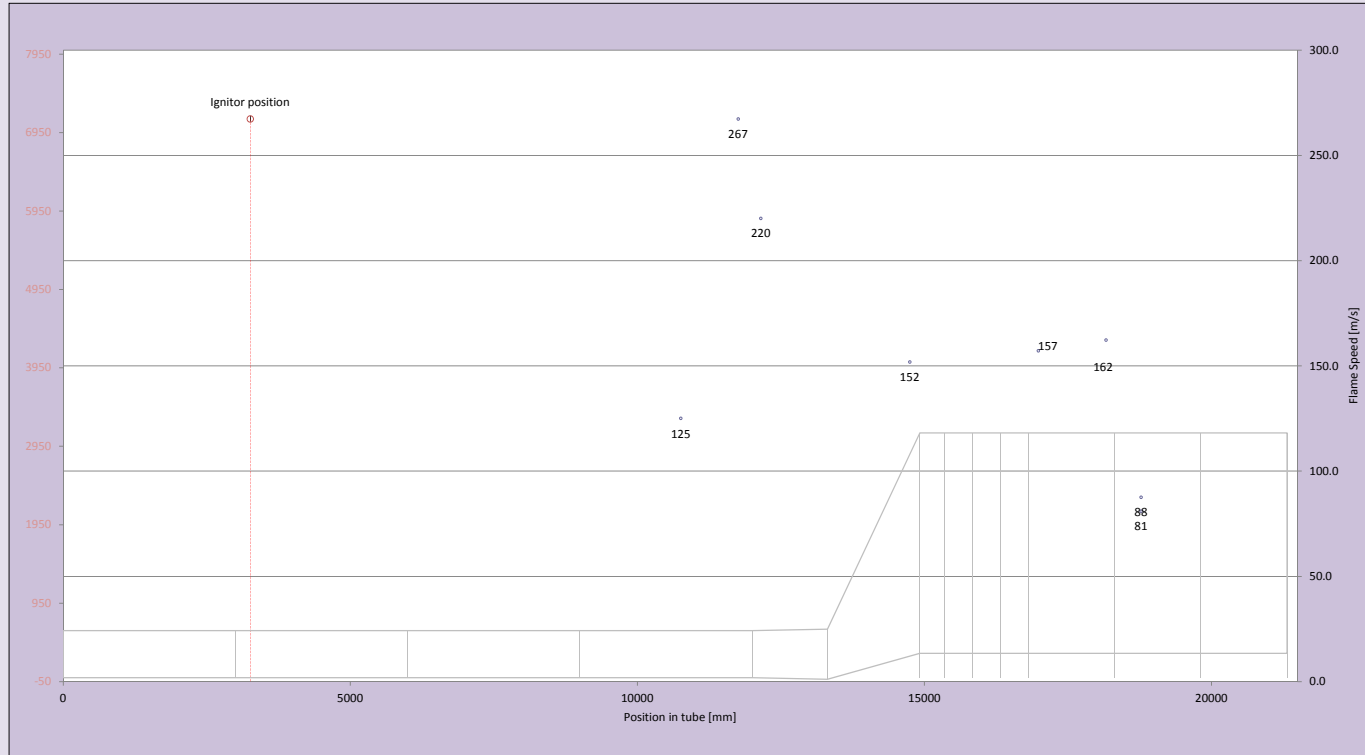
Transducer number	Location	Position in tube [mm]	ΔP_{max} [mbar]	Time ΔP_{max} [sec]
KU0	CD3-R5	8258	732	20.6380
KU1	CD4-R2	9758	898	20.6415
KU2	HR2-T5	14745	516	20.5698
KU3	HR3-L1L	15140	544	20.6456
KU4	HE1-R1U	15600	430	20.5470
KU5	HE3-R1L	16580	450	20.5475
KU6	HR4-R1L	16985	481	20.5493
KU7	HR4-R5U	18165	529	20.5645
KU8	HR5-R2L	18775	503	20.5619
KU9	HR6-R3L	20575	662	20.5601
KU10	HR6-LSL	21165	782	20.5606



Location of igniter mm Time of ignition seconds

OP Number	Location label	Position in tube (mm)	Flame arrival time (s)	Average flame speed (m/s)
OP0	CD4-L4	10758	20.5120	125.1
OP1	CD4-R6	11758	20.5157	267.4
OP2	HR1-R1	12152	20.5175	220.1
OP3	HR2-R5M	14745	20.5346	151.9
OP4	HE1-T1	15600	20.5527	
OP5	HE2-T1	16090	20.5512	
OP6	HE3-T1	16580	20.5536	
OP7	HR4-T1	16985	20.5564	
OP8	HR4-R1M	16985	20.5489	157.2
OP9	HR4-R5L	18165	20.5557	162.3
OP10	HR5-T2	18775	20.5843	81.1
OP11	HR5-R2M	18775	20.5806	87.6

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

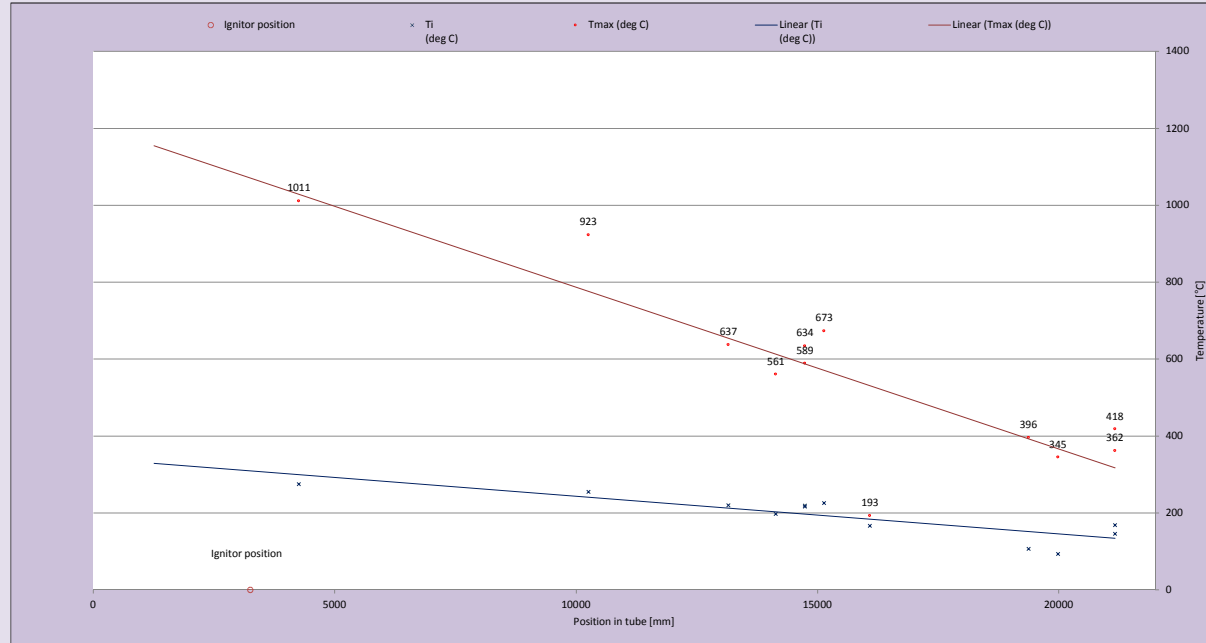


Location of igniter mm Time of ignition seconds

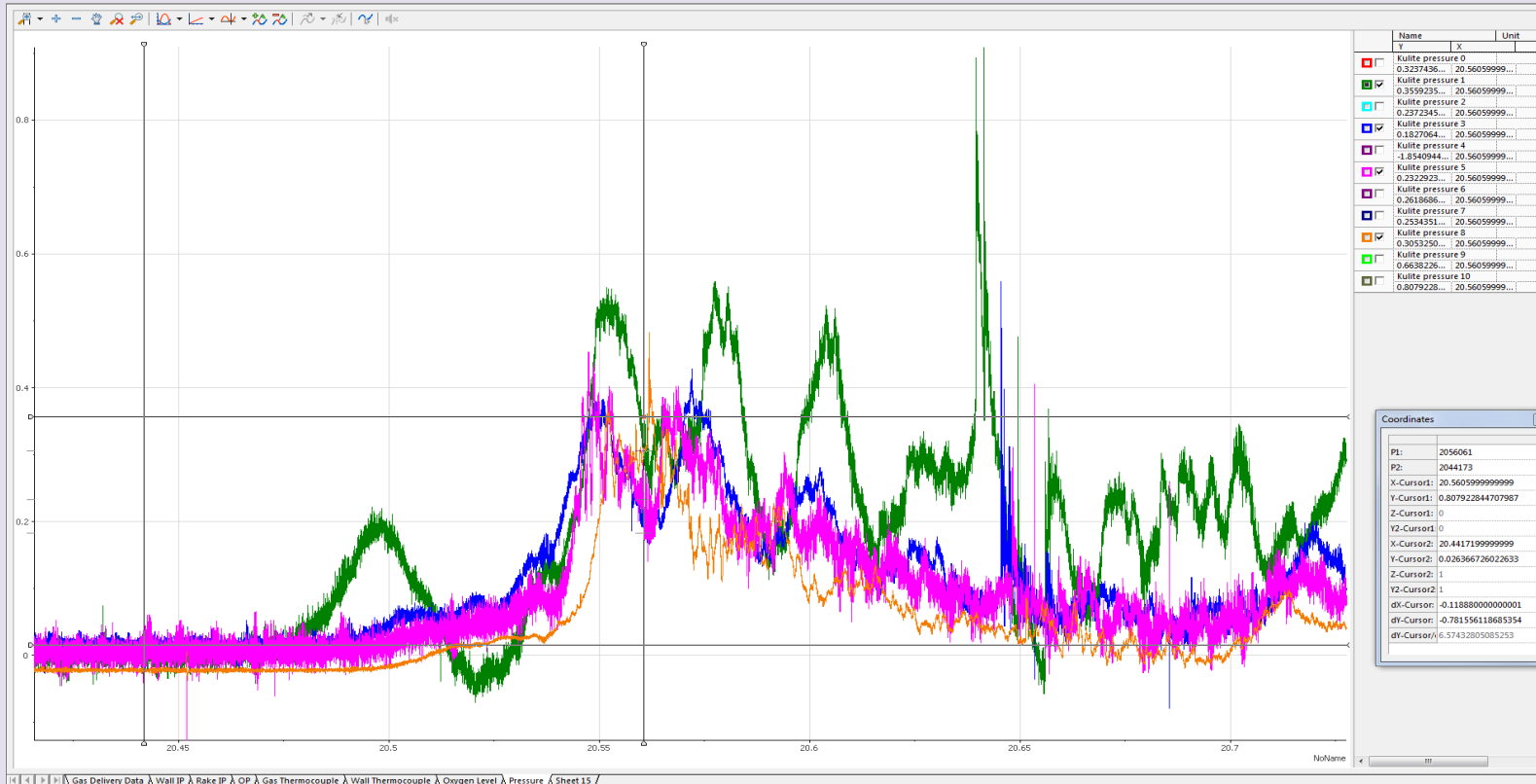
Thermocouple number	Location	Position in tube (mm)	T _{max} (deg C)	T _i (deg C)
TC0	CD1-R3	1258		
TC2	CD2-R3	4258	1011	275
TC4	CD3-R3	7258		
TC6	CD4-R3	10258	923	255
TC8	HR1-R2	13160	637	220
TC12	CD3-T1	6258	492	265
TC13	CD3-L1	6258	516	267
TC14	CD3-B1	6258		
TC15	CD3-R1	6258	530	279
TC16	HR2-R3M	14140	561	198
TC17	HR2-R5L	14745	634	219
TC18	HR2-R5U	14745	589	217
TC19	HR3-L1M	15140	673	226
TC20	HE2-R1L	16090		
TC21	HE2-R1U	16090	193	167
TC22	HR5-R4M	19375	396	107
TC23	HR6-R1M	19985	345	94
TC24	HR6-R5L	21165	362	146
TC25	HR6-R5U	21165	418	169

surface thermocouples [not plotted]

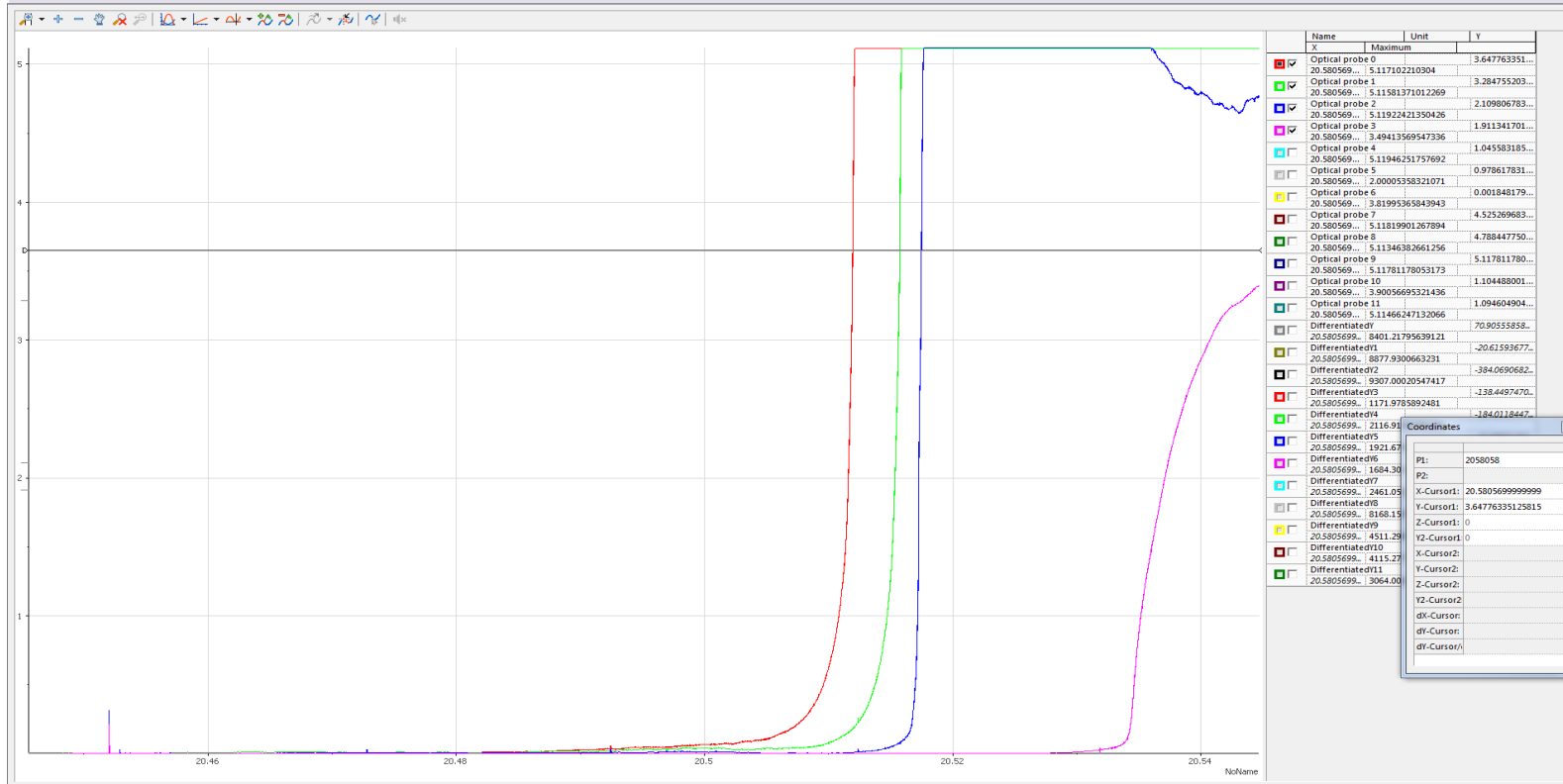
TC1	CD1-T2	1508	81	72
TC3	CD2-T2	4508	66	58
TC5	CD3-T2	7508	65	57
TC7	CD4-T2	10508	45	39



Pressure



Optical Probes



Name	Unit	Y
X	Maximum	
Optical probe 0		3.647763351...
20.580569... 5.117102210304		
Optical probe 1		3.284755203...
20.580569... 5.11581371012269		
Optical probe 2		2.109806783...
20.580569... 5.11922421350426		
Optical probe 3		1.911341701...
20.580569... 3.49413669547336		
Optical probe 4		1.045583185...
20.580569... 5.11946251757692		
Optical probe 5		0.978617831...
20.580569... 2.0000358321071		
Optical probe 6		0.001848179...
20.580569... 3.21995365843943		
Optical probe 7		4.525269683...
20.580569... 5.11819901267894		
Optical probe 8		4.788447750...
20.580569... 5.11346382661256		
Optical probe 9		5.117811780...
20.580569... 5.11781178053173		
Optical probe 10		1.104488001...
20.580569... 3.90056695321436		
Optical probe 11		1.094604904...
20.580569... 5.11466247132066		
Differentiated0		70.90555855...
20.580569... 8401.21795639121		
Differentiated1		-20.61593677...
20.580569... 8877.9300663231		
Differentiated2		-384.0690682...
20.580569... 9307.00020547417		
Differentiated3		-138.4497470...
20.580569... 1171.9785892481		
Differentiated4		-184.0128447...
20.580569... 2116.91		
Differentiated5		
20.580569... 1921.67		
Differentiated6		
20.580569... 1684.38		
Differentiated7		
20.580569... 2461.08		
Differentiated8		
20.580569... 8168.13		
Differentiated9		
20.580569... 4511.29		
Differentiated10		
20.580569... 4115.27		
Differentiated11		
20.580569... 3064.08		

Coordinates

P1: 2058058

P2:

X-Cursor1: 20.580569999999999

Y-Cursor1: 3.64776335125815

Z-Cursor1: 0

Y2-Cursor1: 0

X-Cursor2:

Y-Cursor2:

Z-Cursor2:

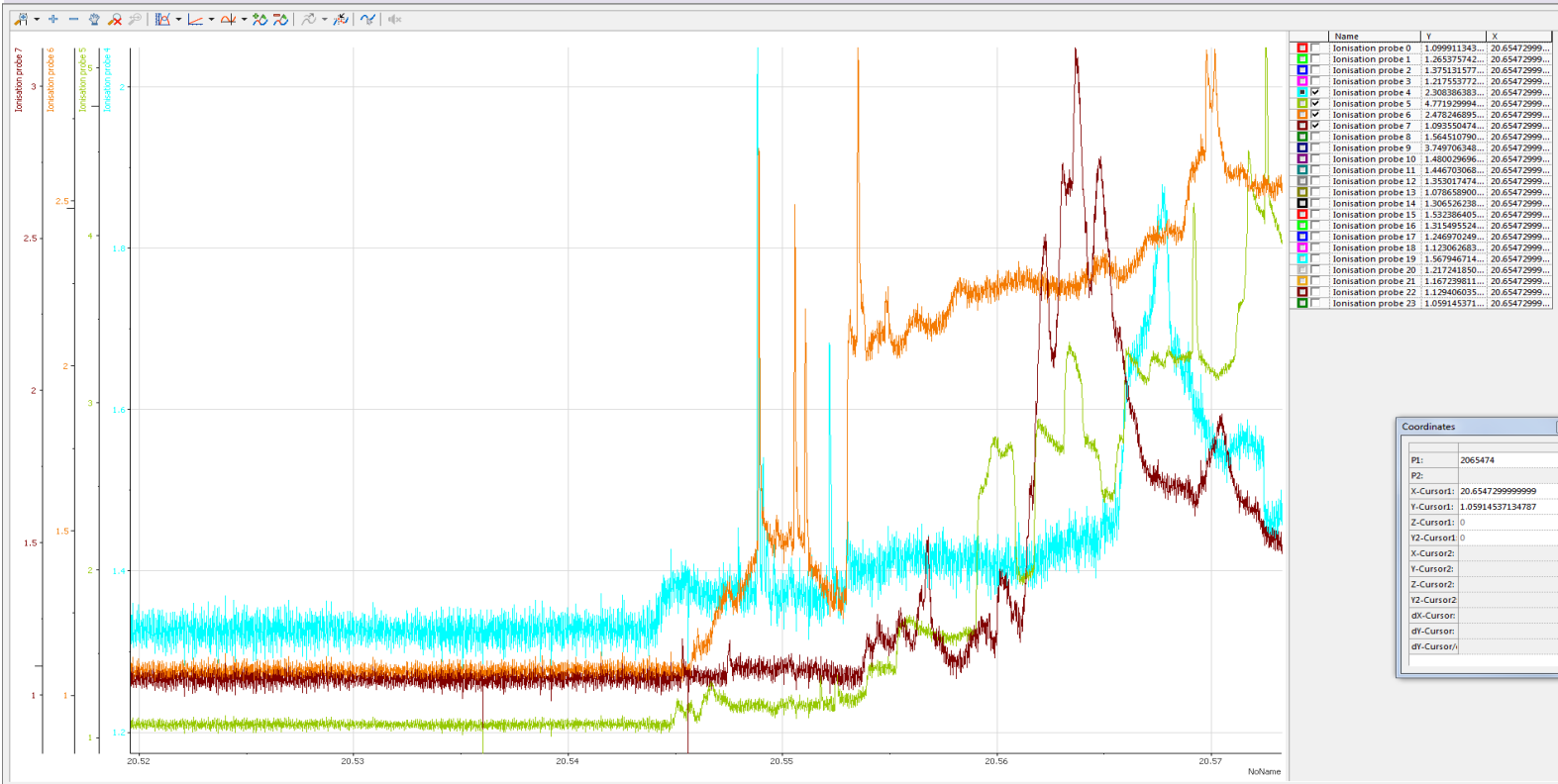
Y2-Cursor2:

dX-Cursor:

dY-Cursor:

dZ-Cursor:

Ionisation Probes



Coordinates

P1: 2065474

P2:

X-Cursor1: 20.6547299999999

Y-Cursor1: 1.05914537134787

Z-Cursor1: 0

Y2-Cursor1: 0

X-Cursor2:

Y-Cursor2:

Z-Cursor2:

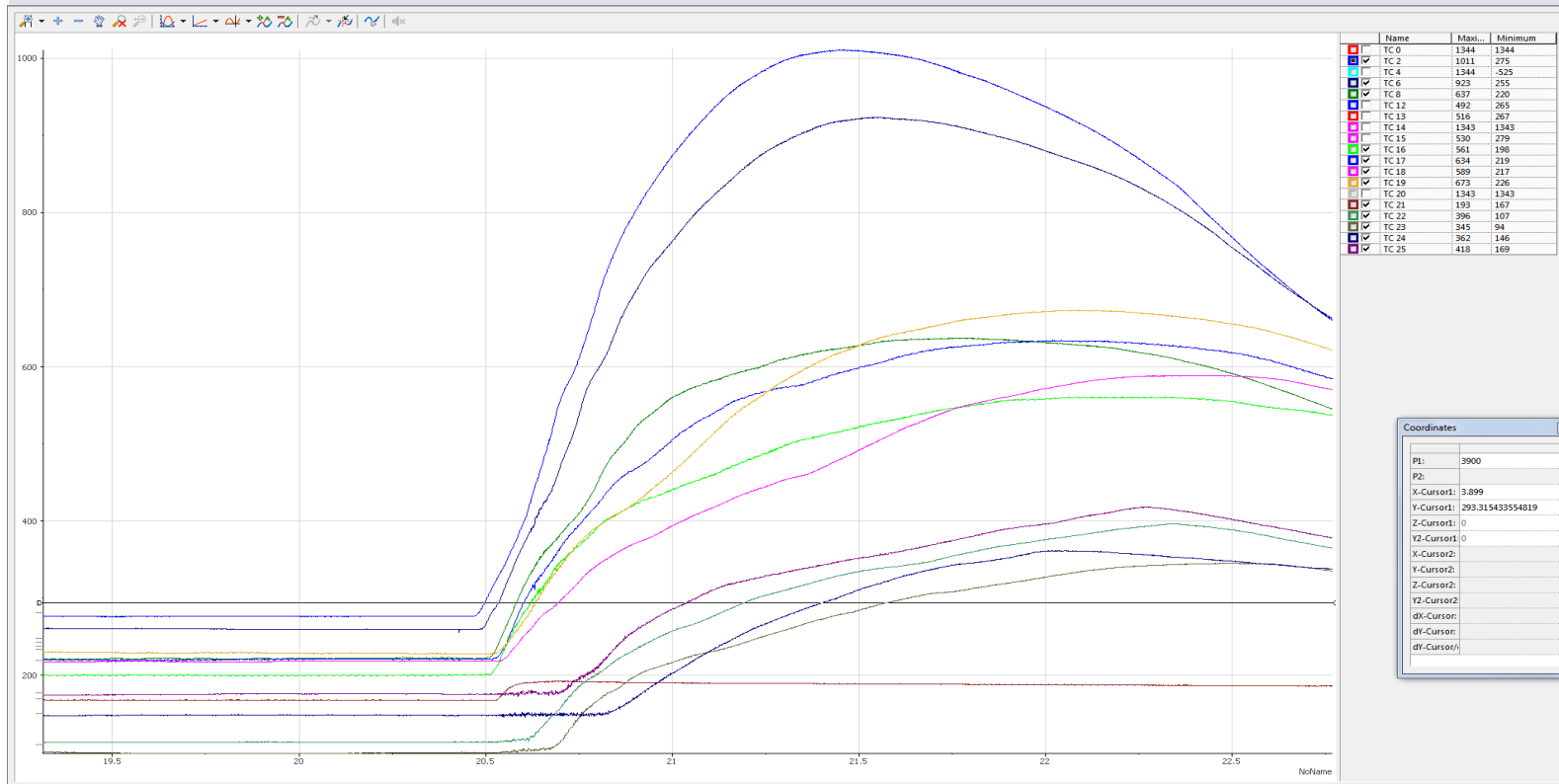
Y2-Cursor2:

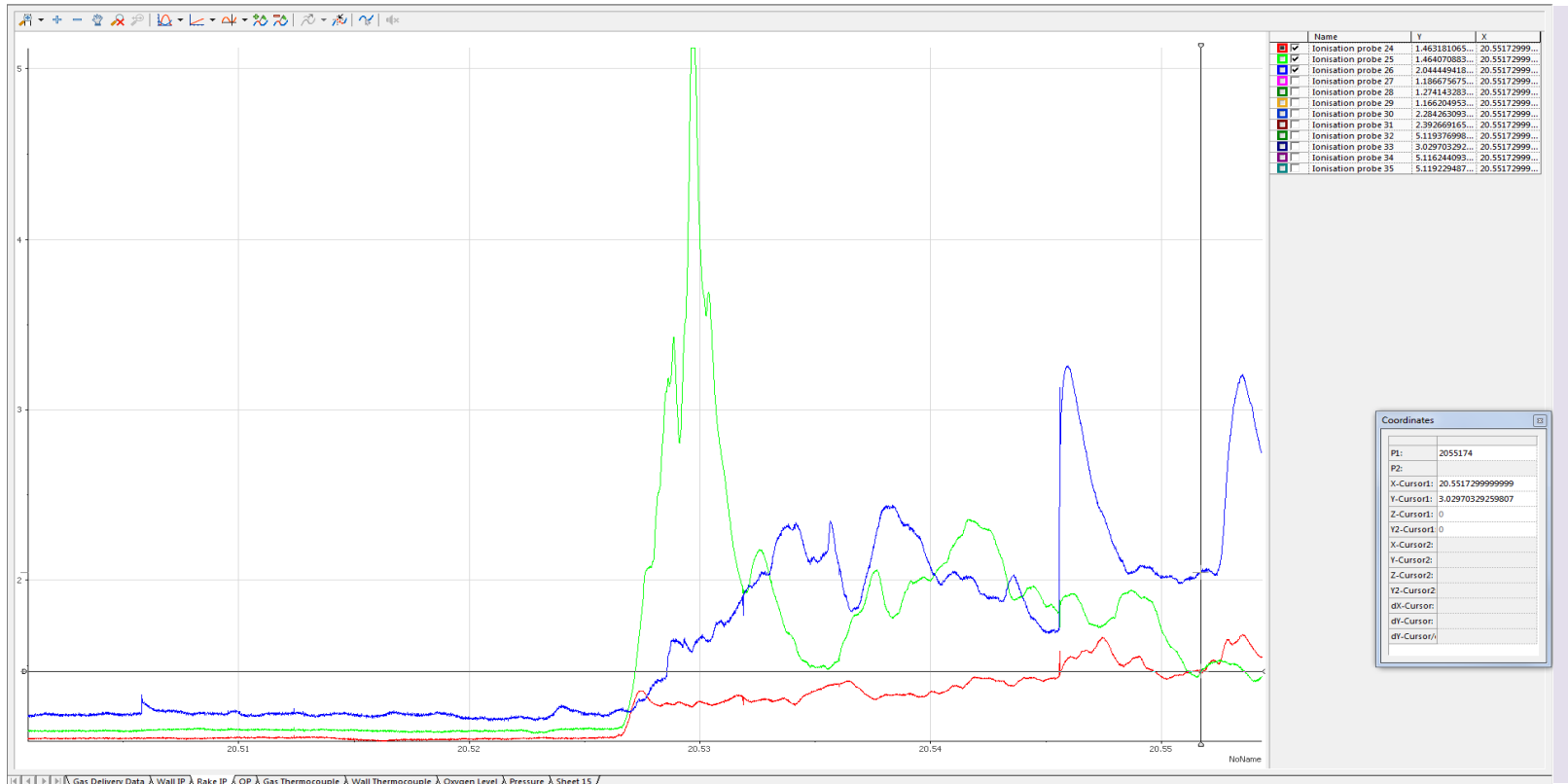
dX-Cursor:

dY-Cursor:

dZ-Cursor:

Temperature





Name	Y	X
<input checked="" type="checkbox"/> Ionisation probe 24	1.463181065...	20.55172999...
<input checked="" type="checkbox"/> Ionisation probe 25	1.464070883...	20.55172999...
<input checked="" type="checkbox"/> Ionisation probe 26	2.04449418...	20.55172999...
<input checked="" type="checkbox"/> Ionisation probe 27	1.186679675...	20.55172999...
<input checked="" type="checkbox"/> Ionisation probe 28	1.274143283...	20.55172999...
<input type="checkbox"/> Ionisation probe 29	1.166204953...	20.55172999...
<input type="checkbox"/> Ionisation probe 30	2.284263095...	20.55172999...
<input type="checkbox"/> Ionisation probe 31	2.392669165...	20.55172999...
<input type="checkbox"/> Ionisation probe 32	5.119376998...	20.55172999...
<input type="checkbox"/> Ionisation probe 33	3.029703292...	20.55172999...
<input type="checkbox"/> Ionisation probe 34	5.116244093...	20.55172999...
<input type="checkbox"/> Ionisation probe 35	5.119229487...	20.55172999...

Coordinates

P1: 2055174

P2:

X-Cursor1: 20.55172999999999

Y-Cursor1: 3.02970329259807

Z-Cursor1: 0

Y2-Cursor1: 0

X-Cursor2:

Y-Cursor2:

Z-Cursor2:

Y2-Cursor2:

dx-Cursor:

dy-Cursor:

dz-Cursor:

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
TC12		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
TC14		CD3-B1	CD	3	B	1		30	1" BSPP	0	-298	6258
TC15	NS3-1	CD3-R1	CD	3	R	1		31	3/4" BSPP	298	0	6258
TC13	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

