CARTER
RETAIL EQUIPMENT LTD

Cabinet Type	**Full Height Glass Door**
Model Designation	**FD – 2015 Spec**

Document Issue

1	15.10.15	NM	First Issue New 2015 spec
2	24.11.15	GR	Orifice Sizes Updated
3	25.10.16	GL	GEN 3 data added
4	19.01.18	NM	Commissioning Data Updated
5-7	20.09.18	IP	Water flow rates updated for GEN 3
8	10.09.18	IP	Flow rates amended for GEN 3
9	15.09.18	IP	General Amendments
10	3.07.19	IP	R448A and R449A Valve information added
11	26.02.20	NM	GEN 3 Total loads added

cabinet **TECHNICAL DATA**

RETAIL EQUIPMENT LTD

Contents

Cabinet Technical Data Sheet – FD HFC

Product Type	Frozen Food
Product Temperature	-18°C
Maximum Design Ambient	25°C @ 60%RH

Case Length [m]	5 Dr (3.90)	4 Dr (3.12)	3 Dr (2.34)	2 Dr (1.56)
Refrigeration Data				
Refrigeration Duty (per 24hrs) [kW]	2.50	1.99	1.49	0.99
Evaporating Temperature [°C] 3L1	-31	-31	-31	-31
Evaporating Temperature [°C] 3L2	-28	-28	-28	-28
R407A/F TE2 Expansion Valve Orifice	No. 3	No.2	No.2	No.1
R407A/F AKV 10 Expansion Valve	AKV10-4	AKV10-4	AKV10-3	AKV10-2
R407A/F CAREL E2V Orifice Size	11	9	9	5
R404A TE2 Expansion Valve Orifice	No. 3	No.3	No.2	No.1
R404A AKV 10 Expansion Valve	AKV10-5	AKV10-4	AKV10-4	AKV10-3
R448A / R449A TE2 Expansion Valve Orifice	No3	No2	No1	No0
R448A / R449A AKV10 Expansion Valve	AKV10-4	AKV10-4	AKV10-3	AKV10-2
Evaporator Liquid Capacity @ 25% R404A [kg]	3.4	2.69	1.98	1.28
Evaporator Liquid Capacity @ 25% R407A [kg]	3.67	2.91	2.14	1.38
Refrigeration Pipe Tail – Liquid	3/8"	3/8"	3/8"	3/8"
Refrigeration Pipe Tail – Suction	7/8"	7/8"	7/8"	7/8"

Electrical Data (@ 230V 50Hz)	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps
Defrost Heaters	4900	21.3	3800	16.5	2750	11.9	1700	7.4
Fans (EC EBM)	35	0.15	28	0.12	21	0.09	14	0.06
Trim Heaters (Max)	615	2.67	576	2.50	380	1.65	288	1.25
Solenoid Valve / Controller	10	0.04	10	0.04	10	0.04	10	0.04
Lights (Based on Phillips RDL LED)	60	0.26	48	0.21	36	0.16	24	0.10
Maximum Load – Electric Defrost	5620	26.42	4462	19.37	3197	13.84	2036	8.85

Electrical Data (@400V 3ph 50Hz)	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Maximum Load – Electric Defrost	3.5	11	11	3	8.5	8.5	2	6	6	1.5	4	4

Miscellaneous Data

Refrigeration Connections	Top of Cabinet LHS
Electrical Connection	Underside of Cabinet LHS

Set-Up Data**	Electric Defrost
Cut in Temperature [°C]	-22
Cut out Temperature [°C]	-24
N° Defrosts (per 24hrs)	2
Maximum Defrost Time [mins]	60
Defrost Termination Temp (coil probe) [°C]	1
Drain Down Time [mins]	2
Fans in Defrost (slow speed in defrost)	OFF
Cabinet Temperature Ratio (%)	50
Superheat [K]	4
Temp to Turn Fan ON After Defrost [°C]	-15
Time to Turn Fan ON After Defrost [min]	10

*NOTES! ** Set-up data is for guidance only. Final settings to be determined by commissioning contractor.*
**** If End Case ADD 143W (0.62A) per Cabinet for End Glazed units only.*

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Cabinet Technical Data Sheet – FD CO2

Product Type	Frozen Food
Product Temperature	-18°C
Maximum Design Ambient	25°C @ 60%RH

Case Length [m]	5 Dr (3.90)	4 Dr (3.12)	3 Dr (2.34)	2 Dr (1.56)
Refrigeration Data				
Refrigeration Duty (per 24hrs) [kW]	2.50	1.99	1.49	0.99
Evaporating Temperature [°C] 3L1	-29	-29	-29	-29
Evaporating Temperature [°C] 3L2	-26	-26	-26	-26
R744 AKVH 10 Expansion Valve Size	3	2	2	1
Evaporator Liquid Capacity @ 25% R744 [kg]	2.92	2.31	1.70	1.10
Evaporator Liquid Capacity @ 90% R744 [kg]	10.50	8.32	6.14	3.95
Refrigeration Pipe Tail – Liquid	3/8”	3/8”	3/8”	3/8”
Refrigeration Pipe Tail – Suction	1/2”	1/2”	1/2”	1/2”

Electrical Data (@ 230V 50Hz)	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps
Defrost Heaters	4900	21.3	3800	16.5	2750	11.9	1700	7.4
Fans (EC EBM)	35	0.15	28	0.12	21	0.09	14	0.06
Trim Heaters (Max)	615	2.67	576	2.50	380	1.65	288	1.25
Solenoid Valve / Controller	10	0.04	10	0.04	10	0.04	10	0.04
Lights (Based on Phillips RDL LED)	60	0.26	48	0.21	36	0.16	24	0.10
Maximum Load – Electric Defrost	5620	26.42	4462	19.37	3197	13.84	2036	8.85

Electrical Data (@400V 3ph 50Hz)	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Maximum Load – Electric Defrost	3.5	11	11	3	8.5	8.5	2	6	6	1.5	4	4

Miscellaneous Data

Refrigeration Connections	Top of Cabinet LHS
Electrical Connection	Underside of Cabinet LHS

Set-Up Data**	Electric Defrost
Cut in Temperature [°C]	-22
Cut out Temperature [°C]	-24
N° Defrosts (per 24hrs)	2
Maximum Defrost Time [mins]	60
Defrost Termination Temp (coil probe) [°C]	1
Drain Down Time [mins]	2
Fans in Defrost (slow speed in defrost)	OFF
Cabinet Temperature Ratio (%)	50
Superheat [K]	4
Temp to Turn Fan ON After Defrost [°C]	-15
Time to Turn Fan ON After Defrost [min]	10

*NOTES! ** Set-up data is for guidance only. Final settings to be determined by commissioning contractor.*
**** If End Case ADD 143W (0.62A) per Cabinet for End Glazed units only.*

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Cabinet Technical Data Sheet – FD Water Cooled GEN 1

Product Type	Frozen Food 3L1
Product Temperature	-18°C / -22°C
Maximum Design Ambient	25°C 60%RH

Case Length [m]	5DR	4DR	3DR	2DR
Refrigeration Data				
Nett Environmental Cooling Effect		-0.19	-0.34	-0.09
Refrigerant Charge per System R1270		600g	550g	600g

Electrical Data *(individual loads 230v)*	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps
Defrost Heaters	4900	21.3	3800	16.5	2750	11.9	1700	7.4
Fans	35	0.15	28	0.12	21	0.09	14	0.06
Trim Heaters Frame	860	3.74	688	2.99	464	2.02	344	1.49
Controller	10	0.04	10	0.04	10	0.04	10	0.04
Lights LED	60	0.48	48	0.21	36	0.16	24	0.10
Condensing unit	3839	16.69	2700	11.7	1932	8.4	1358	5.9
Maximum Load – Electric Defrost	5865	25.5	4574	19.87	3281	14.26	2092	9.09

Electrical Data (@400V 3ph 50Hz)	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Maximum Load – Electric Defrost	4.4	10.7	10.7	3	8.5	8.5	2	6	6	1.5	4	4

Miscellaneous Data				
Drain Outlet	40mm Plastic			
Electrical Connections	Underside of Cabinet LHS			
Chilled Water Connections	22mm			
Engineering Data-THR				
Total Heat Rejection THR [KW]	4.96	3.88	3.33	1.94
THR to Air (kW)	0.675	0.675	0.675	0.338
THR (Water only) [KW]	4.29	3.21	2.66	1.6
Glycol Flow Rate [Kg/S]***	0.183	0.137	0.144	0.068
Plate Heat Exchanger [Kpa] each	1 @ 7.5Kpa	1 @ 7.5Kpa	1 @ 7.5Kpa	1 @ 0.86Kpa
Water Inlet Temperature	18°C			
Water Outlet Temperature	24°C			

Set-Up Data**	Frozen	Ice Cream
Cut in Temperature [°C]	-22	-24
Cut out Temperature [°C]	-24	-26
Cabinet Temperature Ratio (%)	50	50
Anti Cycle Time [Seconds]	180	180
Lag Comp Delay [Seconds]	60	60
N° Defrosts (per 24hrs)	2	2
Maximum Defrost Time [mins]	45	45
Defrost Termination Temp [°C]	1	1
Drain Down Time [mins]	2	2
Fans in Defrost	Off	Off
Integral Control	Basic	Basic
Trim Heater Control (%)	60	60

*NOTES! ** Set-up data is for guidance only. Final settings to be determined by commissioning contractor.*
**** Flow rate for Glycol based on 27% DTX @ 20°C = 3.9 KJ/(KG-K)*

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Cabinet Technical Data Sheet – FD Water Cooled GEN 3

Product Type	Frozen Food 3L1
Product Temperature	-18°C / -22°C
Maximum Design Ambient	25°C 60%RH

Case Length [m]	**4DR**	**3DR**	**2DR**
Refrigeration Data			
Nett Environmental Cooling Effect	-0.634	-0.64	-0.32
Refrigerant Charge per System R1270	600g	600g	600g

Electrical Data *(individual loads 230v)*	**Watts**	**Amps**	**Watts**	**Amps**	**Watts**	**Amps**
Defrost Heaters	3800	16.5	2750	11.9	1700	7.4
Fans	28	0.12	21	0.09	14	0.06
Trim Heaters Frame	576	2.51	380	1.65	288	1.25
Trim Heaters Doors If Applicable	440	1.91	330	1.43	220	0.95
Controller	10	0.04	10	0.04	10	0.04
Lights LED	48	0.21	36	0.16	24	0.10
Condensing unit	2700	11.7	1932	8.4	1358	5.9
Total Load Max	4902	21.3	3527	15.3	2256	9.8

Electrical Data (@400V 3ph 50Hz)	**L1**	**L2**	**L3**	**L1**	**L2**	**L3**	**L1**	**L2**	**L3**
Maximum Load – Electric Defrost	4.8	8.3	8.3	3.4	6	6	2.4	3.7	3.7

Miscellaneous Data			
Drain Outlet	40mm Plastic		
Electrical Connections	Underside of Cabinet LHS		
Chilled Water Connections	22mm		
Engineering Data-THR			
Total Heat Rejection THR [KW]	5.007	4.563	2.22
THR to water (kW)	4.677	4.233	3.004
THR (Water only) [KW]	0.675	0.675	0.33
Plate Heat Exchanger [Kpa] each	1 @ 10Kpa	1 @ 10Kpa	1 @ 3.79Kpa
Engineering Data - Flow Rates			
Inlet temp 41°C –Outlet Temp 46 °C Glycol Flow Rate [Kg/S]***	0.2314	0.2094	0.1486
Inlet temp 40 °C - Outlet Temp 46 °C Glycol Flow Rate [Kg/S]***	0.1928	0. 1745	0.1239
Cut in Temperature [°C]	-22	-24	
Cut out Temperature [°C]	-24	-26	
Cabinet Temperature Ratio (%)	50	50	
Anti Cycle Time [Seconds]	180	180	
Lag Comp Delay [Seconds]	60	60	
N° Defrosts (per 24hrs)	2	2	
Maximum Defrost Time [mins]	45	45	
Defrost Termination Temp [°C]	1	1	
Drain Down Time [mins]	2	2	
Fans in Defrost	Off	Off	
Integral Control	Basic	Basic	
Trim Heater Control (%)	60	60	

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*** Based on 15% DTX 4.0425 KJ/Kg

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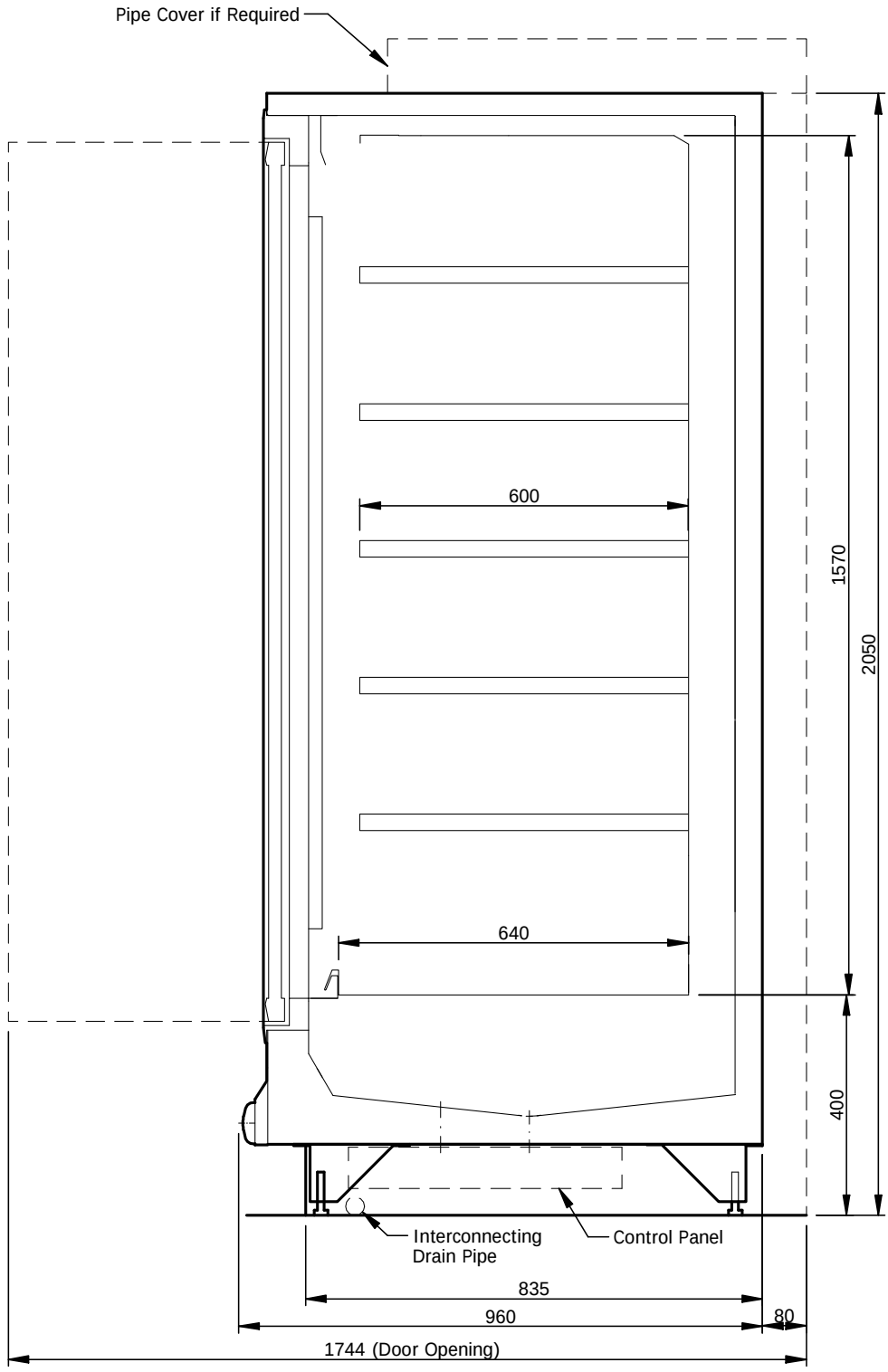
Section Drawing – FD (HFC & C02)



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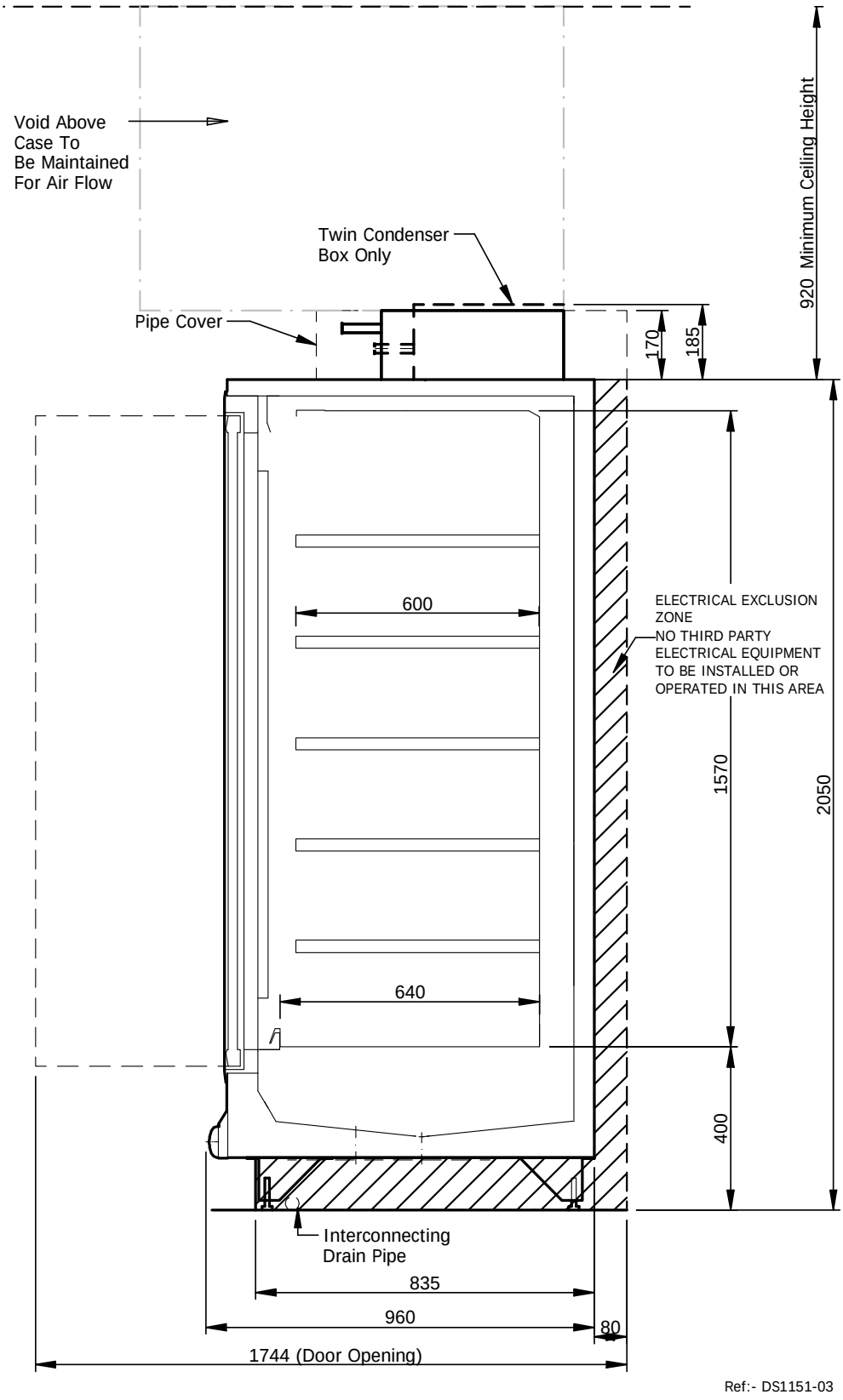
Section Drawing – FD (Water Cooled)



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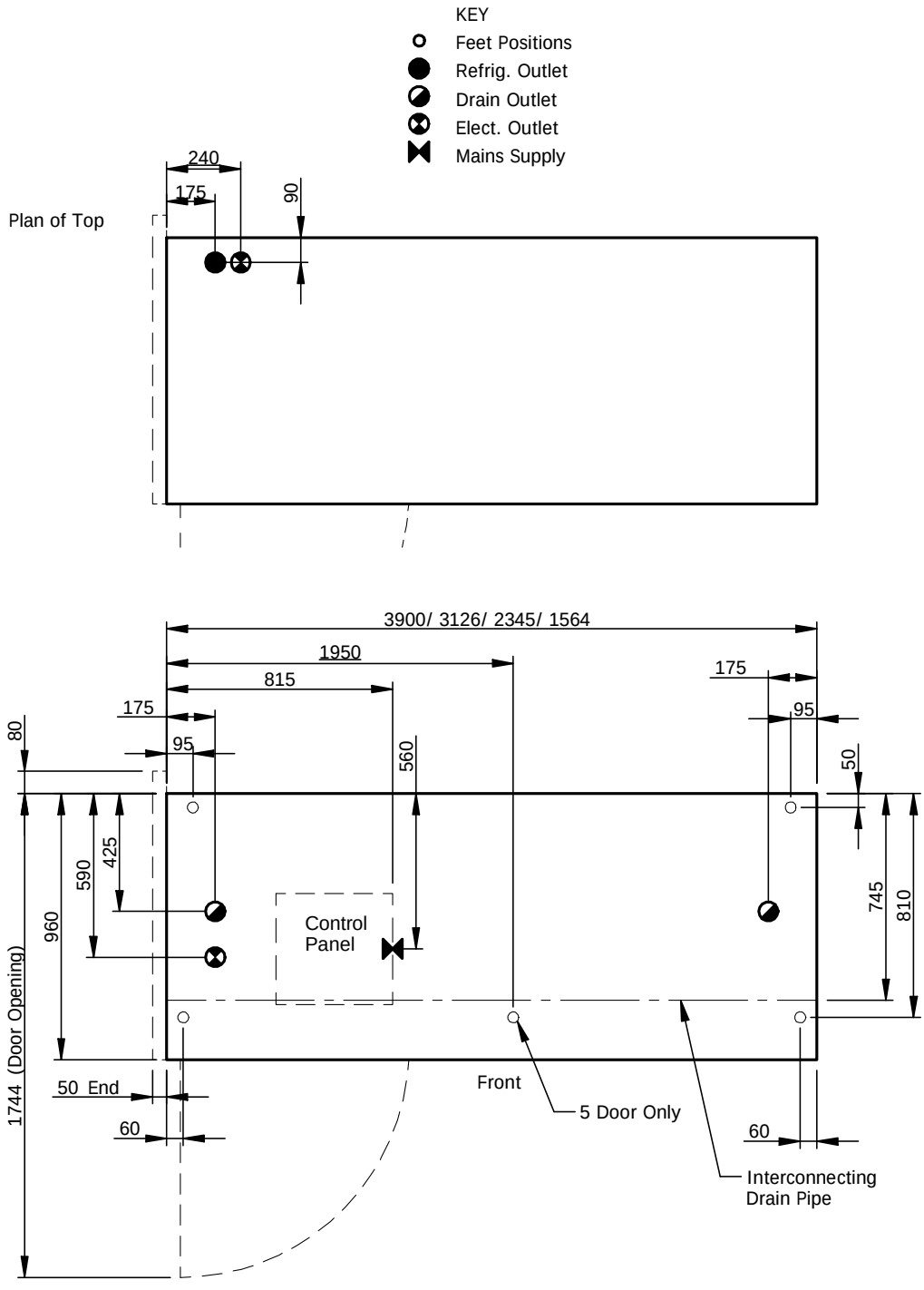
Plan Drawing – FD (HFC & C02)



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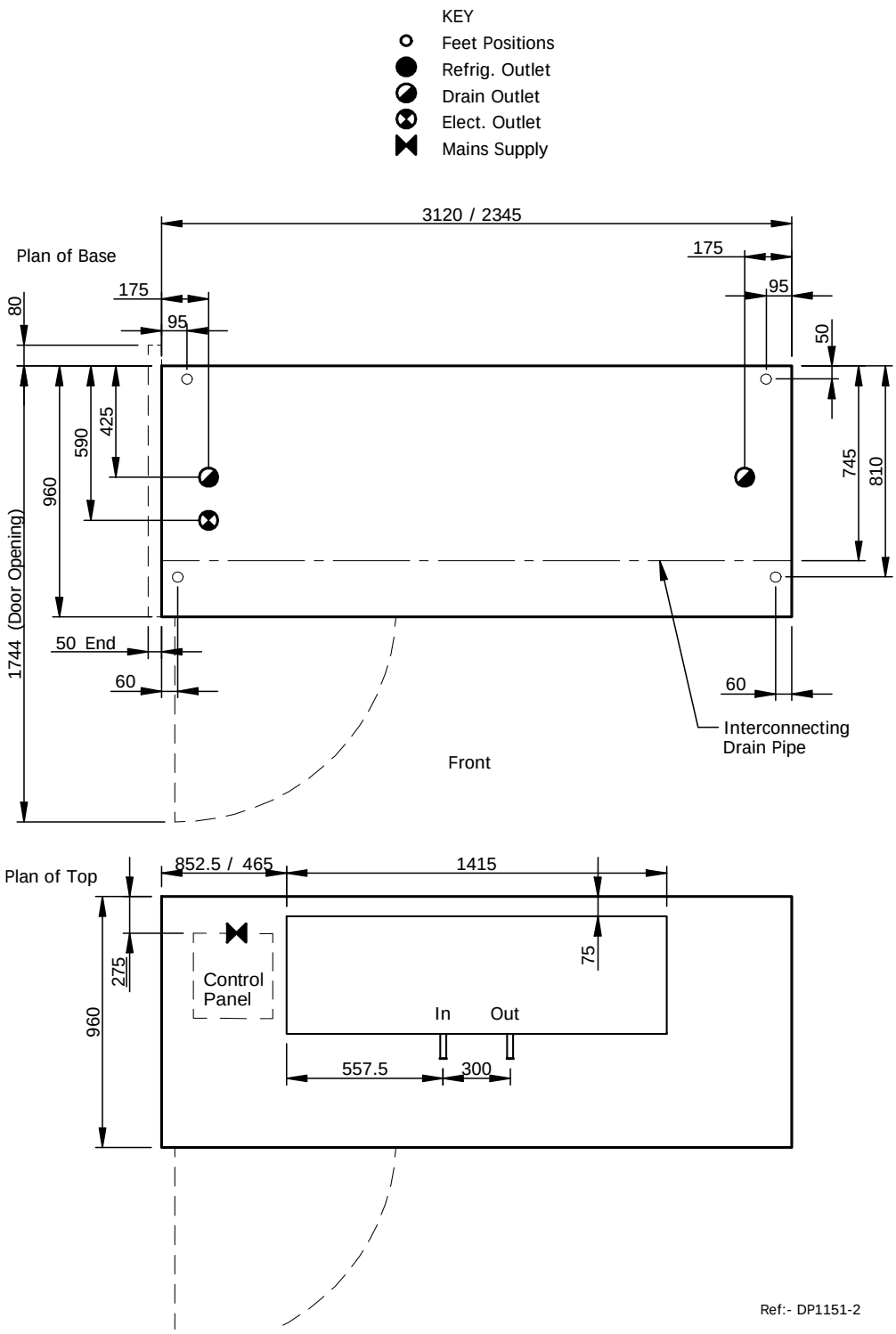
Plan Drawing – FD (Water Cooled)



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Cabinet Technical Data Sheet – Cabinet Models Covered

Cabinet Model	Date Added	HFC Refrigerant	CO2 Refrigerant	Water Cooled GEN 1	Water Cooled GEN 3	Secondary GEN 2
FDAA00113	24.11.2015	✓				
FDA9S00351	25.10.2016				✓	
FDAAS00358	25.10.2016				✓	

Cabinet Code Template

Example of CRE case code letter designation:-

FDA7S00177

F – Model Identification
D – Model Identification
A – Design Revision
7 – Length (see below)
S – Run Position (see below)
0 – Unique Identifier
0 – Unique Identifier
1 – Unique Identifier
7 – Unique Identifier
7 – Unique Identifier

Length Codes

1 – 1.25m	8 – 1.56m	F – 3.05m
2 – 1.5m	9 – 2.34m	G – 3.66m
3 – 1.7m	A – 3.12m	H – 45deg
4 – 1.87m	B – 3.90m	
5 – 2.10m	C – 1.22m	
6 – 2.5m	D – 2.13m	
7 – 3.75m	E – 2.44m	

Run Position

S – Straight
W – End Case

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