



Electrical Submersible Pump

Economical Variable Frequency Drive

Voltage rating: 380V to 480V, 50/60Hz

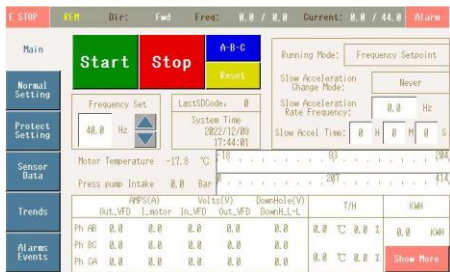
SF2 Series Variable Frequency Drives

Industry Power & Control for Artificial Lift Application



Input power supply	3 phase 380V to 480V $\pm 10\%$, 50/60Hz $\pm 5\%$
Converter type	6 pulse diode rectifier
Inverter type	IGBTs
Input current protection	Circuit breaker
Harmonic mitigation	Standard DC bus choke
Output voltage	The same as power supply
Output frequency	0.1Hz to 90Hz
Output waveform	High performance Sinewave
Motor control	Constant or Variable Torque (V/F)
Motor technology	Induction motor (IM)
Efficiency	>97% at full load
Power factor	0.98 across entire speed range
Overload rating	120% for 1min/5min
Certifications	ISO9001, ISO14001
Enclosure rating	IP55 [equivalent to NEMA3]
Cooling system	Forced air cooling
Altitude	0 to 1000m without derating
Ambient operating Temp.	-20 degC to 50 degC
Relative humidity	20% to 95% maximum(noncondensing)
H ₂ S protection	Conformal-coated PCBs & bus bars
Material	Carbon steel, the thickness is 2mm
Line-side termination	Circuit breaker's lugs
Load-side termination	Lugs in power junction box
Safety features	Emergency stop button Electronic interlocks Backspin indication LED on the front door
Analog inputs (AI)	Qty 2: 4-20mA, resolution 12 bits
Digital inputs (DI)	Qty 5: DC24V, sink wiring
Digital outputs (DO)	Qty 4: relay output, NO, up to 5A
Serial communication	Qty 1: RS485 Modbus Master (for DHS) Qty 1: RS485 Modbus Slave (for SCADA)

Economical VFD for ESP application



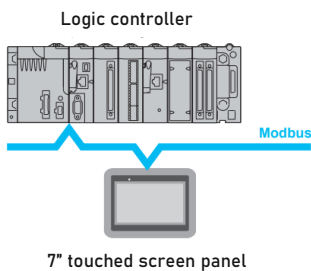
Friendly operating interface

Drive module



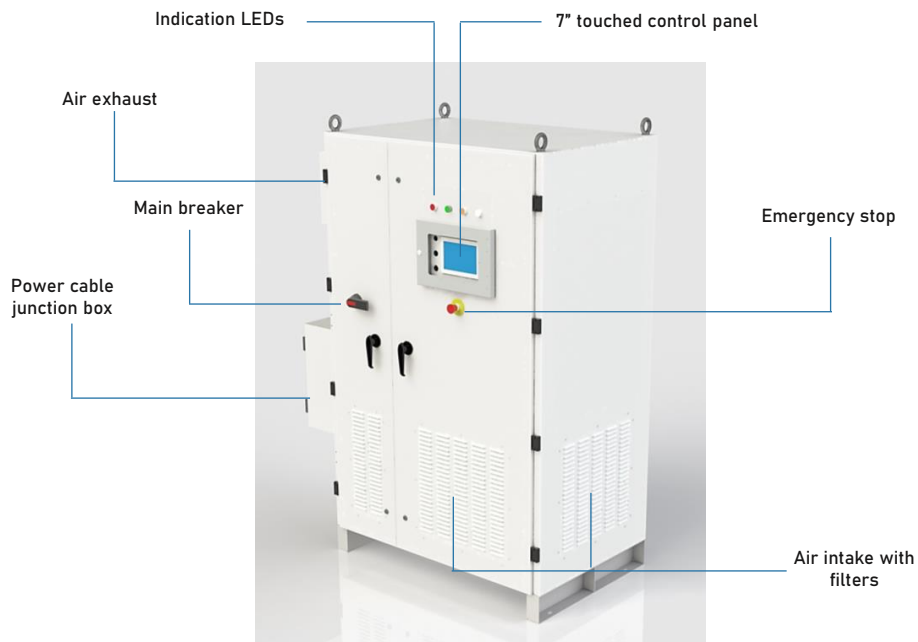
- + Wall mounted drive module, used to be integrated in outdoor or indoor installation VFD
- + Benefits of reliable long service life design continue after installation (10 year design)
- + V/F control, 120% overload capacity

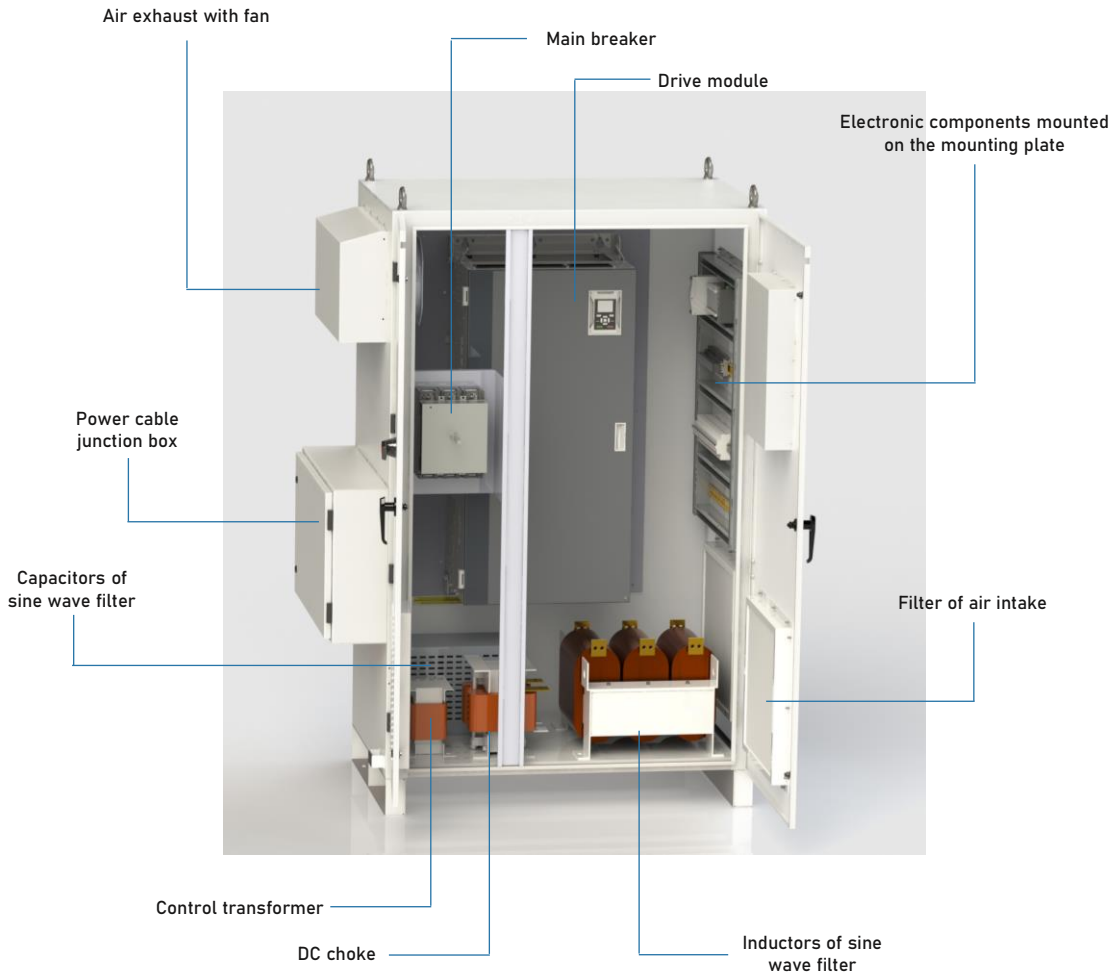
VFD controller



- + Loaded control program e.g. rocking start, hard start, backspin observer, which enhance downhole and surface operation
- + The controller is the single user interface for parameters setting and all wellsite control
- + The single point for all well site data gathering including data from different vendors of artificial lift downhole monitoring system
- + Accept reasonable user's customized requirements

VFD introduction





VFD data sheet

Industry Power & Control for Artificial Lift Application

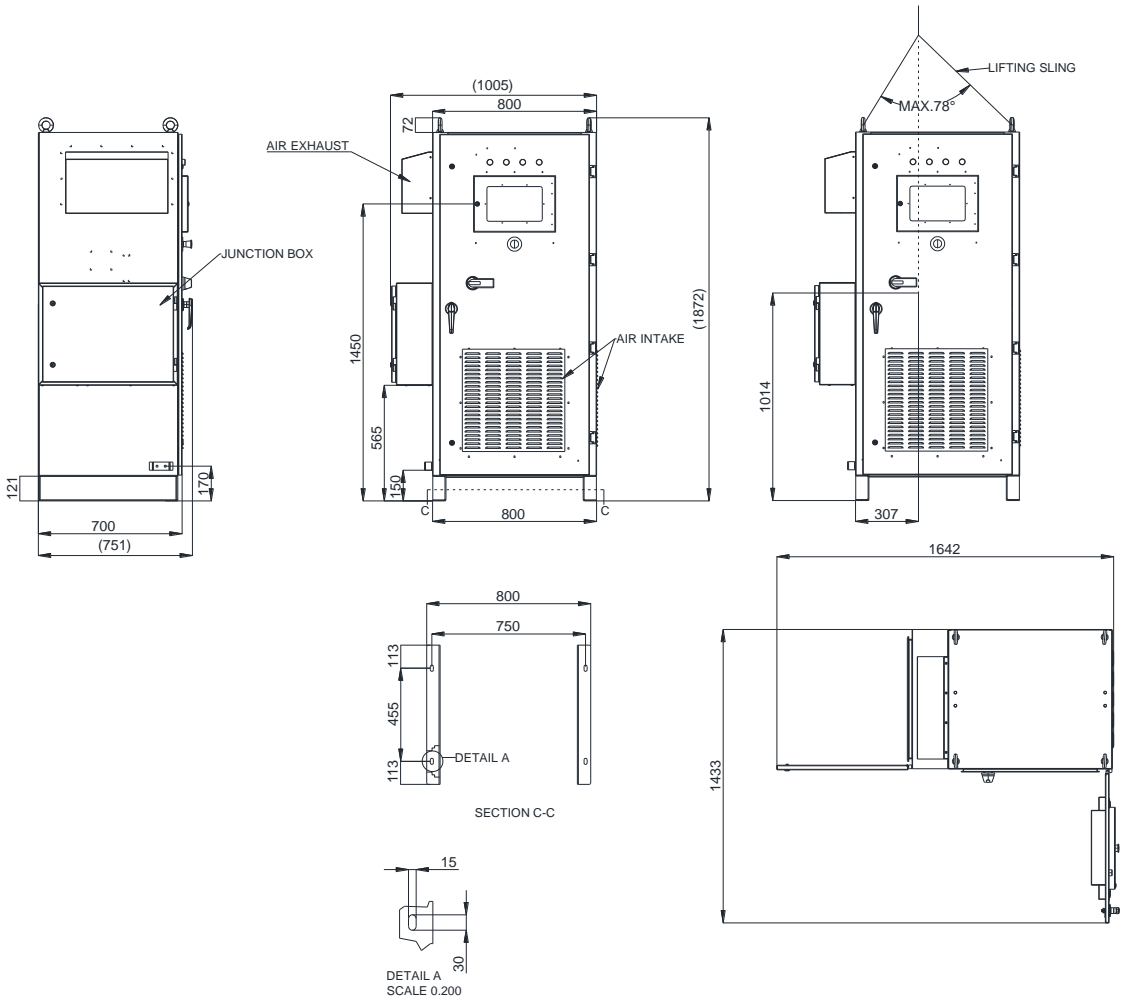


VFD Type	Output Rating			Dimension [mm]			Approximately Weight [kg]
	A	kVA@380V	kVA@415V	Height	Width	Depth	
3 phase 380V to 415V $\pm 10\%$, 50/60Hz $\pm 5\%$, standard output sine wave filter							
SF2-0087-SWD-6P-S	87	54	60	1872	1005	751	302
SF2-0106-SWD-6P-S	106	66	73	1872	1005	751	345
SF2-0145-SWD-6P-S	145	90	99	1872	1005	751	388
SF2-0169-SWD-6P-S	169	105	116	1872	1005	751	476
SF2-0208-SWD-6P-S	208	130	142	2022	1205	751	530
SF2-0248-SWD-6P-S	248	155	170	2022	1205	751	587
SF2-0298-SWD-6P-S	298	186	204	2022	1205	751	642
SF2-0350-SWD-6P-S	350	218	239	2022	1205	751	704
SF2-0410-SWD-6P-S	410	256	280	2022	1405	851	775
SF2-0510-SWD-6P-S	510	318	349	2022	1405	851	843
SF2-0573-SWD-6P-S	573	357	392	2022	1405	851	922
SF2-0640-SWD-6P-S	640	399	438	2175	2005	751	998
SF2-0715-SWD-6P-S	715	446	489	2175	2005	751	1090
SF2-0810-SWD-6P-S	810	505	554	2175	2005	751	1174

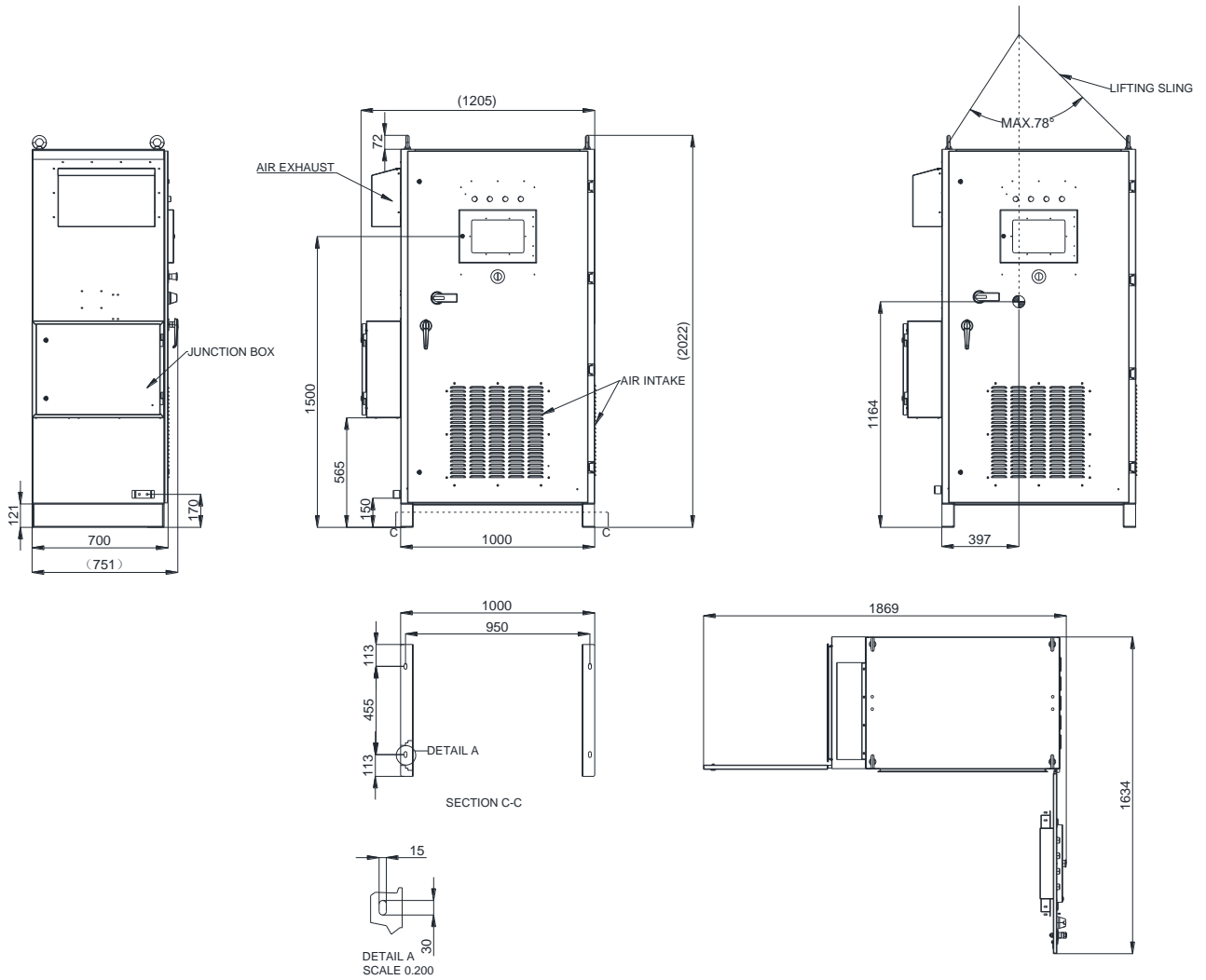


Remark

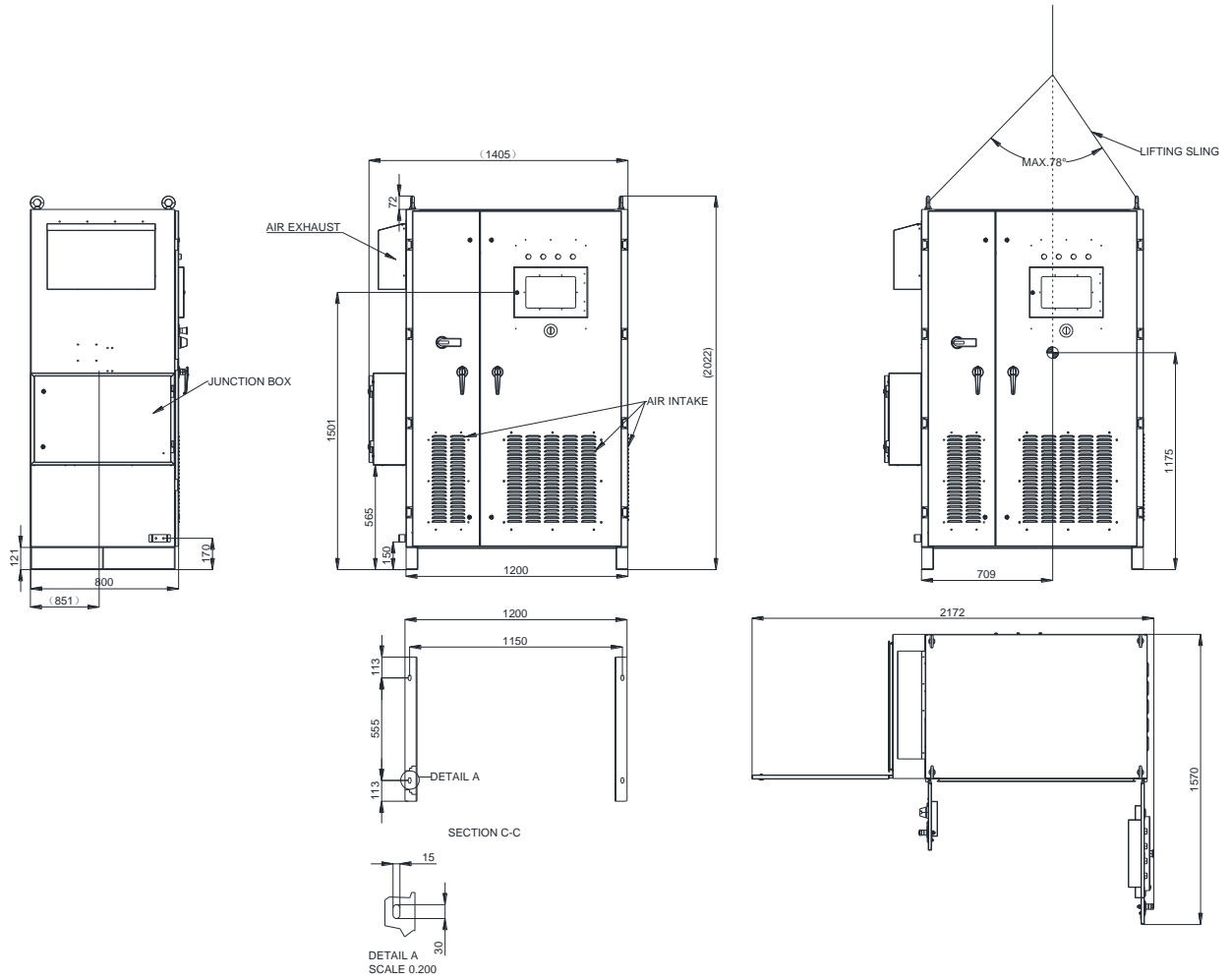
- + 6 pulse diode VFD
- + External input passive filter is option. Filtered 6 pulse VFD can meet the low harmonic requirement
- + Indoor and output installation
- + Fuji drive module is option



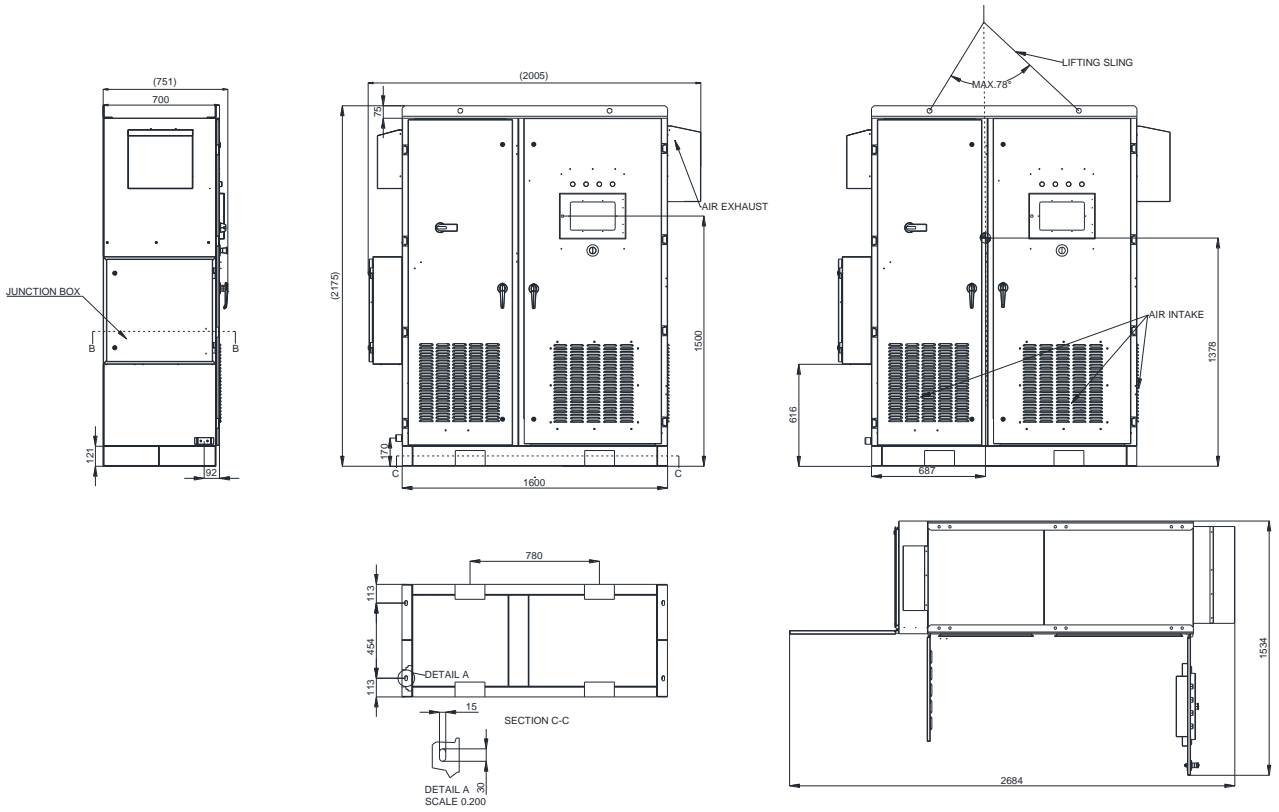
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