



Saxon Containers

Containerised Substations v6.2



Abu Dhabi 33kV Shamkha Containerised Substation Approx Dimensions 15m L x 5.8m W x 4.3m H

Saxon Containers Fze

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This Presentation...



- ✓ Who We Are?
- ✓ Some of Our Customers
- Our Containerised Power Units Range
- Containerised Power Stations
- Containerised Substations
- Benefits of Containerised Substations
- Quality Assurance
- ✓ Design Guidelines
- ✓ A story of a Substation form A to Z
- ✓ Site Installation
- ✓ How we can Add Value
- ✓ Substation References
- ✓ Other Services We Offer
- ✓ Other Products We Make
- Summary

Who We Are.



- ✓ Saxon Energy Fze Established in the year 2000 by the UK company UP Systems Ltd. (www.UPSystems.com)
- ✓ Saxon Containers Started as a division of Saxon Energy specialising in containerised substations.
- ✓ In 2008 as the range of applications grew, Saxon Containers Fze separated as separate Company specialising in Mobile and re-locatable buildings and enclosures for Oilfield, Power, Healthcare, Water Treatment & Construction industries.
- ✓ We are part of the UP / Saxon Group (Mech, Elect & Civil Contracting & Manufacturing). The group has shared resources and we can tap on the expertise of any staff member in the group.

Some of Our Customers.



✓ The company's performance, capabilities and quality sytem (which is monitored & certified by SGS Ltd), has attracted major national & international organisations, some of whom are listed herebelow:











Saxon Containerised Power Range



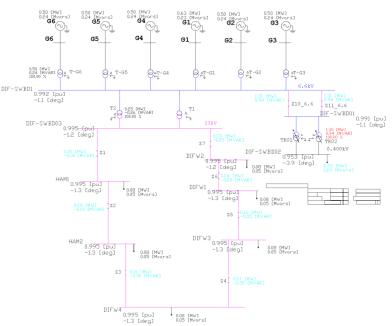
- Package Substations MV/LV
- Mobile Switching Substations MV
- ✓ Re-locatable Substations MV/MV
- Trailer mounted Substations MV & HV
- Temporary & Re-locatable Power Stations to customer requirements upto 20MW
- ✓ Transformer Cubicles with secondary containment
- Control Cubicles
- Communication Cubicles
- ✓ LV & MV Switchgear Cubicles
- Standard MV/MV Package Substations
- Combined (Switchgear, Transformer, Generator etc..) Modules

Containerised Power Stations



✓ Containerised generator modules connected in parallel complete with sync panels, containerised substations, transformers & SCADA. Relocatable within a short span of time.





Containerised Substations **Types**



✓ Configurations:

- ✓ Single Units: Made of single standard or modified shipping container
- ✓ Joined Units: Made of a number of joined or stacked standard or modified containers
- ✓ Prefab Units: Made of bolted steel members and sandwich panel walls
- ✓ Trailer Mounted Units

✓ Environment:

✓ Standard , Tropical, Cold, Desert

✓ Mobility & Mounting:

- ✓ Fixed (Floor, Platform, Trench, Concrete)
- ✓ Re-Locatable (Trailer or Skid Mounted)







Containerised Substations Photos



✓ Single Units

Made of Single converted shipping containers. Standard ISO dimensions or with removable top and side extensions (see photo) for extra height or width







✓ Joined Units

Made by joining or stacking 2 or more containers with one or more sides removed. Any no of containers can be joined side by side and Upto 4 containers can be stacked on top of each other







✓ Prefab Units

Made of steel beams bolted together & sandwich panels. It is delivered flat-packed and upto 10 units can be shipped inside one shipping container.





Containerised Substations **Transportation**



✓ Single UnitsTransportation:

Containers are designed for global shipping and can be handled by most trucks, freight trains, ships and some planes worldwide.





✓ Joined Units Transportation:

Units are separated and temporary partitions are installed. Separated containers are handled as individual containers.







✓ Prefab Units Transportation:

Units Can be fully dismantled & shipped by Airfreight or upto 10 inside 1 x 40ft HC shipping containers







Containerised Substations Services



- ✓ Lighting & Wiring
- ✓ HVAC (Cooling, Heating, Filtration, Dehumidification)
- ✓ Public Address Systems (PAC)
- ✓ Plumbing (Eye Wash Stations, Guard Room)
- ✓ Fire Fighting (Alarms, Extinguishers and Automatic Sprinkler Systems).
- ✓ Local & Remote SMS Alarms (loss of Power, Intruder Detection, Flooding etc..)
- ✓ Switchgear Installation
- ✓ Cable Jointing and termination
- Erection at Site

Containerised Substations Benefits



- Delivered as fully functional with factory installed equipment
- ✓ Reduce the need for site installation skills & staff
- ✓ Maintain a higher residual value (re-locatable after initial use)
- ✓ Simplify the design and reduce the cost of civil works
- ✓ Fabricated and delivered within a few weeks
- Offer substantial savings on time & cost of site mobilisation and project execution
- Constructed from sturdy corrosion resistant steel as containers are designed for salty and humid marine environments
- ✓ Compact design & mobility reduce the impact of land disputes
- ✓ Factory produced yet readily erectable worldwide
- ✓ Pose fewer logistical problems, thereby facilitating entry to new markets
- ✓ Easier and cheaper to transport by land or by sea as most vehicles (trailers) and vessels are equipped to handle standard shipping containers.

Quality Assurance





		MEI DIE	ic ppoore	LIDE ODEOLES		Date	7/28/2013
		WELDIN	IG PROCED	URE SPECIFICA	ATION	Sheet No.	1 of 1
SaxonContainers.com		1000	A CONTRACTOR CONTRACTOR OF THE			Revision	0
		ACCO	ACCORDING TO AWS D 1.1 & CLIENT SPECS			Client	Cumberland
	100			Supporting PC	QRs	Project	FLP 1044 SEW
		WPS	No. SA 010	Prequalifie		Job No.	323/334
			11.1	Manual		Semi-auto	
WELDING PROCESS:	GMAW	TYP		Auto		Machine	
JOINT DESIGN ref. to	N. 4.4		- Contract		_	,	Retainers
	oint - single "V"		R = 0 - 1 mm	40	- A-	•	None
		_	F = 1 - 3 mm		1		
			A = 60° + 10°			3	Backing
			N-00 - 10	4 4			Yes
				1-3	8-4		□ No
R = 1 - 2 mm			int				LI NO
F=1-3 mm			1000	>	-		Type
A = 30° + 5°					-		Base n
A = 30" + 5"		100	1	1 1 1		3	
				1.5			Weld n
HACE MANERAL			, inp				
BASE METAL ref. 4.7.	3						
Material spec.			ASTM A 36	5	To	AS	TM A 36
Group no .			1				1
							_
Thickness Range qualif	ied ref. tab. 4.4		ate thickness		nm to un		_
		p	ipe diameter			nm) N.O.D.	
FILLER METAL ref. 3.3				POSITION QUAL			
Sequence	1st. Layer		Cap		plate	Pipe	Box tube
Process		GMAW		Groove	All	Fillet	Fillet
SFA No.		5.18		Fillet	All	Fillet	
AWS Class		ER70S-6		Progression	UP	UP	UP
Brand name		Lion		PREHEAT ref. 3	5		
No.		6		Preheat Temp.	Min.(C):		
A No.		1			-	Ambient Temp.	
Diameter (mm)	0.8 mm	0.8 mm	0.8 mm	1			
Flux wire class		NA		Preheat Method		Flame	
Solid or flux cored		NA		Interpass Tempera		250°C	
Supplemental		NA		Measuring meth		digital thermometer or templatical	
Sup. Powder		NA		POST WELD I		EATMENT	NA NA
Alloy Flux		NA		Type			
Flux Designation		NA		Temp. Range (C		- :	
Recrushed slag		NA		Holding Time Ra		- :	
Flux Type		NA.		Heating Rate	mge	1 1	
Consumable Insert		NA.		Cooling Rate	_	- :	
ELECTRICAL CHARACT	THE PERSON NAMED IN	INA		Free cooling Ter	_		
Current Type	ERISTICS	DC		TECHNIQUE	mp.		
Polarity	45 420	EP 45.400	45.400	String / Weave	_		ng & weave
Amper range (amp.)	45-130	45-130	45-130	Cleaning	\rightarrow	Grinding and brushing	
/olt range (volt)	17-22	17-22	17-22	Backgouging		Grinding and brushing Not permitted	
Wire Speed (m/min)	3.2-10	3.2-10	3.2-10	Peening		No	
ravel speed (in/min)		75-300		Oscillation			None
Heat input(Kj/in)	Max. 45 Kj/ln.			Tube -work dista		NA NA	
Fransfer Mode		Short Circuit Multi/ single pass/side		Multi			
fungsten electrode type		NA		Single /multi ele			Single
and size				Electrode spacin	ng		NA
GAS ref. 1.4.6.2							
		rpe		Composition		Flow rate (L	
Shielding	Argon	+ CO2	80%	argon - 20% CO2	2	8 to 15	5
REMARKS							
		Saxon C	A/QC			Client QA/QC	T
	TV.	-		\rightarrow		onen ando	
Name	Kamy Hamed						
Date		-08- 201					i

HEALTH AND SAFETY EXECUTIVE Lifting Operations & Lifting Equipment Regulations 1998 Factories Act 1961: Docks Regulations 1998 regulation 9 CHAINS, CHAIN SLINGS, ROPE SLINGS(Except a fibre rope sling). OR SIMILAR GEAR, RINGS, LINKS HOOKS, PLATE CLAMPS, SHACKLES, SWIVELS AND EYE-BOLTS SAXON CONTAINERS FZE Certificate No.: CTE-108351/1 P.O Box: 41627 Sharjah: UAE Reference No.: SMS/CT/11/05/108351 Certificate of Test and Examination (1) PARTICULARS OF THE COMPONENTS Description of item (This should include size, material & particulars of any heat treatment) Safe working 22.5 TCIU 4204264 C/w 4 Lifting pad eyes on top
Type : SP-STDT-01 (M.G.W) Type : SP-STI Pad eve thekness : 26mm Hold static for 5 Hole dia : 38mm Dim : 6.05 (L) x 2.43 (H) x 2.6 (H)m. In accordance to Federal Ministry Order No. 32 1982, the above equipment is "SAFE TO USE" at the time of inspection (2) Name and address of maker, supplier or repairer ... SAFETY MARINE SERVICES (3) Name and address of firm, company, association or person undertaking the test and examination...... (4) Name and position of person who carried out the test and examination....... TEST SUPERINTENDENT (5) Lectify on behalf of the firm, company, association or person named in (3) and (4) above that the items described herein were, to the best of no knowledges peaced and thereafter examined and were found to be free from cracks, flaws or other defects.

(6) Certificate villator one year from the date of issue. LIFTING EQUIPMENT, MARINE COMMUNICATION AND NAVIGATION, OILFIELD SUPPLIES MARINE EQUIPMENT CRANE TESTING & CERTIFICATION, FIRE FIGHTING & SAFETY TRAINING

A MEMBER OF LIFTING EQUIPMENT ENGINEERS ASSOCIATION U.K.
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Lel. Factory: 06-5433900, fax: 06-5434500, safetyms@emirates.net.ae, www.safetymarine.com

ISO 9001:2008 Quality System Monitored by SGS.com

Prequalified Welding Procedures to
American Welding Society Standards
1.1 & 1.3

Structural Integrity Load Testing

Design Guidelines



- ✓ Print the Ideal dimensions for the Substation (or enclosure)
- Print (using the same scale as above) & cut-out rectangles each measuring :
 - ✓ Length 20ft (approx 6m) x Width 8ft (approx 2.44m)
- Decide which Height is preferred
 - ✓ Normal 8ft (2.59m) or HC 9' 6" (approx 2.9m) if a different height is preferred (upto 5.8m per floor) then an extension / reduction is required
- ✓ Superimpose rectangles over ideal dimensions to figure out the best configuration. This will give you the no of 20ft containers required.

Design Guidelines

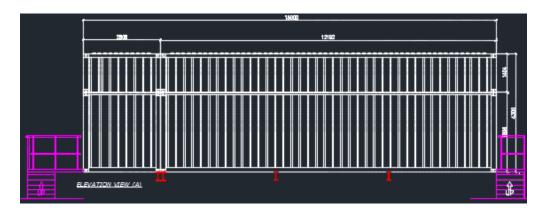


- ✓ Combine each 2 x 20ft into 1 x 40ft (12m x 2.44m) and this will give you the total no of containers required.
- ✓ The above dimensions are outside dimensions, inside dimensions will be slightly less. Multiples of standard sizes are cheaper than bespoke sizes.
- ✓ There is no Limit to the no of containers that can be joined (side by side)
 but there is a limit for stacked containers (on top of each other) depending
 on equipment weight & unit design.



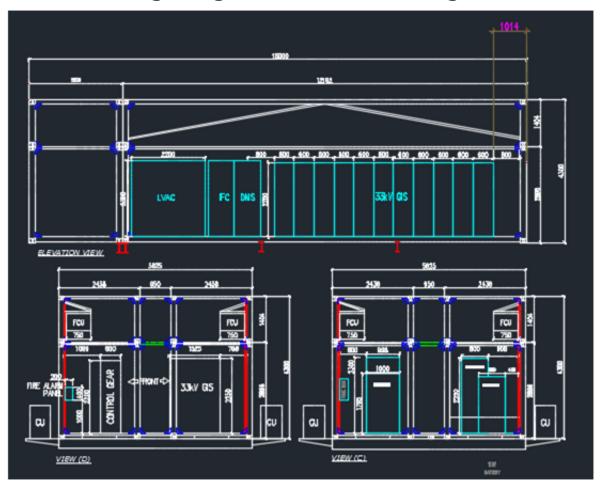
Step 1, GA Electrical Switchgear & Equipment Layout





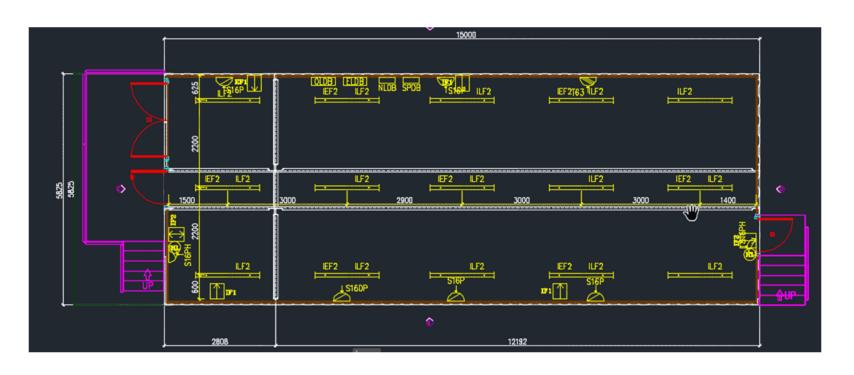


Step 2, Services incl Lighting, HVAC & Fire Design



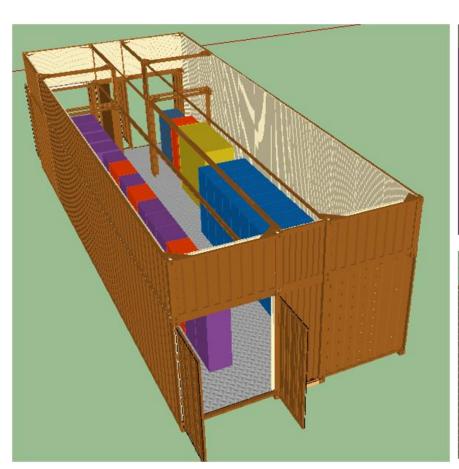


Step 2, Services incl Lighting, HVAC & Fire Design

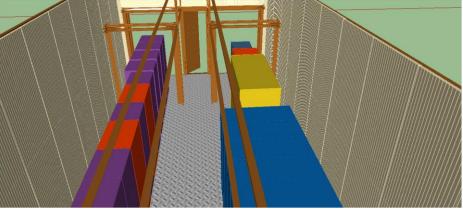




Step 3, Building of a 3D Model (if required)

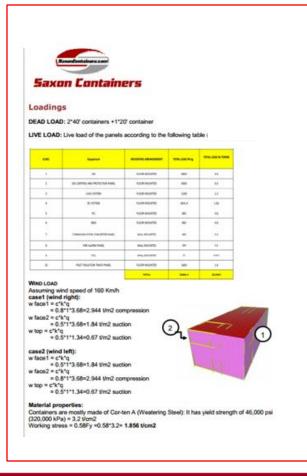


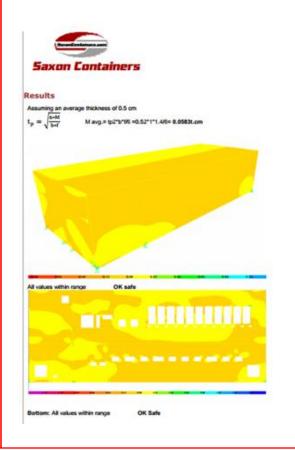


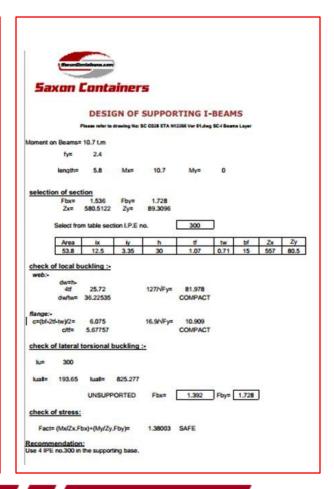




Step 4, Structural Analysis

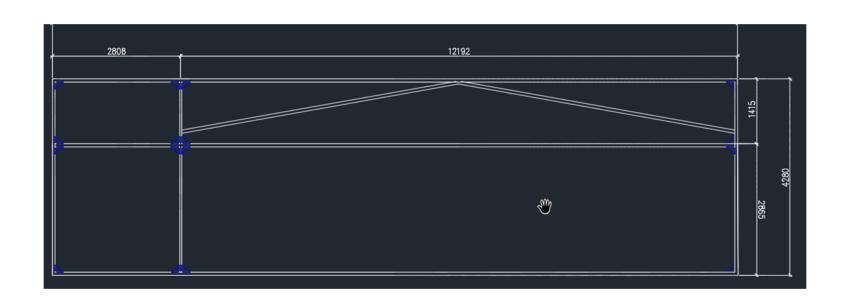








Step 5, Fabrication Drawings





Step 6, Technical Submittal to Consultant & Client

Various documents are submitted for approval, these include:

- ✓ Drawings
- ✓ Technical Specifications:
 - ✓ Insulation
 - Container Structure
 - ✓ Doors & Windows
 - ✓ Various services
- ✓ Any specific information requested by the consultant



Step 7, Production







Step 8, Erection





Step 9, Commissioning & Handover











Site Installation Worldwide

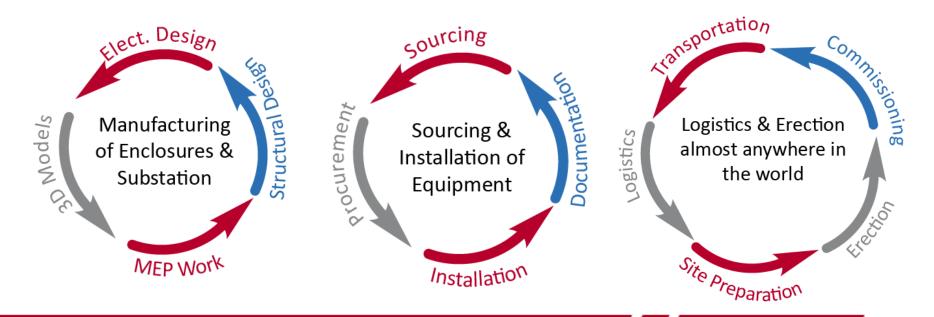


- ✓ Saxon/UP group of companies is fully equipped to provide turnkey project implementation service covering supply, erection & commissioning of electro-mechanical plant as well as civil construction.
- ✓ Over the past three decades, our mobile team of qualified mechanical, electrical & civil engineers and technicians executed hundreds of projects for power utilities, oil & gas companies, aid agencies and major multi-national companies. The projects executed include electrical substations, pump houses, water treatment plants, dry docks, power stations, transmission and distribution lines as well as numerous industrial, commercial & residential projects.

Adding Value



- ✓ We provide a wide range of services and aim to offer our clients a complete one stop shop for all of their needs.
- ✓ Clients get to pick and choose the services that suit them best
- ✓ We are flexible and welcome co-operation with third parties
- ✓ Below is the range of services we can offer



Substation References



Project	Consultant / Client	Туре	Location	Year
Extended DNO 2	UP Systems Ltd	36kV	UK	Ongoing
Extended DNO 1	UP Systems Ltd	36kV	UK	Ongoing
Cullompton Solar Parks	UP Systems Ltd	36kV	UK	2014
Gover Solar Parks	UP Systems Ltd	36kV	UK	2014
Alresford	UP Systems Ltd	36kV	UK	2014
Ingham Solar Parks	UP Systems Ltd	36kV	UK	2014
Crundale	UP Systems Ltd	36kV	UK	2014
Knowlton	UP Systems Ltd	36kV	UK	2014
Green Solar Parks	UP Systems Ltd	36kV	UK	2014
Poulshot Lodge	UP Systems Ltd	36kV	UK	2014
Dairy House Solar Parks	UP Systems Ltd	36kV	UK	2014
Littlebourne	UP Systems Ltd	36kV	UK	2014
Stoneshill	UP Systems Ltd	36kV	UK	2014
West Kingsdown	UP Systems Ltd	36kV	UK	2014
Baglan Bay Solar Parks	UP Systems Ltd	36kV	UK	2014
Lenham-Allet	UP Systems Ltd	36kV	UK	2013
Sycamore-Lodge-Battens	UP Systems Ltd	36kV	UK	2013
Ermine Street Solar Park	UP Systems Ltd	36kV	UK	2013
Hill End-Treguff Solar Parks	UP Systems Ltd	36kV	UK	2013
Pitworthy Solar Parks	UP Systems Ltd	36kV	UK	2013
Dairy House Solar Parks	UP Systems Ltd	36kV	UK	2013

Project	Consultant / Client	Туре	Location	Year
SHAMKHA	SNC Lavalin Int	33kV Substation	UAE	2013
	Transco Abu Dhabi			
Mukalla	Public Elec. Corp.	11kV Substation	Yemen	2013

Other Services Skid & Process Equipment Installation



✓ Control Panels & VFDs Wiring & Installation









✓ Process Skids Assembly & Installation





Saxon Containers Product Range











Inexpensive • Portable • Durable • Fully Functional • Modular • Cost Effective

ould you like to construct a fully functional facility, within the shortest possible time span, with minimum site installation skills and materials?

r are you tired of flimsy, non-relocatable prefab structures, or of excessive cost and time overruns of brick and mortar buildings?

ant to benefit from the worldwide transport infrastructure of standard shipping containers to minimise the cost of shifting your buildings?

Whatever your requirements, Saxon's unique & optimised designs of containerised building solutions provide the answer. Whether it is:

A Clinic **OR** A Field Hospital

A Site Office **OR** An Office Block

A Chemical, Material OR An NDT Test Lab

A Switching, Transformer **OR** A Packaged Substation

An Accommodation Unit OR An Entire Labour Camp

A Mobile Workshop OR A Complete Fabrication Plant

A Single Unit Store $\overline{\mathbf{OR}}$ A Multi Unit Warehouse

A Water Filtration OR A Desalination Plant

A Generator **OR** A Power Plant

A Fuel **OR** A Liquid Tank











Summary



- ✓ Unique & Versatile Products
- ✓ Fast Implementation
- Cost Saving
- Adaptable to Specific Needs
- Full Range of Services Offered From Design to Erection
- ✓ Explore New Markets
- Explore New Applications
- ✓ Top Quality & Customer Service, Mostly Exporting To UK

Thank You For Your Interest & We Look Forward To Your Enquiries





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