ENSOLX

Automated and manual

WELL CLEANERS

www.ensolx.com

OUR STORY

ENSOLX is equipment supply and engineering company based in Zagreb, Croatia. It engages in trading of Industry equipment to fulfil the needs of Oil & Gas, Petrochemical and Power Utility Sector.

We would like to be accepted as reliable, respectable and desirable partner, which fulfils the needs and protects the interests of its partners through excellent relations among them. We are confident that only such conduct and approach to business assure the successful realization of our partner's objectives and projects. Thereby, we contribute to the creation of a healthy climate in economic life and social community in entirety.

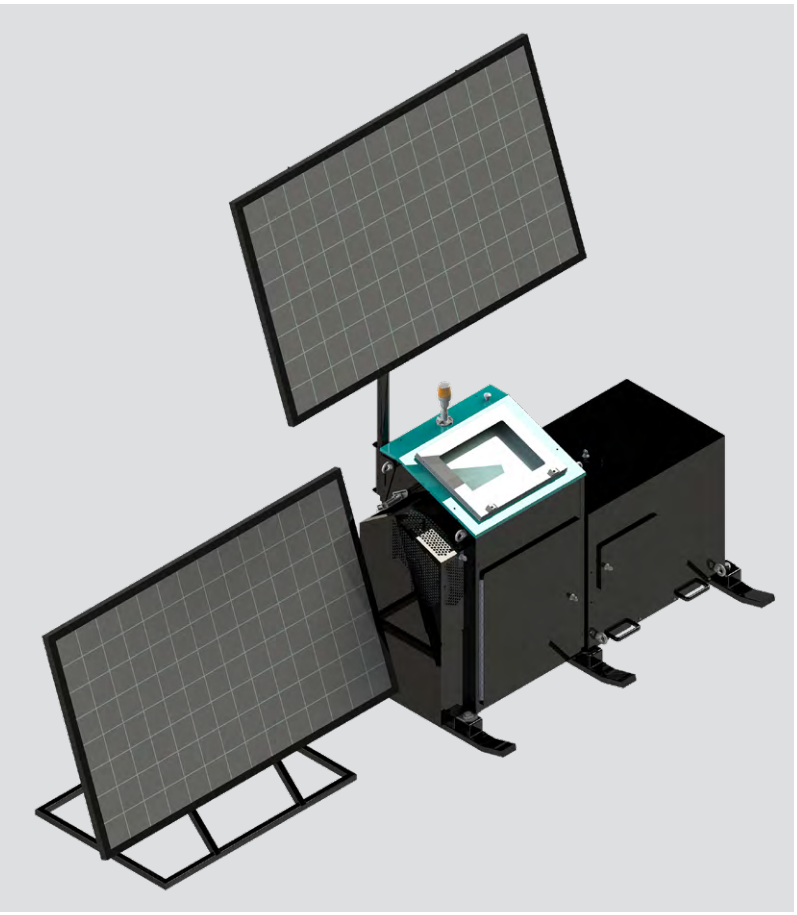
ISO 9001:2015
Quality Management

ISO 14001:2018
Environmental Management

We offering QUALITY PRODUCT

We do ENGINEERING SERVICES

And we do it PROFESSIONALY and ON TIME



AWC

AUTOMATED WELL CLEANER

is a device developed for automatization of the well cleaning process needed due to paraffin accumulating in tubing string.

AWC

It is equipped with servo motor and gear reducer connected to the reel drum which ensures reading of position and load from the well cleaner (paraffin scraper) and logging of those data in real time.

Smart algorithms embedded in central processing unit reduce the chance of scraper being stuck in the paraffin accumulations and prevents a possibility of wire break due to high torque.

ADVANTAGES

Digital display is used for controlling (starting/stopping/manual work) the process of cleaning, while looking at measurable data in real time.

It also enables well data and specifications to be entered by end user on field. Alarming system in pair with on unit light/siren is intended for safe and practical analysis of the cleaning process.

POWER

Unit is primarily powered by available power supply on the site but also, in case of power failure, unit is equipped with large capacity battery pack. Battery pack ensures that unit can continue its operations until power supply is restored thus preventing any downtime.

Unit can be operated manually by the operator from the HMI installed on the unit.

MODULAR

Since this unit is designed as a modular structure, it comes with alternative power supply options which include:

- Upgrade kit for off-the-grid operation;
- Primary power solar panel (PV module);
- Safety backup fully-automated power generator with smart power management system.

AWC

AUTOMATED WELL CLEANER

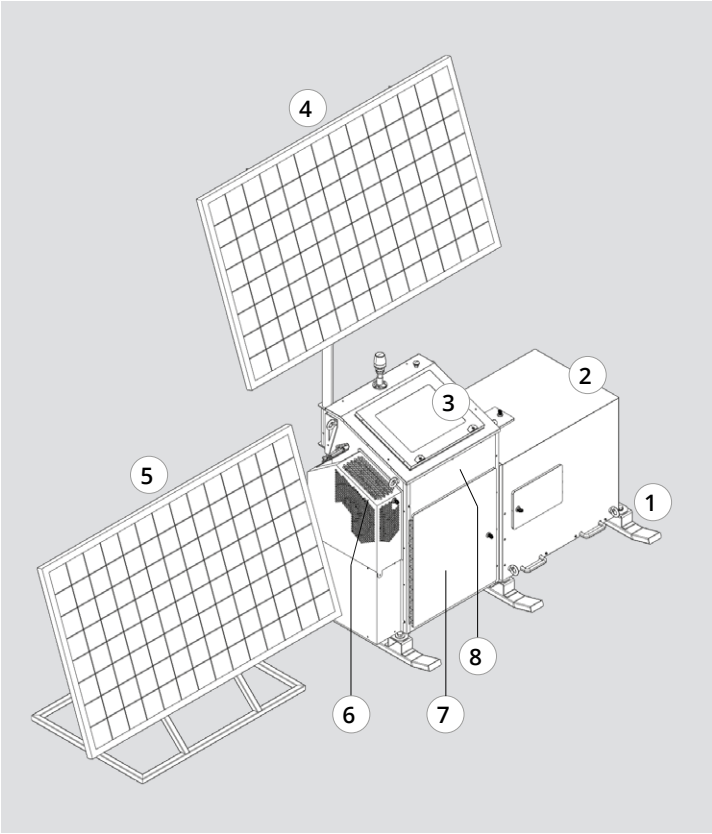
AWC Grid

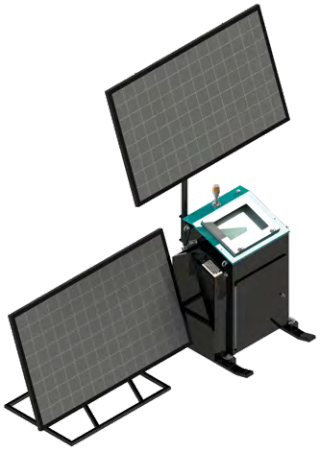
The device is powered by connection to the on-site power grid. For use in areas with stable power supply only. In case of a power outage, the automatic motor brake will engage and stop the well cleaner at its current position. Upon grid power supply recovery, the AWC unit internal memory will ensure that the cleaning operation will be completed.

AWC Grid Backup

The device is powered by connection to the on-site power grid. For use in areas with unstable power supply. A large capacity power pack enables operators to carry on daily operations of cleaning a well despite power being out for a couple of days depending on the frequency of cleaning procedures. The backup power supply eliminates the need for manual operating of the cleaning apparatus.

MECHANICAL CHARACTERISTICS (Solar + Diesel Generator)	
Approximate dimensions (w/l/h)	3,4 x 1,2 x 2,7 m
Approximate weight	550 kg
Shipping size	4 Euro-pallet
Unit lifting points	8
Mounting type	skid
POWER SUPPLY	
Battery pack (2S - 24V 200 Ah)	4,8 kWh
Servo motor	750 W (max)
OFF-Grid autonomus operation (cont.)	7 h
OPERATING RANGE	
Cleaning depth	800 m (max)
Crutcher weight	25 kg (max)
Average cleaning speed	0,7 m/s
OPERATING RANGE	
Alarming system	Light/sound siren
Control panel	Emergency switch
Control options	Digital touch screen
Operating mode	Input data screen
Automatic algorithms	Active well cleaning screen
History options	History screen
Power options	Automatic cleaning (manual start)
Average cleaning speed	Manual control





AWC Solar

The device is powered by two solar panels (photovoltaic modules) - one mounted on the unit and the other placed on the ground - that provide enough electrical energy for the efficient and safe well cleaning operation. In case of power failure or bad weather without enough sunlight, the unit is equipped with a large capacity battery pack. The battery pack ensures that the unit can continue its operations until the power supply is restored thus preventing any downtime.

AWC Solar + Diesel Generator

The device is primarily powered by two solar panels (photovoltaic modules) - one mounted on the unit and the other placed on the ground; the device is also equipped with the battery pack that ensures that the unit can continue its operations until the power supply is restored thus preventing any downtime and secondary with fully automated diesel power generator intended for the extreme cases of multiple days with no sunlight. Switching between various power sources is performed by smart power management system embedded in the software. For use in areas with changing weather and continental climate.

No.	COMPONENT	DESCRIPTION
1	**Skid mount**	Provides simple and fast transportation from one well location to another and ensures stability when placed on concrete slabs on the ground.
2	**Diesel generator with cover & air intake/ exhaust gases outlet**	Serves as a safety backup power source turning on in the extreme case of multiple days with no sufficient amount of sunlight. It is fully automated and operated by smart power management system.
3	**Control unit with digital display**	Smart algorithms embedded in the central processing unit reduce the chance of scraper being stuck in the paraffin accumulations and prevents a possibility of wire break due to high torque. Allow for controlling (starting/stopping/manual work) the process of cleaning while looking at real-time data. It also enables well data and specifications to be entered by end-user on the field with embedded algorithms and a built-in alarming system.
4	**On-unit solar panel**	Serves as a primary power source providing a sufficient amount of electrical energy to the unit needed for performing well cleaning operations and, at the same time, charging the built-in battery pack.
5	**On-ground solar panel**	
6	**Wire reel drum with protective cover**	Enable easy and smooth lowering and lifting of the scraper during the well cleaning operation. The protective cover prevents any possible pinch points for personnel safety.
7	**Large capacity battery pack**	In case of power supply failure or bad weather with not enough sunlight, ensures that the unit can continue its operations until the power supply is restored thus preventing any downtime.
8	**Servo motor with reducer/electrical & electronic assembly**	Servo motor and reducer connected to the reel drum provides a precise reading of position and load from the well cleaner (scraper) as well as logging of those data in real time.

MWC

MANUAL WELL CLEANER

is a device developed for manual cleaning of a well needed due to paraffin accumulating in the tubing string.

MWC

The paraffin is scraped from the tubing wall by lowering the scraper with sharp blades and bringing it back to the surface. Lowering and returning of the scraper is performed by the operator on the wellsite using the Unit's steel reel handle to turn the reel and wind or unwind the wire connected to the scraper.

ADVANTAGES

Depending on the depth of cleaning, the process takes from 10 to 20 minutes and thanks to the rotational handle mounted on reducer for easier winding and unwinding it can be performed by an average adult.

Power It is equipped with a mechanical depth measurement device, so operators can monitor the wanted depth of cleaning and prevent hitting the scraper to the wellhead upon return.

MECHANICAL CHARACTERISTICS	
Approximate dimensions - unit (w/l/h)	0,7 x 0,9x 1,0 m
Approximate weight	76 kg
Shipping size	0,5 x 0,8 x 0,95 m
Unit lifting points	4
Mounting type	skid / Detachable sleds
Drum diameter	0,245 M (DIN standard)
Wire length on the reel	3000 m (max)
Reducer box	1:2 or 1:3 ratio
Scraper weight	25 kg (max)
Mechanical depth measurement	6 figures with reset button
Mechanical brake	Breaking handle with steel on steel friction
Operating handle	Breaking bearing handle for practical operation

No.	COMPONENT	DESCRIPTION
1	**Skid mount**	Provides simple and fast transportation from one well location to another and ensure stability when placed on concrete slabs on the ground.
2	**Reducer in the protective cover / Scraper mechanical depth measuring device (optional)**	The reducer is connected to the control lever and the drum and allows the speed of rotation of the drum versus the control lever to be increased through a 1:2 or 1:3 gear ratio. It is optional to add scraper mechanical depth measuring device, so the operator can know the exact depth of scraper in the well, which leads to the possibility of finding out at what depth the accumulation of paraffin occurs.
3	**Manual operating control lever**	The control lever allows the drum started and the wire to be wind / unwind depending on the direction in which the lever rotates. The handle must be turned carefully so that the scraper doesn´t get stuck in the paraffin layer.
4	**Wire reel drum**	Enable easy and smooth lowering and lifting of the scraper during well cleaning operation.
5	**Hand brake**	In case it is necessary to stop the scraper in the well, due to fatigue of the worker, replacement of the operator operating the device, achieving the desired depth of cleaning, this manual friction brake will be used.

With our engineering expertise and capabilities, Our team is able to examine and recommend the right equipment to meet our Customers' specific requirements by giving custom made solutions.

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