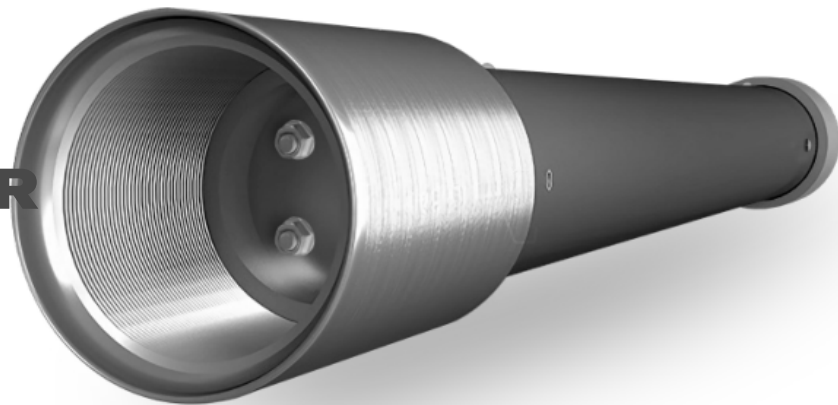


SMARTING

SUBMERSIBLE INHIBITOR CONTAINER SYSTEM FOR PRODUCING WELLS



Complications in Producing Wells

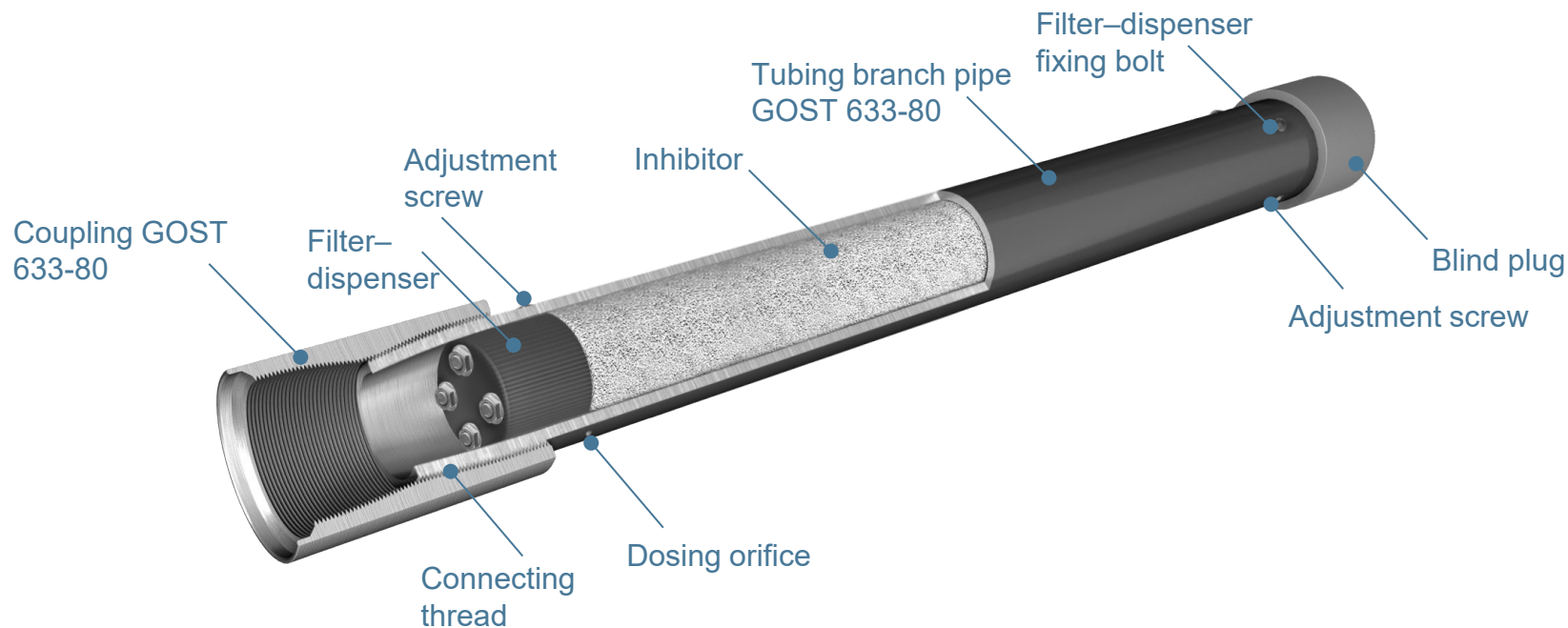
Complications in oil-producing wells — such as scale deposition, asphaltene-resin-paraffin deposits (ARPD), corrosion of downhole pumping equipment, and the formation of high-viscosity emulsions in the produced fluid — significantly complicate oil production and substantially increase its cost.

Oil-producing companies incur enormous financial losses resulting from these well complications, including the cost of frequent workovers caused by premature failure of downhole equipment and repeated well treatments (clean-outs, hot oiling, chemical washes, etc.).



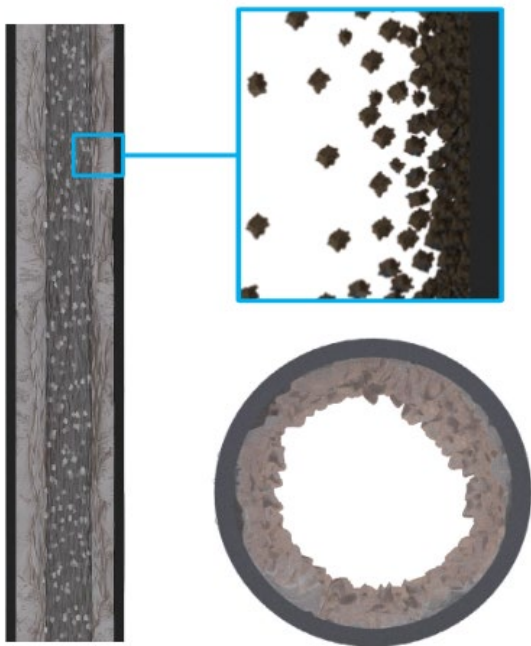
Submersible Downhole Container SMARTING

The SMARTING downhole containers are designed to prevent scale deposition, asphalt-resin-paraffin deposits, corrosion of downhole equipment, and the formation of highly viscous emulsions in produced fluids during oil production.

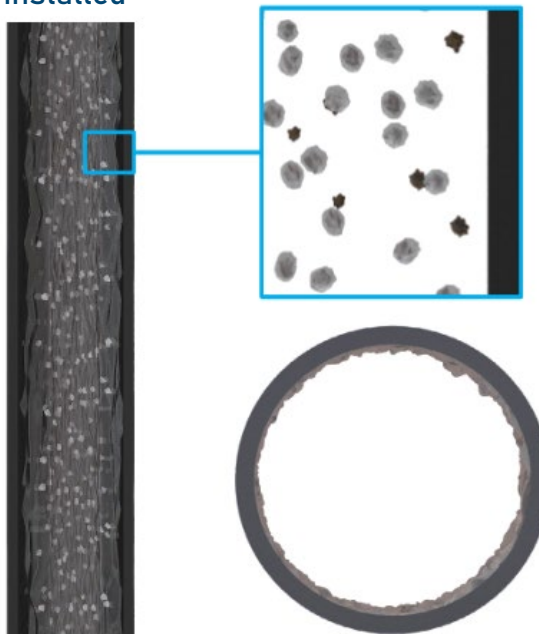


Operating Principle

Tubing string inside the well
before the installation of the
SMARTING downhole container



Tubing string inside the well with the
SMARTING downhole container
installed

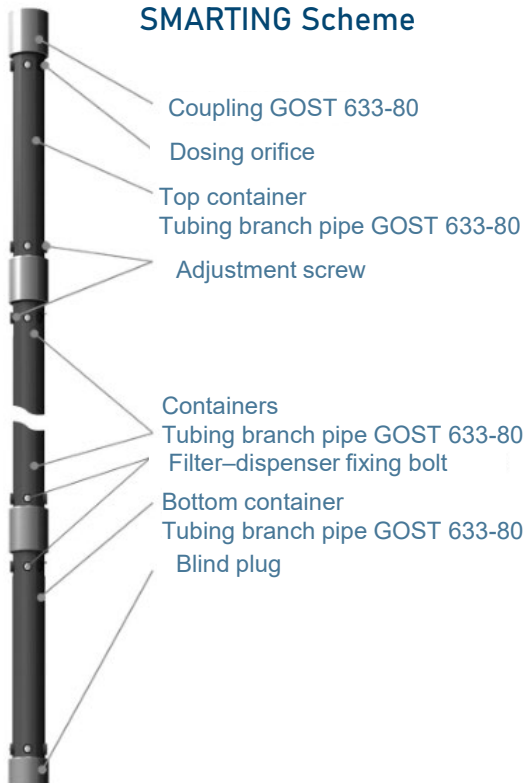


Protecting principle

- The SMART inhibitor coats particles of salts and asphalt-resin-paraffin substances present in the produced fluid and forms a protective film on the surfaces of downhole pumping equipment. This film prevents corrosion, deposition, and the formation of large conglomerates of particles that tend to precipitate as solids.
- Particles of salts and asphalt-resin-paraffin substances are carried to the surface within the produced fluid in a suspended state.
- The SMART inhibitor is delivered directly to the zone where the problem originates and remains effective throughout the entire technological chain of oil production.
- The inhibitor SMART not reacting chemically with produced fluids.

Design & Specifications

SMARTING Scheme



Specifications	Containers per assembly, pieces.					
	3	6	9	12	15	18
Total length (max), m	6	12	18	24	30	36
Total Weight (max), kg	80	160	230	300	370	445
Body OD, mm	48-49					
Coupling OD, mm	60-108					
Single section length, m	1-2					

Equipment String Layout

Installation of Submersible Downhole Containers (SDC)

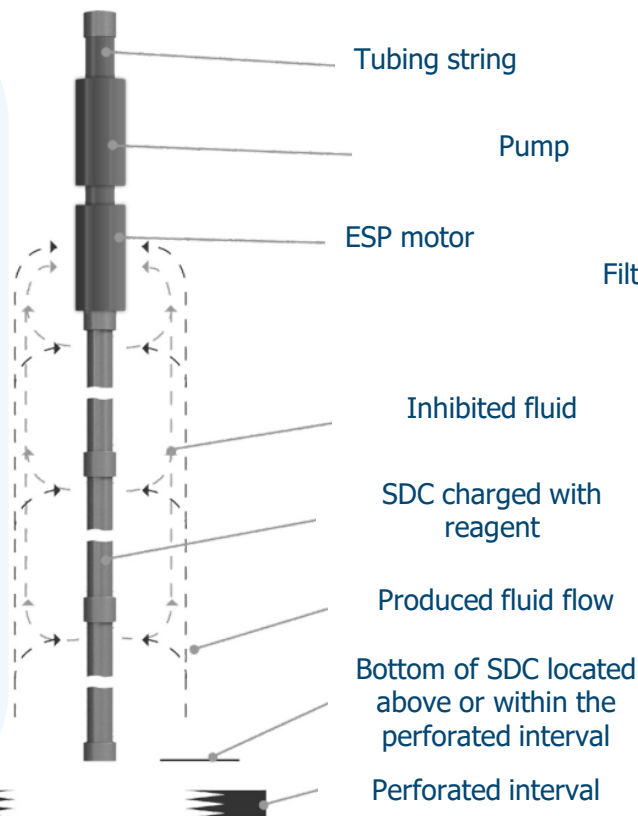
- SDC are supplied pre-filled with inhibitor and are run as part of the regular tubing string.
- They are installed directly below the downhole pumping equipment immediately before running it into the well during routine workover or major repair.
- Assembly of the SDC string is performed at the wellsite, starting from the bottom container with blind plug.
- There is no specific sequence required for the remaining containers.

3-6 containers for newly drilled wells

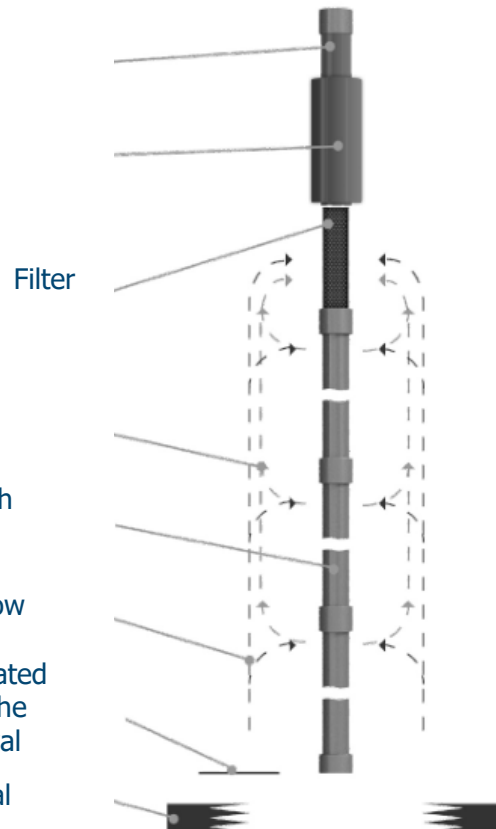
6-12 containers for wells < 3 years old and liquid rate < 150 m³/day

12-18 containers for wells with liquid rate > 150 m³/day

Without filter



With filter



Product Line

SMARTING-K

SDC with
Corrosion inhibitor

SMARTING-P

SDC with ARPD &
high-viscosity
emulsion inhibitor

«SMARTING-S»

SDC with scale
inhibitor

«SMARTING-SB»

SDC with
Barium/strontium
scale inhibitor

Use of the SMARTING container results in:

- A sharp reduction in the number of workovers, solvent/hot-oil treatments, chemical washes and other well interventions
- Significantly lower oil production losses
- Average 10-fold increase in mean operating period between failures
- Average 2–3-fold increase in mean run life
- Opportunity to further extend the service life of the container

The below-pump version can hold a substantially larger volume of inhibitor than the standard (above-pump) version. With correct dosing rate, the effective service life of the SMARTING container can be made comparable to that of the tubing string or other downhole equipment.

Effectiveness

Implementation of SMARTING Submersible Downhole Containers on 38 complicated wells



Reduction in average number of scale-cleanout operations (CKO) on the complicated well stock after SMARTING implementation



Effectiveness, %



SMARTING containers are highly effective under any oil production method — ESP, SRP or natural flow. They perform reliably on wells with any operating parameters and are fully compatible with other complication-prevention techniques.

Applications

Protection of ESPs when bringing wells on production after drilling or hydraulic fracturing

Protection of surface flowlines and gathering systems

Use in packer completions

The SMART inhibitor is delivered directly to the point of complication origin and remains active throughout the entire production chain.

Advantages of SMARTING Submersible Downhole Containers

- Environmentally safe and no impact on produced fluid quality – inhibitor concentration in the produced fluid is extremely low: only 1–2 mg/l
- Supplied disassembled in sets of 3 containers per package. The package with the bottom container includes the certificate and operating instructions. The container with blind plug from this package is run as the bottom section
- Delivered pre-filled with inhibitor and made up as a regular tubing string. Adjustment takes 5–10 minutes immediately before running
- Service life can be extended if required
- Zero maintenance during operation – particularly valuable in remote and hard-to-access locations
- Container length 1.0–2.0 m – easily transported and man-portable, no lifting equipment required
- Overall operating cost is significantly lower than alternative complication-prevention methods while delivering superior effectiveness



THANK YOU FOR WATCHING!

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