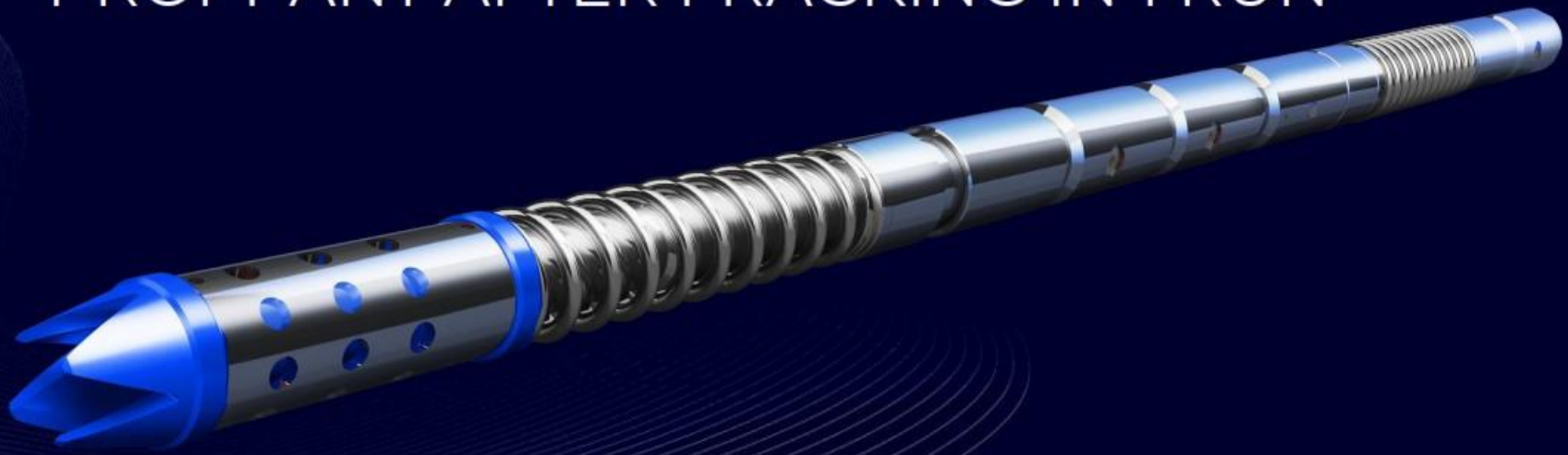
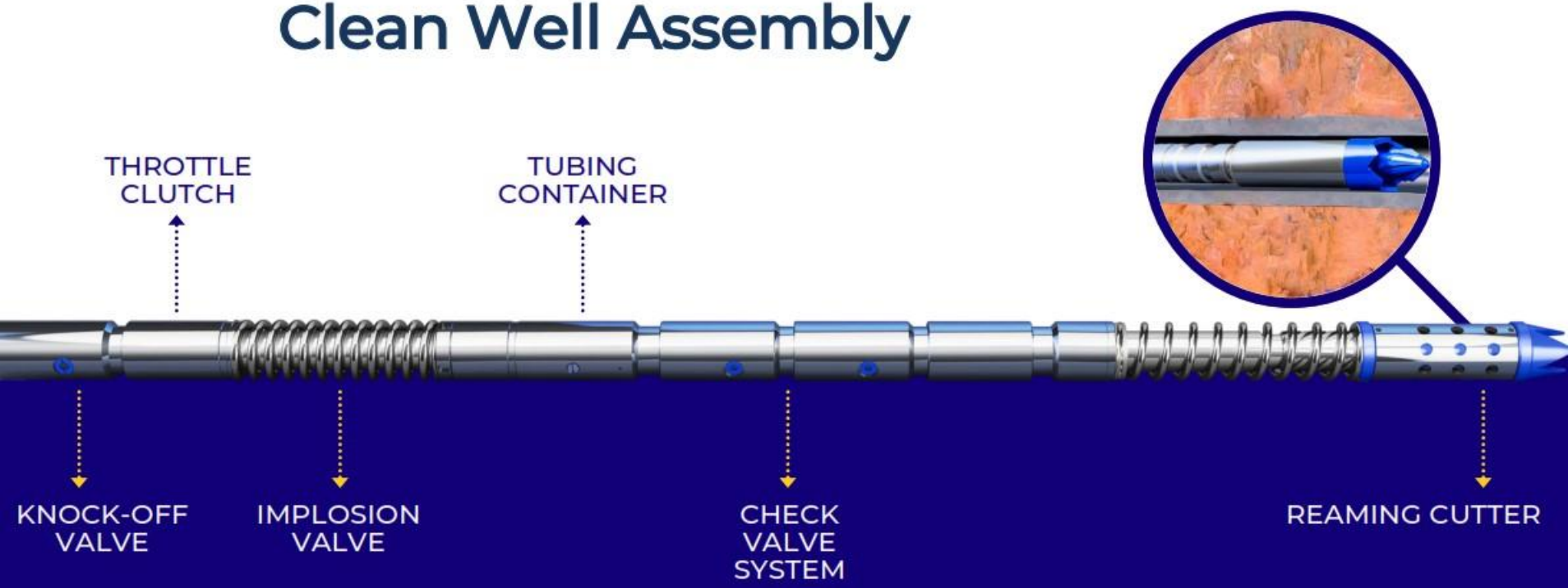
Clean Well

WELL CLEANING FROM THE BACKFLOW PROPPANT AFTER FRACKING IN 1 RUN



Clean Well Assembly



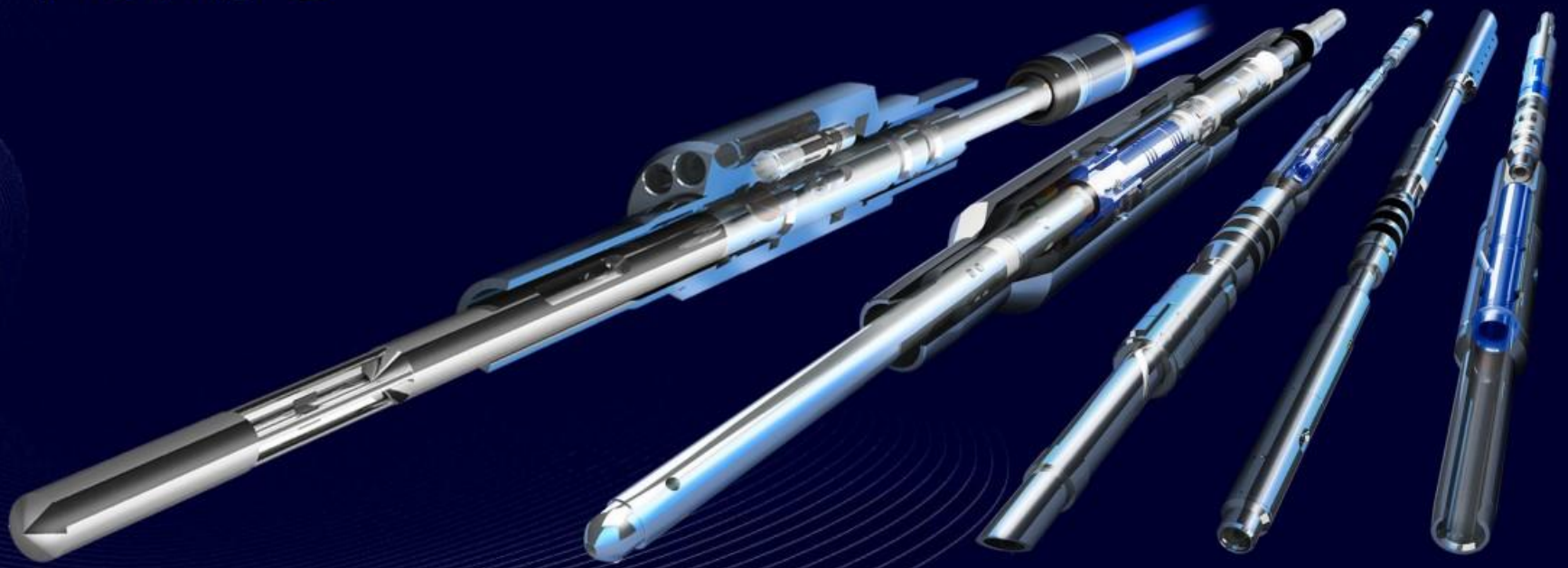
Clean Well — the NON-CIRCULATION technology is effective solution for removing solids, plugging materials, dense sediments, metal junk in one run since 2019

Clean Well

Main technological advantages

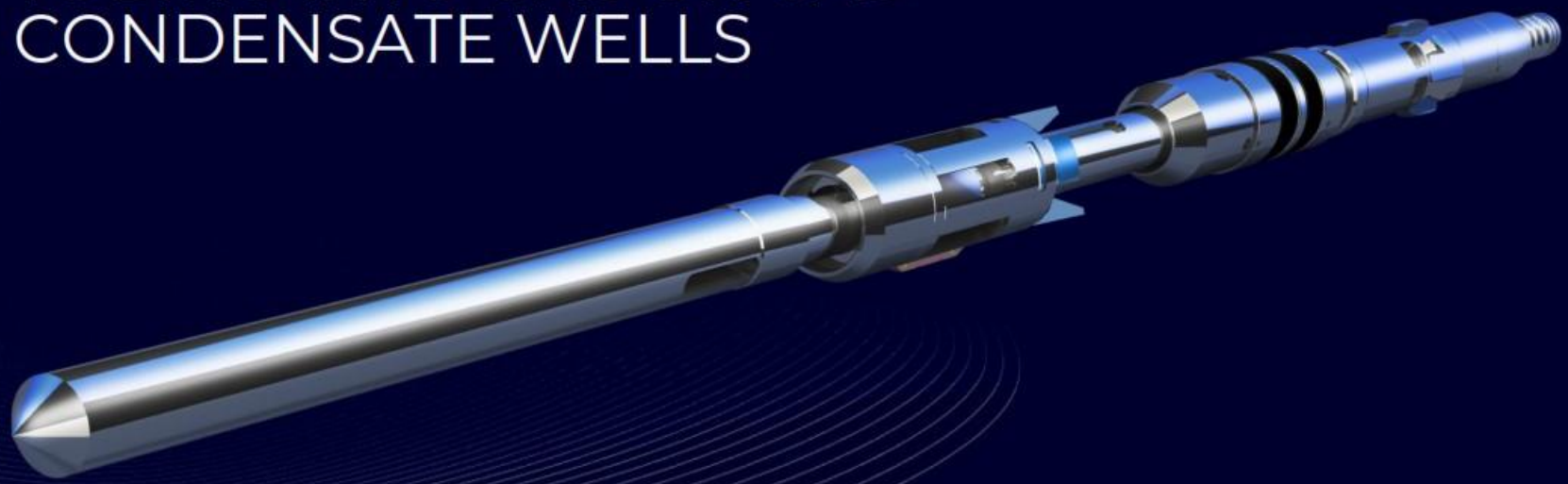
1. **≥ 2 DAYS** — TIME SAVING DUE TO ABSENCE OF FLUID LOSSES
2. **FROM 12 TO 72 HOURS** — REDUCTION OF WORKOVER CREWS OPERATION TIME
3. DRILLING AND CLEANING OF PROPPANT PLUGS IN 1 RUN WITHOUT CIRCULATION
4. OPERATIONS IN WELLS WITH CONTINUES LOSSES
5. STARTING OF WELL PRODUCTION IN A SHORTER PERIOD
6. DESTROYS HARD DEPOSITS AT THE BOTTOMHOLE
7. OPERATION IN WELLS WITH LOW FORMATION PRESSURE (DEPLETED FORMATIONS)
8. NO NEGATIVE IMPACT OF CIRCULATION FLUID ON FORMATION SUCH FORMATION DAMAGE
9. MUCH LESS CONSUMPTION OF FLUID IN COMPARISON WITH CIRCULATING TECHNOLOGY

WELL HYDRODYNAMIC STUDIES AND WELL KICK-OFF WITH JET PUMPS

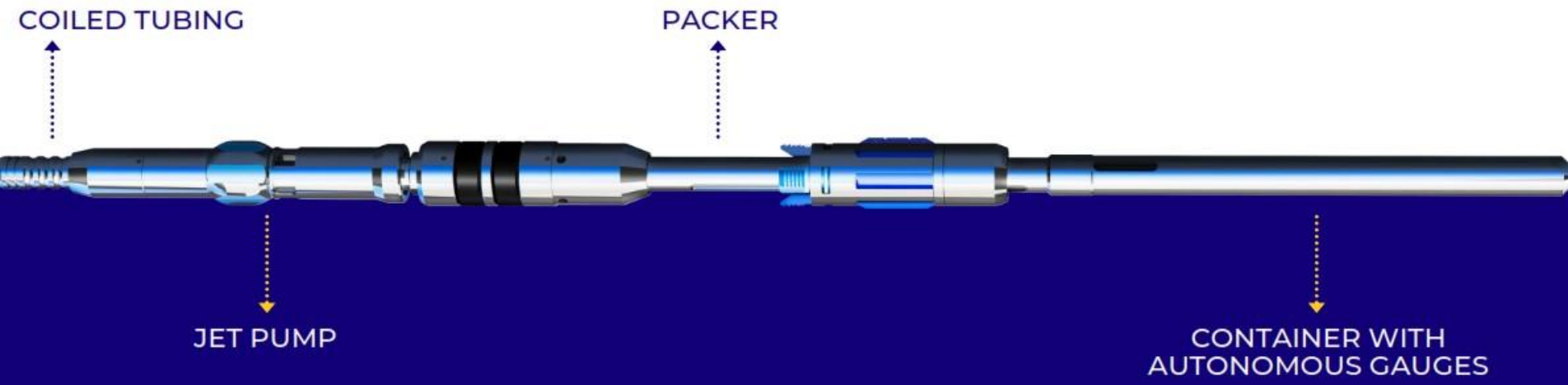


Jet Coil

JET PUMP TO RUN ON COILED TUBING INTO GAS OR GAS-CONDENSATE WELLS



JET PUMP CONFIGURATION

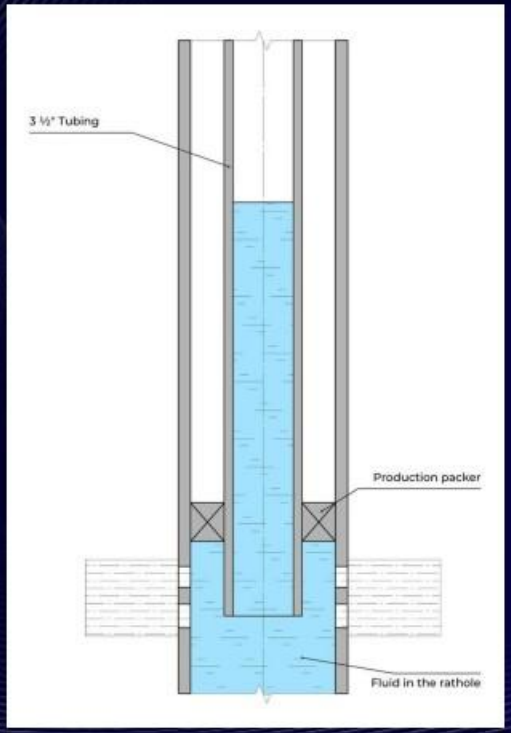


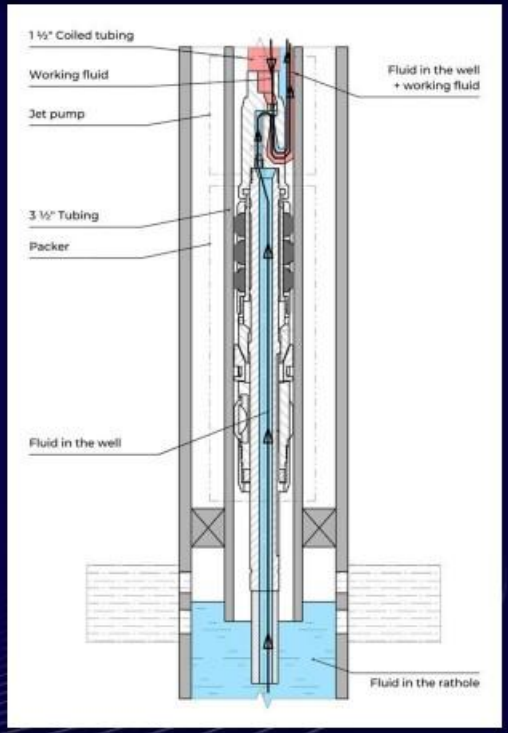
Jet Coil — technology for dewatering (reducing hydrostatic fluid head) of wells with low formation pressure, where liquid has accumulated during operation which preventing gas production.

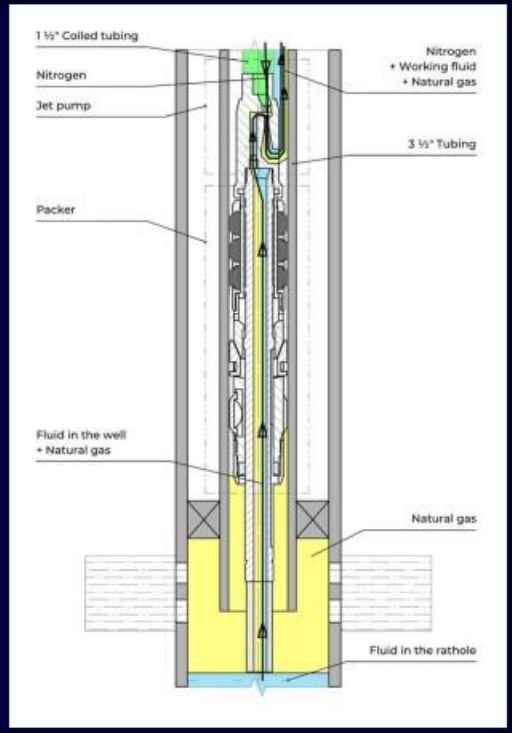
TECHNOLOGICAL PROCESS

- The BHA is RIH on the CT inside the tubing with a check valve at the end of the CT and a packer is set the small annulus (annulus between tubing and CT);
- The jet pump is operated by injecting the working fluid into the coiled tubing with exiting through the small annulus;
- The fluid is pumped out from the zone below the packer;
- After extended backflow using the jet pump, the fluid in the annulus space is replaced by nitrogen, until full displacement of the small annulus closing of the well under final pressure, which leads to volumetric underbalance and replacement of the well column by gas;
- Repression on the formation does not occur, due to the installed check calve and the packer;
- While replacing by a nitrogen, the jet pump continues to operate;
- Then gas from the pay zone flow through jet pump and enters small annulus and after the CT is retrived produces as normal.

TECHNOLOGY PROCESS FOR DEWATERING (REDUCING HYDROSTATIC FLUID HEAD) OF GAS WELLS







Jet Coil

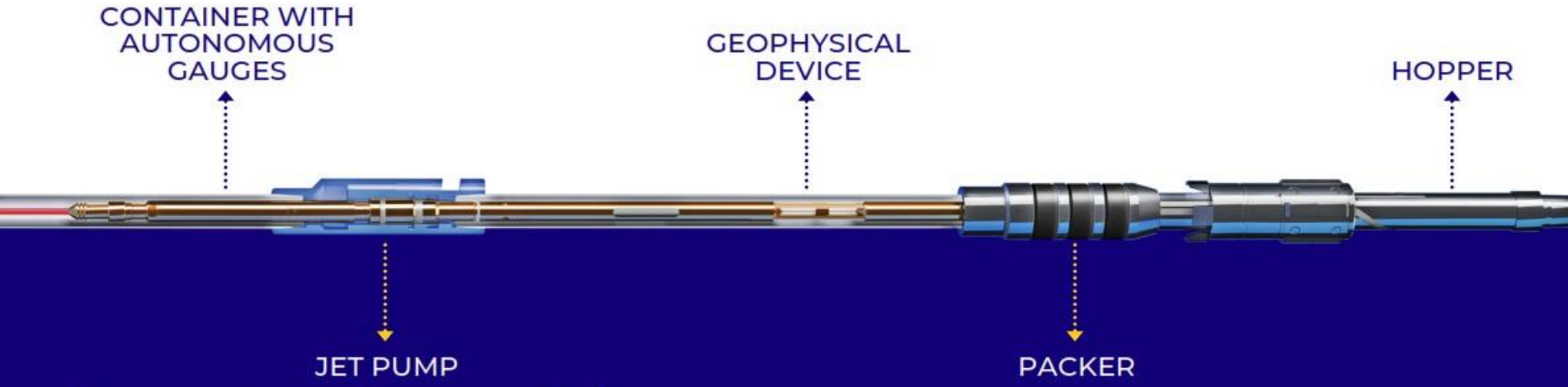
Main technological advantages

1. OPERATION IN WELLS WITH LOW FORMATION PRESSURE
2. NO LOST CIRCULATION OF THE FLUID WHEN THE BOTTOM HOLE PRESSURE IS REDUCED
3. LIQUID REMOVAL FROM THE BOTTOM HOLE
4. POSSIBILITY OF SUBSEQUENT COMPRESSION WITH LESS NITROGEN

Jet Pro

JET PUMP FOR WELL KICK-OFF AFTER BOTTOMHOLE TREATMENT

CONFIG WITH GEOPHYSICAL DEVICE FOR RECORDING FLUID PARAMETERS



Parameters to be recorded:

- Temperature
- Pressure
- Specific Electrical Conductivity (SEC) of the fluid
- Water content in the well fluid
- Flow rate of fluid

OPERATIONAL APPLICATION

1. HYDRODYNAMIC TESTS
2. HYDRODYNAMIC INFLUENCE BEFORE/AFTER BOTTOM-HOLE TREATMENT (BHT) TO INCREASE PERMEABILITY OF BOTTOM-HOLE ZONE
3. WELL KICK-OFF AFTER HYDRAULIC FRACKING, ACID TREATMENTS, LARGE-VOLUME BHT, DRILLING
4. IMPACT ON FORMATION BY INSTANTANEOUS CYCLIC UNDER-BALANCED DEPRESSIONS
5. CLEANING OF BOTTOM-HOLE ZONE AFTER ACID BOTTOM-HOLE TREATMENT OR AFTER DRILLING

Jet Pro

Main technological advantages

1. ABILITY TO WORK WITH PRODUCTION RATES ≤250 M^3/DAY
2. INCREASES WELL PRODUCTIVITY BY UP TO 25% AND PREVENTS DOWNTIME AS RESULT OF TO BLOCKAGE UNITS
3. PRESSURE TEST OF PACKER AND CASING AFTER RUNNING THE ASSEMBLY PRIOR TO KICK-OFF OR BOTTOMHOLE TREATMENT
4. HYDRODYNAMIC IMPACT ON BOTTOMHOLE FORMATION ZONE WITH INJECTING ≤ 6 000 PSI
5. MULTIPLE ACID BHT IN 1 RUN (WITHOUT POOH) BY USING SLIDING SLEEVE