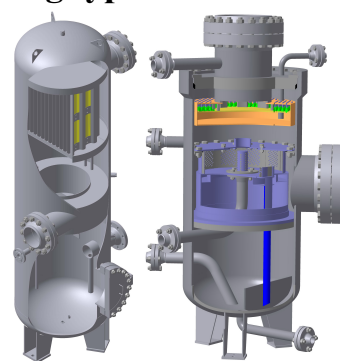
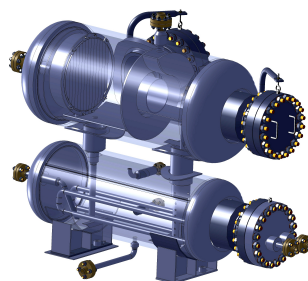




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Gas separators of the inertial-filtering type



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Gas separators of the inertial-filtering type are a unique type of equipment combining inertial and filtering methods of gas condensate systems separation. Designs of the combined (inertial and filtering) gas separators are equipped with improved input units where prior fluid separation takes place and mechanical impurities are captured with small dispersed aerosol coagulants and high efficient centrifugal, inertial and filtering separation elements. Combined separators are highly efficient gas cleaning from fluid in a wide range of productivity and pressure, provide long resource between regeneration and multiple regeneration, have low hydraulic resistance compared to the coalescing filters and even some gravity-inertial separators leading world manufacturers.

In the basis of separation methods and inertial filtering gas separators designs are landmark decisions. Sumy State University (SSU) acts as an invention applicant and therefore an owner of more than 10 copyright certificates and patents for means and instrument design of granulation processes of inertial filtering separation.

Parameter	Gravity-inertial separators (OJSC Gazprom)	Coalescing filters (Pall Corp.)	Inertial-filtering separators (SSU)
Separation efficiency, %	75-90	till 99,99	99,5-99,9
Efficient capture droplets size 2R, μm	$\geq 10-100$	$\geq 0,3$	≥ 5
Content fluid inlet, g/m^3	< 200	< 100	< 200
Drop entrainment, g/m^3	$< 0,020$	$< 0,003$	$< 0,015$
Hydraulic resistance, MPa	0,010-0,050	$< 0,200$	0,015-0,030

Paying off time of new inertial filtering type gas separators – about 3 years, in case of modernization the existing separation equipment - to 1,5 years.

Inertial-filtering separators are used for depuration of the natural and oil gas from fluid and mechanical impurities on the first, middle or final stages of separation at the oil refineries (OR), gas refineries (GR), as an integral equipment at the LNG processing, low temperature separation (LTS), gas dehydration plants (GDP); used for stripping at the oil absorption plants (OAP); for low temperature gas processing using condensation, absorption and rectification; at the plants for condensate/gas stabilization (CSP), for gas processing using gas fractioning, at the gas compressor stations of the main gas lines (GCS), at the underground gas storages (UGS), at the production gas compressor stations for additional pressing (PGCS), for cleaning of gas emissions before its getting into the



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atmosphere.

Experimental designs highly efficient gas separator, developed by scientists SSU, successfully completed experimental industrial and acceptance tests, as a result they were implemented at industrial sites OJSC Ukrnafta, JSC «Ukrhazvydobutok», Regal Petroleum Corporation Ltd.

Introduced industrial designs inertial-filter separators confirmed their technical characteristics in an industrial environment and successfully used in the business of oil and gas complex of Ukraine for more than 10 years.

Development of new methods for separating condensate systems SSU scientists have been acknowledged and awarded certificate № 277/2012, 11.03.2013, Department of Industrial Property of the Central Organization for Standardization and Quality Control of Iraq (Method of cleaning natural and associated oil gas from water and hydrocarbon condensate / Sklabinskiy V.I., Lyaposchenko A.A., Logvyn A.V., Mustafa makki Al-Rammahi. - № 277/2012; request 18.10.2012; published 11.03.2013. - Bagdad: Central Organization for Standardization and Quality Control (C.O.S.Q.C.), 2013).