

SCAN



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Introduction

- **SCAN is...**

- *the leading Croatian E&I engineering and construction company, specialized in providing solutions, mainly to the following industries:*

- *Oil&gas production, onshore and offshore*
 - *Oil refining*
 - *Oil product and LPG terminals*
 - *Pipelines*
 - *Petrochemical and chemical plants*

- **Our main activities**

- *Design engineering and consultancy services*
 - *Package design and manufacturing*
 - *Systems integration and installation services*
 - *Instrumentation and control systems maintenance*

Activities

- **Design engineering**

- *Feasibility studies*
- *Front End Engineering Design (FEED)*
- *Basic design engineering*
- *Detailed design engineering*
- *Control panels manufacturing documentation*
- *Croatian authority engineering*
 - *Main design engineering (required for construction permit)*
 - *Design nostrification*
 - *Alignment of design documentation related to hazardous areas to Croatian Ministry of Interior-Sector for Explosion Protection requirements*
 - *Management of certification activities and liaison with Croatian authorities*

Activities

- **Functional safety engineering and consultancy**
 - *Leading of Risk assesment studies (HAZID, HAZOP, QRA,...)*
 - *SIL allocation and SIL verification (acc. to IEC 61511)*
 - *Preparation of Safety Reports*
 - *Preparation of Safety Requirements Specifications*
 - *Verification of SIS design done by other companies*
 - *SIS maintenance consultancy*
 - *Custom safety trainings*



Activities

- **Systems Integration**

- *Project management*
- *Equipment supply*
- *Control and safety systems programming (PLC, DCS, HMI, ESD, F&G, BMS)*
- *Control panels manufacturing*
- *Electrical and instrumentation site installation services*
- *Precommissioning, commissioning and start up*
- *Operation and maintenance personnel application specific training*

Activities

- **Control and safety systems programming**
 - *Emerson DeltaV*
 - *ABB Advant, 800xA*
 - *Yokogawa*
 - *Various PLCs (Allen Bradley, Mitsubishi, Siemens)*
 - *PCVue SCADA system*
 - *iFIX SCADA system*
 - *Factory Link SCADA system*
 - *SCAN View*
 - *Various HMIs*

LNG Terminal on island Krk

Complete inhouse design, installation and commissioning of:

- Basic Process Control System (BPCS)
- Safety Integrated System (SIS)
- All related instrumentation
- Public annunciation and General alarming system (PA/GA System)
- Terminal Management System (TMS)
- Fire and Gas Detection System (FDS & GDS)
- CCTV System



Replacement of ESD and F&G systems on Ivana A&K offshore platform

Complete Turnkey solution:

- Design, procurement of equipment, prefabrication, programming, execution and commissioning
- Dismantling the existing system, installing a new system and commissioning done within the downtime of the production plant of **72 hours**



Activities

- **Package design and manufacturing (EPC)**

- *Gas Compression skids*
- *Various small Process skids*
- *Metering and loading skids*
- *Analyzer systems including sample conditioning systems, analyzer houses and shelters*
- *Package control panels manufacturing and configuration*
(Compressor controls-including reciprocating, centrifugal, liquid ring, Flare gas recovery systems, GDU, TEG regeneration, Gas sweetening, Other Various process skids)
- *Wellhead control panels*
- *Shutdown valve control panels*



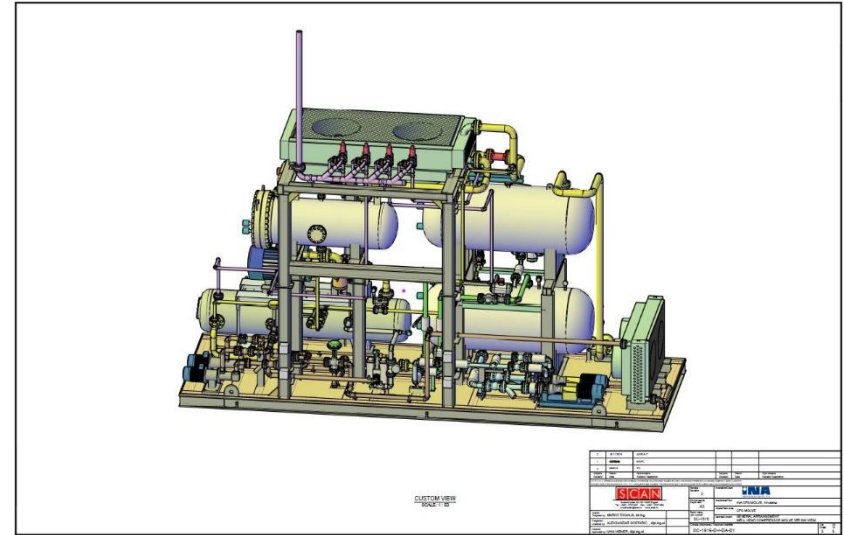
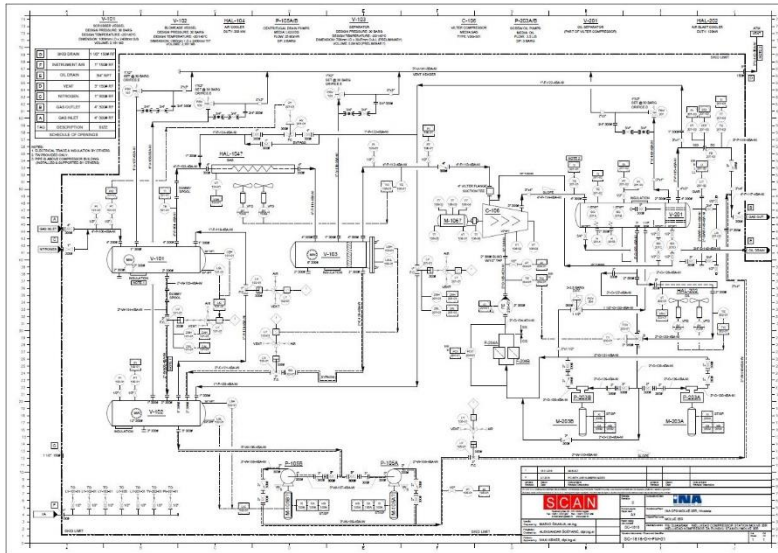
Wellhead compressor SKID package unit Mol 35-R (EPC)

Designed, manufactured and commissioned by S.C.A.N.



- Capacity: 35.000 Sm³/day
- Inlet: 105 °C, 2-4 barg
- Discharge: 26 barg
- Separated liquid quantity: 180 m³/dan
- Installed power: 200 kW

Wellhead compressor SKID package unit Mol 35-R



Gas compressor station Ludina



- Waukesha gas motor 1,4 MW
- Ariel compressor: inlet=36 bar; outlet=57 bar; capacity: 100.000 m³/h

Wellhead compressor SKID package unit Kal-21 (EPC)

Designed, manufactured and commissioned by S.C.A.N.



- Capacity: 35.000 Sm³/dan
- Inlet: 115 °C, 2-4 barg
- Discharge: 13 barg
- Separated liquid quantity: 50 m³/dan
- Installed power: 110 kW

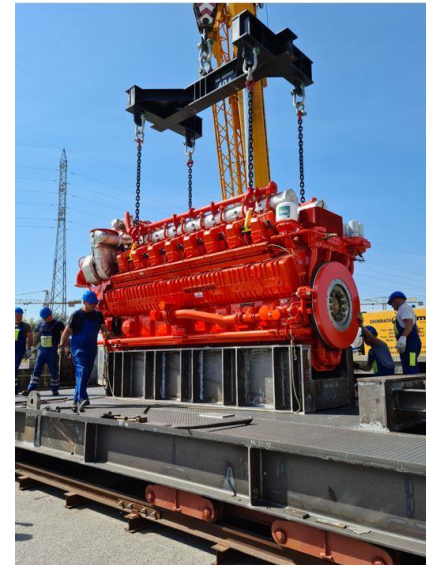
Reciprocating compressor for underground GS Grubišno Polje

- Complete inhouse design - process, mechanical, power, instrumentation and control
- Manufacture and pack of the complete compressor package (150 tons)



Phase 1 (Sendout from gas storage)

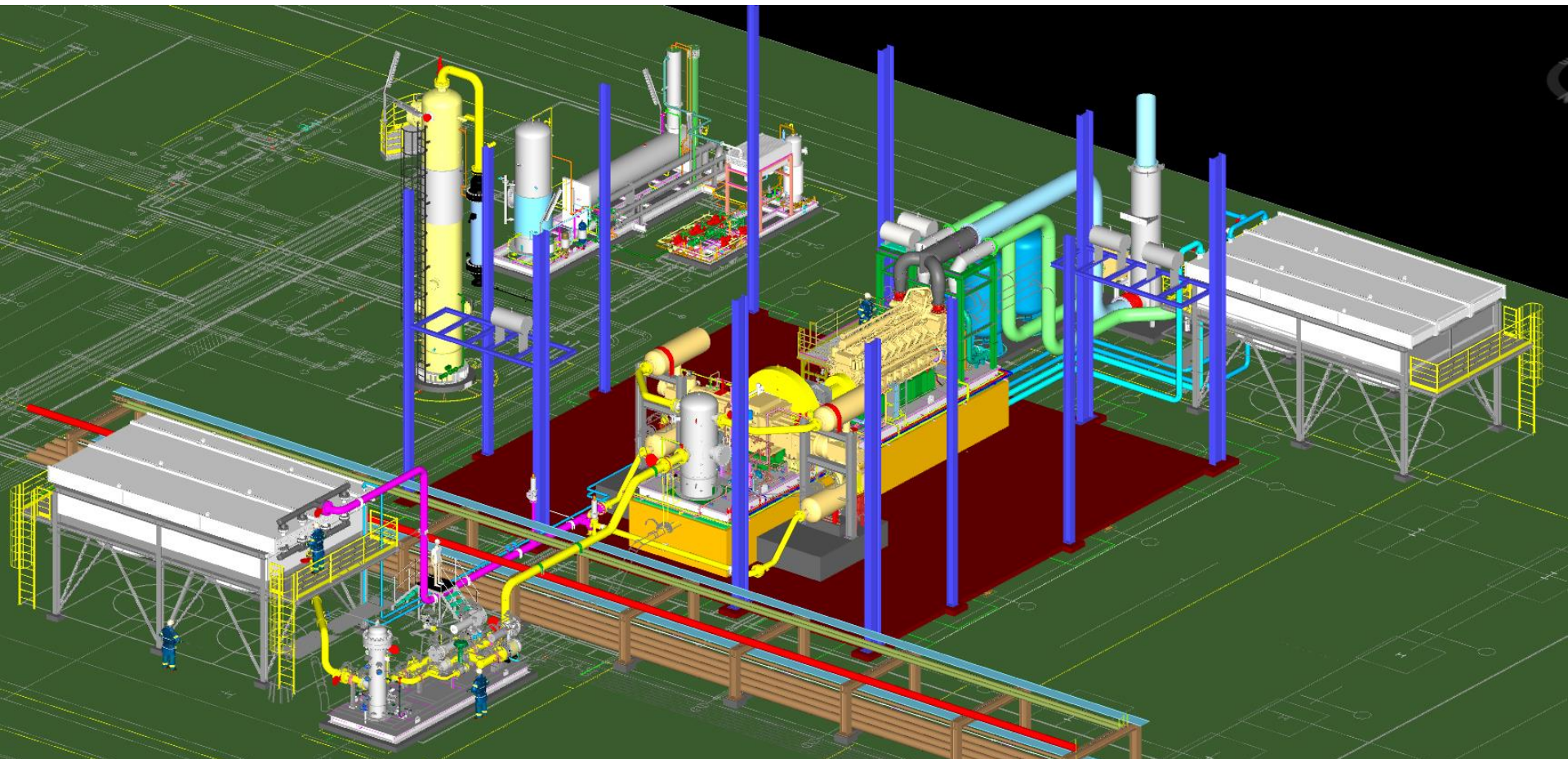
- Capacity: 70.000 Sm³/h
- Inlet pressure: 20 barg
- Discharge pressure: 45 barg



Phase 1 (Compression to gas storage)

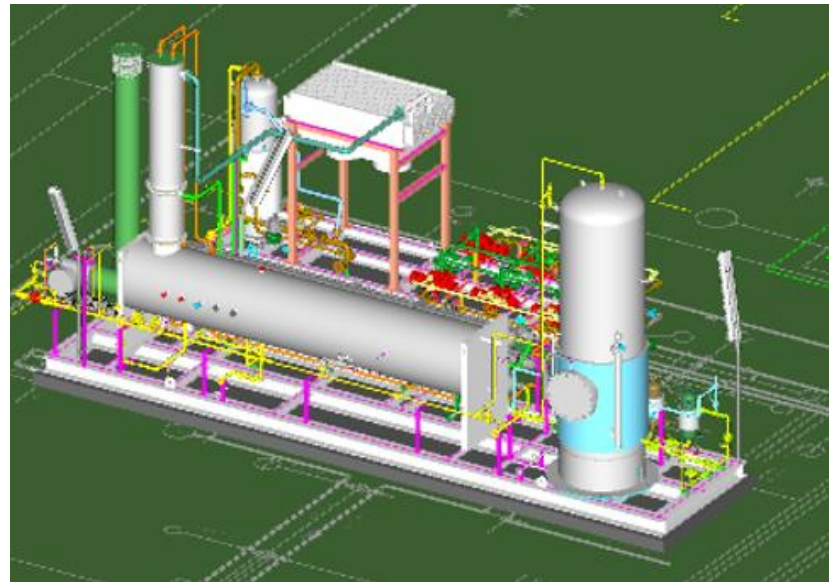
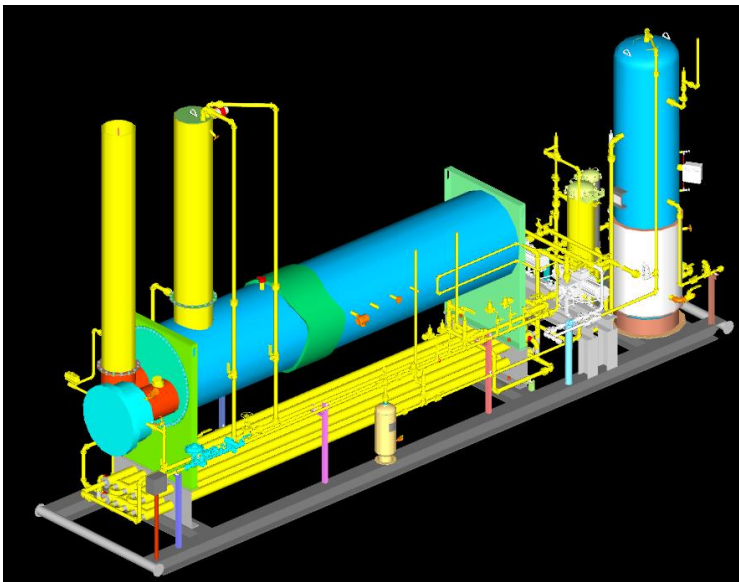
- Capacity: 70.000 Sm³/h
- Inlet pressure: 40 barg
- Discharge pressure: 120 barg

Reciprocating compressor for underground GS Grubišno Polje



Gas dehydration unit for underground GS Grubišno Polje

- Complete inhouse detailed design for gas dehydration and regeneration unit by TEG - process, mechanical, instrumentation and control
- Delivery and installation of instrumentation equipment

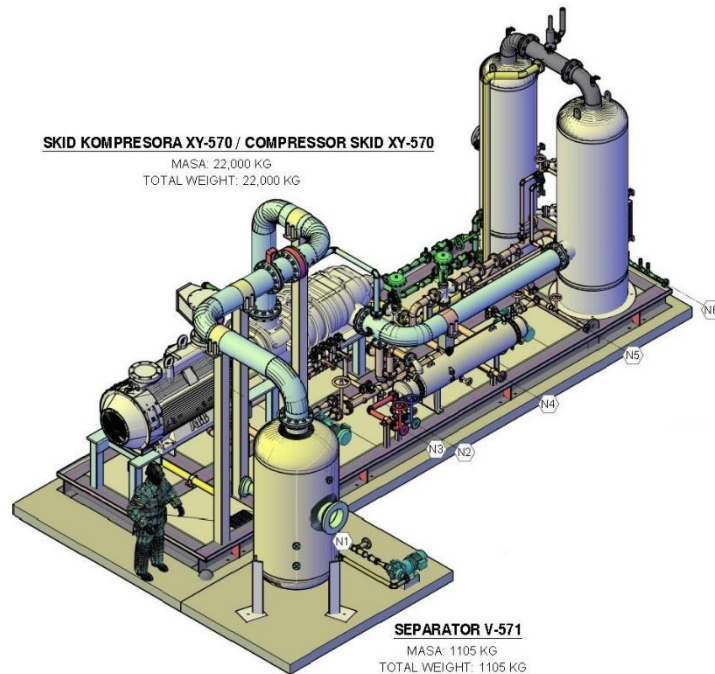


Column with structural packing, flash drum, glycol reboiler, piston hydraulic pumps

- Capacity: 100.000 Sm³/h
- Working pressure: 20-45 barg

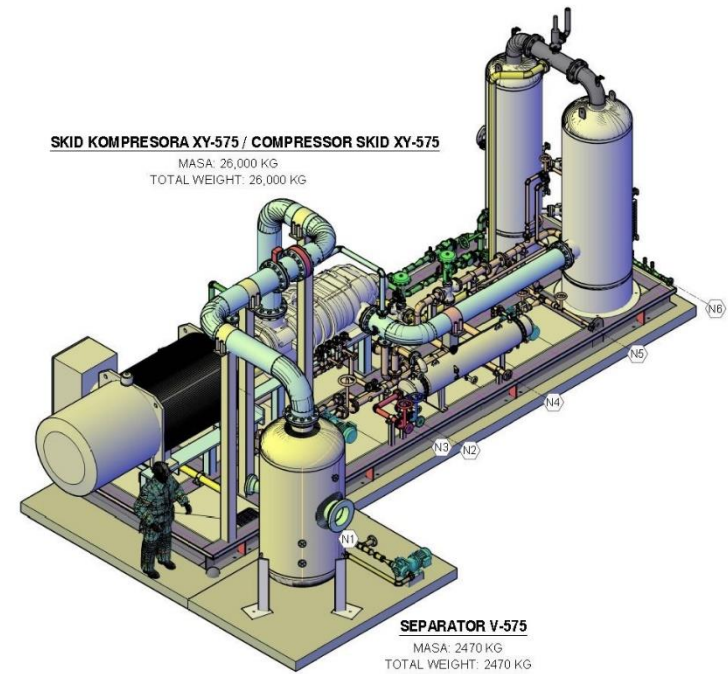
Screw compressors for CO2 compression at Etan Plant - 2 skids

- Complete inhouse design - process, mechanical, power, instrumentation and control
- Manufacture and pack of the complete compressor package



Screw compressor 1.st stage:

- Suction pressure: 1,5 barg
- Discharge pressure: 4,5 barg
- Capacity: 180.000 Sm³/day



Screw compressor 2.nd stage:

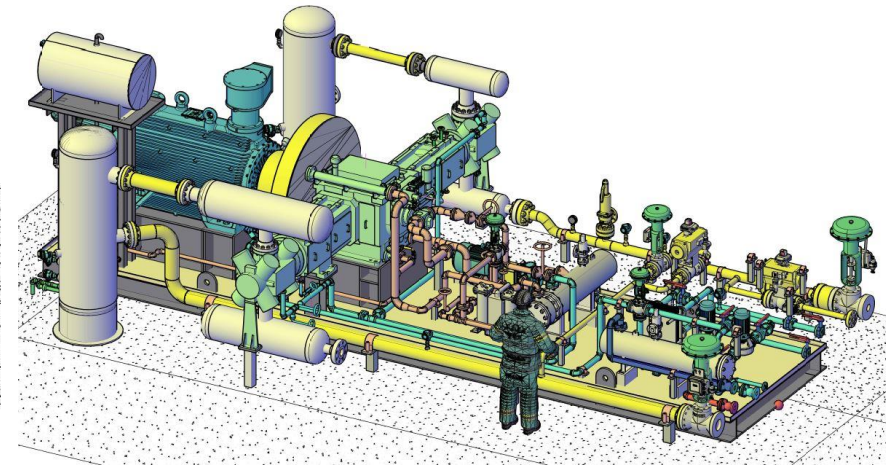
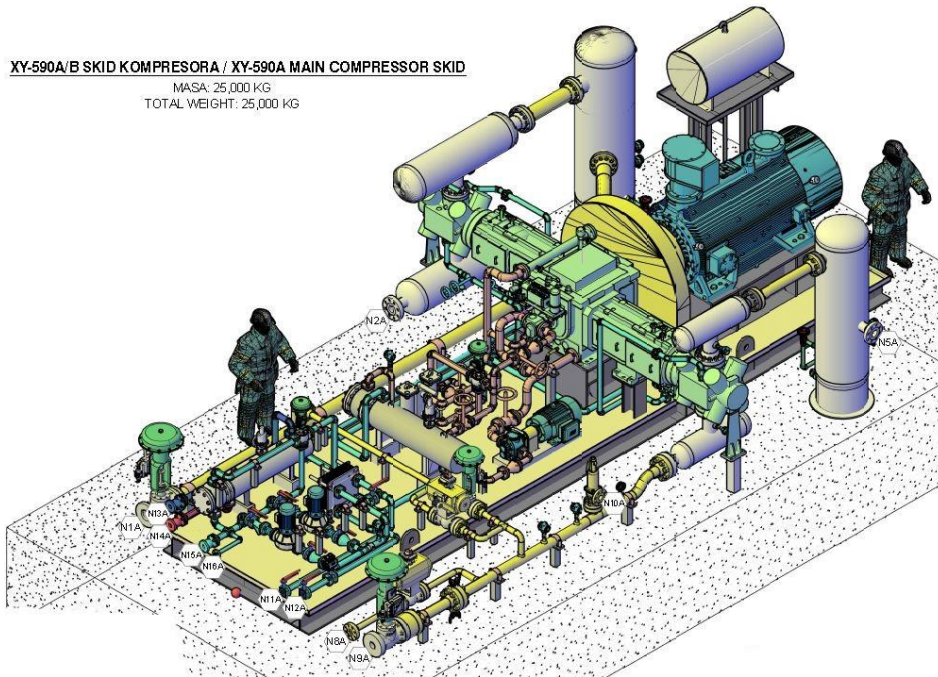
- Suction pressure: 4,0 barg
- Discharge pressure 26,0 barg
- Capacity: 360.000 Sm³/day

Reciprocating compressors for CO2 compression at Etan Plant

- Complete inhouse design - process, mechanical, power, instrumentation and control
- Manufacture and pack of the complete compressor package – 2 skids

XY-590A/B SKID KOMPRESORA / XY-590A MAIN COMPRESSOR SKID

MASA: 25,000 KG
TOTAL WEIGHT: 25,000 KG

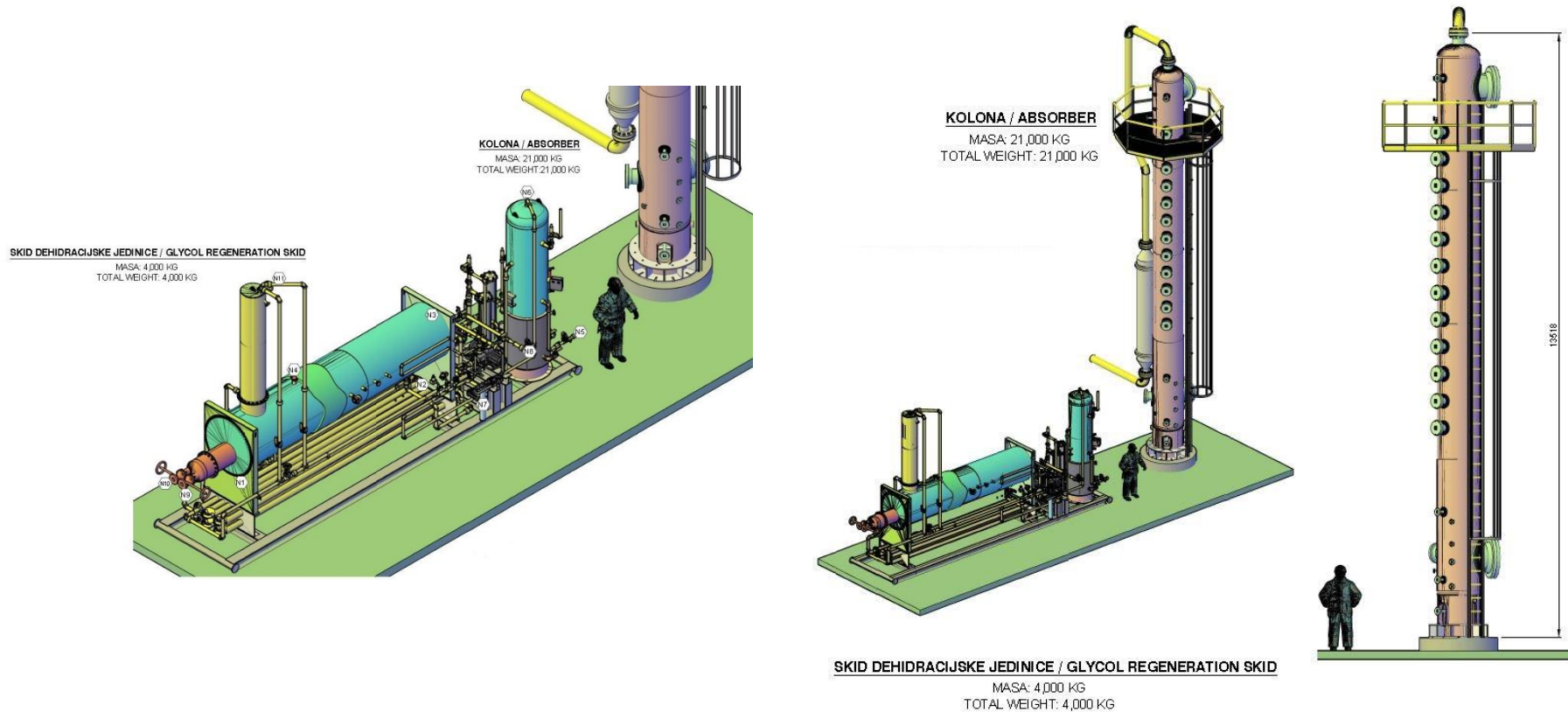


Reciprocating compressor (each):

- Suction pressure: 25 barg
- Discharge pressure: 197 barg
- Capacity: 380.000 Sm³/day (each)

Dehydration unit for CO2 at Etan Plant

- Complete inhouse design - process, mechanical, power, instrumentation and control
- Manufacture and pack of the complete skid package



TEG Dehydration column with regenerator (hot oil pipe bundle):

- Capacity: 360.000 Sm³/day

Activities

- **Installation services**

- *well experienced and trained team of permanently employed installation workers and technicians providing instrumentation and electrical installation services*
- *services executed within turn-key projects or for 3rd parties*
- *services provided for both onshore and offshore projects*
- *experienced in hazardous area installations*
- *precommissioning activities and commissioning assistance normally offered to clients in a package*

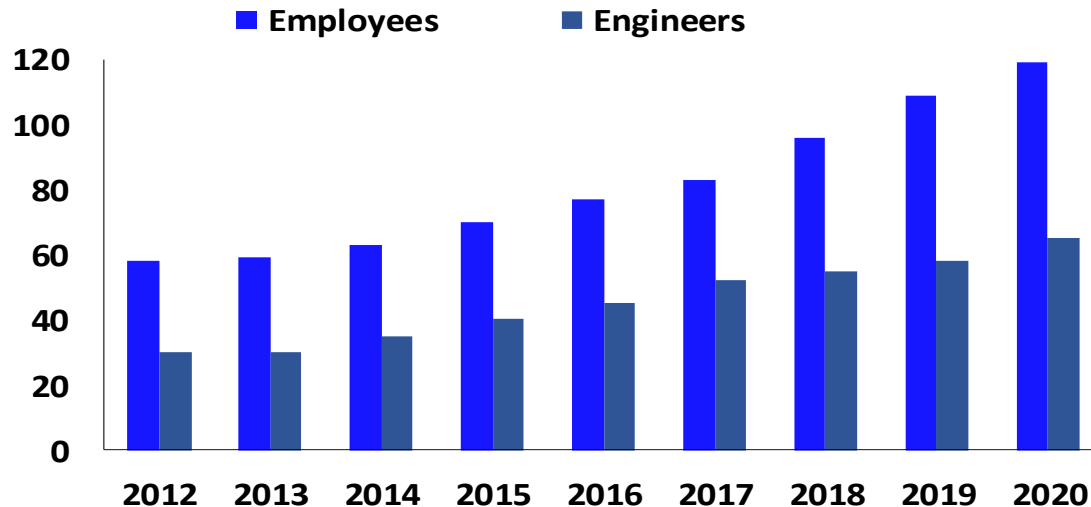
Activities

- **Instrumentation and Control System Maintenance**
 - *great experience in providing maintenance services (INA Naftaplin, INAgip, EDINA, INA oil refineries in Sisak and Rijeka, Plinacro...)*
 - *possibility of tailor made maintenance agreements adjusted to customer needs*



Company Development

- SCAN was established in 1992 as a privately owned company
- Since the start SCAN is continuously growing and expanding the range of services offered
- Today we have about 120 permanent employees, including about 60 engineers



Offices

- **Main Office in Zagreb, Croatia**
 - *Management*
 - *Engineering services*
 - *Maintenance and support services*
 - *Manufacturing workshop*
- **Branch Office in Kalinovac, Croatia**
 - *Manufacturing workshop*
 - *Installation services*
 - *Camp inside GTP Molve*
- **Office in Rijeka, Croatia**
 - *Sales and PM Office near INA Rijeka Refinery*
 - *Camp inside INA Rijeka Refinery*



Quality in SCAN

- **Quality Management System**
 - *ISO 9001:2015 certified (SGS)*
 - *ISO 29001:2020 certified (SGS)*
- **HSE Management Systems**
 - *ISO 14001:2015 certified (SGS)*
 - *ISO 45001:2018 certified (SGS)*
 - *SCCp:2011 certified (Bureau Veritas)*
- **IMS Information Management System**
 - *ISO 27001:2013 certified (SGS)*
- **QMS for installation, maintenance and repair of electrical apparatus in explosive atmospheres**
 - *EN (IEC) 60079-14 - installations*
 - *EN (IEC) 60079-17 – maintenance*
 - *EN (IEC) 60079-19 – repair*
 - *SCAN is under the Technical supervision of Ministry of the Interior – Sector for explosion protection*



Special Expertise

- **Design Nostrification Services**
 - *SCAN is providing nostrification of design documentation in the field of instrumentation and control systems as per Croatian law*
- **Functional Safety (IEC 61508/61511)**
 - *SCAN is fully following recommendations from IEC standards during the engineering, implementation and maintenance of Safety Instrumented Systems*




Special Expertise

- **Certification for Offshore activities**
 - *SCAN is authorized by Croatian Register of Shipping (CRS) for design, installation, commissioning, service and maintenance of electrical and instrumentation equipment, control and safety systems, including explosion proof equipment*
 - *Certification covers ships and fixed offshore platforms*



HRVATSKI REGISTAR BRODOVA *Croatian Register of Shipping*

 **POTVRDA O ODOBRENJU USLUŽNE TVRTKE**
CERTIFICATE FOR APPROVAL OF THE SERVICE SUPPLIER

Br./No 03-001180/030531

Potvrđuje se da je ova uslužna tvrtka odobrena u skladu s Pravilima za klasifikaciju brodova, Dio 1. – Opći propisi, Odjeljak 4. – Odobrenje proizvođača i uslužnih tvrtki.
This is to certify that this service supplier is approved on the basis of the Rules for the classification of ships, Part 1 – General Requirements, Chapter 4 – Approval of manufacturers and service suppliers.

TVRTKA:
FIRM:

S.C.A.N. d.o.o.
AUTOMATIKA INFORMATIKA PROCESNO UPRAVLJANJE
Cankareva 7 – ZAGREB
Hrvatska - CROATIA


PODRUČJE ODOBRENJA:
FIELD OF APPROVAL:

USLUŽNI RADOVI NA BRODOVIMA I NEPOMIČNIM ODOBALNIM PLATFORMAMA
SERVICE WORKS ON BOARD A SHIPS AND FIXED OFFSHORE PLATFORMS

Projektiranje, montaža, ispitivanje i puštanje u pogon, servisiranje i održavanje elektro i instrumentacijske opreme, sustava upravljanja i sigurnosnih instrumentacijskih sustava, uključujući i opremu u protueksplozijskoj izvedbi.
Design, installation, commissioning and starting up, servicing and maintenance of electrical and instrumentation equipment, control and safety instrumented systems, including explosion proof equipment.

ODOBRENJE VRIJEDI DO: **2013-11-05**
APPROVAL IS VALID UNTIL:

Mjesto i datum Split, 2009-11-05
Place and date

 UZ UVJETE NAVEDENE NA POLEĐINI
SUBJECT TO CONDITION OVERLEAF


(Potpis – Signature)
Goran Begović, dipl.ing.

QF-PTD-13K 1 / 2 2009 - 01

Our partners

- SCAN is proud of partnership relations established with some of the major equipment/systems manufacturers:
 - **Emerson Process Management** – system integrator, service partner and distributor
 - **ABB** – Safety Channel Partner and Value Provider
 - **Mitsubishi Electric** – authorised system integrator
 - **Yokogawa** – system integrator
 - **Sulzer Chemtech** – Sales Agent – membrane separators, mixers, separators, trays and column internals
 - **A+ Corporation (Genie)** – Distributor (sample probes, membrane separators, filters, pressure regulators)
 - **SCHIEBEL** – Distributor
 - **AMETEK** – Distributor and service partner
 - **Pekos Valves** – Distributor (Ball valves for process industry)
 - **ARC Informatique** – PCVue SCADA system integrator
 - **GE Fanuc** – authorised system integrator for iFIX HMI/SCADA

SCAN and Emerson

- **SCAN is Emerson Service partner and system integrator since 1998**
 - *First DeltaV in 2000; various DeltaV projects in refining*
 - *Certified DeltaV and DeltaV SIS engineers*
 - *Service and maintenance activities for Rosemount field equipment, Fisher valves, Micromotion, Daniel and Rosemount Analytical*
 - *Continuous training and certification in Emerson training centers*



Some of Our Clients



Key Client - INA

- **Our key client in Croatia is INA. For INA we executed a great number of projects for following types of plants:**
 - Oil refineries
 - Gas Treatment Plants
 - Offshore platforms
 - Oil Metering and Gathering stations
 - Compressor Stations
 - Oil and Gas Pipelines
 - Oil and Gas Wells
 - Underground Gas Storage
 - Custody Transfer skids
 - Truck and Raitank Loading Terminals



Some significant references

Projects in Croatia

- **INA** – HCU and SRU Revamping Project (DCU brownfield) at INA Rijeka Refinery (EPC sub)
- **PSP d.o.o.** - Underground gas storage reciprocating compressor-70.000 Sm³/h – (EPC)
- **LNG CROATIA d.o.o.** - New LNG Terminal Krk, Croatia (EPC sub)
- **INA** - Well head compressor skid packages for Kal-21 and Mol-35R (EPC)
- **Plinacro** - New Compressor Station KS1-Ludina (EPC sub)
- **INA** - Propane/Propylene splitter Unit (EPC sub)
- **INA** - Ivana A offshore platform-Safety System (SIS) and F&G System Revamping (EPC)
- **ATT-Adriatic Tank Terminals d.o.o.** - ATTwins Project (EPC sub)
- **INA Oil refinery Rijeka** – rail car loading terminal modernisation (EPC sub)
- **INAgip** – Ivana-K offshore platform boosting compression system installation (EPC sub)
- **INA** – Onshore oil wells automation project (EPC)
- **Plinacro** – delivery and installation of 27 process analyzer houses (EPC)
- **INA Oil Refinery Sisak** – FCC unit DCS/SIS system replacement
- **INA** – Međimurje onshore gas field development project (EPC sub)
- **INA** – EOR project in Posavina oil fields (EPC sub)
- **Pliva** - Instrumentation detailed design for new API plant in Savski Marof
- **INA Oil Refinery Sisak** – Topping Vacuum Merox unit DCS system replacement
- **INAgip** – Ivana offshore Central Complex revamping project (EPC sub)

Some significant references

Croatian projects (International EPCs):

- **INA Rijeka Refinery** - Analytical equipment for PPS Unit (KT- Kinetics Technology)
- **INA Rijeka Refinery** - Topping Heater Revamping Unit (KT- Kinetics Technology)
- **INA Sisak Refinery**– Isomerisation unit (Emerson)
- **INA Sisak Refinery**- FCC gasoline HDS unit (Olajterv, Hungary)
- **Plinacro** – 75 bar gas pipeline from Pula to Umag, Croatia (Ghizzoni, Italy)

International projects:

- **SHELL Upstream Albania B.V.** - Tank farm and truck loading facility for well testing at SHP-4/5 oil production wells, Albania
- **SIEMENS Austria** – Appolo Tyres factory, Hungary
- **CROSCO** - EMSCO 401 drilling rig monitoring system, Syria
- **INGRA** – fish and poultry food factory, Al Jofra, Libya
- **INGRA** – viscose factory modernization, Čerkasi, Ukraine
- **INGRA** – viscose factory modernization, Mogilev, Belarus
- **INA ROSS** – crude oil and refined products metering stations, Novorossiysk, Russia (EPC)
- **ALRO** – Ethanol plant control system commissioning and start-up, Iran
- **CAT** – Carbon black plant, Saveh, Iran

Terminal Automation References

- **INA Oil Terminal Solin, Croatia** –Ship Loading/unloading custody transfer metering stations delivery and installation (EPC project)
- **INA Oil Refinery Rijeka** – MTBE an benzene railcar loading terminal
- **Crodux Plin, Croatia** – Sv. Križ Začretje LPG Storage and Terminal Automation System
- **INA Oil Refinery Rijeka** – LPG ship and truck loading terminal
- **NTF Ploče** - Truck and Railtank Loading Terminal modernisation (basic design)
- **NTF Ploče** - Truck and Railtank Loading Terminal Automation System, Custody Transfer tank gauging system
- **INA Oil Terminal Bjeliš, Croatia** – Truck Loading Terminal Automation System, tank gauging system
- **INA Oil Terminal Osijek, Croatia** –Custody Transfer tank gauging system
- **INA Oil Terminal Sustjepan, Croatia** – Truck and Ship Loading Terminal Automation System, tank gauging system
- **OG Adriatic, Oil Terminal Sl. Brod, Croatia** – Truck Loading Terminal Automation System, Custody Transfer tank gauging system
- **INA Oil Terminal Solin, Croatia** – Truck and Ship Loading Terminal Automation System, Custody Transfer tank gauging system
- **PROplin** – 9 LPG distribution centres (Storage and Terminal Automation)

SCAN's Competitive Advantage

- *quality and variety of services – ability to provide “turn-key” solutions*
- *partnerships with some of the major equipment and software manufacturers*
- *know-how (especially in oil&gas industry)*
- *expertise and experience in hazardous area (Ex) installations*
- *engineering and construction capacity*
- *certifications as per Croatian construction laws and regulations*
- *reputation in the local and regional market*