



Technical Gases Filling Stations Instrumentation Catalogue

Issue 2024/01

Dear customer,

The company APT is the supplier of whole set of the technological equipment for the filling plants. The company has the personal capacities and more than 25 years of experience in the field of development, planning and construction of technological assemblies and special purpose equipment, including measurement, control, data processing and data analysis as an integral part of software solutions and control systems.

Intention of this short catalogue is to give the reader a basic orientation in the possible scope and extent of deliveries, including the indicative prices.

CATALOGUE CONTENT

TANK AREA EQUIPMENT

Storage Tanks, Pumps, Cryogenic Pumps & Compressors, Evaporators & Heaters, Filters & Membrane separation

MEDIA DISTRIBUTION

Pressure & Flow Reduction Skids, Gas Buffers, Exhausts & Silencers

CYLINDER PREPARATION

Degassing, Rinsing & Evacuation, Testing, Mechanical Maintenance

CYLINDER FILLING

Gravimetric, Manometric, Volumetric

ANALYTICAL SYSTEMS

Analytical cabinets, Sample & Calibration Racks

CENTRAL INFORMATION MANAGEMENT

Data Acquisition, Archival & Retrieval, Gateway to InLabel & MES, Reporting

CONTACT US OR VISIT OUR WEB-SITE

+420 281 862 111

www.apt.cz

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Basic Data

The company APT is the supplier of whole set of the technological equipment for the filling plants. Intention of this short catalogue is to give the reader a basic orientation in the possible scope and extent of deliveries. It is necessary to note, that the company is ready for very wide customization of the deliveries, where the main company motto is "everything is possible"

The company has the personal capacities and more than 25 years of experience in the field of development, planning and construction of technological assemblies and special purpose equipment, including measurement, control, data processing and data analysis as an integral part of software solutions and control systems.

We are ready for the complex deliveries, starting from project planning, design and development of the structural design to production and installation, followed by installation (including the delivery of construction works), commissioning of the plant and a long-term support of the installation (maintenance, inspections, process optimization). We also provide the consulting services in the field of welding technology.

The technological equipment is organized by FS-system. This system enables to prepare the set of blocks according to particular needs of the client. The FS-code system is also certified for the import and operation in the territory of Customs Union Russia-Kazakhstan-Belarus. The system of FS-codes comprises the equipment with the following commercial designation:

- FS (Filling Station) - a compact set of equipment designed for filling of gas transporting cylinders, consisting of the following components,
 - FS-MS (Filling Station - Medium Source) - medium source for the filling equipment,
 - FS-MS-T (Storage Tank) - a reservoir in form of a tank, mobile tank or other operating medium accumulator,
 - FS-MS-P (Pump) - medium pressure source, piston pump, circulating pump, compressor, etc.,
 - FS-MS-S (change of State) - equipment for change of the operating medium state, evaporator, heater, cooler, etc.,
 - FS-MS-F (Filter) - equipment for product quality change, mechanical filters, absorption and adsorption filters, membrane separators, etc.,
 - FS-MD (Filling Station - Medium Distribution) - equipment designated for the medium distribution - connecting pipeline, valve distributors, etc.,
 - FS-MF (Filling Station - Medium Filling) - equipment used for safe connection of the cylinder being filled and for the filling process check, filling stands, automatic filling devices, etc.,
 - FS-MF-G (Gravimetric) - equipment for cylinder filling by the gravimetric method (based on the medium weight),
 - FS-MF-M (Manometric) - equipment for cylinder filling by the manometric method (based on the achieved filling overpressure) including equipment utilizing the state equation (gas overpressure - temperature characteristic),
 - FS-MF-V (Volumetric) - equipment for cylinder filling based on the required volume,
 - FS-CS (Filling Station - Control System) - equipment designated for control of the filling process or sub-processes including sensors and actuating devices. The equipment character may be electronic or mechanical.
 - FS-QC (Filling Station – Quality Control) – equipment for the quality control and analysis of the gases, including the accessories – sampling panels, control systems etc.
 - FS-CP (Filling Station - Cylinder Preparation) - equipment for cylinder preparation prior to filling
 - FS-CP-D (Degassing) - equipment designated for releasing residual gas from cylinders and eventual evacuation,
 - FS-CP-P (Purging) - equipment for purging cylinder preparation gas, eventually associated with cylinder evacuation. The process can be performed at ambient temperature or higher temperature, inert gases or outright the operating gases are usually used as purging gases,
 - FS-CP-T (Testing) - equipment designated for testing of pressure cylinders and their accessories, such as the hydraulic pressure tests including cylinder drying after the test, cylinder weighing, determination of cylinder inner volume, cylinder valve cleanliness test, etc.

- FS-SP-M (Mechanical) - equipment designated for mechanical repairs of cylinders and their accessories, such as replacement of cylinder valves, renewal of cylinder paint or marking, cylinder base replacement, etc.

The above-mentioned equipment marking is complemented with other alphanumerical characters, providing better identification of the equipment within the commercial and technical relationship between the contractor and the customer.

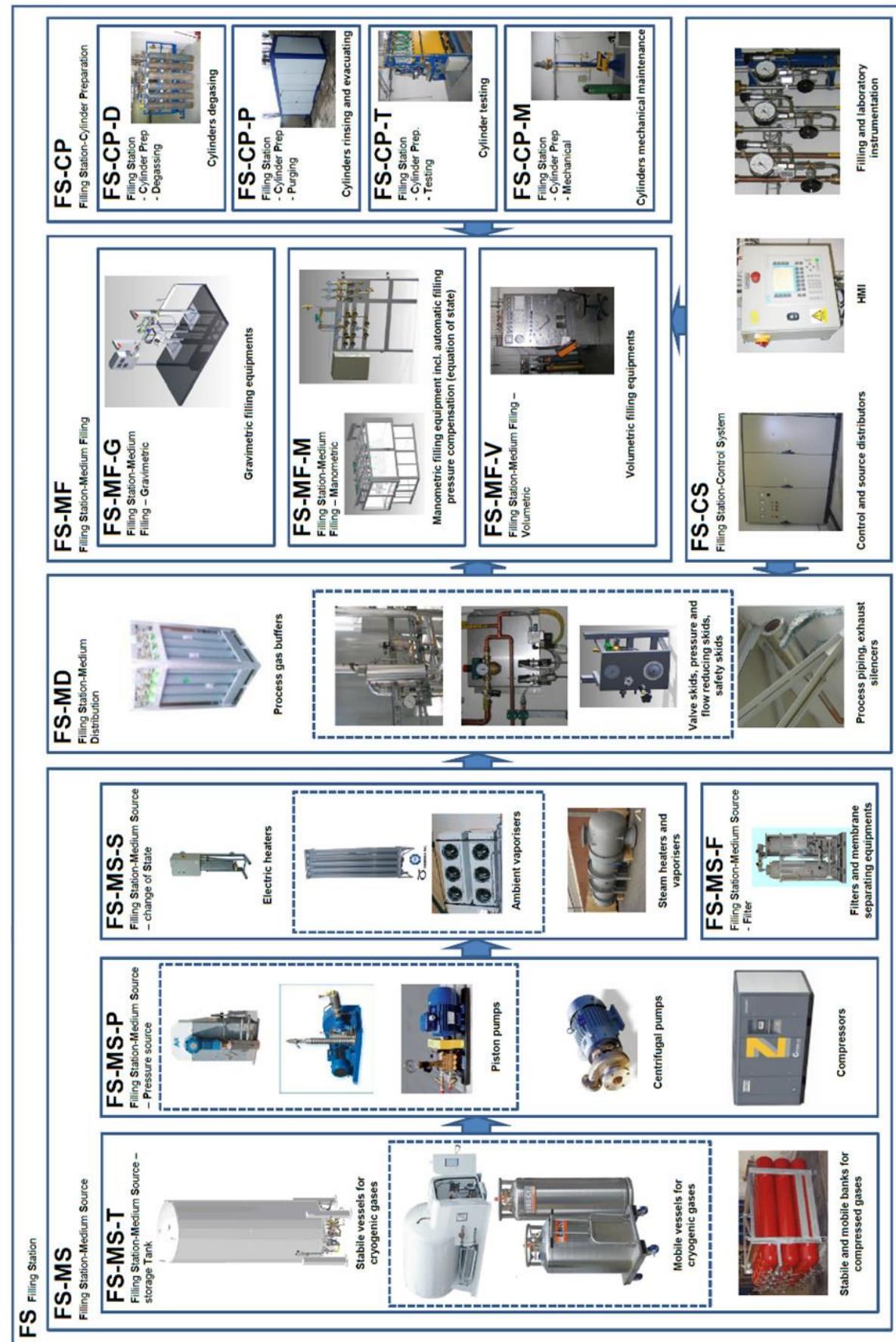
Regarding the fact that the FS-XX product series have a flexible design and enable a number of customizations, the above-listed breakdown is a general breakdown based on type and application method. Description of the specific modifications requested by the user is always provided in details in the equipment documentation.

The equipment assembly or partial equipment from the FS-XX product series is always delivered including the detailed technical documentation according to valid EU rules and standards. The minimum scope is as follows:

- operation manual, service manual, technical certificate,
- declaration of conformity and CE declaration of conformity,
- drawing documentation for components, including component sections and specification of materials used,
- definition of operating and threshold parameters of the equipment.



Whole filling equipment is in accordance with the relevant EU standards and we are ready to accept also the relevant internal standards of our clients.



Tank area equipment

The tank-farm technological equipment consists mainly of:

- the cryogenic storage tank
- the cryogenic high-pressure pump or liquid CO₂ high-pressure pump
- ambient or electric vaporizers and heaters

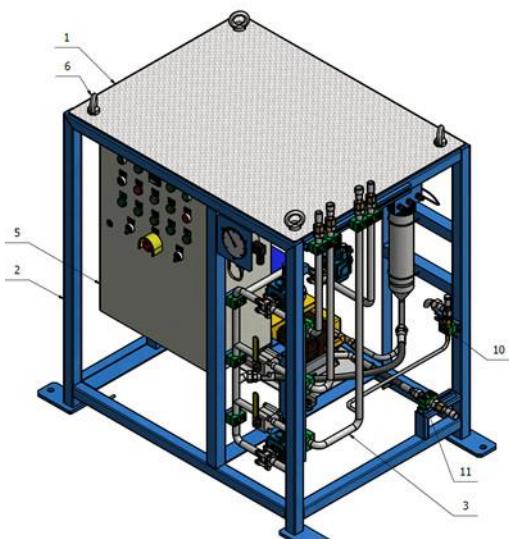
Cryogenic Storage Tanks are produced by the several companies in the world (Chart-Ferox, Linde, VRV etc.). APT is not the producer, our task is the specification of needed parameters, engineering and installation of the tank, including the commissioning. According to long-time experiences it is possible to recommend the storage tanks Chart-Ferox.

FS-MS-P Ordering number:	Description: High-pressure cryogenic pump for air-gases A-MRP 40/30-T			
	Features:			
	<p>The delivery of pump includes:</p> <ul style="list-style-type: none"> • automatic valves for the inlet and return lines • automatic HP valve for the venting of outlet • three temperature transmitters • pressure transmitter on the outlet • pulsation damper • flexible hoses for inlet and return lines • none return valve • electric motor 18 kW for VFD • GAN purge system • other according to project 			
	Max. Outlet: 380 bar	Average capacity: 6-12 l/min	Average time to deliver: 3 months	Indicative price: on demand

The Cryogenic pumps for the liquid air-gases (oxygen, nitrogen, argon) are produced by the companies Cryostar, ACD-Cryo, Krytem or Vanzetti. APT is supplier of the accessories of the pumps, mainly the control units and valve-panels. The recommended supplier of the cryogenic pumps is Cryostar company.



Ambient Vaporizers are intended to evaporate the liquid gas. The Chart-Ferox company is producer of the wide range of the high-pressure ambient vaporizers.

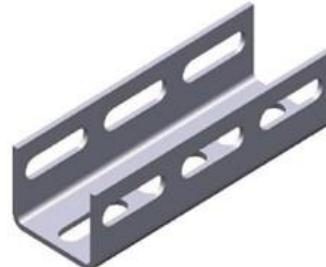
FS-CS	Description: Control Unit for the Cryogenic Pump			
	Features:			
	<ul style="list-style-type: none"> variable frequency driver (VFD) for the pump-speed regulation PLC Siemens Simatic® automatic cool-down procedure of pump automatic start/stop of the pump emergency stop push-button automatic stop of pump if parameters are out of range (temperature, pressure, ...) parameters indication on HMI optic and acoustic signalization of the status other functions according to project prepared for the communication with the master system 			
	Max. Power: 18 kW	Power: 3x400/230V 50Hz	Average time to deliver: 2 months	Indicative price: on demand
FS-MS-P	Description: Compact Source of Liquid CO2 TH1310			
	Features:	<ul style="list-style-type: none"> including the three-piston high-speed pump PETO NP10 (Speck) PLC Siemens Simatic® controlled two speed operation automatic start/stop of the pump emergency stop push-button automatic stop of pump if parameters are out of range (temperature, pressure, ...) parameters indication on HMI optic and acoustic signalization of the status two outlets – liquid filling/gas filling other functions according to project prepared for the communication with the master system 		
	Max. Outlet: 100 bar	Average capacity: 4,5/9 kg/min	Average time to deliver: 3 months	Indicative price: on demand

FS-MS-S	Description: Electric Heaters / Vaporizers EHA200/EHA300			
	Features:			
	<ul style="list-style-type: none"> stainless steel piping system brass manifold autonomous regulation based on the outgoing gas temperature prepared for the remote start/stop signal 			
Ordering number:	DN/PN: 15/400	Power (EHA200/EHA300): 20/30 kW	Average time to deliver: 2 months	Indicative price: on demand

FS-MS-S	Description: Electric Heaters / Vaporizers EHA80			
	Features:			
	<ul style="list-style-type: none"> stainless steel piping system EHA80 SS copper piping system EHA80 Cu brass manifold autonomous regulation based on the outgoing gas temperature prepared for the remote start/stop signal 			
Ordering number:	DN/PN EHA80Cu: 15/250	DN/PN EHA80SS: 15/400	Power: 8,2 kW	Average time to deliver: 2 months
				Indicative price: on demand

Gas supply pipe-lines

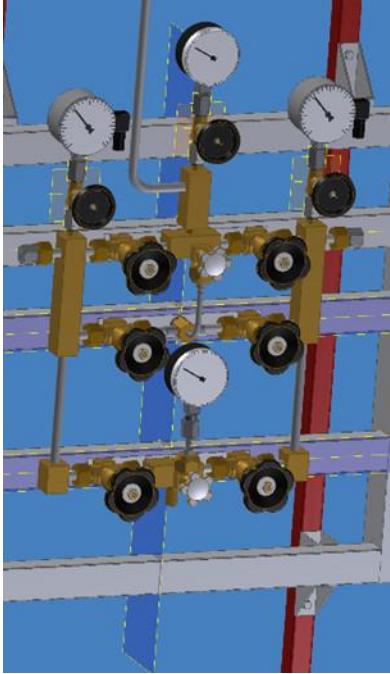
APT company is able to propose the complete technological solution for the pipelines and cabling for the technological equipment of the filling plants. The main pipe and cable trays are usually prepared from the unit-construction assembly TD184 (APT – see separate catalogue), which includes several basic parts made from the zinc coated steel by hot dipping according to DIN 50 976 (EN 1461).

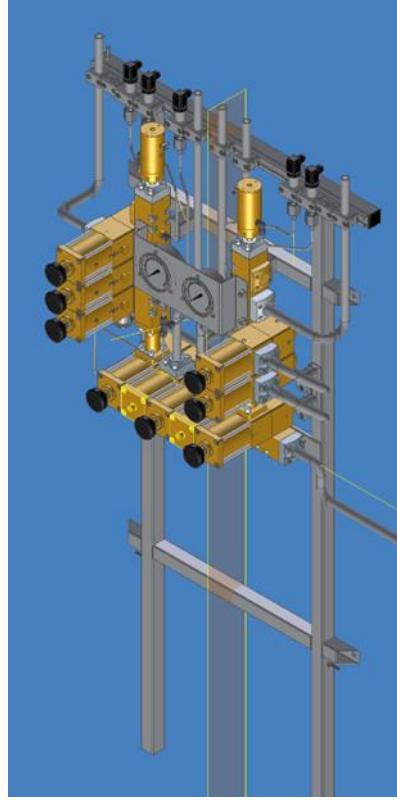


The main pipelines are usually made from the stainless steel AISI316L or from MONEL400 for the high-pressure oxygen. All piping must be prepared in the accordance with the relevant EU and EIGA Standards with the respect to the internal standards of client.

Filling manifolds

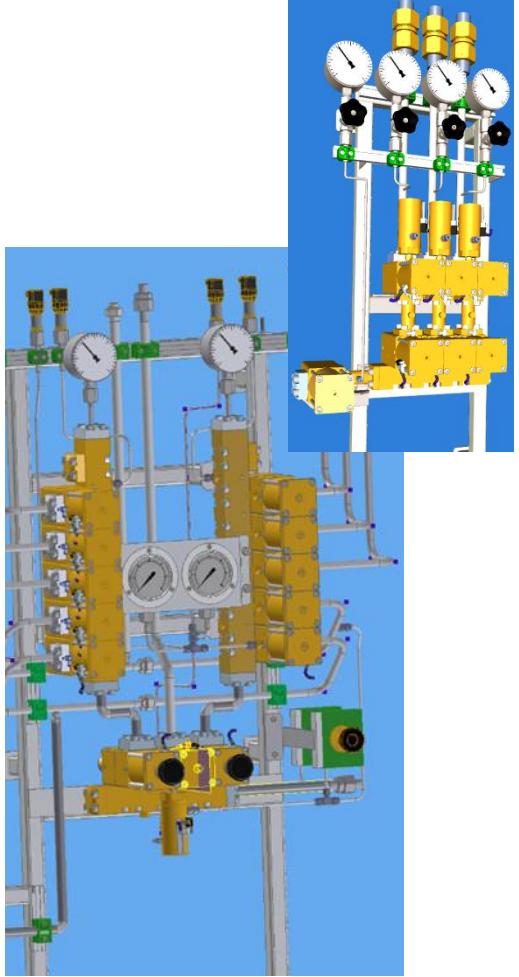
Valve Panels

FS-MF-M Ordering number:	Description: Semi-automatic Valve Panel - MONOGAS <ul style="list-style-type: none"> • inert gases, oxygen, medical oxygen • manometric filling • basic filling application Features: <ul style="list-style-type: none"> • valve panel with 1 inlet and 4 outlets • 200 bar filling • two-side filling • including the control unit with HMI <ul style="list-style-type: none"> ◦ state-equation recalculation ◦ stop of filling on the final pressure (200 bar for 15°C) ◦ filling status and failure signalization ◦ filling interruption in the case of failure ◦ prepared for remote communication ◦ Emergency Stop push-button • brass / copper • steel support frame (hot-zinc galvanized) • fixation to the wall • prepared for vacuum pump connection • isolation valves acc. to project • including documentation and FAT protocols 				
	DN/PN:	Filling Pressure:	Inlets/Outlets:	Average time to deliver:	
	10/300	200 bar	1 / 4	3 months	
	OP101	Rotary vane vacuum pump VC75 - INERT			
	OP102	Rotary vane vacuum pump VC75 - Oxygen			
	OP103	Dry-running vacuum pump XDs35 – Oxygen			
	OP104	Vacuum pump connection set – safety valve, isolation valve, flexible hose, fittings etc.			
OP105 Magnetic Temperature Transmitter for cylinders				on demand	

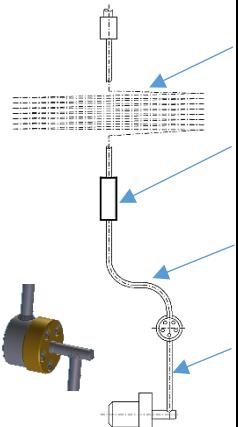
FS-MF-M Ordering number:	<p>Description: Semi-automatic Valve Panel - MONOGAS <ul style="list-style-type: none"> • inert gases, oxygen, medical oxygen • manometric filling </p> <p>Features:</p> <ul style="list-style-type: none"> • valve panel with 1 inlet and 4 outlets (possible upgrade up to 6 outlets) • two filling pressures – including safety valve for 200 bar filling • two-side filling • including the control unit with HMI <ul style="list-style-type: none"> ◦ filling pressure switching ◦ state-equation recalculation ◦ stop of filling on the final pressure (200 bar or 300 bar for 15°C) ◦ filling status and failure signalization ◦ filling interruption in the case of failure ◦ prepared for remote communication ◦ Emergency Stop push-button • brass / Monel / stainless steel • steel support frame (hot-zinc galvanized) • fixation to the wall or to filling stand • prepared for vacuum pump connection • isolation valves acc. to project • including documentation and FAT protocols 				
	DN/PN: 12/420	Filling Pressure: 200/300 bar	Inlets/Outlets: 1 / 4	Average time to deliver: 3 months	
	OP111	Rotary vane vacuum pump VC75 - INERT			
	OP112	Rotary vane vacuum pump VC75 - Oxygen			
	OP113	Dry-running vacuum pump XD35 – Oxygen			
	OP114	Vacuum pump connection set – safety valve, isolation valve, flexible hose, fittings etc.			
	OP115	Additional outlet with manual valve			
	OP116	Magnetic Temperature Transmitter for cylinders			

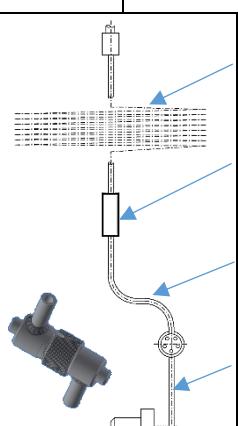
FS-MF-M Ordering number:	<p>Description: Automatic Valve Panel - MONOGAS</p> <ul style="list-style-type: none"> • inert gases, oxygen, medical oxygen • manometric filling <p>Features:</p> <ul style="list-style-type: none"> • valve panel with 1 inlet and 4 outlets (possible upgrade up to 6 outlets) • fully automatic filling procedure – venting, evacuation, purging, filling • two filling pressures – including safety valve for 200 bar filling • two-side filling • including the control unit with HMI (Siemens Simatic) <ul style="list-style-type: none"> ◦ automatic filling procedure (selection from menu) ◦ service mode included (secured by password) ◦ state-equation recalculation ◦ stop of filling on the final pressure (200 bar or 300 bar for 15°C) ◦ filling status and failure signalization ◦ filling interruption in the case of failure ◦ prepared for remote communication ◦ Emergency Stop push-button • brass / Monel / stainless steel • steel support frame (hot-zinc galvanized) • fixation to the wall or to filling stand • prepared for vacuum pump connection • isolation valves acc. to project • including documentation and FAT protocols 			
	DN/PN: 12/420	Filling Pressure: 200/300 bar	Inlets/Outlets: 1 / 4	Average time to deliver: 3 months
	OP121	Rotary vane vacuum pump VC75 - INERT		
	OP122	Rotary vane vacuum pump VC75 - Oxygen		
	OP123	Dry-running vacuum pump XDs35 – Oxygen		
	OP124	Vacuum pump connection set – safety valve, isolation valve, flexible hose, fittings etc.		
	OP125	Additional outlet with automatic valve		
	OP126	Magnetic Temperature Transmitter for cylinders		

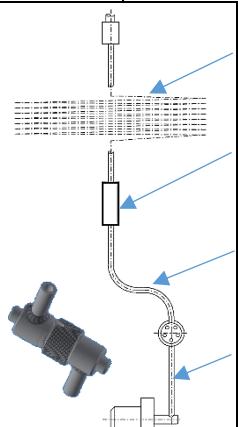
FS-MF-M Ordering number:	<p>Description: Semi-automatic Valve Panel - MIX <ul style="list-style-type: none"> • inert gases, oxygen, medical oxygen • manometric filling </p> <p>Features:</p> <ul style="list-style-type: none"> • valve panel with 3 inlets and 4 outlets (possible up to 5 inlets and 6 outlets) • two filling pressures – including safety valve for 200 bar filling • inlet selection by pigtail to avoid the cross-contamination • two-side filling • including the control unit with HMI <ul style="list-style-type: none"> ◦ filling pressure switching ◦ state-equation recalculation ◦ stop of filling on the final pressure (200 bar or 300 bar for 15°C) ◦ filling status and failure signalization ◦ filling interruption in the case of failure ◦ prepared for remote communication ◦ Emergency Stop push-button • brass / Monel / stainless steel • steel support frame (hot-zinc galvanized) • fixation to the wall or to filling stand • prepared for vacuum pump connection • isolation valves acc. to project • including documentation and FAT protocols 				
	DN/PN:	Filling Pressure:	Inlets/Outlets:	Average time to deliver:	Indicative unit price (€):
	12/420	200/300 bar	3 / 4	3 months	on demand
	OP131	Rotary vane vacuum pump VC75 - INERT			on demand
	OP132	Rotary vane vacuum pump VC75 - Oxygen			on demand
	OP133	Dry-running vacuum pump XD35 – Oxygen			on demand
	OP134	Vacuum pump connection set – safety valve, isolation valve, flexible hose, fittings etc.			on demand
	OP135	Additional inlet with inlet valve, vent valve, check valve and pressure indicator			on demand
	OP136	Additional outlet with manual valve			on demand
	OP137	Magnetic Temperature Transmitter for cylinders			on demand

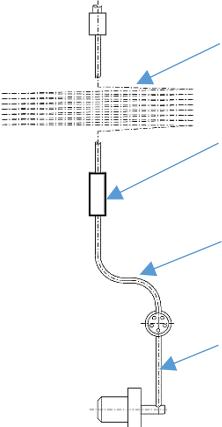
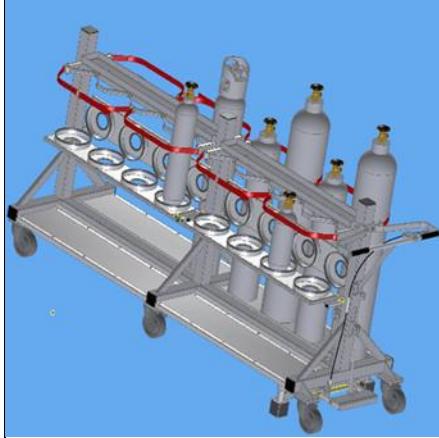
FS-MF-M Ordering number: Description: Automatic Valve Panel - MIX <ul style="list-style-type: none"> • inert gases, oxygen, medical oxygen • manometric filling (gravimetric filling at request) Features: <ul style="list-style-type: none"> • valve panel with 3 inlets and 4 outlets (possible upgrade up to 6 outlets) • fully automatic filling procedure – venting, evacuation, purging, filling • two filling pressures – including safety valve for 200 bar filling • inlets with block&bleed valve combination • two-side filling • including the control unit with HMI (Siemens Simatic) <ul style="list-style-type: none"> ◦ automatic filling procedure (mixture and procedure selection from menu) ◦ service mode included (secured by password) ◦ state-equation recalculation ◦ stop of filling on the final pressure (200 bar or 300 bar for 15°C) ◦ filling status and failure signalization ◦ filling interruption in the case of failure ◦ prepared for remote communication ◦ Emergency Stop push-button • brass / Monel / stainless steel • steel support frame (hot-zinc galvanized) • fixation to the wall or to filling stand • prepared for vacuum pump connection • isolation valves acc. to project • including documentation and FAT protocols 				
	DN/PN: 12/420	Filling Pressure: 200/300 bar	Inlets/Outlets: 3 / 4	Average time to deliver: 3 months
	OP141	Rotary vane vacuum pump VC75 - INERT		
	OP142	Rotary vane vacuum pump VC75 - Oxygen		
	OP143	Dry-running vacuum pump XDs35 – Oxygen		
	OP144	Vacuum pump connection set – safety valve, isolation valve, flexible hose, fittings etc.		
	OP145	Additional inlet with inlet block&bleed, check valve and pressure indicator		
	OP145	Additional outlet with automatic valve		
	OP146	Magnetic Temperature Transmitter for cylinders		

Filling stands

FS-MF-M	<p>Description: Pallet Filling Stand PN300</p> <ul style="list-style-type: none"> oxygen, medical oxygen 		
	<p>Features:</p> <ul style="list-style-type: none"> 12 connections with stainless steel spiral coils 12 isolation valves DN4, PN300 manifold made from Monel400 each spiral coil with swivel joint pressure indicator ø160 mm including movable cover with limit switch including one side and one rear walking platform (ca. 3,2 m²) without cylinder adapters 		
	DN/PN: 12/300	Filling connections:: 12	Average time to deliver: 3 months
			Indicative unit price (€): on demand
Ordering number:	SP201		Spare part – Spiral Coil – stainless steel
	SP202		Spare part – Swivel Joint – brass/Monel
	SP203		Spare part – S-pipe – stainless steel/Monel
	OP204 OP205		Cylinder adapter – without RPV – Monel/SS Cylinder adapter – with RPV – Monel/SS
	OP206	Additional walking platform	

FS-MF-M Ordering number:	Description: Pallet Filling Stand PN420 <ul style="list-style-type: none"> • inert gases, oxygen, medical oxygen 			
	Features: <ul style="list-style-type: none"> • 12 connections with stainless steel spiral coils • 3 isolation valves DN12, PN420 • manifold made from Monel400 • each spiral coil with swivel joint • cylinder adapters exchangeable by quick connector • pressure indicator ø160 mm • including movable cover with limit switch • including one side and one rear walking platform (ca. 3,2 m²) • without cylinder adapters 			
	DN/PN: 12/420		Filling connections:: 12	
			Average time to deliver: 3 months	
			Indicative unit price (€): on demand	
	SP211 SP212 SP213 OP214 OP215		Spare part – Spiral Coil – stainless steel Spare part – Swivel Joint – brass/Monel Spare part – S-pipe – stainless steel/Monel Cylinder adapter – without RPV – Monel/SS Cylinder adapter – with RPV – Monel/SS	on demand on demand on demand on demand on demand
	OP216	Additional walking platform		on demand

FS-MF-M Ordering number:	Description: Pallet Filling Stand PN420 <ul style="list-style-type: none"> • inert gases 			
	Features: <ul style="list-style-type: none"> • 12 connections with stainless steel spiral coils • 6 isolation ball-valves DN10, PN420 • manifold made from Stainless Steel • each spiral coil with swivel joint • cylinder adapters exchangeable by quick connector • pressure indicator ø160 mm • including movable cover with limit switch • including one side and one rear walking platform (ca. 3,2 m²) • without cylinder adapters 			
	DN/PN: 12/420		Filling connections:: 12	
			Average time to deliver: 3 months	
			Indicative unit price (€): on demand	
	SP221 SP222 SP223 OP224 OP225		Spare part – Spiral Coil – stainless steel Spare part – Swivel Joint – brass Spare part – S-pipe – stainless steel Cylinder adapter – without RPV – SS Cylinder adapter – with RPV – SS	on demand on demand on demand on demand
	OP226	Additional walking platform		on demand

FS-MF-M	<p>Description: Medical oxygen Filling Stand PN300</p> <ul style="list-style-type: none"> • medical oxygen • single cylinders in the cart <p>Features:</p> <ul style="list-style-type: none"> • 16 connections with stainless steel spiral coils • 4 isolation valves DN10, PN300 • manifold made from Monel • each spiral coil with swivel joint • cylinder adapters acc. to client • pressure indicator ø160 mm • including movable cover with limit switch • without cylinder adapters 		
	DN/PN:	Filling connections::	Average time to deliver: Indicative unit price (€):
	12/300	16	3 months on demand
SP231		Spare part – Spiral Coil – stainless steel	on demand
SP232		Spare part – Swivel Joint – brass	on demand
SP233		Spare part – S-pipe – stainless steel	on demand
OP234		Cylinder adapter – to be defined	on demand
OP235		<p>Cylinder Cart for small cylinders – without piping (piping on the filling stand)</p> <ul style="list-style-type: none"> - 16 cylinders - cylinders 2-20 liters - incl. brakes 	on demand
Ordering number:			

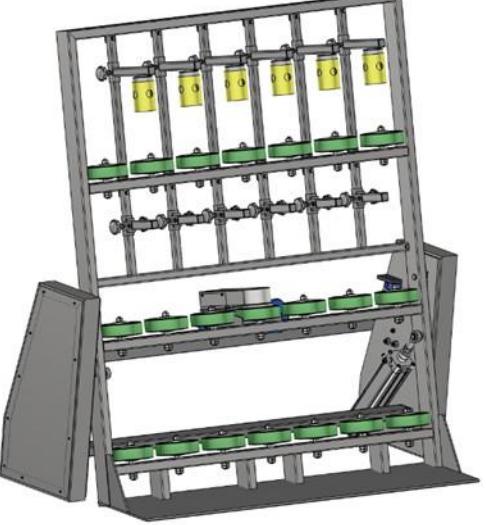
G FS-MF-5	<p>Description: Liquid CO₂ Filling System</p> <ul style="list-style-type: none"> • gravimetric automatic filling system • 2 cylinders + 1 bundle <p>Features:</p> <ul style="list-style-type: none"> • valve panel with 1 inlets and 3 outlets • fully automatic filling procedure • two-side filling, on one side selection cylinder/bundle • possible versions without bundle filling • including the control unit with HMI (Siemens Simatic) <ul style="list-style-type: none"> ◦ automatic filling procedure (cylinder type selection from menu) ◦ service mode included (secured by password) ◦ stop of filling on the final CO₂ mass ◦ filling status and failure signalization ◦ filling interruption in the case of failure ◦ prepared for remote communication ◦ Emergency Stop push-button ◦ possible connection to master control or d-base system • brass / stainless steel • steel frame with walking platform +120 mm (hot-zinc galvanized) 							
	<table border="1"> <tr> <td>DN/PN: 12/100</td><td>Filling Speed: up to 16 kg/min</td><td>Inlets/Outlets: 1/3</td><td>Average time to deliver: 3 months</td><td>Indicative unit price (€): on demand</td></tr> </table>				DN/PN: 12/100	Filling Speed: up to 16 kg/min	Inlets/Outlets: 1/3	Average time to deliver: 3 months
DN/PN: 12/100	Filling Speed: up to 16 kg/min	Inlets/Outlets: 1/3	Average time to deliver: 3 months	Indicative unit price (€): on demand				

FS-MFG(M)	<p>Description:</p> <p>Specialty Gases Filling Systems</p> <ul style="list-style-type: none"> • gravimetric and/or manometric filling • manual or semiautomatic filling system <p>Features:</p> <ul style="list-style-type: none"> • valve panel with up to 12 inlets and 1 outlet • manual or semiautomatic filling procedure • step-by-step filling of the components of mixtures • inlet selection by pigtail to avoid the cross-contamination • materials according to working gases • versions for flammable, toxic, oxidizing, corrosive or inert gases • design always according to client's needs • including the control unit with HMI (Siemens Simatic) <ul style="list-style-type: none"> ◦ stop of filling on the final max. pressure ◦ filling status and failure signalization ◦ filling interruption in the case of failure ◦ prepared for remote communication ◦ Emergency Stop push-button ◦ possible connection to master control or d-base system • including the cabinet, possibility of ventilation and gas-detection system • all parameters are variable • filling cylinder connections according to specific project 	 			
Ordering number:	DN/PN: 4/250	Filling Pressure: 200/300 bar	Inlets/Outlets: up to 12/1	Average time to deliver: 3-5 months	Indicative unit price (€): on demand

Accessories, Others

Ordering number: FS-MF-M	<p>Description:</p> <p>Bundle filling connection</p> <ul style="list-style-type: none"> inert gases, oxygen, medical oxygen 		
	<p>Features:</p> <ul style="list-style-type: none"> filling pig-tail with swivel joints prepared for fixation to pallet filling stand or to the wall (the steel frame as the option) no isolation valves without bundle adapter (option) 		
	DN/PN:	Filling Pressure:	Average time to deliver:
	12/420	200/300 bar	3 months
	OP241	Cylinder adapter – without RPV – SS	
	OP242	Cylinder adapter – with RPV – SS	
Ordering number: FS-MF-M	OP243	Cylinder adapter – without RPV – Monel/SS	
	OP244	Cylinder adapter – with RPV – Monel/SS	
		Indicative unit price (€):	
		on demand	

Ordering number: FS-MF-M	<p>Description:</p> <p>Pallet Lift</p> <ul style="list-style-type: none"> Accessory of the pallet filling stand Filling of the small cylinders in pallets 			
	<p>Features:</p> <ul style="list-style-type: none"> intended for the pallet filling stands including the safety barrier with interlock hydraulic aggregate the standard hydraulic oil (not FOMBLIN) 			
Load Capacity:	Max Stroke:	Average time to deliver:	Indicative unit price (€):	
1500 kg	900 mm	3 months	on demand	

FS-MF-M Ordering number:	Description: Cylinder Cart for small cylinders <ul style="list-style-type: none"> • Accessory of the pallet filling stand • Versions for Oxygen and Inert Gases 		
	Features: <ul style="list-style-type: none"> • intended for small cylinders filling • including piping • oxygen version with Monel manifold • 10 or 12 cylinders versions • main inlet isolation valve • pressure indicator • intended for cylinders 2-10 liters • including stainless steel flexible hoses • without cylinder adapters 		
	DN/PN: 10/300	Filling Pressure: 200 bar	Average time to deliver: 3 months
			Indicative unit price (€): on demand
FS-MF-M Ordering number:	Description: Single cylinder homogenization unit <ul style="list-style-type: none"> • Homogenization of the mixtures in the single cylinders 		
	Features: <ul style="list-style-type: none"> • cylinder rolling in horizontal position • up to 6 cylinders • cylinders 10-50 liters • including control unit • safety fencing according to project (optionally) 		
	Power Supply: 3x400/230V 50Hz 0,5 kW	Instrument Air: min.6 bar	Average time to deliver: 3 months
			Indicative unit price (€): on demand

FS-MF-M	Description: Bundle homogenization unit • Homogenization of the mixtures in the bundles	
	Features: <ul style="list-style-type: none">bundle swingingone bundle or palletbundles above 12 cylinders optionallyincluding control unitsafety fencing according to project (optionally)	
	Power Supply: 3x400/230V 50Hz 0,5 kW	Average time to deliver: 3 months

Cylinder Maintenance

FS-CP-M Ordering number:	Description: Cylinder Valve Fitter <ul style="list-style-type: none"> • replacing valves on HP cylinders 		
	Features: <ul style="list-style-type: none"> • pneumatic fixation of the cylinders • cylinders diameter 100-300 mm • cylinder height 820-1.850 mm • old valve removal • new valve installation with pre-set torque • optionally supplied with a torque validating device • safety fencing according to project (optionally) 		
	Power Supply: 3x400/230V 50Hz 2,3kW	Instrument Air: min.8 bar	Average time to deliver: 3 months
			Indicative unit price (€): on demand

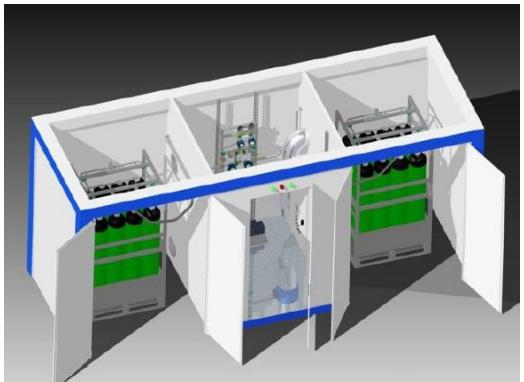
FS-CP-T Ordering number:	Description: Hydraulic Pressure Testing Machine <ul style="list-style-type: none"> • hydraulic pressure testing of the cylinders 		
	Features: <ul style="list-style-type: none"> • up to 6 cylinders per run • mechanical fixation of the cylinders • cylinders diameter 140-300 mm • cylinder height 835-1.585 mm • pressure test by 225, 250, 300 or 450 bar selected from menu • automatic test procedure with acoustic signaling of the end of test • cylinders draining after test completion • tilting frame adjustable to any angle • safety fencing according to project (optionally) 		
	Power Supply: 3x400/230V 50Hz 2kW	Instrument Air: min.8 bar	Average time to deliver: 3 months
			Indicative unit price (€): on demand

FS-CP-T	Description: Cylinder dryer after Hydraulic Pressure Testing <ul style="list-style-type: none">• drying of the cylinders after hydraulic test	
	Features: <ul style="list-style-type: none">• up to 96 cylinders per run• hot air temperature adjustable up to 90°C (heater integrated)• air piped down to the cylinder bottom by flexible hoses• easy hoses coupling with quick connects• automatic operation (overnight)• including air source (Roots blower)• safety fencing according to project (optionally)	
	Power Supply: 3x400/230V 50Hz 15kW	Average time to deliver: 3 months

FS-CP-M	Description: Cylinder Brushing Machine <ul style="list-style-type: none">• mechanical cleaning of outer surface of cylinder	
	Features: <ul style="list-style-type: none">• cylinders diameter 60-230 mm• cylinders height 835-1.585 mm• rotating cylinder bottom support• vertically translatable and rotating wire brushes• automatic stop function• protective box• debris safe collection (optionally)• up to 6 pre-set programs• optionally ATEX for cleaning acetylene cylinders	
	Power Supply: 3x400/230V 50Hz 3,8kW	Average time to deliver: 3 months

FS-CP-M Ordering number:	Description: Cylinder Painting Machine <ul style="list-style-type: none"> • stand for the painting of outer surface of the cylinder Features: <ul style="list-style-type: none"> • cylinders diameter up to 240 mm • cylinders height up to 1.750 mm • for water based paints only • paint applied with rollers • adapters for differently sized cylinders • cylinder support flush with the floor for easy manipulation • paint vapor evacuation (optionally) 	
	Power Supply: 3x400/230V 50Hz 0,6kW	Average time to deliver: 2 months
		Indicative unit price (€): on demand

FS-CP-D Ordering number:	Description: Degassing / Purging stands for the cylinders <ul style="list-style-type: none"> • degassing of the rest gases from the cylinders, purging and/or evacuation • inert, flammable, toxic or corrosive gases Features: <ul style="list-style-type: none"> • design according to specific project • possible high-pressure (PN300) or low-pressure (PN40) design • including control unit (Siemens Simatic) • automatic procedure (selection from menu) • typically 6-12 cylinders • materials according to working gases – stainless steel, Monel, ... • possible outlets with purging to scrubbers 	
		Average time to deliver: 3-4 months
		Indicative unit price (€): acc. to project

FS-CP-P	<p>Description:</p> <p>Heating Shell</p> <ul style="list-style-type: none"> • degassing of the rest gases from the cylinders, purging and/or evacuation on the high temperature • versions for inert, flammable, toxic or corrosive gases available 			
	<p>Features:</p> <ul style="list-style-type: none"> • installed in the container • two working chambers (one pallet or bundle in one chamber) + one technological chamber • two-side working to save the working time • including control unit (Siemens Simatic) • automatic working process (selection from menu) • purging by nitrogen, argon or other gas (acc. to design) • including the vacuum pump • materials according to working gases – stainless steel, Monel, ... • possible outlets with purging to scrubbers 			
	DN/PN:	Power Supply:	Average time to deliver:	Indicative unit price (€):
	12/40	3x400/230V 50Hz 25kW	3-4 months	on demand

Analytical equipment

Analytical cabinets

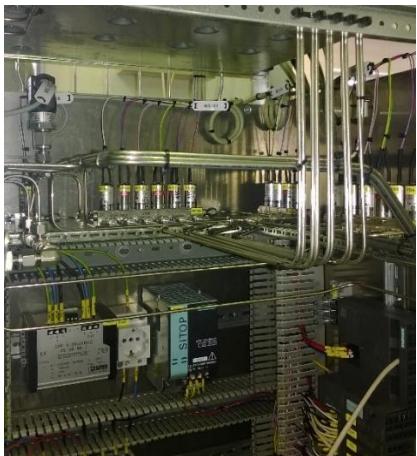
FS-QC-ACBM00 Ordering number:	Description: Analytical cabinet basic manual <ul style="list-style-type: none"> • purity control of inert mono-gases • production control of CO2 % mixtures 		
	Features: <ul style="list-style-type: none"> • 1 sample inlet • 4 calibration inlets • 1 service quick connector inlet • Manual valves to switch sample/calibration/service inlets • Manual flow and pressure adjustment • Local indication of pressure & flow • Trace oxygen analyzer • Trace CO2 analyzer, % CO2 analyzer • Trace moisture (H2O) analyzer • Transfer of analytical results to Central Information Server on-demand 		
	Typical application: Quality control of inert mono-gases up to 5.0 purity grade, e.g.: <ul style="list-style-type: none"> • Nitrogen 5.0 • Argon 4.8 Quality control of Welding and Food-grade gases, e.g.: <ul style="list-style-type: none"> • Cargon 10 & 18 • Biogon 20 		
	Low frequency of analyses		
	Average capacity: 2-3 analyses / hour	Average time to deliver: 3 months	Indicative price: on demand



FS-QC-ACBS00 Ordering number:	Description: Extension: Analytical cabinet basic manual – scale up to semi-automatic version		
	Features: <ul style="list-style-type: none"> • All the features of manual cabinet • Automatic valves to switch sample/calibration/service inlets • Manual flow and pressure adjustment • High-pressure and low flow warning • Control system + 7" HMI Comfort Panel • Transfer of analytical results to Central Information Server 		
	Typical application: High frequency of analyses		
	Average capacity: 5-6 analyses / hour	Average time to deliver: +0 months	Indicative price: on demand

Ordering number: FS-QC-ACOM00	<p>Description: Analytical cabinet for oxygen analyses manual</p> <ul style="list-style-type: none"> • purity control of Oxygen 			
	<p>Features:</p> <ul style="list-style-type: none"> • 1 sample inlet • 5 calibration inlets • 1 service quick connector inlet • Manual valves to switch sample/calibration/service inlets • Manual flow and pressure adjustment • Local indication of pressure & flow • Paramagnetic oxygen analyzer • Trace CO and CO₂ analyzer • Trace moisture (H₂O) analyzer* • Cleaned for Oxygen service • Transfer of analytical results to Central Information Server on-demand • Qualification for Medicinal use on-demand 			
	<p>Typical application: Quality control of Oxygen 2.5 purity grade and Medicinal Oxygen</p> <p>Low frequency of analyses</p>			
	<p>Average capacity: 2 analyses / hour</p>		<p>Average time to deliver: 4 months</p> <p>Indicative price: on demand</p>	

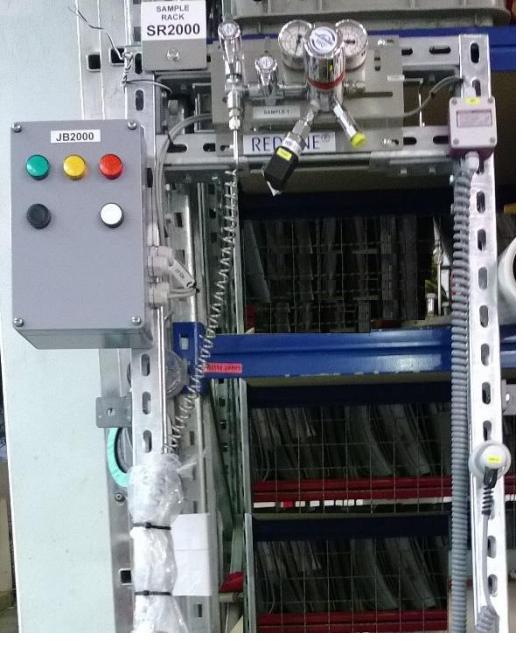
* - Note: Calculation based on Trace moisture quartz crystal analyzers. Trace moisture analyzer used for Medicinal applications might vary (as well as the price) according to Pharmacopoeia requirements, local legislation, RoHS directive 2002/95/EC and local State medicine control agency requirements etc.

Ordering number: FS-QC-ACOS00	<p>Description: Extension: Analytical cabinet for oxygen analyses manual – scale up to semi-automatic version</p>			
	<p>Features:</p> <ul style="list-style-type: none"> • All the features of manual cabinet • Automatic valves to switch sample/calibration/service inlets • Manual flow and pressure adjustment • High-pressure and low flow warning • Control system + 7" HMI Comfort Panel • Transfer of analytical results to Central Information Server 			
	<p>Typical application: • High frequency of analyses</p>			
	<p>Average capacity: 5-6 analyses / hour</p>		<p>Average time to deliver: +0 months</p> <p>Indicative price: on demand</p>	

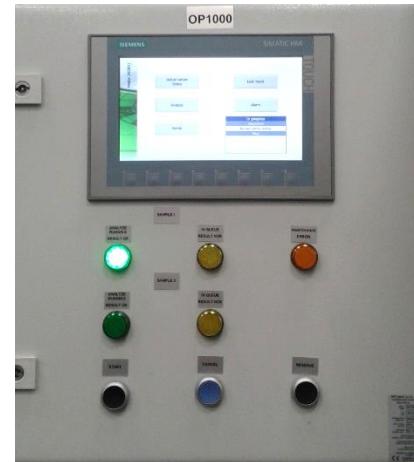
FS-QC-ACPS00 Ordering number:	Description: Analytical cabinet purity control semi-automatic <ul style="list-style-type: none"> • purity control of Raw gases 	
	Features: <ul style="list-style-type: none"> • 2 sample inlet • 8 calibration inlets • 1 service quick connector inlet • 2 auxiliary gases inlet • 1 Helium (carrier gas) purifier • Automatic valves to switch sample/calibration/service inlets • Manual flow and pressure adjustment • High-pressure and low flow warning • Local indication of pressure and flow • FID Process analyzer to measure CmHn • Trace moisture (H2O) analyzer • HF Plasma Gas Chromatograph • Control system + 7" HMI Comfort Panel • Transfer of analytical results to Central Information Server 	
	Typical application: Quality control of mono-gases 5.0 purity grade and higher (consultancy needed), e.g.: <ul style="list-style-type: none"> • Nitrogen 5.0 • Oxygen 3.5, 4.5 & 5.0 • Helium 5.0 • Argon 5.0 	
	Average capacity: 1-2 analyses / hour	Average time to deliver: 6 months

FS-QC-ACPA00 Ordering number:	Description: Extension: Analytical cabinet purity control of Raw gases – scale up to full-automation <ul style="list-style-type: none"> • Virtually no personnel needed to operate 	
	Features: <ul style="list-style-type: none"> • All the features of semi-automatic cabinet • Automatic control of sample/calibration gas pressure (+data transfer to CIS) • Automatic control of volumetric flow through analyzers, including the automatic flow controller reconfiguration in case different media are used (+data transfer to CIS) 	
	Typical application: <ul style="list-style-type: none"> • Intended purity grade higher than 5.0 • Multiple samples of various composition (note that switching from some media to another might result in long-time purging of the analytical system + re-calibration) 	
	Average capacity: 2 - 3 analyses / hour	Average time to deliver: +0 months

Sample racks

FS-QC-SRM00 Ordering number:	Description: Sample Rack Manual – 1 sampling position			
	Features: <ul style="list-style-type: none"> 1 sample connection point with spiral HP capillary and purging of HP side into ATM Pressure-reduction valve 1-stage 1 cylinder holders with nylon belt or chain 			
	Typical application: <ul style="list-style-type: none"> As an accessory for the manual analytical cabinets Position close to analytical cabinet (no local indication except the inlet and outlet pressure) 			
	Average capacity: n.a.	Average time to deliver: 1-2 months	Indicative price: on demand	
FS-QC-SRS00 Ordering number:	Description: Sample Rack semi-automatic – 1 sampling position			
	Features: <ul style="list-style-type: none"> 1 sample connection point with spiral HP capillary and purging of HP side into ATM Pressure-reduction valve 1-stage Pressure transmitter for QC pressure check Magnetic thermometer for measuring cylinder temperature 1 cylinder holders with nylon belt or chain Outdoor version on-demand Explosion protection on-demand (Ex version) 			
	Typical application: <ul style="list-style-type: none"> As an accessory for the semi-automatic and automatic analytical cabinets Position close to analytical cabinet (indication lights only, detailed HMI at analytical cabinet) 			
	Average capacity: n.a.	Average time to deliver: 2-3 months	Indicative price: on demand	

FS-QC-SROP00 Ordering number:	Description: Extension: Sample Rack semi-automatic – Operator HMI control unit		
	Features: <ul style="list-style-type: none"> • 1 touch panel (7") for detailed data presentation, diagnostics and control • Standard control SW included, modifications subject to add-on price • Outdoor version on-demand 		
	Typical application: <ul style="list-style-type: none"> • Extension of semi-automatic Sample Rack • Can be used for several Sample racks / Sampling positions • Mounting position independent of Analytical cabinet 		
	Average capacity: n.a.	Average time to deliver: +1 months	Indicative price: on demand



Calibration racks

FS-QC-CRM00 Ordering number:	Description: Calibration Rack Manual – 1 connection point		
	Features: <ul style="list-style-type: none"> • 1 sample connection point with spiral HP capillary and purging of HP side into ATM • Pressure-reduction valve 1-stage • 1 cylinder holders with nylon belt or chain 		
	Typical application: <ul style="list-style-type: none"> • As an accessory for the manual analytical cabinets 		
	Average capacity: n.a.	Average time to deliver: 1-2 months	Indicative price: on demand



Ordering number: FS-QC-CRS00	Description: Calibration Rack Semi-Automatic – 1 connection point			
	Features: <ul style="list-style-type: none"> 1 sample connection point with spiral HP capillary and purging of HP side into ATM Pressure-reduction valve 1-stage Contact gauge to indicate low pressure in cylinder (connected to control system through junction box) 1 cylinder holders with nylon belt or chain 			
	Typical application: <ul style="list-style-type: none"> As an accessory for the semi-automatic and automatic analytical cabinets 			
		Average capacity: n.a.	Average time to deliver: 2 months Indicative price: on demand	

Ordering number: FS-QC-CRS01	Description: Calibration Rack Semi-Automatic Redundant - 2 connection point, 1 outlet			
	Features: <ul style="list-style-type: none"> 2 sample connection point with spiral HP capillary and purging of HP side into ATM Pressure-reduction valve 1-stage Contact gauge to indicate low pressure in cylinder (connected to control system through junction box) 2 cylinder holders with nylon belt or chain 			
	Typical application: <ul style="list-style-type: none"> As an accessory for the semi-automatic and automatic analytical cabinets To connect Carrier Gases, Regeneration Gases, Purge Gases etc. to Analytical cabinets 			
		Average capacity: n.a.	Average time to deliver: 2 months Indicative price: on demand	

Central Information Management

FS-IM-CIS00 Ordering number:	Description: Central Information Server <ul style="list-style-type: none"> IT Rack with Server, UPS and Networking 		
	Features: <ul style="list-style-type: none"> Automatic data acquisition from all IoT enabled components Data storage in SQL database Gateway to third-party systems (InLabel, MES) Automatic report generation Trend View – timelines and XY Graphs View Server to present data & analytics to Mobile devices, Web-browsers and Information tablos In-built QR code system to mark individual components and seamlessly access all relevant component information in your mobile device 		
	Typical application: <ul style="list-style-type: none"> To extend larger installations and leverage Industry 4.0 concepts 		
		Average capacity: n.a.	Average time to deliver: 3 months
			Indicative price: on demand

FS-IM-CIS00 Ordering number:	Description: Extension: CIS Information Tablo <ul style="list-style-type: none"> Wall mounted 42" flat TV + micro-PC 		
	Features: <ul style="list-style-type: none"> Presentation of data, statistics and analytics on a large-scale, wall mounted TV Training videos & Safety instructions Videos 		
	Typical application: <ul style="list-style-type: none"> To extend larger installations and support better productivity and safety of operations 		
		Average capacity: n.a.	Average time to deliver: 2 months
			Indicative price: on demand



Services

The APT company is not only supplier of goods. The company provides a long-term support of the installation (maintenance, inspections, process optimization) throughout the whole life-cycle of the equipment. Our target is the fully satisfied client, thus we offer to our clients also all necessary services for the turn-key technological delivery:

- development and prototype construction on the field of machinery construction and gas-technology
- design works in all project steps (feasibility study, basic design, project for building permission, project documentation for the realization (detail design) etc.)
- engineering works and consultant service
- production of the mechanical and electric parts, software development
- mechanical and electrical installation of the equipment, software implementation
- technical supervision on the installation works
- commissioning of the technological equipment
- testing of the systems
- training of the operators
- warranty and after-warranty service, maintenance of the systems including the remote monitoring
- System SW as well as Application SW updates and upgrades

The prices of the services are calculated always according to specific project (works).



Attachments

None