

### Gas chromatograph GC 82

presents new line of analytical instruments with automatic function, compact design and high sensitivity. It is designed as two channels system and can be used with both capillary or packed columns. GC 82 is equipped with four line well legible display and simple keyboard to communicate with an user. Dimension and weight of the instrument were reduced and the unit is one of the most compact GC on the market.

Fully electronic controlled gas supply system includes feedback regulator of carrier gas working in pressure mode and upto three next gases regulators which are used to control air, hydrogen and make-up flow (FID), make-up and reference flow (TCD), and make-up (ECD) in sufficiently broad ranges. GC 82F with flame ionisation detector FID 03M has increasing sensitivity and simple use. GC 81E with electron capture detector is offered mainly for trace analyses. GC 81T equipped with TCD two filament low volume system working well both with capillary and packed columns. All two channel combinations are available too.

GC 82 uses a needle valve splitter in combination with solenoid valve which opening time can be programmed as well as the opening delay in splitless mode of injection for trace analysis. High temperature, fast cooling GC 82 oven is opened from the top and column installation is easy. Oven allows to install column of arbitrary dimensions. The oven temperature can be programmed in three ramps. The temperature increasing rate upto 100 °C /min can be selected. Fast cooling is ensured by two large flaps controlled by the servomotor.



### GC 82 Technical parameters

Weight	28 kg
Dimensions (h x w x d)	400 mm x 420 mm x 590 mm
Oven dimensions (h x w x d)	240 mm x 120 mm x 250mm , volume 7 l
Power	230 V, 1600 W
Oven temperature programme	3 ramps, 4 isothermal, max. increase 100°C/min
Oven temperature	Ambient + 4°C – 450°C -65°C až 450° C when cooled by CO <sub>2</sub> -99°C až 450° C when colled by liquid N <sub>2</sub>
Oven cooling	From 400°C to 50°C in 5,5 min From 300°C to 50°C in 4,5 min
Injectors, max. 2 simultaneously working, common temp. control	a) split-splitless for capillary columns b) on column for packed columns c) on column for capillary columns d) flash injector for hydrocarbons Programmed stop, programmed delay
Split-splitless injector	
Detectors, max. 2 simultaneously working, common temp. control	a) FID (+ NPD posibility) b) TCD volume 300 ul c) micro TCD volume 70 ul d) ECD, Ni 64, AC (+ DC) mode
FID detector -	Max. temperature 450°C Detection limit 2 pgC/s Linearity 10,000,000
ECD detector	Max. temperature 350°C Detection limit 70 fg/s(lindane) Linearity 10 000
TCD detector	Max. temperature 300°C Detection limit 900 pg/s
Display	4 lines, 20 letters on line, illuminated
Keyboard	14 buttons

**Gas chromatograph GC 82NEL** is equipped with special flash injector for sensitive analyses of heavy hydrocarbons (up to 40 carbon atoms in the chain) on capillary columns with flame ionisation detector. The instrument employs all advantages of GC 82 line - automatic function, compact design and high sensitivity. It is equipped with four line display and simple keyboard to communicate with an user. The column oven with the lifted off lid is situated in right part of the box. In the lid are situated both injector and detector. The oven is made of thin stainless steel sheet with low density ceramic fibre insulation.

**ASG 40U autosampler** is designed for automatic dosing of up to forty samples in one batch to standard septum injectors of gas chromatographs. It can dose both gas and liquid samples of variable volumes. It uses a syringe for the dosing, the procedure being identical to a classical manual injection. Therefore it does not require any modification of the injection system of the actual chromatograph, and allows a combination of a manual and automatic operation. The ASG 40U autosampler comprises of an electro-nic unit and a injecting unit. The electronic unit, installed in a separate box, is attached to the side of a GC 82 gas chromatograph. It contains two line display, keyboard and generators which power all motors of the dosing system. Programmed can be the sequence of sample vials, analysis time, injected volume and the method of cleaning (rinsing) the syringe before and after injection. Own dosing system consists of a platform to which is attached a carousel with samples. The carousel has a hole for the dosing syringe to reach an injector septum.



The injection block includes a replaceable 5 ul microsyringe (Hamilton 701), a step motor which moves the body of the syringe in the vertical direction during suction, rinsing and injection, next step motor for the syringe piston movement and a sample carousel motor (40 rubbercapped vials, volume 1 ml each). Carousel is made of polypropylene with stainless steel deck.

The injection block is located exactly above the sampling hole. The sampling syringe (after being flushed a few times) sucks in the required volume of the sample, then is lifted and the carousel turned to a position where the passage hole is above the injector. The syringe then descends to the bottom position and the needle is inserted through a septum into the injector chamber. A fast movement of the piston then introduces the sample in. This is immediately followed a switch on of signal circuit which starts the chromatograph programme. Injection process is finished by the syringe ejecting from the injector and washing with solvent.

ASG 40U is designed to work together with GC 82 and GC 100 units, but due an independent electronic unit with own display and keyboard can be used for all other gas chromatographs on the market.

#### **Autosampler ASG 40U technical data**

Max. number of samples in a batch	: 40 (sequetial and arbitrary acces)
Min. sample volume	: 300 ul
Min./max. injected volume (ul)	: 0.2 / 5,0
Syringe washing	: programmed 1 - 10x
Min./max. interval between injections (min)	: 2 / 200
Max. injector pressure (bar)	: 2
Weight (kg)	: 10

**Thermodesorption unit TD 05** is a complement of gas chromatograph. It is used for analysis of substances captured on adsorption column from gas phase. It is necessary to release substances from adsorption column by heating and again to capture them on cold trap to ensure succesful analysis. From the trap substances are released quickly by thermal pulse and transport to gas chromatograph injector. Thermal desorption unit **TD 05** enables to do all these steps automatically and guarrantees repro-ducible conditions of analysis.

The device is situated in a box with oblique front panel. Two line alphanumeric display situated there is determined for user communication as well as the keyboard, that is placed under display. The unit is placed on the lid of the gas chromatograph when used.

The adsorption cartridge is situated (in special holder) in the bottom vertical part of front panel. The holder fixes the cartridge into an oven. Cartridge is connected to the gas system by two fittings with PEEK made sealings. Special screw is used to press all parts together. The gas is transported from cartridge into right part of the systém ( by separately heated capillary) where tube trap with sorbent is situated. The heated T piece on the end of trap capillary is used to transport carrier gas either into solenoid valve and atmosphere, or crossing a ball valve into injection needle which is inserted into standard gas chromatograph injector .

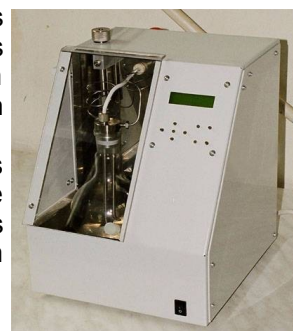


**Technical parametres:**

Washing pressure	: 0 – 600 kPa
Injection pressure	: 0 – 600 kPa
Temperature of column	: 0 – 400°C
Cooling time	: 0 – 1000 s
Heating time	: 1 – 100 s
Cleaning up time	: 0 – 1200 s
Delay of cooling	: 1 – 300 s
Delay of heating	: 1 – 30 s
Sizes (h x w x d )	: 320 x 300 x 500 mm
Weight	: 12 kg
Power supply	: 230 V, 50 Hz
Input	: 400 VA

**Stripping device STRIP 03** is used to concentrate organic volatile substances content in a sample of water or soil (the concentrate is then analyzed by gas chromatography). Sample is „stripped“ using higher temperature by a gas from pressure bottle and substances released by this procedure are captured on adsorption column packed with suitable sorbent.

The device has metal case with oblique front panel. In its left part closed by glass door is the space for flask with sample. Alphanumeric display and keyboard are placed in right part of front panel, enabling setting of stripping sample conditions ( temperature, stripping time and rate of carrier gas flow). Main switch is in bottom part.

**Technical parametres:**

Gas flow rate	: 10 – 100 ml/min
Setting temperature	: surroundings + 5 °C – 99 °C
Stripping time f	: 60 s – 6000 s
Dimensions (h x w x d )	: 320 x 220 x 260 mm
Weight	: 5 kg
Power supply	: 230 V, 50 Hz
Input	: 400 VA