

# Purchase Contract

## 1. PARTIES

**Vysoká škola chemicko-technologická v Praze (University of Chemistry and Technology Prague)**

with the registered office at: Technická 5, Prague 6 – Dejvice, post code 160 00, Czech Republic

represented by: xxxxx, rector

IN: 60461373

TIN: CZ60461373

Bank: xxxxx; account number: xxxxx

*(hereinafter “Purchaser”)*

*and*

**Vigor Gas Purification Technologies (Europe) GmbH**

with the registered office at **Jahnstrasse 5, 97828 Marktheidenfeld, Germany**

incorporated in the Commercial Register kept by the **District Court in Wuerzburg, Germany,**

represented by **xxxxx and xxxxx, Managing Directors**

ID: **HRB 15188**

TIN: **DE 332287034**

Bank: **xxxxx**; account number kept with tax administrator:

**IBAN xxxxx, BIC: xxxxx**

*(hereinafter “Seller”)*

*The Purchaser and the Seller hereinafter collectively as “Parties” or individually as “Party”)*

*conclude this Purchase Contract (hereinafter “Contract”) on this day, month and year*

## 2. RECITALS

- 2.1. The Seller acknowledges that the Purchaser considers Seller's participation in a public contract and the fact it has fulfilled qualification requirements as a confirmation that, the Seller is able to act with knowledge and care within the performance of this Contract, which is associated with its occupation or profession. Should the Seller fail to act with professional care, it shall bear the resulting consequences. The Seller may not abuse its professional quality, nor its economic position to create or exploit the dependance of the weaker party and to achieve a clear and unjustified imbalance between mutual rights and obligations of the Parties.
- 2.2. The Seller acknowledges that the Purchaser is not an entrepreneur in relation to this Contract and that the subject-matter hereof is not part of Purchaser's business activity.
- 2.3. The Seller has been awarded a contract within the procurement procedure announced by the Purchaser under Act No. 134/2016 Coll., on Public procurement, for a public contract named "**LL2101\_Set of CVD furnace with gloveboxes**" (hereinafter "**Procurement Procedure**").
- 2.4. The following documents also serve as basic materials for delivery of the subject-matter of the performance hereunder:  
Conditions for participation in the Procurement Procedure;  
Technical Specification of Performance according to the Procurement documentation and Seller's tender which is attached as Annex No. 1 hereto (hereinafter "**Technical Specification of Performance**") and is an integral part hereof;  
The Seller's tender submitted within the Procurement Procedure providing technical information on the subject-matter of performance (hereinafter "**Tender**").
- 2.5. The Seller declares it meets all the professional prerequisites necessary for the delivery of the subject-matter of performance under the Contract, is entitled to execute / deliver the performance and there are no impediments on the Seller's part preventing it from delivering the subject-matter of this Contract to the Purchaser.
- 2.6. The Parties declare they shall maintain in confidentiality all facts learned in connection with this Contract and its performance, the disclosure of which could result in harm incurred by the Parties. This provision is without prejudice to the Purchaser's obligations arising from legal regulations.
- 2.7. The Seller acknowledges that the subject-matter of performance hereunder is a part of "Příští Generace Monoelementárních 2D Materiálů" project – reg. No.: LL2101.

## 3. Subject-Matter of Contract

- 3.1. The subject-matter hereof is the Seller's obligation to deliver and transfer the ownership right to the device specified in the Technical Specification of Performance, attached as Annex No. 1 hereto, to the Purchaser.  
(the device mentioned in paragraph 3.1 hereinafter as "**device**" or "**goods**").
- 3.2. Within the performance the Seller shall also:
- (i) transport the device according to DAP Prague, Incoterms 2010,
  - (ii) process and hand over instructions and manuals to the Purchaser for the operation and maintenance of devices in the Czech or English language, electronically or in printed form,

- (iii) submit a declaration of conformity of the delivered device with the approved standards,
- (i) grant authorization to exercise the right to use software (license) where it is necessary for the proper use of the subject-matter of performance, or if the Seller requires so under this Contract,
- (ii) prepare a list of items delivered for inspection purposes.

(The device under paragraph 3.1 and the performance under paragraph 3.2 of this Article hereof hereinafter also as “**delivery**”).

- 3.3. The Purchaser undertakes to take over the duly and timely delivered device, and to pay the Seller the purchase price specified in Article 5 of this Contract for them.
- 3.4. In the event that proper performance and operation of the device requires further deliveries and works not expressly listed herein in order to meet the Purchaser’s requirements arising from this Contract including its Annexes, the Seller agrees and commits to secure or make these deliveries and secure or perform the required works at its expense and include them in the performance without adjusting the purchase price hereunder.
- 3.5. Under the conditions set out in this Contract, the Seller undertakes to deliver the device to the Purchaser at its own expense and responsibility DAP Prague, Incoterms 2010 specified in paragraphs 3.1 and 3.2 of this Article hereof. The Seller shall ensure that the device comply with this Contract, including the Annexes, Tender, applicable legal, technical and quality standards, and that the device has a CE certification.

#### **4. Ownership Right**

- 4.1. Ownership right passes to the Purchaser upon delivery of the device. The risk of damage to the device passes onto the Purchaser according to the agreed Incoterm.

#### **5. Purchase Price and Terms of Payment**

- 5.1. The purchase price for the subject-matter of the Contract referred to in Article 3 paragraph 3.1. and 3.2. was determined on the basis of the Tender as a maximum and not-to-exceed price, in the amount of net **EUR 102.275.00.-** without VAT (hereinafter referred to as the “**purchase price**”),
- 5.2. The purchase price includes all costs associated with the performance of the subject-matter of this Contract, including the cost of insurance of the device until its delivery according to the agreed Incoterm. The purchase price is not affected by price developments and exchange rate changes.
- 5.3. The purchase price is the highest permissible price for the subject-matter of performance. The purchase price may be changed only by a written amendment hereto, and solely when:  
VAT rate changes after the conclusion of the Contract and before the handover and takeover date (only change of VAT is permitted).
- 5.4. The Purchaser commits to pay the purchase price to the Seller as follows:
  - 50 % of the purchase price shall be paid based on the invoice issued following the effectivity date of the Contract, but not before November 1, 2021;

50 % of the purchase price shall be paid based on the invoice issued after acceptance of the delivery by the Purchaser.

The maturity period of invoices, except for the pro forma invoice, shall always be 30 days from the date of delivery thereof to the Purchaser. The charged amount is deemed paid when the relevant sum is sent to the Seller's account. Tax documents - invoices issued by the Seller under this Contract shall, in accordance with the relevant legal regulations of the Czech Republic, contain in particular the following data:

- (i) company/business name and registered office of the Purchaser
- (ii) tax identification number of the Purchaser
- (iii) company/business name and registered office of the Seller
- (iv) tax identification number of the Seller
- (v) tax document registration number
- (vi) scope and subject-matter of performance,
- (vii) date of issue of tax document,
- (viii) date of taxable supply or date of receipt of payment, whichever is earlier, if these dates do not correspond with the date of issue of tax document
- (ix) project number LL2101, project: Příklad Generace Monoelementárních 2D Materiálů,
- (x) price of performance.

5.5. If the tax document - invoice is not issued in accordance with the terms of payment set out in the Contract or fails to meet the required legal requirements or is not delivered to the Purchaser by the deadline specified above, the Purchaser is entitled to return the tax document - invoice to the Seller as incomplete, or incorrectly issued, to correct it or issue a new tax document - invoice within 5 working days from the date of its delivery to the Purchaser. In such a case, the Purchaser is not in delay with the payment of the purchase price or a part thereof and the Seller shall issue a corrected invoice with a new, identical maturity period, beginning on the day of delivery of the corrected or newly issued tax document - invoice to the Purchaser.

5.6. Purchaser's invoicing data are listed in Article 1 hereof.

5.7. The Seller is obliged to send the electronic version of the invoice to the Purchaser to email xxxxx@xxxxx in pdf. format and subsequently send the original of the invoice to the Purchaser's address provided in Article 1 hereof.

5.8. If applicable, the Seller declares it specified its bank account in Article 1, which is published in the Register of Payers. This provision shall not apply to persons who are not obliged to submit an application for registration under the VAT Act.

## **6. Performance Dates**

6.1. The Seller undertakes to duly produce, procure, deliver, to the Purchaser within **4 months** from the date the Contract enters into effect.

## **7. Place of Performance**

- 7.1. University of Chemistry and Technology, Prague is the place of performance (hereinafter “**place of performance**”).

## **8. Further Terms of Delivery**

- 8.1. When making the delivery, the Seller proceeds independently, but undertakes to respect the Purchaser’s instructions regarding the implementation of the subject-matter of performance hereunder.
- 8.2. The Seller is obliged to notify the Purchaser without undue delay if items taken over from the Purchaser or the instructions given to the Seller by the Purchaser concerning the delivery are unsuitable, if the Seller was able to detect such unsuitability when exercising professional care.
- 8.3. Unless otherwise stipulated in the Contract, the Seller is obliged to provide all items necessary for the performance under this Contract.
- 8.4. The Seller is obliged to deliver completely new, fully functional goods (including any SW) to the Purchaser, in quality and technical design corresponding to valid European Union regulations and corresponding requirements set by German and EU legislation, applicable to the goods.
- 8.5. The Seller declares that the goods delivered by virtue of this Contract fully comply with the conditions set out in the procurement documents used in the procurement procedure where Seller’s tender was selected as the most suitable.
- 8.6. The Seller undertakes to ensure that the goods shall not be encumbered by any third-party rights, in particular no pre-emption right, pledge or right of lease, as of the moment the ownership right to the goods is transferred.
- 8.7. With regard to the Purchaser’s obligations arising in particular from Act No. 134/2016 Coll., on public procurement, the Seller agrees to the publication of all information concerning the contractual relationship established between the Seller and the Purchaser herein, in particular the content of this Contract.
- 8.8. If applicable, the Seller declares that no execution proceedings have been instituted against the Seller, it has no overdue debts, which may be collected within execution under Act No. 120/2001 Coll., on court executors and execution (rules of execution) and on amending other acts, as amended. Further, the Seller declares no petition for judicial enforcement of a decision has been filed and it has no overdue debts, which may be collected within enforcement of a decision under Act No. 99/1963 Coll., the civil procedure code, as amended, Act No. 500/2004 Coll., the code of administrative procedure, as amended, or under Act No. 280/2009 Coll., tax code, as amended.

## **9. Warranty and Claims from Defective Delivery**

- 9.1. The warranty period for delivery is **36 months for gloveboxes and 12 months for the CVD furnace**.
- 9.2. The warranty period begins with the delivery of the device (DAP Prague, Incoterms 2010).
- 9.3. The Purchaser shall request the removal of a defect of the delivery from the Seller without undue delay after its discovery, but no later than the last day of the warranty period, unless expressly stated elsewhere in this Contract, by a written notice to the Seller’s responsible technical representative specified in this Contract. A complaint sent by the Purchaser on the last day of the warranty period is deemed to have been lodged in time.

- 9.4. In a written warranty claim, the Purchaser shall describe a defect and method required for removal.
- 9.5. The Purchaser is entitled to withdraw from the Contract if the delivery of defective goods materially violates the Contract. Noncompliance of the delivery (or part thereof) with minimum parameters required by the Purchaser and specified in the Seller's Tender in the Technical Specification of Performance and in this Contract shall always be deemed a material breach of the Contract.
- 9.6. The Seller commits to remove claimed defects free of charge.
- 9.7. The Seller undertakes to **initiate procedures for removing defects within 5 working days** from the date of receipt of a claim from the Purchaser, and subsequently and without undue delay inspect the claim, diagnose the defect, notify the Purchaser whether the complaint is acknowledged and inform the Purchaser in writing if a specialized spare part is needed to remove the defect.
- 9.8. The Seller is obliged to **remove the defect within 60 working days** after the expiration of the period specified in the previous paragraph in the place of performance if replacement parts are available in time. In case that the defect cannot be removed within 60 working days, Seller will provide to Purchaser for the period the device under this contract cannot be used, a rental equipment free of charge similar to the device.
- 9.9. Whether or not the Seller acknowledges the claimed defect, it is obliged to remove it within the deadlines specified in paragraph 9.8 of this Article of the Contract, unless the Parties subsequently agree otherwise. In such a case, the Seller is entitled to demand from the Purchaser the payment of costs incurred. If the Seller rejects a claimed defect, the claim may be assessed by an expert's report, which shall be ordered by the Purchaser. If a claim is deemed justified by an expert, the Seller shall also bear the costs of such expert report. If the Purchaser provably claimed the defect without justification, it shall be obliged to reimburse the Seller for the costs expediently and demonstrably incurred in its removal.
- 9.10. The Parties shall draw up a defect removal report, wherein they shall confirm the removal of the defect. The warranty period is extended by the time elapsed from the date of the claim until removal of the defect.
- 9.11. If the Seller fails to remove the defect within the deadlines specified in paragraph 9.8 of this Article, or within the period agreed by the Parties, or if the Seller refuses to remove the defects, the Purchaser is entitled to have the defect removed at its own expense and the Seller is obliged to reimburse the Purchaser for such costs incurred, within 10 days after the Purchaser's request or to demand the replacement of the device by a non-defective device, in case that the defect deprives the Purchaser from the benefit of this contract. However, this right of the Purchaser shall not release the Seller from liability for defects and the warranty shall have the agreed scope.
- 9.12. The warranty shall not cover defects caused by improper handling, incorrect or inappropriate maintenance, non-compliance with manufacturer's regulations for operation and maintenance of the device, which the Purchaser took over from the Seller upon delivery or which were notified by the Seller to the Purchaser in writing. The warranty shall also not cover defects caused by gross negligence or willful misconduct and wear and tear parts. The warranty not cover the parts succumb wear including quartz tube and heating elements of CVD furnace, rubber sealing and gloves.

## **10. Contractual Penalties**

- 10.1. In the event the Seller fails to observe the deadline for delivery specified in Article 6 paragraph 6.1 of this Contract due to its negligence or willful misconduct, the Purchaser is entitled to charge the Seller, after a grace period of two weeks, a contractual penalty of 0.1 % of the purchase price for each commenced day of delay, **maximally up to 25 % of the purchase price.**
- 10.2. If the Purchaser fails to pay the purchase price within the deadlines specified in this Contract, it shall pay the Seller statutory default interest, unless the Purchaser proves that the default in payment of the purchase price was caused by delayed release of funds by the subsidy provider.
- 10.3. The obliged party shall pay the penalties to the entitled party at the latest within 15 calendar days after receipt of the relevant account of the other Party.
- 10.4. The Purchaser's claim for damages shall always be maintained, however, it shall not be applicable vis-à-vis third parties.

## **11. Termination**

- 11.1. This Contract may be terminated by its fulfilment, by agreement of the Parties or withdrawal from the Contract due to reasons stipulated by laws or herein.
- 11.2. The Purchaser is further entitled to withdraw from the Contract without any sanctions if any of the below circumstances occurs:
  - (i) the Seller materially breaches its obligations hereunder,
  - (ii) insolvency proceedings are held over Seller's assets,
  - (iii) if conditions laid down in Section 223 (2) of Act No. 134/2016, on public procurement, are met.
- 11.3. The Seller is entitled to withdraw from the Contract in the event of a material breach of the Contract by the Purchaser. Purchaser's failure to pay the Price of Performance within the deadline specified in this Contract, despite being notified of this breach by the Seller in writing and provided with a sufficient additional period for remedy shall be considered a material breach of the Contract.

## **12. LIMITATION OF LIABILITY**

- 12.1. Nothing in this Agreement shall exclude or limit the liability of either Party in respect of the following (i) death or personal injury arising out of a negligence, (ii) fraud or (iii) willful misconduct.
- 12.2. Except as otherwise set out in Clause 12.1 and notwithstanding anything to the contrary herein, Seller's overall financial liability shall be limited to and not exceed 100 % (one hundred percent) of the purchase price hereunder irrespective of whether such liability, but for its exclusion, would be based on contract, tort (including negligence) or any other legal theory.
- 12.3. Except as otherwise set out in Clause 12.1 and notwithstanding anything to the contrary herein, Seller or Purchaser shall not be or become liable towards the other Party for any use of any works and/ or equipment hereunder, loss of profits, loss of any contract, loss of production, loss of product, loss of business opportunities or for any indirect, special, incidental, exemplary, punitive or consequential loss or damage suffered by the other Party irrespective of whether

such liability, but for its exclusion, would be based on contract, tort (including negligence) or any other legal theory.

### **13. FORCE MAJEURE**

- 13.1 If either Party is prevented from, or delayed in performing any obligation under this Agreement by any event of Force Majeure, this Party shall not be considered in default or breach of this Agreement and no remedy shall be available to the other Party, unless otherwise provided for in this Agreement. The time for performance of that obligation shall be extended accordingly. However, Force Majeure shall not be applied for payment obligations under this Agreement.
- 13.2 Force Majeure” means any event beyond the reasonable control of a Party, including but not limited to (i) war (whether declared or not), armed conflict or serious threat of same (including but not limited to hostile attack, blockade, military embargo), hostilities, invasion, act of foreign enemy, extensive, military mobilization; (ii) civil war, riot rebellion and revolution, military or usurped power, insurrection, civil commotion or disorder, mob violence; (iii) act of terrorism, sabotage or piracy; (iv) act of authority whether lawful or unlawful, compliance with any law or governmental order, rule, regulation or direction; (v) act of god, plague, epidemic, pandemic (including but not limited to limited operational capacity, in particular with regard to production and administration, travel restrictions, limited travel opportunities and shipping difficulties), natural disaster, such as, but not limited to violent storm, cyclone, hurricane, earthquake, flood, tsunami; (vi) explosion, fire, destruction of machines, equipment, factories or any kind of installation, prolonged break-down of transport, telecommunication or electric current; or (vii) general labour disturbance, such as but not limited to boycott, strike and lock out; and (viii) any similar event, whether or not similar to the causes specified above and regardless of whether the cause effects the Party hereunder or its sub-suppliers or sub-contractors. Force Majeure shall also include any Force Majeure events, even, if these could reasonably have been expected due to political or other developments or reasons at the effective date of the Agreement and even if the Force Majeure event has already occurred at the effective date of the Agreement.
- 13.3 The Party affected by Force Majeure shall without undue delay inform the other Party of the existence of Force Majeure, the expected duration and the estimated effect on the ability to perform the obligations under this Agreement.
- 13.4 If Force Majeure has lasted more than 90 (ninety) days and the failure to perform the prevented or delayed obligation would constitute a material breach of this Agreement in the absence of such Force Majeure, then either Party may terminate this Agreement by written notice to the other Party.
- 13.5 If Force Majeure prevent Seller and/ or the Purchaser from fulfilling of its obligations, Purchaser shall compensate Seller for expenses incurred in securing, protecting and storing the Equipment.

### **14. Representatives of Parties, Notices**

- 14.1. The Seller has appointed the following responsible representative for communication with the Purchaser in connection with the subject-matter of performance hereunder:
- In technical matters:



xxxxx, E-mail: xxxxx, tel.: xxxxx

In contractual matters:

xxxxx, E-mail: xxxxx, tel.: xxxxx

- 14.2. The Purchaser has appointed the following representatives responsible for communication with the Seller in connection with the subject-matter of performance hereunder:

In technical matters:

xxxxx

E-mail: xxxxx, tel.: xxxxx

In contractual matters:

xxxxx, rector

E-mail: xxxxx, tel.: xxxxx

- 14.3. Unless otherwise agreed herein, all notices that are to be given or may be given between the Parties hereunder shall be made in writing and delivered to the other Party by an authorized courier service, in person (with written confirmation of receipt) or by registered mail sent using a postal service provider; such notification shall be deemed to have been delivered on the third business day after dispatch, unless it was sent to a foreign address, whereby it shall be deemed delivered on the fifteenth business day after dispatch. In the event of a warranty claim, a written notice may also be sent via e-mail.

## **15. Governing Law**

- 15.1. This Contract and all legal relations arising from it are governed by the laws of Austria without giving effect to the principles of conflict of laws thereof. The application of the UN Convention on contract for the international sales of goods (CISG) shall be expressly excluded.
- 15.2. All disputes arising from this Contract or from legal relations related to it shall be resolved by the Parties through negotiations. If it is not possible to settle a dispute by negotiation within 60 days, all disputes arising out of or in connection with the present contract shall be finally settled under the Rules of Arbitration of the International Chamber of Commerce by one arbitrator appointed in accordance with the said Rules. Place of arbitration shall be Vienna, Austria. The language of arbitration shall be English.

## **16. Intellectual Property Rights**

- 16.1. This Article applies only if the supplied goods include software necessary for the proper use of the goods, or if the Purchaser required delivery of software within the specification of the subject-matter of performance.
- 16.2. The Parties declare they have agreed that the Seller's fee for the provision of a software license is already included in the price of the goods.
- 16.3. The Seller declares that licenses granted to the Purchaser shall not infringe intellectual property rights of third parties and that it is entitled to transfer the license to the Purchaser. If the Seller fails to comply with this provision, it shall pay all claims of third parties due to infringement of intellectual property rights of third parties and compensation for damage incurred by the Purchaser.
- 16.4. By virtue of this Contract, the Seller grants the Purchaser a user license for a software part of the subject-matter of performance, listed in Annex No. 1 hereto as a non-exclusive, non-transferable and perpetual right to use this part of the subject-matter of performance.
- 16.5. The Seller declares that it is the copyright holder of the SW and has not previously granted an exclusive license to SW to a third party (unless such licensee has given written approval of this Contract), or it at least has a right to the SW permitting it to provide a license to the Purchaser in the scope under this Contract.

## **17. Final Provisions**

- 17.1. This Contract, including the Annexes, constitutes a complete and comprehensive agreement between the Purchaser and the Seller.
- 17.2. The Parties have agreed that the Seller is not entitled to set off its receivable, nor a receivable of its garnishee, from the Purchaser against the Purchaser's receivable from the Seller.
- 17.3. The Seller is not entitled to assign a receivable arising from this Contract or in connection with it to a third party. The Seller is not entitled to assign the rights and obligations under this Contract or any part thereof to a third party.
- 17.4. The Seller undertakes to maintain liability insurance for damage caused in connection with the performance of business activities for the entire term of this Contract, with a limit of indemnity at least in the amount of the purchase price for the subject-matter of this Contract.
- 17.5. If any provision of this Contract later becomes or is found invalid, ineffective, apparent or unenforceable, such a defective provision shall not render the Contract invalid, ineffective, apparent or unenforceable as a whole. In such a case, the Parties undertake to further clarify such defective provision without undue delay or to replace it upon mutual agreement with a new provision which, in the scope permitted by legal regulations, corresponds to the largest possible degree to the intent of the Parties manifested as of the moment this Contract was concluded.
- 17.6. The Purchaser is the obliged entity pursuant to Act No. 340/2015 Coll., on special conditions for the effectiveness of certain contracts, on the publication of these contracts and on the register of contracts, as amended (hereinafter the "Act on the Register of Contracts"). The Seller acknowledges and expressly agrees to the publishing of the Contract in accordance with the Act on the Register of Contracts. The Parties agree that the Contract shall be published in the register of contracts in accordance with the Act on the Register of Contracts by the Purchaser.

- 17.7. This Contract shall enter into force on the day of its signing by the authorized persons of both Parties and shall take effect on the day of publishing of the Contract in the register of contracts pursuant to the Act on the Register of Contracts.
- 17.8. This Contract may be amended or supplemented only in the form of written numbered amendments, including a specification of time and place of signature, signed by authorized representatives of the Parties.
- 17.9. If a Party breaches an obligation under this Contract or if it is able to detect or should be aware of such a breach, it shall notify the other Party which may incur damage without undue delay, and warn it of the possible consequences; in such a case, the injured Party shall not be entitled to compensation for damage which was avoidable in light of the notification.
- 17.10. Under the conditions stipulated by this Contract, the Seller undertakes, as a person obliged pursuant to the provisions of Section 2 e) of Act No. 320/2001 Coll., on financial control in public administration, as amended, to cooperate during financial control. The Seller shall ensure its eventual subcontractors fulfill this obligation as well.
- 17.11. This Contract is drafted in English language. The following Annexes are an integral part hereof:

Annex No. 1: Technical Specification of Performance According to Award Criteria and Seller's Tender

In witness of their approval of the content of the Contract, the Parties attach their signatures below.

In Prague dated 1.12.2021

In Marktheidenfeld dated 23.11.2021

For **UCT Prague**

For: **Vigor Gas Purification Technologies (Europe) GmbH**

\_\_\_\_\_  
Name: xxxxx

Position: rector

\_\_\_\_\_  
Name: xxxxx

Position: Managing Director

Annex No. 1: *Shall be added upon signature of the Contract*

### Annex no. 3 – Minimal technical requirements

**Two gloveboxes with four gloves to work in argon atmosphere. Both glovebox are equipped with following:**

- Argon operated glovebox with keep purity of O<sub>2</sub> and H<sub>2</sub>O below 1ppm and leak rate below 0.01vol%/h. **YES**
- Glovebox minimal inner dimensions 2000 mm width, 750 mm deep and 900 mm height. Inside glovebox can be placed equipment with weight at least 150 kg. **YES**
- Glovebox is powered with 230V/50Hz. Electrical plug inside glovebox (230V/16A/50Hz). **YES**
- Glovebox from 304 or 316 Stainless steel with 4 gloves (butyl rubber). **YES**
- Glovebox is equipped with PLC control panel (min, 7") in English language for its control and record of parameters (like pressure O<sub>2</sub>, H<sub>2</sub>O concentration). Automatic pressure control in the range of +/-10 mbar or higher. Automatic leak rate testing. **YES**
- Oxygen sensor with sensitivity 0.1 ppm and range at least 0-100 ppm. Glovebox is ready for installation of moisture and VOC sensor. **YES**
- Automatic purge valve. **YES**
- At least one sealing plate for exchange of glove during glovebox operation. Leak-free glove changing system. **YES**
- Following flanges will be placed on glovebox in position according to the customer specification:
  - 8x KF 40 flanges outside glovebox, 5x KF50 flange outside glovebox, 1x ISO-K 100 flange from inside and outside glovebox, 1x ISO-K 160 flange outside glovebox, 2x KF50 flange inside and outside glovebox. **YES**
- Detachable front window solvent resistive made from safety glass. **YES**
- Dual stage oil vacuum pump with speed 12 m<sup>3</sup>/h including oil mist elimination filter. **YES**
- Storage box in bottom of glovebox with dimension 30 x 30 x 30 cm or bigger. **YES**
- Small side antechamber with diameter 15-20 cm and length 30-40 cm with manual evacuation/filling. Small antechamber have tray. **YES**
- Large site antechamber with automatic valves for evacuation/filling with diameter bigger than 35 cm and length bigger than 60 cm. Big antechamber have removable sliding tray. **YES**
- Gas purification system with capacity at least 50 L of oxygen and 2 kg of water. Blower with circulation speed for inner atmosphere at least 60 m<sup>3</sup>/h. H13 HEPA filter on inlet and outlet from purification system. Heat exchanger for cooling of output line from purification system. **YES**
- Gas purification system contain active charcoal based solvent removal trap with at least 3kg of active carbon. Solvent removal trap is equipped with pneumatic or electric valves for automatic control. **YES**
- Automatic controlled regeneration process of O<sub>2</sub>/H<sub>2</sub>O purification trap using hydrogen/argon gas (4-8 vol.% H<sub>2</sub>). Automatic from PLC controlled regeneration process of solvent removal trap. **YES**
- On back site of glovebox are installed at least 6 shelves with adjustable height. **YES**
- Heat exchanger of output line from purification system. **YES**

### 3-glove glovebox for measurement

- Argon glovebox with keep purity of O<sub>2</sub> and H<sub>2</sub>O below 1 ppm and leak rate below 0.01 vol%/h. **YES**
- Glovebox have minimal dimensions 1500 mm length x 850 mm deep x 1400 mm height. Detachable front window from safety glass with height at least 800 mm. Glovebox is removable from supporting frame to make it easier to transfer in laboratory. In glovebox can be placed equipment with weight at least 300kg. **YES**
- Glovebox is powered with 230V/50Hz. Electrical plug inside glovebox (230V/16A/50Hz). **YES**
- Glovebox is made from 304 or 316 Stainless steel with at least 3 gloves (butyl rubber). **YES**
- Glovebox is equipped with PLC panel (min, 7") in English language for its control and record of parameters (like pressure O<sub>2</sub>, H<sub>2</sub>O concentration). Automatic pressure control in the range of +-10 mbar or higher. **YES**
- Automatic leak rate testing. Automatic purge valve. **YES**
- At least 1 plug for glove exchange and leak-free glove changing system. **YES**
- Oxygen sensor with sensitivity 0.1 ppm and range at least 0-100ppm. Glovebox is ready for installation of moisture and VOC sensor. **YES**
- Following spare flanges on glovebox: 6x KF40 outside glovebox, 2x spare KF50 flange outside and inside glovebox, 6x KF50 flange outside glovebox, 2x ISO-K160 flange outside glovebox, 1x ISO-K160 flange inside and outside glovebox. Site of the glovebox contain removable plate 30x30 cm for future installation of additional feedthrough. **YES**
- Dual stage oil vacuum pump with speed 12m<sup>3</sup>/h including oil mist elimination filter. **YES**
- Small side antechamber with diameter 15-20 cm and length 30-40 cm with manual evacuation/filling. Small antechamber have tray. **YES**
- Large site antechamber with automatic valves for evacuation/filling with diameter bigger than 35 cm and length bigger than 60 cm. Big antechamber have removable sliding tray. **YES**
- Gas purification system with capacity at least 50 L of oxygen and 2 kg of water. Gas purification system is equipped with pneumatic or electric valves for automatic control and automatic regeneration of O<sub>2</sub>/H<sub>2</sub>O trap using PLC controller. Blower with circulation speed at least 60 m<sup>3</sup>/h. H13 HEPA filter on inlet and outlet from purification system. **YES**
- Gas purification system contain active charcoal based solvent removal trap with at least 3kg of active carbon. Solvent removal trap is equipped with pneumatic or electric valves for automatic control. **YES**
- Heat exchanger of output line from purification system. **YES**
- At least 3 removable shelves on the back site of the glovebox. **YES**

### CVD Furnace for glovebox

#### 1) Plasma enhanced CVD furnace

- Sliding furnace with independent RF plasma source and independent heating zone **YES**
- RF plasma unit with 13.56 MHz and power adjustable 5-300 W and automatic matching unit Length of plasma coil at least 200 mm **YES**
- Independent sliding split tube furnace with heating zone at least 200 mm long for temperature at least 1100 °C. Temperature controller with at least 30 steps and temperature accuracy +-1 °C or better. Heating rate at least 20 °C/min **YES**
- Quartz tube length at least 1200 mm and tube diameter 50 mm. **YES**
- Inlet and outlet flange KF50 with inlet and outlet site valve and mechanical pressure measurement gauge. **YES**



## VIGOR GLOVEBOXES SG Series



- Ultra-low leak rate by patented leak free gaskets
- Fully equipped workstations, plug and work
- Wide range of options to be selected from our "toolbox"
- **Vigor Smart Box APP:** Remote control by mobile phone or PC

## Workstations SG-Series

Description	Material	Dimensions	Specification
<b>I. Glove Box</b>			
1) Box enclosure	Stainless steel (US 304; EU 1.4301) Thickness 3mm	Please see page 2 for all available dimensions	Inside surface brushed, outside surface white painted
2) Extension modules	Stainless steel (US 304; EU 1.4301) Thickness 3mm	Please see page 2 for all available dimensions	Inside surface brushed, outside surface white painted
3) Detachable front window(s)	Safety glass	Thickness 8mm	Patented vacuum gasket (no-leak seal) for the interface with the box body
4) Glove ports	Anodised aluminium alloy	Φ8" / 203mm	Patented vacuum gasket (no-leak seal) for the interface with the window and the glove
5) Gloves	Butyl rubber	Φ200mm, Length 810mm	Ambidextrous (both hand use) gloves
6) Supporting frame(s)	Square steel tubing, height: 900mm, 4 castors for easy moving and 4 leveling feet for placing and leveling the box		Complete frame painted in white
7) Integrated KF-flanges for feedthrough's	Stainless steel (US 304; EU 1.4301)	KF40, outside length 20mm	Welded on the box body, single sided to the outside, blind flanged (including flange and clamp)
8) Height adjustable shelves	Stainless steel (US 304; EU 1.4301)	800mm(W)X170mm(D)	Adjustable or fix installed on demand
9) 1 Pneumatic purge valve		DN25	Outside connection, open KF40 on the top of the valve (possibility to connect to exhaust)
<b>II. Technical Specification</b>			
1) Leak Rate			<0.001 vol%/hr
2) Purity Level of the Atmosphere			O <sub>2</sub> < 1 ppm, H <sub>2</sub> O < 1 ppm
3) Working Gases			Nitrogen, Argon, Special gas on request
<b>III. Antechambers</b>			
1) 1 Large antechamber	Stainless steel (US 304; EU 1.4301),	Φ370X600mm	Welded on the side panel of the box enclosure, leak free, auto-evacuation function controlled by the PLC, 1 removable sliding tray
2) 1 Mini ante-chamber	Stainless steel (US 304; EU 1.4301),	Φ150X300mm	Welded on the side panel of the box body, leak free, manually operated by 3-way valve, 1 removable tray
<b>IV. Gas Purification System</b>			
1) 1 Gas purification column, containing copper catalyst and molecular sieve			Absorption capacity: O <sub>2</sub> = 60 liter and H <sub>2</sub> O = 2 kg The column is regenerable and the regeneration is automatically controlled by the PLC
2) 1 Organic solvent adsorber			Activated carbon, pre-dried
3) 1 Gas tight circulation blower			Flow rate 60 m <sup>3</sup> /h, (110V: 45 m <sup>3</sup> /h)
4) Valves for circulation, regeneration and box pressure control			PLC controlled valves, enabling automatic control of the circulation, regeneration, and box pressure
5) 1 Vacuum Pump: RV 12 (Edwards)			Pumping speed 12 m <sup>3</sup> /h (Including oil mist filter)
<b>V. System Control</b>			
1) Power supply			Single phase 220-230 VAC, 50 Hz, 230 VA max
2) 1 Foot-switch			For individual adjustment of the box pressure by the user
3) Touch screen panel, color, 7"			Interface language: English or Chinese
4) 1 Electrical feedthrough and power strip installed in the box			Inside / outside connection with country specific plugs
5) Programmable logic controller			Siemens SIMATIC S7-200 SMART
6) Automatic evacuation of the large antechamber			Unattended operation, number of cycles settable by the user
7) Gas purification system works on demand controlled by oxygen and/or moisture analyzer			It typically works 5 minutes every hour. Saves energy and extend the blower lifetime
8) Fully integrated control of heated antechamber, freezer and box cooling			User settable target values
9) Automatic leak rate testing			Alerting users of damaged gloves or gaskets
10) Automatic box pressure control, working pressure user settable, range +10 to -10mbar			The PLC will automatically control the box pressure within the set range
11) Automatic purge			Activates the purge valve
12) Display of warning messages, alarms and error messages			Active messages and message log available
13) Recording and displaying of historical data			On screen for visual inspection, data export possibility
14) All operations are conditional			Preventing hazardous actions and damages on the glovebox

For options like antechamber on the left hand side panel, heated antechambers, T-antechambers, rectangular antechambers, extended antechambers, dual column gas purification systems and a wide range of feed-throughs, please see the related specific datasheets or contact your Vigor representative.