



## VAPODEST® all systems in comparison - standard configuration

|   | VAP 200 | VAP 300 | VAP 400 | VAP 450<br>without titrator | VAP 450<br>with titrator |
|---|---------|---------|---------|-----------------------------|--------------------------|
| Multi Touch Sensitive Screen 7"                       | ●       | ●       | ●       | ●                           | ●                        |
| Programmable addition H <sub>3</sub> BO <sub>3</sub>  |         |         | ●       | ●                           | ●                        |
| Programmable addition H <sub>2</sub> O                |         | ●       | ●       | ●                           | ●                        |
| Programmable addition NaOH / reagent                  | ●       | ●       | ●       | ●                           | ●                        |
| Programmable reaction time                            | ●       | ●       | ●       | ●                           | ●                        |
| Programmable distillation time                        | ●       | ●       | ●       | ●                           | ●                        |
| Programmable steam power 10 - 100 %                   | ●       | ●       | ●       | ●                           | ●                        |
| Programmable suction of sample waste                  |         | ●       | ●       | ●                           | ●                        |
| Programmable suction of the receiver                  |         |         |         | ●                           | ●                        |
| Selection of language                                 | ●       | ●       | ●       | ●                           | ●                        |
| Different user levels                                 | ●       | ●       | ●       | ●                           | ●                        |
| Optical and acoustical error messages                 | ●       | ●       | ●       | ●                           | ●                        |
| Method data base                                      | ●       | ●       | ●       | ●                           | ●                        |
| Programmable methods                                  | ●       | ●       | ●       | ●                           | ●                        |
| Connection for external keyboard                      | ●       | ●       | ●       | ●                           | ●                        |
| Connection for external PC-mouse                      | ●       | ●       | ●       | ●                           | ●                        |
| Automatic check of chemical reservoir                 | ●       | ●       | ●       | ●                           | ●                        |
| Kjeldatherm digestion tubes can be used <sup>1)</sup> | ●       | ●       | ●       | ●                           | ●                        |
| Kjeldahl flasks can be used <sup>1)</sup>             | ●       | ●       | ●       | ●                           | ●                        |
| Titration with external CG titrator possible          |         |         |         | ●                           | ●                        |
| Titrator included the delivery                        |         |         |         |                             | 1 x                      |
| USB-interface on the front side                       | 1 x     | 1 x     | 1 x     | 1 x                         | 1 x                      |
| USB-interface on the back                             | 4 x     | 4 x     | 4 x     | 4 x                         | 4 x                      |
| Ethernet-interface on the back                        | 1 x     | 1 x     | 1 x     | 1 x                         | 1 x                      |
| RS-232 interface on the back                          | 1 x     | 1 x     | 1 x     | 1 x                         | 1 x                      |
| Tubing set complete                                   | 1 x     | 1 x     | 1 x     | 1 x                         | 1 x                      |
| KJELDATHERM-digestion tube, 250/300 ml                | 1 x     | 1 x     | 1 x     | 1 x                         | 1 x                      |
| Buffer solution pH 7, 250 ml <sup>2)</sup>            |         |         |         |                             | 1 x                      |
| Buffer solution pH 4, 250 ml <sup>2)</sup>            |         |         |         |                             | 1 x                      |
| KCL electrolyte solution, 250 ml <sup>2)</sup>        |         |         |         |                             | 1 x                      |

● = Standard configuration

1) = see digestion tubes and Kjeldahl-flasks on page 3

**TECHNICAL DATA**

| Type                              | VAP 200         | VAP 300         | VAP 400         | VAP 450<br>without titrator | VAP 450<br>with titrator |
|-----------------------------------|-----------------|-----------------|-----------------|-----------------------------|--------------------------|
| Cooling water consumption [l/min] | 2 / 5 / 7       | 2 / 5 / 7       | 2 / 5 / 7       | 2 / 5 / 7                   | 2 / 5 / 7                |
| Distillation time [min]           | 2 - 4           | 2 - 4           | 2 - 4           | 2 - 4                       | 2 - 4                    |
| Recovery rate [%]                 | > 99,5          | > 99,5          | > 99,5          | > 99,5                      | > 99,5                   |
| Reproducibility [%]               | +/- 1           | +/- 1           | +/- 1           | +/- 1                       | +/- 1                    |
| Detection limit N [mg]            | 0,1             | 0,1             | 0,1             | 0,1                         | 0,1                      |
| Nominal voltage [VAC]             | 230 / 115       | 230 / 115       | 230 / 115       | 230 / 115                   | 230 / 115                |
| Frequency [Hz]                    | 50 - 60         | 50 - 60         | 50 - 60         | 50 - 60                     | 50 - 60                  |
| Nominal wattage [W]               | 2200            | 2200            | 2200            | 2200                        | 2200                     |
| Weight [kg]                       | 35              | 37              | 38              | 38                          | 40 <sup>1)</sup>         |
| Dimensions W / D / H [mm]         | 527 / 390 / 697 | 527 / 390 / 697 | 527 / 390 / 697 | 527 / 390 / 697             | 527 / 390 / 697          |

1) incl. Titrator

**ORDER INFORMATION**

| Type  | VAP 200 | VAP 300 | VAP 400 | VAP 450<br>without titrator | VAP 450<br>with titrator |
|---|---------|---------|---------|-----------------------------|--------------------------|
| Version Standard, 230 V<br>complete with tubing set                               | 12-0520 | 12-0530 | 12-0540 | 12-0550                     | 12-0545                  |
| Version Acid resistant, 230 V<br>Equipped with acid resistant pumps <sup>1)</sup> | 12-0522 | 12-0532 | 12-0542 | 12-0557                     | 12-0547                  |
| Version Standard, 115 V<br>complete with tubing set                               | 12-0620 | 12-0624 | 12-0628 | 12-0632                     | 12-0636                  |
| Version Acid resistant, 115 V<br>Equipped with acid resistant pumps <sup>1)</sup> | 12-0622 | 12-0626 | 12-0630 | 12-0634                     | 12-0638                  |

1) special for dosing of phosphoric acid max. 85 % and hydrochloric acid max. 5 % - more acids on request

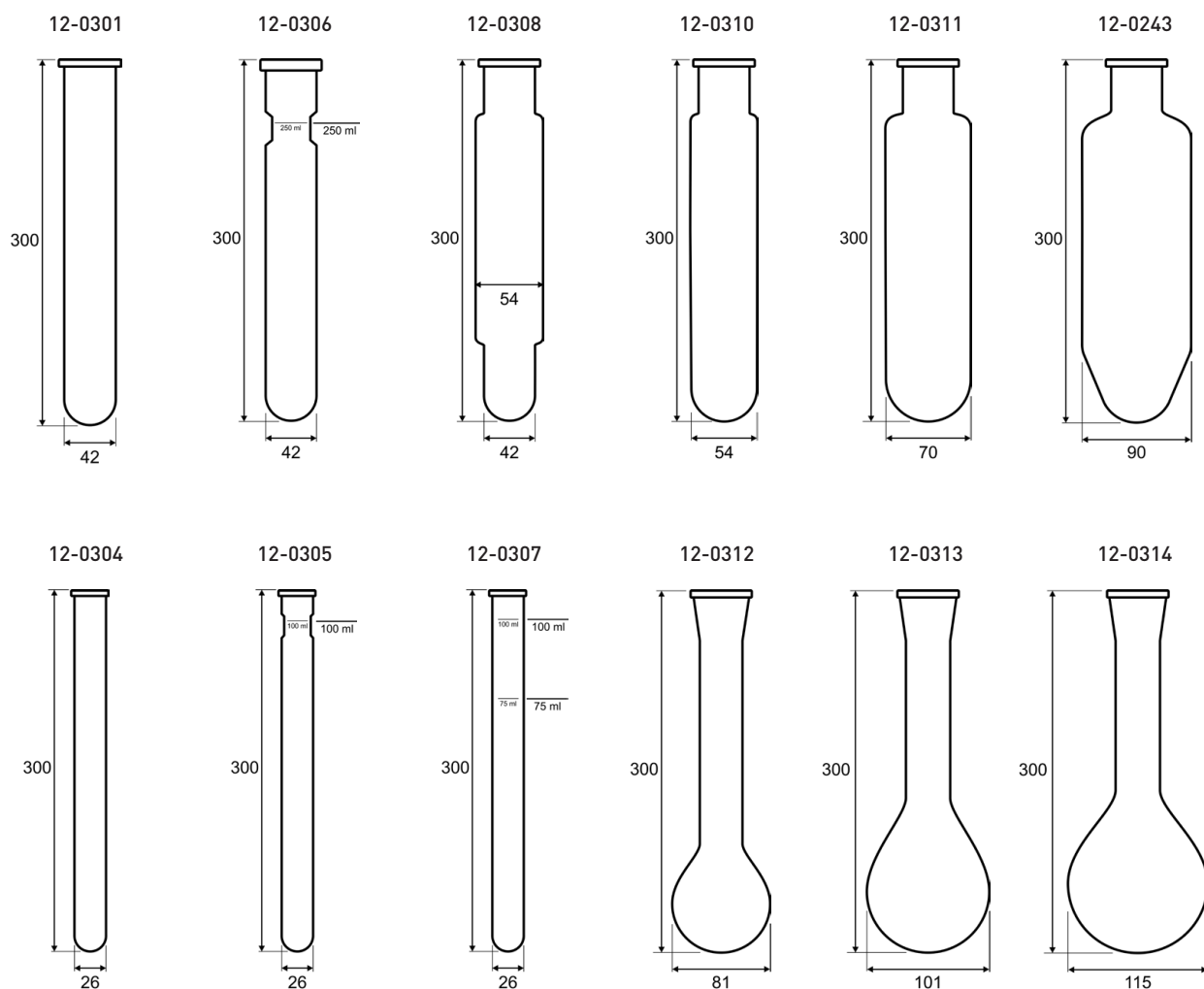
## CONSUMABLES AND ACCESSORIES

Make sure to use only original C. Gerhardt spare parts in order to obtain the best possible results. These parts have been tested thoroughly for the operation with VAPODEST® in the C. Gerhardt application lab.

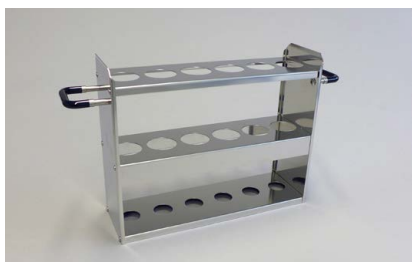
### KJELDAHL-DIGESTION TUBES AND KJELDAHL-FLASKS

Depending on sample type and sample quantity VAPODEST can use a lot of Kjeldahl-digestion tubes as well as Kjeldahl-flasks. All tubes are made of high standard Duran® material.

| Order No. | Type    | Description   |
|-----------|---------|---|
| 12-0301   | KTG     | KJELDATHERM®-digestion tube, macro 250/300 ml - 10 pcs                                  |
| 12-0306   | KTG/E   | KJELDATHERM®-digestion tube, macro 250/300 ml, with constriction + calibrated at 250 ml |
| 12-0308   | BS-400  | KJELDATHERM®-digestion tube, 400 ml, diminished   |
| 12-0310   | KDD400  | Jumbo-digestion tube 400 ml - 4 pcs   |
| 12-0311   | KDD800  | Jumbo-digestion tube 800 ml - 4 pcs   |
| 12-0243   | KDD1200 | Jumbo-digestion tube 1.200 ml   |
| 12-0304   | KMT     | KJELDATHERM®-digestion glas, micro 100 ml - 10 pcs                                      |
| 12-0305   | KMT/E   | KJELDATHERM®-digestion glas, micro 100 ml with constriction + calibrated at 100 ml      |
| 12-0307   | KMT     | KJELDATHERM®-Glas, mikro 100 ml, calibrated at 100 ml + 75 ml                           |
| 12-0312   | KD250   | Kjeldahl-flask 250 ml, with enlarged neck   |
| 12-0313   | KD500   | Kjeldahl-flask 500 ml, with enlarged neck, 4 pcs  |
| 12-0314   | KD750   | Kjeldahl-flask 750 ml, with enlarged neck, 4 pcs  |



### Insert racks for digestion tubes



Insert racks made of stainless steel, best for collecting the single digestion tubes, e.g. for direct distillation.

| Order No. | Type     | Description                           |
|-----------|----------|---------------------------------------|
| 12-0269   | EG625    | Insert rack 6-place for tubes 250 ml  |
| 12-0273   | EG125    | Insert rack 12-place for tubes 250 ml |
| 12-0271   | EG440    | Insert rack 4-place for tubes 400 ml  |
| 12-0272   | EG480    | Insert rack 4-place for tubes 800 ml  |
| 12-0277   | EG12-100 | Insert rack 12-place for tubes 100 ml |

### Tank level control



Tank level control 1005098

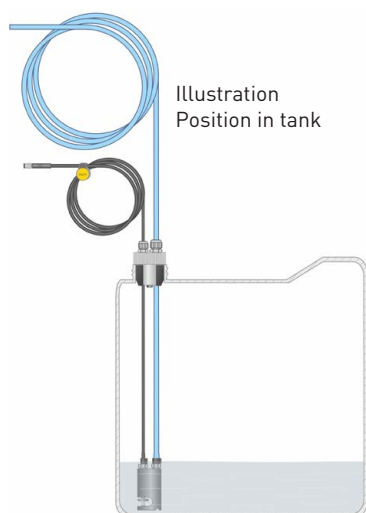


Illustration  
Position in tank

| Order No. | Type   | Description   |
|-----------|--------|---|
| 1005098   | ID8    | Tank level control for <b>Reagent-storage tank</b> , incl. cable labels for clear identification, suitable for tanks with the following dimensions:<br>- Height = min. 130 mm... max. 2000 mm<br>- Filler neck = min. Ø 40 mm... max. Ø 50 mm |
| 1005721   | PA8    | Tank level control for <b>sample waste storage tank</b> , incl. cable labels for clear identification, suitable for tanks with the following dimensions:<br>- Height = all tanks<br>- Filler neck = min. Ø 47 mm... max. Ø 50 mm              |
| 12-0560   | NIV200 | Tank level control set for 2 Reagent-tanks, consisting of:<br>- 2 x Tank level control no. 1005098  |
| 12-0561   | NIV300 | Tank level control set for 2 Reagent-tanks and 1 sample waste tank, consisting of:<br>- 2 x Tank level control for reagent-tank no. 1005098<br>- 1 x Tank level control for sample waste tank, no. 1005721                                    |
| 12-0562   | NIV400 | Tank level control set for 3 reagent-tanks and 1 sample waste tank, consisting of:<br>- 3 x Tank level control for reagent-tank no. 1005098<br>- 1 x Tank level control for sample waste tank, no. 1005721                                    |

### Storage tanks



| Order No. | Type  | Description             |
|-----------|-------|-------------------------|
| 1005849   | KAN10 | Tank made of HDPE, 10 L |
| 1005850   | KAN20 | Tank made of HDPE, 20 L |

### Connection stopper, Viton



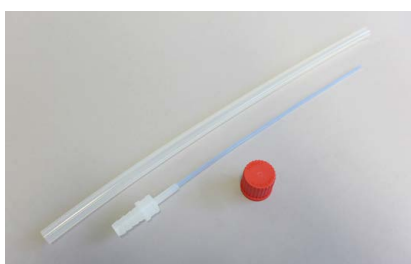
| Order No. | Type | Description   |
|-----------|------|---|
| 12-0351   |      | Viton-connection stopper, normal size                       |
| 12-0567   |      | Viton-connection stopper,<br>Special size for Büchi-Adapter |

### Connection stopper, Micro



| Order No. | Type | Description   |
|-----------|------|---|
| 12-0352   |      | Connection stopper VK, Isoversinic micro, special edition for the use of micro digestion tubes 100 ml |

### Upgrade kit for alcohol determination



| Order No. | Type | Description  |
|-----------|------|--|
| 12-0241   |      | Kit for alcohol determination:<br>Special for alcohol determination, easy to mount |

### Upgrade kit Büchi



| Order No. | Type | Description   |
|-----------|------|---|
| 12-0568   |      | Büchi - Upgrade kit, complete with:<br>1 x Viton-connection stopper, No. 12-0351<br>1 x Viton-connection stopper, No. 12-0567<br>1 x Adapter PP |

### pH-combined electrode



| Order No. | Type   | Description   |
|-----------|--------|---|
| 12-0354   | ET-KCL | pH-combined electrode KCL, require regularly filling with KCL |
| 12-0355   | ET-GEL | pH-combined electrode gel electrolyte, maintenance free       |

**KCL and Buffer solution**



| Order No. | Type | Description              |
|-----------|------|--------------------------|
| 1000178   |      | Electrolyte solution KCL |
| 1000176   |      | Buffer solution pH 4     |
| 1000177   |      | Buffer solution pH 7     |

**Distribution head glass**



| Order No. | Type | Description                               |
|-----------|------|---|
| 12-0554   |      | Distribution head glass, standard version |

**Distillation condenser**



| Order No. | Type | Description  |
|-----------|------|--|
| 12-0551   |      | Distillation condenser glass, standard version with connecting piece for ventilation valve |
| 1000036   |      | Ventilation valve for distillation condenser   |

**PP-Distribution head kit**



| Order No. | Type | Description  |
|-----------|------|--|
| 12-0564   |      | PP-distribution head kit, complete with:<br>1 x PP-Distribution head, No. 12-0553<br>1 x Distillation condenser, No. 12-0552<br>incl. Viton connection stopper and GL-screw caps |

**Tubings**



| Order No. | Type | Description  |
|-----------|------|--|
| 1000394   |      | Water inlet tube 10/17, 2 m long, 90bar, 3/8 x 1/2" + 3/8 x 3/4" |
| 1000047*  |      | PVC-tubing, 8 x 12 mm  |
| 1000499   |      | Verpren-tubing, 8 x 12 mm  |
| 1000567   |      | PVC-pipe 400 mm long, 10,2 x 1,4 mm                              |

\*length needed when order

**GL-Screw caps + seals**



| Order No. | Type | Description                                   |
|-----------|------|---|
| 1004320   |      | Screw cap GL14, nat. white                    |
| 1004321   |      | Screw cap GL18, nat. white                    |
| 1004322   |      | Screw cap GL 32, nat. white                   |
| 1000358   |      | Silicone seal GL 14 with connection, straight |
| 1000356   |      | Silicone-seal GL 18                           |
| 1000357   |      | Silicone-seal GL 32                           |

**Titration + Upgrade kit**



| Order No. | Type | Description   |
|-----------|------|---|
| 12-0565   |      | Titration T5000 for connection to VAPODEST® 450   |
| 12-0569   |      | Upgrade kit for connection titration T5000<br>The upgrade kit contains all necessary accessories for the subsequent conversion of the VAPODEST® 450, no. 12-0550, complete incl.: Holder for receiver, pH-electrode, cable for electrode, tubings and connection cables, fitting screws |

**ISOdoc-CREATOR**



| Order No. | Type | Description  |
|-----------|------|--|
| 12-0584   |      | ISOdoc-CREATOR, Software to create documents. VAPODEST-data transfer via USB-stick to a PC to create and print out ISO 17025-compliant documents. Delivery incl. USB-stick |

## SUPPORT AND SERVICE

In addition to its high quality instruments, C. Gerhardt offers comprehensive services to maintain the functionality and efficiency of your equipment.

### INSTALLATION / EQUIPMENT QUALIFICATION

| Selection | Type    | Description  |
|-----------|---------|--|
| [ ]       | ABI-VAP | Setup and installation VAPODEST®:<br>- connection of the system<br>- easy performance check  |
| [ ]       | MEB-VAP | Method creation and guidance VAPODEST®:<br>- Guidance and intense instruction of the system<br>- Creation of a first method<br>- applicative advice and support  |
| [ ]       | IQ-VAP  | Installation Qualification VAPODEST® incl. documentation   |
| [ ]       | OQ-VAP  | Operational Qualification VAPODEST® incl. documentation  |
| [ ]       | PQ-VAP  | Performance Qualification VAPODEST® incl. documentation  |
| [ ]       | GQF-VAP | Equipment qualification VAPODEST®, complete service package incl.:<br>- Setup and installation<br>- Creation of a method and advice<br>- Complete IQ / OQ / PQ incl. documentation<br>- VAPODEST®-Document folder<br>- Training document<br>- Certificate... |

### SERVICING AND MAINTENANCE CONCEPTS

For detailed information on servicing and maintenance concepts, please contact your local authorised C. Gerhardt representative.

### WORKSHOPS / SEMINARS / APPLICATIONS TRAINING

For detailed information on trainings and workshops, please contact your local authorised C. Gerhardt representative.



## APPLICATION SERVICE

The following listed applications are examples from our comprehensive application data base. Please contact your local C. Gerhardt representative or write to [application@gerhardt.de](mailto:application@gerhardt.de) to ask for one of the listed application data sheets or to ask for an application which is not yet listed.

### ANALYSIS OF FEED- AND FOODSTUFFS



| Selection                | Description                                   |
|--------------------------|---|
| <input type="checkbox"/> | Non Protein content in Meat                   |
| <input type="checkbox"/> | Nitrogen in bread and rolls                   |
| <input type="checkbox"/> | Total Nitrogen in Raw Material for Breweries  |
| <input type="checkbox"/> | Soluble Nitrogen Content Wort                 |
| <input type="checkbox"/> | Raw Protein Determination in Eggs             |
| <input type="checkbox"/> | Total Protein in Margarine                    |
| <input type="checkbox"/> | Tomato puree and Ketchup                      |
| <input type="checkbox"/> | Nitrogen in Milk and Dairy Products           |
| <input type="checkbox"/> | Nitrogen in Cream                             |
| <input type="checkbox"/> | Protein in Milk Powder                        |
| <input type="checkbox"/> | Non-Protein in Milk and Dairy Products        |
| <input type="checkbox"/> | Raw Protein in Meat and Meat Products         |
| <input type="checkbox"/> | Raw Protein in Grain and Grain Products       |
| <input type="checkbox"/> | Raw Protein in Beer and Wort acc. to Lochner  |
| <input type="checkbox"/> | Total Nitrogen in Sugar at very low N-content |
| <input type="checkbox"/> | Nitrogen in Starch                            |
| <input type="checkbox"/> | Nitrogen in Fish and Fish Products            |
| <input type="checkbox"/> | Nitrogen in Chocolate                         |
| <input type="checkbox"/> | Total Protein in Fresh Yeast                  |
| <input type="checkbox"/> | Raw Protein in Feed                           |
| <input type="checkbox"/> | Volatile Acids in Wine                        |
| <input type="checkbox"/> | Sulphur Dioxide in Food                       |
| <input type="checkbox"/> | Sorbic acid in wine                           |
| <input type="checkbox"/> | TVBN in Fish and Fish Products                |
| <input type="checkbox"/> | Vicinal Diketones in Beer                     |
| <input type="checkbox"/> | Alcohol in Beverages and Intermediates        |

### ENVIRONMENTAL ANALYTICS / OTHER



| Selection                | Description   |
|--------------------------|---|
| <input type="checkbox"/> | Coagulated Nitrogen                                 |
| <input type="checkbox"/> | Nitrogen Determination in Fertilizers with Nitrate  |
| <input type="checkbox"/> | Fertilizers without Nitrate Content                 |
| <input type="checkbox"/> | Ammonium Determination in Fertilizers               |
| <input type="checkbox"/> | Water soluble Ammonium nitrogen in Fertilizers      |
| <input type="checkbox"/> | Determination of Nitrate and Ammonium Nitrogen fert |
| <input type="checkbox"/> | Total Nitrogen in Xanthan                           |
| <input type="checkbox"/> | Total Nitrogen in Water                             |
| <input type="checkbox"/> | Total Nitrogen in Soil                              |
| <input type="checkbox"/> | Total Nitrogen in Grass and Plant Material          |
| <input type="checkbox"/> | Total Nitrogen in Coal                              |
| <input type="checkbox"/> | Phenol Index in Soils and Water                     |
| <input type="checkbox"/> | Ammonium in Solid Samples                           |
| <input type="checkbox"/> | Ammonium in Aqueous Samples                         |
| <input type="checkbox"/> | Nitrate in Aqueous Samples and Eluates              |
| <input type="checkbox"/> | Total Cyanide in Water, Soil and Sludge             |
| <input type="checkbox"/> | Volatile Organic Acids in Sludge                    |
| <input type="checkbox"/> | Total Formaldehyde in Aminoplast Adhesive           |

## TABLE OF CONFIGURATION

Please arrange the required system

### DISTILLATION SYSTEM / TYPE

| Quantity | Order No. | Type | Description |
|----------|-----------|------|-------------|
|          |           |      |             |
|          |           |      |             |
|          |           |      |             |
|          |           |      |             |
|          |           |      |             |
|          |           |      |             |
|          |           |      |             |
|          |           |      |             |

### CONSUMABLES / ACCESSORIES

| Quantity | Order No. | Type | Description |
|----------|-----------|------|-------------|
|          |           |      |             |
|          |           |      |             |
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### SUPPORT AND SERVICE

| Quantity | Order No. | Type | Description |
|----------|-----------|------|-------------|
|          |           |      |             |
|          |           |      |             |
|          |           |      |             |
|          |           |      |             |

Send offer to:

|              |  |
|--------------|--|
| Customer No. |  |
| Company      |  |
| Name         |  |
| Address      |  |
| Tel.         |  |
| E-Mail       |  |
| Web          |  |



Presented by:

