

# RICHTER CHEMIE-TECHNIK

Ball Valves  
lined with PFA, FEP, PVDF  
Typ KH/KHP

**The answer to corrosion**



Also with self-adjusting  
and maintenance-free  
stuffing box available  
(see page 2, fig. 1 a)

Fig. 1

Fig. 1a

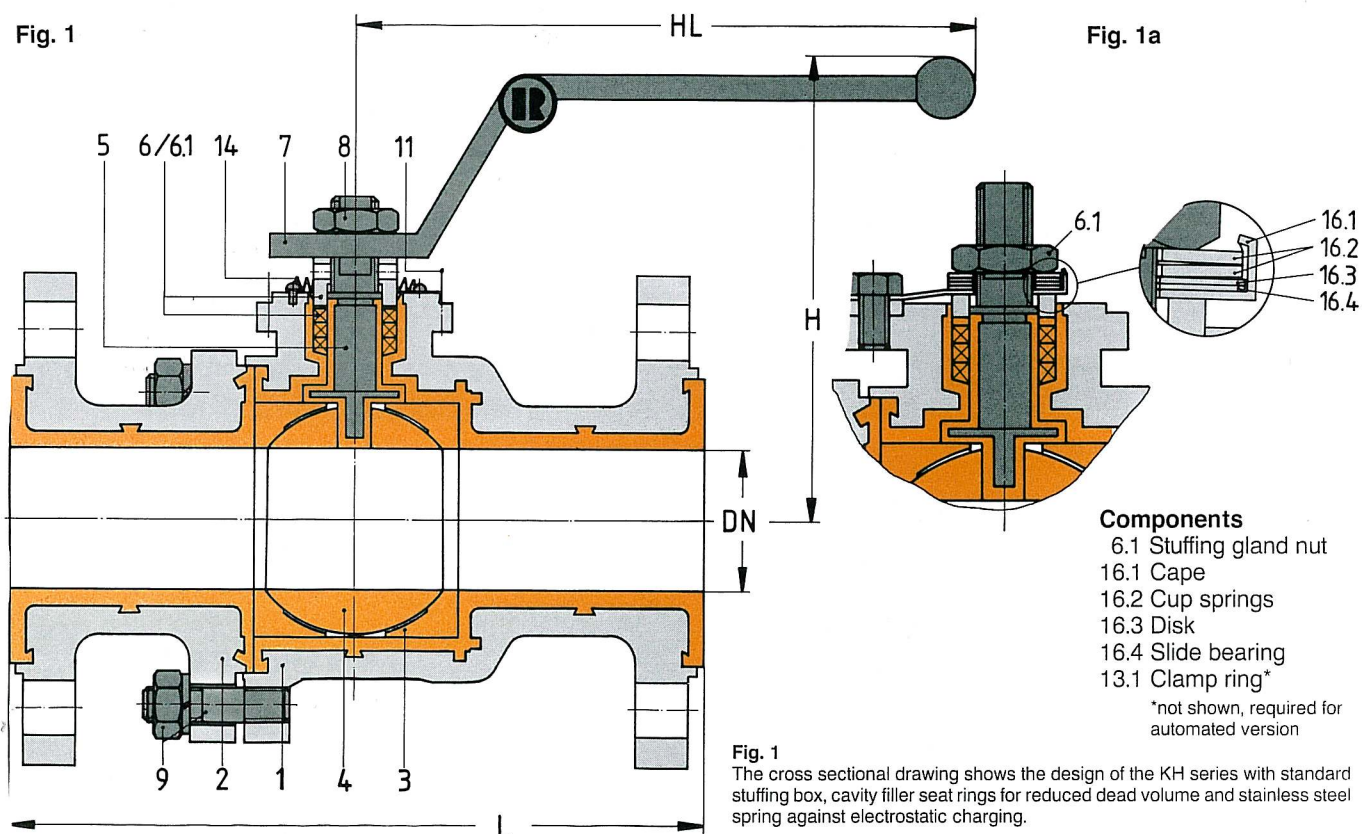


Fig. 1

The cross sectional drawing shows the design of the KH series with standard stuffing box, cavity filler seat rings for reduced dead volume and stainless steel spring against electrostatic charging.

Fig. 1a

#### Maintenance-free, self-adjusting stuffing box:

A stainless steel spring assembly with integrated anti-static clip ensures a permanent pre-tensioning and thus also a permanent stem pre-sealing.

The following table enables the user to evaluate and select a specific combination of materials and accessories:

| Pos. | Description                                     | Standard type                                                                                                  | can be supplied on request                                                                           |
|------|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| 1    | Body<br>a) Shell<br>b) Lining                   | GGG-40.3 (0.7043 ductile cast iron)<br>PFA, FEP                                                                | 1.0619 (GS-C 25 cast steel)<br>1.4308 (stainless steel), for 3-piece-series<br>PVDF; conductive PVDF |
| 2    | End piece<br>a) Shell<br>b) Lining              | GGG-40.3 (0.7043 ductile cast iron)<br>PFA, FEP                                                                | 1.0619 (GS-C 25 cast steel)<br>1.4308 (stainless steel)<br>PVDF; conductive PVDF                     |
| 3    | Seat rings<br>normal<br>cavity filler           | PTFE                                                                                                           | PTFE/carbon<br>PTFE or PTFE/carbon                                                                   |
| 4    | Ball                                            | Oxide ceramic $Al_2O_3$ (99,7 %) polished<br>PFA, FEP with metal core                                          | Special materials<br>e. g. titanium, Hastelloy etc.                                                  |
| 5    | Stem                                            | PFA with stainless steel core                                                                                  | PVDF-lined, conductive PVDF, special materials<br>e. g. titanium, Hastelloy etc.                     |
| 6    | Stuffing box                                    | Compacted PTFE rings                                                                                           | Maintenance-free, self-adjusting; conductive                                                         |
| 6.1  | Stuffing box nut                                | Stainless steel                                                                                                | Hastelloy, other materials                                                                           |
| 7    | Lever                                           | GGG-40.3 (0.7043 ductile cast iron)                                                                            | 1.4308 (stainless steel)<br>various lever height extensions (see page 3)                             |
| 8    | Lock-nut                                        | Stainless steel                                                                                                |                                                                                                      |
| 9    | Bolts and nuts                                  | Stainless steel                                                                                                | Hastelloy, other materials                                                                           |
| 10   | Double stuffing box                             | With leak detector or with flushing connection at KV type available,<br>please request publication no. 105.205 |                                                                                                      |
| 11   | Tapped holes and bracket locating center        | For actuator mounting according to DIN ISO 5211                                                                |                                                                                                      |
| 12   | Bracket                                         | Connection to DIN ISO 5211 and NAMUR                                                                           | Special type on request                                                                              |
| 13   | Coupling                                        | Stainless steel, connection to DIN 3337                                                                        | Special type on request                                                                              |
| 14   | Antistatic spring                               | Stainless steel, not applicable with maintenance-free stuffing box                                             |                                                                                                      |
| 15   | Actuator                                        | Pneumatic quarter-turn actuators,<br>e. g. NORBRO, El-o-matic, AMG                                             | Pneumatic or electric actuators<br>of several makes                                                  |
| 16   | Cup spring cage with integrated antistatic clip | Stainless steel; in connection with maintenance-free stuffing box                                              |                                                                                                      |

# No compromises in the face of corrosive media: RICHTER Ball Valves have decisive advantages!

Many thousand times proven robust construction of the RICHTER ball valve series KH/KHP offers you the superior answer to highly corrosive media:

- The ductile cast iron GGG-40.3 (0.7043) – or cast steel/stainless steel – used for the shell, meets the requirements of the chemical industry for ductile materials.
- The corrosion-resistant fluoroplastic lining – PFA, FEP or PVDF – provides a reliable approach to corrosive liquid and gaseous media.
- The especially thick-walled lining prevents damage even with permeating media.
- On request with reduced cavity volume (see Fig. 1)
- Pre-sealing by stem collar against body lining and stuffing box with central nut to enable wear adjustment. Maintenance-free self-adjusting stuffing box available.
- Gas-tight seal at the seat by the proven principle of a „floating“ ball design.
- Ball material optional – either an inherently stable and non-abrasive ball made of oxide ceramic –  $Al_2O_3$ , 99,7 % – or fluoroplastic ball with metal core.
- A full port design provides a minimal pressure drop. On request a reduced bore is available at reduced prices, which is of special interest with larger DN sizes.
- Blowout proof stem with fluoroplastic jacket; with the standard stem core made from stainless steel, Hastelloy C, titanium etc., on request. an usw.

- Standard stainless steel grounding spring to prevent electrostatic charging.
- Valves supplied with external epoxy coating as standard.
- Separate heating jacket and lever height extension can be supplied.
- Valve prepared for drive assembly according to DIN ISO 5211 and NAMUR. Actuator bracket of stainless steel or galvanized steel. Stainless steel coupling.
- Available with almost any actuator.
- Other technical data:

**Pressure range** PN 16 (DN 150 = PN 10) according to temperature-pressure-diagram on page 4.

**Temperature range** up to 180° C (higher range on request).

Specially treated ductile cast iron can be supplied for low temperatures.

High **vacuum resistance** according to vacuum diagram on page 4.

## Installation and connecting dimensions:

face to face DIN 3202/F1  
flanges DIN 2532/33;  
bored to ANSI or BS on request.  
Available also to ANSI:  
face to face B 16.10, flanges  
150 lbs, see series BV/BVP.

Flange with **groove** according to  
**DIN 2512** on request, s. KV/KVP series.

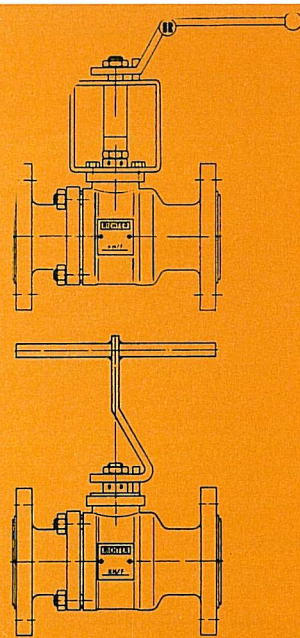
## Identification

of the valves to DIN EN 19

- **Type code**  
manually operated KH  
automated KHP

Please state the following information when sending an enquiry: medium, operating temperature, operating pressure; for automated valves also state: pneumatic or electric drive, available pilot air pressure or voltage, single or double acting, desired make/type.

Fig. 2



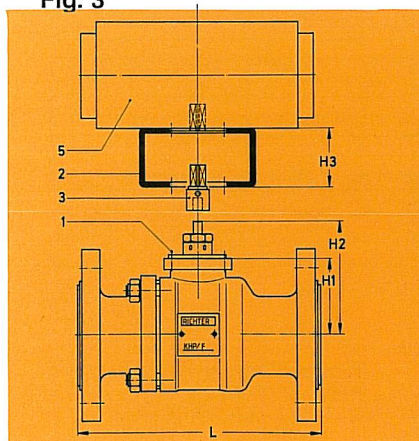
On request the valves can be supplied with extended levers, as shown in the above drawing.

Please also note the RICHTER ball valve series:

- KV/KVP 2-piece heavy duty series
- BV/BVP 2-piece, face to face and flanges to ANSI
- KK/KKP compact design in sandwich construction
- KA/KAP reactor discharge ball valves

Special brochures are available on request.

Fig. 3



| Nom. Diameter                                                                          | 15 <sup>1)</sup> | 20 <sup>1)</sup> | 25   | 32 <sup>2)</sup> | 40  | 50  | 65                  | 80                  | 100                                | 150               |
|----------------------------------------------------------------------------------------|------------------|------------------|------|------------------|-----|-----|---------------------|---------------------|------------------------------------|-------------------|
| Ball inner Ø                                                                           | 25               | 25               | 25   | 25               | 40  | 50  | 50 <sup>2)</sup> 65 | 65 <sup>2)</sup> 80 | 80 <sup>2)</sup> 100 <sup>1)</sup> | 110 <sup>2)</sup> |
| Face to face L                                                                         | 130              | 150              | 160  | 180              | 200 | 230 | 290                 | 310                 | 350                                | 480               |
| Height H                                                                               | 120              | 120              | 120  | 120              | 165 | 170 | 170 190             | 190                 | 190                                | 240               |
| Lever length HL                                                                        | 143              | 143              | 143  | 143              | 225 | 225 | 225                 | 225 325             | 325                                | 385               |
| Height H1                                                                              | 44               | 44               | 44   | 44               | 69  | 73  | 73 105              | 105 113             | 113                                | 159               |
| Height H2                                                                              | 69,5             | 69,5             | 69,5 | 69,5             | 105 | 109 | 109 141,5           | 141,5 160           | 160                                | 207               |
| Height H3 <sup>3)</sup>                                                                | 60               | 60               | 60   | 60               | 60  | 60  | 60 60               | 60                  | 80                                 | 80                |
| H3 = 80 with actuator connection F10 or F12                                            |                  |                  |      |                  |     |     |                     |                     |                                    | 80                |
| Item 11 connecting dimensions to DIN ISO 5211                                          | F05              |                  |      |                  | F07 |     |                     |                     | F10                                | F12               |
| Weight without actuator in kg (approx.)                                                | 3                | 3,2              | 4    | 6                | 8,5 | 10  | 14 20               | 25 28               | 32 45                              | 72                |
| Kvs-values (m³/h)                                                                      | 17,5             | 31               | 51   | 73               | 150 | 248 | 300 400             | 455 830             | 830 1230                           | 1270              |
| Flange connection dimensions to DIN 2501, PN 16, drilled to ANSI, BS etc., if required |                  |                  |      |                  |     |     |                     |                     |                                    |                   |

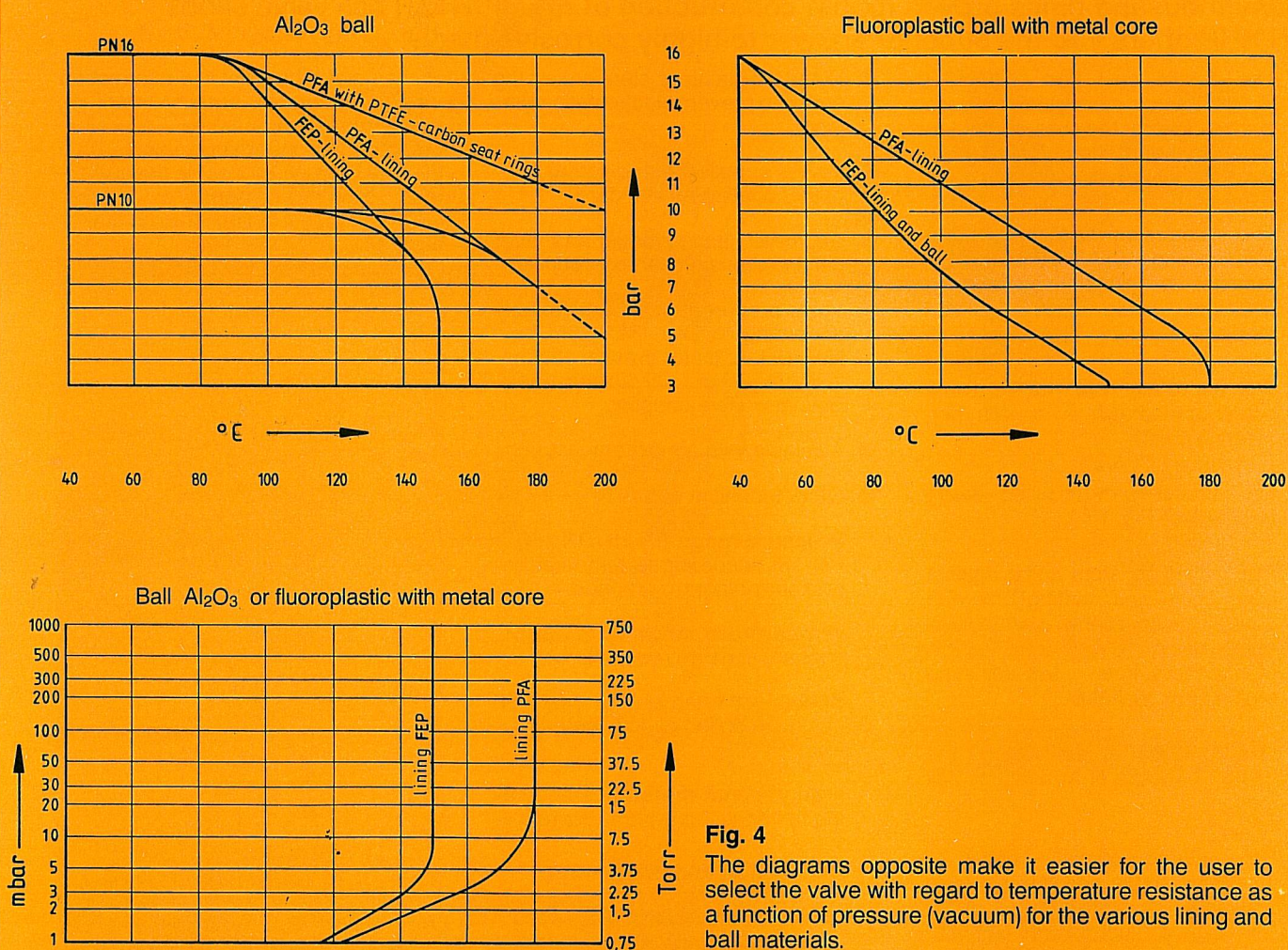
<sup>1)</sup> as 2-piece series KV/KVP (see leaflet no. 105. 205)

<sup>2)</sup> as 3-piece series KH or KHP

<sup>3)</sup> in case of different F-connections to DIN ISO 5211 at valve (Pos. 11) and actuator the measure H3 of the larger F-connection has to be provided for.

Dimensions in mm

## Pressure-Vacuum-Temperature Diagram

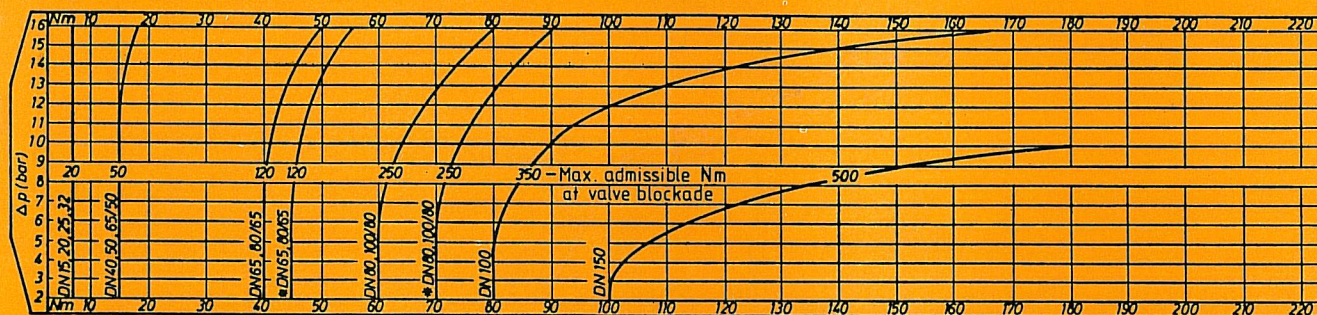


**Fig. 4**

The diagrams opposite make it easier for the user to select the valve with regard to temperature resistance as a function of pressure (vacuum) for the various lining and ball materials.

## Torques for Automated Valves

**Fig. 5**



\* seat rings of PTFE/carbon

Torques shown have been determined with a polished ball Al<sub>2</sub>O<sub>3</sub> resp. PFA, FEP with metal core.

Test medium: water 20° C. Depending on the medium, e. g. dry gases or viscous resp. crystalizing liquids, the torques could increase.

Please pay attention to the pressure-temperature-diagram



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