

## Steam Traps

### MK 45-1, MK 45-2, MK 45A-1, MK 45A-2

#### PN 40

#### DN 15, 20, 25 (½", ¾", 1")

### Description

Thermostatic steam trap with corrosion-resistant thermostatic capsule. With Y-type strainer and integrated non-return action.

Do not expose the control membrane to superheat conditions above 5 °C.

Steam traps with standard capsule N discharge condensate with approx. 10 K below boiling temperature, traps with capsule U with an undercooling of approx. 30 K and traps with capsule H with approx. 5 K undercooling.

#### MK 45-1, MK 45A-1 with tandem seat (double sealing)

Particularly for low condensate flowrates. Optionally with standard capsule 5N1 or special capsule 5U1 or 5H1.

#### MK 45-2, MK 45A-2 with single seat

For larger condensate flowrates. Optionally with standard capsule 5N2 or special capsule 5U2 or 5H2.

### Pressure /Temperature Ratings & End Connections

| MK 45, flanged PN 40, EN 1092-1          |        |      |      |      |      |      |      |
|--|--------|------|------|------|------|------|------|
| PMA (max. allowable pressure)            | [barg] | 40.0 | 33.3 | 27.6 | 25.7 | 23.8 | 13.1 |
| TMA (max. allowable temperature)         | [°C]   | 20   | 200  | 300  | 350  | 400  | 450  |
| Δ PMX (admissible differential pressure) | [barg] | 32   |      |      |      |      |      |

Based on EN 1092-1 (2007)

| MK 45, flanged Class 150, ASME B16.5     |        |        |      |      |     |     |     |
|--|--------|--------|------|------|-----|-----|-----|
| PMA (max. allowable pressure)            | [barg] | 19.6   | 13.8 | 10.2 | 8.4 | 6.5 | 5.5 |
| TMA (max. allowable temperature)         | [°C]   | 29/38  | 200  | 300  | 350 | 400 | 425 |
| PMA (max. allowable pressure)            | [psig] | 285    | 200  | 140  | 125 | 95  | 80  |
| TMA (max. allowable temperature)         | [°F]   | 20/100 | 400  | 600  | 650 | 750 | 800 |
| Δ PMX (admissible differential pressure) | [barg] | 32     |      |      |     |     |     |

Based on ASME B16.5, ASME B16.34

| MK 45, flanged Class 300, ASME B16.5, butt-weld ends EN 12627<br>socket-weld ends EN 12760, socket-weld ends Class 3000, ASME B16.11<br>screwed sockets BSP, ISO 228-1, screwed sockets NPT, ASME B16.11 |        |        |      |      |      |      |      |
|--|--------|--------|------|------|------|------|------|
| PMA (max. allowable pressure)  | [barg] | 51.1   | 43.8 | 39.8 | 37.6 | 34.7 | 28.8 |
| TMA (max. allowable temperature)   | [°C]   | 29/38  | 200  | 300  | 350  | 400  | 425  |
| PMA (max. allowable pressure)  | [psig] | 740    | 635  | 570  | 550  | 505  | 410  |
| TMA (max. allowable temperature)   | [°F]   | 20/100 | 400  | 600  | 650  | 750  | 800  |
| Δ PMX (admissible differential pressure)   | [barg] | 32     |      |      |      |      |      |

Based on ASME B16.5, ASME B16.34

| MK 45A, flanged PN 40, EN 1092-1         |        |      |      |      |      |      |      |
|--|--------|------|------|------|------|------|------|
| PMA (max. allowable pressure)            | [barg] | 40.0 | 31.8 | 29.9 | 27.6 | 26.4 | 25.7 |
| TMA (max. allowable temperature)         | [°C]   | 20   | 200  | 250  | 300  | 350  | 400  |
| Δ PMX (admissible differential pressure) | [barg] | 32   |      |      |      |      |      |

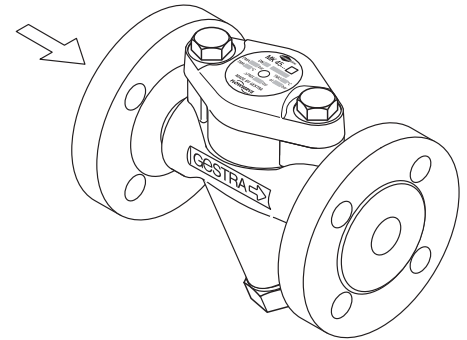
Based on EN 1092-1 (2007)

| MK 45A, flanged Class 150, ASME B16.5    |        |        |      |      |     |     |     |
|--|--------|--------|------|------|-----|-----|-----|
| PMA (max. allowable pressure)            | [barg] | 15.9   | 11.2 | 10.0 | 8.4 | 6.5 | 4.6 |
| TMA (max. allowable temperature)         | [°C]   | 29/38  | 200  | 300  | 350 | 400 | 450 |
| PMA (max. allowable pressure)            | [psig] | 230    | 160  | 140  | 125 | 95  | 65  |
| TMA (max. allowable temperature)         | [°F]   | 20/100 | 400  | 600  | 650 | 750 | 850 |
| Δ PMX (admissible differential pressure) | [barg] | 32     |      |      |     |     |     |

Based on ASME B16.5, ASME B16.34

| MK 45A, flanged Class 300, ASME B16.5, butt-weld ends EN 12627<br>socket-weld ends EN 12760, socket-weld ends Class 3000, ASME B16.11<br>screwed sockets BSP, ISO 228-1, screwed sockets NPT, ASME B16.11 |        |        |      |      |      |      |      |
|---|--------|--------|------|------|------|------|------|
| PMA (max. allowable pressure)   | [barg] | 41.4   | 29.2 | 26.1 | 25.1 | 24.3 | 23.4 |
| TMA (max. allowable temperature)  | [°C]   | 29/38  | 200  | 300  | 350  | 400  | 450  |
| PMA (max. allowable pressure)   | [psig] | 600    | 420  | 370  | 365  | 355  | 340  |
| TMA (max. allowable temperature)  | [°F]   | 20/100 | 400  | 600  | 650  | 750  | 850  |
| Δ PMX (admissible differential pressure)  | [barg] | 32     |      |      |      |      |      |

Based on ASME B16.5, ASME B16.34



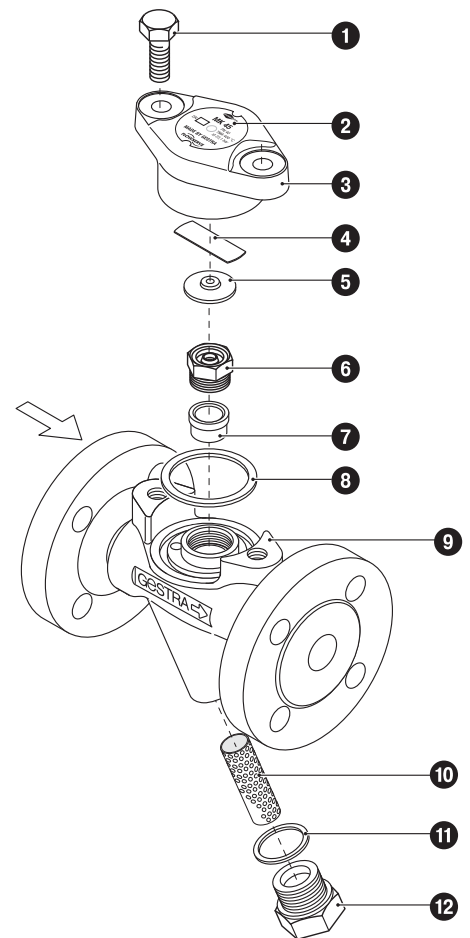
MK 45 with flanges

## Materials

| Type                          | MK 45            |         |
|-------------------------------|------------------|---------|
| Designation                   | DIN / EN         | ASME    |
| Body and cover                | 1.0460           | A105    |
| Hexagon-head cap screws       | 1.7225           | A193 B7 |
| Gasket                        | Graphite/CrNi    |         |
| Regulating membrane (capsule) | Hastelloy®       |         |
| Other internals               | Stainless steels |         |

| Type                          | MK 45A           |         |
|-------------------------------|------------------|---------|
| Designation                   | DIN / EN         | ASME    |
| Body and cover                | 1.4404           | F316L   |
| Hexagon-head cap screws       | A2-70            | A193 B8 |
| Gasket                        | Graphite/CrNi    |         |
| Regulating membrane (capsule) | Hastelloy®       |         |
| Other internals               | Stainless steels |         |

## Component Parts MK 45, MK 45A

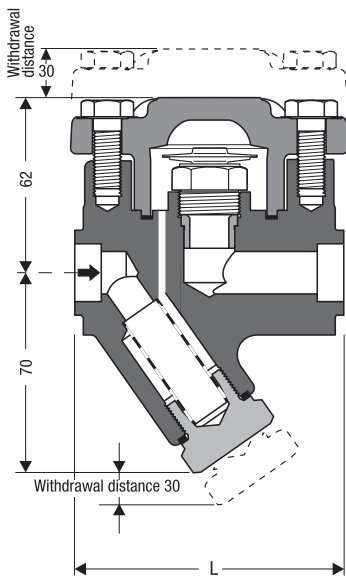
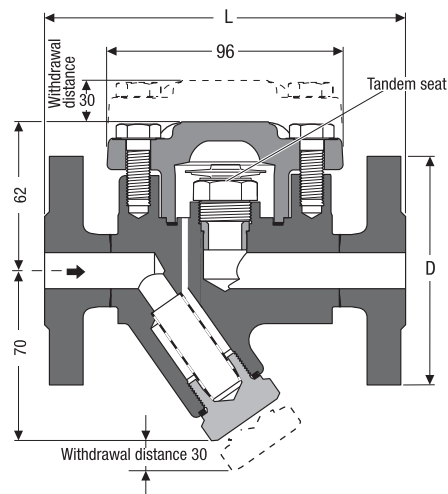


## Key

- ① Hexagon-head screw M 10 x 25
- ② Name plate
- ③ Cover
- ④ Spring
- ⑤ Regulating membrane (capsule)
- ⑥ Nozzle insert with non-return cone
- ⑦ Bushing (interference fitted, no spare part)
- ⑧ Gasket 40 x 48 x 2
- ⑨ Body
- ⑩ Strainer
- ⑪ Gasket A 24 x 29
- ⑫ Sealing plug

Spare parts list see page 3

### Dimensions



### Weights and dimensions for traps with flanged ends

| Type          | Flanged to | EN 1092-1<br>PN 40 |      |     | ASME B 16.5<br>Class 150 |      |       | ASME B 16.5<br>Class 300 |       |       |
|---------------|------------|--------------------|------|-----|--------------------------|------|-------|--------------------------|-------|-------|
|               |            | 15                 | 20   | 25  | 15                       | 20   | 25    | 15                       | 20    | 25    |
| MK 45, MK 45A | DN         | 1/2"               | 3/4" | 1"  | 1/2"                     | 3/4" | 1"    | 1/2"                     | 3/4"  | 1"    |
|               | D [mm]     | 95                 | 105  | 115 | 88.9                     | 98.4 | 107.9 | 95.2                     | 117.5 | 123.8 |
|               | L [mm]     | 150                | 150  | 160 | 150                      | 150  | 160   | 150                      | 150   | 160   |
|               | [kg]       | 3.7                | 4.3  | 4.8 | 3.7                      | 4.3  | 4.8   | 3.7                      | 4.3   | 4.8   |

### Weights and dimensions for traps with butt-weld ends

| Type          | Butt-weld ends to | EN 12627<br>Edge form to ISO 9692, code number 1.3 |            |            | ASME B 16.25<br>ASME B 36.10 |            |            |
|---------------|-------------------|--|------------|------------|------------------------------|------------|------------|
|               |                   | 15   | 20         | 25         | 15                           | 20         | 25         |
| MK 45, MK 45A | DN                | 1/2"   | 3/4"       | 1"         | 1/2"                         | 3/4"       | 1"         |
|               | for pipe          | 21.3 x 2.0   | 26.9 x 2.3 | 33.7 x 2.6 | 21.3 x 2.8                   | 26.7 x 2.9 | 33.4 x 3.4 |
|               | L [mm]            | 200  | 200        | 200        | 200                          | 200        | 200        |
|               | [kg]              | 2.5  | 2.5        | 2.5        | 2.5                          | 2.5        | 2.5        |

Butt-weld ends for other pipe sizes available on request.

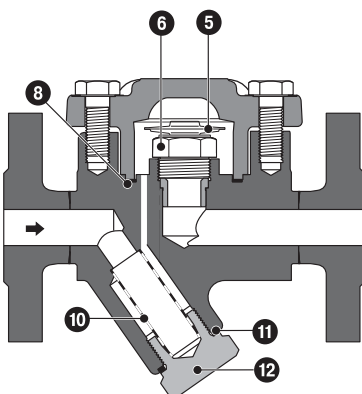
### Weights and dimensions for traps with socket-weld ends

| Type          | Socket-weld ends to | DIN EN 12760, ASME B 16.11 Class 3000 |      |     |
|---------------|---------------------|---------------------------------------|------|-----|
|               |                     | 15                                    | 20   | 25  |
| MK 45, MK 45A | DN                  | 1/2"                                  | 3/4" | 1"  |
|               | L [mm]              | 95                                    | 95   | 95  |
|               | [kg]                | 2.2                                   | 2.1  | 2.0 |

### Weights and dimensions for traps with screwed sockets

| Type          | Screwed sockets to | BSP: ISO 228-1, NPT: ASME B 16.11 |      |     |
|---------------|--------------------|-----------------------------------|------|-----|
|               |                    | 15                                | 20   | 25  |
| MK 45, MK 45A | DN                 | 1/2"                              | 3/4" | 1"  |
|               | L [mm]             | 95                                | 95   | 95  |
|               | [kg]               | 2.2                               | 2.1  | 2.0 |

### Spare Parts



| Item     | Designation  | Stock code |         |
|----------|--|------------|---------|
|          |  | MK 45-1    | MK 45-2 |
| 5 6 8    | Membrane regulator, complete, 5N1                    | 375 109    |         |
|          | Membrane regulator, complete, 5U1                    | 375 111    |         |
|          | Membrane regulator, complete, 5H1                    | 378 521    |         |
| 5 6 8    | Membrane regulator, complete, 5N2                    |            | 375 110 |
|          | Membrane regulator, complete, 5U2                    |            | 375 112 |
|          | Membrane regulator, complete, 5H2                    |            | 377 589 |
| 10 11 12 | Strainer set, cpl.                                   | 375 113    | 375 113 |
|          |  | 375 382    | 375 382 |
| 5        | Thermostatic capsule <sup>1)</sup> 5N1               | 376 165    |         |
|          | Thermostatic capsule <sup>1)</sup> 5U1               | 376 166    |         |
|          | Thermostatic capsule <sup>1)</sup> 5H1               | 376 173    |         |
| 5        | Thermostatic capsule <sup>1)</sup> 5N2               |            | 376 167 |
|          | Thermostatic capsule <sup>1)</sup> 5U2               |            | 376 168 |
|          | Thermostatic capsule <sup>1)</sup> 5H2               |            | 376 174 |
| 8        | Cover gasket <sup>2)</sup> 40 x 48 x 2, graphite     | 375 159    | 375 159 |
| 11       | Plug gasket <sup>2)</sup> A 24 x 29, stainless steel | 375 162    | 375 162 |

<sup>1)</sup> Packaged 10 per box. For smaller quantities please contact your local dealer.

<sup>2)</sup> Minimum purchasing quantity 50 pcs. For smaller quantities please contact your local dealer.

## Steam Traps

**MK 45-1, MK 45-2,  
MK 45A-1, MK 45A-2  
PN 40  
DN 15, 20, 25 (½", ¾", 1")**

### Capacity Charts

The charts show the maximum capacities for hot and cold condensate.

#### Curve ①

Indicates the max. capacity of hot condensate that steam traps with 5N.. capsule can discharge with approx. 10 K below boiling temperature and traps with 5U... capsule can discharge with approx. 30 K below boiling temperature..

#### Curve ②

Discharge capacity for cold condensate at 20 °C.

### Specification Text

GESTRA Steam trap, DN 15 / DN 20 / DN 25

Type: MK 45-1 / MK 45-2 (carbon steel)

Type: MK 45A-1 / MK 45A-2 (high-alloy stainless steel)

End connection: Flanged / socket-weld ends / butt-weld ends / screwed sockets

MK 45-1, MK 45-2 with tandem seat and self-centering cone

Nominal size: DN 15/DN 20/DN 25 / ½"/¾"/1"

Pressure rating: PN 40 / CL 150 / CL 300

Thermostatic capsule: **N** = Standard, Δt approx. 10 K  
**U** = Undercooling, Δt approx. 30 K  
**H** = Undercooling, Δt approx. 5 K

### Approvals

GOST-R

### Inspection & Certification

Documentation regarding material tests and in-house examination with test report EN10204-2.2 or inspection certificate EN10204-3.1 available at extra cost. All inspection requirements have to be stated with the enquiry or order. After supply of the equipment certification cannot be established. Charges and extent of the above mentioned test certificates as well as the different tests confirmed therein are listed in our Price List Test and Inspection Charges for Standard Equipment. For other tests and inspections than those listed above, please consult us.

### PED (Pressure Equipment Directive)

The equipment fulfills the requirements of the Pressure Equipment Directive PED 97/23/EC. For use with fluids of group 2.

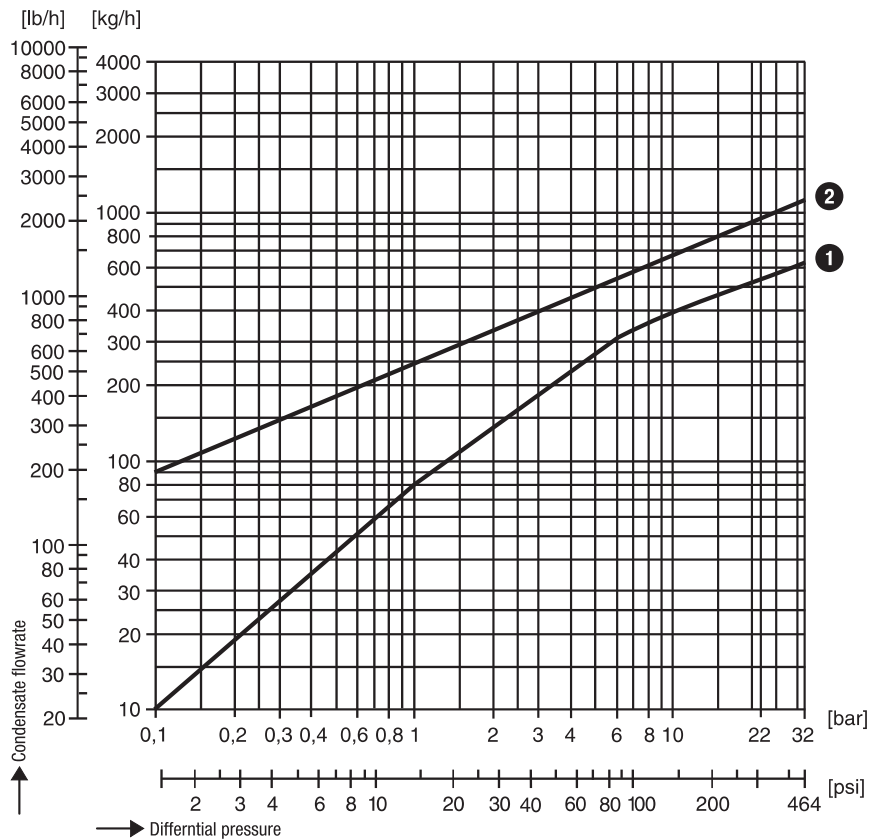
The equipment is excluded from the scope of the PED according to section 3.3 and must not bear a CE marking.

### ATEX (Atmosphère Explosible)

The equipment does not have its own potential source of ignition and is therefore not subject to the ATEX Directive 94/9/EC. Applicable in Ex zones 0, 1, 2, 20, 21, 22 (1999/92/EC). The equipment is not Ex marked.

Supply in accordance with our general terms of business.

### Capacity Chart for MK 45-1, MK 45A-1



### Capacity Chart for MK 45-2, MK 45A-2

