

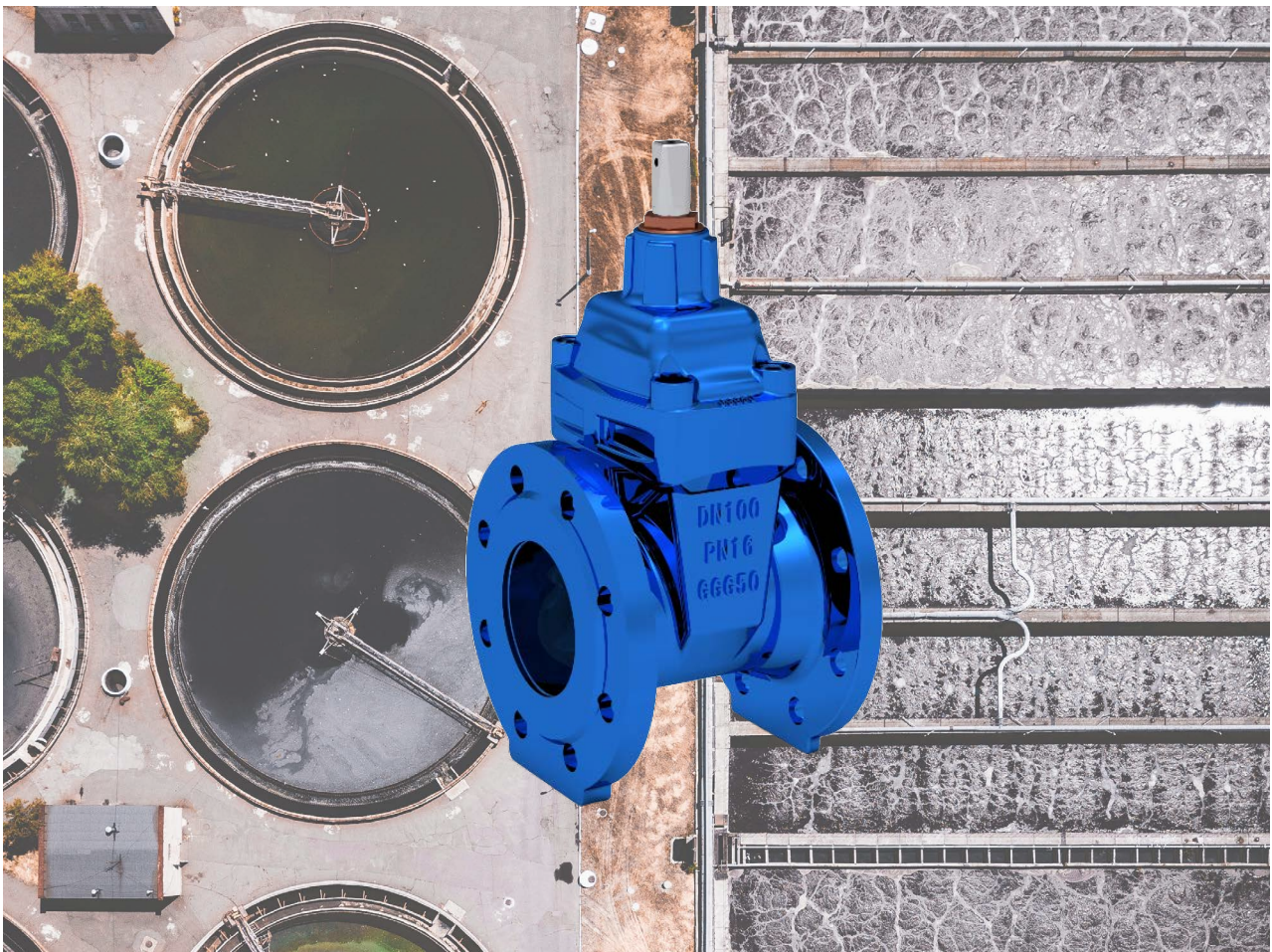


 **RAPHAEL**

Product brochure

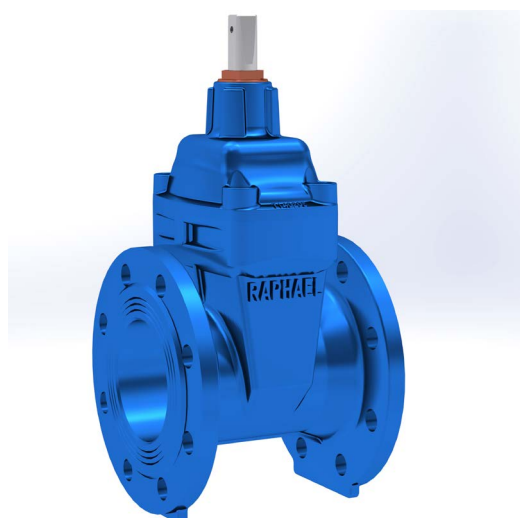
## **TRS/TRL - G2**

Resilient Seated Gate Valve



## RESILIENT SEATED GATE VALVES

The latest RAPHAEL's proven range of valves, the TRS/TRL-T represents a new generation of resilient seated gate valves [DN40-1200]. As well as boasting of the latest technological advances and unique technical features, TRS/TRL manufactured using high quality materials and the latest manufacturing technologies, to guarantee, to our valuable customers, an extraordinary lifetime, outstanding operability and unique safety features.



### ADVANTAGES

**Low torque:** TRS G2 and its new wedge and stem technology ensures smooth functionality with outstanding low torque values.

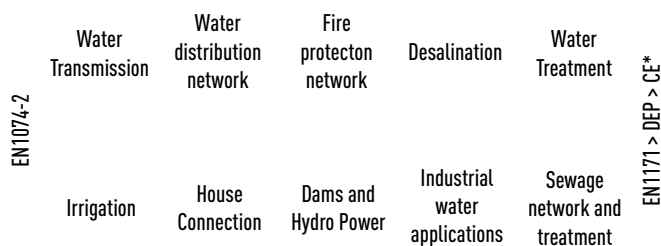
**Longer service life:** Perfect guiding system for the wedge.

**Corrosion resistance:** high quality materials. Wide range of coatings available. Threadless bonnet up to DN300 that allows continuous coating.

**Low head loss:** clear way and straight bore design from DN40 up to DN600 in order to allow a free path without restriction of the fluid.

**Bubble tight shut off:** new wedge design with increased thickness of the elastomer at the sealing areas to improve tightness.

### APPLICATIONS



#### On networks, gate valves can be:

- Used both as part of new works and renovations.
- Installed outside, buried in the ground, in room, or in buildings.

#### The use of gate valves allows user:

- To balance the distribution of water at all points in the mesh network (in open or closed position).
- To isolate control valves, fire hydrants, air valves, pumps, etc. for their maintenance.
- To perform maintenance on the network (isolation of part of the network).
- To stop the flow in the case of failure or pipe incident.
- To drain water tanks or sections of the water network.

## CHARACTERISTICS

Made of **high quality materials** according to the relevant standards.

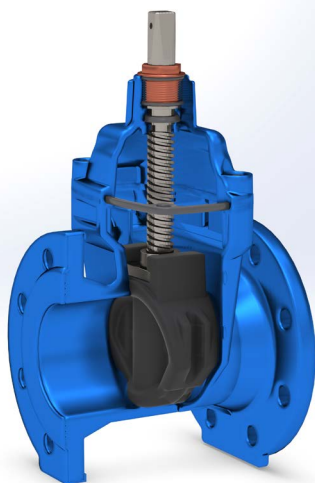
**Clear way and straight bore**, so the flow is optimum with minimum head losses.

**Replaceable packing**

- Wedge fully encapsulated in EPDM for a better resistance to corrosion.
- Integral sliding followers as guiding system for easy operation under maximum differential pressure.
- Body bonnet bolts are protected with hot melt glue.
- **Rounded surfaces** of the body ensure a uniform coating and protection of the highest quality.

Excellent corrosion resistance thanks to the fully coated bonnet (not threads) and the epoxy powder coating. Stem in stainless steel. Shell designed to withstand 64 bar (VdS type). Maintenance free. Prepared for actuator version available. Approved standard EN 1074-2 and EN 1171. 100% tested acc. to EN 12166-1 standard.

(\*) List of countries on request.



## OPTIONS/VARIANTS

FBE 250 microns mini, others Enamel or Rilsan coating. Electric actuator, Pneumatic/ Hydraulic cylinder, others.

Visual mechanical position indicator with optional electrical limit switch.

Configuration for sea water, sewage water and hot water. Valve complying to BS5163 type A or B.

Wedge fully encapsulated in NBR or hot EPDM (up to 70°C). Bolts in stainless steel A2 or A4. Accessories (handwheel, captop, stem extension, others).

Excellent corrosion resistance thanks to the fully coated bonnet (not threads) and the epoxy powder coating RILSAN POLYESTER and ENAMEL.

## TECHNICAL DATA

**Nominal Diameter (DN):** DN40 to DN1200

**Body length to EN558:** Series 14: short body (F4). Series 15: long body (F5).

**Closing direction:** Clockwise closing (CC). Anticlockwise closing (ACC).

**Nominal Pressure (PN):** PN16

**Flange Drilling:** PN10 or PN16 according to EN 1092-2.

**Medium Temperature (EN1074-2):**

**Epoxy coating:** -10 to 50°C Enamel coating: -10 to 50°C (up to 70°C under request, in the case of EN1171).

**Water tightness:** Rate A according to EN 12266-1.

**Maximum Velocity:**

| PFA/PS | EN1074-2 | EN1171 |
|--------|----------|--------|
| 10 bar | 3 m/s    | 5 m/s  |
| 16 bar | 4 m/s    | 5 m/s  |

## APPROVALS

In conformity with European standard EN 1074-2 and EN 1171

Israeli standard IS61, IS5452  
DVGW, KIWA, WRAS, IS61,  
DM197, ACS, NF, OVGW, SVGW,  
PZH, Hygienic Russia

## RESILIENT SEATED GATE VALVES

### TRS (F4) / TRL (F5) - DN40/300 - PN10/16

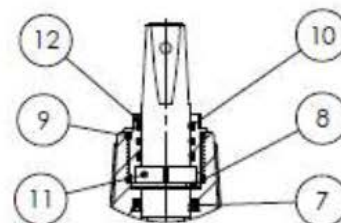
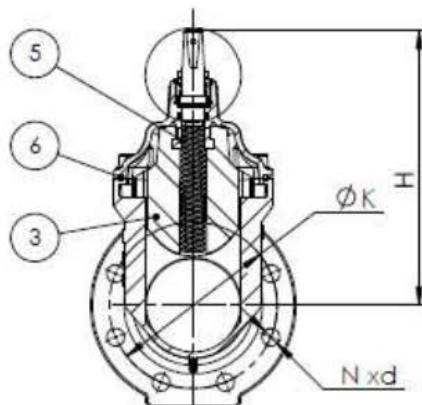
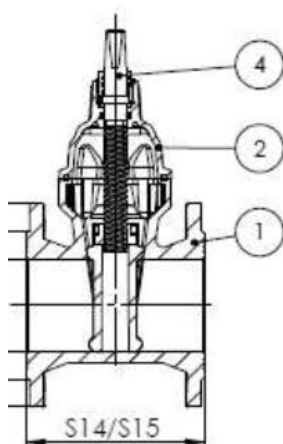
(according to EN1074-2 (annex A) and EN1171 (category 3))

| Item | Description    | No. | Material            | Standard |
|------|----------------|-----|---------------------|----------|
| 1    | Body           | 1   | EN-GJS-500-7 2)     | EN 1563  |
| 2    | Bonnet         | 1   | EN-GJS-500-7 2)     | EN 1563  |
| 3    | Wedge          | 1   | EN-GJS-500-7/EPDM   | EN 1563  |
| 4    | Stem           | 1   | SS420/SS316         |          |
| 5    | Wedge lock nut | 1   | Copper alloy CW617N | EN 12165 |
| 6    | Bonnet Gasket  | 1   | EPDM                |          |
| 7    | Stem Seal      | 1   | EPDM 1)             | EN 681-1 |
| 8    | Gland          | 1   | POM                 | -        |
| 9    | O-Ring         | 1   | NBR                 | EN 681-1 |
| 10   | O-Ring         | 1   | NBR                 | EN 681-1 |
| 11   | Half Ring      | 1   | Copper alloy CW617N | EN 12165 |
| 12   | Stuffing Nut   | 1   | Copper alloy CW617N | EN 12165 |



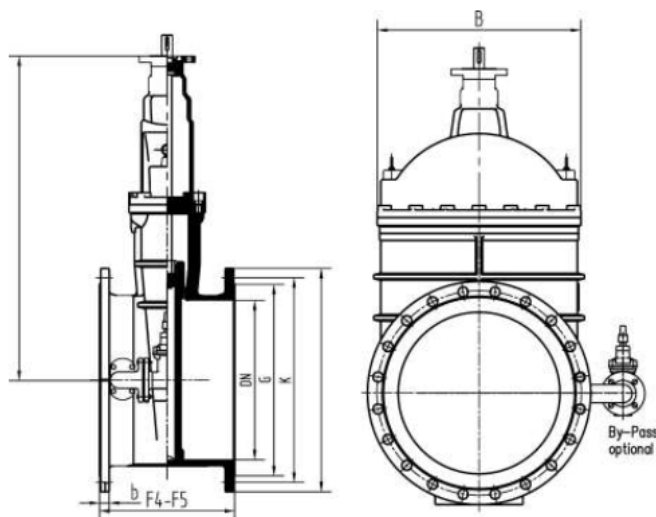
## TRS (F4) / TRL (F5) - DN40/300 - PN10/16

| DN  | ØD<br>(mm) | EN 1092-2 PN10 |            |       | EN 1092-2 PN16 |            |       | AS 2129 Table<br>D (ASTD) |       | EN 558 (DIN<br>3202) |                      | H<br>(mm) | L<br>(mm) | ØD1<br>(mm) | No. of<br>turns<br>for<br>closing | Weight (kg)          |                      |
|-----|------------|----------------|------------|-------|----------------|------------|-------|---------------------------|-------|----------------------|----------------------|-----------|-----------|-------------|-----------------------------------|----------------------|----------------------|
|     |            | ØK<br>(mm)     | ØG<br>(mm) | n°xd  | ØK<br>(mm)     | ØG<br>(mm) | n°xd  | ØK<br>(mm)                | n°xd  | S14<br>(TRS)<br>(mm) | S15<br>(TRS)<br>(mm) |           |           |             |                                   | S14<br>(TRS)<br>(mm) | S15<br>(TRS)<br>(mm) |
| 40  | 150        | 110            | 84         | 4x19  | 110            | 84         | 4x19  | 98                        | 4x15  | 140                  | 240                  | 174       | 75        | 150         | 11,5                              | 6,7                  | 7,3                  |
| 50  | 165        | 125            | 99         | 4x19  | 125            | 99         | 4x19  | 114                       | 4x19  | 150                  | 250                  | 197       | 83        | 150         | 14                                | 8,3                  | 8,8                  |
| 65  | 185        | 145            | 118        | 4x19  | 145            | 118        | 4x19  | 127                       | 4x19  | 170                  | 270                  | 237       | 93        | 150         | 15                                | 12,3                 | 13                   |
| 80  | 200        | 160            | 132        | 8x19  | 160            | 132        | 8x19  | 146                       | 4x19  | 180                  | 280                  | 260       | 100       | 200         | 18                                | 13,7                 | 14,9                 |
| 100 | 220        | 180            | 156        | 8x19  | 180            | 156        | 8x19  | 178                       | 4x19  | 190                  | 300                  | 285       | 110       | 200         | 21,5                              | 16,4                 | 17,9                 |
| 125 | 250        | 210            | 184        | 8x19  | 210            | 184        | 8x19  | 210                       | 8x19  | 200                  | 325                  | 340       | 125       | 300         | 27                                | 22,5                 | 25,2                 |
| 150 | 285        | 240            | 211        | 8x23  | 240            | 211        | 8x23  | 235                       | 8x19  | 210                  | 350                  | 373       | 143       | 300         | 32                                | 27,2                 | 30,6                 |
| 200 | 340        | 295            | 266        | 8x23  | 295            | 266        | 12x23 | 292                       | 8x19  | 230                  | 400                  | 460       | 170       | 400         | 41,5                              | 46,9                 | 54,2                 |
| 250 | 400        | 350            | 319        | 12x23 | 355            | 319        | 12x88 | 356                       | 8x23  | 250                  | 450                  | 549       | 200       | 400         | 43                                | 69,5                 | 78,8                 |
| 300 | 455        | 400            | 370        | 12x23 | 410            | 370        | 12x28 | 406                       | 12x23 | 270                  | 500                  | 630       | 228       | 500         | 51                                | 96,5                 | 114,5                |



## RESILIENT SEATED GATE VALVES

## F4/F5 - DN350/1200 - PN10/16



| DN  | EN 1092-2 PN10 |     |      |       | EN 1092-2 |     |     |       | DIN 3202 |        | A     | B   | ØD1 (mm) | No. of turns for closing | Weight (kg) |     |
|-----|----------------|-----|------|-------|-----------|-----|-----|-------|----------|--------|-------|-----|----------|--------------------------|-------------|-----|
|     | K              | G   | b    | nxd   | D         | K   | G   | nxd   | F4 -TRS  | F5-TRS |       |     |          |                          | TRS         | TRL |
| 350 | 460            | 429 | 24.5 | 16x23 | 520       | 470 | 429 | 16x28 | 290      |        | 750   | 520 | 500      | 50                       | 190         |     |
| 350 | 460            | 429 | 24.5 | 16x23 | 520       | 470 | 429 | 16x28 | 290      | 550    | 693.5 | 520 | 500      | 55                       | 136         | 150 |
| 400 | 515            | 482 | 24.5 | 16x28 | 580       | 525 | 480 | 16x31 | 310      | 600    | 970   | 660 | 630      | 57                       | 275         | 325 |
| 450 | 565            | 532 | 24.5 | 20x28 | 640       | 585 | 550 | 20x31 | 330      | 650    | 970   | 660 | 630      | 57                       | 360         | 425 |
| 500 | 620            | 585 | 26.5 | 20x28 | 715       | 650 | 609 | 20x34 | 350      | 700    | 1103  | 828 | 800      | 63                       | 456         | 530 |

| DN   | EN 1092-2 PN16 |      |      |      | DIN 3202 |     |      | A    | B    | D1  | No. of turns for closing | Weight (kg) |      |
|------|----------------|------|------|------|----------|-----|------|------|------|-----|--------------------------|-------------|------|
|      | D              | K    | G    | b    | nxd      | TRS | TRL  |      |      |     |                          | TRS         | TRL  |
| 600  | 840            | 725  | 682  | 36   | 20x31    | 390 | 800  | 1280 | 854  | 800 | 60                       | 950         | 1100 |
| 700  | 910            | 840  | 94   | 39.5 | 24x31    | 430 | 900  | 1280 | 854  | 800 | 60                       | 1100        | 1300 |
| 800  | 1025           | 950  | 901  | 43   | 24x34    | 470 |      | 1600 | 1120 | 800 | 133                      | 1800        |      |
| 900  | 1125           | 1050 | 1001 | 46.5 | 28x34    | 510 | 1100 | 1600 | 1120 | 800 | 133                      | 1950        | 2300 |
| 1000 | 1255           | 1060 | 112  | 50   | 28x37    | 550 |      | 2100 | 1338 | 900 | 166                      | 2800        |      |
| 1200 | 1485           | 1380 | 1328 | 57   | 32x40    | 630 | 1400 | 2100 | 1338 | 900 | 166                      |             | 3300 |

## i GOOD TO KNOW BEFORE INSTALLATION

### Storage

- Leave the rubber wedge slightly open: if it is closed completely, the rubber suffers unnecessary compression. Remove the flange cover just before the installation.
- The gate valves should preferably be stored under cover. A long storage under extreme weather conditions can cause alterations of the coating and seals.

### Assembly in pipe

- The assembly of the valve in the pipe is independent of the flow direction.
- When connecting the valve to the pipe, avoid the transmission of stress from the pipe to the valve body. For that, any pipe or pipe sections or valve not yet finally clamped in place must be provisionally supported to prevent abnormal stress on one or both sides of the valve.
- Tighten screws gradually in a star-shaped pattern, respecting the tightening torques.
- Once the valve is assembled, the threads of the bolts/rods should be greased with a graphite based waterproof grease (MOLYCOTE or similar) to prevent corrosion and facilitate subsequent dismantling operations.

### Operation

- Each valve must be operated in respect of the operating torque by means of a handwheel or a square cap top, in the latter case a purpose-designed operating key must be used. Do not use the valves for regulating mode.
- Do not use the valves with EPDM rubber with gaseous fluids such as propane, butane, natural gas and also with hydrocarbons fluids like petrol, diesel.

## RECOMMENDED POSITIONS

### From DN40 up to DN300

- 1) Ideal position:  
vertical stem,  
horizontal flow



- 2) horizontal stem,  
horizontal flow



- 3) horizontal stem,  
vertical flow



### From DN350 up to DN700

- 1) Ideal position:  
vertical stem,  
horizontal flow



- 2) Oblique stem,  
horizontal flow



30° min



**RAPHAEL VALVES INDUSTRIES (1975) LTD**, founded in 1949, is the first Israeli manufacturer of water control valves. RAPHAEL's research department constantly strives to introduce new and innovative products and solutions for water control systems including water works, fire-protection and irrigation systems and other fields.

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