

# XOMOX<sup>®</sup>

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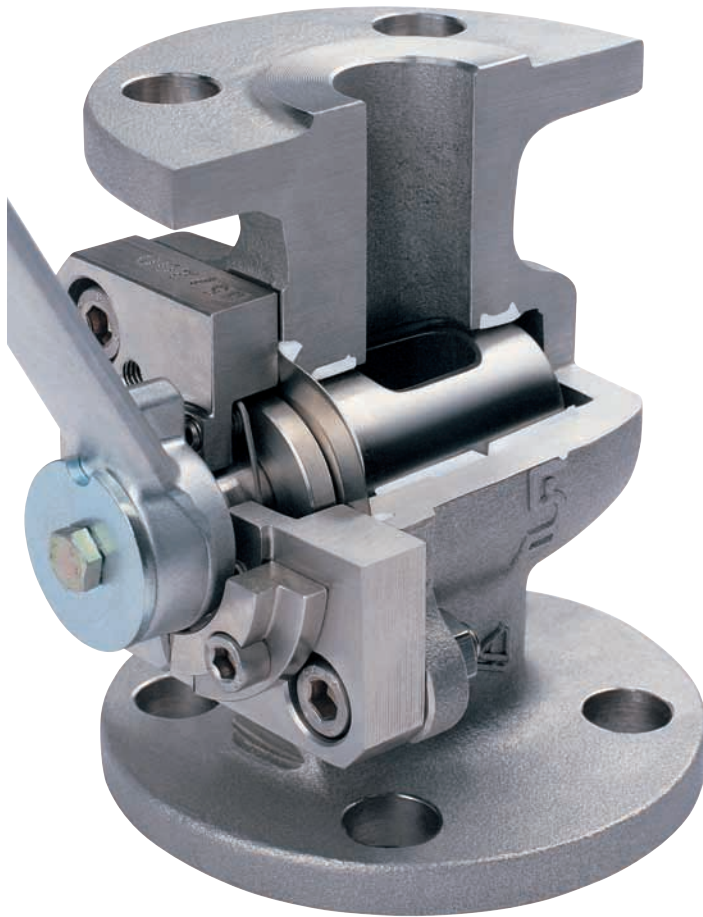


XOMOX  
Plug Valves

**CRANE**<sup>®</sup>

ChemPharma Flow Solutions

[www.cranepharmasolutions.com](http://www.cranepharmasolutions.com)

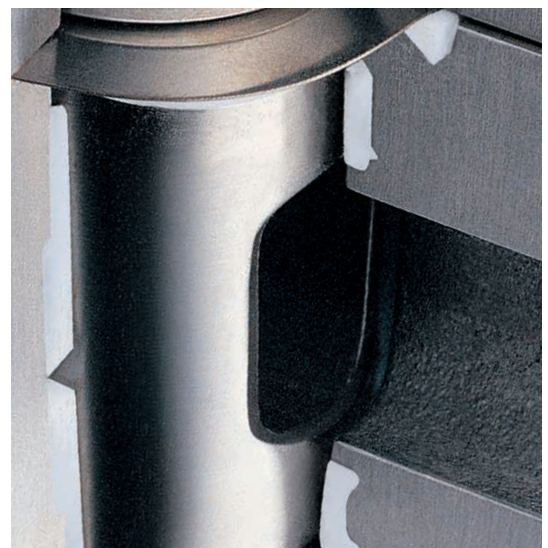


## TUFLIN® Plug Valve

- No Lubrication, no maintenance cost
- Excellent shut-off and control properties
- No cavities also at media containing solid particles and crystallizing fluids
- No residuals, no contamination of the process media
- Tight shut-off of liquids and gases (Leakrate <math>< 10^{-6}</math> mbar l/sec)
- Long service-life at highest reliability
- Economical life-cycle-cost at different applications
- For more than 40 years TUFLIN® sleeved plug have proven to be reliable shutoff and throttling service devices. They are used in a wide range of severe and highly demanding services - ideal for corrosive, scaling, adhering, inflammable, or erosive flow media. These valves show excellent performance in traditional ball and gate valve applications, and they offer a cost-efficient solution for tight shutoff and throttling of gases, vapors, slurries, etc.

### Technical Features

- PTFE-sleeve entirely retained by 360° lips around the ports.
- PTFE-sleeve acts as primary seal in the waterway and to atmosphere.
- Due to the PTFE-sleeve no lubrication necessary. Therefore, no contamination of the process fluid by lubricants.
- Secondary seal at the cover – also in FIRESAFE-design available (optional).
- Conical plug shape grants low operation torques and vertical adjustment possibility.
- Compact and robust body design (one-piece cast body).
- Low weight
- Easy operation 0° - 90°





### Technical Data

- Size Range:** DN 15 – DN 400 / NPS 1/2 - 16"
- Pressure Range:** PN 10 – PN 100 / ANSI Class 150 – 600  
(also according to JIS and BS)  
Vacuum  
(Vacuum range: up to  $1.33 \times 10^{-2}$  mbar)
- Temperature Range:** 173 K up to 553 K (-100°C up to +280°C)

### Materials

#### Body and Plug

- Ductile Iron** EN-JS1049 as per EN 1563, 0.7659 (Ni Resist) as per DIN 1694
- Carbon Steel** e.g. EN10213-2 (1.0619), A216-WCB, A352-LCB
- Stainless Steel** e.g. 1.4408, 1.4309 as per EN 10213-4, CF8M, CF8C, CF8, CF3M, CF3, special Alloys: 1.4539, CN7M, A494-M-35-1 (Monel), A494-CZ100 (Nickel), A494-N7M (Alloy B2), A494-CW2M (Alloy C4), B367-C2 (Titan), A494-CY-40 (Alloy 600) Other material acc. to DIN/EN and ASTM on request.
- Sleeves** PTFE, glasfibre-reinforced PTFE, PE, PTFE-X and PTFE-XC for special applications (virgin plastic material)

### Options

- FIRESAFE
- Oil- and Grease-free, i.e. for oxygen
- Relief hole or slot for polymerizing media and chlorine
- Fullbore
- Control plug valve
- Special design for HF-service
- Nucelar designs
- Special designs for specific applications

### Approvals/Certificates

- CE-Marking  
EU Type Test Approval  
FIRESAFE certificate according to API607 4th ed.  
Several approvals from clients  
GOST R

### Other

Operation with pneumatic (recommended with XOMOX XRP-actuators), electrical and hydraulic actuators as per client's requirements.



## TUFLIN®-Two-way Plug Valves

- Two-way design (straight water way)
- Flange-, Weld (SW/BW)- resp. Threaded Ends
- ISO-Cover for standardised actuator mounting acc. to DIN/ISO 5211

### Technical Data

**Size Range:** DN 15 – 400 / NPS ½ - 16  
**Pressure Range:** PN 10-100 (EN 1092-1)  
 ANSI Class 150-600 (also according to JIS & BS)  
 Vacuum  
 (Vacuum range: up to  $1.33 \times 10^{-2}$  mbar)  
**Temperature Range:** 173 K up to 553 K (-100° C up to +280° C)

### Materials

**Ductile Iron** EN-JS1049 as per EN 1563,  
**Carbon Steel** e.g. EN10213-2 (1.0619), A216-WCB, A352-LCB  
**Stainless Steel** e.g. 1.4408, 1.4539, 1.4309, CF8M, CF8, CF3M, CN7M, A494-M-35-1 (Monel), A494-CZ100, A494-N7M (Alloy B2), A494-CW2M (Alloy C4), B367-C2 (Titanium)  
 Other materials on request.

Sleeves and sealings made from virgin PTFE.  
 Further materials for sleeves available depending on pressure and temperature.

### Options

- FIRESAFE
- Oil- and Grease-free, i.e. for oxygen
- Relief hole or slot for polymerizing media and chlorine
- Nucelar designs
- Special designs for specific applications

### Approvals/Certificates

CE-Marking; EU Type Test Approval; FIRESAFE certificate according to API607 4th ed.; Several approvals from clients; GOST R

### Applications

Corrosive flow media; Inflammable media; Adhering flow media  
 Erosive flow media; Toxic flow media

### Other

Standard lever – material: Aluminum  
 Steel lever  
 T-lever – material: Steel  
 Operation with pneumatic (recommended with XOMOX XRP-actuators), electrical and hydraulic actuators as per client's requirements.





## TUFLIN®-Jacketed Plug Valves

- Plug Valve with Jacket
- Jackets from flange to flange (PJ) resp. Full-Jacketed (FJ) with Oversize-flanges
- Large jacket volume
- Jackets in materials Carbon Steel and Stainless Steel (1.4301)
- Several Jacket connection designs and Jacket connections (sockets with weld and threaded ends, flanges acc. to DIN and ANSI)
- For Two-way- and Multitport valve types available
- ISO-Cover

### Technical Data

**Size Range:** DN 15 – 350 / NPS ½ - 14  
**Pressure Range:** PN 10-100 (EN 1092-1)  
 ANSI Class 150-600 (also according to JIS & BS)  
 Vacuum  
 (Vacuum range: up to  $1.33 \times 10^{-2}$  mbar)  
**Temperature Range:** 173 K up to 553 K (-100° C up to +280° C)

### Materials

**Carbon Steel** e.g. EN10213-2 (1.0619), A216-WCB  
**Stainless Steel** e.g. 1.4408, 1.4539, 1.4309, CF8M, CF8, CF3M, CN7M, A494-M-35-1 (Monel), A494-CZ100, A494-N7M (Alloy B2), A494-CW2M (Alloy C4), B367-C2 (Titanium)  
 Other materials on request.

Sleeves and sealings made from virgin PTFE.  
 Further materials for sleeves available depending on pressure and temperature.

### Options

- FIRESAFE
- Oil- and Grease-free, i.e. for oxygen,
- Relief hole or slot for polymerizing media and chlorine
- Special designs for specific applications

### Approvals/Certificates

CE-Marking; EU Type Test Approval; FIRESAFE certificate according to API607 4th ed.; Several approvals from clients; GOST R

### Applications

Liquid Sulphur; Bitumen; Tar; Resins; other corrosive, polymerising, etc. media, which must be maintained on their process temperature.

### Other

Standard lever – material: Aluminum  
 Steel lever  
 T-lever – material: Steel  
 Operation with pneumatic (recommended with XOMOX XRP-actuators), electrical and hydraulic actuators as per client's requirements.



## TUFLIN®-Multiport Plug Valves

- Identical technical features like the two-way-valve
- Multiport-design for a variety of applications
- 3-way- up to 5-way-valves
- Different Plug designs
- 3-way valves also with Jackets
- Valves acc. to DIN and ANSI
- Valves with Flanged-, Weld (SW/BW)- resp. Threaded Ends
- DIN/ISO 5211-Cover available

### Technical Data

**Size Range:** DN 15 – 300 / NPS ½ - 12  
**Pressure Range:** PN 10-40 (EN 1092-1)  
 ANSI Class 150 - 300 (also according to JIS & BS)  
 Other pressure classes on request  
 Vacuum  
 (Vacuum range: up to  $1.33 \times 10^{-2}$  mbar)  
**Temperature Range:** 173 K up to 553 K (-100° C up to +280° C)

### Materials

**Ductile Iron** EN-JS1049 as per EN 1563,  
**Carbon Steel** e.g. EN10213-2 (1.0619), A216-WCB, A352-LCB  
**Stainless Steel** e.g. 1.4408, 1.4539, 1.4309, CF8M, CF8, CF3M, CN7M, A494-M-35-1 (Monel), A494-CZ100, A494-N7M (Alloy B2), A494-CW2M (Alloy C4), B367-C2 (Titanium)  
 Other materials on request.

Sleeves and sealings made from virgin PTFE.  
 Further materials for sleeves available depending on pressure and temperature.

### Options

- FIRESAFE
- Oil- and Grease-free, i.e. for oxygen
- Special designs for specific applications

### Approvals/Certificates

CE-Marking; EU Type Test Approval; FIRESAFE certificate according to API607 4th ed.; Several approvals from clients; GOST R

### Applications

Change-over valves for example for mixing of media, tank filling filter- and drying-units, pump circuits

### Other

Standard lever – material: Aluminum  
 Steel lever  
 T-lever – material: Steel  
 Operation with pneumatic (recommended with XOMOX XRP-actuators), electrical and hydraulic actuators as per client's requirements.



## TUFLIN®-Sleeved Plug Valves with triple sealing

- Identical technical features like the two-way-valve
- Three independent sealing systems to atmosphere  
Primary seal = PTFE-sleeve  
Secondary seal = cover sealing set  
Tertiary Seal = Safety stuffing box
- Safety stuffing box guarantees emergency sealing, even when the first two sealing systems are damaged
- For Two-way- and Multport valve types available (except for lined valves)
- DIN/ISO 5211-connection at the cover

### Technical Data

**Size Range:** DN 15 – 400 / NPS ½ - 16  
**Pressure Range:** PN 10-40 (EN 1092-1)  
 ANSI Class 150-300 (also according to JIS & BS)  
 Higher pressure classes on request  
 Vacuum  
 (Vacuum range: up to  $1.33 \times 10^{-2}$  mbar)  
**Temperature Range:** 173 K up to 553 K (-100° C up to +280° C)

### Materials

**Ductile Iron** EN-JS1049 as per EN 1563,  
**Carbon Steel** e.g. EN10213-2 (1.0619), A216-WCB  
**Stainless Steel** e.g. 1.4408, 1.4539, 1.4309, CF8M, CF8, CF3M, CN7M, A494-M-35-1 (Monel), A494-CZ100, A494-N7M (Alloy B2), A494-CW2M (Alloy C4), B367-C2 (Titanium)  
 Other materials on request.

Sleeves and sealings made from virgin PTFE.  
 Further materials for sleeves available depending on pressure and temperature.

### Options

- FIRESAFE
- Leakage detection
- Oil- and Grease-free, i.e. for oxygen

### Approvals/Certificates

CE-Marking; EU Type Test Approval; FIRESAFE certificate according to API607 4th ed.; Several approvals from clients; GOST R

### Applications

For extreme critical media (for example toxic, lethal)  
 In case of quick working temperature cycling

### Other

Standard lever – material: Aluminum  
 Steel lever  
 T-lever – material: Steel  
 Operation with pneumatic (recommended with XOMOX XRP-actuators), electrical and hydraulic actuators as per client's requirements.



## TUFLIN®-Control Plug Valves

- Identical technical features like the two-way-valve
- Regulation of the process medium by means of Flow Cage and Control Plug
- Variable applications due to different cv-values
- Easy adaption on changed process conditions just by exchange of the Flow Cage (larger or smaller cv-value)
- Control Valve with tight shut-off
- Also available for Plug Valves with Jackets
- DIN/ISO 5211-Cover

### Technical Data

**Size Range:** DN 15 – 300 / NPS 1/2 - 12  
**Pressure Range:** PN 10-40 (EN 1092-1)  
 ANSI Class 150-300 (also according to JIS & BS)  
 Higher pressure classes on request  
 Vacuum  
 (Vacuum range: up to  $1.33 \times 10^{-2}$  mbar)  
**Temperature Range:** 173 K up to 553 K (-100° C up to +280° C)

### Materials

**Carbon Steel** EN10213-2 (1.0619), A216-WCB  
**Stainless Steel** e.g. 1.4408, 1.4539, 1.4309, CF8M, CF8, CF3M, CN7M, A494-M-35-1 (Monel), A494-CZ100, A494-N7M (Alloy B2), A494-CW2M (Alloy C4), B367-C2 (Titanium)  
 Other materials on request.

Sleeves and sealings made from virgin PTFE.  
 Further materials for sleeves available depending on pressure and temperature.

### Options

- FIRESAFE
- Oil- and Grease-free, i.e. for oxygen
- Special designs for specific applications

### Approvals/Certificates

CE-Marking; EU Type Test Approval; FIRESAFE certificate according to API607 4th ed.; Several approvals from clients; GOST R

### Applications

Regulation of process media

### Other

Standard lever – material: Aluminum  
 Steel lever  
 T-lever – material: Steel  
 Operation with pneumatic (recommended with XOMOX XRP-actuators), electrical and hydraulic actuators as per client's requirements.





## TUFLIN®-High Pressure Plug Valves (PN 100 / ANSI Class 600)

- Identical technical features like the two-way-valve
- High Pressure Design for PN 100 resp. ANSI Class 600
- 2-way-valves
- Also with Jackets
- Valves acc. to DIN and ANSI
- Valves with Flanged-, resp. Weld (SW/BW)-Ends
- DIN/ISO 5211-Cover available

### Technical Data

**Size Range:** DN 25 – 350 / NPS 1 - 14  
**Pressure Range:** PN 100(EN 1092-1); ANSI Class 600  
**Temperature Range:** 173 K up to 553 K (-100° C up to +280° C)

### Materials

**Carbon Steel** EN10213-2 (1.0619), A216-WCB  
**Stainless Steel** e.g. 1.4408, 1.4539, 1.4309, CF8M, CF8, CF3M, CN7M, A494-M-35-1 (Monel), A494-CZ100, A494-N7M (Alloy B2), A494-CW2M (Alloy C4), B367-C2 (Titanium)  
 Other materials on request.

### Options

FIRESAFE  
 Oil- and Grease-free, i.e. for oxygen

### Approvals/Certificates

CE-Marking  
 GOST R

### Applications

High Pressure applications  
 for example in Reverse Osmosis Desalination Plants

### Other

Operation with Lever or Gear  
 Operation with pneumatic (recommended with XOMOX XRP-actuators), electrical and hydraulic actuators as per client's requirements.



## TUFLIN®-HF-Plug Valves

- Identical technical features like at the two-way-valve
- TUFLIN®-Plug Valve licensed by PHILLIPS Petroleum Co. and UOP for their HF-Alkylation-Processes
- Body and plug in ASTM A-494-1994 Grade M-35-1 resp. M-30-C
- TUFLIN® HF-SPV have proven themselves with years of service in thousand of hydrofluoric acid applications

### Technical Data

**Size Range:** NPS 1/2 - 20  
**Pressure Range:** ANSI Class 300 und 600 (de-rated)  
**Temperature Range:** As per Licensor's specification

### Materials

ASTM A494-1994 M-35-1 resp. M-30-C

### Options

Fullbore-design

### Approvals/Certificates

PHILLIPS  
 UOP  
 GOST R

### Applications

HF-Alkylation

### Other

- Operation with Lever or Gear
- Operation with pneumatic (recommendet with XOMOX XRP-actuators), electrical and hydraulic actuators as per client's requirements.
- For HF-Alkylation-Process also licensed: CRANE-PACIFIC Gate Globe and Check Valves.
- Centralized HF CRANE Service Center for XOMOX & Pacific HF valves (Stock of valves and spares, support, repair and maintenance).
- Single source for a complete HF-valve package.



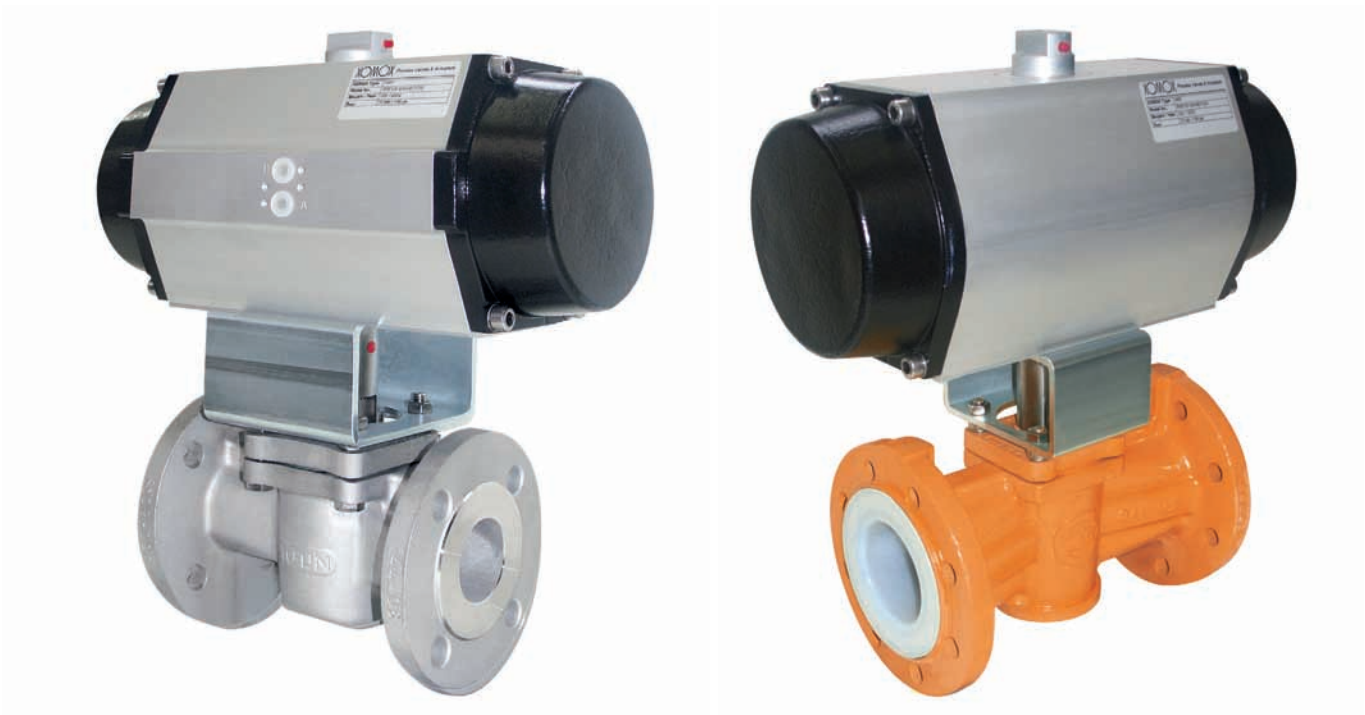
## Further TUFLIN® Plug Valve Designs

### Options

- Fullbore Valves
- Sampling valves
- Interconnected Valve Combinations
- Pump change-over Valves
- Firebrigade Valves
- Double-Block and Bleed Valves
- Nuclear Valves
- Tank Car and Container Valves (compact plug valves)
- All valves can be automated with XOMOX XRP-actuators.

Subject to technical revisions.

## XOMOX-XRP Automated Plug Valves



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