



# Operating Manual for PROKOSCH Ball Valves



400/600



410



420/620



430



440



450



460



470

## Prokosch Pumpen und Armaturen

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# Safety Instructions for PROKOSCH Ball Valves

Hazard Categories Applied in the Safety Instructions	Symbol
<b>Immediate danger!</b> Failure to observe this will result in serious injury or death.	
<b>Warning!</b> Failure to observe this warning may result in serious injury or death.	
<b>Caution!</b> Failure to observe may result in moderate to minor injuries.	
<b>Attention!</b> Potentially dangerous situation! Non-observance may result in property damage	
<b>Observe!</b> Important information	

Safety Instructions for Operating and Maintenance Personnel	Hazard
These operating instructions contain important safety instructions that must be observed during installation, commissioning, operation and maintenance. Failure to observe these safety instructions can lead to: i) faults in or failure of important functions, ii) danger to persons due to electrical, mechanical and chemical effects, iii) danger to equipment in the vicinity and to the environment due to leakage of hazardous substances, iv) personal injury and damage to property.	
Before commissioning, read the installation and assembly instructions. Ensure that installation, operation and maintenance are carried out exclusively by adequately trained, competent personnel and that the contents of these installation and assembly instructions have	
Ensure that all installation and assembly instructions are available at the place of use, that the safety instructions and instructions are observed and that the operating limits of the ball valves are complied with.	
Any maintenance work or repairs that are not described in the operating instructions are not to be performed without prior consultation with the manufacturer.	

General Safety Instructions	Hazard
If the ball valves are equipped with accessories from other manufacturers, the maintenance and operating instructions of the other manufacturers, provided that these were supplied by PROKOSCH, are to be regarded as part of this document and must be observed.	
If the ball valves are part of a machine, or also in connection with the integration of automation by third parties, manufacturer and conformity declarations must be observed.	
Local safety regulations as well as relevant regulations for the handling of hazardous materials are not replaced by these instructions and shall have priority in any case.	
For further technical support, please contact your authorised dealer or the manufacturer.	





















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# Safety Instructions for PROKOSCH Ball Valves

Installation and Re-Installation After Maintenance	Hazard
 <p>Before installation, ensure that the system or pipeline is out of service, drained, free of hazardous or toxic atmospheres, de-energised, depressurised and cooled to a safe temperature level for the installation work.</p>	
 <p>Before installation, ensure that the installation site is properly prepared and safe, and that suitable tools (including lifting and securing equipment if necessary) are available and used.</p>	
<p>Connect the power supply to the actuators only after the ball valves have been properly connected to the machine or pipeline. In the case of automated valves, an open inlet/outlet and the switching shaft adapter represent crushing hazards.</p>	
<p>The ball valve must be connected to the machine or pipeline by means of the connections provided for this purpose in such a way that the connection between the ball valve and the system or pipeline is free of stress and vibration. Overstressing the connection elements can lead to damage to the ball valve and leaks.</p>	
Operation	Hazard
 <p>The operating limits specified by the manufacturer, in particular with regard to temperature, materials used, pumped medium and flow rate, must be strictly observed.</p>	
 <p>Depending on the operating temperature, the ball valve may become hot during operation. Danger of burns! In this case, the fittings must be insulated or provided with appropriate</p>	
<p>Do not touch the adapter shaft of an automated ball valve. The adapter shaft, which transmits the drive torque to the ball valve, is a moving part and poses a pinching hazard with the connection bracket.</p>	
Maintenance	Hazard
 <p>Before starting maintenance work, ensure that the system or pipeline is out of service, drained, free of hazardous or toxic atmospheres, and de-energised, depressurised and cooled to a safe temperature level for maintenance work.</p>	
 <p>On automated valves, disconnect the power supply to the actuators before repair and maintenance work. Do not insert any body parts inside the valve, an open inlet/outlet as well as the shaft adapter on automated valves pose pinching and crushing hazards.</p>	
<p>Repairs must be carried out professionally and exclusively with original spare parts. Failure to do so will invalidate the manufacturer's liability and warranty.</p>	
Transport and Storage	Hazard
 <p>Observe the weight of the ball valve and ensure correct lifting. Secure ball valves before transport and use suitable means of transport and lifting equipment.</p>	
<p>Note the weight. Secure the ball valve against falling down and store it in non-damaged suitable containers. Protect elastomers from direct sunlight.</p>	
<p>Ensure proper handling of the ball valves. Do not pick up or transport ball valves by the hand lever. The hand lever can loosen and the falling valve can be damaged and cause injuries.</p>	

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# Operating Limits of PROKOSCH Ball Valves

PROKOSCH ball valves are designed for use as components of machines, process systems or pipelines for controlling the flow of fluids. They are not intended to be used on their own.

PROKOSCH ball valves are suitable for shut off service with bulk materials and for shut off and flow regulation with non-hazardous gases and hazardous and non-hazardous neutral liquids. In accordance with Annex IV of the 2014/68/EC Pressure Equipment Directive PROKOSCH valves are suitable for use within the pressure rating shown on the nameplate of the valve and within the thermal, chemical and mechanical resistance of the materials applied in the valves.

The ball valves are expressly not to be used for throttling or regulating bulk materials or abrasive media, i.e. operation in partially open position. Failure to observe this operating limit will lead to excessive wear and tear and thus invalidate the warranty.

Any additional national or international regulations must be expressly taken into account for the use and operation of the valves.

## Product identification, nameplate

The product identification and other important information, such as the pressure rating, can be seen on the nameplate attached to the ball valve.

The nominal diameter is always indicated in metric units in the DN field. If the permissible operating pressure deviates from the nominal pressure, this is indicated in the „Betr. Druck“ field.

The order number, i.e. „Bestell Nr.“ is used to determine the design, materials used and the size of the valve. Therefore, please always provide the order number with your inquiries and requests for information. The order number consists of at least three digits, e.g. 400/100/2.

The other digits of the order number are for options, such as /FA for „aerodynamic outlet“ or /SO for "drilled top-flange for actuator adaptation" and for other optional and custom features or design variations.

**In case of custom design variations, specific data sheets and any other documents provided with the valves must also be observed!**



Model  
Nominal Size  
Material Combination  
Options, Design Variations

Example, 400/80/9/SO FKM

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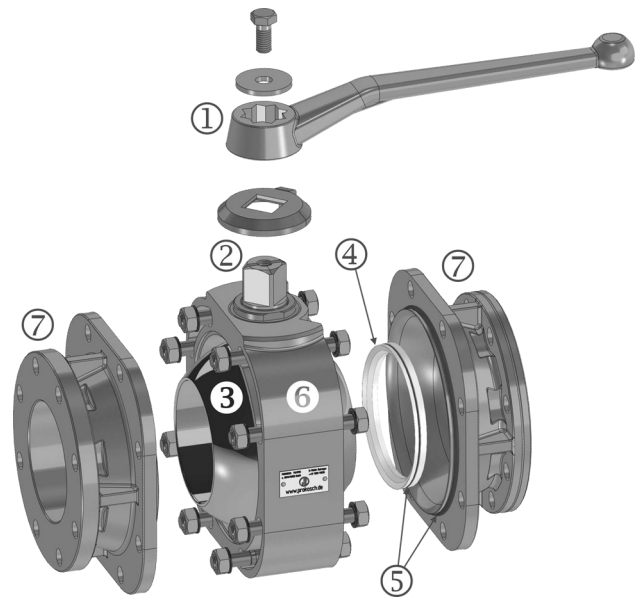




# Operating Limits of PROKOSCH Ball Valves

## Materials of Construction

- 1 Actuation, Hand Lever or  
Optionally an Automatic Actuator
- 2 Top-Flange, Bare Shaft or with Stop Washer,  
Optionally drilled for Actuator Adaptation.
- 3 Ball, Bearing Bolt and Stem
- 4 Ball Sealing, Seats
- 5 O-Rings, Seals
- 6 Body and Stem Bushing
- 7 Ports



Components	Material Selection	Material Specifications
Body and ports	Cast iron	EN-GJL-200
	Ductile iron	EN-GJS-400-15
	Aluminium	G-AISi10Mg, GK-AISi12+Mg, GD-AISi9Cu3, optional eloxiert
Ball, stem and bearing bolt	Stainless steel	AISI 304 equivalent, optionally AISI 316 equivalent
	Stainless steel, borated	AISI 304 equivalent borated, optionally AISI 316 equivalent
	Cast iron, Cr-plated	EN-GJL-200, hard chrome plated
	Cast iron, Ni-plated	EN-GJL-200, nickel plated
	Aluminium	G-AISi10Mg, GK-AISi12+Mg, GD-AISi9Cu3, optional eloxiert
Stem bushing	Brass	CuZn39Pb3
	Aluminium	ALMgSiPb
Seats	PTFE	PTFE + 25% glass
	UMPE	UHMWPE
	Stainless steel	AISI 304 equivalent (spring and reinforcement ring)
	Stainless steel, borated	AISI 304 eq. borated, optionally AISI 316 eq. borated
O-rings and flat packings	NBR	NBR
	FKM	FKM
	FEP	FEP, silicone coated (only O-rings)
Hand lever	Aluminium	Forged
	Steel	Galvanized steel
Installation materials	Steel	Galvanized steel
	Stainless steel	AISI 304 equivalent

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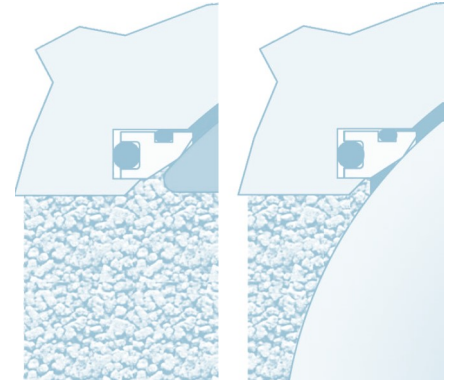
# Operating Limits of PROKOSCH Ball Valves

## Standard, O-ring Suspended Seat Design

Robust all-purpose sealing system especially for use with powdered and granulated goods.

### Material Selection and Notes

Seats	PTFE, PTFE-E, UHMWPE
O-rings	NBR, FKM
Application	liquids, gases, solids
Other	Maximum flow velocity up to 3 m/s

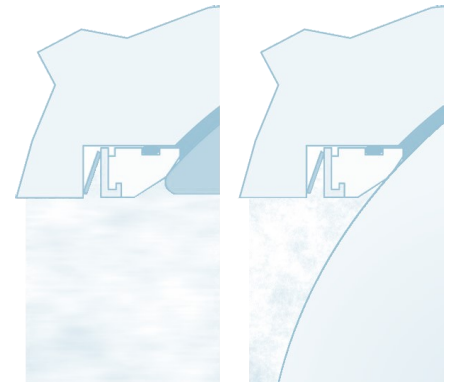


## Special Chamber, Reinforced Spring Mounted Seat Design

Stainless steel reinforced, self-adjusting sealing system with integrated dead space (body) pressure relief. Specially designed for use with gases and with liquids in conjunction with high flow velocities.

### Material Selection and Notes

Seats	PTFE
O-rings	NBR, FKM, FEP (Silicone)
Application	liquids, gases
Other	Proven with liquid flow rates up to 20 m/s



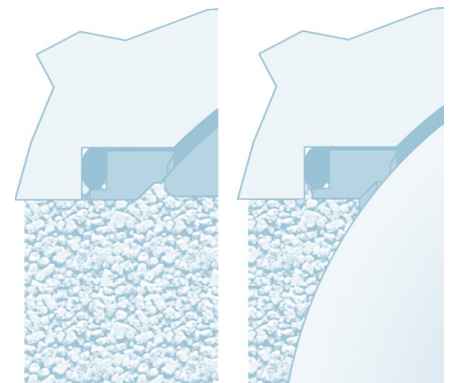
## Metallic, O-ring Suspended Seat Design

This media-tight sealing system was specially designed for abrasive and adhesive media. The special geometry of the ball seat removes the material adhering to the ball during each switching operation and ensures permanently easy switching even with adhesive materials. Its wear resistance makes it possible to achieve long service lives, even with highly abrasive media.

Optionally, the wear resistance of the wetted parts can be increased by additional armoring.

### Material Selection and Notes

Seats	Borated Stainless Steel (AISI 304 equivalent)
O-rings	FKM
Application	Abrasive und adhesive media
Other	Borated stainless steel ball (material combination 10)



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# Operating Limits of PROKOSCH Ball Valves

## Standard Material Combinations

MK	Body and Ports	Ball	Seats/O-Rings	Seat Design
1	Cast iron	Cast iron, hard chrome plated	PTFE/FKM	Special chamber
2	Cast iron	Cast iron, hard chrome plated	PTFE/NBR	Standard, O-ring suspended
3	Aluminium	Cast iron, hard chrome plated	PTFE/FKM	Special chamber
4	Aluminium	Cast iron, hard chrome plated	PTFE/NBR	Standard, O-ring suspended
5	Aluminium	Aluminium	PTFE/NBR	Standard, O-ring suspended
6	Cast iron	Stainless steel	PTFE/FKM	Special chamber
7	Cast iron	Stainless steel	PTFE/NBR	Standard, O-ring suspended
8	Aluminium	Stainless steel	PTFE/FKM	Special chamber
9	Aluminium	Stainless steel	PTFE/NBR	Standard, O-ring suspended
10	Cast iron	Stainless steel, borated	SST, borated/FKM	Metallic

## Temperature Range

Seats	O-Rings	Temperature Range
PTFE, UHMWPE	NBR	-20...80 °C
PTFE	FKM	-20...180 °C
PTFE	FEP	-40...180 °C
SST, Borated	FKM	-20 °C...230 °C

The temperature limits for the ball valves are determined by the materials of the sealing elements. Please note that continuous use in the minimum or maximum limit may impair the service life of the sealing elements.

## Breakaway torques with water at 10 / 16 bar

DN	O-Ring Suspended	Special Chamber	Metallic
40	8 / 10 Nm	n/v	n/v
50	9 / 12 Nm	inquire	inquire
65	14 / 21 Nm	inquire	inquire
80	18 / 29 Nm	24 / 40 Nm	inquire
100	38 / 57 Nm	38 / 57 Nm	inquire
125	Auf Anfrage	inquire	inquire
150	Auf Anfrage	inquire	inquire

The breakaway torques may be used when sizing and selecting the automation.

Please note that the breakaway torques vary depending on the pressure and medium and should not be used alone as the decisive factor for dimensioning drives. In addition to the breakaway torque, process-relevant factors such as the pressure, the medium and the intended control function must be taken into account for the sizing and selection of a suitable actuator.

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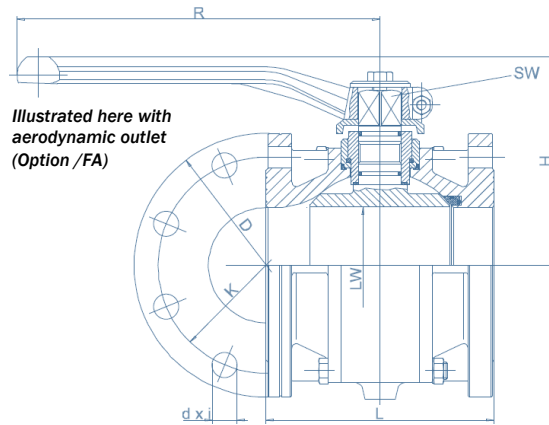




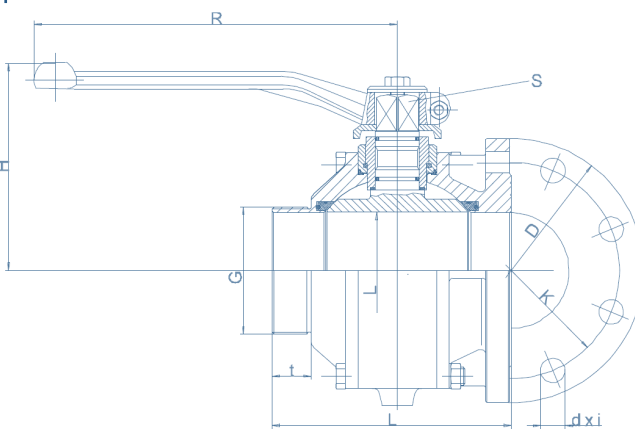


# Operating Limits of PROKOSCH Ball Valves

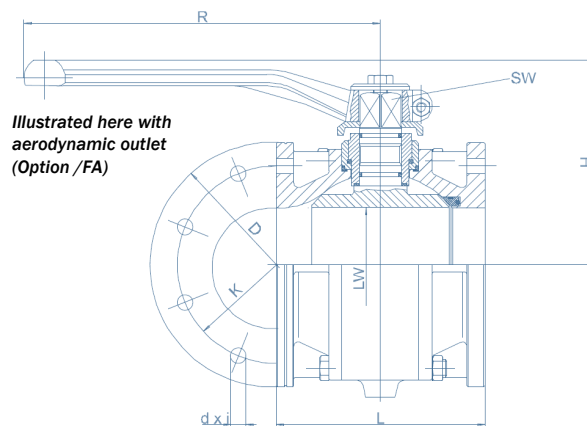
## Dimensions for Model 400/600



## Dimensions for Model 410



## Dimensions for Model 420



DN	40	50	65	80	100	125	150
PN	–	16	16	16	16	16	16
LW	–	50	64	78	97	122	150
L	–	150	170	180	190	200	350
H	–	130	140	150	175	200	250
R	–	250	270	270	330	300 <sup>1)</sup>	600
D	–	18	18	18	18	18	22
K	–	4	4	8	8	8	8
d	–	18	18	18	18	18	22
i	–	4	4	8	8	8	8
SW	–	17	19	19	27	27	35

1) available also with 600mm hand lever

DN	40	50	65	80	100	125	150
PN	–	16	16	16	16	–	–
LW	–	50	64	78	97	–	–
L	–	144	163	180	200	–	–
H	–	130	140	150	175	–	–
R	–	250	270	270	330	–	–
D	–	165	185	200	220	–	–
K	–	125	145	160	180	–	–
d	–	18	18	18	18	–	–
i	–	4	4	8	8	–	–
G	–	2"	2½"	3"	4"	–	–
t	–	20	20	24	25	–	–
SW	–	17	19	19	27	–	–

DN	40	50	65	80K	100	125	150
PN	–	10 <sup>1)</sup>	10 <sup>1)</sup>	10 <sup>1)</sup>	10 <sup>1)</sup>	–	–
LW	–	50	64	78	97	–	–
L	–	142	160	140 <sup>2)</sup>	180	–	–
H	–	130	140	150	175	–	–
R	–	250	270	270	330	–	–
D	–	11,5	11,5	11,5	14	–	–
K	–	8	8	8	8	–	–
d	–	11,5	11,5	11,5	14	–	–
i	–	8	8	8	8	–	–
SW	–	17	19	19	27	–	–

1) Optionally tested and rated PN16

2) Optionally 168mm with „80L“ long flange version

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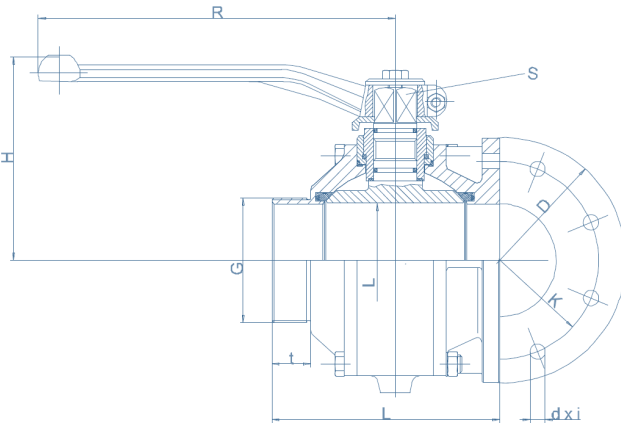
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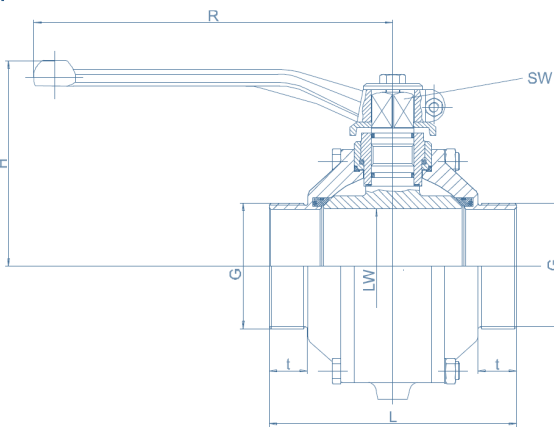
# Operating Limits of PROKOSCH Ball Valves

Dimensions for Model 430



DN	—	50	65	80	100	125	150
PN	—	10	10	10	10	—	—
LW	—	50	64	78	97	—	—
L	—	140	158	160	195	—	—
H	—	130	140	150	175	—	—
R	—	250	270	270	330	—	—
D	—	11,5	11,5	11,5	14	—	—
K	—	8	8	8	8	—	—
d	—	11,5	11,5	11,5	14	—	—
i	—	8	8	8	8	—	—
G	—	2"	2½"	3"	4"	—	—
t	—	20	20	24	25	—	—
SW	—	17	19	19	27	—	—

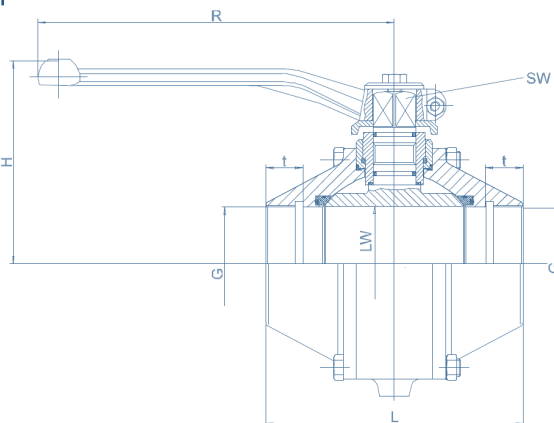
Dimensions for Model 440



DN	40	50	65	80	100	125	150
PN	—	16	16	16	16	—	—
LW	—	50	64	78	97	—	—
L	—	138	156	180	210	—	—
H	—	130	140	150	175	—	—
R	—	250	270	270	330	—	—
t	—	20	20	24	25	—	—
G	—	2"	2½"	3"	4"	—	—
SW	—	17	19	19	27	—	—
—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—

Connection thread DIN 259

Dimensions for Model 450



DN	40	50	65	80	100	125	150
PN	16	16	16	16	16	—	—
LW	39	50	64	78	97	—	—
L	130	145	165	195	220	—	—
H	120	130	140	150	175	—	—
R	250	250	270	270	330	—	—
t	22	23	25	28	30	—	—
G	1½"	2"	2½"	3"	4"	—	—
SW	17	17	19	19	27	—	—
—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—

Connection thread DIN 259

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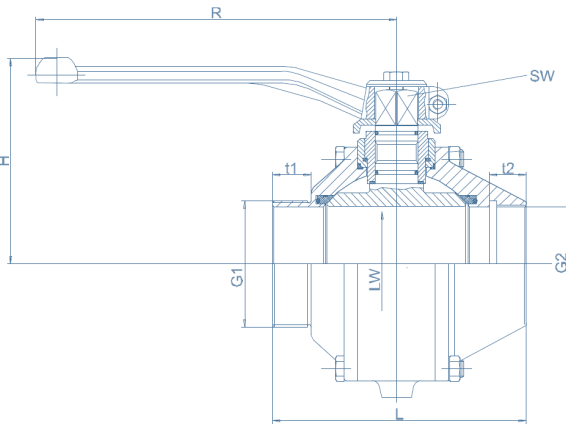
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# Operating Limits of PROKOSCH Ball Valves

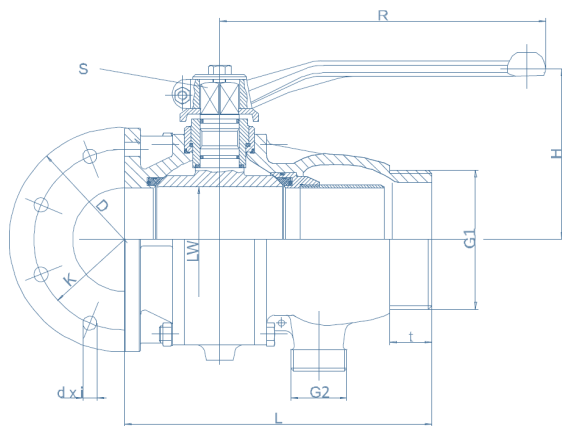
**Dimensions for Model 460**



DN	40	50	65	80	100	125	150
PN	–	16	16	16	16	–	–
LW	–	50	64	78	97	–	–
L	–	141	160	187	216	–	–
H	–	130	140	150	175	–	–
R	–	250	270	270	330	–	–
t1	–	20	20	24	25	–	–
G1	–	2"	2½"	3"	4"	–	–
t2	–	23	25	28	30	–	–
G2	–	2"	2½"	3"	4"	–	–
SW	–	17	19	19	27	–	–

Connection thread per DIN 259

**Dimensions for Model 470**



DN	40	50	65	80	100	125	150
PN	–	–	–	10	10	–	–
LW	–	–	–	78	97	–	–
L	–	–	–	245	283	–	–
H	–	–	–	154	174	–	–
R	–	–	–	130	150	–	–
D	–	–	–	11,5	14	–	–
K	–	–	–	8	8	–	–
d	–	–	–	11,5	14	–	–
i	–	–	–	8	8	–	–
G1	–	–	–	3"	4"	–	–
G2	–	–	–	1½"	2"	–	–
SW	–	–	–	19	27	–	–

Available only in material combination 2,4,7 and 9

**Weights** for ball valves in standard design and standard material combinations

MK	5		3,4						1,2,6,7,10						8,9					
Baureihe	40	50	50	65	80	100	125	150	50	65	80	100	125	150	50	65	80	100	125	150
400	n/v	3,8	4,5	7,5	9,0	14,2	26,5	43,3	9,3	13,7	17,0	26,5	42,0	81,5	4,5	8,0	9,5	16,0	27,5	44,3
410	n/v	2,9	3,9	6,5	8,0	13,9	n/v	n/v	7,3	11,3	14,3	25,0	n/v	n/v	3,9	6,9	8,6	14,3	n/v	n/v
420	n/v	3,5	4,3	6,5	7,4	13,2	n/v	n/v	8,1	11,2	12,8	22,5	n/v	n/v	4,5	6,9	8,0	14,2	n/v	n/v
430	n/v	2,9	3,7	6,0	7,3	13,3	n/v	n/v	6,7	9,9	12,5	22,3	n/v	n/v	3,9	6,4	7,9	14,2	n/v	n/v
440	n/v	2,0	2,8	5,4	7,0	12,4	n/v	n/v	5,2	8,8	11,2	21,3	n/v	n/v	3,0	5,8	7,6	13,6	n/v	n/v
450	1,9	2,3	3,3	5,5	7,4	13,0	n/v	n/v	5,9	8,8	12,5	23,0	n/v	n/v	3,5	6,0	8,0	13,9	n/v	n/v
460	n/v	2,4	3,2	5,5	7,1	12,7	n/v	n/v	5,7	8,8	11,7	22,3	n/v	n/v	3,4	6,0	7,7	13,9	n/v	n/v
470	n/v	n/v	n/v	n/v	11,6	19,5	n/v	n/v	n/v	n/v	15,0	26,5	n/v	n/v	n/v	n/v	12,3	20,8	n/v	n/v

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# Options and Features for PROKOSCH Ball Valves

## Aerodynamic Outlet /FA

The ball is only seated on the inlet side. On the outlet side, the port is aerodynamically shaped so that the residual medium remaining in the ball and housing can escape when closing the valve. This reduces the residue accumulation in the dead space which may lead to a clogging and stiffening of the valve.

## Preparation for Actuator Adaptation /SO

The ball valve is prepared for the installation of a separate actuator mounting bracket. For this purpose, the top-flange of the ball valve is drilled with threaded holes. Valves that are prepared for actuator adaptation do not include the hand lever and stop washer in the scope of supply.

For Actuator adaptation we strongly recommend using our standardised mounting kits and adapters.

## Flushing Port /SB

The ball valve housing can be drilled with up to two threaded flushing ports. These flushing holes enable periodic manual or automatic cleaning of the valve housing from the outside using a suitable flushing medium.

Under certain conditions a ball valve with the option "FA" (aerodynamic outlet), and a flushing port can additionally serve as an injector for pneumatic conveying. Depending on the medium the use of the aerodynamic outlet as an injector can lead to increased wear of the valve.

## Antistatic Device /AS

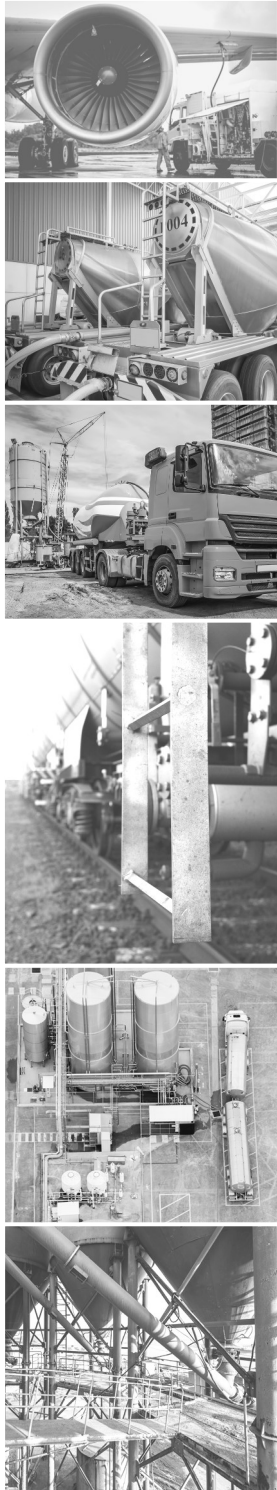
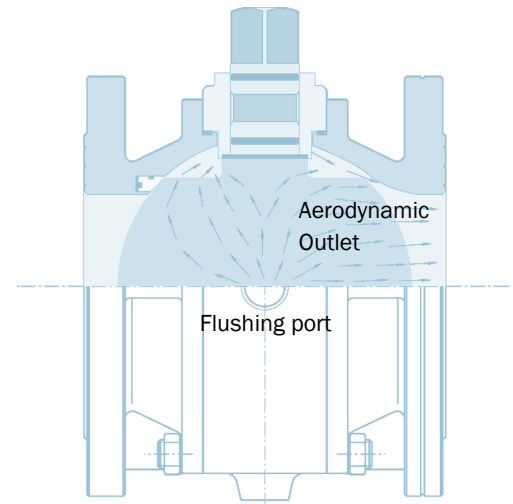
The ball valve is supplemented by an antistatic device to ensure conductivity between the ball, housing and control shaft.

On request - for additional safety - the ball valves can be equipped with seats made of a conductive material (PTFE with e-carbon). We recommend this option when conveying explosive dusts.

## Coating

Valves made of cast iron are primed with an approx. 50µm thick primer to protect them from corrosion during storage. Fittings made of aluminium and stainless steel are generally delivered uncoated.

On request the valves can be primed and coated to 100 µm or per customer-specific requirements as well as special technical coatings.



# Prokosch Pumpen und Armaturen

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# Automation for PROKOSCH Ball Valves

## Automation

All PROKOSCH ball valves can be easily automated with standard mounting attachments. The assembly is either carried out according to customer specifications, or one of the proven PROKontrol™ standard solutions for ball valve automation can be used.

If our ball valves are equipped with actuators as well as other automation components such as limit switch boxes, pilot valves and controllers, it is mandatory to observe the operating instructions of all these components.

When assembling electric or pneumatic actuators with our adapter sets, no transverse forces may act on the actuator and ball valve, as this can lead to impermissibly high wear of the ball valve's stem seal or the actuator's shaft seal.

Make sure that the valve is fully open and closed! Adjust via end stops or limit switches of the actuators! The procedure depends on the manufacturer and can be found in the operating instructions of the actuator. It is essential to observe the manufacturer-specific safety instructions.

With automated valves, an open inlet/outlet as well as the shift shaft adapter pose pinching and crushing hazard.



## PROKontrol Standard Automation Solutions

PROKOSCH offers a selection of proven automation solutions under its own brand name — PROKontrol™.



### Recommended PROKontrol™ Pneumatic Actuators and Mounting Brackets

Type MK Size	Double Acting (PDA) 1...9		Single Acting (PDA) 1...9		Sedimenting and Adhesive Media 10*)	
	Actuator	Bracket	Actuator	Bracke	Double act.	Single act.
40	PDA075	SET00000180	PSA095	SET00000158	PDA085	PSA095
50	PDA075	SET00000180	PSA095	SET00000158	PDA095	PSA105
65	PDA085	SET00000158	PSA105	SET00000167	PDA095	PSA125
80	PDA095	SET00000157	PSA125	SET00000167	PDA105	PSA140
100	PDA105	SET00000159	PSA140	SET00000175	PDA125	PSA160
125	PDA125	SET00000259	PSA160	SET00000262	PDA140	PSA180
150	PDA140	SET00000033	PSA180	SET00000096	*	*

\*) Select mounting kit and adapter to match the shaft end of the ball valve and pinion square of the actuator

\*\*\*) For larger valve sizes an individual sizing and selection is advisable.

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# Installation Instructions for PROKOSCH Ball Valves



PROKOSCH ball valves are designed for use in plants and pipelines. They control fluids by being opened or closed by a rotary movement.



PROKOSCH ball valves are only to be connected directly to the system or the pipeline system via flange or threaded connections. The connection between the ball valve and the system or pipeline must be designed and aligned so that the connection is free of stress and vibration.

Tensions, oscillations and vibrations can cause damage to the ball valve or, in the case of manually operated ball valves, in conjunction with high flow velocities, can cause the ball valve to close abruptly on its own and thus damage the valve, system or pipeline.



Observe the designated flow direction. Valves with an aerodynamic outlet (option /FA), are bi-directional and the direction of flow of the medium must be observed. The ball valve must be installed in such a way that the medium always flows through it from the seated side towards the unseated side. The unsealed side can be identified by a machined radial groove on the outlet flange.

In the case of ball valves through which the flow passes in the opposite direction to that intended, there is a risk of blockage as well as increased wear and leakage.



The fastening of flange and threaded connections must be done professionally. Excess force must be avoided as this may deflect the flanges or damage the threaded ports.

Observe correct fastening procedures. Overstressing can cause damage to sealing elements, nozzles and screw connections. Uneven tightening of bolts can damage the flanges.



## Installing the Hand Lever

Install the hand lever or actuation. PROKOSCH ball valves are supplied with a loose hand lever. Ensure correct alignment of the hand lever during installation. When the valve is in the open position, the lever is aligned parallel to the direction of flow. The position of the ball bore is marked by a notch in the head of the control shaft.

Ensure that the lever is firmly seated! Alternative actuating elements, e.g. adapters and extensions, must be mounted and aligned in such a way that

An incorrectly mounted hand lever or incorrectly aligned actuating elements lead to increased wear of the shift shaft seals and consequently to leaks.




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# Operating Instructions for PROKOSCH Ball Valves




PROKOSCH ball valves can be used for a wide variety of purposes. In any case, it must be ensured that they are only operated within their applicable application limits.


Application limits, in particular with regard to temperature, materials used, pumped medium and flow velocity, must be strictly observed.



PROKOSCH ball valves are designed for control of fluids, usually for operation in fully open or fully closed position. Throttling and modulating duty, i.e. operation in partially open position, is only permissible for liquids and gases. In this case, the permissible flow velocity must still be observed.




The ball valves must expressly not be used for throttling or controlling, i.e. operating in the partially open position, bulk materials or abrasive media. This will lead to unacceptably high wear and tear and thus invalidate the warranty.




For ball valves with free outlet (option /FA), the direction of flow must be observed. The ball valve must always be flowed through from the sealed side towards the unsealed side. The unsealed side is marked by a radial recess on the outlet flange.

In the case of ball valves through which the flow passes in the opposite direction to that intended, there is a risk of blockage as well as increased wear and leakage.



Temperatures falling below the dew point due to weather conditions can lead to condensation inside the ball valve. In the case of bulk materials, there is a risk of cementing of residual medium inside the dead space of the body. The operator is required to take appropriate measures to reduce the risk of failure due to clogging and condensation inside the valve.



In the case of ball valves that are not free of residual medium, the medium remaining in the housing can cement, harden due to condensation when the temperature falls below the dew point. This makes the ball valve difficult to operator or can completely block it.



Suitable countermeasures include Insulating or heating the valve, and regular cleaning of the valve, e.g. via the flushing port. The optional flushing port allows flushing the valve using an external compressed air source. Valves with the option "FA" (aerodynamic outlet) can be flushed in the fully closed position whereas the residue media is flushed downstream.

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# Maintenance Instructions for PROKOSCH Ball Valves

PROKOSCH ball valves are designed for maintenance-free operation. With the exception of periodic cleaning of valves used for solids handling, they do not require any special maintenance during normal operation.

To replace the wearing parts, the ball valve must be partially or completely dismantled. All PROKOSCH ball valves can be mounted and dismantled easily and without special tools.

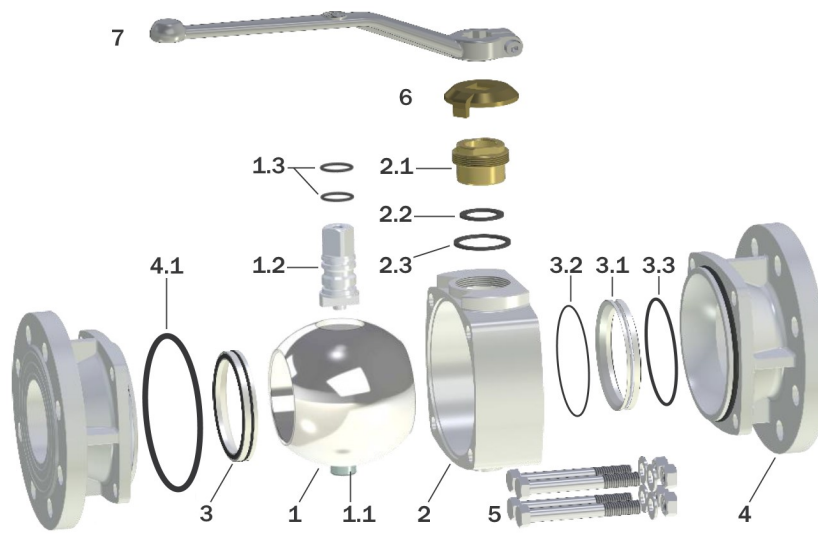
Pay attention to weight and height. Before dismantling from the machine or pipeline, secure the ball valve against falling down.



If the system is not properly drained and taken out of operation, the ball valve may be filled with medium at the start of maintenance and dangerous liquids, vapours, dusts or other media may escape.



## Design



<b>Ball</b>	<b>1</b>
Bearing bolt	1.1
Stem	1.2
Stem O-rings	1.3
<b>Gehäuse</b>	<b>2</b>
Stem bushing	2.1
Dirt guard	2.2
Flat packing	2.3
<b>Seat (ball sealing)</b>	<b>3</b>
Seat	3.1
Seat O-ring	3.2
Suspension O-ring	3.3
<b>Port</b>	<b>4</b>
Body O-ring	4.1
<b>Fastening bolts</b>	<b>5</b>
<b>Stop washer</b>	<b>6</b>
<b>Hand Lever</b>	<b>7</b>

Depending on the model and nominal width, the valves may differ in details from the above illustration. For exact details, please refer to the data sheet of the corresponding type.

If the ball valves are equipped with automation or accessories from other manufacturers, the maintenance and operating instructions for these components must also be observed.

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# Maintenance Instructions for PROKOSCH Ball Valves

## Replacing the seats and Body O-rings

Loosen the housing bolts (5) and detach the ports (4) from the body (2).

Lever out the seats (3) and the body O-rings (4.1) with a scribe or screwdriver head. Be careful not to damage the sealing surfaces of the ports (4).

Thoroughly clean the spare parts and dismantled ports as well as the centre assembly consisting of the body and ball and check for wear.

Fit the O-rings (3.2 + 3.3) to the seat (3.1) and insert them into the chambers on the port (4). Do not use force! Tighten the housing O-rings (4.1).

Reassemble in the reverse order.

Ensure that the original sealing materials are used, otherwise compliance with the operating pressure and temperature cannot be guaranteed.



Repairs must be carried out professionally and exclusively with original spare parts. Otherwise, the manufacturer's liability and warranty claims become invalid.



## Replacing the Ball

Dismantle the ports as described above.

Unscrew the stem bushing(2.1) mounted to the top-flange of the ball valve. Depending on the size and model, the stem(1.2) may be separate part that is removed together with the stem bushing. Separate the stem from the stem bushing.

Remove the ball(1) from the body. For ball valves DN 150 and larger, remove the bearing bolt cover on the lower side of the housing. Drive out the bearing bolt(1.1) and the remove the stem(1.2).

Now the ball valve is completely dismantled and the seals(1.3, 2.2, 2.3) and other parts can be replaced. Thoroughly clean all parts before reuse and always check for damage and wear.

When reassembling the ball and stem, add commercially available grease to the bearing points between O-rings(1.3) and housing base(2).

Reassemble in reverse order and check for correct assembly and function

Any maintenance work or repairs that are not described in the operating instructions are not to be performed without prior consultation with the manufacturer.



Incorrect assembly of the ball valve can lead to malfunctions, increased wear and even component failure. Ensure that maintenance and assembly are only carried out by adequately trained personnel.



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# Declaration of Conformity

## PROKOSCH Ball Valves

**Declaration of Conformity PED 2014/68/EC**

**Manufacturer:**

**PROKOSCH - PUMPEN und ARMATUREN GmbH**  
In der Breitwiese 9, DE-76684 Östringen, Germany

**Description:**

**Ball-Valve PN 16, DN 65 to DN 150**  
Models 400, 410, 420, 430, 440, 450, 460, 470

**Classification:**

**Fluid group 2 (gases), Fluid group 1 (others)**

**Conformity Assessment Procedure: A**

**Standards:**

**ISO 228, EN 1092-1**  
**EN 12266-1, EN 12266-2**

**It is further declared, that all valves not listed above are  
manufactured in accordance with "good engineering practice"**

**Authorized Person for the Manufacturer**

**January 11th, 2022**

  
**Mathias Prokosch**  
**Chief Operating Officer**

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# Declaration of Incorporation PROKOSCH Ball Valves

Declaration of Incorporation 2006/42/EC

The manufacturer PROKOSCH—PUMPEN und ARMATUREN GmbH, In der Breitwiese 9, DE 76684 Östringen declares that our ball-valves series 400, 410, 420, 430, 440, 450, 460, 470 equipped with electric motor or other drive units are not complete machines according to EC Machine Directive 2006/42/EC, but meet the applicable requirements of this directive.

Fulfilled requirements acc. apendix I, 2006/42/EC:

1.1.1. g), 1.1.2. c), e), 1.1.3., 1.1.5.,  
1.2., 1.3.2., 1.3.4., 1.3.7., 1.3.8.,  
1.5.1., 1.5.2., 1.5.3., 1.5.5., 1.5.13.,  
1.6.1., 1.7.3., 1.7.4., 6.2.

A hazard analysis according to EN 12100  
has been carried out by the manufacturer.

The valves may only be installed and operated in accordance  
with the operating manual and manufacturers instructions.

Commissioning of the valves is not permitted until they  
have been installed in the pipe system and that  
this system complies with 2006/42/EC.

Upon justified request, the manufacturer undertakes to grant access to  
"special documents" as per the Machine Directive to national authorities.  
Any intellectual property rights of the manufacturer remain unaffected.

Authorized Person for the Manufacturer

January 11th, 2022

  
Mathias Prokosch  
Chief Operating Officer

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With a legacy going back to the 1950s, we are a leading manufacturer of shut-off valves and piping components for granulated and powdered media, as well as flammable liquids and dangerous goods.

Our products are designed to meet the highest technical and economic requirements. Our quality and modular design enables excellent flexibility to adapt proven technical solutions to various customer specific applications.

Having more than sixty years of industrial experience and an international client base, we are an important partner for our industrial customers worldwide.

**PROKOSCH - Quality you can rely on.**



400/600



410



420/620



430



440



450



460



470



500

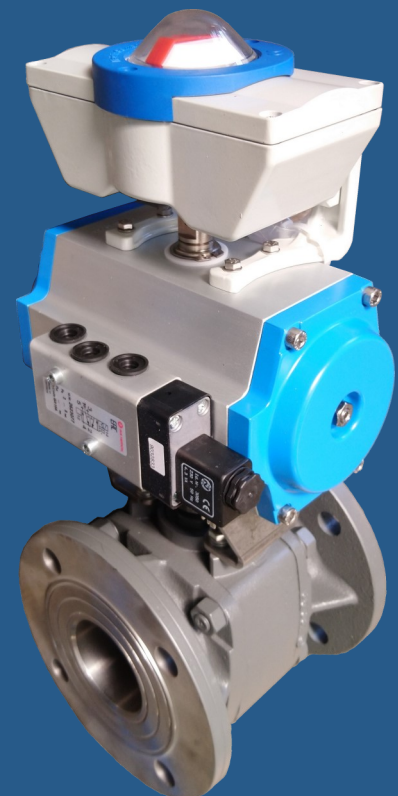


520



360

950



## Kontakt

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