



## High pressure industrial ball valves

## Applications

Legris high pressure ball valves are suited for a wide range of industrial applications. They are designed both for mobile applications (agricultural machinery, public works equipment, etc, ....) and stationary applications (offshore platforms, defence, ship building, paper industry, etc, ...).

Legris offers a range of valves which meets many customer requirements.



2

## Operation principle

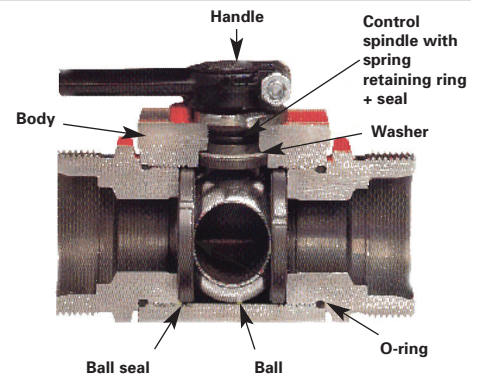
### Operation

This type of ball valve operates according to the floating ball principle. In the closed position, pressure presses the floating ball against the seal, for full sealing.

The seal also acts as a guide.

Two-way ball valves must only be used in the open or closed position.

Use in an intermediate position, for controlling flow, should be avoided.



## Technical specifications

### Material :

- Body : steel
- Stem : steel
- Ball : hard-chromed brass
- Surface treatment: phosphated

### Specifications of ball seals :

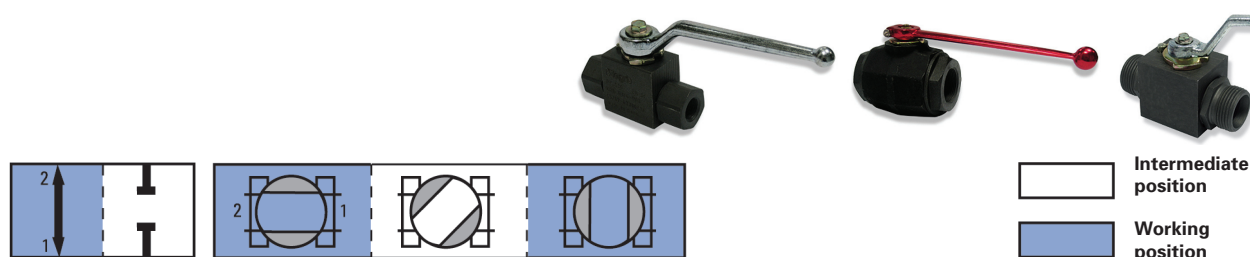
- POM: working temperature: -20°C to +100°C  
Characteristics : excellent resistance to high pressures, low absorption of humidity, self-lubricating, limited suitability for low pressures (< 6 bar) with gas fluids.
- PTFE: working temperature: - 200°C to + 250°C  
Characteristics: good chemical and high temperature resistance, low friction coefficient.
- PEEK: working temperature: -150°C to +200°C  
Characteristics: good chemical and high temperature resistance and improved mechanical resistance.

### Specifications of O-ring :

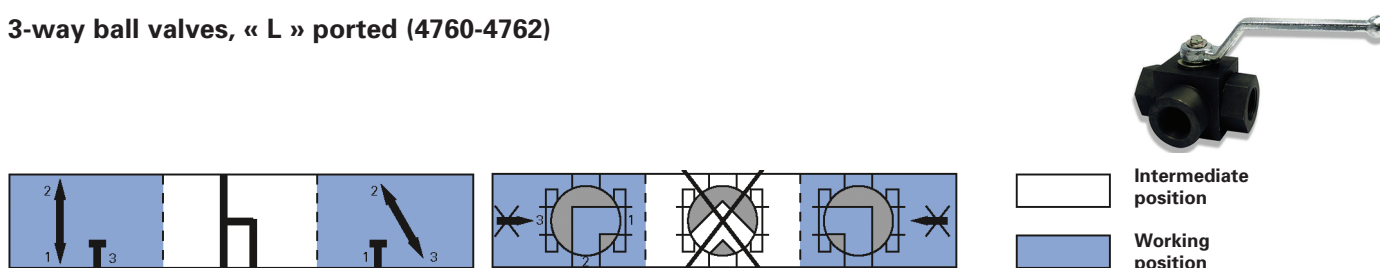
- NBR: working temperature: - 20°C to +100°C  
Characteristics : good wear resistance.
- FKM: working temperature: - 10°C to + 200°C  
Characteristics: good chemical and high temperature resistance.

## Types of ball valves

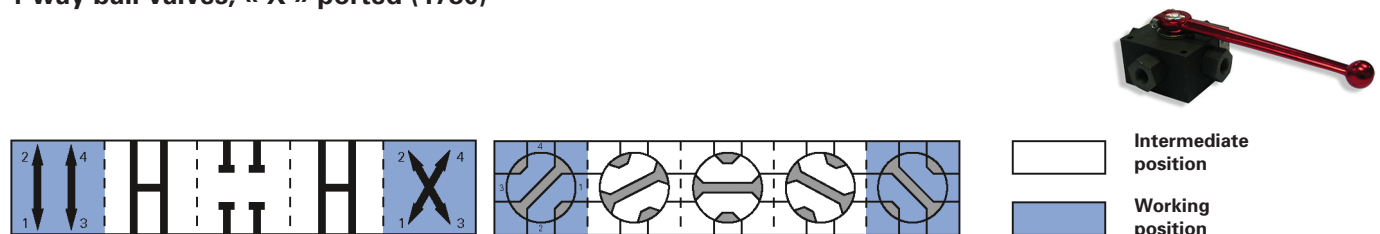
### 2-way ball valves, full bore (4730-4731-4732-4733)



### 3-way ball valves, « L » ported (4760-4762)



### 4-way ball valves, « X » ported (4780)



## Principal advantages

- Large range of diameters : from DN4 to DN50.
- Resistance against harsh conditions of use, withstanding high pressures (up to 500 bar) and temperatures.
- Safe sealing ensured by POM/NBR and PTFE/FKM seals and ball valve technology.
- Easy handle movement even at a high pressure.
- No leakage in the closed position (EN 14141) irrespective of the side against which pressure is applied.
- Low pressure drop in the open position, due to high fluid flow and passage diameter.
- Options available on request : locking device, drilled bodies, PEEK/FKM seals, chrome VI free surface treatment, full bore (see page 9 for details).

## How to choose the correct ball valve?

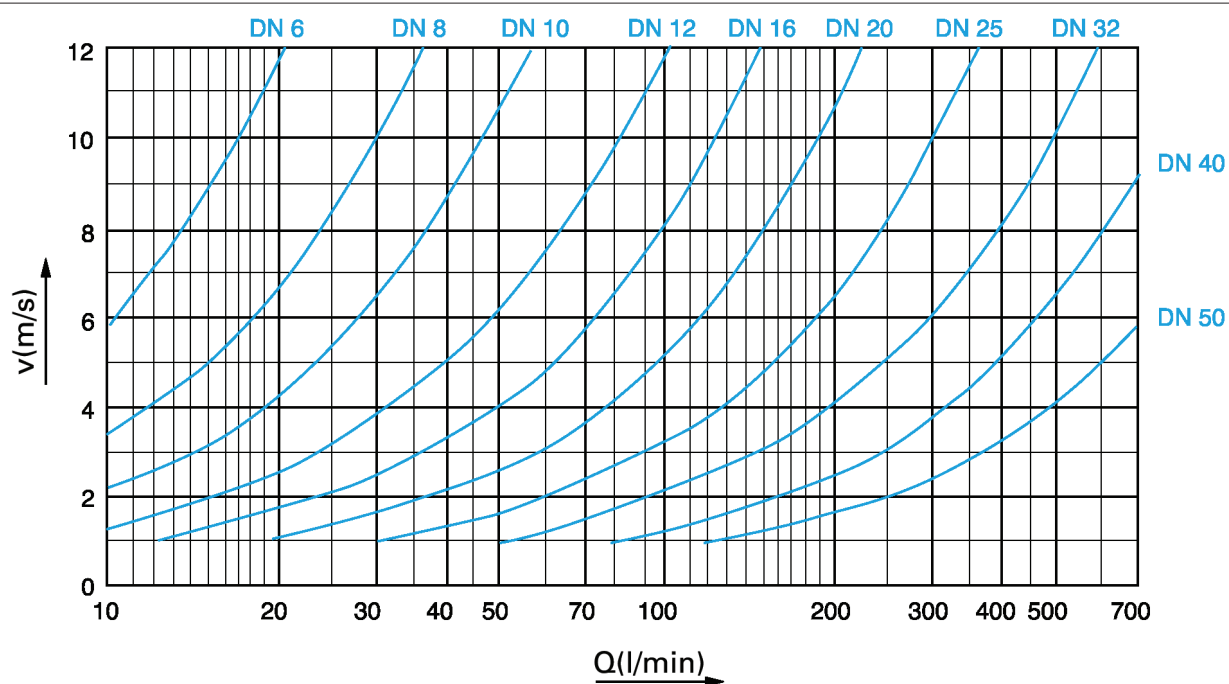
### Selection criteria :

- Fluid used (see compatibility list pages 10 and 11)
- Working pressure and flow
- Fluid passage area
- Working temperature

Select the size of the Legris high pressure ball valve required for the optimum performance and cost of your hydraulic installation :

- too small a diameter increases the flow velocity, causing turbulence and pressure drop.
- too large a diameter increases space and installation costs.

The chart below shows, for each nominal diameter (DN in mm), fluid flow speed (V) according to flow rate (Q) :



We recommend that due regard is paid to the following velocities, dependant on the applications for which the ball valve will be used.

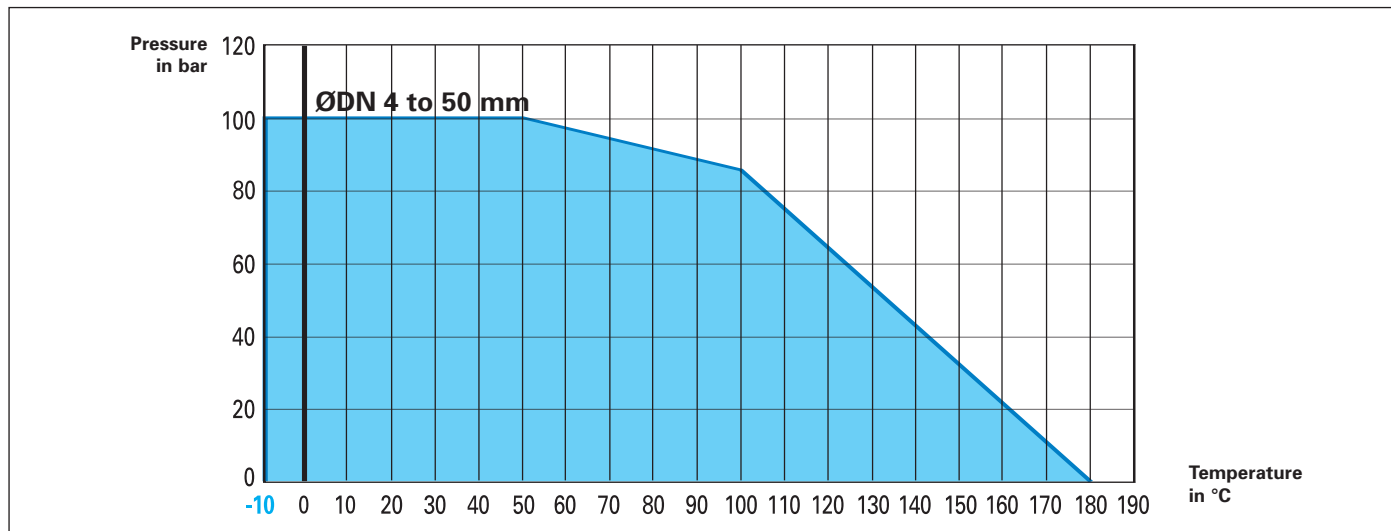
Description	Pressure	Speed
Extraction line	Low	0,5 to 1,5 m/s
Pressure or working line	Working pressure	2,0 to 6,0 m/s
Return line	Low	1,0 to 3,0 m/s
Pilot control line	Pilot control pressure	2,0 to 8,0 m/s
Outlet line	Low	Low



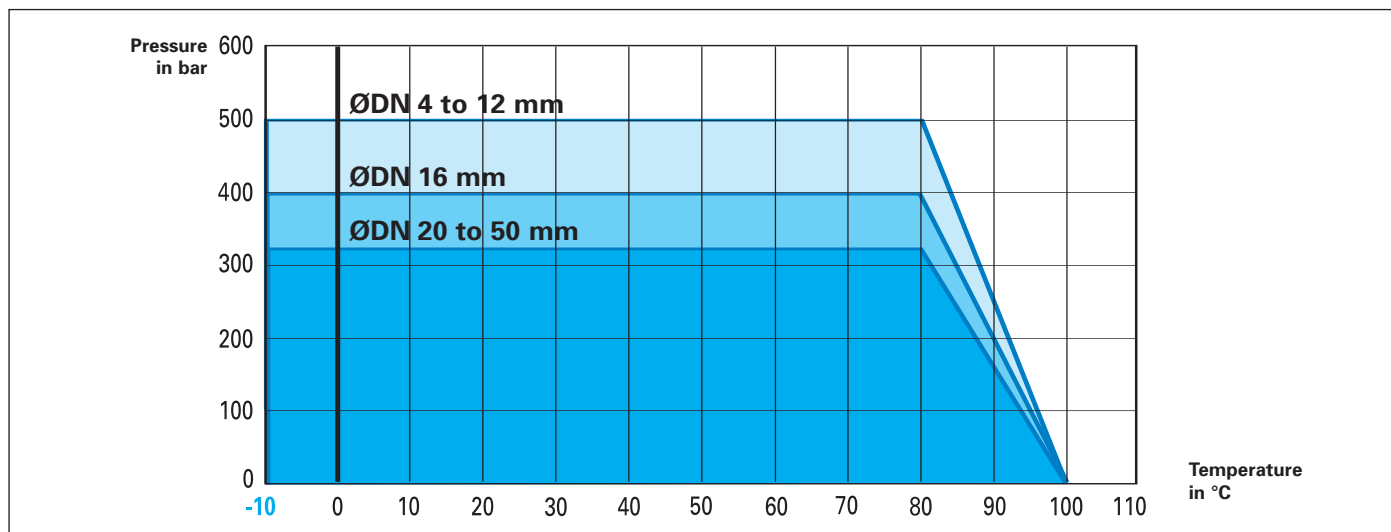
## Choosing your ball valve

The 3 curves below indicate for each nominal diameter, the acceptable pressure at a given temperature for the 2, 3 and 4-way ball valves.

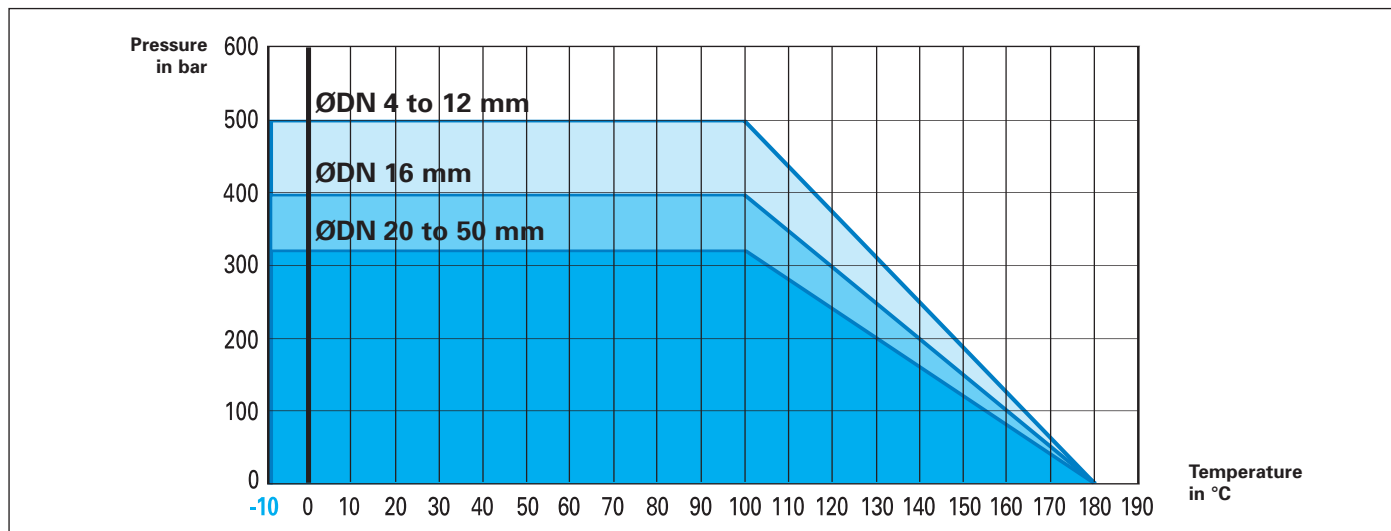
### PTFE/FKM seals : Pressure / Temperature resistance



### POM/NBR seals : Pressure/temperature resistance

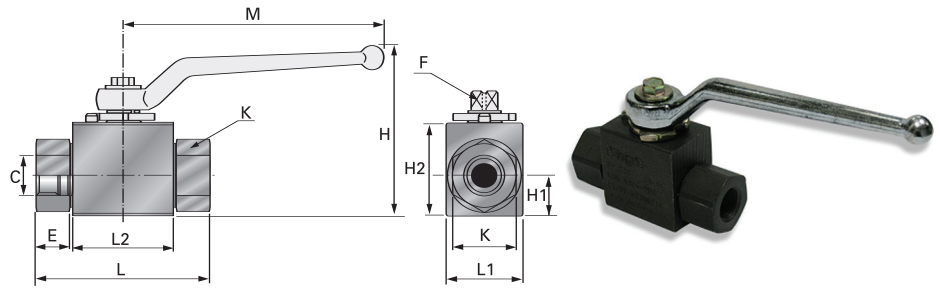


### PEEK/FKM seals : Pressure/temperature resistance



## 2-way, full bore, ball valves

female, BSP parallel  
according to DIN/ISO 228-1  
and NPT,  
according to ANSI B1.20.1

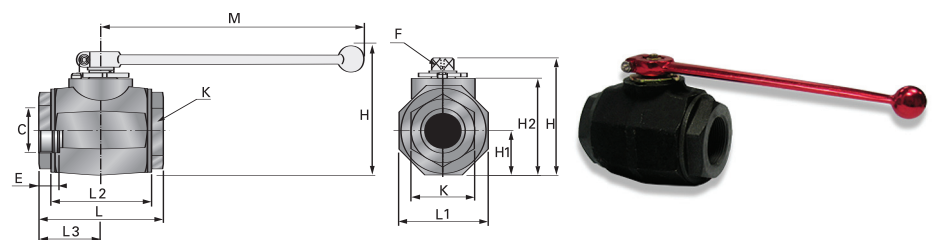


PN POM/NBR	PN PTFE/FKM	DN	C	POM/NBR	PTFE/FKM	E	F	H	H1	H2	K	L	L1	L2	M	
500	100	4	G1/8	4730 04 10	4730 04 10 22	10	9	64	13	32	22	69	26	37	108	0,350
500	100	6	G1/4	4730 06 13	4730 06 13 22	14	9	64	13	32	22	69	26	37	108	0,370
500	100	10	G3/8	4730 10 17	4730 10 17 22	14	9	71,5	17	40	27	72	32	42	108	0,575
500	100	13	G1/2	4730 12 21	4730 12 21 22	15	9	71,5	17	40	30	84	35	47	108	0,640
315	100	20	G3/4	4730 20 27	4730 20 27 22	18	14	81,4	24,5	57	41	95	48	60	200	1,400
315	100	25	G1"	4730 25 34	4730 25 34 22	20,5	14	88,4	28,5	64	50	113	57	65	200	2,130
315	100	25	G1"1/4	4730 25 42*	4730 25 42 22*	22	14	88,4	28,5	64	50	120	57	65	200	2,200
315	100	25	G1"1/2	4730 25 49*	4730 25 49 22*	24	14	88,4	28,5	64	50	135	57	65	200	2,450
500		4	1/8 NPT	4731 04 11		10	9	64	13	32	22	69	26	37	108	0,350
500		6	1/4 NPT	4731 06 14		14	9	64	13	32	22	69	26	37	108	0,370
500		10	3/8 NPT	4731 10 18		14	9	71,5	17	40	27	72	32	42	108	0,575
500		13	1/2 NPT	4731 12 22		15	9	71,5	17	40	30	84	35	47	108	0,640
315		20	3/4 NPT	4731 20 28		18	14	81,4	24,5	57	41	95	48	60	200	1,400
315		25	1" NPT	4731 25 35		20,5	14	88,4	28,5	64	50	113	57	65	200	2,130
315		25	1"1/4 NPT	4731 25 43		22	14	88,4	28,5	64	50	120	57	65	200	2,200
315		25	1"1/2 NPT	4731 25 50		24	14	88,4	28,5	64	50	135	57	65	200	2,450

\* Reduced bore

## 2-way, full bore, ball valves

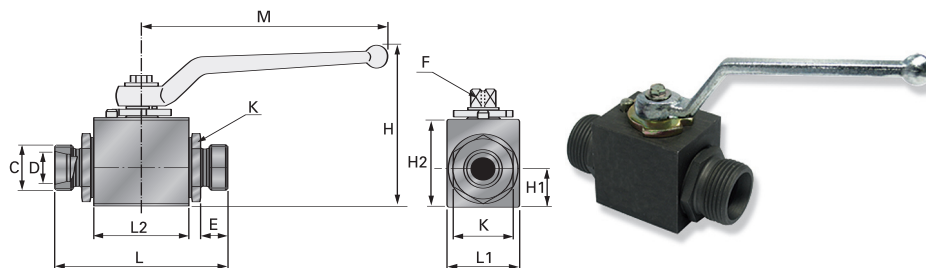
female, BSP parallel  
according to DIN/ISO 228-1  
and NPT,  
according to ANSI B1.20.1



PN	DN	C	POM/NBR	E	F	H	H1	H2	K	L	L1	L2	L3	M	
315	32	G1"1/4	4730 32 42	22	17	113,2	40	105,2	60	109,4	80	83,4	54,7	240	3,130
315	40	G1"1/2	4730 40 49	24	17	124,2	45	116,2	70	130	90	91	65	240	4,500
315	50	G2	4730 50 48	28	17	142,2	55,5	134,2	80	140	111	100	70	240	6,720
315	32	1"1/4 NPT	4731 32 43	22	17	113,2	40	105,2	60	109,4	80	83,4	54,7	240	3,130
315	40	1"1/2 NPT	4731 40 50	24	17	124,2	45	116,2	70	130	90	91	65	240	4,500
315	50	2NPT	4731 50 44	28	17	142,2	55,5	134,2	80	140	111	100	70	240	6,720

## 2-way, full bore, ball valves

according to  
DIN 2353/ISO 8434-1

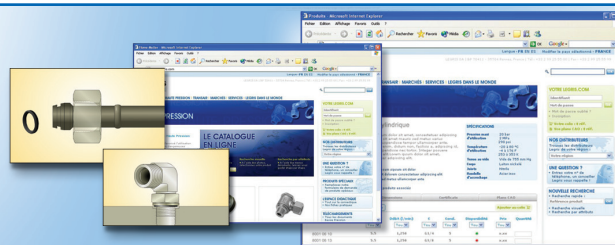


Series	PN	DN	C	POM/NBR	D	E	F	H	H1	H2	K	L	L1	L2	M	kg
L	500	4	M12x1.5	4732 04 67	6	7	9	32	13	32	22	67	26	37	108	0,350
		6	M14x1.5	4732 06 71	8	7	9	32	13	32	22	67	26	37	108	0,350
		8	M16x1.5	4732 08 75	10	11	9	40	17	40	27	74	32	42	108	0,480
		10	M18x1.5	4732 10 78	12	11	9	40	17	40	27	74	32	42	108	0,480
		13	M22x1.5	4732 12 82	15	12	9	40	17	40	30	82	35	47	108	0,590
	400	16	M26x1.5	4732 16 89	18	12	12	45	19	45	32	82	38	47	175	0,700
		20	M30x2	4732 20 88	22	14	14	57	24,5	57	41	101	48	60	200	1,350
	315	25	M36x2	4732 25 93	28	14	14	64	28,5	64	50	108	57	65	200	1,640
		25	M45x2	4732 25 97*	35	16	14	64	28,5	64	50	111,9	57	65	200	2,000
		25	M52x2	4732 25 95*	42	16	14	64	28,5	64	55	114	57	65	200	2,200
S	500	4	M16x1.5	4733 04 75	8	7	9	32	13	32	22	73	26	37	108	0,370
		6	M18x1.5	4733 06 78	10	7,5	9	32	13	32	22	73	26	37	108	0,410
		8	M20x1.5	4733 08 80	12	12	9	40	17	40	27	76	32	42	108	0,540
		10	M22x1.5	4733 10 82	14	14	9	40	17	40	27	80	32	42	108	0,520
		13	M24x1.5	4733 12 83	16	14	9	40	17	40	30	86	35	47	108	0,640
	400	16	M30x2	4733 16 88	20	16	12	45	19	45	32	90	38	47	175	0,740
		20	M36x2	4733 20 93	25	18	14	27	24,5	57	41	109	48	60	200	1,420
	315	25	M42x2	4733 25 96	30	20	14	64	28,5	64	50	120	57	65	200	1,970
		25	M52x2	4733 25 95*	38	22	14	64	28,5	64	55	124	57	65	200	2,100

\* reduced bore (full bore available, please contact us).

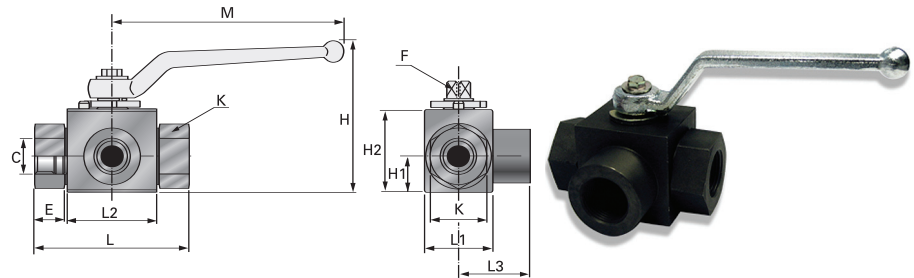
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- A dynamic catalogue of the full range – **consult** for full details and request a **quotation**.
- A technical guide with **animated presentations** of this range.
- More than 3000 CAD drawings available



## 3-way, "L" ported, ball valves

female, BSP parallel and NPT according to DIN / ISO 228-1

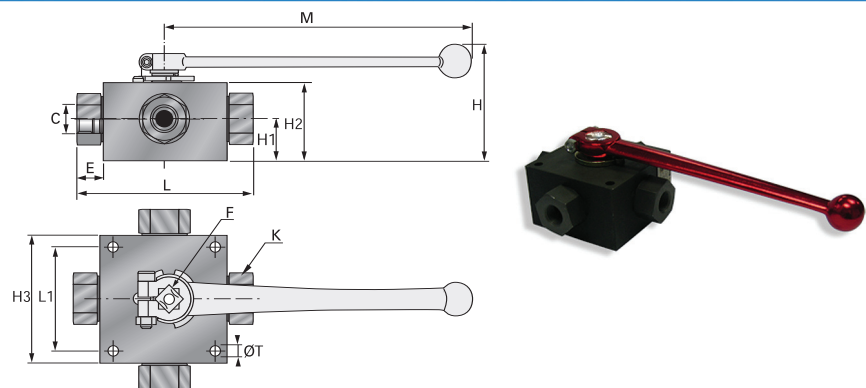


PN	DN	C	POM/NBR	E	L	L2	L3	H	H1	H2	L1	F	K	M	kg
500	4	G1/8	4760 04 10	10	69	37	26	64	13	32	34,5	9	22	108	0,420
500	6	G1/4	4760 06 13	14	69	37	26	64	13	32	34,5	9	22	108	0,450
500	10	G3/8	4760 10 17	14	72	42	32	71,5	17	40	36	9	27	108	0,600
500	13	G1/2	4760 12 21	15	84	47	35	71,5	17	40	41,5	9	30	108	0,720
315	20	G3/4	4760 20 27	18	95	60	49	81,4	24,5	57	47,5	14	41	200	1,570
315	25	G1"	4760 25 34	20,5	113	65	58	88,4	28,5	64	56,5	14	50	200	2,360
315	25	G1"1/4	4760 25 42*	22	120	65	60	88,4	29,5	65	60	14	50	200	2,430
315	25	G1"1/2	4760 25 49*	24	135	65	67,5	88,4	29,5	65	60,25	14	60	200	2,680
500	4	1/8 NPT	4762 04 11	10	69	37	26	64	13	32	34,5	9	22	108	0,420
500	6	1/4 NPT	4762 06 14	14	69	37	26	27	13	32	34,5	9	22	108	0,450
500	10	3/8 NPT	4762 10 18	14	72	42	32	71,5	17	40	36	9	27	108	0,600
500	13	1/2 NPT	4762 12 22	15	84	47	35	71,5	17	40	41,5	9	30	108	0,720
315	20	3/4 NPT	4762 20 28	18	95	60	49	81,4	24,5	57	47,5	14	41	200	1,570
315	25	1" NPT	4762 25 35	20,5	113	65	58	88,4	28,5	64	56,5	14	50	200	2,360

\* reduced bore (full bore available, please contact us).

## 4-way, "X" ported, ball valves

female, BSP parallel, according to DIN / ISO 228-1



PN	DN	C	POM/NBR	E	F	H	H1	H2	H3	K	L	L1	M	T	kg
500	4	G1/8	4780 04 10	10	12	63	40	22	11	24	100	55	175	6,5	1,600
500	6	G1/4	4780 06 13	14	12	63	40	22	11	24	100	55	175	6,5	1,600
500	10	G3/8	4780 10 17	14	14	74	50	27	11,5	30	115	65	200	6,5	2,400
400	16	G1/2	4780 12 21	16	14	84	60	31	11,5	36	135	80	200	9	4,300
315	20	G3/4	4780 20 27	18	17	99,5	73	36	11,5	46	144	85	240	9	6,000
315	20	G1"	4780 20 34	20	17	99,5	73	36	11,5	46	150	85	240	9	6,500



## Options available upon request

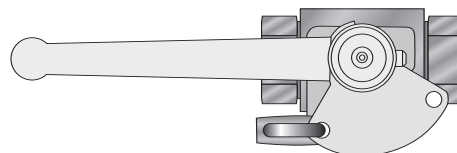
### • Locking handle system for 2/3 and 4-way valves : kit sold separately.

This stainless steel device works in both the open and closed position.

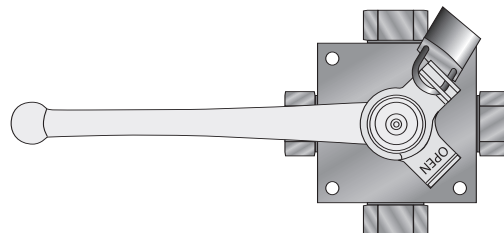
Ball valves types	Product type	DN	
2 and 3-way	<a href="#">4730-4731-4732</a> <a href="#">4733-4760-4762</a>	4-6-8-10-13	<a href="#">4798 01 01</a>
2-way	<a href="#">4732-4733</a>	16	<a href="#">4798 01 02</a>
2 and 3-way	<a href="#">4730-4731-4732</a> <a href="#">4733-4760-4762</a>	20-25	<a href="#">4798 01 03</a>
2-way	<a href="#">4730-4731</a> <a href="#">4732-4733</a>	32-40-50	<a href="#">4798 01 04</a>
4-way	<a href="#">4780</a>	04-06	<a href="#">4798 01 06</a>
4-way	<a href="#">4780</a>	10-16	<a href="#">4798 01 07</a>
4-way	<a href="#">4780</a>	20	<a href="#">4798 01 08</a>

2-way valves

3-way valves



4-way valves

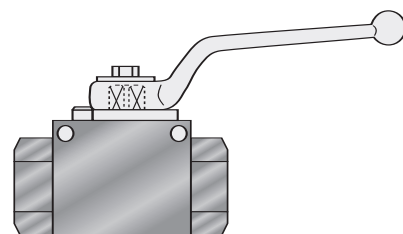


### • Drilled bodies for fixing on mobile equipment for 2 and 3-way ball valves

Product type Standard 2-way ball valves	Product type 2-way ball valves with drilled bodies	Examples
<a href="#">4730*</a>	<a href="#">4736*</a>	<a href="#">4736 04 10</a>
<a href="#">4731*</a>	<a href="#">4737*</a>	<a href="#">4737 12 22</a>
<a href="#">4732</a>	<a href="#">4738</a>	<a href="#">4737 10 78</a>
<a href="#">4733</a>	<a href="#">4739</a>	<a href="#">4739 08 80</a>

\* Square form body only

Product type Standard 3-way ball valves	Product type 3-way ball valves with drilled bodies	Examples
<a href="#">4760</a>	<a href="#">4740</a>	<a href="#">4740 10 17</a>
<a href="#">4762</a>	<a href="#">4741</a>	<a href="#">4741 20 28</a>



### • PEEK / FKM seals : an alternative to PTFE/FKM seals for 2-way ball valves (DN 04-25 mm) and for pressures higher than 100 bar.

	C
<a href="#">4730 04 10 23</a>	G 1/8
<a href="#">4730 06 13 23</a>	G 1/4
<a href="#">4730 10 17 23</a>	G 3/8
<a href="#">4730 12 21 23</a>	G 1/2

	C
<a href="#">4730 20 27 23</a>	G 3/4
<a href="#">4730 25 34 23</a>	G 1"
<a href="#">4730 25 42 23</a>	G 1 1/4
<a href="#">4730 25 49 23</a>	G 1 1/2

### • Chrome VI free surface treatment for all models.

Resistance to white rust: 24 hours (ISO 9227-DIN 50021 SS standards)

Resistance to red rust: 120 hours (ISO 9227-DIN 50021 SS standards)

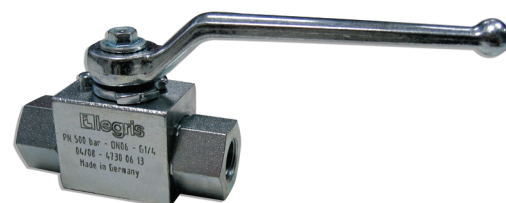
References ending with suffix 75 :

Examples :

[4730 04 10 75](#) ➡ 2-way ball valve

[4760 12 21 75](#) ➡ 3-way ball valve

[4780 06 13 75](#) ➡ 4-way ball valve



### • Full bore

- For 2-way ball valves :

- For 3-way ball valves :

	C
<a href="#">4732 32 43</a>	M45x2
<a href="#">4732 40 50</a>	M52x2
<a href="#">4733 32 43</a>	M52x2

	C
<a href="#">4760 32 42</a>	G 1 1/4
<a href="#">4760 25 49</a>	G 1 1/2
<a href="#">4760 50 48</a>	G 2

## Compatibility list

The compatibility list is intended as a non-binding recommendation for the selection of materials for the housing connection adaptors, control spindle, ball and seals.

All data relates to a room temperature, 20°C

1 Highly recommended    2 Recommended    3 Partially recommended    4 Not recommended    - Not yet defined

Fluid	Ball valve material				O ring		Ball seals	
	Steel	Brass	GG25, GS-C25*	1.4571**	NBR	FKM	POM	PTFE
Acetaldehyde	3	2	3	1	4	3	2	1
Acetic acid	3	3	3	1	4	4	4	1
Acetic anhydride	4	3	4	2	4	4	4	1
Acetone	1	1	1	1	4	4	2	2
Acetylene	1	4	1	1	2	2	2	2
Acrylonitrile	1	1	3	1	4	3	4	1
Air	1	1	1	1	1	1	1	1
Alum, aqueous	3	3	3	1	2	1	2	1
Alcohol	4	4	4	4	4	1	1	1
Aluminium chloride	3	3	3	1	2	1	1	1
Ammonia	1	4	2	1	3	4	2	1
Ammonium carbonate	2	4	2	2	3	3	3	1
Ammonium chloride	4	4	4	2	2	1	2	1
Ammonium phosphate, aqueous	4	4	4	2	2	1	2	1
Ammonium sulphate	3	4	3	2	2	1	2	1
Amyl acetate	3	3	3	2	4	4	2	1
Aniline	2	3	3	1	4	2	2	1
Asphalt	1	2	2	1	4	2	3	1
Argon gas	1	1	1	1	1	1	1	1
Aviation fuel JP 3--6	1	1	1	1	3	2	3	1
Beer	4	1	4	1	1	1	1	1
Beet sugar solution	2	-	2	1	2	1	1	1
Benzene	1	1	2	1	2	2	2	1
Benzol	2	2	2	2	4	3	2	1
Borax, aqueous	3	3	3	2	1	1	1	1
Boric acid, aqueous	3	3	4	2	1	1	2	1
Brake fluid	2	2	3	2	4	3	2	1
Brandy	2	2	3	2	2	1	2	1
Bromine	4	3	4	4	4	2	-	1
Brown coal tar	1	4	1	1	4	4	4	1
Butane, gaseous	2	1	2	2	2	2	2	1
Butter fat	4	4	4	1	1	4	1	1
Butyric acid, aqueous	4	3	4	2	2	2	2	1
Cadmium chloride	4	4	4	1	1	4	4	1
Cadmium sulphate	1	1	1	1	1	1	1	1
Calcareous water	1	1	1	1	1	1	1	1
Calcium bisulphate, aqueous	4	2	4	2	2	2	2	1
Calcium carbonate	1	4	4	1	1	1	4	1
Calcium chloride, aqueous	3	2	3	2	1	1	1	1
Calcium hydroxide	3	1	3	2	1	1	2	1
Carbon disulphide	3	3	3	2	4	1	2	1
Carbon dioxide	1	1	2	1	2	1	4	1
Carbonic acid	2	4	4	2	2	2	2	1
Castor oil	2	1	2	1	1	1	1	1
Cellulose 220	1	1	1	1	4	1	1	1
Chlorine gaseous up to 100°C	4	4	4	1	4	1	4	1
Chlorine wet + dry	4	4	4	4	4	2	4	1
Chlorobenzene	2	2	2	1	4	2	2	1
Chloroform	2	2	2	1	4	2	4	1
Chromic acid	4	4	4	2	4	2	4	1
Citric acid	4	2	4	2	2	1	2	1
City gas	1	1	1	1	2	1	2	1
Clophen A	1	1	1	1	4	1	4	1
Coke oven gas	2	3	2	1	4	2	-	1
Condenser oil	1	4	1	1	4	1	1	1
Copper nitrate, aqueous	4	4	4	2	2	1	2	1

Fluid	Ball valve material				O ring		Ball seals	
	Steel	Brass	GG25, GS-C25*	1.4571**	NBR	FKM	POM	PTFE
Copper sulphate, aqueous	4	4	4	2	2	1	2	1
Creosote	1	1	1	1	4	2	3	1
Cresylol, aqueous	3	3	4	2	4	2	4	1
Crude oil	2	2	2	1	2	1	2	1
Crude petroleum oil	2	2	2	1	2	1	1	1
Cutting oil	1	1	1	1	1	1	1	1
Cutting oil emulsion	3	3	2	2	1	2	1	1
Diesel fuel	1	1	1	1	3	1	2	1
Edible oil	4	4	4	1	1	4	4	1
Ethane	2	1	2	2	1	1	1	1
Ethanol	2	2	2	1	3	3	2	1
Ether	1	1	1	1	4	4	4	1
Ethyl acetate	2	3	2	2	4	4	2	1
Ethylene	2	-	2	1	2	2	2	1
Faecal substances	1	4	1	1	1	1	1	1
Fatty acids	4	-	4	1	3	1	1	1
Ferric chloride	4	2	4	4	2	1	3	1
Ferric sulphate	4	2	4	2	3	1	1	1
Fertilizer solvent	4	3	4	3	4	4	-	1
Fire extinguishing substances	1	1	1	1	1	4	4	1
Fish oil	2	2	2	1	2	1	1	1
Formaldehyde	3	1	3	1	2	2	1	1
Formic acid	4	2	4	2	4	4	4	1
Freon	2	2	2	1	2	2	2	1
Fruit juices	4	3	4	1	2	1	1	1
Fuel oil, heavy	2	2	3	1	4	3	3	1
Fuel oil, light	2	2	2	1	3	2	3	1
Furan	1	4	4	1	4	4	4	1
Furfural	1	1	2	1	4	4	2	1
Gas liquor	2	2	2	2	2	1	2	1
Gas oil	2	2	2	1	3	1	2	1
Gelatine	3	3	4	1	1	1	1	1
Glucose	2	1	2	1	1	1	2	1
Glycerine	2	2	2	1	1	2	3	1
Glycols	2	2	2	2	2	2	3	1
Heavy oil	1	1	1	1	4	4	4	1
Heptane	2	1	2	1	2	1	1	1
Hexane	2	2	2	2	2	1	1	1
Hydraulic fluid, glycol base	2	3	2	1	3	2	3	1
Hydraulic fluid, mineral oil base	1	1	1	1	1	1	1	1
Hydraulic fluid, phosphate ester base	2	4	2	1	4	1	1	1
Hydrochloric acid	4	4	4	4	-	1	-	1
Hydrogen	2	2	2	1	2	2	-	1
Hydrogen peroxide	4	4	4	2	4	2	4	1
Hydrogen sulphide	3	4	4	2	3	2	3	1
Ink	4	3	4	1	1	1	1	1
Iso octane	1	1	1	1	1	1	3	1
Isobutyl alcohol	2	2	3	2	3	1	3	1
Isopropyl alcohol	2	2	3	2	3	1	2	1
Isopropyl ether	1	1	3	1	3	4	-	1

## Compatibility list

1 Highly recommended    2 Recommended    3 Partially recommended    4 Not recommended    - Not yet defined

Fluid	Ball valve material				Body / ball		Control spindle		O ring		Ball seals	
	Steel	Brass	GG25, GS-C25*	1.4571**	NBR	FKM	POM	PTFE	NBR	FKM	POM	PTFE
Kerosene	2	2	2	1	2	1	1	1				
Ketone	4	4	4	1	4	4	4	1				
Lacquers	2	1	2	1	4	3	2	1				
Latex emulsion	2	1	2	1	-	-	1	1				
Lead acetate, aqueous	4	3	4	1	4	2	3	1				
Linseed oil	1	2	1	2	2	1	1	1				
Lubricating oil	1	2	1	1	1	1	1	1				
Lubricating oil, mineral	1	1	1	1	1	1	2	1				
Lyes, alkaline	4	4	4	1	1	4	1	1				
Magnesium chloride	3	3	4	2	2	1	1	1				
Magnesium hydroxide	2	4	2	1	2	1	1	1				
Magnesium sulphate	3	2	3	2	2	1	1	1				
Maleic anhydride	4	2	4	2	-	2	3	1				
Malic acid	4	3	4	2	1	1	1	1				
Mercury chloride	4	4	4	3	2	1	4	1				
Mercury	1	4	1	1	1	1	1	1				
Methane	2	1	2	2	1	1	2	1				
Methanol	2	2	2	2	3	4	2	1				
Methyl ethyl ketone	1	1	3	1	4	4	1	1				
Methylamine, aqueous	2	4	2	1	4	4	-	1				
Methylene bromide	4	1	4	4	4	1	3	1				
Methylene chloride	2	1	3	1	4	3	3	1				
Milk of lime	2	-	2	1	4	2	2	1				
Mine gas	1	1	4	1	1	1	1	1				
Naphtha	2	2	2	1	2	1	1	1				
Naphthalene	2	2	2	2	4	1	1	1				
Natural gas	2	2	2	1	2	1	2	1				
Nickel chloride	4	4	4	2	1	1	2	1				
Nickel sulphate	4	4	4	2	2	1	2	1				
Nitric acid	1	4	1	1	4	4	4	1				
Nitrobenzene	-	4	3	1	4	3	4	1				
Nitrogen	1	1	1	1	1	1	1	1				
Oil-water emulsion	1	1	1	1	1	1	1	1				
Oleic acid	2	2	3	2	2	1	1	1				
Oleum	3	4	3	2	4	2	4	1				
Oxalic acid	4	4	4	2	2	1	3	1				
Oxygen	2	1	3	1	4	2	4	1				
Oxygen gas	1	1	1	1	1	1	1	1				
Ozone	4	4	4	1	-	-	-	1				
Palm oil	4	4	4	1	4	1	1	1				
Palmitic acid	2	2	2	2	2	1	2	1				
Paraffin	2	1	2	1	1	1	2	1				
Pentane	2	1	2	1	1	1	2	1				
Perchloroethylene	1	4	1	1	4	4	4	1				
Petroleum	2	2	2	1	2	1	1	1				
Phenol	2	2	2	2	4	2	4	1				
Picric acid	4	3	4	1	2	1	-	1				
Pine needle oil	2	2	2	1	2	1	2	1				
Pit water	1	1	1	1	1	1	1	1				
Potassium bromide, aqueous	4	3	4	1	2	1	2	1				
Potassium carbonate, aqueous	2	2	2	2	1	1	2	1				
Potassium chlorate, aqueous	2	2	2	2	4	1	2	1				
Potassium chloride, aqueous	3	2	3	3	1	1	2	1				
Potassium nitrate, aqueous	2	2	2	2	1	1	1	1				
Potassium sulphate, aqueous	2	2	2	2	1	1	1	1				
Propane	2	1	2	2	2	2	2	1				
Propyl alcohol	4	1	4	1	4	-	-	1				
Propylen glycol	2	2	2	2	2	1	3	1				
Pydraul F9	1	1	1	1	4	1	1	1				

Fluid	Ball valve material				Body / ball		Control spindle		O ring		Ball seals	
	Steel	Brass	GG25, GS-C25*	1.4571**	NBR	FKM	POM	PTFE	NBR	FKM	POM	PTFE
Salicylic acid	4	3	4	1	1	1	2	1				
Silver nitrate	4	4	4	2	2	2	2	1				
Soap solutions	1	1	2	1	1	1	1	1				
Sodium bicarbonate	2	2	2	2	2	1	2	1				
Sodium carbonate	2	2	2	2	2	1	2	1				
Sodium chlorate	3	-	3	2	3	1	2	1				
Sodium chloride	2	2	2	2	1	1	1	1				
Sodium cyanide	2	4	2	2	2	1	2	1				
Sodium hydroxide	2	2	2	1	3	3	-	1				
Sodium hydroxide solution	4	4	4	1	1	4	4	1				
Sodium nitrate	2	2	2	2	2	1	1	1				
Sodium phosphate	3	2	3	1	2	1	2	1				
Sodium silicate	2	2	2	2	2	1	2	1				
Sodium sulphate	2	2	2	1	2	1	1	1				
Sodium sulphide	2	4	3	2	2	1	2	1				
Sodium sulphite, aqueous	4	--	4	1	4	3	3	1				
Sodium thiosulphate	2	3	2	1	4	1	1	1				
Solvent	2	2	2	1	4	3	2	1				
Spirit	1	1	1	1	4	4	4	1				
Steam (water)	2	1	2	1	4	4	4	1				
Stearic acid	3	3	3	2	1	1	1	1				
Styrene	1	1	2	1	4	2	2	1				
Sugar solution	4	4	4	1	1	4	1	1				
Sulphur	3	4	3	2	4	1	2	1				
Sulphur dioxide	2	2	2	1	4	1	2	1				
Sulphuric acid	2	3	2	1	4	2	4	1				
Tannic acid	3	2	3	1	2	2	1	1				
Tartaric acid	4	2	4	2	2	1	2	1				
Tin chloride	4	4	4	4	2	1	2	1				
Toluene	1	1	1	1	4	2	2	1				
Transformer oil	1	2	2	1	2	2	1	1				
Transmission oil	1	1	1	1	1	1	1	1				
Tributyl phosphate	2	2	2	1	4	3	-	1				
Trichloroacetic acid	4	4	4	1	4	4	4	1				
Trichlorethylene	2	3	3	2	4	3	3	1				
Turbine oil	1	1	1	1	4	1	4	1				
Turpentine oil	3	2	2	2	2	1	1	1				
Urea, aqueous	3	2	3	2	2	2	2	1				
Vinegar	4	3	4	1	3	2	4	1				
Vinyl chloride	2	3	2	2	4	3	2	1				
Viscose	1	4	1	1	1	4	1	1				
Volatile oils	2	2	2	1	3	2	2	1				
Water, distilled	4	1	4	1	2	2	2	1				
Water, sea water	4	2	4	2	3	2	3	1				
Water up to 80 5C.	2	1	2	1	2	2	2	1				
Water up to 180 5C.	2	1	2	1	4	4	4	1				
Wax	1	1	1	1	3	2	1	1				
Xylenes	2	1	2	1	4	2	1	1				
Zinc chloride	4	4	3	4	3	1	2	1				
Zinc sulphate	4	2	4	2	1	1	2	1				

\* Cast iron (GG 25), Cast steel (GS-C25)

\*\* Stainless steel (1.4571)



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