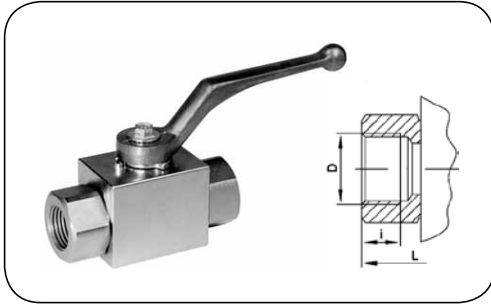


HIGH PRESSURE - valves

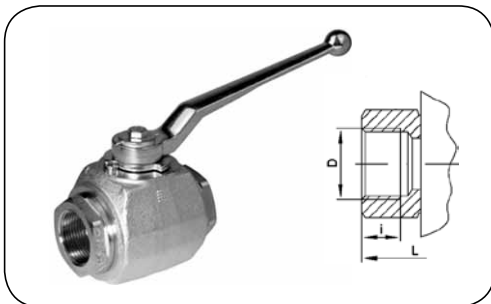


Ball valve BKH BSP/NPT

Material:	Body	- steel
	Ball	- steel
	Stem	- steel
Seals:	Ball	- PA or PTFE
	Stem	- NBR or FKM
Working temp.:	PA	- (from -40°C up to +100°C)
	PTFE	- (from -200°C up to +250°C)
	NBR	- (from -20°C up to +100°C)
	FKM	- (from -20°C up to +200°C)

2-way ball valve with BSP or NPT female thread designed for high pressure hydraulic or industrial applications. For proper choice of a valve for fluids other than hydraulic oil or for high working temperatures, please contact TUBES INTERNATIONAL® Sales or Technical Department.

code (PA/NBR seal)	code (PTFE/FKM seal)	DN [mm]	thread size D [inch]	work. press. (PA/NBR) [bar]	work. press. (PTFE/FKM) [bar]	valve length L [mm]	weight [kg]
HZ-BKH-G-02	HZ-BKH-G-02-T-V	4	1/8 BSP	500	100	69	0.35
HZ-BKH-G-04	HZ-BKH-G-04-T-V	6	1/4 BSP	500	100	69	0.35
HZ-BKH-G-06	HZ-BKH-G-06-T-V	10	3/8 BSP	500	100	73	0.50
HZ-BKH-G-08	HZ-BKH-G-08-T-V	13	1/2 BSP	500	100	85	0.65
HZ-BKH-G-12	HZ-BKH-G-12-T-V	20	3/4 BSP	400	100	96	1.50
HZ-BKH-G-16	HZ-BKH-G-16-T-V	25	1 BSP	350	100	113	2.00
HZ-BKH-N-02	-	4	1/8 NPT	500	-	69	0.35
HZ-BKH-N-04	-	6	1/4 NPT	500	-	69	0.35
HZ-BKH-N-06	-	10	3/8 NPT	500	-	73	0.50
HZ-BKH-N-08	-	13	1/2 NPT	500	-	92	0.65
HZ-BKH-N-12	-	20	3/4 NPT	400	-	97	1.50
HZ-BKH-N-16	-	25	1 NPT	350	-	113	2.00



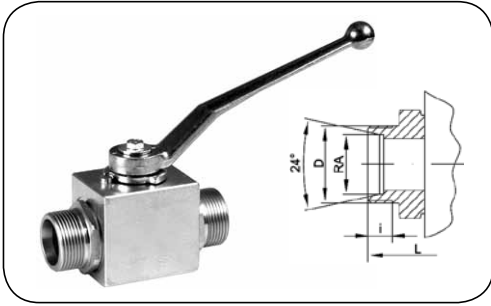
Ball valve SKH BSP

Material:	Body	- steel
	Ball	- steel
	Stem	- steel
Seals:	Ball	- POM or PTFE
	Stem	- NBR or FKM
Working temp.:	POM	- (from -40°C up to +100°C)
	PTFE	- (from -200°C up to +250°C)
	NBR	- (from -20°C up to +100°C)
	FKM	- (from -20°C up to +200°C)

2-way ball valve with BSP female thread designed for high pressure hydraulic or industrial applications. For proper choice of a valve for fluids other than hydraulic oil or for high working temperatures, please contact TUBES INTERNATIONAL® Sales or Technical Department.

code (POM/NBR seal)	code (PTFE/FKM seal)	DN [mm]	thread size D [inch]	work. press. (POM/NBR) [bar]	work. press. (PTFE/FKM) [bar]	valve length L [mm]	weight [kg]
HZ-SKH-G-20	HZ-SKH-G-20-T-V	32	1.1/4 BSP	400	63	110	3.20
HZ-SKH-G-24	HZ-SKH-G-24-T-V	40	1.1/2 BSP	400	63	120	4.00
HZ-SKH-G-32	HZ-SKH-G-32-T-V	50	2 BSP	400	63	140	5.90

HIGH PRESSURE - valves

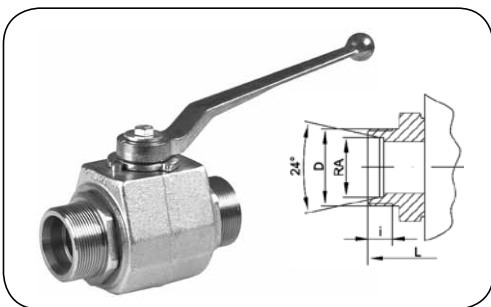


Ball valve BKH L/S

Material:	Body	- steel
	Ball	- steel
	Stem	- steel
Seals:	Ball	- PA
	Stem	- NBR
	Working temp.:	PA - (from -40°C up to +100°C)
	NBR	- (from -20°C up to +100°C)

2-way ball valve with metric male thread, designed for high pressure hydraulic applications.

code	DN [mm]	thread size D [mm]	pipe diam. RA [mm]	working pressure [bar]	valve length L [mm]	weight [kg]
HZ-BKH-06L	4	M12x1.5	6	500	67	0.30
HZ-BKH-08L	6	M14x1.5	8	500	67	0.30
HZ-BKH-10L	8	M16x1.5	10	500	71	0.30
HZ-BKH-12L	10	M18x1.5	12	500	75	0.50
HZ-BKH-15L	13	M22x1.5	15	500	84	0.60
HZ-BKH-18L	13	M26x1.5	18	500	84	0.60
HZ-BKH-22L	20	M30x2	22	400	102	1.50
HZ-BKH-28L	25	M36x2	28	350	108	2.00
HZ-BKH-08S	4	M16x1.5	8	500	73	0.35
HZ-BKH-10S	6	M18x1.5	10	500	73	0.35
HZ-BKH-12S	8	M20x1.5	12	500	77	0.35
HZ-BKH-14S	10	M22x1.5	14	500	84	0.50
HZ-BKH-16S	13	M24x1.5	16	500	87	0.60
HZ-BKH-20S	13	M30x2	20	500	91	0.65
HZ-BKH-25S	20	M36x2	25	400	110	1.50
HZ-BKH-30S	25	M42x2	30	350	120	2.10



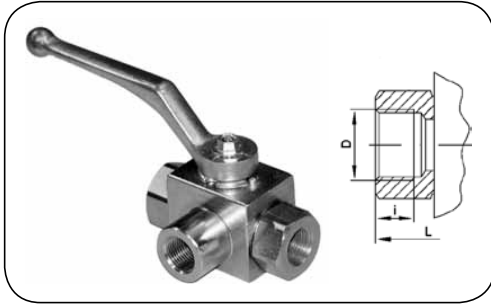
Ball valve SKH L/S

Material:	Body	- steel
	Ball	- steel
	Stem	- steel
Seals:	Ball	- POM
	Stem	- NBR
	Working temp.:	POM - (from -40°C up to +100°C)
	NBR	- (from -20°C up to +100°C)

2-way ball valve with metric male thread, designed for high pressure hydraulic applications.

code	DN [mm]	thread size D [mm]	pipe diam. RA [mm]	working pressure [bar]	valve length L [mm]	weight [kg]
HZ-SKH-35L	32	M45x2	35	400	128	3.00
HZ-SKH-42L	40	M52x2	42	400	133	3.80
HZ-SKH-38S	32	M52x2	38	400	140	3.10

HIGH PRESSURE - valves

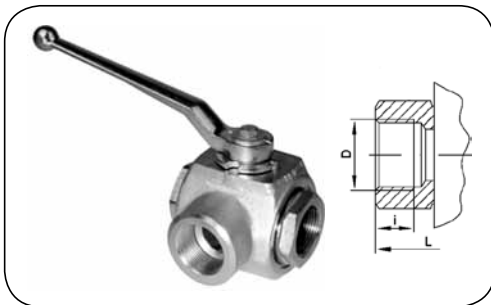


Ball valve BK3L BSP/NPT

Material:	Body	- steel
	Ball	- steel
	Stem	- steel
Seals:	Ball	- POM
	Stem	- NBR
Working temp.:	POM	- (from -40°C up to +100°C)
	NBR	- (from -20°C up to +100°C)

3-way (L type) ball valve with BSP or NPT female thread, designed for high pressure hydraulic applications.

code	DN [mm]	thread size D [inch]	working pressure [bar]	length L [mm]	weight [kg]
HZ-BK3L-G-02	4	1/8 BSP	400	69	0.40
HZ-BK3L-G-04	6	1/4 BSP	400	69	0.40
HZ-BK3L-G-06	10	3/8 BSP	400	73	0.55
HZ-BK3L-G-08	13	1/2 BSP	350	85	0.70
HZ-BK3L-N-02	4	1/8 NPT	400	69	0.40
HZ-BK3L-N-04	6	1/4 NPT	400	69	0.40
HZ-BK3L-N-06	10	3/8 NPT	400	73	0.55
HZ-BK3L-N-08	13	1/2 NPT	350	92	0.70
HZ-BK3L-N-12	20	3/4 NPT	350	97	1.55
HZ-BK3L-N-16	25	1 NPT	350	113	2.10



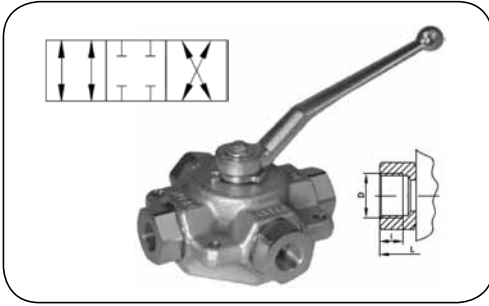
Ball valve SK3L BSP/NPT

Material:	Body	- steel
	Ball	- steel
	Stem	- steel
Seals:	Ball	- POM
	Stem	- NBR
Working temp.:	POM	- (from -40°C up to +100°C)
	NBR	- (from -20°C up to +100°C)

3-way (L type) ball valve with BSP or NPT female thread, designed for high pressure hydraulic applications.

code	DN [mm]	thread size D [inch]	working pressure [bar]	length L [mm]	weight [kg]
HZ-SK3L-G-12	20	3/4 BSP	350	96	1.55
HZ-SK3L-G-16	25	1 BSP	350	113	2.10
HZ-SK3L-G-20	32	1.1/4 BSP	350	110	3.40
HZ-SK3L-G-24	40	1.1/2 BSP	350	120	4.20
HZ-SK3L-G-32	50	2 BSP	350	140	6.10
HZ-SK3L-N-20	32	1.1/4 NPT	350	115	3.40
HZ-SK3L-N-24	40	1.1/2 NPT	350	135	4.20
HZ-SK3L-N-32	50	2 NPT	350	140	6.20

HIGH PRESSURE - valves

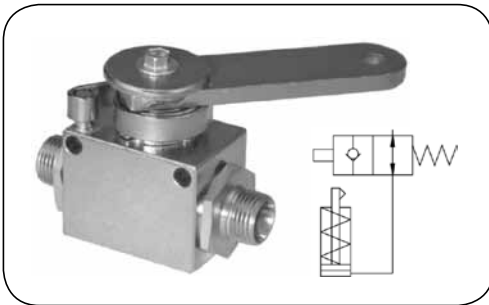


Ball valve MKHX BSP

Material:	Body	- steel
	Ball	- steel
	Stem	- steel
Seals:	Ball	- POM
	Stem	- NBR
Working temp.:	POM	- (from -40°C up to +100°C)
	NBR	- (from -20°C up to +100°C)

4-way (X Type) ball valve with BSP female thread, designed for high pressure hydraulic applications.

code	DN [mm]	thread size D [inch]	thread length i [mm]	valve length L [mm]	working pressure [bar]	weight [kg]
HZ-MKHX-06-G-02	4	1/8	8	100	500	2.10
HZ-MKHX-06-G-04	6	1/4	12	100	500	2.10
HZ-MKHX-06-G-06	10	3/8	12	115	500	2.90
HZ-MKHX-06-G-08	13	1/2	14	135	400	4.50
HZ-MKHX-06-G-12	20	3/4	16	148	400	7.20
HZ-MKHX-06-G-16	25	1	18	172	350	9.70



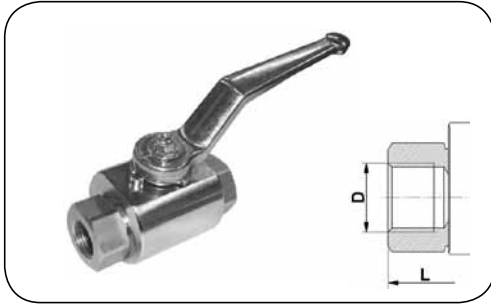
Ball valve HBKH

Material:	Body	- steel
	Ball	- steel
	Stem	- steel
Seals:	Ball	- POM
	Stem	- NBR
Working temp.:	POM	- (from -40°C up to +100°C)
	NBR	- (from -20°C up to +100°C)

Special 2-way ball valve with male metric thread. Used in hydraulic systems as a stroke limitation on hydraulic actuators.

code	DN [mm]	thread size [mm]	distance between assembly holes [mm]	assembly holes diameter [mm]	working pressure [bar]
HZ-HBKH-12L-B	13	M18x1.5	37.5	6.5	350
HZ-HBKH-15L-B	13	M22x1.5	37.5	6.5	350

HIGH PRESSURE - valves

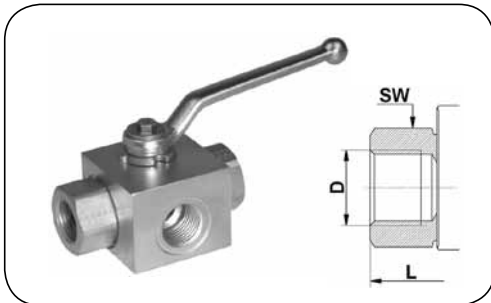


Ball valve RKH

Material:	Body	- AISI 316Ti
	Ball	- AISI 316Ti
	Stem	- AISI 316Ti
Seal:	Kula	- POM or PTFE
	Stem	- FKM
Working temp.:	POM	(from -40°C up to +100°C)
	PTFE	(from -200°C up to +250°C)
	FKM	(from -20°C up to +200°C)

2-way ball valve with BSP female thread, intended for high pressure hydraulic and industrial installations (chemicals, petrochemical products, solvents and paints, marine installations, water, gases). In order to match the valve to the media other than hydraulic oil or higher working temperatures appropriately, please contact Technical or Sales Department of TUBES INTERNATIONAL®.

code (POM/FKM)	code (PTFE/FKM)	DN [mm]	thread size D [inch]	working press. [bar] (POM/FKM)	working press. [bar] (PTFE/FKM)	length L [mm]	weight [kg]
HZ-RKH-G-02	HZ-RKH-G-02-T-V	4	1/8	400	100	69	0.35
HZ-RKH-G-04	HZ-RKH-G-04-T-V	6	1/4	400	100	69	0.35
HZ-RKH-G-06	HZ-RKH-G-06-T-V	10	3/8	400	100	73	0.50
HZ-RKH-G-08	HZ-RKH-G-08-T-V	13	1/2	400	100	85	0.65
HZ-RKH-G-12	HZ-RKH-G-12-T-V	20	3/4	350	100	96	1.50
HZ-RKH-G-16	HZ-RKH-G-16-T-V	25	1	350	100	113	2.00
HZ-RKH-G-20	HZ-RKH-G-20-T-V	32	1.1/4	400	63	110	3.80
HZ-RKH-G-24	HZ-RKH-G-24-T-V	40	1.1/2	400	63	120	6.10
HZ-RKH-G-32	HZ-RKH-G-32-T-V	50	2	400	63	140	9.10



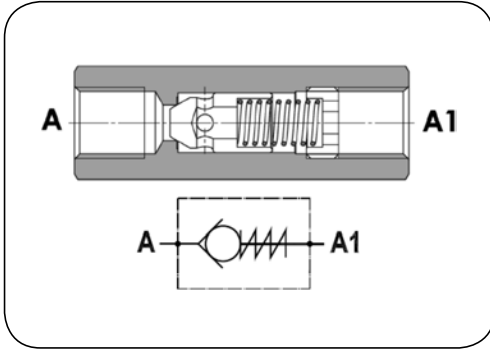
Ball valve RK3L

Material:	Body	- AISI 316Ti
	Ball	- AISI 316Ti
	Stem	- AISI 316Ti
Seal:	Ball	- POM or PTFE
	Stem	- FKM
Working temp.:	POM	(from -40°C up to +100°C)
	PTFE	(from -200°C up to +250°C)
	FKM	(from -20°C up to +200°C)

3-way ball valve, type L, with BSP female thread, intended for high pressure hydraulic and industrial installations (chemicals, petrochemical products, solvents and paints, marine installations, water, gases). In order to match the valve to the media other than hydraulic oil or higher working temperatures appropriately, please contact Technical or Sales Department of TUBES INTERNATIONAL®.

code (POM/FKM)	code (PTFE/FKM)	DN [mm]	thread size D [inch]	working press. [bar] (POM/FKM)	working press. [bar] (PTFE/FKM)	length L [mm]	spanner [mm]
HZ-RK3L-G-02	HZ-RK3L-G-02-T-V	4	1/8	400	100	69	22
HZ-RK3L-G-04	HZ-RK3L-G-04-T-V	6	1/4	400	100	69	22
HZ-RK3L-G-06	HZ-RK3L-G-06-T-V	10	3/8	400	100	73	27
HZ-RK3L-G-08	HZ-RK3L-G-08-T-V	13	1/2	400	100	85	30
HZ-RK3L-G-12	HZ-RK3L-G-12-T-V	20	3/4	320	100	96	41
HZ-RK3L-G-16	HZ-RK3L-G-16-T-V	25	1	350	100	113	46
HZ-RK3L-G-20	HZ-RK3L-G-20-T-V	32	1.1/4	350	63	110	60
HZ-RK3L-G-24	HZ-RK3L-G-24-T-V	40	1.1/2	250	63	120	70
HZ-RK3L-G-32	HZ-RK3L-G-32-T-V	50	2	250	63	140	85

HIGH PRESSURE - valves

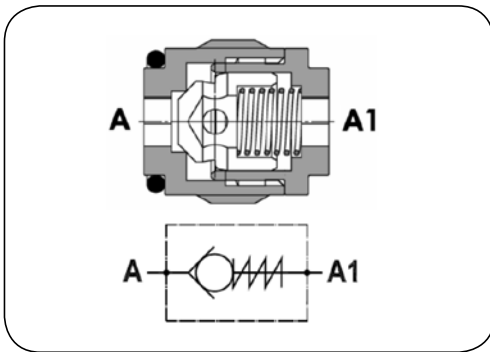


Check valve FPR

Material: Body - galvanized steel
Stem - hardened steel

Check valves, FPR type, designed for closing hydraulic fluid flow in one direction and opening free hydraulic fluid flow in the opposite direction. Standard opening pressure: 0.5 bar (2.5; 5 and 10 bar available).
Allowable flow direction: A → A1.

code	thread size [inch]	working pressure [bar]	bursting pressure [bar]	flow rate [l/min]	weight [kg]
DC-FPR-04	1/4	350	1400	12	0.10
DC-FPR-06	3/8	350	1400	30	0.17
DC-FPR-08	1/2	320	1280	45	0.22
DC-FPR-12	3/4	300	1200	85	0.45
DC-FPR-16	1	250	1000	130	0.97
DC-FPR-20	1.1/4	250	1000	200	1.68
DC-FPR-24	1.1/2	210	840	310	2.10



Check valve FPRI

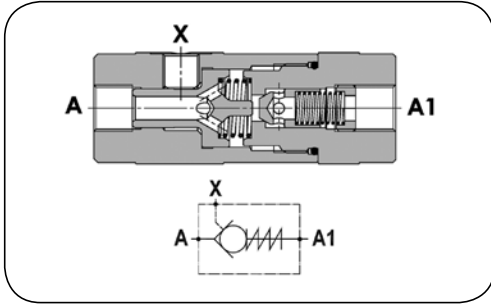
Material: Body - steel
Stem - hardened steel

Seal: NBR
Working temp.: From -20°C up to +90°C

Check (cartridge) valve, FPRI type, designed for closing hydraulic fluid flow in one direction and opening free hydraulic fluid flow in the opposite direction. Standard opening pressure: 1 bar.
Allowable flow direction: A → A1.

code	thread size [inch]	working pressure [bar]	bursting pressure [bar]	flow rate [l/min]	weight [kg]
DC-FPRI-04	1/4	350	1400	15	0.015
DC-FPRI-06	3/8	350	1400	30	0.025
DC-FPRI-08	1/2	350	1400	45	0.040
DC-FPRI-12	3/4	300	1200	80	0.070

HIGH PRESSURE - valves



Controlled check valve FPS

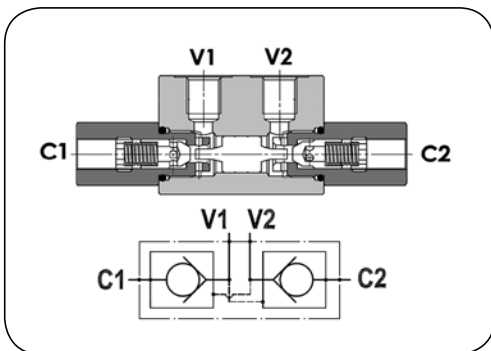
Material: Body - galvanized steel
Stem - hardened steel

Seal: NBR

Working temp.: From -20°C up to +90°C

FPS valve allows free flow of hydraulic fluid in one direction (A → A1) and opening the fluid flow in the opposite direction (A1 → A) but only by X pilot pressure signal. Standard opening pressure (A → A1) 0.5 bar. The pressure required for the X pilot pressure signal to open the flow in the opposite direction (A1 → A) is determined by the product of the multiplication of a pilot ratio and the pressure value on A1 side.

code	thread size [inch]	thread size X [inch]	working pressure [bar]	flow rate [l/min]	pilot ratio	weight [kg]
DC-FPS-04	1/4	1/4	350	12	1:5	0.65
DC-FPS-06	3/8	1/4	310	30	1:4.4	0.82
DC-FPS-08	1/2	1/4	310	45	1:4.2	0.96
DC-FPS-12	3/4	1/4	300	80	1:4	1.95



Controlled check valve FPD

Material: Body - galvanized steel
Springs - hardened steel
Stem - hardened steel

Seal: NBR

Working temp.: From -20°C up to +90°C

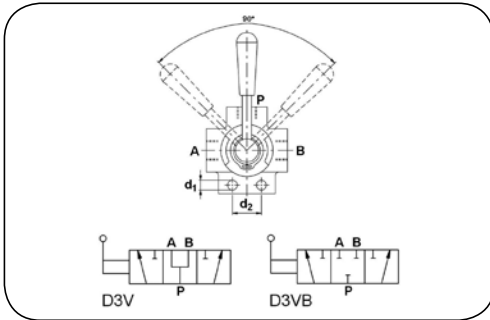
Controlled check valve (hydraulic lock), FPD type, applied in hydraulic systems to prevent automatic drop of an actuator. Standard opening pressure: 2 bar (5 and 10 bar available).

Allowable flow directions: V1 → C1 and simultaneously C2 → V2, V2 → C2 and simultaneously C1 → V1.

code	thread size [inch]	working pressure [bar]	bursting pressure [bar]	flow rate [l/min]	weight [kg]
DC-FPD-04	1/4	300	1200	12	0.65
DC-FPD-06-30L*	3/8	300	1200	30	0.63
DC-FPD-06	3/8	300	1200	30	1.75
DC-FPD-08	1/2	250	1000	45	1.78
DC-FPD-12	3/4	280	1120	85	3.25

HIGH PRESSURE - valves

Hydraulic directional control valves



Hand switching valve D3V

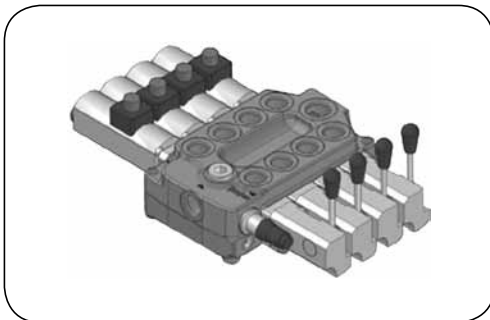
Material: Body - iron casting
Stem - hardened steel

Seal: NBR

Working temp.: From -20°C up to +90°C

Hand switching 3-way valve used in hydraulic systems to control fluid flow direction. Controlled by manual lever.

code	thread size [inch]	working pressure [bar]	flow rate [l/min]	D1 [mm]	D2 [mm]
DC-D3V-04	1/4	300	30	8.5	24
DC-D3V-06	3/8	250	35	8.5	24
DC-D3V-08	1/2	250	60	10.5	32
DC-D3V-12	3/4	250	100	10.5	32
DC-D3V-16	1	250	180	11	32
DC-D3VB-04	1/4	300	30	8.5	24
DC-D3VB-06	3/8	250	35	8.5	24
DC-D3VB-08	1/2	250	60	10.5	32
DC-D3VB-12	3/4	250	100	10.5	32
DC-D3VB-16	1	250	180	11	32



Directional control valves SALAMI

6-way, spool, directional control valves designed for hydraulic installations of cranes, hoists but also other construction, agricultural and industrial machines. They are used to control the fluid flow direction. There are two versions of the valves: sectional or monoblock (cast iron housing). The flow rate depends on a type and ranges from 45 to 180 l/min at maximum working pressure 350 bar. A single directional control valve can have up to 8 working sections.

type	version	nominal flow [l/min]	max. working pressure [bar]	number of working sections
VDM6	monoblock	45	350	7
VDM6A	monoblock	45	350	7
VDM09	monoblock	75	280	6
VDM8	monoblock	75	350	5
VD6A	sectional	45	350	8
VD8A	sectional	75	350	8
VD10A	sectional	120	280	8
VD12A	sectional	180	280	8

HIGH PRESSURE - valves

Hydraulic directional control valves



YFM35, YFM55 type

Material: Body - cast iron
Spools - hardened steel

Seal: NBR

Max. working press.: 315 bar

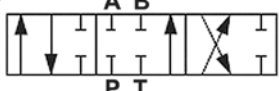

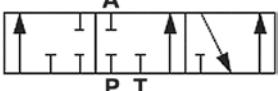
Max. return pressure: 25 bar

Working temp.: From -20°C up to +80°C

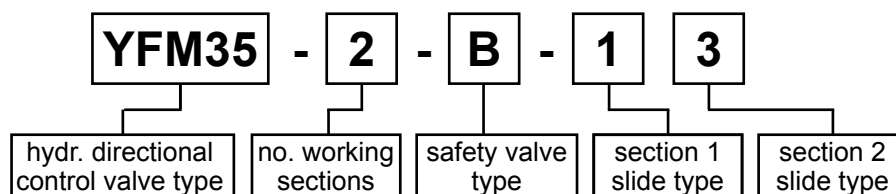
Monoblock spool directional control valve with a manual lever and centring springs. Designed for hydraulic systems used in cranes, hoists, construction, agricultural and industrial machines. Equipped with C type safety valve (set at 140 bar) and type 1 spool as a standard.

code	number of work. sections	safety valve type	nominal flow	connection port size		
				P (pump)	T (tank)	A, B (receiver)
YFM35 type						
TL-YFM35-1-C-1	1	C	45 l/min	3/8" BSP female thread	3/8" BSP female thread	3/8" BSP female thread
TL-YFM35-2-C-11	2					
TL-YFM35-3-C-111	3					
TL-YFM35-4-C-1111	4					
TL-YFM35-5-C-11111	5					
TL-YFM35-6-C-111111	6					
YFM55 type						
TL-YFM55-1-C-1	1	C	60 l/min	1/2" BSP female thread	1/2" BSP female thread	1/2" BSP female thread
TL-YFM55-2-C-11	2					
TL-YFM55-3-C-111	3					
TL-YFM55-4-C-1111	4					
TL-YFM55-5-C-11111	5					
TL-YFM55-6-C-111111	6					

safety valve types			
A type (without a valve)	B type (40 ÷ 80 bar)	C type (63 ÷ 200 bar)	D type (160 ÷ 315 bar)

slide types		
1 type 	2 type 	3 type 

Code structure



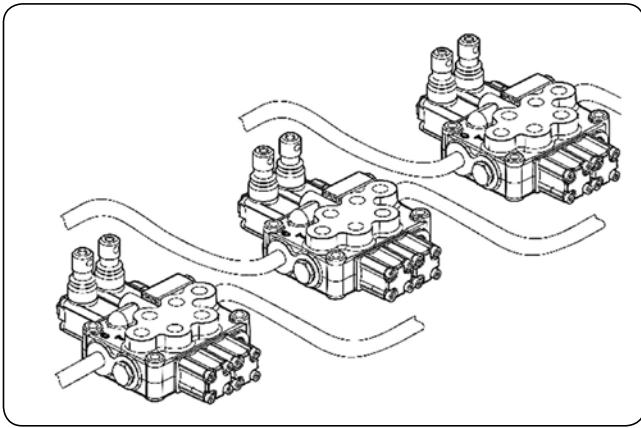
HIGH PRESSURE - valves

Hydraulic directional control valves

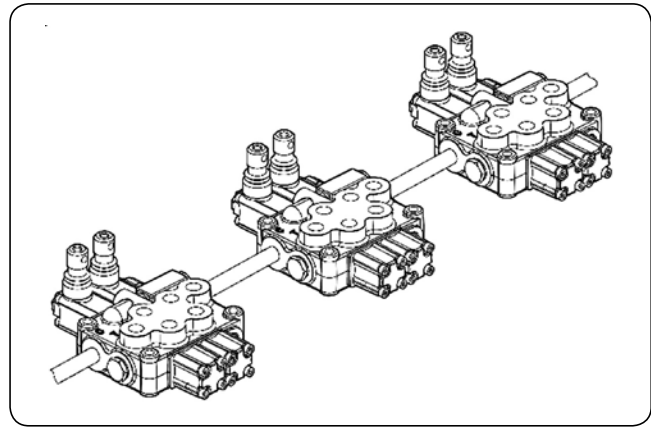
Other solutions - on request

type	description	hydraulic symbol
YFM35 YFM55	detent mechanism 3 positions spool control locked(1, 0, 2)	
YFM35 YFM55	detent mechanism 3 positions spool control locked (2)	
YFM35 YFM55	detent mechanism 3 positions spool control locked (1)	
YFM35 YFM55	pneumatic spool control min. 5.5 bar; max. 10 bar; 1/8" NPT	
YFM35 YFM55	remote control mechanism cable length from 1 to 6 meters	

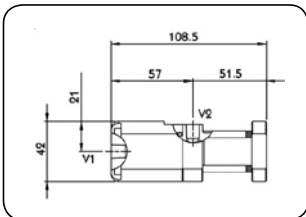
Power beyond - YFM35 and YFM55 directional control valves featuring an adapter. If installed inside the valve housing, the adapter allows to carry over the power beyond the circuit. In other words, the adapter blocks a direct connection between a pressure channel (P) and a tank channel (T). So as a result, unused hydraulic fluid under pressure gets directed to other parts of hydraulic system in order to supply other elements.



regular operation mode



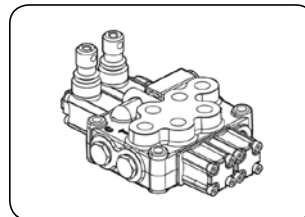
operation with power beyond function



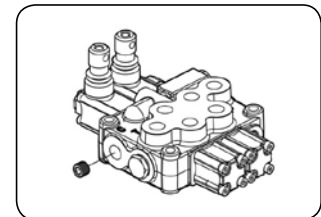
pneumatic control



remote control



regular operation mode



operation with power beyond function

HIGH PRESSURE - valves

Hydraulic directional control valves



YE45 type

Material: Body - iron cast
Spools - hardened steel

Seal: NBR

Max. working press.: 250 bar

Max. return pressure: 25 bar

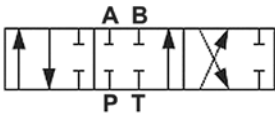
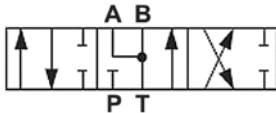
Control voltage: 12 V DC

Working temp.: From -20°C up to +80°C

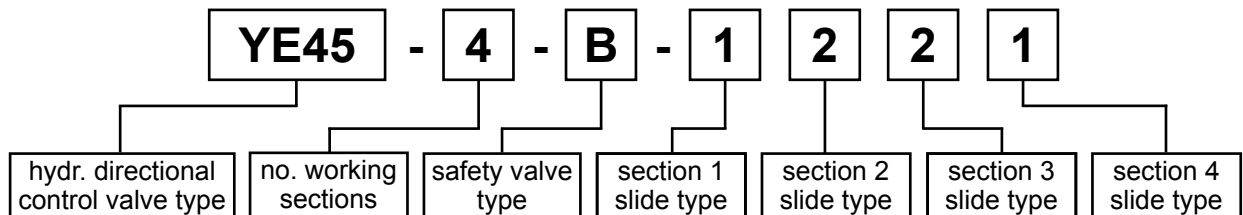
Monoblock spool directional control valve with electrically controlled centring springs. Designed for hydraulic systems used in cranes, hoists, construction, agricultural and industrial machines. Equipped with C type safety valve (set at 140 bar) and type 1 spools.

code	number of work. sections	safety valve type	nominal flow	connection port size		
				P (pump)	T (tank)	A, B (receiver)
TL-YE45-1-C-1	1	C	45 l/min	3/8" BSP female thread	3/8" BSP female thread	3/8" BSP female thread
TL-YE45-2-C-11	2					
TL-YE45-3-C-111	3					
TL-YE45-4-C-1111	4					
TL-YE45-5-C-11111	5					
TL-YE45-6-C-111111	6					

safety valve types			
A type (without valve)	B type (40 ÷ 80 bar)	C type (63 ÷ 200 bar)	D type (160 ÷ 315 bar)

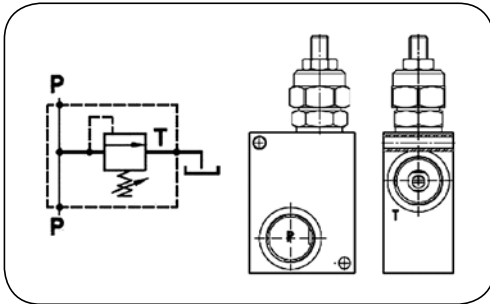
slide types	
1 type 	2 type 

code structure



HIGH PRESSURE - valves

Hydraulic safety valves



Pressure relief valve FPM

Material: Body - aluminium
Stem - zinc-plated steel

Seal: NBR

Working temp.: From -20°C up to +90°C

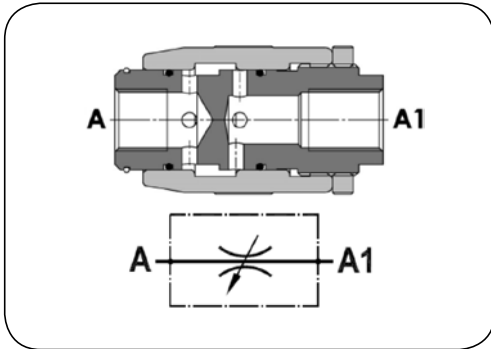
FPM safety valve limits the maximum pressure in a hydraulic system. The valve enables hydraulic fluid to flow freely between P connection ports. When the pressure rises above the set value, T passage opens and the excessive pressurised fluid is relieved out of the system, into the tank. The maximum pressure value is set with an adjusting screw (set with a hex wrench, locked with a locking nut).

code	thread size [inch]	flow rate [l/min]	set pressure range [bar]	set pressure adjustment [bar/turn]	weight [kg]
DC-FPM-40P05-06	3/8	40	5 ÷ 50	10	0.41
DC-FPM-40P10-06	3/8	40	30 ÷ 100	20	0.41
DC-FPM-40P20-06	3/8	40	50 ÷ 220	40	0.41
DC-FPM-40P05-08	1/2	40	5 ÷ 50	10	0.41
DC-FPM-40P10-08	1/2	40	30 ÷ 100	20	0.41
DC-FPM-40P20-08	1/2	40	50 ÷ 220	40	0.41
DC-FPM-70P05-08	1/2	80	5 ÷ 50	10	0.73
DC-FPM-70P10-08	1/2	80	30 ÷ 100	20	0.73
DC-FPM-70P20-08	1/2	80	80 - 280*	40	0.73
DC-FPM-70P05-12	3/4	80	5 ÷ 50	10	0.73
DC-FPM-70P10-12	3/4	80	30 ÷ 100	20	0.73
DC-FPM-70P20-12	3/4	80	80 ÷ 280*	40	0.73

* - be very careful not to set the pressure value higher than 250 bar (max. working pressure of the valve body).

HIGH PRESSURE - valves

Throttle and safety valves



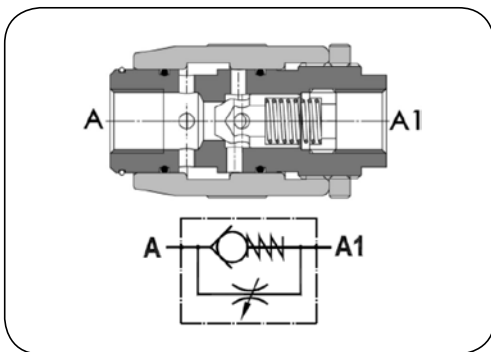
Throttle valve FPMB

Material: Body - galvanized steel
Seal: NBR
Working temp.: From -20°C up to +90°C

Adjustable throttle valve, FPMB type, used in hydraulic systems to control a flow rate. The flow rate is controlled by a rotary ring.

Allowable flow direction: A → A1, A1 → A.

code	thread size [inch]	working pressure [bar]	bursting pressure [bar]	flow rate [l/min]	weight [kg]
DC-FPMB-04	1/4	350	1400	12	0.28
DC-FPMB-06	3/8	350	1400	30	0.43
DC-FPMB-08	1/2	310	1240	45	0.63
DC-FPMB-12	3/4	280	1120	85	1.05
DC-FPMB-16	1	250	1000	150	1.96



Throttle check valve FPMU

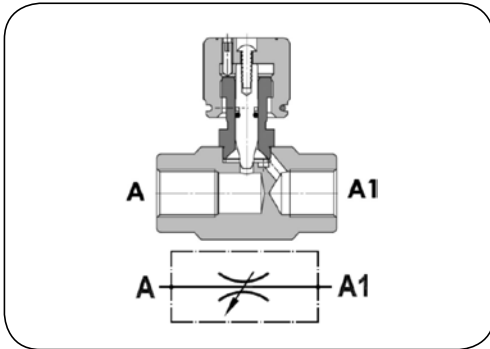
Material: Body - galvanized steel
 Stem - hardened steel
Seal: NBR
Working temp.: From -20°C up to +90°C

Throttle check valves, FPMU type, used in hydraulic systems to open a free flow in one direction. The flow, throttled in the opposite direction, is controlled by a rotary ring. Standard opening pressure: 0.5 bar (2.5; 5 and 10 bar available). Allowable flow direction: A → A1 (free), A1 → A (throttled).

code	thread size [inch]	working pressure [bar]	bursting pressure [bar]	flow rate [l/min]	weight [kg]
DC-FPMU-04	1/4	350	1400	12	0.28
DC-FPMU-06	3/8	350	1400	30	0.43
DC-FPMU-08	1/2	310	1240	45	0.63
DC-FPMU-12	3/4	280	1120	85	1.05
DC-FPMU-16	1	250	1000	150	1.96

HIGH PRESSURE - valves

Throttle and safety valves



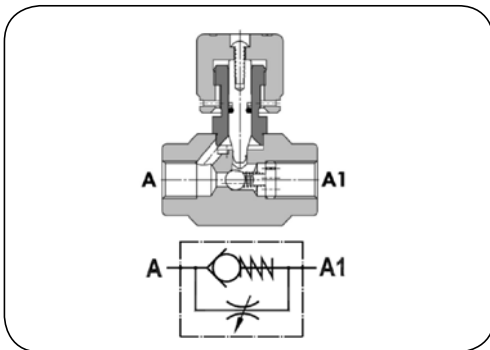
Throttle valve FPSB

Material: Body - galvanized steel
Knob - steel
Seal: NBR
Working temp.: From -20°C up to +90°C

Adjustable throttle valve, FPSB type, used in hydraulic systems to control a flow rate. The flow rate is controlled by a handwheel.

Allowable flow direction: A → A1, A1 → A.

code	thread size [inch]	working pressure [bar]	bursting pressure [bar]	flow rate [l/min]	weight [kg]
DC-FPSB-04	1/4	300	1200	12	0.30
DC-FPSB-06	3/8	300	1200	30	0.31
DC-FPSB-08	1/2	280	1120	45	0.31



Throttle check valve FPSU

Material: Body - galvanized steel
Spring - steel
Ball - steel
Knob - steel
Seal: NBR
Working temp.: From -20°C up to +90°C

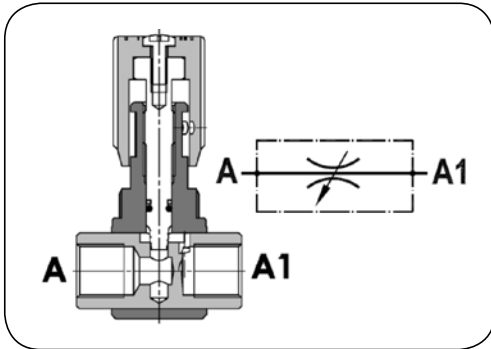
Throttle check valve, FPSU type, used in hydraulic systems to open free flow in one direction. The flow, throttled in the opposite direction, is controlled by a rotary ring. Standard opening pressure: 0.5 bar.

Allowable flow direction: A → A1 (free), A1 → A (throttled).

code	thread size [inch]	working pressure [bar]	bursting pressure [bar]	flow rate [l/min]	weight [kg]
DC-FPSU-04	1/4	300	1200	12	0.31
DC-FPSU-06	3/8	300	1200	25	0.31
DC-FPSU-08	1/2	280	1120	40	0.31

HIGH PRESSURE - valves

Throttle and safety valves



Throttle valve FPB

Material: Body - galvanized steel
Wheel - plastic

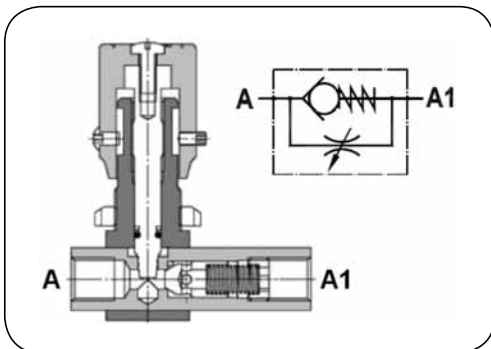
Seal: NBR

Working temp.: From -20°C up to +90°C

Adjustable throttle valve, FPB type, used in hydraulic systems to control a flow rate. The flow rate is controlled by a wheel.

Allowable flow direction: A → A1, A1 → A.

code	thread size [inch]	working pressure [bar]	bursting pressure [bar]	flow rate [l/min]	weight [kg]
DC-FPB-04	1/4	300	1200	12	0.21
DC-FPB-06	3/8	300	1200	30	0.35
DC-FPB-08	1/2	280	1120	45	0.50
DC-FPB-12	3/4	250	1000	85	0.87



Throttle check valve FPU

Material: Body - galvanized steel
Spring - steel
Stem - steel
Knob - plastic

Seal: NBR

Working temp.: From -20°C up to +90°C

Throttle check valve, FPSU type, used in hydraulic systems to open free flow in one direction. The flow, throttled in the opposite direction, is controlled by a rotary ring. Standard opening pressure: 0.5 bar (2.5, 5 and 10 bar available).

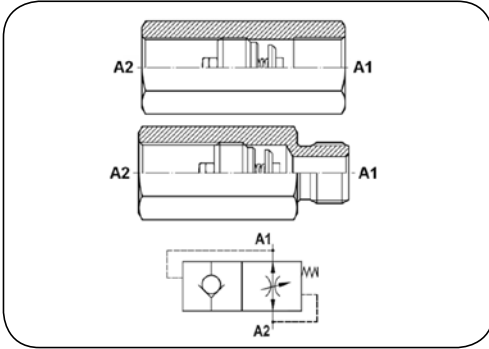
Allowable flow direction: A → A1 (free), A1 → A (throttled).

code	thread size [inch]	working pressure [bar]	bursting pressure [bar]	flow rate [l/min]	weight [kg]
DC-FPU-04	1/4	300	1200	12	0.25
DC-FPU-06	3/8	300	1200	30	0.42
DC-FPU-08	1/2	280	1120	45	0.60
DC-FPU-12	3/4	250	1000	85	1.10

picture	code	valve size [inch]	thread size [mm]	description
	DC-TP-04	1/4	M21x1	Tightening nut designed for mounting valves of FPB or FPU type. Material: galvanized steel.
	DC-TP-06	3/8	M25x1.5	
	DC-TP-08	1/2	M30x1.5	
	DC-TP-12	3/4	M35x1.5	

HIGH PRESSURE - valves

Throttle and safety valves



Safety valve FFP, MFP

Material: Galvanized steel

Safety valve secures hydraulic system from oil leakage in case of sudden depressurisation (e.g. failure of hose assembly).

Allowable flow direction: A1 → A2 (valve), A2 → A1 (without valve).

code	thread size [inch]	working pressure [bar]	bursting pressure [bar]	flow rate [l/min]	weight [kg]
FFP type (BSP female thread)					
DC-FFP-04	1/4	350	1400	25	0.08
DC-FFP-06	3/8	350	1400	50	0.11
DC-FFP-08	1/2	350	1400	80	0.18
DC-FFP-12	3/4	350	1400	150	0.40
DC-FFP-16	1	300	1200	200	0.88
MFP type (BSP male thread)					
DC-MFP-04	1/4	350	1400	25	0.08
DC-MFP-06	3/8	350	1400	50	0.12
DC-MFP-08	1/2	350	1400	80	0.21
DC-MFP-12	3/4	350	1400	150	0.41
DC-MFP-16	1	300	1200	200	0.86

HIGH PRESSURE - valves

Block valves and adapters



Control valves NG6, NG10 type

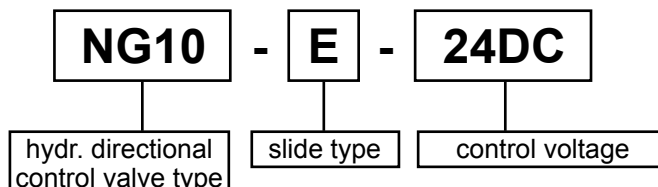
Material: Body - steel
 Spool - hardened steel
Seal: NBR
Max. working press.: 315 bar
Control voltage: 24 V DC
Working temp.: From -20°C up to +80°C

Monoblock spool directional control valve, electrically controlled, with centring springs designed for panel mounting. Used in hydraulic systems of industrial machines. Supplied with O-rings and mounting screws as a standard. Plugs are equipped with LEDs indicating status of power supply.

code	nominal flow	slide type	main view
NG6 type			
TL-NG6-E-24DC	60 l/min	E	
TL-NG6-G-24DC		G	
TL-NG6-H-24DC		H	
TL-NG6-J-24DC		J	
TL-NG6-HA-24DC		HA	
TL-NG6-A-24DC		A	
TL-NG6-D-24DC		D	
TL-NG6-HB-24DC		HB	
NG10 type			
TL-NG10-E-24DC	120 l/min	E	
TL-NG10-G-24DC		G	
TL-NG10-H-24DC		H	
TL-NG10-J-24DC		J	
TL-NG10-HA-24DC		HA	
TL-NG10-A-24DC		A	
TL-NG10-D-24DC		D	
TL-NG10-HB-24DC		HB	

slide types		
E type 	G type 	H type
J type 	HA type 	A type
D type 	HB type 	

Code structure



HIGH PRESSURE - valves

Block valves and adapters



Material: Steel
Seal: NBR
Max: working press.: 315 bar
Ambient temp.: From -20°C up to +50°C
Medium temp.: From -20°C up to +70°C

Check valve AKV

code	type	flow rate [l/min]	working pressure [bar]	hydraulic symbol
TL-ZAKV-6-D	NG6	40	315	
TL-ZAKV-10-D	NG10	100	315	
TL-ZAKV-6-P	NG6	40	315	
TL-ZAKV-10-P	NG10	100	315	
TL-ZAKV-6-A	NG6	40	315	
TL-ZAKV-10-A-	NG10	100	315	

Controlled check valve APKV

code	type	flow rate [l/min]	working pressure [bar]	hydraulic symbol
TL-ZAPKV-6-D	NG6	60	315	
TL-ZAPKV-10-D	NG10	80	315	
TL-ZAPKV-6-A	NG6	60	315	
TL-ZAPKV-10-A	NG10	80	315	
TL-ZAPKV-6-B	NG6	60	315	
TL-ZAPKV-10-B	NG10	80	315	

HIGH PRESSURE - valves

Block valves and adapters

Safety valve LPKV

code	type	flow rate [l/min]	set pressure range [bar]	hydraulic symbol
TL-ZLPKV-6-D-100	NG6	60	0 ÷ 100	
TL-ZLPKV-6-D-315	NG6	60	0 ÷ 315	
TL-ZLPKV-10-D-100	NG10	100	0 ÷ 100	
TL-ZLPKV-10-D-315	NG10	100	0 ÷ 315	
TL-ZLPKV-6-P-100	NG6	60	0 ÷ 100	
TL-ZLPKV-6-P-315	NG6	60	0 ÷ 315	
TL-ZLPKV-10-P-100	NG10	100	0 ÷ 100	
TL-ZLPKV-10-P-315	NG10	100	0 ÷ 315	
TL-ZLPKV-6-A-100	NG6	60	0 ÷ 100	
TL-ZLPKV-6-A-315	NG6	60	0 ÷ 315	
TL-ZLPKV-10-A-100	NG10	100	0 ÷ 100	
TL-ZLPKV-10-A-315	NG10	100	0 ÷ 315	

Throttle check valve RCKV

code	type	flow rate [l/min]	working pressure [bar]	hydraulic symbol
TL-ZRCKV-6-D	NG6	80	315	
TL-ZRCKV-10-D	NG10	160	315	




HIGH PRESSURE - valves


Block valves and adapters

Panel mounting plates PNG6 and PNG10 allows to connect valves designed for plate mounting with high pressure hose assemblies.


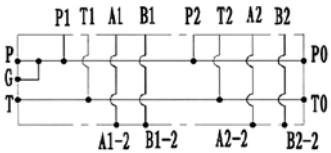
Material: Steel.

Max. working press.: 350 bar.

picture	code	type	connection port size	description
	TL-PNG6-D38	NG6	3/8" BSP female	For connection of directional valve NG6 type with hose assemblies. Connection ports located on the bottom part of the plate.
	TL-PNG6-B38	NG6	3/8" BSP female	For connection of directional valve NG6 type with hose assemblies. Connection ports located on the side parts of the plate.
	TL-PNG10-D12	NG10	1/2" BSP female	For connection of directional valve NG10 type with hose assemblies. Connection ports located on the bottom part of the plate.

picture	code	1 type	2 type	description
	TL-PNG10-6	NG10	NG6	Adapter PNG10 / PNG6

A block intended to connect NG6 type valves with hose assemblies. Connection ports at the sides of the block. Additional G connection port for a pressure gauge. Connection port sizes: 1/2" BSP female thread (P and T), 3/8" BSP female thread (A and B). Max. working pressure: 315 bar.

picture*	code	type	ino. of valves	hydraulic diagram**
	TL-PNG6-PF2PL	NG6	2	
	TL-PNG6-PF3PL		3	
	TL-PNG6-PF4PL		4	
	TL-PNG6-PF5PL		5	
	TL-PNG6-PF6PL		6	
	TL-PNG6-PF7PL		7	
	TL-PNG6-PF8PL		8	

* - picture of a block with TL-PNG6-PF3PL code

** - hydraulic diagram of a block with TL-PNG6-PF2PL code