

5 SHUT-OFF VALVES

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5 SHUT-OFF VALVES

5.1 General

5.1.1 Principle / Heat-Insulation / Jacket-Pipe

Principle

isoplus shut-off valves assembling will be made at open valve position and will be not permitted at the area of L-, Z- or U-elbows due to bending tension which will occur. After flushing of the line the first closing procedure can be carried out. Position in between should be avoided. Do not over wind the stop position. Using of inexpert prolongation is not permitted.

Heat-Insulation

Shut-off valves will be insulated with Polyurethane-hard-foam (PUR) according to EN 253. Polyurethane-hard-foam consists of two components Polyol (component A, bright) and Isocyanat (component B, dark). **isoplus** is using generally PUR-foam which is 100 % free of chlorofluorocarbon (CFC). Cyclopentan is exclusively used as foaming agent. That means lowest possible ODP- and GWP-value at extremest heat insulation quality. ODP (ozone-reducing potential) = 0, GWP (greenhouse potential) = < 0,001 !

Jacket-Pipe

PEHD - Polyethylene High Density is a seamless extruded, shock- and break proof, viscoplastic hard polyethylene up to -50° C. General quality requirements according to DIN 8075. Corona treated for optimum compound with PUR-hard-foam according to EN 253.

Dimensions and wall thickness must be at least in accordance with EN 253. Testing of the melting index (MFI Group) is carried out in accordance with DIN 53735 and ISO 1133. PEHD is a proven plastic that has been used successfully for many years in the plastic jacket pipe system.

PEHD is resistant against weather conditions and UV-rays in a high extent as well as practically against all chemical reactions which may develop in the soil. Therefore PE is declared in all national and international standards as the only suitable material for direct buried pipe-laying.

isoplus exclusively uses polyurethane materials equipped with light stabilizers. As required by EN 253, the polyurethane pipes are effectively protected against UV-rays by adding special, very fine carbon blacks with 2.5 ± 0.5 percent by mass.

Due to the excellent welding properties of PEHD, the welding seams of the moulded parts have a high degree of safety and quality. PEHD bend segments are brought together with a mirror welding machine and butt welded. The fillet welds at branch connections are carried out with an extruder welding machine.

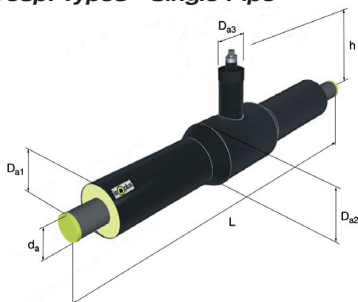
Accessories see **chapter 5.4**

Assembly information shut-off valves see **chapter 10.2.5**

Material specification jacket-pipe see **chapter 2.1.4**

Material specification PUR-hard-foam see **chapter 7.1.7**

5.2.1 Dimensions resp. Types - Single Pipe



Dimensions Steel Pipe				Jacket-Pipe Outside-Ø D _{a1} / D _{a2} in mm			Dimensions Dome		Overall-length L in mm	
Nominal Diameter / Dimension in	Outside- Ø d _a in mm	Wall- thickness s in mm	Insulation Class			Jacket-Pipe- Outside-Ø D _{a3} in mm	Overall resp. axes height h in mm			
			Standard	1x reinforced	2x reinforced					
DN	Inches									
25	1"	33,7	3,2	90 / 110	110 / 110	125 / 125	110	480	1500	
32	1¼"	42,4	3,2	110 / 125	110 / 125	125 / 125	140 / 140	110	485	1500
40	1½"	48,3	3,2	110 / 125	125 / 125	140 / 140	110	495	1500	
50	2"	60,3	3,2	125 / 140	140 / 140	160 / 160	110	500	1500	
65	2½"	76,1	3,2	140 / 160	160 / 160	180 / 180	110	505	1500	
80	3"	88,9	3,2	160 / 180	180 / 180	200 / 200	110	515	1500	
100	4"	114,3	3,6	200 / 225	225 / 225	250 / 250	125	525	1500	
125	5"	139,7	3,6	225 / 250	250 / 250	280 / 280	140	545	1500	
150	6"	168,3	4,0	250 / 280	280 / 280	315 / 315	140	565	1500	
200	8"	219,1	4,5	315 / 355	355 / 355	400 / 400	140	585	1500	
250	10"	273,0	5,0	400 / 450	450 / 450	500 / 500	180	625	1500	
300	12"	323,9	5,6	450 / 500	500 / 500	560 / 560	180	665	1800	

Carrier pipe at least acc. to EN 488, from wall thickness > 3,0 mm with weld seam preparation by 30° bevelled ends acc. to DIN EN ISO 9692-1. Length of bare steel pipe ends: 220 mm ± 10 mm.

ATTENTION: The mentioned construction measures are only valid for the standard product used by isoplus, other available type's resp. dimensions on request. In some available types of ball valves is a conical square cover included. Up to nominal diameter DN 125 the isoplus-spindle prolongation can be used, which can be operated with any standard T-key. Starting from DN 150 this accoutrement should preferable be used by a gear, spindle prolongation or other accessories from the ball valves producers. Orders should indicate exactly type and kind of operation, T-key or slip-on gear.

All standard types with reduced flow are also available in full bore. Fully bored fittings are available as special components. The h and L dimensions may differ slightly due to the fabrication. Slip-on protection pipes are available in various versions. Slip-on protection pipes are not included in delivery range of shut-off valves and are separately to order.

Accessories see **chapter 5.4**

Assembling information shut-off valve see **chapter 10.2.5**

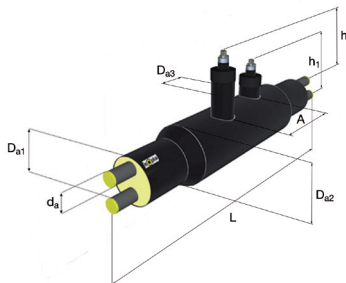
Material specification jacket-pipe see **chapter 2.1.4**

Material specification PUR-hard-foam see **chapter 7.1.7**

5 SHUT-OFF VALVES

5.2 Shut-Off Valve

5.2.2 Dimensions resp. Types - Double Pipe



Dimensions Steel Pipe				Jacket-Pipe-Ø D _{a1} / D _{a2} in mm		Dimensions Dome				Overall length
Nominal Diameter / Dimension in	Outside Ø d _a	Wall- thickn. s		Insulation Class		Jacket- Pipe- Outside-Ø D _{a3} in mm	Overall resp. axes height h in mm	Overall resp. axes height h ₁ in mm	Axes- distance dome A in mm	L in mm
				Standard	1x reinforced					
DN	Inches	in mm	in mm							
2 • 25	1"	33,7	3,2	140 / 200	160 / 225	110	480	480	250	2200
2 • 32	1¼"	42,4	3,2	160 / 225	180 / 250	110	485	485	250	2200
2 • 40	1½"	48,3	3,2	160 / 225	180 / 250	110	495	495	250	2200
2 • 50	2"	60,3	3,2	200 / 280	225 / 315	110	500	500	250	2200
2 • 65	2½"	76,1	3,2	225 / 315	250 / 355	110	505	505	250	2200
2 • 80	3"	88,9	3,2	250 / 355	280 / 400	110	515	515	250	2200
2 • 100	4"	114,3	3,6	315 / 450	355 / 500	140	525	525	250	2200
2 • 125	5"	139,7	3,6	400 / 560	450 / 560	140	545	545	300	2400
2 • 150	6"	168,3	4,0	450 / 630	500 / 630	140	565	565	300	2600
2 • 200	8"	219,1	4,5	560 / 800	630 / 800	140	585	850	400	2800

Carrier pipe at least acc. to EN 488, from wall thickness > 3,0 mm with weld seam preparation by 30° bevelled ends acc. to DIN EN ISO 9692-1. Length of bare steel pipe ends: 220 mm ± 10 mm. Clear pipe-distance (h_g) like pipe bars, see **chapter 2.3.2**.

ATTENTION: The mentioned construction measures are only valid for the standard product used by **isoplus**, other available type's resp. dimensions on request. In some available types of ball valves is a conical square cover included. Up to nominal diameter DN 125 the **isoplus**-spindle prolongation can be used, which can be operated with any standard T-key. Starting from DN 150 this accoutrement should preferable be used by a gear, spindle prolongation or other accessories from the ball valves producers. Orders should indicate exactly type and kind of operation, T-key or slip-on gear. All standard types with reduced flow are also available in full bore. Fully bored fittings are available as special components. The h and L dimensions may differ slightly due to the fabrication. Slip-on protection pipes are available in various versions. Slip-on protection pipes are not included in delivery range of shut-off valves and are separatly to order.

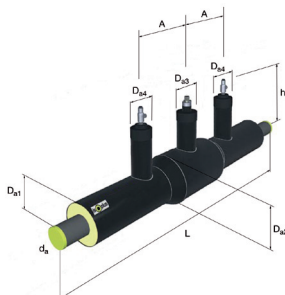
Accessories see **chapter 5.4**

Assembling information see **chapter 10.2.5**

Material specification jacket-pipe see **chapter 2.1.4**

Material specification PUR-hard foam see **chapter 7.1.7**

5.3.1 Dimensions resp. Types - Single Pipe



Dimensions Nominal Passage					Drain / Vent			Dome- Ø D _{a3} in mm	Axes- distance ELE/ELU to dome A in mm	Overall- length L in mm	
Steel Pipe			Jacket-Pipe-Outside-Ø D _{a1} / D _{a2} in mm			Nom. Diam. in DN	Jacket- Pipe- Outside-Ø D _{a4} in mm				Overall resp. axes height h in mm
Nominal Diameter in DN	Outside- Ø d _a in mm	Wall- thickness s in mm	Insulation Class								
			Standard	1x reinforced	2x reinforced						
25	33,7	3,2	90 / 110	110 / 110	125 / 125	25	110	480	110	300	2000
32	42,4	3,2	110 / 125	125 / 125	140 / 140	25	110	485	110	300	2000
40	48,3	3,2	110 / 125	125 / 125	140 / 140	25	110	495	110	300	2000
50	60,3	3,2	125 / 140	140 / 140	160 / 160	25	110	500	110	300	2000
65	76,1	3,2	140 / 160	160 / 160	180 / 180	25	110	505	110	300	2000
80	88,9	3,2	160 / 180	180 / 180	200 / 200	50	125	515	110	300	2000
100	114,3	3,6	200 / 225	225 / 225	250 / 250	50	125	525	140	350	2000
125	139,7	3,6	225 / 250	250 / 250	280 / 280	50	125	545	140	350	2000
150	168,3	3,6	250 / 280	280 / 280	315 / 315	50	125	565	140	350	2000
200	219,1	4,0	315 / 355	355 / 355	400 / 400	50	125	585	140	500	2000
250	273,0	4,5	400 / 450	450 / 450	500 / 500	50	125	625	160	500	2000
300	323,9	5,0	450 / 500	500 / 500	560 / 560	50	125	665	180	500	2200

Carrier pipe, execution and operating-dome like shut-off valves, **chapter 5.2.1**, however pre-fabricated as complete drain- or/and venting unit, which will be preferable installed in a manhole. An **isoplus** ball-valve with outside operating handle is factory-foamed in at the vertical exits for drain and/or vent, therefore they may not be shortened. The not insulated exit ends will be supplied with end caps and are produced generally with a galvanized pipe end with outside thread-connection. All standard types with reduced transition.

Available types as well as other dimensions on request. Valves with full bore as well as drain or/and vent with insulation class 1x reinforced or 2x reinforced available as special construction respectively as special manufactured product also on request, please check availability. Orders should clearly indicate kind of construction, type of accoutrement, operation (T-key or slip-on gear) as well as drain or/and vent.

Alternatively this shut-off valve combination will be available without foamed-in drain-/vent-ball valve. The h, A and L dimensions may differ slightly due to the fabrication. Slip-on protection pipes are available in various versions. Slip-on protection pipes are not included in delivery range of shut-off valves and are separately to order.

5 SHUT-OFF VALVES

5.4 Shut-Off Valve / Accessories

5.4.1 Protection Pipe / Spindle-prolongation / Operation Equipment

PEHD-Slip-on protection pipe

Protecting pipes are mostly ending in a DIN-street-cap or a manhole. Depending from application and nominal diameter different types will be required. Dimensions and special types, i. e. with screw-cap-cover on request.

This standard protection pipe with a protection cap as well as inside fixed laminate as centring aid is **not** part of the delivery range of a shut-off valve and it's separately to order. The protection pipe will be delivered generally in a length of 1,50 m and will be adjusted directly to the covering height at site.



Spindle-prolongation

In case that shut-off valves will be installed very deep, prolongation should be additionally used. A conical square-nut for putting on the standard dome, respectively a square cover will be part of the delivery range of a shut-off valve.

The prolongation will end again with a square-cover. Depending from dimension and manufacturer of shut-off valve different spindle-prolongation are available in standard length of 0,50 m, 1,00 m or 1,50 m. Possible types on request.



T-Key / Slip-on gear

Depending from dimension of the shut-off valve the operation will be made by use of a T-key. Starting from DN 150 a gear should respectively can be used.

The T-key will be delivered generally in a length of 1,00 m with a conical square-nut. For operation of the shut-off valve in expert prolongation of the lever arm is not permitted.

The gear has to put vertical on the shut-off valve. Depending from types of shut-off valves different types of gears are available which will eventually need additional accessories like slip-on flange.

Use of torque increasing units which are not corresponding with the type are not allowed. Available slip-on- and planet-gears as well as electrical-gears on request.

