NEEDLE VALVE

Needle valve is a high pressure valve which consists of a body, cylinder, piston, flow regulators, shaft and gears.

It cannot be used in sewage media, but can be used for any purpose as long as it is clean water media.

However, main area of usage is the conditions where butterfly valve or gate valve cannot be used.

Needle valves are used where,

- Accurate flow control is required.
- Differential pressure is 16 bars or greater.
- Highly pressurized water is released to open atmosphere like dams.
- Cavitation is a problem.
- Throttling is required.

As a parameter of geometric design, there is a water-drop shaped chamber in the middle of needle valve. As flow travels around that chamber, section of flow turns into a ring. As it continues, flow is forced to be directed at centre at outlet side of valve. Cavitation occurs and finishes inside the flow and does not create any damage on valve or other equipment.

Operation of Needle Valve, By means of a mechanism, piston moves forwards and backwards inside the cylinder.

When piston moves into the cylinder, flow begins through the space between body and cylinder. Valve is open at that position. As piston approaches to body, section area of flow is reduced, velocity is increased. When piston contacts with body, valve closes and flow stops.

There are flow regulators (flow guides) at the section between body and cylinder. These guides which can be vaned, helical vaned, slotted or perforated type are selected according to flow conditions.

Since piston is under balanced pressure, changes at pressure do not change torque requirement at operation shaft. High torque values are not required. Valve opens and closes easily and smoothly.

Movement of piston under operation is linear. It gives the ability of accurate and easy flow regulation.

Needle valves have an indicator for open-close positions. It helps to see opening degree of valve.

Installation Position,

Valve can be installed as shaft in vertical or horizontal position. It can be installed in any position.

Accessories,

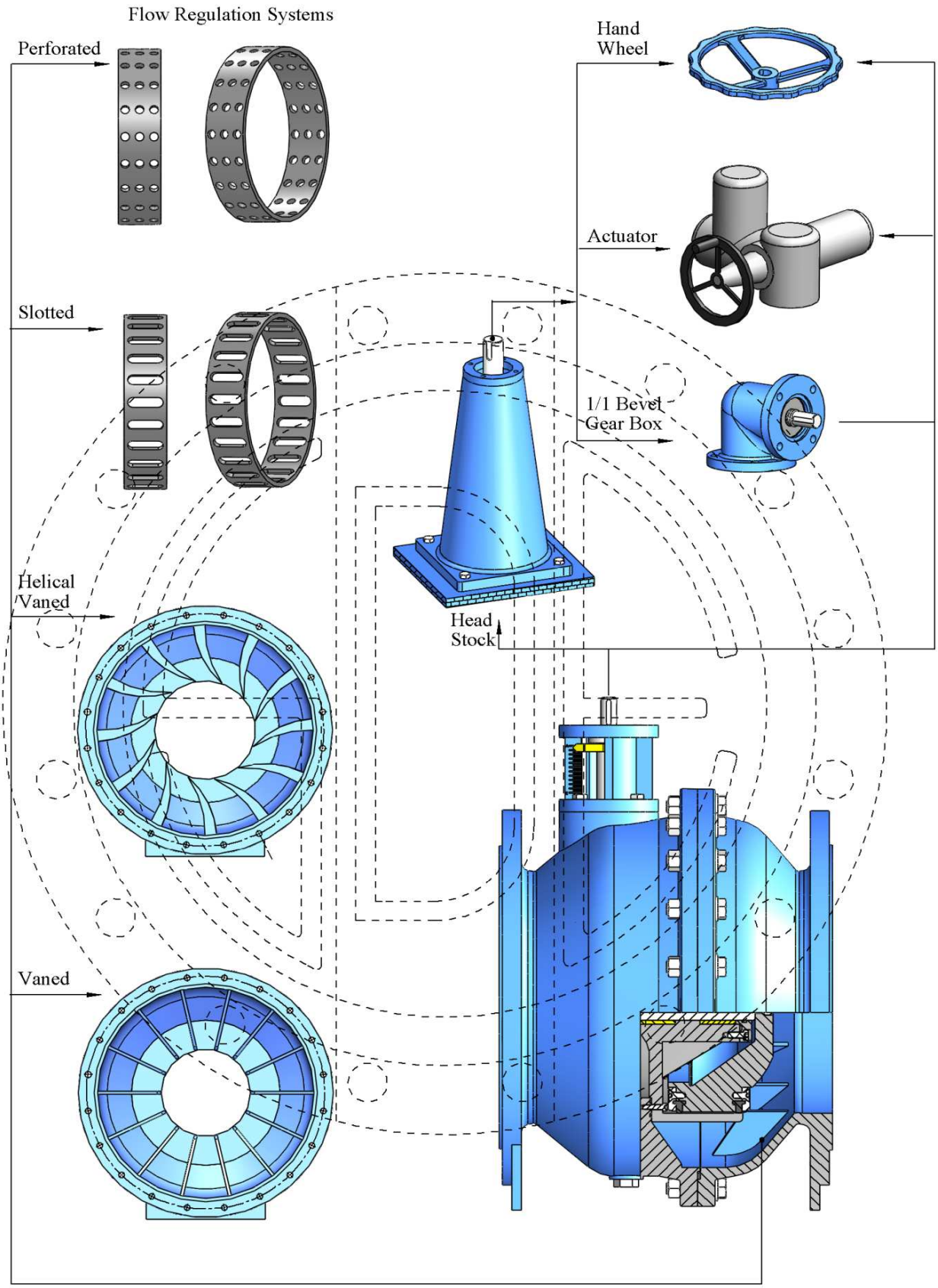
Operation System, Opening-closing mechanism of valve is inside it. It does not require additional gearbox.

If manual operation is preferred, hand-wheel or cap-top can be mounted on spindle. For electrical operation, actuator can be mounted directly without using any other accessory.

Maintenance,

There is no need for maintenance for these valves. If valve is uninstalled, it is recommended to check disc ring (rubber ring), o-rings and change if necessary.

ACCESSORIES OF NEEDLE VALVE



S.D.E.

Product Code : NDV

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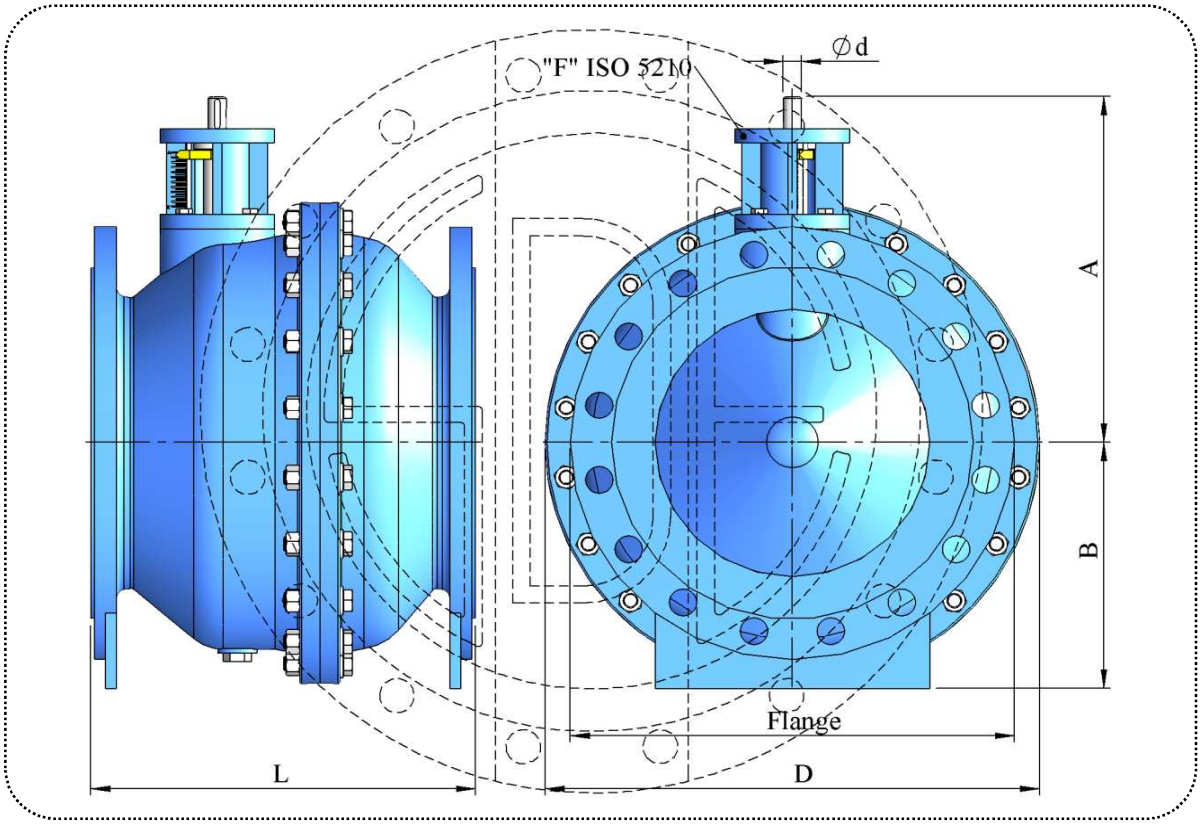
NEEDLE VALVE

Valve Standard : -

Body Length Standard : Special Dimensions

PN : 10

PN : 16



DIMENSIONS

DN	PN 10				PN 16				ISO 5210		L
	A	B	D	Kg	A	B	D	Kg	"F"	d	
100	280	130	249	67	282	131	252	68	10	20	350
125	300	150	290	87	303	152	293	89	10	20	380
150	321	171	331	114	324	172	335	116	10	20	380
200	362	212	414	156	365	214	418	159	10	20	400
250	403	253	496	206	407	255	501	210	10	20	420
300	444	294	578	278	448	297	584	283	10	20	420
350	485	335	660	372	490	338	667	379	10	20	490
400	526	376	742	498	531	380	750	507	10	20	560
450	567	417	824	660	573	421	833	671	10	20	630
500	608	458	907	881	614	463	916	895	10	20	700
600	690	540	1.071	1.191	697	546	1.082	1.210	10	20	840
700	773	623	1.235	1.622	780	629	1.248	1.648	10	20	980
800	855	705	1.400	2.187	863	712	1.414	2.220	10	20	1.120
900	937	787	1.564	2.930	946	795	1.579	2.974	10	20	1.260
1.000	1.019	869	1.728	3.950	1.029	878	1.745	4.009	10	20	1.400
1.100	1.101	951	1.892	5.271	1.112	961	1.911	5.347	10	20	1.540
1.200	1.183	1.033	2.057	7.097	1.195	1.044	2.077	7.198	14	30	1.680
1.300	1.266	1.116	2.221	9.474	1.278	1.127	2.243	9.606	14	30	1.820
1.400	1.348	1.198	2.385	12.669	1.361	1.210	2.409	12.843	14	30	1.960
1.500	1.430	1.280	2.550	17.065	1.444	1.293	2.575	17.294	14	30	2.100
1.600	1.512	1.362	2.714	22.892	1.527	1.376	2.741	23.193	14	30	2.240
1.800	1.676	1.526	3.043	31.163	1.693	1.542	3.073	31.558	14	30	2.520
2.000	1.841	1.691	3.371	42.367	1.859	1.708	3.405	42.887	14	30	2.800

S.D.E.

Product Code : NDV

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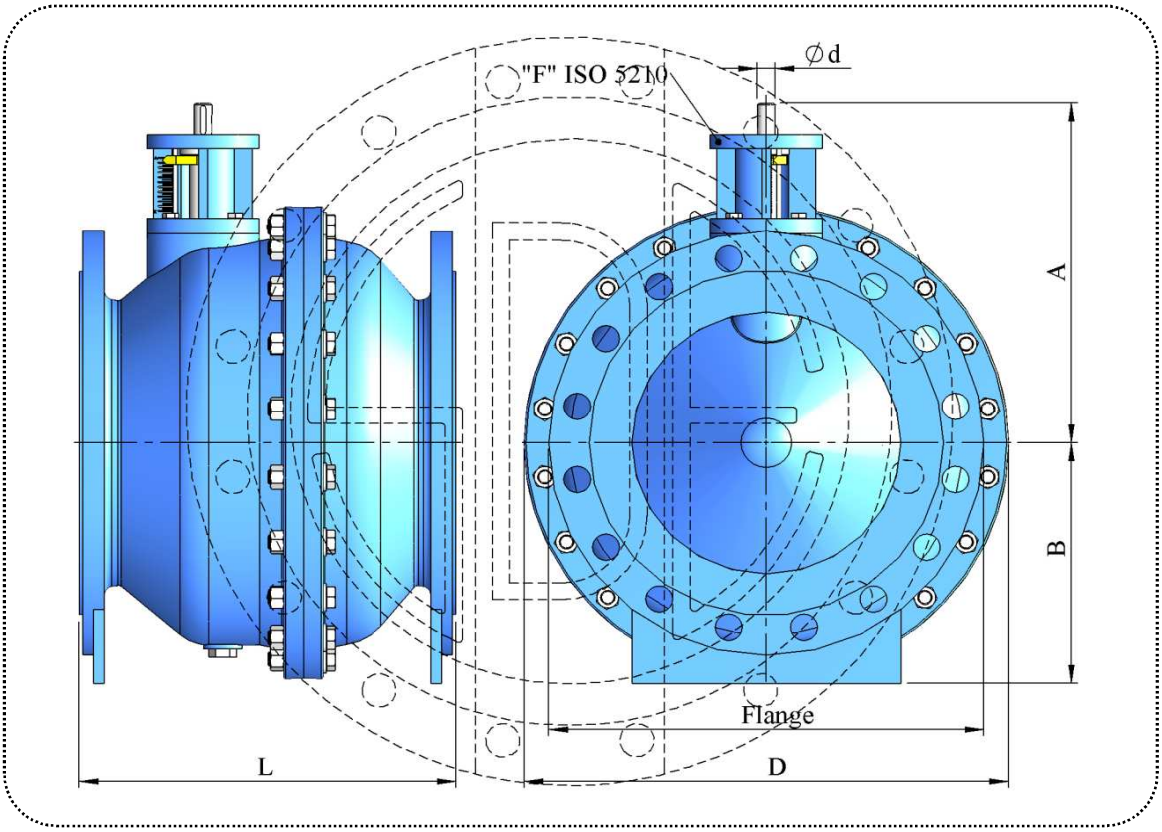
NEEDLE VALVE

Valve Standard : -

Body Length Standard : Special Dimensions

PN : 25

PN : 40



DIMENSIONS

DN	PN 25				PN 40				ISO 5210		L
	A	B	D	Kg	A	B	D	Kg	"F"	d	
100	288	134	257	76	296	137	264	87	10	20	350
125	309	155	299	99	318	159	308	115	10	20	380
150	330	176	341	130	340	181	351	152	10	20	380
200	373	218	426	177	384	225	438	207	10	20	400
250	415	260	511	235	427	268	526	275	10	20	420
300	457	303	595	317	471	312	613	371	10	20	420
350	500	345	680	425	514	355	700	498	10	20	490
400	542	387	765	569	558	399	787	669	10	20	560
450	584	430	849	756	601	442	874	891	10	20	630
500	627	472	934	1.010	645	486	961	1.195	10	20	700
600	711	557	1.103	1.366	732	573	1.135	1.619	10	20	840
700	796	641	1.272	1.859	819	660	1.309	2.205	10	20	980
800	880	726	1.442	2.507	906	747	1.484	2.980	10	20	1.120
900	965	811	1.611	3.364	993	834	1.658	4.012	10	20	1.260
1.000	1.050	895	1.780	4.540	1.080	921	1.832	5.428	10	20	1.400
1.100	1.134	980	1.949	6.071	-	-	-	-	10	20	1.540
1.200	1.219	1.064	2.119	8.185	-	-	-	-	14	30	1.680
1.300	1.304	1.149	2.288	10.955	-	-	-	-	14	30	1.820
1.400	1.388	1.234	2.457	14.686	-	-	-	-	14	30	1.960

S.D.E.

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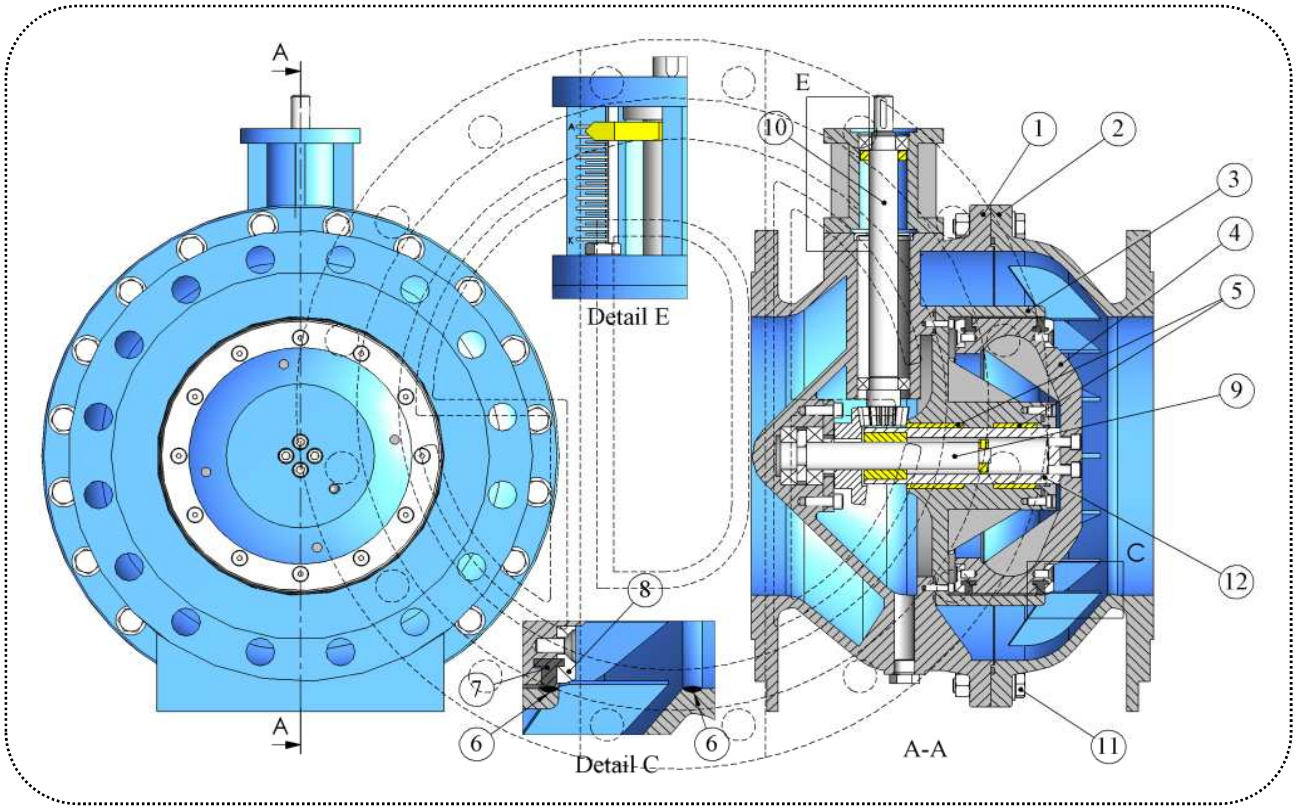
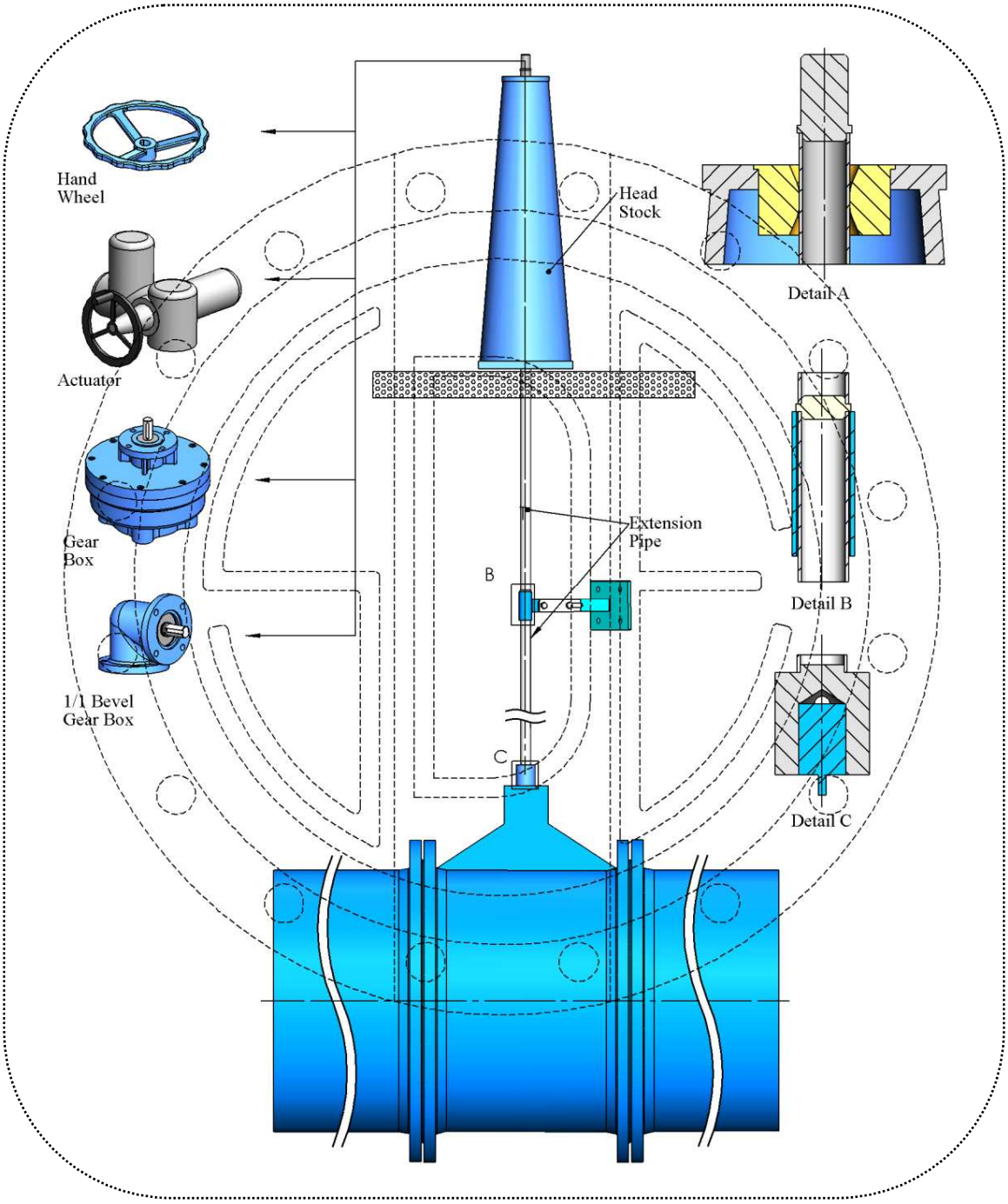
NEEDLE VALVE



Item No	Item Name	Material	Description	EN Standard	Material No
1	Inlet Body	GGG 40	Ductile Iron	EN-GJS-400-15	0.7040
		GGG 50		EN-GJS-500-7	0.7050
2	Outlet Body	GGG 40	Ductile Iron	EN-GJS-400-15	0.7040
		GGG 50		EN-GJS-500-7	0.7050
3	Cylinder	GGG 40	Ductile Iron	EN-GJS-400-15	0.7040
		GGG 50		EN-GJS-500-7	0.7050
		304	Stainless Steel	G - X6CrNi 18-9	1.4308
		316		G - X6CrNiMo 18-10	1.4408
		CC 331G-GS	Aluminium Bronze	CuAl10Fe2-C	2.0940.01
4	Piston	GGG 40	Ductile Iron	EN-GJS-400-15	0.7040
		GGG 50		EN-GJS-500-7	0.7050
		304	Stainless Steel Casting	G - X6CrNi 18-9	1.4308
		316		G - X6CrNiMo 18-10	1.4408
		CC 331G-GS	Aluminium Bronze	CuAl10Fe2-C	2.0940.01
5	Bushes	CC 331G-GS	Aluminium Bronze	CuAl10Fe2-C	2.0940.01
6	Seats	316 L	Stainless Steel Welding	12072	1.4430
		CuAl8	Aluminium Bronze Welding	14640 S Cu 6100	2.0921
7	Piston Rings	NBR - EPDM	Rubber	-	-
8	Retainer Rings	304	Stainless Steel	X5CrNi 18-10	1.4301
		316		X5CrNiMo17-12-2	1.4401
		CC 331G-GS	Aluminium Bronze	CuAl10Fe2-C	2.0940.01
9	Threaded Spindle	420	Stainless Steel	X20Cr13	1.4021
10	Operation Spindle	420	Stainless Steel	X20Cr13	1.4021
11	Bolts	Galvanized	Steel	-	-
	Nuts	A 2 - A 4	Stainless Steel	-	-
12	Spindle	420	Stainless Steel	X20Cr13	1.4021
		304		X5CrNi 18-10	1.4301
		316		X5CrNiMo17-12-2	1.4401
Coating		WRAS approved fusion bonded epoxy 300 microns dft as standard.			

HEADSTOCK



Headstock consists of a cast body, extension spindles and guide brackets holding the spindles.

According to usage area of valve, it can be installed at first floor but operational equipments can be at second floor. Valve can be in a dirty or humid environment and operational equipments may not be requested to be at the same place.

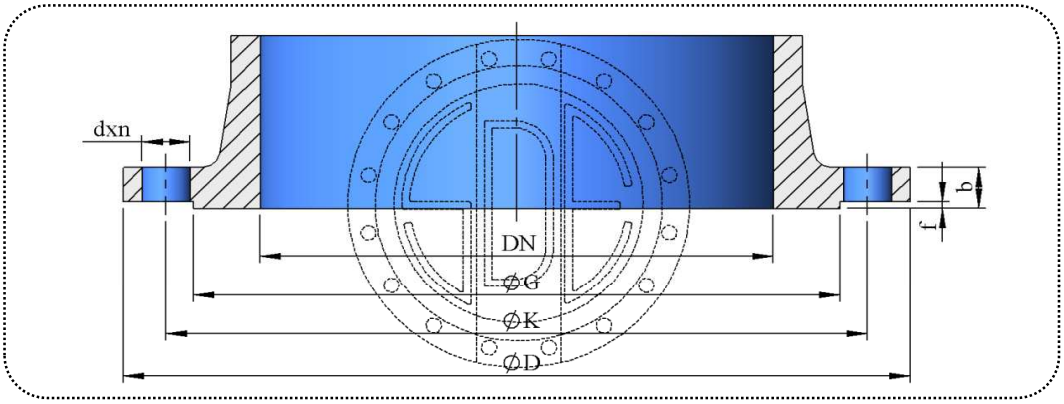
For such conditions, headstock accessory can be used for any kind of valve.

Valve is located where it has to be, but operational equipments are located at a clean area.

Headstock is fixed on floor by screws. Extension spindles are between valve and headstock. If space between valve and headstock is more than 3 meters, guide brackets are used to hold spindle and eliminate oscillation. It is advised to use one guide bracket for each 3 meters.

Upon request, extension spindles can be made of plain carbon steel or stainless steel.

FLANGE DIMENSIONS



Nominal Dia	Outside Dia	Raised Face		Flange Holes			Flange Thickness	Outside Dia	Raised Face		Flange Holes			Flange Thickness
		Dia	Height	Circle Dia.	Dia	Number			Dia	Height	Circle Dia.	Dia	Number	
DN	D	G	f	K	d	n	b	D	G	f	K	d	n	b
PN 10								PN 16						
100	220	158	3	180	19	8	19	220	158	3	180	19	8	19
125	250	188	3	210	19	8	19	250	188	3	210	19	8	19
150	285	212	3	240	23	8	19	285	212	3	240	23	8	19
200	340	268	3	295	23	8	20	340	268	3	295	23	12	20
250	395	320	3	350	23	12	22	405	320	3	355	28	12	22
300	445	370	4	400	23	12	25	460	378	4	410	28	12	25
350	505	430	4	460	23	16	25	520	438	4	470	28	16	27
400	565	482	4	515	28	16	25	580	490	4	525	31	16	28
450	615	532	4	565	28	20	26	640	550	4	585	31	20	30
500	670	585	4	620	28	20	27	715	610	4	650	34	20	32
600	780	685	5	725	31	20	30	840	725	5	770	37	20	36
700	895	800	5	840	31	24	33	910	795	5	840	37	24	40
800	1.015	905	5	950	34	24	35	1.025	900	5	950	41	24	43
900	1.115	1.005	5	1.050	34	28	38	1.125	1.000	5	1.050	41	28	47
1.000	1.230	1.110	5	1.160	37	28	40	1.255	1.115	5	1.170	44	28	50
1.200	1.455	1.330	5	1.380	41	32	45	1.485	1.330	5	1.390	50	32	57
1.400	1.675	1.535	5	1.590	44	36	46	1.685	1.530	5	1.590	50	36	59
1.500	1.785	1.640	5	1.700	44	36	48	1.820	1.640	5	1.710	57	36	63
1.600	1.915	1.760	5	1.820	50	40	49	1.930	1.750	5	1.820	57	40	65
1.800	2.115	1.950	5	2.020	50	44	52	2.130	1.950	5	2.020	57	44	69
2.000	2.325	2.150	5	2.230	50	48	55	2.345	2.150	5	2.230	62	48	73
2.200	2.550	2.370	5	2.440	57	52	59	2.555	2.360	5	2.440	62	52	80
PN 25								PN 40						
100	235	162	3	190	23	8	19	235	162	3	190	23	8	19
125	270	188	3	220	28	8	19	270	188	3	220	28	8	24
150	300	218	3	250	28	8	20	300	218	3	250	28	8	26
200	360	278	3	310	28	12	22	375	285	3	320	31	12	30
250	425	335	3	370	31	12	25	450	345	3	385	34	12	35
300	485	395	4	430	31	16	28	515	410	4	450	34	16	40
350	555	450	4	490	34	16	30	580	465	4	510	37	16	44
400	620	505	4	550	37	16	32	660	535	4	585	41	16	48
450	670	548	4	600	37	20	34	685	560	4	610	41	20	50
500	730	615	4	660	37	20	37	755	615	4	670	44	20	52
600	845	720	5	770	41	20	42	890	735	5	795	50	20	58
700	960	820	5	875	44	24	47	995	840	5	900	50	24	63
800	1.085	930	5	990	50	24	51	1.140	960	5	1.030	57	24	68
900	1.185	1.030	5	1.090	50	28	56	1.250	1.070	5	1.140	57	28	73
1.000	1.320	1.140	5	1.210	57	28	60	1.360	1.180	5	1.250	57	28	80
1.200	1.530	1.360	5	1.420	57	32	69	1.575	1.385	5	1.460	62	32	88
1.400	1.755	1.570	5	1.640	62	36	74	1.795	1.600	5	1.680	62	36	98
1.500	1.865	1.680	5	1.750	62	40	75	1.910	1.700	5	1.790	70	40	102
1.600	1.975	1.790	5	1.860	62	40	81	2.025	1.815	5	1.900	70	40	108
1.800	2.195	2.000	5	2.070	70	44	88							
2.000	2.425	2.230	5	2.300	70	48	95							