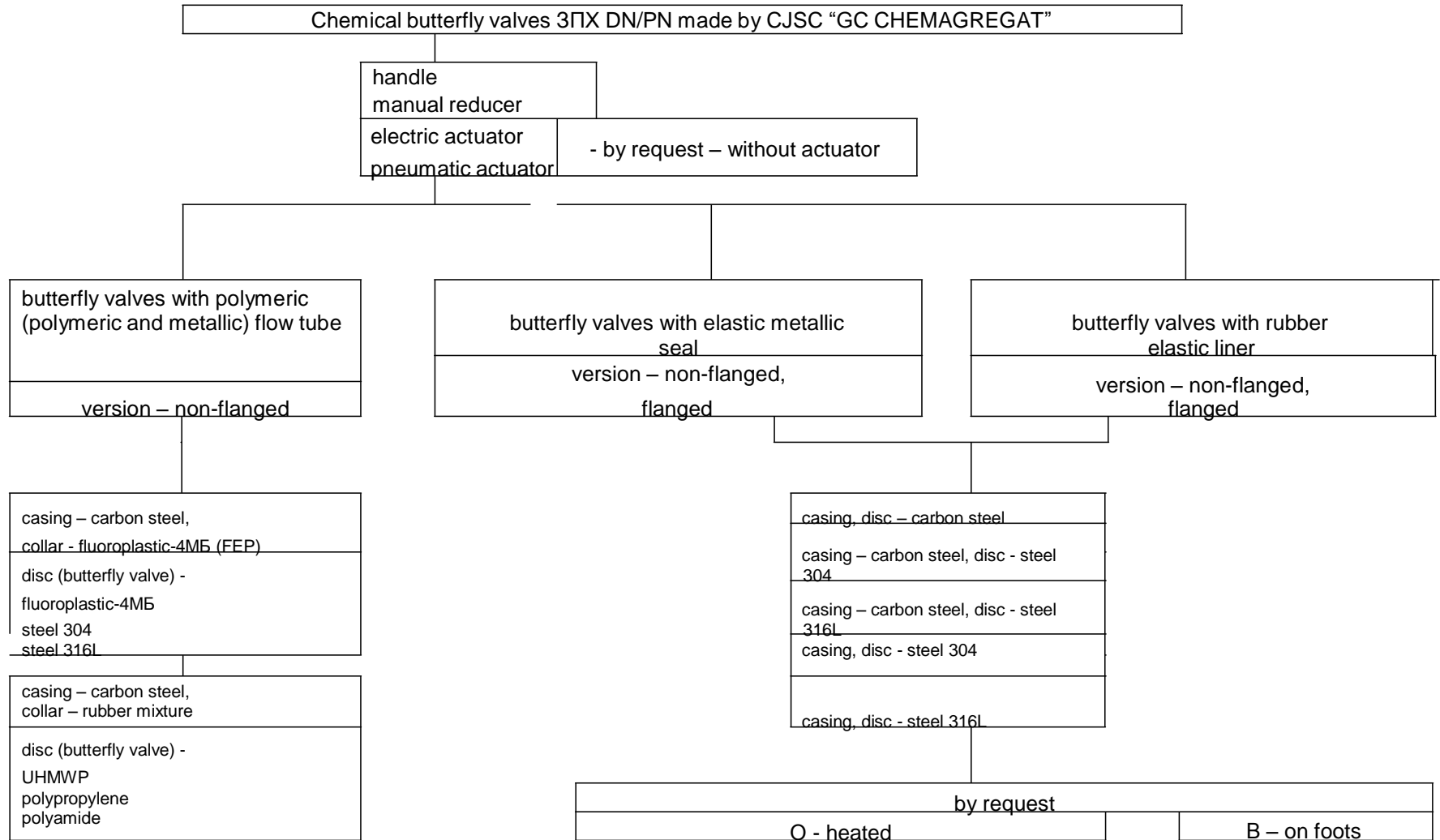


### Section 4. Chemical butterfly valves 3ПХ DN/PN

Chemical butterfly valves are made with diameter 32 – 2000 mm for pressures PN = 0,6; 1,0; 1,6; 2,5; 4,0 MPa. On scheme below there is a classification of chemical butterfly valves made by CJSC “GC CHEMAGREGAT”



## Procedure of butterfly valves ordering

Ordering butterfly valves is executed like the following:

- Butterfly valves of flanged or non-flanged version are selected by customer in compliance with customer's requirements to weight and dimensions characteristics; for DN > 500 mm it is recommended to use butterfly valves in flanged version
- For selection of butterfly valve according to actuator and material of flow tube it is necessary to send to CJSC "GK CHEMAGREGAT" filled questionnaires and to specify required characteristics of a actuator (see Appendix). According to data of the questionnaires specialists of the firm will select a butterfly valve type
- Customer could select a butterfly valve type independently. In this case in request it is necessary to specify indication of the butterfly valve, additional characteristics in compliance with tables and required characteristics of a actuator. It is possible to completely describe characteristics of a butterfly valve (like in Complete description)
- Butterfly valves may be equipped with electric and pneumatic actuators or may be supplied without them.

### Indication of butterfly valves

Butterfly valve are indicated 3ПХ DN/PN.n<sub>1</sub>n<sub>2</sub>: n<sub>1</sub> = 1..4, n<sub>2</sub> = 1..4,

n<sub>1</sub> – indicates drive type

1 – a handle, butterfly valves up to DN = 150 mm and manufactured with handles

2 – manual reducing drive

3 – electric actuator

4 – pneumatic actuator

- 3ПХ DN/PN.1..4 Butterfly valves of non-flanged version with polymeric (polymeric and metallic) flow tube,  
 3ПХ DN/PN.11..41 Butterfly valves of non-flanged version with casing made of carbon steel  
 3ПХ DN/PN.12..42 Butterfly valves of non-flanged version with casing made of stainless steels 304 or 316L  
 3ПХ DN/PN.13..43 Butterfly valves of flanged version with casing made of carbon steel  
 3ПХ DN/PN.14..44 Butterfly valves of flanged version with casing made of stainless steels 304 or 316L

### Additional characteristics of butterfly valves

	3ПХ DN/PN.1..4	
Collar	Fluoroplastic Ф-4(PTFE)	Rubber mixture
Disc	Carbon steel lined with fluoroplastic Ф-4МБ; 304, 316L	Carbon steel lined with: - UHMWP (polyethylene of ultra-high molecular weight) -polypropylene -nylon

	3ПХ DN/PN.11..41		3ПХ DN/PN.12..42	
Casing	Carbon steel		304	
			316L	
Seal	Type 1	Type 2	Type 1	Type 2
Elastic elements	Made of stainless alloys (may not be specified during ordering)	Made of elastomer (rubber mixture)	Made of stainless alloys (may not be specified during ordering)	Made of elastomer (rubber mixture)
Disc	Carbon steel 304 316L		304*	
			316L*	

\* disc is made of the same steel that is used for casing

	3ПХ DN/PN.13..43		3ПХ DN/PN.14..44	
Casing	Carbon steel		304	
			316L	
Seal	Type 1	Type 2	Type 1	Type 2
Elastic element	Made of stainless alloys (may not be specified during ordering)	Made of elastomer (rubber mixture)	Made of stainless alloys (may not be specified during ordering)	Made of elastomer (rubber mixture)
Disc	Carbon steel 304 316L		304*	
			316L*	

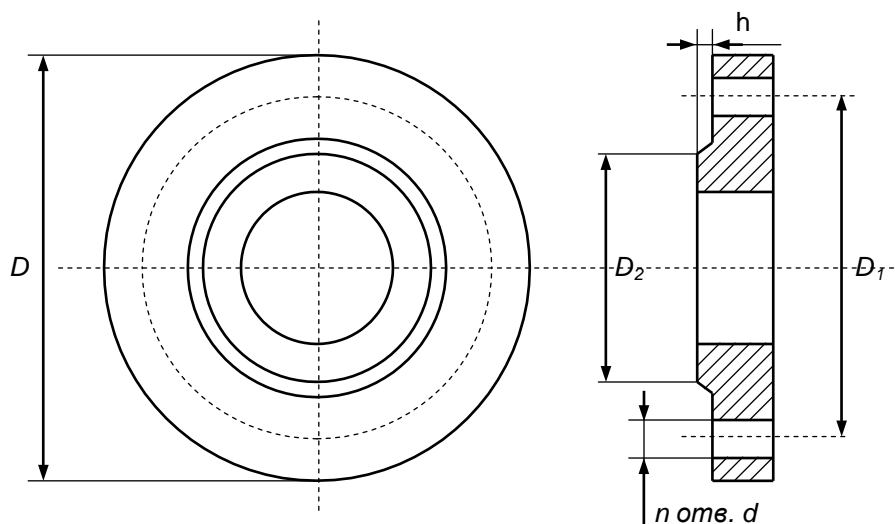
\* disc is made of the same steel that is used for casing

### Examples of order

Example of order	Complete description
3ПХ DN/PN.1, Collar, disc - fluoroplastic	Butterfly valve in non-flanged version with handle and fluoroplastic flow tube
3ПХ DN/PN.3, Collar – rubber mixture, disc - nylon Electric actuator, U = 380 V, reverse signal 4-20 mA	Butterfly valve in non-flanged version with electric actuator, collar made of rubber mixture, disc with nylon coating U = 380 V, reverse signal 4-20 mA
3ПХ DN/PN.22, Seal of type 1, disk made of steel 304	Butterfly valve in non-flanged version with manual reducer actuator, casing and disk made of steel 304 and elastic metallic seal of type 1
3ПХ DN/PN.43, Seal of type 2, disk made of steel 316L Pneumatic actuator with block of end switches and pneumatic distributor of two-side action in explosion-proof version ExdIIBT4	Butterfly valve in flanged version with casing made of carbon steel, disc made of steel 316L and elastic metallic seal of type 2 Pneumatic actuator with block of end switches and pneumatic distributor of two-side action in explosion-proof version ExdIIBT4

## Connecting dimensions

Connecting dimensions (connection with pipeline) for all types of valves comply with ГОСТ 12815-80 (version 1).



Proportions, mm

DN	D	D <sub>1</sub>	D <sub>2</sub>	d	n	h	Bolts DN		D	D <sub>1</sub>	D <sub>2</sub>	d	n	h	Bolts DN	
							PN = 0,6 MPa (6 bar)								PN = 1,0 MPa (10 bar)	
10	75	50	35	11	4	2	M10		90	60	42	14	4	2	M12	
15	80	55	40						95	65	47					
20	90	65	50						105	75	58					
25	100	75	60						115	85	68					
32	120	90	70	14	4	M12		135	100	78	18	4	3	M16		
40	130	100	80					145	110	88						
50	140	110	90					160	125	102						
65	160	130	100					180	145	122						
80	185	150	128	18	8	M16		195	160	133	22	8	3	M20		
100	205	170	148					215	180	158						
125	235	200	178					245	210	184						
150	260	225	202					280	240	212						
(175)	290	255	232	22	12	M20		310	270	242	26	12	4	M24		
200	315	280	258					335	295	268						
(225)	340	305	282					365	325	295						
250	370	335	312					390	350	320						
300	435	395	365	26	16	M24		440	400	370	30	16	4	M27		
350	485	445	415					500	460	430						
400	535	495	465					565	515	482						
(450)	590	550	520					615	565	532						
500	640	600	570	30	20	M27		670	620	585	33	20	5	M30		
600	755	705	670					780	725	685						
(700)	860	810	775					895	840	800						
800	975	920	880					1010	950	905						
(900)	1075	1020	980	33	24	M30		1110	1050	1005	36	24	5	M36		
1000	1175	1120	1080					1220	1160	1110						
1200	1400	1340	1295					1455	1380	1330						
1400	1620	1560	1510					1675	1590	1530						
1600	1820	1760	1710	40	32	M33		1915	1820	1750	45	32	5	M42		
(1800)	2045	1970	1920					2115	2020	1950						
2000	2265	2180	2125					2325	2230	2150						

DN	D	D <sub>1</sub>	D <sub>2</sub>	d	n	h	Bolts DN	D	D <sub>1</sub>	D <sub>2</sub>	d	n	h	Bolts DN
PN = 1,6 MPa (16 bar)							PN = 2,5 MPa (25 bar)							
10	90	60	42	14	4	2	M12	90	60	42	14	4	2	M12
15	95	65	47											
20	105	75	58											
25	115	85	68											
32	135	100	78	18	8	3	M16	135	100	78	18	8	3	M16
40	145	110	88											
50	160	125	102											
65	180	145	122											
80	195	160	133											
100	215	180	158											
125	245	210	184	22	12	3	M20	230	190	158	26	12	3	M20
150	280	240	212											
(175)	310	270	242											
200	335	295	268											
(225)	365	325	295	26	16	4	M24	395	340	305	30	16	4	M24
250	405	355	320											
300	460	410	370											
350	520	470	430											
400	580	525	482	33	20	5	M27	610	550	505	33	20	5	M27
(450)	640	585	532											
500	710	650	585											
600	840	770	685											
(700)	910	840	800	39	24	5	M30	660	600	555	45	24	5	M30
800	1020	950	905											
(900)	1120	1050	1005											
1000	1255	1170	1110											
1200	1485	1390	1330	52	28	5	M36	730	660	615	52	28	5	M36
1400	1685	1590	1530											
1600	1925	1820	1750											
(1800)	2130	2020	1950											
2000	3685	2230	2150	56	32	5	M42	840	770	720	62	32	5	M42
				48	36	5	M48	960	875	820	70	36	5	M48
				44	40	5	M52	1075	990	930	70	40	5	M52
				48	44	5	M56	1185	1090	1030	70	44	5	M56
				48	48	5	M56	1315	1210	1140	70	48	5	M56
				48	48	5	M56	1525	1420	1350	70	48	5	M56
				48	48	5	M56	1750	1640	1560	70	48	5	M56
				48	48	5	M56	1975	1860	1780	70	48	5	M56
				48	48	5	M56	2195	2070	1980	70	48	5	M56
				48	48	5	M56	2425	2300	2210	70	48	5	M56

## Types of actuators

Chemical butterfly valves are equipped with electric actuators or pneumatic actuators.

Power of electric motors of electric actuators is specified in tables. Supply voltage U = 380, 220 V. Electric actuators are supplied with end switches. Time of opening/closing of the valves is 30-360 seconds. By request electric actuators are equipped with rheostat sensor or block with current output 4-20 mA.

Supply air pressure for pneumatic actuators: 0,4 – 0,7 MPa. On valves it is possible to install pneumatic actuators of double and single action with returning spring («NC», «NO.»). Pneumatic actuators may be equipped with blocks of end switches, pneumatic distributors of single and double action, positioners.

## Chemical butterfly valves with polymeric flow tube

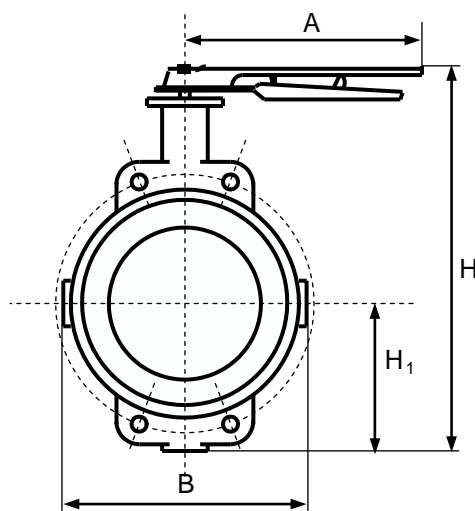
### Chemical butterfly valves 3ПХ DN/6;10;16.1...4 with polymeric flow tube

Chemical butterfly valves 3ПХ DN/6;10;16.1...4 have non-flanged version in casing made of carbon steel with flow tube:

- collar and disc made of fluoroplastic Ф-4МБ, disc may be manufactured of stainless steels 304 or 316L (DN = 40-800 mm)

- collar made of rubber mixtures, discs are lined with ultra-high molecular weight polyethylene (UHMWP), polypropylene, nylon (DN = 40-1000 mm)

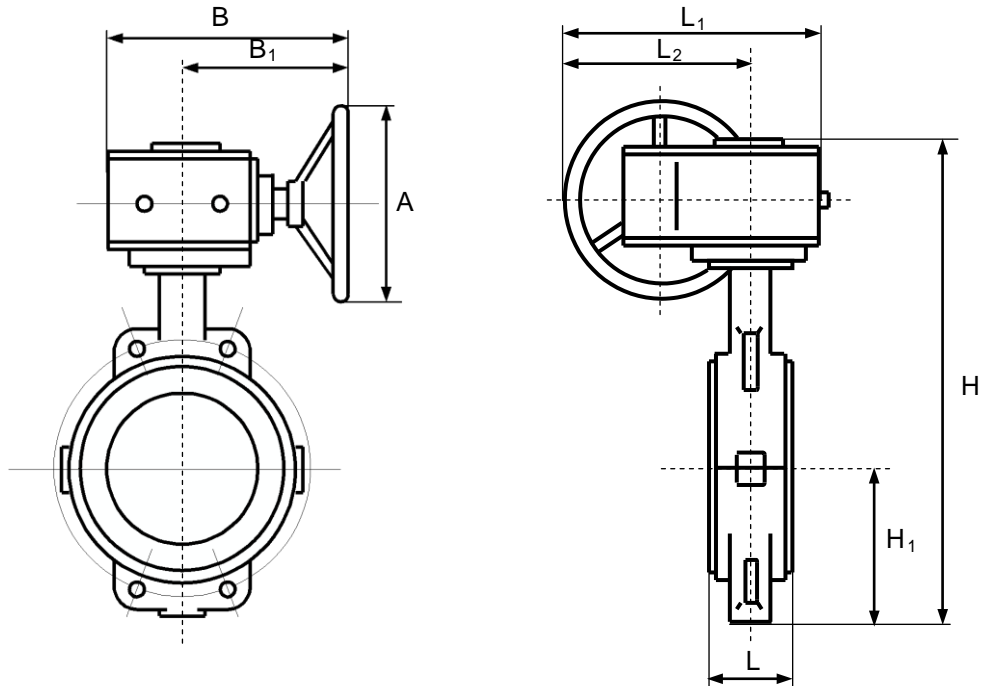
### Chemical butterfly valves 3ПХ DN/6;10;16.1



Model	DN mm	P MPa	L	H	H <sub>1</sub>	B	A	kg
3ПХ 40/6,10,16.1	40	0,6 1,0 1,6	40	212	50	98	267	4
3ПХ 50/6,10,16.1	50		43	230	65	112	267	5
3ПХ 65/6,10,16.1	65		45	253	80	122	267	6
3ПХ 80/6,10,16.1	80		45	285	90	150	267	8,5
3ПХ 100/6,10,16.1	100		53	325	110	175	267	10,5
3ПХ 125/6,10,16.1	125		53	345	115	222	267	13
3ПХ 150/6,10,16.1	150		57	380	135	248	267	16

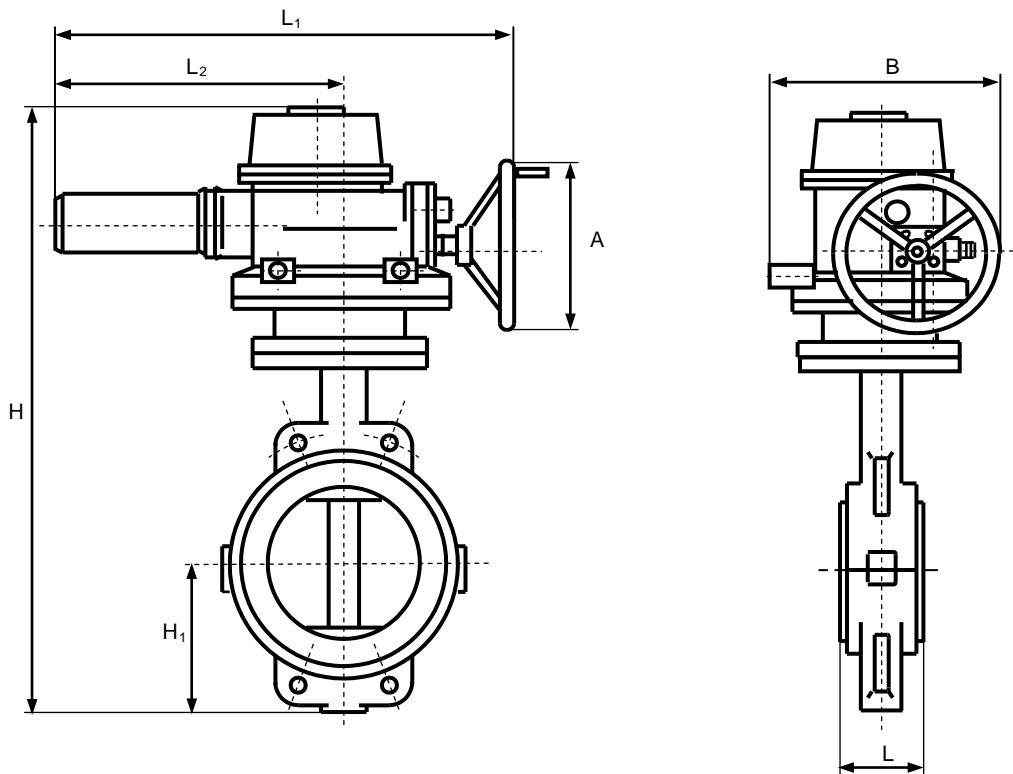
L – factory length of butterfly valve

### Chemical butterfly valves 3ПХ DN/6;10;16.2



	DN mm	PN MPa	L	L <sub>1</sub>	L <sub>2</sub>	H	H <sub>1</sub>	B	B <sub>1</sub>	A	kg
3ПХ 50/6,10,16.2	50	0,6 1,0 1,6	43	180	130	350	65	200	150	150	11
3ПХ 65/6,10,16.2	65		46	180	130	370	80	200	150	150	12,5
3ПХ 80/6,10,16.2	80		46	180	130	380	90	200	150	150	14
3ПХ100/6,10,16.2	100		53	180	130	420	110	200	150	150	17
3ПХ125/6,10,16.2	125		53	180	162	460	115	200	150	215	20
3ПХ150/6,10,16.2	150		57	270	200	555	135	280	210	215	30
3ПХ200/6,10,16.2	200		70	270	200	605	175	280	210	215	33
3ПХ250/6,10,16.2	250		75	270	212	680	260	280	210	240	53
3ПХ300/6,10,16.2	300		78	380	280	800	310	420	265	315	70
3ПХ350/6,10,16.2	350		78	380	280	835	360	420	295	315	92
3ПХ400/6,10,16.2	400		102	450	350	915	400	470	295	315	135
3ПХ450/6,10,16.2	450		114	480	370	960	420	490	310	315	170
3ПХ500/6,10,16.2	500		127	480	370	1020	460	490	310	415	203
3ПХ600/6,10,16.2	600		130	480	370	1225	540	490	310	415	340
3ПХ700/6,10,16.2	700		165	640	510	1355	570	660	420	415	520
3ПХ800/6,10,16.2	800		190	640	510	1470	620	660	420	415	740
3ПХ900/6,10,16.2	900		203	640	510	1540	670	860	550	415	880
3ПХ1000/6,10,16.2	1000		216	640	510	1795	750	860	550	415	1050

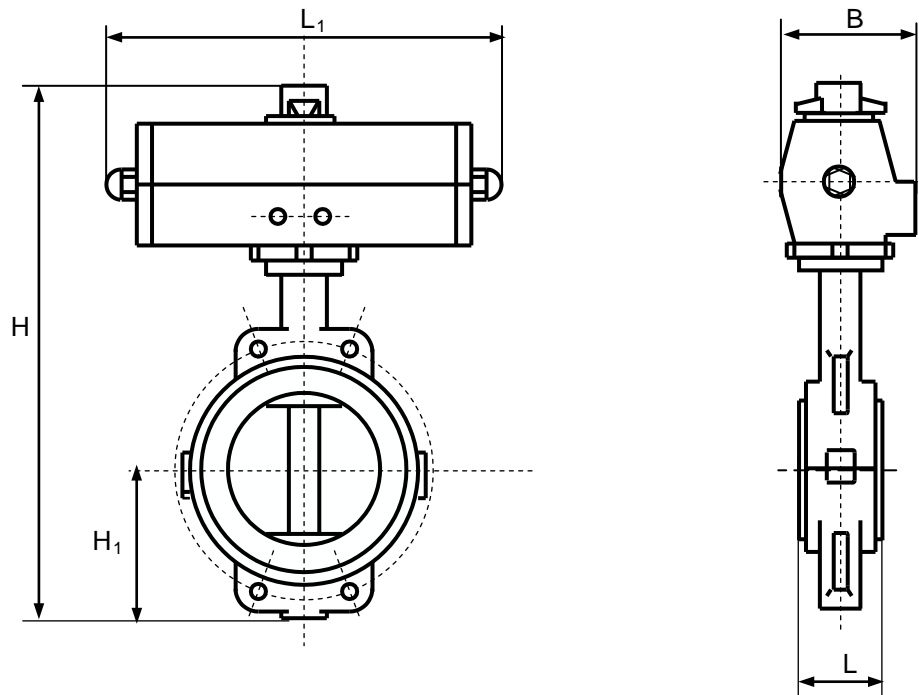
### Chemical butterfly valves 3ПХ DN/6;10;16.3



	DN mm	PN MPa	L	L <sub>1</sub>	L <sub>2</sub>	H	H <sub>1</sub>	B	A	N kW	kg
3ПХ 40/6,10,16.3	40	0,6 1,0 1,6	40	470	250	427	50	270	200	0,06	25
3ПХ 50/6,10,16.3	50		43	470	250	453	65	270	200		27
3ПХ 65/6,10,16.3	65		46	470	250	486	80	270	200	0,09	30
3ПХ 80/6,10,16.3	80		46	470	250	498	90	270	200		34
3ПХ100/6,10,16.3	100		53	470	250	538	110	270	200	0,12	39
3ПХ125/6,10,16.3	125		53	470	250	558	115	270	200		53
3ПХ150/6,10,16.3	150		57	473	297	637	135	315	200	0,18	62
3ПХ200/6,10,16.3	200		70	473	297	732	175	315	200		93
3ПХ250/6,10,16.3	250		75	473	297	770	260	315	200	0,25	108
3ПХ300/6,10,16.3	300		78	473	297	851	310	315	200		135
3ПХ350/6,10,16.3	350		78	585	360	974	360	332	300	0,55	165
3ПХ400/6,10,16.3	400		102	585	360	1020	400	332	300		195
3ПХ450/6,10,16.3	450		114	585	360	1170	420	332	300		350
3ПХ500/6,10,16.3	500		127	585	360	1260	460	332	300	1,1	410
3ПХ600/6,10,16.3	600		154	729	469	1390	540	518	457		615
3ПХ700/6,10,16.3	700		165	729	469	1470	570	518	457	1,1	685
3ПХ800/6,10,16.3	800		190	729	469	1540	620	518	457		890
3ПХ900/6,10,16.3	900		203	755	530	3421	1180	782	457	1,5	1150
3ПХ1000/6,10,16.3	1000		216	755	530	3685	1280	782	457		1550



### Chemical butterfly valves 3ПХ DN/6;10;16.4



	DN mm	PN MPa	L	L <sub>1</sub>	H	H <sub>1</sub>	B	kg
3ПХ 40/6,10,16.4	40	0,6 1,0 1,6	40	305	290	50	100	15
3ПХ 50/6,10,16.4	50		43	305	315	65	100	16
3ПХ 65/6,10,16.4	65		46	305	348	80	100	18
3ПХ 80/6,10,16.4	80		46	305	360	90	100	20
3ПХ100/6,10,16.4	100		53	365	445	110	118	25
3ПХ125/6,10,16.4	125		53	365	465	115	118	40
3ПХ150/6,10,16.4	150		57	365	500	135	118	48
3ПХ200/6,10,16.4	200		70	450	620	175	143	60
3ПХ250/6,10,16.4	250		75	525	706	260	178	85
3ПХ300/6,10,16.4	300		78	525	787	310	178	105
3ПХ350/6,10,16.4	350		78	640	947	360	248	135
3ПХ400/6,10,16.4	400		102	640	998	400	248	215
3ПХ450/6,10,16.4	450		114	640	1053	420	248	280
3ПХ500/6,10,16.4	500		127	640	1260	460	248	440
3ПХ600/6,10,16.4	600		154	850	1455	540	355	525
3ПХ700/6,10,16.4	700		165	850	1585	570	355	730
3ПХ800/6,10,16.4	800		190	850	1700	620	355	960
3ПХ900/6,10,16.4	900		203	1250	1965	690	520	1380
3ПХ1000/6,10,16.4	1000		216	1250	2115	750	520	1700