

05

蝶阀系列

BUTTERFLY VALVE SERIES

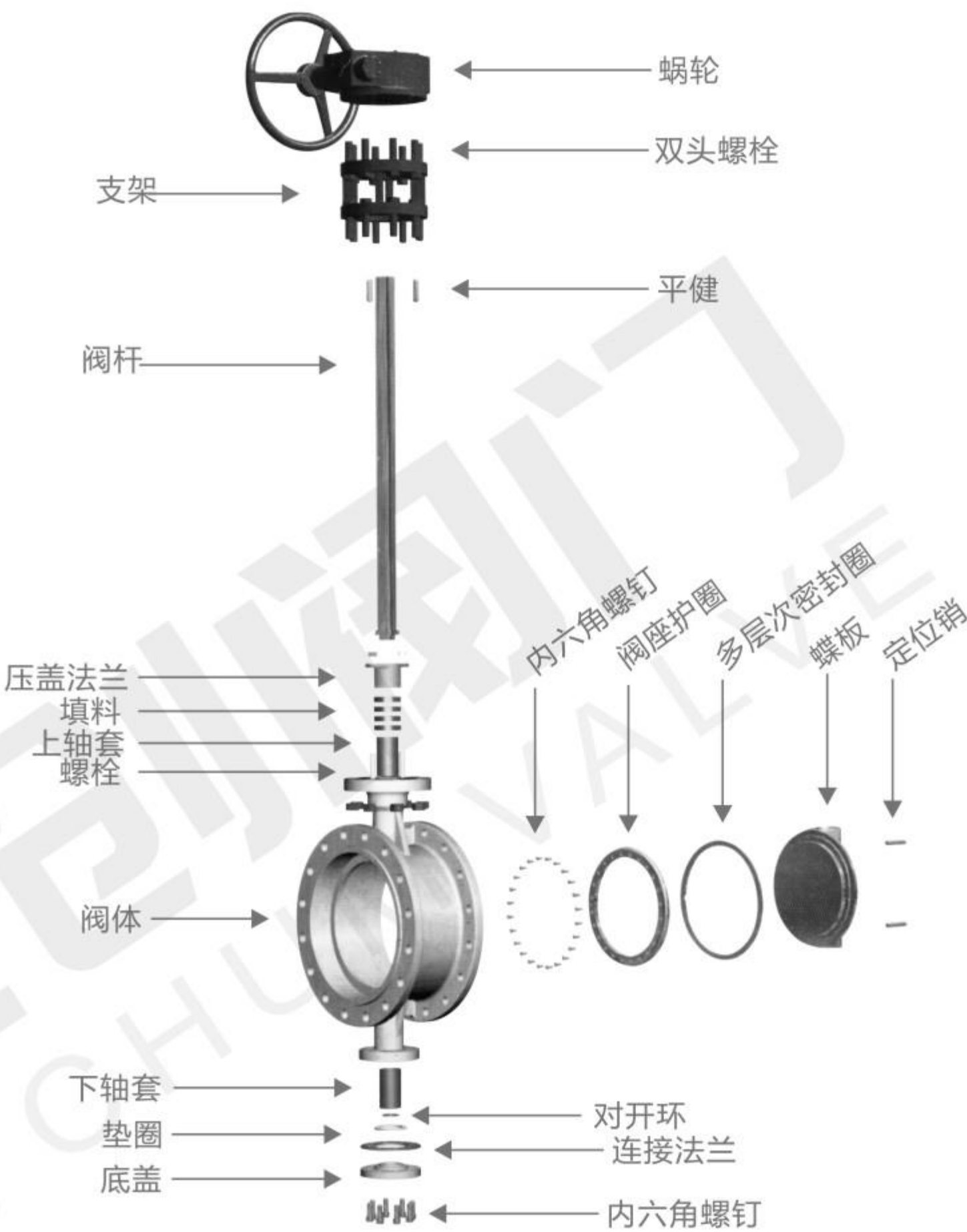
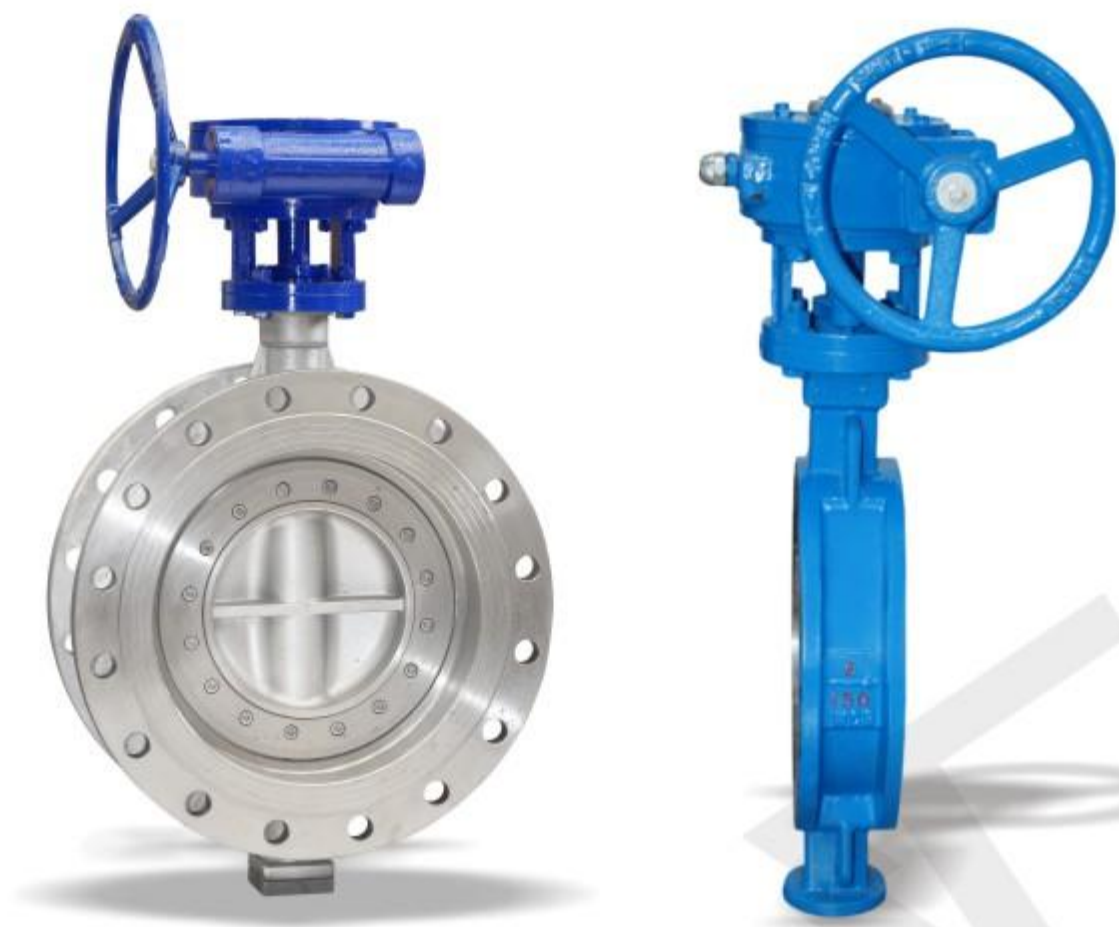


提供
一站式阀门
解决方案

PROVIDE ONE-STOP
VALVE SOLUTIONS

蝶阀概述
Butterfly valve overview

本蝶阀采用三偏心多层次金属密封结构，主要适用于石油、天然气、化工、冶金、电厂、给排水工程等不同介质的关路上作用调节流量、截断或接通流体之用。



BUTTERFLY VALVE SERIES
蝶阀系列

DN15~1000 | 16Mpa~100Mpa
2"-16" | Class 150~Class 2500

材质清单							
产品规范 Product Specification	设计规范 Design spec.	结构长度 Face to Face	连接法兰 Flange End	试验与检验 Test & Check	压力—温度 Pressure-Temp.	产品标识 Marking	供货规范 Supply
	GB/T 12234	GB/T 12221	JB/T 79	JB/T 9092	GB/T 9124	GB/T 12220	JB/T 7926
	API 600	ASME B16.10	ASME B16.5	API 598	ASME B16.34		

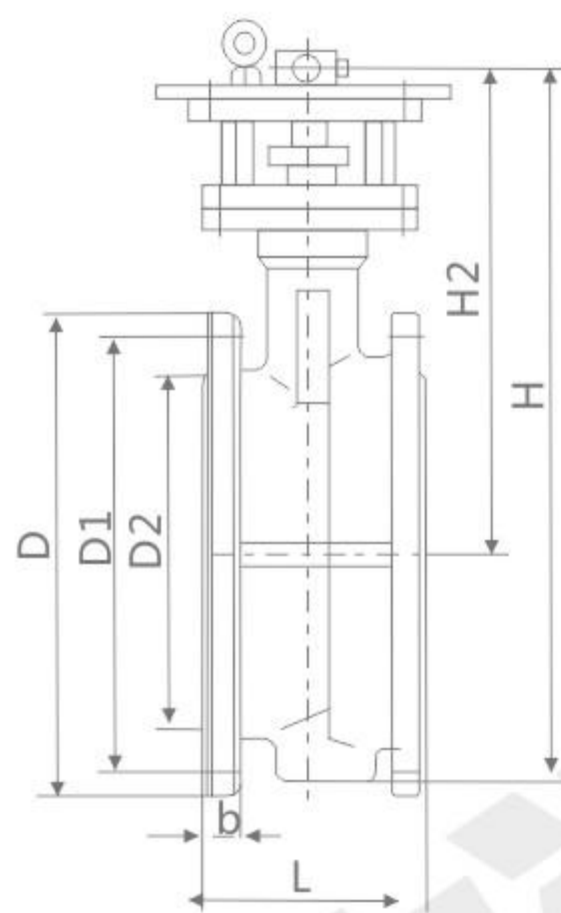
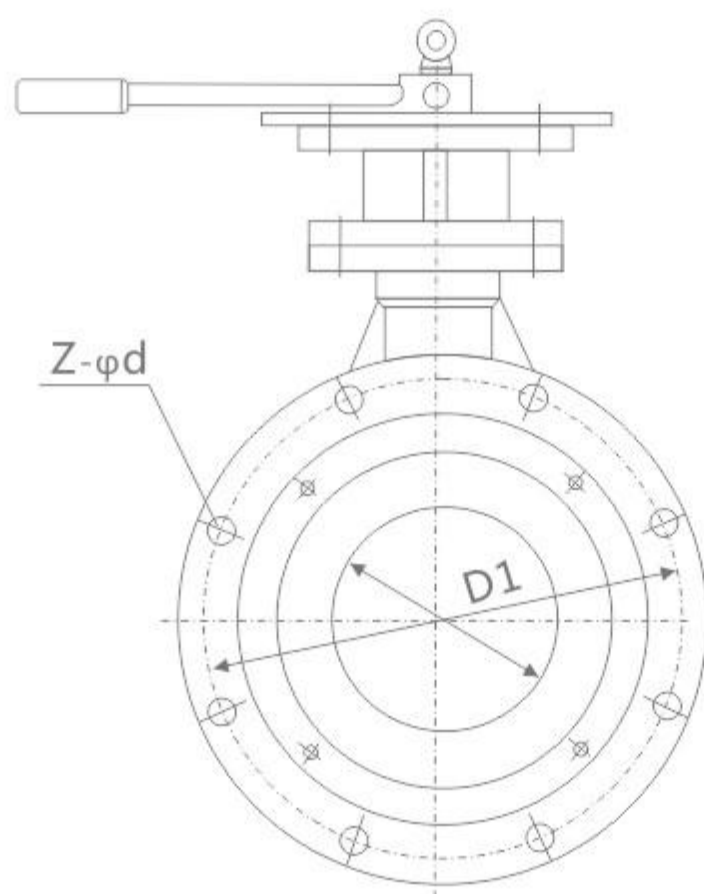
材质清单						
部件part Name	国标 /GB			美标 /ASME		
阀体Body/Bonnet	WCB	ZGCr5Mo	304	A216 WCB	A217 WC6	A351 CF8
蝶板Butterfly plate	304	304	304	304	304	304
阀杆Stem	13Cr	25Cr2MoV	304	A182 F6a	A217 WC6	A351 CF8
填料Packing	聚四氟乙烯/PTFE 柔性石墨/Flexible Graphite					
垫片Gasket	304+柔性石墨/Flexible Graphite					
螺栓Bolt	35/35CrMo	25Cr2MoV	304	A193 B7	A193 B7	A193 B8
适用温度Suitable temperature	-29~425℃	-29~550℃	-40~200℃	-29~425℃	-29~540℃	-46~425℃
适用介质Applicable medium	水、油品、蒸汽 Water,Oil,Steam	水、油品、蒸汽 Water,Oil,Steam	硝酸类 Nitric Acid	水、油品、蒸汽 Water,Oil,Steam	水、油品、蒸汽 Water,Oil,Steam	硝酸类 Nitric Acid

D43H手动法兰式金属硬密封蝶阀

Manual flange type metal hard seal butterfly valve

蝶阀系列

BUTTERFLY VALVE SERIES



应用规范

设计、制造按GB/T12238-1989
结构长度按GB/T12221-2005
连接法兰：GB/T9113-2000
阀门检查和试验按JB/T9092-1999

Application specification

Design, manufacture : GB/T12238-1989
Length of the structure : GB/T12221-2005
Connecting flange : GB/T9113-2000
Valve inspection and test : JB/T9092-1999

D43^H_F-10C.P.R连接尺寸

通径DN	L	D	D1	D2	Z-Φd	b	H	H2
50	108	165	125	99	4-18	20	340	112
65	112	185	145	118	4-18	20	360	115
80	114	200	160	132	8-18	20	380	120
100	127	220	180	156	8-18	22	410	130
125	140	250	210	184	8-18	22	460	165
150	140	285	240	211	8-22	24	490	175

D43^H_F-16C.P.R连接尺寸

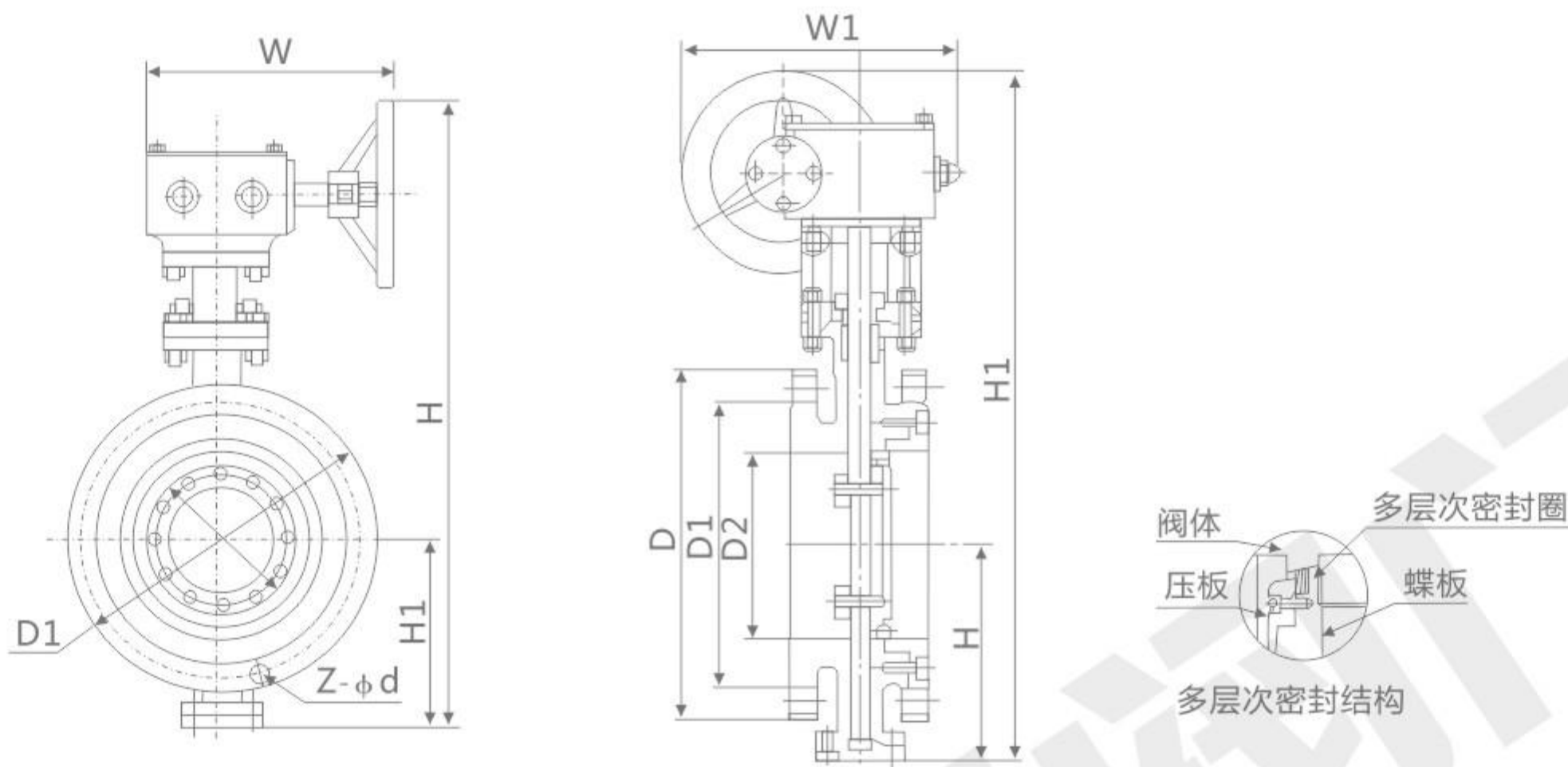
通径DN	L	D	D1	D2	Z-Φd	b	H	H2
50	108	165	125	99	4-18	20	340	112
65	112	185	145	118	4-18	20	360	115
80	114	200	160	132	8-18	20	380	120
100	127	220	180	156	8-18	22	410	130
125	140	250	210	184	8-18	22	460	165
150	140	285	240	211	8-22	24	490	175

D43^H_F-25C.P.R连接尺寸

通径DN	L	D	D1	D2	Z-Φd	b	H	H2
50	108	165	125	99	4-18	20	340	112
65	112	185	145	118	8-18	22	360	115
80	114	200	160	132	8-18	24	380	120
100	127	235	190	156	8-22	24	425	130
125	140	270	220	184	8-26	26	480	175
150	140	300	250	211	8-26	28	520	190

D343H蜗轮传动法兰式金属硬密封蝶阀
Worm drive flange type metal hard seal butterfly valve

D343^H_F-10C.P.R连接尺寸



应用规范

设计、制造按GB/T12238-1989
结构长度按GB/T12221-2005
连接法兰：GB/T9113-2000
阀门检查和试验按JB/T9092-1999

Application specification

Design, manufacture：GB/T12238-1989
Length of the structure：GB/T12221-2005
Connecting flange：GB/T9113-2000
Valve inspection and test：JB/T9092-1999

通径DN	L	D	D1	D2	Z-Φd	b	H	H1	W	W1	D0
50	108	165	125	99	4-18	20	360	112	200	200	160
65	112	185	145	118	4-18	20	380	115	200	200	160
80	114	200	160	132	8-18	20	455	120	220	200	160
100	127	220	180	156	8-18	22	490	140	240	200	160
125	140	250	210	184	8-18	22	490	170	260	200	160
150	140	285	240	211	8-22	24	630	180	280	280	240
200	152	340	295	266	8-22	24	690	210	320	280	240
250	165	395	350	319	12-22	26	830	240	360	280	240
300	178	445	400	370	12-22	26	930	290	460	420	310
350	190	505	460	429	16-22	26	1010	320	500	420	310
400	216	565	515	480	16-26	26	1070	350	540	420	310
450	222	615	565	530	20-26	28	1140	380	580	420	310
500	229	670	620	582	20-26	28	1200	410	620	420	310
600	267	780	725	682	20-30	34	1340	470	660	420	310
700	292	895	840	794	24-30	34	1600	550	750	550	400
800	318	1015	950	901	24-33	36	1780	640	800	550	400
900	330	1115	1050	1001	28-33	38	1920	710	850	550	400
1000	410	1230	1160	1112	28-36	38	1960	770	1000	750	500
1200	470	1455	1380	1328	32-39	44	2360	875	1050	750	500
1400	530	1675	1590	1530	36-42	48	2530	970	800	890	600
1600	600	1915	1820	1750	40-48	52	2640	1100	800	890	600
1800	670	2115	2020	1950	44-48	56	2800	1200	830	920	700
2000	760	2325	2230	2150	48-48	60	3100	1290	850	940	700

D343H蜗轮传动法兰式金属硬密封蝶阀

Worm drive flange type metal hard seal butterfly valve

D343^H_F-16C.P.R连接尺寸

通径DN	L	D	D1	D2	Z-Φd	b	H	H1	W	W1	D0
50	108	165	125	99	4-18	20	360	112	200	200	160
65	112	185	145	118	4-18	20	380	115	200	200	160
80	114	200	160	132	8-18	20	455	120	220	200	160
100	127	220	180	156	8-18	22	490	140	240	200	160
125	140	250	210	184	8-18	22	490	170	260	200	160
150	140	285	240	211	8-22	24	630	180	280	280	240
200	152	340	295	266	12-22	24	690	210	320	280	240
250	165	405	355	319	12-26	26	830	240	360	280	240
300	178	460	410	370	12-26	28	930	290	460	420	310
350	190	520	470	429	16-26	30	1010	320	500	420	310
400	216	580	525	480	16-30	32	1070	350	540	420	310
450	222	640	585	548	20-30	40	1140	380	580	420	310
500	229	715	650	609	20-33	44	1200	410	620	420	310
600	267	840	770	720	20-36	44	1340	470	660	420	310
700	292	910	840	794	24-36	50	1600	550	750	550	400
800	318	1025	950	901	24-39	52	1780	640	800	550	400
900	330	1125	1050	1001	28-39	54	1920	710	850	550	400
1000	410	1255	1170	1112	28-42	56	1960	770	1000	750	500
1200	470	1485	1390	1328	32-48	44	2360	875	1050	750	500
1400	530	1690	1590	1530	36-48	48	2530	970	800	890	600
1600	600	1930	1820	1750	40-56	52	2640	1100	800	890	600

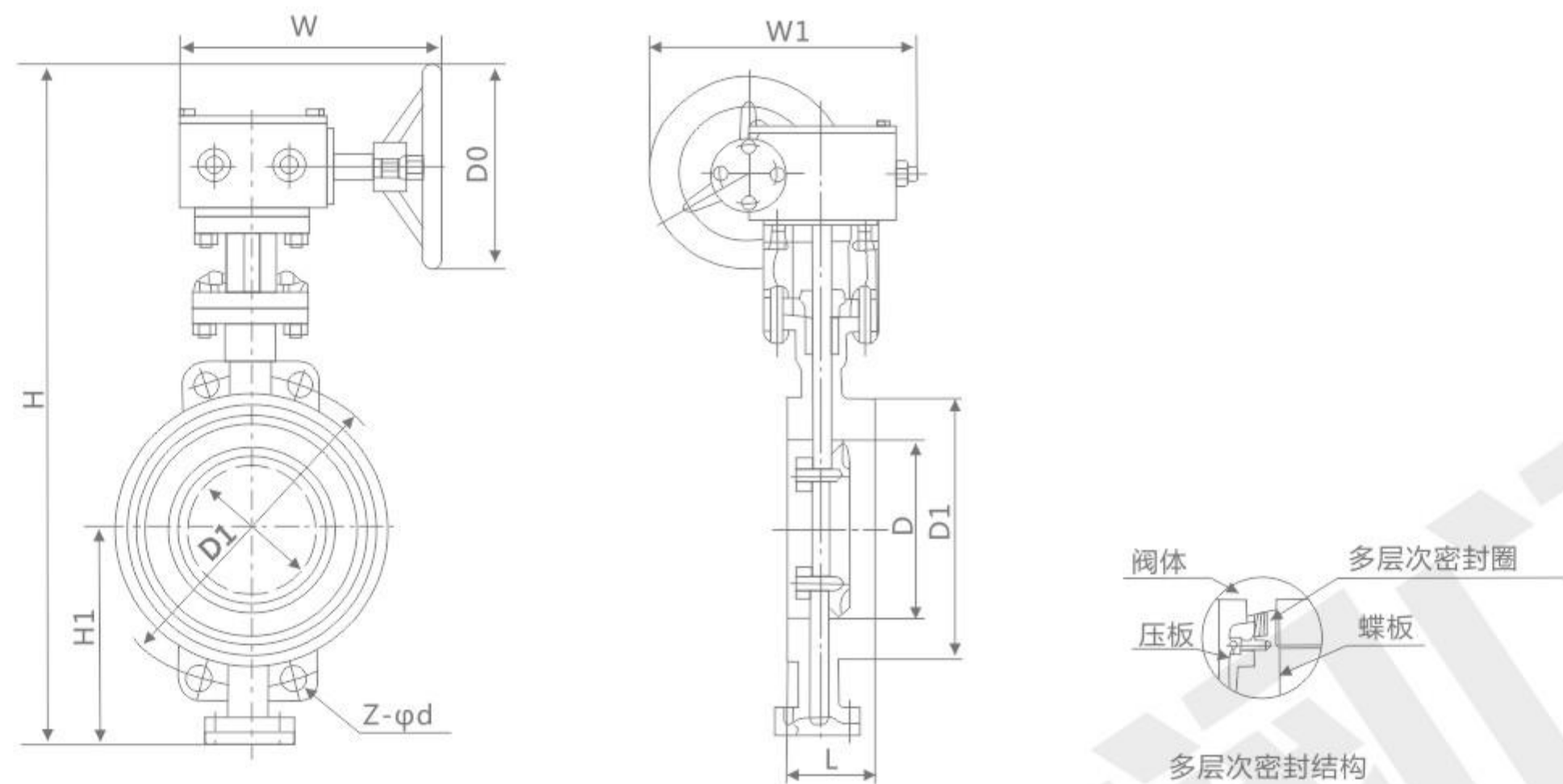
D343^H_F-25C.P.R连接尺寸

通径DN	L	D	D1	D2	Z-Φd	b	H	H1	W	W1	D0
50	108	165	125	99	4-18	20	360	112	200	200	160
65	112	185	145	118	8-18	22	380	115	200	200	160
80	114	200	160	132	8-18	24	455	120	220	200	160
100	127	235	190	156	8-22	24	490	140	240	200	160
125	140	270	220	184	8-26	26	490	170	260	200	160
150	140	300	250	211	8-26	28	630	180	280	280	240
200	152	360	310	274	12-26	30	690	210	320	280	240
250	165	425	370	330	12-30	32	830	240	360	280	240
300	178	485	430	389	16-30	34	930	290	460	420	310
350	190	555	490	448	16-33	38	1010	320	500	420	310
400	216	620	550	503	16-36	40	1070	350	540	420	310
450	222	670	600	548	20-36	46	1140	380	580	420	310
500	229	730	660	609	20-36	48	1200	410	620	420	310
600	267	845	770	720	20-39	58	1340	470	660	420	310
700	292	960	875	820	24-42	50	1600	550	750	550	400
800	318	1085	990	928	24-48	54	1780	640	800	550	400
900	330	1185	1090	1028	28-48	58	1920	710	850	550	400
1000	410	1320	1210	1140	28-55	62	1960	770	1000	750	500

D343^H_F-40C.P.R连接尺寸

通径DN	L	D	D1	D2	D6	Z-Φd	b	H	H1	W	W1	D0
50	150	165	125	99	88	4-18	20	360	112	200	200	160
65	170	185	145	118	110	8-18	22	380	115	200	200	160
80	180	200	160	132	121	8-18	24	455	120	220	200	160
100	190	235	190	156	150	8-22	24	490	140	240	200	160
125	200	270	220	184	176	8-26	26	490	170	260	200	160
150	210	300	250	211	204	8-26	28	630	180	280	280	240
200	230	375	320	284	260	12-30	34	690	210	320	280	240
250	250	450	385	345	313	12-33	38	830	240	360	280	240
300	270	515	450	409	364	16-33	42	930	290	460	420	310
350	290	580	510	465	422	16-36	46	1010	320	500	420	310
400	310	660	585	535	474	16-39	50	1070	350	540	420	310

D373H蜗轮传动对夹式金属硬密封蝶阀
Worm gear drive splint metal hard seal butterfly valve



应用规范

设计、制造按GB/T12238-1989
结构长度按GB/T12221-2005
连接法兰：GB/T9113-2000
阀门检查和试验按JB/T9092-1999

Application specification

Design, manufacture：GB/T12238-1989
Length of the structure：GB/T12221-2005
Connecting flange：GB/T9113-2000
Valve inspection and test：JB/T9092-1999

D373^H_F-10C.P.R连接尺寸

通径DN	L	D1	D	Z-Φd	H	H1	W	W1	D0
50	43	125	102	4-18	360	112	200	200	160
65	46	145	122	4-18	380	115	200	200	160
80	49	160	133	8-18	455	120	220	200	160
100	56	180	158	8-18	490	140	240	200	160
125	64	210	184	8-18	490	170	260	200	160
150	70	240	212	8-22	630	180	280	280	240
200	71	295	268	8-22	690	210	320	280	240
250	76	350	320	12-22	830	240	360	280	240
300	83	400	370	12-22	930	290	460	420	310
350	92	460	430	16-22	1010	320	500	420	310
400	102	515	482	16-26	1070	350	540	420	310
450	114	565	532	20-26	1140	380	580	420	310
500	127	620	585	20-26	1200	410	620	420	310
600	154	725	685	20-30	1340	470	660	420	310
700	165	840	800	24-30	1600	550	750	550	400
800	190	950	905	24-33	1780	640	800	550	400
900	203	1050	1005	28-33	1920	710	850	550	400
1000	216	1160	1110	28-36	1960	770	1000	750	500
1200	254	1380	1330	32-39	2360	875	1050	750	500
1400	279	1590	1530	36-42	2530	970	800	890	/
1600	318	1820	1750	40-48	2640	1100	800	890	/
1800	356	2020	1950	44-48	2800	1200	830	920	/
2000	406	2230	2150	48-48	3100	1290	850	940	/

D373H蜗轮传动对夹式金属硬密封蝶阀

Worm gear drive splint metal hard seal butterfly valve

D373^H_F-16C.P.R连接尺寸

通径DN	L	D1	D	Z-Φd	H	H1	W	W1	D0
50	43	125	102	4-18	360	112	200	200	160
65	46	145	122	4-18	380	115	200	200	160
80	49	160	133	8-18	455	120	220	200	160
100	56	180	158	8-18	490	140	240	200	160
125	64	210	184	8-18	490	170	260	200	160
150	70	240	212	8-22	630	180	280	280	240
200	71	295	268	12-22	690	210	320	280	240
250	76	355	320	12-26	830	240	360	280	240
300	83	410	370	12-26	930	290	460	420	310
350	92	470	430	16-26	1010	320	500	420	310
400	102	525	482	16-30	1070	350	540	420	310
450	114	585	532	20-30	1140	380	580	420	310
500	127	650	585	20-33	1200	410	620	420	310
600	154	770	685	20-36	1340	470	660	420	310
700	165	840	800	24-36	1600	550	750	550	400
800	190	950	905	24-39	1780	640	800	550	400
900	203	1050	1005	28-39	1920	710	850	550	400
1000	216	1170	1110	28-42	1960	770	1000	750	500
1200	254	1390	1330	32-48	2360	875	1050	750	500
1400	279	1590	1530	36-48	2530	970	800	890	/
1600	318	1820	1750	40-56	2640	1100	800	890	/

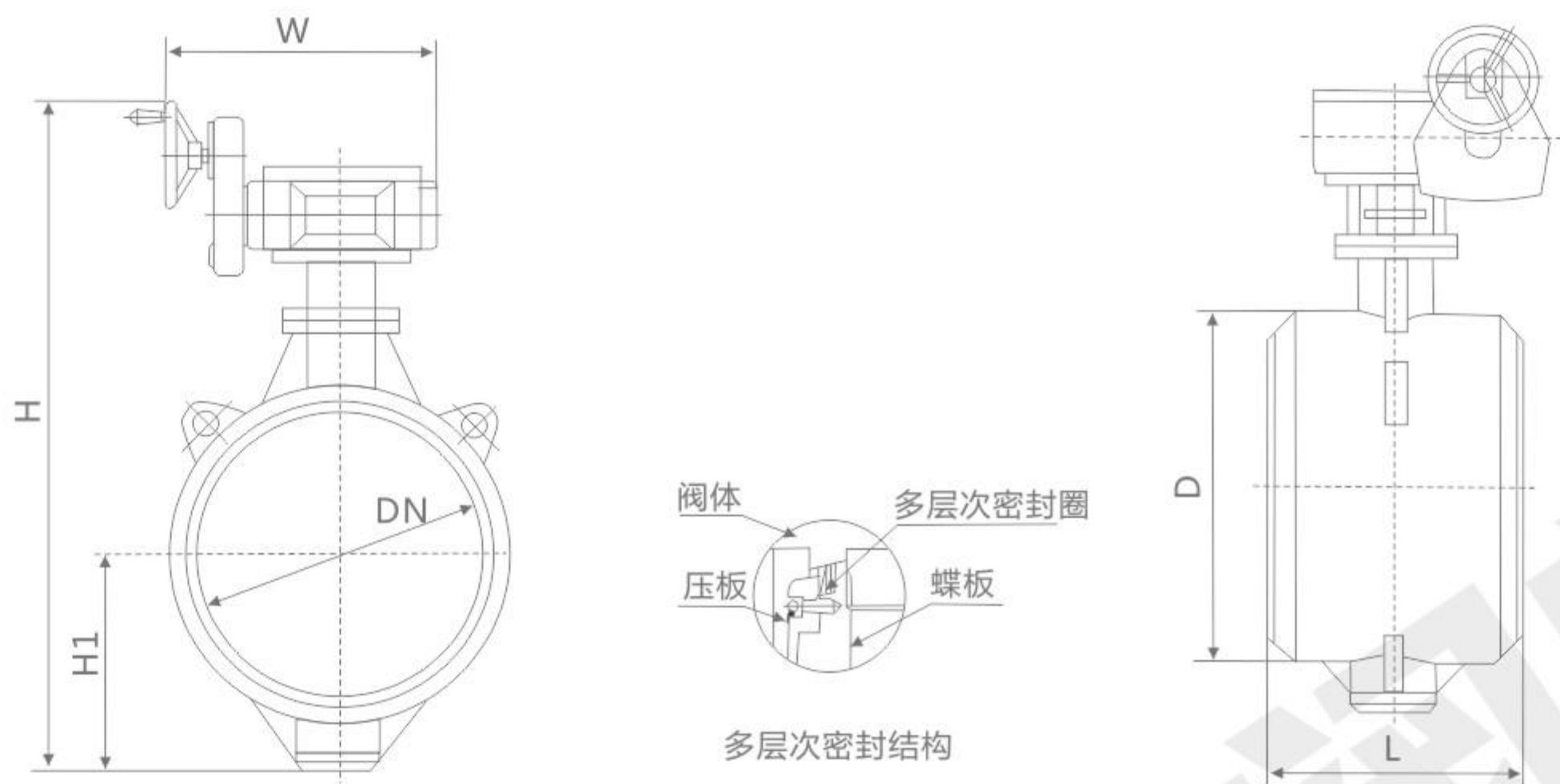
D373^H_F-25C.P.R连接尺寸

通径DN	L	D1	D	Z-Φd	H	H1	W	W1	D0
50	43	125	102	4-18	360	112	200	200	160
65	46	145	122	8-18	380	115	200	200	160
80	49	160	133	8-18	455	120	220	200	160
100	56	190	158	8-22	490	140	240	200	160
125	64	220	184	8-26	490	170	260	200	160
150	70	250	212	8-26	630	180	280	280	240
200	71	310	268	12-26	690	210	320	280	240
250	76	370	330	12-30	830	240	360	280	240
300	83	430	390	16-30	930	290	460	420	310
350	92	490	450	16-33	1010	320	500	420	310
400	102	550	505	16-36	1070	350	540	420	310
450	114	600	555	20-36	1140	380	580	420	310
500	127	660	610	20-36	1200	410	620	420	310
600	154	770	720	20-39	1340	470	660	420	310
700	165	875	820	24-42	1600	550	750	550	400
800	190	990	930	24-48	1780	640	800	550	400
900	203	1090	1030	28-48	1920	710	850	550	400
1000	216	1210	1140	28-56	1960	770	1000	750	500

D373^H_F-40C.P.R连接尺寸

通径DN	L	D1	D	Z-Φd	H	H1	W	W1	D0
50	43	125	102	4-18	360	112	200	200	160
65	46	145	122	8-18	380	115	200	200	160
80	64	160	133	8-18	455	120	220	200	160
100	64	190	158	8-22	490	140	280	200	160
125	70	220	184	8-26	490	170	280	200	160
150	76	250	212	8-26	630	180	280	280	240
200	89	320	268	12-30	690	210	280	280	240
250	114	385	330	12-33	825	240	280	280	240
300	114	450	390	16-33	908	290	450	420	310
350	127	510	450	16-36	960	320	450	420	310
400	140	585	505	16-39	1330	350	540	437	310

D363H对焊式金属密封蝶阀
Butt-welded metal seal butterfly valve



应用规范

设计、制造按GB/T12238-1989
结构长度按GB/T12221-2005
对焊接端按ASME B16.25 GB/T12224
阀门检查和试验按JB/T9092-1999

Application specification

Design, manufacture : GB/T12238-1989
Length of the structure : GB/T12221-2005
The welding end : ASME B16.25 GB/T12224
Valve inspection and test : JB/T9092-1999

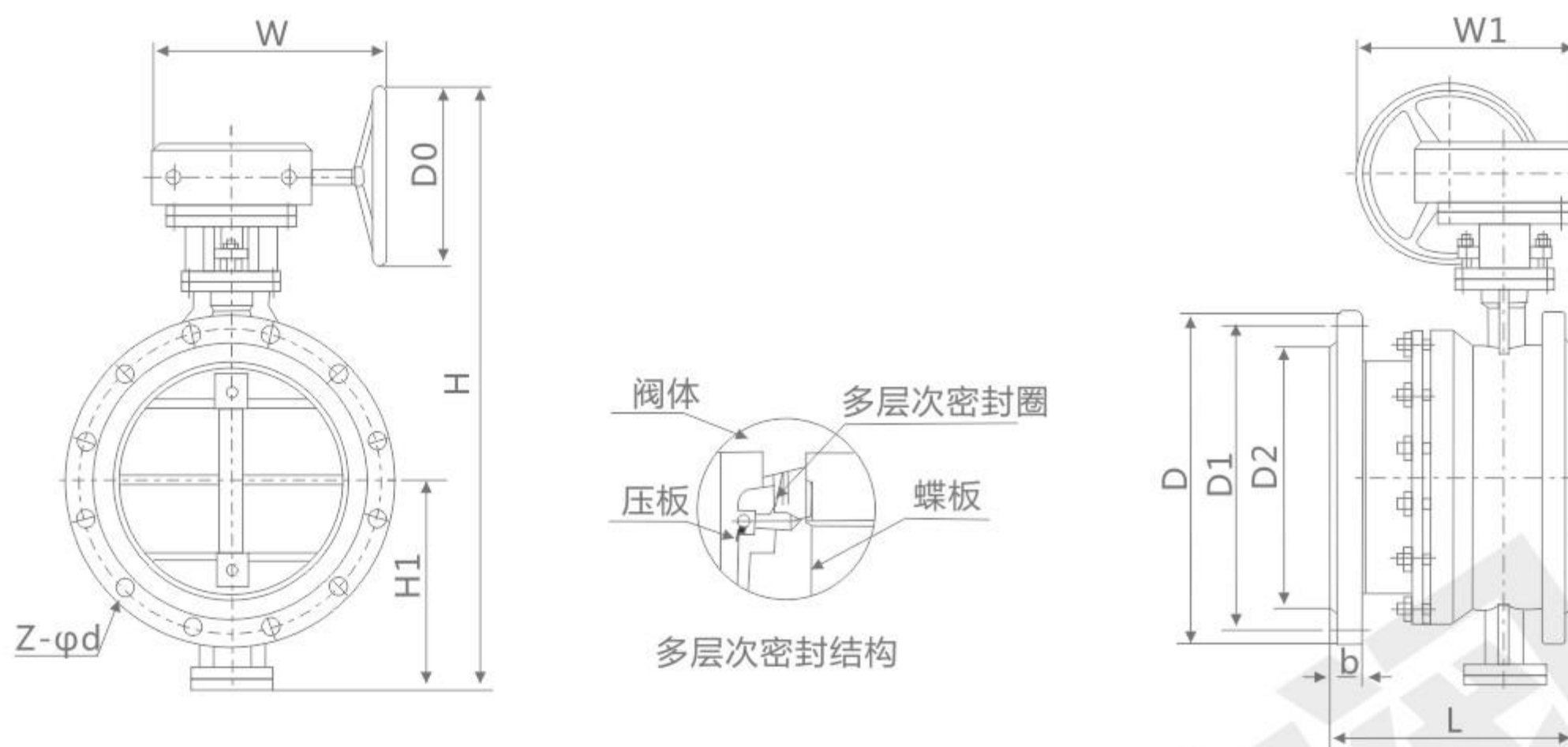
D363 H_F-6~25C.P.R 注意外形和连接尺寸

公称通径		尺 寸				
in	DN(mm)	L	D	H	H1	W
4	100	190	116	376	100	194
5	125	200	140	410	113	268
6	150	210	166	468	130	268
8	200	230	222	586	205	268
10	250	250	278	638	235	306
12	300	270	330	734	275	306
14	350	290	382	827	309	416
16	400	310	432	924	346	416
18	450	330	484	1045	392	416
20	500	350	535	1128	427	475
24	600	390	636	1372	509	475
28	700	430	726	1590	572	475
32	800	470	826	1722	638	592
36	900	510	926	2025	700	592
40	1000	550	1028	2155	765	592
48	1200	630	1228	2360	860	640
56	1400	710	1428	2636	986	640
64	1600	790	1628	2906	1106	640

SD343H伸缩型金属密封蝶阀

Telescopic metal seal butterfly valve

蝶阀系列
BUTTERFLY VALVE SERIES



应用规范

设计、制造按GB/T12238-1989
结构长度按GB/T12221-2005
连接法兰：GB/T9113-2000
阀门检查和试验按JB/T9092-1999

Application specification

Design, manufacture : GB/T12238-1989
Length of the structure : GB/T12221-2005
Connecting flange : GB/T9113-2000
Valve inspection and test : JB/T9092-1999

产品特点及用途 Product characteristics and USES

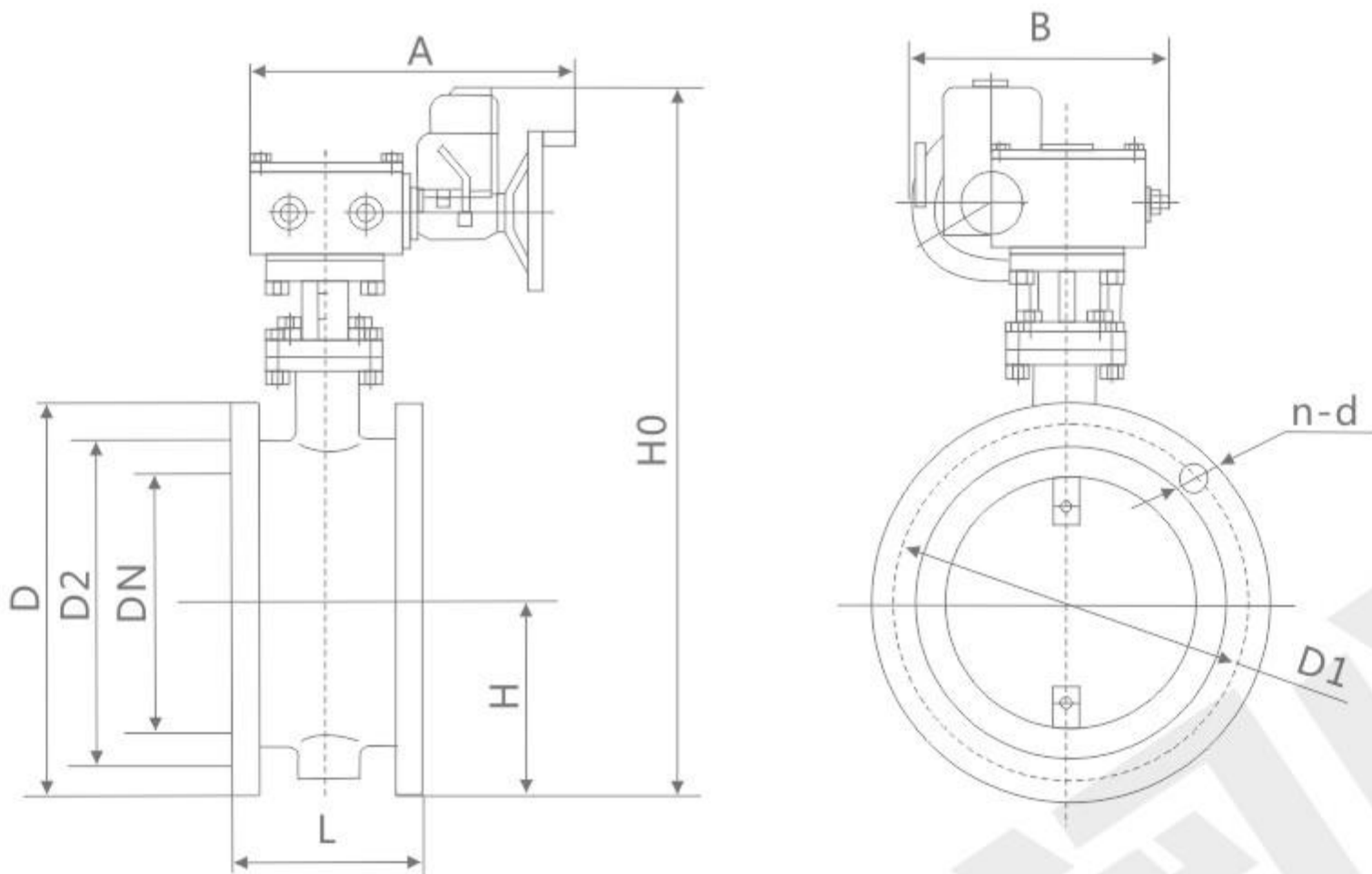
本蝶阀是一种一阀两用的产品，集伸缩器和法兰式蝶阀于一体。它能在一定范围内可轴向伸缩，有利于管道热胀冷缩、消除管道振动及在一定角度范围内克服管道对接不同轴而产生的偏移，能极大的方便阀门管路的安装与拆卸，提高经济效益。适用于食品、饮料、医药、纯净管路及工业环保、水处理、高层建筑、给排水管路作启闭调节介质流量之用。

This butterfly valve is a valve dual-use products, integrating the expansion pipe and flange butterfly valve. It can within a certain range can be axial expansion, and eliminate the pipe vibration and the heat-expansion and cold-contraction within a certain Angle to overcome the pipe misalignment caused by migration, to great convenience valve pipe installation and dismantle, improve the economic benefit. Apply to food, beverage, pharmaceutical, pure line and industrial environmental protection, water treatment, high building, water supply and drainage pipeline for opening and closing regulating medium flow.

SD343H-10C主要外形和连接尺寸

公称 通径	尺 寸 (mm)												
	L	Lmax	Lmin	D	D1	D2	D0	b	H	H1	W	W1	Z-φd
50	150	163	138	165	125	99	157	20	360	112	195	185	4-18
65	170	188	158	185	145	118	157	20	380	115	195	185	4-18
80	180	192	162	200	160	132	157	20	455	120	195	185	8-18
100	190	225	180	220	180	156	157	22	490	140	195	185	8-18
125	200	235	190	250	210	184	205	22	490	170	268	250	8-18
150	210	240	195	285	240	211	205	24	630	180	268	250	8-22
200	230	265	215	340	295	266	235	24	690	210	305	300	8-22
250	250	285	235	395	350	319	235	26	830	240	305	300	12-22
300	270	302	252	445	400	370	296	26	930	290	415	400	12-22
350	290	321	271	505	460	429	296	26	1010	320	415	400	16-22
400	310	343	283	565	515	480	296	26	1070	350	415	400	16-26
450	330	360	300	615	565	530	400	28	1140	380	475	420	20-26
500	350	380	320	670	620	582	400	28	1200	410	475	420	20-26
600	390	425	365	780	725	682	400	34	1340	470	475	420	20-30

D641W/D941通风蝶阀
Ventilation butterfly valve



产品特点及用途 Product characteristics and USES

本蝶阀采用与阀体相同材料加工成密封圈，采用电或气动传动。其适用温度随阀体选材而定，公称压力≤0.6MPa，一般适用于工业、冶金、环保等管道作通风调节介质流量之用。其主要特点为：

1. 设计新颖、合理、结构独特、重量轻、启闭迅速。
2. 操力矩小、操作方便、省力灵巧。
3. 采用适应的材料以满足低、中、高不同介质温度其及腐蚀性介质等。

This butterfly valve USES the same as the valve body material processed into sealing ring, use electric or pneumatic drive. The suitable temperature with the valve body material and decide, nominal pressure 0.6 MPa, or less generally applicable to the industry, metallurgy, Environmental protection pipe for use in ventilation regulating medium flow. Its main characteristic is:

1. The novel design, reasonable, unique structure, light weight, rapid opening and closing.
2. Small operation torque, easy to operate, saving smart.
3. Adopt to adapt to different materials to meet the high, medium and low medium temperature and corrosive medium, etc.

采用标准

设计标准：GB/T12238-1989 JB/T8692-1998
法兰连接：GB/T9115.1-2000
结构长度：GB/T12221-1989
压力试验：GB/T13927-92 JB/T9092-1999

With a standard

Design criteria：GB/T12238-1989 JB/T8692-1998
Flange connection：GB/T9115.1-2000
length of the structure：GB/T12221-1989
Pressure test：GB/T13927-92 JB/T9092-1999

主要技术参数 Main technical parameters

公称通径 Nominal diameter	DN(mm)	50-2000		
公称压力 Nominal pressure	PN(MP a)	0.05	0.25	0.6
试验压力 Ps(MPa)	强度试验Strength test	0.075	0.375	0.9
	密封试验Sealing test	≤1.5%泄漏量leakage		
适用介质Applicable medium	煤气、含尘气体、烟道气等 Gas, dust, gas, flue gas, etc			
驱动形式Drive form	手动、蜗杆涡轮传动、气传动、电传动Manual, worm turbine drive, gas drive, electric drive			

主要零件的材质 The material of the main parts

零件名称Part name	材料material
阀体valve body	铸钢、不锈钢、铬镍钼钛钢、铬钼钛钢等特殊材料 Cast steel, stainless steel, chromium nickel titanium molybdenum titanium steel, chrome molybdenum steel and other special materials
碟板Disc plate	
密封圈Sealing ring	与阀体相同 The same as the body l
阀杆valve stem	碳钢、2Cr13、不锈钢、铬镍钼钛钢Carbon steel, 2 cr13, stainless steel, nickel chromium molybdenum titanium steel
填料packing	氟塑料、柔性石墨Fluorine plastic, flexible graphite

D641W/D941通风蝶阀

Ventilation butterfly valve

D641W-^{0.5}₆ 2.5 C.P.R系列通风蝶阀连接尺寸

公称通径 Nominal diameter DN		结构长度 (标准值)	外形尺寸 (参考值) Overall dimensions (reference)				连接尺寸 (标准值) Connection size (standard)					
							0.05MPa和0.25MPa			0.6MPa		
mm	inch	L	H	H0	A	B	D	D1	n-d	D	D1	n-d
50	2	108	70	337	180	65	140	110	4-14	140	110	4-14
65	2 1/2	112	80	357	180	65	160	130	4-14	160	130	4-14
80	3	114	95	385	180	65	190	150	4-18	190	150	4-18
100	4	127	105	405	180	65	210	170	4-18	210	170	4-18
125	5	140	120	483	245	72	240	200	8-18	240	200	8-18
150	6	140	132	508	245	72	265	225	8-18	265	225	8-18
200	8	160	160	566	245	72	320	280	8-18	320	280	8-18
250	10	160	187	623	245	72	375	335	12-18	375	335	12-18
300	12	180	220	750	355	93	440	395	12-22	440	395	12-22
350	14	180	245	803	355	93	490	445	12-22	490	445	12-22
400	16	200	270	852	355	93	540	495	16-22	540	495	16-22
450	18	200	297	907	355	93	595	550	16-22	595	550	16-22
500	20	220	322	960	355	93	645	600	16-22	645	600	16-22
600	24	220	377	1080	550	350	755	705	20-26	755	705	20-26
700	28	240	430	1185	550	350	860	810	24-26	860	810	24-26
800	32	240	487	1300	550	350	975	920	24-30	975	920	24-30
900	36	260	537	1400	550	350	1075	1020	24-30	1075	1020	24-30
1000	40	260	587	1500	550	350	1175	1120	28-30	1175	1120	28-30
1200	48	280	702	1825	600	350	1375	1320	32-30	1405	1340	32-33

D941W-^{0.5}₆ 2.5 C.P.R系列通风蝶阀连接尺寸

公称通径 Nominal diameter DN		结构长度 (标准值)	外形尺寸 (参考值) Overall dimensions (reference)				连接尺寸 (标准值) Connection size (standard)					
							0.05MPa和0.25MPa			0.6MPa		
mm	inch	L	H	H0	A	B	D	D1	n-d	D	D1	n-d
50	2	108	70	418	250	225	140	110	4-14	140	110	4-14
65	2 1/2	112	80	438	250	225	160	130	4-14	160	130	4-14
80	3	114	95	466	250	225	190	150	4-18	190	150	4-18
100	4	127	105	486	250	225	210	170	4-18	210	170	4-18
125	5	140	120	516	325	245	240	200	8-18	240	200	8-18
150	6	140	132	541	325	245	265	225	8-18	265	225	8-18
200	8	160	160	779	325	245	320	280	8-18	320	280	8-18
250	10	160	187	836	363	313	375	335	12-18	375	335	12-18
300	12	180	220	901	363	313	440	395	12-22	440	395	12-22
350	14	180	245	954	363	313	490	445	12-22	490	445	12-22
400	16	200	270	1003	363	313	540	495	16-22	540	495	16-22
450	18	200	297	1058	465	439	595	550	16-22	595	550	16-22
500	20	220	322	1111	546	556	645	600	16-22	645	600	16-22
600	24	220	377	1233	546	556	755	705	20-26	755	705	20-26
700	28	240	430	1338	546	556	860	810	24-26	860	810	24-26
800	32	240	487	1452	546	556	975	920	24-30	975	920	24-30
900	36	260	537	1588	632	706	1075	1020	24-30	1075	1020	24-30
1000	40	260	587	1689	632	706	1175	1120	28-30	1175	1120	28-30
1200	48	280	702	1938	632	706	1375	1320	32-30	1405	1340	32-33
1400	56	530	782	2670	790	1338	1575	1520	36-30	1630	1560	36-36
1600	64	600	895	2810	868	1476	1790	1730	40-30	1830	1760	40-36
1800	72	670	995	3020	868	1476	1990	1930	44-30	2045	1970	44-39
2000	80	760	1095	3220	965	1600	2190	2130	48-30	2265	2180	48-42