

UV792Q Metal-Seated Floating Ball Valve

The UV792Q ball valve from UNIVALS incorporates an advanced innovation concept, featuring an unique design and high-quality manufacturing processes. Engineered for durability and superior sealing performance, it meets stringent safety, emission, and performance requirements standards in the Oil & Gas, Petrochemical and Chemical industries. The UV792Q ball valve offers customizable configurations to address diverse operational demands, including abrasive media handling, and high temperature applications.



Features

Proven for exceptional reliability, the UV792Q delivers a long service life with outstanding low-leakage performance and smooth, low operating torque—even in the most demanding applications.

- Integral emission control system
 - Low emission packing kits
 - Double packing design
 - Spring Elastic Loaded packing design
- Unique long-lasting seat sealing
- Performance Optimization ball design
- Fire safe certified
- Anti-blow-out stem

Technical Summary

- Size: 0.5~4 inch
- Rating: Class 150 ~ Class 300
- Body: Carbon Steel, Alloy Steel, Stainless Steel
- Trim: Alloy Steel, Stainless Steel
- Seat: Hard Faced

Additional configurations material are available, contact UNIVALS engineering for specialized requirement.

Advantage

- Tight shut-off sealing
- Extended service life
- Heavy-duty design
- Failed-safe reliability

Design Standards

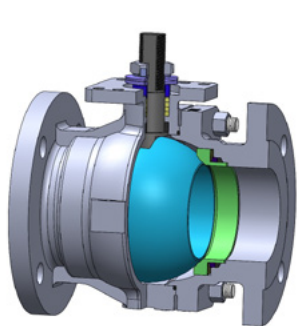
- **Design**
ISO 17292 or API 608
- **Pressure / Temperature Rating**
ASME B16.34 or DIN EN 12516-1
- **Face-to-face Dimensions**
ASME B16.10 or DIN EN 558
- **Flange End Dimensions**
ASME B16.5 or DIN EN 1092
- **NACE**
MR 0103 or MR 0175
- **Fugitive Emission**
ISO15848, TA-LUFT
- **Fire-safe Type Test**
API607

Available Configurations

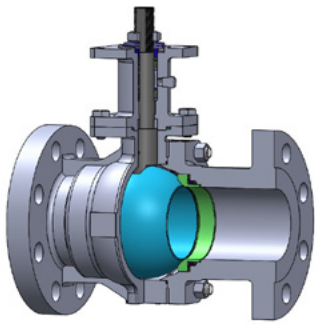
The UV792Q ball valve is engineered for seamless integration into both standard and severe service environments. Its highly configurable design supports a wide range of specialized requirements, including:

- High temperature applications
- Abrasive media handling
- Extended stem options
- Multi-way options
- Customized solutions

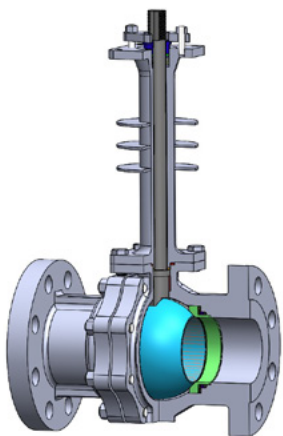
Configuration



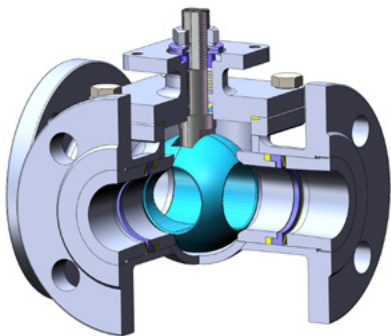
STANDARD



EXTENDED STEM



HIGH TEMPERATURE



MULTI-WAY

Size and Pressure Range

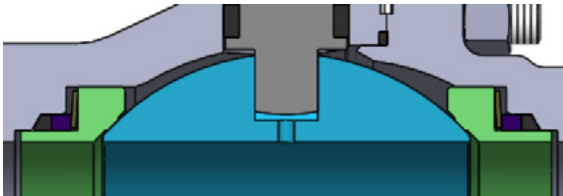
Product Supply Scope for ASME B16.5 Flange									
ASME	NPS								
Class	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4
150Lb	✓	✓	✓	✓	✓	✓	✓	✓	✓
300Lb	✓	✓	✓	✓	✓	✓	✓	✓	✓

Product Supply Scope for DIN-EN-1092 Flange									
DIN	DN								
PN	15	20	25	32	40	50	65	80	100
10	✓	✓	✓	✓	✓	✓	✓	✓	✓
16	✓	✓	✓	✓	✓	✓	✓	✓	✓
25	✓	✓	✓	✓	✓	✓	✓	✓	✓
40	✓	✓	✓	✓	✓	✓	✓	✓	✓

Technical Specification

Bidirectional Sealing System

- UV792Q With a bidirectional seal design, prevents leakage regardless of flow direction, simplifying installation and operation.
- Seat springs maintain constant sealing force between ball and seats, compensating for wear and thermal cycling.
- Its thermal expansion accomodation allows trim components to expand/contract without losing seal integrity.
- Cavity pressure self-relief automatically equalizes overpressure in the valve body, preventing seal damage.
- The scraper-type seat cleans the ball surface during operation, removing debris and ensuring consistent sealing performance.

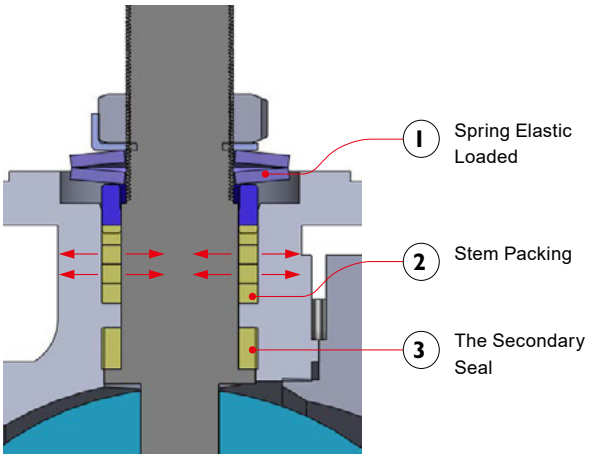


The scraper-type seat cleans the surface of ball during switching.

Integral Emission Control System – Stem Sealing Technology

Benefits

The UV792Q features an advance emission control system that exceeds stringent fugitive emission standards and delivers extended leak-proof service.



Under Pressure:

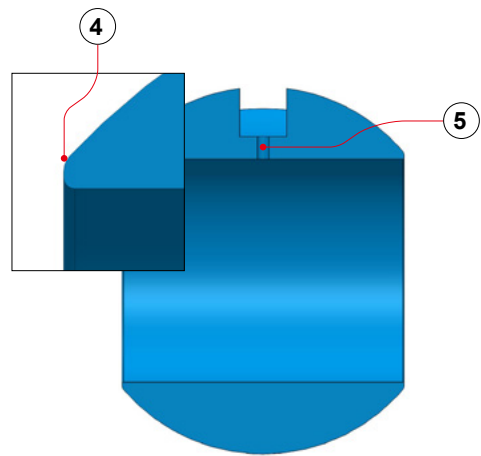
The medium pressure forces, the stem against the secondary seal,enhancing sealing force for zero-leakage performance.

Pressure Relief:

When medium pressure relieved, stem packing automatically resets to optimal preload, preventing over-compression damage and excessive operating torque.

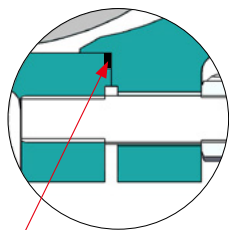
Optimized Ball Designs

- ④ Specially designed bi-angles rounded ball can improve seat usage.
- ⑤ Pressure balanced hole design, to avoid over pressure in bore area.

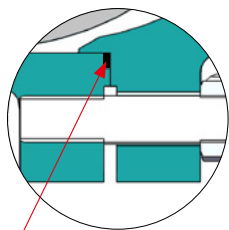


Fire Safe Body

To ensure the maximum integrity between end cap and body, the independent flange bolts or studs are directly threaded into the body to prevent joint failure from thermal expansion / contraction during fire events. Also the encapsulated grafoil gasket maintains pressure boundary integrity under extreme heat, blocks fluid permeation and eliminates external leakage risk. See figure 1 and 2.



Before Fire
Figure 1.



After Fire
Figure 2.

Stem Packing for Fire Safe

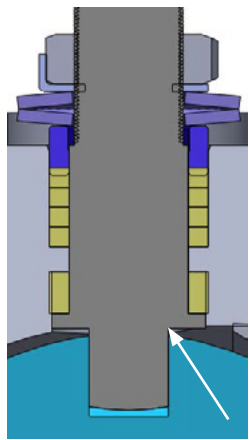
Stem packing, seal arrangement remained unaffected due to Graphite fire resistance property.

Anti-blow-out Stem

Designed with anti-blow-out stem. See figure 3.

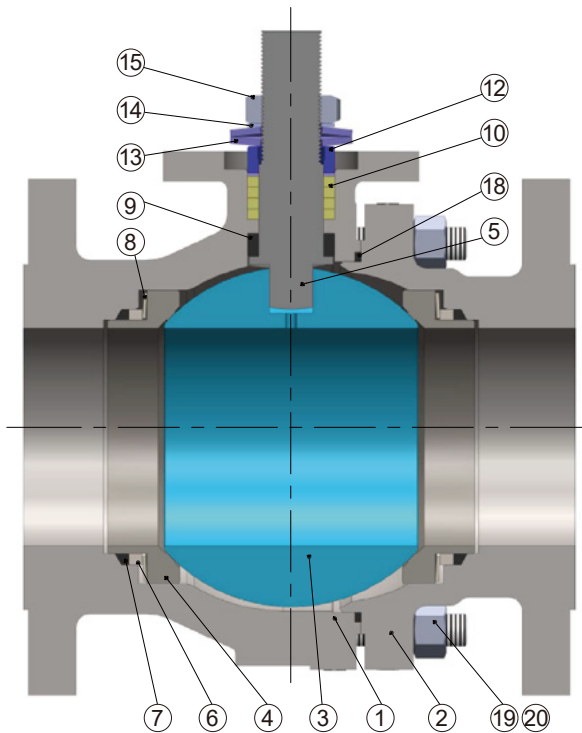
Optional Sealing Surface Materials

The UV792Q offers customizable sealing surface treatments beyond the standard nickel plating, including advance coating like Tungsten Carbide-Cobalt (TCC), Chromium Carbide (CrC) and specialized solutions like ceramic coatings and proprietary super coatings.



Anti-blow-out stem
Figure 3.

Section Drawing



No.	Description	No.	Description
1	Body	10	Packing
2	End Connector	12	Follower
3	Ball	13	Belleville Washer
4	Seat	14	Stop Lock
5	Stem	15	Nut-Metric
6	Seat Press Ring	18	Gasket
7	Seat Packing Ring	19	Stud
8	Belleville Washer	20	Nut
9	Bearing		

Materials of Construction

Max. Temperature	200°C	200°C	200°C
Min. Temperature	-29°C	-29°C	-29°C
Body	A216 WCB	A 351 CF8M	A 351 CF3M
End Connector	A216 WCB	A 351 CF8M	A 351 CF3M
Ball	F316L/Ni60	F316L/Ni60	F316L/Ni60
Seat	F316L/Ni55	F316L/Ni55	F316L/Ni55
Stem	17-4PH	17-4PH	17-4PH
Seat Press Ring	A182 F316L	A182 F316L	A182 F316L
Seat Packing Ring	GRAPHITE	GRAPHITE	GRAPHITE
Belleville Washer	Inconel 718	Inconel 718	Inconel 718
Bearing	E-Carbon	E-Carbon	E-Carbon
Packing	GRAPHITE	GRAPHITE	GRAPHITE
Follower	A276 316L	A276 316L	A276 316L
Belleville Washer	Stainless Steel	Stainless Steel	Stainless Steel
Stop Lock	Stainless Steel	Stainless Steel	Stainless Steel
Nut-Metric	A4	A4	A4
Gasket	GRAPHITE	GRAPHITE	GRAPHITE
Stud and Nut	A193 B7M A194 2HM	A193 B8M A194 8M	A193 B8M A194 8M

Torque (Nm)

Class 150, Class 300, PN10, PN16, PN25, PN40

Size		Differential Pressure (bar)														
NPS	DN	10 bar			20 bar			30 bar			40 bar			50 bar		
		BTO,ETC	RTO,RTC	ETO,BTC	BTO,ETC	RTO,RTC	ETO,BTC	BTO,ETC	RTO,RTC	ETO,BTC	BTO,ETC	RTO,RTC	ETO,BTC	BTO,ETC	RTO,RTC	ETO,BTC
1/2	15	16	11	12	18	13	14	24	17	18	30	21	22	35	25	26
3/4	20	18	13	14	20	14	15	32	22	24	44	31	33	56	39	42
1	25	30	21	23	40	28	30	50	35	38	60	42	45	70	49	52.5
1-1/4	32	35	25	26	51	36	38	68	48	51	84	59	63	100	70	75
1-1/2	40	52	36	39	68	48	51	82	57	62	97	68	73	110	77	83
2	50	65	45	59	80	55	72	100	65	90	140	80	126	174	90	155
2-1/2	65	190	133	143	230	161	173	270	189	203	310	217	233	350	245	263
3	80	140	95	126	210	145	190	288	188	260	340	195	305	400	207	360
4	100	260	182	234	380	266	342	510	357	459	650	455	585	780	546	702

- Assumptions:
- Seat sealing: F316L/Ni

■ Operating temperature: −29 to 38°C

■ Stem sealing: ISO 15848

■ Medium characteristic: Lubricating

Torque — MAST (Ambient Temperature)

NPS	Material	Class 150	Class 300
		MAST(Nm)	MAST(Nm)
1/2	17-4PH	54	54
3/4	17-4PH	153	153
1	17-4PH	153	153
1-1/4	17-4PH	153	153
1-1/2	17-4PH	257	257
2	17-4PH	456	456
2-1/2	17-4PH	824	824
3	17-4PH	824	824
4	17-4PH	1415	1415

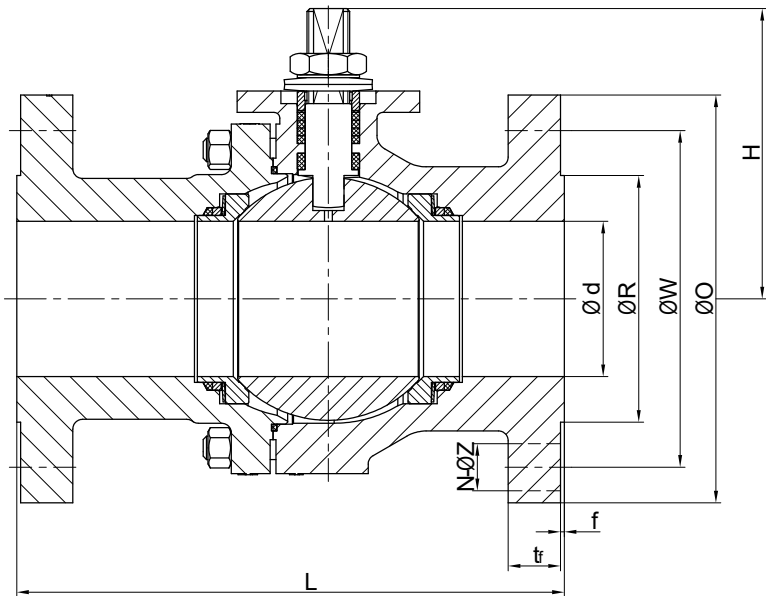
Leakage Allowable

Size		API 598		
NPS	DN	Test Water (ml/min)	Test Gas (ml/min)	Testing Time (s)
1/2	15	0	0	15
3/4	20	0	0	15
1	25	0	0	15
1-1/4	32	0	0	15
1-1/2	40	0	0	15
2	50	0	0	15
2-1/2	65	0.312	0.1	60
3	80	0.375	0.12	60
4	100	0.5	0.16	60

Test Procedures

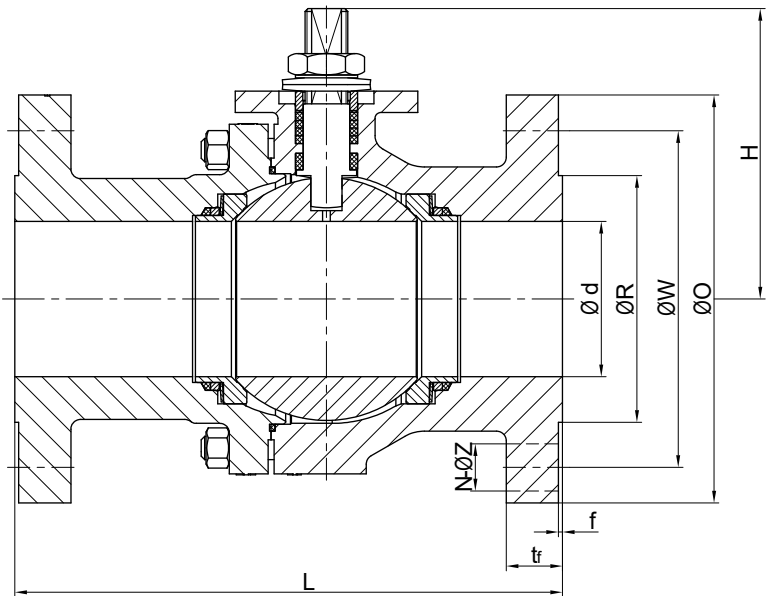
API 598	Test water	Water	1.1 PN
API 598	Test gas	Air-N2	1.1 PN or 5.5 bar

Ball Valve Dimension



Size	ASME Class 150 Approximate Dimensions in mm										Weight (kg)
NPS	L	Ø d	Ø O	Ø W	Ø R	N	Ø Z	f	t _r	H	
1/2	108	15	89	60.5	35.1	4	16	2	7.9	57	1.82
3/4	117	20	99	69.8	42.9	4	16	2	8.6	66	2.12
1	127	25	108	79.2	50.8	4	16	2	9.7	77	3.2
1-1/4	140	32	117	88.9	63.5	4	16	2	11.2	82	4.45
1-1/2	165	38	127	98.6	73	4	16	2	12.7	96	6.1
2	178	50	152	120.6	91.9	4	19	2	14.2	108	9
2-1/2	190	65	178	139.7	104.6	4	19	2	15.7	135	15
3	203	80	190	152.4	127	4	19	2	19	150	19.7
4	229	100	229	190.5	157.2	8	19	2	22.4	183	34

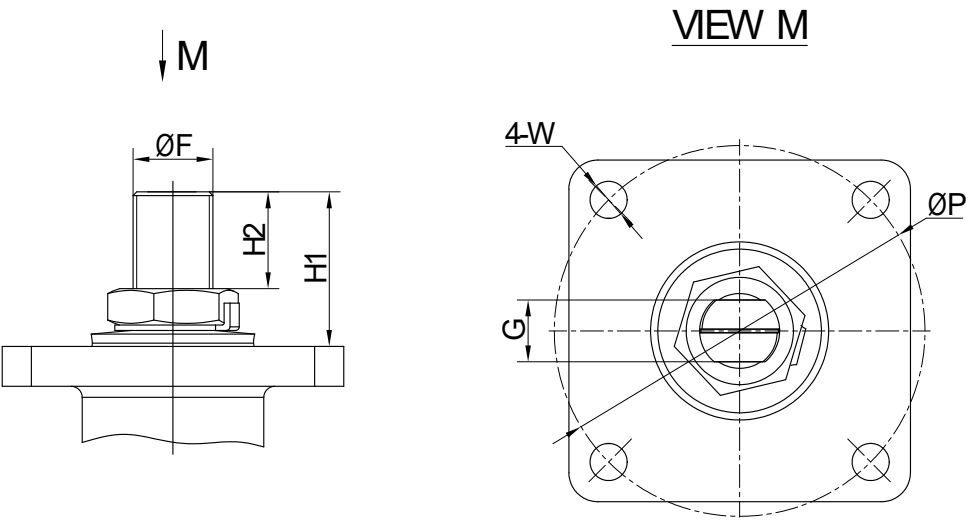
Size	ASME Class 300 Approximate Dimensions in mm										Weight (kg)
NPS	L	Ø d	Ø O	Ø W	Ø R	N	Ø Z	f	t _r	H	
1/2	140	15	95	66.5	35.1	4	16	2	12.7	57	2.2
3/4	152	20	117	82.6	42.9	4	19	2	14.2	66	3.25
1	165	25	124	88.9	50.8	4	19	2	15.7	77	4.8
1-1/4	178	32	133	98.6	63.5	4	19	2	17.5	82	5.8
1-1/2	190	38	155	114.3	73	4	22	2	19	96	9.4
2	216	50	165	127	91.9	8	19	2	20.6	108	12
2-1/2	241	65	190	149.4	104.6	8	22	2	23.9	135	19
3	283	80	210	168.1	127	8	22	2	26.9	150	28.5
4	305	100	254	200.2	157.2	8	22	2	30.2	183	47.3



Size	DIN-EN PN10/PN16 Approximate Dimension in mm										Weight (kg)
DN	L	Ø d	Ø O	Ø W	Ø R	N	Ø Z	f	t _r	H	
15	115	15	95	65	45	4	14	2	16	57	2.46
20	120	20	105	75	58	4	14	2	18	66	3.08
25	125	25	115	85	68	4	14	2	18	77	4.18
32	130	32	140	100	78	4	18	2	18	82	5.62
40	140	38	150	110	88	4	18	3	18	96	7.95
50	150	50	165	125	102	4	18	3	18	108	10.5
65	170	65	185	145	122	8	18	3	18	135	17
80	180	80	200	160	138	8	18	3	20	150	21.5
100	190	100	220	180	158	8	18	3	20	183	34

Size	DIN-EN PN25/PN40 Approximate Dimensions in mm										Weight (kg)
DN	L	Ø d	Ø O	Ø W	Ø R	N	Ø Z	f	t _r	H	
15	115	15	95	65	45	4	16	2	16	57	2.46
20	120	20	105	75	58	4	18	2	18	66	3.08
25	125	25	115	85	68	4	18	2	18	77	4.18
32	130	32	140	100	78	4	18	2	18	82	5.62
40	140	38	150	110	88	4	18	3	18	96	7.95
50	150	50	165	125	102	4	18	3	20	108	10.5
65	170	65	185	145	122	8	18	3	22	135	18.3
80	180	80	200	160	138	8	18	3	24	150	24.9
100	190	100	235	190	162	8	22	3	24	183	37.2

Ball Valve Install Dimensions



Size		Dimensions for Mounting Pad in mm					
NPS	DN	G	ΦF	W	ΦP	H1	H2
1/2	15	6.3	10	M5	42	19.5	8
3/4	20	9	14	M6	54 x 28 ^a	27	9.3
1	25	9	14	M8	50	19.5	7.3
1-1/4	32	9	14	M8	50	20.5	8.5
1-1/2	40	11	16	M10	70	30	14.6
2	50	14	18	M10	70	33	16.4
2-1/2	65	17	22	M10	84 x 52 ^a	51.5	24.5
3	80	17	22	M12	102	42.5	23
4	100	20	27	M12	102	55	30

NOTE: ^a ΦP Arranged in a rectangle

Bolting Torque

Packing Nut Torque (Nm)						
MATERIAL ASTM	Stud Size					
	M10×1	M14×1.5	M16×1.5	M18×1.5	M22×1.5	M27×2
A193 B8M	6	15	20	22	25	78

Body Nut Torque (Nm)								
MATERIAL ASTM	Stud Size							
	M8	M10	M12	M14	M16	M20	M24	M27
A193 B7	20	38	64	103	157	305	527	768
A193 B8M	23	44	74	118	181	354	513	613

Flow Rates (Cv and Kv) — Full Bore

NPS	DN	Cv 90°	Kv 90°
1/2	15	25	21
3/4	20	50	43
1	25	80	68
1-1/2	40	240	204
2	50	460	391
2-1/2	65	820	697
3	80	1250	1062
4	100	2230	1896

Data for Calculation of Flow

The coefficient of flow Cv expresses the rate of flow in gallons per minute at 60°F water with a pressure drop 1 psig across the valve. The Cv coefficients for the various types and sizes. Shown in the tables, have been determined from actual flow tests. Note: The relationship between Cv and Kv can be express as: $Cv=1.156Kv$

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