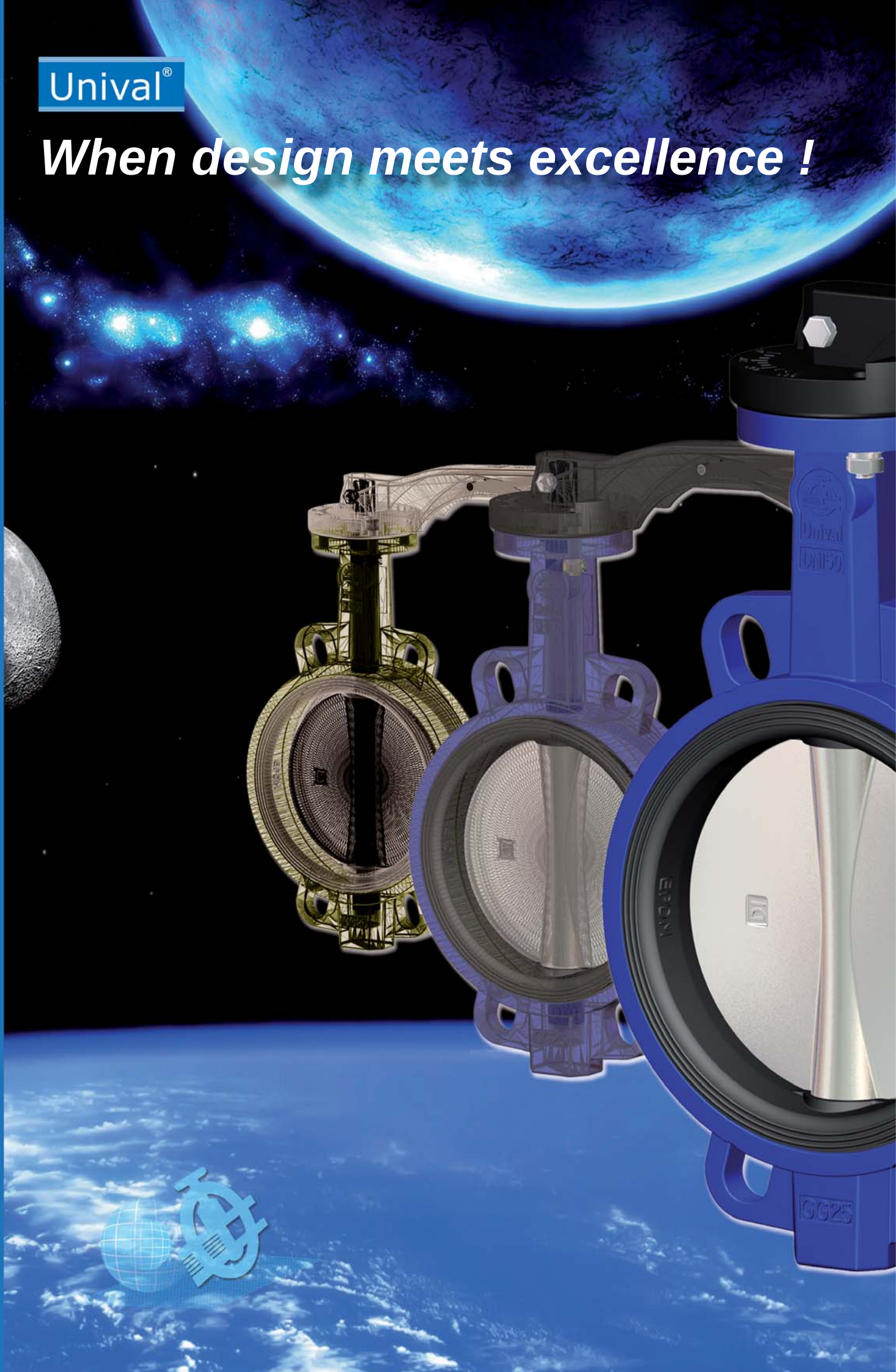
Unival®

When design meets excellence !



Butterfly Valves

Unival®

General Design Considerations

A butterfly valve is a type of flow control device, typically used to regulate a fluid flowing through a section of pipe. A flat circular plate (disc) is positioned in the centre of the pipe. The plate has a rod (shaft) through it connected to an actuator on the outside of the valve. Rotating the actuator turns the plate either parallel or perpendicular to the flow. Unlike a ball valve, the plate is always present within the flow, therefore a pressure drop is always induced in the flow regardless of valve position.

A butterfly valve is from a family of valves called quarter turn valves. The “butterfly” is a metal disc mounted on a rod. When the valve is closed, the disc is turned so that it completely blocks off the passageway. When the valve is fully open, the disc is rotated a quarter turn so that it allows unrestricted passage. The valve may also be opened incrementally to regulate flow thanks to the gradual interlocking notch.

Butterfly valves are of simple design, of light weight and volume and very effective on isolating lines for its quick and safe operation. Most of butterfly valves design are flangeless for installation between counter flanges what saves space, costs and maintenance.

There are two kind of flangeless butterfly valves:

Wafer Style Butterfly Valves: Wafer style is the more common one and is lest expensive one. The wafer style butterfly valve is just about the standard. It is so common that no one even bothers to use the word “wafer” when ordering a butterfly valve. They take it for granted that if they order a butterfly valve, they will get a wafer style one. Wafer butterfly valves are installed between two flanges using bolts or studs and nuts. This type of installation, of course, makes it impossible to disconnect just one side of the piping system from the valve. That is where the lug style valve comes in.

Lug Style Butterfly Valves: Lug style valves are provided with tapered holes to fix threaded bolts in. This allows them to be installed into a system using two sets of bolts and no nuts. The valve is installed between two flanges using a separate set of bolts for each flange. This set-up permits either side of the piping system to be disconnected without distributing the other side.
Lug Style Butterfly Valves are used in dead end service and generally have a reduced pressure rating.

Valves can also be of dual flanged design; provided with integral flanges that are ready to be installed between flanges of the same standard. These are more bulky valves and usually required for large sizes and other styles of performance by the position of the shaft. (see next paragraph).

Other kind of valves by its nature of shaft design are as follows:

Concentric Design: This is the most common and simple design. The valve shaft is concentric to the disc. It is normally a resilient seated valve. Rotating the handle turns the plate either parallel or perpendicular to the flow of water, shutting off the flow

Double Centric Design: This design features a slight offset in the way the disc is positioned, which increases the valve’s sealing ability and decreases its tendency to wear. It is normally used for throttling functions, larger sizes and / or metal seated valves.

Triple Offset Design: This design is the one offering a highest degree of performance. The shaft is totally off set from the central axis thus increasing the ability of the valve disc to close tightly at even high pressure. These valves are usually metal seated thus being used for high temperature too. These valves are usually operated by worm gear to achieve a slow closing.

This first line brochure illustrates all the UNIVAL® range of butterfly valves, one of the largest portfolios of butterfly valves presently available for isolating and regulating duties. It is comprehensive of diverse styles and materials of construction and offers a presentation to the superb design and performance availed by the more than a million units installed all over the world.

Manufacture & Design Standards

UNIVAL® Butterfly Valves are designed using advanced techniques which includes finite element modeling and are afterwards manufactured using the most precise NC plant machinery to ensure a perfect degree of accuracy and serialised production in adequate volumes to meet the ever increasing demand. The best of workmanship is used and modern automated facilities permit testing all and every valve before dispatch.

•Harmonised Standard EN 593
•QA certified to ISO 9001:2000
•According to Pressure Equipment Directive PED 97/23/EC by a recognised Notify body
•Testing standards EN12266-1 / API 598
•Marking according to EN 19 - MSPP
•Face to face dimensions according to EN558-1 Series 20
•Body end connections wafer type to be installed between flanges
•DN32-600: EN 1092-1/2 PN10/16 and ASA150; other connections available on request
•Epoxy painted Blue RAL5002
•Top flange as per ISO 5211 Standard

Operating Parameters:

•Working pressure: 0...16 bar-g DN25-300; 0...10 bar-g DN350-600 (PN16 - Ductile Iron Body)
•Working temperature: according to sealing material
•See Engineering Data for complete overview of operating parameters

Main Applications: Water, oil, compressed air, low pressure steam, and overall processes

Series 700-750
Carbon Steel &
St. Steel Bodies

Series 700
Wafer type

Series 750
Lug type

Series 700F
Double Flanged
≥ DN 700

Series 790
Double Flanged
≤ DN 600

Series 760
Grooved ends

Series 50
Double Centric

Other Univalⓡ designs

UNIVAL® product family is on a permanent expansion, should the valve design you are looking for is not shown on this brochure, please contact your nearest UNIVAL® distributor for the latest information.

New products on the portfolio: High Performance Valves (metal seated, PTFE seated) and 2 piece body design fully fluoropolymer coated disc.

Univalⓡ

Attributtes of Design

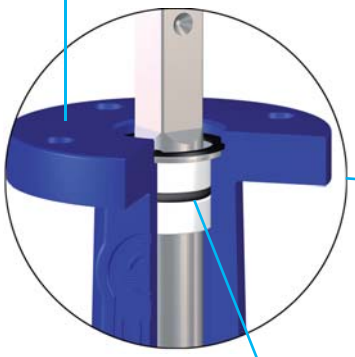
Simple valves, great design!

Notch Plate; with position indicator and gear locking, lever locking in intermediate position when needed.

Marking according to EN19, with name plate including CE marking, valve identification and serial number for full traceability purpose.

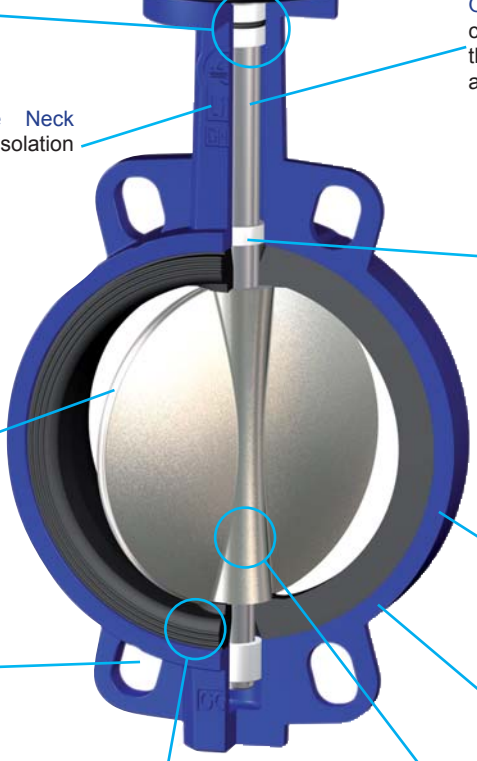
Rugged and light Lever; Ergonomic design, trigger style with covered spring.
Prepared for padlocking application to avoid undesired operation.

Top Mounting Arrangement; top flange to suit actuators as per ISO 5211 standard, square stem with bevelled edges to ease actuator coupling.



One Piece Shaft; solid, stainless steel corrosion resistant. One piece through design ensures dependability and positive disc positioning.

Extended Valve Neck enables thermal isolation in heating plants.



Precise Shaft Guiding System; the shaft is carried in four estrategically placed bushings preventing deflection under pressure, thus ensuring optimal guidance, positive location and long life. PTFE bushing accurate guidance reduces torque and isolates the stem from valve body, preventing stem corrosion.

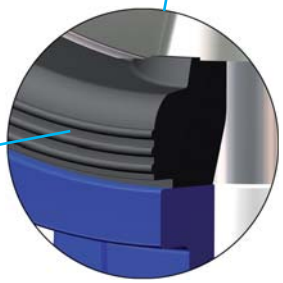
O-ring safety shaft sealing, with retaining washer to ensure proper working under pressure.

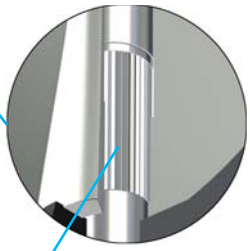
Finely Machined Disc Edges with final polishing, provides tight valve sealing and ensures minimum operating torque and longer duration of the rubber liner.

Precision Machined Body; thus the liner with shaft location can be accurately positioned to ensure minimal operation wear and extended life span.

Centring eyelets; series 700 provide full passing bolts to assemble between counter flanges ISO / DIN / EN 1092 PN10/16 and ASA 150.

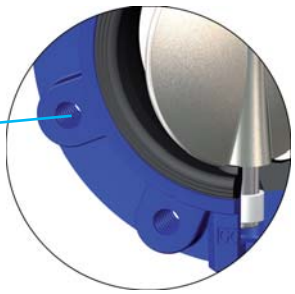
Epoxy powder paint protection





Replaceable seat liner with phenolic backed seat, up to DN400, aluminium backed seat DN450 and above,non-collapsible, stretch resistant, blow out proof, allows softer rubber liners, which ensure longer life span and better tightness.
Liner is profiled to ensure a tight shut off sealing when installing between flanges (pressure activated system), thus no need to provide gaskets between valve and counter flanges.

Shaft-Disc threaded union standard up to DN300: disc offers clean surface against the fluid, without union pins source of corrosion and turbulences in small sizes.

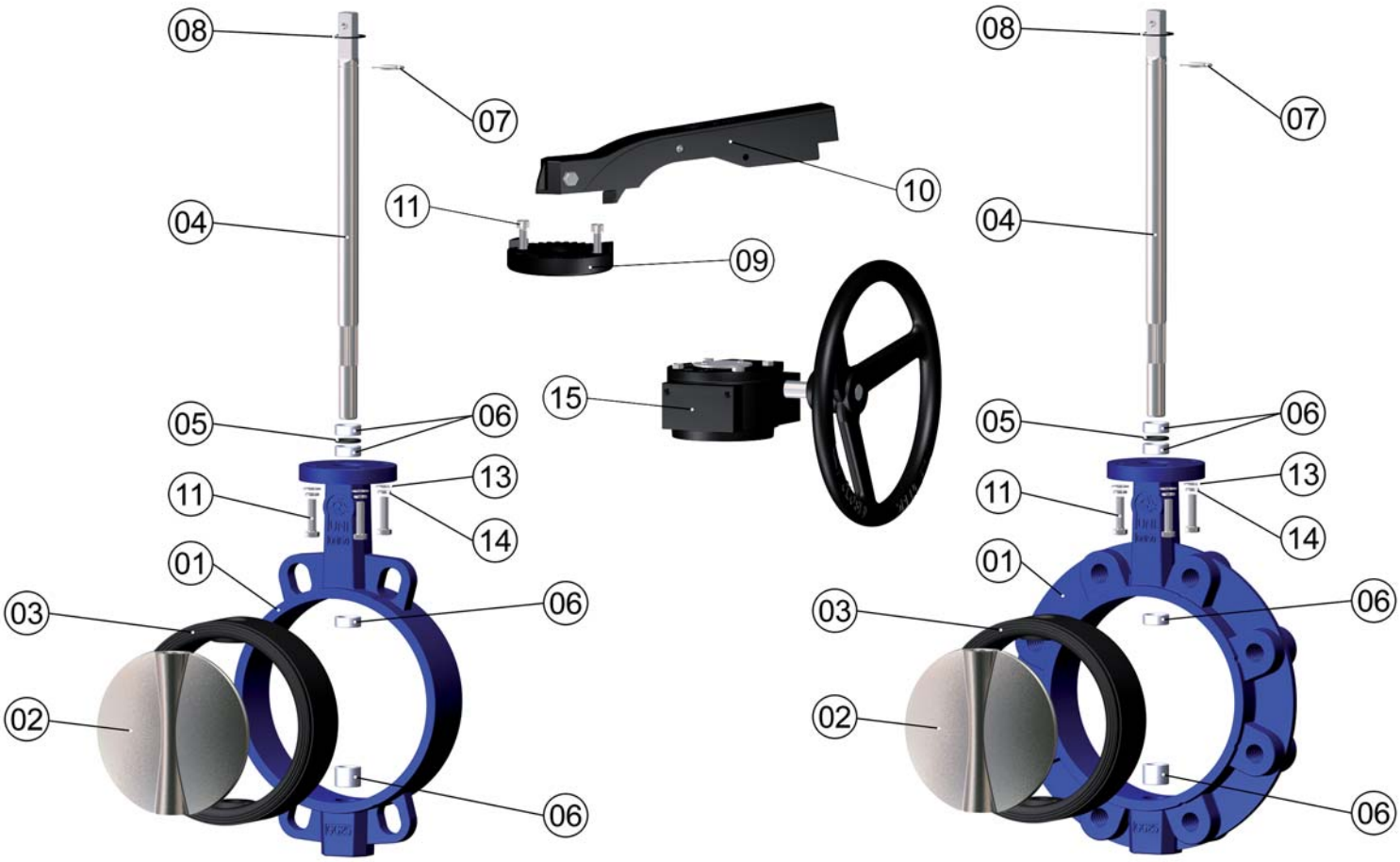


Threaded eyelets; Series 750 are the choice for pipe ends. Available for several DIN / ASA counterflanges.

Parts and Materials

Built to endure!

This brochure illustrates the standard UNIVAL® choice of materials. Most of the combinations are available at stock for off the rack delivery, however, others can be manufactured within a reasonable time framework. The valve liners are replaceable what widens the choice for maintenance and change of process conditions.



Main Valve Components

1 BODY	2 DISC	3 LINER	4 STEM	5 0-RING
Cast Iron EN-JL1040 (GG25)	Nickel Plated Ductile Iron EN-JS1030 (GGG40)	NBR	St. Steel AISI 416	EPDM
Ductile Iron EN-JS1030 (GGG40)	St. Steel CF8M	EPDM		NBR
St. Steel A351 CF8M	Al-Bronze	Viton		
Carbon Steel A216 WCB	FEP or PFA Coated	Hypalon		
	Uranus UB6	Silicon		
		PTFE		
		FEP		
		PFA		

Secondary Valve Components

6 BUSHINGS	7 WASHER	8 CIRCLIP	9 NOTCH PLATE	10 HAND LEVER
PTFE	Steel	Steel	Alumminium	Alumminium
				Ductile Iron (DN ≥200)

Secondary Valve Components

11 STUDS	13 WASHERS	14 NUT	15 WORM GEAR
Steel	Steel	Steel	Ductile Iron

Code System

V	F	A	A	A	B	C	C	C	D	D	E	E	E

- **VF =** UNIVAL BUTTERFLY VALVE IDENTIFICATION

- **AAA = 700** WAFER TYPE, **750** LUG TYPE, **760** GROOVE END TYPE, **790** DOUBLE FLANGE TYPE ...

- **B = P** (WITH LEVER), **R** (WITH WORM GEAR), **B** (BARE SHAFT) ...

- **CCC** = BODY / DISC / SEAT MATERIALS - **DD** = SPECIAL REQUERIMENTS - **EEE** = VALVE SIZE (DN)

Unival®

Seats - Application Guide

The secret of tightness

The liners are made using high quality compounds formulated at the UNIVAL® elastomeric research centre. The rubber liners are moulded into a resin made back seat which eases replacement. Please observe the diverse available options and use the recommended media as a guide with not engagement. Nominal operating and peak temperatures should also be carefully observed.

NBR Butadiene Acrylonitrile (-20ºC) -10ºC ... 75ºC (90ºC)
Lubricating oil, cutting oils, fuel oils, animal and vegetable oils, aviation kerosen, LPG, oily air. Generally resistant to oils and solvents. Limited resistance to ozone and wheather.

EPDM Ethylene Propylene Diene (-20ºC) -5ºC ... 120ºC (130ºC)
Salts in water, diluted acids, alkaline solutions, ester, ketones, alcohols, glycols, hot water, intermittent steam, sterilisation.
Good resistance to ozone and wheather.
It is attacked by hydrocarbon solutions, chlorinated hydrocarbons and other petroleum based oils.

Viton (FPM) Vinylidenefluoride-hexafluoro-propyleneco-polymer (-20ºC) -10ºC ... 150ºC (180º)
Strong and weak mineral acids, aliphatic hydrocarbons, chlorine gas, oils, aliphatic acids, phosporic acids, ozone, certain aromatic solvents.
Not suitable for hot water, steam and dry heat.

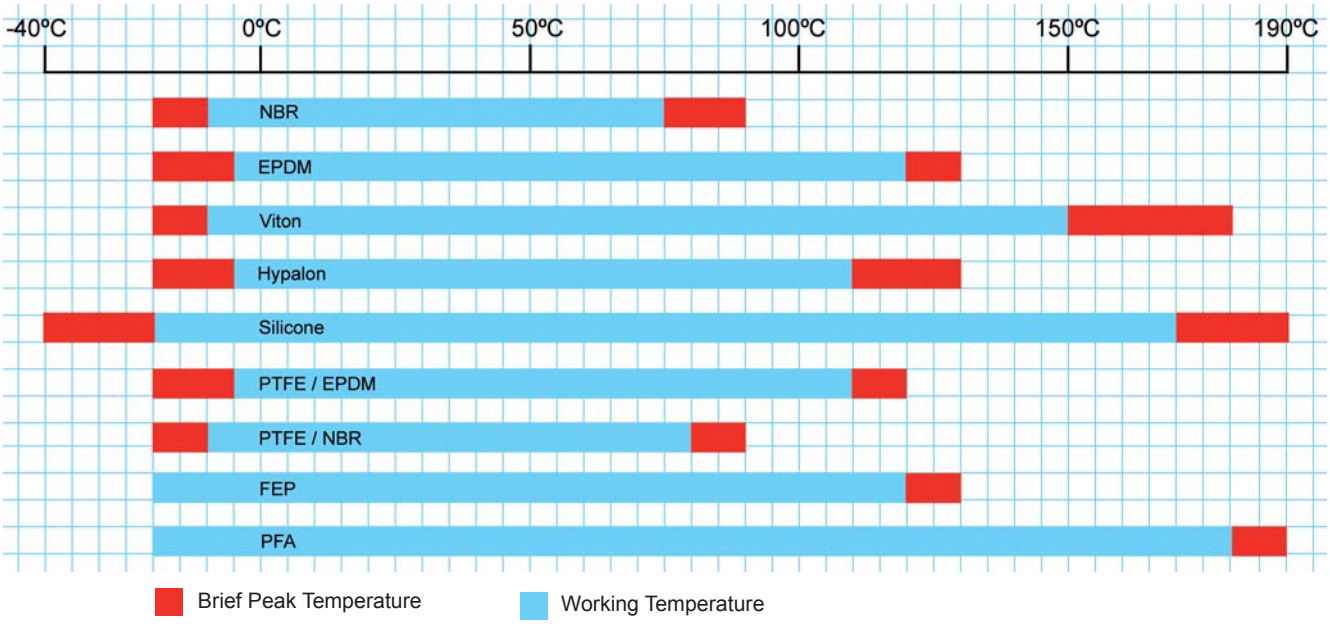
Hypalon (CSM) Chlorosulfonated polyethylene (-20ºC) -10ºC ... 110ºC (130ºC)
Good chlorine and weather resistance. Low resistance to oil and fats.

Silicone (-40ºC) -20ºC ... 170ºC (190ºC)
Good wheather resistance. Recommend ed for hot air applications. Not resistant to mineral oils. Moderate mechanical properties.

PTFE PTFE/EPDM (-20ºC) -5ºC ... 110ºC (120ºC) - PTFE/NBR (-20ºC) -10ºC ... 80ºC (90ºC)
Excellent resistance to chemicals or biopharmaceuticals, strong acids and solvents, alkalies and salts in water. Excellent resistance to weather.

FEP -20ºC ... 120ºC (130ºC)
Similar properties to PTFE but more translucent and with lower porosity, so most suitable for concentrated mineral acids, aromatic, aliphatic and chlorinated solvents.

PFA -20ºC ... 180ºC (190ºC)
Similar to FEP but with smoother surface texture and for higher continuos service temperatures.



Temperature ranges given just for reference.
Body pressure-temperature rating also to be considered for valve selection.
Please consult our Technical Department for a particular application.

Actuation and Accesories

UNIVAL® butterfly valves can be provided with a wide range of solutions on actuation and control accessories which is all packaged at our works according to customer specifications. The modular system permits to distributors and plant users to assemble or replace the diverse options in site. Virtually most applications that may be encountered on the industry today are covered with the standard range of actuation and accessories, nevertheless, other customer tailored solutions can be provided by our R&D Section.

OVERALL VALVE ACTUATION

Hand Lever

Worm Gear

Hand lever; made in Aluminium, light and resistant to ruptures, ergonomically design for a quick operation either in 90º or partial stroke thanks to its notch plate offering intermediate locking positions. The lever can be operated by pulling the trigger and gets blocked by releasing it.

Worm Gear; declutchable Gear operated by Hand Wheel, providing a smooth and slow valve operation on valves and specially on the larger sizes. It is provided with visual position indicator.

Electric Actuators; a wide range of actuators available for diverse duties; from the **L&H Series** (standard light and single phase actuators, plastic cased for low torque and standard duty requirements) to the most powerful and high performance known brands. They can be provided for On / Off services or throttling by means of electronic positioners. As a standard feature they are all provided with emergency manual override.

Electric Actuators

Pneumatic Actuators

Pneumatic Actuators; of rack and pinion type, available in single and double acting versions, the standard casing is Aluminium and can also be provided with special coatings on request. As a standard feature they are all provided with visual position indicator.

POSITION INDICATION ARRANGEMENTS ON MANUAL VALVES

Special designs of proven reliability have been engineered by our R&D section to provide UNIVAL users with more service options.

Valve with hand lever with electromechanical limit switches

Valve with worm gear with electromechanical limit switches

Valve with hand lever with limit switches box (metal or plastic)

Valve with worm gear with limit switches box (metal or plastic)

OTHER OPTIONS

Stem extensions

Pad Locked lever

Stem Extensions; either for manual operated valves or actuated ones. The length of extension is made to the customer specification, and provides bolting arrangement on both sides: valve stem and actuator stem side with upper part according to ISO 5211 standard.

Pad Locked lever; this simple system prevents unauthorized operation at the plant. It is arranged on request.

Unival®

The Unival® Data Base

The source of Knowledge

A wide scope of information is available at the UNIVAL® data base for you.
All this information is downloadable from our web site www.comeval.es

Data Sheets Manual

Comprehensive of all technical and engineering information on the comprehensive portfolio.

Web Site Product Sheet

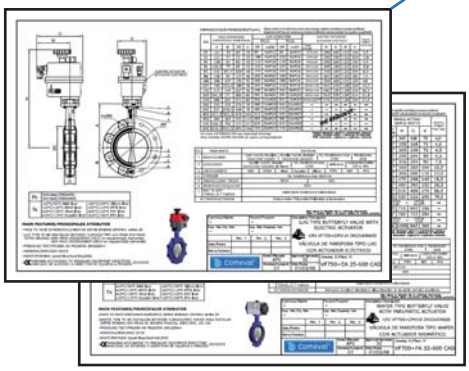
Valve description, main dimensions, operating parameters and other links accessible at your finger tips.

Price Lists

Up dated price book comprehensive of all models including actuated valves.

Arrangement Drawings

Standardized sectional parts and dimensional drawings for use on engineering projects or enquiries.



Operating and Instructions Manuals

Provided along every valve into the sealed plastic bag. Also accessible via Internet at all times

Traceability

Valves are provided with a riveted name plate ensuring traceability, year of manufacture and main parameters. Valves are individually preserved into a sealed air bubble plastic bag and then on sets of some number of valves per cardboard box to assist with handling and storing. Please ask your UNIVAL® distributor for packaging details. (no minimum order requirement is imposed).

Global Presence

H.V.A.C: ***Cooling Towers, Hot water generators, condensers, ventilation systems, tank temperature control…***

PROCESS: ***lubricating fluids, sea water systems, marine engines, hydraulic systems, phosphates, chemicals, bio fuels, Sugar mill plants, condensate…***

WATER WORKS: ***waste treatment plants, desalination units, irrigation systems, water ducts, pumping stations…***

Special Applications: UNIVAL® valves have been proven to work efficiently under vacuum conditions, Silicone free liners and valves can be provided for the paint cab systems on the automobile industry.

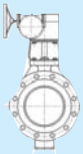
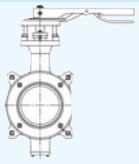
Global Service with a touch of local identity ...

... Across the Globe, there is a Univ al® agent ready to serve you.

UNIVAL Butterfly Valves are present in the five continents across the Globe and are marketed through a network of recognized distributors who can answers your queries and fulfill your needs.

Univ al®

Unival® Range

	VALVE SERIES	MAIN VALVE DESIGN	END CONNECTIONS	DESIGN PRESSURE	SIZE RANGE	SEAT MATERIAL RANGE (1)	BODY MATERIAL (2)	DISC MATERIAL (3)	EXTRAS (4)
	VF 700	CONCENTRIC	WAFER	PN10/16	DN40-600	● ●	■ ■ ■ ■	▲ ▲ ▲ ▲ ▲	●
	VF 750	CONCENTRIC	LUG	PN10/16	DN25-600	● ●	■ ■ ■ ■	▲ ▲ ▲ ▲ ▲	●
	VF 700F	CONCENTRIC	FLANGED	PN10/16	DN700-1200	● ●	■ ■ ■ ■	▲ ▲ ▲ ▲ ▲	●
	VF 790	CONCENTRIC	FLANGED	PN10/16	DN50-1200	● ●	■ ■ ■ ■	▲ ▲ ▲	●
	VF 760	CONCENTRIC	GROOVED	PN20	DN50-300	●	■	▲	●
	VF 50	DOUBLE CENTRIC	FLANGED	PN10/16	DN100-2000	●	■	▲	●
	VF 91	DOUBLE CENTRIC	WAFER LUG	PN16/40 Clase 150/300	DN50-600	● ●	■ ■	▲	●

(1) SEAT MATERIALS:
- ● Elastomeric
- ● Fluoropolymer
- ● Metal

(2) BODY MATERIALS:
- ■ Cast Iron EN-JL1040 (GG25)
- ■ Ductile Iron EN-JS1030 (GGG40)
- ■ St. Steel A351 CF8M
- ■ Carbon Steel A216 WCB

(3) DISC MATERIALS:
- ▲ Nickel Plated Ductile Iron EN-JS1030 (GGG40)
- ▲ St. Steel CF8M
- ▲ Al-Bronze
- ▲ FEP or PFA Coated
- ▲ Uranus UB6
- ▲ Metal with Elastomeric Coating

(4) EXTRAS:
- ● Free of Silicone
- ● Fire Safe

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Distributed by: