

PAL BUTTERFLY VALVE DESIGN FEATURES

A high strength durable and compact butterfly valve capable of working in high pressure and temperature environments.

Valves are manufactured in a wide range of standard and exotic materials for corrosion resistance against various aggressive chemicals, acids, alkalies and gasses.

The shafts being eccentric to the disc combined with low coefficient of friction seals and bearings, results in the valve having lower operational torques compared to other designs of butterfly valves. Substantial savings are thus guaranteed when considering the costs of valve automation.

The self energising body seal ring as described below combines the unique strength of PTFE, UHMWPE and PEEK with the resilience of elastomeric type "O" rings, resulting in a long life zero leakage simple to replace at low cost valve seal.

A positive disc to drive shaft connection using a keyed or spline drive system, which eliminates the use of taper pins or fasteners. This also allows for simple and quick disengagement for maintenance purposes.

The one piece shaft offers superior strength under higher pressure conditions.

THE NEW PAL BI-AX PRESSURE ENERGISED BODY SEAL

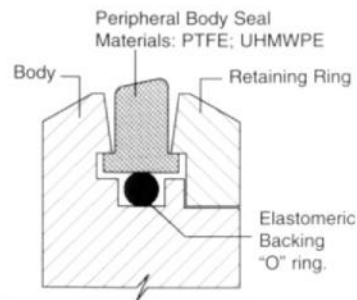


Figure 1

The diagram shows the valve in assembled condition, opened and under no pressure. The lock ring and butterfly body have shoulders which loosely capture the "T" shaped seal. The seal is positively retained in position by an "O" ring.

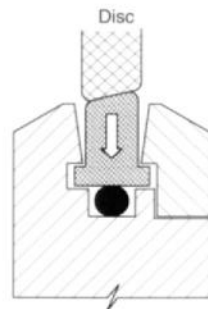


Figure 2

The diagram shows the valve in a closed position but under no pressure conditions and contacting the integrally machined disc seat. The seal ring being dimensionally slightly smaller than the disc bore, compresses itself and forces the "O" ring to compress further. The T seat moves away from the body and seat ring shoulders- The "O" ring exerts an upward force that continually energises the body seal maintaining contact between seal and seat.

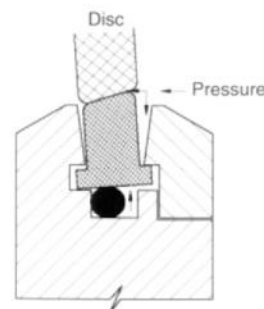


Figure 3

The diagram indicates pressure applied from one side of the disc in a closed position. The line pressure automatically exerts an upward force on the underside of the "T" seal, increasing the pressure of the seal at the contact face. The higher the pressure, the tighter the seal. When the disc moves to an open valve position the tension is lost and the components revert to a relaxed position.

DISTRIBUTOR

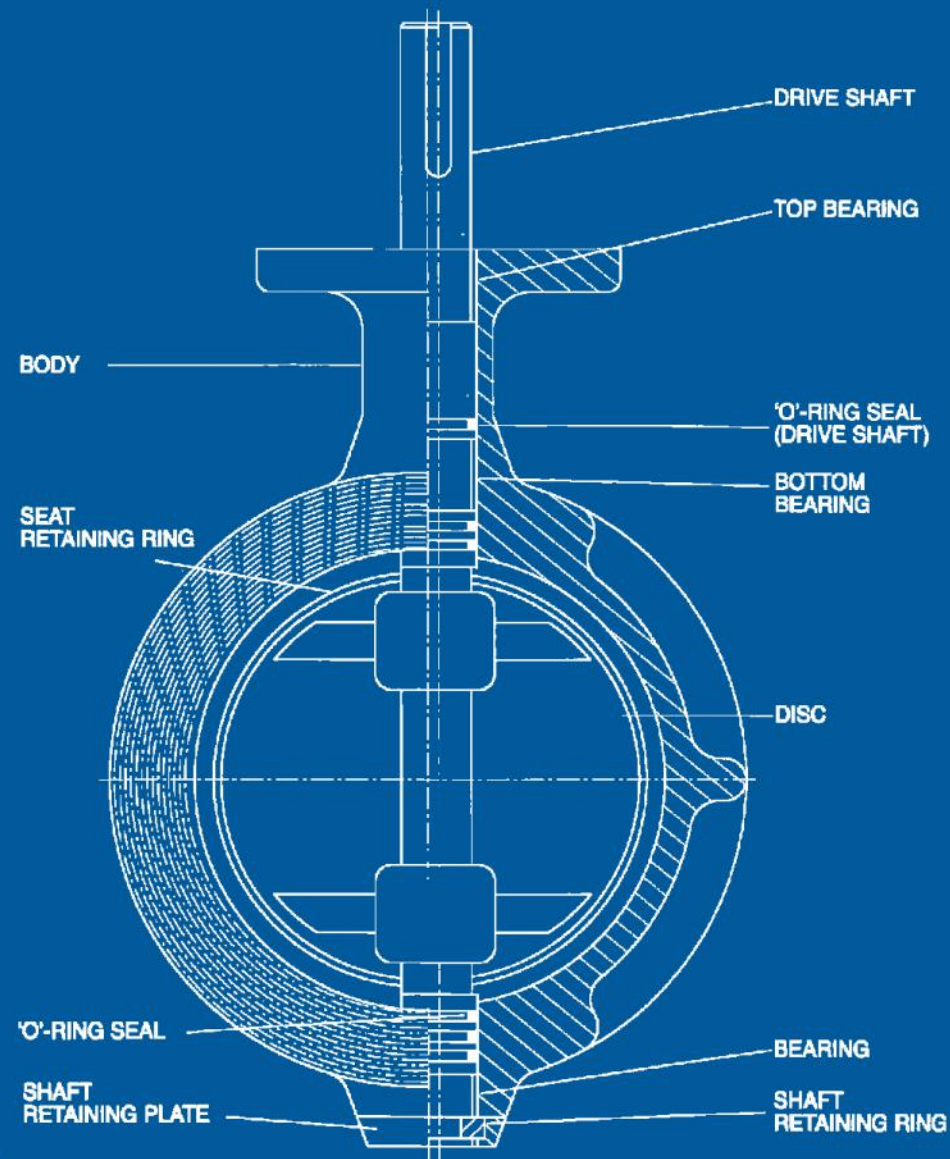


... A NEW GENERATION OF BUTTERFLY VALVES

BIAX



PAL BUTTERFLY VALVE DESIGN FEATURES



A NEW GENERATION OF PAL BUTTERFLY VALVES

On going research and development of a unique design of butterfly valve, capable of handling higher pressures and temperatures and more aggressive process conditions than conventional butterfly valves.

An ideal substitute for ball and plug valves.

OPTIONS:

- Various gland packing options.
- Recess keyed.
- Metal to metal class IV shut-off.
- Class 300 - 50 bar rated.
- High temperature version.



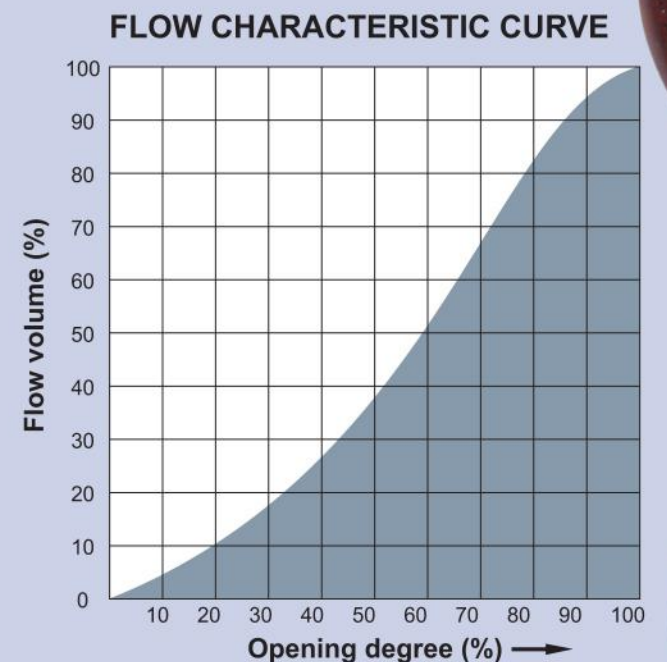
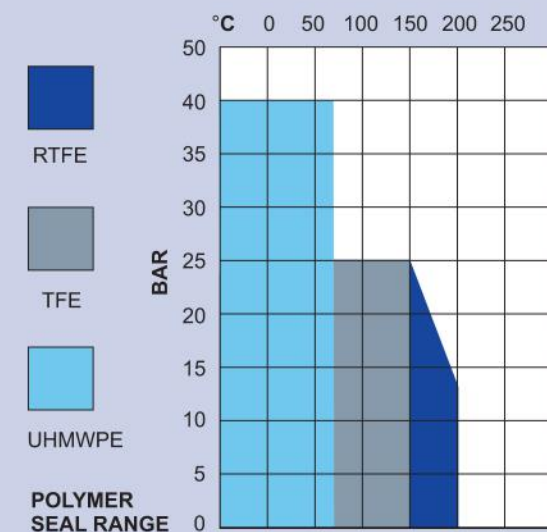
MATERIAL SELECTION & CONSTRUCTION

A SIMPLE NUMERICAL/ALPHABET SYSTEM TO IDENTIFY OF CONSTRUCTION

REF NO.	PIPE SIZE	BODY MATERIAL	DISK MATERIAL	SHAFT MATERIAL	BODY SEAL	BODY & SHAFT "O" RINGS	OPERATION
6	6" (150mm)	3 CARBON STEEL (ENP)	3 CARBON STEEL (ENP)	1 304 ss	P PTFE	N NITRILE	BS BARE SHAFT
8	8" (200mm)	4 CFM8M STAINLESS STEEL	4 CFM8M STAINLESS STEEL	2 316 ss	R FILLED PRFE	V VITON	GO GEAR OPERATOR
10	10" (250mm)	STEEL	STEEL	3 EN57 (17-4PH)	U UHMWPE	S SILICONE	
12	12" (300mm)	5 CD4 MCu.. DUPLEX	5 CD4 MCu.. DUPLEX	4 CD4	EK PEEK	F FEP	
14	14" (350mm)	STAILESS STEEL	STAILESS STEEL	5 904L	M METAL		
16	16" (400mm)	6 ALLOY 20-CN7M	6 ALLOY 20-CN7M	6 PAL 28			
		7 PAL 20	7 PAL 28	7 MONEL 400			
		8 CB7-P.H.	8 CB7-P.H.	8 RUTHALLOY			
		9 MONEL - M35	9 MONEL - M35				
		10 RUTHALLOY	10 RUTHALLOY				

EXAMPLE: 6" (150mm) ALLOY 20 VALVE WITH 904L SHAFT. REINFORCED PTFE BODY SEAL RING, VITON BODY AND SHAFT SEALS WITH BARE SHAFT. BY USING THE LEGEND, THE ABOVE DESCRIPTION IS CONVERTED TO A TYPE:

SIZE	BODY - DISK - SHAFTS	BODY SEAL	"O" RINGS	OPERATION
# 6	6 6 5	R	V	BS
CF8M:	COMMONLY USED ALLOY FOR A WIDE RANGE OF APPLICATIONS COVERING WEAK TO MILD ACIDS, ALKALIES AND WHERE PRODUCT CONTAMINATION RESISTANCE IS ESSENTIAL.	PAL28:	AN ALLOY SIMILAR TO CN7M (ALLOY 20) BUT CONTAINING HIGHER NICKEL, CHROME AND MOLYBDENUM CONTENTS FOR IMPROVED CORROSION RESISTANCE FOR STRONG ACIDS DEAERATED AND WHERE CHLORIDES ARE PRESENT.	
CN7M:	A HIGHER NICKEL, CHROME ALLOY FOR IMPROVED CORROSION RESISTANCE FOR VARIOUS ACID APPLICATIONS SHOWING PARTICULARLY GOOD RESULTS FOR SULPHURIC ACID ACROSS A WIDE RANGE OF TEMPERATURES AND CONCENTRATIONS.	CB7:	A CHROME NICKEL STEEL WHICH IS PERCIPITATION HARDENED FOR APPLICATIONS WHERE HIGH ABRASION RATES ARE ANTICIPATED.	
CD4:	A HIGH CHROME SUPER STAINLESS OR "DUPLEX" STAINLESS STEEL FOR IMPROVED RESISTANCE AGAINST CHLORIDE ENVIRONMENTS AND STRESS CORROSION, OFTEN MORE SUITABLE FOR HIGHER TEMPERATURE ACIDS AND SALTS.	WCB:	A COMMON REFINERY TYPE CAST CARBON STEEL ALLOY FOR HIGH TEMPERATURE CONDITIONS. BODIES AND DISCS ELECTROLESS NICKEL COATED FOR CORROSION RESISTANCE. SUITABLE FOR NON CORROSIVE CONDITIONS SUCH AS DIESEL AND PETROL.	



VALVE SPECIFICATIONS

- F-F DOMENSIONS ARE TO API 609 CLASS B
- BODY FLANGES SUITABLE FOR BS4504 T25, T40, T64, ASME/ANSI B16.5 CLASS 300, BS 10 F&H.
- MOUNTING PADS AND OFFSET SQUARE ON SHAFTS ARE TO ISO 5211 STANDARDS.
- SERRATED SPIRAL FINISH ON FACES ARE TO ASME/ANSI B16.5