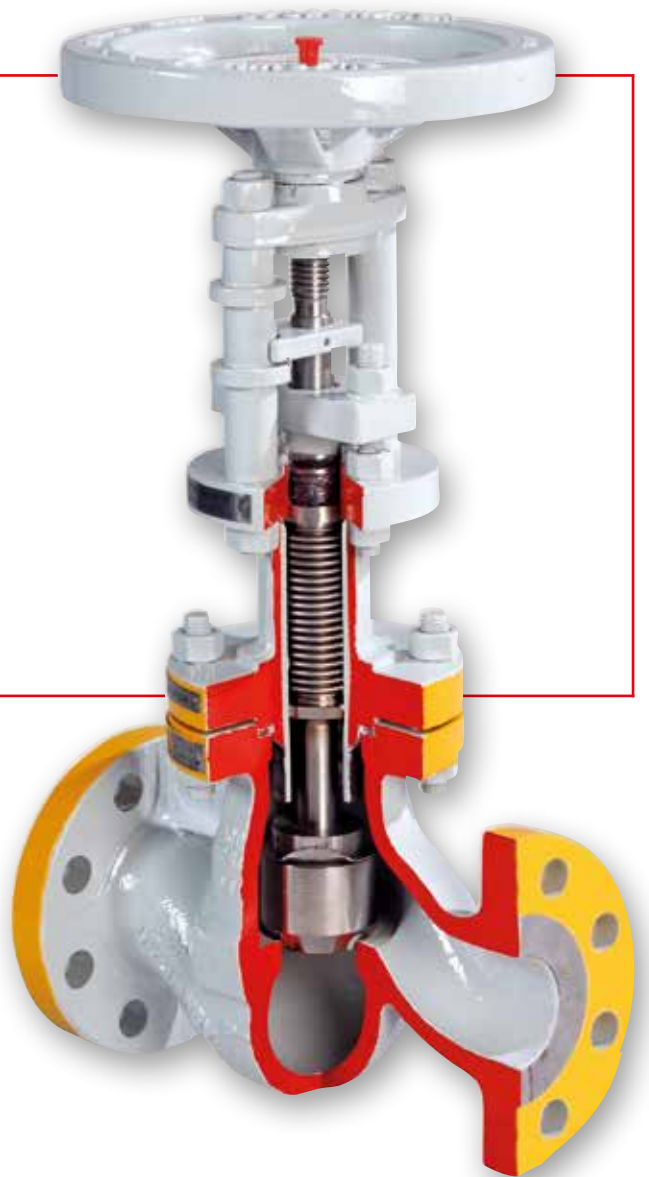


# NEW SEALING TECHNOLOGY FOR HF ALKYLATION & LAB



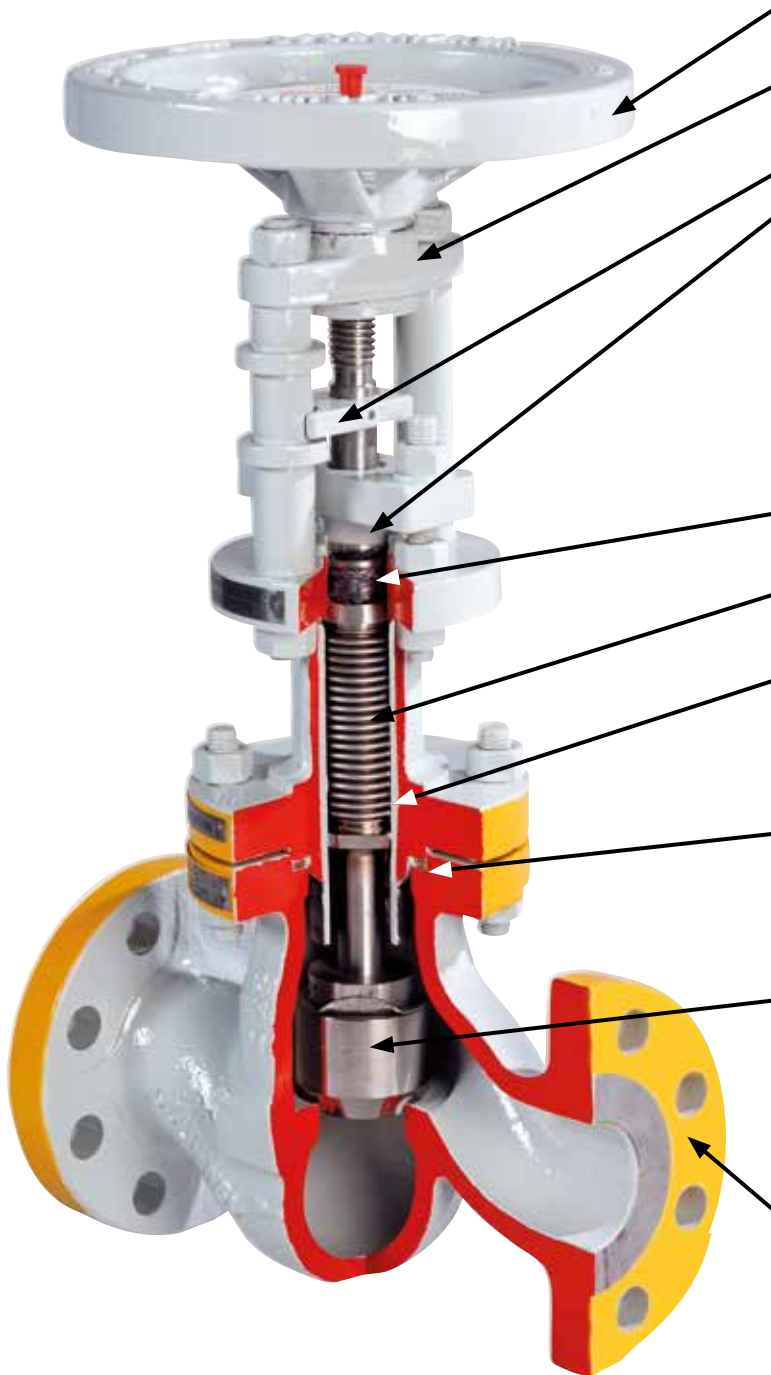
Phillips licensing listed  
& UOP Process division  
approved





▶ **VALVES FOR HF ALKYLATION & LAB**

**INHERENTLY FIRE-SAFE DESIGN**



**Ease of operation**

- Large diameter, long lasting heavy duty handwheel
- Yoke bushing with needle bearings and lubrication fittings
- Position indicator, torsion limiter
- One piece, non rotating stem is cold rolled for concentricity and polished to ensure packing integrity and smooth operation

**Zero emission**

- Stem sealed by multi wall hydroformed bellows
- Secondary sealing by an additional emergency stuffing box
- Long bellows fully housed in an extended bonnet for erosion protection
- The internal diameter of the bonnet has a Monel® liner to prevent Iron Fluoride from building up, in and around the Hastelloy® C Bellows
- Fully entrapped body/bonnet gasket to ensure joint integrity

**Zero seat leakage**

- Hard faced, knife effect edge seating to cut through iron fluoride process impurities or soft seat alternative
- High quality level 2 castings, as per ASTM E446
- Body/bonnet and end flanges painted with HF sensitive paint for leak detection
- Body/bonnet thickness acc. to API 600

descote is listed on UOP Piping Class

**HF-1/HF-10 - HF-2/HF-20 - HF-4/HF-40 - HF-5/HF-50**

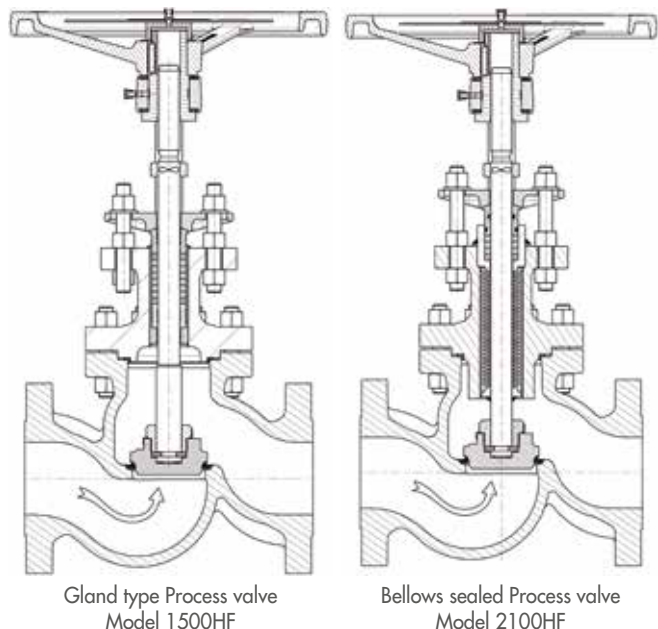
for manual, actuated, control & by-pass valves

according to the latest UOP & COP specification release

# VALVES FOR HF ALKYLATION & LAB

## ► TECHNICAL INFORMATION AND SPECIFICATIONS

descote HF alkylation valves are manufactured to all applicable ASME, ANSI, ASTM, API and licensors standards and specifications. They are also in accordance with descote's stringent internal design, manufacturing, testing and control specifications and procedures.



### Manufacturing programme

		Model 1500HF - Model 2100HF
Dimensions	For GVF valves <sup>(1)</sup>	DN15 to 500 - 1/2" to 20"
	For BVF valves <sup>(2)</sup>	DN15 to 500 - 1/2" to 20"
Rating		ANSI Class 150/300/600 lbs - 800SW
End connection		Flanged and BW - all sizes SW and screwed ends - up to 2"

- (1) GVF face to face standard is interchangeable with globe valves  
(2) BVF face to face standard is interchangeable with gate and plug valves (class 300/600 lbs)  
(3) for other dimensions, pressure rating or end connections, please consult descote



descote valves can be used in Safety Loops requiring Integrity up to **SIL 3** level.

## ► MATERIALS

descote offers a complete valve range to answer UOP and ConocoPhillips specifications for HF alkylation.

- Body/bonnet in ASTM A 216 WCB, Monel®, Hastelloy®C
- Bellows/trim in Monel®, Hastelloy®C
- Disc and body seat in Monel®, Stellite 21

For more details on materials, please refer to specification and drawings listed by licensor.

## ► MATERIALS OF CONSTRUCTION

The choice of materials on HF-Alkylation service is of paramount importance for corrosion resistance. descote proposes different combinations of strictly selected materials.

### Carbon steel ASTM A216 WCB and Tramp metal

Body and bonnet carbon steel specification refer to ASTM A216 Gr WCB. Additional requirements are usually specified.

- ASTM A216 Supplementary requirements with  $CE \leq 0.43$  and limitation on Niobium (Columbium) and Vanadium contents
- Various "Tramp metal" specifications with limitation on S, P, V, Ni... content

As a standard, descote offers carbon steel components meeting these requirements.

**X-ray examination on all cast parts are performed acc. to descote QA procedure. This procedure guarantees levels 2 acc. to ASTM E446.**

### Hard facing – Monel®K500 – Stellite® Gr21

Globe valves offer a superior performance over all other valve types for **positive shut-off**. This is particularly important when scaling (iron fluoride deposit) is expected. The unique "hard faced, knife-effect edge seating" designed by descote guarantees a long lasting positive shut-off. descote selected the following hard materials :

- Massive Monel®K500, with hardness >250 HB
- Welded Stellite®Gr21, with hardness >300 HB

descote has developed a unique welding procedure, including a pure Nickel sandwich layer and Post Weld heat treatment. This procedure prevents corrosion in the heat affected zone.

**Stellite®Gr21 has proven records of resistance to HF corrosion.** Soft seating are also available on all descote valve models.

### Monel® - Hastelloy®C

Monel® alloys are often used for their excellent resistance to corrosion. They offer a low sensitivity to iron fluoride deposit.

However, these alloys have properties that make them difficult to use :

- difficult to cast
- difficult to weld
- low hardness when not in the "age-hardened" state

The use of Hastelloy®C is an interesting and economic alternative. These alloys can easily be cast and welded. They have an outstanding resistance to corrosion.

**The choice of Hastelloy®C is confirmed by more than 10 years of experience in HF-Alkylation units.**

**DESCOTE QUALITY PLAN FOR HF-ALKYLATION MANUFACTURING**

This QA plan indicates the minimum requirements in force in our production programme for standard valves to be used on HF alkylation/LAB processes. Additional requirements can be specified by the customer.

	Description	Standard	Criteria	%	Note
Raw materials	Chemical Analysis	ASTM A216 + S16	ASTM + licensor spec. + Customer's spec.	per Heat	
	Mechanical properties	ASTM A216 + S16	ASTM	per Heat	
	Surface visual examination of castings	MSS SP55	Irregularities I, IX & X not admitted : Photos A+B accepted / C+D+E not accepted	100%	
	Dimensional examination and marking	Manufacturer's drawings	Conformity	100%	
	Wall thickness examination	Manufacturer's drawings	API 600	SPC	1
	Ultrasonic examination on bonnets	ASTM A609	ANSI B16.34 Appendix IV	batch	2
	X-ray exam. on bodies (100% of volume)	ASTM E446	Seating & Flanges: level 2 / Wall : level 3	batch	2
	Magnetic particle examination on castings	ASTM E709	ASME B16.34 Appendix II	100%	
Welding and machining	Hardfacing stellite Gr.21	Manufacturer Standard	Hardness > 300HB	SPC	1
	Post-Weld Heat treatment of body and disc	NACE 5A171	> 621°C (1150°F) with records	100%	
	HAZ Hardness control	NACE RP0472	< 200 HB	SPC	1
	Dimensional and surface finish examination	Manufacturer standards	Conformity	100%	
	Dye-penetrant examination of body / bonnet / disc	ASTM E165	No defects allowed	100%	
	Dye-penetrant examination of machined surfaces and all weldings				
Sensitive helium bellows test	ASME V - Art. 10	Leakage rate $\leq 10^{-8}$ Atm.cm <sup>3</sup> .s <sup>-1</sup>	100%		
Assembly	Tightening torque of body/bonnet bolting	Manufacturer Standard		100%	
	Internal grease	Manufacturer Standard	Chemola Polymel 410 or equal	100%	
	External grease	Manufacturer Standard	PE 1014 or equal	100%	
	Bolting grease	Manufacturer standards	Chemola Polymel 410 or equal	100%	
Pressure testing	High Pressure Shell test	API 598 / ASME B 16-34	1,5 rating : nitrogen under water or petrol	100%	
	Helium leak shell test	460 psig (32 bar)	5 min / maxi variation 5 psi	100%	
	HP pneumatic backseat test (gland packed valves)	API 598 / ASME B 16-34	0 bubble / 2 minutes	100%	
	HP pneumatic seat test	API 598 / ASME B 16-34	"0 bubble / 2 minutes	100%	3
	Functional tests	Manufacturer Standard	Conformity	100%	
Final preparation	Protection of ends - visual examination	Manufacturer Standard	Conformity	100%	
	Painting	Manufacturer Standard	Grey RAL 7035 + yellow HF detection paint (ON GUARD or equ.) on the three flanges	100%	
	Marking / tagging / packing	MSS SP55	MSS SP55 + Model Number + Customer's specification	100%	
	CMTR's of body/bonnet	ISO 10474/EN 10204	3.1	100%	
	Final test and conformity report	ISO 10474/EN 10204	3.1	100%	

## Notes

1. Statistical Process Control
2. 1 batch corresponds to a limited tonnage, from the same heat, for pieces of the same pattern
3. To be defined when ordering



**▶ ADDITIONAL PRODUCTS**



**Automated valves**  
Air actuated on-off valve  
Fail open, fail close or  
double acting  
Diaphragm type actuator



**Automated valves**  
Air actuated on-off valve  
Fail open, fail close or  
double acting  
Piston type actuator



**Automated valves**  
Electrically actuated  
on-off valve  
Fail open, fail close  
or double acting  
Electrically actuated  
on-off valves



**Control Valves**  
Bellows sealed for  
flow control  
Design, CV and  
accessories acc. to actual  
customer specifications



**Storage Valves**  
For A-HF storages, dual containment,  
remote operation Internal ball spring check  
valve

# **WHAT DESERVES TO BE DONE DESERVES TO BE WELL DONE**

Your local agent:

TOMASKO  
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Netherlands  
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