

# ENGINEERING DATA

## STEM PACKING

TYPE OF PACKING	JOHN CRANE DESIGNATION	TYPE OF SERVICE	SERVICE TEMP. °F
Die-formed graphite sandwiched between braided graphite	1625A and 237 or equal	Steam, Air, Water, Oils, Liquefied Petroleum	up to 1400
Teflon V-rings	C-VH	All Acids, Alkali, Solvents, Gases, Except Fluorine	-120 to +500
Braided Teflon	C-1046	Hydrogen, Peroxide, Oleum, Acids, Alkali	-100 to +400

## TRIM MATERIALS

TRIM (CODE)	WEDGE/DISC SEATING SURFACE	SEAT SURFACE	STEM
13% Cr (TY)	CA15	Stellite 6	410
Full Stellite (TS)	Stellite 6	Stellite 6	410
316 (MY)	CF8M or 316	Stellite 6	316
316 full Stellite (MS)	Stellite 6	Stellite 6	316
Monel (XY)	Monel	Stellite 6	Monel
Monel (XX)	Monel	Monel	Monel
Hastelloy (HC)	Hastelloy C	Stellite 6	Hastelloy C
(SX)	CF8M	CF8M	316

## BODY-BONNET GASKETS

GASKET TYPE	VALVE TYPE	REMARKS
Spiral wound Gr. 304 (stainless) + graphite	Forged valves	Asbestos-free max. 1400°F
Spiral wound Gr. 304 (stainless) + Teflon	Forged valves for chemical industry	Asbestos-free max. 500°F
Spiral wound Monel + Teflon	Forged valves for chemical industry	Asbestos-free max. 500°F

## HF (HYDROFLUORIC ACID) VALVES

FOR HF SERVICE, WE RECOMMEND THE FOLLOWING TRIM:

**STEM:** Monel K  
**WEDGE & DISC:** Monel or Monel with Teflon, with additional side clearance to prevent buildup.  
**SEATS:** Monel  
**GASKET:** Monel and Teflon  
**PACKING:** Teflon V-rings  
**BOLTS:** Replace with A 193-B7M studs & A 194-2HM nuts.

## SOUR SERVICE VALVES

TO MEET STANDARDS MR0175 (REV. 1994)

Velan manufactures the complete range of valves shown in this catalog in compliance with NACE standard MR0175 (REV.1994).

Trim materials must be selected by customers from the table below based on experience with resistance to corrosion against sulphides (sour gas) found in processing crude oil.

TYPE OF TRIM (CODE)	WEDGE/DISC SEATING SURFACE	SEAT SURFACE	STEM	BONNET BOLTING
NA	13% Chrome*	Stellite 6	410*	Gr. B7M/2HM*
NB	Stellite 6 or CF8M	Stellite 6	316 or 630	Gr. B7M/2HM* or 630
NC	Monel	Stellite 6	Monel or Monel K	Gr. B7M/2HM* or 630

\*RC 22 maximum

## CHLORINE VALVES

**STEM:** Monel K  
**WEDGE OR DISC:** Monel or Monel with Teflon  
**SEAT:** Monel  
**GASKET:** Monel and Teflon  
**PACKING:** Teflon V-rings  
**BOLTS:** A193-B7

*NOTE: Special cleaning procedure and packing available.*

## PRESSURE-TEMPERATURE RATINGS FOR FORGED STEEL GATE VALVES

### API 602, CLASS 800

Service Temperature (Degrees)		A 105 <sup>(1)</sup> A 350 Gr. LF2 <sup>(1)</sup> A 216 Gr. WCB <sup>(1)</sup>		A 350 Gr. LF3 <sup>(2)</sup> A 352 Gr. LC2 <sup>(2)</sup> A 352 Gr. LC3 <sup>(2)</sup>		A 182 Gr. F11 Cl.2 <sup>(3)</sup> A 217 Gr. WC6 <sup>(4)</sup>		A 182 Gr. F22 Cl.2 <sup>(3)</sup> A 217 Gr. WC9 <sup>(4)</sup>		A 182 Gr. F5 A 182 Gr. F5a A 217 Gr. C5		A 182 Gr. F9 A 217 Gr. C12		A 182 Gr. F316 <sup>(5)</sup> A 351 Gr. CF3M <sup>(5)</sup> A 351 Gr. CF8M	
°F	°C	psig	MPa	psig	MPa	psig	MPa	psig	MPa	psig	MPa	psig	MPa	psig	MPa
-20 to 100	-29 to 38	1975	13.62	2000	13.79	2000	13.79	2000	13.79	2000	13.79	2000	13.79	1920	13.24
200	93.5	1800	12.41	2000	13.79	2000	13.79	2000	13.79	1985	13.69	2000	13.79	1655	11.41
300	149	1750	12.07	1940	13.38	1925	13.28	1940	13.38	1910	13.17	1940	13.38	1495	10.31
400	204.5	1690	11.65	1880	12.96	1850	12.76	1880	12.97	1880	12.96	1880	12.96	1370	9.45
500	260	1595	11.00	1775	12.24	1775	12.24	1775	12.24	1775	12.24	1775	12.24	1275	8.79
600	315.5	1460	10.07	1615	11.14	1615	11.14	1615	11.14	1615	11.14	1615	11.14	1205	8.31
650	343.5	1430	9.86	1570	10.82	1570	10.82	1570	10.82	1570	10.82	1570	10.82	1185	8.17
700	371	1420	9.79	1515	10.45	1515	10.45	1515	10.45	1515	10.45	1515	10.45	1160	8.00
750	399	1345	9.27	1420	9.79	1420	9.79	1420	9.79	1410	9.72	1420	9.79	1140	7.86
800	426.5	1100	7.58	1355	9.34	1355	9.34	1355	9.34	1355	9.21	1355	9.34	1125	7.76
850	454.5	715	4.93	1300	8.96	1300	8.96	1300	8.96	1290	8.90	1300	8.96	1115	7.69
900	482	460	3.17	1200	8.27	1200	8.27	1200	8.27	985	6.79	1200	8.27	1105	7.62
950	510	275	1.90	850	5.86	850	5.86	1005	6.93	735	5.07	1005	6.93	1030	7.10
1000	538	140	0.96	575	3.97	575	3.97	695	4.79	530	3.66	675	4.66	935	6.45
1050	565.5			385	2.66	465	3.21	385	2.66	385	2.66	460	3.17	915	6.31
1100	593.5			255	1.76	295	2.03	265	1.83	300	2.07	815	5.62	815	5.62
1150	621			165	1.14	180	1.24	165	1.14	200	1.38	630	4.34	630	4.34
1200	649			100	0.69	110	0.76	95	0.66	140	0.97	495	3.41	495	3.41
1250	676.5											390	2.69	390	2.69
1300	704.5											310	2.14	310	2.14
1350	732											255	1.76	255	1.76
1400	760											200	1.38	200	1.38
1450	788											155	1.07	155	1.07
1500	815.5											110	0.76	110	0.76

*NOTE: All other small forged steel valves 1/4-2" have pressure-temperature ratings to B16.34.*