Globe Valve

SICCA 800-4500 GLF

Class 800-4500
NPS ¼-2 Inches

Type Series Booklet

KSB

Legal information/Copyright

Type Series Booklet SICCA 800-4500 GLF

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Globe Valves

Globe Valves to ANSI/ASME with Gland Packing

SICCA 800-4500 GLF

Main applications

- Boiler feed applications
- Fossil-fuelled power stations
- Petrochemical industry
- Pipelines and tank farms
- Refineries
- Process engineering

Fluids handled

- Service water
- Steam
- Fluids containing gas
- Gas
- High-temperature hot water
- Heating water
- Condensate
- Cooling water
- Fire-fighting water
- Fluids containing mineral oils
- Oil
- Lubricants
- Grey water
- Feed water
- Thermal oil
- Wash water

Operating data

Operating properties

Characteristic	Value
Nominal pressure	Class 800 - 4500
Nominal size [inch]	NPS ¼ - 2
Max. permissible pressure [bar]	776
Max. permissible pressure [psi]	11250
Min. permissible temperature [°C]	≥ 0
Max. permissible temperature [°C]	≤ +816
Min. permissible temperature [°F]	≥ 0
Max. permissible temperature [°F]	≤ +1500

Selection as per pressure/temperature ratings (⇨ Page 6)

Body materials

Overview of available materials

Material	Temperature limit	
	[°C]	[°F]
ASTM A105	≤ 425	≤ 800
ASTM A182 304L	≤ 450	≤ 850
ASTM A182 316L	≤ 450	≤ 850
ASTM A182 F22	≤ 593	≤ 1100
ASTM A182 F91	≤ 650	≤ 1200
ASTM A182 F304	≤ 816	≤ 1500
ASTM A182 F316	≤ 816	≤ 1500
ASTM A350 LF2	≤ 425	≤ 800

Design details

Design

- Globe valve to API 602 (Class 800/1500)
- Globe valve to ASME B16.34 (Class 2500/4500)
- Tested to API 598
- Body made of forged steel
- Straight-way pattern
- Bolted bonnet (Class 800)
- Seal-welded body/bonnet joint (Class 1500/2500/4500)
- Hard-faced seat/disc interface (13 % chrome steel/Stellite)
- Fully confined bonnet gasket (Class 800)
- Two-piece self-aligning gland follower
- Graphite gland packing with braided graphite packing end rings
- Solid valve disc
- Stem with burnished shank
- Rotating stem
- Rising stem
- Rising handwheel
- Outside screw
- Outside yoke
- Integral ST6 hard-faced seat ring
- The valves satisfy the safety requirements of Annex I of the European Pressure Equipment Directive 2014/68/EU (PED) for fluids in Groups 1 and 2.

Variants

- Position indicator
- Locking device
- Electric actuators (Class 1500/2500/4500)
- Threaded ends
- Butt weld ends

Product benefits

- Long service life and high functional reliability
  - Two-piece self-aligning gland follower ensures even compression of packing rings.
  - Hard-faced body seat made of wear-resistant and corrosion-resistant 13 % chrome steel or Stellite.
  - Inconel-reinforced braided packing end rings offer smooth wiping action and prevent extrusion of graphite.
  - Burnished stem and smooth stuffing box surfaces extend the service life of the gland packing.
- Additional features ensure safe sealing to atmosphere:
  - Additional safety and blow-out protection by standard back seat.
  - Fully confined cover gasket with controlled compression ensures leak-proof joint.
  - Welded body/cover joint provides added safety at high operating pressures and operating temperatures.
  - Die-formed endless graphite packing rings reliably seal the stem passage.
- Reliable, tight shut-off
  - Zero leakage thanks to perfect contact at seat/disc interface.

Related documents

Information/documents

Document	Reference number
Operating manual	0500.80

Purchase order specifications

Please specify the following information in all enquiries or purchase orders:

1. Type
2. Class
3. Nominal size
4. Design pressure
5. Design temperature
6. Operating pressure
7. Operating temperature
8. Differential pressure
9. Material
10. Fluid handled
11. Flow rate
12. Pipe connection
13. Pipe schedule
14. Variants
15. Reference number

Always indicate the original serial number and the year of construction when ordering spare parts.

Pressure/temperature ratings

Permissible operating pressures [bar] (in acc. with ASME B16.34 Standard Class)

Class	Material	[°C]																							
		-29 to +38	93	149	204	260	316	343	371	399	427	454	482	510	538	566	593	621	649	677	704	732	760	788	816
150	A105[1]	20	18	16	14	12	10	9	8	7	6	5	3	2	1	-	-	-	-	-	-	-	-	-	-
300	A350 LF2	51	47	45	44	42	39	38	37	35	28	22	16	9	6	-	-	-	-	-	-	-	-	-	-
600		102	94	90	87	83	78	76	73	70	57	44	32	19	12	-	-	-	-	-	-	-	-	-	-
800[2]		136	125	120	117	111	105	101	98	93	76	59	42	25	16	-	-	-	-	-	-	-	-	-	-
1500		256	234	226	219	208	196	189	184	175	142	110	79	47	30	-	-	-	-	-	-	-	-	-	-
2500		425	390	376	364	347	326	315	305	292	237	183	132	79	49	-	-	-	-	-	-	-	-	-	-
4500		766	702	753	730	623	587	568	549	525	426	289	238	142	-	-	-	-	-	-	-	-	-	-	-
150	A182 F22[3]	20	18	16	14	12	10	9	8	7	6	5	3	2	1	1	1	1	1	-	-	-	-	-	-
300		52	52	50	49	46	42	41	39	37	35	33	31	27	18	12	8	5	3	-	-	-	-	-	-
600		103	103	100	97	92	83	81	78	73	70	67	62	52	37	24	15	9	6	-	-	-	-	-	-
800[2]		138	138	134	130	122	111	108	105	98	93	90	83	71	49	32	20	12	8	-	-	-	-	-	-
1500		259	259	251	243	229	209	203	196	183	175	168	155	133	92	60	38	24	14	-	-	-	-	-	-
2500		431	431	419	405	382	348	338	326	305	292	280	258	222	154	100	63	39	24	-	-	-	-	-	-
4500		776	773	753	730	687	626	609	581	549	525	504	465	400	277	181	113	71	42	-	-	-	-	-	-
1500	A182 F91	259	259	251	243	229	209	203	196	183	175	168	155	133	125	124	104	77	50	-	-	-	-	-	-
2500		431	431	419	405	382	347	338	326	305	292	280	258	222	209	207	173	128	83	-	-	-	-	-	-
4500		776	776	753	730	687	625	608	587	550	525	504	465	400	376	372	312	231	149	-	-	-	-	-	-
150	A182 F316L A182 F304L	16	13	12	11	10	10	9	8	8	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
300		41	35	31	29	27	26	25	25	24	24	23	-	-	-	-	-	-	-	-	-	-	-	-	-
600		83	70	63	58	54	51	50	50	49	48	47	-	-	-	-	-	-	-	-	-	-	-	-	-
800		110	94	84	77	72	68	67	66	65	63	62	-	-	-	-	-	-	-	-	-	-	-	-	-
1500		207	176	157	145	136	128	126	124	122	119	117	-	-	-	-	-	-	-	-	-	-	-	-	-
2500		345	294	262	241	226	214	210	207	203	199	194	-	-	-	-	-	-	-	-	-	-	-	-	-
4500		621	529	472	434	407	385	377	372	365	357	350	-	-	-	-	-	-	-	-	-	-	-	-	-
150	A182 F316	19	22	15	13	12	10	9	8	7	6	4	3	2	1	1	1	1	1	1	1	1	1	1	1
300		50	43	39	36	33	31	30	30	29	29	29	29	27	25	25	21	16	13	10	8	7	5	4	3
600		99	85	77	71	66	62	61	60	59	58	58	57	53	50	50	42	33	26	20	16	13	10	8	6
800		132	114	103	94	88	83	81	80	79	78	77	76	71	67	66	56	43	34	27	21	18	14	11	8
1500		248	213	193	177	165	155	152	150	147	145	144	143	133	125	124	105	82	64	51	40	33	26	20	14
2500		414	377	321	295	274	259	254	250	245	243	240	239	222	209	207	175	136	107	85	67	55	43	33	24
4500		745	641	578	531	494	467	457	449	442	437	432	430	400	376	372	315	245	191	152	121	99	78	60	43
150	A182 F304	19	16	14	13	12	10	9	8	7	6	4	3	2	1	1	1	1	1	1	1	1	1	1	1
300		50	41	37	34	32	30	30	29	29	28	27	27	26	24	22	18	14	11	9	8	7	5	4	3
600		99	83	74	69	64	61	60	58	57	56	54	54	53	49	45	36	28	23	18	16	13	10	8	6
800		132	110	99	91	85	81	79	78	76	74	73	71	70	65	60	47	38	30	24	21	17	14	11	8
1500		248	207	185	171	161	152	149	145	142	140	137	134	132	122	112	89	71	57	46	39	32	26	20	14
2500		414	345	309	285	268	254	248	243	237	233	228	223	219	203	187	148	118	94	77	65	53	43	33	24
4500		745	621	556	514	482	457	447	437	427	420	410	402	395	366	337	266	213	170	138	117	96	78	60	43

Permissible operating pressures [psi] (in acc. with ASME B16.34 Standard Class)

Class	Material	[°F]																							
		-20 to +100	200	300	400	500	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
150	A105[1]	285	260	230	200	170	140	125	110	95	80	65	50	35	20	-	-	-	-	-	-	-	-	-	-
300	A350 LF2	740	680	655	635	605	570	550	530	505	410	320	230	135	85	-	-	-	-	-	-	-	-	-	-
600		1480	1360	1310	1265	1205	1135	1100	1060	1015	825	640	460	275	170	-	-	-	-	-	-	-	-	-	-
800[2]		1975	1810	1745	1690	1610	1515	1465	1415	1350	1100	850	615	365	225	-	-	-	-	-	-	-	-	-	-
1500		3705	3395	3270	3170	3015	2840	2745	2665	2535	2055	1595	1150	685	430	-	-	-	-	-	-	-	-	-	-
2500		6170	5655	5450	5280	5025	4730	4575	4425	4230	3430	2655	1915	1145	715	-	-	-	-	-	-	-	-	-	-
4500		11110	10185	9815	9505	9040	8515	8240	7960	7610	6170	4185	3455	2055	1285	-	-	-	-	-	-	-	-	-	-
150	A182 F22[3]	290	260	230	200	170	140	125	110	95	80	65	50	35	20	20	20	20	15	-	-	-	-	-	-
300		750	750	730	705	665	605	590	570	530	510	485	450	385	265	175	110	70	40	-	-	-	-	-	-
600		1500	1500	1455	1410	1330	1210	1175	1135	1065	1015	975	900	755	535	350	220	135	80	-	-	-	-	-	-
800[2]		2000	2000	1940	1880	1775	1615	1570	1515	1420	1355	1300	1200	1025	710	465	295	180	110	-	-	-	-	-	-
1500		3750	3750	3640	3530	3325	3025	2940	2840	2660	2540	2435	2245	1930	1335	875	550	345	205	-	-	-	-	-	-
2500		6250	6250	6070	5880	5540	5040	4905	4730	4430	4230	4060	3745	3220	2230	1455	915	570	345	-	-	-	-	-	-
4500		11251	11211	10925	10585	9965	9070	8825	8515	7970	7610	7305	6740	5795	4010	2625	1645	1030	615	-	-	-	-	-	-
1500	A182 F91	3750	3750	3640	3530	3325	3025	2940	2840	2660	2540	2435	2245	1930	1820	1800	1510	1115	720	-	-	-	-	-	-
2500		6250	6250	6070	5880	5540	5040	4905	4730	4430	4230	4060	3745	3220	3030	3000	2515	1855	1200	-	-	-	-	-	-
4500		11250	11250	10925	10585	9965	9070	8825	8515	7970	7610	7305	6740	5795	5450	5400	4525	3345	2160	-	-	-	-	-	-
150	A182 F316L A182 F304L	230	195	175	160	150	140	125	110	110	80	65	-	-	-	-	-	-	-	-	-	-	-	-	-
300		600	510	455	420	395	370	365	360	355	345	340	-	-	-	-	-	-	-	-	-	-	-	-	-
600		1200	1020	910	840	785	745	730	720	705	690	675	-	-	-	-	-	-	-	-	-	-	-	-	-
800		1600	1365	1215	1120	1050	990	975	960	940	920	900	-	-	-	-	-	-	-	-	-	-	-	-	-
1500		3000	2555	2280	2100	1970	1860	1825	1800	1765	1730	1690	-	-	-	-	-	-	-	-	-	-	-	-	-
2500		5000	4260	3800	3500	3280	3100	3040	3000	2940	2880	2820	-	-	-	-	-	-	-	-	-	-	-	-	-

1) Although Standard Class A105 can be used for temperatures exceeding approx. 427 °C (800 °F), prolonged use at such temperatures is not recommended.
2) To API 602
3) A182 F22 normalised and tempered

Class	Material	[°F]																							
		-20 to +100	200	300	400	500	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
4500	A182 F316L A182 F304L	9000	7670	6840	6300	5905	5580	5470	5400	5290	5185	5075	-	-	-	-	-	-	-	-	-	-	-	-	-
150	A182 F316	275	325	215	195	170	140	125	110	95	80	65	50	35	20	20	20	20	20	20	20	20	20	20	15
300		720	620	560	515	480	450	440	435	425	420	420	415	385	365	360	305	235	185	145	115	95	75	60	40
600		1440	1240	1120	1025	955	900	885	870	855	845	835	830	775	725	720	610	475	370	295	235	190	150	115	85
800		1920	1655	1495	1370	1275	1205	1180	1160	1140	1125	1115	1105	1030	970	960	815	630	495	390	310	255	200	155	110
1500		3600	3095	2795	2570	2390	2255	2210	2170	2135	2110	2090	2075	1930	1820	1800	1525	1185	925	735	585	480	380	290	205
2500		6000	5460	4660	4280	3980	3760	3680	3620	3560	3520	3480	3460	3220	3030	3000	2545	1970	1545	1230	970	800	630	485	345
4500		10800	9290	8390	7705	7165	6770	6625	6515	6410	6335	6265	6230	5795	5450	5400	4575	3550	2775	2210	1750	1440	1130	875	620
150	A182 F304	275	230	205	190	170	140	125	110	95	80	65	50	35	20	20	20	20	20	20	20	20	20	20	15
300		720	600	540	495	465	440	430	420	415	405	395	390	380	355	325	255	205	165	135	115	95	75	60	40
600		1440	1200	1075	995	930	885	865	845	825	810	790	780	765	710	650	515	410	330	265	225	185	150	115	85
800		1920	1600	1435	1325	1240	1180	1150	1125	1100	1080	1055	1035	1020	945	865	685	545	440	355	300	250	200	155	110
1500		3600	3000	2690	2485	2330	2210	2160	2110	2065	2030	1980	1945	1910	1770	1630	1285	1030	825	670	565	465	380	290	205
2500		6000	5000	4480	4140	3880	3680	3600	3520	3440	3380	3300	3240	3180	2950	2715	2145	1715	1370	1115	945	770	630	485	345
4500		10800	9000	8065	7450	6985	6625	6480	6335	6190	6085	5940	5830	5725	5315	4885	3855	3085	2470	2005	1695	1390	1130	875	620

Test pressure for A105/A182 F22/A182 F91

Test	Test medium	Class 800[4]	Class 1500[4]	Class 2500[5]	Class 4500
		[bar]	[bar]	[bar]	[bar]
Shell	Water	207	388	647	1165
Leak test (back seat)		152	285	474	855
Leak test (seat)		152	285	474	855

Test pressure for A182 F304L/A182 F316L

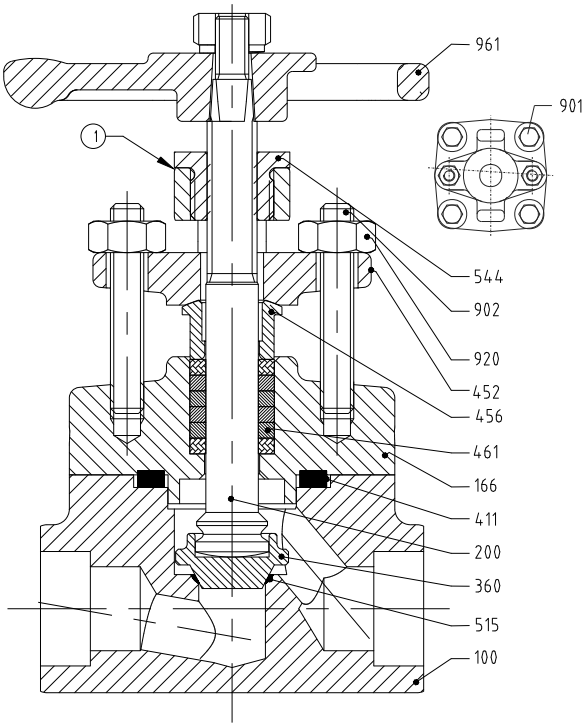
Test	Test medium	Class 800[4]	Class 1500[4]	Class 2500[4]
		[bar]	[bar]	[bar]
Shell	Water	166	347	578
Leak test (back seat)		122	256	424
Leak test (seat)		122	256	424

Test pressure for A182 F304/A182 F316

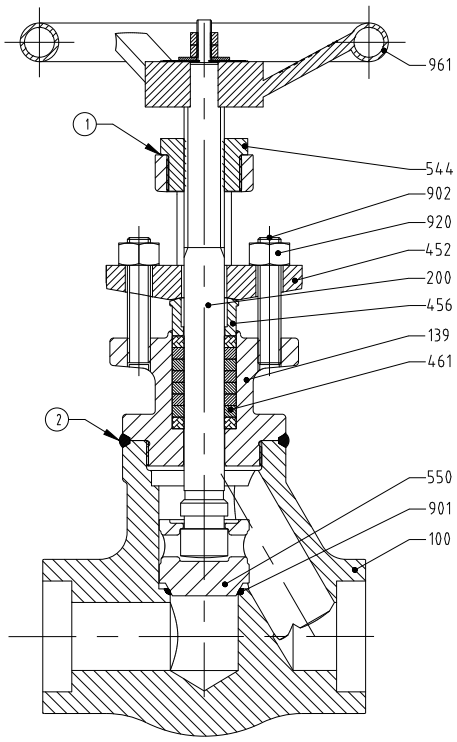
Test	Test medium	Class 800[4]	Class 1500[4]	Class 2500[4]
		[bar]	[bar]	[bar]
Shell	Water	199	388	647
Leak test (back seat)		146	285	475
Leak test (seat)		146	285	475

4) To API 598
5) To ASME B16.34

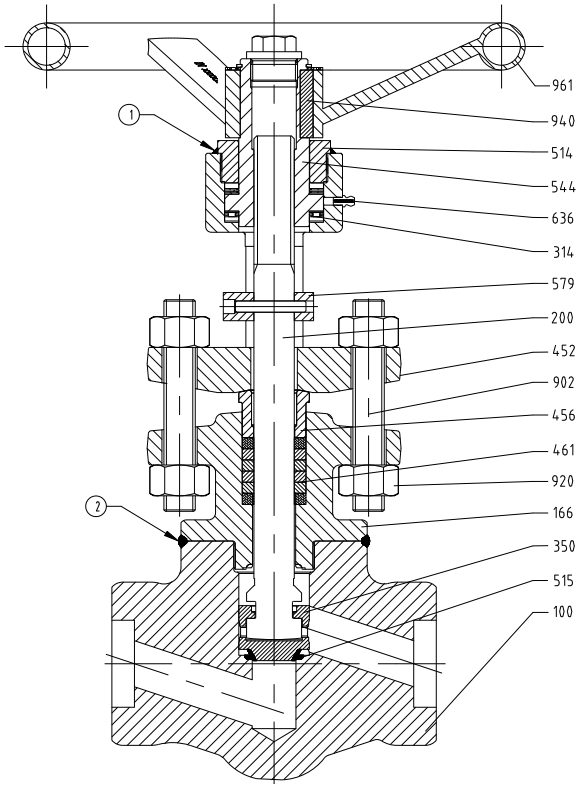
Materials



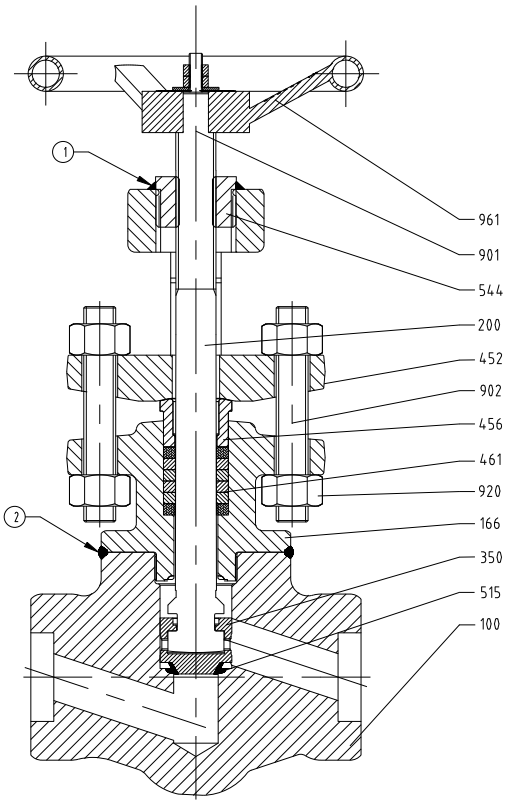
SICCA 800 GLF



SICCA 1500/2500 GLF



SICCA 4500 GLF
with thrust bearing



SICCA 4500 GLF
without thrust bearing

① Tack-welded
② Seal-welded

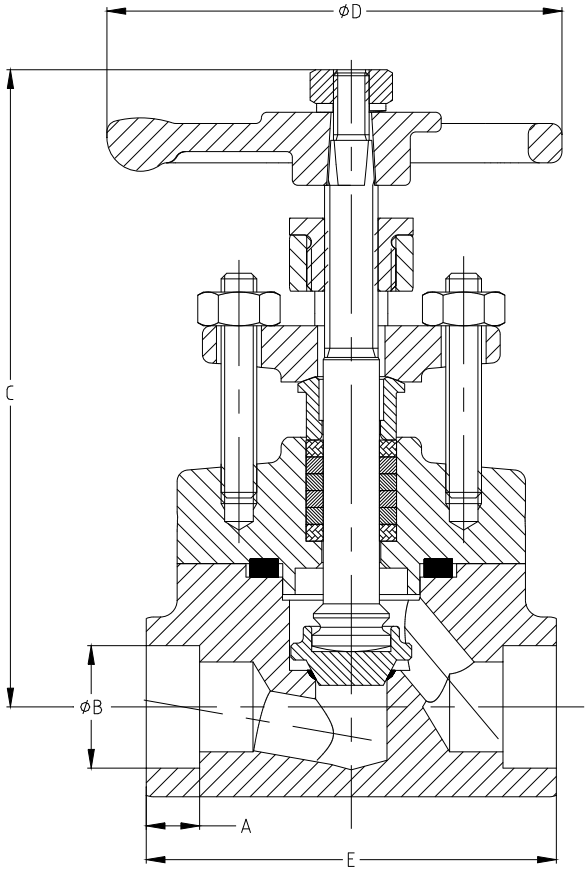
Parts list

Part No.	Description	Class	Material	Note
100	Body	800	A105	
			A182 F316L	
			A182 F304	
			A182 F316	
			A350 LF2	
		1500/2500/4500	A105	
			A182 F22	
			A182 F91	
			A182 F304	
			A182 F316	
			A350 LF2	
166	Yoke	800	A105	
			A182 F316L	
			A182 F304	
			A182 F316	
		1500/2500/4500	A105	
			A182 F22	
			A182 F91	
			A182 F304	
			A182 F316	
200	Stem	800	A479-410-2	
			A276 F316L	
			A182 F304	
			A182 F316	
		1500/2500/4500	A479-410-2	
			A479 XM19	
			A182 F304	
			A182 F316	
314	Thrust bearing	4500	Manufacturer's standard	Only for NPS 1 $^{1}/_{2}$ and 2 inch
350	Valve disc	800	A276 304	
			A276 316	
			A276 316L	
			A276-410 (H)	
			A351 CF8	
		1500/2500	A276-304+ST6	
			A276-316+ST6	
			A276 304	
			A276 316	
		4500	CF8 + ST6	
			CF8M + ST6	
411	Joint ring	800	Stainless steel/graphite	
452	Gland follower	800	A105	
			A182 F316L	
			A182 F316	
		1500/2500/4500	A105	
			A182 F22	
			A182 F316	
456	Lower gland section	800	A276 304	
			A276 316	
			A276 316L	
			A276-410	
		1500/2500/4500	A182 F316	
			A276 304	
			A276 316	
			A276-410	
461	Gland packing	800/1500/2500/4500	Graphite	
515	Seat ring	800/1500/2500/4500	ST6	Integral
544	Threaded bush	800/1500/2500/4500	A582-416	
901	Hexagon head bolt	800	A193-B7	

Part No.	Description	Class	Material	Note
901	Hexagon head bolt	800	A193-B8M	
902	Stud	800	A193-B6	
			A193-B8M	
		1500/2500/4500	A193-B8M Cl.2	
920	Nut	800	A194-2H	
			A194-B8	
		1500/2500/4500	A194-2H	
961	Handwheel	800/1500/2500/4500	Cast steel	

Dimensions and weights

Dimensions and weights of SICCA 800 GLF



SICCA 800 GLF

Dimensions and weights

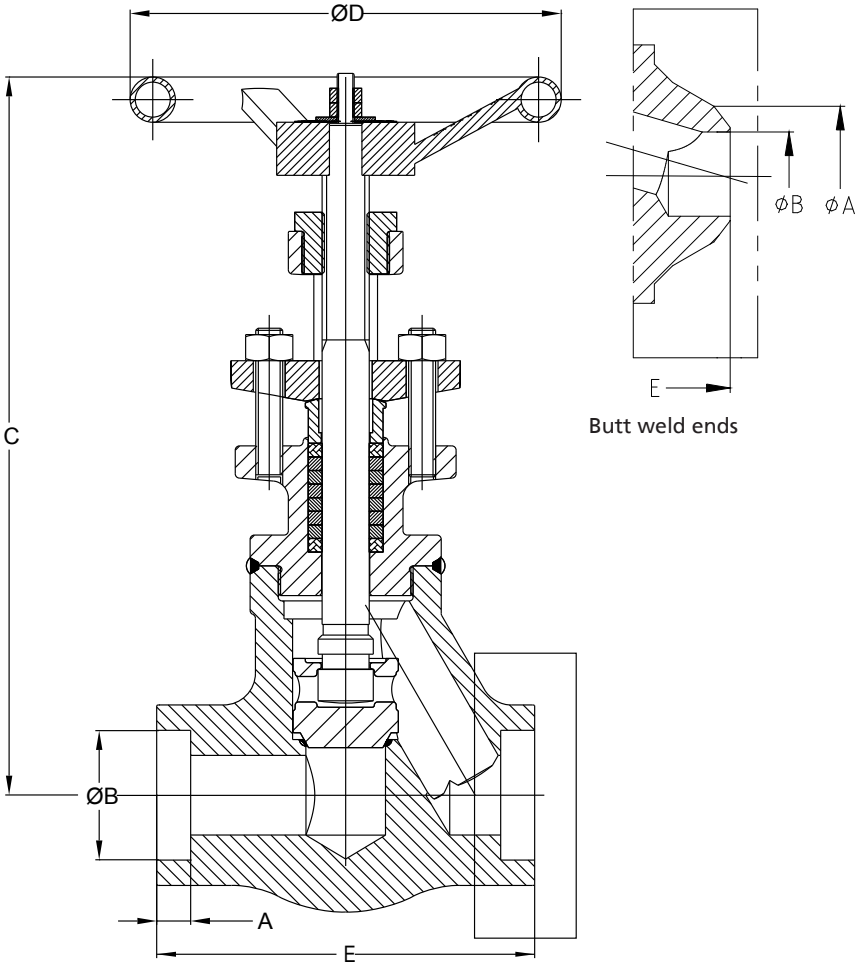
Class	NPS	A	ØB	C[6)7)]	ØD	E	[kg][7)]
	[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	
800	1/4	9,5	14,4	125	75	73	1,5
	3/8	9,5	17,6	125	75	73	1,5
	1/2	9,5	21,8	125	75	73	1,5
	3/4	12,5	27,2	142	75	82	2,0
	1	12,5	33,9	180	120	108	3,0
	1 1/2	12,5	48,8	220	144	152	6,5
	2	16,0	61,2	285	144	148	10,5

6) Open
7) Approximate values

Mating dimensions as per standard

Face-to-face lengths:	Manufacturer's standard
Threaded sockets (F):	ASME B1.20.1
Socket weld ends:	ASME B16.11

Dimensions and weights of SICCA 1500/2500 GLF



Butt weld ends

SICCA 1500/2500 GLF

Dimensions and weights

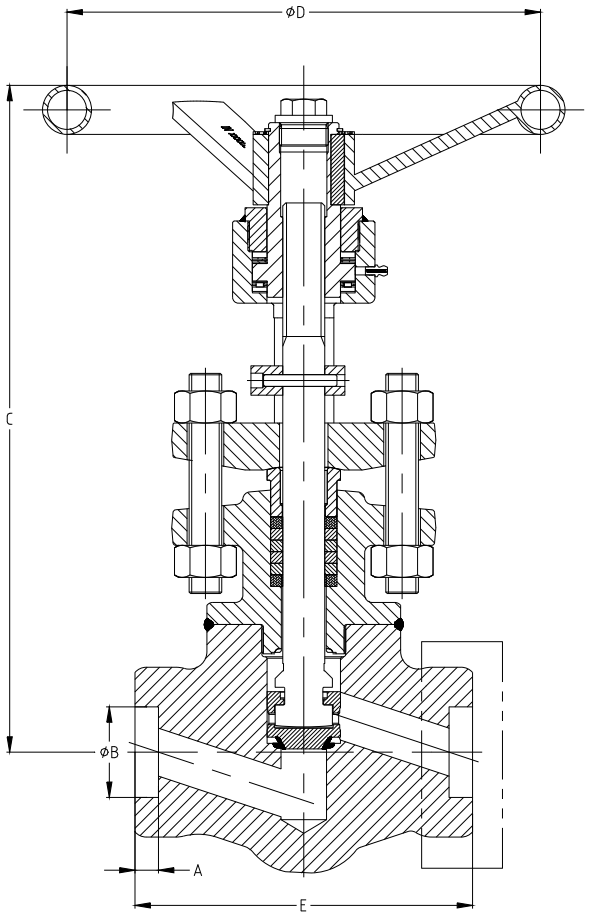
Class	NPS	A[8)]	ØA[9)]	ØB[9)]	ØB[8)]	C[10)11)]	ØD	E	[kg][11)]
	[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
1500	1/4	9,5	-	-	14,4	197	127	73	3,0
	3/8	9,5	-	-	17,6	197	127	73	3,0
	1/2	9,5	21,3	11,8	21,8	197	127	73	3,0
	3/4	13	26,7	15,6	27,1	241	176	94	4,5
	1	13	33,4	15,2	33,8	244	176	122	5,5
	1 1/2	13	48,3	34,0	48,7	326	203	160	11,5
	2	16,0	60,3	42,8	61,1	360	203	178	15,0
2500	1/4	10	-	-	14,4	197	127	85	3,5
	3/8	10	-	-	17,6	197	127	85	3,5
	1/2	10	21,3	6,4	21,7	197	127	85	3,5
	3/4	13	26,7	11,0	27,1	243	152	98	5,0
	1	13	33,4	15,3	33,8	290	152	104	7,0
	1 1/2	13	48,3	28	48,7	351	203	146	12,5
	2	16	60,3	38,2	61,1	378	254	172	16,0

Mating dimensions as per standard

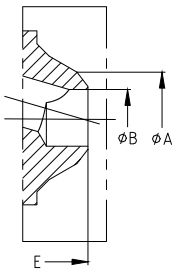
Face-to-face lengths:	Manufacturer's standard
Butt weld ends:	ASME B16.25
Socket weld ends:	ASME B16.11

8) Valve with socket weld ends
9) Valve with butt weld ends
10) Open
11) Approximate values

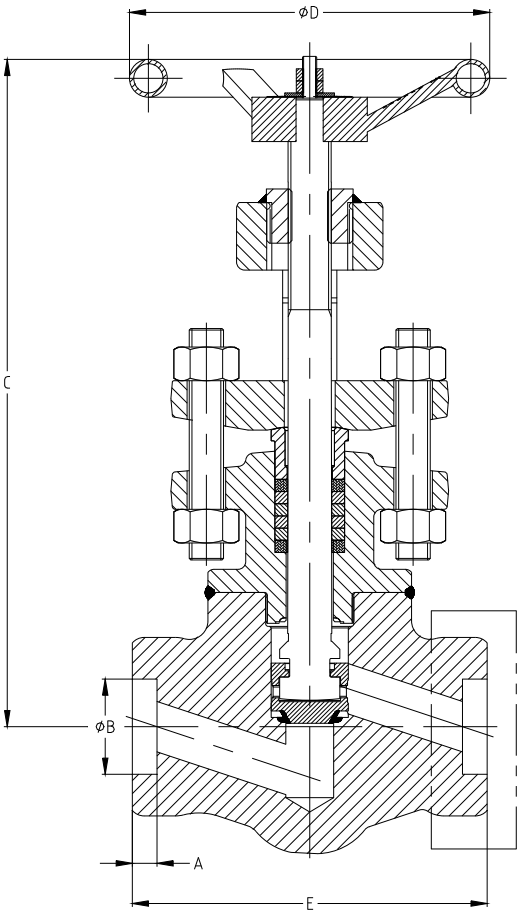
Dimensions and weights of SICCA 4500 GLF



SICCA 4500 GLF
with thrust bearing



Butt weld ends



SICCA 4500 GLF
without thrust bearing

Dimensions and weights

Class	NPS	A[12)]	ØA[13)]	ØB[13)]	ØB[12)]	C[14)15)]	ØD	E	[kg][15)]
	[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
4500	1/2	10	21,3	10-16	21,7	309	254	140	11,5
	3/4	13	26,7	10-16	27,1	309	254	140	11,5
	1	13	33,4	12-20	33,8	348	305	170	16,7
	1 1/2[16)]	13	48,3	18-30	48,7	444	254	200	29,0
	2[16)]	16	60,3	24-38	61,7	455	356	230	40,3

Mating dimensions as per standard

Face-to-face lengths:	Manufacturer's standard
Butt weld ends:	ASME B16.25
Socket weld ends:	ASME B16.11

Installation information

Shut-off globe valves must be installed in the line so as to ensure that the fluid enters the valve beneath the valve disc and flows out above the valve disc. They can also be installed in lines with alternating flow.

The valve bodies are marked with an arrow indicating the flow direction.

12) Valve with socket weld ends
13) Valve with butt weld ends
14) Open
15) Approximate values
16) Valve with thrust bearing

13/12/2017

7236.1/02-EN

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