MORRIS VALVES®

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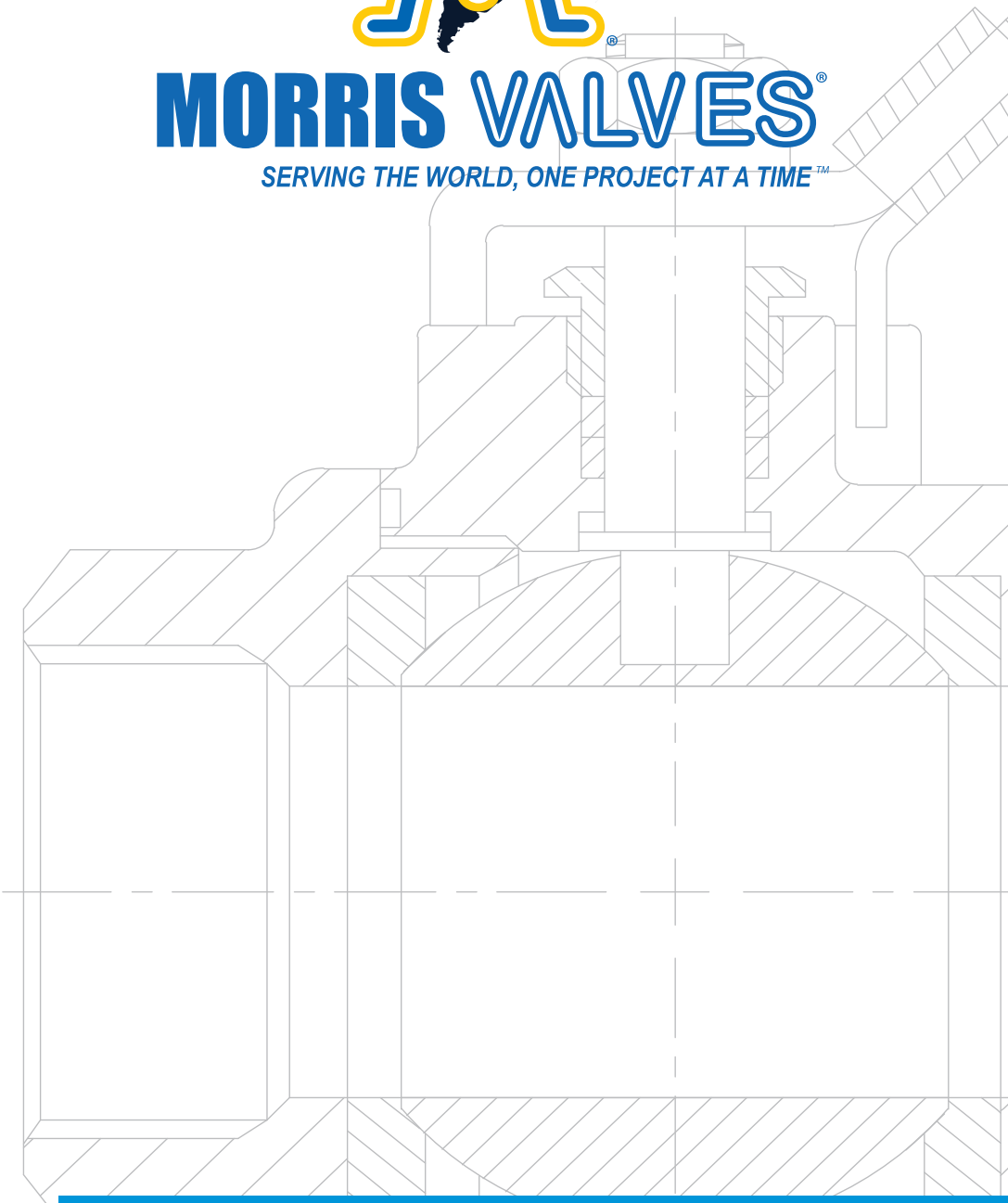

INSTALLATION,OPERATION AND MAINTENANCE MANUAL FOR GATE VALVES API 600

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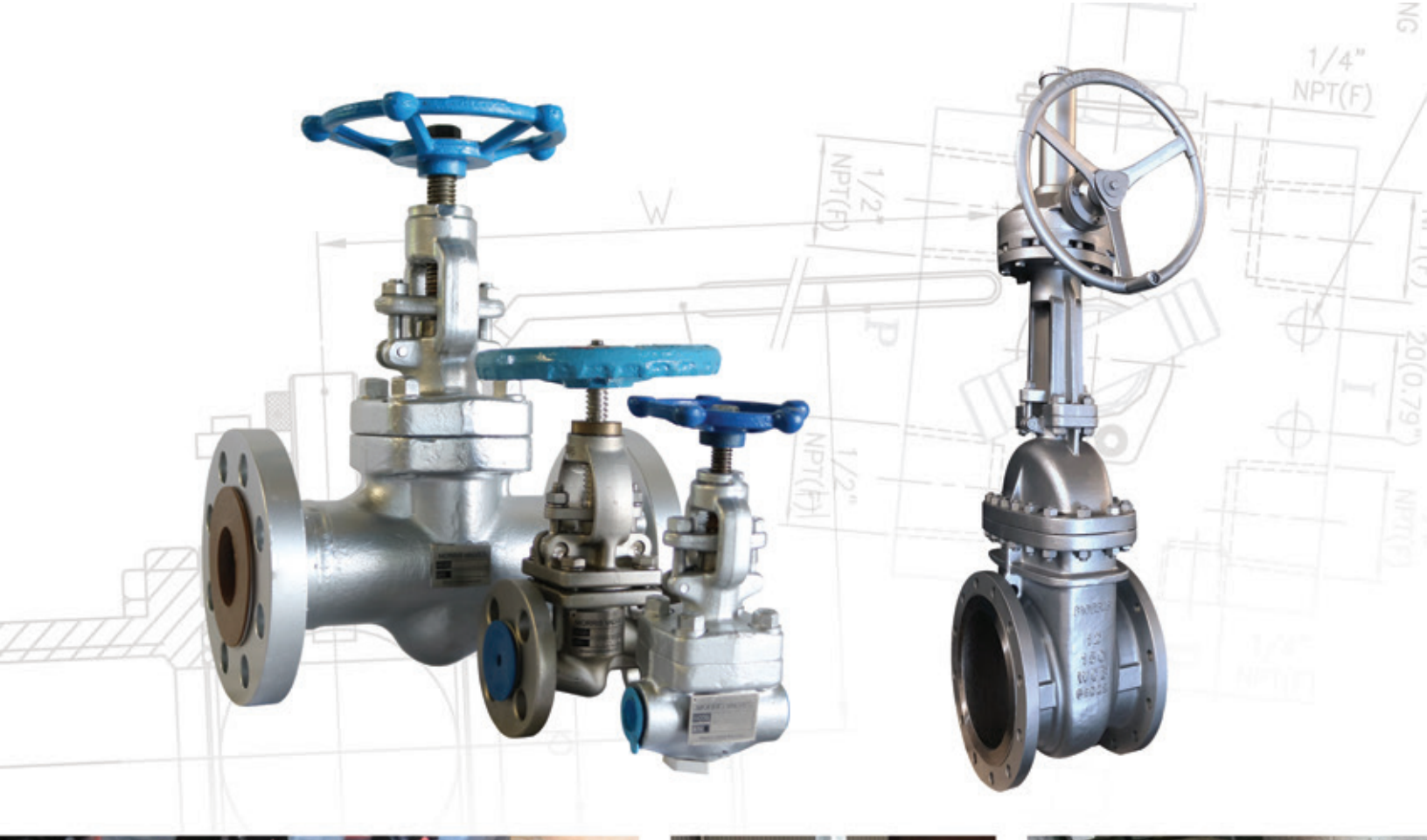
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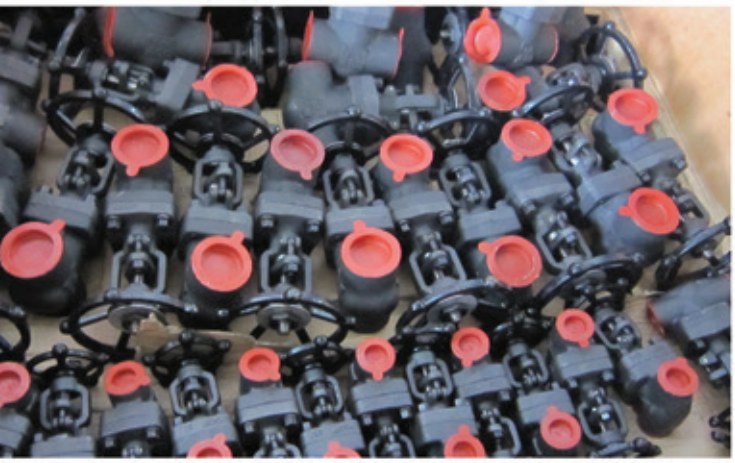

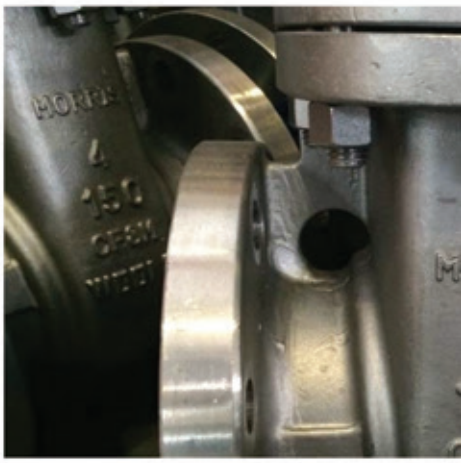

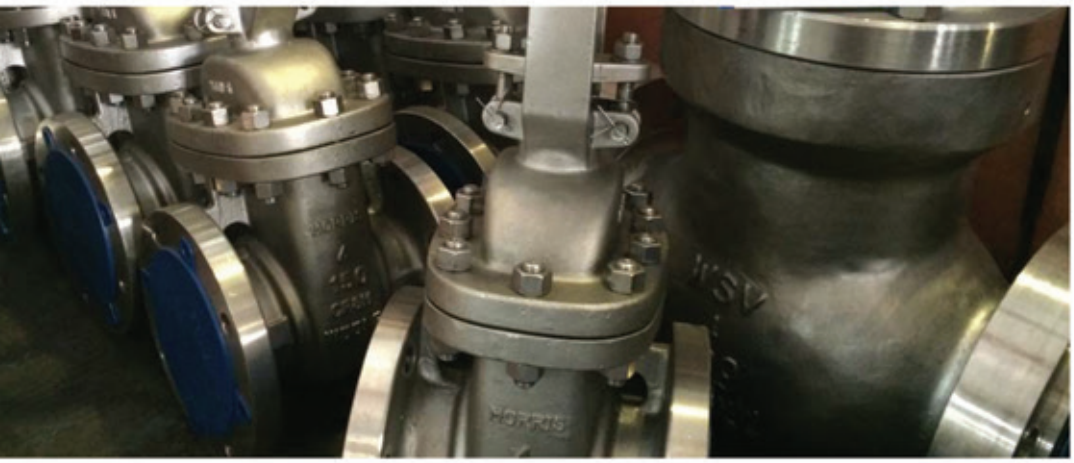

MORRIS VALVES®

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In 1984, our journey into the business of repairing valves and industrial instrumentation began. That journey has led us to represent and service well known American brands and companies. In early 2000, our experience and growing passion for the valve industry encouraged our decision to launch our own brand, Morris Valves. Starting with the highly requested Ball Valves, the brand has been based on the principal of quality and performance to match our customers' needs. Our high standards of production later lead us to incorporate other models such as Gate Valve and Check Valves to our production. These additions were carefully selected to match our Standard of Quality. Our success has been driven by our belief of "Tradition with Quality" in everything we do. Our products are developed with that belief which drives our growth and guides the service we provide to our customers.

Contacts

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Vision

Our vision is to be amongst the leading corporations in the supply of goods and services related to valves, their components and industrial equipment in general. We want to conquer new markets in conformity with international standards and remain committed to customer satisfaction, the welfare of our company and the sustainability our planet.

Mision

Our mission is to use our highly trained, highly focused, and extremely motivated staff to work with manufacturers who value quality and have the vision for new development and product applications to ensure the timely provision of goods and services related to valves, their components and industrial equipment in general. We maintain a rigorous standard of customer satisfaction, which will provide for the welfare of the company, the welfare of the countries we serve, and most importantly the sustainability of the planet.

"Serving the world, one project at a time"

API600, GATE VALVE.
FLANGED END/BUTT WELDING END
CLASS (150 - 2500) #

GVT TYPE

SPECIFICATIONS:

* Design Standard:
- API: API600
- ASME: ASME B16.34
* Face to face:
- ASME B16.10
* End Connections:
- FLANGED: ASME B16.5 / ASME B16.47-A/MSS-SP-44
- BUTT WELDING: ASME B16.25
* Test : API 598 / ASME B16.34
* Body Material:
ASTM A216 WCB,CF8,CF8M,A352 LCB
* Actuation:
Handwheel, Worm Gear, Electrical,
Pneumatic,Hydraulic

FEATURES:

* Full bore body design.
* Renewable seat rings, Different choices for Materials.
* Solid, Flexible or Parallel slide wedge/disc, fully guided
* Highly used in pipelines systems where the main fluids are: Gas, Oil and Petroleum derivate.
* Forged T- Head Stem allows the wedge to self-align.
* Rising stem and non-rising hand wheel.

HOW TO ORDER

	BODY MATL		TRIM MATL		SIZE/RATINGS		END CONNECTION
GVT600/602 -		-		-		-	

SIZE:

(2 – 36)" /FULL PORT….Class150
(2 – 36)" /FULL PORT….Class300
(2 – 36)" /FULL PORT….Class600
(2 – 24)" /FULL PORT….Class900
(2 – 24)" /FULL PORT….Class1500
(2 – 12)" / FULL PORT…Class2500

MATERIALS

BODY & BONNET	
STEM	
DISC/WEDGE	
SEAT	
PACKING	
BONNET GASKET	
ACTUATOR	

CE APPROVED

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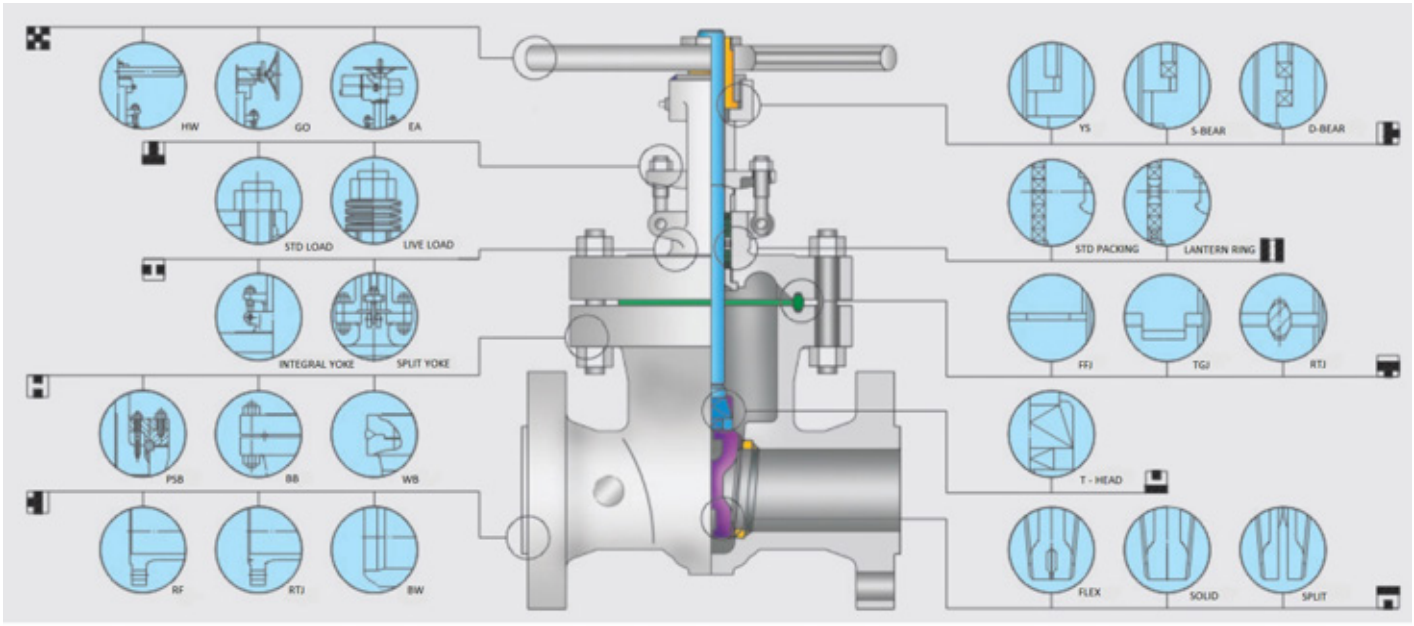
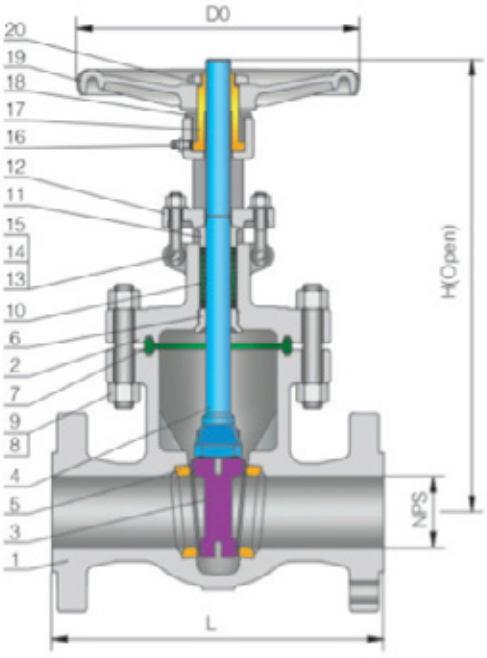


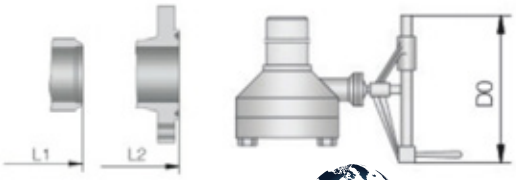
API 600, MAIN PARTS AND MATERIALS				
	PART	CARBON STEEL	1 ¼ Cr – ½ Mo	Low Temp. Steel
1	BODY	A216 - WCB	A217 – WC6	A352 - LCB
2	BONNET	A216 - WCB	A217 – WC6	A352 - LCB
3	WEDGE	A216 - WCB	A217 – WC6	A352 - LCB
4	STEM	A182 – F6a	Cr – Mo - V	A182 F6a
5	SEAT RING	A105	A182 – F11	A350 – LF2
6	STEM BACK SEAT	A276 - 420	A276 - 304	A276 - 420
7	BONNET GASKET	FLEXIBLE – GRAPHITE + 304		
8	BONNET BOLT	A193 – B7	A193 – B16	A320 – L7
91	BONNET BOLT/NUT	A194 – 2H	A194 - 7	A194 - 4
10	PACKING	GRAPHITE		
11	PACKING GLAND	A276 - 420	A276 - 304	A276 - 420
12	GLAND FLANGE	A216 - WCB	A217 – WC6	A352 - LCB
13	EYEBOLT PIN	CARBON STEEL	A276 - 420	CARBON STEEL
14	EYEBOLT	CARBON STEEL	A193 – B7	CARBON STEEL
15	EYEBOLT NUT	CARBON STEEL	A194 – 2H	CARBON STEEL
16	GREASE FITTING	BRASS + STEEL		
17	YOKESLEEVE	ALUMINUM – BRONZE1		
18	YOKESLEEVE JAM NUT	CARBON STEEL		
19	HANDWHEEL	MALLEABLE IRON		
20	HANDWHEEL NUT	CARBON STEEL		

Notes.

1) Ductile Ni-Resist optional

2) Wedge and Seat Ring may either be: solid facing Material or a Base material equal to or better than Body & Bonnet material with facing as shown.





API 600, MAIN EXTERNAL DIMENSIONS (MM)																		
NPS (INCH)	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24	26	28	30	32	36
(Class 150)																		
L (RF)	178	191	203	229	267	292	330	356	381	406	432	457	508	559	610	610	711	711
L1 (BW)	216	241	282	305	403	419	457	502	572	610	660	711	813	864	914	914	965	1016
H (OPEN)	386	434	480	584	765	956	1149	1350	1508	1703	1892	2119	2500	2806	2960	3150	3280	3720
DO	200	200	240	300	350	400	400	500	600	600	600	700	800	800	800	800	950	1000
WT (Kg)	15	18	26	41	69	108	156	248	330	424	587	752	1144	1570	1900	2540	3310	3380
(Class 300)																		
L/ L1	216	241	282	305	403	419	457	502	762	838	914	991	1143	1245	1346	1397	1524	1727
(RF)(BW)	232	257	298	321	419	435	473	518	778	854	930	1010	1165	1270	1372	1422	1553	1756
L2 (RTJ)	410	453	509	612	805	1000	1210	1415	1580	1725	1960	2195	2590	2975	3100	3200	3300	3860
H	240	240	280	300	400	400	500	500	600	600	700	800	800	800	950	950	950	10000
Wt RF/RTJ	23	35	50	71	144	209	322	482	683	950	1145	1635	2660	3090	3310	3595	3720	3985
(Kg) BW	17	26	39	53	113	164	256	390	565	805	965	1410	2305	2540	2725	3055	3360	3630
(Class 600)																		
L/ L1	292	330	356	432	559	660	787	838	889	991	1092	1194	1397	1548	1549	1651	1778	2083
(RF)(BW)	295	333	359	435	562	663	790	841	892	994	1095	1200	1407	1461	1562	1664	1794	2099
L2 (RTJ)	418	476	518	646	840	1025	1230	1450	1575	1795	1930	2210	2580	2665	2780	2895	3150	3560
H	250	300	300	350	450	600	600	600	700	700	700	800	950	950	950	950	950	1000
Wt RF/RTJ	36	52	67	112	170	393	610	890	1245	1530	1965	2450	2995	3475	3725	4045	4185	4480
(Kg) BW	29	42	53	83	125	310	472	730	1055	1240	2625	2030	2590	2855	3065	3440	3780	4085
(Class 900)																		
L/ L1	368	419	381	457	610	737	838	965	1029	1130	1219	1321	1549	-	-	-	-	-
(RF)(BW)	371	422	384	460	613	740	841	968	1039	1140	1232	1334	1568	-	-	-	-	-
L2 (RTJ)	498	547	573	678	900	1103	1345	1525	1900	2055	2215	2565	2640	-	-	-	-	-
H	250	300	300	350	500	600	600	700	800	800	800	800	800	-	-	-	-	-
Wt RF/RTJ	74	131	101	172	335	640	1100	1600	2250	2850	3060	3935	4900	-	-	-	-	-
(Kg) BW	54	105	78	135	260	515	920	1380	2010	2565	2485	3250	4065	-	-	-	-	-
(Class 1500)																		
L/ L1	368	419	470	546	705	832	991	1130	1257	1384	1537	1664	1943	-	-	-	-	-
(RF)(BW)	371	422	473	549	711	842	1001	1146	1276	1406	1559	1686	1971	-	-	-	-	-
L2 (RTJ)	615	658	760	868	1005	1145	1370	1550	1900	2050	2380	2580	2915	-	-	-	-	-
H	250	300	450	500	600	460	460	600	600	600	600	600	600	-	-	-	-	-
Wt RF/RTJ	116	166	209	296	510	920	1910	3145	4100	6200	8965	13100	15860	-	-	-	-	-
(Kg) BW	105	150	188	265	412	760	1640	2755	3200	5300	8070	11790	14275	-	-	-	-	-
(Class 2500)																		
L/ L1	451	508	578	673	914	1022	1270	1422	-	-	-	-	-	-	-	-	-	-
(RF)(BW)	454	514	584	683	927	1038	1292	1444	-	-	-	-	-	-	-	-	-	-
L2 (RTJ)	631	736	890	1055	1450	1610	2075	2280	-	-	-	-	-	-	-	-	-	-
H	300	450	500	500	600	600	600	600	-	-	-	-	-	-	-	-	-	-
Wt RF/RTJ	155	210	310	580	1600	2450	4570	7150	-	-	-	-	-	-	-	-	-	-
(Kg) BW	124	160	245	460	1310	2010	3800	6000	-	-	-	-	-	-	-	-	-	-

INSTALLATION,OPERATION AND MAINTENANCE INSTRUCTIONS FOR GENERAL GATE VALVES API 600.

INSPECTION AND HANDLING.

Before installation of the valve, it is important to determine that the valve is in satisfactory condition. It may be helpful to observe the following points, in order to avoid subsequent valve problems:

1. Carefully unpack valve and note any special warning tags or identification plates attached to the valve; take appropriate action.
2. Check the valve for any markings indicating flow direction. If flow direction is indicated, appropriate care should be exercised to install the valve in the proper flow orientation.

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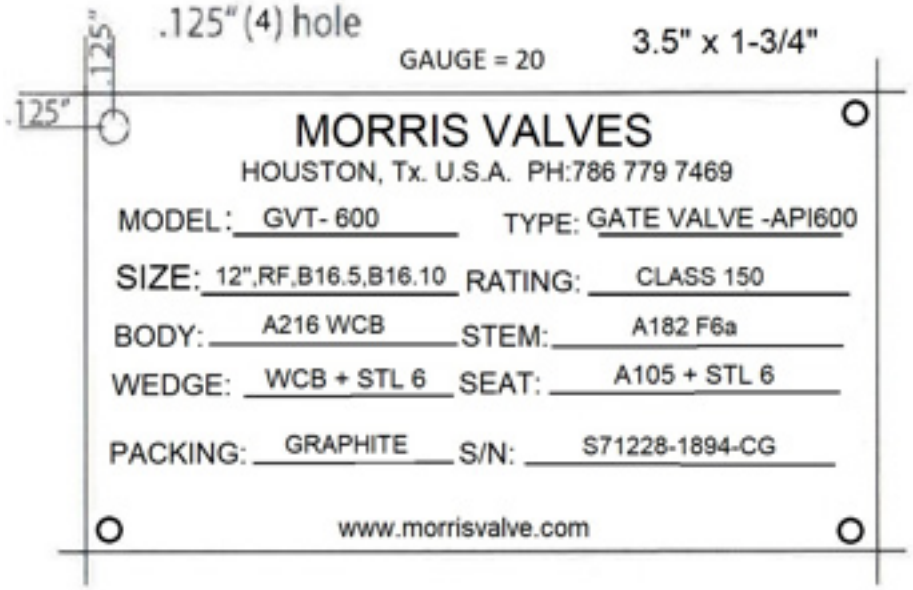
3. Inspect the valve interior through the end ports to determine that it is clean and free from foreign matter and/ or harmful corrosion. Remove any special packing materials (blocks to prevent disc movement) or packages of desiccant.
Note. The wedge/discs of weld end gate/globe valves should be lightly closed during welding of the valves into the pipeline.
4. Check the pipeline to ensure that it is properly aligned and supported. Expansion joints or bends should be installed in the pipeline to compensate for expansion and contraction.
5. Only qualified riggers should handle the valves. The pickup point for all MORRIS VALVES is by the use of a strap or chain
around the neck area of the valve body. Do not pick up MORRIS VALVES by use of straps or chains on or around the handwheels, yoke, bevel gear, motor or cylinder operator, or any override attachment.

Do not pick up a valve by the packing bolting or other interior connections. After the weight of the valve is supported by a strap or chain around the neck of the valve body, other lines may be attached for steadying the valve in place during installation.
6. Immediately prior to valve installation the interior of the piping (to which the valve is to be attached) should be checked for cleanliness and freedom from foreign materials.

Identification of valves

All MORRIS VALVES® are identified with a metal Tag that is riveted to the valve. This tag is usually found on the body/ bonnet joint area, or on the top plate area near the handwheel.



When performing any work, ordering spare parts, or requesting technical support, please refer to this tag. The Serial number is stamped on the Identification Plate.

Installation

All valves should be installed in such a manner as to prevent exposure to excessive vibration and process flow turbulence.

PREPARATION FOR INSTALLATION INTO THE PIPELINE.

1. Inspect valves as per the above instructions and remove any contamination, assuring that the valve is clean and dry.
2. Re-torque all bolting to factory specifications to compensate for possible bolt relaxation, which may occur during long storage.
3. Ensure that all foreign material has been removed from the valve.

WELD END VALVES

Welded joints when properly made, provide a structural and metallurgical continuity between the pipe and the valve body.

For socket weld joints it is usually required that the weld fillet have more cross sectional area that the pipe.

Butt welds usually require full penetration and thickness at least equal to that of the pipe. If a pipe of a high strength alloy is welded to a valve with body material of lower mechanical strength, the weld usually must taper to a compensating greater thickness at the valve end, or the valve must have a matching high strength welded-on extension or "pup".

The following items are a general overview of sound welding practice:

1. Check material markings on pipe and valve to confirm they are as specified.
2. Inspect welding end surfaces, dimensions, and cleanliness. Correct any condition that might interfere with assembly and satisfactory welding.
3. A protective paint may have been applied to the weld ends on some valves, and it should be removed before welding, unless it is a deoxaluminite paint which acts as a welding flux and does not need to be removed.
4. If backing rings are to be used, check to confirm that ring material is compatible with pipe and valve materials, check individual rings for fit and cleanliness.
5. Determine that the prescribed welding parameters including preheating and post weld heat treating if required, are in accordance with the approved welding procedure.

INSPECT VALVE-PIPE END ALIGNMENT; ADJUST IF AND AS REQUIRED

Valves should be in a slightly closed position when welding in-line. This is opposite the normal recommended installation for flanged or threaded valves, which is to leave the valves in a slightly open to fully open position. The reasoning behind slightly closing the valve has to do with the welding installation. When welding valves in-line an electrode is connected to the valve body and the opposite electrode feeds the weld metal across the gap between the valve and the pipeline. If the electrode connected to the valve body is connected on the opposite side of the valve from where the welding is being performed than if the valve is left in an open position the current from the valve electrode to the welding electrode can arc across the gap between the valve disc/wedge and potentially damage or tack weld across the seating surfaces.
6. Securely tack weld.
7. Complete weld, using approved welding procedure.

FLANGED VALVES

Pipe flanged joints depend on tight sealing and compressive deformation of gasket material between facing flange surfaces. The bolting must provide the mechanical force necessary to maintain the necessary compressive stresses on the gasket, as well as resist the normal pressure forces tending to separate the joint. It should be recognized that bolting force used for "brute force" alignment of misaligned flanges will not be available to sustain gasket loading and pressure force loading, and the result may be a joint leakage problem.

1. Check mating flange facings. If a condition is found which might cause leakage, (e.g. a deep radial groove or cut), do not attempt to assemble until the condition is corrected.
2. Check bolting for proper size, length and material.
3. For flange bolting for steel flanges ASME Class 400 or higher, high strength material (usually B - 7) is required. The proper matching of flanges, bolting and gaskets is important.
4. Check gaskets for obvious defects or damage.
5. Use care to provide good alignment of flanges being assembled. Use suitable lubricants on bolt threads. When assembling, sequence the bolt tightening (in a star pattern) to make initial contact of flanges and gaskets as flat and parallel as possible. Tighten gradually and uniformly to avoid tendency to twist one flange relative to the other. Use of torque wrench is important to assure correct and uniform final tightening of flange bolting.

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7. CAUTION! As indicated above, torque wrenches should be used for flange bolting. If, in the tightening process, the torque on a given bolt has been increasing with each part turn, and then is observed to remain unchanged or increase a much lesser amount with an additional part turn, that bolt is yielding. Such bolt should Values.
8. Repeat the process at second valve end. Again apply wrench at end of valve to which pipe is being assembled.

TESTING AND ADJUSTMENT

1. When a valve has been properly inspected and installed, it is reasonable to assume it will be in good condition and ready to operate. Nevertheless, it is at this time that the valve is at the end point of its more vulnerable phase. Operability can be proven only by test.
2. At this point valves having adjustable stem seals should be checked to determine that packing has been properly installed and gland bolting has its initial adjustment. Additional adjustment should be determined according to need as valve operability is checked and as system pressure is introduced.
3. A first observation can be made by actuating the valve through an open-close, or close-open cycle. If no obvious problems are observed, an actual test at pressure may be applied while tightness and operability are checked.
4. It is a fairly common practice after the installation of piping systems to clean the systems by blowing with gas or steam or flushing with a liquid to remove debris and/or internal protective films and coatings. It should be recognized that valve cavities may form a natural trap in a piping system and material not dissolved in or carried out by the flushing fluid may settle in such cavities and adversely affect valve operation. Also, abrasive material carried by a high velocity fluid stream may cause serious damage to seating surfaces. Again, great care should be taken to ensure that the valve is free of all debris prior to operation.
5. Upon installation, new valve lubrication should be applied to all lubrication points.

When installing, ensure that all foreign material is removed from the interior of the valve, including desiccants.

NOTE: Do not remove protective end coverings until immediately prior to valve installation.

NOTE: Do not disassemble or modify a MORRIS VALVES in any way prior to installation. This will void the factory warranty if it occurs.

When installing flanged or ring joint end flex wedge gate or globe valves into the line, it is advisable to have the valve slightly open to prevent the wedge from becoming “stuck” due to thermal expansion and to discourage damage to the seating surfaces. There is an exception to this with Butt-weld end valves, they should be installed in a lightly closed position.
A protective paint may have been applied to the weld ends on some valves, and it should be removed before welding, unless it is a deoxaluminite paint which acts as a welding flux and does not need to be removed.

Use the smallest electrodes and the minimum amperage possible consistent with approved welding procedures. This will help to
minimize warpage in the seat areas. Tack welds should be ground out before completing the root pass in that area.

Valves of carbon steel should be allowed to cool slowly. The valve may be covered with a heat-insulating blanket to promote slow cooling and limit the heat-affected zone. Appropriate industry standards should be followed for all PWHT.

Certain valve types are designed to function in a single direction (check valves, etc.) All markings should be noted on the valves. Arrows on the valves indicating flow direction should correspond with the system flow direction.

NOTE: Ensure that all foreign material (dirt, weld slag, rocks, wood construction materials, weld rod, etc.) has been removed from the valve prior to and after installation. Foreign material is the primary cause of premature seat failures.

PACKING MAINTENANCE

1. Inspection of the valve stem/bonnet seal should be an essential part of routine monthly valve maintenance inspections.
2. If inspection indicates the seal is leaking, the bolts holding the gland flange should be tightened uniformly (one- quarter of a turn at a time) until leakage stops. CAUTION!! Extreme care should be taken when working on or around any pressurized equipment. Tightening of bolting beyond this point results in over- compression of the packing against the stem, thereby producing excessive wear and loss of packing material. If difficulty is experienced in achieving satisfactory sealing without producing excessive stem friction, it may be desirableto increase or to replace the packing material.
3. If gland travel is fully taken up and leakage does not stop, a careful examination of the stem should be undertaken. Operation of a valve on a regular basis will minimize corrosion between the stem and packing material. Any deterioration of the stem surface which is in contact with the stem seal or packing (such as dents, scratches, pitting or general corrosion) must be recognized as a probable cause of leakage problems. The valve stem should be examined to determine if it has become bent or misaligned. If any of the above conditions exist, the stem must be refinished or replaced. If the stem is undamaged and the valve continues to leak, addition to or replacement of the packing is necessary.
4. Consult factory for any further packing related concerns.

PACKING INSTALLATION & INSTRUCTIONS

1. Manually open and close valve several times to ensure all parts are working smoothly under pressure and to help "set" the packing.
2. After several days, inspect valve for leakage. Slight adjustment may be required.
3. The following suggestions apply if Chevron type Teflon packing is used:
   a. Ensure that sections of the lips of the rings are not turned over.
   b. Ensure that the packing rings are facing in the direction of the medium being sealed - whether it is liquid or gas.

GASKET MAINTENANCE

NOTE: The following information refers primarily to valves that have been repaired/reconditioned previously. It is always a sound practice to inspect and maintain all sealing areas.
Inspection of the valve body/bonnet joint should be a part of routine maintenance inspection after installation and startup.
Flanged valves should have the flange ends inspected at the same time. In addition to improper gasket installation procedure, thermal changes, pressure changes, vibrations etc also may cause leakage. If re-torquing of the bolting does not stop the leakage, the flanged joint should be unbolted, the rise face examined and the gasket replaced.

GASKET INSTALLATION PROCEDURES

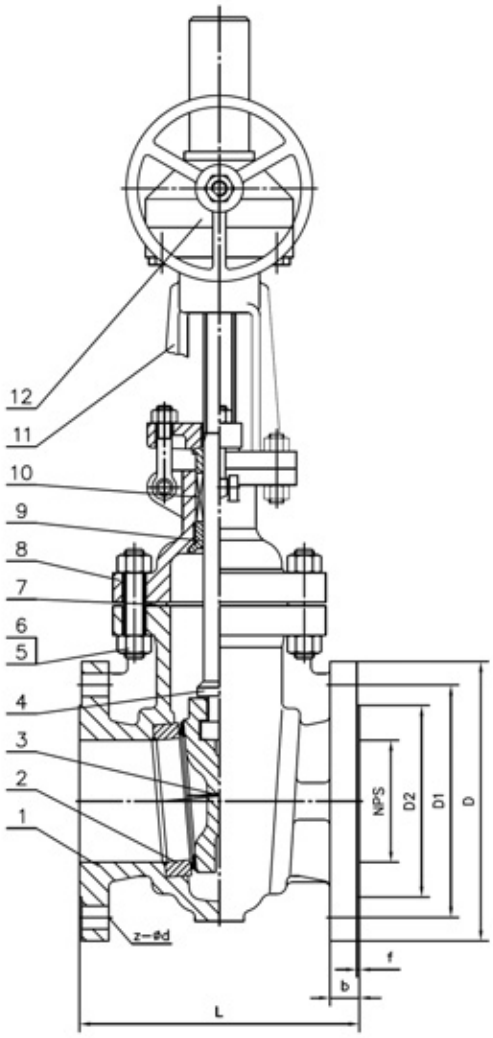
Regardless of the type of gasket being used or the materials of construction, certain basic procedures must be followed during assembly to ensure proper operation.
While these comments may seem elementary, they are extremely important in achieving a satisfactory seal and minimizing the time required to successfully make up joints.
The procedures should be followed whether bolt stresses will be achieved with ordinary stud wrenches, preheating studs, using tensioning devices, using torque wrenches, or using hydraulic wrenches.

1. Inspect the gasket seating surfaces. Look for tool marks, cracks, scratches or pitting by corrosion and make sure that the gasket seating surface is proper for the type of gasket being used. Radial tool marks on a gasket seating surface are virtually impossible to seal regardless of the type gasket being used, therefore every attempt must be made to minimize them.
2. Inspect the gasket. Make sure the material is as specified, look for any possible defects or damage in the gasket.

4. Lubricate all thread contact areas and nut facings. The importance of proper lubrication cannot be over-stressed. No joint should be made up without the proper lubricant being applied to the threaded surfaces and to the nut facings. When flanges will be subjected to high temperatures, the use of an anti-seize compound should be considered to facilitate subsequent disassembly.
5. With raised face and flat face installation, loosely install the stud bolts on the lower half of the flange. Insert the gasket between the flange facing to allow the bolts to center the gasket on the assembly. Install the balance of the bolts and nuts and bring all to a hand-tight or snug condition.
6. If the gasket is being installed in a recess or a groove, center the gasket midway into the recess or the groove. If the joint is vertical it may be necessary to use some cup grease or a few dabs of gasket cement or some other adhesive compatible with the process fluids, to keep the gasket in position until the flanges are tightened.
7. Torque the bolts up to a maximum of thirty percent of the final torque value required following the sequence recommended. Number bolts so that torquing requirements can be followed. With any gasket material, it is extremely important to follow a proper bolting sequence. If this sequence is not followed, the flanges can be cocked. Then, regardless of the amount of subsequent torquing, they cannot be brought back parallel. This problem, of course, is maximized on metallic gaskets more so than on non-metallic.
8. Repeat step 5.7, increasing the torque to approximately 50 to 60 percent of the final torque required.
9. Continue with a star pattern of re-torquing all studs or bolts to the desired amount until no further rotation of the nuts can be achieved. This may require several re-torquings since as one stud is torqued it will relieve the stress on the adjacent stud until such time as equilibrium is achieved.
10. On high-pressure, high-temperature applications, it is recommended that the flanges be re-torqued to the required stress after 24 hours at operating pressures and temperatures to compensate for any relaxation or creep that may have occurred.

DRAWING WITH DIMENSIONS,PART LIST, MANUFACTURING STANDARDS & TEST.

NPS	DN	Typical Dimensions			150Lb Flange Dimensions					
		L	–	–	D	D1	D2	b	f	z–ød
12	–	356	–	–	485	431.8	381	32.2	2	12–26



Performance Specification			
Class		150	
Test Pressure	Shell test	3.0	MPa
	Seal test	2.2	
	BacK seal Test	2.2	
	Air Seal Test	0.4~0.7	

Notice:

1.Design by API 600
2.Face to Face by ASME B16.10
3.RF flanged ends by ASME B16.5
4.Valves tested by API 598

NO	PART NAME	MATERIAL	REMARKS
12	Conical gear actuator	COMPONENT PART	
11	Yoke	ASTM A216–WCB	
10	Packing	FLEXIBLE GRAPHITE	
9	Back Seat Bushing	ASTM A276–420	
8	Bonnet	ASTM A216–WCB	
7	Gasket	FLEXIBLE GRAPHITE/304	
6	Bonnet Bolt Nut	ASTM A194 Gr.2H	
5	Bonnet Bolt	ASTM A193 Gr.B7	
4	Stem	ASTM A182–F6a	
3	Wedge Disc	ASTM A216–WCB deposited stellite	
2	Seat	ASTM A105 deposited stellite	
1	Body	ASTM A216–WCB	

GATE VALVE, API 600 MODEL: GVT			FIG NO
DESIGN BY	Dongdm	20171106	MORRIS VALVES®
CHECKED BY	MORRIS		
STANDARD BY			DRAWING NO / REV: Z540Y–150LB
APPROVED BY	MORRIS		
THE USER CONFIRM		DATE	

MORRIS VALVES
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Code: MVI-MD-R-14
Ver:0

MATERIAL & TEST CERTIFICATE. EN 10204-3.1

No.Page	1 OF 2	DATE:	01/29/2018	Certificate No:	PO-S71228-1894-CG-BY	Cust. Ref No: 1894

MATERIAL TYPE: GATE VALVE, API 600, 12", CLASS 150, RF, B16.5, B16.10

CUSTOMER:	Distribuidora Guaticobre LLC	END USER:	ICE. (Instituto Costarricense de Electricidad)

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STANDARD	ITEM	MATERIAL	P/N	SIZE	QTY	HEATING No
ASTM A216-2016	18011536	A216-WCB	150LB	12″	1	F5002
ASTM A216-2016	18011536	A216-WCB	150LB	12″	1	F5266
ASTM A216-2016	18011536	A216-WCB	150LB	12″	1	F5266
ASTM A182-2008	18011536	A182-F6a	150LB	12″	1	
ASTM A193-2008	18011536	A193-B7	150LB	12″	1	
ASTM A194-2008	18011536	A194-2H	150LB	12″	1	

Check and Test

Pressure Test

Shell Hydrostatic	Backseat	Low pressure seat	High pressure seat
Test Pressure 3.0 MPa Test Medium: Water Time: 120 s	Test Pressure 2.2 MPa Test Medium: Water Time: 60 s	Test Pressure 0.6 MPa Test Medium: Air Time: 120 s	Test Pressure 2.2 MPa Test Medium: Water Time: 120 s

The pressure test results are in compliance with: ☐API 6D ■API 598-2016 ☐GB/T 13927 ☐ BS6755

Visual & functional Inspection

Item	k	Item	Conclusion
Checking of order specifications	√	Test of operation/ Cleanliness	√
Check of Dimensions	√	Anti-hydrogen	√
Check of marks	√	Visual Inspection	√
Checking of surface	√	Rightness of material certification	√

Physical & Chemical Test

It.	Size	HEAT.	Material	Main Chemical composition										Mechanical Properties					
				C	Mn	Si	S	P	Cr	Ni	Mo	V	Cu	HYDROSTATIC TEST	Eddy Current Test	T.S. (Mpa)	Y.S. (Mpa)	Elongation. δ 5A(%)	Hardness Value (HB)
Body	12″	F5002	A216-WCB	0,222	0,79	0,385	0,02	0,023	0,115	0,014	0,023	0,011	0,034	495	280	29	41		154
Bonnet	12″	F5266	A216-WCB	0,213	0,92	0,442	0,02	0,025	0,106	0,011	0,031	0,014	0,022	498	285	31	39		152
Wedge	12″	F5266	A216-WCB	0,213	0,92	0,442	0,02	0,025	0,106	0,011	0,031	0,014	0,022	498	285	31	39		152
Stem	12″		A182-F6a	0,094	0,647	0,365	0,016	0,017	12,43	0,324				610	405	24	44		203
Bolt	12″		A193-B7	0,431	0,731	0,231	0,021	0,024	0,906		0,186			885	745	26	58		290
Nut	12″		A194-2H	0,432	0,561	0,234	0,023	0,026											258

Remarks:

The Physical and Chemical test results are in compliance with ■ ASTM A216 WCB ■ ASTM A182-2008 ■ ASTM A193-2008 ■ ASTM A194-2008

This is to certify that the above results are true.The products are in compliance with order requirements.

Checker and Tester | P&C analyzer | Q.A. director | Check department

Manufacturer:

6D-0398 6A-0720 ISO 9001 0036 TS2710002 HSEMS Industrie Service

A Tradition of Quality

Our passion is to develop solutions for difficult situations in Industrial Applications, no matter how large or small the project.

"Serving the world, one project at a time"