



National Iranian Gas Co.

مدیریت پژوهش و فناوری

Research and Technology Management

امور تدوین استانداردها

Standardization Division

IGS

Iranian Gas Standards

مشخصات فنی خرید

شیرهای توپکی کلاس ۶۰۰

Ball Valves Class Rating :600 part(3)

FOREWORD

This standard is intended to be mainly used by **NIGC** and contractors and has been prepared on interpretation of recognized standards , technical documents , knowledge ,backgrounds and experiences in gas industries at national and international levels.

Iranian Gas Standards (**IGS**) are prepared , reviewed and ammended by technical standard committees within NIGC Standardization Div. and submitted to the **NIGC's "STANDARDS COUNCIL"** for approval .

IGS Standards are subject to revision , amendment or withdrawal , if required , thus the latest edition of **IGS** shall be checked/inquired by **NIGC** users .

This standard must not be modified or altered by the end users within **NIGC** and her contractors. Any deviation from normative references and/or well known manufacturers specifications must be reported to Standardization div.

Any comments from concerned parties on **NIGC** distributed **IGS** are welcome to technical standards committees and will receive serious attention and consideration should a revision to standards is recommended .

GENERAL DEFINITIONS :

Throughout this standard the following definitions , where applicable , should be followed :

1- "**STANDARDIZATION DIV.**" has been organized to deal with all aspects of industrial standards in NIGC . Therefore , all queries for clarification or amendments are requested to be directed to the mentioned div.

2- "**COMPANY**" : refers to national iranian gas company .

3- "**SUPLIER**" : refers to a firm who will supply the service , equipment or material to igs specification whether as the prime producer or manufacturer or a trading firm .

4- "**SHALL**" : is used where a provision is mandatory.

5- "**SHOULD**" : is used where a provision is advised only.

6- "**MAY**" : is used where a provision is completely discretionary.

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SPECIFICATION FOR BALL VALVES,
FLANGED TYPE, CLASS 600,
SIZE : 2 - 4 IN

BALL VALVE, FOR GAS DISTRIBUTION AND TRANSMISSION PIPE - LINE, CARBON STEEL , FLANGED ENDS, R.F.,C.S.F., CLASS 600 , WRENCH OPERATED, BALL SHALL BE TRUNNION MOUNTED , ANTI STATIC DESIGN IN CASE OF SOFT SEATS, DOUBLE BLOCK AND BLEED FACILITY IN OPEN AND CLOSE POSITION, METAL TO METAL SEATS OR SOFT SEATS, WITH SEALANT INJECTION SYSTEM.

FIRE SAFE TO API RP6 F OR API 607 ,OR B.S. 5146 .

STEM SHALL BE OF THE ANTI BLOW OUT TYPE WITH AT LEAST TWO OR MORE STEM SEALS IN THE DESIGN , TOP SEAL SHALL BE EASILY REPLACEABLE UNDER PRESSURE.

VALVE SHALL BE FURNISHED WITH A VALVE POSITION INDICATOR SHOWING OPEN POSITION IN THE DIRECTION OF FLOW AND CLOSE POSITION PERPENDICULAR TO DIRECTION OF FLOW, THE SHUT AND OPEN TERMS(IN ENGLISH) SHALL BE PERMANENTLY INDICATED IN A VISIBLE LOCATION.

DESIGN, DIMENSIONS, TESTING AND MARKING ALL ACC. TO API 6D LATEST EDITION .

MATERIALS:

BODY, COVER AND BONNET: CAST CARBON STEEL AT LEAST TO ASTM A 216 GRADE WCB/WCC OR TO B.S. 1504 GRADE 430/480 OR FORGED CARBON STEEL AT LEAST TO ASTM A 105 OR TO B.S. 1503 GRADE 221/550, OR CARBON STEEL PLATE AT LEAST TO ASTM A 516 GR.70

BALL : CAST CARBON STEEL AT LEAST TO ASTM A 216 GRADE WCB/ WCC OR TO B.S. 1504 — 161 GRADE 430/480 ,OR FORGED CARBON STEEL TO ASTM A 105 OR B.S. 1503 GRADE 221/550 , DUCTILE IRON TO ASTM A 395.

BALL SHALL BE HARD CHROMIUM OR ELECTROLESS NICKEL PLATED WITH FINAL MIRROR FINISH PREPARATION AND MIN. PLATING THICKNESS OF 25µm ACC. TO ASTM B 650 AND ASTM B656 RESPECTIVELY.

STEM : SHALL BE FORGED CARBON STEEL AT LEAST TO ASTM A 105 OR TO B.S. 1503 GRADE 221/ 550, OR BAR ALLOY STEEL AT LEAST TO AISI 4140 WITH HARD CHROMIUM OR ELECTROLESS NICKEL PLATING .

BOLTS AND NUTS: SHALL BE ACC. TO ASTM A 193 B 7 /194 2H .

NON -METALLIC PARTS: SHALL BE MADE OF SUITABLE ELASTOMER FLUOROCARBON MATERIAL (TYPE AND RELEVANT STANDARD SHALL BE SPECIFIED BY MANUFACTURER) .

VALVE EXTERNAL SURFACE SHALL BE PAINTED ACC.TO MANUFACTURING STANDARD .(RELEVANT TECHNICAL DETAILS SHALL BE PROVIDED BY MANUFACTURER).

FULL BORE:

<u>SIZE</u> (IN)	<u>FACE TO FACE</u>		<u>BODY CONSTRUCTION</u>
	(IN)	(MM)	
2	11 $\frac{1}{2}$	292.1	SPLIT BODY
2	11 $\frac{1}{2}$	292.1	FULLY WELDED
3	14	355.6	SPLIT BODY
3	14	355.6	FULLY WELDED
4	17	431.8	SPLIT BODY
4	17	431.8	FULLY WELDED

REDUCED BORE:

<u>SIZE</u> (IN)	<u>FACE TO FACE</u>		<u>BODY CONSTRUCTION</u>
	(IN)	(MM)	
2	11 $\frac{1}{2}$	292.1	SPLIT BODY
2	11 $\frac{1}{2}$	292.1	FULLY WELDED
3	14	355.6	SPLIT BODY
3	14	355.6	FULLY WELDED
4	17	431.8	SPLIT BODY
4	17	431.8	FULLY WELDED

NOTES :

- 1/ IF APPLICABLE , STEM EXTENSION SHALL BE SPECIFIED BY END USER.
- 2/ MAX.REQUIRE OPENING TORQUE SHALL BE 32 KG-M, UNDER MAX. CLASS RATING.
- 3/ WRENCH SHALL BE QUOTED SEPARATELY.
- 4/ IN CASE OF REDUCED BORE, PORT AREA SHALL BE SPECIFIED BY MANUFACTURER.

تاریخ تایید: در کمیته تخصصی لوله ، اتصالات و شیر آلات مورخ
تاریخ تصویب : در کمیته عالی استاندارد مورخ

SPECIFICATION FOR BALL VALVES,

WELDING ENDS, CLASS 600 ,

SIZE : 2 — 4 IN ,

BALL VALVE, FOR GAS DISTRIBUTION AND TRANSMISSION PIPELINE, CARBON STEEL , BUTT WELDING ENDS, CLASS 600 , WRENCH OPERATED , BODY SHALL BE ALL WELDED TYPE, BALL SHALL BE TRUNNION MOUNTED, ANTI STATIC DESIGN IN CASE OF SOFT SEATS.

DOUBLE BLOCK AND BLEED FACILITY IN OPEN AND CLOSE POSITION, METAL TO METAL SEATS OR SOFT SEATS WITH SEALANT INJECTION SYSTEM , FIRE SAFE ACC. TO API RP 6F OR API 607 OR B.S. 5146.

STEM SHALL BE OF THE ANTI BLOW OUT TYPE WITH AT LEAST TWO OR MORE STEM SEALS IN THE DESIGN , TOP SEAL SHALL BE EASILY REPLACEABLE UNDER PRESSURE AND TO FITTED WITH THE FACILITY FOR INJECTION OF SEALANT .

ALL VALVES SHALL BE FURNISHED WITH A VALVE POSITION INDICATOR , SHOWING OPEN POSITION IN THE DIRECTION OF FLOW AND CLOSE POSITION PERPENDICULAR TO DIRECTION OF FLOW , THE SHUT AND OPEN TERMS (IN ENGLISH) SHALL BE PERMANENTLY INDICATED IN A VISIBLE LOCATION .

DESIGN , DIMENSIONS, TESTING AND MARKING ALL ACC . TO API 6D LATEST EDITION.

VALVE EXTERNAL SURFACE SHALL BE PAINTED ACC.TO MANUFACTURING STANDARD (TECHNICAL DETAILS SHALL BE PROVIDED BY MANUFACTURER).

RADIOGRAPHY: ALL VALVES ENDS IN 5 PERCENT OF EACH INDIVIDUAL ORDER SHALL BE 100 PERCENT RADIOGRAPHED FOR A LENGTH AT LEAST TWICE OF THE THICKNESS OF THE VALVE BODY.

ACCEPTANCE SHALL BE LEVELS 1,2,3 ACC .TO ASTM E 446 .

FULL BORE:

<u>SIZE</u> (IN)	<u>END TO END</u> (IN) (MM)
2	11 $\frac{1}{2}$ 292.1
3	14 255.6
4	17 431.8

REDUCED BORE :

<u>SIZE</u> (IN)	<u>END TO END</u> (IN) (MM)
2	11 $\frac{1}{2}$ 292.1
3	14 255.6
4	17 431.8

NOTES :

- 1/ MATERIAL AND THICKNESS OF MATCHING PIPE SHALL BE SPECIFIED BY END USER.
- 2/ IF APPLICABLE STEM EXTENSION SHALL BE SPECIFIED BY END USER.

MATERIALS:

BODY ,COVER AND BONNET : CAST CARBON STEEL AT LEAST TO ASTM

A 216 GRADE WCB/WCC OR TO B.S. 1504
GRADE 430/480 , OR FORGED CARBON
STEEL AT LEAST TO ASTM A105 OR TO
B.S. 1503 GRADE 221/550 , OR CARBON
STEEL PLATE AT LEAST TO ASTM A 516
GR.70 .

BALL :

CAST CARBON STEEL AT LEAST TO ASTM
A 216 GRADE WCB/WCC . OR TO B.S.1504-
161 GRADE 430/480 ,OR FORGED CARBON
STEEL AT LEAST TO ASTM A 105 OR B.S.
1503 GRADE 221/ 550 ,OR DUCTILE IRON
ACC. TO ASTM A 395 .

BALL SHALL BE HARD CHROMIUM OR ELE-
CTROLESS NICKEL PLATED WITH FINAL MI-
rror FINISH PREPARATION AND MIN .
PLATING THICKNESS OF 25 μ M ACC . TO
ASTM B 650 AND B 656 RESPECTIVELY .

STEM :

SHALL BE FORGED CARBON STEEL AT LEAST
TO ASTM A 105 OR TO B.S. 1503 GRADE
221/ 550 ,OR BAR ALLOY STEEL AT LEAST TO
AISI 4140 WITH HARD CHROMIUM OR ELECTRO-
LESS NICKEL PLATING .

NON-METALLIC PARTS:

O-RINGS AND SOFT SEATS SHALL BE MADE
OF SUITABLE ELASTOMER FLURO - CARBON
MATERIAL (TYPE AND RELEVANT STANDARD
SHALL BE SPECIFIED BY MANUFACTURER) .