



**QUALITY CONTROL TABLES
GI PIPES CONFORMING TO IS:1239 (PART-1):2004 (Latest edition)**



S.No										
1	2	3	4	5	6	7	8	9	10	11
4.2	POWDER COATING TEST	GLOSS 60 DEG.	Major	VISUAL	AS PER IS: 4711/IS:13871	IS: 13871/ PTS	IS: 13871/ PTS	IR	P	W
		CROSS HATCH ADHESION	Major	VISUAL	AS PER IS: 13871	IS: 13871/ PTS	IS: 13871/ PTS	IR	P	W
		CYLINDRICAL BENDING TEST	Major	VISUAL	AS PER IS: 13871	IS: 13871/ PTS	IS: 13871/ PTS	IR	P	W
		ENRICHSEN CUPPING	Major	VISUAL	AS PER IS: 13871	IS: 13871/ PTS	IS: 13871/ PTS	IR	P	W
		PENCIL HARDNESS	Major	VISUAL	AS PER IS: 13871	IS: 13871/ PTS	IS: 13871/ PTS	IR	P	W
		SCRATCH RESISTANCE	Major	VISUAL	AS PER IS: 13871	IS: 13871/ PTS	IS: 13871/ PTS	IR	P	W
		IMPACT RESISTANCE	Major	VISUAL	AS PER IS: 13871	IS: 13871/ PTS	IS: 13871/ PTS	IR	P	W
4.3	-	IDENTIFICATION & MARKING	Major	VISUAL	IS: 4711	IS: 1239 / P.O. Spec./PTS	IS: 1239 / P.O. Spec./PTS	-	P	W
4.4	-	WORKMANSHIP	Major	VISUAL	IS: 4711	IS: 1239 / P.O. Spec./PTS	IS: 1239 / P.O. Spec./PTS	-	P	R
4.5	-	PERFORMANCE OF INSTRUMENTS	Major	CALIBRATION	EACH INSTRUMENT	IS: 1239 / P.O. Spec./PTS	IS: 1239 / P.O. Spec./PTS	CALIBRATION CERTIFICATE	P	R

**LEGENDS H-HOLD P-PERFORMANCE R-REVIEW W-WITNESS TC-TEST CERTIFICATE IIR-INTERNAL
INSPECTION R EPORT CA-CONTROL AUTHORITY TPIA - THIRD PARTY INSPECTION AGENCY**

- The above testing and acceptance criteria are minimum requirements; however, manufacturer shall ensure that the product shall also comply to the additional requirements as per Particular Technical specifications (PTS).
- The supplier shall submit their own detailed ITP prepared on the basis of above I Technical specification for approval of Owner/ Owner's representative.
- Owner / Owner representative shall review / approve all the documents related to ITP / Quality manuals / Drawings etc. submitted by supplier
- Contractor shall in coordination with Supplier / Sub vendor issue detailed Production and Inspection schedule indicating the dates and the locations to facilitate Owner / Owner's representative and TPIA to organize Inspection
- Special manufacturing procedures have to be specially approved or only previously approved procedures have to be used in case of conflict between specifications more stringent condition shall be applicable.
- Owner/Owner's representative including TPIA will have the right to inspect any activity of manufacturing at any time.
- All reference Codes / Standards. Documents, P.O. Copies shall be arranged by vendor I supplier for reference of TPIA / IGL at the time of inspection.
- At the time of delivery of material in stores, vendor will submit copy of all related document of inspection along with release note, dispatch clearance note & MTC.



QUALITY CONTROL TABLES GI FITTINGS



SR. No	DESCRIPTION	COMPONENT	CHARACTERISTICS	QUANTUM OF CHECK	REF. DOC.	ACCEPTANCE NORMS	RECORD	INSPECTION			REMARKS
								MANUF.	TPIA	CA	
1	Chemical composition of material	Test Bar	Marking and correlation with TC	IS: 14329 Grade BM 300	PO, Material specification	IS 14329/ PO, Material specifications	Mill TC	R	R	R	
2	Chemical composition of Final product	Fitting	Chemical properties	IS: 14329 Grade BM 300	PO, Material specification	IS 14329/ PTS	TC	P	E	R	
3	Cleaning and Flushing	Fitting	Descaling / Peel off	100%	IS 14329/ PTS	IS 14329/ PTS	Inspection Report	P	RW	R	
4	Destructive Testing (Tensile, Elongation & Hardness)	Fitting	Mechanical Properties	IS 14329	IS 14329/ PTS	IS 14329/ PTS	Lab Report	P	W	RW	
5	Compression Test	Fitting	Malleability	Three samples per Heat	IS 1879/ PTS	IS 1879/ PTS	Inspection Report	P	W	RW	
6	Pressure Test	Fitting	Pneumatic	IS 1879	IS 1879/ PTS	IS 1879/ PTS	Inspection Report	P	W	RW	As per sampling procedure of IS 1839
7	Alignments of Thread	Fitting	ASME B1.20.1/NPT	IS 1879	IS 1879/ PTS	IS 1879/ PTS	Inspection Report	P	W	RW	
8	Galvanizing	Fitting	Integrity of galvanized coating	As listed in IS 4759	IS 4736/ PTS	PTS	Inspection / Lab Report	P	W	RW	
9	Powder Coating	Fitting	Coating	IS: 13871/PTS	IS: 13871/PTS	IS: 13871/PTS	Inspection Report	P	W	RW	
10	Final inspection	Fitting	Visual, Dimensions, Finish, weld bevel, Bore, Marking, Powder Coating Thickness*	IS 1879	IS 1879/ PTS	IS 1879/ PTS	Inspection Report	P	W	R	
11	Marking	Fitting	PTS	100%	PTS	PTS	Inspection Report	P	R	R	
12	Documentation	-	-	-	As per the terms and conditions of the PO & PTS	As per the terms and conditions of the PO & PTS	Compliance certificate	-	-	-	

*60 Microns Minimum

LEGENDS-HOLD P-PERFORMANCE R-REVIEW W-WITNESS TC-TEST CERTIFICATE IIR-INTERNAL INSPECTION
REPORT CA-CONTROL AUTHORITY TPIA-THIRD PARTY INSPECTION AGENCY

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2. The supplier shall submit their own detailed ITP prepared on the basis of above I Technical specification for approval of Owner / Owner's representative
3. Owner / Owner representative shall review / approve all the documents related to ITP / Quality manuals / Drawings etc. submitted by supplier
4. Contractor shall in coordination with Supplier / Sub vendor issue detailed Production and Inspection schedule indicating the dates and the locations to facilitate Owner / Owner's representative and TPIA to organize Inspection
5. Special manufacturing procedure shall be specially approved or only previously approved procedures have to be used, in case of conflict between specifications more stringent condition shall be applicable.
6. Owner/ Owner's representative including TPIA will have the right to inspect any activity of manufacturing at any time.
7. All reference Codes / Standards documents, P.O. Copies shall be arranged by vendor I supplier for reference of TPIA / IGL at the time of inspection.
8. At the time of delivery of material in stores, vendor will submit copy of all related document of inspection along with release note, dispatch clearance note & MTC.



QUALITY CONTROL TABLES COPPER TUBE



SR. No	DESCRIPTION	QUANTUM CHECK	OF	PROCEDURE	ACCEPTANCE CRITERIA (As per EN 1057/ PTS)	FORMAT OF RECORD	INSPECTIO		REMARKS
							VENDOR	TPIA/ CLIENT	
1	Raw material: Chemical Requirement	As per EN 1057		As per EN 1057	Material grade Cu-DHP/ CW 024A Cu + Ag : Min 99.9% P: 0.0015% TO 0.040%	MTC	P	R	
2	Final product: Chemical Requirement	As per EN 1057		As per EN 1057		Inspection Report	P	W	
3	Physical test (Tensile, Elongation, Hardness etc.)	As per EN 1057		As per EN 1057	UTS- Min. 250 N/ Sq.mm Elongation - Min 30% Hardness- 75 to 100 HV	Inspection Report	P	W	
4	Carbon film tets	As per EN 1057		As per EN 1057	Maximum Residual carbon- 0.20 mm/ sq. dm	Inspection Report	P	W	
5	Carbon content test	As per EN 1057		As per EN 1057	As per EN 1057/ PTS	Inspection Report	P	W	
6	Drift expanding test	As per EN 1057		As per EN 1057	As per EN 1057/ PTS	Inspection Report	P	W	
7	Hydrostatic test	As per EN 1057		As per EN 1057	Min 35 bar/ 10 second	Inspection Report	P	W	
8	Eddy current test	As per EN 1057		As per EN 1057	As per EN 1057/ PTS	Inspection Report	P	W	
9	Dimensional Inspection (O.D, Wllthk, Length etc.)	As per EN 1057		As per EN 1057	As per EN 1057/ PTS	Inspection Report	P	W	
10	Visual Inspection (Free from defect)	As per EN 1057		As per EN 1057	As per EN 1057/ PTS	Inspection Report	P	R	
11	Marking	As per EN 1057		As per EN 1057	As per EN 1057/ PTS	Inspection Report	P	R	
12	Documentation	-		As per EN 1057	As per EN 1057/ PTS	Inspection Report	P	R	

LEGENDS H-HOLD W- WITNESS

P- PERFORM

TPIA- THIRD PARTY INSPECTION AGENCY

CA- CONTROL AUTHOIRTY

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QUALITY CONTROL TABLES COPPER FITTINGS



SR. No	DESCRIPTION	QUANTUM OF CHECK	PROCEDURE	ACCEPTANCE CRITERIA (As per EN 1057/ PTS)	FORMAT	INSPECTIO		REMARKS
						OF	VENDOR	
1	Raw material: Chemical Requirement	one in each heat	As per EN 1254	Material grade Cu-DHP/ CW 024A Cu + Ag : Min 99.9% P: 0.0015% TO 0.040%	MTC	P	R	
2	Final product: Chemical Requirement	one in each heat	As per EN 1254		Test Report	P	W	
3	Carbon in bore tests (Carbon film test, carbon content test)	one in each heat	As per EN 1254	As per EN 1254/ PTS	Test Report	P	W	
4	Stress corrosion resistance test	one in each heat	As per EN 6957	As per ISO 6957/ PTS	Test Report	P	W	
5	Hydrostatic pressure test	100%	As per EN 1254	Min 37.5 bar @ 15 min.	Test Report	P	W	
6	Pneumatic pressure test	100%	As per EN 1254	Min 6 bar @ 10 second	Test Report	P	W	
7	Dimensional Inspection (O.D, Wll thk, Length etc.)	100%	As per EN 1254	As per EN 1254/ PTS	Test Report	P	W	
8	Visual Inspection (Free from defect)	100%	As per EN 1254	As per EN 1254/ PTS	Test Report	P	R	
9	Marking	100%	As per EN 1254	As per EN 1254/ PTS		P	R	
10	Documentation	-	As per EN 1254	As per EN 1254/ PTS	Inspection Report	P	R	

LEGENDS H-HOLD W-WITNESS

P-PERFORM

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QUALITY CONTROL TABLES BRASS FITTINGS



SR. No	DESCRIPTION	QUANTUM OF CHECK	PROCEDURE	ACCEPTANCE CRITERIA (As per EN 1057/ PTS)	FORMAT OF RECORD	INSPECTION		REMARKS
						VENDOR	TPIA/ CLIENT	
1	Raw material: Chemical/ Physical Requirement	one in each heat	As per EN 2164	As per EN 12164/ PTS	MTC	P	W	Preferably witness by CA
2	Final product		As per EN 2164			P	W	
3	Resistance dezincification	one in each heat	As per EN 6957	As per EN 1254	Test Report	P	W	
4	Carbon bore test	one in each heat	As per EN 2164	As per ISO 6957/ PTS	Test Report			
5	Stress corrosion resistance test	one in each heat	As per EN 2164	As per ISO 1254/ PTS	Test Report	P	W	
6	Hydrostatic pressure test	100%	As per EN 2164	Min 37.5 bar @ 15 min.	Test Report	P	W	Preferably witness by CA
7	Pneumatic pressure test	100%	As per EN 12164	Min 6 bar @ 15 second	Test Report	P	W	Preferably witness by CA
8	Visual Inspection (Free from defect)	100%	As per EN 12164	As per EN 1254/ PTS	Test Report	P	R	
9	Dimensional Inspection (O.D, Wll thk, Length etc.)	100%	As per EN 12164	As per EN 1254/ PTS	Test Report	P	W	
10	Marking	100%	As per EN 12164	As per EN 1254		P	R	
11	Documentation	-	PO/ PTS	PO/ PTS	Test Report	P	H	

LEGENDS H-HOLD W-WITNESS

P-PERFORM

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QUALITY CONTROL TABLES STEEL REINFORCED RUBBER HOSE



SR. No	DESCRIPTION	TEST PARAMETERS	QUANTUM OF CHECK	PROCEDURE	ACCEPTANCE CRITERIA (As per EN 1057/ PTS)	CERTIFICATE	INSPECTION		REMARKS
							VENDOR	TPIA/ CLIEN	
1.	Raw Material	Chemical & Mech. Test of material or Steel Reinforced Rubber Hose (Lining, Reinforced material & cover)	100%	IS 9573	IS 9573	MTC	P	R	
2.	Final Product								
2.1	Final Inspection	Mechanical Properties	one (1) per batch	Tensile Strength = 10Mpa (Min.) EI (Lining & Cover) is 200 & 250 resp. (Min.)	PTS & IS 9573	Inspection Report	P	W	
2.2		Resistance of Lining to n-pentane	one (1) per batch	Shall not exceed 10% absorbed & 5% extractable as per Cl. No. 5.2 of PTS	Cl. 5.4.3.2 of IS 9573	Inspection Report	P	W	
2.3		Adhesion Test	one (1) per batch	Min. Adhesion shall be 2 KN/m as Cl. No. 5.3 of PTS	Cl. 5.5.1 of IS 9573	Inspection Report	P	W	
2.4		Low Temperature Flexibility Test	One (1) per batch	Conditioned at -40 deg for 50 hours and bent at 180 deg around mandrel of dia 12 times the Nominal Bore of hose as per Cl no. 5.4 of PTS	Cl. 5.5.2 of IS 9573	Inspection Report	P	W	
2.5		Flexibility of hose at 1.5 x design pressure	one (1) per batch	Bend empty to radius 95 mm without Flattening & suffering structural damages.	Cl. 5.5.3 of IS 9573	Inspection Report	P	W	Witness by CA
2.6		Ozone Resistance Test	one (1) per batch	Cl. No 5.9 of PTS	Cl. 5.5.4 of IS 9573	Inspection Report	P	W	Witness by CA
2.7		Hydrostatic/ Proof Pr. Test	100%	2MPa for 1 min. as per Cl. No. 5.7 of PTS	Cl. 5.5.1 of IS 9573	Inspection Report	P	W	Witness by CA
2.8		Burst test	one (1) per batch	Cl. No. 5.9 of PTS	Cl. 5.5.2 of IS 9573	Inspection Report	P	W	
2.9		Grip Strength test	one (1) per batch		Cl. 5.5.7 of IS 9573 & Annex A of IS 9573	Inspection Report	P	W	
2.10		Burning Test	one (1) per batch	Shall not burn till 45 sec. as per Cl. No. 5.10	Cl. 5.5.8 of IS 9573	Inspection Report	P	W	
2.11		Visual & dimensional check	100%	Cl. No. 4.0 of PTS & IS 9573	IS 9573	Inspection Report	P	R	
2.12		Cover color- Orange	100%	Cl. No. 5.2.3 of PTS	PTS & IS 9573	Inspection Report	P	R	
3	End Fittings (Adaptors, nuts, washer)	-	100%	As per Cl. No. 6.0 of PTS	PTS & IS 9573	Inspection Report		R	
4	Marking	-	100%	As per Cl. No. 7.0 of PTS	PTS & IS 9573	Inspection Report	P	R	
5	Documentation	-	-	term & conditions of P.O & PTS	As per term & conditions of P.O & PTS	3.2 Certification as per EN 1024	P	H	

LEGENDS-HOLD

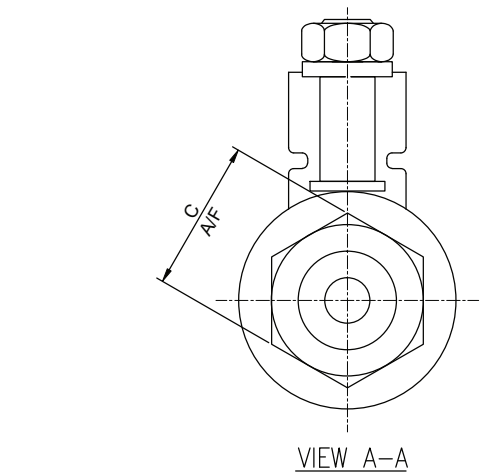
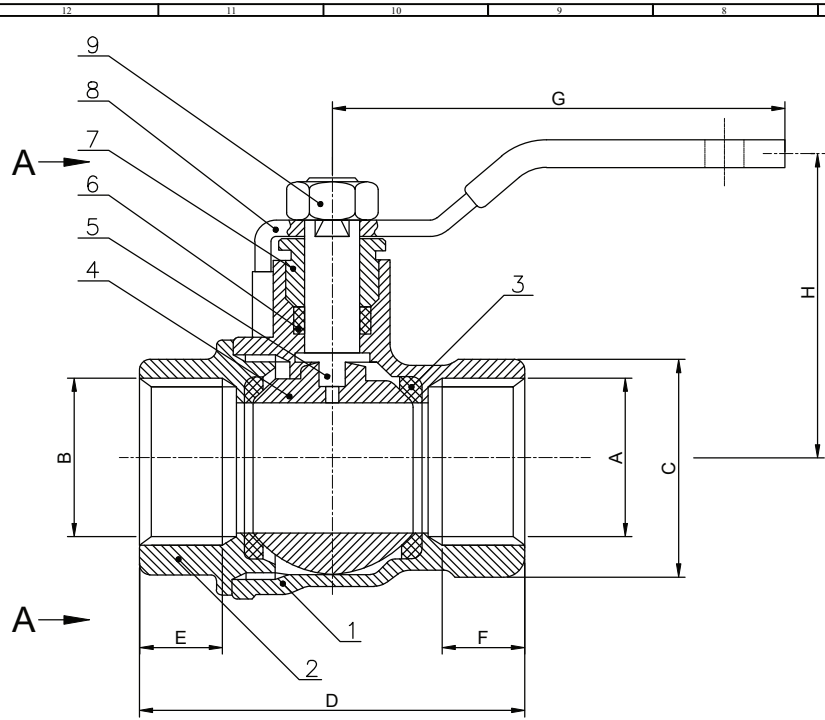
W-WITNESS

P-PERFORM

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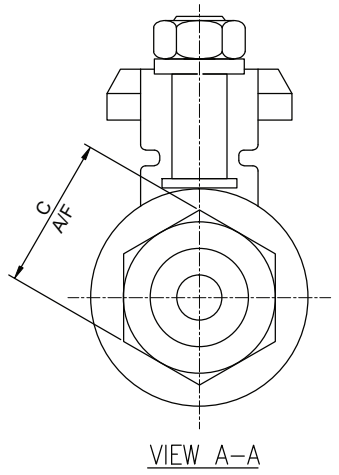
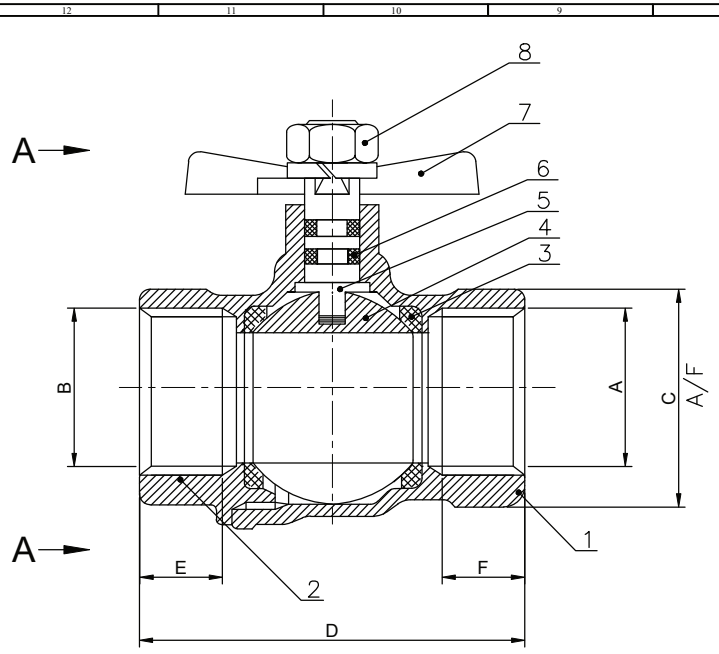
TECHNICAL SPECIFICATIONS	
MEDIUM	NATURAL GAS
END CONNECTION	1-1/2", 2" NPT(F) at both Inlet and Outlet
OPERATING PRESSURE	4 bar(g)
OPERATING TEMPERATURE	0°C TO 45°C
DESIGN PRESSURE	6 bar(g)
DESIGN TEMPERATURE	0°C TO 65°C
OPERATOR	Knob and Locking Arrangement with Lever type Handle
MATERIAL OF CONSTRUCTION (Refer Data Sheet of Isolation Valve attached in PTS)	Body : Forged Brass (ASTM B 283, Alloy UNSC37700) with Hard Nickel/ Chrome Plated. Ball : Forged Brass (ASTM B 283, Alloy UNSC37700) with Hard Nickel/ Chrome Plated.

MATERIAL LIST		
Item	Part	Material
1	Body	Brass
2	End Cap	Brass
3	Ball Seat	PTFE
4	Ball	Brass
5	Stem	Brass
6	O-Ring	NBR
7	Packing Nut	Brass
8	Lever Handle	Steel, Nickel Plated
9	Stem Nut	Steel, Nickel Plated

DIMENSION TABLE								
SIZE	A	B	C	D	E (Min.)	F (Min.)	G	H
1-1/2"	1-1/2"NPT(F) x 11.5 TPI	1-1/2"NPT(F) x 11.5 TPI	^{+1.0} ₅₃ °	^{±1.0} ₉₆	21.0	21.0	* (NOTE-3)	* (NOTE-3)
2"	2" NPT(F) x 11.5 TPI	2" NPT(F) x 11.5 TPI	^{+1.0} ₆₆ °	^{±1.0} ₁₁₀	22.0	22.0	* (NOTE-3)	* (NOTE-3)

- NOTE:**
1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
 2. ALL NPT THREADS SHALL BE AS PER ASME B1.20.1.
 3. ALL DIMENSIONS MARKED "*" SHALL BE PROVIDED BY VENDOR.
 4. DIMENSIONS MENTIONED IN TABLE ARE MINIMUM REQUIREMENT.
 5. GA DRAWING AS SHOWN IS INDICATIVE ONLY. ACTUAL SHAPE / SIZE SHALL BE AS PER VENDOR'S OWN GA DRAWING.

REV	DATE	DESCRIPTION	PRED	CHKD	APPD
0	19.05.18	ISSUED FOR CONSTRUCTION	US	ADE	AD
SUBJECT OF REVISION					
OWNER:		INDRAPRASTHA GAS LIMITED <small>NEW DELHI</small>			
PMC:		M/s. VCS QUALITY SERVICES PVT. LTD. <small>NOIDA, U.P.</small>			
PROJECT:		CITY GAS DISTRIBUTION PROJECT			
TITLE:		GA DRAWING OF ISOLATION VALVE			
SCALE:	CAD FILE:	REV		0	
NTS	DATE:				
DRG. NO.	15792 /03-CD-MC-DR-001	SHEET 1 OF 1			





TECHNICAL SPECIFICATIONS	
MEDIUM	NATURAL GAS
END CONNECTION	1/2", 3/4", 1" NPT(F) at both Inlet and Outlet
OPERATING PRESSURE	4 bar(g)
OPERATING TEMPERATURE	0°C TO 45°C
DESIGN PRESSURE	6 bar(g)
DESIGN TEMPERATURE	0°C TO 65°C
OPERATOR	Knob and Locking Arrangement with Butterfly type Handle
MATERIAL OF CONSTRUCTION (Refer Data Sheet of Isolation Valve attached in PTS)	Body : Forged Brass (ASTM B 283, Alloy UNSC37700) with Hard Nickel/ Chrome Plated. Ball : Forged Brass (ASTM B 283, Alloy UNSC37700) with Hard Nickel/ Chrome Plated.

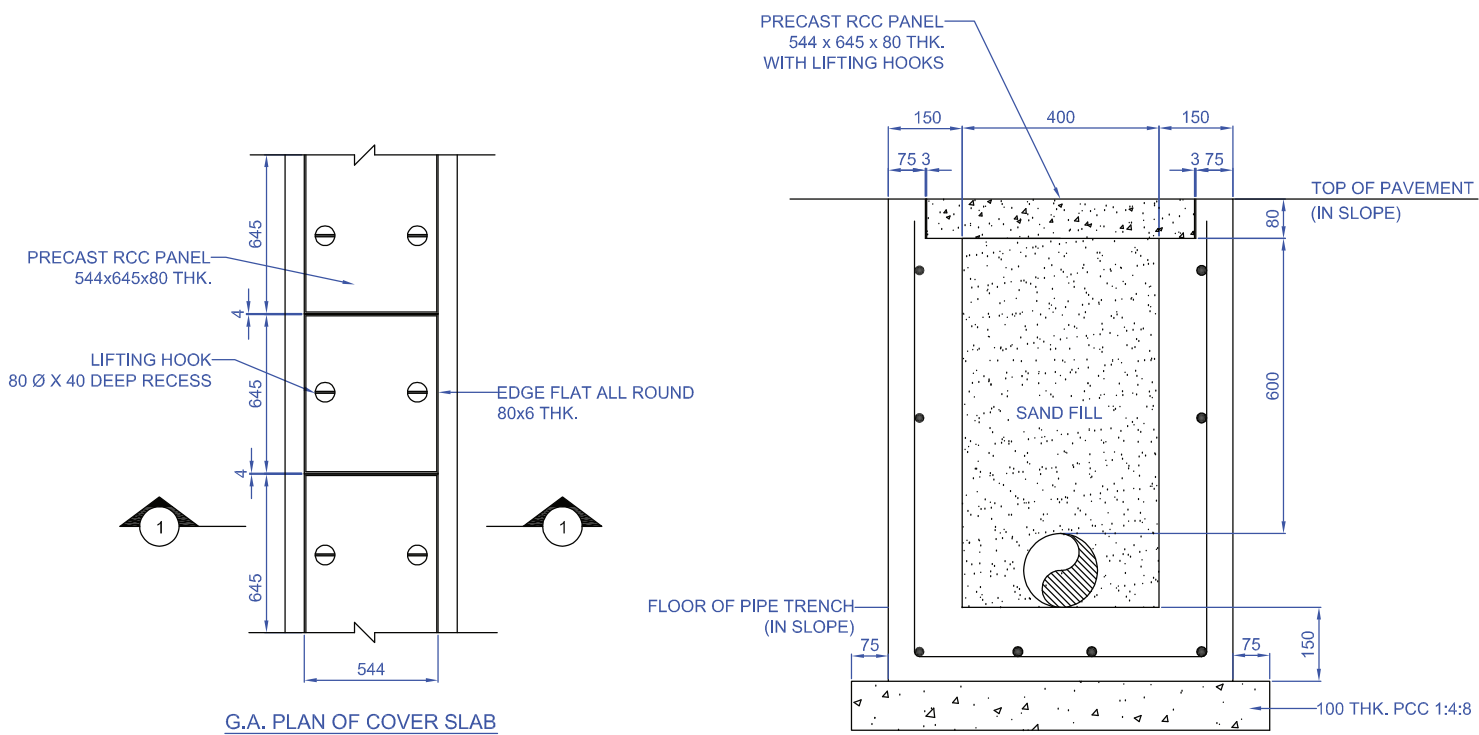
MATERIAL LIST		
Item	Part	Material
1	Body	Brass
2	End Cap	Brass
3	Ball Seat	PTFE
4	Ball	Brass
5	Stem	Brass
6	O-Ring	NBR
7	Handle	Steel, Nickel Plated
8	Stem Nut	Steel, Nickel Plated

DIMENSION TABLE						
SIZE	A	B	C	D	E (Min.)	F (Min.)
1/2"	1/2" NPT(F) x 14 TPI	1/2" NPT(F) x 14 TPI	^{+1.0} ₂₅ ⁰	^{±1.0} ₅₆	15.5	15.5
3/4"	3/4" NPT(F) x 14 TPI	3/4" NPT(F) x 14 TPI	^{+1.0} ₃₁ ⁰	^{±1.0} ₆₂	16.0	16.0
1"	1" NPT(F) x 11.5 TPI	1" NPT(F) x 11.5 TPI	^{+1.0} ₃₈ ⁰	^{±1.0} ₇₆	18.5	18.5

NOTE:

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0	19.05.18	ISSUED FOR CONSTRUCTION	US	ADE	AD
REV	DATE	DESCRIPTION	PRED	CHKD	APPD
SUBJECT OF REVISION					
OWNER:		 INDRAPRASTHA GAS LIMITED NEW DELHI			
PMC:		 M/s. VCS QUALITY SERVICES PVT. LTD. NOIDA, U.P.			
PROJECT:		CITY GAS DISTRIBUTION PROJECT			
TITLE:		GA DRAWING OF ISOLATION VALVE			
SCALE:	CAD FILE:			REV	0
NTS	DATE:				
DRG. NO.	15792 /03-CD-MC-DR-002			SHEET 1 OF 1	

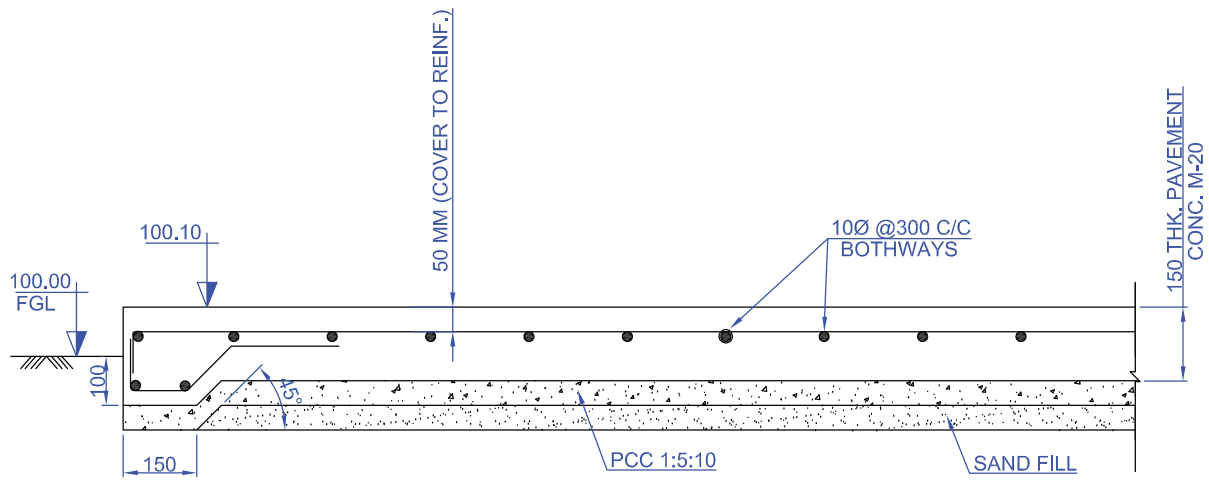


G.A. PLAN OF COVER SLAB

SECTION 1-1 THRU PIPE TRENCH
(PIPE TRENCH BY OTHERS)
SCALE 1:10

NOTES:-
 1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
 2. FOLLOW WRITTEN DIMENSIONS ONLY. DO NOT SCALE THE DRAWING.



	OWNER: INDRAPRASTHA GAS LIMITED NEW DELHI
	PMC: M/s. VCS QUALITY SERVICES PVT. LTD.
PROJECT: CITY GAS DISTRIBUTION PROJECT	
TITLE: DETAILS OF PIPE TRENCH	
SCALE: 1:20	DATE: _____
CAD FILE: _____	CAD: _____
DRG. NO.15792 -10-03-16 REV-0	



RCC PAVEMENT DETAIL

NOTES:-

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. FOLLOW WRITTEN DIMENSIONS ONLY. DO NOT SCALE THE DRAWING.

	OWNER: INDRAPRASTHA GAS LIMITED NEW DELHI			
	PMC: M/s. VCS QUALITY SERVICES PVT. LTD.			
PROJECT: CITY GAS DISTRIBUTION PROJECT				
TITLE: STANDARD DETAIL OF RCC PAVEMENT				
SCALE: 1:10	DATE: _____	CAD FILE: _____	CAD	A3
DRG. NO. 15792-10-03-17 REV-0				