

Type Test Fugitive Emissions Test with Methane

Type Test Fugitive Emissions Test with Methane Test Report as per API 641

“Type Testing of Quarter Turn Valves Equipped with
Graphite Packing for Fugitive Emissions with Methane gas as
per API 641”

Performed by

M/s. Reynold Valve Ltd.

Item Description

DN 80/ (3") Class 150 Cast Ball Valve

Assembly Drawing Number: RVL/21FE/B194/057/01 Rev.1

Valve Sr. No. Y7195



Type Test Fugitive Emissions Test with Methane

...

FUGITIVE EMISSION TEST SUMMARY

Performer: M/s. Reynold Valve Ltd.

Start Date: 01st August 2020

PO Number: LOA. NO. B194/057 DT.29.11.2019 (M/S. IOCL)

End Date : 04th August 2020

Report No: RVL/FET/80NB/BLV/01

Valve Information

Valve Description: : DN 80 / (3") Cast BV#150 WCB, HT: - F590 , F609

Assembly Drawing No.: RVL/21FE/B194/057/01 Rev.01 **Stem Seal Chamber Depth:** 15mm

Recommended Gland Nut Torque: 28Nm **Recommended Body-Adaptor Nut Torque:** 72Nm

Body-Adaptor Connection : Bolted

Packing Information

Packing Description: Inconel jacketed Expanded Graphite braided packing Pacmaan NA -B-3+707

Nominal ID: 25.8mm **OD:**33mm# of Rings: 3 Nos

Packing Free Height: 4mm

Test Conditions

Test Specification : As per API 641 **Test Medium :** Methane

Maximum Allowable Leakage: 100 PPMv **Valve Group :** Group E

Cycling Rate: 15 sec **(T_e=204°C , P_a=285psig , P_e=200psig)**

Test Pressure atmospheric: 285Psig **Test Pressure at elevated temp:** 200Psig

Results

Number of Mechanical Cycles Completed: 610 nos.

Number of Thermal Cycles Completed: 3 nos.

Maximum Static Leakage Throughout Test: 55PPMv

Maximum Dynamic Leakage Throughout Test: 80PPMv

Maximum Body Bonnet Leakage Throughout Test: 15PPMv

Packing Gland Nut Torque at End of Test: 30Nm

Result of Fugitive Emission Test

YES(☑)

Valves Qualified: 3"x150# Ball Valve and other valves meeting the qualified range specified in Section 11 of API641

Test Witnessed By

TPI Sign



Type Test Fugitive Emissions Test with Methane

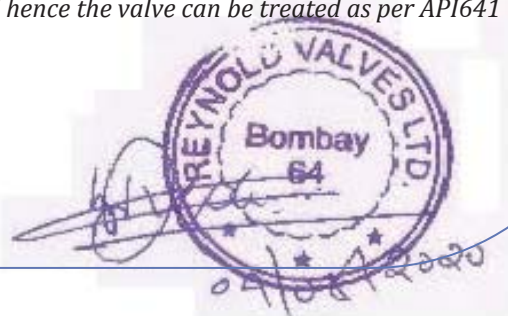
...

FUGITIVE EMISSION TEST RESULTS

	Performer: M/s. Reynold Valve. Ltd.					Start Date: 01 st August 2020		
	PO Number: LOA. NO. B194/057 DT.29.11.2019 (M/S. IOCL)					End Date : 04 th August 2020		
	Report No:-RVL/FET/80NB/BLV/01							
	Valve Description:			: DN 80 (3 ") Cast BV # 150 HTNO. F590 , F609				
	Assembly Drawing No.: : RVL/21FE/B194/057/01 Rev.01							
`	Stem Packing Leakage:							
Cycles Number	Gland Temp °C (TC1)	Body Temp °C(TC2)	Pressure Psig	Static Leakage (PPMv)		Dynamic Leakage (PPMv)		
				Avg.	Max.	Avg.	Max.	
0	32	31	285 Psig	0	0	-	-	
100	31	30	287Psig	5	5	0	0	
101	206	205	206Psig	10	15	-	-	
200	210	208	202 Psig	20	25	5	10	
201	30	31	285 Psig	10	10	-	-	
300	32	34	288 Psig	20	25	10	10	
301	209	208	204 Psig	15	15	-	-	
400	210	205	207 Psig	40	45	25	40	
401	29	29	286 Psig	30	35	-	-	
500	31	34	285 Psig	35	45	50	60	
501	207	211	208 Psig	30	40	-	-	
600	212	210	205 Psig	20	25	70	85	
601	30	30	285 Psig	40	65	-	-	
610	31	32	286 Psig	35	40	65	70	
	Average			22PPMv	28PPMv	32PPMv	39PPMv	
	Maximum			40PPMv	65PPMv	70PPMv	80PPMv	
	Body Adaptor Leakage			Cycles	Body Temp °C	Pressure	Leakage	
						Avg.	Max.	
				0	31	285 Psig	5	10
				610	32	286 Psig	15	15
	Valve Operating Torque			Run Torque to Close First Cycle:			75 Nm	
				Run Torque to Close Last Cycle:			70 Nm	

Test Notes: Overall leakage throughout the test was below 100PPMv and hence the valve can be treated as per API641 tested.

Certified By:



Type Test Fugitive Emissions Test with Methane

...

Photographic evidence of valve FET – Gas leak readings on SENSIT Instrument



Type Test Fugitive Emissions Test with Methane

...

PHOTOGRAPHIC EVIDENCES AS PER API 641

Test Valve Setup

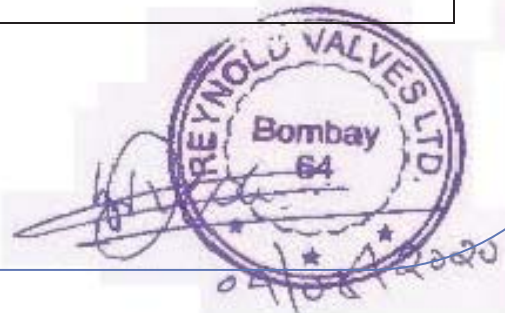


Type Test Fugitive Emissions Test with Methane

...

PHOTOGRAPHIC EVIDENCES FOR STRIP TEST OF VALVE

1. Post-disassembly Valve Component :- Stem Packing Area & Stem Threads	2. Post-disassembly Valve Component :- Packing Gland Follower (Gland Bush)
	
3. Post-disassembly Valve Component :- (Gland Bush)	4. Post-disassembly Valve Component :- Packing Rings and Spacers
	



Type Test Fugitive Emissions Test with Methane

...

PHOTOGRAPHIC EVIDENCES FOR STRIP TEST OF VALVE

5. Post-disassembly Valve Component

