ISO 15848-1
QUALIFICATION CERTIFICATE

This certificate is to certify that the valve below has passed the fugitive emission requirements according to standard: Industrial valves - Measurement, test and qualification procedures for fugitive emissions Part 1: Classification system and qualification procedures for type testing of valves (ISO 15848-1:2015)

BATUSAN MAKİNA SANAYİİ VE TİCARET A.Ş.
Dilovası Org. San. Bölgesi 2.Kısım D-2015 Sok. No: 6 Dilovası-Gebze / KOCAELİ / TR

Test valve details

Type	: BALL VALVE
Nominal Size	: DN 200 (#8")
Pressure Rating	: CLASS 2500 (PN 420)
Body Material	: ASTM A 350 LF-2
Bonnet Material	: ASTM A 350 LF-2
Ball Material	: ASTM A 350 LF-2 + ENP
Stem Material	: 17-4 PH
Seal Seal	: PEEK+VİTON
Drawing number	: C2 31 B 14 - 000

Valve Qualification Range

Description	Tested Valve	Scope
Valve Details	DN 200 (#8") Ball Valve	DN 100 (#4") Ball Valve to DN 600 (#24") Ball Valve
Class	CLASS 2500 (PN 420)	CLASS 2500 (PN 420) to lower
Stem Material	17-4 PH	17-4 PH, AISI 4140, AISI 420, 430, 304, 316
Stem O-Ring Material	PEEK+VİTON	FKM, NBR, VİTON, H-NBR, PTFE, PEEK
Stem Diameter	Ø100	Ø50mm up to Ø200mm
Temperature Class	T -46 °C, T 230 °C	T -46 °C (T -46 °C to RT), T 230 °C (RT to 230 °C)
Tightness Class	BH	BH
Performance Class: ISO FE BH – C03 – SSA 0 – T -46 °C, T 230 °C – CLASS 2500 – ISO 15848-1		

CONCLUSIN: We document here that the pneumatic test of ball valves was carried out in BATUSAN's laboratory determined by the manufacturer and witnessed by the inspector of KUTCERT.
The equipment complies with the principal requirements of EN ISO 15848-1:2015+A1:2017 Industrial valves - Measurement, test and qualification procedures for fugitive emissions - Part 1: Classification system and qualification procedures for type testing of valves as a based on voluntary test.
This attestation applies only to sample of product providing to testing and verification at related test report and review of necessary technical documentation.

Annex / Report No	: K260106-BTSN03
Certificate No	: TR.KC-26.13-00
Certificate Period	: 3 Yıl
Certificate Date	: 06.01.2026

EN ISO 15848-1:2015'e göre Küresel Vana Sızdırmazlığının Kontrolü Test Raporu

Ball Valve Tightness Check Test Report according to EN ISO 15848-1:2015

Vana Üreticisi Valve Manufacturer	:	**BATUSAN MAKİNA SANAYİİ VE TİCARET A.Ş.** Dilovası Org. San. Bölgesi 2.Kısım D-2015 Sok. No: 6 Dilovası/ KOCAELİ/TR
Test Ürünü Items Tested	:	BALL VALVE DN 200(#8") PN 420 (CLASS2500) FULL BORE
Tasarım No Design No.	:	C2 31 B 14 - 000
Body Material Gövde Malzemesi	:	ASTM A 350 LF-2
Bonnet Material Kapak Malzemesi	:	ASTM A 350 LF-2
Mil Material Stem Malzemesi	:	17-4 PH
Body Seal Gövde Conta	:	PEEK+VİTON
Stem Seal Mil Conta	:	PEEK+VİTON
Stem Size Mil Ölçüsü	:	Ø 100mm

Taner ÇETİNKAYA
Industrie Service

Scope of Test Test Kapsamı	:	Helium leakage test on the as-supplied test stamples according to the above-mentioned standards and test conditions below with a stationary spindle Yukarıda belirtilen standartlara ve aşağıdaki test koşullarına göre sağlanan test ürünleri üzerinde sabit bir mil ile helyum sızıntı testi
Test Equipment Test Ekipmanı	:	Helium Leakage Detector Agilent PHD-4 Helyum Kaçak Dedektörü
Test Method Test Metodu	:	Helium leakage tets according to EN ISO 15848-1:2015 with combination of CO3 mehhanical cycle of total 2500 cycle and termal cycle of room temperature. See Appendix III Toplam 2500 çevrimlik CO3 mekanik çevrimi ve oda sıcaklığındaki termal çevrim kombinasyonu ile EN ISO 15848-1:2015'e göre helyum sızıntı testleri. Ek III'e bakınız.
Test Procedure Test Prosedürü	:	Using a leak detector calibrated for helium test leakage, Sample valves; leakage rates were determined by filling the inner chamber with minimum 97% purity helium up to maximum load at room temperature and high pressures. Operating cycles were performed at a frequency of 3 cycles/minute. The Test was conducted from a combination of thermal and mechanical cycles of CO3 as described in accordance with EN ISO 15848-1:2015 paragraph 5.2.4 and Annex III. Max. the test temperature is RT with a total of 2500 mechanical cycles. The leakage rate was measured after each cycle as described in Annex III. After testing, the test valves were disassembled and all sealing components were visually inspected. There is no appreciable wear and no other significant observations. Helyum testi sızıntısı için kalibre edilmiş bir sızıntı detektörü kullanılarak, Numune Vanalar; oda sıcaklığında ve yüksek basınçlarda iç haznesi maksimum yüke kadar minimum %97 saflıkta Helyum ile doldurarak sızıntı oranları belirlendi. Çalışma döngüleri 3 döngü/dakikalık bir frekansta gerçekleştirildi. Test, EN ISO 15848-1:2015 Paragraf 5.2.4 ve Ek III'e göre açıklandığı gibi CO3 termal ve mekanik çevrim kombinasyonundan gerçekleştirilmiştir. Maks. test sıcaklığı, toplam 2500 mekanik döngü ile RT'dir. Sızıntı oranı, Ek III'de açıklandığı gibi her bir döngüden sonra ölçülmüştür. Testten sonra test valfleri demonte edildi ve tüm sızdırmazlık bileşenleri görsel olarak incelendi. Kayda değer bir aşınma kaydı ve diğer önemli gözlemler yoktur. *RT: Room Temperature / Oda Sıcaklığı*
Appendix	:	Appendix I : Valve Assembly Drawing / Vana Montaj Çizimi Appendix II : Detailed Test Cycle / Detaylı Test Döngüsü Appendix III : Detailed Test Results / Detaylı Test Sonuçları

Appendix I

Valve Assembly Drawing / Vana Montaj Çizimi

Sample Valve drawing no. C2 31 B 14 - 000, see the attachment **Explanation;** The test sample was taken as a reference from the BATUSAN production line and it was the product with serial number 001. Drawing C2 31 B 14 - 000 contains a list of the standard components of the Valve type tested, the valve body and their materials.	**Numune Vana çizim no. C2 31 B 14 - 000, Ek'e bakın** **Açıklama;** Test numunesi, BATUSAN üretim hattından referans olarak alındı ve 001 seri nolu üründü. C2 31 B 14 – 000 sayılı Çizim, test edilmiş Vana tipindeki standart bileşenlerini, valf gövdesinin ve bunların malzemelerinin bir listesini içerir.

Appendix II

Detailed Test Cycle / Detaylı Test Döngüsü

Measuring Point	Temperature Cycle	Number of Mech. Cycle	Accumulated Mech. Cycle	Class
1	RT	0	0	CO3
2	RT	50	50	
3	230 °C	50	100	
4	RT	50	150	
5	230 °C	50	200	
6	RT	5	205	
7	RT	795	1000	
8	230 °C	500	1500	
9	RT	1000	2000	
10	230 °C	1000	2500	

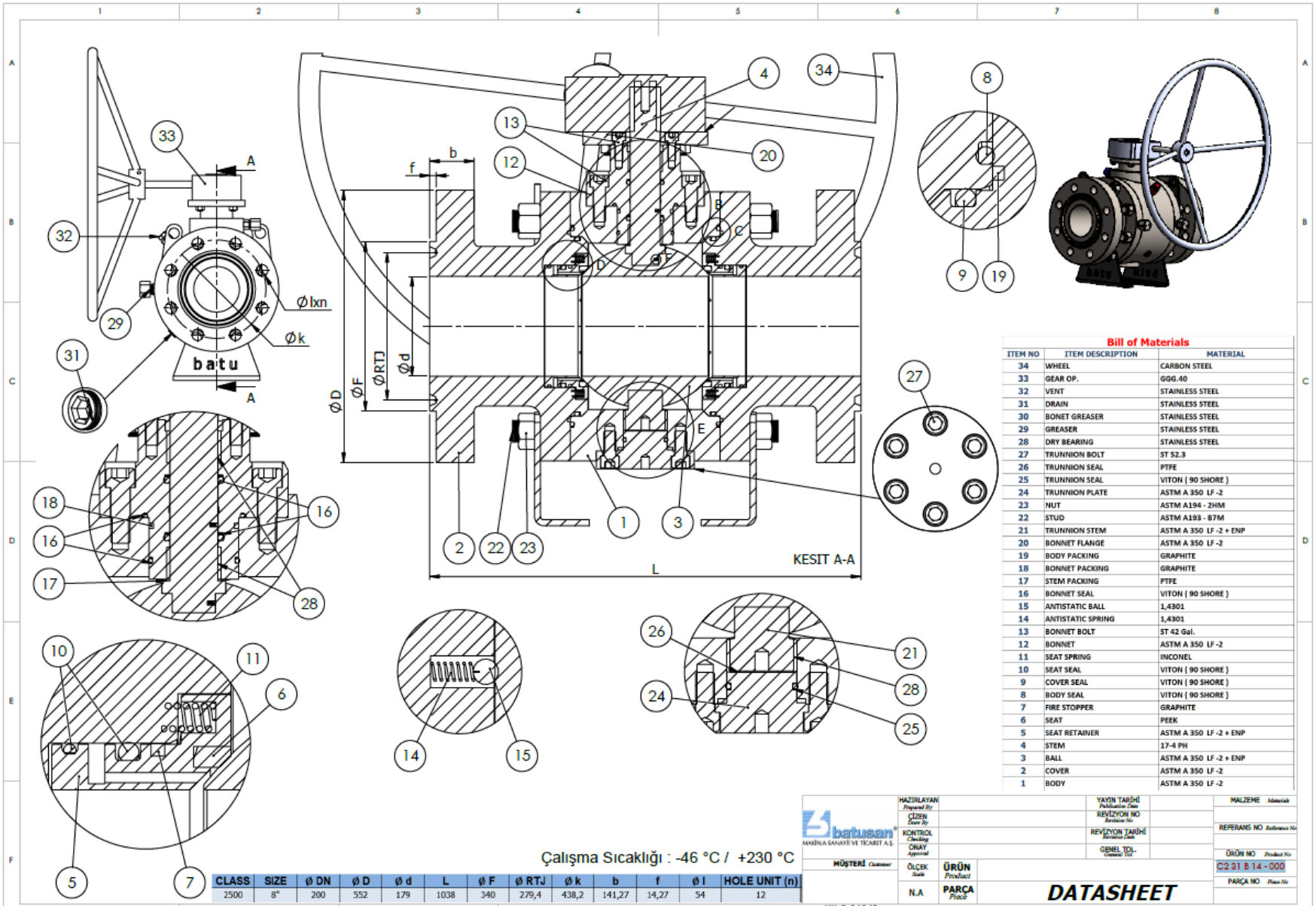
RT : Room Temperature / Oda Sıcaklığı

Appendix III

Detailed Test Results / Detaylı Test Sonuçları

Gövde contalarından sızıntı durumu Leakage from body seals	≤50 ppmv
Mil contalarından sızıntı durumu Leakage from shaft seals	1,25 x 10^{-4} mbar.l.s^{-1}

Size Pressure	Stem	Allowable (Body)	Allowable (Stem)	Temp.	Mechanical Cycle	Accum. Mechanical Cycle	Test Perssure (Bar)	Value (Body&Cap) (Unit:ppmv)	Measured Value (Stem) (Unit:mbar.l.s^{-1})	Result
DN 200 PN 420 FULL BORE	Ø 100 mm	50 ppmv	1,25x 10^{-4} mbar.l.s^{-1}	RT	0	0	630	6,4	1,30 x 10^{-6}	CO3
				RT	50	50	630		1,34 x 10^{-6}	
				230 °C	50	100	525		1,35 x 10^{-6}	
				RT	50	150	630		1,37 x 10^{-6}	
				230 °C	50	200	525		1,41 x 10^{-6}	
				RT	5	205	630		1,44 x 10^{-6}	
				RT	795	1000	630		1,45 x 10^{-6}	
				230 °C	500	1500	525		1,48 x 10^{-6}	
				RT	1000	2000	630		1,50 x 10^{-5}	
				230 °C	1000	2500	525		1,52 x 10^{-5}	



Bill of Materials

ITEM NO	ITEM DESCRIPTION	MATERIAL
34	WHEEL	CARBON STEEL
33	GEAR OP.	GGG.40
32	VENT	STAINLESS STEEL
31	DRAIN	STAINLESS STEEL
30	BONET GREASER	STAINLESS STEEL
29	GREASER	STAINLESS STEEL
28	DRY BEARING	STAINLESS STEEL
27	TRUNNION BOLT	ST 52.3
26	TRUNNION SEAL	PTFE
25	TRUNNION SEAL	VITON (90 SHORE)
24	TRUNNION PLATE	ASTM A 350 LF -2
23	NUT	ASTM A194 - 2HM
22	STUD	ASTM A193 - B7M
21	TRUNNION STEM	ASTM A 350 LF -2 + ENP
20	BONNET FLANGE	ASTM A 350 LF -2
19	BODY PACKING	GRAPHITE
18	BONNET PACKING	GRAPHITE
17	STEM PACKING	PTFE
16	BONNET SEAL	VITON (90 SHORE)
15	ANTISTATIC BALL	1,4301
14	ANTISTATIC SPRING	1,4301
13	BONNET BOLT	ST 42 Gal.
12	BONNET	ASTM A 350 LF -2
11	SEAT SPRING	INCONEL
10	SEAT SEAL	VITON (90 SHORE)
9	COVER SEAL	VITON (90 SHORE)
8	BODY SEAL	VITON (90 SHORE)
7	FIRE STOPPER	GRAPHITE
6	SEAT	PEEK
5	SEAT RETAINER	ASTM A 350 LF -2 + ENP
4	STEM	17-4 PH
3	BALL	ASTM A 350 LF -2 + ENP
2	COVER	ASTM A 350 LF -2
1	BODY	ASTM A 350 LF -2

Çalışma Sıcaklığı : -46 °C / +230 °C

CLASS	SIZE	Ø DN	Ø D	Ø d	L	Ø F	Ø RTJ	Ø k	b	f	Ø l	HOLE UNIT (n)
2500	8"	200	552	179	1038	340	279,4	438,2	141,27	14,27	54	12

batusan MAKİNA SANAYİ VE TİCARET A.Ş.

HAZIRLAYAN / Prepared By		YAYIN TARİHİ / Publication Date	MALZEME / Materials
ÇİZEN / Drawn By		REVİZYON NO / Revision No	REFERANS NO / Reference No
KONTROL / Checking		REVİZYON TARİHİ / Revision Date	
ONAY / Approval		GENEL TOL. / General Tol.	ÜRÜN NO / Product No: C2 31 B 14 - 000
MÜŞTERİ / Customer	ÖLÇEK / Scale: N.A	ÜRÜN / Product	PARÇA NO / Place No
		PARÇA / Place	**DATASHEET**

KK-F-040/2