DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **P-14747**

This is to certify that the
Butterfly Valves

with type designation(s)
BIANCA

Issued to
InterApp Technics AG
Rotkreuz ZG, Switzerland

is found to comply with
Det Norske Veritas' Rules for Classification of Ships
Det Norske Veritas' Offshore Standards
Det Norske Veritas' Standards for Certification 2.9 No. 5-794.40

Application
Fluoroplastic lined butterfly valves approved for use in systems containing sea water, fresh water and inert gas.
For additional approved media see Application/Limitation on page 2.

Temperature range:	**-20 °C to 200 °C**
Max. working press.:	**Depending on size - see certificate**
Sizes:	**DN32 to DN600**

This Certificate is valid until **2018-06-30**.

Issued at **Høvik** on **2014-03-28**

DNV local station: **Essen CMC Southern Germany**

Approval Engineer: **Simon Ratcliffe**

for **Det Norske Veritas AS**

Digitally Signed By: Marianne Spaeren Marveng
Location: DNV Høvik, Norway
Signing Date: 2014-03-28

Marianne Spæren Marveng
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.
If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.

Product description

Wafer, lug and U-section type butterfly valves designed to EN 12516-4:2008. Fluoroplastic lined for aggressive and corrosive fluids.

Size	Max. Working Pressure
DN32 – DN150	16 bar
DN200 – DN300	10 bar
DN350 – DN600	6 bar

Materials

Body	Material specification
Ductile Iron	EN-GJS-400-18-LT JS 1025 (GGG40.3), epoxy coated 80µ
Cast carbon steel	GP240GH 1.0619, epoxy coated 80µ
Stainless steel 316L	GX2CrNiMo19-11-2 1.4409
Disc-shaft (welded)	
Carbon steel St 53-3 N	1.0577 S355J2+N, PFA lined
Stainless steel 316L	1.4404 X2CrNiMo 17-12-2, PFA lined
	1.4435 X2CrNiMo 18-14-3, PFA lined
Uranus (alloys)	1.4539 X1NrCrMoCu25-20-5
Hastelloy	2.4602 NiCr21Mo14W
Titanium	3.7035, Ti-2
Disc-shaft (cast)	
Stainless steel 316	1.4408 GX5CrNiMo 19-11-2, PFA lined
Linings	PTFE / MVQ PTFE / EPDM PTFE / FPM ULTRAFLON® (UF) PTFE or ULTRAFLON® antistatic

Application/Limitation

In addition to the media listed on the front page of this Type Approval, the PFA/PTFE lining is approved for the following chemicals:

Acetaldehyde CH3-CHO	Hydrogen sulphide gas wet H2S
Acetic acid CH3COOH	Isopropyl acetate C5H10O2
Acetic anhydride / Acetanhydrid (CH3-CO)2O	Isopropyl alcohol / Isopropanol C3H8O
Acetone CH3COCH3	Isopropyl chloride C3H7Cl
Acetylene C2H2	Isopropyl ether C6H14O
Air (dry and no oil)	Kerosene
Air (with oil)	Lacquer
Ammonia (gas) NH3	Magnesium chloride MgCl2
Ammonia (liquid) NH4OH	Methanol / Methyl alcohol CH3OH
Amyl acetate C7H14O2	Methyl acetate C3H6O2
Amyl Alcool C5H11OH	Methyl bromide CH3Br
Aniline C6H7N	Methyl chloride CH3Cl
Benzene C6H6	Methylethylketone C4H8O
Benzyl Alcohol C7H8O/C6H5CH2OH	Methylisobutylketone C6H12O
Brine (Na+, Cl-)	Naphta
Butane C4H10	Naphthalene C10H8
Carbon tetrachloride CCl4	Nickel chloride NiCl2

Chlorine (gas dry) Cl2	Nitric acid HNO3
Chlorine (gas wet)	Nitrogen (gas) N
Chlorine (liquid) Cl	Oxalic acid C2H2O4
Chlorine dioxide ClO2	Ozone
Chromic acid CrO3	Perchloroethylene / Tetrachlorethene C2Cl4 / Cl2C=CCl2
Citric acid C6H8O7	Phenol C6H5OH
Colza oil	Phosphoric acid H3PO4
Copper chloride CuCl2	Potassium permaganate KMnO4
Cresol C7H8O	Propane C3H8
Crude oil	Sea water
Cyclohexane C6H12	Sodium bromide BrNa
Diesel fuel / Diesel oil	Sodium hydroxide / Caustic soda NaOH
Drinking water / potable water H2O	Sodium Hypochlorite NaOCl
Ethanol / Ethyl Alcohol CH3CH2OH	Steam (of water)
Ethyl acetate C4H8O2	Stearic acid C18H36O2
Ferric chloride FeCl3	Styrene C8H8/C6H5CH=CH2
Ferrous chloride FeCl2	Sulphur chloride SCl2
Formaldehyde / formalin C-H2-O	Sulphur dioxide gas dry SO2
Formic acid CH2O2	Sulphur dioxide gas wet SO2
Fuel oil	Sulphur dioxide liquid SO2
Furfural / Furfuraldehyde C5H4O2	Sulphuric acid H2SO4
Gasoline leaded	Tannic acid C76H52O46
Gasoline unleaded	Terpene CnH2n-4
Glycerine / Glycerol C3H5(OH)3	Tetrahydrofurane C4D8O
Glycol CH2OHCH2OH	Toluene / Toluol C7H 8
Hexane C6H14	Tributyl phosphate C12H27O4P
Hydrochloric acid HCl	Trichloroethane C2H3Cl3
Hydrofluoric acid HF	Trichloroethylene C2HCl3
Hydrogen gas H2	Water H2O
Hydrogen peroxide H2O2	White spirit
Hydrogen sulphide gas dry H2S	Xylene / Xylol CH3C6H4CH3

Material certification
Material certificates are required in line with DNV Ship Pt.5 Ch.4 Sec.2 Table D1 for both chemical and regular media.

For valves	> DN100	Works (3.1) certificate
	≤ DN100	Test report

For valves intended for Class III piping with non-chemical media then Test Reports are sufficient regardless of size.

Castings shall meet the heat treatment requirements outlined in DNV Ship Pt.2 Ch.2 Sec.7.

Limitations for the use of nodular cast iron valves are outined in DNV Ship Pt.4 Ch.6 Sec.2 A500.

Stainless steel valves are not permitted for use in seawater systems unless they are fully lined.

Production testing
All valve bodies shall be subjected by the manufacturer to a hydrostatic test at a pressure equal to 1.5 times the nominal pressure (The nominal pressure is the maximum allowable working pressure at room temperature).

In addition to hydrostatic testing, all valves shall be subjected to a seat leakage test. The test pressure shall be at least equal to the maximum design pressure. Test liquid shall be water or other suitable medium subject to consideration.

Duration and acceptance criteria for both tests are as follows;

Size	Shell, minutes	Seat, minutes
≤ 100 mm	2	5
125 – 250 mm	5	5
275 – 450 mm	10	5
≥ 475 mm	15	5
Acceptance criterion	No leakage	Drop tight

Valves my be delivered with a manufacturer's certificate only.

Type Approval documentation

Document	*Status*
Data sheet 1317 – BIANCA Butterfly valves DN32 – 900.	For Info
BIANCA Installation and Maintenance sheet.	For Info
Material Specifications Bianca, dated 2014-01-23.	For Info
Dimensional drawing - BIANCA Valve Wafer Type spherical DN32 up to DN300, dated 2011-11-28.	Type Approved
Dimensional drawing - BIANCA Valve LUG Type spherical DN32 up to DN300, dated 2011-11-28.	Type Approved
B30400 Bianca LUG DN400, dated 2010-12-07.	Type Approved
B30350 Bianca LUG DN350, dated 2010-12-07.	Type Approved
BIANCA Valve Wafer Type DN450 – DN600, dated 2011-11-28.	Type Approved
BIANCA Valve U-shape Type DN450 up to DN600, dated 2014-01-23.	Type Approved
Body strength calculations to DIN EN 12516-2, dated 2014-01-24.	For Info
Stress analysis disc-shaft, dated 2014-01-24.	For Info
Stress analysis body screws, dated 2014-01-24.	For Info
Drawings DN32 – 300	
Bianca spherical DN125 Backliner-4224-008	For Info
Bianca spherical DN100 Backliner-4225-018	For Info
Bianca spherical DN80 Backliner-4226-011	For Info
Bianca spherical DN65 Backliner-4227-010	For Info
Bianca spherical DN50 Backliner-4229-011	For Info
Bianca spherical DN32-40 Backliner-4230-012	For Info
Bianca spherical DN300 Backliner-4220-008	For Info
Bianca spherical DN250 Backliner-4221-010	For Info
Bianca spherical DN200 Backliner-4222-011	For Info
Bianca spherical DN150 Backliner-4223-009	For Info
Bianca spherical DN250 Lug lower body PN10 Machined-4693-002	Type Approved
Bianca spherical DN200 Wafer upper body PN10 Machined-4664-002	Type Approved

Document	*Status*
Bianca spherical DN200 Wafer lower body PN10 Machined-4665-002	Type Approved
Bianca spherical DN200 Lug upper body PN10 Machined-4668-002	Type Approved
Bianca spherical DN200 Lug lower body PN10 Machined-4669-002	Type Approved
Bianca spherical DN150 Wafer upper body PN16 Machined-4720-002	Type Approved
Bianca spherical DN150 Wafer lower body PN16 Machined-4721-002	Type Approved
Bianca spherical DN150 Lug upper body PN16 Machined-4724-002	Type Approved
Bianca spherical DN150 Lug lower body PN16 Machined-4725-002	Type Approved
Bianca spherical DN125 Wafer upper body PN16 Machined-4712-002	Type Approved
Bianca spherical DN125 Wafer lower body PN16 Machined-4713-002	Type Approved
Bianca spherical DN125 Lug upper body PN16 Machined-4716-002	Type Approved
Bianca spherical DN125 Lug lower body PN16 Machined-4717-002	Type Approved
Bianca spherical DN100 Wafer upper body PN16 Machined-4658-003	Type Approved
Bianca spherical DN100 Wafer lower body PN16 Machined-4659-003	Type Approved
Bianca spherical DN100 Lug upper body PN16 Machined-4660-003	Type Approved
Bianca spherical DN100 Lug lower body PN16 Machined-4661-003	Type Approved
Bianca spherical DN80 Wafer upper body PN16 Machined-4680-002	Type Approved
Bianca spherical DN80 Wafer lower body PN16 Machined-4681-002	Type Approved
Bianca spherical DN80 Lug upper body PN16 Machined-4684-002	Type Approved
Bianca spherical DN80 Lug lower body PN16 Machined-4685-002	Type Approved
Bianca spherical DN65 Wafer upper body PN16 Machined-4672-002	Type Approved
Bianca spherical DN65 Wafer lower body PN16 Machined-4673-002	Type Approved
Bianca spherical DN65 Lug upper body PN16 Machined-4676-003	Type Approved
Bianca spherical DN65 Lug lower body PN16 Machined-4677-002	Type Approved
Bianca spherical DN50 Wafer upper body PN16 Machined-4463-009	Type Approved
Bianca spherical DN50 Wafer lower body PN16 Machined-4464-007	Type Approved
Bianca spherical DN50 Lug upper body PN16 Machined-4468-007	Type Approved
Bianca spherical DN50 Lug lower body PN16 Machined-4471-005	Type Approved
Bianca spherical DN32-40 Wafer upper body PN16 Machined-4652-003	Type Approved
Bianca spherical DN32-40 Wafer lower body PN16 Machined-4653-002	Type Approved
Bianca spherical DN32-40 Lug upper body PN16 Machined-4656-003	Type Approved
Bianca spherical DN32-40 Lug lower body PN16 Machined-4657-002	Type Approved
Bianca spherical DN300 Wafer upper body PN10 Machined-4696-002	Type Approved
Bianca spherical DN300 Wafer lower body PN10 Machined-4697-002	Type Approved
Bianca spherical DN300 Lug upper body PN10 Machined-4700-003	Type Approved
Bianca spherical DN300 Lug lower body PN10 Machined-4701-002	Type Approved
Bianca spherical DN250 Wafer upper body PN10 Machined-4688-002	Type Approved
Bianca spherical DN250 Wafer lower body PN10 Machined-4689-002	Type Approved
Bianca spherical DN250 Lug upper body PN10 Machined-4692-002	Type Approved
Bianca spherical DN200 Disc 4G0 PN10 Machined-4245-005	For Info
Bianca spherical DN150 Disc core 4GT PN16 Machined-4288-003	For Info
Bianca spherical DN150 Disc 4GT PN16 Machined-4309-003	For Info

Document	*Status*
Bianca spherical DN150 Disc 4G0 PN16 Machined-4243-003	For Info
Bianca spherical DN125 Disc core 4GT PN16 Machined-4286-004	For Info
Bianca spherical DN125 Disc 4GT PN16 Machined-4307-004	For Info
Bianca spherical DN125 Disc 4G0 PN16 Machined-4241-003	For Info
Bianca spherical DN100 Disc core 4GT PN16 Machined-4178-004	For Info
Bianca spherical DN100 Disc 4GT PN16 Machined-4256-003	For Info
Bianca spherical DN100 Disc 4G0 PN16 Machined-4181-004	For Info
Bianca spherical DN80 Disc core 4GT PN16 Machined-4284-003	For Info
Bianca spherical DN80 Disc 4GT PN16 Machined-4305-003	For Info
Bianca spherical DN80 Disc 4G0 PN16 Machined-4239-004	For Info
Bianca spherical DN65 Disc core 4GT PN16 Machined-4282-004	For Info
Bianca spherical DN65 Disc 4GT PN16 Machined-4303-003	For Info
Bianca spherical DN65 Disc 4G0 PN16 Machined-4237-003	For Info
Bianca spherical DN50 Disc core 4GT PN16 Machined-4280-003	For Info
Bianca spherical DN50 Disc 4GT PN16 Machined-4301-004	For Info
Bianca spherical DN50 Disc 4G0 PN16 Machined-4235-004	For Info
Bianca spherical DN32-40 Disc core 4GT PN16 Machined-4278-003	For Info
Bianca spherical DN32-40 Disc 4GT PN16 Machined-4299-005	For Info
Bianca spherical DN32-40 Disc 4G0 PN16 Machined-4233-003	For Info
Bianca spherical DN300 Disc core 4GT PN10 Machined-4294-004	For Info
Bianca spherical DN300 Disc 4GT PN10 Machined-4315-003	For Info
Bianca spherical DN300 Disc 4G0 PN10 Machined-4249-003	For Info
Bianca spherical DN250 Disc core 4GT PN10 Machined-4292-004	For Info
Bianca spherical DN250 Disc 4GT PN10 Machined-4313-003	For Info
Bianca spherical DN250 Disc 4G0 PN10 Machined-4247-003	For Info
Bianca spherical DN200 Disc core 4GT PN10 Machined-4290-003	For Info
Bianca spherical DN200 Disc 4GT PN10 Machined-4311-003	For Info
Label_Bianca_small	For Info
Label_Bianca_big	For Info
Bianca spherical DN250 Liner-4324-002	For Info
Bianca spherical DN200 Liner-4323-002	For Info
Bianca spherical DN150 Liner-4322-002	For Info
Bianca spherical DN125 Liner-4321-002	For Info
Bianca spherical DN100 Liner-4320-003	For Info
Bianca spherical DN80 Liner-4319-002	For Info
Bianca spherical DN65 Liner-4318-002	For Info
Bianca spherical DN50 Liner-4317-002	For Info
Bianca spherical DN32-40 Liner-4316-005	For Info
Bianca spherical DN300 Liner-4325-002	For Info
Bianca spherical DN65 Shaft extension-4631-003	For Info
Bianca spherical DN50 Shaft extension 4GT-4630-004	For Info

Document	*Status*
Bianca spherical DN50 Shaft extension 4G0-4636-003	For Info
Bianca spherical DN100 Shaft extension-4266-009	For Info
Bianca spherical DN80 Shaft extension-4265-009	For Info
Drawings DN350 – 400	
Gummiteil 350 CHK-01260-4 Rev.C, dated 2000-10-26.	For Info
Gummiteil 400 CHK-01313-4 Rev.C, dated 2000-10-26.	For Info
Gehause Lug ANSI150 DN400 CHK-01331 Rev.D, dated 2005-04-28.	Type Approved
Gehause Wafer DN400 CHK-01328-1 Rev.G, dated 2005-04-27.	Type Approved
Gehause PN10 DN350 CHK-01290-1 Rev.I, dated 2005-04-27.	Type Approved
Gehause DN350 CHK-01287-1 Rev.J, dated 2005-04-25.	Type Approved
Scheibe DN400 CHK-01335-1, Rev.C, dated 2004-07-02.	For Info
Scheibe DN400 CHK-01334-1, Rev.B, dated 2004-07-02.	For Info
Scheibe DN400 CHK-01303-1, Rev.C, dated 2004-07-06.	For Info
Scheibe DN400 CHK-01300-1, Rev.B, dated 2003-03-06.	For Info
Scheibe DN350 CHK-01298-1, Rev.C, dated 2004-07-06.	For Info
Scheibe DN350 CHK-01293-1, Rev.B, dated 2004-06-25.	For Info
Scheibe DN350 CHK-01269-1, Rev.B, dated 2004-06-21.	For Info
Scheibe DN350 CHK-01268-1, Rev.B, dated 2004-07-01.	For Info
Manschette DN400 Vakuum CHK-01332-0 Rev.B, dated 2003-02-27.	For Info
Manschette DN400 CHK-01288-0 Rev.B, dated 2003-02-27.	For Info
Manschette DN350 Vakuum CHK-01264-0 Rev.B, dated 2003-02-27.	For Info
Manschette DN350 CHK-01263-0 Rev.B, dated 2003-02-27.	For Info
Drawings DN450 – 600	
Gummiteil DN450 CHK-01686-4 Rev.A, dated 2000-10-27.	For Info
Gummiteil DN500 CHK-01618-4 Rev.D, dated 2003-04-08.	For Info
Gummiteil DN600 CHK-01347-4 Rev.D, dated 2007-02-01.	For Info
Bianca DN450 Wafer upper body Machined-4610-002	Type Approved
Bianca DN450 Wafer lower body Machined-4611-002	Type Approved
Bianca DN450 U-section body Machined-01923f	Type Approved
Bianca DN600 Wafer upper body Machined-4604-002	Type Approved
Bianca DN600 Wafer lower body Machined-4605-002	Type Approved
Bianca DN600 U-section body Machined_01913k	Type Approved
Bianca DN500 Wafer upper body Machined-4615-002	Type Approved
Bianca DN500 Wafer lower body Machined-4616-002	Type Approved
Bianca DN500 U-section body Machined-01958_003	Type Approved
Scheibe DN600 CHK-01956-1 Rev.C, dated 2004-06-21.	For Info
Scheibe DN600 CHK-01955-1 Rev.C, dated 2004-06-21.	For Info
Scheibe DN450 CHK-01949-1 Rev.B, dated 2004-07-02.	For Info

Document	*Status*
Scheibe DN450 CHK-01948-2 Rev.B, dated 2004-06-21.	For Info
Scheibe DN450 CHK-01937-0 Rev.B, dated 2004-07-06.	For Info
Scheibe DN500 CHK01933-2 Rev.B, dated 2004-06-21.	For Info
Scheibe DN500 CHK01932-1 Rev.B, dated 2004-06-21.	For Info
Scheibe DN450 CHK01924-2 Rev.C, dated 2004-07-06.	For Info
Scheibe DN600 CHK01899-0 Rev.B, dated 2004-06-28.	For Info
Scheibe DN600 CHK01898-0 Rev.D, dated 2004-06-28.	For Info
Scheibe DN500 CHK01633-0 Rev.C, dated 2004-07-07.	For Info
Scheibe DN500 CHK01631-0 Rev.A, dated 2002-04-04.	For Info
Manschette DN450 CHK-01685-2 Rev.A, dated 2003-02-27.	For Info
Manschette DN500 CHK-01617-2 Rev.C, dated 2003-02-27.	For Info
Manschette DN600 CHK-01337-1 Rev.B, dated 2003-01-13.	For Info
Interapp media list for BIANCA Butterfly Valves, dated Feb 2014.	For Info

Marking of product

Valves shall be distinctively marked to identify the service and tanks which they serve. The identification marking shall as a minimum include the following:

- manufacturer's name or trade mark
- valve type designation
- size
- maximum design pressure or pressure class
- arrow to indicate direction of flow on one way flow valves.
- Permitted service/media

The identification marking may be performed on the body or on a plate of non-corrosive material. When a metallic plate is used, the plate shall be permanently fixed to the body. The lettering shall be impressed on the marking plate in letters of at least 5 mm height. The marking plates shall be placed in easily visible positions and shall not be painted.

Periodical assessment

The manufacturer/holder of the certificate has to apply in writing for renewal of this certificate(s). For retention and renewal of the type approval, a DNV Surveyor shall perform a survey every second year and before the expiry date of the certificate to verify that the conditions for the type approval are complied with and to witness testing as described in the type approval certificate.

END OF CERTIFICATE