



CERTIFICATE NUMBER	23-2390433-PDA
EFFECTIVE DATE	26-Apr-2023
EXPIRY DATE	25-Apr-2028
ABS TECHNICAL OFFICE	Hamburg Engineering Department

CERTIFICATE OF Product Design Assessment

This is to certify that a representative of this Bureau did, at the request of

VOSS FLUID GMBH

located at

**LUEDENSCHIEDER STR. 52-54, , D-51688 WIPPERFUERTH,
Germany**

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

Product: Fitting, Flange
Model: ZAKO
Endorsements:
Tier: 3 - Type Approved, unit certification not required

This Product Design Assessment (PDA) Certificate remains valid until 25/Apr/2028 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

American Bureau Of Shipping

Efstratios Maliatsos, Engineer/Consultant

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010)

VOSS FLUID GMBH

LUEDENSCHIEDER STR. 52-54

D-51688 WIPPERFUERTH

Germany

Telephone: 49-2267-630

Fax: 49-2267-635621

Email: fluid@voss.net

Web: www.voss.net

Tier: 3 - Type Approved, unit certification not required

Product: Fitting, Flange

Model: ZAKO

Endorsements:

Intended Service:

For flanged connections in steel piping system for non-flammable fluids.

Description:

"VOSS-ZAKO" (SAE/Square) Flanges applies "ZAKO" 10 degrees flare technology. Made of forged, drawn, cast or stainless steel (1.4571); For higher load applications such as vibrations, pressure impulses or high pressure in tubes of larger dimensions; the flange couplings system comprises of following components: ZAKO-flange; ZAKO-ring (with o-ring groove); 4 x ISO 4762 cylindrical screws (SAE flanges). For tube to tube flanged connection one (1) additional "ZAKO"-flange, "ZAKO" ring (but without O-ring groove) and four (4) nuts - ISO 4032 are to be added. O-rings normally employed in "ZAKO" flanged coupling designs are made of "NBR" (Perbunan) material.

Rating:

Series: Standard, Flanged Type SAE, Nominal Pressure PN-250, Pipe OD: up to 80 mm.

Series: High Pressure, Flanged Type SAE, Nominal Pressure PN-400, Pipe OD: up to 80 mm.

Series: High Pressure, Flanged Type SQUARE, Nominal Pressure PN-400, Pipe OD: up to 88 mm.

Operating temperature: -35°C to +100°C.

Service Restriction:

Unit certification is not required for this product.

If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

Comments:

- The manufacturer has provided a declaration about the control of, or the lack of asbestos in this product.
- The installation of flanged "ZAKO" pipe connections is to be carried out by duly qualified personnel according to the manufacturer's recommended and established procedures.
- The subject piping components are to bear permanent identification, such as the manufacturer's name or trademark, standard of compliance, material identify, pressure rating, etc. as required by the standard of compliance and at which the manufacturer guarantees the piping components to meet the requirements of the standards. Such markings may be cast or forged integral with, stamped on, or securely affixed by nameplate on the component, and are to serve as a permanent means of identification of the component throughout its service life in accordance with 4-6-1/7.1.3 and 4-6-1/7.1.4 of the Marine Vessels Rules.

Notes/Drawing/Documentation:

See Attachment

Terms of Validity:

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STANDARDS

ABS Rules:

2023 Rules for Conditions of Classification: 1-1-4/7.7, 1-1-A3 and A4, which covers the following:
2023 Rules for Building and Classing Marine Vessels: 4-6-1/7, 4-6-2/3, 4-6-2/5.5.5, 4-6-2/5.9.

National:

NA

International:

DIN EN ISO 4032:2013-04, DIN EN ISO 4762:2004-06, DIN EN ISO 7092:2019-05.

Government:

NA

EUMED:

NA

OTHERS:

NA

23-2390433-PDA

Attached to 23-2390433-PDA
Company: VOSS FLUID GMBH (WCN: 092651)

Models:

ZAKO

Issuance Date: 26-Apr-2023

Expiry Date: 25-Apr-2028

Intended Service:

For flanged connections in steel piping system for non-flammable fluids.

Drawing List

Engineering Office:	Hamburg Engineering Department	
Submitter:	VOSS FLUID GMBH (WCN: 092651)	
Drawing No	Revision No	Drawing Title
Declaration of Conformity VOSS Fluid Products-18-HG-1720147-PDA	-	Declaration of Conformity VOSS Fluid Products-18-HG-1720147-PDA
PDA Revalidation-18-HG-1720147-PDA	-	PDA Revalidation-18-HG-1720147-PDA
Correspondence	-	Manufacturer's confirmation on draft Model-Info

Drawing List as per 18-HG1720147-PDA (26-Mar-2018)

Engineering Office:	Hamburg Engineering Department	
Submitter:	VOSS FLUID GMBH (WCN: 092651)	
Drawing No	Revision No	Drawing Title
Assembly instruction ZAKO	-	Assembly Instruction ZAKO
Burst_ZAKO_008091_German	-	Test Report of 28 Jan 2009_Voss - ZAKO Burst Pressure
Burst_ZAKO_092041_English	-	Test Report of 17 Jun 2004_Voss - ZAKO Burst Pressure
Burst_ZAKO_2013530_English	-	Test Report of 8 May 2006_Voss - Burst Pressure
Drawing ZAKO	-	Technical Drawing ZAKO
DS ZAKO flared flanges	-	Data sheet ZAKO flared flanges
Fire_ZAKO_R10000007439_German	-	Test Report of 26 May 2010_WTD - Fire
Product information ZAKO	-	Product information ZAKO
PulsationVibration_ZAKO_093061_German	-	Test Report of 8 May 2006_Voss - Pulsation - Vibration

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VOSS Fluid ISO 14001_2015	-	ISO 14001_2015 Certificate
VOSS Fluid ISO 50001_2011	-	ISO 50001_2011 Certificate
VOSS Fluid ISO 9001_2015	-	ISO 9001_2015 Certificate

Drawing List as per 03-HG416170-3-PDA (15-Apr-2013)

Engineering Office:	Hamburg Engineering Department	
Submitter:	VOSS FLUID GMBH (WCN: 092651)	
Drawing No	Revision No	Drawing Title
0510100000	-	ZAKO flange
AEL214	-	Examination Report
AEL225	-	Examination Report
C101_06	-	Test Report
C130_05	-	Test Report
WTD71	-	Test Report Fire resistant test

Drawing List as per 03-HG416170-2-PDA (30-Oct-2008)

Engineering Office:	Hamburg Engineering Department	
Submitter:	VOSS FLUID GMBH (WCN: 092651)	
Drawing No	Revision No	Drawing Title
61070/105	-	WTD71 Fire Test Report
AEL214/06/1	-	Examination Report
AEL225/05/1	-	Examination Report
C101_06	-	IMA Test Report
C130_05	-	IMA Test Report