



NIPPON KAIJI KYOKAI

TYPE APPROVAL CERTIFICATE

Certificate No. TA19012M

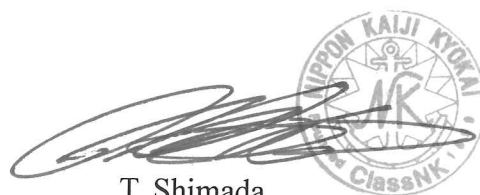
This is to certify that the undernoted product(s) has/have been approved in accordance with the requirements 12.3.3, Chapt.12, Part D of “Rules for the Survey and Construction of Steel Ships” and Chapt.2, Part 6 “Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use”.

This certificate is issued to

Manufacturer :	I.M.M. Hydraulics S.p.A.
Product description :	PIPE FLANGE JOINTS AND ATTACHMENTS
Type designation(s) :	FLANGE FOR 37° FLARED TUBES
Approval No. :	16FV202B
Valid until :	2 May 2021

This certificate is subject to the conditions specified in the attached sheet(s).

Issued at Tokyo on 8 November 2019.



T. Shimada
General Manager
Machinery Department

• **Particulars and Conditions :**

(1) GS Flare Flange System;

- GS flanges (SAE, ANSI, JIS flange connections)
- 37° flared tubes

(2) Design;

- The GS system consists of a flare flange system which allows piping systems with internal working pressure and pipe diameters between 16mm and 220mm to be assembled without welding.
- The 37° Flare Flange connections are used for low pressure applications.

(3) Rating;

GS-System	Face type	Flange size	Pipe diameter O.D.(mm)	Pressure(bar)
37° Flare Flange System	ISO6162-1/SAE J518C	11/2" to 8"	50 - 220	50
37° Flare Flange System	ISO6162-1/3000P SI	1/2" to 3"	21.3(16) - 88.9(90)	210 - 350
37° Flare Flange System	ISO6162-2/6000P SI	1/2" to 2"	21.3(16) - 60.3(60)	420
37° Flare Flange System	ISO6164/350-400 bar	11/2" to 3"	48.3(56) - 88.9(90)	350 - 400
37° Flare Flange System	JIS F7806-1996	1/2" to 3"	21.3(16) - 88.9(90)	280 and 350 (280K and 350K)

(4) Max. working temperature: +120°C

(5) Material specification:

Flange	Electric zinc coated carbon steel, hot dip galvanized carbon steel, stainless steel, titanium
Pipe	Carbon steel, stainless steel, copper-nickel, aluminum-brass, duplex, super duplex, titanium
Seal	Viton, NBR, Klinger

• **Test Documents and Drawings;**

- GS flange system catalogue 2015 issue (pages 188)
- GS - 37° Installation Instructions N° 8990306502 dated March 2015
- VTT-S-10268-10
- VTT-S-2901-11
- GS-11.6.2010

• **Type Approval Tests Carried Out;**

- Hydraulic pressure test
- Burst pressure test
- Vibration and impulse test
- Fire test (ISO19921/19922)
- Pull-out test
- Repeated assembly test

• **Application;**

- The GS Flare Flange System may be used for the following services on board
- Fresh water and sea water, compressed air, fuel oil, lub oil and hydraulic oil, steam and condensate, cargo oil for oil tankers
- All other marine III piping systems

• **Production Test:**

The pipe joints used for piping belonging to Group I & II defined by the requirements 12.1.3, Chapter 12, Part D of the Rules are to be subjected to hydraulic test in the presence of the Society's surveyor in accordance with the requirements 12.6.1, Chapter 12, Part D of the Rules.

• **Notice:**

Any significant changes in design or construction of the above items may render this certificate invalid.

- The End -



NIPPON KAIJI KYOKAI

TYPE APPROVAL CERTIFICATE

Certificate No. TA19203M

This is to certify that the undernoted product(s) has/have been approved in accordance with the requirements 12.3.4, Chapt.12, Part D of “Rules for the Survey and Construction of Steel Ships” and Chapt.2, Part 6 “Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use”.

This certificate is issued to

Manufacturer :	I.M.M. Hydraulics S.p.A.
Product description :	PIPE FLANGE JOINTS AND ATTACHMENTS
Type designation(s) :	FLANGE FOR 90° FLARED TUBES
Approval No. :	16FV203B
Valid until :	2 May 2021

This certificate is subject to the conditions specified in the attached sheet(s).

Issued at Tokyo on 8 November 2019.



T. Shimada
General Manager
Machinery Department

• **Particulars and Conditions :**

(1) GS Flare Flange System;

- GS flanges (SAE, ANSI, JIS flange connections)
- 90° flared tubes

(2) Design;

- The GS system consists of a flare flange system which allows piping systems with internal working pressure and pipe diameters between 16mm and 220mm to be assembled without welding.
- The 90° Flare Flange connections are used for low pressure applications.

(3) Rating;

GS-System	Face type	Flange size	Pipe diameter O.D.(mm)	Pressure(bar)
90° Flare Flange System	ISO6162-1/SAE 518C	1 1/2" to 8"	50x3 – 220x6	50
90° Flare Flange System	ANSI B16.5Class150	1/2" to 8"	21.3x2.1 – 219.1x7(220x6)	20
90° Flare Flange System	JIS B2210	1 1/4" to 8"	21.3x2.1 – 219.1x7(220x6)	10K – 16K

(4) Max. working temperature: +120°C

(5) Material specification:

Flange	Electric zinc coated carbon steel, hot dip galvanized carbon steel, stainless steel, titanium
Pipe	Carbon steel, stainless steel, copper-nickel, aluminum-brass, duplex, super duplex, titanium
Seal	Viton, NBR, Klinger

• **Test Documents and Drawings;**

- GS flange system catalogue 2015 issue (pages 188)
- GS - 90° Installation Instructions N° 8990306503 dated January 2015
- 4A2013-0563
- VTT-S-3335-09
- VTT-S-00996-16
- GS-2.3.2016
- GS-7.3.2016

• **Type Approval Tests Carried Out;**

- Hydraulic pressure test
- Burst pressure test
- Vibration and impulse test
- Fire test (ISO19921/19922)
- Pull-out test
- Repeated assembly test

• **Application;**

- The GS Flare Flange System may be used for the following services on board
- Fresh water and sea water, compressed air, fuel oil, lub oil and hydraulic oil, steam and condensate, cargo oil for oil tankers
- All other marine III piping systems

• **Production Test:**

The pipe joints used for piping belonging to Group I & II defined by the requirements 12.1.3, Chapter 12, Part D of the Rules are to be subjected to hydraulic test in the presence of the Society's surveyor in accordance with the requirements 12.6.1, Chapter 12, Part D of the Rules.

• **Notice:**

Any significant changes in design or construction of the above items may render this certificate invalid.

- The End -



NIPPON KAIJI KYOKAI

TYPE APPROVAL CERTIFICATE

Certificate No. TA19202M

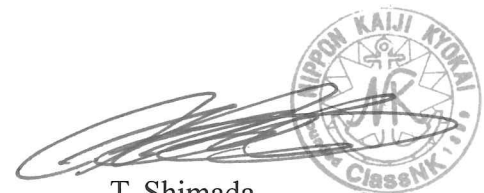
This is to certify that the undernoted product(s) has/have been approved in accordance with the requirements 12.3.4, Chapt.12, Part D of “Rules for the Survey and Construction of Steel Ships” and Chapt.2, Part 6 “Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use”.

This certificate is issued to

Manufacturer :	I.M.M. Hydraulics S.p.A.
Product description :	PIPE FLANGE JOINTS AND ATTACHMENTS
Type designation(s) :	RETAIN RING FLANGE
Approval No. :	16FV204B
Valid until :	2 May 2021

This certificate is subject to the conditions specified in the attached sheet(s).

Issued at Tokyo on 8 November 2019.



T. Shimada
General Manager
Machinery Department

• **Particulars and Conditions :**

(1) GS Retain Ring Flange System;

- GS flanges (SAE, ANSI, JIS flange connections)
- Retain ring tubes

(2) Design;

- The GS system consists of a retain ring flange system which allows piping systems with internal working pressure and pipe diameters between 26mm and 250mm to be assembled without welding.
- The Retain Ring Flange connections are used for low pressure and high pressure.

(3) Rating;

GS-System	Face type	Flange size	Pipe diameter O.D.(mm)	Pressure(bar)
Retain Ring Flange System	ISO6162-1/SAE J518C	1 1/2" to 8"	50 – 220	50
Retain Ring Flange System	ISO6162-1/3000P SI	1/2" to 3"	21.3(26) - 88.9(97)	210 - 350
Retain Ring Flange System	ISO6162-2/6000P SI	1/2" to 2"	21.3(26) - 60.3(66)	420
Retain Ring Flange System	ISO6164/350-400 bar	1 1/2" to 8"	48.3(56) – 219.1(250)	350 - 400
Retain Ring Flange System	JIS F7806-1996	1/2" to 3"	21.3(66) - 88.9(97)	280 and 350 (280K and 350K)

(4) Max. working temperature: +120°C

(5) Material specification:

Flange	Electric zinc coated carbon steel, hot dip galvanized carbon steel, stainless steel, titanium
Pipe	Carbon steel, stainless steel, copper-nickel, aluminum-brass, duplex, super duplex, titanium
Seal	Viton, NBR, Klinger

• **Test Documents and Drawings;**

- GS flange system catalogue 2015 issue (pages 188)
- GS – Retain Ring Installation Instructions N° 8990306501 dated January 2015
- 2A2010-0422
- VTT-S-00812-10
- VTT-S-4647-09
- VTT-02319-10

• **Type Approval Tests Carried Out;**

- Hydraulic pressure test
- Burst pressure test
- Vibration and impulse test
- Fire test (ISO19921/19922)
- Pull-out test
- Repeated assembly test

• **Application;**

- The GS Retain Ring Flange System may be used for the following services on board
- Fresh water and sea water, compressed air, fuel oil, lub oil and hydraulic oil, steam and condensate, cargo oil for oil tankers
- All other marine III piping systems

• **Production Test:**

The pipe joints used for piping belonging to Group I & II defined by the requirements 12.1.3, Chapter 12, Part D of the Rules are to be subjected to hydraulic test in the presence of the Society's surveyor in accordance with the requirements 12.6.1, Chapter 12, Part D of the Rules.

• **Notice:**

Any significant changes in design or construction of the above items may render this certificate invalid.

- The End -