



BUREAU
VERITAS

TYPE APPROVAL CERTIFICATE N°VPC-ISO10380-TC-TFL-001-JPN Rev.A

Bureau Veritas Japan, acting as third party inspection body, attests that the design type of an item of corrugated metal hose and hose assemblies identified hereunder has been examined against ISO 10380: 2012 and found to satisfy the provisions of the standard which apply to it.

Manufacturer (name): TOFLE CO.,INC.
TOFLE CO.,INC ./ 1-6-16, Honmachi, Chuo-ku, Osaka, Japan
TOFLE OMEGA FLEX CO.,INC. /
886-1, Kawakami Aza Shiragami, Hagi city, Yamaguchi, 758-0141 Japan.

Address: MITSUWA WELDTECH CO.,INC. /
179-1, Chishirocho, Moriyama, Shiga 524-0034 JAPAN,

Trading Name - Mark TOFLE CO.,INC.

Equipment description: Corrugated metal hoses and hose assemblies (see Annex)

Identification of the approved design type(s) See annex

Versions covered by the approved design type(s) (where applicable) N/A initial

Conditions for validity Initial

This certificate, which is valid for 5 years and renewable upon request, is valid, unless changes in the state of the art can challenge the approved design type, until (dd/mm/yyyy): 21/08/2024

This certificate shall be deemed to be void and the manufacturer shall alone bear any consequences pursuant to its use, in case of modification on design type of the equipment or changes in the state of the art, where this may affect conformity with the requirements of the standard or the prescribed conditions for use of the equipment, and generally where the manufacturer fails in particular to comply with any of his obligations under ISO 10380 and Certification Condition which Manufacturer and Bureau Veritas agreed.

Other information (where applicable) Type Approval Test was conducted at TOFLE OMEGA FLEX

For the activity carried out for the issuance of the present certificate, Bureau Veritas Japan took as reference the following manufacturer's technical book TCF No.2

Existence of an annex to the Type approval certificate N /A
Free text/ référence du document

Date of examination (dd/mm/yyyy): 06-09&22/08/2019
Surveyor: Keijiro.Miyazono

Made at	On (dd/mm/yyyy)	Approved and Recorded in	Signed by	Signature
Yokohama	07/08/2023 (Rev.A)	JAPAN	Keijiro Miyazono	

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This revision supersedes certificate

VPC-ISO10380-TC-TFL-001-JPN Rev.0 issued on 10Sep,2019
Reason: Added Type SA-SD "1-10" to the list, the drawings and the calculation.



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Revision : VPC-ISO10380-TC-TFL-001-JPN Rev.A

N°VPC-ISO10380-TC-TFL-001-JPN Rev.A

List of the relevant parts of the technical documentation


Test Reports :No.D-3916

Drawings: MNW802614-A, MNW802615-A, MNW802616-A, MNW802617-A



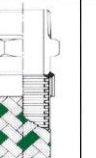
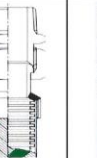
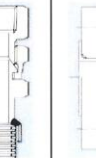
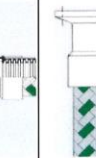


corrugated metal hose certified to ISO10380

Tube Type



Code address	SA - SD (1-10)	sketch  Structure: Annular type
Descriptions	Super Annular (Standard)	
Materials	SUS316L,SUS321	
Size	8 A ~ 50 A	
max/min allowable temperature	0 °C ~ 550 °C	

Applicable product and Fittings Type

Number of form Code address		TF-1100 -Temperature	TF-1500 -Temperature	TF-5000 -Temperature	TF-7000 -Temperature	TF-7100 -Temperature	TFR-2000, 3000 -Temperature	Ferrule -Temperature	Pipe end -Temperature
DN	PN (bar)	SUSE	SUSSF	SUSSM	SUSSNM/ SUSSNF	SUSSNM- Rubber fittings	SUSBFSUS SUSBSUS	Ferrule	Pipe end
8A	66.0	○	○	○	○	○	○	○	○
10A	73.0	○	○	○	○	○	○	○	○
15A	50.0	○	○	○	○	○	○	○	○
20A	43.0	○	○	○	○	○	○	○	○
25A	44.0	○	○	○	○	○	○	○	○
32A	37.0	○	○	○	○	○	○	○	○
40A	34.0	○	○	○	○	○	○	○	○
50A	23.0	○	○	○	○	○	○	○	○
sketch									

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TS / (20°C)に対する軽減定数)	8A	10A	15A	20A	25A	32A	40A	50A
20°C	1	66.0 bar	73.0 bar	50.0 bar	43.0 bar	44.0 bar	37.0 bar	23.0 bar
50°C	0.88	58.1 bar	64.2 bar	44.0 bar	37.8 bar	38.7 bar	32.6 bar	20.2 bar
100°C	0.73	48.2 bar	53.3 bar	36.5 bar	31.4 bar	32.1 bar	27.0 bar	16.8 bar
150°C	0.66	43.6 bar	48.2 bar	33.0 bar	28.4 bar	29.0 bar	24.4 bar	15.2 bar
200°C	0.60	39.6 bar	43.8 bar	30.0 bar	25.8 bar	26.4 bar	22.2 bar	13.8 bar
250°C	0.56	37.0 bar	40.9 bar	28.0 bar	24.1 bar	24.6 bar	20.4 bar	13.8 bar
300°C	0.52	34.3 bar	38.0 bar	26.0 bar	22.4 bar	22.9 bar	19.0 bar	12.9 bar
350°C	0.50	33.0 bar	36.5 bar	25.0 bar	22.4 bar	22.9 bar	19.2 bar	12.0 bar
400°C	0.48	31.7 bar	35.0 bar	24.0 bar	21.1 bar	21.1 bar	18.5 bar	11.5 bar
450°C	0.47	31.0 bar	34.3 bar	23.5 bar	20.2 bar	20.2 bar	17.8 bar	11.0 bar
500°C	0.46	30.4 bar	33.6 bar	23.0 bar	19.8 bar	20.2 bar	17.4 bar	10.8 bar
550°C	0.42	27.7 bar	30.7 bar	21.0 bar	18.1 bar	18.5 bar	15.6 bar	10.6 bar

口径	最小曲率半径 (mm)		使用圧力 (bar)
	固定	繰返し	
8 A	20 mm	60 mm	66.0 bar
10 A	30 mm	100 mm	73.0 bar
15 A	35 mm	125 mm	50.0 bar
20 A	40 mm	130 mm	43.0 bar
25 A	70 mm	190 mm	44.0 bar
32 A	90 mm	205 mm	37.0 bar
40 A	125 mm	235 mm	34.0 bar
50 A	190 mm	270 mm	23.0 bar



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List of the versions covered (where applicable)

N/A

Annex to the Certificate

N°VPC-ISO10380-TC-TFL-001-JPN Rev.A

TCF No.2