



BUREAU  
VERITAS

TYPE APPROVAL CERTIFICATE  
N°VPC-ISO10380-TC-TFL-003-JPN Rev.0

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 (Add Type SD-SD 1-50 to Type SA-SD 1-10 certificate No. VPC-ISO10380-TC-KMI-001)

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): 06/08/2028

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 add Type SA-SD 1-50 to Type SA-SD 1-10 (certificate No. VPC-ISO10380-TC-KMI-001)

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.4

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 (GroupA&B for Type SD-SD 1-10)  
31/07-07/08/2023(Group C for add Type SA-SD 1-50)

Surveyor: Keijiro.Miyazono

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

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This revision supersedes certificate N/A



## N°VPC-ISO10380-TC-TFL-003-JPN Rev.0


### List of the relevant parts of the technical documentation

Test Reports :No.D-4436  
 Drawings: MNW803150-A, MNW803162-A




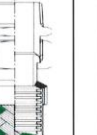
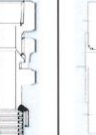



corrugated metal hose certified to ISO10380

Tube Type



Code address	SA - SD (1-50)	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	35.0	○	○	○	○	○	○	○	○
10A	20.0	○	○	○	○	○	○	○	○
15A	20.0	○	○	○	○	○	○	○	○
20A	20.0	○	○	○	○	○	○	○	○
25A	20.0	○	○	○	○	○	○	○	○
32A	15.0	○	○	○	○	○	○	○	○
40A	15.0	○	○	○	○	○	○	○	○
50A	15.0	○	○	○	○	○	○	○	○
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	35.0 bar	20.0 bar	20.0 bar	20.0 bar	20.0 bar	15.0 bar	15.0 bar	15.0 bar
50°C	0.88	30.8 bar	17.6 bar	17.6 bar	17.6 bar	17.6 bar	13.2 bar	13.2 bar	13.2 bar
100°C	0.73	25.6 bar	14.6 bar	14.6 bar	14.6 bar	14.6 bar	11.0 bar	11.0 bar	11.0 bar
150°C	0.66	23.1 bar	13.2 bar	13.2 bar	13.2 bar	13.2 bar	9.9 bar	9.9 bar	9.9 bar
200°C	0.60	21.0 bar	12.0 bar	12.0 bar	12.0 bar	12.0 bar	9.0 bar	9.0 bar	9.0 bar
250°C	0.56	19.6 bar	11.2 bar	11.2 bar	11.2 bar	11.2 bar	8.4 bar	8.4 bar	8.4 bar
300°C	0.52	18.2 bar	10.4 bar	10.4 bar	10.4 bar	10.4 bar	7.8 bar	7.8 bar	7.8 bar
350°C	0.50	17.5 bar	10.0 bar	10.0 bar	10.0 bar	10.0 bar	7.5 bar	7.5 bar	7.5 bar
400°C	0.48	16.8 bar	9.6 bar	9.6 bar	9.6 bar	9.6 bar	7.2 bar	7.2 bar	7.2 bar
450°C	0.47	16.5 bar	9.4 bar	9.4 bar	9.4 bar	9.4 bar	7.1 bar	7.1 bar	7.1 bar
500°C	0.46	16.1 bar	9.2 bar	9.2 bar	9.2 bar	9.2 bar	6.9 bar	6.9 bar	6.9 bar
550°C	0.42	14.7 bar	8.4 bar	8.4 bar	8.4 bar	8.4 bar	6.3 bar	6.3 bar	6.3 bar

口径	最小曲径半径 (mm)		使用压力 (bar)
	固定	繰返し	
8 A	20 mm	60 mm	35.0 bar
10 A	30 mm	100 mm	20.0 bar
15 A	35 mm	125 mm	20.0 bar
20 A	40 mm	130 mm	20.0 bar
25 A	70 mm	190 mm	20.0 bar
32 A	90 mm	205 mm	15.0 bar
40 A	125 mm	235 mm	15.0 bar
50 A	190 mm	270 mm	15.0 bar



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*List of the versions covered (where applicable)*

N/A

*Annex to the Certificate*

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TCF No.4