Certificate No:
TAP0000013

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Flexible Hoses of Metallic Material with permanently fitted couplings

with type designation(s)
OLX-002 (Flange), OLX-003 (Flange), OLX-010, OLX-111 (Nut coupling), OLX-109, OLX-110

Issued to
Osaka Rasenkan Kogyo Co., Ltd. Osaka Head Office
OSAKA OSAKA, Japan

is found to comply with
Det Norske Veritas' Rules for Classification of Ships Pt.4, Ch.6 "Piping Systems"
Offshore Standard DNV-OS-D101, Marine and Machinery Systems and Equipment
Det Norske Veritas' Standards for Certification 2.9 No. 5-791.80

Application :

See certificate

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Type:	Temperature range:	Max. working press.:	Sizes:
OLX-002 (Flange)	-20 to 125ºC	0,5 MPa (1/2"), 0,5 MPa (3/4")	1/2" and 3/4"
OLX-003 (Flange)	-20 to 125ºC	3 MPa	3/4" and 1"
OLX-010	-20 to 125ºC	1,5 MPa	3/8"
OLX-111 (Nut coupling)	-20 to 100°C	1.5 MPa	3/8"
OLX-109	-20°C to +100°C	3 MPa	40A (1 1/2")
OLX-110	0°C to + 100°C	3 MPa	10A (3/8")

This Certificate is valid until **2017-12-31**.

Issued at **Høvik** on **2015-07-02**
DNV GL local station: **Kobe**

for **DNV GL**

Approval Engineer: **Tom Berg-Nielsen**

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.

© DNV GL 2014. DNV GL and the Horizon Graphic are trademarks of DNV GL AS.

Job Id:
Certificate No: **TAP0000013**

Product description

OLX-002, OLX-010, OLC-111: Annular convoluted hose with one outer layer of wire braiding reinforcement.
Material: SUS304

OLX-003 and OLX-109: Double wire braid reinforcement.
Material all parts: SUS304

OLX-110: Single wire braid reinforcement.
Materials:all parts: SUS304

Fitting: SS400

Application/Limitation

The hoses may be used in following systems:

OLX-002	Lubrication- and Fuel Oil, Fresh water
OLX-110	Compressed air and lube oil
OLX-003, OLX-010, OLX-109, OLX-111	Compressed Air

This certificate is valid for the specific assembly of hose and coupling type as specified, assembled and delivered by the holder (named as manufacturer) of this certificate.

All hose assemblies delivered under this type approval certificate shall be in compliance with an assembly procedure issued by the certificate holder.

Hose assemblies delivered from the certificate holder shall be delivered with the following documentation:
- Pressure test report with reference to the type approval certificate

The hose assemblies covered by this type approval may be assembled and delivered by other than the certificate holder under the following conditions:
- The assembler is authorised by a written authorization from the certificate holder
- Hose assemblies are in accordance with an assembly procedure issued by the certificate holder and the assembler has proved their qualifications by burst testing of a selection of hose/coupling combinations
- One sample of each hose type from each authorized assembler is to be burst tested and the testing is to be witnessed by DNV. This testing is to be performed every 4 years.

Hose assemblies delivered from an authorized assembler shall in addition to the pressure test report with reference to the type approval certificate be delivered with a copy of the written authorization stamped by DNV

Flexible hoses are only to be used where it is necessary due to vibrations or flexible mounting of the machinery.

The hoses must only be fitted on places where they are always accessible for inspection.
The installed hose must be possible to shut off from the system.

The hoses are to be mounted according to the manufacturer’s instructions, and the hoses are to be supplied with end couplings from the manufacturer.

The Rules Pt.4 Ch.6 Sec.6 D+E, Pt.5 Ch.5 Sec.6 and the respective Government Authorities Regulations are to be complied with.

Each hose is to be hydraulically pressure tested to 1, 5 times the maximum working pressure and delivered with the manufacturer’s pressure test report.

Type Approval documentation

Tests carried out

Burst, static bend, bending fatigue and pressure pulsation test

Marking of product

For traceability to this Type Approval the hoses are to be marked:

- Manufacturer's name or trade mark.
- Type designation.

Periodical assessment

For retention of the Type Approval, a DNVGL Surveyor shall perform a survey - every second year and before the expiry date of this certificate - to verify that the conditions for the type approval are complied with and to witness burst testing on a selection of sizes.

The tests are to be performed with the type of couplings fitted that is Type Approved with the hoses.

END OF CERTIFICATE