



Lloyd's Register of Shipping

TYPE APPROVAL CERTIFICATE

This is to Certify

THAT THE UNDERNOTED EQUIPMENT HAS BEEN TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE RELEVANT REQUIREMENTS OF THE SOCIETY'S 1985 TYPE APPROVAL SCHEME.

COMPANY Ernst-B Johansen a.s.
Fjordglottveien 25
P.O. Box 22
N.3941 Heistad
Norway

PLACE OF MANUFACTURE Cylinderservice A/S
Jarleveien 15
N-7000 Trondheim
Norway

DESCRIPTION Gas charged hydraulic tensioning shock absorbing cylinder.

TYPE 105 Series

DESIGN CODE BS 5500 : 1985 Specification for unfired fusion welded pressure vessels.

APPLICATION For damping of dynamic loads, typically offshore cranes hoist systems.

RATING Up to 15 Tonnes S.W.L
Cylinder maximum working pressure 340 bar.

CERTIFICATE NO: 89/0040

APPROVAL DATE: 9 March 1989

EXPIRY DATE: 8 March 1994

ADDENDUM: 1 Continuation Sheet

T.W. Knight
FOR THE SECRETARY
71 FENCHURCH STREET, LONDON, EC3M 4BS

NOTICE—THIS CERTIFICATE IS SUBJECT TO THE TERMS AND CONDITIONS OVERLEAF, WHICH FORM PART OF THIS CERTIFICATE



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CONTINUATION SHEET

OPERATIONAL LIMITATIONS

Dependent on specific application.

APPROVAL DOCUMENTATION

Drawing Number	Issue	Title
512-90	A	Sectional arrangement and parts listing.
495-18	-	Cylinder
512-95	-	Swivel
495-15	-	Stuffing box
513-35	-	Top of rod, detail of drawing 512-95
513-33	-	Collar
513-34	-	Fork on swivel.
494-60	-	Piston
508-254	-	Bronze bearing
508-255	-	Nut
508-253	-	Spacer
508-252	-	Disk
508-251	-	Bolt

Reliability test 890123-001 dated 23 January, 1989

Proposed offshore test programme dated 8 April, 1988

Test report No.7 dated 8 February, 1989

Lloyd's Register Certificate OSL 700441 dated 25 November, 1988

Load and pressure tests.

Lloyd's Register Certificate 800227 dated 28 November, 1988, offshore tests

Det Norske Veritas Report 88-BGN-4159 dated 19 August, 1988

PERFORMANCE TESTS

Performance tests to Lloyd's Register's 1985 Type Approval Scheme were carried out on a representative sample.

Results recorded in approval documentation.

ADDITIONAL TESTS

Reliability tests on shore and off shore.

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