



TITLE:
**SURVEY SOCIETY RATINGS FOR MG-5114A,
 MGX-5114A, MG-5114RV AND MGX-5114RV**

DRAFTED BY:
TLH

STANDARD NUMBER:
S928AJ

CHECKED BY:
MDL

WORKFLOW:
ECNWF-22329

APPROVED BY:
ALC

REVISION:
A

SUBJECT:
MARINE TRANSMISSION

DATE:
6/17/2011

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I. BV APPROVED RATINGS:

MODEL NO.	ASSEMBLY NO.	REV.	APPROVAL EXPIRATION DATE
MG-5114A	PX11915	K	3/17/2015
MGX-5114A	PX12440	C	
MG-5114RV	PX9830A	K	
MGX-5114RV	PX11850	K	


POWER RATINGS – kW					
All ratings are for Maximum Continuous Ratings					
RATIO	1800 rpm	2100 rpm	2300 rpm	2500 rpm	2800 rpm
2.50:1	321	365	400	428	480
2.04:1	347	387	424	453	508
1.92:1					
1.75:1					
1.48:1					
1.20:1					
1.03:1					

POWER RATINGS – kW					
All ratings are for Medium Duty Ratings					
RATIO	1800 rpm	2100 rpm	2300 rpm	2500 rpm	2800 rpm
2.50:1	338	385	417	453	508
2.04:1	357	407	440	478	536
1.92:1					
1.75:1					
1.48:1					
1.20:1					
1.03:1					

POWER RATINGS – kW					
All ratings are for Intermediate Duty Ratings					
RATIO	1800 rpm	2100 rpm	2300 rpm	2500 rpm	2800 rpm
2.50:1	367	400	433	471	527
2.04:1	424	466	503	547	612
1.92:1					
1.75:1					
1.48:1					
1.20:1					
1.03:1					

- NOTES:
- REFER TO PAGES 2-5 FOR BV SERVICE RESTRICTIONS
 - REFER TO THE TWIN DISC MARINE TRANSMISSION CAPACITY TABLES FOR TWIN DISC APPLICATION LIMITATIONS.
 - ALL APPLICATIONS REQUIRING SURVEY SOCIETY APPROVED EQUIPMENT MEETING EITHER TYPE APPROVAL OR CERTIFICATE LEVEL STATUS MUST BE APPROVED BY TWIN DISC APPLICATION ENGINEERING.

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Certificate number: 13337/B0 BV
File number: RED 23/36
Product code: 0353I

This certificate is not valid when presented without the full attached schedule composed of 7 sections

www.veristar.com

TYPE APPROVAL CERTIFICATE

This certificate is issued to

TWIN DISC INTERNATIONAL S.A. / NIVELLES
Nivelles - BELGIUM

for the type of product

REDUCTION GEARS FOR DIESEL ENGINES

MG-5114-A, MG-5114-RV, MGX-5114-A & MGX-5114-RV

Requirements:
BUREAU VERITAS Rules for the Classification of Steel Ships.

This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 17 Mar 2015

For BUREAU VERITAS,
At BV ANTWERP, on 17 Mar 2010,
Claude Calmeyn




This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with BUREAU VERITAS. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine Division available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

BV Mod. Ad.E 530 May 2009

This certificate consists of 4 page(s)

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THE SCHEDULE OF APPROVAL

I. PRODUCT DESCRIPTION :

MG-5114-A, MG-5114-RV, MGX-5114-A & MGX-RV One step reduction gears.

With reverse gear and clutches.
 Optional PTO for MG-5114-A & MGX-5114-A model.
 Engine input on propeller side for MG-5114-RV & MGX-5114-RV model.
 Dual stage clutch for MGX-5114-A & MGX-5114-RV model.
 Output shaft 7° down. Intended for Main propulsion, diesel driven by flexible coupling.

BV Section Nos.	Ratios	Number of teeth
RED 23/36/16	1.03 : 1	37/38
RED 23/36/17	1.20 : 1	35/42
RED 23/36/18	1.48 : 1	31/46
RED 23/36/19	1.75 : 1	28/49
RED 23/36/20	1.92 : 1	26/50
RED 23/36/21	2.04 : 1	25/51
RED 23/36/22	2.50 : 1	18/45

Maximum input speed 3000 rpm.

CONTINUOUS DUTY Single machinery

12000 hours gear's life at 100% torque.
 For use in continuous duty operation with little or no variation in engine speed / power setting.

Ratios	Units	1800 [rpm]	2100 [rpm]	2400 [rpm]
1.03 : 1	kW	347	387	435
1.20 : 1				
1.48 : 1				
1.75 : 1				
1.92 : 1				
2.04 : 1				
2.50 : 1	kW	321	365	411

MEDIUM DUTY Single machinery

9600 hours gear's life at 100% torque.
 For usage where some variations in engine speed/power settings occurs as part of the normal operation.
 4000 hours/year. Up to 80% of time at 100% engine speed.

Ratios	Units	1800 [rpm]	2100 [rpm]	2300 [rpm]
1.03 : 1	kW	357	407	440
1.20 : 1				
1.48 : 1				
1.75 : 1				
1.92 : 1				
2.04 : 1				
2.50 : 1	kW	338	385	417

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INTERMEDIATE DUTY Duplicate machinery

7200 hours gear's life at 100% torque.

For applications where usage and engine throttle settings do not exceed the following limits:

2000 hours/year. Up to 50% of the time at 100% engine rating.

Ratio	Units	1800 [rpm]	2100 [rpm]	2300 [rpm]
1.03 : 1	kW	424	466	503
1.20 : 1				
1.48 : 1				
1.75 : 1				
1.92 : 1				
2.04 : 1	kW	367	400	433
2.50 : 1				

These ratings do not apply for reduction-gears fitted on ships granted with an ICE Notation.

2. DOCUMENTS AND DRAWINGS :

PX-11915, Rev. K - 11 sheets, Assembly drawing, Cross section for MG-5114-A.
 PX-9830-A, Rev K - 7 sheets, Assembly drawing, Cross section for MG-5114-RV.
 PX-12440, Rev. C - 1 sheet, Assembly drawing, Cross section for MGX-5114-A.
 PX-11850-R, Rev K - 5 sheets, Assembly drawing, Cross section for MGX-5114-RV.

3. TEST REPORTS :

N/A.

4. APPLICATION / LIMITATION :

4.1 - The flexible pipes are to be type approved. The corresponding Certificates are to be kept on board and made available to any Authorities.

4.2 - Application / Limitation of use:

- These gear boxes may be fitted on ships granted with an automation notation provided that all the requirements stated in our Rules are complied with.
- This Certificate does not cover Ice Class Notations applications. For the Ice Class Notations, the ratings stated in §1 above are to be re-evaluated according to the requirements of Pt E, Ch 8, Sec 3 of the Rules.

4.3 - On board installation & Maintenance requirements:

- The reduction-gears must be equipped with the parts listed in the manufacturer's Parts Catalogue exclusively.
- The reduction-gears must be delivered with the relevant documentation for their maintenance and their operation.
- The initial survey made at the factory does not prejudice of any additional test or survey which may be required for some specific applications, in order to comply with the related Rules of the Society.

5. PRODUCTION SURVEY REQUIREMENTS :


5.1 - The above products are to be manufactured, examined and tested by **TWIN DISC INTERNATIONAL S.A. / NIVELLES - BELGIUM** in accordance with the type described in this certificate and Bureau Veritas Rules for the Classification of Steel Ships.

5.2 - Arrangements shall be made for a Society's Surveyor to attend the relevant tests and examinations at manufacturer's works or to perform the relevant audits when an alternative survey scheme (BV Mode I) has been agreed. Relevant Bureau Veritas certificate will be issued after satisfactory completion of the procedure.

5.3 - Inspection at workshops by the Society Surveyors as per BV Rules (see NR 266 DNC - Section G2).

5.4 - This Certificate applies to the naked gearbox. Each attached equipment must, if required by the Rules, be type approved or individually approved, and individually inspected at workshops according to the applicable Rules.

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Certificate number: 13337/B0 BV

6. MARKING OF PRODUCT :

- Serial number
- Rated power and input/output speed
- Date of workshop trial
- Reduction ratio.

7. OTHERS :

7.1 - It is understood that the herewith mentioned manufacturer will give the shipyards and the related subcontractors all the relevant information for the proper fitting and uses of the product covered in this Type Approval Certificate. This information has to include the conditions stated in the Certificate.

It is also understood that Bureau Veritas remains rightfully entitled to perform any check or test on the product at any time.

7.2 - This certificate supersedes the Type Approval Certificate N° 13337/A2 BV issued on 15/06/2006 by the Society.

*** END OF CERTIFICATE ***

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