



# TÜRK LOYDU

## TYPE APPROVAL CERTIFICATE

This Certificate consists of 2 pages.

This is to certify that the

**NORMAL AND HIGHER STRENGTH HULL STRUCTURAL STEELS**

With type designations

TL-A, TL-B, TL-D [CR (NR)]  
 TL-AZ35, TL-BZ35, TL-DZ35 (TM)  
 TL-A32Z35, TL-D32Z35, TL-E32Z35 (TM)  
 TL-A36Z35, TL-D36Z35, TL-E36Z35 (TM)

Manufactured by

**PJSC "ILYICH IRON AND STEEL WORKS OF MARIUPOL"**

Is found to comply with

Türk Loydu's Rules for Classification of Steel Ships ; Chapter 2, Section 3 , B, H

**Application** : Normal and Higher Strength Hull Structural Steels  
**Design** : PJSC "Ilyich Iron and Steel Works of Mariupol"  
**Sizes** : See appendix I  
**Address of Manufacturer** : Levchenko str. 1 UA – 87504 Mariupol - UKRAINE  
**Place and date** : Tuzla / İSTANBUL – 02.05.2016



**Subject to the conditions referred to in the following pages, this certificate is valid until 01.05.2021**

*M. Cevat Yılmaz*  
 Act. Hür FIRTINA  
 New Building Division Manager



*Hasan Habıboğlu*  
 Hasan HABİBOĞLU  
 Surveyor

**Product description:**

**Type Designation :**

TL-A, TL-B, TL-D [CR (NR)]  
TL-AZ35, TL-BZ35, TL-DZ35 (TM)  
TL-A32Z35, TL-D32Z35, TL-E32Z35 (TM)  
TL-A36Z35, TL-D36Z35, TL-E36Z35 (TM)

**Materials used :** See appendix I

**Application/ Limitation (Approval conditions):**

Normal and higher strength hull structural steels to be used in ship according to Türk Loydu rules.

**Documentation :**

Test reports from ILYICH mechanical test laboratory.

**Test carried out (and results) :**

Type tests have been carried out according to Türk Loydu's Rules for Classification of Steel Ships; Chapter 2, Section 3 , B, H

**Place of test carried out :**

ILYICH Mechanical Test Laboratory – Mariupol / UKRAINE  
Levchenko str. 1 UA – 87504

**Marking of product:** The product to be marked same as below mentioned.

- Manufacturer Name and trade mark,
- Type designation
- Size

  
**Hasan HABİBOĞLU**  
Surveyor

This certificate is valid if retention/renewal surveys carried out to the satisfaction of TL surveyor and following entries made:

 Hasan HABİBOĞLU Inspector - Surveyor	 Hasan HABİBOĞLU Inspector - Surveyor	 Surveyor	 Surveyor
 Survey Date	 Survey Date	 Survey Date	 Survey Date
29.03.2015	27.03.2015		

This certificate is subject to terms and conditions described below.  
Any significant change in design or construction may render this Certificate invalid. Type Approval Certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. This certificate is not valid for products without marking above mentioned. The manufacturer should notify TÜRK LOYDU of any modifications or changes to the equipment in order to obtain valid certificate. This certificate shows that tested specimens as representative of the product complies of the TÜRK LOYDU rules, and relevant international instruments that apply to it.



# TÜRK LOYDU

## APPENDIX I

### Normal and Higher Strength Steels

Grade	Delivery Condition	Min. Thick. mm	Max. Thick. mm	Steelmaking (1) Casting Method(2)	Deoxidation	Microalloy (Grain refining elements)	Z Quality
TL-A	CR (NR)	6	50	BOC, CC	killed	Al or Al+Ti	
TL-B	CR (NR)	6	50	BOC, CC	killed	Al or Al+Ti	
TL-D	CR (NR)	6	50	BOC, CC	killed	Al or Al+Ti	
TL-A	TM	6	50	BOC, CC	killed	Al or Al+Ti	Z35
TL-B	TM	6	50	BOC, CC	killed	Al or Al+Ti	Z35
TL-D	TM	6	50	BOC, CC	killed	Al or Al+Ti	Z35
TL-A32	TM	6	50	BOC, CC	killed	Al+Nb+Ti or Al+V+Ti or Al+Nb+V+Ti	Z35
TL-D32	TM	6	50	BOC, CC	killed	Al+Nb+Ti or Al+V+Ti or Al+Nb+V+Ti	Z35
TL-E32	TM	6	50	BOC, CC	killed	Al+Nb+Ti or Al+V+Ti or Al+Nb+V+Ti	Z35
TL-A36	TM	6	50	BOC, CC	killed	Al+Nb+Ti or Al+V+Ti or Al+Nb+V+Ti	Z35
TL-D36	TM	6	50	BOC, CC	killed	Al+Nb+Ti or Al+V+Ti or Al+Nb+V+Ti	Z35
TL-E36	TM	6	50	BOC, CC	killed	Al+Nb+Ti or Al+V+Ti or Al+Nb+V+Ti	Z35

(1) :  
CR : Controlled Rolled  
NR : Normalized Rolled  
TM : Thermomechanically Rolled  
N : Normalized

(2) :  
CC : Continuous Casting  
IC : Ingot Casting  
BOC : Basic Oxygen Converter

  
Hasan HABİBOĞLU  
Surveyor