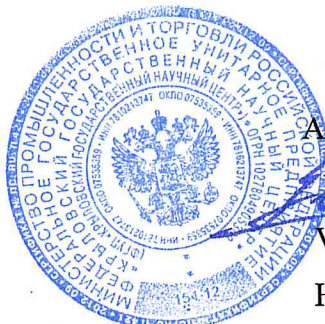


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Copy No.



APPROVED BY

V.M. Shaposhnikov

Head of Strength &  
Structure Division

April \_\_, 2014

### **Test report No. AR-107-P.3**

**Certification tests for structural type and safety of soft specialized  
container of MK-14-10 grade**

Made in 3 copies.

Экз. No. 1 – to Customer

Экз. No. 2 – RMRS.

Экз. No. 3 – Laboratory Archives

Test results refer to the tested  
entity only..

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St. Petersburg  
2014

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## 1. General

1.1. A soft container of MK-14-10 grade having the following characteristics was tested.

Material	Rubbered cloth reinforced with grid of belt bands
Maximum carrying capacity, kgf ( $Q_{\max}$ )	14,000
Maximum holding capacity, m <sup>3</sup>	15.0
Top structure	Closed with loading arm
Bottom structure	Flat blind with discharging arm
Lifting device (quantity of lifting eyes )	8
Presence of insert	No
Total quantity of layers when piling	4
Overall dimensions, cm	240×240×280
Package group	III
Registration number	11213691

### 1.2 Test types:

- drop tests;
- topple tests;
- righting tests.

**1.3 Basis for the testing** – Contract No. 331-31/13 dated 31.01.14 with CJSC New Technologies in Transportation

### 1.4. The following attended the testing:

From SJSC “New Technologies in Transportation” – Emil A. Akhiundov,

From "BAM" (Germany) - Jan Werner.

From CJSC Russian Register Igor G. Sannikov

**1.5 The test entity was supplied to the laboratory** on April 21, 2014

**1.6. The tests were conducted** on April 22, 2014 – April 24.2014

## 2. Test equipment and instrumentation

Force metering channel DSTU -200-20 consisting of:

- Vi Cont system
- Force-measuring transducer 1798 DSTU-2I-200-No.20, bridge No.1, Certificate No. 1804/314-14 valid up to February 07, 2015.

## 3. Documents

- 3.1. Test program for the structural type and safety of soft specialized container of MK-14-10 grade.
- 3.2. Methodology IMAN 31-406-14 MI "Soft containers. Topple, Righting, Tear and Stacking Tests of Container MK-14-10. Test Methodology".
- 3.3. Methodology IMAN 31-258-00 MI "Soft containers. Strength Characteristics. Test Methodology".
- 3.4. Certification of Automatic Loading Channels for SNPK2000-300 System. Methodology IMAN 307-310-00MA.

## 4. Test procedure

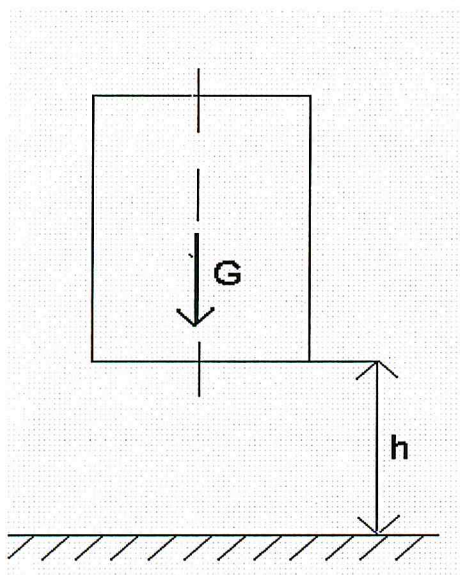
Actions for the container preparation for the testing are explained in the methodology IMAN 31-406-14 MI "Soft containers. Topple, Righting, Tear and Stacking Tests of Container MK-14-10. Test Methodology."

(Information required in the test report is given below for each test type on individual pages).

## 5. Drop tests

5.1 Container registration number is 11213691

5.2 Test date is April 24, 2014.



### 5.3 Test conditions

Container loading – not lesser than by 95% of the container capacity and up to the maximum gross mass (14 t);

Dropping height  $h$  m - 0.8;

Air temperature  $T$   $^{\circ}\text{C}$  - 16.0;

Dropping type: on foundation.

Fig.5.1 – Test diagram

### 5.4 Deviations

There were no deviations from the agreed test methodology during the tests.

### 5.5 Test results

The container shell was not damaged. No container contents were lost.

### 5.6 Conclusion

The container passed the drop test.



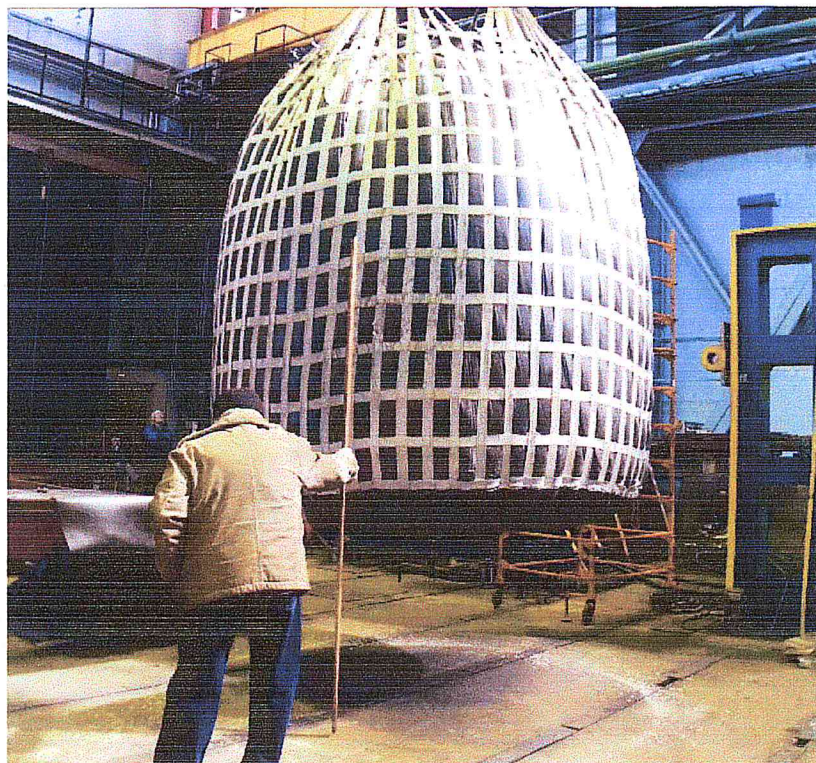


Fig. 5.2. Container prior to tests

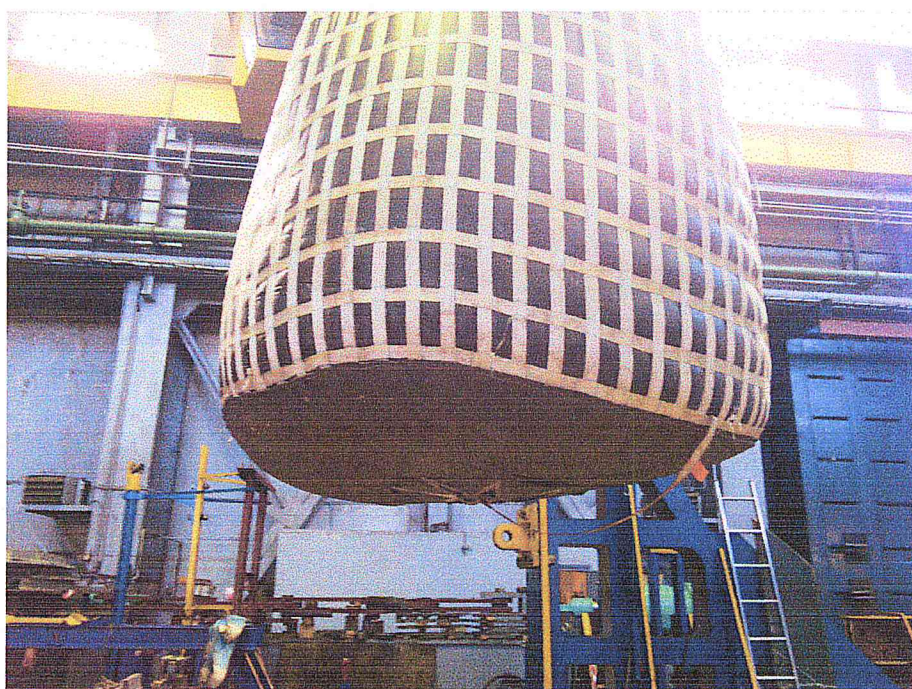


Fig. 5.3. . Container after tests (bottom examination)

Test Manager

E. A. Shishenin

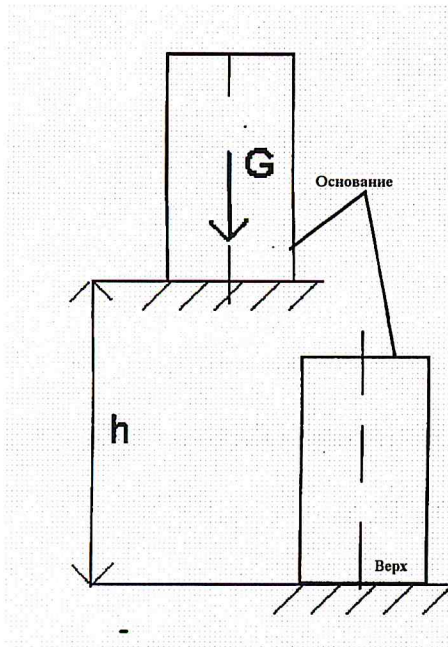
Deputy Head of Laboratory 31

A. V. Aleksandrov

## 6. Topple tests

6.1 Container registration number is 11213691

6.2 Test date is April 24, 2014.



### 6.3 Test conditions

Container loading – not lesser than by 95% of the container capacity and up to the maximum gross mass (14 t);

Air temperature  $T$   $^{\circ}\text{C}$  - 16.0;

Tilting height  $h$  m - 0.8

Fig. 6.1 - Test diagram (*foundation, top*)

### 6.4 Deviations

There were no deviations from the agreed test methodology during the tests.

### 6.5 Test results

The container shell was not damaged. No container contents were lost.

### 6.6 Conclusion

The container passed the topple test.



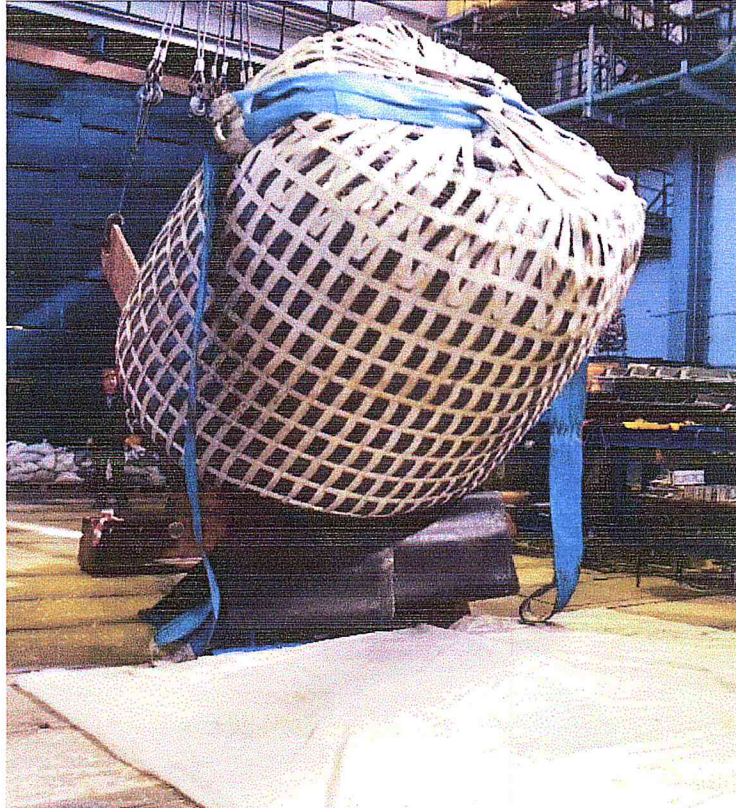


Fig.6.2. Container during topple testing

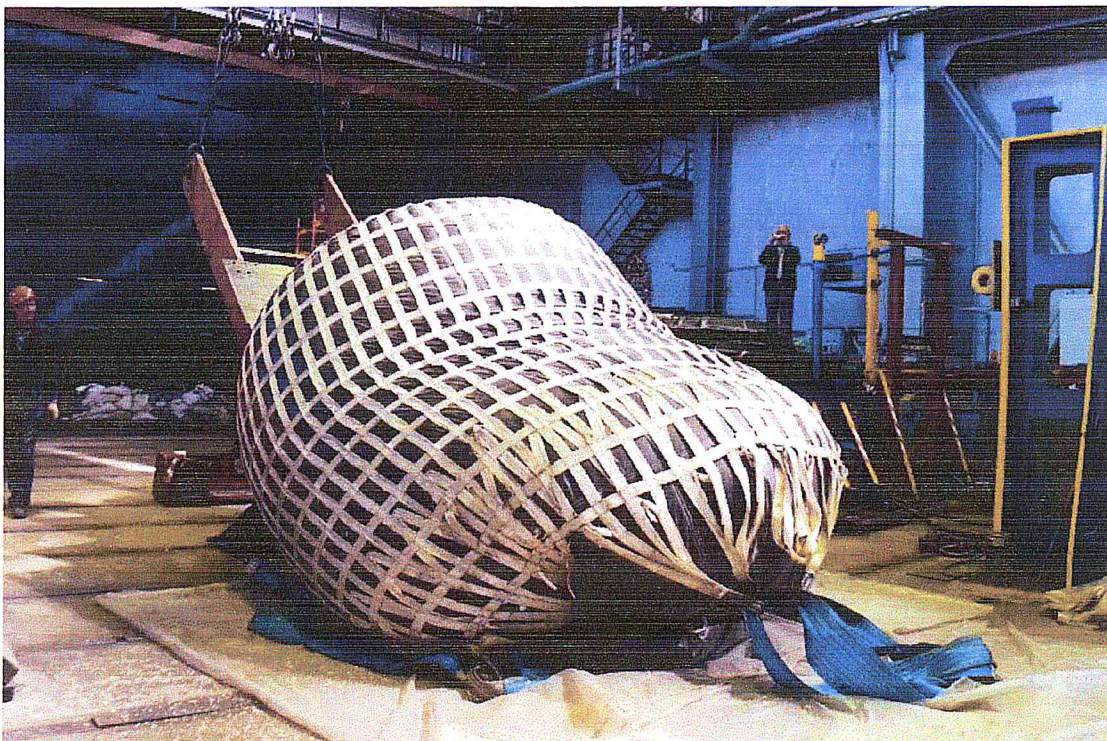


Fig.6.3. Container after during topple testing



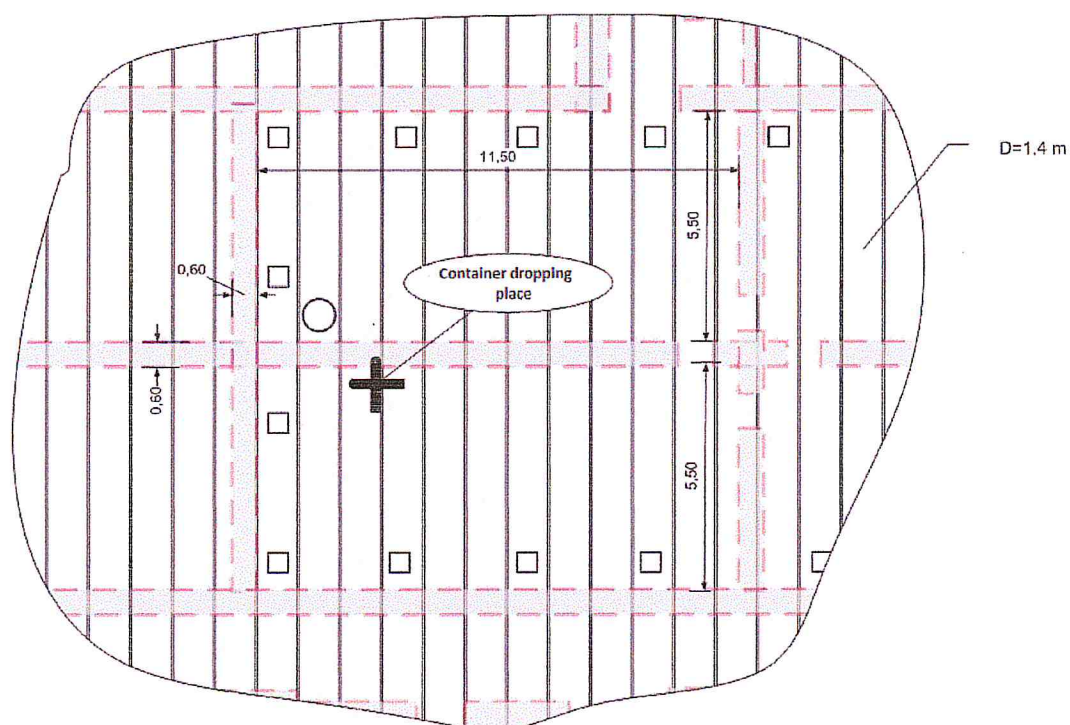


Fig.6.4 Parameters of test hall power floor site in container dropping place.  
Here: all dimensions are in meters. Walls in test hall basement, which support the power floor, are marked as dotted lines.  $D$  = power floor panel thickness. Specific weight of reinforced concrete, from which the power floor structures are made, is  $2.4 \text{ t/m}^3$ .

Test Manager

*E. A. Shishenin*

E. A. Shishenin

Deputy Head of Laboratory 31

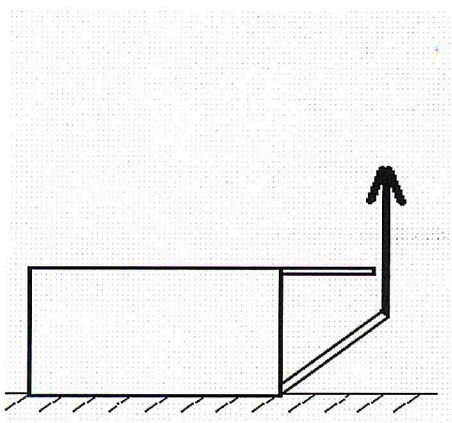
*A. V. Aleksandrov*

A. V. Aleksandrov

## 7. Righting tests

7.1 Container registration number is 11213691

7.2 Test date is April 24, 2014.



### 7.3 Test conditions

Container loading – not lesser than by 95% of the container capacity and up to the maximum gross mass (14 t);

Lifting type by two straps

Air temperature  $T$   $^{\circ}\text{C}$  - 16.0;

Container lifting speed – not lesser than 0.1 m/s

Fig. 7.1 - Test diagram

### 7.4 Deviations

There were no deviations from the agreed test methodology during the tests.

### 7.5 Test results

The container shell was not damaged. No container contents were lost.

According to the crane certificate data, during the tests the container lifting speed could be considered equal to 8 m/min that equals to 0.13 m/s.

### 7.6 Conclusion

The container passed the righting test



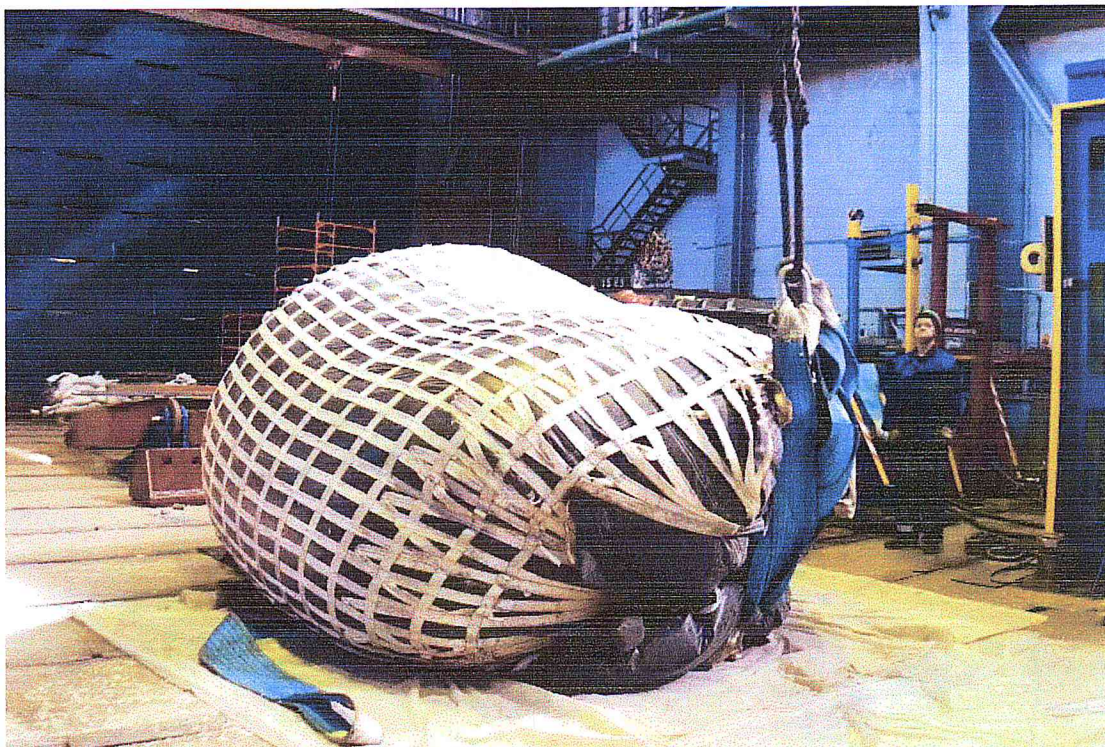


Fig. 7.2 Container prior to testing

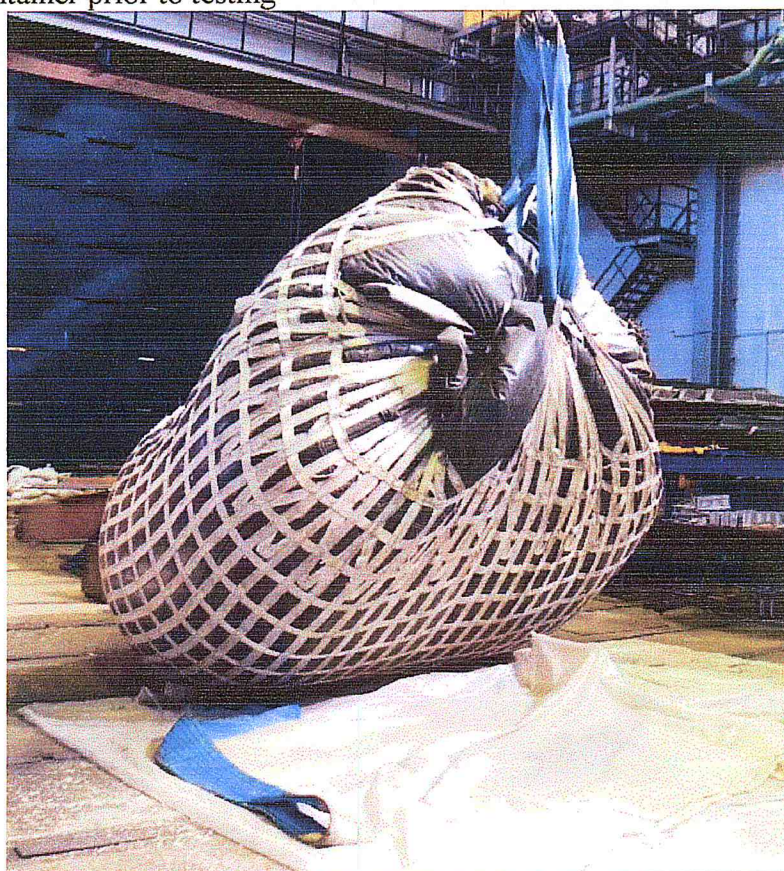


Fig. 7.3 Container during testing





Fig. 7.4 Container after testing

Test Manager

E. A. Shishenin

Deputy Head of Laboratory 31

A.V. Aleksandrov



## 8. Receipt inspection report AR – AR107 P-1

St.Petersburg

April 22, 2014.

The soft container of MK-14-10 grade was manufactured in JCSC “New Technologies in Transportation” (Moscow) by Specification 2297-001-56579756-06, approved by Federal Agency “Roszheldor” and JSCo Russian Railways. Container registration number is 11213691.

Container visual examination and measurement of main dimensions demonstrated the container structure compliance with the drawings. No damage was found in the container shell and loading grippers.

Conclusion: admit the container for the testing.

Test Manager  
Senior Research Fellow



E.A. Shishenin

Lead Engineer of Section 314



S.G. Vagengeim

## 9. Report AR – AR107 P-2    The soft container mass evaluation

### Report

Mass evaluation for the soft container of MK-14-10 grade during the testing

St.Petersburg

April 24, 2014

We, undersigned, have compiled this report that we have weighted the soft container of MK-14-10 grade using the “Force metering channel No. DSTU-200-20”. Container registration number is 11213691.

In the result of direct measurement it was established that the container mass was equal to  $(14000 \pm 210)$  kg. The mass evaluation error complied with RMRS requirements to the accuracy, with which the container mass is to be evaluated.

Test Manager

Senior Research Fellow



E.A. Shishenin

Lead Engineer of Section 314



S.G. Vagengeim



## 10. Certificate on calibrating instrumentation

ФЕДЕРАЛЬНОЕ ГОСУДАРСТВЕННОЕ УНИТАРНОЕ ПРЕДПРИЯТИЕ  
"КРЫЛОВСКИЙ ГОСУДАРСТВЕННЫЙ НАУЧНЫЙ ЦЕНТР"

Метрологическая служба

СЕРТИФИКАТ № 1804 /314-14  
о калибровке средства измерения

Срок действия до  
« 07 » февраля 2015 г.

Канал измерения силы № ДСТУ-200-20 (314 сектор) в составе:

1. Система "ViCont",
  2. Датчик силоизмерительный 1798 ДСТУ 2И-200 № 20, мост № 1 (со стороны шильдика).
- (наименование средства измерения, состав)

РЕЗУЛЬТАТ КАЛИБРОВКИ

Диапазон измерения силы 20–200 кН (растяжение)

Границы относительной погрешности измерения силы при доверительной вероятности  
0,95 (расширенная неопределенность с коэффициентом охвата 2) равны  $\pm 1,0 \%$

Условия проведения калибровки: температура окружающего воздуха  $+18^{\circ}\text{C}$ ;  
атмосферное давление 98 кПа; относительная влажность воздуха 70 %.

Калибровка выполнена в соответствии с требованиями методики ИМЯН 307-82-02 МК

ЗАКЛЮЧЕНИЕ: Канал измерения силы № ДСТУ-200-20 на основании результатов  
калибровки (протокол № 547 от 07.02.14 г.) допускается к  
применению в качестве рабочего средства при проведении  
прочностных испытаний  
(допускается, не допускается к применению)

Ведущий инженер 314 сектора  
(должность специалиста, проводившего калибровку)

  
(подпись)

А.А. Дудин  
(и.о. фамилия)

ГЛАВНЫЙ МЕТРОЛОГ

  
(подпись)

В. Д. Морозов  
(и.о. фамилия)



« 07 » февраля 2014 г.



## 11. Certificate of soft container MK 14-10



## **12. Certificate of the bridge crane**



Допущено к использованию в установленном порядке.  
Кран подлежит регистрации в органах Госгортехнадзора до пуска  
в работу.



Зарегистрирован за №	83751
в	крановой
Управления Северо-Западного округа Госгортех-	инспекции
надзора СССР	
Инспектор	Евсеев
24	1992 г.

Кран 32/50

П А С П О Р Т  
315100 ПС

Регистрационный №

83751

При передаче крана другому владельцу вместе с краном должен быть  
передан настоящий паспорт.

База, м	51
Колея, м	2,5
Скорость, м/мин:	
главного подъёма	8
и вспомогательного подъёма	20
Скорость опускания, м/мин:	
главного подъёма	—
вспомогательного подъёма	—
Скорость передвижения крана, м/мин	20
Скорость передвижения грузовой тележки, м/мин	40
Место управления:	
при работе	кабина
при монтаже и испытании	кабина
Способ управления (электрический, пневматический, гидравлический)	электрический
Способ токоподвода к крану	троллейный
Группа режима работы механизмов:	
главного подъёма	средний
вспомогательного подъёма	средний
передвижения крана	средний
передвижения грузовой тележки	средний
Масса крана в рабочем состоянии, т	31,9
Максимальная нагрузка колеса на рельс (кН) тс	24,6
Ширина головки подкранового рельса, мм	40