



Client: Hardam Company	Office: Kirkuk St., Runaki Qr. Erbil - KRG	IVR No.: TF/IR/THR/INS/CG/021114
Project: Hardam company	Other References (If any): -	Report date: 06/18/2026
Note of Inspection Letter No.: -	Supplier/Vendor: HANYCO	Order Status: ☒ Complete ☐ Incomplete
Inspection Date: 06/05/2026 & 06/16/2026	Inspection Place: HAMOUN NYZEH COMPANY, 14Km, ARDESTAN road, KASHAN, Iran.	
Inspection duration: 2 DAY		

1) Material inspected

ITEM	DESCRIPTION	TAG/SERIAL NUMBER	QUANTITY	
			ORDERED	INSPECTED
1	DN 900 / Ductile Iron Pipes Class C25 Tyton Push-In Joint type acc. to ISO 2531:2009, with EPDM rubber gasket acc. to ISO 4633. Internally lined by cement mortar acc. to ISO 4179, externally coated by metal zinc 200 gr/m2 plus bitumen acc.to ISO 8179. L=6 M	-	84	84
2	DN 900 / Ductile Iron Pipes Class C30 Tyton Push-In Joint type acc. to ISO 2531:2009, with EPDM rubber gasket acc. to ISO 4633. Internally lined by cement mortar acc. to ISO 4179, externally coated by metal zinc 200 gr/m2 plus bitumen acc.to ISO 8179. L=6 M	-	84	84
3	EPDM Rubber Gasket DN900	-	168	168

2) Scope of inspection

The Inspection in accordance with the attached ITP (ITP-OMRAB/23-00), which has 9 activity includes:

supplier quality plan, material receiving plan, chemical composition, mechanical properties, microstructure, dimensional, appearance, hydrostatic test, lining, coating, marking, accessories & packing.



3) Applicable documents

Row	Document Name	Document Number
1	COMMERCIAL INVOICE	PI - 05-103-004
2	ITP	ITP-OMRAB/23-00
3	Standards	ISO 2531
4		ISO 4179
5		ISO 4633
6		ISO 8179

4) Instruments used

Row	Equipment Name	Equipment Number	Calibration Validity Date
1	Tensile machine	QL004	2026.10.19
2	Hardness tester	QL003	2026.10.19
3	Caliper	QL107	2026.09.29
4	THICKNESS GAGE (Ductile wall thickness)	QL 117	2027.04.22
5	Hydrostatic pressure gage	QL 371	2027.04.22
6	Thickness gage of lining	PC 400	2027.04.26
7	Furnace Pyrometer (Heat Treatment)	QL 034	2027.09.28
8	Elcometer (finishing layer thickness gage)	PC377	2027.06.26
9	Tape measure	QL 133	2027.04.26
10	Diameter meter or cyclometer 700-1100	QL 401	2026.10.24

5) Description of inspection

The inspection carried out for **Hardam Company** and item are as follows:

1.the ductile iron pipes & gaskets inspected list as follows as table:

DN	Description
900	C25, 84 PCS
	C30, 84 PCS
900	EPDM Rubber Gasket, 168 PCS

2.inspection was done based on the unique serial number of pipes for following step of ITP-OMRAB/23-00:

3.Acc to clause 1, the available documentation shows that the system is in place. **IMS certification** is available and quality documentation was observed & were acceptable.

Raw material control documentation was observed, and sampling of raw materials was carried out to obtain a valid test report.

4. Acc to clause 2, for **chemical composition, microstructure, mechanical properties** include Tensile strength (N/mm²), % Elongation, Brinell Hardness was performed and, on the samples, taken and tested in accordance with ITP and results are satisfactory and within the acceptance range.

5. Acc to clause 3, **Visual inspection** were done considering the technical issues, the appearances of pipe after casting & after coating were inspected separately and no discrepancies were observed. Dimensional inspection (wall thickness, length, internal& external diameter (DE), ovality, straightness, socket depth) was carried out according to ITP clauses and is within the acceptance range.

6.Acc to clause 4, **Leak Tightness (Hydrotest)** according to ITP carried out and the results will be mentioned in the report.

7. **zinc coating** acc to clause 5 of ITP include zinc purity, material type, test plate for mass of zinc coated on the pipe be check and result mentioned in this inspection report and are in acceptance range.

8. The **cement lining** (ratio of material s/c, w/c, mortar precreation, wall thickness & appearance...) checked acc to ITP clause 6, and the results are satisfactory.
9. Acc to clause 7, **marking** of manufactured products was checked & accepted in terms of the information that must be legibly and durably marked.
10. EPDM gasket dimensional control & quantity check acc to clause 8 preformed and the result will be mentioned in this report, also for material & physical properties sample was taken and sent to RAZI refences LAB.
11. Acc to clause 9, documents control (purchase order, TDS & MTC), Packing inspection was check and everything accepted.
- 12- All inspection documents (Performa, ITP), laboratory results & calibration tools report are attached.

6) Non-Conformances

7) Further Operation

8) Conclusion

In accordance with the request of the respected employer acc to ITP, all items were carried out, and no discrepancies were found.

Final Result

✓ **Satisfactory**

- ☐ Unsatisfactory
- ☐ Satisfactory with comment

9) Attachments:

- Minutes of Meeting
- Test Reports
- ITP
- Porches order (Performa)
- Calibration certificates
- IMS Certificates



10) Pictures & test result



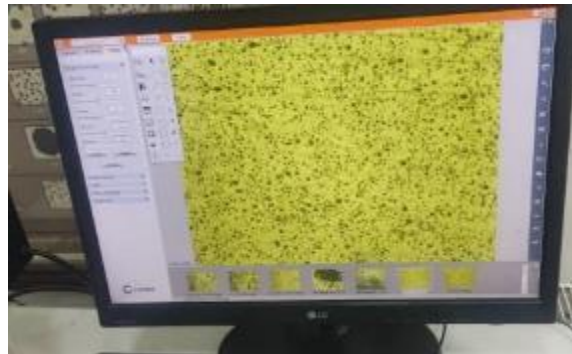
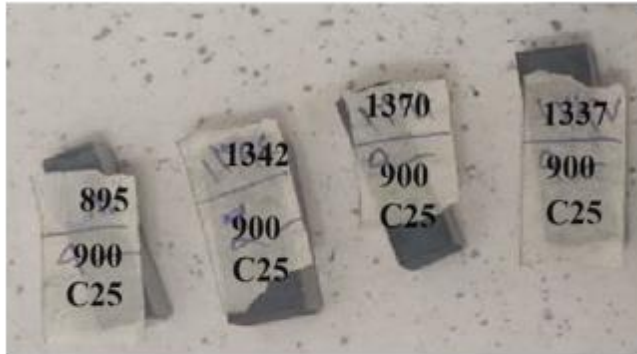
1. Material sampling

2. Chemical composition

SN	DN	Mg	S	Mn	Si	C
9001396	900 C25	0.050	0.009	0.33	2.10	3.55
9001391		0.044	0.013	0.34	2.15	3.66
900913		0.047	0.012	0.126	2.56	3.62
900920		0.04	0.009	0.100	2.51	3.65
9001510	900 C30	0.043	0.010	0.19	2.1	3.45
9001488		0.048	0.015	0.20	2.3	3.55
9001037		0.045	0.014	0.22	2.06	3.58
9001490		0.050	0.011	0.13	2.40	3.55

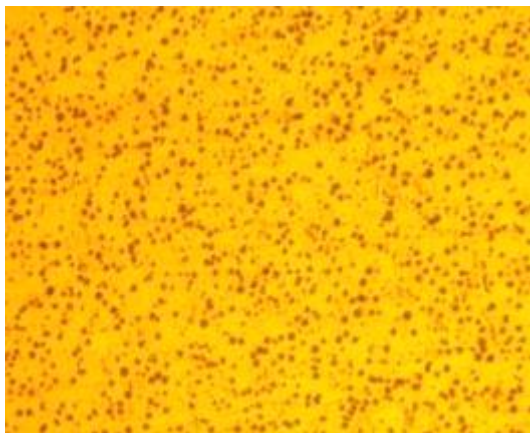


2.1 Pipes chemical composition result



3. Pipes microstructure & hardness sampling

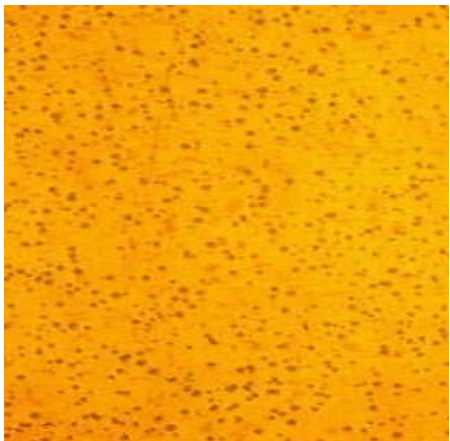
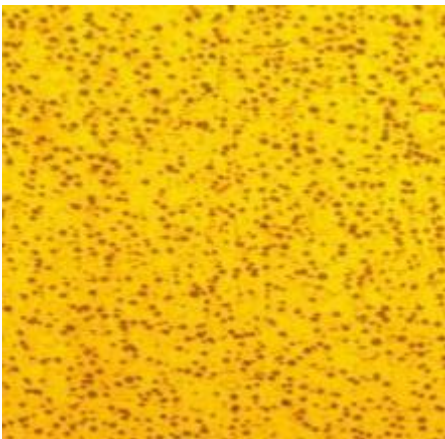
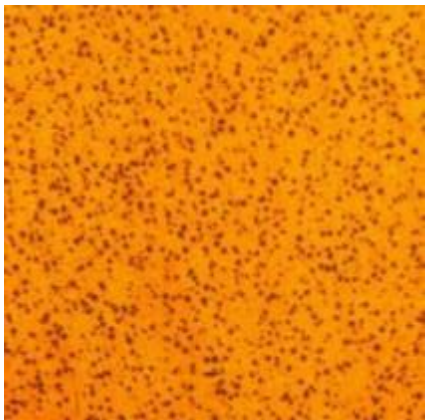
4.1) Pipes metallography



2026090000895 C25

2026090001342 C25



	
2026090001370 C25	2026090001337 C25
	
2026090001488 C30	2026090001491 C30
	
2026090001495 C30	2026090001510 C30



DN 900 microstructure result C25

SN	Sphericity%	NC	G Size	Structure	Hardness HB %	result
2026090000895 C25	90<	400	5.20	Perlite %2	170	Pass
2026090001342 C25	90<	400	5.20	Perlite %2	164	Pass
2026090001370 C25	90<	400	5.20	Perlite %2	167.5	Pass
2026090001337 C25	90<	400	5.20	Perlite %2	158.5	Pass

DN 900 microstructure result C30

2026090001488 C30	90<	450	5.25	Perlite %5	168	Pass
2026090001491 C30	90<	500	5.20	Perlite %2	171	Pass
2026090001495 C30	90<	500	5.20	Perlite %5	169	Pass
2026090001510 C30	90<	400	5.20	Perlite %2	165	Pass

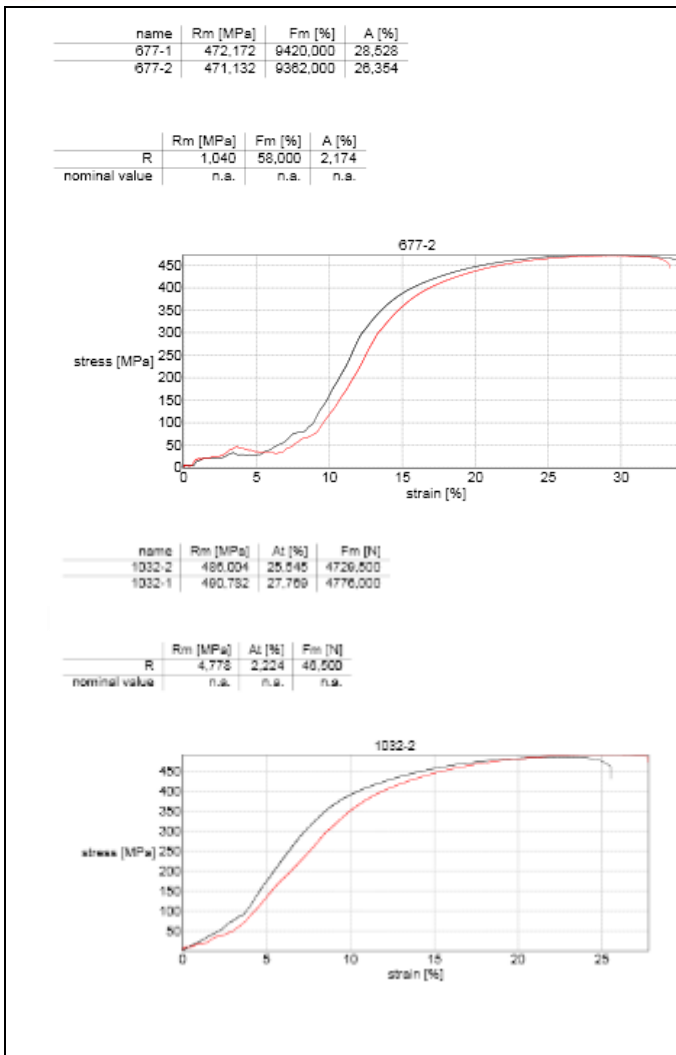
4.2) microstructure picture & result



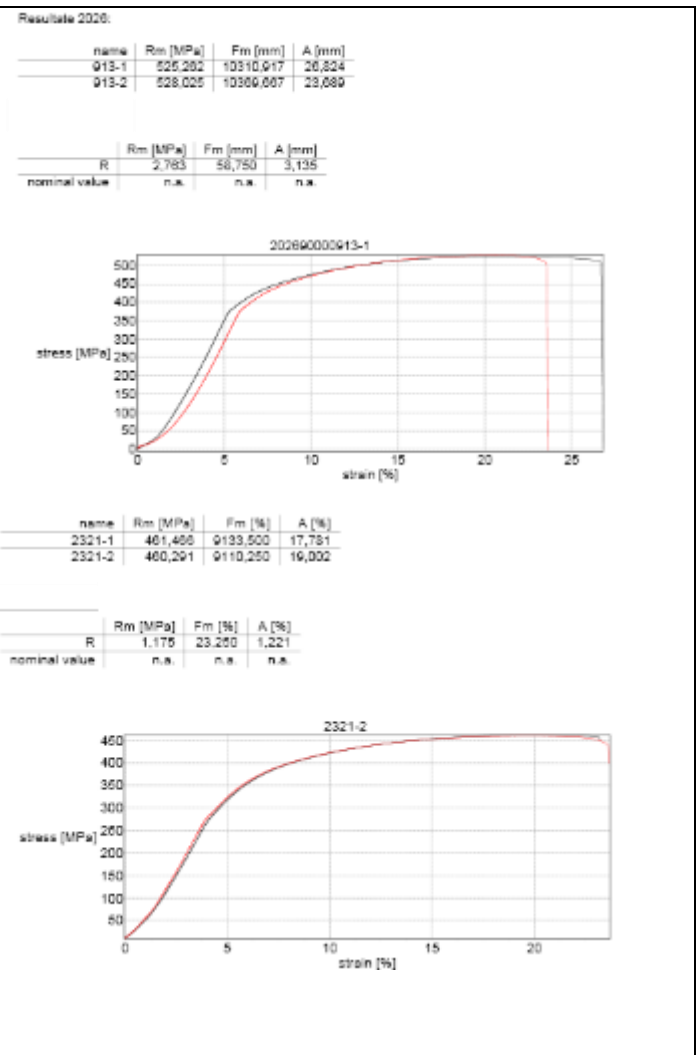
5. Mechanical properties-Brinell Hardness



6.1 Mechanical Properties-Tensile strength& elongation sampling



6.2 Mechanical Properties-Tensile strength& elongation test



6.3 mechanical properties: tensile strength curve

	PIPE Number	Tensile strength (Mpa)		Elongation		Hardness		Result
		Standard	Measured	Standard	Measured	Standard	Measured	
	900677 C25	>420	471	>10	19	<230	170	Pass
	900913 C25		526		16		178	Pass
	9001032 C30		488		17		167	Pass
	9002321 C30		460		19		165	Pass

6.4 Mechanical strenght test result



Parameter	DN 900 C25	DN 900 C30	RESULT
Ovality (circular)	0.4 %	0.5%	Pass
Appearance check	Ok	Ok	Pass
Socket Length (depth)	175 mm	175 mm	Pass

7.1 Dimension & appearance Control: External and Internal Socket Appearance

7.2 Dimension & appearance: External and Internal Socket result



7.3 Dimension & appearance: dimensional requirement / wall thickness

7.4 Dimension & appearance: Length

PIPE Number	Class	Wall thickness (mm)		Length (M)	
		Standard (Min)	Measured (AVE 10 Point)	Standard (m)	Measured (M)
900893	C25	8.4	11.1	5.90 – 6.07	6.02
900904			10.9		5.96
900927			10.6		5.99
9001387			10.8		5.97
9001399			10.5		6.01
9001143			10.6		6.02
9001154			10.6		5.97
9001033	C30	10	12.3	5.90 – 6.07	5.97
9001487			12.4		6.00
9001515			12.3		5.94
9001490			12.5		5.94
9001773			12.4		6.00
9003452			12.6		5.97
9003494			12.4		5.98

7.5 Dimension & appearance: External DE & pipe length result



7.6 Dimension & appearance: internal diameter

DN	Standard (manufacturer design)	Internal diameter D4 (mm)
900 C25	946.5-951.6	120.3
900 C30	946.5-951.6	950.5

7.7 Dimension & appearance: internal diameter result



7.8 Dimension & appearance: dimensional requirement / DE

PIPE Number	DN	Class	DE (external diameter) (mm)		Result
			Standard	Measured	
900893		C25	940.2 - 946	941.8	Pass
900904				941.4	Pass
900927				942.2	Pass
9001387				942.3	Pass
9001399				942.1	Pass
9001143				942.1	Pass
9001154				942.5	Pass
9001033		C30		942.2	Pass
9001487				942.0	Pass
9001515				942.1	Pass
9001490				942.1	Pass
9001773				941.9	Pass
9003452				942.1	Pass
9003494				942.4	Pass

7.9 Dimension & appearance: External diameter DE result



C30

C25



8. Hydrostatic test procedure

8.1 Hydrostatic test gage

PIPE Number	DN (Class)	Hydrostatic test parameter		PIPE Number	DN (Class)	Hydrostatic test parameter	
		Pressure (bar) Min PFA/Class	Result			Pressure (bar) Min PFA/Class	Result
900893	900 C25	25bar,15sec	Pass	900419	900 C30	33bar,15sec	Pass
900899		28bar,15sec	Pass	900425		32bar,15sec	Pass
900914		26bar,15sec	Pass	9001033		31bar,15sec	Pass
900922		27bar,15sec	Pass	9001034		34bar,15sec	Pass
9001135		27bar,15sec	Pass	9001035		32bar,15sec	Pass
9001387		26bar,15sec	Pass	9001037		35bar,15sec	Pass
9001400		27bar,15sec	Pass	9003452		36bar,15sec	Pass

8.2 Hydrostatic test result


BALTIC CONTROL A/S
 Brunbjergvej 3, 1.Sal
 P.O BOX 2199
 DK-8240 Risskov Denmark
 Tel: +45 85216211
www.balticcontrol.com



9. EXTERNAL COATING: Visual check

9.1 EXTERNAL COATING: FILM THICKNESS CONTROL

DN	Zinc Mass (gr/m ²) (Standard)	Zinc Mass (gr/m ²)	Result
900 c25	>200	240	pass
900 c30	>200	228	pass

9.2 EXTERNAL COATING (Zinc Mass)

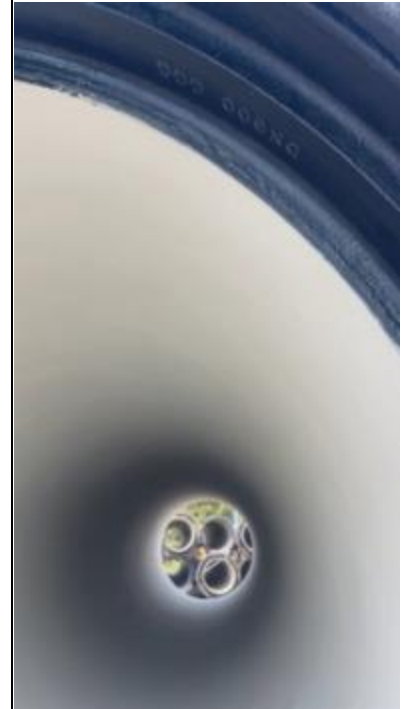
آزمون تعیین عناصر به روش ICP-MASS

غلظت و درصد وزنی عناصر موجود در نمونه به شرح زیر است:

BALTIC CONTROL A/S
Brunbjergvej 3, 1.Sal
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DK-8240 Risskov Denmark
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www.balticcontrol.com

عناصر	غلظت (ppm)	عناصر	غلظت (ppm)	عناصر	درصد وزنی
Mn	<1	Th	<1	Zn	99.99
Mo	<1	Ti	<1	-	-
Nd	<1	Tl	<1	-	-
Ni	4	Tm	<1	-	-
P	<1	U	<1	-	-
Pb	20	V	<1	-	-
Sb	<1	W	<1	-	-
Sc	<1	Y	<1	-	-
Se	<1	Yb	<1	-	-
Sm	<1	Zr	<1	-	-
Sn	15	Te	<1	-	-
Sr	<1	Mg	<1	-	-
Tb	<1	-	-	-	-

9.3 EXTERNAL COATING (Purity)



9.3 Coating & lining: Preparation and mortar weight & S/C – W/C ratio
Sand= 390 kg, Cement=3384Kg
S/C=1.02

9.4 Coating & lining: Lining thickness measure
(The detail of lining thickness in 9.6 section.)

9.5 Coating & lining: appearance
Free from void, gap or any defect.



9.6 Coating thickness measurement

PIPE Number	DN	Lining		Coating		Result
		Lining thickness	Appearance conditions Cement	Pipe Number	Bitumen thickness	
900893	900 C25	7.1	Ok	897	181	Pass
900913		7.3	Ok	920	155	Pass
900927		6.9	Ok	927	139	Pass
9001387		6.5	Ok	1387	170	Pass
9001399		6.6	Ok	1395	169	Pass
9001143		6.8	Ok	1400	150	Pass
9001154		6.3	Ok	1054	133	Pass
9001033	900 C30	7.3	Ok	1036	124	Pass
9001487		6.7	Ok	1490	136	Pass
9001515		6.5	Ok	1493	155	Pass
9001490		7.1	Ok	1499	121	Pass
9001773		6.9	Ok	1838	127	Pass
9003452		6.8	Ok	3485	122	Pass
9003494		7.0	Ok	3489	132	Pass
9.6 Coating & lining: Lining thickness result						



Marking durable on socket (as cast): HANYCO, DN (900, 200 or 100), Year of production, Ductile iron sign (GGG), Unique SN.

Marking legibly on body (painted): ISO 2531, Class (C30 or C25), Project Name (Aqra water treatment plant / KRG DVGW-HARDAM), OMRAB LOGO, inspection mark (Baltic control).

10. Marking on body & socket of pipes



Rubber Industry Engineering and Research Company Lab



TEST REPORT FORM Laboratory

Doc. No.: FR-TM-03
Revision: 13
Pages 2 of 9

Client: Hamoon Nyooch Co

Add: Iran, Kashan city

Tel: +98(031)55779

Email: factory@HamoonGroup.com

Lab Ambient Condition: temp.: 23±2°C Humidity: 35±5%

Date of Request: 01-June-2026

Date of Test: 14-June-2026

Date of Report: 15-June-2026

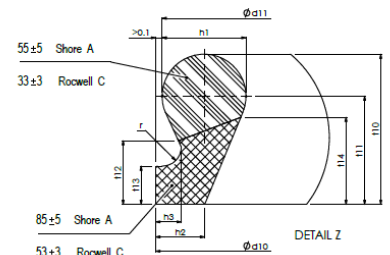
Report No.: TM-10081

Sample Name: HABIKA

Sample Type: Rubber

No. and Shape of Sample

No.	Test	Test Method	Test Result	Unit	Acceptance Interval	Uncertainty	Customer's Requirement (%)	Data Acceptance Rate (%)	First Reject Risk (%)	Remark	
										Pass	Fail
1	Hardness	ISO 48	Mean: 55	IRHD	55±5	-	-	-	-	✓	-
2	Tensile Strength	ISO 37	9.21	MPa	9±	-	-	-	-	✓	-
3	Elongation at break	ISO 37	Mean: 401	%	Min: 375	-	-	-	-	✓	-



DN	d10	Tol	d11	h1 $\begin{smallmatrix} +0.5 \\ -0.0 \end{smallmatrix}$	h2 ± 0.3	h3	t10	Tol	t11	t12	t13	Tol	t
500	583	+0	581	25	14	6.5	42.5		30	18	9	$\begin{smallmatrix} +0.5 \\ -0.3 \end{smallmatrix}$	
600	682	+0	680	27	15	7	46.5		33	20	10		
900	1026	+0	1020	37.5	22	12	66.2		47.5	28	18		

1. Test results are valid only for given samples. 2. The original test report can be cited with an embossed stamp and its copy has no legal value. 3. This report is valid only with the permission of the laboratory director. 4. The remaining samples are stored in the laboratory for a maximum of one month after the test.

تألیف جیس نمونه

شرح آزمایش

- پیرولیز و تهیه طیف IR مطابق استاندارد ASTM D 3677-10(23)

نتیجه آزمایش

- پایه پلیمری نمونه EPDM (Ethylene Propylene Diene Rubber) می باشد.

All dimension acc to manufacturer technical drawing

11.1 ACCESSORIES: Gaskets Hardness and base analysis

11.2 ACCESSORIES: Gaskets Dimension



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Baltic Control



12. Packaging



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DK-8240 Risskov Denmark
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Optical microscope



Tensile machine



Caliper



Coating thickness gage



Hardness machine



Load cell of lining



cyclometer



Tape meter



Wall thickness gage



13. Calibration example; All certificate attached.

Inspector:

FARHAD KHEASHAVAND
INSPECTOR
06.21.2026

Stamp and Signature:

Supervisor of Inspection:

F.esmaeili

Stamp and Signature:

Project Manager

M.hedayati

Stamp and Signature:

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