



# DRILLMEC

DRILLING TECHNOLOGIES

The core  
of drilling  
innovation

RE-CERTIFICATION : **API RP 7L CAT. IV**  
SCOPE OF WORK : **DRAWWORK components**  
MANUFACTURER : **NATIONAL**  
TYPE No : **1625-DE**  
RIG No : **RIG# 5870**  
CLIENT : **SAIPEM**  
DATE : **FEBRUARY 22<sup>TH</sup> 2019**



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## **SECTION 1: DRILLMEC API 7K CERTIFICATE**





# Certificate of Authority to use the Official API Monogram

License Number: 7K-0045

ORIGINAL

The American Petroleum Institute hereby grants to

**DRILLMEC S.P.A.**  
**Via 1° Maggio, No.12**  
**Gariga Di Podenzano, Piacenza**  
**Italy**

the right to use the Official API Monogram® on manufactured products under the conditions in the official publications of the American Petroleum Institute entitled API Spec Q1® and **API-7K** and in accordance with the provisions of the License Agreement.

In all cases where the Official API Monogram is applied, the API Monogram shall be used in conjunction with this certificate number: **7K-0045**

The American Petroleum Institute reserves the right to revoke this authorization to use the Official API Monogram for any reason satisfactory to the Board of Directors of the American Petroleum Institute.

The scope of this license includes the following: Rotary Tables, Piston Mud Pump Components, Drawworks Components and BOP Handling Systems

QMS Exclusions: No Exclusions Identified as Applicable

Effective Date: **JANUARY 13, 2017**

Expiration Date: **OCTOBER 29, 2019**

To verify the authenticity of this license, go to [www.api.org/composite1st](http://www.api.org/composite1st).

Lisa Salley  
Vice President, API Global Industry Services



2015-313

**American  
Petroleum  
Institute**



## **SECTION 2: DECLARATIONS OF CONFORMITY**




# API RP 7L INSPECTION CERTIFICATE

CQD19/059

Client Details			
Client Name	<b>SAIPEM</b>	Inspection Authority	<b>DRILLMEC SpA</b>
Address	<b>Milan, Italy</b>	Inspection Date	<b>22<sup>th</sup> February 2019</b>
		Inspector Name	<b>Valerio Barbieri Pierluigi Italia</b>
Rig / Equipment details			
Rig/Equip. ID	<b>SAIPEM RIG #5870</b>	Details	Equipment: <b>Drawwork components Type 1625-DE</b>
Location	<b>Barbatesti, Romania</b>		Serial No: <b>NA</b> OEM: <b>NATIONAL</b>
Declaration			
We hereby certify that an: <b>API RP 7L CATEGORY IV DRAWWORK COMPONENTS INSPECTION</b>			
Has been carried out on the above named equipment in accordance with terms and conditions of the client's Purchase Order documents and reference standard API RP 7L – 1 <sup>ST</sup> Edition, R 2012. To the best of our knowledge and belief the equipment indicated hereon comply with the applicable requirements of API RP 7L, where meeting the conclusions of the inspection report attached to this certificate.			
Next Inspection			
We recommend that the equipment hereon are subject to further period inspection at intervals of not more than (6) months as per API RP 7L CATEGORY III inspections			
Inspection Date/s	1 ) Next API RP 7L CAT III Due Date : 22/08/2019	2 ) Next API RP 7L CAT IV Due Date : 22/02/2024	
For and on behalf of Drillmec Spa			
Name:		Title:	<b>Inspections &amp; Recertifications Mgr.</b>
Signature:		Date:	Podenzano, ITALY 27 <sup>th</sup> February 2019



## SECTION 3: INSPECTION REPORT

Drawworks CATEGORY IV				
Description:	Drawworks			 <b>DRILLMEC SPA</b>
Location:	BARBATESTI, ROMANIA			
Manufacturer:	NATIONAL	Serial number:	-	
Type:	1625DE	Reference documents:		

#### Safety Precautions:

Ensure that proper work permits are obtained before performing maintenance on this equipment.

Ensure that the installation is properly isolated from the main source of power, and that the drill crew is aware of the ongoing maintenance.

#### INSPECTION & MC ROUTINE

- ☐ Inspect the internals of the drawworks for loose lock wire and loose bolts.

YES	✓	NO	
NOTE	LOCKING WIRE REINSTALLED WHERE HAS BEEN REMOVED DUE TO PARTS REPLACEMENT		

- ☐ Check the condition of the brake rim water hoses.

YES	✓	NO	
NOTE	WATER HOSES IN GGOD CONDITIONS. ALL GASKETS REPLACED		

- ☐ Check condition of the stuffing box assembly of the rotor seal

YES	✓	NO	
NOTE			

- ☐ Check the condition of the kick back springs on the brake bands.


YES	✓	NO	
NOTE			

- ☐ NDT inspections area load bearings (brake bands, linkage, equalizer bar)

YES	✓	NO	
NOTE	LOAD BEARINGS AREAS INSPECTED AS SHOWN IN NOV-TUBOSCOPE REPORTS		




Drawworks CATEGORY IV			
Description:	Drawworks		
Location:	BARBATESTI, ROMANIA		
Manufacturer:	NATIONAL	Serial number:	-
Type:	1625DE	Reference documents:	



**DRILLMEC SPA**

<input type="checkbox"/>	Check the brake equalising bar adjustment and adjust if required. Check all support and hold down bolts for proper tightness.
YES	✓
NO	
NOTE	
<input type="checkbox"/>	Check the adjustment of the kickback screws on the brake bands
YES	✓
NO	
NOTE	
<input type="checkbox"/>	Check the adjustment of the equalizing bar
YES	✓
NO	
NOTE	
<input type="checkbox"/>	Check the wear on the brake band rims
YES	✓
NO	
NOTE	BRAKE RIMS REPLACED WITH NEW
<input type="checkbox"/>	Check for overheating colouring on the brake band rims.
YES	✓
NO	
NOTE	BRAKE RIMS REPLACED WITH NEW
<input type="checkbox"/>	Check for overheating colouring on the brake band rims.
YES	✓
NO	
NOTE	BRAKE RIMS REPLACED WITH NEW
<input type="checkbox"/>	Check for wear on the brake band pads
YES	✓
NO	
NOTE	NEW BRAKE BANDS AVAILABLE ON SITE. ADVISED TO INSTALL THEM

Drawworks CATEGORY IV				
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Location:	BARBATESTI, ROMANIA			
Manufacturer:	NATIONAL	Serial number:	-	
Type:	1625DE	Reference documents:		

- ☐ Check for excessive play or worn holes on all brake assemble joints.

YES	✓	NO	
NOTE	ALL BUSHINGS AND SUPPORT CHECKED FOR EXCESSIVE PLAY. WHERE IT WAS FOUND, THE NEW BRONZE BUSHING HAS BEEN FABRICATED.		

- ☐ Check the condition and the functioning of the inertia brake.

YES	✓	NO	
NOTE	ELMAGCO BRAKE REPLACED WITH A OVERHAULED UNIT		

- ☐ Check the condition of the spline coupling on the transmission output shaft.

YES	✓	NO	
NOTE	N° 1 SPLINE COUPLING REPLACED WITH NEW		

- ☐ Check the condition of the spline coupling of the auxiliary brake.

YES	✓	NO	
NOTE			

- ☐ Check the alignment of the oil pump drive chain.


YES	✓	NO	
NOTE	OIL PUMP DRIVE CHAIN NOTED MISALLIGNED DURING DISASSEMBLY. ADVISED TO CORRECT IT DURING REASSEMBLY		

- ☐ Check Main Drum Lebus for wear and condition

YES	✓	NO	
NOTE	LEBUS IN GOOD CONDITIONS		

- ☐ Open and clean the oil filter.

YES	✓	NO	
NOTE			

Drawworks CATEGORY IV				
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Location:	BARBATESTI, ROMANIA			
Manufacturer:	NATIONAL	Serial number:	-	
Type:	1625DE	Reference documents:		

- ☐ Check the wear of the clutches friction shoes

YES	✓	NO	
NOTE	ON HIGH SPEED CLUTCH ALL SHOES HAVE BEEN REPLACED. ON LOW SPED CLUTCH ALL FRICTION DISCS WERE CLEANED AND REUSED DUE TO GOOD CONDITIONS		

- ☐ Check the holding down bolts of the drive motors.

YES	✓	NO	
NOTE			

- ☐ Check the correct operation of the low drum drive clutch assembly; (check actuating cylinder is making the full stroke)

YES	✓	NO	
NOTE			

- ☐ Check the functioning of the low and high clutch shifting mechanism.

YES	✓	NO	
NOTE			

- ☐ Check the bearing clearance on the main shaft.

YES	✓	NO	
NOTE	MAIN BEARING REPLACED. BEARING FOR LOW SPEED AND HIGH SPEED SPROCKETS REPLACED WERE NECESSARY.		


- ☐ Check the bearing clearance on the transmission output shaft .

YES	✓	NO	
NOTE	MAIN BEARING REPLACED. BEARINGS FOR LOW SPEED SPROKET REPLACED		

- ☐ Check the bearing clearance on the cathead shaft

YES	✓	NO	
NOTE	MAIN BEARING REPLACED		



Drawworks CATEGORY IV				
Description:	Drawworks			 <b>DRILLMEC SPA</b>
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Manufacturer:	NATIONAL	Serial number:	-	
Type:	1625DE	Reference documents:		

<input type="checkbox"/> Check the condition of the chains and the sprockets (check for excessive wear and play)			
YES	✓	NO	
NOTE	ALL CHAINS ARE NEW		
<input type="checkbox"/> Check the mechanical integrity of the crown block saver (pay attention to corrosion and bend or deformed parts of the cylinder assembly)			
YES	✓	NO	
NOTE	ALL PARTS ARE IN GOOD CONDITIONS.		
<input type="checkbox"/> Inspect drillers console for proper operation of gauges, meters, valves and operating handles.			
YES	✓	NO	
NOTE	NO VISUAL DAMAGE NOTED		

<b>Remarks:</b> <b>For additional information refer to maintenance section of Drawworks Manual</b>

Completed Date:	22/02/2019	Duration of Routine:	
Completed By:	BARBIERI VALERIO	Signature:	

	<b>RIG 5870 – SAIPEM, ROMANIA</b> <b>EQUIPMENT INSPECTION ON FIELD AS PER CAT III</b> <b>AND CAT IV</b>	Doc. n. IR-20190220	
		Rev. P00	Date: February 20 <sup>th</sup> 2019

## LIST OF JOB PERFORMED TILL FEBRUARY 20th, 2019 AND PENDING ACTIVITIES

**DRILLMEC SCOPE :**

**DRAWWORK IINSPECTION AS PER API RP 7L CAT IV**

	<b>RIG 5870 – SAIPEM, ROMANIA</b> <b>EQUIPMENT INSPECTION ON FIELD AS PER CAT III</b> <b>AND CAT IV</b>	Doc. n. IR-20190220	
		Rev. P00	Date: February 20 <sup>th</sup> 2019

## DRAWWORK , 20/02/2019 update

- a. Checked the bearings clearance on electric motors shaft. Clearance found in tolerance



- b. Checked the bearings clearance on power input shaft. Clearance found in tolerance



Update 20/02/2019: bearing replaced with new. During point “c” correction was necessary to remove them and in the same time, new bearings were installed



- c. Found the coupling between low gear and shaft with two (2) broken teeth. Advise to replace



Update 20/02/2019: low speed sprocket (part of it is the damaged coupling) replaced with new. Shifter also replaced with new



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- d. Checked the bearings clearance on cathead shaft. Clearance found out of tolerance (1.05mm DS – 0.65mm ODS) advise to replace them



Update 20/02/2019: bearing replaced with new



- e. Cathead shaft already dismantled to remove the worn bearings



- f. Cathead shaft NDT inspected (fluorescent) and no relevant indication found

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		Rev. P00	Date: February 20 <sup>th</sup> 2019

- g. Checked the bearings clearance on main drum shaft. Clearance found out of tolerance. Advise to replace bearings



Update 20/02/2019: bearing replaced with new



- h. High speed clutch removed and found with some broken pads. Replace all the pad



Update 20/02/2019: all pads replaced with new



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		Rev. P00	Date: February 20 <sup>th</sup> 2019

- i. Main drum shaft dismantled for remove the worn bearings. During dismantle was necessary to heat with heating torch the outer bearings of the two sprockets. Those bearings need to be replaced



Update 20/02/2019: bearing replaced with new.

- j. Old Brake rims removed for replacing. New rims already presents on site to be installed

Update 27/01/2019: new brake rims already installed but with temporary 4 bolts each, waiting for new bolts as mentioned on 6.k

Update 20/02/2019: temporary bolts removed. New bolts installed along with new nuts and new safety pins





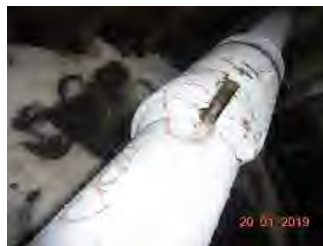
	<b>RIG 5870 – SAIPEM, ROMANIA</b> <b>EQUIPMENT INSPECTION ON FIELD AS PER CAT III</b> <b>AND CAT IV</b>	Doc. n. IR-20190220	
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- k. Advise to replace all the fixing bolts for the brake rims, 32 bolts



Update 20/02/2019: new bolts installed along with new nuts and safety pins

- l. NDT inspection on brake lever mechanism. Cracks already repaired where present



- m. Advise to replace the brake pad on band brakes. At least, the old ones need to be cleaned for some grease/oil deposit with a detergent solution suitable for the job



Update 20/02/2019: brake bands replaced with new.

- n. Side Wear plates on main drum refilled by welding where necessary (**closed point**)



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- o. One spacer flange for the low speed clutch found cracked. Need to be replaced/refabricate



Update 20/02/2019: flange replaced with new (OEM spare part)

- p. started to dismount the power input shaft due to sprocket replacement



Update 20/02/2019: sprocket replaced. All power input shaft assy reassembled and installed back on drawwork frame



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- p. Found driller brake lever with excessive play. Need to be restored. Fabrication of new pins (on going) and new bushings

Update 30/01/2019: pins already fabricated

Update 20/02/2019: new bushing fabricate and installed. Alignment of brake lever mechanism already done on drawwork frame



- q. Funded brake lever supports with bushings worn by foreign materials. Advise to replace



Update 20/02/2019: bushings replaced with new