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## Cleaning tool for the cleaning of pipelines



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IGU, WOC3 Transmission, Optimization of the SG 3.1 and SG 3.3  
Bratislava, Slovakia, March 25 - 27, 2013

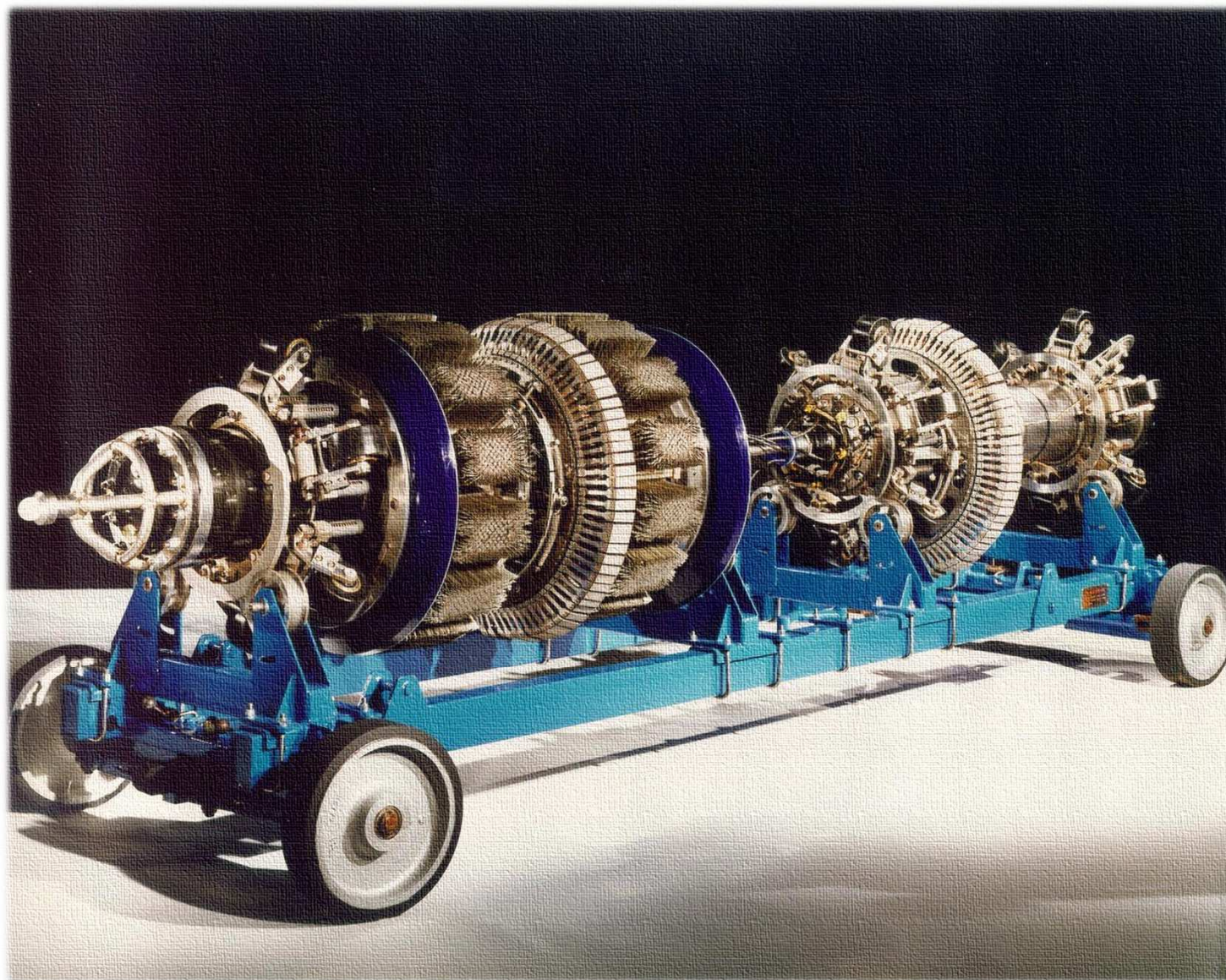
## *DN 1400 cleaning tools (pigs)*

### *Debris pushed out by the DN 1400 cleaning tool*





## *Inspection tool for the In Line Inspection of pipelines*

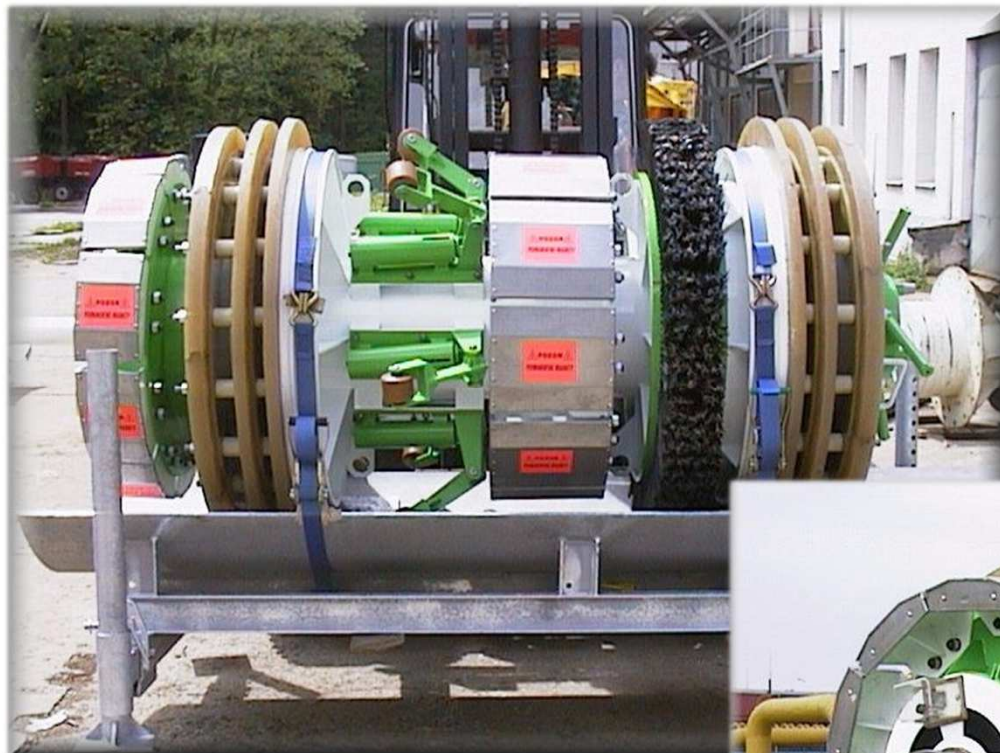


- to reduce the number of cleaning runs to 1/4 of the previous run number
- to reduce the cost of cleaning
- no restriction of the gas transportation
- to increase the efficiency of the gas pipeline cleaning from all, mainly metallic-ferromagnetic impurities
- to increase the homogeneity and abrasion resistance of polyurethane collars
- to provide rotation of the cleaning tool (hereinafter only CT)
- to provide passing of the CT in bends of the gas pipeline with the maximum bend 10D
- to increase of usage properties without any increase of CT weight
- to produce for the purpose of transportation, manipulation, exchange of parts, loading and unloading of CT - into and out of the "pigging trap" simple special container

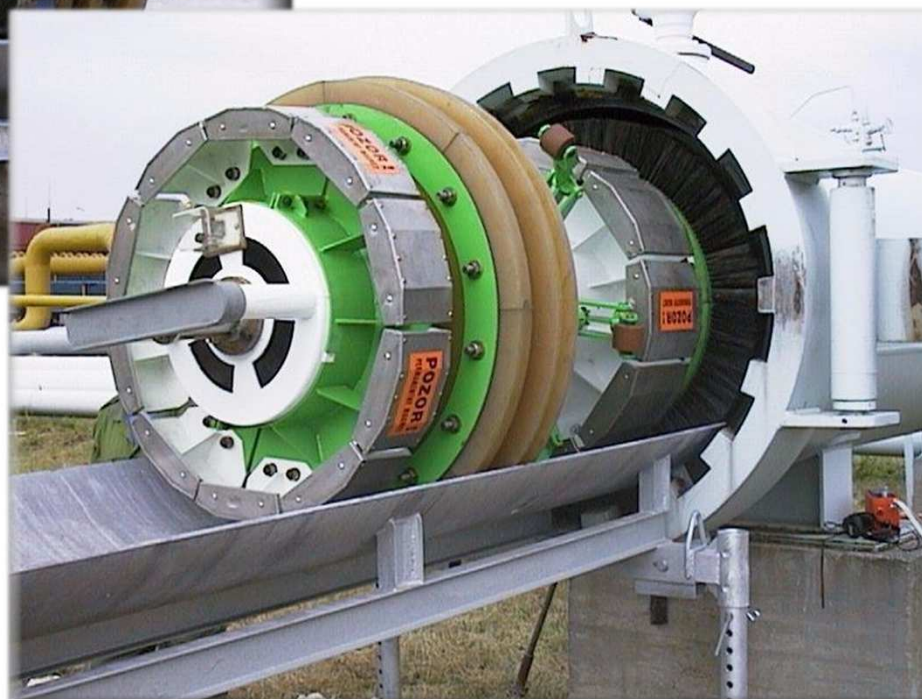
- ✓ A special light steel design
- ✓ Guiding segmented polyurethane discs (*eustream patent*)
- ✓ Wiping (cleaning) polyurethane discs (*eustream patent*)
- ✓ Segmented combined flexible brushes
- ✓ Universal segment carrier for the first and second rows of magnets
- ✓ High-tech permanent magnets (*eustream know how*)
- ✓ Outside axis arms with encapsulated wheels for ensure rotation
- ✓ Exchangeable discharging nozzles for smooth removing of the debris
- ✓ A flange for transmitter mounting
- ✓ Support for CT insertion
- ✓ Rotation counter
- ✓ Support for CT manipulation (for crane)



## *New Cleaning Tool DN 1200*



A prototype of the newly developed CT DN 1200



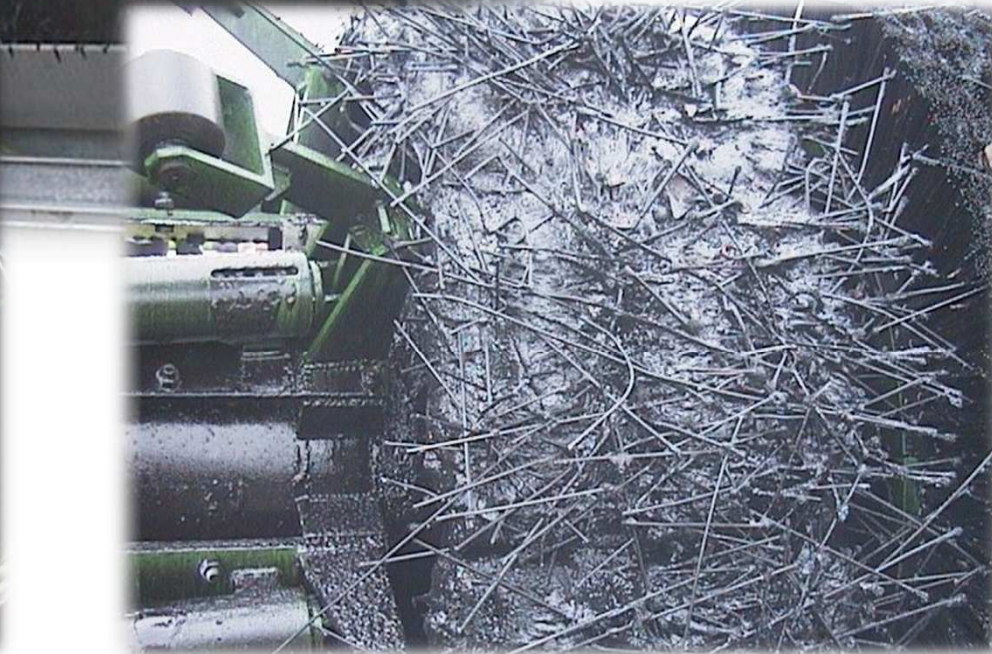
Loading into the trap



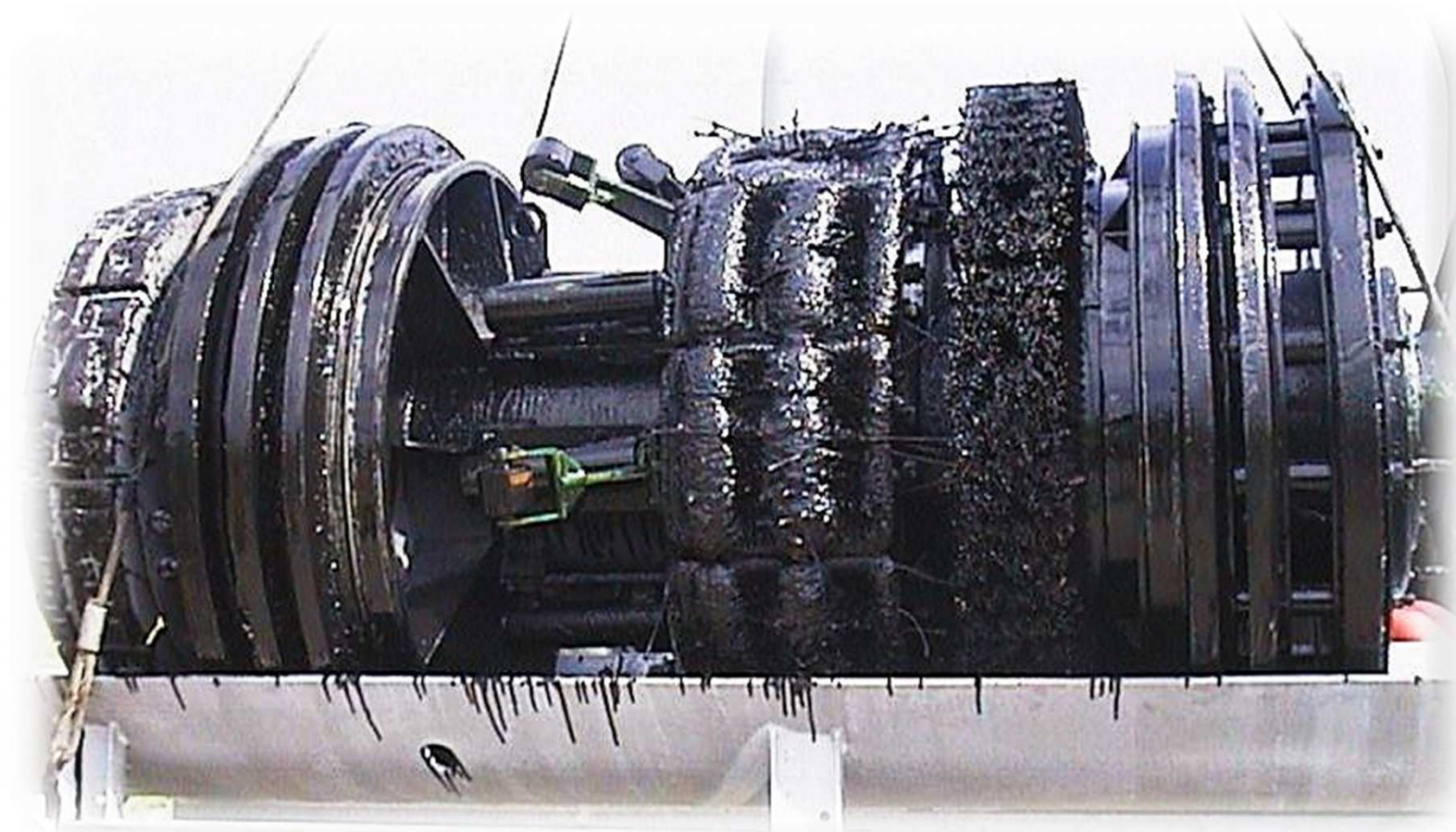
## *New Cleaning Tool DN 1200*



After the first test run

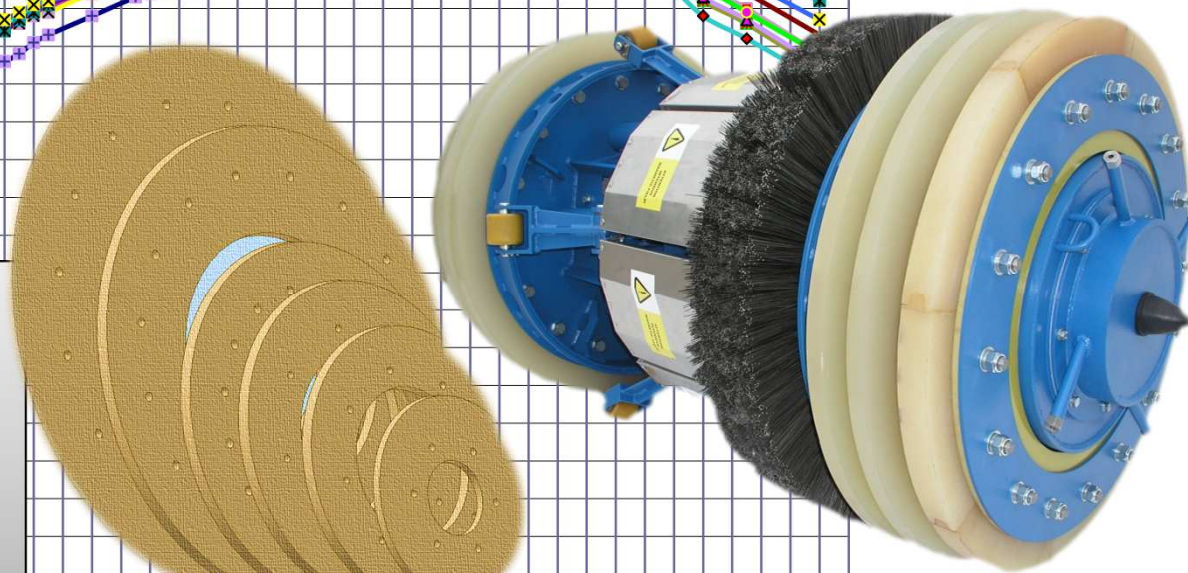
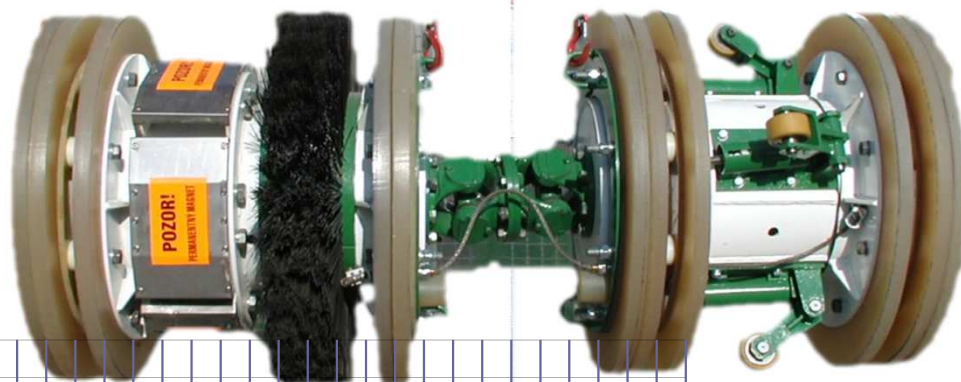
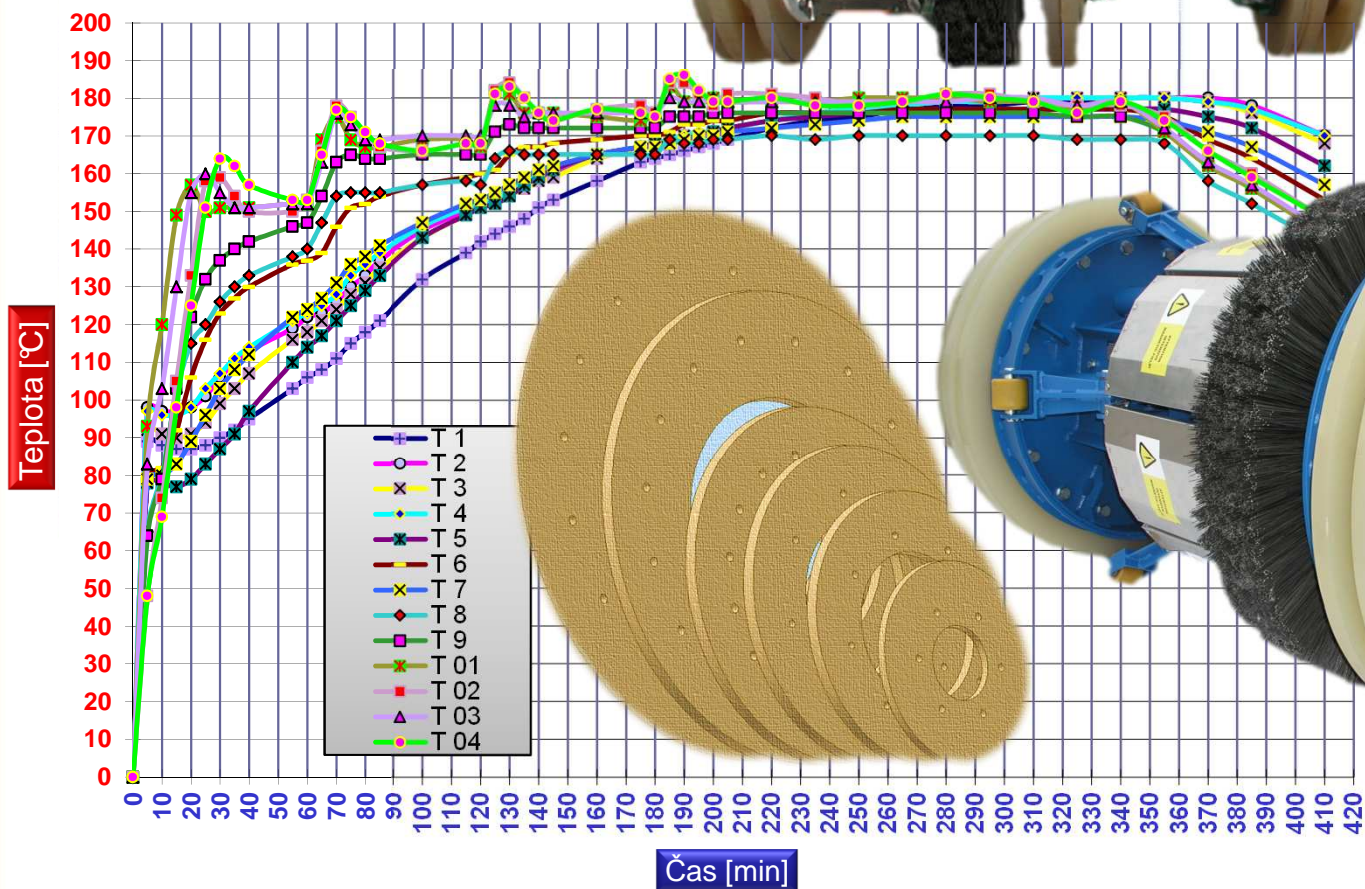






After the second test run





## *Cleaning Tool Position Identification*



Old system  
(pig-sig)



New system  
(magnetic field)

eustream  
know-how



 <p>Europäisches Patentamt Europ Paten</p>	 <p>УКРАЇНА (19) (UA)</p>	<p><b>The Director of the United States Patent and Trademark Office</b></p>
<p>Urkunde Ce</p>	<p>МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ ДЕРЖАВНИЙ ДЕПАРТАМЕНТ ІНТЕЛЕКТУАЛЬНОЇ ВЛАСНОСТІ</p>	<p><b>The United States of America</b></p> <p>Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.</p> <p>Therefore, this</p> <p><b>United States Patent</b></p> <p>Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America for the term set forth below, subject to the payment of maintenance fees as provided by law.</p> <p>If this application was filed prior to June 8, 1995, the term of this patent is the longer of seventeen years from the date of grant of this patent or twenty years from the earliest effective U.S. filing date of the application, subject to any statutory extension.</p> <p>If this application was filed on or after June 8, 1995, the term of this patent is twenty years from the U.S. filing date, subject to any statutory extension. If the application contains a specific reference to an earlier filed application or applications under 35 U.S.C. 120, 121 or 365(c), the term of the patent is twenty years from the date on which the earliest application was filed, subject to any statutory extensions.</p>
<p>Es wird hiermit bescheinigt, daß für die in der beigefügten Patentschrift beschriebene Erfindung ein europäisches Patent für die in der Patentschrift bezeichneten Vertragsstaaten erteilt worden ist.</p> <p>It is hereby certified, that for the invention described in the enclosed patent application, a European patent has been granted in the States specifically designated in the patent application.</p>	<p>видано від "Про охорону пра Голова Державного департаменту інтелектуальної власності</p>	
<p>Europäisches Patent Nr. 1011879</p> <p>Patentinhaber Slovensky Plynársky priemysel, Bratislava</p>	<p>(21) 2000031421 (22) 10.09.1998 (24) 15.01.2003 (31) PV 1250-97 (32) 13.09.1997 (33) SK (41) 15.09.2000. Бюл.№ 4 (46) 15.01.2003. Бюл.№ 1 (86) PCT/SK98/00012, 10.09.1998</p>	<p>Therefore, this</p> <p><b>United States Patent</b></p> <p>Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America for the term set forth below, subject to the payment of maintenance fees as provided by law.</p> <p>If this application was filed prior to June 8, 1995, the term of this patent is the longer of seventeen years from the date of grant of this patent or twenty years from the earliest effective U.S. filing date of the application, subject to any statutory extension.</p> <p>If this application was filed on or after June 8, 1995, the term of this patent is twenty years from the U.S. filing date, subject to any statutory extension. If the application contains a specific reference to an earlier filed application or applications under 35 U.S.C. 120, 121 or 365(c), the term of the patent is twenty years from the date on which the earliest application was filed, subject to any statutory extensions.</p>
<p>Patentinhaber Slovensky Plynársky priemysel, Bratislava</p>	<p>(72) Шкарупа Петер (SK), Зеленай Антон (SK) (73) СЛОВЕНСКИ ПЛИНАРЕНСКИ ПРЕМІСЛ</p>	<p>If this application was filed on or after June 8, 1995, the term of this patent is twenty years from the U.S. filing date, subject to any statutory extension. If the application contains a specific reference to an earlier filed application or applications under 35 U.S.C. 120, 121 or 365(c), the term of the patent is twenty years from the date on which the earliest application was filed, subject to any statutory extensions.</p>
<p>Patentinhaber Slovensky Plynársky priemysel, Bratislava</p>	<p>(54) ПРИСТРІЙ ДЛЯ ОЧИСТКИ ТРУБ</p>	<p>Director of the United States Patent and Trademark Office</p>
<p>München, den 22.01.03 Munich, 22.01.03 Fait à Munich, le 22.01.03</p> <p>EPA/EPO/OEB Form 2031 01.96</p>	<p></p>	<p></p>

*Thank you for your attention*