

Members Meeting 2018
Hermann Lübbers was appointed honorary member

Leading Article HDD
Topic: Blowouts of drilling fluids

Technical Guidelines-Tolerances
Task group presents results for discussion

DCA
DCA
Newsletter July 2018

DCA Annual Congress 2018
23rd Annual Congress Frankfurt/
Oberursel, Germany



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Dear members and friends of the DCA,

This newsletter wishes to inform you about the current work of the DCA, its task groups and events the DCA played a part in.

Our members meeting and the International Pipe Forum in February in Oldenburg surely play a major role. Beyond these we launched the first DCA HDD forum in January, exclusively for DCA's members. This event continued the discussion started during the annual congress in Dordrecht. Then a panel discussion has initiated a kind of failure culture within the field of HDD. By means of an open and honest exchange of experiences we wish to advance the directional horizontal drilling technique and its market position.



Marc Schnau
President of the DCA

During the members meeting we informed you that we want to improve the European membership campaign and the care of these members. For this purpose we decided to install DCA representatives that shall be in charge in certain countries or regions. In the meantime we appointed Mr. Renzo Chirulli of Vermeer and Mr. Brian Jorgensen of Ditch Witch as the first two persons for these tasks. Mr. Chirulli will take care of the Italian market, Mr. Jorgensen of the Spanish market. We wish both of them much success!

Another issue that is keeping us busy not only in view of the HDD technology is digitalisation. Related to this is the desire for more quality of life, operating efficiently and an improved product quality. This influences both our private and professional life, poses challenges and sometimes lets questions of meaningfulness arise.

- Do we need refrigerators or drilling devices that communicate with us via internet?
- How can we handle this flood of information and data, or use them so that in the end efficiency and quality benefit from them?

Against this background we chose our guiding theme for this year's annual congress in Frankfurt:

HDD towards 4.0

What do our clients expect from us, what do we expect from our technology, and what can this technique achieve in future. What is relevant today and what in future? Exciting questions we would like to discuss with you in Frankfurt.

The programme is on its final straight. We are sure that we will provide you with an annual congress full of information and attractiveness.

Until then we are looking forward with you to a beautiful summer, some relaxing holidays, a successful business and a reunion at our annual congress in Frankfurt.

Till then,

Yours Marc Schnau

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Members Meeting 2018

The DCA shall become more European. This and other objectives were in the focus of this year's members meeting in Oldenburg

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Trenchless Engineering Conference in Poland

Günter Kruse explains the importance of the technical guidelines for the trenchless industry and its development process.

Read more at **Page 10**



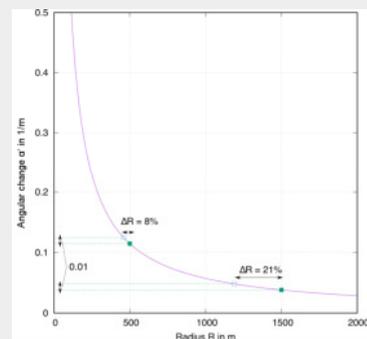
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Technical Guidelines

Board presents the passage "Tolerances" in the Technical Guidelines for discussion

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Technical article blowouts of drilling fluids

At the HDD Forum in January 2018, the topic of "blowouts of drilling fluids" was one of the topics of discussion.

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Social programme of 23rd Annual Congress

Once again this year, the congress will be accompanied by an attractive programme including a visit to Frankfurt's historic old town.

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Annual Congress 2018

The congress will take place from 17-19 October 2018 at the Hotel Dorint Oberursel.

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Review Members Meeting 2018

Annual Members Meeting in Oldenburg

Objectives firmly set in sight

The DCA should become more European. This and other objectives were in the focus of this year's members meeting in Oldenburg on February 07. One objective was for example how to further handle the difficult issue "disposal of drill cuttings and drilling fluids".



Introduction of DCA President Marc Schnau

At the beginning of the members meeting, DCA's president Marc Schnau first touched the number of members. He discerned a "stable to slightly positive development" (currently 106). The gap, however, between regular and associate members was getting wider and wider, said Schnau. Therefore the DCA will occupy itself how to increase the number of regular members in future (at present 35 %). programmes and ideas shall be generated to better appeal to regular members.



DCA Board at the Members Meeting

Expandable was also the number of non-German members, currently amounting to 33 %. In particular in Southern and Eastern Europe there was potential.

Public relations shall be intensified, for example by means of participating in international events. And: "We want to install representatives of the DCA in certain countries. They shall function as contacts on the spot, are familiar with the local market and can establish contacts to drilling contractors", said Schnau. Objective was to be perceived and accepted as centre of excellence per se. Furthermore the DCA was investigating a cooperation with Bau-ABC Rostrup.



View into a well-filled conference room

First talks were held already, others shall follow. The DCA was on the right track, so the tenor.

No distinct solution of the problems around disposal

Since March 2016, DCA's task group 1 had been intensively dealing with the issue disposal of drill cuttings and drilling fluids from directional horizontal drillings. In the absence of Björn de la Motte, the head of this task group, DCA's president Marc Schnau presented the topical status quo. "We could not proceed as quickly as we had wished in the beginning", said Schnau. Complex coherences had to be cleared; in terms of provisi-

ons of (environmental) law they could not advance. Therefore the task group terminated its work at the end of last year. From its report with all researches and findings should be deduced how to proceed.

"We will not be able to declare a certain approach or disposal procedures. The law is the same everywhere, but implementation is a matter of the German federal states and is handled very diversely", said Schnau. "But if there is no distinct answer, then at least we have to bring together contractors and clients and consider how responsibilities and risks can be justly divided." This had to be commonly discussed.

Honours and elections to the board

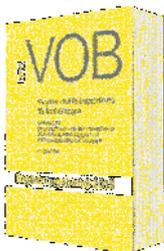
For their membership of twenty years in the DCA, the company American Augers Inc. was honoured. Marc Schnau handed over the respective documents to the representatives of the US American company.

During the elections to the board were elected or confirmed: Jörn Stoelinga (Visser & Smit Hahnab) as vice-president, Jürgen Muhl (Step Oiltools GmbH) as treasurer, Franz-Josef Kißing (Open Grid Europe GmbH) as representative for the care of members, Atef Khemiri (Horizontal Drilling International S.A.S.) as representative for technical issues.

B. Valdix, bi

Hermann Lübbers was appointed honorary member

In recognition of his outstanding merits for the association and the field of directional horizontal drillings, Hermann Lübbers, the former president of the DCA and antecessor of Marc Schnau, was appointed honorary member according to § 3 of the statutes at this year's members meeting. The members of the DCA approved of the board's proposition with great éclat. Lübbers was one of the co-founders of the association. He was able to promote the DCA with his commitment during his 24 years of membership and ten years as its president, and he successfully executed numerous important projects.



VOB 2015

One of his greatest achievements was the development of DVGW's worksheets GW 321 and GW 329 (supervision and professional staff at HDD drillings) and the certifications related to these. This step was a milestone in DCA's history, as was the introduction of own standards that were incorporated into the VOB for HDD drillings.

B. Valdix, bi

Association introduces representatives in Europe

More interested people wanted

The DCA, the European HDD Industry Association, has appointed DCA representatives for Italy and Spain to support its presence in each European country. The task of the DCA representatives is to act as contact persons for the respective domestic HDD industry, to establish contacts and to communicate the goals of the association. In addition, the focus is on the support of member companies and the recruitment of new members both at the executing companies as well as at clients and in the supply industry. They support the work of the board in the sense of the goals of the association and help to make the DCA better known in Europe.



DCA representative Italy

Renzo Chirulli
Vermeer,
The Netherlands



DCA representative Spain

Brian Jorgensen
Ditch Witch,
Spain

Since the beginning of the year, two representatives, Renzo Chirulli from Vermeer, application specialist Pipeline - Europe, Middle East & Africa, and Brian Jorgensen from Ditch Witch, European Sales Manager, have already been recruited, with Enzo Chirulli in Italy and Brian Jorgensen in Spain acting as DCA representatives.

The work of a DCA representative focuses on the following tasks:

- Contact person between the DCA and the domestic HDD industry
- Advising the association on advertising measures, participation in interesting events, congresses, etc.
- Support of the public relations work of the association at domestic congresses, conferences and industry events in which the DCA cannot actively participate (lectures, advertising materials, making contact with potential members, etc.)
- Information and advice to the DCA regarding specific requirements, reservations, difficulties of local HDD companies in connection with the quality requirements and/or the orientation of the DCA.

The DCA strives to install DCA representatives in other European countries as well. If you are interested, please contact our office in Aachen.

A. Quante, DCA

Review IRO 2018

DCA lectures and Drilling Saloon well attended again

The DCA was again represented at the Oldenburg Pipe Forum IRO at this year's beginning of February with six interesting lectures and an information stand. The association could welcome an interested audience at this event that took place for the 32nd time and had the motto "Pipelines - innovative techniques of construction and rehabilitation".



Speakers of lecture block 1

The lecture block 1 was led by the president of the DCA, Marc Schnau, and started with the lecture by Philipp Dick, MOLL-prd GmbH & Co. KG, Schmallenberg, on the question "What depth position is required for the HDD?"

Afterwards, David Nugroho from Deltares, Delft, The Netherlands, gave a lecture on "Geotechnical investigations for ultralong HDD". The first block was concluded by Thomas Winkler, LMR Drilling GmbH, Oldenburg, on the project "The Marsdiep crossing".

Lecture block 2 was presented by DCA board member Ernst Fengler LMR Drilling, responsible for training and further education in the association. The first lecture was given by Edgar Mrotzek, Bohlen & Doyen GmbH, Wiesmoor, on the topic "Deutsche Bahn Guidelines -

Requirements and Quality Requirements for the HDD Process, Field Reports".

This was followed by a lecture by Timo Mücke, Beermann Bohrtechnik, on the subject of "electricity must be generated on land - onshore drilling at the Baltic Sea coast of Lubmin". The second block was concluded by Michael Bijok, EWE Netz GmbH, Oldenburg, on the subject of "Experiences with the use of the "easy2jet" flushing lance system in FTTH broadband expansion".



Speakers of lecture block 2

After DCA's informative lectures series the audience gathered at the traditional Drilling Saloon as usual. In numerous discussions they exchanged experiences and enjoyed some drinks. This year's estimation question at the DCA stand was to guess the time a bit has been used.



DCA- President Marc Schnau with Sascha Weis, winner of the estimation game

Sascha Weis, a student at Fachhochschule Oldenburg, came closest to the correct answer and

went home with the coveted prize, a Bluetooth loudspeaker. Let's try again in 2019!

D.Quante, DCA

Review member forum "HDD-Trouble Shooting" in Essen

Since January this year the DCA offers a new event, the member forum, which took place for the first time on 18th of January, 2018 in Essen. The forum offers a platform for members of the association to exchange experiences and is aimed at construction companies and executives, but is also open to interested professional supervisors, planners and contractors as well as interested parties from the supply industry.

Under the motto "HDD Trouble Shooting", the DCA has set itself the goal of building up a kind of "fault culture" within its members. Errors are not necessarily to be seen as a flaw in the performance of the service, but are much more to be understood as a deviation from the original plan. As a result, a role is also played in the case of mistakes/errors (e.g. of the geology).

To HDD drilling companies in the DCA it is fairly well known that unplanned and undesired events can cause additional work or expense during drilling operations. Loss of drilling fluids, frac outs, drill pipe breaking, excessive wear of tools,... are only a few of the many

problems to be solved. If possible, these experiences will be kept in the companies under lock and key. Or the experiences they have gained will be seen as a future competitive advantage and thus well guarded.

In order to increase the quality and reliability of the HDD process as a whole, these experiences should be used more and more in the volume.

Finally, all active DCA members are also competing with each other, both with conventional pipe laying and with other construction projects.



Participants of the member forum

According to the participants, the first event was characterised by a lively discussion, which resulted in an exchange of experiences, both in the field of large drilling technology and for operators of small and medium-sized systems.

All participants, whether drilling companies, planners, clients or suppliers, took an active part in the discussion, so that the executive board strives to further expand this format of mutual exchange, also of its own "mistakes", for its members in the future.

In the context of the first member forum, the following content-related points were discussed/developed (excerpt):

Drilling fluids/topic: blowers:

- The term "blower" has a negative connotation and should rather be avoided by experts. It is suggested that an information sheet on the subject of mud eruption be compiled (causes, technical course, boundary conditions, countermeasures, etc.). The information sheet should be distributed to the clients, agencies and planners.

Subsoil/Geology:

- the necessity of soil investigation is basically given for every HDD project (access to existing data, reconnaissance). In practice, unfortunately, the client often dispenses with the necessary examinations. The result: a supposedly cheaply purchased construction work becomes more expensive in the end than if it were properly planned right from the start.

- If the ground in the project is different than planned, prompt coordination with the client is recommended (keyword: notice of obstruction).

- The quality of the subsoil report must still be improved (keyword: further training for planners and clients)

Cooperation clients/planner/drilling company/supplier:

- The training of clients and planners for the HDD procedure is suggested (last training took place in 2012, keyword HDD quality assurance from the client's point of view)

- The topic of railway crossing using HDD should be discussed in the HDD discussion forum.

Coating:

- This topic is currently being discussed in working group 2 "coating".

- The responsibilities regarding coating must be clearly defined in a project; in practice there are different models.

- The quality of the coating must be adapted to the requirements resulting from the subsoil. This is often not the case.

- Damage often occurs on the post-coating; quality requirements must be observed.

Equipment:

- Quality and maintenance of the tools used is always the responsibility of the contractor; there are various procedures for testing:

- Within the scope of quality assurance, every company must have a system for self-monitoring of equipment (maintenance, wear, material fatigue, etc.)

Participation in the member forum is free of charge and is reserved exclusively for DCA member companies. Suggestions for the selection of topics are welcome and can be sent to the office at any time.

The next event will again take place in January. Place and time will be announced in the next weeks by member info.

D. Quante, DCA

Further education in the DCA

Site manager training course at Tracto-Technik



TRACTO-TECHNIK

On this year's March 8, TRACTO-TECHNIK GmbH & Co. KG had again invited decision makers, project leaders and site managers of HDD contractors to a seminar of further education in Lennestadt, the home of Tracto-Technik.

The seminar had as title "Change-Order-Management and Disposal of Drilling Fluids in HDD Projects" and had been collectively organised and shaped by the DCA, Tracto-Technik, AMC Germany and the engineering office Moll-prd. 15 participants had accepted the invitation and arrived from all over Germany.

Presentation and first lecture were resumed by DCA's president Marc Schnau. After the welcoming his lecture focussed on the rules and standards that are currently relevant for the HDD technology, like DVGW's worksheet GW321, the technical guidelines of the DCA, and the VOB DIN 18324. Apart from many requirements, these also formulate the rights of HDD contractors that those should claim if necessary.

Second and third lectures by first Mr. Philipp Dick, Ingenieurbüro Moll-prd, and then by Dr. Hans-Jo-

achim Bayer, Tracto-Technik, directly dealt with the issue change-order-management at HDD drillings. On the one hand the lecturers illustrated the rights already named in the block before; thus they named the chances for HDD contractors to claim additional reimbursements in case of divergent or additional performances.



View into the education room

But they also explained the prerequisites for a faultless documentation of difficulties occurring during the drillings.

After the lunch break the seminar continued with the much-debated topic disposal of drilling fluids. Mr. Stefan Gottschalk of the AMC Germany GmbH demonstrated the options reducing the quantity of drilling fluids to be disposed by means of recycling. On the other hand diverse currently chosen ways of disposal and their limitations were portrayed. In the ensuing discussion between all participants and lecturers other approaches and problems were discussed.

All participants should have learned about interesting aspects for their daily work; and they surely could profit from the exchange of experiences with others active in this field of industry in particular.

M. Schnau, DCA

Review - Training according to GW 329 in Celle



BOHRMEISTERSCHULE CELLE
Staatlich anerkannte Fachschule
für Bohr-, Förder- und Rohrleitungstechnik



The DVGW GW 329 "Steuerbare horizontale Spülbohrverfahren" courses were again successfully completed this year.

A total of 48 people attended the training courses in January and February 2018 at the Bohrmeisterschule in Celle.



13 successful FA-A participants

Technical supervisors of groups A and B, site managers A and B and equipment operators of groups A and B were trained.



20 successful GF-A participants

The courses will take place in 2019 again in January/February at the Bohrmeisterschule in Celle.

Dr. U. Grossmann, BMC

Seminar on the technology of drilling fluids - handling HDD drilling fluids and training on the laboratory scale

Further education on February 12-15, 2018 at Bohrmeisterschule Celle

Drilling fluids have a key importance in the discussion about “trouble shooting” and quality assurance at HDD construction sites. During the execution of HDD drillings it is often observed that the expertise varies a lot in view of handling drilling fluids, or is often insufficient.

One reason finds its origin in the fact that machine operators, site managers and supervisors only receive basic knowledge about drilling fluids in the courses according to DVGW GW 329. For this reason the DCA in cooperation with Bohrmeisterschule Celle developed a training programme providing options for machine operators and site managers to advance as “specialist in the technology of drilling fluids for HDD measures” by means of further education.

After first courses had been organised in 2016 and 2017, a quality audit of the individual groups of topics was made and evaluated by Mr. Ernst Fengler in his function as DCA's representative for training and further education, and Dr. Udo Grossmann, the headmaster of Bohrmeisterschule Celle.

In both, the theoretical part and the practical training in the laboratory, some elements for improvement were identified. Some adaptations

could be made that are viewed as rather “common or unusual” in HDD practice and/or are classified as typically application-specific, like for example conditioning of the mixing water, types of drilling fluids, solids content. Also extended was the chapter concerning disposal/reutilisation of drilling fluids.



Participants during instruction in the laboratory

After this “review”, the seminar on the technology of drilling fluids could be held with 15 participants on February 12-14, 2018.

The seminar now consists of 10 blocks of topics. In the final test all participants could prove they deepened their professional knowledge concerning the technology of drilling fluids. In particular the practical handling of drilling fluids could be improved considerably carrying out actual tests on drilling fluids.

All participants could complete this further education successfully. The evaluation of the participant survey and the experiences of the lecturers showed that the course matter was appropriate regarding the wishes/requirements of all parties involved. In order to afford or facilitate companies or employees participating in this further education, it is planned to offer this seminar in winter months (December 2018 till February 2019) in future as well.

Concluding from the last course it can be stated that the transfer of knowledge and the essential ob-

jectives of the programme could be successfully implemented. The agreement between the lecturers concerning theory and practice proved of value; thus theory and practice perfectly complemented each other.

In the last block of topics “assessment of laboratory findings”, the participants could bring in line the executed experiments with drilling fluids with their experiences from practical work; this topped the comprehension of HDD drilling fluids off.



Mixing of a drilling fluid

The participants emphasised the small study groups, the intensive professional support in the laboratory and the practical tutorials particularly positive.

Summing up we state that the further educational course to advance employees as “specialist in the technology of drilling fluids for HDD measures” means a quality enhancement of HDD drilling measures.

*Dr. U. Grossmann, BMC
E. Fengler, DCA*

CKB certified HDD courses now available in the Netherlands

A few months ago, in January, in the Netherlands, a start was made with a series of new courses for machine operators, site managers and project engineers working in the field of horizontal directional drilling. The courses for small projects using machines with a capacity below 40 ton and large projects using machines above 40 ton are certified by CKB according to the Dutch regulation system.

The first course for small horizontal directional drilling projects was attended by 12 people, who successfully passed their exam. The courses for both small projects and large projects will be offered again in January 2019 at the national institute Deltares in Delft.

H. Kruse, Deltares

16th Trenchless Engineering Conference in Poland

TYTAN 2018 went to ZRB Janicki

From June 20 to 22, 2018, the 16th international conference, exhibition and technology fair "Trenchless Engineering" took place in Poland. True to the motto "back to the roots", the venue was

moved from Zawiercie to Tomaszowice near Krakow in order to be able to offer a larger-scale exhibition. The event, which is unique in Poland, was first held there in 2004 by the three Polish trade magazines Wydawnictwo Inzynieria, Inzynieria Bezwykopowa (editor Pwael Kosmider) and Inzynieria.

The Drilling Contractors Association (DCA) was a partner of the event and was represented at the exhibition by Günter Kruse, LMR Drilling. During a panel discussion, he explained the importance of the technical guidelines for the trenchless industry and its development process.



Günter Kruse at his presentation
(Source. Quality Studio)

The programme of the three-day symposium, which was very well attended by around 400 participants, consisted of 25 lectures, discussion rounds, workshops, over a dozen live technology shows and three special shows. More than 40 exhibition stands as well as numerous competitions and attractions - and much more awaited the participants off the conference.

On Wednesday evening there was a barbecue and on Thursday evening a gala dinner with live music and the presentation of the annual TYTAN prize, which in turn contributed to the mutual exchange.

The nominations for the TYTAN prize, among which some member

companies of the DCA could be found, were evaluated in five categories by the lecturers of the Polish Technical University.

The winner of the TYTAN Prize was ZRB Janicki from Poland, a member of the DCA. The prize was awarded for a project aimed at the longest HDD crossing in hard rock constructed in Poland (979 metres long, depth up to 32 metres). This project included the installation of a section of a DN700 steel gas pipeline on the Hermanowice-Strachocina line, as well as the installation of a pipeline for the fiber optic network. The geological conditions of the San River, such as clay and sandstones (up to 40 MPa) and variable dipping angles of the layers, determined the drilling work.



View at the podium
(Source. Quality Studio)

The event was a complete success thanks to the many visitors who exchanged knowledge and experience, the machines exhibited and impressively demonstrated in the shows and the solutions offered in the field of trenchless construction and also thanks to the excellent weather.

A. Quante, DCA

Revision Technical Guidelines

Adjustment of the "Tolerances" passage

With publication of the German VOB DIN 18324 tolerances for the execution of horizontal directional drillings were initially introduced and in the same manner subsequently adopted in the 4th revision of the DCA Guidelines. These tolerances define the permissible deviations between the works and their respective specification in terms of contractually agreed dimensional properties.



Beyond that, the publication of tolerances serves all parties as guidance for HDD specific deviations that may generally be expected.

In practice however, the introduction of general tolerances led to multiple and prolonged discussions especially with regard to the specified accuracy of bending radii for pipes or drillings.

Especially for large diameter drillings and in difficult or changing geologies, it was often not possible to meet these requirements.

The discussions were aggravated by misunderstanding and differing opinions among the parties as to the definition of specifications or tolerances – this especially, due to ambiguous requirements in VOB DIN 18324 (geometry of the pipe) and DCA Guidelines (geometry of the pilot drilling).

In order to prevent future discussions and contradicting requirements with regard to VOB DIN 18324 the draft revision of the Adjustment of the "Tolerances" passage has been developed by a DCA work group. This draft will be sent to the members with the next member information for examination.

It should be noted, that the specified tolerances apply as a general rule for the execution of HDDs. Deviating requirements shall be agreed by the parties with due justification, if it may be expected in any special case that the general requirements will not be met.

Rock or soils with heterogeneous properties as well as significant changes in compaction may in certain cases affect steering of the drilling considerably.

Corresponding measures or agreements shall be in place prior to contract signing or commencement of the works, since such (geotechnical) information is generally available during the planning phase.

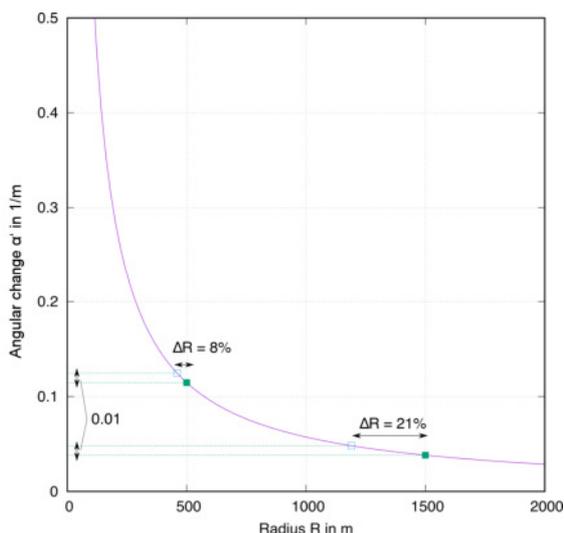


Fig. 1: Influence of a constant angular error at differing radii

The same applies for individual cases, if e.g. the dimensions or sequence of drilling tools and guidance systems are likely to affect the steering.

An assessment of such effects as well as the choice of corresponding design radii shall be carried out with due regard of the relation between steering angles and radii. The following figure illustrates the influence of a constant angular error at differing radii.

The upper bound of the permissible deviation from a specified radius has correspondingly been deleted as an important change of this revision of the DCA guidelines – and in contrast to VOB DIN 18324 – since a reduced curvature of pipes is in general not considered a limitation to the works. The permissible positional tolerances (horizontal, vertical) remain unaffected by this change.

Dr. Tim Jaguttis, DCA

Blowouts of drilling fluids for HDD

Blowouts of drilling fluids for HDD - a negatively affected term?!

During the HDD forum in January 2018, organised by the DCA and addressing qualified personnel coming from its member companies, one much-discussed topic was the issue “blowouts of drilling fluids”. The participants exchanged ideas about varying causes, consequences, and measures if a blowout occurs, as well as possible preventive actions. One opinion shared by many participants was that the discharge of drilling fluids onto the terrain surface above the directional horizontal drilling was often overhasty and unnecessarily demonised a catastrophic disaster for the adjacencies/ environment or for the drilling itself.



A more differentiated and project-specific analysis is required whether and to what extent discharges or losses of drilling fluids can be tolerable in order to prevent forbidding a directional horizontal drillings in the run-up, interrupting a directional horizontal drilling during its performance, or facing disproportionate high costs of avoidance (for example recurring pull-out of the drill string because of losses of drilling fluids).

Eventually also the question was discussed whether the mere term “blowout of drilling fluids”, as it is used within the field of HDD, already causes the association of negative consequences. Like many technical terms of the HDD technology, also blowout has its origin in the English technical jargon of the deep drilling industry. There “blowout” identifies an uncontrolled discharge of drilling fluids, mineral oil and/or natural gasoline through the bore hole. In general a blowout is a disaster that occurs suddenly or even explosively and not least has a high hazard potential because explosive mixtures can arise.



In the context of HDD drillings, blowouts of drilling fluids are far less dramatic because neither huge pressure differences between drill hole and atmosphere exist, nor hydrocarbons are extracted or entrained. Apart from water and the natural clay mineral bentonite, HDD drilling fluids normally contain only environmental friendly additives. Nevertheless blowouts of drilling fluids can impair the ecological balance in particularly sensitive natural environments, or jeopardise the stability of other buildings in a transport area. In such surroundings planning and performance have to be tackled with special care, and provisions have to be taken in case a blowout occurs.

To counter misunderstandings it has to be clarified that in cases without delicate surfaces or buildings where no special care is required as mentioned before consequently, still the due diligence obligation and the acknowledged state of the art may not be disregarded. This means that of course drilling and drilling fluid parameters (pump rate,

drilling speed, diameter of drilling tools etc.) must be observed in accordance with DCA's guidelines. Everybody has to be aware, however, that despite observing all these requirements you can never exclude incidences of blowouts of drilling fluids.

Natural as well as artificial anomalies of the soil can be responsible. Furthermore the due diligence obligation already starts during the planning by the client. If for example a stretch is planned to be laid by means of the HDD method in a depth normal for conventional open trench laying, i.e. with just little cover, a higher probability of blowouts of drilling fluids is deliberately accepted. This is legitimate as far as no hazards can arise from such blowouts and as far as the drilling company provided that the recognized rules of technology are followed, this is not certified as faulty execution.



It has to be accounted for that the controllability of drilling fluids depends on both, a professional execution of a drilling, and on geological conditions and planned concepts. The closer you get to the process-related limits, or even exceed these, the higher is the probability of a blowout of drilling fluids. This can be definitely tolerable if the consequences were checked, evaluated and accepted by all parties involved. A controllable disposal of emitted amounts of drilling fluids has to be guaranteed, of course. It implies an increased expenditure that has to be seen as special performance, if it was not caused by a defective drilling execution. Pre-emptively prepared relief bores or pits can provide additional opportunities to contain and convey the very probably occurring discharge of drilling fluids in a controlled way.

Thus these discharges of drilling fluids are normally no disasters with hazard potential, nor are they inevitably the result of a defective drilling performance. It cannot be criticised if the contractor operates at the limits of the HDD method for reasons of cost efficiency or to make a measure feasible in the first place. Not least because of that the technology or its components will be developed, and today drillings are possible that were not perceived as being feasible in the past. The point is to consider and accept the potential side effects.

M. Schnau, DCA

Company profile TRACTO-TECHNIK

TRACTO-TECHNIK develops, produces and markets machines and accessories for the underground installation and renewal of pipelines. These trenchless NODIG technologies are used for the construction of supply networks for water, gas and power, telecommunications, district heating, fibre optic cable networking and in pipeline construction as well as in sewage disposal. The customers who use these special machines mainly come from the area of civil engineering and specialized civil engineering, but also include utility companies and network operators.



Inspiring trenchless technologies

The economical and ecological advantages of trenchless technologies compared with open trenching are obvious: Valuable surfaces are protected, time-consuming and expensive excavation and restoration work is not required, there are no traffic jams or diversions, only low emissions of noise, CO₂ and particulate matter and the actual construction times are shortened significantly.

Our unique product portfolio covers the entire range of trenchless pipeline construction for supply and disposal. Be it soil displacement hammers and mini drilling systems for installing service connections, ramming machines for pipeline construction, HDD systems for crossing traffic routes and waterways or pipe bursting systems for pipe renewal. Because our claim is to not only provide reliable technology, but also complex and flexible solutions.



Strong customer focus

We all pursue the aim of providing our customers with products and services of outstanding quality, which can be used efficiently at a high environmental standard. Doing so, our corporate values are the foundation of our thoughts and actions and the touchstone for our daily work. We approach our daily challenges with enthusiasm, clarity, independence and a down-to-earth attitude.

As an owner-managed family business we have developed into an award-winning, internationally successful special machine manufacturer since the company's foundation in 1962, today having around 500 employees worldwide and sales representatives in over 70 countries. Our company is managed by Managing Directors Wolfgang Schmidt (Owner/COO), Timotheus Hofmeister (CFO), Meinolf Rameil (CTO) and Uwe Prinz (CMO).

Innovation as a company tradition

We are among the pioneers in the development and manufacturing of innovative systems for underground pipeline installation. While searching for the best solution, company founder Paul Schmidt invented the first German soil displacement hammer in the early 1970s. Under the mole trademark, the GRUNDOMAT revolutionised pipeline installation and remains a byword for trenchless technologies to this day.

The enthusiasm for optimal solutions and the fascination for innovative technology drive us to this day. We have developed groundbreaking technical solutions and made a decisive contribution in shaping the industry. This innovative strength makes us a "Hidden Champion" in medium-sized businesses in Germany and is reflected in well over 350 current patents and numerous awards.

Globally networked

Six sister companies in Switzerland, Great Britain, France, Morocco, the USA and Australia as well as sales partners in numerous international markets enable professional networking with all relevant market players. This allows us to ensure maximum availability, individual service and competent personal consulting for our customers worldwide. We also use our network to exchange industry expertise right on target to create maximum added value for clients, planners and users.

Smart solutions for pipe bending

Another business unit of our company are machines, manufacturing systems and software solutions for pipe forming and machining technology, which are developed, produced and marketed under the independent brand of "Pipe Bending Systems". This name reflects the core competence, which is expertise in system solutions for pipe machining in individual and small production runs at a high level of product variety. After all, optimised pipe systems are essential all around the world to ensure functioning infrastructure for the transport of liquids and gases. Thus these products are used in numerous industries such as the automotive industry, shipbuilding and plant engineering. What the products all have in common is that they allow for pipes to be bent and their ends machined while efficiency levels can be increased with the use of specific software and measurement technology solutions.

With its Pipe Bending Systems and NODIG business units including sister companies, the TRACTO-TECHNIK Group generates annual sales of over 100 million euros. Over 60 % of this is produced in international markets.



Key facts and figures of the TRACTO-TECHNIK Group

Company headquarters:	LenneStadt-Saalhausen, Germany
Managing directors:	Wolfgang Schmidt, Timotheus Hofmeister, Meinolf Rameil, Uwe Prinz
Founding year:	1962
Employees:	over 500 worldwide, of which around 400 in Germany
Sales:	over 100 million € in the NODIG and Pipe Bending Systems business units
Intellectual property:	more than 350 patents worldwide
Awards:	Hidden Champion, TOP 100, Axia Award and many more
Export share:	60%
Export markets:	Sales partners in over 70 countries
Industrial sector:	Mechanical engineering, metalworking & electrical industry

More information is available online at www.tracto-technik.de

Task groups

Status report Task group 1

Disposal/Recycling of Drilling Fluids from HDD

As already explained at the members meeting at the beginning of February, the work on the topic in the working group has not progressed as far as was actually planned by the board. This is due, among other things, to a number of open points that have not yet been clarified. At the beginning of the year, Mr. de la Motte sent the Board a status report with an associated questionnaire. This report is currently being reviewed and finalized by the Board. In particular, the work is to define narrowly defined recommendations for action for the industry. It can therefore be assumed that a final report will not be available before the end of the year.



M. Schnau, DCA

Status report Task group 2

Coating quality

The members of the task group have held two meetings this year so far. In the mean time Mr Gandard (Optimum) had joined the task group, on be-



half of the FSTT. This allows us to get a better input from France as well as a wider recognition of the report once finalised.

The subject is certainly something that plays a role in France as well, since one of the major pipeline operators, GRT Gaz, is currently working on a computer programme to determine the correct coating for each project.

In the April meeting, two engineers from the company developing the programme, joined the meeting to explain how it is put together and how the recommendation is made. It was interesting to see how GRT Gaz ran into the same problems as the task group did in their process. Main issues are that various coating systems are difficult to compare and it is not clear how the borehole will have an effect on the coating, especially with regards to shearing and cracking.

Once all project data are entered (length, diameter, soil conditions etc) the programme makes a relative comparison between those systems, indicating one is better than another in four different areas. It is up to the user to then determine the best system.

The programme currently does not incorporate the field joint coating yet, which we in the TG consider to be the most critical part.

The members of the group are currently working finalising the describing sections of the report, and we are discussing what, apart from descriptions of factory and field joint coatings, should be included. Currently a sort of risk matrix is being developed, but it is difficult to take all relevant info in account

and come to a clear recommendation.

J. Stoelinga, DCA

Status report Task group 3

Revision Technical Guidelines

On 26th April 2018 the taskforce met a first time. Basic principles were agreed for reviewing the Guidelines and the review was started. It is anticipated having finished these operations by the end of 2018, if possible. Afterwards, the results of these operations will be presented to the DCA-Board. Upon agreement there, the revised sections of the Guidelines will be presented to the members.



In future the meetings for reviewing the Guidelines will be on a 6 – 8 weekly interval.

E. Fengler, DCA

23rd DCA Annual Conference - Topic: HDD towards 4.0

Workshops on "HDD-Small Scale Drilling/ Requirements in the DCA Guidelines" and "Digitisation, Automation" are in focus

"HDD towards 4.0", this is the motto of the 23rd Annual Congress of the Drilling Contractors Association (DCA), which will take place from 17-19 October 2018 in Frankfurt, at the Hotel Dorint in Oberursel.



Hotel Dorint Oberursel

With 740,000 inhabitants, Frankfurt am Main is the largest city in Hessen and the fifth largest city in Germany. Around 5.5 million people live in the entire Rhine-Main Metropolitan region. Since the middle ages, Frankfurt am Main has been one of the most important urban centres in Germany. Today the city is one of the most important international financial centres and an important centre for industry, services and trade fairs. The conference takes place in the Dorint Hotel in Oberursel, on the slopes of the Taunus, about 30 km away from Frankfurt.

The conference will open on Thursday with a highly interesting presentation from the digital world. Adri Wischmann from the IoT

Netherlands will talk about "Internet of Things" how does that affect our daily life? In addition to further interesting lectures on digitisation and broadband expansion using HDD, two workshops will take centre stage this year. Workshop 1 will be devoted to the topic of HDD small drilling technology and the associated requirements in the DCA Technical Guidelines. The workshop will be headed by Dr. Tim Jaguttis, de la Motte & Partner and Ernst Fengler, LMR Drilling. The workshop will be held in German language. Simultaneous translation in English will be provided.

Workshop 2 deals with the topic "Digitisation, automation (plant construction, mud technology, control technology)" and will be conducted in two linguistically separate groups. The "German Group" is led by Marc Schnau, Bohlen & Doyen, and Günter Kruse, LMR Drilling. The "English Group" is managed by Jorn Stoelinga, Visser & Smit Hanab b.v. and Atef Khemiri, HDI. Workshops 1 and 2 will take place in parallel and in two blocks. On the following day, the results of the workshops will be presented and discussed.



Frankfurt am Main, Germany

On Friday morning, traditionally interesting lectures on HDD projects and special HDD topics will take place. Two new members from Germany and Italy will present interesting HDD projects.

The conference will again be accompanied by an attractive supporting programme.



Congress room at Hotel Dorint

As always, the highlight of the supporting programme will be Thursday evening. Here the DCA invites to a festive event in the "Güterbahnhof" in Bad Homburg. The registration documents for the conference will be sent to you shortly.

D. Quante, DCA

The DCA would like to thank the sponsors of the Annual Congress 2018:



23rd DCA Annual Congress Frankfurt/Oberursel

Topic: HDD towards 4.0

Wednesday, 17th of October, 2018

- 11.30 – 18.00 **„Check in“** at
Hotel Dorint Oberursel
- 13.00 **Lunch** at Hotel Dorint Oberursel
- 14.30 **„Discover Frankfurt“**
- 19.30 **„Cocktail reception“** sponsored by Hotel Dorint Oberursel
- 20.00 **Dinner** at Hotel Dorint Oberursel

Thursday, 18th of October, 2018

- 09.00 **Welcome**
Dipl.-Geol. Dietmar Quante - Executive Secretar DCA-Europe
- 09.15 **Welcome**
Dipl.-Ing. (FH) Marc Schnau - President DCA-Europe
- 09.30 **“Internet of Things” - how does that affect our daily life?**
Adri Wischmann, IoT Niederlande
- 11.00 **Coffee break**
- 11.30 **Fibre optic expansion at EWE NETZ: Technical status of installation processes
incl. future prospects**
Dipl.-Ing. (FH) Alexander Bruns, EWE NETZ GmbH
- 12.10 **Digitisation in HDD, experience and implementation**
Dipl.-Ing. Ernst Fengler, LMR Drilling GmbH
- 12.45 **Discussion**
- 13.00 **Lunch** at Hotel Dorint Oberursel
- 14.30 **HDD Workshops**
Workshop 1: HDD-Small Scale drilling / Requirements in the DCA guidelines
Chair: Dr. Tim Jaguttis, de la Motte & Partner
Dipl.-Ing. Ernst Fengler, LMR Drilling GmbH
Dipl.-Ing. Marco Reinhard, Leonhard Weiss GmbH & Co. KG
Language: German (Simultantranslation: English)

- Workshop 2A: Digitisation/automation (plant engineering, mud technology, control technology)**
 Chair: Dipl.-Ing. Marc Schnau, Bohlen & Doyen GmbH
 Dipl.-Ing. Günter Kruse, LMR Drilling GmbH
 Language: German
- Workshop 2B: Digitisation/automation (plant engineering, mud technology, control technology)**
 Chair: Jorn Stoelinga B.Sc, Visser & Smit Hanab b.v.
 Atef Khemiri, HDI
 Language: English
- 15.30 Coffee break**
- 15.45-16.30 Continuation HDD Workshops**
- 16.45 Review HDD Workshops**
 DCA Board, Workshop Leader
- 19.00 Meeting Hotel Lobby – Transfer by bus**
- 19.30 Cocktail reception at „Güterbahnhof“ in Bad Homburg**
- 20.00 Dinner at „Güterbahnhof“ Bad Homburg**

Friday, 19th of October, 2018

- 09.00 Steep slope drilling in a state winery**
 Udo Harer, Josef Rädlinger, Ingenieurbau GmbH
- 09.35 ANESE s.r.l.- Midi & Maxi Rig Case Histories”**
 Marcello Viti, ANESE s.r.l.
- 10.10 Review HDD-Workshops**
 Workshop 1: HDD-Small Scale drilling / Requirements in the DCA guidelines
 Workshop 2: Digitisation/automation
- 10.30 Coffee break**
- 10.50 Comprehensive Insurance solutions for construction, in particular HDD, projects**
 Lutz Weidtke, Marsh GmbH
- 11.30 Re-defining boundaries in Norwegian hard rock**
 Jorn Stoelinga B.Sc, Visser & Smit Hanab b.v.
- 12.15 HDD drillings for geotechnical applications
 (soil engineering, tunnelling, drainage and rock stabilisation)**
 Dipl.-Geol. Dr. Hans Joachim Bayer, Tracto-Technik Lennestadt
- 12.45 End of program**
- 13.00 Lunch at Hotel Dorint Oberursel**

Annual Congress in Frankfurt - Social Programme

Frankfurt's "Weibertour" will win over with a varied participatory programme

The social programme of this year's annual congress will first invite its participants to the traditional tour of the city of Frankfurt on Wednesday between 03:15 till about 05:00 p.m.



The „Frankfurter Römer“

The city Frankfurt on the Main, a dynamic and international financial centre and trade fair town, and with about 736,000 inhabitants the biggest town of Federal Land Hesse, impresses with Germany's most commanding skyline. Its contrast are miscellaneous: modern high-rise buildings and comfy Ebbelwoi taverns (offering a kind of cider) in the city centre with its historic sights. Since the middle ages, the city is one of Germany's most significant municipal centres. From 1562, Frankfurt on the Main was the city where the Roman-German emperors were crowned. In 1848/1849, the German national assembly met as first German parliament. Today the city is one of the most important international financial centres. Numerous financial institutes have their domicile here, and Frankfurt also made its mark as trade fair town. Imbedded into

the green corridor of the Rhine-Main Regional Park, Frankfurt on the Main has more nature to offer than any other municipality in Germany. And in terms of culture it offers an incredible diversity of possibilities...

On Thursday you can look forward to a special team event by women for women only. Become acquainted with Frankfurt from the female perspective. That means no grave-sites, churches or monuments. Women with interesting jobs or vocations tell about their daily routine, give insight and prospect of things worth knowing, new or traditional. The guided tour first leads to a Frankfurt artist where everyone will be taught how to create small works of art. Refreshments will be served as well. Afterwards the group will pay a visit to "sinful fashion" with plenty inspiring and funny information. Around noon an architect will receive us on top of the famous Maintower, high above the roof tops of Frankfurt. We will enjoy a fantastic view of the Main metropolis.



Maintower

During our stay we will have lunch here. In the afternoon the program-

me will conclude with a visit to the "Naschwerkstatt" (snacking workshop) where typical Frankfurt souvenirs will be produced. Well, did I pique your interest?

We will return to Dorint Hotel in Oberursel around 04:00 p.m.



"Güterbahnhof" Bad Homburg

On Thursday evening the DCA will receive the congress participants in the premises of the goods rail depot in Bad Homburg. The station was built in 1904 and can tell many stories: at this trading post of Bad Homburg, buyers and sellers from the neighbourhood traded goods from round the world. Carefully restored until 2013, it is now declared historic monument. Its distinctive ambience will provide the setting for DCA's evening event on Thursday evening.

Friday morning can be used individually, for example for shopping in Oberursel or a prolonged walk in the hotel's own woodland.

The traditional golf tournament is also planned.

A. Quante, DCA

Further Education GW 329

06.12.2018 Schlosshotel Wilhelmshöhe, Kassel



The seminar is primarily aimed to supervisors which have an examination certificate in the A and B training courses. In addition, it also serves as a suitable training course for technical personnel and construction managers, who are active in the area of the horizontal drilling method.

Note: Please register for the training seminar and the courses at www.brbv.de

HDD-Course - GW 329

In January / February 2019 the next courses according to DVGW Worksheet GW 329 of the skilled stuff "skilled supervisor, site manager and machine operator" will be hold at the Bohrmeisterschule Celle.



1.1.1 skilled supervisor (A/B) for horizontal flush drilling method according to DVGW Worksheet GW 329

A: 07.01. bis 11.01.2019 B: 28.01. bis 30.01.2019

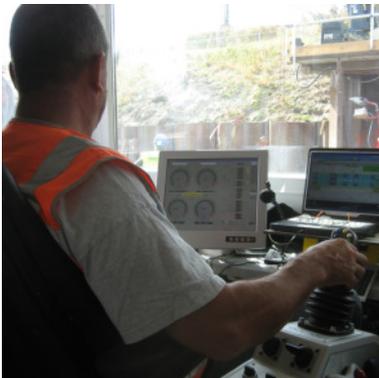
1.1.2 site manager (A/B) for horizontal flush drilling method according to DVGW Worksheet GW 329

A: 07.01. bis 18.01.2019 B: 28.01. bis 31.01.2019

1.1.3 machine operator (A/B) for horizontal flush drilling method according to DVGW Worksheet GW 329

A: 14.01. bis 25.01.2019 B: 28.01. bis 31.01.2019

Note: Please register at www.brbv.de



Verband Güteschutz Horizontalbohrungen e.V.
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