DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
122 East 42nd Street
New York 17, N. Y.

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: THE EDGEWATER BEACH HOTEL, CHICAGO, ILLINOIS

DATE AND TIME: MONDAY, OCTOBER 20, 1952

MEMBERS PRESENT:

E. M. Jenkins	Christensen Diamond Products Co.
W. C. Weslow	Diamond Products, Incorporated

MEMBERS ABSENT:

K. S. MacPherson	J. K. Smit & Sons, Inc.
A. E. Ross	Sprague & Henwood, Inc.
P. Adamson (ex-officio)	Wheel Trueing Tool Co.

OTHERS PRESENT:

W. J. Schank	Sprague & Henwood, Inc.
W. J. Weslow	Diamond Products, Incorporated

PRESIDING OFFICER:

E. M. Jenkins, Chairman

I. APPROVAL OF PREVIOUS MINUTES:

In view of the length of time which has elapsed since the last meeting, no attention was given to the minutes of the previous meeting.

II. DISCUSSION:

The subject for discussion was the set gage of "X" series bits and reaming shells. The Committee was directed to consider whether or not the bit O.D. gage should be closer to the reaming shell.

Mr. W. C. Weslow reported on the history of the establishment of this difference stating that previously the reaming shell had been set on an average of .012 over bit gage.

Mr. Schank added to this information the fact that hand setters used reaming shells set to $\frac{1}{2}$/64 over bit gage.

Canadian standards were checked and found to conform more nearly to the thinking that the reaming shell should carry more or less of the cutting load.

The possibility of having two standard bit gages, that is the present bit gage and an over-size bit gage more nearly approaching reaming shell gage, was considered and discarded as being to confusing to both the manufacturer and the user. Mr. W. J. Weslow stated that some users on the Iron Range were specifying bits set .015 under the mean reaming shell gage.

The consensus of the Committee was that the clearance of .015 under reaming shell gage should be recommended to the Association for approval. Adoption of this new standard should cause little or no difficulty to either the manufacturer or the user. The Committee recognized, however, that the standards publication would necessarily have to be revised in this connection. While it was felt that the change was important, the Committee recommended that an immediate change in the present publication was not necessary and that inclusion could wait until a new edition of Bulletin No. 1 was made.

III. TIME AND PLACE OF NEXT MEETING:

The time and place of the next meeting was allowed to remain at the call of the Chair.

IV. ADJOURNMENT:

There being no further business, the meeting adjourned.

Reported by E. M. Jenkins

EMJ:ej/ecl

MAILED FROM DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION: NOVEMBER 28, 1952

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION

122 East 42nd Street
New York 17, New York

FILE COPY

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
NEW YORK, NEW YORK

DATE AND TIME: THURSDAY, APRIL 17, 1958 - - 11:00 A.M.

MEMBERS PRESENT:

F. E. AuWerter	Diamond Products, Inc.
Joseph Gold	Diamond Tool Research Co., Inc.
K. S. MacPherson	E. J. Longyear Company
H. J. Meinert	J. K. Smit & Sons, Inc.
S. J. Warren	Anton Smit & Co., Inc.
W. J. Whinnen	Joy Manufacturing Company

MEMBERS ABSENT:

F. M. Capp	Joy Manufacturing Company
C. J. Dela Gorgendrier	Wheel Trueing Tool Company
Wm. H. Hampton	Hoffman Brothers Drilling Co.
L. W. Janson	Sprague & Henwood, Inc.
E. M. Jenkins	Christensen Diamond Products Co.

OTHERS PRESENT:

Patrick Adamson	Wheel Trueing Tool Company
A. E. Ross	Sprague & Henwood, Inc.
Frank P. Anderson	Institute Staff

PRESIDING OFFICER:

In the absence of the regular Chairman, Mr. Meinert served as Temporary Chairman by previous appointment of the President.

I. APPROVAL OF PREVIOUS MINUTES:

This was a special meeting called by the President to consider a specific subject and hence the previous minutes were not reviewed.

II. PURPOSE OF MEETING:

This was a special meeting called by the President of the Association to prepare recommendations on two subjects in response to a request for such assistance made to Mr. Ross on behalf of the Association by Mr. Nesbitt, Chief Geologist, U. S. Corps of Engineers, Gravelly Point, Va. Mr. Nesbitt specifically asked for recommendations on the following two subjects:

(a) Method of testing hardness of matrices used in diamond core drills.

(b) Method of selecting diamonds used in diamond core drills.

II. PURPOSE OF MEETING: (CONT'D)

Because of conflicting events, some of the regular members of the Committee were represented by alternates previously designated by their principals and approved by the President. In the case of the regular Chairman, Mr. Jenkins' written comments, as contained in Exhibit A, attached hereto, were reviewed. In addition, Mr. Ross submitted an outline of his discussion with Mr. Nesbitt in his letter dated March 24, 1958, copy of which is attached hereto as Exhibit B.

III. RECULTS:

Attached hereto as Exhibit C is a letter of recommendations, dated April 23, 1958, to Mr. Nesbitt as prepared by the Committee and later approved by Legal Counsel and the Executive Committee. This was mailed to Mr. Nesbitt on the date shown.

IV. TIME AND PLACE OF NEXT MEETING:

The time and place of the next meeting were left to the call of the Chair.

V. ADJOURNMENT:

There being no further business, the meeting adjourned.

Frank P. Anderson
Secretary

pd

ATTACHMENTS: Exhibit A - Mr. Jenkins' letter of April 14, 1958
Exhibit B - Mr. Ross's letter of March 24, 1958.
Exhibit C - Letter to Mr. Nesbitt of April 23, 1958

MAILED FROM DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION: May 1, 1958

C O P Y

SPRAGUE AND HENWOOD, INC.

March 24, 1958

Mr. Frank Capp
Joy Manufacturing Company
Sullivan Division
Michigan City, Indiana

Dear Frank:

In a recent conversation with Mr. Robert Nesbitt of the Corps of Engineers, Gravely Point, Washington, D. C., I was asked to enlist the services of the DCDMA in helping him revise two items in their diamond bit guide specifications. I explained the red tape involved in first securing an assignment from the Executive Committee and then obtaining action from the Technical Committee on Bits. He recognizes these problems but urges our immediate consideration of his request so that he may have information on hand as requested by the middle or end of April. This, then, necessitates prompt action if we decide to assist him, and I recommend strongly that we do.

As a brief review, some years ago the Industrial Diamond Association's Bit Committee met in an advisory capacity with the Corps of Engineers in Washington to help the Corps prepare guide specifications for the purchase of diamond bits. At that time the assistance of IDA was solicited because IDA had registered officially protests concerning the manner in which diamond bits had been purchased. After these guide specifications were written they were submitted to the Diamond Core Drill Manufacturers Association and a letter was sent from the Association or a Committee of the Association to the Corps of Engineers, concurring in the principals involved in the purchase of specifications. In view of the fact that the Diamond Core Drill Manufacturers Association includes all principal bit manufacturers as far as I know, whereas, on the other hand, IDA does not include all principal manufacturers, Mr. Nesbitt felt that it would be most helpful if the DCDMA could render the service requested.

The advice requested is on two items:

(a) The hardness range of the matrix for soft, medium and hard matrix is being considered for revision. The measurement of the hardness on the soft matrix might possibly be in the Rockwell "A" scale in place of the Rockwell "C". If on the Rockwell "A" scale, would a range of somewhere near 60 to 68 be acceptable? On the medium range, would Rockwell "C" 30-45 be acceptable and on the hard range over Rockwell "C" 45?

(b) The diamond size has been a problem. As now specified, the diamonds are requested sometimes in the range of 20 to 22 per carat and the diamonds submitted are much broader in range. In order to be fair about this, it has been suggested that we might be able to classify diamond sizes by the stones per carat passing through certain sieves. At present the Corps of Engineers is using small lam and Lam sieves #9 to #1. I pointed out to Mr. Nesbitt the apparent impracticality of using such small size sieves for production work and I believe he might be open to suggestion for alternate round hole sieves.

EXHIBIT B

2. Diamond size.

From a standpoint of manufacture, we feel that the request for diamonds in the size range of 20 to 22 per carat, as sighted in the example, is entirely impractical.

I am enclosing a copy of a table which lists the diamond size control that we use in our plant. As many of those attending the meeting are aware, we manufacture our own sieves. Our reason for doing this was that we felt great variation in sieves would result in variation of the finished products. We have been using our own sieve sizes for over ten years, and many other people in the trade are also using them as standards.

They are round hole sieves ranging from Plus-F to Plus-20. This method of classification sorts the diamonds into stones per carat as shown in the red block. From this table you will see that it is not practical to specify diamonds 20 to 22 per carat. With a hole size variation of .005, stones per carat change from plus-4 (30 per carat) to plus-5 (25 per carat). From a practical standpoint our standard specifications for say a 25 per carat bit include screen sizes plus-4 (30 per carat) to plus-6 (20 per carat). Further, if only one screen size were used, i.e. plus-5 (25 per carat), the diamonds may be as large as 20 per carat or as small as 30 per carat, since the stones per carat size of the screen is only an average of all stones retained on the screen. All of this is presuming round stones are being used. The disparity would be further increased by the irregularities of shapes commonly found in an average assortment of drilling material.

It would be our recommendation that if a standard set of screens could be adopted, diamond size would be much better specified by the customer on the basis of screen size. For example, plus-4 to plus-6 could be specified in the event that an average 25 per carat was desired.

I am sure that everyone present will be very conversant with the round hole diamond screens. However, I am enclosing a print on the screens we are manufacturing. If anyone at the meeting has any ideas of making these sieves for themselves, I can strongly recommend against it and suggest instead that they buy them from us.

I hope that this may be of some value in arriving at a satisfactory solution for Mr. Nesbitt. I am sorry that I cannot attend in person and will appreciate receiving a report of the results of this meeting.

Sincerely yours,

s/n
Edward M. Jenkins

EMJ:cjv

Note: Exhibits omitted here.

C O P Y

CHRISTENSEN DIAMOND PRODUCTS COMPANY

April 14, 1958

Mr. Frank P. Anderson, Secretary
Diamond Core Drill Manufacturers Association
122 East 42nd Street
New York 17, New York

Dear Frank:

As I told you in New York, I find it impossible to attend the special meeting called for the Technical Committee on mechanically set bits.

I have made some investigation relative to the two subjects to be considered, and while the results are not conclusive, I shall let you have my thoughts on these matters:

1. Testing of matrix hardness.

It has always been our contention that the Rockwell method of testing hardness of powdered metal bits cannot be taken as final in determining abrasion resistance, which is, of course, the important factor so far as matrix wear is concerned. Since we have no alternative method, we must agree to the continuance of this type of testing. We do find that testing a diamond set crown is extremely difficult at best, if not even impractical.

The unit to be tested must be perfectly rigid on the anvil, and the surface to be indented should be parallel to the anvil. For the most accurate testing the surface to be indented should be quite smooth. All of these conditions are extremely difficult to meet when testing the matrix in a diamond set crown.

One of the members suggested that the testing be done in the waterway. This is a good suggestion since the surface of the waterway would generally have been ground or otherwise have a more uniform finish than the diamond set portion. However, the waterway may not be wide enough to permit the entry of the indenter. If acceptable to the customer, I should think it would be more practical to furnish as a sample a properly prepared block of the matrix metal for use on the Rockwell testing unit. Alternatively a dummy crown of the matrix metal, on which a flat surface has been ground could be submitted for testing.

In any case the powdered metal crowns are certainly giving a variety of readings, and some provision must be made for accepting a certain range of readings in a single bit. This range of readings does not indicate any lack of homogenity, but simply a difference between the validity of the test from one portion of the crown to another.

EXHIBIT A

The specific request, however, is for a guide showing the size diamonds in stones per carat which pass through certain screens and are retained on the next size smaller screen, and a recommendation on the type of screens suggested.

This is a big assignment on such short notice. However, this is an opportunity for our Association to render a service to the Government and possibly help clarify a situation bothering many of us at the present time. I know the time is very short but anything which you may suggest to help us cut the red tape and render this service will be appreciated.

I have sent copies of this letter to all officers and members of the Executive Committee and to Mr. Robert Nesbitt.

Sincerely yours,

SPRAGUE & HENWOOD, INC.

s/n

Adrian E. Ross
President

AER/lap

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
122 EAST 42nd STREET • NEW YORK 17, N. Y.

April 18, 1958

To: All Members of the Executive Committee
and All Members of the Technical Committee
for Mechanically Set Bits

Subject: Draft of Letter to U. S. Corps of Engineers
with Respect to Matrix Hardness and Diamond Size

Gentlemen:

As a result of the meeting held at Association headquarters in New York on April 17, the attached draft was prepared.

Many obstacles interfered with the Committee in this task, but by virtue of compromises on all sides, a reasonable consensus was reached. It is believed that the attached material is satisfactory to everyone.

In any event, this draft is being sent to you for your perusal and approval. Since the Association reply must be sent to Mr. Robert Nesbitt of the U. S. Corps of Engineers within this week, it will be assumed that you have no objection if we do not hear from you by Wednesday, April 23.

A copy of this draft is being sent to Counsel for legal review. By copy of this letter he is being invited to comment.

In closing, please let me repeat. If you do not approve, please reply by return mail.

Very truly yours,

Frank P. Anderson

Frank P. Anderson
Secretary

FPA:eu
Enclosure
cc: Mr. George A. Birrell

APR 23 1958

Mr. Robert Nesbitt
Chief Geologist
Office, Chief of Engineers
Gravelly Point, Virginia

Subject: Corps of Engineers Guide Specifications for Diamond Core Bits

Dear Mr. Nesbitt:

In accordance with the request you made to the Association in your conversation with Mr. Ross, the Association, through the efforts of its Technical Committee for Mechanically Set Bits, has developed the following recommendations on the two items mentioned by you. These items deal with matrix hardness on diamond bits and means of selecting diamond sizes for diamonds used in diamond bits. In addition, we have taken this opportunity to comment briefly on several items which we feel have a bearing on these recommendations.

It has been our feeling that the Rockwell method of testing matrix hardness of powdered metal bits should not be taken as an indication of abrasion resistance, which is of course the important factor as far as matrix wear is concerned. We do not, however, have any alternative method to suggest.

You requested hardness ranges for soft, medium and hard matrices. In reply, we suggest 50 to 65 on the Rockwell "A" scale for the soft matrix, 25 to 45 Rockwell "C" for the medium hard matrix and over 40 Rockwell "C" for the hard matrix. These scales provide overlaps, but from a practical viewpoint we feel that is unavoidable. However, as a preferred alternate to the use of dual scales, we suggest the adoption of a single scale with corresponding ranges of 63 - 73 Rockwell "A" for the medium hard matrix and over 70 Rockwell "A" for the hard matrix. The soft matrix range would remain at 50 to 65 Rockwell "A".

Further, we believe that the procedure for taking these readings is of vital importance if they are to have any significance. For instance, readings cannot be taken at too close intervals or they will not reflect correct hardness readings. This view is based on a recommendation of the manufacturers of Rockwell testing equipment.

We therefore feel that no readings should be taken closer than 1/8 inch from the nearest exposed edge of any diamond. A distance of 1/8 inch from the nearest edge of the diamond is of necessity a minimum because hidden portions of the diamond will be even closer to the testing point. This would mean that in some cases only areas in waterways or on the side of the bit would remain for testing. When these areas are tested, a firm anvil support of the bit is required to prevent distorted readings.

The soft and medium ranges of hardness outlined above apply to all sizes of bits. The hard matrix range, however, applies only to bits NX casing size and smaller. If bits larger than this are required, either the medium or soft matrices should be specified.

Application of the rather narrow range of diamond sizes now specified has little effect on the efficiency of the bit. There seems no reason why this range should not be broadened. Our suggestion would be that the guide specify the desired diamond size and then provide for a variation of plus or minus 25% of this size. For example, if 20 per carat diamonds are required, it would then be understood that the acceptable size range would be 15 to 25 per carat, this covering the 25% allowable variation.

Present sizing procedures usually result in slight variations from the desired range. We suggest that a maximum variation of 10% of a given lot be permitted outside of the maximum and minimum sizes provided above. For example, a lot of 100 carats in the 20 per carat nominal size must have at least 90% of this lot, or 90 carats, in the 15 to 25 per carat range. Ten carats or less may be outside of this range.

As noted above, our Association would prefer a stipulation of diamond size in terms of diamonds per carat rather than in terms of screen sizes. However, in order to comply with your request, we are recommending, if sieves are desired, the use of Christensen sieves, since a large number of our Association members use these sieves. For your information we are enclosing a copy of Christensen Sheet A-4351 which tabulates the average size of round diamonds which will pass through any given screen. For your information, the screen size is shown in the first column, and the average round stone size is shown in the third column. If these sieves are accepted, we suggest that sizes two screens apart be adopted in determining a given diamond range as opposed to using screens of succeeding size. For example, if 25 per carat round diamonds are desired, then screen sizes 4 and 6 should be used. Those diamonds would be acceptable which would pass through screen size No. 6 and which would be retained on screen No. 4. It should be recognized, however, that in the use of such screens, the average size obtained would vary depending on the quality of the diamonds being screened. The round WA-1 diamonds would be the most consistent in size, whereas the WA-3 diamonds comprising irregular shapes would have a wider size range through the same screens. The specification should contain provision for consistent manipulation of the sieves.

The succeeding paragraphs cover the other items mentioned above.

Recognition should be given to the fact that certain characteristics of diamonds may be altered sometime during the manufacturing and salvaging process. There may be a loss of some weight in the diamonds as well as changes in quality and size.

Another item which might properly be mentioned is the weight of diamonds required in a diamond bit. The guide specifications provide for one weight in each diamond bit size regardless of the size of diamonds specified. For practical reasons, a greater weight of diamonds is required when large stones are specified than when smaller stones are specified. We feel consideration should be given to the preparation of a table specifying the different diamond weights required for various size diamonds used in each bit.

These comments are being submitted on behalf of the members of the Diamond Core Drill Manufacturers Association, the names of which are shown on the attached list. Non-members of the Association have not been consulted.

We appreciate the opportunity you have given us to submit these thoughts. We hope they have been helpful and that you will feel free to call on us if you think that we can assist you in connection with any specific questions which may arise.

Very truly yours,

Frank P. Anderson
Secretary

FPA:pd
Enc.
List of member company names
Christensen Sheet A 4351

MEMBERSHIP LIST

1.	Acker Drill Company, Inc.	Scranton, Pennsylvania
2.	Chicago Pneumatic Tool Company	New York 17, New York
3.	*Christensen Diamond Products Co.	Salt Lake City 10, Utah
4.	Diamond Drill Contracting Co.	Spokane 15, Washington
5.	*Diamond Products, Inc.	Elyria, Ohio
6.	*Diamond Tool Research Co., Inc.	New York 10, New York
7.	Drilling Accessory & Mfg. Co., Inc.	Dallas 2, Texas
8.	George E. Failing Company	Enid, Oklahoma
9.	Hoffman Brothers Drilling Company	Punxsutawney, Pennsylvania
10.	Joy Manufacturing Company	Michigan City, Indiana
11.	*Koebel Diamond Tool Company	Detroit 13, Michigan
12.	E. J. Longyear Company	Minneapolis 2, Minnesota
13.	*R. S. McClintock Company	Spokane 10, Washington
14.	Mott Core Drilling Company	Huntington 17, West Virginia
15.	Pennsylvania Drilling Company	Pittsburgh 20, Pennsylvania
16.	*Anton Smit & Co., Inc.	New York 11, New York
17.	*J. K. Smit & Sons, Inc.	Murray Hill, New Jersey
18.	*Sprague & Henwood, Inc.	Scranton 2, Pennsylvania
19.	*Wheel Trueing Tool Company	Detroit 38, Michigan

* Mechanically-Set Bit Manufacturers

Screen Size	Stone Size/mm	A Grade Per Carat Av.	A	B
F	.036	130	[illegible]	[illegible]
E	.0394	110	[illegible]	.82
D	.0413	100	[illegible]	[illegible]
C	.0433	91	[illegible]	[illegible]
B	.0453	77	[illegible]	[illegible]
A	.0473	60	[illegible]	[illegible]
1	.0492	58	[illegible]	[illegible]
2	.0512	50	2.00	1.80
3	.0551	40	2.50	2.25
4	.0591	30	[illegible]	[illegible]
5	.0630	25	[illegible]	[illegible]
6	.0709	20	[illegible]	[illegible]
7	.0768	15	[illegible]	[illegible]
8	.0827	11	5.00	5.00
9	.0906	9½	[illegible]	[illegible]
10	.0984	7	[illegible]	[illegible]
11	.1063	5 [illegible]	[illegible]	[illegible]
12	.1142	4½	[illegible]	[illegible]

Weight Per 100 Large Stones (Carats)

Screen Size	Stone Size/mm	Per Carat Average	[illegible]	[illegible]
12	.1142	4½	[illegible]	[illegible]
13	.1220	3 [illegible]	[illegible]	[illegible]
14	.1299	3	32.00	[illegible]
15	.1378	2 [illegible]	[illegible]	[illegible]
16	.1457	2 [illegible]	[illegible]	[illegible]
17	.1535	1 [illegible]	[illegible]	[illegible]
18	.1614	1 [illegible]	[illegible]	[illegible]
19	.1693	1 [illegible]	[illegible]	[illegible]
20	.1772	1¼	50.00	76.00

CHRISTENSEN DIAMOND PRODUCTS CO.
SALT LAKE CITY, UTAH

PART NO.
MATERIAL

DWG. A 4351

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
122 East 42nd Street
New York 17, New York

MINUTES: TECHNICALLY COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: THE LA SALLE HOTEL, CHICAGO, ILLINOIS

DATE AND TIME: TUESDAY, OCTOBER 7, 1958 - - 3:00 P.M.

MEMBERS PRESENT:

F. M. Capp	Joy Manufacturing Company
Joseph Gold	Diamond Tool Research Co., Inc.
L. W. Janson	Sprague & Henwood, Inc.
E. M. Jenkins	Christensen Diamond Products Co.
K. S. MacPherson	E. J. Longyear Company

MEMBERS ABSENT:

F. E. AuWerter	Diamond Products, Inc.
Wm. H. Hampton	Hoffman Bros. Drilling Company
S. J. Warren	Anton Smit & Company, Inc.
C. J. Dela Gorgendrier	Wheel Trueing Tool Company
W. J. Whinnen	Joy Manufacturing Company
H. J. Meinert	J. K. Smit & Sons, Inc.

OTHERS PRESENT:

Patrick Adamson	Wheel Trueing Tool Company
Henri Brevet	Anton Smit & Company, Inc.
V. N. Burnhart	E. J. Longyear Company

PRESIDING OFFICER:

E. M. Jenkins, Chairman

I. APPROVAL OF PREVIOUS MINUTES:

The minutes of the previous meeting held on April 17, 1958, were approved as distributed. No attention was given to the earlier meeting of October 20, 1958 because of the length of the intervening period and the fact that the results of that meeting had been reported to the Association.

II. DIFFERENTIAL BETWEEN THE OD SET OF BITS AND THE OD SET OF REAMING SHELLS:

The Committee continued a discussion which has been in process for some time. During the course of this review, the Committee reaffirmed its interest in changing the standards for the set OD on X series bits to reduce the differential between bit and reaming shell gauges. In reaching this concensus, the Technical Committee was cognizant that the proposed change would necessitate reprinting and redistribution of Bulletin #2. Further, no definite recommendation could be established at this time as to the acceptable sizes.

II. DIFFERENTIAL BETWEEN THE OD SET OF BITS AND THE OD SET OF REAMING SHELLS: (CONTD.)

The Chairman informed the Committee that he would prepare a tabulation of suggested dimensions and circulate that information to the Committee members for study and comment. Committee members were also to study the matter of expense involved in changing company literature, catalogs and other published material in the event that this proposed revision is approved by the Association and is generally put into use by the industry. Committee members were asked to come to the next meeting prepared to make definite recommendations as to whether or not this change should be moved forward or tabled.

III. QUESTION OF ESTABLISHING STANDARD METHOD OF TESTING HARDNESS OR ABRASION RESISTANCE OF DIAMOND HOLDING MATRICES:

The Committee felt that some progress had been made in this connection based on the letter of April 23, 1958 to the U.S. Corps of Engineers. While it was generally conceded that this was not an entirely satisfactory method of indicating abrasive resistance, no alternative method has yet been found. Several members reported that they had investigated this matter with manufacturers of other items such as brake shoes, and etc., with unsatisfactory results. Others reported testing other methods in their own plants, all with unsatisfactory results. The matter will be given further study. The Committee was unanimous, however, in its recommendation that reference to different types of matrices, as covered in the DCDMA letter of April 23, to the U. S. Corps of Engineers, should be changed from soft, medium and hard matrix to, regular, medium hard and extra hard.

IV. SUGGESTED DIAMOND WEIGHTS FOR STANDARD BITS FOR THE U.S. CORPS OF ENGINEERS:

The Committee gave careful consideration to the request of August 21, 1958, from the U.S. Corps of Engineers to the Diamond Core Drill Manufacturers Association. This request covered recommendations on the minimum and maximum diamond weights for each standard bit, and the stones per carat ratio recommended for each bit size. A copy of the August 21 letter is attached hereto as Exhibit A.

Discussion at this time indicated that there was some degree of concurrence with respect to this information but, at the same time, sufficient variation to indicate that the question had been interpreted in several different ways.

In view of this lack of concensus, the Committee recommended that Mr. Nesbitt of the U. S. Corps of Engineers be advised that the matter would be reviewed further by mail and that a recommendation would be furnished as soon a such information became available. Members of the Committee are to submit their further recommendations to Mr. Jenkins who will attempt the reconcile the differences and then circulate the proposed average weights to the Committee members for approval. When such approval has been achieved, the final recommendation will be submitted to the Association for transmission to Mr. Nesbitt.

V. OTHER ITEMS:

The Committee concluded that other items on the agenda had been disposed of at previous meetings and hence required no further attention at this time.

VI. TIME AND PLACE OF NEXT MEETING:

The time and place of the next meeting was allowed to remain at the call of the Chair.

VII. ADJOURNMENT:

There being no further business, the meeting adjourned.

E. M. Jenkins, Chairman

ATTACHMENTS: Exhibit A - A Copy of a Letter From Mr. Nesbitt Dated August 21, 1958.

MAILED FROM DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION: December 23, 1958

C O P Y

DEPARTMENT OF THE ARMY

21 August 1958

Mr. Frank P. Anderson, Secretary
Diamond Core Drill Manufacturers Association
122 East 42nd Street
New York 17, New York

Dear Mr. Anderson:

Since receiving your recent undated (April 23, 1958) letter, written in response to our request for your Association's recommendations on diamond bits, we have completed a rough draft of the revised diamond bit specifications which the Corps of Engineers proposes to use, after assignment of all testing to one laboratory.

The suggestions which your Association offered in your recent four-page letter have been very helpful in revising our guide specifications, which revisions we feel will work to the advantage of the bit manufacturers and the Government alike. One question, however, arises from the suggestion which you make in the concluding paragraph on Page 2 of your letter. We agree with the suggestion made in this paragraph, and would appreciate receiving more specific information on the minimum and maximum diamond weights recommended for each standard bit, plus the stones per carat ratio recommended for each bit size. You could perhaps supply this information best by filling in the columns in the following table:

SUGGESTED DIAMOND WEIGHTS FOR STANDARD BITS

Stone Size Range (per carat)	"AX" Min.	"AX" Max.	"BX" Min.	"BX" Max.	"NX" Min.	"NX" Max.	(ALL DCDMA Standard Bit Sizes
2 - 7							
7 - 11							
11 - 20							
20 - 30							
30 - 50							
50 - 80							
80 - 110							

An early reply to this request will help us in expediting issuance of the revised guide specification.

Sincerely yours,

s/n
Robert H. Nesbitt
Chief, Geology Branch

Exhibit A

FILE COPY

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
122 East 42nd Street
New York 17, New York

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: HOTEL ROOSEVELT, NEW YORK, N. Y.

DATE AND TIME: THURSDAY, APRIL 2, 1959 - - 4:00 P.M.

MEMBERS PRESENT:

F. E. AuWerter	Diamond Products, Inc.
Joseph Gold	Diamond Tool Research Co., Inc.
L. W. Janson	Sprague & Henwood, Inc.
K. S. MacPherson	E. J. Longyear Company
A. F. Pickard	Wheel Trueing Tool Company

MEMBERS ABSENT:

F. M. Capp	Joy Manufacturing Company
Wm. H. Hampton	Hoffman Brothers Drilling Company
E. M. Jenkins	Christensen Diamond Products Co.
H. J. Meinert	J. K. Smit & Sons, Inc.
S. J. Warren	Anton Smit & Company, Inc.
W. J. Whinnen	Joy Manufacturing Company

OTHERS PRESENT:

Nevil Cawley	Diamond Tool Research Co., Inc.
W. Fornwald	Sprague & Henwood, Inc.
W. L. Huber	Diamond Tool Research Co., Inc.
G. M. Jensen	Christensen Diamond Products Co.
M. McKenna	Inspiration Mining & Dev.
B. H. Mott	Mott Core Drilling Company
R. S. Parsons	J. K. Smit & Sons of Canada, Ltd.
R. P. Schafer	Pennsylvania Drilling Company
C. W. Steele	Canadian Longyear Ltd.
Charles Steine	Canadian Diamond Drilling Assoc.
Frank P. Anderson	Institute Staff

PRESIDING OFFICER:

Mr. MacPherson presided as Chairman Pro Temp in the absence of the regular Chairman, Mr. Jenkins.

I. APPROVAL OF PREVIOUS MINUTES:

The minutes of the previous meeting held on October 7, 1958 were approved as distributed.

II. SET GAUGES OF REAMING SHELLS AND BITS:

The Committee gave careful consideration to a letter dated March 6, 1959 from Mr. E. M. Jenkins to all Committee members. A copy of that letter and its attachment is attached hereto as Exhibit A.

II. SET GAUGES OF REAMING SHEELS AND BITS: (CONT'D)

No conclusions could be reached but the subject was left that members would give further study and would present resulting comments at the next meeting.

III. DISTRIBUTION OF TECHNICAL COMMITTEE MINUTES:

The Committee felt that it would be very helpful in connection with the developments of international standards if two or three copies of each set of minutes of meetings of Technical Committees of the Association were sent to the Canadian Diamond Drilling Association at the time that they are sent to members of the respective Committees.

IV. TIME AND PLACE OF THE NEXT MEETING:

The time and place of the next meeting was allowed to remain at the call of the Chair with the understanding that there probably would be a meeting in conjunction with the next regular meeting of the Diamond Core Drill Manufacturers Association.

IV. ADJOURNMENT:

There being no further business, the meeting adjourned.

Frank P. Anderson
Secretary

ATTACHMENT: Exhibit A - Letter from Mr. E. M. Jenkins, dated March 9, 1959.

MAILED FROM DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION: June 18, 1959

CHRISTENSEN DIAMOND PRODUCTS COMPANY

March 9, 1959

Technical Committee For Mechanically
Diamond Core Drill Manufacturers Association
122 East 42nd Street
New York 17, New York

Gentlemen:

One of the assignments given to our committee is to determine whether or not the set gauge of our present D.C.D.M.A. standards is the most economical and satisfactory size in view of the set size of the reaming shell. Perhaps many of you have given this matter some consideration since our last meeting.

As my contribution to the study of this question, I am enclosing a report which I made in March, 1951, bearing on this matter. I would appreciate it if you would give this report, and the entire matter, your serious consideration so that we may have something worth while to contribute at the forthcoming Technical Committee meeting in New York.

If there are any questions on the report I am submitting, or if you have any other matters which you would like to have the committee - as a whole - consider prior to the meeting, we will be most happy to hear from you.

Yours very truly,

E. M. Jenkins

Exhibit A

Christensen Diamond Products Company

Salt Lake City, Utah
271500 March 1951

SUBJECT: Set gauges of reaming shells and bits.

PROBLEM: To determine whether present D.C.D.M.A. standards should be changed to allow core bits to be set to minimum reamer shell gauge.

FACTS BEARING ON THE PROBLEM:

Present O.D. gauge dimensions for X series bits and shells are:

Size	Set O.D.		
	Core Bit	Reaming Shell	Difference
EX	1.460	1.485	0.025
AX	1.865	1.890	0.025
BX	2.330	2.360	0.030
NX	2.945	2.980	0.035

DISCUSSION:

A. The present sizes standardized by the D.C.D.M.A. have come under criticism by operators of diamond drills. By increasing the set O.D. of core bits, the operators have been able to drill more efficiently and at a lower cost. Hand setters set to 1/128" over bit gauge, or same as bit gauge.

B. Suggested change in core bit standards versus present D.C.D.M.A. standards.

1. Disadvantages:
   a. Industry has standardized sizes, and majority of operators have equipment designed to this size.
   b. It would be an added expense to change to new standards since manufacturers would have much obsolete equipment on hand.

2. Advantages:
   a. Increasing set bit gauge would prolong life of set reaming shell.
   b. Increased bit gauge would facilitate clearing the cuttings from the bit. This is especially true in sedimentary rocks.
   c. Having the bit and shell set to nearly the same gauge decreases the vibration when drilling.
   d. Increased gauge on bits would eliminate the need for set shells on short holes. By alternating bits, the operator would be able to drill deeper holes without the use of diamond set shells.
   e. Reaming over stuck tools would be easier and faster if the clearance between core barrel and bit were increased.

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
122 East 42nd Street
New York 17, New York

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: THE CONRAD HILTON HOTEL, CHICAGO, ILLINOIS

DATE AND TIME: THURSDAY, OCTOBER 29, 1959 - - 4:00 P. M.

MEMBERS PRESENT:

F. M. Capp	Joy Manufacturing Company
Joseph Gold	Diamond Tool Research Company, Inc.
L. W. Janson	Sprague & Henwood, Inc.
E. M. Jenkins	Christensen Diamond Products Company
H. J. Meinert	J. K. Smit & Sons, Incorporated
A. F. Pickard	Wheel Trueing Tool Company
G. A. Redebaugh	Koebel Diamond Tool Company
S. J. Warren	Anton Smit & Company, Inc.
W. J. Whinnen	Joy Manufacturing Company

MEMBERS ABSENT:

F. E. AuWerter	Diamond Products, Incorporated
W. H. Hampton	Hoffman Brothers Drilling Company
K. S. MacPherson	E. J. Longyear Company

OTHERS PRESENT:

F. R. Haraldson	Diamond Drill Contracting Company
G. M. Jensen	Christensen Diamond Products Company

PRESIDING OFFICER:

E. M. Jenkins - Chairman

I. APPROVAL OF PREVIOUS MINUTES:

The minutes of the previous meeting held on April 2, 1959 were approved as distributed.

II. SET GAUGES (O.D.) OF BITS AND REAMING SHELLS:

The Committee continued the discussion held at the last meeting in connection with revising the present set O.D. of bits and reaming shells. It was recalled that the Committee recommended to the Association at that time that the set diameters of bits be changed so that the maximum set O.D. would be the same as the minimum set diameter of the present reaming shell. The Association accepted this recommendation in principle but expressed the opinion that the Canadian Diamond Drilling Association should be consulted before any action was taken.

The Technical Committee of the CDDA reviewed this recommendation at its June, 1959 meeting in Toronto. At that time the matter of advisability of a change was accepted but there was a feeling that there should be a .005 inch

II. SET GAUGES (O.D.) OF BITS AND REAMING SHELLS (CONTD.)

differential between the maximum set O.D. of the bit and the minimum set diameter of the shell.

After the Canadian proposal had been considered by the Committee, it was the concensus that the original intent would be achieved by the Canadian proposal with the added advantage that if the Canadian proposal was accepted by the DCDMA, there would be a common standard in the two countries. The Technical Committee therefore recommended that the Association take action to accept the O.D. set dimensions shown in Exhibit A, attached hereto and that the CDDA be advised of this action.

III. TIME AND PLACE OF THE NEXT MEETING:

The time and place of the next meeting was allowed to remain at the call of the Chair.

IV. ADJOURNMENT:

There being no further business, the meeting adjourned.

Frank P. Anderson
Secretary

FPA:pg

ATTACHMENT: Exhibit A - Tabulation, O.D. Set Dimensions

MAILED FROM DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION: January 22, 1960

Size	Standard (Present) Set Reaming Shell OD Inches	Standard (Present) Set Bit OD Inches	Proposed Revised Set Bit OD Inches	Proposed Tolerances Inches	Standard (present) Set Bit ID Inches	Hole Diam. Inches	Core Diam. Inches
EX	1.485	1.460	1.470	± .005	.845	1-1/2	13/16
AX	1.890	1.865	1.875	± .005	1.185	1-15/16	1-3/16
BX	2.360	2.330	2.345	± .005	1.655	2-3/8	1-5/8
NX	2.980	2.945	2.965	± .005	2.155	3	2-1/8

Exhibit A
Technical Committee for Mechanically Set Bits

FILE COPY

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
122 East 42nd Street
New York 17, New York

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: THE PALMER HOUSE, CHICAGO, ILLINOIS

DATE AND TIME: THURSDAY, MARCH 17, 1960 -- 3:00 P.M.

MEMBERS PRESENT:

Joseph Gold	Diamond Tool Research Company, Inc.
L. W. Janson	Sprague & Henwood, Inc.
E. M. Jenkins	Christensen Diamond Products Company
K. S. MacPherson	E. J. Longyear Company
A. F. Pickard	Wheel Trueing Tool Company
S. J. Warren	Anton Smit & Company, Inc.
W. J. Whinnen	Joy Manufacturing Company

MEMBERS ABSENT:

F. E. AuWerter	Diamond Products, Inc.
F. M. Capp	Joy Manufacturing Company
W. H. Hampton	Hoffman Bros. Drilling Company
H. J. Meinert	J. K. Smit & Sons, Inc.
G. A. Redebaugh	Koebel Diamond Tool Company

OTHERS PRESENT:

David James	Acker Drill Company, Inc.
G. M. Jensen	Christensen Diamond Products Company
Patrick Adamson	Wheel Trueing Tool Company

PRESIDING OFFICER:

E. M. Jenkins - Chairman

I. APPROVAL OF PREVIOUS MINUTES:

The minutes of the previous meeting held on October 29, 1959 were approved as distributed.

II. SET GAUGES (O.D.) OF BITS AND REAMING SHELLS:

The Committee began its discussion with a review of considerations of the past meeting and the decision reached by the Canadian Diamond Drilling Association with respect to this subject.

Mr. Adamson introduced information that the South African Diamond Drilling Association was proposing that the maximum set O.D. of the core bit be made the same as the minimum set O.D. of the reaming shell. While this is in accordance with the original recommendation of the Technical Committee, it is at variance with the more recent recommendation that there be a differential of .005 inches between these two diameters. The latter differential has also been adopted by the Canadian Diamond Drilling Association.

II. SET GAUGES (O.D.) OF BITS AND REAMING SHELLS: (CONTD.)

The Technical Committee also recommends that the foregoing differential be submitted to the Association for approval as soon as possible. At the same time, all other dimensional values affected by this change are also to be submitted to letter ballot.

(Note: Subsequent to the meeting, the Chairman was advised that the Association Indexes have been brought up to date and, as soon as that material has been typed, copies will be sent to him so that he will be able to indicate specifically where the affected dimensions are recorded and thus permit preparation of the letter ballot material. At the Association meeting the members present voted to accept the recommendation of the Executive Committee that this material be compiled in complete detail and then circulated to the Association membership at least 30 days in advance of the forthcoming meeting with a notice that a vote would be taken at the meeting to approve this change in the standards.)

III. PROPOSED RECOMMENDATION COVERING PROCESSED OR CONDITIONS DIAMONDS:

The Committee considered the advisability of making a recommendation that the U. S. Corps of Engineers consider having a place in Government requirements covering conditioned or processed diamonds. The result was a consensus that such action rising from the request of a number of Association members, might not be an appropriate one for the Association to take. On the other hand, if such request came to the Association from a governmental agency, the matter might be reopened for study.

Further discussion indicated the difficulty that might well arise if some comparator samples or other standards of grading were requested.

In accordance with the foregoing, the Committee recommended that this item be dropped from the agenda.

IV. PROPOSED STANDARD METHOD OF ABRASION TESTING OF DIAMOND BIT MATRIX MATERIAL:

In response to several requests, the Chairman was asked to request the Executive Committee to authorize the Committee to attempt preparation of a proposed test procedure for this purpose.

V. TIME AND PLACE OF NEXT MEETING:

The time and place of the next meeting was allowed to remain at the call of the Chair.

VI. ADJOURNMENT:

There being no further business, the meeting adjourned.

Reported by:
E. M. Jenkins, Chairman

MAILED FROM DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION: May 9, 1960

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
122 East 42nd Street
New York 17, New York

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: THE PALMER HOUSE, CHICAGO, ILLINOIS

DATE AND TIME: THURSDAY, OCTOBER 27, 1960 - - 3:00 P.M.

MEMBERS PRESENT:

F. E. AuWerter	Diamond Products, Inc.
Joseph Gold	Diamond Tool Research Company, Inc.
David James	Acker Drill Company, Inc.
L. W. Janson	Sprague & Henwood, Inc.
G. M. Jensen	Christensen Diamond Products Company
H. J. Meinert	J. K. Smit & Sons, Inc.
A. F. Pickard	Wheel Trueing Tool Company
S. J. Warren	Anton Smit & Company, Inc.
W. J. Whinnen	Joy Manufacturing Company

MEMBERS ABSENT:

V. N. Burnhart	E. J. Longyear Company
W. H. Hampton	Hoffman Bros. Drilling Company
K. S. MacPherson	E. J. Longyear Company
G. A. Redebaugh	Koebel Diamond Tool Company

OTHERS PRESENT:

Frank P. Anderson	Institute Staff

PRESIDING OFFICER:

W. J. Whinnen, Chairman

I. APPROVAL OF PREVIOUS MINUTES:

The minutes of the previous meeting held on March 17, 1960, were approved as distributed.

II. SET GAUGES (O.D.) OF BITS AND REAMING SHELLS:

On July 13, 1960, all voting representatives on standards were provided with an index and with complete details covering the revisions necessary in Association drawings to accommodate the proposed .005" differential between the maximum set O.D. of the core bit and minimum set O.D. of the reaming shell.

The July 13, 1960 letter also advised that the material would be submitted to vote for approval at this meeting.

In conjunction with the foregoing material, a letter dated May 18, 1960 and attachment from Mr. Jensen outlines the standards changes involved in accommodating the possible adoption of the .005 inch differential.

II. SET GAUGES (O.D.) OF BITS AND REAMING SHELLS: (CONTD.)

After complete discussion of the tabulation prepared by Mr. Jensen, the Committee expressed a belief that the reset ring gauge should be omitted from the present tabular sheet on which it is carried at the time that a vote is taken on the adoption of the .005 inch differential.

On motion seconded and unanimously carried, the Committee voted to recommend to the Association that it approve a .005 inch differential between the maximum set O.D. of the core bit and the minimum set O.D. of the reaming shell and, at the same time, omit all reference to the present reset ring gauge on the basis that this type of gauge is so seldom used that its inclusion here is no longer warranted.

III. PROPOSED STANDARD METHOD OF ABRASION TESTING OF DIAMOND BIT MATRIX MATERIAL:

As a matter of information the Committee was reminded that on March 18, 1960, the Executive Committee authorized it to prepare a recommended standard method of abrasion testing for matrix material used in diamond bits.

Discussion was initiated by a report in which Mr. Warren discussed a Wheel Trueing test device and another one developed by Kennametal. Thorough discussion of all known details of these two devices indicated a preference for a test method which would involve or incorporate an actual slug or sample of the material under consideration. The method of tests will have to be selected.

Mr. Janson was asked to investigate the willingness of Kennametal to undertake a test series on slugs, as suggested. A report is desired at the next meeting.

IV. QUESTION OF INVESTIGATING A SUGGESTED RELAXATION OF TOLERANCES ON LARGE SIZE BITS:

This subject originated in one of the current series Buzz Sessions and involves consideration of the practical extent of such relaxation.

On motion seconded and unanimously carried, the Committee voted to request the Executive Committee to authorize work on this subject.

If the request to the Executive Committee does result in the desired authorization, members of the Committee will bring their individual recommendations to the next meeting for discussion.

V. METHOD OF CLEANING OF USED DIAMONDS RETURNED TO MANUFACTURER FOR RESETTING:

This question originated in one of the Buzz Sessions of the current series. Because of the dirty condition of some used diamonds returned to the manufacturer for resetting, it is difficult to determine the effect of the gases emitted by this coating on the new matrix.

After very thorough discussion, the Committee concluded that the best method for handling this problem would be for the individual manufacturer to call the attention of the Government, since the used diamonds in question usually belong to a governmental agency, that particular diamonds are not clean enough for satisfactory resetting.

VI. TIME AND PLACE OF THE NEXT MEETING:

The time and place of the next meeting was allowed to remain at the call of the Chair with the understanding that the next regular meeting would be held in conjunction with the next regular meeting of the Association.

VII. ADJOURNMENT:

There being no further business, the meeting adjourned.

Frank P. Anderson
Secretary

FPA:pg

MAILED FROM DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION: January 31, 1961

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
122 East 42nd Street
New York 17, N. Y.

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: THE HOTEL ROOSEVELT, NEW YORK, N.Y.

DATE AND TIME: THURSDAY, APRIL 6, 1961 -- 3:00 P.M.

MEMBERS PRESENT:

F. E. AuWerter	Diamond Products, Inc.
J. Gold	Diamond Tool Research Company Inc.
L. W. Janson	Sprague & Henwood, Inc.
G. M. Jensen	Christensen Diamond Products Company
H. J. Meinert	J. K. Smit & Sons Inc.
J. R. Mott	Mott Core Drilling Company
A. F. Pickard	Wheel Trueing Tool Company
S. J. Warren	Anton Smit & Company, Inc.
W. J. Whinnen	Joy Manufacturing Company

MEMBERS ABSENT:

V. N. Burnhart	E. J. Longyear Company
W. H. Hampton	Hoffman Brothers Drilling Company
David James	Acker Drill Company, Inc.
K. S. MacPherson	E. J. Longyear Company
G. A. Redebaugh	Koebel Diamond Tool Company

OTHERS PRESENT:

W. B. Roth	Acker Drill Company, Inc.
R. P. Schafer	Pennsylvania Drilling Company

PRESIDING OFFICER:

W. J. Whinnen, Chairman

I. APPROVAL OF PREVIOUS MINUTES:

The minutes of the previous meeting held on October 27, 1960, were approved as distributed.

II. PROPOSED STANDARD METHOD OF ABRASION TESTING OF DIAMOND BIT MATRIX MATERIAL:

Since the last meeting Mr. Warren had been in touch with Mr. Robert Sweig of Kennametal regarding methods of abrasion testing. As a result of this discussion, Kennametal expressed a willingness to run tests on a number of samples of matrix material to be supplied by each bit manufacturer. The test sample would be a mock-up, AX crown, ground top and bottom to 5/16 inch between planes and with ground OD for sidewall testing.

II. PROPOSED STANDARD METHOD OF ABRASION TESTING OF DIAMOND BIT MATRIX MATERIAL: (CONTD.)

Mr. L. W. Janson will prepare a suitable drawing specifying these ring samples and then circulate a copy to each member requesting that he submit a sample of material which he would classify as hard, medium and soft matrix. These samples are to be sent to the Association Secretary who will collect them. When all samples have been received, the Secretary will apply suitable markings according to a code which he will prepare and then send those samples to Kennametal for testing.

III. SUGGESTED RELAXATION OF TOLERANCES ON LARGE SIZE BITS:

After further discussion, the Committee voted to approve a recommendation that there be a letter ballot proposing a change in the tolerance on set dimensions of plus or minus .010 inch on the 3-7/8 inch by 2-3/4 inch size and the 5-1/2 inch by 4 inch sizes and the tolerance of plus or minus .015 inch on 7-3/4 inch by 6 inch in size.

IV. DISCUSSION ON INCREASING THE SHANK LENGHTS OF MECHANICALLY SET BITS:

As the result of thorough discussion, the Committee was of the opinion that this subject should be discussed at the Association meeting, at which time the Technical Committee would recommend that the subject be given to the Committee as an assignment.

V. TIME AND PLACE OF NEXT MEETING:

The time and place of the next meeting was allowed to remain at the call of the chair with the understanding that the next regular meeting would be held in conjunction with the next regular meeting of the Association.

VI. ADJOURNMENT:

There being no further business, the meeting adjourned.

Reported by: F. E. AuWerter

FPA:dl

MAILED FROM DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION: August 23, 1961

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
122 East 42nd Street
New York 17, New York

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: DEARBORN INN, DEARBORN, MICHIGAN

DATE AND TIME: THURSDAY, OCTOBER 26, 1961 - -10:30 A.M.

MEMBERS PRESENT:

F. E. AuWerter	Diamond Products, Inc.
D. W. James	Acker Drill Company, Inc.
H. J. Meinert	J. K. Smit & Sons Inc.
A. E. Taras	Diamond Tool Research Company, Inc.
S. J. Warren	Anton Smit & Company, Inc.

MEMBERS ABSENT:

V. N. Burnhart	E. J. Longyear Company
W. H. Hampton	Hoffman Brothers Drilling Company
L. W. Janson	Sprague & Henwood, Inc.
G. M. Jensen	Christensen Diamond Products Company
K. S. MacPherson (resigned)	E. J. Longyear Company
J. R. Mott	Mott Core Drilling Company
A. F. Pickard	Wheel Trueing Tool Company
G. A. Redebaugh	Koebel Diamond Tool Company
W. J. Whinnen	Joy Manufacturing Company

OTHERS PRESENT:

P. Adamson	Wheel Trueing Tool Company
P. Farkas	Diamond Tool Research Company, Inc.
J. C. Norris	Christensen Diamond Products Company
A. E. Ross	Sprague & Henwood, Inc.
E. G. Tucker	E. J. Longyear Company
Frank P. Anderson	Association Staff

PRESIDING OFFICER:

In the absence of Mr. Whinnen, Mr. Warren was appointed acting Chairman.

I. APPROVAL OF PREVIOUS MINUTES:

The minutes of the last scheduled meeting were approved.

II. REPORT ON TESTS OF BIT MATRIX MATERIAL BY THE KENNEMETAL COMPANY:

Mr. Anderson explained the procedure used in the marking of Ring Specimens submitted from the different companies for abrasion tests. Each member present received the report pertaining to these tests and took the opportunity to examine and compare the results. The results indicate that

II. REPORT ON TESTS OF BIT MATRIX MATERIAL BY THE KENNEMETAL COMPANY: (CONTD.)

six of the companies' matrices have a direct relationship in Rockwell Hardness and Volume of Weight loss. The remaining two showed no relationship. Mr. Anderson then read three supplemental reports from Kennemetal which explained their actual testing procedures, showed photos of the equipment used, and the differences in Rockwell Hardness, density and weight loss of other samples previously tested by the Kennemetal Company. Mr. Ross drew up a scatter chart or graph showing a comparison of the unidentified samples submitted by DCDMA. No definite conclusions were arrived at and Mr. Ross suggested each member be provided with copies of the two additional reports for study. The following Committee was appointed to pursue this subject and report at the next meeting:

L. W. Janson (Chairman	D. W. James
P. Adamson	H. J. Meinert
F. E. AuWerter	S. J. Warren
P. Farkas	

III. TOLERANCES ON LARGE DIAMETER CORE BITS:

Discussion continued on the tolerances of large diameter core bits. The tolerances of either the bits or core springs will have to be changed 6 x 7-3/4". The possible inconsistency in tolerances on the tabulation sheets were discussed.

The following Committee was appointed to examine the drawings for these bits and core springs and report at the next meeting:

A. F. Pickard (Chairman	L. W. Janson
J. F. Hoffmeister	R. F. Norrick

IV. PROPOSED NOMENCLATURE FOR BIT CROWN PROFILES:

It was suggested that a standard nomenclature was necessary for determining bit crown profiles. This Committee will request permission from the Executive Committee to start this project.

(Note: This authorization was granted by the Executive Committee on October 26, 1961.)

It was also suggested that Mr. Anderson write to Mr. W. L. Kennacott, Chief Engineer of the Kennametal Company, and give our thanks for the exceptional work he has done on the abrasion testing.

V. GUIDE SPECIFICATIONS:

Reviewed, but no action taken.

VI. TIME AND PLACE OF NEXT MEETING:

The time and place of the next meeting was left at the call of the Chair.

VII. ADJOURNMENT:

There being no further business, the meeting adjourned.

Reported by
S. J. Warren

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
122 East 42nd Street
New York 17, New York

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: THE CONRAD HILTON HOTEL, CHICAGO, ILLINOIS

DATE AND TIME: THURSDAY, MARCH 29, 1962 -- 8:45 A.M.

MEMBERS PRESENT:

D. James	Acker Drill Company, Inc.
L. W. Janson	Sprague & Henwood, Inc.
H. J. Meinert	J. K. Smit & Sons, Inc.
A. F. Pickard	Wheel Trueing Tool Company
W. J. Whinnen	Joy Manufacturing Company

MEMBERS ABSENT:

F. E. AuWerter	Diamond Products, Inc.
V. N. Burnhart	E. J. Longyear Company
W. H. Hampton	Hoffman Brothers Drilling Company
G. M. Jensen	Christensen Diamond Products Company
J. R. Mott	Mott Core Drilling Company
G. A. Redebaugh	Koebel Diamond Tool Company
S. J. Warren	Anton Smit & Company, Inc.

OTHERS PRESENT:

P. Farkas	Diamond Tool Research Company, Inc.
W. Huber	Diamond Tool Research Company, Inc.
A. E. Ross	Sprague & Henwood, Inc.
E. G. Tucker	E. J. Longyear Company
Frank P. Anderson	Association Staff

PRESIDING OFFICER:

W. J. Whinnen, Chairman

I. APPROVAL OF PREVIOUS MINUTES:

The minutes of the previous meeting held on October 26, 1961 were approved as distributed.

II. PROPOSED STANDARD METHOD OF ABRASION TESTING OF DIAMOND BIT MATRIX MATERIAL:

A report was received from the Sub-Committee for Matrix Abrasion Resistance Study. This report indicated that Wheel Trueing Tool Company had found that American Brake Shoe test system indicates that the wet test produces different abrasion results from those given by the Kennametal dry testing system. Discussion indicated that possibly the presence of water serves as a lubricant and a ccolant. The Wheel Trueing metallurgist recommended that further testing be done. Kennametal is to be contacted regarding the possibility of making a test using water with the abrasive rather than merely the

II. PROPOSED STANDARD METHOD OF ABRASION TESTING OF DIAMOND BIT MATRIX MATERIAL: (CONTD.)

dry abrasive. Mr. Farkas recommended that the same test samples be used for the wet test, but that the surfaces be prepared by lapping rather than by grinding to avoid the possible effect of the heat generated during the grinding operation.

III. INCREASED TOLERANCES ON LARGE SIZE BITS:

The Sub-Committee Chairman, Mr. Pickard, proposed that any changes which might be made should be made in the bit dimension rather than in a dimension of the core lifter to avoid obsolesence. Progress has been made, but additional test work must be done before a complete proposal can be presented to the Association.

IV. PROPOSED NOMENCLATURE FOR BIT CROWN PROFILES:

Mr. Warren offered to begin the compilation of data on this subject. Mr. James volunteered to cooperate. A suggestion was made that the Glossary of Diamond Drilling Industry be indicated as being authoritative on profile nomenclature. This was approved by the Technical Committee.

V. U. S. CORPS OF ENGINEERS GUIDE SPECIFICATIONS FOR THE PURCHASE OF DIAMONDS:

The Committee considered a proposed guide specification prepared by Mr. Ross and, after a thorough discussion, recommended that it be submitted to the Association with a suggestion that there should be further discussion with the Industrial Diamond Association.

A copy of the proposal submitted by Mr. Ross is attached hereto as Exhibit A.

VI. ASSOCIATION DRAWINGS:

The Committee received a suggestion that the Association drawings be checked to uncover any errors, omissions or inconsistencies which may have crept in since the drawings were first prepared.

Mr. Whinnen volunteered to check the drawings of plug gauges for set bits and reaming shells of the W Group. He indicated that he would be happy to collaborate with any other volunteers.

VII. MATRIX HARDNESS - WIRELINE BITS:

The Committee felt that it did not wish to discuss this subject.

VII. DIFFICULTY INVOLVED IN RING TYPE REAMING SHELLS WHEN EXTRA HARD MATRIX MATERIAL IS USED:

The Committee voted to ask the Association for authorization to investigate the problems involved in using extra hard matrix materials in wireline core bits and reaming shells. This discussion also covered possible standards for reaming shells but no specific action was taken.

VIII. TIME AND PLACE OF THE NEXT MEETING:

The time and place of the next meeting was allowed to remain at the call of the Chair with the understanding that the next regular meeting would be held in conjunction with the next regular meeting of the Association.

IX. ADJOURNMENT:

There being no further business, the meeting adjourned.

Frank P. Anderson
Secretary

ATTACHMENTS - Exhibit A - Proposed Guide Specification for Purchase of Diamonds for U.S. Corps of Engineers

MAILED FROM DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION: July 2, 1962.

March 13, 1962

SUBJECT: SUGGESTIONS FOR CORPS OF ENGINEERS PURCHASE OF DIAMONDS

Recognizing that there are several legal hurdles to be overcome before the Corps of Engineers can use our proposed purchase methods, I still feel we should pursue it further. My reason is that the present method which we have tried for eleven years has not been successful. Therefore, objections to our proposed method of purchase, which were quite important eleven years ago, might today not be so important in light of the failure of the method.

Specifically, I suggest the following procedure for the purchase of diamonds:

(a) Diamonds will be purchased as frequently as practical, preferably quarterly but even possibly monthly. This will minimize disruption of the market and prevent price increases which always accompany large purchases.

(b) The government in their invitation will specify the dollar price for which they will buy their diamonds. Their experience with the market and the goods they have purchased in the past should be adequate guides for determining the dollar price they will specify in order to get the quality they want.

(c) Each manufacturer will then be permitted to submit diamonds in 500 or 1000 carat Lots. They will not be required to meet the full carat requirement of the government, but will submit as many packages as they wish from the stock they have on hand. In this way the government will see the diamonds they are buying at the time they make the decision to purchase, rather than depend on the sample-procedure method. This will eliminate the arguments resulting over attempts of manufacturers to match the sample originally submitted. By buying from several manufacturers rather than just one, the government will be able to get the best diamonds available on the market for the price they specify. From a manufacturer's standpoint, this will give the small company a chance to compete with the large ones.

(d) The government will then evaluate all packages submitted and pick those which in their opinion are the best values. This admittedly is a matter of judgment but that is the way industry in general makes purchases from the open market. In view of the general use of this procedure, many manufacturers, I am sure, would be glad to assist the government in establishing such a procedure, if such assistance is necessary. Basically, the evaluator sorts the diamonds into three, four, or five grades, the lowest being Scrap and the top being Creams and the middle three being the standard grades. Using the average retail prices for each grade as published by the individual suppliers, the government evaluator would then place an arbitrary value on each grade. Considering the sortings on a percentage basis, the average value of each complete package would be determined. Since all packages are priced the same (as set by government), then the best values will be purchased by the government, and those packages representing lesser values will be returned to the owner. Obviously, it will not be necessary to sort, for example, the full 500 or 1000 carats in each package.

The evaluation may be made by intelligent use of the quartering technique until only 25 to 50 carats remain and then the value of the sample may be considered to be the value of the package.

TECHNICAL COMMITTEE
FOR MECHANICALLY SET BITS

EXHIBIT A

(e) The above purchasing technique determines value by grade only. If the size of diamonds in the package is not as accurate as required, arbitrary penalties may be determined by the government for less desirable sizes.

I believe we all feel the government should actually purchase diamond bits but most of us recognize that this procedure so far has resulted in unsatisfactory purchases. Because of this the government has had to purchase diamonds in bulk and then contract to have them placed in bits. It would be preferred if we could come up with some satisfactory procedure for the government to use in purchasing bits rather than buying diamonds on one contract and the setting service on another. After all, the government doesn't go to Chrysler to get a motor and to General Motors to get a body and to Ford to get a steering mechanism - they buy the product as it is presented to the public. I certainly wish they would do the same thing with our industry, but until we can find a satisfactory technique for the government to use at least we can help in suggesting an improved procedure for the purchase of the diamonds.

SPRAGUE & HENWOOD, INC.

/s/

Adrian E. Ross

AER/lap

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
122 East 42nd Street
New York 17, New York

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: THE CONRAD HILTON HOTEL, CHICAGO, ILLINOIS

DATE AND TIME: THURSDAY, OCTOBER 25, 1962 - - 8:00 A.M.

MEMBERS PRESENT:

F. E. AuWerter	Diamond Products Company
W. L. Formwald	Sprague & Henwood, Inc.
D. W. James	Acker Drill Company, Inc.
A. F. Pickard	Wheel Trueing Tool Company

MEMBERS ABSENT:

W. H. Hampton	Hoffman Brothers Drilling Company
H. J. Longmore	Sprague & Henwood, Inc.
H. J. Meinert	J. K. Smit & Sons, Inc.
J. R. Mott	Mott Core Drilling Company
J. C. Norris	Christensen Diamond Products Co.
G. A. Redebaugh	Koebel Diamond Tool Company
H. L. Ward	Joy Manufacturing Company
S. J. Warren	Anton Smit & Company, Inc.

OTHERS PRESENT:

J. P. Carscadden	Canadian Koebel Diamond Tool Co. (CDDA)
T. C. Davis	Christensen Diamond Tool Products Co.
E. M. Jenkins	Christensen Diamond Tool Products Co.
C. W. Steele	Canadian Longyear, Ltd. (CDDA)
* Frank P. Anderson	Association Staff

* (Note: Part-time attendance only).

PRESIDING OFFICER:

S. J. Warren, Acting Chairman

I. APPROVAL OF PREVIOUS MINUTES:

The minutes of the previous meeting held on October 26, 1961 were approved as distributed.

II. REPORT OF SUB-COMMITTEE ON STUDY OF MATRIX ABRASION RESISTANCE:

A draft of the Sub-Committee meeting held on October 24, 1962 was read and Mr. Warren then requested to present an outline of the matrix abrasion testing apparatus which he had developed inasmuch as a number of those present at this time were not present at the Sub-Committee meeting.

II. REPORT OF SUB-COMMITTEE ON STUDY OF MATRIX ABRASION RESISTANCE: (CONT.)

One comment indicated that the proposed testing procedure could well serve several purposes but the consensus was that this type of testing by itself would not yield sufficient results to serve as a basis for the development of a Standard by the U. S. Corps of Engineers because the matrix is subject to two types of abrasive wear - one from fluid erosion caused by the lubricant washing over the face of the matrix and second, as a result of contact between the face of the matrix and the material being cut.

III. RELAXATION OF TOLERANCES ON LARGE DIAMETER BIT DIMENSIONS:

Mr. Pickard reported on the degree of relaxation of the tolerances on large diameter bit dimensions, stating that there was no particular difficulty with internal bit dimension tolerances because the center plug of the mold will easily hold the existing dimensions. With respect to the outside dimension tolerances, Mr. Pickard felt that further discussion with manufacturers of the larger diameter bits was necessary. He felt that it might be practical to work from a maximum with a minus tolerance or with a minimum using a plus tolerance. Possibly the tolerances on the ID of these large diameter bits could be opened to compensate for the greater variation in core diameter through making changes in the core lifters. In any event, the Committee proposes to tabulate the various problems and to circulate this to the various members of the Committee for their comments and recommendations.

IV. STUDY OF BIT CROWN PROFILE NOMENCLATURE:

Mr. Warren reported on this subject, outlining the methods of determining just what is intended when reference is made to the radius of the face; first, do we consider the lands, both ID and OD, from the blank groove to the gauge stone rib, or; second, do we only consider the blank groove width? He suggested that the Technical Committee for Mechanically Set Bits consider which of these two areas it wished to use as a basis for any definitions for all that it might prepare. Once agreement is reached on this basis, nomenclature for the bit face, such as round, semi-round, and so forth, can be established. Each member of the Committee was asked to come to the next meeting prepared to present his views as to the basis which the Committee should select.

V. CONFLICT BETWEEN CERTAIN DIMENSIONAL STANDARDS OF THE CDDA AND THE DCDMA:

Mr. Steele pointed out that DCDMA set dimensions on casing shoes conflict with Canadian casing dimensions. It was recognized that casing shoes were seldom used in the United States but widely used for coring in Canada. For this reason, Mr. Steele recommended that the DCDMA change its set OD dimensions on its casing shoes, i.e., AX, EX, BX, and NX sizes to equal the DCDMA set casing reaming shell dimensions.

After discussion, the Technical Committee decided to request permission from the Executive Committee to investigate this request and to submit recommendations following its next meeting.

In further explanation of Mr. Steele's request, discussion indicated that the bit is expendable in Canadian application, being used through overburden and to seat the casing in bed-rock. This procedure eliminates the use

V. CONFLICT BETWEEN CERTAIN DIMENSIONAL STANDARDS OF THE CDDA AND THE DCDMA: (CONT.)

of the casing reaming shell.

In response to further advice from Mr. Steele, it was also noted that the ID dimensions on BX and NX casing bits show a discrepancy of .005 inch, the CDDA dimensions being larger in each case than the DCDMA dimensions. It was recognized that this difference presents no problem with respect to interchangeability.

VI. TIME AND PLACE OF NEXT MEETING:

The time and place of the next meeting was allowed to remain at the call of the Chair.

VII. ADJOURNMENT:

There being no further business, the meeting adjourned.

Reported by
Fred AuWerter
Secretary Pro Tem

MAILED FROM DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION: DECEMBER 10, 1962

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
122 East 42nd Street
New York 17, New York

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: O'HARE INN, DES PLAINES, ILLINOIS

DATE AND TIME: WEDNESDAY, MARCH 20, 1963 - - 8:00 A.M.

MEMBERS PRESENT:

W. L. Fornwald	Sprague & Henwood, Inc.
H. J. Longmore	Sprague & Henwood, Inc.
H. J. Meinert	J. K. Smit & Sons, Inc.
A. F. Pickard	E. J. Longyear Company
H. L. Ward	Joy Manufacturing Company
S. J. Warren	Anton Smit & Company, Inc.

MEMBERS ABSENT:

F. E. Auwerter (Resigned)	Diamond Products, Inc.
W. H. Hampton	Hoffman Brothers Drilling Company
David James	Acker Drill Company, Inc.
J. R. Mott	Mott Core Drilling Company
J. C. Norris	Christensen Diamond Products Co.
G. A. Redebaugh	Koebel Diamond Tool Company

OTHERS PRESENT:

H. S. Jacobsen	Svenska Diamantbergborrnings AB (Associate Member)

PRESIDING OFFICER:

H. J. Meinert, Chairman

I. APPROVAL OF PREVIOUS MINUTES:

The meeting was called to order by the Chairman and the minutes of the previous meeting held on October 25, 1962 were read and approved.

II. REPORT OF SUB-COMMITTEE FOR MATRIX ABRASION RESISTANCE STUDY:

The Chairman called for a report from the Sub-Committee for Matrix Abrasion Resistance Study. Mr. Warren reported that the Sub-Committee did not meet due to the absence of the Chairman, L. W. Janson and other members. A general discussion followed during which several of the members reviewed some of the testing which has been done together with suggestions for additional research and testing. Chairman Meinert directed that L. W. Janson shall continue as Chairman of this Sub-Committee and that the study of matrix abrasions shall be continued with a report to be submitted at the next meeting of the bit Committee.

III. INCREASED TOLERANCES ON SET DIMENSIONS OF LARGE DIAMETER DESIGN BITS:

The Bit Committee reviewed the problem of increased tolerance on the set dimensions of large diameter design bits. The Committee recommends to the Executive Committee that the increased tolerances in the set O.D. and I.D. of the large diameter bits, as covered by letter ballot 8-61 DCD be considered and then this matter be referred to the Technical Committee for Drill Equipment for further study.

IV. DIAMOND BIT CROWN PROFILE DESIGNATION:

The matter of diamond bit crown profile was discussed and after some study a tentative proposal was outlined as follows:

Bit Face Design	A - (Full Round)	Percentage	65 minimum
	B - (Semi Round)	"	77 minimum
	C - (Flat)	"	88 minimum

The radius of the crown shape is expressed as a percentage of the matrix width not including the inside and outside ribs.

It was the feeling of the Committee that bit face designs B and C be studied in greater detail before percentages are established.

V. SET DIMENSIONS FOR O.D. AND I.D. OF CERTAIN CASING BITS AND CASING SHOES:

It was a recommendation that the DCDMA adopt set dimensions of the CDDA for both O.D. and I.D. for BX and NX Casing bits and EX, AX, BX, NX casing shoes.

VI. TIME AND PLACE OF NEXT MEETING:

The time and place of the next meeting was allowed to remain at the call of the Chair.

VII. ADJOURNMENT:

There being no further business, the meeting adjourned.

H. J. Meinert,
Chairman

MAILED FROM DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION: MAY 27, 1963.

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
122 East 42nd Street
New York, New York 10017

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: O'HARE INN, DES PLAINES, ILLINOIS

DATE AND TIME: WEDNESDAY, OCTOBER 23, 1963 - - 8:30 A.M.

MEMBERS PRESENT:

W. L. Fornwald	Sprague & Henwood, Inc.
David James	Acker Drill Company, Inc.
W. F. Kempe	Christensen Diamond Products Co.
H. J. Longmore	Sprague & Henwood, Inc.
A. E. Taras	Diamond Tool Research Company, Inc.
H. L. Ward	Joy Manufacturing Company

MEMBERS ABSENT:

W. H. Hampton	Hoffman Brothers Drilling Company
H. J. Meinert	J. K. Smit & Sons, Inc.
J. R. Mott	Mott Core Drilling Company
E. G. Tucker	E. J. Longyear Company
G. A. Redebaugh	Koebel Diamond Tool Company
S. J. Warren	Anton Smit & Company, Inc.

OTHERS PRESENT:

J. P. Carscadden	Koebel Diamond Tool Co.
O. C. Hoffman, Jr.	Hoffman Brothers Drilling Co.
Wm. Parrish	Hoffman Brothers Drilling Co.
Lars Hammarback	Svenska Diamantbergborrnings, AB

PRESIDING OFFICER:

W. F. Kempe, Chairman

I. APPROVAL OF PREVIOUS MINUTES:

The Committee engaged in a brief discussion of the minutes of the combined meeting of the Technical Committees of the CDDA and the DCDMA which was held in Chicago on September 9th and 10th, 1963. This was taken as information with no action resulting.

II. MATRIX ABRASION RESISTANCE STUDY:

Since there were no members of the Matrix Abrasion Resistance Study Sub-Committee present, a report of its activities is not made. (Note: See attached report of later meeting of the Sub-Committee - Exhibit A.)

III. CHANGE IN CORE LIFTER DESIGN TAPER:

Changes in core lifter design taper from 10 degrees to 7 degrees were discussed.

III. CHANGE IN CORE LIFTER DESIGN TAPER: (CONTD.)

Mr. Carscadden reported that results of several years of field use by the Falconridge Nickel Company have been entirely satisfactory. The 7 degree tapered lifters have resulted in better core recovery and increased fluid passage between core lifter and core.

Mr. Parrish reported that their experience showed that tapers steeper than 10 degrees are required for softer and broken formations.

The members were asked for a motion requesting the change from 10 degrees to 7 degrees taper and establishment of lengths of core lifters as follows:

EX	-	5/8
AX	-	7/8
BX	-	1-1/4
NX	-	1-5/8

Mr. Ward and Mr. Fornwald requested time to discuss the change with their company associates. The request for a motion was therefore tabled for the afternoon session.

IV. INCREASED TOLERANCES ON SET DIMENSIONS OF LARGE DIAMETER DESIGN BITS:

Increased tolerances on set dimensions of large diameter bits were presented to the Association by letter ballot No. 8-61, August 18, 1961. Although a majority of affirmative votes were cast, the Committee was instructed to review the problem because three votes had been cast with comments.

Tolerances for diamond set bits as adopted by the A.P.I. in 1961 were reviewed. It is the consensus of the Committee that these tolerances are too tight for the bit manufacturers and are closer than required by the drilling industry.

It was therefore recommended that we adopt the following tolerances for large diameter bits:

Larger than NX size and including 6-3/4 inches diameter . . . . . plus 0, minus .020 inches

Larger than 6-3/4 inches and including 9 inches . . . . . plus 0, minus .025 inches

Larger than 9 inches . . . . . plus 0, minus .030 inches

It was also recommended that the same parameter for establishing bit dimensions above NX size be applied as for all "X" series bits, i.e., that the maximum bit diameter be .005 inch under the minimum shell diameter.

It was also recommended that set reaming shell gauge for the 4x5-1/2 barrel be changed from 5.495 inches to 5.500 inches.

IV. INCREASED TOLERANCES ON SET DIMENSIONS OF LARGE DIAMETER DESIGN BITS: (CONTD.)

Comments made by Pennsylvania Drilling Company and Sprague & Henwood, Inc. in the return of letter ballot 8-61 were referred to a sub-committee comprised of Mr. Fornwald, Mr. James and Mr. Kempe. They are to study core size and core lifter design in the three standard, large size DCDMA core barrels and report their findings and make recommendations at the next meeting of the Technical Committee for Mechanically Set Bits.

V. DIAMOND BIT CROWN PROFILE DESIGNATIONS:

A discussion was held on the definitions of bit crown profiles. This discussion was interrupted at 11:00 A.M. to allow the Committee to attend the Buzz Session and lunch. The Committee then reconvened at 3:00 P.M.

After some discussion and preparation of a scale drawing by the Chairman, a motion by Mr. Fornwald was seconded and carried that the following four crown profiles be defined:

A. Flat Crown.

B. Full Round in which the crown radius equals 50 per cent of the kerf width.

C. Semi-Flat in which the crown radius equals 100 per cent of the kerf width.

D. Semi-Round in which the crown width equals 60 per cent to 70 per cent of the kerf width.

Kerf width is defined as the difference between O.D. and I.D. set dimensions divided by two.

VI. SET DIMENSIONS FOR O.D. AND I.D. OF CERTAIN CASING BITS AND CASING SHOES:

A discussion was held concerning changes in casing shoe and casing bit dimensions as requested by the CDDA. A motion by Mr. Fornwald was seconded and carried that changes agreed to by the Joint Meeting and as recorded in the minutes of that meeting be accepted. (An excerpt from those minutes is attached as Exhibit B.)

VII. TIME AND PLACE OF NEXT MEETING:

The time and place of the next meeting was allowed to remain at the call of the Chair.

VIII. ADJOURNMENT:

There being no further business, the meeting adjourned.

Reported by

Walter F. Kempe,
Chairman

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ATTACHMENTS: Exhibit A - Minutes of Sub-Committee for Matrix Abrasion Resistance Study
Exhibit B - Excerpt from the minutes of the Joint Meeting of Technical Committees of the CDDA and DCDMA.

MAILED FROM DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION: December 9, 1963.

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
122 East 42nd Street
New York, New York 10017

MINUTES: SUB-COMMITTEE FOR MATRIX ABRASION RESISTANCE STUDY; TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: O'HARE INN, DES PLAINES, ILLINOIS

DATE AND TIME: WEDNESDAY, OCTOBER 23, 1963 - - 4:00 P.M.

MEMBERS PRESENT:

L. W. Janson	Sprague & Henwood, Inc.
W. F. Kempe	Christensen Diamond Products Co.

MEMBERS ABSENT:

P. Adamson	Wheel Trueing Tool Company
D. W. James	Acker Drill Company, Inc.
H. J. Longmore	Sprague & Henwood, Inc.
H. J. Meinert	J. K. Smit & Sons, Inc.
S. J. Warren	Anton Smit & Company, Inc.

OTHERS PRESENT:

None

PRESIDING OFFICER:

L. W. Janson, Chairman

I. APPROVAL OF PREVIOUS MINUTES:

Inasmuch as a quorum was not present, the minutes of the previous meeting held on October 24, 1962, were not approved but were carefully reviewed.

II. STATUS OF WORK:

This Sub-Committee has arrived at an impasse. No one particular method of tests can be adopted.

If one of the commonly used abrasion test methods were adopted, it could not be used on the finished bits as a matrix abrasion resistance check.

Kennametal has tested Association member furnished samples by a dry sand test method. These Kennametal tests did not correlate with results of tests made by Christensen Diamond Products Co. using wet sand method.

Kennametal has now a Rily-Stokes Abrasion Testing machine and could arrange to make wet tests.

Mr. Janson stated that Mr. Warren has been working on a "do-it-yourself" test procedure in which drilling conditions are approximated. Complete results are not available yet.

EXHIBIT A

III. REQUEST FOR FURTHER INSTRUCTIONS:

In view of the foregoing, the Sub-Committee requests guidance and instructions for further progress from the Technical Committee for Mechanically Set Bits.

IV. TIME AND PLACE OF NEXT MEETING:

The time and place of the next meeting was allowed to remain at the call of the Chair.

V. ADJOURNMENT:

There being no further business, the meeting adjourned.

Reported by

W. F. Kempe
Acting Secretary

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MAILED FROM DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION: December 9, 1963.

JOINT MEETING: TECHNICAL COMMITTEE; C.D.D.A: and
TECHNICAL COMMITTEES FOR DRILL EQUIPMENT AND
MECHANICALLY SET BITS; D.C.D.M.A.

September 10, 1963

DISCUSSION REGARDING DIFFERENCES BETWEEN STANDARDS
FOR SET DIMENSIONS OF THE C.D.D.A. AND THE D.C.D.M.A.

The Chairman stated that the meeting had been called for the express purpose of discussing the differences of the diamond set dimensions that exist between the D.C.D.M.A. and the C.D.D.A. Mr. W. W. Svendsen charted on a blackboard the I.D. and O.D. of shoes, casing and shells. The C.D.D.A. will accept the internal set dimensions for all casing bits as published by the D.C.D.M.A. The C.D.D.A. will accept all bit dimensions as published by the D.C.D.M.A. for the O.D. on casing shoes. A compromise table of set dimensions for the I.D. of casing shoes will be adopted by both Associations in which all internal set dimensions published by the D.C.D.M.A. will be reduced by .003 inches. After some discussion the C.D.D.A. members agreed to accept the following dimensions for the I.D. of a shoe:

NX	2.997 / 2.987		AX	1.907 / 1.897
BX	2.377 / 2.367		EX	1.502 / 1.492

With regard to casing, it was proposed that the tolerance be increased by .005 inches, for example:

NX	3.101 / 3.000	to	3.015 / 3.005
BX	2.385 / 2.375	to	2.390 / 2.380
AX	1.916 / 1.906	to	1.921 / 1.911
EX	1.510 / 1.500	to	1.515 / 1.505

The D.C.D.M.A. explained that their drilling procedures were not always the same as those of the Canadians. In reviewing their standards they have discovered that the core will go through the inner casing coupling and will also allow the reaming shell to pass through it. They also did not make it a practice to set diamonds on the inside of an article when it is intended to drill through it. To a large extent this accounts for the variances between the D.C.D.M.A. and C.D.D.A. dimensions on diamond set articles. It was Canadian practice to set diamonds inside of every article that drilled core.

The members representing the D.C.D.M.A. agreed to accept the tolerances on the O.D. of the shoe as presently being used by the C.D.D.A. In an "X" size, this would be 2.987 inches plus .010 inches minus 000, with other sizes to correspond.

The next item would be the I.D. of casing. The C.D.D.A. members agreed to accept the O.D. dimensions of casing shoes to correspond with those of the D.C.D.M.A. which would be the same as the casing bit, that is, in $\frac{3.365"}{3.355"}$ to $\frac{3.620"}{3.610"}$. The C.D.D.A. members also stated that, as recommended to their Executive Committee, the O.D. on casing bits should be reduced by .005".

There was a discussion on the set reaming shell size for "NX" hole. The D.C.D.M.A. representatives were reluctant to change their 3.875" dimension. However, after an explanation from representatives of the C.D.D.A. as to the difficulties of the 3.906 inch dimensions, they agreed to recommend this to their Executive Committee.

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DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
122 East 42nd Street
New York, New York 10017

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: THE DRAKE OAKBROOK, OAK BROOK, ILLINOIS

DATE AND TIME: WEDNESDAY, MARCH 25, 1964 - - 8:00 A. M.

MEMBERS PRESENT:

W. L. Fornwald	Sprague & Henwood, Inc.
O. C. Hoffman, Jr.	Hoffman Bros. Drilling Co.
D. W. James	Acker Drill Company, Inc.
W. F. Kempe	Christensen Diamond Products Co.
A. E. Taras	Diamond Tool Research Co., Inc.
H. L. Ward	Joy Manufacturing Company
S. J. Warren	Anton Smit & Co., Inc.

MEMBERS ABSENT:

H. J. Meinert	J. K. Smit & Sons, Inc.
J. R. Mott	Mott Core Drilling Company
G. A. Redebaugh	Koebel Diamond Tool Company
E. G. Tucker	E. J. Longyear Company
H. T. Longmore	Sprague & Henwood, Inc.

OTHERS PRESENT:

H. W. Arnold	American Coldset Corporation
J. P. Carscadden	Koebel Diamond Tool Company
Wm. Elliott	American Coldset Corporation

PRESIDING OFFICER:

W. F. Kempe, Chairman

I. APPROVAL OF PREVIOUS MINUTES:

Minutes of the previous meeting held on October 23, 1963, were approved as previously distributed.

II. CROWN SHAPE:

Negative votes on Letter Ballot 13-64, DCD, concerning definition of crown shapes were discussed. As a result, the negative votes were withdrawn.

A suggestion was made to apply tolerances to the radii of the crown shape. Definition of the crown shapes would not provide for this. It was decided, instead, that tolerances would not be given and that the standards for crown shape simply would be definitions rather than manufacturing standards.

II. CROWN SHAPE: (CONTINUED)

The vote on the proposition of adding tolerances to the crown radii was one aye, seven nayes, one abstaining.

Motion was made and carried unanimously to make semi-round crown 60% of kerf width.

III. CORE LIFTER, 7 DEGREES:

Seven degree core lifters were discussed and the subject is tabled pending issue of report by the Technical Committee for Drill Equipment.

IV. BIT TOLERANCES:

Upon further study by Messrs. Fornwald and James, and upon their recommendation, motion was made and unanimously carried that the following tolerances be adopted for large diameter bits:

Larger than NX and up to and including 5-3/4	+000 inch -020 inch
Larger than 5-3/4	+000 inch -030 inch

V. MATRIX ABRASION STUDY:

Mr. Kempe reported on two test methods now being evaluated at Christensen Diamond Products Company, one of which could possibly be adapted for our purposes.

Stan Warren discussed in detail work he has done in this field. In one method he used 5/16 diamond spheres of matrix material as test specimens. In another method he uses actual bit crowns on a drill press spindle. He offered to test 5/16 inch diamond spherical samples submitted by member ccmpanies. He also offered to send his test set-up for AX bits to Acker Drill Company for trial. He promised to submit a report within three months.

V. TIME AND PLACE OF NEXT MEETING:

The time and place of the next meeting was allowed to remain at the call of the Chair.

VI. ADJOURNMENT:

There being no further business, the meeting adjourned.

Reported by

W. F. Kempe
Chairman

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MAILED FROM DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION: June 29, 1964.

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
122 East 42nd Street
New York, New York 10017

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: THE DRAKE OAKBROOK, OAK BROOK, ILLINOIS

DATE AND TIME: WEDNESDAY, OCTOBER 28, 1964 -- 8:00 A.M.

MEMBERS PRESENT:

J. P. Carscadden	Koebel Diamond Tool Company
W. L. Fornwald	Sprague & Henwood, Inc.
D. W. James	Acker Drill Company, Inc.
W. Kempo	Christensen Diamond Products Co.
A. E. Taras	Diamond Tool Research Co., Inc.
S. J. Warren	Anton Smit & Company, Inc.

MEMBERS ABSENT:

H. W. Arnold	American Coldset Corporation
O. C. Hoffman, Jr.	Hoffman Bros. Drilling Co.
E. M. Jenkins	Christensen Diamond Products Co.
H. J. Meinert	J. K. Smit & Sons
J. R. Mott	Mott Core Drilling Co.
H. L. Ward	Joy Manufacturing Co.

OTHERS PRESENT:

P. Adamson	Wheel Trueing Tool Company
Wm. Elliott	American Coldset Corporation
L. A. Goldsmith	American Coldset Corporation
G. Jensen	Christensen Diamond Products Co.
K. J. Klapka	Wheel Trueing Tool Company

PRESIDING OFFICER:

W. Kempe, Chairman

I. APPROVAL OF PREVIOUS MINUTES:

Minutes of the previous meeting held on March 25, 1964, were approved as distributed and as read at this time by the Chairman.

II. CORE LIFTER, 7 DEGREES:

There was no further discussion in continuation of the review of the previous meeting and accordingly this subject is being held in abeyance pending word from the Technical Committee for Drill Equipment.

III. BIT SIZES LARGER THAN NX:

The Committee noted that the results of Letter Ballot No. 16-64, DCD dated September 17, 1964, as reported on October 20, 1964 indicated approval with a number of comments which had been referred back to the Technical Committee for consideration.

Discussion indicated that when the letter ballot is reissued, it should be worded to indicate that the vote is on the question of approving bit dimensions on sizes larger than NX.

Note was made that the tolerance of $\pm .000$ $-.030$ had been approved as a result of the foregoing ballot. The Committee thereupon proposed that the upper bit size to which these tolerances were to apply should be 7 3/4 inches. No definite conclusions could be reached and members were asked to come to the meeting with definite thoughts for discussion relative to this size extension. Further, at that time, the dimensions are to cover both bit and set dimensions with appropriate values being given for each.

The Committee also explored the question of ovality but no action was recommended until members had an opportunity to discuss this subject with their company associates. The matter will be taken up again at the next meeting at which time the subject will be discussed in connection with Narrow Kerf Industrial Bits.

IV. IMPREGNATED BITS:

A motion by Mr. Warren and seconded by Mr. Fornwald was carried to the effect that this Technical Committee should not concern itself with impregnated bits except in connection with interchangeability.

V. MATRIX ABRASION STUDY:

Mr. Warren reported that his investigation had suggested a return to the rings originally proposed by Kennemetal.

Mr. Kempe explained that abrasion testing involved two aspects, namely, abrasion and erosion. He went on to explain a simple and inexpensive device known as a Champion CT-423 spark plug cleaner. With a few simple modifications, he had used this to test a number of matrix samples. This was an erosion test.

Mr. Kempe went on to describe a number of other machines which were generally quite costly. It was the consensus that the type of machine used in the Kennemetal tests which involved a grinding wheel and the machine used at Armour Institute in which there was a continuous supply of new abrasive material were the only true abrasive testing devices about which there was present knowledge. The consensus was that each member of the Committee should obtain a Champion CT-423 spark plug cleaner and Mr. Kempe would furnish each member with instructions and drawings describing the necessary modifications and operating procedures. He would also furnish a supply of recommended abrasives and give its specifications. The members are then to proceed testing so that results could be submitted for tabulation and comparison. If the results are consistent, it might be possible to approach the U.S.Army Corps of Engineers with a simple method for evaluation of matrix resistance to abrasion.

VI. NARROW KERF INDUSTRIAL BITS:

The Committee suggested that the Chairman report to the Executive Committee that the Committee would like to do further work on this subject as follows:

1. Interchangeability
2. Reduction of confusion regarding bit adaptor sizes and connections

The recognized sizes now in use are as follows:

1/2 - 20	7/8 - 14
5/8 - 11	3/4 - 16
5/8 - 18	rod sizes
1 1/4 - 7	
1 - 14	

VII. TIME AND PLACE OF NEXT MEETING:

The time and place of the next meeting was allowed to remain at the call of the Chair.

VIII. ADJOURNMENT:

There being no further business, the meeting adjourned.

Reported by

W. F. Kempe
Chairman

ea

MAILED FROM DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION: January 25, 1965

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
122 East 42nd Street
New York, New York 10017

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: THE DRAKE OAKBROOK, OAK BROOK, ILLINOIS

DATE AND TIME: WEDNESDAY, MARCH 24, 1965 -- 8:00 A.M.

MEMBERS PRESENT:

H. W. Arnold	American Coldset Corporation
W. L. Fornwald	Sprague & Henwood, Inc.
O. C. Hoffman, Jr.	Hoffman Bros. Drilling Co.
D. W. James	Acker Drill Company, Inc.
W. Kempe	Christensen Diamond Products Co.
H. L. Ward	Joy Manufacturing Co.

MEMBERS ABSENT:

L. J. Burrows	Diamond Drill Contracting Co.
J. P. Carscadden	Koebel Diamond Tool Co.
E. M. Jenkins	Christensen Diamond Products Co.
W.Kempe	Christensen Diamond Products Co.
H. J. Meinert	J. K. Smit & Sons, Inc.
J. R. Mott	Mott Core Drilling Co.
A. E. Taras	Diamond Tool Research Co.

OTHERS PRESENT:

W. Elliott	American Coldset Corporation
C. J. Dela Gorgendiere	Wheel Trueing Tool Company
G. Jensen	Christensen Diamond Products Co.
K. Klapka	Wheel Trueing Tool Company
M. Safferson (for Mr. Taras)	Diamond Tool Research Co., Inc.
Frank P. Anderson (part time)	Institute Staff

PRESIDING OFFICER:

W. Kempe, Chairman

I. APPROVAL OF PREVIOUS MINUTES:

The minutes of the previous meeting held on October 28, 1964, were approved as distributed subject to a correction adding the name of William Elliott to those present.

II. METRICS EROSION STUDY:

The Committee was informed that actual tests as suggested at the meeting of October 28, 1964, were performed by:

Sprague & Henwood, Inc.
Koebel Diamond Tool Co.
Christensen Diamond Products
Wheel Trueing Tool Co.

II. METRICS EROSION STUDY: (CONTD.)

Reports of all of these test programs had been made available in advance so that they could be studied with the exception of the report from the Wheel Trueing Tool Company which came in too late to be included.

A consensus from the three available reports indicated that further work was believed to be justified.

On motion, seconded and unanimously carried, the Chairman was directed to issue new test instructions designed to improve the accuracy of the tests. The need for this information was derived from analyses of the variations and their apparent causes which indicated that greater uniformity was obtainable.

The Committee suggested that the Association might consider the allocation of funds to defray the cost of material used in this test program.

III. SEVEN DEGREE CORE LIFTERS:

This subject is now on the agenda of the Technical Committee for Drill Equipment after having been approved by the Technical Committee for Mechanically Set Bits. The latter Committee now urges that the Technical Committee for Drill Equipment dispose of this item as soon as possible.

IV. SPECIFICATIONS FOR DIAMONDS:

The Committee considered a suggestion that thought be given to the merits of having diamond specifications in view of the great variety of diamonds now on the market. The Committee recommended that this subject be brought to the attention of the Executive Committee.

V. TIME AND PLACE OF NEXT MEETING:

The time and place of the next meeting was allowed to remain at the call of the Chair with the understanding that the next regular meeting would be held in conjunction with the next regular meeting of the Institute.

VI. ADJOURNMENT:

There being no further business, the meeting adjourned.

Reported by

ea

W. Kempe, Chairman

MAILED FROM DIAMOND CORE MANUFACTURERS ASSOCIATION: September 8, 1965

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
122 East 42nd Street
New York, New York 10017

FILE COPY

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: THE O'HARE INN, CHICAGO, ILLINOIS

DATE AND TIME: OCTOBER 27, 1965 -- 5:00 P.M.

MEMBERS PRESENT:

J. P. Carscadden	Koebel Diamond Tool Company
W. L. Fornwald	Sprague & Henwood, Inc.
O. C. Hoffman, Jr.	Hoffman Bros.Drilling Company
D. W. James	Acker Drill Company, Inc.
W. Kempe	Christensen Diamond Products Co.
K. Klapka	Wheel Trueing Tool Company

MEMBERS ABSENT:

H.W. Arnold	American Coldset Corporation
L. J. Burrows	Diamond Drill Contracting Co.
E. M. Jenkins	Christensen Diamond Products Company
H. J. Meinert	J. K. Smit & Sons, Inc.
J. R. Mott	Mott Core Drilling Co.
H. L. Ward	Joy Manufacturing Co.

OTHERS PRESENT:

W. Elliott	American Coldset Corporation
A. J. Gazzola	Anton Smit & Company, Inc.
W. J. Verby	Anton Smit & Company, Inc.

PRESIDING OFFICER:

W. Kempe, Chairman

I. APPROVAL OF PREVIOUS MINUTES:

The minutes of the meeting held March 24, 1965, were approved as circulated.

II. REPORT ON ABRASION TESTING:

It was moved and seconded that the summary report, as prepared by the Chairman on abrasion testing, be accepted. A copy is attached hereto as Exhibit A.

III. REPORT ON JOINT TECHNICAL MEETING:

Mr. Carscadden presented a brief review of developments at the meeting of the Technical Committee For Drill Equipment, at which representatives of CDDA were present on October 26, 1965.

III. REPORT ON JOINT TECHNICAL MEETING:(CONTD.)

Mr. Carscadden outlined the discussions concerning possible ISO Standards for new sizes of equipment.

IV. TOLERANCES FOR SIZES LARGER THAN NX:

In view of the proposed new Standards for equipment, it was decided that Letter Ballot 16-64 DCD, should be resubmitted to the Association. It was moved and seconded that, in the new ballot, the proposed O.D. dimension tolerances for diamond set products larger than NX be as follows:

O. D. Dimensions of Diamond Set Products

Larger than NX up to and including 4 inches $\pm \frac{.000}{.015}$

Larger than 4 inches up to and including 5-3/4 inches $\pm \frac{.000}{.020}$

Larger than 5-3/4 inches up to and including 9 inches $\pm \frac{.000}{.030}$

V. TIME AND PLACE OF NEXT MEETING:

The time and place of the next meeting was allowed to remain at the call of the Chair.

VI. ADJOURNMENT:

There being no further business, the meeting adjourned.

Reported by

W. Kempe, Chairman

ATTACHMENT: EXHIBIT A - Report on Abrasion Testing

MAILED FROM DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION:
November 23, 1965

ABRASION TEST

SUMMARY REPORT TO THE

EXECUTIVE COMMITTEE OF THE DCDMA

The Mechanically Set Bit Committee was given the assignment to determine the possibility of substituting a measurement of abrasion resistance for Rockwell hardness of bit matrices. After several years of joint efforts by various members of the Committee, we are ready to make the following conclusions:

(1) There is no inexpensive and also reliable means of determining abrasion and also erosion resistance in which results of acceptable repeatability can be obtained.

(2) The least expensive method of test equipment was the use of a Champion Spark Plug cleaner with which three companies duplicated 2 sets of tests on Aluminum Alcoa 2011-T3 and carbon steel AISI 1020.

The results are shown in the following table:

	% Wt. Loss from Original Specimen	
COMPANY A	ALUMINUM	STEEL
1st Test	.51	.71
2nd Test	.91	.76
COMPANY B		
1st Test	1.10	.69
2nd Test	.52	.50
COMPANY C		
1st Test	1.32	.92
2nd Test	1.49	1.05

(3) Expressing the changes experienced in the 2nd test series in terms of results of the 1st test series we find:

	Change in Weight Loss	
	ALUMINUM	STEEL
COMPANY A	+78%	+ 7%
COMPANY B	-52%	-28%
COMPANY C	+13%	+14%

TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

EXHIBIT A
OCTOBER 27, 1965

It is obvious that such wide variations would result in meaningless standards of comparison.

Recommendations:

Abrasion and erosion testing is a comparatively simple task to perform. Obtaining reliable results within acceptable limits, however, is difficult and affected by a host of variables. It is our judgement that the purposes of the membership of the DCDMA would best be served by using test services as they may be secured from other industries or companies within the DCDMA.

Respectfully submitted,

/s/Walter F. Kempe

WFK/bc

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
122 East 42nd Street
New York, New York 10017

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: O'HARE INN, DES PLAINES, ILLINOIS

DATE AND TIME: WEDNESDAY, MARCH 23, 1966 -- 8:00 A.M.

MEMBERS PRESENT:

W. L. Fornwald	Sprague & Henwood, Inc.
O. C. Hoffman, Jr.	Hoffman Bros. Drilling Co.
D. W. James	Acker Drill Company
K. Klapka	Wheel Trueing Tool Co.
W. J. Verby	Anton Smit & Company, Inc.

MEMBERS ABSENT:

H. W. Arnold	American Coldset Corporation
L. J. Burrows	Diamond Drill Contracting Co.
J. P. Carscadden	Koebel Diamond Tool Co.
W. Kempe	Christensen Diamond Products Co.
H. J. Meinert	J. K. Smit & Sons, Inc.
J.R. Mott	Mott Core Drilling Co.
H. L. Ward	Joy Manufacturing Co.
E. M. Jenkins (Ex-Officio)	Christensen Diamond Products Company

OTHERS PRESENT:

A. J. Gozzola	Anton Smit & Company, Inc.
W. Huber	Diamond Tool Research Co.

PRESIDING OFFICER:

D. W. James, Acting Chairman

I. APPROVAL OF PREVIOUS MINUTES:

Inasmuch as a quorum was not present, the minutes of the previous meeting held on October 27, 1965, were not approved but were reviewed to determine progress to date.

II. REVIEW OF LETTER BALLOT #21-26 TOLERANCE ON DIAMOND SET PRODUCTS O.D. ABOVE NX SIZES:

A recommendation was made to the Executive Committee to withdraw the above letter ballot because of some tolerance changes made at the January 21, 1966 Joint Meeting in Detroit regarding set I.D. and O.D.

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
122 East 42nd Street
New York, New York 10017

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: O'HARE INN, DES PLAINES, ILLINOIS

DATE AND TIME: WEDNESDAY, NOVEMBER 2, 1966 - - 8:15 A.M.

MEMBERS PRESENT:

J. P. Carscadden	Koebel Diamond Tool Company
W. Elliott	American Coldset Corporation
W. L. Fornwald	Sprague & Henwood, Inc.
W. L. Huber	Diamond Tool Research Company, Inc.
D. W. James	Acker Drill Company, Inc.
W. Kempe	Christensen Diamond Products Company
K. J. Klapka	Wheel Trueing Tool Company
W. J. Verby	Anton Smit & Company, Inc.

MEMBERS ABSENT:

L. J. Burrows	Diamond Drill Contracting Company
W. H. Hampton	Hoffman Brothers Drilling Company
H. J. Meinert	J. K. Smit & Sons, Inc.
J. R. Mott	Mott Core Drilling Company
H. L. Ward	Joy Manufacturing Company
W. W. Svendsen	Odgers Drilling, Inc.

OTHERS PRESENT:

J. Klipper	Diamond Tool Research Co., Inc.
R. Richmond	American Coldset Corporation

PRESIDING OFFICER:

W. Kempe, Chairman

I. APPROVAL OF PREVIOUS MINUTES:

The minutes of the previous meeting held on March 23, 1966, were approved as distributed.

II. PROPOSED EXPERIMENTAL STANDARD FOR BITS LARGER THAN NX:

A guide line establishing tolerances as Experimental Standards for bits larger than NX was proposed by Mr. James. The establishment of this uni-directional tolerance would conform substantially to proposed ISO tolerances to cover all bits and shells presently manufactured.

III. INTERNATIONAL STANDARDS:

The Committee expressed its strong support for the effort being made to have DCDMA Standards adopted as International recommendations by the ISO.

IV. INTERNATIONAL INDUSTRIAL DIAMOND CONFERENCE:

The Committee held a discussion of the following papers presented at the above Conference:

A. "Diamond Drilling on Zambian Copperbelt with Notes on Deep Slim Hole Drilling in South Africa"

B. "Additives to Coolants Used in Diamond Drilling and Sawing in Australia"

C. "Problems Associated with the Use of Soluble Oil in Diamond Drilling"

V. EXCHANGE OF DIMENSIONAL DRAWINGS FOR BITS AND SHELLS:

The Committee discussed the matter of establishing a central file of prints of all bits and shells versus a direct exchange of such drawings by the manufacturers. In the final outcome, the Committee voted to ask the Executive Committee to inform all DCDMA members that there was a desire to exchange dimensional drawings of bits and shells among the manufacturers of those products.

VI. NOMENCLATURE - H SERIES:

The Committee discussed the possibility of future problems in the "H" nomenclature, pointing out the possibility that some confusion might result.

VII. TIME AND PLACE OF NEXT MEETING:

The time and place of the next meeting were allowed to remain at the call of the Chair with the understanding that the next regular meeting would be held in conjunction with the next regular meeting of the Association.

VIII. ADJOURNMENT:

There being no further business, the meeting adjourned.

K. J. Klapka
Secretary

eu

MAILED FROM DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION: March 2, 1967

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
122 East 42nd Street
New York, New York 10017

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: THE PITTSBURGH HILTON, PITTSBURGH, PENNSYLVANIA

DATE AND TIME: WEDNESDAY, MARCH 22, 1967 -- 8:00 A.M.

MEMBERS PRESENT:

J. P. Carscadden	Koebel Diamond Tool Company
W. Elliott	American Coldset Corporation
W. L. Fornwald	Sprague & Henwood, Inc.
W. L. Huber	Diamond Tool Research Company, Inc.
W. Kempe	Christensen Diamond Products Company
K. J. Klapka	Wheel Trueing Tool Company
H. J. Meinert	J. K. Smit & Sons, Inc.
J. R. Mott	Mott Core Drilling Company
W. J. Verby	Anton Smit & Company, Inc.

MEMBERS ABSENT:

L. J. Burrows	Diamond Drill Contracting Company
W. H. Hampton	Hoffman Brothers Drilling Company
D. W. James	Acker Drill Company, Inc.
H. L. Ward	Joy Manufacturing Company
W. W. Svendsen	Odgers Drilling, Inc.

OTHERS PRESENT:

J. Laboranti	Acker Drill Company, Inc.
R. Richmond	American Coldset Corporation
F. Winterle	Christensen Diamond Products Company

PRESIDING OFFICER:

W. Kempe, Chairman

I. APPROVAL OF PREVIOUS MINUTES:

The minutes of the previous meeting, held on November 2, 1966, were read and a motion was made and carried that they be accepted as read and distributed.

II. DISCUSSION ON USE OF ADDITIVES:

The Chairman discussed the use of additives in the form of soaps and soluble oils in the circulating medium. It was noted that no one would commit himself on how good these additives are.

A letter was read from Hoffman Brothers Company giving results they had.

It was also stated that the papers given by the Australian Diamond Core Drill Association and South Africa were the best on the subject.

III. AVAILABILITY OF CRAELIUS STANDARDS

The Committee then discussed the Craelius Standards. Four companies submitted copies of all of the prints they had to Mr. Klapka for correlation and preparation of coordinated prints for presentation to the Executive Committee.

Subsequently, it was further decided that, before proceeding, the Committee should first contact Craelius in an attempt to have all dimensions verified. After this is done, a set of prints will be made in millimeters and inches.

IV. BITS NOT COVERED BY STANDARDS:

The subject of non-standard bits was brought up in a letter written by Mr. Adamson, pointing out how many non-standard bits his company was making.

A comparison made of the dimensions of several of the non-standard bits resulted in the conclusion that care must be taken in the preparation of standards to avoid interference with progress. On the other hand, since the principle of interchangeability is essential to maximum utility, development must come about in great part through experience. Accordingly, it is essential that bit and barrel manufacturers notify the Committee whenever such experience has shown that dimensions in the standards have been corrected or revised for production.

V. PROPOSED STANDARDS FOR WIRE LINE DEVICES:

It was decided that a study should be made for development of standards for the bits and shells of the Wire Line series.

VI. H SERIES CORE BARRELS - NOMENCLATURE:

The Chairman then informed the Committee that the Executive Committee had instructed him to have the Committee discuss the nomenclature problem of the "H" series core barrel manufactured by Diamond Drill Contracting Company. After careful consideration the Committee instructed the Chairman to recommend to the Executive Committee that Diamond Drill Contracting Company be approached with the suggestion that it change the nomenclature of its core barrel so as not to conflict with ISO.

VII. THROAT DIAMETER OF THE BW AND STRAIGHT WALL BITS:

Mr. Elliott volunteered to canvas the members for their dimensions and to present his findings at the next meeting.

VIII. ISO DIMENSIONS OF THE H AND D SERIES:

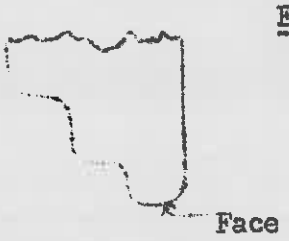
The Committee accepted and approved the "H" and "D" dimensions on the ISO Standards on H and HW bits and shells.

IX. STEP TYPE BITS:

The Chairman was instructed to inform the Executive Committee that Ballot No. 13-64, DCD be supplemented to include step type bits. The definition of a step type bit is as follows:

A step type bit consists of a face and any number of steps, as illustrated in the following examples:

Example 1.
2 step



Example 2
3 step

X. TIME AND PLACE OF NEXT MEETING:

The time and place of the next meeting were allowed to remain at the call of the Chair with the understanding that the next regular meeting would be held in conjunction with the next regular meeting of the Association.

XI. ADJOURNMENT:

There being no further business, the meeting adjourned.

Reported by

W. Kempe
Chairman

pk

MAILED FROM DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION: July 14, 1967

FILE COPY

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION

122 East 42nd Street
New York, New York 10017

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: HOLYDAY INN - CENTRAL, MINNEAPOLIS, MINNESOTA

DATE AND TIME: WEDNESDAY, OCTOBER 18, 1967 - 8:00 A.M.

MEMBERS PRESENT:

J. P. Carscadden	Koebel Diamond Tool Company
W. L. Fornwald	Sprague & Henwood, Inc.
W. L. Huber	Diamond Tool Research Company, Inc.
J. Laboranti	Acker Drill Co., Inc.
H. J. Meinert	J. K. Smit & Sons, Inc.
W. Kempe	Christensen Diamond Products Company
J. R. Mott	Mott Core Drilling Company
W. J. Verby	Anton Smit & Company, Inc.

MEMBERS ABSENT:

P. Adamson	Wheel Trueing Tool Company
L. J. Burrows	Diamond Drill Contracting Company
W. Elliott	American Coldset Corporation
D. H. Moller	Diamond Products, Inc.,
W. W. Svendsen	Odgers Drilling, Inc.

OTHERS PRESENT:

T. C. Davis	Christensen Diamond Products Company
K. J. Klapka	International Diamond Tool Company
R. Richmond	American Coldset Corporation

PRESIDING OFFICER:

W. F. Kempe, Chairman

I. APPROVAL OF PREVIOUS MINUTES:

The minutes of the previous meeting, held on March 22,1967, were read and approved as distributed.

II. PROPOSED CHANGE OF "H" DIMENSION (THROAT DIMENSIONS):

On motion, seconded and unanimously carried, the Committee voted to recommend to the Executive Committee that the following be submitted to letter ballot for approval:

Proposed Changes of "H" Dimensions (Throat Dimensions)

	EWG	AWG	BWG	NWG
Max.	.904	1.254	1.734	2.244
Min.	.900	1.250	1.730	2.240
Double Clearance	.050-.064	.060-.074	.070-.084	.080-.094

III. REPORT ON STATUS OF WORK ON JOINT CDDA AND DCDMA STANDARDS:

The Chairman brought the Committee up to date on progress in connection with joint CDDA and DCDMA Standards. He commented favorably on the great amount of work by Mr. Perry Hall of CDDA and members of DCDMA in this connection.

IV. WIRE LINE CORE BARRELS, BITS, AND SHELLS:

The problem was developing because of the increasing number of manufacturers making wire line which was not interchangeable and thus resulted in a substantial increase in the number of parts being required. While the Committee felt that standardization of bits and shells for the wire line system is impossible, Mr. Formwald will review the bits and shells in the "WX" size as made by all manufacturers and will present a report to the Committee at least four weeks before the next meeting.

V. CRAELIUS BITS AND SHELLS:

Mr. Kempe will attempt to obtain a complete set of Craelius production drawings on bits and shells for review by the Committee.

VI. SET OD AND ID OF TUNGSTEN CARBIDE INSERT TYPE BITS:

Information in this connection was lacking, and those members who make this type of bit were asked to study the matter for report at the next meeting.

VII. ADDITIVES FOR DRILLING SOLUTIONS:

No new information was submitted in this connection, and Mr. Kempe will therefore proceed to edit and summarize existing reports for the next meeting.

VIII. TIME AND PLACE OF THE NEXT MEETING:

The time and place of the next meeting were allowed to remain at the call of the chair with the understanding that the next regular meeting would be held in connection with the next regular meeting of the Association.

IX. ADJOURNMENT:

There being no further business, the meeting adjourned.

Reported by

W. F. Kempe, Chairman

MAILED FROM DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION:
February 5, 1968

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
122 East 42nd Street
New York, New York 10017

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: O'HARE INN, DES PLAINES, ILLINOIS

DATE AND TIME: THURSDAY, MARCH 21, 1968 -- 8:00 A.M.

MEMBERS PRESENT:

W. L. Fornwald	Sprague & Henwood, Inc.
W. L. Huber	Diamond Tool Research Co., Inc.
W. Kempe	Christensen Diamond Products Co.
R. Kennedy	Wheel Trueing Tool Company
H. J. Meinert	J. K. Smit & Sons, Inc.
J. R. Mott	Mott Core Drilling Co., Inc.

MEMBERS ABSENT:

L. J. Burrows	Diamond Drill Contracting Co.
J. P. Carscadden	Canadian Koebel Diamond Tool Ltd.
W. Elliott	American Coldset Corporation
D. H. Moller	Diamond Products, Inc.
N. Stauffer	Acker Drill Company, Inc.
W. J. Verby	Anton Smit & Company, Inc.
G. P. Wallin, Jr.	E. J. Longyear Company
H. L. Ward	Joy Manufacturing Company

OTHERS PRESENT:

W. R. Eastman	E. J. Longyear Company
W. G. Lake	Canadian Diamond Drilling Association

PRESIDING OFFICER:

W. F. Kempe, Chairman

I. APPROVAL OF PREVIOUS MINUTES:

The minutes of the previous meeting, held on October 17-18, 1967, were approved as distributed.

II. LETTER BALLOT NO. 24-67, DCD, DATED MARCH 31, 1967:

The Committee noted that this ballot covered the "H" dimension of EWG, AWG, BWG and NWG, Bevel Wall Core Bits. (Note: a report on the results of the foregoing ballot is attached hereto as Exhibit A).

III. WIRELINE CORE BARRELS, BITS AND SHELLS:

Mr. Fornwald will complete charts on current sizes of wireline barrels, but it is believed that standards for core barrels up to and including the "HX" size will be impossible. Additional study is required with respect to diamond bits and reaming shells for wireline barrels and possible standards of sizes larger than "HX". The foregoing study is to be made by all Committee members who will report directly to the Chairman.

IV. CRAELIUS BITS AND SHELLS:

Mr. Kempe reported that he had received no material as the result of his recent letter to Craelius requesting copies of Craelius Standards.

V. SET O.D. AND I.D. DIMENSIONS OF TUNGSTEN CARBIDE INSERT TYPE BITS:

The Committee recommended that there be a ballot to establish standards for Tungsten Carbide Insert Type Bits in order to develop a set of OD. to reaming shell gauge and a set ID. to standard core size to correspond with established standards for diamond bit set sizes.

VI. ADDITIVES FOR DRILLING SOLUTIONS:

Mr. Kempe reported that progress is being made, but that additional study is required with respect to Additives For Drilling Solutions before a final report can be submitted.

VII. STANDARDS FOR THIN WALL OR MASONRY TYPE DIAMOND BITS:

The Chairman was instructed to recommend to the Executive Committee that standards be developed for this type of equipment.

VIII. PERSONNEL CHANGES:

The Committee was informed that Mr. N. R. Stauffer will replace Mr. J. Laboranti as a representative on this Committee.

The Committee was informed that Mr. R. Kennedy will replace Mr. Karl Klapka as a representative on this Committee.

IX. TIME AND PLACE OF NEXT MEETING:

The time and place of the next meeting was allowed to remain at the call of the Chair with the understanding that the next regular meeting would be held in conjunction with the next regular meeting of the Association.

X. ADJOURNMENT:

There being no further business, the meeting adjourned.

Reported by,
W. L. Fornwald, Secretary

ATTACHMENT: Exhibit A - Report on Letter Ballot No. 24-67, DCD

MAILED FROM DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION: September 27, 1968

June 12, 1967
Letter Ballot No. 24-67, DCD

To: Voting Representatives on Standards;
Diamond Core Drill Manufacturers Association

Subject: Report on Results of Letter Ballot No. 24-67, DCD
Dated March 31, 1967 -- Approval of New and Revised Standards of the DCDMA.

Gentlemen:

The voting period for the above Letter Ballot has now expired, and the results are as follows:

Number of Companies Eligible to Vote	21
Number of Companies Abstaining	0 *
Number of Companies Participating	21
Affirmative Votes	12
Affirmative Votes with Comment (Comments Attached)	3
No Replies Counted in the Affirmative	6
Negative Votes	0
TOTAL AFFIRMATIVE VOTES	21

* NOTE: One company abstained from voting on Charts 5 and 6 only. See comment attached.

The foregoing results indicate approval in accordance with the By-Laws; however, since there are three affirmative votes with comment, the results are being referred to the Standards Committee for review.

Very truly yours,

Frank P. Anderson
Secretary

FPA:pk
Enclosures

cc: Technical Comm. for Drill Equipment
Technical Comm. for Mechanically Set Bits
Technical Comm. for Soil Sampling Equipment
Standards Committee

EXHIBIT A

June 12, 1967

COMMENTS re LETTER BALLOT NO. 24-67, DCD
Dated March 31, 1967

Affirmative Votes with Comment:

* KOEBEL DIAMOND TOOL COMPANY

April 24, 1967

Since we are not manufacturers or users of RODS, we feel it is not proper for us to vote on Charts 5 and 6 of this ballot.

/s/ G. A. Redebaugh

* * * * * * *

E. J. LONGYEAR COMPANY

May 31, 1967

We return the subject ballot, approved, with the following comments:

1. The need of the trade for two types of standardized casing should be continuously evaluated on a commercial basis so that action is recommended in eliminating one or the other standard, if this action is found to be in the interests of the user, manufacturer and raw material supplier. This evaluation could be tied in with an evaluation of the "obsolete" rod situation, which seems to indicate need of the trade for two series of rods.

2. Should the UW and ZW Flush Joint Casings shown on Chart 4 be provided with a thread of lesser helix angle than the 2-threads per inch specified? Is this coarse pitch compatible with the relatively short thread length specified? We suggest that the Technical Committee review this point before the Standards are issued formally.

/s/ J. F. Hoffmeister
Vice President - Manufacturing

* * * * * *

MOBILE DRILLING COMPANY

April 6, 1967

We have not checked these charts. We do not manufacture any of the items in question and submit our affirmative votes only in support of those manufacturers who are interested in these items.

/s/ R. E. Dickinson

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
122 East 42nd Street
New York, New York 10017

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: CAESAR'S PALACE, LAS VEGAS, NEVADA

DATE AND TIME: FRIDAY, OCTOBER 11, 1968 -- 8:20 A.M.

MEMBERS PRESENT:

W. Elliott	American Coldset Corp.
W. L. Fornwald	Sprague & Henwood, Inc.
W. L. Huber	Diamond Tool Research Co., Inc.
W. F. Kempe	Christensen Diamond Products Co.
J. R. Mott	Mott Core Drilling Co., Inc.
W. J. Verby	Anton Smit & Company, Inc.
G. P. Wallin, Jr.	E. J. Longyear Company

MEMBERS ABSENT:

L. J. Burrows	Diamond Drill Contracting Co.
J. P. Carscadden	Canadian Koebel Diamond Tool Ltd.
R. Kennedy	Wheel Trueing Tool Company
H. J. Meinert	J. K. Smit & Sons, Inc.
D. H. Moller	Diamond Products, Inc.
N. Stauffer	Acker Drill Company, Inc.
H. L. Ward	Joy Manufacturing Company

OTHERS PRESENT:

P. Adamson	Wheel Trueing Tool Company
L. A. Braun	E. J. Longyear Company
C. W. Steele	Canadian Diamond Drilling Association

PRESIDING OFFICER:

W. F. Kempe, Chairman

I. APPROVAL OF PREVIOUS MINUTES:

Departing from the usual procedure of assuming the members were thoroughly conversant with the typed minutes, the chairman read the minutes of the last meeting to the group. The accomplishments of that meeting, and the problems left unsolved, were thus put squarely before the members so new action could begin.

II. LETTER BALLOT NO. 27-68:

After discussion, the committee decided to ask the Executive Committee to declare that Ballot 27-68 supersede ballot 13-64, 13-64 being deleted from the record.

III. STANDARDIZATION OF WIRELINE BIT I.D. AND O.D. SET SIZES:

Members Adamson and Elliott pressed for a minimum standardization of bit dimensions so that future new designs would all be compatible with a standard to be decided, at least as to threads and I.D. and O.D. dimensions for example. The Chairman countered that this would rule out progress, explaining how the Christensen C and D series barrels were brought forward to solve then existing field problems. Solutions to these problems dictated changed core sizes to permit beefing up design. After active, interested discussion, it was decided that progressive improvement of diamond bits and barrels precluded any such pre-set standard design strait jacket.

IV. CRAELIUS BITS AND SHELLS:

This Swedish firm continues to ignore correspondence and will not supply any specifications on their products to DCDMA or to the Committee.

V. TUNGSTEN CARBIDE SAW TOOTH BITS:

The Committee decided to ask the Executive Committee if a plan could be devised whereby these bits, which are generally considered low volume, low profit items, could be mass produced by one or several manufacturers for distribution by all members.

(NOTE: The matter of production is the prerogative of the individual manufacturer and therefore is not a proper subject for discussion or action at any meetings of the Association or of its committees. It was not reported to the Executive Committee.)

Also, do we need standardization of this item. If so, should it be reaming shell gauge on O.D. and standard on I.D. for the various products involved. Christensen supplied a graph to each member showing its standards for numbers of teeth. On motion by Mr. Elliott, seconded by Mr. Huber and passed unanimously it was decided to:

"Request the Executive Committee to authorize a letter ballot on standard tungsten carbide saw tooth bits at reaming shell gauge on the O.D., and standard gauge on I.D. for each product involved."

VI. ADDITIVES TO DRILLING FLUIDS:

The Chairman, who had assigned himself to a continuing study of the literature in this field, said that the study has been fruitful, that there are numerous benefits to bit footage, penetration rate, and presentation of equipment possible through the use of additives. A summary of what has been accomplished and reported throughout the world, particularly in Australia, will be made available to members by Mr. Kempe at the next meeting.

VII. STANDARDIZATION OF MASONRY BITS:

This frequently discussed topic is in limbo at I.D.A. Mr. Fornwald, who is making a study for his own company, volunteered to add to existing charts, the specifications of 13 new makers, and also to provide data on specs of known drilling machine (thinwall) manufacturers. This will be in the Chairman's hands by December 10, 1968, will be circulated by him, commented on by members and should be ready for Committee consideration by the next meeting.

VIII. TIME AND PLACE OF NEXT MEETING:

The time and place of the next meeting were allowed to remain at the call of the chair.

IX. ADJOURNMENT:

The meeting was adjourned at 10:05 A.M., after a productive and interesting meeting. Mr. Adamson complimented the chairman on his performance and suggested that he retain his post in perpetuity. No action was taken on this last suggestion, but members cheered.

Reported by

W. L. Huber, Secretary

MAILED FROM DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION: JANUARY 16, 1969

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
2017 Walnut Street
Philadelphia, Pennsylvania 19103

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: HOLIDAY INN-DOWNTOWN, ATLANTA, GEORGIA

DATE AND TIME: THURSDAY, MAY 8, 1969 -- 9:00 A.M.

MEMBERS PRESENT:

W. J. Verby	Anton Smit & Company, Inc.
H. J. Meinert	J. K. Smit and Sons, Inc.
J. R. Mott	Mott Core Drilling Co., Inc.
W. L. Fornwald	Sprague & Henwood, Inc.

MEMBERS ABSENT:

W. Elliott	American Coldset Corp.
W. L. Huber	Diamond Tool Research Co., Inc.
W. F. Kempe	Christensen Diamond Products Co.
G. P. Wallin, Jr.	E. J. Longyear Co.
L. J. Burrows	Diamond Drill Contracting Co.
J. P. Carscadden	Canadian Koebel Diamond Tool Ltd.
D. H. Moller	Diamond Products, Inc.
N. Stauffer	Acker Drill Co., Inc.
H. L. Ward	Joy Manufacturing Co.

OTHERS PRESENT:

L. Nolan	Diamond Products Co.
J. J. Daly	Altas-Copco Co.
M. Collett	Christensen Diamond Products Co.

PRESIDING OFFICER:

W. L. Fornwald, Acting Chairman

I. The minutes of the previous meeting were read and approved.

II. The only open item on the agenda involved standardization of masonry bits. Additional data is still being collected from manufacturers who are not members of the Association and when all the information has been assembled it will be submitted to the members of the Committee for further study.

Additional discussion followed with respect to standardization of this product group and it was the consensus of opinion of the members present that the only avenue open in this direction was to ask all manufacturers to furnish the dimensions and tolerances for the adapter end of the tube. This information would then be made available to all members. This would enable any member to manufacture any size bit and insure that the solid head or the expansion adapter would fit. The Committee felt that this would be the logical starting point for any possible standardization.

III. Additional discussions followed on a wide variety of subjects which in most cases had no relation to the specific work of the Committee but rather the Association as a whole.

IV. There being no further business, the meeting adjourned.

Reported by,

W. L. Fornwald

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
2017 Walnut Street
Philadelphia, Pennsylvania 19103

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: DOWNTOWNER, DENVER, COLORADO

DATE AND TIME: TUESDAY, OCTOBER 7, 1969

MEMBERS PRESENT:

W. Grill	Christnsen Diamond Products
C. T. Thompson	American Coldset Corp.
W. J. Verby	Anton Smit & Company, Inc.
W. L Fornwald	Sprague & Henwood, Inc.
J. R. Mott	Mott Core Drilling Co., Inc.
M. Lavigne	Wheel Trueing Tool Co.

MEMBERS ABSENT:

H. J. Meinert	J K Smit and Sons, Inc.
N. Stauffer	Acker Drill Co., Inc.
D. H. Moller	Diamond Products, Inc.
R. Carlson	Diamond Drill Contracting Co.

OTHERS PRESENT:

L. Nolan	Diamond Products Co.
J. J. Daly	Craelius Diabor (Atlas Copco)
Geo. Lacasse	Joy Mfg. Co.
Dick Beaumont	American Coldset Corp.
Bob Norrick	Acker Drill Co., Inc.

PRESIDING OFFICER:

M Lavigne, Chairman

I. The minutes of the previous meeting were read and approved.

II. The business arising out of these minutes concerned the standardization of masonry bits. It was generally agreed that it would be advantageous to the consumer to be made aware of the various sizes of tubing being used and the corresponding adapters. This information would also be helpful to member manufacturers and should be exchanged.

Accordingly it was moved by W. Verby and seconded by W. Fornwald, that the committee chairman circulate to members a blank spread sheet covering all dimensions of the parts and use of the parts relating to expansion adaptors and drive mechanisms of all masonry bits. The spread sheet will also include any and all related dimensions pertaining to the drive end of the bit blank. The spread sheet form will be supplied through the courtesy of American Coldset Corp. Completed forms will be returned to the chairman for consolidation and subsequent presentation at the next meeting of D.C.D.M.A.

III. Under new business a discussion of the possibility of eventually establishing standards for wireline bits ensued. A brief outline of C.D.D.A. efforts in this regard was presented by the chairman. For the present it was the consensus of the members that no direct attempt at such standardization should be initiated at this time. However, members did suggest that all existing charts and data on wireline systems should be thoroughly reviewed and updated. Bill Formwald generously volunteered to undertake this task and will present the collected data at the next meeting of the D.C.D.M.A.

IV. There being no further business, the meeting adjourned.

Reported by,

MERV.
Miro Lavigne, Chairman

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
53 East Main Street
Moorestown, New Jersey 08057

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: HILTON INN, DALLAS, TEXAS

DATE: TUESDAY, MARCH 10, 1970

MEMBERS PRESENT:

W. Grill	Christensen Diamond Products
C. T. Thompson	American Coldset Corp.
W. Verby	Anton Smit & Company, Inc.
W. Fornwald	Sprague & Henwood, Inc.
M. Lavigne	Wheel Trueing Tool Co.

MEMBERS ABSENT:

H. J. Meinert	J. K. Smit and Sons, Inc.
N. Stauffer	Acker Drill Co., Inc.
D. H. Moller	Diamond Products, Inc.
R. Carlson	Diamond Drill Contracting Co.

OTHERS PRESENT:

R. Beaumont	American Coldset Corp.
L. Nolan	Diamond Products Co.
J. Daly	Atlas Copco
Anders Oden	Craelius Diabor AB

PRESIDING OFFICER:

M. Lavigne, Chairman

I. The minutes of the last meeting were read and approved.

II. The chairman reported that the spread sheets covering all dimensions of parts relating to expansion adapters and drive mechanisms on all sizes of masonry bits had been distributed. The sheets had been filled in by the various member companies and had been returned to him for review. The chairman reported that he had started to tabulate the information contained in the spread sheets but that it was obvious that before this work can be completed and be of any value a prior step must

be taken. The prior step involves polling the manufacturers to determine what type and kind of raw material they are currently using in the manufacture of the blank. In addition, it will be necessary to establish the commercial tolerances which apply to the various types of tubing used. A questionnaire will be sent to all members soliciting this information and this will be presented at the next meeting.

Mr. C. Thompson volunteered to have copies made of each member's spread sheet so that these copies could be distributed to each member. In this way each member will have a copy of the data submitted by every other member. This has been accomplished.

III. Bill Fornwald reported that he had received drawings and updated dimensions from all manufacturers of wire line core barrels except Odgers Drilling Co. However, as of this date he has not had a chance to correlate this information and prepare a consolidated chart showing the critical bit and shell dimensions. This work will be done prior to the next meeting and new charts presented to the member companies.

IV. A brief discussion was held with reference to tolerances on Set O.D. and I.D. dimensions on bits larger than NX size. Bill Fornwald reported on the background of this problem and the chairman appraised the committee of the position the CDDA has taken with respect to tolerance on bits in these sizes. It developed that because of existing conflict with respect to tolerances to be shown in Bulletin #3 this problem can not be resolved by this committee at this time. The problem was tabled for consideration at a later date.

Reported by,

M. Lavigne, Chairman

I. The Minutes of the meeting in Dallas, Texas, March 10, 1970 were read and adopted.

II. Business Arising out of Minutes -

The discussion concerning the standardization of Masonry Bit Adapters was resumed. The Chairman reported that he had received replies from several member companies outlining the type and size of tubing used in the manufacture of Masonry Bits. After a review of the various tubing specifications, it was decided that additional information would be required of member companies. Accordingly, new spread sheets are to be circulated requesting the following dimensions:

Finished "O.D." of Blank
Finished "I.D." of Blank
Counterbore "I.D." and Depth
Overall length of Blank

Mr. Fornwald reported that he was still working on the tabulation of wireline dimensions. He noted certain discrepancies on information sheets supplied by some manufacturers and has requested clarification from these particular companies. As soon as this information has been received, tabulated sheets will be prepared and circulated to all members.

Mr. Norrick suggested specific changes in the allowable tolerances on the "O.D." of Bits and Reaming Shells in sizes larger than NX. After some discussion and study the following tolerances were suggested:

Larger than NX up to and including 4"

Set Shell O.D.	+.000 -.010
Set Bit O.D.	+.000 -.015

Tolerance between Minimum Shell O.D. and Maximum Bit O.D. to be .005"

Larger than 4" up to and including 5 3/4"

Set Shell O.D. +.000
-.020

Set Bit O.D. +.000
-.020

Tolerance between Minimum Shell O.D. and Maximum Bit O.D. to be .015"

Larger than 5 3/4" up to and including 9"

Set Shell O.D. +.000
-.030

Set Bit O.D. +.000
-.030

Tolerance between Minimum Shell O.D. and Maximum Bit O.D. to be .020"

It was duly moved, seconded and carried that these tolerances be submitted for approval to the Executive Committee. Upon approval by this Committee, these tolerances might then be circulated to member companies in the form of a Letter Ballot. Upon final approval, a sticker containing the new figures would be added to Bulletin #3.

III. New Business -

The Chairman reported that he would contact member companies concerning their suggestions and recommendations on the care and use of Diamond Bits. In turn this information would be passed on to the Public Relations Committee to assist in the compilation of their proposed manual.

IV. There being no further business, the meeting was adjourned.

Respectfully submitted,

M. Lavigne, Chairman

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
53 East Main Street
Moorestown, New Jersey 08057

MINUTES: TECHNICAL COMMITTEE FOR MECHANICALLY SET BITS

PLACE OF MEETING: DORAL COUNTRY CLUB AND HOTEL, MIAMI FLORIDA

DATE: APRIL 22, 1971

MEMBERS PRESENT:

W. F. Kempe	Christensen Diamond Products
L. F. Nolan	Diamond Products
W. L. Fornwald	Sprague & Henwood
R. I. Peters	E. J. Longyear Company
W. J. Verby	Anton Smit & Co.
J. R. Mott	B. H. Mott & Sons

MEMBERS ABSENT:

N. R. Stauffer	Acker Drill Co.
R. L. Carlson	Diamond Drill Contracting Co.
H. J. Meinert	J. K. Smit & Sons

OTHERS PRESENT:

Ned Miles	Christensen Diamond Products Co.
J. Klipper	Diamond Tool Research Co., Inc.
R. W. Beaumont	American Coldset Corp.
J. J. Daly	Atlas - Copco

PRESIDING OFFICER:

W. F. Kempe, Acting Chairman

I. Reading and approval of previous minutes.

II. It was brought to the attention of the Committee that negative votes on Letter Ballot No. 32-70, DCD, voiced several objections although sufficient affirmative votes were cast to adopt Letter Ballot 32-70 DCD.

Discussions of negative votes by:
E. J. Longyear Company
Christensen Diamond Products
Sprague & Henwood
Wheel Trueing Tool Co. (M. Lavigne)
(Copies of letters of objections in chairmans notes were read)

Letter Vallot 32-70, DCD was read by Chairman.

During discussion it was established that the purpose of the standard was to establish limits or tolerances for diamond set products which are larger than NX and that the proposed standard should not deal with allowances between bit and shell O.D. dimensions.

It was moved by Mr Fornwald that the Committee request the Executive Committee to withdraw Letter Ballot 32-70. Voted and passed.

It was moved by W. J. Verby that a new ballot on the O.D. dimension tolerances for Diamond Set products larger than NX be as follows:

O.D. Dimensions of Diamond Set Products

Larger than NX up to and including 4"	+.000 -.015
Larger than 4" up to and including 5 3/4"	+.000 -.020
Larger than 5 3/4" up to and including 9"	+.000 -.030

Voted and passed.

III. There being no further business, the meeting was adjourned.

Respectfully submitted,

Walter Kempe, Acting Chairman

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION

COMMITTEE: Mechanically Set Bits

DATE: April 11, 1972
Marriott-Camelback Inn, Scottsdale, Arizona

ACTING CHAIRMAN: Walter F. Kempe

MEMBERS ATTENDING:	W. F. Kempe, Acting Chm.	Christensen Dia. Products Co.
	J. R. Mott	B. H. Mott & Sons, Inc.
	P. J. Niklas	Wheel Trueing Tool Co.
	R. I. Peters	E. J. Longyear Co.
MEMBERS ABSENT:	N. L. Fornwald	Sprague & Henwood, Inc.
	W. E. Decker	Hoffman Diamond Prod., Inc.
	J. Klipper	Diamond Tool Research Co. Inc.
	L. F. Nolan	Diamond Products, Inc.
	R. F. Norrick	Acker Drill Co., Inc.
	W. J. Verby	Anton Smit & Co.
GUESTS:	W. L. Acker	Acker Drill Co., Inc.
	R. L. Carlson	Diamond Drill Contracting Co.
	J. J. Daly	Atlas Copco (Craelius Diabor)
	Cy Steele	Canadian Diamond Drilling Association

Minutes of November 3, 1971 were read and approved as read and previously distributed.

Since no information was available concerning progress of Items #1 and #2 from the November 3, 1971 Meeting because of the absence of the Committee Chairman, it was decided to carry them over to the next meeting.

The balance of the meeting was devoted to discussion of the impact metrication may have on the industry.

Cy Steele of CDDA inquired whether any problems were experienced by use of CDDA Standards for "T" series bits. As no one reported knowledge of any problems indications are that the CDDA Standards seem to be in order.

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION

COMMITTEE: Mechanically Set Bits

DATE: November 3, 1971
Pittsburgh Hilton, Pittsburgh, Pa.

CHAIRMAN: William L. Fornwald

MEMBERS ATTENDING:

William L. Fornwald, Chairman	Sprague & Henwood, Inc
R. I. Peters,	E. J. Longyear Co.
W. J. Verby	Anton Smit & Co.
J. R. Mott	B. H. Mott & Sons
L. F. Nolan	Diamond Products, Inc.
W. E. Decker	Hoffman Diamond Products Co.
P. J. Niklas	Wheel Trueing Tool Co.

Item #1 Discussion of ballot on changing O.D. dimension tolerances on diamond set products larger than NX.

Action: Tabled for further study and review with the Technical Committee for Drill Equipment--Will inform whether joint meeting is necessary at April meeting.

Item #2 Study of "Masonry" or "Thin Wall" Diamond bits for possible consideration relative to establishing standards for this product group.

Action: Collect information from all Member Companies, tabulate information and furnish to Committee members for study. Also update information previously furnished.

Visitors: Anders Oden, W. Hampton, Jr., Gail Wright, Robert Janowitz, B. Snyder

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION

COMMITTEE: Technical Committee for Mechanically Set Bits

DATE: October 3, 1972
Holiday Inn of Chicago, O'Hare International Airport

CHAIRMAN: W. J. Verby
Walter Kempe - Acting Chairman

MEMBERS ATTENDING:

Walter Kempe (Acting Chairman)	Christensen Diamond Prod. Co.
F. W. Davenhall	Acker Drill Co., Inc.
W. E. Decker	Hoffman Dia. Prod. Inc.
William Fornwald	Sprague & Henwood, Inc.
Robert Janowitz	Koebel Diamond Tool Co.
Robert Peters	E. J. Longyear Co.

MEMBERS ABSENT:

W. J. Verby, Chairman	Anton Smit & Sons
R. L. Carlson	Dia. Drill Contracting Co.
J. Klipper	Dia. Tool Research Co., Inc.
P. J. Niklas	Wheel Trueing Tool Co.
L. F. Nolan	Diamond Products, Inc.
O. E. Olivieri	J. K. Smit & Sons, Inc.
E. B. Williams	Williams Diamond Bits

GUESTS:

W. J. Graver	J. K. Smit & Sons, Inc.
W. H. Hampton III	Hoffman Dia. Products, Inc.
John Young	

The committee was called to order by the Acting Chairman and approved the minutes of the April 11, 1972 Meeting in the form in which they have been distributed.

Item #2 The Committee discussed the proposals for Thin Wall Bit Standards proposed by Walter Kempe in his letter to the Committee members, dated August 8, 1972.

Individual motions were made, seconded and unanimously approved, covering the following items:

1. Expansion adaptors and solid back end adaptors to have:
   a) 5/8"-11 UNC-2B threads for bits smaller than 2"
   b) 1¼"-7 UNC-2B threads for bits 2" and larger

2. Plate 1: Title to read"General Assembly for Bits 2" and Larger with Expansion Adaptor".

3. Plate 2: Title to Read "General Assembly for Bits Larger Than 1" and Smaller Than 2" With Adaptor 1¼-7 to 5/8-11, eliminate showing of two different sizes.

4. Plate 3, Motor Spindle: Change 2¼ dimension to read 2½ (Max.); 1.249 $^{+.000}_{-.001}$ to read 1.249/1.243; 1¼"-7 to read 1¼"-7 UNC-2A; add to reference: Black & Decker Mfg. Co., DRG. No. 54612, Rev. 13.

5. Plate 4: "1½" Hex. Stock or Round With 2 Flats" to read: "Hex, Stock or Round With Wrench Flats; delete "1½" Across Flats"; 1.242" +.003 - .000 to read 1.251" + .005 - .000, 1¼"-7 NC-2 to read 1¼"-7 UNC-2B, 5/8-18 NC-2 to read 5/8-11 UNC-2A, 2½" Full Thread to read 2 5/8" Full Thread, 2 3/4" to read 2 7/8", 4 1/2" to read 4 3/4, Title to read "Shaft Coupling 1 1/4-7 to 5/8-11."

6. Make additional plates showing - 5/8-11 Motor Spindle and Shaft Coupling 5/8-11 to 1¼-7.

7. Plate 5: "2 Wrench Flats" to read: "Hex, Stock or Round with Wrench Flats; Delete 37/64 (.578) Drill; 5/8-18 Tap to read 5/8-11 UNC-2B; add "Bit Mounting Optional" at end of adaptor.

8. Plate 6: "2 Wrench Flats" to read "Hex, Stock or Round with Wrench Flats; delete 37/64 (.578) Drill; 5/8-18 Thds/in to read 5/8-11 UNC-2B

9. Plate 7: "Provide at Least 2 Wrench Flats" to read "Hex, Stock or Round with Wrench Flats"; add (Max) to 1/32x45° Chamfer, 1¼-7 USS Thrds/in. to read 1¼-7 UNC-2B Delete "1/16" x 45° Chamfer; Delete 1.109 + .005 -.000 Dia; Delete 30°; 1.255 + .005 - .000 Dia to read 1.251 + .005 - .000; Add (Min.) to 2 3/16.

10. Plates 8, 9, 10, 11 & 12: It appears we have achieved a proposed standard for solid back end adaptors, but no agreement was reached on expansion adaptors due to differences in dimensions by various manufacturers. Also, there seems to be a trend towards solid back end adaptors. The committee would welcome any information regarding this trend which could be furnished by the Statistics Committee.

The Acting Chairman, Walter F. Kempe is requested to ask permission of the Executive Committee to have the Association Draftsman prepare proper drawings.

CHRISTENSEN DIAMOND PRODUCTS COMPANY

1[illegible] SOUTH SECOND WEST STREET / P. O. BOX 387 / SALT LAKE CITY, UTAH 84110 U.S.A. / PHONE (801) 487-5371 / CABLE ADDRESS: CHRISDIACO

SEP 28 1972

September 25, 1972

Members: Technical Committee for Mechanically Set Bits ← into the Minute Book

I have received a call from your chairman, Bill Verby, advising me that he will not be able to attend your October meeting. He asked that I stand in for him, to which I gladly consented.

On the agenda for your meeting I place:

1) Standardization of Industrial Bits

2) Other Business

May I invite you to come well prepared to discuss Item 1 so that this meeting could be fruitful.

Sincerely,

Walter F. Kempe

WFK:lw
cc: Mr. Bob Norrick
Mr. Bill MacMillan

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION

COMMITTEE Technical Committee for Mechanically Set Bits

DATE: March 13, 1973
Holiday Inn, Palm Beach Gardens, Florida

CHAIRMAN Walter F. Kempe, Acting Chairman

MEMBERS ATTENDING:

Walter F. Kempe	Christensen Diamond Prod. Co.
F. W. Davenhall	Acker Drill Co., Inc.
W. E. Decker	Hoffman Dia. Prod. Inc.
Robert Peters	E. J. Longyear Co.

MEMBERS ABSENT:

R. L. Carlson	Diamond Drill Contracting Co.
William Fornwald	Sprague & Henwood, Inc.
Robert Janowitz	Koebel Diamond Tool Co.
J. Klipper	Diamond Tool Research Co., Inc.
P. J. Niklas	Wheel Trueing Tool Co.
L. F. Nolan	Diamond Products, Inc.
O. E. Olivieri	J. K. Smit & Sons, Inc.
W. J. Verby	Anton Smit & Sons
E. B. Williams	Williams Diamond Bits

GUESTS:

Walter Graver	J. K. Smit & Sons, Inc.
Bertil Holst	Craelius Diabor AB - Sweden
Ned Miles	Christensen Diamond Prod. Co.

The committee was called to order by Mr. Walter F. Kempe. The minutes of the previous meeting, October 3, 1972, were reviewed and accepted.

Item #2 The meeting was devoted to a review of the standards for industrial bit connections, as represented in a set of drawings previously reviewed by member companies by letter survey.

1. Walter Kempe brought out the need to convert fractional dimensions to decimals to conform to established DCDMA standards. He further brought out the need to establish standard decimal tolerances to replace the $\pm$ 1/64 generally

accepted as present shop practice. It was agreed a recommended separate proposal be drawn up for presentation to the Executive Committee.

2. The drawing numbers assigned were pointed out as not conforming to DCDMA practice and will be corrected. (however, today's discussion referred to drawings numbers as is)

3. The following corrections, additions and eliminations refer to the individual drawings:

DRAWING

44.0 a) add 1/64" maximum radius at thread shoulder
b) change to "31/32" minimum full thread"
c) add note "above dimensions from vendor drawings"
d) add 1/32" x 45° chamfer on O.D. shoulder

44.1 a) add note "above dimensions obtained from following vendor drawings---------"
b) change"1 5/8" minimum full thread"
c) add "1 5/8" O.D. dimension"
d) add 1/32" x 45° chamfer on O.D.

45.0 a) add 1 5/8" diameter
b) show second end view with note "wrench surface at manufacturers option"
c) change 1 3/8" "flats" to "wrenching area"
d) change "3/8" drill" to "17/32" drill maximum for watercourse"
e) change to "1 5/8" minimum full thread".
f) change "2 1/2/2 1/4" to "2 1/4"
g) add 1/32" x 45° chamfer on O.D. - two corners.

45.1 a) add "1 5/8 diameter"
b) Remove hex or round stock w/flats note
c) change overall length to 5"
change 2 7/8" depth to 3 1/8"
d) change to "31/32" minimum full thread"
e) add "1/32" x 45° chamfer O.D." - two corners

46.0 a) change title to "Bits smaller than 7/8" O.D."
b) remove "hex stock note --------"
c) add "7/8" O.D."
d) add "1/32" x 45° chamfer on C'bore"
e) add "1/32 x 45° chamfer on O.D."

46.1 a) change title to "Bits 7/8" up to 2"".

b) remove "Hex and Flat" note
c) add "1/32" x 45° chamfer on C'bore"
d) add 1/32" x 45° chamfer on O.D."
e) remove "1 1/8" Flats"
f) add note "mounting optional"

46.2 a) remove "hex stock and wrench flats" note
b) add to note - Solid Backend Adaptor for bits 2" and larger - (within limitations of thread capacity)
c) add "Mounting Optional"

Meeting was closed at 12:15 PM.

Respectfully submitted by

Robert Peters - Appointed Secretary

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION

COMMITTEE: TECHNICAL COMMITTEE - MECHANICALLY SET BITS

DATE: October 2, 1973
Dearborn Inn, Dearborn, Michigan

CHAIRMAN: O. E. Olivieri

MEMBERS ATTENDING:

O. E. Olivieri, Chairman	J. K. Smit & Sons, Inc.
F. W. Davenhall	Acker Drill Co., Inc.
W. E. Decker	Hoffman Diamond Products Inc.
Walter Kempe	Christensen Diamond Prod. Co.
P. J. Niklas	Wheel Trueing Tool Co.
Robert Peters	E. J. Longyear Co.

MEMBERS ABSENT:

R. L. Carlson	Diamond Drill Contracting Co.
William Fornwald	Sprague & Henwood, Inc.
J. Klipper	Diamond Tool Research Co., Inc.
W. J. Verby	Anton Smit & Co., Inc.
Ed. Williams	Williams Diamond Bits

GUESTS ATTENDING:

Johnny Hutchens	Williams Diamond Bits
Ned Miles	Christensen Diamond Prod. Co.

The chairman called the meeting to order at 8:40 A.M.

Minutes of the March 1973 meeting were reviewed. A motion for acceptance was made by F. W. Davenhall, seconded by Walter Kempe - carried.

The next order of business was the letter ballot No. 37-73 DCD dated July 17, 1973 concerning approval of Tabulated Sheets for Solid Back Ends for Masonry Bits. The chairman reported on the results of the ballot as follows:

11 Voted in favor
7 Abstained
3 Objections

Since according to the provision of the By-Laws all members who do not submit a ballot, such ballot will be counted in the affirmative, the final tally was 18 for and 3 against. The tabulated sheets 44.1 to 44.7 are now DCDMA Standards.

Secretary-Treasurer William MacMillan is to advise Black & Decker and Milwaukee that DCDMA has accepted the 5/8" NC - 11 T.P.I. and the 1 1/4" NC - 7 T.P.I. as their standard.

The chairman read letters from the three objecting companies which were Acker Drill Company, Diamond Products Inc., and Longyear Company.

It was agreed by the committee members present some of the objections were valid, particularly with respect to certain tolerances.

The committee reviewed each Tabulated Sheet and came up with the following recommended changes:

44.1	no change
44.2	no change
44.3	change counterbore depth $\frac{.316}{.310}$ to .250 minimur .300 maximur
44.4	change 1/32 x 45° chamfer to 1/32 x 60° on the 5/8" - 11 thread end to conform with 44.1 - change 1/32" radius maximum to 1/64" radius maximum to conform with 44.1 - change $\frac{1.128}{1.122}$ to 1.000 minimum - 1.100 maximum.
	change $\frac{3.130}{3.120}$ to 3.100" minimum - 3.100" maximu
	change $\frac{1.190}{1.184}$ to $\frac{1.192}{1.182}$ to conform with 44.1
44.5	change $\frac{.316}{}$ to .250 minumim - .300 maximum
44.6	change $\frac{.316}{.310}$ to .250 minimum - .300 maximum
44.7	change $\frac{1.256}{1.246}$ to 1.000 minimum - 1.100 maximum

Since all aforementioned changes were unanimously agreed upon by all committee members present, the recording secretary will show the motions for these changes was made by F. Davenhall and seconded by R. Peters. (If individual motions are required the recording secretary will supply same.)

Next on the agenda was a Discussion on Standards for Expansion Adaptors for Concrete Drill Bits.

Walter Kempe reported on a meeting he attended with the Concrete Sawing and Drilling Association of California, where standardization of expansion adaptors was discussed.

Mr. Kempe advised then DCDMA was in the process of developing standards. However, the California group is eager to get something started immediately otherwise they will develop their own standards.

It was suggested by Mr. Kempe that every manufacturer is to make a study of expansion adaptors useage - minimum size to maximum size to determing what is practical. Also the number of solid end bits by size versus the number of open end bits each company manufactures.

It was agreed that Chairman O. E. Olivieri is to cause the sending of a questionnaire to all manufacturers for this information in order that the committee can begin work on expansion adaptor standardization. Also that this information be reported to Bill MacMillan,on a confidential basis,who will compile collective results for the committee to use.

Moved by R. Peters, seconded by F. Davenhall that the meeting be adjourned - carried.

Meeting ended 11:55 A.M.

Respectfully submitted

P. J. Niklas
Recording Secretary

DIAMOND CORE DRILL MANUFACTURING ASSOCIATION

COMMITTEE: TECHNICAL COMMITTEE - MECHANICALLY SET BITS

DATE: March 4, 1974
Belleview Biltmore, Clearwater, Florida

CHAIRMAN: O. E. Olivieri

MEMBERS ATTENDING:

W. E. Decker	Hoffman Diamond Prods., Inc.
Walter Kempe	Christensen Diamond Prod. Co.
P. J. Niklas	Wheel Trueing Tool Co.
O. E. Olivieri	J. K. Smit & Sons, Inc.
Robert Peters	E. J. Longyear Co.

MENBERS ABSENT:

R. L. Carlson	Diamond Drill Contracting Co.
F. W. Davenhall	Acker Drill Co., Inc.
William Fornwald	Sprague & Henwood, Inc.
J. Klipper	Diamond Tool Research Co., Inc.
W. J. Verby	Anton Smit & Co., Inc.
Ed Williams	Williams Diamond Bits

GUESTS ATTANDING:

Cy Steele	CDDA (Can. Longyear)

The Chairman called the meeting to order at 1:45P.M.

A move by W. Kempe, seconded by W. Decker, that the Minutes of the October, 1973 be accepted was carried.

Each member manufacturing thin wall bits had previously been requested by mail to submit to the Association secretary a list, by size, the number of expansion type and solid end adaptor type each manufactured during 1973. A compiled list was distributed to all in attendance.

A discussion followed on expansion adaptors as proposed by the Concrete Sawing and Drilling Association and Walter Kempe made comparisons of three manufacturers of expansion adaptors and each was found to have different dimensioning.

It was moved by Bob Peters and seconded by Bill Decker that Industrial Bits for use with expansion adaptors must be bored in order to eliminate the inconsistencies of available tubing.

The Committee members, in anticipation of the availability of certain gauge tubing, agreed that a minimum wall thickness should be established

to allow manufacturers a choice so that dimensioning of expansion adaptors will not have to be changed to accomodate thinner wall thicknesses.

It was suggested by Walter Kemp that the Chairman write to the Concrete Sawing and Drilling Association and advise them what we are presently doing. Also, in order to expedite finalization of standards, the Chairman communicate with the Committee members by mail in order to present expansion adaptor standards for final approval by the Committee at the Fall 1974 meeting.

Moved by Bob Peters, seconded by W. Decker, to adjourn - 4 P.M.

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
BELLEVIEW-BILTMORE HOTEL
CLEARWATER, FLORIDA
(during the DCDMA Annual Meeting - March 3-8, 1974)

Agenda for March 4, 1974 Meeting

1:30 - 5 P.M.

Technical Committee for Mechanically Set Bits

1. Review of minutes of previous meeting (October 2, 1973.)

2. Discussion of usage figures on the number of fixed end adaptors vs. expansion adaptors.

3. Discussion of expansion adaptor standards.

    a. All members to bring the I.D. barrel dimensions (machined or otherwise) that they use for expansion adaptors.

4. Any other matters of interest to the committee.

We suggest that all committee members attend and be fully prepared on items 2 and 3 above, so that the meeting will be meaningful.

Sincerely,

(Ed)

O. E. Olivieri

# # #

This agenda is sent to all members of the Mechanically Set Bits Committee at Committee Chairman Ed Olivieri's direction.

12/29/74

put in Minute book

June 25, 1974

Mr. O. E. Olivieri, Chairman
Tech. Committee for Mechanically Set Bits
c/o J. K. Smit & Sons, Inc.
571 Central Ave.
Murray Hill, N.J. 07974

I have your June 14 letter, Ed, with a compilation of all submitted data concerning the bore I.D. for expansion adaptors.

I gather from your opening paragraph that you have distributed this information to all who have submitted data as well as members of the committee.

If there is anything you wish this office to do in speeding up the return of the requested information please do not hesitate to call us.

Sincerely,

William L. MacMillan, Jr., CAE
Secretary/Treasurer, DCDMA

r

cc: Messrs. J. Hoffmeister
W. Graver

minute Book

JUN 17 1974

J. K. SMIT & SONS, Inc.

DIAMOND PRODUCTS FOR INDUSTRY • MANUFACTURING • MINING • CONSTRUCTION

TELEPHONE (201) 464-3700

MURRAY HILL, NEW JERSEY 07974

June 14, 1974

Diamond Core Drill Manufacturers Association
59 East Main St.
Moorestown, N. J. 08057

Attention: Mr. W. L. MacMillan, Jr.

Gentlemen:

Enclosed please find a compilation of all submitted data concerning the bore I.D. for expansion adaptors. All members who have submitted the data have received a copy of this information, including the members of the committee for mechanically set bits.

We have not sent a copy of this to CSDA. We ask that all review this information and please write me if there are any questions.

We hope we can come to some agreement before our next meeting. We would also like to submit our information to CSDA before we next meet, so that they will have an opportunity to review the matter and render their opinions.

After reviewing the data, it would appear that all but one are in line with CSDA. Please note that CSDA has a dual standard on 9 and 10 inch diameter bits.

As all of us know, it takes a long time before all opinions are submitted and we ask that all proceed as quickly as possible.

We thank you for your cooperation.

Yours truly,

Committee Chairman
for Mechanically Set Bits

OEOlivieri/acb

Enc.

MEMBER

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
59 East Main Street
Moorestown, New Jersey 08057

COMMITTEE: TECHNICAL COMMITTEE - MECHANICALLY SET BITS

DATE: October 22, 1974
Hotel Utah, Salt Lake City, Utah

CHAIRMAN: O. E. Olivieri

MEMBERS PRESENT:	O. E. Olivieri,	Chairman, J. K. Smit & Sons, Inc.
	W. E. Decker	Hoffman Diamond Products
	Walter Kempe	Christensen Diamond Products
	Jack Niklas	Wheel Trueing Tool Co.
	Gary Powell	Acker Drill Co.
MEMBERS ABSENT:	R. L. Carlson	Diamond Drill Contracting Co.
	W. J. Fornwald	Sprague & Henwood, Inc.
	J. Klipper	Diamond Tool Research Co., Inc.
	Leo Nolan	Diamond Products, Inc.
	R. I. Peters	Longyear Company
	W. J. Verby	Anton Smit & Co., Inc.
GUESTS ATTENDING:	Richard Geney	Atlas Copco
	Anders Oden	Atlas Copco
	Dek Dekker	CSDA
	Dick Reynolds	Kor-It Industries, Inc.
	C. W. Steele	CDDA
	John Galvin	Wheel Trueing Tool Co.

The Chairman called the meeting to order at 9:05 A.M.

The Chairman welcomed the guests in attendance and particularly Mr. Dek Dekker representing the C.S.D.A.

Moved by W. Kempe, seconded by W. Decker that the minutes of the March 4, 1974 meeting be accepted, was carried.

The chairman opened a discussion on the dimensioning of the expansi adaptor end of open end masonry bits and pointed out that a chart h had compiled from information supplied from member companies, indicated that the bore sizes used by most of the member companies were almost identical and also very close to the proposed sizes submitted by C.S.D.A.

W. Kempe gave a report on two meetings he attended with C.S.D.A. and pointed out that the drilling equipment being used is underpowe

and C.S.D.A. is interested in using the lightest bit possible (kerf thichness).

Also C.S.D.A. has accepted and is happy with the DCDMA solid back adaptor standards and that C.S.D.A. does not particularly care if our standard on open end bits (expansion adaptors), is to the propo standards submitted by C.S.D.A. as long as DCDMA comes up with one standard. This was verified by Mr. Dekker, the representative from C.S.D.A.

W. Kempe indicated that from an engineering point of view, the minimum wall thickness and kerf thickness that can practically be used, would be a saving in material and diamonds and also more practical with underpowered equipment.

Mr. Kempe pointed out that at the March meeting, we discussed standardizing on the thinnest wall thickness and due to availabilit of tubing, we may be forced to use heavier wall thickness which can be bored to proper adaptor size. Mr. Dekker stated that he wondere if the thinner wall thickness would serve the user's best interest.

None of the members present were in a position to make a definite decision at this time, however, all members are to assess their individual positions and advise the chairman in writing all valid objections to Mr. Kempe's proposal.

Moved by W. Decker, seconded by G. Powell, that the chairman will communicate by mail with all members regarding standards as proposed by Mr. Kempe. All replies are to be received by the chairman no later than November 30, 1974.

DIAMOND CORE DRILL MANUFACTURING ASSOCIATION

COMMITTEE: TECHNICAL COMMITTEE - MECHANICALLY SET BITS

DATE: April 10, 1975
Doral Country Club, Miami, Florida

CHAIRMAN: O. E. Olivieri

MEMBERS ATTENDING:

O. E. Olivieri	J. K. Smit & Sons, Inc.
W. E. Decker	Hoffman Diamond Products, Inc.
W. J. Verby	Anton Smit & Co., Inc.
Walter Kempe	Christensen Diamond Prod. Co.
W. J. Fornwald	Sprague & Henwood, Inc.
R. I. Peters	Longyear Co.

MEMBERS ABSENT:

G. T. Powell	Acker Drill Co., Inc.
Leo Nolan	Diamond Products, Inc.
P. J. Niklas	Wheel Trueing Tool Co.
R. L. Carlson	Diamond Drill Contracting Co.
J. Klipper	Diamond Tool Research Co.,Inc.

GUESTS ATTENDING:

W. L. Acker III	Acker Drill Co., Inc.

The Chairman opened the meeting by reading a statement from the Executive Committee reminding all persons associated with the work of the committees to keep all information confidential unless specific permission is obtained for its release.

The minutes of the previous meeting, October 22, 1974, were accepted on a motion by Mr. Fornwald, seconded by Mr. Kempe.

The Chairman reported the results of a survey of member manufacturers which indicated acceptance of the CDSA dimensions for expanding adaptors by all manufacturers reporting except Christensen Diamond Products. Mr. Kempe of Christensen tabled a memorandum dated February 28, 1975 outlining the advantages of the Christensen adaptor system. He explained Christensen's basic concept of adaptor design was to give manufacturers the flexibility of using 13, 14 and 16 gage tubing with one adaptor.

General Discussion indicated no manufacturer recommends the use of 16 gage tubing on bit sizes normally requiring expansion adaptors. Statistics gathered by the committee earlier indicate expansion adaptors are used on 25% to 30% of all thin wall bits but this quantity is sufficient to make expansion adaptor standardization important and useful to the users. Discussion also revealed the suggested standards by CDSA are based on the practice of a single manufacturer and were submitted primarily to encourage DCDMA to formulate a standard which CDSA would accept.

Analysis of the dimensional practices of manufacturers at the meeting indicated a compromise between the two basic manufacturing practices seems possible. One system uses 13 gage (0.095") tubing; the other uses 14 gage (0.084") tubing for bits between 2" and 6" OD. Mr. Kempe proposed the following resolution:

> "The Technical Committee for Mechanically Set Bits agrees the basis for expanding adaptors will be based on a single adaptor for each bit size between 2" and 6" whether manufactured using 14 gage or 13 gage tubing."

The resolution was seconded by Mr. Peters and was accepted by the members present.

The Chairman will request manufacturers by letter to submit their individual recommendations for the dimensions of adaptors meeting the requirements of the resolution. He will request this information be submitted no later than June 30, 1975.

The Committee adjourned.

DIAMOND CORE DRILL MANUFACTURING ASSOCIATION

COMMITTEE:	TECHNICAL COMMITTEE - MECHANICALLY SET BITS	
DATE:	October 20, 1975 Stouffer's Indianapolis Inn, Indianapolis, Indiana	
CHAIRMAN:	O. E. Olivieri	
MEMBERS ATTENDING:	O. E. Olivieri	J. K. Smit & Sons, Inc.
	W. J. Verby	Anton Smit & Co., Inc.
	G. T. Powell	Acker Drill Co., Inc.
	Walter Kempe	Christensen Diamond Prod. Co.
	W. J. Fornwald	Sprague & Henwood, Inc.
	Ted E. Deyo	Wheel Trueing Tool Co.
	W. E. Decker	Hoffman Diamond Products
MEMBERS ABSENT:	R. L. Carlson	Diamond Drill Contracting Co.
	R. I. Peters	Longyear Co.
	J. Klipper	Diamond Tool Research Co.
GUESTS ATTENDING:	F. A. Cauchois	Robert G. Evans Co.
	Donald Lewis	Sprague & Henwood Co., Inc.
	E. Dusold	Wheel Trueing Tool Co.
	W. Leszczyszyn	Wheel Trueing Tool Co.
	R. Geney	Atlas Copco

The meeting was called to order by the Chairman at 2:30 P.M.

On a motion the Minutes of the meeting held at Doral Country Club on April 9, 1975 were accepted as read.

The Chairman informed the memberspresent that six members replied to his letter concerning the proposal of Christensen Diamond Products. Four agreed outright. Hoffman Diamond Products agreed with reservations and Acker could not accept the Christensen Proposals. At the meeting Sprague & Henwood and J. K. Smit agreed with the Christensen proposals for the Standard.

The Hoffman reservations were resolved by a Motion by W. J. Fornwald and carried that the length of bore for the expansion adaptor be changed from 2" to 2.75" minimum. The other Hoffman reservation was resolved on a motion by W. Decker that the N Dimension on the Christensen print be changed to .13" min. and in all places on the print the .13" is to be minimum; the motion was seconded and carried.

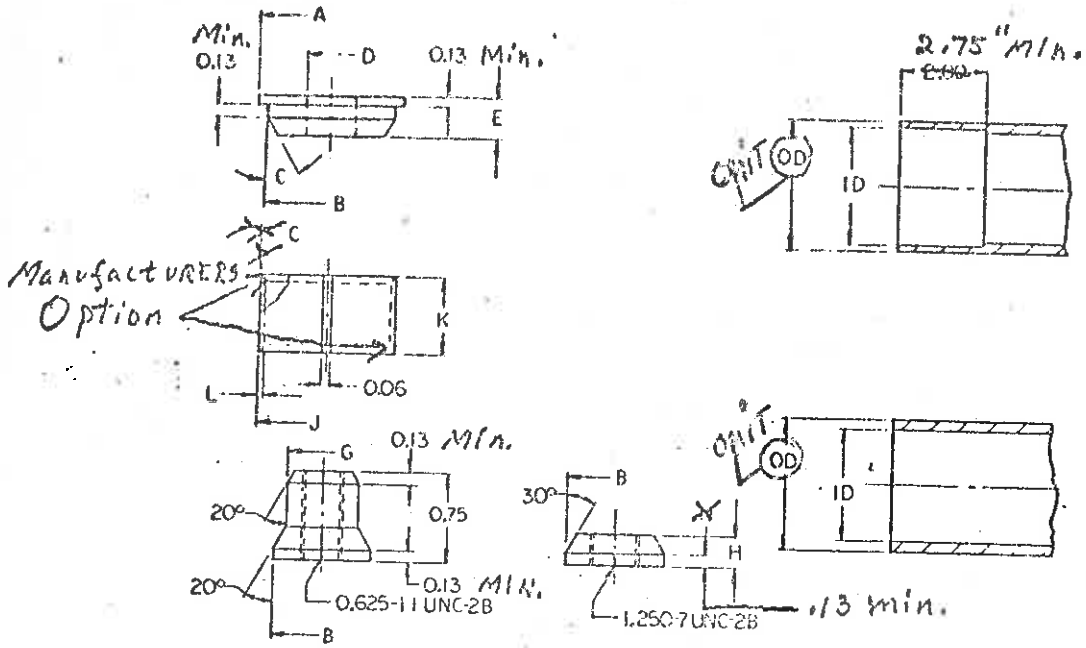
A motion was then made by W. Fornwald that the columns actual Dia Gage, I.D. Core Clearance and O.D. Hole Clearance be eliminated. It was also stated that the kerf dimension in note #1 be eliminated. The motion was seconded and carried.

On another motion made and carried, the letter "C" on the split ring only was eliminated. In its place on the drawing an arrow directed towards the inside chamfer both top and bottom with the words "Manufacturers Option" is to be substituted.

On another motion made and carried, the column labeled "Tube O.D." be changed to Nominal Bit "O.D." and change the decimal dimensions shown to fractional dimensions. Since the dimensional status was changed in the column the same change is to be made on Note "1" except that the wall thicknesses will remain as decimal dimensions.

The committee recommends that the proposals above be submitted to the Standards Committee and the Executive Committee for a letter ballot vote of all members for approval as a Standard for expansion adaptors.

William J. Verby
Acting Secretary



FOR SIZES 1.125 THRU 1.875

FOR SIZES 2.000 THRU 10.000

Nom Bit

TUBE OD	TUBE ID [1] MAX	TUBE ID [1] MIN.	A MAX	A MIN	B MAX	B MIN	C	D	E MIN	G	H MIN	J (BEFORE SPLIT) MAX	J (BEFORE SPLIT) MIN	K	L	ACTUAL DIA GAGE OD	ACTUAL DIA GAGE ID	PLATE & SPLIT RING FIT CLEARANCE MAX	PLATE & SPLIT RING FIT CLEARANCE MIN	ID CORE CLEARANCE MAX	ID CORE CLEARANCE MIN	OD HOOK CLEARANCE
1.125	0.595	0.959	1.125	1.115	0.954	0.949	20°	0.626	0.44	0.845		0.954	0.949	0.75	0.049	1.202	0.912	0.046	0.005	0.083	0.047	0.077
1.250	1.120	1.084	1.250	1.240	1.079	1.074	20°			0.970		1.079	1.074			1.322	1.032			0.088	0.052	0.077
1.375	1.245	1.209	1.375	1.365	1.204	1.199	20°			1.095		1.204	1.199			1.447	1.157					
1.500	1.370	1.334	1.500	1.490	1.329	1.324	20°			1.220		1.329	1.324			1.572	1.282					
1.625	1.495	1.459	1.625	1.615	1.454	1.449	20°			1.345		1.454	1.449			1.697	1.407					
1.750	1.620	1.584	1.750	1.740	1.579	1.574	20°	0.626	0.44	1.470		1.579	1.574	0.75	0.049	1.822	1.532	0.046		0.088	0.052	
2.000	1.870	1.810	2.000	1.990	1.805	1.800	30°	1.251	0.50		0.50	1.805	1.800	1.25	0.065	2.072	1.762	0.070		0.108	0.048	
2.250	2.120	2.060	2.250	2.240	2.055	2.050	30°					2.055	2.050			2.322	2.012					
2.500	2.370	2.310	2.500	2.490	2.305	2.300	30°					2.305	2.300			2.572	2.262					
2.750	2.620	2.560	2.750	2.740	2.555	2.550	30°					2.555	2.550			2.822	2.512					
3.000	2.670	2.810	3.000	2.990	2.805	2.800	30°					2.805	2.800		0.065	3.072	2.762					
3.250	3.120	3.060	3.250	3.240	3.055	3.050	30°					3.055	3.050		0.096	3.322	3.012					
3.500	3.370	3.310	3.500	3.490	3.305	3.300	30°					3.305	3.300			3.572	3.262					
4.000	3.870	3.810	4.000	3.990	3.805	3.800	30°					3.805	3.800			4.072	3.762					
4.250	4.120	4.060	4.250	4.240	4.055	4.050	30°					4.055	4.050			4.322	4.012					
4.500	4.370	4.310	4.500	4.490	4.305	4.300	30°					4.305	4.300			4.572	4.262					
5.000	4.870	4.810	5.000	4.990	4.805	4.800	30°					4.805	4.800			5.072	4.762					
5.500	5.370	5.310	5.500	5.490	5.305	5.300	30°					5.305	5.300			5.572	5.262					
6.000	5.870	5.810	6.000	5.990	5.805	5.800	30°					5.805	5.800			6.072	5.762					
6.250	6.120	6.060	6.250	6.240	6.055	6.050	30°					6.055	6.050		0.096	6.322	6.012	0.070		0.108	0.048	0.072
6.400	6.160	6.150	6.400	6.390	6.145	6.135	30°		0.50		0.50	6.145	6.135		0.120	6.462	6.088	0.010		0.072	0.052	0.062
6.900	6.650	6.650	6.900	6.890	6.645	6.635	30°		0.75		0.75	6.645	6.635			6.962	6.588					
7.900	7.650	7.650	7.900	7.890	7.645	7.635	30°					7.645	7.635			7.962	7.588					
8.900	8.650	8.650	8.900	8.890	8.645	8.635	30°					8.645	8.635			8.962	8.588					
9.900	9.650	9.650	9.900	9.890	9.645	9.635	30°	1.251	0.75		0.75	9.645	9.635	1.25	0.120	9.962	9.588	0.010	0.005	0.072	0.062	0.062

← Change all to fractional dimensions in column - Nom Bit O.D.

NOTE: 1 1/8 1 3/4

[1] TUBING FOR SIZES ~~1.125~~ TO ~~1.625~~
0.065 TO 0.083 WALL (~~Extra Strength~~)
SIZES 2.000 TO ~~2.750~~ 6 1/4
0.065 TO 0.095 WALL (~~Extra Strength~~)
SIZES 6.400 TO ~~8.900~~
0.120 WALL (~~Extra Strength~~)

6 1/2" 10"

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
USA

TITLE: ADAPTOR-EXPANSION

STANDARDS	EXP. SPEC.	TABULATED SHEET NO.
LETTER BALLOT NO.	DATE:	45.8

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION

COMMITTEE: MECHANICALLY SET BITS

DATE: March 1, 1976
Dutch Inn, Lake Buena Vista, Florida

CHAIRMAN: O. E. Olivieri

MEMBERS ATTENDING:	O. E. Olivieri	J. K. Smit & Sons, Inc.
	Walter Kempe	Christensen Diamond Prod. Co.
	W. E. Decker	Hoffman Diamond Products
	Gary Powell	Acker Drill Co., Inc.
	W. J. Verby	Anton Smit & Co., Inc.
MEMBERS ABSENT:	W. J. Fornwald	Sprague & Henwood, Inc.
	Ted E. Deyo	Wheel Trueing Tool Co.
	R. L. Carlson	Diamond Drill Contracting Co.
	R. I. Peters	Longyear Co.
	J. Klipper	Diamond Tool Research Co.
GUESTS ATTENDING:	D. E. Lewis	Sprague & Henwood, Inc.
	R. S. Geney	Atlas Copco
	Jonathan Hermance	Christensen Diamond Products
	C. W. Steele	CDDA

The meeting was called to order by the Chairman. A motion was made that the minutes of the last meeting in Indianapolis, IN, be accepted. The motion was made and carried.

The Chairman then counted the votes on letter Ballot #39-75 DCD The vote was as follows:

Expansion Adaptors	Approval - 12 + 3 = 15	
	No	1
	No Vote	3

3 members did not return their ballot and therefore these 3 automatically became affirmative votes according to the rules of the Association.

A letter written by Sprague & Henwood stating that they were voting affirmative with reservations. A copy of this letter has been made part of these minutes. This letter of Feb. 25, 1976 signed by D. E. Lewis will be circulated among the members and will be commented on at our next meeting.

The Chairman then brought the fact that would the Committee discuss the Standardization of O.D. Set Dimension of Masonry Bits.

It was pointed out that by Standardizing on this dimension we would be limiting our flexibility. The suggestion was made that this request should be made in a formal matter and addressed to the Executive Committee.

The Chairman then took up the subject that perhaps we show to many sizes of bits and wanted to know whether we should eliminate some of the sizes from the thin wall bits.

There was no further business brought before the Committee. The meeting was adjourned.

William J. Verby
Acting Secretary

SPRAGUE & HENWOOD, INC.

Executive Offices and Plant

221 West Olive St., Scranton, Pennsylvania
Area Code 717 344-8506

Telex 837-400

February 25, 1976

Mr. O. E. Olivieri
J. K. Smit & Sons Inc.
Murray Hill, New Jersey

SUBJECT: LETTER BALLOT NO. 39-75, DCD

A review of our figures etc. leading to our decision to vote in favor of Letter Ballot No. 39-75 DCD "Adaptor-Expansion" has pointed up some errors which leaves us with reservations and/or suggestions with regard to the proposed standards. These could benefit others as well as Sprague & Henwood in making the transition.

Our reservations and suggestions are as follows:

1. The entry diameter to the expansion ring of the nut and mandrel are not controlled close enough to insure entry into expansion rings which may be manufactured by those who would choose to exercise their "option" and machine the ends of the expansion rings with either a small radius or none at all instead of the tapered ends shown. Theoretically, the entry diameters of the mandrel and nut could approach the "B" diameter size and prevent their entry into the expansion ring.

   We would suggest that the nominal length of the taper on both the DCDMA nut and DCDMA mandrel be added as a minimum dimension (.24") and that a 1/32" radius be added where the taper is truncated.

   An alternate to the 1/32" radius would be to change the taper angle to 40° on the proposed DCDMA nuts and mandrels. This would be even more forgiving of the "optional" treatment of the ends of the proposed DCDMA expansion rings.

2. The slit in the expansion ring of the DCDMA standard should be opened from 1/16" to 3/16" to preclude any chance of interference with the I.D. of a few bits which would otherwise not accept the expansion ring.

3. We would also propose that the mandrel and nut diameters "B" be reduced .030" and the "G" diameter be reduced .050" for sizes 1-1/8" thru 1-3/4" and that the "B" diameter be reduced by .050" for the 5" size. This would permit the proposed standard adapters to fit a wider range of manufacturers bits in sizes up to and including $6\frac{1}{4}$". We expect to make adjustments to our bits and adapters above $6\frac{1}{4}$" to meet the standards.

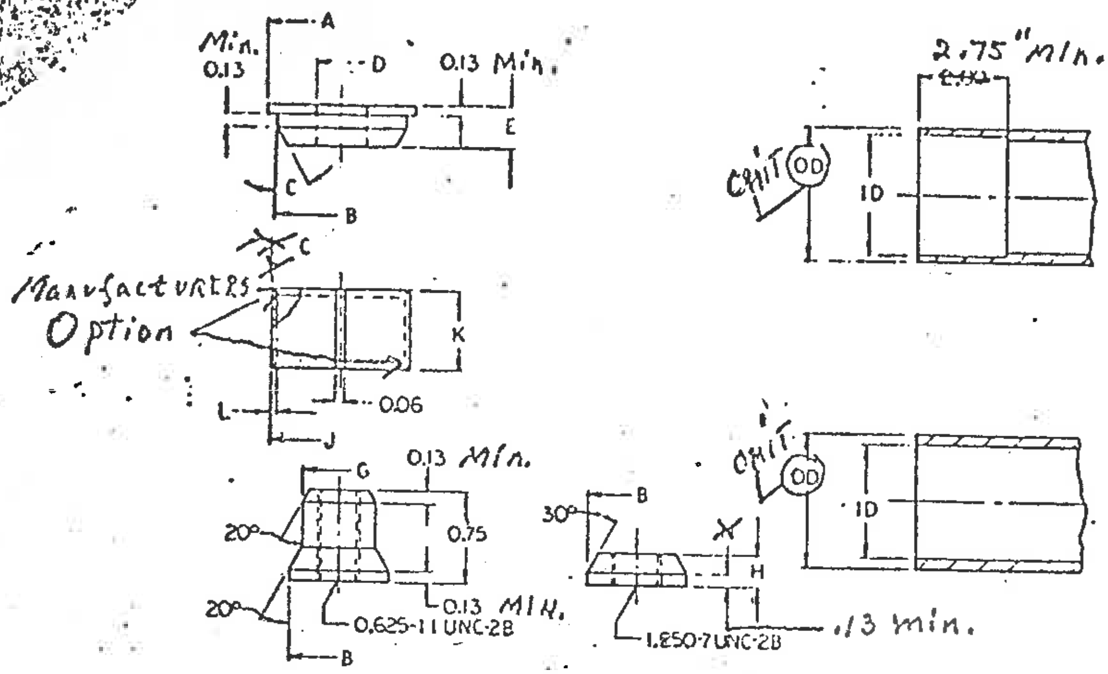
Very truly yours,

SPRAGUE & HENWOOD, INC.

D E Lewis.

Donald E. Lewis
Chief Engineer

DEL/bh



FOR SIZES 1.125 THRU 1.875

FOR SIZES 2.000 THRU 10.000

Nom Bit

TUBE OD	TUBE ID [1] MAX	TUBE ID [1] MIN	A MAX	A MIN	B MAX	B MIN	C	D +.002 -.000	E MIN	G	H MIN	J (BEFORE SPLIT) MAX	J (BEFORE SPLIT) MIN	K	L	ACTUAL DIA GAGE OD	ACTUAL DIA GAGE ID	PLATE & SPLIT RING FIT CLEARANCE MAX	PLATE & SPLIT RING FIT CLEARANCE MIN	ID CORE CLEARANCE MAX	ID CORE CLEARANCE MIN	OD HOLE CLEAR
1.125	0.995	0.959	1.125	1.115	0.954	0.949	20°	0.626	0.44	0.845		0.954	0.949	0.75	0.049	1.202	0.912	0.046	0.005	0.023	0.047	0.077
1.250	1.120	1.084	1.250	1.240	1.079	1.074	20°			0.970		1.079	1.074			1.322	1.032			0.088	0.052	0.07[illegible]
1.375	1.245	1.209	1.375	1.365	1.204	1.199	20°			1.095		1.204	1.199			1.447	1.157					
1.500	1.370	1.334	1.500	1.490	1.329	1.324	20°			1.220		1.329	1.324			1.572	1.282					
1.625	1.495	1.459	1.625	1.615	1.454	1.449	20°			1.345		1.454	1.449			1.697	1.407					
1.750	1.620	1.584	1.750	1.740	1.579	1.574	20°	0.626	0.44	1.470		1.579	1.574	0.75	0.049	1.822	1.532	0.046		0.088	0.052	
2.000	1.870	1.810	2.000	1.990	1.805	1.800	30°	1.251	0.50		0.50	1.805	1.800	1.25	0.065	2.072	1.762	0.070		0.108	0.048	
2.250	2.120	2.060	2.250	2.240	2.055	2.050	30°					2.055	2.050			2.322	2.012					
2.500	2.370	2.310	2.500	2.490	2.305	2.300	30°					2.305	2.300			2.572	2.262					
2.750	2.620	2.560	2.750	2.740	2.555	2.550	30°					2.555	2.550			2.822	2.512					
3.000	2.870	2.810	3.000	2.990	2.805	2.800	30°					2.805	2.800		0.065	3.072	2.762					
3.250	3.120	3.060	3.250	3.240	3.055	3.050	30°					3.055	3.050		0.095	3.322	3.012					
3.500	3.370	3.310	3.500	3.490	3.305	3.300	30°					3.305	3.300			3.572	3.262					
4.000	3.870	3.810	4.000	3.990	3.805	3.800	30°					3.805	3.800			4.072	3.762					
4.250	4.120	4.060	4.250	4.240	4.055	4.050	30°					4.055	4.050			4.322	4.012					
4.500	4.370	4.310	4.500	4.490	4.305	4.300	30°					4.305	4.300			4.572	4.262					
5.000	4.870	4.810	5.000	4.990	4.805	4.800	30°					4.805	4.800			5.072	4.762					
5.500	5.370	5.310	5.500	5.490	5.305	5.300	30°					5.305	5.300			5.572	5.262					
6.000	5.870	5.810	6.000	5.990	5.805	5.800	30°					5.805	5.800			6.072	5.762					
6.250	6.120	6.060	6.250	6.240	6.055	6.050	30°					6.055	6.050		0.095	6.322	6.012	0.070		0.108	0.048	0.072
6.400	6.160	6.150	6.400	6.390	6.145	6.135	30°		0.50		0.50	6.145	6.135		0.120	6.662	[illegible]	0.010		0.072	0.052	0.062
6.900	6.660	6.650	6.900	6.890	6.645	6.635	30°		0.75		0.75	6.645	6.635			6.962	6.588					
7.900	7.660	7.650	7.900	7.890	7.645	7.635	30°					7.645	7.635			7.962	7.588					
8.900	8.660	8.650	8.900	8.890	8.645	8.635	30°					8.645	8.635			8.962	8.588					
9.900	9.660	9.650	9.900	9.890	9.645	9.635	30°	1.251	0.75		0.75	9.645	9.635	1.25	0.120	9.962	9.589	0.010	0.005	0.072	0.062	0.062

← Change all to fractional dimensions in column - Nom Bit O.D.

NOTE:

[1] TUBING FOR SIZES ~~1.125~~ 1 1/8 TO ~~1.750~~ 1 3/4
0.065 TO 0.083 WALL ([illegible])
SIZES ~~2.000~~ TO ~~6.250~~ 6 1/4
0.065 TO 0.095 WALL ([illegible])
SIZES ~~6.400~~ 6 1/2" TO ~~9.900~~ 10"
0.120 WALL ([illegible])

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
USA

TITLE: ADAPTOR-EXPANSION

STANDARDS	EXP. SPEC.	TABULATED SHEET NO.
LETTER BALLOT NO.	DATE:	45.8

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
59 East Main Street
Moorestown, New Jersey 08057

COMMITTEE: TECHNICAL COMMITTEE - MECHANICALLY SET BITS

DATE: October 18, 1976
Sheraton Airport Inn, St. Louis, Missouri

CHAIRMAN: O. E. Olivieri

MEMBERS ATTENDING:	O. E. Olivieri, Chairman	J. K. Smit & Sons, Inc.
	J. J. Doolin	Longyear Co.
	Walter Kempe	Christensen Dia. Prod. Co
	Don Lewis	Sprague & Henwood, Inc.
	Gary Powell	Acker Drill Co. Inc.
	W. J. Verby	Anton Smit & Co., Inc.
MEMBERS ABSENT:	W. E. Decker	Hoffman Dia. Prod., Inc.
	Ted E. Deyo	Wheel Trueing Tool Co.
	Robert J. Dyar	Christensen Dia. Prod. Co
	J. Klipper	Diamond Tool Research Co.
GUESTS ATTENDING:	John D. Atkins	ASCO
	R. S. Geney	Atlas Copco
	Jonathan Hermance	Christensen Dia. Prod. Co
	Ned Miles	Christensen Dia. Prod. Co
	Cy Steele	CDDA

On a motion made by Walter Kempe and seconded by J. J. Doolin, the Minutes of the previous meeting (March 1, 1976), to be accepted as read. The motion was carried.

Don Lewis asked the Chairman to clarify the dimension of the slot in the expansion ring in the 3 piece expansion adapter and that would it be possible to make changes. Walter Kempe reiterated his stand that all dimensions had been accepted by CSDA and that if a customer required a special size, that the back end of the bit could be bored to fit the adapter. He also stated that tubing was available for such boring and referred to his letter of 10/31/74 to the Chairman, giving names of sources that could supply the tubing.

The Committee discussed the subject of setting standards on industrial bits. Cy Steele stated that this would not be a good time to set

standards due to the fact that we would translate them into metrics very shortly - it was decided by the Committee to postpone the setting of standards until the metric system is adopted. A motion was made by J. Doolin that a letter be written to all Committee members to give their set dimensions on bits to the Chairman and also a reason why we should set standards.

The Chairman read a directive to the Committee from the Executive Committee to prepare a statement as to why there are no standards for diamonds in our industry. Walter Kempe stated that he wrote a letter to the Committees several years ago outlining why there is no standard for diamonds. He would send a copy of the letter to the Chairman to be circulated to the members. It was recommended that the Committee would wait until they read the letter before replying to the Executive Committee.

Walter Kempe then commented on the appearance of the tab sheets in the bulletin. He stated that they were typewritten and not clear and that they were not done in a professional way. He suggested that now was the time to redo the sheets and have them typeset or any other fashion that would give them a professional look, and since we were adding the metric dimension, that now was the time to reprint them. A motion was made by Don Lewis and seconded by J. Doolin that the Chairman inform the Executive Committee of this request.

There being no further business for the Committee, a motion was made by Gary Powell, seconded by J. Doolin to adjourn. The motion was carried.

Respectfully submitted,

William Verby
Acting Secretary

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
59 East Main Street
Moorestown, New Jersey 08057

COMMITTEE: Technical Committee - Mechanically Set Bits

DATE: February 14, 1977
International Hotel, New Orleans, LA

CHAIRMAN: O. E. Olivieri

MEMBERS PRESENT:	O. E. Olivieri, Chm.	J. K. Smit & Sons, Inc.
	Will Acker (proxie)	Acker Drill Co., Inc.
	Bob Davies (proxie)	Sprague & Henwood, Inc.
	Jim Doolin	Longyear Co.
	Walter Kempe	Christensen Dia. Products Co.
	W. Leszczyszyn (proxie)	Wheel Trueing Tool Co.
MEMBERS ABSENT:	R. L. Carlson	Diamond Drill Contracting Co.
	W. E. Decker	Hoffman Diamond Products Inc.
	Robert J. Dyar	Christensen Dia. Products Co.
	J. Klipper	Diamond Tool Research Co.
	W. J. Verby	Anton Smit & Co., Inc.

The chairman read the minutes of the meeting held in St. Louis, MO October 18, 19, 20, 1976, which were unanimously accepted.

Motion made by Jim Doolin and seconded by Bob Davies that directive received from Executive Committee to re-work tabulated sheets in a professional manner at the time when metric conversions are added be referred to the Standards Committee since only a change in format is required to improve their appearance. This motion was carried unanimously.

The question of why diamonds have not been standardized - An explanation for inclusion into Bulletin No. 4 was formulated, and is part of these minutes.

It was moved by Jim Doolin, and seconded by Walter Leszczyszyn that this explanation be accepted. Motion carried unanimously.

A job description of the Bit Committee was presented by the Chairman. A motion for its acceptance was made by Jim Doolin, and seconded by Bob Davies. The motion was carried unanimously. The job description is part of these minutes.

Advisability of standardizing set dimensions for masonry bits was again discussed. A survey of the membership has revealed no need for such a standard. A motion was requested by the Chairman that no standards for set dimensions for masonry bits be established.

Bob Davies made such a motion, which was seconded by Jim Doolin and carried unanimously.

Motion made by Jim Doolin and seconded by Bob Davies to adjourn at 10:30 AM. Motion carried unanimously.

WHY THERE IS NO STANDARD FOR DIAMONDS IN OUR INDUSTRY

Manufactured diamond is the only diamond for which standards can possibly be established. They are manufactured with controlled built-in chemical and physical properties to meet specific end use requirements. Manufacturers of this diamond have their standards to suit their product lines and manufacturing techniques.

One of the purposes of a standard is to establish parameters so that predictable end results can be achieved.

Natural diamond can be separated by shape, color and size. It is possible to separate them visually for inclusions, fractures or other considered imperfections. The key is the degree of these faults and what the end effect will be when these diamonds are used. The separation is done visually and by screening, and is a matter of human judgement. Technical standards must be set by means and methods other than human judgement.

Due to the above reasons, standards for natural diamond have not been developed.

The following material is included for information only. DCDMA does not sanction or endorse this information as a standard.

* GRADING OF DIAMONDS

The nature of the diamond with respect to its appearance and intended use has made standardization of grading extremely difficult. The many problems arising from the lack of standards have plaqued the diamond industry since its beginning. The introduction of man-made diamonds has further added to an already confused condition. Up to about 1950 the industry was concerned with only five general classifications of natural stones:

1. Gem variety stones can be colorless, yellow, brown, blue, pink, or green crystals. During World War II this variety was used increasingly for high quality diamond tools.
2. Industrial varieties include well-crystallized and comparatively pure but off-color stones, less well crystallized stones with inclusions and flaws, as well as twins and multi-crystalline varieties, "frosted" and "coated" stones. Big price differences exist between well-formed, clear crystals and the lower grades.
3. Boart (Bort, Boort or Borts) was the name formerly given to all stones not useful for gem purposes, the poorly crystallized variety and all kinds of stones with imperfections. These are now used for purposes other than tools, i.e. for crushing purposes,

*Drilling and Sampling Rock by Walter F. Kempe

hence the name "crushing boart."

4. Carbon, Carbonado or "Black Diamond" is of brown or black color. It is a compact variety of diamond containing graphite and amorphous carbon and some other substance, probably iron. Microscopic examination shows a fine porous mass, consisting of numerous minute diamond crystals, useful only for truing tools, rock drills, stone saws, etc. Its hardness is said to be greater than that of the crystal variety. It is suitable only for purposes not involving high temperature. It is found only in Brazil and is very expensive.

5. Ballas (Bort-Ballas, Shot-Ballas) This is an intermediate type between the carbon and crystalline diamond. Its structure reveals a radial rod and a concentric formation of diamond crystals or an irregular growth of multiple crystals. It has great durability. This is found in Brazil as well as in some African mines.

PROCESSED DIAMONDS

Efforts have been made to impart still other desirable qualities to the natural diamonds or conversely, to remove some of their undesirable features. In order to effect such changes, natural diamonds are subjected to certain treatments either before or after initial use of the diamond which improves drilling performance and, of course, this results in new sub-classifications and grades.

Fig. 6 shows boartz and carbon stones in their natural condition and also boartz after processing or conditioning. B.B.C. and P.G. are two examples of stones each having been subjected to different types of treatments.

U.S. ARMY CORPS OF ENGINEERS GRADING

The U.S. Army Corps of Engineers which uses large quantities of diamonds, long ago recognized the need of standards for specifying diamond qualities and established the following classes:

WA-1 Diamonds are the best quality of West African-type diamond used by the Corps of Engineers. In this grade approximately 75% of the stones are full, round, unfractured crystals; approximately 14% have one to three broken faces; 2% have a ratio of thickness to width of less than 1 to 3; 8% contain internal fractures or other internal fractures or other internal weaknesses such as feathers; and 1% are Congo-type diamonds.

WA-2 Diamonds are the second quality of diamond used by the Corps of Engineers. In this grade approximately 9% of the stones are full, whole crystals which are distorted, twinned or elongated; approximately 48% have single crystals which have one to three broken surfaces - all of which have at least one good settable point;

approximately 7% are full, rounded octahedrons and 13% have octahedrons with broken faces; 17% are stones which are blocky but with little or no original crystal surfaces; 5% are stones containing internal fractures; and 1% are Congo-type diamonds.

WA-3 Diamonds are the third quality of diamond used by the Corps of Engineers. This grade, also referred to as cast material, consists of 88% of solid diamonds with very few original crystal surfaces and approximately 12% are stones containing internal fractures.

C-1 Diamonds are the best quality of Congo-type diamond used by the Corps of Engineers. The Congo diamond is composed of a "seed" diamond similar to the West African type which is surrounded by an opaque shell of microcrystalline diamond. Most Congo diamonds exhibit a crystal form which is a combination of the cube, octahedron and dodecahedron. In the C-1 grade approximately 89% of the stones are full, round, whole crystals; 6% are crystals of predominatly cube form but in combination with other forms which round the corners and edges; approximately 4% are fractured stones; and 1% are stones with broken faces.

C-2 Diamonds are the second quality of Congo-type diamond used by the Corps of Engineers. These diamonds are similar to those in the C-1 standard but have a much higher percentage of broken faces and fractured stones.

Comparator packets of these diamonds are available for inspection from the U.S. Army Engineer Division Laboratory, Southwestern Corps of Engineers, 4815 Cass Street, Dallas, Texas.

All efforts to standardize the grading of diamonds have met with only limited success because of the inherent inconsistency in human judgment. All grading is still done by visual inspection of each individual stone. Each stone may have been inspected as much as 50 times before being placed into service.

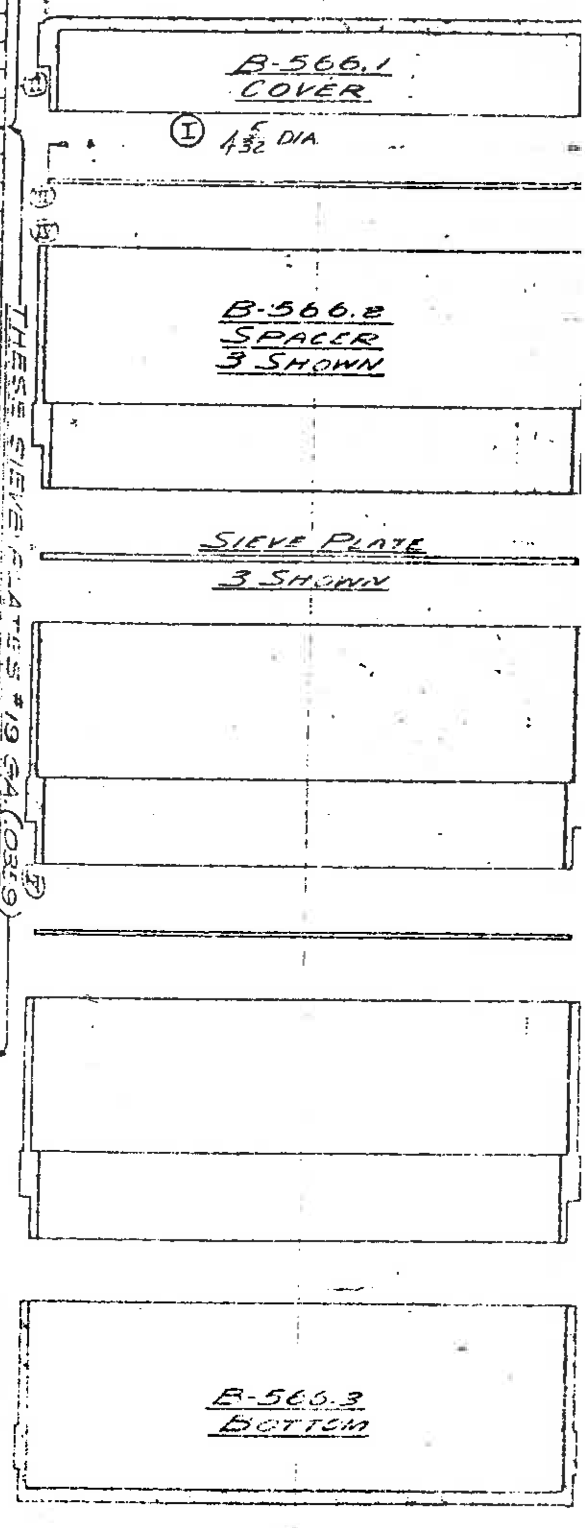
"Diamond Sieve Assembly & Sieve Sizes" chart attached furnished by Christensen Diamond Products Co.

PLATE NO.	MESH HOLES	SIZE IN.	SIZE M/M	RANGE OF MESH PER CARAT	CARAT SIZE
F	814	[illegible]	.97	129	.0073
E	814	.0394	1.00	105	.0092
D	814	.0413	1.05	84	.0110
C	814	.0433	1.10	77	.0128
B	814	.0453	1.15	70	.0145
A	814	.0473	1.20	62	[illegible]
1	814	.0492	1.25	58	.0172
2	814	.0512	1.30	50	.020
3	814	.0551	1.40	40	.025
4	814	.0591	1.50	30	.033
5	626	.0650	1.65	25	.040
6	626	.0709	1.80	20	.050
7	626	.0768	1.95	15	.066
8	626	.0827	2.10	11	.090
9	395	.0906	2.30	9½	.105
10	395	.0984	2.50	7	.143
11	395	.1063	2.70	5 2/3	.177
12	395	.1142	2.90	4½	.222
13	167	.1220	3.10	3 2/3	.273
14	167	.1299	3.30	3	.333
15	167	.1378	3.50	2 2/3	.375
16	167	.1457	3.70	2 1/6	.462
17	167	.1535	3.90	1 5/6	.545
18	167	.1614	4.10	1 2/3	.600
19	167	.1693	4.30	1 1/3	.750
20	125	.1772	4.50	1 1/4	.800
21	125	.1850	4.70	1 1/8	.889
22	125	.1929	4.90	1.	1.000
23	125	.2008	5.10	.9	1.111
24	125	.2087	5.30	.8	1.250
25	125	.2165	5.50	.6	1.666
26	125	.2244	5.70	.5	2.000
27	125	.2323	5.90		
28	125	.2402	6.10		
29	125	.2480	6.30		
30	125	.2559	6.50		
31	60	.2638	6.70		
32	60	.2717	6.90		
33	60	.2795	7.10		
34	60	.2874	7.30		
35	60	.2953	7.50		
36	60	.3031	7.70		
37	60	.3110	7.90		
38	60	.3189	8.10		
39	60	.3268	8.30		
40	60	.3346	8.50		

B-566

THESE SIEVE PLATES #26 GA (.015...) (plates F–10)

THESE SIEVE PLATES #19 GA (.0359) (plates 11–40)



SET INCLUDES
1 COVER
1 BOTTOM
3 SPACERS
26 SCREENS
1 RACK (C-162.1)

MACHINE LIMITS UNLESS SPECIFIED
FRACTIONAL ± DECIMAL ± .005
HEAT TREATMENT

REVISION: E — RE-DRAWN — 4-20-50 — T.M. — F.L.C.

PART NO. — MATERIAL — MAKE — TOOLS: RACK C-162.1

CHRISTENSEN DIAMOND PRODUCTS CO.
SALT LAKE CITY, UTAH

DIAMOND SIEVE
ASSEMBLY & SIEVE SIZES

DRAWN T.M. DATE 4-20-50
SUPERSEDING REV D
SCALE FULL
DWG. NO. B-566

JOB DESCRIPTION - TECHNICAL COMMITTEE MECHANICALLY SET BITS

The primary function of this committee is to work on the development of standards for mechanically set bits and reaming shells and related products.

The scope of the work includes:

1. Correspondence with equipment manufacturers to ensure interchangeability of parts between bits, reaming shells and the equipment on which they are used.

2. Possible correspondence with other Associations whose members work in related areas.

3. Specifications as to the materials used in making the non-proprietary part of the tool.

Once the committee has reached agreement, then the proposed standard is passed on to the Standards Committee for review and acceptance or denial.

The committee may discuss a problem in its area that has come to its attention. It must then go to the Executive Committee and ask them to formalize the project.

The Executive Committee also assigns work to the committee from time to time.

It is the responsibility of the committee through its chairman to report to the Executive Committee the progress being made on any project.

MACHINE LIMITS UNLESS SPECIFIED

FRACTIONAL ± 1/64 DECIMAL ± .005

PARALLEL .001 PER INCH

Concentric Within .010 Total Indicator Reading

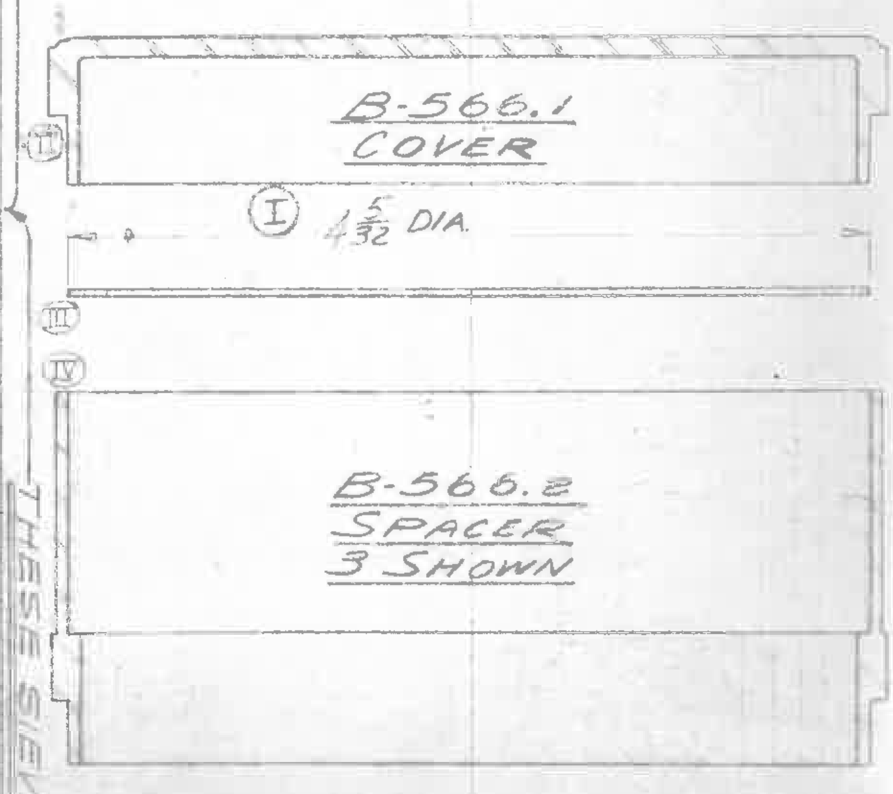
HEAT TREATMENT

PLATE NO.	No. of HOLES	SIZE IN.	SIZE MM	ROUND STONES PER CARAT	CARAT PER STONE
(V)					(VII)
F	814	.036	.91	128	.0078
E	814	.0394	1.00	106	.0094
D	814	.0413	1.05	84	.0119
C	814	.0433	1.10	77	.0129
B	814	.0453	1.15	70	.0145
A	814	.0473	1.20	62	.0161
1	814	.0492	1.25	58	.0172
2	814	.0512	1.30	50	.020
3	814	.0551	1.40	40	.025
4	814	.0591	1.50	30	.033
5	626	.0650	1.65	25	.040
6	626	.0709	1.80	20	.050
7	626	.0768	1.95	15	.066
8	626	.0827	2.10	11	.090
9	395	.0906	2.30	9½	.105
10	395	.0984	2.50	7	.143
11	395	.1063	2.70	5 2/3	.177
12	395	.1142	2.90	4 ½	.222
13	167	.1220	3.10	3 2/3	.273
14	167	.1299	3.30	3	.333
15	167	.1378	3.50	2 2/3	.375
16	167	.1457	3.70	2 1/6	.462
17	167	.1535	3.90	1 5/6	.545
18	167	.1614	4.10	1 2/3	.600
19	167	.1693	4.30	1 1/3	.750
20	125	.1772	4.50	1 1/4	.800
21	125	.1850	4.70	1 1/8	.888
22	125	.1929	4.90	1.	1.000
23	125	.2008	5.10	.9	1.111
24	125	.2087	5.30	.8	1.250
25	125	.2165	5.50	.6	.666

SET

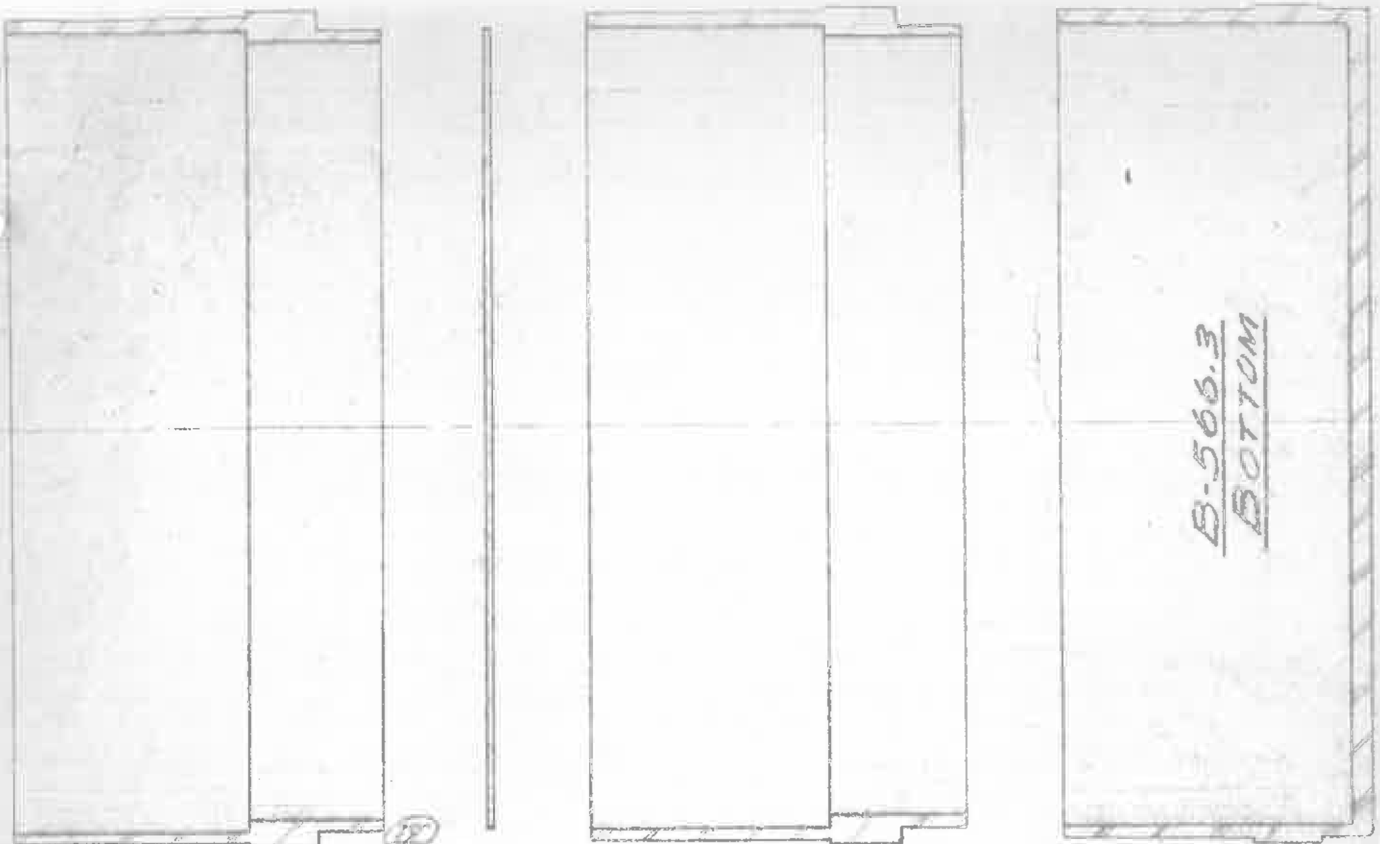
(V) THESE SIEVE PLATES #26 GA (.0159) (VIII)

THESE SIEVE



SIEVE PLATE

REVISION	E	F	G	H	J	K
ITEM NO.		I	II III IV	V VI	VII	VIII IX X
CHANGED FROM	RE-DRAWN	ADDED DIM.	10, 3 1/2, 3 1/4	ADDED	ADDED	ADDED (OMIT)
DATE	4-20-50	12-18-50	2-8-51	11-8-51	53	5-25-53
MADE BY	T.M.	OB	OB	OB	RO	HL



...ATES #19 GA. (.0359)

B-566

27	125	.2323	5.90
28	125	.2402	6.10
29	125	.2480	6.30
30	125	.2559	6.50
31	60	.2638	6.70
32	60	.2717	6.90
33	60	.2795	7.10
34	60	.2874	7.30
35	60	.2953	7.50
36	60	.3031	7.70
37	60	.3110	7.90
38	60	.3189	8.10
39	60	.3268	8.30
40	60	.3346	8.50

SPECIAL ORDERS

NOTE: "O" RING 6227-48 ONE/SECTION

SET INCLUDES
1 COVER
1 BOTTOM
3 SPACERS
26 SCREENS
1 RACK (C-1621)

CHRISTENSEN DIAMOND PRODUCTS CO.
SALT LAKE CITY, UTAH

DIAMOND SIEVE
ASSEMBLY & SIEVE SIZES

M	PART NO.	
X	PATT. NO.	
ADDED SET	MATERIAL	
1-29-65	S.O. RFK A-4895.1	TOOLS RACK C-1621
	MAKE	

DRAWN T.M.	DATE 4-20-50	CHECKED
TRACED	DATE	CHECKED
APP'D.		
SUPERSEDING REV. D	SUPERSEDED BY	
SCALE FULL	DWG. NO. B-566	REV. M

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
59 East Main Street
Moorestown, New Jersey 08057

COMMITTEE: Technical Committee - Mechanically Set Bits

DATE: October 24, 1977
Sheraton-O'Hare Hotel, Chicago, Illinois

CHAIRMAN: O. E. Olivieri

MEMBERS PRESENT:	O. E. Olivieri, Chm.	J. K. Smit & Sons, Inc.
	J. J. Doolin	Longyear Co.
	Gary Powell	Acker Drill Co., Inc.
	Jon Hermance	Christensen Diamond Prod.Co.
	Don Lewis	Sprague & Henwood, Inc.
	Walter Leszczyszyn	Wheel Trueing Tool Co.
	W.J.Verby	Anton Smit & Co., Inc.
	Walter Kempe	Christensen Diamond Prod.Co.
MEMBERS ABSENT:	R. L. Carlson	Diamond Drill Contracting Co.
	W. E. Decker	Hoffman Diamond Prod., Inc.
	J. Klipper	Diamond Tool Research Co.,Inc
GUESTS ATTENDING:	Don Chisholm	Longyear Company
	Cy Steele	C.D.D.A.
	Richard Geney	Atlas Copco.
	John Atkins	Anton Smit & Co., Inc.
	Jack Kalazba	Anton Smit & Co., Inc.
	Goran Larbo	Atlas Copco

Meeting was opened at 2:00 P. M. by the Chairman, O. E. Olivieri.

Minutes of the meeting held February 14, 1977 in New Orleans, LA., were adopted as circulated. Moved by Jim Doolin and seconded by Jon Hermance and motion was carried unanimously.

OLD BUSINESS - None.

NEW BUSINESS

The Editorial Committee, Bulletin #4 requested the Technical Committee - Mechanically Set Bits to review the present material on bits and reaming shells for Bulletin #4. The Editorial Committee provides a format and questions relating to what could be included in Bulletin #4.

On reviewing the material provided by the Editorial Committee, Bulletin #4 a motion was made by Jim Doolin, seconded by Jon Hermance, that each member of the Technical Committee - Mechanically Set Bits, submit to the Chairman, O. E. Olivieri by

December 15, 1977, their comments, suggestions, recommendations and illustrations on items 1, 2,5 and 9 combined and items 3 and 6 combined as recommended. (Reference sheet attached.) Motion was carried.

The Chairman, O. E. Olivieri, will write to the members not present, outlining the request as noted in this motion. On receipt of the data requested, Mr. Olivieri will compile and distribute to all members, the data received. The intent is that the Committee as a whole should be prepared to make a final decision as to what data should be included in Bulletin #4 regarding Mechanically Set Bits at the Annual Meeting in March 1978.

Following are noteworthy suggestions by various members regarding the above motion and the material submitted by the Bulletin #4 Editorial Committee.

Item 1. More specific information on crown shapes and nomenclature used.

a. A center line to delineate the relative position of the crown contour sketches with regard to O.D. and I.D.

b. Include such profiles as tapered crown, wide steps.

c. Special crown contours for impregnated bits, (flat, ring type and step).

d. Recommend a sketch showing the functional elements in a surface set and impregnated bit and comment as to the general application of each. In addition, a sketch of a step bit to note the definition of a step.

e. Explanation and/or glossary of functional elements of mechanically set products, coring bits, shells, shoes, tapered reamers, non-coring bits. Suggested pictorial or graphic representation of each.

Above comments cover items 2, 5, 6 and 9.

2) A definition of a "step" in step bit.
5) The addition of bit photo illustration.
6) The differeing characteristics of impregnated and diamond set products.
9) A definition of "kerf" or "face width."

Item 3. A dissertation on matrix characteristics and use .

Item 4. An outline of such differing characteristics as "hardness" and "abrasion resistance."

The consensus appeared to be that it would best suit to generalize and describe the function of the matrix but not to specifically define hardness and abrasion resistance limitations.

Item 7. Mention of U. S. Engineers specifications for diamonds.

Item 8. A statement on the unique salvage value of diamonds.

The general consensus was that neither item should be enlarged upon in the Bulletin.

A further suggestion was made to somehow advise the readers of Bulletin #4 that clients should not dictate carat weights in mechanically set products.

With no further new business, it was moved by Jim Doolin and seconded by Bill Verby, that the meeting be adjourned. The motion was carried and the meeting was closed at 3:30 P.M.

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
59 East Main Street
Moorestown, New Jersey 08057

MINUTES: Technical Committee - Mechanically Set Bits

PLACE OF MEETING: Caesar's Palace, Las Vegas, Nevada

DATE: Monday, March 6, 1978

CHAIRMAN: O. E. Olivieri

MEMBERS PRESENT:

O. E. Olivieri, Chairman	J. K. Smit & Sons, Inc.
J. J. Doolin	Longyear Co.
Gary Powell	Acker Drill Co.
Jon Hermance	Christensen Diamond Products Co.
Don Lewis	Sprague & Henwood, Inc.
Dave Fried (Representing R.Carlson)	Diamond Drill Contracting Co.

MEMBERS NOT PRESENT:

W. J. Verby	Anton Smit & Co., Inc.
W. E. Decker	Hoffman Diamond Products, Inc.
Walter Kempe	Christensen Diamond Products Co.
J. Klipper	Diamond Tool Research Co., Inc.
W. Leszczyszyn	Wheel Trueing Tool

GUESTS:

Brian Sorensen	Flame Industries
Cy Steele	C.C.D.M.A.
Jim Stoker	Christensen Diamond Products, Inc.
John Laborad	Longyear Co.

Meeting was opened at 12:10 P.M. by Chairman, O. E. Olivieri

Minutes of the meeting held October 24,1977 in Chicago, Illinois were accepted as read. Moved by Jim Doolin and seconded by Don Lewis, the motion was carried unanimously.

The committee consensus as to what they would like to see in Bulletin Four is as follows:

1. An isometric drawing of a bit and reaming shell separated but in line as they would thread together.

a) The bit should have descriptions with arrows as on the attached drawing indicating gage, kicker stones, etc.

b) The reaming shell diamond setting should have the rounded edges towards the bit crown. The committee suggests that diamond section of the reaming shell be drawn as per the attached encircled on page 8 of Christensen Bulletin #SD-512.

c) The committee suggests that we use a bevel walled bit with a box to box reaming shell.

d) The bit and reaming shell selected should be one that suits the latest type core barrel.

2. Show four line drawings of bit crowns as per the attached.

a) Full Round Crown with a center line and a bottom line from the face of crown intersecting the center line. Do not show how radius is determined as now shown in Bulletin 3. Use the word "kerf" in drawing to indicate width of crown.

b) Narrow step crown again with center line and a bottom line as in "a" above. Indicate 3 steps shown with further comment that number of steps is optional.

c) Semi-Round crown follow format as in "a" above center line, etc.

d) Pilot crown showing a face discharge hole follow same format as in "a" above center line, etc.

All the line drawings of the bit crowns should be crossed-hatched to indicate it is a cross-section.

There should be a brief description or definition indicating the difference between a casing bit and a casing shoe.

Do not count the nose as a step in a step bit but do count the gage as the last step.

The committee feels that there be no mention of impregnated bits in the write up. The reason being that some user might want to order a step bit made as an impregnated product. This would not consistently make a good usable product.

Because of some of the technical aspects, the committee feels that all of the material on bits and reaming shells must be mail-circulated to committee members for review.

The meeting was adjourned at 1:00 P.M. on a motion by J. Doolin, seconded by Don Lewis and unanimously carried.

Christensen Diamond Products, U.S.A.
Mining Products Sales

SECTION NO. 2.1

PAGE 1 OF 1

DATE 2/16/76

APPROVED Jon Hermance

SUBJECT

CROWN CONTOURS

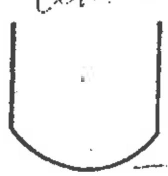
Δ radius of dg + ID

#1 B-Crown Full Round Crown

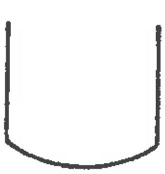
#2 A-Crown

#3 DC-Crown

#4 M-Crown Semi Round Crown

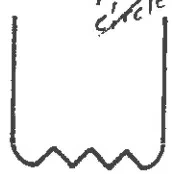


#5 Flat W-Crown

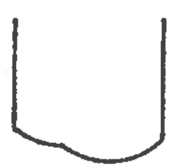


#6 2-Crown impregnated

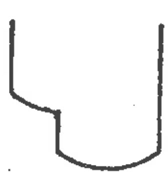
#7 CS-Crown Impregnated 1/4 of circle set



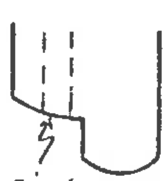
#8 Modified Pilot



#9 Wide Pilot

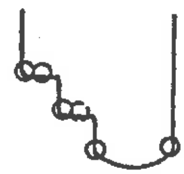


#10 Narrow Pilot Crown



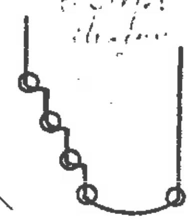
Face Discharge

#11 Wide Step



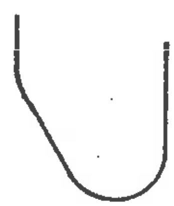
No. of steps optional

#12 Narrow Step



No. of steps optional

#13 Tapered Pilot

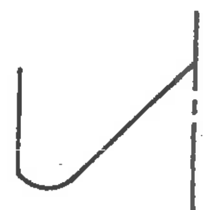


#14 OD/ID Step

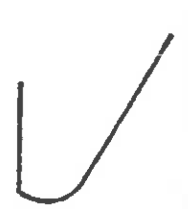
No. of steps optional

#15 120° Concave

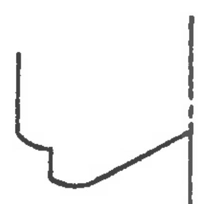
#16 90° Concave

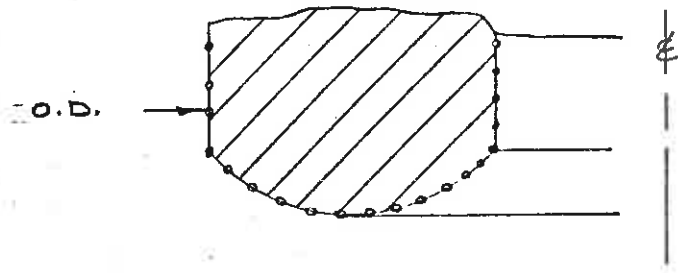


#17 60° Concave

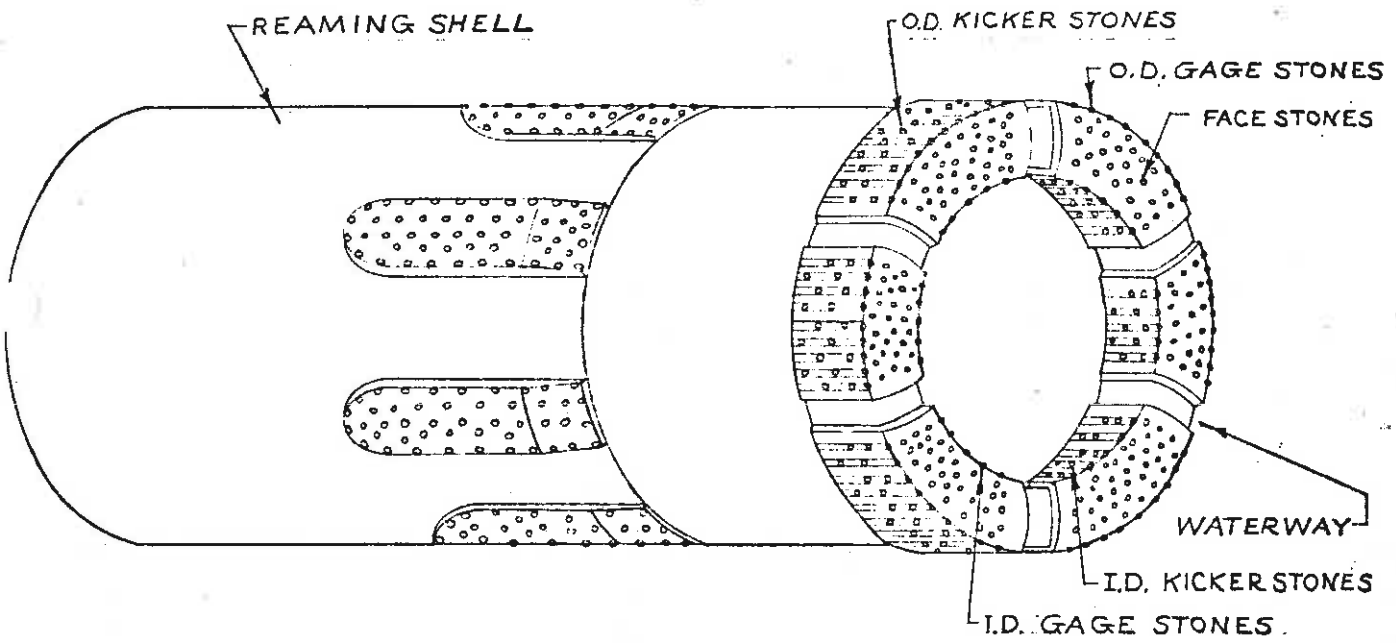


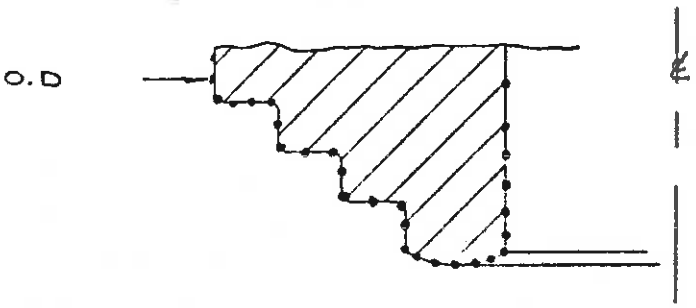
#18 Pilot Concave





SEMI ROUND CROWN





THREE STEP CROWN

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
59 East Main Street
Moorestown, New Jersey 08057

COMMITTEE:	Technical Committee - Mechanically Set Bits	
DATE:	October 30, 1978 Ramada/O'Hare Inn, Chicago, Illinois	
CHAIRMAN:	D. E. Lewis	
MEMBERS ATTENDING:	D. E. Lewis, Chairman	Sprague & Henwood, Inc.
	Walter Leszczyszyn	Wheel Trueing Tool Co.
	Gary Powell - Secy.	Acker Drill Co., Inc.
	Jim Stoker	Christensen Diamond Products Co.
MEMBERS ABSENT:	R. L. Carlson	Diamond Drill Contracting Co.
	W. E. Decker	Hoffman Diamond Products, Inc.
	J. Doolin	Longyear Co.
	V. H. Haase	Robert G. Evans Co.
	N. M. Henderson	Construction Diamond Product, Div. Norton Company
	W. J. Verby	Anton Smit & Co., Inc.
GUESTS ATTENDING:	Cy Steele	C.D.D.A.
	R. Davies	Sprague & Henwood, Inc.
	J. Atkins	Anton Smit & Co., Inc.

1. The meeting was opened at 2:00 P.M.

2. It was moved by G. Powell and seconded by Jim Stoker to accept the minutes of the meeting held March 6, 1978 as read.

3. It was unanimously agreed that the committee should request the Bit and Shell material for Bulletin #4 for inspection to assure the accuracy and continuity with respect to illustrations.

   The Bulletin #4 Editorial Committee provided the Bit and Shell material to the Bit Committee for review. Comments and/or corrections were as follows:

   a. The Step Crown Bit sectional drawing should show the face width in proportion to the steps.
   b. The Step Crown Bit sectional drawing should contain the following comment in fine print:
      "Number of steps optional - 3 steps shown"
   c. Add the word "Basic" to the Bit and Shell illustration sheet heading.
   d. A photograph of a typical diamond bit and reaming shell should be sent to Fred Ritchie at Ritchie Graphic Design for reference. Walter Leszczyszyn offered to supply the photograph.
   e. The material was reviewed for compliance with the previous recommendations of the Bit Committee as stated in the minutes of the Mechanically Set Bit Committee meeting at Las Vegas on March 6, 1978.

4. The question was raised as to whether an assignment had been given to the Bit Committee to establish Bit and Reaming Shell concentricity tolerances per the Fifth Order in the minutes of the Drill Equipment Committee meeting at Las Vegas on March 6, 1978 since the former chairman indicated that there had been no assignments made. The members present agreed to send the chairman their recommendations on Bit and Shell concentricity and methods of checking on the assumption that the assignment would be made eventually.

5. It was recommended by the committee that item E 2 "Reaming Shells - Length versus Diameter" be deleted from page 7 of the Recommended Design Practices for DCDMA Standards.

6. It was moved by W. Leszczyszyn and seconded by G. Powell to adjourn. The meeting adjourned at 4:30 P.M.

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
59 East Main Street
Moorestown, New Jersey 08057

COMMITTEE: Technical Committee - Mechanically Set Bits

DATE: April 2, 1979
Doral Country Club & Hotel, Miami, Florida

CHAIRMAN: D. E. Lewis

MEMBERS PRESENT:	D. E. Lewis, Chairman	Sprague & Henwood, Inc.
	Gary Powell, Secretary	Acker Drill Co.
	J. Atkins	Anton Smit & Co., Inc.
	J. Doolin	Longyear Co.
	J. Stoker	Christensen Diamond Products, USA
	I. Varlamoff	Wheel Truing Tool Co.
MEMBERS ABSENT:	R. Carson	Diamond Drill Contracting Co.
	W. Decker	Hoffman Diamond Products Inc.
	V. Hasse	Robert G. Evans Co.
	N. Henderson	Construction Diamond Product (Div. Norton Co.)
	W. Leszczyszyn	Wheel Truing Tool Co.
	W. Verby	Anton Smit & Co., Inc.
GUESTS ATTENDING:		
	R. Geney	Atlas Copco - Associate Member
	Yukio Honna	Acker Drill -Associate Member

1. The meeting was opened at 8:30 A.M.

2. It was moved by J. Doolin and seconded by G. Powell that the minutes of the Octover 30, 1978 meeting be accepted as read. Motion carried unanimously.

3. The job description for the Technical Committee for Mechanically Set Bits was reviewed and accepted as is.

4. It was moved by J. Doolin and seconded by G. Powell that the following casing shoe, bit and shell "Set" concentricity with respect to the threads be adopted as a standard.

SET DIA.	CONCENTRICITY
1" to 2.99"	.010 TIR
3" to 4.99"	.015 TIR
5" to 10.0"	.020 TIR

Motion carried unanimously.

5. It was also moved by J. Doolin and seconded by G. Powell that the method of checking will be as illustrated on the chart submitted by Acker Drill excluding the left hand view. Motion carried unanimously.

6. It was further moved by J. Doolin and seconded by Ivan Varlomoff that the face runout for set bits (perpendicularity with respect to the axis) shall be .010" max. The method of measurement to be by a dial indicator with shoe and to be shown on the right hand bit illustration provided by Acker Drill. Motion carried unanimously.

7. It was moved by G. Powell and seconded by J. Doolin to adjourn. The motion was carried and the meeting adjourned at 10:30 A.M.

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
59 East Main Street
Moorestown, New Jersey 08057

COMMITTEE: Technical Committee - Mechanically Set Bits

DATE: September 25, 1979
Dearborn, Michigan

CHAIRMAN: D. E. Lewis

MEMBERS PRESENT:	D. E. Lewis, Chairman	Sprague & Henwood, Inc.
	Gary Powell, Secretary	Acker Drill Co., Inc.
	John Atkins	Anton Smit & Co., Inc.
	Walter Leszczyszyn	Joy Manufacturing Co.
	Jack Norris	Norton Company
	Peter Sears	Longyear Company
	Jim Stoker	Christensen Diamond Products, USA
MEMBERS ABSENT:	Ray Carlson	Diamond Drill Contracting Co.
	E. J. Cruickshand	Cushion Cut, Inc.
	W. E. Decker	Hoffman Diamond Products Inc.
	J. Klipper	Diamond Tool Research Co., Inc.
	Ivan Varlamoff	Wheel Trueing Tool Co.
GUESTS ATTENDING:	Robert Korisher	N & N Enterprise
	Cy Steele	C.D.D.A.

1. The meeting opened at 8:00 A.M.

2. It was moved by G. Powell and seconded by Jim Stoker to accept the minutes of the meeting held April 2, 1979.

3. Shoe, Bit and Shell "Set" concentricity was discussed and checked. G. Powell made a motion to accept the established tolerance to send out on letter ballot. The motion was seconded by Jim Stoker. Included in the motion was a request to ask the Executive Committee for an assignment to work on Crown run out tolerance on thinwalls.

4. Wire Line Stds. - Motion by P. Sears seconded by G. Powell to redistribute wireline size charts for up dating and ask Executive Committee for direction with regard to advantages etc.

5. It was moved by G. Powell and seconded by P. Sears to adjourn at 10:00 A.M. The motion was carried and the meeting adjourned.

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
59 East Main Street
Moorestown, New Jersey 08057

COMMITTEE:	Technical Committee - Mechanically Set Bits	
DATE:	March 31, 1980 Lake Buena Vista, Florida	
CHAIRMAN:	D. E. Lewis	
MEMBERS ATTENDING:	D. E. Lewis, Chairman	Sprague & Henwood, Inc.
	G. Powell, Secretary	Acker Drill Co.
	W. Decker	Hoffman Diamond Products, Inc.
	J. Norris	Norton Co.
	J. Stoker	Christensen Diamin Tools Inc.
	W. Svendsen (for Sears)	Longyear Co.
	I. Varlamoff	Wheel Trueing Tool Co.
	W. Leszczyszyn	Joy Manufacturing Co.
MEMBERS ABSENT:	J. Atkins	Anton Smit & Co.
	R. Carlson	Diamond Drill Contracting Co.
	E. J. Cruickshank	Cushion Cut
	J. Klipper	Diamond Tool Research Co.,Inc.
GUESTS ATTENDING:	Scott Evans	Christensen Diamin Tools Inc.
	Cy Steele	CDDA

1. Meeting opened at 11:00 A.M.

2. It was moved by W. Leszczyszyn and seconded by Jim Stoker to accept minutes of September 25, 1979 meeting in Dearborn.

3. Shoe, bit and shell concentricity was discussed (assignment MB-1). Tab Sheet for shoe, bit and shell should read under mandrel - ... "Use corresponding size of thread per D.C.D.M.A. mating part tolerances".

   Add words I.D. and O.D. to set diameter column.

4. Request assignment on establishing gaging standards for bit and shell set diameters.

5. Wireline comparison - add to chart "D.C.C.M.A. size reference" for bit and shell sizes.

   If a mfg. uses D.C.D.M.A. designation, the product must conform to std. sizes.

   Continue to standardize on set O.D. and set I.D.

It was moved by G. Powell and seconded by W. Leszczyszyn to adjourn 12:20 P.M. Motion was carried.

Executive Committee assignments to Mechanically Set Bit Committee (name changed to "Technical Committee - Diamond Products") on 4-2-80.

I. Establish gaging standards for bits and shell set diameters.

II. Prepare a proposed standard for wireline bit and shell set sizes.

III. Prepare a proposed standard for thinwall bit concentricity.

IV. Re-do MB-1 as noted and submit to Dennis Neff for redistribution and vote.

V. Change name of Mechanically Set Bit Committee to "Technical Committee - Diamond Products".

VI. Study and make a recommendation as to how to handle the nomenclature regarding sizes on W/L equipment (ref. bit set O.D.)

COMMITTEE: TECHNICAL COMMITTEE - DIAMOND PRODUCTS

DATE: OCTOBER 21, 1980
INDIANAPOLIS, INDIANA

CHAIRMAN: JAMES E. STOKER

MEMBERS ATTENDING:

James E. Stoker	Christensen Diamin Tools
Gary Powell	Acker Drill Company
John Atkins	Anton Smit & Company
Don Lewis	Sprague & Henwood
Walter Lesczcyszyn	Joy Manufacturing

MEMBERS ABSENT:

Jack C. Norris	Norton Company
Lester Kuzmick	Cushion Cut
W. E. Decker	Hoffman Drilling Co., Inc.

GUESTS ATTENDING:

Anders Oden	Craelius
Bob Norrick	Mobil Drill
Bob Davies	Sprague & Henwood
Duane Mosch	Dresser Industries

1. Minutes of the March 31, 1980 meeting were reviewed and accepted.

2. Assignment MB-1, has been submitted to Dennis Neff and is ready for distribution and vote.

3. Don Lewis reported on the status of the assignment to prepare concentricity standards for thinwall bits. Don contacted Mr. G.H. Dekker, Chairman, Specifications and Safety Committee, C.S.D.A. His response was that they would adopt a manufacturer's standard if established by D.C.D.M.A. However, C.S.D.A. finds no need for a standard themselves.

4. The assignment to establish gaging standards for bits and shell set diameters was discussed. It was determined that the existing D.C.D.M.A. standards applied, so this assignment serves no purpose. A request of the Executive Committee will be made to delete this assignment.

5. A questionnaire will be prepared and mailed to manufacturers of wireline bits and shells, in an attempt to establish the industry maximum, minimum and mean dimensions of wireline diamond products.

6. The assignment to study and make a recommendation on the Nomenclature of wireline equipment was discussed. It was decided that a proposal for dimension standardization and that the two assignments would be worked on simultaneously.

7. It was moved by G. Powell and seconded by D. Mosch to adjourn at 11:40 a.m. Motion was carried.

4. Distribution of survey. Propose to Executive Committee the following distribution:

   A. DCDMA members and Associates
   B. Other industry standard groups

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
59 East Main Street
Moorestown, New Jersey 08057

COMMITTEE:	Technical Committee - Diamond Products	
DATE:	October 7, 1981 Indianapolis Hilton, Indianapolis, IN	
CHAIRMAN:	J. E. Stoker	
MEMBERS ATTENDING:	J. E. Stoker, Chairman	Christensen Diamin Tools
	Walter Leszczszyn	Joy Mfg. Co.
	Don Lewis	Sprague & Henwood, Inc.
MEMBERS ABSENT:	W. E. Decker	Hoffman Diamond Products, Inc.
	Lester F. Kuzmick	Cushion Cut, Inc.
	Gary Powell	Acker Drill Co., Inc.
GUESTS ATTENDING:	Bastien J. Guttierez	Wheel Trueing Tool Co.
	Mike Tiani	National Drilling Contractors Ass

1. Reviewed minutes of the April 6, 1981 meeting.

2. The results of the survey for "H" and "P" dimensions conforming to tab sheet #22 were passed out and discussed. (A copy of the survey is attached to the minutes).
   There were 13 respondents to the survey. In disucssing the results it was determined that the format used for the survey did not accomplish the desired results. It appears that most respondents interpreted the survey by saying, "If we were to manufacture to an HX or PX dimension, we would use the standard DCDMA dimensions."

   The information the committee wanted was what dimensions do manufacturers use when manufacturing in the H or P size range? What is their standard not the DCDMA standard.

   The value of the first survey was that we learned how not to structure a survey.

3. A proposal will be made to the executive committee that we again conduct a survey for H and P size products. (Try until we get it right).

4. The new survey will cover the following products:

DIAMOND PRODUCTS	CASING (I.D. dimension only)
1. Core Bits	1. Flush
2. Reaming Shells	2. Coupled
3. Casing bits and shoe	3. Coupling

- more -

5. The parameters of the survey will consist of the following:

   A. Time frame for products produced would be the last 12 months.

   B. Basic Questions:

      1. What % of product is the DCDMA dimensions?

      2. What % of products are to own dimensions?

         a. Conventional
         b. Wireline

      3. What are dimensions of own products?

         a. Conventional
         b. Wireline

6. The survey will be sent to DCDMA members and associates with a cover letter explaining the reasons for repeating the exercise.

H

dentification Symbols		DCDMA Std. HX or HW	British Drilling Association	Christensen Diamin Tools	Craelius AB	Cushion Cut	Dresser	Greaves Cotton & Co. Ltd.	Hoffman Diamond Products	Longyear Australia	Longyear USA	Mobile Drilling	N & N Enterprises	Tone Boring Co.	Voltas Limited
C'brl bit set I.D. Normal	Max.	3.005	same	2.410	same			same		same	2.200		same	same	same
	Min.	2.995													
C'brl bit set I.D. Thinwall	Max.	3.192	same		same			same		same			same	same	same
	Min.	3.182													
C'brl bit set O.D. Normal & T.W.	Max.	3.897	same	3.655	same			same		same	3.782		same	same	same
	Min.	3.882		3.645											
C'brl shell set I.D. Normal & T.W.	Max.	3.912	same					same		same			same	same	same
	Min.	3.902													
Casing Bit set I.D.	Max.	3.782	same		same			same		same			same	same	same
	Min.	3.772													
Casing Bit & Shoe set O.D.	Max.	4.632	same	4.645	4.632			same		same			same	same	same
	Min.	4.617		4.635	4.616										
Casing Shell set O.D.	Max.														
	Min,														
Casing Shoe set I.D.	Max.	3.930	same	3.980	same			same		same			same	same	same
	Min.	3.920		3.970											
F.C. Casing I.D.	Max.	4.125	same		same			same			4.125		same	same	same
	Min.	4.110													
Casing Cplg. I.D.	Max.	3.952	same		same			same			3.9375		same	same	same
	Min.	3.937													
Flush Joint Casing I.D.	Max.	4.000	same		4.020			same		same	4.000		same	same	
	Min.	3.985			3.980										
F.C. & F. Jt. Casing O.D., F.C. Casing cplg. O.D.	Max.	4.515	same		same			same		same	4.500		same	same	
	Min.	4.500													

DOES NOT MANUFACTURE THIS SIZE

Identification Symbols		DCDMA Std. RX or RW	British Drilling Association	Christensen Diamin Tools	Craelius AB	Cushion Cut	Dresser	Greaves Cotton & Co. Ltd.	Hoffman Diamond Products	Longyear Australia	Longyear USA	Mobile Drilling	N & N Enterprises	Tone Boring Co. Ltd.	Voltas Limited
C'brl bit set I.D. Normal	Max.	3.635	same	3.350				same		3.634	3.345		same	same	
	Min.	3.620		3,345						3.620					
C'brl bit set I.D. Thinwall	Max.														
	Min.														
C'brl bit set O.D. Normal & T.W.	Max.	4.735	same	4.832				same		same			same	same	
	Min.	4.715		4.827							4.827				
C'brl shell set I.D. Normal & T.W.	Max.	4.755	same					same		4.755			same	same	
	Min.	4.740								4.741					
Casing Bit set I.D.	Max.	4.640	same			SIZE	SIZE	same	SIZE	4.639		SIZE	same	same	same
	Min.	4.625								4.625					
Casing Bit & Shoe set O.D.	Max.	5.660	same		same	THIS	THIS	same	THIS	same		THIS	same	same	same
	Min.	5.640													
Casing Shell set O.D.	Max.					MANUFACTURE	MANUFACTURE		MANUFACTURE			MANUFACTURE			
	Min,														
Casing Shoe set I.D.	Max.	4.785	same	4.866	same			same		4.784			same	same	same
	Min.	4.770		4.854		NOT	NOT		NOT	4.770		NOT			
F.C. Casing I.D.	Max.	5.138	same		5.067			same					same	same	same
	Min.	4.933			5.012										
Casing Cplg. I.D.	Max.	5.015	same		4.949	DOES	DOES	same	DOES			DOES	same	same	same
	Min.	4.815			4.894										
Flush Joint Casing I.D.	Max.	5.015	same		5.028			same		5.000			same	same	
	Min.	4.865			4.972					4.985					
F.C. & F. Jt. Casing O.D., F.C. Casing cplg. O.D.	Max.	5.541	same		5.523			same		5.515			same	same	
	Min.	5.459			5.472										

PARTS OUTLINED ARE EXPERIMENTAL SPECIFICATIONS -- DCDMA Mtg. 3-23-67

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
59 East Main Street
Moorestown, New Jersey 08057

COMMITTEE: TECHNICAL COMMITTEE - DIAMOND PRODUCTS

DATE: April 1, 1982
Walt Disney World Conference Center
Lake Buena Vista, Florida

CHAIRMAN: J. E. Stoker

MEMBERS ATTENDING:	J. E. Stoker, Chairman	Christensen Diamin Tools, Inc.
	Don Lewis	Sprague & Henwood, Inc.
	Gary Powell	Acker Drill Co.
MEMBERS ABSENT:	John Atkins	Anton Smit & Co., Inc.
	W. E. Decker	Hoffman Drilling Co.
	L. F. Kuzmick	Cushion Cut, Inc.
	Walter Lesczczszyn	Joy Manufacturing Co.
GUESTS ATTENDING:	Anders Oden	Craelius
	Claus Lindvall	Craelius
	Bob Davies	Sprague & Henwood, Inc.
	Gary Pipher	CDDA
	Scott Evans	Christensen Diamin Tools, Inc.
	Francisco Oliva	Joy Manufacturing Co. (Mexico)
	Rigoberto Rosales	Joy Manufacturing Co. (Mexico)

1. Reviewed minutes of the October 7, 1981 meeting.

2. Discussed the survey on "H" and "P" dimensions. The specific parameters for the survey are as follows:

   A. Time frame would be for products produced from 1 Jan to 31 Dec 1981.
   B. Survey to exclude large diameter series.
   C. The survey will be sent out in 30-45 days, with a requested return within 45 days. Follow-up letters or phone calls will be made if surveys are not returned in 45 days.

3. One of the reasons for the survey is to determine what is happening in the "P" size with casing and set products. Cy Steele from CDDA mentioned that the CDDA has changed their PW dimensions so that the set products would pass through the casing.
4. Impregnated Bits - A request to standardize the color coding of Impregnated Bits was made by the contractors group through the Executive Committee.
5. The committee agreed this was an area where we could make a contribution. A request will be made to the Executive Committee to give the committee the Impregnated Bit Color Coding problem as an assignment.
6. If the committee receives the Impregnated Bits as an assignment - an assignment will be made to each committee member to work up a suggested chart or charts of DCDMA Generalized Ranges of Impregnated Bit Parameters.

TO: Bill Hampton and Jim Stoker

FROM: Dennis C. Neff

SUBJECT: IMPREGNATED BIT STUDY

DATE: May 28, 1982

Bill Larson sent cppies of the attached study to Bob Dickinson and Wally Both of whom forwarded it on to me. Jim Doolin (for Wally) suggested the NDF Board look at it and Bob suggested referral to both of you. Since this pertains to a project already in the hands of Jim Stoker's committee I think he should have first crack at it. However, I do think the paper and any DCDMA action on it should be reported to NDF. If either of you see a need for further distribution, let me know.

Bob also suggests ~~writing~~ Larson to the Denver meeting. I'll see to it that he gets the seminar material, but will leave it to Jim Stoker to invite him to his committee meeting. Jim, you may even want to acknowledge receipt of this to Larson and generally coordinate any activity with him.

Dian Fred.

Committee:	Technical Committee - Diamond Products	
Date :	March 21, 1983 Doral Country Club Miami, Florida	
Chairman :	J.E. Stoker	
Members Attending:	J.E. Stoker, Chairman -	CDT
	Jim Doolin	Longyear
	Don Lewis	Sprague
	John Huddy	Huddy
Members Absent :	John Atkins	Anto Smit
	W.E. Decker	Hoffman Drilling
	Bastian Guttierez	Wheel Trueing
	Lester Kuzmick	Cushion Cut
	Walter Leszczyszyn	Joy Mfg.
	Gary Powell	Acker Drill Co.

1 - Reviewed minutes of the April 1, 1983 meeting.

2 - Discussed results of the survey on "H" and "P" dimensions. Copy of survey results are attached.

Action to be taken

1 - Prepare a letter stating the problems identified by the survey results.

- a - List the facts and how they compare to current DCDMA standards.
- b - Ask for recommendations for a solution to the problem.
- c - Committe members will have 30 days to respond, then letter will be sent to all EVR's.

3 - Impregnated Bit Color Coding

- a - John Huddy will assist in preparing a rock classifications chart to be distributed to DCDMA members.
- b - We will request that once the rock classification has been agreed upon, that each manufacturer would fill in the colors of their manufactured impregnated bits to correspond with the rock classification chart.

4 - A request will be made that the technical committees meet on separate days or have the time seperated so there is no overlap of meeting times.

5 - To improve DCDMA image, Jim Doolin suggested a decal with DCDMA/NDF by developed and distributed by the association.

"P" Dimensions

	DCDMA STANDARD		ACKER		CHRISTENSEN	CRAELIUS		DIAMOND DRILL		DIEDRICH		HOFFMAN	JOY	LONGYEAR	PENNSYLVANIA DRILLING		SPRAGUE & HENWOOD		TRUCO
"P" Casing	O.D.	I.D.	O.D.	I.D.		O.D.	I.D.	O.D.	I.D.	O.D.	I.D.				O.D.	I.D.	O.D	I.D.	
Flush Max	5.541	5.015	5.515	4.950		5.528	5.0276	5.500	5.000	5.505	5.005				5.541	5.015	5.541	5.015	
Min	5.459	4.865	5.500	4.935		5.4724	4.972					DCDMA	NONE		5.459	4.865	5.459	4.865	
Coupled Max	5.541	5.138				5.528 5.472	5.067 5.012												
Min	5.459	4.933																	
Coupling Max	5.541	5.015				5.528	4.949												
Min	5.459	4.815				5.472	4.894												
% of Casing of total production			3%			<5%		<5%							<10%		10-15%		
"P" Core Bits																			
O.D. Size PW	Max	Min	Size	OD	%	Size	OD	%	O.D.	%				Size	OD	%	Size	OD	%	OD	%
	4.735	4.715	PQ	4.815	2%	CP	4.827	1.5	4.732		5.475	10%		PQ	4.813	<2	PXWL PQ 4½ST 4 3/4ST	4.805 4.805 4.578 4.812	2 4	4.810 ±.007	1
Reaming Shell OD Dimension	Max	Min	Size	OD		Size	OD		O.D.		Size	OD		Size	OD		Size	OD		OD	
	4.755	4.740	PQ	4.828		CP	4.827		4.748			5.475		PQ	4.828		PXWL PQ 4½ ST 4 3/4ST	4.830 4.830 4.609 4.859		4.830 ±.005	
"P" Casing Shoe Size PW	OD	ID	OD	ID		OD	ID		OD	ID	OD	ID					OD	ID			
	5.660 5.640	4.785 4.770	5.650	4.777		5.650	4.775		5.657	4.772	5.625	4.865 4.835			5.564	4.807	5.660 5.600	4.825 4.855			

"H" DIMENSIONS

"H" Casing

	DCDMA STANDARD		ACKER		CHRISTENSEN		CRAELIUS * Converted from MM		DIAMOND DRILL		DIEDRICH		JOY		LONGYEAR		PENNSYLVANIA DRILLING		SPRAGUE & HENWOOD		TRUCO
	O.D.	I.D.	O.D.	I.D.	O.D.	I.D	O.D.	I.D.	O.D.	I.D.	O.D.	I.D.	O.D.	I.D.	O.D.	I.D.	O.D	I.D.	O.D.	I.D.	
Flush Max	4.515	4.000	4.515	4.000	4.515	4.000	4.5197	4.0197	4.500	4.000	4.505	4.005	4.515	4.000	4.515	4.000	4.515	4.000	4.515	4.000	
Flush Min	4.500	3.985	4.500	3.985	4.500	3.985	4.5803	3.9803			4.500	4.000	4.500	3.985	4.500	3.985	4.500	3.985	4.500	3.985	
									Drive												
Coupled Max	4.515	4.125					4.5197	4.1260	4.500	3.750									4.515	4.125	
Coupled Min	4.500	4.110					4.4803	4.1102											4.500	4.110	
Coupling Max	4.515	3.952					4.5197	3.9528	HR Wireline										4.515	3.952	
Coupling Min	4.500	3.937					4.4803	3.937	4.500	4.026									4.500	3.937	
% "H" Casing of total prod.				8%		45%		20%		15%		30%		5%		<5%		<10%		20%	

"H" Core Bits

	Max	Min	OD	% Prod	Size	OD	%	Size	OD	%	O.D.	%	Size	OD	%	Size	OD	%	OD	%
HW	3.897	3.882						Conv	3.8976	80%	3.860	10%							3½ ST	3.615	3.765±.005 2%
HWG			3.890	3%					of Conv										3½ DT	3.615	
HQ			3.782	10%				WL	3.7795	95%					HQ	3.766	5%		HXWL	3.770	15
AHWL			3.765						of WL										NCB	3.650	
HMLG			3.875																HQ	3.770	
HWD3			3.650		HWD	3.650	42						NCB	3.665	5						
HX			3.907											3.651							

Reaming Shell O.D. Dimension

	Max	Min	O.D.			Size	OD	O.D.						Size	OD	
HW	3.912	3.902				Conv	3.9094	3.875						3½ ST	3.630	3.780±.005
HWG			3.907			WL	3.7913							3½ DT	3.630	
HQ			3.782										HQ 3.781	HXWL	3.785	
AHWL			3.782											NCB	3.650	
HMLG			3.890											HQ	3.785	
HWD3			3.665		3.650											
HX													3.690			
													3.680			

"H" Casing Shoe

Size	OD	ID	OD	ID	OD	ID	OD	ID	OD	ID			OD	ID	OD	ID	OD	ID	Size	OD	ID	OD
HW	4.632	3.920	4.625	3.925	4.570	3.910	4.6299	3.9213	4.625	3.975			4.632	3.920					HW	4.675	3.975	4.625±.007
4" FJ Drive									Std						HW 4.648	3.985	4.560	3.940	HX	4.500	3.9375	ID
									4.563	3.750					4.618	3.970						3.925±.007
									Hvy													
4" HR WL									4.750	3.750												
									4.625	4.010												

DIAMOND CORE DRILL MANUFACTURERS ASSOCIATION
P.O. Box 579
Moorestown, NJ 08057

COMMITTEE:	TECHNICAL - DIAMOND PRODUCTS	
DATE:	March 21, 1983 Doral Country Club Miami, Florida	
CHAIRMAN:	J. E. Stoker	
MEMBERS PRESENT:	J. E. Stoker, Chairman	Christensen Diamin Tools, Inc.
	James J. Doolin	Longyear Co.
	Donald Lewis	Sprague & Henwood, Inc.
	John Huddy	Huddy International
MEMBERS ABSENT:	John Atkins	Anton Smit
	W. E. Decker	Hoffman Drilling Co.
	Bastian Guttierez	Wheel Trueing
	Walter Leszczyszyn	Joy Manufacturing Co.
	Gary Powell	Acker Drill Co.

1. Reviewed minutes of the April 1, 1983 meeting.

2. Discussed results of the survey on "H" and "P" dimensions. Copy of survey results are attached.

   Action to be taken:
   1. Prepare a letter stating the problems identified by the survey results.
      a. List the facts and how they compare to current DCDMA standards.
      b. Ask for recommendations for a solution to the problem.
      c. Committee members will have 30 days to respond, then letter will be sent to all EVR's.

3. Impregnated Bit Color Coding

   a. John Huddy will assist in preparing a rock classifications chart to be distributed to DCDMA members.
   b. We will request that once the rock classification has been agreed upon, that each manufacturer would fill in the colors of their manufactured impregnated bits to correspond with the rock classification chart.

4. A request will be made that the technical committees meet on separate days or have the time separated so there is no overlap of meeting times.

5. To improve DCDMA image, Jim Doolin suggested a decal with DCDMA/NDF be developed and distributed by the association.

LESS COST CHRISTENSEN PER FOOT

APR 21 1983

M E M O R A N D U M

TO: Technical Committee - Diamond Products

FROM: James E. Stoker

DATE: April 12, 1983

SUBJECT: Letter to EVR's

The attached letter is a rough draft of the letter that will be sent to all EVR's concerning the survey of "H" and "P" dimensions.

Please review and make comments, corrections, additions, etc.

We would like your comments returned by May 20, 1983 so that the final draft can be mailed to EVR's by the end of May.

Jim Stoker

JS/tla

Please reply directly to Jim at:
Christensen Diamin Tools, Inc.
P.O. Box 30777
Salt Lake City, UT 84130
(801) 974-3544

We have several alternatives to consider:

1 - Do we accept the DCDMA specifications as standard on bit and reaming shell OD.?

2 - If we keep industry bit & shell OD we need new standards for "P" casing shoe ID and casing coupling ID. What should those standards be?

3 - If we maintain the current DCDMA specificatons how do we police the standards used by the industry?

4 - If we keep DCDMA specifications what designation do we use for what the industry is currently using?

JS/tla