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In Evd.

Judge Anderson

TRANSMISSION OF DOCUMENT NO NIK - 13 972
OFFICE OF CHIEF OF COUNSEL FOR WAR CRIMES

Ex 1482
24 Feb

HEARD METAL OPERATIONS.

OPERATIONAL REPORT.

Fiscal Year 1936/1937.

TO: Fried. KRUPP ... G.

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A. Operational utilization of plants.

The hard metal shops were engaged far beyond their normal capacity in the year of the report. The working installations had to be expanded and new shops had to be built. The total production of the hard metal shops rose from 82,051.8 kilogram in the preceding to 187,259.8 kg in the year under report, i.e. by 12%.

The orders booked will continue to rise also in the next fiscal year, since the use of hard metal is steadily increasing in technical and national economic importance.

A - 1. Normal Hard Metal Production. (Hard Metal Plant I).

The monthly capacity in the preceding year amounted to 3,300 kg of finished carbide metal; it was increased to about 5,000 kg in a normal working period through enlargements and extension of the plant. However, since the receipt of orders in the last quarter of the year under report was about 62% higher than in the same period of the preceding year, and the receipt of orders was thus 20% higher than the increased capacity of the plant, the production of hard metal had to be further raised through general production improvements, over time, and Sunday work; in September, production amounted to about 6,300 kg. Nevertheless, it was not yet possible to force down the increased deliveries to be made and the delivery dates ultimately 3 to 4 weeks behind schedule, thereby.

Our special position in carbide metal production and particularly our connection with D.E.W. and BUEHLER, however, required short period delivery schedules, about 8 to 12 days, as we used to have them formerly. In order to attain these again, a further RM 300,000 more were granted in June of this year for the expansion of the plant.

The extension project of the main factory (Halle 4) providing for a monthly production of 15,000 kg preliminary material

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was put into operation in April of this year. Owing to production improvements, by means of this expansion to supply 25,000 kg of preliminary material towards the end of the year under report.

In the next year for report, the department for the production of preliminary material will be built up for a monthly output of 60,000 kg; then, temporarily, the special plants in Essen and Bremen as well as the works to be erected in Wuppertal - even if the capacity of these plants is fully utilized -, can be provided with preliminary material.

A - 2. Special Production Essen. (Hard Metal Plant II).

At the beginning of the year under report, special production had a normal output capacity of 2,000 kg monthly. Through the expansion of the machine equipment and production improvements, the output could eventually be raised to 7,500 kg monthly in eventual triple shifts, in spite of the limited space available.

The special production was housed in separate premises belonging to the main factory. In June of the year under report, the erection of a new building was approved which is to accommodate the special production in the ensuing fiscal, which production will be increased to an output of 10,000 kg monthly.

A - 3 . Special Production. Bremen (Hard Metal Plant III) .

In this plant the production was only begun on 4 August of the year under report. By the end of the year under report, about 40% of the output capacity was attained.

A - 4 . Tool Shop. (Hard Metal - Tool Shop).

The capacity of the Tool Shop amounts to about 14,000 tools monthly in a normal working period. Since the receipt of orders in the last months of the year under report far exceeded this capacity, because inter alia the customers (Konkurrenz) increasingly demanded finished tools, the

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capacity was considerably raised through over time and Sunday working; in September, the output was 19,000 tools.

In July of the year under report, 500,000 RM were granted for the enlargement and simultaneous transfer of the tool shop, since a further increase in the number of orders booked is to be anticipated, and since the production of the tools and gauges necessary for the special production is to be taken over by this shop.

B. Personnel Records.

Hard Metal Shop Group.

	30 Sept. 1935	30 Sept. 1936	30 Sept. 1937
Workers	250	469	1 362
Employees	33	45	67
executive officials	5	8	8
Total	288	542	1 437

The total of 1, 437 members of the complement is distributed as follows:

B - 1. Normal Hard Metal Production	402
B - 2 Special Production Essen	302
B - 3. Special Production Bremen	622
B - 4. Tool Shop	111

C. PRODUCTION

C - 1. Normal Hard Metal Production.

I. The production of finished hard metal tips amounted to 3,005,308 pieces with a total weight of 57,093.2 --; the average weight of the tips was about 19 grams.

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Distribution of the tips-production is as follows:

	Pieces	Weight in kg	increase
tungsten carbide alloy with titanium	1 197 424	24 133,8	90%
tungsten-carbide alloy without titanium	1 807 884	32 959,4	52%

II. 109,372.8 kg of preliminary material were produced, distributed as follows:

	Weight in kg	increase
Preliminary material for special production	104 242,8	312%
Preliminary material for foreign branches	5 130,0	8,7%

The decrease in production of preliminary material for the foreign branches may be attributed to their having laid in larger stocks in the preceding year because of the uncertain situation and to their drawing requirements for current production only in the year under report.

III. of other material (balls for grinding, welding alloys, drill pieces)

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total of 6,801.3 kg were produced; i.e., an increase of 41% over the preceding year.

C - 2 Special Production Essen

3,616/7 kg were produced compared with 7,570.1 kg in the preceding year, i.e. an increase of about 740%.

C - 3. Special Production Bremen

In the month of August and September when the installation was in operation for the first time, 13,770 kg were produced.

C - 4 Tool Shop

In the year under report, 164,523 tools were produced; i.e., compared with 8,865 in the preceding year, an increase of 66%.

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D. PRODUCTS DELIVERIES

D - 1. Normal Hard Metal Metal Production

The following were produced and delivered:

I. 12 hard metal alloys for the various applications whose distribution according to main delivery groups and KRUPP plants is shown in the enclosures.

The entire domestic turnover is distributed approximately as follows:

General Engineering	50%
Machinings factories	20%
Lining	13%
Tool factories	10%
Drawing shops	4%
Others	3%

100 %

II. a) preliminary material (mixture ready for pressing) for the special production in Essen and Bremen;

b) preliminary material (mixture ready for pressing) for the foreign branches in England and Italy;

III. a) Balls for grinding for own needs;

b) Welding alloys and drill ends for deep drilling

D - 2 Special Production Essen.

The special production only produced and distributed the known products.

D - 3 . Special Production Bremen.

Here, exclusively known special products were produced and delivered in series production.

D - 4 . Tool Shop.

In the year under report, 94,937 finished tools and also 69,586

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used tools sent in by customers were re-tipped by the tool shop.

For these purposes, 3,257 kg of hard metal were drawn from the hard metal plant I, i.e. 11% of the domestic turnover, while all the German tool factories together took only about 10%.

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of the finished tools, 552,064, or 55 %, were mining tools.
11,334 pieces, i.e., 11% were delivered to KRUPP plants.

E. STOCKS

E - 1 Normal Hard Metal Production.

	30.9.1935 RM	30.9.1936 RM	30.9.1937 RM
Total stock supplies:	961 146	1 461 079	2 098 796

Chiefly the raw materials show an increase among the stock supplies, because the plant had to provide itself with sufficient stock in 8 000 times as a result of the uncertain raw material situation.

E - 2. Special Production Essen.

	30 Sept. 1935	30 Sept 1936	30 Sept 37
Total Stock supplies:			RM 543 585

E - 3. Special Production Bremen.

	30 Sept. 1935	30 Sept 1936	30 Sep 1937
Total sock supplies:			RM 457 089

E - 4. Tool plant.

	30 Sep 1935 RM	30 Sep 1936 RM	30 Sep 1937 RM
Total sock supplies:	RM 40 236	RM 43 834	RM 44 800

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F. NEW INSTALLATIONS AND DEVELOPMENTS.

F - 1 Normal Hard Metal Production.

The following were approved for new installations:

1934/35 RM	1935/36 RM	1936/37 RM
183,710	1,509,000	3,462,300

The sum for the fiscal year 1935/36 included RM 1,5000,000 and the sum for the fiscal year 1936/37 RM 2,650,000 for the extension of the installation for the production of preliminary materia for special production

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This invested capital will be written off according to the special agreements which were approved in the case of special production.

Completed in the year under report as follows:

Resolution: Amount

Nr.	Date	RM	
199	18.5.36	1 500 000	Erection and equipping of Hall 4
515	11. Jan 37	3 500	Extension to the grinding installation
633	18 Mar 37	3 800	Lathe for the Paris World Exhibition

The output of 6,000 kg of finished carbide metal and 25,000 kg of preliminary material reached at times was only possible owing to extensive changes and improvements in production methods. After the qualitative development of the Hard metals was assured and the regularity of deliveries was ensured for years, the production improvements in the 1st year under report made it possible to increase the material turnover in the last spaces available or to reduce considerably the actual costs.

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Since it is necessary to anticipate stronger competition with the expiration of the main patents, in 1941, further work in this direction must also be done in the next few years. For this purpose, it will also be necessary to set up operational costing in such a way as to enable first costs for each material category, and at every production stage, to be compiled and verified.

In the grinding installation, a conversion in part to larger units was carried out, i.e., from 5 kg to 250 kg.

In the shaping room material advantages were won by re-organization and conversion from hand and piece work to mechanical series production.

In the carburization process and in the final sintering operation, a transition was made to larger furnace units through rebuilding the existing furnaces; this led not only to multiple in the capacity of the furnace installation, but also to a considerable reduction in actual costs through conservation of current, hydrogen, and carbon electrodes.

Noteworthy is the growing utilization of Quality with titanium content, which is generally used for steel processing in engineering plants, but chiefly for processing minitions. The turnover compared to the preceding year has risen by about 82 %. The XI - share of the total carbide metal turnover amounted to 42 %.

Of the newly developed qualities, especially the tougher hard metal quality II 8 for steel processing should be named, which is meant to fill the gap between the use of high speed tool steels and carbide metals.

In April of the year under report, the fourth shop which will be attached to the main works and then equipped, was set in operation originally this shop was scheduled only for the production of 15,000 kg of preliminary material. Besides the increased production of 19,000 kg monthly,

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already mentioned on page 4 under A - 1, this enlargement also had favorable consequences in that part of its equipment can be borrowed for normal production at times of peak loads.

The desires of the constantly increasing numbers of employees for sufficient wash- and dressing-rooms were also satisfied by the new construction. In addition, the store-rooms could also be enlarged; previously, they were far behind equipments.

As mentioned on page 4 under A - 1, the installation will be expanded for an output capacity of 60,000 kg preliminary material monthly for the special production in the new year under report.

B - 2. Special Production Essen.

The following was granted for new installations:

1934/35 RM	1935/36 RM	1936/37 RM
-	202 500	270 000

Completed in the year under report as follows:

Resolution Nr.	Date	Amount RM	
191	11.5.36	120 000	Enlargement of the machinery equipment.

The output of the sinter presses could be increased threefold, which would result in a considerable reduction in first costs, especially for graphite and current.

The re-design and utilization of grinding machinery and equipment has led to considerable output increases and savings on actual costs.

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By the introduction of weighing and measuring instruments, not only was auditing greatly simplified, but production control was also substantially tightened.

It was also possible to salvage the scrap and the tungsten contained in the grinding dust and to use it again in the production process, so that almost 98% of the tungsten allocated is utilized thus giving us a lead over our competitors not be underestimated.

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Successful experiments with pieces of higher specific weight and having different analyses, as well as in the most diverse dimension and shapes never made before, promise further additional work

F - 3 . Special Production Bremen

new installation were approved as follows:

1934/35 RM	1935/36 RM	1936/37 RM
-----	-----	3 000 000

Completed in the year under report as follows:

Resolution No.	Date	Amount RM	
199	13.5.36	3 000 000	Erection and equipment of the manufacturing installation

As a result of building and supply difficulties, it was necessary to delay operation of this installation until the beginning of August of the year under report, so that production could only be begun on 4 August 1937. The buildings and external installations were about 90% completed at the close of the fiscal year, and the assembly of the manufacturing installation was about 75 % finished .

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F - 4. Tool Shop.

New installations were approved as follows:

1934/35 RM	1935/36 RM	1936/37 RM
2 400	-----	590 000

Completed in the year under report as follows:

Resolution No.	Date	Amount RM	
754	27 May 1935	50 800	Procurement of a large calibrating lathe
457	6 Feb 1937	90 000	Expansion of machinery equipment

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Operations with the additional machinery granted by the above violations, made it possible to reduce delivery times which extended to 10 weeks to about 6 weeks.

In October, 1956, the large calibrating lathe was put into operation. With the special agreement of this lathe all lathe operations occurring in practice can be carried out. On the determination of guide values for the various cutting conditions and in the control of the work the lathe has rendered excellent service.

By the renewal of machinery equipment, first savings were effected in the production of many types of tools, so that we also received orders from the wholesalers (individual orders up to 1 000 tools).

The difficulties of procuring shafting have not affected the tool orders received; the orders were filled on schedule.

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F - 5. Special Production Hypoertal.

By order of the authorities, a factory site with buildings was purchased by the firm in Hypoertal, in July. This plant is to be re-built and equipped for additional special production.

G. ACTUAL COSTS.

G - 1 Normal Hard Metal Production

	1934/35	1935/36	1936/37
	Rh	Rh	Rh
Total costs: per kg.	71,07	56,04	48,76

The reduction in actual costs an average of Rh 56,04 per kg of hard metal to Rh 48,76, is based on a total increase in production of 120%, for the most part in the production of preliminary material for special production and also in manufacturing improvements as indicated under F - 1 on pages 9 to 11.

The enumerated average actual costs are computed so that the production of hard metal with titanium content, preliminary material for special production, preliminary material for foreign branches, and other products, are all calculated on the basis of 1 kg tungsten-carbide cutting metal (W). In the new fiscal year, then, as mentioned under F - 1, on page 10, the actual costs for each production group are to be determined so that they can be compared to the clearing costs.

G - 2. Special Production Essen.

	1934/35	1935/56	1936/37
	Rh	Rh	Rh
Total costs: per kg	51,74		41,74

For the special production it was possible to arrive at the true

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actual costs; they correspond to a clearing price of RM 67.50

Through the rise in production and especially through the reduction in the figure for waste and through the improvements listed under F - 2 on pages 11 and 12, first costs have continuously decreased during the year under report.

G - 3. Special production in Bremen.

	1934/35	1935/36	1936/37
	RM	RM	RM
Total costs: per kg	---	---	91,16

Actual first costs of RM 91,16 per kg correspond to the clearing price of RM 67.50

The substantially higher first costs compared to the Essen plant, may be explained by the fact that the installation was in operation only for two months in the year under report and that considerable charge for new construction and the short of operations occurred. In addition, it was necessary to first train and get used to the work about 550 of the total of 600 men who were hired towards the end of the year under report.

G - 4. Tool Shop

	1934/35	1935/36	1936/37
	RM	RM	RM
Total costs: per kg	88.15	88,77	81,44

First costs decreased by 8.3 % as against the preceding year. This decrease may be attributed to the full employment of the plant due to an approx. 60 % increase in orders. To this must be added the renewals of improvements in machinery listed under F - 4 on page 13.

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H. PLANT RECEIPTS.

H - 1. Normal Carbide Metal Production.

	1934/35	1935/36	1936/37
	RM	RM	RM
Receipts:	34 351	1 015 015	340 275

The reduction in the operation receipts compared to last year is attributable to the expense of putting the new shop (Halle 4) in the main factory into commission and also to the fact that the clearing prices had been lowered by 26 to 40 % since 1 October 1936.

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E - 2. Special Production Essen.

1934/35	1935/36	1936/37
R.	R.	R.

Receipts: --- 1 634 885

The receipts are explained by the advance in production in the year under review described under F - 2 on pages 11 and 12; there it should be noted that the tungsten prices in the year under report rose three-fold.

E - 3. Special Production Bremen.

1934/35	1935/36	1936/37
R.	R.	R.

Receipts: --- 350 600

The reason for the negative plant receipts are listed under G - 3 on page 15.

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E - 4. Tool Shop.

1934/35	1935/36	1936/37
R.	R.	R.

Receipts: 42,465 42,518 75,246

The results are due to the improvements stated under F - 4 on page 13 and the good operational employment.

(Signature)

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A P P E N D I X .

The Branch Plants in England in Italy.

The rate of operational activity of the branches in England and Italy was likewise very favorable during the year under report.

1. Coventry, England.

The installation originally set up for a monthly output of 100 kg of finished carbide metal, was extended in the preceding year for an output of 300 kg. In the year under report Rm 115 000 were granted for the extension of the installation for a monthly output of 500 to 600 kg. Relative to mention should be made of this expansion, the erection of a hydrogen generating plant, which will have paid for itself in about 3 or 4 years due to the low price of self-produced hydrogen.

The production of 2 276 162 kg in the fiscal year 1934/35, and 2 652 752 kg in the preceding year, rose in the year under report to 3 020 853 kg. The average weight of 1 tip amounted to 10.9 grams in the year under report, as against 13.1 grams in the fiscal year 1934/35.

The total production of approx. 3 020 kg corresponds to proceeds totalling English Ls 70,401.

The works complement rose to 25 workers and 7 employees by the end of the year under report.

2. Castellamonte, Italy.

Originally monthly output of 150 to 200 kg of finished carbide metal was anticipated for this installation; in the year under report, the installation was enlarged for an output of 300 kg monthly. In June, the hydrogen generating installation was put into a noticeable reduction in the hydrogen price,

In the year under report, 2 535 227 kg of finished carbide metal were manufactured. The average weight for 1 tip amounted to 23.6 grams.

The total manufacture of approx. 2 535 kg corresponds to proceed amounting to a total of Lit. 3 529 010.

The works complement numbered 13 workers and 4 employees at the end of the year under report.

(signature)

H. H. N. N.

CERTIFICATE OF TRANSLATION

I, G. GOODMAN, ETC No 34 789, hereby certify that I am thoroughly conversant with the English and German languages and that the above is a true and correct translation of Document No NIK - 13 972.

G. G O O D M A N
ETC No 34 789

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