

MAAG Planetary Gear Type CPV for Ball-Mills

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LIST OF CONTENTS

1. General Description
2. Gear Execution
3. Torque Levering System
4. Lubrication and Surveillance Unit
5. Connection between CPV-Gear and Electrical Motors
6. CPV-Drive System Efficiency
7. Auxiliary Drive
8. Water- and Air injection
9. Assembly
10. Quality Assurance
11. Schematic of gear drive
12. Outer dimensional drawing
13. Schematic Lubrication system drawing

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Date 16.03.94	Name bue	Title MAAG Planetary gear	Document No. 700.55763E.DOC
Date	Name	Type CPV	Quotation No./Order No. Pages 8

All bearings are of the antifriction type with a calculated life span of 100'000 hours.

With the selected planet carrier design and the use of self-aligning antifriction type bearings for the support of the planets an unobjectionable tooth pattern is obtained.

2.3 Planet carrier

The first stage planet carrier is of a milling steel plate and that one of the second stage of welded design. The bores for the planet journal pins are geometrical accurately positioned.

2.4 Casing

The rotating casing part is of welded design. This part is rigidly connected with the mill. The second stage internal toothed annulus is an integral part of the rotating casing.

2.5 Sealings

Entry of cement dust is not possible due to the small sealing surfaces.

3. Torque Levering System

The occurrence of a reactional torque will be diverted via a double levering system, fixed to the stationary casing part. The reactional forces are directed to a transversely positioned quill shaft by the means of two vertical bars with ball pivots. The quill shaft itself is spherically supported in a casing which is rigidly connected with the foundation.

This configuration of the torque levering system allows the reaction free absorption of tumbling movements (thermal, mechanical) of the mill flange.

4. Lubrication- and Surveillance Unit

Toothing and bearings are lubricated by a separate lubrication and surveillance unit.

These system can be installed independent the gearbox and irrespective of level.

The used lubricant is of so called the SHC oil Type.

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Date 16.03.94	Name Mue	Title MAAG Planetary gear		Document No. 700.55763.03
Date	Name	Type CPV	Quotation No./Order No.	Pages

The CPV-Gear and the electric motors (main- and auxiliary drive) are connected by the means of a flexible type coupling which can absorb all occurring deviations.

6. CPV-Drive System Efficiency

The CPV-drive system efficiency is 99,1% (+/- 0,1%) and is based on experience values obtained from similar gears on the one hand and by measurements. (see MAAG pamphlet entitled: "Efficiency test on the large planetary gear of a central ball mill drive").

7. Auxiliary Drive

The three stage auxiliary drive system is mounted on the torque levering system. The pinion of the third stage, which is meshing with the wheel or the parallel stage, is connected with a overrun clutch coupling. The clutch coupling allows the automatic engagement and disengagement of the auxiliary drive.

The other elements, as electric motor, hydraulic coupling and brakes are rigidly mounted to the foundation with an common frame.

8. Water- and Air injection

If there is a need to inject air and water into the mill, the fluids are brought into the mill via tubes which are located in the center of the sun pinion of the first planetary stage. The tubes turn at the same speed as the mill, therefore the sealing elements are on the outside of the gearbox.

9. Assembly

The CPV-planetary gearbox is a closed unit by itself and does not imply special alignment with the mill. Therefore it can be fixed to the mill flange in a short time.

Since the gear is not rigidly fixed to the foundation, a possible occurrence of the foundation lowering as well as tumbling movements of the mill, bears no impact on the tooth load pattern of the gear.

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△E
△F
△G
△H
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Replaces
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Date	Name	Type CPV	Quotation No./Order No. Pages

MAAG pays special attention to quality and quality assurance.

Our quality assurance system is based on ISO-standard 9001 requirements and was certified by DET NORSKE VERITAS. This way the client obtains the assurance of receiving a qualitative excellent product, executed conform to the requirements.

11. Schematic of gear drive

See drawing 777.0017.01

12. Outer dimensional drawing

See drawing 777.0015.01

13. Schematical Lubrication system drawing

See drawing 777.0016.02

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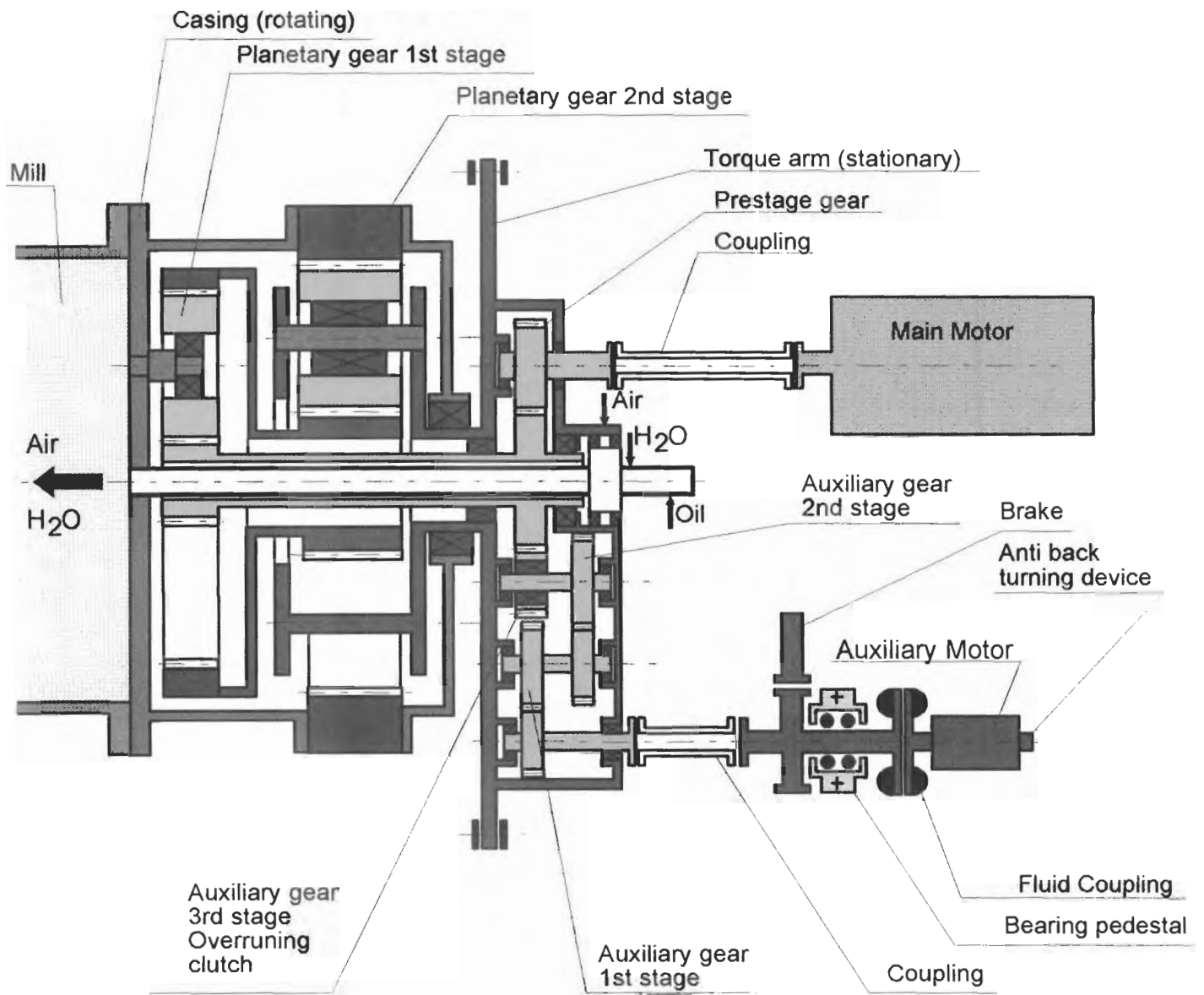
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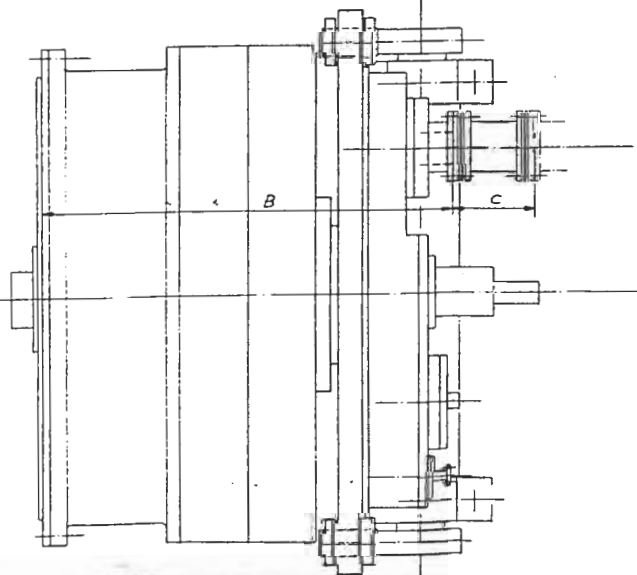
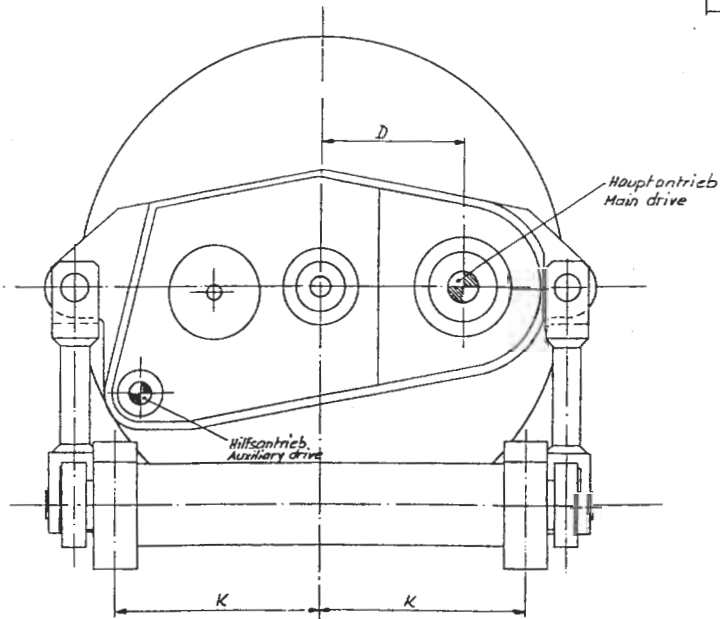
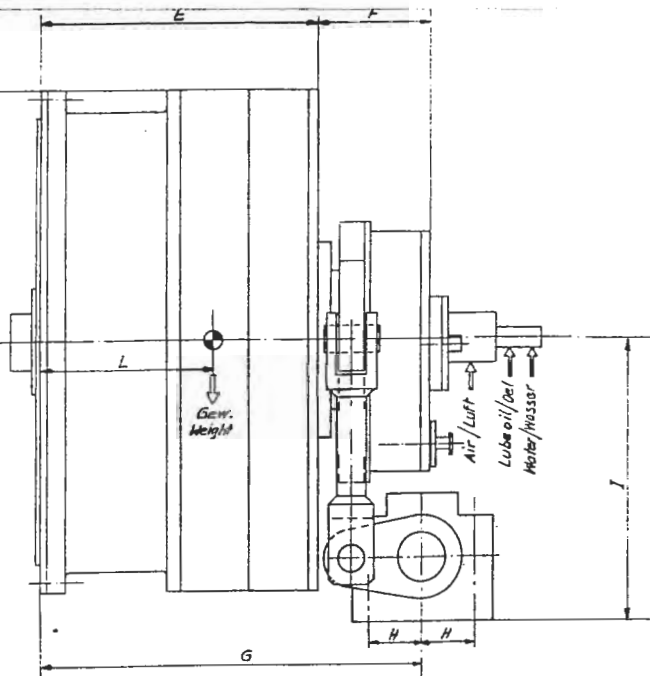
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16.03.94	Mue	MAAG Planetary gear	700.55763.05
Date	Name	Type	Quotation No./Order No. Pages
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Gear type	Mill rpm	P	Power max.	A	B	C	D	E	F	G	H	I	K	L	Weight	
Gehr. Typ	Mühle Drehz.	P	P _{max.}	A	B	C	D	E	F	G	H	I	K	L	Gew	
CPV #	min ⁻¹	mm ²	kw	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	
7	18,3	48,5	906	79,9	4860	4430	330	503	900	420	1300	190	1100	830	540	13,5
8	18,1	63,5	1150	82,3	1950	1570	340	567	1030	420	1450	210	1100	830	630	15,5
11	17,5	85,7	1500	85,1	2020	1720	340	588	1140	470	1590	225	1160	850	700	18,0
14	17,0	106	1800	87,7	2150	1800	360	615	1200	490	1680	245	1220	890	730	22
17	16,5	133	2200	90,3	2300	1900	360	645	1280	520	1760	265	1310	950	760	26,5
21	16,1	168	2700	92,6	2450	2020	370	684	1360	550	1920	290	1400	1020	810	32
25	15,7	204	3200	94,9	2600	2100	370	720	1400	570	2030	305	1500	1080	850	37
29	15,4	240	3700	96,8	2750	2200	370	750	1500	590	2130	320	1600	1140	890	44
34	15,0	287	4300	99,3	2950	2350	380	800	1600	620	2250	340	1700	1220	940	51
39	14,7	333	4900	101,4	3100	2500	380	840	1670	650	2360	360	1800	1290	990	59
44	14,4	389	5400	103,5	3300	2600	380	880	1760	670	2400	380	1900	1360	1040	68
53	14,1	454	6400	105,7	3500	2700	400	930	1850	700	2450	400	2000	1450	1100	78

1) n_{Motor} = 1430 min⁻¹

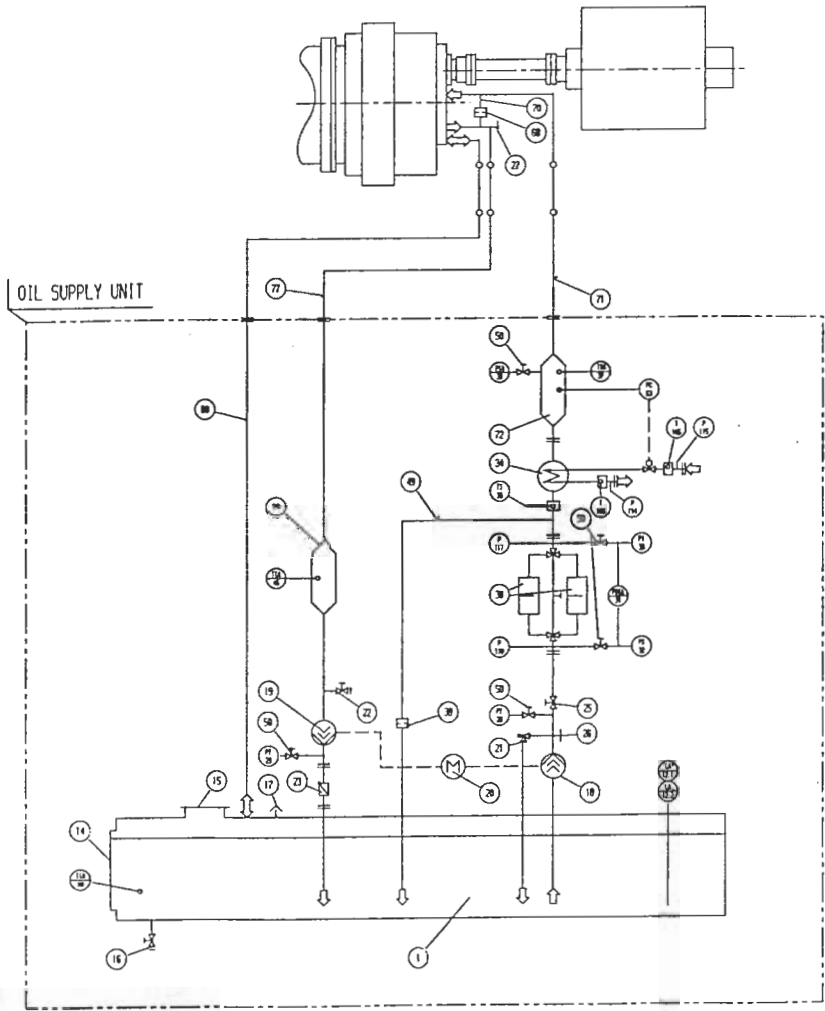
PROVISORISCHE ANGABEN
PROVISIONAL INFORMATION

Drawn by	Checked by	Approved by
Date		

CPV - Gear
CPV - Getriebe
Abmessungen / Dimensions

NO.	REVISION	DATE	BY
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PHIL PLANETARY GEAR COUPLING MOTOR



Model	111-1111-1111
Serial	1111-1111-1111
Part	1111-1111-1111
Scale	1:1

LUBE OIL- AND MONITORING SYSTEM FOR CPV

777 0016 02

For information only. This drawing is not intended for use in the design of any product. It is provided for reference only. The user of this drawing is responsible for the design of any product. The user of this drawing is responsible for the design of any product.