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Schaeffler Arcanol Greases Smart Lubrication

Ali Hancer
08 September 2026

We pioneer motion

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Product Portfolio

Multipurpose

Multi Purpose Greases

MULTI2, MULTI3, MULTITOP

Regional Standard Greases

XTRA3 India , Graxazul South America, MULTI3-E25B-CON Middle East & Africa

Performance Greases

Heavy Duty Greases

LOAD150, LOAD220, LOAD400, LOAD460, LOAD1000

High Temperature Greases

TEMP90, TEMP110, TEMP120, TEMP200

Special Requirements

SPEED2,6, VIB3, FOOD2, CLEAN-M, MOTION2

SEMIFLUID

Market requirements

- Moderate to high loads
- Broad speed range
- Broad application range
- Local greases to meet local requirements

- High load requirements
- Line contact
- Higher temperatures
- Vibrations

- Wide temperature range
- Moderate to high loads
- Low startup temperatures

- Special highspeed requirements
- Special food production requirements such as Halal
- Special greases for oscillations

Typical sectors and application

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Focus Applications

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Cement

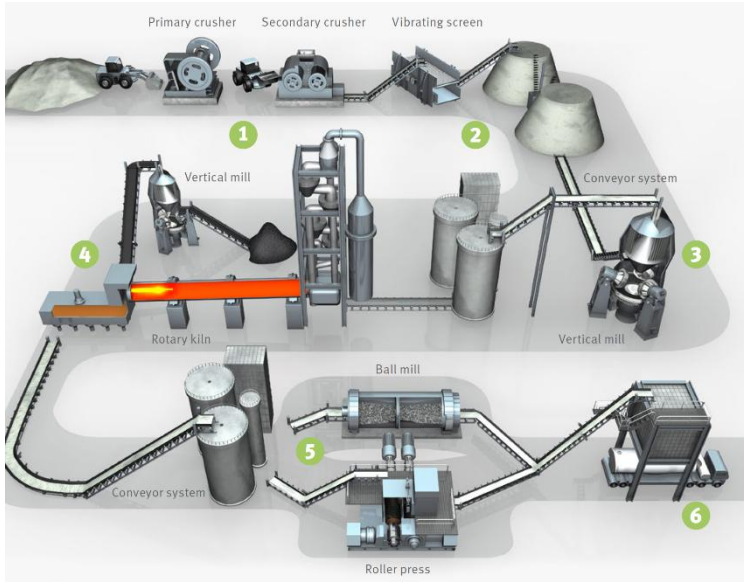
Roller Presses: **LOAD1000**

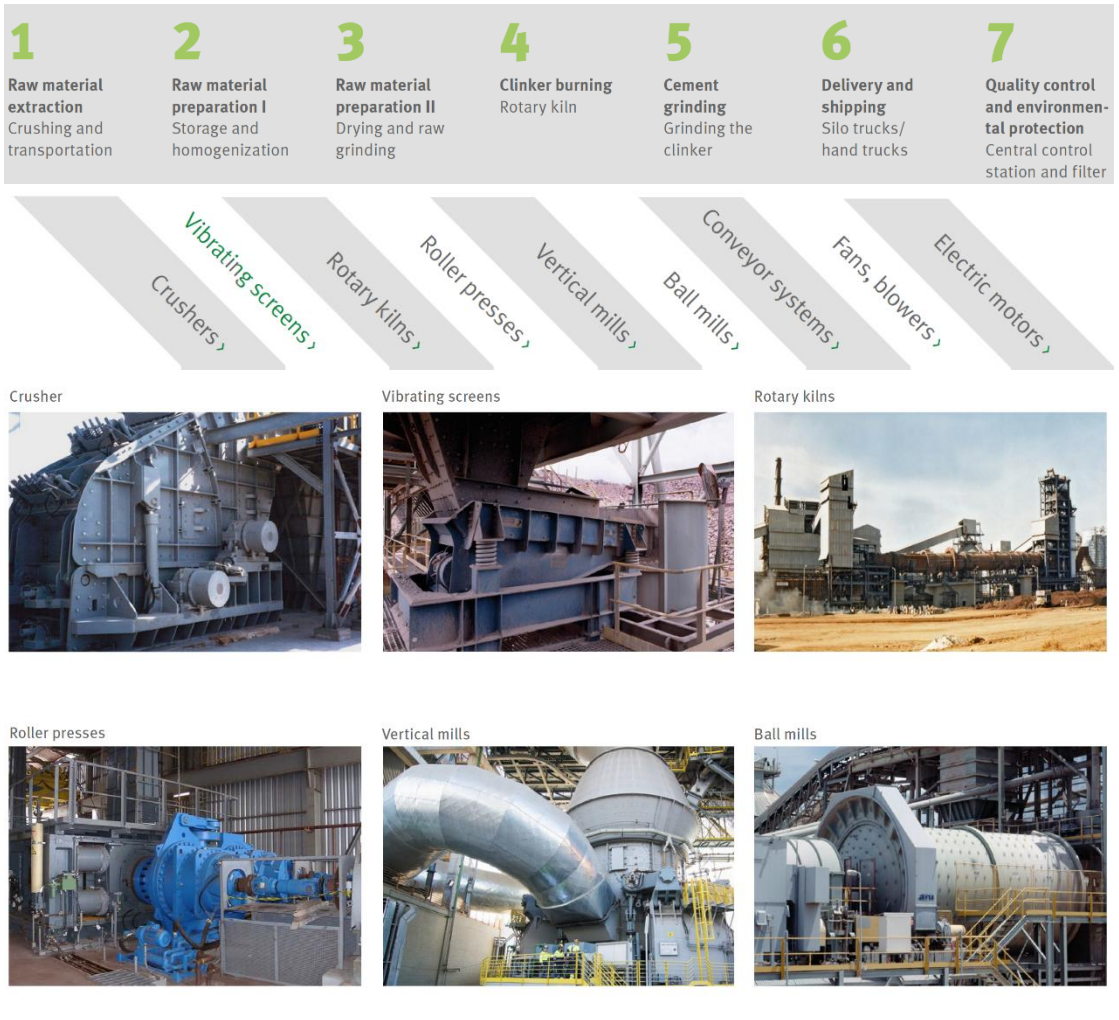
Vertical Mills - classifier bearing: **TEMP120**

Vibrating Screens: **VIB3**

Crushers: **LOAD400 and LOAD220**

Ball Mills: **LOAD400 and LOAD1000**





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Mining Processes

Roller Presses: **LOAD1000**

Bucket Wheel Excavators: **LOAD400**

Conveyor Systems: **LOAD220 and MULTITOP**

Mine Hoists: **LOAD400**

Langwall Miners: **LOAD400**

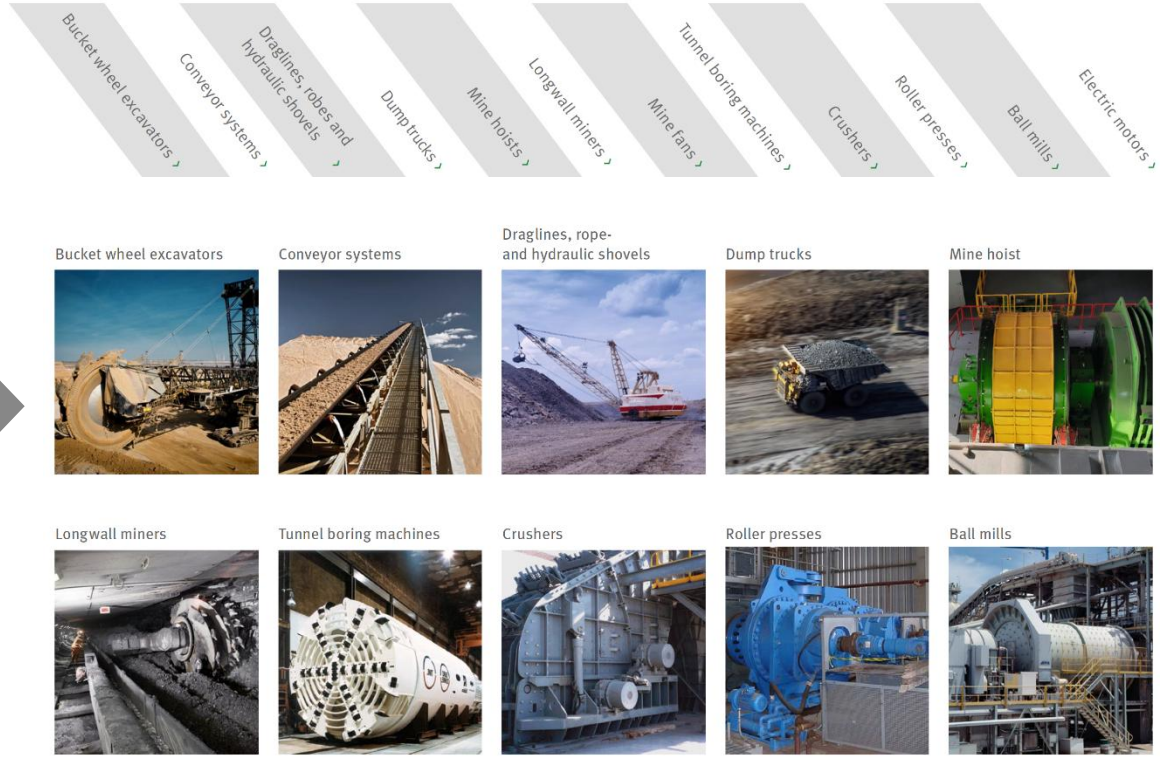
Mine Fans: **MULTITOP, TEMP110 and TEMP120**

Tunnel Boring Machines: **LOAD400**

Crushers: **LOAD400 and LOAD220**

Ball Mills: **LOAD400 and LOAD1000**

Electric Motors: **MULTITOP**



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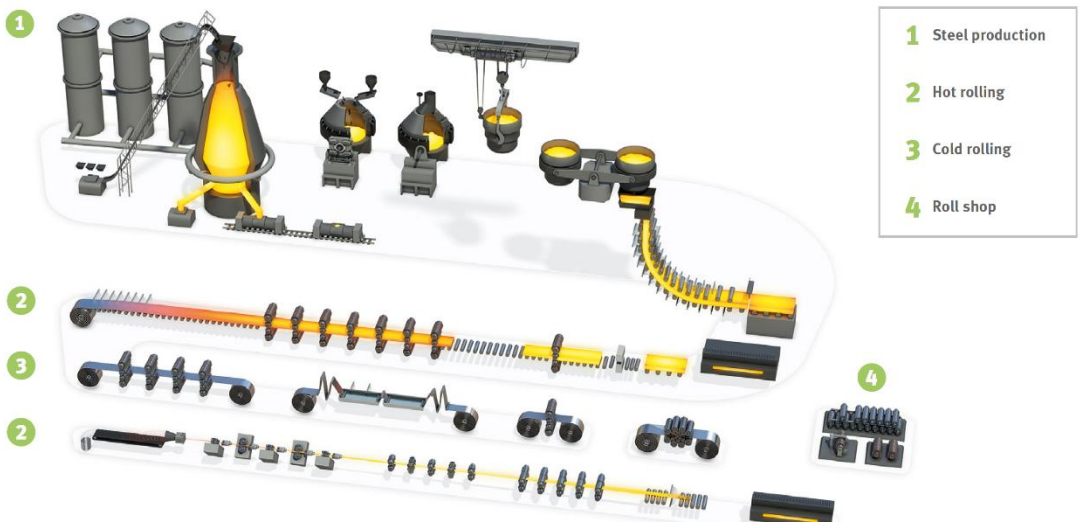
Steel & Metals

Converter: **LOAD400, LOAD1000**

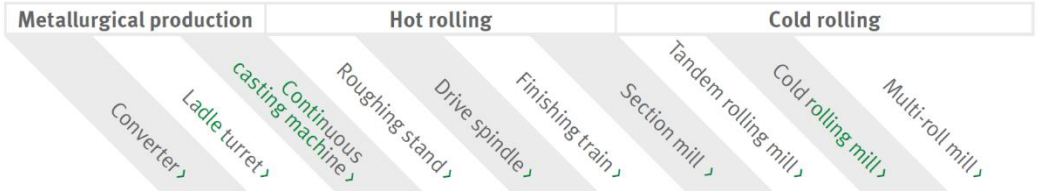
Continous casting and Hot rolling: **TEMP120**

Roller Tables: **TEMP120**

Cold rolling: **LOAD400 / LOAD220**



1 Steel production
2 Hot rolling
3 Cold rolling
4 Roll shop



Converter

Continuous casting machine

Hot strip mill

Cold rolling mill

Multi-roll mill

Wire rod mill

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Pulp and paper industry

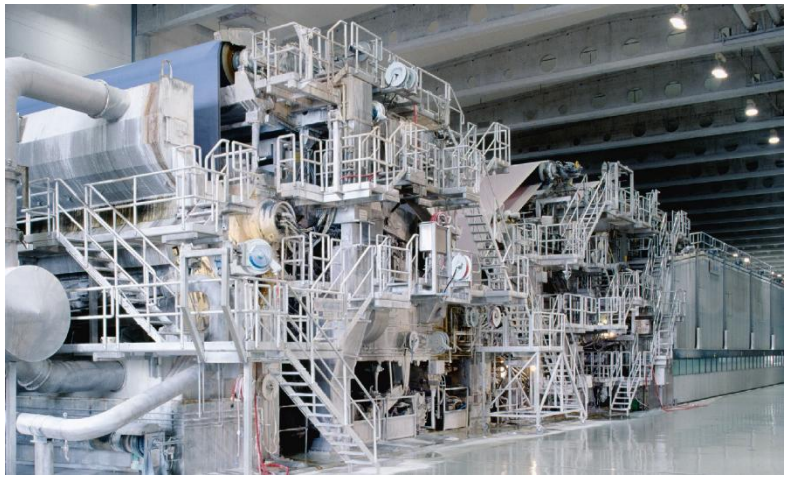
Refiner: **TEMP120**

Press roll: **LOAD400**

Dryer rolls: **TEMP120**

Spreader roll: **MULTITOP / TEMP110**

Production step	Stock preparation	Pulp preparation	Paper machine				
Fields of application and machine sections	Woodyard	Fiber recycling and treatment	Forming section	Press section	Dryer section	Finishing	Winder
Key machine and roll types	Debarking drum, wood grinder, wood chipper	Refiner, screen, DD washer, pulper, agitator	Breast roll, suction roll, wire guide roll	Solid press roll, anti-deflection roll, shoe press roll, felt guide roll	Dryer cylinder, Yankee cylinder, stabilizer roll	Super calender, soft calender, spreader roll	Tambour, guide roll



Refiner

Steaming and defibering the chipped wood with the help of the TMP process

Challenges:
- High temperatures and axial displacements in the floating bearing
- Stringent requirements for bearing lubrication and cooling
- High axial guiding accuracy necessary to control process effectively

Schaeffler solutions:
- Cylindrical roller bearings with extended inner ring width and larger internal radial clearance
- Axial spherical roller bearing
- Tapered roller bearing with high axial load-carrying capacity

Customer benefits:
- Maximum operational reliability
- Reliable adjustment of process parameters
- Minimal maintenance

Press roll

De-watering through high mechanical pressure in the nip

Challenges:
- High loaded paper machine bearings
- Very high speeds
- Critical influence on paper quality
- Compensation of shaft deflections

Schaeffler solutions:
- Large size spherical roller bearings with maximum load-carrying capacity
- X-life design with increased load rating and reduced friction
- Spherical roller bearings with greater runout accuracy

Customer benefits:
- Increased reliability of capital-intensive production equipment
- Strict requirements for paper quality can be met

Dryer rolls

Remove residual water from the paper through contact with heated dryer cylinders

Challenges:
- Compensation of linear thermal expansion
- Increased humidity
- Greater amount of lubrication necessary for cooling
- Bearing operating clearance reduced, especially during heating up process

Schaeffler solutions:
- Spherical roller bearings with larger internal clearance
- Case-hardened inner rings
- Durotect Z coating for axial displacement with low force
- Self-aligning cylindrical roller bearings

Customer benefits:
- High operational reliability and prevention of inner ring cracks due to case-hardened inner rings
- Coating enables unconstrained axial displacement

Spreader roll

Tensioning the paper web in cross direction

Challenges:
- Very high speeds
- Bearings cannot be re-lubricated or replaced individually
- Risk of slippage damage

Schaeffler solutions:
- Deep groove ball bearings
- Hybrid deep grove ball bearings with ceramic balls
- Self-aligning ball bearings for low load
- Proven, low-friction special grease with defined fill level and optimized seal on outer ring

Customer benefits:
- Lower operating temperature
- High operational reliability
- Long grease operating life

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Support on OEM recommendations

ABB E-Motors – TEMP110

Properties, applications: Bearing grease for universal application, moderate to high loads, increased temperatures, low starting temperatures, wide speed factor

Characteristics		Value	Unit	Test method
Temperature range:		-35 to 160	°C	DIN 51825 / Schaeffler Spec.
Longtime limit temperature:		110	°C	
Density:		0.9	kg/dm³	
Specifications:				
Thickener:		lithium complex		
Type of base oil:		part synth oil		
Base oil viscosity	at 40 °C:	130	mm²/s	DIN 51562 - 1
	at 100 °C:	14	mm²/s	DIN 51562 - 1
Worked penetration:		250-295	0.1 mm	DIN ISO 2137
NLGI grade:		2		DIN 51518
Drop point:		≥ 220	°C	DIN ISO 2176
Water resistance:		1-90	Range	DIN 51807 - 1
Corrosion Emcor Test:		≤ 0/0	Corr. Grade	DIN 51802
	with 0.5 % NaCl:	≤ 2/2	Corr. Grade	
Copper corrosion after 24 h/120 °C:		≤ 1	Corr. Grade	DIN 51811
FE8 tests run wear behaviour, Running time 500 hours without failure				
536048 - 1500/10-RT		vWk50 ≤ 35	mg	DIN 51819
536048 - 75/80-120		vWk50 ≤ 35	mg	DIN 51819
536050MP - 7.5/80-120		vWk50 ≤ 35	mg	DIN 51819
536050MP - 7.5/80-80		vWk50 ≤ 35	mg	DIN 51819
FE9 tests run (grease service lifetime)				
A/1500/6000-150		F50 ≥ 200	h	DIN 51821-02
		no failure < 100	h	
Low temperature torque				
-35 °C	Start / Steady-state	127 / 82	Nmm	IP 186
-35 °C	Start / Steady-state	79 / 73	Nmm	IP 186

Speed range:	Unit	Ball bearings and cylindrical roller bearings	Other roller bearings*)
Speed limit n*dm	mm/min	500,000	250,000

*) not cylindrical roller thrust bearings and spherical roller thrust bearings

7.2.4 Lubricants

WARNING

Do not mix different types of grease. Incompatible lubricants may cause bearing damage.

When re-greasing, use only special ball bearing grease with the following properties:

- good quality grease with lithium complex soap and with mineral- or PAO-oil
- base oil viscosity 100-160 cST at 40 °C
- consistency NLGI grade 1.5 - 3 *)
- temperature range –30 °C - +120 °C, continuously

*) A stiffer end of scale is recommended for vertical mounted motors or in hot conditions.

The above mentioned grease specification is valid if the ambient temperature is above –30 °C or below +55 °C, and the bearing temperature is below 110 °C; otherwise, consult ABB regarding suitable grease.

Grease with the correct properties is available from all major lubricant manufacturers.

Admixtures are recommended, but a written guarantee must be obtained from the lubricant manufacturer, especially concerning EP admixtures, that admixtures do not damage bearings or the properties of lubricants at the operating temperature range.

WARNING

In general, lubricants containing EP admixtures are not recommended. In some cases it can cause harm in the bearing, therefore its use has to be evaluated case by case together with lubricant suppliers.

The following high performance greases can be used:

- **Mobil** **Unirex N2** or **N3** (lithium complex base)
- **Mobil** **Mobilith SHC 100** (lithium complex base)
- **Shell** **Gadus S5 V 100 2** (lithium complex base)
- **Klüber** **Klüberplex BEM 41-132** (special lithium base)
- **FAG** **Arcanol TEMP110** (lithium complex base)
- **Lubcon** **Turmogrease L 802 EP PLUS** (special lithium base)
- **Total** **Multis Complex S2 A** (lithium complex base)

Always use high speed grease for high speed 2-pole motors where the speed factor is higher than 480,000 (calculated as Dm x n where Dm = average bearing diameter, mm; n = rotational speed, r/min).

The following greases can be used for high speed cast iron motors but not mixed with lithium complex greases:

- **Klüber** **Klüber Quiet BQH 72-102** (polyurea base)
- **Lubcon** **Turmogrease PU703** (polyurea base)

If other lubricants are used, check with the manufacturer that the qualities correspond to those of the above mentioned lubricants. The lubrication intervals are based on the listed high performance greases above. Using other greases can reduce the interval.

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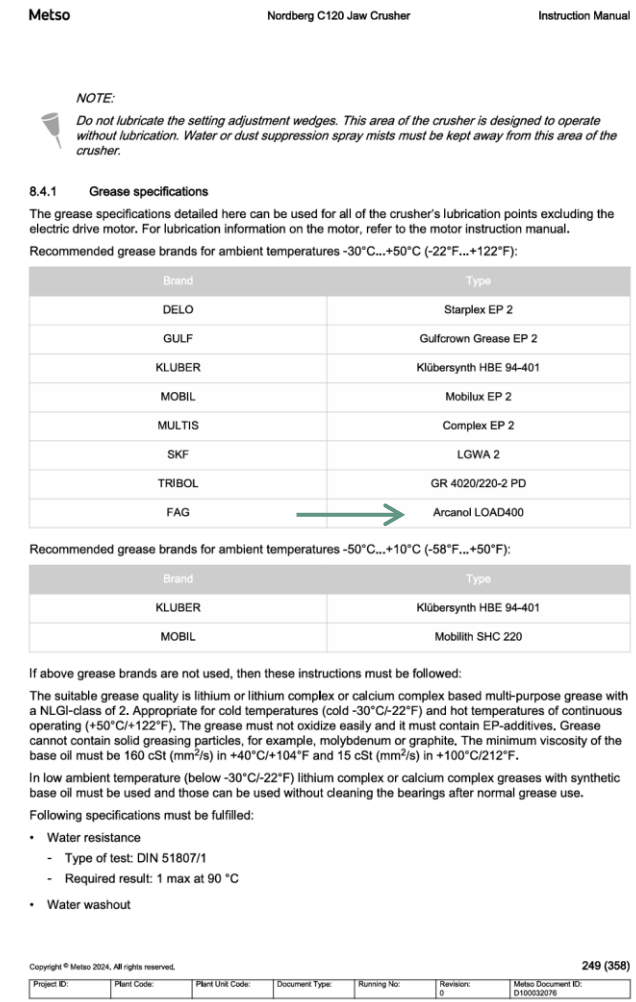
Metso Jaw Crusher and LOAD400

Properties, applications: Bearing grease for universal applications, high dynamic secondary stress, high loads, low starting temperatures, low starting friction over a wide speed range, also for applications with vertical shaft

Characteristics		Value	Unit	Test method
Temperature range:		-40 to 130	°C	DIN 51825 / Schaeffler Spec.
Longtime limit temperature:		80	°C	
Density:		0.93	kg/dm³	
Specifications:				
Thickener:		lithium/calcium		
Type of base oil:		mineral oil		
Base oil viscosity	at 40 °C:	400	mm²/s	DIN 51562 - 1
	at 100 °C:	25	mm²/s	DIN 51562 - 1
Worked penetration:		265-295	0.1 mm	DIN ISO 2137
NLGI grade:		2		DIN 51518
Drop point:		≥ 170	°C	DIN ISO 2176
Water resistance:		≤ 1-90	Range	DIN 51807 - 1
Corrosion Emcor Test:		≤ 0/0	Corr. Grade	DIN 51802
	with 1 % NaCl:	≤ 0/1	Corr. Grade	
Copper corrosion after 24 h/120 °C:		≤ 1	Corr. Grade	DIN 51811
FE8 tests run wear behaviour, Running time 500 hours without failure				
536048 - 75/80-RT		vWk50 ≤ 35	mg	DIN 51819
FE9 tests run (grease service lifetime)				
B/1500/6000-130		F50 ≥ 200	h	DIN 51821-02
		no failure < 100	h	

Speed range:	Unit	Ball bearings and cylindrical roller bearings	Other roller bearings*)
Speed limit n*dm	mm/min	400,000	200,000

*) not cylindrical roller thrust bearings and spherical roller thrust bearings



Metso Nordberg C120 Jaw Crusher Instruction Manual

NOTE:

Do not lubricate the setting adjustment wedges. This area of the crusher is designed to operate without lubrication. Water or dust suppression spray mists must be kept away from this area of the crusher.

8.4.1 Grease specifications

The grease specifications detailed here can be used for all of the crusher's lubrication points excluding the electric drive motor. For lubrication information on the motor, refer to the motor instruction manual.

Recommended grease brands for ambient temperatures -30°C...+50°C (-22°F...+122°F):

Brand	Type
DELO	Starplex EP 2
GULF	Gulfcrown Grease EP 2
KLUBER	Klübersynth HBE 94-401
MOBIL	Mobilux EP 2
MULTIS	Complex EP 2
SKF	LGWA 2
TRIBOL	GR 4020/220-2 PD
FAG	Arcanol LOAD400

Recommended grease brands for ambient temperatures -50°C...+10°C (-58°F...+50°F):

Brand	Type
KLUBER	Klübersynth HBE 94-401
MOBIL	Mobilith SHC 220

If above grease brands are not used, then these instructions must be followed:

The suitable grease quality is lithium or lithium complex or calcium complex based multi-purpose grease with a NLGI-class of 2. Appropriate for cold temperatures (cold -30°C/-22°F) and hot temperatures of continuous operating (+50°C/+122°F). The grease must not oxidize easily and it must contain EP-additives. Grease cannot contain solid greasing particles, for example, molybdenum or graphite. The minimum viscosity of the base oil must be 160 cSt (mm²/s) in +40°C/+104°F and 15 cSt (mm²/s) in +100°C/212°F.

In low ambient temperature (below -30°C/-22°F) lithium complex or calcium complex greases with synthetic base oil must be used and those can be used without cleaning the bearings after normal grease use.

Following specifications must be fulfilled:

- Water resistance
  - Type of test: DIN 51807/1
  - Required result: 1 max at 90 °C
- Water washout

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Project ID:	Plant Code:	Plant Unit Code:	Document Type:	Running No:	Revision:	Metso Document ID:
					0	D100032076

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HOSOKAWA ALPINE Air Classifier and MULTITOP

Properties, applications: Universal application, moderate to high load, low starting temperatures, wide temperature range, very wide speed range, improved relubricatability, in special cases also for spherical roller thrust bearings

Characteristics		Value	Unit	Test method
Temperature range:		-50 to 140	°C	DIN 51825 / Schaeffler Spec.
Longtime limit temperature:		80	°C	
Density:		0.87	kg/dm³	
Specifications:				
Thickener:		lithium soap		
Type of base oil:		ester/min/SHC oil		
Base oil viscosity	at 40 °C:	82	mm²/s	DIN 51562 - 1
	at 100 °C:	12.5	mm²/s	DIN 51562 - 1
Worked penetration:		265-295	0.1 mm	DIN ISO 2137
NLGI grade:		2		DIN 51518
Drop point:		≥ 190	°C	DIN ISO 2176
Water resistance:		1-90	Range	DIN 51807 - 1
Corrosion Emcor Test:		≤ 0/0	Corr. Grade	DIN 51802
	with 0.5 % NaCl:		Corr. Grade	
Copper corrosion after 24 h/140 °C:		≤ 2	Corr. Grade	DIN 51811
FE8 tests run wear behaviour, Running time 500 hours without failure				
536048 - 3000/10-RT		vWk50 ≤ 35	mg	DIN 51819
536048 - 75/50- -50		vWk50 ≤ 35	mg	DIN 51819
536048 - 75/50-RT		vWk50 ≤ 35	mg	DIN 51819
536050MP - 7.5/80-120		vWk50 ≤ 35	mg	DIN 51819
FE9 tests run (grease service lifetime)				
B/1500/6000-140		F50 ≥ 200	h	DIN 51821-02
		no failure < 100	h	
Low temperature torque				
-35 °C	Start / Steady-state	135 / 114	Nmm	IP 186
-30 °C	Start / Steady-state	123 / 75	Nmm	IP 186

Speed range:	Unit	Ball bearings and cylindrical roller bearings	Other roller bearings*)
Speed limit n*dm	mm/min	800,000	350,000

*) not cylindrical roller thrust bearings and spherical roller thrust bearings

HOSOKAWA ALPINE Aktiengesellschaft

Technische Dokumentation Inhaltsverzeichnis

Seite 1

Anlage / Maschine: Alpine Ventoplex-Windsichter C 15 V

Kunde: MüCo Mücher & Enstipp GmbH & Co. KG – Deutschland

Alpine – Auftrags-Nr.: M1 278567

Sie erhalten die Dokumentation 1-fach in deutsch + 1-fach per USB-Stick:

Chap.	Pos.	Maschine/Gerät	Dokumente	Hersteller
0		**Alpine Zeichnungen Dokumente**	537208 PID, MB CE Teilanlage Übersichtsliste CE's	Hosokawa Alpine
1	1000	**Aufbau C 15 V komplett:**		
1.1		**Ventoplex-Windsichter C 15 V** (Alpine Teilenr. 434500) - Schmalkeilriemen	Betriebsanleitung BA 1V13/1 DE Ersatzteilzeichnung EZ 1V13-01.06 Ersatzteilliste EL 1V13-01 Technische Anleitung TA 001/1 D Funktionsbeschr. Maschinenverriegelung Einbauerklärung	Hosokawa Alpine
1.2		**Niederspannungsmotore SIMOTICS 1LE1503** DS.V1-100 L, 3 kW, 1500 U/min DS.V1-160 M, 11 kW, 1500 U/min (Alpine Teilenr. 465829 + 449241)	Technische Datenblätter Betriebsanleitungen Konformitätserklärung	Siemens
1.3		**Induktiver Näherungsschalter** Typ NJ2-11-N-G-V1Y194329 (Alpine Teilenr. 408798)	Technisches Datenblatt Betriebsanleitung Konformitätserklärung	Pepperl + Fuchs
1.4		**Lastbock VLBG** (Alpine Teilenr. 395414)	Betriebsanleitung + Konformitätserklärung	RUD
1.5		**Sicherheitsschalter + Kabel** Typ PSEN 1.1p-23 / PSEN1.1-20/8 (Alpine Teilenr. 393285)	Betriebsanleitung Konformitätserklärung	Pilz
1.6		**Schmierstoff ARCANOL MULTITOP** (Alpine Teilenr. 326444)	Sicherheitsdatenblatt	FAG
2	1500	**Zellenradschleuse SRVS-200** (Alpine Teilenr. 528483)	Dokumentation Konformitätserklärung	Solids

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Hermle swivel round table – LOAD150 + MULTITOP

Properties, applications: Bearing grease for moderate to high loads, high temperatures, especially for line contact

Characteristics		Value	Unit	Test method
Temperature range:		-20 to 140	°C	DIN 51825 / Schaeffler Spec.
Longtime limit temperature:		95	°C	
Density:		0.9	kg/dm³	
Specifications:				
Thickener:		lithium complex		
Type of base oil:		mineral oil		
Base oil viscosity	at 40 °C:	160	mm²/s	DIN 51562 - 1
	at 100 °C:	15.5	mm²/s	DIN 51562 - 1
Worked penetration:		265-295	0.1 mm	DIN ISO 2137
NLGI grade:		2		DIN 51518
Drop point:		≥ 250	°C	DIN ISO 2176
Water resistance:		1-90	Range	DIN 51807 - 1
Corrosion Emcor Test:		≤ 0/0	Corr. Grade	DIN 51802
	with 0.5 % NaCl:		Corr. Grade	
Copper corrosion after 24 h/100 °C:		≤ 1	Corr. Grade	DIN 51811
FE8 tests run wear behaviour, Running time 500 hours without failure				
536048 - 750/30-RT		vWk50 ≤ 20	mg	DIN 51819
536048 - 75/80-RT		vWk50 ≤ 50	mg	DIN 51819
FE9 tests run (grease service lifetime)				
A/1500/6000-140		F50 ≥ 100	h	DIN 51821-02

Speed range:	Unit	Ball bearings and cylindrical roller bearings	Other roller bearings*)
Speed limit n*dm	mm/min	500,000	200,000

*) not cylindrical roller thrust bearings and spherical roller thrust bearings

Übersicht der Betriebsstoffe — Serviceheft C 42

Bereich	Stelle	Menge	Betriebsstoff / Anforderungen
Schwenkrundtisch	Getriebe A-Achse	max. 0,6 l / Seite	Fuchs Renolin PG 220
	Lagerung C-Achse (Ø 440 Torqueantrieb)	12 g	FAG Arcanol Load 150
	Lagerung C-Achse (Ø 800 Torqueantrieb)	20 g	FAG Arcanol Load 150
	Lagerung C-Achse (MT-Maschinen)	250 cm³ / Kartusche	FAG Arcanol Multitop
Automatisches Kabinendach	Führung	-	Castrol Tribol GR 100-2 PD
	Teleskop-Abdeckung (MT-Maschinen)	-	DIN 51524 T2 - HLPD oder HLP 46 Divinol DHG ISO 46
Minimalmengenschmierung	Schmieraggregat	1,5 l	UNILUBE 2032 oder UNILUBE 9107
Zusatzmagazin	Vierpunktlager	16,5 g	Castrol Tribol GR 100-2 PD
	Führungen (ZM 50, ZM 88 k)	ZM 50: 5,5 g ZM 88 k: 16,5 g [1]	Castrol Tribol GR 100-2 PD
	Zentralschmieraggregat (ZM 186... ZM 528)	3 l	DIN 51826 GP 000 N-30 NLGI Klasse: 000 Verdicker: Lithium oder Lithiumkomplexseife EP Additive: Unbedingt erforderlich Grundöl: Mineralöl oder SHC Grundölviskosität: 100 bis 150 mm²/s bei + 40 °C (+ 104 °F)

[1] Schmiernippel [1] 5,5 g / Schmiernippel [2] 11 g.

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Lubricators

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Lubricators – Overview

Detailed information in TPI 252

● available / ○ Not available

*External power supply & I/O-signals (PLC)

	OPTIME C1	OPTIME C1 PRO	OPTIME C4	CONCEPT1	CONCEPT2	CONCEPT4	CONCEPT8
	Smart lubricators			Automatic lubrication systems			
Max. number of lubricant outlets	1	1	4	1	2	4	8
Lubricant volume	60/125 (/250) cm³	60/120/240 cm³	400/750 cm³	60/125 cm³	250 cm³	400 cm³	800 cm³
Display for information and settings	○	○	○	○	●	○	●
Drive principle	Hybrid	Electromechanical	Electromechanical	Electrochemical	Electromechanical	Electromechanical	Electromechanical
Ex-Proof	○	● (exp. Dec. 2026)	○	●	○	○	○
Use without a PLC possible	●	●	●	●	●	○	●
Multifunctional interface*	○	○	○	○	○ / ●	●	●
Line length > 0,5 m	●	●	●	○	●	●	●
Cartridges with 3rd party lubricants	●	●	○	●	○	○	○
Cartridges for self-filling	●	○	●	●	●	●	●
Customer-specific solution possible	○	○	○	○	○	●	○
Inclusion in OPTIME Mesh Network	●	●	●	○	○	○	○
Display on the OPTIME Web UI	●	●	●	○	○	○	○
Status/Config. via OPTIME (/ SA) app	● (/ ○)	● (/ ●)	● (/ ●)	○ (/ ○)	○ (/ ○)	○ (/ ○)	○ (/ ○)
Battery / 24 V / Mesh-Network	● / ○ / ●	● / ○ / ●	○ / ● / ●	● / ○ / ○	● / ● / ○	○ / ● / ○	○ / ● / ○

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Ali Hancer

Global Sales Consultant

Product Sales Smart Lubrication

Industrial Lifetime Solutions

Mobile: +49 160 91695721

Mail: ali.hancer@schaeffler.com

www.schaeffler.com

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