

JBT FoodTech

LUBRICATION MANUAL

Frigoscandia | Stein | DSI | Northfield



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Machine Lubrication Points

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Note: Info not available for all lubricants
MSDS sheets available per request

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Introduction

Definitions

Specialty Lubricants: Lubricants that do not fit into a specific category such as silicon fluid for low-tension freezers.

Greases: Semisolid lubricants containing a soap thickener emulsified with an oil. These have a high initial viscosity which drops to the viscosity of the oil when shear is applied. This is useful for mechanisms that can only be lubricated infrequently and where a lubricating oil would not stay in place such as a bearing.

Conveyor Lubricants: Lubricating oils designed specifically for belt drive systems in both very high and very low temperature equipment.

Gear Lubricants: Lubricating oils designed specifically for gearboxes in both very high and very low temperature equipment.

Compressor Oils: Lubricating oils designed specifically for refrigeration compressors and vacuum pumps in low temperature equipment.

Hydraulic Oils: Oils used to lubricate and transfer energy within a hydraulic system. These also provide anti-wear and rust inhibition as well as ensuring deposit free operation.

General Purpose Lubricants: Lubricating sprays that can be used on many different types of equipment throughout a plant.

Lubrication Table Example

Position number on machine Number of lubrication locations on machine Frequency of lubrication

Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Bi-Yearly
1	Bearings	8	Formula 312	X			
2	Casters	4			X		
3	Gearboxes	6	Formula 5460 FG			X	
4	Motors	6	Formula 360				X

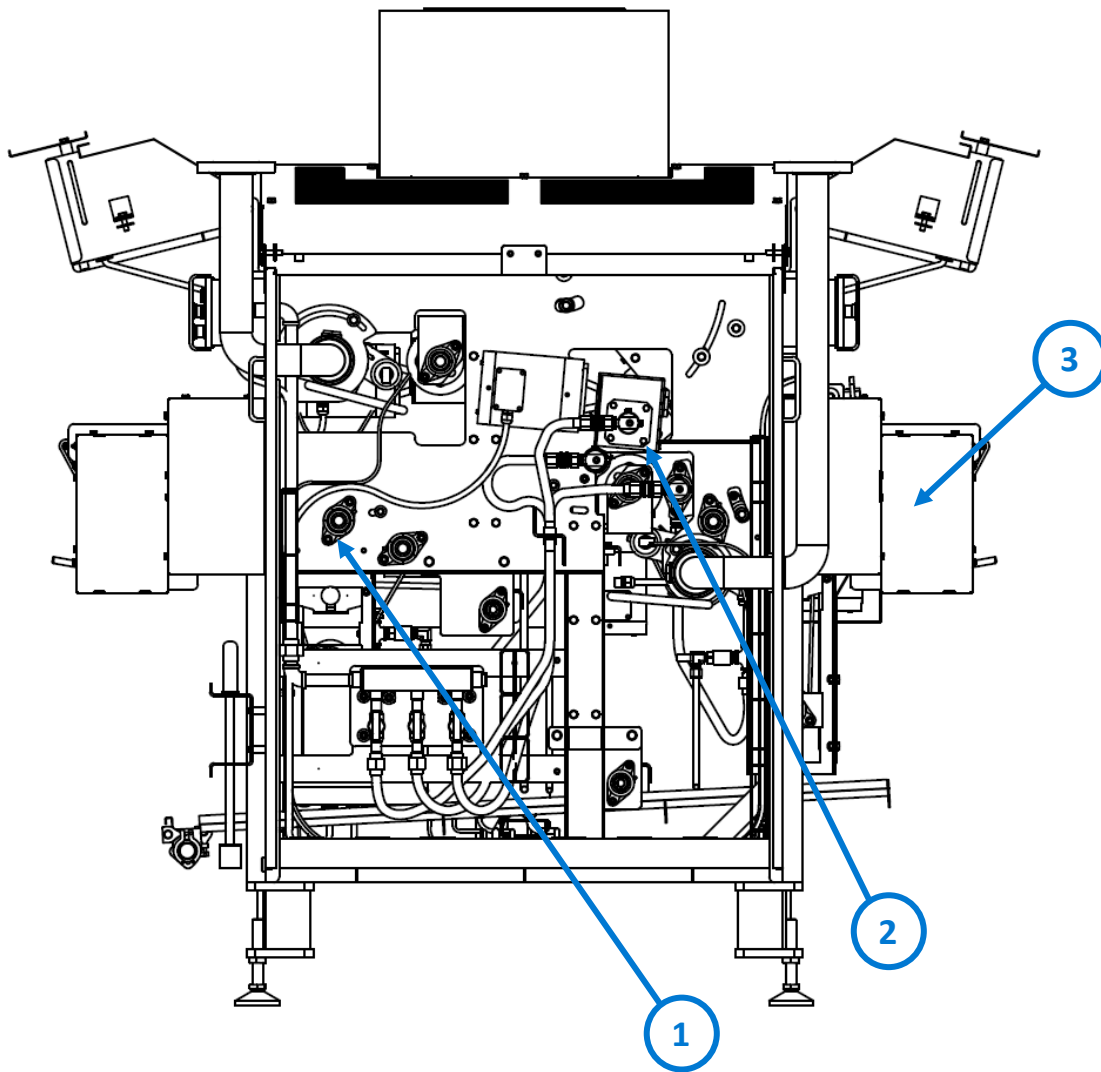
Description of location on machine Formula name of lubricant

For more information on these lubricants including how to order, go to www.jbtfoodtech.com, call 1-800-408-7788, or email us at customer@jbt.com



Marking and Searing

Machine Shown: CMII



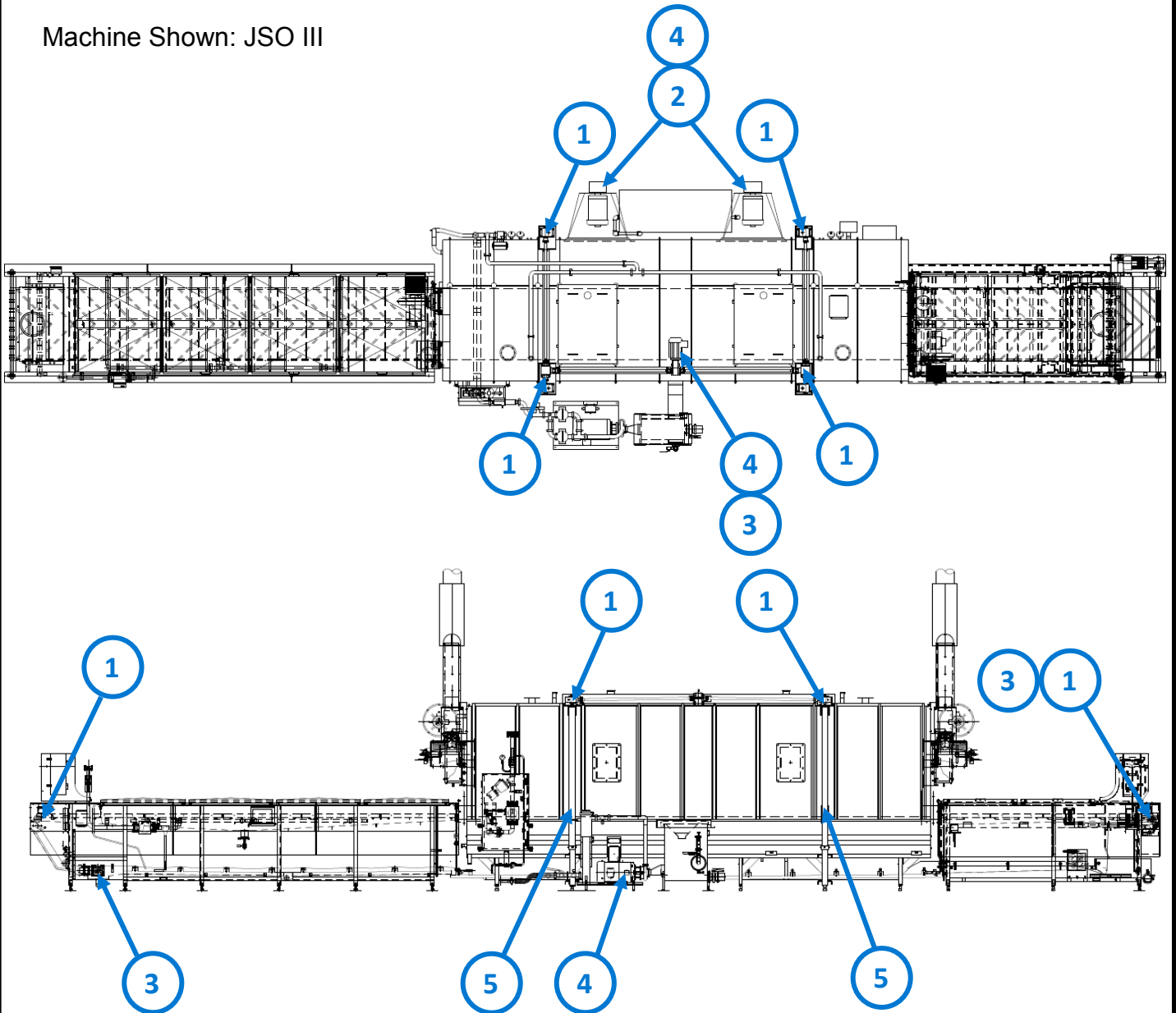
Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Yearly
1	Bearings	40	Formula 377	Lubricate			
2	Gearboxes	2	Formula 5460 FG			Inspect/Fill	Drain/Refill
3	Chain Lube	2	Formula 8414			Lubricate	

Quantities may vary per machine or configuration



Linear Ovens

Machine Shown: JSO III



Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Bi-Yearly
1	Shaft Bearings	24	Formula 377	X			
2	Fan Bearings*	10			X		
3	Gearboxes	4	Formula 5220 FG			X	
4	Motors	4	Formula 360				X
5	Lift Post	4	Formula 388		X		

*Vent fans not shown

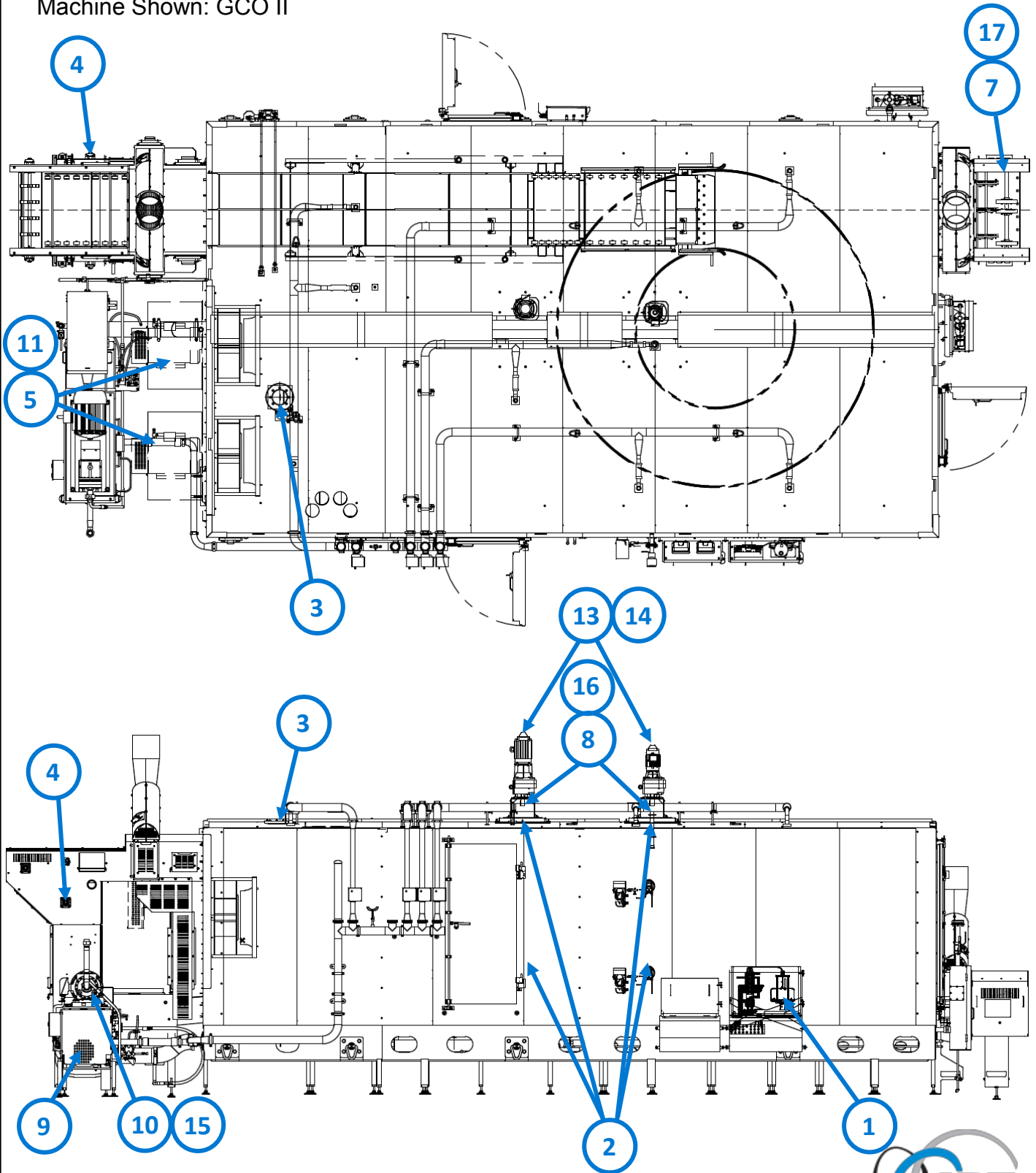
Quantities may vary per machine or configuration

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Spiral Ovens

Machine Shown: GCO II



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Spiral Ovens

Lubrication Bill of Materials: GCO II

Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Yearly
1	Auto Lube System	1	Formula 499	X			
2	U-Joints On Drives	4	Formula 377	X			
3	Fresh Air Damper Links	2	Formula 312			X	
4	Discharge Idler Shaft Bearings	2	Formula 377		X		
5	Circ. Fan Bearings (2 Per Fan)	2			X		
6	Vent Fan Bearings* (2 Per Fan)	2			X		
7	Infeed Bearings	2			X		
8	Upper Drive Bearings	2			X		
9	CIP Pump Motor Bearings	1	Formula 360			X	
10	Belt Wash Pump Motor Bearings	1				X	
11	Circ. Fan Motor Bearings	2				X	
12	Vent Fan Motor Bearings*	2				X	
13	Drive Motors	2				X	
14	Drive Gearbox	2	Formula 5220 FG				X
15	Belt Wash Pump Oil	1	Nonlabeled 1		X	X**	X
16	Chain Coupling On Top	1	Formula 8414		X		
17	Belt Mold Release	1	Formula 201	X			
18	Glide Strip Break In***	1	Formula 8008				X
19	Floor Cooling****	1	JBT PProTHERM			X	

*Vent fans not shown

**Change after 500 hours, then annually; check level weekly

***Use for break-in during rebuilds (not shown)

****Floor cooling if used (not shown)

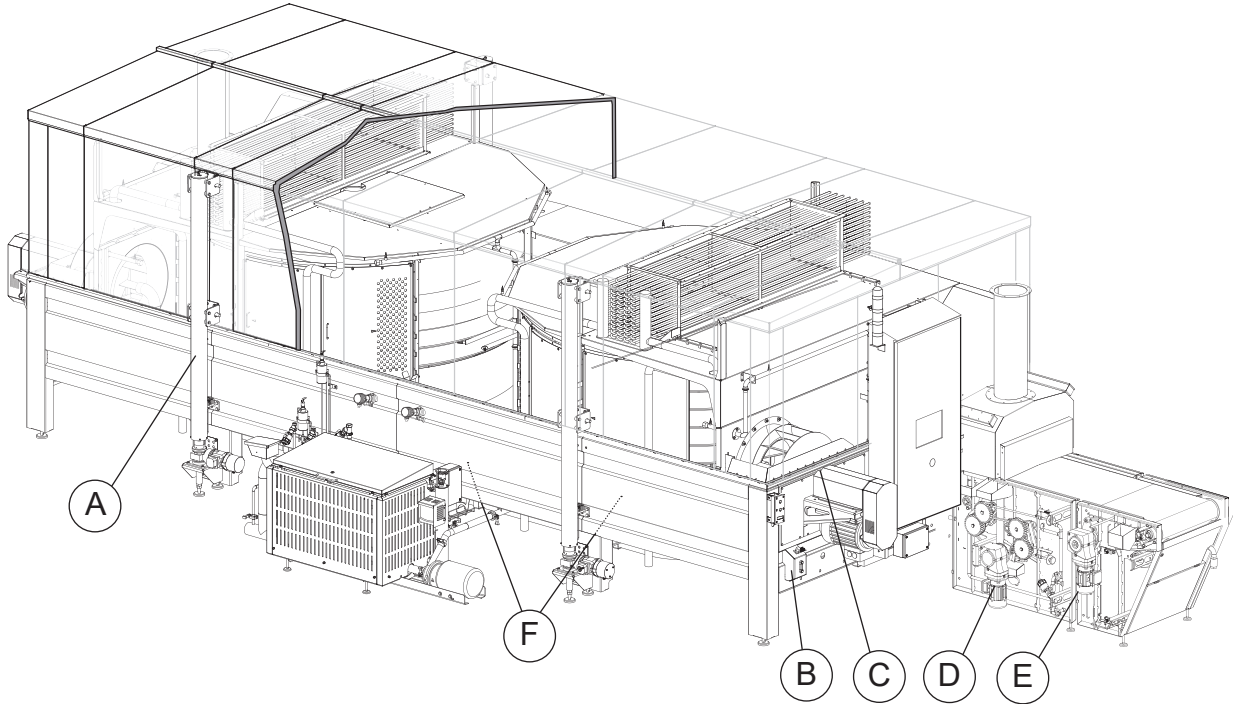
Quantities may vary per machine or configuration



Spiral Ovens

Machine Shown: TDO 600

LUBRICATION



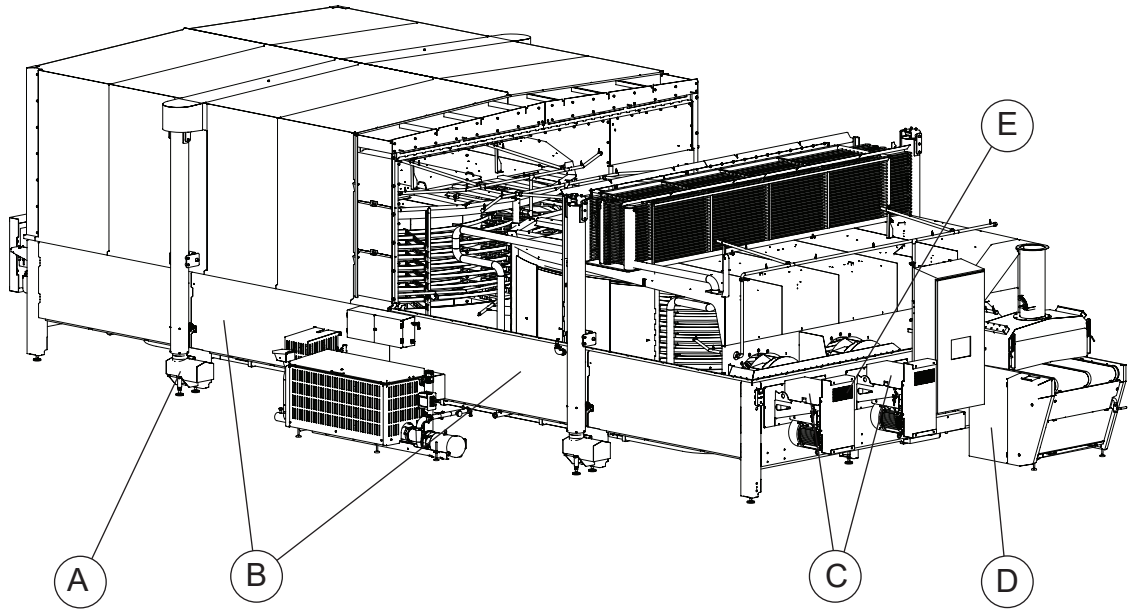
Position	Lubricating location	Lubricant		Remarks	Monthly	Yearly
		Type	Qty.			
A	Hood Lift System	Grease L-116		Lubricate	X	
B	Drum Gears					
	Gear Box	Oil L-123		Check level	X	
	Gear Box	Oil L-123	1.0	Change oil		X
C	Fan Bearings					
	Bearing	Grease L-122		Check level	X	
D	Continuous Belt Wash Motor					
	Gearbox	Oil L-110		Check level	X	
	Gearbox	Oil L-110	1.0	Change oil		X
E	Infeed Drive Motor					
	Gearbox	Oil L-110		Check level	X	
	Gearbox	Oil L-110	1.0	Change oil		X
F	Lower Drum Bearings					
	Drum bearing	Grease L-125	100 ml/ bearing	Lubricate		X

Note: Electric motors should be re-greased when overhauled. Normally electric motors are delivered without grease nipples. Overhaul and re-grease motors during bearing change or when a motor is dismantled for other reasons.

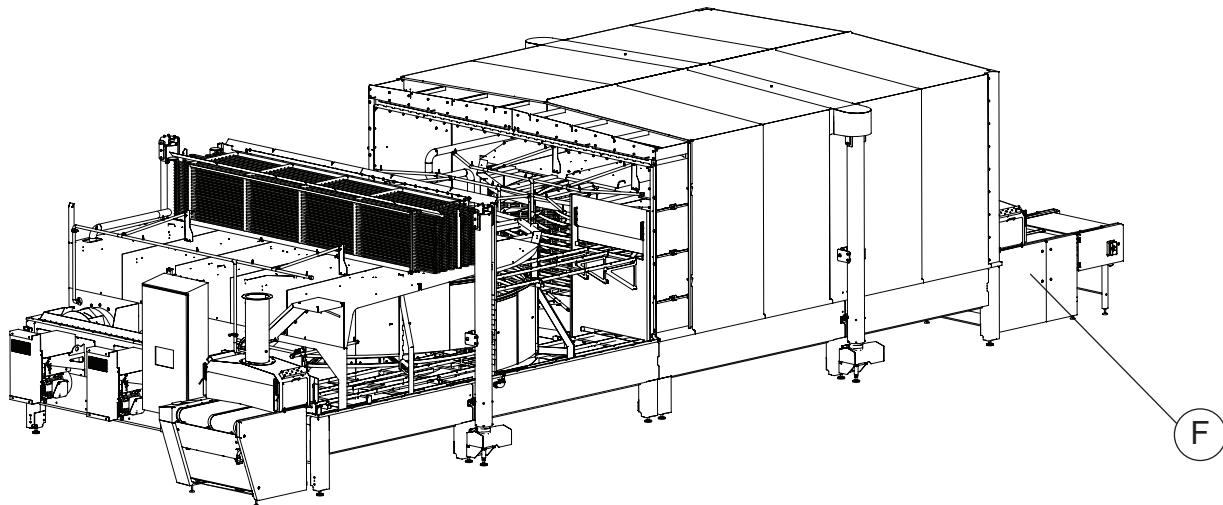


Spiral Ovens

Machine Shown: TDO 1000



Outfeed view



Infeed view

Spiral Ovens

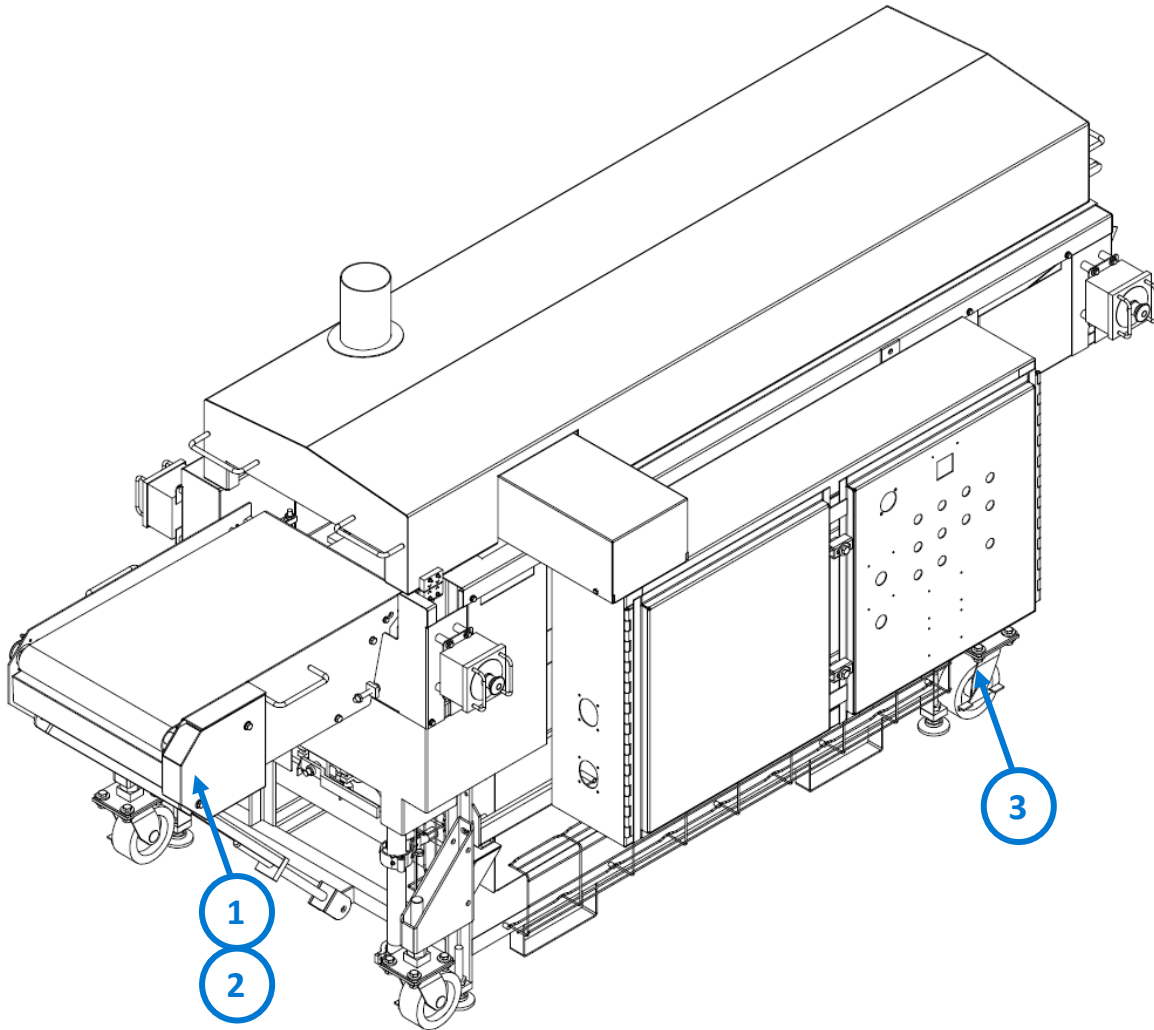
Lubrication Bill of Materials: TDO 1000

Position	Lubricating Location	Lubricant		Remarks	Monthly	Yearly
		Type*	Qty.			
A	Hood Lift System	Grease L-116		Lubricate	X	
B	Lower Drum Bearings					
	Drum bearing	Grease L-125	100 ml/ bearing	Lubricate	X	
C	Fan Bearings					
	Bearing	Grease L-116		Lubricate	X	
D	Infeed Drive Motor					
	Gear box	Oil L-110		Check level	X	
	Gear box	Oil L-110	1.0	Change oil		X
E	Drum Gears					
	Gear box	Oil L-123		Check level	X	
	Gear box	Oil L-123	1.0	Change oil		X
F	Continuous Belt Wash Motor (optional equipment)					
	Gear box	Oil L-110		Check level	X	
	Gear box	Oil L-110	1.0	Change oil		X

Note: Electric motors should be re-greased when overhauled. Normally electric motors are delivered without grease nipples. Overhaul and re-grease motors during bearing change or when a motor is dismantled for other reasons.

Fryers

Machine Shown: FA-5



Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Yearly
1	Conveyor Gearmotors	2	Formula 577			Inspect/Fill	Drain/Refill
2	Bearings*	8	Formula 377	Lubricate	Lubricate		
3	Casters	4	Formula 312			Lubricate	

*Fill submerged bearings with grease weekly

*Fill non-submerged bearings with grease daily (includes vent fan bearings)

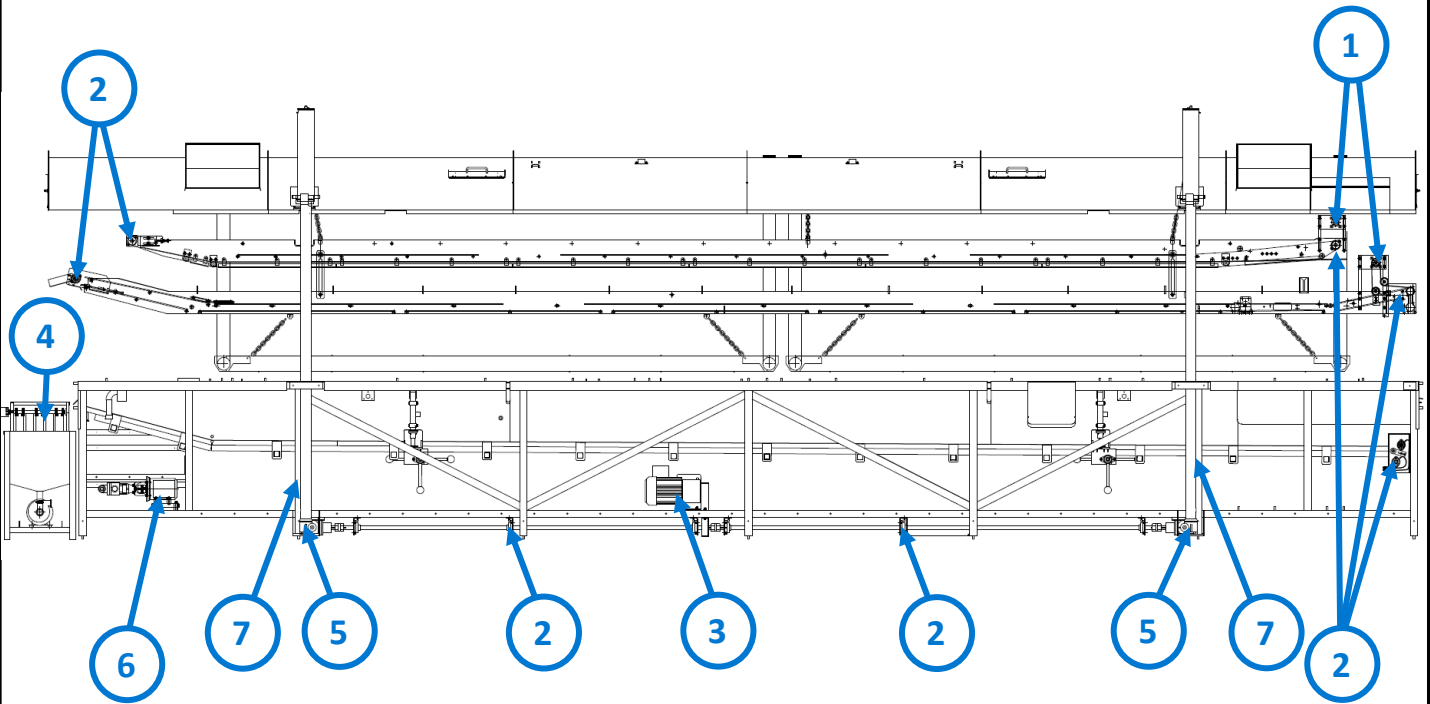
Quantities may vary per machine or configuration

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Fryers

Machine Shown: TFF IV



Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Yearly
1	Conveyor Gearboxes	2	Formula 577				X
2	Bearings	10	Formula 377		X		
3	Lift System Gearbox	1	Formula 5460 FG			X	
4	Sediment Removal Conveyor Belt	1	Formula 2350 H1		X		
5	Jack Screw/Gearbox	4	Formula 312			X	
6	PD Pump	1	Formula 57PAG FG			X	
7	Lift Post	4	Formula 388		X		

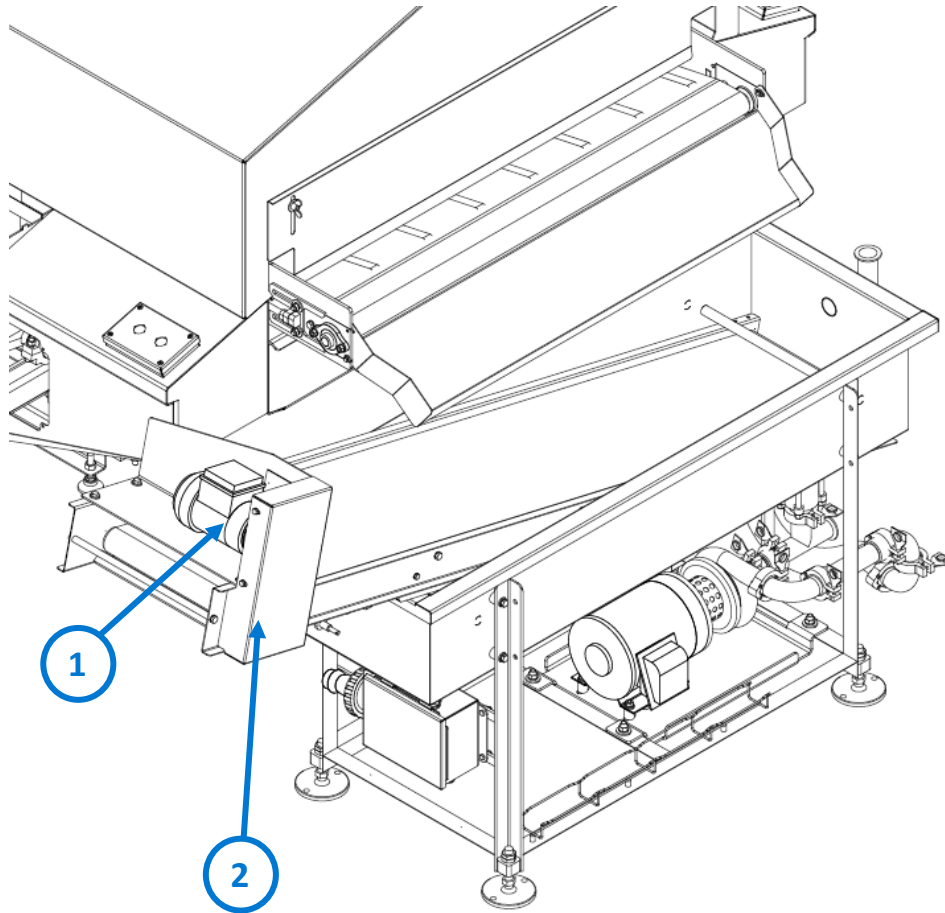
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Fryers

Machine Shown: FSR



Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Yearly
1	Gearmotor	1	Formula 57PAG FG			Inspect/Fill	Drain/Refill
2	Bearings	4	Formula 377	Lubricate			

No lubrication required for centrifugal pumps

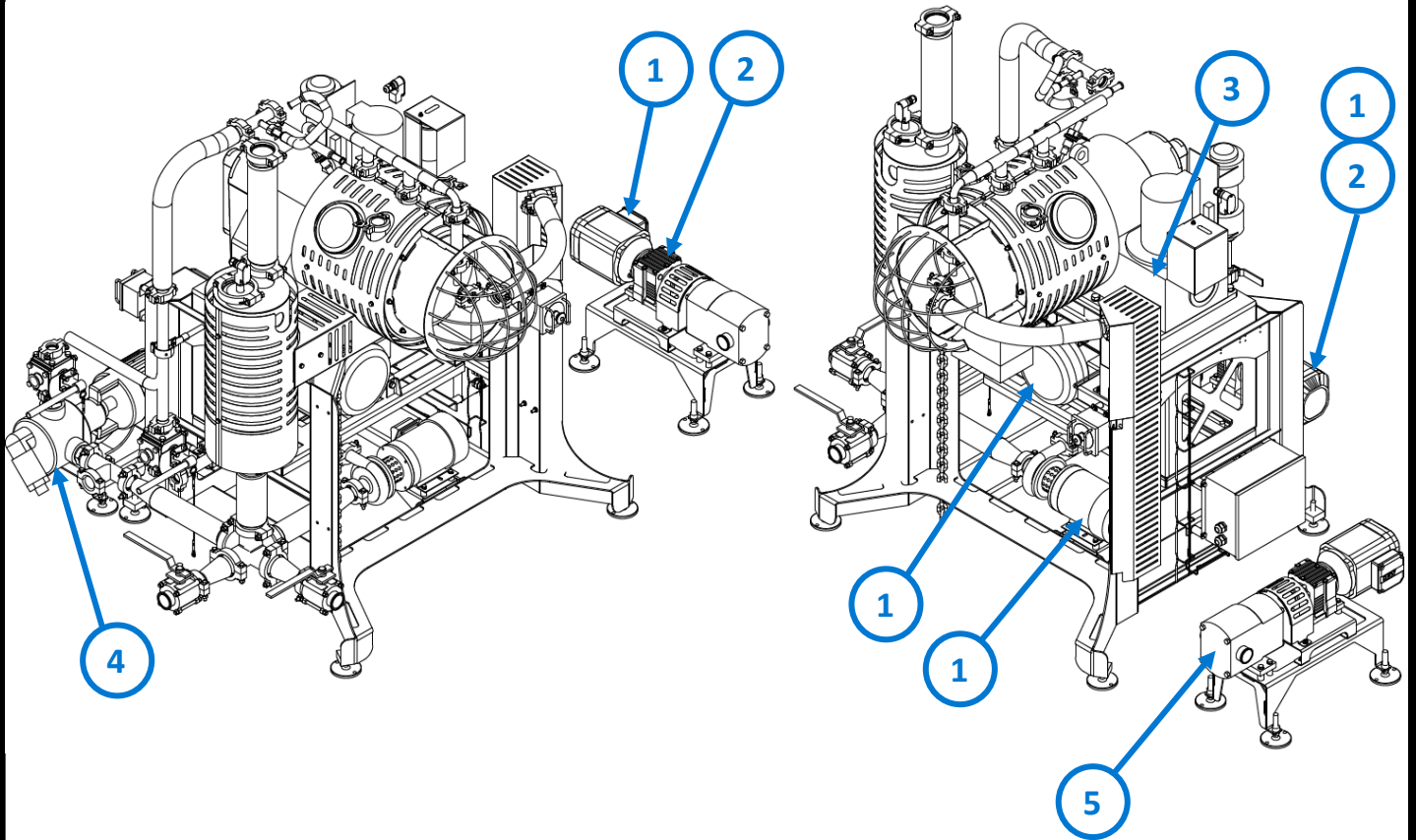
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Filters

Machine Shown: MX-II



Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Yearly
1	Electric Motors	4	Formula 360				X
2	Gearboxes	2	Formula 5460 FG			X	
3	Cyclo Gear Oil	1	Formula 777			X	
4	Discharge PD Pump	1	Formula 57PAG FG			X	
5	Infeed PD Pump	1	Nonlabeled 2		X		

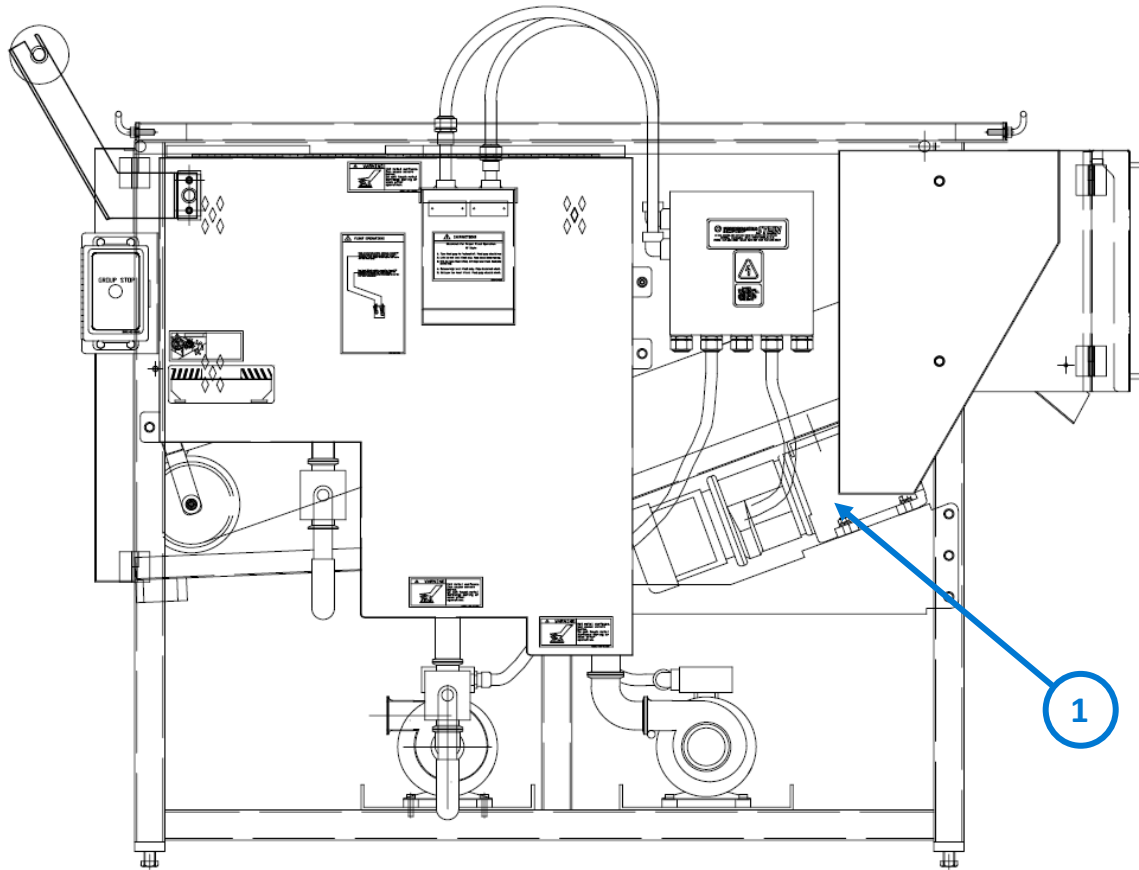
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Filters

Machine Shown: SF-11



Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Yearly
1	Gearmotor	1	Formula 5460 FG			Inspect/Fill	Drain/Refill
2	PD Pump*	1	Formula 312			Lubricate	

*Not shown (PD pumps uncommon for SF filters)

No lubrication required for centrifugal pumps

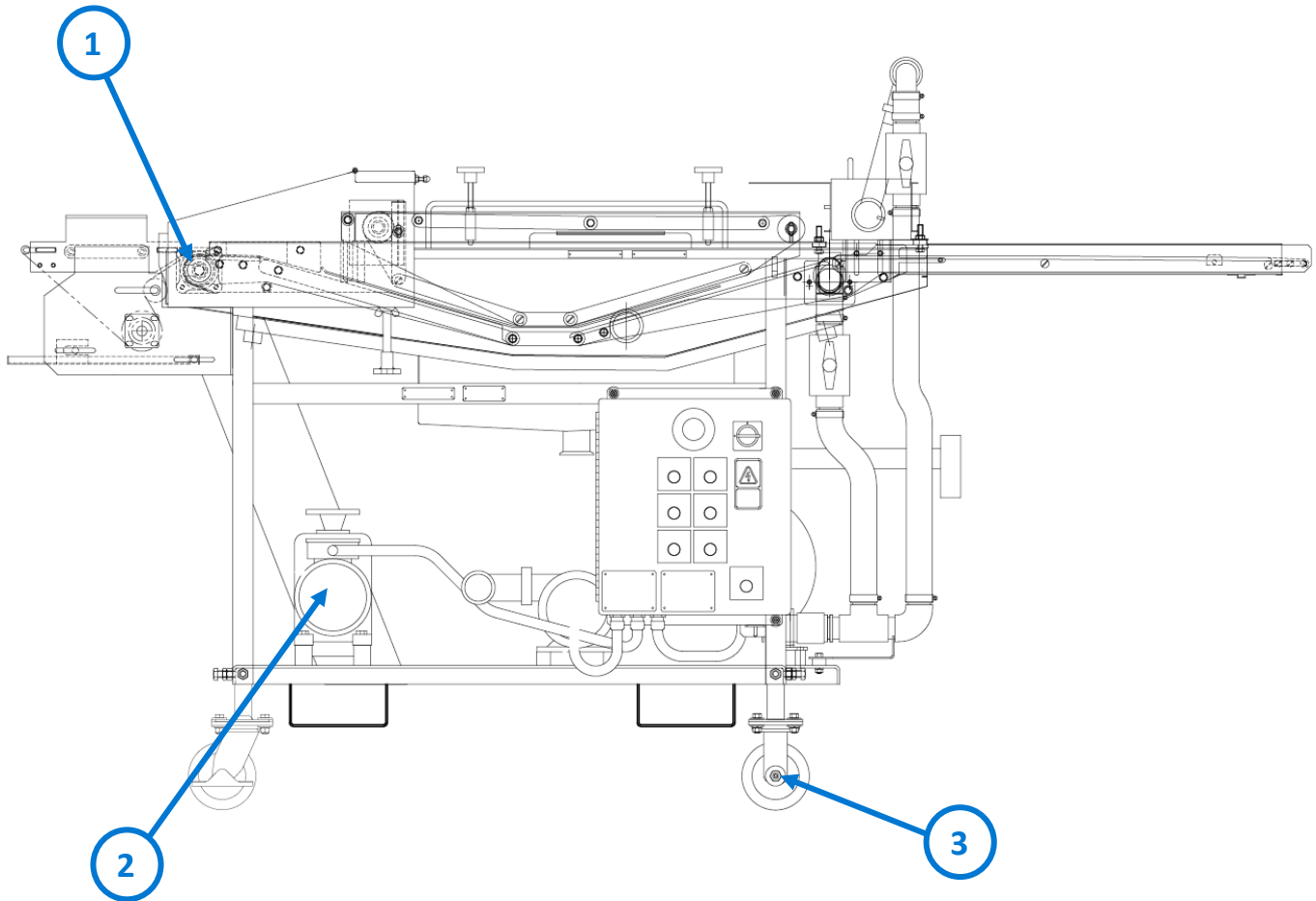
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Batter Applicators

Machine Shown: APB



Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Yearly
1	Bearings	4	Formula 312	Lubricate			
2	Gearboxes	1	411-20-0100			Inspect/Fill	Drain/Refill
3	Casters	4	Formula 312			Lubricate	

No lubrication required for centrifugal pumps

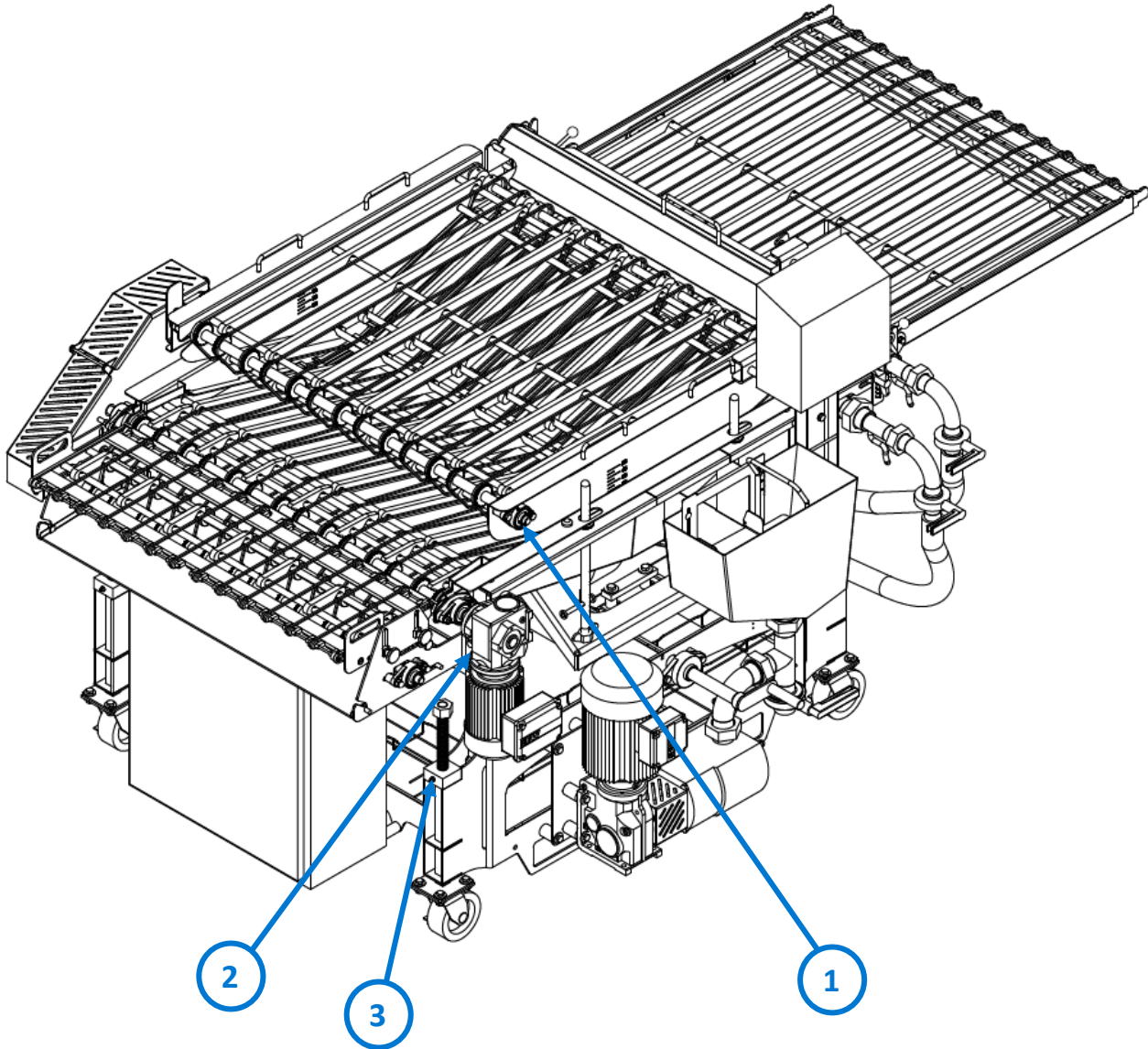
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Batter Applicators

Machine Shown: SUV-BA



Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Yearly
1	Bearings	7	Formula 312	Lubricate			
2	Gearboxes	2	411-20-0100			Inspect/Fill	Drain/Refill
3	Casters	4	Formula 312			Lubricate	

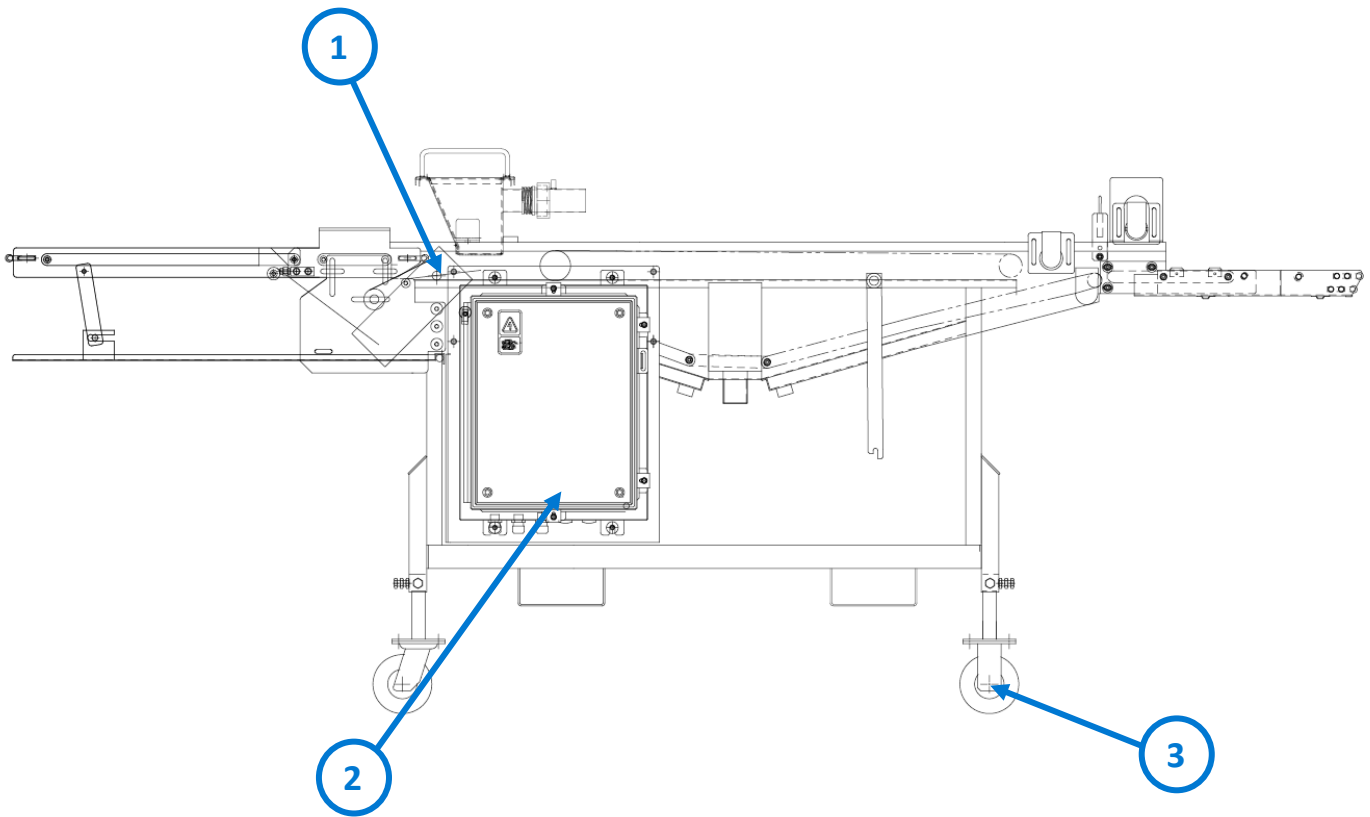
Quantities may vary per machine or configuration

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Batter Applicators

Machine Shown: T-1



Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Yearly
1	Bearings	2	Formula 312	Lubricate			
2	Gearbox	1	411-20-0100			Inspect/Fill	Drain/Refill
3	Casters	4	Formula 312			Lubricate	

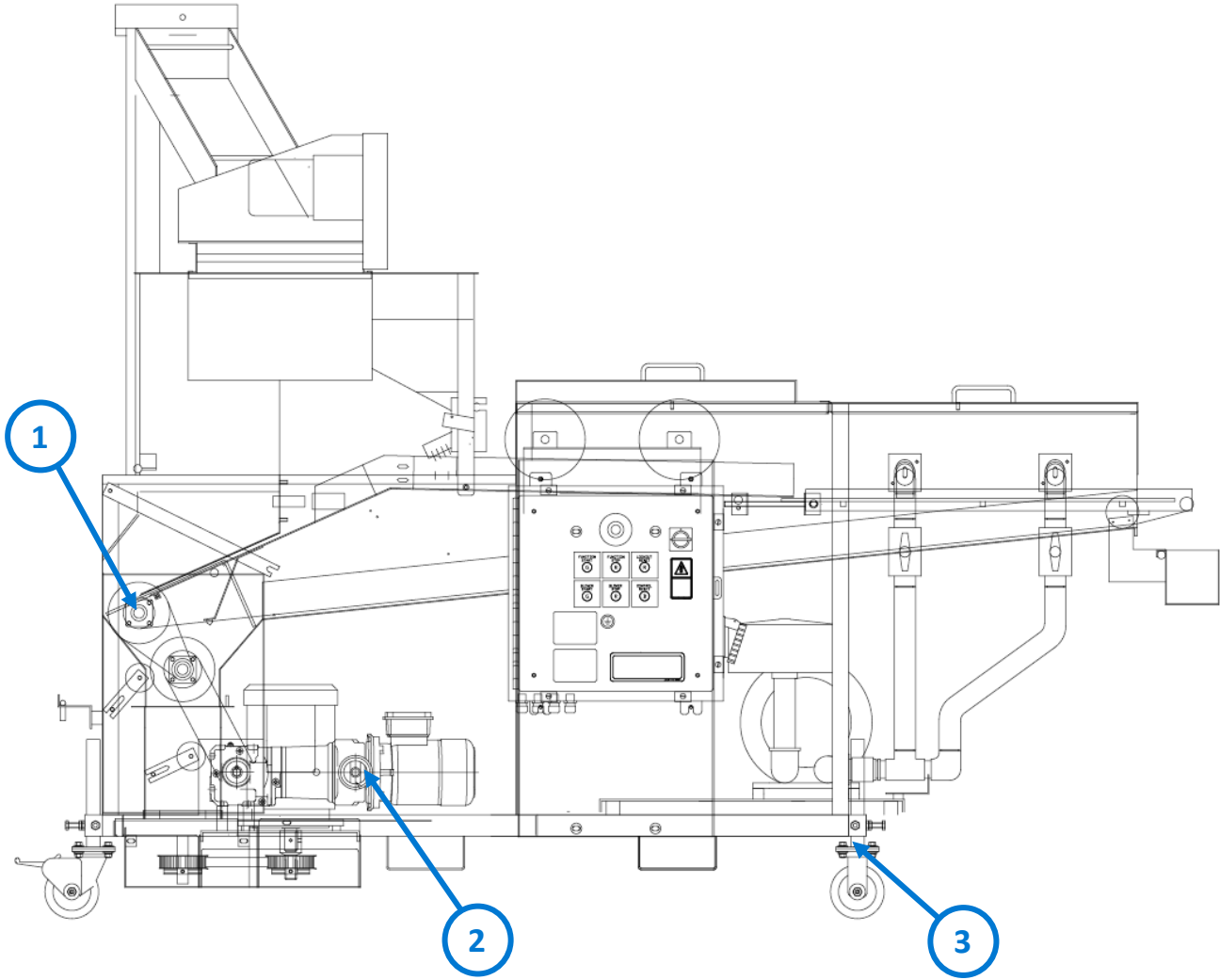
Quantities may vary per machine or configuration

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Breeding Machines

Machine Shown: E-Breader



Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Yearly
1	Bearings	6	Formula 312	Lubricate			
2	Gearboxes	2	411-20-0100			Inspect/Fill	Drain/Refill
3	Casters	4	Formula 312			Lubricate	

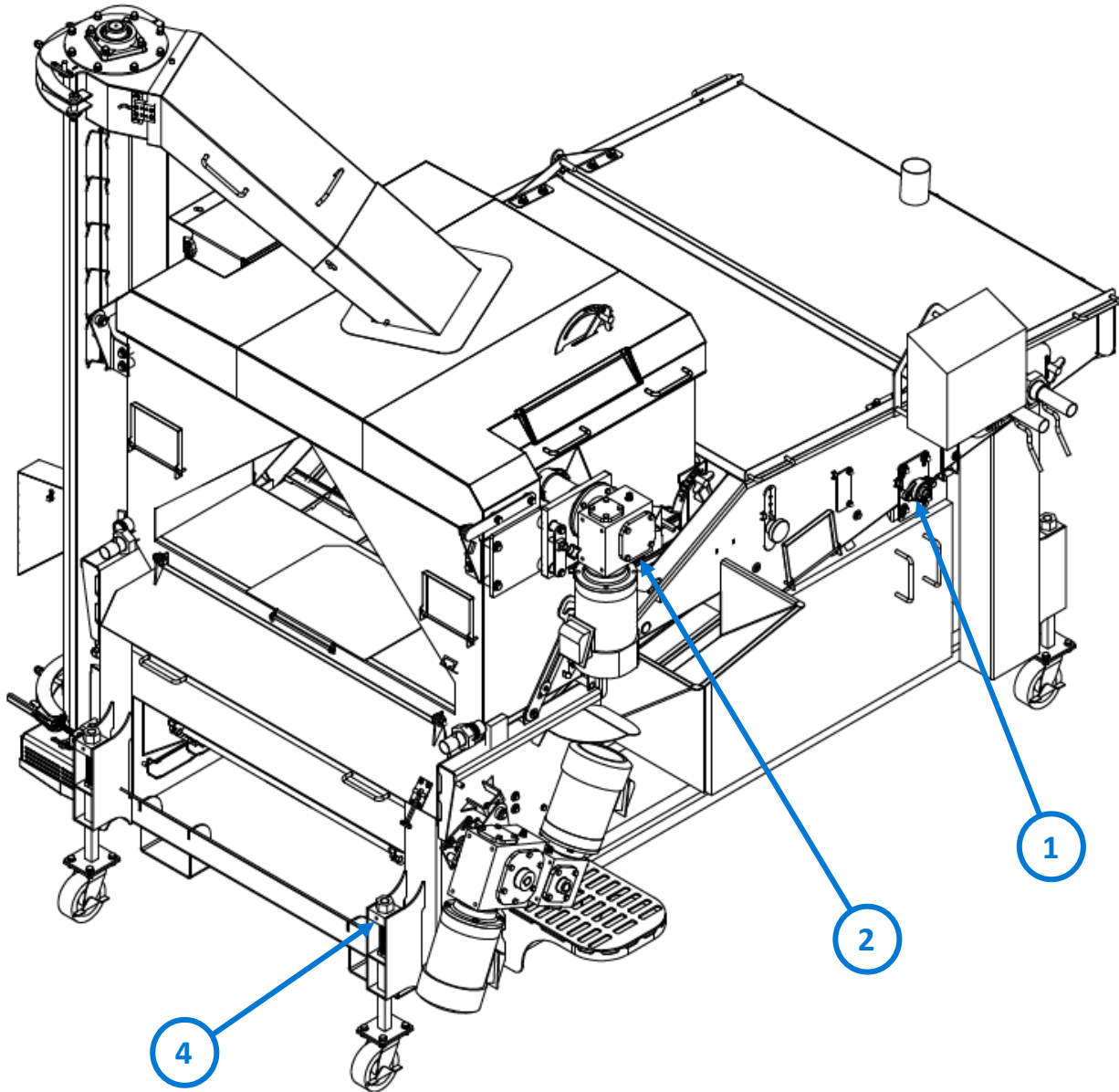
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Breeding Machines

Machine Shown: SUV-BR



Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Yearly
1	Bearings	10	Formula 312		X		
2	Gearboxes	4	411-20-0100			X	
3	Casters	4	Formula 312			X	

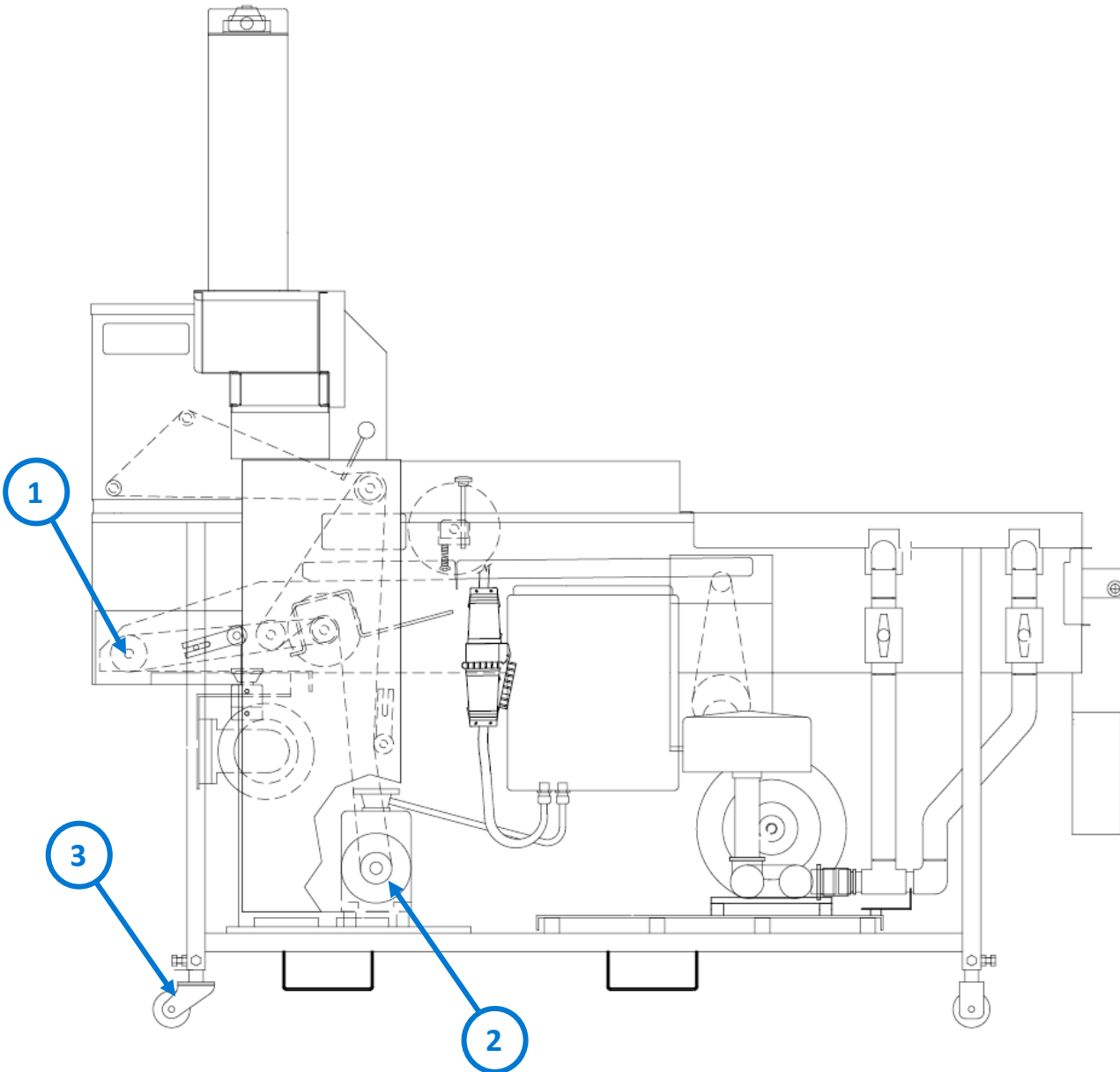
Quantities may vary per machine or configuration

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Breeding Machines

Machine Shown: 100-Reader



Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Yearly
1	Bearings	8	Form ula 312	Lubricate			
2	Gearboxes	5	411-20-0100			Inspect/Fill	Drain/Refill
3	Casters	4	Form ula 312			Lubricate	

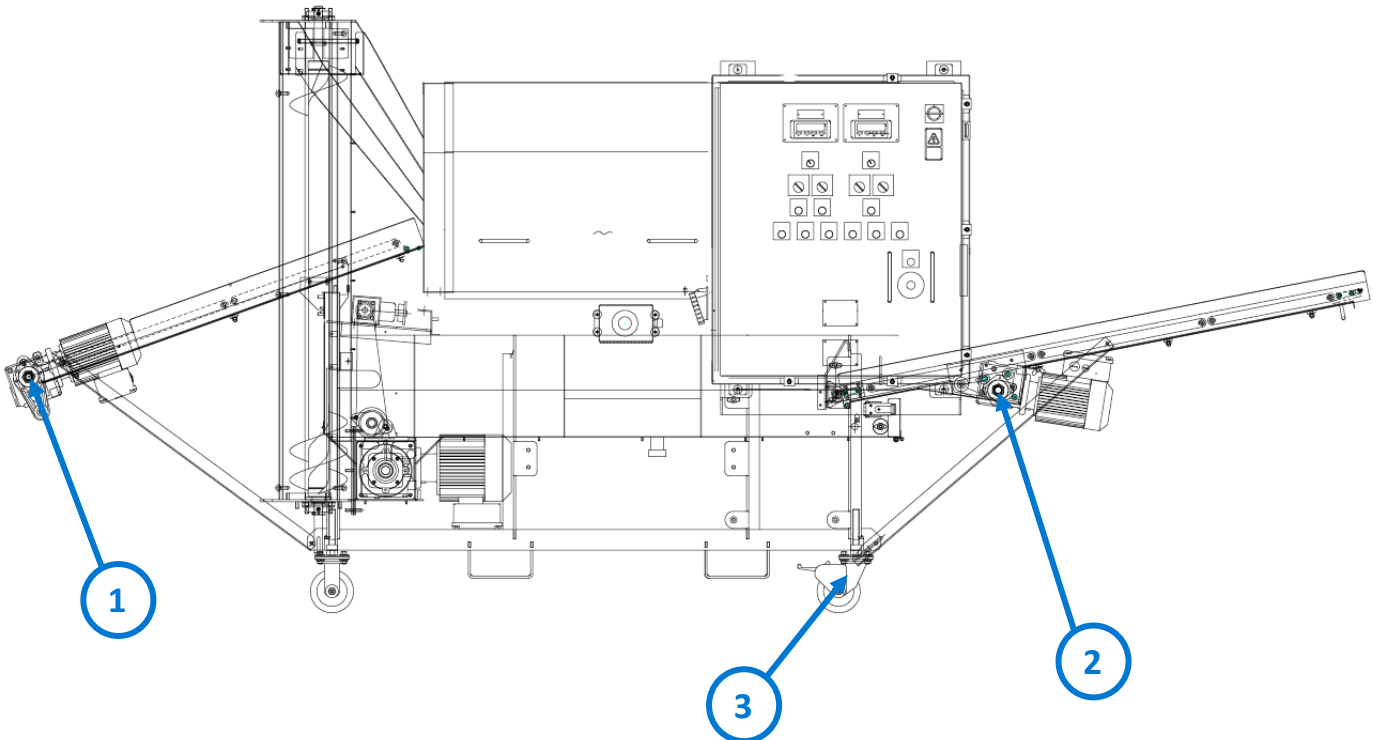
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Breeding Machines

Machine Shown: DB-4



Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Yearly
1	Bearings	14	Formula 312	Lubricate			
2	Gearboxes	6	411-20-0100			Inspect/Fill	Drain/Refill
3	Casters	4	Formula 312			Lubricate	

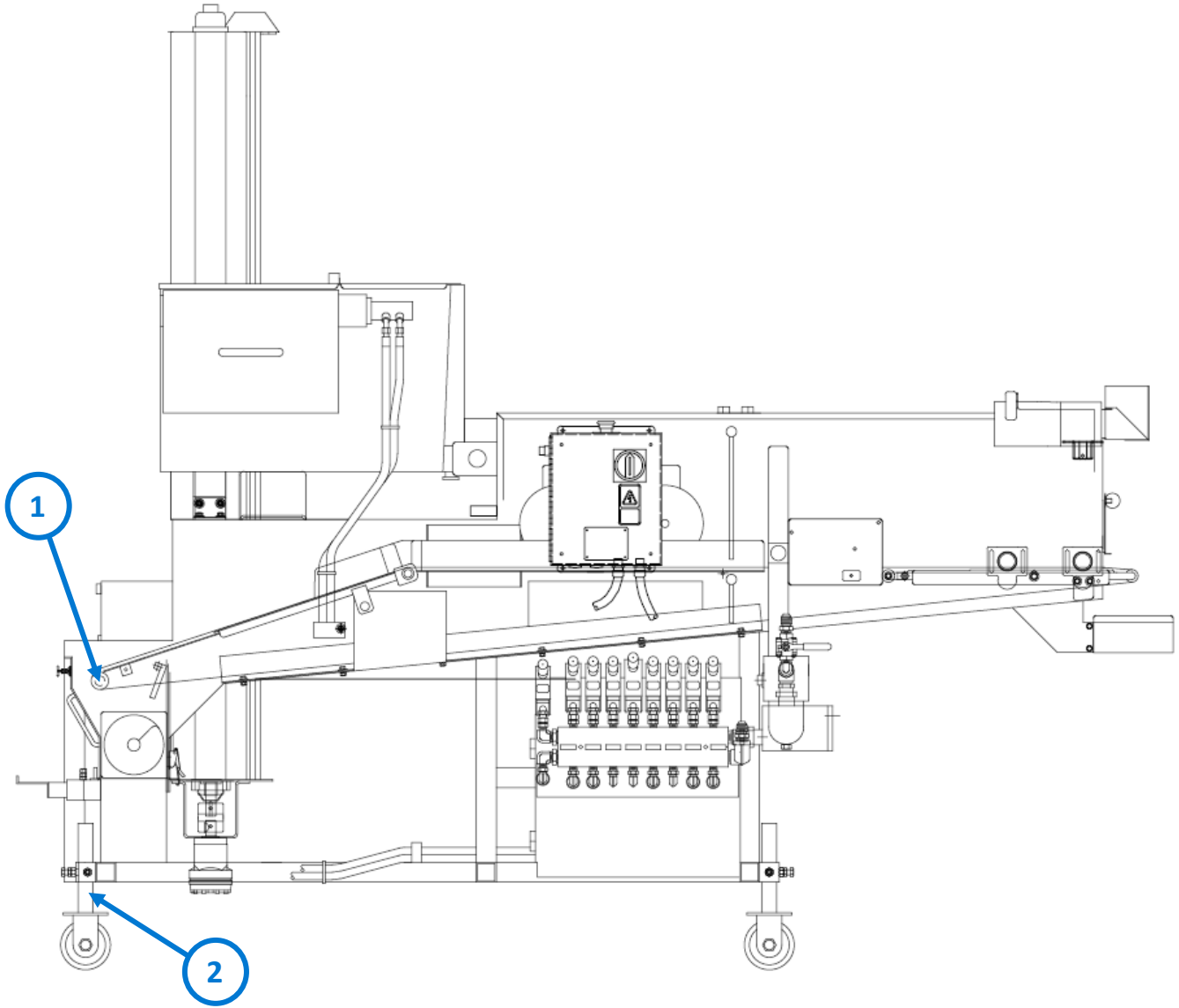
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Breeding Machines

Machine Shown: XL



Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Yearly
1	Bearings	12	Formula 312	Lubricate			
2	Casters	4	Formula 312			Lubricate	

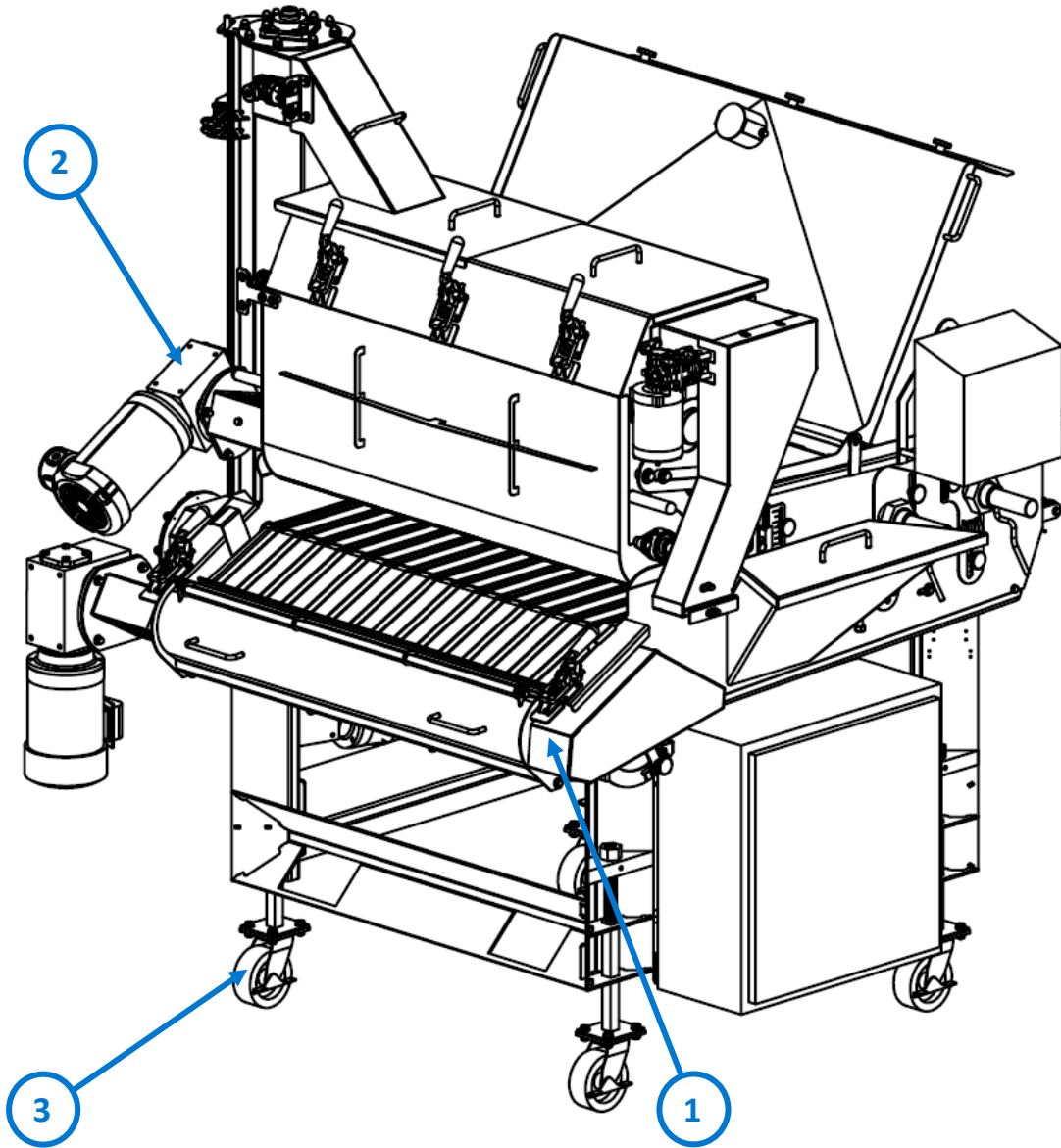
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Breeding Machines

Machine Shown: SHB



Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Yearly
1	Bearings	10	Formula 312	Lubricate			
2	Gearboxes	4	411-20-0100			Inspect/Fill	Drain/Refill
3	Casters	4	Formula 312			Lubricate	

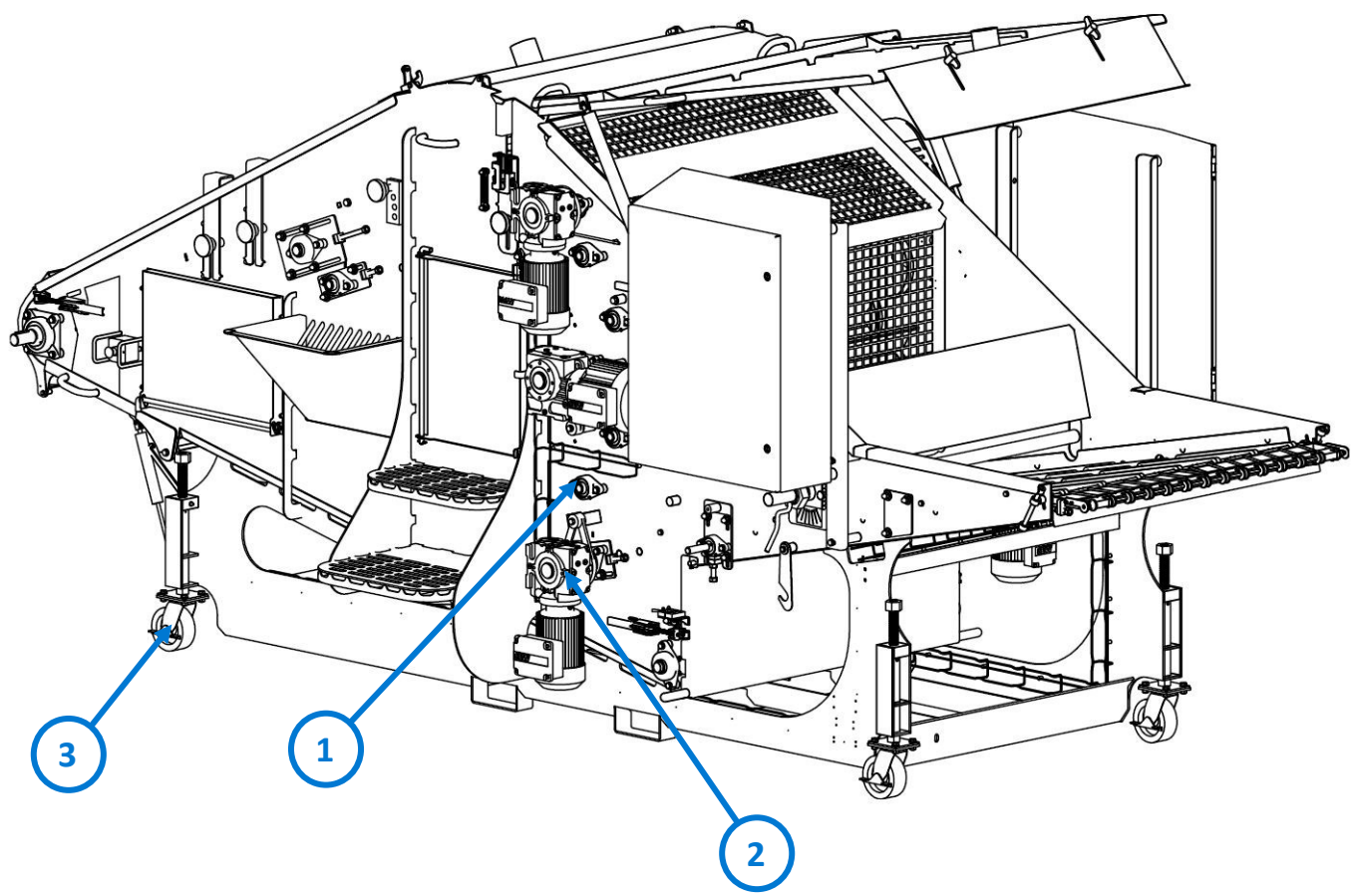
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Breeding Machines

Machine Shown: HSB



Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Yearly
1	Bearings	19	Formula 312	Lubricate			
2	Gearboxes	6	411-20-0100			Inspect/Fill	Drain/Refill
3	Casters	4	Formula 312			Lubricate	

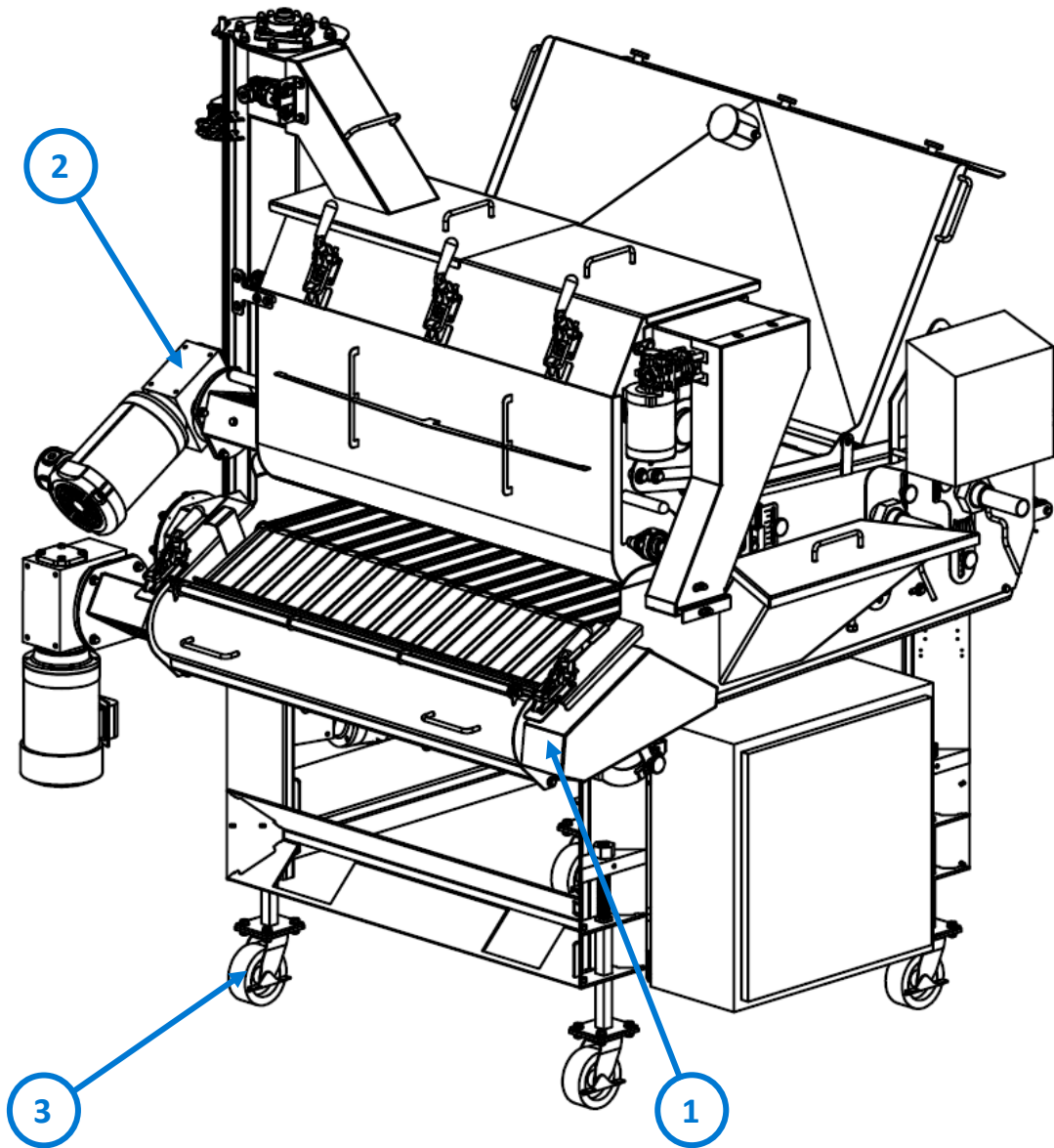
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Breeding Machines

Machine Shown: SHB



Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Yearly
1	Bearings	10	Formula 312	Lubricate			
2	Gearboxes	4	411-20-0100			Inspect/Fill	Drain/Refill
3	Casters	4	Formula 312			Lubricate	

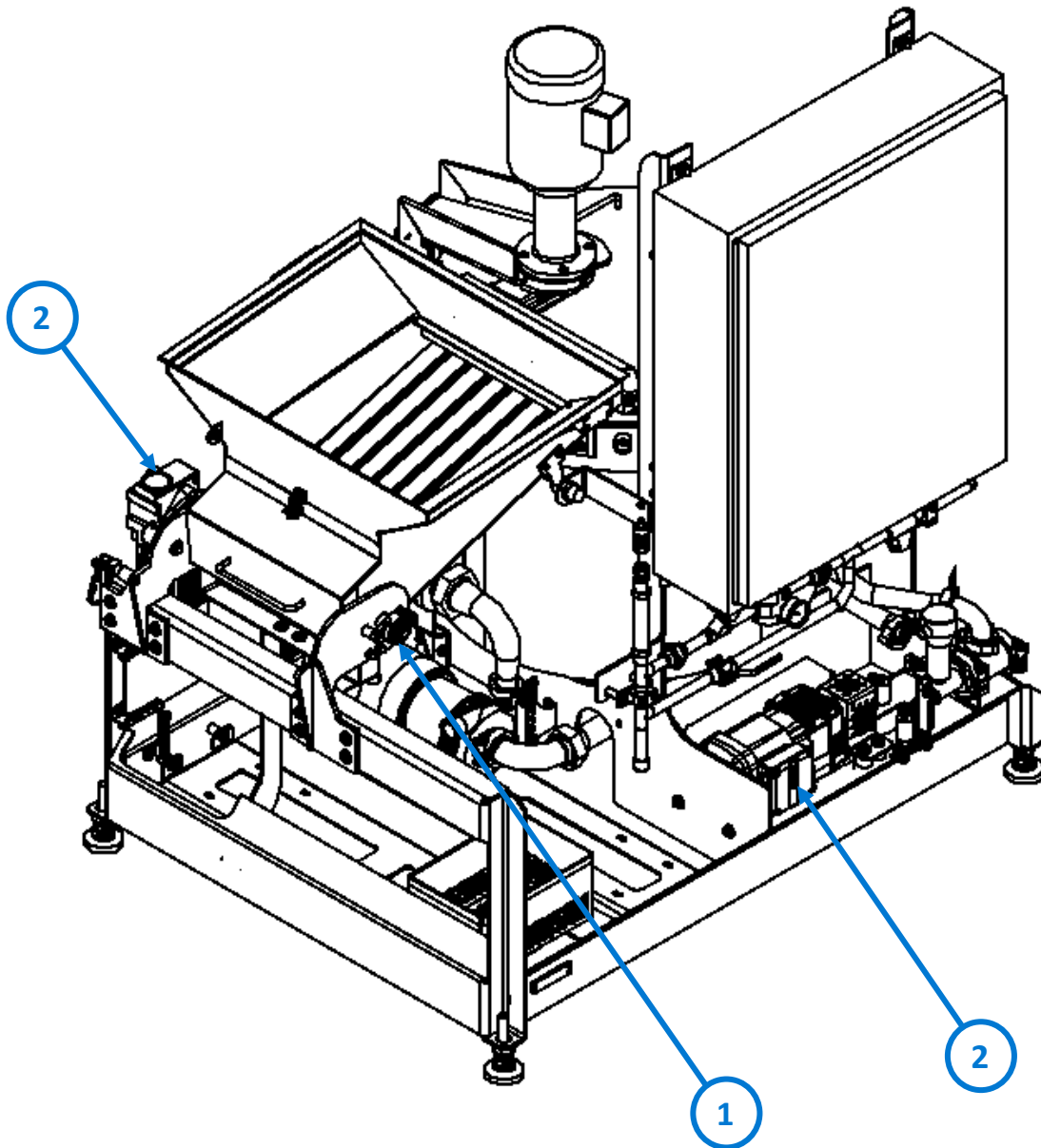
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Mixing Machines

Machine Shown: Promix



Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Yearly
1	Bearings	2	Formula 312		X		
2	Gearboxes	2	411-20-0100			X	

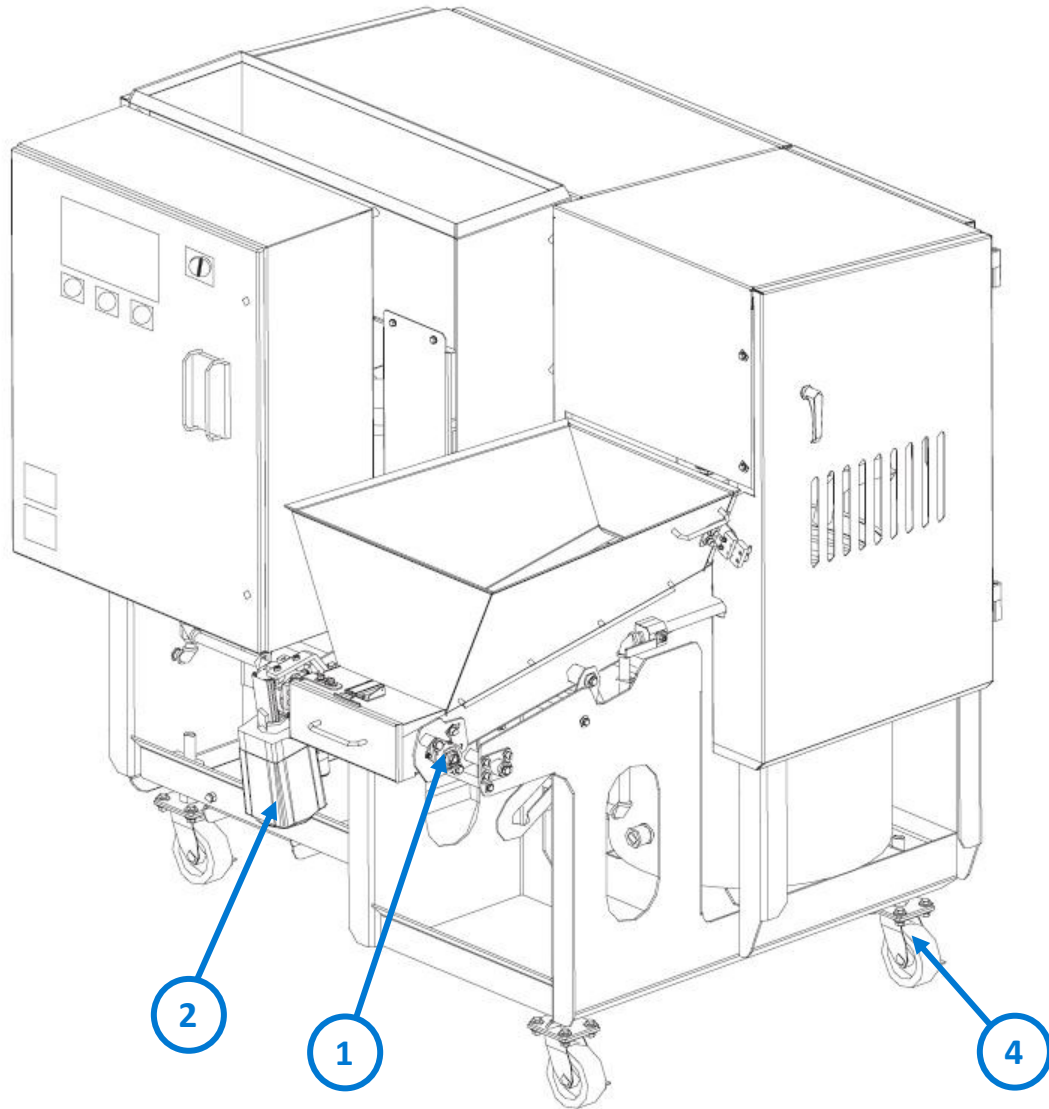
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Mixing Machines

Machine Shown: TM-4



Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Yearly
1	Bearings	12	Formula 312		Lubricate		
2	Gearboxes	4	411-20-0100			Inspect/Fill	Drain/Refill
3	PD Pump (not shown)	1	Nonlabeled 2		Inspect/Fill	Drain/Refill (every 3 months)	
4	Casters	4	Formula 312			Lubricate	

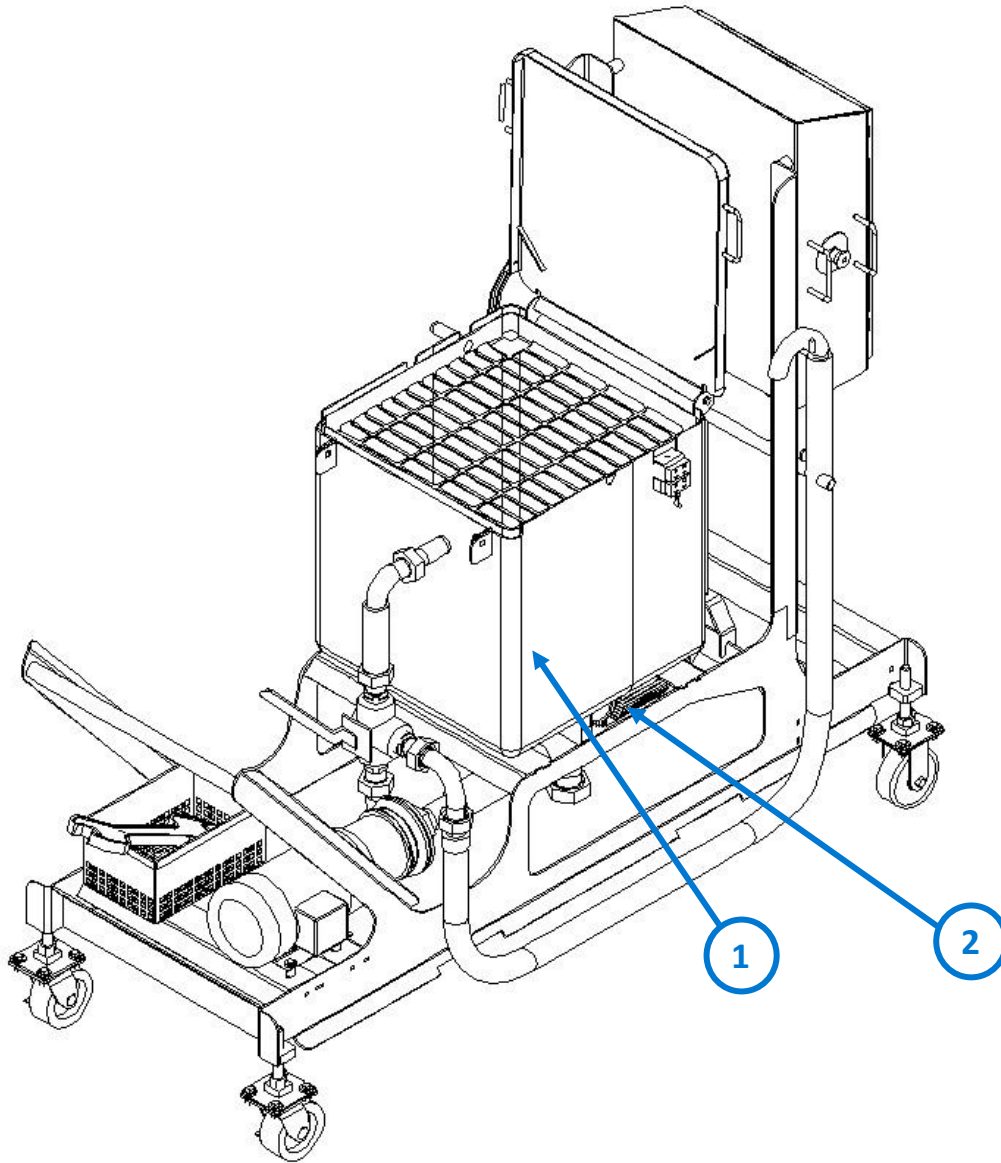
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Mixing Machines

Machine Shown: SUV-BM



Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Yearly
1	Bearing	1	Formula 312		Lubricate		
2	Gearboxes	2	411-20-0100				Inspect/Fill
3	PD Pumps (not shown)	1	Nonlabeled 2		Inspect/Fill	Drain/Refill (every 3 months)	

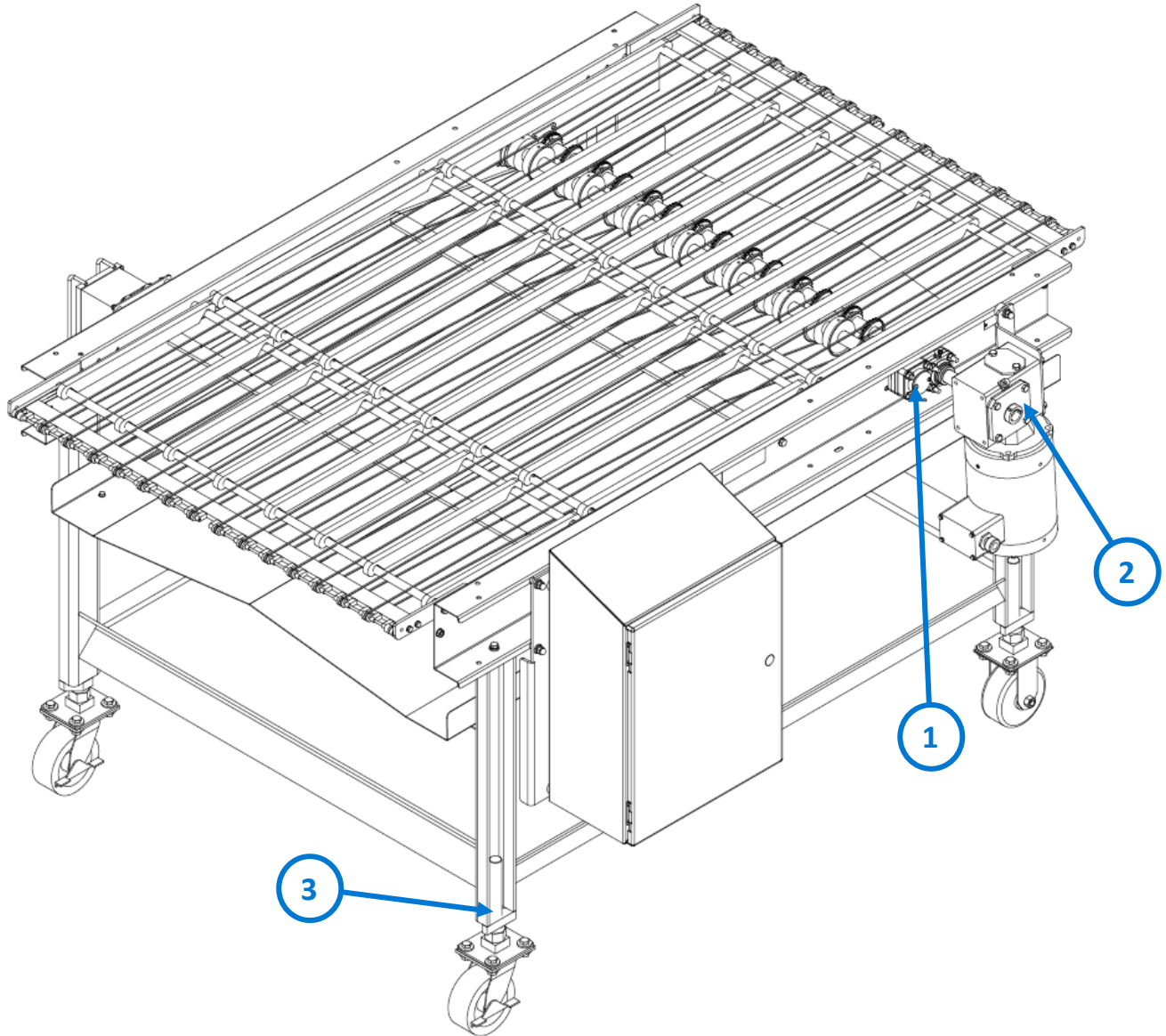
Quantities may vary per machine or configuration

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Conveyors

Machine Shown: Feed Conveyor



Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Yearly
1	Bearings	4	Formula 312	Lubricate			
2	Gearboxes	1	411-20-0100			Inspect/Fill	Drain/Refill
3	Casters	4	Formula 312			Lubricate	

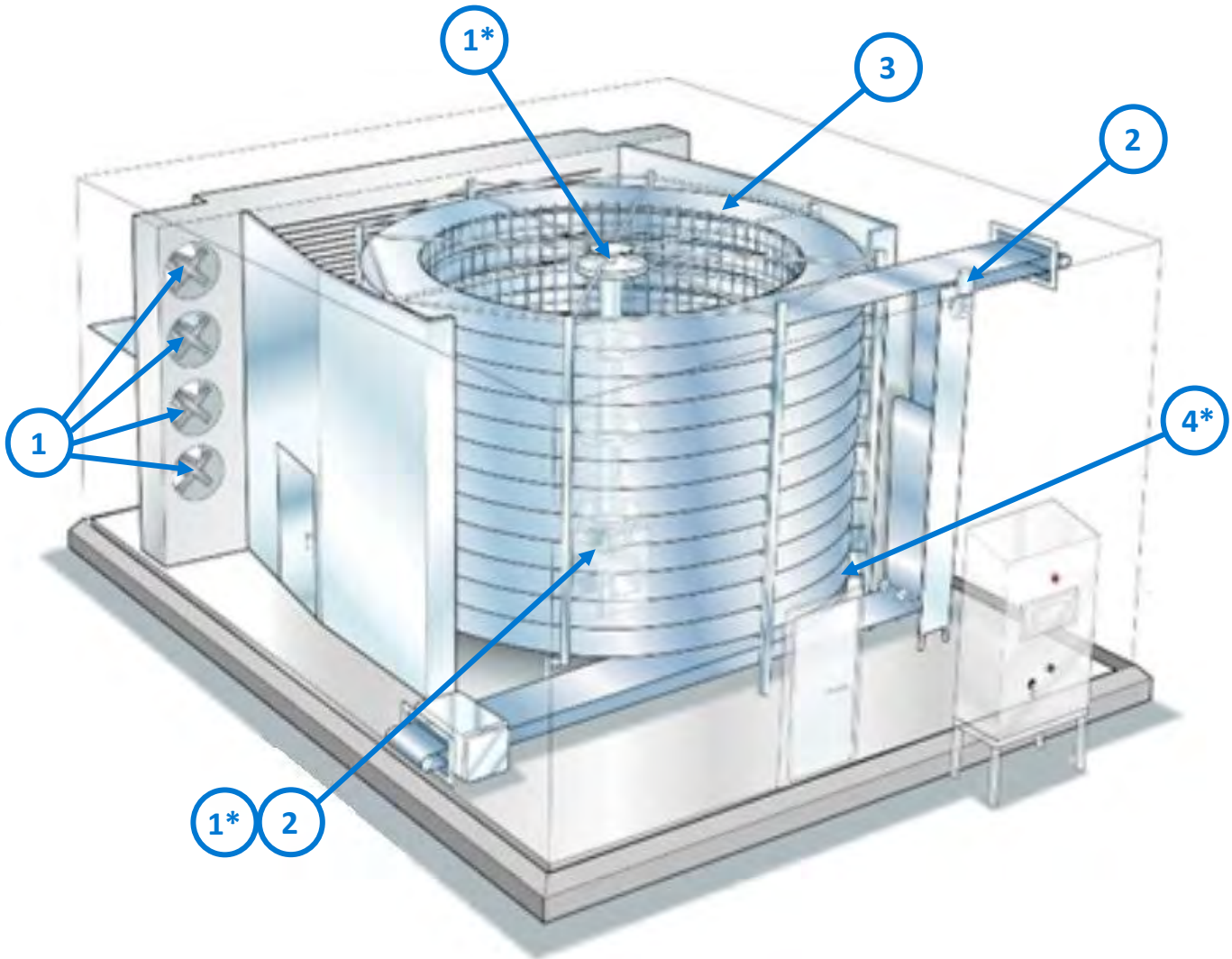
Quantities may vary per machine or configuration

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Northfield Freezers

Machine Shown: SuperTRAK



Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Yearly
1	Bearings	10	Formula 322			X	
2	Gearbox	2	Formula 568 LT			X	
3	Belt	1	Formula 2350		X		
4	Chain	1	Formula 410 Aerosol			X	

*LST Only

Quantities may vary per machine or configuration

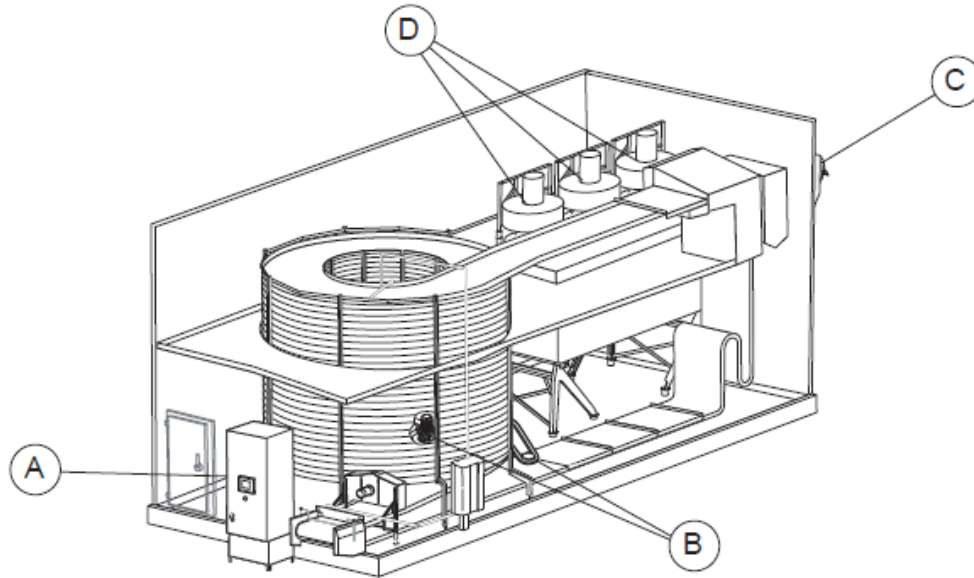
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Frigoscandia Freezers (Spiral)

Machine Shown: GCM10

LUBRICATION



Position	Lubricating Location	Lubricant		Remarks	Daily	Weekly	Monthly	Yearly
		Type*	Qty.					
A	FRIGoDRIVE® M lubrication system							
	Reservoir	Oil Z		Check level and refill as needed	X			
B	Main drive							
	Gearboxes	Oil F		Check level			X	
	Gearboxes	Oil F	***	Change oil				X
	Motor bearings	Grease K		Lubricate				X**
C	Outfeed							
	Gearbox	Oil E		Check level			X	
	Gearbox	Oil E	0,3L	Change oil				X
	Drive chain	Oil H		Lubricate			X	
	Motor bearings	Grease K		Lubricate				X**
D	Fans							
	Motor bearings	Grease K		Lubricate				X**

Optional equipment: If any optional equipment is installed, lubricate according to separate instructions in this Maintenance chapter.

* According to the Recommended Lubricants section in this Maintenance chapter.

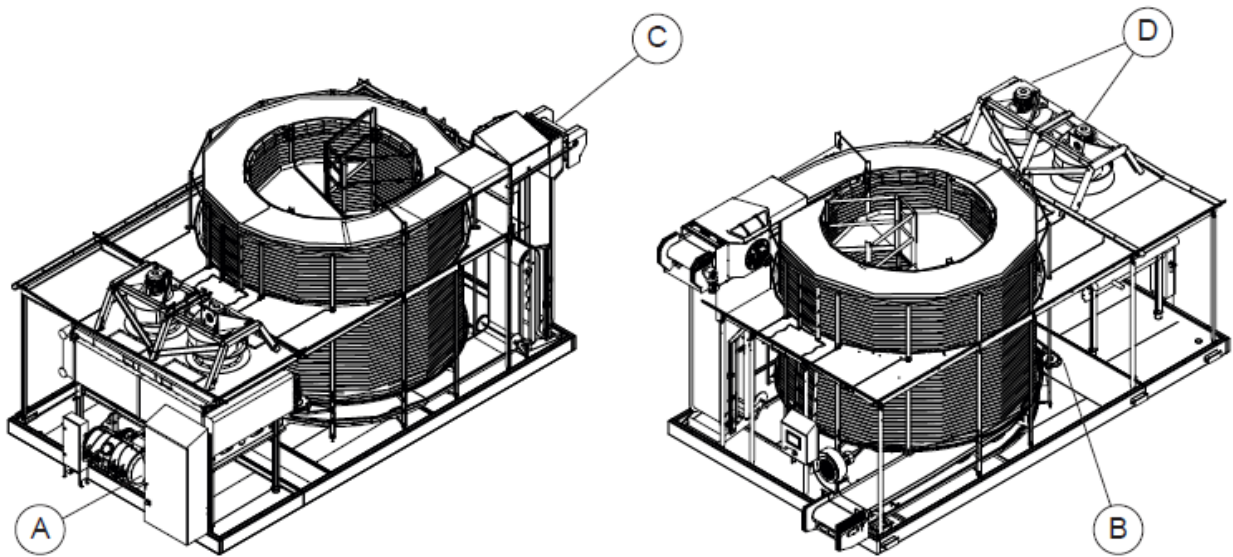
** Only regrease electric motors when overhauled. Normally electric motors are delivered without grease nipples. Overhaul and regrease during bearing change or when a motor is dismantled for other reasons.

*** Quantity of oil varies depending on equipment.

Frigoscandia Freezers (Spiral)

Machine Shown: GC70

LUBRICATION



Position	Lubrication Location	Lubricant			Remarks	Daily	Monthly	Yearly
		Type*		Qty.				
		Freezer	Chiller					
A	Frigoscandia FRIGoDRIVE® lubrication system							
	Reservoir	Oil L-112			Check level and consumption	X		
	Ball rail and glide strips				Check lubrication	X		
B	Main drive							
	Gearboxes	Oil L-103	Oil L-102		Check level		X	
	Gearboxes	Oil L-103	Oil L-102	***	Change oil			X
	Motor bearings	Grease L-113			Lubricate			X**
C	Outfeed							
	Gearbox	Oil L-102			Check level		X	
	Gearbox	Oil L-102		0,3L	Change oil			X
	Drive chain	Oil L-104			Lubricate		X	
	Motor bearings	Grease L-113			Lubricate			X**
D	Evaporator and fans							
	Motor bearings	Grease L-113			Lubricate			X**

Optional equipment

If any optional equipment is installed, lubrication is to be carried out according to separate instructions. See chapter "Preventive and corrective maintenance".

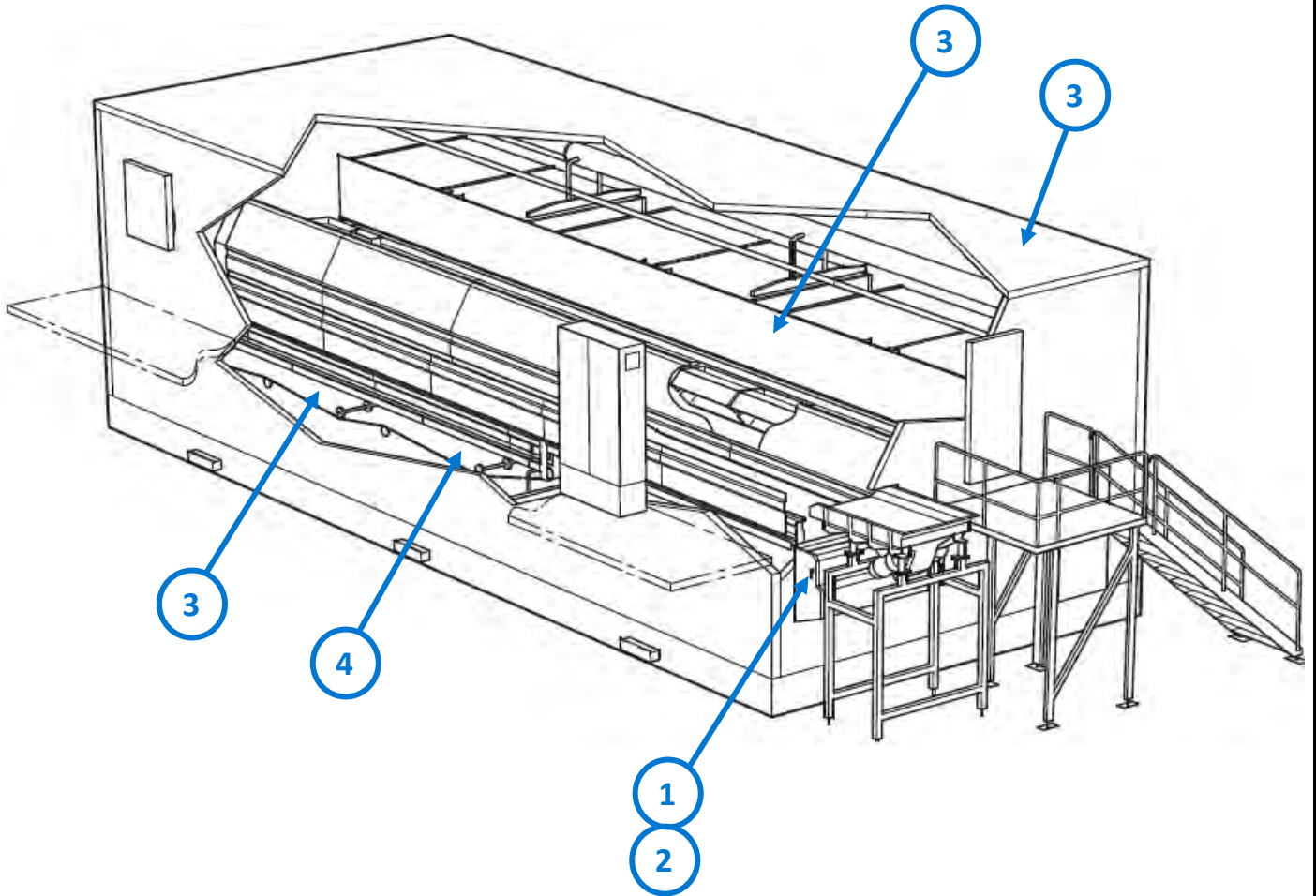
* According to manual sheet "Preventive maintenance, Recommended lubricants".

** Electric motors should be regreased only when overhauled. Normally electric motors are delivered without grease nipples. Overhaul and regrease when bearing change is carried out or when a motor is dismantled for other reasons.

*** Quantity of oil varies depending on equipment.

Frigoscandia Freezers (Linear)

Machine Shown: FloFreeze



Pos. #	Location	Qty	Description	Frequency			
				Daily	Weekly	Monthly	Yearly
1	Infeed Bearings	1	Formula 302			X	
2	Infeed Gearbox	2	Formula 546			X*	X
3	Pulsator/Defroster/Internal Rail Gearbox	4				X*	X
4	Fan Motor Bearings	4	Formula 322			X	

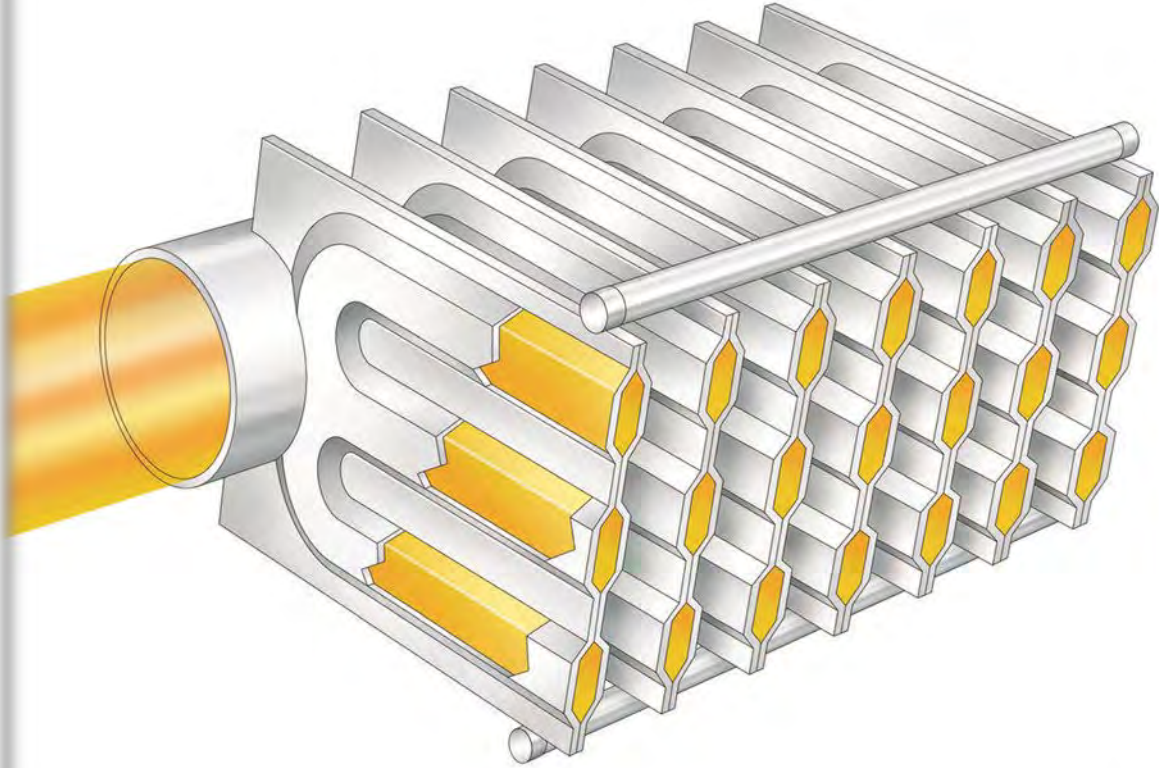
*Check oil level monthly

Quantities may vary per machine or configuration

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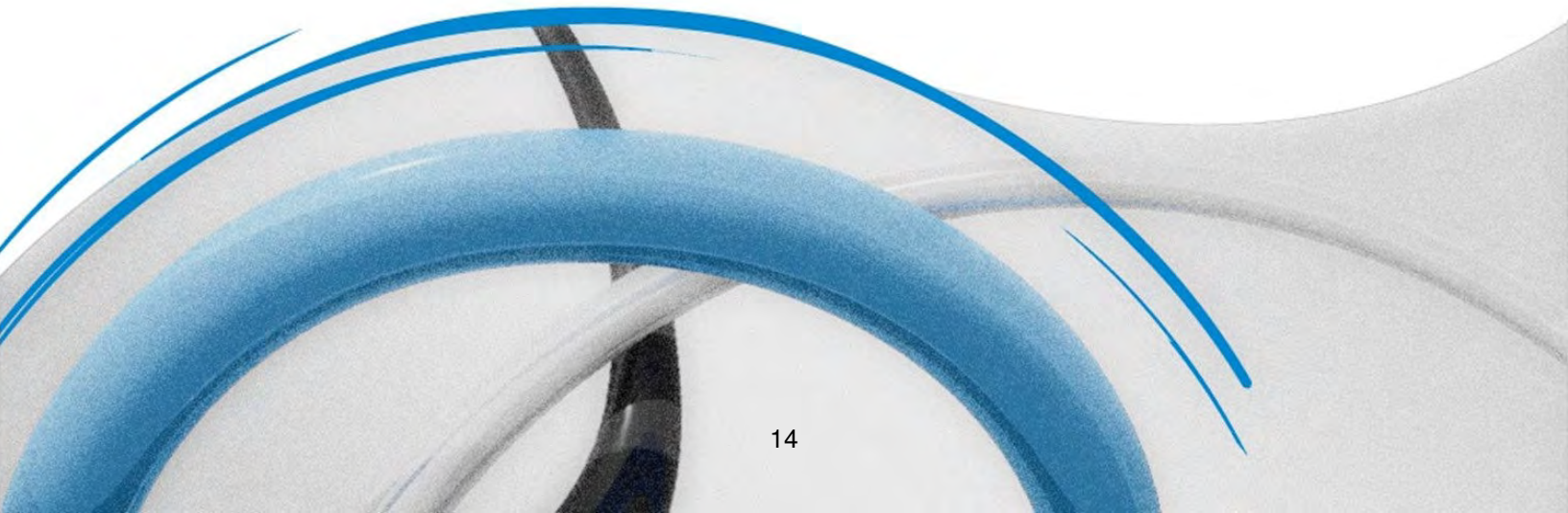


Thermal Fluid Heaters



**For Thermal Fluid, Use
JBT PRoTHERM™ Select**

Lubrication Table



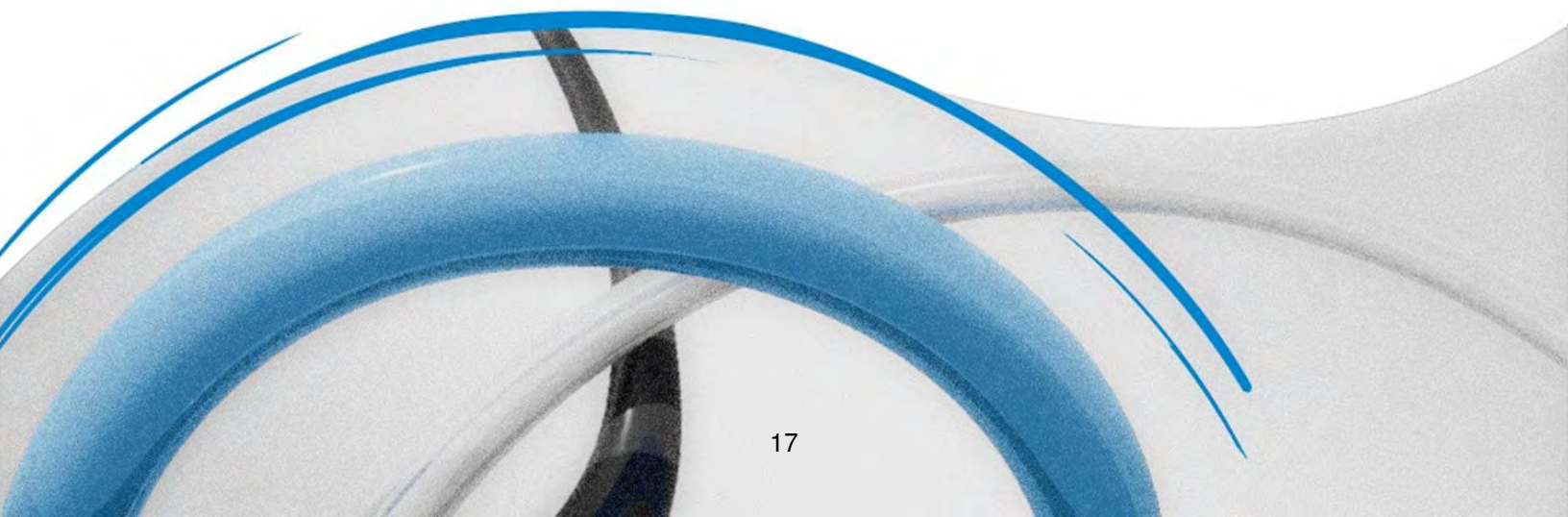
Lubrication Table

Description	Formula	Size	Part Numbers
Lecithin Non-Soy Mold Release Powder	Formula 201	55# Box	365715A
H1 Food Grade Silicone Fluid	Formula 2350	1 Gallon Plastic Bottle	N0120021
		5 Gallon Plastic Pail	N0120022
H1 Food Grade Grease #LT (NLGI Grade #0.5-1)	Formula 301	10-Pack Grease Tubes	575063-10
		35# Pail	575064
H1 Food Grade Grease #2 (NLGI Grade #2)	Formula 302	10-Pack Grease Tubes	575066-10
		35# Pail	575067
H1 Food Grade Multipurpose Antiwear Grease	Formula 312	10-Pack Grease Tubes	365716A
		35# Pail	365716B
H1 Food Grade Cold Environment Antiwear Grease	Formula 322	14 oz. Grease Tubes	356210A
H1 Food Grade Motor Grease	Formula 360	10-Pack Grease Tubes	365717A
H1 Food Grade High Temperature Bearing Gel	Formula 377	14.1 oz. Cartridge	411-20-0005
H1 Food Grade Aluminum Complex-Thickened Bearing Grease	Formula 388	4.125 Gallon Plastic Pail	411-20-0024-001
		13.4 oz. Grease Tube	411-20-0024-002
H1 Food Grade Very Low Temperature Antiwear Oil	Formula 410	1 Gallon Plastic Bottle	301546C
		5 Gallon Plastic Pail	350945C
		5 Gallon Square Plastic Pail	350945CS
		16 Gallon Steel Keg	301546ZA
		55 Gallon Steel Drum	350945B
		275 Gallon Hard Plastic Tote	350945T
H1 Food Grade Low Viscosity Lubricating Oil	Formula 410 Phylax	1 Gallon Canister	305554A
		5 Gallon Canister	305554B
		55 Gallon Canister	305554C
H1 Food Grade Very Low Temperature Antiwear Oil	Formula 410 Aerosol	11 oz. Net Weight Aerosol	350945A
		16 Fluid oz. Trigger Bottle	301546TR
H1 Food Grade Extreme Low Temperature Antiwear Oil	Formula 410 XLT	1 Gallon Plastic Bottle	356176A
		16 Gallon Steel Keg	356176B
		55 Gallon Steel Drum	356176C
		275 Gallon Hard Plastic Tote	356176T
H1 Food Grade Proofer and Steamer Oil	Formula 440	1 Gallon Plastic Bottle	365436A
		5 Gallon Plastic Pail	365436B
		55 Gallon Steel Drum	365436D
		275 Gallon Hard Plastic Tote	365636E
H1 Food Grade Oven Oil	Formula 499	5 Gallon Plastic Pail	411-20-0099-005
		55 Gallon Steel Drum	411-20-0099-055
		320 Gallon Hard Plastic Tote	411-20-0099-320
H2 Low Temperature Antiwear Gear Oils	Formula 532	5 Gallon Plastic Pail	356319A
		55 Gallon Steel Drum	356319B
	Formula 546	5 Gallon Plastic Pail	356026A
		16 Gallon Steel Keg	356026B
		55 Gallon Steel Drum	356026C
	Formula 546 XLT	5 Gallon Plastic Pail	356229A
		55 Gallon Steel Drum	356229C
	Formula 568 LT	5 Gallon Plastic Pail	356211A
		55 Gallon Steel Drum	356211B
	Formula 5150 LT	5 Gallon Plastic Pail	356212A
		55 Gallon Steel Drum	356212B
	Formula 5320	5 Gallon Plastic Pail	356318A
		55 Gallon Steel Drum	356318B
	Formula 5460 LT	5 Gallon Plastic Pail	356213A
55 Gallon Steel Drum		356213B	
Synthetic High Temperature Gear Lubricant	Formula 577	1 Quart Container	411-20-0025

Lubrication Table


Description	Formula	Size	Part Numbers
H1 Food Grade Low Temperature Antiwear Gear Oils	Formula 532 FG	5 Gallon Plastic Pail	365551A
		55 Gallon Steel Drum	365551B
	Formula 546 FG	5 Gallon Plastic Pail	365549A
		55 Gallon Steel Drum	365549B
	Formula 568 FG	5 Gallon Plastic Pail	365550A
		55 Gallon Steel Drum	365550B
H1 Food Grade Low Temperature Antiwear Gear Oils	Formula 532 FG	5 Gallon Plastic Pail	365551A
		55 Gallon Steel Drum	365551B
	Formula 546 FG	5 Gallon Plastic Pail	365549A
		55 Gallon Steel Drum	365549B
	Formula 568 FG	5 Gallon Plastic Pail	365550A
		55 Gallon Steel Drum	365550B
H1 Food Grade Semi-Synthetic Gear Oils	Formula 5220 FG	5 Gallon Plastic Pail	575069
		55 Gallon Steel Drum	575070
	Formula 5320 FG	5 Gallon Plastic Pail	575104
		55 Gallon Steel Drum	575105
	Formula 5460 FG	5 Gallon Plastic Pail	575084
		55 Gallon Steel Drum	575026
H1 Food Grade High Temperature Gear Oil	Formula 5PAG FG	1 Gallon Plastic Bottle	365583A
		5 Gallon Plastic Pail	365583B
		16 Gallon Steel Keg	365583C
H1 Food Grade High Temperature Gear Oil	Formula 57PAG FG	1 Gallon Plastic Bottle	365718A
		5 Gallon Plastic Pail	365718B
		55 Gallon Steel Drum	365718C
H1 Food Grade Refrigeration Compressor Fluid	Formula 646	5 Gallon Plastic Pail	356283A
		16 Gallon Steel Keg	356283B
		55 Gallon Steel Drum	356283C
H2 Ammonia Refrigeration Compressor Fluid	Formula 668	55 Gallon Steel Drum	356173A
H2 Non-Synthetic Vacuum Pump Oil	Formula 600VP	5 Gallon Plastic Pail	365584A
		16 Gallon Steel Keg	365584B
		55 Gallon Steel Drum	365584C
H1 Food Grade Vacuum Pump Oil	Formula 600VP FG	5 Gallon Plastic Pail	365584AFG
		16 Gallon Steel Keg	365584BFG
		55 Gallon Steel Drum	365584CFG
H1 Food Grade Hydraulic Oil	Formula 760	5 Gallon Plastic Pail	356313
		55 Gallon Steel Drum	575078
	Formula 762	5 Gallon Plastic Pail	575078-5
		55 Gallon Steel Drum	575078
	Formula 764	5 Gallon Plastic Pail	575081-5
		55 Gallon Steel Drum	575081
H1 Food Grade Antiwear Hydraulic Oil	Formula 777	5 Gallon Plastic Pail	411-20-0017
H1 Food Grade STA-SLICK Silicone Spray	Formula 8008	10 oz. Net Weight Aerosol	575056
H1 Food Grade Penetrating Oil Aerosol Spray	Formula 8009	11 oz. Net Weight Aerosol	575052
H1 Food Grade Assembly Spray Lubricant	Formula 8014	11 oz. Net Weight Aerosol	575107
H1 Food Grade Open Gear Spray Grease	Formula 8413	11 oz. Net Weight Aerosol	575053
H1 Food Grade Chain Lube	Formula 8414	11 oz. Net Weight Aerosol	575054
H1 Food Grade Air Line and Air Tool Oil	Formula 8474 FG	16 Fluid oz. Bottle	575103
		1 Gallon Plastic Bottle	575103-1
		5 Gallon Plastic Pail	575103-5
		55 Gallon Steel Drum	575103-55
H1 Food Grade Belt Wash Pump Oil	Nonlabeled 1	2.5 Gallon Pail	411-20-0012
		1 Quart Container	411-20-0016
H1 Food Grade Pump Oil	Nonlabeled 2	1 Gallon Plastic Bottle	411-20-0019
PRoTHERM Select Heat Transfer Fluid	JBT PRoTHERM	55 Gallon Drum	411-10-0008
		330 Gallon Tote	411-10-0009

Technical Data Sheets



EXPLANATION OF CONTAINER LABEL

Product Description



Formula 410

Product Name

Formula 410

Formula 410 is a fully synthetic, NSF H1, food-grade lubricant developed specifically for **JBT FoodTech** equipment to provide the ultimate in oil lubrication in extreme cold environments. It is specially formulated for lubricating the chains, balls and rails of freezer driving systems. It has an extremely low pour point of -76°F (-60°C), yet has sufficient body to lubricate at higher temperatures found during defrosting, cleaning, sanitation and drying cycles. The additive package includes extreme-pressure and antiwear agents, and rust and oxidation inhibitors while its robust chemistry ensures deposit-free operation. Additionally, **Formula 410** readily separates from water and air, eliminating emulsions that would inhibit the oil's ability to lubricate critical moving parts under C-I-P cycles and high humidity environments. Do not add directly to the food. Use only the amount necessary to achieve the technical effect. Remove any excess lubricants from food contact surfaces. To be used in keeping with good manufacturing practices (GMPs). Contains polyalphaolefins.

**1622 First Street
Sandusky, OH 44870 USA**

PRECAUTIONS:
Do not breathe fumes, dusts or mists. Do not get in eyes, on skin, or on clothing when handling. Avoid heat, sparks, open flames, including pilot lights, static electricity and strong oxidizing agents. Use only with adequate engineering control and ventilation where fumes, dusts or mists may be generated. Wash thoroughly after handling. Store in a cool, dry place. Keep container closed. See MSDS for further details.

FIRE:
Use dry chemical, foam or CO₂.

SPILL/LEAK:
Remove all sources of ignition. Absorb with suitable floor sweep medium, like clay and shovel up excess. Scrape and sweep remainder. Consult local spill plan.

FIRST AID:
INHALATION: Remove to fresh air. See a physician if irritation persists.
EYE: Flush with water for 15 minutes. See a physician if irritation persists.
SKIN: Wash with soap and water. See a physician if irritation persists.
INGESTION: If swallowed, DO NOT induce vomiting. Call a physician.


FOR FOOD PLANT AND OTHER INDUSTRIAL USE

PRODUCT NUMBER: 301546ZA

BATCH CODE: L1113601

HEALTH	1
FLAMMABILITY	1
PHYSICAL HAZARD	0
PERSONAL PROTECTION	

The user is responsible for determining proper Personal Protection Equipment. Refer to Material



Product of USA

60.56 liters 16 US Gallons

Product Batch Code

Part Number

Weight of Container and Container Size

HMIS Rating

NSF Logo/Registration Number

Formula 2350 H1

Food Grade Silicone Fluid

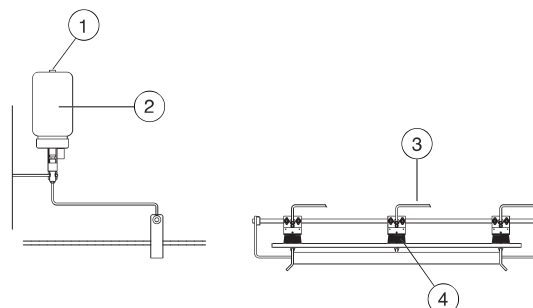


JBT FoodTech Formula 2350 H1 Food Grade Silicone Fluid is for specific lubrication and cleaning applications involved with the operation of our Low-Tension Equipment. Refer to your equipment manual for the exact instructions on proper application. The diagram points out the components, particularly the reservoir, which should be checked daily to ensure sufficient Formula 2350 is present to perform this vital operation. The fluid is formulated to provide smoother, tensionless movement of the belting over the track. Unlike non-recommended lubricants, Formula 2350 Silicone Fluid will not become gummy or tacky, and has no opportunity for rancidity like vegetable based products. Formula 2350 will help reduce cage amperage draw when used as recommended therefore saving energy as well.

Components

1. Flip-up lid
2. Reservoir
3. Needle valves
4. Lubricating brushes

The reservoir should be filled as needed with Formula 2350 silicone lubricant. Needle valves can be adjusted to maintain the optimum feed rate. Fill the reservoir via the flip-up lid.



Formula 2350 H1

Features

- Low surface energy
- Very little or no odor
- Withstands low serviceability temperatures
- Low environmental and or fire hazard
- High oxidation stability
- High water repellency

Benefits

- Water clear color so belts do not darken
- Will not turn rancid/spoil
- Totally tasteless so no chance of flavor transfer
- Will not build up and turn tacky or gummy
- Keeps belts sliding as intended to save on draw
- Keeps tension low

Typical Properties	2350
Viscosity @ 25°C, cSt	350.0
Viscosity @ 40°C, cSt	266.0
Viscosity @ 100°C, cSt	108.4
Viscosity Index	433
Pour Point, °F	-85
Pour Point, °C	-65
Flash Point, °F	689
Flash Point, °C	365
Specific Gravity @ 77°F(25°C)	0.9765
Density, lbs/gal	8.1
Dielectric Strength @ 77°F(25°C) volts/mil	400
Texture	Light Syrup
Color	Water White
MICRONOX®	Yes
NSF Non-Food Program	H1 Applied
CFIA	Yes

Designed specifically for JBT FoodTech Low-Tension Freezing Equipment using the JBT FoodTech track oiler as shown on the other side of this document. The feed rate of the oiler is entirely dependent on the spiral dimension, speed, temperature and application. This rate should be adjusted to balance and economize the oil while maintaining acceptable belt tension.



Part Numbers:

Formula 2350 H1

- N0120021** Gallon Plastic Bottle
- N0120022** 5 Gallon Round Plastic Pail

To place an order or receive additional information call:
Order Entry Department 800-408-7788 option 3,
Fax 507-645-9664, email: process-solutions@jbt.com



NSF Reg. Applied for
Category Code H1

www.jbtfoodtech.com

Formula 301 and 302

Greases (GREASE L in Preventative Maintenance Manual)



JBT FoodTech H1 Food-Grade Greases #LT and #2 are manufactured with an advanced complex soap thickener that helps to provide formerly unheard of mechanical stability along with exceptionally high load capability. At the same time, they exhibit remarkable water and chemical resistance while providing outstanding rust and corrosion control.

JBT Formula 301 in its LT (NLGI Grade # 0.5 – 1) formulation, offers these characteristics in an easily pumpable version that is also very capable of handling high speeds like those found in bottling and can seaming. JBT Formula 302 as an NLGI #2 grade, with all of the performance qualities it offers, can easily become the one grease needed for an entire plant. Whether for food-grade or industrial applications, Formula 302 has the strength and body to handle them all.

Suggested uses:

- Highly loaded gear sets and bearings, especially those exposed to wash-down and chemicals
- High shock pellet mills and other grinding and reducing operations
- Fork lift trucks and material handling equipment
- Grain presses and grain packaging equipment
- Bearings that oscillate between operating temps of 500 °F to cool down of ambient on a frequent basis

Formula 301 and 302

Features

- Very good compatibility with other greases
- Outstanding rust and corrosion control
- Excellent high temperature performance and stability
- Superb water washout and chemical resistance

Benefits

- Lubricated parts have a greatly extended life along with markedly reduced wear
- They offer the ability to consolidate many greases from throughout the plant
- Protection from water and chemicals provide longer bearing life and reduced grease consumption
- Mechanical stability allows for greatly increased greasing intervals saving on labor



Typical Properties	301	302
NLGI Grade	#0.5 -1	#2
Penetration, worked/unworked	320-345/320-345	265-295/265-295
Dropping Point °F (°C)	500°F (260°C)	600°F (316°C)
Base Fluid Viscosity @ 40° C cSt	95	95
Base Fluid Viscosity Index	92	92
Base Fluid Flash Point °F (°C)	482°F (250°C)	482°F (250°C)
Base Fluid Pour Point °F (°C)	10°F (-12°C)	10°F (-12°C)
Water Washout @ 175°F	1.5	0.5
Four-Ball Wear mm	0.48	0.38
Timken OK Load lbs	50	59.5
MICRONOX®	Yes	Yes
NSF Non-Food Program	H1 registration #139550	H1 registration #139543, #141431
CFIA	Yes	Yes

Part Numbers:

Formula 301

575063-10 10-Pack Grease Tubes

575064 35# Pail

Formula 302

575066-10 10-Pack Grease Tubes

575067 35# Pail

**To place an order or receive additional information call:
Order Entry Department 800-408-7788 option 3,
Fax 507-645-9664, email: process-solutions@jbt.com**



NSF See Chart
Category Code H1

www.jbtfoodtech.com

Formula 322

Antiwear grease, protection for cold environments
(GREASE M, K in Preventative Maintenance Manual)



JBT FoodTech Formula 322 is a fully synthetic H1 Food-Grade grease developed to satisfy the extreme temperature conditions found in food processing freezer applications. The base soap is a revolutionary food-grade thickener which provides exceptional mechanical stability, very high load-carrying ability and remarkable rust and corrosion control. Additionally, Formula 322 has outstanding water resistance characteristics, a vital property for these freezers with C-I-P and sanitation cycles built in. The synthetic base oil provides excellent oxidation stability, antiwear performance and a “freezer-friendly” pour point (the temperature at which an oil will no longer flow freely) of -94°F (-70°C). The combination of the synthetic base oil and advanced thickener gives Formula 322 unsurpassed performance in the sub zero environments found with JBT FoodTech freezing units, and will still maintain excellent body during cleaning cycles.

Formula 322 is built with performance in mind. It has excellent Extreme Pressure (EP additives decrease wear of the parts of the gears or bearings exposed to very high pressures while operating) and Antiwear (AW additives prevent metal-to-metal contact between parts of gears or bearings) characteristics which are demonstrated by its very high Timken OK value of 60 pounds or greater and 4-Ball EP LWI results of over 60 kgf with a weld point of 500 kgf. These results come from ASTM D 2509 and ASTM D 2596, respectively. Formula 322 handles rust and corrosion by outperforming standard Corrosion Preventive Properties Test (ASTM D 1743) and a Severe Salt Fog Test (ASTM B 117) in excess of 300 hours. Water washout (ASTM D 1264) results of 4.5% weight loss give superior marks of quality for water resistance, a given in the food processing arena.

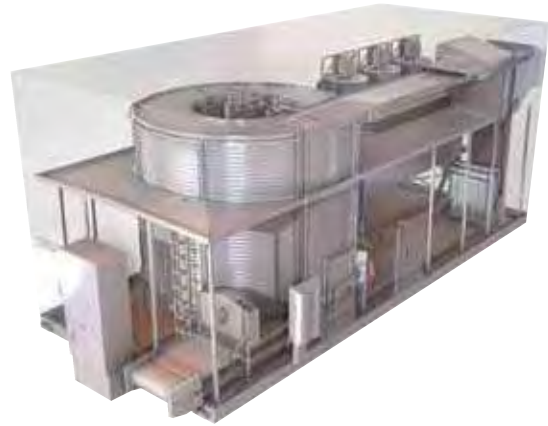
Formula 322

Features

- Unsurpassed low-temperature performance
- Very good compatibility with most other greases
- Outstanding rust and corrosion-control
- Excellent pumpability character
- High water washout and chemical resistance
- Unsurpassed extreme pressure and anti-wear properties

Benefits

- Protection for freezing equipment
- Extended grease intervals
- Suitable for automated greasing systems
- Greatly extended life for parts
- Rust preventative performance
- Protection from effects of water and chemicals



Typical Properties	322
Penetration, worked	320-340
Dropping point, minimum	525°F (274°C)
Base oil type	PAO synthetic
Base fluid	
Viscosity @ 40°C, cSt	16.8
Viscosity @ 100°F, SUS	156
Viscosity @ 100°C, cSt	3.9
Viscosity @ 210°F, SUS	46
Viscosity index	140
Flash point	460°F (238°C)
Fire point	500°F (260°C)
Pour point	-94°F (-70°C)
Color	Off-white
MICRONOX®	Yes
NSF Non-Food Program	H1 Applied
CFIA	No



Part Number:

Formula 322

356210A 14 Ounce
Grease Tubes.
Minimum order 10.

To place an order or receive additional information call:
Order Entry Department 800-408-7788 option 3,
Fax 507-645-9664, email: process-solutions@jbt.com



NSF Reg. Applied for
Category Code H1

www.jbtfoodtech.com

Formula 410

Antiwear very low-temperature H1 food-grade lubricant
(OIL J in Preventative Maintenance Manual)



JBT FoodTech Formula 410 is a fully synthetic, food-grade, NSF H1 registered lubricating oil designed specifically for use in JBT FoodTech Frigoscandia freezing equipment and the extreme cold environments found in many food processing facilities. The base fluid is FDA approved and has an extremely low pour point (the temperature at which an oil will no longer flow freely) of -76°F (-60°C), yet has sufficient body to lubricate at all temperatures from freezing, defrosting, C-I-P (clean-in-place) all the way through sanitizing and drying cycles.

Formula 410 has been created with performance in mind. The base oil has been effectively additized with Extreme Pressure (EP additives decrease wear of the parts of the rails, roller balls or chains that can be exposed to very high pressures while operating) and Antiwear agents (AW additives prevent metal-to-metal contact between parts of gears or bearings). Rust and oxidation inhibitors are also added so that its robust chemistry can ensure deposit-free, continual lubricity during operation of the freezer. Additionally, a unique food-grade tackifier is present in the formula to provide lubricant adhesion and limited non-drip characteristics for the balls and rails.

Formula 410

Features

- Excellent super low-temperature performance
- Outstanding anti-wear protection
- Superior rust and oxidation properties
- Extremely effective lubricity throughout the full Operational temperature spectrum
- Enhanced tackiness for cling and adherence
- Meets H1 requirements for incidental food contact

Benefits

- Protects critical moving parts through full cycle
- Provides longer life to crucial freezer components
- Allows for more throughput by limiting downtime
- Cold performance allows for lower operating temperature which increases production
- Use of OEM lubricant keeps warranty



Whether you maintain JBT FoodTech Frigoscandia, GYRoCOMPACT® spiral freezer or a Northfield Low-Tension Freezer, Formula 410 is the ultimate solution for converting to an effective food-grade lubricant.

Typical Properties	410
Approximate ISO Grade	32
Approximate SAE Grade	10
Viscosity @ -40°C, cSt	7800
Viscosity @ -18°C, cSt	910
Viscosity @ 40°C, cSt	32.6
Viscosity @ 100°C, cSt	6.0
Viscosity Index	129
Pour Point	-76°F (-60°C)
Flash Point	464°F (240°C)
Fire Point	518°F (270°C)
Specific Gravity, ASTM D 1298	0.8314
Color	Clear (UV exposure can cause pink hue)
MICRONOX®	Yes
NSF Non-Food Program	127280/H1
CFIA	Yes



Part Numbers:

Formula 410

- 301546C** Gallon Plastic Bottle
- 350945C** 5 Gallon Round Plastic Pail
- 350945CS** 5 Gallon Square, Closed Head, plastic Pail
- 301546ZA** 16 Gallon Steel Keg
- 350945B** 55 Gallon Steel Drum
- 350945T** 275 Gallon Hard Plastic Tote

To place an order or receive additional information call:
Order Entry Department 800-408-7788 option 3,
Fax 507-645-9664, email: process-solutions@jbt.com



NSF Reg. No. 127280
Category Code H1

www.jbtfoodtech.com

Formula 410

Aerosol and Trigger Spray
(OIL G, H in Preventative Maintenance Manual)



JBT FoodTech 410 Aerosol Spray is a fully synthetic, food-grade, H1 authorized lubricating oil designed specifically for use in JBT FoodTech Frigoscandia freezing equipment and the extreme cold environments found in many food processing facilities in a convenient aerosol spray can. The base fluid is FDA approved and has an extremely low pour point (the temperatures at which an oil will no longer flow freely) of -76°F (-60°C), yet has sufficient body to lubricate at all temperatures from freezing, defrosting, C-I-P (clean-in-place) all the way through sanitizing and drying cycles. We have added the JBT FoodTech Formula 410 Trigger Spray for a "GREENER" supplement to the aerosol package. The bottles have an oil resistant label and can be refilled with same product from a larger package for even more economy (using GMP).

Formula 410 has been created with performance in mind. The base oil has been effectively additized with Extreme Pressure (EP additives decrease wear of the parts of the rails, roller balls or chains, that can be exposed to very high pressures while operating) and Antiwear agents (AW additives prevent metal to metal contact between parts, gears or bearings) along with rust and oxidation inhibitors so that its robust chemistry can ensure deposit free, continual lubricity during operation of the freezer. Additionally, a unique food grade tackifier is present in the formula to provide lubricant adhesion and limited non-drip characteristics for the balls and rails.

Formula 410

Features

- Excellent super low-temperature performance
- Outstanding anti-wear protection
- Superior rust and oxidation properties
- Extremely effective lubricity throughout the full operational temperature spectrum
- Enhanced tackiness for cling and adherence
- Meets H1 requirements for incidental food contact
- Extremely convenient aerosol package designed to go

Benefits

- Protects critical moving parts through full cycle
- Provides longer life to crucial freezer components
- Allows for more throughput by limiting downtime
- Cold performance allows for lower operating temperature which increases production
- Aerosol can be carried into a freezer in a back pocket
- Use of OEM lubricant keeps warranty



Whether you maintain a JBT FoodTech Frigoscandia, GYRoCOMPACT® spiral freezer or a Low-Tension Freezer, Formula 410 is the ultimate solution for converting to an effective food-grade lubricant.

Typical Properties	410 Aerosol *	410 Trigger
OIL		
Approximate ISO Grade	32	32
Approximate SAE Grade	10	10
Viscosity @ -40°C, cSt	7800	7800
Viscosity @ -18°C, cSt	910	910
Viscosity @ 40°C, cSt	32.6	32.6
Viscosity @ 100°C, cSt	6.0	6.0
Viscosity Index	129	129
Pour Point	-76°F (-60°C)	-76°F (-60°C)
Flash Point	464°F (240°C)	464°F (240°C)
Fire Point	518°F (270°C)	518°F (270°C)
Specific Gravity, ASTM D 1298	0.8314	0.8314
Color	Clear	Clear (UV exposure can cause pink hue)
PROPELLANT	Propane, Butane	
Flash Point	-94°F (-74°C)	
MICRONOX®	Yes	Yes
NSF Non-Food Program	Meets H1	H1 NSF# 127280
CFIA	Yes	Yes

* properties for the oil



Part Number:

Formula 410

- 350945A** 11 Ounce Net Weight Aerosol
- 301546TR** 16 Fluid Ounce Trigger Bottle

To place an order or receive additional information call:
Order Entry Department 800-408-7788 option 3,
Fax 507-645-9664, email: process-solutions@jbt.com

www.jbtfoodtech.com

Formula 410 XLT

Antiwear extreme low-temperature H1 food-grade lubricant
(OIL J in Preventative Maintenance Manual)



JBT FoodTech Formula 410 XLT is a 100% synthetic, food-grade, H1 lubricating oil designed specifically for use in JBT FoodTech Frigoscandia freezing equipment and the extreme cold environments found in many food processing facilities, particularly when even colder temperatures are the goal. Formula 410 XLT is also the recommended low temp fluid to be used in Northfield Freezing “Low Tension Systems” that use the Bull Chain Automatic Oiling component. The base fluid is FDA approved and has an extremely low pour point of -85°F (-65°C) (the temperature at which an oil will no longer flow freely), yet has sufficient body to lubricate at all temperatures from freezing, defrosting, C-I-P (clean-in-place) all the way through sanitizing and drying cycles.

Formula 410 XLT has been created with extreme performance in mind. The base oil has been effectively additized with Extreme Pressure (EP additives decrease wear on the parts of the rails, roller balls or chains that can be exposed to very high pressures while operating) and Antiwear agents (AW additives prevent metal-to-metal contact between parts of gears or bearings). Rust and oxidation inhibitors are also added so that it's robust chemistry can ensure deposit-free, continual lubricity during operation of the freezer. Additionally, a unique food-grade tackifier is present in the formula to provide lubricant adhesion and limited non-drip characteristics for the balls, rails or bull chain.

Formula 410 XLT

Features

- Excellent super low-temperature performance
- Outstanding anti-wear protection
- Superior rust and oxidation properties
- Extremely effective lubricity throughout the full operational temperature spectrum
- Enhanced tackiness for cling and adherence
- Meets H1 requirements for incidental food contact

Benefits

- Protects critical moving parts through full cycle
- Provides longer life to crucial freezer components
- Allows for more throughput by limiting downtime
- Cold performance allows for lower operating temperature which increases production
- Use of OEM lubricant keeps warranty



Whether you maintain a JBT FoodTech Frigoscandia, GYRoCOMPACT® spiral freezer or a Northfield Low-Tension Freezer, Formula 410 XLT is the ultimate solution for converting to an effective, very low temperature food-grade lubricant.

Typical Properties	410 XLT
Approximate ISO Grade	10-15
Approximate SAE Grade	5
Viscosity @ -40°C, cSt	1800
Viscosity @ 40°C, cSt	13.0
Viscosity @ 100°C, cSt	3.25
Viscosity Index	119
Pour Point	-85°F (-65°C)
Flash Point	374°F (190°C)
Fire Point	414°F (212°C)
Specific Gravity, ASTM D 1298	0.8160
Color	Clear (UV exposure can cause pink hue)
MICRONOX®	Yes
NSF Non-Food Program	H1 Applied
CFIA	Yes



Part Numbers:

Formula 410 XLT

- 356176A** Gallon Plastic Bottle
- 356176B** 16 Gallon Steel Keg
- 356176C** 55 Gallon Steel Drum
- 356176T** 275 Gallon Hard Plastic Tote

To place an order or receive additional information call:
Order Entry Department 800-408-7788 option 3,
Fax 507-645-9664, email: process-solutions@jbt.com



NSF Reg. Applied for
 Category Code H1

www.jbtfoodtech.com

Formula 440

Proofer and Steamer Oil (OIL U, Preventative Maintenance Manual)



JBT FoodTech Formula 440 Proofer and Steamer Oil is a fully synthetic, NSF H1 registered, Food Grade Lubricant, specially formulated for use in JBT FoodTech Equipment. It was developed specifically to provide the ultimate in oil lubrication in environments with high relative humidity and in the temperature range that is typical on steaming and proofing applications. Its special formulation was tailored to achieve the highest performance when lubricating chains, balls and rails that are part of belt driven systems. It has a low pour point of -44°F (-42°C), yet has a high flash point of 464°F (240°C), that combined with its balanced viscosity ensure sufficient body to lubricate at higher temperatures typically found on Steaming applications. The additive package includes an effective combination of Extreme Pressure and Antiwear agents, and rust and oxidation inhibitors while it's robust chemistry ensures deposit free operation.

Additionally, Formula 440 Proofer and Steamer Oil will readily separate from water and air, eliminating emulsions that would inhibit the oils ability to lubricate critical moving parts under C-I-P cycles and high condensation environments.

JBT Food Tech Formula 440 Proofer and Steamer Oil provides critical performance enhancements including reduced operational wear, minimal sludge or deposit generation and superior rust and oxidation stability, a definite enemy in these kinds of operation, for long trouble free life. Compounded with 100% Synthetic base fluids and the best in additive technologies, Formula 440 provides superior performance over other food grade lubricating oils which have not been designed for these extreme applications.

Formula 440

Features

- Outstanding antiwear protection
- Resists the formation of foam, sludge and varnish
- Excellent rust and oxidation stability
- Hydrolytically stable, readily separates from water
- Has recommendations for many gears, vanes and piston pumps

Benefits

- Reduces wear (up to 95%) and minimal sludge deposit generation
- Performs well in both low and high temperatures
- Helps extend equipment life and lubrication intervals
- Promotes trouble-free operation
- Readily separates from water to ensure easy drainage



Typical Properties	440
Approximate ISO Grade	100
Synthetic Gear Classification	3S
Viscosity @ 40°C, cSt	100.0
Viscosity @ 100°C, cSt	13.0
Viscosity Index	127
Pour Point, °F	-44
Pour Point, °C	-42
Flash Point, °F	464
Flash Point, °C	240
Fire Point, °F	572
Fire Point, °C	300
Four-Ball wear, Scar Diameter, mm	0.40
Copper Strip Corrosion	1a
Rust Test Distilled Water	pass
Rust Test Synthetic Sea Water	pass
Color	Clear Water White
MICRONOX®	Yes
NSF Non-Food Program	139654/H1
CFIA	Yes



Part Numbers:

Formula 440

- 365436A** Gallon Plastic Bottle
- 365436B** 5 Gallon Round Plastic Pail
- 365436D** 55 Gallon Steel Drum
- 365636E** 275 Gallon Hard Plastic Tote

To place an order or receive additional information call:
Order Entry Department 800-408-7788 option 3,
Fax 507-645-9664, email: process-solutions@jbt.com



NSF Reg. No. 139654
Category Code H1

www.jbtfoodtech.com

Formula 491

Antiwear high-temperature H1 food-grade lubricant



JBT FoodTech Formula 491 is a custom-blended, high-temperature, food-grade H1 lubricating oil, formulated specifically for use in JBT FoodTech STEIN GYROCOMPACT® Ovens. It is intended to reduce down-time, extend component and equipment life and generally provide smooth, trouble free operation. A carefully selected and balanced additive package provides a low-depositing, worry free lubricant with a high flash point of 482°F (250°C), exceptional wear protection and unsurpassed thermal and oxidative stability. The extremely low volatility maximizes “dwell time”, increases the time available for the lubricant to migrate to critical friction points and reduces lubricant consumption.

Formula 491 provides a tenacious film that adheres to oven rails and balls through all aspects of the startup, cook and CIP processes.

Formula 491 is compatible with mineral oil, as well as most synthetic oils.

- * To ensure optimal performance, it is recommended that the system be thoroughly drained (and cleaned, if needed), before installing this product.
- * Formula 491 is not compatible with polyglycol-based oils. Thorough flushing of the system is required prior to changing over to Formula 491.

Formula 491

Features

- Excellent high-temperature lubrication characteristics
- Made from superior base stocks
- Refined food-grade additives provide peak performance
- Superior quality control
- Consistent viscosities of the fluid
- Meets H1 requirements for incidental food contact
- Outstanding antiwear protection
- High-quality food-grade tackifiers provide ultimate adhesion to balls and rails

Benefits

- Protects critical moving parts throughout the full operating cycle
- Consistent viscosities result in smoother operations
- High-quality base stocks and additives result in less line plugging and blockage
- Use of OEM fluid helps assure proper operation while keeping warranty intact



Formula 491 is formulated specifically for use in your Stein GYROCOMPACT oven.

Typical Properties	491
Viscosity @ 40°C	361 cSt
Viscosity @ 100°C	27 cSt
Viscosity Index	102
4-Ball Wear	0.31mm
Flash Point	482°F (250°C)
Fire Point	583°F (306°C)
RPVOT	1726 min.
Specific Gravity	0.8833
Density	7.355 lbs./gal

Part Numbers:

Formula 491

- 411-20-0028-001** 4/1 Gallon Plastic Bottles per Case
- 411-20-0028-005** 5 Gallon Round Plastic Pail
- 411-20-0028-055** 55 Gallon Steel C-H Drum
- 411-20-0028-275** 275 Gallon Hard Caged IBC Tote

To place an order or receive additional information call:
Order Entry Department 800 408 7788 option 2,
Fax 419 626 4253, email: naparts@jbt.com

www.jbtfoodtech.com

Formula 499 Lubricant

A USDA/FDA approved lubricant for oven chains



Formula 499 is an inert, ashless synthetic lubricant which is odorless and tasteless. It combines unique lubricating features with high thermal stability making it the ideal choice for high demand oven chain lubrication. Formula 499 is the preferred lubricant for high demand applications where the product being cooked requires high belt speeds and/or has high sauce content.

Benefits

USDA/FDA Approved - Formula 499 meets Title 21, CFR 177.1430 (contact with food surfaces), Title 21, CFR 178.3570 (incidental food contact) and Title 21, CFR 178.3910 (suitable for surface lubricant used in the manufacturing of metallic articles used in food contact).

Excellent Chain Adhesion - Formula 499 forms a tacky, tenacious synthetic oil film on both metallic and ceramic chain material.

100% Water Resistant - Formula 499 will not emulsify with moisture and resists wash off during normal cleaning procedures.

High Thermal Stability - Formula 499 will not oxidize or produce hard deposits in ovens nor will it produce noxious or harmful vapors during oven operation.

Long Lasting Film – Formula 499 greatly reduces the need for frequent re-lubrication and normally reduces lube consumption by 30-45%.

Part Numbers:

Formula 499

411-20-0099-005	5 Gallon Pail
411-20-0099-055	55 Gallon Drum
411-20-0099-320	320 Gallon Tote

Typical Properties:

Approximate ISO Grade	320
Approximate SAE Grade	140
Viscosity @ 40° C	325
Viscosity @ 100° C	31
Viscosity index	130
Pour Point (° F)	-44
Flash Point (° F)	495
Specific Gravity, ASTM D 1298	0.861
Color	Clear
NSF Non-Food Program	H1

To place an order or receive additional information, contact a customer service representative at 800 408 7788 option 2 or email: naparts@jbt.com

Formula 500 Series

Antiwear protection for cold gear box environments



JBT FoodTech Formula 500 Series Gear Oils are designed for severe-duty conditions where extreme temperatures can cause serious problems with conventional mineral oil or lesser grade synthetic based gear lubricants. They offer excellent gear protection and extended service in multiple applications by maintaining consistent viscosity while incorporating the added benefits of great anti-wear, excellent rust protection and high resistance to the degradation of water and trapped moisture.

Formula 500 Series Gear Oils have a high viscosity index across the board and are additized to be shear-stable and oxidation resistant preventing viscosity loss from mechanical shear and viscosity increase from oxidation. These characteristics along with their extremely low pour points allow for extended temperature protection and performance, especially in the severe environments surrounding freezing equipment found in food processing.

These oils will hold their fluid properties longer as temperatures drop. They aid in easier start-ups and quicker lubrication circulation limiting the need for ramping up or use of sump heaters. When temperatures rise during C-I-P, sanitation or drying cycles, Formula 500 Series Gear Oils maintain a thick lubricating film reducing metal-to-metal contact and gearing component wear. The additive package is non-detergent and ashless and has included foam suppressants.

Formula 500 Series Gear Oils exhibit excellent stability in the presence of water and superior demulsibility, which allows for the easy separation of water making draining off excess water an easy operation.

Formula 500 Series Gear Oils meet USDA H2 requirements for lubricants used in federally inspected meat and poultry plants where there is no possibility of food contact. The "new" Formula 500 FG Series gear oils are now offered for applications desiring USDA H1 food grade for incidental contact.*

Formula 500 Series

Features

- Long life oil providing extended drains
- Thermal stability
- Fortified for anti-wear, antifoaming, Antirust and antioxidation
- Superior cold temperature performance
- Hydrolytically stable and readily separates from water

Benefits

- Maintenance time and costs are reduced
- Handles temperature swings caused by Programmed cycles
- Eases start-ups from cold
- Helps gear boxes last longer
- Meets AGMA R&O and synthetic gear oil classifications
- High affinity to metal surfaces
- Extremely low pour points

Part Numbers:

Formula 500 Series

532* 356319A	5 Gallon Round Plastic Pail	568 LT* 356211A	5 Gallon Round Plastic Pail
356319B	55 Gallon Steel Drum	356211B	55 Gallon Steel Drum
546* 356026A	5 Gallon Round Plastic Pail	5150 LT 356212A	5 Gallon Round Plastic Pail
356026B	16 Gallon Steel Keg	356212B	55 Gallon Steel Drum
356026C	55 Gallon Steel Drum	5320* 356318A	5 Gallon Round Plastic Pail
546 XLT 356229A	5 Gallon Round Plastic Pail	356318B	55 Gallon Steel Drum
356229C	55 Gallon Steel Drum	5460 LT* 356213A	5 Gallon Round Plastic Pail
		356213B	55 Gallon Steel Drum

* See last paragraph on front page. Also available in food grade 500FG Series.

Typical Properties Inspection	532	546	546 XLT	568 LT	5150 LT	5320	5460 LT
ISO Grade	32	46	46	68	150	320	460
SAE Grade	10	20	20	30	50	--	--
AGMA Class	0S	1S	1S	2S	4S	6S	7S
VISC. @ 40°C, cSt	29.3	44.6	44.8	68.4	150.8	321.9	457.9
VISC. @ 100°F, cSt	5.9	7.5	9.8	10.45	18.5	31.7	39.1
Viscosity Index	153	134	214	140	137	137	131
Pour Point, °F	-69	-60	-49	-54	-36	-13	0
Pour Point, °C	-56	-51	-45	-48	-38	-25	-18
Flash Point, °F	464	500	406	471	500	500	500
Flash Point, °C	240	260	208	244	260	260	260
Fire Point, °F	536	568	460	547	572	568	579
Fire Point, °C	280	298	238	286	300	298	304
Color	Red	Red	Red	Red	Red	Red	Red
Specific Gravity (Typical)	0.8353	0.8373	0.8398	0.8428	0.8514	0.8591	0.8633
Copper Corrosion	1b	1b	1b	1b	1b	1b	1b
Rust Prevention	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Four-Ball Wear, mm	0.40	0.40	0.40	0.40	0.40	0.35	0.35
NSF Non-Food Program	--	138304/H2	--	--	--	--	--
CFIA	No	Yes	No	No	Yes	No	No

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Order Entry Department 800-408-7788 option 3,
Fax 507-645-9664, email: process-solutions@jbt.com**

www.jbtfoodtech.com



Formula 500 FG Series

Antiwear protection for cold gear box environments
(OIL A, B and OIL F in Preventative Maintenance Manual)



JBT FoodTech Formula 500 FG Series Gear Oils are compounded for use in severe-duty conditions where extreme temperatures can cause serious problems with conventional mineral oil or lesser grade synthetic based gear lubricants, plus they have the added benefit of being H1 Food Grade, for incidental food contact. Like our H2 Formula 500 Series gear oils, the FG Synthetic line up of gear oils are compounded with 100% PAO based fluids and the best available additive technologies to provide superior performance. They contain high doses of antiwear agents, rust inhibitors and viscosity improvers, which along with their antioxidant chemistry ensure, excellent long term wear protection and deposit free operation. Formula 500 FG Series Gear Oils are designed to

operate in extremely low ambient temperatures, while still being able to maintain sufficient body to perform throughout the freezer cycle from freeze through C-I-P and sanitation or drying.

The results of these high quality formulations and additives are longer drain intervals, easier start up at colder temperatures, reduced wear and amperage draw and of course limited downtime. As the H2 Formula 500 Series Gear Oils, our Food Grade 500 FG oils also exhibit excellent stability in the presence of water and superior demulsibility, which allows for the easy separation of water making draining off excess condensation an easy operation.

Formula 500 FG Series

Features

- Long life oil providing extended drain intervals
- Meets requirements of USDA H1
- Kosher and parve certified
- Fortified for anti-wear, antifoaming, antirust and antioxidant
- Hydrolytical stability to readily separate water
- Designed for extreme-temperature operations as found in JBT FoodTech freezing equipment

Benefits

- Consistent use will reduce maintenance time and cost
- Handles temperature swings caused by program cycles
- Eases cold start-ups
- Meets or exceeds all AGMA R&O and synthetic gear oil standards
- extends gear box life by reducing the potential for rust and corrosion to the system components
- offers a high affinity to metal surfaces



Part Numbers:

Formula 500 FG Series

532 FG	
365551A	5 Gallon Round Plastic Pail
365551B	55 Gallon Steel Drum
546 FG	
365549A	5 Gallon Round Plastic Pail
365549B	55 Gallon Steel Drum
568 FG	
365550A	5 Gallon Round Plastic Pail
365550B	55 Gallon Steel Drum

Typical Properties	532 FG	546 FG	568 FG
Viscosity @ 40°C, cSt	32.4	46.9	68.3
Viscosity @ 100°C, cSt	5.9	7.6	9.8
Viscosity Index	129	128	125
ISO Viscosity Grade	32	46	68
AGMA Synthetic Gear Classification	OS	1S	2S
Pour Point, °F (°C)	-65 (-54)	-44 (-42)	-44 (-42)
Flash Point, °F (°C)	453 (234)	464 (240)	475 (246)
Fire Point, °F (°C)	500 (260)	504 (262)	561 (294)
Copper Strip Corrosion	1a	1a	1a
SAE Grade	10	20	30
Rust Test			
Method A - Distilled Water	Pass	Pass	Pass
Method B - Synthetic Sea Water	Pass	Pass	Pass
Four-Ball Wear, Scar Diameter, mm	0.45	0.45	0.45
Specific Gravity (typical)	.8328	.8378	.8368
Color	Water White	Water White	Water White
MICRONOX®	Yes	Yes	Yes
NSF Non-Food Program	H1 Applied	H1 Applied	H1 Applied
CFIA	Yes	Yes	Yes

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Fax 507-645-9664, email: process-solutions@jbt.com**



NSF Reg. Applied for
Category Code H1

www.jbtfoodtech.com

Formula 500 FGSS

Semi-Synthetic Gear Oils

(OIL D, E, V for 5220 FG and OIL X for 5460 FG
in Preventative Maintenance Manual)



JBT FoodTech H1 Food-Grade ISO Grade Gear Oils are uniquely formulated for use in Food and Beverage processing gear box applications that formerly may have needed an Industrial or H2 Grade oil. They round out the JBT 500 FG Series line of Gear Oils with a Semi-Synthetic, more competitive, fully additized level of premium performance gear oils for the less specialized gear boxes of a general nature found in Food and Beverage Processors.

They are intended for applications of high load and shock like industrial bevel, herringbone, spur, helical and worm gears, chain drives and sprockets. They can handle the most severe operating conditions, and because of their semi synthetic formulation, are also ideal for combating seasonal operational swings.

JBT Formula 500 FG Series Semi-Synthetic Gear oils are compatible with most gear box seals, most synthetic gear oils and most petroleum gear oils (with the exception of Poly Glycol type oils).

Formula 500 FGSS

Features

- Outstanding extreme pressure protection
- Advanced additive technology
- Extremely water resistant
- Provide maximum rust and oxidation protection

Benefits

- The high film strength helps the extreme pressure additives to perform throughout the gear box
- The formulation provides longer component life and reduce downtime
- The high level of water resistance provides longer lubricant life and reduced degradation.
- By eliminating rust and oxidation, one limits the effect of these contaminants which ultimately shorten the life of the gearbox and reduce the effectiveness of the oil.



Typical Properties	5220 FG	5320 FG	5460 FG
Viscosity @40°C cSt	221.4	314.2	458.3
Viscosity Index	101	102	100
Pour Point °F (°C)	+14°F (-10°C)	0°F (-18°C)	+10°F (-12°C)
Flash Point °F (°C)	465°F (241°C)	433°F (223°C)	465°F (239°C)
Rust Test			
Method A Distilled Water	Pass	Pass	Pass
Method A Distilled Water	Pass	Pass	Pass
Four-Ball Wear mm	0.38	0.38	0.38
AGMA Class	5 EP	6 EP	7 EP
MICRONOX®	Yes	Yes	Yes
NSF Non-Food Program	H1 Reg. #139548 H1 Reg. #141432	H1 Reg. #139949	H1 Reg. #139549 H1 Reg. #141433
CFIA	Yes	Yes	Yes

Part Numbers:

Formula 500 FGSS

5220 FG

575069 5 Gallon Pail

575070 55 Gallon Drum

5320 FG

575104 5 Gallon Pail

575105 55 Gallon Drum

5460 FG

575084 5 Gallon Pail

575026 55 Gallon Drum

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NSF See Chart
Category Code H1

www.jbtfoodtech.com

Formula 5PAG FG

High Temperature Gear Oil
(OIL P, T in Preventative Maintenance Manual)



JBT FoodTech H1 Food-Grade 100% Synthetic High Temperature Gear Oil is a fully synthetic PAG (polyalkylene glycol) fluid that offers outstanding performance characteristics for extremely demanding applications. Due to its unique chemistry, it offers a surprisingly high viscosity index with outstanding lubricity to provide not only cost reducing energy savings but extra long gearbox life as well.

The formulation brings remarkable extreme-pressure, antiwear and corrosion protection, which make it an excellent lubricant for applications that are too severe for conventional mineral oil based products and those old school food-grade offerings. One can see lower operating

temperatures and reduced friction resulting in minimal gear wear. The fluid brings very high film strength and lubricity for bevel, spur, helical, spiral and planetary gears and is particularly suited for worm gear applications.

Formula 5PAG FG supports very low pour points making it ideal for freezing and cooling applications. Additionally, its lack of wax and paraffins give it the ability to handle wide temperature swings. This means easier starts at cold temps and consistent film and lubricant adhesion at high. Along with reduced wear and engaging fluid film supported by low volatility, Formula 5PAG FG can increase gearbox drain intervals 3 to 4 times on average based on used oil analysis.

Formula 5PAG FG

Features

- Extremely high viscosity index
- Offers greatly reduced friction characteristics
- Improved metal wetting and lubricity properties
- Wide temperature range capability

Benefits

- High VI translates into smoother cold temperature start-ups
- Reduced friction will translate into longer gearbox life and longer drain intervals
- Less wear on internals providing energy savings and lower operating temperatures
- Wide temperature ranges make this more adaptable to multiple applications providing the chance to consolidate fluids



Typical Properties	5PAG FG
Viscosity @ 40°C cSt	224
Viscosity @ 100°C cSt	36.9
Viscosity Index	217
Pour Point °F (°C)	-36°F (-38°C)
Flash Point °F (°C)	550°F (288°C)
Rust Inhibition	
Method A Distilled Water	Pass
Method B Synthetic Sea Water	Pass
Four-Ball Wear mm	0.38
Timken OK Load lbs	45
MICRONOX®	Yes
NSF Non-Food Program	H1 Applied
CFIA	No

Part Numbers:

Formula 5PAG FG

365583A	Gallon Plastic Bottles
365583B	5 Gallon Pail
365583C	16 Gallon Keg

**To place an order or receive additional information call:
Order Entry Department 800-408-7788 option 3,
Fax 507-645-9664, email: process-solutions@jbt.com**



NSF Reg. No. Applied For
Category Code H1

www.jbtfoodtech.com

Formula 600 Series

Refrigeration Compressor Fluids



JBT FoodTech Formula 600 Series Refrigeration Compressor Fluids are 100% fully synthetic lubricants formulated especially for use in the low temperature conditions found in the operation of Frigoscandia and Northfield Freezing Equipment. As the demands of today's modern food processors continues to strive to pull more efficiency out of each piece of equipment, the reality of needing high-quality, top-performing lubricants especially in the critical areas of compressor operation becomes more apparent. A few degrees colder in a freezer can have an exponentially positive effect on production volumes, just as the need to shut down a freezer due to compressor failure would have a negative effect.

Formula 600 Series fluids are designed to exceed demands and out-perform conventional refrigeration compressor oils particularly in low temperature applications.

Formula 646 is a food grade oil for compressors and vacuum pumps requiring a product that could have incidental contact with food or beverage. It is made from shear-stable USDA H1 synthetic base oils designed to provide long life through reduced component wear, corrosion protection, water resistance and lubricant breakdown resistance. The high viscosity index and low pour point, low volatility and prolonged thermal stability allow use at a wide temperature range. Additionally, the minimized carbon depositing, low frictional characteristics and anti-foaming agents provide reduced energy consumption and lower operating temperatures. Formula 646 is designed to reach beyond 8,000 hours as long as discharge temperatures remain below 200°F (90°C). Monitoring at 500 hour intervals is recommended using JBT FoodTech oil analysis kits (part number 356231A).

Formula 600 Series

Formula 668 is a highly refined 100% synthetic Ammonia Compressor oil designed to replace conventional refrigeration compressor oils in the excessively demanding, super low temperature applications of JBT FoodTech Freezers. Our freezers are stretching down to temperatures unheard of only a few short years ago and the right fluid must be able to flow freely without sacrificing lubricity which can cause premature failures. Formula 668 is a suitable replacement for mineral or even other synthetic compressor oils. It can extend equipment life and drain intervals with the added benefit of reducing energy costs.

Features

- antiwear and anti-foam protection
- Rust and oxidation inhibited
- Recommended for use in rotary screw, centrifugal, vane & reciprocating compressors
- Excellent demulsification characteristics
- Very good compatibility to most compressor components

Typical Properties	646	668
Viscosity @ 100°C, cSt	7.6	9.7
Viscosity @ 40°C, cSt	46.9	67.5
ISO Viscosity Grade	46	68
Viscosity Index	128	124
SAE Viscosity Grade	10	20
Specific Gravity	0.8378	0.8373
Pour Point,°F	-44	-54
Pour Point,°C	-42	-48
Flash Point,°F	464	518
Flash Point,°C	240	270
Fire Point,°F	504	576
Fire Point,°C	262	302
Copper Strip Corrosion	1a	n/a
Rust Test A Distilled Water	pass	n/a
Rust Test B Synthetic Sea Water	pass	n/a
Four-Ball Wear, mm	0.45	n/a
MICRONOX®	Yes	No
NSF Non-Food Program	Meets H1	Meets H2
CFIA	Yes	No

Formula 646 is compatible with petroleum oils, most synthetic oils (not silicon or polyglycol fluids) as well as most seals, paints and gaskets found in most compressors.

Formula 668 also has excellent demulsifying properties and will keep water separated for easy draining while eliminating oil carry over to the cold side of the system.

Benefits

- Reduces energy draw
- Excellent oxidative stability
- Readily separates from water
- Reduced oil consumption and volatility
- Will not congeal to refrigerator coils
- Provides extended drain intervals



Part Numbers:

Formula 600 Series

646	
356283A	5 Gallon Round Plastic Pail
356283B	16 Gallon Steel Keg
356283C	55 Gallon Steel Drum
668	
356173A	55 Gallon Steel Drum

**To place an order or receive additional information call:
Order Entry Department 800-408-7788 option 3,
Fax 507-645-9664, email: process-solutions@jbt.com**



www.jbtfoodtech.com

Formula 600VP and 600VP FG

Vacuum Pump Oil



JBT FoodTech Formula 600VP FG is an Incidental Contact H1 Food-Grade, semi-synthetic lubricant designed for use in numerous compressor and vacuum pump applications. This is an advanced chemistry formulation which has the best features identified and enhanced to provide ultimate protection for water demulsibility, fluid volatility, friction reduction, antiwear, fluid dispersion and deposit formulation.

Formulation 600VP FG is a unique and patented chemistry that offers superior performance over other formulations made from conventional synthetic base stocks like polyalphaolefins or esters. It brings increased protection for carbonization and depositing. Additionally, our chemistry helps eliminate varnishing and enhance hydrolytic stability and water dispersion. It also significantly reduces wear dramatically over conventional lubricants which enhances component life and reduces downtime.

Additionally, we have designed this product to separate from water and air which can cause emulsions that force poor performance and sludging. Water can easily drain helping eliminate rust and corrosion.

JBT FoodTech Formula 600VP is an H2, non-synthetic version that has been formulated for the most severe of applications that operate at elevated temperatures such as industrial rotary vacuum pumps and booster blowers. Characteristics like our food-grade version help reduce oil oxidation and thickening. This product can actually clean up drastically carbonized pumps by adhering to a shortened drain interval until the unit is cleaned up. Then 1000 hour runs can easily be the norm.

Formula 600VP and 600VP FG

Features

- Superior antiwear protection
- Helps eliminate foam, varnish, sludging and corroding acids
- Offers enhanced hydrolytic stability and easily separates from water
- Excellent rust and oxidation performance

Benefits

- Increases pump or compressor life
- Reduces downtime needed to deal with sludge or varnishing
- Provides increased drain intervals
- Offers longer life and reduced component failure



Typical Properties	600VP	600VP FG
Viscosity @ 40°C	110	102.55
Viscosity @ 100°C	11.9	12.41
ISO Grade	100	100
Viscosity Index	98	114
Flash Point °F (°C)	465°F (240.6°C)	514°F (268°C)
Pour Point °F (°C)	-10°F (-23.3°C)	-4°F (-20°C)
Specific gravity	0.8881	0.8731
Four-Ball Wear, mm	---	0.48
RPVOT, minutes	---	1750
MICRONOX®	---	Yes
NSF Non-Food Program	H2	H1 Applied
CFIA	No	No

Part Numbers:

Formula 600VP Series

600VP

- 365584A** 5 Gallon Pail
- 365584B** 16 Gallon Keg
- 365584C** 55 Gallon Drum

600VP FG

- 365584AFG** 5 Gallon Pail
- 365584BFG** 16 Gallon Keg
- 365584CFG** 55 Gallon Drum

To place an order or receive additional information call:
Order Entry Department 800-408-7788 option 3,
Fax 507-645-9664, email: process-solutions@jbt.com



NSF Reg. Applied for

www.jbtfoodtech.com

Formula 700 Series (760, 762, 764)

Premium food grade oil designed for use in hydraulic applications



JBT FoodTech Formula 760 is a premium quality food grade oil designed for use in the hydraulic applications of JBT FoodTech equipment. As with all hydraulic fluids, there are many aspects of the oil that accomplish numerous tasks within a system, such as energy transfer, lubrication, a sealant medium and a heat transfer liquid. How well and efficiently these fluids perform is what makes a good fluid good.

We have formulated our Formula 760 with the finest additive package allowable within food grade lubricants to provide effective anti-wear and rust inhibition as well as ensure deposit-free operation with minimal sludge build up. We have added polymeric viscosity improvers to assist performance in operations that require low ambient temperatures and yet still have sufficient body to maintain it's characteristics during higher temperature cycles during C-I-P, sanitizing and drying operations.

Formula 760 will extend the life and drain intervals of our freezing equipment because of the limiting of rust, oxidation and wear on the inner components of the hydraulic system. Formula 760 allows for easy tap-off of the water in a system due to the high level of demulsification built into the formula. It eliminates the negative effects that can be caused when emulsions form as an oil and water mix rather than separate. Lesser quality hydraulic fluids can cause rust and corrosion as well as wear and fade which will all rob the system of it's maximum efficiency.

We have added formula 762 and 764 which now gives us a range of viscosities from ISO 32 to ISO 68. This provides food grade fluids for both stationary and mobile hydraulic systems as well as high and low pressure gear, vane and piston applications.

Formula 700 Series (760, 762, 764)

Features

- Excellent rust and oxidation protection
- Hydrolytical stability
- Superior protection for anti-wear and performance under high pressures
- Low pour point and high viscosity index for freezer applications
- Helps eliminate foam, sludge and varnish formation
- Meets H1 requirements

Benefits

- Will extend the life of components, limiting downtime
- Will work to separate water, eliminate foaming, resist rust and corrosion
- H1 status means it can be used with confidence in food or beverage processing
- Formulation also meets the requirements for numerous component manufacturers
- Formulas 760, 762, 764 are food grade hydraulic fluids that perform as well as industrial fluids



Part Number:

Formula 700 Series

760 356313	5 Gallon Plastic Pail
762 575078-5	5 Gallon Pail
575078	55 Gallon Drum
764 575081-5	5 Gallon Pail
575081	55 Gallon Drum

Typical Properties	760	762	764
Viscosity @ 100°C, cSt	5.4	6.8	8.7
Viscosity @ 40°C, cSt	31.7	46.3	67.8
ISO Viscosity Grade	32	46	68
Viscosity Index	100	102	101
SAE Viscosity Grade	10	20	20
Specific Gravity	0.8639	0.8650	0.8691
Pour Point, °F	-40	-19	-8
Pour Point, °C	-40	-28	-22
Flash Point, °F	392	410	429
Flash Point, °C	200	210	221
Fire Point, °F	414	429	469
Fire Point, °C	212	221	243
Copper Strip Corrosion	1a	1a	1a
Rust Test A Distilled Water	Pass	Pass	Pass
Rust Test B Synthetic Sea Water	Pass	Pass	Pass
Four-Ball Wear	0.45 mm	0.40 mm	0.40 mm
MICRONOX®	Yes	Yes	Yes
NSF Non-Food Program	H1	# 139944 or 141435/H1	# 139945 or 141436/H1
CFIA	Yes	Yes	Yes

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NSF See 762-764
Category Code H1

— www.jbtfoodtech.com —

Formula 8008

Aerosol



JBT FoodTech STA-SLICK Food-Grade All Purpose Silicone Spray is an H1, incidental contact, fast drying, friction reduction marvel for use in 1000's of applications throughout any Food, Beverage or Pharmaceutical processing facility. STA-SLICK is ideal for applications where friction must be reduced and for parts that need to move more easily and freely. Formula 8008 performs best between unlike materials like cardboard on a stainless surface or paper or plastic packaging materials on a chute or collection table.

Silicone sprays are used throughout plants, both in processing and non-processing areas. JBT Formula STA-SLICK is formulated to be the solution plant-wide.

It is designed to offer the highest treatment of Silicone Fluid to an application, which is aerosolized into microscopic particles designed to spread easily over the surface needing coverage. The Food Grade solvent that performs that task also provides extremely fast drying for the product, so production is not delayed while the STA-SLICK dries, it is ready almost immediately.

Another area where STA-SLICK will prove very helpful is where there is the use of cutting blades, especially where incidental food contact may occur. STA-SLICK will help eliminate the build-up of adhesives or other contaminants that can reduce the performance of sharp blades.

Formula 8008

Features

- Dries extremely fast
- Leaves a long lasting silicone film
- Remains dry so that it will not attract particulates
- Reduces friction thus promoting sliding and ease of movement

Benefits

- No need to wait for 8008 to dry before starting operations
- Long lasting means less use, less stoppage time for the application of the spray
- Can be used where powders or fines would adhere to a moist lubricant
- Reduced friction can reduce stress and strain on workers by making jobs easier and smoother



Typical Properties	8008
SILICONE FLUID	
Viscosity @ 40°C cSt	266.0
Viscosity @ 100°C cSt	108.4
Viscosity Index	433
Pour Point °F (°C)	-85°F (-65°C)
Flash Point °F (°C)	689°F (365°C)
Specific Gravity	0.9765
PROPELLANT	Propane, Butane
Flash Point °F (°C)	-94°F (-70°C)
Spray Pattern	Fine Mist
Appearance	Nearly Invisible
Color	Totally clear
MICRONOX®	Yes
NSF Non-Food Program	H1 Registration # 140727
CFIA	Yes

Part Numbers:

Formula 8008

575056 10 Ounce Net
Weight Aerosol

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NSF See Chart
Category Code H1

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Formula 8009

Aerosol



JBT FoodTech Food-Grade Penetrating Oil aerosol spray is an extremely high performing penetrating and lubricating oil product. It has been formulated using only premium quality ingredients that have been approved and tested for use in the highly regulated Food, Beverage and Pharmaceutical processing arena.

Designed to soak in and penetrate the smallest cracks and crevices so that it's active "rust busting" additives can go to work and loosen galled, seized or frozen parts or fasteners.

If you have been searching for a safe and effective alternative to the little blue and yellow can, that you know should not be on the processing floor, this is it. Formula 8009 meets or exceeds all of the requirements for NSF H1 registration. An additional benefit to being H1 compliant is the lack of obnoxious odors or staining colors making it an ideal product for the front of the house or in hospitality areas like Hospitals, Hotels, Convention and Exposition centers, anywhere lots of people can be present and captive.

Formula 8009

Features

- Totally safe for incidental contact applications
- No noxious odor
- Soaks in and penetrates rapidly
- Is designed to leave behind a long lasting lubricating film

Benefits

- Can be used with confidence on processing floor with GMP (Good Manufacturing Processes)
- Will not cause smells or odors so it can be used when and where people are present
- Acts fast so production is not held up saving down time
- Once it has loosened pieces or parts they remain lubricated for the next action



Typical Properties	8009
OIL	
Viscosity @ 40°C cSt	4.5-5.5
Flash Point °F (°C)	138°F (58.9°C)
Pour Point °F (°C)	-40°F (-40°C)
Rust Inhibition	
Method A, Distilled Water	Pass
Method B, Synthetic Seawater	Pass
Color	Clear Straw
Odor	Slight nutty
Consistency	very light oil
PROPELLANT	
Flashpoint °F (°C)	-94°F (-70°F)
MICRONOX®	Yes
NSF Non-Food Program	H1 Registration #141438 and or #137749
CFIA	Yes

Part Numbers:

Formula 8009

575052 11 Ounce Net
Weight Aerosol

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NSF See Chart
Category Code H1

www.jbtfoodtech.com

Formula 8014

Aerosol



JBT FoodTech H1 Food-Grade Assembly Spray Lubricant is an incidental contact approved assembly and machinery oil in a convenient aerosol can, designed to cling and perform. It is heavily fortified with antiwear and extreme pressure additives as well as a synthetic polymer technology to provide unsurpassed corrosion and wear protection in the food and beverage processing arena.

Formula 8014 is a mineral oil based lubricant, but with the exception of extreme temperatures can often outperform synthetic Food Grade offerings. If you have a moving mechanism that needs to be lubricated, this can

be your solution. It has been formulated to be heavy enough to adhere and stay where you put it, yet light and fluid enough to soak in allowing it to penetrate and permeate the innermost points that need the lubrication. Chains, conveyors, enclosed spur and bevel gears, sliding mechanisms, hinges, rollers, cams, cables and oil washed sleeve, ball, plain and roller bearings all are applications where this oil performs extremely well. If your desire is to keep something moving longer between lubrication and extend the life of the assembly or mechanism, then Formula 8014 needs to be a part of your tool crib.

Formula 8014

Features

- Provides excellent water displacement
- Offers superior corrosion protection
- Presents exceptional lubricating film
- Outstanding antiwear protection
- Has MICRONOX® which provides a preservative for the oil

Benefits

- Helps eliminate washout which often results in dry start-ups
- Makes an excellent oil to act as a coating between seasons
- Lasts longer between applications meaning less usage
- Less wear means longer equipment life, less downtime
- Preservative protection means less need to worry about lubricant harboring or spreading microbes



Typical Properties	8014
OIL	
ISO Grade	150
Viscosity @ 40° C cSt	146
Viscosity @ 100° C cSt	14.6
Viscosity Index	91 min.
Color	Light Amber
Odor	Slightly nutty
Flashpoint °F (°C)	464°F (240°C)
Pour Point °F (°C)	0°F (17.8°C)
PROPELLANT	Propane, Butane
Flashpoint °F (°C)	-92°F (-71°C)
MICRONOX®	Yes
NSF Non-Food Program	H1 Registration #139673
CFIA	Yes

Part Numbers:

Formula 8014

575107 11 Ounce Net
Weight Aerosol

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NSF See Chart
Category Code H1

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Formula 8413

Aerosol



JBT FoodTech Food-Grade Open Gear Spray Grease is a plant-wide, incidental contact-safe, H1 aerosol spray grease that offers a high performance solution to 1000's of issues throughout Food and Beverage Processing facilities. It has a combination of our Formula 301 and 302 greases which are formulated with the latest technology in grease soap thickeners, to provide superior water washout and chemical resistance, which can be huge problems in these processing plants. Additionally it has been built with outstanding corrosion control, antiwear and extreme pressure performance.

If your plant has aerosol cans of white or red Lithium grease or some other dark, high-solids grease hidden on a low shelf or tucked in a tool box, replace them with Formula 8413 and be confident that you will have a safe H1 product that will outperform all those others.

For open gears or rolling casters on carts and racks, sliding mechanisms that need an easy-to-apply grease lubricant or slow moving chains that are subjected to water wash-down and or chemicals.

Formula 8413

Features

- Provides exceptional mechanical stability
- Offers remarkable rust and corrosion control
- Very good compatibility with other greases
- Contains the added benefits of MICRONOX® to preserve and protect the grease

Benefits

- Will provide greatly extended life for lubricated parts reducing replacement costs
- Will help reduce safety risks of casters that don't roll or mechanisms that stop sliding
- By reducing the concern of following an old grease at switchover, time and labor are saved
- There is less chance of transferring microbes as this grease will not harbor them



Typical Properties	8413
GREASE (relates to Formula 301 and 302 grease)	
NLGI Grade	1-2
Dropping Point °F (°C)	600°F (316°C)
Base Fluid Viscosity @ 40°C cSt	95
Base Fluid Viscosity Index	92
Base Fluid Pour Point °F (°C)	10°F (-12°C)
Base Fluid Flash Point °F (°C)	482°F (250°C)
Timken OK Load lbs	59.5
Four-Ball Weld kgf	500
PROPELLANT	Propane. Butane
Flashpoint	-93°F (-71°C)
Color	Off White/ Tan
Texture	Thick wet grease
MICRONOX®	Yes
NSF Non-Food Program	H1 Registration #137750 and or #141429
CFIA	No

Part Numbers:

Formula 8413

575053 11 Ounce Net
Weight Aerosol

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NSF See Chart
Category Code H1

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Formula 8414

Aerosol



JBT FoodTech Food-Grade Chain Lube is a hybrid formula that takes the superior wear and extreme pressure characteristics of our Food-Grade Assembly Lube and the water and chemical resistance of our Food-Grade Open Gear spray and combines them to make a product that protects, lubricates and is very resistant to running or dripping. Designed for mechanisms, like rails and conveyors, that are above food or beverage lines that still need the extreme antiwear and corrosion protection, but need to do so without the chance of dripping down on the product below.

The combination formula sprays out as a thick, clinging foam. However, as soon as it attaches to the application, it starts to penetrate and soak deep into the inner workings of the chains or mechanism, bringing with it the fortified package for antiwear, water resistance, rust and corrosion control. This performance capability makes this an ideal product for high moisture or steam riddled applications.

Formula 8414

Features

- Thick clinging film that adheres to chains or conveyors
- Non-drip formulation for overhead applications
- Excellent water and moisture resistance
- Great antiwear and extreme pressure properties

Benefits

- Can be used where a visual adherence is desired
- Little concern is needed for the product underneath assuming 'good manufacturing practices'
- Will resist wash-out or run out from heavy moisture, reducing failures
- Longer life for chains that may have been overlooked or run dry due to overhead location



Typical Properties	8414
PROPELLANT	Propane, Butane
Flashpoint	-94°F (-74°C)
MIXTURE	
Flashpoint	352°F (177.8°C)
Spray Pattern	Thin Foamy Stream
Texture	Thick Clinging Film
Color	Light Straw
Odor	Slightly Nutty
MICRONOX®	Yes
NSF Non-Food Program	H1 Registration #137751 or #141430
CFIA	No

Part Numbers:

Formula 8414

575054 11 Ounce Net
Weight Aerosol

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NSF See Chart
Category Code H1

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Formula 8474 FG

Air Line and Air operated Tool Lubricant



JBT FoodTech H1 Food-Grade Air Line and Air Tool Oil is designed for incidental food contact in any compressed air system. It has been formulated with high levels of rust inhibitors and emulsifiers. The rust inhibitors along with the formula's high level of anti-wear additives help protect the internal mechanisms and motors of air tools, while the emulsifiers pick up and exhaust the tramp moisture.

Formula 8474 FG is designed specifically for the Food and Beverage Processing arena. But in reality, air systems and air driven tools typically exhaust their spent air right into the working environment (YES, see where that air is headed after it leaves a cutter or any air tool, it's right there by the food). This affects the air an operator is breathing as well as any exposed food or beverage surface, so having a food-grade safe oil in all air line systems makes great sense!

Formula 8474 FG has hygroscopic chemistry incorporated to pick up and exhaust the moisture that can be trapped or residual in the lines. This not only helps to prevent rust of the tool or system, but by its nature, that moisture, when left alone, can be the perfect breeding grounds for all kinds of trouble. As an added benefit Formula 8474 FG is also compounded with revolutionary MICRONOX[®] anti-microbial technology. It is a given that long lines in air systems, often sitting idle for periods of time, with as we've said entrapped moisture, and exposed to heat, (whether caused by the friction of the operation inherent in the system or from environmental conditions in the plant), pose an often overlooked health threat. Our formulation will help reduce that threat and extend the life of your system and tools.

Formula 8474 FG

Features

- Very high level of antiwear protection
- Outstanding rust and corrosion control performance
- Performs water emulsification throughout the air systems in the plant
- Offers superb anti-microbial protection

Benefits

- Great antiwear means longer life for systems and tools
- Eliminating rust and corrosion means less downtime due to plugging and contamination
- No need to have multiple air line lubes, helps in consolidation
- Food plants have HACCP programs and this Product with MICRONOX® protection really helps support the entire program

Typical Properties	8474 FG
Viscosity @ 40°C	23.25
Viscosity @ 100°C	4.40
Viscosity Index	92.5
SAE Viscosity Grade	10
Specific Gravity	0.8625
Pour Point °F (°C)	-8°F (-22°C)
Flash Point °F (°C)	374°F (190°C)
Rust Test	
Method A, Distilled Water	Pass
Method B, Synthetic Sea Water	Pass
Color	Water White
Odor	Negligible
MICRONOX®	Yes
NSF Non-Food Program	H1 Registration #139948 and or #141437
CFIA	Yes



Part Numbers:

Formula 8474 FG

575103	16 fluid ounce bottles
575103-1	Gallon plastic bottle
575103-5	5 Gallon pail
575103-55	55 Gallon drum

To place an order or receive additional information call:
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NSF See Chart
Category Code H1

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PRoTHERM™ Select

High performance heat transfer fluid



JBT FoodTech PRoTHERM Select is a food grade heat transfer fluid designed for high performance in liquid phase heat transfer systems at sustained operating temperatures up to 600° F. It is highly refined, severely hydrogenated, paraffinic white oil that is odorless and capable of being fully reprocessed.

Benefits

- Delivers unparalleled thermal stability and heat transfer efficiency to your system
- Competitively priced
- Mixable with other thermal fluids such as Paratherm NF
- Can be used in new systems or to top off the fluid in an existing system
- Field proven

PRoTHERM SELECT Properties

Key Operating Temperatures		
Maximum bulk fluid operating temperature	600° F	316° C
Maximum film temperature	650° F	343° C
Pumpability (2000 cP)	-4° F	-20° C
Physical Properties		
Composition	Hydrogenated white oil	
Odor	Faint, oily	
Appearance	Water white clear liquid	
Flash point	380° F	193° C
Fire point	420° F	216° C
Auto ignition temperature	680° F	360° C
Initial Boiling point	574° F	301° C
Final Boiling point	874° F	468° C

We are with you through the full life cycle of the product and provide periodic fluid analysis. This analysis enhances your ability to plan for fluid reprocessing ensuring that the system runs at best efficiency at all times.

To place an order or receive additional information, contact a customer service representative at 800 408 7788 option 2 or email: naparts@jbt.com