SAMT

Specialised Air Motors and Transmission

TONSON

SINCE1966 *Realizing Clever Conceptions*

New South Wales

HEAD OFFICE
Unit 19/5 Lyn Parade
Prestons NSW 2170
Ph: (02) 9607 4100
Fax: (02) 9600 8882
Web: www.samt.com.au
Email: sales@samt.com.au

HACCP Certified!

HACCP INTERNATIONAL FOOD SAFETY PROGRAMMEN CERTIFICATION

GHA

New line of
ANTIBACTERIAL and
HIGH CORROSION RESISTANCE gearboxes

Specialised Air Motors & Transmission (SAMT) - incorporating TONSON - was founded in 1966 and provides efficient solutions and equipment to all major industries including mining, chemical, food, paper, plastic, power transmission, manufacturing and pharmaceutical.

Our commitment to you is best service, quick lead times and very competitive prices.

Innovation & Quality

Specialised Air Motors & Transmission is committed to providing clever solutions for all hazardous environments and continues to develop smart ways to meet requirements from all different industries; our products meet CE standards ISO9002, ISO9001 and patents are registered globally including USA, Taiwan and China.

Unlike other conventional methods our products mainly use air instead of electricity as the source of power. This eliminates the chance of electricity shock and fire, which are the most crucial factors for industries involved in chemical, flammable or volatile contents.

Specialised Air Motors & Transmission products include air/electric motors, air/electric mixers and air fans which are engineered to meet the highest standards featuring 100% explosion-proof, low air consumption, light weight, high torque, reversible step less speed control, easy maintenance and various mounting methods. And can be used in very harsh conditions such as humidity, high temperature and flammable environments.

Products & Services

SAMT's other popular products include Pressure Tanks up to 200L (with and without integrated mixer), spray guns, pneumatic double diaphragm pumps, vertical pumps, magic drum carriers, non-spark drum openers, propellers, plus many more exciting and innovative products.

We also have the technical capability and expertise to provide complete power transmission solutions to meet your specific requirements, including full engineering assistance with design, selection and site installation. We also specialise in the supply of all types of Industrial gearboxes including Helical, Worm, Bevel-Helical, Bevel, screw jacks and planetary. All are interchangeable with other internationally recognised brands.

SAMT can also customise any product to suit your specific requirements and will investigate the possibilities of developing new products to satisfy your special specifications.

Contents

Introduction

The PREMIUM series represents the flagship series within the range of GHA reducers, thanks to the **special enhanced NANOTECHNOLOGICAL characteristics of the coating**.

The enhanced GHA treatment and the particular external design with its smooth surface make the PREMIUM series reducers the ideal solution for a wide range of applications in sensitive environments in the **FOOD, PHARMACEUTICAL and MARINE sectors**.

Characteristics

The GHA worm gearboxes are extremely light thanks to the compact shape of the housing which is in diecast aluminium for all sizes.
The worm shaft is made of hardened bonded steel and ground.
The wheel has an AISI 316 stainless steel hub with a toothed ring made in bronze GcuSn12.
Aluminium housings and flanges are sandblasted and treated in accordance with G.H.A ® technology.
The hollow output shaft is supplied as standard. A broad range of accessories is available: second input.

General Safety Guidelines

Gearboxes are in compliance with machinery directive 2006/42 EC and are identified as partly completed machinery (Annex II-B). Gearboxes are supplied with a declaration of incorporation. The official language of the instructions for use, assembly and maintenance is English. It is absolutely forbidden to use standard gearboxes in explosive atmospheres. Standard gearboxes cannot be used in environments which are classified.

All given instructions refer to the use of reducers and gear motors, which must be handled, installed, started and serviced by qualified personnel who are fully familiar with the content of this catalogue.

Additional information, to be applied for if not available, shall be given special parts.

Please also comply with:

- Given safety symbols on reducer and/or motor labels
- System operating instructions
- Applicable standards for installation
- Current laws on safety

All reducers and gear motors mentioned in this catalogue are intended for industrial use and operation at a room temperature between 0°C and +40°C and peak temperatures for a limited period of time of -10°C and +50°C, at an altitude of maximum 1000m above sea level.

Please comply with the instructions given in the pertaining manuals when installing electric motors, variable speed motors, inverters, etc. Please apply for manuals if not available.

Technical data and information concerning operating conditions of reducers and gear motors are reported on identification plates and in technical catalogues.

In case of different uses, the chief installer shall take all necessary additional measures to ensure safe operating conditions.

Standard reducers and gear motors cannot be operated in:

- Inflammable environments or products
- In the presence of fluids or fully immersed

Prior written authorisation is needed if the reducers or the gear motors are to be installed in lifts or other apparatuses for the transportation of people.

Reducers and gear motors may be a danger to the operator due to:

- Moving parts whilst the machine is in operation
- Surfaces with temperatures exceeding 50°C

- Live electrical parts (in electric motors)

If reducers or gear motors need to be either adjusted or serviced, please ensure that:

- The machine is stopped
- Motor and auxiliary devices are disconnected from the mains
- Safety devices preventing undesired starts are enabled
- Mechanical devices for blocking the load are enabled. They will obviously have to be disabled before restarting the machine.

Caution!

People may be seriously injured, or damage may occur to equipment in case of:

- Improper use
- Incorrect installation
- Removal of safety devices
- Couplers not properly connected
- Failure to carry out regular checks
- Failure to carry out servicing

Stop the machine and perform necessary checks in case of:

- Excessively high temperature
- Excessive noise coming from the machine
- Vibrations

General Indications

Gearboxes suitable for use in food.

Aluminium alloy G.H.A. reducer, anodic oxidation with microporousity sealing by silver ions.

Surface Features:

Anticorrosion, abrasive wear, anti-limestone, anti-bacterial.

Accidental contact with food:

- Aluminium alloys with G.H.A. treatment.
- Out shaft in AISI 316.
- Bolts AISI 304.
- FDA sealing rings.
- FDA H1 / UH1 lubricant.

Handling and Storage

Lift the unit using suitable lifting devices (such as hooks, belts, chains, eyebolts, etc.) in full compliance with current safety standards. Also ensure that the load is properly balanced.

Reducer listing points (identifiable with the holes on the casing, which are used for fastening) must be used to lift the reducer only.

Do not use the threaded hole at the end of the projecting shafts and the motor eyebolt.

To properly store reducers and gear motors, proceed as follows:

- Do not store outdoors, in areas subject to weather conditions or in highly humid environments.
- Never store the goods directly onto the floor but place them onto wooden pallets or any other suitable surface in order to avoid direct contact with the ground.
- Reducers should never be stacked.

Reducers which are filled with oil should be stored in the same mounting position they are going to be installed in.

Apply antirust oil or grease onto unpainted machine surfaces, shafts and seals. Check that they are in good condition at regular intervals. Rotate the output shaft every 4-5 months.

Provided that reducers and gear motors are stored indoors in a dry, clean and vibration-free place at a temperature ranging between 0°C and +40°C, and provided that they had been duly protected during transport, they can be stored for one year.

Proceed as follows to extend storage time to two years:

- Apply antirust oil or grease onto unpainted machine surfaces, shafts and seals and check that they are in good condition at regular intervals.
- Fully fill with oil the reducers which were delivered empty. Before installing the reducer, the oil must be returned to the operating level.

Installation

Please follow the instructions below:

- Remove all protections in the packing.
- Position the reducer in the correct mounting position which was specified in the order and check the oil level through the oil window (if available).
- If reducers are installed in a position other than the mounting position specified in the order, this may cause damage to its inner parts.
- Replace the upper plug with the supplied breather plug in reducers which are delivered filled with oil and equipped with oil plugs.
- Ensure that gear motors, which are close to housings, have enough space on the motor fan side to enable them to cool down.
- Reducers and gear motors should be protected against bad weather or direct sun light and should also have enough space around them in order to allow proper ventilation and inspection.
- Ensure that direction of rotation is as ordered.
- Carefully clean all fastening surfaces, remove all paint residues and check for perfect flatness and stiffness.

- Ensure that the reducer is firmly fastened in order to prevent vibrations which might cause noise, screw loosening and possible fatigue failure.
- Apply medium-strength adhesives onto the screws fastening the reducer to the machine and the flange to prevent any slackening yet to allow subsequent necessary disassembly.
- If the application requires long-lasting overloads, torque limiters, clutches and so forth should be installed.
- Reducer, motor and/or all connecting parts should be duly aligned. If possible, it is advisable to use flexible joints.
- If the motor is directly installed onto the reducer flange, ensure that no level force is applied and that both flanges are in the same plane.

Lubrication

Reducers are splash lubricated. If the applied power is higher than the admissible thermal power, heat exchangers should be employed to lower the oil temperature within the allowed limits.

The use of lubricants which are suitable for current operating conditions will allow the reducer to achieve peak efficiency. The table below shows the recommended lubricants for food use.

Are supplied complete with lubricant type:

- Oil – FUCHS CASSIDA FLUID GL 320, Grease – FUCHS CASSIDA GREASE HTS2.

Product Name	**CASSIDA FLUID GL 150**	**CASSIDA FLUID GL 220**	**CASSIDA FLUID GL 320**	**CASSIDA FLUID GL 460**	**CASSIDA FLUID GL 680**
Density at 15°C (kg/m3)	845	847	852	855	858
Flash Point (°C)	268	276	278	270	286
Kinematic Viscosity at 40°C (mm2/s)	150	220	320	460	680
Kinematic Viscosity at 100°C (mm2/s)	18.9	25	33.4	43.8	58.6
Pour Point (°C)	-54	-48	-45	-45	-39
NSF Number	144689 H1	144690 H1	144691 H1	144692 H1	144693 H1

- CASSIDA GREASE HTS 2

NLGI	2
Thickener	Inorganic Thickener
NSF Number	144713H1

Caution!

It is dangerous and damaging to mix oils belonging to the three different categories. Never mix different synthetic oils together (PAG oils are not compatible with PAO oils).

Before filling the reducer with a different type of oil (i.e. a different technology), wash thoroughly the inside of the reducer.

Starting Up

Check the following before starting up the reducer:

- The reducer is correctly installed and filled with the correct amount of lubricant.
- The electric motor is correctly connected.
- The direction of rotation brought about by the installed motor is as required.
- The free rotation direction of reducers featuring back stop device coincides with that required by the machine (starts in the locked direction may cause irreversible damage to the reducer and/or the motor).

If three phase asynchronous motors are subject to a loadless or reduced load start, they should:

- Be gently started.
- Have low starting current.
- Be subject to limited stress.
- Feature Star/Delta starting (normally for power values > 15 kW, down to 3-4 kW only in exceptional cases).

A running-in time of 200-400 hours featuring a reduced load is recommended to achieve peak efficiency. Higher temperatures are normal at this stage. Please check for possible loosening of the fastening screws after running in the reducer.

Residual Risks

Residual risks are those potential dangers which is not possible to eliminate totally and which could cause damages to the operator should be intervene in the wrong way.

Risks in case of oil leakage

- Do not touch the leakage area with bare hands, any maintenance job should only be carried out after careful reading of the instruction manual.

In case of contact with oil:

- Do not swallow it.
- Do not touch your body, especially the eyes.
- Wash with running water the parts which has come in contact.

Caution!

- Check at regular intervals that there are no leakages under the machine in order to prevent people from slipping. People should always wear safety shoes when near a machine.

Risks in case of hot gearbox housings

- Do not touch the gearbox housing with bare hands. Before carrying out any maintenance job, wait until it cools down. Always wear work gloves.

Maintenance

Check for possible vibrations, non-allowed temperatures, high noise level and visually check seals for leaks at regular intervals.

Caution!

Before starting any maintenance job, ensure that the machine is stopped, powered off and that the oil temperature is at safety level to avoid any risk for the operators of getting burned.

Check the following when the machine is stopped:

- Oil is at correct level
- Oil is not deteriorated. Change the oil if necessary
- Passages for air are not clogged

Reducer outer surfaces are clean to ensure proper heat dissipation.

WARNING Clean the gear unit with food-friendly products,

- Fastening screws are properly tightened

Oil change can be scheduled as specified in the table below.

Oil Temperature		
< 65 °C	65 – 80 °C	> 80 °C
25000 h	15000 h	12500 h

Before changing the oil, it is necessary to thoroughly wash the inside of the reducer.

If covers featuring sealing putty need to be removed, clean the sealing surfaces and apply the putty before reinstalling the covers.

Cleaning the GHA Gearbox

All the components treated with anodic oxidation and G.H.A technology are sensitive to excessively acid or basic pH, so it is recommended to clean the areas of interest with preferably neutral or aggressive washings, whose pH is ranging from 4 to 8.5.

We advise against:

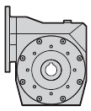
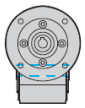
- Washing with excessively basic components (pH>8), especially at temperatures above ambient temperature.
- Washing with excessively acid components (pH<4), especially if they are carried out at temperatures above room temperature.

The G.H.A is an antibacterial treatment (bactericide action), therefore it does not need any particularly aggressive cleaning on its surface, to sanitise the components intended for food or pharmaceutical contact.

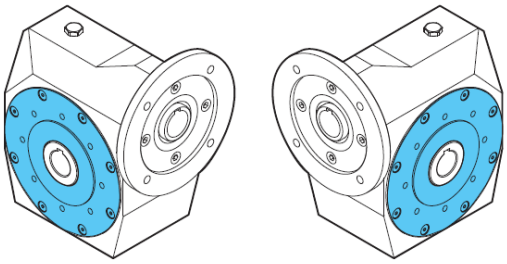
We recommend instead:

- Demineralised water washing with high pressure and high temperature cleaners.
- Steam washing.
- Washing with medium aggressive detergents with a pH between 4 and 8.5.
- Washing with solvents (acetone, alcohols).

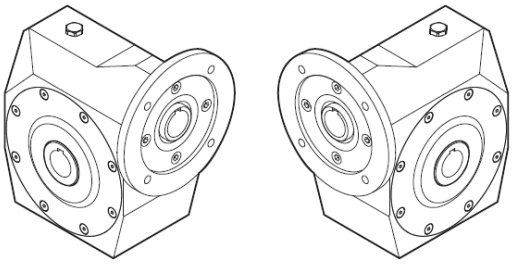
Designation

Gearbox	*Size*	*Ratio*	*Motor coupling*	*Mounting position*	*Version*	*Hollow output shaft*
GHA	**50**	**10/1**	**P.A.M**	**B3**	**PP**	**H25**
	30 40 50 63 75	5 7.5 10 15 20 25 30 40 50 65 80 100	56 B14 63 B14 71 B14 80 B14 90 B14 100 B14 112 B14	B3, B6 B7, B8 V5, V6	PP CC PD PS	 H..

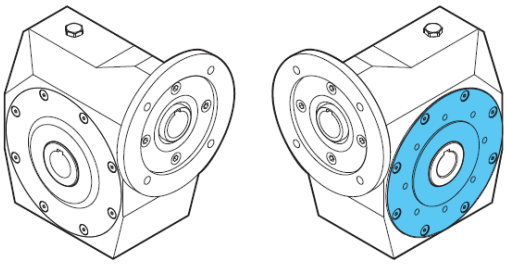
GHA...PP



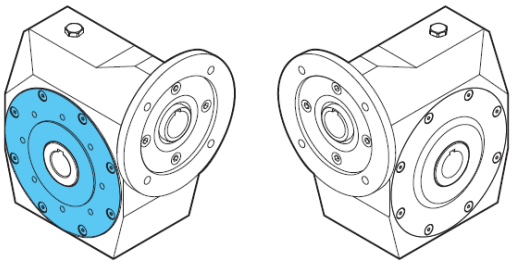
GHA...CC



GHA...PD



GHA...PS



Efficiency

Rd - dynamic efficiency, defined as the ratio between P2 output power and P1 input power. It mainly depends on the slipping speed, the type of lubricant and the lead angle. The values reported in the table are valid when the corresponding output torque is applied. During the first 300 operating hours under load, the value to be considered is 30% lower than that reported in the table.

Rs - static efficiency at gearbox start-up; it changes depending on the reduction ratio. Rs value is important for selecting the right gearbox for applications where a steady state is never achieved, as for intermittent duty applications. Same as dynamic efficiency, static efficiency too during the running-in period will be 30% lower than the value reported in the table.

GHA	Rs											
	5	7.5	10	15	20	25	30	40	50	65	80	100
30	0.70	0.67	0.62	0.55	0.47	0.43	0.39	0.30	0.27	0.25	0.22	0.21
40	0.69	0.67	0.63	0.55	0.52	0.45	0.40	0.35	0.29	0.26	0.25	0.23
50	0.69	0.68	0.65	0.58	0.53	0.47	0.41	0.37	0.32	0.28	0.25	0.23
63	0.70	0.68	0.65	0.57	0.55	0.5	0.47	0.38	0.33	0.29	0.28	0.23
75	/	0.68	0.65	0.58	0.55	0.51	0.43	0.39	0.35	0.31	0.28	0.24

Irreversibility

The use of external brakes is advised in case of applications where backwards motion must be hindered and the load must be held should the feed be cut off.
Some worm gearboxes feature natural irreversibility. The higher the ratio, the higher is the irreversibility, since it is strictly dependent on the relative efficiency.
In order to achieve high irreversibility it is therefore necessary to select higher efficiency reduction ratios not to forget that the efficiency is growing during the first 500 hours life until it stabilizes to the values mentioned in the catalogue.

Static irreversibility

Static irreversibility occurs when the rotation controlled by the output shaft is hindered; possible slow returns cannot be excluded should the load be subject to vibrations.
Rs < 0.45 provides irreversibility
Rs = 0.45 ÷ 0.55 irreversibility is uncertain
Rs > 0.55 reversibility is possible

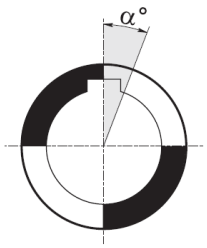
Dynamic irreversibility

Dynamic irreversibility is characterized by stillstand and hold of the load when the drive stops. It is more difficult to achieve this condition because it is influenced by dynamic efficiency, speed of rotation and possible vibrations generated by the motion direction with regard to the load.
This last condition is much more evident during the lifting: if the drive stops during the lifting of the load this has to come to a speed equals to zero (static irreversibility) before the reversal of motion rotation and its drop for gravity.

On the contrary the load during its descent gets its motion obstructed by its dynamic efficiency.
Rd < 0.45 provides irreversibility
Rd = 0.45 ÷ 0.55 irreversibility is uncertain
Rd > 0.55 reversibility is possible

Backlash

Angular backlash measured after having blocked the input shaft by rotating output shaft in both directions and applying the torque which is strictly necessary to create a contact between the teeth of the
gears. The applied torque should be at most 2% of the max. torque (T2M).



GHA					
i_n	30	40	50	63	75
	max	max	max	max	max
5	16'	13.5'	10.5'	10'	/
7.5	16’	13.5’	10.5’	10’	10’
10	16’	13.5’	10.5’	10’	10’
15	16’	13.5’	10.5’	10’	10’
20	14.5’	12’	9.5’	8.5’	8.5’
25	14.5’	12’	9.5’	8.5’	8.5’
30	14.5’	12’	8.5’	8.5’	8.5’
40	14.5’	12’	9.5’	8.5’	8.5’
50	14’	12’	9.5’	8.5’	8.5’
65	14’	12’	9’	8’	8’
80	13.5’	11.5’	9’	7.5’	7.5’
100	13’	11’	9’	7.5’	7.5’

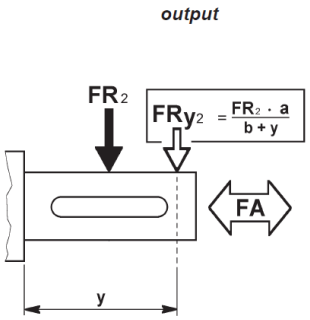
Radial load

Fr2 radial loads and Fa2 axial loads on the output shaft [N]

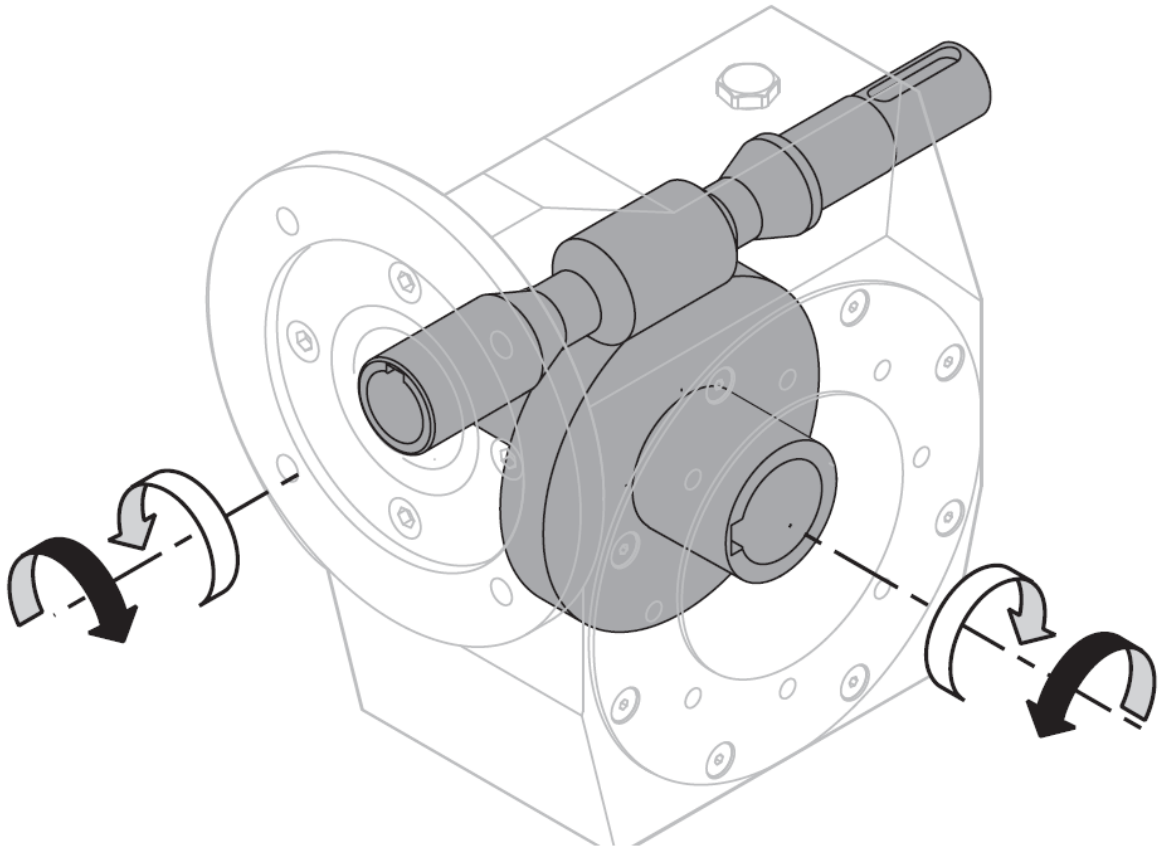
Should the radial load affect the shaft not at the half-way point of its projection but at a different point, the value of the admissible load has to be calculated using the Fry2 formula: a, b and Fr2 values are reported in the radial load tables. With regard to double-projecting shafts, the load applicable at each end is 2/3 of the value given in the table, on condition that the applied loads feature same intensity and direction and that they act in the same direction. Otherwise please contact the technical department.

The radial loads indicated in the chart are considered to be applied at the half-way point of the shaft projection, and refer to gear units operating with service factor 1.

GHA												
n_1=1400 rpm		30		40		50		63		75		
i_n	n_2 [rpm]	a = 64.5	b = 47	a = 81.5	b = 58.5	a = 99	b = 70.5	a = 119.5	b = 90.5	a = 131	b = 97	
		Fr_2	Fa_2	Fr_2	Fa_2	Fr_2	Fa_2	Fr_2	Fa_2	Fr_2	Fa_2	
5	**280**	600	120	750	150	900	180	1050	210	/		
7.5	**187**	620	125	850	170	1050	210	1200	240	1500	300	
10	**140**	680	140	950	190	1150	230	1350	270	1700	340	
15	**93**	720	145	1000	200	1250	250	1500	300	1900	380	
20	**70**	750	150	1100	220	1400	280	1650	330	2050	410	
25	**56**	800	160	1200	240	1500	300	1850	370	2250	450	
30	**47**	850	170	1250	250	1650	330	2000	400	2450	490	
40	**35**	900	180	1350	270	1750	350	2150	430	2600	520	
50	**28**	920	185	1450	290	1850	370	2300	460	2800	560	
60	**23**	970	195	1550	310	2000	400	2500	500	3000	600	
63	**22**	1000	200	1600	320	2100	420	2650	530	3200	640	
80	**17.5**	1050	210	1700	340	2250	450	2800	560	3350	670	
100	**14**	1100	220	1800	360	2350	470	2950	590	3550	710	



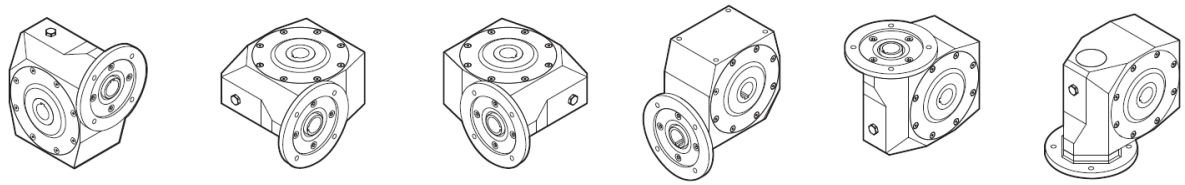
Direction of rotation



Lubrication

The GHA series worm gearboxes are supplied complete with synthetic lubricant for food use: FUCHS CASSIDA FLUID 150 OIL.
Mounting position always to be specified when ordering.

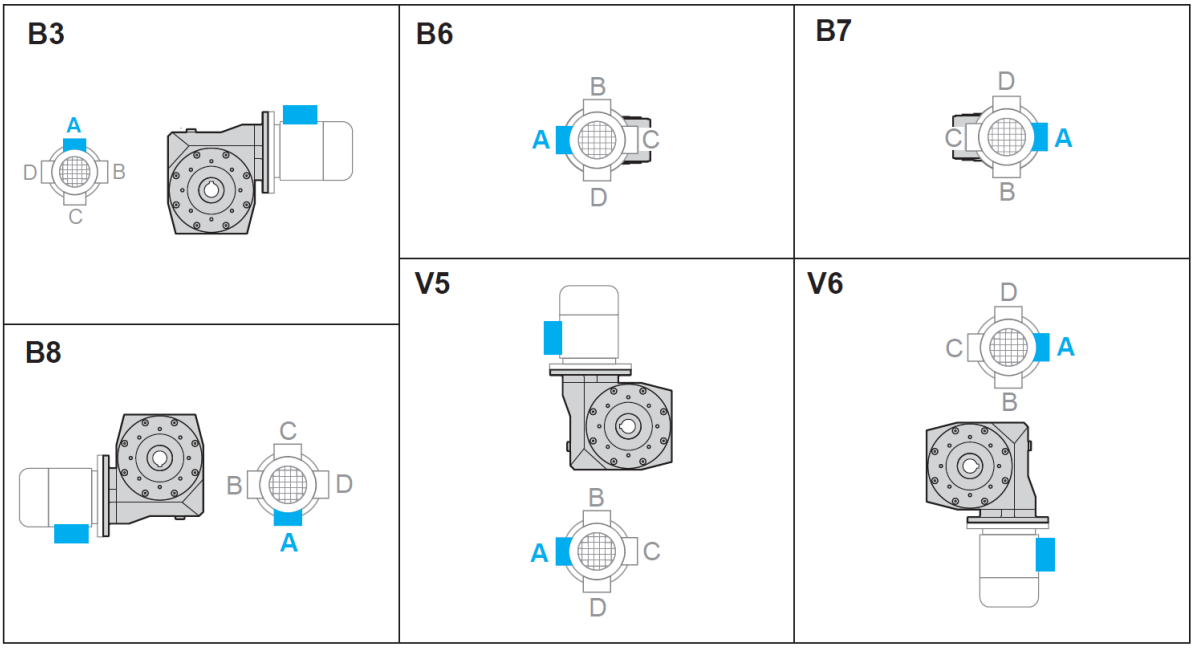
Mounting positions



There is only one filling plug only.

		Q.tà olio / *Oil quantity* / Schmiermittelmenge [lt]			
		Posizione di montaggio / *Mounting position* / Einbaulage			
		B3	**B6 - B7**	**B8**	**V5 - V6**
GHA	**30**	0.015	0.030	0.015	
	40	0.040	0.060	0.040	
	50	0.080	0.120	0.080	
	63	0.160	0.220	0.160	
	75	0.260	0.340	0.260	

Terminal board position



Technical data

	n_1 =1400				MOTORI / *MOTORS* / ENGINE							
					GHA CLASSIC				MHA PREMIUM			
	i_n	n_2 [min^{-1}]	Rd	P_{t0}	T_2 [Nm]	P_1 [kW]	IEC B14	FS'	T_2 [Nm]	P_1 [kW]	IEC B14	FS'
GHA 30	**5**	280	0.87	0.40	6.5	**0.22**	63	2.9	5.3	**0.18**	63	3.6
	7.5	187	0.84	0.40	9	**0.22**		2.2	7.7	**0.18**		2.7
	10	140	0.82	0.40	12	**0.22**		1.8	10	**0.18**		2.2
	15	93	0.77	0.30	17	**0.22**		1.3	14	**0.18**		1.6
	20	70	0.72	0.20	18	**0.18**		1.1	18	**0.18**		1.1
	25	56	0.69	0.20	21	**0.18**		1.0	21	**0.18**		1.0
	30	47	0.66	0.20	18	**0.13**		1.1	17	**0.13**		1.2
	40	35	0.59	0.20	21	**0.13**		1.0	21	**0.13**		1.0
Kg	**50**	28	0.55	0.20	17	**0.09**	56	1.1	24	**0.13**		0.8
1.4	**65**	22	0.51	0.10	20	**0.09**		1.0	-	-	-	-
	80	18	0.48	0.10	16	**0.06**		1.0	-	-	-	-
	100	14	0.45	0.10	18	**0.06**		0.8	-	-	-	-

	n_1 = 1400				MOTORI / *MOTORS* / ENGINE							
					GHA CLASSIC				MHA PREMIUM			
	i_n	n_2 [min^{-1}]	Rd	P_{t0}	T_2 [Nm]	P_1 [kW]	IEC B14	FS'	T_2 [Nm]	P_1 [kW]	IEC B14	FS'
GHA 40	**5**	280	0.87	0.80	16.3	**0.55**	71	2.1	11	**0.37**	71	3.1
	7.5	187	0.85	0.80	24	**0.55**		1.7	16	**0.37**		2.5
	10	140	0.83	0.70	31	**0.55**		1.3	21	**0.37**		2.0
	15	93	0.79	0.50	30	**0.37**		1.4	30	**0.37**		1.4
	20	70	0.76	0.50	38	**0.37**		1.0	38	**0.37**		1.1
	25	56	0.72	0.40	31	**0.25**		1.1	31	**0.25**		1.2
	30	47	0.68	0.40	35	**0.25**		1.2	35	**0.25**		1.2
Kg	**40**	35	0.64	0.30	38	**0.22**	63	1.0	31	**0.18**	63	1.2
2.4	**50**	28	0.59	0.30	36	**0.18**		1.1	36	**0.18**		1.1
	65	22	0.54	0.20	31	**0.13**		1.1	30	**0.13**		1.2
	80	18	0.52	0.20	35	**0.13**		0.9	36	**0.13**		0.9
	100	14	0.49	0.20	43	**0.13**		0.6	43	**0.13**		0.6

	n_1 = 1400				MOTORI / *MOTORS* / ENGINE							
					GHA CLASSIC				MHA PREMIUM			
	i_n	n_2 [min^{-1}]	Rd	P_{t0}	T_2 [Nm]	P_1 [kW]	IEC B14	FS'	T_2 [Nm]	P_1 [kW]	IEC B14	FS'
GHA 50	**5**	280	0.87	1.2	26.7	**0.9**	80	2.3	22	**0.75**	80	2.8
	7.5	187	0.86	1.2	40	**0.9**		1.8	33	**0.75**		2.1
	10	140	0.84	1.0	52	**0.9**		1.4	43	**0.75**		1.7
	15	93	0.80	0.80	74	**0.9**		1.0	62	**0.75**		1.2
	20	70	0.78	0.70	58	**0.55**		1.3	53	**0.5**		1.4
	25	56	0.74	0.60	47	**0.37**	71	1.4	63	**0.5**		1.0
	30	47	0.71	0.60	53	**0.37**		1.2	53	**0.37**		1.2
	40	35	0.67	0.50	68	**0.37**		1.0	68	**0.37**		1.0
Kg	**50**	28	0.62	0.40	53	**0.25**		1.3	53	**0.25**	71	1.3
4.0	**65**	22	0.58	0.40	64	**0.25**		1.0	63	**0.25**		1.0
	80	18	0.54	0.40	71	**0.25**		0.8	52	**0.18**		1.1
	100	14	0.51	0.30	86	**0.25**		0.6	45	**0.13**		1.2

	n_1 =1400				MOTORI / *MOTORS* / ENGINE							
					GHA CLASSIC				MHA PREMIUM			
	i_n	n_2 [min^{-1}]	Rd	P_{t0}	T_2 [Nm]	P_1 [kW]	IEC B14	FS'	T_2 [Nm]	P_1 [kW]	IEC B14	FS'
GHA 63	**5**	280	0.88	1.8	54	**1.8**	90	2.0	45	**1.5**	90	2.5
	7.5	187	0.87	1.8	80	**1.8**		1.5	67	**1.5**		1.8
	10	140	0.85	1.6	105	**1.8**		1.2	87	**1.5**		1.5
	15	93	0.81	1.2	125	**1.5**		1.1	125	**1.5**		1.1
	20	70	0.80	1.2	120	**1.1**		1.2	120	**1.1**		1.2
	25	56	0.77	1.0	118	**0.9**	80	1.0	98	**0.75**	80	1.2
	30	47	0.73	0.90	134	**0.9**		1.1	111	**0.75**		1.3
	40	35	0.69	0.80	142	**0.75**		1.1	141	**0.75**		1.1
Kg	**50**	28	0.65	0.70	122	**0.55**		1.0	111	**0.5**		1.1
6.6	**65**	22	0.61	0.60	145	**0.55**		0.8	98	**0.37**		1.2
	80	18	0.58	0.60	169	**0.55**		0.6	113	**0.37**		1.0
	100	14	0.53	0.50	198	**0.55**		0.5	90	**0.25**		1.1

	n_1 =1400				MOTORI / *MOTORS* / ENGINE							
					GHA CLASSIC				MHA PREMIUM			
	i_n	n_2 [min^{-1}]	Rd	P_{t0}	T_2 [Nm]	P_1 [kW]	IEC B14	FS'	T_2 [Nm]	P_1 [kW]	IEC B14	FS'
GHA 75	**7.5**	187	0.87	2.5	80	**1.8**	90	2.7	67	**1.5**	90	2.7
	10	140	0.86	2.3	106	**1.8**		1.8	88	**1.5**		2.2
	15	93	0.83	1.9	153	**1.8**		1.3	128	**1.5**		1.6
	20	70	0.81	1.7	199	**1.8**		1.1	166	**1.5**		1.3
	25	56	0.78	1.5	200	**1.5**		1.0	200	**1.5**		1.0
	30	47	0.74	1.2	167	**1.1**		1.3	165	**1.1**		1.4
Kg	**40**	35	0.71	1.1	213	**1.1**		1.1	213	**1.1**		1.1
11.0	**50**	28	0.67	1.0	251	**1.1**		0.8	171	**0.75**		1.2
	65	22	0.63	0.90	300	**1.1**		0.6	137	**0.5**		1.4
	80	18	0.60	0.80	350	**1.1**		0.5	159	**0.5**		1.1
	100	14	0.56	0.70	420	**1.1**		0.4	191	**0.5**		0.9

Moments of inertia [Kg·cm2]
(referred to input shaft)

	i_n	 B14	
		IEC 56	IEC 63
GHA 30	5	0.130	0.127
	7.5	0.112	0.109
	10	0.103	0.100
	15	0.097	0.094
	20	0.095	0.092
	25	0.094	0.091
	30	0.093	0.090
	40	0.093	0.090
	50	0.092	0.089
	65	0.079	-
	80	0.079	-
	100	0.078	-

	i_n	 B14	
		IEC 63	IEC 71
GHA 40	5	0.391	0.463
	7.5	0.321	0.356
	10	0.272	0.347
	15	0.266	0.340
	20	0.263	0.338
	25	0.262	0.337
	30	0.262	0.337
	40	0.261	0.336
	50	0.261	-
	65	0.261	-
	80	0.261	-
	100	0.261	-

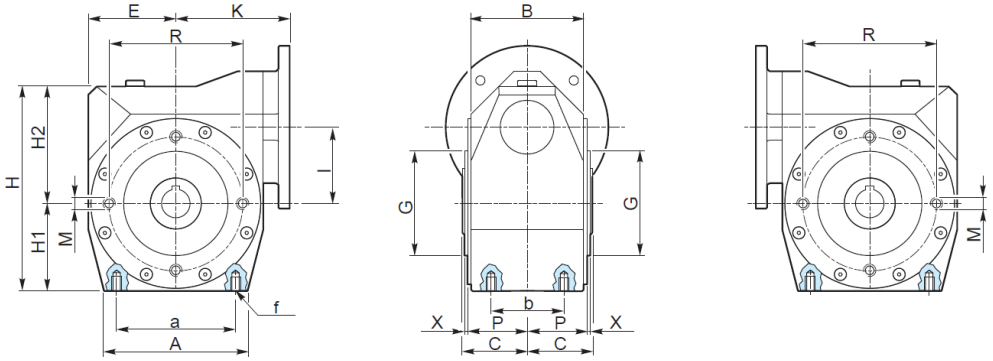
	i_n		
		B14	
		IEC 71	IEC 80
GHA 50	5	0.922	1.046
	7.5	0.684	0.935
	10	0.602	0.853
	15	0.543	0.794
	20	0.523	0.774
	25	0.513	0.764
	30	0.508	0.759
	40	0.503	0.755
	50	0.501	-
	65	0.499	-
	80	0.498	-
	100	0.498	-

	i_n		
		B14	
		IEC 80	IEC 90
GHA 63	5	2.431	2.671
	7.5	1.949	2.269
	10	1.744	2.063
	15	1.597	1.916
	20	1.545	1.864
	25	1.514	1.833
	30	1.508	1.828
	40	1.495	-
	50	1.488	-
	65	1.484	-
	80	1.482	-
	100	1.481	-

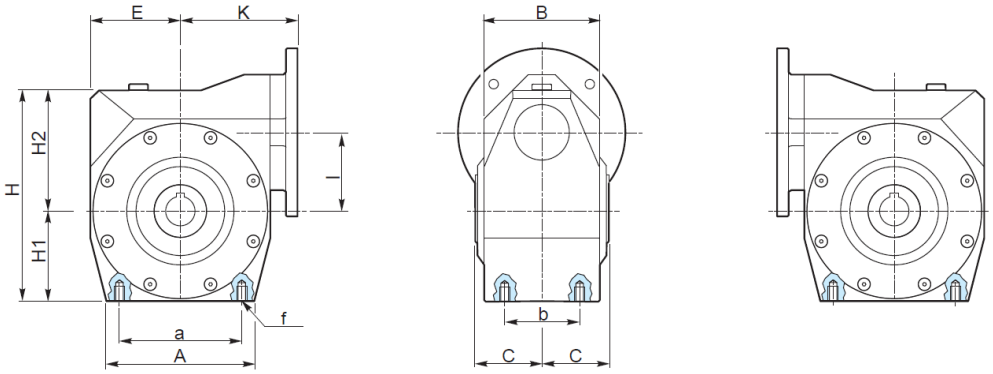
	i_n	
		B14
		IEC 90
GHA 75	7.5	3.712
	10	3.234
	15	2.893
	20	2.774
	25	2.709
	30	2.689
	40	2.659
	50	2.642
	65	2.633
	80	2.629
	100	2.626

Dimensions

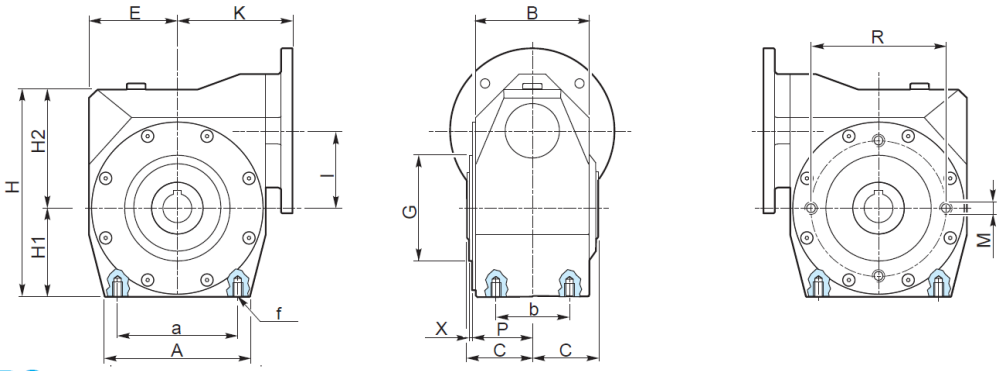
GHA.. PP



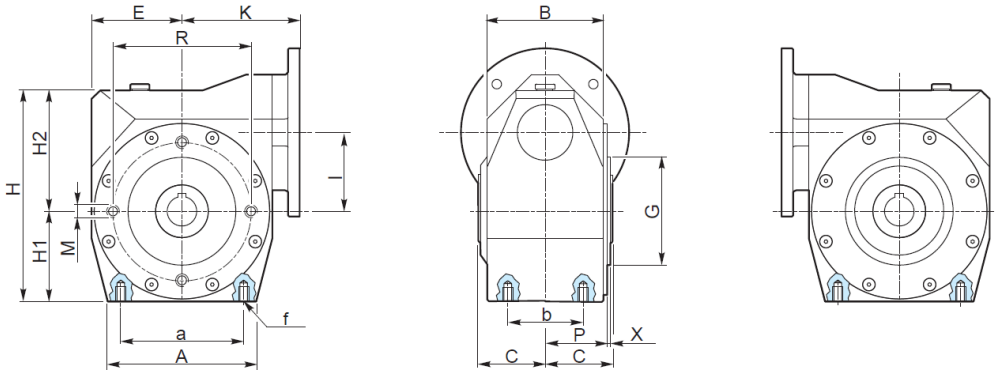
GHA.. CC



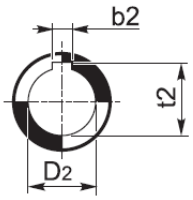
GHA.. PD



GHA.. PS



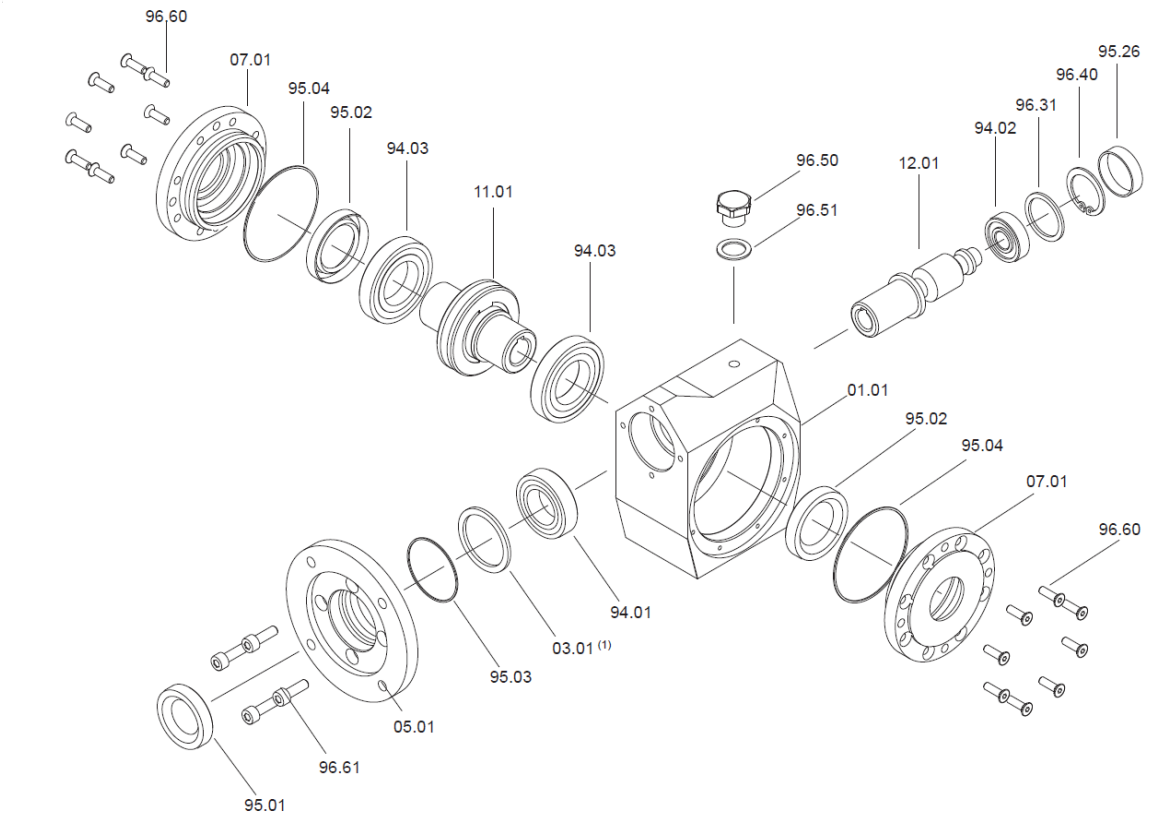
Output hollow shaft



GHA	A	a	B	b	b_2	C	D_2 H8	E	f	G h8	H	H_1	H_2
30	66	54	56	44	**5**	31.5	**14**	40	M6 x 9	55	93	40	53
40	85	70	71	60	**6**	39	**18**	50	M6 x 11	60	116	50	66
50	95	80	84	70	**8**	46	**25**	60	M8 x 12	70	142	60	82
63	118	100	101	85	**8**	56	**25**	72	M8 x 16	80	173	72	101
75	142	120	110	90	**8**	60	**28**	86	M10 x 16	95	201	86	115

GHA	l	K	M	P	R	t_2	X	kg
30	31.5	57	M6x8	29	65	16.3	1.5	1.5
40	40	75	M6X10	36.5	75	20.8	1.5	2.8
50	50	82	M8x10	43.5	85	28.3	1.5	4.5
63	63	96.8	M8x14	53	95	28.3	2	7.8
75	75	112	M8x14	57	115	31.3	2	12.8

Spare parts list



GHA	IEC	*Bearings*			Oilseals		OR		*Closed oil seal*
		94.01	**94.02**	**94.03**	**95.01**	**95.02**	**95.03**	**95.04**	**95.26**
30	56	**61904** (20x37x9)	**6000** (10x26x8)	**16005** (25x47x8)	20/35/7	25/40/7	33x1.2	50x1.5	ø 26x7
	63								
40	63	**6204** (20x47x14)	**6201** (12x32x10)	**16006** (30x55x9)	20/47/7	30/47/7	43x1.5	65x2	ø 32x7
	71	**6005** (25x47x12)			25/47/7				
50	71	**6005** (25x47x12)	**6203** (17x40x12)	**16008** (40x68x9)	25/47/7	40/62/8	50x1.5	82x2	ø 40x7
	80	**6006** (30x55x13)			30/47/7				
63	80	**6206** (30x62x16)	**6204 C3** (20x47x14)	**16008** (40x68x9)	30/62/7	40/62/8	56x1.5	102x2.5	ø 47x7
	90	**6007** (35x62x14)			35/62/7				
75	90	**6007** (35x62x14)	**6205 C3** (25x52x15)	**16010** (50x80x10)	35/62/7	50/72/8	60x3	123x3	ø 52x7

SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name: CASSIDA FLUID GL 320

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Lubricant
Uses advised against: No uses advised against identified.

1.3 Details of the supplier of the safety data sheet

Manufacturer / Supplier	FUCHS LUBRIFICANTI S.p.A. Via Riva 16 14021 BUTTIGLIERA D'ASTI (AT) - ITALY
Telephone:	+39 011 9922 811 (CENTRALINO)
Fax:	+39 011 9921 670
Contact Person:	FUCHS LUBRIFICANTI S.p.A. - HEALTH & SAFETY
Telephone:	+39 011 9922 817
Fax:	+39 011 9921 670
E-mail:	schedesicurezza@fuchslubrificanti.it

1.4 Emergency telephone number: FUCHS Italy +390119922817 (h8:30-17:30); +390119922811 (h24)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

The product has not been classified as hazardous and does not need to be labelled according to regulation (EU) no 1272/2008 (CLP).

Hazard summary
Physical Hazards: No data available.

2.2 Label Elements not applicable

2.3 Other hazards: By handling of mineral oil products and chemical products no particular hazard is known when normal precautions (item 7) and personal protective equipment (item 8) are kept. The product may not be released into the environment without control.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

General information: No hazardous ingredients. Mixture of synthetic base oils with additives. The components are not hazardous or are below required disclosure limits.

SECTION 4: First aid measures

General: Change clothes and shoes contaminated or soaked by the product. Never put rags contaminated by the product into clothing pockets.

4.1 Description of first aid measures

Inhalation: Supply fresh air; consult doctor in case of symptoms.

Eye contact: Promptly wash eyes with plenty of water while lifting the eye lids.

Skin Contact: Wash with soap and water. The product is not skin irritating.

Ingestion: Rinse mouth thoroughly.

4.2 Most important symptoms and effects, both acute and delayed: May cause skin and eye irritation.

4.3 Indication of any immediate medical attention and special treatment needed

Hazards: No data available.

Treatment: Get medical attention if symptoms occur.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: CO_2, fire extinguishing powder or fog like water spraying. Extinguish larger fires with alcohol resistant foam or spray water with suitable surfactant added

Unsuitable extinguishing media: Water with a full water jet.

5.2 Special hazards arising from the substance or mixture: During fire, gases hazardous to health may be formed.

5.3 Advice for firefighters

Special fire fighting procedures:	No data available.
Special protective equipment for fire-fighters:	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:	In case of spills, beware of slippery floors and surfaces.
6.2 Environmental Precautions:	Prevent from spreading (e.g. by binding or oil barriers).
6.3 Methods and material for containment and cleaning up:	Absorb with liquid-binding material (sand, diatomite, acidbinders, universal binders, sawdust).
6.4 Reference to other sections:	See Section 8 of the SDS for Personal Protective Equipment. See Section 7 for information on safe handling See Section 13 for information on disposal.

SECTION 7: Handling and storage:

7.1 Precautions for safe handling:	Provide adequate ventilation. Observe good industrial hygiene practices. Do not eat, drink or smoke when working with the product. Take usual precautions when handling mineral oil products or chemical products.
7.2 Conditions for safe storage, including any incompatibilities:	Local regulations concerning handling and storage of waterpolluting products have to be followed. Prevent formation of aerosols. Do not heat up to temperatures close to the flash point.
7.3 Specific end use(s):	No data available.

SECTION 8: Exposure controls/personal protection

8.1 Control Parameters

Occupational Exposure Limits

None of the components have assigned exposure limits.

8.2 Exposure controls

Appropriate engineering controls:	Provide adequate ventilation. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

General information:	Wash hands before breaks and after work. Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment. The usual precautionary measures should be adhered to inhandling the chemicals or the mineral oil products.
Eye/face protection:	Safety glasses (EN 166) recommended during refilling.
Skin protection	
Hand Protection:	Nitrile butyl rubber (NBR). Avoid long-term and repeated skin contact. Suitable gloves can be recommended by the glove supplier. Use skin protection cream for preventive skin protection. Protective gloves, where permitted in acc. to safety directions. The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
Other:	Do not carry cleaning cloths impregnated with the product in trouser pockets. Wear suitable protective clothing.
Respiratory Protection:	Seek advice from local supervisor. Ensure good ventilation/exhaustion at the workplace. Avoid breathing vapour/ aerosol.
Thermal hazards:	No data available.
Hygiene measures:	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.
Environmental Controls:	No data available.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	
Physical state:	liquid
Form:	liquid
Color:	Colorless
Odor:	Characteristic
Odor Threshold:	No data available.
pH:	not applicable
Freezing point:	< -9 °C
Boiling Point:	No data available.
Flash Point:	> 200 °C
Evaporation Rate:	No data available.
Flammability (solid, gas):	No data available.
Flammability Limit - Upper (%):	No data available.
Flammability Limit - Lower (%):	No data available.
Vapor pressure:	< 0,005 hPa (20 °C)

Vapor density (air=1):	No data available.
Density:	0,85 g/cm3 (15 °C)
Solubility(ies)	
Solubility in Water:	Insoluble in water
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Autoignition Temperature:	No data available.
Decomposition Temperature:	No data available.
Kinematic viscosity:	288 - 352 mm2/s (40 °C)
Explosive properties:	No data available.
Oxidizing properties:	No data available.
9.2 Other information	No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity:	Stable under normal temperature conditions and recommended use.
10.2 Chemical Stability:	No data available.
10.3 Possibility of hazardous reactions:	None under normal conditions.
10.4 Conditions to avoid:	Avoid heat or contamination.
10.5 Incompatible Materials:	Strong oxidizing substances. Strong acids. Strong bases.
10.6 Hazardous Decomposition Products:	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Oral
Product:

Not classified for acute toxicity based on available data.

Dermal
Product:

Not classified for acute toxicity based on available data.

Inhalation
Product:

Not classified for acute toxicity based on available data.

Repeated dose toxicity
Product: No data available.

Skin Corrosion/Irritation:
Product: No data available.

Serious Eye Damage/Eye Irritation:
Product: No data available.

Respiratory or Skin Sensitization:
Product: No data available.

Germ Cell Mutagenicity

In vitro
Product: No data available.

In vivo
Product: No data available.

Carcinogenicity
Product: No data available.

Reproductive toxicity
Product: No data available.

Specific Target Organ Toxicity - Single Exposure
Product: No data available.

Specific Target Organ Toxicity - Repeated Exposure
Product: No data available.

Aspiration Hazard
Product: No data available.

Other Adverse Effects: No data available.

SECTION 12: Ecological information

12.1 Toxicity

Acute toxicity

Fish
Product: No data available.

Aquatic Invertebrates
Product: No data available.

Chronic Toxicity

Fish
Product: No data available.

Aquatic Invertebrates
Product: No data available.

Toxicity to Aquatic Plants
Product: No data available.

12.2 Persistence and Degradability

Biodegradation
Product: No data available.

12.3 Bioaccumulative Potential
Product: No data available.

12.4 Mobility in Soil: No data available.

12.5 Results of PBT and vPvB assessment: No data available.

12.6 Other Adverse Effects: No data available.

Water Hazard Class (WGK): WGK 1: slightly water-endangering.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

General information: Dispose in accordance with all applicable regulations.

Disposal methods: Do not empty into drains; dispose of this material and its container in a safe way. When storing used products, ensure that the waste categories and mixing instructions are observed.

SECTION 14: Transport information

ADR/RID

14.1 UN Number: –
14.2 UN Proper Shipping Name: –
14.3 Transport Hazard Class(es)
Class: Non-dangerous goods
Label(s): –
Hazard No. (ADR): –
Tunnel restriction code: –
14.4 Packing Group: –
14.5 Environmental hazards: –
14.6 Special precautions for user: –

ADN

14.1 UN Number:	–
14.2 UN Proper Shipping Name:	–
14.3 Transport Hazard Class(es)	
Class:	Non-dangerous goods
Label(s):	–
14.3 Packing Group:	–
14.5 Environmental hazards:	–
14.6 Special precautions for user:	–

IMDG

14.1 UN Number:	–
14.2 UN Proper Shipping Name:	–
14.3 Transport Hazard Class(es)	
Class:	Non-dangerous goods
Label(s):	–
EmS No.:	–
14.3 Packing Group:	–
14.5 Environmental hazards:	–
14.6 Special precautions for user:	–

IATA

14.1 UN Number:	–
14.2 Proper Shipping Name:	–
14.3 Transport Hazard Class(es):	
Class:	Non-dangerous goods
Label(s):	–
14.4 Packing Group:	–
14.5 Environmental hazards:	–
14.6 Special precautions for user:	–

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: not applicable.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

EU Regulations

Regulation (EC) No. 2037/2000 Substances that deplete the ozone layer: none

Regulation (EC) No. 850/2004 on persistent organic pollutants: none

15.2 Chemical safety assessment: No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

Revision Information: Vertical lines in the margin indicate an amendment.

Wording of the H-statements in section 2 and 3

none

Other information:	The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies. The classification results from the Conventional Method mentioned in regulation EU 1272/2008 (CLP).
Revision Date:	20.11.2015
Disclaimer:	The data contained in this safety data sheet are based on our current knowledge and experience and are given to the best of our knowledge and belief. It characterizes the product only with regard to safety requirements for handling, transport and disposal. The data do not describe the product's properties (tech. product specification). Neither should any agreed property nor the suitability of the product for any specific technical application be deduced from the data contained in this safety data sheet. Modifications on this document are not allowed. The data are not transferable to other products. In the case of mixing the product with other products or in the case of processing, the data in this safety data sheet are not necessarily valid for the new-made material. It is the responsibility of the recipient of the product to observe federal, state and local law. Please contact us to obtain up-to-date safety data sheets. This document was issued electronically and has no signature.

SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name: CASSIDA GREASE HTS 2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Lubricating grease
Uses advised against: No uses advised against identified.

1.3 Details of the supplier of the safety data sheet

Manufacturer / Supplier	FUCHS LUBRIFICANTI S.p.A. Via Riva 16 14021 BUTTIGLIERA D'ASTI (AT) - ITALY
Telephone: Fax:	+39 011 9922 811 (CENTRALINO) +39 011 9921 670
Contact Person: Telephone: Fax: E-mail:	FUCHS LUBRIFICANTI S.p.A. - HEALTH & SAFETY +39 011 9922 817 +39 011 9921 670 schedesicurezza@fuchslubrificanti.it
1.4 Emergency telephone number:	FUCHS Italy +390119922817 (h8:30-17:30); +390119922811 (h24)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

The product has not been classified as hazardous and does not need to be labelled according to regulation (EU) no 1272/2008 (CLP).

Hazard summary
Physical Hazards: No data available.

2.2 Label Elements not applicable

2.3 Other hazards: By handling of mineral oil products and chemical products no particular hazard is known when normal precautions (item 7) and personal protective equipment (item 8) are kept. The product may not be released into the environment without control.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

General information:	Lubricating grease: Thickener system and additives in synthetic base oil. The components are not hazardous or are below required disclosure limits.

SECTION 4: First aid measures

General:	Instantly remove any clothing soiled by the product.

4.1 Description of first aid measures

Inhalation:	Supply fresh air; consult doctor in case of symptoms.
Eye contact:	Promptly wash eyes with plenty of water while lifting the eye lids.
Skin Contact:	Wash with soap and water. The product is not skin irritating.
Ingestion:	Rinse mouth thoroughly.
4.2 Most important symptoms and effects, both acute and delayed:	No data available.
4.3 Indication of any immediate medical attention and special treatment needed	Get medical attention if symptoms occur.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:	CO_2, fire extinguishing powder or fog like water spraying. Extinguish larger fires with alcohol resistant foam or spray water with suitable surfactant added
Unsuitable extinguishing media:	Water with a full water jet.
5.2 Special hazards arising from the substance or mixture:	During fire, gases hazardous to health may be formed.

5.3 Advice for firefighters

Special fire fighting procedures:	Move container from fire area if it can be done without risk. Dispose of fire debris and contaminated fire fighting water inaccordance with official regulations. Collect contaminated fire fighting water separately. It must not enter drains.
Special protective equipment for fire-fighters:	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:	Not required.
6.2 Environmental Precautions:	Avoid release to the environment. Environmental manager must be informed of all major spillages. Prevent further leakage or spillage if safe to do so. Do not allow to enter drainage system, surface or ground water.
6.3 Methods and material for containment and cleaning up:	Scrape up spillage or absorb with absorbing material. Dispose of the material collected according to regulations. Stop the flow of material, if this is without risk.
6.4 Reference to other sections:	See Section 8 of the SDS for Personal Protective Equipment. See Section 7 for information on safe handling See Section 13 for information on disposal.

SECTION 7: Handling and storage:

7.1 Precautions for safe handling:	Provide adequate ventilation. Observe good industrial hygiene practices. Do not eat, drink or smoke when working with the product. Take usual precautions when handling mineral oil products or chemical products.
7.2 Conditions for safe storage, including any incompatibilities:	Local regulations concerning handling and storage of waterpolluting products have to be followed.
7.3 Specific end use(s):	No data available.
Storage Class:	11, Combustible solids

SECTION 8: Exposure controls/personal protection

8.1 Control Parameters

Occupational Exposure Limits

None of the components have assigned exposure limits.

8.2 Exposure controls

Appropriate engineering controls:	Provide adequate ventilation. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

General information:	Wash hands before breaks and after work. Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment. The usual precautionary measures should be adhered to inhandling the chemicals or the mineral oil products.

Eye/face protection:	Safety glasses (EN 166) recommended during refilling.
Skin protection	
Hand Protection:	Material: Nitrile butyl rubber (NBR). Avoid long-term and repeated skin contact. Suitable gloves can be recommended by the glove supplier. Use skin protection cream for preventive skin protection. Protective gloves, where permitted in acc. to safety directions. The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
Other:	Do not carry cleaning cloths impregnated with the product in trouser pockets. Wear suitable protective clothing.
Respiratory Protection:	Not relevant, due to the form of the product.
Thermal hazards:	Not known.
Hygiene measures:	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.
Environmental Controls:	No data available.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	
Physical state:	solid
Form:	Paste
Color:	White
Odor:	Characteristic
Odor Threshold:	Not applicable for mixtures
pH:	not applicable
Melting Point:	Not applicable for mixtures
Boiling Point:	Value not relevant for classification
Flash Point:	> 150 °C
Evaporation Rate:	Not applicable for mixtures
Flammability (solid, gas):	Value not relevant for classification
Flammability Limit - Upper (%)–:	Not applicable for mixtures
Flammability Limit - Lower (%)–:	Not applicable for mixtures
Vapor pressure:	Not applicable for mixtures
Vapor density (air=1):	Not applicable for mixtures
Density:	Approximate 0,90 g/cm3
Solubility(ies)	
Solubility in Water:	No data available.
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	Not applicable for mixtures

Autoignition Temperature:	Value not relevant for classification
Decomposition Temperature:	Value not relevant for classification
NLGI:	2
Explosive properties:	Value not relevant for classification
Oxidizing properties:	Value not relevant for classification
9.2 Other information	No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity:	Stable under normal temperature conditions and recommended use.
10.2 Chemical Stability:	No data available.
10.3 Possibility of hazardous reactions:	None under normal conditions.
10.4 Conditions to avoid:	Avoid heat or contamination.
10.5 Incompatible Materials:	Strong oxidizing substances. Strong acids. Strong bases.
10.6 Hazardous Decomposition Products:	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Oral
Product: Not classified for acute toxicity based on available data.

Dermal
Product: Not classified for acute toxicity based on available data.

Inhalation
Product: Not classified for acute toxicity based on available data.

Skin Corrosion/Irritation:
Product: Based on available data, the classification criteria are not met.

Serious Eye Damage/Eye Irritation:
Product: Based on available data, the classification criteria are not met.

Respiratory or Skin Sensitization:
Product: Skin sensitizer: Based on available data, the classification criteria are not met.
Respiratory sensitizer: Based on available data, the classification criteria are not met.

Germ Cell Mutagenicity
Product: Based on available data, the classification criteria are not met.

Carcinogenicity
Product: Based on available data, the classification criteria are not met.

Reproductive toxicity
Product: Based on available data, the classification criteria are not met.

Specific Target Organ Toxicity - Single Exposure
Product: Based on available data, the classification criteria are not met.

Specific Target Organ Toxicity - Repeated Exposure
Product: Based on available data, the classification criteria are not met.

Aspiration Hazard
Product: Based on available data, the classification criteria are not met.

Other Adverse Effects: No data available.

SECTION 12: Ecological information

12.1 Toxicity

Acute toxicity
Product: Based on available data, the classification criteria are not met.

Chronic ToxicityProduct: Based on available data, the classification criteria are not met.

12.2 Persistence and Degradability

Biodegradation
Product: Not applicable for mixtures

12.3 Bioaccumulative Potential
Product: Not applicable for mixtures

12.4 Mobility in Soil:
Product: Not applicable for mixtures

12.5 Results of PBT and vPvB assessment: The product does not contain any substances fulfilling the PBT/vPvB criteria.

12.6 Other Adverse Effects: No data available.

Water Hazard Class (WGK):	WGK 1: slightly water-endangering.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

General information:	Dispose in accordance with all applicable regulations.
Disposal methods:	Do not empty into drains; dispose of this material and its container in a safe way. When storing used products, ensure that the waste categories and mixing instructions are observed.

SECTION 14: Transport information

ADR/RID

14.1 UN Number:	–
14.2 UN Proper Shipping Name:	–
14.3 Transport Hazard Class(es)	
Class:	Non-dangerous goods
Label(s):	–
Hazard No. (ADR):	–
Tunnel restriction code:	–
14.4 Packing Group:	–
14.5 Environmental hazards:	–
14.6 Special precautions for user:	–

ADN

14.1 UN Number:	–
14.2 UN Proper Shipping Name:	–
14.3 Transport Hazard Class(es)	
Class:	Non-dangerous goods
Label(s):	–
14.3 Packing Group:	–
14.5 Environmental hazards:	–
14.6 Special precautions for user:	–

IMDG

14.1 UN Number:	–
14.2 UN Proper Shipping Name:	–
14.3 Transport Hazard Class(es)	
Class:	Non-dangerous goods
Label(s):	–
EmS No.:	–
14.3 Packing Group:	–
14.5 Environmental hazards:	–
14.6 Special precautions for user:	–

IATA

14.1 UN Number:	–
14.2 Proper Shipping Name:	–
14.3 Transport Hazard Class(es):	
Class:	Non-dangerous goods
Label(s):	–
14.4 Packing Group:	–
14.5 Environmental hazards:	–
14.6 Special precautions for user:	–

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: not applicable.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

EU Regulations

Regulation (EC) No. 2037/2000 Substances that deplete the ozone layer: none

Regulation (EC) No. 850/2004 on persistent organic pollutants: none

15.2 Chemical safety assessment: No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

Revision Information: Vertical lines in the margin indicate an amendment.

Wording of the H-statements in section 2 and 3

none

Other information: The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies. The classification results from the Conventional Method mentioned in regulation EU 1272/2008 (CLP).

Revision Date: 06.06.2016

Disclaimer: The data contained in this safety data sheet are based on our current knowledge and experience and are given to the best of our knowledge and belief. It characterizes the product only with regard to safety requirements for handling, transport and disposal. The data do not describe the product's properties (tech. product specification). Neither should any agreed property nor the suitability of the product for any specific technical application be deduced from the data contained in this safety data sheet. Modifications on this document are not allowed. The data are not transferable to other products. In the case of mixing the product with other products or in the case of processing, the data in this safety data sheet are not necessarily valid for the new-made material. It is the responsibility of the recipient of the product to observe federal, state and local law. Please contact us to obtain up-to-date safety data sheets. This document was issued electronically and has no signature.

SAMT®

Specialised Air Motors and Transmission

TONSON®

New South Wales

HEAD OFFICE

Unit 19/5 Lyn Parade

Prestons NSW 2170

Ph: (02) 9607 4100

Fax: (02) 9600 8882

Web: www.samt.com.au

Email: sales@samt.com.au