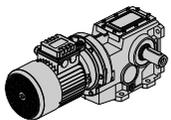




MAINTENANCE AND USE
INSTRUCTIONS FOR GEAR
REDUCERS AND GEARMOTORS
SERIES:

B - IB - CB





Warehouse storage

When moving the unit, care should be taken to protect external parts from breakage or damage due to accidental knocks or falls.

If the unit is to be stored in a hostile atmosphere or for a long period of time (2/4 months), it is important to apply protective and waterproofing products to avoid deterioration of shafts and rubber parts.

Before starting up the unit, carry out the following checks:

Check the data shown on the name plate of the reduction unit and/or the electric motor;

Check for any leaks of lubricant

If possible, remove any traces of dirt from the shaft and from the areas around the oil seal.

If the oil seal is not immersed in the lubricant inside the assembly during particularly long storage periods (4/6 months) it is recommended that it should be replaced as the rubber might stick to the shaft or even have lost the elasticity it needs to work.

Installation

Particular care must be taken when installing drives, as this is often the source of damage and down time. Careful choice of the type of drive and mounting position can often avoid the need for protection of sensitive areas, particularly underneath the unit from oil leaks, however limited they may be.

- The machine must be firmly fastened in place in order to prevent any vibrations.
- Whenever possible, protect the reduction unit from direct sunlight and bad weather, especially when it is mounted on its vertical axis.
- Make sure the air intake on the fan side is unobstructed in order to ensure that the motor is correctly cooled.
- In the case of temperatures of $< -5\text{ }^{\circ}\text{C}$ or $> +40\text{ }^{\circ}\text{C}$, contact Technical Assistance.
- If the motor is to be started very often under load, the use of a heat probe inserted into the motor is recommended.
- The various machine members (pulleys, gear wheels, couplings, etc.) must be mounted on the shafts using special threaded holes or other systems that ensure correct operation without risk of causing damage to the bearings or the external parts of the assemblies (fig.1).
- Lubricate the surfaces that come into contact in order to prevent oxidation or seizure.

Installation

Example of a pulley mounted correctly on the slow shaft of a reduction unit

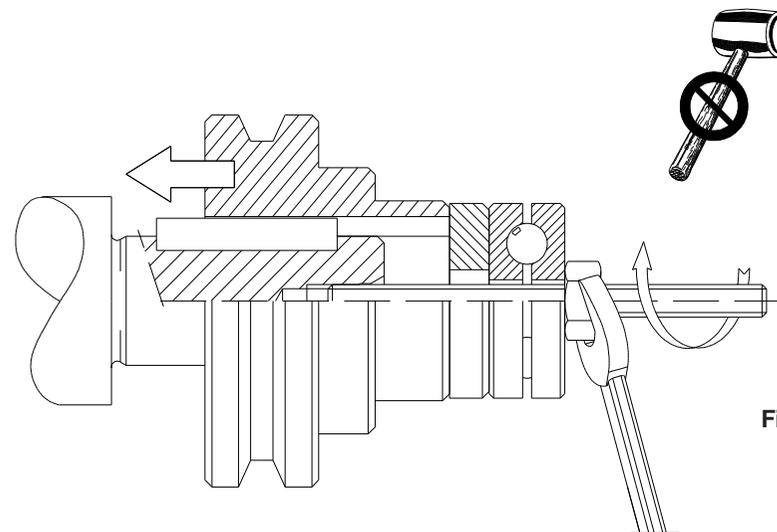


Fig. 1

Correct and incorrect examples of pulleys mounted on the main shaft of a reduction unit.

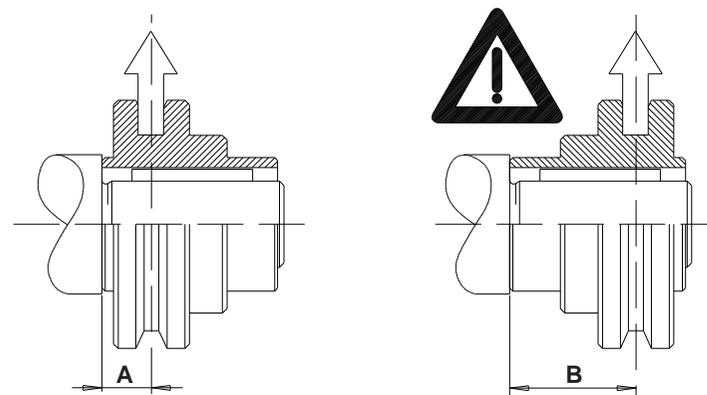
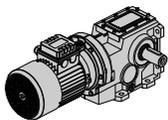


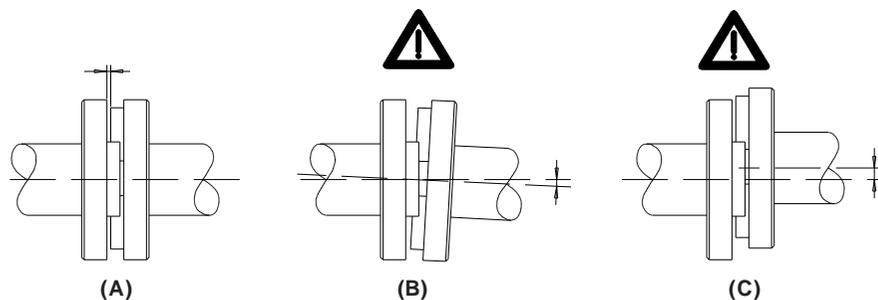
Fig. 2



Installation

Correct and incorrect examples of coupling connections.

Fig. 3



The pulley must be mounted on the main shaft as close as possible to the shoulder so that it does not cause excessive radial load on the bearings (fig. 2). Great care must be taken when connecting the couplings to ensure that they are well aligned, so as not to cause excessive radial load on the bearings (fig.3). When it is applied, paint must never be used on rubber parts: oil seal, etc. It must never be applied to any breather holes in plugs if they are mounted on the unit. In the case of assemblies with oil plugs, remove the closed cap used for transport and fit it with the breather plug that is supplied with the reduction unit. When the assembly is supplied without a motor, the following precautions must be followed in order to ensure that connections are properly made

Mounting the motor on the pam B5 flange

Check that the tolerance of the motor shaft and the motor flange comply with at least one 'normal' class of quality. Carefully clean off any trace of dirt or paint from the shaft, the centering diameter and the face of the flange. Carry out mounting operations making sure not to use force. If this is not possible, check the tolerance of the motor key and ensure that it is correctly fitted. Apply assembly grease to the shaft in order to prevent oxidation or seizure caused by contact.

Good quality motors should be used in order to ensure that the unit works correctly, without vibrations or noise.

Before mounting the unit on the machine, check that the principal shaft of the reduction unit rotates in the right direction.

Use the oil window, if present, to check that the lubricant reaches the correct level required for the mounting position used.

Starting up

The unit should be started up gradually: do not immediately apply the maximum load the machine is able to take ; look for and correct any malfunction that may be caused by incorrect mounting.

Running-in is not essential for the reduction unit to run properly since modern construction techniques for the gears and castings, the extreme cleanliness of the internal parts, and the excellent qualities of the lubricants used, ensure that the internal parts receive a high degree of protection even during the first moments.

Servicing

The high degree of finish of the internal parts ensures that the unit will work correctly with only a minimum amount of servicing

Generally speaking, the following rules should be followed: periodically check that the exterior of the assembly is clean, especially in the cooling areas; periodically check to see if there are any leaks, especially in the areas around the oil seals.

Assemblies that are lubricated for life and thus do not have any oil plugs do not require any special maintenance except as stated above.

For other assemblies, low maintenance is required with an oil change at 8/10,000 hours of use. The change of oil naturally depends on the type of environment and use to which the unit is put.

Apart from the normal maintenance rules given above, make sure the breather hole in the plug is clean and, using the oil window, periodically check that there is sufficient lubricant.

Should it be necessary to top up with lubricant, use the same type that is already in the reducer or one that is compatible with it.

In case of doubtful incompatibility between lubricants, we recommend you empty out the oil from the gearbox completely and, before refilling with new oil, wash out the unit to remove any residue.

When changing the oil, follow the previous instructions.

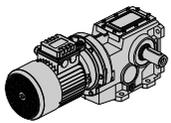
Troubleshooting

If any problems should arise when starting the unit or during its first few hours of operation, contact the after sales service unit of Motovario.

The table shows a series of problems with a description of possible remedies.

It should be kept in mind however that the information given is for reference only, as all the drives manufactured by Motovario are thoroughly tested and checked before they leave the factory.

Please note that tampering with the assembly without prior authorization from Motovario immediately invalidates the warranty and often makes it impossible to ascertain the causes of a defect or malfunction.

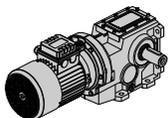


Troubleshooting

PROBLEMS	CAUSES	ACTION (1)	ACTION (2)
<i>The motor does not start.</i>	Problems with power supply. Defective motor. Wrong size of motor.	Check power supply.	Replace electric motor.
<i>Current absorbed by the motor is greater than shown on the data plate.</i>	Wrong size of motor.	Check the application.	Replace the electric motor and, if necessary, the reduction unit.
<i>Temperature of the motor housing is very high.</i>	Defective motor. Wrong size of motor. Incorrect mounting of motor	Check the application.	Replace the electric motor and, if necessary, the reduction unit.
<i>Temperature of the reduction unit housing is very high.</i>	Wrong size of reduction unit. Mounting position does not comply with the order. Incorrect mounting of motor	Check the application.	Correct the working conditions: mounting position and/or lubricant level.
<i>Incorrect rotation speed of the main reducer unit shaft.</i>	Incorrect reduction ratio. Incorrect polarity of motor.	Check reduction ratio. Check polarity of motor.	Replace reduction unit and/or electric motor.
<i>Oil leak from oil seal.</i>	Defective oil seal. Oil seal damaged during shipment. Defective motor shaft.	Replace the oil seal. Repair motor shaft (if possible).	Replace the part or return the assembly to Motovario.
<i>Oil leak from joint.</i>	Flat gasket or O-ring damaged.	Replace damaged gasket or O-ring.	Return the assembly to Motovario.
<i>The main shaft rotates the wrong way.</i>	Incorrect connection of the electric motor.	Swap two phases of the motor supply.	
<i>Intermittent noise from the gears.</i>	Dents in the gear wheels.	No practical problem if the noise has no effect on the application.	Return the assembly to Motovario if there is significant noise when loaded.

Troubleshooting

PROBLEMS	CAUSES	ACTION (1)	ACTION (2)
<i>No intermittent noise from the gears.</i>	Dirty inside the gearbox.	No practical problem if the noise has no effect on the application.	Return the assembly to Motovario if there is significant noise when loaded.
<i>Noise (whine) from the drive assembly.</i>	Bearings incorrectly adjusted. Gears with mesh errors. Insufficient lubricant.	Check correct quantity of lubricant.	Return the assembly to Motovario.
<i>Electric motor vibrates.</i>	Measurement of the assembly coupling.	Check geometric tolerance of flange on electric motor. Check tolerance and geometry of key on motor shaft.	Replace electric motor.



Critical applications

The performance given in the catalogue correspond to mounting position B3 or similar, ie. when the first stage is not entirely immersed in oil. For other mounting positions and/or particular input speeds, refer to the tables that highlight different critical situations for each size of reduction unit.

It is also necessary to take due consideration of and carefully assess the following applications by calling our Technical Service:

- As a speed increasing.
- Use in services that could be hazardous for people if the reduction unit fails.
- Applications with especially high inertia.
- Use as a lifting winch.
- Applications with high dynamic strain on the case of the reduction unit.
- In places with T° under -5°C or over 40°C.
- Use in chemically aggressive environments.
- Use in a salty environment.
- Mounting positions not envisaged in the catalogue.
- Use in radioactive environments.
- Use in environments pressures other than atmospheric pressure.

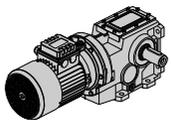
Avoid applications where even partial immersion of the reduction unit is required.

The maximum torque (*) that the gear reducer can support must not exceed two times the nominal torque (f.s.=1) stated in the performance tables. (*) intended for momentary overloads due to starting at full load, braking, shocks or other causes, particularly those that are dynamic.

B	080	100	125	140	150
2000 < n1 < 3000	-	-	B	B	B
V5 - V6	B	B	B	B	B
n1 > 3000	B	B	B	A	A
...L : B6 - B7	B	B	B	B	B

A - Application not recommended

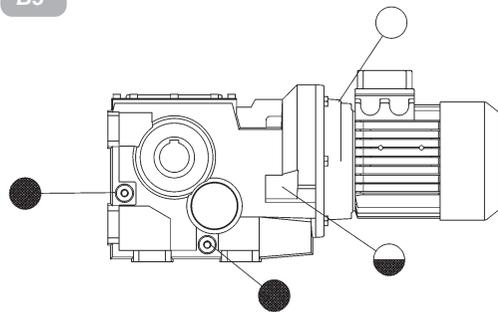
B - Check the application and/or call our technical service



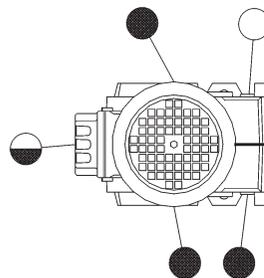
Mounting position

080÷150

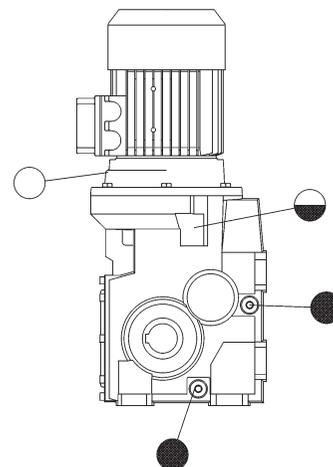
B3



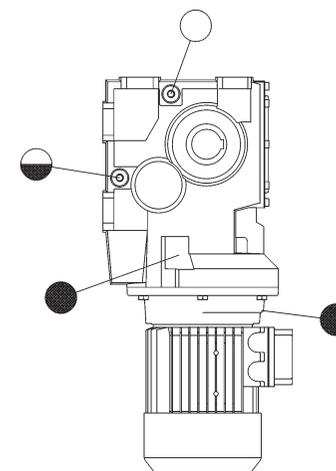
B6



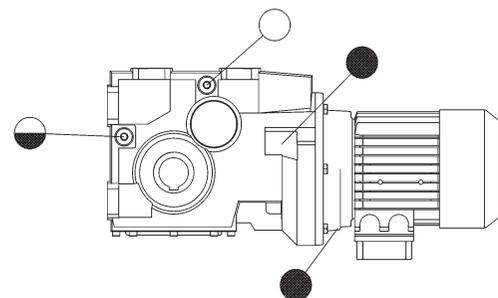
V5



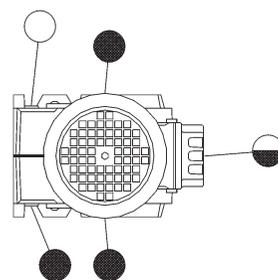
V6



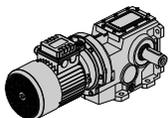
B8



B7



- Oil fill / breather plug
- ◐ Oil level plug
- Oil drain plug



Lubrication (B-IB-CB)

In cases of ambient temperatures not envisaged in the table, call our Technical Service.
In the case of temperatures under -30°C or over 60°C it is necessary to use oil seals with special properties.

For operating ranges with temperatures under 0°C it is necessary to consider the following:

- 1- The motors need to be suitable for operation at the envisaged ambient temperature.
- 2- The power of the electric motor needs to be adequate for exceeding the higher starting torques required.
- 3- In the case of reduction units with a cast-iron case, pay attention to impact loads since cast iron may have problems of fragility at temperatures under -15°C.
- 4- During the early stages of service, problems of lubrication may arise due to the high level of viscosity taken on by the oil and so it is wise to have a few minutes of rotation under no load.

The oil needs to be changed after approximately 10,000 hours. This period depends on the type of service and the environment where the reduction unit works.

For units supplied without oil plugs, lubrication is permanent and so they need no servicing.

- I riduttori di media/grossa taglia vengono forniti privi di olio e completi dei tappi necessari a garantire tutte le posizioni di piazzamento. I suddetti riduttori vengono contraddistinti dall'applicazione della relativa targhetta.

I	Attenzione: riduttore privo di lubrificante, riempire a livello prima dell'avviamento.
GB	Attention: gearbox unit without lubricant, fill it up to the level before starting.
D	Achtung: Getriebe ohne Schmierstoff, bitte vor Inbetriebnahme füllen.
F	Attention: groupe sans lubrifiant, remplir au niveau avant le démarrage.
E	Atención: grupo sin lubricante, llenar hasta el nivel antes de la puesta en marcha.

Olio minerale	T°C	(-5) ÷ (+40)	(-15) ÷ (+25)			
Mineral oil						
Mineralöl						
Huile minérale				ISO VG...	ISO VG220	ISO VG150
Aceite mineral,						

	080	100	125	140	150
B	●	●	●	●	●

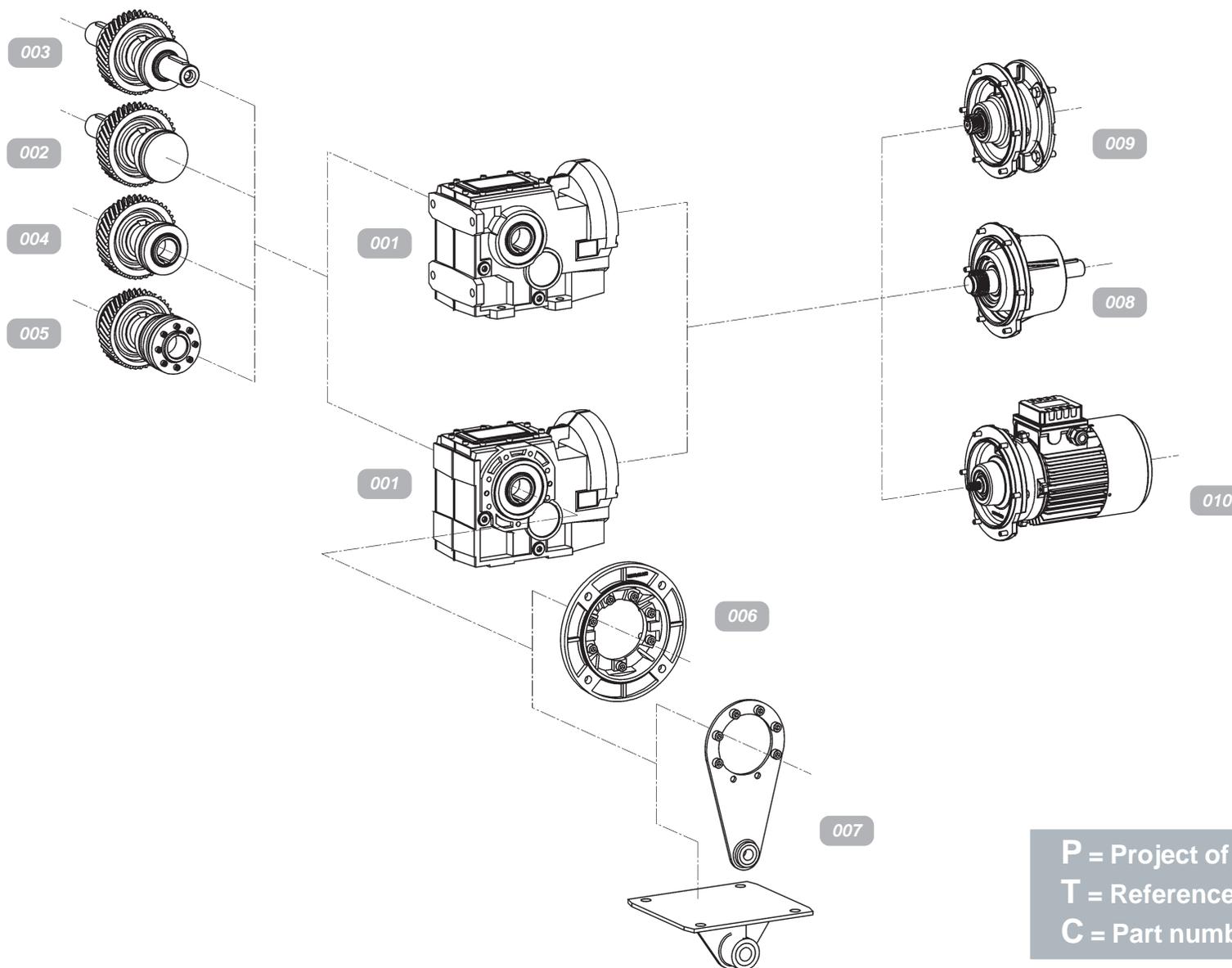
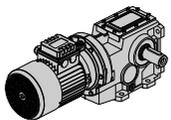


- non lubrificato

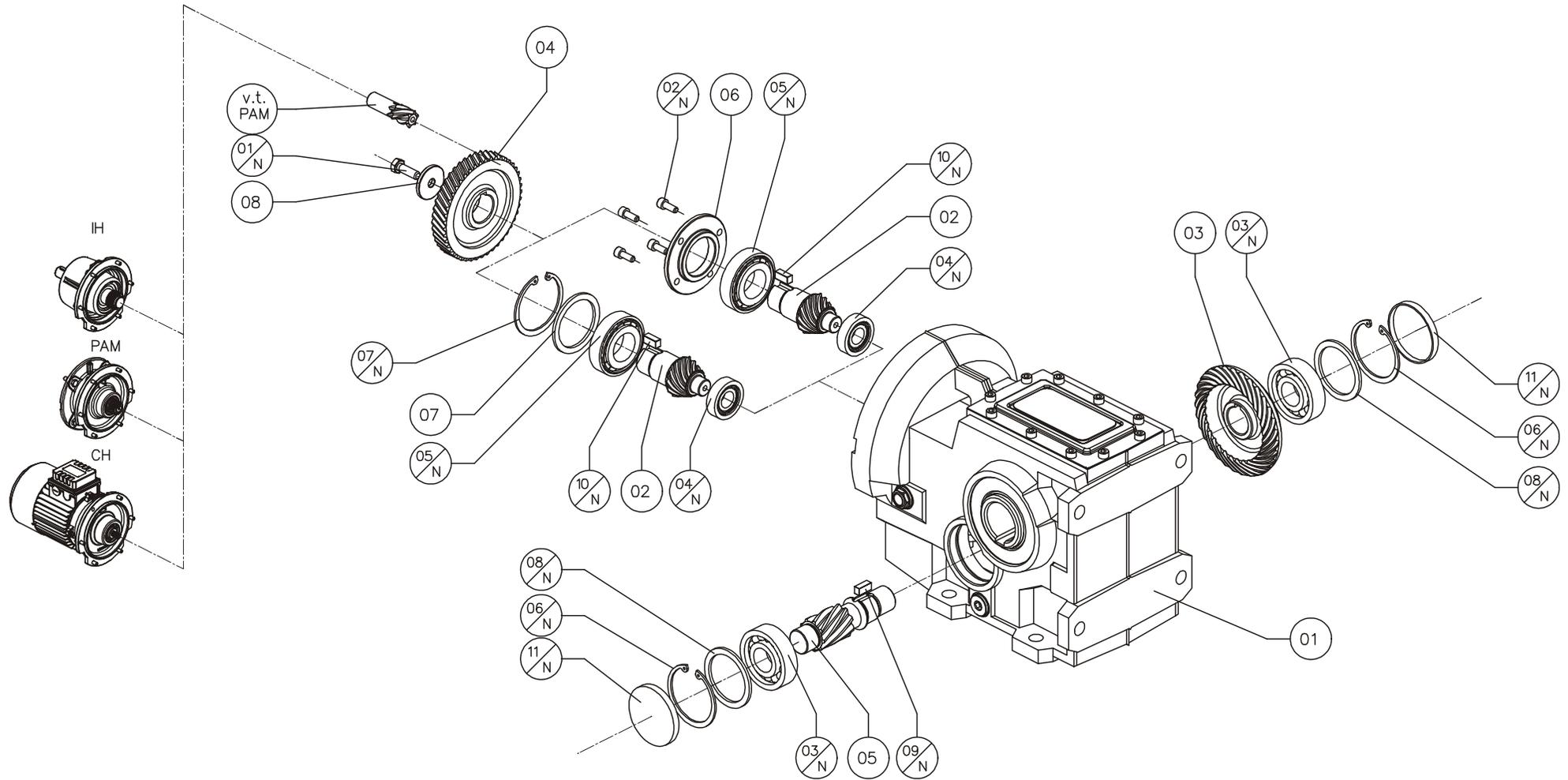
Lubrication (B-IB-CB)

T°C ISO VG...	(-5) ÷ (+40) ISO VG220	(-15) ÷ (+25) ISO VG150
AGIP	BLASIA 220	BLASIA 150
SHELL	OMALA OIL220	OMALA OIL150
ESSO	SPARTAN EP220	SPARTAN EP150
MOBIL	MOBILGEAR 630	MOBILGEAR 629
CASTROL	ALPHA MAX 220	ALPHA MAX 150
BP	ENERGOL GR-XP220	ENERGOL GR-XP150

Mineral oil



P = Project of pertinence
T = Reference table
C = Part number

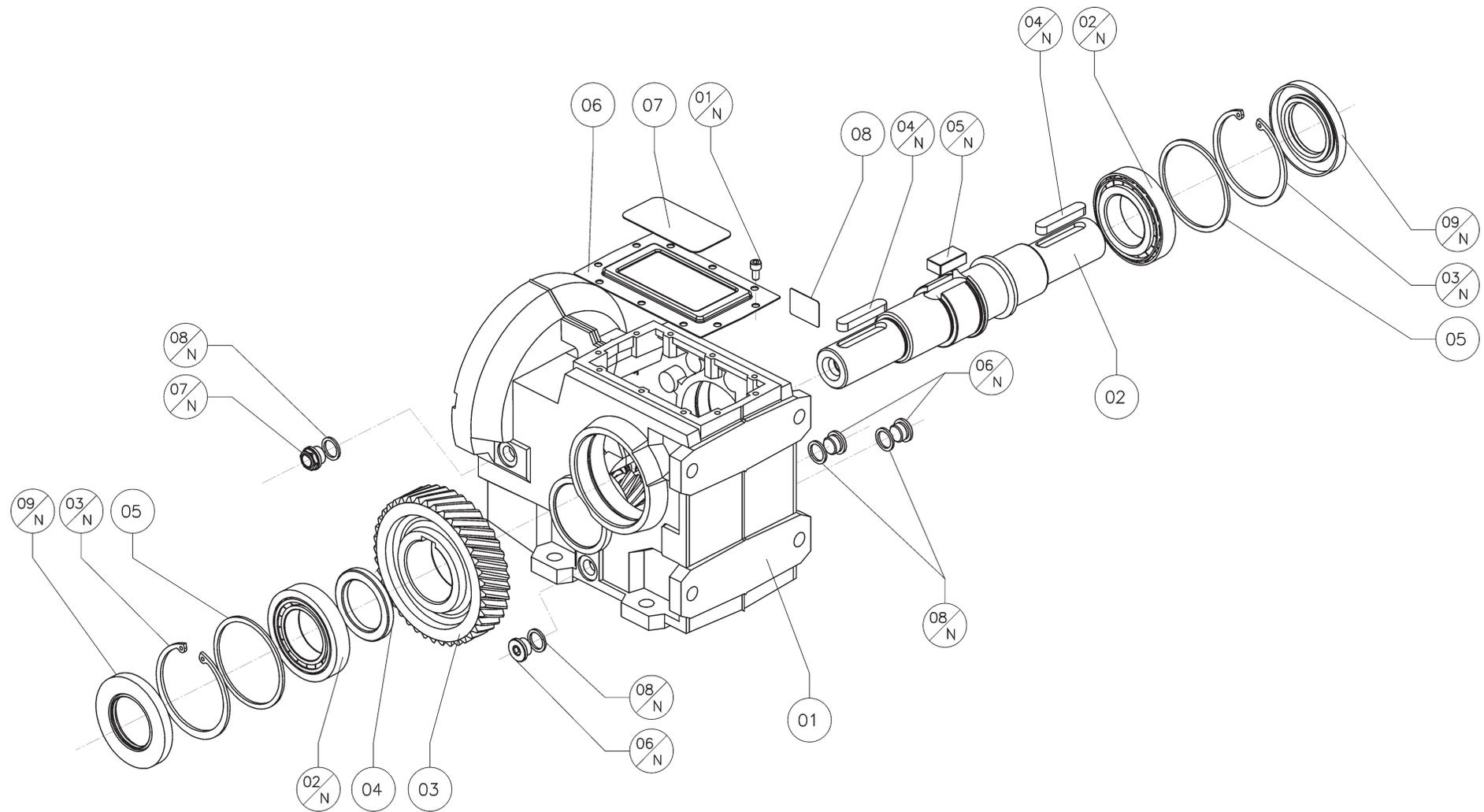


P	T	C	Built	080	100	125	140	150
B	001	1	Casing with foot	B.080.01	B.100.01	B.125.01	B.140.01	B.150.01
B	001	1	Casing with flange	B.080.02	B.100.02	B.125.02	-	-
B	001	1	Casing universal	B.080.09	B.100.09	B.125.09	-	-
B	001	2	Bevel pinion	B.080.23	B.100.23	B.125.23	B.140.23	B.150.23
B	001	3	Bevel gear	B.080.24	B.100.24	B.125.24	B.140.24	B.150.24
B	001	4	Gear	H.060.24	H.060.24	H.080.24	H.100.24	H.125.24
B	001	5	Pinion	H.060.28	H.080.28	H.100.28	H.125.28	H.140.28
B	001	6	Bearing bush	-	-	-	B.140.65	B.150.65
B	001	7	Bearing spacer	ADS 62x50x3	ADS 72x56x3	8.063.32	-	-
B	001	8	Retaining ring	0.080.34	0.080.34	8.125.34	8.125.34	0.160.34
B	PAM	-	Pinion					

P	T	C	Commercial	080		100		125		140		150	
B	001	1/N	Screw DIN 931	M8x25	1	M8x25	1	M12x30	1	M12x35	1	M16x40	1
B	001	2/N	Screw DIN 912	-	-	-	-	-	-	M8x20	4	M8x20	6
B	001	3/N	Bearing	6305 2RS1 C3 G11	2	30206	2	32207	2	31308	2	30309	2
B	001	4/N	Bearing	30203	1	32004x	1	32205B	1	31305	1	32206B	1
B	001	5/N	Bearing	30206	1	30207	1	30208	1	32210	1	30212	1
B	001	6/N	Circlip DIN 472	62	2	62	2	72	2	90	2	100	2
B	001	7/N	Circlip DIN 472	62	1	72	1	80	1	-	-	-	-
B	001	8/N	Bearing spacer	ADS 62x50x3	2	ADS 62x50x3	2	ADS 72x56x3	2	ADS 90x70x3.5	2	ADS 100x80x3.5	2
B	001	9/N	Key DIN 6885	B 8x7x18	1	B 10x8x25	1	B 10x8x30	1	B 14x9x40	1	B 14x9x45	1
B	001	10/N	Key DIN 6885	B 8x7x18	1	B 8x7x18	1	B 10x8x25	1	B 10x8x30	1	B 14x9x40	1
B	001	11/N	Cap	RCA 62-7	2	RCA 62-7	2	RCA 72-10	2	RCA 90-10	2	RCA 100-10	2

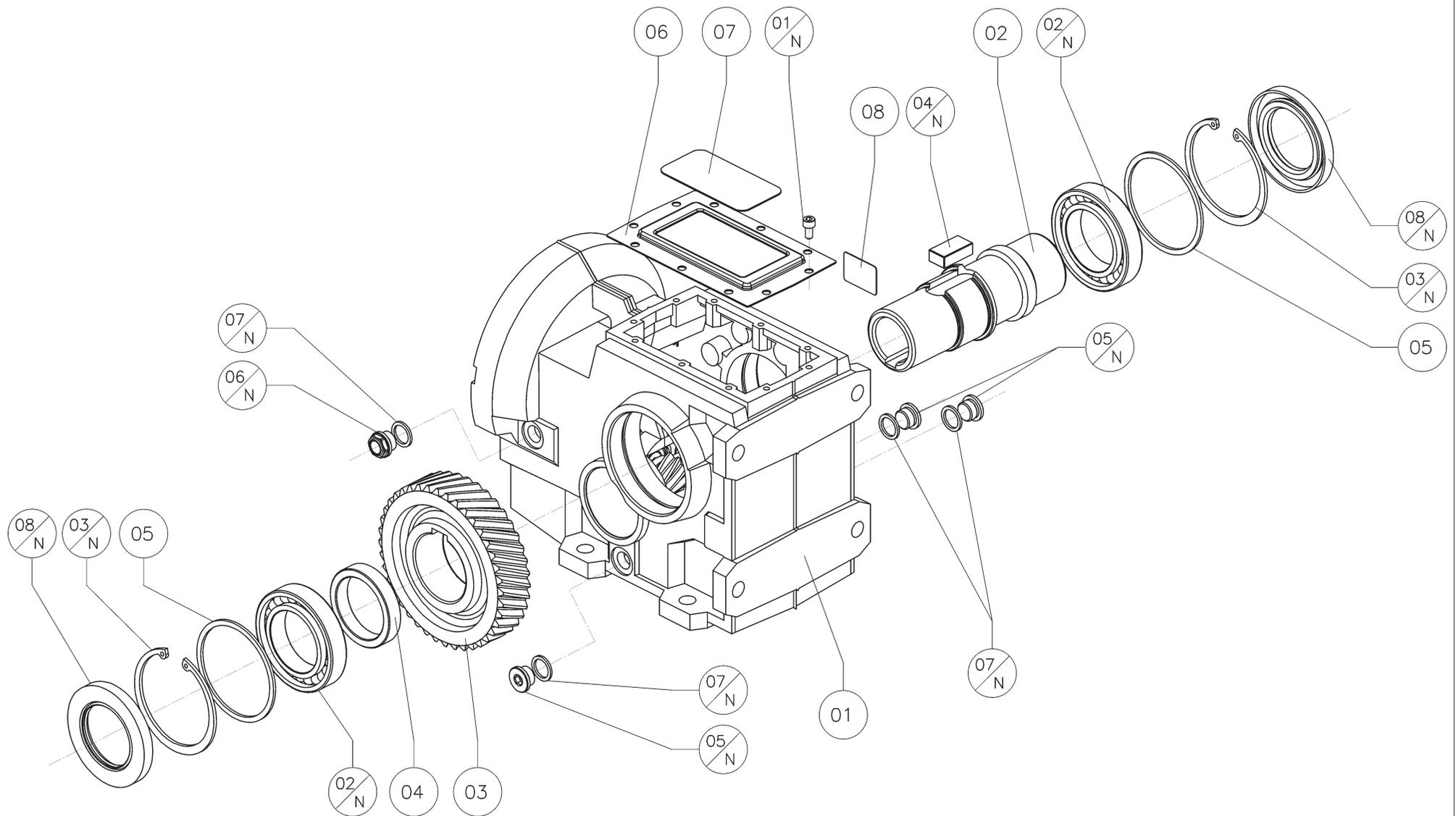
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B	002	1	Casing with foot	B.080.01	B.100.01	B.125.01	B.140.01	B.150.01
B	002	1	Casing with flange	B.080.02	B.100.02	B.125.02	-	-
B	002	1	Casing universal	B.080.09	B.100.09	B.125.09	-	-
B	002	2	Output shaft	B.080.12.40	B.100.12.50	B.125.12.60	B.140.12.70	B.150.12.90
B	002	3	Gear	H.060.26	H.080.26	H.100.26	H.125.26	H.140.26
B	002	4	Spacer	B.080.40	B.100.40	B.125.40	B.140.39	B.150.39
B	002	5	Spacer	8.080.32	8.100.32	8.125.32	8.140.32	8.160.32
B	002	6	Cover	H.060.07	H.080.07	H.100.07	H.125.07	H.140.07
B	002	7	Plate	H.060.100	H.060.100	H.060.100	H.060.100	H.060.100
B	002	8	Plate	9.040.99	9.040.99	9.040.99	9.040.99	9.040.99

P	T	C	Commercial	080		100		125		140		150	
B	002	1/N	Screw DIN 912	M6x12	10	M6x12	10	M6x12	10	M6x12	12	M8x16	12
B	002	2/N	Bearing	30210	2	32014x	2	32017x	2	32020x	2	32024x	2
B	002	3/N	Circlip DIN 472	90	2	110	2	130	2	150	2	180	2
B	002	4/N	Key DIN 6885	A 12x8x60	1	A 14x9x80	1	A 18x11x100	1	A 20x12x110	1	A 25x14x140	1
B	002	5/N	Key DIN 6885	B 18x11x34	1	B 20x12x40	1	B 25x14x50	1	B 28x16x60	1	816038	1
B	002	6/N	Closing plug	3/8" gas	3	3/8" gas	3	1/2" gas	3	1/2" gas	3	1/2" gas	3
B	002	7/N	Oil level plug	3/8" gas	1	3/8" gas	1	1/2" gas	1	1/2" gas	1	1/2" gas	1
B	002	8/N	Gasket	3/8" gas	4	3/8" gas	4	1/2" gas	4	1/2" gas	4	1/2" gas	4
B	002	9/N	Cap	RCA 90-10	1	RCA 110-12	1	RCA 130-12	1	-	-	-	-
B	002	10/N	Oil Seal DIN 3760	AS 50-90-10	1	AS 70-110-13	1	AS 85-130-10	1	AS 100-150-14	2	A 120-180-13	2



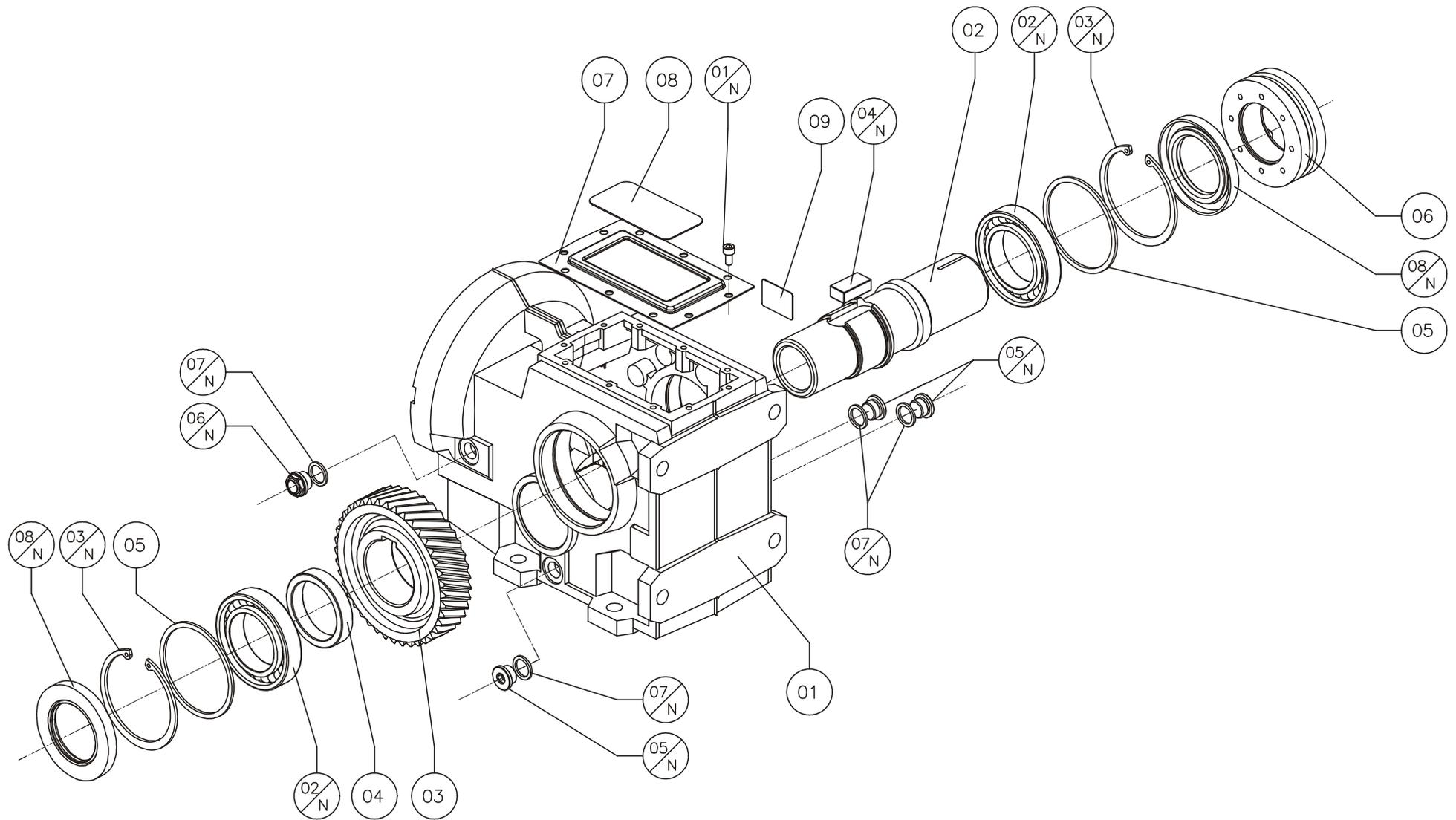
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B	003	1	Casing with foot	B.080.01	B.100.01	B.125.01	B.140.01	B.150.01
B	003	1	Casing with flange	B.080.02	B.100.02	B.125.02	-	-
B	003	1	Casing universal	B.080.09	B.100.09	B.125.09	-	-
B	003	2	Double Output shaft	B.080.13.40	B.100.13.50	B.125.13.60	B.140.13.70	B.150.13.90
B	003	3	Gear	H.060.26	H.080.26	H.100.26	H.125.26	H.140.26
B	003	4	Spacer	B.080.40	B.100.40	B.125.40	B.140.39	B.150.39
B	003	5	Spacer	8.080.32	8.100.32	8.125.32	8.140.32	8.160.32
B	003	6	Cover	H.060.07	H.080.07	H.100.07	H.125.07	H.140.07
B	003	7	Plate	H.060.100	H.060.100	H.060.100	H.060.100	H.060.100
B	003	8	Plate	9.040.99	9.040.99	9.040.99	9.040.99	9.040.99

P	T	C	Commercial	080		100		125		140		150	
B	003	1/N	Screw DIN 912	M6x12	10	M6x12	10	M6x12	10	M6x12	12	M8x16	12
B	003	2/N	Bearing	30210	2	32014x	2	32017x	2	32020x	2	32024x	2
B	003	3/N	Circlip DIN 472	90	2	110	2	130	2	150	2	180	2
B	003	4/N	Key DIN 6885	A 12x8x60	2	A 14x9x80	2	A 18x11x100	2	A 20x12x110	2	A 25x14x140	2
B	003	5/N	Key DIN 6885	B 18x11x34	1	B 20x12x40	1	B 25x14x50	1	B 28x16x60	1	816038	1
B	003	6/N	Closing plug	3/8" gas	3	3/8" gas	3	1/2" gas	3	1/2" gas	3	1/2" gas	3
B	003	7/N	Oil level plug	3/8" gas	1	3/8" gas	1	1/2" gas	1	1/2" gas	1	1/2" gas	1
B	003	8/N	Gasket	3/8" gas	4	3/8" gas	4	1/2" gas	4	1/2" gas	4	1/2" gas	4
B	003	9/N	Oil Seal DIN 3760	AS 50-90-10	2	AS 70-110-12	2	AS 85-130-10	2	AS 100-150-14	2	A 120-180-13	2



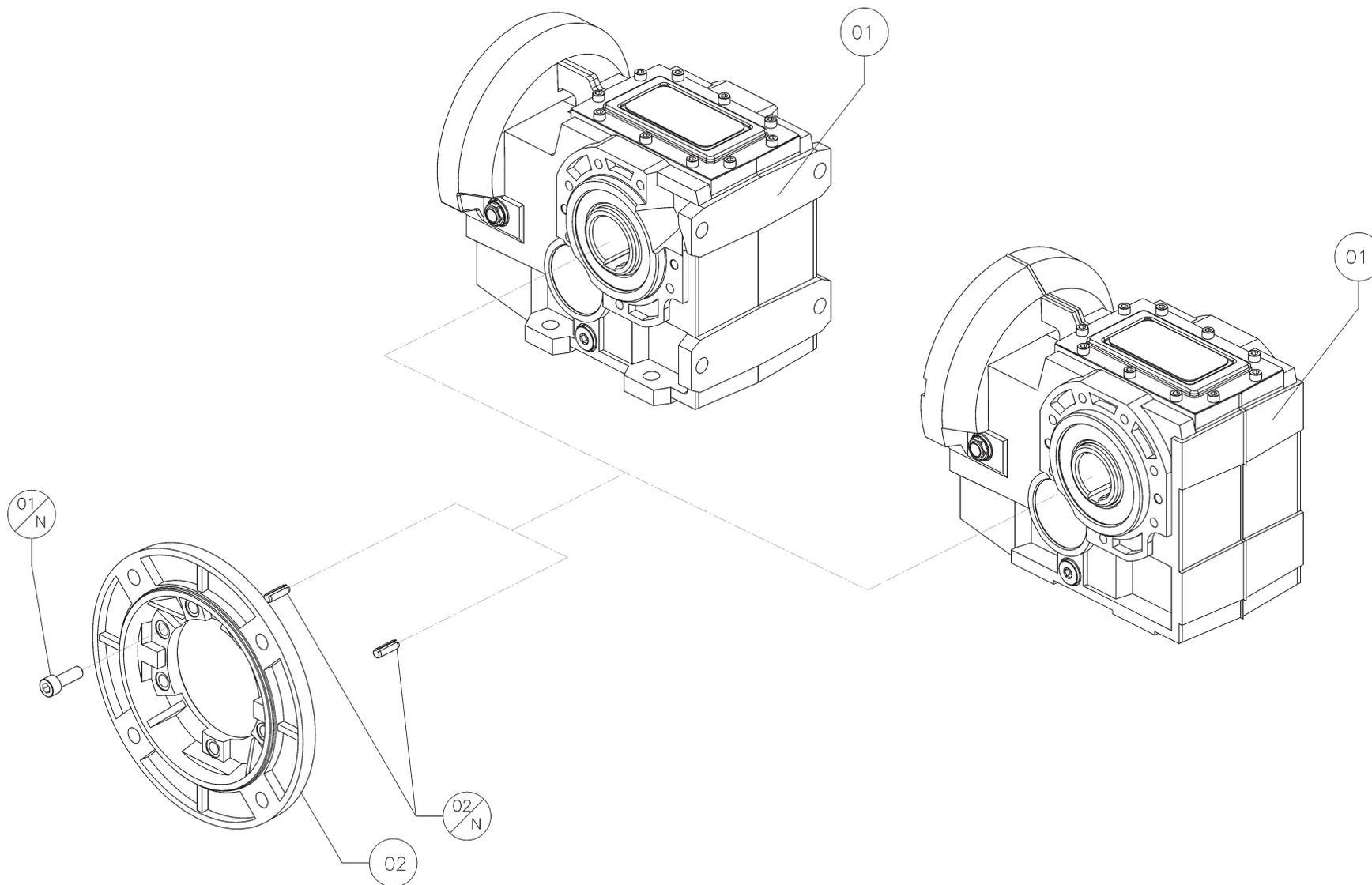
P	T	C	Built	080	100	125	140	150
B	004	1	Casing with foot	B.080.01	B.100.01	B.125.01	B.140.01	B.150.01
B	004	1	Casing with flange	B.080.02	B.100.02	B.125.02	-	-
B	004	1	Casing universal	B.080.09	B.100.09	B.125.09	-	-
B	004	2	Hallow output shaft	B.080.11	B.100.11	B.125.11	B.140.11	B.150.11
B	004	3	Gear	H.060.26	H.080.26	H.100.26	H.125.26	H.140.26
B	004	4	Spacer	B.080.39	B.100.39	B.125.39	B.140.39	B.150.39
B	004	5	Spacer	-	-	8.125.32	8.140.32	8.160.32
B	004	6	Cover	H.060.07	H.080.07	H.100.07	H.125.07	H.140.07
B	004	7	Plate	H.060.100	H.060.100	H.060.100	H.060.100	H.060.100
B	004	8	Plate	9.040.99	9.040.99	9.040.99	9.040.99	9.040.99

P	T	C	Commercial	080		100		125		140		150	
B	004	1/N	Screw DIN 912	M6x12	10	M6x12	10	M6x12	10	M6x12	12	M8x16	12
B	004	2/N	Bearing	6011	2	6014	2	6017	2	32020x	2	32024x	2
B	004	3/N	Circlip DIN 472	90	2	110	2	130	2	150	2	180	2
B	004	4/N	Key DIN 6885	B 18x11x34	1	B 20x12x40	1	B 25x14x50	1	B 28x16x60	1	816038	1
B	004	5/N	Closing plug	3/8" gas	3	3/8" gas	3	1/2" gas	3	1/2" gas	3	1/2" gas	3
B	004	6/N	Oil level plug	3/8" gas	1	3/8" gas	1	1/2" gas	1	1/2" gas	1	1/2" gas	1
B	004	7/N	Gasket	3/8" gas	4	3/8" gas	4	1/2" gas	4	1/2" gas	4	1/2" gas	4
B	004	8/N	Oil Seal DIN 3760	AS 55-90-10	2	AS 70-110-12	2	AS 85-130-10	2	AS 100-150-14	2	A 120-180-13	2



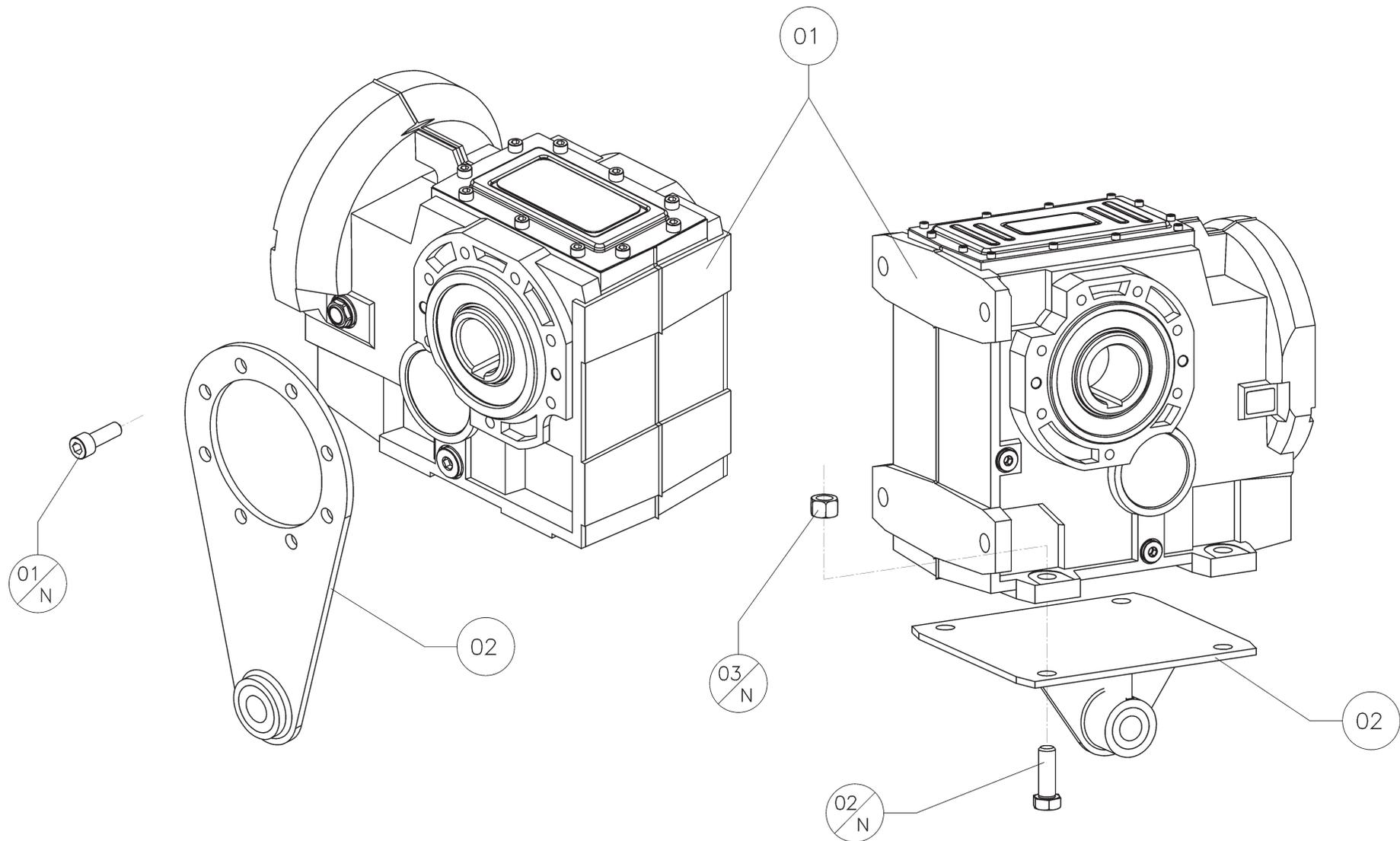
P	T	C	Built	080	100	125	140	150
B	005	1	Casing with foot	B.080.01	B.100.01	B.125.01	B.140.01	B.150.01
B	005	1	Casing with flange	B.080.02	B.100.02	B.125.02	-	-
B	005	1	Casing universal	B.080.09	B.100.09	B.125.09	-	-
B	005	2	Shaft for Shrink Disc	B.080.20	B.100.20	B.125.20	B.140.20	B.150.20
B	005	3	Gear	H.080.26	H.080.26	H.100.26	H.125.26	H.140.26
B	005	4	Spacer	B.080.39	B.100.39	B.125.39	B.140.39	B.150.39
B	005	5	Spacer	-	-	8.125.32	8.140.32	8.160.32
B	005	6	Shrink Disc	8.080.54	8.100.54	8.125.54	8.140.54	8.160.54
B	005	7	Cover	H.060.07	H.080.07	H.100.07	H.125.07	H.140.07
B	005	8	Plate	H.060.100	H.060.100	H.060.100	H.060.100	H.060.100
B	005	9	Plate	9.040.99	9.040.99	9.040.99	9.040.99	9.040.99

P	T	C	Commercial	080		100		125		140		150	
B	005	1/N	Screw DIN 912	M6x12	10	M6x12	10	M6x12	10	M6x12	12	M8x16	12
B	005	2/N	Bearing	6011	2	6014	2	6017	2	32020x	2	32024x	2
B	005	3/N	Circlip DIN 472	90	2	110	2	130	2	150	2	180	2
B	005	4/N	Key DIN 6885	B 18x11x34	1	B 20x12x40	1	B 25x14x50	1	B 28x16x60	1	816038	1
B	005	5/N	Closing plug	3/8" gas	3	3/8" gas	3	1/2" gas	3	1/2" gas	3	1/2" gas	3
B	005	6/N	Oil level plug	3/8" gas	1	3/8" gas	1	1/2" gas	1	1/2" gas	1	1/2" gas	1
B	005	7/N	Gasket	3/8" gas	4	3/8" gas	4	1/2" gas	4	1/2" gas	4	1/2" gas	4
B	005	8/N	Oil Seal DIN 3760	AS 55-90-10	2	AS 70-110-12	2	AS 85-130-10	2	AS 100-150-14	2	A 120-180-13	2



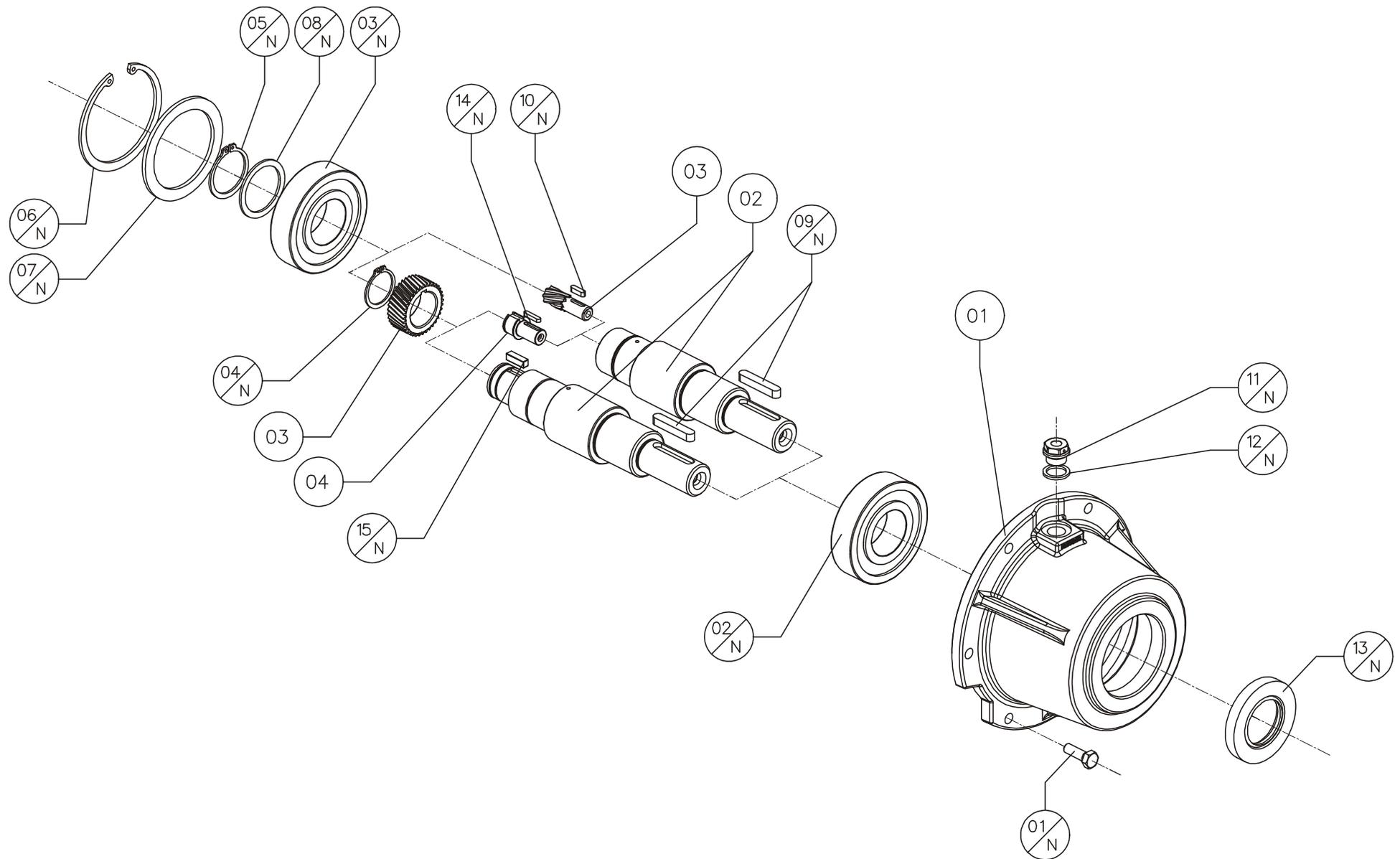
P	T	C	Built	080	100	125	140	150
B	006	1	Casing universal	B.080.09	B.100.09	B.125.09	B.140.01	B.150.01
B	006	1	Casing with flange	B.080.02	B.100.02	B.125.02	-	-
B	006	2	Flange	H.060.06	H.080.06	H.100.06	H.125.06	H.140.06

P	T	C	Commercial	080		100		125		140		150	
B	006	1/N	Screw DIN 912	M10x30	7	M12x35	7	M14x40	7	M14x40	7	M16x45	7
B	006	2/N	Dowel pin DIN 7344	8x24	2	10x30	2	12x36	2	12x36	2	14x40	2



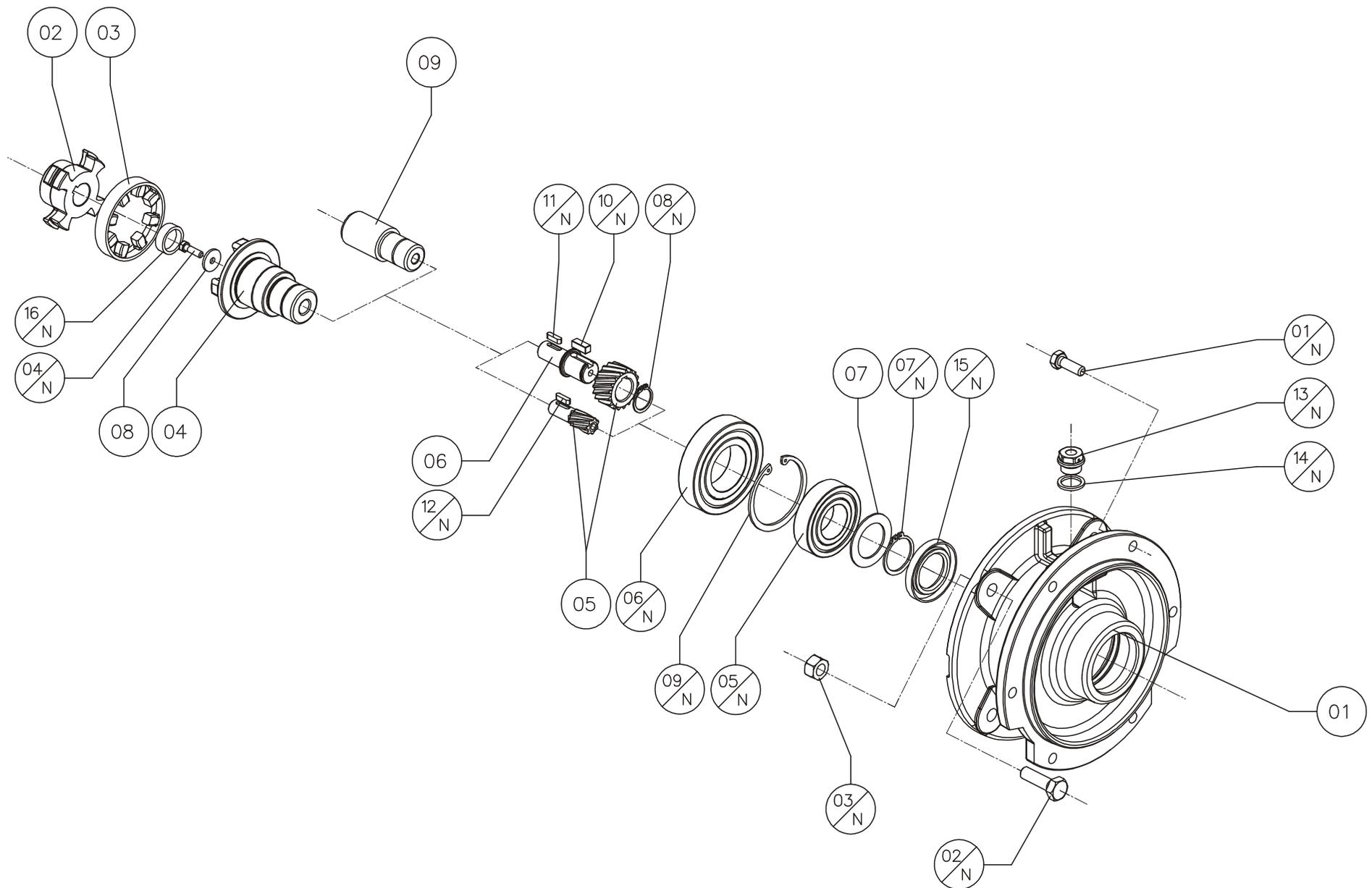
P	T	C	Built	080	100	125	140	150
B	007	1	Casing with flange	B.080.02	B.100.02	B.125.02	B.140.01	B.150.01
B	007	2	Torque Arm	B.080.08	B.100.08	B.125.08	B.140.08	B.150.08

P	T	C	Commercial	080		100		125		140		150	
B	007	1/N	Screw DIN 912	M10x20	6	M12x25	6	M14x30	6	-	-	-	-
B	007	2/N	Screw DIN 931	-	-	-	-	-	-	M20x50	4	M24x60	4
B	007	3/N	Nut DIN 934/6	-	-	-	-	-	-	M20	4	M24	4



P	T	C	Built	80	100	125	140	150
B	008	1	Cover	H.060.03	H.060.03	H.100.03	H.100.03	H.140.03
B	008	2	Input shaft	H.060.15.28	H.060.15.28	H.100.15.38	H.100.15.38	H.140.15.42
B	008	3	Pinion	H.060.23	H.060.23	H.080.23	H.100.23	H.125.23
B	008	4	Pinion hub	H.060.22	H.060.22	H.080.22	-	-

P	T	C	Commercial	80		100		125		140		150	
B	008	1/N	Screw DIN 931	M8x25	6	M8x25	6	M12x35	6	M12x35	6	M12x35	8
B	008	2/N	Bearing	6308	1	6308	1	6309	1	6309	1	NJ310EC	1
B	008	3/N	Bearing	6308	1	6308	1	6310	1	6310	1	6312	1
B	008	4/N	Circlip DIN 471	24	1	24	1	30	1	40	1	40	1
B	008	5/N	Circlip DIN 471	-	-	-	-	-	-	-	-	60	1
B	008	6/N	Circlip DIN 472	90	1	90	1	110	1	110	1	130	1
B	008	7/N	Bearing spacer	ADS 90-70-3,5	1	ADS 90-70-3,5	1	ADS 110x90x2	1	ADS 110x90x2	1	ADS 130x105x3,5	1
B	008	8/N	Bearing spacer	-	-	-	-	-	-	-	-	ADS 75x60x30	1
B	008	9/N	Key DIN 6885	A 8x7x45	1	A 8x7x45	1	A 10x8x60	1	A 10x8x60	1	A 12x8x90	1
B	008	10/N	Key DIN 6885	-	-	A 8x7x40	1						
B	008	11/N	Breather plug	3/8" gas	1	3/8" gas	1	1/2" gas	1	1/2" gas	1	1/2" gas	1
B	008	12/N	Gasket	3/8" gas	1	3/8" gas	1	1/2" gas	1	1/2" gas	1	1/2" gas	1
B	008	13/N	Oil Seal DIN 3760	ADT AS 40-72-10	1	ADT AS 40-72-10	1	ADT AS 45-80-10	1	ADT AS 45-80-10	1	ADT A 50-90-10	1
B	008	14/N	Key DIN 6885	-	-	A 8x7x40	1						
B	008	15/N	Key DIN 6885	B 8x7x16	1	B 8x7x16	1	B 8x7x18	1	B 12x8x25	1	B 12x8x25	1



B080-B100	P	T	C	Commercial	080	090	100	112	132	160	180	200	225	
	B	009	2/N	Screw DIN 931	M10x35	4	M10x35	4	M12x45	4	M12x50	4	M16x50	4
	B	009	3/N	Nut DIN 934/6	M10x10	4	M10x10	4	M12x12	4	M12x12	4	M16x16	4
	B	009	5/N	Bearing	6206 2Z	1	6206 2Z	1	6207 2Z	1	6207 2Z	1	6310 2Z	1
	B	009	6/N	Bearing	6208 2Z	1	6208 2Z	1	6210 2Z	1	6212 2Z	1	6015 2Z	1
	B	009	7/N	Circlip DIN 471	30	1	30	1	35	1	40	1	50	1
	B	009	9/N	Circlip DIN 472	62	1	62	1	72	1	80	1	110	1
	P	T	C	Built	080	090	100	112	132	160	180	200	225	
	B	009	1	Flange	H.060.04									
B	009	2	Motor half coupling	H.060.12	H.060.12	H.060.12	H.060.12	H.060.12	H.060.12	H.060.12				
B	009	3	Flexible joint	H.060.13	H.060.13	H.060.13	H.060.13	H.060.13	H.060.13	H.060.13				

B125-B140	P	T	C	Commercial	080	090	100	112	132	160	180	200	225		
	B	009	2/N	Screw DIN 931		M10x35	4	M12x45	4	M12x45	4	M12x50	4	M16x50	4
	B	009	3/N	Nut DIN 934/6		M10x10	4	M12x12	4	M12x12	4	M12x12	4	M16x16	4
	B	009	5/N	Bearing		6206 2Z	1	6207 2Z	1	6207 2Z	1	6208 2Z	1	6310 2Z	1
	B	009	6/N	Bearing		6208 2Z	1	6210 2Z	1	6210 2Z	1	6212 2Z	1	6015 2Z	1
	B	009	7/N	Circlip DIN 471		30	1	35	1	35	1	40	1	50	1
	B	009	9/N	Circlip DIN 472		62	1	72	1	72	1	80	1	110	1
	P	T	C	Built	080	090	100	112	132	160	180	200	225		
	B	009	1	Flange		H.100.04									
B	009	2	Motor half coupling		H.060.12	H.060.12	H.060.12	H.060.12	H.060.12	H.060.12	H.100.12	H.100.12	H.100.12		
B	009	3	Flexible joint		H.060.13	H.100.13	H.100.13								

B150	P	T	C	Commercial	080	090	100	112	132	160	180	200	225		
	B	009	2/N	Screw DIN 931						M12x50	4	M16x50	4	M16x50	4
	B	009	3/N	Nut DIN 934/6						M12x12	4	M16x16	4	M16x16	4
	B	009	5/N	Bearing						6208 2Z	1	6310 2Z	1	6310 2Z	1
	B	009	6/N	Bearing						6212 2Z	1	6015 2Z	1	6015 2Z	1
	B	009	7/N	Circlip DIN 471						40	1	50	1	50	1
	B	009	9/N	Circlip DIN 472						80	1	110	1	110	1
	P	T	C	Built	080	090	100	112	132	160	180	200	225		
	B	009	1	Flange						H.140.04	H.140.04	H.140.04	H.140.04	H.140.04	
B	009	2	Motor half coupling						H.060.12	H.060.12	H.100.12	H.100.12	H.140.12		
B	009	3	Flexible joint						H.060.13	H.060.13	H.060.13	H.100.13	H.100.13		

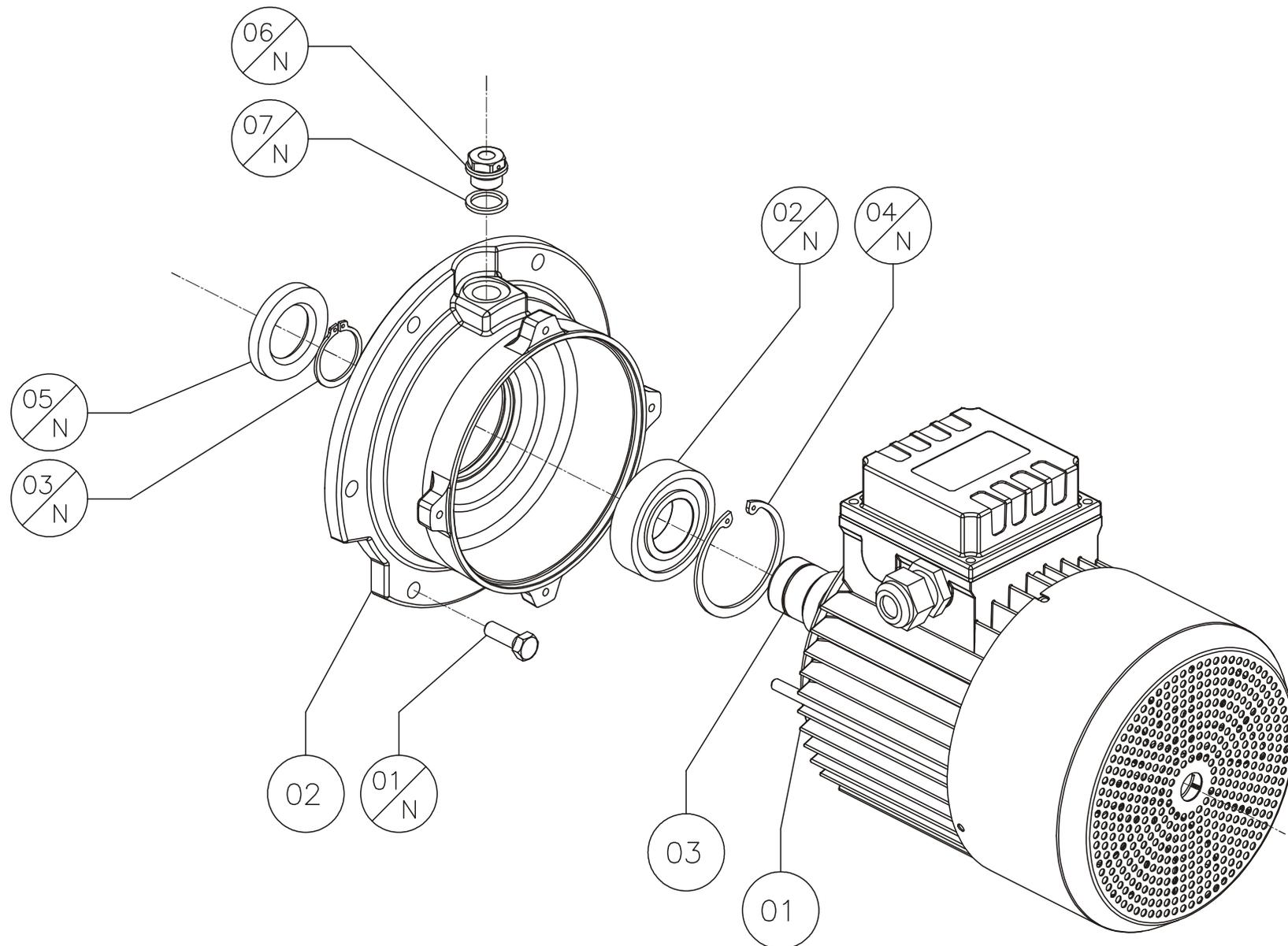
080	P	T	C	Built	080	090	100	112	132	160	180	200	225
	B	009	4	Reduction half coupling	H.060.14	H.060.14	H.060.14	H.060.14	H.060.14				
	B	009	5	Pinion 2st.	H.060.23	H.060.23	H.060.23	H.060.23	H.060.23				
	B	009	5	Pinion 2st. key	-	-	-	-	-				
	B	009	6	Pinion hub 2st.	H.060.22	H.060.22	H.060.22	H.060.22	H.060.22				
	B	009	6	Pinion hub 2st. key	-	-	-	-	-				
	B	009	7	Spacer	-	-	-	-	-				
	B	009	8	Ring	-	-	-	-	-				
	P	T	C	Commercial	080	090	100	112	132	160	180	200	225
	B	009	1/N	Screw DIN 931	M8x25	6	M8x25	6	M8x25	6	M8x25	6	
	B	009	4/N	Screw DIN 931	-	-	-	-	-	-	-	-	
	B	009	8/N	Circlip DIN471	24	1	24	1	24	1	24	1	
	B	009	10/N	Key DIN 6885	B 8x7x16	1	B 8x7x16	1	B 8x7x16	1	B 8x7x16	1	
	B	009	11/N	Key DIN 6885	-	-	-	-	-	-	-	-	
	B	009	12/N	Key DIN 6885	-	-	-	-	-	-	-	-	
	B	009	13/N	Closing plug	3/8" gas	1	3/8" gas	1	3/8" gas	1	3/8" gas	1	
	B	009	14/N	Gasket	3/8" gas	1	3/8" gas	1	3/8" gas	1	3/8" gas	1	
	B	009	15/N	Oil Seal DIN 3760	ADT A 30-52-7	1	ADT A 30-52-7	1	ADT A 35-62-7	1	ADT A 40-72-10	1	
	B	009	16/N	Cap	-	-	-	-	-	-	-	-	

100	P	T	C	Built	080	090	100	112	132	160	180	200	225
	B	009	4	Reduction half coupling	H.060.14	H.060.14	H.060.14	H.060.14	H.060.14	H.060.14			
	B	009	5	Pinion 2st.	H.060.23	H.060.23	H.060.23	H.060.23	H.060.23	-			
	B	009	5	Pinion 2st. key	-	-	-	-	-	H.060.23			
	B	009	6	Pinion hub 2st.	H.060.22	H.060.22	H.060.22	H.060.22	H.060.22	-			
	B	009	6	Pinion hub 2st. key	-	-	-	-	-	H.080.22			
	B	009	7	Spacer	-	-	-	-	-	ADS 62x50x3			
	B	009	8	Ring	-	-	-	-	-	-			
	P	T	C	Commercial	080	090	100	112	132	160	180	200	225
	B	009	1/N	Screw DIN 931	M8x25 6	M8x25 6							
	B	009	4/N	Screw DIN 931	-	-	-	-	-	-			
	B	009	8/N	Circlip DIN471	24 1	24 1	24 1	24 1	24 1	24 1			
	B	009	10/N	Key DIN 6885	B 8x7x16 1	B 8x7x16 1							
	B	009	11/N	Key DIN 6885	-	-	-	-	-	A 8x7x40 1			
	B	009	12/N	Key DIN 6885	-	-	-	-	-	A 8x7x40 1			
	B	009	13/N	Closing plug	3/8" gas 1	3/8" gas 1							
	B	009	14/N	Gasket	3/8" gas 1	3/8" gas 1							
	B	009	15/N	Oil Seal DIN 3760	ADT A 30-52-7 1	ADT A 30-52-7 1	ADT A 35-62-7 1	ADT A 35-62-7 1	ADT A 40-72-10 1	ADT A 50-72-8 1			
	B	009	16/N	Cap	-	-	-	-	-	RCA 40-7 1			

125	P	T	C	Built	080	090	100	112	132	160	180	200	225
	B	009	4	Reduction half coupling		H.060.14	H.060.14	H.060.14	H.060.14	H.060.14	H.060.14		
	B	009	5	Pinion 2st.		H.080.23	H.080.23	H.080.23	H.080.23	-	-		
	B	009	5	Pinion 2st. key		-	-	-	-	H.080.23	H.080.23		
	B	009	6	Pinion hub 2st.		-	-	-	-	-	-		
	B	009	6	Pinion hub 2st. key		-	-	-	-	H.080.22	H.080.22		
	B	009	7	Spacer		-	-	-	-	ADS 62x50x3	ADS 62x50x3		
	B	009	8	Ring		-	-	-	-	-	-		
	P	T	C	Commercial	080	090	100	112	132	160	180	200	225
	B	009	1/N	Screw DIN 931		M12x35 6	M12x35 6	M12x35 6	M12x35 6	M12x35 6	M12x35 6		
	B	009	4/N	Screw DIN 931		-	-	-	-	-	-		
	B	009	8/N	Circlip DIN471		-	-	-	-	30 1	30 1	30 1	
	B	009	10/N	Key DIN 6885		-	-	-	-	B 8x7x18 1	B 8x7x18 1	B 8x7x18 1	
	B	009	11/N	Key DIN 6885		-	-	-	-	-	A 8x7x40 1	A 8x7x40 1	
	B	009	12/N	Key DIN 6885		-	-	-	-	-	A 8x7x40 1	A 8x7x40 1	
	B	009	13/N	Closing plug		1/2" gas 1	1/2" gas 1	1/2" gas 1	1/2" gas 1	1/2" gas 1	1/2" gas 1	1/2" gas 1	
	B	009	14/N	Gasket		1/2" gas 1	1/2" gas 1	1/2" gas 1	1/2" gas 1	1/2" gas 1	1/2" gas 1	1/2" gas 1	
	B	009	15/N	Oil Seal DIN 3760		ADT A 30-52-7 1	ADT A 35-62-7 1	ADT A 35-62-7 1	ADT A 40-72-10 1	ADT A 50-72-8 1	ADT A 50-72-8 1	ADT A 50-72-8 1	
	B	009	16/N	Cap		-	-	-	-	-	RCA 40-7 1	RCA 40-7 1	

140	P	T	C	Built	080	090	100	112	132	160	180	200	225	
	B	009	4	Reduction half coupling			H.060.14	H.060.14	H.060.14	H.060.14	H.060.14	H.100.14		
	B	009	5	Pinion 2st.			H.100.23	H.100.23	H.100.23	-	-	-		
	B	009	5	Pinion 2st. key			-	-	-	H.100.23	H.100.23	H.100.23		
	B	009	6	Pinion hub 2st.			-	-	H.100.22	-	-	-		
	B	009	6	Pinion hub 2st. key			-	-	-	H.100.22	H.100.22	H.100.22		
	B	009	7	Spacer			-	-	-	ADS 62x50x3	ADS 62x50x3	ADS 75x60x3		
	B	009	8	Ring			-	-	-	-	-	8.100.34		
	P	T	C	Commercial	080	090	100	112	132	160	180	200	225	
	B	009	1/N	Screw DIN 931			M12x35	6	M12x35	6	M12x35	6	M12x35	6
	B	009	4/N	Screw DIN 931			-	-	-	-	-	-	M12x25	1
	B	009	8/N	Circlip DIN471			-	-	40	1	40	1	40	1
	B	009	10/N	Key DIN 6885			-	-	B 12x8x25	1	B 12x8x25	1	B 12x8x25	1
	B	009	11/N	Key DIN 6885			-	-	-	-	A 8x7x40	1	A 8x7x40	1
	B	009	12/N	Key DIN 6885			-	-	-	-	A 8x7x40	1	A 8x7x40	1
	B	009	13/N	Closing plug			1/2" gas	1	1/2" gas	1	1/2" gas	1	1/2" gas	1
	B	009	14/N	Gasket			1/2" gas	1	1/2" gas	1	1/2" gas	1	1/2" gas	1
	B	009	15/N	Oil Seal DIN 3760			ADT A 35-62-7	1	ADT A 35-62-7	1	ADT A 40-72-10	1	ADT A 50-72-8	1
	B	009	16/N	Cap			-	-	-	-	RCA 40-7	1	RCA 40-7	1

150	P	T	C	Built	080	090	100	112	132	160	180	200	225	
	B	009	4	Reduction half coupling					H.060.14	H.060.14	H.060.14	H.100.14	H.100.14	
	B	009	5	Pinion 2st.					H.125.23	-	-	-	-	
	B	009	5	Pinion 2st. key					-	H.125.23	H.125.23	H.125.23	H.125.23	
	B	009	6	Pinion hub 2st.					-	-	-	-	-	
	B	009	6	Pinion hub 2st. key					-	H.100.22	H.100.22	H.100.22	H.100.22	
	B	009	7	Spacer					-	ADS 62x50x3	ADS 62x50x3	ADS 75x60x3	ADS 75x60x3	
	B	009	8	Ring					-	-	-	8.100.34	8.100.34	
	P	T	C	Commercial	080	090	100	112	132	160	180	200	225	
	B	009	1/N	Screw DIN 931					M12x35	8	M12x35	8	M12x35	8
	B	009	4/N	Screw DIN 931					-	-	-	M12x25	1	
	B	009	8/N	Circlip DIN471					-	40	1	40	1	
	B	009	10/N	Key DIN 6885					-	B 12x8x25	1	B 12x8x25	1	
	B	009	11/N	Key DIN 6885					-	A 8x7x40	1	A 8x7x40	1	
	B	009	12/N	Key DIN 6885					-	A 8x7x40	1	A 8x7x40	1	
	B	009	13/N	Closing plug					1/2" gas	1	1/2" gas	1	1/2" gas	
	B	009	14/N	Gasket					1/2" gas	1	1/2" gas	1	1/2" gas	
	B	009	15/N	Oil Seal DIN 3760					ADT A 40-72-10	1	ADT A 50-72-8	1	ADT A 60-85-10	
	B	009	16/N	Cap					-	RCA 40-7	1	RCA 40-7	1	



080 B11	P	T	C	Built	080		100		125		140		150	
	B	010	01	Casing	3.080.01		3.080.01							
	B	010	02	Flange	3.080.04.060		3.080.04.060							
	B	010	03	Shaft	3.080.18.6		3.080.18.6							
	P	T	C	Commercial	080		100		125		140		150	
	B	010	1/N	Screw DIN 931	M8x25	6	M8x25	6						
	B	010	2/N	Bearing	6206 2z	1	6206 2z	1						
	B	010	3/N	Circlip DIN 471	30	1	30	1						
	B	010	4/N	Circlip DIN 472	62	1	62	1						
	B	010	5/N	Oil Seal DIN 3760	A 30-52-7	1	A 30-52-7	1						
B	010	6/N	Breather plug	3/8" gas	1	3/8" gas	1							
B	010	7/N	Gasket	3/8" gas	1	3/8" gas	1							

090S B11	P	T	C	Built	080		100		125		140		150	
	B	010	01	Casing	3.090.01		3.090.01		3.090.01					
	B	010	02	Flange	3.090.04.060		3.090.04.060		3.090.04.100					
	B	010	03	Shaft	3.090.18.6		3.090.18.6		3.090.18.6					
	P	T	C	Commercial	080		100		125		140		150	
	B	010	1/N	Screw DIN 931	M8x25	6	M8x25	6	M12x35	6				
	B	010	2/N	Bearing	6206 2z	1	6206 2z	1	6206 2z	1				
	B	010	3/N	Circlip DIN 471	30	1	30	1	30	1				
	B	010	4/N	Circlip DIN 472	62	1	62	1	62	1				
	B	010	5/N	Oil Seal DIN 3760	A 30-52-7	1	A 30-52-7	1	A 30-52-7	1				
B	010	6/N	Breather plug	3/8" gas	1	3/8" gas	1	1/2" gas	1					
B	010	7/N	Gasket	3/8" gas	1	3/8" gas	1	1/2" gas	1					

090L B11	P	T	C	Built	080		100		125		140		150	
	B	010	01	Casing	3.091.01		3.091.01		3.091.01					
	B	010	02	Flange	3.090.04.060		3.090.04.060		3.090.04.100					
	B	010	03	Shaft	3.091.18.6		3.091.18.6		3.091.18.6					
	P	T	C	Commercial	080		100		125		140		150	
	B	010	1/N	Screw DIN 931	M8x25	6	M8x25	6	M12x35	6				
	B	010	2/N	Bearing	6206 2z	1	6206 2z	1	6206 2z	1				
	B	010	3/N	Circlip DIN 471	30	1	30	1	30	1				
	B	010	4/N	Circlip DIN 472	62	1	62	1	62	1				
	B	010	5/N	Oil Seal DIN 3760	A 30-52-7	1	A 30-52-7	1	A 30-52-7	1				
B	010	6/N	Breather plug	3/8" gas	1	3/8" gas	1	1/2" gas	1					
B	010	7/N	Gasket	3/8" gas	1	3/8" gas	1	1/2" gas	1					

100 B11	P	T	C	Built	080		100		125		140		150	
	B	010	01	Casing	3.100.01		3.100.01		3.100.01		3.100.01			
	B	010	02	Flange	3.100.04.060		3.100.04.060		3.100.04.100		3.100.04.100			
	B	010	03	Shaft	3.100.18.6		3.100.18.6		3.100.18.6		3.100.18.6			
	P	T	C	Commercial	080		100		125		140		150	
	B	010	1/N	Screw DIN 931	M8x25	6	M8x25	6	M12x35	6	M12x35	6		
	B	010	2/N	Bearing	6207 2z	1	6207 2z	1	6207 2z	1	6207 2z	1		
	B	010	3/N	Circlip DIN 471	35	1	35	1	35	1	35	1		
	B	010	4/N	Circlip DIN 472	72	1	72	1	72	1	72	1		
	B	010	5/N	Oil Seal DIN 3760	A 35-62-7	1	A 35-62-7	1	A 35-62-7	1	A 35-62-7	1		
B	010	6/N	Breather plug	3/8" gas	1	3/8" gas	1	1/2" gas	1	1/2" gas	1			
B	010	7/N	Gasket	3/8" gas	1	3/8" gas	1	1/2" gas	1	1/2" gas	1			

112 B11	P	T	C	Built	080		100		125		140		150	
	B	010	01	Casing	3.112.01		3.112.01		3.112.01		3.112.01			
	B	010	02	Flange	3.112.04.060		3.112.04.060		3.112.04.100		3.112.04.100			
	B	010	03	Shaft	3.112.18.6		3.112.18.6		3.112.18.6		3.112.18.6			
	P	T	C	Commercial	080		100		125		140		150	
	B	010	1/N	Screw DIN 931	M8x25	6	M8x25	6	M12x35	6	M12x35	6		
	B	010	2/N	Bearing	6207 2z	1	6207 2z	1	6207 2z	1	6207 2z	1		
	B	010	3/N	Circlip DIN 471	35	1	35	1	35	1	35	1		
	B	010	4/N	Circlip DIN 472	72	1	72	1	72	1	72	1		
	B	010	5/N	Oil Seal DIN 3760	A 35-62-7	1	A 35-62-7	1	A 35-62-7	1	A 35-62-7	1		
B	010	6/N	Breather plug	3/8" gas	1	3/8" gas	1	1/2" gas	1	1/2" gas	1			
B	010	7/N	Gasket	3/8" gas	1	3/8" gas	1	1/2" gas	1	1/2" gas	1			

132M B11	P	T	C	Built	080		100		125		140		150	
	B	010	01	Casing	3.132.01		3.132.01		3.132.01		3.132.01			
	B	010	02	Flange	3.132.04.060		3.132.04.060		3.132.04.100		3.132.04.100			
	B	010	03	Shaft	3.132.18.6		3.132.18.6		3.132.18.6		3.132.18.6			
	P	T	C	Commercial	080		100		125		140		150	
	B	010	1/N	Screw DIN 931	M8x25	6	M8x25	6	M12x35	6	M12x35	6		
	B	010	2/N	Bearing	6308 2z	1	6308 2z	1	6308 2z	1	6308 2z	1		
	B	010	3/N	Circlip DIN 471	40	1	40	1	40	1	40	1		
	B	010	4/N	Circlip DIN 472	90	1	90	1	90	1	90	1		
	B	010	5/N	Oil Seal DIN 3760	A 40-72-10	1	A 40-72-10	1	A 40-72-10	1	A 40-72-10	1		
B	010	6/N	Breather plug	3/8" gas	1	3/8" gas	1	1/2" gas	1	1/2" gas	1			
B	010	7/N	Gasket	3/8" gas	1	3/8" gas	1	1/2" gas	1	1/2" gas	1			

132L B11	P	T	C	Built	080		100		125		140		150	
	B	010	01	Casing	3.132.01		3.132.01		3.132.01		3.132.01			
	B	010	02	Flange	3.132.04.060		3.132.04.060		3.132.04.100		3.132.04.100			
	B	010	03	Shaft	3.133.18.6		3.133.18.6		3.133.18.6		3.133.18.6			
	P	T	C	Commercial	080		100		125		140		150	
	B	010	1/N	Screw DIN 931	M8x25	6	M8x25	6	M12x35	6	M12x35	6		
	B	010	2/N	Bearing	6308 2z	1								
	B	010	3/N	Circlip DIN 471	40	1	40	1	40	1	40	1		
	B	010	4/N	Circlip DIN 472	90	1	90	1	90	1	90	1		
	B	010	5/N	Oil Seal DIN 3760	A 40-72-10	1								
	B	010	6/N	Breather plug	3/8" gas	1	3/8" gas	1	1/2" gas	1	1/2" gas	1		
	B	010	7/N	Gasket	3/8" gas	1	3/8" gas	1	1/2" gas	1	1/2" gas	1		



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