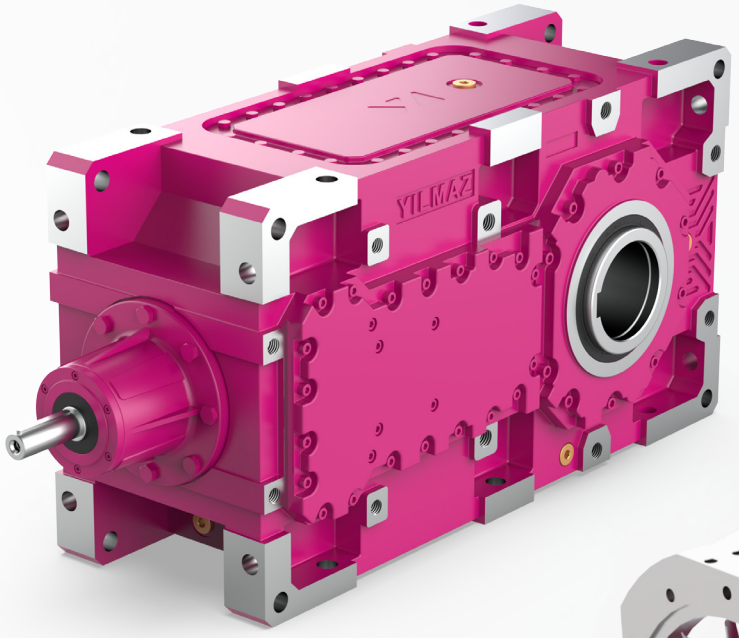
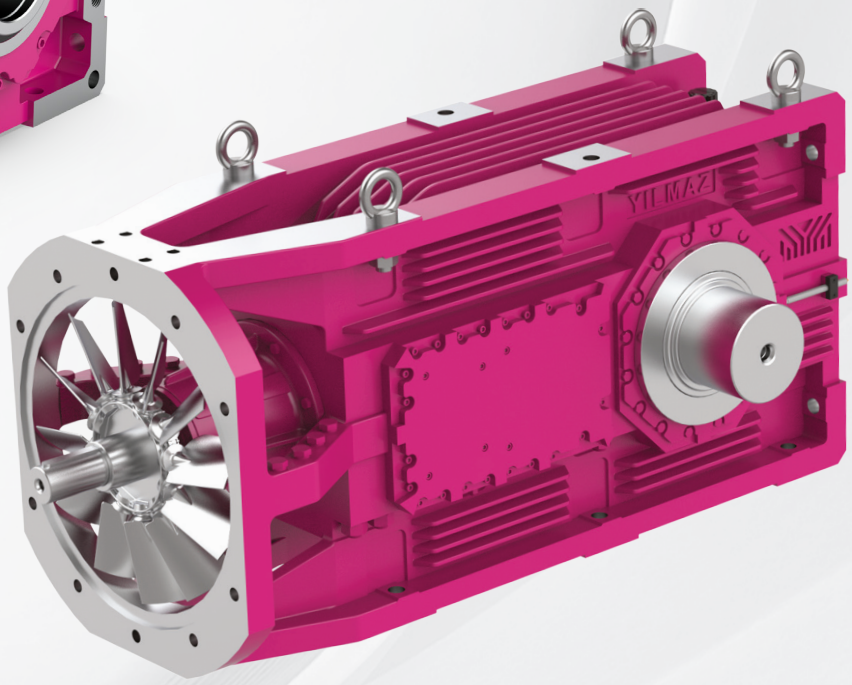
YILMAZ REDÜKTÖR ISO 9001

OPERATING INSTRUCTIONS

B Series



BY Series



YILMAZ REDÜKTÖR

OIBCE0700-1224

Contents. 01
1 - How to Use This Manual 05
2 - Unit Designation 06

2.1- Detailed Unit Designation 06
2.2- Nameplate, Unit Designation 07

3. Standard Type Gearbox Parts Lists 08

3.1- BT..2.00 Type 08
3.2- BT..2.0S Type 09
3.3- BT..2.01 Type 10
3.4- BT..2.02 Type 11
3.5- BT..2.03 Type 12
3.6- BT..2.04 Type 13
3.7- BT..2.05 Type 14
3.8- BT..2.08 Type 15
3.9- BT..3.00 Type 16
3.10- BT..3.0S Type 17
3.11- BT..3.01 Type 18
3.12- BT..3.02 Type 19
3.13- BT..3.03 Type 20
3.14- BT..3.04 Type 21
3.15- BT..3.05 Type 22
3.16- BT..3.08 Type 23
3.17- BT..4.00 Type 24
3.18- BT..4.0S Type 25
3.19- BT..4.01 Type 26
3.20- BT..4.02 Type 27
3.21- BT..4.03 Type 28
3.22- BT..4.04 Type 29
3.23- BT..4.05 Type 30
3.24- BT..4.08 Type 31
3.25- BY Housing Side 32
3.26- BY Input Side 33

4- Safety 34

4.1- Intended Use 34
4.2- Improper Use 34
4.3- Safety Instructions 35
4.3.1- General Safety Instructions 35
4.3.1.1- Working On The Gearbox 35
4.3.1.2- Operation 35
4.3.1.3- Maintenance 35
4.3.1.4- Lubrication 35
4.3.1.5- Working Conditions 35

Contents

4.4- Tightening Torques....36
4.5- Case Of Fire....36
4.5.1- Suitable Extinguishers....36
4.5.2- Unsuitable Extinguishers....36

5 - Checking Before Installing The Gearbox....37

5.1- Transportation....37
5.2- Storage....38

6- Installing The Gearbox....38

6.1- Before You Start....38
6.2- Checking Shaft Dimensions....39
6.3- Checking Ambient Temperatures....39
6.4- Checking Voltage Supply....39
6.5- Checking Mounting Position....42
6.6- How To Use Breather Plug....42
6.7- Checking Oil Level....42
6.8- Checking Shaft Ends And Mounting Faces....42
6.9- Protection From Corrosive Environment....42
6.10- Checking Accessibility To Oil Plugs....43

7- Mechanical Installation....43

7.1- Installing Customer Shaft With Shoulder....44
7.2- Disassembling Customer Shaft With Shoulder....45
7.3- Shaft Tightening Torques....46
7.4- Recommended Shaft Dimensions For B.00 Types....47
7.5- Assembling Customer Shaft With Shrink Disc....48
7.6- Disassembling Customer Shaft With Shrink Disc....49
7.7- B Series Recommended Shaft Dimensions for Shrink Disc Assembly....50
7.8- Assembling Output Shaft Without Keyway for BY Series....51
7.9- BY Series Gearboxes Dimensions....52
7.10- B Series Drywell Gearboxes With Hollow Shaft Dimensions....53
7.11- B Series Drywell Gearboxes With Solid Shaft Dimensions....54
7.12- B Series Drywell Gearboxes With Shrink Disc Dimensions....55
7.13- Fitting Output Shaft Elements....56
7.14- Correct Position of Output Shaft Elements....56
7.15- Fitting Couplings....57

8- Maintenance & Inspection....58

9- Lubrication....59

9.1- Oil Types....59
9.2- Changing The Oil....60

9.3- Oil Quantities (Lt).....60
9.4- Oil Plugs.....61
9.5- Mounting Positions.....63

10- Cooling Options.....64

10.1- Fan Cooling.....65
10.2- Cooling With Cooling Coil.....65
10.3- Cooling With Water / Oil Heat Exchanger.....66
10.4- Cooling With Air / Oil Heat Exchanger.....67

11- Troubleshooting Guide.....68

12- Disposal.....71

12.1- Disposal Of Oil..... 71
12.2- Disposal Of Sealing.....71
12.3- Disposal Of Metal Parts.....71

13- Appendix.....72

13.1- Warranty Conditions.....73
13.2- Warranty Paper.....74
13.3- Service Points.....76

1 - How to Use This Manual

Take attention to the following safety and warning signs for proper understanding and quick reference.

 Electrical Hazard; Can Cause Severe Or Fatal Injuries.

 Mechanical Hazard; Can Cause Severe Or Fatal Injuries.

 Likely To Be Hazardous; Can Cause Minor Or Fatal Injuries



Damage Risk; Can Damage The Gearbox Or Environment

 Important Information



EC Machinery Directive:
Within terms of the EC machinery directive 2006/42/EC ,the gear reducer is not considered an autonomous machine, but as a component to install in machines.
Operation is prohibited within the area of validity of the EC directive, until it has been determined that the machine, in which this product is installed, corresponds to the regulations within this directive.



The machine manufacturer or user is responsible for taking the necessary precautions on the machine or at the place where the gearbox will be used, in order to prevent injury and life-threatening risks by taking into account the shaft, gear failures etc. that may occur in the gearboxes.

The operating instructions contain important information to ensure;
- Trouble-free operation
- Fulfilment of any rights to claim under guarantee

The operating instruction must be kept close to the gearbox and must be available in case it is needed.

This operating instruction is written for B series gear units and is applicable only for B series. If any different type of gearbox is used please ask YILMAZ REDUKTOR for the operating instructions of that type.

This instruction can be used only for standard type geared units of YILMAZ REDUKTOR. For special application and modified gear units ask YILMAZ REDUKTOR for validity.

This manual does not cover 2014/34/EU (ATEX) compatible gearboxes. For 2014/34/EU contact YILMAZ REDUKTOR.

2 - Unit Designation

2.1- Detailed Unit Designation

Detailed B series gear units designation for ordering
(This Designation is different from the short nameplate designation)

B T 05 2 3 . 0 1 R - M1 / A25

/ 3E200L4D

30 kW 1500 rpm IE3 ELK AC Motor
Only for BV types

IEC Motor Flange Size
Only for BK types
A13: *IEC 132 B5 (300x265x230 mm)*
A16: *IEC 160 B5 (350x300x250 mm)*
A18: *IEC 180 B5 (350x300x250 mm)*
A20: *IEC 200 B5 (400x350x300 mm)*
A22: *IEC 225 B5 (450x400x350 mm)*
A25: *IEC 250 B5 (550x500x450 mm)*
A28: *IEC 280 B5 (550x500x450 mm)*
A31: *IEC 315 B5 (660x600x550 mm)*

Mounting Position
M1: *Output shaft is parallel to earth, cover is on top*
M2: *Gearbox is upright and output shaft is over input shaft*
M3: *Output shaft is parallel to earth, cover is on bottom*
M4: *Gearbox is upright and output shaft is under input shaft*
M5: *While the output shaft perpendicular to the ground and the mounting cover is on the front, the right side surface (Y1) faces downwards*
M6: *While the output shaft perpendicular to the ground and the mounting cover is on the front, the left side surface (Y4) faces downwards*
M./.-..º: *Gearbox works in an angle (Example coding for 30º from M1 to M2: M1/2-30º)*
...T: *with torque arm*

Shaft and Flange Arrangement
Please refer to shaft and flange arrangements section

Output Shaft Properties
0: *Hollow shaft*
1: *Solid output shaft*
2: *Solid output shaft and output flange*
3: *Hollow shaft and output flange*
4: *Double output shaft*
5: *Double output shaft and flange*
8: *Hollow output shaft and double output flange*
S: *Hollow shaft with shrink disk*
0K: *Splined hollow output shaft (DIN5480)*
X *: Special*
1K: *Splined solid output shaft (DIN5480)*
0A: *Drywell gearbox with hollow output shaft*
1A: *Drywell gearbox with solid output shaft*
SA: *Drywell gearbox with shrink disk*

Input Shaft Properties
0: *Standard input shaft*
1: *Input shaft from bottom surface (Only applicable in 3-staged B series on Y3 surface)*
2: *Double input shaft*

Number of Gear Stages
2: *Two stages* ***3:*** *Three stages* ***4:*** *Four stages*

Revision Number
Second revision

Gearbox Size
Sizes from 03.....to 22

Version of Gearbox
T: *Free Solid Input Shaft*
K: *With IEC B5 Flange And Free Input Shaft*
V: *With IEC B5 Flange And Motor*
TB: *Drywell Gearbox With Free Solid Input Shaft*
KB: *Drywell Gearbox With EC B5 Flange And Free Input Shaft*
VB: *Drywell Gearbox With EC B5 Flange And Motor*
Y: *Housing With Integrated Input Flange*

Serie of Gear Unit
B: *Helical gear type horizontal industrial gear units with bevel stage input*

2.2- Nameplate, unit designation

Nameplate unit designation is a short abbreviation from the detailed designation

A sample name plate for B Series

YILMAZ REDÜKTÖR

üüüüüüü

MADE IN TURKEY

Type:	**BT0323.01R**			
Serial N.:	**100896546**			
Power:	**55**	kW	Ratio:	**9.78**
Speed:	**143**	rpm.	M.Pos.:	**M1**
Oil:	**MINERAL ISO VG 320**			
Oil Qty:	**8**	lt.		

Abbreviations:
Serial N. : Serial Number
M.Pos. : Mounting Position

Type Designation;

BT0323.01 R

Type

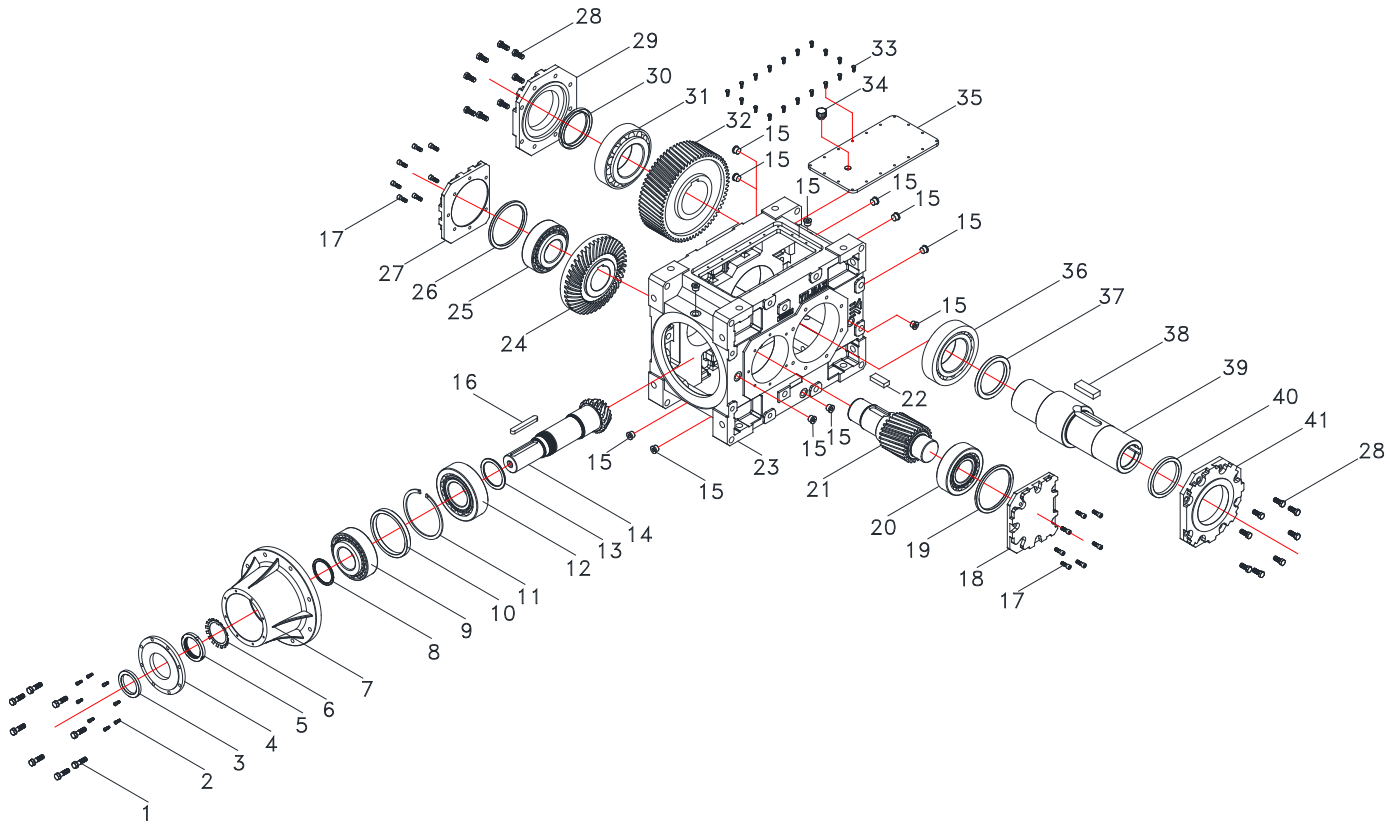
Shaft and Flange Arrangement

Viewed from input side
L- Left output
R- Right output

Serial Number: 100896546

3.Standard Type Gearbox Part Designations

3.1- BT...2.00 Types

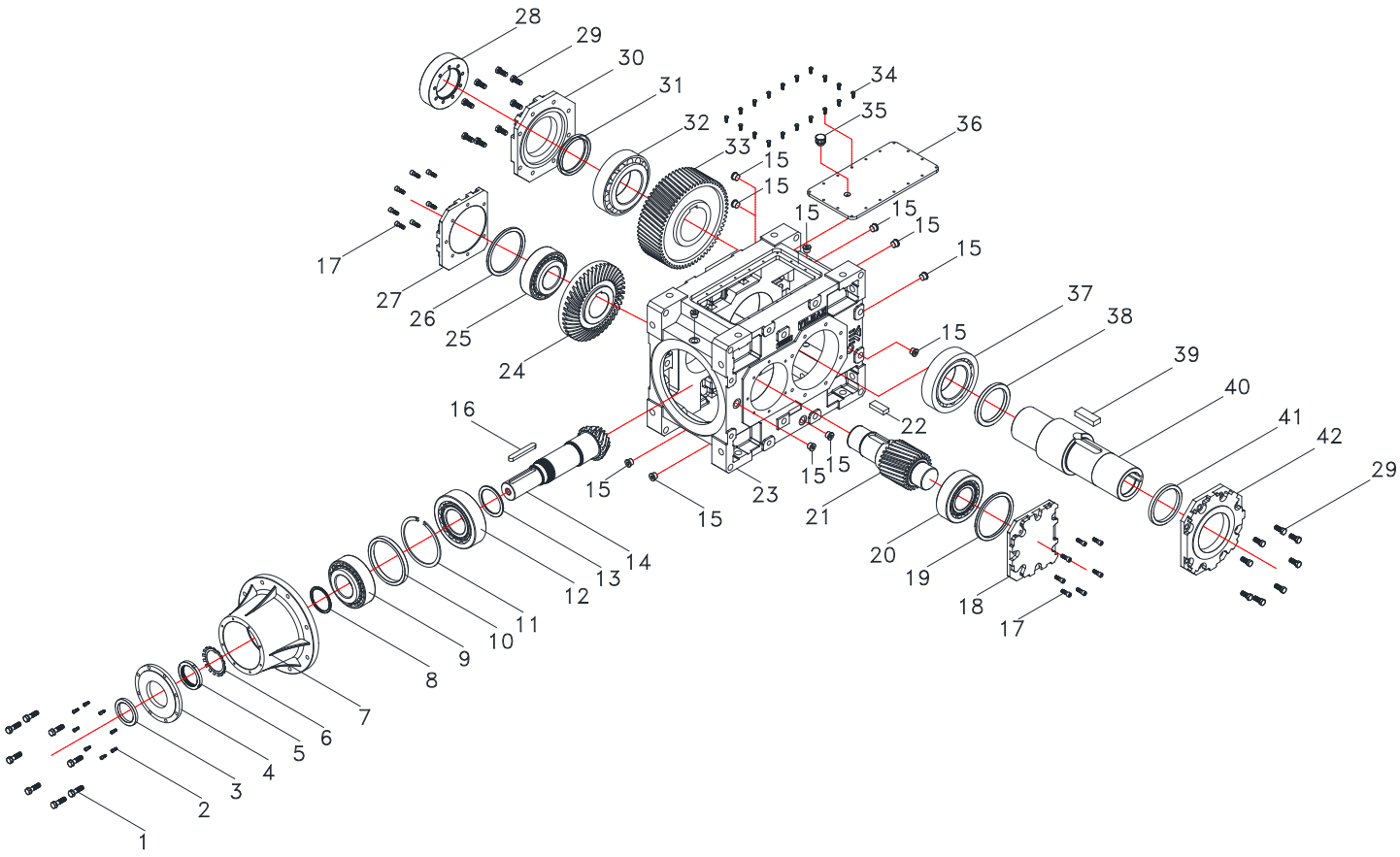


Standard BT...2.00 type basic part diagram. Parts may differ for special applications.

Standard Part List

1-Bolt	10-Spacer	19-Spacer	28-Bolt	37-Spacer
2-Bolt	11-Circlips	20-Bearing	29-Seal Cover	38-Key
3-Seal	12-Bearing	21-Geared Shaft	30-Seal	39-Hollow Output Shaft
4-Sealed Cover	13-Spacer	22-Key	31-Bearing	40-Seal
5-Locking Nut	14-Bevel Geared Shaft	23-Housing	32-Gear	41-Sealed Cover
6-Locking Plate	15-Oil Plug	24-Bevel Gear	33-Bolt	
7-Input Bearing Housing	16-Key	25-Bearing	34-Breather Plug	
8-Spacer	17-Bolt	26-Spacer	35-Top Cover Plate	
9-Bearing	18-Cover	27-Cover	36-Bearing	

3.2- BT...2.0S Types

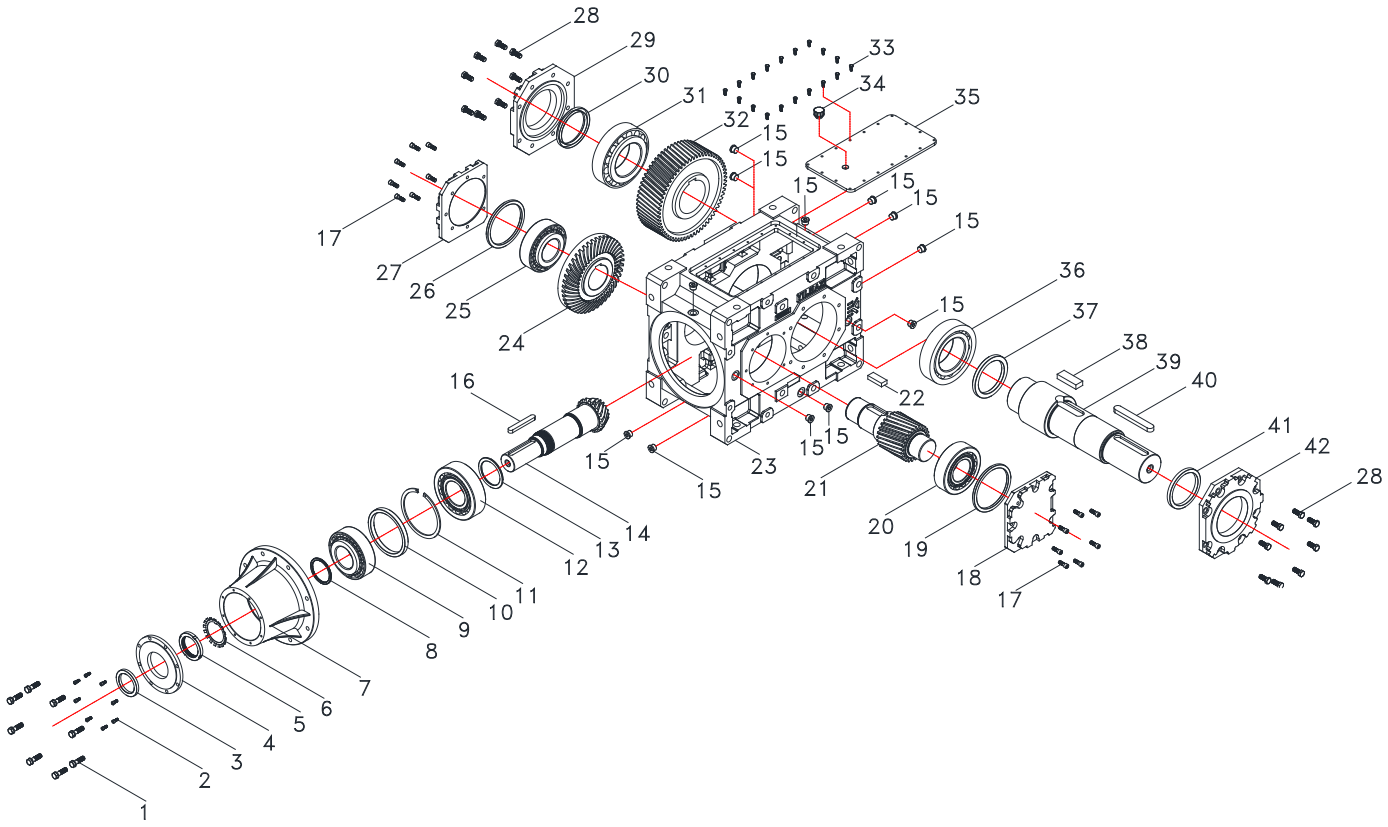


Standard BT...2.0S type basic part diagram. Parts may differ for special applications.

Standard Part List

1-Bolt	10-Spacer	19-Spacer	28-Shrink Disk	37-Bearing
2-Bolt	11-Circlips	20-Bearing	29-Bolt	38-Spacer
3-Seal	12-Bearing	21-Geared Shaft	30-Seal Cover	39-Key
4-Sealed Cover	13-Spacer	22-Key	31-Seal	40-Hollow Output Shaft
5-Locking Nut	14-Bevel Geared Shaft	23-Housing	32-Bearing	41-Seal
6-Locking Plate	15-Oil Plug	24-Bevel Gear	33-Gear	42-Sealed Cover
7-Input Bearing Housing	16-Key	25-Bearing	34-Bolt	
8-Spacer	17-Bolt	26-Spacer	35-Breather plug	
9-Bearing	18-Cover	27-Cover	36-Top Cover Plate	

3.3- BT...2.01 Types

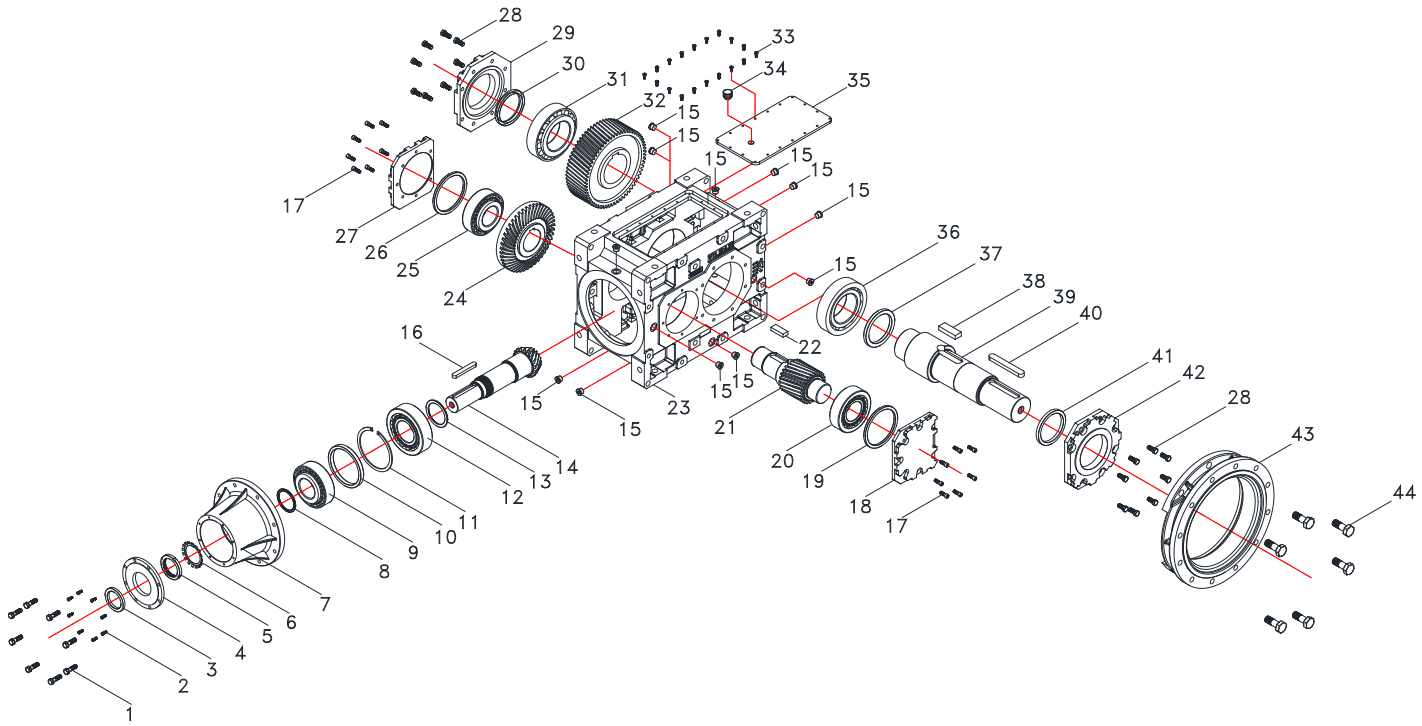


Standard BT...2.01 type basic part diagram. Parts may differ for special applications.

Standard Part List

1-Bolt	10-Spacer	19-Spacer	28-Bolt	37-Spacer
2-Bolt	11-Circlips	20-Bearing	29-Seal Cover	38-Key
3-Seal	12-Bearing	21-Geared Shaft	30-Seal	39-Output Shaft
4-Sealed Cover	13-Spacer	22-Key	31-Bearing	40-Key
5-Locking Nut	14-Bevel Geared Shaft	23-Housing	32-Gear	41-Seal
6-Locking Plate	15-Oil Plug	24-Bevel Gear	33-Bolt	42-Sealed Cover
7-Input Bearing Housing	16-Key	25-Bearing	34-Breather Plug	
8-Spacer	17-Bolt	26-Spacer	35-Top Cover Plate	
9-Bearing	18-Cover	27-Cover	36-Bearing	

3.4- BT...2.02 Types

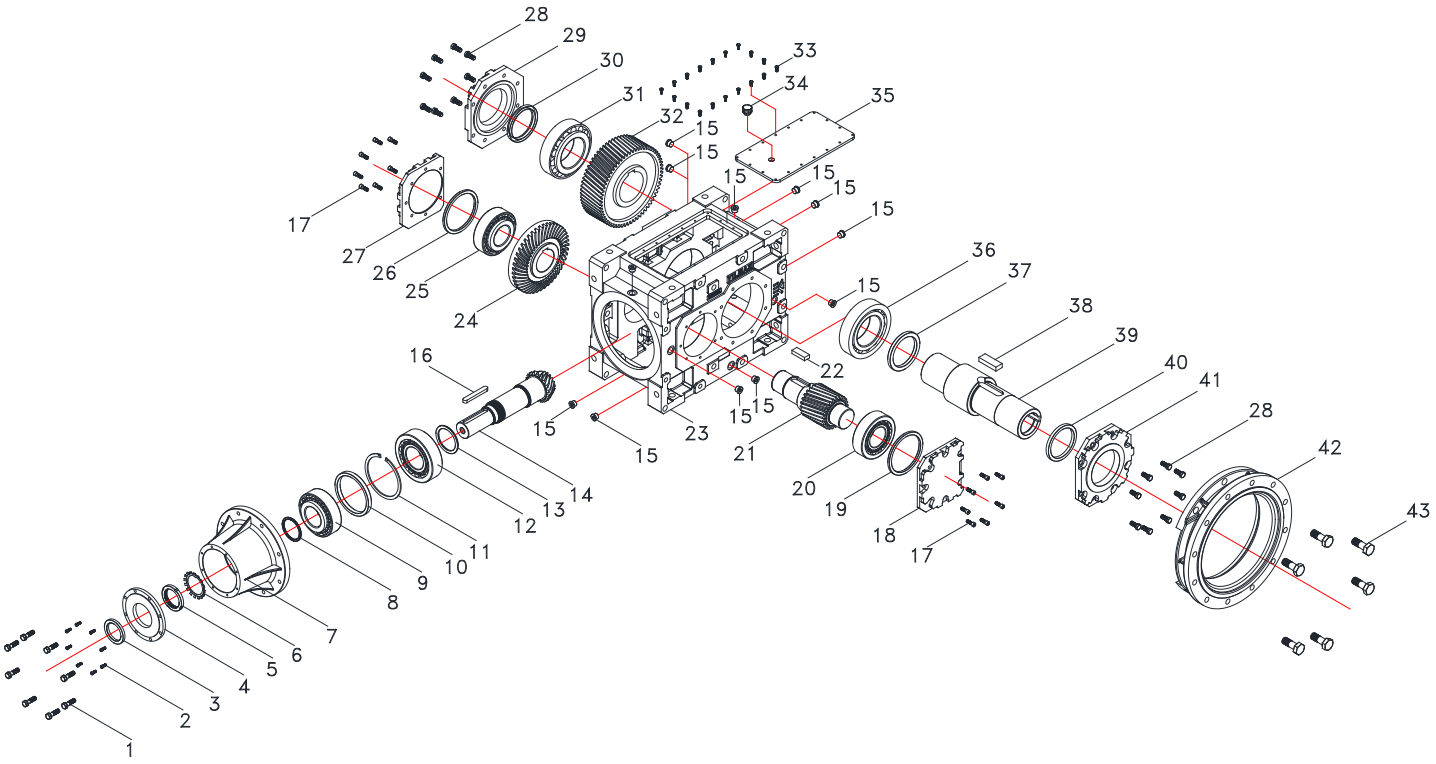


Standard BT...2.02 type basic part diagram. Parts may differ for special applications.

Standard Part List

1-Bolt	10-Spacer	19-Spacer	28-Bolt	37-Spacer
2-Bolt	11-Circlips	20-Bearing	29-Seal Cover	38-Key
3-Seal	12-Bearing	21-Geared Shaft	30-Seal	39-Output Shaft
4-Sealed Cover	13-Spacer	22-Key	31-Bearing	40-Key
5-Locking Nut	14-Bevel Geared Shaft	23-Housing	32-Gear	41-Seal
6-Locking Plate	15-Oil Plug	24-Bevel Gear	33-Bolt	42-Sealed Cover
7-Input Bearing Housing	16-Key	25-Bearing	34-Breather Plug	43-Output Flange
8-Spacer	17-Bolt	26-Spacer	35-Top Cover Plate	44-Bolt
9-Bearing	18-Cover	27-Cover	36-Bearing	

3.5- BT...2.03 Types

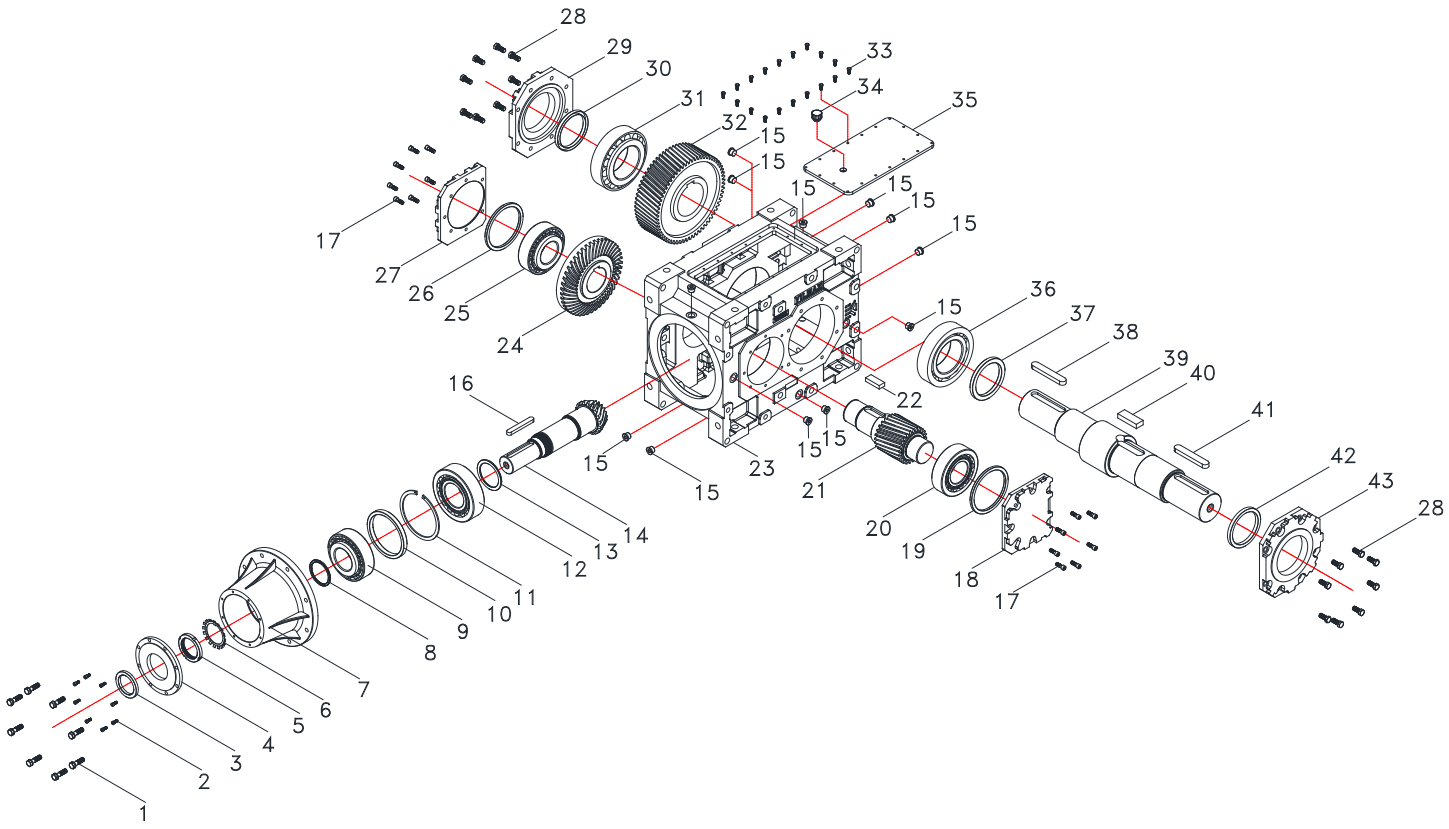


Standard BT...2.03 type basic part diagram. Parts may differ for special applications.

Standard Part List

1-Bolt	10-Spacer	19-Spacer	28-Bolt	37-Spacer
2-Bolt	11-Circlips	20-Bearing	29-Seal Cover	38-Key
3-Seal	12-Bearing	21-Geared Shaft	30-Seal	39-Hollow Output Shaft
4-Sealed Cover	13-Spacer	22-Key	31-Bearing	40-Seal
5-Locking Nut	14-Bevel Geared Shaft	23-Housing	32-Gear	41-Sealed Cover
6-Locking Plate	15-Oil Plug	24-Bevel Gear	33-Bolt	42-Output Flange
7-Input Bearing Housing	16-Key	25-Bearing	34-Breather Plug	43-Bolt
8-Spacer	17-Bolt	26-Spacer	35-Top Cover Plate	
9-Bearing	18-Cover	27-Cover	36-Bearing	

3.6- BT...2.04 Types

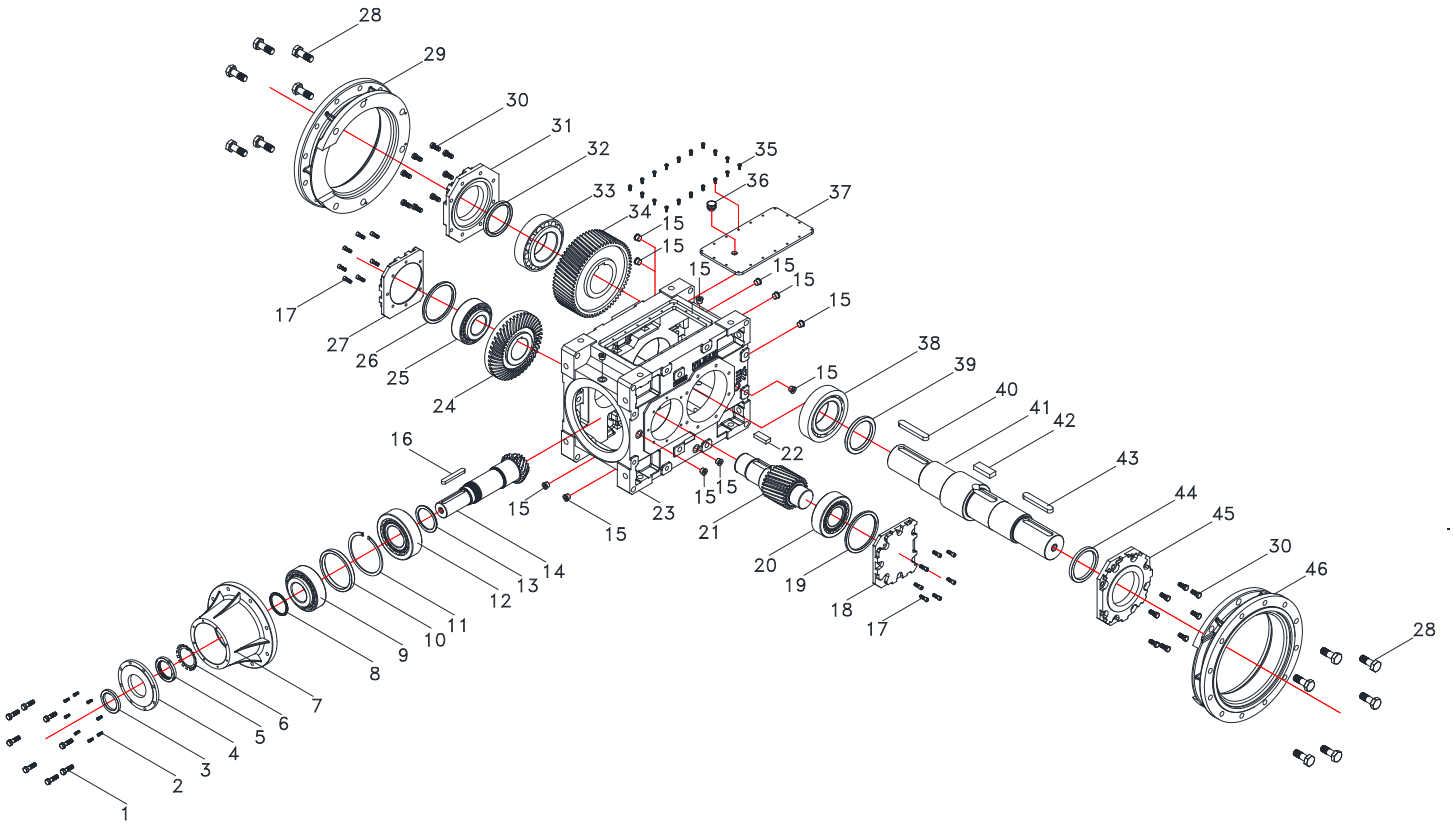


Standard BT...2.04 type basic part diagram. Parts may differ for special applications.

Standard Part List

1-Bolt	10-Spacer	19-Spacer	28-Bolt	37-Spacer
2-Bolt	11-Circlips	20-Bearing	29-Seal Cover	38-Key
3-Seal	12-Bearing	21-Geared Shaft	30-Seal	39-Output Shaft
4-Sealed Cover	13-Spacer	22-Key	31-Bearing	40-Key
5-Locking Nut	14-Bevel Geared Shaft	23-Housing	32-Gear	41-Key
6-Locking Plate	15-Oil Plug	24-Bevel Gear	33-Bolt	42-Seal
7-Input Bearing Housing	16-Key	25-Bearing	34-Breather Plug	43-Sealed Cover
8-Spacer	17-Bolt	26-Spacer	35-Top Cover Plate	
9-Bearing	18-Cover	27-Cover	36-Bearing	

3.7- BT...2.05 Types

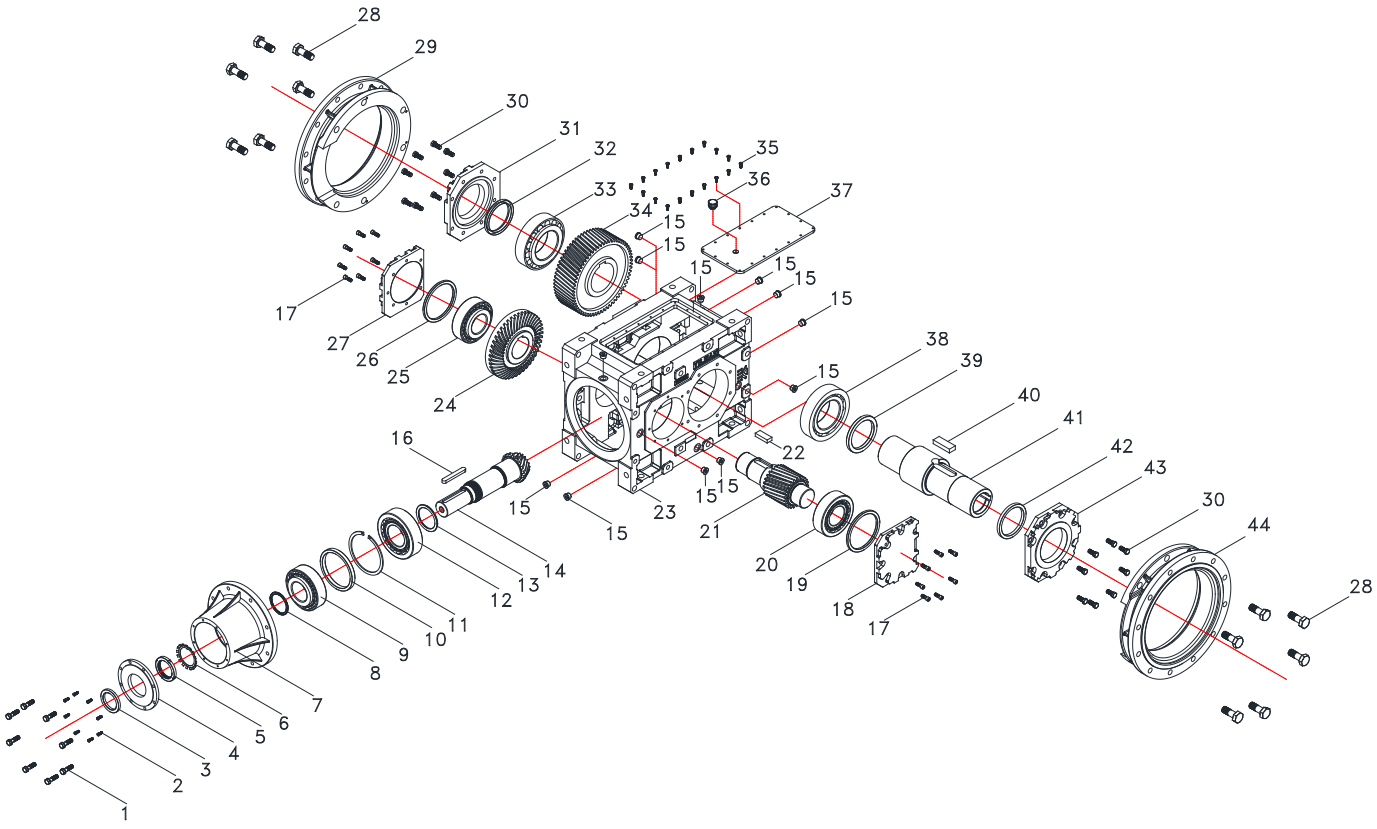


Standard BT...2.05 type basic part diagram. Parts may differ for special applications.

Standard Part List

1-Bolt	10-Spacer	19-Spacer	28-Bolt	37-Top Cover Plate	46-Output Flange
2-Bolt	11-Circlips	20-Bearing	29-Output Flange	38-Bearing	
3-Seal	12-Bearing	21-Geared Shaft	30-Bolt	39-Spacer	
4-Sealed Cover	13-Spacer	22-Key	31-Seal Cover	40-Key	
5-Locking Nut	14-Bevel Geared Shaft	23-Housing	32-Seal	41-Output Shaft	
6-Locking Plate	15-Oil Plug	24-Bevel Gear	33-Bearing	42-Key	
7-Input Bearing Housing	16-Key	25-Bearing	34-Gear	43-Key	
8-Spacer	17-Bolt	26-Spacer	35-Bolt	44-Seal	
9-Bearing	18-Cover	27-Cover	36-Breather Plug	45-Sealed Cover	

3.8- BT...2.08 Types

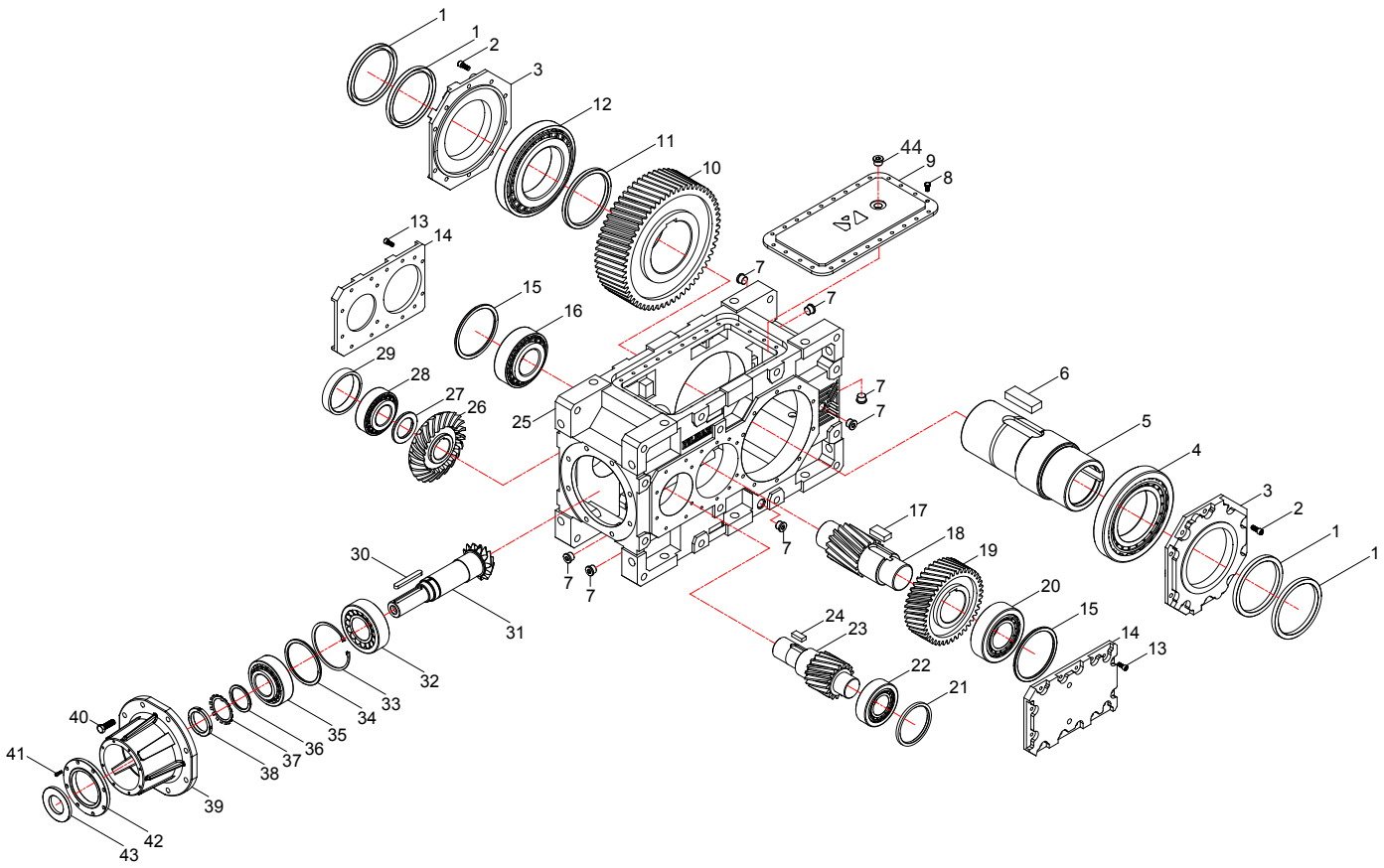


Standard BT...2.08 type basic part diagram. Parts may differ for special applications.

Standard Part List

1-Bolt	10-Spacer	19-Spacer	28-Bolt	37-Top Cover Plate
2-Bolt	11-Circlips	20-Bearing	29-Output Flange	38-Bearing
3-Seal	12-Bearing	21-Geared Shaft	30-Bolt	39-Spacer
4-Sealed Cover	13-Spacer	22-Key	31-Seal Cover	40-Key
5-Locking Nut	14-Bevel Geared Shaft	23-Housing	32-Seal	41-Hollow Output Shaft
6-Locking Plate	15-Oil Plug	24-Bevel Gear	33-Bearing	42-Seal
7-Input Bearing Housing	16-Key	25-Bearing	34-Gear	43-Sealed Cover
8-Spacer	17-Bolt	26-Spacer	35-Bolt	44-Output Flange
9-Bearing	18-Cover	27-Cover	36-Breather Plug	

3.9- BT...3.00 Types

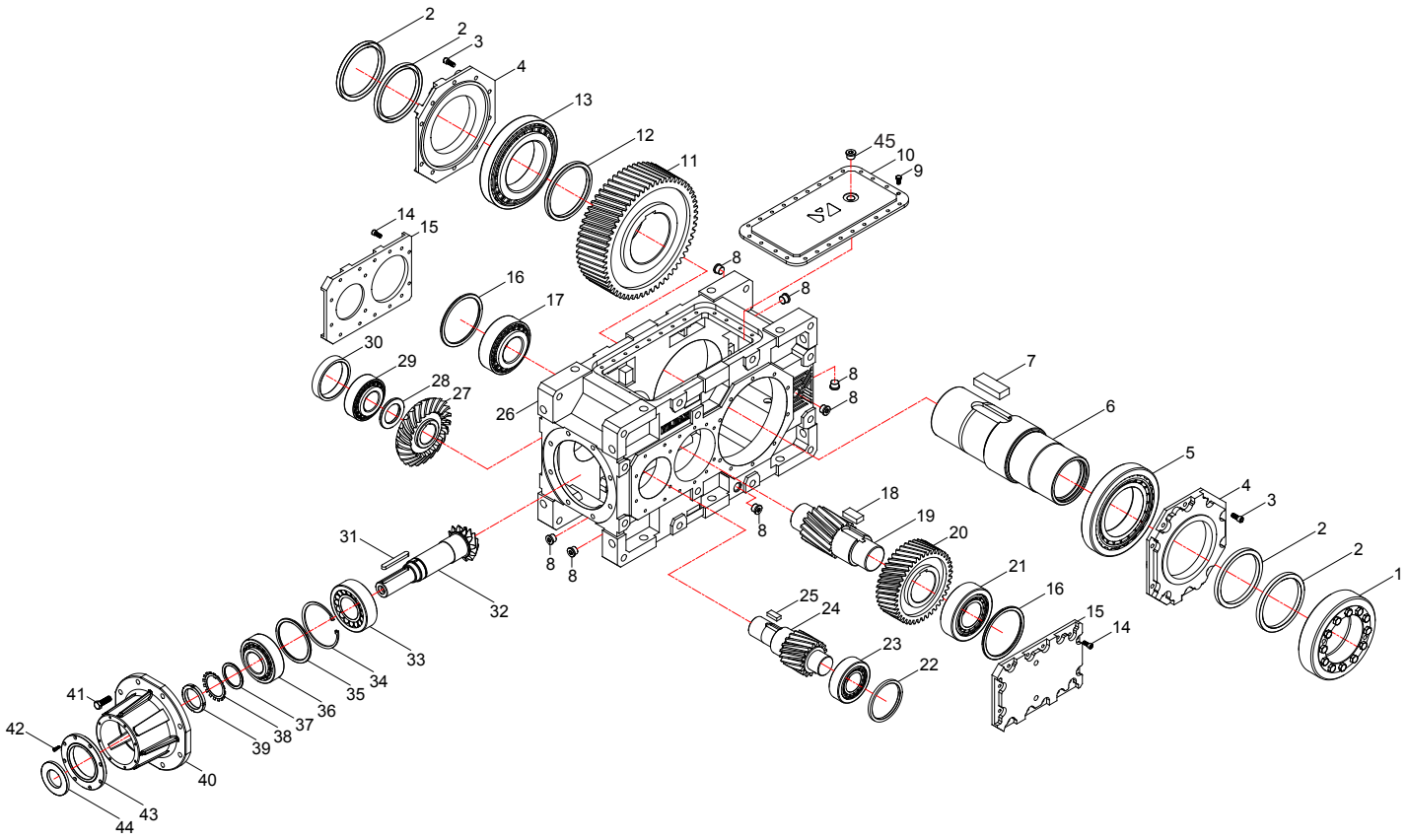


Standard BT...3.00 type basic part diagram. Parts may differ for special applications.

Standard Part List

1- Seal	10- Gear	19- Gear	28- Bearing	37- Locking Plate
2- Bolt	11- Spacer	20- Bearing	29- Spacer	38- Locking Nut
3- Sealed Cover	12- Bearing	21- Spacer	30- Key	39- Input Bearing Hosing
4- Bearing	13- Bolt	22- Bearing	31- Bevel Geared Shaft	40- Bolt
5- Hollow Output Shaft	14- Cover	23- Geared Shaft	32- Bearing	41- Bolt
6- Key	15- Spacer	24- Key	33- Circlips	42- Sealed Cover
7- Oil Plug	16- Bearing	25- Housing	34- Spacer	43- Seal
8- Bolt	17- Key	26- Bevel Gear	35- Bearing	44- Breather Plug
9- Top Cover Plate	18- Geared Shaft	27- Spacer	36- Spacer	

3.10- BT...3.0S Types

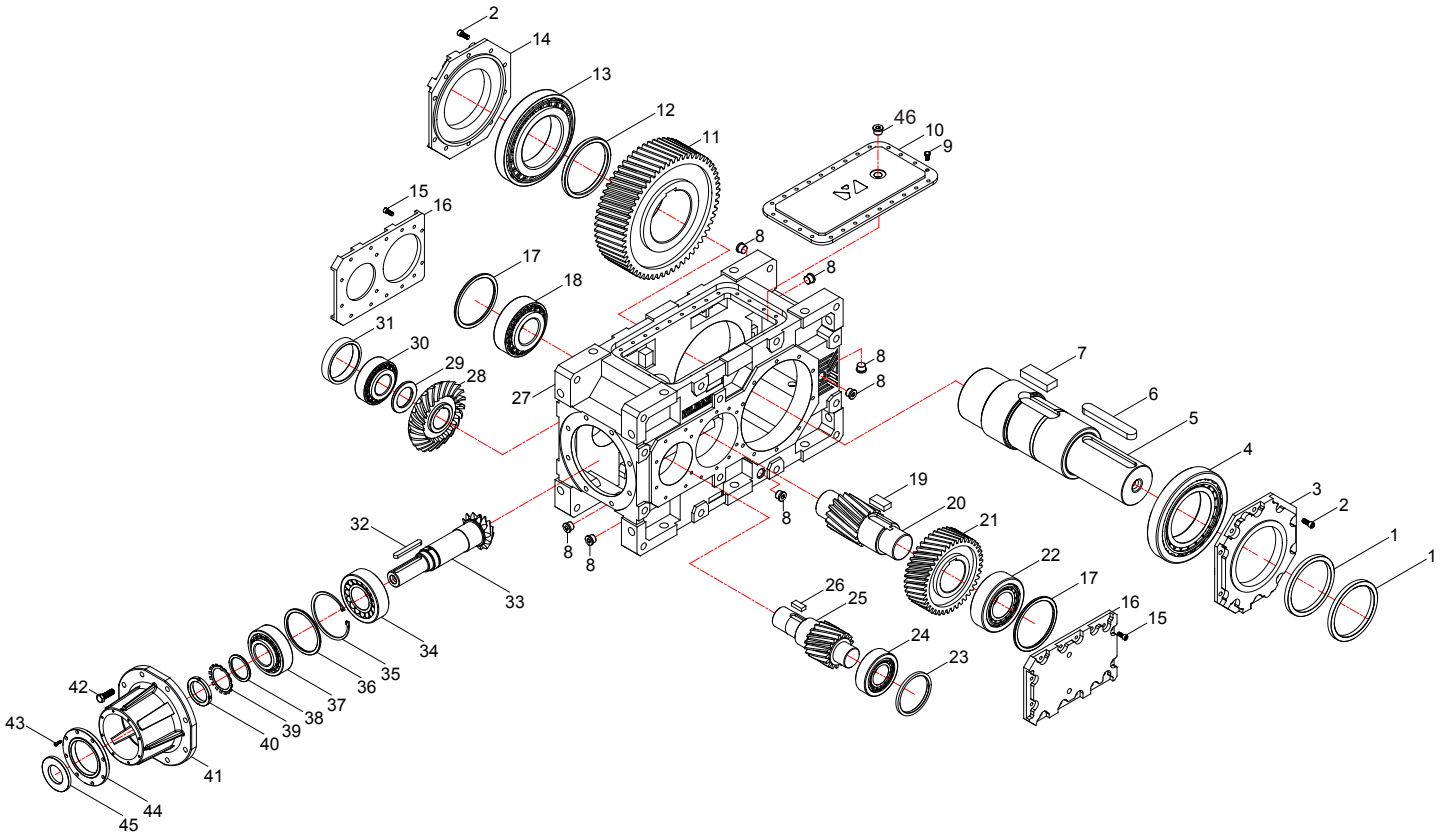


Standard BT...3.0S type basic part diagram. Parts may differ for special applications.

Standard Part List

1- Shrink Disk	10- Top Cover Plate	19- Geared Shaft	28- Spacer	37- Spacer
2- Seal	11- Gear	20- Gear	29- Bearing	38- Locking Plate
3- Bolt	12- Spacer	21- Bearing	30- Spacer	39- Locking Nut
4- Sealed Cover	13- Bearing	22- Spacer	31- Key	40- Input Bearing Housing
5- Bearing	14- Bolt	23- Bearing	32- Bevel Geared Shaft	41- Bolt
6- Hollow Output Shaft	15- Cover	24- Geared Shaft	33- Bearing	42- Bolt
7- Key	16- Spacer	25- Key	34- Circlips	43- Sealed Cover
8- Oil Plug	17- Bearing	26- Housing	35- Spacer	44- Seal
9- Bolt	18- Key	27- Bevel Gear	36- Bearing	45- Breather Plug

3.11- BT...3.01 Types

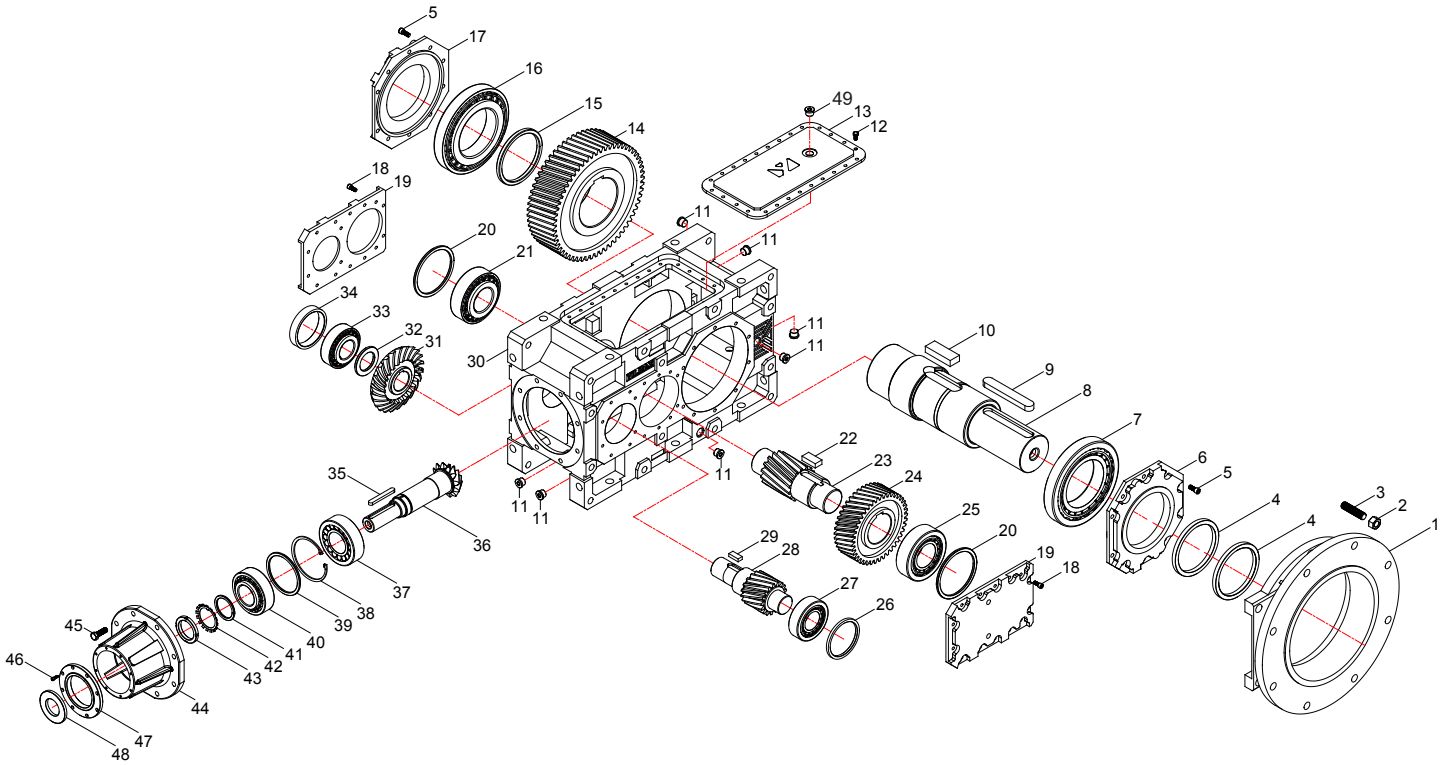


Standard BT...3.01 type basic part diagram. Parts may differ for special applications.

Standard Part List

1- Seal	10- Top Cover Plate	19- Key	28- Bevel Gear	37- Bearing	46- Breather Plug
2- Bolt	11- Gear	20- Geared Shaft	29- Spacer	38- Spacer	
3- Sealed Cover	12- Spacer	21- Gear	30- Bearing	39- Locking Plate	
4- Bearing	13- Bearing	22- Bearing	31- Spacer	40- Locking Nut	
5- Output Shaft	14- Cover	23- Spacer	32- Key	41- Input Bearing Housing	
6- Key	15- Bolt	24- Bearing	33- Bevel Geared Shaft	42- Bolt	
7- Key	16- Cover	25- Geared Shaft	34- Bearing	43- Bolt	
8- Oil Plug	17- Spacer	26- Key	35- Circlips	44- Sealed Cover	
9- Bolt	18- Bearing	27- Housing	36- Spacer	45- Seal	

3.12- BT...3.02 Types

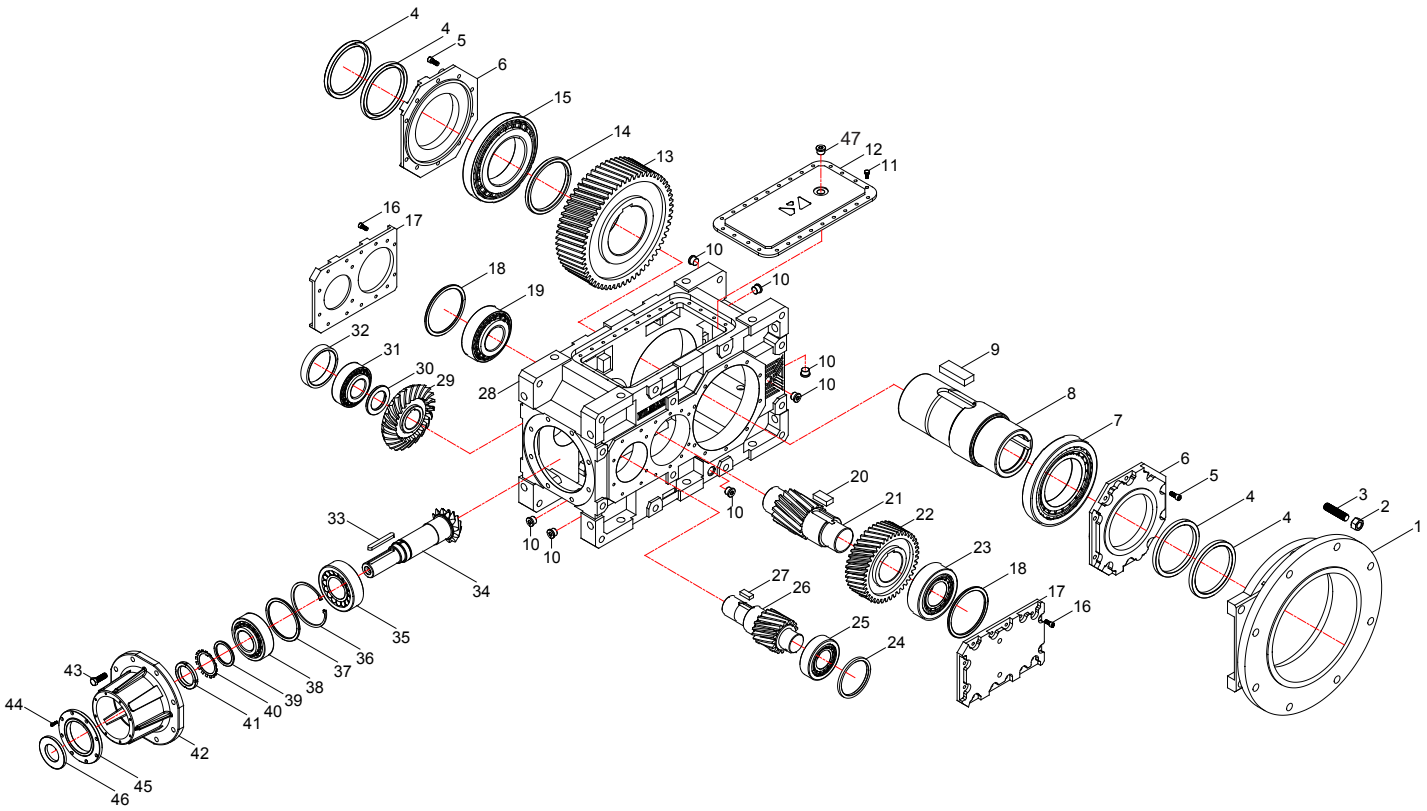


Standard BT...3.02 type basic part diagram. Parts may differ for special applications.

Standard Part List

1- Output Flange	11- Oil Plug	21- Bearing	31- Bevel Gear	41- Spacer
2- Nut	12- Bolt	22- Key	32- Spacer	42- Locking Plate
3- Screw Pin	13- Top Cover Plate	23- Geared Shaft	33- Bearing	43- Locking Nut
4- Seal	14- Gear	24- Gear	34- Spacer	44- Input Bearing Housing
5- Bolt	15- Spacer	25- Bearing	35- Key	45- Bolt
6- Sealed Cover	16- Bearing	26- Spacer	36- Bevel Geared Shaft	46- Bolt
7- Bearing	17- Cover	27- Bearing	37- Bearing	47- Sealed Cover
8- Output Shaft	18- Bolt	28- Geared Shaft	38- Circlips	48- Seal
9- Key	19- Cover	29- Key	39- Spacer	49- Breather Plug
10- Key	20- Spacer	30- Housing	40- Bearing	

3.13- BT...3.03 Types

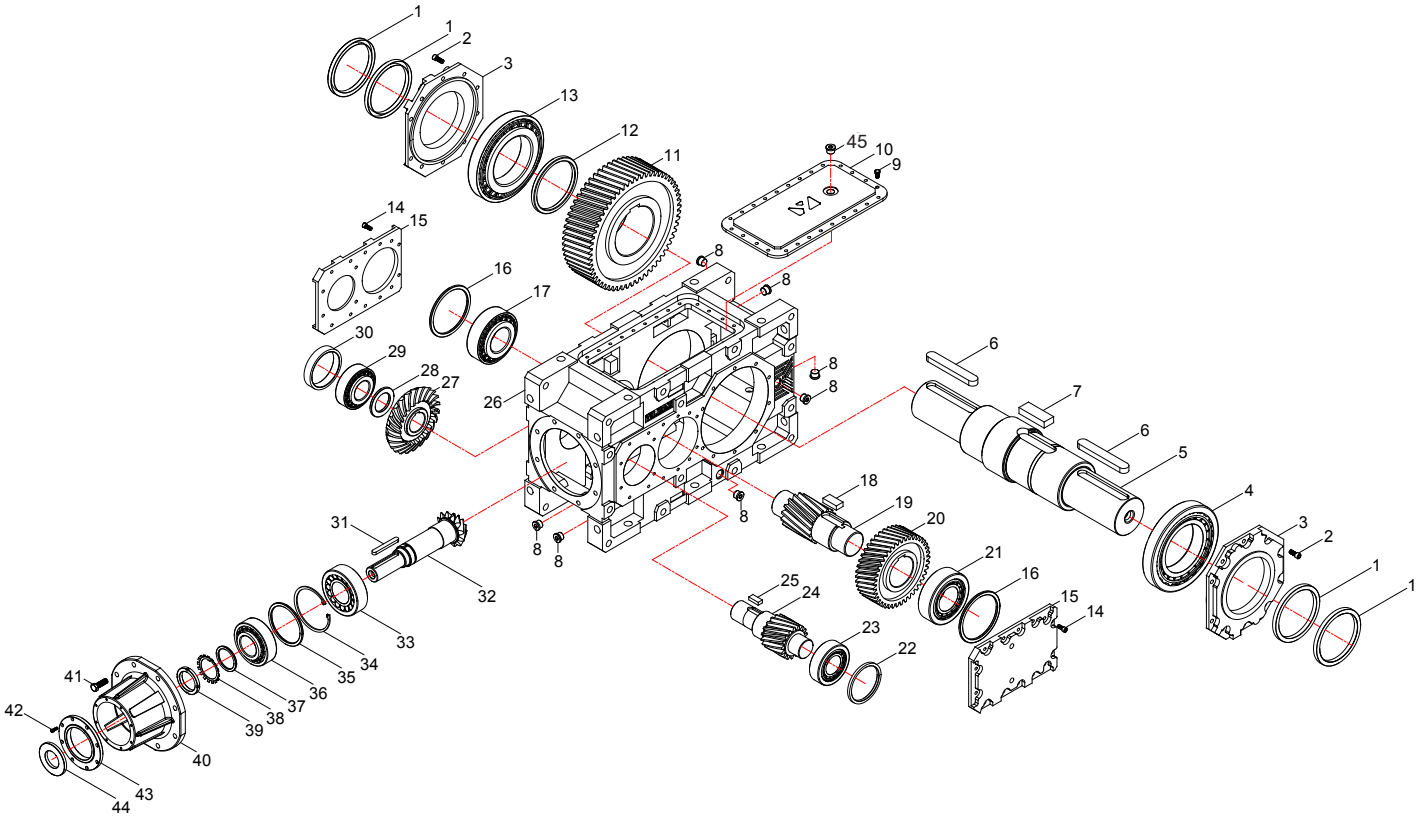


Standard BT...3.03 type basic part diagram. Parts may differ for special applications.

Standard Part List

1- Output Flange	11- Bolt	21 - Geared Shaft	31- Bearing	41- Locking Nut
2- Nut	12- Top Cover Plate	22- Gear	32- Spacer	42- Input Bearing Housing
3- Screw Pin	13- Gear	23- Bearing	33- Key	43- Bolt
4- Seal	14- Spacer	24- Spacer	34- Bevel Geared Shaft	44- Bolt
5- Bolt	15- Bearing	25- Bearing	35- Bearing	45- Sealed Cover
6- Sealed Cover	16- Bolt	26- Geared Shaft	36- Circlips	46- Seal
7- Bearing	17- Cover	27- Key	37- Spacer	47- Breather Plug
8- Hollow Output Shaft	18- Spacer	28- Housing	38- Bearing	
9- Key	19- Bearing	29- Bevel Gear	39- Spacer	
10- Oil Plug	20- Key	30- Spacer	40- Locking Plate	

3.14- BT...3.04 Types

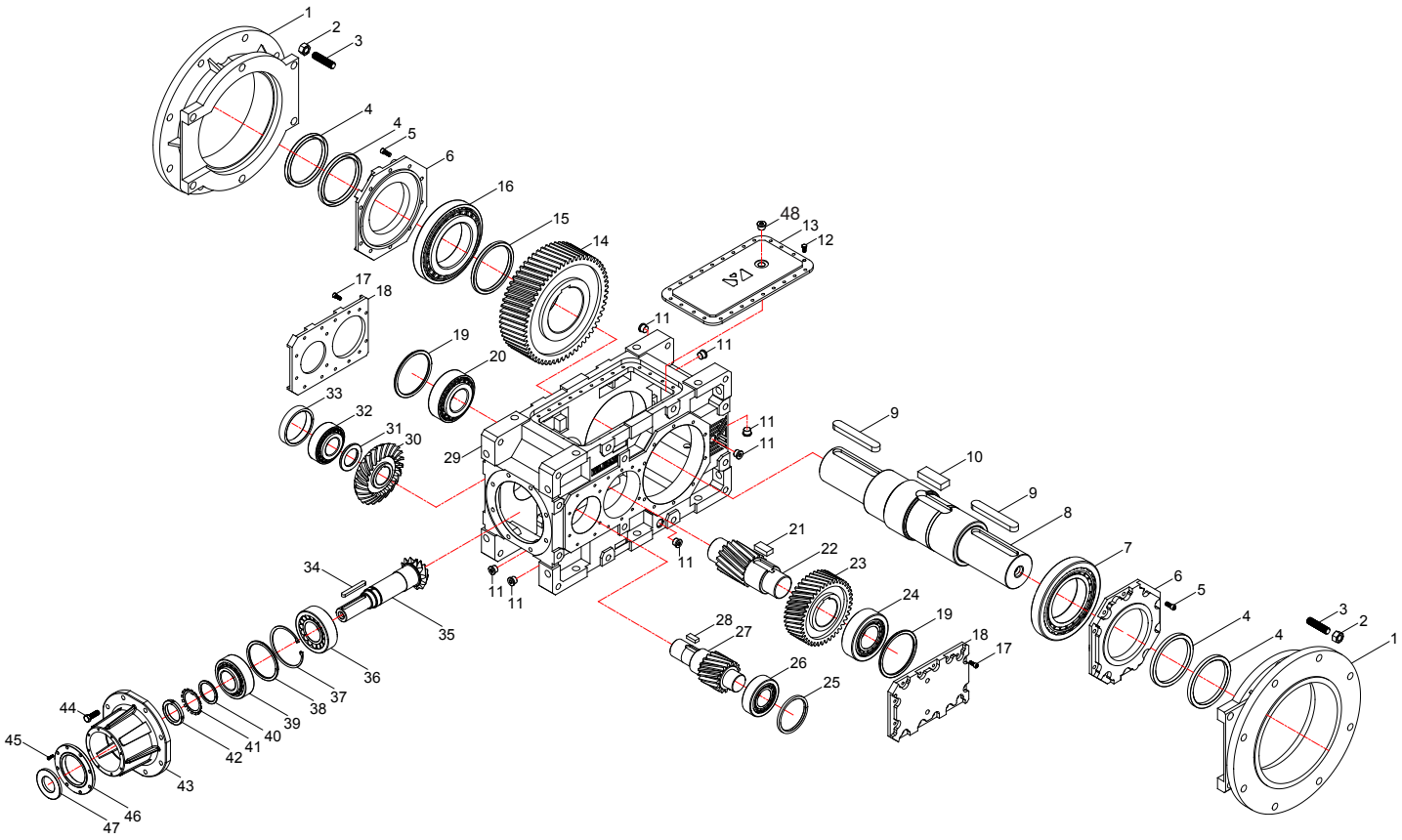


Standard BT...3.04 type basic part diagram. Parts may differ for special applications.

Standard Part List

1- Seal	10- Top Cover Plate	19- Geared Shaft	28- Spacer	37- Spacer
2- Bolt	11- Gear	20- Gear	29- Bearing	38- Locking Plate
3- Sealed Cover	12- Spacer	21- Bearing	30- Spacer	39- Locking Nut
4- Bearing	13- Bearing	22- Spacer	31- Key	40- Input Bearing Housing
5- Output Shaft	14- Bolt	23- Bearing	32- Bevel Geared Shaft	41- Bolt
6- Key	15- Cover	24- Geared Shaft	33- Bearing	42- Bolt
7- Key	16- Spacer	25- Key	34- Circlips	43- Sealed Cover
8- Oil Plug	17- Bearing	26- Housing	35- Spacer	44- Seal
9- Bolt	18- Key	27- Bevel Gear	36- Bearing	45- Breather Plug

3.15- BT...3.05 Types

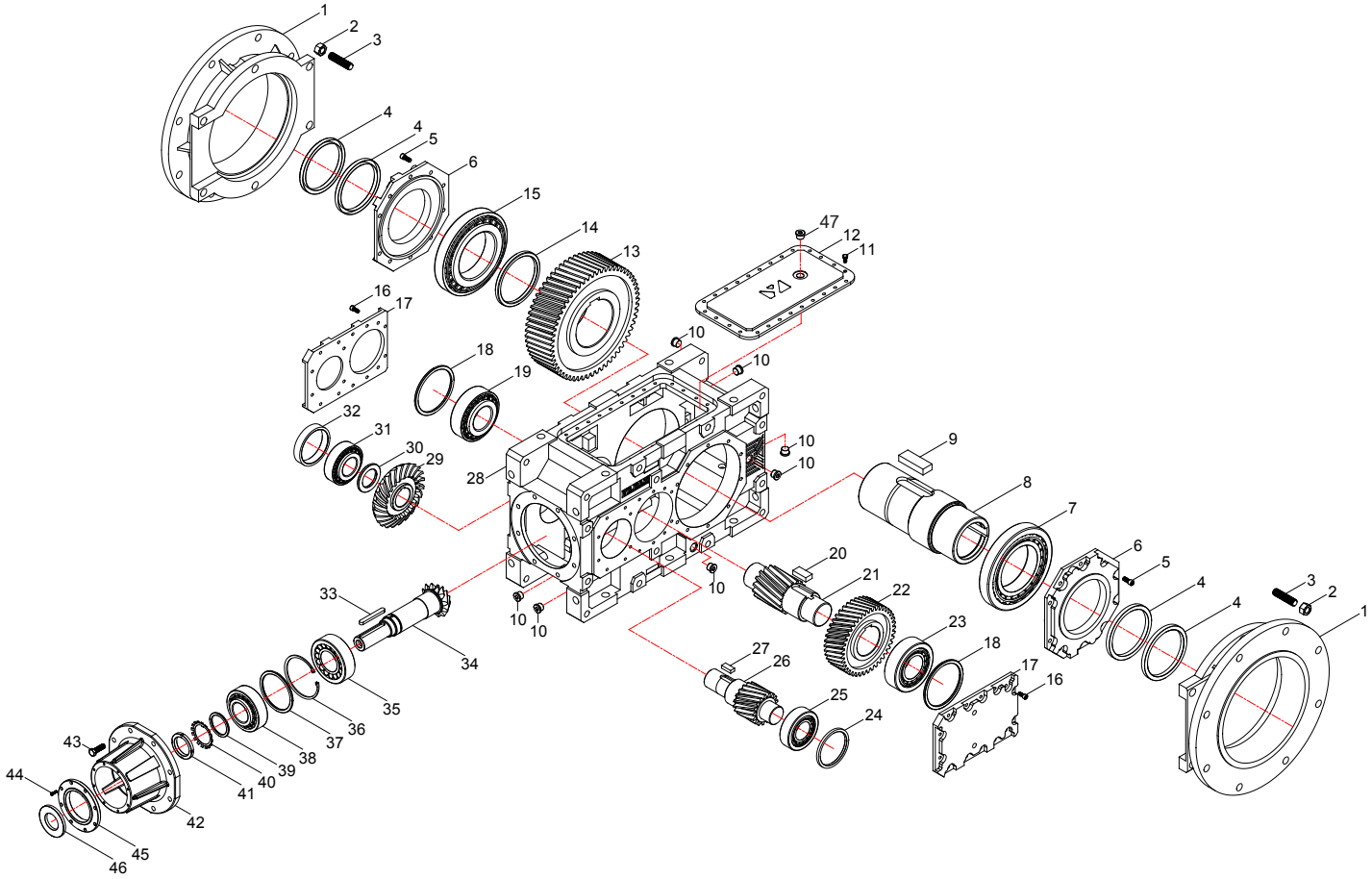


Standard BT...3.05 type basic part diagram. Parts may differ for special applications.

Standard Part List

1- Output Flange	11- Oil Plug	21- Key	31- Spacer	41- Locking Plate
2- Nut	12- Bolt	22- Geared Shaft	32- Bearing	42- Locking Nut
3- Screw Pin	13- Top Cover Plate	23- Gear	33- Spacer	43- Input Bearing Housing
4- Seal	14- Gear	24- Bearing	34- Key	44- Bolt
5- Bolt	15- Spacer	25- Spacer	35- Bevel Geared Shaft	45- Bolt
6- Sealed Cover	16- Bearing	26- Bearing	36- Bearing	46- Sealed Cover
7- Bearing	17- Bolt	27- Geared Shaft	37- Circlips	47- Seal
8- Output Shaft	18- Cover	28- Key	38- Spacer	48- Breather Plug
9- Key	19- Spacer	29- Housing	39- Bearing	
10- Key	20- Bearing	30- Bevel Gear	40- Spacer	

3.16- BT...3.08 Types

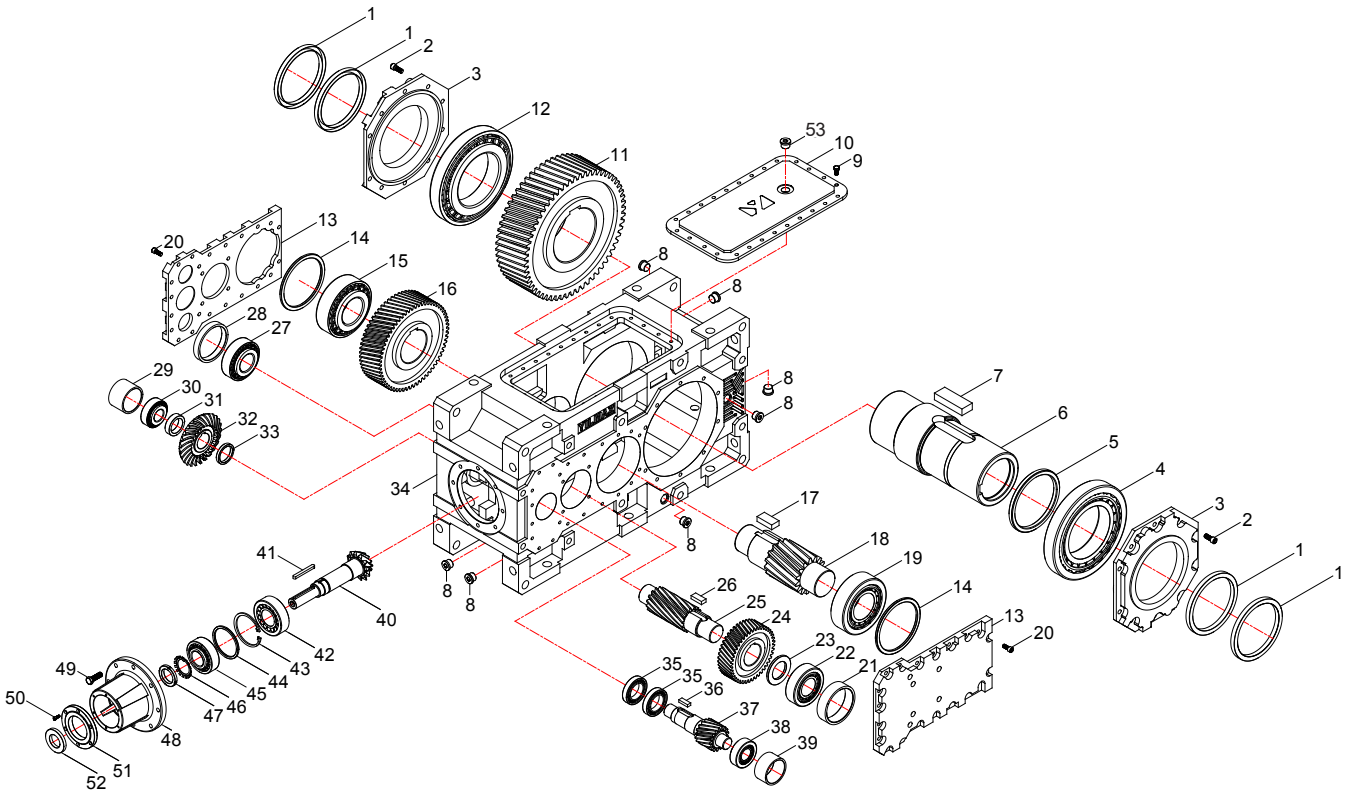


Standard BT...3.08 type basic part diagram. Parts may differ for special applications.

Standard Part List

1- Output Flange	11- Bolt	21 - Geared Shaft	31- Bearing	41- Locking Nut
2- Nut	12- Top Cover Plate	22- Gear	32- Spacer	42- Input Bearing Housing
3- Screw Pin	13- Gear	23- Bearing	33- Key	43- Bolt
4- Seal	14- Spacer	24- Spacer	34- Bevel Geared Shaft	44- Bolt
5- Bolt	15- Bearing	25- Bearing	35- Bearing	45- Sealed Cover
6- Sealed Cover	16- Bolt	26- Geared Shaft	36- Circlips	46- Seal
7- Bearing	17- Cover	27- Key	37- Spacer	47- Breather Plug
8- Hollow Output Shaft	18- Spacer	28- Housing	38- Bearing	
9- Key	19- Bearing	29- Bevel Gear	39- Spacer	
10- Oil Plug	20- Key	30- Spacer	40- Locking Plate	

3.17- BT...4.00 Types

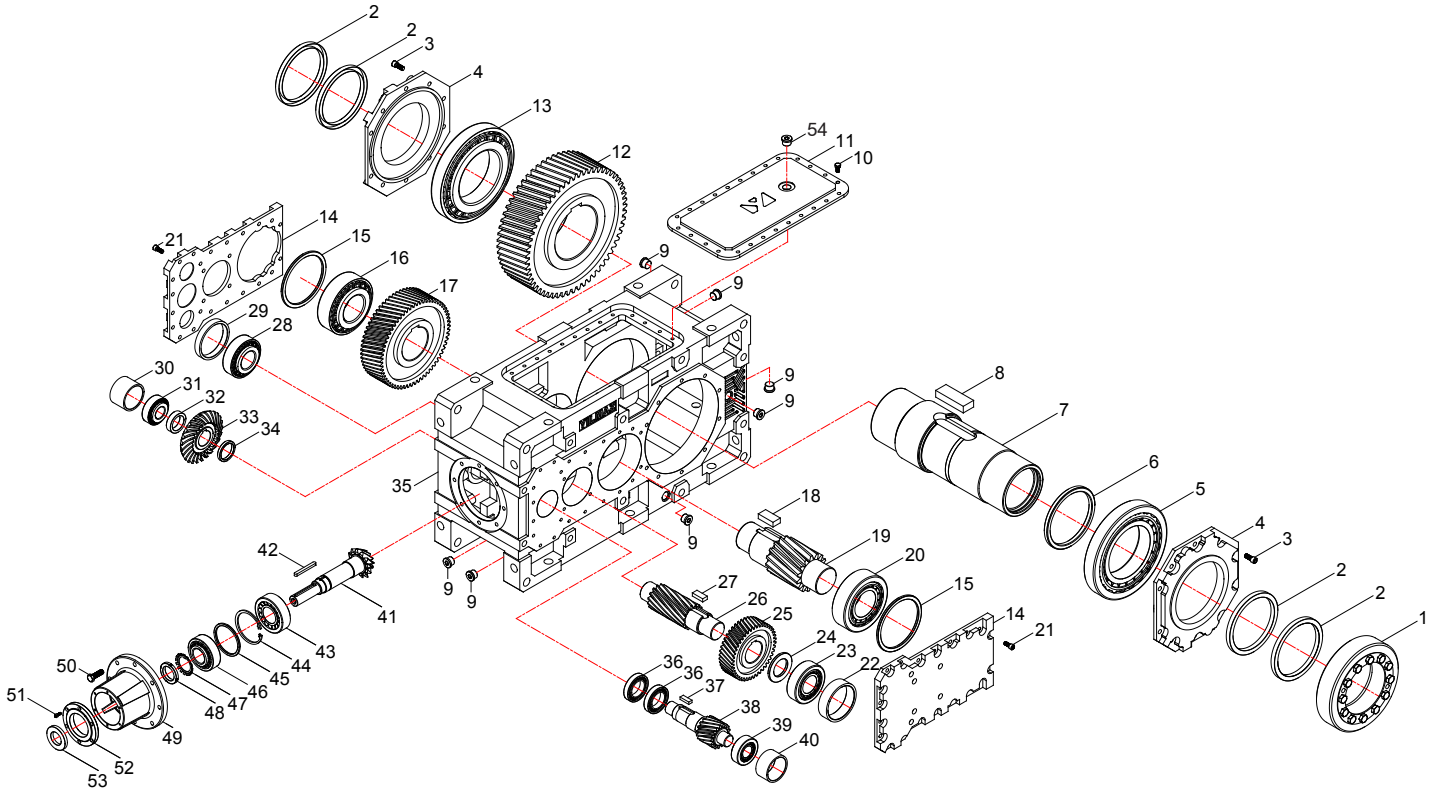


Standard BT...4.00 type basic part diagram. Parts may differ for special applications.

Standard Part List

1- Seal	12- Bearing	23- Spacer	34- Housing	45- Bearing
2- Bolt	13- Cover	24- Gear	35- Bearing	46- Locking Plate
3- Sealed Cover	14- Spacer	25- Geared Shaft	36- Key	47- Locking Nut
4- Bearing	15- Bearing	26- Key	37- Gear	48- Input Bearing Housing
5- Spacer	16- Gear	27- Bearing	38- Bearing	49- Bolt
6- Hollow Output Shaft	17- Key	28- Spacer	39- Spacer	50- Bolt
7- Key	18- Geared Shaft	29- Spacer	40- Bevel Geared Shaft	51- Sealed Cover
8- Oil Plug	19- Bearing	30- Bearing	41- Key	52- Seal
9- Screw Pin	20- Bolt	31- Spacer	42- Bearing	53- Breather Plug
10- Top Cover Plate	21- Spacer	32- Bevel Gear	43- Circlips	
11- Gear	22- Bearing	33- Spacer	44- Spacer	

3.18- BT...4.0S Types

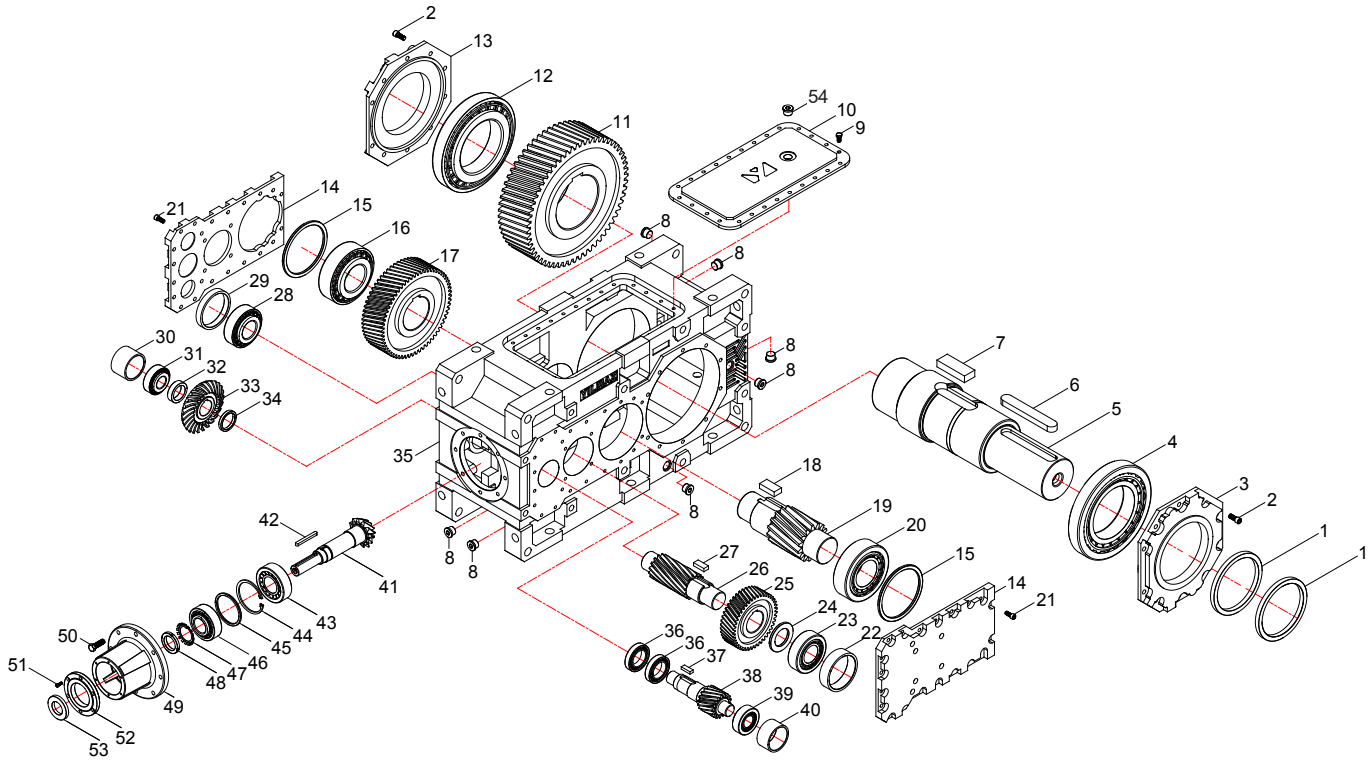


Standard BT...4.0S type basic part diagram. Parts may differ for special applications.

Standard Part List

1- Shrink Disk	12- Gear	23- Bearing	34- Spacer	45- Spacer
2- Seal	13- Bearing	24- Spacer	35- Housing	46- Bearing
3- Bolt	14- Cover	25- Gear	36- Bearing	47- Locking Plate
4- Sealed Cover	15- Spacer	26- Geared Shaft	37- Key	48- Locking Nut
5- Bearing	16- Bearing	27- Key	38- Gear	49- Input Bearing Housing
6- Spacer	17- Gear	28- Bearing	39- Bearing	50- Bolt
7- Hollow Output Shaft	18- Key	29- Spacer	40- Spacer	51- Bolt
8- Key	19- Geared Shaft	30- Spacer	41- Bevel Geared Shaft	52- Sealed Cover
9- Oil Plug	20- Bearing	31- Bearing	42- Key	53- Seal
10- Bolt	21- Bolt	32- Spacer	43- Bearing	54- Breather Plug
11- Top Cover Plate	22- Spacer	33- Bevel Gear	44- Circlips	

3.19- BT...4.01 Types

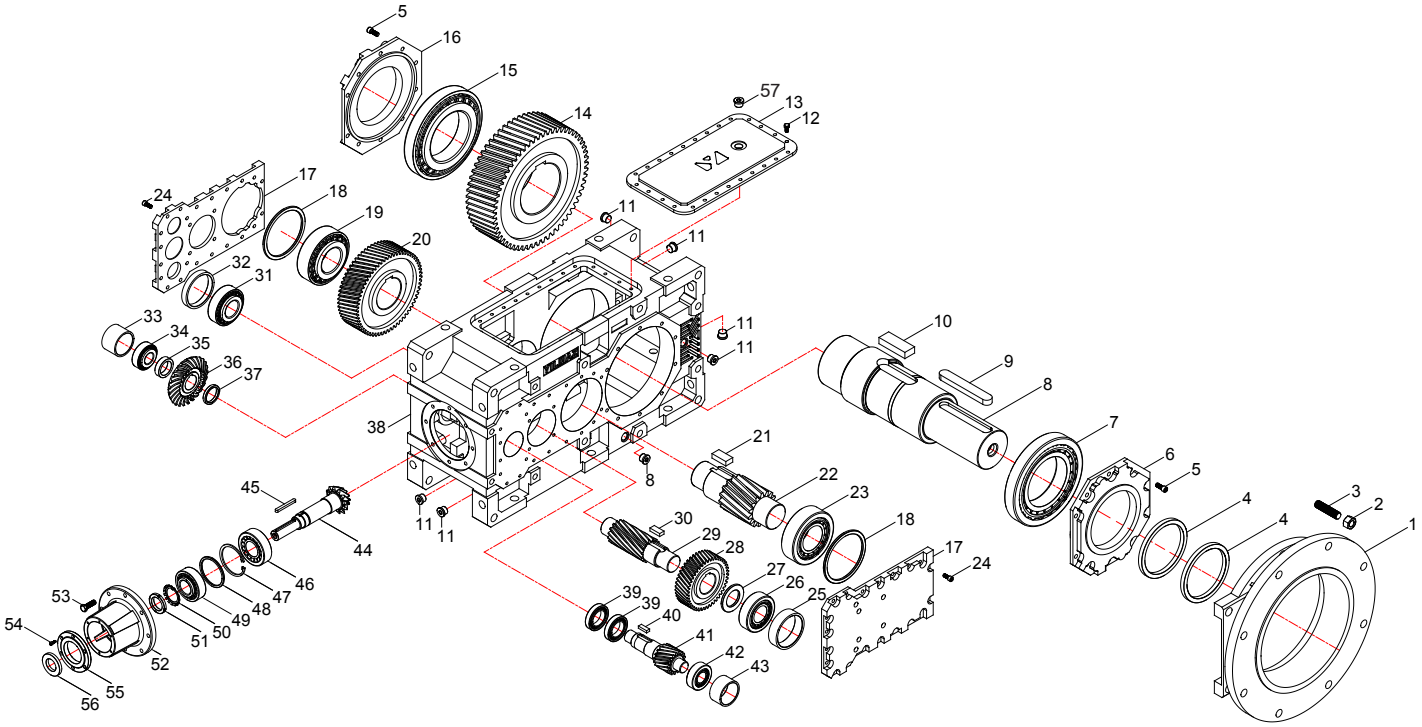


Standard BT...4.01 type basic part diagram. Parts may differ for special applications.

Standard Part List

1- Seal	12- Bearing	23- Bearing	34- Spacer	45- Spacer
2- Bolt	13- Cover	24- Spacer	35- Housing	46- Bearing
3- Sealed Cover	14- Cover	25- Gear	36- Bearing	47- Locking Plate
4- Bearing	15- Spacer	26- Geared Shaft	37- Key	48- Locking Nut
5- Output Shaft	16- Bearing	27- Key	38- Gear	49- Input Bearing Housing
6- Key	17- Gear	28- Bearing	39- Bearing	50- Bolt
7- Key	18- Key	29- Spacer	40- Spacer	51- Bolt
8- Oil Plug	19- Geared Shaft	30- Spacer	41- Bevel Geared Shaft	52- Sealed Cover
9- Bolt	20- Bearing	31- Bearing	42- Key	53- Seal
10- Top Side Cover	21- Bolt	32- Spacer	43- Bearing	54- Breather Plug
11- Gear	22- Spacer	33- Bevel Gear	44- Circlips	

3.20- BT...4.02 Types

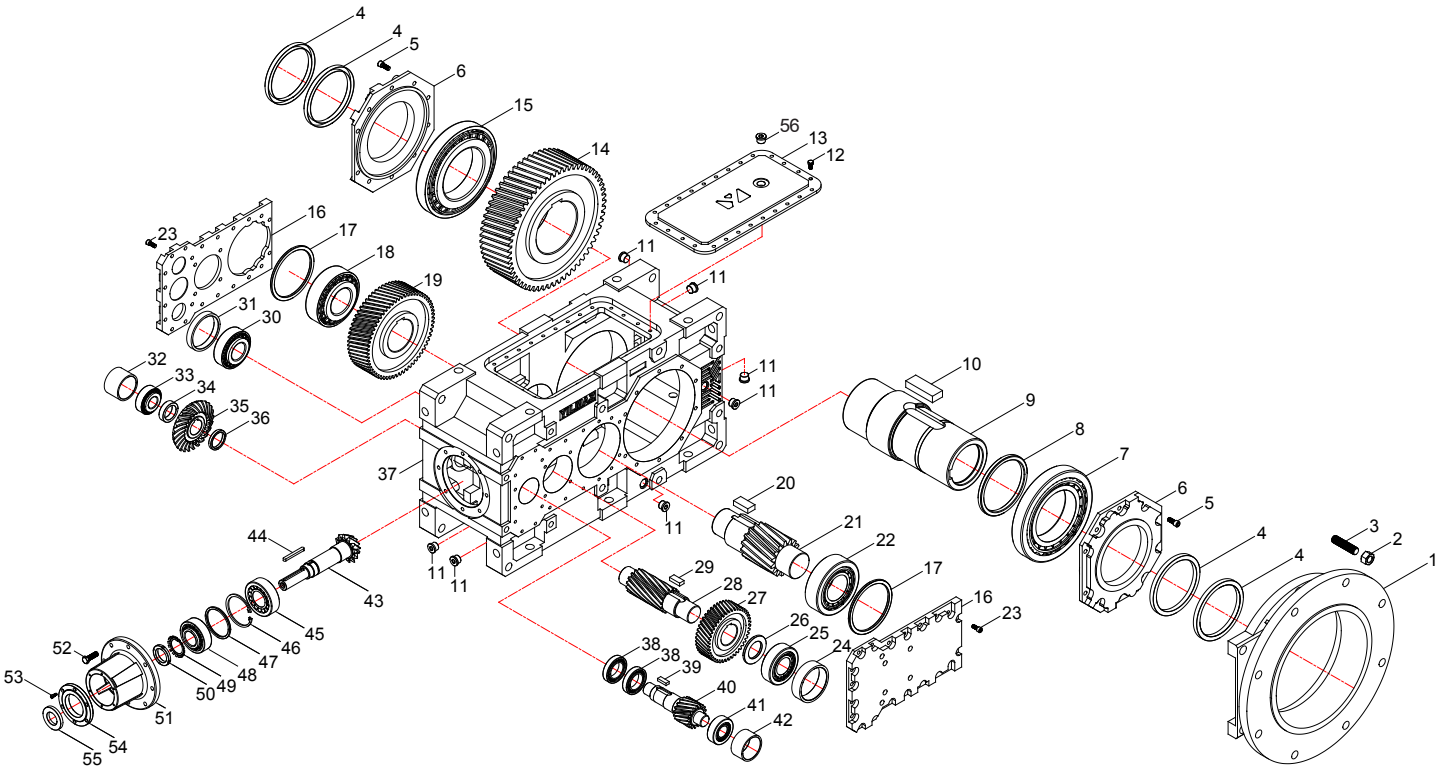


Standard BT...4.02 type basic part diagram. Parts may differ for special applications.

Standard Part List

1- Output Flange	12- Bolt	23- Bearing	34- Bearing	45- Key	56- Seal
2- Nut	13- Top Side Cover	24- Bolt	35- Spacer	46- Bearing	57- Breather Plug
3- Screw Pin	14- Gear	25- Spacer	36- Bevel Gear	47- Circlips	
4- Seal	15- Bearing	26- Bearing	37- Spacer	48- Spacer	
5- Bolt	16- Cover	27- Spacer	38- Housing	49- Bearing	
6- Sealed Cover	17- Cover	28- Gear	39- Bearing	50- Locking Plate	
7- Bearing	18- Spacer	29- Geared Shaft	40- Key	51- Locking Nut	
8- Output Shaft	19- Bearing	30- Key	41- Gear	52- Input Bearing Housing	
9- Key	20- Gear	31- Bearing	42- Bearing	53- Bolt	
10- Key	21- Key	32- Spacer	43- Spacer	54- Bolt	
11- Oil Plug	22- Geared Shaft	33- Spacer	44- Bevel Geared Shaft	55- Sealed Cover	

3.21- BT...4.03 Types

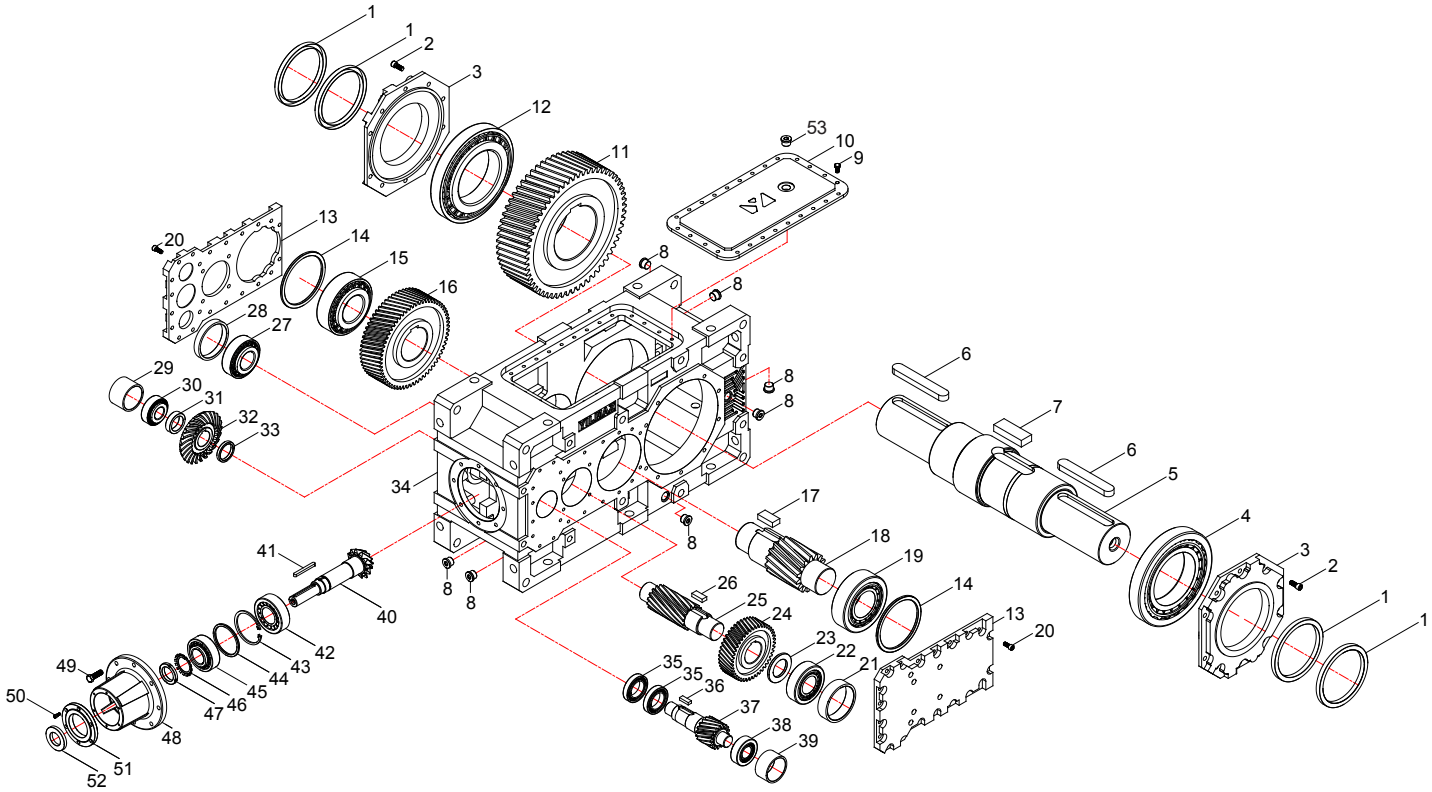


Standard BT...4.03 type basic part diagram. Parts may differ for special applications.

Standard Part List

1- Output Flange	12- Bolt	23- Bolt	34- Spacer	45- Bearing	56- Breather Plug
2- Nut	13- Top Side Cover	24- Spacer	35- Bevel Gear	46- Circlips	
3- Screw Pin	14- Gear	25- Bearing	36- Spacer	47- Spacer	
4- Seal	15- Bearing	26- Spacer	37- Housing	48- Bearing	
5- Bolt	16- Cover	27- Gear	38- Bearing	49- Locking Plate	
6- Sealed Cover	17- Spacer	28- Geared Shaft	39- Key	50- Locking Nut	
7- Bearing	18- Bearing	29- Key	40- Gear	51- Input Bearing Housing	
8- Spacer	19- Gear	30- Bearing	41- Bearing	52- Bolt	
9- Hollow Output Shaft	20- Key	31- Spacer	42- Spacer	53- Bolt	
10- Key	21- Geared Shaft	32- Spacer	43- Bevel Geared Shaft	54- Sealed Cover	
11- Oil Plug	22- Bearing	33- Bearing	44- Key	55- Seal	

3.22- BT...4.04 Types

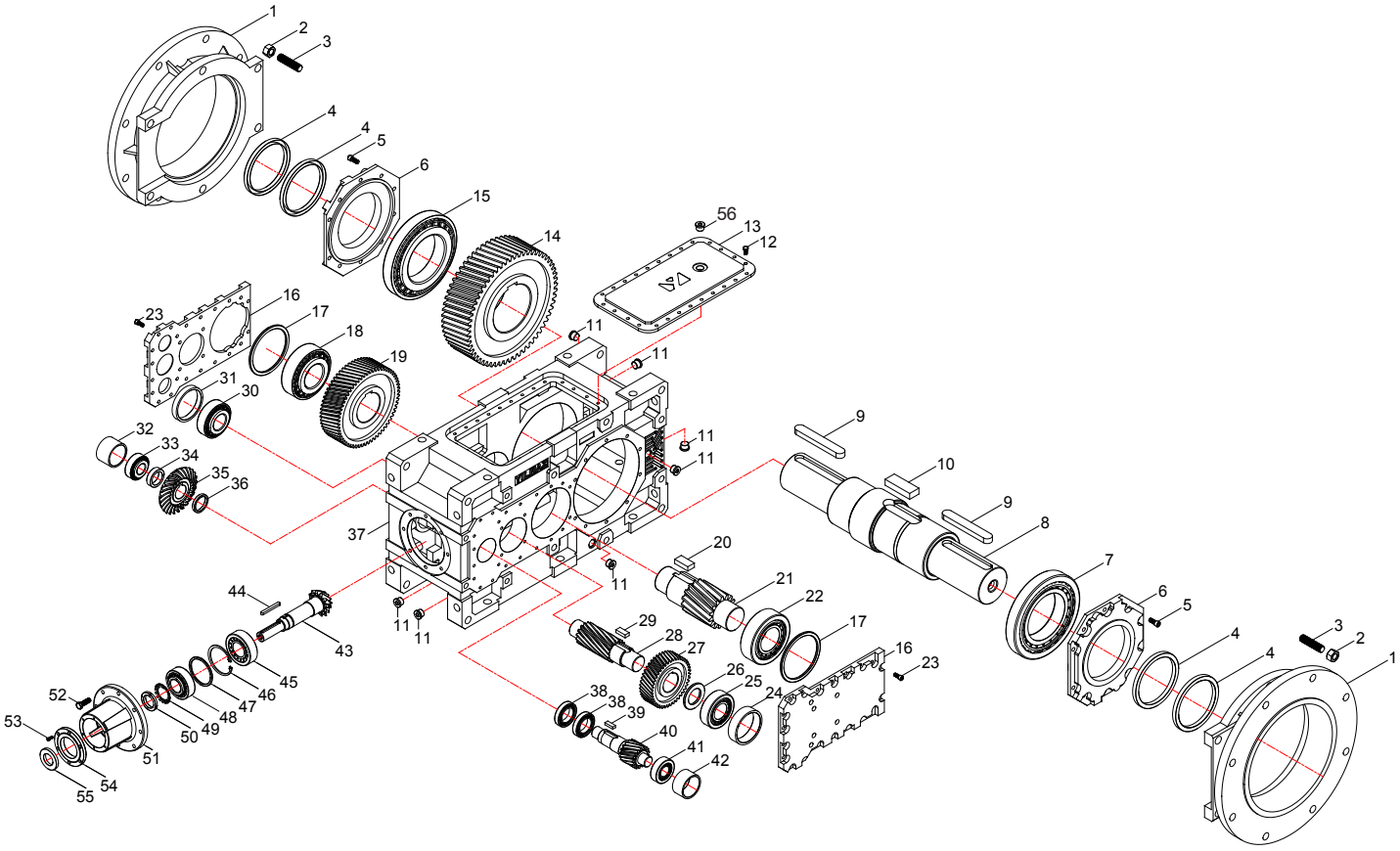


Standard BT...4.04 type basic part diagram. Parts may differ for special applications.

Standard Part List

1- Seal	12- Bearing	23- Spacer	34- Housing	45- Bearing
2- Bolt	13- Cover	24- Gear	35- Bearing	46- Locking Plate
3- Sealed Cover	14- Spacer	25- Geared Shaft	36- Key	47- Locking Nut
4- Bearing	15- Bearing	26- Key	37- Gear	48- Input Bearing Housing
5- Output Shaft	16- Gear	27- Bearing	38- Bearing	49- Bolt
6- Key	17- Key	28- Spacer	39- Spacer	50- Bolt
7- Key	18- Geared Shaft	29- Spacer	40- Bevel Geared Shaft	51- Sealed Cover
8- Oil Plug	19- Bearing	30- Bearing	41- Key	52- Seal
9- Bolt	20- Bolt	31- Spacer	42- Bearing	53- Breather Plug
10- Top Side Cover	21- Spacer	32- Bevel Gear	43- Circlips	
11- Gear	22- Bearing	33- Spacer	44- Spacer	

3.23- BT...4.05 Types

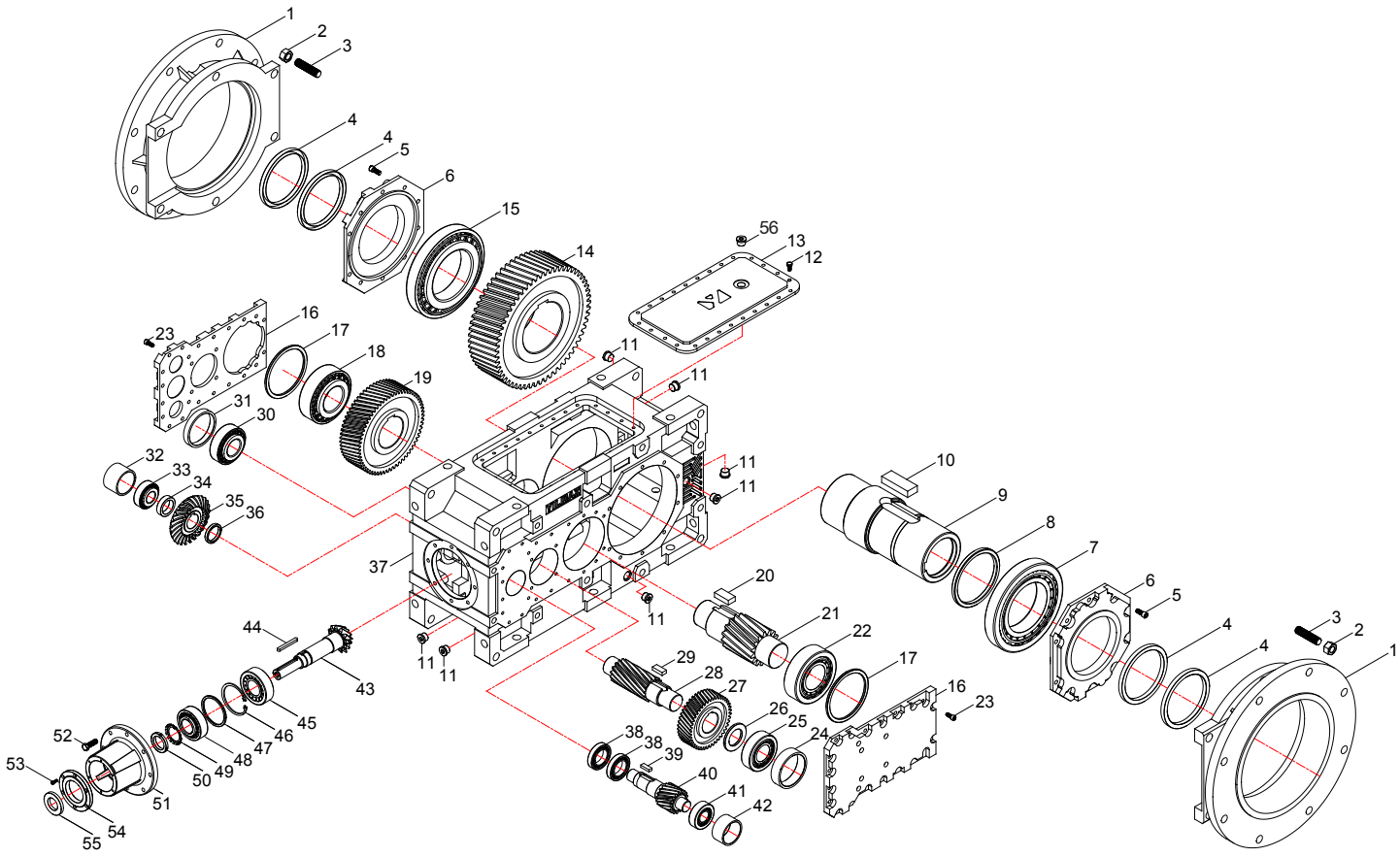


Standard BT...4.05 type basic part diagram. Parts may differ for special applications.

Standard Part List

1- Output Flange	12- Bolt	23- Bolt	34- Spacer	45- Bearing	56- Breather Plug
2- Nut	13- Top Side Cover	24- Spacer	35- Bevel Gear	46- Circlips	
3- Screw Pin	14- Gear	25- Bearing	36- Spacer	47- Spacer	
4- Seal	15- Bearing	26- Spacer	37- Housing	48- Bearing	
5- Bolt	16- Cover	27- Gear	38- Bearing	49- Locking Plate	
6- Sealed Cover	17- Spacer	28- Geared Shaft	39- Key	50- Locking Nut	
7- Bearing	18- Bearing	29- Key	40- Gear	51- Input Shaft Housing	
8- Output Shaft	19- Gear	30- Bearing	41- Bearing	52- Bolt	
9- Key	20- Key	31- Spacer	42- Spacer	53- Bolt	
10- Key	21- Geared Shaft	32- Spacer	43- Bevel Geared Shaft	54- Sealed Cover	
11- Oil Plug	22- Bearing	33- Bearing	44- Key	55- Seal	

3.24- BT...4.08 Types

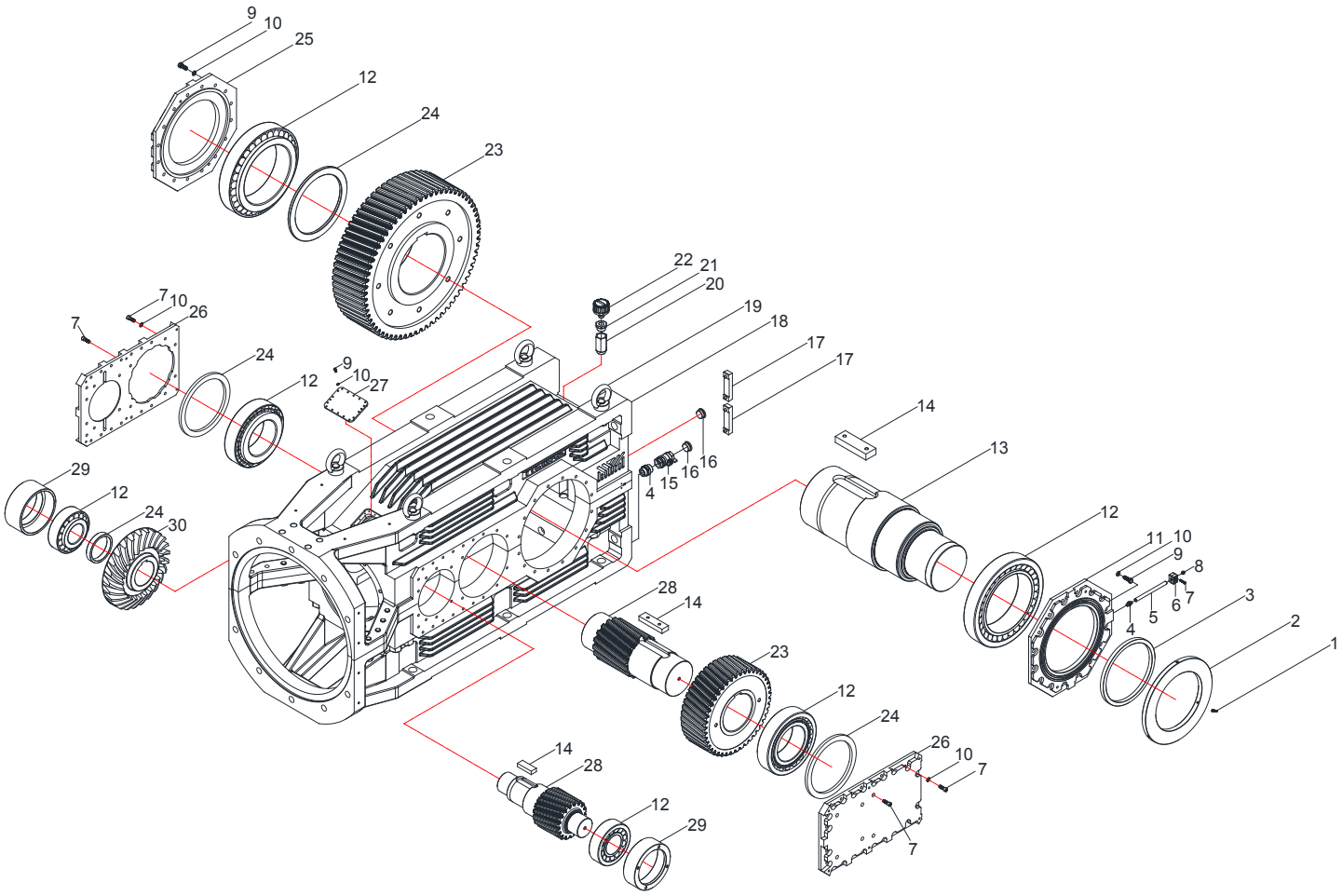


Standard BT...4.08 type basic part diagram. Parts may differ for special applications.

Standard Part List

1- Output Flange	12- Bolt	23- Bolt	34- Spacer	45- Bearing	56- Breather Plug
2- Nut	13- Top Side Cover	24- Spacer	35- Bevel Gear	46- Circlips	
3- Screw Pin	14- Gear	25- Bearing	36- Spacer	47- Spacer	
4- Seal	15- Bearing	26- Spacer	37- Housing	48- Bearing	
5- Bolt	16- Cover	27- Gear	38- Bearing	49- Locking Plate	
6- Sealed Cover	17- Spacer	28- Geared Shaft	39- Key	50- Locking Nut	
7- Bearing	18- Bearing	29- Key	40- Gear	51- Input Bearing Housing	
8- Spacer	19- Gear	30- Bearing	41- Bearing	52- Bolt	
9- Hollow Output Shaft	20- Key	31- Spacer	42- Spacer	53- Bolt	
10- Key	21- Geared Shaft	32- Spacer	43- Bevel Geared Shaft	54- Sealed Cover	
11- Oil Plug	22- Bearing	33- Bearing	44- Key	55- Seal	

3.25- BY... Housing Side

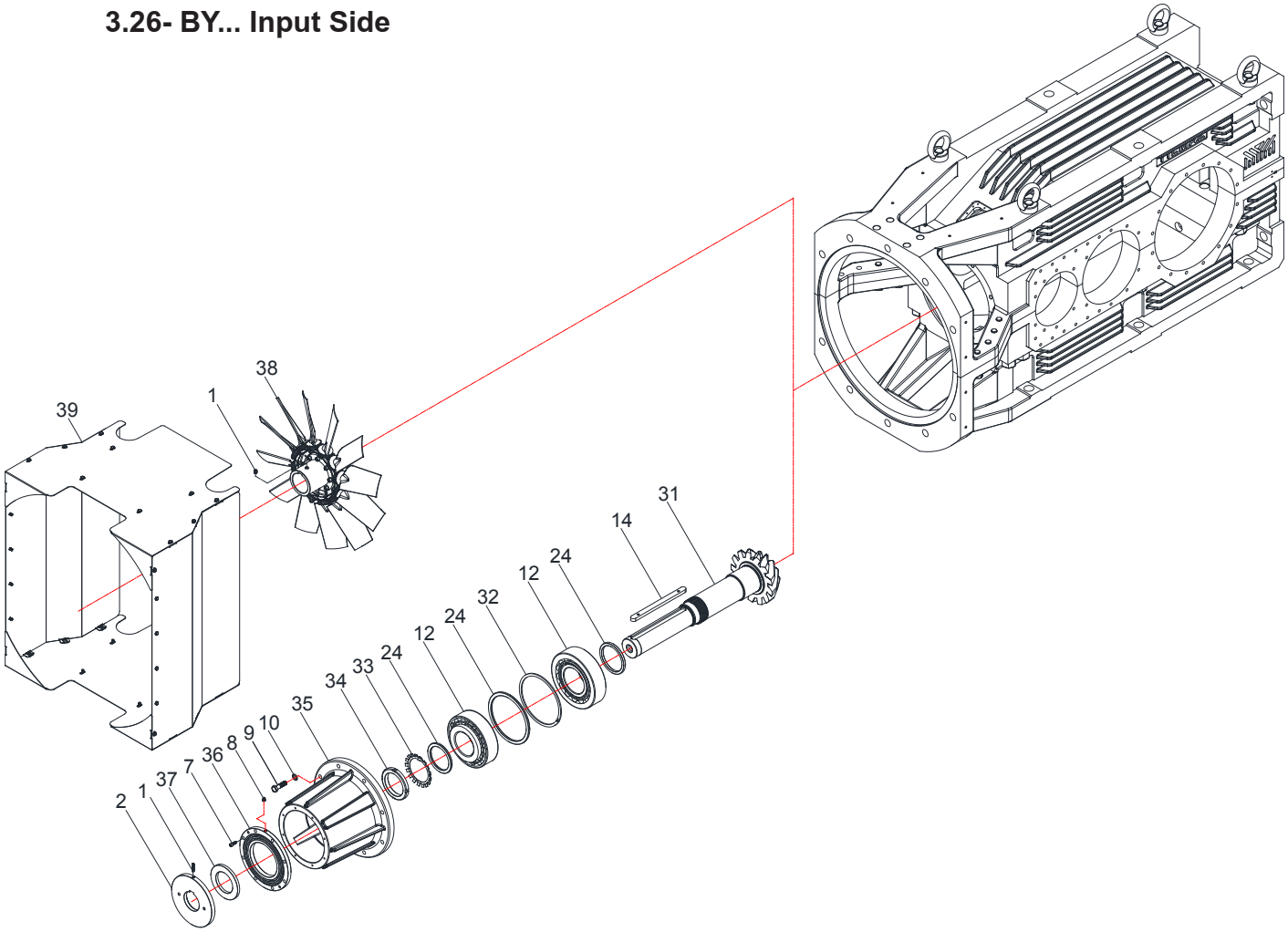


Standard BY housing side basic part diagram. Parts may differ for special applications.

Standard Part List

1- Screw Pin	11- Output Taconite Seal Cover	21- Reduction	31- Bevel Geared Shaft
2- Taconite Labyrinth Bushing	12- Bearing	22- Breather Plug	32- Circlips
3- Seal	13- Output Shaft	23- Gear	33- Locking Plate
4- Nipple	14- Key	24- Spacer	34- Locking Nut
5- Extension Pipe	15- Ball Valve	25- Output Cover	35- Input Shaft Housing
6- Plastic Clip	16- Plug	26- Side Cover	36- Input Shaft Housing Seal Cover
7- Imbus Bolt	17- Oil Gauge	27- Inspection Cover	37- Input Seal
8- Greaser	18- Housing	28- Geared Shaft	38- Axial Fan
9- Hexagonal Head Bolt	19- Eyebolt	29- Bearing Housing Bushing	39- Fan Protection Sheet
10- Spring Washer	20- Extended Pipe	30- Bevel Gear	

3.26- BY... Input Side



Standard BY input side basic part diagram. Parts may differ for special applications.

Standard Part List

1- Screw Pin	11- Output Taconite Seal Cover	21- Reduction	31- Bevel Geared Shaft
2- Taconite Labyrinth Bushing	12- Bearing	22- Breather Plug	32- Circlips
3- Seal	13- Output Shaft	23- Gear	33- Locking Plate
4- Nipple	14- Key	24- Spacer	34- Locking Nut
5- Extension Pipe	15- Ball Valve	25- Output Cover	35- Input Shaft Housing
6- Plastic Clip	16- Plug	26- Side Cover	36- Input Shaft Housing Seal Cover
7- Imbus Bolt	17- Oil Gauge	27- Inspection Cover	37- Input Seal
8- Greaser	18- Housing	28- Geared Shaft	38- Axial Fan
9- Hexagonal Head Bolt	19- Eyebolt	29- Bearing Housing Bushing	39- Fan Protection Sheet
10- Spring Washer	20- Extended Pipe	30- Bevel Gear	

4- Safety

4.1- Intended Use

The gearbox is designed for usage in industrial machines. Please refer to our catalogue or our web page for the maximum permitted torques and speeds. The most important maximum permitted values are indicated on the nameplate of the product, but the whole data can be found on our product catalogues. Using the product out of the product catalogue/ nameplate's permitted ranges will cancel the warranty / manufacturer declaration and YILMAZ will not take any responsibility.

The gear units are intended to use for industrial machines and may only be used in accordance with the information provided in this manual the product catalogue and the nameplate of the gearbox. They comply with the applicable standards and regulations and meet the requirements of the directive 2006/42/EC. The gearbox must be started up, maintained and operated according to this manual. The gearbox must be incorporated with 2006/42/EC confirming parts/machines.

If the motor is compatible with the data provided on the gearbox's nameplate, it is allowed to be installed and operated. If the motor is to be used with a frequency inverter, the frequency range at which the motor will operate must be notified to YILMAZ REDÜKTÖR at the time of order. If not notified, the product is allowed to operated at the input speed indicated on the nameplate. The electric motor and frequency inverter must be in accordance with *2006/42/EC*

If the gear unit's input is used with variable speed mechanical drive systems (variator), this must be notified to YILMAZ REDUKTOR at the time of order. Otherwise, the product is allowed to operated at the input speed indicated on the nameplate.

If the gear unit will be driven by belt / coupling / chain drive etc. the gearbox is only allowed to used according the nameplate/catalogue entries. Different speed, higher motor power, higher radial/axial loads etc. than nameplate/catalogue is not allowed.

The ambient temperature must be between +5 and +40 celsius and no corrosive media must attack the paint and seals. If there is different working conditions YILMAZ must be informed before ordering.

The gearbox maintenance (oil change / check) must be done according to this manual

4.2- Improper Use

Every usage which exceeds the limits stated above, the nameplate and catalogue of the product (especially higher torques and speeds) is not compliant with the regulations, and thus prohibited.

The operation of the gearbox is prohibited if;

- -It was not mounted/installed according to regulations and this manual
- -The gearbox is very dirty and soiled
- -It is operated without lubricant
- -It is operated out of the permitted values provided on catalogues and/or nameplate.

4.3- Safety Instructions
4.3.1- General Safety Instructions

4.3.1.1- Working on the Gearbox

- Inappropriately executed work can lead to injury or damage.
Make sure that the gear reducer is only installed, maintained and dismantled by trained technicians.

- Foreign objects spinning through the air can cause grave injury.
Before putting the gear reducer into operation, check that there are no foreign objects or tools near the gearbox.

4.3.1.2- Operation

- Touching hot surfaces can lead to burning.
Do not touch the gearboxes if their operation temperatures are too high, or use suitable safety equipment like gloves.

-Rotating machinery can lead to injuries. There is danger of being trapped or pulled in!
Keep a sufficient distance and make safeguarding to rotating machinery. See relevant norms EN349 + A1 and EN13857.

4.3.1.3- Maintenance

- An unintentional start of the machine during maintenance work can lead to serious accidents.
Make sure no one can start the machine while you are working on it.

- Even a brief running of the machine during maintenance work can lead to accidents if the safety devices are not operating.
Make sure that all safety devices are mounted and active.

4.3.1.4- Lubricant

- Extended, intensive contact with oils can lead to skin irritations.
Avoid extended contact with oil, and clean oil off skin immediately

- Hot oil can cause scalding.
When changing oil, protect yourself against contact of hot oil.

4.3.1.5- Ambient Conditions

- Standard gearboxes are allowed to work in ambient temperatures between +5 to +40 Celsius unless differently specified on the nameplate. Using the gear unit out of this range can cause damage to the gearbox or environment. Over +40 celsius ambient conditions the gearbox surface temperature could be so high causing burns when touched.

STOP

- If the gear unit will be used in outdoor applications the gear unit must be protected from rain snow and dust. Entering substances inside the gear unit from seals can damage the gear unit. Observe the safety instructions for outdoor use EN12100 and EN 14121.



4.4- Tightening Torques

All screwed connections for which a tightening torque is specified, must be tightened with a calibrated torque wrench and checked. Use the following torques for the threaded bores over the gear unit housing. For connecting elements refer to the mechanical installation part.

Bolt Size	Tightening Torques [Nm] (Coefficient of Friction in the Thread-μG=0,12)		
	Grade: 8.8	Grade: 10.9	Grade: 12.9
M5	6	9	10
M6	10	15	17
M8	25	36	42
M10	48	71	83
M12	84	123	144
M14	133	195	229
M16	206	302	354
M20	415	592	592
M24	714	1017	1190
M30	1428	2033	2380
M36	2482	3535	4136
M39	3208	4569	5346
M42	3550	4990	5990
M48	5350	7530	9030
M52	6920	9730	11670
M56	8550	12030	14430

The values in the table above are from VDI2230 Part1:2015 - Table A1

4.5- Case of Fire

The gear reducer itself is not combustible. However, it contains a synthetic or mineral gear oil. Please observe the following if the gearbox is situated in a burning environment.

4.5.1- Suitable Extinguishing Agents, Protective Equipment

Always keep suitable extinguishing, protective equipment like carbondioxide, powder, foam, fog easily accessible around the gearbox.



- Higher temperatures produce irritating steam.
Use a protective breathing apparatuses.



4.5.2- Unsuitable Extinguishing Agents

-Do not spray with water !

5- Checking Before the Gear Unit or Geared Motor is Installed

If your gearbox is with motor , please also refer to the manual of the motor manufacturer.

Before you install the gearbox you have to be sure that the gearbox is arrived with the all necessary equipment and without damage. Things to take into consideration before you start to install the unit;
- You have received the correct operation manual of the your product.
- The gearbox and all its parts are transported without damage.
- The gearbox is stored correctly according the instructions in this manual
- You have the latest product catalogue or you have access to internet.

5.1- Transportation

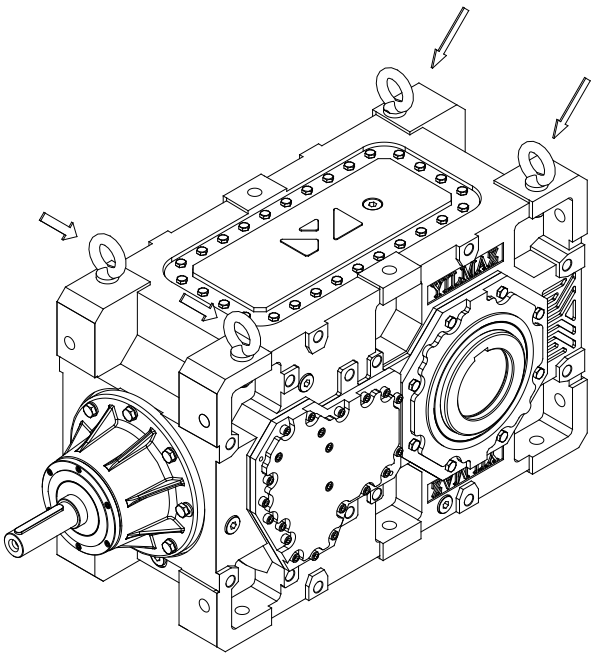
When the goods arrive, first check for any damage. If some damage observed, immediately contact the transport company and inform about the damage. Contact YILMAZ REDUKTOR for the damage and do not start to install the unit until it is agreed that the damage has no affect of operation.

Use the upper foot connection holes for lifting up the gear unit by using eyebolts. The eye-bolts should be capable to carry the weight of gearboxes. Do not hang additional loads on the gearbox while lifting. Use suitable hoisting equipment which is capable to hold the gear units weight. Refer to the catalogue for various types weights. If the gearbox is delivered with steel carrying construction use the construction holes for lifting the gear unit. See drawing bellow for hoisting point.

Do not stay beneath / under the lifting / hoisting equipment which may cause serious injuries by falling down objects, accidentally movements, unexpected accidents.

STOP

Falling or hard movement can damage the gear unit.
Only use hoisting and securing equipment which is permitted for the size / weight of your gearbox. Ensure that the load is slowly and carefully handled and placed.





5.2- Storage

If the gear unit or geared motor will be stored up to 3 years refer to the following instructions

With Packing ;

- Use corrosion protection oil for the output shaft and connection surfaces like flange surface or foot assembling surfaces. Seal the unit in a plastic wrap and pack it in container. A moisture indicator should be placed around the container to observe the moisture. Relative atmospheric humidity should not exceed 50%. The container should be kept under roof which protects from snow and rain. Under this condition the gear unit can be stored up to 3 years with regular checks. The ambient temperature should be between -5 to +60 Celsius degrees.

Without Packing ;

- Use protection oil for the output shaft and connection surfaces like flange surface or foot assembling surfaces. If no packing is used and the gearbox is stored without packing, the ambient temperature should be between +5 to +60 Celsius degrees. The gearbox must be kept under enclosed roof with constant temperature and constant humidity which is not exceeding 50%. The storage should be free of dust and dirt and ventilated with filter. If the gearbox is stored without packing it is recommended not to store more than 2 years and regular checking during this time is recommended. If stored in open areas protect against insect damage.

6- Installing The Gear Unit

6.1- Before You Start

- Observe the gear unit for damages of storage or transportation. If any damage please contact YILMAZ REDUKTOR.
- Be sure that you have all the equipment necessary for installing like; Spanners, torque wrench, shims and distance rings, fixing devices for input and output elements, lubricant, bolt adhesive etc.



- This manual is not for 2014/34/EU (ATEX) conforming gear units. For 2014/34/EU conforming gear units refer to the ATEX range manual. ATEX conforming gear units have name plates indicating the zone and the temperature class and are different from standard type geared units. Therefore standard units can not be installed on potentially explosive atmospheres.

6.2- Check the Shaft Dimensions to Fit

Type	Hollow Output Shaft Diameter [mm]	Hollow Output Shaft Tolerance (H8) [mm]	Solid Output Shaft Diameter [mm]	Solid Output Shaft Tolerance (DIN 748)
B.0322	60	+0.05 0	60	+0.03 +0.01
B.0323	60	+0.05 0	70	+0.03 +0.01
B.0423	80	+0.05 0	80	+0.03 +0.01
B.0522	80	+0.05 0	85	+0.04 +0.01
B.0523	95	+0.05 0	100	+0.04 +0.01
B.0623	105	+0.05 0	110	+0.04 +0.01
B.0722	100	+0.05 0	110	+0.04 +0.01
B.0723 - B.0724	115	+0.05 0	120	+0.04 +0.01
B.0823 - B.0824	125	+0.06 0	130	+0.04 +0.02
B.0922	-	-	130	+0.04 +0.02
B.0923 - B.0924	135	+0.06 0	140	+0.04 +0.02
B.1023 - B.1024	150	+0.06 0	160	+0.04 +0.02
B.1122	-	-	160	+0.04 +0.02
B.1123 - B.1124	165	+0.06 0	170	+0.04 +0.02
B.1223 - B.1224	180	+0.06 0	180	+0.04 +0.02
B.1323 - B1324	190	+0.07 0	200	+0.05 +0.02
B.1423 - B.1424	210	+0.07 0	220	+0.05 +0.02
B.1523 - B.1524	230	+0.07 0	230	+0.05 +0.02
B.1623 - B.1624	240	+0.07 0	240	+0.05 +0.02
B.1723 - B.1724	-	-	250	+0.05 +0.02
B1823 - B.1824	-	-	270	+0.05 +0.02
B.1924	-	-	290	+0.05 +0.02
B.2024	-	-	300	+0.05 +0.02
B.2124	-	-	320	+0.06 +0.02
B.2224	-	-	340	+0.06 +0.02
BY.1123	-	-	170	0 -0.06
BY.1323	-	-	200	0 -0.07
BY.1623	-	-	250	0 -0.07

6.3- Check the Ambient Temperature

The ambient temperature must be between +5 celsius to +40 celsius for standard type gear units. If there is different ambient conditions please contact YILMAZ REDUKTOR for special solutions.

6.4- Check the Voltage Supply

The standard geared motors are supplied with 230/400 V 50/60Hz up to 3kW including 3kW and 400/690 V 50/60 Hz over 3kW and is indicated on the motors name plate unless it is differently ordered. In case of only gear unit is supplied from YILMAZ please observe the name plate of the electric motor and the instructions of the supplier. Check the basic electric connection diagrams given on next pages. Use experienced electric technician.

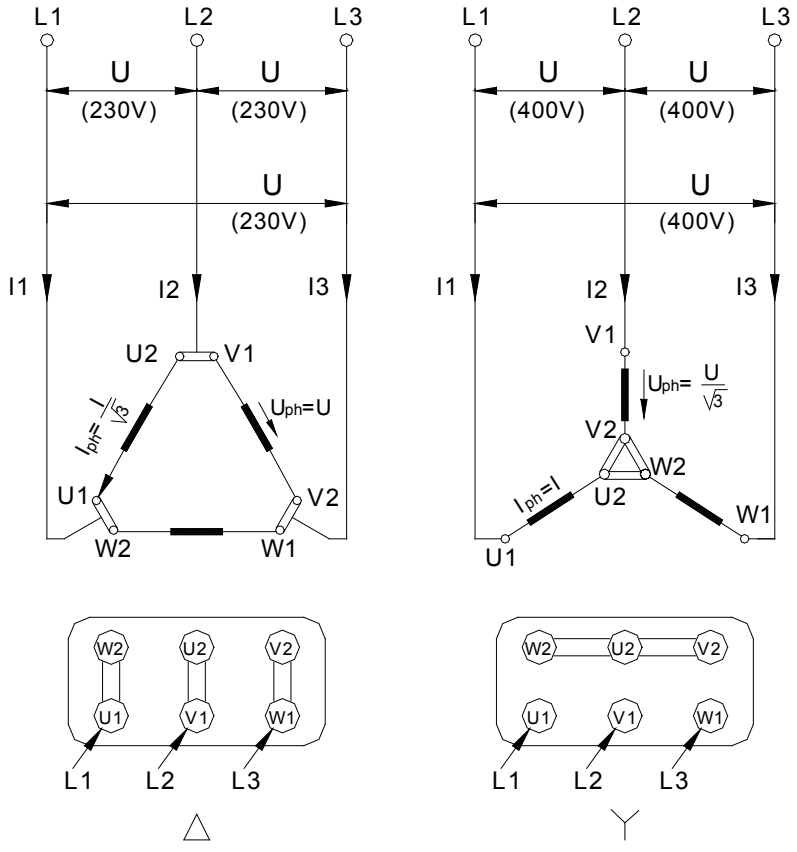
Using wrong connection or voltage can damage the electric motor or environment.

The following wiring diagram is for standard 230/400 V 50Hz AC electric motors. For different voltages please contact YILMAZ REDUKTOR. For gear units supplied without motor, refer to the motor manufacturers user manual.

The electric connection must be done by experienced electric technician.
The gearbox, the motor and the brake must be grounded to prevent potential differences of earth and gearbox / motor.

Pole	Nominal Power 400V, 50Hz	
	230V (Δ) / 400 V (Y)	400V (Δ)
2 or 4	≦ 3 kW	⩾ 4 kW
6	≦ 2,2 kW	⩾ 3 kW
8	≦ 1,5 kW	⩾ 2,2 kW
Operating Pr.	Direct	Direkt or Y/Δ

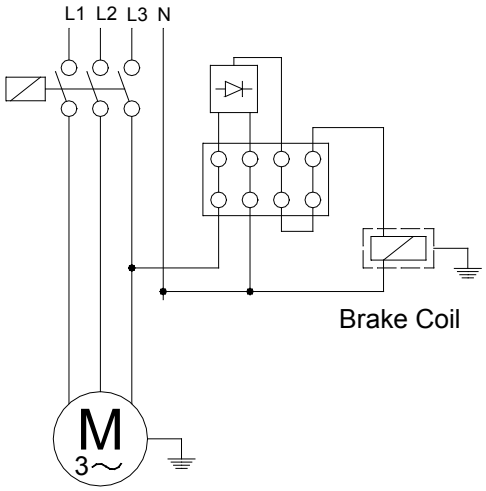
Basic Motor Connection Wiring Diagram



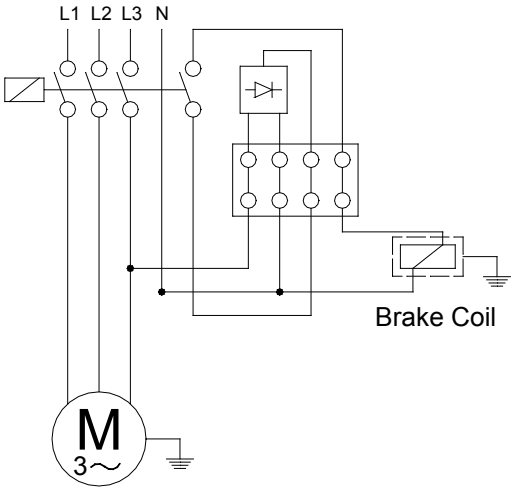
Standard Type Brakes Basic Wiring Diagram

The electric connection must be done by experienced electric technician.
The gearbox and the motor must be grounded to prevent potential differences of earth and gearbox/motor.

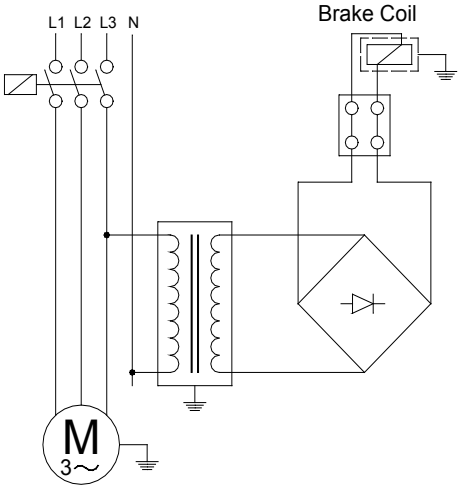
Delayed Running Brake (220 V)



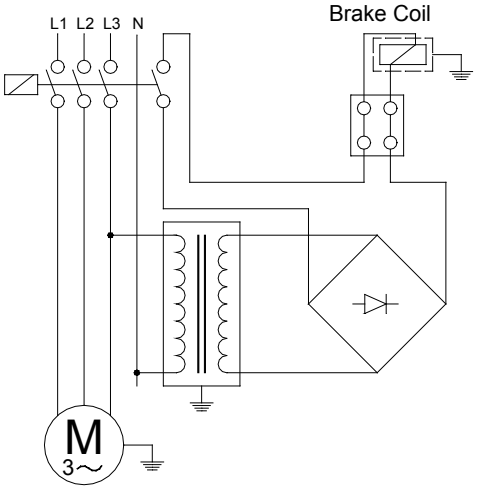
Sudden Brake (220 V)



Delayed Running Brake (24 V)



Sudden Brake (24 V)





6.5- Check the Mounting Position

The mounting position must be in accordance with the mounting position mentioned on the nameplate. If different please contact YILMAZ REDUKTOR for possibilities of using in a different mounting position. Refer to the mounting positions and oil quantities on this manual and adjust the oil level accordingly with the recommended oil types given on this manual.
If the gearbox is used in a different mounting position than that specified on the nameplate without obtaining approval, the CE conformity is automatically canceled; furthermore, the manufacturer's warranty obligation is also extinguished.



Do not mix synthetic oils with mineral oils which can cause serious damage on the gear unit.

6.6- Usage of Breather Plug



In the M1 (horizontal) mounting position, the breather plug is delivered mounted to the gearbox. In other mounting positions, to prevent any oil leakage that may occur from the breather plug during the delivery, it is sent separately from the gearbox. The separately delivered breather plug must be mounted in place of the topmost plug after the gearbox is mounted.

In H and B Series gearbox, a springless, open-to-atmosphere, perforated plastic breather plug is used. In environments with high humidity (≥90%), a membrane expansion tank must be used instead of the breather plug to prevent water condensation inside the gearbox. For such special operating conditions, please consult us.

In the BY Series, a breather plug with a filter is used due to the dusty working environment.

6.7- Check the Oil Level

On the oil plugs tables the oil plugs are shown. Please refer to those tables and be sure that the oil level is correct according the mounting position by screwing half way out the level plug and see if oil comes out from that plug. If oil comes out tighten the plug again. If no oil comes out take out the filling plug and add oil until oil comes out from the level plug and tighten both plugs after finish. Be sure you are using the correct oil mentioned on the oil tables on this manual.



Do not mix synthetic oils with mineral oils which can cause serious damage on the gear unit.



After checking the oil level of the gearbox, tighten the screws carefully to prevent oil leakage.

6.8- Check Shaft Ends and Mounting Surfaces

Before you start installing be sure that all the connection elements are free of oil and dust. The output shaft may be protected by anti-corrosion oil. Please remove this using available solvents on your market. By using this do not touch sealing lips or painting of the housing.

6.9- Cover Against Corrosive Ambient

If the gear unit will be placed on a corrosive ambient be sure that the output seals are covered so that no corrosive material, chemicals or water touches the seals. Any pressure coming from outside over the seals can cause substances to enter the gearbox and cause serious damage to the gear unit. If pressure or abrasive material can not be prevented from coming over the sealing, contact YILMAZ REDUKTOR for solutions.

Abrasive material, chemicals, water, positive or negative pressure exceeding 0,2 bar can affect or damage the sealing lip or output shaft. Substances entering to the inside from the seals can cause serious damage to the gear unit.

To reduce the temperature increase of the gearbox, dust should be removed from the housing of the gearbox.

6.10- Check Accessibility to Filling, Breather and Drain Plugs
The filling, breather and drain plugs must be freely accessible for further checking and service.

7- Mechanical Installation

The gear unit can only be installed using the given connection points like foots and flanges.

To install the gear unit without the given connection points can cause serious injuries by loosening or breaking the gear unit. Even the gear unit is installed totally correctly according this manual, be sure that no one will be harmed by accidentally brake downs or loosening.

The mounting plate must be rigid enough not allowing torsions, flat enough to prevent strains by tightening the bolts and stable enough not allowing vibrations. By using chain drives this becomes much more important because of the polygon effect on chain drives. According to your connection elements the maximal permitted radial and axial load of the gear unit must be in accordance with your application. Check the product catalogue for permitted radial loads and calculation.

If the output or input shaft is overloaded by radial or axial loads it can cause serious damage to the gear unit.

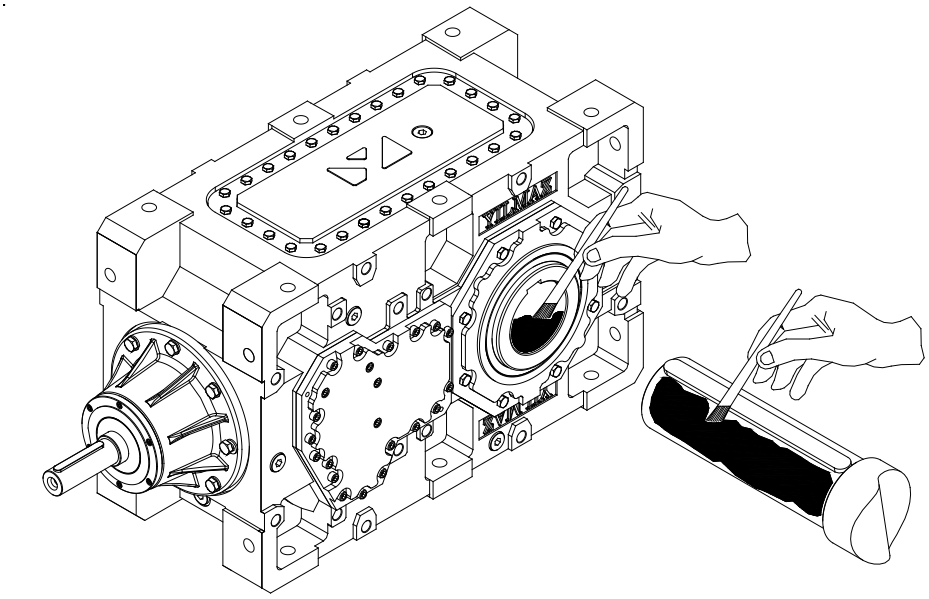
Secure the gear unit using 8.8 or higher quality bolts.

Cover all the turning parts to prevent touching. Turning parts can cause severe or fatal injuries.

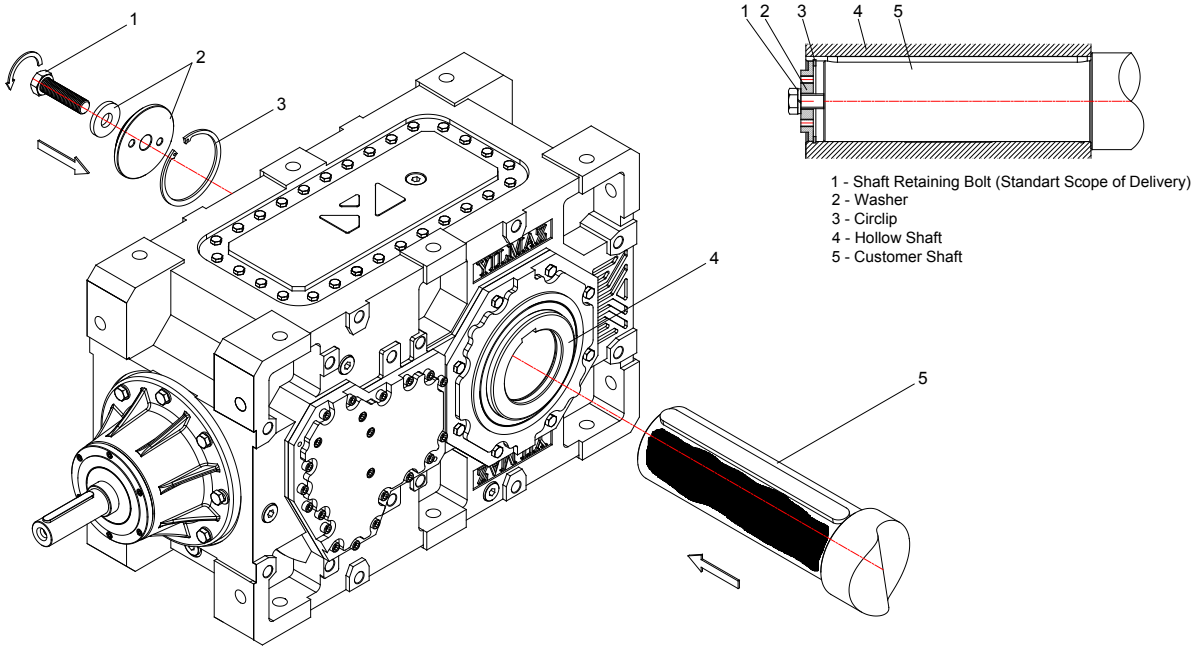
For different kind of basic installations refer to the following illustrations.

7.1- Installing Customer Shaft with Shoulder

7.1.1- Use anti-seize assembling paste available on your market. Use a brush to apply the paste.

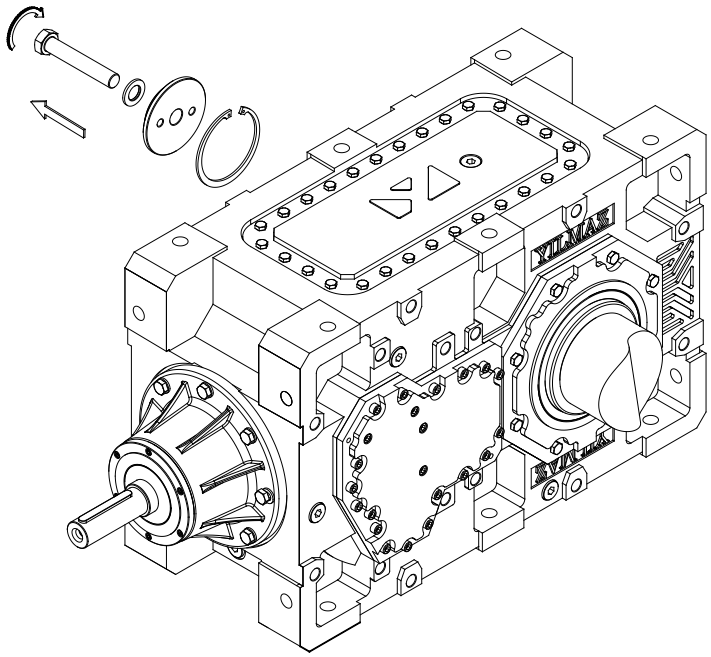


7.1.2- Fasten the bold as shown below.

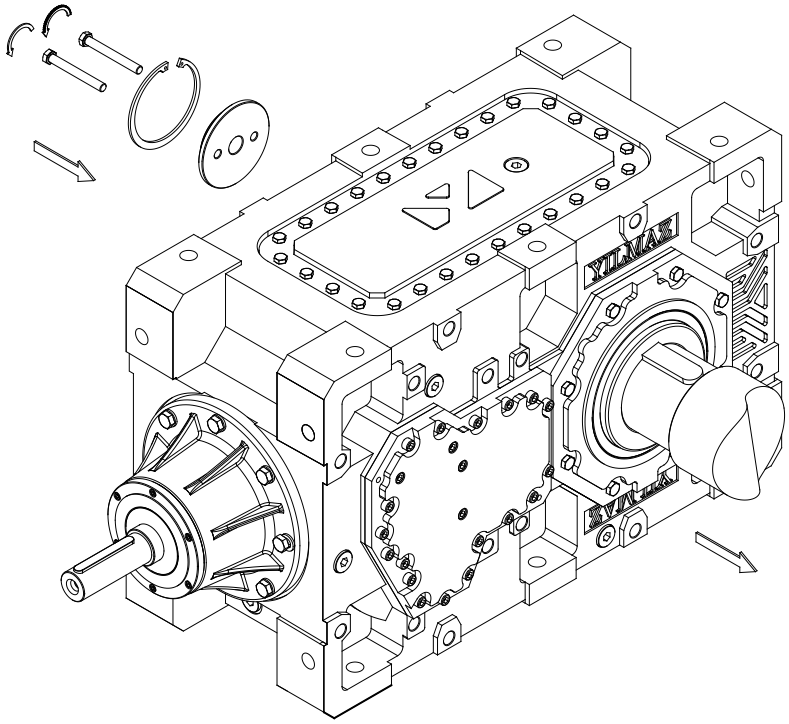


7.2- Disassembling Customer Shaft with Shoulder

7.2.1- Disassemble the bolt and take out the parts as shown

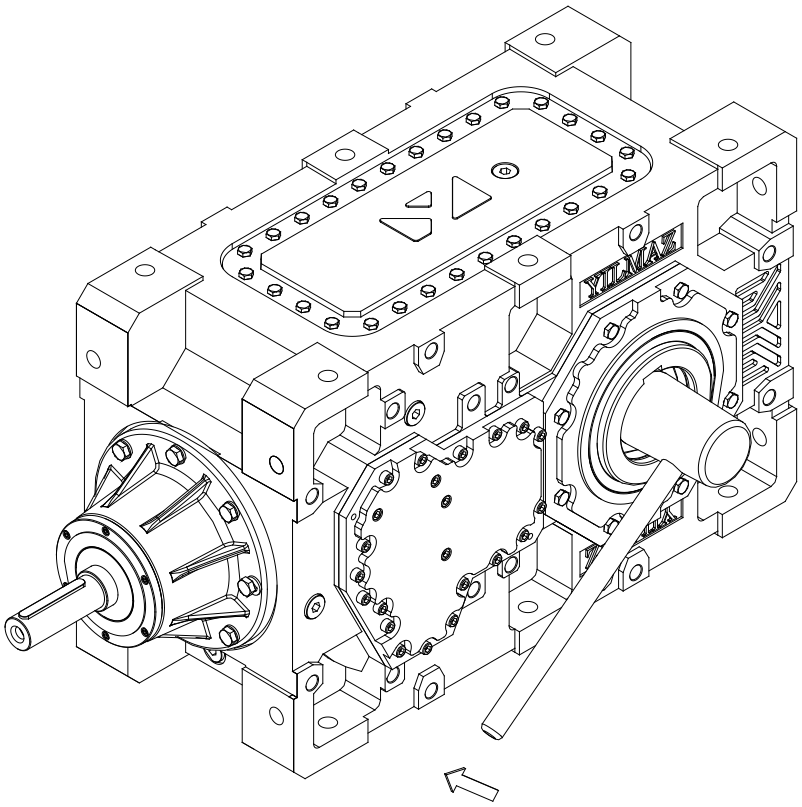


7.2.2- Use the disassemble set from YILMAZ and fasten the bold as shown below to take out the output shaft.



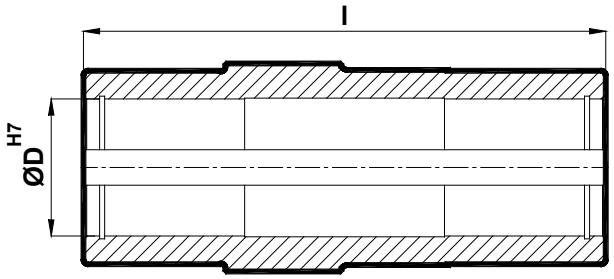
7.3- Shaft Tightening Torques

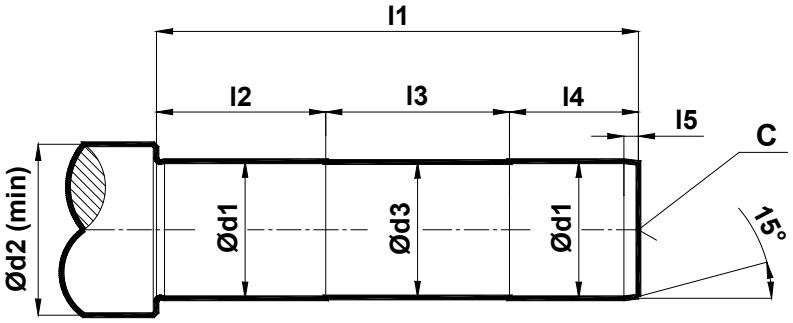
Use the following table for shaft tightening torques.



Type	Bolt	Tightening Torques [Nm] Grade: 8.8
B.03 - B.04	M20	415
B.05 - B.06 B.07 - B.08	M24	714
B.09 - B.10 - B.11 B.12 - B.13 - B.14	M30	1428
B.15 - B.16 - B.17 B.18 - B.19 - B.20	M36	2482
B.21 - B.22	M42	3550

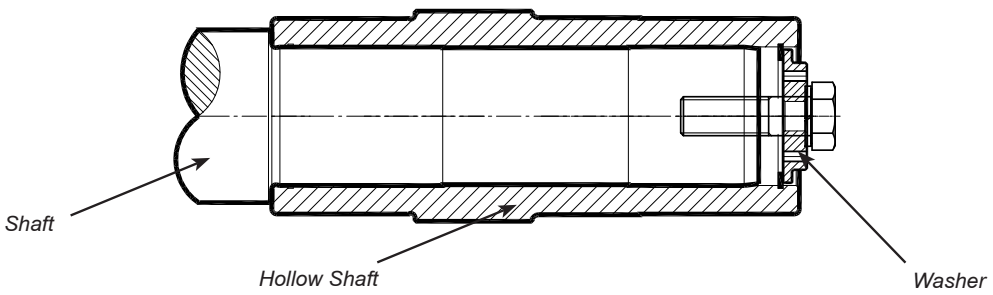
7.4- Recommended Shaft Dimensions for B...00 Types





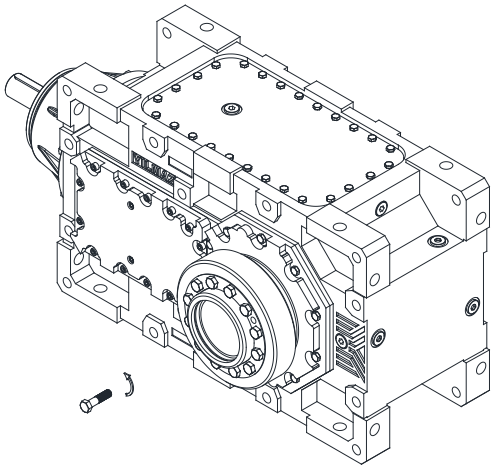
	d1	*d2*	*d3*	*l*	*l1*	*l2*	*l3*	*l4*	*l5*	*c*
B03	60 (h6)	74	59	280	255	95	90	70	4	M20
B04	80 (h6)	98	79	280	255	95	90	70	4	M20
B05	95 (h6)	118	94	330	301	115	100	86	5	M24
B06	105 (h6)	128	104	330	301	115	100	86	5	M24
B07	115 (h6)	138	114	390	361	135	120	106	5	M24
B08	125 (h6)	154	124	390	361	135	120	106	5	M24
B09	135 (m6)	162	134	470	436	165	140	131	6	M30
B10	150 (m6)	178	149	470	436	165	140	131	6	M30
B11	165 (m6)	198	164	540	505	185	170	150	7	M30
B12	180 (m6)	218	179	540	505	185	170	150	7	M30
B13	190 (m6)	228	189	670	626	225	220	181	8	M30
B14	210 (m6)	258	209	670	626	225	220	181	8	M30
B15	230 (m6)	278	229	760	710	255	250	205	8	M36
B16	240 (m6)	288	239	760	710	255	250	205	8	M36

Installing Customer Shaft

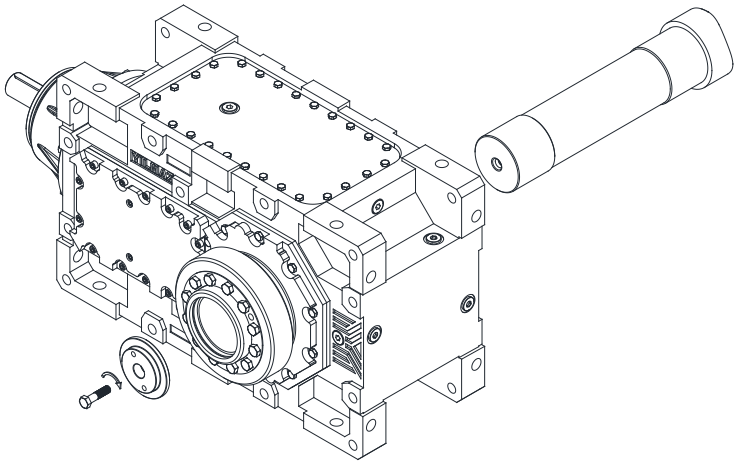


7.5- Assembling Customer Shaft With Shrink Disc

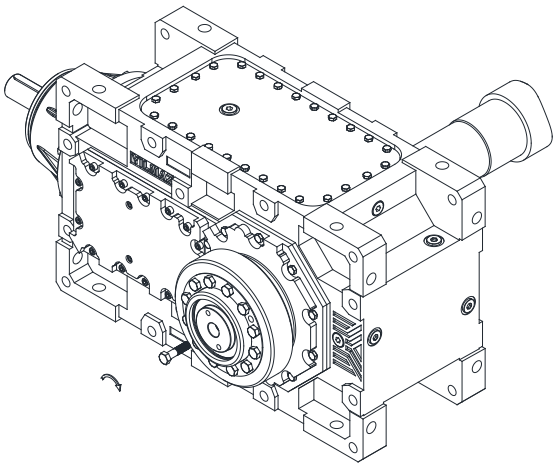
7.5.1- Loosen the bolts of the shrink disc



7.5.2- Use a solvent available in your market to clean all the dirt an oil from the shaft and shrink disc hollow. The surfaces must be free from oil or any dirt. The solvent must be removed from the surfaces as well.



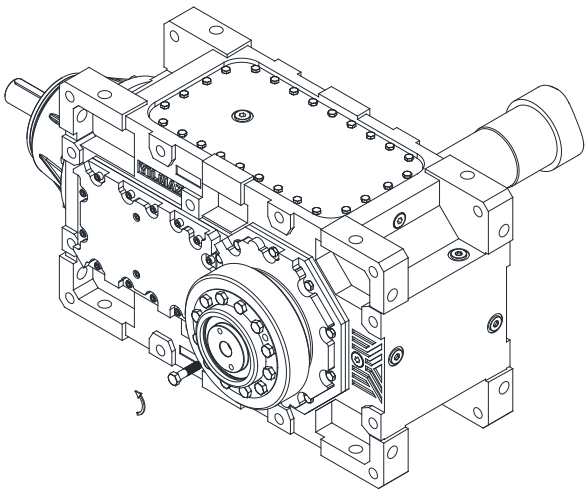
7.5.3- Insert the shaft and tighten the bolts as shown. Be sure that there is a clearance between the shrink disc shoulder and the hollow shaft shoulder of the gearbox



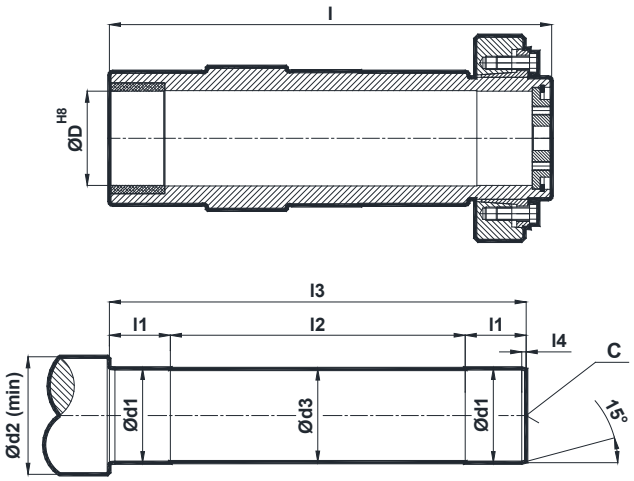
Type	Bolt	Quantity	Tightening Torque [Nm]
B.03	M8	10	30
B.04	M8	12	30
B.05	M12	10	100
B.06	M12	12	100
B.07	M12	12	100
B.08	M12	10	100
B.09	M12	11	100
B.10	M12	15	100
B.11	M16	15	250
B.12	M20	12	490
B.13	M20	14	490
B.14	M20	14	490
B.15	M20	18	490
B.16	M20	18	490

7.6- Disassembling Customer Shaft With Shrink Disc

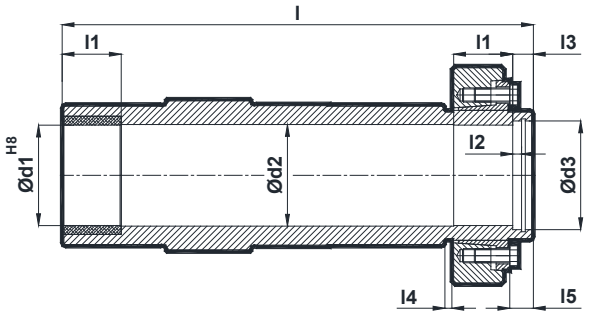
7.6.1- Loosen the bolts of the shrink disc



7.7- B Series Recommended Shaft Dimensions for Shrink Disc Assembly

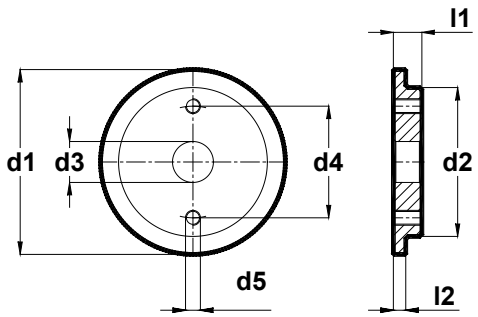


	d1	d2	d3	l	l1	l2	l3	l4
B03	65 g6	78	64	340	45	227	317	4
B04	80 g6	98	79	355	55	222	332	4
B05	95 g6	118	94	409	60	263	383	5
B06	105 g6	128	104	414	65	258	388	5
B07	115 g6	138	114	480	75	304	454	5
B08	125 g6	154	124	490	80	304	464	5
B09	135 g6	162	134	574	95	355	545	6
B10	150 g6	178	149	591	105	352	562	6
B11	165 g6	198	164	684	115	425	655	7
B12	180 g6	218	179	689	135	389	659	7
B13	190 g6	228	189	839	145	514	804	8
B14	210 g6	258	209	850	140	534	814	8
B15	230 g6	278	229	942	170	566	906	8
B16	240 g6	288	239	955	180	558	918	8



	d1	d2	d3	l	l1	l2	l3	l4	l5
B03	65	66	75	340	40	7,5	17,5	-	18
B04	80	81	90	355	50	7,5	17,5	6	20
B05	95	96	105	409	55	8,5	20,5	6	20
B06	105	106	115	414	60	8,5	20,5	6	20
B07	115	116	125	480	70	85	20,5	8	23
B08	125	126	135	490	75	8,5	20,5	8	23
B09	135	136	145	574	85	10,5	23,5	8	28
B10	150	151	160	591	95	10,5	23,5	8	28
B11	165	166	175	684	105	10,5	23,5	-	30
B12	180	181	190	689	125	10,5	23,5	10	30
B13	190	191	200	839	130	12,5	27,5	-	30
B14	210	211	220	850	130	12,5	27,5	12	36
B15	230	231	240	942	155	12,5	27,5	12	36
B16	240	241	250	955	165	12,5	27,5	12	36

7.7.1- Assembling Ring for Shrinkdisc Assembly

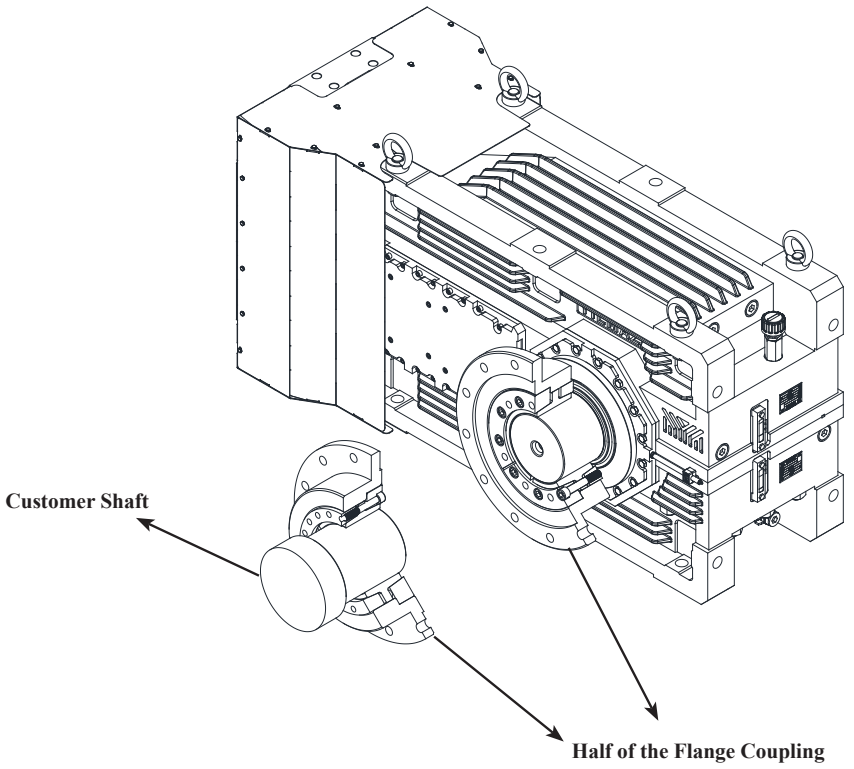


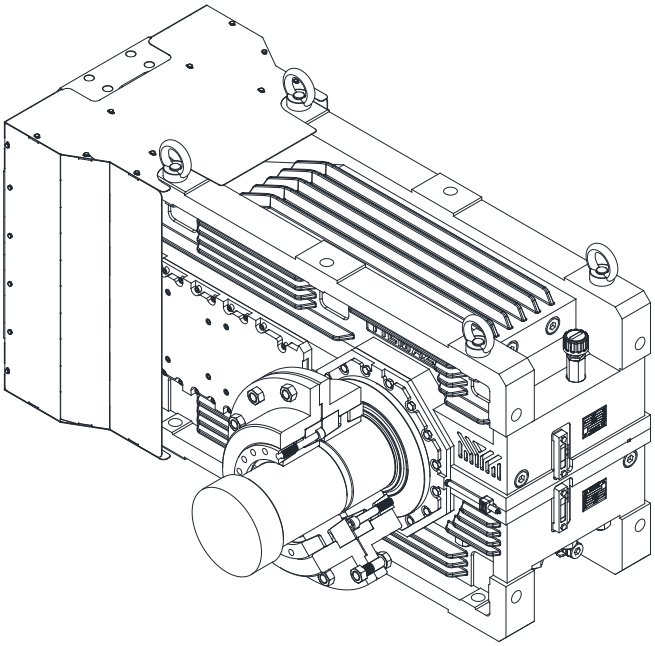
Desired surface roughness value: Rz <=16 µm

	d1	d2	d3	d4	d5	l1	l2
B03	74	50	22	35	M8	17	7
B04	89	65	22	45	M8	17	7
B05	104	75	26	55	M10	20	8
B06	114	80	26	55	M10	20	8
B07	124	85	26	60	M12	20	8
B08	134	95	26	65	M12	20	8
B09	144	105	33	80	M12	23	10
B10	159	120	33	90	M12	23	10
B11	174	130	33	90	M16	23	10
B12	189	140	33	100	M16	23	10
B13	199	160	33	120	M20	25	12
B14	219	170	33	130	M20	25	12
B15	239	185	38	140	M20	25	12
B16	249	185	38	140	M20	25	12

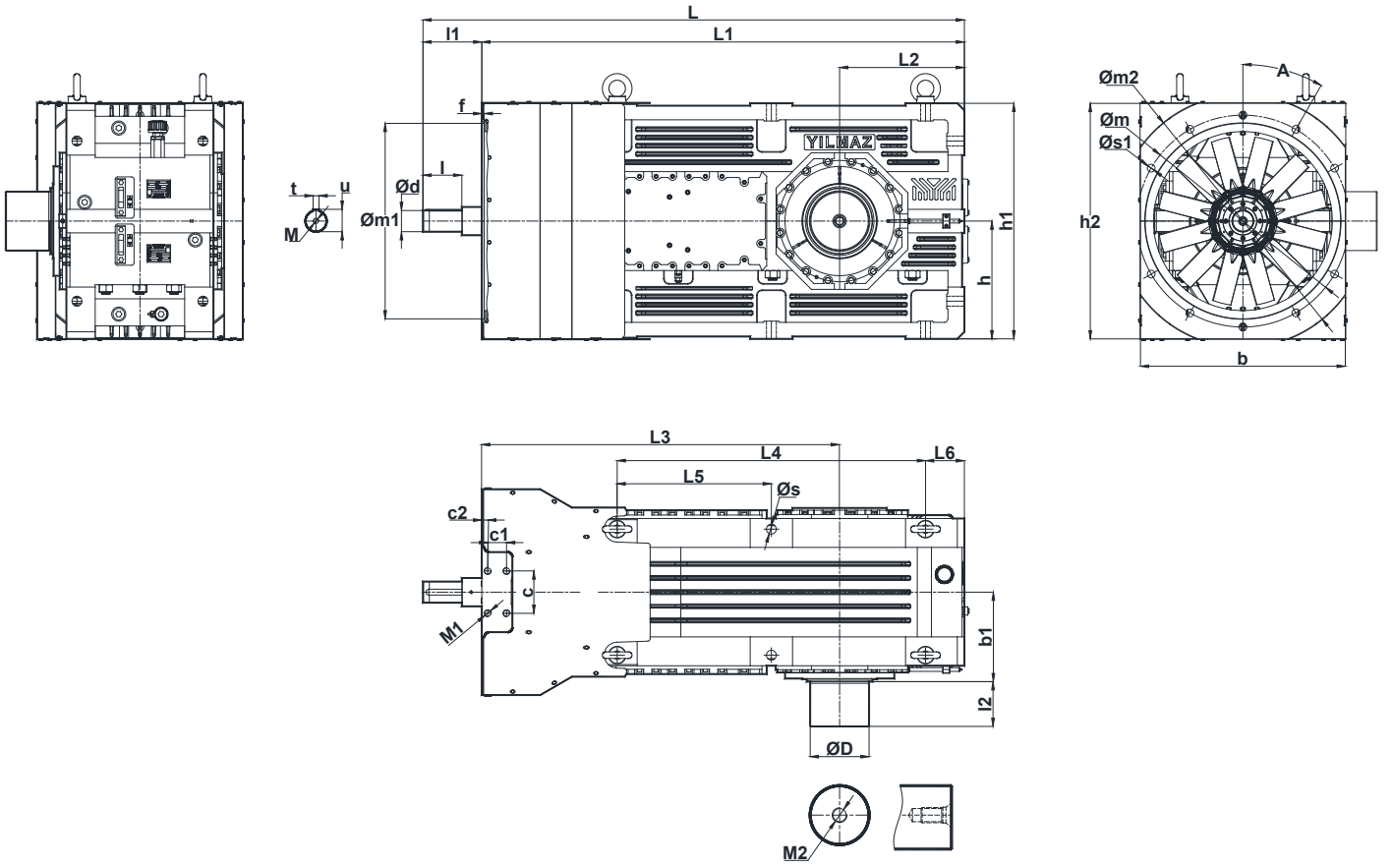
7.8- Assembling Output Shaft Without Keyway for BY Series

BY serie gearbox has solid output shaft without keyway. The gearbox is assembled to the machine with a torque arm. Tru-Line flange coupling (flange coupling with shrink disc) should be used between the customer shaft and the gearbox output shaft. The coupling bore diameter must be machined considering the tolerance of the gearbox shaft diameter given on the next page.





7.9- BY Series Gearboxes Dimensions



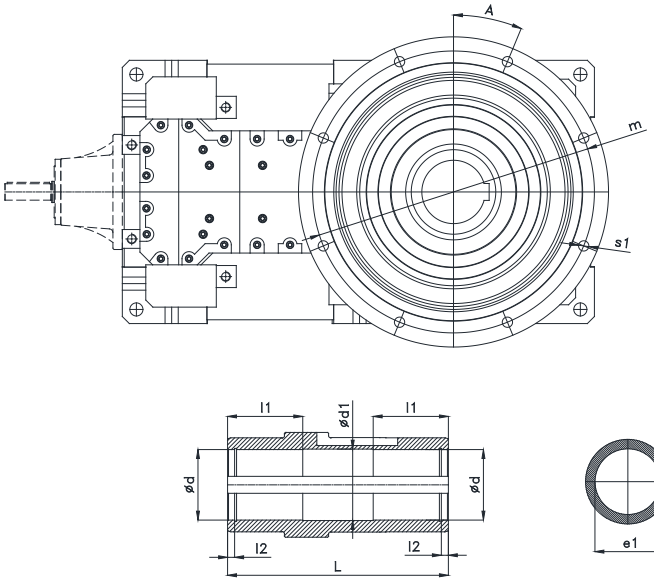
Type	M	t / u	L	L1	L2	l	l1	f	Ød	Øm1	h	h1	h2	Øm	Øm2	Øs1	A	b
BY1123	M20	20 / 74,5	1515	1370	345	105	145	10	70 m6	700 H7	320	640	790	740	850	26	30°	730
BY1323	M20	22 / 85	1810	1620	405	130	190	10	80 m6	740 H7	440	880	880	820	950	33	30°	800
BY1623	M24	25 / 95	2295	2050	530	165	245	10	90 m6	830 H7	500	1000	1000	900	1070	33	30°	870

Type	L3	L4	L5	L6	c	c1	c2	M1	M2	l2	ØD	b1	Øs
BY1123	1025	850	-	127,5	180	60	30	M20x45	M30x65	220	170 h8	286	-
BY1323	1215	1090	545	115	180	70	25	M24x45	M30x65	200	200 h8	335	35
BY1623	1520	1310	655	165	180	80	25	M30x65	M36x78	190	250 h8	380	42

7.10- B Series Drywell Gearboxes With Hollow Shaft Dimensions

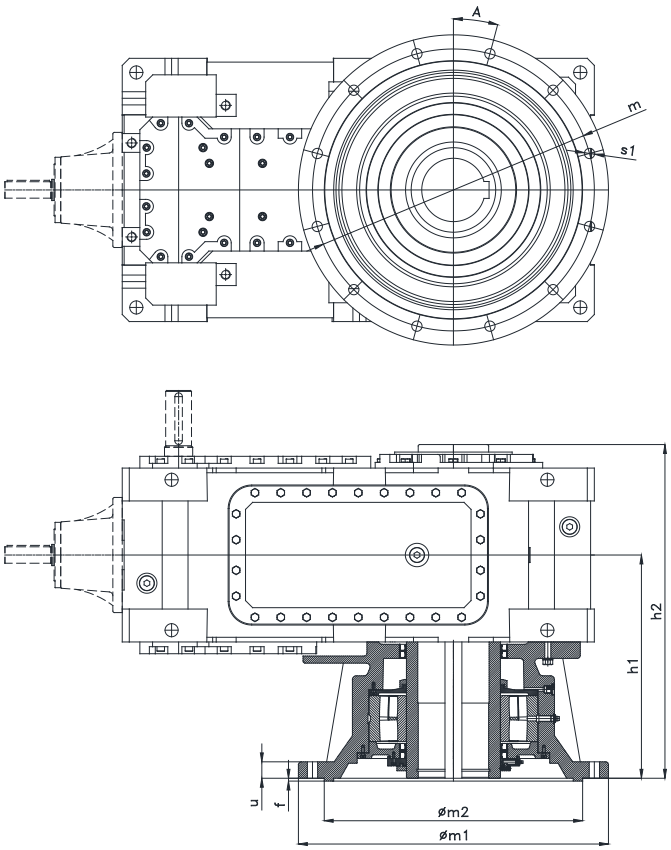
0A Hollow Shaft Option

B 06.. / 07.. / 08..



Output Flange

B 10.. / 11.. / 12..

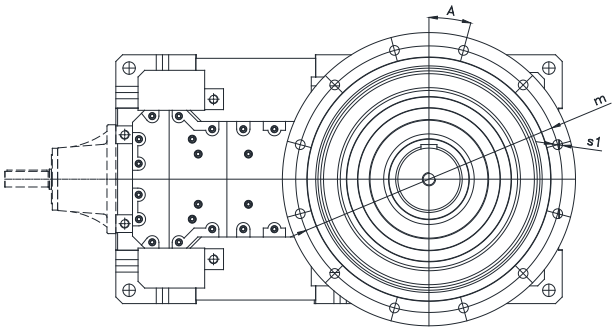


Type	m1	m2	h1	h2	t1	Ød	Ød1	e1	A	m	s1	L	l1	l2	u	f
B 0622 0623	Ø550	Ø450	357,5	522,5	28	Ø105	Ø107	111,4	22,5°	Ø500	Ø18	522,5	110	12	25	5
B 0722 0723 0724	Ø660	Ø550	391	586	32	Ø115	Ø116	122,4	22,5°	Ø600	Ø22	586	130	12	30	6
B 0822 0823 0824	Ø660	Ø550	410	605	32	Ø125	Ø127	132,4	22,5°	Ø600	Ø22	605	130	12	30	6
B 0922 0923 0924	Ø660	Ø550	455	690	36	Ø135	Ø137	143,4	15°	Ø600	Ø22	690	160	15	35	6
B 1022 1023 1024	Ø660	Ø550	475	710	36	Ø150	Ø152	158,4	15°	Ø600	Ø22	710	160	15	35	6
B 1122 1123 1124	Ø800	Ø680	530	800	40	Ø165	Ø166	174,4	15°	Ø740	Ø26	800	180	15	45	6
B 1222 1223 1224	Ø800	Ø680	570	840	45	Ø180	Ø182	190,4	15°	Ø740	Ø26	840	180	15	45	6

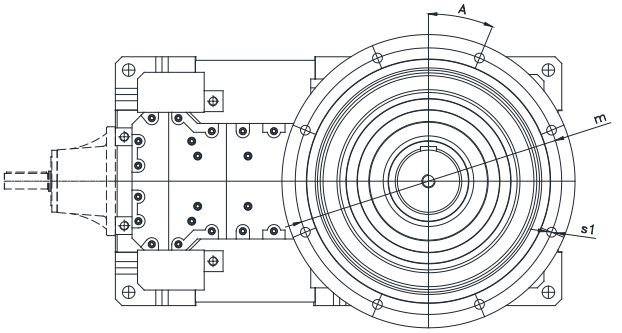
7.11- B Series Drywell Gearboxes With Solid Shaft Dimensions

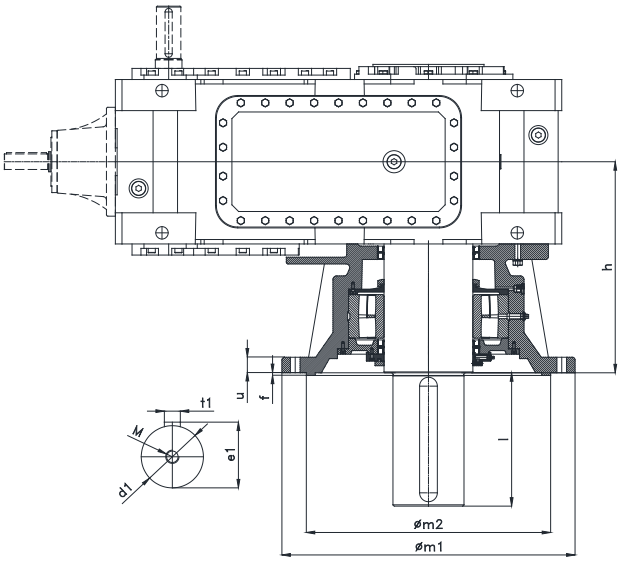
1A Solid Shaft Option

B 06.. / 07.. / 08..



Output Flange
B 10.. / 11.. / 12..



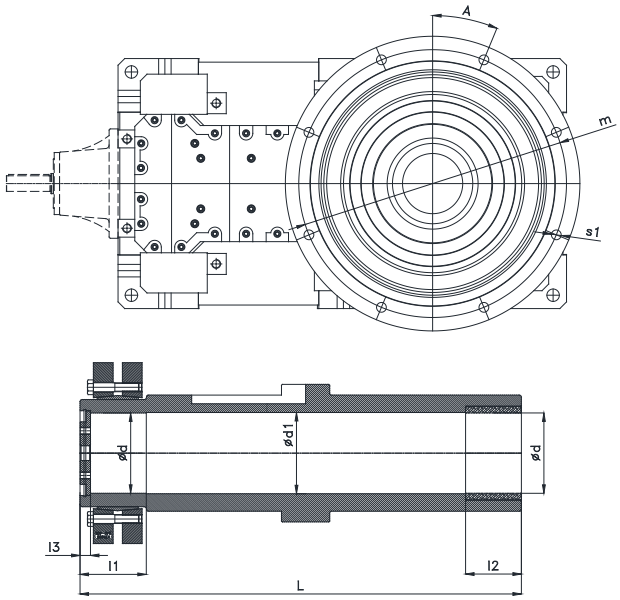


Type	m1	m2	h	l	t1	Ød1	e1	A	m	s1	M	u	f
B 0622 0623	Ø550	Ø450	357,5	210	28	Ø110	116	22,5º	Ø500	Ø18	M24	25	5
B 0722 0723 0724	Ø660	Ø550	391	210	32	Ø120	127	22,5º	Ø600	Ø22	M24	30	6
B 0822 0823 0824	Ø660	Ø550	410	250	32	Ø130	137	22,5º	Ø600	Ø22	M24	30	6
B 0922 0923 0924	Ø660	Ø550	455	250	36	Ø140	148	15º	Ø600	Ø22	M30	35	6
B 1022 1023 1024	Ø660	Ø550	475	300	40	Ø160	169	15º	Ø600	Ø22	M30	35	6
B 1122 1123 1124	Ø800	Ø680	530	300	40	Ø170	179	15º	Ø740	Ø26	M30	45	6
B 1222 1223 1224	Ø800	Ø680	570	300	45	Ø180	190	15º	Ø740	Ø26	M30	45	6

7.12- B Series Drywell Gearboxes With Shrink Disc Dimensions

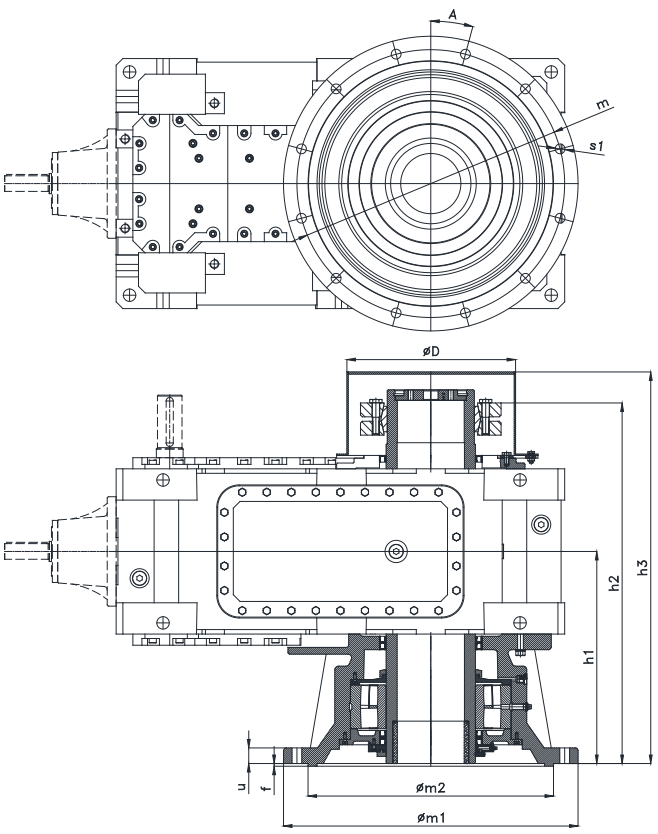
SA Shrink Disk Option

B 06.. / 07.. / 08..



Output Flange

B 10.. / 11.. / 12..

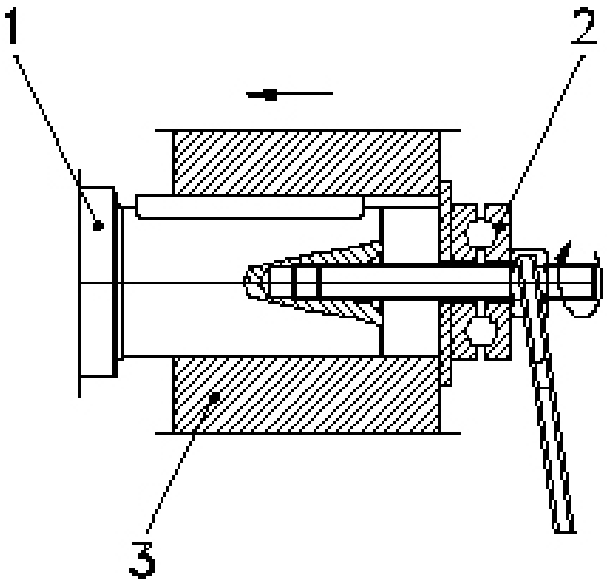


M: **Bolt Dimension**
Z: **Bolt Quantity**
Ta: **Tightening Torque**

Type	Øm1	Øm2	h1	h2	h3	ØD	Ød	Ød1	A	Øm	Øs1	L	l1	l2	l3	u	f	M	Z	Ta [Nm]
B 0622 0623	550	450	357,5	586,5	630	256	105	107	22,5°	500	18	606,5	80,5	60	20,5	25	5	M12	10	100
B 0722 0723 0724	660	550	391	654	706	280	115	116	22,5°	600	22	676	90	70	20,5	30	6	M12	10	100
B 0822 0823 0824	660	550	410	681	728	310	125	127	22,5°	600	22	705	93	75	20,5	30	6	M12	10	100
B 0922 0923 0924	660	550	455	772	815	320	135	137	15°	600	22	794	110	85	23,5	35	6	M12	11	100
B 1022 1023 1024	660	550	475	801,5	877	378	150	151	15°	600	22	831	118,5	95	23,5	35	6	M12	15	100
B 1122 1123 1124	800	680	530	936	992	420	165	166	15°	740	26	944	157,5	105	23,5	45	6	M16	15	250
B 1222 1223 1224	800	680	570	959	1037	451	180	182	15°	740	26	989	148,5	125	23,5	45	6	M20	12	490

7.13- Fitting Output Shaft Elements

Use the following illustration to assemble output shaft units



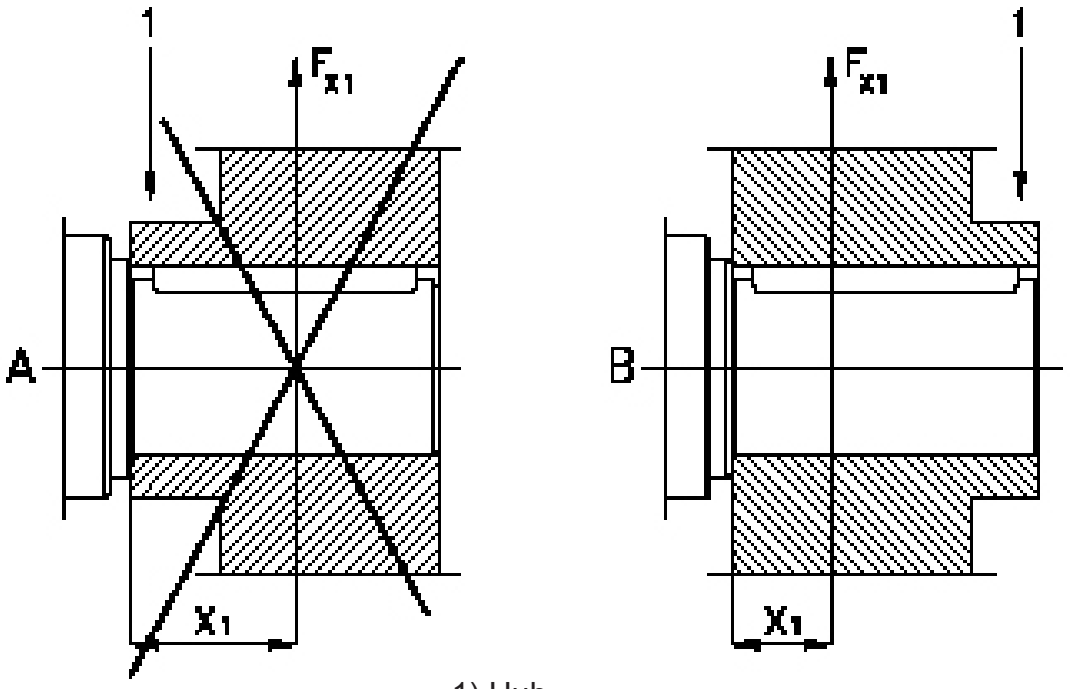
1) Gear Shaft End
2) Thrust Bearing
3) Coupling Hub

STOP Never strike belt pulleys, coupling, pinions etc. with a hammer when pulling them onto the shaft end. This could result in damage to bearings, the housing and the shaft

STOP Power transmision elements must be balanced after fitting and must not give rise to any impermissible radial or axial forces.

7.14- Correct Position of Output Shaft Elements

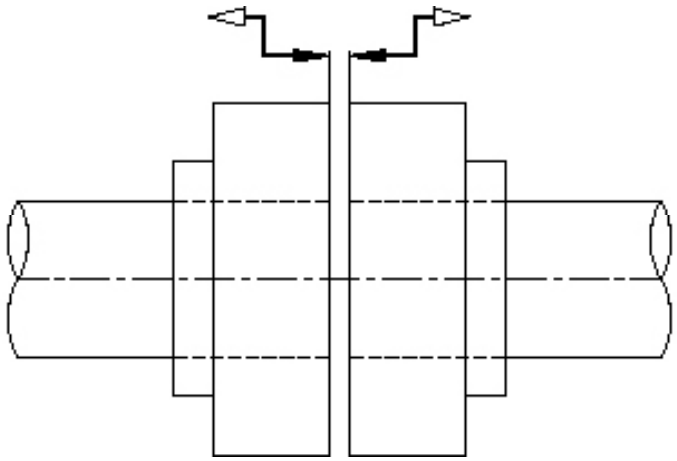
The Output Shaft unit (transmission elements) must placed as close as possible to the gear unit to get radial load as close as possible.



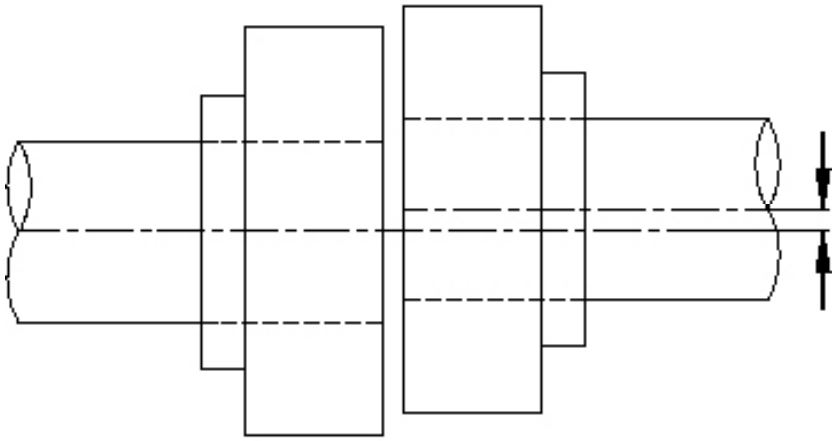
1) Hub

7.15- Fitting Couplings

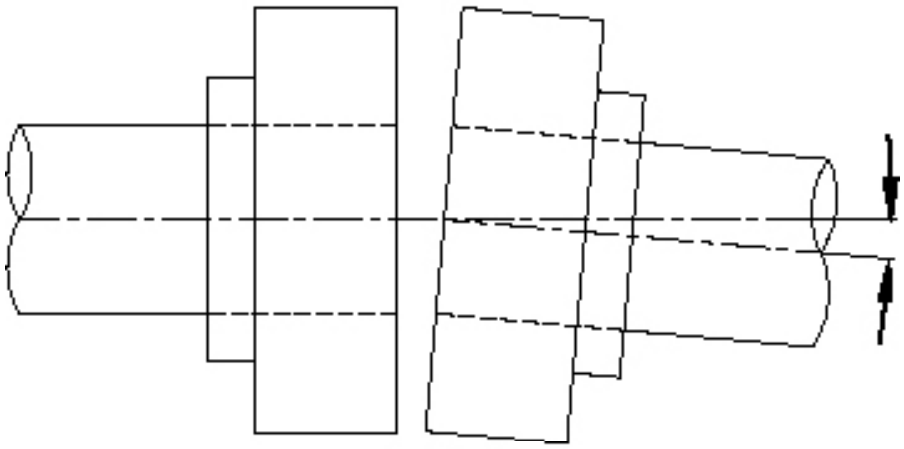
7.15.1- While fitting couplings be sure that there is some clearance between the two shafts



7.15.2- While fitting couplings be sure that there is no eccentricity between the two shafts.



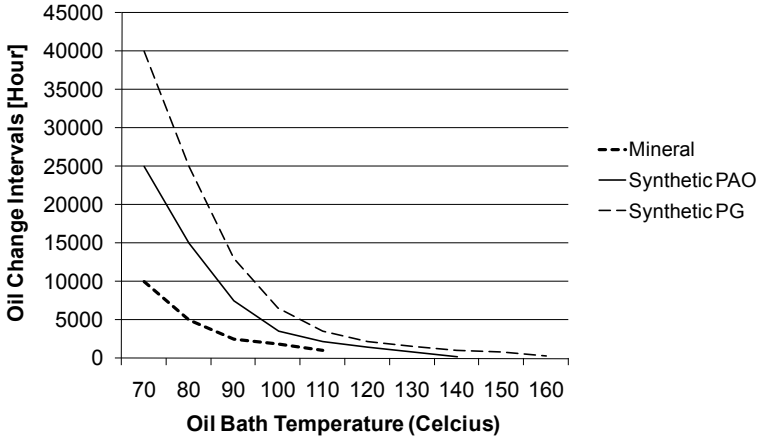
7.15.3- While fitting couplings be sure that the two shafts are not angular miss-aligned.



8- Maintenance and Inspections

Under normal ambient and working conditions the gear unit should be checked according the following intervals. (For definition of normal working conditions refer to the product catalogue : “Selecting Gearbox” section) ;

Item to Check / Replace	Every 3000 Working Hours or Every 6 Months	Every 4000 Working Hours	Every 10000 Working Hours or Every 3 Years	Every 25000 Working Hours
Check for Oil Leakage	x			
Check for Oil Level	x			
Check for Oil Leakage from Seals	x			
Check Bearing’s Noise		x (Change if Necessary)		
Change Mineral Oil			x (See Below for Details)	
Change Synthetic - PAO Oil				x (See Below for Details)
Change Sealing				x
Change Bearing Grease				x
Change Bearings				x
Check for Noise Changes				x



For normal ambient conditions 70 degrees celsius oil bath temp. should be taken as reference.

* For our B series gearboxes mineral oil is used unless it is differently ordered. For oil type and quantities refer to the following tables.

9- Lubrication

9.1- Oil Types

Lubricant	DIN 51517-3	Ambient Temp. [°C] / Dip Lubrication	ISO VG	Aral	Beyond Petroleum	Castrol	Klüber Lubrication	Mobil	Shell	Total
Mineral Oil	CLP	0 ... +50	680	Degol BG 680	Energol GR-XP 680	Alpha SP 680	Klüberoil GEM 1-680 N	Mobilgear XMP 680	Omala S2 GX 680	Carter EP 680
		-5 ... +45	460	Degol BG 460	Energol GR-XP 460	Alpha SP 460	Klüberoil GEM 1-460 N	Mobilgear XMP 460	Omala S2 GX 460	Carter EP 460
		-10 ... +40	320	Degol BG 320	Energol GR-XP 320	Alpha SP 320	Klüberoil GEM 1-320 N	Mobilgear XMP 320	Omala S2 GX 320	Carter EP 320
		-15 ... +30	220	Degol BG 220	Energol GR-XP 220	Alpha SP 220	Klüberoil GEM 1-220 N	Mobilgear XMP 220	Omala S2 GX 220	Carter EP 220
		-20 ... +20	150	Degol BG 150	Energol GR-XP 150	Alpha SP 150	Klüberoil GEM 1-150 N	Mobilgear XMP 150	Omala S2 GX 150	Carter EP 150
		-25... +10	100	Degol BG 100	Energol GR-XP 100	Alpha SP 100	Klüberoil GEM 1-100 N	Mobilgear XMP 100	Omala S2 GX 100	Carter EP 100
Synthetic Oil	CLP PG	-10 ... +60	680	Degol GS 680	Energsyn SG-XP 680	–	Klübersynth GH 6 -680	Mobil Glygoyle 680	Omala S4 WE 680	Carter SY 680
		-20 ... +50	460	Degol GS 460	Energsyn SG-XP 460	Alphasyn PG 460	Klübersynth GH 6 -460	Mobil Glygoyle 460	Omala S4 WE 460	Carter SY 460
		-25 ... +40	320	Degol GS 320	Energsyn SG-XP 320	Alphasyn PG 320	Klübersynth GH 6 -320	Mobil Glygoyle 320	Omala S4 WE 320	Carter SY 320
		-30 ...+30	220	Degol GS 220	Energsyn SG-XP 220	Alphasyn PG 220	Klübersynth GH 6 -220	Mobil Glygoyle 30	Omala S4 WE 220	Carter SY 220
		-35 ... +20	150	Degol GS 150	Energsyn SG-XP 150	Alphasyn PG 150	Klübersynth GH 6 -150	Mobil Glygoyle 22	Omala S4 WE 150	Carter SY 150
		-40 ... +10	100	–	–	–	Klübersynth GH 6 -100	Mobil Glygoyle 100	–	–
	CLP HC	-10 ... +60	680	–	–	–	Klübersynth GEM 4-680 N	Mobil SHC Gear 680	Omala S4 GXV 680	Carter SH 680
		-20 ... +50	460	Degol PAS 460	Enersyn EP-XF 460	Alphasyn T 460	Klübersynth GEM 4-460 N	Mobil SHC Gear 460	Omala S4 GXV 460	Carter SH 460
		-30 ... +40	320	Degol PAS 320	Enersyn EP-XF 320	Alphasyn T 320	Klübersynth GEM 4-320 N	Mobil SHC Gear 320	Omala S4 GXV 320	Carter SH 320
		-40 ... +40	220	Degol PAS 220	Enersyn EP-XF 220	Alphasyn T 220	Klübersynth GEM 4-220 N	Mobil SHC Gear 220	Omala S4 GXV 220	Carter SH 220
		-40 ... +40	150	Degol PAS 150	Enersyn EP-XF 150	Alphasyn T 150	Klübersynth GEM 4-150 N	–	Omala S4 GXV 150	Carter SH 150
		-40 ... +40	100	–	–	–	Klübersynth GEM 4-100 N	–	–	–
Food Grade Oil	CLP NSF H1	-30 ... +25	220	–	–	Optileb GT 220	Klüberoil 4 UH1-220 N	Mobil SHC Cibus 220	–	Nevastane SL 220
Biodegradable Oil	CLP E	-25 ... +40	320	–	–	Tribol BioTop 1418-320	Klübersynth GEM 2-320	–	–	Carter Bio 320

	Product Code	Working Temp. [°C]	NLGI Grade	Base Oil	Colour
Mineral Grease	Mobil XHP 223	-20 ... +140	NLGI 3	ISO VG220	Blue
Synthetic Grease	Mobil SHC Grease 460 WT	-30 ... +150	NLGI 1.5	ISO VG460	Red
	Mobilith SHC 100	-40 ... +150	NLGI 2	ISO VG100	
Food Grade Grease NSF H1	Mobil SHC Polyrex 222	-30 ... +170	NLGI 2	ISO VG220	White
	Castrol Optileb™ GR 823-2	-30 ... +120	NLGI 2	ISO VG192	
Liquid Grease (Mineral)	Shell Gadus S2 V 220 00	-20 ... +100	NLGI 00	ISO VG220	Brown

***: The oil quantities for M5 and M6 mounting positions are given as the gearbox is without an additional oil supply option. If the gearbox has an additional oil supply option please contact our company.**

9.2- Changing the Oil

Refer to the nameplate to find out the correct oil type filled inside the gearbox.



- Do not mix synthetic oils with mineral oils which will cause serious damage to the gear unit. The oil change must be done by using the filling, draining and level plugs according the mounting position illustrated at oil plugs tables.



- Extended, intensive contact with oils can lead to skin irritations. Avoid extended contact with oil, and clean oil off skin immediately.



- Hot oil can cause scalding. When changing oil, protect yourself against contacting hot oil, use protective gloves.

9.3- Oil Quantities

	B Series Oil Quantities (lt)																				
	B0322	B0323	B0423	B0522	B0523	B0623	B0722	B0723	B0724	B0823	B0824	B0922	B0923	B0924	B1023	B1024	B1122	B1123 BY1123	B1124	B1223	B1224
M1	5,5	8	10	15	13	16	30	21	23	32	32	35	35	42	45	52	58	60	66	95	95
M2	11	10	16	18	18	23	42	37	42	50	46	55	55	63	73	85	100	100	112	125	150
M3	5,5	8	10	15	13	16	30	21	23	32	32	35	35	42	45	52	58	60	66	95	95
M4*	12	10	14	20	19	27	46	33	46	48	52	62	56	67	79	87	108	108	115	150	165
M5*	10	9	11	17	16	20	38	34	38	41	44	53	53	58	67	70	91	91	100	134	141
M6*	11	9	12	18	17	21	40	36	40	43	46	56	56	61	70	74	96	96	104	140	148

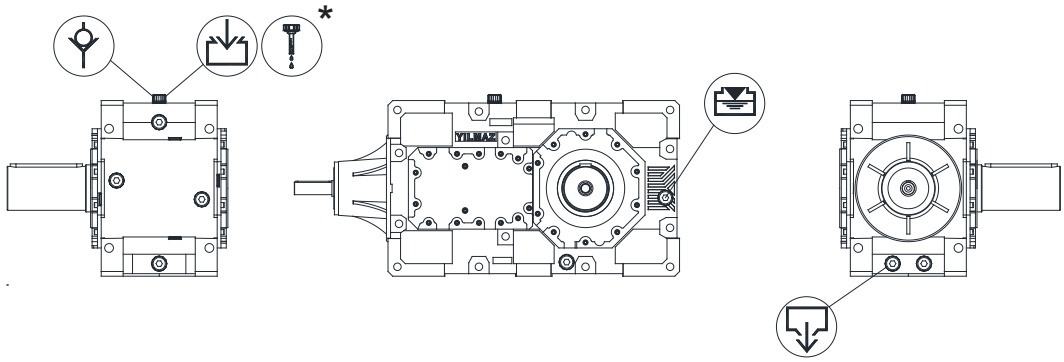
	B1323 BY1323	B1324	B1423	B1424	B1523	B1524	B1623 BY1623	B1624	B1723	B1724	B1823	B1824	B1924	B2024	B2124	B2224
M1	130	150	135	160	180	225	200	210	230	260	290	317	380	450	531	615
M2	180	190	215	225	270	290	280	310	340	365	403	444	555	666	785	905
M3	130	150	135	160	180	225	200	210	230	260	290	317	380	450	531	615
M4*	190	205	234	245	290	315	300	335	355	387	435	475	600	713	840	960
M5*	165	178	198	209	248	265	258	282	328	350	394	432	546	656	773	883
M6*	173	187	208	219	260	278	270	296	335	359	407	440	552	661	780	891

9.4- Oil Plugs

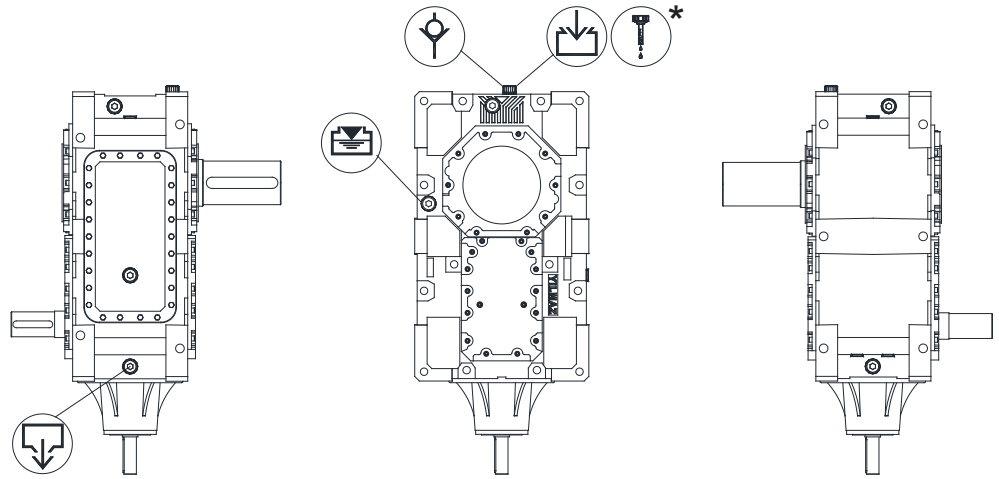
Oil Plugs for B Series

Mounting Positions

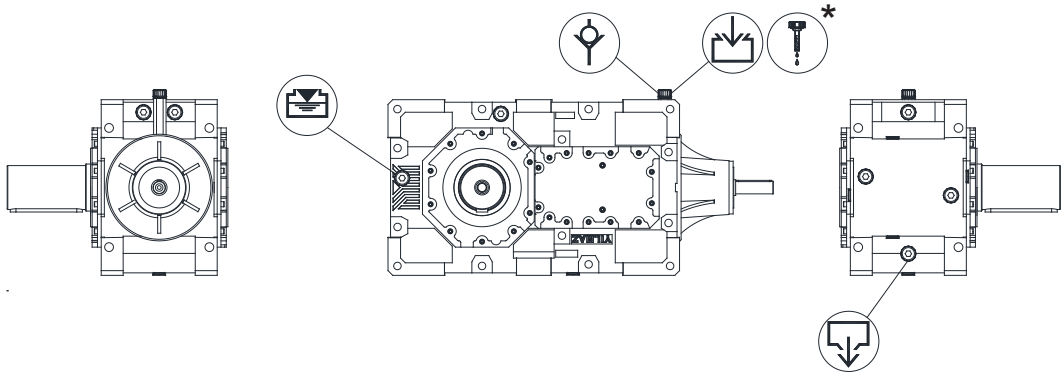
M1



M2



M3



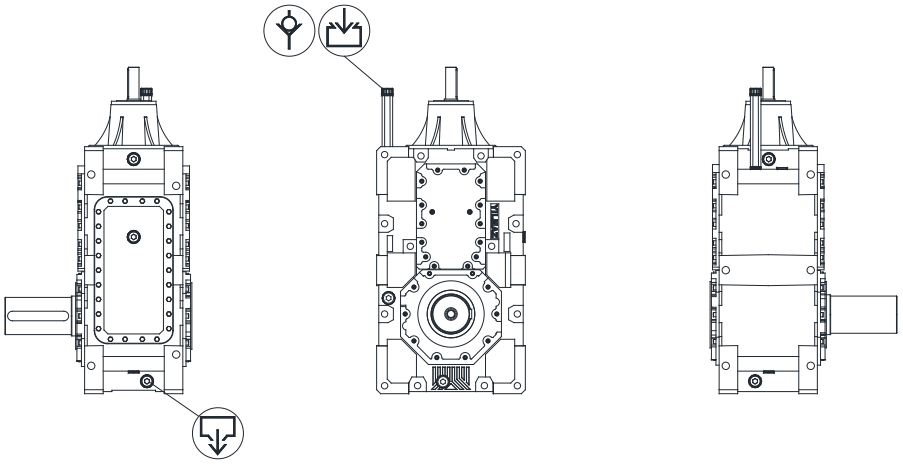
:Oil filling :Drain plug :Oil level :Vent Plug :Oil dipstick

*:Option

Oil Plugs for B Series

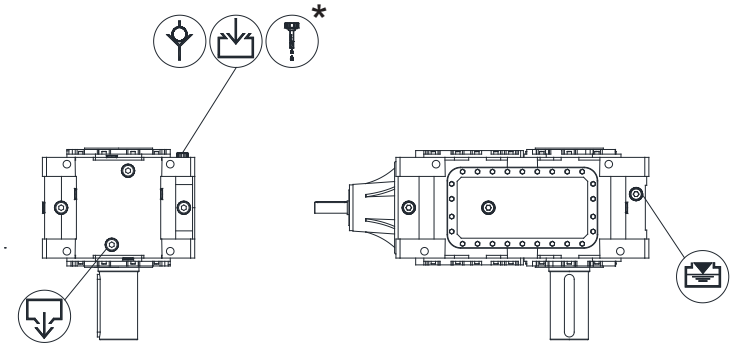
Mounting Positions

M4



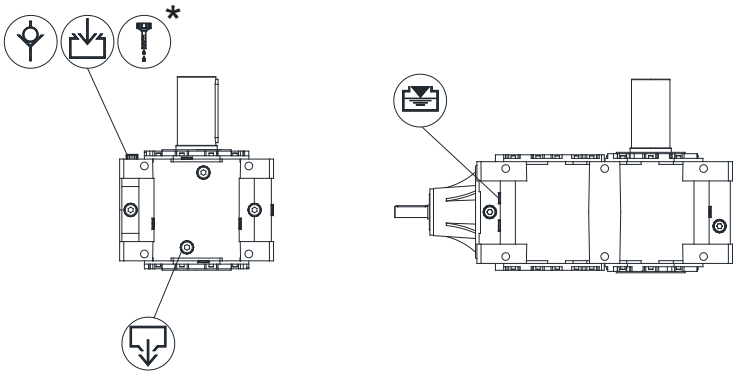
Expansion tank or forced lubrication must be used with this mounting position. Oil quantity may vary depending on lubrication option.

M5



It is given for the gearboxes which are without additional oil supply options and with sealed bearings.

M6

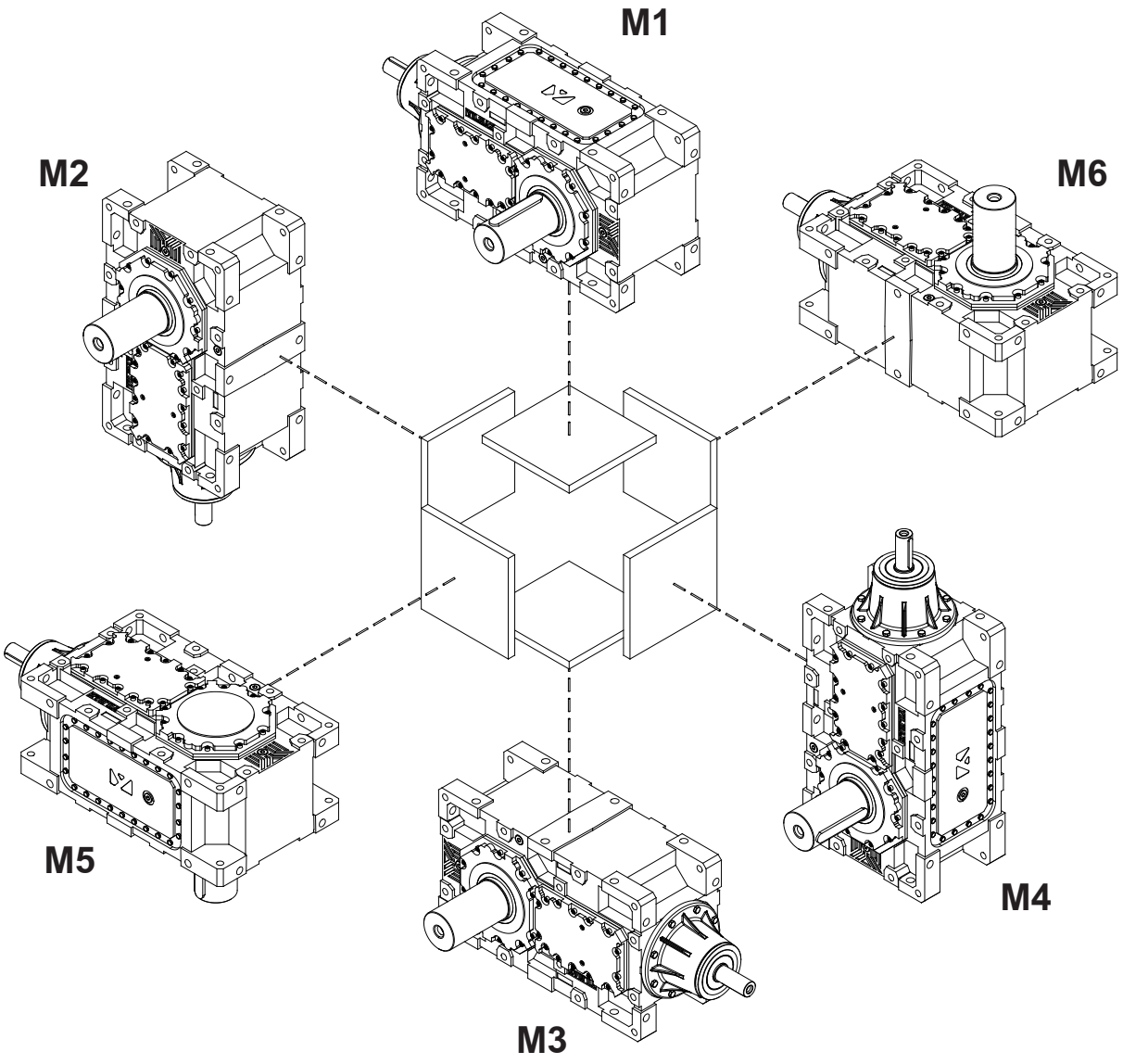


It is given for the gearboxes which are without additional oil supply options and with sealed bearings.

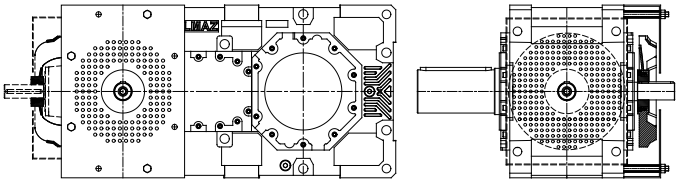
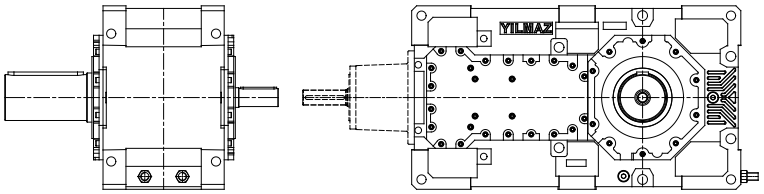
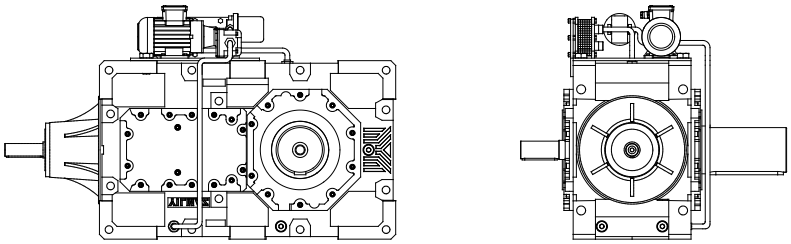
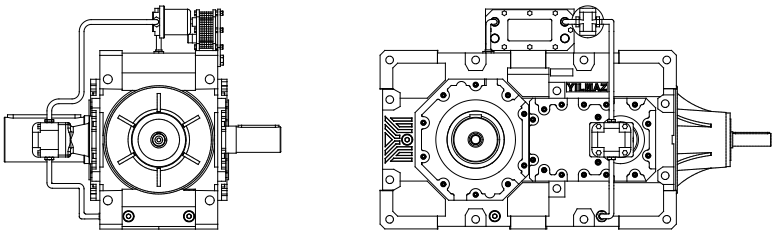
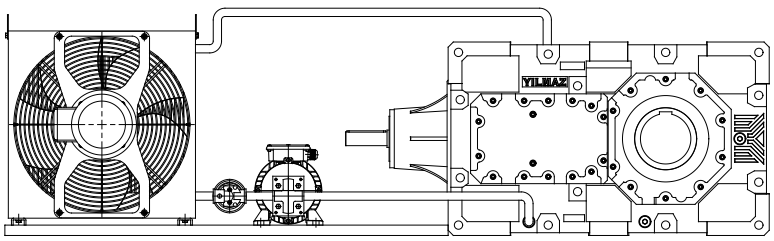
:Oil filling *:Drain plug* *:Oil level* *:Vent Plug* *:Oil dipstick*

*:**Opsiyon** / *Option* / Option

9.5- Mounting Positions



10- Cooling Options

Cooling Options	
F *Fan Cooling*	
S *Cooling Coil**	
HE1 *Heat Exchanger with External Motor Pump**	
HE2 *Heat Exchanger with Shaft End Pump**	
R *Air / Oil Heat Exchanger*	

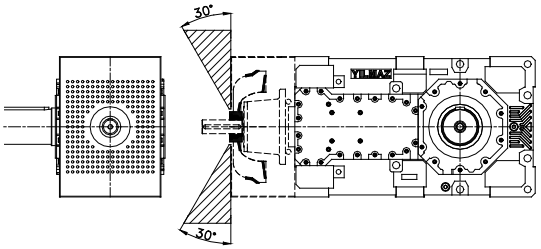
*: **Maximal water inlet temperature must be** 30ºC. Minimum water flow rate for gear units with cooling coil must be 4 lt/min for B03...B08 and 8lt/min for B09...B16. For gear units with heat exchanger look at its own table.

10.1- Fan Cooling

10.1.1.Standart Scope of Delivery

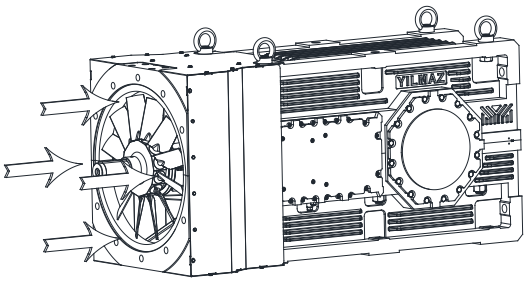
- Integrated fan on the input shaft
- Fan cover

The hatched areas shown below on the drawing must be kept free for clean and easy air intake .



10.1.2. Axial Fan for BY Series

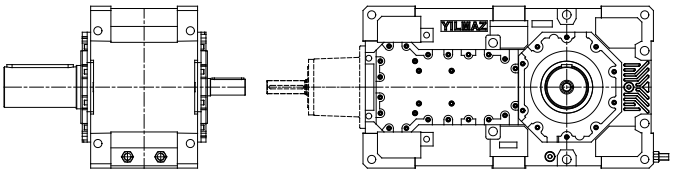
Axial fans are used as standard in BY series gearboxes. Axial fans have a higher flow rate compared to radial fans, but axial fans are suitable for operation in only one direction. For this reason, the rotation direction of BY series gearboxes should be specified at the ordering. They are not recommended for applications that operate in both directions.



10.2- Cooling Coil

Standart Scope of Delivery ;

- Cooling Coil at the bottom of Gearbox
- Inlet and outlet ports for cooling water



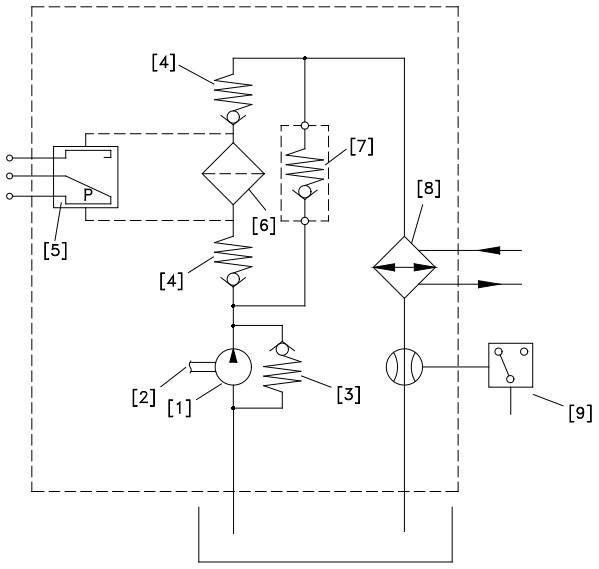
Maximal water inlet temperature must be 30ºC. Minimum water flow rate for gear units with cooling coil must be 4 lt/min for B03....B08 and 8 lt/min for B09....B16. There are inlet and outlet ports for customers. Port sizes can be seen at the below table.

Gearbox Size	Pipe Connection Diameter	Flow Rate (lt/min)	Max. Water Inlet Temperature (C)
B03...-B08	*G 1/2"*	*4....6*	*30*
B09...-B16	*G 3/4"*	*8....10*	*30*

10.3- Cooling with Heat Exchanger

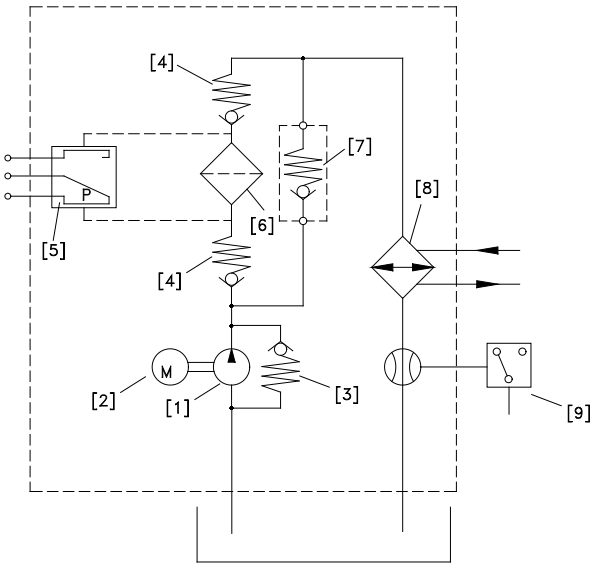
You can see the minimum cooling water flow rate for heat exchanger types below. Maximum cooling water inlet temperature must be 30ºC.

Heat Exchanger Type*	Cooling Capacity [kW]	Oil Volume [lt/m]	Pump Motor Power [kW]	Min. Cooling Water Vol. [lt/m]
E1	1,5	6	0,25	2,2
E2	3,0	6	0,25	5,6
E3	5,0	12	0,37	7,2
E4	10	23	1,1	14
E5	20	41	1,5	29
EP6	30	68	2,2	43
EP7	45	94	3,0	65
EP8	60	112	5,5	80
EP9	80	133	5,5	115
EP10	100	170	7,5	140



Flow Diagram
Heat Exchanger (Shaft End Pump)

1 - Shaft end pump
2 - Shaft end of gearbox
3 - 3 bar pressure valve
4 - Bypas valve (optional)
5 - Pressure differential led (optional)
6 - 20 µ oil filter *(optional)*
7 - Bypas valve (optional)
8 - Water / oil plate heat exchanger
9 - Flow switch (optional)



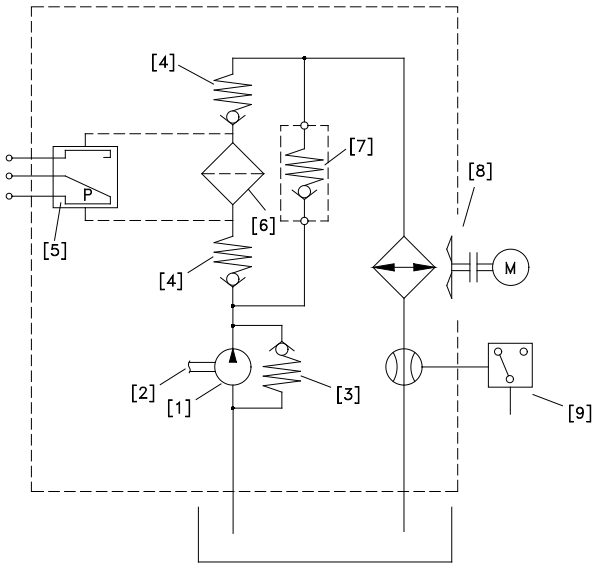
Flow Diagram
Heat Exchanger (External Motor Pump)

1 - External pump
2 - Pump motor
3 - 3 bar pressure valve
4 - Bypas valve (optional)
5 - Pressure differential led (optional)
6 - 20 µ oil filter *(optional)*
7 - Bypas valve (optional)
8 - Water / oil plate heat exchanger
9 - Flow switch (optional)

10.4- Cooling with Air / Oil Heat Exchanger

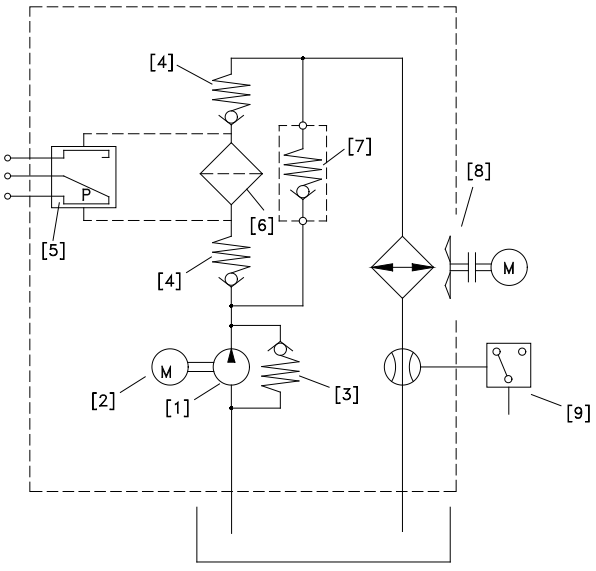
You can find technical informations about air / oil heat exchangers below. Technical informations are valid for 20ºC ambient temperature.

Air / Oil Heat Exchanger Type	Cooling Capacity [kW]*	Oil Volume [lt/min]	Pump Motor Power [kW]
R1	5,0	41	1,5
R2	9,5	41	1,5
R3	17,5	68	2,2
R4	25	94	3,0
R5	29,5	94	3,0
R6	45	94	3,0
R7	60	148	7,5
R8	75	148	7,5



Flow Diagram
Air / Oil Heat Exchanger (Shaft End Pump)

1 - Shaft end pump
2 - Shaft end of gearbox
3 - 3 bar pressure valve (optional)
4 - Bypas valve (optional)
5 - Pressure differential led (optional)
6 - 20 µ oil filter *(optional)*
7 - Bypas valve (optional)
8 - Air / oil heat exchanger
9 - Flow switch (optional)



Flow Diagram
Air / Oil Heat Exchanger (External Motor Pump)

1 - External pump
2 - Pump motor
3 - 3 bar pressure valve (optional)
4 - Bypas valve (optional)
5 - Pressure differential led (optional)
6 - 20 µ oil filter *(optional)*
7 - Bypas valve (optional)
8 - Air / oil heat exchanger
9 - Flow switch (optional)s

11- Troubleshooting Guide

All the operations below must be done by authorized and skilled mechanician/electrician. Inform YILMAZ REDUKTOR before making any change to the gearbox. Only oil change is allowed to change without information. Do not make anything if you are not sure what you are doing and contact YILMAZ. Any change or operation done without the information of YILMAZ REDUKTOR is in your own risk and responsibility and YILMAZ REDUKTOR does not take any responsibility.

ID	Problem	Observation	Remedy
001	Gearbox Does Not Start Up	You hear no noise and shaft is not turning. You are not using any driver or frequency inverter.	Please Check the voltage supply and frequency of your electric connection. They must be in accordance with the nameplate of the motor. Observe motor manufacturers start up manual. Still does not work go to ID 100
002	Gearbox Does Not Start Up	You hear no noise and shaft is not turning. You are using frequency inverter or driver.	Please observe the frequency inverter/driver manual. Check the motor by supplying direct voltage to see if the problem is on your driver/frequency inverter. Still does not work go to ID 001.
003	Gearbox Does Not Start Up	You hear some noise but both motor shaft and gearbox shaft is not turning. You are not using any driver /frequency inverter or braked motor.	Please Check the voltage supply and frequency of your electric connection. They must be in accordance with the nameplate of the motor. Observe motor manufacturers start up manual. Still same problem, the load may be too high for the chosen motor. Loosen the gearbox from the load/torque. If it works than the starting torque is insufficient and higher motor power is needed. For mono phase motors, check the starting up condensator and running condensator as well. If nothing helps go to ID 100
004	Gearbox Does Not Start Up	You hear some noise but both motor shaft and gearbox shaft is not turning. You are using driver or frequency inverter.	Please observe the frequency inverters or drivers manual. To see if the problem is on your driver or frequency inverter take out the driver/frequency inverter and make direct voltage supply to the motor according the motors nameplate. Still does not work go to ID 100
005	Gearbox Does Not Start Up	You hear some noise but both motor shaft and gearbox shaft is not turning. You are using braked motor	Please Check the voltage supply and frequency of your electric connection. They must be in accordance with the nameplate of the motor. Observe motor manufacturers start up manual. Be sure that the brake is working. Observe the brake manufacturers manuel. If brake is supplied from YILMAZ observe this manuel for correct brake wiring diagram. If still not work supply the brake with voltage according its nameplate directly. For example 198 V DC. You will hear a clicking noise explaining that the brake is opening. If you hear no noise the brake or rectifier is defect. If you hear the clicking noise the brake is working. You should this clicking noise by your normal electric connection as well. By supplying direct supply to the brake you hear the clicking noise and at same time you supply the motor with direct voltage according to its name plate and still same problem, the load may be too high for the chosen motor. Go to ID 003.

Troubleshooting Guide

ID	Problem	Observation	Remedy
006	Gearbox Does Not Work in Low speeds / Frequencies.	You are using frequency inverter.	For very low speeds the frequency inverters frequency is lowering down. For very low frequencies the inverter parameter and motor parameter must be optimise. Also for low speeds the efficiency of the gearbox may vary too much. Specially for worm-gearboxes. The recommended frequency range is 20-70 Hz for worm-gearboxes and 10-70 Hz for Helical Gear Boxes. Use Higher motor power and Frequency inverter or change ratio of gearbox to work inside the recommended range.
007	Gearbox Does Not Start Mornings or After Long Time Stop.	Ambient Temperature is below +5 Celsius	The oil is not in accordance with your working conditions. Change to lower viscosity oils. Observe this manual for using the correct oil. Working in higher ambient temperatures is an other solution if possible. If still same problem you need higher motor power.
008	Gearbox is Heating Up too Much	You are using Worm Gear Box and ambient temperature is lower than +40 Celsius	Measure the surface temp. using a temperature measuring device under full load. If the temp is under +80 Celsius this will make no harm to the gearbox and is normal. All ATEX conforming gearboxes and standard worm gearboxes are designed to work under max. +120 Celsius. If higher than +120 Celsius and using ATEX conforming gear box immediately stop the system and contact YILMAZ REDUKTOR. Go to ID 100. If not ATEX confirming check the oil type and oil quantity/level according your mounting position and check the nameplate mounting position. If nameplate mounting position does not fit the actual position go to ID 100.
009	Gearbox is Heating Up too Much	You are using Helical Gear Box. Ambient temp is lower than +40 Celsius	Measure the surface temp. using a temperature measuring device under full load. If the temp is under +80 Celsius this will make no harm to the gearbox and is normal. All ATEX conforming gearboxes are designed to work under max. +120 Celsius. If higher than +120 Celsius and using ATEX conforming gear box immediately stop the system and contact YILMAZ REDUKTOR. If not ATEX gearbox the gearbox is designed to work under max. +80 Celsius. If higher than +80 Celsius check the oil type and oil quantity/level according your mounting position and check the nameplate mounting position. If nameplate mounting position does not fit the actual position go to ID 100
010	Gearbox is Heating Up too Much	Ambient Temp is over +40 Celsius	Standard Gearboxes are designed to work under +40 Celsius. ambient temperature. If ambient temp is higher than +40 Celsius special solutions/gearboxes are required. Please contact YILMAZ
011	Gearbox is noisy	Noise is regular continuous	Check Your moving parts for noise. Disassemble the gearbox and run without load. If you still hear the noise motor bearings or gearbox bearings are defect. Change bearings. Go to ID 100
012	Gearbox is noisy	Noise is random	Check Your moving parts for noise. Disassemble the gearbox and run without load. If you hear still the noise the oil may has some particles inside. Change the oil and look for small particles. If metal particles are found the gearbox may have some damage. Goto ID 100



ID	Problem	Observation	Remedy
013	Gearbox is noisy	Regular knocking noise	Check Your moving parts for noise. Disassemble the gearbox and run without load. If you still hear the noise one of the gears inside is defect. Go to ID 100
014	Gearbox is noisy	Regular up and down noise	Check the output-shaft connection elements for run out. Take out the output shaft element and run without load. If you still hear the noise one of the gears has run out problem. Go to ID 100
015	Gearbox is noisy	Gearbox is with braked motor and noise is coming from the brake side randomly.	Low randomly clicking noise may come from the brake disk which is normal. If noise level is disturbing the brake may be defect or brake clearance is not adjusted. Go to ID 100
016	Gearbox is noisy	You are using frequency inverter and the noise level is changing according your speed.	The frequency inverter parameters are not optimise for the frequency range or motor you are using. Observe the frequency inverters manual. If still same problem change the ratio of gearbox. Go to ID 100
017	Oil is Leaking	Oil Leakage from Seal	If ambient Temp is over +40 Celsius or none stop work over 16 hours please change the top plug with a breather plug. Observe this manual for using breather plug. If this is not your case the seal could be damaged. Go to ID 100
018	Oil is Leaking	Oil Leakage from Plug	If you are using breather plug be sure it is in the correct place. This is the most top plug position according your mounting position. The plug may be not tight enough. There are some particles under the plug rubber surface. Clean and tighten the plug. If still same problem go to ID 100
019	Oil is Leaking	Oil Leakage from Housing	Observe exactly where the oil is coming out. It could be seal or plug point where it comes out and leaks over the housing. If this is your case go to ID 018/019. If you are sure oil comes out from housing than housing has some micro split / crack. Go to ID 100
020	Oil is Leaking	Oil Leakage from Cover	The sealing liquid under cover is split/defect. Disassemble the cover and put new sealing liquid. Assemble the cover and tighten the bolts. If still same problem go to ID 100
021	Gearbox is moving regularly on its mounting point	You are using Torque Arm	The movement of gear box is because of the run out of the shaft which you assemble the gearbox. This has no bad affect or harm to the gearbox and is normal unless you are using torque arm.
022	Gearbox is moving randomly on its mounting point	You are using Torque Arm	The movement of gear box is because of the run out and clearance of the shaft which you assemble the gearbox. Check the clearance of the assembling shaft and the clearances on your machine. This has no bad affect or harm to the gearbox unless you are using torque arm.
023	Motor is heating up	Motor is running over its nominal current	The motor power is not enough or some overload to the motor is possible. The motor may be defect. Go to ID 100
024	Motor is heating up	Ambient is dusty	Check the motor Fan Hub and rips. They must be free of dust. If you are using forced external fan, check if it is working. If you are using frequency inverter in low speeds and you do not have forced external fan, you may need forced external fan. Go to ID 100



ID	Problem	Observation	Remedy
025	Motor is running but Gear-box shaft does not turn	Scratching noise comes out	Some part (key, gear) may be defect inside gearbox. Go to ID 10
026	Gearbox Housing is Defect	You are using chain drive or pinion gear	The radial load or polygon effect of the chain may have caused the damage. Check also if the assembly bolts are loosened or the plate you assemble the gearbox is rigid enough. Check if you are using the correct diameter of chain drive and you are not exceeding max. allowed ra-dial load. Check the position of your output element and re-calculate your radial load and check if this fit to the maximum allowed radial load. Go to ID 100
027	Output Shaft is Defect	You are using chain drive or pinion gear	The radial load or polygon effect of the chain may have caused the damage. Check also if the assembly bolts are loosened or the plate you assemble the gearbox is rigid enough. Check if you are using the correct diameter of chain drive and you are not exceeding max. allowed ra-dial load. Check the position of your output element and re-calculate your radial load and check if this fit to the maximum allowed radial load. Go to ID 100
028	Gearbox is stopping too late	You are using braked motor	Please check the wiring diagram of the brake. There are two different kind of brake wiring diagram. The standard gearbox delivered from our factory is set to delayed brak-ing. For sudden braking check the wiring diagram.
029	Gearbox is starting too late	You are using braked motor	A 24V shock transformer is recommended for fast opening of big brakes (≥ 200 Nm) and shock rectifier is recommen-ded for smaller brakes (< 200 Nm). Go to ID 100.
100	Service Required	No self solution found	Please contact YILMAZ REDUKTOR Service point. See on the back side of this manual. Changing mechanical parts of gearbox can only be done by YILMAZ REDUK-TOR or with information of YILMAZ REDUKTOR. Any change without informing YILMAZ REDUKTOR will can-cel the warranty, manufacturer declaration and YILMAZ REDUKTOR will take no responsibility.

12- Disposal

If your product is no longer of use and you wish to dispose it, refer to the instructions here. If you have any questions regarding ecological disposal methods, please consult our service points given on the backside of this manual.

12.1- Disposal of Oil

Lubricants (oil and greases) are hazardous substances, which can contaminate soil and water. Collect drained lubricant into suitable receptacles and dispose of it according to the valid national guidelines.

12.2- Disposal of Sealing

Remove the sealing rings from the gear reducer, and clean them of oil and grease residues. Dispose of the sealing as composite material (metal/plastic)

12.3- Disposal of Metal

Divide up the remainder of the gear reducer into iron, aluminium, non-ferrous heavy metal if possible. Dispose of it according to the valid national guidelines.

Appendix

YILMAZ REDUKTOR

Warranty Conditions:

1. The geared motors and gear units are warranted for two year except the electric motor. For motor warranty please refer to the manual of the electric motor manufacturer or the warranty document of the motor manufacturer. This warranty is valid only if the gearbox is assembled and started up according our operating instructions and is used under the allowed conditions for the appropriate gearbox type in our catalogue. Special Gearbox parts made according customer request are not covered by this warranty.

2. The warranty time starts from the start up time written on the warranty document and last for two years. If the start-up time is more then three months after the billing time, the total warranty time is limited to 27 months starting from billing time. If the warranty document is not send to our company after start-up, the total warranty time will be limited to 24 months after the billing time.

3. Any time during the warranty for maintenance, repair or change will be added to the warranty time. This time starts from the date which the company or representative was made aware of the problem and ends on the date of the re-start-up.

4. If the product fails to operate because of a manufacturing or assembly failure during the warranty time, the product will be repaired free of charge.

5. If the product fails to operate because of a manufacturing or assembly failure during the warranty time and it is not possible to repair it, the product will be changed with a new one according to the report from our service department mentioning that the hazard can not be repaired.

6. Costumers must inform the manufacturer if there are some problems after the service and repair of the failed product.

7. The extra costs like stopped plant, physical or mental injuries etc. by the costumer side are not covered by this warranty except the product itself.

YILMAZ REDÜKTÖR San. ve Tic. A.S.
ATATÜRK Mah. Lozan Cad. No:17 P.K.:34522 Esenyurt-İstanbul-TÜRKİYE
Telephone: +90 (0) 212 886 90 01 (8 Lines)

YILMAZ REDUKTOR

Warranty Decleration
and
Instruction Manual Receipt Form

YILMAZ REDUKTOR products are warranted for **2 (Two)** years covering all parts and materials used in products and their production errors unless they are started-up and used according our service manual and is not modified or disassembled without an acknowledgement from our company.

The warranty covers all costs like repair, service, spare parts etc. and no charge will be asked under any name. The time for repair, service will be added to the warranty time.

For detailed warranty conditions please refer the back side of this page.

Serial No:
Type:

Manufacturer:
Company : YILMAZ REDUKTOR Sanayi ve Ticaret A.S.
Address : ATATÜRK Mah. Lozan Cad. No:17 P.K.34522 Esenyurt-Istanbul-TÜRKİYE
Telephone : +90 (0) 212 886 90 01 (8 Lines)

Stamp and Signature

Supplier / End User:

With signing this part and sending this back to our company your warranty period will be started and you are accepting that you have received the operating instruction of the product.

Name:
Billing Date/ Bill No.:
Start-Up Place / Date:
Address:
Phone:

Supplier/ End User Stamp and Signature

Notes

Domestic Service
Tel: +90 212 886 90 00
Int: 1223, 1228, 1287
Whatsapp: +90 554 713 71 02
E-Mail: servis@yr.com.tr

Spare Parts
Tel: +90 212 886 90 00
Int: 1224, 1277
Whatsapp: +90 506 774 44 35
E-Mail: yedekparca@yr.com.tr

International Services
If you call the above service point, you will be directed to our nearest service.

Yılmaz Redüktör Sanayi ve Ticaret A.Ş.
Atatürk Mah. Lozan Cad. No: 17, 34522 Esenyurt - İstanbul / Turkey
Tel: +90 212 886 90 00 | **E-Mail:** yilmaz@yr.com.tr