YILMAZ REDÜKTÖR ISO 9001

YILMAZ REDÜKTÖR ISO 9001







Gear Units, Y Series

Edition 01/2005 OIYEX 0101/0105

Operating Instructions



Contents

1	How	v To Use This Manual	5
2	Unit	Designation	6
	2.a	Detailed unit designation	6
	2.b	Nameplate unit designation	7
3	Part	List of Standard Type Gear Units	8
	3.a	YRM1. Type	8
	3.b	YRM2. Type	9
	3.c	YRD2 Type	10
	3.d	YRM3 Type	11
	3.e	YRD3 Type	12
	3.f	YRM4 Type	13
	3.g	YRD4 Type	14
4	Thir	nks to Check Before the Gear Unit or Geared Motor is Installed	16
•	4.a	Safety notes	16
	4.b	Transportation	17
	4.c	Storage	17
_	. .		10
5		alling The Gear Unit	18
	5.a	Before you start	18
	5.b	Check Name Plate	18
	5.c	Check the ambient conditions and temperature	18
	5.d	Check fitting elements and the shaft dimensions to fit	18
	5.e	Check the voltage supply	20
	5.f	Check the mounting position	20
	5.g	Use the breather plug	20
	5.h	Check the oil level	21
	5.i	Check shaft ends and mounting faces	21
	5.j	Cover abresive ambient	21
	5.k	Check accessibility to filling, breather and drain plugs	21
6	Mec	hanical Installation	22
	6.a	Installing gear units in category II2G/D-II3G/D	22
	6.b	Fittting outputshaft elements	23
	6.c	Correct position of otputshaft elements	23
	6.d	Installing customer shaft with shoulder.	24
	6.e	Disassembling customer shaft with shoulder	25
	6.f	Shaft tightening torques	27
	6.g	Recommended shaft dimensions for YRD types	28
	6.h	Fitting Couplings	29
		σ T σ	

Operating Instruction Y Series



7	Inspections	30
8	Lubrication.8.aOil Types.8.bOil Quantities.8.cMounting Positions.	31 31 32 33
9	Troubleshooting Guide	34
10	Decleration by the Manufacturer	38
11	Waranty conditions	39
12	Waranty	40
13	Service Contact Points	41

Operating Instruction Y Series General Information



1 -How To Use This Manual

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



Electric Hazard; Can cause severe or fatal injuries.



Mechanical Hazard; Can cause severe or fatal injuries.



Likely to be Hazardous; Can cause minor injuries



Damage Risk; Can damage the drive or environment



Important Information



Important information about explosion protection

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 YR. series gear units and is applicable only for these 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.

The YR. Series garboxes are with standard IEC B5/B14 connection flange and without motor. The electric motor which will be connected to the gearbox must also be in confirmity with the ATEX (94/9/EC) standarts.

All the external parts which will be assembled to the gear unit must conform ATEX (94/9/EC). The product this decleration refers to must not be put into service until the machinery into which it is to be incorporated has been declared in confirmity with the provisions of the relevant European Directives.

If the gear unit is not operated as informed on this manual the gear unit is no longer ATEX conforming and <u>YILMAZ REDUKTOR does not take any responsibility.</u>



2 -Unit Designation a- Detailed unit designation



<u>Detailed YR series gear units designation for ordering</u> (This Designation is different from the short nameplate designation)

30kW - 29rpm - 48,86 - YRM3705 - L

Power (kW)

N) Output Ratio (i) Speed(rpm)

YRM- With solid output shaft YRC- With double output shaft YRD- With hollow output shaft YRE- With extruder housing Mounting position (See picture below)

Viewed from input side L - Right Input, Left Output R - Left Input, Right Output UL- Left Input, Left Output UR- Reight Input, Right Output

Example

Туре

30-29-48,86-YRM3705

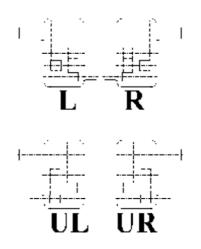
30 kW, 29rpm, i=48,86 gear unit with output shaft , gearbox type: YRM4705

30-29-48,86-YRC3705

30 kW, 29rpm, i=48,86 gear unit with double output shaft , gearbox type: YRM4705

11-29-48,86-YRE2240

11 kW, 29rpm, i=48,86 gear unit with extruder housing, gearbox type: YRM2240





b- Nameplate, unit designation



Nameplate unit designation is a short abbreviation from the detailed designation

A sample name plate for YR. Series

VILMAZ REDÜKTÖR A.S. Beylikdizü SAN - BIR Bulvari 1.Bolge 3.Cadde No:18 34900 Büyükçekmece / IST. / TURKEY					
Type:	Ϊ	(RM)	1200)-L / 20	GD
S/N.:	04 / S	52251	- E	X	IP65
P :	30	kW	M2	: 1045	5 Nm
n_1 :	1400	rpm	n_2	: 263	rpm
F_{R2} :	12000	Ν	FR	1:-	Ν
F _{A2} :	190	Ν	FA	1: -	Ν
Oil :	VG 22	0	Qty	:14	lt
M.Po	s.: E	33	Ta	: -20/	+40 °C
{(Ex)]	II 2GE) c,k	T4	/ T120	0°C

Abreviations:

Type. : Type of gearbox S/N: Serial Number of gear unit as; year/order no IP..:Enclosure P: Max. Allowed Power M2: Output torque n1: Input speed n2: Output speed FR2: Max. allowed radial load at output shaft FR1: Max. allowed radial load at input shaft FA2: Max. allowed axial load at output shaft FA1: Max. allowed axial load at input shaft Oil: Filled oil inside the gear unit Qty.: Oil quantity M.pos.: Mounting Position. Ta: Ambient Temp ATEX sign (EN 13463-1):

Max. allowed surface temperature

Temperature Class

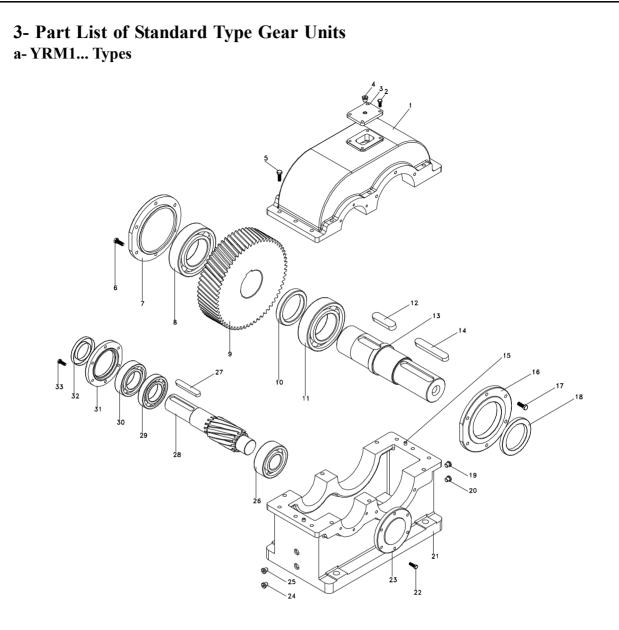
Ignation Class if applicable.

Catagorie; 2GD for gas and dust.

Group: Only II, not for underground use

YILMAZ REDÜKTÖR







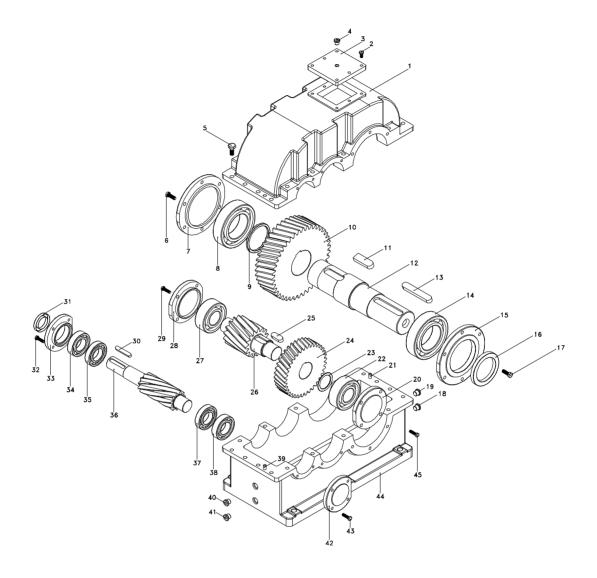
Standard YRM1... type basic part diagram. Parts may differ for special applications.

1- Uper Housing Part	8- Bearing	15- Pin	22- Bolt	29- Bearing
2- Bolt	9- Gear	16- Sealed Side Cover	23- Closed Side Cover	30- Bearing
3- Cover Plate	10- Spacer	17- Bolt	24- Plug	31- Sealed Side Cover
4- Plug	11- Bearing	18- Oil Seal	25- Plug	32- Oil Seal
5- Bolt	12- Key	19- Plug	26- Bearing	33- Bolt
6- Bolt	13- Output Shaft	20- Plug	27- Key	
7Closed Side Cover	14- Key	21- Bottom Housing Part	28- Input Pinion Shaft	





b- YRM2... Types



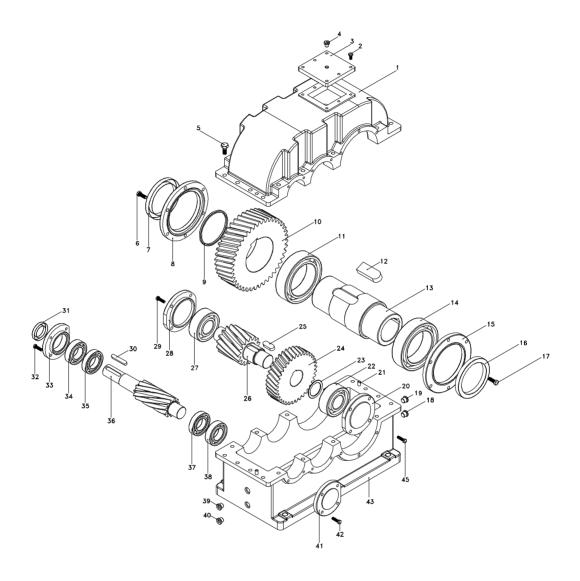


Standard YRM2... type basic part diagram. Parts may differ for special applications.

1- Uper Housing Part	10- Gear	19- Plug	28- Closed Side Cover	37- Bearing
2- Bolt	11- Key	20- Closed Side Cover	29- Bolt	38- Bearing
3- Cover Plate	12- Output Shaft	21- Centering Pin	30- Key	39- Centering Pin
4- Plug	13- Key	22- Bearing	31- Oil Seal	40- Plug
5- Bolt	14- Bearing	23- Spacer Ring	32- Bolt	41- Plug
6- Bolt	15- Seal Cover	24- Gear	33- Side Cover	42- Closed Side Cover
7Closed Side Cover	16- Oil Seal	25- Key	34- Bearing	43- Bolt
8- Bearing	17- Bolt	26- Pinion Shaft	35- Bearing	44- Bottom Housing Part
9- Spacer Ring	18- Plug	27- Bearing	36- Pinion Shaft	45- Bolt



c- YRD2... Types





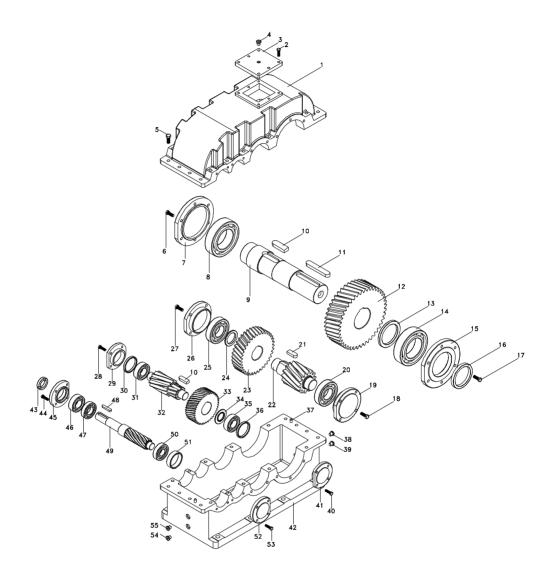
Standard YRD2... type basic part diagram. Parts may differ for special applications.

1- Uper Housing Part	10- Gear	19- Plug	28- Closed Side Cover	37- Bearing
2- Bolt	11- Bearing	20- Closed Side Cover	29- Bolt	38- Bearing
3- Cover Plate	12- Key	21- Centering Pin	30- Key	39- Plug
4- Plug	13- Hollow Shaft	22- Bearing	31- Oil Seal	40- Plug
5- Bolt	14- Bearing	23- Spacer Ring	32- Bolt	41- Closed Side Cover
6- Bolt	15- Seal Cover	24- Gear	33- Side Cover	42- Bolt
7Closed Side Cover	16- Oil Seal	25- Key	34- Bearing	43- Bottom Housing Part
8- Bearing	17- Bolt	26- Pinion Shaft	35- Bearing	45- Bolt
9- Spacer Ring	18- Plug	27- Bearing	36- Pinion Shaft	





d-YRM3... Types



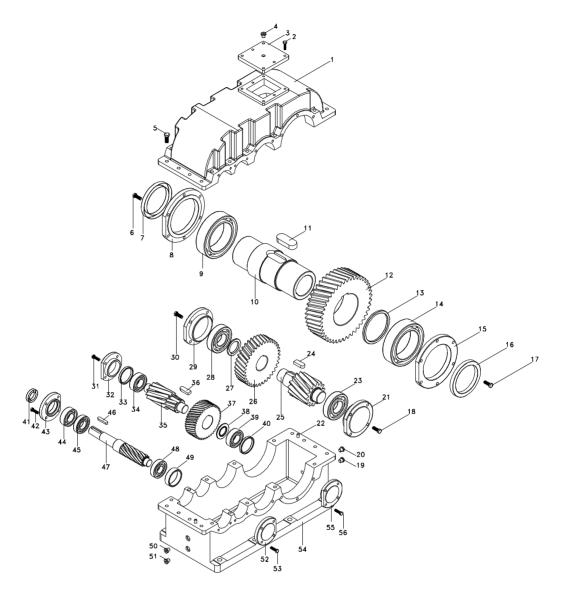


Standard YRM3... type basic part diagram. Parts may differ for special applications.

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



e- YRD3... Types





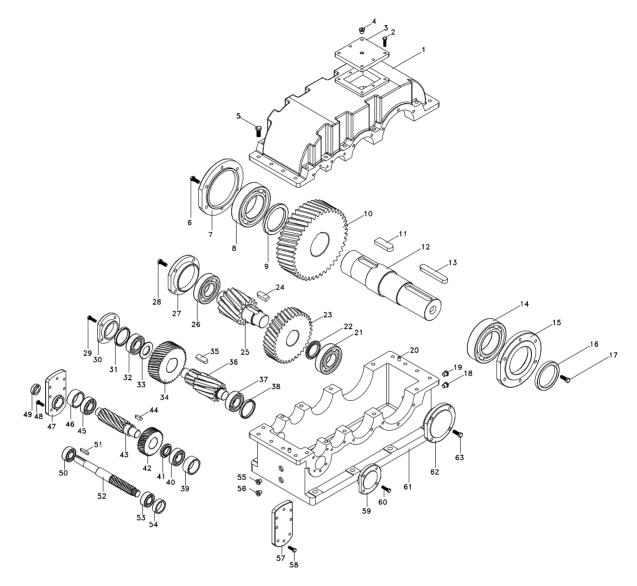
Standard YRD3... type basic part diagram. Parts may differ for special applications.

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





f- YRM4... Types



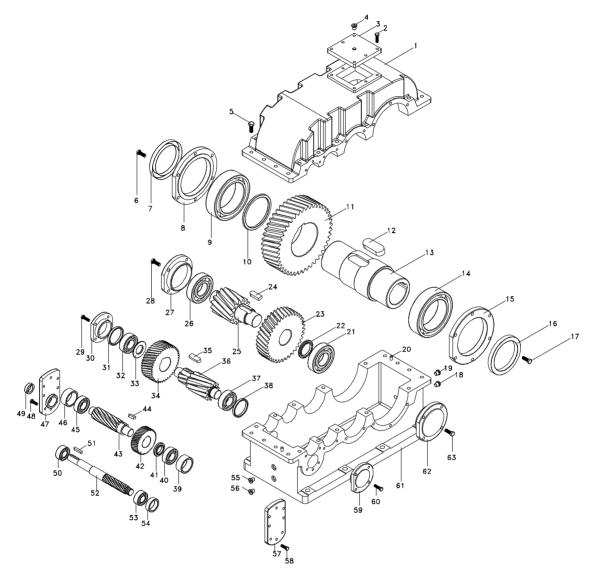


Standard YRM4... type basic part diagram. Parts may differ for special applications.

1- Uper Housing Part	12- Output Shaft	23- Gear	34- Gear	45- Bearing	56- Plug
2- Bolt	13- Key	24- Key	35- Key	46- Spacer	57- Closed Side Cover
3- Cover Plate	14- Bearing	25- Pinion Gear	36- Pinion Shaft	47- Sealed Side Cover	58- Bolt
4- Plug	15- Sealed Side Cover	26- Bearing	37- Bearing	48- Bolt	59- Closed Side Cover
5- Bolt	16- Spacer	27- Closed Side Cover	38- Spacer	49- Seal	60- Bolt
6- Bolt	17- Bolt	28- Bolt	39- Spacer	50- Bearing	61- Bottom Housing Part
7- Closed Side Cover	18- Plug	29- Bolt	40- Bearing	51- Key	62- Closed Side Cover
8- Bearing	19- Plug	30- Closed Side Cover	41- Spacer	52- Input Pinion Shaft	63- Bolt
9- Spacer Ring	20- Pin	31- Spacer	42- Gear	53- Bearing	
10- Gear	21- Bearing	32- Bearing	43- Pinion Gear	54- Spacer	
11- Key	22- Spacer	33- Spacer	44- Key	55- Plug	



g- YRD4... Types





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

1- Uper Housing Part	12- Key	23- Gear	34- Gear	45- Bearing	56- Plug
2- Bolt	13- Hollow Output Shaft	24- Key	35- Key	46- Spacer	57- Closed Side Cover
3- Cover Plate	14- Bearing	25- Pinion Gear	36- Pinion Shaft	47- Sealed Side Cover	58- Bolt
4- Plug	15- Side Cover	26- Bearing	37- Bearing	48- Bolt	59- Closed Side Cover
5- Bolt	16- Oil Seal	27- Closed Side Cover	38- Spacer	49- Seal	60- Bolt
6- Bolt	17- Bolt	28- Bolt	39- Spacer	50- Bearing	61- Bottom Housing Part
7- Oil Seal	18- Plug	29- Bolt	40- Bearing	51- Key	62- Closed Side Cover
8- Sealed Side Cover	19- Plug	30- Closed Side Cover	41- Spacer	52- Input Pinion Shaft	63- Bolt
9- Bearing	20- Pin	31- Spacer	42- Gear	53- Bearing	
10- Spacer	21- Bearing	32- Bearing	43- Pinion Gear	54- Spacer	
11- Gear	22- Spacer	33- Spacer	44- Key	55- Plug	





4 -Thinks to Check Before the Gear Unit or Geared Motor is Installed

a) Safety notes for use in potentially explosive atmosphere



Explosive gas mixtures or concentration of dust can lead to severe or fata injuries in conjunction with hot or moving parts of the gear unit / gearmotor

Before you install the gearbox you have to be sure that the gearbox is arrived with the all necessary equipment and without damage. Thinks 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
- The nameplate is clearly visible and all the data can be read.
- All the regulations and requirements according to the currently valid national/regional regulations.
- The gearbox is used according its intended use



Intended use of gearbox:

The gearboxes covered by this manuel can only be used in ATEX zone 2G2D, 3G3D and ignation class IIA/IIB.

The gear units are intended for industrial systems and may only be used in accordance with the information provided in this manual and the nameplate of the gearbox. They comply with the applicable standards and regulations and meet the requirements of the directive 94/9/EC. The gearbox is started up, maintained and operated according this manual. The gearbox is incorporated with 94/9/EC confirming parts/machines.



<u>A motor connected to the gear unit is only allowed to be operated in the frequency entries so</u> that the data provided on nameplate of the gear unit is not exceeded and is accordance with the nameplate. The input speed range will be provided on the name plate if YILMAZ REDUKTOR is informed that the gear unit will be used with frequency inverter. If not informed the nameplate will have a single fixed input speed and only this input speed is allowed. The electric motor and frequency inverter must be in accordance with 94/9/EC



If the gear units input is used with variable speed gear unit, this must be informed to YILMAZ <u>REDUKTOR</u> before ordering and on the nameplate the allowed maximum and minimum input speeds (speed range) will be provided. If not mentioned by ordering the gear units input speed will be a fixes single input speed and only this speed is allowed.



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



The ambient conditions must be accordance with the name plate and no agresive media must attack the paint and seals.

Operating Instruction Y Series Installing





The gearbox maintanance (oil change / check) must be done according this manuel

b) 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 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 supplied eyebolts or lifting holes for lifting up the gear unit. The eyebolts are capable to carry the weight of gearboxes only. Do not hang additional loads.

c) Storage

If the geared unit or gearedmotor 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 surface. 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 year with regular check.

Without Packing;

-Use protection oil for the output shaft and connection surfaces like flange surface or foot assembling surface. 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 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 check during this time is recommended.

If stored in open protect against insect damage.



5- Installing The Gear Unit

a) 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.



b) Check nameplate of the gear unit;

- ATEX conforming gear gear units have a nameplate indicating the "EX" sign shown on the left side and the following information;

- Equipment group
- Ex category
- Ex zone
- Temprature class
- Maximum surface temperature

If you can not see this sign and values, your gearbos is not intended for use on potentially explosive atmosphere. If some of the data can not be read because of some reason, please contact YILMAZ REDUKTOR.

c) Check the ambient conditions and temperature;

Have measures been taken to ensure that no potentially explosive atmosphere, oils, acids, gases, vapors or radiated interference are present when the gear unit is being installed.

The ambient temperature must be in accordance with the oil tables given on the manual. If different contact YILMAZ REDUKTOR for special solutions.



The ambient air temperature must not exceed 40 degrees celcius as mentioned on the nameplate. The cooling air surrounding the gear unit must bellow 40 degrees and the gear unit must not subject to heating from external sources. The gear unit surface must be kept clean and sufficiently ventilated.

d) Check fitting elements and the shaft dimensions to fit;

All external elements that will be fitted to the gear unit must be ATEX confirming.

The shaft/flange dimention are shown bellow. Use correct tolerances to fit external elements. Observe the assemly instructions provided in this manual.







Only belts with sufficient shunt resistance <10^9 ohm are allowed



<u>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.</u>



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



Observe the name plate for maximum allowed radial and axial load. The external radial and axil load must not exceed the provided values on the nameplate.

Туре	Hollow Shaft Diameter	Hollow Shaft Tolerance (H8)	Output Shaft Diameter	Output Shaft Tolerance (DIN 748) Up to 50mm k6 Over 50mm m6
YR.1125	-	-	55	+0.03 +0.01
YR.1160	-	-	70	+0.03 +0.01
YR.1200	-	-	90	+0.03 +0.01
YR.2195 YR.2240	50	+0.04 0	65	+0.03 +0.01
YR.2275 YR.3355	60	+0.05 0	75	+0.03 +0.01
YR.2305 YR.3395 YR.4395	85	+0.06 0	85	+0.04 +0.02
YR.2340 YR.3440 YR.4440	90	+0.06 0	95	+0.04 +0.02
YR.2385 YR.3500 YR.4500	95	+0.06 0	100	+0.04 +0.02
YR.2430 YR.3555 YR.4555	110	+0.06 0	110	+0.04 +0.02
YR.2480 YR.3620 YR.4620	140	+0.07 0	130	+0.04 +0.02
YR.2545 YR.3705 YR.4705	150	+0.07 0	140	+0.04 +0.02



e) Check the voltage supply;

ATEX Conforming gear units are supplied by YILMAZ without motor. The motor that will be fitted must have ATEX certificate and the instruction manual of the electric motor provider must be observed. Observe the name plate of the electric motor and the instructions of the supplier. Check the basic electric connection diagrams below. Use experienced electric technician. The gearbox and the motor must be grounded to prewent potential differences of earth and gearbox/motor.



Using wrong connection or voltage can damage the electric motor or environment. The electric connection must be done by experienced electric technician.

f) Check the mounting position;

The mounting position must be in accordance with the mounting position mentioned on the name plate. If different please contact YILMAZ REDUKTOR for possibilities of using in a different mounting position. Different use of mounting position than indicated on the name plate without informing YILMAZ REDUKTOR will cancel the ATEX confirmity and YILMAZ does not take any responsibility.



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

g) Use of breather plug;

Breather plugs are supplied as a standard part for ATEX conforming gear units. The breather plug is attached to the gear unit and must be changed with the most top plug according to the mounting position. Take out the plug over the gear box and replace it with the supplied breather plug after assembling to its place and before start-up.



All plug points are not machined. Only plugs according mounting position is machined. If no mounting position is mentioned by ordering the standard B3 position plugs are machined.







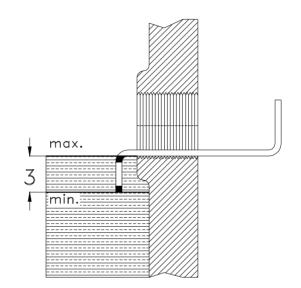


h) Check the oil level ;

On the mounting position tables the oil level plug is shown. Please refer to those tables and be sure that the oil level is correct according the mounting position. Use a wire as shown below for checking the oil level entering from the level plug. The oil level must be within 3mm from the plugs entering point as shown below. If you need to adjust the oil level refer to the oil tables given on this manuel and be sure you are using the correct oil. Observe the nameplate for the correct oil.



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



i) Check shaft ends and mounting faces;

Before you start to 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.

j) Cover abrasive ambient;

If the gear unit will be placed on a abrasive ambient be sure that the output seals are covered so that no abrasive material, chemicals or water touches the seals. Any pressure coming from outside over the seals can cause that the out staying 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 for solutions.



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

k) Check accessibility to filling, breather and drain plugs;

The filling, breather and drain plugs must be freely accessible for further checking and service.



6- Mechanical Installation

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.

All bolts are locked by use of locktide adhesives or gear-shims on the gearbox. By assembling the gear unit locktides adhesives or gear-shims must be used to prevent loosening of bolts.

AC.

Cover all the turning parts from human entering or touching. Turning parts can cause severe or fatal injuries.

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



Only ATEX-approved input and output elements are allowed to be used, assuming the elements are subject to Directive 94/9/EC

a- Installing gear units in category II2G/D-II3G/D

Explosion-proof gear units comply with the design requirements for unit group II, catagory 2G,2D,3D,3G. These units are intended for use in zones 1 and 21.



The gear units in catagory II2D must be used in ambient teperature between -20<u>C to +40 C only. If different ambient conditions this must be informed before</u> order and the name plate must be in accordance with the ambient conditions.

Æx)

The temperature class depends on the speed, type and mounting position of the gearbox and is indicated on the name plate. Temperature classes from T4 to T6 are provided by YILMAZ REDUKTOR.



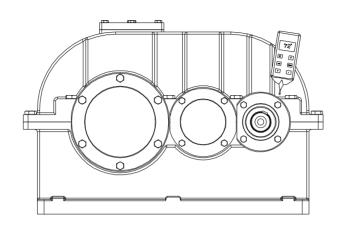
The surface temperature of the gearbox must not exceed the provided max. surface temperature on the name plate. After all installations finished and the gearbox is started up according this manual let the gear unit run 4 hours at full load and check the surface temperature from the shown point bellow and the ambient temperature. Check the following;

(40-Ta)+Tw < Tmax. of nameplate (Ta: Ambient Temp., Tw: Surface Temp)



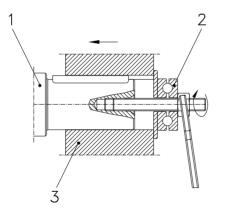


If the result is higher then Tmax, immidiately stop the system and contact YILMAZ REDUKTOR.



b-Fittting outputshaft elements

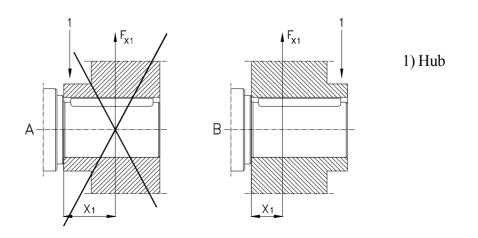
Use the following ilustration to assemble output shaft units



- 1) Gear shaft end
- 2) Thrust bearing
- 3) Coupling hub

c-Correct position of otputshaft elements

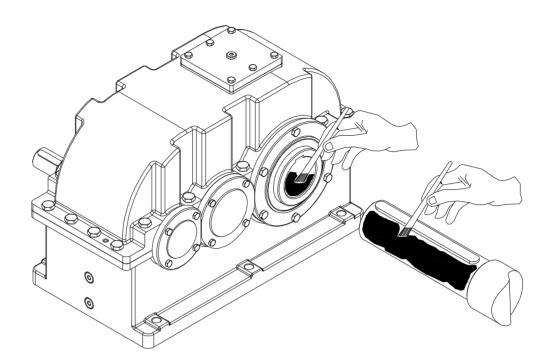
The Output Shaft unit (transmision elements) must placed as close as possible to the gear unit so that the radial load is as closest as possible to the gear unit.



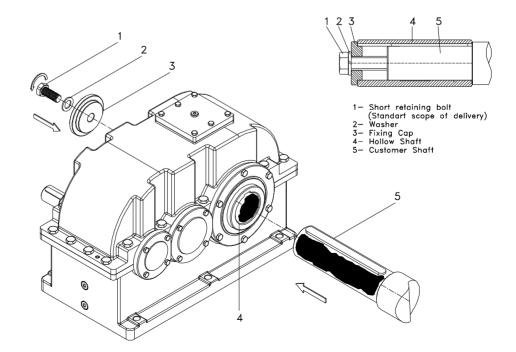


d- Installing customer shaft with shoulder

d1- Use anti-seize assembling paste available on your market. Use a brush to apply the paste.



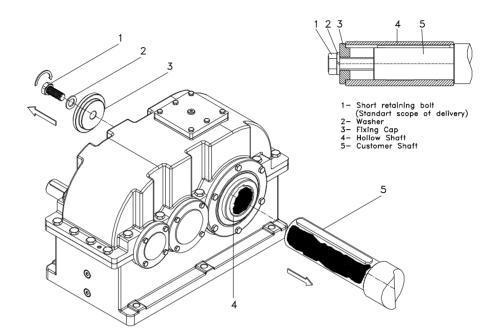
d2 -Fasten the bold as shown below.



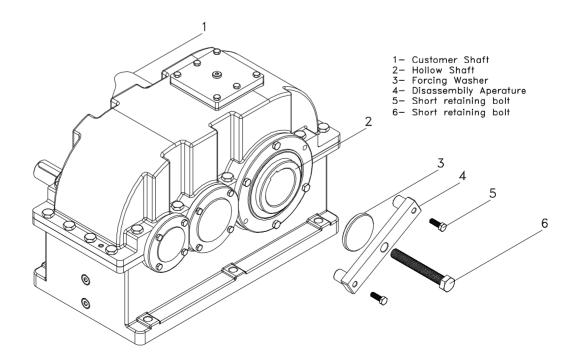


e- Disassembling customer shaft with shoulder

e1- Disassemble the bolt and take out the parts as shown

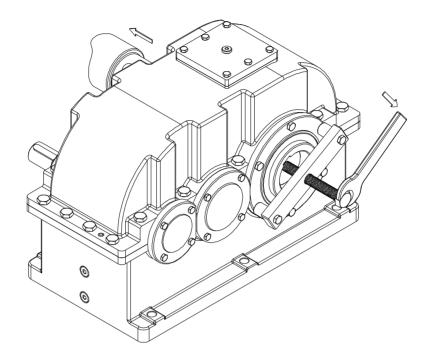


e2 -Use the disassemble set from YILMAZ and fasten the bold as shown bellow to take out the output shaft.



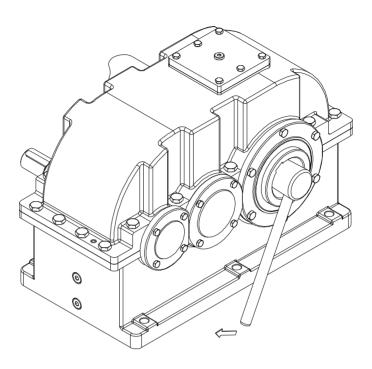


e3- Push the output shaft using disassemble set and tightening the screw as shown on the following isustration.





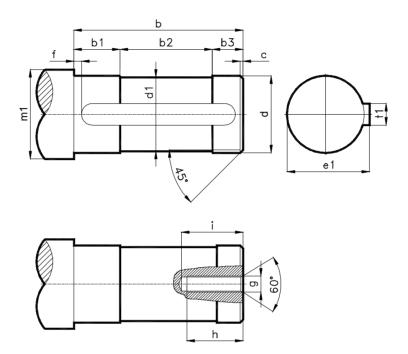
f- Shaft tightening torques Use the following table for shaft tightening torques.



Туре	Bolt	Tightening torque [Nm]
YRD2240	M16	40
YRD2275	M20	80
YRD2305	M20	80
YRD2340	M24	200
YRD2385	M24	200
YRD2430	M24	200
YRD2480	M30	400
YRD2545	M30	400
YRD3355	M20	80
YRD3395	M20	80
YRD3440	M24	200
YRD3500	M24	200
YRD3555	M24	200
YRD3620	M30	200
YRD3705	M30	400
YRD4395	M20	80
YRD4440	M24	200
YRD4500	M24	200
YRD4555	M24	200
YRD4620	M30	400
YRD4705	M24	200



g- Recomended shaft dimensions for YRD... types

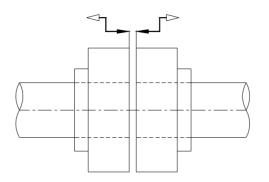


Туре	d	d1	b	b1	b2	b3	С	m1	f	h	i	g	e1	t1
YRD2240	50	49	240	65	125	50	3	68	5	36	45	M16	54	14
YRD2275	60	59	260	95	85	80	3	78	5	42	53	M20	64	16
YRD2305	85	84	320	110	115	95	4	117	5	42	53	M20	90	22
YRD2340	90	89	355	115	140	100	4	117	5	50	63	M24	95	25
YRD2385	95	94	355	125	120	110	4	127	5	50	63	M24	100	25
YRD2430	110	109	390	115	175	100	5	147	5	50	63	M24	116	28
YRD2480	140	139	470	165	155	150	5	176	5	60	77	M30	148	36
YRD2545	150	149	535	155	240	140	5	184	5	60	77	M30	158	36
YRD3355	60	59	260	95	85	80	3	78	5	42	53	M20	64	16
YRD3395	85	84	320	110	115	95	4	117	5	42	53	M20	90	22
YRD3440	90	89	355	120	130	105	4	117	5	50	63	M24	95	25
YRD3500	95	94	355	125	120	110	4	127	5	50	63	M24	100	25
YRD3555	110	109	390	115	175	100	5	147	5	50	63	M24	116	28
YRD3620	140	139	470	165	155	150	5	176	5	60	77	M30	148	36
YRD3705	150	149	535	155	240	140	5	184	5	60	77	M30	158	36
YRD4395	85	84	320	110	115	95	4	117	5	42	53	M20	90	22
YRD4440	90	89	335	120	110	105	4	117	5	50	63	M24	95	25
YRD4500	95	94	355	125	120	110	4	127	5	50	63	M24	100	25
YRD4555	110	109	390	115	175	100	5	147	5	50	63	M24	116	28
YRD4620	140	139	470	165	155	150	5	176	5	60	77	M30	148	36
YRD4705	150	149	535	155	240	140	5	184	5	60	77	M30	158	36

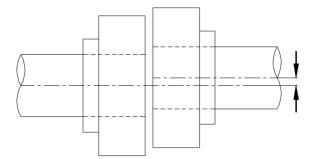


h-Fittting Couplings

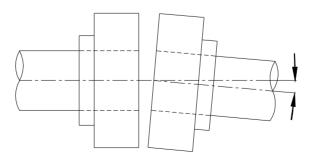
h1-By fitting couplings be sure that there is some clearanve between the two elements



h2-By fitting couplings be sure that there is no exantricity between the two shafts.



h3-By fitting couplings be sure that the two shafts are not angular miss-aligned.

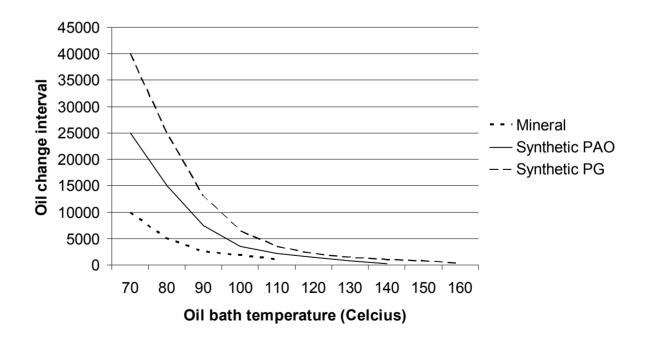




7- Inspections

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 3.000 working hours or every 6 months	Every 4.000 working hours	Every 10.000 working hours or every 3 years	Every 25.000 working hours
Check for oil leakage	х			
Check for oil level	х			
Check oil leakage from seal	х			
Check Rubber buffer	x (Change if necessary)			
Check Bearings Noise		x (Change if necessary)		
Change Mineral Oil			x (See Below for details)	
Change Synthetic-PAO Oil				x (See Below for details)
Change Sealing				х
Change Bearing Grease				x
Change Bearings				x
Check for noise Changes				x





For normal ambient conditions 70 degrees Celcius Should be taken as referance

* For Y series Mineral oil is used unless it is differently ordered. For oil type and quantities refer to the following tables.



8- Lubrication

a- Oil Types

Yağ Cinsi Lubricant Art des Schmierstoffes	Kullanım Sıcaklığı Usage Temparature Gebrauchstemperature	ISO Vizkozite Sınıfı ISO Viscosity Class Vizkozitäts Klasse ISO	ARAL	bp	E\$\$0	KLOPEN	Mobil	Shell	< ≑Castrol }
	0 +100	ISO VG 680	Degol BG 680	Energol GR-XP680	Spartan EP 680		Mobilgear 636	Omala 680	Alpha SP 680
	0 +100	ISO VG 460	Degol BG 460	Energol GR-XP460	Spartan EP 460	GEM 1 680	Mobilgear 634	Omala 460	Alpha SP 460
Mineral Yağlar	0 +100	ISO VG 320	Degol BG 320	Energol GR-XP320	Spartan EP 320	GEM 1 460 GEM 1 320	Mobilgear 632	Omala 320	Alpha SP 320
<i>Mineral Öil</i> Mineralöl	-5 +100	ISO VG 220	Degol BG 220	Energol GR-XP220	Spartan EP 220	GEM 1 220	Mobilgear 630	Omala 220	Alpha SP 220
	-5+100	ISO VG 150	Degol BG 150	Energol GR-XP150	Spartan EP 150	GEM 1 150 GEM 1 100	Mobilgear 629	Omala 150	Alpha SP 150
	-5+100	ISO VG 100	Degol BG100	Energol GR-XP100	Spartan EP 100		Mobilgear 627	Omala 100	Alpha SP 100
	-20 +140	ISO VG 680	Degol GS 680	Enersyn SG-XP680		Syntheso D 680 EP	Gylgoyle HE 680		
	-20 +140	ISO VG 460	Degol GS 460	Enersyn SG-XP460	Glycolube 460	Syntheso D 460 EP	Gylgoyle HE 460	Tivela SD	Alphasyon PG 460
Sentetik Yağlar	-25 +140	ISO VG 320	Degol GS 320	Enersyn SG-XP320	Glycolube 320	Syntheso D 320 EP	Gylgoyle HE 320		Alphasyon PG 320
<i>Synthetic Oil</i> Synthetisch Öl	-25 +140	ISO VG 220	Degol GS 220	Enersyn SG-XP220		Syntheso D 220 EP	Gylgole HE 220	Tivela WB	Alphasyon PG 220
	-30 +140	ISO VG 150	Degol GS 150	Enersyn SG-XP 150		Syntheso D 150 EP			Alphasyon PG 150
	-30 +140	ISO VG 100		Enersyn SG-XP 100		Syntheso D 150 EP			
Mineral Gresler / Minaral Grease / Mineral Fett	-20 +120		Aralup HL 3	Energrease LS 3	Beacon 3	Centoplex 2	Mobilux 2	Alvania R3	Spheerol APT 3
Sentetik Gresler / Synthetic Grease / Synthetisch gres	-30 +100					ISOFLEX Topas L152	Mobiltemp SHC 100	Cassida RLS 00	



b- Oil Quantities. (lt)

Gear Box Type	O il Quantity (lt) Mounting Position B3
YR.1125	5
YR.1160	8,5
YR.1200	17,7
YR.2195	4,7
YR.2240	9
YR.2275	14
YR.2305	21
YR.2340	29
YR.2385	36
YR.2430	50
YR.2480	79
YR.2545	104
YR.3355	17
YR.3395 / YR.4395	21
YR.3440 / YR.4440	32
YR.3500 / YR.4500	44
YR.3555 / YR.4555	60
YR.3620 / YR.4620	86
YR.3705 / YR.4705	125



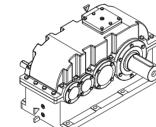
c- Mounting Positions

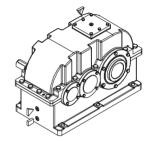
Standard type YR Series are delivered only as B3 mounting position. Different mounting positions are possible as special application. Please contact YILMAZ REDUKTOR for different mounting positions. The standard B3 mounting position is shown bellow.

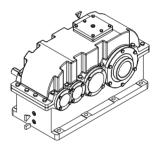
YR.1

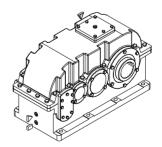


YR.3

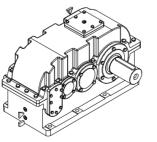








YR.4





Filling Plug





9-Troubleshooting Guide



All the operations bellow must be done by experienced mechanichan/electrican. Do not make anythink 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 incerter/driver manual. Chech 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 choosen motor. Loosen the gearbox from the load/torque. If it works than the starting torque is insufficient and higher motor power is needed. For monophaze motors, check the starting up condansator and running condansator as well. If notting 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 198V 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 choosen motor. Goto ID 003.



ID	Problem	Observation	Remedy
006	Gearbox Does Not Work in Low Speeds/frequenci- es.	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 optimized. Also for low speeds the efficiency of the gearbox may varry too much. Specially for worm-gearboxes. The recomended 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 reccomended 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 manuel 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 tenp 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 standart worm gearboxes are designed to work under max. +120 Celsius. If higher than +120 Celsius and using ATEX conforming gear box immidiately stop the system and contact YILMAZ <u>REDUKTOR</u> . Go to ID 100. If not ATEX confirming check the oil type and oil quantitiy/level according your mounting position and check the nameplate mounting position. If nameplate mounting position does not fit the actual position goto 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 immidiately stop the system and contact <u>YILMAZ REDUKTOR</u> . If not ATEX gearbox the gearbox is designed to work under max. +80 Celsious. If higher than +80 Celsius check the oil type and oil quantitiy/level according your mounting position and check the nameplate mounting position. If nameplate mounting position does not fit the actual position goto ID 100
010	Gearbox is Heating Up too Much	Ambient Temp is over +40 Celsius	Standart 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	Nois is regular continious	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. Goto ID 100
012	Gearbox is noisy	Nois 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 demage. Goto ID 100



ID	Problem	Observation	Remedy
013	Gearbox is noisy	Regular nocking 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. Goto ID 10
014	Gearbox is noisy	Regular up and down noise (Sinosial noise)	Check the output-shaft connection alements for runout. Take out the output shaft element and run without load. If you still hear the noise one of the gears has runout problem. Goto ID 10
015	Gearbox is noisy	Gearbox is with braked motor and noise is comming 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. Goto 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 optimized for the frequency range or motor you are using. Observe the frequency inverters manual. If still same problem change the ratio of gearbox. Goto ID 100
017	Oil is Leaking	Oil Leakage from Seal	If ambient Temp is over +40 Celsious 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. Goto 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 tifgten the plug. If still same problem goto ID 100
019	Oil is Leaking	Oil Leakage from Housing	Observe exactly where the oil is comming out. It could be seal or plug point where it comes out and leakes over the housing. If this is your case goto ID 018/019. If you are sure oil comes out from housing than housing has some micro split / crack. Goto ID 100
020	Oil is Leaking	Oil Leakage from Cover	The sealing liquit under cover is split/defect. Disassemle the cover and put new sealing liquit. Assemle the cover and tighten the bolts. If still same problem goto 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 runout of the shaft which you assemle 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 runout and clearance of the shaft which you assemle the gearbox. Check the clearance of the assemling 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. Goto ID 100
023	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. Goto ID 100



ID	Problem	Observation	Remedy
024	Motor is running but Gearbox shaft does not turn	Scratchinh noise comes out	Some part (key, gear) may be defect inside gearbox. Goto ID 10
025	Gearbox Housing is Defect	You are using chain drive or pinion gear	The radial load or poligon 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 rigit enough. Check if you are using the correct diameter of chain drive and you are not exceeding max. allowed radial load. Check the position of your output element and re-calculate your radyal load and check if this fit to tha maximum allowed radial load. Goto ID 100
026	Output Shaft is Defect	You are using chain drive or pinion gear	The radial load or poligon 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 rigit enough. Check if you are using the correct diameter of chain drive and you are not exceeding max. allowed radial load. Check the position of your output element and re-calculate your radyal load and check if this fit to tha maximum allowed radial load. Goto ID 100
027	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 standart gearbox delivered from our factory is set to delayed braking. For sudden braking check the wiring diagram.
028	Gearbox is starting too late	You are using braked motor	For fast opening of big brakes (over 100Nm), you may need shock transformators which is supplied by YILMAZ. Goto ID 100
100	Service Required	No self solution found	Please contact YILMAZ REDUKTOR Service point. See on the back side of this manual

Yılmaz Redüktör San. ve Tic. A.Ş. Head Office: Maltepe Gümüşsuyu Cad. Bestekar Medeni Aziz Efendi Sok. No:54 P.K.34020 TOPKAPI-İSTANBUL-TÜRKEY Tel: +90 (0) 212 567 93 82/83 , Fax: +90 (0) 212 567 99 75 Factory: Beylikdüzü San-Bir Bulv. 1.Bölge 3.Cad. No:18 BÜYÜKÇEKMECE-İSTANBUL-TÜRKEY Tel: +90 (0) 212 886 52 82/83 , Fax: +90 (0) 212 886 54 57



DECLARATION BY THE MANUFACTURER

(According 94/9/EC, Anex VIII)

We YILMAZ REDÜKTÖR Sanayi ve Ticaret A.Ş. Beylikdüzü San-Bir. Bulvarı 1.Bölge 3.Cadde No:18 Büyükçekmece/Istanbul/TURKEY

herewith declare, on our own responsibility, that the following products

YR... Series Gear Units

in catagorie 2G and 2D that are subject to this decleration are meeting the requirements set forth in

Directive 94/9/EC

Applicable standarts: EN 1127-1, EN 13463-1, EN 13463-5, EN 13463-8

The product this declaration refers to must not be put into service until the machinery into which it is to be incorporated has been declared in confirmity with the provisions of the relevant European Directives.

YILMAZ REDUKTOR will archive the documents required according to 94/9/EC, Appendix VIII at the following location

TÜV Product Service No: 0123 with file No: Ex 9 05 04 54878 015

TURKEY / Istanbul Date :01.01.2005

Authorized Person Re-Search Manager Metin YILMAZ

This declaration is not guarantee of charecteristics in the sense of the product liability law. The safety regulations of the maintenance instructions have to be observed.



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.

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.

Yılmaz Redüktör San. ve Tic. A.Ş.

Head Office: Maltepe Gümüşsuyu Cad. Bestekar Medeni Aziz Efendi Sok. No:54 P.K.34020 TOPKAPI-İSTANBUL-TURKEY Phone: +90 (0) 212 567 93 82/83 , Fax: +90 (0) 212 567 99 75

Factory : Beylikdüzü San-Bir Bulv. 1.Bölge 3.Cad. No:18 BÜYÜKÇEKMECE-İSTANBUL- TURKEY

Phone: +90 (0) 212 886 90 00 - PBX 10lines , Fax: +90 (0) 212 886 54 57



Warranty

YILMAZ REDÜKTÖR 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 REDÜKTÖR SANAYİ VE TİCARET A.Ş. Address : Gümüşsuyu Cad. Bes.Medeni Aziz Efendi Sok. No:54 Topkapı / Maltepe / İsyanbul / TURKEY Phone : +90 (0) 212 567 93 82 / 83 - +90 (0) 212 886 50 43/44 Fax : +90 (0) 212 567 99 75 - +90 (0) 212 886 54 57

Stamp and Signature

Supplier / End User: Name: Billing Date/ Bill No.: Start-Up Place / Date: Address: Phone - Fax: Supplier/ End User Stamp and Signature

Service Contact Points:

Main Service Point:

YILMAZ REDÜKTÖR A.S. Beylikduzu San-Bir Bulv. 1. Bolg. 3. Cad. No: 18 PK 34900 Büyükcekmece/Istanbul/TURKEY

Head Office:

Tel: +90 (0)212 567 93 82 (2 line), +90(0) 212 567 06 03, +90(0) 212 567 40 78 +90(0) 212 567 04 11 +90(0) 212 567 04 11 +90(0) 212 567 00 70 Fax: +90(0) 212 567 99 75 e-mail: <u>yilmaz@yr.com.tr</u> web: www.yr.com.tr

Factory:

Tel: +90(0) 212 886 61 92 (5lines) +90(0) 212 886 50 43 +90(0) 212 886 50 44 +90(0) 212 886 52 82

Fax: +90 (0) 212 886 54 57

e-mail: <u>yilmaz@yr.com.tr</u> web: <u>www.yr.com.tr</u>

Outside Turkey:

Please contact the main service point mentioned above. You will be directed to our nearest service point to your location

YILMAZ REDÜKTÖR ISO 9001

YILMAZ REDÜKTÖR ISO 9001







Gear Units, Y Series

Edition 01/2005 OIYEX 0101/0105

Operating Instructions



Contents

1	How	v To Use This Manual	5
2	Unit	Designation	6
	2.a	Detailed unit designation	6
	2.b	Nameplate unit designation	7
3	Part	List of Standard Type Gear Units	8
	3.a	YRM1. Type	8
	3.b	YRM2. Type	9
	3.c	YRD2 Type	10
	3.d	YRM3 Type	11
	3.e	YRD3 Type	12
	3.f	YRM4 Type	13
	3.g	YRD4 Type	14
4	Thir	nks to Check Before the Gear Unit or Geared Motor is Installed	16
•	4.a	Safety notes	16
	4.b	Transportation	17
	4.c	Storage	17
_	. .		10
5		alling The Gear Unit	18
	5.a	Before you start	18
	5.b	Check Name Plate	18
	5.c	Check the ambient conditions and temperature	18
	5.d	Check fitting elements and the shaft dimensions to fit	18
	5.e	Check the voltage supply	20
	5.f	Check the mounting position	20
	5.g	Use the breather plug	20
	5.h	Check the oil level	21
	5.i	Check shaft ends and mounting faces	21
	5.j	Cover abresive ambient	21
	5.k	Check accessibility to filling, breather and drain plugs	21
6	Mec	hanical Installation	22
	6.a	Installing gear units in category II2G/D-II3G/D	22
	6.b	Fittting outputshaft elements	23
	6.c	Correct position of otputshaft elements	23
	6.d	Installing customer shaft with shoulder.	24
	6.e	Disassembling customer shaft with shoulder	25
	6.f	Shaft tightening torques	27
	6.g	Recommended shaft dimensions for YRD types	28
	6.h	Fitting Couplings	29
		σ T σ	

Operating Instruction Y Series



7	Inspections	30
8	Lubrication.8.aOil Types.8.bOil Quantities.8.cMounting Positions.	31 31 32 33
9	Troubleshooting Guide	34
10	Decleration by the Manufacturer	38
11	Waranty conditions	39
12	Waranty	40
13	Service Contact Points	41

Operating Instruction Y Series General Information



1 -How To Use This Manual

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



Electric Hazard; Can cause severe or fatal injuries.



Mechanical Hazard; Can cause severe or fatal injuries.



Likely to be Hazardous; Can cause minor injuries



Damage Risk; Can damage the drive or environment



Important Information



Important information about explosion protection

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 YR. series gear units and is applicable only for these 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.

The YR. Series garboxes are with standard IEC B5/B14 connection flange and without motor. The electric motor which will be connected to the gearbox must also be in confirmity with the ATEX (94/9/EC) standarts.

All the external parts which will be assembled to the gear unit must conform ATEX (94/9/EC). The product this decleration refers to must not be put into service until the machinery into which it is to be incorporated has been declared in confirmity with the provisions of the relevant European Directives.

If the gear unit is not operated as informed on this manual the gear unit is no longer ATEX conforming and <u>YILMAZ REDUKTOR does not take any responsibility.</u>



2 -Unit Designation a- Detailed unit designation



<u>Detailed YR series gear units designation for ordering</u> (This Designation is different from the short nameplate designation)

30kW - 29rpm - 48,86 - YRM3705 - L

Power (kW)

N) Output Ratio (i) Speed(rpm)

YRM- With solid output shaft YRC- With double output shaft YRD- With hollow output shaft YRE- With extruder housing Mounting position (See picture below)

Viewed from input side L - Right Input, Left Output R - Left Input, Right Output UL- Left Input, Left Output UR- Reight Input, Right Output

Example

Туре

30-29-48,86-YRM3705

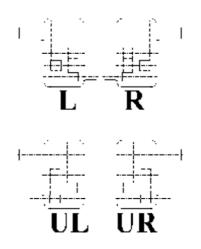
30 kW, 29rpm, i=48,86 gear unit with output shaft , gearbox type: YRM4705

30-29-48,86-YRC3705

30 kW, 29rpm, i=48,86 gear unit with double output shaft , gearbox type: YRM4705

11-29-48,86-YRE2240

11 kW, 29rpm, i=48,86 gear unit with extruder housing, gearbox type: YRM2240





b- Nameplate, unit designation



Nameplate unit designation is a short abbreviation from the detailed designation

A sample name plate for YR. Series

VILMAZ REDÜKTÖR A.S. Beylikdizü SAN - BIR Bulvari 1.Bolge 3.Cadde No:18 34900 Büyükçekmece / IST. / TURKEY					
Type:	λ	(RM)	1200)-L / 20	GD
S/N.:	04 / S	52251	- E	X	IP65
P :	30	kW	M2	: 1045	5 Nm
n_1 :	1400	rpm	n_2	: 263	rpm
F_{R2} :	12000	Ν	FR	1:-	Ν
F _{A2} :	190	Ν	FA	1: -	N
Oil :	VG 22	0	Qty	:14	lt
M.Po	s.: E	33	Ta	: -20/	+40 °C
{(Ex)]	II 2GE) c,k	T4	/ T120	0°C

Abreviations:

Type. : Type of gearbox S/N: Serial Number of gear unit as; year/order no IP..:Enclosure P: Max. Allowed Power M2: Output torque n1: Input speed n2: Output speed FR2: Max. allowed radial load at output shaft FR1: Max. allowed radial load at input shaft FA2: Max. allowed axial load at output shaft FA1: Max. allowed axial load at input shaft Oil: Filled oil inside the gear unit Qty.: Oil quantity M.pos.: Mounting Position. Ta: Ambient Temp ATEX sign (EN 13463-1):

Max. allowed surface temperature

Temperature Class

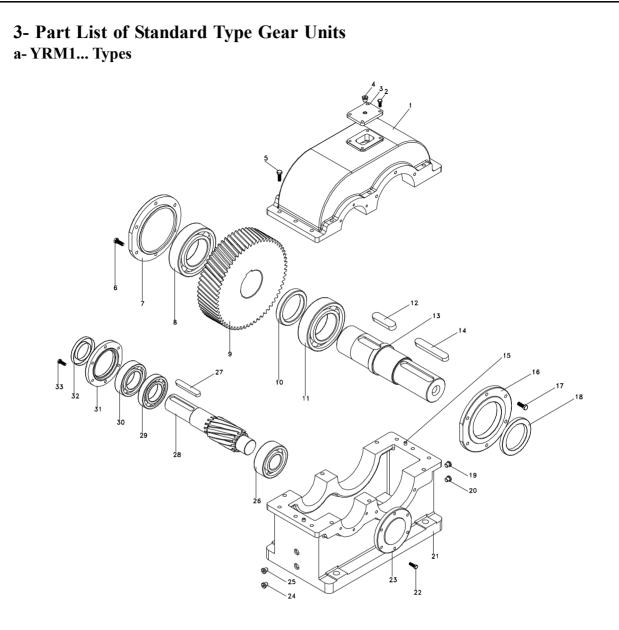
Ignation Class if applicable.

Catagorie; 2GD for gas and dust.

Group: Only II, not for underground use

YILMAZ REDÜKTÖR







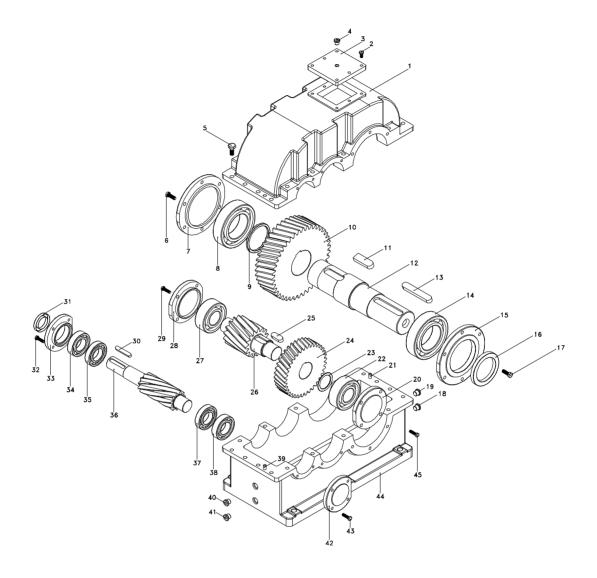
Standard YRM1... type basic part diagram. Parts may differ for special applications.

1- Uper Housing Part	8- Bearing	15- Pin	22- Bolt	29- Bearing
2- Bolt	9- Gear	16- Sealed Side Cover	23- Closed Side Cover	30- Bearing
3- Cover Plate	10- Spacer	17- Bolt	24- Plug	31- Sealed Side Cover
4- Plug	11- Bearing	18- Oil Seal	25- Plug	32- Oil Seal
5- Bolt	12- Key	19- Plug	26- Bearing	33- Bolt
6- Bolt	13- Output Shaft	20- Plug	27- Key	
7Closed Side Cover	14- Key	21- Bottom Housing Part	28- Input Pinion Shaft	





b- YRM2... Types



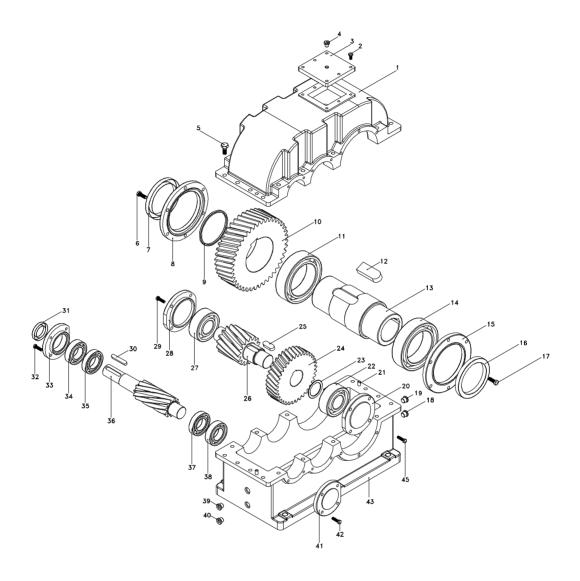


Standard YRM2... type basic part diagram. Parts may differ for special applications.

1- Uper Housing Part	10- Gear	19- Plug	28- Closed Side Cover	37- Bearing
2- Bolt	11- Key	20- Closed Side Cover	29- Bolt	38- Bearing
3- Cover Plate	12- Output Shaft	21- Centering Pin	30- Key	39- Centering Pin
4- Plug	13- Key	22- Bearing	31- Oil Seal	40- Plug
5- Bolt	14- Bearing	23- Spacer Ring	32- Bolt	41- Plug
6- Bolt	15- Seal Cover	24- Gear	33- Side Cover	42- Closed Side Cover
7Closed Side Cover	16- Oil Seal	25- Key	34- Bearing	43- Bolt
8- Bearing	17- Bolt	26- Pinion Shaft	35- Bearing	44- Bottom Housing Part
9- Spacer Ring	18- Plug	27- Bearing	36- Pinion Shaft	45- Bolt



c- YRD2... Types





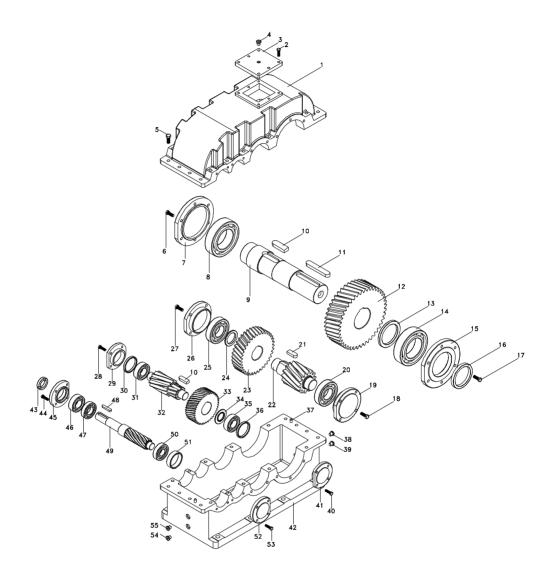
Standard YRD2... type basic part diagram. Parts may differ for special applications.

1- Uper Housing Part	10- Gear	19- Plug	28- Closed Side Cover	37- Bearing
2- Bolt	11- Bearing	20- Closed Side Cover	29- Bolt	38- Bearing
3- Cover Plate	12- Key	21- Centering Pin	30- Key	39- Plug
4- Plug	13- Hollow Shaft	22- Bearing	31- Oil Seal	40- Plug
5- Bolt	14- Bearing	23- Spacer Ring	32- Bolt	41- Closed Side Cover
6- Bolt	15- Seal Cover	24- Gear	33- Side Cover	42- Bolt
7Closed Side Cover	16- Oil Seal	25- Key	34- Bearing	43- Bottom Housing Part
8- Bearing	17- Bolt	26- Pinion Shaft	35- Bearing	45- Bolt
9- Spacer Ring	18- Plug	27- Bearing	36- Pinion Shaft	





d-YRM3... Types



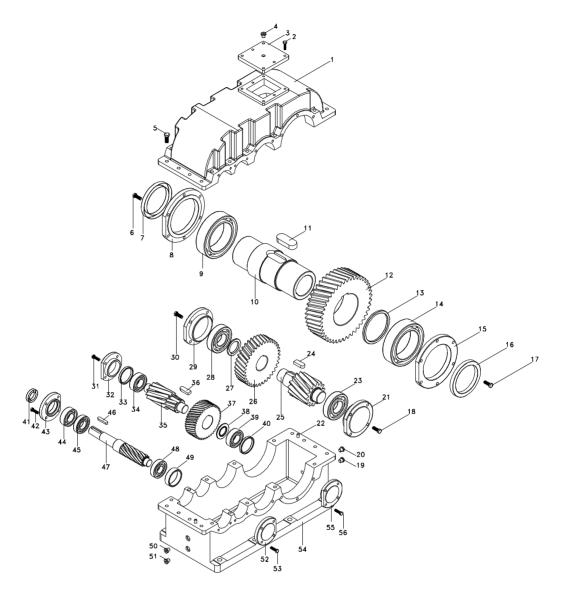


Standard YRM3... type basic part diagram. Parts may differ for special applications.

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



e- YRD3... Types





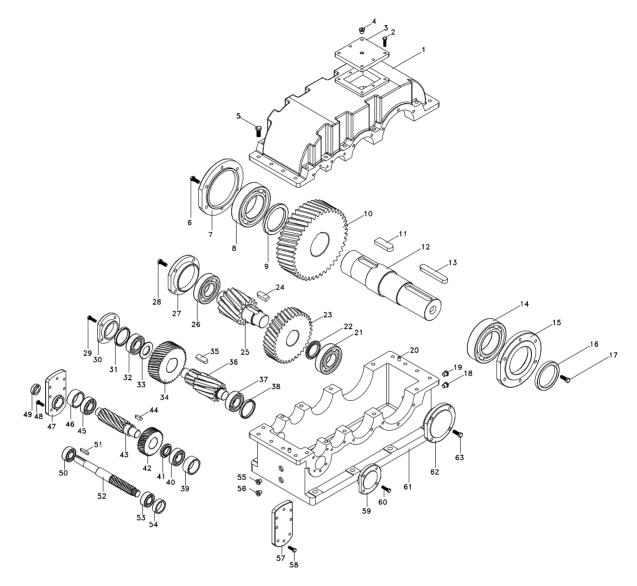
Standard YRD3... type basic part diagram. Parts may differ for special applications.

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





f- YRM4... Types



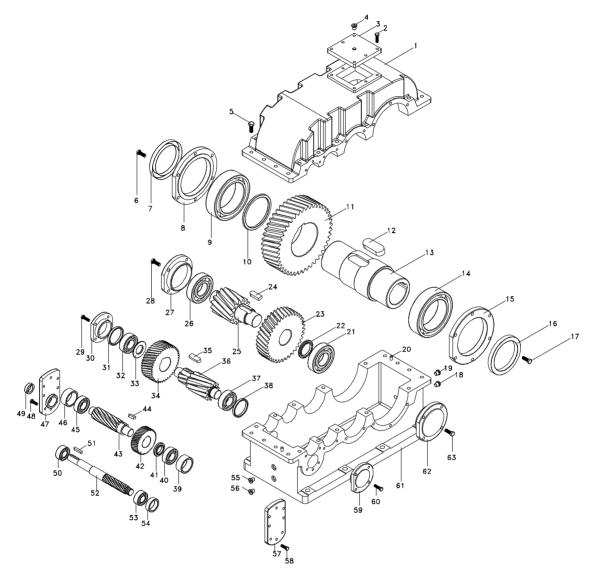


Standard YRM4... type basic part diagram. Parts may differ for special applications.

1- Uper Housing Part	12- Output Shaft	23- Gear	34- Gear	45- Bearing	56- Plug
2- Bolt	13- Key	24- Key	35- Key	46- Spacer	57- Closed Side Cover
3- Cover Plate	14- Bearing	25- Pinion Gear	36- Pinion Shaft	47- Sealed Side Cover	58- Bolt
4- Plug	15- Sealed Side Cover	26- Bearing	37- Bearing	48- Bolt	59- Closed Side Cover
5- Bolt	16- Spacer	27- Closed Side Cover	38- Spacer	49- Seal	60- Bolt
6- Bolt	17- Bolt	28- Bolt	39- Spacer	50- Bearing	61- Bottom Housing Part
7- Closed Side Cover	18- Plug	29- Bolt	40- Bearing	51- Key	62- Closed Side Cover
8- Bearing	19- Plug	30- Closed Side Cover	41- Spacer	52- Input Pinion Shaft	63- Bolt
9- Spacer Ring	20- Pin	31- Spacer	42- Gear	53- Bearing	
10- Gear	21- Bearing	32- Bearing	43- Pinion Gear	54- Spacer	
11- Key	22- Spacer	33- Spacer	44- Key	55- Plug	



g- YRD4... Types





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

1- Uper Housing Part	12- Key	23- Gear	34- Gear	45- Bearing	56- Plug
2- Bolt	13- Hollow Output Shaft	24- Key	35- Key	46- Spacer	57- Closed Side Cover
3- Cover Plate	14- Bearing	25- Pinion Gear	36- Pinion Shaft	47- Sealed Side Cover	58- Bolt
4- Plug	15- Side Cover	26- Bearing	37- Bearing	48- Bolt	59- Closed Side Cover
5- Bolt	16- Oil Seal	27- Closed Side Cover	38- Spacer	49- Seal	60- Bolt
6- Bolt	17- Bolt	28- Bolt	39- Spacer	50- Bearing	61- Bottom Housing Part
7- Oil Seal	18- Plug	29- Bolt	40- Bearing	51- Key	62- Closed Side Cover
8- Sealed Side Cover	19- Plug	30- Closed Side Cover	41- Spacer	52- Input Pinion Shaft	63- Bolt
9- Bearing	20- Pin	31- Spacer	42- Gear	53- Bearing	
10- Spacer	21- Bearing	32- Bearing	43- Pinion Gear	54- Spacer	
11- Gear	22- Spacer	33- Spacer	44- Key	55- Plug	





4 -Thinks to Check Before the Gear Unit or Geared Motor is Installed

a) Safety notes for use in potentially explosive atmosphere



Explosive gas mixtures or concentration of dust can lead to severe or fata injuries in conjunction with hot or moving parts of the gear unit / gearmotor

Before you install the gearbox you have to be sure that the gearbox is arrived with the all necessary equipment and without damage. Thinks 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
- The nameplate is clearly visible and all the data can be read.
- All the regulations and requirements according to the currently valid national/regional regulations.
- The gearbox is used according its intended use



Intended use of gearbox:

The gearboxes covered by this manuel can only be used in ATEX zone 2G2D, 3G3D and ignation class IIA/IIB.

The gear units are intended for industrial systems and may only be used in accordance with the information provided in this manual and the nameplate of the gearbox. They comply with the applicable standards and regulations and meet the requirements of the directive 94/9/EC. The gearbox is started up, maintained and operated according this manual. The gearbox is incorporated with 94/9/EC confirming parts/machines.



<u>A motor connected to the gear unit is only allowed to be operated in the frequency entries so</u> that the data provided on nameplate of the gear unit is not exceeded and is accordance with the nameplate. The input speed range will be provided on the name plate if YILMAZ REDUKTOR is informed that the gear unit will be used with frequency inverter. If not informed the nameplate will have a single fixed input speed and only this input speed is allowed. The electric motor and frequency inverter must be in accordance with 94/9/EC



If the gear units input is used with variable speed gear unit, this must be informed to YILMAZ <u>REDUKTOR</u> before ordering and on the nameplate the allowed maximum and minimum input speeds (speed range) will be provided. If not mentioned by ordering the gear units input speed will be a fixes single input speed and only this speed is allowed.



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



The ambient conditions must be accordance with the name plate and no agresive media must attack the paint and seals.

Operating Instruction Y Series Installing





The gearbox maintanance (oil change / check) must be done according this manuel

b) 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 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 supplied eyebolts or lifting holes for lifting up the gear unit. The eyebolts are capable to carry the weight of gearboxes only. Do not hang additional loads.

c) Storage

If the geared unit or gearedmotor 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 surface. 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 year with regular check.

Without Packing;

-Use protection oil for the output shaft and connection surfaces like flange surface or foot assembling surface. 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 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 check during this time is recommended.

If stored in open protect against insect damage.



5- Installing The Gear Unit

a) 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.



b) Check nameplate of the gear unit;

- ATEX conforming gear gear units have a nameplate indicating the "EX" sign shown on the left side and the following information;

- Equipment group
- Ex category
- Ex zone
- Temprature class
- Maximum surface temperature

If you can not see this sign and values, your gearbos is not intended for use on potentially explosive atmosphere. If some of the data can not be read because of some reason, please contact YILMAZ REDUKTOR.

c) Check the ambient conditions and temperature;

Have measures been taken to ensure that no potentially explosive atmosphere, oils, acids, gases, vapors or radiated interference are present when the gear unit is being installed.

The ambient temperature must be in accordance with the oil tables given on the manual. If different contact YILMAZ REDUKTOR for special solutions.



The ambient air temperature must not exceed 40 degrees celcius as mentioned on the nameplate. The cooling air surrounding the gear unit must bellow 40 degrees and the gear unit must not subject to heating from external sources. The gear unit surface must be kept clean and sufficiently ventilated.

d) Check fitting elements and the shaft dimensions to fit;

All external elements that will be fitted to the gear unit must be ATEX confirming.

The shaft/flange dimention are shown bellow. Use correct tolerances to fit external elements. Observe the assemly instructions provided in this manual.







Only belts with sufficient shunt resistance <10^9 ohm are allowed



<u>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.</u>



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



Observe the name plate for maximum allowed radial and axial load. The external radial and axil load must not exceed the provided values on the nameplate.

Туре	Hollow Shaft Diameter	Hollow Shaft Tolerance (H8)	Output Shaft Diameter	Output Shaft Tolerance (DIN 748) Up to 50mm k6 Over 50mm m6
YR.1125	-	-	55	+0.03 +0.01
YR.1160	-	-	70	+0.03 +0.01
YR.1200	-	-	90	+0.03 +0.01
YR.2195 YR.2240	50	+0.04 0	65	+0.03 +0.01
YR.2275 YR.3355	60	+0.05 0	75	+0.03 +0.01
YR.2305 YR.3395 YR.4395	85	+0.06 0	85	+0.04 +0.02
YR.2340 YR.3440 YR.4440	90	+0.06 0	95	+0.04 +0.02
YR.2385 YR.3500 YR.4500	95	+0.06 0	100	+0.04 +0.02
YR.2430 YR.3555 YR.4555	110	+0.06 0	110	+0.04 +0.02
YR.2480 YR.3620 YR.4620	140	+0.07 0	130	+0.04 +0.02
YR.2545 YR.3705 YR.4705	150	+0.07 0	140	+0.04 +0.02



e) Check the voltage supply;

ATEX Conforming gear units are supplied by YILMAZ without motor. The motor that will be fitted must have ATEX certificate and the instruction manual of the electric motor provider must be observed. Observe the name plate of the electric motor and the instructions of the supplier. Check the basic electric connection diagrams below. Use experienced electric technician. The gearbox and the motor must be grounded to prewent potential differences of earth and gearbox/motor.



Using wrong connection or voltage can damage the electric motor or environment. The electric connection must be done by experienced electric technician.

f) Check the mounting position;

The mounting position must be in accordance with the mounting position mentioned on the name plate. If different please contact YILMAZ REDUKTOR for possibilities of using in a different mounting position. Different use of mounting position than indicated on the name plate without informing YILMAZ REDUKTOR will cancel the ATEX confirmity and YILMAZ does not take any responsibility.



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

g) Use of breather plug;

Breather plugs are supplied as a standard part for ATEX conforming gear units. The breather plug is attached to the gear unit and must be changed with the most top plug according to the mounting position. Take out the plug over the gear box and replace it with the supplied breather plug after assembling to its place and before start-up.



All plug points are not machined. Only plugs according mounting position is machined. If no mounting position is mentioned by ordering the standard B3 position plugs are machined.







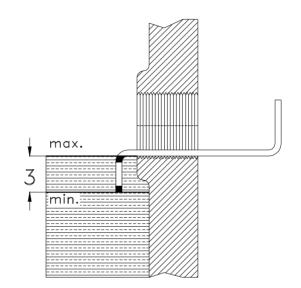


h) Check the oil level ;

On the mounting position tables the oil level plug is shown. Please refer to those tables and be sure that the oil level is correct according the mounting position. Use a wire as shown below for checking the oil level entering from the level plug. The oil level must be within 3mm from the plugs entering point as shown below. If you need to adjust the oil level refer to the oil tables given on this manuel and be sure you are using the correct oil. Observe the nameplate for the correct oil.



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



i) Check shaft ends and mounting faces;

Before you start to 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.

j) Cover abrasive ambient;

If the gear unit will be placed on a abrasive ambient be sure that the output seals are covered so that no abrasive material, chemicals or water touches the seals. Any pressure coming from outside over the seals can cause that the out staying 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 for solutions.



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

k) Check accessibility to filling, breather and drain plugs;

The filling, breather and drain plugs must be freely accessible for further checking and service.



6- Mechanical Installation

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.

All bolts are locked by use of locktide adhesives or gear-shims on the gearbox. By assembling the gear unit locktides adhesives or gear-shims must be used to prevent loosening of bolts.

AC.

Cover all the turning parts from human entering or touching. Turning parts can cause severe or fatal injuries.

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



Only ATEX-approved input and output elements are allowed to be used, assuming the elements are subject to Directive 94/9/EC

a- Installing gear units in category II2G/D-II3G/D

Explosion-proof gear units comply with the design requirements for unit group II, catagory 2G,2D,3D,3G. These units are intended for use in zones 1 and 21.



The gear units in catagory II2D must be used in ambient teperature between -20<u>C to +40 C only. If different ambient conditions this must be informed before</u> order and the name plate must be in accordance with the ambient conditions.

Æx)

The temperature class depends on the speed, type and mounting position of the gearbox and is indicated on the name plate. Temperature classes from T4 to T6 are provided by YILMAZ REDUKTOR.



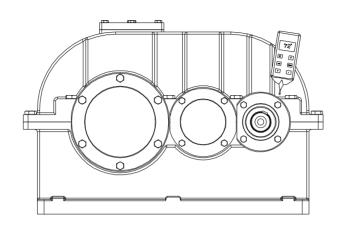
The surface temperature of the gearbox must not exceed the provided max. surface temperature on the name plate. After all installations finished and the gearbox is started up according this manual let the gear unit run 4 hours at full load and check the surface temperature from the shown point bellow and the ambient temperature. Check the following;

(40-Ta)+Tw < Tmax. of nameplate (Ta: Ambient Temp., Tw: Surface Temp)



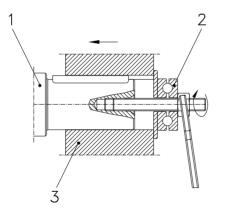


If the result is higher then Tmax, immidiately stop the system and contact YILMAZ REDUKTOR.



b-Fittting outputshaft elements

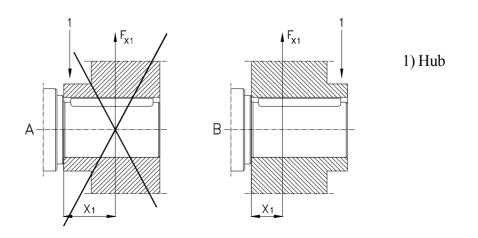
Use the following ilustration to assemble output shaft units



- 1) Gear shaft end
- 2) Thrust bearing
- 3) Coupling hub

c-Correct position of otputshaft elements

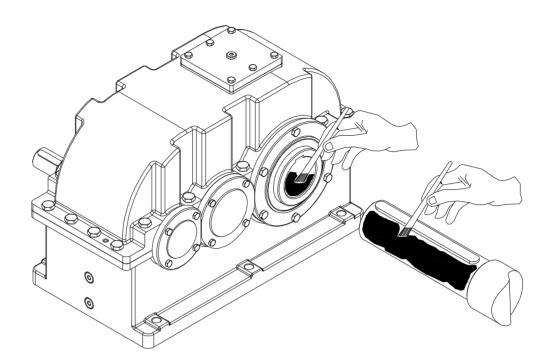
The Output Shaft unit (transmision elements) must placed as close as possible to the gear unit so that the radial load is as closest as possible to the gear unit.



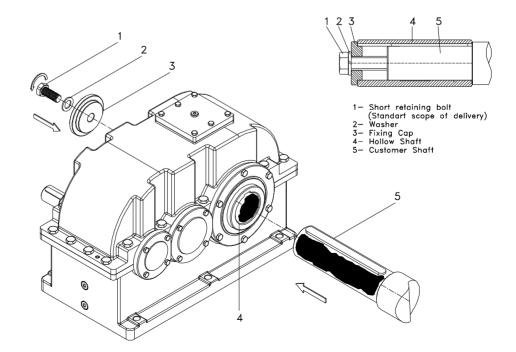


d- Installing customer shaft with shoulder

d1- Use anti-seize assembling paste available on your market. Use a brush to apply the paste.



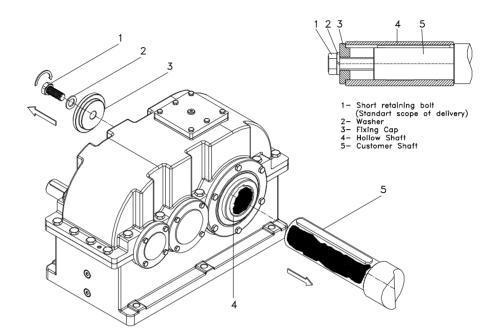
d2 -Fasten the bold as shown below.



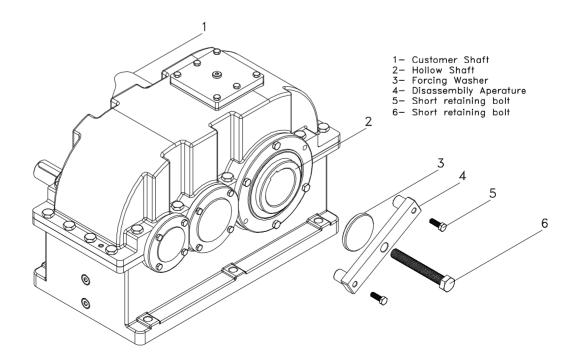


e- Disassembling customer shaft with shoulder

e1- Disassemble the bolt and take out the parts as shown

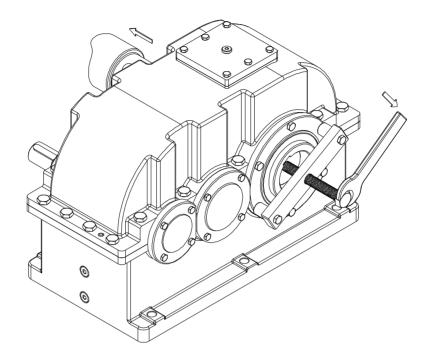


e2 -Use the disassemble set from YILMAZ and fasten the bold as shown bellow to take out the output shaft.



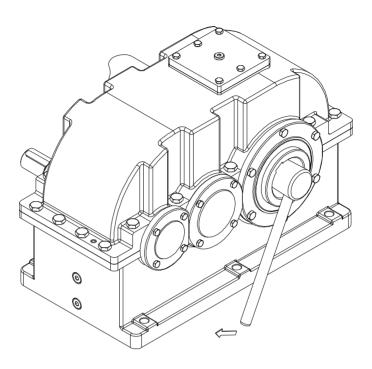


e3- Push the output shaft using disassemble set and tightening the screw as shown on the following isustration.





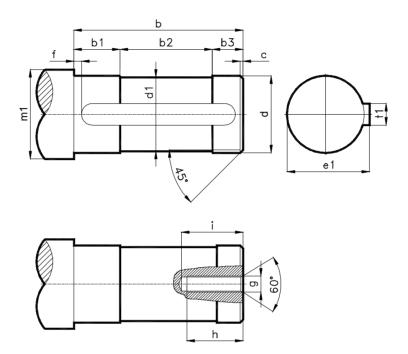
f- Shaft tightening torques Use the following table for shaft tightening torques.



Туре	Bolt	Tightening torque [Nm]
YRD2240	M16	40
YRD2275	M20	80
YRD2305	M20	80
YRD2340	M24	200
YRD2385	M24	200
YRD2430	M24	200
YRD2480	M30	400
YRD2545	M30	400
YRD3355	M20	80
YRD3395	M20	80
YRD3440	M24	200
YRD3500	M24	200
YRD3555	M24	200
YRD3620	M30	200
YRD3705	M30	400
YRD4395	M20	80
YRD4440	M24	200
YRD4500	M24	200
YRD4555	M24	200
YRD4620	M30	400
YRD4705	M24	200



g- Recomended shaft dimensions for YRD... types

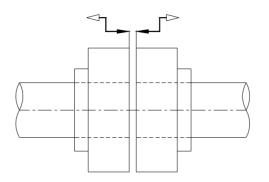


Туре	d	d1	b	b1	b2	b3	С	m1	f	h	i	g	e1	t1
YRD2240	50	49	240	65	125	50	3	68	5	36	45	M16	54	14
YRD2275	60	59	260	95	85	80	3	78	5	42	53	M20	64	16
YRD2305	85	84	320	110	115	95	4	117	5	42	53	M20	90	22
YRD2340	90	89	355	115	140	100	4	117	5	50	63	M24	95	25
YRD2385	95	94	355	125	120	110	4	127	5	50	63	M24	100	25
YRD2430	110	109	390	115	175	100	5	147	5	50	63	M24	116	28
YRD2480	140	139	470	165	155	150	5	176	5	60	77	M30	148	36
YRD2545	150	149	535	155	240	140	5	184	5	60	77	M30	158	36
YRD3355	60	59	260	95	85	80	3	78	5	42	53	M20	64	16
YRD3395	85	84	320	110	115	95	4	117	5	42	53	M20	90	22
YRD3440	90	89	355	120	130	105	4	117	5	50	63	M24	95	25
YRD3500	95	94	355	125	120	110	4	127	5	50	63	M24	100	25
YRD3555	110	109	390	115	175	100	5	147	5	50	63	M24	116	28
YRD3620	140	139	470	165	155	150	5	176	5	60	77	M30	148	36
YRD3705	150	149	535	155	240	140	5	184	5	60	77	M30	158	36
YRD4395	85	84	320	110	115	95	4	117	5	42	53	M20	90	22
YRD4440	90	89	335	120	110	105	4	117	5	50	63	M24	95	25
YRD4500	95	94	355	125	120	110	4	127	5	50	63	M24	100	25
YRD4555	110	109	390	115	175	100	5	147	5	50	63	M24	116	28
YRD4620	140	139	470	165	155	150	5	176	5	60	77	M30	148	36
YRD4705	150	149	535	155	240	140	5	184	5	60	77	M30	158	36

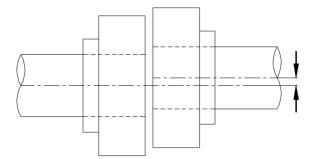


h-Fittting Couplings

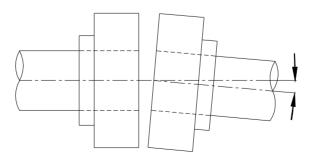
h1-By fitting couplings be sure that there is some clearanve between the two elements



h2-By fitting couplings be sure that there is no exantricity between the two shafts.



h3-By fitting couplings be sure that the two shafts are not angular miss-aligned.

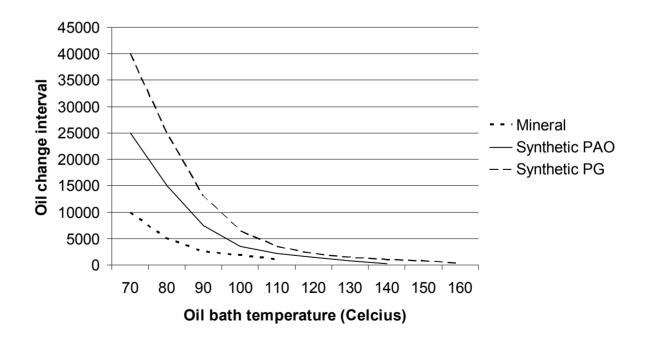




7- Inspections

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 3.000 working hours or every 6 months	Every 4.000 working hours	Every 10.000 working hours or every 3 years	Every 25.000 working hours
Check for oil leakage	х			
Check for oil level	х			
Check oil leakage from seal	х			
Check Rubber buffer	x (Change if necessary)			
Check Bearings Noise		x (Change if necessary)		
Change Mineral Oil			x (See Below for details)	
Change Synthetic-PAO Oil				x (See Below for details)
Change Sealing				х
Change Bearing Grease				x
Change Bearings				x
Check for noise Changes				x





For normal ambient conditions 70 degrees Celcius Should be taken as referance

* For Y series Mineral oil is used unless it is differently ordered. For oil type and quantities refer to the following tables.



8- Lubrication

a- Oil Types

Yağ Cinsi Lubricant Art des Schmierstoffes	Kullanım Sıcaklığı Usage Temparature Gebrauchstemperature	ISO Vizkozite Sınıfı ISO Viscosity Class Vizkozitäts Klasse ISO	ARAL	bp	E\$\$0	KLOPEN	Mobil	Shell	< ≑Castrol }
	0 +100	ISO VG 680	Degol BG 680	Energol GR-XP680	Spartan EP 680		Mobilgear 636	Omala 680	Alpha SP 680
	0 +100	ISO VG 460	Degol BG 460	Energol GR-XP460	Spartan EP 460	GEM 1 680	Mobilgear 634	Omala 460	Alpha SP 460
Mineral Yağlar	0 +100	ISO VG 320	Degol BG 320	Energol GR-XP320	Spartan EP 320	GEM 1 460 GEM 1 320	Mobilgear 632	Omala 320	Alpha SP 320
<i>Mineral Öil</i> Mineralöl	-5 +100	ISO VG 220	Degol BG 220	Energol GR-XP220	Spartan EP 220	GEM 1 220	Mobilgear 630	Omala 220	Alpha SP 220
	-5+100	ISO VG 150	Degol BG 150	Energol GR-XP150	Spartan EP 150	GEM 1 150 GEM 1 100	Mobilgear 629	Omala 150	Alpha SP 150
	-5+100	ISO VG 100	Degol BG100	Energol GR-XP100	Spartan EP 100		Mobilgear 627	Omala 100	Alpha SP 100
	-20 +140	ISO VG 680	Degol GS 680	Enersyn SG-XP680		Syntheso D 680 EP	Gylgoyle HE 680		
	-20 +140	ISO VG 460	Degol GS 460	Enersyn SG-XP460	Glycolube 460	Syntheso D 460 EP	Gylgoyle HE 460	Tivela SD	Alphasyon PG 460
Sentetik Yağlar	-25 +140	ISO VG 320	Degol GS 320	Enersyn SG-XP320	Glycolube 320	Syntheso D 320 EP	Gylgoyle HE 320		Alphasyon PG 320
<i>Synthetic Oil</i> Synthetisch Öl	-25 +140	ISO VG 220	Degol GS 220	Enersyn SG-XP220		Syntheso D 220 EP	Gylgole HE 220	Tivela WB	Alphasyon PG 220
	-30 +140	ISO VG 150	Degol GS 150	Enersyn SG-XP 150		Syntheso D 150 EP			Alphasyon PG 150
	-30 +140	ISO VG 100		Enersyn SG-XP 100		Syntheso D 150 EP			
Mineral Gresler / Minaral Grease / Mineral Fett	-20 +120		Aralup HL 3	Energrease LS 3	Beacon 3	Centoplex 2	Mobilux 2	Alvania R3	Spheerol APT 3
Sentetik Gresler / Synthetic Grease / Synthetisch gres	-30 +100					ISOFLEX Topas L152	Mobiltemp SHC 100	Cassida RLS 00	



b- Oil Quantities. (lt)

Gear Box Type	O il Quantity (lt) Mounting Position B3
YR.1125	5
YR.1160	8,5
YR.1200	17,7
YR.2195	4,7
YR.2240	9
YR.2275	14
YR.2305	21
YR.2340	29
YR.2385	36
YR.2430	50
YR.2480	79
YR.2545	104
YR.3355	17
YR.3395 / YR.4395	21
YR.3440 / YR.4440	32
YR.3500 / YR.4500	44
YR.3555 / YR.4555	60
YR.3620 / YR.4620	86
YR.3705 / YR.4705	125



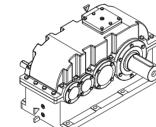
c- Mounting Positions

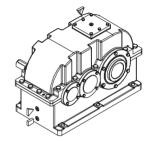
Standard type YR Series are delivered only as B3 mounting position. Different mounting positions are possible as special application. Please contact YILMAZ REDUKTOR for different mounting positions. The standard B3 mounting position is shown bellow.

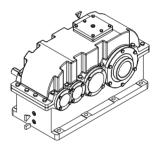
YR.1

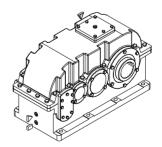


YR.3

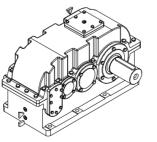








YR.4





Filling Plug





9-Troubleshooting Guide



All the operations bellow must be done by experienced mechanichan/electrican. Do not make anythink 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 incerter/driver manual. Chech 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 choosen motor. Loosen the gearbox from the load/torque. If it works than the starting torque is insufficient and higher motor power is needed. For monophaze motors, check the starting up condansator and running condansator as well. If notting 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 198V 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 choosen motor. Goto ID 003.



ID	Problem	Observation	Remedy
006	Gearbox Does Not Work in Low Speeds/frequenci- es.	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 optimized. Also for low speeds the efficiency of the gearbox may varry too much. Specially for worm-gearboxes. The recomended 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 reccomended 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 manuel 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 tenp 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 standart worm gearboxes are designed to work under max. +120 Celsius. If higher than +120 Celsius and using ATEX conforming gear box immidiately stop the system and contact YILMAZ <u>REDUKTOR</u> . Go to ID 100. If not ATEX confirming check the oil type and oil quantitiy/level according your mounting position and check the nameplate mounting position. If nameplate mounting position does not fit the actual position goto 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 immidiately stop the system and contact <u>YILMAZ REDUKTOR</u> . If not ATEX gearbox the gearbox is designed to work under max. +80 Celsious. If higher than +80 Celsius check the oil type and oil quantitiy/level according your mounting position and check the nameplate mounting position. If nameplate mounting position does not fit the actual position goto ID 100
010	Gearbox is Heating Up too Much	Ambient Temp is over +40 Celsius	Standart 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	Nois is regular continious	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. Goto ID 100
012	Gearbox is noisy	Nois 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 demage. Goto ID 100



ID	Problem	Observation	Remedy
013	Gearbox is noisy	Regular nocking 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. Goto ID 10
014	Gearbox is noisy	Regular up and down noise (Sinosial noise)	Check the output-shaft connection alements for runout. Take out the output shaft element and run without load. If you still hear the noise one of the gears has runout problem. Goto ID 10
015	Gearbox is noisy	Gearbox is with braked motor and noise is comming 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. Goto 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 optimized for the frequency range or motor you are using. Observe the frequency inverters manual. If still same problem change the ratio of gearbox. Goto ID 100
017	Oil is Leaking	Oil Leakage from Seal	If ambient Temp is over +40 Celsious 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. Goto 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 tifgten the plug. If still same problem goto ID 100
019	Oil is Leaking	Oil Leakage from Housing	Observe exactly where the oil is comming out. It could be seal or plug point where it comes out and leakes over the housing. If this is your case goto ID 018/019. If you are sure oil comes out from housing than housing has some micro split / crack. Goto ID 100
020	Oil is Leaking	Oil Leakage from Cover	The sealing liquit under cover is split/defect. Disassemle the cover and put new sealing liquit. Assemle the cover and tighten the bolts. If still same problem goto 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 runout of the shaft which you assemle 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 runout and clearance of the shaft which you assemle the gearbox. Check the clearance of the assemling 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. Goto ID 100
023	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. Goto ID 100



ID	Problem	Observation	Remedy
024	Motor is running but Gearbox shaft does not turn	Scratchinh noise comes out	Some part (key, gear) may be defect inside gearbox. Goto ID 10
025	Gearbox Housing is Defect	You are using chain drive or pinion gear	The radial load or poligon 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 rigit enough. Check if you are using the correct diameter of chain drive and you are not exceeding max. allowed radial load. Check the position of your output element and re-calculate your radyal load and check if this fit to tha maximum allowed radial load. Goto ID 100
026	Output Shaft is Defect	You are using chain drive or pinion gear	The radial load or poligon 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 rigit enough. Check if you are using the correct diameter of chain drive and you are not exceeding max. allowed radial load. Check the position of your output element and re-calculate your radyal load and check if this fit to tha maximum allowed radial load. Goto ID 100
027	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 standart gearbox delivered from our factory is set to delayed braking. For sudden braking check the wiring diagram.
028	Gearbox is starting too late	You are using braked motor	For fast opening of big brakes (over 100Nm), you may need shock transformators which is supplied by YILMAZ. Goto ID 100
100	Service Required	No self solution found	Please contact YILMAZ REDUKTOR Service point. See on the back side of this manual

Yılmaz Redüktör San. ve Tic. A.Ş. Head Office: Maltepe Gümüşsuyu Cad. Bestekar Medeni Aziz Efendi Sok. No:54 P.K.34020 TOPKAPI-İSTANBUL-TÜRKEY Tel: +90 (0) 212 567 93 82/83 , Fax: +90 (0) 212 567 99 75 Factory: Beylikdüzü San-Bir Bulv. 1.Bölge 3.Cad. No:18 BÜYÜKÇEKMECE-İSTANBUL-TÜRKEY Tel: +90 (0) 212 886 52 82/83 , Fax: +90 (0) 212 886 54 57



DECLARATION BY THE MANUFACTURER

(According 94/9/EC, Anex VIII)

We YILMAZ REDÜKTÖR Sanayi ve Ticaret A.Ş. Beylikdüzü San-Bir. Bulvarı 1.Bölge 3.Cadde No:18 Büyükçekmece/Istanbul/TURKEY

herewith declare, on our own responsibility, that the following products

YR... Series Gear Units

in catagorie 2G and 2D that are subject to this decleration are meeting the requirements set forth in

Directive 94/9/EC

Applicable standarts: EN 1127-1, EN 13463-1, EN 13463-5, EN 13463-8

The product this declaration refers to must not be put into service until the machinery into which it is to be incorporated has been declared in confirmity with the provisions of the relevant European Directives.

YILMAZ REDUKTOR will archive the documents required according to 94/9/EC, Appendix VIII at the following location

TÜV Product Service No: 0123 with file No: Ex 9 05 04 54878 015

TURKEY / Istanbul Date :01.01.2005

Authorized Person Re-Search Manager Metin YILMAZ

This declaration is not guarantee of charecteristics in the sense of the product liability law. The safety regulations of the maintenance instructions have to be observed.



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.

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.

Yılmaz Redüktör San. ve Tic. A.Ş.

Head Office: Maltepe Gümüşsuyu Cad. Bestekar Medeni Aziz Efendi Sok. No:54 P.K.34020 TOPKAPI-İSTANBUL-TURKEY Phone: +90 (0) 212 567 93 82/83 , Fax: +90 (0) 212 567 99 75

Factory : Beylikdüzü San-Bir Bulv. 1.Bölge 3.Cad. No:18 BÜYÜKÇEKMECE-İSTANBUL- TURKEY

Phone: +90 (0) 212 886 90 00 - PBX 10lines , Fax: +90 (0) 212 886 54 57



Warranty

YILMAZ REDÜKTÖR 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 REDÜKTÖR SANAYİ VE TİCARET A.Ş. Address : Gümüşsuyu Cad. Bes.Medeni Aziz Efendi Sok. No:54 Topkapı / Maltepe / İsyanbul / TURKEY Phone : +90 (0) 212 567 93 82 / 83 - +90 (0) 212 886 50 43/44 Fax : +90 (0) 212 567 99 75 - +90 (0) 212 886 54 57

Stamp and Signature

Supplier / End User: Name: Billing Date/ Bill No.: Start-Up Place / Date: Address: Phone - Fax: Supplier/ End User Stamp and Signature

Service Contact Points:

Main Service Point:

YILMAZ REDÜKTÖR A.S. Beylikduzu San-Bir Bulv. 1. Bolg. 3. Cad. No: 18 PK 34900 Büyükcekmece/Istanbul/TURKEY

Head Office:

Tel: +90 (0)212 567 93 82 (2 line), +90(0) 212 567 06 03, +90(0) 212 567 40 78 +90(0) 212 567 04 11 +90(0) 212 567 04 11 +90(0) 212 567 00 70 Fax: +90(0) 212 567 99 75 e-mail: <u>yilmaz@yr.com.tr</u> web: www.yr.com.tr

Factory:

Tel: +90(0) 212 886 61 92 (5lines) +90(0) 212 886 50 43 +90(0) 212 886 50 44 +90(0) 212 886 52 82

Fax: +90 (0) 212 886 54 57

e-mail: <u>yilmaz@yr.com.tr</u> web: <u>www.yr.com.tr</u>

Outside Turkey:

Please contact the main service point mentioned above. You will be directed to our nearest service point to your location