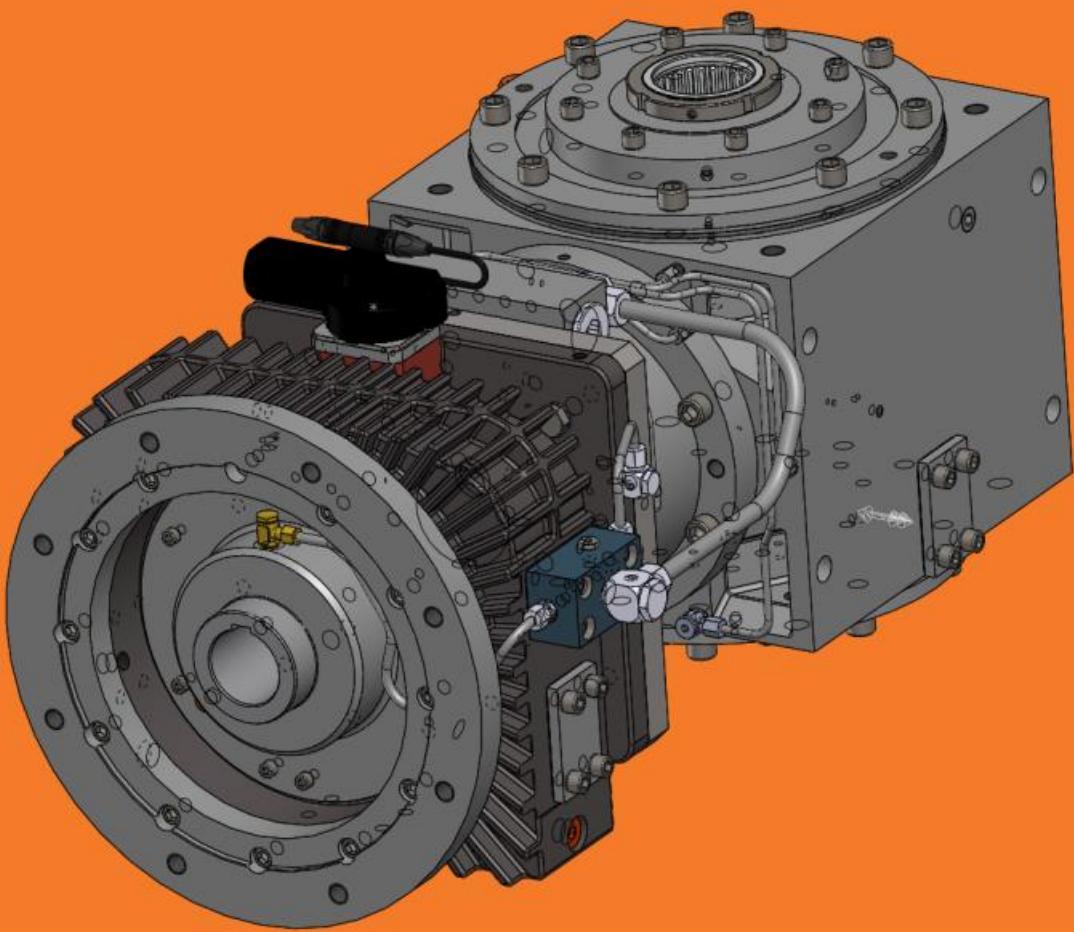


MSR 330 / 640 / 650 / 660

Mounting, Setup
and Maintenance Instructions



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1 INTRODUCTION

The MSR 2 speeds spindle gearbox will give you complete satisfaction if all of the following mounting, operating and maintenance instructions are respected.

This gearbox is delivered:

- Fully tested (leakage, speed change motoreducer, noise level, vibration, temperature)
- Ready to be mounted

1.1 Warnings

WARNING! LUBRICATION REQUIREMENTS.



**The MSR is delivered WITHOUT OIL: refer to lubrication chapter in this manual to respect all lubrication requirements.
any damage due to incorrect lubrication will void the warranty.**

1.2 Gearbox identification

Each unit can be identified through its identification plate and the serial number indicated on it. The serial number must be given for any correspondence on a particular unit.



1.3 Long term storage

Each gearbox is delivered wrapped and greased for 1 month anti-corrosion protection. Gearboxes which are not installed shortly after receipt should be stored in a dry atmosphere with temperature between 0°C & 40°C. The unit must be filled completely with oil for storage.

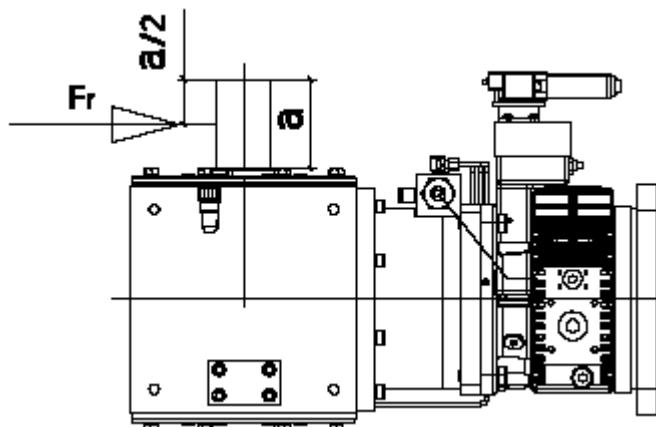
2 TECHNICAL DATA

2.1 General features

	334	336	644	646	654	656	666
High speed ratio	2,00	2,00	2,00	2,00	2,26	2,26	3,00
Low speed ratio	9,88	7,66	9,88	7,66	11,16	8,66	11,49
Efficiency	0,94	0,94	0,94	0,94	0,94	0,94	0,94
Nominal output torque (S1-100%) (Nm)	2500	2500	5900	7000	6600	9000	12000
Max input speed (rpm)	6000	6000	5000	5000	4500	4500	3500

2.2 Radial loads

Radial Load capacity on output:



MSR	Maximum load F_r (N) at 131rpm	Dimension "a/2" (mm)
330	30000	62,5
640	50000	80
650	75000	100
660	85000	110

Notes:

- Forces valid for a calculation basis of 15 000 hours
- For special design those data are subjected to change. Always refer to specific Redex calculation sheet.

3 MOTOR MOUNTING

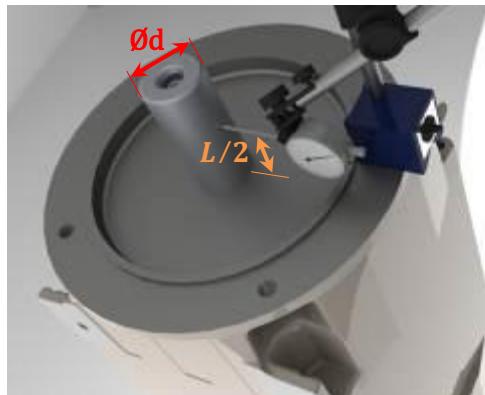
We recommend the installation of the gearbox to the machine frame **with the motor** to facilitate the implementation on the machine

3.1 Preliminary dimensional checking of the motor

3.1.1 Run out checking of the motor

- A. Clean and degrease the motor output shaft, flange and pilot diameter
- B. Put the motor onto a table
- C. The motor must respect DIN 42.955 class R; check the concentricity of the motor shaft with a comparator

Shaft diameter d (mm)	Radial run-out (mm)
$18 \leq d < 30$	≤ 0.021
$30 \leq d < 50$	≤ 0.025
$50 \leq d < 80$	≤ 0.030

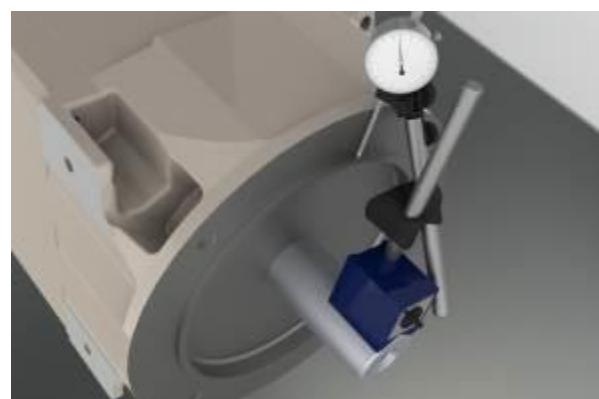


Shaft radial run-out measurement

Pilot diameter b_1 (mm)	Max. axial face run-out	Pilot radial run-out (mm)
$100 \leq b_1 \leq 230$	≤ 0.040	≤ 0.040
$230 \leq b_1 \leq 450$	≤ 0.050	≤ 0.050
$450 \leq b_1 \leq 800$	≤ 0.063	≤ 0.063



Face axial run-out measurement



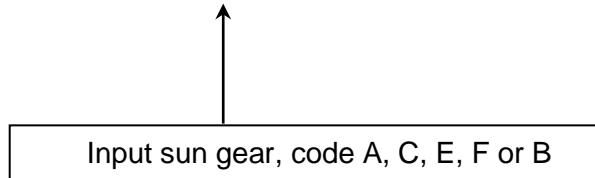
Pilot radial run-out measurement

The balancing of the input sun gear of the gearbox has been specified on order. This balancing type must be in accordance with the motor, according to following rules:

Motor (output shaft)	MSR (input sun gear)
Half key balancing	Half key balancing
Without key balancing	Full key balancing
Full key balancing	Without key balancing (usually 2 keyways)

3.2 Assembly of the input sun gear onto the motor.

MSRXXX . A H 5 S . 2076 M2 . 21J42 . D . SS



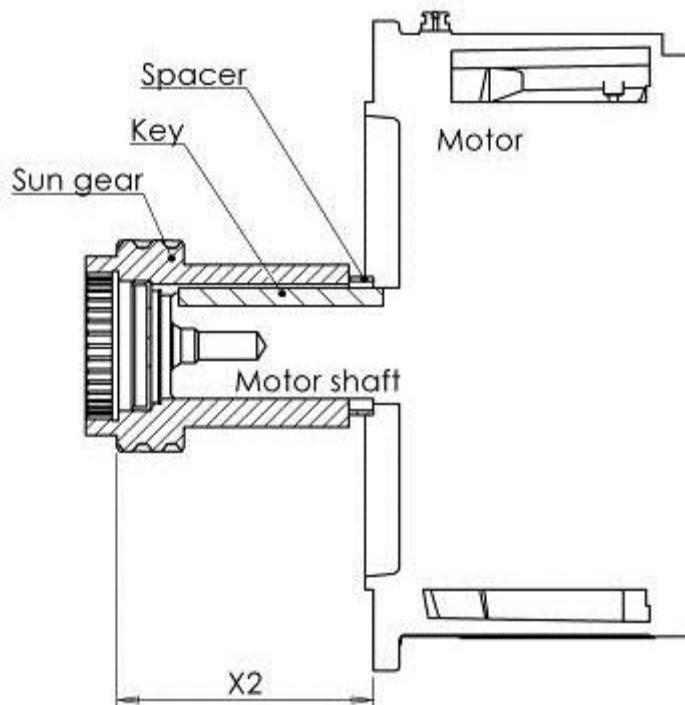
Input sun gear option	A	C	E	F	B
Chapter reference	3.2.1	3.2.2	3.2.3	3.2.4	3.2.5

The sun gear is delivered bored and keyed in accordance with motor specifications.
If it is compression coupling on the input sun gear, see chapter 3.2.6.
It is separately delivered from the gearbox and has to be mounted onto the motor shaft.

3.2.1 "A" input flange code (input sun gear without seal, without bearing)

MSRXXX . A H 5 S . 2076 M2 . 21J42 . D . SS

- A. Put the motor horizontally on a table
- B. Clean and degrease the motor shaft and the bore of the MSR input sungear
- C. Adjust the key to the input sungear keyway and to the motor shaft keyway
- D. Lightly grease the motor shaft using an anti-fretting paste
- E. If a spacer is delivered with the gearbox, Fit it on the motor shaft against the shaft shoulder
- F. Fit the key on the shaft
- G. Heat the input sungear up to 80-100°C
- H. Fit the input sungear against the spacer or the shoulder according to the sketch.
- I. Measure the length X_2 between the motor mounting surface and the input sun gear as shown on the picture below.

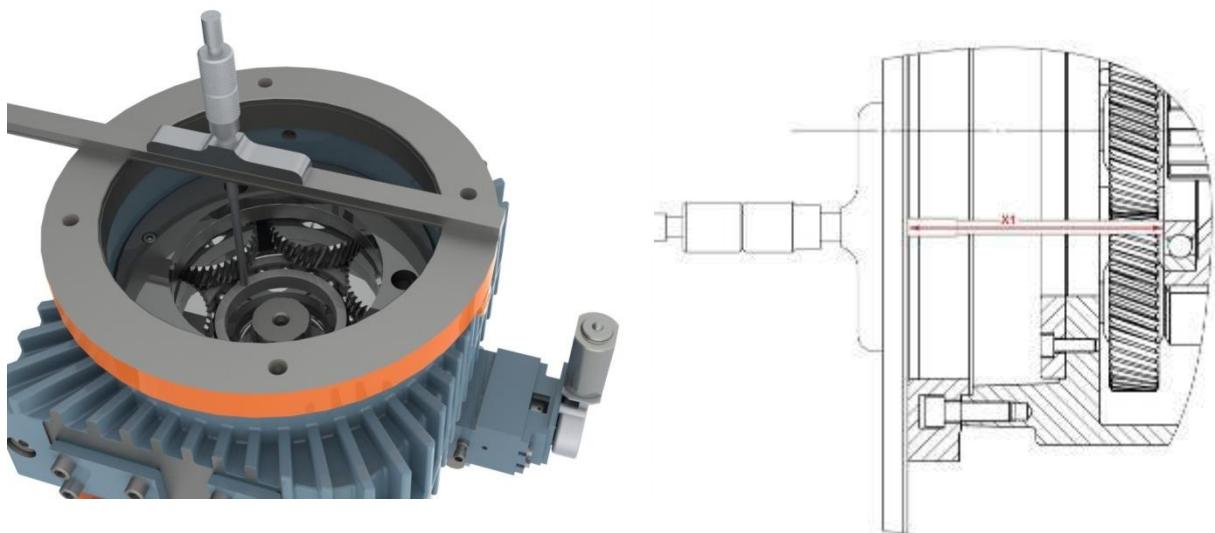


WARNING!



NEVER REMOVE THE SNAP RING OR THE PLUG WHICH IS INSIDE THE BORE OF THE SUN GEAR.

- J. Measure the length X_1 between the output sun gear bearing and the MSR motor flange mounting surface, as shown in the picture below.



- K. Compare the values of X_1 and X_2 . X_2 must be less than X_1 with a tolerance of "e", according to the following table. ($X_2 + e < X_1$)

	e (mm)
MSD300	From 0.05 to 0.90
MSD600	From 0.05 to 0.85

- L. If necessary, grind the spacer to adjust the X_2 dimension.

For information, the theoretical values of X_2 are shown in the table below.

	Shaft length (mm)	<u>X_2 Theoretical (mm)</u>
MSR300	80	84,3 0 -0,35
	110	117,3 0 -0,35
	140	147,3 0 -0,35
MSR600	140	154 0 -0,35
	170	174 0 -0,35

- M. To validate the assembly of the sun gear, re-measure the shaft radial run-out tolerances as indicated on pictures below.

Shaft diameter d (mm)	Radial run-out (mm)
$18 \leq d < 30$	≤ 0.031
$30 \leq d < 50$	≤ 0.035
$50 \leq d < 80$	≤ 0.040



Shaft radial run-out measurement

- N. Proceed to the motor mounting (see **chapter 3.3**)

3.2.2 "C" input flange code (input sun gear without seal, with bearing)

MSRXXX . C H 5 S . 2076 M2 . 21J42 . D . SS

Make sure the motor have sealing on his shaft.

- A. Put the motor horizontally on a table
- B. Clean and degrease the motor shaft and the bore of the MSR input sun gear
- C. Adjust the key to the input sun gear keyway and to the motor shaft keyway
- D. Lightly grease the motor shaft using an anti-fretting paste
- E. Fit the key on the shaft
- F. Proceed to the motor mounting (see **chapter 3.3**)

3.2.3 "E" input flange code (input sun gear with seal, without bearing)

MSRXXX . E H 5 S . 2076 M2 . 21J42 . D . SS

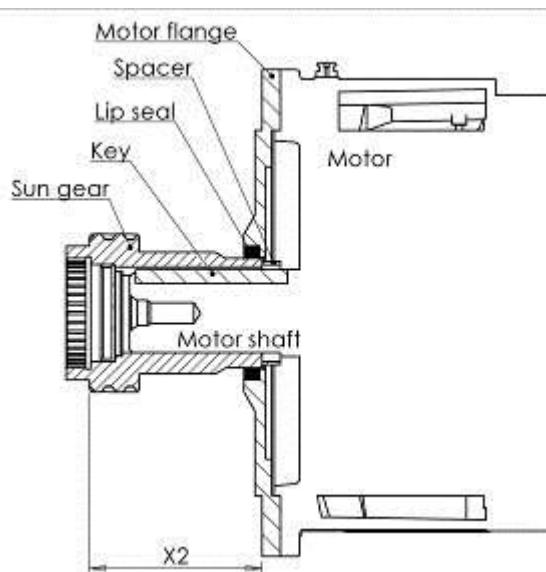
- A. Put the motor horizontally on a table
- B. Clean and degrease the motor shaft and the bore of the MSR input sun gear
- C. Adjust the key to the input sun gear keyway and to the motor shaft keyway
- D. Lightly grease the motor shaft using an anti-fretting paste
- E. If a spacer is delivered with the gearbox, Fit it on the motor shaft against the shaft shoulder
- F. Bring the sealing flange with his seal onto the motor
- G. Fit the key on the shaft
- H. Heat the input sun gear up to 80-100°C
- I. Fit the input sun gear against the spacer or the shoulder according to the sketch.

WARNING!



Avoid damaging the lip of the seal during this operation!

- J. Measure the length X_2 between the motor mounting surface and the input sun gear as shown on the picture below.

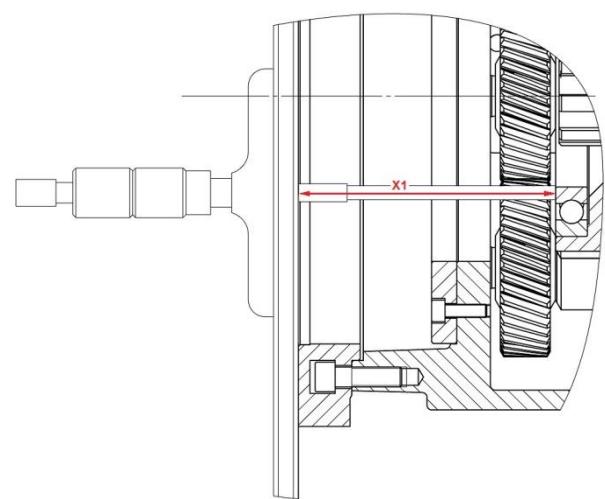
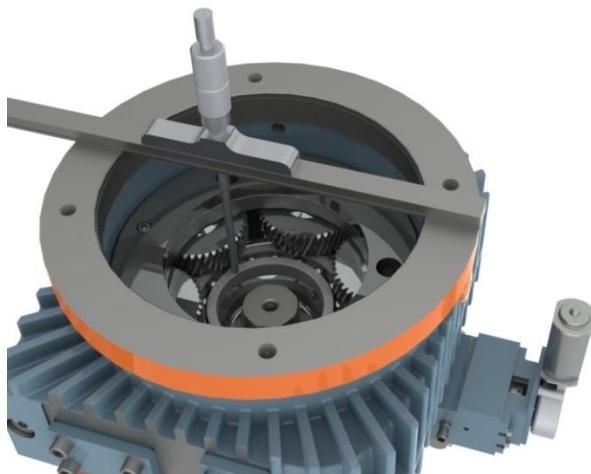


WARNING!



Never remove the snap ring or the plug which is inside the bore of the sun gear.

- K. Measure the length X_1 between the output sun gear bearing and the MSR motor flange mounting surface, as shown in the picture below.



- L. Compare the values of X_1 and X_2 . X_2 must be less than X_1 with a tolerance of "e", according to the following table. ($X_2+e < X_1$)

	e (mm)
MSR300	From 0.05 to 0.90
MSR600	From 0.05 to 0.85

- M. If necessary, grind the spacer to adjust the X_2 dimension.

For information, the theoretical values of X_2 are shown in the table below.

	Shaft length (mm)	X ₂ Theoretical (mm)
MSR300	80	84,3 0 -0,35
	110	117,3 0 -0,35
	140	147,3 0 -0,35
MSR600	140	154 0 -0,35
	170	174 0 -0,35

- N. To validate the assembly of the sun gear, re-measure the shaft radial run-out tolerances as indicated on pictures below.

Shaft diameter d (mm)	Radial run-out (mm)
$18 \leq d < 30$	≤ 0.031
$30 \leq d < 50$	≤ 0.035
$50 \leq d < 80$	$\leq 0,040$



Shaft radial run-out measurement

- O. Proceed to the motor mounting (see **chapter 3.3**)

3.2.4 "F" input flange code (input sun gear with seal, with bearing)

MSRXXX . F H 5 S . 2076 M2 . 21J42 . D . SS

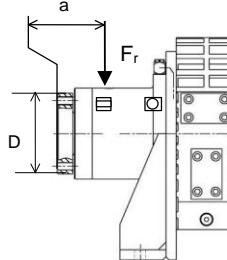
- A. Put the motor horizontally on a table
- B. Clean and degrease the motor shaft
- C. Adjust the key to the input sun gear keyway and to the motor shaft keyway
- D. Fit the key on the shaft
- E. Lightly grease the motor shaft using an anti-fretting paste
- F. Proceed to the motor mounting (see **chapter 3.3**)

3.2.5 "B" input bearing code (input sun gear supported by a bearing housing)

MSRXXX . B H 5 S . 2076 M2 . A . D . SS

3.2.5.1 "B" input bearing code with flange A

Radial Load capacity



Maximum admissible radial load (Calculation basis 15 000 hours)		
Type / Size	a	Fr at 370 rpm
MSR300	50 mm	14200 N
MSR600	75 mm	90000 N

For special design those data are subject to change. Always refer to specific application data.

3.2.5.2 "B" input bearing code with plain shaft B

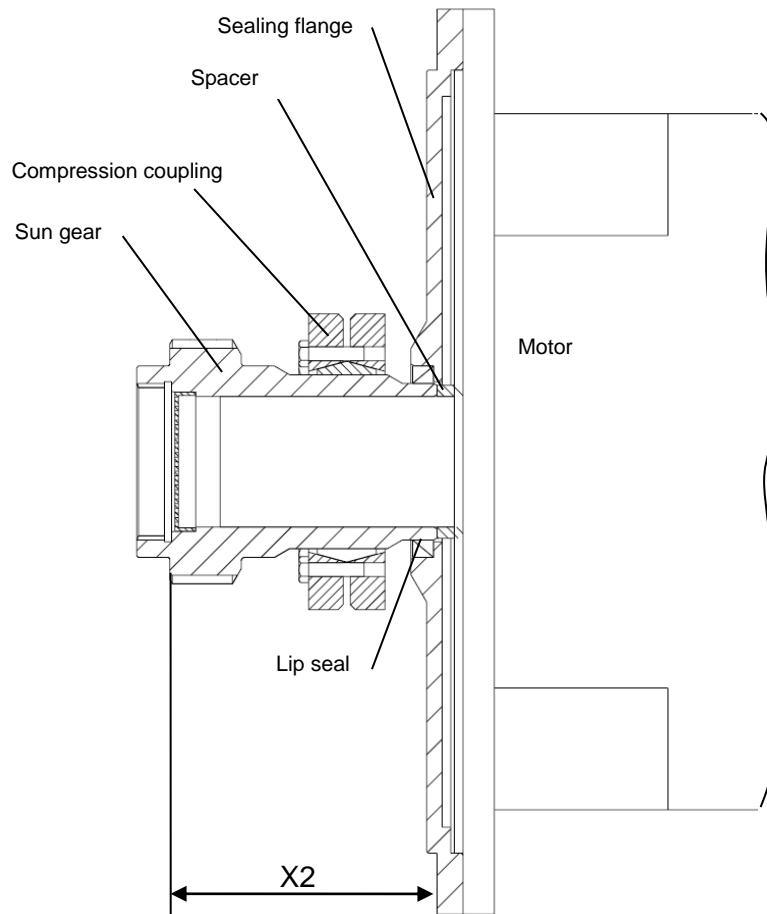
MSR gearbox can optionally be delivered with plain (or keyed) output shaft. Consult your nearest REDEX Agent for more details.

3.2.6 Special input sun gear with compression coupling (L)

3.2.6.1 "A" or "E" input flange code (without bearing)

MSRXXX . ^{A/E} H 5 S . 2076 M2 . 21L42 . D . SS

- A. Put the motor horizontally on a table
- B. Clean and degrease the motor shaft and the bore of the MSR input sun gear
- C. Bring the spacer and the sealing flange with his seal onto the motor (if you have one)
- D. Fit the input sun gear against the spacer or the shoulder
- E. Tighten the compression coupling screw
- F. Check the length X₂ between the motor mounting surface and the input sun gear as shown on the picture below.(see **chapter 3.2.1.L**)



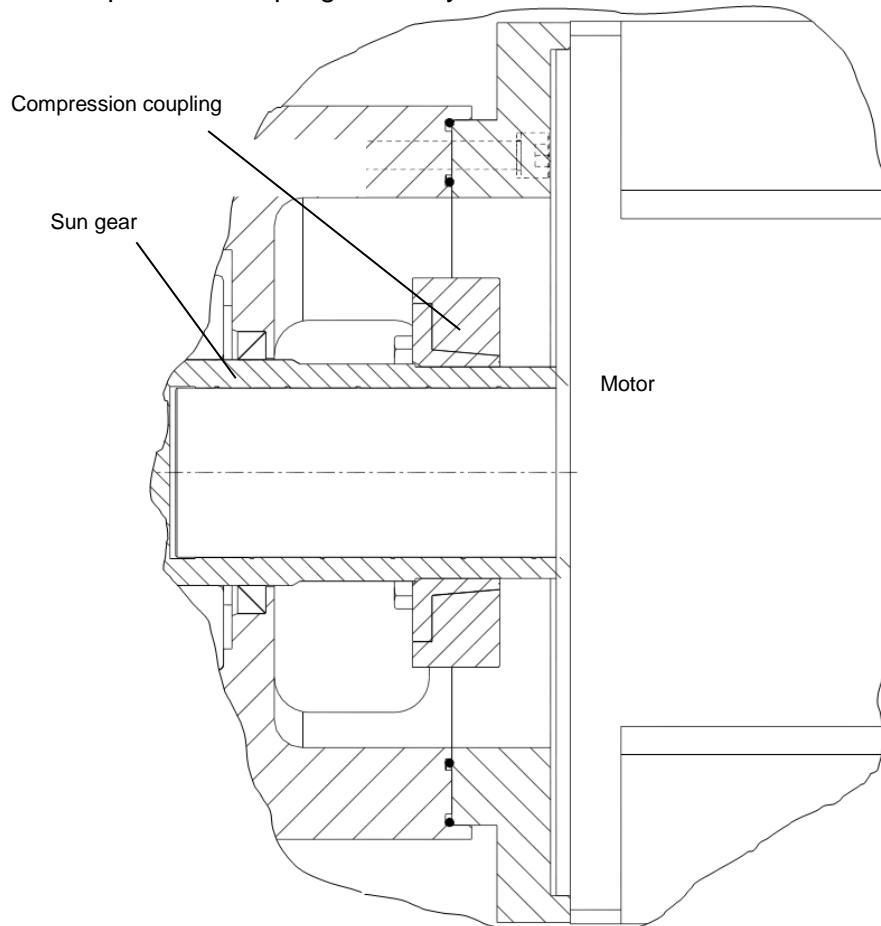
3.2.6.2 "C" or "F" input flange code (with bearing)

MSRXXX . ^{C/F} H 5 S . 2076 M2 . 21L42 . D . SS

- A. Put the motor horizontally on a table
- B. Clean and degrease the motor shaft and the bore of the MSR input sun gear
- C. Bring the MSD unit level with the motor axis in order to flange the unit on the motor.
- D. Tighten the motor mounting screws for final securing of the motor to the MSR unit to the appropriate tightening.

Screw type Class 12.9	Tightening torque (N.m)
M6	17
M8	41
M10	83
M12	145
M14	230
M16	355
M18	485
M20	690

- E. Tighten the compression coupling screw by the two windows



3.3 Mounting of the gearbox onto the motor.

MSRXXX . A H 5 S . 2076 M2 . 21J42 . D . SS

Input flange code 21,30,31,

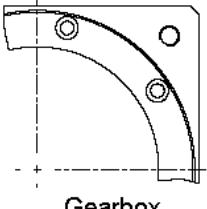
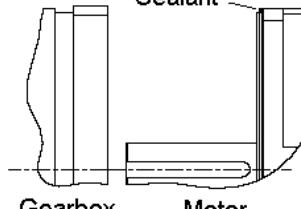
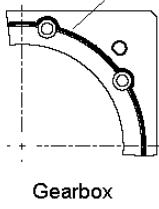
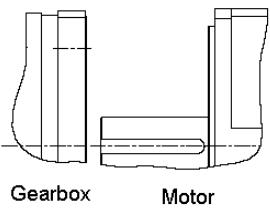
Input flange option	21,30,31,	00
Chapter reference	3.3.1	3.3.2

3.3.1 Gearbox with motor flange

MSRXXX . A H 5 S . 2076 M2 . 21J42 . D . SS

code 21,30,31,

- A. Put the motor horizontally on the table
- B. Completely degrease the MSR and motor contact surfaces
- C. Insure the sealing of the system. Refer to the following pictures.

	Motor pilot diameter >	Motor pilot diameter <
MSR300	248mm	
MSR600	360mm	
Instructions	 	 

Put a continuous seal seam on the motor reference surface; this seam must be 3-4 mm thick minimum and begin in the corner of pilot diameter.

Put a continuous seal seam on the MSR flange surface; this seam must be 3-4 mm thick minimum and surround the fixing holes.

We recommend the following sealants:

Recommended sealants	
GEB	Gebsicone S Translucide
RUBSON	Mastique Silicone Incolore
LOCTITE	Silcomet INCOLORE

- D. Bring the MSR unit level with the motor axis in order to flange the unit on the motor. Rotate the output MSR shaft for perfect engagement of the gear teeth during mounting.

WARNING!



Avoid teeth impact during this operation!

- E. Tighten the motor mounting screws for final securing of the motor to the MSR unit to the appropriate tightening.

Screw type Class 12.9	Tightening torque (N.m)
M6	17
M8	41
M10	83
M12	145
M14	230
M16	355
M18	485
M20	690

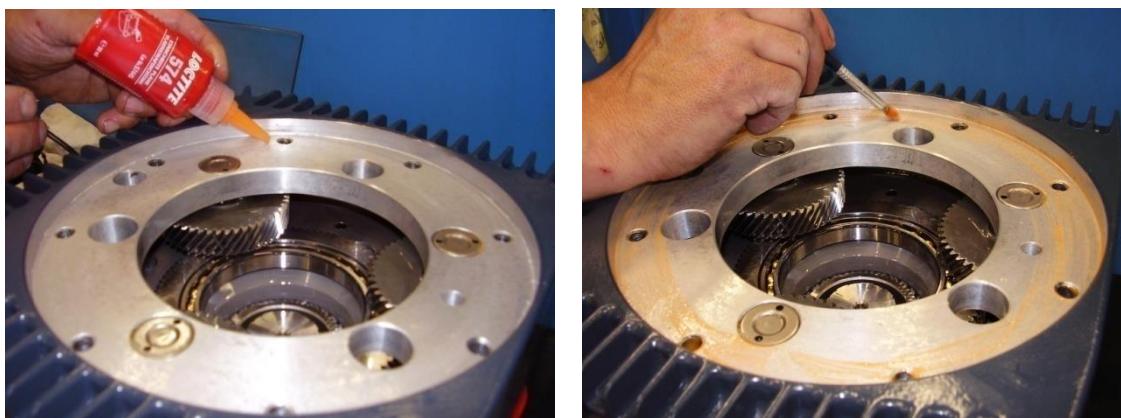


3.3.2 Gearbox without motor flange

MSRXXX . A H 5 S . 2076 M2 . 00J42 . D . SS

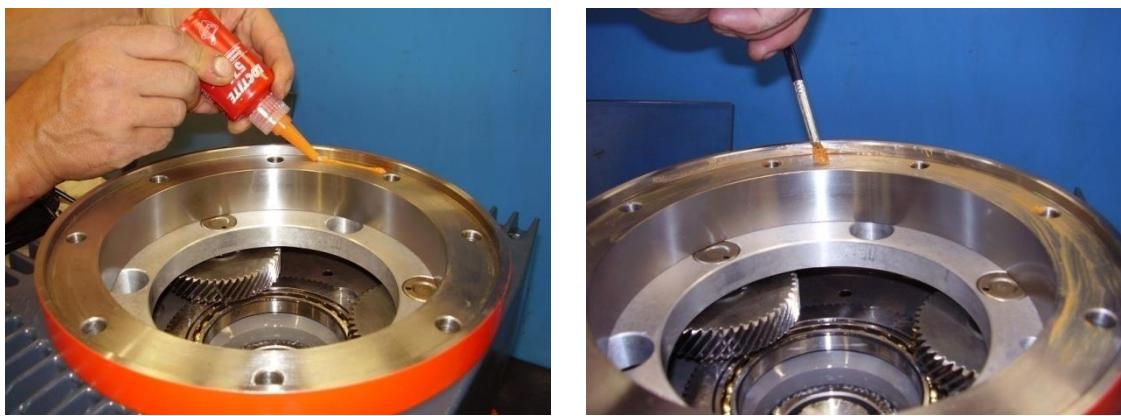
The 2 input flanges (intermediate flange and customer's motor flange) must be sealed before being mounted on the gearbox. The following instructions must be followed:

- A. Clean and degrease all surfaces.
- B. Seal the gearbox input flange (see example on the pictures below).



Sealing of the housing before mounting the intermediate flange.

- C. Bring the intermediate flange.
- D. Seal the intermediate flange (see example on the pictures below).

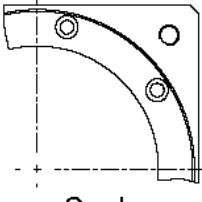
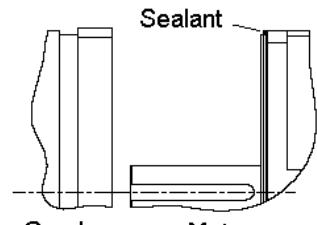
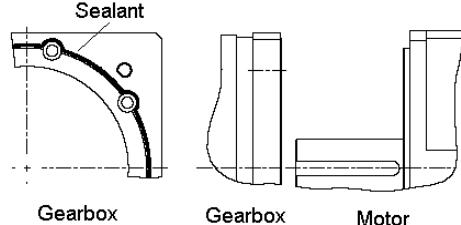


Sealing of the intermediate flange before mounting the motor flange.

- E. Bring the motor flange onto the intermediate flange.
- F. Tighten the screws to the appropriate tightening torque (see table).

	SEALANT	SCREW	TIGHTENING TORQUE
MSR300	LOCTITE 574	CHC M16	355 N.m
MSR600		CHC M16	355 N.m

- G. Put the motor horizontally on a table
- H. Completely degrease the MSR and motor areas of support
- I. Insure the sealing of the system. Refer to the following pictures.

	Motor pilot diameter >	Motor pilot diameter <
MSR300		248mm
MSR600		360mm
Instructions	 	 <p>Put a continuous seal seam on the MSR flange surface; this seam must be 3-4 mm tick minimum and surround the fixing holes.</p>

We recommend the following sealants:

Recommended sealants	
GEB	Gebsicone S Translucide
RUBSON	Mastique Silicone Incolore
LOCTITE	Silcomet INCOLORE

- J. Match the MSR unit axis with the motor one in order to mount the unit on the motor. Slightly rotate the output MSR shaft for perfect engagement of the gear teeth during mounting.

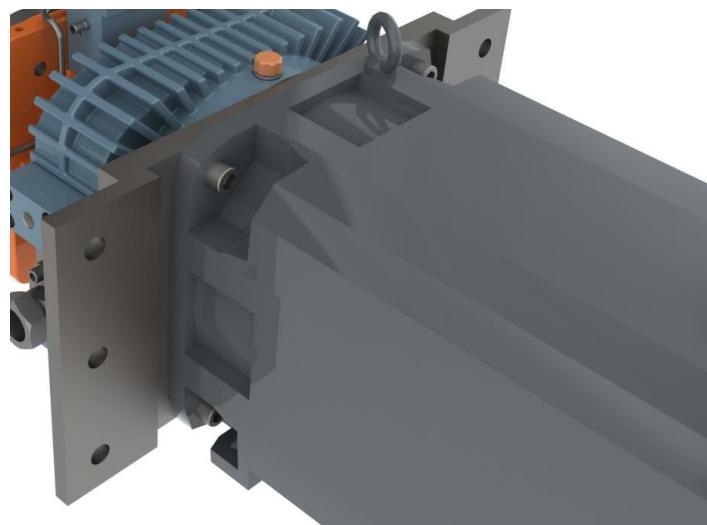
WARNING!



Avoid teeth impact during this operation!

- K. Tighten with the appropriate torque the screws for final securing of the motor to the MSR unit.

Screw type Class 12.9	Tightening torque (N.m)
M6	17
M8	41
M10	83
M12	145
M14	230
M16	355
M18	485
M20	690



4 MOUNTING OF THE GEARBOX ON THE MACHINE

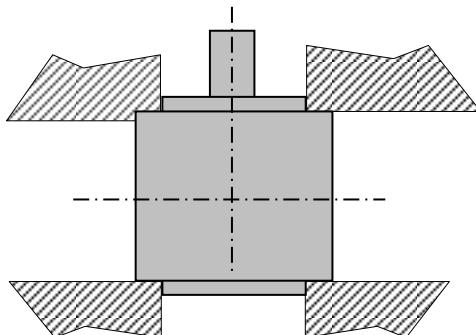
MSRXXX . A H 5 S . 2076 M2 . 21J42 . D . SS

Output interface mounting, code 5, 6 or 7

Output interface	5	6	7
Chapter reference	4.1	4.2	4.3

4.1 "5" output interface mounting

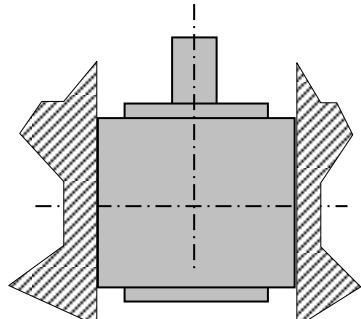
MSRXXX . A H 5 S . 2076 M2 . 21J42 . D . SS



MSR	Fixation
330	2 x 4 M16 on square 250
640	2 x 4 x M20 on square 315
650	2 x 4 x M20 on square 400
660	2 x 4 x M24 on square 500

4.2 "6" output interface mounting

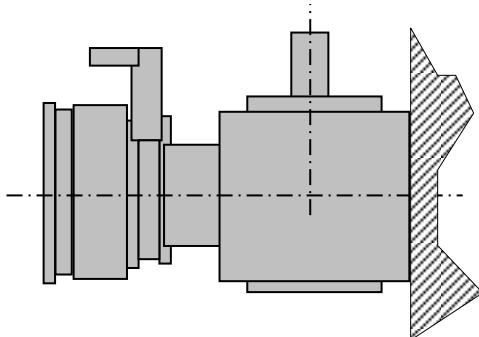
MSRXXX . A H 6 S . 2076 M2 . 21J42 . D . SS



MSR	Fixation
330	2 x 4 M16 on square 250
640	2 x 4 x Ø22 on W355*H200
650	2 x 4 x Ø22 on W450*H280
660	2 x 4 x Ø26 on W560*H180

4.3 "7" output interface mounting

MSRXXX . A H 7 S . 2076 M2 . 21J42 . D . SS



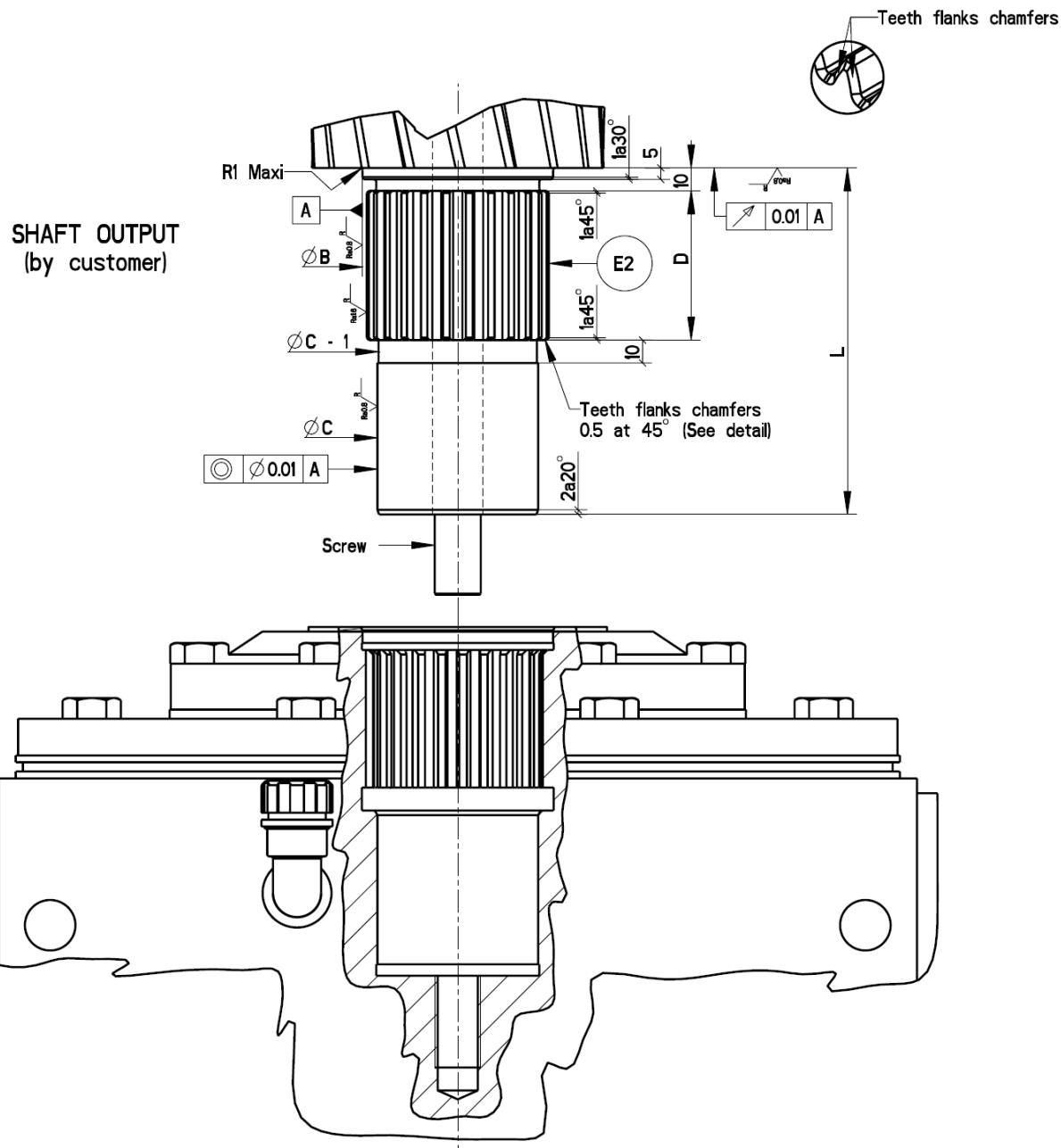
MSR	Fixation
330	2 x 4 M16 on square 250
640	2 x 4 x Ø22 on W355*H200
650	2 x 4 x Ø22 on W450*H280
660	2 x 4 x Ø26 on W560*H180

WARNING!



We recommend supporting the motor – its weight must be acceptable

5 OUTPUT SHAFT MOUNTING IN THE MSR SPLINED BORE



We advice using one of the two following cases (depending on the customer choice)

5.1 Loose mounting

	Ø B	E2	Ø C	D	L
MSR330	63k6	60x2x28-6h	55h6	45	112
MSR640	83k6	80x3x25-6h	70h6	65	151
MSR650	100k6	95x3x30-6h	85h6	65	151
MSR660	-	-	-	-	-

- Case of application

If the pinion is supported by an additional bearing made by the customer
(Exceptionally it can be used without, but it should be carefully checked with REDEX)

- Mounting procedure:

- A. Control the shaft dimensions and geometry; it must be fully compliant with the above table
- B. Clean all the surfaces of bore and shaft



- C. To minimize fretting corrosion between shaft and bore, we recommend using a grease type KLÜBERPAST46-MR-401 on bore and shaft surfaces.



- D. Put the shaft into the bore. Ensure good coaxiality and slightly oscillate the shaft in order to engage properly the splines.
- E. Tight the screw with the right torque

Screw type (Class 12.9)	Tightening torque (N.m)
M16	355
M20	690

- F. Control the run-out of the pinion with the centering diameter (chapter 5.3)

5.2 Tight mounting

	Ø B	E2	Ø C	D	L
MSR330	63k6	60x2x28-6p	55h6	45	112
MSR640	83k6	80x3x25-6p	70h6	65	151
MSR650	100k6	95x3x30-6p	85h6	65	151
MSR660	-	-	-	-	-

- Mounting procedure:

- A. Control the shaft dimensions and geometry; it must be fully compliant with the above table
- B. Clean all the surfaces of bore and shaft
- C. To minimize fretting corrosion between shaft and bore, we recommend using a grease type KLÜBERPAST46-MR-401 on bore and shaft surfaces.



- D. Cool down the shaft with liquid NITROGEN.

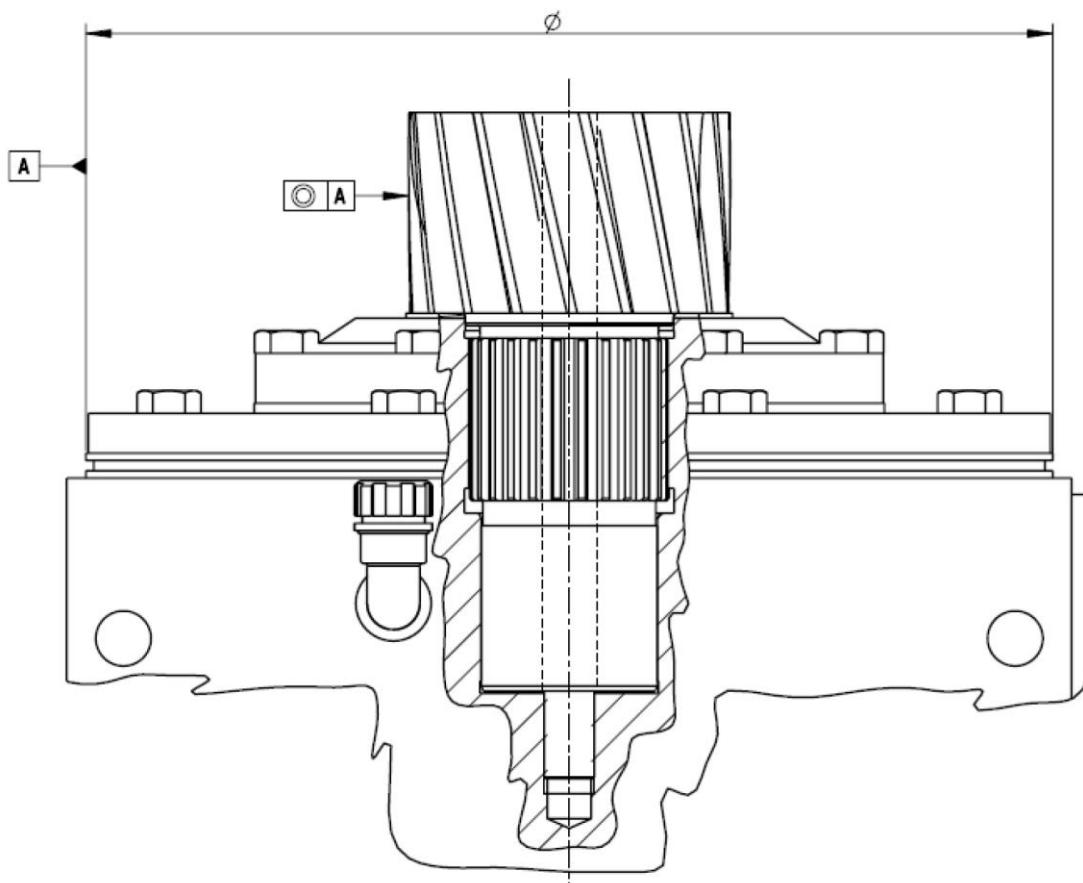
WARNING!



Take extreme care when manipulating liquid nitrogen. Always wear appropriate gloves and glass. It may cause severe injury in case of contact with human body.

- G. Put the shaft into the bore. Ensure good coaxiality and slightly oscillate the shaft in order to engage properly the splines.
- E. Control the run-out of the pinion with the centering diameter (chapter 5.3)

5.3 Control the run-out

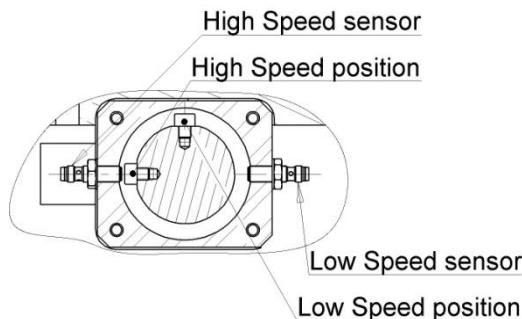


6 SPEED CHANGE CONTROL

The gearbox is delivered with a two positions ratio change system installed. The slide dog positions are mechanically limited and electrically controlled. Ratio shift is obtained by reversing the motor polarity (see **Wiring diagram**).

6.1 Ratio change by motoreducer

The indexed position is maintained by the motoreducer irreversibility (worm-gear type). After the position switch gives a signal that the ratio change is done, the power supply of the motor must be cut.



The speed change motoreducer moves the cam in front of proximity switches (hall-effect) when the gear is properly engaged. Their positions are set in our shop and must not be modified.

WARNING!



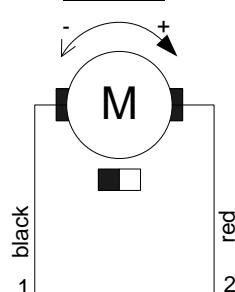
Any modification of the switches setting will modify the meshing of the gears and might damage the gearing.

6.1.1 Motor type

Motoreducer reference: DOGA 316
Connector NEUTRIK NC3MXX-BAG
Wire length: 8cm

Power (W)	Voltage (V)	Nominal Current (A)	Starting Current (A)
48	24	1,7	6

Wiring:

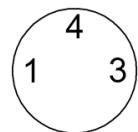


6.1.2 Position Switch type

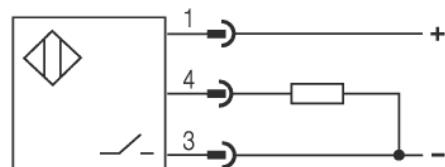
Switch reference: BALLUFF: BES M08EC-PSC15B-S49G
Connector S49 (M8)

Voltage (V)	Switching Current (A)
24	0.2

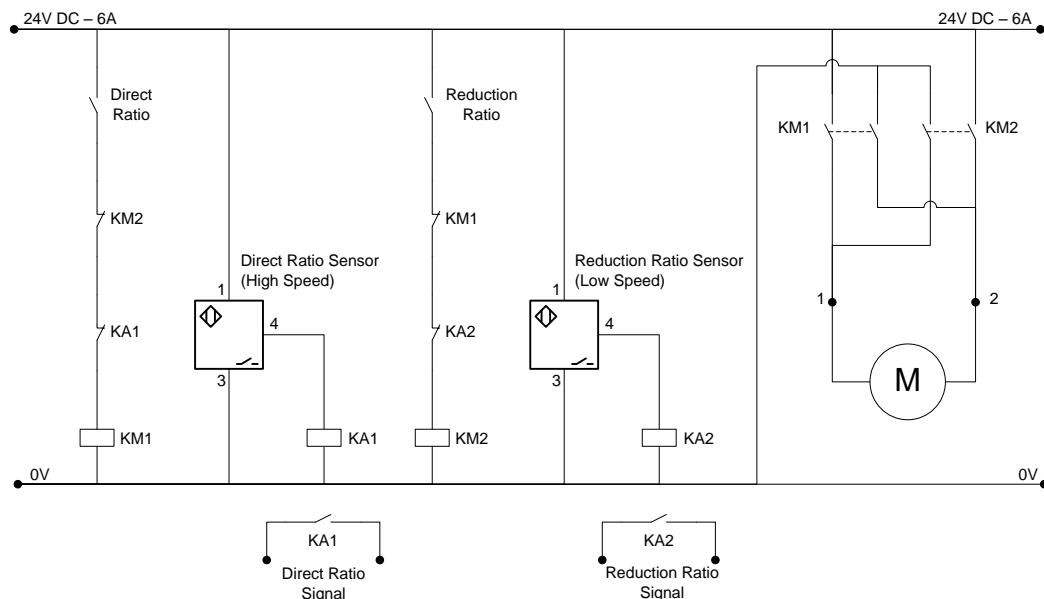
Connector pinout:



Wiring:

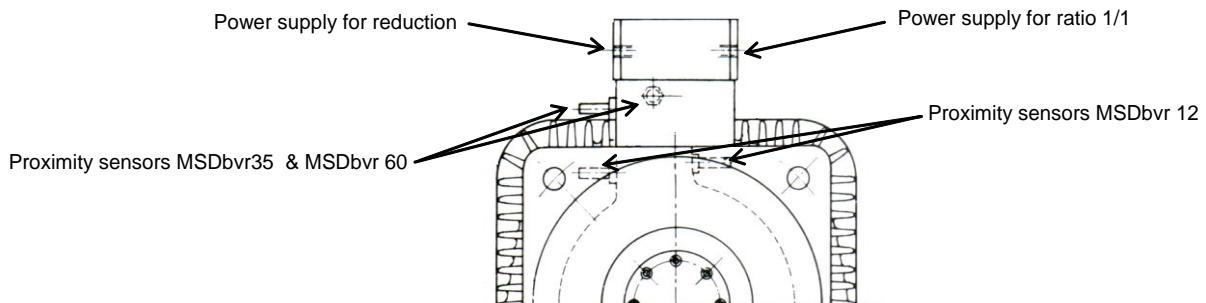


6.1.3 Electric diagram



6.2 Ratio change by pneumatic / hydraulic actuator (2 positions)

Ratio change is done by reversing the supply circuit. The pneumatic or hydraulic actuator interface is 1/8" GAZ. Operating pressure range is from 5 to 10 bars.



WARNING!

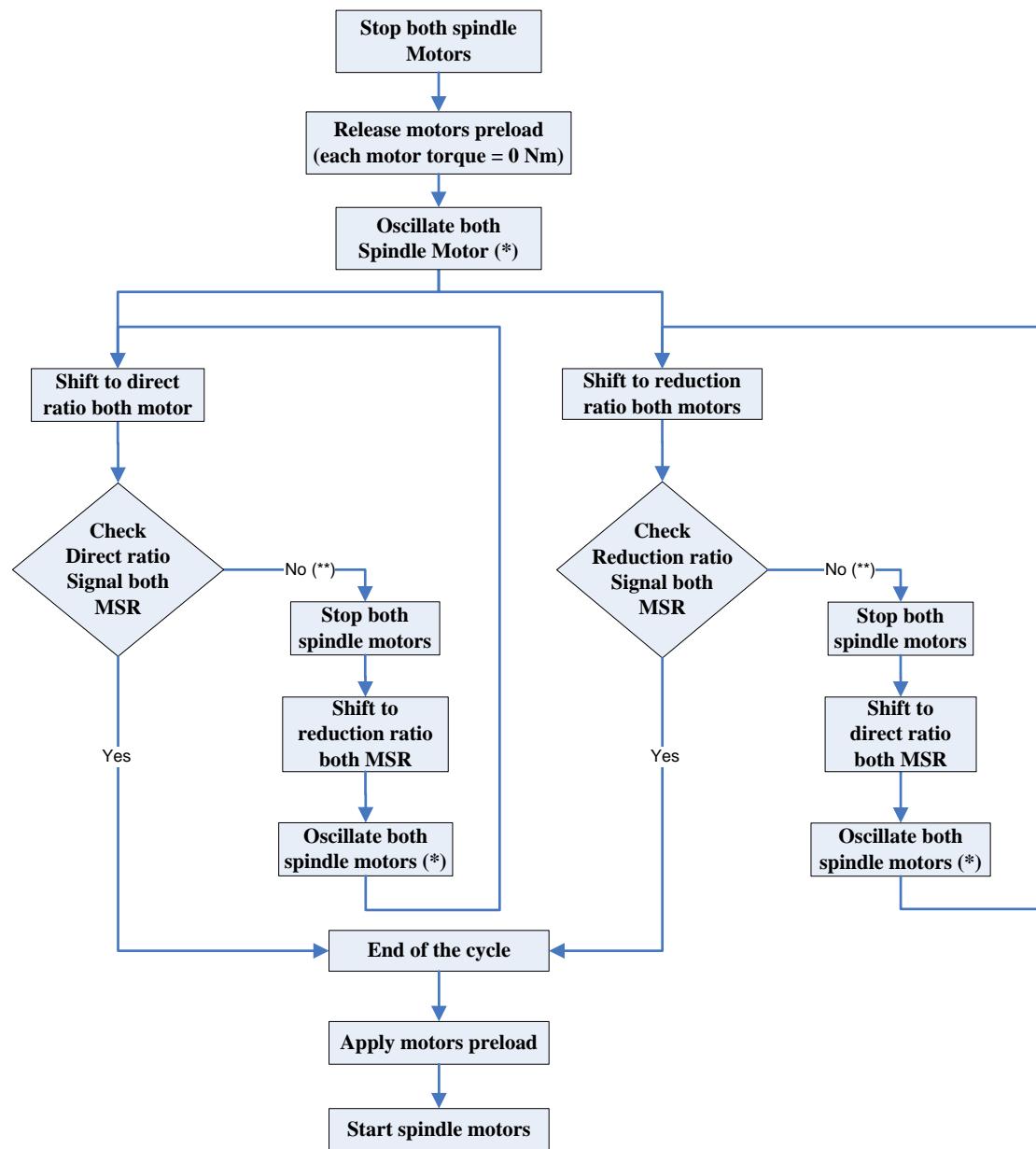


The gear shift actuator pressure has to be maintained while running the MSD gearbox to insure that the gear remains engaged.

6.3 Ratio change by pneumatic / hydraulic actuator (3 positions)

Specific 3 positions ratio change actuators are able to include a neutral position, please ask your nearest REDEX agent for specific instructions.

6.4 Gear shifting procedure



(*): Motor oscillation: 10° of oscillation amplitude with a period of 1s

(**): If case of only one gear shift is successful, we recommend to proceed to gear speed change again on both motors.



WARNING!

**Never increase motor speed, if you do not get ratio signal.
It is better to proceed to gear speed change simultaneously on both
motors (while oscillation).
Redex will be not responsible for any damage caused by a wrong speed
change procedure**

7 LUBRICATION

7.1 Introduction

The MSR gearboxes are supplied without oil. We advise a mineral oil having a viscosity of 32 to 100 Cst at 40°C. The first oil change should take place after 200 hours of running. Thereafter the oil should be changed every 3000 hours and the oil quantity checked at least every month.

7.2 Type of lubricant

We recommend the following lubricants (for all other types please consult us)

Lubricants with viscosity 100 Cst at 40°C:

Open loop lubrication (with tank) - With regulation at 80°C maxi					
	TOTAL	CASTROL	SHELL	MOBIL	ESSO
Minéral	Carter EP100	Alpha SP100	Omala 100	Gear 627	Spartan EP100
PAO		Alphasyn T100 or EP100	Omala HD100	SHC 627	

Lubrication with viscosity 68 Cst at 40°C:

Open loop lubrication (with tank) - With regulation at 70°C maxi					
	TOTAL	CASTROL	SHELL	MOBIL	ESSO
Minéral	Carter EP68	Alpha SP68	Omala 68	Gear 626	Spartan EP68
PAO	Carter SH68	Alphasyn T680 or EP68		SHC 626	

Lubrication with viscosity 32 Cst at 40°C:

Open loop lubrication (with tank) - With regulation at 50°C maxi					
	TOTAL	CASTROL	SHELL	MOBIL	ESSO
PAO	DACNIS SH32	Alphasyn T32		SHC 624	



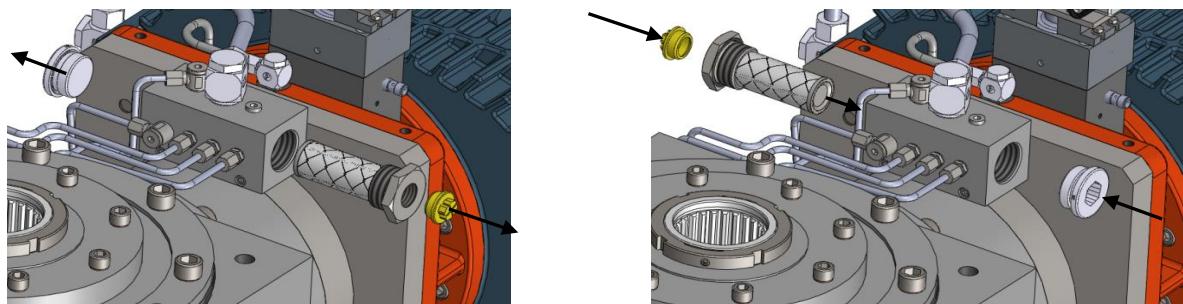
WARNING!

The drained oil is a special industrial waste and should be handled according to the current laws.

7.3 Oil plugs and connections

7.3.1 Inlet oil

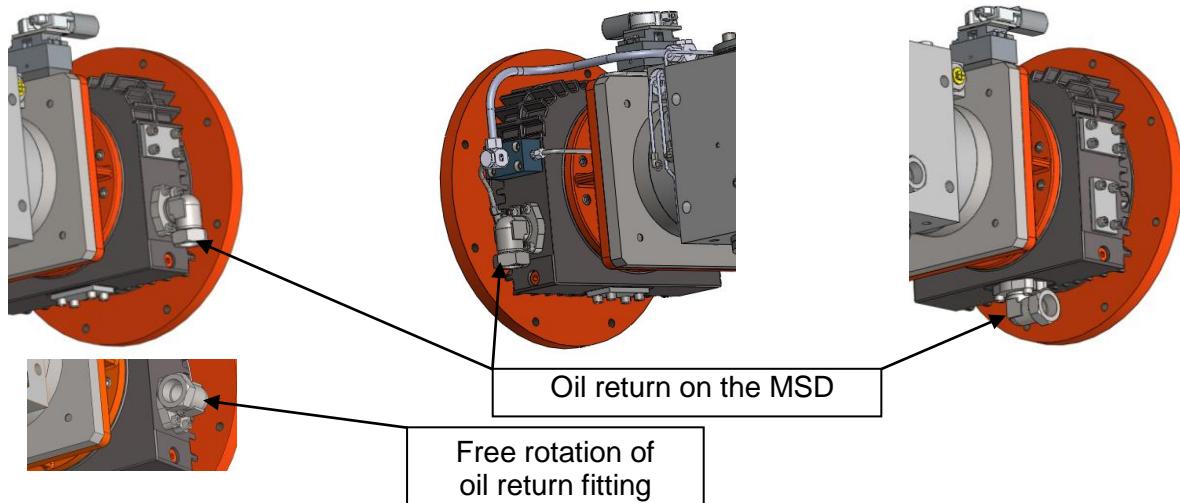
Oil is injected in the oil manifold positioned on the side 2, it's possible to put it on the side 3 according the scheme.



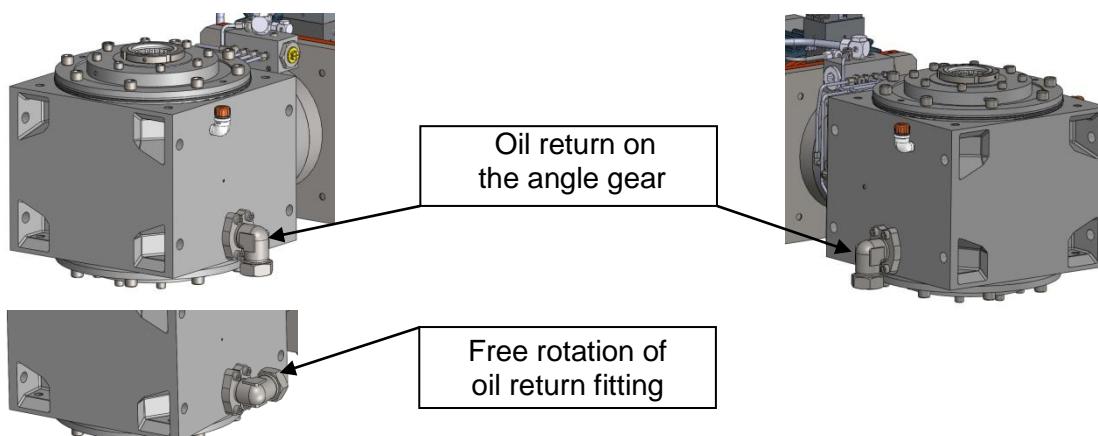
7.3.2 Outlet oil.

Oil returns can be straight or elbow, they are positioned on the side 2,

-On the MSD it's possible to put them on the side 2; 3 or 4.



On the angle gear it's possible to put them on the side 2 or 3.

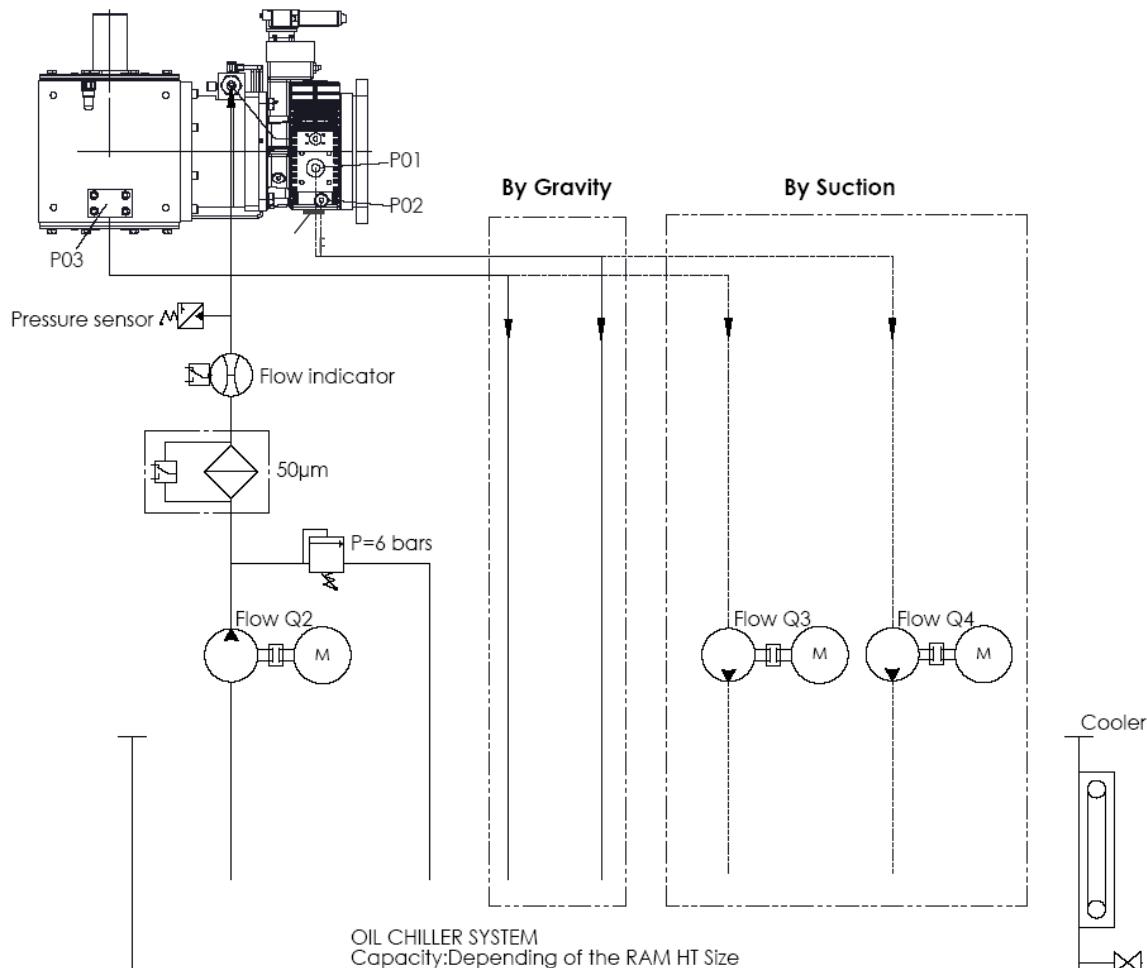


7.4 Lubrication circuit

Open loop lubrication (with tank) / With or without cooling system / With or without temperature regulation.

This configuration enables an easiest cooling system. Most often oil into the tank has not to be refrigerated. The thermal inertia of the large oil volume contained into the tank might be large enough to save a cooling system.

For this configuration, there is no standard accessory supplied by REDEX.



Size	Inlet oil flow rate Q2 (l/min)	Output oil	Output oil hole connection	Suction oil flow rate Q3 (l/min)	Suction oil flow rate Q4 (l/min)
MSR 330	9	suction on P02 and P03		6	6
		suction on P02 and gravity on P03		-	6
MSR 640	17	by gravity	P01 or P04 and P03	-	-
		by suction	P01 or P04 and P03	15	9
MSR 650	18	by gravity	P01 or P04 and P03	-	-
		by suction	P01 or P04 and P03	15	9
MSR 660	Consult us		Consult us	Consult us	Consult us

Notes:

- (1) The oil flow rates depend on the oil ΔT , the power to be evacuated and the final housing temperature desired for the gearbox.
Therefore it may vary a lot depending on your application specification. **Please always refer to the application technical specification indicated by REDEX.**
- (2) ΔT = Output oil temperature – Input oil temperature

WARNING!



The pump must be running before starting the main-motor.

8 TROUBLE SHOOTING / FAQ

If the information provided into the following table is unable to solve the problem, please consult your nearest REDEX agent.

Trouble observed	Potential cause	Measure to solve it
Proximity sensor does not detect gear engagement	Proximity detector(s) is damaged	Replace proximity detector(s)
	Proximity detector(s) is upset	Set proximity detector(s)
No gear change happen	Change speed actuator is damaged	Replace the change speed actuator
	Elastic coupling between motoreducer and actuator axis is damaged	Replace the coupling
	Wrong power supply to the actuator	<u>Electrical speed changer</u> : check the connection <u>Pneumatic actuator</u> : check the pressure and the leak tightness of the circuit.
	Mechanical problem	Send the gearbox back to REDEX for analyze and eventual repair
Gearbox is noisy (knocking noises)	Speed encoder on motor is not working properly	Check speed encoder connections and clean it if necessary.
In vertical mounting & closed loop external forced lubrication <u>the oil flow sensor forces the machine to stop</u>	Some air is sucked with the oil and the pump is surging (the pressure sensor detect irregular pressure drops)	Check the leak tightness of the connections between pipes, gearbox & pump. Check that the hexagonal screw on the side of the filter is properly tightened
	Pump is damaged	Test the pump alone to check if it is out of order and replace it if necessary

GUARANTEE CARD

As far as they are delivered as new, REDEX units have 2 years guarantee, starting from the shipping date. When the units are repaired in REDEX workshops, the guarantee period is 6 months.

The guarantee is limited to the free replacement of defective parts and is only applicable if the following conditions are observed:

1. The unit has not been disassembled.
2. The selection of the unit was made in full accordance to the REDEX technical documentation.
3. The mounting and interfacing with the machine were properly carried out.
4. Maintenance periodicity, oil quality and quantity have been respected.
5. The average output power was less than the maximum acceptable power as shown in the technical documentation.
6. Operations must be performed in our workshops and the shipment costs will be charged to the customer.

FICHE DE GARANTIE

Lorsqu'il est livré neuf, le matériel REDEX est garanti pour une durée de 2 ans, à partir de la date d'expédition. Lorsqu'il s'agit d'un appareil réparé dans nos ateliers, la durée de garantie est de 6 mois.

L'étendue de cette garantie s'applique au remplacement gratuit des pièces reconnues défectueuses, sous réserve que les conditions suivantes soient respectées :

1. Le matériel n'a pas été démonté hors de nos ateliers.
2. Le choix du matériel a été effectué conformément aux indications de nos documentations techniques.
3. Le montage du matériel et les interfaces avec les éléments de machines ont été effectués en suivant les procédures de ce manuel.
4. La périodicité de graissage, la qualité et la quantité d'huile préconisées ont été respectées.
5. La puissance moyenne en sortie est inférieure à la valeur maximum indiquée sur la documentation technique du produit.
6. La remise en état est obligatoirement réalisée dans les ateliers de REDEX, et les frais de port restent à la charge du client.

GARANTIE BEDINGUNGEN

REDEX Neugetriebe haben 2 Jahre Garantie nach Versand. Bei Reparaturen aus unseren Werkstätten, beträgt die Garantiedauer 6 Monate.

Die Garantie ist auf den kostenfreien Austausch der defekten Teile begrenzt und ist nur gültig, wenn folgende Bedingungen beachtet wurden:

1. Das Getriebe wurde nicht geöffnet.
2. Die Auswahl und der Einsatz des Getriebes erfolgten in voller Übereinstimmung mit der technischen Dokumentation von REDEX.
3. Die Schnittstelle zur Maschine und die Montage wurden sauber ausgeführt.
4. Wartungsintervalle, Öl-Menge und -Qualität wurden durchgehend beachtet.
5. Die durchschnittliche Abtriebsleistung war weniger als die maximal erlaubte Leistung aus unserer technischen Dokumentation.
6. Arbeiten am Getriebe können nur in unserer Montage erfolgen und die Versandkosten werden dem Kunden berechnet.

HOJA DE GARANTIA

Las unidades REDEX suministradas como nuevas tienen un periodo de garantía de 2 años. Las unidades que hayan sido reparadas en REDEX tienen un periodo de garantía de 6 meses. Ambos periodos empezarán a ser efectivos desde la fecha de expedición.

Esta garantía está restringida exclusivamente al cambio de las piezas defectuosas de fabricación y es únicamente aplicable si se cumplen las siguientes condiciones:

1. La unidad no haya sido desmontada.
2. La selección de la unidad se haya llevado a cabo siguiendo de forma correcta las especificaciones técnicas contenidas en el catálogo o las realizadas por su agente REDEX.
3. El montaje y acoplamiento de la unidad se haya realizado siguiendo estrictamente las especificaciones de montaje contenidas en el manual de usuario.
4. La periodicidad de mantenimiento, referencia y cantidad de aceite de lubricación hayan sido respetadas.
5. La potencia media de salida sea menor que la máxima aceptable por la unidad, tal como muestra la documentación técnica.
6. Toda reparación o revisión interna de la unidad debe llevarse a cabo en nuestras instalaciones y los costes derivados del transporte correrán a cuenta del cliente.

GARANZIA

Le unità REDEX hanno 2 anni di garanzia dalla data di consegna. Quando le unità sono riparate in REDEX il periodo di garanzia è di 6 mesi dalla data di consegna.

Questa garanzia comprende la sostituzione gratuita dei pezzi riconosciuti difettosi. La garanzia è applicabile solo se le seguenti condizioni vengono rispettate :

1. Il cliente non ha smontato l'apparecchio
2. La scelta dell'apparecchio è stata effettuata in conformità alle indicazioni dei nostri documenti tecnici.
3. Il montaggio del nostro materiale e gli accoppiamenti con gli elementi della macchina sono stati effettuati a regola d'arte.
4. La periodicità della lubrificazione, la qualità e la quantità di olio sono state rispettate.
5. La potenza media oraria in uscita è inferiore al valore massimo indicato nelle documentazione tecnica del prodotto.
6. La revisione si effettua obbligatoriamente presso la REDEX e il trasporto di andata e ritorno è a carico del cliente.

质保卡

REDEX 齿轮箱产品从发货之日起，新齿轮箱具有2年质保期。当齿轮箱在 REDEX 工厂维修之后，质保期为6个月。

1. 质保只限于免费更换故障部件，并只适用于以下情况：
2. 齿轮箱未被自行拆开。
3. 客户所选齿轮箱是完全按照 REDEX 技术文档选型的。
4. 在设备上的安装和连接方法是正确的。
5. 维护周期、润滑油质量和数量均遵照说明书要求。
6. 平均输出功率低于技术文档中的最大可输入功率。
7. 维修必须在我们的工厂进行，运输费用由客户承担。

Unit serial number - Numéro de série de l'appareil - Seriennummer des Getriebes –
Numero di matricola - Número de serie - 減速器序列号

Code - Code – Bezeichnung - Codice – Código - 代码

Designation - Désignation – Bezeichnung - Designazione – Designación - 名称

Despatching date - Date de sortie - Versanddatum - Data di uscita - Fecha de
expedición - 出厂日期

Workshop manager signature – Signature du responsable du montage - Unterschrift
Leiter Technische Dienste - Firma del responsabile di officina - Firma del
responsable de fábrica - 车间经理签名

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