



ROBOTICS

Technical reference manual

Lubrication in gearboxes



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Technical reference manual

Lubrication in gearboxes

M98, M2000, M2000A, M2004, OmniCore

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Overview of this manual

About this manual

This manual contains information about:

- the type of lubrication oil or grease that is used in gearboxes
- the article numbers for lubrication oil or grease
- the amount of lubrication oil or grease that is used in gearboxes
- the amount of lubrication oil or grease that is delivered as spare part.

Usage

This manual shall be used during:

- inspection of lubrication oil or grease levels
- changing lubrication oil or grease.

Who should read this manual?

This manual is intended for:

- installation personnel
- maintenance personnel
- repair personnel.

Prerequisites

Maintenance/repair/installation personnel working with an ABB Robot must:

- be trained by ABB and have the required knowledge of mechanical and electrical installation/maintenance/repair work.

References

Information how to inspect or change lubrication oil or grease in gearboxes, as well as maintenance schedules, is found in the product manual for the respective manipulator.

Reference	Document ID
<i>Safety manual for robot - Manipulator and IRC5 or OmniCore controllerⁱ</i>	3HAC031045-001
<i>Product manual - CRB 1100</i>	3HAC078007-001
<i>Product manual - CRB 1300</i>	3HAC083111-001
<i>Product manual - IRB 120</i>	3HAC035728-001
<i>Product manual - IRB 140</i>	3HAC027400-001
<i>Product manual - IRB 260</i>	3HAC026048-001
<i>Product manual - IRB 360</i>	3HAC030005-001
<i>Product manual - IRB 390</i>	3HAC066566-001
<i>Product manual - IRB 460</i>	3HAC039842-001
<i>Product manual - IRB 660</i>	3HAC025755-001
<i>Product manual - IRB 760</i>	3HAC039838-001

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Reference	Document ID
Product manual - IRB 1010	3HAC081964-001
Product manual - IRB 1090	3HAC088056-001
Product manual - IRB 1100	3HAC064992-001
Product manual - IRB 1200	3HAC046983-001
Product manual - IRB 1300	3HAC070390-001
Product manual - IRB 1410	3HAC026320-001
Product manual - IRB 1510	3HAC087870-001
Product manual - IRB 1520	3HAC043435-001
Product manual - IRB 1600/1660	3HAC026660-001
Product manual - IRB 2400	3HAC022031-001
Product manual - IRB 2600	3HAC035504-001
Product manual - IRB 4400	3HAC022032-001
Product manual - IRB 4600	3HAC033453-001
Product manual - IRB 4600 Foundry Prime	3HAC040585-001
Product manual - IRB 5710	3HAC075184-001
Product manual - IRB 5720	3HAC079195-001
Product manual - IRB 6400RF	3HAC027076--001
Product manual - IRB 6600/6650 Type A	3HAC020938-001
Product manual - IRB 6600/6650 Type A Foundry Prime	3HAC044349-001
Product manual - IRB 6600/6650 Type B	3HAC023082-001
Product manual - IRB 6600/6650 Type B Foundry Prime	3HAC041132-001
Product manual - IRB 6620	3HAC027151-001
Product manual - IRB 6620LX	3HAC035737-001
Product manual - IRB 6640	3HAC026876-001
Product manual - IRB 6640 Foundry Prime	3HAC040586-001
Product manual - IRB 6650S	3HAC020993-001
Product manual - IRB 6660	3HAC028197-001
Product manual - IRB 6700	3HAC044266-001
Product manual - IRB 6700Inv / IRB 6700I	3HAC058254-001
Product manual - IRB 6710	3HAC085695-001
Product manual - IRB 6720	3HAC085697-001
Product manual - IRB 6730	3HAC085699-001
Product manual - IRB 6740	3HAC085701-001
Product manual - IRB 6790 Foundry Prime	3HAC063331-001
Product manual - IRB 7600	3HAC022033-001
Product manual - IRB 7710	3HAC089600-001
Product manual - IRB 7720	3HAC089605-001
Product manual - IRB 8700	3HAC052853-001

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Reference	Document ID
Product manual - IRB 910SC	3HAC056430-001
Product manual - IRB 910INV	3HAC068055-001
Product manual - IRB 920	3HAC075721-001
Product manual - IRB 14000	3HAC052983-001
Product manual - IRB 14050	3HAC064625-001
Product manual - IRBT 4004/6004/7004	3HAC028506-001
Product manual - Product.ProductName /D2009	
Product manual - Motor Units and Gear Units	Document.ID-1

ⁱ This manual contains all safety instructions from the product manuals for the manipulators and the controllers.

Revisions

Revision	Description
-	First edition.
A	<ul style="list-style-type: none"> The heading <i>Spare Part number</i> in tables is replaced by <i>WebConfig number</i>. Spare part number is only shown in section Amount of lubrication when ordered as spare part on page 16. Spare part number for Shell Tivela S150 is updated. The WebConfig number for Mobil SHC Cibus 220 is corrected.
B	<ul style="list-style-type: none"> The amount of oil in the axis-6 gearbox for IRB 7600, with insulated turning disk, is corrected, see IRB 7600 on page 78.
C	<ul style="list-style-type: none"> A caution has been added throughout the manual (valid for IRB 120, IRB 1520, IRB 1600, IRB 1600ID, IRB 6620, IRB 6620LX and IRB 6640), informing to observe the different amount in a new wrist compared to when it is refilled after draining. Lubrication oil for IRB1600ID in axis-4, axis-5 and axis-6 is added. The amount of oil for IRB 4400/4450S in the axis-2 and axis-3 gearboxes is separated for better understanding. The information in the tables of IRB 4600 is updated for better understanding. The information in the tables of IRB 6600/6650 type B and 6600ID/6650ID type B is updated for better understanding. The amount of oil in the axis-6 gearbox of IRB6600ID and 6650ID type B is changed. Information about axis-6 gearbox for IRB 6620 Foundry Plus and Standard is updated for better understanding. The amount of oil in the axis-6 gearbox for IRB 6620 is changed. The amount of oil in the axis-6 gearbox for IRB 6620LX is changed. The amount of oil in the axis-6 gearbox for IRB 6640 with wrist type 2 is changed. Information about oil in the axis-6 gearbox for IRB 6640 with wrist type 1 is added. The amount of oil for positioners is added, see IRBP on page 102.
D	<ul style="list-style-type: none"> Lubrication oil for IRB 2600 is added for serial numbers from 101000- or 501000-. Lubrication oil for IRB 4600 Type C is added. IRBP Y-X is removed from the manual. The product is phased out.

Continues on next page

Revision	Description
E	<ul style="list-style-type: none"> Lubrication for IRBT 4003/6003/7003 is added. Quantity of lubrication for IRBT 4004/6004/7004 is added. Lubrication oil for IRB 4600 in axis-4 gearbox is corrected for <i>Type C</i> and <i>Other design than Type C</i>.
F	<ul style="list-style-type: none"> The product name <i>Shell Tivela S 150</i> is changed to <i>Shell Omala S4 WE 150</i>. The amount of oil in axis-1 gearbox of IRB 140 is changed. The amount of grease in axis-5 gearbox of IRB 1410 is changed. The amount of grease in axis-3 gearbox of IRB 120 is changed. The unit has changed from "liter" to "milliliter" (ml) in IRB 360. Amount is not changed.
G	<ul style="list-style-type: none"> Lubrication oil for IRB 6700 -235/2.65, -205/2.80, -175/3.05, -150/3.20 is added. Correction regarding serial numbers for IRB 2600ID-15/1.85, -8/2.0 floor mounted, M2004.
H	<ul style="list-style-type: none"> Lubrication oil for IRB 4600 in axis-4 gearbox is corrected for both <i>Type C</i> and <i>Other design than Type C</i>. The article number and name for grease in axis-5 and -6 gearbox of IRB 1410 is changed.
J	<ul style="list-style-type: none"> Lubrication oil for IRB 6700 -200/2.60, -155/2.85, -300/2.70, -245/3.00 is added. The illustration showing different oil groups is updated. The caution informing about mixing oil types is updated throughout the manual.
K	<ul style="list-style-type: none"> The amount of oil is updated to an indicative value for IRB 6600, IRB 6620, IRB 6620LX, IRB 6640, IRB 6650S, IRB 6660, IRB 6700, and IRB 7600. Always judge the correct amount of filling by inspecting the oil level according to the procedure in the product manual. By doing this, the following risks are avoided: <ul style="list-style-type: none"> Too much lubrication may cause leakage due to over pressure in the gearbox. Too little lubrication may cause reduced lifetime of the gearbox due to lack of lubrication. Lubrication for IRB 1200 is added.
L	<ul style="list-style-type: none"> Lubrication oil for IRB 8700 is added. Lubrication oil for IRBT 2005 is added.
M	<ul style="list-style-type: none"> Lubrication for IRB 4400 Foundry plus added for axis 4-6. The article number and amount of grease on each axis is changed for IRB 120. The amount of grease on axes 2, 3, and 5 is changed for IRB 1200. Name change of grease (Longtime PD 0 → Tribol GR 100-0 PD) Lubrication for IRB 1600ID-6/1.55 is added. Lubrication for IRB 910SC is added. Lubrication for IRB 120, Food Grade lubrication is added. Lubrication for IRB 1200, Food Grade lubrication is added.
N	<ul style="list-style-type: none"> Rename of the variant IRB 1600ID - 6/1.55 to IRB 1660ID - 6/1.55.
P	<ul style="list-style-type: none"> Lubrication for IRB 1600ID-4/1.55 is added.
Q	<ul style="list-style-type: none"> Lubrication for IRB 360-6/1600 and -8/1130 are added.
R	<ul style="list-style-type: none"> Added information about IRB 6700Inv.

Revision	Description
S	<ul style="list-style-type: none"> Updated tables for IRB 2600. Updated table for IRB 910SC. Lubrication for IRB 14050 is added. Lubrication for IRB 910INV is added. Lubrication for IRB 1100 is added.
T	<ul style="list-style-type: none"> Added information for IRB 2600 type C.
U	<ul style="list-style-type: none"> The amount of oil in axis-6 gearbox of IRB 660 is changed.
V	<ul style="list-style-type: none"> Added note about differences in type of oil pre-filled in axis-4 gear compared to recommended oil for field maintenance. (IRB 2600 and IRB 4600) Lubrication for IRB 1300 is added.
W	<ul style="list-style-type: none"> Lubrication for IRB 390 is added. Variants IRB 1600 - 10/1.2 to IRB 1600 - 10/1.45 are added. Lubrication for CRB 1100 is added.
X	<ul style="list-style-type: none"> The amount of oil in axis-1 gearbox of IRB 8700 is changed from 6,000 ml to 5,600 ml. Lubrication for IRB 6790 is added.
Y	<ul style="list-style-type: none"> Lubrication for IRB 920 is added.
Z	<ul style="list-style-type: none"> Type of oil corrected for axis 6 on IRB 6650 -225/2.55, 175/2.8 type B.
AA	<ul style="list-style-type: none"> Type of oil corrected for axis 6 on IRB 6600ID -170/2.55 type B, M2000, M2000A & M2004.
AB	<ul style="list-style-type: none"> Lubrication for IRB 5710 and IRB 5720 is added. Lubrication for IRB 1200 with protection type Hygienic is added.
AC	<ul style="list-style-type: none"> Amount of oil changed for axis 5-6 (wrist) on IRB 2600-20/1.65, IRB 2600-12/1.65, IRB 2600-12/1.85. Updated information about serial numbers for IRB 2600. Lubrication for IRB 1010 is added. Lubrication for CRB 1300 is added.
AD	<ul style="list-style-type: none"> Amount of oil changed for axis 1 on 6700 (PL). From 4.9 to 4.7. Amount of oil changed for axis 4 on 6700 (HL). From 7 to 6.8. Added information for IRB 2600 on OmniCore. Alternative oil (Mobilgear XMP 320) to type Mobilgear 600 XP 320 is added. Amount of oil changed for axis 1 on IRB 5710, IRB 5720 (floor-mounted manipulators). Amount of oil changed for axis 4 on IRB 6790.
AE	<ul style="list-style-type: none"> The amount of lubrication oil for IRBT 4004/6004/7004 updated. Lubrication for IRB 6710, IRB 6720, IRB 6730 and IRB 6740 is added. Amount of oil changed for axis 2 on IRB 5710, IRB 5720. Amount of oil changed for axis 4 on IRB 6700HL, IRB 6790.
AF	<ul style="list-style-type: none"> Lubrication for IRB 1090 is added. Lubrication for IRB 1510 is added.
AG	<ul style="list-style-type: none"> Amount of oil for IRB 8700 gearbox axis 2 and 3 updated. Lubrication for rotary unit MTE is added.
AH	<ul style="list-style-type: none"> Lubrication for IRB 7710, 7720 is added. Amount of oil changed for axis 1 on IRB 1300, CRB 1300.

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1 Introduction

1.1 Before you start



Note

Before starting any inspection, maintenance, or changing activities of lubrication, **always** verify that you have the latest available revision of this manual. Any updates of the manual in between the main releases will be published on ABB Library. Contact your local ABB for information.

Content in this manual

This manual contains information about the lubrication oil or grease in the gearboxes of the manipulators. It covers all currently available manipulators (IRB, IRBT, IRBP, and MU/GU), each presented in a separate chapter. This lubrication manual is a complement to the product manuals for the manipulators.

The information in this manual - type of lubrication, article numbers and the amount used in gearboxes - is only presented here.

Inspection and change of lubrication

The instructions for inspecting the lubrication levels and changing the lubrication are found in the product manuals for the manipulators.

1 Introduction

1.2 Compatibility of lubrication oils

1.2 Compatibility of lubrication oils

Mixing of oils

Some lubrication oils cannot be mixed with other oils. Severe damage may be caused if they are mixed.

The figure [Groups of oil on page 14](#) shows two different groups of oil types. The oils within each group are mixable with each other, but not with any other oil outside the group.

If oils from different groups are mixed, the gearbox must be thoroughly rinsed as described in [Rinsing the gearbox on page 15](#).

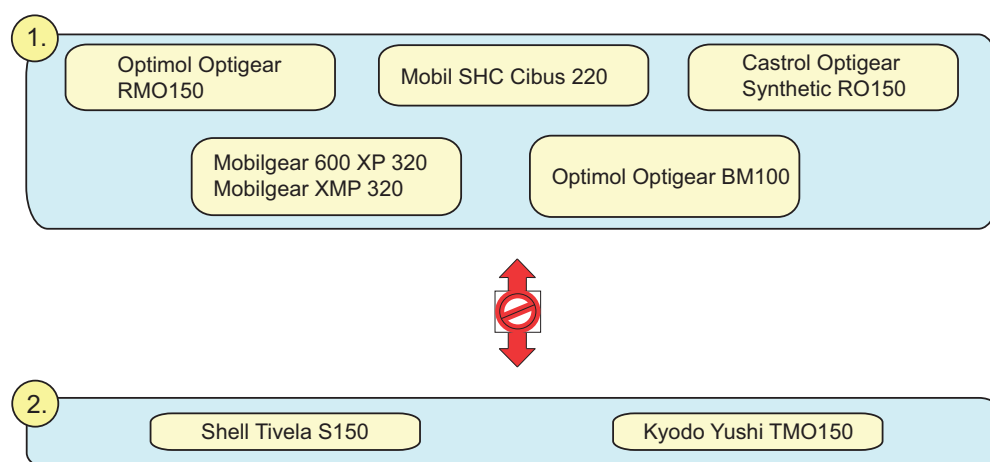
If oils within the same group are mixed, it is sufficient to drain and refill the gearbox with the correct type of oil.



Note

Even if the oils within a group are mixable, it does not mean that they are equivalent! Always use the type of oil that is specified in the table for each robot.

Groups of oil



xx1200000013

Mixing types of oil may cause severe damage!

When refilling or replacing oil in a gearbox it is important to first check which type of oil is recommended for use in the gearbox. As Kyodo Yushi TMO 150 and Shell Tivela S 150 (new product name Shell Omala S4 WE 150) are not compatible with mineral oil, contamination with other types of oil in the gearboxes is not acceptable. Equipment used in handling Kyodo Yushi or Shell Tivela S 150 (new product name Shell Omala S4 WE 150) must be carefully cleaned before use!

If the type of oil needs to be changed to an oil from a different group of oils (see figure [Groups of oil on page 14](#)), the gearbox must be thoroughly rinsed. See [Rinsing the gearbox on page 15](#).

Continues on next page

Rinsing the gearbox

Depending on which types of oil are mixed and which type of oil shall be filled in the gearbox after rinsing, use the appropriate procedure.

The same applies if the type of oil shall be changed in the gearbox.



Note

The explanation given for Kyodo Yushi TMO 150 also applies to Shell Tivela S 150 (new product name Shell Omala S4 WE 150).

The explanation given for Mobilgear 600 XP 320/XMP 320 also applies to Mobil Gearlube X320.

Kyodo Yushi TMO 150 mixed with Optimol Optigear RMO 150 or Castrol Optigear RO 150

Use this procedure to rinse the contaminated gearbox if the oil type Kyodo Yushi TMO 150 is mixed with Optimol Optigear RMO 150 or Castrol Optigear RO 150.

- 1 Flush the gearbox properly three times with the correct type of oil. Use a service program when flushing.
- 2 Refill the gearbox with the correct type of oil.

Kyodo Yushi TMO 150 mixed with Mobilgear 600 XP 320/XMP 320

Use this procedure to rinse the contaminated gearbox if the gearbox shall contain Kyodo Yushi TMO 150 and it is mixed with Mobilgear 600 XP320.

- 1 Flush the gearbox properly three times with Kyodo Yushi TMO 150. Use a service program when flushing.
- 2 Refill the gearbox with Kyodo Yushi TMO 150.

1 Introduction

1.3 Amount of lubrication when ordered as spare part

1.3 Amount of lubrication when ordered as spare part

Lubrication as spare part

When lubrication is ordered as spare part it is delivered in drums (or containers). Hence the exact amount of oil or grease that is needed, cannot always be ordered. The tables show in which amount the lubrication is delivered when ordered as a spare part.

Order size for lubrication oil

This table shows in which amounts that the lubrication oil can be ordered.

Product name	Spare part number	WebConfig number	Amount in container (drum)
Kyodo Yushi TMO 150	3HAC032140-002	3HAC032140-001	209 liters
Kyodo Yushi TMO 150	3HAC032140-004	3HAC032140-001	20 liters
Shell Omala S4 WE 150 (old product name Shell Tivela S150)	3HAC043226-001	3HAC021469-001	1 liter
Shell Omala S4 WE 150 (old product name Shell Tivela S150)	3HAC043226-002	3HAC021469-001	5 liters
Shell Omala S4 WE 150 (old product name Shell Tivela S150)	3HAC043226-003	3HAC021469-001	10 liters
Shell Omala S4 WE 150 (old product name Shell Tivela S150)	3HAC043226-004	3HAC021469-001	20 liters
Optimol Optigear BM 100	3HAC042564-001	3HAC0860-1	5 liters
Castrol Optigear RO150	3HAC042589-001	3HAC031291-001	1.000 liters
Castrol Optigear RO150	3HAC042592-001	3HAC031291-001	206 liters
Castrol Optigear RO150	3HAC042577-001	3HAC031291-001	10 liters
Mobilgear 600 XP 320/XMP 320	3HAC042471-001	11712016-604	10 liters
Mobil SHC Cibus 220	3HAC6450-3	3HAC6450-2	0.9 liters
Mobil SHC Cibus 220	3HAC042574-001	3HAC6450-2	0.2 liters

Order size for lubrication grease

This table shows in which amounts that the lubrication grease can be ordered.

Product name	Spare part number	WebConfig number	Amount in container (drum)
Optimol Long time PD0	3HAC042534-001	3HAA1001-294	420 ml
Optimol Long time PD2	3HAC9408-1	-	420 ml
Shell GADUS S2 V220AC 2	3HAC042536-001	3HAB3537-1	400 g
Harmonic Grease 4B No.2	3HAC037302-001	3HAC031695-001	500 g

2 Articulated robots - four axes

2.1 IRB 260



CAUTION

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table shows the lubrication oil that is currently used in the gearboxes of the robot.

IRB 260 - all variants, M2004

Axis	WebConfig number	Type	Amount
Axis 1	11712016-604	Mobilgear 600 XP 320/XMP 320	6,400 ml
Axis 2	11712016-604	Mobilgear 600 XP 320/XMP 320	4,500 ml
Axis 3	11712016-604	Mobilgear 600 XP 320/XMP 320	3,800 ml
Axis 4	Not applicable		
Axis 5	Not applicable		
Axis 6	3HAC032140-001	Kyodo Yushi TMO 150	70 ml

The information in the table updated: October 25 2022.

2 Articulated robots - four axes

2.2 IRB 460

2.2 IRB 460



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table shows the lubrication oil that is currently used in the gearboxes of the robot.

IRB 460-110/2.4, M2004

Axis	WebConfig number	Type	Amount
Axis 1	3HAC032140-001	Kyodo Yushi TMO 150	5,900 ml
Axis 2	3HAC032140-001	Kyodo Yushi TMO 150	3,200 ml
Axis 3	3HAC032140-001	Kyodo Yushi TMO 150	3,200 ml
Axis 4	Not applicable		
Axis 5	Not applicable		
Axis 6	3HAC032140-001	Kyodo Yushi TMO 150	300 ml

The information in the table updated: September 27 2013.

2.3 IRB 660

**Note**

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table shows the lubrication oil that is currently used in the gearboxes of the robot.

IRB 660-180/3.15, -250/3.15, M2004

Axis	WebConfig number	Type	Amount
Axis 1	3HAC032140-001	Kyodo Yushi TMO 150	8,000 ml
Axis 2	3HAC032140-001	Kyodo Yushi TMO 150	5,000 ml
Axis 3	3HAC032140-001	Kyodo Yushi TMO 150	5,000 ml
Axis 4	Not applicable		
Axis 5	Not applicable		
Axis 6	3HAC032140-001	Kyodo Yushi TMO 150	300 ml

The information in the table updated: June 18 2020.

2 Articulated robots - four axes

2.4 IRB 760

2.4 IRB 760



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table shows the lubrication oil that is currently used in the gearboxes of the robot.

IRB 760-450/3.2, M2004

Axis	WebConfig number	Type	Amount
Axis 1	3HAC032140-001	Kyodo Yushi TMO 150	8,000 ml
Axis 2	3HAC032140-001	Kyodo Yushi TMO 150	5,000 ml
Axis 3	3HAC032140-001	Kyodo Yushi TMO 150	5,000 ml
Axis 4	Not applicable		
Axis 5	Not applicable		
Axis 6	3HAC032140-001	Kyodo Yushi TMO 150	850 ml

The information in the table updated: July 4 2012.

3 Articulated robots - six axes

3.1 IRB 120



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of grease - currently used

This table shows the lubrication grease that is currently used in the gearboxes of the robot.

IRB 120-3/0.6, M2004



Note

The gearboxes contain grease, not lubrication oil!
The amount is measured in grams.

Axis	WebConfig number	Type	Amount
1	3HAC031695-001	Harmonic grease 4B No. 2	58 gram
2	3HAC031695-001	Harmonic grease 4B No. 2	40 gram
3	3HAC031695-001	Harmonic grease 4B No. 2	11 gram
4	3HAC031695-001	Harmonic grease 4B No. 2	3.5 gram
5	3HAC031695-001	Harmonic grease 4B No. 2	5 gram
6	3HAC031695-001	Harmonic grease 4B No. 2	3.5 gram

The information in the table updated: February 19 2016.

IRB 120-3/0.6, food grade lubrication, M2004



Note

The gearboxes contain grease, not lubrication oil!
The amount is measured in grams.

Axis	WebConfig number	Type	Amount
1	3HAC043771-001	LUBRIPLATE SYNXTREME FG-0	66 gram
2	3HAC043771-001	LUBRIPLATE SYNXTREME FG-0	40 gram
3	3HAC043771-001	LUBRIPLATE SYNXTREME FG-0	11 gram
4	3HAC043771-001	LUBRIPLATE SYNXTREME FG-0	3.5 gram
5	3HAC043771-001	LUBRIPLATE SYNXTREME FG-0	5 gram
6	3HAC043771-001	LUBRIPLATE SYNXTREME FG-0	3.5 gram

The information in the table updated: February 19 2016.

3 Articulated robots - six axes

3.2 IRB 140 type C

3.2 IRB 140 type C



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table shows the lubrication oil that is currently used in the gearboxes of the robot.

IRB 140-6/0.8 & IRB 140T-6/0.8, M2004



CAUTION

The total amount of lubrication oil in a new wrist can not be refilled after the gearbox has been drained. In order to avoid future leakage due to overpressure, refill the gearbox with the amount shown in the table.

Axis	WebConfig number	Type	Amount
1	11712016-604	Mobilgear 600 XP 320/XMP 320	1,200 ml
2	11712016-604	Mobilgear 600 XP 320/XMP 320	1,000 ml
3	11712016-604	Mobilgear 600 XP 320/XMP 320	300 ml
4	11712016-604	Mobilgear 600 XP 320/XMP 320	200 ml
5-6	3HAC0860-1	Optimol Optigear BM 100	New wrist: 350 ml Refilling the wrist: 300 ml

The information in the table updated: October 25 2022.

3.3 IRB 1010

**Note**

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of grease - currently used

This table shows the lubrication grease that is currently used in the gearboxes of the robot.

IRB 1010 all variants, OmniCore

**Note**

The gearboxes contain grease, not lubrication oil!
The amount is measured in grams.

Axis	WebConfig number	Type	Amount
1	3HAC031695-001	Harmonic grease 4B No. 2	15.7 gram
2	3HAC031695-001	Harmonic grease 4B No. 2	12.4 gram
3	3HAC038379-001	Harmonic Grease Flexolub-1A	12.5 gram
4	3HAC038379-001	Harmonic Grease Flexolub-1A	4.2 gram
5	3HAC038379-001	Harmonic Grease Flexolub-1A	4.2 gram
6	3HAC038379-001	Harmonic Grease Flexolub-1A	4.2 gram

The information in the table updated: April 13 2022.

3 Articulated robots - six axes

3.4 IRB 1090

3.4 IRB 1090



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of grease - currently used

This table shows the lubrication grease that is currently used in the gearboxes of the robot.

IRB 1090 all variants, OmniCore



Note

The gearboxes contain grease, not lubrication oil!
The amount is measured in grams.

Axis	WebConfig number	Type	Amount
1	3HAC031695-001	Harmonic grease 4B No. 2	11.1 gram
2	3HAC031695-001	Harmonic grease 4B No. 2	12.6 gram
3	3HAC031695-001	Harmonic grease 4B No. 2	9.1 gram
4	3HAC031695-001	Harmonic grease 4B No. 2	7.3 gram
5	3HAC031695-001	Harmonic grease 4B No. 2	4.5 gram
6	3HAC031695-001	Harmonic grease 4B No. 2	1 gram

The information in the table updated: July 31 2023.

3.5 IRB 1100

**Note**

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of grease - currently used

This table shows the lubrication grease that is currently used in the gearboxes of the robot.

IRB 1100 all variants, OmniCore

**Note**

The gearboxes contain grease, not lubrication oil!
The amount is measured in grams.

Axis	WebConfig number	Type	Amount
1	3HAC031695-001	Harmonic grease 4B No. 2	11.1 gram
2	3HAC031695-001	Harmonic grease 4B No. 2	12.6 gram
3	3HAC031695-001	Harmonic grease 4B No. 2	9.1 gram
4	3HAC031695-001	Harmonic grease 4B No. 2	7.3 gram
5	3HAC031695-001	Harmonic grease 4B No. 2	4.5 gram
6	3HAC031695-001	Harmonic grease 4B No. 2	1 gram

The information in the table updated: October 15 2019.

3 Articulated robots - six axes

3.6 IRB 1200

3.6 IRB 1200



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of grease - currently used

This table shows the lubrication grease that is currently used in the gearboxes of the robot.

IRB 1200 all variants, M2004 and OmniCore



Note

The gearboxes contain grease, not lubrication oil!

The amount is measured in grams.

Axis	WebConfig number	Type	Amount
1	3HAC037302-001	Harmonic grease 4B No. 2	80 gram
2	3HAC037302-001	Harmonic grease 4B No. 2	60 gram
3	3HAC037302-001	Harmonic grease 4B No. 2	32 gram
4	N/A	N/A	N/A
5	3HAC037302-001	Harmonic grease 4B No. 2	9 gram
6	3HAC037302-001	Harmonic grease 4B No. 2	8.5 gram

The information in the table updated: February 19 2016.

IRB 1200 all variants, food grade lubrication, M2004



Note

The gearboxes contain grease, not lubrication oil!

The amount is measured in grams.

Axis	WebConfig number	Type	Amount
1	3HAC043771-001	LUBRIPLATE SYNXTREME FG-0	80 gram
2	3HAC043771-001	LUBRIPLATE SYNXTREME FG-0	60 gram
3	3HAC043771-001	LUBRIPLATE SYNXTREME FG-0	32 gram
4	N/A	N/A	N/A
5	3HAC043771-001	LUBRIPLATE SYNXTREME FG-0	9 gram
6	3HAC043771-001	LUBRIPLATE SYNXTREME FG-0	8.5 gram

The information in the table updated: February 19 2016.

3.7 IRB 1300

**CAUTION**

The stated amount of lubrication is only indicative. Always judge the correct amount of filling by inspecting the oil level according to the procedure in the product manual. By doing this, the following risks are avoided:

- Too much lubrication may cause leakage due to over pressure in the gearbox.
- Too little lubrication may cause reduced lifetime of the gearbox due to lack of lubrication.

**Note**

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table shows the lubrication oil that is currently used in the gearboxes of the robot.

IRB 1300 all variants, OmniCore

Axis	WebConfig number	Type	Amount
1	3HAC032140-001	Kyodo Yushi TMO 150	580 ml
2	3HAC032140-001	Kyodo Yushi TMO 150	245 ml ⁱ

ⁱ The stated amount of lubrication is only indicative. Always judge the correct amount of filling by inspecting the oil level. The oil level must be within the range of 64 mm-69 mm.

The information in the table updated: April 19 2024.

Type of grease - currently used

This table shows the lubrication grease that is currently used in the gearboxes of the robot.

IRB 1300 all variants, OmniCore

**Note**

The gearboxes contain grease, not lubrication oil!

The amount is measured in grams.

Axis	WebConfig number	Type	Amount
3	3HAC031695-001	Harmonic grease 4B No. 2	35.5 gram
4	3HAC031695-001	Harmonic grease 4B No. 2	13.2 gram
5	3HAC031695-001	Harmonic grease 4B No. 2	Not available ⁱ
6	3HAC031695-001	Harmonic grease 4B No. 2	8.2 gram

ⁱ The gearbox contains lubrication grease at delivery and no grease amount is available.

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3 Articulated robots - six axes

3.7 IRB 1300

Continued

The information in the table updated: July 15 2020.

3.8 IRB 1410

**CAUTION**

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).

**Note**

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table shows the lubrication oil and grease that is currently used in the gearboxes of the robot.

IRB 1410 all variants, M2004

**Note**

Axis-5 and axis-6 contains grease!

Axis-1, axis-2, axis-3, and axis-4 contains lubrication oil.

Axis	WebConfig number	Type	Amount
1	11712016-604	Mobilgear 600 XP 320/XMP 320	2,000 ml
2	11712016-604	Mobilgear 600 XP 320/XMP 320	1,700 ml
3	11712016-604	Mobilgear 600 XP 320/XMP 320	1,700 ml
4	11712016-604	Mobilgear 600 XP 320/XMP 320	30 ml
5-6	3HAC042536-001	Shell GADUS S2 V220AC 2	60 gram

The information in the table updated: October 25 2022.

3 Articulated robots - six axes

3.9 IRB 1510

3.9 IRB 1510



CAUTION

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

These tables show the lubrication oil that is currently used in the gearboxes of the robot, depending on version.

IRB 1510ID-4/1.5 floor mounted, M2004



CAUTION

The total amount of lubrication oil in a new wrist can not be refilled after the gearbox has been drained. In order to avoid future leakage due to overpressure, refill the gearbox with the amount shown in the table.

Axis	WebConfig number	Type	Amount
1	3HAC032140-001	Kyodo Yushi TMO 150	350 ml
2	3HAC032140-001	Kyodo Yushi TMO 150	520 ml
3	3HAC032140-001	Kyodo Yushi TMO 150	320 ml
4	11712016-604	Mobilgear 600 XP 320/XMP 320	350 ml
5-6	3HAC0860-1	Optimol Optigear BM 100	New wrist: 130 ml Refilling the wrist: 110 ml

The information in the table updated: July 31 2023.

IRB 1510ID-4/1.5 suspended, M2004



CAUTION

The total amount of lubrication oil in a new wrist can not be refilled after the gearbox has been drained. In order to avoid future leakage due to overpressure, refill the gearbox with the amount shown in the table.

Axis	WebConfig number	Type	Amount
1	3HAC032140-001	Kyodo Yushi TMO 150	600 ml

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Axis	WebConfig number	Type	Amount
2	3HAC032140-001	Kyodo Yushi TMO 150	520 ml
3	3HAC032140-001	Kyodo Yushi TMO 150	320 ml
4	11712016-604	Mobilgear 600 XP 320/XMP 320	350 ml
5-6	3HAC0860-1	Optimol Optigear BM 100	New wrist: 130 ml Refilling the wrist: 110 ml

The information in the table updated: July 31 2023.

3 Articulated robots - six axes

3.10 IRB 1520

3.10 IRB 1520



CAUTION

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

These tables show the lubrication oil that is currently used in the gearboxes of the robot, depending on version.

IRB 1520ID -4/1.5 floor mounted, M2004



CAUTION

The total amount of lubrication oil in a new wrist can not be refilled after the gearbox has been drained. In order to avoid future leakage due to overpressure, refill the gearbox with the amount shown in the table.

Axis	WebConfig number	Type	Amount
1	3HAC032140-001	Kyodo Yushi TMO 150	350 ml
2	3HAC032140-001	Kyodo Yushi TMO 150	520 ml
3	3HAC032140-001	Kyodo Yushi TMO 150	320 ml
4	11712016-604	Mobilgear 600 XP 320/XMP 320	350 ml
5-6	3HAC0860-1	Optimol Optigear BM 100	New wrist: 130 ml Refilling the wrist: 110 ml

The information in the table updated: October 25 2022.

IRB 1520ID -4/1.5 suspended, M2004



CAUTION

The total amount of lubrication oil in a new wrist can not be refilled after the gearbox has been drained. In order to avoid future leakage due to overpressure, refill the gearbox with the amount shown in the table.

Axis	WebConfig number	Type	Amount
1	3HAC032140-001	Kyodo Yushi TMO 150	600 ml

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Axis	WebConfig number	Type	Amount
2	3HAC032140-001	Kyodo Yushi TMO 150	520 ml
3	3HAC032140-001	Kyodo Yushi TMO 150	320 ml
4	11712016-604	Mobilgear 600 XP 320/XMP 320	350 ml
5-6	3HAC0860-1	Optimol Optigear BM 100	New wrist: 130 ml Refilling the wrist: 110 ml

The information in the table updated: October 25 2022.

3 Articulated robots - six axes

3.11 IRB 1600/1660ID type A

3.11 IRB 1600/1660ID type A



CAUTION

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table shows the lubrication oil currently used in the gearboxes.

IRB 1600, all variants, M2004

IRB 1600 -5/1.2, -5/1.45, -6/1.2, -6/1.45, -7/1.3, -7/1.45, -8/1.2, -8/1.45, -10/1.2, -10/1.45



CAUTION

The total amount of lubrication oil in a new wrist can not be refilled after the gearbox has been drained. In order to avoid future leakage due to overpressure, refill the gearbox with the amount shown in the table.

Axis	WebConfig number	Type	Amount
1	11712016-604	Mobilgear 600 XP 320/XMP 320	3,400 ml
2	11712016-604	Mobilgear 600 XP 320/XMP 320	3,400 ml
3	11712016-604	Mobilgear 600 XP 320/XMP 320	500 ml
4	11712016-604	Mobilgear 600 XP 320/XMP 320	350 ml
5-6	3HAC0860-1	Optimol Optigear BM 100	New wrist: 350 ml Refilling the wrist: 300 ml

The information in the table updated: October 25 2022.

IRB 1600ID - 4/1.5, M2004



CAUTION

The total amount of lubrication oil in a new wrist can not be refilled after the gearbox has been drained. In order to avoid future leakage due to overpressure, refill the gearbox with the amount shown in the table.

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Axis	WebConfig number	Type	Amount
1	11712016-604	Mobilgear 600 XP 320/XMP 320	3,400 ml
2	11712016-604	Mobilgear 600 XP 320/XMP 320	3,400 ml
3	11712016-604	Mobilgear 600 XP 320/XMP 320	500 ml
4	11712016-604	Mobilgear 600 XP 320/XMP 320	300 ml
5	11712016-604	Mobilgear 600 XP 320/XMP 320	15 ml
5-6	3HAC0860-1	Optimol Optigear BM 100	New wrist: 130 ml Refilling the wrist: 110 ml

The information in the table updated: October 25 2022.

IRB 1660ID - 6/1.55, - 4/1.55, M2004



CAUTION

The total amount of lubrication oil in a new wrist can not be refilled after the gearbox has been drained. In order to avoid future leakage due to overpressure, refill the gearbox with the amount shown in the table.

Axis	WebConfig number	Type	Amount
1	11712016-604	Mobilgear 600 XP 320/XMP 320	3,400 ml
2	11712016-604	Mobilgear 600 XP 320/XMP 320	3,400 ml
3	11712016-604	Mobilgear 600 XP 320/XMP 320	500 ml
4	11712016-604	Mobilgear 600 XP 320/XMP 320	350 ml
5	3HAC0860-1	Optimol Optigear BM 100	15 ml
6	3HAC0860-1	Optimol Optigear BM 100	240 ml

The information in the table updated: October 25 2022.

3 Articulated robots - six axes

3.12 IRB 2400

3.12 IRB 2400



CAUTION

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

These tables show the lubrication oil that is currently used in the gearboxes of the robot, depending on version.

IRB 2400 /10, /16, M98, M2000, M2000A & M2004

Axis	WebConfig number	Type	Amount
1	11712016-604	Mobilgear 600 XP 320/XMP 320	6,400 ml
2	11712016-604	Mobilgear 600 XP 320/XMP 320	4,500 ml
3	11712016-604	Mobilgear 600 XP 320/XMP 320	3,800 ml
4	3HAC0860-1	Optimol Optigear BM 100	1,500 ml
5-6	3HAC0860-1	Optimol Optigear BM 100	800 ml

The information in the table updated: October 25 2022.

IRB 2400 /L, M98, M2000, M2000A & M2004

Axis	WebConfig number	Type	Amount
1	11712016-604	Mobilgear 600 XP 320/XMP 320	6,400 ml
2	11712016-604	Mobilgear 600 XP 320/XMP 320	4,500 ml
3	11712016-604	Mobilgear 600 XP 320/XMP 320	3,800 ml
4	11712016-604	Mobilgear 600 XP 320/XMP 320	30 ml
5-6	11712016-604	Mobilgear 600 XP 320/XMP 320	120 ml

The information in the table updated: October 25 2022.

3.13 IRB 2600

**CAUTION**

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).

**Note**

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil, floor mounted IRB 2600

These tables show the lubrication oil currently used in floor mounted robot gearboxes, depending on version.

Floor mounted IRB 2600, M2004

Floor mounted, robot variant	Version	Shell Omala S4 WE 150 WebConfig number 3HAC021469-001	Kyodo Yushi TMO 150 WebConfig number 3HAC032140-001	Optimol Optigear BM 100 WebConfig number 3HAC0860-1
Axis 1				
IRB 2600-20/1.65 IRB 2600-12/1.65	Type C ⁱ		1,330 ml	
IRB 2600-20/1.65 IRB 2600-12/1.65 IRB 2600-12/1.85	Serial numbers from 101000- or 501000- ⁱⁱ	600 ml		
IRB 2600ID-15/1.85 IRB 2600ID-8/2.0	Serial numbers up to -100999 or -500999.	1,000 ml		
Axis 2				
IRB 2600-20/1.65 IRB 2600-12/1.65	Type C ⁱ		920 ml	
IRB 2600-20/1.65 IRB 2600-12/1.65 IRB 2600-12/1.85	Serial numbers from 101000- or 501000- ⁱⁱ	800 ml		
IRB 2600ID-15/1.85 IRB 2600ID-8/2.0	Serial numbers up to -100999 or -500999.	900 ml		
Axis 3				

Continues on next page

3 Articulated robots - six axes

3.13 IRB 2600

Continued

Floor mounted, robot variant	Version	Shell Omala S4 WE 150 WebConfig number 3HAC021469-001	Kyodo Yushi TMO 150 WebConfig number 3HAC032140-001	Optimol Optigear BM 100 WebConfig number 3HAC0860-1
IRB 2600-20/1.65 IRB 2600-12/1.65 IRB 2600-12/1.85 IRB 2600ID-15/1.85 IRB 2600ID-8/2.0	All versions		450 ml	
Axis 4				
IRB 2600-20/1.65 IRB 2600-12/1.65 IRB 2600-12/1.85 IRB 2600ID-15/1.85 IRB 2600ID-8/2.0	All versions			1,800 ml ⁱⁱⁱ
Axis 5-6				
IRB 2600-20/1.65 IRB 2600-12/1.65 IRB 2600-12/1.85	All versions			600 ml
Axis 5				
IRB 2600ID-15/1.85 IRB 2600ID-8/2.0	All versions			15 ml
Axis 6				
IRB 2600ID-15/1.85 IRB 2600ID-8/2.0	All versions			240 ml

i Stated on a label next to the silver label. See *Product manual - IRB 2600* for more information about Type C.

ii Not Type C robots.

iii



Note

The type of oil pre-filled in axis-4 gear differs from the type of oil recommended for field maintenance, due to differences in factory and customer sites prerequisites. The two types of oil are fully equal and compatible.

Use the type of oil specified in *Technical reference manual - Lubrication in gearboxes*, even though it differs from the oil specified in WebConfig.

The information in the table is updated: August 29 2022.

Continues on next page

Floor mounted IRB 2600, OmniCore

Floor mounted, robot variant	Version	Shell Omala S4 WE 150 WebConfig number 3HAC021469-001	Kyodo Yushi TMO 150 WebConfig number 3HAC032140-001	Optimol Optigear BM 100 WebConfig number 3HAC0860-1
Axis 1				
IRB 2600-20/1.65 IRB 2600-12/1.65	Type C ⁱ		1,330 ml	
IRB 2600-20/1.65 IRB 2600-12/1.65 IRB 2600-12/1.85 IRB 2600ID-15/1.85 IRB 2600ID-8/2.0	Other than type C	600 ml		
Axis 2				
IRB 2600-20/1.65 IRB 2600-12/1.65	Type C ⁱ		920 ml	
IRB 2600-20/1.65 IRB 2600-12/1.65 IRB 2600-12/1.85 IRB 2600ID-15/1.85 IRB 2600ID-8/2.0	Other than type C	800 ml		
Axis 3				
IRB 2600-20/1.65 IRB 2600-12/1.65 IRB 2600-12/1.85 IRB 2600ID-15/1.85 IRB 2600ID-8/2.0	All versions		450 ml	
Axis 4				
IRB 2600-20/1.65 IRB 2600-12/1.65 IRB 2600-12/1.85 IRB 2600ID-15/1.85 IRB 2600ID-8/2.0	All versions			1,800 ml ⁱⁱ
Axis 5-6				
IRB 2600-20/1.65 IRB 2600-12/1.65 IRB 2600-12/1.85	All versions			600 ml
Axis 5				
IRB 2600ID-15/1.85 IRB 2600ID-8/2.0	All versions			15 ml
Axis 6				

Continues on next page

3 Articulated robots - six axes

3.13 IRB 2600

Continued

Floor mounted, robot variant	Version	Shell Omala S4 WE 150 WebConfig number 3HAC021469-001	Kyodo Yushi TMO 150 WebConfig number 3HAC032140-001	Optimol Optigear BM 100 WebConfig number 3HAC0860-1
IRB 2600ID-15/1.85 IRB 2600ID-8/2.0	All versions			240 ml

i Stated on a label next to the silver label. See *Product manual - IRB 2600* for more information about Type C.

ii  **Note**

The type of oil pre-filled in axis-4 gear differs from the type of oil recommended for field maintenance, due to differences in factory and customer sites prerequisites. The two types of oil are fully equal and compatible.

Use the type of oil specified in *Technical reference manual - Lubrication in gearboxes*, even though it differs from the oil specified in WebConfig.

The information in the table is updated: October 20 2022.

Type of oil, suspended IRB 2600

These tables shows the lubrication oil currently used in suspended robot gearboxes, depending on version.

Suspended IRB 2600, M2004

Suspended, robot variant	Version	Shell Omala S4 WE 150 WebConfig number 3HAC021469-001	Kyodo Yushi TMO 150 WebConfig number 3HAC032140-001	Optimol Optigear BM 100 WebConfig number 3HAC0860-1
Axis 1				
IRB 2600-20/1.65 IRB 2600-12/1.65 IRB 2600-12/1.85	Serial numbers from 101000- or 501000- ii .	1,000 ml		
	Serial numbers up to -100999 or -500999.	1,400 ml		
IRB 2600ID-15/1.85 IRB 2600ID-8/2.0	Serial numbers up to -100999 or -500999.	1,400 ml		
Axis 2				
IRB 2600-20/1.65 IRB 2600-12/1.65 IRB 2600-12/1.85	Serial numbers from 101000- or 501000- ii .	800 ml		
	Serial numbers up to -100999 or -500999.	900 ml		
IRB 2600ID-15/1.85 IRB 2600ID-8/2.0	Serial numbers up to -100999 or -500999.	900 ml		

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Suspended, robot variant	Version	Shell Omala S4 WE 150 WebConfig number 3HAC021469-001	Kyodo Yushi TMO 150 WebConfig number 3HAC032140-001	Optimol Optigear BM 100 WebConfig number 3HAC0860-1
Axis 3				
IRB 2600-20/1.65 IRB 2600-12/1.65 IRB 2600-12/1.85 IRB 2600ID-15/1.85 IRB 2600ID-8/2.0	All versions		450 ml	
Axis 4				
IRB 2600-20/1.65 IRB 2600-12/1.65 IRB 2600-12/1.85 IRB 2600ID-15/1.85 IRB 2600ID-8/2.0	All versions			1,800 ml ⁱ
Axis 5-6				
IRB 2600-20/1.65 IRB 2600-12/1.65 IRB 2600-12/1.85	All versions			800 ml
Axis 5				
IRB 2600ID-15/1.85 IRB 2600ID-8/2.0	All versions			15 ml
Axis 6				
IRB 2600ID-15/1.85 IRB 2600ID-8/2.0	All versions			240 ml

i



Note

The type of oil pre-filled in axis-4 gear differs from the type of oil recommended for field maintenance, due to differences in factory and customer sites prerequisites. The two types of oil are fully equal and compatible.

Use the type of oil specified in *Technical reference manual - Lubrication in gearboxes*, even though it differs from the oil specified in WebConfig.

The information in the table is updated: May 3 2018.

Continues on next page

3 Articulated robots - six axes

3.13 IRB 2600

Continued

Suspended IRB 2600, OmniCore

Suspended, robot variant	Shell Omala S4 WE 150 WebConfig number 3HAC021469-001	Kyodo Yushi TMO 150 WebConfig number 3HAC032140-001	Optimol Optigear BM 100 WebConfig number 3HAC0860-1
Axis 1			
IRB 2600-20/1.65	1,000 ml		
IRB 2600-12/1.65 IRB 2600-12/1.85	1,400 ml		
IRB 2600ID-15/1.85 IRB 2600ID-8/2.0	1,400 ml		
Axis 2			
IRB 2600-20/1.65	800 ml		
IRB 2600-12/1.65 IRB 2600-12/1.85	900 ml		
IRB 2600ID-15/1.85 IRB 2600ID-8/2.0	900 ml		
Axis 3			
IRB 2600-20/1.65 IRB 2600-12/1.65 IRB 2600-12/1.85 IRB 2600ID-15/1.85 IRB 2600ID-8/2.0		450 ml	
Axis 4			
IRB 2600-20/1.65 IRB 2600-12/1.65 IRB 2600-12/1.85 IRB 2600ID-15/1.85 IRB 2600ID-8/2.0			1,800 ml ⁱ
Axis 5-6			
IRB 2600-20/1.65 IRB 2600-12/1.65 IRB 2600-12/1.85			800 ml
Axis 5			
IRB 2600ID-15/1.85 IRB 2600ID-8/2.0			15 ml
Axis 6			

Continues on next page

Suspended, robot variant	Shell Omala S4 WE 150 WebConfig number 3HAC021469-001	Kyodo Yushi TMO 150 WebConfig number 3HAC032140-001	Optimol Optigear BM 100 WebConfig number 3HAC0860-1
IRB 2600ID-15/1.85 IRB 2600ID-8/2.0			240 ml

i



Note

The type of oil pre-filled in axis-4 gear differs from the type of oil recommended for field maintenance, due to differences in factory and customer sites prerequisites. The two types of oil are fully equal and compatible.

Use the type of oil specified in *Technical reference manual - Lubrication in gearboxes*, even though it differs from the oil specified in WebConfig.

The information in the table is updated: October 20 2020.

3 Articulated robots - six axes

3.14 IRB 4400/4450S

3.14 IRB 4400/4450S



CAUTION

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

These tables show the lubrication oil that is currently used in the gearboxes of the robot, depending on version.



Note

See separate table for information about IRB 4400 Foundry Plus.

IRB 4400 -45, -60, L30, M2000 & M2004

Axis	WebConfig number	Type	Amount
1	11712016-604	Mobilgear 600 XP 320/XMP 320	8,200 ml
2	11712016-604	Mobilgear 600 XP 320/XMP 320	5,800 ml
3	11712016-604	Mobilgear 600 XP 320/XMP 320	5,800 ml
4	3HAC0860-1	Optimol Optigear BM 100	3,400 ml
5-6	3HAC0860-1	Optimol Optigear BM 100	3,400 ml

The information in the table updated: October 25 2022.

IRB 4400 -L10, M2000 & M2004

Axis	WebConfig number	Type	Amount
1	11712016-604	Mobilgear 600 XP 320/XMP 320	8,200 ml
2	11712016-604	Mobilgear 600 XP 320/XMP 320	5,800 ml
3	11712016-604	Mobilgear 600 XP 320/XMP 320	5,800 ml
4	3HAC0860-1	Optimol Optigear BM 100	3,400 ml
5-6	3HAC0860-1	Optimol Optigear BM 100	800 ml

The information in the table updated: October 25 2022.

Continues on next page

IRB 4400 -S, M2000 & M2004

Axis	WebConfig number	Type	Amount
1	11712016-604	Mobilgear 600 XP 320/XMP 320	10,000 ml
2	11712016-604	Mobilgear 600 XP 320/XMP 320	6,000 ml
3	11712016-604	Mobilgear 600 XP 320/XMP 320	6,000 ml
4	3HAC0860-1	Optimol Optigear BM 100	3,400 ml
5-6	3HAC0860-1	Optimol Optigear BM 100	3,400 ml

The information in the table updated: October 25 2022.

IRB 4450S, M2000 & M2004

Axis	WebConfig number	Type	Amount
1	11712016-604	Mobilgear 600 XP 320/XMP 320	8,200 ml
2	11712016-604	Mobilgear 600 XP 320/XMP 320	5,800 ml
3	11712016-604	Mobilgear 600 XP 320/XMP 320	5,800 ml
4	3HAC0860-1	Optimol Optigear BM 100	3,400 ml
5-6	3HAC0860-1	Optimol Optigear BM 100	3,400 ml

The information in the table updated: October 25 2022.

IRB 4400 Foundry Plus, M2000 & M2004

Axis	WebConfig number	Type	Amount
1	11712016-604	Mobilgear 600 XP 320/XMP 320	10,000 ml
2	11712016-604	Mobilgear 600 XP 320/XMP 320	6,000 ml
3	11712016-604	Mobilgear 600 XP 320/XMP 320	6,000 ml
4	11712016-604	Mobilgear 600 XP 320/XMP 320	4,000 ml
5-6	11712016-604	Mobilgear 600 XP 320/XMP 320	4,000 ml

The information in the table updated: October 25 2022.

3 Articulated robots - six axes

3.15 IRB 4600

3.15 IRB 4600



CAUTION

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil used in Type C and Type D

These tables show the lubrication oil used in the gearboxes of **Type C** and **Type D**, depending on version. The tables show the amount for both floor and suspended mounted variants.

For a description of the "Type", see *Product manual - IRB 4600 (3HAC033453-001)* and *Product manual - IRB 4600 Foundry Prime (3HAC040585-001)*.

IRB 4600-60/2.05, -45/2.05, -40/2.55 floor and suspended mounted

Axis	WebConfig number	Type	Amount	
			Floor	Suspended
1	3HAC032140-001	Kyodo Yushi TMO 150	2,060 ml	2,060 ml
2	3HAC032140-001	Kyodo Yushi TMO 150	2,740 ml	2,740 ml
3	3HAC032140-001	Kyodo Yushi TMO 150	850 ml	850 ml
4	3HAC0860-1	Optimol Optigear BM 100 ⁱ	3,000 ml	3,000 ml
5-6	3HAC0860-1	Optimol Optigear BM 100	1,900 ml	1,900 ml

ⁱ



Note

The type of oil pre-filled in axis-4 gear differs from the type of oil recommended for field maintenance, due to differences in factory and customer site prerequisites. The two types of oil are fully equal and compatible.

Use the type of oil specified in *Technical reference manual - Lubrication in gearboxes*, even though it differs from the oil specified in WebConfig.

The information in the table updated: July 11 2013.

IRB 4600-20/2.50 floor and suspended mounted

Axis	WebConfig number	Type	Amount	
			Floor	Suspended
1	3HAC032140-001	Kyodo Yushi TMO 150	2,060 ml	2,060 ml
2	3HAC032140-001	Kyodo Yushi TMO 150	2,740 ml	2,740 ml
3	3HAC032140-001	Kyodo Yushi TMO 150	850 ml	850 ml

Continues on next page

Axis	WebConfig number	Type	Amount	
			Floor	Suspended
4	3HAC0860-1	Optimol Optigear BM 100 ⁱ	3,000 ml	3,000 ml
5-6	3HAC0860-1	Optimol Optigear BM 100	800 ml	800 ml

ⁱ



Note

The type of oil pre-filled in axis-4 gear differs from the type of oil recommended for field maintenance, due to differences in factory and customer sites prerequisites. The two types of oil are fully equal and compatible.

Use the type of oil specified in *Technical reference manual - Lubrication in gearboxes*, even though it differs from the oil specified in WebConfig.

The information in the table updated: July 11 2013.

Type of oil used in other design than Type C and Type D

These tables shows the lubrication oil used in the gearboxes of other design than Type C or Type D, depending on version. The tables shows the amount for both floor and suspended mounted variants.

For a description of the "Type", *Product manual - IRB 4600 (3HAC033453-001)* and *Product manual - IRB 4600 Foundry Prime (3HAC040585-001)*.

IRB 4600-60/2.05, -45/2.05, -40/2.55 floor and suspended mounted

Axis	WebConfig number	Type	Amount	
			Floor	Suspended
1	3HAC021469-001	Shell Omala S4 WE 150	1,000 ml	1,400 ml
2	3HAC032140-001	Kyodo Yushi TMO 150	3,000 ml	3,000 ml
3	3HAC021469-001	Shell Omala S4 WE 150	700 ml	700 ml
4	3HAC0860-1	Optimol Optigear BM 100 ⁱ	3,000 ml	3,000 ml
5-6	3HAC0860-1	Optimol Optigear BM 100	1,900 ml	1,900 ml

ⁱ



Note

The type of oil pre-filled in axis-4 gear differs from the type of oil recommended for field maintenance, due to differences in factory and customer sites prerequisites. The two types of oil are fully equal and compatible.

Use the type of oil specified in *Technical reference manual - Lubrication in gearboxes*, even though it differs from the oil specified in WebConfig.

The information in the table updated: September 26 2013.

IRB 4600-20/2.50 floor and suspended mounted

Axis	WebConfig number	Type	Amount	
			Floor	Suspended
1	3HAC021469-001	Shell Omala S4 WE 150	1,000 ml	1,400 ml
2	3HAC032140-001	Kyodo Yushi TMO 150	3,000 ml	3,000 ml
3	3HAC021469-001	Shell Omala S4 WE 150	700 ml	700 ml
4	3HAC0860-1	Optimol Optigear BM 100 ⁱ	3,000 ml	3,000 ml

Continues on next page

3 Articulated robots - six axes

3.15 IRB 4600

Continued

Axis	WebConfig number	Type	Amount	
			Floor	Suspended
5-6	3HAC0860-1	Optimol Optigear BM 100	800 ml	800 ml

i



Note

The type of oil pre-filled in axis-4 gear differs from the type of oil recommended for field maintenance, due to differences in factory and customer sites prerequisites. The two types of oil are fully equal and compatible.

Use the type of oil specified in *Technical reference manual - Lubrication in gearboxes*, even though it differs from the oil specified in WebConfig.

The information in the table updated: September 26 2013.

3.16 IRB 5710

**CAUTION**

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).

**CAUTION**

The stated amount of lubrication is only indicative. Always judge the correct amount of filling by inspecting the oil level according to the procedure in the product manual. By doing this, the following risks are avoided:

- Too much lubrication may cause leakage due to over pressure in the gearbox.
- Too little lubrication may cause reduced lifetime of the gearbox due to lack of lubrication.

**Note**

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

The table show the lubrication oil currently used in the gearboxes of the robot.

**Note**

The amount shown in the table, is the amount for a new gearbox. When refilling a gearbox, do not fill more oil than up to the level described in the section *Inspection of oil levels* in the product manual. An overfilled gearbox, risks future leakage.

IRB 5710-110/2.3, -90/2.3 LID

Axis	WebConfig number	Type	Amount for new gearbox
1	3HAC032140-001	Kyodo Yushi TMO 150	3,900 ml (Floor-mounted manipulator) 4,350 ml (Option <i>Inverted</i>)
2	3HAC032140-001	Kyodo Yushi TMO 150	2,500 ml
3	3HAC032140-001	Kyodo Yushi TMO 150	1,600 ml
4	11712016-604	Mobilgear 600 XP 320	5,000 ml
5	11712016-604	Mobilgear 600 XP 320	1,890 ml
6	3HAC032140-001	Kyodo Yushi TMO 150	370 ml

The information in the table updated: May 23 2023

Continues on next page

3 Articulated robots - six axes

3.16 IRB 5710

Continued

IRB 5710-90/2.7, -70/2.7 LID

Axis	WebConfig number	Type	Amount for new gearbox
1	3HAC032140-001	Kyodo Yushi TMO 150	3,900 ml (Floor-mounted manipulator) 4,350 ml (Option <i>Inverted</i>)
2	3HAC032140-001	Kyodo Yushi TMO 150	2,500 ml
3	3HAC032140-001	Kyodo Yushi TMO 150	1,700 ml
4	11712016-604	Mobilgear 600 XP 320	5,000 ml
5	11712016-604	Mobilgear 600 XP 320	1,170 ml
6	3HAC032140-001	Kyodo Yushi TMO 150	220 ml

The information in the table updated: May 23 2023

3.17 IRB 5720

**CAUTION**

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).

**CAUTION**

The stated amount of lubrication is only indicative. Always judge the correct amount of filling by inspecting the oil level according to the procedure in the product manual. By doing this, the following risks are avoided:

- Too much lubrication may cause leakage due to over pressure in the gearbox.
- Too little lubrication may cause reduced lifetime of the gearbox due to lack of lubrication.

**Note**

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

The table show the lubrication oil currently used in the gearboxes of the robot.

**Note**

The amount shown in the table, is the amount for a new gearbox. When refilling a gearbox, do not fill more oil than up to the level described in the section *Inspection of oil levels* in the product manual. An overfilled gearbox, risks future leakage.

IRB 5720-125/3.0, -90/3.0 LID

Axis	WebConfig number	Type	Amount for new gearbox
1	3HAC032140-001	Kyodo Yushi TMO 150	3,900 ml (Floor-mounted manipulator) 4,350 ml (Option <i>Inverted</i>)
2	3HAC032140-001	Kyodo Yushi TMO 150	3,800 ml
3	3HAC032140-001	Kyodo Yushi TMO 150	1,700 ml
4	11712016-604	Mobilgear 600 XP 320	5,000 ml
5	11712016-604	Mobilgear 600 XP 320	1,890 ml
6	3HAC032140-001	Kyodo Yushi TMO 150	370 ml

The information in the table updated: May 23 2023

Continues on next page

3 Articulated robots - six axes

3.17 IRB 5720

Continued

IRB 5720-180/2.6, -155/2.6 LID

Axis	WebConfig number	Type	Amount for new gearbox
1	3HAC032140-001	Kyodo Yushi TMO 150	3,900 ml (Floor-mounted manipulator) 4,350 ml (Option <i>Inverted</i>)
2	3HAC032140-001	Kyodo Yushi TMO 150	3,800 ml
3	3HAC032140-001	Kyodo Yushi TMO 150	1,700 ml
4	11712016-604	Mobilgear 600 XP 320/XMP 320	5,000 ml
5	11712016-604	Mobilgear 600 XP 320/XMP 320	2,360 ml
6	3HAC032140-001	Kyodo Yushi TMO 150	380 ml

The information in the table updated: May 23 2023

3.18 IRB 6400RF

**Note**

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table shows the lubrication oil that is currently used in the gearboxes of the robot, depending on version.

IRB 6400RF -200/2.5, -200/2.8, M2004

Axis	WebConfig number	Type	Amount
1	11712016-604	Mobilgear 600 XP 320/XMP 320	~11.2 l
2	11712016-604	Mobilgear 600 XP 320/XMP 320	~11.5 l
3	11712016-604	Mobilgear 600 XP 320/XMP 320	~12.0 l
4	11712016-604	Mobilgear 600 XP 320/XMP 320	6.0 l
5	11712016-604	Mobilgear 600 XP 320/XMP 320	6.5 l
6	3HAA1001-294	Tribol GR 100-0 PD	0.30 l

The information in the table updated: October 25 2022.

3 Articulated robots - six axes

3.19 IRB 6600/6650 type A

3.19 IRB 6600/6650 type A



CAUTION

The stated amount of lubrication is only indicative. Always judge the correct amount of filling by inspecting the oil level according to the procedure in the product manual. By doing this, the following risks are avoided:

- Too much lubrication may cause leakage due to over pressure in the gearbox.
- Too little lubrication may cause reduced lifetime of the gearbox due to lack of lubrication.



CAUTION

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

These tables show the lubrication oil that is currently used in the gearboxes of the robot, depending on version.

IRB 6600 -225/2.55, 175/2.8, and IRB 6650 -200/2.75, 125/3.2 type A, M2000, M2000A & M2004

Axis	WebConfig number	Type	Amount
1	3HAC032140-001	Kyodo Yushi TMO 150	~7.5 l
2	3HAC032140-001	Kyodo Yushi TMO 150	~4.5 l or ~2 l ⁱ
3	3HAC032140-001	Kyodo Yushi TMO 150	~2.5 l
4	11712016-604	Mobilgear 600 XP 320/XMP 320	~8 l
5	11712016-604	Mobilgear 600 XP 320/XMP 320	~6.5 l
6	3HAC032140-001	Kyodo Yushi TMO 150	~0.4 l

- ⁱ The amount is different depending on the design of the axis-2 motor attachment:
Later designs of motor attachment ~4.5 l
Early designs of motor attachment ~2 l

The information in the table updated: October 25 2022.

Continues on next page

IRB 6600 -175/2.55 type A, M2000, M2000A & M2004

Axis	WebConfig number	Type	Amount
1	3HAC032140-001	Kyodo Yushi TMO 150	~7.5 l
2	3HAC032140-001	Kyodo Yushi TMO 150	~4.5 l or ~2 l ⁱ
3	3HAC032140-001	Kyodo Yushi TMO 150	~2.5 l
4	11712016-604	Mobilgear 600 XP 320/XMP 320	~8 l
5	11712016-604	Mobilgear 600 XP 320/XMP 320	~6.5 l
6	3HAC032140-001	Kyodo Yushi TMO 150	~0.4 l

ⁱ The amount is different depending on the design of the axis-2 motor attachment:
Later designs of motor attachment ~4.5 l
Early designs of motor attachment ~2 l

The information in the table updated: October 25 2022.

Type of oil - historically used

The type of oil that is used in the gearboxes has been changed over time. Use the serial number of the robot to verify the type of oil.

The amount of oil that is used in the gearboxes has not been changed, see [Type of oil - currently used on page 54](#).

Robot serial numbers, generation 1

Before changing the oil, make sure that the original oil has not been changed after delivery.

Robot	Serial number range	Type of oil	
		Axis 1, 2, 3, 6	Axis 4, 5
IRB 6600 M2000 IRB 6650 M2000	66-20000 - 29999	Optimol Optigear RMO 150	Mobilgear 600 XP 320
IRB 6600 M2000A IRB 6650 M2000A	66-30000 - 33999	Optimol Optigear RMO 150	Mobilgear 600 XP 320
IRB 6600 M2004 IRB 6650 M2004	66-50000 - 50999	Optimol Optigear RMO 150	Mobilgear 600 XP 320



Note

Optimol Optigear RMO 150 as spare part has been replaced by Castrol Optigear RO 150.

Castrol Optigear RO 150 and Optimol Optigear RMO 150 are mixable but none are mixable with Shell Tivela S 150 (new product name Shell Tivela Omala S4 WE 150) or Kyodo Yushi TMO 150.

Continues on next page

3 Articulated robots - six axes

3.19 IRB 6600/6650 type A

Continued

Robot serial numbers, generation 2

IRB 6600 and IRB 6650 robots delivered from ABB Robotics before August 15 2008 has Shell Tivela S 150 (new product name Shell Omala S4 WE 150) filled in the gearboxes for axes 1, 2, 3, and 6.

During the period August 15 to October 2 2008, Shell Tivela S 150 (new product name Shell Omala S4 WE 150) and Kyodo Yushi TMO 150 were used in parallel. Contact ABB Robotics after sales to verify which oil is used in your robot.

A field service information SI10176, dated September 10 2008, recommended that an oil change shall be done in the gearboxes for axes 2, 3, and 6 from Shell Tivela S 150 (new product name Shell Omala S4 WE 150) to Kyodo Yushi TMO 150. A new maintenance schedule was introduced by SI10176.

Robot	Serial number range	Type of oil		
		Axis 1	Axis 2, 3, 6	Axis 4, 5
IRB 6600 M2000 IRB 6650 M2000	66-40000 -	Shell Tivela S 150 (new product name Shell Omala S4 WE 150)	(Shell Tivela S 150) (new product name Shell Omala S4 WE 150) Kyodo Yushi TMO 150	Mobilgear 600 XP320
IRB 6600 M2000A IRB 6650 M2000A	66-34000 -	Shell Tivela S 150 (new product name Shell Omala S4 WE 150)	(Shell Tivela S 150) (new product name Shell Omala S4 WE 150) Kyodo Yushi TMO 150	Mobilgear 600 XP320
IRB 6600 M2004 IRB 6650 M2004	66-51000 -	Shell Tivela S 150 (new product name Shell Omala S4 WE 150)	(Shell Tivela S 150) (new product name Shell Omala S4 WE 150) Kyodo Yushi TMO 150	Mobilgear 600 XP320



Note

Shell Tivela S 150 (new product name Shell Omala S4 WE 150) has been replaced by Kyodo Yushi TMO 150.

Kyodo Yushi TMO 150 and Shell Tivela S 150 (new product name Shell Omala S4 WE 150) are mixable but none are mixable with Castrol Optigear RO 150 and Optimol Optigear RMO 150.

Continues on next page

Robot serial numbers, generation 3

IRB 6600 and IRB 6650 robots delivered from ABB Robotics after October 3 2008 has Kyodo Yushi TMO 150 filled in the gearboxes for axes 1, 2, 3, and 6.

During the period August 15 to October 2 2008, Shell Tivela S 150 (new product name Shell Omala S4 WE 150) and Kyodo Yushi TMO 150 were used in parallel. Contact ABB Robotics after sales to verify which oil is used in your robot.

Robot	Serial number range	Type of oil	
		Axis 1, 2, 3, 6	Axis 4, 5
IRB 6600 M2000 IRB 6650 M2000	66-40000 -	Kyodo Yushi TMO 150	Mobilgear 600 XP 320
IRB 6600 M2000A IRB 6650 M2000A	66-34000 -	Kyodo Yushi TMO 150	Mobilgear 600 XP 320
IRB 6600 M2004 IRB 6650 M2004	66-51000 -	Kyodo Yushi TMO 150	Mobilgear 600 XP 320

Mixed types of oil may cause severe damage!

When refilling or replacing the oil in a gearbox it is important to first verify which type of oil is recommended for use in the gearbox. As Kyodo Yushi TMO 150 (as well as Shell Tivela S 150, new product name Shell Omala S4 WE 150) is not compatible with mineral oil, contamination with other types of oil in the gearboxes is not accepted. Equipment used in handling Kyodo Yushi TMO 150 (as well as Shell Tivela S 150, new product name Shell Omala S4 WE 150) must be carefully cleaned before use!

If the type of oil needs to be changed, the gearbox must be thoroughly rinsed. See [Rinsing the gearbox on page 15](#).

3 Articulated robots - six axes

3.20 IRB 6600/6650 type B, and IRB 6600ID/6650ID type B

3.20 IRB 6600/6650 type B, and IRB 6600ID/6650ID type B



CAUTION

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).



CAUTION

The stated amount of lubrication is only indicative. Always judge the correct amount of filling by inspecting the oil level according to the procedure in the product manual. By doing this, the following risks are avoided:

- Too much lubrication may cause leakage due to over pressure in the gearbox.
- Too little lubrication may cause reduced lifetime of the gearbox due to lack of lubrication.



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

These tables show the lubrication oil that is currently used in the gearboxes of the robot, depending on version.

IRB 6600 -225/2.55, 175/2.8 type B, M2000, M2000A & M2004

Axis	WebConfig number	Type	Amount
1	3HAC032140-001	Kyodo Yushi TMO 150	~7.5 l
2	3HAC032140-001	Kyodo Yushi TMO 150	~6 l
3	3HAC032140-001	Kyodo Yushi TMO 150	~2.5 l
4	11712016-604	Mobilgear 600 XP 320/XMP 320	~8 l
5	11712016-604	Mobilgear 600 XP 320/XMP 320	~6.5 l
6	3HAC032140-001	Kyodo Yushi TMO 150	~0.4 l

The information in the table updated: October 25 2022.

Continues on next page

IRB 6650 -225/2.55, 175/2.8 type B, M2000, M2000A & M2004

Axis	WebConfig number	Type	Amount
1	3HAC032140-001	Kyodo Yushi TMO 150	~7.5 l
2	3HAC032140-001	Kyodo Yushi TMO 150	~6 l
3	3HAC032140-001	Kyodo Yushi TMO 150	~2.5 l
4	11712016-604	Mobilgear 600 XP 320/XMP 320	~8 l
5	11712016-604	Mobilgear 600 XP 320/XMP 320	~5 l
6	3HAC032140-001	Kyodo Yushi TMO 150	~0.4 l

The information in the table updated: October 25 2022.

IRB 6600ID -170/2.55 type B, M2000, M2000A & M2004

Axis	WebConfig number	Type	Amount
1	3HAC032140-001	Kyodo Yushi TMO 150	~7.5 l
2	3HAC032140-001	Kyodo Yushi TMO 150	~6 l
3	3HAC032140-001	Kyodo Yushi TMO 150	~2.5 l
4	11712016-604	Mobilgear 600 XP 320/XMP 320	~8 l
5	11712016-604	Mobilgear 600 XP 320/XMP 320	~6.5 l
6	11712016-604	Mobilgear 600 XP 320/XMP 320	~5.5 l

The information in the table updated: October 25 2022.

IRB 6650ID -185/2.55 type B, M2000, M2000A & M2004

Axis	WebConfig number	Type	Amount
1	3HAC032140-001	Kyodo Yushi TMO 150	~7.5 l
2	3HAC032140-001	Kyodo Yushi TMO 150	~6 l
3	3HAC032140-001	Kyodo Yushi TMO 150	~2.5 l
4	11712016-604	Mobilgear 600 XP 320/XMP 320	~8 l
5	11712016-604	Mobilgear 600 XP 320/XMP 320	~5 l
6	11712016-604	Mobilgear 600 XP 320/XMP 320	~5.5 l

The information in the table updated: October 25 2022.

Type of oil - historically used

The type of oil that is used in the gearboxes has been changed over time. Use the serial number of the robot to verify the type of oil.

Continues on next page

3 Articulated robots - six axes

3.20 IRB 6600/6650 type B, and IRB 6600ID/6650ID type B

Continued

The amount of oil that is used in the gearboxes has not been changed, see [Type of oil - currently used on page 58](#).

Robot serial numbers, generation 1

Before changing the oil, make sure that the original oil has not been changed after delivery.

Robot	Serial number range	Type of oil	
		Axis 1, 2, 3, 6	Axis 4, 5
IRB 6600 M2000 IRB 6650 M2000	66-20000 - 29999	Optimol Optigear RMO 150	Mobilgear 600 XP 320
IRB 6600 M2000A IRB 6650 M2000A	66-30000 - 33999	Optimol Optigear RMO 150	Mobilgear 600 XP 320
IRB 6600 M2004 IRB 6650 M2004	66-50000 - 50999	Optimol Optigear RMO 150	Mobilgear 600 XP 320



Note

Optimol Optigear RMO 150 as spare part has been replaced by Castrol Optigear RO 150.

Castrol Optigear RO 150 and Optimol Optigear RMO 150 are mixable but none are mixable with Shell Tivela S 150 (new product name Shell Omala S4 WE 150) or Kyodo Yushi TMO 150.

Robot serial numbers, generation 2

IRB 6600 and IRB 6650 robots delivered from ABB Robotics before August 15 2008 has Shell Tivela S 150 (new product name Shell Omala S4 WE 150) filled in the gearboxes for axes 1, 2, 3, and 6.

During the period August 15 to October 2 2008, Shell Tivela S 150 (new product name Shell Omala S4 WE 150) and Kyodo Yushi TMO 150 were used in parallel. Contact ABB Robotics after sales to verify which oil is used in your robot.

A field service information SI10176, dated September 10 2008, recommended that an oil change shall be done in the gearboxes for axes 2, 3, and 6 from Shell Tivela S 150 (new product name Shell Omala S4 WE 150) to Kyodo Yushi TMO 150. A new maintenance schedule was introduced by SI10176.

Robot	Serial number range	Type of oil		
		Axis 1	Axis 2, 3, 6	Axis 4, 5
IRB 6600 M2000 IRB 6650 M2000	66-40000 -	Shell Tivela S 150 (new product name Shell Omala S4 WE 150)	(Shell Tivela S 150) (new product name Shell Omala S4 WE 150) Kyodo Yushi TMO 150	Mobilgear 600 XP320
IRB 6600 M2000A IRB 6650 M2000A	66-34000 -	Shell Tivela S 150 (new product name Shell Omala S4 WE 150)	(Shell Tivela S 150) (new product name Shell Omala S4 WE 150) Kyodo Yushi TMO 150	Mobilgear 600 XP320

Continues on next page

Robot	Serial number range	Type of oil		
		Axis 1	Axis 2, 3, 6	Axis 4, 5
IRB 6600 M2004 IRB 6650 M2004	66-51000 -	Shell Tivela S 150 (new product name Shell Omala S4 WE 150)	(Shell Tivela S 150) (new product name Shell Omala S4 WE 150) Kyodo Yushi TMO 150	Mobilgear 600 XP320



Note

Shell Tivela S 150 (new product name Shell Omala S4 WE 150) has been replaced by Kyodo Yushi TMO 150.

Kyodo Yushi TMO 150 and Shell Tivela S 150 (new product name Shell Omala S4 WE 150) are mixable but none are mixable with Castrol Optigear RO 150 and Optimol Optigear RMO 150.

Robot serial numbers, generation 3

IRB 6600 and IRB 6650 robots delivered from ABB Robotics after October 3 2008 has Kyodo Yushi TMO 150 filled in the gearboxes for axes 1, 2, 3, and 6.

During the period August 15 to October 2 2008, Shell Tivela S 150 (new product name Shell Omala S4 WE 150) and Kyodo Yushi TMO 150 were used in parallel. Contact ABB Robotics after sales to verify which oil is used in your robot.

Robot	Serial number range	Type of oil	
		Axis 1, 2, 3, 6	Axis 4, 5
IRB 6600 M2000 IRB 6650 M2000	66-40000 -	Kyodo Yushi TMO 150	Mobilgear 600 XP 320
IRB 6600 M2000A IRB 6650 M2000A	66-34000 -	Kyodo Yushi TMO 150	Mobilgear 600 XP 320
IRB 6600 M2004 IRB 6650 M2004	66-51000 -	Kyodo Yushi TMO 150	Mobilgear 600 XP 320

Mixed types of oil may cause severe damage!

When refilling or replacing the oil in a gearbox it is important to first verify which type of oil is recommended for use in the gearbox. As Kyodo Yushi TMO 150 (as well as Shell Tivela S 150, new product name Shell Omala S4 WE 150) is not compatible with mineral oil, contamination with other types of oil in the gearboxes is not accepted. Equipment used in handling Kyodo Yushi TMO 150 (as well as Shell Tivela S 150, new product name Shell Omala S4 WE 150) must be carefully cleaned before use!

If the type of oil needs to be changed, the gearbox must be thoroughly rinsed. See [Rinsing the gearbox on page 15](#).

3 Articulated robots - six axes

3.21 IRB 6620/6620LX

3.21 IRB 6620/6620LX



CAUTION

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).



CAUTION

The stated amount of lubrication is only indicative. Always judge the correct amount of filling by inspecting the oil level according to the procedure in the product manual. By doing this, the following risks are avoided:

- Too much lubrication may cause leakage due to over pressure in the gearbox.
- Too little lubrication may cause reduced lifetime of the gearbox due to lack of lubrication.



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table shows the lubrication oil that is currently used in the gearboxes of the robot, depending on version.



Note

The amount of oil in axis-6 gearbox is different for robots with the protection type Foundry Plus.

IRB 6620 -150/2.2, M2004

Axis	WebConfig number	Type	Amount
1	3HAC032140-001	Kyodo Yushi TMO 150	~6 l
2	3HAC032140-001	Kyodo Yushi TMO 150	~4 l
3	3HAC032140-001	Kyodo Yushi TMO 150	~2 l
4	11712016-604	Mobilgear 600 XP 320/XMP 320	~5.5 l
5	11712016-604	Mobilgear 600 XP 320/XMP 320	~3 l
6	3HAC032140-001	Kyodo Yushi TMO 150	Protection type Standard: ~0.3 l

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Axis	WebConfig number	Type	Amount
6	3HAC032140-001	Kyodo Yushi TMO 150	Protection type Foundry Plus: ~0.4 l

The information in the table updated: October 25 2022.

IRB 6620LX -150/1.9, M2004

Axis	WebConfig number	Type	Amount
1	-	Mobil Glygoyl 460	~7 l
2	3HAC032140-001	Kyodo Yushi TMO 150	~4 l
3	3HAC032140-001	Kyodo Yushi TMO 150	~2 l
4	11712016-604	Mobilgear 600 XP 320/XMP 320	~5.5 l
5	11712016-604	Mobilgear 600 XP 320/XMP 320	~3 l
6	3HAC032140-001	Kyodo Yushi TMO 150	~0.4 l

The information in the table updated: October 25 2022.

3 Articulated robots - six axes

3.22 IRB 6640/6640ID

3.22 IRB 6640/6640ID



CAUTION

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).



CAUTION

The stated amount of lubrication is only indicative. Always judge the correct amount of filling by inspecting the oil level according to the procedure in the product manual. By doing this, the following risks are avoided:

- Too much lubrication may cause leakage due to over pressure in the gearbox.
- Too little lubrication may cause reduced lifetime of the gearbox due to lack of lubrication.



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

These tables show the lubrication oil that is currently used in the gearboxes of the robot, depending on version.

IRB 6640 -180/2.55, -235/2.55, -205/2.75, -185/2.8, -130/3.2, M2004

Axis	WebConfig number	Type	Amount
1	3HAC032140-001	Kyodo Yushi TMO 150	~6 l
2	3HAC032140-001	Kyodo Yushi TMO 150	~6 l
3	3HAC032140-001	Kyodo Yushi TMO 150	~2.5 l
4	11712016-604	Mobilgear 600 XP 320/XMP 320	~8 l
5	11712016-604	Mobilgear 600 XP 320/XMP 320	~6.5 l
6	Wrist type 1: 3HAC032140-001	Kyodo Yushi TMO 150	~0.3 l
6	Wrist type 2: 3HAC032140-001	Kyodo Yushi TMO 150	~0.4 l

The information in the table updated: October 25 2022.

Continues on next page

IRB 6640ID -200/2.55, 170/2.75, M2004

Axis	WebConfig number	Type	Amount
1	3HAC032140-001	Kyodo Yushi TMO 150	~6 l
2	3HAC032140-001	Kyodo Yushi TMO 150	~6 l
3	3HAC032140-001	Kyodo Yushi TMO 150	~2.5 l
4	11712016-604	Mobilgear 600 XP 320/XMP 320	~8 l
5	11712016-604	Mobilgear 600 XP 320/XMP 320	~5 l
6	11712016-604	Mobilgear 600 XP 320/XMP 320	~6 l

The information in the table updated: October 25 2022.

3 Articulated robots - six axes

3.23 IRB 6650S

3.23 IRB 6650S



CAUTION

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).



CAUTION

The stated amount of lubrication is only indicative. Always judge the correct amount of filling by inspecting the oil level according to the procedure in the product manual. By doing this, the following risks are avoided:

- Too much lubrication may cause leakage due to over pressure in the gearbox.
- Too little lubrication may cause reduced lifetime of the gearbox due to lack of lubrication.



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table show the lubrication oil that is currently used in the gearboxes of the robot, depending on version.

IRB 6650S -90/3.9, -125/3.5, -200/3.0, M2004

Axis	WebConfig number	Type	Amount
1	3HAC032140-001	Kyodo Yushi TMO 150	~7.5 l
2	3HAC032140-001	Kyodo Yushi TMO 150	~6 l
3	3HAC032140-001	Kyodo Yushi TMO 150	~2.5 l
4	11712016-604	Mobilgear 600 XP 320/XMP 320	~8 l
5	11712016-604	Mobilgear 600 XP 320/XMP 320	~6.5 l
6	3HAC032140-001	Kyodo Yushi TMO 150	~0.4 l

The information in the table updated: October 25 2022.

Type of oil - historically used

The type of oil that is used in the gearboxes has been changed over time. Use the serial number of the robot to verify the type of oil.

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The amount of oil that is used in the gearboxes has not been changed, see [Type of oil - currently used on page 66](#).

Robot serial numbers, generation 1

Before changing the oil, make sure that the original oil has **not** been changed after delivery.

Robot	Serial number range	Type of oil	
		Axis 1, 2, 3, 6	Axis 4, 5
IRB 6650S M2000	66-20000 - 29999	Optimol Optigear RMO 150	Mobilgear 600 XP 320
IRB 6650S M2000A	66-30000 - 33999	Optimol Optigear RMO 150	Mobilgear 600 XP 320
IRB 6650S M2004	66-50000 - 50999	Optimol Optigear RMO 150	Mobilgear 600 XP 320



Note

Optimol Optigear RMO 150 as spare part has been replaced by Castrol Optigear RO 150.

Castrol Optigear RO 150 and Optimol Optigear RMO 150 are mixable but none are mixable with Shell Tivela S 150 (new product name Shell Omala S4 WE 150) or Kyodo Yushi TMO 150.

Robot serial numbers, generation 2

IRB 6650S robots delivered from ABB Robotics before August 15 2008 has Shell Tivela S 150 (new product name Shell Omala S4 WE 150) filled in the gearboxes for axes 1, 2, 3, and 6.

During the period August 15 to October 2 2008, Shell Tivela S 150 (new product name Shell Omala S4 WE 150) and Kyodo Yushi TMO 150 were used in parallel. Contact ABB Robotics after sales to verify which oil is used in your robot.

A field service information SI10176, dated September 10 2008, recommended that an oil change shall be done in the gearboxes for axes 2, 3, and 6 from Shell Tivela S 150 (new product name Shell Omala S4 WE 150) to Kyodo Yushi TMO 150. A new maintenance schedule was introduced by SI10176.

Robot	Serial number range	Type of oil		
		Axis 1	Axis 2, 3, 6	Axis 4, 5
IRB 6650S M2000	66-40000 -	Shell Tivela S 150 (new product name Shell Omala S4 WE 150)	(Shell Tivela S 150) (new product name Shell Omala S4 WE 150) Kyodo Yushi TMO 150	Mobilgear 600 XP320
IRB 6650S M2000A	66-34000 -	Shell Tivela S 150 (new product name Shell Omala S4 WE 150)	(Shell Tivela S 150) (new product name Shell Omala S4 WE 150) Kyodo Yushi TMO 150	Mobilgear 600 XP320

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3 Articulated robots - six axes

3.23 IRB 6650S

Continued

Robot	Serial number range	Type of oil		
		Axis 1	Axis 2, 3, 6	Axis 4, 5
IRB 6650S M2004	66-51000 -	Shell Tivela S 150 (new product name Shell Omala S4 WE 150)	(Shell Tivela S 150) (new product name Shell Omala S4 WE 150) Kyodo Yushi TMO 150	Mobilgear 600 XP320



Note

Shell Tivela S 150 (new product name Shell Omala S4 WE 150) has been replaced by Kyodo Yushi TMO 150.

Kyodo Yushi TMO 150 and Shell Tivela S 150 (new product name Shell Omala S4 WE 150) are mixable but none are mixable with Castrol Optigear RO 150 and Optimol Optigear RMO 150.

Robot serial numbers, generation 3

IRB 6650S robots delivered from ABB Robotics after October 3 2008 has Kyodo Yushi TMO 150 filled in the gearboxes for axes 1, 2, 3, and 6.

During the period August 15 to October 2 2008, Shell Tivela S 150 (new product name Shell Omala S4 WE 150) and Kyodo Yushi TMO 150 were used in parallel. Contact ABB Robotics after sales to verify which oil is used in your robot.

Robot	Serial number range	Type of oil	
		Axis 1, 2, 3, 6	Axis 4, 5
IRB 6650S M2000	66-40000 -	Kyodo Yushi TMO 150	Mobilgear 600 XP 320
IRB 6650S M2000A	66-34000 -	Kyodo Yushi TMO 150	Mobilgear 600 XP 320
IRB 6650S M2004	66-51000 -	Kyodo Yushi TMO 150	Mobilgear 600 XP 320

Mixed types of oil may cause severe damage!

When refilling or replacing the oil in a gearbox it is important to first verify which type of oil is recommended for use in the gearbox. As Kyodo Yushi TMO 150 (as well as Shell Tivela S 150, new product name Shell Omala S4 WE 150) is not compatible with mineral oil, contamination with other types of oil in the gearboxes is not accepted. Equipment used in handling Kyodo Yushi TMO 150 (as well as Shell Tivela S 150, new product name Shell Omala S4 WE 150) must be carefully cleaned before use!

If the type of oil needs to be changed, the gearbox must be thoroughly rinsed. See [Rinsing the gearbox on page 15](#).

3.24 IRB 6660

**CAUTION**

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).

**CAUTION**

The stated amount of lubrication is only indicative. Always judge the correct amount of filling by inspecting the oil level according to the procedure in the product manual. By doing this, the following risks are avoided:

- Too much lubrication may cause leakage due to over pressure in the gearbox.
- Too little lubrication may cause reduced lifetime of the gearbox due to lack of lubrication.

**Note**

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table show the lubrication oil that is currently used in the gearboxes of the robot, depending on version.

IRB 6660 -130/3.1, -205/1.90, M2004

Axis	WebConfig number	Type	Amount
1	3HAC032140-001	Kyodo Yushi TMO 150	~8 l
2	3HAC032140-001	Kyodo Yushi TMO 150	~5 l
3	3HAC032140-001	Kyodo Yushi TMO 150	~5 l
4	11712016-604	Mobilgear 600 XP 320/XMP 320	~8 l
5	11712016-604	Mobilgear 600 XP 320/XMP 320	~6.5 l
6	3HAC032140-001	Kyodo Yushi TMO 150	~0.4 l

The information in the table updated: October 25 2022.

3 Articulated robots - six axes

3.25 IRB 6700

3.25 IRB 6700



CAUTION

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).



CAUTION

The stated amount of lubrication is only indicative. Always judge the correct amount of filling by inspecting the oil level according to the procedure in the product manual. By doing this, the following risks are avoided:

- Too much lubrication may cause leakage due to over pressure in the gearbox.
- Too little lubrication may cause reduced lifetime of the gearbox due to lack of lubrication.



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table show the lubrication oil that is currently used in the gearboxes of the robot, depending on version.

IRB 6700 -235/2.65, -205/2.80, -175/3.05, -150/3.2

Axis	WebConfig number	Type	Amount for new gearbox
1	3HAC032140-001	Kyodo Yushi TMO 150	~3.5 l
2	3HAC032140-001	Kyodo Yushi TMO 150	~3.5 l
3	3HAC032140-001	Kyodo Yushi TMO 150	~2.5 l
4	11712016-604	Mobilgear 600 XP 320/XMP 320	~7.0 l
5	11712016-604	Mobilgear 600 XP 320/XMP 320	~3.5 l
6	3HAC032140-001	Kyodo Yushi TMO 150	~0.5 l

The information in the table updated: May 25 2023.

IRB 6700 -200/2.60, -155/2.85

Axis	WebConfig number	Type	Amount for new gearbox
1	3HAC032140-001	Kyodo Yushi TMO 150	~3.5 l
2	3HAC032140-001	Kyodo Yushi TMO 150	~3.5 l
3	3HAC032140-001	Kyodo Yushi TMO 150	~2.5 l

Continues on next page

Axis	WebConfig number	Type	Amount for new gearbox
4	11712016-604	Mobilgear 600 XP 320/XMP 320	~6 l
5	11712016-604	Mobilgear 600 XP 320/XMP 320	~2.5 l
6	3HAC032140-001	Kyodo Yushi TMO 150	~0.4 l

The information in the table updated: October 25 2022.

IRB 6700 -300/2.70, -245/3.00

Axis	WebConfig number	Type	Amount for new gearbox
1	3HAC032140-001	Kyodo Yushi TMO 150	~4.7 l
2	3HAC032140-001	Kyodo Yushi TMO 150	~4 l
3	3HAC032140-001	Kyodo Yushi TMO 150	~3.5 l
4	11712016-604	Mobilgear 600 XP 320/XMP 320	~12.5 l
5	11712016-604	Mobilgear 600 XP 320/XMP 320	~4.5 l
6	3HAC032140-001	Kyodo Yushi TMO 150	~0.7 l

The information in the table updated: October 25 2022.

IRB 6700Inv -300/2.60, -245/2.90

Axis	WebConfig number	Type	Amount for new gearbox
1	3HAC032140-001	Kyodo Yushi TMO 150	~4.9 l
2	3HAC032140-001	Kyodo Yushi TMO 150	~4 l
3	3HAC032140-001	Kyodo Yushi TMO 150	~3.5 l
4	11712016-604	Mobilgear 600 XP 320/XMP 320	~12.5 l
5	11712016-604	Mobilgear 600 XP 320/XMP 320	~4.5 l
6	3HAC032140-001	Kyodo Yushi TMO 150	~0.7 l

The information in the table updated: October 25 2022.

3 Articulated robots - six axes

3.26 IRB 6710

3.26 IRB 6710



CAUTION

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).



CAUTION

The stated amount of lubrication is only indicative. Always judge the correct amount of filling by inspecting the oil level according to the procedure in the product manual. By doing this, the following risks are avoided:

- Too much lubrication may cause leakage due to over pressure in the gearbox.
- Too little lubrication may cause reduced lifetime of the gearbox due to lack of lubrication.



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table show the lubrication oil that is currently used in the gearboxes of the robot.

Axis	WebConfig number	Type	Amount for new gearbox
1	3HAC032140-001	Kyodo Yushi TMO 150	3,200 ml
2	3HAC032140-001	Kyodo Yushi TMO 150	2,600 ml
3	3HAC032140-001	Kyodo Yushi TMO 150	2,200 ml
4	11712016-604	Mobilgear 600 XP 320/XMP 320	7,600 ml
5	11712016-604	Mobilgear 600 XP 320/XMP 320	2,360 ml
6	3HAC032140-001	Kyodo Yushi TMO 150	380 ml

The information in the table updated: May 16 2023.

3.27 IRB 6720

**CAUTION**

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).

**CAUTION**

The stated amount of lubrication is only indicative. Always judge the correct amount of filling by inspecting the oil level according to the procedure in the product manual. By doing this, the following risks are avoided:

- Too much lubrication may cause leakage due to over pressure in the gearbox.
- Too little lubrication may cause reduced lifetime of the gearbox due to lack of lubrication.

**Note**

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table show the lubrication oil that is currently used in the gearboxes of the robot.

Axis	WebConfig number	Type	Amount for new gearbox
1	3HAC032140-001	Kyodo Yushi TMO 150	3,200 ml
2	3HAC032140-001	Kyodo Yushi TMO 150	2,600 ml
3	3HAC032140-001	Kyodo Yushi TMO 150	2,200 ml
4	11712016-604	Mobilgear 600 XP 320/XMP 320	7,600 ml
5	11712016-604	Mobilgear 600 XP 320/XMP 320	3,200 ml
6	3HAC032140-001	Kyodo Yushi TMO 150	600 ml

The information in the table updated: May 16 2023.

3 Articulated robots - six axes

3.28 IRB 6730

3.28 IRB 6730



CAUTION

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).



CAUTION

The stated amount of lubrication is only indicative. Always judge the correct amount of filling by inspecting the oil level according to the procedure in the product manual. By doing this, the following risks are avoided:

- Too much lubrication may cause leakage due to over pressure in the gearbox.
- Too little lubrication may cause reduced lifetime of the gearbox due to lack of lubrication.



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table show the lubrication oil that is currently used in the gearboxes of the robot.

Axis	WebConfig number	Type	Amount for new gearbox
1	3HAC032140-001	Kyodo Yushi TMO 150	3,800 ml
2	3HAC032140-001	Kyodo Yushi TMO 150	3,800 ml
3	3HAC032140-001	Kyodo Yushi TMO 150	2,600 ml
4	11712016-604	Mobilgear 600 XP 320/XMP 320	7,500 ml
5	11712016-604	Mobilgear 600 XP 320/XMP 320	3,200 ml
6	3HAC032140-001	Kyodo Yushi TMO 150	600 ml

The information in the table updated: May 16 2023.

3.29 IRB 6740

**CAUTION**

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).

**CAUTION**

The stated amount of lubrication is only indicative. Always judge the correct amount of filling by inspecting the oil level according to the procedure in the product manual. By doing this, the following risks are avoided:

- Too much lubrication may cause leakage due to over pressure in the gearbox.
- Too little lubrication may cause reduced lifetime of the gearbox due to lack of lubrication.

**Note**

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table show the lubrication oil that is currently used in the gearboxes of the robot, depending on version.

IRB 6740-310/2.8, -260/3.0, -270/2.8 LID, -230/3.0 LID

Axis	WebConfig number	Type	Amount for new gearbox
1	3HAC032140-001	Kyodo Yushi TMO 150	3,800 ml
2	3HAC032140-001	Kyodo Yushi TMO 150	4,300 ml
3	3HAC032140-001	Kyodo Yushi TMO 150	2,600 ml
4	11712016-604	Mobilgear 600 XP 320/XMP 320	8,400 ml
5	11712016-604	Mobilgear 600 XP 320/XMP 320	4,600 ml
6	3HAC032140-001	Kyodo Yushi TMO 150	400 ml

The information in the table updated: May 16 2023.

IRB 6740-240/3.2, -220/3.2 LID

Axis	WebConfig number	Type	Amount for new gearbox
1	3HAC032140-001	Kyodo Yushi TMO 150	3,800 ml
2	3HAC032140-001	Kyodo Yushi TMO 150	4,300 ml
3	3HAC032140-001	Kyodo Yushi TMO 150	2,600 ml

Continues on next page

3 Articulated robots - six axes

3.29 IRB 6740

Continued

Axis	WebConfig number	Type	Amount for new gearbox
4	11712016-604	Mobilgear 600 XP 320/XMP 320	8,400 ml
5	11712016-604	Mobilgear 600 XP 320/XMP 320	3,200 ml
6	3HAC032140-001	Kyodo Yushi TMO 150	600 ml

The information in the table updated: May 16 2023.

3.30 IRB 6790

**CAUTION**

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).

**CAUTION**

The stated amount of lubrication is only indicative. Always judge the correct amount of filling by inspecting the oil level according to the procedure in the product manual. By doing this, the following risks are avoided:

- Too much lubrication may cause leakage due to over pressure in the gearbox.
- Too little lubrication may cause reduced lifetime of the gearbox due to lack of lubrication.

**Note**

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table show the lubrication oil that is currently used in the gearboxes of the robot, depending on version.

IRB 6790 -235/2.65, -205/2.80

Axis	WebConfig number	Type	Amount for new gearbox
1	3HAC032140-001	Kyodo Yushi TMO 150	~3.5 l
2	3HAC032140-001	Kyodo Yushi TMO 150	~3.5 l
3	3HAC032140-001	Kyodo Yushi TMO 150	~2.5 l
4	11712016-604	Mobilgear 600 XP 320/XMP 320	~7.0 l
5	11712016-604	Mobilgear 600 XP 320/XMP 320	~3.5 l
6	3HAC032140-001	Kyodo Yushi TMO 150	~0.5 l

The information in the table updated: May 25 2023.

3 Articulated robots - six axes

3.31 IRB 7600

3.31 IRB 7600



CAUTION

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).



CAUTION

The stated amount of lubrication is only indicative. Always judge the correct amount of filling by inspecting the oil level according to the procedure in the product manual. By doing this, the following risks are avoided:

- Too much lubrication may cause leakage due to over pressure in the gearbox.
- Too little lubrication may cause reduced lifetime of the gearbox due to lack of lubrication.



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table show the lubrication oil that is currently used in the gearboxes of the robot, depending on version.

IRB 7600 -500/2.55, -400/2.55, -340/2.8, -325/3.1, -150/3.5, M2004

Axis	WebConfig number	Type	Amount
1	3HAC032140-001	Kyodo Yushi TMO 150	~7.5 l
2	3HAC032140-001	Kyodo Yushi TMO 150	~5 l
3	3HAC032140-001	Kyodo Yushi TMO 150	~4 l
4 Primary gearbox	3HAC032140-001	Kyodo Yushi TMO 150	~1 l
4 Secondary gearbox	3HAC032140-001	Kyodo Yushi TMO 150	~4 l
5 Primary gearbox	3HAC032140-001	Kyodo Yushi TMO 150	~0.7 l
5 Secondary gearbox	3HAC032140-001	Kyodo Yushi TMO 150	~4 l
6	3HAC032140-001	Kyodo Yushi TMO 150	~0.7 l

The information in the table updated: December 4 2014.

Continues on next page

Type of oil - historically used

The type of oil that is used in the gearboxes has been changed over time. Use the serial number of the robot to verify the type of oil.

The amount of oil that is used in the gearboxes has not been changed, see [Type of oil - currently used on page 78](#).

Robot serial numbers, generation 1

Before changing the oil, make sure that the original oil has **not** been changed after delivery.

Robot	Serial number range	Type of oil		
		Axis 1, 2, 3	Axis 4 primary, 5 primary, 6	Axis 4 secondary, 5 secondary
IRB 7600 M2000	76-20000 - 26999	Optimol Optigear RMO 150	Shell Tivela S 150 (new product name Shell Omala S4 WE 150)	Mobilgear 600 XP 320
IRB 7600 M2000A	76-30000 - 33999	Optimol Optigear RMO 150	Shell Tivela S 150 (new product name Shell Omala S4 WE 150)	Mobilgear 600 XP 320
IRB 7600 M2004	76-50000 - 50999	Optimol Optigear RMO 150	Shell Tivela S 150 (new product name Shell Omala S4 WE 150)	Mobilgear 600 XP 320



Note

Optimol Optigear RMO 150 as spare part has been replaced by Castrol Optigear RO 150.

Castrol Optigear RO 150 and Optimol Optigear RMO 150 are mixable but none are mixable with Shell Tivela S 150 (new product name Shell Omala S4 WE 150, new product name Shell Omala S4 WE 150) or Kyodo Yushi TMO 150.

Robot serial numbers, generation 2

IRB 7600 robots delivered from ABB Robotics before August 15 2008 has Shell Tivela S 150 (new product name Shell Omala S4 WE 150) filled in the gearboxes for all axes.

During the period August 15 to October 2 2008, Shell Tivela S 150 (new product name Shell Omala S4 WE 150) and Kyodo Yushi TMO 150 were used in parallel. Contact ABB Robotics after sales to verify which oil is used in your robot.

A field service information SI10177, dated September 10 2008, recommended that an oil change shall be done in the gearboxes for axes 2, 3, 4 primary, 5 primary,

Continues on next page

3 Articulated robots - six axes

3.31 IRB 7600

Continued

and 6 from Shell Tivela S 150 (new product name Shell Omala S4 WE 150) to Kyodo Yushi TMO 150. A new maintenance schedule was introduced by SI10177.

Robot	Serial number range	Type of oil	
		Axis 1, 4 secondary, 5 secondary	Axis 2, 3, 4 primary, 5 primary, 6
IRB 7600 M2000	76-27000 -	Shell Tivela S 150 (new product name Shell Omala S4 WE 150)	(Shell Tivela S 150, (new product name Shell Omala S4 WE 150) Kyodo Yushi TMO 150
IRB 7600 M2000A	76-34000 -	Shell Tivela S 150 (new product name Shell Omala S4 WE 150)	(Shell Tivela S 150, new product name Shell Omala S4 WE 150) Kyodo Yushi TMO 150
IRB 7600 M2004	76-51000 -	Shell Tivela S 150 (new product name Shell Omala S4 WE 150)	(Shell Tivela S 150, new product name Shell Omala S4 WE 150) Kyodo Yushi TMO 150



Note

Shell Tivela S 150 (new product name Shell Omala S4 WE 150) has been replaced by Kyodo Yushi TMO 150.

Kyodo Yushi TMO 150 and Shell Tivela S 150 (new product name Shell Omala S4 WE 150) are mixable but none are mixable with Castrol Optigear RO 150 and Optimol Optigear RMO 150.

Robot serial numbers, generation 3

IRB 7600 robots delivered from ABB Robotics after October 3 2008 has Kyodo Yushi TMO 150 filled in the gearboxes for all axes.

During the period August 15 to October 2 2008, Shell Tivela S 150 (new product name Shell Omala S4 WE 150) and Kyodo Yushi TMO 150 were used in parallel. Contact ABB Robotics after sales to verify which oil is used in your robot.

Robot	Serial number range	Type of oil, all axes
IRB 7600 M2000	76-27000 -	Kyodo Yushi TMO 150
IRB 7600 M2000A	76-34000 -	Kyodo Yushi TMO 150
IRB 7600 M2004	76-51000 -	Kyodo Yushi TMO 150

Mixed types of oil may cause severe damage!

When refilling or replacing the oil in a gearbox it is important to first verify which type of oil is recommended for use in the gearbox. As Kyodo Yushi TMO 150 (as well as Shell Tivela S 150, new product name Shell Omala S4 WE 150) is not compatible with mineral oil, contamination with other types of oil in the gearboxes is not accepted. Equipment used in handling Kyodo Yushi TMO 150 (as well as Shell Tivela S 150, new product name Shell Omala S4 WE 150) must be carefully cleaned before use!

If the type of oil needs to be changed, the gearbox must be thoroughly rinsed. See [Rinsing the gearbox on page 15](#).

3.32 IRB 7710

**CAUTION**

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).

**CAUTION**

The stated amount of lubrication is only indicative. Always judge the correct amount of filling by inspecting the oil level according to the procedure in the product manual. By doing this, the following risks are avoided:

- Too much lubrication may cause leakage due to over pressure in the gearbox.
- Too little lubrication may cause reduced lifetime of the gearbox due to lack of lubrication.

**Note**

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table show the lubrication oil that is currently used in the gearboxes of the robot.

Axis	WebConfig number	Type	Amount for new gearbox
1	3HAC032140-001	Kyodo Yushi TMO 150	5,500 ml
2	3HAC032140-001	Kyodo Yushi TMO 150	4,300 ml
3	3HAC032140-001	Kyodo Yushi TMO 150	4,300 ml
4 Primary gearbox	3HAC032140-001	Kyodo Yushi TMO 150	820 ml
4 Second- ary gearbox	11712016-604	Mobilgear 600 XP 320/XMP 320	7,250 ml
5	11712016-604	Mobilgear 600 XP 320/XMP 320	7,500 ml
6	3HAC032140-001	Kyodo Yushi TMO 150	900 ml

The information in the table updated: March 4 2024.

3 Articulated robots - six axes

3.33 IRB 7720

3.33 IRB 7720



CAUTION

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).



CAUTION

The stated amount of lubrication is only indicative. Always judge the correct amount of filling by inspecting the oil level according to the procedure in the product manual. By doing this, the following risks are avoided:

- Too much lubrication may cause leakage due to over pressure in the gearbox.
- Too little lubrication may cause reduced lifetime of the gearbox due to lack of lubrication.



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table show the lubrication oil that is currently used in the gearboxes of the robot, depending on version.

IRB 7720-620/2.9, -530/3.1, -560/2.9 LID, -480/3.1 LID

Axis	WebConfig number	Type	Amount for new gearbox
1	3HAC032140-001	Kyodo Yushi TMO 150	5,500 ml
2	3HAC032140-001	Kyodo Yushi TMO 150	4,300 ml
3	3HAC032140-001	Kyodo Yushi TMO 150	4,300 ml
4 Primary gearbox	3HAC032140-001	Kyodo Yushi TMO 150	1,680 ml
4 Secondary gear-box	11712016-604	Mobilgear 600 XP 320/XMP 320	9,400 ml
5	11712016-604	Mobilgear 600 XP 320/XMP 320	10,000 ml
6	3HAC032140-001	Kyodo Yushi TMO 150	1,300 ml

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The information in the table updated: March 4 2024.

IRB 7720-510/3.3, -450/3.5, -400/3.3 LID, -400/3.3 LID

Axis	WebConfig number	Type	Amount for new gearbox
1	3HAC032140-001	Kyodo Yushi TMO 150	5,500 ml
2	3HAC032140-001	Kyodo Yushi TMO 150	4,300 ml
3	3HAC032140-001	Kyodo Yushi TMO 150	4,300 ml
4 Primary gearbox	3HAC032140-001	Kyodo Yushi TMO 150	1,680 ml
4 Secondary gear-box	11712016-604	Mobilgear 600 XP 320/XMP 320	9,400 ml
5	11712016-604	Mobilgear 600 XP 320/XMP 320	7,500 ml
6	3HAC032140-001	Kyodo Yushi TMO 150	900 ml

The information in the table updated: March 4 2024.

3 Articulated robots - six axes

3.34 IRB 8700

3.34 IRB 8700



CAUTION

When filling the gearbox with oil, do not mix different types of oil as this may cause severe damage to the gearbox! Always use the type of oil that is specified in the table.

If oils from different oil groups are mixed, then the gearbox must be thoroughly rinsed! See [Groups of oil on page 14](#) and [Rinsing the gearbox on page 15](#).



CAUTION

The stated amount of lubrication is only indicative. Always judge the correct amount of filling by inspecting the oil level according to the procedure in the product manual. By doing this, the following risks are avoided:

- Too much lubrication may cause leakage due to over pressure in the gearbox.
- Too little lubrication may cause reduced lifetime of the gearbox due to lack of lubrication.



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

The table show the lubrication oil currently used in the gearboxes of the robot.



Note

The amount shown in the table, is the amount for a new gearbox. When refilling a gearbox, do not fill more oil than up to the level described in the section *Inspection of oil levels* in the product manual. An overfilled gearbox, risks future leakage.

IRB 8700

Axis	WebConfig number	Type	Amount for new gearbox
1	3HAC032140-001	Kyodo Yushi TMO 150	5,600 ml
2	3HAC032140-001	Kyodo Yushi TMO 150	5,400 ml
3	3HAC032140-001	Kyodo Yushi TMO 150	5,400 ml
4 Primary gearbox	3HAC032140-001	Kyodo Yushi TMO 150	1,650 ml
4 Secondary gear-box	11712016-604	Mobilgear 600 XP 320/XMP 320	9,400 ml
5	11712016-604	Mobilgear 600 XP 320/XMP 320	16,500 ml

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Axis	WebConfig number	Type	Amount for new gearbox
6	3HAC032140-001	Kyodo Yushi TMO 150	1,550 ml

The information in the table updated: September 15 2023.

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4 Collaborative robots

4.1 IRB 14000



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

The table show the lubrication grease currently used in the wave generators in the robot.

IRB 14000

Axis	WebConfig number	Type	Amount
1	3HAC038379-001	Harmonic drive Flexolub-1A, Article 200241	1.2 ml
2	3HAC038379-001	Harmonic drive Flexolub-1A, Article 200241	1.2 ml
3	3HAC038379-001	Harmonic drive Flexolub-1A, Article 200241	0.8 ml
4	3HAC038379-001	Harmonic drive Flexolub-1A, Article 200241	0.15 ml
5	3HAC038379-001	Harmonic drive Flexolub-1A, Article 200241	0.15 ml
6	3HAC038379-001	Harmonic drive Flexolub-1A, Article 200241	0.15 ml
7	3HAC038379-001	Harmonic drive Flexolub-1A, Article 200241	0.8 ml

The information in the table updated: January 14 2016.

4 Collaborative robots

4.2 IRB 14050

4.2 IRB 14050



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

The table show the lubrication grease currently used in the wave generators in the robot.

IRB 14050

Axis	WebConfig number	Type	Amount
1	3HAC038379-001	Harmonic drive Flexolub-1A, Article 200241	1.2 ml
2	3HAC038379-001	Harmonic drive Flexolub-1A, Article 200241	1.2 ml
3	3HAC038379-001	Harmonic drive Flexolub-1A, Article 200241	0.8 ml
4	3HAC038379-001	Harmonic drive Flexolub-1A, Article 200241	0.15 ml
5	3HAC038379-001	Harmonic drive Flexolub-1A, Article 200241	0.15 ml
6	3HAC038379-001	Harmonic drive Flexolub-1A, Article 200241	0.15 ml
7	3HAC038379-001	Harmonic drive Flexolub-1A, Article 200241	0.8 ml

The information in the table updated: June 12 2019.

4.3 CRB 1100



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of grease - currently used

This table shows the lubrication grease that is currently used in the gearboxes of the robot.

CRB 1100 all variants, OmniCore



Note

The gearboxes contain grease, not lubrication oil!

The amount is measured in grams.

Axis	WebConfig number	Type	Amount
1	3HAC031695-001	Harmonic grease 4B No. 2	11.1 gram
2	3HAC031695-001	Harmonic grease 4B No. 2	12.6 gram
3	3HAC031695-001	Harmonic grease 4B No. 2	9.1 gram
4	3HAC031695-001	Harmonic grease 4B No. 2	7.3 gram
5	3HAC031695-001	Harmonic grease 4B No. 2	4.5 gram
6	3HAC031695-001	Harmonic grease 4B No. 2	1 gram

The information in the table updated: April 2 2021.

4 Collaborative robots

4.4 CRB 1300

4.4 CRB 1300



CAUTION

The stated amount of lubrication is only indicative. Always judge the correct amount of filling by inspecting the oil level according to the procedure in the product manual. By doing this, the following risks are avoided:

- Too much lubrication may cause leakage due to over pressure in the gearbox.
- Too little lubrication may cause reduced lifetime of the gearbox due to lack of lubrication.



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table shows the lubrication oil that is currently used in the gearboxes of the robot.

CRB 1300 all variants, OmniCore

Axis	WebConfig number	Type	Amount
1	3HAC032140-001	Kyodo Yushi TMO 150	580 ml
2	3HAC032140-001	Kyodo Yushi TMO 150	245 ml ⁱ

ⁱ The stated amount of lubrication is only indicative. Always judge the correct amount of filling by inspecting the oil level. The oil level must be within the range of 64 mm-69 mm.

The information in the table updated: April 19 2024.

Type of grease - currently used

This table shows the lubrication grease that is currently used in the gearboxes of the robot.

CRB 1300 all variants, OmniCore



Note

The gearboxes contain grease, not lubrication oil!

The amount is measured in grams.

Axis	WebConfig number	Type	Amount
3	3HAC031695-001	Harmonic grease 4B No. 2	35.5 gram
4	3HAC031695-001	Harmonic grease 4B No. 2	13.2 gram
5	3HAC031695-001	Harmonic grease 4B No. 2	Not available ⁱ
6	3HAC031695-001	Harmonic grease 4B No. 2	8.2 gram

ⁱ The gearbox contains lubrication grease at delivery and no grease amount is available.

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The information in the table updated: Sep 9 2022.

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5 Parallel arm robots

5.1 IRB 360



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table shows the lubrication oil that is currently used in the gearboxes of the robot.

IRB 360 -1/1130, -3/1130, -1/800, -1/1600, -6/1600, 8/1130, M2004

Axis	WebConfig number	Type	Amount
Axis 1	3HAC6450-2	Mobil SHC Cibus 220	820 ml
Axis 2	3HAC6450-2	Mobil SHC Cibus 220	820 ml
Axis 3	3HAC6450-2	Mobil SHC Cibus 220	820 ml
Axis 4	3HAC6450-2	Mobil SHC Cibus 220	80 ml

The information in the table updated: November 15 2016

5 Parallel arm robots

5.2 IRB 390

5.2 IRB 390



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table shows the lubrication oil that is currently used in the gearboxes of the robot.

IRB 390 -15/1,300

Axis	WebConfig number	Type	Amount
Axis 1	3HAC6450-5	SHC Cibus 220	2.600 ml
Axis 2	3HAC6450-5	SHC Cibus 220	2.600 ml
Axis 3	3HAC6450-5	SHC Cibus 220	2.600 ml
Axis 4 pre-stage	3HAC6450-5	SHC Cibus 220	105 ml
Delta unit (axis 4)	3HAC6450-5	SHC Cibus 220	550 ml

The information in the table updated: November 23 2020

IRB 390 -10/1,300

Axis	WebConfig number	Type	Amount
Axis 1	3HAC6450-5	SHC Cibus 220	2.600 ml
Axis 2	3HAC6450-5	SHC Cibus 220	2.600 ml
Axis 3	3HAC6450-5	SHC Cibus 220	2.600 ml
Axis 4 pre-stage	3HAC6450-5	SHC Cibus 220	105 ml
Axis 5 pre-stage	3HAC6450-5	SHC Cibus 220	105 ml
Delta unit (axis 4 and axis 5)	3HAC6450-5	SHC Cibus 220	750 ml

The information in the table updated: November 23 2020

6 SCARA robots

6.1 IRB 910SC



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of grease - currently used

This table shows the lubrication grease that is currently used in the gearboxes of the robot.



Note

Axes 3 and 4 of IRB 910SC do not have a gearbox but a ball screw splint unit. The specified grease is used for the ball screw.

IRB 910SC all variants, M2004



Note

The gearboxes contain grease, not lubrication oil!
The amount is measured in grams.

Axis	WebConfig number	Type	Amount
1	3HAC031695-001	Harmonic Grease 4b No.2	42 gram
2	3HAC031695-001	Harmonic Grease 4b No.2	42 gram
3/4	3HAC058096-001	THK AFA grease	4 gram

The information in the table updated: October 20 2019

6 SCARA robots

6.2 IRB 910INV

6.2 IRB 910INV



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of grease - currently used

This table shows the lubrication grease that is currently used in the gearboxes of the robot.



Note

Axes 3 and 4 of IRB 910INV do not have a gearbox but a ball screw splint unit. The specified grease is used for the ball screw.

IRB 910INV all variants, OmniCore



Note

The gearboxes contain grease, not lubrication oil!
The amount is measured in grams.

Axis	WebConfig number	Type	Amount
1	3HAC031695-001	Harmonic Grease 4b No.2	28.2 gram
2	3HAC031695-001	Harmonic Grease 4b No.2	16.4 gram
3/4	3HAC058096-001	THK AFA Grease	2 gram

The information in the table updated: June 12 2019.

6.3 IRB 920



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of grease - currently used

This table shows the lubrication grease that is currently used in the gearboxes of the robot.



Note

Axes 3 and 4 of IRB 920 do not have a gearbox but a ball screw splint unit. The specified grease is used for the ball screw.

IRB 920 all variants, OmniCore



Note

The gearboxes contain grease, not lubrication oil!
The amount is measured in grams.

Axis	WebConfig number	Type	Amount
1	Not applicable		
2	Not applicable		
3/4	3HAC058096-001 ⁱ	THK AFA Grease	2 gram
	3HAC077740-001 ⁱⁱ	Grease, Gastrol Spheerol EPL 1	2 gram

ⁱ Valid for IRB 920T-6/0.45, IRB 920T-6/0.55 and IRB 920T-6/0.65.

ⁱⁱ Valid for IRB 920-6/0.55 and IRB 920-6/0.65.

The information in the table updated: July 14 2022.

6 SCARA robots

6.4 IRB 930

6.4 IRB 930



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

This table shows the lubrication oil that is currently used in the gearboxes of the robot.

IRB 930 all variants, OmniCore

Axis	WebConfig number	Type	Amount
1	3HAC032140-001	Kyodo Yushi TMO 150	590 ml
2	3HAC032140-001	Kyodo Yushi TMO 150	215 ml

The information in the table updated: March 30 2023.

Type of grease - currently used

This table shows the lubrication grease that is currently used in the ball screw of the robot.



Note

Axes 3 and 4 of IRB 920 do not have a gearbox but a ball screw splint unit. The specified grease is used for the ball screw.

IRB 930 all variants, OmniCore



Note

The gearboxes contain grease, not lubrication oil!
The amount is measured in grams.

Axis	Type	Amount
3/4	THK AFA Grease	2 gram

The information in the table updated: March 30 2022.

7 Other mechanical units

7.1 IRBT 2005

**Note**

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

Supplier	WebConfig number	Type	Amount
Mobil Oil AB	11712016-604	Mobilgear 600 XP 320/XMP 320	3,900 ml

**Note**

The oil in the gearbox does not need to be changed during the lifetime of the gearbox.

The information is updated: October 25 2022.

7 Other mechanical units

7.2 IRBT 4004/6004/7004

7.2 IRBT 4004/6004/7004



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

Supplier	WebConfig number	Type	Amount
Mobil Oil AB	11712016-604	Mobilgear 600 XP 320/XMP 320	3,600 ml



Note

The oil in the gearbox does not need to be changed during the lifetime of the gearbox.

The information is updated: April 25 2023.

7.3 IRBT 4003/6003/7003

**Note**

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

Supplier	WebConfig number	Type	Amount
Mobil Oil AB	11712016-604	Mobilgear 600 XP 320/XMP 320	3,900 ml
Shell		Omala Oil 220	
Statoil		Loadway EP 220	

The information in the table updated: October 25 2022.

7 Other mechanical units

7.4 IRBP

7.4 IRBP



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

The oil in the gearbox does not need to be changed during the lifetime of the gearbox.

Gearbox	WebConfig number	Type	Amount
MTD 250	11712016-604	Mobilgear 600 XP 320/XMP 320	3,900 ml
MTD 500	11712016-604	Mobilgear 600 XP 320/XMP 320	11,500 ml
MTD 750	11712016-604	Mobilgear 600 XP 320/XMP 320	11,500 ml
MTD 2000	11712016-604	Mobilgear 600 XP 320/XMP 320	16,500 ml
MTD 5000	11712016-604	Mobilgear 600 XP 320/XMP 320	58,000 ml
MTE 500/750	3HAC032140-001	Kyodo Yushi TMO150	2,700 ml
MID 1.1	11712016-604	Mobilgear 600 XP 320/XMP 320	13,500 ml

The information in the table updated: October 3 2023.

7.5 Motor units and gear units (M2004)



Note

For spare part number and in which amount the lubrication can be ordered, see [Amount of lubrication when ordered as spare part on page 16](#).

Type of oil - currently used

The gearboxes of the motor units and gear units are filled with oil from Mobil Oil AB.

Vendor material number Mobilgear 600 XP 320/XMP 320.

ABB Robotics WebConfig number for the oil is 11712016-604.



Note

The oil in the gearbox does not need to be changed during the lifetime of the gearbox.

The information in the table updated: October 25 2022.

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