

3HAC5954-1

IRB 4400 Axis 2/3 Elmo Motor Unit with Pinion

ABB 3HAC5954-1 is an Elmo motor unit with pinion specified for axes 2 and 3 of the IRB 4400 robot. It provides the axis motor-and-brake assembly that must be mechanically adjusted, reconnected, recalibrated and test-run after replacement.

IDENTITY	VERIFIED VALUE
Manufacturer	ABB
System family	ABB IRB 4400 industrial robot
Part number	3HAC5954-1
Product role	Provides the motor-and-pinion drive unit for either axis 2 or axis 3
Lifecycle	Installed product record

DOCUMENT SCOPE

Exact-article identity, technical data, host role, installation checks, applications, precautions and engineering verification.

MODEL-SPECIFIC ENGINEERING NOTE

Secure the arm system before removal because the brake is inside the motor. Fit only the matching Elmo execution, adjust the motor-to-gear engagement, restore oil, recalibrate and test-run the robot.

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Technical Specifications

Technical values below are limited to the named ABB product record and directly applicable manufacturer documentation.

PARAMETER	VALUE	PARAMETER	VALUE
Spare part number	3HAC5954-1	Axis 2 connector	R3.MP2
Robot model	IRB 4400	Axis 3 connector	R3.MP3
Equipment	Motor unit, axes 2 and 3	Brake-release pins	Pin 7 (+24 V); pin 8 (0 V)
Motor execution	Elmo	Attachment screws	2 x M10x70; 2 x M10x30
Included component	Pinion	Tightening torque	60 Nm
Color	ABB Orange	O-ring	21520431-11
Brake-release supply	24 VDC, 1.5 A	Axis 2 flange sealing	Loctite 574; 12340011-11

Verified Product Record

DATA GROUP	VERIFIED VALUE
Installed host / carrier	ABB IRB 4400 industrial robot
Primary system role	Provides the motor-and-pinion drive unit for either axis 2 or axis 3
Connection boundary	Secure the arm system before removal because the brake is inside the motor. Fit only the matching Elmo execution, adjust the motor-to-gear engagement, restore oil, recalibrate and test-run the robot.
Controlled acceptance duty	IRB 4400 axis 2 motor replacement

ENGINEERING BOUNDARY

Confirm 3HAC5954-1, IRB 4400 host, axis 2 or axis 3 position, Elmo hardware execution, pinion and gear condition, R3.MP2/R3.MP3 connector assignment, 24 VDC brake-release wiring, grounding, O-ring and flange sealing, motor adjustment, fastener torque, oil level, robot calibration and controlled test-run results before commissioning.

Pre-Installation Checks

1	Confirm the complete 3HAC5954-1 marking, Elmo execution and whether the work is on IRB 4400 axis 2 or axis 3.	2	Switch off electrical, hydraulic and pneumatic supplies and confirm the robot is protected from uncontrolled movement.
3	Secure the arm system or upper arm before loosening the motor because the brake is contained in the motor unit.	4	Protect the pinion and gear wheel and do not use excessive force while mating the motor to the drive gear.

Documented Service Record

RECORD ITEM	REQUIRED ENTRY
As-found article	3HAC5954-1
Installed host	ABB IRB 4400 industrial robot
Connection record	Capture before removal
Controlled release	Diagnostics and functional proof

System Role and Architecture

ABB 3HAC5954-1 is an Elmo motor unit with pinion specified for axes 2 and 3 of the IRB 4400 robot. It provides the axis motor-and-brake assembly that must be mechanically adjusted, reconnected, recalibrated and test-run after replacement.

FUNCTION 1

Provides the motor-and-pinion drive unit for either axis 2 or axis 3

FUNCTION 2

Contains the motor brake that must be managed while securing the arm system

FUNCTION 3

Requires controlled motor-to-gear adjustment before final fastening

FUNCTION 4

Returns the serviced axis to operation only after recalibration and test run

Matched System Components

NO.	DOCUMENTED COMPONENT / ROLE
1	ABB IRB 4400 industrial robot
2	IRB 4400
3	IRB 4400 axis 2 motor replacement
4	Secure the arm system before removal because the brake is inside the motor. Fit only the matching Elmo execution, adjust the motor-to-gear engagement, restore oil, recalibrate and test-run the robot.

System Integration Record

INTEGRATION ITEM	DOCUMENTED ROLE
Host identity	ABB IRB 4400 industrial robot
Interface role	Provides the motor-and-pinion drive unit for either axis 2 or axis 3
Field / power context	Service the selected IRB 4400 axis with all energy isolated and the arm system secured. Preserve the connector and sealing record, then adjust, calibrate and test the repaired axis.
Commissioning evidence	Recalibrate the robot, review axis diagnostics and complete a controlled test run before production release.

Installation and Connection Checks

1 Do not interchange Elmo and Yaskawa motor units; ABB states that these executions are not compatible.

2 Preserve the motor label orientation, selected axis connector, O-ring and axis-specific flange-sealing arrangement.

3 Adjust the motor, tighten the specified M10 fasteners to 60 Nm and refill or verify the drive-gear oil before energization.

4 Recalibrate the robot, review axis diagnostics and complete a controlled test run before production release.

MANUFACTURER SOURCE RECORD

Product manual - IRB 4400
ABB document 3HAC022032-001, Revision AB, 2026

Applications and Engineering Context

IRB 4400 axis 2 motor replacement

Restores the documented axis 2 drive assembly with the matching connector and brake-release procedure.

IRB 4400 axis 3 motor replacement

Replaces the specified axis 3 motor unit while preserving the separate sealing and connection record.

Axis motor and drive-gear service

Supports coordinated inspection and adjustment where the motor pinion engages the robot drive gear.

Post-replacement robot acceptance

Provides the exact article identity for calibration, diagnostic review and a controlled test run.

TECHNICAL NOTE

Secure the arm system before removal because the brake is inside the motor. Fit only the matching Elmo execution, adjust the motor-to-gear engagement, restore oil, recalibrate and test-run the robot.

Model-Specific Acceptance Evidence

CHECK	ACCEPTANCE CONDITION
Identity	3HAC5954-1 recorded
Host / carrier	ABB IRB 4400 industrial robot
Physical interface	Provides the motor-and-pinion drive unit for either axis 2 or axis 3
Configuration	Adjust the motor, tighten the specified M10 fasteners to 60 Nm and refill or verify the drive-gear oil before energization.
Functional proof	Recalibrate the robot, review axis diagnostics and complete a controlled test run before production release.

IMPORTANT NOTICE

Confirm 3HAC5954-1, IRB 4400 host, axis 2 or axis 3 position, Elmo hardware execution, pinion and gear condition, R3.MP2/R3.MP3 connector assignment, 24 VDC brake-release wiring, grounding, O-ring and flange sealing, motor adjustment, fastener torque, oil level, robot calibration and controlled test-run results before commissioning.

Controlled Release Summary

RELEASE ITEM	MODEL-SPECIFIC CONDITION
Article identity	3HAC5954-1
Approved role	IRB 4400 axis 2 motor replacement
Final validation	Recalibrate the robot, review axis diagnostics and complete a controlled test run before production release.

Engineering Precautions

- 1

Confirm the complete 3HAC5954-1 marking, Elmo execution and whether the work is on IRB 4400 axis 2 or axis 3.
- 2

Switch off electrical, hydraulic and pneumatic supplies and confirm the robot is protected from uncontrolled movement.
- 3

Secure the arm system or upper arm before loosening the motor because the brake is contained in the motor unit.
- 4

Protect the pinion and gear wheel and do not use excessive force while mating the motor to the drive gear.
- 5

Do not interchange Elmo and Yaskawa motor units; ABB states that these executions are not compatible.
- 6

Preserve the motor label orientation, selected axis connector, O-ring and axis-specific flange-sealing arrangement.
- 7

Adjust the motor, tighten the specified M10 fasteners to 60 Nm and refill or verify the drive-gear oil before energization.
- 8

Recalibrate the robot, review axis diagnostics and complete a controlled test run before production release.

Related Products on Apter Power

MODEL	SYSTEM ROLE	APTER POWER PAGE
DSQC332	relay I/O unit	View DSQC332 page
3HNA003882-001/02	robot component	View 3HNA003882-001/02 page
3HAC025466-001	robot component	View 3HAC025466-001 page
3HAC058040-001	robot component	View 3HAC058040-001 page
3HAC033388-001	robot component	View 3HAC033388-001 page
DSQC323	3HAB5956-1 robot board	View DSQC323 page
DSQC223	YB560103 BD/4 robot board	View DSQC223 page
DSQC679	3HAC028357-001 robot interface	View DSQC679 page

MANUFACTURER SOURCE RECORD

Product manual - IRB 4400
ABB document 3HAC022032-001, Revision AB, 2026

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