



KS-Gearbox Generation 1

System Support, Product Management

May 2025

Version 1

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1. Intension

The KS Gearbox Generation 1 represents the consistent further development and technical revision of STÖBER's existing KS series. It will fully replace the previous Generation 0 in the future.

As part of the project, both design and economic optimizations were implemented to make the product more powerful, flexible, and cost-efficient.

Key project objectives:

- Cost reduction through targeted design adjustments and more efficient use of existing components
- Use of Generation 3 planetary gearbox components on the input side to reduce variant diversity and simplify internal processes
- Extension of the gear ratio range to increase the variety of applications
- Introduction of a new single-stage KS variant to complement the product range meaningfully
- Phase-out of the previous KS Generation 0 with the goal of consolidating and streamlining the existing product portfolio

The KS gearboxes of Generation 1 will be available starting in June 2025.

2. Product Launch

2.1. Time Schedule

- Available before market launch (01.06.2025):
 - Sales presentation
 - One-pager KS gearboxes
 - Trainings by System Support for Sales, Order Department & Service
- Available from 02.06.2025:
 - Website
 - Catalogs
 - STÖBER configurator (GOC)
 - Selection in SAP
- Product launch communications / promotions:
 - Newsletter "Insight STÖBER" with product focus on KS gearbox Gen. 1
 - Dispatch of press release
 - Product posting on social media / LinkedIn
- Planned at a later date:
 - SDI market launch (in 2026)

2.2. Documentation

For the successful sales and technical configuration of the new product generation, the following documents and tools will be available at market launch. For more detailed information, please refer to Chapter 9 - Media.

- Catalogs (see Chapter 9.1 Catalogs for details):
Servo Gear Units, Synchronous Servo Gear Motors, STÖBER Compact
- Operating Manual (Installation and Commissioning)
- STÖBER Configurator (GOC)
- Website
- SAP Configurator
- CAD Download
- Sales Presentation & One-Pager KS Gearboxes
- SERVOnsoft (see Chapter 9.3 SERVOnsoft for details)

3. Changeover Process

3.1. Product Phase-Out G0

With the introduction of the new KS Gearbox Generation 1, a gradual phase-out of the previous Generation 0 is planned. The phase-out planning of the previous series will be addressed as part of the variant management 2025. In this context, the final discontinuation date will also be officially determined.

Until the complete phase-out, a transitional period will be granted to both the sales team and our customers during which the previous generation will remain available. At the time of the market launch of Generation 1, the exact discontinuation date of the KS Gear Unit Generation 0 has not yet been finalized.

Since the introduction of the new generation at SDI will take place at a later date — expected to be approximately one year later — continued demand for components of the current Generation 0 is anticipated during this time.

The new generation of KS Gear Units is generally backward compatible regarding the interface dimensions on the input and output sides. However, the housing design differs somewhat in form and geometry compared to the previous generation. Considering this, we recommend that customers conduct an individual review at the machine level. For quotation purposes, the corresponding STEP models should be provided to the customer.

4. Technical Description

4.1. Series

The following gear unit series have been revised:

- KS402, KS403, KS502, KS503, KS702, KS703

The following series have been newly added:

- KS311, KS411, KS511, KS711 – The single-stage series fills an important gap in our product portfolio
- KS31 – A new size to expand the range of customer applications

The following gear ratios will no longer be available in Generation 1:

- KS $i = 24$ and $i = 40$ (three-stage)

The following gear ratios have been newly added:

- Single stage: $i = 2$ and 4
- Two-stage: $i = 12, 16, 28, 40$ (reduced torques compared to $i = 24$ and $i = 40$ three-stage)
- Three-stage: $i = 64, 160, 280$, and 400

4.2. Combinatorics

Overview Combinatorics

	ME(L)	MF	MB	EZ	LM
KS (G1)	x	x	-	x	-

x = catalog variant

- = not combinable

Direct mounting Combinatorics

The following combinations are possible in direct mounting with our motors:

- KS311 → No direct mounting possible only via MF adapter EZ3, EZ4
- KS312 → EZ2, EZ3
- KS313 → EZ2
- KS411 → No direct mounting possible only via MF adapter EZ4, EZ5
- KS412 → EZ3, EZ4
- KS413 → EZ2, EZ3
- KS511 → No direct mounting possible only via MF adapter EZ5, EZ7
- KS512 → EZ4, EZ5
- KS513 → EZ3, EZ4
- KS711 → No direct mounting possible only via MF adapter EZ7, EZ8
- KS712 → EZ5, EZ7
- KS713 → EZ4, EZ5

The ED motors are not included in the listing, as they are not current catalog product variants.

Lean motors are not offered as a standard combination, as they do not align with the concept of the highly dynamic KS gear units. However, they are geometrically compatible and can be configured in SAP via a ticket for special application cases.

4.3. Type code

Type	Size	Generation	Stages	Housing	Shaft	Bearing	Backlash	Gear ratio	Input-option
KS	5	1	2	S	G	S	R	0200	ME

Changes in type code options

Changes from Generation 0 to Generation 1:

- Number of Stages: Now includes a new 1-stage version.
- Housing Design:
 - "F" is replaced by "S" for "Standard" and is placed before the shaft configuration, similar to Planetary Gearbox Generation 3 (P G3).
- Shaft Configuration: Shaft designation is moved one position to the back, as in P G3.
- Bearing Configuration: Adopted from PG3, no selectable options are available.
- Backlash:
 - "R" for Reduced Backlash corresponds to the standard backlash of KS Gen. 0. This allows for the possibility of offering a more cost-effective option with higher backlash, if needed.
- Motor Adapter:
 - "MF" FlexiAdapt coupling can be selected as an option for 2- and 3-stage gear units.
 - For 1-stage gear units, only the "MF" version is available; the "ME" version is not offered.

5. Technical Data

5.1. General

The gearboxes of the KS Generation 1 are equal to or better than their predecessors in all technical aspects. Due to the redesign of the $i = 40$ gear ratio from a 3-stage to a 2-stage configuration, the new 2-stage version results in lower acceleration and emergency stop torques. For customers who previously used this version, it must be evaluated whether the 2-stage variant is suitable — in which case the customer would benefit from a price advantage — or whether a 3-stage version with a different gear ratio is required.

The following improvements have been achieved with the new generation:

- Increase of nominal torque by up to 25% in 3-stage gearboxes
- Partial increase of nominal speed by up to 20%
- Permissible output shaft loads increased by up to 20%

We have prepared detailed comparison documents, which we are happy to provide to you:

- Comparison diagrams KS G0 vs. G1 by series and size
(e.g., “Comparison KS4 G0 – G1_Diagramme.pdf”)
 - Acceleration torques
 - Nominal torques
 - Emergency stop torques
 - Torsional stiffness
 - Continuous operating speeds
 - Cyclic operating speeds

5.2. Torques, speed & torsional stiffness

The comparison diagrams described in the previous chapter are included in the following illustrations. Each PDF file shows the comparison of a specific series in a defined frame size. All comparison diagrams are stored in the STÖBER Media / Collection Right-Angle Servo Gear-box KS and can be accessed there:

<https://stoeber.px.media/collections/831776505/media>

Shown below using the example of KS41.



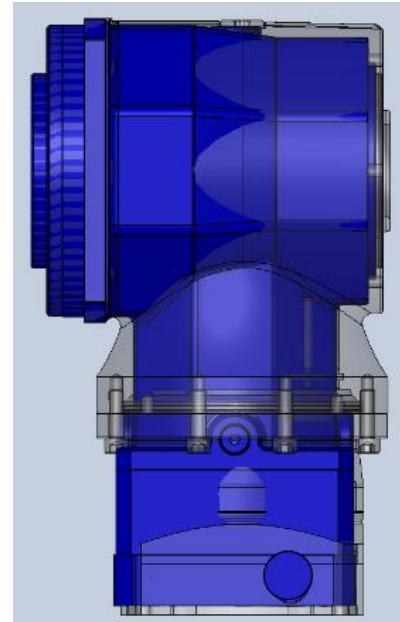
6. Geometry Data

The mechanical interfaces of the KS G1 are 100% compatible with those of the KS G0!

Due to changes in design and length, potential interference contours may arise. For this reason, it is essential to provide the customer with a new 3D volume model when switching to the new generation.

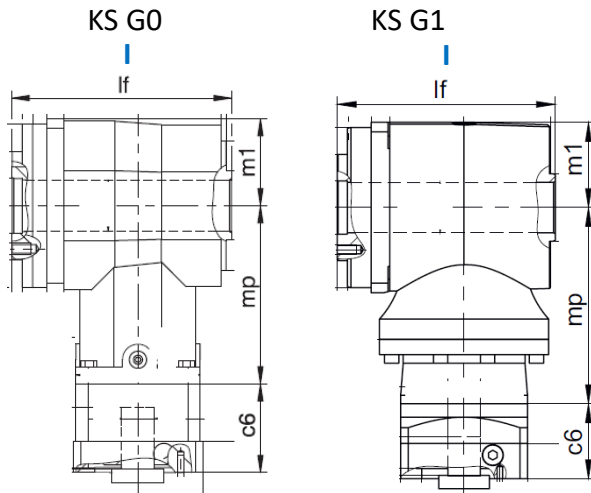
The customer can receive this model in the following ways:

- Along with the offer from our Order department
- By configuring their product using the STOBBER Configurator (GOC)



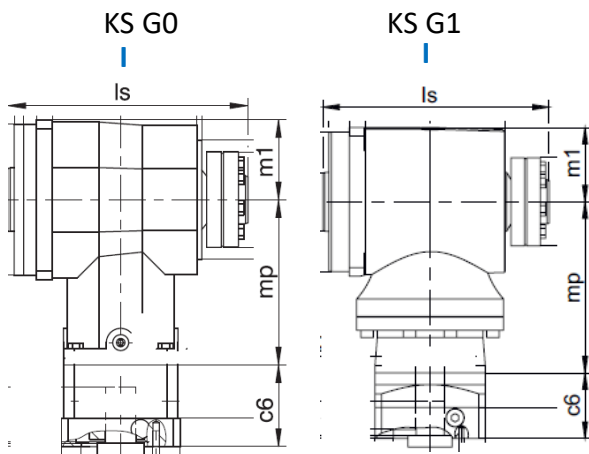
6.1. Comparison of Geometry Data

Shaft design F (Flange hollow shaft)



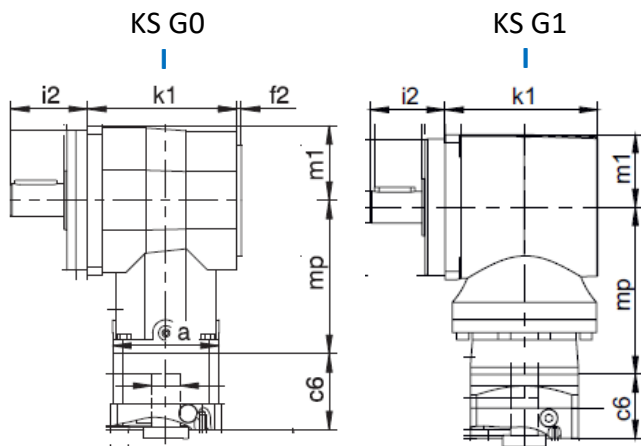
	I		
	lf		Δ G1-G0
KS3_1	-	107,0	-
KS3_2	-	107,0	-
KS3_3	-	107,0	-
KS4_1	-	129,0	-
KS4_2	127,0	129,0	2,0
KS4_3	127,0	129,0	2,0
KS5_1	-	150,0	-
KS5_2	145,0	150,0	5,0
KS5_3	145,0	150,0	5,0
KS7_1	-	180,0	-
KS7_2	178,0	180,0	2,0
KS7_3	178,0	180,0	2,0

Shaft design S (Hollow shaft with shrink disc)



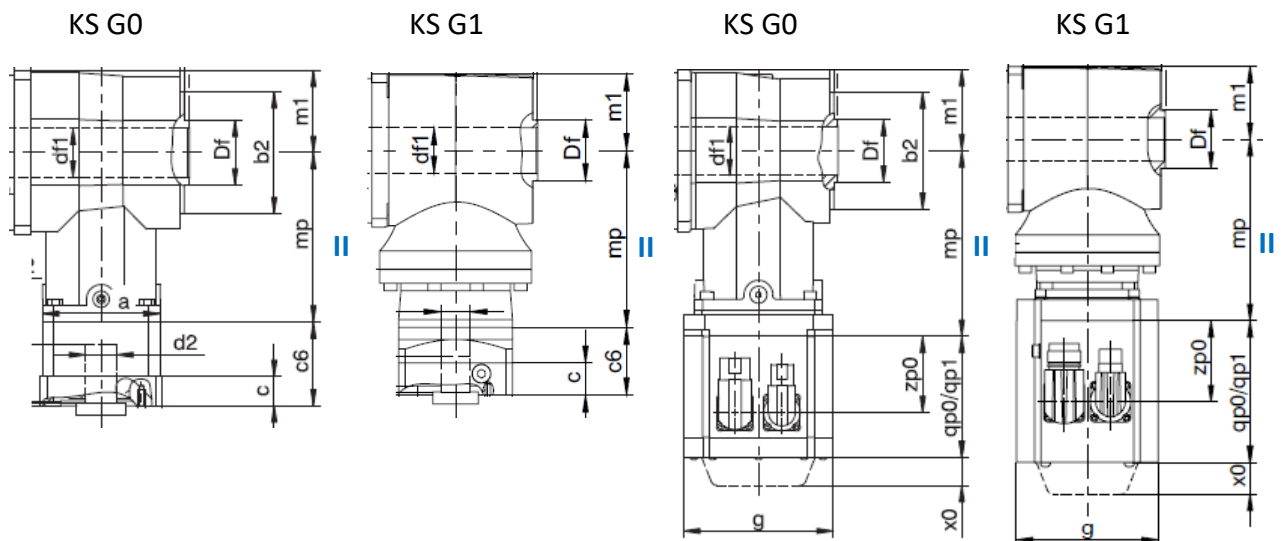
	I		
	ls		Δ G1-G0
KS3_1	-	127,5	-
KS3_2	-	127,5	-
KS3_3	-	127,5	-
KS4_1	-	154,0	-
KS4_2	151,0	154,0	3,0
KS4_3	151,0	154,0	3,0
KS5_1	-	178,5	-
KS5_2	171,5	178,5	7,0
KS5_3	171,5	178,5	7,0
KS7_1	-	214,0	-
KS7_2	211,0	214,0	3,0
KS7_3	211,0	214,0	3,0

Shaft design G/P (Solid shaft without/with key)



	I					Δ G1-G0
	i2		k1		f2	
KS3_1	-	43,0	-	88,5	-	-
KS3_2	-	43,0	-	88,5	-	-
KS3_3	-	43,0	-	88,5	-	-
KS4_1	-	52,0	-	106,0	-	-
KS4_2	52,0	52,0	104,0	106,0	3,0	-1,0
KS4_3	52,0	52,0	104,0	106,0	3,0	-1,0
KS5_1	-	75,5	-	125,0	-	-
KS5_2	75,5	75,5	120,0	125,0	3,0	2,0
KS5_3	75,5	75,5	120,0	125,0	3,0	2,0
KS7_1	-	105,0	-	150,0	-	-
KS7_2	105,0	105,0	148,0	150,0	3,0	-1,0
KS7_3	105,0	105,0	148,0	150,0	3,0	-1,0

Input side ME and EZ



	II						II mit EZ					
	m1	mp	c6		Δ G1-G0		mp		Δ G1-G0			
KS3_1	-	40,0	-	65,5	-	60,0	-	151,5	146,0			
KS3_2	-	40,0	-	92,5	-	32,0	-	99,0	112,5			
KS3_3	-	40,0	-	124,5	-	32,0	-	131,0	-			
KS4_1	-	50,5	-	78,3	-	67,0	-	165,8	170,3			
KS4_2	50,5	50,5	104,0	116,3	51,5	41,5	2,3	124,0	120,5	128,8	125,3	4,8
KS4_3	50,5	50,5	144,0	143,3	32,0	32,0	-0,7	150,5	164,0	149,8	163,3	-0,7
KS5_1	-	62,5	-	100,0	-	80,0	-	196,0	199,0			
KS5_2	62,5	62,5	123,0	140,5	56,0	42,5	4,0	140,0	142,5	154,0	153,5	14,0
KS5_3	62,5	62,5	172,0	178,5	51,5	41,5	-3,5	192,0	188,5	191,0	187,5	-1,0
KS7_1	-	77,5	-	123,0	-	94,0	-	236,0	242,0			
KS7_2	77,5	77,5	151,0	173,0	67,5	54,0	8,5	167,0	173,0	185,0	188,0	18,0
KS7_3	77,5	77,5	205,5	213,5	56,0	42,5	-5,5	222,5	225,0	227,0	226,5	4,5

7. Competitor Comparisons

A comprehensive competitor comparison with comparable gear series from market players such as Wittenstein, Neugart, Grässner (Shimpo), and APEX (Series XH/XF) is currently in preparation. This comparison will be provided at a later date and made available to all sales units.

The competitor analysis is intended to support the targeted market positioning of the new KS Generation 1 and to provide sales with effective arguments for customer communication.

8. Pricing

The design revision of the KS gear units has led to cost savings in the new generation. These savings vary depending on the specific configuration.

However, the gross sales prices remain unchanged compared to the previous Generation 0. This decision is aimed at increasing internal profitability and creating additional flexibility for customer-specific discounting in sales.

As usual, exact pricing is determined through the individual configuration of the gearboxes in the SAP system.

9. Media

All relevant media, such as presentations and catalogs created for the KS G1 servo right-angle gearbox, are systematically stored in STÖBER Media and can be accessed using the specified document IDs.

9.1. Catalogs

- Catalogs:
 - Servo gear units (Languages: de, en, es, fr, it, ja, ko, zh-cn, zh-tw) / (ID: 443054)
 - Synchronous servo geared motors (Language: de, en, fr) / (ID 442437)
 - STÖBER Compact (Languages: de, en, es, fr, it) / (ID 442655)
 - Rack and pinion drives (Language: de, en) (ID 443137)
 - Rack and pinion drives with synchronous servo motors (Language: de, en) (ID 443286)
- Operating Manual
 - Operating Manual gear units, geared motors, KS31 – KS71 (ID 443506)

9.2. Sales & Marketing material

- Sales presentation KS Right-Angle Servo Gearbox Generation 1 (Language: de, en, fr)
- One-Pager KS Right-Angle Servo Gearbox (Language: de, en, fr) (ID: 443507)

9.3. Calculation programs: ServoSoft

The new software version and database containing the corresponding data for the KS Gear Unit Generation 1 will be available at market launch.



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