

Training Guide



Core Product Nomenclature

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Introduction

SEW-EURODRIVE's product nomenclature has a long, varied, and complex history. Both new and experienced employees struggle with it. Unfortunately, its style has varied over the years. The fact that SEW regularly introduces new products further muddies the waters.

This training guide introduces Core Product nomenclature based on 2022 standards. At the same time, the Training Department has designed it for easy updating as new products come out or nomenclature changes.

Goals

This guide limits itself to the Core Product line, which contains the products you're most likely to encounter (gearboxes, motors, and their accessories). Once you master the nomenclature behind these, you'll have little difficulty mastering other product lines such as Electronics or Industrial Gearing.

Prerequisite

You should be familiar with the Core Product line.

Audience

This guide assumes an audience of varied background and knowledge. If you're a beginner, you can use this guide to build a strong foundation. If, on the other hand, you're more experienced, you can use this guide for review or to fill in knowledge gaps.



How to Use the Training Guide

This self-paced, independent-study training guide will help you learn about Core Product nomenclature. Using the guide is easy. Read the material, look at the illustrations, study the examples, and work the problems. If you use this guide conscientiously, the learning almost takes care of itself!

How fast should you work through the guide? It depends on your comfort level. Work at whatever pace seems right for you. If you feel your mind wandering, take a break. Never feel pressured to race through the material.

Please Give Us Your Feedback

At the end of the guide, you will find a survey form. Please take a few minutes to complete it and mail it back to SEW-Eurodrive. Your feedback helps us improve our materials. Thank you!



SEW Nomenclature Overview

Any time you have to classify something complicated, you're likely to encounter *nomenclature*. Botanists use it to classify plants. Vintage camera collectors identify their equipment with nomenclature. Electronic component manufacturers distinguish between versions of their parts through nomenclature.



A product's nomenclature identifies the product's essential features. If you can decode the nomenclature, you'll know exactly what the product includes. Provided that a company publishes a nomenclature guide, anyone—customers included—can work out the product's features.

On the other hand, internal product identifiers, like serial numbers, are meaningless strings of characters. They don't contain any actual information. Instead, they just point to a record in the manufacturer's product database. Without access to that database, customers can't turn serial numbers into anything useful.



For example, suppose you encounter a nameplate like the one below. It contains a unique product identifier (1) and the product's nomenclature (2).

2 →	SEV sew-et K47 I 87.74	V-EUR JRODRIVE I DRN90L4 17860001	ODRI NC. USA /BE2HR .0001.17.6	VE 60 Invert	E189357 CC05		C US nergyVerified bh.IEC60034
1	Hz 60	rpm 176	7/60		v230/460	YY/Y	00 F 170
	hp 2	.0 51			A6.0/3.0	Nom.Eff.%	86,5 IE3
	Duty	Cont. S1	P.F. 0.7		S.F.1.15	IP 54	TEFC
	Th.Cl.	155(F)	Design	NEMA A		K	V.A-Code M
	CT 300)-1800rpm					ML 86
		0.000				Vbr 2	230 AC
	i 29,32	lb-in 2120		MtgPos N	41B	lb-in	177
	200	LP 220 Mine	er.Oil/0.81				BG1.5
	њ 101.	014	амв °с -20	40	188 573 1 EN		

Without access to SEW's database, the product identifier—called an SO#—is meaningless. On the other hand, the nomenclature is easily decoded. In fact, that's this guide's purpose—to explain how to read and interpret nomenclature.

Nomenclature Structure

An SEW-EURODRIVE product's nomenclature is a series of *codes* (one or more letters, numbers, and symbols) assembled into groups called *fields*. Some fields may hold just one code, while others may hold several. Fields may also be left empty.

Codes identify specific products, plus their features and options. A gearbox's nomenclature has seven fields:



The **F** in field #1 and the **A** in field #2 are single-letter codes. The **87** in field #4 is a single numeric code. The /**G** in field #5 is a single symbol + letter code. Field #7 contains two codes—**AD4** and /**P**. Fields #3 and #6 are empty.

The nomenclature tells us that this is an F-type gearbox. It's a size 80 and belongs to the 7 series gearbox line (80 + 7 = 87). It has a hollow shaft, rubber bushings for its torque arm, and a size 4 keyed solid shaft input adapter equipped with a motor platform.



A motor is more complex, so its nomenclature has eleven fields:



The same principles apply. Depending on their function, fields may contain one or more codes. Some can and probably will be empty.

This motor's nomenclature tells us that it is a DRN family motor. It has an IEC size 80 frame and a medium-length stator. It has four poles, so it turns at 1,800 rpm on a 60 Hz line. The motor has a size 2 BE-series brake with a hand release. It has an IEC B5 flange, a thermistor, and an aluminum fan.

And, as you can probably guess, a gearmotor, which is a gearbox combined with a motor, has eighteen fields (7 + 11).

Notice that some fields contain slash symbols ("/"). These separate codes, making them easier to identify. Slashes are especially useful when a single field contains multiple codes.

Be aware, however, that the nomenclature doesn't always use slashes consistently. In some cases, they're omitted when they'd actually be helpful. Over time, you'll learn to deal with these inconsistencies.

Normally, nomenclature doesn't contain spaces. Empty fields just "disappear." For example, if you were writing out the gearbox and motor nomenclatures shown above, they would look like this:

FA87/GAD4/P

DRN80M4/BE2HR/FF/TF/AL

Certain product nomenclatures *do* contain spaces. Usually, the spaces separate a larger assembly's subunits. For example, a gearmotor's nomenclature contains a single space between the gearbox section and the motor section:

K47 DRN90L4/BE2HR



Nomenclature Fields and Codes

All current SEW-EURODRIVE product nomenclatures follow the same general principles as those behind the Core Product line. Once you understand the basic principles, learning a new product line's nomenclature is simple. Just find the appropriate fields and codes.

SEW lists the fields and codes for a particular product in the associated catalog. It also publishes guides, posters, and other tools that help with nomenclature. Programs like the Configurator (SAP/SCE) accept and generate nomenclature codes.



Dealing with Older Nomenclature

SEW's nomenclature has changed considerably over the company's long history. This guide doesn't cover earlier nomenclature styles and rules. If you encounter an older product nomenclature, a good place to start is *Nomenclature* — *Book 300*, which explains the style that was common prior to the one currently in use.





Dealing with Inconsistencies

SEW's product nomenclature is well documented and reasonably consistent. Be aware, however, that you'll encounter occasional inconsistencies. Examples include omitted slashes where you might expect them and codes that appear in what seems to be the wrong order.

Some inconsistencies have obscure but logical reasons behind them. Others exist for historical reasons. You'll just have to memorize these or ask a more experienced coworker for help. Over time, you'll understand these oddities and handle them without difficulty.



Working with Nomenclature

Interpreting a product's nomenclature requires two kinds of information—a field list and a code list. This section explains the fields for the Core Product line. The *Nomenclature Modules* section contains a code list. While it doesn't include every possible code, it has the ones that you'll encounter most frequently.

As that section's title suggests, the lists are modular so you can update them easily. The Training Department will occasionally issue new pages in PDF format. Print these and replace the affected pages.

Core Product Nomenclature Fields

The Core Product line includes standard gearboxes, asynchronous motors, and the accessories commonly associated with them. It also includes gearmotors made from these products. It *doesn't* include servo gearboxes, servomotors, servo gearmotors, or most electronics products.

A complete gearmotor requires eighteen fields:



Fields #1 through #7 describe the gearbox and have the following meanings:

- 1 Gearbox type
- 2 Shaft type
- 3 Flange type
- 4 Gearbox size/series
- **5** Gearbox options
- 6 Mechanical variable speed drive
- 7 Input adapter type

Fields #8 through #18 describe the motor and have the following meanings:

- 8 Motor family, IEC frame size, and length
- 9 Number of poles (speed)
- **10** Flange/feet type
- 11 Brake/backstop and associated options
- 12 Electronic interfaces and motor control
- **13** Motor plug connectors
- **14** Thermal protection options
- 15 Encoder type
- 16 Ventilation options
- 17 Condition monitoring type
- **18** Miscellaneous motor options

A standalone gearbox has Fields #1 through #7 only. Similarly, a standalone motor has Fields #8 through #18 only. With complete gearmotors, some standalone options obviously aren't possible.

Size and Series Codes

Most codes are relatively self-explanatory. Those that aren't relate to a product's size and series. We'll explore these now and introduce other codes later as we come to them.

Every gearbox's nomenclature contains a numeric code that identifies its *size* and *series*. With two-digit codes, the first number is the size, while the second is the series identifier. With three-digit codes, the first two numbers are the size, while the third is the series identifier. For example, a W49 gearbox is size 40 and belongs to series 9 (40 + 9 = 49). Similarly, a K157 gearbox is size 150 and belongs to series 7 (150 + 7 = 157).

Sizes aren't derived from any dimension. They're simply numbers ranging from 00 through 180, with 0 being the smallest size. Not all gearbox families cover the entire range. For example, the R family ranges from size 0 through size 160. Similarly, a family might not include every possible size within its range. The R family doesn't have a size 110 or 150.



The series number replaces the terminal zero in the size. Most current gearboxes belong to either series 7 or series 9. Older, discontinued product lines have different series numbers, such as 2, 3, or 6. Generally, SEW introduces a new series number when it significantly revises or improves a product's design.

The smaller W family gearboxes (W10, W20, and W30) are somewhat unusual in that they belong to series 0, which seems completely out of the normal sequence. Make a mental note of these.

Many SEW employees don't think of the size/series code as two separate numbers. They simply refer to the complete number as the gearbox's size. This strategy is fine except when a gearbox family contains members from more than one series.

The K family is a good example. At the lower end of its range it includes the K19, K29, K37, K39, K47, and K49. The mix of numbers ending in 7 or 9 can be confusing to those new to SEW products. It's also challenging to compare gearboxes' capabilities and features within the family since each series can be significantly different.

Motor size codes are based on IEC standards. The motor's *frame size* is a two- or three-digit number representing the motor's height in millimeters measured from its shaft centerline to the bottom of its feet. SEW sells motors ranging from frame size 56 to frame size 355. Not all sizes may be available within a particular motor family.





Motor frame size numbers end in a code that indicates the relative length of the motor housing and the internal rotor/stator. Most motor frame sizes end with a single letter code—S, M, L, or H. Think of these as standing for "small," "medium," "long," and "huge." There's also a K code, which means "extra short."

For example, DRS80M indicates a DRS family motor with a frame size of 80 and a "medium" housing length. Similarly, DRN100L indicates a DRN family motor with a frame size of 100 and a "long" housing length. Remember that a given motor frame size may not come in all possible lengths!

Some motors frame sizes have a single housing length but different internal rotor/stator lengths. A modifier code distinguishes these from each other. The code indicates how much longer or shorter the rotor/stator is from the "standard" length.

Modifier codes for shorter rotor/stators include M and S, which are one or two steps shorter, respectively. Modifier codes for longer rotor/stators include L and H, which are one or two steps longer, respectively.

For example, a DRN355MS motor is two steps shorter internally than a DRN355M motor. A DRN355MH motor is two steps longer internally than a DRN355M motor. Externally, however, all three motors are identical.

These codes are the most common ones, but there are others too.

Accessories like brakes and input adapters have sizes too. In most cases, they're just numbers indicating relative size.

Creating Nomenclature

Normally, you'll be decoding nomenclature rather than creating it by hand. However, it's far easier to decode it once you've learned how to create it. For this reason, we'll explore creating nomenclature first.

Let's start with an example gearmotor description:

The gearmotor is made from a size 5, series 7 K-type gearbox. It has a keyed hollow shaft and an IEC B5 flange. It's driven by a DRN family motor with a frame size of 80 and medium length. The motor has four poles and IEC-type feet. It's equipped with a size 2 BE-type brake that includes a hand release. The motor has thermistor protection, an EI8C encoder, and a drain hole plug.



Creating the nomenclature for this gearmotor seems like a formidable task! In reality, however, it's simple, provided you take it step by step. The Training Department has developed the handy *Gearmotor Nomenclature* poster to make the process easier:







To assemble the nomenclature for a gearmotor, start with Field #1. Look over the available codes for that field. If you find one that fits the product description, record it. If nothing fits, treat the field as empty and move on to the next one.

Tip: When you're first learning to create nomenclature, record an underscore ("_") for each empty field. This strategy will help you avoid skipping fields by mistake or losing your place. Feel free to write the field numbers below the codes as well. Eventually, you won't need these strategies.

Once you've worked your way through every field, you're finished. Confirm that you've addressed each item in the product description. If you haven't, go back and check each field's code choices to see where the skipped item fits.

Finally, rewrite the nomenclature, eliminating the underscores. Insert a space between the gearbox and motor sections. If the gearmotor contains a major subunit, such as a mechanical variable speed drive, surround it with spaces too.

Let's see this process in action by turning the gearmotor description into nomenclature:

Field #1: Gearbox type

1 – Gear Type		
R	Helical Inline	
F	Helical Offset	
K	Helical Bevel	
S	Helical Worm	
W	SPIROPLAN®	

Record a **K** since the specified gearbox is a K-type.

Κ

IMPORTANT NOTE

R-type gearboxes also come in a single-stage version called the RX. It's not shown on the poster. As you'd expect, these have the code **RX**.



Field #2: Shaft type

2 – Shaft Type		
-	Solid	
Α	Hollow	
Н	Shrink Disc	
۷	Spline	
Т	TorqLOC [®]	

Record an A since the shaft is hollow.

KA

IMPORTANT NOTE Notice that the code for a solid shaft is – rather than a letter. This means that you should leave the field blank for a solid shaft gearbox.

Field #3: Flange type

3 – Mounting Flange		
F	B5 (Through)	
Z	B14 (Threaded)	
М	Agitator Extension	

Record an **F** since the flange is an IEC B5.

KAF

Field #4: Gearbox size and series

4 – Size		
R	07 - 167	
F	17 - 157	
Κ	19 - 187	
S	37 - 97	
W	10 - 59	

Record a 57 since the gearbox is size 5 and belongs to series 7.

KAF57



Field #5: Gearbox options

5 – Gear Options		
R	Compound Inline Helical Reducer	
/R	Reduced Backlash	
В	Rail Holes (F Unit)	
В	Feet (KA Unit)	
F	Feet + Flange (R Unit)	
Л	Torque Arm	
/G	Torque Arm Bushing	

Nothing applies. The field is empty. Record an underscore.

KAF57_

Field #6: Mechanical variable speed drive

6 – Mechanical Variable Speed		
D	VARIMOT®	
VU	VARIGEAR [®] - U Design	
٧Z	VARIGEAR [®] - Z Design	

Nothing applies. The field is empty. Record an underscore.

KAF57__

Field #7: Input adapter type

7 – Input Adapters		
А	No Input	
AD	Input Shaft	
AMS	Motor Adapter	
AM*	Motor Adapter	
AR	Torque Limiting	
AQS	Servo Adapter	
AQ*	Servo Adapter	
AT	Fluid Coupling	

Nothing applies since most gearmotors directly integrate the motor. The field is empty. Record an underscore. That's all for the gearbox fields. Let's move on to the motor fields!

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Field #8: Motor family, IEC frame size, and length

8 – Motor Type/Size		
DRN	IE3, Premium Efficiency	
EDRN	IE3, Hazardous Location Rated	
DRS	IE1, Standard Efficiency	
DRE*	IE2, High Efficiency	
DRP*	IE3, Premium Efficiency	
63MS - 355ML	IEC Frame Size	

Record **DRN** since the motor is in the DRN family. Add an **80** since it has a frame size of 80. Add an **M** since it's medium length.

KAF57__DRN80M

Field #9: Number of poles (speed)

9 – Synchronous Speed (60 Hz)		
2	3600 RPM	
4	1800 RPM	
6	1200 RPM	
8	900 RPM	
8/2	900 / 3600 RPM	

Record a **4** since the motor has four poles (it will turn at 1,800 rpm on a 60 Hz line).

KAF57__DRN80M4

Field #11: Brake/backstop and associated options

11 – Mechanical Attachments		
/BE	Brake Size - Spring Loaded	
HR	Hand Lever Brake Release	
HF	Metric Screw Brake Release	
/RS	Single Direction Backstop	

IMPORTANT NOTE

When a motor has a brake, Field #11 comes *before* Field #10. This rule does *not* apply to backstops, however.



Record a /**BE** for the brake. Add a **2** since it's a size 2. Add an **HR** for the hand release.

KAF57___DRN80M4/BE2HR

Field #10: Flange/feet type

10 – Flange / Feet Options		
/FI	IEC Feet Mount	
/FG	Integral Motor for 7-Series Gear Unit	
/FF	IEC Flange with Through Bores (B5)	
/FT	IEC Flange with Threads (B14)	
/FL	Special Designed Flange	
/FM	Integral Motor with IEC Feet	
/FE	IEC Flange with Through Bores & IEC Dimensioned Feet	
/FY	IEC Flange with Threads & IEC Dimensioned Feet	
/FK	Special Designed Flange with IEC Feet	
/FC	NEMA Dimensioned C-Face Flange & Shaft	

Record a **/FM** since the motor is directly integrated with the gearbox and has IEC feet.

KAF57___DRN80M4/BE2HR/FM

IMPORTANT NOTE

You don't have to include the **/FG** code when creating the nomenclature for a standard gearmotor. In this example, the **/FM** code was required because the motor needed IEC feet. The **/FG** code is for standalone motors only.

Field #12: Electronic interfaces and motor control

12 – Built-in Motor Control		
/MM03 - 40	MOVIMOT [®]	
	Inverter	
/MO	MOVIMOT [®]	
/IVIO	Options	
/MSW	MOVISWITCH®	

Nothing applies. The field is empty. Record an underscore.

KAF57___DRN80M4/BE2HR/FM_



Field #13: Motor plug connectors

13 – Mo	13 – Motor Plug Connectors			
/IS	Integrated		Connector Replaces Terminal Block & Uses Mating Connector in Cover	
/ISU	Connector		IS = Terminal Block & Mating Connector, ISU = No Mating Connector	
/AFL. /AFQ.	Sine [⊛] Amphenol	$\bigcirc \bigcirc \bigcirc$	Round 4-Pin Plug Connector for Motor Power & 3-Pin Plug for Brake Power /AFL = 7/8" Motor & Brake Connector, /AFQ = $1-3/8$ " Motor & 7/8" Brake Connector	
/ASE.	Harting Han [®]		Cage Clamp Contacts	
/ASB.	10ES		/ASE = Single Latch, /ASB = Double Latch	
/ACE.	Harting Han®		Crimp Contacts	
/ACB.	10E		/ACE = Single Latch, /ACB = Double Latch	
/AME.	Harting Han®		Crimp Contacts (E & E Modules)	
/AMB.	10B		/AME = Single Latch, /AMB = Double Latch	
/ABE.	Harting Han [⊛]		Crimp Contacts (C & E Modules)	
/ABB.	10B		/ABE = Single Latch, /ABB = Double Latch	
/AKE.	Harting Han®		Axial Screw (C Module) & Crimp Contacts (E Module)	
/AKB.	10B		/AKE = Single Latch, /AKB = Double Latch	
/ADE.	Harting Han [®]		Crimp Contacts (C, C, & E Modules)	
/ADB.	10B		/ADE = Single Latch, /ADB = Double Latch	
/AND.	Harting Han [®] Q8/0		Crimp Contacts Single Latch	
/IV.	Customer Specified		Industrial Connectors Customized to Customer's Specification	
/AMA.*	Harting Han [®] Modular		Modular Connector with Varying Configurations	

Nothing applies. The field is empty. Record an underscore.

KAF57___DRN80M4/BE2HR/FM__

IMPORTANT NOTE

These are the most common connector types. SEW sells many others.

Field #14: Thermal protection options

14 – Thermal Protection		
/TF	PTC Thermistor Sensor	
/TH	Bimetallic Switch Thermostat	
/PK	PT1000 Linear Platinum Sensor	
/PT	PT100 Linear Platinum Sensor	
/KY*	KTY Semiconductor Sensor	

Record a /**TF** since the motor includes a thermistor-type protective device.

KAF57__DRN80M4/BE2HR/FM__/TF



Field #15: Encoder type

15 – Encoders		
/E.8S	Incremental Sin/Cos Encoder	
/E.8R	Incremental TTL (RS422) Encoder	
/E.8C	Incremental HTL or TTL Encoder	
/A.8W	Absolute Sin/Cos & RS485 Encoder	
/A.8Y	Absolute Sin/Cos & SSI Encoder	
/A.8H	Absolute Sin/Cos & HIPERFACE [®] Encoder	
/E.8A	AC Motor Supplied with 8-Series Encoder Mounting Adapter but Encoder not Supplied	
/EI8.	Fan Mounted Incremental Encoder with 1024 PPR $R = TTL$ (RS422), $C = HTL$	
/EI7.	Fan Mounted Incremental HTL Encoder with Varying PPR 1 = 1 PPR, 2 = 2 PPR, 6 = 6 PPR, C = 24 PPR	
/E.7A*	AC Motor Assembled with 7-Series Encoder Mounting Adapter but Encoder not Supplied	
/E.7S*	Incremental Sin/Cos Encoder	
/E.7R*	Incremental TTL (RS422) Encoder	
/A.7W*	Absolute Sin/Cos & RS485 Encoder	
/A.7Y*	Absolute Sin/Cos & SSI Encoder	
/XV.A	AC Motor Assembled with Appropriate XV Encoder Adapter Parts but No Encoder Supplied	
/XV.	AC Motor Assembled with Appropriate XV Encoder Adapter Parts & Supplied with Customer Specified Encoder	

Record a /EI8C since the motor includes an EI8C encoder.

KAF57__DRN80M4/BE2HR/FM__/TF/EI8C

Field #16: Ventilation options

16 – Ventilation		
N	Forced Cooling Fan	
/Z	Increased Inertia Flywheel Fan	
/LN	Low Noise Fan Guard	
/C	Fan Guard with Canopy	
/AL	Aluminum Fan	
/U	Totally Enclosed Non-Vented (TENV)	

Nothing applies. The field is empty. Record an underscore.

KAF57__DRN80M4/BE2HR/FM__/TF/EI8C_



Field #17: Condition monitoring type

17 – Condition Monitoring		
/DUO	Oil Age Monitoring	
/DUV	Vibration Sensor	
/DUE	Brake Function & Wear Monitoring	
/DUB*	Brake Monitoring	

Nothing applies. The field is empty. Record an underscore.

KAF57__DRN80M4/BE2HR/FM__/TF/EI8C__

Field #18: Miscellaneous motor options

18 – Motor Options		
/DH	Motor Condensation Drain Hole Plug	
/RI	Reinforced Winding Insulation	
/RI2	Reinforced Insulation with Partial Discharge Resistance	
/2W	Motor Rotor Shaft Extension from B-Side	
/CID2	Hazardous Location Class I, Division 2, Group A/B/C/D (Gas)	
/CIID2	Hazardous Location Class II, Division 2, Group F/G (Dust)	
/CICIID2	Hazardous Location Class I, Division 2, Group A/B/C/D + Class II, Division 2, Group F/G (Gas or Dust)	
/NS	Motor Bearing Lubrication Port	
/ERF	Reinforced A-Side Motor Bearing	
/NIB	Insulated B-Side Motor Bearing	

Record a /**DH** since the motor includes a drain hole plug.

KAF57__DRN80M4/BE2HR/FM__/TF/EI8C__/DH

And that's the last field. Every item from the gearmotor description has a corresponding code. Now, remove all underscores. Place a space between the gearbox and motor sections, which gives the finished nomenclature:

KAF57 DRN80M4/BE2HR/FM/TF/EI8C/DH





Decoding Nomenclature

Now that you've seen how to create nomenclature, decoding it will make more sense. The procedure is similar. You work your way through the nomenclature from left to right, identifying codes based on the field order.

On the other hand, decoding nomenclature can be tricky because it's not always obvious where fields begin and end. Also, it can be difficult to know if a field is empty since nomenclature doesn't show empty fields. With experience, you'll find this process becoming easier.

To decode the nomenclature for a gearmotor, start with Field #1. Look over the available codes for that field. If you find one that's present in the nomenclature, record what it represents. If nothing fits, assume that the field is empty and move on to the next one.

Tip: When you're first learning to decode nomenclature, underline each code after you identify it. This strategy will help you avoid skipping codes or losing your place. Feel free to write the field numbers below the codes as well.

Once you've worked your way through every field, you're finished. Confirm that you've addressed each code in the nomenclature. If you haven't, go back and work your way through the nomenclature again. It's possible that you misinterpreted a code or assumed it was part of another field.

Let's start with a gearmotor nomenclature example:

RF77 DRN90L4/BE5/TH/EK8S/C

Field #1: Gearbox type

1 – Gear Type	
R	Helical Inline
F	Helical Offset
K	Helical Bevel
S	Helical Worm
W	SPIROPLAN®

This is an R-type gearbox (**R**).



Field #2: Shaft type

2 – Shaft Type	
-	Solid
А	Hollow
Н	Shrink Disc
۷	Spline
Т	TorqLOC [®]

No code matches, but we know that *all* gearboxes have shafts. Since solid shafts have no letter code (–), we can assume that this gearbox has a solid shaft.

IMPORTANT NOTE

Because of their design, R gearboxes *always* have solid shafts. They will therefore *never* have a shaft type code in their nomenclature. This rule doesn't apply to any other Core Product gearbox type.

RF77 DRN90L4/BE5/TH/EK8S/C

Field #3: Flange type

3 – Mounting Flange		
F	B5 (Through)	
Z	B14 (Threaded)	
М	Agitator Extension	

The gearbox has an IEC B5 flange (F).

RF77 DRN90L4/BE5/TH/EK8S/C

Field #4: Gearbox size and series

4 – Size	
R	07 - 167
F	17 - 157
Κ	19 - 187
S	37 - 97
W	10 - 59

The gearbox is size 7 and belongs to series 7 (77).



Since the nomenclature contains a space, you've come to the end of a major subassembly. The next item is either a mechanical variable speed drive or a motor. With experience, you'll come to recognize that "DRN" is a motor family identifier code. You would then skip directly to Field #8, the first motor field.

At this stage, however, you shouldn't do that. Instead, keep working your way through the gearbox fields. Also, never forget that some nomenclature examples might not include spaces, so this strategy is wise to ensure that you evaluate all codes correctly.

5 – Gear Options		
R Compound Inline Helical Reducer		
/R	Reduced Backlash	
В	Rail Holes (F Unit)	
В	Feet (KA Unit)	
F	Feet + Flange (R Unit)	
/Т	Torque Arm	
/G	Torque Arm Bushing	

Field #5: Gearbox options

Nothing applies.

RF77 DRN90L4/BE5/TH/EK8S/C

Field #6: Mechanical variable speed drive

6 – Mechanical Variable Speed		
D	VARIMOT®	
VU	VARIGEAR [®] - U Design	
VZ	VARIGEAR® - Z Design	

You might be tempted to assume that the **D** indicates a VARIMOT[®]. But they always have a numeric size code after the **D**. Therefore, nothing in this field applies.



Field #7: Input adapter type

7 – Input Adapters		
А	No Input	
AD	Input Shaft	
AMS	Motor Adapter	
AM*	Motor Adapter	
AR	Torque Limiting	
AQS	Servo Adapter	
AQ*	Servo Adapter	
AT	Fluid Coupling	

Nothing applies since most gearmotors have directly integrated motors. That's all for the gearbox. On to the motor!

RF77 DRN90L4/BE5/TH/EK8S/C

Field #8: Motor family, IEC frame size, and length

8 – Motor Type/Size		
DRN	IE3, Premium Efficiency	
EDRN	IE3, Hazardous Location Rated	
DRS	IE1, Standard Efficiency	
DRE*	IE2, High Efficiency	
DRP*	IE3, Premium Efficiency	
63MS - 355ML	IEC Frame Size	

The motor belongs to the DRN family (**DRN**). Its frame size is 90 (90) and its length is "long" (L).



Field #9: Number of poles (speed)

9 – Synchronous Speed (60 Hz)		
2	3600 RPM	
4	1800 RPM	
6	1200 RPM	
8	900 RPM	
8/2	900 / 3600 RPM	

The motor has four poles (4), so it will turn at 1,800 rpm on a 60 Hz line.

RF77 DRN90L4/BE5/TH/EK8S/C

At this point, you must look at the codes for *both* Field #10 and Field #11. If the motor has a brake (Field #11), its code will come *before* Field #10 codes. If it doesn't, Field #10 codes will come first.

Field #10: Flange/feet type

Field #11: Brake/backstop and associated options

10 -	10 – Flange / Feet Options			
/FI	IEC Feet Mount			
/FG	Integral Motor for 7-Series Gear Unit			
/FF	IEC Flange with Through Bores (B5)			
/FT	IEC Flange with Threads (B14)			
/FL	Special Designed Flange			
/FM	Integral Motor with IEC Feet			
/FF	IEC Flange with Through Bores & IEC		11 –	Mechanical Attachments
	Dimensioned Feet		/BE	Brake Size - Spring Loaded
/FY	EC Flange with Threads & IEC Dimensioned Feet		HR	Hand Lever Brake Release
/FK	Special Designed Flange with IEC Feet		HF	Metric Screw Brake Release
/FC	NEMA Dimensioned C-Face Flange & Shaft		/RS	Single Direction Backstop

The motor has a size 5 BE-type brake (/**BE5**). Nothing from Field #10 applies.



Field #12: Electronic interfaces and motor control

12 – Built-in Motor Control		
/MM03 - 40	MOVIMOT [®]	
	Inverter	
/M0	MOVIMOT [®]	
	Options	
/MSW	MOVISWITCH®	

Nothing applies.

RF77 DRN90L4/BE5/TH/EK8S/C

Field #13: Motor plug connectors

13 – Motor Plug Connectors			
/IS /ISU	Integrated Connector		Connector Replaces Terminal Block & Uses Mating Connector in Cover IS = Terminal Block & Mating Connector, ISU = No Mating Connector
/AFL. /AFQ.	Sine ³ Amphenol		Round 4-Pin Plug Connector for Motor Power & 3-Pin Plug for Brake Power /AFL = 7/8" Motor & Brake Connector, /AFQ = 1-3/8" Motor & 7/8" Brake Connector
/ASE.	Harting Han®		Cage Clamp Contacts
/ASB.	10ES		/ASE = Single Latch, /ASB = Double Latch
/ACE.	Harting Han®		Crimp Contacts
/ACB.	10E		/ACE = Single Latch, /ACB = Double Latch
/AME.	Harting Han®		Crimp Contacts (E & E Modules)
/AMB.	10B		/AME = Single Latch, /AMB = Double Latch
/ABE.	Harting Han [®]		Crimp Contacts (C & E Modules)
/ABB.	10B		/ABE = Single Latch, /ABB = Double Latch
/AKE.	Harting Han®		Axial Screw (C Module) & Crimp Contacts (E Module)
/AKB.	10B		/AKE = Single Latch, /AKB = Double Latch
/ADE.	Harting Han [®]	•	Crimp Contacts (C, C, & E Modules)
/ADB.	10B		/ADE = Single Latch, /ADB = Double Latch
/AND.	Harting Han [®] Q8/0		Crimp Contacts Single Latch
/IV.	Customer Specified		Industrial Connectors Customized to Customer's Specification
/AMA.*	Harting Han [®] Modular		Modular Connector with Varying Configurations

Nothing applies.



Field #14: Thermal protection options

14 – Thermal Protection			
/TF	/TF PTC Thermistor Sensor		
/TH	Bimetallic Switch Thermostat		
/PK	PT1000 Linear Platinum Sensor		
/PT PT100 Linear Platinum Sensor			
/KY*	KTY Semiconductor Sensor		

The motor has a thermostat (/**TH**).

RF77 DRN90L4/BE5/TH/EK8S/C

Field #15: Encoder type

15 – Encoders		
/E.8S	Incremental Sin/Cos Encoder	
/E.8R	Incremental TTL (RS422) Encoder	
/E.8C	Incremental HTL or TTL Encoder	
/A.8W	Absolute Sin/Cos & RS485 Encoder	
/A.8Y	Absolute Sin/Cos & SSI Encoder	
/A.8H	Absolute Sin/Cos & HIPERFACE [®] Encoder	
/E.8A	AC Motor Supplied with 8-Series Encoder Mounting Adapter but Encoder not Supplied	
/EI8.	Fan Mounted Incremental Encoder with 1024 PPR $R = TTL$ (RS422), $C = HTL$	
/EI7.	Fan Mounted Incremental HTL Encoder with Varying PPR 1 = 1 PPR, 2 = 2 PPR, 6 = 6 PPR, C = 24 PPR	
/E.7A*	AC Motor Assembled with 7-Series Encoder Mounting Adapter but Encoder not Supplied	
/E.7S*	Incremental Sin/Cos Encoder	
/E.7R*	Incremental TTL (RS422) Encoder	
/A.7W*	Absolute Sin/Cos & RS485 Encoder	
/A.7Y*	Absolute Sin/Cos & SSI Encoder	
/XV.A	AC Motor Assembled with Appropriate XV Encoder Adapter Parts but No Encoder Supplied	
/XV.	AC Motor Assembled with Appropriate XV Encoder Adapter Parts & Supplied with Customer Specified Encoder	

The motor has an EK8S encoder (/EK8S).



IMPORTANT NOTE

Notice that most encoder choices have a "." after the initial /E or /A. This indicates that there can be several different codes in this position. Eventually, you'll learn what these are and what they signify. In the meantime, simply recognize that the /EK8S code identifies an encoder.

Field #16: Ventilation options

16 – Ventilation			
N	Forced Cooling Fan		
/Z	Increased Inertia Flywheel Fan		
/LN	Low Noise Fan Guard		
/C	Fan Guard with Canopy		
/AL	Aluminum Fan		
/U	Totally Enclosed Non-Vented (TENV)		

The motor has a fan guard with a canopy (/C).

RF77 DRN90L4/BE5/TH/EK8S/C

You've underlined each code, so you've successfully identified all the gearmotor's features. You can stop. The complete gearmotor description is as follows:

The gearmotor is made from a size 7, series 7 R-type gearbox. It has a keyed solid shaft and an IEC B5 flange. It's driven by a DRN family motor with a frame size of 90 and a long length. The motor has four poles. It's equipped with a size 5 BE-type brake. The motor also has thermostat protection, an EK8S encoder, and a fan guard with a canopy.

Helpful Things to Know

As you worked your way through these two examples, you probably felt a bit frustrated because there were several things that you just "had to know." These included cases where a feature didn't have a code (solid shafts), fields that could be reversed (#10 and #11), products whose size codes weren't shown on the poster (mechanical variable speed drives), and products with several possibilities embedded within the code (encoders).

You're probably thinking, "This isn't fair! How could I possibly know this?" That's a valid point! It's not fair, and it's certainly not simple.



Unfortunately, that's just life at SEW. The company has been around for a long time and its products have had a long and complex history. It's not surprising that their nomenclatures can be inconsistent, unclear, or confusing.

There's no easy solution to these problems either. You'll just have to learn the exceptions, become familiar with the different products, and find the right places to look for the answers you need.

Your mentor and coworkers can be a great help. So can the product line's catalog. This guide will go a long way toward getting you off to a good start. Unfortunately, it can't explain every possible feature or detail. It would be hundreds of pages long if it did! This section summarizes some of the most common trouble spots.

Let's go through them field by field.

Field #1: Gearbox type

As you've already learned, R-type gearboxes come in two varieties— R and RX. The regular R begins with the code \mathbf{R} . The RX begins with the code \mathbf{RX} .

There's also an RM variety. It has a special shaft bearing for agitator applications. Unlike the R and RX gearboxes, its code (**RM**) *isn't* a single code. It's actually the three codes from Field #1–Field #3. Field #1 contains an **R**. Field #2 is blank because all R gearboxes have solid shafts (–). And Field #3 contains an **M** for the agitator extension bearing.

Field #2: Shaft type

Don't forget that solid shafts have no code. The – indicates this fact. Only R gearboxes *always* have solid shafts. All other Core Product gearboxes can come with one of several possible shaft styles.

Field #3: Flange type

This mostly straightforward field has one trap for R-type gearboxes. If the gearbox has an IEC B5 flange, its codes are \mathbf{R} , –, \mathbf{F} , and the size/series number. A typical example is **RF47**.

On the other hand, if the unit has an IEC B5 flange *plus* feet, a different rule applies. Its codes are \mathbf{R} , –, and the size/series number, followed by code \mathbf{F} in Field #5. A typical example is **R77F**, not **RF77F** as you might expect.



Field #5: Gearbox options

This field contains several additional traps for the unwary. First, be aware that some options in this field apply only to certain gearbox families. For example, the **F** code (feet + flange) applies only to R-type gearboxes. The /**G** code (torque arm bushings) applies only to F-type gearboxes.

On the other hand, the **B** code can mean two different things, depending on the gearbox type. With an F-type gearbox, it indicates that the unit has tapped rail holes added. With a K-type gearbox, it indicates that the gearbox includes feet.

The / \mathbf{R} code indicates that the gearbox contains special gears with less backlash than normal gears. But an \mathbf{R} code *without* a slash means something totally different—the gearbox has a secondary gearbox attached to its input side.

A secondary gearbox is always an R-type gearbox. It bolts directly onto the input side of the main gearbox. It significantly increases the overall gear ratio.



A secondary gearbox has a numeric size/series code after the **R**. For example, an **R67** code indicates that the secondary gearbox is an R-type gearbox that's size 6 and belongs to series 7.



Field #6: Mechanical variable speed drive

A mechanical variable speed drive is like a secondary gearbox with an adjustable ratio. A handwheel changes the ratio.

SEW offered two variable speed drives for many years—the VARIMOT[®] and the VARIGEAR[®]. The VARIGEAR[®] is mostly discontinued, while the VARIMOT[®] is only sold occasionally, mostly to customers who prefer controlling their application's speed mechanically rather than electronically.



All variable speed drive codes include a numeric code identifying the variable speed drive's size. For example, a VARIMOT[®] might have a code of **D26**.

Field #7: Input adapter type

Input adapters are found on standalone gearboxes or gearboxes sold with a non-integrated motor. They come in several styles and have a variety of options available. Many input adapter codes include numeric size codes or other options separated by slashes. For example, an **AMS63** motor adapter links an IEC-type motor to the gearbox.

There are far too many sizes and codes to include in this guide. Consult the Core Product catalogs to find all the possible choices.





Field #10: Flange/feet type Field #11: Brake/backstop and associated options

These fields are relatively uncomplicated except when the motor includes a brake (code /BE). In these cases, Field #11 comes before Field #10. If the motor includes a backstop rather than a brake (code /RS), the fields are in the normal order. Brakes always include a numeric size code, followed by an optional brake release mechanism code. For example, /BE2HR is a size 2 BE-type brake equipped with a hand release.

Field #12: Electronic interfaces and motor control

While SEW has a large electronics portfolio, only two products— MOVIMOT[®] and MOVI-SWITCH[®]—appear in Core Product nomenclature. The MOVIMOT[®] is a variable-frequency drive (VFD), which electronically controls the motor's speed. The MOVI-SWITCH[®] is an electronic switch that simply starts and stops the motor.

An attached MOVIMOT[®]'s code begins with /**MM** and ends with a numeric size code roughly equivalent to the unit's power rating in kilowatts (kW). For example, a /**MM22** code identifies a 2.2 kW MOVIMOT[®].

While a MOVIMOT[®] may come with many different options, these aren't identified by the nomenclature. Instead, a simple /**MO** code indicates that one or more options is present.

Both MOVIMOT[®] and MOVI-SWITCH[®] may also come with connectors. If so, their connector nomenclature will follow the /**MM** and /**MO** codes. Most connector codes begin with /**A**, such as /**AVSK**. See the appropriate catalog for more information.

This category also includes electronic motor interfaces, such as MOVILINK[®] DDI, which is available for some motors.

Field #13: Motor plug connectors

SEW offers a very large number of connector choices for its motors. The ones shown on the poster are the most popular ones. Most include a numeric code at the end identifying the connector's wiring diagram. A typical example is /**ASE8**.



There are far too many connectors and configurations to include in this guide. SEW publishes an exhaustive document covering most of its cables and connectors. Consult it for more information.



Field #15: Encoder type

Encoders provide electronic feedback that tells a motor controller how fast the motor is turning or the rotational position of the motor's shaft. They come in many types and styles.

Some offer several different ways of attaching to the motor shaft. Others are built directly into the motor. Several have different communication options (interfaces) for connecting to the motor controller.

Usually, a five-character code identifies an encoder. If a particular type comes in multiple versions, the poster will show a "." within the code. This indicates that one of several single-character codes can occupy that position.

For example, the **/E.8S** code has several shaft attachment choices. A single letter code in the third position identifies it. For example, a **K** specifies an encoder with a cone shaft attachment method (**/EK8S**).

Using the Nomenclature Modules and the Catalogs

This guide's final section contains modules summarizing the most common Core Product types, features, and options. It briefly identifies and explains them, as well as lists their associated codes. Use these modules to become familiar with the many pieces that can make up a Core Product. Study the pictures and drawings too, so you'll know what the different products and features look like.



Ultimately, however, you'll need to get comfortable reading SEW's product line catalogs. These contain the most complete feature and code lists. Begin with the most recent versions of the Gear Units, AC Motors, and Gearmotors catalogs:





While the catalogs are huge documents, the first 50–60 pages of each contain some of the most useful information. Skim the catalogs to get oriented and then look for specific details as required.


For example, tables like these summarize each gearbox type:

Helical gear units

Designation	Description
RX	Single-stage foot-mounted design, output shaft with key
RXF	Single-stage B5 flange-mounted design, output shaft with key
R	Foot-mounted design, output shaft with key
RF	Foot- and B5 flange-mounted design, output shaft with key
RF	B5 flange-mounted design, output shaft with key
RZ	B14 flange-mounted design, output shaft with key
RM	B5 flange-mounted design with extended bearing hub, output shaft with key

Essentially, what you're seeing is every valid combination of the first four (or five) fields that make up the gearbox's basic nomenclature. The ".." represents the size/series code that goes in Field #4. As you know, this can be a two- or three-digit number.

The catalogs also provides the same information in pictorial form:

Helical gearmotors					
The following designs of helical gearmotors are available:					
	Ð	RXDRN Single-stage, helical gearmotor in foot-mounted design			
	õ	RXFDRN Single-stage helical gearmotor in B5 flange-mounted design			
		RDRN Helical gearmotor in foot-mounted design			
		RF DRN Helical gearmotor in foot-mounted and 85 flange- mounted design			
		RFDRN Helical gearmotor in B5 flange-mounted design			
	(Q)	RZDRN Helical gearmotor in B14 flange-mounted design			
		RMDRN Helical gearmotor in B5 flange-mounted design with extended bearing hub			

Study these pages so you'll develop a sense of what's *possible*.



The catalogs list every option and feature, along with their associated codes. It summarizes these in tables, such as this one:

Options

R.	F.	and	K7	dear	units
•••	• •	anna		900	Girmeo

Designation	Description
/R	Reduced backlash

K, S and W gear units:

Designation	Description
/T	With torque arm

F gear units:

Designation	Description
/G	With rubber buffer

Notice that the tables specify the products to which the options apply. For example, the $/\mathbf{R}$ code, which signifies gears with lower backlash, applies only to R, F, and series 7 K gearboxes.

Some tables include a **Size** column, which identifies a product or option's size range:

Code in the type designation	Description	Size
/FI	IEC foot-mounted motor	63MS – 315
/F.A, /F.B	Universal foot-mounted motor	71MS – 132S
/F.A, /F.B	(/F.A = motor feet enclosed in delivery, /F.B = motor feet mounted at the factory)	225 – 315
/FIA	Motor feet included loose	225 – 315
/FIB	Motor feet installed at the factory	225 – 315
/FF	IEC flange-mounted motor with through bores	63 – 315
/FE	IEC flange-mounted motor with through bores and IEC feet	63 – 315
/FT	IEC flange-mounted motor with threads	63 – 100
/FY	IEC flange-mounted motor with thread and IEC feet	63 – 100
/FC	C-face flange-mounted motor, dimensions in inches	63 – 160
/FG	Integral motor, as stand-alone motor	56 – 315
/FM	Integral motor with IEC feet	63 – 315
/FL	Flange-mounted motor (deviating from IEC)	63 – 315
/FK	Flange-mounted motor (deviating from IEC) with feet	63 – 280

3.2.2 Motor design

For example, this table indicates that the NEMA C-face flange option is possible with motors between IEC frame sizes 63 and 160.



The catalogs contain detailed sections covering more complex options like gearbox input adapters. These come in many sizes, so charts like this one are especially helpful for knowing which sizes work with different gearboxes:

Gear unit type	Adapter type		
	AMS63 ²⁾		
R07, R17	AMS71 ²⁾		
vv19	AMS80 ²⁾		
R27, R37	AMS63		
F27, F37, F47	AMS71 ³⁾		
K19, K29, K37 S 37 S 47 S 57	AMS80 ²⁾³⁾		
S37p, S47p, S57p W29, W39	AMS90 ²⁾³⁾		

If options have their own option codes, the catalog explains them:

Motor mounting platform AD.. /P

The following figure depicts a helical gear unit with input shaft assembly and motor platform AD../P:



9007220685996683

Belt drives are available with an adjustable motor platform for space-saving installation. The motor platform is arranged parallel to the drive shaft and has tapped holes for IEC standard motors (also available without tapped holes on request). The distance from the input shaft can be adjusted using threaded columns.

For example, the AD keyed solid shaft input adapter can have an optional motor platform. The /P code indicates that it's present (AD4/P). The catalog also provides size codes and lists the correct input adapter sizes for a given gearbox size.



For motors, the catalogs provide data on brakes. Charts like this one list brake sizes and the motors that work with each:

		Motors									
Brake	DRN63	DRN71	DRN80	DRN90	DRN100	DRN112 DRN132S	DRN132M DRN132L	DRN160 DRN180	DRN200 DRN225	DRN250 DRN280	DRN315
BE03											
BE05											
BE1											
BE2											
BE5											
BE11											
BE20											
BE30											
BE32											
BE60 ¹⁾											
BE62 ¹⁾											
BE120 ¹⁾											
BE122 ¹⁾											

1) Not available as BE.. safety brake.

For encoders, the catalog explains each code position:

1st character: Encoder design

Identifica- tion	Description
E	Incremental encoder
Α	Multi-tum absolute encoder
х	Special encoder

2nd character: Mechanical interfaces with the motor

Identifica- tion	Description
S	Spread shaft (shaft centered)
G	Plug-in shaft (shaft centered)
V	Solid shaft with coupling (flange centered)
н	Hollow shaft (shaft centered)
К	Cone shaft (shaft centered)
I	Built-in encoder, integrated in the motor without adding extra length

3rd character: Code to identify the geometry of the encoder/encoder mounting adapter

Identifica- tion	Description
7	Standard geometry of the motor
8	Standard geometry of the motor, new generation encoder
1-6	Various geometric variants
0	Special designs

4th character: Electrical interface of the encoder

Identifica- tion	Description
S	sin/cos
R	TTL (RS422) typically with $U_B = 9 - 30 V$
Т	TTL (RS422) for $V_B = 5 V$
С	HTL
W	sin/cos + RS485 (multi-turn)
Н	sin/cos + RS485 HIPERFACE® (multi-tum)
Y	sin/cos or TTL(RS422) + SSI (multi-turn)
A	Design of the mounting adapter (see chapter "Encoder mounting adapter" (\rightarrow \boxplus 377))
1-6	Signal periods per revolution



The more familiar you become with the catalogs, the easier it will be for you to answer your own questions about product types, options, sizes, fields, and codes.

Using the Configurator

Another way to become more familiar with Core Products, their features and options, as well as their nomenclature, is to use the standalone Configurator (SAP/SCE). With this program, you can create a complete product from option lists and then view its nomenclature.

The advantage to using the Configurator as a learning tool is that it will only assemble compatible products and options. If you can successfully complete a configuration, you can be confident that the nomenclature represents a real product that a customer could order.

The Training Department offers materials to help you learn the Configurator. Even if it won't be a regular part of your job duties, it's still a great learning tool.

Where to Go From Here

Spend some time looking over the *Nomenclature Modules* section. Skim through the Core Product catalogs. Then, move on to the next section, which contains nomenclature practice problems. Work through each, doing your best to answer the questions.

Check your work using the answer key. The key includes explanations for less-than-obvious answers. Confirm that you understand each answer and the reasons behind your mistakes.

Keep this guide handy. While it's less complete than the catalogs, it's a useful tool for reviewing the big ideas behind Core Product nomenclature. If you work with nomenclature only occasionally, go back to this guide when you need a refresher.

The Training Department wishes you well in your journey to understand SEW's complex, occasionally quirky, and extremely useful product nomenclature!



Practice Problems and Answers

Examine each of the following gearbox, motor, or gearmotor nomenclatures. Write out a complete feature list. Include sizes and other applicable information.

Once you're finished, check your answer against the answer key. Try to understand your mistakes, especially where exceptions are involved. If necessary, ask your mentor or coworkers for help.

Problem 1

KT67/T DRN90L4/BE2HF/TH/AL

Problem 2

R67FAMS80

Problem 3

DR2S71M4/FE/MM05/TH/C

Problem 4

FT97R57/G DRN80M4/BE1HF/TF/EI8C/DH

Problem 5

WHF39AD2/P

Problem 6

DRN100L4/BE5HR/FC/ASB8/ES7S/Z/DUE

Problem 7

RX87 DRN112M4/TF/V

Problem 8

SA37/T DRN71M4/BE1/MM03/MO/TH



Answer 1

KT67/T DRN90L4/BE2HF/TH/AL

- 1. K-type (helical/bevel) gearbox
- 2. TorqLOC[®] hollow shaft
- 4. size 6, series 7
- 5. torque arm
- 8. DRN motor family, frame size 90, "long" length
- 9. 4 poles (1,800 rpm on a 60 Hz line)
- 11. BE-type brake, size 2, with screw release
- 14. thermostat
- 16. aluminum fan

Answer 2

R67FAMS80

- 1. R-type (helical) gearbox
- 2. keyed solid shaft
- 4. size 6, series 7
- 5. feet + IEC B5 flange
- 6. AMS-type adapter for an IEC 80 frame motor

IMPORTANT NOTE

This example illustrates an exception found with R-type gearboxes. When they have feet and an IEC B5 flange, they have an **F** code *after* the size/series code rather than before it.

Answer 3

DR2S71M4/FE/MM05/TH/C

- 8. DR2S motor family, frame size 71, "medium" length
- 9. 4 poles (1,800 rpm on a 60 Hz line)
- 10. IEC B5 flange and IEC feet
- 12. MOVIMOT[®] size 05 (0.5 kW)
- 14. thermostat
- 16. fan guard with canopy



Answer 4

FT97R57/G DRN80M4/BE1HF/TF/EI8C/DH

- 1. F-type (helical) gearbox
- 2. TorqLOC[®] hollow shaft
- 4. size 9, series 7
- 5. R57 secondary gearbox
- 5. rubber torque arm bushings
- 8. DRN motor family, frame size 80, "medium" length
- 9. 4 poles (1,800 rpm on a 60 Hz line)
- 11. BE-type brake, size 1, with screw release
- 14. thermistor
- 15. EI8C built-in encoder (HTL interface)
- 18. drain hole plug

Answer 5

WHF39AD2/P

- 1. W-type (SPIROPLAN[®]) gearbox
- 2. keyed hollow shaft
- 3. IEC B5 flange
- 4. size 3, series 9
- 7. AD-type keyed solid shaft input adapter, size 2, with motor platform

Answer 6

DRN100L4/BE5HR/FC/ASB8/ES7S/Z/DUE

- 8. DRN motor family, frame size 100, "long" length
- 9. 4 poles (1,800 rpm on a 60 Hz line)
- 11. BE brake, size 5 with hand release
- 10. NEMA C-face flange and IEC feet
- 13. Harting Han[®] 10ES connector with double latch and a type 8 wiring diagram
- 15. ES7S add-on encoder (spread shaft and Sin/Cos interface)
- 16. increased inertia fan
- 17. brake function and wear monitor

IMPORTANT NOTE

This example illustrates a common exception. When the motor has a brake, its code comes *before* the flange rather than after it.



Answer 7

RX87 DRN112M4/TF/V

- 1. RX-type (single-stage helical) gearbox
- 2. keyed solid shaft
- 4. size 8, series 7
- 8. DRN motor family, frame size 112, "medium" length
- 9. 4 poles (1,800 rpm on a 60 Hz line)
- 14. thermistor
- 16. forced cooling fan

Answer 8

SA37/T DRN71M4/BE1/MM03/MO/TH

- 1. S-type (helical/worm) gearbox
- 2. keyed hollow shaft
- 4. size 3, series 7
- 5. torque arm
- 8. DRN motor family, frame size 71, "medium" length
- 9. 4 poles (1,800 rpm on a 60 Hz line)
- 11. BE-type brake, size 1
- 12. MOVIMOT[®] size 03 (0.3 kW) with options
- 14. thermostat



Nomenclature Modules

This section arranges its modules in a similar order to the fields in a complete gearmotor nomenclature:

- 1, 4 Gearbox type + Size/series
- 2 Shaft type
- **3** Flange type
- 5 Gearbox options
- 6 Mechanical variable speed drive
- 7 Input adapter type
- **8**, 9 Motor family, IEC frame size, and length + Number of poles (speed)
- **10** Flange/feet type
- **11** Brake/backstop and associated options
- 12 Electronic interfaces and motor control
- 13 Motor plug connectors
- 14 Thermal protection options
- 15 Encoder type
- **16** Ventilation options
- 17 Condition monitoring type
- **18** Miscellaneous motor options

This section generally follows the order and format of the Gearmotor Nomenclature poster introduced on page 12. At the same time, the modules include several codes that don't appear on the poster. Some of these codes may identify recently introduced products, features, or options. Other codes simply didn't fit into the poster's available space and were omitted during its creation.

For these reasons, view the poster and this section's modules as complementary rather than identical. Also be aware that the Training Department will periodically update both the poster and this guide.

When the Training Department issues updated pages, print them and insert them into the binder, discarding the replaced pages. Doing this keeps the guide current and accurate.

If you discover any errors or feel that we could improve a particular section, please email the Training Department (training@seweurodrive.com). We always appreciate your feedback!

Finally, please remember that this guide is a training tool and not an authoritative resource. The SEW product line catalogs and SAP/SCE have the final say on SEW's products and their associated nomenclature. When in doubt, always consult them.



1, 4 – Gearbox Type + Size/Series



Sizes:	Notes:		
27, 37, 47, 57,	 the only gearbox available with the rail hole option (B) 		
67, 77, 87, 97,	2. the only gearbox available with the torque arm bushings option (/G)		
107, 127, 157			



1, 4 – Gearbox Type + Size/Series



Sizes:	Notes:	
37, 47, 57, 67,	none	
77, 87, 97		



1, 4 – Gearbox Type + Size/Series

W	right-angle gearbox made from SPIROPLAN [®] gears (1–3 stages)	
Sizes:	Notes:	
10, 20, 30	1. series 0, series 7, and series 9 models available	
37, 47 19, 29, 39, 49	 series o models are sold only as complete gearmotors series 7 gearboxes/gearmotors are being phased out 	



2 – Shaft Type

_	keyed solid shaft
Available for: R. RX. F. K. S. W	







2 – Shaft Type





3 – Flange Type









5 – Gearbox Options

R	secondary R-type gearbox
	Available for: R, F, K, S







5 – Gearbox Options









5 – Gearbox Options





6 – Mechanical Variable Speed Drive



VU	VARIGEAR [®] V-belt variable speed drive (U version)
Sizes:	Notes:
01, 11, 21, 31,	 product is mostly discontinued
41, 51, 6	2. product has options that appear in the nomenclature (see catalog)

VZ	VARIGEAR [®] V-belt variable speed drive (Z version)		
Sizes:	Notes:		
01, 11, 21, 31,	1. product is mostly discontinued		
41	2. product has options that appear in the nomenclature (see catalog)		



7 – Input Adapter Type (standalone gearboxes mostly)





3. /ZR option adds a centering s	shoulder
----------------------------------	----------

AMS.	motor adapter			
Available for:	Notes:			
R, RX, F, K, S, W (series 7 and series 9 only)	1. available for IEC and NEMA motors			
	2. see the catalog for size choices			
	3. /RS option adds a backstop			
	4. /DH option adds drain holes			



7 – Input Adapter Type (standalone gearboxes mostly)



Available for: R, RX, F, K, S, W (series	7 and series 9 only)	Note 4. 5.	es: see the catalog for size choices A option is for keyed motor shafts H option is for smooth motor shafts
		0.	

AQ	servomotor adapter		
	the predecessor to the AQS, now being phased out		



7 – Input Adapter Type (standalone gearboxes mostly)

AT	fluid	coupling motor adapter
Available for:		Notes:
R, RX, F, K (series 7	′ only), S	 see the catalog for size choices
		/RS option adds a backstop



8, 9 – Motor Family, IEC Frame Size, and Length + Number of Poles (speed)

DRN	IE3 (premium efficiency) asynchronous motor	
Sizes:	Notes:	
63MS to 355ML	1. available in 2, 4, 6, and 8 pole versions	
	2. not all sizes and pole combinations are available	
DR2S	IE1 (standard efficiency) asynchronous motor	
	and the second se	

Sizes:	Notes:		
56M to 225S	1. restrictions apply depending on the application and relevant laws		
	2. available in 2, 4, 6, 8/2, and 8/4 pole versions		
	not all sizes and pole combinations are available		
	will eventually replace the DRS series		

DRS	IE1 (standard efficiency) asynchronous motor	
SELV.		
Sizes:	Notes:	
71S to 225M	1. restrictions apply depending on the application and relevant laws	
	2. available in 2, 4, 6, 8/2, and 8/4 pole versions	
	not all sizes and pole combinations are available	
	will eventually be replaced by the DR2S series	



8, 9 – Motor Family, IEC Frame Size, and Length + Number of Poles (speed)

DRU	IE4 (super premium efficiency) asynchronous motor
Sizes:	Notes:
71SJ to 355ML	1. available in 4 pole version
	some models are line start permanent magnet (LSPM)



10 – Flange/Feet Type (standalone motors mostly)





10 – Flange/Feet Type (standalone motors mostly)



special flange and IEC feet





11 – Brake/Backstop and Associated Options

/BE	BE-type brake for asynchronous motors	
hand release	screw release	
Sizes:	Notes:	
03, 05, 1, 2, 5,	1. two- and three-digit sizes ending in 2 contain a double brake disc	
11, 20, 30, 32,	the nomenclature doesn't document the brake torque (springs)	
60, 62, 120, 122	see the catalog for compatible motor/brake combinations	
	HR option adds a hand release	
	5. HF option adds a screw release	
/RS	backstop for asynchronous motors	

/RS	backstop for asynchronous motors	


12 – Electronic Interfaces and Motor Control

/MM	MOVIMOT [®] variable frequency drive
0	
Sizes: 03, 05, 07, 11,	Notes: 1. /MO option indicates that unspecified accessories are present
15, 22, 30, 40	2. connectors add extra nomenciature (see catalog)
/MSW	MOVI-SWITCH [®] electronic motor switch
Models: 1E, 2S (binary), 2S (AS-i)	 Notes: 1. 1E model is unidirectional, while 2S models are bidirectional 2. no code indicates the 1E binary model 3. /CB0 code indicates the 2S binary model 4. /CK0 code indicates the 2S AS-i model 5. connectors add extra nomenclature (see catalog)
	MOVILINK [®] DDI (digital motor interface)
DDI inte in condu	erface
unless a motor-m	Note : ounted MOVI-C [®] decentralized controller is included, the /KD1 connector option must also be added



13 – Motor Plug Connectors

HARTING Han [®] 10ES and 10E connectors
 Votes: /ASE option has one latch and cage clamps /ASB option has two latches and cage clamps /ACE option has one latch and crimp pins /ACB option has two latches and crimp pins the final digit identifies the wiring diagram
HARTING Han Modular [®] 10B connectors with one C and one E module
otes: 1. /ABE option has one latch and crimp pins
otes: 1. /ABE option has one latch and crimp pins 2. /ABB option has two latches and crimp pins 3. /AKE option has one latch and screws/orimp pins



13 – Motor Plug Connectors

/ADE. /ADB.	HARTING Han Modular [®] 10B connectors with two C modules and one E module
	Notes:
	1. /ADE option has one latch and crimp pins
	 ADB option has two latenes and crimp pins the final digit identifies the wiring diagram

/AME. /AMB.	HARTING Han Modular [®] 10B connectors with two E modules
	Notes:
	1. /AME option has one latch and crimp pins
	2. /AMB option has two latches and crimp pins
	3. the final digit identifies the wiring diagram

/AND.	HARTING Han [®] Q8/0 connector
	$ \begin{array}{c} $
	Notes:
	 option has one latch and crimp pins
	2. the final digit identifies the wiring diagram



13 – Motor Plug Connectors

/AFL. /AFQ.	Sine [®] Amphenol / Brad Power™ connector pair
	Notes:
	1. four-pin power and three-pin brake
	2. / AFL option is ⁷ / ₈ " + ⁷ / ₈ "
	3. / AFQ option is 1- ³ / ₈ " + ⁷ / ₈ "
	the final digit identifies the wiring diagram
/IS /ISU	integrated connector



Notes:

- /IS option includes box, lid, and cable
 /ISU option includes box only

/KD1	hybrid connector with MOVILINK [®] DDI
	Notes: 1. often required with the /DI option



13 – Motor Plug Connectors

/IV.	customer-specified connector
	???
	Notes : the final digit identifies the wiring diagram



14 – Thermal Protection Options





/PT /PK	platinum temperature sensor
	sensor installed in stator
	Notes:
	 /PT option is a PT100 sensor
	/PK option is a PT1000 sensor







15 – Encoder Type



4. **/ES7S** encoder has a Sin/Cos interface



/EG7C /EG7R /EG7S	add-on incremental encoder (Generation 7)
	Notes:1. all connect with a plug-in shaft2. /EG7C encoder has an HTL interface3. /EG7R encoder has a TTL interface4. /EG7S encoder has a Sin/Cos interface
/EH7C /EH7R /EH7S	add-on incremental encoder (Generation 7)
/EH7R /EH7S	add-on incremental encoder (Generation 7)
/EH7R /EH7S	add-on incremental encoder (Generation 7)
/EH7R /EH7S	add-on incremental encoder (Generation 7)
/EH7R /EH7S	Add-on incremental encoder (Generation 7)











15 – Encoder Type

/AH7Y	add-on multi-turn absolute encoder (Generation 7)
	Notes: 1. connects with a hollow shaft
	2. AH/Y encoder has a Sin/Cos + SSI interface
	add-on multi-turn absolute encoder (Generation 7)
/AV7Y	

Notes:

- 1. all connect with a solid shaft
- 2. /AV7W encoder has Sin/Cos + RS485 interface
- 3. /AV7Y encoder has a Sin/Cos + SSI interface







16 – Ventilation Options



/Z	increased inertia flywheel fan
	Notes : 1. see catalog for applicable motor sizes

/LN	low noise fan guard		
Notes : 1. see catalog for applicable motor sizes			



16 – Ventilation Options



/AL	aluminum fan		
	Notes : 1. see catalog for applicable motor sizes		





16 – Ventilation Options





17 – Condition Monitoring Type



/DUV	vibration monitor		
	Notes : sold with gearboxes and gearmotors 		

/DUE	brake function and wear monitor	
	Notes:	
	 sold with motors and gearmotors 	
	available for all brakes except BE03 and BE05	



18 – Miscellaneous Motor Options









18 – Miscellaneous Motor Options

/ERF	reinforced roller bearings on A-side			
Notes: 1. /NS option is required with this option				
/NS	bearing re-lubrication device			
	Notes: 1. required with the /ERF option			



Evaluation Form

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I lear	ned from the training guide (please	circle	2):
1	a large amount	2	a little bit
3	almost nothing	4	nothing at all
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1	very easy	2	easy
3	a little difficult	4	very difficult
The m	naterial in the training guide was:		
1	very interesting	2	interesting
3	not very interesting	4	extremely uninteresting
The w	riting in the training guide was:		
1	very easy to understand	2	somewhat easy to understand
3	slightly difficult	4	very difficult
The fi	gures in the training guide were:		
1	very helpful	2	helpful
3	not very helpful	4	worthless

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