



## Introducing the New DR Motor



## The new motor modular system: one single series for millions of drive combinations

Configuring gearmotors with AC motors from SEW-EURODRIVE has never been easier: A modular system comprising a single series of the new DR motors offers all efficiency levels, including NEMA Premium® energy efficient motors. In 2002, SEW-EURODRIVE was the first manufacturer worldwide to use die-cast copper technology in an industrial high-volume production process for the manufacturing of our energy efficient motors.



Other new features in the new modular system are the option to choose between three different brake sizes, depending on the motor size, and cost-optimized encoders built into the motor.

All motor innovations and designs of the new DR series are available for all efficiency classes. They comply with all worldwide standards and already fulfill the forthcoming EISA and IEC standards. For planners and users, they offer a number of unique benefits.

### Overview of benefits

- Very simple configuration and ordering
- Configuration of all motor variants from one single series
- Even more options, even fewer restrictions
- Saves space and costs due to compact design
- Long life from an environmental and regulatory point of view
- Reduced prices for energy efficient motors due to integration with gear units
- Reduced prices due to selection of different brake sizes

## DR motors / 60 Hz motor power [HP]

Motor size	Standard motors	Energy efficient motors	
	Standard Efficiency Type DRS	High Efficiency <sup>1</sup> Type DRE	Premium Efficiency <sup>1</sup> Type DRP
DR 71	0.25 ... 0.75	-	-
DR 80	1.0 ... 1.5 <sup>2</sup>	1.0	-
DR 90	2.0 ... 3.0 <sup>2</sup>	1.5 ... 2.0	1.0 ... 2.0
DR 100	4.0 ... 5.5 <sup>2</sup>	3.0 ... 5.0	-
DR 112	5.5 <sup>2</sup>	-	3.0
DR 132	7.5 ... 12.5 <sup>2</sup>	5.4 ... 10	5.0
DR 160	12.5 ... 20 <sup>2</sup>	12,5 ... 15	7.5 ... 15
DR 180	20 ... 40 <sup>2</sup>	20 ... 30	20 ... 30
DR 200	40 <sup>2</sup>	40	-
DR 225	50 ... 75 <sup>2</sup>	50 ... 60	40 ... 50
DR 315	150 ... 300 <sup>2</sup>	150 ... 300	-

<sup>1</sup> U.S. DOE Compliance Certification Number CC056A

<sup>2</sup> Extended lead time. Contact factory for delivery information

## The efficiency classes of the future

The efficiency levels of the energy efficient motors from SEW-EURODRIVE comply with international limit values and standards, often exceeding the requirements.

The list of regulations comprises:

- **USA** EISA 2007
- **Canada** CSA C390
- **Europe** CEMEP, renewed voluntary agreement

- **Brazil** NBR7094, PROCEL
- **Australia and New Zealand** MEPS 2006

### Premium Efficiency / IE3 (NEMA Premium®) USA, Canada, Australia and New Zealand

- Premium efficiency level<sup>1</sup>
- 4-pole AC motors of the DRP type (energy efficient motors): 1 – 50 HP
- Copper or aluminum die-cast rotor cage

### High Efficiency / IE2 USA, Canada, Europe, Brazil, Australia and New Zealand

- High efficiency level<sup>1</sup>
- 4-pole AC motor of the DRE type (energy efficient motors): 1 – 300 HP
- Copper or aluminum die-cast rotor cage

### Standard Efficiency / IE1 Europe, Asia, Africa, Central and South America without Brazil

- Standard efficiency level
- 4-pole AC motors of the DRS type (standard motors): 0.37 – 200 kW
- Copper or aluminum die-cast rotor cage

## SEW Type Code Designations

DT/DV Type Code	DR Type Code	Description
<b>Designation</b>		
DT/DV/DTE/DVE	E	High efficiency <sup>1</sup>
ET/EV	K	Single-phase motor
CT/CV	L	Asynchronous servo
MT/MV	M	Torque motor
...	P	Premium efficiency (NEMA Premium) <sup>1</sup>
DT/DV	S	Standard efficiency
<b>Frame Size</b>		
56-280	71-225...315	Shaft height
<b>Length</b>		
...	K	Motor length (315 frame size) - compact
L	L	Motor length - long
M	M	Motor length - medium
S	S	Motor length - short
<b>Rotor Cage Material</b>		
-	-	Aluminum
...	C	Copper
<b>Brake Type</b>		
BM(G)	BE	Brake designation
<b>Brake Option</b>		
...	DUB	Function and wear monitoring device
HF	HF	Manual screw release
HR	HR	Manual hand release
<b>Flange Mounted Designs</b>		
...	FC	NEMA C-face flange
...	FE	IEC flange with bores and IEC feet (B35)
...	FF	IEC flange with bores (B5)
...	FG	Motor prepared for 7 series gear unit
...	FI	IEC foot mounted motor
...	FL	Flange deviation from IEC
...	FM	Motor with IEC feet prepared for 7 series gear unit
...	FT	IEC flange with threads (B14)
...	FY	IEC flange with threads and IEC feet (B34)
<b>Thermal Motor Protection</b>		
...	KY	Temperature measurement via KTY
...	PT	Temperature measurement via PT100
TF	TF	Thermal protection via PTC (Thermistor)
TH	TH	Thermal protection via switch (Thermostat)

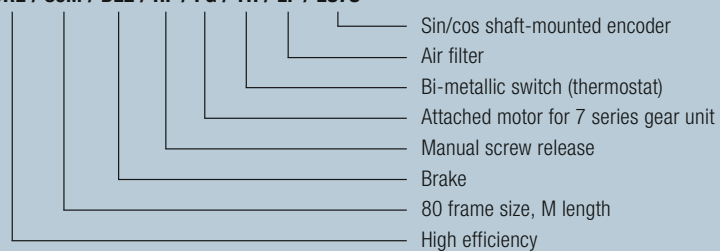
<sup>1</sup>U.S. DOE Compliance Certification Number CC056A

## SEW Type Code Designations

DT/DV Type Code	DR Type Code	Description
<b>Motor Options</b>		
...	AL	Aluminum fan
C	C	Protection canopy fan guard
...	DH	Condensation drain hole plug
...	ERF	Reinforced bearing (315 frame size)
...	LF	Air filter
MM..C	MM..D	MOVIMOT® (DR71 – 100 frame size)
MSW	MSW	MOVI-SWITCH® (DR71 – 100 frame size)
...	NIB	Insulated bearing (315 frame size)
...	NS	Relubrication device (315 frame size)
...	OL	Non-ventilated, closed B-side
...	RI	Reinforced winding insulation > 500V
RS	RS	Backstop
U	U	Non-ventilated
VR, VS, V	V	Forced cooling fan
Z	Z	Flywheel fan, cast iron
2WE	2W	2nd shaft end
<b>Feedback Devices</b>		
ES1S, ES2S, EV1S (71-132)	ES7S (71-132)	Sin/cos shaft-mounted encoder
EV1S (160-225)	EG7S (160-225)	Sin/cos shaft-mounted encoder
ES1R, ES2R, EV1R (71-132)	ES7R (71-132)	TTL (RS-422) shaft-mounted encoder
EV1R (160-225)	EG7R (160-225)	TTL (RS-422) shaft-mounted encoder
EV1T (71-132), EV1C (71-132)	ES7C (71-132)	HTL shaft-mounted encoder
EV1T (160-225), EV1C (160-225)	EG7C (160-225)	HTL shaft-mounted encoder
AV1Y (71-132)	AS7Y (71-132)	SSI shaft-mounted absolute encoder
AV1Y (160-225)	AG7Y (160-225)	SSI shaft-mounted absolute encoder
AS3H, AS4H, AV1H (71-132)	AS7W (71-132)	RS-485 shaft-mounted absolute encoder
AV1H (160-225)	AG7W (160-225)	RS-485 shaft-mounted absolute encoder
<b>Motor Plug Connectors</b>		
AC../AS../AM../AD../AB..	AC../AS../AM../AD../AB..	Modular Connection Kit (Harting style)
IS	IS	Integrated into terminal box

For Example:

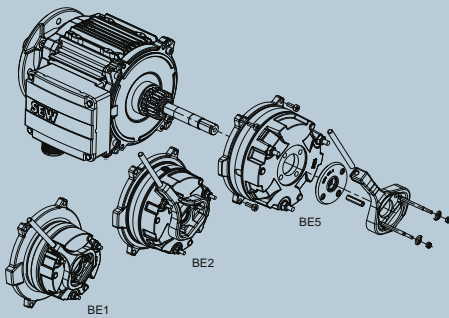
**DRE / 80M / BE2 / HF / FG / TH / LF / ES7S**



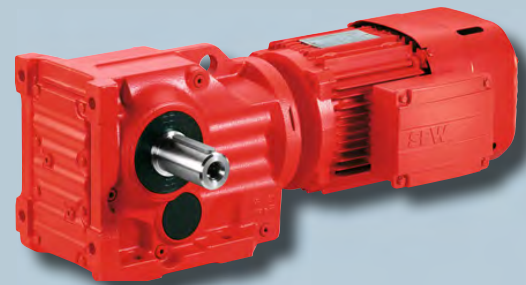
## Brake variants in the modular system

Smaller holding torques are required for inverter operation. Today's brakes are often oversized. This is why the new modular motor system from

SEW-EURODRIVE makes it possible to choose from up to three brake sizes for each motor size.



The BE brake is based on the extremely successful BM(G) brake, but was further developed in many aspects.



## The built-in encoder is fully integrated into the motor

Many applications require simple speed and position detection. In the past, complex and expensive mounted encoders or elaborate proximity sensors have been used to fulfill these requirements. SEW-EURODRIVE offers a unique and cost-optimized solution: the built-in encoder, first introduced with the new DR series. It is fully integrated into the motor and connected at the motor terminal box. Due to its simple structure, the built-in encoder can be retrofitted.

Instead of an external encoder mounted to the fan guard of the non-drive end, the encoder is now installed between the endshield and the fan. The encoder is based on one mechanical design but allows for different functions and connection.

There are three different designs.

Encoders with:

- HTL signals in A + B tracks + negated
- Sin/Cos signals in A + B tracks + negated
- Signals of the rotation counter as absolute

### Overview of brake combinations for the DR motor

Motor type	Maximum braking torque [lb-in]									
	44	88	177	487	974	1,770	2,655	5,310	10,620	21,240
DR 71	BE05	BE1								
DR 80			BE2							
DR 90				BE5						
DR 100										
DR 112					BE11					
DR 132										
DR 160						BE20				
DR 180							BE30	BE32		
DR 200										
DR 225										
DR 315									BE120	BE122

### Overview of encoder combinations for the DR motor

Motor type	Built-in encoder					Mounted encoder			
	Sin/Cos	HTL 24 PPR	HTL 6 PPR	HTL 2 PPR	HTL 1 PPR	Sin/Cos	TTL (RS-442)	SSI Absolute	RS-485 Absolute
DR 71	EI7S	EI7C	EI76	EI72	EI71	ES7S	ES7R	AS7Y	AS7W
DR 80									
DR 90									
DR 100									
DR 112									
DR 132									
DR 160						EG7S	EG7R	AG7Y	AG7W
DR 180									
DR 200									
DR 225									
DR 315						EH7S		AH7Y	