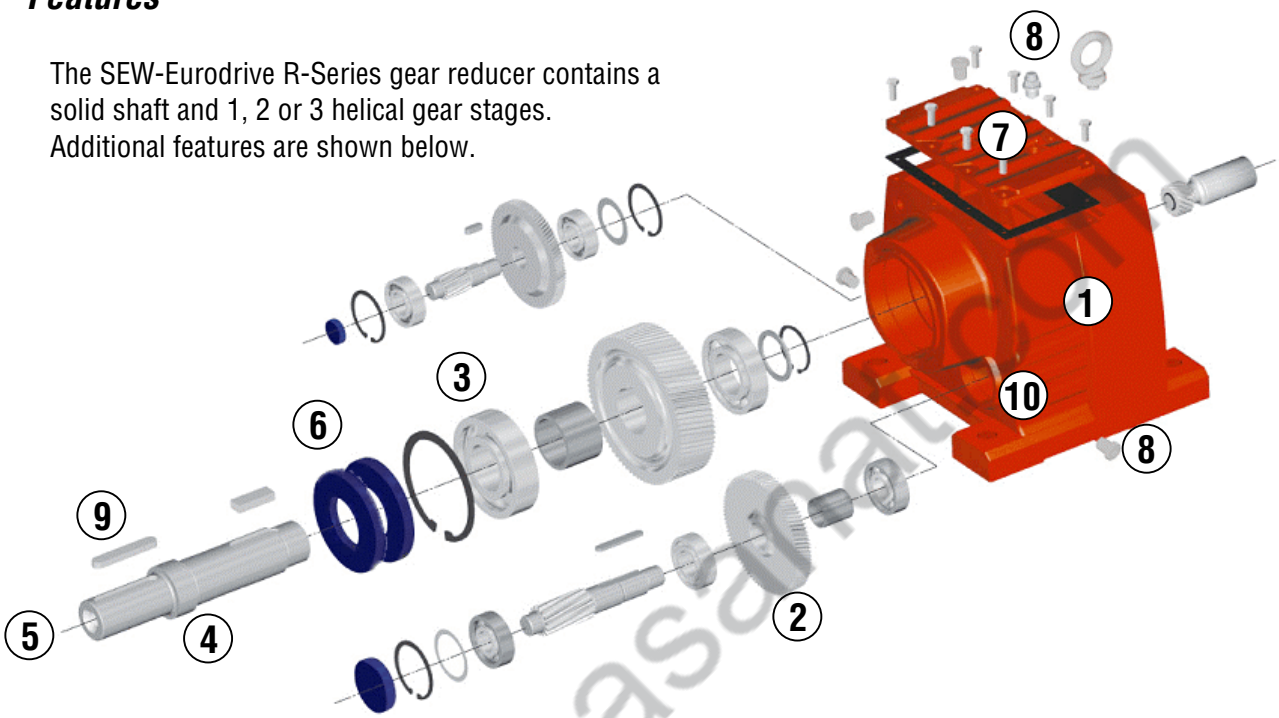
Technical Note

R-Series Gear Reducer

R-Series

Features

The SEW-Eurodrive R-Series gear reducer contains a solid shaft and 1, 2 or 3 helical gear stages. Additional features are shown below.



1. SAE Class 30 or equivalent (GG20) gray cast iron housing and flanges (except R07/17/27). No bolt-on bearing covers.
2. Finish ground or shaved steel gears heat-treated and hardened to 58-62 Rockwell C
3. ABEC-1 bearing tolerances
4. SAE 1045 steel shafts; optional SAE 304 stainless steel shafts for food processing applications
5. Input and output shafts available in either inch or metric sizes and contain a center tapped hole to ease mounting components onto the shaft
6. Exclusive ***interlocking*** 2-piece seal design consisting of a patented bi-helix Viton® inner seal and a double-lip Nitrile (Buna N) outer seal – provides three sealing surfaces against contaminants
7. Removable inspection cover
8. Oil level and breather plugs strategically placed according to the customer's mounting position
9. Captured keys on input and output shafts
10. Corrugated surface improves heat dissipation and reduces vibration

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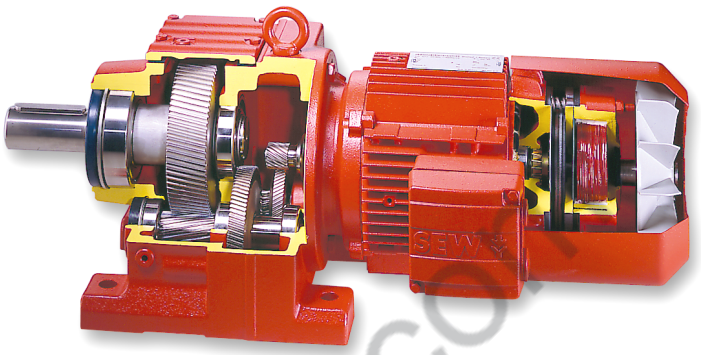
Additional Features:



- **Style**: Helical-Parallel. Output shaft parallel and offset to input shaft. Available as "RX" (1 stage) or "R" (2 or 3 stages)
- **Input Types**: Available with adapters to accommodate NEMA or IEC motor frames, solid input shafts, backstops, adjustable motor mounting platforms, and scoops. Also accommodates an R-series reducer as the input (ex: R67R37) to attain higher ratios and lower output speeds.
- **Output Flange-B5**: Contains O-ring to minimize oil leakage that may result from mounting to a "flat" surface that exceeds acceptable tolerances. Also contains a centering tenon (pilot) and through holes.
- **Primary Reducer**: With output flange, units may be used as the primary input into another SEW reducer (ex: FAF87R57, K67R37)
- **Output Shaft**: Metric or inch solid shaft with key
- **Mounting**: Available as foot mounted or flange mounted. Sizes R17 – R87 also available with foot and flange mounting
- **Torque Ratings**: Based upon mechanical capacity under continuous duty operation
- **Shaft Rotation**: Unrestricted - clockwise or counterclockwise
- **Efficiency**: 98.5% (1 stage), 97% (2-stage), 95.5% (3-stage) – i.e. 1.5% efficiency loss per gear stage
- **Ratio Range – Single**: 1.3 to 229.71
- **Ratio Range – Compound**: 98 to 23,401
- **Fatigue Strength**: Shafts and gears designed for infinite fatigue strength. For maximum strength of 304 stainless shafts, contact SEW engineering.
- **Shock Capacity**: Meets or exceeds AGMA 6009-A00, which states that reducer must be capable of withstanding 4 shock loads within an 8-hour period – each shock equal to 200% of the maximum rated torque for 2 seconds.

Housing Material:

Except for the R07, R17, and R27, which are made from high strength cast aluminum, all SEW reducer housings and flanges are manufactured from SAE 30 or equivalent (GG20) gray cast iron due to the following benefits:

- Cast iron flows well, allowing it to be used on intricate castings.
- Cast iron machines well.
- Cast iron serves as an excellent damping material to minimize vibration – contributing to longer bearing life and gear life.

Ductile iron (or nodular iron), a type of cast iron containing magnesium, is 2 to 4 times stiffer than gray cast iron. It is often used in applications involving heavy shock loads at low temperatures – when gray iron housings lose much of their shock absorbing strength. Ductile iron housings are not available on R-series gearmotors.

Optional Bearings

R-series reducers are available with the following optional heavy-duty bearings that increase the reducer's overhung load capacity. For more information, contact Regional Engineering.

Unit	Output Bearings		
	Standard	Optional	
RX/RXF57	Ball	Spherical Roller	*
RX/RXF67	Ball	Spherical Roller	*
RX/RXF77	Ball	Spherical Roller	*
RX/RXF87	Ball	Spherical Roller	*
RX/RXF97	Ball	Spherical Roller	*
RX/RXF107	Ball	Spherical Roller	*
R/RF67	Ball	Spherical Roller	**
R/RF77	Ball	Spherical Roller	**
R/RF87	Ball	Spherical Roller	**
R/RF97	Ball	Spherical Roller	**
R/RF107	Ball	Spherical Roller	**

* Nilos ring required for M2 mounting position

** Nilos ring required for all mounting positions

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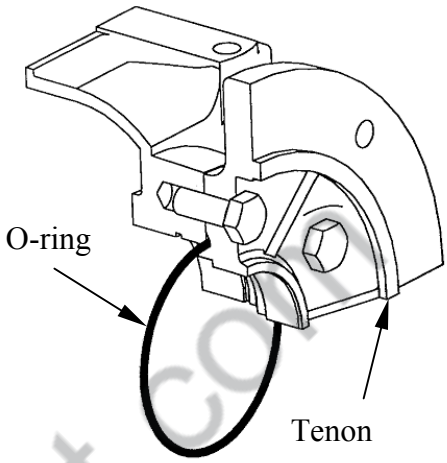
Flange Mounting

A **B5** flange with through-holes is optional on all R-series reducers. It contains an O-ring and a tenon (pilot) as shown at right.

The O-ring helps prevent oil leakage that could occur if the flange is mounted to a "flat" surface that exceeds the recommended flatness tolerance.

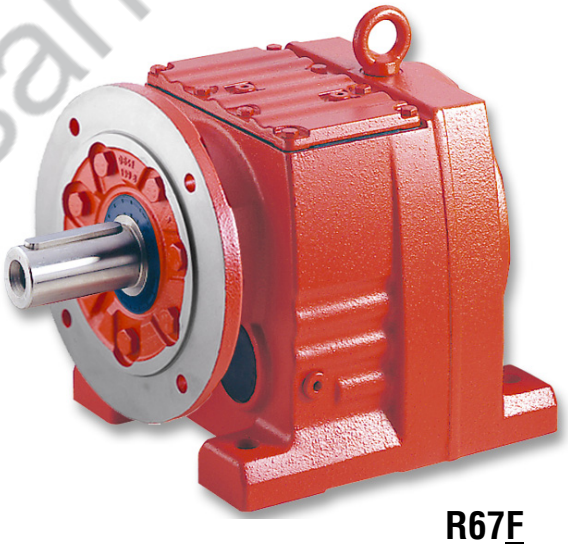
The tenon allows for easier installation as well as protects the reducer from shifting out of alignment if the mounting bolts were to loosen.



Foot/Flange Mounting

Normally, an R-series reducer with flange contains a housing without feet. The letter "F" is placed before the reducer size and after the letter "R" (ex: R**F**67). However, a housing that contains both feet and flange is optional on sizes R17 – R87. To designate this option, the letter "F" is placed after the reducer size instead of before it (ex: R67**F**).

A common application of this feature is on a pump. The pump housing mounts to the reducer flange and is totally supported by the reducer. The reducer feet anchor the gear reducer and attached pump to a solid surface.



R67F

Several flange diameters are available with a non-footed housing. However, only one flange is available with a footed housing.

Reference Tech Note **GM-020** for important additional information on mounting procedures for flanged units.