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Top scorers: the FLENDER SIP premium planetary gear units



From steel plate conveyors, chain conveyors and scrapers to travelling gears, roller drives and mixers – no matter which field they play in, the qualities of top gear units are critical to the success of your low-speed application. Because our playmakers are reliable, flexible and modular, and because they conform to other components, they become the crucial pivot point of your application. In the end, you score with your performance. Just add FLENDER SIP® to the mix.

Operating worldwide, 24/7: FLENDER SIP in travelling gear and lifting equipment in a wide variety of container cranes.



What counts for drive solutions, in addition to speed and capacity, are primarily safety, dependability and a reasonable quality-to-price ratio. And because there are almost always several drives that keep your system running, it is important to combine reliable solutions into a functioning unit. Those areas where costs, availability and simplicity must go hand in hand make up the large application range of FLENDER SIP.

FLENDER stands for first-class drive components. Our original expertise connected with this name is in gear unit engineering. In terms of quality, we're in the lead. For this reason, our customers can expect that our drive solutions are durable, long-lasting and absolutely reliable. Planetary gear units with high power capacity have been in our permanent portfolio for more than three decades. Here, we combine comprehensive drive expertise with a deep understanding of applications to develop high-quality, easily selectable and appropriate standard products for our customers.

With the new FLENDER SIP gear unit series we have succeeded in making maximum flexibility into a product. With a broad transmission ratio range, a wide variety of output shaft versions, adherence to the most important motor standards and the greatest range of options, on the application side the series features the best possible equipment for installation in any desired manner and for use in any possible conditions. With FLENDER SIP, we offer you a wide variety of high-endurance drive solutions for low-speed applications.

In addition to speed, capacity and torque, what counts for you is primarily availability and efficient use. How are time, effort and costs optimised for the correct composition of the drive train? How are the gear units, motor, frequency converter and control adapted perfectly for each other based on the application, and how is it possible to bring further drives into the mix accordingly? We have the answer for you. FLENDER SIP planetary gear units are not only real team players: in combination with our electric-drive expertise, they become perfect drive solutions because here is where they really play to their strengths.

FLENDER SIP gear units are used in the following applications, among others:

- Steel plate conveyors
- Bunker dischargers
- Scraper conveyors
- Mixers
- Roller presses
- Chain conveyors



Playmakers with special qualities: FLENDER SIP

What does your application look like? Where are the special characteristics? What do you need in addition to required capacity? How many specialities must a good standard offer you? Which options and features do you need? With their all-round qualities, our FLENDER SIP playmakers are up to any challenge.

Quality, price and capacity

FLENDER SIP means premium quality. The innovative basic concept with components optimised in terms of form, with a maximum amount of identical parts and, last but not least, with ground gear teeth offers critical benefits for customers: the efficiency, power capacity and compactness of FLENDER SIP make the series appropriate for any desired task, even in extremely limited spaces and with the highest requirements regarding weight. Also important: FLENDER SIP gear units boast long-life fatigue strength. This makes them reliable and offers you the process reliability that you want so that your system runs without any problems. In this way, the technology of the FLENDER SIP series creates extremely light and highly powerful planetary gear units that combine efficiency and a high degree of effectiveness with a persuasive price. They unite the highest amount of reliability and practical versatility in gear unit solutions that fulfil every customer need.

Highest degree of flexibility

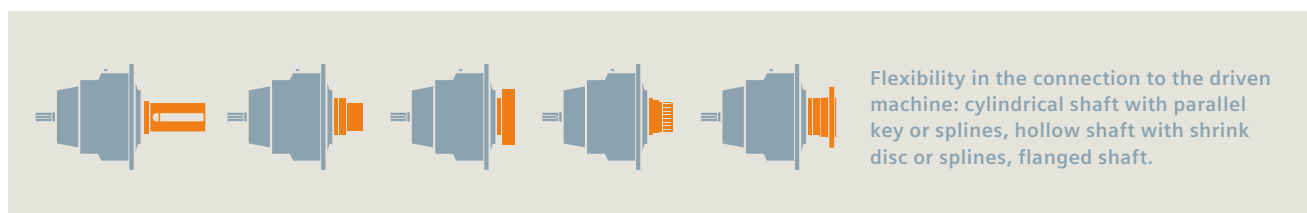
A good gear unit needs to have good all-round qualities. FLENDER SIP gear units adapt to your needs. Use them as you need to for maximum flexibility ...

... in gear unit selection: With the product range and high standards of FLENDER SIP, a wide variety of options are available to you for your application. Five types of output shafts, conformity with relevant worldwide motor standards, gear unit and motor design with coaxial or 90° positioning for both horizontal and vertical arrangement allow for any desired installation, offering the highest levels of flexibility in planning and assembly.

... in motor selection: We offer you a highly integrated drive solution in the form of a planetary geared motor. The motor is positioned at maximum proximity to the gear unit, so that the entire gear unit capacity is available to you. In addition, you have the option to use motors commonly used worldwide and based on international standards. The necessary interfaces are available in the original FLENDER SIP accessory programme.

... in every environment: With options such as oil temperature control, explosion protection, low-temperature versions down to -40 °C and high-quality Taconite seals, FLENDER SIP gear units offer you system reliability even in adverse application conditions. Our gear unit designs include both shaft-mounted versions with torque support and base-mounted versions.






... in system design: The greatest possible transmission ratio range brings our gear units very close to your desired speed and allows you great flexibility in system design. The unified size increments in the gear unit series in eight nominal sizes from 10,000 to 80,000 Nm with a very fine-scale transmission ratio range makes it easy for you to find the gear unit that meets your needs. Expensive oversizing is a thing of the past. The speed, capacity and torque of the drive are perfectly matched with the tasks required in the application.





Made for high capacity in the smallest space: fully integrated, 5-stage FLENDER SIP with 90° positioning.

Gear units			
	2-stage coaxial FLENDER SIP	4-/5-stage coaxial FLENDER SIP	5-stage right-angled FLENDER SIP
Transmission ratio	$i = 25$ to 45	$i = 98$ to 14,716	$i = 146$ to 15,000
Number of transmission ratios	up to 53		up to 37

Motor standards		
Economic region	Identification	Standard requirements
Europe/EU	 	Low Voltage Directive (NRS) 2006/95/EG Ecodesign Directive 2009/125/EC EU Regulation No. 640/2009 for implementing the Ecodesign Directive
USA	MG1-12  CC032 A	NEMA MG1-12 national standard UL 1004 standard of the inspection and certification company Underwriters Laboratories Inc. EISA Energy Independence Security Act
Canada	 	CSA C22.2 No. 100 standard of the Canadian Standard Association EER Energy Efficiency Regulations
China	 	CCC (China Compulsory Certification) CEL – China Energy Label (on the basis of national standard GB 186132012) ECL Energy Conservation Law of PRC

It is physically possible to connect FLENDER SIP to IEC and NEMA motors as well as to servomotors in the Siemens SIMOTIC® M-1PH8 and 1FK7 families using short adaptors and coupling adaptors.



Flexibility in the selection of the standard motor: FLENDER SIP not only stands for complete conformity with all common motor standards, the series also offers all of the required connecting adaptors.

Individual and team performance

In your system planning, selecting the right drive should be simple, above all. The powerful products of the well-balanced FLENDER SIP product range assist you in this selection. But we have another critical factor to offer you: the drive train. Benefit from the crucial advantages of Siemens Integrated Drive Systems.



For optimum utilisation of gear unit capacity: fully integrated, 5-stage FLENDER SIP in the Siemens drive train.

Quick project planning

When using the modular system to adapt the standard drive for your special requirements, a practical tool available to you for configuring your FLENDER SIP is our proven electronic catalogue.

Consulting with us will also help you find the right drive for your application. We speak your language and are available to talk with you as a partner about any issue. In this way, the freely available transfer of expertise becomes a product with real added value for you. Take advantage of our application expertise and the straightforward consultation of a partner who has access to not only this specific drive solution, but any other imaginable solution as well.

FLENDER SIP also offers you crucial advantages in project planning, because finding the right gear unit is just half of the solution. The other components have to match, function and fit in. By request, we take on the responsibility of adaptation with regard to the drive components and of bringing several drives together in harmony with the overall application, removing the burden from your shoulders and offering you the complete integration of the Siemens drive train.

Removing interface risks

When various suppliers are brought together, it is difficult to get an overview of the possible risks. We offer you a complete, overall solution from a single source and want to be your available contact. We enjoy providing you with a competent discussion of the task and solution, from pre-configuration to detailed project planning. You are the best judge of what that means for you, no matter if the specific advantages are in high efficiency and quick project planning or in low overall and life cycle costs. You will



probably benefit from all of these advantages anyway and particularly from the reliability of our drives – and naturally from the reduction of the interface risks.

Availability

The maximum availability of your system is always in focus in our research and development work. For this reason, we have designed the FLENDER SIP series to be highly durable, endowing the gear units with a long service life. Moreover, the design department uses high-quality components that are carefully processed to become good products. For you, this means maximum dependability in continuous operation and performance reliability because when you have an overview of the entire drive train you can even increase availability. Here, our innovative added-value process guarantees not only unique, consistent quality, but it also provides a specific focus on your need for supply reliability.

Highest degree of efficiency

In FLENDER SIP, we use ground gear teeth and have reduced losses due to immersion into the oil to the maximum extent. As a result, the FLENDER SIP gear units, which feature high power capacity, provide very high efficiency for all types and sizes. The highly efficient utilisation of power supplied will even increase with the complete integration of FLENDER SIP into the drive system because bringing together the fields of expertise in mechanical and electrical drive technology with a view of the entire application results in further shortening of throughput times and reduction in energy costs.

Minimum life cycle costs

With their high quality and high-strength design in connection with our global service set-up, FLENDER SIP gear units are already associated with very low life cycle costs. But more is possible here as well: a fully integrated drive means optimum utilisation of available capacity on the one hand and optimum protection of the mechanical drive components on the other. The resulting positive effects on life cycle costs are significant.

Profit from our performance as well

While we are active internationally at the premium level with respect to technology, we also score points with requirements that can't be specifically connected with the product: for FLENDER SIP, we offer you short delivery times as well as flexible, quick and transparent logistics processes. We promise you supply and planning reliability, international availability and service and, last but not least, the highest degree of investment security.

There's more to it

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boost your competitive
edge and improve
your time to profit.

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