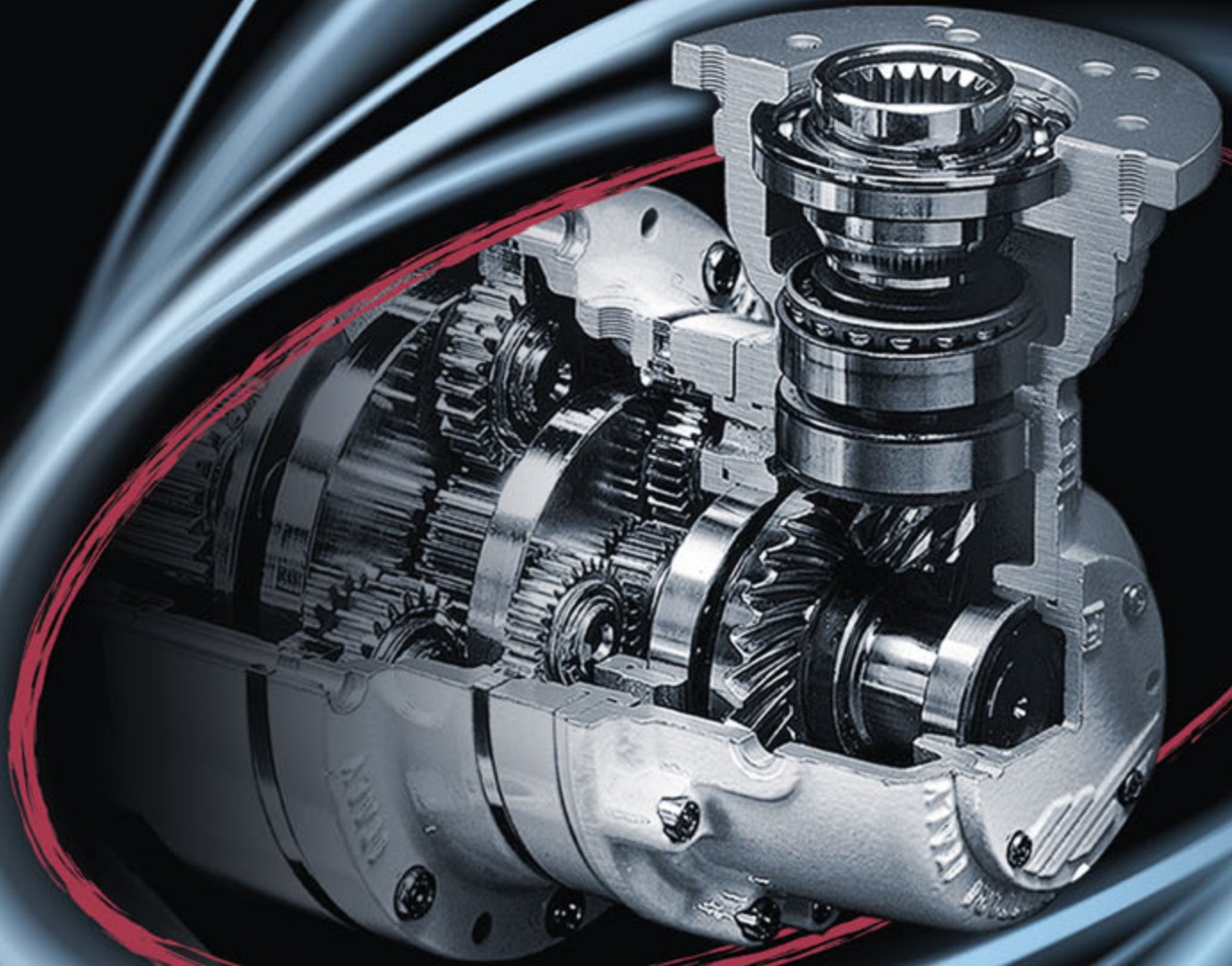


FARR USA Inc.

GENERAL CATALOG



INDUSTRIES SERVED

BUILDING AND MAINTENANCE **MINING** **MARINE** **MECHANICAL AND PLASTIC** **OFF-SHORE**
CHEMICAL **FOOD PROCESSING** **ENVIRONMENTAL** **AGRICULTURE AND FORESTRY**
SOLAR & WIND ENERGY **TRANSPORTATION AND LIFTING**



OUR VALUES

Integrity

- Communicate openly and sincerely, at all levels of the organization
- Trustworthy and honest in our day to day activities
- Conduct ourselves in a moral, ethical manner at all times
- Accountable within and outside the organization for our actions and words

Compassion

- Consider the consequences of our actions and words
- Respectful of others, displaying benevolence and sharing our success with others in our community

Unity

- Dedicated and committed team contributing to the success of our company and to each member of our team
- Loyal, and dedicated to achieving common goals and objectives
- Pursue consensus because we recognize that the opinion of our colleagues are important and valuable to the success of the company



ITALY

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WORLDWIDE

2-5

RR USA Inc.

23

INDUSTRIAL INLINE AND RIGHT ANGLE INPUT
PARALLEL SHAFT GEAR REDUCERS

6

REGGIANA RIDOTTORI - THE HEADQUARTER

24-26

PLANETARY WHEEL DRIVES FOR ROAD,
OFF-ROAD AND TRACKED MACHINERY

7

REGGIANA RIDOTTORI 2
ENGINEERING, ASSEMBLY and LOGISTIC

27

LOW SPEED HIGH TORQUE HYDRAULIC
MOTORS

8

GALIPERTI TECH - PARTNERS

28

VALVES FOR HYDRAULIC MOTORS - BRAKES

9

SAFIM - PARTNERS

29

STEERING VALVES

10

M+S HYDRAULIC - PARTNERS

30

SEATS & ACCESSORIES

11

COBO MT - PARTNERS

31

STEERING COLUMNS

12-13

Applications

32-33

COMPLETE BRAKING SYSTEMS

14-15

INLINE PLANETARY GEAR REDUCERS

34

SLEWING BEARINGS

16-17

RIGHT ANGLE PLANETARY GEAR REDUCERS

35

ROTARY MANIFOLDS

18

PLANETARY GEAR REDUCERS WITH
HOLLOW OUTPUT SHAFT

19-20

SLEWING GEARBOXES PLANETARY GEAR
REDUCERS

21-22

AGRICULTURAL FEED MIXERS GEARBOX
OVERVIEW

RR USA Inc.

2

Since 1985, RR USA Inc. has supplied the North American market a variety of mechanical, hydraulic, and electrical components used in several industry fields.

There are currently three locations in North America and a network of affiliated locations worldwide. Our services include stocking, package assemblies, repair, engineered solutions, design, product development and component selection.

8 CREEK PARKWAY HEADQUARTERS



RR USA Inc. achieves excellence by streamlining process development and combining individual component into complete packages.

RR USA Inc. implements the principles of "lean thinking" in order to offer our customers an enduring competitive advantage. We work to reduce costs and labor by utilizing parts standardization, minimizing pieces, offering quick prototyping.

WEST COAST BRANCH



CANADIAN BRANCH

RR USA Inc.

3

NORTH AMERICAN LOCATIONS



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RR USA Inc is a company devoted to working with our customers by delivering competitive quality products, and turnkey power solutions. We are proud to deliver products manufactured to the highest possible standards and maintain an ongoing commitment to quality, performance, and technology.



RR USA Inc stocks over 20,000 parts in three locations enabling “made to order” custom assemblies. The warehouse also houses complete assemblies for JIT shipments to our OEM customers.



When working with RR USA Inc our customers receive the highest level of service. Our team is staffed with professional and well trained associates, ready and available to provide solutions for all engineering, sales, inventory, purchasing, logistics, and accounting inquiries.

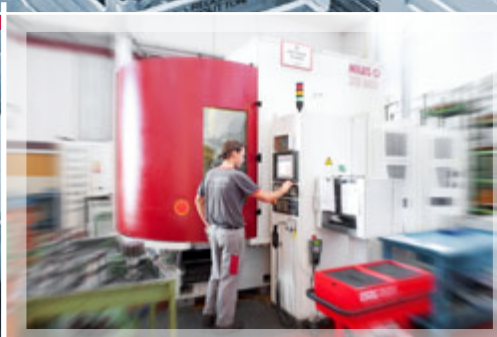
REGGIANA RIDOTTORI THE HEADQUARTER

6



REGGIANA RIDOTTORI was founded by the vision and insight of Mr. Franco Albarelli in 1973, and since its inception has been headquartered in San Polo d'Enza, located in Northern Italy near the town of Reggio Emilia. The headquarters is comprised of a state of the art manufacturing layout and machining centers, while housing management, sales, accounting, customer service and a stringent

quality department. While being a world class designer and manufacturer of planetary gearboxes and planetary wheel drives Reggiana Riduttori an ISO 9001 certified registered company is proud to have a global footprint with 4 locations in Europe, 3 locations in North America, 1 location in South America, and 3 in the Far East and Pacific Regions. Some of the most up to date tools used by their engineering department to perform product verification, testing and design include AutoCad with Top10 add-in, with parts-tree, tools and libraries, data & drawings for database management, Inventor 2012 Pro, COSMOS to perform FEM structural analysis, KissSoft gear verification in both ISO 6336 and AGMA 2001-C95. Reggiana Riduttori's headquarters rests on a floor plan area which covers 160.000 sq-ft.

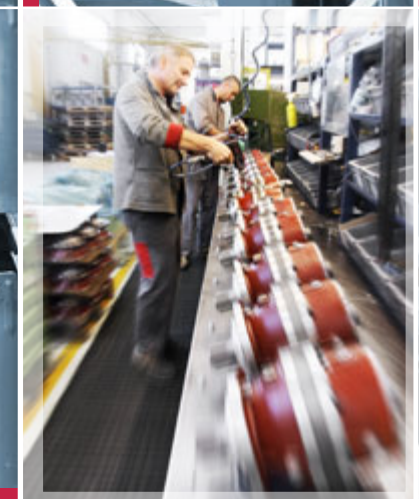


REGGIANA RIDOTTORI 2 ENGINEERING, ASSEMBLY and LOGISTIC

7



In order to better service its customers, In 2008 **REGGIANA RIDOTTORI** decided to be at the cutting edge of modern technology by expanding and investing in a completely new state of the art and most modern facility in compliance with the latest standards for industrial plants. It is fully equipped with automated assembly lines, automated material handling and has an impressive high capacity storage area. At this location Reggiana Riduttori currently hosts Engineering, Research & Development, Logistics, Warehousing, Assembly lines, Packaging & Shipping. This plant is located just ½ a mile from the Headquarters with a total footprint of 130.000 sq-ft.



GALPERTI TECH PARTNERS

8



highest quality of materials to manufacture slewing bearings which only come from European selected steel mills, and are an ISO 9001 certified company. Galperti Tech manufactures excellence in medium to large size slewing bearings using state of the art design, manufacturing and testing methods. They maximize the value of their senior engineers' experiences and knowledge by utilizing and the most reliable calculation software programs. Design verifications are performed by using the most modern CAD/CAM design tools and FEA analysis programs while fully integrated server based computer systems are used to allow manufacturing control on all phases of supply chain survey and project management. Galperti Tech has the ability to provide on request specific application approval certifications, according to the following certification standards: Lloyds Register, DNV, BV, TUV, API, and ABS. Their headquarters are located in Colico, just north of Milano in Northern Italy.

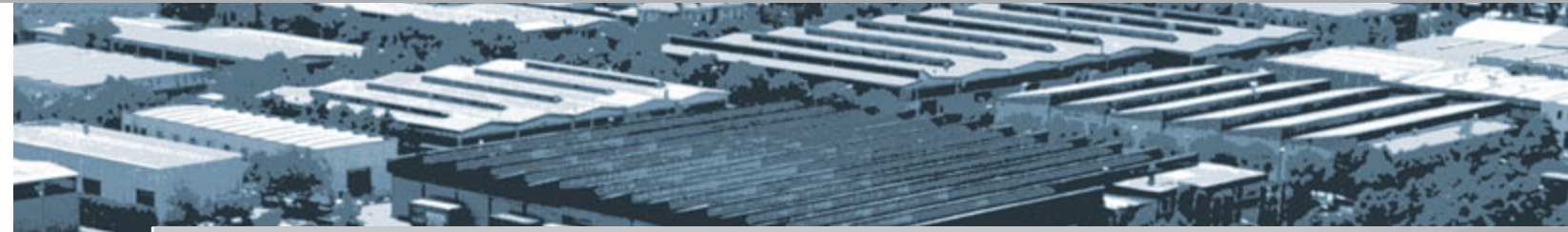
GALPERTI TECH is a subsidiary of the Galperti Group of Companies which has a global presence; their products are sold in a variety of different industries and applications, such as oil & gas, energy, environmental, forestry, marine, construction, industrial and mining. The structure of Galperti Group allows Galperti Tech to operate as a vertically integrated process manufacturer. They also use the

highest quality of materials to manufacture slewing bearings which only come from European selected steel mills, and are an ISO 9001 certified company. Galperti Tech manufactures excellence in medium to large size slewing bearings using state of the art design, manufacturing and testing methods. They maximize the value of their senior engineers' experiences and knowledge by utilizing and the most reliable calculation software programs. Design verifications are performed by using the most modern CAD/CAM design tools and FEA analysis programs while fully integrated server based computer systems are used to allow manufacturing control on all phases of supply chain survey and project management. Galperti Tech has the ability to provide on request specific application approval certifications, according to the following certification standards: Lloyds Register, DNV, BV, TUV, API, and ABS. Their headquarters are located in Colico, just north of Milano in Northern Italy.



SAFIM PARTNERS

9



SAFIM was founded in 1977 by Eronne and Omer Mamei. They started out as a small fabrication shop with the insight at that time to recognize an opportunity to enter into the construction machine industry, developing and bringing to market more effective and efficient braking systems. Their cutting-edge mentality allowed them to replace a common master cylinder with an air operated booster with a more efficient and effective master cylinder with a hydraulic servo booster. From that point on SAFIM has seen sustained growth and taken its rightful place as a world class brake valve(s) manufacturer globally, and in today's market is considered one of the largest and most trusted suppliers to a variety of OEM customers and all the different types of self propelled machine applications that exist. Their concentration and expertise along with several years of experience lies in applications within the Construction Machine Industry, Agricultural Equipments, Material Handling, Tug Tractors, and Transportation. The plant is located in Modena, Northern Italy, and has a floor plan of 125,000 sq-ft. SAFIM engineers work closely with customers to develop specific products in an effort to meet or exceed expectations, by utilizing the most modern engineering tools, performing FEA analysis, and providing 2D, 3D and exploded view drawings. SAFIM has been an ISO 14001 certified company for over a decade. Each product goes through a rigorous 100% testing procedure prior to shipping to customers, with all documented records for traceability available upon request.

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M+S HYDRAULIC PARTNERS

10



From its humble beginnings in 1963 manufacturing hydraulic systems and components in a small town of Kazanluk, Bulgaria **M+S HYDRAULIC** was founded. In 1981 they started producing low speed high torque planetary hydraulic motors under the license of a reputed hydraulic component manufacturer out of Denmark, Europe which lasted through 1986. Today M+S HYDRAULIC celebrates its 50th Anniversary, and is recognized worldwide as a leading manufacturer of hydraulic motors, steering valves, steering columns, valves, brakes and accessories both in METRIC and SAE versions. From its modest origination M+S HYDRAULIC in today's market is proud to be

considered among the first 100 largest companies in Bulgaria by revenue, and is included in 3 of Dow Jones Wilshire Indices. The Company's mission is to achieve the utmost customer satisfaction by providing the highest quality possible, with the most competitive advantages, in a comprehensive range of hydraulic components, with unsurpassed service. The plant is equipped with the most modern CNC machining centers, using CAD/CAM technology, special purpose machines to satisfy the specific needs of M+S HYDRAULIC's designs, a new state of the art computerized heat treatment



processing line, chemical & metallographic labs, automatic testing benches, and dedicated assembly lines for each of the products. The Engineering Department is at the forefront of today's markets requirements so they can better serve and design products to the highest and most modern designs available in today's market by utilizing tools that include AutoCAD, Solid Works, 2D, 3D and exploded view drawings. M+S HYDRAULIC has a global distribution network. They also have the proud distinction of being the first company in Bulgaria to achieve ISO 9001 certification, under the most strict and rigorous certification firms such as OHSA 18001:2007, ISO 14001:2004, and GOST. Over the years the factory has grown to house a 510,000 sq-ft facility and in 2012 their production output reached 450,000 pieces, while proudly employing a workforce of over 1000 employees.

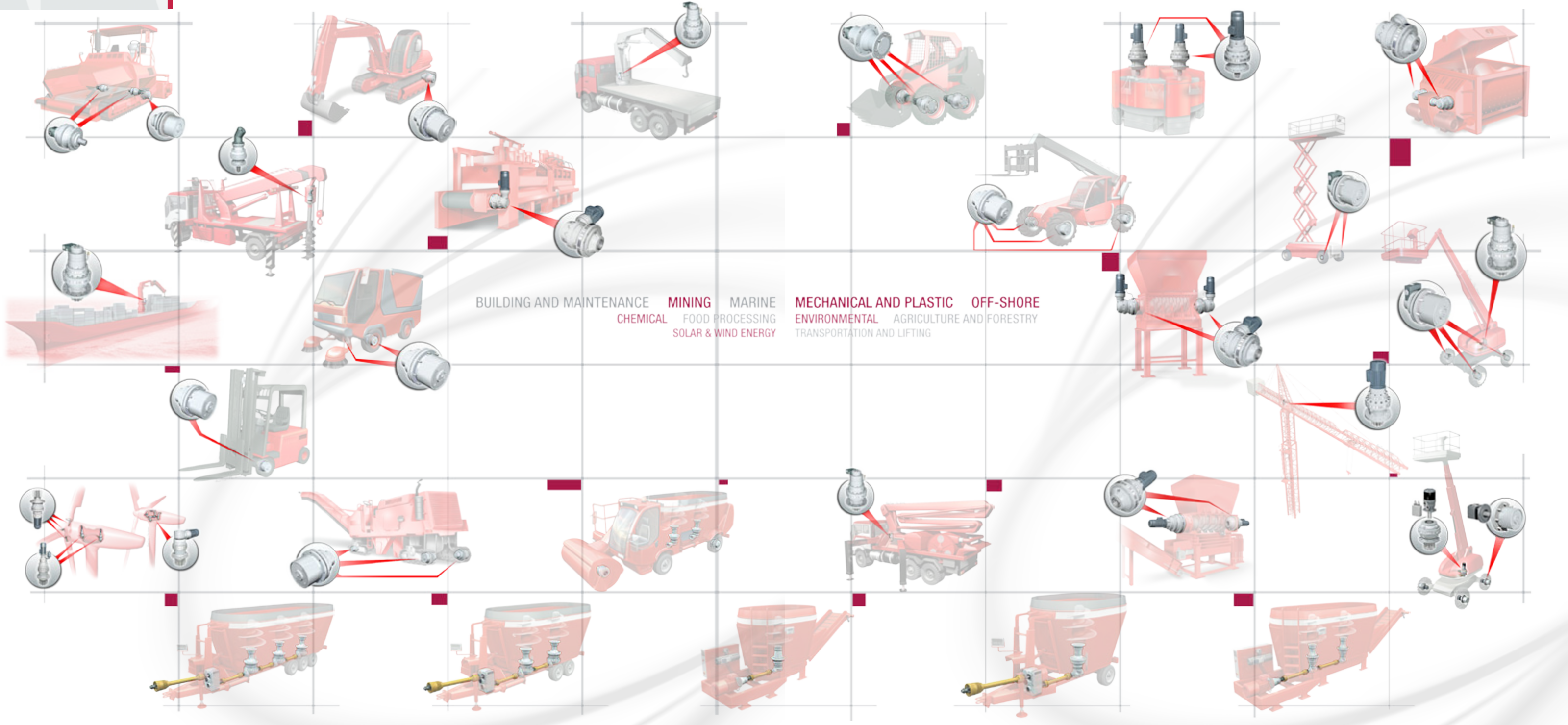
COBO MT PARTNERS

11

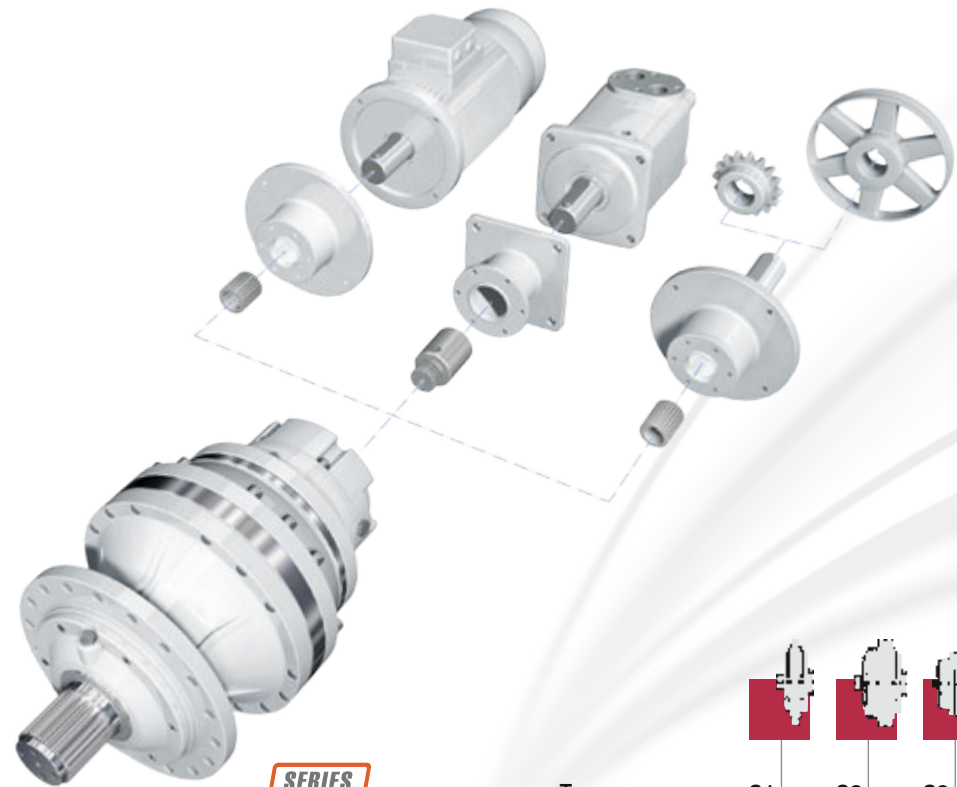


COBO was founded in 1949 and is considered one of the largest manufacturers of cab components worldwide. The company is comprised of 11 different plants each operating under its own brand name, but strategically working together, sharing their knowledge on electrical and electronic components, manufacturing technologies and processes with one common goal. COBO separates itself from any other manufacturer operating in within the same industry, by not only developing products, but being capable of providing complete systems and software integration along with the most modern, ergonomic and aesthetically appealing artwork designs. They have a vast product offering which includes gauge clusters and displays, seats, complete module columns, steering wheels, lighting products, various electrical and electronic components, wiring harnesses, and software programming tools. COBO has a global footprint, which allows for operation in various markets, such as on the road vehicles, off-the road vehicles, construction machines, agricultural machines, military vehicles, and material handling vehicles. COBO invests a consistent amount of resources every year to remain a leader within the industry by developing new products, and expanding and enhancing their manufacturing processes. Their R&D department uses the most advanced engineering tools available, CAD, PRO-E, CATIA, PRO-CABLING, global software with international standards IEC 61131-3, "C", CODESYS, VISUAL B. COBO is an ISO 14001 certified company, with a 40,000 sq-ft facility located in Reggio Emilia, Northern Italy, employing over 1000 employees worldwide.



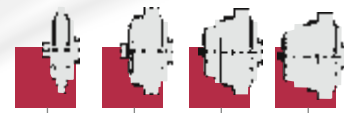


INLINE PLANETARY GEAR REDUCERS MALE SPLINE OUTPUT

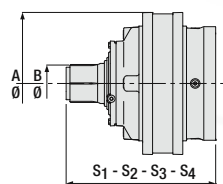
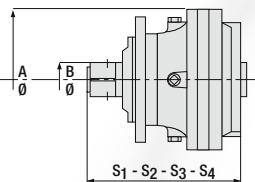


Inline planetary gear reducers are **Reggiana Riduttori's** primary product line with a wide range of output torque and ratios.

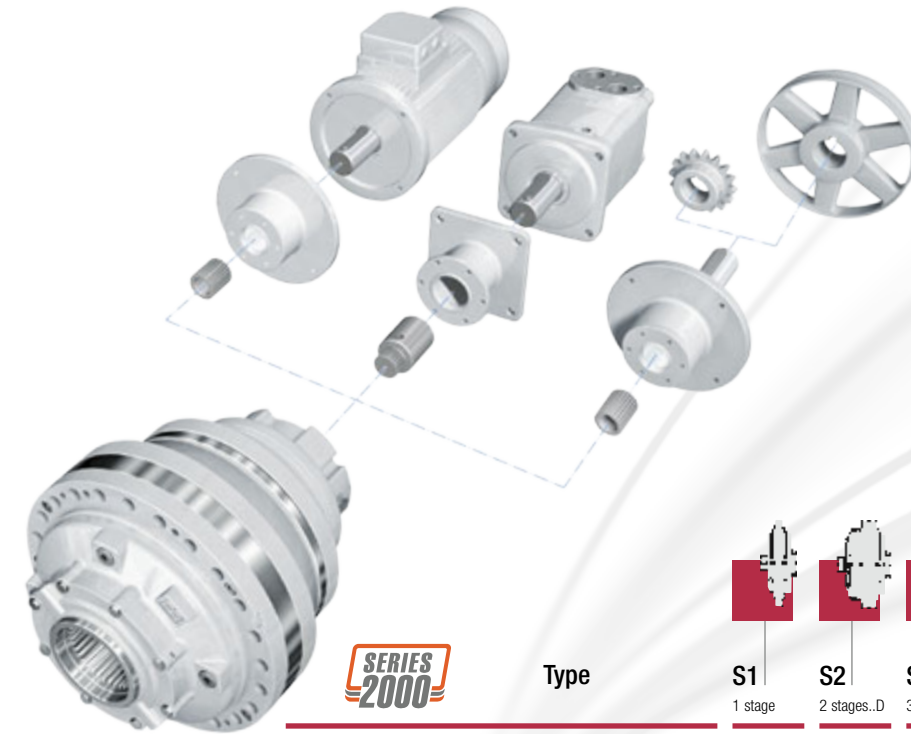
The modular design allows our customers to chose from a variety of output shafts such as male splined, metric or SAE cylindrical keyed, hollow shaft, hex shaft , and integral pinions. Inputs available are negative brakes, motor connections for hydraulic and electric motors, or male inputs for pulley and chain sprocket transmissions.



Type	S1 1 stage	S2 2 stages..D	S3 3 stages..T	S4 4 stages..Q	A	B	Nominal torque daNm
RR 65 MS	161	183	206,5	—	180	B 40 x 36 DIN 5482	65
RR 105 MS	205	222,5	244,5	—	182	B 40 x 36 DIN 5482	105
RR 110 MS	207	224,5	246,5	—	182	B 40 x 36 DIN 5482	110
RR 210 MS	217	263,5	281	303	182	B 40 x 36 DIN 5482	200
RR 210 SS	263	309,5	327	349	220	B 58 x 53 DIN 5482	200
RR 310 MS	261	327	344,5	366,5	245	B 58 x 53 DIN 5482	300
RR 310 SS	319	385	402,5	424,5	270	B 58 x 53 DIN 5482	300
RR 510 MS	269	342,5	401,5	419	245	B 58 x 53 DIN 5482	500
RR 510 SS	327	400,5	359,5	477	270	B 58 x 53 DIN 5482	500
RR 710 MS	269	331,5	397,5	415	245	B 58 x 53 DIN 5482	750
RR 710 SS	347	409,5	475,5	493	278	B 70 x 64 DIN 5482	750
RR 810 MS	358,5	426,5	492,5	510	297	B 70 x 64 DIN 5482	800
RR 810 SS	412,5	480,5	546,5	564	297	B 70 x 64 DIN 5482	800
RR 1010 MS	371,5	447,5	521	580	325	B 80 x 74 DIN 5482	1000
RR 1700 MS	401	477	550,5	609,5	340	B 80 x 74 DIN 5482	1700
RR 1700 BS	447,5	523,5	597	656	340	B 80 x 74 DIN 5482	1700
RR 2500 L... MS	391	484	552	620	370	B 100 x 94 DIN 5482	2500
RR 3200 L... MS	435	537	613	679,5	407	W120 x 5 x 8f DIN 5480	3300
RR 4000 L... MS	495	610	686	752,5	460	W120 x 5 x 8f DIN 5480	4000
RR 5200 L... MS	505	620	696	762,5	460	W140 x 5 x 8f DIN 5480	5200
RR 6500 L... MS	547,5	712,5	805,5	873,5	519	W150 x 5 x 8f DIN 5480	6800
RR 8000 L... MS	633	838	953	1029	570	W170 x 5 x 8f DIN 5480	8000
RR 10000 L... MS	633	838	953	1029	570	W170 x 5 x 8f DIN 5480	10000



INLINE PLANETARY GEAR REDUCERS FEMALE SPLINE OUTPUT

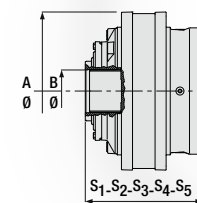
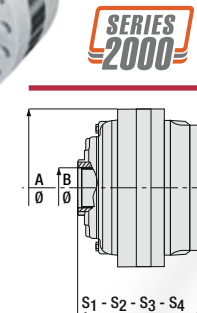


Reggiana Riduttori also offers a female splined reducer. Used in applications where the reducer is providing speed and torque changes only, the female output is an ideal and cost effective means to transmit power in the most compact way.

Inputs are available with motor connections for hydraulic and electric motors, or male inputs for pulley and chain sprocket transmissions.



Type	S1 1 stage	S2 2 stages..D	S3 3 stages..T	S4 4 stages..Q	S5 5 stages..O	A	B	Nominal torque daNm
RR 65 FS	95	117	140,5	—	—	140	A 40 x 36 DIN 5482	65
RR 105 FS	133	150,5	172,5	—	—	182	A 40 x 36 DIN 5482	105
RR 110 FS	135	152,5	174,5	—	—	182	A 40 x 36 DIN 5482	110
RR 210 FS	145	191,5	209	231	—	182	A 40 x 36 DIN 5482	200
RR 310 FS	142	208	225,5	247,5	—	245	A 58 x 53 DIN 5482	300
RR 510 FS	150	223,5	282,5	300	—	245	A 58 x 53 DIN 5482	500
RR 710 FS	150	212,5	278,5	296	—	245	A 58 x 53 DIN 5482	750
RR 810 FS	192,5	260,5	326,5	344	—	297	A 70 x 64 DIN 5482	800
RR 1010 FS	212	288	361,5	420,5	—	320	A 80 x 74 DIN 5482	1000
RR 1700 FS	231	307	380,5	439,5	—	340	A 80 x 74 DIN 5482	1700
RR 2500 L... FS	276	369	437	505	—	370	A 100 x 94 DIN 5482	2500
RR 3200 L... FS	295	397	473	539,5	—	407	N 120 x 5 x 9H DIN 5480	3300
RR 4000 L... FS	340	455	531	597,5	—	457	N 120 x 5 x 9H DIN 5480	4000
RR 5200 L... FS	340	455	531	597,5	—	457	N 140 x 5 x 9H DIN 5480	5200
RR 6500 L... FS	377,5	542,5	635,5	703,5	—	515	N 150 x 5 x 9H DIN 5480	6800
RR 8000 L... FS	463	668	783	859	—	570	N 170 x 5 x 9H DIN 5480	8000
RR 10000 L... FS	463	668	783	859	—	570	N 170 x 5 x 9H DIN 5480	10000
RR 15000 L... FS	499,5	704,5	819,5	895,5	—	645	N 200 x 5 x 9H DIN 5480	15000
RR 20000 L... FS	562	790,5	955,5	1048,5	—	725	N 220 x 5 x 9H DIN 5480	21000
RR 25000 L... FS	693	922	1127	1242	—	820	N 240 x 5 x 9H DIN 5480	28000
RR 30000 L... FS	734,5	1035,5	1240,5	1355,5	—	910	N 260 x 5 x 9H DIN 5480	32000
RR 40000 L... FS	734,5	1035,5	1240,5	1355,5	—	910	N 280 x 8 x 9H DIN 5480	42000
RR 55000 L... FS	813	1146	1374,5	1539,5	—	1015	N 300 x 8 x 9H DIN 5480	56000
RR 70000 L... FS	933	1266	1495	1660	1753	1010	N 340x8x30x41x9H DIN 5480	76000
RR 85000 L... FS	919	1286	1569	1774	1889	1300	N 400x8x30x48x9H DIN 5480	89000
RR 110000 L... FS	1015	1443	1744	2049	2064	1300	N 450x8x30x55x9H DIN 5480	120000



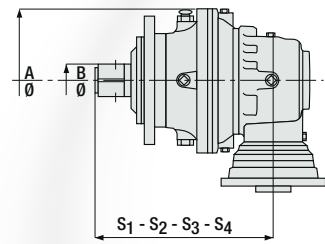
RIGHT ANGLE PLANETARY GEAR REDUCERS MALE SPLINE OUTPUT



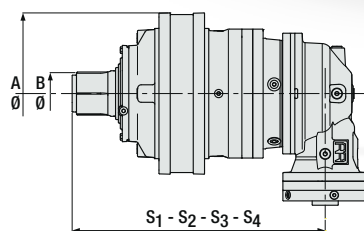
The right angle planetary offers the same great power transmission capabilities of the inline reducer, but also allows for a ninety degree angle drive for applications where room is a premium.

The right angles are designed to accept the same universal and integrated motor connections and negative brakes accessories as the rest of the **Reggiana Riduttori** planetary product line.

SERIES 2000

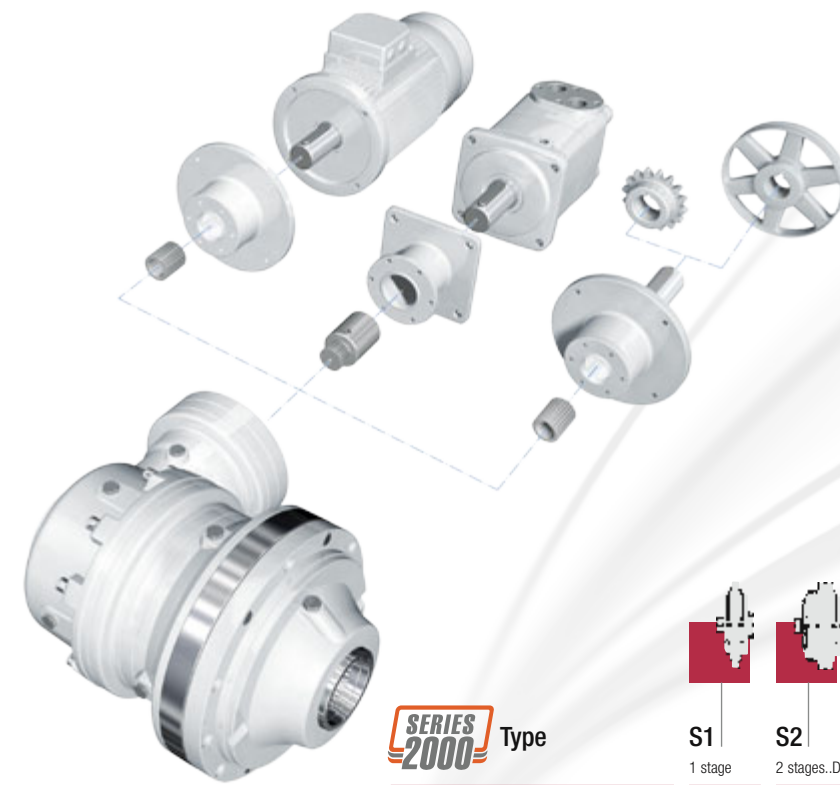


RRPLUS



Type	S1 1 stage	S2 2 stages..D	S3 3 stages..T	S4 4 stages..Q	A	B	Nominal torque daNm
RR 105 MS	231	276	—	—	186	B 40 x 36 DIN 5482	105
RR 110 MS	233	278	—	—	186	B 40 x 36 DIN 5482	110
RR 210 MS	243	290	—	—	186	B 40 x 36 DIN 5482	200
RR 210 SS	289	336	—	—	186	B 58 x 53 DIN 5482	200
RR 310 MS	309	353	396	—	245	B 58 x 53 DIN 5482	300
RR 310 SS	367	411	454	—	270	B 58 x 53 DIN 5482	300
RR 510 MS	337,5	369	428	—	282	B 58 x 53 DIN 5482	500
RR 510 SS	395,5	427	486	—	282	B 58 x 53 DIN 5482	500
RR 710 MS	337,5	379,5	424	—	282	B 58 x 53 DIN 5482	750
RR 710 SS	415,5	457,5	502	—	282	B 70 x 64 DIN 5482	750
RR 810 MS	457,5	474	519	—	297	B 70 x 64 DIN 5482	800
RR 810 SS	511,5	528	573	—	297	B 70 x 64 DIN 5482	800
RR 1010 MS	433,5	516	547,5	—	320	B 80 x 74 DIN 5482	1000
RR 1700 MS	463	545,5	577	—	340	B 80 x 74 DIN 5482	1700
RR 1700 BS	509,5	592	623,5	—	340	B 80 x 74 DIN 5482	1700
RR 2500 A... MS	—	558	583	600	370	B 100 x 94 DIN 5482	2500
RR 3200 A... MS	—	602	673	681,5	407	W 120 x 5 x 8f DIN 5480	3300
RR 4000 A... MS	—	662	745,5	754,5	460	W 120 x 5 x 8f DIN 5480	4000
RR 5200 A... MS	—	672	755,5	764,5	460	W 140 x 5 x 8f DIN 5480	5200
RR 6500 A... MS	—	716,5	879,5	904,5	519	W 150 x 5 x 8f DIN 5480	6800
RR 8000 A... MS	—	—	1005	1088,5	570	W 170 x 5 x 8f DIN 5480	8000
RR 10000 A... MS	—	—	1005	1088,5	570	W 170 x 5 x 8f DIN 5480	10000

RIGHT ANGLE PLANETARY GEAR REDUCERS FEMALE SPLINE OUTPUT



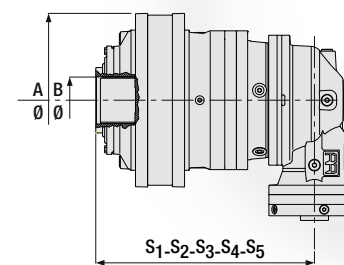
The entire range of female output gear reducers are available with the spiral bevel right angle drive.

The right angles are designed to accept the same universal and integrated motor connections and negative brakes accessories as the rest of the **Reggiana Riduttori** planetary product line.

SERIES 2000

Type	S1 1 stage	S2 2 stages..D	S3 3 stages..T	S4 4 stages..Q	S5 5 stages..Q	A	B	Nominal torque daNm
RR 105 FS	159,5	203,5	—	—	—	186	40 x 36 DIN 5482	105
RR 110 FS	161,5	206	—	—	—	186	A40 x 36 DIN 5482	110
RR 210 FS	171,5	217,5	—	—	—	186	A40 x 36 DIN 5482	200
RR 310 FS	190	241	277	—	—	245	58 x 53 DIN 5482	300
RR 510 FS	218,5	250	309	—	—	282	58 x 53 DIN 5482	500
RR 710 FS	218,5	260,5	305	—	—	282	A58 x 53 DIN 5482	750
RR 810 FS	291,5	308,5	352,5	—	—	297	70 x 64 DIN 5482	800
RR 1010 FS	274	356,5	388	—	—	320	A80 x 74 DIN 5482	1000
RR 1700 FS	293	375,5	407	—	—	340	A80 x 74 DIN 5482	1700

RRPLUS



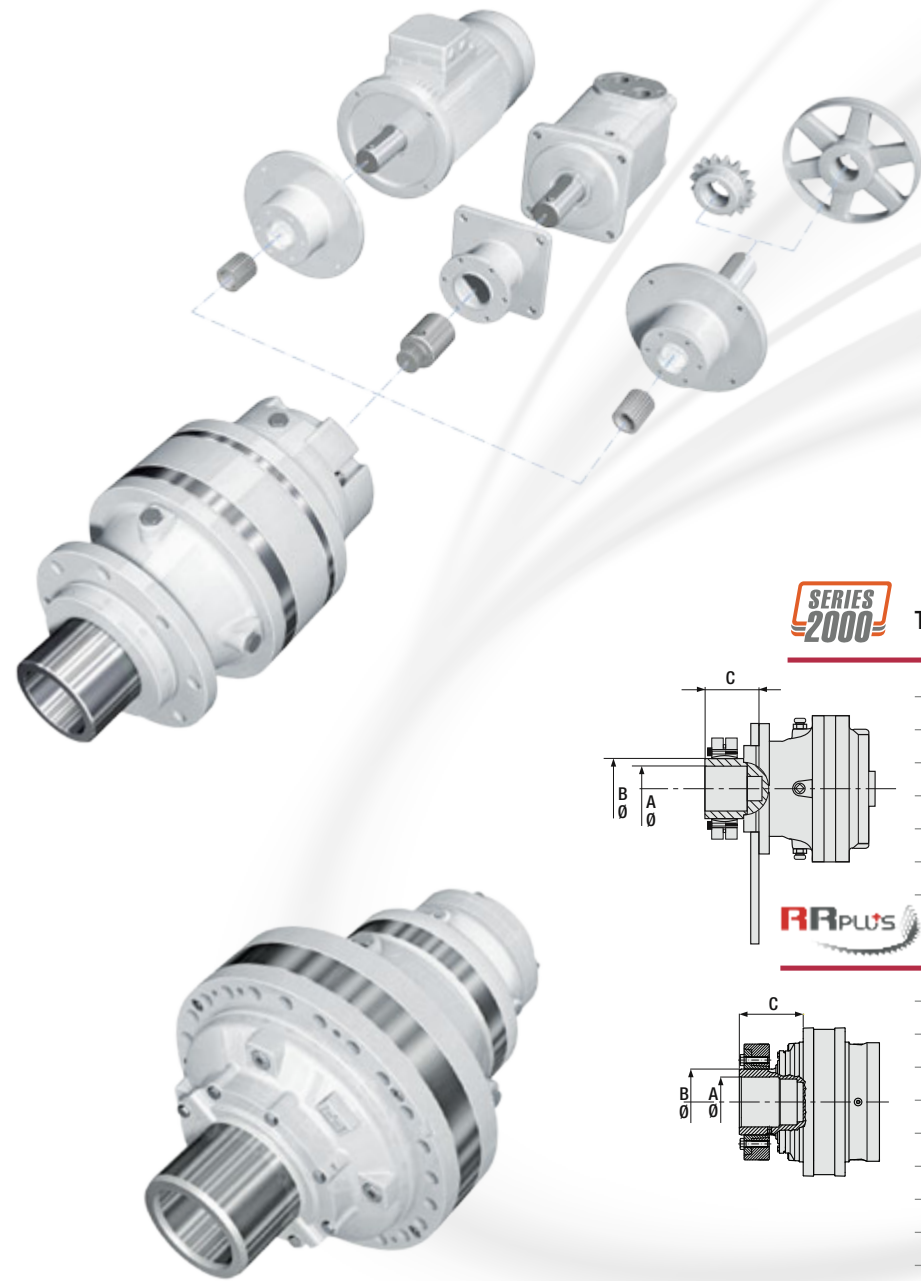
RR 2500 A... FS	—	443	468	485	—	370	A100 x 94 DIN 5482	2500
RR 3200 A... FS	—	462	533	541,5	—	407	N120 x 5 x 9H DIN 5480	3300
RR 4000 A... FS	—	507	590,5	599,5	—	457	N120 x 5 x 9H DIN 5480	4000
RR 5200 A... FS	—	507	590,5	599,5	—	457	N140 x 5 x 9H DIN 5480	5200
RR 6500 A... FS	—	546,5	709,5	734,5	—	515	N150 x 5 x 9H DIN 5480	6800
RR 8000 A... FS	—	—	835	918,5	—	570	N170 x 5 x 9H DIN 5480	8000
RR 10000 A... FS	—	—	835	918,5	—	570	N170 x 5 x 9H DIN 5480	10000
RR 15000 A... FS	—	—	871,5	955	—	645	N200 x 5 x 9H DIN 5480	15000
RR 20000 A... FS	—	—	959,5	1122,5	—	725	N220 x 5 x 9H DIN 5480	21000
RR 25000 A... FS	—	—	—	1294	—	820	N240 x 5 x 9H DIN 5480	28000
RR 30000 A... FS	—	—	—	1407,5	—	910	N260 x 5 x 9H DIN 5480	32000
RR 40000 A... FS	—	—	—	1407,5	—	910	N280 x 8 x 9H DIN 5480	42000
RR 55000 A... FS	—	—	—	1543,5	—	1015	N300 x 8 x 9H DIN 5480	56000
RR 70000 A5 FS	—	—	—	—	1750	1010	N340x8x30x41x9H DIN 5480	76000
RR 85000 A5 FS	—	—	—	—	1906	1300	N400x8x30x48x9H DIN 5480	89000

PLANETARY GEAR REDUCERS WITH HOLLOW OUTPUT SHAFT

In recent years, the popularity of keyless shaft power transmission has increased. **Reggiana Riduttori** offers a hollow shaft output designed for use with a "shrink disc" clamping device. The benefits include reduce manufacturing costs, ease of assembly and disassembly, shaft mounting, and reliability.

RR USA also offers standard and custom made torque arms and shrink discs accessories to complete your installation package.

These drives can incorporate the same various input options as all the other planetary drives, including right angles, and negative brakes.



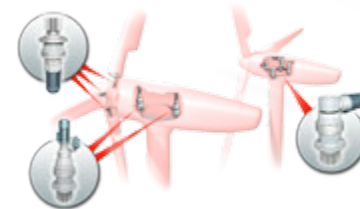
SERIES 2000	Type	ØA	ØB	C	Nominal torque daNm
	RR 310 MH	75	100	90	300
	RR 510 MH	75	100	90	500
	RR 710 MH	75	100	90	750
	RR 810 MH	90	125	133	800
	RR 1010 MH	100	140	140	1000
	RR 1700 BH	120	165	142,5	1700
	RR 1700 MH	120	165	245	1700
	RR 2500 MH	125	165	160	2500
	RR 3200 MH	140	185	180	3300
	RR 4000 MH	140	185	180	4000
	RR 5200 MH	140	185	235	5200
	RR 6500 MH	165	220	245	6800
	RR 8000 MH	180	240	265	8000
	RR 10000 MH	180	240	265	10000
	RR 15000 MH	220	280	320	15000
	RR 20000 MH	240	300	340	21000
	RR 25000 MH	260	340	380	28000
	RR 30000 MH	290	360	420	32000
	RR 40000 MH	290	360	420	42000
	RR 55000 MH	310	390	460	56000
	RR 70000 MH	350	420	450	76000
	RR 85000 MH	400	500	525	89000
	RR 110000 MH	450	560	575	120000

SLEWING GEARBOXES PLANETARY GEAR REDUCERS

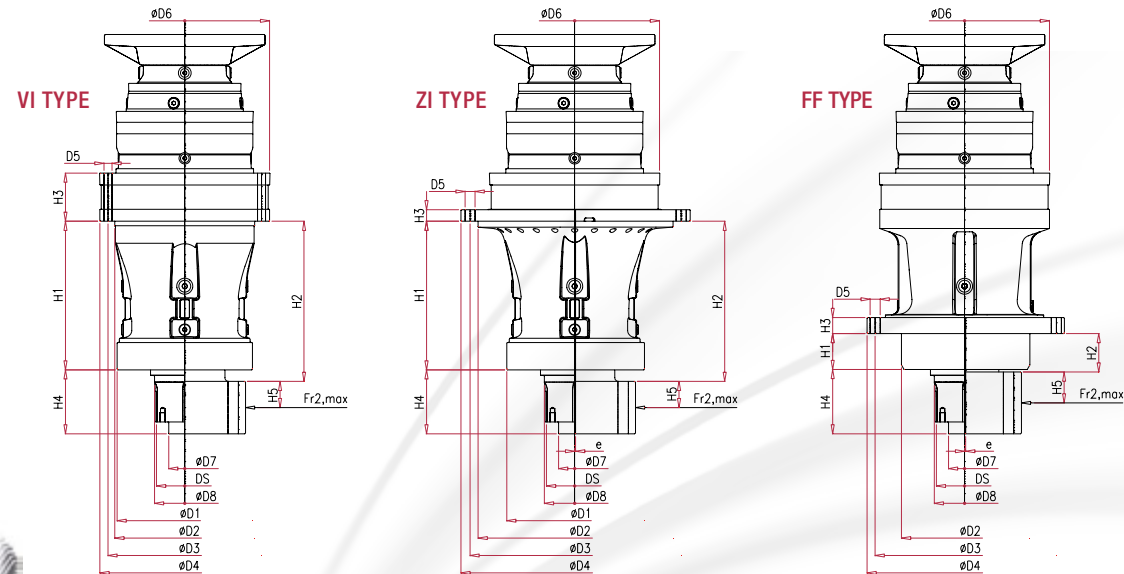
Reggiana Riduttori produces planetary gears specifically designed for slew drive applications. These drives are ideal for truck cranes, excavators, off-shore cranes, wind turbines, and aerial working platforms. Notable features include large bearings for additional radial and axial load capacity.



Gearbox type	Torque T _{2FEM} (Nm)	Extreme torque (Nm)	Max radial load (N)	Ratio (L2 - L3 - L4)
FEM M5 (T5-L2), n ₂ =15 rpm		F _{2,max} , H5		
RR1800 VI	17000 ÷ 27000	40000	528000	13.26 ÷ 2212.06
RR1800 ZI	17000 ÷ 27000	40000	528000	13.26 ÷ 2212.06
RR1800 FF	17000 ÷ 27000	40000	396000	13.26 ÷ 2212.06
RR2500 VI	20000 ÷ 34000	70000	555000	15.69 ÷ 2495.56
RR2500 ZI	20000 ÷ 34000	70000	555000	15.69 ÷ 2495.56
RR2500 FF	20000 ÷ 34000	70000	595000	15.69 ÷ 2495.56
RR3200 VI	25000 ÷ 44000	80000	555000	16.00 ÷ 2005.23
RR3200 ZI	25000 ÷ 44000	80000	555000	16.00 ÷ 2005.23
RR3200 FF	25000 ÷ 44000	80000	595000	16.00 ÷ 2005.23
RR4000 ZI	35000 ÷ 59000	100000	805000	16.28 ÷ 1910.05
RR4000 FF	35000 ÷ 59000	100000	1107000	16.28 ÷ 1910.05
RR5200 ZI	46000 ÷ 76000	120000	805000	16.28 ÷ 1803.20
RR5200 FF	46000 ÷ 76000	120000	1107000	16.28 ÷ 1803.20
RR6500 ZI	65000 ÷ 100000	160000	992000	16.70 ÷ 2064.71
RR8000 ZI	64000 ÷ 112000	200000	1142000	17.42 ÷ 1695.65
RR10000 ZI	89000 ÷ 143000	230000	1142000	17.42 ÷ 1600.80



SLEWING GEARBOXES PLANETARY GEAR REDUCERS



TYPE	DIMENSIONS															
	D1	D2	D3	D4	D5	D6	e	H1	H2	H3	H4	H5	DS	D7	D8	
RR1800 VI	250	280	314	340	Ø15.5 n°18	342	-	295	300	105	125	56	DIN5480 120x3	110	125	
RR1800 ZI	250	280	380	420	Ø17 n°24	342	2	295	300	30	-	56	-	-	-	
RR1800 FF	-	257	295	325	Ø13.5 n°24	342	1.5	121	125	40	-	56	-	-	-	
RR2500 VI	300	305	335	370	Ø17.5 n°24	370	-	325	350	105	139.5	65	DIN5480 130x5	70	132	
RR2500 ZI	300	425	460	500	Ø22 n°24	370	2	325	350	25	139.5	65	DIN5480 130x5	70	132	
RR2500 FF	-	280	395	430	Ø22 n°24	370	2.5	79	84	35	140.5	65	DIN5480 130x5	70	132	
RR3200 VI	300	335	370	405	Ø17.5 n°24	405	-	325	350	105	139.5	65	DIN5480 130x5	70	132	
RR3200 ZI	300	425	460	500	Ø22 n°24	405	2	325	350	25	139.5	65	DIN5480 130x5	70	132	
RR3200 FF	-	280	395	430	Ø22 n°24	405	2.5	79	84	35	140.5	65	DIN5480 130x5	70	132	
RR4000 ZI	340	400	510	555	Ø22 n°24	457	2.5	420	425	25	-	75	-	-	-	
RR4000 FF	-	410	450	490	Ø22 n°24	457	2.5	115	120	40	170	75	DIN5480 160x5	80	162	
RR5200 ZI	340	400	510	555	Ø22 n°24	457	2.5	420	425	25	-	75	-	-	-	
RR5200 FF	-	410	450	490	Ø22 n°24	457	2.5	115	120	40	170	75	DIN5480 160x5	80	162	
RR6500 ZI	370	540	580	620	Ø22 n°28	515	5	517	525	30	173	80	DIN5480 170x5	150	172	
RR8000 ZI	420	600	650	700	Ø26 n°28	570	5	577	585	30	206	106	DIN5480 200x5	180	202	
RR10000ZI	420	600	650	700	Ø26 n°28	570	5	577	585	30	206	106	DIN5480 200x5	180	202	

INPUT OPTIONS

- Negative brakes with motor coupling
- Hydraulic motors
- Brake motors

OUTPUT OPTIONS

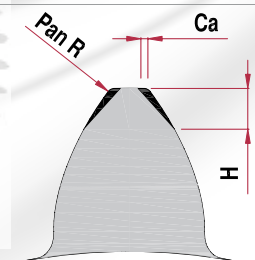
- Splined shaft or integral pinion

Module, Number of teeth, Profile shift on request

Pinion Data

Tip Relief

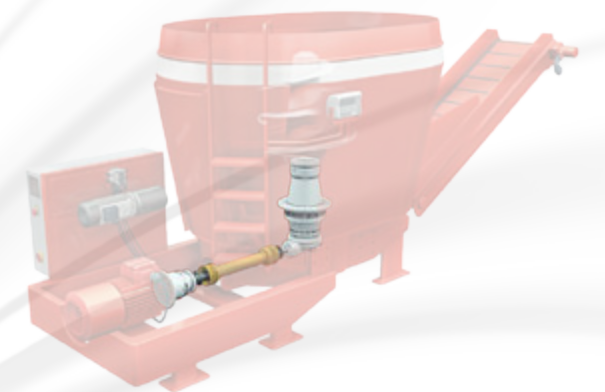
$Pan R = 0.1 * Mn$
 $Ca = 0.01 * Mn$
 $H = 0.5 * Mn$



AGRICULTURAL FEED MIXERS GEARBOX OVERVIEW

Reggiana Riduttori produces the most comprehensive line of planetary gearboxes for the agricultural feed mixer applications. We offer a variety of ratio options, right angle inputs with single and double PTO shafts, and hydraulic motor inputs.

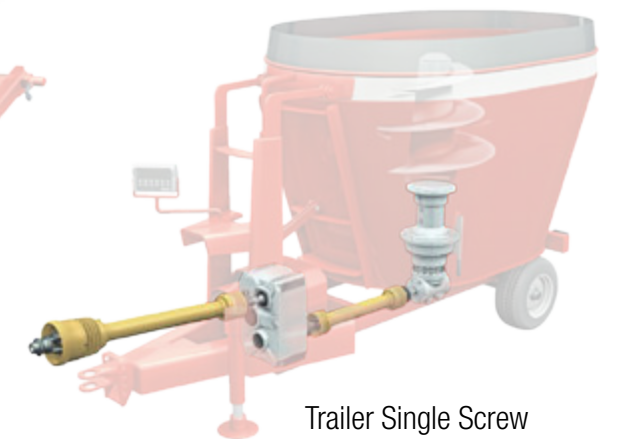
Our range of gearboxes are applicable on feed mixers ranging from 200 ft³ to over 2000 ft³ mixing capacity. On request we also offer a 2-SPEED gearbox option with ratings of up to 130 HP.



Stationary Single Screw



Stationary Twin Screw



Trailer Single Screw



Trailer Twin Screw



Trailer Triple Screw





AGRICULTURAL FEED MIXERS GEARBOX OVERVIEW

Trailers

Series	Mixing capacity	Mixing capacity		Auger Gearbox	Ratio Options	Lubrication		PTO shafts
	ft ³	ft ³	Service			Full Oil	Oil / Grease	
 Single auger Trailer	200 - 800	200 - 450	low duty	RR1800 A2 A210	13,82 - 22,22	X	X	single 1" 3/8 Z6
		250 - 600	medium duty	RR1800 A2 A815	13,96 - 22,44	X	X	single 1" 3/4 Z20
		250 - 600	medium duty	RR1800 A2 AM815	14,47 - 23,26	X	X	double 1" 3/4 Z20
		200 - 350	low duty	RR1800 A3 AM110	17,64 - 43,89	X	X	single/double 1" 3/8 Z6
		280 - 600	heavy duty	RR1800 A3 AM212	13,92 - 53,45	X	X	single/double 1" 3/4 Z20
		350 - 650	heavy duty	RR2100 A3 AM300	16,00 - 27,47	X	X	single/double 1" 3/4 Z20
		500 - 800	heavy duty	RR3200 A3 AM300	28,00 - 35,96	X	X	single/double 1" 3/4 Z20
 Double auger Trailer	450 - 1300	450 - 1200	medium duty	RR1800 A2 AM815	14,47 - 23,26	X	X	double 1" 3/4 Z20
		450 - 1200	medium duty	RR1800 A3 AM212	13,92 - 53,45	X	X	single/double 1" 3/4 Z20
		450 - 1200	heavy duty	RR2100 A3 AM300	16,00 - 27,47	X	X	single/double 1" 3/4 Z20
		650 - 1300	heavy duty	RR3200 A3 AM300	28,00 - 35,96	X	X	single/double 1" 3/4 Z20
 Triple auger Trailer	1100 - 2000	1100 - 1450	medium duty	RR1800 A2 AM815	14,47 - 23,26	X	X	double 1" 3/4 Z20
		1100 - 1600	medium duty	RR1800 A3 AM212	13,92 - 53,45	X	X	single/double 1" 3/4 Z20
		1100 - 1600	heavy duty	RR2100 A3 AM300	16,00 - 27,47	X	X	single/double 1" 3/4 Z20
		1200 - 2000	heavy duty	RR3200 A3 AM300	28,00 - 35,96	X	X	single/double 1" 3/4 Z20

Stationary

Series	Mixing capacity	Mixing capacity		Auger Gearbox	Ratio Options	Lubrication		PTO shafts
	ft ³	ft ³	Service			Full Oil	Oil / Grease	
 Single auger Stationary	200 - 800	200 - 450	low duty	RR1800 A2 A210	13,82 - 22,22	X	X	single 1" 3/8 Z6
		200 - 500	medium duty	RR1800 A2 A815	13,96 - 22,44	X	X	single 1" 3/4 Z20
		200 - 500	medium duty	RR1800 A2 AM815	14,47 - 23,26	X	X	double 1" 3/4 Z20
		200 - 600	heavy duty	RR1800 A3 AM212	13,92 - 53,45	X	X	single/double 1" 3/4 Z20
		600 - 800	heavy duty	RR3200 A3 AM300	28,00 - 35,96	X	X	single/double 1" 3/4 Z20
		Prereduction gearbox				RR510/710/810	3,4 - 8,6	X
 Double auger Stationary	450 - 2000	450 - 950	medium duty	RR1800 A2 AM815	14,47 - 23,26	X	X	double 1" 3/4 Z20
		450 - 950	medium duty	RR1800 A3 AM212	13,92 - 53,45	X	X	single/double 1" 3/4 Z20
		500 - 950	heavy duty	RR2100 A3 AM300	16,00 - 27,47	X	X	single/double 1" 3/4 Z20
		950 - 2000	heavy duty	RR3200 A3 AM300	28,00 - 35,96	X	X	single/double 1" 3/4 Z20
		Prereduction gearbox				RR510/710/810	3,4 - 8,6	X

PARALLEL SHAFT REDUCERS WITH HELICAL CUT GEARS AND BEVEL INPUTS

The new and innovative range of helical and bevel-helical units combines the most advanced design concepts and performances in full compliance with international standards (ISO, DIN, AGMA, etc.) for calculating gear geometry. The high power to weight ratio of all units, combined with low volume, enables perfect installation in the most critical situations. One of the main features in this range of gear units is the great versatility of applications and mounting, in terms of both position and fixing on site. New concepts have been used to improve the noise level in a consistent way, by grinding all gears sets, both the helical and the Gleason spiral bevel type gears.



PARALLEL SHAFTS
HELICAL GEARS

SERIES P



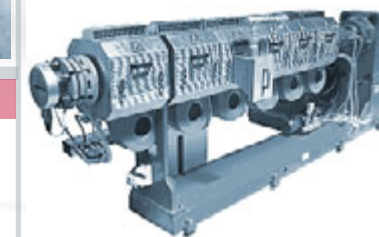
PARALLEL SHAFTS
HORIZONTAL BEVEL GEARS

SERIES RH



PARALLEL SHAFTS
VERTICAL BEVEL GEARS

SERIES RV



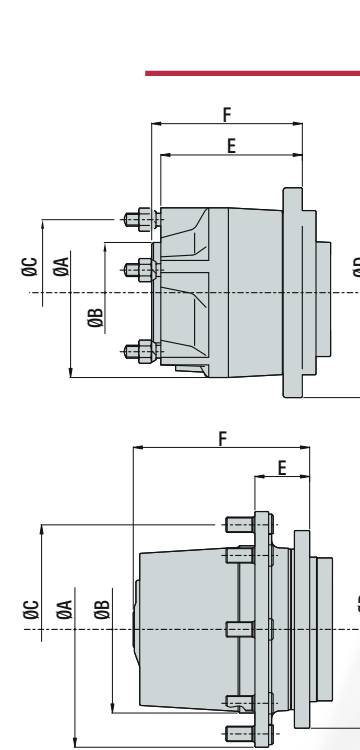
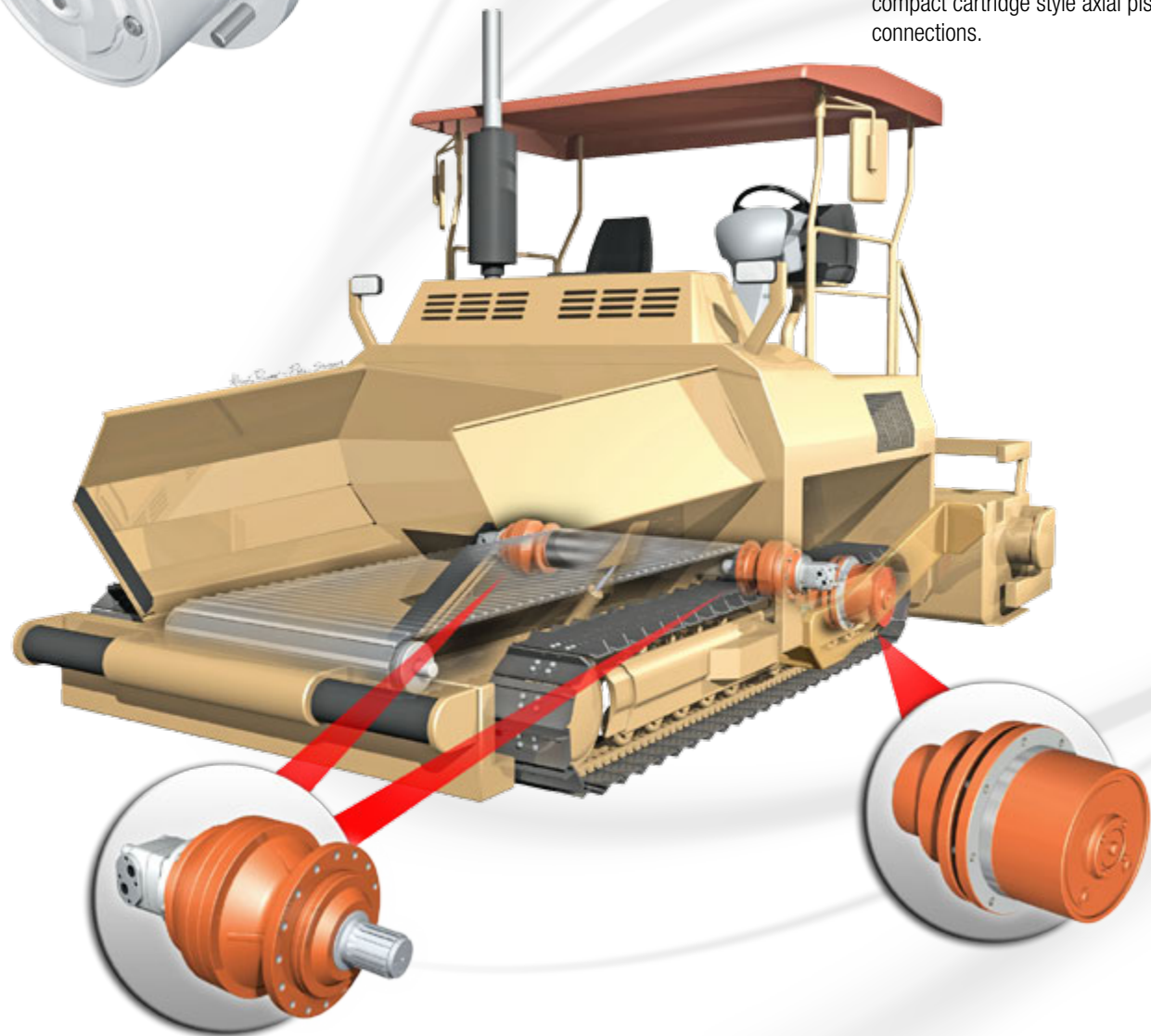
PLANETARY WHEEL DRIVES FOR ROAD AND OFF-ROAD MACHINERY



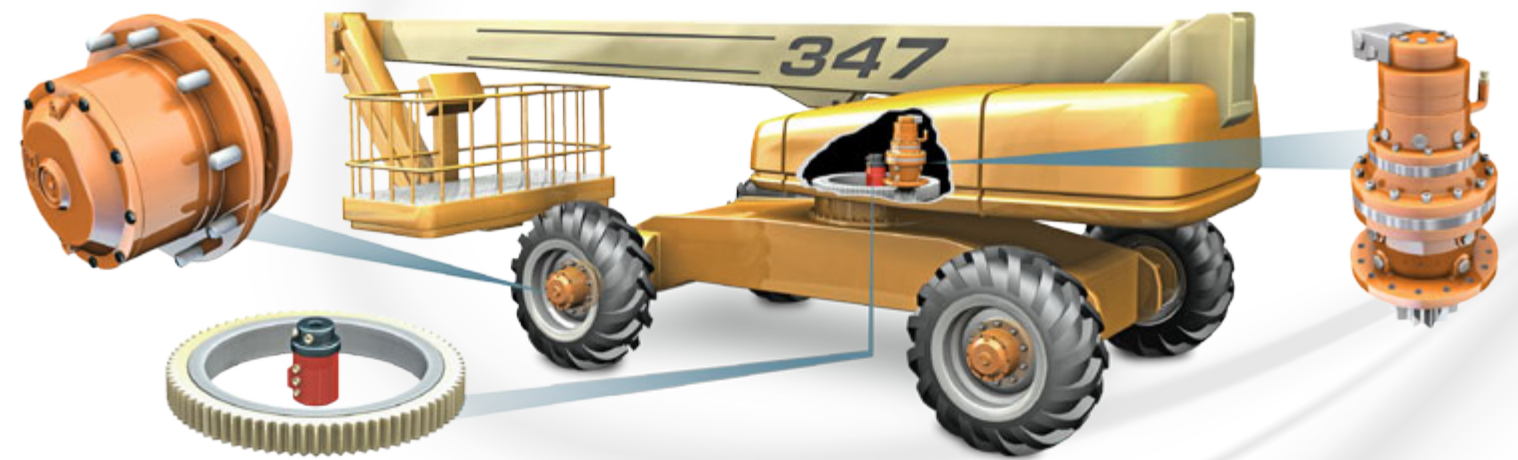
RRWD SERIES



Reggiana Riduttori produces a line of wheel drives for self propelled equipment. The wheel drives have available negative safety brakes as well as disengagement for towing. These drives are particularly suited for heavy aerial work platforms, airport support vehicles and other slow moving machines with rim and tire arrangements. Units are available with SAE & METRIC hydraulic inputs as well as compact cartridge style axial piston motor connections.



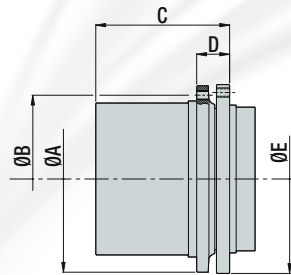
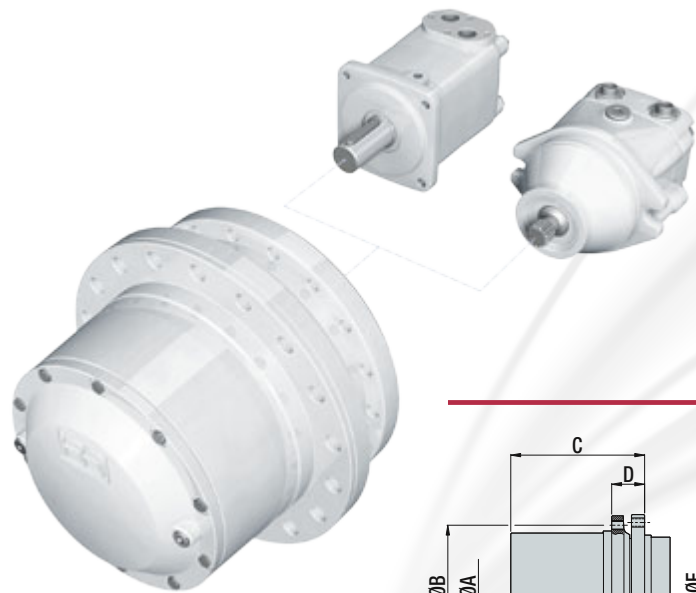
Type	A	B	C	D	E	F	T ₂ MAX
RRWD 200	186	110 h 8	160	230	155	165	200
RRWD 200 B	186	110 h 8	160	230	155	165	200
RRWD 270	229	152,4 h 8	203.2	262	195	208,5	250
RRWD 270 B	229	152,4 h 8	203.2	262	195	208,5	250
RRWD 300	186	110 h 8	160	215	170	195,5	300
RRWD 300 B	186	110 h 8	160	215	170	195,5	300
RRWD 500 D-10"	220	110 h 8	160	260	215	235	450
RRWD 500 DB-10"	220	110 h 8	160	260	215	235	450
RRWD 500 D-12"	235	160 h 8	205	260	173	232	550
RRWD 500 DB-12"	235	160 h 8	205	260	173	232	550
RRWD 600 D	280	200 h 7	241.3	240	107	220	700
RRWD 600 DB	280	200 h 7	241.3	240	107	220	700
RRWD 800 D	310	220 h 7	275	260	72	232	1000
RRWD 800 DB	310	220 h 7	275	260	72	232	1000
RRWD 1700 T	375	280 h 7	335	330	115	298.5	1700
RRWD 1700 TB	375	280 h 7	335	330	115	298.5	1700



RRTD SERIES



Reggiana Riduttori's largest range of wheel drives is the RRTD. The RRTD product ranges from the small 100 daNm drive suitable for small scissor lifts to the RRTD 5000 designed for large excavators and other tracked platforms. These drives are also suitable for marine winch applications and winches for lifting in general. Units are available with negative parking brake, SAE & METRIC hydraulic inputs as well as compact cartridge style axial piston motor connections.



Type	A	B	C	D	E	T _{2MAX}
RRTD 100	179	164	112	40	179	100
RRTD 100 B	179	164	112	40	179	100
RRTD 180	200	180	132	40	193	180
RRTD 180 B	200	180	132	40	193	180
RRTD 300	227	210	163	40	230	300
RRTD 300 B	227	210	163	40	230	300
RRTD 800 D	290	260	232	72	260	1000
RRTD 800 DB	290	260	232	72	260	1000
RRTD 1000 D	290	260	267	72	260	1000
RRTD 1000 DB	290	260	267	72	260	1000
RRTD 1700 T	370	330	288,5	115	330	1700
RRTD 1700 TB	370	330	288,5	115	330	1700
RRTD 1701 T	335	305	252	75	304	1700
RRTD 1701 TB	335	305	252	75	304	1700
RRTD 2400 T	410	380	319	82	330	2400
RRTD 2400 TB	410	380	319	82	330	2400
RRTD 3600 T	380	350	300,5	90	350	3600
RRTD 3600 TB	380	350	300,5	90	350	3600
RRTD 5000 T	435	400	364	110	360	5000
RRTD 5000 TB	435	400	364	110	360	5000



SERIES

HW - MLHM - MLHP
HP - MLHR - HR - MLHH
MLHS - MLHT - MLHV
MLHTM

- Displacements: from 0.5 cu-in to 49 cu-in
- Speeds: up to 2400 RPM
- Output torques: from 106 lb-in to 21,850 lb-in
- Max pressures: up to 4100 PSI
- Flows: from 0.5 GPM to 63 GPM
- Output powers: from 2.4 HP to 76 HP
- A variety of output flanges & shafts available (SAE & Metric).
- SAE, BSPP or Gas ports available.
- High pressure seal options.
- Speed sensors.
- Free wheeling, low leakage and low speed valve options.



FEATURES

Type	Check valves	Gerotor	Geroller	Spool type	Disk type	Wheel mount
MLHM	•	•		•		
MLHP-HP	•	•		•		•
MLHR-HR	•		•	•		•
MLHH	•		•	•		
HW	•		•	•		•
MLHS	•		•		•	•
MLHT	•		•		•	•
MLHV	•		•		•	•
MLHTM	•		•		•	•

VALVES FOR HYDRAULIC MOTORS

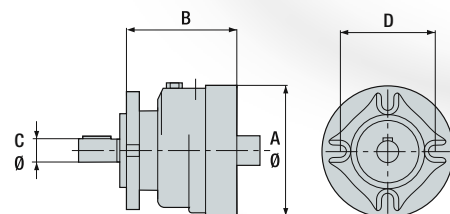


- Counterbalance valves
- Cross port relief valves
- Shuttle valves

HYDRAULIC BRAKES



These negative type hydraulic disk brakes are used in applications that require emergency brake for safety purposes (crane, trucks, road vehicles, winches)
A modular version is available that will mount to our gear reducers and a direct version for orbital hydraulic motors with output shafts.



Type	A	B	C	D	Input	Output	Nominal torque daNm
DG-RF /288	148	112	25 k 6	106	—	—	7÷43
DG-RF /289	148	124	32 k 6	106	OMSS	OMS	7÷43
DG-RF /290	148	71	35 k 6	160	OMSS	OMSW	7÷43
DG-RF /313	205	128	50 k 6	200	OMVS	OMV	21÷130
DG-RF /314	195	147	40 k 6	160	OMTS	OMT	21÷130
DG-RF /315	195	80	45 k 6	200	OMTS	OMTW	21÷130
DG-RF /316	205	59	60 j 6	224	OMVS	OMVW	21÷130
DG-RFF /392	195	118	60 j 6	175	OMTS	—	21÷130
DG-RFF /396	205	118	60 j 6	175	OMVS	—	21÷130

STEERING VALVES

- SERIES**
HKU.../3,4
HKU.../7
HKUS.../3,4,8
HKUS/PB
HKU/Q
HKUS...5

- Displacements: from 2.4 cu-in to 60 cu-in
- Flow rates: from 1 GPM to 21 GPM
- Rated pressure: upto 2900 PSI
- Max torques: up to 1065 lb-in
- Open center, closed center, load reaction, non-load reaction, load sensing outlet, power beyond, with or without relief valves, with servoamplifying, all these are available options.
- Relief and anticavitation valve blocks.
- Priority valve blocks.
- Fixed steering columns, with or w/out horn wire.



SEATS & ACCESSORIES

**SEATS
SUSPENSIONS
ACCESSORIES
SPARE PARTS**

- Vinyl and cloth coverings.
- With mechanical or air suspensions.
- Presence safety switch.
- Color options & logos.
- Various options available:

*Seat belts
Runners
Armrests
Backrest extensions
Backrest adjustments
Weight adjustments
Document pouch
Rotating plates
Hip restraint and more.*



STEERINGS COLUMNS

**SERIES
KING
STAR
SIRIUS
VENUS
SUN
MOON
COSMOS**

- Complete steering column modules.
- A variety of switches, levers, gauges, warning lights available.
- Complete wiring harnesses with output connectors.
- Long or short models.
- Fixed, with tilt, or tilt & telescope.
- With a variety of steering wheels to choose from:
 - Hard touch*
 - Soft touch*
 - With or w/out knobs*
 - With or w/out horn cap.*
- 12 or 24 volts.



BRAKING SYSTEMS and ACCESSORIES



Brake cylinders with hydraulic servo control

Main features

- Easy installation and perfect integration with the existing braking and hydraulic systems
- Maximum braking sensitivity
- High braking pressures obtained with low strain on the pedal
- Built-in servo brake pressure limiting valves
- Available both for mineral oil and for brake fluid

Operating ranges

- Braking pressure from 0 to 150 bar
- Single- or double-circuit displacement from 18 to 65 cc.
- Operating temperature from -20° to $+90^{\circ}$ C.

Available upon request

- Pressure limiting valves
- Slide valves for working braking
- Closed centre servo brakes
- Servo brakes for load sensing systems
- Master cylinders without hydraulic servo control
- Combination of servo brakes with brake cylinder types for all system requirements

Applications

- Small-size self-propelled machines (mechanical front-loaders), excavators, backhoes, etc.

Two-stage brake cylinders

Main features

- Large displacement
- High braking pressures obtained with low strain on the pedal
- Compact size

- Easy installation
- Available both for mineral oil and brake fluid
- Cost effective

Operating ranges

- Braking pressure up to 150 bar
- Displacement available from 8 to 35 cc.

Applications

- Fork-lift trucks, front-loaders, mechanical backhoes, agricultural backhoes, etc.

Braking systems for farming trailers

Main features

- Brake valves operating according to CUNA 341/01 standards (Italian standards)
- Brake valve operating according to French/Swiss standards.
- Mechanical or hydraulic brake valve piloting
- Single-acting or compound braking cylinders for service, parking and emergency braking

Operating ranges

Brake system components

- Valves for hydraulic braking farming trailers
- Reservoir with hand pump
- Wheel cylinders
- Connecting joints
- Force/pressure transducers
- Specific electric systems
- Pressure selector valves

Applications

- Hydraulic brake system for every kind of farming tractor and trailer

SAFIM S6 braking system

Main features

- Single braking element
- Prompt, progressive braking
- Possibility of operating the brakes of any size vehicle
- Use of the energy available in the existing hydraulic circuit
- Possibility of having different pressures in the two braking circuits
- Accumulator charging valves for hydraulic circuits with fixed displacement and load sensing cylinders
- Easy assembling procedures and adjusting

Operating ranges

- Braking pressure from 0 to 170 bar
- Accumulator recharge pressures from 20 to 200 bar
- Unlimited amount of fluid for the braking circuits

Available upon request

- Electrically controlled parking brake operating device
- Electrically, mechanically or hydraulically controlled working brake
- Electrically controlled device for the accumulators recharge disconnection during starts with engine off
- Built-in pressure reducing valve (for modular S6 units only)
- Electric or hydraulic inching device for vehicle drive disengagement

Applications

- For medium to large size vehicles with 1 to 4 braking circuits: front-loaders, dumpers, fork-lift trucks, truck-mounted cranes, cement-mixer trucks, excavators, road-rollers, etc.

Accessories

- Proportional lever valve for release and modulation of spring-type parking and emergency brakes.
- Flow dividers
- Priority valves
- Pressure switches
- Filters (to be applied on our products)
- Accumulators
- Connections in general
- Reservoirs (brake cylinders)
- Complete pedal for operating brake cylinders with servo control
- Two-stage brake cylinders

Wheel cylinders

Main features

- Product versatility
- Compound wheel cylinders (service, parking and emergency braking) for operating mechanical lever brakes.
- Single-acting negative cylinders

Operating ranges

- Compound cylinders: brake release pressure from 73 to 102 bar
- Operating forces from 694 to 1388 daN
- Negative cylinders with brake release pressure from 6 to 143 bar, braking force from 1057 to 46 daN, operating temperature from -20° C to $+90^{\circ}$ C

Applications

- Parking brake operation (negative brakes)
- Accelerator/clutch control.
- Compound braking (service, parking, emergency).



SLEWING BEARINGS

STYLES

- SINGLE ROW BALL SLEW BEARINGS
- DOUBLE ROW BALL SLEW BEARINGS
- SINGLE ROW ROLLER SLEW BEARINGS
- THREE ROW ROLLER SLEW BEARINGS
- DOUBLE ROW ROLLER SLEW BEARINGS
- CROSS ROLLER SLEW BEARINGS

GALPERTI Tech manufactures excellence in large diameter slew bearings, using state of the art development, design manufacturing, and testing methods that maximize the experience of senior technicians. Their knowledge of calculation methods enhance CAD/CAM design tools and FEA analysis programs. A fully integrated server based computerized system allows manufacturing control of all manufacturing phases, supply chain survey and project management. Every application requires a unique solution. **GALPERTI Tech** manufactures slewing rings from 250 mm to 6200 mm outer diameter. These rings are available with ring gears on inner and outer diameter and also with a gearless option. **GALPERTI Tech** also offers various styles of rolling elements (shown below) to achieve a product that meets the demands of your toughest application.

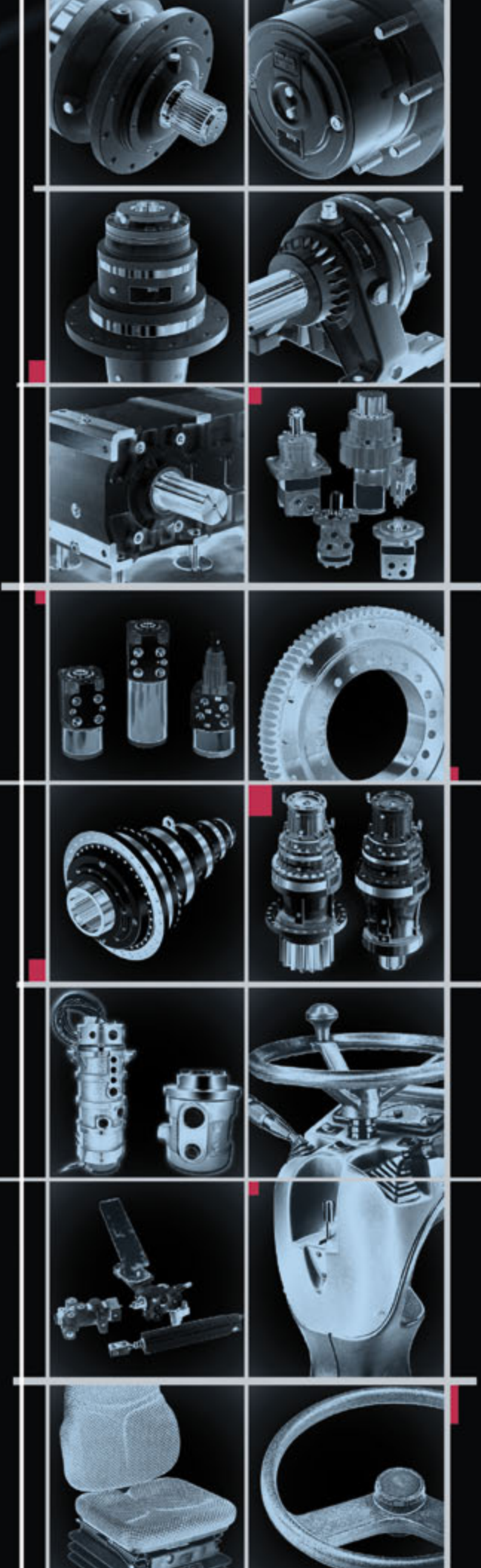
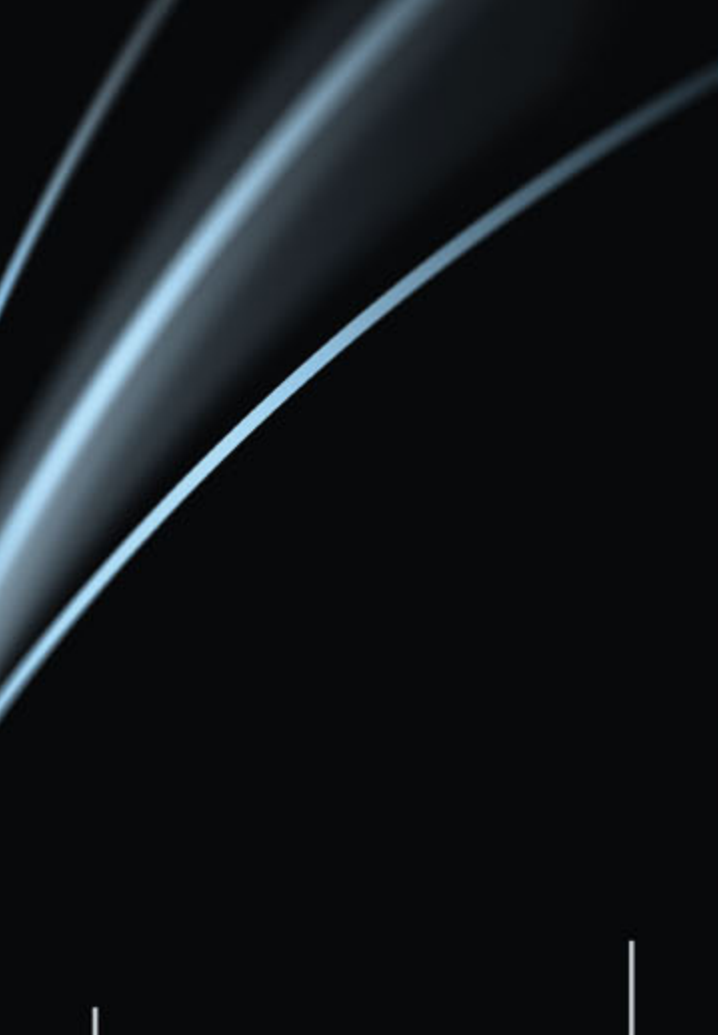
A slew bearing includes the following main elements.
 Inner ring, shaped in turning operation from a forged ring,
 Outer ring, shaped in turning operation from a forged ring,
 Drills for fasteners (thru or tapped),
 Drills for filler plug(s) and filler plug(s),
 Balls and/or rollers,
 Polymer based spacers or polymer/metal cages,
 Drills for grease zerco and lubrication refill,
 Rubber based sealing systems,
 Integral inner or outer gear.



ROTARY MANIFOLDS

Our line of hydraulic, electric and other combinations of rotary manifolds is the most complete available on the market. The cylinder is made of high tensile strength nodular cast iron. The spool is made of forged steel and then chromed and polished to achieve low friction and long seal life. These units have working pressure up to 6500 PSI and ZERO LEAKAGE seals, and are used in the most severe applications. The combination hydraulic-electric with up to 24 hydraulic ports and 30 electrical contacts is one of the most compact and long lasting unit on the market.





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