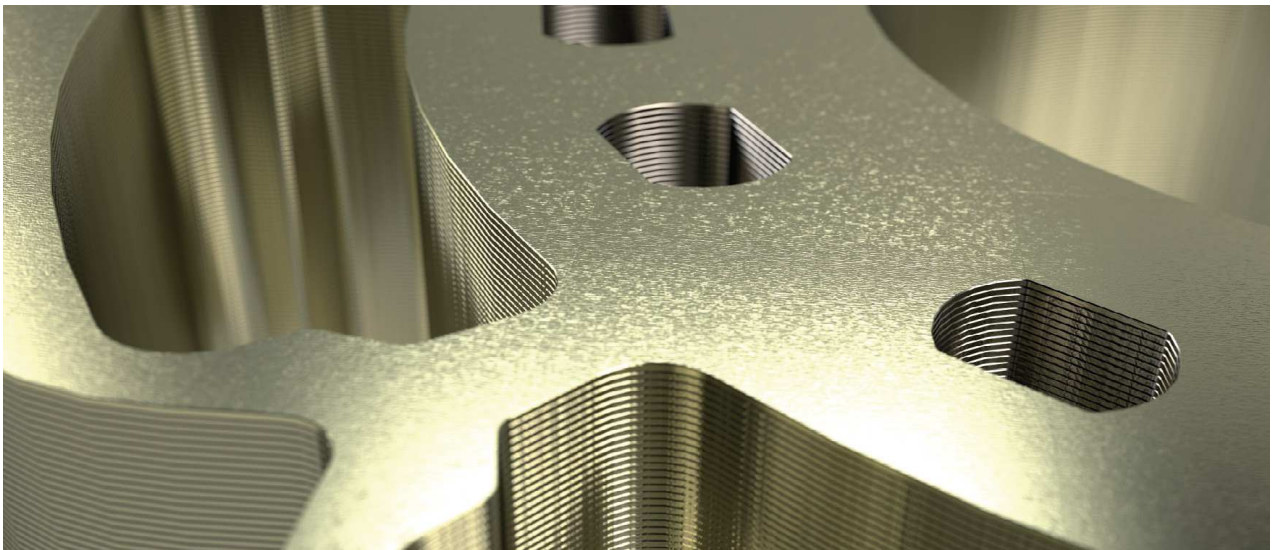




POWERTECH SERIES PRESENTATION



COMER s.r.l.

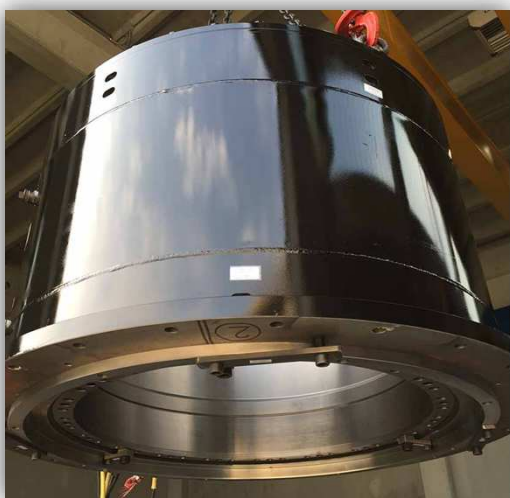
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July 2020

OUR HISTORY



COMER is an industrial project set in motion at the end of the 1950s thanks to the creativity and determination of its three founders. Initially we built standard asynchronous motors, while over the years production has been evolving into the more specialized sector of direct current motors, becoming the core business till the mid-1990s.



POWERTECH

With the advent of modern frequency converters, we've begun a new design season that culminated in the POWERTECH series of high performance asynchronous motors. Starting in 2005, our R&D division has investigated and designed the first series of Permanent Magnet Torque motors with a very high number of poles - and synchronous generators to be used in the wind power sector. Later in 2010 was born the High Speed motors series, specifically conceived for rig test application in the automotive sector.

HERITAGE & INNOVATION

Today, at 60 years since foundation, we are an established Italian leader in the design and production of special asynchronous motors and permanent magnet synchronous motors and generators.



ASYNCHRONOUS MOTORS

COMER's high performance asynchronous motors are built according to the highest quality Standards and can be adopted in a wide range of applications. Our motors are provided with squirrel cage rotors with aluminum slots (or copper in the biggest frames). Available in both air and liquid cooling versions.

SYNCHRONOUS MOTORS

COMER's high performance synchronous motors line is the result of a persistent research in the electromagnetic sector and employment of the most advanced materials. The rotor is provided with permanent rare-earth magnets with outcome of compact and light motors, having extremely high torque and power values. Available in both air and liquid cooling versions.



TECHNICAL DEPARTMENT

AND PRODUCTION



We boast a modern and efficient technical department equipped with the latest software for engineering and designing. The complete in-house design allows us to meet with customers' specific requirements, even tailor-made solutions.



ISO 9001:2015

The whole production process is controlled inside the factory and certified by ISO 9000 Quality System since 1995, now ISO 9001:2015. At the end of manufacturing process, the motors and generators are tested on computerized test benches, equipped with inverters and energy recovery AFE device: in this way we protect the environment from CO₂ emissions and re-use the excess energy into the Factory needs.

PHOTOVOLTAIC

To contribute to a better quality of life on our planet, we have installed a 140 kWp photovoltaic park on the roof of our Factory, able to supply about 50% of energy necessary to the Company.



TECHNICAL DOCUMENTATION

Each motor is supplied with name plate, instruction manual, test report, certificate of compliance, bearings operating range and lubrication instructions and all terminal board diagrams. Optionally, motors are further provided with additional test reports, such as vibration, noise, flange report and equivalent circuit.

The collage displays a variety of technical documents from COMER, illustrating the comprehensive documentation provided for their motors. Key documents include:

- Motor Specifications:** A detailed data sheet for a TETRAVEK 250K3 motor, listing parameters such as voltage (400V), power (345 kW), speed (175 Hz), and efficiency (0.84).
- Vibration Report:** A document titled "RAPPORTO VIBRAZIONI" (VIBRATION REPORT) showing vibration level limits and test results for the TETRAVEK series.
- Test Report:** A "BOZZETTA DI COLLAUDO" (TEST REPORT) detailing the performance of a TETRAVEK motor, including efficiency and power factor data.
- Flange Report:** A "STATINO DI COLLAUDO FLANGIA" (FLANGE REPORT) showing the dimensions and specifications for a DRIVE AX 123K.2 motor.
- Lubrication Instructions:** Documents like "LUBRIFICAZIONE CUSCINETTI" (BEARING LUBRICATION) and "LUBRIFICAZIONE CON GRASSO" (LUBRICATION WITH GREASE) provide detailed guidance on bearing and grease maintenance.
- Operational Limits:** A document titled "LIMITI DI FUNZIONAMENTO E LUBRIFICAZIONE CUSCINETTI" (OPERATIONAL LIMITS AND BEARING LUBRICATION) defines the safe operating ranges for the motor's bearings.
- Compliance Certificate:** An "ATTESTATO DI CONFORMITÀ" (DECLARATION OF CONFORMITY) certifying the motor's adherence to various international standards, including CE, IEC, and EN.
- Equivalent Circuit Diagram:** A diagram showing the electrical equivalent circuit for the motor's phases, used for performance analysis.
- Instruction Manual:** A "MANUALE DI DISTRIBUZIONE" (DISTRIBUTION MANUAL) for the TETRAVEK and TETRALAM motor series.

POWERTECH

DRIVE AX

SERIES

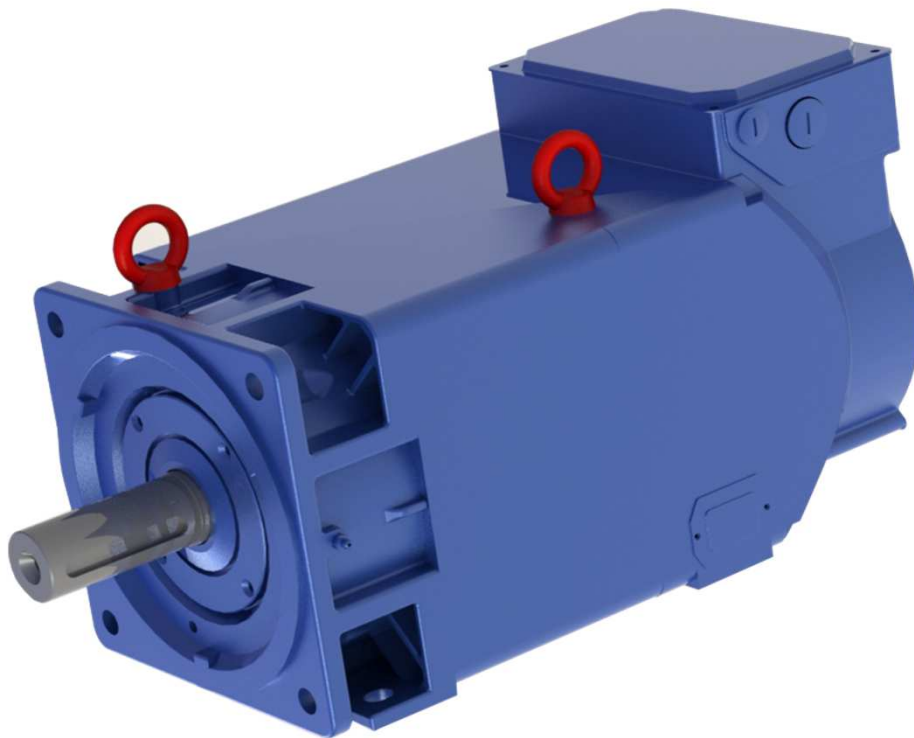
ASYNCHRONOUS MOTORS

RELIABILITY
HIGH EFFICIENCY
LOW NOISE LEVEL
GOOD TORQUE/WEIGHT RATIO
WIDE CONSTANT POWER RANGE
SUITABLE FOR VECTOR DRIVES
WIDE RANGE OF CUSTOMIZATION AND
OPTIONS

TYPICAL APPLICATIONS

MACHINE TOOLS
COMPRESSORS
TRACTION CONTROL
FOOD BOXES EXTRUDERS
WINDERS AND UNWINDERS
PAPER AND CARDBOARD PRODUCTION
MACHINERY
PROCESSING AND CUTTING METAL PLATES
METAL WIRE PROCESSING MACHINERY
PLASTIC AND RUBBER EXTRUDERS
LIFTING AND HANDLING SYSTEMS
PACKAGING MACHINERY
PRINTING MACHINERY
TEXTILE MACHINERY

IP PROTECTION **IP54**
COOLING METHOD **IC416**



TECHNICAL SPECIFICATIONS

IP PROTECTION	IP54
THERMAL PROTECTION	KLIXON (PT100, PTC on request)
SHAFT EXTENSION	FITTED KEY (PLAIN SHAFT on request)
BALANCING	FULL KEY (HALF KEY on request)
VIBRATION GRADE	A (B on request)
INSULATION CLASS	F
COOLING METHOD	IC416 (or IC410 lower sizes)
AMBIENT CONDITIONS	0 ÷ 40°C (32 ÷ 104°F) 1000m ASL
TRANSDUCER	ENCODER OR RESOLVER (on request)
MOUNTING FORM	B3, B5, B35 by request
PAINTING	NITRO, POLYURETHANIC, on request

STANDARD WINDINGS DATA

TYPE	COOLING METHOD	SHAFT HEIGHT	RATED POWER RANGE	RATED TORQUE RANGE	RATED SPEED RANGE	MAX MECH. SPEED *
DRIVE AX		mm	kW	Nm	rpm	rpm
63C	IC410	63	0,19 - 1,63	2,1 - 4,8	700 - 4000	12000
63CS	IC416A	63	0,32 - 2,6	3,6 - 8,1	700 - 4000	12000
80C	IC410	80	0,51 - 5,0	5,9 - 13,4	700 - 4140	10000
80CS	IC416A	80	1,0 - 9,5	10,9 - 26	700 - 4650	10000
100K	IC416A	100	1,4 - 21,1	14,3 - 71,4	700 - 4620	9000 - 12000 ¹
132K	IC416A	132	5,6 - 56	51,1 - 200,6	700 - 4330	6500 - 10000 ¹
160L	IC416A	160	12 - 87	145,7 - 413	500 - 3260	5500 - 8000 ¹
200L	IC416A	200	20 - 123	247,3 - 725,9	500 - 3440	4500 - 7000 ²
250K	IC416R	250	55 - 370	665 - 1760	500 - 2990	3500 - 6500 ²
250KC	IC416R	250	75 - 385	720 - 1895	500 - 2990	3500
250K	IC416A	250	50 - 347	600 - 1570	500 - 3150	3500 - 6500 ²
250KC	IC416A	250	54 - 362	650 - 1690	500 - 3150	3500
315L	IC416R	315	80 - 615	1600 - 4500	400 - 1500	3200 - 5000 ²

¹ S4 Version

² S6 Version

* Maximum mechanical speed values must be defined according to Customer's needs, his plant mechanical features and must be technically compatible with applied accessories

POWERTECH

TETRAVEC

SERIES

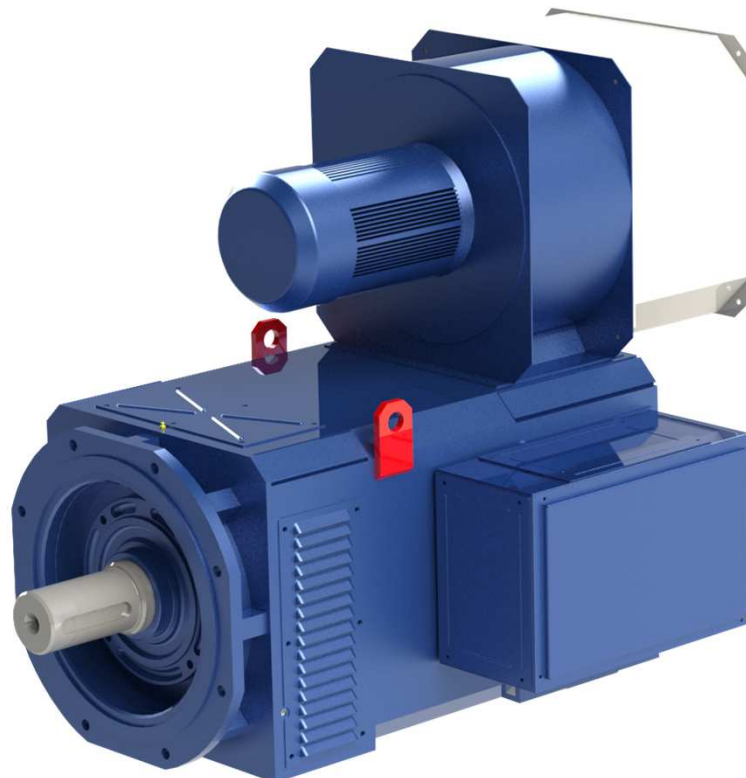
ASYNCHRONOUS MOTORS

RELIABILITY
HIGH EFFICIENCY
HIGH POWER
HIGH TORQUE/WEIGHT RATIO
SUITABLE FOR VECTOR DRIVES
IGBT COMPLIANT
WIDE RANGE OF CUSTOMIZATION AND
OPTIONS

TYPICAL APPLICATIONS

MACHINE TOOLS
COMPRESSORS
TRACTION CONTROL
FOOD BOXES EXTRUDERS
WINDERS AND UNWINDERS
PAPER AND CARDBOARD PRODUCTION
MACHINERY
PROCESSING AND CUTTING METAL PLATES
METAL WIRE PROCESSING MACHINERY
PLASTIC AND RUBBER EXTRUDERS
LIFTING AND HANDLING SYSTEMS
PACKAGING MACHINERY
PRINTING MACHINERY
TEXTILE MACHINERY

IP PROTECTION **IP23**
COOLING METHOD **IC06**



TECHNICAL SPECIFICATIONS

IP PROTECTION	IP23
THERMAL PROTECTION	KLIXON (PT100, PTC on request)
SHAFT EXTENSION	FITTED KEY (PLAIN SHAFT on request)
BALANCING	FULL KEY (HALF KEY on request)
VIBRATION GRADE	A (B on request)
INSULATION CLASS	F
COOLING METHOD	IC06
AMBIENT CONDITIONS	0 ÷ 40°C (32 ÷ 104°F) 1000m ASL
TRANSDUCER	ENCODER OR RESOLVER (on request)
MOUNTING FORM	B3, B5, B35 by request
PAINTING	NITRO, POLYURETHANIC, on request

STANDARD WINDINGS DATA

TYPE	COOLING METHOD	SHAFT HEIGHT	RATED POWER RANGE	RATED TORQUE RANGE	RATED SPEED RANGE	MAX MECH. SPEED *
TETRAVEC		mm	kW	Nm	rpm	rpm
100K	IC06	100	2,5 - 29,5	27,4 - 102,7	700 - 4030	9000 - 12000 ¹
132K	IC06	132	11 - 96	107 - 347,3	700 - 3950	6500 - 10000 ¹
160L	IC06	160	23 - 144	285 - 598	500 - 3260	5000 - 8000 ¹
200L	IC06	200	44 - 295	574 - 1329	500 - 3050	4000 - 7000 ²
250K	IC06	250	99 - 679	1235 - 2765	500 - 2940	3500 - 6500 ²
250KC	IC06	250	105 - 738	1310 - 3360	500 - 2940	3500
315L	IC06	315	164 - 1350	3400 - 8100	400 - 1500	3200 - 5000 ²

¹ S4 Version

² S6 Version

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POWERTECH

HIGH SPEED

SERIES

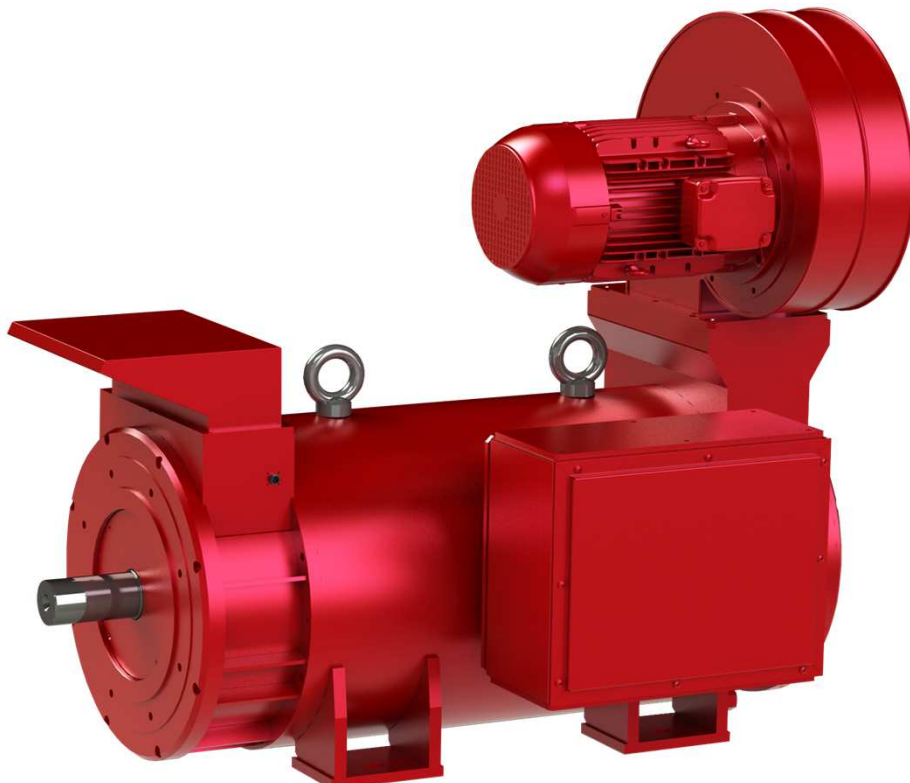
HIGH SPEED ASYNCHRONOUS MOTORS

RELIABILITY
HIGH EFFICIENCY
HIGH TORQUE/INERTIA RATIO
HIGH SPEED RANGE AND DYNAMIC
LOW INERTIA (4 poles)
VERY LOW INERTIA (2 poles)
SUITABLE FOR VECTOR DRIVES
IGBT COMPLIANT
WIDE RANGE OF CUSTOMIZATION AND
OPTIONS

TYPICAL APPLICATIONS

TEST RIGS FOR MOTORS, ENGINES AND
TRANSMISSIONS
HYDRAULIC PUMPS MOVEMENT
TEXTILE MACHINERY
COMPRESSORS
CENTRIFUGES

IP PROTECTION
IP21
COOLING METHOD
IC 06



TECHNICAL SPECIFICATIONS

IP PROTECTION	IP21
THERMAL PROTECTION	KLIXON (PT100, PTC on request)
SHAFT EXTENSION	FITTED KEY (PLAIN SHAFT on request)
BALANCING	FULL KEY (HALF KEY on request)
VIBRATION GRADE	A
INSULATION CLASS	F
COOLING METHOD	IC06
AMBIENT CONDITIONS	0 ÷ 40°C (32 ÷ 104°F) 1000m ASL
TRANSDUCER	ENCODER OR RESOLVER (on request)
MOUNTING FORM	B3, B5, B35 by request
PAINTING	NITRO, POLYURETHANIC, on request

STANDARD WINDINGS DATA

TYPE	Poles	SHAFT HEIGHT	RATED POWER RANGE	RATED TORQUE RANGE	RATED SPEED RANGE	MAX MECH. SPEED *
	2p=	mm		Nm	rpm	rpm
RS4 TETRAVEC 200L	4	200	82 - 157	385 - 635	1900 - 2630	Up to 7500
RS2 TETRAVEC 200L	2	200	100 - 180	260 - 465	3000 - 4600	Up to 7500
RS4 TETRAVEC 250K	4	250	147 - 315	690 - 1380	1800 - 2500	Up to 6500
RS2 TETRAVEC 250K	2	250	184 - 350	455 - 960	3000 - 4300	Up to 6500
RS4 TETRAVEC 315L	4	315	320 - 764	1500 - 3450	1720 - 2430	Up to 5000
RS2 TETRAVEC 315L	2	315	360 - 610	925 - 2245	2600 - 4450	Up to 5000
HS2 TETRAVEC 225	2	225	100 - 180	260 - 465	3000 - 4600	Up to 10000
HS2 TETRAVEC 280	2	280	184 - 350	455 - 960	3000 - 4300	Up to 9500
HS2 TETRAVEC 355	2	355	360 - 610	925 - 2245	2600 - 4450	Up to 9000

* Maximum mechanical speed values must be defined according to Customer's needs, his plant mechanical features and must be technically compatible with applied accessories

POWERTECH

FLUID AX
SERIES

LIQUID COOLED ASYNCHRONOUS MOTORS

RELIABILITY
HIGH EFFICIENCY
VERY GOOD TORQUE/WEIGHT RATIO
VERY LOW NOISE LEVEL
SUITABLE FOR VECTOR DRIVES
IGBT COMPLIANT
WIDE RANGE OF CUSTOMIZATION AND
OPTIONS

TYPICAL APPLICATIONS

TUNNEL BORING MACHINES
FOOD BOXES EXTRUDERS
WINDERS AND UNWINDERS
LIFTING AND HANDLING SYSTEMS
PLASTIC AND RUBBER EXTRUDERS
PAPER AND CARDBOARD PRODUCTION
MACHINERY
PROCESSING AND CUTTING METAL PLATES
METAL WIRE PROCESSING MACHINERY
PACKAGING MACHINERY
MACHINE TOOLS
PRINTING MACHINERY
TEXTILE MACHINERY
COMPRESSORS
TRACTION CONTROL

IP PROTECTION **IP54 or IP55**
COOLING METHOD **LIQUID**



TECHNICAL SPECIFICATIONS

IP PROTECTION	IP54 (IP55 on request)
THERMAL PROTECTION	KLIXON (PT100, PTC on request)
SHAFT EXTENSION	FITTED KEY (PLAIN SHAFT on request)
BALANCING	FULL KEY (HALF KEY on request)
VIBRATION GRADE	A (B on request)
INSULATION CLASS	F
COOLING METHOD	Liquid 20°C (68°F) + GLYCOL 20% Flow rate by size
AMBIENT CONDITIONS	0 ÷ 40°C (32 ÷ 104°F) 1000m ASL
TRANSDUCER	ENCODER OR RESOLVER (on request)
MOUNTING FORM	B3, B5, B35 by request
PAINTING	NITRO, POLYURETHANIC, on request

STANDARD WINDINGS DATA

TYPE	FLOW RATE	SHAFT HEIGHT	RATED POWER RANGE	RATED TORQUE RANGE	RATED SPEED RANGE	MAX MECH. SPEED *
FLUID AX	L/1'	mm	kW	Nm	rpm	rpm
100C	8	108	2,4 - 23-2	31,1 - 109,9	700 - 2000	9000 - 10000 ¹
132C	12	140	9,6 - 69	116 - 336	700 - 2000	6500 - 9000 ¹
160C	16	160	22 - 107	284 - 539	700 - 2000	5000 - 7000 ¹
200C	23	205	44 - 195	486 - 1063	700 - 2000	4000 - 5500 ²
250K	30	255	91 - 551	1034 - 2801	700 - 2000	3500 - 5000 ²
250KC	30	255	96 - 586	1100 - 2980	700 - 2000	3500
315C	48	320	108 - 915	1900 - 5650	400 - 2000	3200 - 4500 ²

¹ S4 Version

² S6 Version

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POWERTECH

TORQUE
MOTORS

SY
SERIES

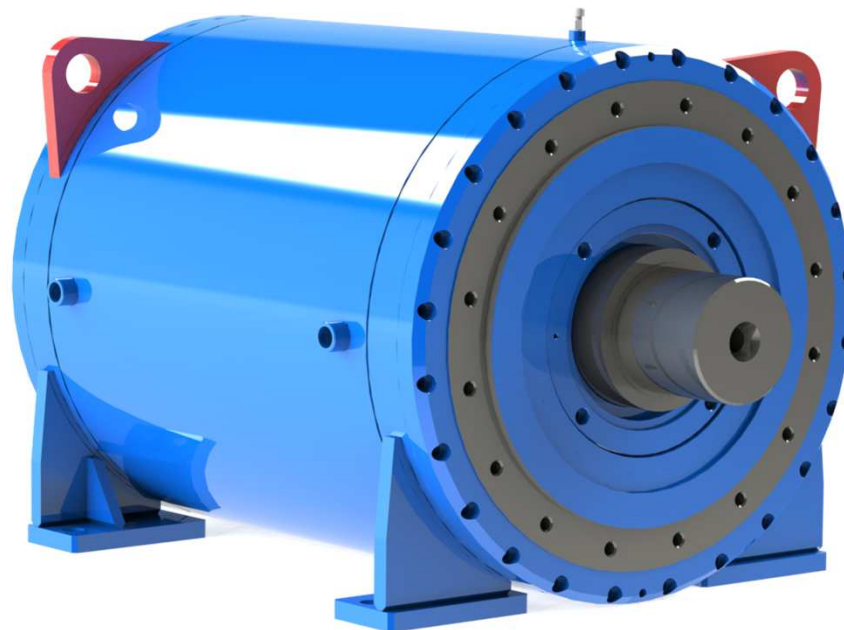
SYNCHRONOUS PERMANENT MAGNETS TORQUE MOTORS

RELIABILITY
HIGH TORQUE
EXCELLENT TORQUE/WEIGHT RATIO
HIGH EFFICIENCY
HIGH POLARITY (up to 88 poles) FOR EASY
CONTROL AT LOW SPEED
SUITABLE FOR VECTOR DRIVES
IGBT COMPLIANT
WIDE RANGE OF CUSTOMIZATION AND
OPTIONS

TYPICAL APPLICATIONS

PRESSES
ENERGY RECOVERY SYSTEMS
FOOD BOXES EXTRUDERS
PAPER AND CARDBOARD PRODUCTION
MACHINERY
PROCESSING AND CUTTING METAL PLATES
METAL WIRE PROCESSING MACHINERY
PLASTIC AND RUBBER EXTRUDERS
LIFTING AND HANDLING SYSTEMS
PACKAGING MACHINERY
PRINTING MACHINERY
TRACTION CONTROL
MACHINE TOOLS
COMPRESSORS

IP PROTECTION **IP54 or IP55**
COOLING METHOD **LIQUID**



TECHNICAL SPECIFICATIONS

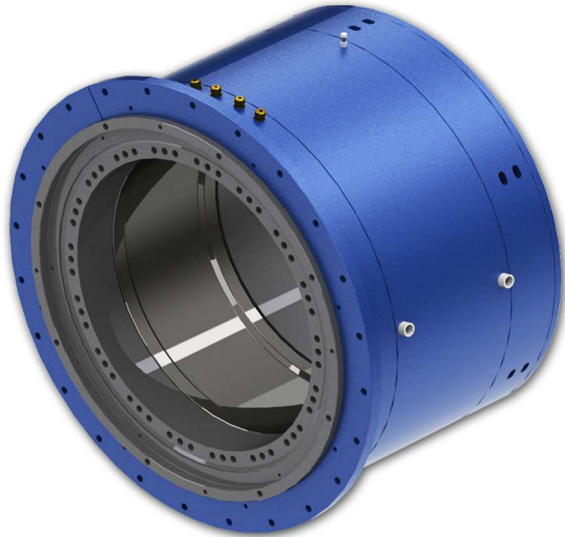
IP PROTECTION	IP54 (IP55 on request)
THERMAL PROTECTION	PT100 (and other on request)
SHAFT EXTENSION	FITTED KEY (PLAIN SHAFT or HOLLOW SHAFT on request)
BALANCING	FULL KEY (HALF KEY on request)
VIBRATION GRADE	A (B on request)
INSULATION CLASS	F
COOLING METHOD	Liquid 20°C (68°F) + GLYCOL 20% Flow rate by size
AMBIENT CONDITIONS	0 ÷ 40°C (32 ÷ 104°F) 1000m ASL
TRANSDUCER	ENCODER OR RESOLVER (on request)
MOUNTING FORM	B3, B5, B35, active parts only, on request
PAINTING	NITRO, POLYURETHANIC, on request

STANDARD WINDINGS DATA

TYPE	Poles 2p=	MOTOR SIZE mm	RATED TORQUE RANGE Nm	RATED POWER RANGE kW	RATED SPEED RANGE rpm	EFFICIENCY
SY16 FLUID 132	16	132	61 - 565	0,7 - 55	100 - 1000	Up to 93%
SY24 FLUID 160	24	160	260 - 1480	2,9 - 111,4	100 - 800	Up to 94%
SY32 FLUID 200	32	200	990 - 2875	11,6 - 187,6	100 - 700	Up to 94%
SY40 FLUID 250	40	250	1690 - 5740	19,6 - 321	100- 600	Up to 95%
SY48 FLUID 315	48	315	4350 - 11870	53 - 518	100- 500	Up to 96%
SY54 FLUID 400	54	400	9400 - 23300	60 - 890	50 - 450	Up to 97%
SY64 FLUID 500	64	500	14500 - 39400	102 - 1185	50 - 400	Up to 97%
SY64 FLUID 600	64	600	22700 - 55300	163 - 1433	50- 350	Up to 97%
SY72 FLUID 700	72	700	31300 - 80000	122 - 1583	25- 300	Up to 97%
SY80 FLUID 800	80	800	38600 - 104300	160 - 1660	25 - 250	Up to 97%
SY88 FLUID 900	88	900	60500 - 140000	230 - 2020	25 - 200	Up to 97%

All data outputs are referred to power converter clocking frequency (PWM) >4kHz

POWERTECH



OTHER AC PRODUCTION

WIND GENERATOR

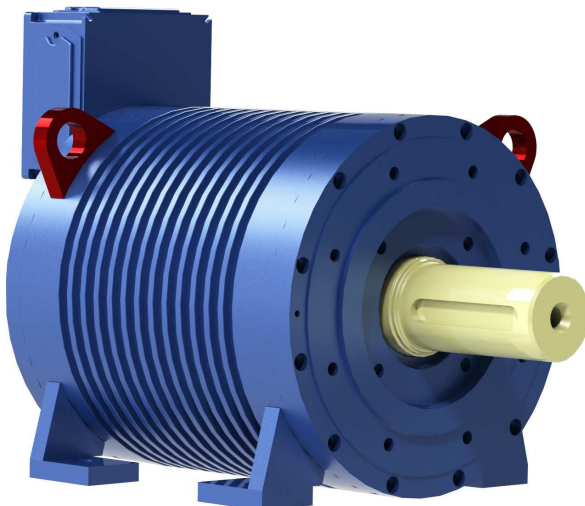
POWER RANGE

60kW	45-60 r.p.m.
100kW	38-45 r.p.m.
200kW	32-40 r.p.m.

SYNCHRONOUS PM MOTORS

ROTOSTATOR & HOLLOW SHAFT

COMER's highly qualified staff is able to develop unusual applications, which involve motors with special mechanical characteristics, such as hollow-shaft motors or combined rotostator. Based on the clients' needs, the technical department can evaluate a project, look for customized solutions able to fulfill the required electrical and mechanical specs., to bring about an efficient and high-quality Product, however keeping costs as reasonable as possible.



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