

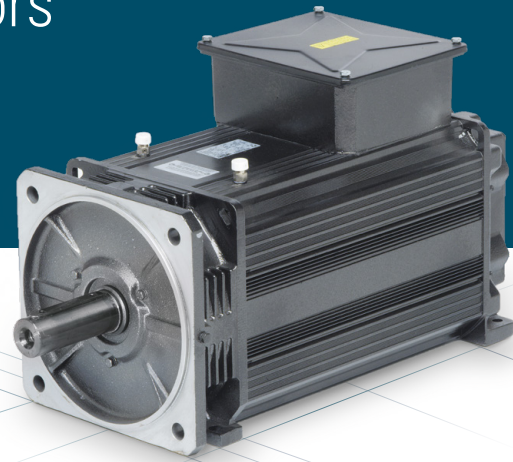
Synchronous reluctance motors **VR Series**

Italian technology since 1953



Synchronous reluctance motors

VR Series



About

Synchronous reluctance motors are high-performance electric motors that, unlike permanent magnet motors, exploit the principle of magnetic reluctance to generate torque.

The rotor, made of ferromagnetic material, tends to align itself with the rotating magnetic field generated by the stator, thereby minimizing its resistance to the passage of the magnetic flux and consequently producing torque.

The range is available in 4 mechanical sizes (160-180-225-280), that can satisfy a power range from 13 to 426 kW.

Specifications and strengths

Reluctance motors are high-performing, offering high energy efficiency, greater sustainability, and lower noise levels than traditional asynchronous motors.

A very important feature of VR motors is that they are developed with a square mechanical shape, which makes them much more compact than traditional round motors with the same power, offering a very high power/size ratio and making them easily interchangeable.

These motors are used in applications where the load rotates at a fixed speed, but also where variable speed control is required, in the speed control of pumps, fans, compressors, and in various industrial applications.

The main strength and distinguishing feature of this type of motors is linked to the peculiar characteristic of being designed and approved to have certified insulation on the OBJ-Y2/8 winding.

Key advantages of VR Series motors

- Components production (flanges, shafts, casings), motor assembly, testing, painting, and all other production operations are carried out within the Brusatori plant in Cuggiono (MI), ensuring total control of the production cycle
- Customization of the main motor components to meet customer requirements, such as:
 - shaft diameters and lengths
 - flange sizes (upon request)
 - terminal box position
 - fan position
- Transducer installation upon customer request

Standard features

- Winding insulation: class H according to IEC EN 60034-1
- Thermal rating: class F according to IEC EN 60034-1
- Protection rating: IP54 for the entire range
- Cooling: IC 416 with axial fan (radial fan on request)
- Construction type: B3-B35
- Mounting position: horizontal or vertical
- Lifetime lubricated ball bearings
- Thermal protection: thermal protector with normally closed contact. Intervention temperature $150 \pm 5^\circ\text{C}$
- Color: black RAL 9005
- Reference conditions: ambient temperature from $+5^\circ\text{C}$ to $+40^\circ\text{C}$, max. altitude 1000m above sea level
- Storage temperature: -20°C to $+70^\circ\text{C}$

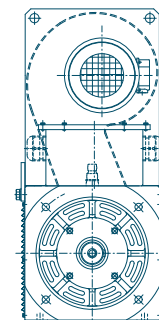
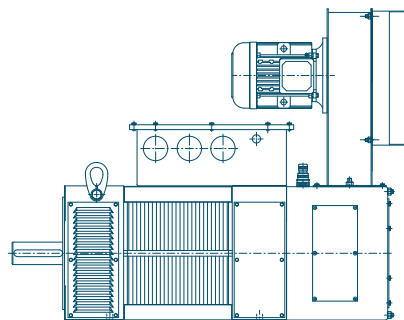
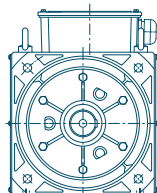
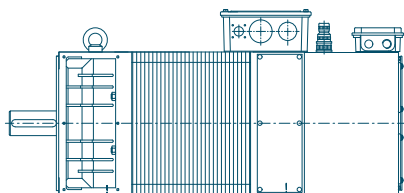
Options

- Special voltage/frequency windings
- Incremental encoder with 4 to 32V power supply, programmable voltage and number of output pulses
- Single-turn or multi-turn absolute encoder
- 2-pole resolver, 7Vrms, transformation ratio 0.5
- Parking brake
- Keyless shaft
- Roller bearing
- Terminal box on the side



Motors VR_160-180-225-280

IP54 and IP23



SIZE	LENGTH	S			M			L			P			X		
	SPEED	P _n (kW)	T _n (Nm)	I _n (A)	P _n (kW)	T _n (Nm)	I _n (A)	P _n (kW)	T _n (Nm)	I _n (A)	P _n (kW)	T _n (Nm)	I _n (A)	P _n (kW)	T _n (Nm)	I _n (A)
VR 160	580	12,8	210	32,2	15,7	259	39,5	19,1	315	47,8	23,4	385	58,2	/		
	1000	21	201	51,5	25,9	247	63,2	31,5	301	76,6	38,5	368	93,4			
	1500	30	191	72,5	37	236	89,1	45	287	108	55	350	132			
	1800	36	191	86,6	44,4	236	107	54	287	130	66	350	158			
	2200	41,8	181	101	51,6	224	124	62,7	272	151	76,6	333	184			
VR 180	580	23,4	385	58,2	31,9	525	78,8	38,3	630	94,3	46,8	770	115	/		
	1000	38,5	368	93,4	52,5	501	127	63	602	152	77	735	185			
	1500	55	350	132	75	478	179	90	573	215	110	700	262			
	1800	66	350	158	90	478	215	108	573	257	132	700	314			
	2200	77	333	184	105	454	250	125	544	299	153	665	365			
VR 225	580	46,8	770	115	56,1	924	137	61,7	1015	151	68,1	1121	166	76,6	1261	186
	1000	77	735	185	92,4	882	222	102	969	243	112	1070	268	126	1203	301
	1500	110	700	262	132	840	314	145	923	345	160	1019	380	180	1146	427
	1800	132	700	314	158	840	376	174	923	413	192	1019	456	216	1146	512
VR 280	580	96	1576	232	119	1961	288	134	2206	324	151	2486	364	/		
	1000	158	1504	376	196	1872	467	221	2106	525	249	2373	591			
	1500	225	1433	534	280	1783	664	315	2006	747	355	2260	842			
	1800	270	1433	640	336	1783	797	378	2006	897	426	2260	1011			

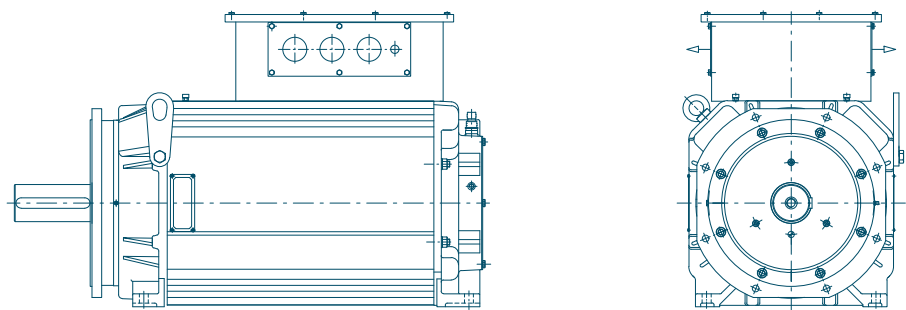
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SIZE	LENGTH	S			M			L			P			X		
	SPEED	P _n (kW)	T _n (Nm)	I _n (A)	P _n (kW)	T _n (Nm)	I _n (A)	P _n (kW)	T _n (Nm)	I _n (A)	P _n (kW)	T _n (Nm)	I _n (A)	P _n (kW)	T _n (Nm)	I _n (A)
VR 160	580	16	263	40,3	19,6	324	49,4	23,9	394	59,8	26,9	443	66,9	/		
	1000	26,3	251	64,4	32,4	309	79	37,8	361	91,9	44,3	423	107			
	1500	37,5	239	90,6	46,3	295	111	54	344	130	63,3	403	152			
	1800	45	239	109	55,5	295	134	64,8	344	156	75,9	403	182			
	2200	52,3	226	126	64,5	280	155	75,2	326	181	88,1	383	212			
	2600	58,5	215	141	72,1	265	174	84,2	310	202	98,9	362	236			
VR 180	580	28,1	462	69,8	38,3	630	94,6	46	756	113	51,5	847	127	/		
	1000	46,2	442	112	63	601	152	75,6	722	182	84,7	809	204			
	1500	66	420	158	90	574	215	108	688	258	121	770	288			
	1800	79,2	420	190	108	574	258	130	688	308	145	770	345			
	2200	92,4	400	221	126	545	300	150	653	359	168	732	402			
VR 225	580	53,8	886	132	64,5	1063	158	71	1167	174	78,3	1289	191	91,9	1513	223
	1000	88,6	845	213	106	1014	255	117	1114	279	129	1231	308	151	1444	361
	1500	127	805	301	152	966	361	167	1061	397	184	1172	437	216	1375	512
	1800	152	805	361	182	966	432	200	1061	475	221	1172	524	259	1375	614
VR 280	580	115	1891	278	143	2353	346	161	2647	389	181	2983	437	/		
	1000	190	1805	451	235	2246	560	265	2527	630	299	2848	709			
	1500	270	1720	641	336	2140	797	378	2407	896	426	2712	1010			
	1800	324	1720	768	403	2140	956	454	2407	1076	511	2712	1213			

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Motors VR_160-180-225-280 W

water cooling



S I Z E	LENGTH	S			M			L			P			X		
	SPEED	P _n (kW)	T _n (Nm)	I _n (A)	P _n (kW)	T _n (Nm)	I _n (A)	P _n (kW)	T _n (Nm)	I _n (A)	P _n (kW)	T _n (Nm)	I _n (A)	P _n (kW)	T _n (Nm)	I _n (A)
V R 1 6 0	580	/			17,3	285	43,5	20,1	331	50,2	23,4	385	58,2	28,1	462	69,8
	1000				28,5	272	69,5	33,1	316	80,4	38,5	368	93,4	46,2	442	112
	1500				40,7	260	98	47,3	301	113	55	350	132	66	420	158
	1800				48,8	260	118	56,7	301	137	66	350	158	79,2	420	190
	2200				56,8	246	136	65,8	286	159	76,6	333	184	91,9	400	221
	2600				63,5	233	153	73,7	271	176	86	315	205	103	378	246
V R 1 8 0	580	/			31,9	525	78,8	38,3	630	94,3	/			46,8	770	115
	1000				52,5	501	127	63	602	152				77	735	185
	1500				75	478	179	90	573	215				110	700	262
	1800				90	478	215	108	573	257				132	700	314
	2200				105	454	250	125	544	299				153	665	365
V R 2 2 5	580	/			/			61,7	1015	151	68,1	1121	166	76,6	1261	186
	1000							102	969	243	112	1070	268	126	1203	301
	1500							145	923	345	160	1019	380	180	1146	427
	1800							175	923	413	192	1019	456	216	1146	512
V R 2 8 0	580	96	1576	232	119	1691	288	134	2206	324	151	2486	364	/		
	1000	158	1504	376	196	1872	467	221	2106	525	249	2373	591			
	1500	225	1433	534	280	1783	664	315	2006	747	355	2260	842			
	1800	270	1433	640	336	1783	797	378	2006	897	426	2260	1011			

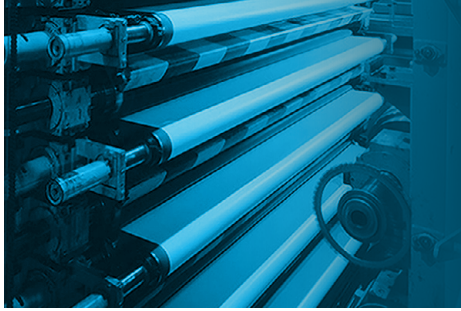
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Applications



TEXTILE

Ironers, dryers, vaporizers, calenders



PRINTING

Rotogravure printing machines, flexographic printing machines, converting lines, laminators, coating lines



PLASTICS

Extrusion lines, pipe machines, profile machines, stretch lines, tape lines, recycling lines



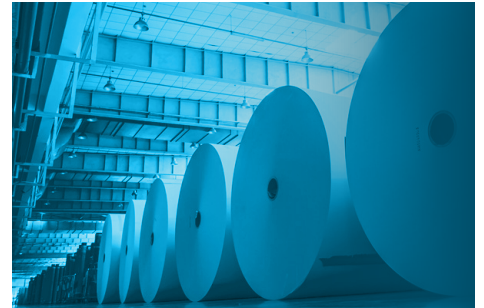
MACHINE TOOLS

Grinders, milling machines, machining centers, sawing machines



METALS

Winders-unwinders, loaders and stackers, tube lines, drawing lines, cable production lines, longitudinal and transverse cutting lines



PAPER

Winders-unwinders, cutters, rewinders, wrappers



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