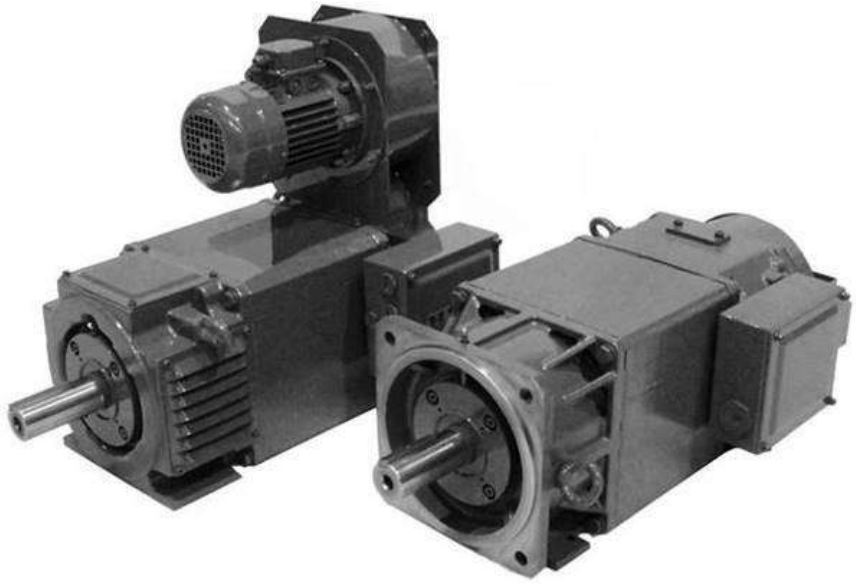
Brusatori
MOTORI ELETTRICI



Vector control motors

VF Series

Catalogue

English version

vers. VF02.05.EN (03-2023)

VF

1. Table of contents

2. General

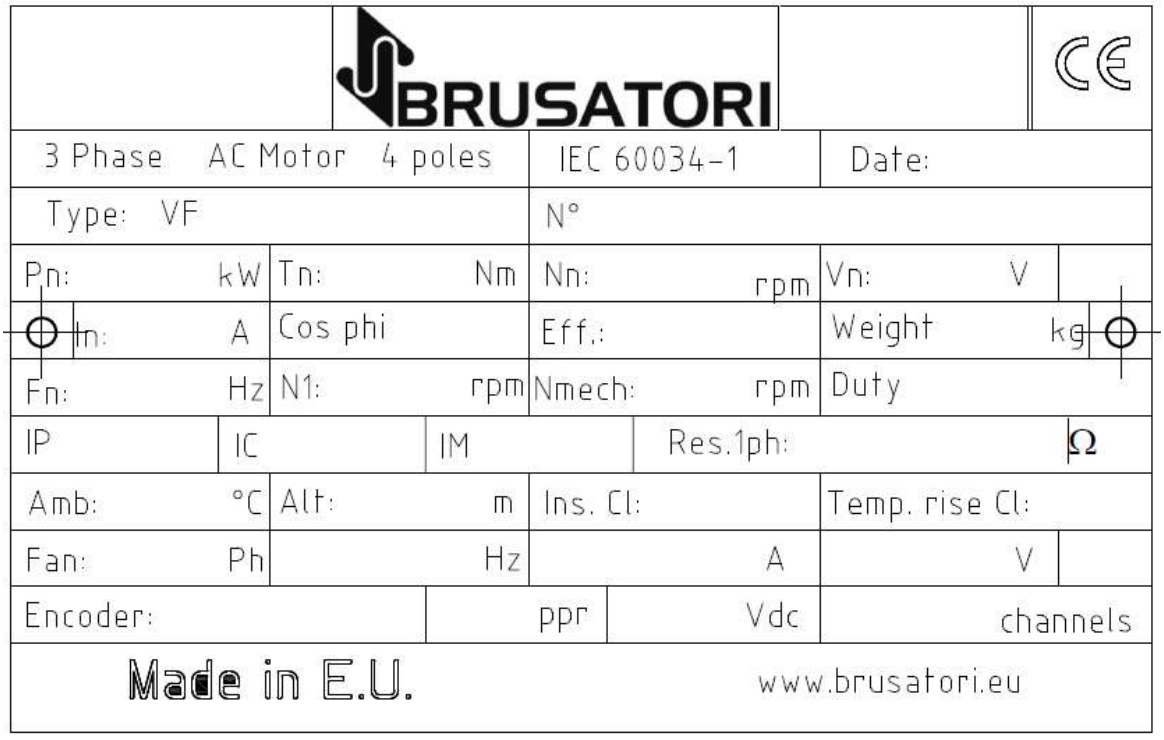
2.1 Information

Brusatori proposes a series of square frame ac motors for variable speed drives applications.
This asynchronous motor has been developed and designed to achieve the same dynamic performance as for DC motors series.
The AC square motor complies with IEC60034 standards and responds to the requirements for most industrial applications. Its flexible square frame design facilitates its integration into all types of machinery.
VF motors are 3 phase asynchronous squirrel cage 4 pole motors manufactured in degree of protection IP23 and IP54/55. 7 sizes (160-180-225-250-280-315-355) are proposed covering a power range from 12 kW to 1600 kW.

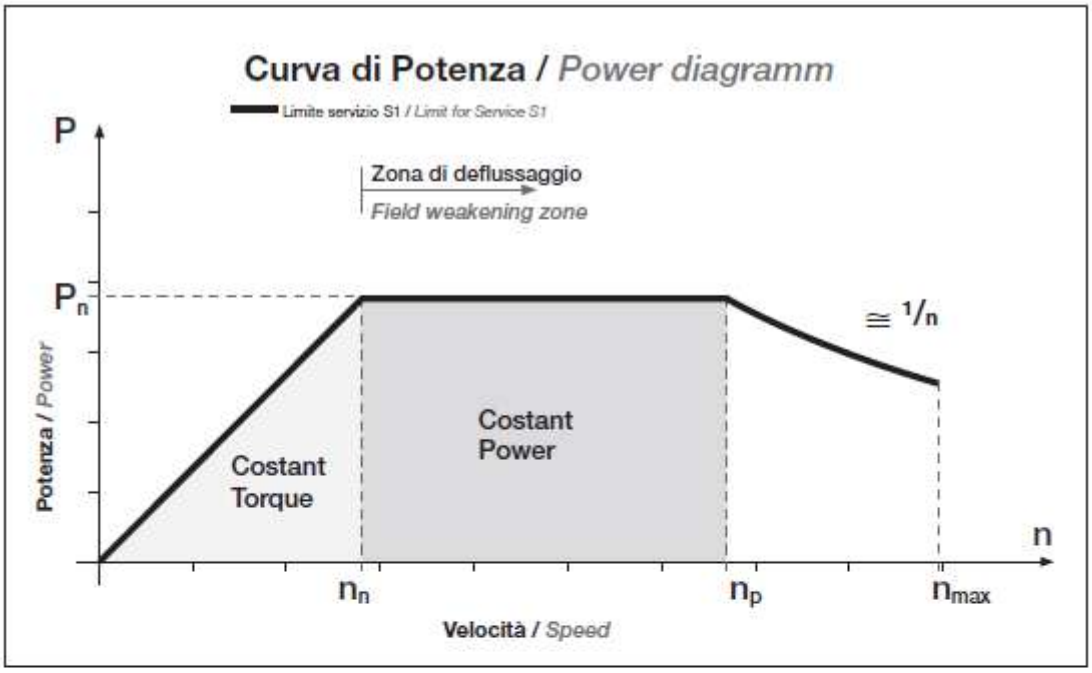
2.2 Type of designation

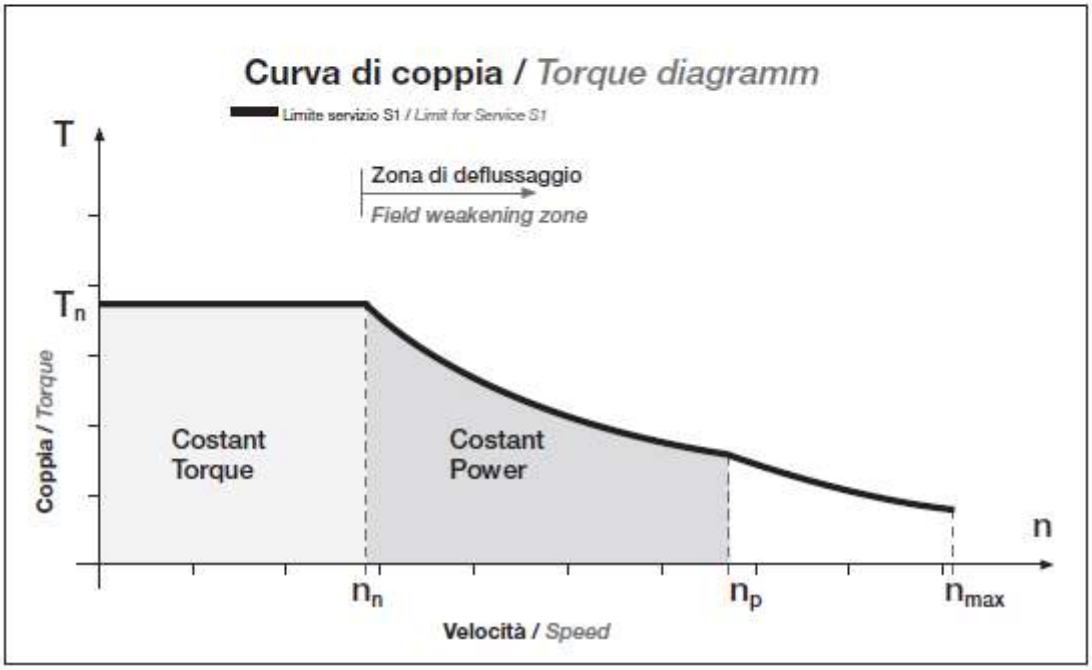
Frame size		Core length				
VF	160	S	M	L	-	-
	180	S	M	L	-	-
	225	S	M	L	-	-
	250	S	M	L	-	-
	280	S	M	L	P	-
	315	S	M	L	P	-
	355	S	M	L	P	X

2.3 Nameplate



2.4 Operating torque/power curves





3. Technical data

3.1 Main features

Insulation	Class H
Temperature rise	Class F
Thermal protection	PTC 150 °C triplex
Vibration and balancing	Class A Class B (optional)
Protection degree	IP 23 IP 54/55
Cooling	3-phase fan blower: Radial mounting for IP 23 Axial mounting for IP 54 Axial or radial mounting for IP 55
Mounting	B3 (IM 1001) B35 (IM 2001)
Bearings	Grease lubricated ball bearings Roller bearings (optional) Insulated bearings (optional)
Space heaters	1 per end shield, connected in parallel (optional)
Painting	RAL 9005 (black) Thickness ≥ 60 microns
Transport	Rotor locking device
Environmental conditions*	Ambient temperature: -5 to +40 °C Maximum altitude: 1000 m above sea level
Standards	IEC 60034-1

*Higher ambient temperature and altitude are possible with derating (see table 3.4)

Motor size		160	180	225	250	280	315	355
Stator	Material	Magnetic lamination						
	Stator winding	Copper wire with special insulation for inverter supply						
End shield	Material	Cast iron						
Bearings	D-End/ND-End	6312	6215	6220	6222	6224	6228	6230
		2RSC3		C3				
	Lubrication	Greased for life		Regreasable				
	Protection ring	Strongly recommended > 100kw						
	Axially locked	ND-End side						
Terminal box		Steel		Cast iron	Steel			
Flange		Steel or cast iron						
Cooling system		Aluminium motor + Steel fan housing						
Rotor		Magnetic lamination						
		and pressure die-cast aluminium					and copper bars	
Balancing method		Half key balancing						

3.2 Permissible radial loads

The tables give the allowable radial loads in Newtons, assuming zero axial force.

Radial force is applied to the center of the shaft. Values are based on normal conditions at 50Hz and 100Hz for a bearing life of 20000 hours.

The motors are mounted on IM B3 foot in horizontal position.

Ball bearings:

Type	Distance from shaft shoulder (mm)	Speed 1500 rpm (N)	Speed 3000 rpm (N)
VF160	55	3500	2500
VF180	70	4000	3000
VF225	85	7000	5200
VF250	105	7500	5700
VF280	105	8000	6000
VF315	105	8500	6500
VF355	125	9000	6700 (2800 rpm)

Roller bearings:

Type	Distance from shaft shoulder (mm)	Speed 1500 rpm (N)	Speed 3000 rpm (N)
VF160	55	9500	7500
VF180	70	11500	9000
VF225	85	21000	17000
VF250	105	28000	22000
VF280	105	32000	26500
VF315	105	38000	32000
VF355	125	42000	35000 (2500 rpm)

Bearing protection ring:

Modern variable speed drives with their fast-rising voltage pulses and high switching frequencies can cause current pulses through the bearings whose repeated discharging can gradually erode the bearing races.

To prevent these damages specific rules need to be respected (symmetrical multicolor motor cable, shielded, high frequency bonding connections between the installation and knows earth reference points).

Is recommend the use of a bearing protection ring for motors above 100Kw. This ring is fixed on the Dend end shield and the conductive microfibers in contact all around the rotor shaft channel harmful shaft voltages away from the bearings to around.

The best solution is a bearing protection ring Dend side and an insulated bearing Ned side which cut the path to the leakage current.

3.3 Optional features

Size	160	180	225	250	280	315	355
Cooling forms							
IC06 (IP23) Force ventilated	S	S	S	S	S	S	S
IC17 (IP23) Single pipe ventilated	x	x	x	x	x	X	x
IC37 (IP54) Double pipe ventilated	x	x	x	x	x	x	X
IC416 (IP54) Totally enclosed, fan cooled	S	S	S	S	S	S	S
Other cooling forms available on request							
Mounting Forms							
IM1001 Horizontal foot (radial ventilation)	S	S	S	S	S	S	S
IM1001 Horizontal foot (axial ventilation)		S	S	S	S	S	S
IM1002 Horizontal foot, double shaft extension	x	x	x	x	x	x	X
IM2001 Horizontal foot and flange (radial ventilation)	x	x	x	x	x	x	x
IM2001 Horizontal foot and flange (axial ventilation)	S	S	x	x	x	x	x
IM2011/2031 Vertical foot and flange	x	x	x	x	x	x	x
IM 3001/3011/3031 Horizontal/ Vertical flange	R	R	R	R	R	R	R
Modifications and accessories							
Air filter (in IP23)	S	S	S	S	S	S	S
Air sound absorber	x	x	x	x	x	x	x
Air pressure switch	x	x	x	x	x	x	x
PTC 150°C - 3 in series	S	S	S	S	S	S	S
Other temperature sensor	x	x	x	x	x	x	x
Bearing monitoring nipple	x	x	x	x	x	x	x
Special shaft	x	x	x	x	x	x	x
Shaft seal, D-End	x	x	x	x	x	x	x
Vibration class B	x	x	x	x	x	x	x
Roller bearing D-End	x	x	x	x	x	x	x
AEGIS bearing protection ring	x	x	x	x	x	x	x
Insulated bearing, ND-End	x	x	x	x	x	x	x
Disk Brake	x	x	x	x	x	x	x
Heating element	x	x	x	x	x	x	x
Special paint (RAL colour)	x	x	x	x	x	x	x
Reinforced impregnation	x	x	x	x	x	x	x
Special corrosion protection	x	x	x	x	x	x	x
Special winding for 690V nominal voltage	x	x	x	x	S	S	S
Nema	R	R	R	R	R	R	R
Encoder							
Programmable	x	x	x	x	x	x	x
Not reprogrammable	x	x	x	x	x	x	x

S: standard x: possible R: on request

3.4 Vibration class and balancing

VF motors are manufactured as standard to meet vibration class A and balanced with half key.

Class B is available on request.

Vibrations are expressed in mm/s, rms, using free suspension method and measured under no load.

Vibration grade	Center height (mm)					
	160 < H ≤ 280			H > 280		
	Displ	Vel	Acc	Displ	Vel	Acc
	µm	mm/s	m/s²	µm	mm/s	m/s²
A	35	2,2	3,5	45	2,8	4,4
B	18	1,1	1,7	29	1,8	2,8

3.5 Derating of the motor in function of temperature / altitude

Motors are designed to operate between -5°C to maximum 40°C ambient temperature and at a maximum altitude of 1000 m above sea level.

If ambient temperature or altitude is higher the motor torque/power is derated according to the table below:

	Temperature (°C)			
Altitude (m)	30	40	50	60
1000	1	1	0,9	0,8
2000	1	0,93	0,85	0,75
3000	0,93	0,85	0,77	0,64
4000	0,85	0,73	0,65	0,5

3.6 Terminal box input cables

Provided with plugged holes: 2 for main supply and 1 for accessories.

Dimensions according to table below.

Motor type	Size and disposition
VF 160	2 x ϕ 63.5 + 1 x ϕ 20.5
VF 180	1 blank removable face
VF 225	1 blank removable face
VF 250	1 blank removable face
VF 280	1 blank removable face
VF 315	1 blank removable face
VF 355	1 blank removable face

3.7 Duty type correction factors

Motor power output can be increased depending on duty types defined by IEC 60034-1.
Correction factors are given in the table below:

Duty	Operating time
S1	Continuous - Reference duty for nominal values

Duty	Operating time		
	10 min	**30 min**	**60 min**
S2	1.6	1.3	1.1

Duty	Cyclic duration factor		
	25%	**40%**	**60%**
S3	1.4	1.2	1.1
S6	1.4	1.3	1.2

The maximum constant power speed will be reduced based on the type of duty and the required overload.

Overload capacity:

IEC standard 60034-1: 160% FLT/FLC for 1 minute every 10 minutes.

3.8 Electrical and mechanical tolerances

	Efficiency by summation losses	Efficiency by input-output test	Power factor	Slip	Max torque	Inertia	Noise level
Pn kW < 150	-15% (1-η)	-15% (1-η)	-1/6 (1-cos φ)	+/-20%	-10%	±10%	+3dB(A)
Pn kW > 150	-10% (1-η)	-15% (1-η)	-1/6 (1-cos φ)	+/-20%	-10%	±10%	+3dB(A)

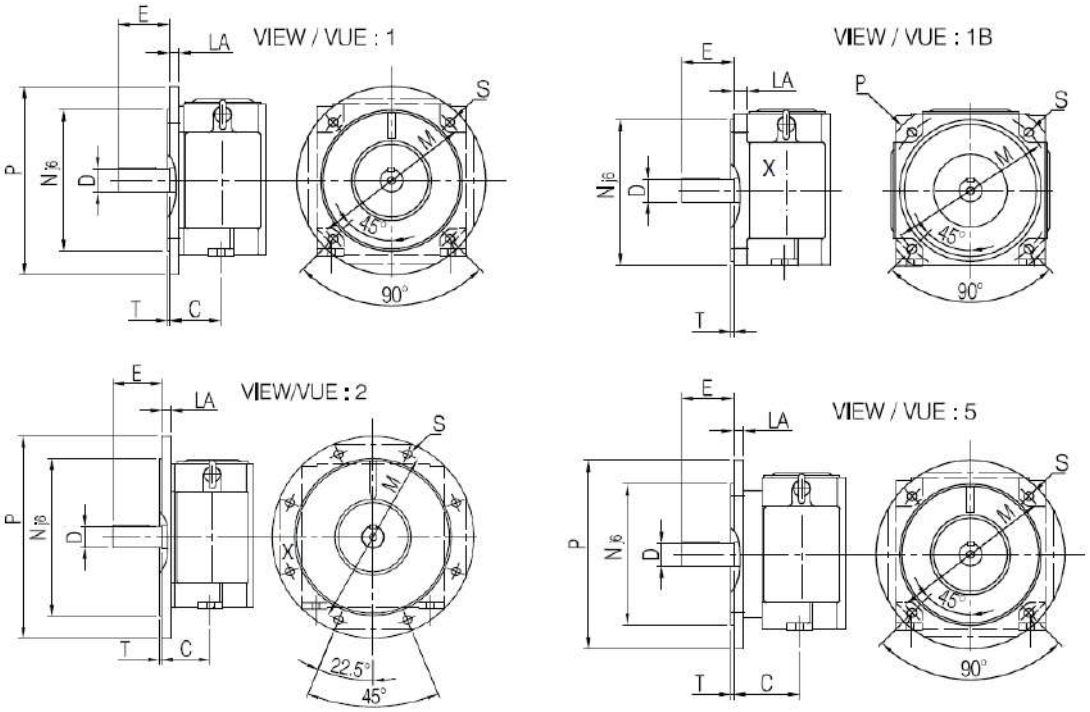
Tolerances are in accordance with IEC 60034-1 and based on test procedure in accordance with IEC 60034-2.

3.9 Space heaters (optional)

Motor type	IP 23	IP 54
VF 160	2*50W	2*50W
VF 180	2*50W	2*50W
VF 225	2*80W	2*65W
VF 250	2*80W	2*65W
VF 280	2*100W	2*65W
VF 315	2*100W	2*100W
VF 355	2*150W	2*100W

3.10 Flange dimensions

On request VF motors can be equipped with integrated or bolted flange



VF	Flange size	LA	M	N	P	S	T	C	View For AV	View For RV
160	F300*	19	300	250	350	19	5	130*	1B	5
	F350**	19	350	300	400	19	5	108	1B	1B
	F400	19	400	350	450	19	5	108	2	2
180	F300	19	300	250	350	19	5	121	1B	1
	F350**	19	350	300	400	19	5	21	1B	1B
	F400	19	400	350	450	19	5	121	2	2
225	F400	19	400	350	450	19	5	149	2	2
	F500	19	500	450	550	19	5	149	2	2
	F600	19	600	550	660	24	6	149	2	2
250	F400	23	400	350	450	19	5	168	N.A.	2
280	F500	23	500	450	550	19	5	190		2
	F600	23	600	550	660	24	6	190		2
	F740	23	740	680	800	24	6	190		2
315	F500	30	500	450	550	24	6	216		2
	F600	30	600	550	660	24	6	216		2
	F740	30	740	680	800	24	6	216		2
355	F600	42	600	550	660	24	6	254		2
	F740	42	740	680	800	24	6	254		2

* Special shaft required - C dimension change from 108 to 130
Technical and economical analysis is requested

** Recommended standard flanges

AV : Axial ventilation
RV : Radial ventilation

N.A. : Not assigned

4. Datasheet IP23 version

4.1 Electrical data VF 160 (S-M-L) IP23 motors

Degree of Protection	IP 23		Cooling	IC 06	
Rotor Inertia J (kgm2)	S 0,24 - M 0,29 - L 0,33		**Sound Pressure level (db(A)) at 50 Hz**	76	
Maximum mechanical speed nmax(rpm)	VF 160 S	3400 (9500)*	**Motor weight (kg)**	VF 160 S	290
	VF 160 M	3400 (7700)*		VF 160 M	335
	VF 160 L	3400 (6500)*		VF 160 L	370
D-End Bearing**	6312 2RSC3		**ND-End bearing**	6312 2RSC3	
Vibration Class	A		**Mounting**	IM1001	
Insulation class	H		**Temperature rise Class**	F	
Motor Nominal voltage (V)	400		**Thermal Protection**	PTC 150°C	

*on request (high speed option to be evaluated with our R&D department)

**insulated bearing or bearing protection ring recommended on motor with power higher than 100kW

FAN CHARACTERISTICS

Frequency (Hz)	50/60	**Number of phases**	3
Voltage (V)	400/460	**Mounting**	Radial
Speed (rpm)	2865/3438	**Type of cooling fan**	Force draught
Power (kW)	0,75/1,1	**Internal Static Air Pres. Drop (Pa)**	850
Current (A)	1,64/1,49	**Required cooling Air flow (m3/h)**	900

VF 160 S

n_N rpm	500	1000	1200	1500	1800	2000	2400	3000
P_N kW	26	51	60	74	87	91	97	103
T_N Nm	497	487	478	471	462	435	386	328
I_N A	56	103	119	144	169	175	184	194
n1 rpm	800	1600	1920	2400	2880	3200	3840*	4800*
cos ϕ	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8
η	0,84	0,89	0,91	0,93	0,93	0,94	0,95	0,96
f_N Hz	18	34,6	41	51,3	61,5	68	82	101,5

VF 160 M

n_N rpm	500	1000	1200	1500	1800	2000	2400	3000
P_N kW	31	58	69	85	101	104	112	106
T_N Nm	592	554	549	541	536	497	446	376
I_N A	65	116	133	161	189	193	205	214
n1 rpm	800	1600	1920	2400	2880	3200	3840*	4800*
cos ϕ	0,82	0,81	0,82	0,82	0,82	0,82	0,83	0,83
η	0,84	0,89	0,91	0,93	0,94	0,95	0,95	0,96
f_N Hz	18	34,7	41	51,4	61,5	68,3	82,2	101,5

VF 160 L

n_N rpm	500	1000	1200	1500	1800	2000	2400	3000
P_N kW	35	70	81	100	117	122	133	139
T_N Nm	669	669	645	637	621	583	529	442
I_N A	77	144	163	196	227	232	253	261
n1 rpm	800	1600	1920	2400	2880	3200	3840*	4800*
cos ϕ	0,78	0,79	0,79	0,79	0,79	0,8	0,8	0,8
η	0,84	0,89	0,91	0,93	0,94	0,95	0,95	0,96
f_N Hz	18,9	35,8	41,6	52,1	62,5	68,9	83	101,9

4.2 Electrical data VF 180 (S-M-L) IP23 motors

Degree of Protection	IP 23		Cooling	IC 06	
Rotor Inertia J (kgm2)	S 0,54 - M 0,74 - L 0,94		**Sound Pressure level (db(A)) at 50 Hz**	78	
Maximum mechanical speed nmax(rpm)	VF 180 S	3200 (8500)*	**Motor weight (kg)**	VF 180 S	365
	VF 180 M	3200 (7000)*		VF 180 M	450
	VF 180 L	3200 (5200)*		VF 180 L	545
D-End Bearing**	6215 2RSC3		**ND-End bearing**	6215 2RSC3	
Vibration Class	A		**Mounting**	IM1001	
Insulation class	H		**Temperature rise Class**	F	
Motor Nominal voltage (V)	400		**Thermal Protection**	PTC 150°C	

*on request (high speed option to be evaluated with our R&D department)

**insulated bearing or bearing protection ring recommended on motor with power higher than 100kW

FAN CHARACTERISTICS

Frequency (Hz)	50/60	**Number of phases**	3
Voltage (V)	400/460	**Mounting**	Radial
Speed (rpm)	2865/3462	**Type of cooling fan**	Force draught
Power (kW)	0,75/1,1	**Internal Static Air Pres. Drop (Pa)**	900
Current (A)	1,64/1,98	**Required cooling Air flow (m3/h)**	1300

VF 180 S

n_N rpm	500	1000	1200	1500	1800	2000	2400	3000
P_N kW	40	80	94	118	136	142	154	159
T_N Nm	764	764	748	739	722	678	613	506
I_N A	82	156	180	214	249	257	279	284
n1 rpm	800	1600	1920	2400	2880	3200*	3840*	4800*
cos ϕ	0,84	0,83	0,83	0,84	0,84	0,84	0,84	0,85
η	0,84	0,89	0,91	0,93	0,94	0,95	0,95	0,95
f_N Hz	17,5	34,3	40,6	50,8	60,8	67,7	81,2	101

VF 180 M

n_N rpm	500	1000	1200	1500	1800	2000	2400	3000
P_N kW	50	98	115	140	165	172	187	196
T_N Nm	955	936	915	891	875	821	744	624
I_N A	101	187	215	253	298	307	334	347
n1 rpm	800	1600	1920	2400	2880	3200*	3840*	4800*
cos ϕ	0,84	0,84	0,84	0,85	0,85	0,85	0,85	0,85
η	0,85	0,9	0,92	0,94	0,94	0,95	0,95	0,96
f_N Hz	17,3	34	40,6	50,7	60,8	67,4	81,1	101

VF 180 L

n_N rpm	500	1000	1200	1500	1800	2000	2400	3000
P_N kW	56	110	129	159	187	195	211	223
T_N Nm	1073	1053	1029	1012	992	931	840	710
I_N A	115	210	242	287	338	349	337	390
n1 rpm	800	1600	1920	2400	2880	3200*	3840*	4800*
cos ϕ	0,83	0,84	0,84	0,85	0,85	0,85	0,85	0,86
η	0,85	0,9	0,92	0,94	0,94	0,95	0,95	0,96
f_N Hz	17,5	34,2	40,7	50,9	61,1	67,6	81,3	100,9

4.3 Electrical data VF 225 (S-M-L) IP23 motors

Degree of Protection	IP 23		Cooling	IC 06	
Rotor Inertia J (kgm2)	S 1,72 - M 2,29 - L 2,55		**Sound Pressure level (db(A)) at 50 Hz**	80	
Maximum mechanical speed nmax(rpm)	VF 225 S	3800 (6500)*	**Motor weight (kg)**	VF 225 S	705
	VF 225 M	3800 (5300)*		VF 225 M	860
	VF 225 L	3800 (4600)*		VF 225 L	920
D-End Bearing**	6220 C3		**ND-End bearing**	6220 C3	
Vibration Class	A		**Mounting**	IM1001	
Insulation class	H		**Temperature rise Class**	F	
Motor Nominal voltage (V)	400		**Thermal Protection**	PTC 150°C	

*on request (high speed option to be evaluated with our R&D department)

**insulated bearing or bearing protection ring recommended on motor with power higher than 100kW

FAN CHARACTERISTICS

Frequency (Hz)	50/60	**Number of phases**	3
Voltage (V)	400/460	**Mounting**	Radial
Speed (rpm)	2895/3474	**Type of cooling fan**	Force draught
Power (kW)	2,2/2,2	**Internal Static Air Pres. Drop (Pa)**	1200
Current (A)	4,35/3,76	**Required cooling Air flow (m3/h)**	2200

VF 225 S

n_N rpm	500	1000	1200	1500	1800	2000	2400	3000
P_N kW	84	164	192	235	276	288	314	330
T_N Nm	1604	1566	1528	1496	1464	1375	1249	1051
I_N A	168	310	355	420	493	509	555	577
n1 rpm	800	1600	1920	2400	2880	3200	3840*	4800*
cos ϕ	0,84	0,84	0,84	0,85	0,85	0,85	0,85	0,86
η	0,86	0,91	0,93	0,95	0,95	0,96	0,96	0,96
f_N Hz	17,2	34	40,5	50,6	60,7	67,3	81	100,8

VF 225 M

n_N rpm	500	1000	1200	1500	1800	2000	2400	3000
P_N kW	103	201	237	292	342	358	387	408
T_N Nm	1927	1920	1886	1859	1815	1709	1540	1299
I_N A	206	375	433	522	611	633	685	713
n1 rpm	800	1600	1920	2400	2880	3200	3840*	4800*
cos ϕ	0,84	0,85	0,85	0,85	0,85	0,85	0,85	0,86
η	0,86	0,91	0,93	0,95	0,95	0,96	0,96	0,96
f_N Hz	17,1	33,9	40,4	50,5	60,6	67,2	80,8	100,8

VF 225 L

n_N rpm	500	1000	1200	1500	1800	2000	2400	3000
P_N kW	118	232	273	335	394	412	444	469
T_N Nm	2254	2216	2173	2133	2090	1967	1767	1493
I_N A	236	443	511	606	713	745	803	830
n1 rpm	800	1600	1920	2400	2880	3200	3840*	4400*
cos ϕ	0,84	0,83	0,83	0,84	0,84	0,84	0,84	0,85
η	0,86	0,91	0,93	0,95	0,95	0,95	0,95	0,96
f_N Hz	17,3	34	40,6	50,7	60,7	67,3	81	101

4.4 Electrical data VF 250 (S-M-L) IP23 motors

Degree of Protection	IP 23		Cooling	IC 06	
Rotor Inertia J (kgm2)	S 2,8 - M 3,4 - L 3,8		**Sound Pressure level (db(A)) at 50 Hz**	82	
Maximum mechanical speed nmax(rpm)	VF 250 S	3400 (5700)*	**Motor weight (kg)**	VF 250 S	1090
	VF 250 M	3400 (4600)*		VF 250 M	1260
	VF 250 L	3400 (4100)*		VF 250 L	1390
D-End Bearing**	6222 C3		**ND-End bearing**	6222 C3	
Vibration Class	A		**Mounting**	IM1001	
Insulation class	H		**Temperature rise Class**	F	
Motor Nominal voltage (V)	400		**Thermal Protection**	PTC 150°C	

*on request (high speed option to be evaluated with our R&D department)

**insulated bearing or bearing protection ring recommended on motor with power higher than 100kW

FAN CHARACTERISTICS

Frequency (Hz)	50/60	**Number of phases**	3
Voltage (V)	400/460	**Mounting**	Radial
Speed (rpm)	2895/3498	**Type of cooling fan**	Force draught
Power (kW)	4/3	**Internal Static Air Pres. Drop (Pa)**	2100
Current (A)	7,54/4,89	**Required cooling Air flow (m3/h)**	2700

VF 250 S

n_N rpm	500	1000	1200	1500	1800	2000	2400	2600
P_N kW	121	239	280	344	405	422	456	458
T_N Nm	2311	2283	2228	2190	2149	2015	1815	1682
I_N A	242	451	517	615	724	747	807	801
n1 rpm	800	1600	1920	2400	2880	3200	3840*	4160*
cos ϕ	0,84	0,84	0,84	0,85	0,85	0,85	0,85	0,86
η	0,86	0,91	0,93	0,95	0,95	0,96	0,96	0,96
f_N Hz	16,8	33,6	40,4	50,5	60,6	67,3	80,8	87,5

VF 250 M

n_N rpm	500	1000	1200	1500	1800	2000	2400	2600
P_N kW	142	278	327	401	472	491	533	535
T_N Nm	2712	2655	2602	2553	2504	2345	2121	1965
I_N A	284	525	604	717	844	869	943	935
n1 rpm	800	1600	1920	2400	2880	3200	3840*	4160*
cos ϕ	0,84	0,84	0,84	0,85	0,85	0,85	0,85	0,86
η	0,86	0,91	0,93	0,95	0,95	0,96	0,96	0,96
f_N Hz	16,8	33,6	40,4	50,5	60,6	67,3	80,8	87,5

VF 250 L

n_N rpm	500	1000	1200	1500	1800	2000	2400	3000
P_N kW	164	322	380	465	547	570	617	620
T_N Nm	3132	3075	3024	2961	2902	2722	2455	2277
I_N A	328	608	702	831	978	1008	1091	1084
n1 rpm	800	1600	1920	2400	2880	3200	3840*	3900*
cos ϕ	0,84	0,84	0,84	0,85	0,85	0,85	0,85	0,86
η	0,86	0,91	0,93	0,95	0,95	0,96	0,96	0,96
f_N Hz	16,8	33,6	40,4	50,5	60,6	67,3	80,8	87,5

4.5 Electrical data VF 280 (S-M-L-P) IP23 motors

Degree of Protection	IP 23 S		Cooling	IC 06	
Rotor Inertia J (kgm2)	S 4,17 - M 5,5 - L 6,2 - P 6,7		**Sound Pressure level (db(A)) at 50 Hz**	84	
Maximum mechanical speed nmax(rpm)	VF 280 S	3200 (5400)*	**Motor weight (kg)**	VF 280 S	1160
	VF 280 M	3200 (4600)*		VF 280 M	1510
	VF 280 L	3200 (4000)*		VF 280 L	1800
	VF 280 P	3200 (4000)*		VF 280 P	1900
D-End Bearing**	6224 C3		**ND-End bearing**	6224 C3	
Vibration Class	A		**Mounting**	IM1001	
Insulation class	H		**Temperature rise Class**	F	
Motor Nominal voltage (V)	400***		**Thermal Protection**	PTC 150°C	

*on request (high speed option to be evaluated with our R&D department)

**insulated bearing or bearing protection ring recommended on motor with power higher than 100kW

*** 690V voltage supply possible on request

FAN CHARACTERISTICS

Frequency (Hz)	50/60	**Number of phases**	3
Voltage (V)	400/460	**Mounting**	Radial
Speed (rpm)	2925/3510	**Type of cooling fan**	Force draught
Power (kW)	5,5/7,5	**Internal Static Air Pres. Drop (Pa)**	2600
Current (A)	10,1/11,86	**Required cooling Air flow (m3/h)**	3600

VF 280 S

n_N rpm	500	1000	1200	1500	1800	2000
P_N kW	138	270	317	389	458	477
T_N Nm	2636	2579	2523	2477	2430	2278
I_N A	273	498	572	679	800	833
n1 rpm	800	1600	1920	2400	2880	3200
cos ϕ	0,85	0,86	0,86	0,87	0,87	0,87
η	0,86	0,91	0,93	0,95	0,95	0,95
f_N Hz	17,1	33,7	40,3	50,4	60,5	67,1

VF 280 M

n_N rpm	500	1000	1200	1500	1800	2000
P_N kW	185	362	425	522	612	640
T_N Nm	3534	3457	3382	3323	3247	3056
I_N A	353	645	742	892	1046	1093
n1 rpm	800	1600	1920	2400	2880	3200
cos ϕ	0,87	0,88	0,88	0,88	0,88	0,88
η	0,87	0,92	0,94	0,96	0,96	0,96
f_N Hz	17,1	33,7	40,3	50,4	60,5	67,1

VF 280 L

n_N rpm	500	1000	1200	1500	1800	2000
P_N kW	194	382	449	551	648	676
T_N Nm	3705	3648	3573	3508	3438	3228
I_N A	383	705	811	975	1146	1196
n1 rpm	800	1600	1920	2400	2880	3200
cos ϕ	0,84	0,85	0,85	0,85	0,85	0,85
η	0,87	0,92	0,94	0,96	0,96	0,96
f_N Hz	17,1	33,7	40,3	50,4	60,5	67,1

VF 280 P

n_N rpm	500	1000	1200	1500	1800	2000
P_N kW	217	426	502	615	723	754
T_N Nm	4145	4068	3995	3916	3836	3600
I_N A	429	786	906	1074	1263	1317
n1 rpm	800	1600	1920	2400	2880	3200
cos ϕ	0,85	0,86	0,86	0,87	0,87	0,87
η	0,86	0,91	0,93	0,95	0,95	0,95
f_N Hz	17	33,7	40,3	50,4	60,5	67,1

4.6 Electrical data VF 315 (S-M-L-P) IP23 motors

Degree of Protection	IP 23 S		Cooling	IC 06	
Rotor Inertia J (kgm2)	S 12,9 - M 16,1 - L 18,65 - P 16,5		**Sound Pressure level (db(A)) at 50 Hz**	85	
Maximum mechanical speed nmax(rpm)	VF 315 S	3000 (4300)*	**Motor weight (kg)**	VF 315 S	2140
	VF 315 M	3000 (3600)*		VF 315 M	2540
	VF 315 L	3000		VF 315 L	2930
	VF 315 P	2600		VF 315 P	3100
D-End Bearing**	6228 C3		**ND-End bearing**	6228 C3	
Vibration Class	A		**Mounting**	IM1001	
Insulation class	H		**Temperature rise Class**	F	
Motor Nominal voltage (V)	400***		**Thermal Protection**	PTC 150°C	

*on request (high speed option to be evaluated with our R&D department)

**insulated bearing or bearing protection ring recommended on motor with power higher than 100kW

*** 690V voltage supply possible on request

FAN CHARACTERISTICS

Frequency (Hz)	50/60	**Number of phases**	3
Voltage (V)	400/460	**Mounting**	Radial
Speed (rpm)	2925/3510	**Type of cooling fan**	Force draught
Power (kW)	5,5/7,5	**Internal Static Air Pres. Drop (Pa)**	3500
Current (A)	10,1/11,86	**Required cooling Air flow (m3/h)**	4400

VF 315 S

n_N rpm	500	1000	1200	1500	1800	2000
P_N kW	212	416	490	600	705	736
T_N Nm	4049	3973	3900	3820	3740	3514
I_N A	419	767	884	1048	1231	1285
n1 rpm	800	1600	1920	2400	2880	3200*
cos ϕ	0,85	0,86	0,86	0,87	0,87	0,87
η	0,86	0,91	0,93	0,95	0,95	0,95
f_N Hz	17,1	33,7	40,3	50,4	60,6	67,1

VF 315 M

n_N rpm	500	1000	1200	1500	1800	2000
P_N kW	272	534	628	770	906	945
T_N Nm	5195	5100	4998	4902	4807	4512
I_N A	519	963	1108	1331	1566	1633
n1 rpm	800	1600	1920	2400	2880	3200*
cos ϕ	0,87	0,87	0,87	0,87	0,87	0,87
η	0,87	0,92	0,94	0,96	0,96	0,96
f_N Hz	17,1	33,7	40,3	50,4	60,5	67,1

VF 315 L

n_N rpm	500	1000	1200	1500	1800	2000
P_N kW	318	624	734	900	1058	1104
T_N Nm	6074	5959	5841	5730	5613	5272
I_N A	628	1152	1326	1573	1850	1930
n1 rpm	800	1600	1920	2400	2600	2600
cos ϕ	0,84	0,85	0,85	0,86	0,86	0,86
η	0,87	0,92	0,94	0,96	0,96	0,96
f_N Hz	17	33,7	40,3	50,4	60,5	67,1

VF 315 P

n_N rpm	500	1000	1200	1500	1800	2000
P_N kW	382	750	881	1080	1270	1325
T_N Nm	7296	7163	7011	6876	6738	6327
I_N A	755	1384	1592	1888	2220	2317
n1 rpm	800	1600	1920	2400	2600	2600
cos ϕ	0,84	0,85	0,85	0,86	0,86	0,86
η	0,87	0,92	0,94	0,96	0,96	0,96
f_N Hz	17	33,7	40,3	50,4	60,5	67,1

4.7 Electrical data VF 355 (S-M-L) IP23 motors

Degree of Protection	IP 23		Cooling	IC 06	
Rotor Inertia J (kgm2)	S 17,26 -M 22,32 - L 25,7 - P 33,45 - X 41,2		**Sound Pressure level (db(A)) at 50 Hz**	86	
Maximum mechanical speed nmax(rpm)	VF 355 S	2800 (4200)*	**Motor weight (kg)**	VF 355 S	2100
	VF 355 M	2800 (4200)*		VF 355 M	2800
	VF 355 L	2800 (3600)*		VF 355 L	3400
	VF 355 P	2700		VF 355 P	4000
	VF 355 X	2000		VF 355 X	4000
D-End Bearing**	6230 C3		**ND-End bearing**	6230 C3	
Vibration Class	A		**Mounting**	IM1001	
Insulation class	H		**Temperature rise Class**	F	
Motor Nominal voltage (V)	400***		**Thermal Protection**	PTC 150°C	

*on request (high speed option to be evaluated with our R&D department)

**insulated bearing or bearing protection ring recommended on motor with power higher than 100kW

*** 690V voltage supply possible on request

FAN CHARACTERISTICS

Frequency (Hz)	50/60	**Number of phases**	3
Voltage (V)	400/460	**Mounting**	Radial
Speed (rpm)	2925/1752	**Type of cooling fan**	Force draught
Power (kW)	5,5/7,5	**Internal Static Air Pres. Drop (Pa)**	3300
Current (A)	10,1/12,22	**Required cooling Air flow (m3/h)**	4700

VF 355 S

n_N rpm	500	1000	1200	1500	1800	2000
P_N kW	233	457	538	659	774	808
T_N Nm	4450	4364	4282	4196	4107	3858
I_N A	471	824	950	1126	1322	1381
n1 rpm	800	1600	1920	2400	2880*	3200*
cos ϕ	0,86	0,87	0,87	0,88	0,88	0,88
η	0,83	0,92	0,94	0,96	0,96	0,96
f_N Hz	17	33,6	40,2	50,3	60,4	66,9

VF 355 M

n_N rpm	500	1000	1200	1500	1800	2000
P_N kW	297	582	685	840	1008	1030
T_N Nm	5669	5662	5451	5348	5348	4920
I_N A	607	1062	1209	1452	1742	1781
n1 rpm	840	1600	1920	2400	2880*	3200*
cos ϕ	0,85	0,86	0,87	0,87	0,87	0,87
η	0,83	0,92	0,94	0,96	0,96	0,96
f_N Hz	17	33,6	40,2	50,3	60,4	66,9

VF 355 L

n_N rpm	500	1000	1200	1500	1800	2000
P_N kW	353	693	816	1000	1176	1227
T_N Nm	6749	6618	6494	6367	6239	5857
I_N A	723	1265	1457	1728	2032	2120
n1 rpm	800	1600	1920	2400	2880*	3200*
cos ϕ	0,85	0,86	0,86	0,87	0,87	0,87
η	0,83	0,92	0,94	0,96	0,96	0,96
f_N Hz	17	33,6	40,2	50,3	60,4	66,9

VF 355 P

n_N rpm	500	1000	1200	1500	1800	2000
P_N kW	459	901	1061	1300	1529	1595
T_N Nm	8773	8608	8442	8277	8111	7615
I_N A	940	1644	1894	2247	2642	2756
n1 rpm	800	1600	1920	2400	2700	2700
cos ϕ	0,85	0,86	0,86	0,87	0,87	0,87
η	0,83	0,92	0,94	0,96	0,96	0,96
f_N Hz	17	33,6	40,2	50,3	60,4	66,9

VF 355 X

n_N rpm	500	1000	1200	1500
P_N kW	565	1109	1306	1600
T_N Nm	10798	10594	10390	10187
I_N A	1157	2024	2331	2765
n1 rpm	800	1600	1800	1800
cos ϕ	0,85	0,86	0,86	0,87
η	0,83	0,92	0,94	0,96
f_N Hz	17	33,6	40,2	50,3

5. Dati elettrici versione IP54/IP55

5.1 Electrical data VF 160 (S-M-L) IP54/IP55 motors

Degree of Protection	IP 55		Cooling	IC 416	
Rotor Inertia J (kgm2)	S 0,24 - M 0,29 - L 0,33		**Sound Pressure level (db(A)) at 50 Hz**	76	
Maximum mechanical speed nmax(rpm)	VF 160 S	3400 (5600)*	**Motor weight (kg)**	VF 160 S	295
	VF 160 M	3400 (5600)*		VF 160 M	340
	VF 160 L	3400 (5600)*		VF 160 L	375
D-End Bearing**	6312 2RSC3		**ND-End bearing**	6312 2RSC3	
Vibration Class	A		**Mounting**	IM1001	
Insulation class	H		**Temperature rise Class**	F	
Motor Nominal voltage (V)	400		**Thermal Protection**	PTC 150°C	

*on request (high speed option to be evaluated with our R&D department)

**IM 2001 for axial ventilation

FAN CHARACTERISTICS **IP54 (ASSIALE)** **IP55 (ASSIALE O RADIALE)**

Frequency (Hz)	50/60	**Number of phases**	3	50/60	**Number of phases**	3
Voltage (V)	400/460	**Mounting**	Assiale	400/460	**Mounting**	Radial
Speed (rpm)	2480/3050	**Type of cooling fan**	Force draught	2885/3462	**Type of cooling fan**	Force draught
Power (kW)	0,79/0,9			0,75/0,75	**Internal Static Air Pres. Drop (Pa)**	850
Current (A)	1,3/1,3			1,64/1,49	**Required cooling Air flow (m3/h)**	900

VF 160 S

n_N rpm	500	1000	1200	1500	1800	2000	2400	3000
P_N kW	12	24	29	35	41	43	46	49
T_N Nm	236	232	231	223	218	205	183	156
I_N A	26	49	58	69	81	82	87	90
n1 rpm	1000	2000	2400	3000	3600*	4000*	4300*	4800*
cos ϕ	0,77	0,78	0,78	0,79	0,79	0,8	0,81	0,83
η	0,88	0,91	0,92	0,93	0,93	0,94	0,94	0,95
f_N Hz	18	34,7	41,1	51,4	61,6	68	82,2	101,4

VF 160 M

n_N rpm	500	1000	1200	1500	1800	2000	2400	3000
P_N kW	15	29	34	42	49	52	56	59
T_N Nm	283	278	271	267	260	246	223	187
I_N A	30	57	66	80	93	95	103	104
n1 rpm	1000	2000	2400	3000	3600*	4000*	4300*	4800*
cos ϕ	0,79	0,8	0,8	0,81	0,81	0,82	0,83	0,85
η	0,89	0,92	0,93	0,94	0,94	0,95	0,95	0,96
f_N Hz	17,7	34,4	40,8	51,1	61,3	67,7	81,7	101,1

VF 160 L

n_N rpm	500	1000	1200	1500	1800	2000	2400	3000
P_N kW	18	35	41	50	59	61	66	70
T_N Nm	337	331	326	318	313	293	263	223
I_N A	41	77	90	107	126	128	136	138
n1 rpm	1000	2000	2400	3000	3600*	4000*	4300*	4800*
cos ϕ	0,7	0,71	0,71	0,72	0,72	0,73	0,74	0,76
η	0,89	0,92	0,93	0,94	0,94	0,95	0,95	0,96
f_N Hz	17,6	34,3	40,8	51	61,2	67,6	81,5	101

5.2 Electrical data VF 180 (S-M-L) IP54/IP55 motors

Degree of Protection	IP54/IP 55		Cooling	IC 416	
Rotor Inertia J (kgm2)	S 0,54 - M 0,74- L 0,94		**Sound Pressure level (db(A)) at 50 Hz**	78	
Maximum mechanical speed nmax(rpm)	VF 180 S	3200 (5300)*	**Motor weight (kg)**	VF 180 S	370
	VF 180 M	3200 (5300)*		VF 180 M	460
	VF 180 L	3200 (5200)*		VF 180 L	550
D-End Bearing**	6215 2RSC3		**ND-End bearing**	6215 2RSC3	
Vibration Class	A		**Mounting**	IM1001	
Insulation class	H		**Temperature rise Class**	F	
Motor Nominal voltage (V)	400		**Thermal Protection**	PTC 150°C	

*on request (high speed option to be evaluated with our R&D department)

**IM 2001 for axial ventilation

FAN CHARACTERISTICS **IP54 (ASSIALE)** **IP55 (ASSIALE O RADIALE)**

Frequency (Hz)	50/60	**Number of phases**	3	50/60	**Number of phases**	3
Voltage (V)	400/460	**Mounting**	Assiale	400/460	**Mounting**	Radial
Speed (rpm)	2480/3050	**Type of cooling fan**	Force draught	2865/3462	**Type of cooling fan**	Force draught
Power (kW)	0,79/0,9			0,75/1,1	**Internal Static Air Pres. Drop (Pa)**	900
Current (A)	1,3/1,3			1,64/1,98	**Required cooling Air flow (m3/h)**	1300

VF 180 S

n_N rpm	500	1000	1200	1500	1800	2000	2400	3000
P_N kW	19	37	44	54	64	66	72	76
T_N Nm	363	353	350	344	340	316	287	241
I_N A	37	69	81	98	116	117	126	128
n1 rpm	1000	2000	2400	2800	3200*	3400*	3600*	4200*
cos ϕ	0,83	0,84	0,84	0,85	0,85	0,86	0,87	0,89
η	0,89	0,92	0,93	0,94	0,94	0,95	0,95	0,96
f_N Hz	17,3	34	40,6	50,7	60,8	67,3	81,1	100,7

VF 180 M

n_N rpm	500	1000	1200	1500	1800	2000	2400	3000
P_N kW	25	50	59	72	85	88	95	101
T_N Nm	478	478	470	458	451	422	378	321
I_N A	49	93	109	130	154	156	166	170
n1 rpm	1000	2000	2400	2800	3200*	3400*	3600*	4200*
cos ϕ	0,83	0,84	0,84	0,85	0,85	0,86	0,87	0,89
η	0,89	0,92	0,93	0,94	0,94	0,95	0,95	0,96
f_N Hz	17,2	33,9	40,5	50,6	60,7	67,2	81	100,6

VF 180 L

n_N rpm	500	1000	1200	1500	1800	2000	2400	3000
P_N kW	32	62	73	90	106	110	119	126
T_N Nm	611	592	581	573	562	527	474	401
I_N A	62	114	133	161	189	193	205	210
n1 rpm	1000	2000	2400	2800	3200*	3400*	3600*	4200*
cos ϕ	0,84	0,85	0,85	0,86	0,86	0,87	0,88	0,9
η	0,89	0,92	0,93	0,94	0,94	0,95	0,95	0,95
f_N Hz	17,2	33,9	40,5	50,6	60,7	67,2	80,9	100,6

NOTE: size 180 motors with speeds higher than 1500rpm are only available in the IP55 version

5.3 Electrical data VF 225 (S-M-L) IP55 motors

Degree of Protection	IP 55		Cooling	IC 416	
Rotor Inertia J (kgm2)	S 1,72 - M 2,29 - L 2,55		**Sound Pressure level (db(A)) at 50 Hzv**	80	
Maximum mechanical speed nmax(rpm)	VF 225 S	3800	**Motor weight (kg)**	VF 225 S	715
	VF 225 M	3800		VF 225 M	870
	VF 225 L	3800		VF 225 L	930
D-End Bearing**	6220 2ZC3		**ND-End bearing**	6220 2ZC3	
Vibration Class	A		**Mounting**	IM1001	
Insulation class	H		**Temperature rise Class**	F	
Motor Nominal voltage (V)	400		**Thermal Protection**	PTC 150°C	

**insulated bearing or bearing protection ring recommended on motor with power higher than 100kW

FAN CHARACTERISTICS

Frequency (Hz)	50/60	**Number of phases**	3
Voltage (V)	400/460	**Mounting**	Axial / Radial
Speed (rpm)	2895/3474	**Type of cooling fan**	Force draught
Power (kW)	2,2/2,2	**Internal Static Air Pres. Drop (Pa)**	1200
Current (A)	4,35/3,76	**Required cooling Air flow (m3/h)**	2200

VF 225 S

n_N rpm	500	1000	1200	1500	1800	2000	2400	3000
P_N kW	42	83	98	120	141	147	159	168
T_N Nm	802	793	780	764	748	702	633	535
I_N A	81	153	179	214	252	257	275	281
n1 rpm	1000	2000	2400	2600	3100	3400	3600	3800
cos ϕ	0,83	0,84	0,84	0,85	0,85	0,86	0,87	0,89
η	0,9	0,93	0,94	0,95	0,95	0,96	0,96	0,97
f_N Hz	17,1	33,8	40,4	50,5	60,6	67,	80,8	100,5

VF 225 M

n_N rpm	500	1000	1200	1500	1800	2000	2400	3000
P_N kW	53	104	122	150	176	184	199	210
T_N Nm	1012	993	971	955	934	879	792	669
I_N A	101	190	220	265	311	318	340	347
n1 rpm	1000	2000	2400	2600	3100	3400	3600	3800
cos ϕ	0,84	0,85	0,85	0,86	0,86	0,87	0,88	0,9
η	0,89	0,93	0,94	0,95	0,95	0,96	0,96	0,97
f_N Hz	17,1	33,8	40,4	50,5	60,6	67,1	80,8	100,5

VF 225 L

n_N rpm	500	1000	1200	1500	1800	2000	2400	3000
P_N kW	57	111	130	160	188	196	212	224
T_N Nm	1089	1060	1035	1019	997	936	844	713
I_N A	109	203	235	283	332	339	362	370
n1 rpm	1000	2000	2400	2600	3100	3400	3600	3800
cos ϕ	0,84	0,85	0,85	0,86	0,86	0,87	0,88	0,9
η	0,9	0,93	0,94	0,95	0,95	0,96	0,96	0,97
f_N Hz	17,1	33,8	40,4	50,5	60,6	67,1	80,8	100,5

5.4 Electrical data VF 250 (S-M-L) IP55 motors

Degree of Protection	IP 55		Cooling	IC 416	
Rotor Inertia J (kgm2)	S 2,8 - M 3,4 - L 3,8		**Sound Pressure level (db(A)) at 50 Hz**	82	
Maximum mechanical speed nmax(rpm)	VF 250 S	3400 (4200)*	**Motor weight (kg)**	VF 250 S	1110
	VF 250 M	3400 (4200)*		VF 250 M	1280
	VF 250 L	3400 (4100)*		VF 250 L	1410
D-End Bearing**	6222 C3		**ND-End bearing**	6222 C3	
Vibration Class	A		**Mounting**	IM1001	
Insulation class	H		**Temperature rise Class**	F	
Motor Nominal voltage (V)	400		**Thermal Protection**	PTC 150°C	

*on request (high speed option to be evaluated with our R&D department)

**insulated bearing or bearing protection ring recommended on motor with power higher than 100kW

FAN CHARACTERISTICS

Frequency (Hz)	50/60	**Number of phases**	3
Voltage (V)	400/460	**Mounting**	Radial
Speed (rpm)	2895/3498	**Type of cooling fan**	Force draught
Power (kW)	4/3	**Internal Static Air Pres. Drop (Pa)**	2100
Current (A)	7,54/4,89	**Required cooling Air flow (m3/h)**	2700

VF 250 S

n_N rpm	500	1000	1200	1500	1800	2000	2400	2600
P_N kW	58	114	135	165	194	202	219	220
T_N Nm	1114	1093	1072	1051	1029	966	872	809
I_N A	116	216	249	295	347	358	388	385
n1 rpm	1000	2000	2400	2600	3100	3400	3600*	4200*
cos ϕ	0,84	0,84	0,84	0,85	0,85	0,85	0,85	0,86
η	0,86	0,91	0,93	0,95	0,95	0,96	0,96	0,96
f_N Hz	16,8	33,6	40,4	50,5	60,6	67,3	80,8	87,5

VF 250 M

n_N rpm	500	1000	1200	1500	1800	2000	2400	2600
P_N kW	68	134	157	193	227	237	256	258
T_N Nm	1302	1278	1253	1229	1204	1130	1020	946
I_N A	136	253	291	345	406	419	453	450
n1 rpm	1000	2000	2400	2600	3100	3400	3600*	4200*
cos ϕ	0,84	0,84	0,84	0,85	0,85	0,85	0,85	0,86
η	0,86	0,91	0,93	0,95	0,95	0,96	0,96	0,96
f_N Hz	16,8	33,6	40,4	50,5	60,6	67,3	80,8	87,5

VF 250 L

n_N rpm	500	1000	1200	1500	1800	2000	2400	3000
P_N kW	80	156	184	225	265	276	299	300
T_N Nm	1518	1490	1461	1433	1404	1318	1189	1103
I_N A	159	295	339	402	473	488	529	525
n1 rpm	1000	2000	2400	2600	3100	3400	3600*	3900*
cos ϕ	0,84	0,84	0,84	0,85	0,85	0,85	0,85	0,86
η	0,86	0,91	0,93	0,95	0,95	0,96	0,96	0,96
f_N Hz	16,8	33,6	40,4	50,5	60,6	67,3	80,8	87,5

5.5 Electrical data VF 280 (S-M-L-P) IP55 motors

Degree of Protection	IP 55		Cooling	IC 416	
Rotor Inertia J (kgm2)	S 4,17 - M 5,5 - L 6,2 - P 6,7		**Sound Pressure level (db(A)) at 50 Hz**	84	
Maximum mechanical speed nmax(rpm)	VF 280 S	3200 (4000)*	**Motor weight (kg)**	VF 280 S	1180
	VF 280 M	3200 (4000)*		VF 280 M	1530
	VF 280 L	3200 (4000)*		VF 280 L	1820
	VF 280 P	3200 (3700)*		VF 280 P	1900
D-End Bearing**	6224 C3		**ND-End bearing**	6224 C3	
Vibration Class	A		**Mounting**	IM1001	
Insulation class	H		**Temperature rise Class**	F	
Motor Nominal voltage (V)	400***		**Thermal Protection**	PTC 150°C	

*on request (high speed option to be evaluated with our R&D department)

**insulated bearing or bearing protection ring recommended on motor with power higher than 100kW

*** 690V voltage supply possible on request

FAN CHARACTERISTICS

Frequency (Hz)	50/60	**Number of phases**	3
Voltage (V)	400/460	**Mounting**	Radial
Speed (rpm)	2925/3510	**Type of cooling fan**	Force draught
Power (kW)	5,5/7,5	**Internal Static Air Pres. Drop (Pa)**	2600
Current (A)	10,1/11,86	**Required cooling Air flow (m3/h)**	3600

VF 280 S

n_N rpm	500	1000	1200	1500	1800	2000
P_N kW	66	130	152	187	220	229
T_N Nm	1261	1242	1210	1191	1167	1093
I_N A	130	240	274	327	384	400
n1 rpm	1000	2000	2400	2600	3100	3400*
cos ϕ	0,85	0,86	0,86	0,87	0,87	0,87
η	0,86	0,91	0,93	0,95	0,95	0,95
f_N Hz	17,1	33,7	40,3	50,4	60,5	67,1

VF 280 M

n_N rpm	500	1000	1200	1500	1800	2000
P_N kW	89	176	206	253	298	310
T_N Nm	1700	1671	1639	1611	1581	1480
I_N A	170	312	359	432	509	530
n1 rpm	1000	2000	2400	2600	3100	3400*
cos ϕ	0,87	0,88	0,88	0,88	0,88	0,88
η	0,87	0,92	0,93	0,96	0,96	0,96
f_N Hz	17,1	33,7	40,3	50,4	60,5	67,1

VF 280 L

n_N rpm	500	1000	1200	1500	1800	2000
P_N kW	103	202	238	292	343	358
T_N Nm	1967	1929	1894	1859	1820	1709
I_N A	203	373	430	517	607	633
n1 rpm	1000	2000	2400	2600	3100	3400*
cos ϕ	0,84	0,85	0,85	0,85	0,85	0,85
η	0,87	0,92	0,94	0,96	0,96	0,96
f_N Hz	17,1	33,7	40,3	50,4	60,5	67,1

VF 280 P

n_N rpm	500	1000	1200	1500	1800	2000
P_N kW	109	214	251	308	362	378
T_N Nm	2082	2044	1998	1961	1921	1805
I_N A	215	395	453	538	632	660
n1 rpm	1000	2000	2400	2600	3100	3400*
cos ϕ	0,85	0,86	0,86	0,87	0,87	0,87
η	0,86	0,91	0,93	0,95	0,95	0,95
f_N Hz	17	33,7	40,3	50,4	60,5	67,1

5.6 Electrical data VF 315 (S-M-L-P) IP55 motors

Degree of Protection	IP 55		Cooling	IC 416	
Rotor Inertia J (kgm2)	S 12,9 - M 16,1 - L 18,65 - P 16,5		**Sound Pressure level (db(A)) at 50 Hz**	85	
Maximum mechanical speed nmax(rpm)	VF 315 S	3000 (3400)*	**Motor weight (kg)**	VF 315 S	2140
	VF 315 M	3000 (3400)*		VF 315 M	2560
	VF 315 L	3000		VF 315 L	2910
	VF 315 P	2600		VF 315 P	3100
D-End Bearing**	6228 C3		**ND-End bearing**	6228 C3	
Vibration Class	A		**Mounting**	IM1001	
Insulation class	H		**Temperature rise Class**	F	
Motor Nominal voltage (V)	400***		**Thermal Protection**	PTC 150°C	

*on request (high speed option to be evaluated with our R&D department)

**insulated bearing or bearing protection ring recommended on motor with power higher than 100kW

*** 690V voltage supply possible on request

FAN CHARACTERISTICS

Frequency (Hz)	50/60	**Number of phases**	3
Voltage (V)	400/460	**Mounting**	Radial
Speed (rpm)	2925/3510	**Type of cooling fan**	Force draught
Power (kW)	5,5/7,5	**Internal Static Air Pres. Drop (Pa)**	2600
Current (A)	10,1/11,86	**Required cooling Air flow (m3/h)**	3600

VF 315 S

n_N rpm	500	1000	1200	1500	1800	2000
P_N kW	117	229	270	330	388	405
T_N Nm	2235	2187	2149	2101	2059	1934
I_N A	231	422	487	576	678	707
n1 rpm	1000	2000	2400	2600	3100*	3400*
cos ϕ	0,85	0,86	0,86	0,87	0,87	0,87
η	0,86	0,91	0,93	0,95	0,95	0,95
f_N Hz	17,1	33,7	40,3	50,4	60,6	67,1

VF 315 M

n_N rpm	500	1000	1200	1500	1800	2000
P_N kW	150	294	345	424	498	520
T_N Nm	2865	2808	2746	2699	2642	2483
I_N A	286	530	609	733	861	899
n1 rpm	1000	2000	2400	2600	3100*	3200*
cos ϕ	0,87	0,87	0,87	0,87	0,87	0,87
η	0,87	0,92	0,94	0,96	0,96	0,96
f_N Hz	17,1	33,7	40,3	50,4	60,5	67,1

VF 315 L

n_N rpm	500	1000	1200	1500	1800	2000
P_N kW	175	343	404	495	582	607
T_N Nm	3343	3276	3215	3152	3088	2898
I_N A	346	633	730	865	1017	1061
n1 rpm	1000	2000	2400	2600	2600	2600
cos ϕ	0,84	0,85	0,85	0,86	0,86	0,86
η	0,87	0,92	0,94	0,96	0,96	0,96
f_N Hz	17,1	33,7	40,3	50,4	60,5	67,1

VF 315 P

n_N rpm	500	1000	1200	1500	1800	2000
P_N kW	210	412	485	594	699	729
T_N Nm	4011	3935	3860	3782	3709	3481
I_N A	415	761	876	1039	1222	1275
n1 rpm	1000	2000	2400	2600	2600	2600
cos ϕ	0,84	0,85	0,85	0,86	0,86	0,86
η	0,87	0,92	0,94	0,96	0,96	0,96
f_N Hz	17	33,7	40,3	50,4	60,5	67,1

5.7 Electrical data VF 355 (S-M-L-P) IP55 motors

Degree of Protection	IP 55		Cooling	IC 416	
Rotor Inertia J (kgm2)	S 17,26 -M 22,32 - L 25,7 - P 33,45		**Sound Pressure level (db(A)) at 50 Hz**	86	
Maximum mechanical speed nmax(rpm)	VF 355 S	2800 (3000)*	**Motor weight (kg)**	VF 355 S	2130
	VF 355 M	2800 (3000)*		VF 355 M	2830
	VF 355 L	2800 (3000)*		VF 355 L	3430
	VF 355 P	2700		VF 355 P	4030
D-End Bearing**	6230 C3		**ND-End bearing**	6230 C3	
Vibration Class	A		**Mounting**	IM1001	
Insulation class	H		**Temperature rise Class**	F	
Motor Nominal voltage (V)	400***		**Thermal Protection**	PTC 150°C	

*on request (high speed option to be evaluated with our R&D department)

**insulated bearing or bearing protection ring recommended on motor with power higher than 100kW

*** 690V voltage supply possible on request

FAN CHARACTERISTICS IP55 (VENTILAZIONE ASSIALE o RADIALE)

Frequency (Hz)	50/60	**Number of phases**	3
Voltage (V)	400/460	**Mounting**	Radial
Speed (rpm)	2925/3510	**Type of cooling fan**	Force draught
Power (kW)	5,5/7,5	**Internal Static Air Pres. Drop (Pa)**	2600
Current (A)	10,1/11,86	**Required cooling Air flow (m3/h)**	3600

VF 355 S

n_N rpm	500	1000	1200	1500	1800	2000
P_N kW	119	233	274	336	395	412
T_N Nm	2273	2225	2181	2139	2096	1967
I_N A	241	420	478	574	675	704
n1 rpm	1000	2000	2400	2600	3000*	3000*
cos ϕ	0,86	0,87	0,88	0,88	0,88	0,88
η	0,83	0,92	0,94	0,96	0,96	0,96
f_N Hz	17	33,6	40,2	50,3	60,3	66,9

VF 355 M

n_N rpm	500	1000	1200	1500	1800	2000
P_N kW	163	320	377	462	453	567
T_N Nm	3113	3056	3000	2941	2881	2707
I_N A	333	584	673	798	938	980
n1 rpm	1000	2000	2400	2600	3000*	3000*
cos ϕ	0,85	0,86	0,86	0,87	0,87	0,87
η	0,83	0,92	0,94	0,96	0,96	0,96
f_N Hz	17	33,6	40,2	50,3	60,3	66,9

VF 355 L

n_N rpm	500	1000	1200	1500	1800	2000
P_N kW	194	381	448	550	646	675
T_N Nm	3705	3639	3565	3502	3427	3223
I_N A	397	695	800	950	1116	1167
n1 rpm	1000	2000	2400	2600	3000*	3000*
cos ϕ	0,85	0,86	0,86	0,87	0,87	0,87
η	0,83	0,92	0,94	0,96	0,96	0,96
f_N Hz	16,9	33,6	40,2	50,3	60,3	66,9

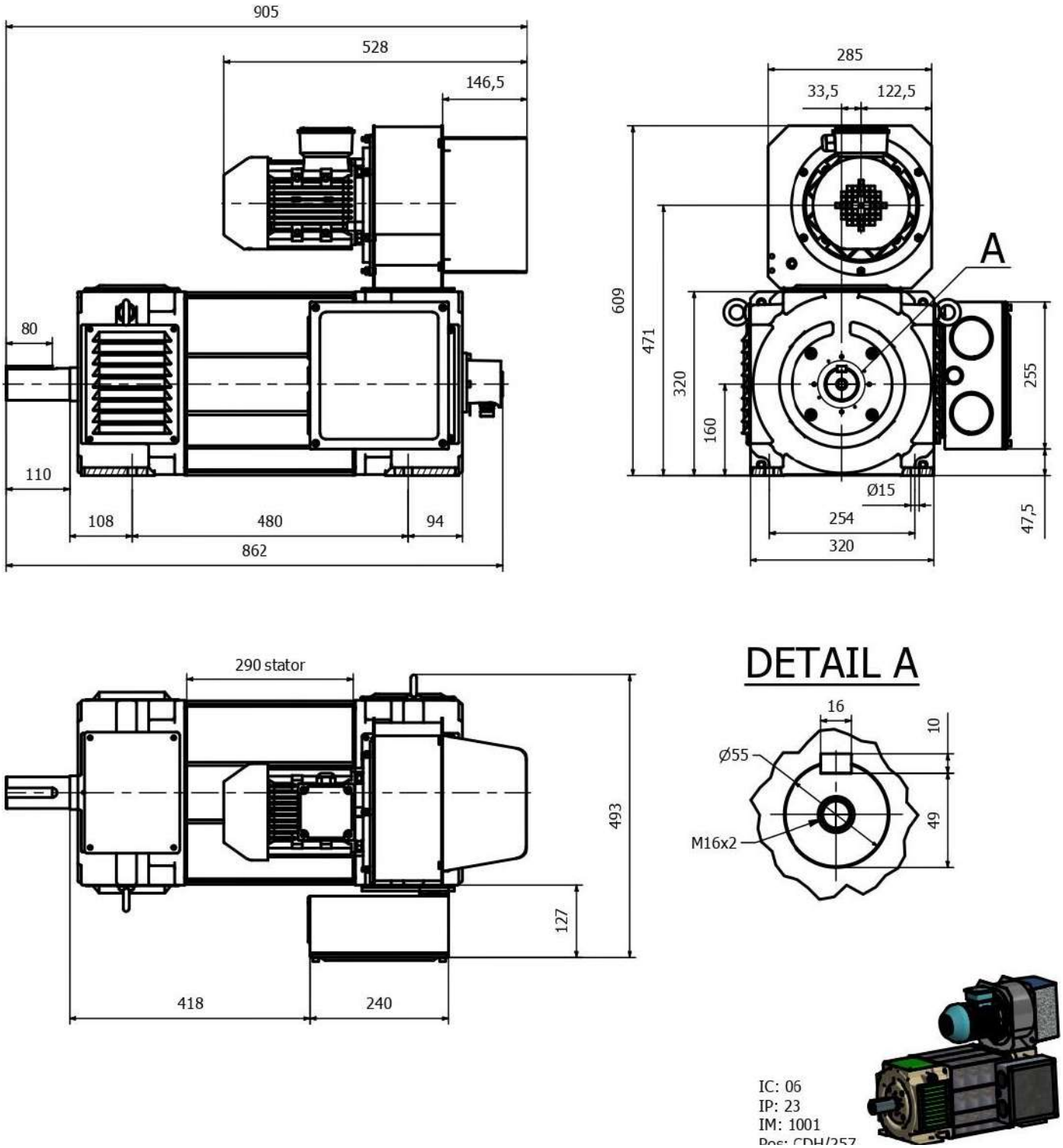
VF 355 P

n_N rpm	500	1000	1200	1500	1800	2000
P_N kW	253	496	583	715	841	877
T_N Nm	4825	4734	4643	4552	4461	4188
I_N A	517	904	1042	1236	1453	1516
n1 rpm	1000	2000	2400	2600	2700	2700
cos ϕ	0,85	0,86	0,86	0,87	0,87	0,87
η	0,83	0,92	0,94	0,96	0,96	0,96
f_N Hz	16,9	33,6	40,2	50,3	60,3	66,9

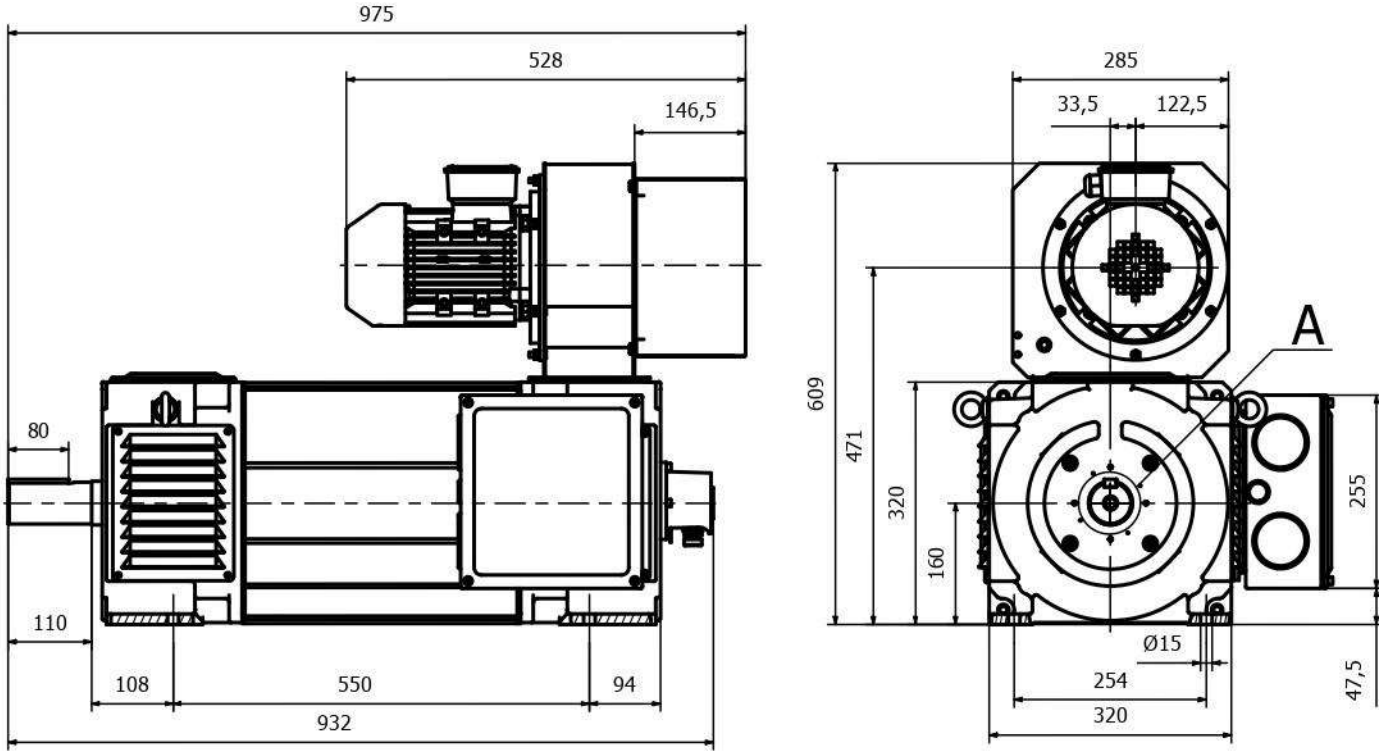
6. Mechanical dimensions

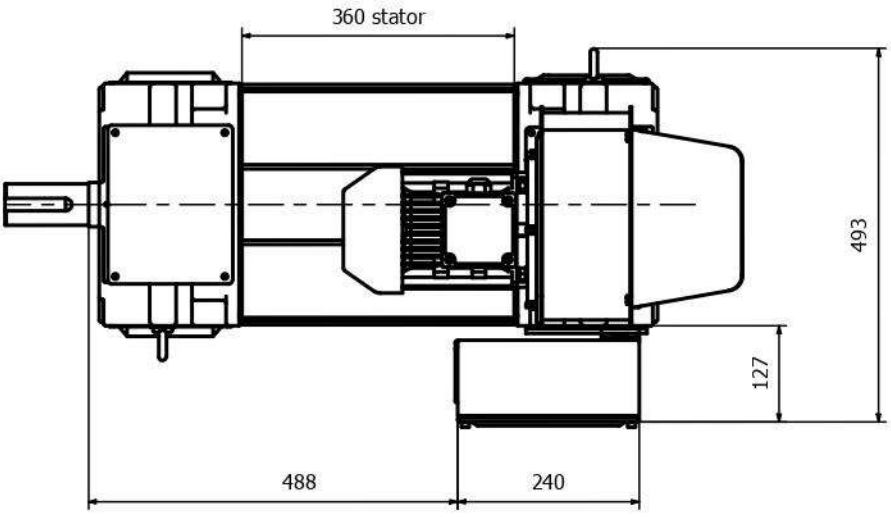
6.1 Mechanical dimensions IP23

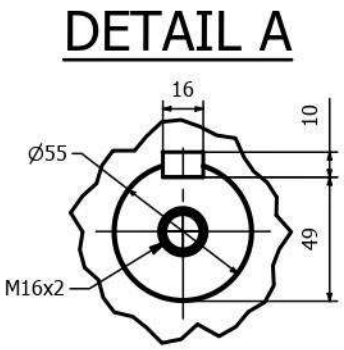
6.1.1 Motor dimensions VF 160 S IP23

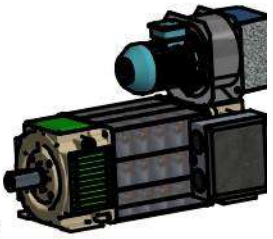


6.1.2 Motor dimensions VF 160 M IP23



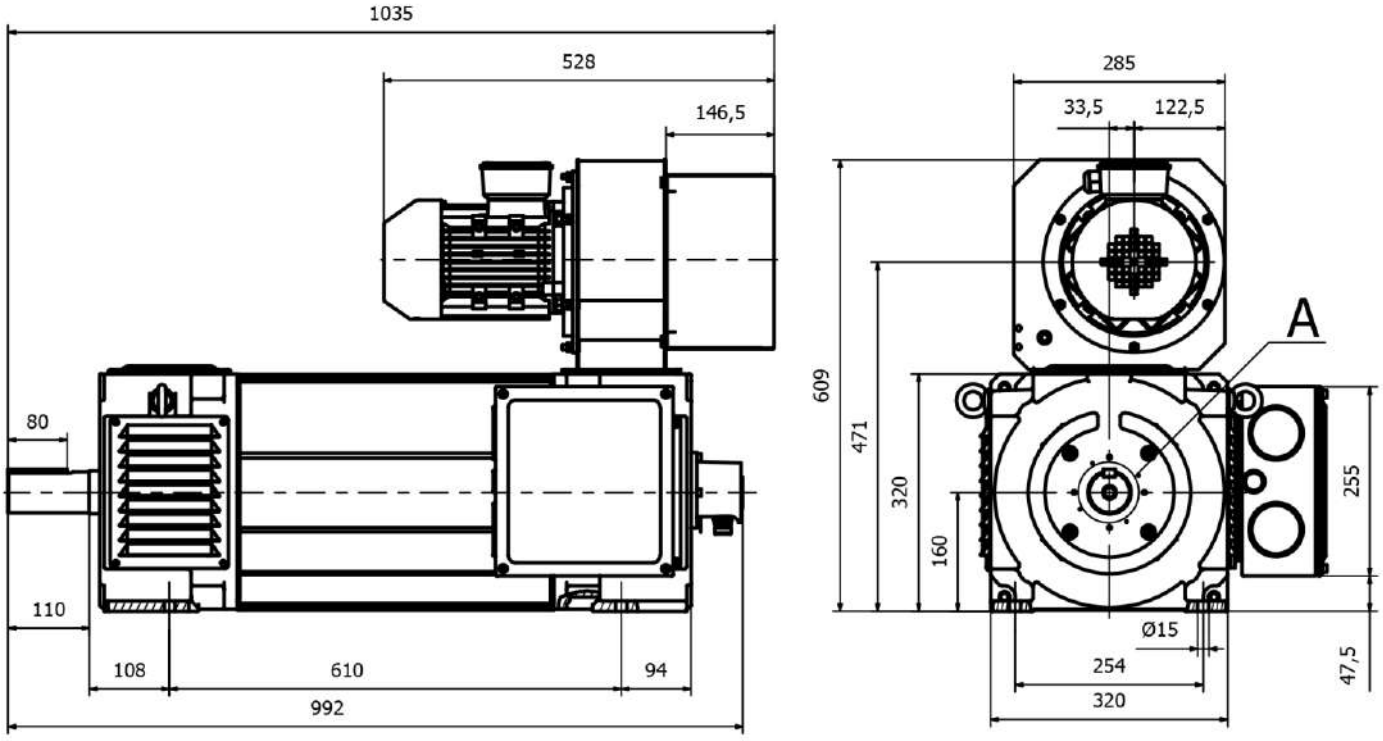


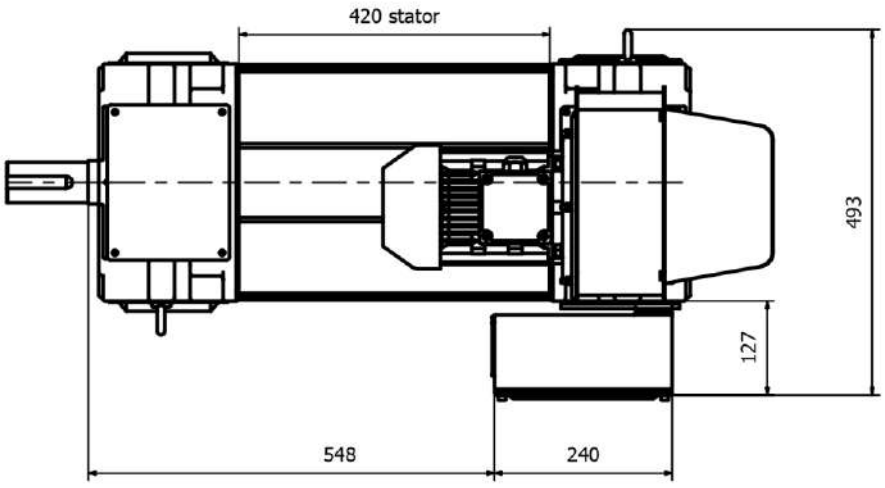


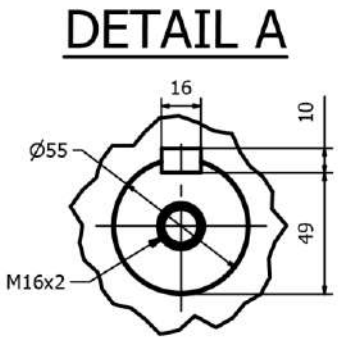


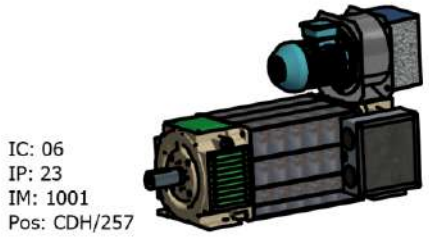
IC: 06
IP: 23
IM: 1001
Pos: CDH/257

6.1.3 Motor dimensions VF 160 L IP23

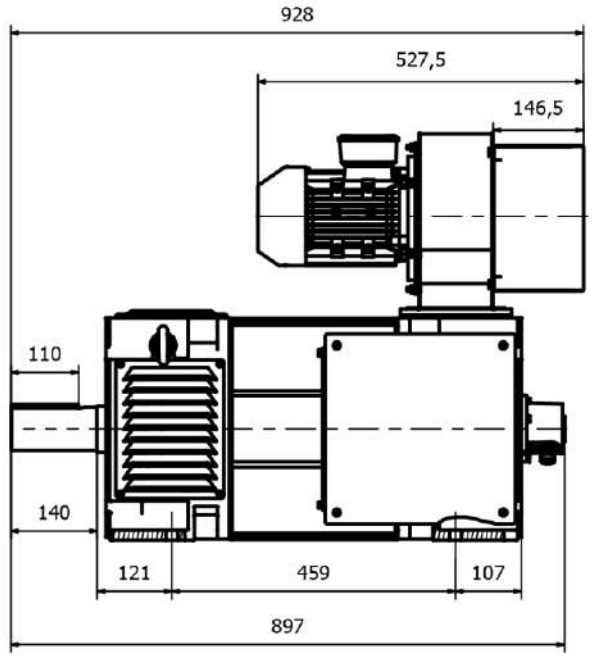


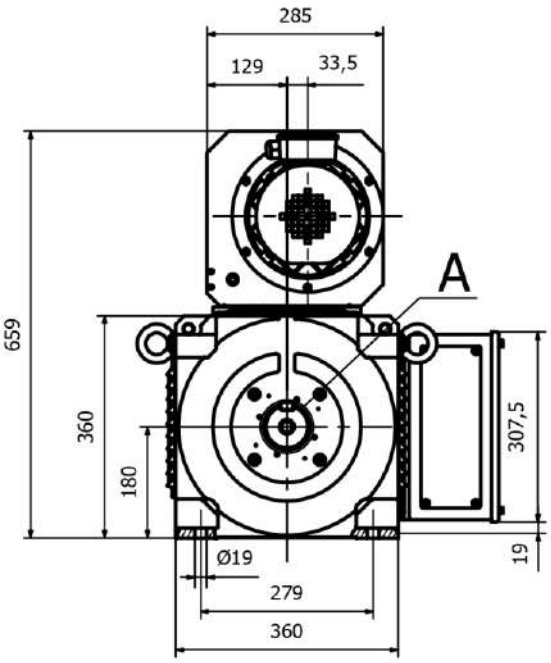


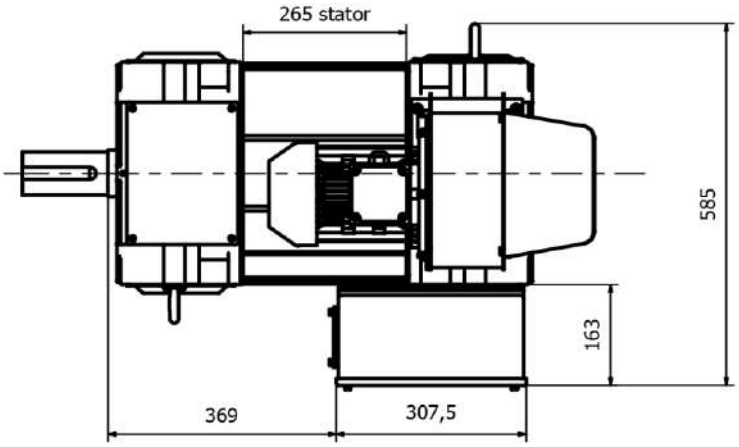


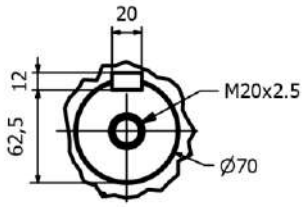


6.1.4 Motor dimensions VF 180 S IP23





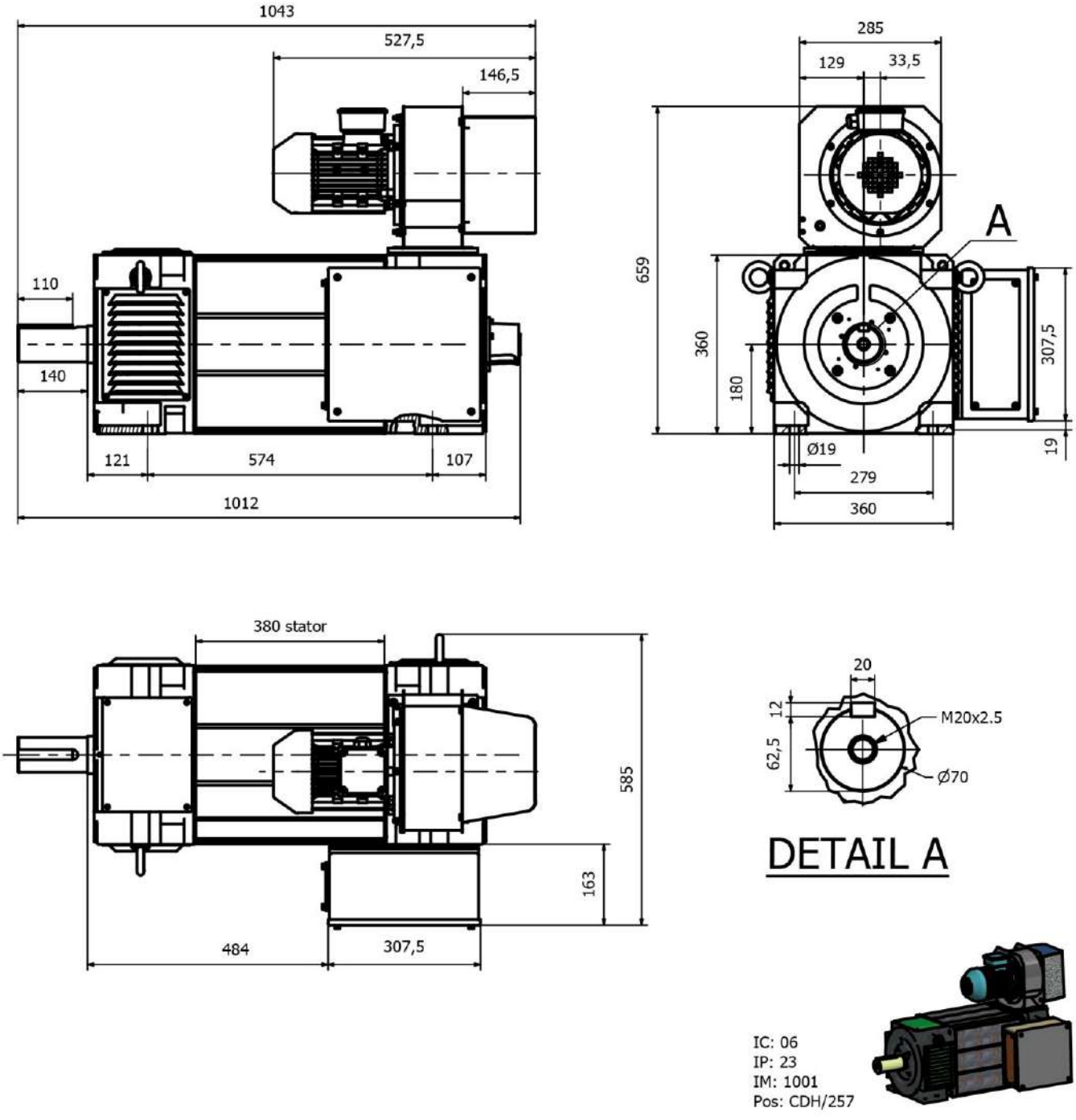




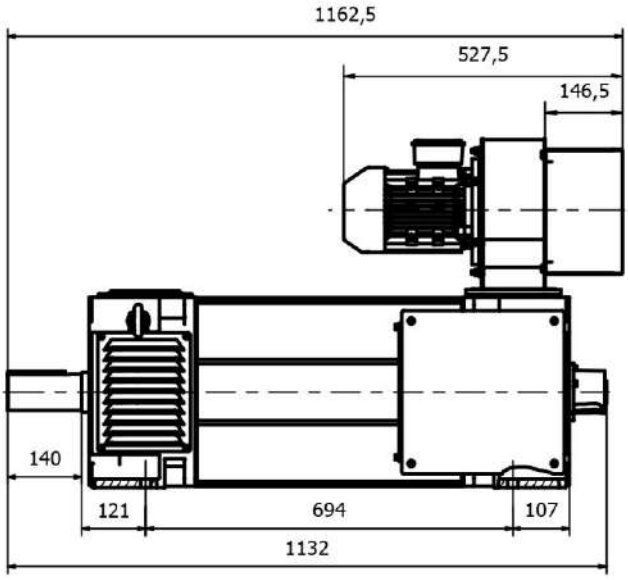
DETAIL A

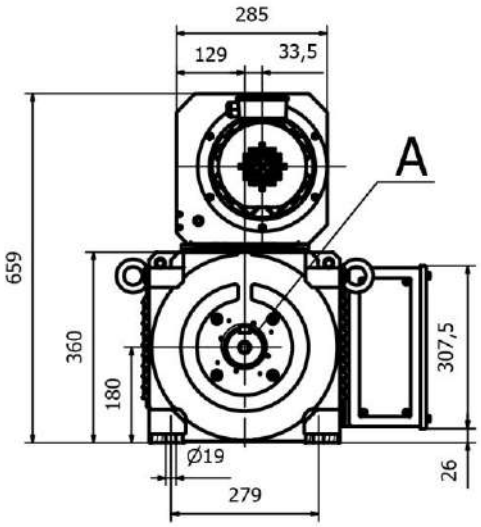
IC: 06
IP: 23
IM: 1001
Pos: CDH/257

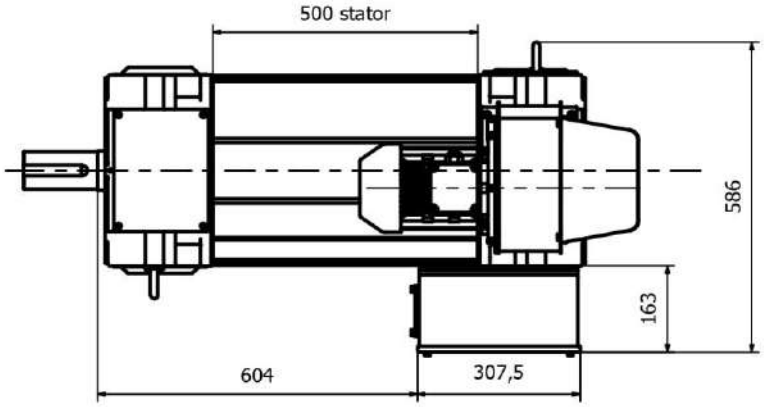
6.1.5 Motor dimensions VF 180 M IP23

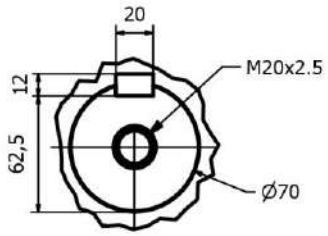


6.1.6 Motor dimensions VF 180 L IP23





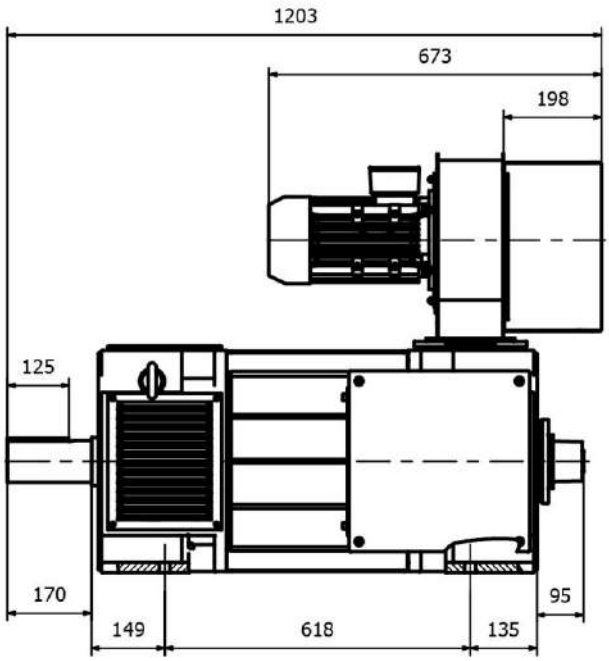


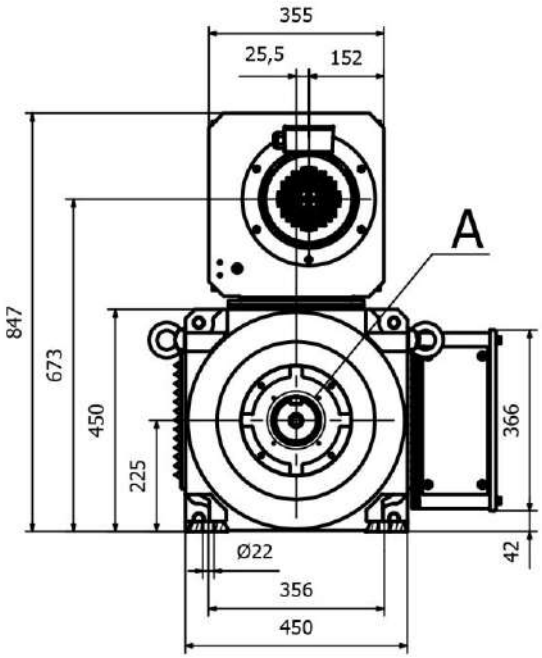


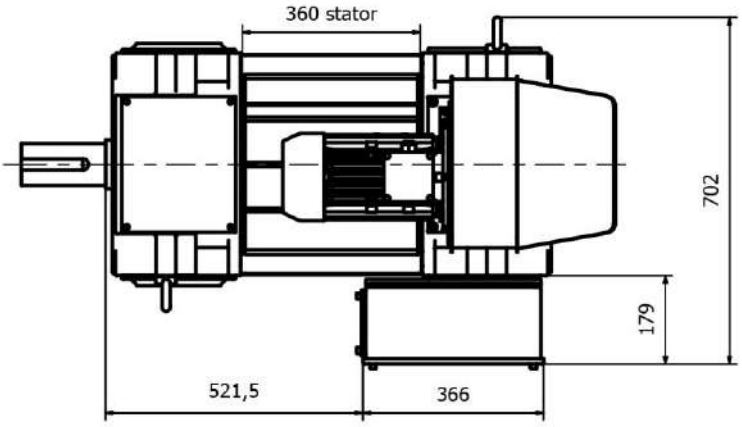
DETAIL A

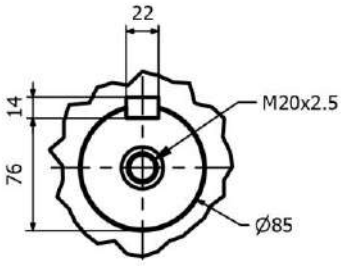
IC: 06
IP: 23
IM: 1001
Pos: CDH/257

6.1.7 Motor dimensions VF 225 S IP23

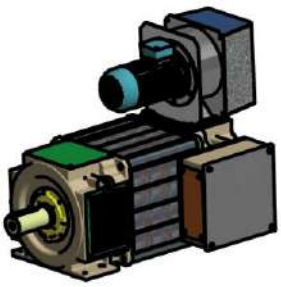






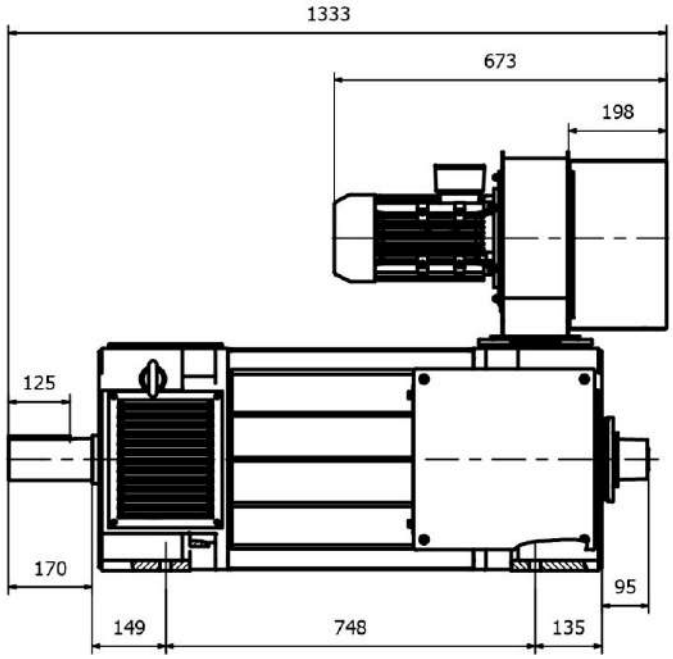


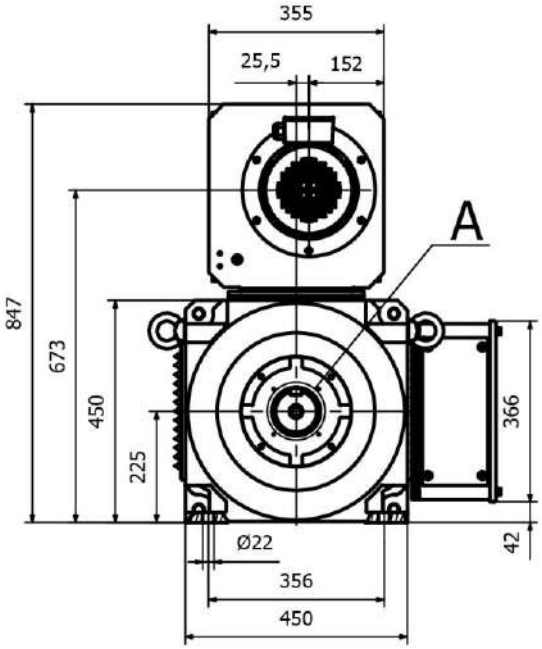
DETAIL A

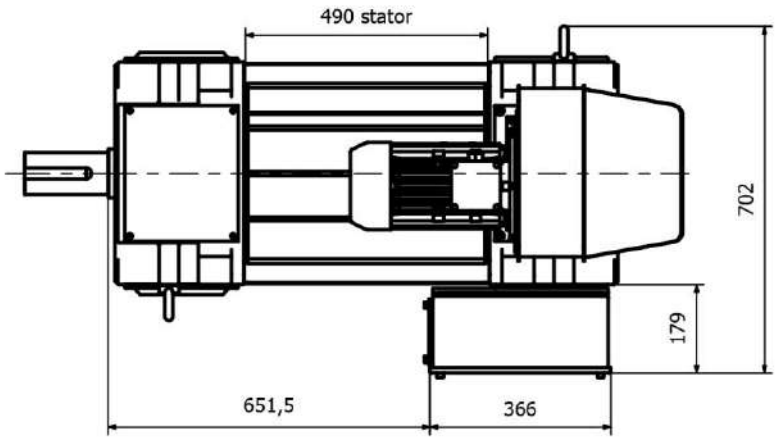


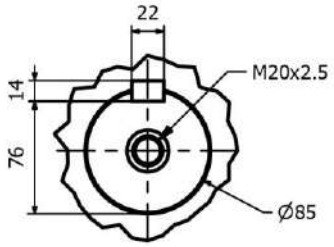
IC: 06
IP: 23
IM: 1001
Pos: CDH/257

6.1.8 Motor dimensions VF 225 M IP23





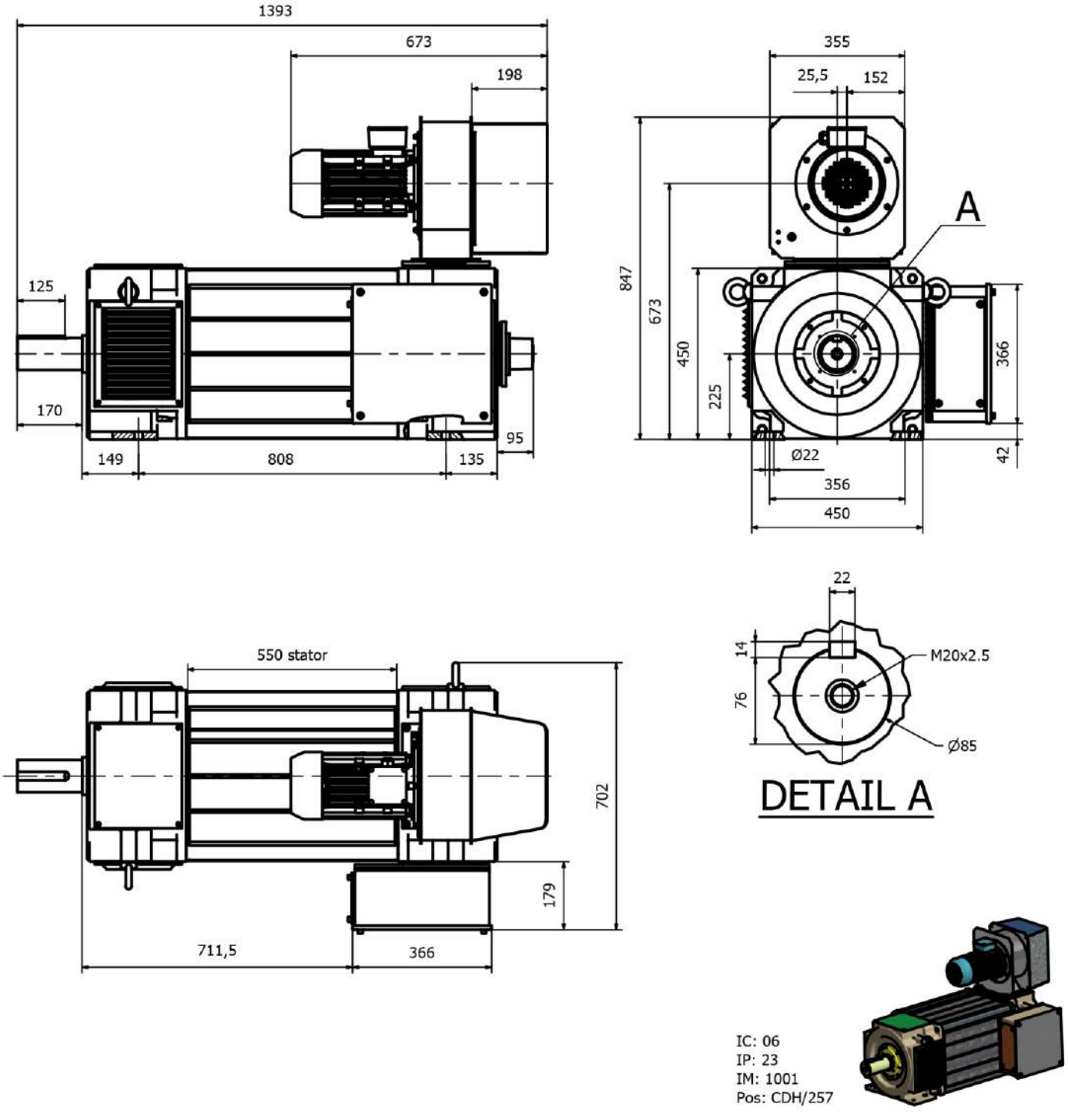




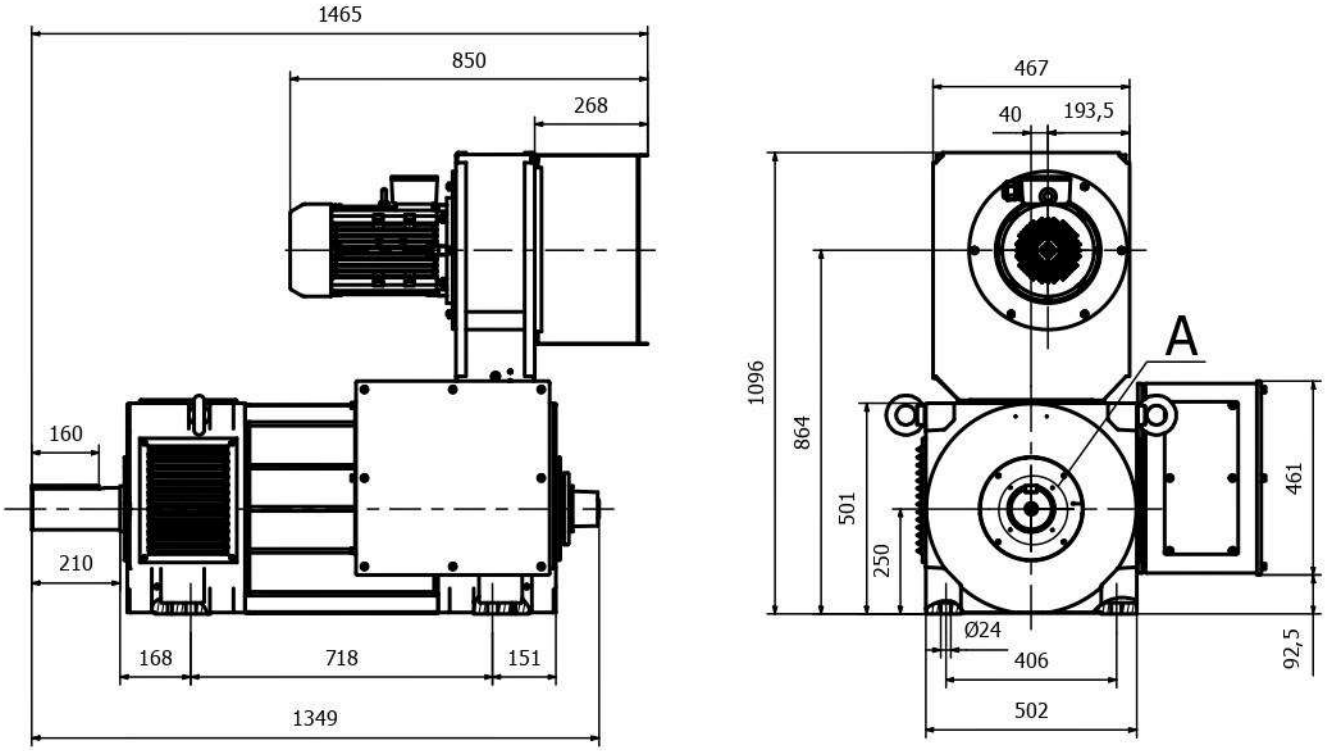
DETAIL A

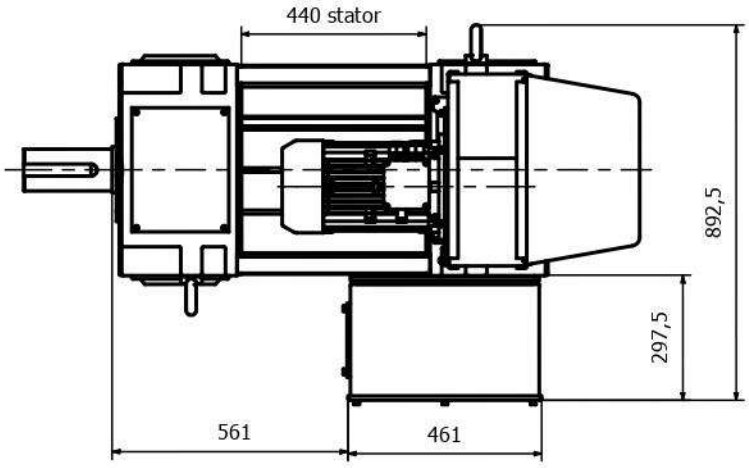
IC: 06
IP: 23
IM: 1001
Pos: CDH/257

6.1.9 Motor dimensions VF 225 L IP23

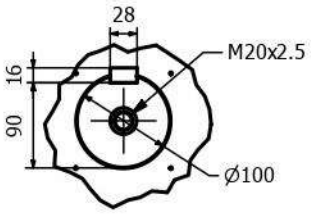


6.1.10 Motor dimensions VF 250 S IP23

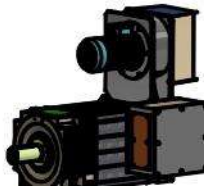




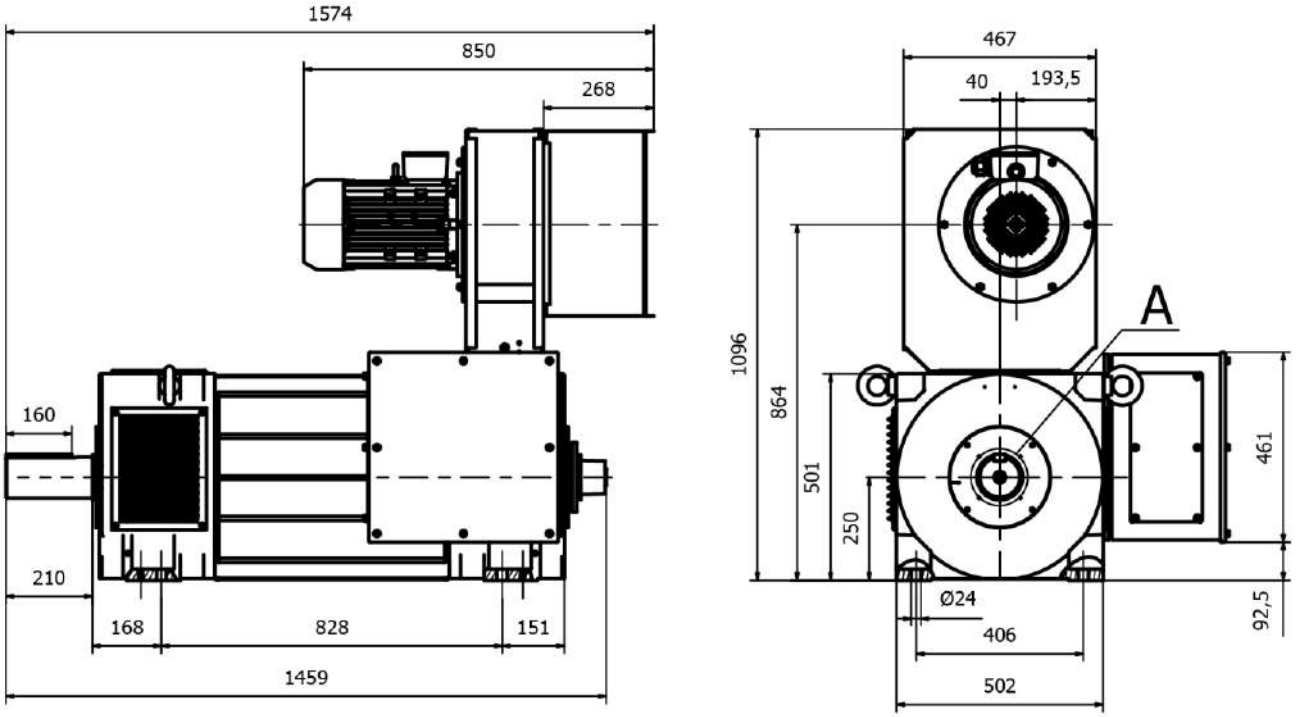
DETAIL A

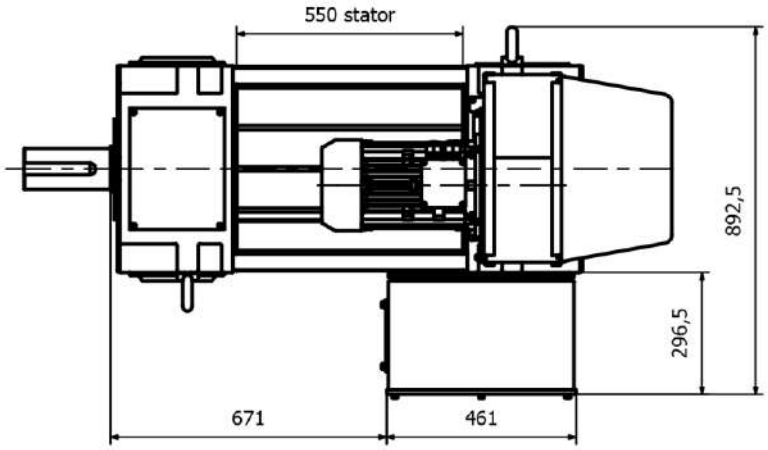


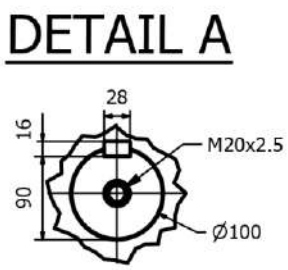
IC: 06
IP: 23
IM: 1001
Pos: CDH/257



6.1.11 Motor dimensions VF 250 M IP23

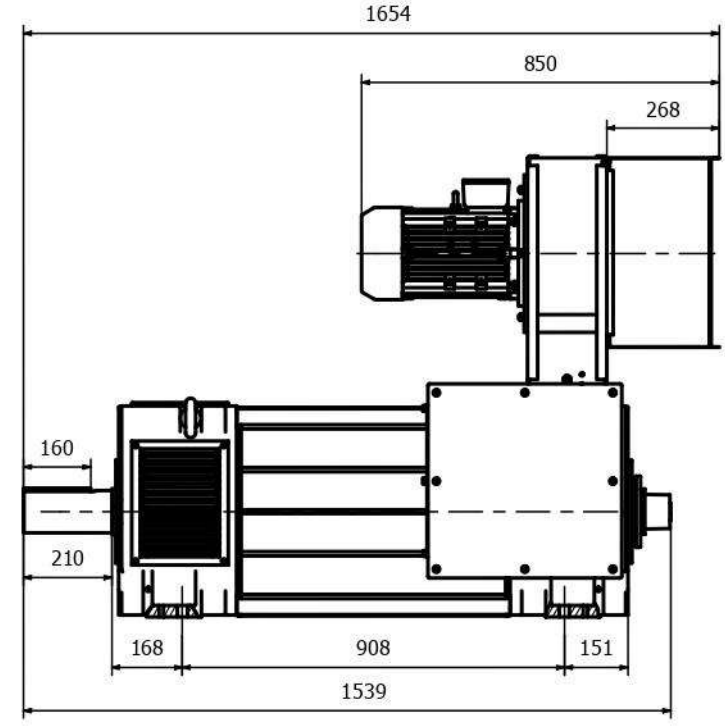


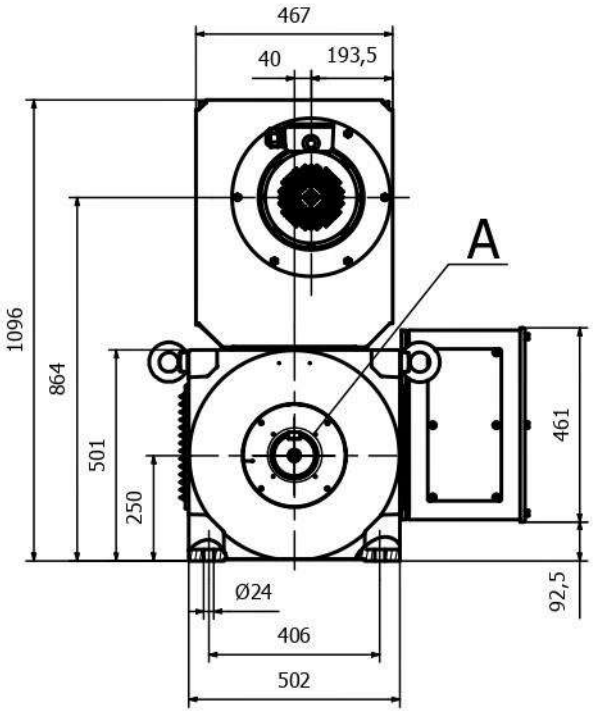


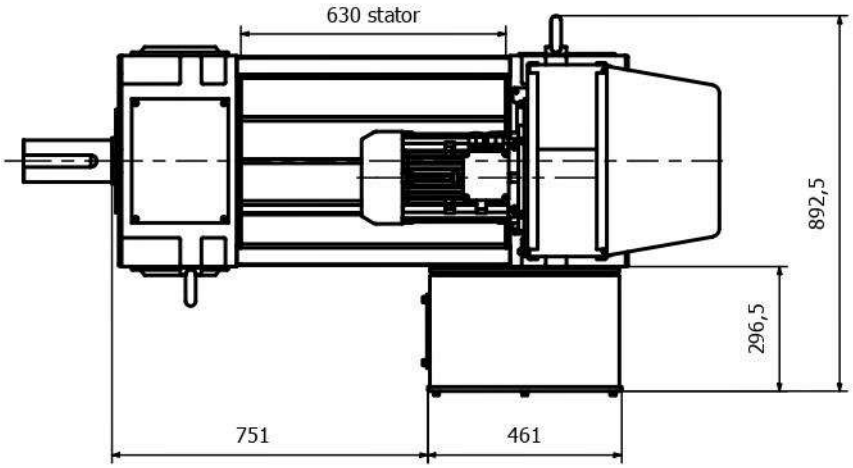


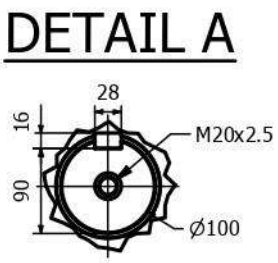
IC: 06
IP: 23
IM: 1001
Pos: CDH/257

6.1.12 Motor dimensions VF 250 L IP23

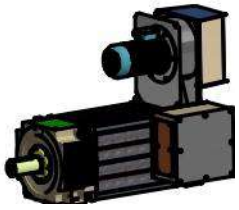




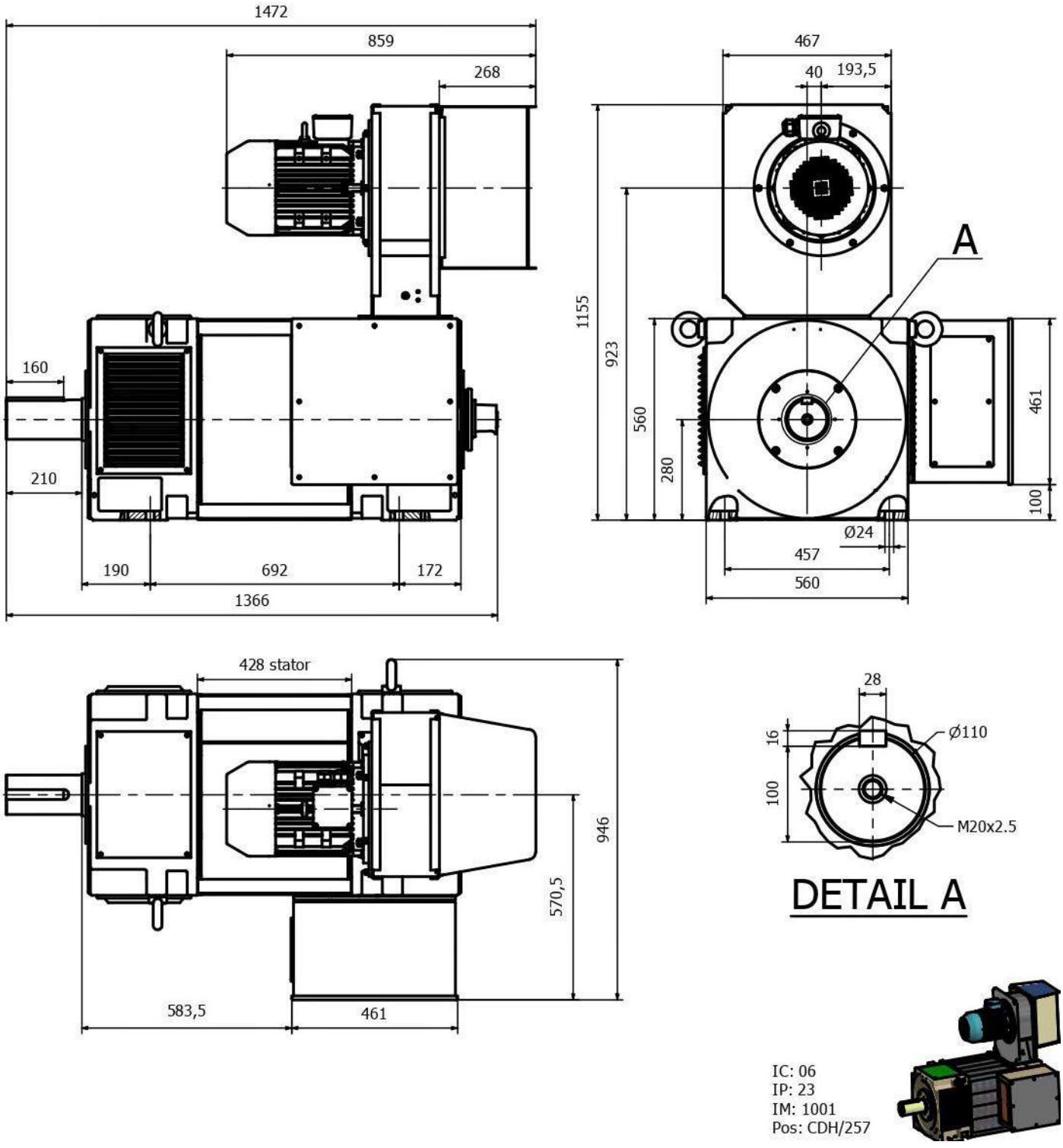




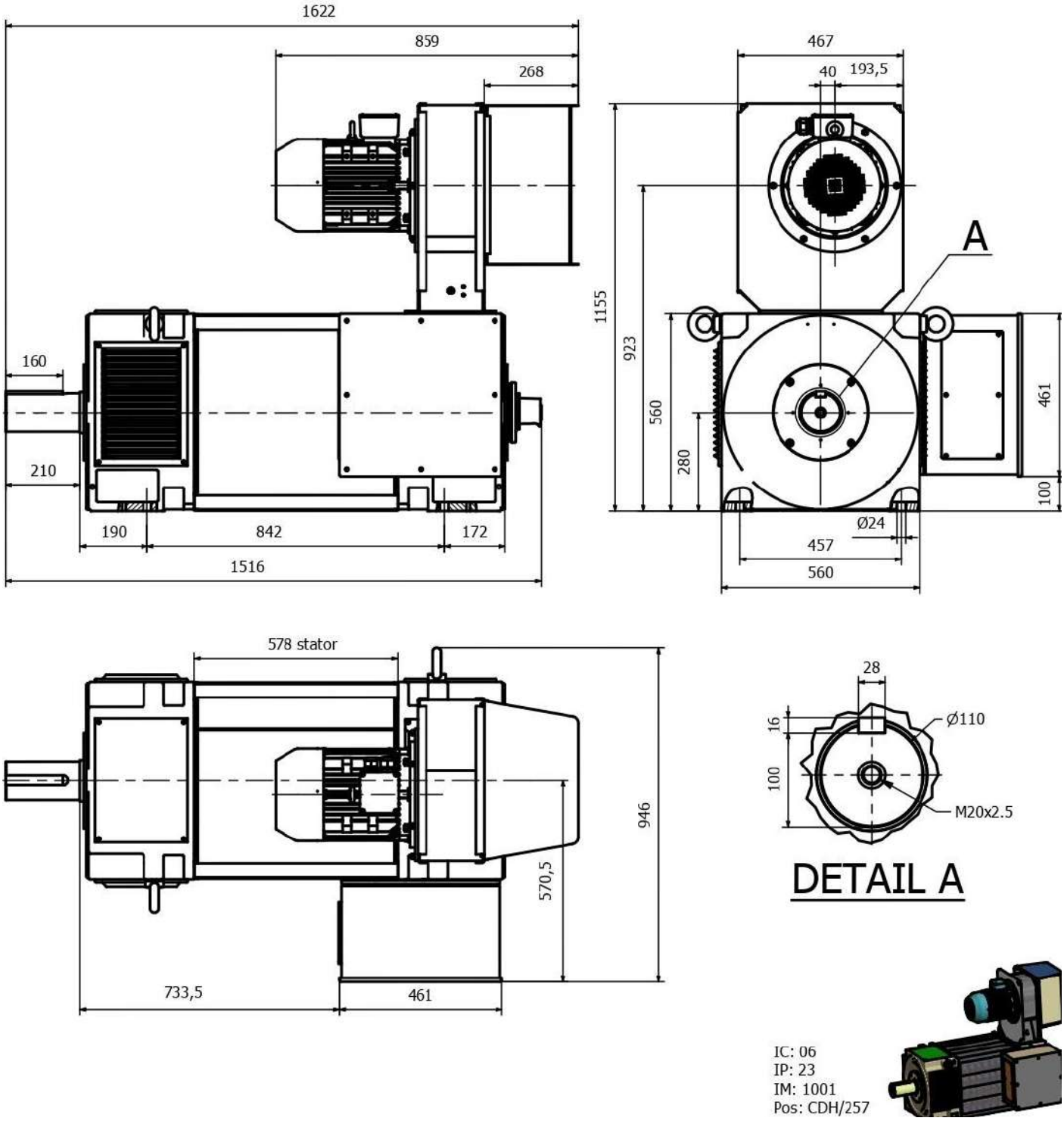
IC: 06
IP: 23
IM: 1001
Pos: CDH/257



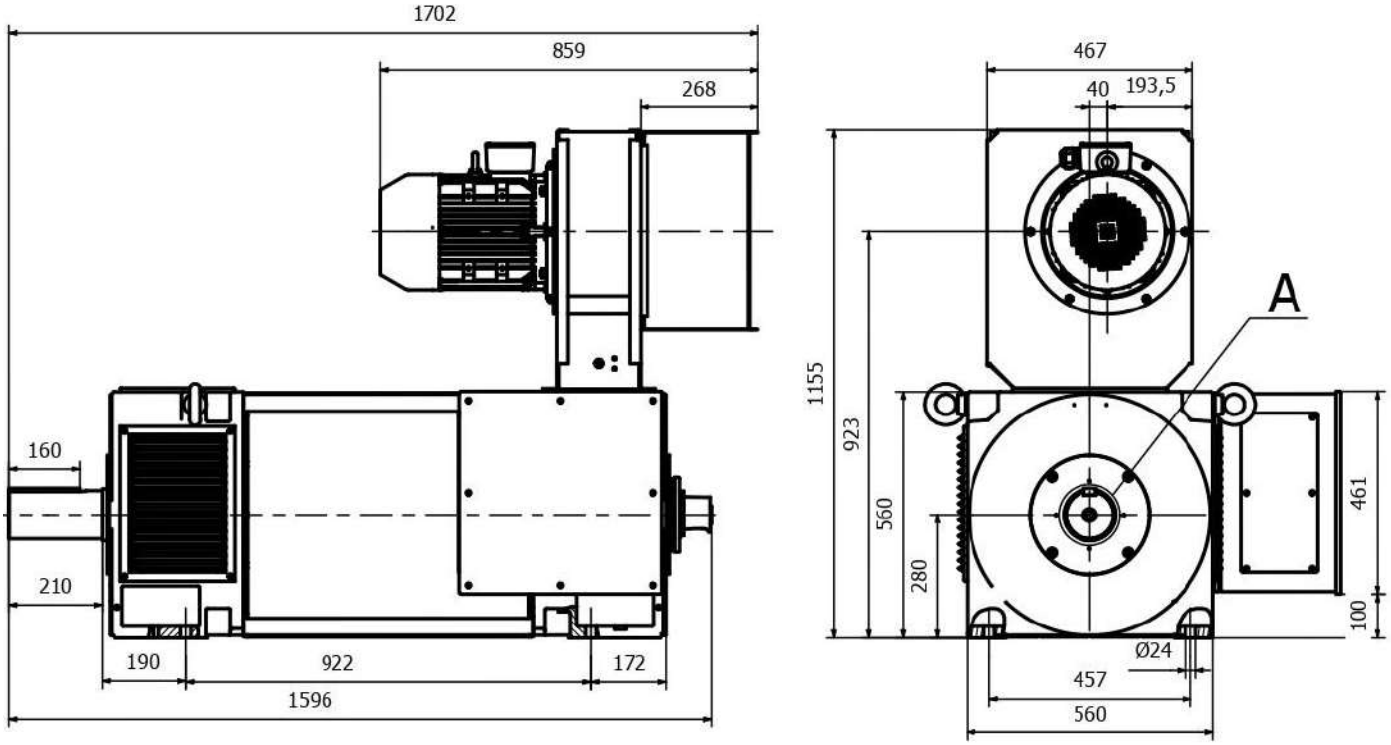
6.1.13 Motor dimensions VF 280 S IP23

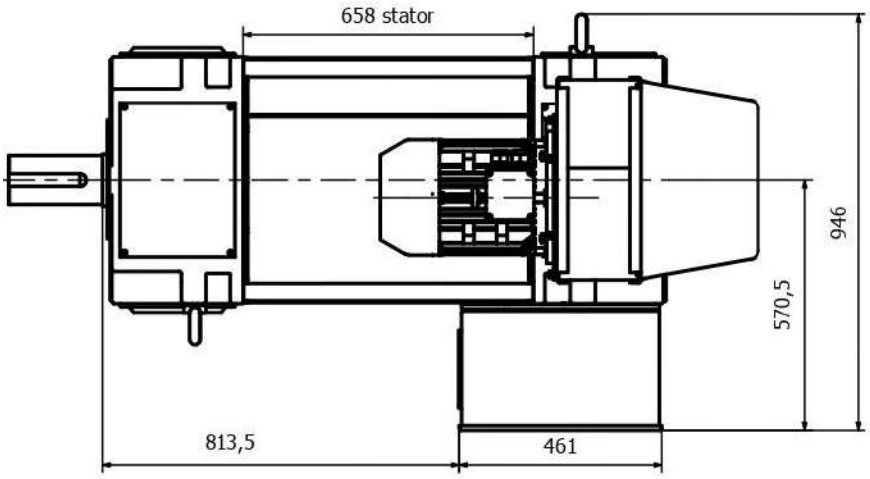


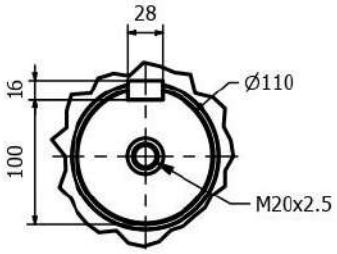
6.1.14 Motor dimensions VF 280 M IP23



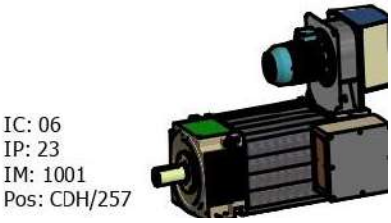
6.1.15 Motor dimensions VF 280 L IP23



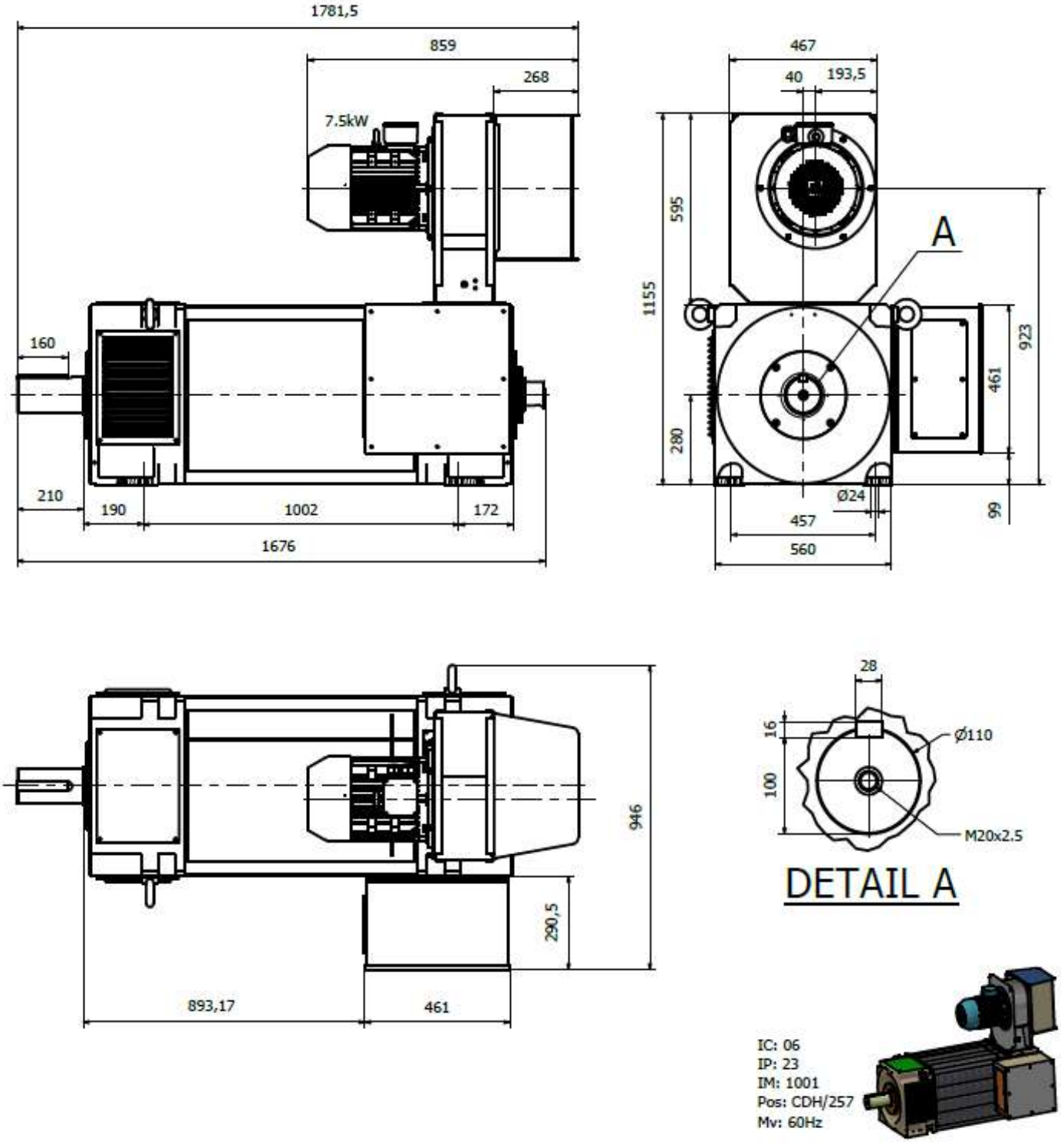




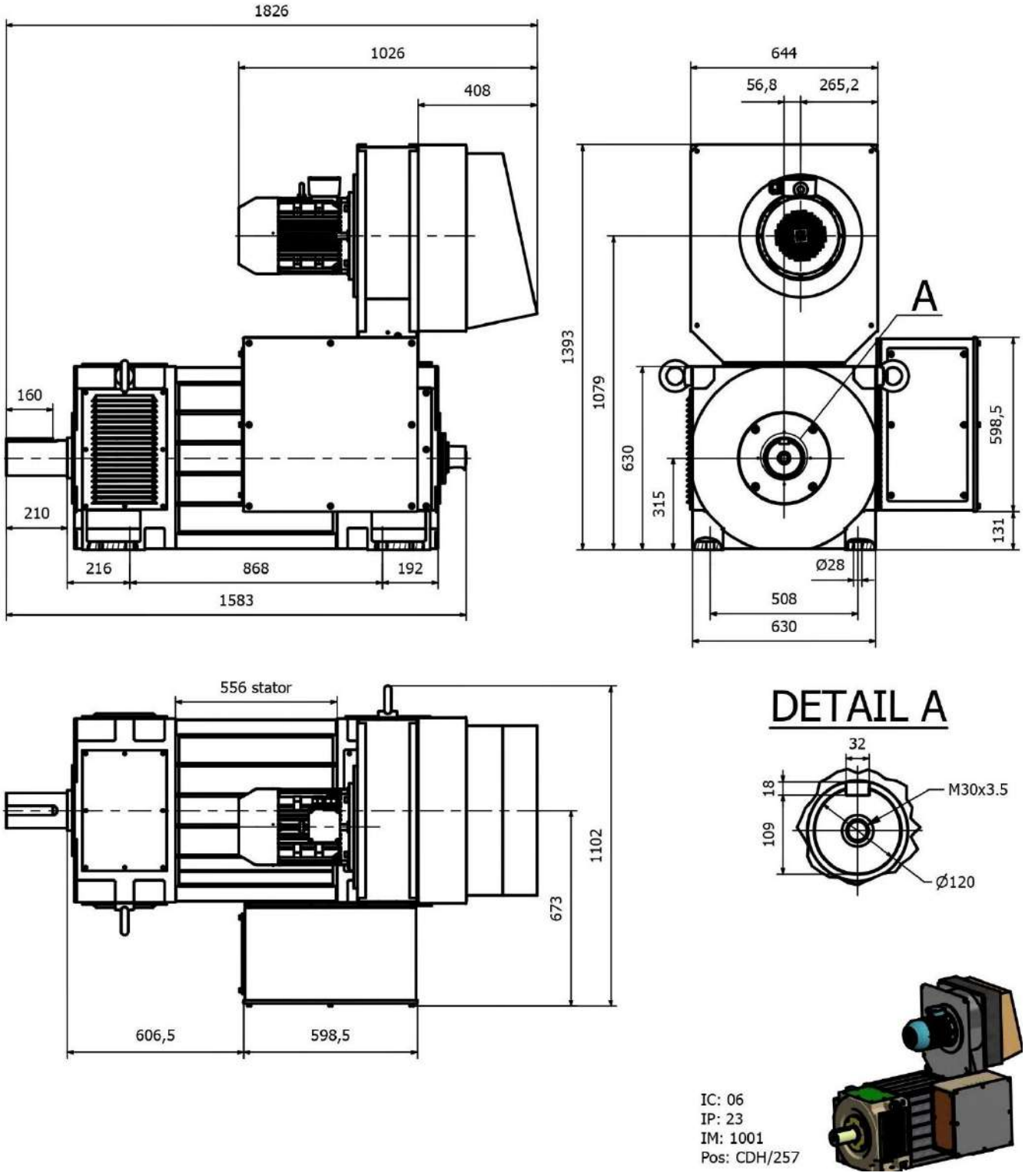
DETAIL A



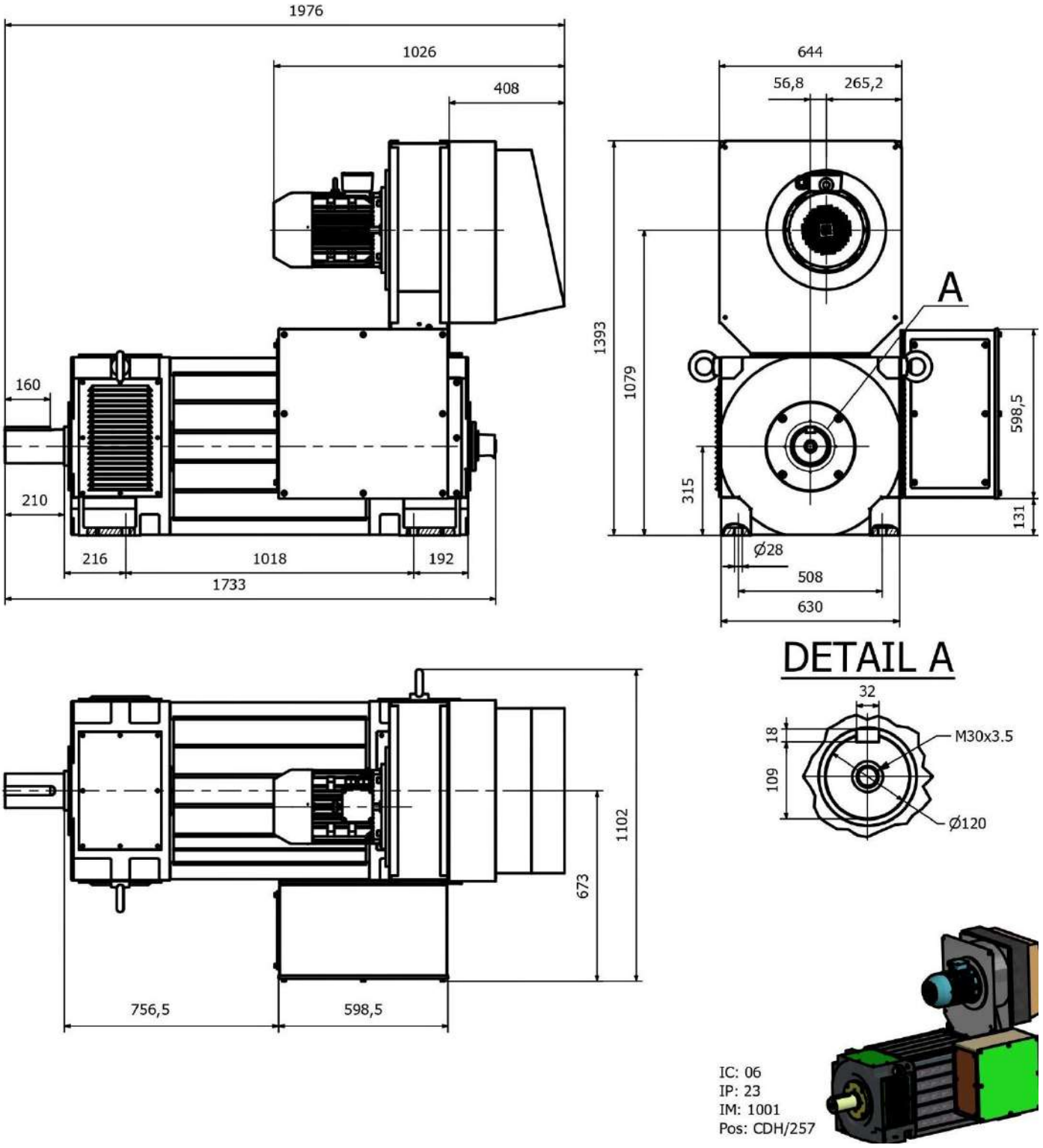
6.1.16 Motor dimensions VF 280 P IP23



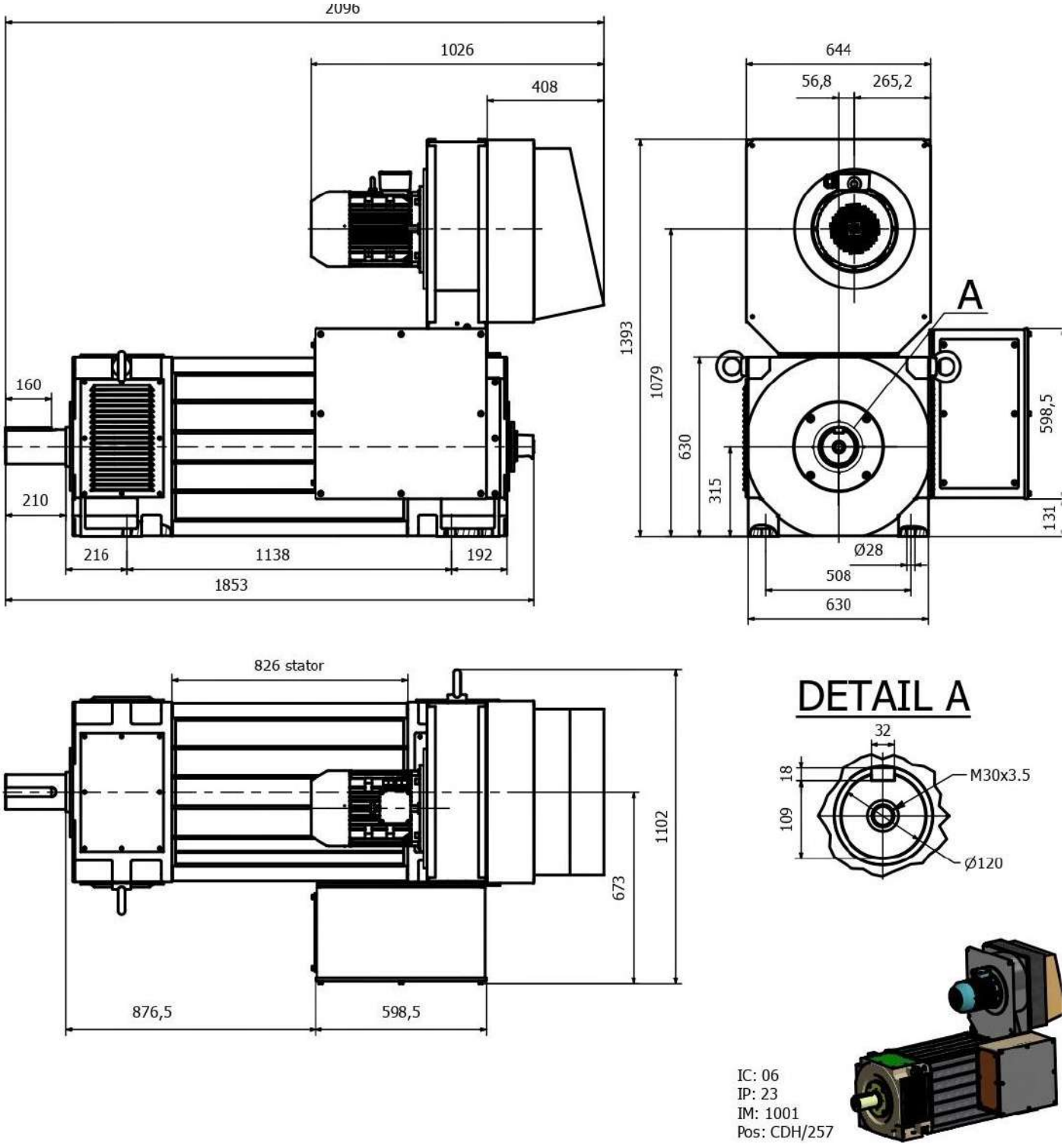
6.1.17 Motor dimensions VF 315 S IP23



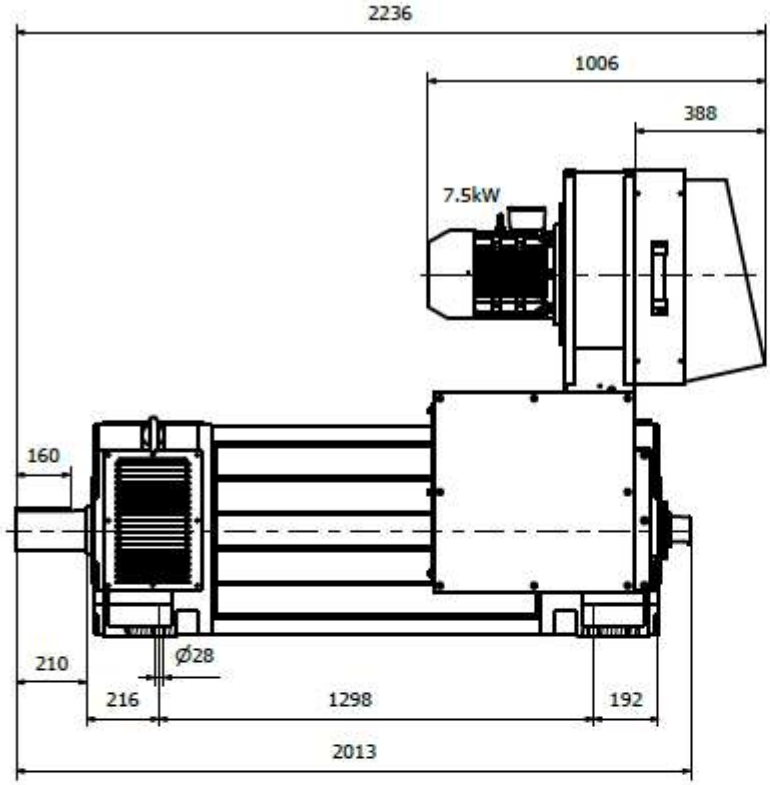
6.1.18 Motor dimensions VF 315 M IP23

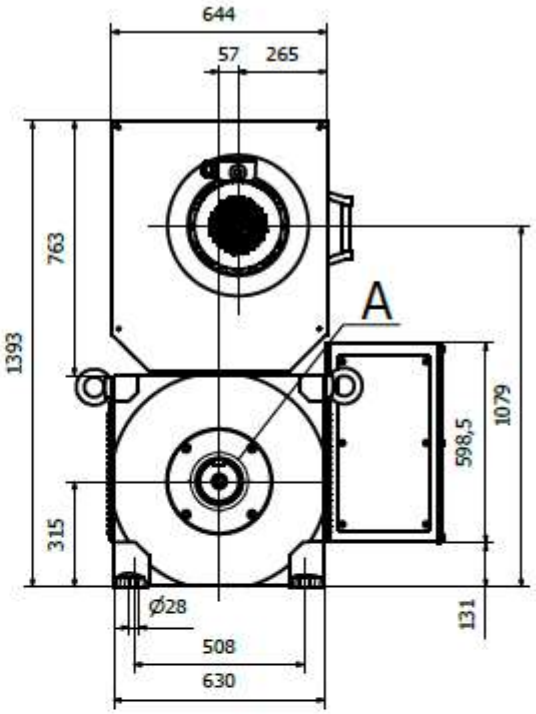


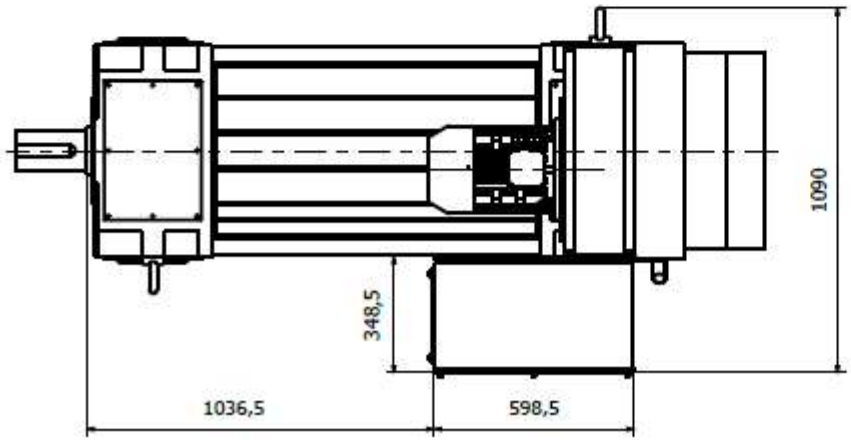
6.1.19 Motor dimensions VF 315 L IP23

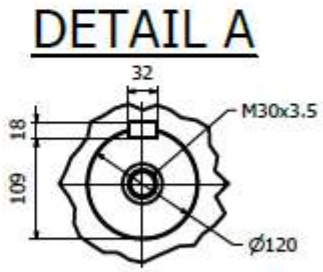


6.1.20 Motor dimensions VF 315 P IP23



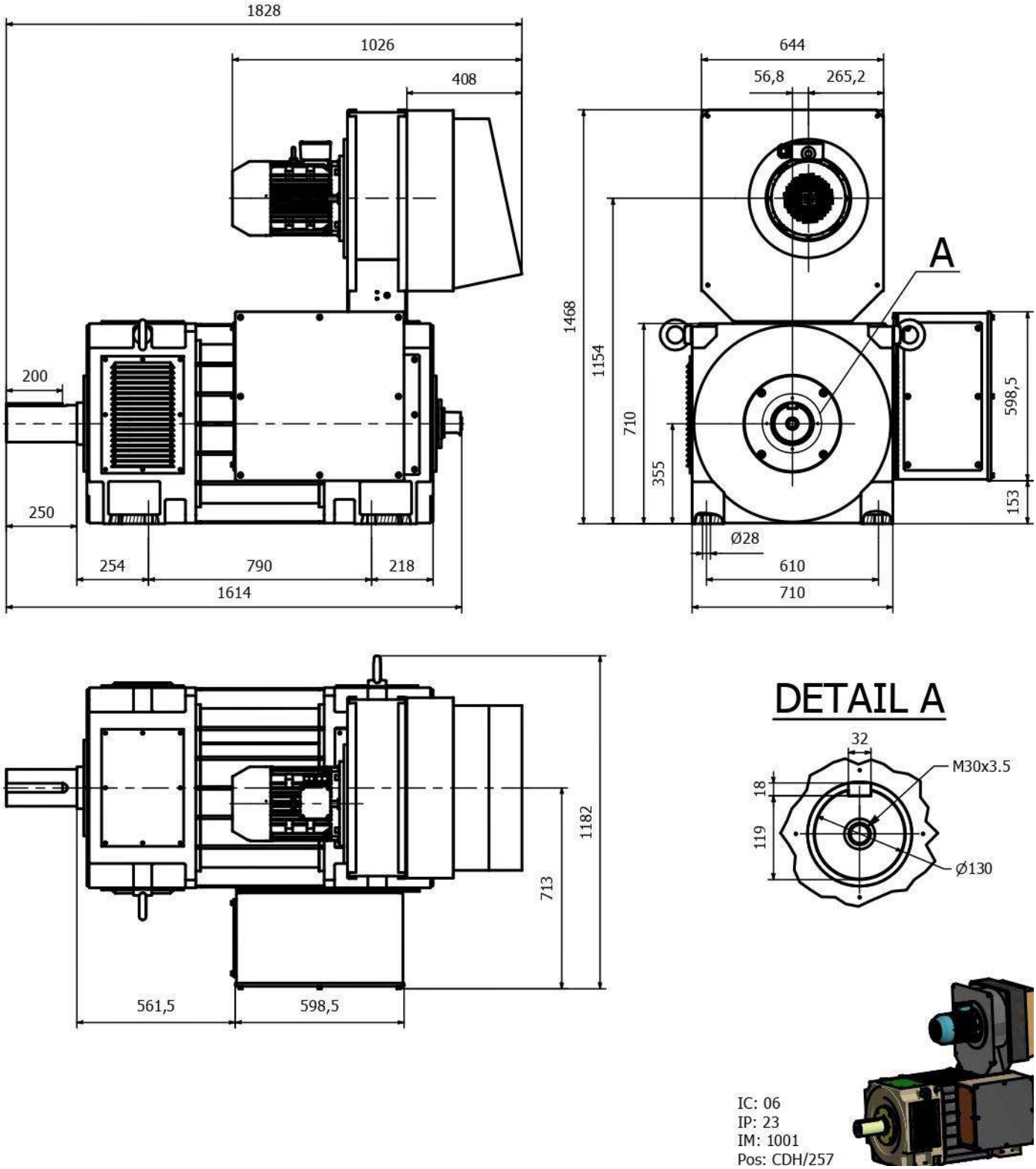




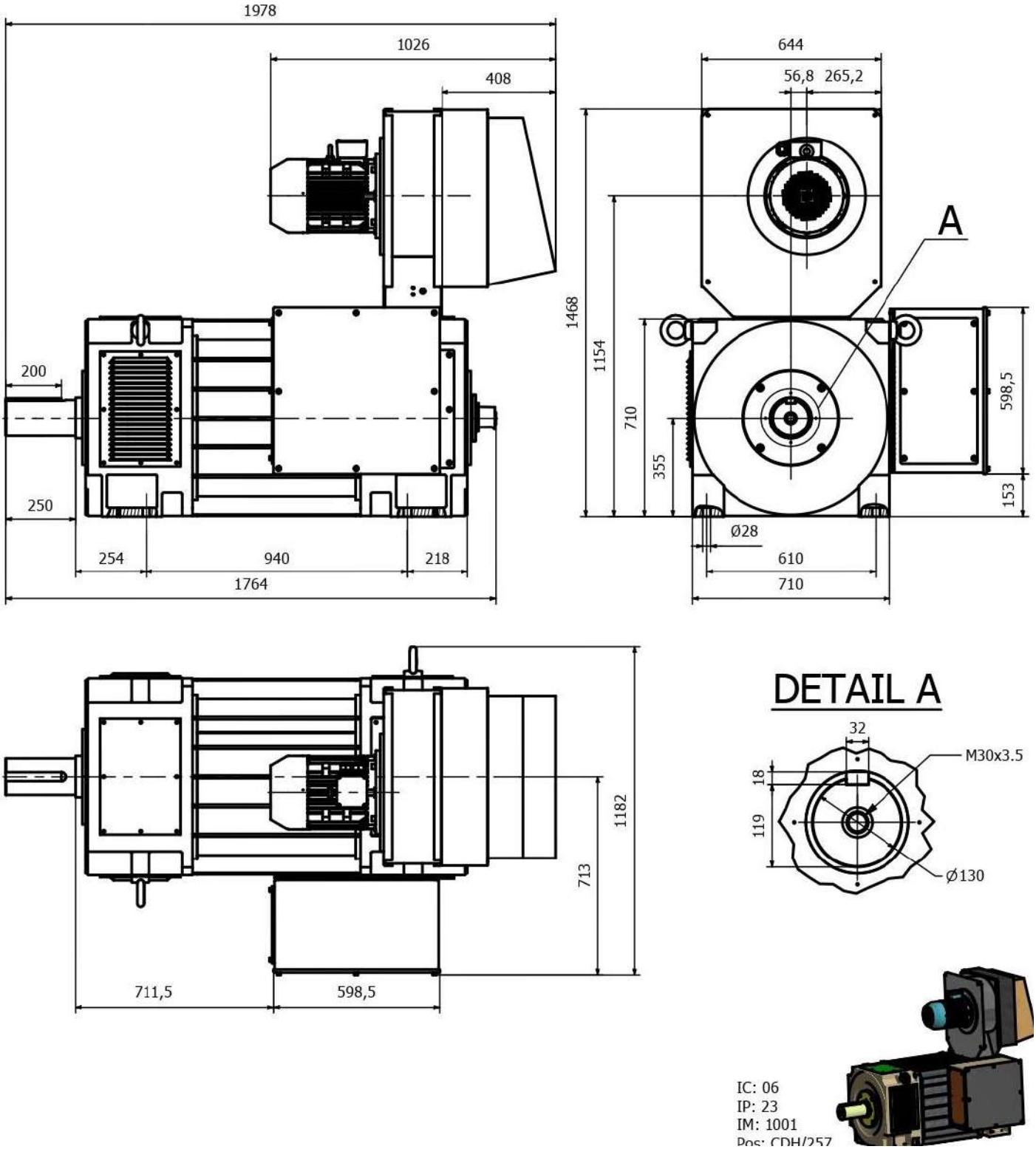


IC: 06
IP: 23
IM: 1001
Pos: CDH/257
MV: 60Hz

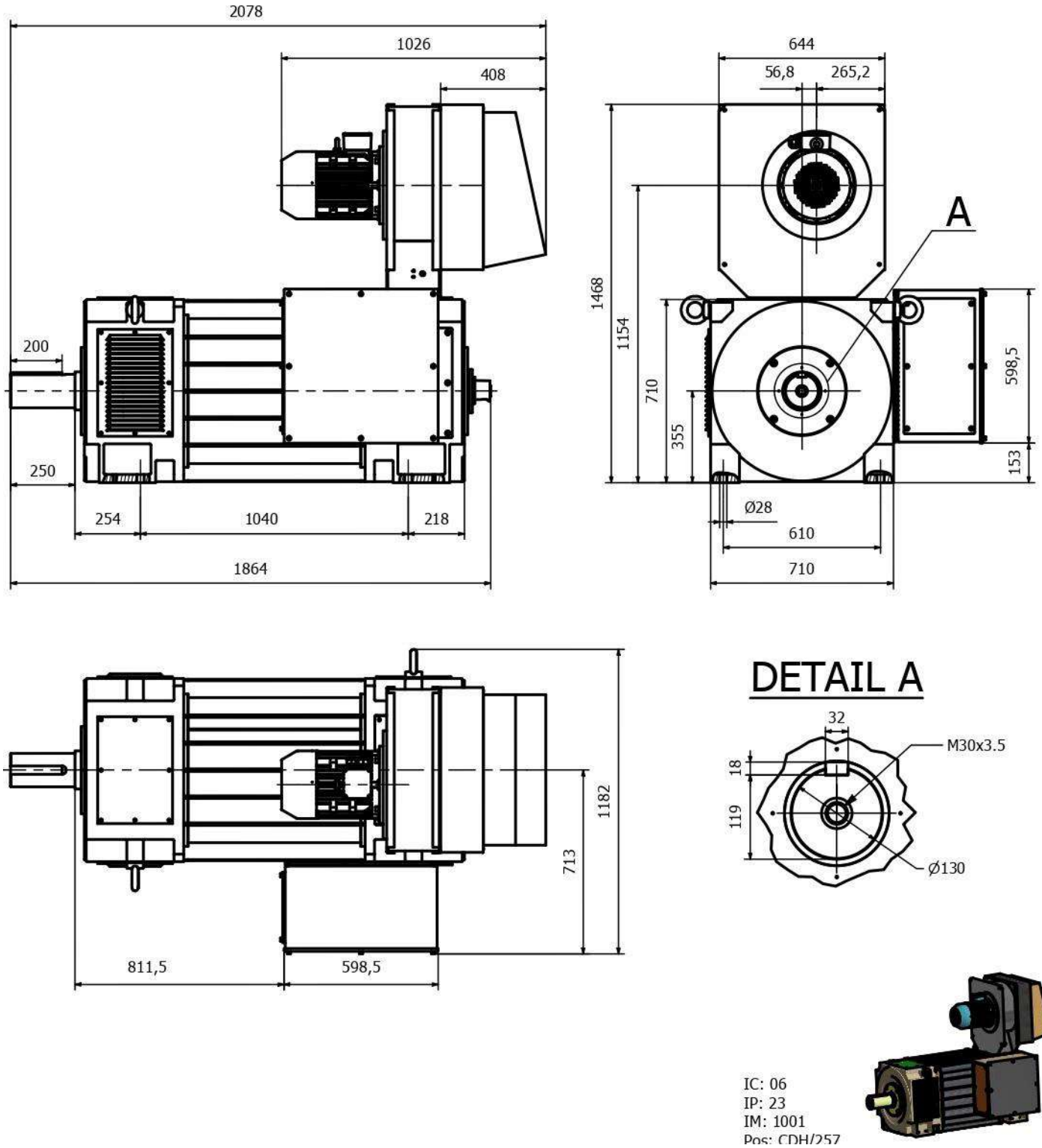
6.1.21 Motor dimensions VF 355 S IP23



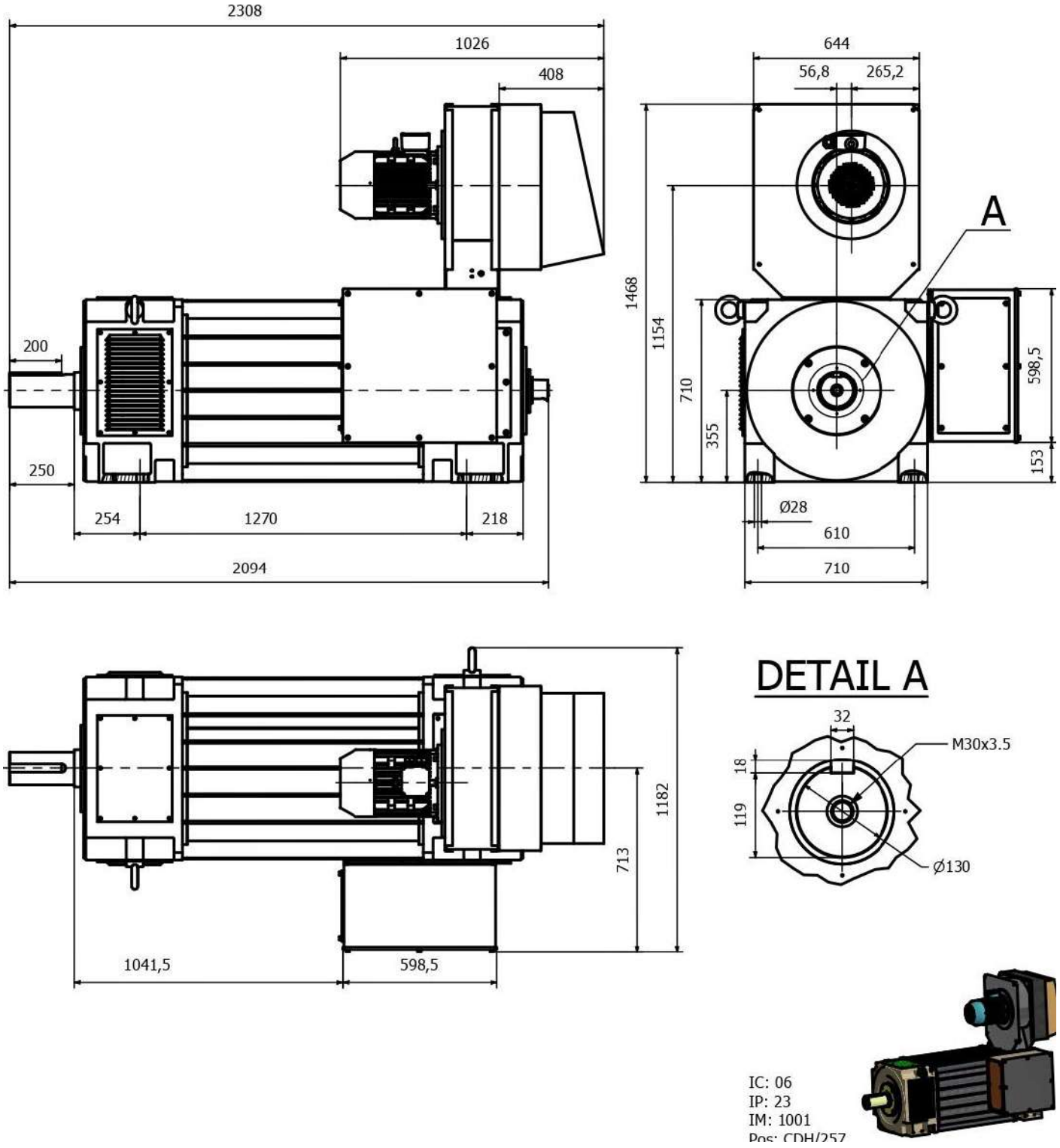
6.1.22 Motor dimensions VF 355 M IP23



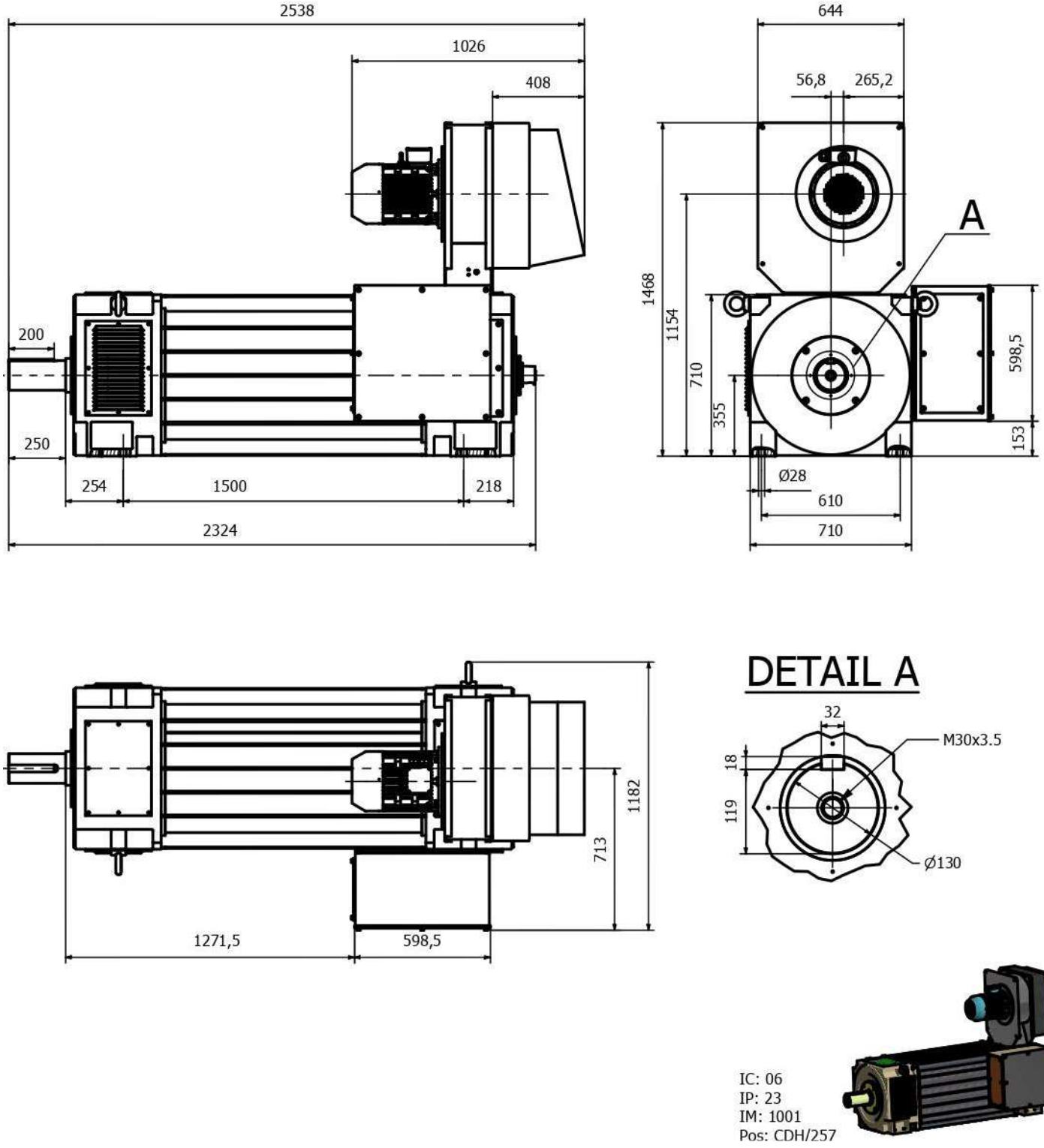
6.1.23 Motor dimensions VF 355 L IP23



6.1.24 Motor dimensions VF 355 P IP23

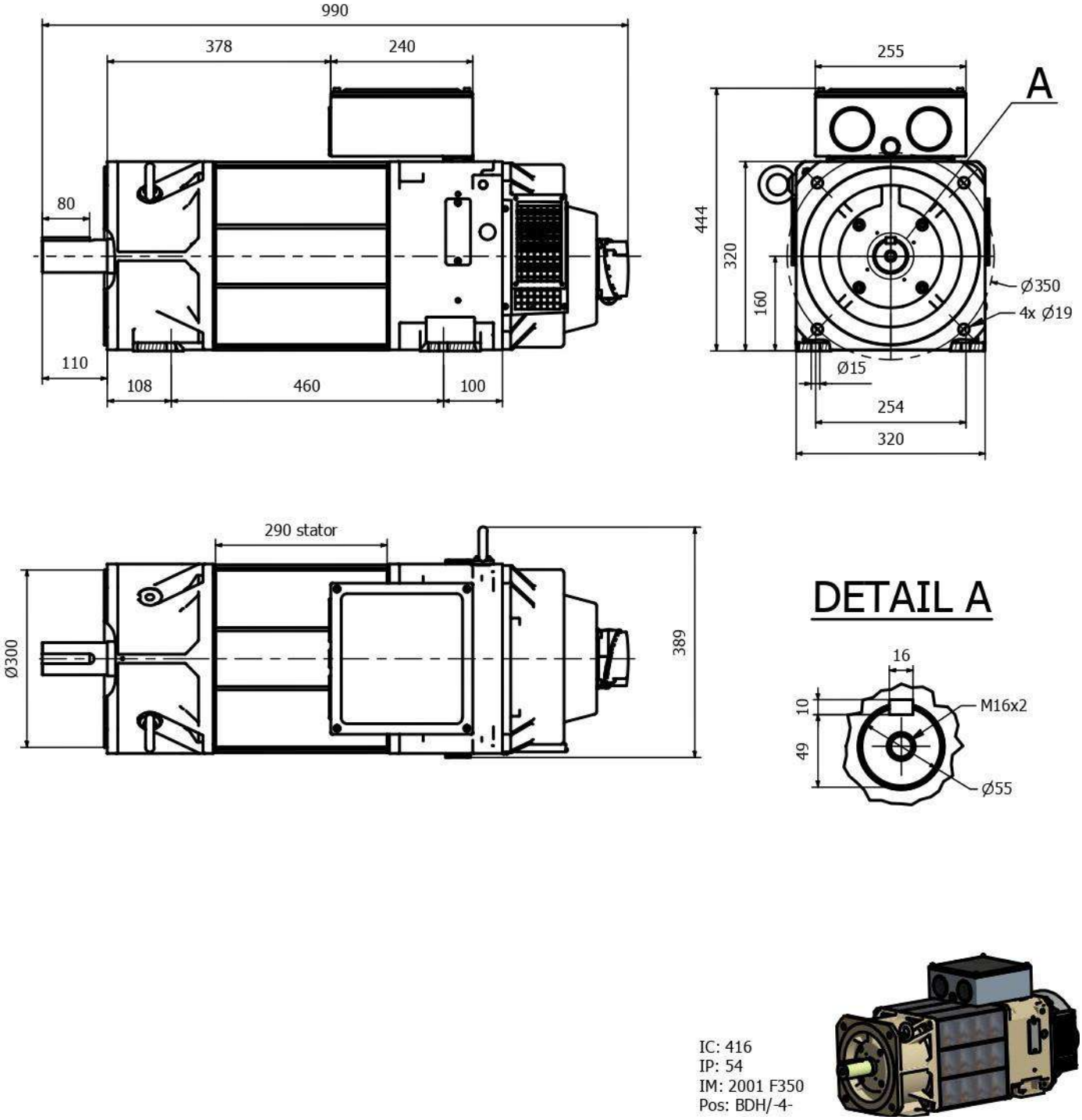


6.1.25 Motor dimensions VF 355 X IP23



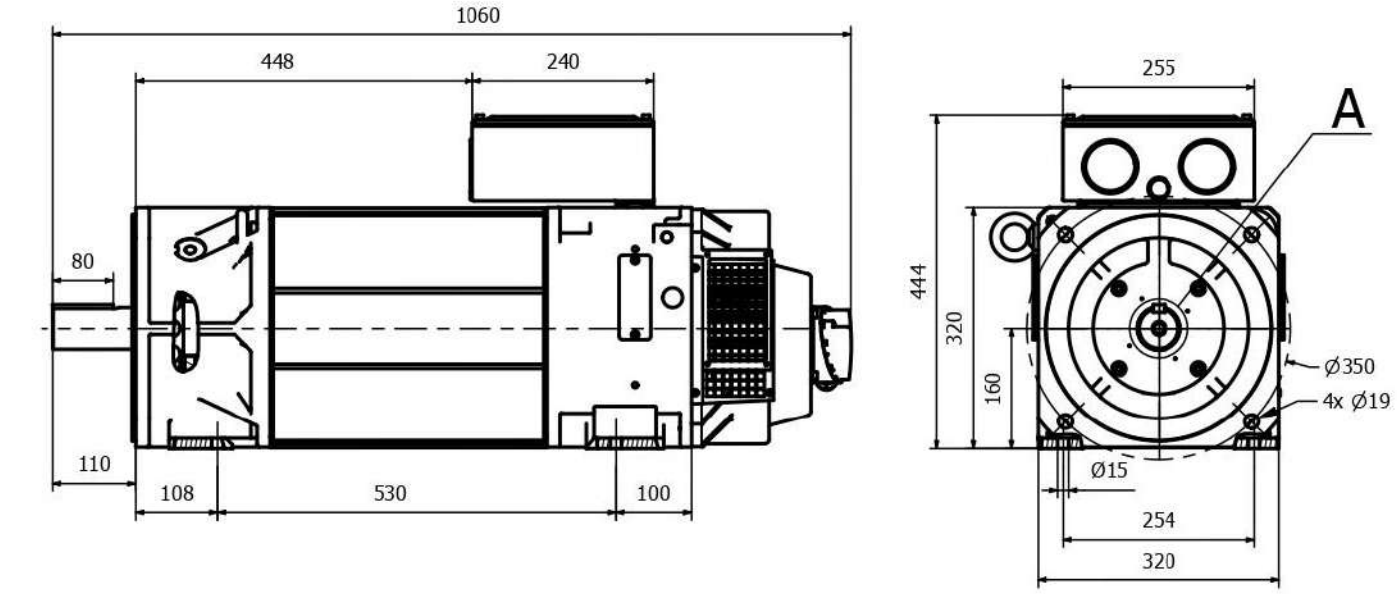
6.2 Mechanical dimensions IP54

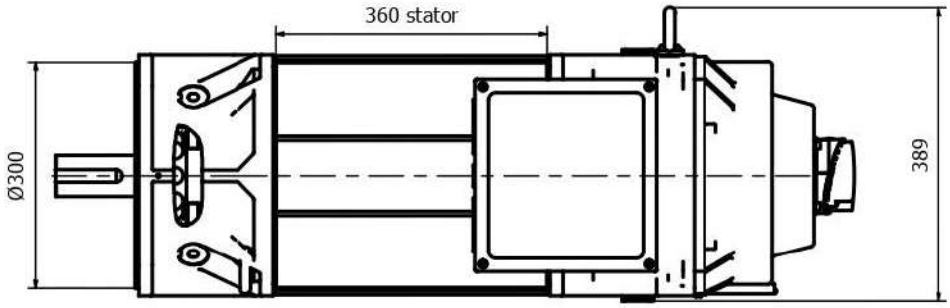
6.2.1 Motor dimensions VF 160 S IP54

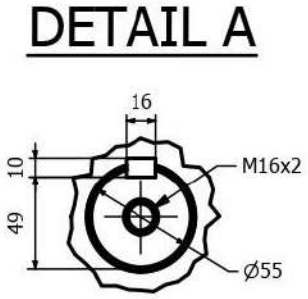


IC: 416
IP: 54
IM: 2001 F350
Pos: BDH/-4-

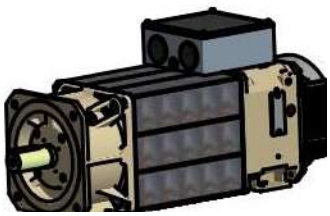
6.2.2 Motor dimensions VF 160 M IP54



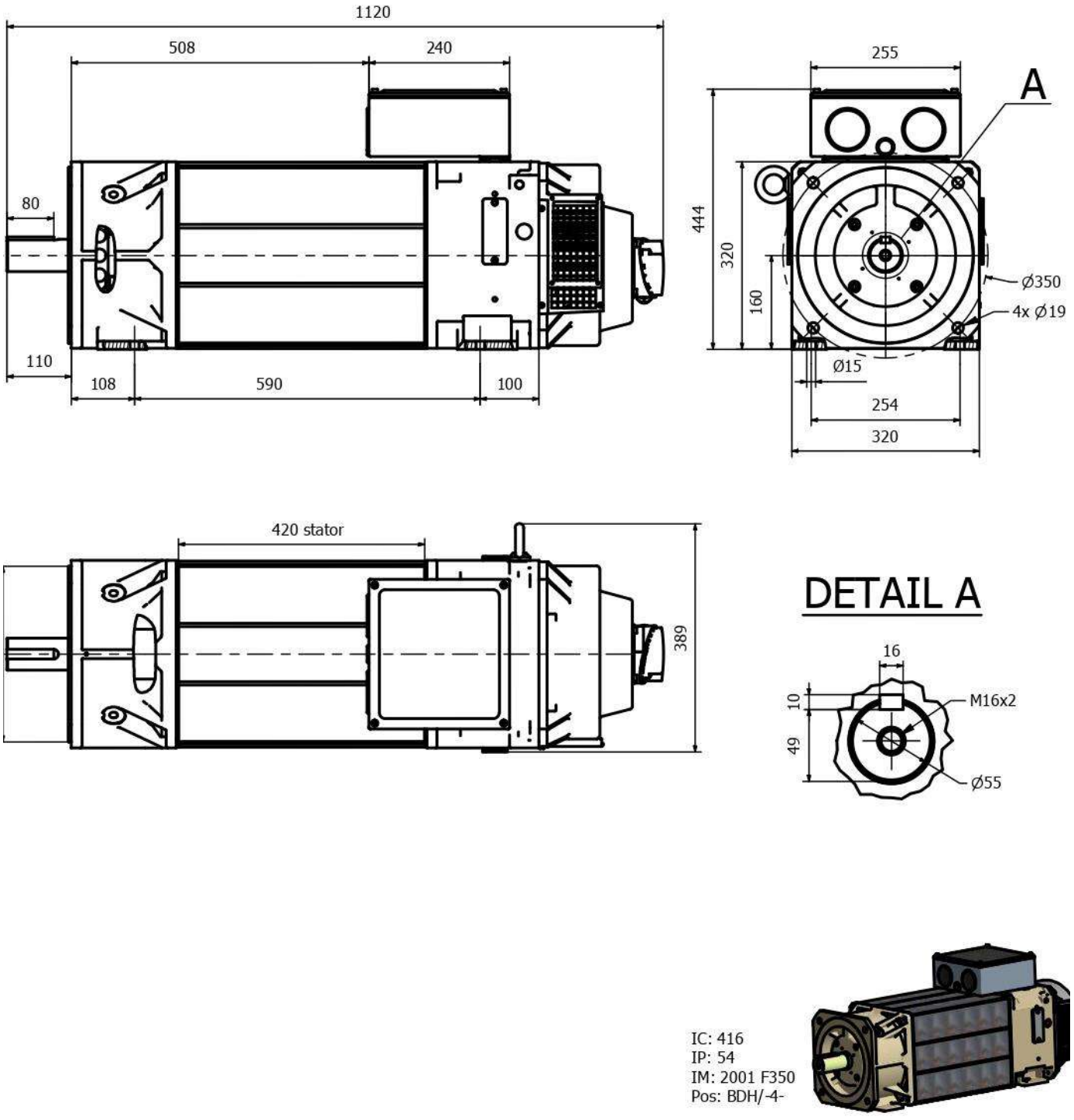




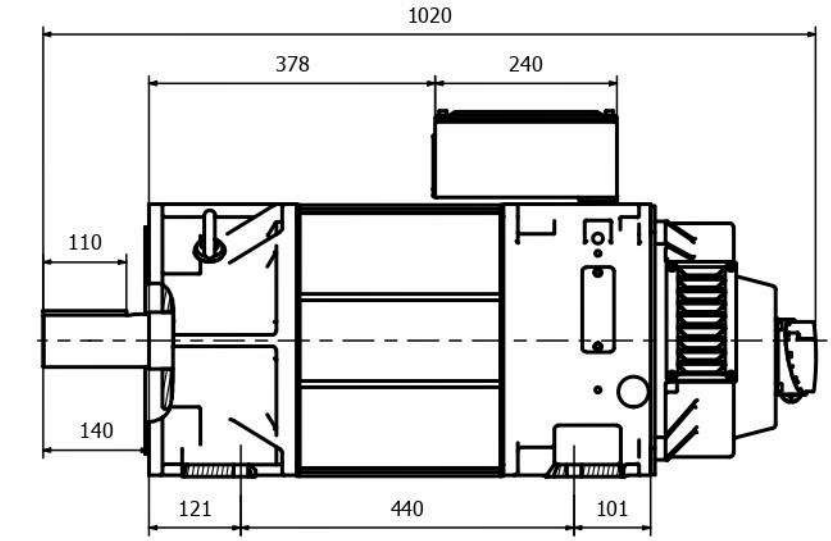
IC: 416
IP: 54
IM: 2001 F350
Pos: BDH/-4-

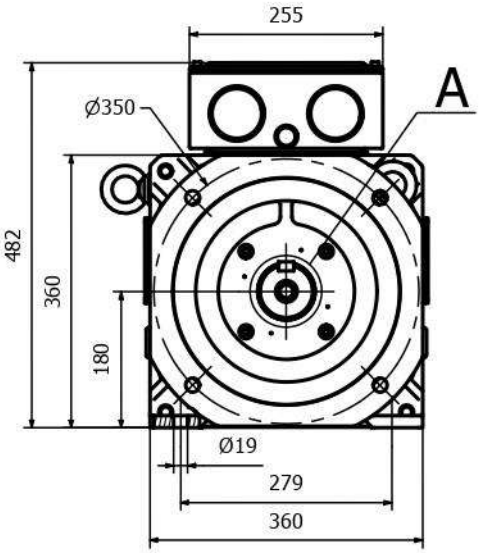


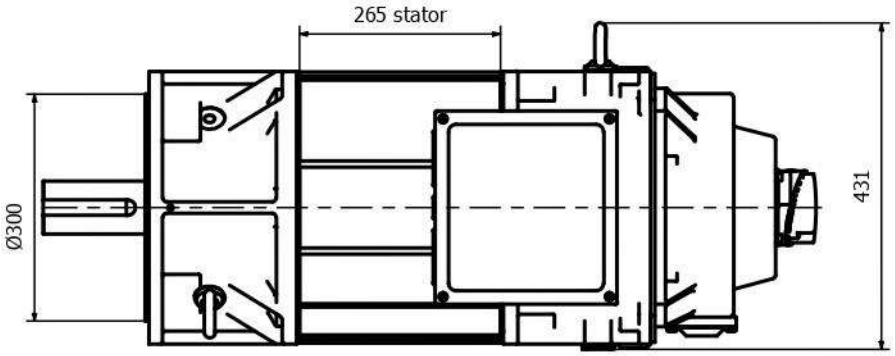
6.2.3 Motor dimensions VF 160 L IP54

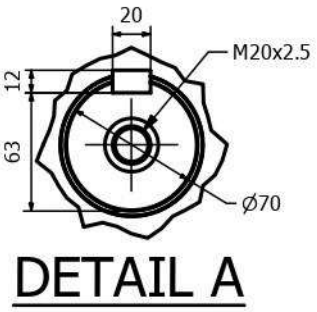


6.2.4 Motor dimensions VF 180 S IP54



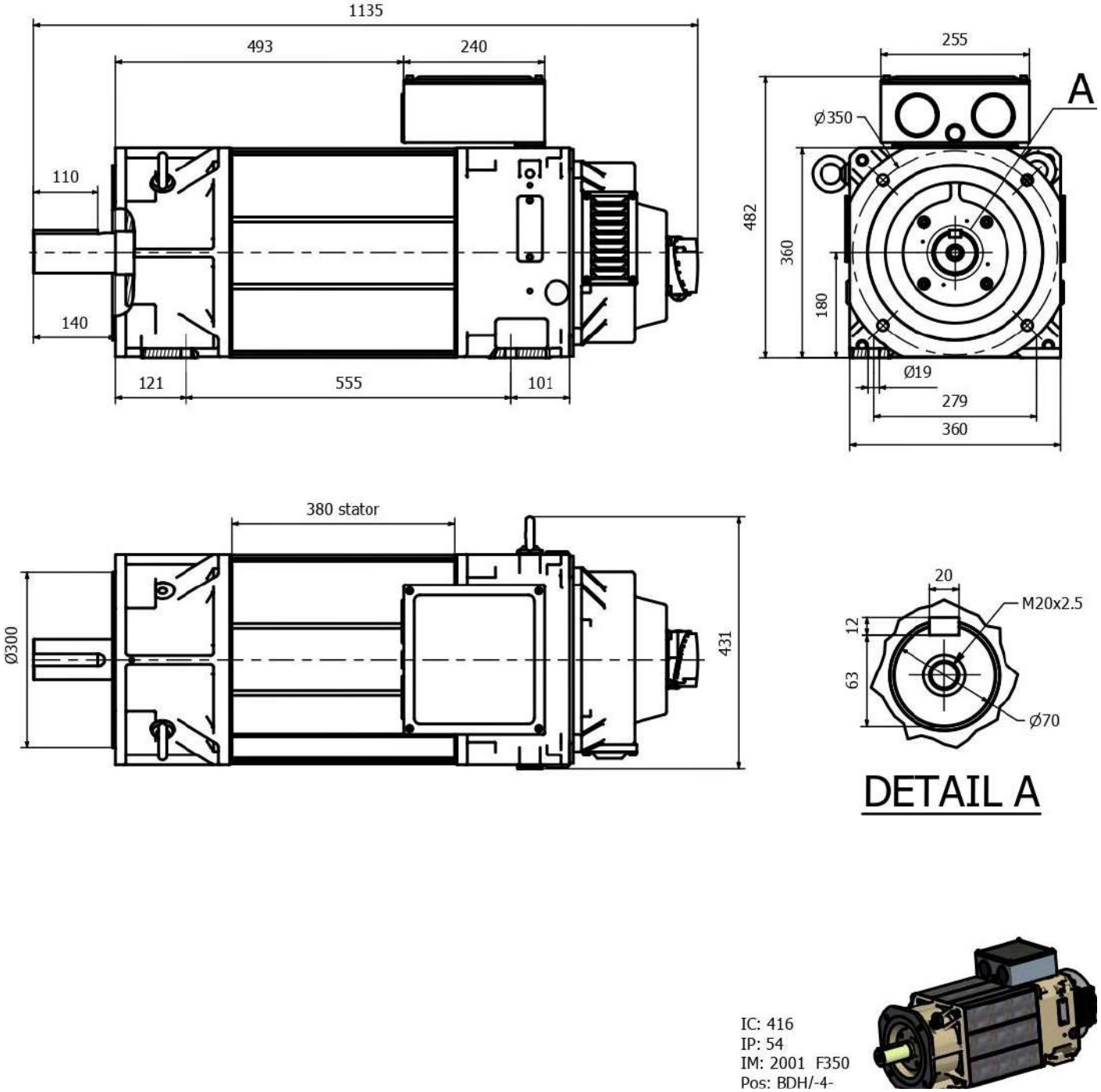




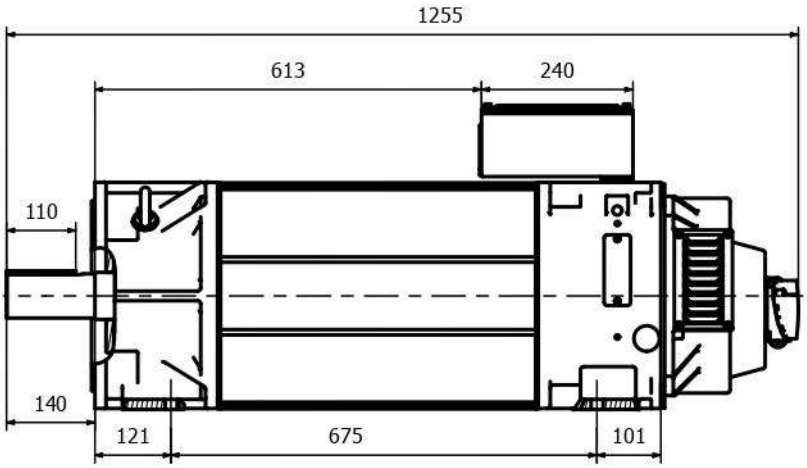


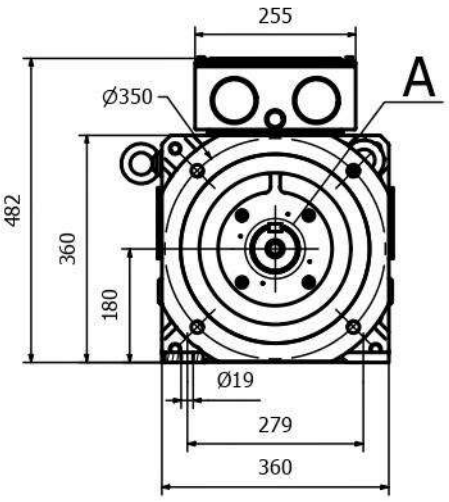
IC: 416
IP: 54
IM: 2001 F350
Pos: BDH/-4-

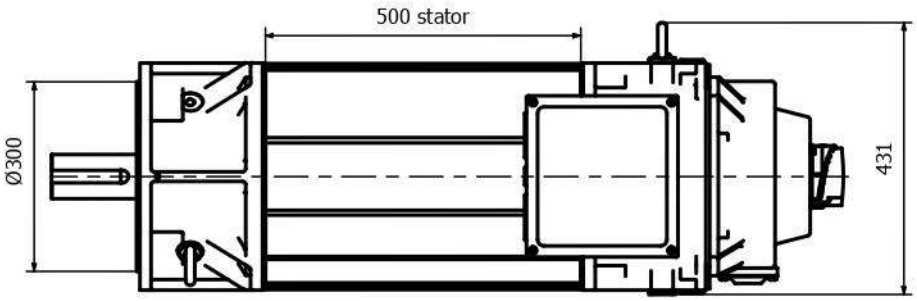
6.2.5 Motor dimensions VF 180 M IP54

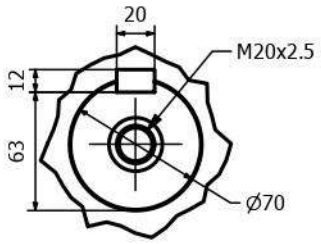


6.2.6 Motor dimensions VF 180 L IP54



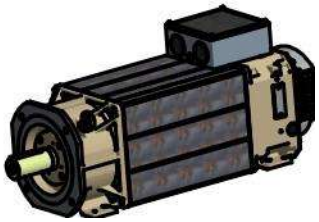






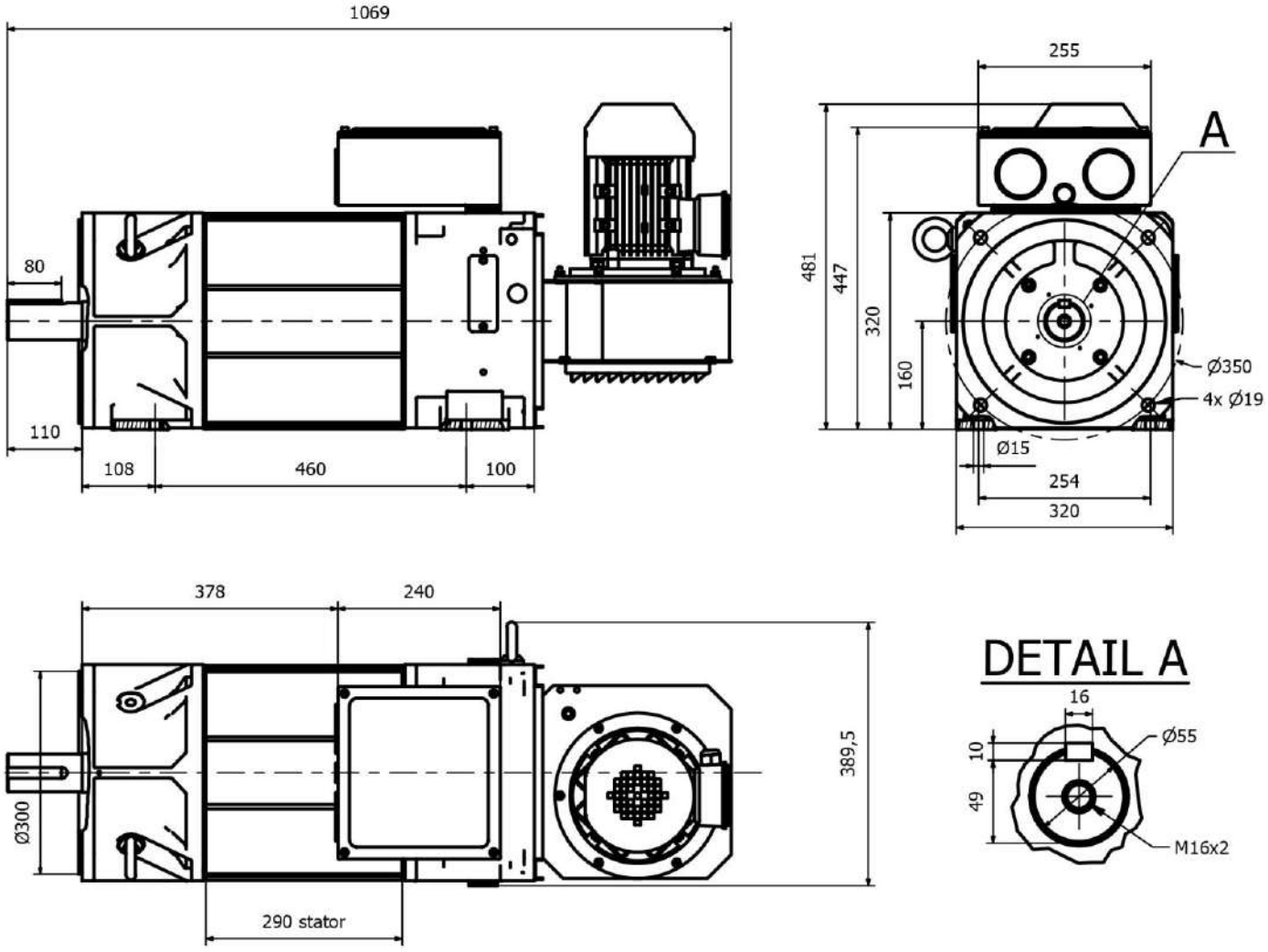
DETAIL A

IC: 416
IP: 54
IM: 2001 F350
Pos: BDH/-4-

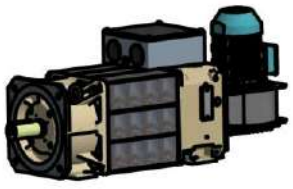


6.3 Mechanical dimensions IP55

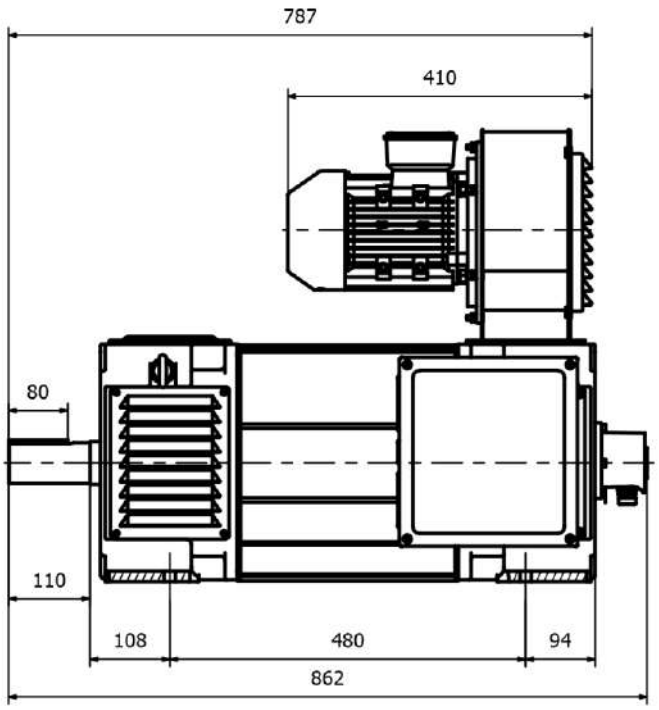
6.3.1 Motor dimensions VF 160 S IP55 axial version

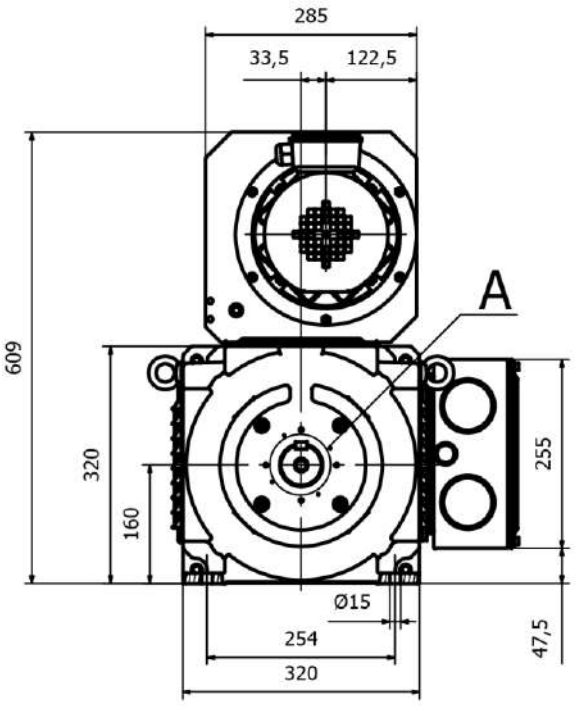


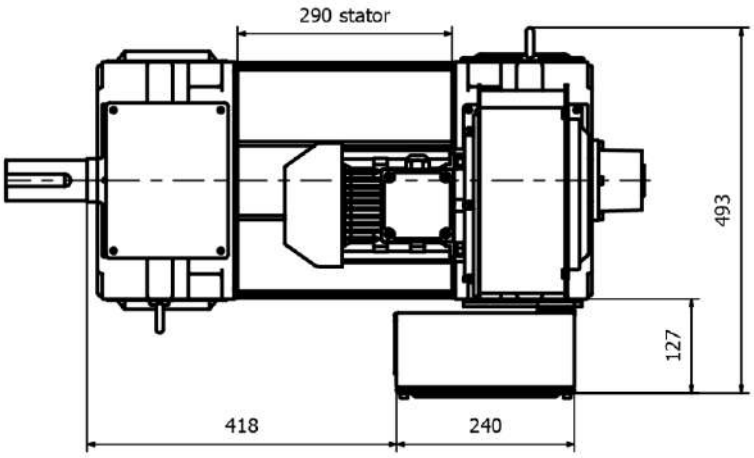
IC: 416
IP: 55
IM: 2001 F350
Pos: BDH/-4-

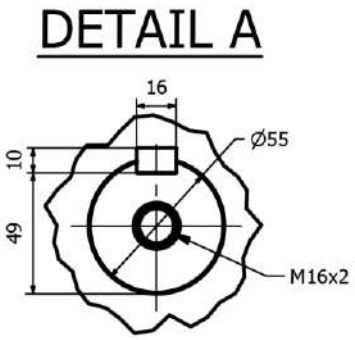


6.3.2 Motor dimensions VF 160 S IP55 radial version



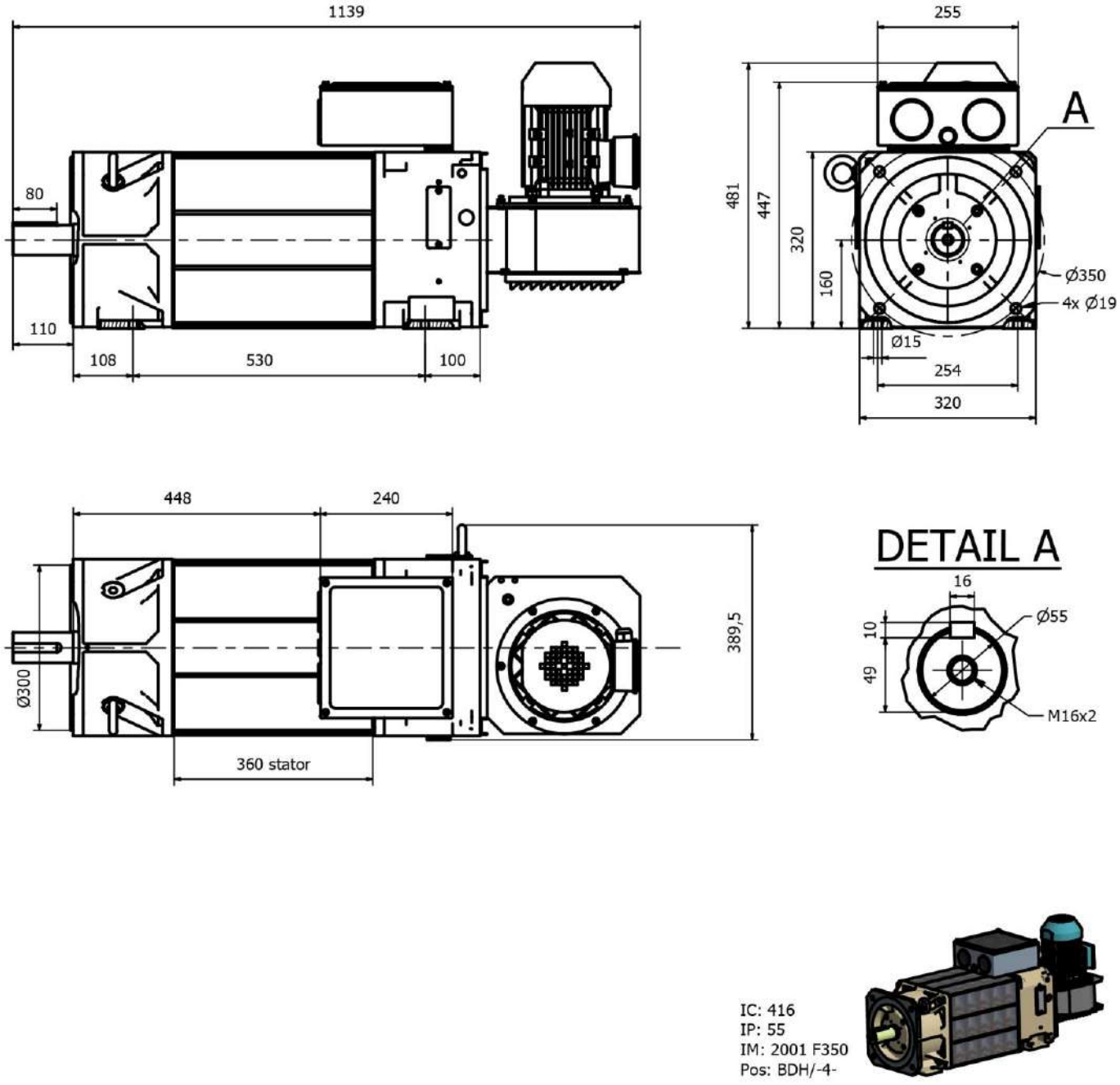




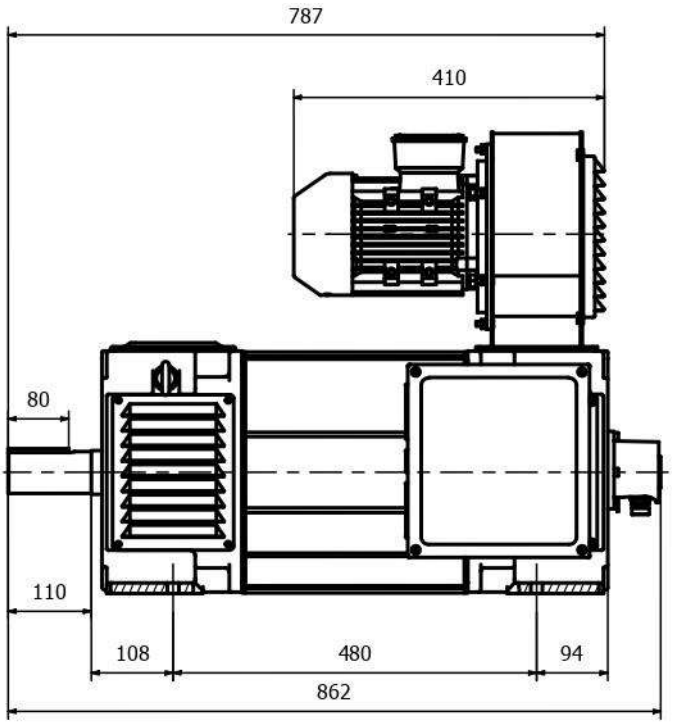


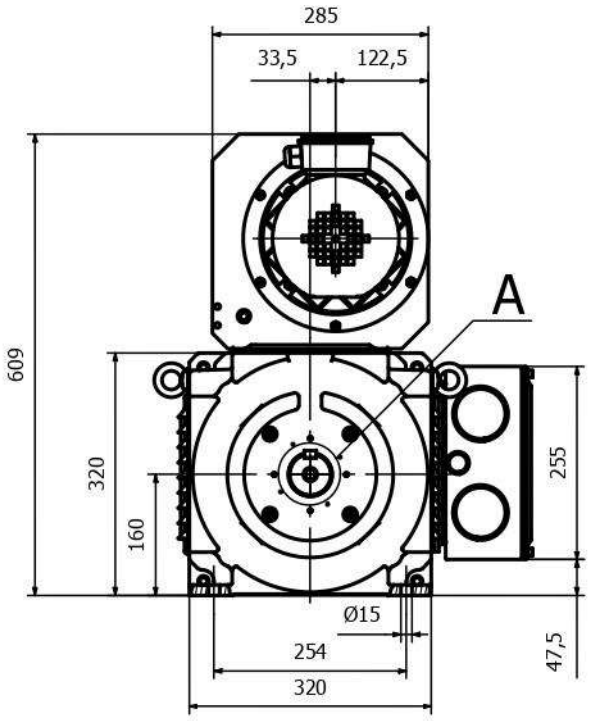
IC: 416
IP: 55
IM: 1001
Pos: CDH/257

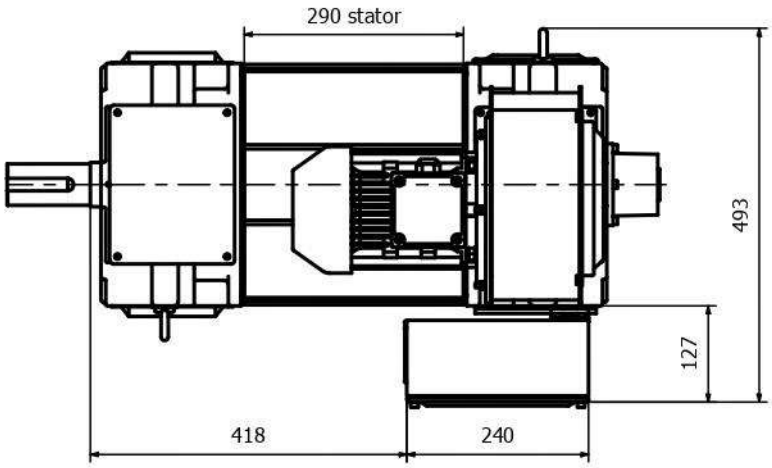
6.3.3 Motor dimensions VF 160 M IP55 axial version

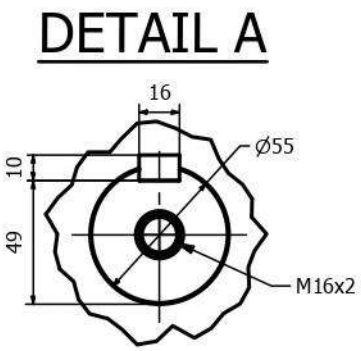


6.3.4 Motor dimensions VF 160 M IP55 radial version



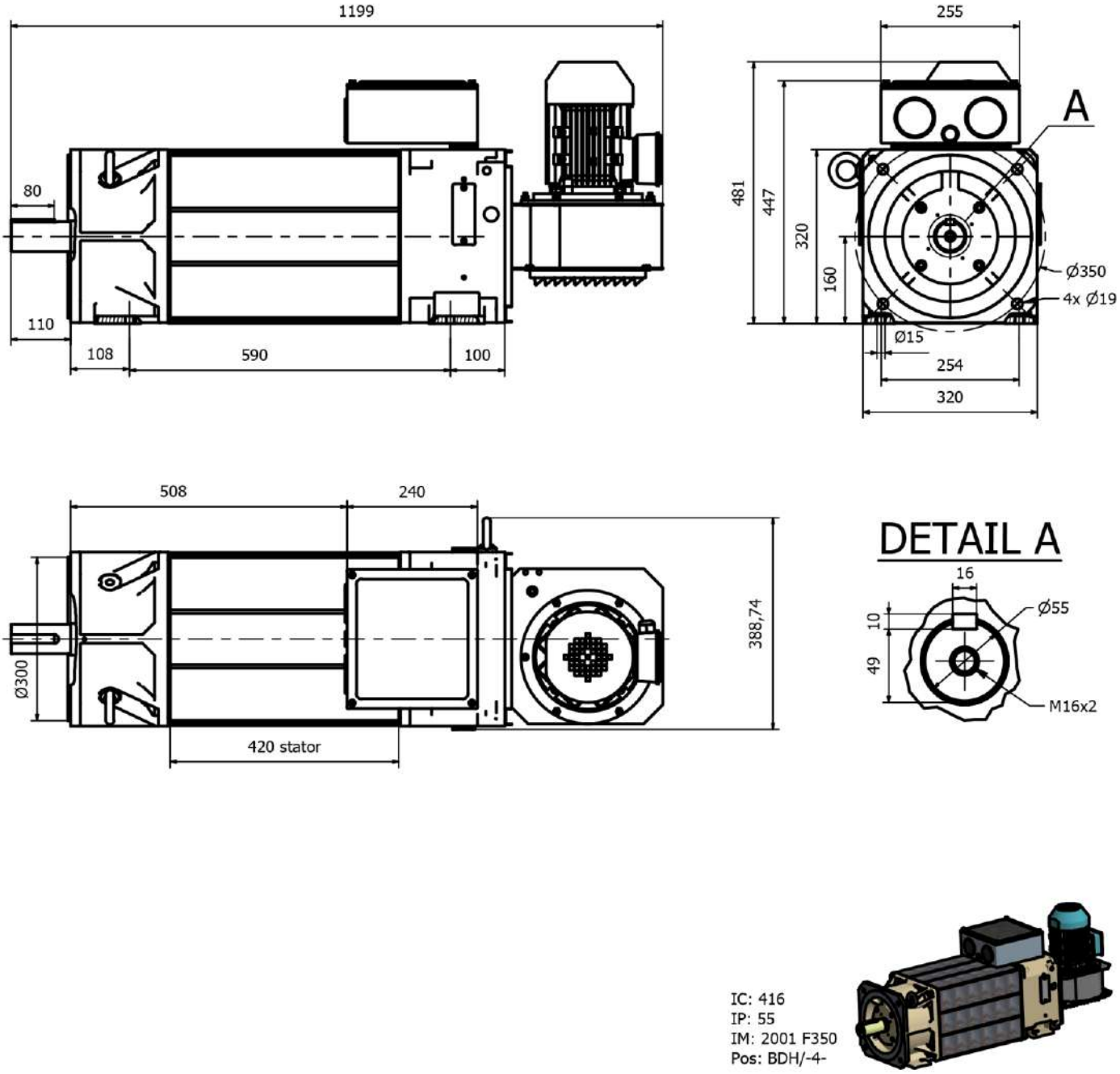




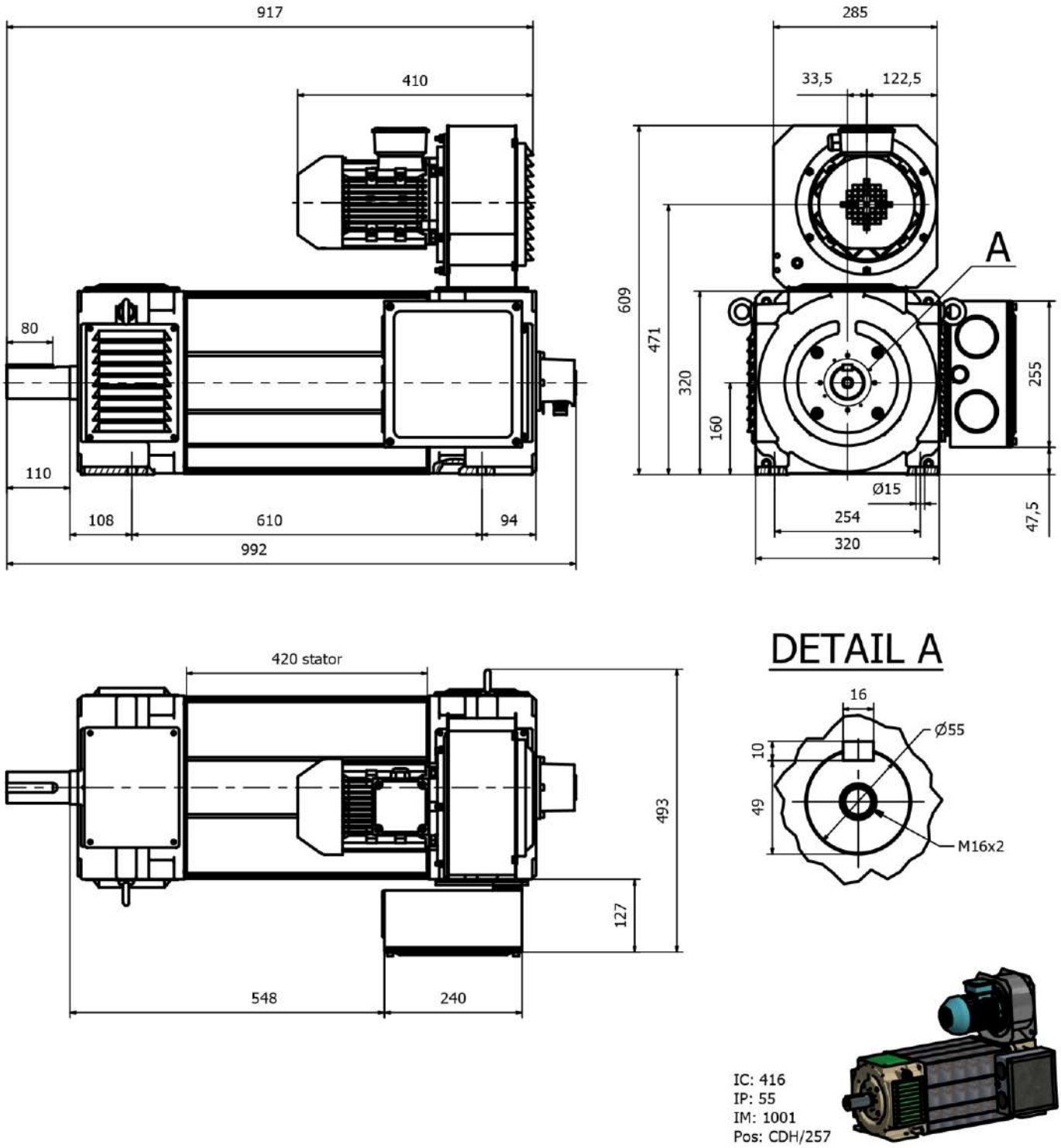


IC: 416
IP: 55
IM: 1001
Pos: CDH/257

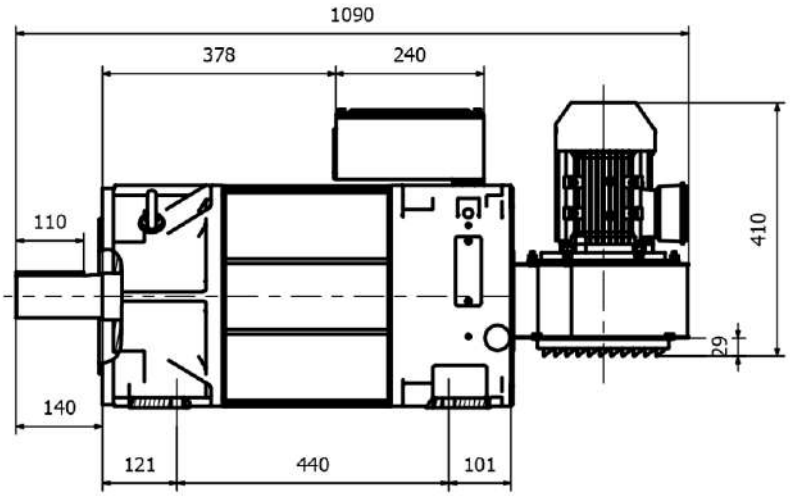
6.3.5 Motor dimensions VF 160 L IP55 axial version

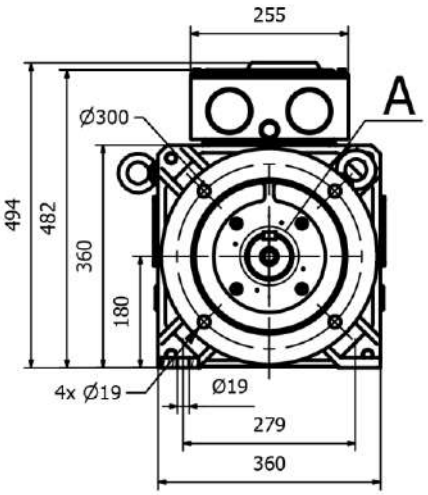


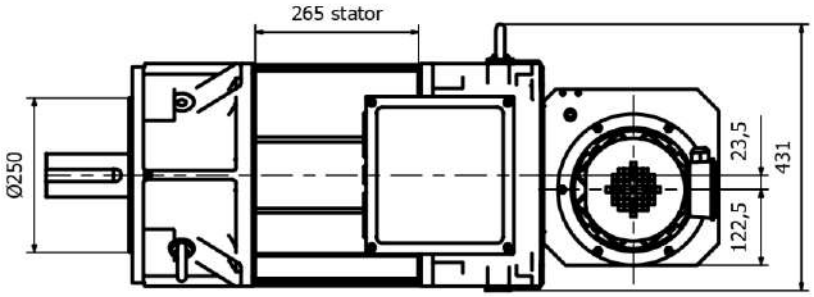
6.3.6 Motor dimensions VF 160 L IP55 radial version

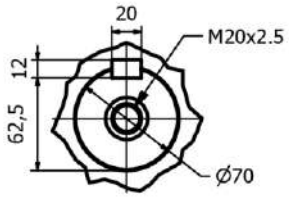


6.3.7 Motor dimensions VF 180 S IP55 axial version





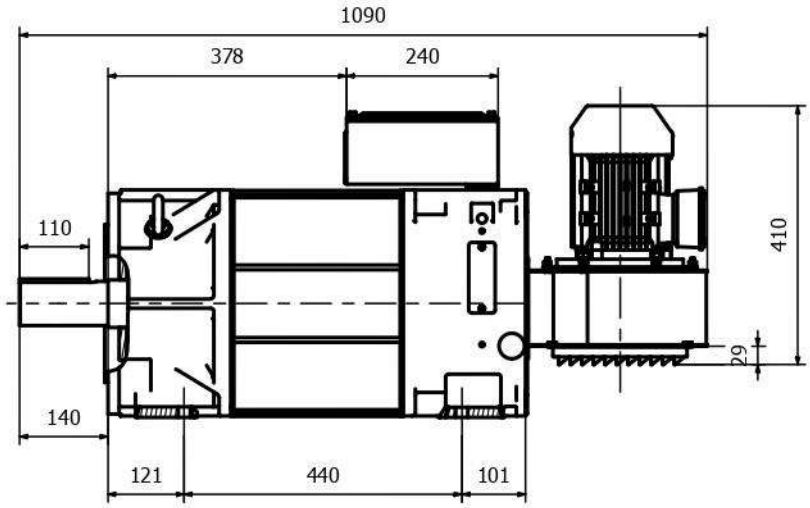


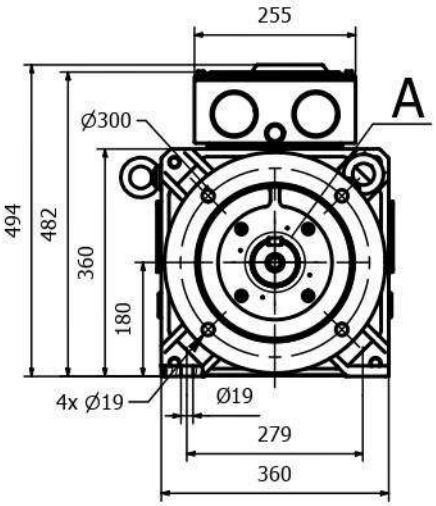


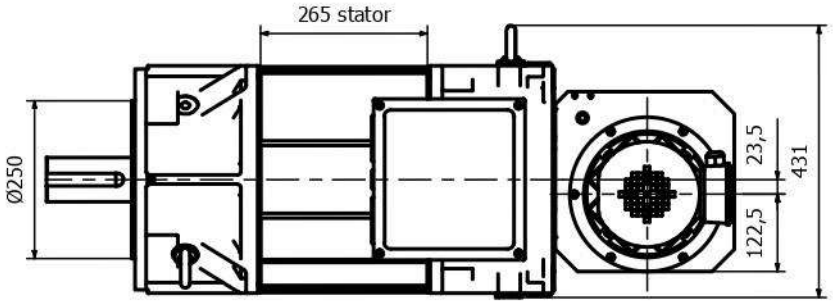
DETAIL A

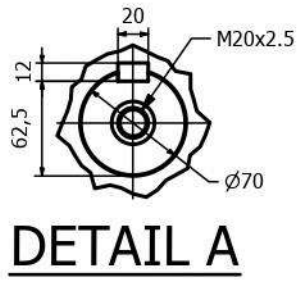
IC: 416
IP: 55
IM: 2001 F300
Pos: BDH/-4-

6.3.8 Motor dimensions VF 180 S IP55 radial version

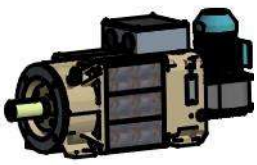




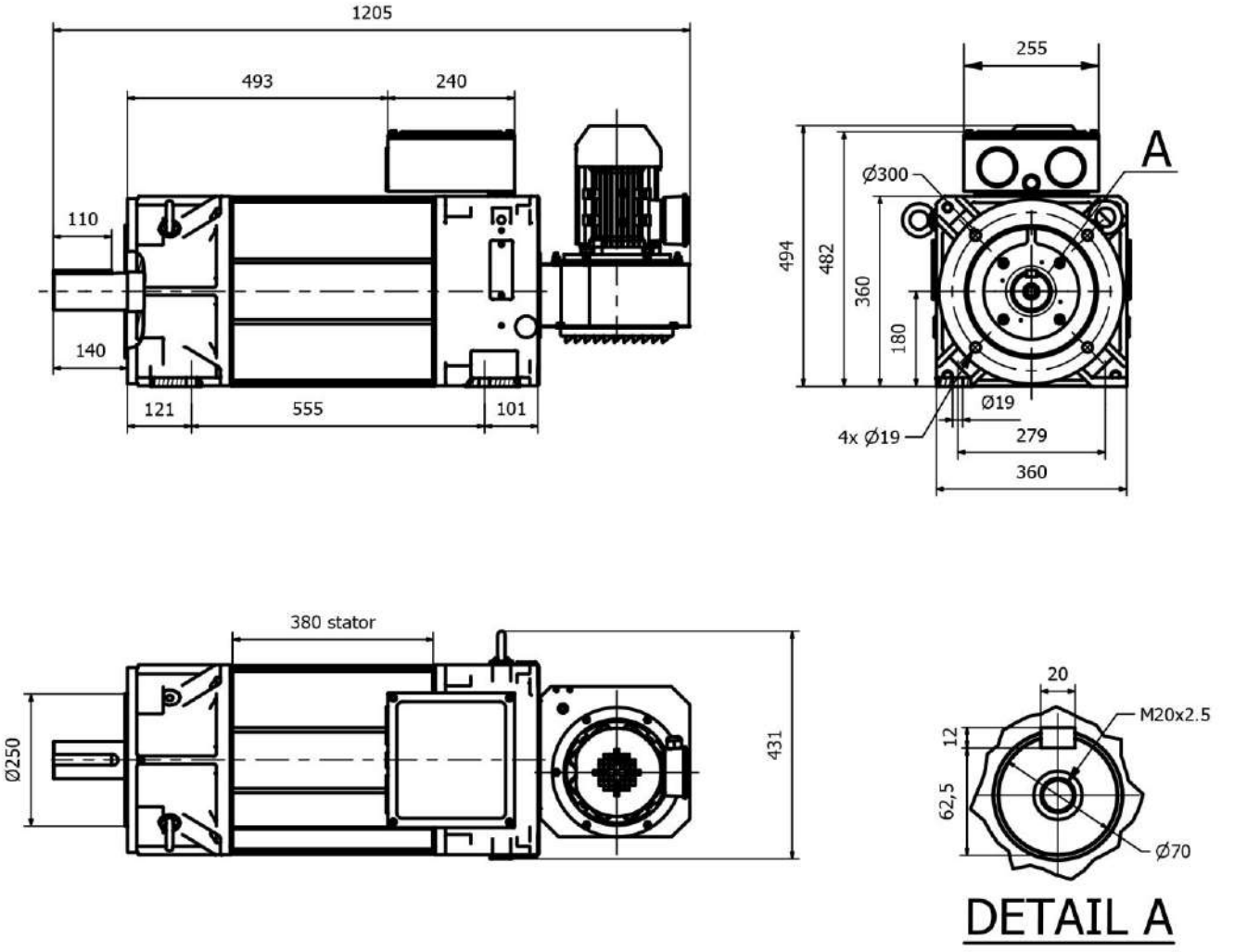




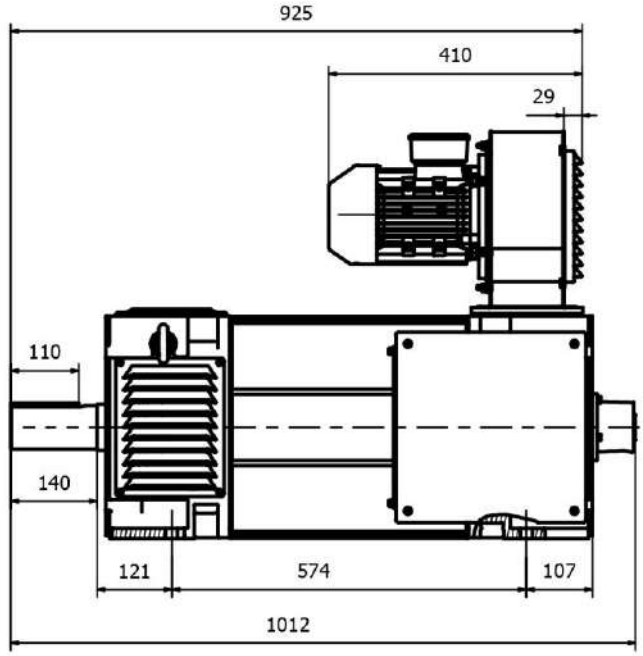
IC: 416
IP: 55
IM: 2001 F300
Pos: BDH/-4-

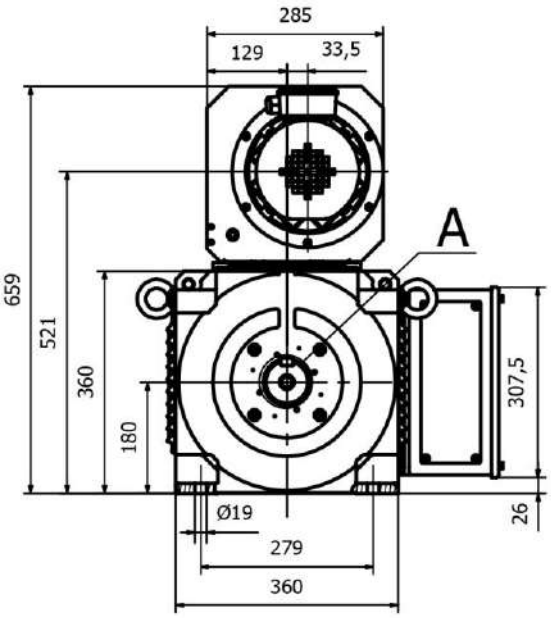


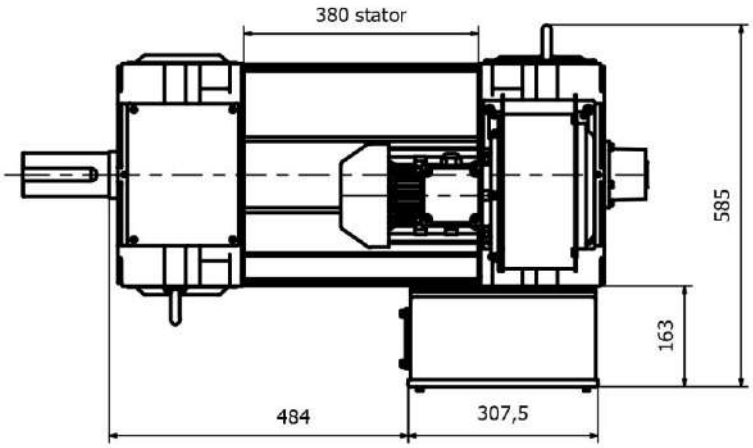
6.3.9 Motor dimensions VF 180 M IP55 axial version

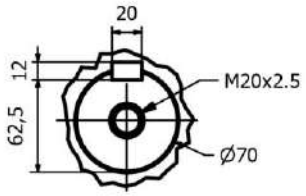


6.3.10 Motor dimensions VF 180 M IP55 radial version





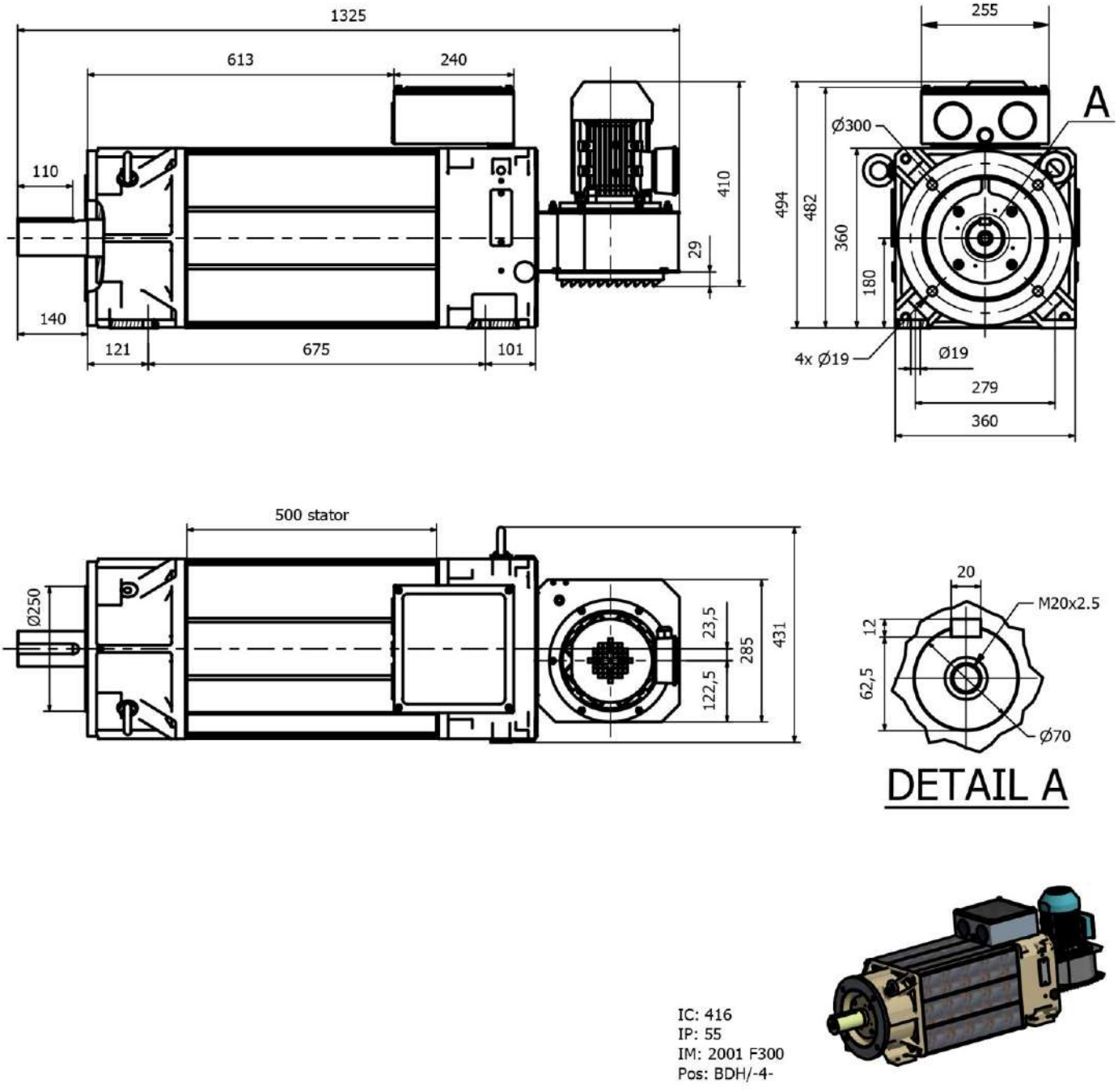




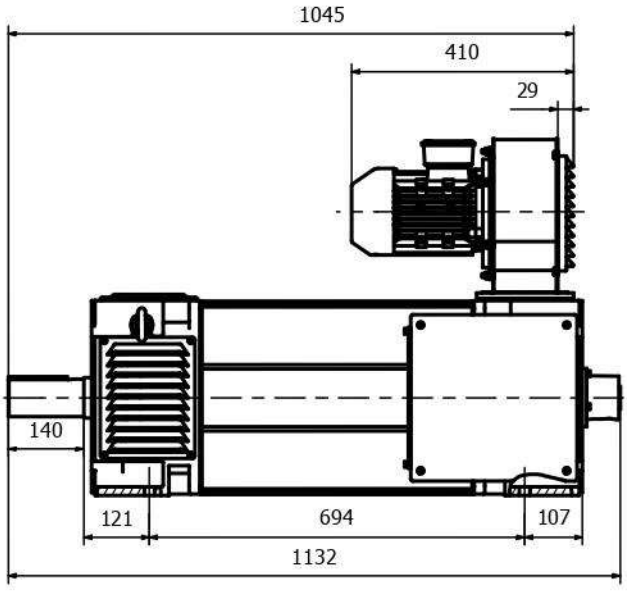
DETAIL A

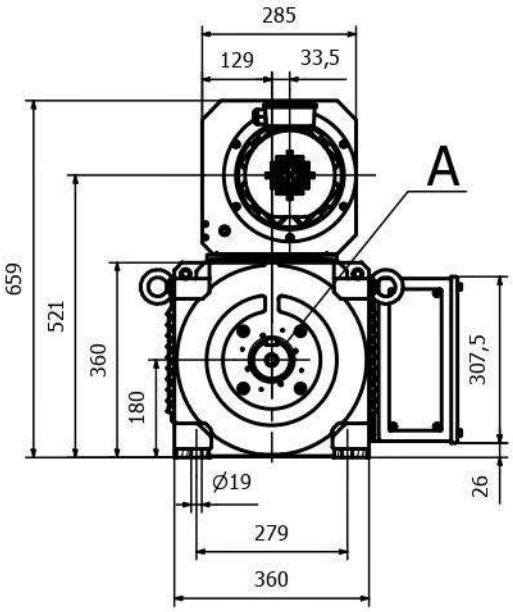
IC: 415
IP: 55
IM: 1001
Pos: CDH/257

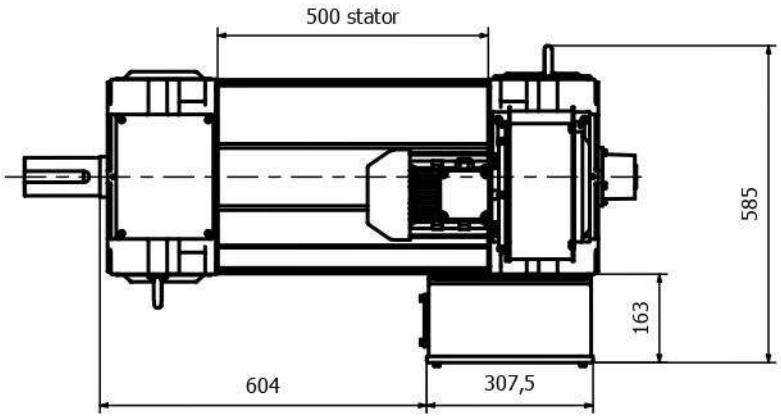
6.3.11 Motor dimensions VF 180 L IP55 axial version

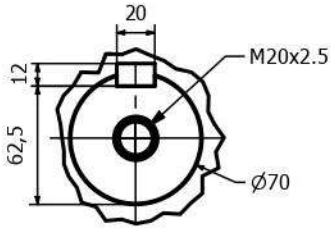


6.3.12 Motor dimensions VF 180 L IP55 radial version

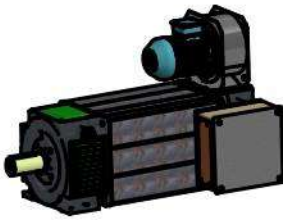






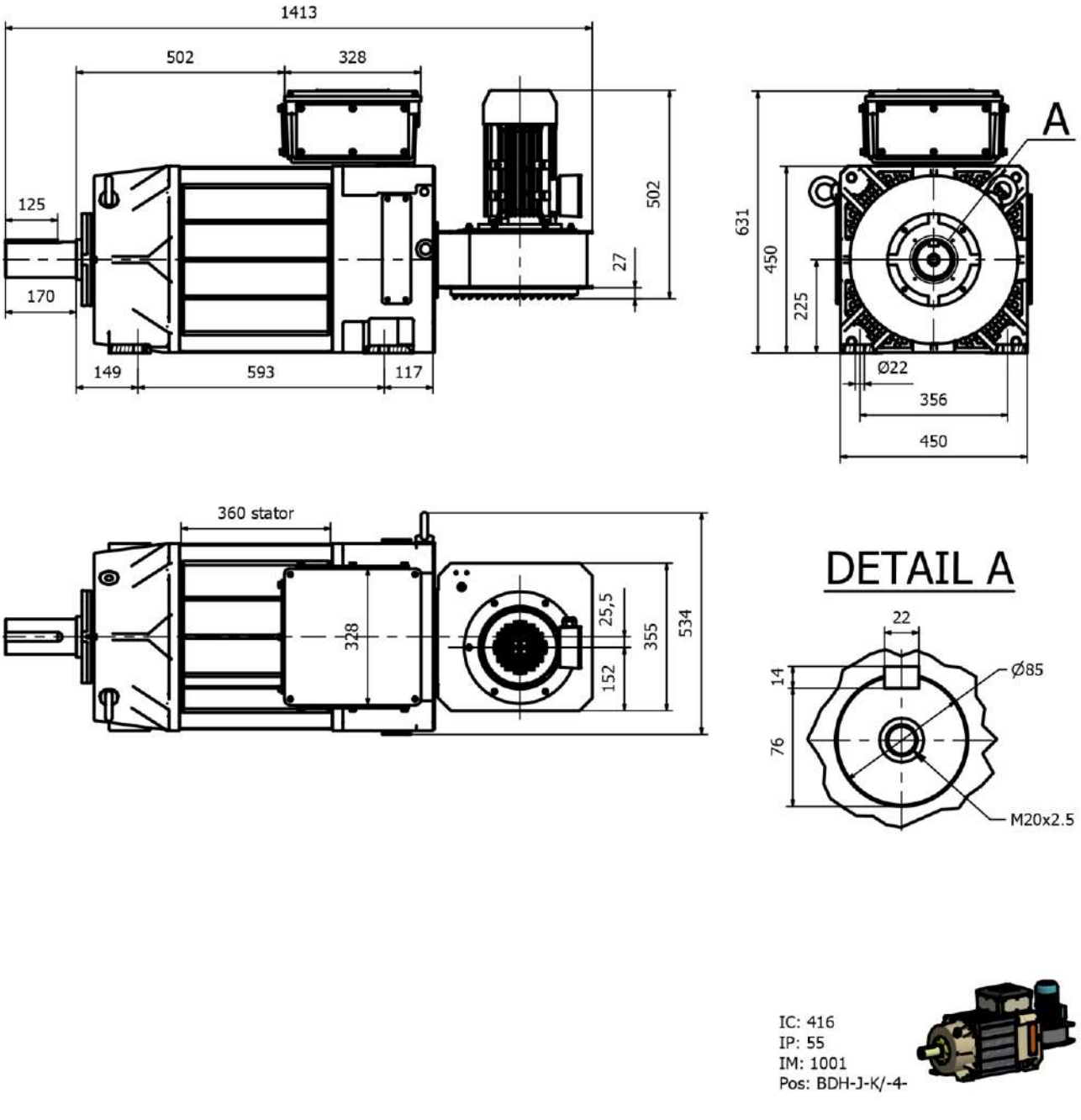


DETAIL A

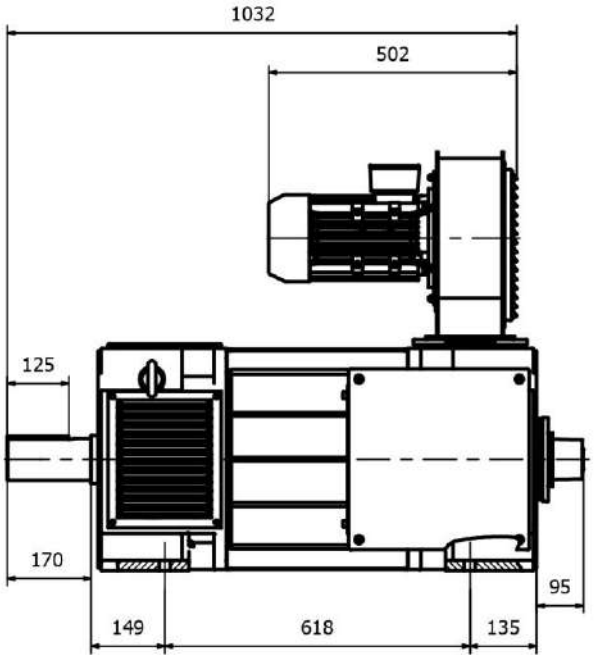


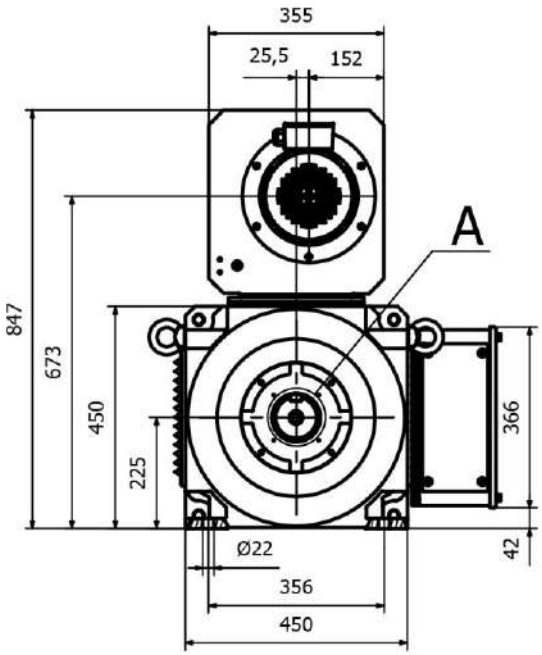
IC: 416
IP: 55
IM: 1001

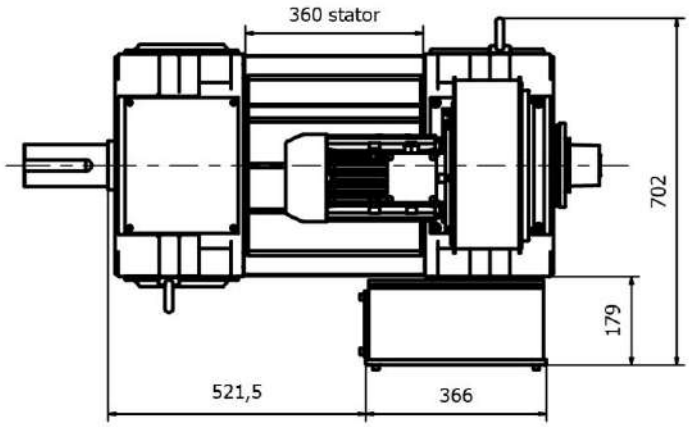
6.3.13 Motor dimensions VF 225 S IP55 axial version

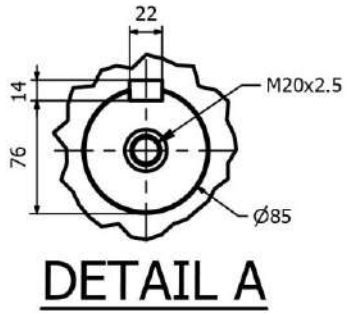


6.3.14 Motor dimensions VF 225 S IP55 radial version



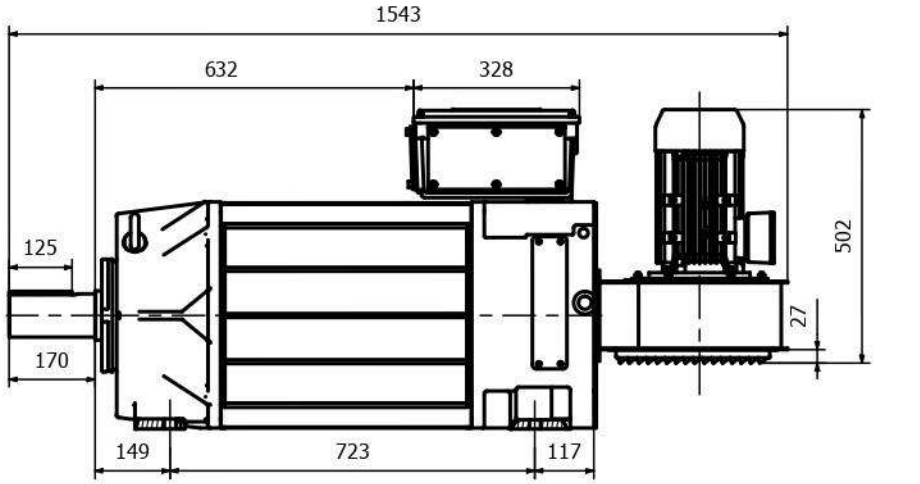


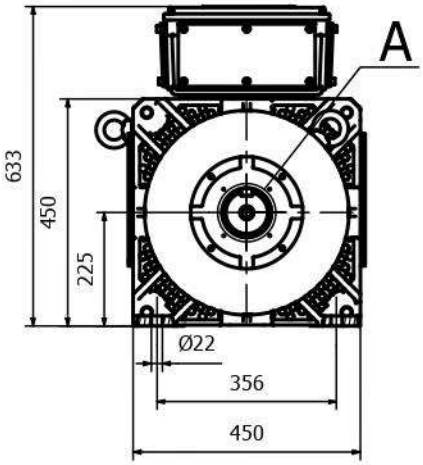


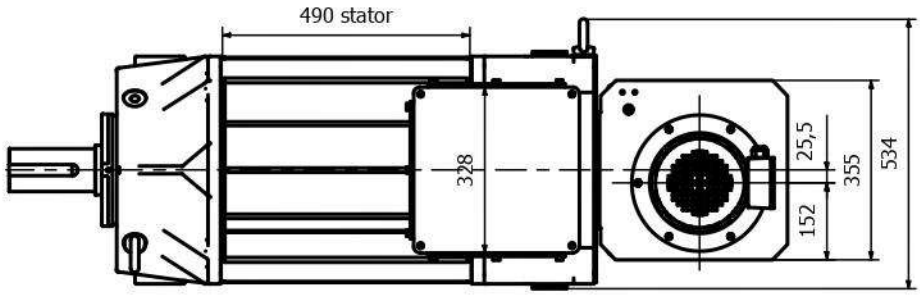


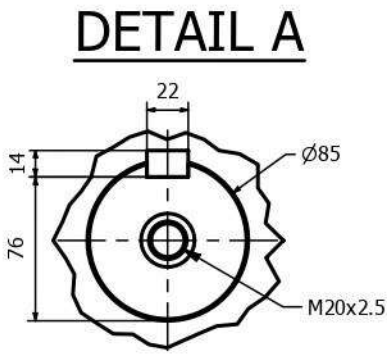
IC: 416
IP: 55
IM: 1001
Pos: CDH/257

6.3.15 Motor dimensions VF 225 M IP55 axial version



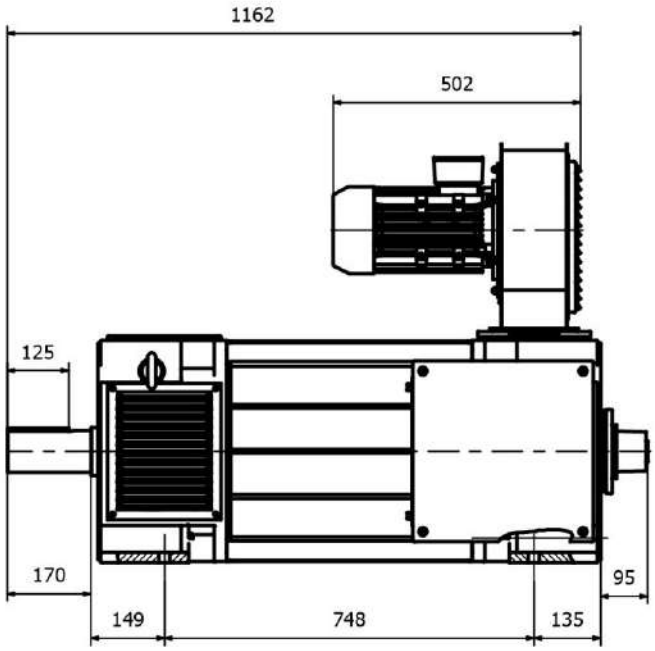


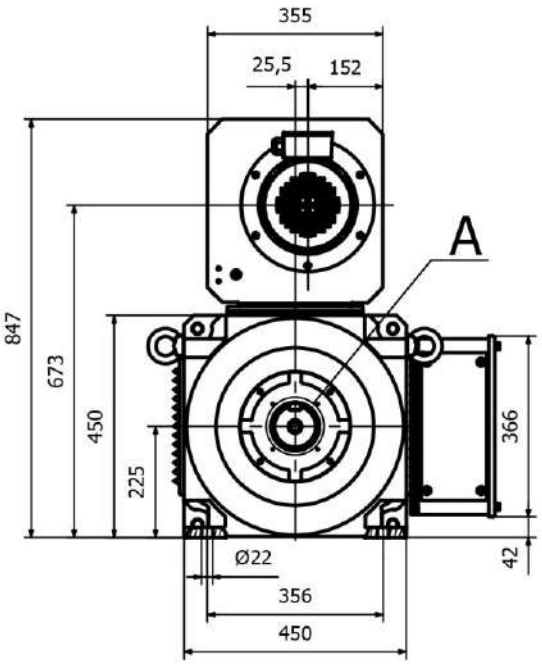


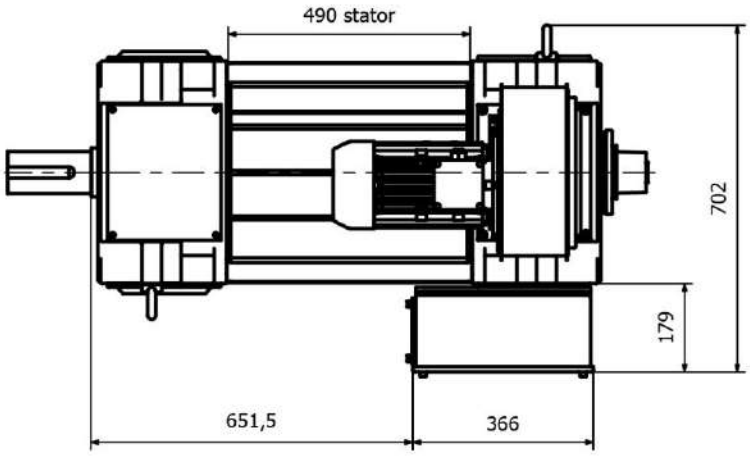


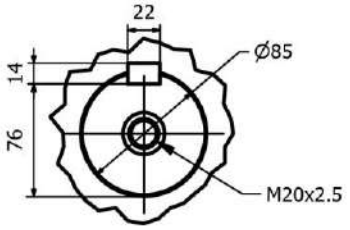
IC: 416
IP: 55
IM: 1001
Pos: BDH-J-K/-4-

6.3.16 Motor dimensions VF 225 M IP55 radial version





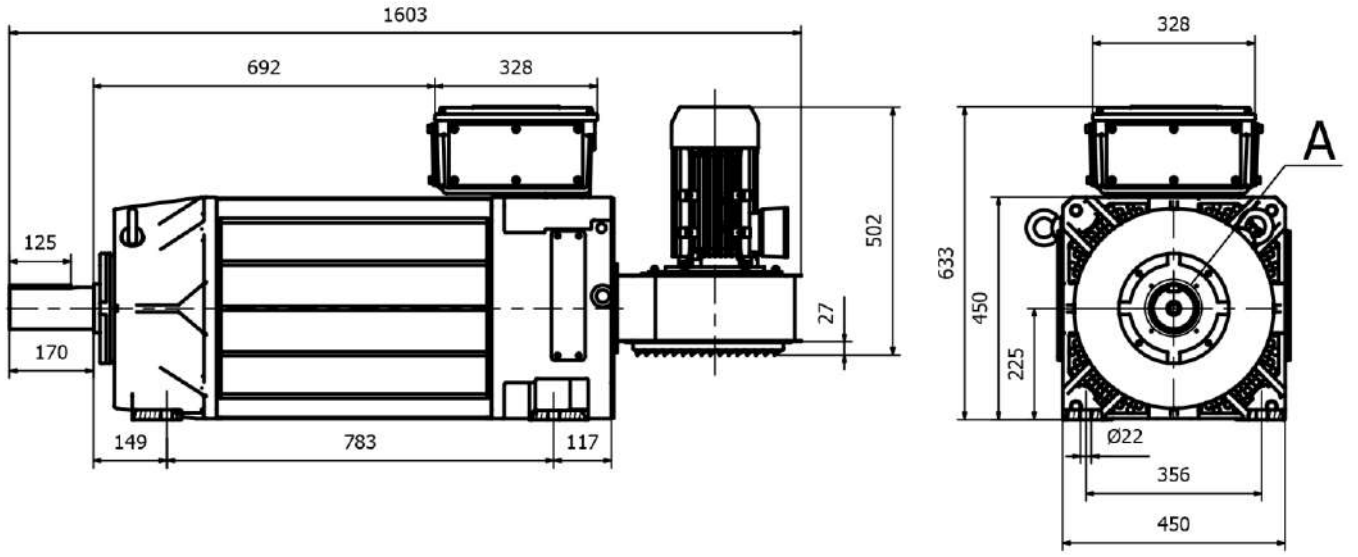


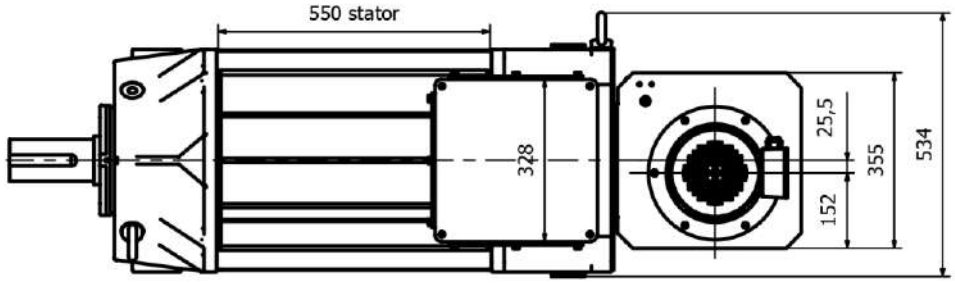


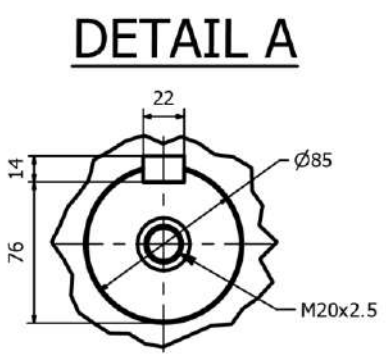
DETAIL A

IC: 416
IP: 55
IM: 1001
Pos: CDH/257

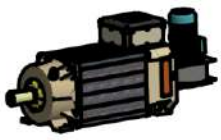
6.3.17 Motor dimensions VF 225 L IP55 axial version



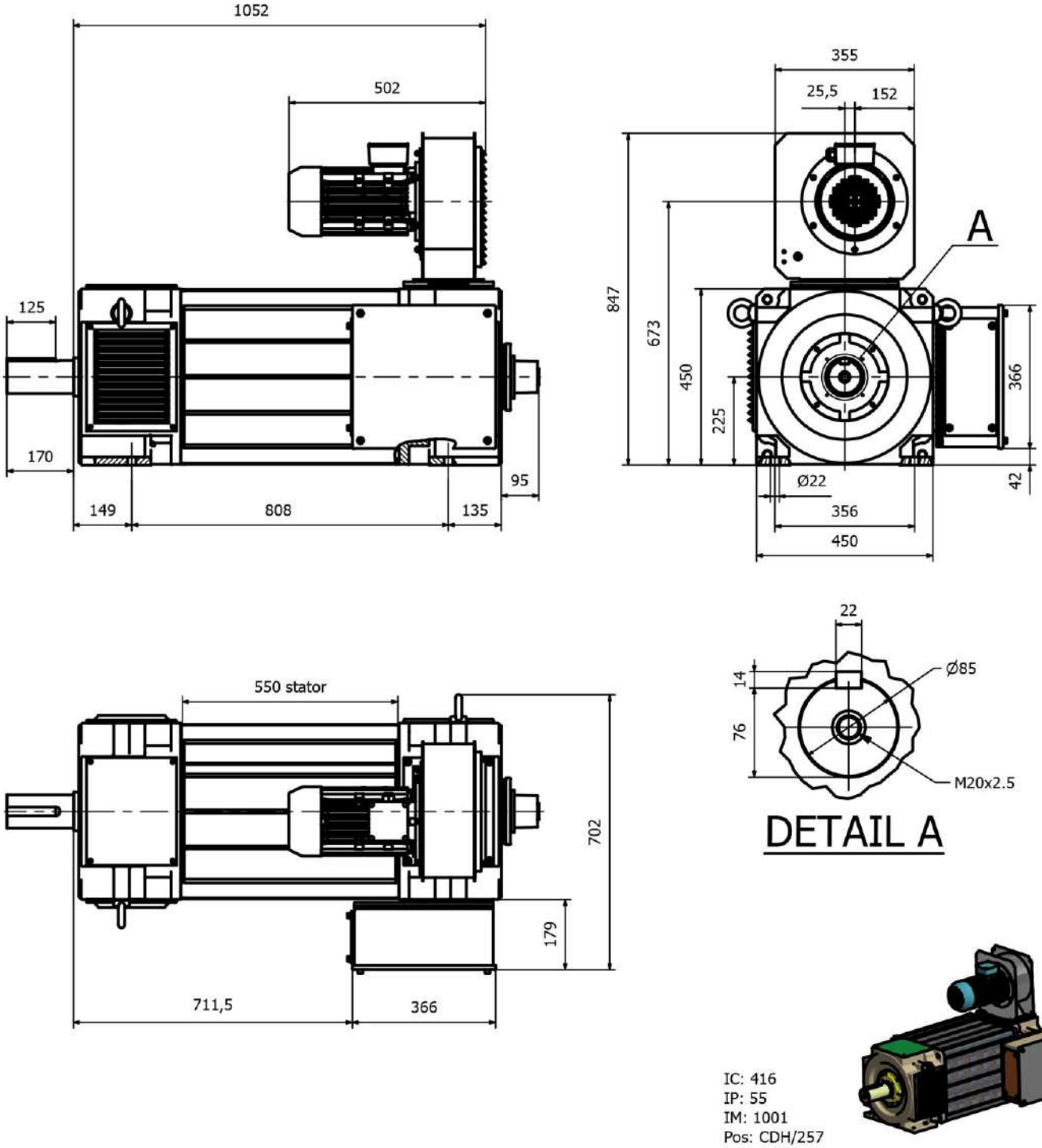




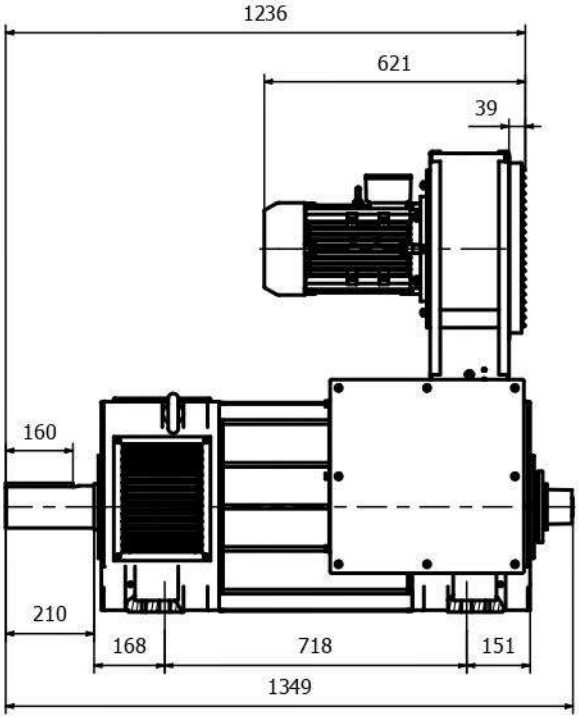
IC: 416
IP: 55
IM: 1001
Pos: BDH-J-K/-4-

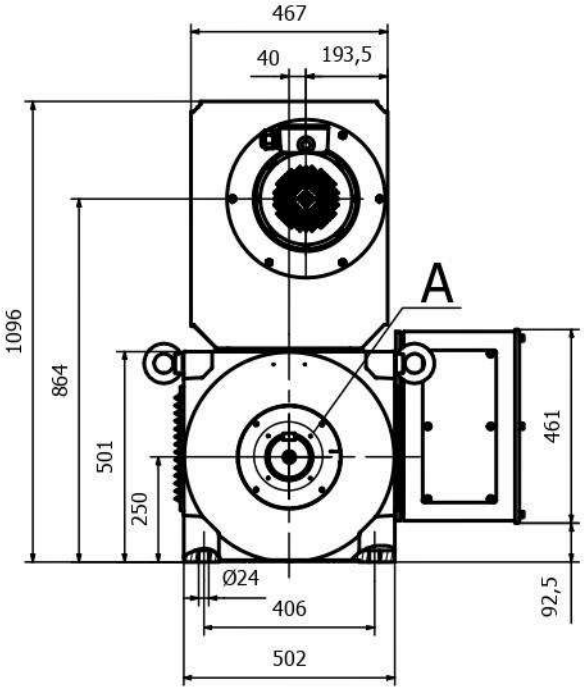


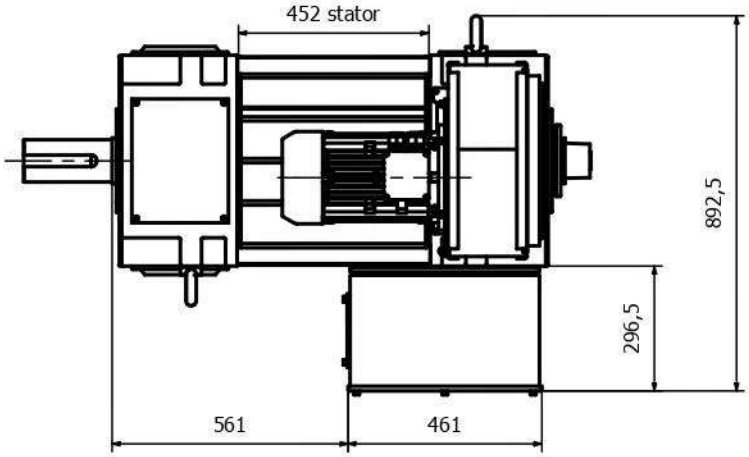
6.3.18 Motor dimensions VF 225 L IP55 radial version



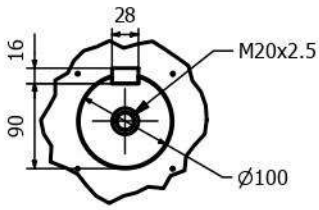
6.3.19 Motor dimensions VF 250 S IP55 radial version





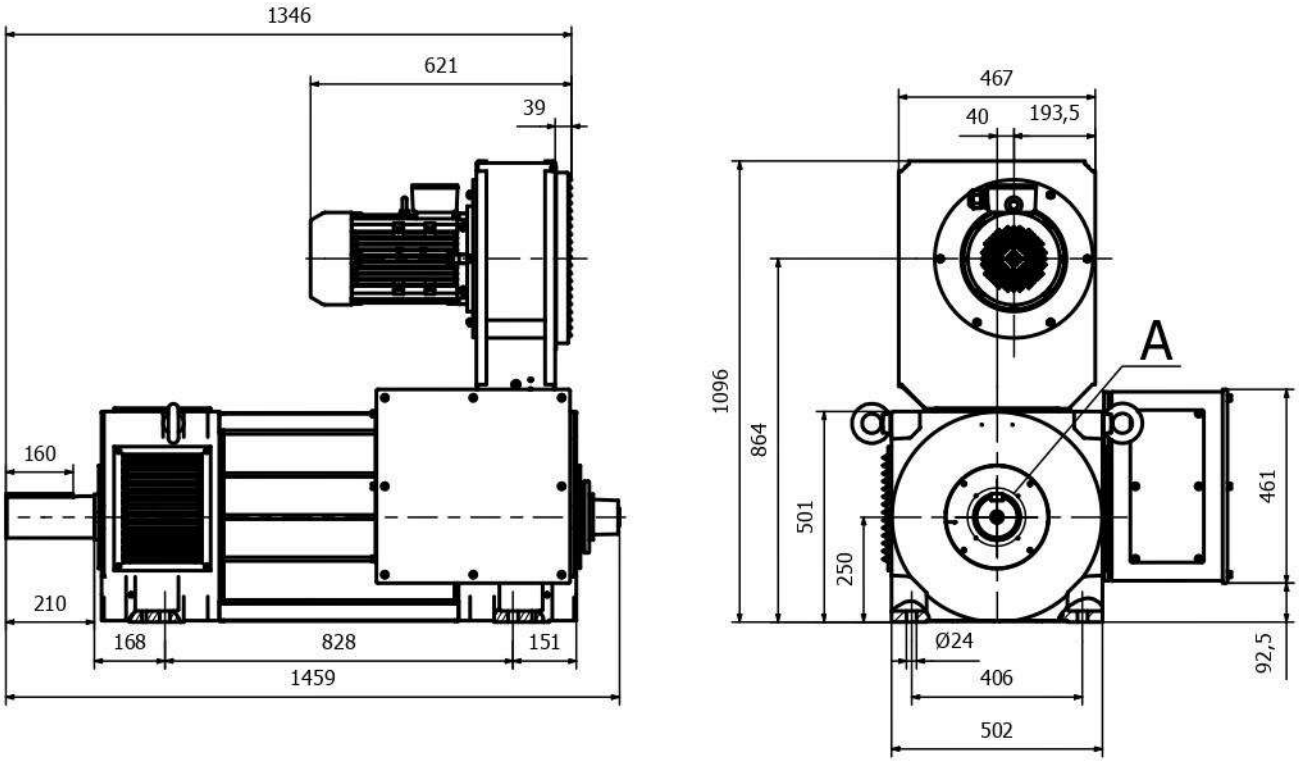


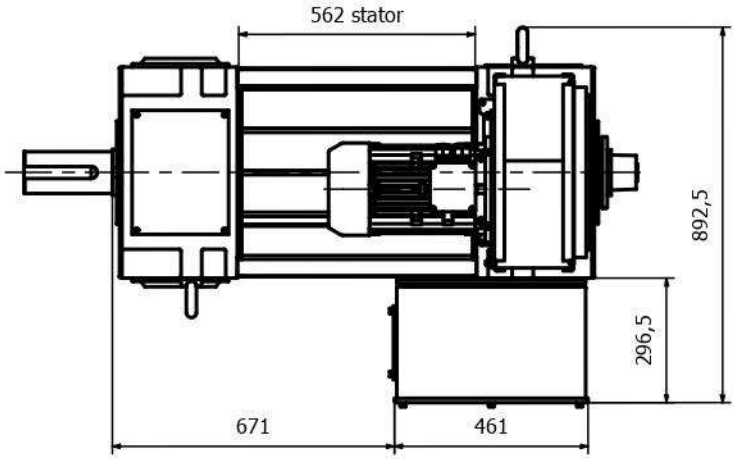
DETAIL A



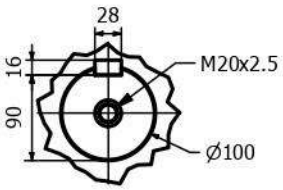
IC:416
IP: 55
IM: 1001
Pos: CDH/257

6.3.20 Motor dimensions VF 250 M IP55 radial version

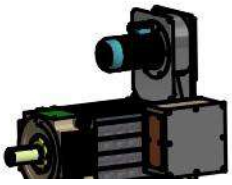




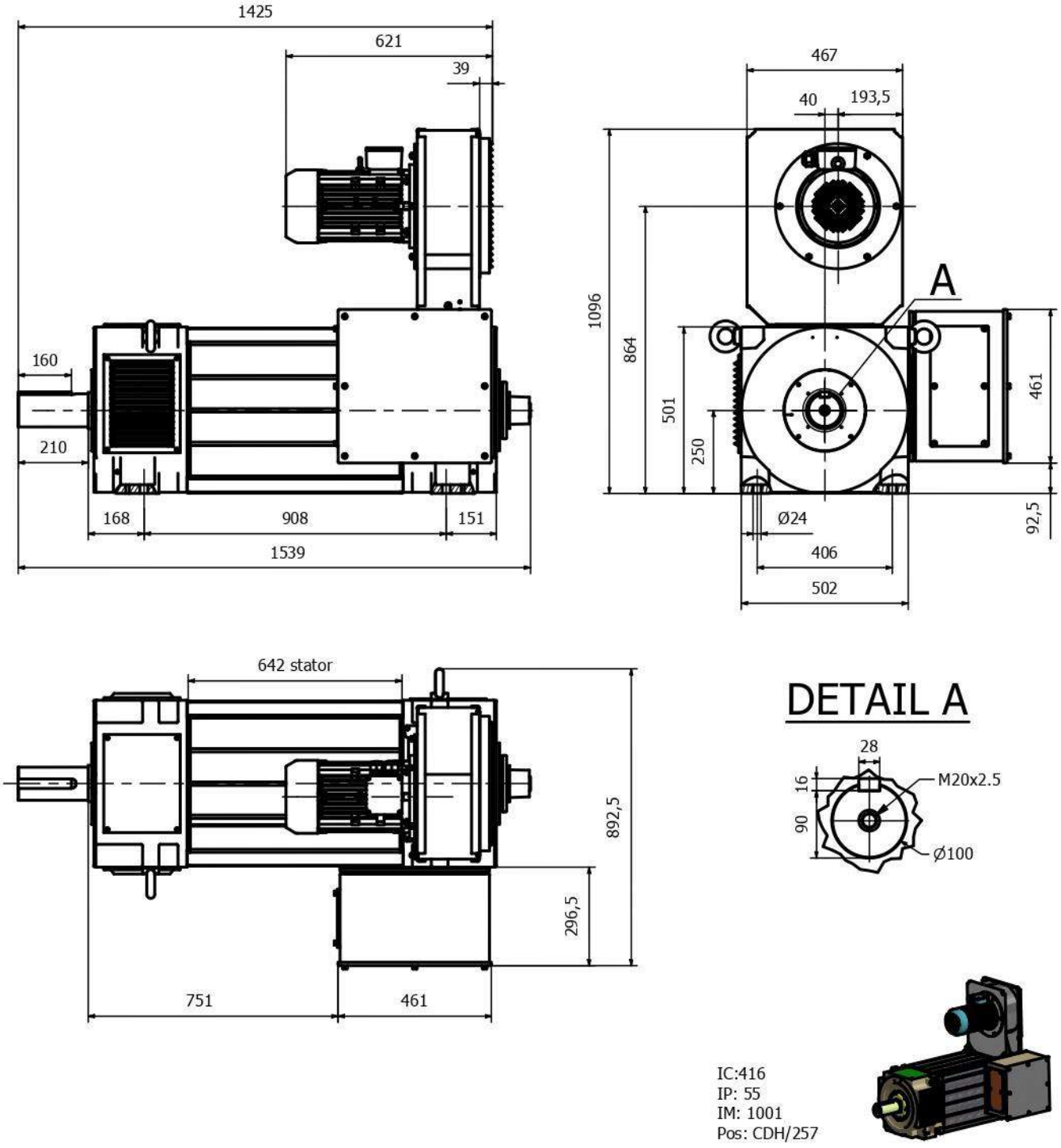
DETAIL A



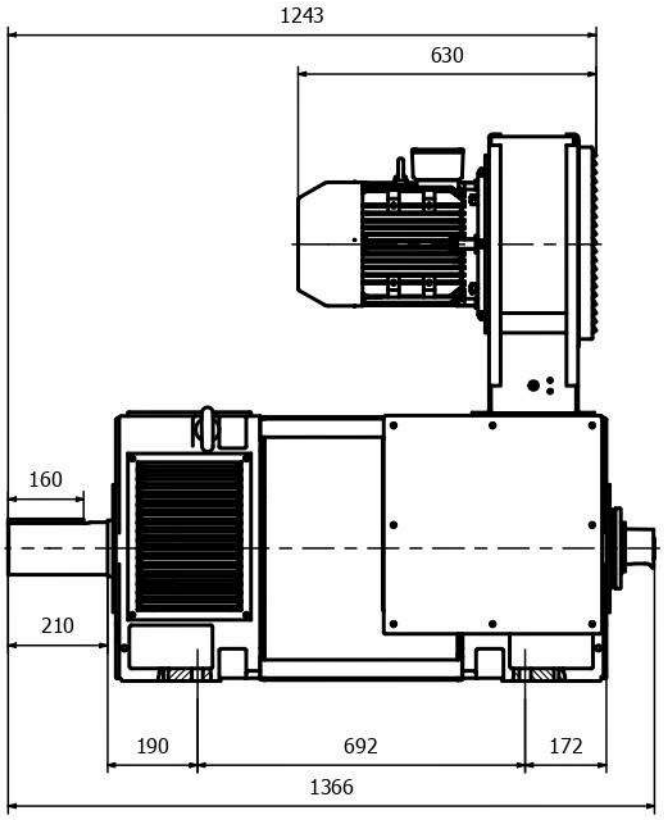
IC:416
IP: 55
IM: 1001

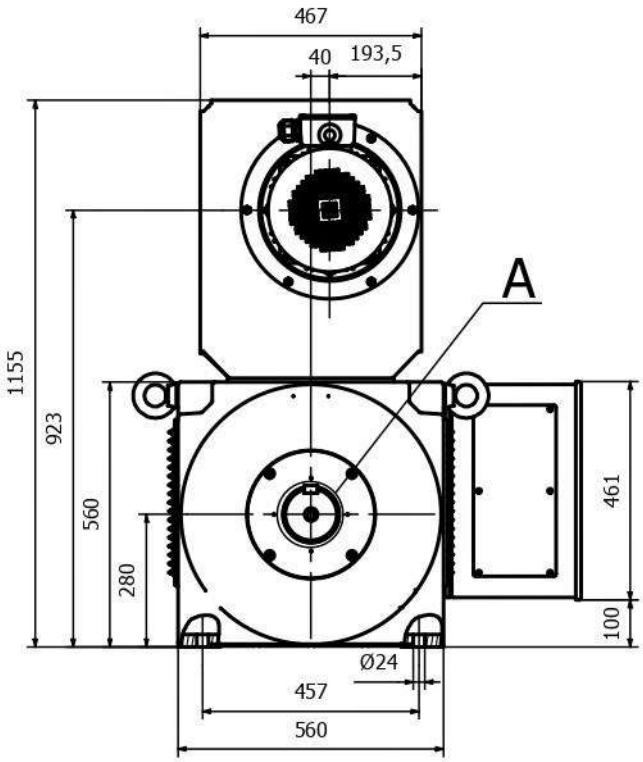


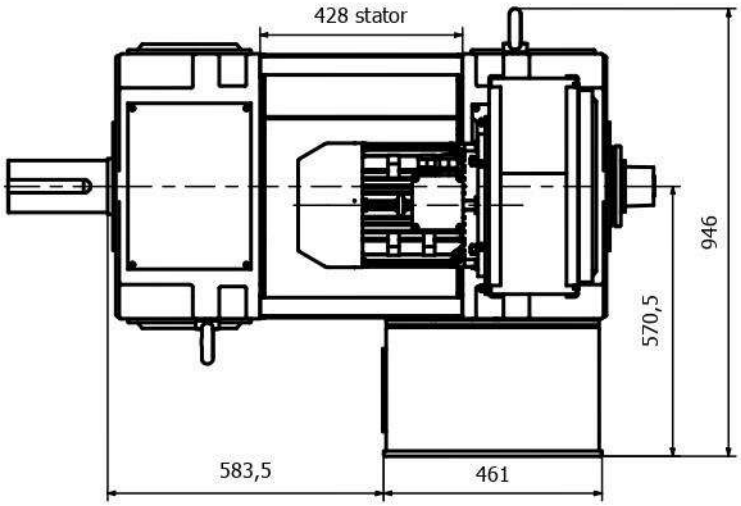
6.3.21 Motor dimensions VF 250 L IP55 radial version

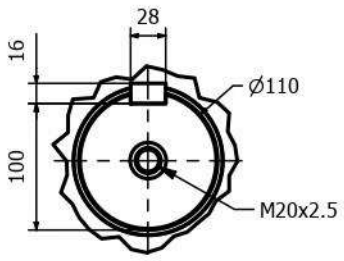


6.3.22 Motor dimensions VF 280 S IP55 radial version

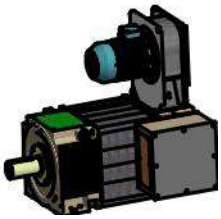






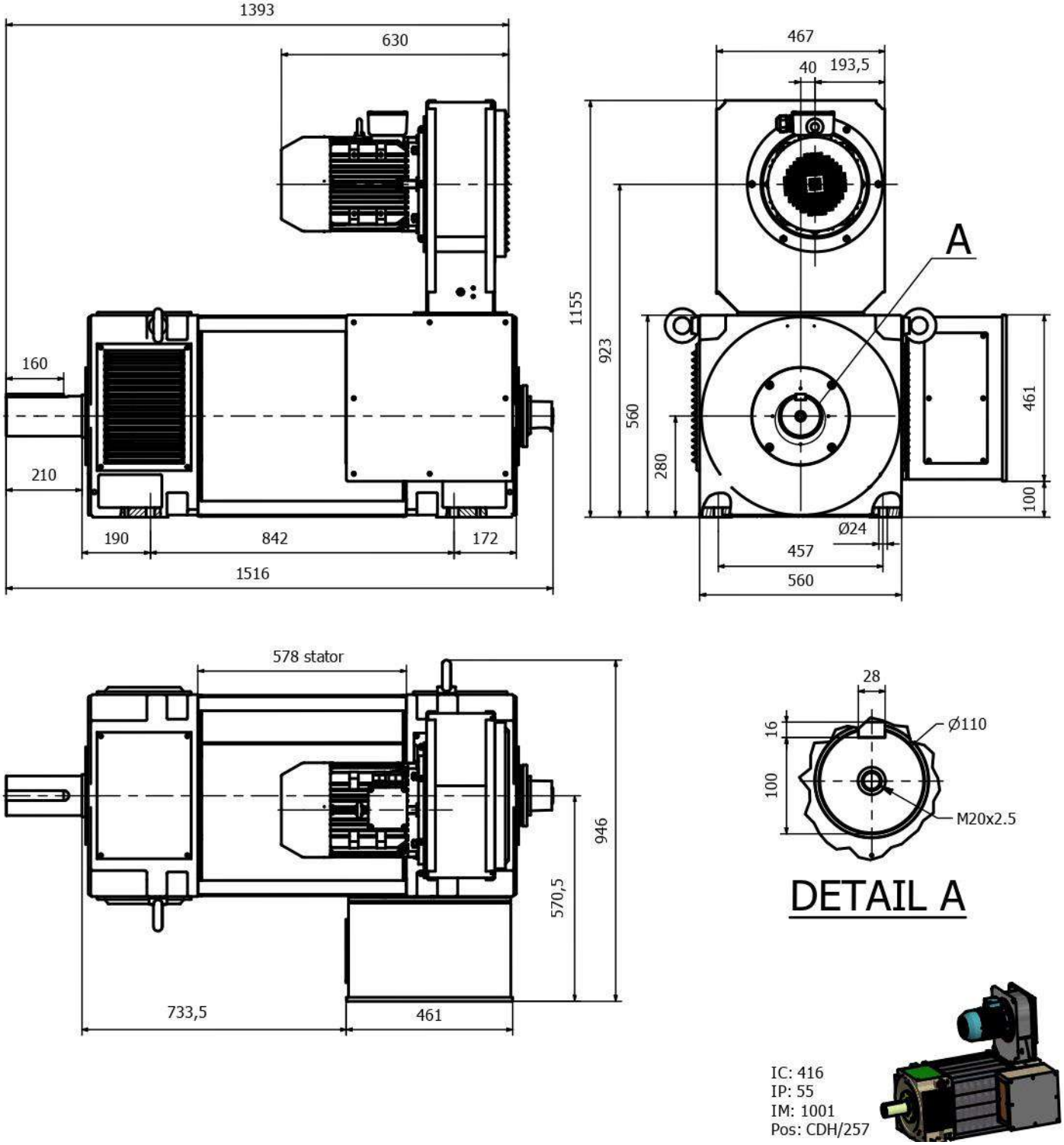


DETAIL A

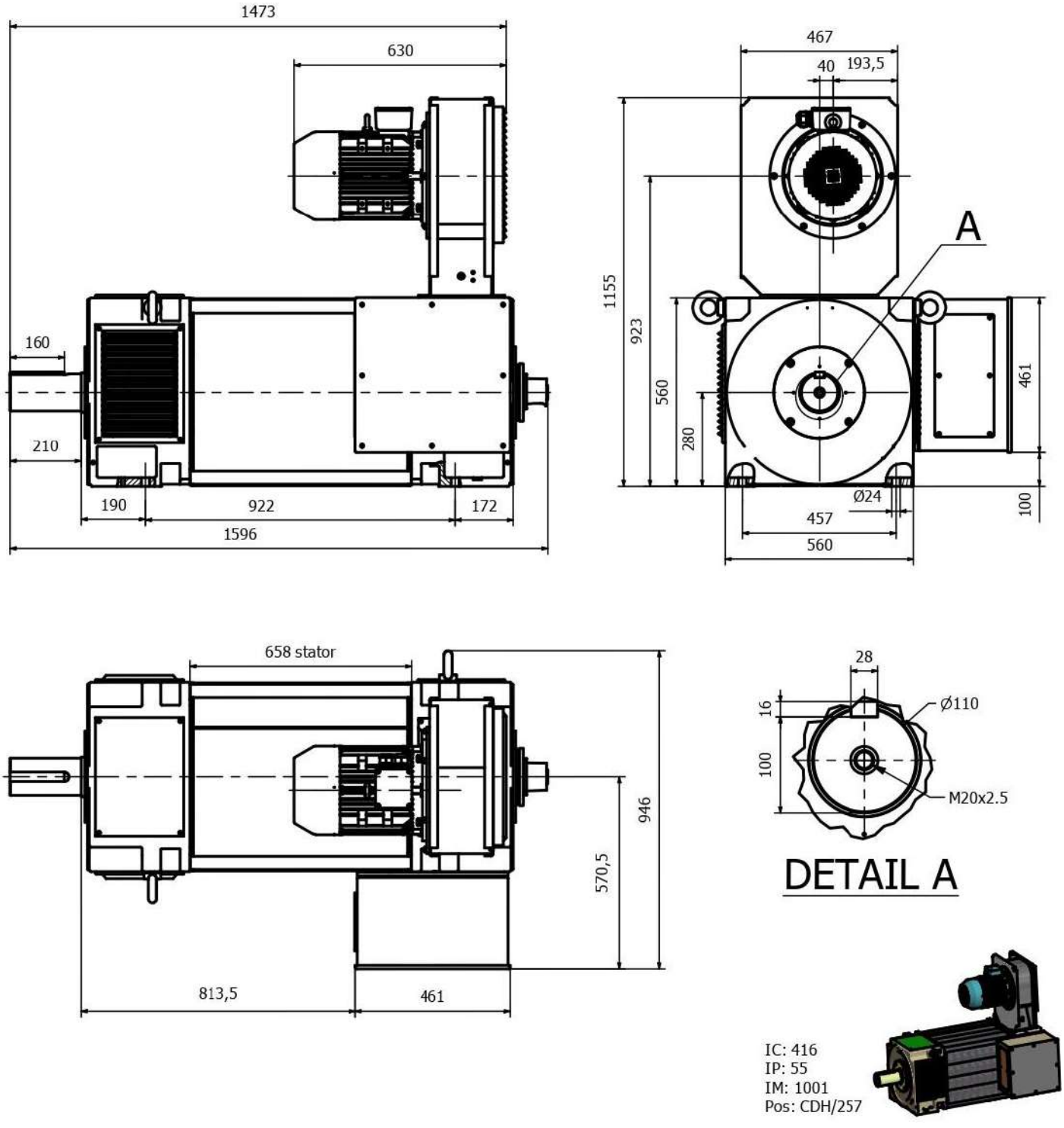


IC: 416
IP: 55
IM: 1001
Pos: CDH/257

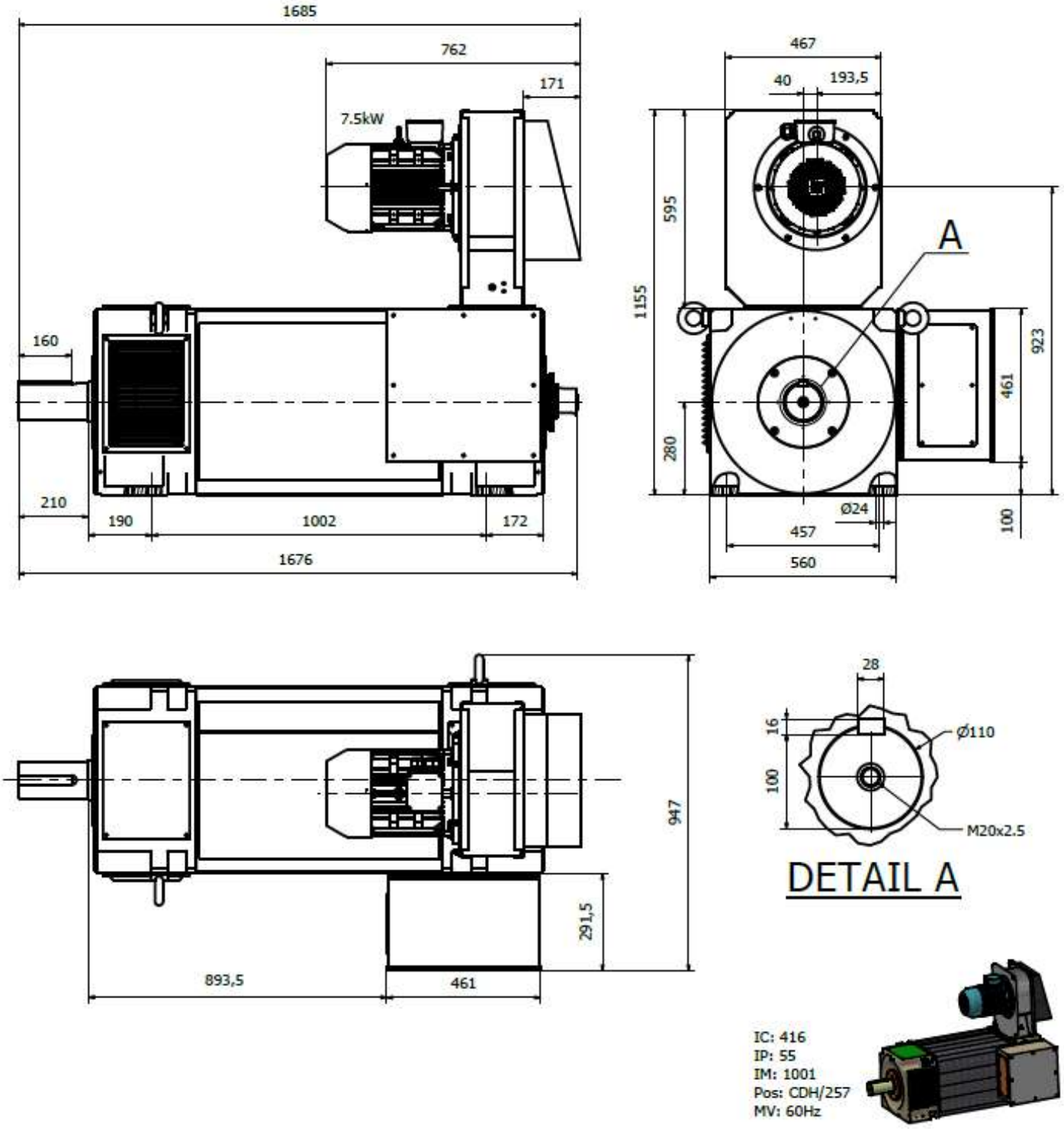
6.3.23 Motor dimensions VF 280 M IP55 radial version



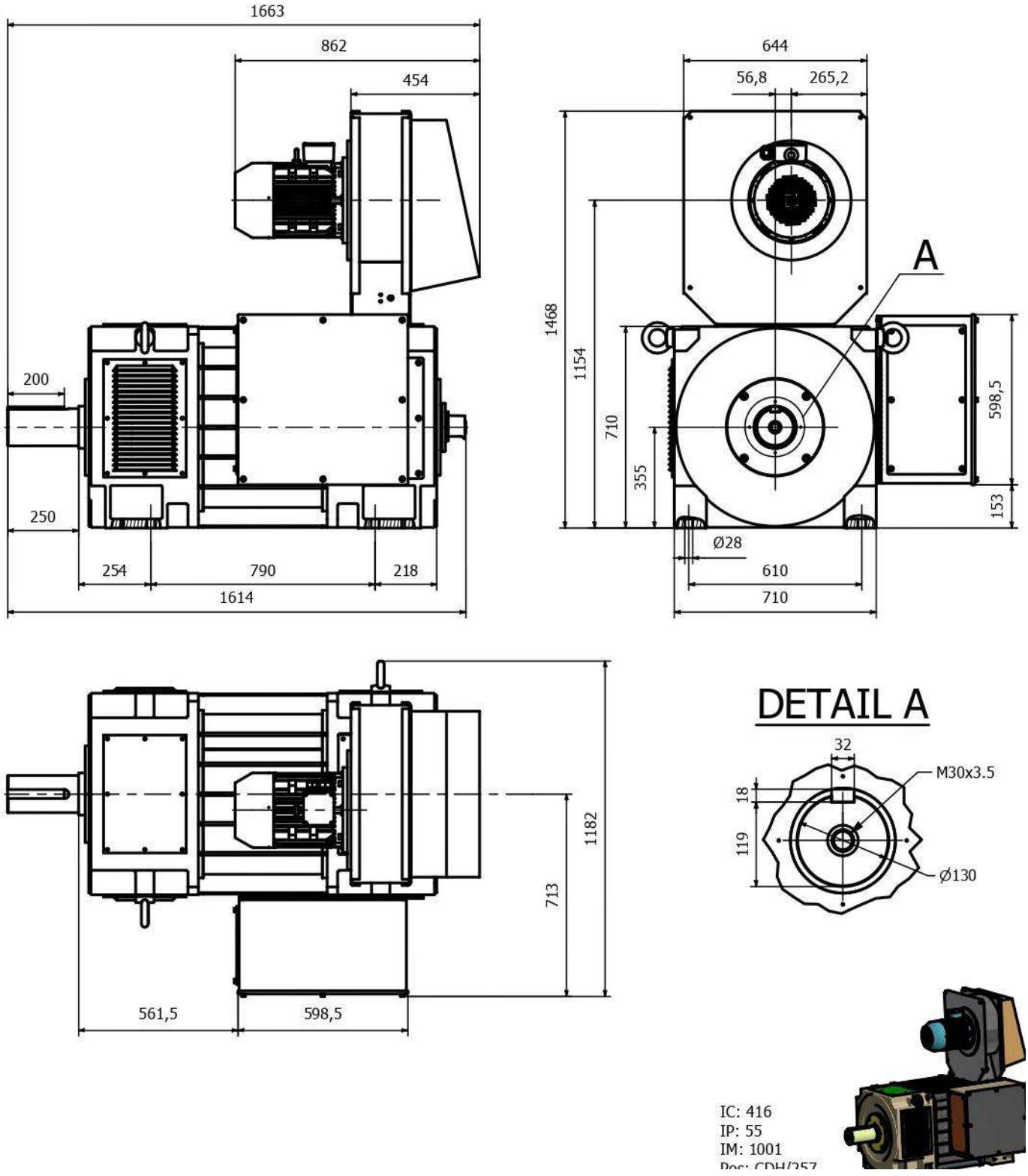
6.3.24 Motor dimensions VF 280 L IP55 radial version



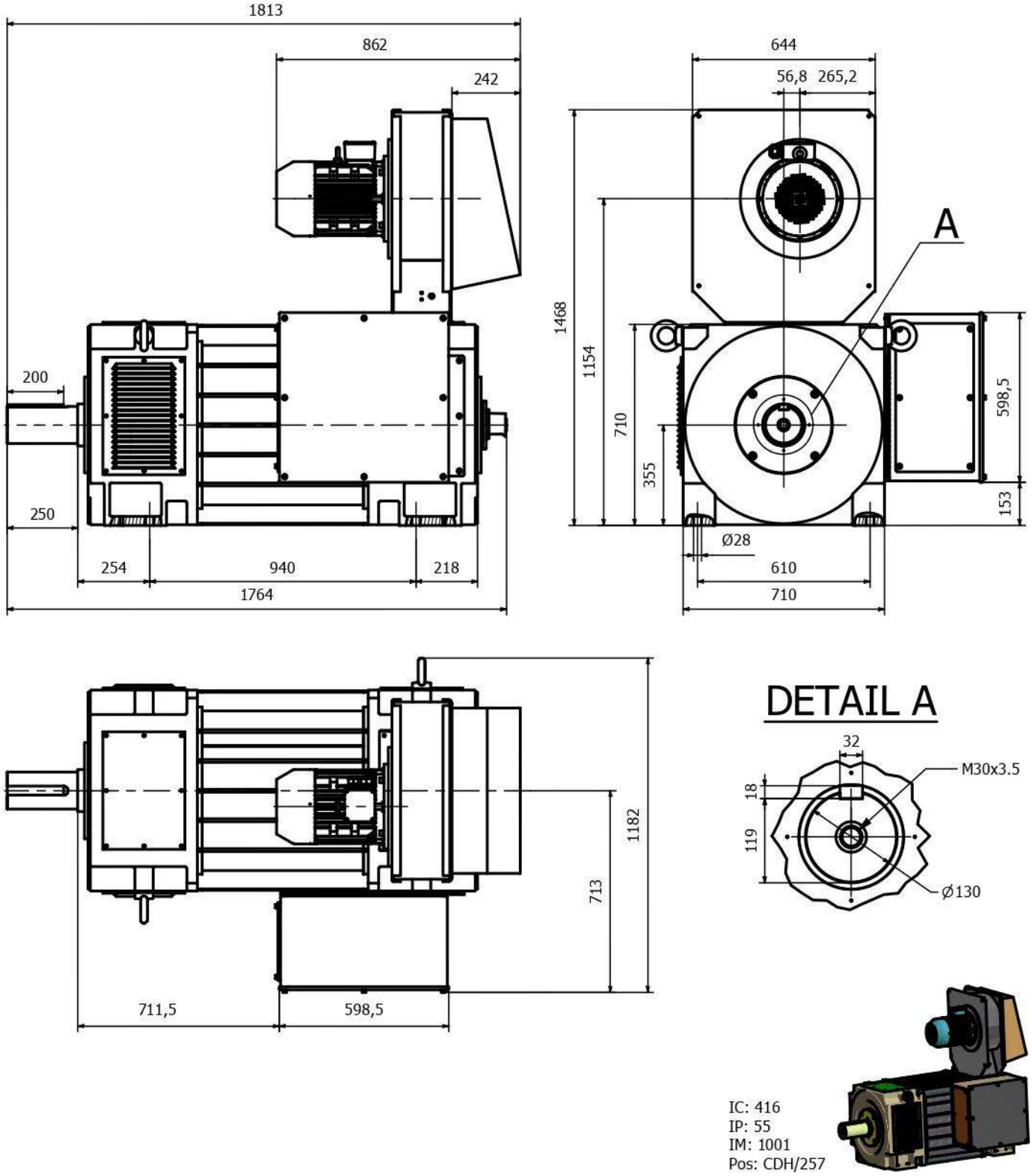
6.3.24 Motor dimensions VF 280 P IP55 radial version



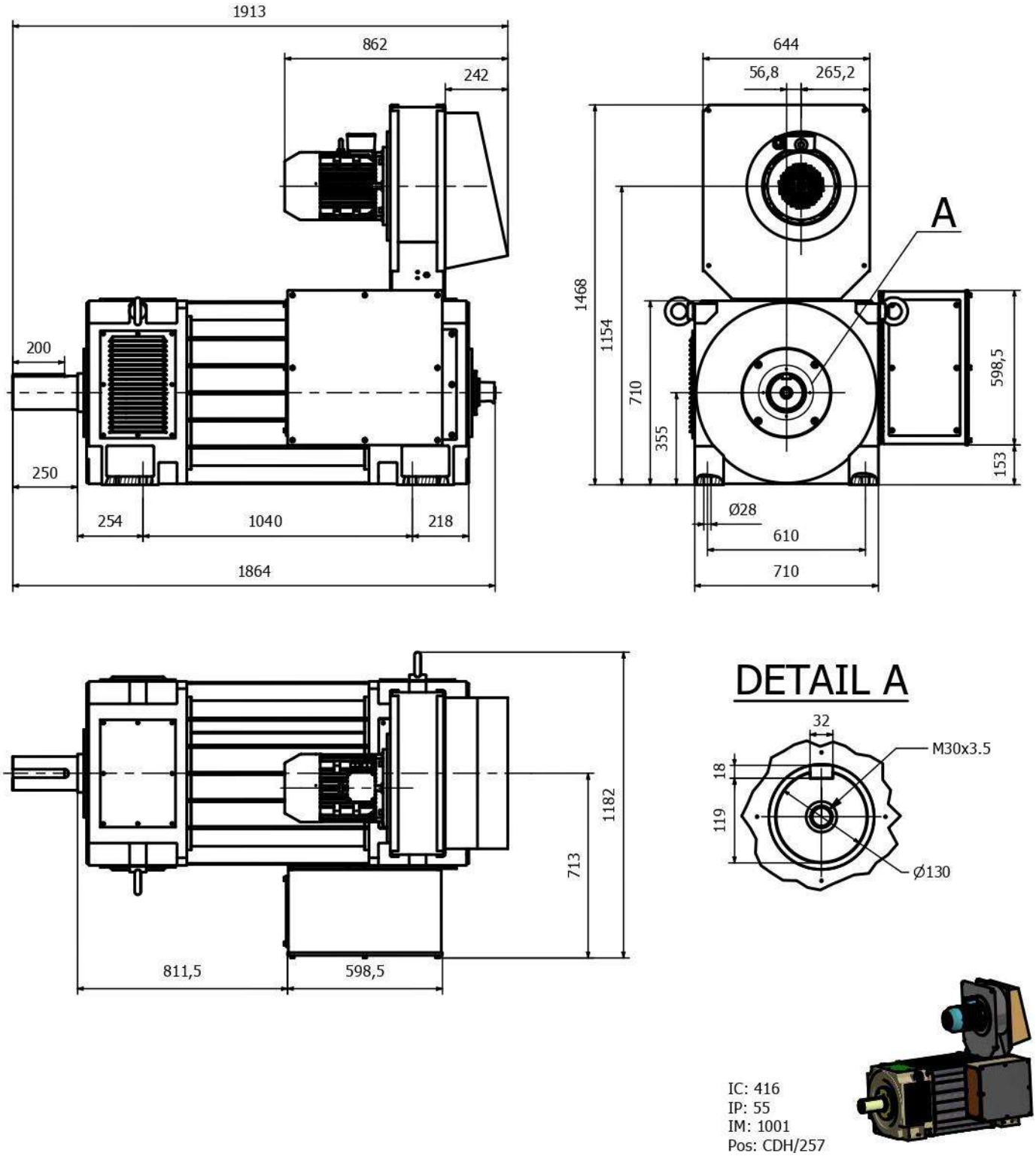
6.3.25 Motor dimensions VF 315 S IP55 radial version



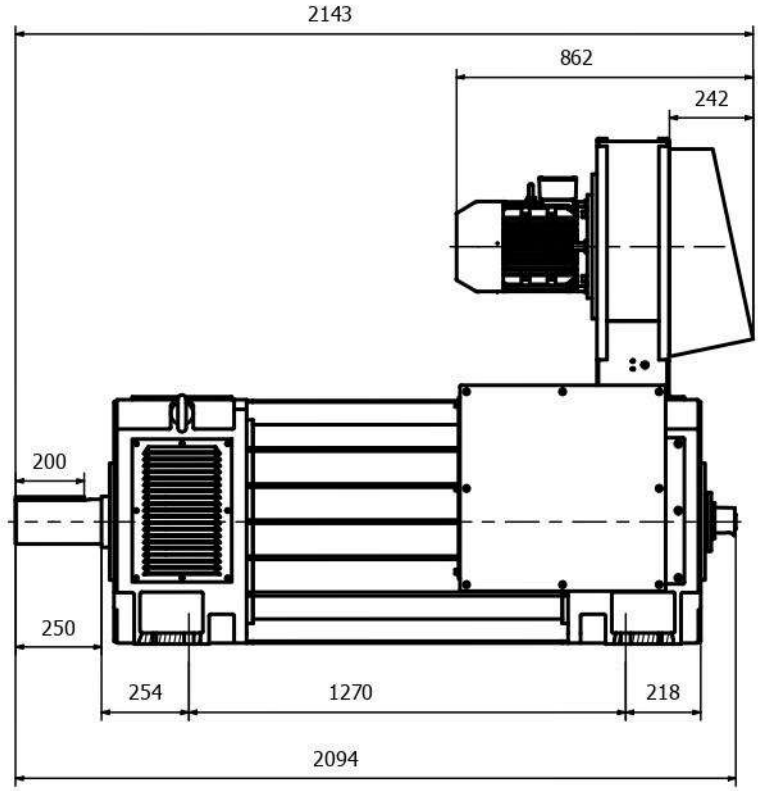
6.3.26 Motor dimensions VF 315 M IP55 radial version

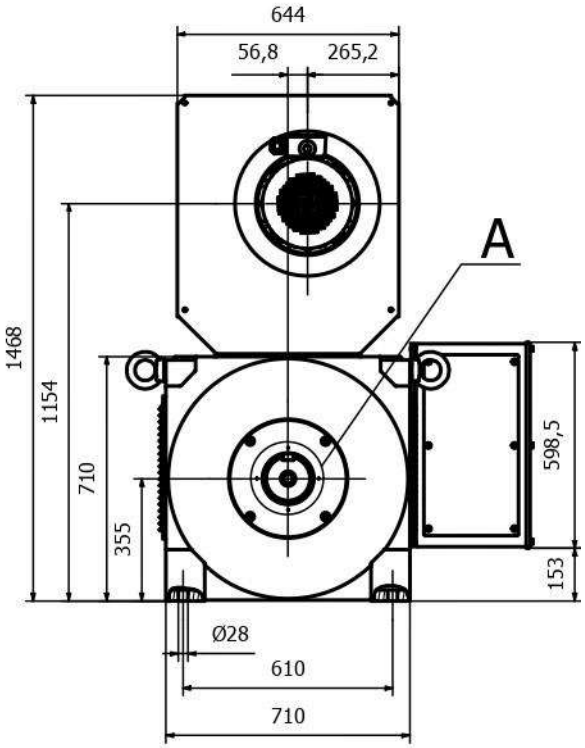


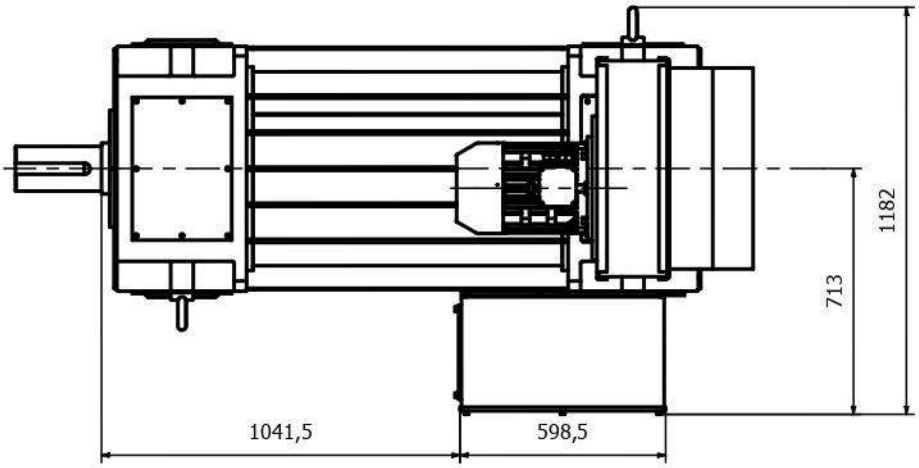
6.3.27 Motor dimensions VF 315 L IP55 radial version

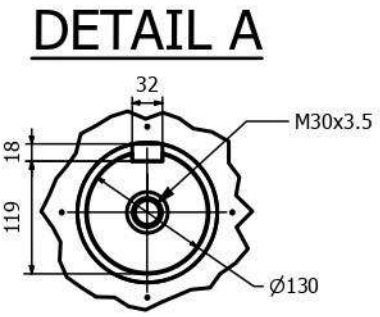


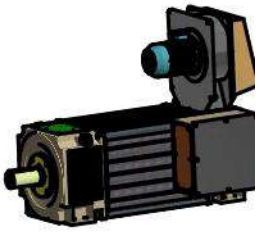
6.3.27 Motor dimensions VF 315 L IP55 radial version





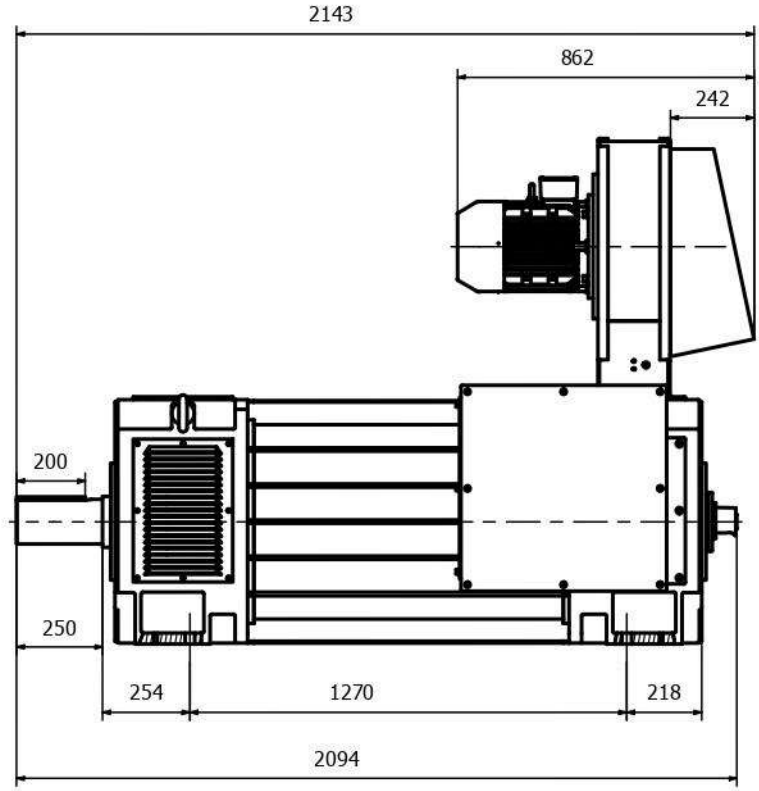


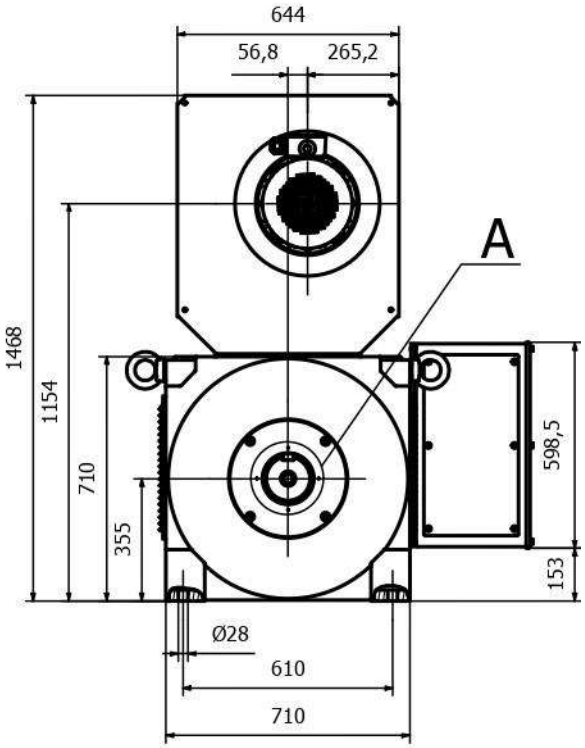


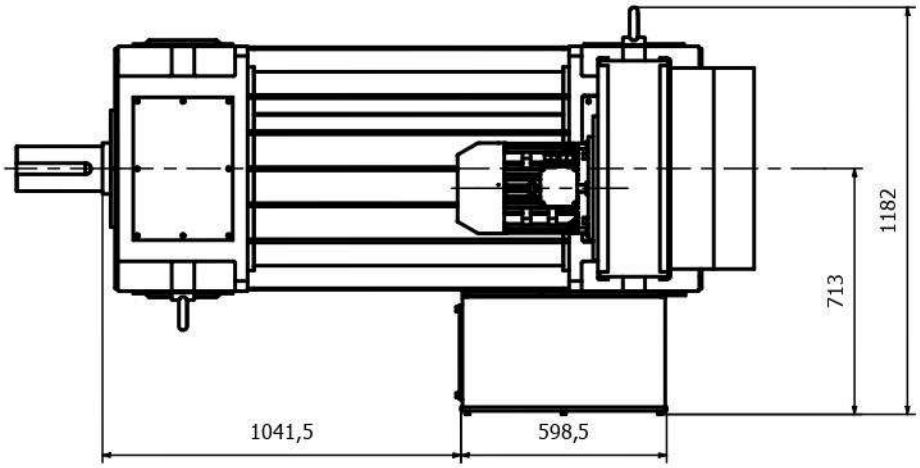


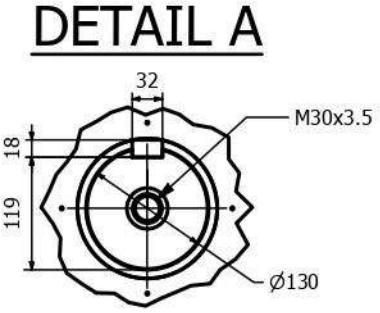
IC: 416
IP: 55
IM: 1001
Pos: CDH/257

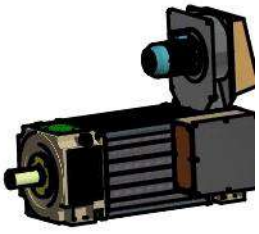
6.3.28 Motor dimensions VF 315 P IP55 radial version











IC: 416
IP: 55
IM: 1001
Pos: CDH/257

7. Contacts

Name	Brusatori Srl
Address	Via Antonio Meucci 5/7, 20012 Cuggiono (MI) – Italy
Phone	+39 0225068401
Fax	+39 0225060140
Website	www.brusatori.eu
E-mail	info@brusatori.eu

Brusatori
MOTORI ELETTRICI

Via Meucci 5/7
20012 Cuggiono (MI) Italy
Tel: (0039) 02-25068401
Fax: (0039) 02-25060140
Web: http://www.brusatori.eu/
Mail: info@brusatori.eu

VF