

# SINUS PENTA

## Premium Drives for all applications!

Full range of premium drives for AC three-phase induction and synchronous motors

5 different control functions: V/F, Sensorless VTC,FOC, SYN, Active Front End.

Available in IP00, IP20, IP54 enclosures.

Complete range of inductors, filters, braking unit and resistors.

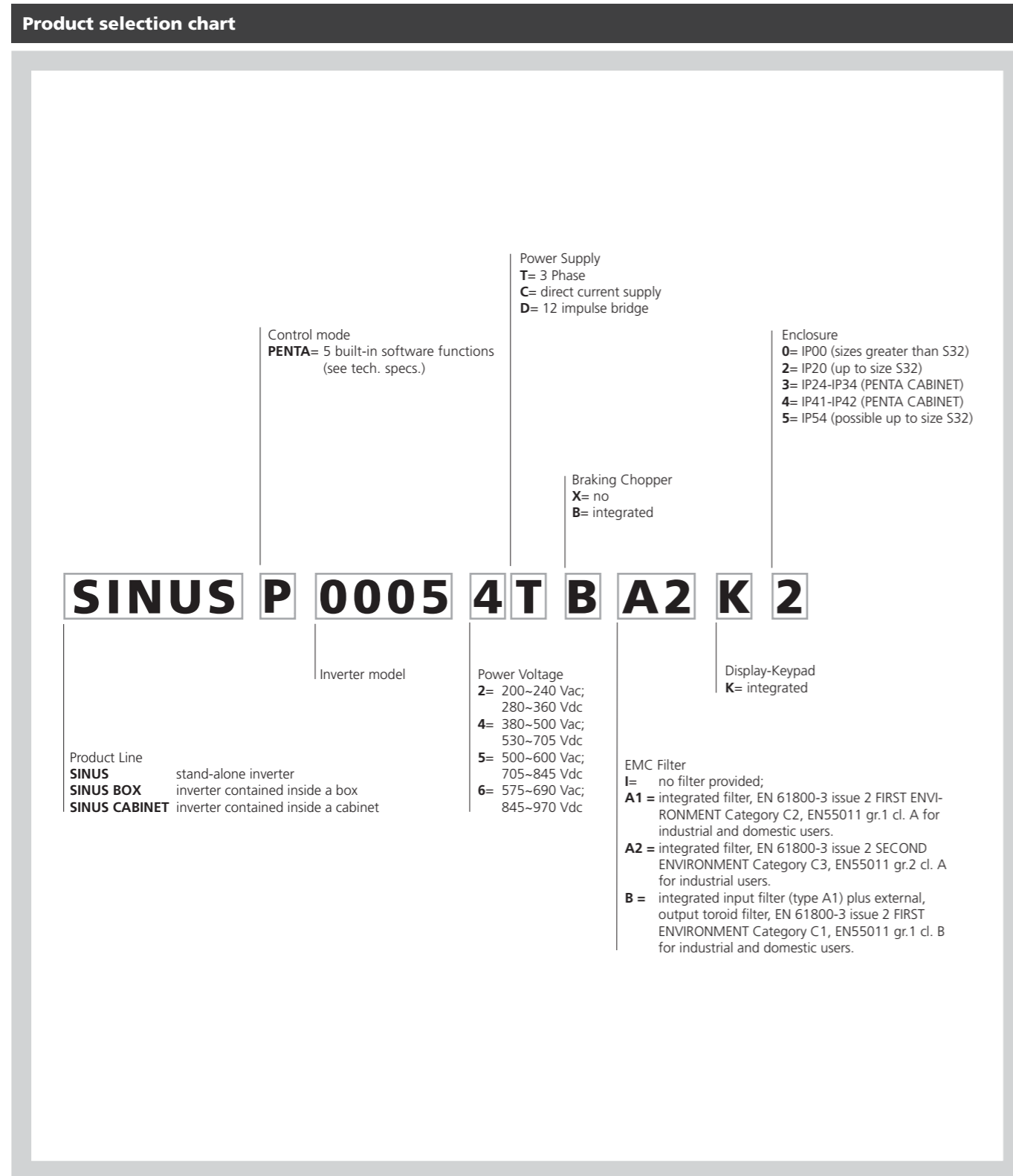
Complete range of optional boards: speed sensors, communications,

I/O expansion, field bus, dataloggers





The SINUS PENTA drives have one common part number coding. Refer to this coding to select the specific model and options required for your application. The part number starts with "SINUS P" that identifies the SINUS PENTA family, the following 4 digit number identifies the inverter model. The part number details are given below.



NOTE: Not all the combinations below are possible.



Overload Choice

Applications	Overload			
	Light	Standard	Heavy	Strong
Agitator		•		
Atomizer	•			
Axis control			•	•
Ball mill			•	
Bandsaw	•			
Bore pumps			•	
Bottle washer	•			
Calenders		•	•	
Centrifugal damped fan	•			
Centrifugal pumps		•		
Centrifuge		•		
Chipper		•		
Circular saw		•		
Conveyor belt		•	•	
Conveyor roller		•		
Conveyor screw			•	
Crusher cone		•		
Crusher jaw			•	
Crusher rotary		•		
Crusher vertical impact		•		
Damped axial fan	•			
Debarker		•		
Drawplates		•	•	
Drills			•	•
Dryer		•	•	
Dust collector	•			
Edger		•		
Elevators			•	•
Extruders	•			
Forming machines		•	•	
Grinder	•			
Hammer Mill		•		
High pressure fan	•			

Applications	Overload			
	Light	Standard	Heavy	Strong
Hoists and cranes' translation			•	
Hydraulic power pack		•		
Hydraulic power pack injection moulding machines		•		
Industrial washers			•	
Loaded piston compressor			•	
Looms		•	•	
Mechanical presses		•	•	
Mill		•		
Mixer	•			
Palletiser		•	•	
Planers		•		
Positive displacement pumps			•	
Pulper		•		
Roller mill		•		
Rolling Plants			•	
Rotary table		•		
Sander		•	•	
Screw compressor, loaded		•		
Screw compressor, unloaded	•			
Screw injection moulding machines		•	•	
Separator	•			
Shears		•	•	
Shredder	•			
Slicer	•			
Slurry pumps		•		
Tumbler	•			
Twister/Spinner			•	•
Undamped axial fan	•			
Undamped centrifugal fan	•			
Unloaded piston compressor		•		
Vibrating screen	•			
Winding/unwinding		•	•	



SUPPLY VOLTAGE  
2T = 200-240 VAC  
4T = 380-500 VAC

## 5-function, premium drives for:

- AC three-phase induction motors
- AC three-phase synchronous motors
- Fully sinusoidal regenerative AFE

### from 1.3kW to 900kW

- Wide power supply voltage range, 200÷500 Vac
- DC power supply range 280÷705 Vdc
- Input frequency 50 - 60 Hz
- Available in Penta Cabinet solutions up to 2100 kW
- Enclosure IP00, IP20, IP54
- Full compatibility with the "REMOTE DRIVE" software for remote control

## Technical Highlights

### One product, 5 integrated functions

- **IFD** (Inverter Frequency Drive): vector modulation function for general-purpose applications (V/F pattern).
- **VTC** (Vector Torque Control): sensorless vector function for high-torque demanding applications.
- **FOC** (Field Oriented Control): vector function with encoder for high torque precision and wide speed range.
- **SYN** (Synchronous): vector function for brushless synchronous motors with permanent magnets, high torque precision joined to high energy efficiency level.
- **RGN** (Regenerative): sinusoidal power factor  $\cos\varphi=1$ , AC/DC feeder function for direct supply of a series of drives.

- Extremely compact dimensions: one of the best current density [A/m<sup>3</sup>] in the market!
- Widest range of STANDARD I/O.
- Most encoder input directly to control board, no option board required for FOC control.
- Open loop speed precision:  $\pm 0.5\%$  of max. speed. Closed loop (with an encoder) speed precision:  $< 0.01\%$  of max. speed.
- Intelligent cooling system. Through-Hole mounting, segregation of forced air flow channels.
- Integrated braking chopper up to S30 at 100% nominal current.
- Programmable logic blocks.
- Regulation of output frequency from 0 to 1000Hz (depending on models).
- Lower motor noise with random modulation and carrier frequency up to 16kHz (depending on models).
- Integrated EMC filters on the full range in compliance with EN61800-3 2nd ed.
- IP54 models available for all the power ranges.

## Technical features

SINUS PENTA inverters fit any application thanks to their advanced features, among which: 32-bit multiprocessor control board; vector modulation; power control with the latest IGBTs; high immunity to radio interference; high overload capability.

- Easy commissioning with preset parameters for the most common applications. Special Multipump application.
- Operating parameters saved to removable keypad or PC and possibility of parameter transfer to multiple inverters.
- Control panel with 12 keys and large back-lit LCD.
- Automatic calibration for motor parameters tuning.
- Programmable multiple acceleration and deceleration ramps. Programmable S ramps.
- Automatic DC braking.
- Motor PTC thermal probe control. Integrated motor thermal protection.
- In case of power failure, total control of the motor, down to 0 RPM.
- Master-slave function for the operation of several motors connected to the same drive shaft (VTC and FOC).
- 200% max torque.
- PID Function / Second PID Function / 2-zone PID.
- Skip frequency.
- Integrated digital potentiometer. Integrated multifunctional tester.
- Fire Mode function available.
- Trip Log.
- STANDARD I/Os:
  - Encoder feedback
  - 8 programmable inputs and MPL logic
  - 3 programmable analog inputs 0-10 Vdc, 0(4)-20 mA, PTC
  - 4 programmable digital output (2 relays with exchange contact, 1 open-collector, 1 Push-Pull)
  - Auxiliary input frequency 5,000-65,000 Hz, Auxiliary output frequency 5,000-65,000 Hz
  - 3 programmable analog outputs 0-10 Vdc, 0(4)-20 mA.
- Auxiliary output voltage 24 Vdc, 10 Vdc.
- Serial communications RS485 with MODBUS RTU protocol up to 38.400 Baud.

## Special configurations

- 12 impulse bridge: starting from the S65 size, it is possible to supply the drive on 12 impulse bridge configuration.
- STO (Safe Torque Off) Cat.3 EN954-1 available on request.
- Optional boards for Fieldbus communication, Encoder or Resolver interface, Data loggers, RTC, I/O expansion.
- Custom execution in box or cabinets with input and/or DC and/or output inductors, circuit breakers, AFE sensors and switch.

# SINUS PENTA 2T/4T



## Technical data

### Connected Motor power range/voltage range

1.5~260kW	200÷240Vac	3phase
2.2~710kW	380÷415Vac	3phase
3~800kW	440÷460Vac	3phase
3.7~900kW	480÷500Vac	3phase

### Mains Vac supply voltage and frequency

2T	200÷240 Vac,	3phase,	-15% +10%	50÷60Hz
4T	380÷500 Vac,	3phase,	-15% +10%	50÷60Hz

### DC supply voltage

2T	280÷340 Vdc
4T	530÷705 Vdc

### Overvoltage category

III (refer to EN 61800-5-1)

### Degree of protection/size

IP20 from Size S05 to Size S30,  
IP00 from Size S41 to Size S65,  
IP54 from Size S05 to Size S30

### Ambient temperature

- 10°C to 50°C with no derating (or 2%/°C over 40°C based on the inverter model and the application category)

### Storage temperature

-25 ÷ +70°C

### Humidity

5 ÷ 95% (non condensing)

### Altitude

Standard max. altitude 2000 m a.s.l  
(2000 m ÷ 4000 m, on request)  
Above 1000 m, derate 1%/100 m.

### Vibrations

Lower than 9.8 m/sec<sup>2</sup> (= 1.0G)

### Operating atmospheric pressure

86 ÷ 106 kPa

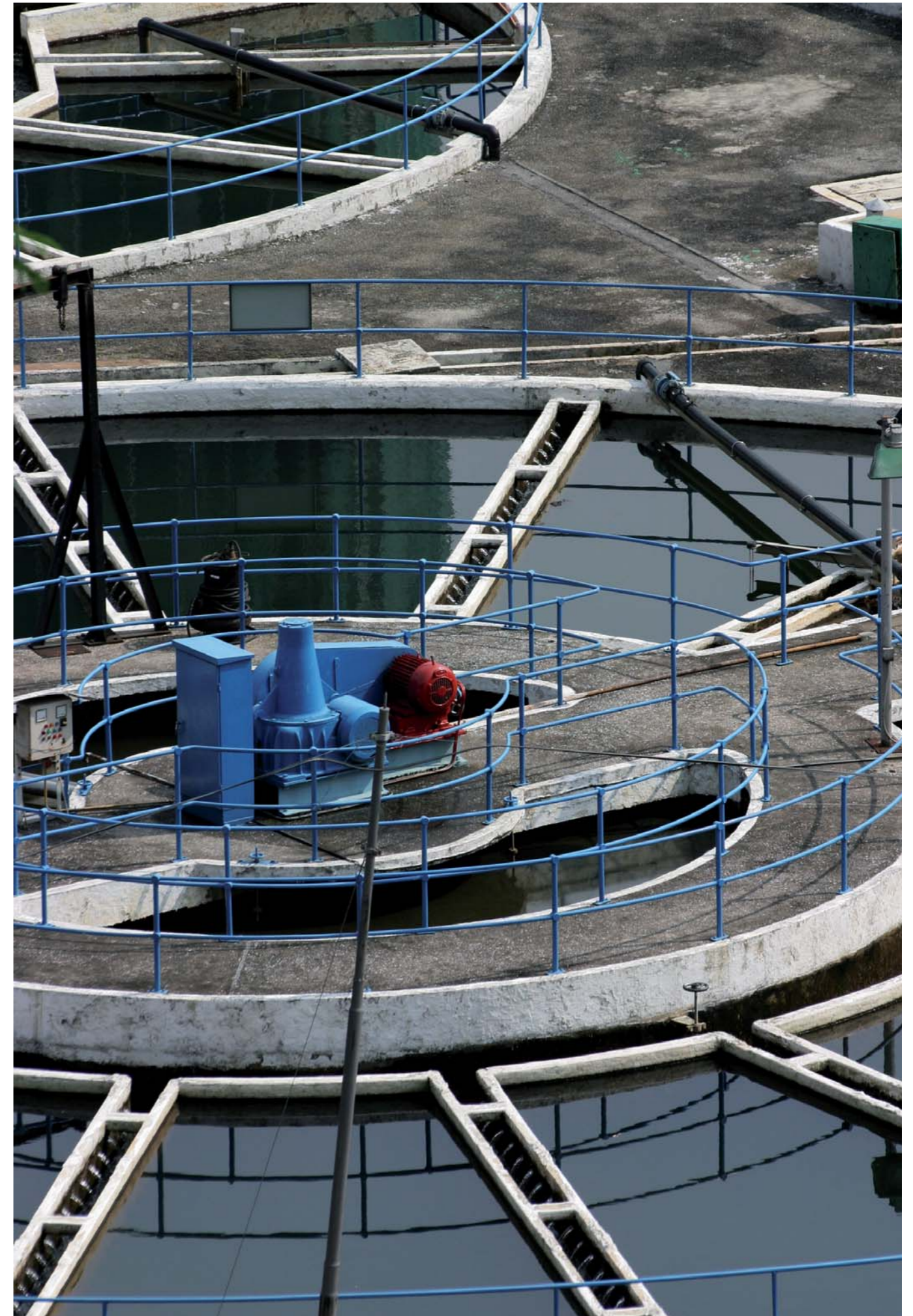
### Cooling system

Forced air-cooling



## Dimensions and weight IP20 - IP00 models

Size	W (mm)	H (mm)	D (mm)	Weight (kg)
S05	170	340	175	7
S12	215	401	225	12.5
S15	225	466	331	22.5
S20	279	610	332	36
S30	302	748	421	51
S41	500	882	409	121
S51	578	882	409	141
S60	890	1310	530	260
S65	980	1400	560	440







**HEAVY OVERLOAD UP TO 175% (120s) OR UP TO 210% (3s)**

Power supply up to 500 Vac

Table with columns for Sinus Penta Model, Applicable motor power (200-240 Vac, 380-415 Vac, 440-460 Vac, 480-500 Vac), Inom, Imax, and Ipeak (3s). Includes sub-sections for Size S05, S12, S15, S20, S30, S41, S51, S60, and S65. A summary row at the bottom indicates inverter power supply ranges for different voltage applications.

1) input reactor and output reactor required. Key Inom= inverter nominal current • Imax= inverter maximum current for 120sec every 20min. up to S30 and 60sec. Every 10min. >=S41 • Ipeak= inverter maximum current for 3sec



**STRONG OVERLOAD UP TO 200% (120s) OR UP TO 240% (3s)**

Power supply up to 500 Vac

Table with columns for Sinus Penta Model, Applicable motor power (200-240 Vac, 380-415 Vac, 440-460 Vac, 480-500 Vac), Inom, Imax, and Ipeak (3s). Includes sub-sections for Size S05, S12, S15, S20, S30, S41, S51, S60, and S65. A summary row at the bottom indicates inverter power supply ranges for different voltage applications.

1) input reactor and output reactor required. Key Inom= inverter nominal current • Imax= inverter maximum current for 120sec every 20min. up to S30 and 60sec. Every 10min. >=S41 • Ipeak= inverter maximum current for 3sec

## SINUS PENTA 2T/4T



### SINUS PENTA IP54 models

- The Sinus series also features an IP54-range suitable for environmental conditions with a strong presence of dust and water (up to SINUS PENTA S30).

- The robust metal enclosure is suitable for outdoor installations, therefore no electric cabinet is required.

#### Dimensions and weight IP54 models

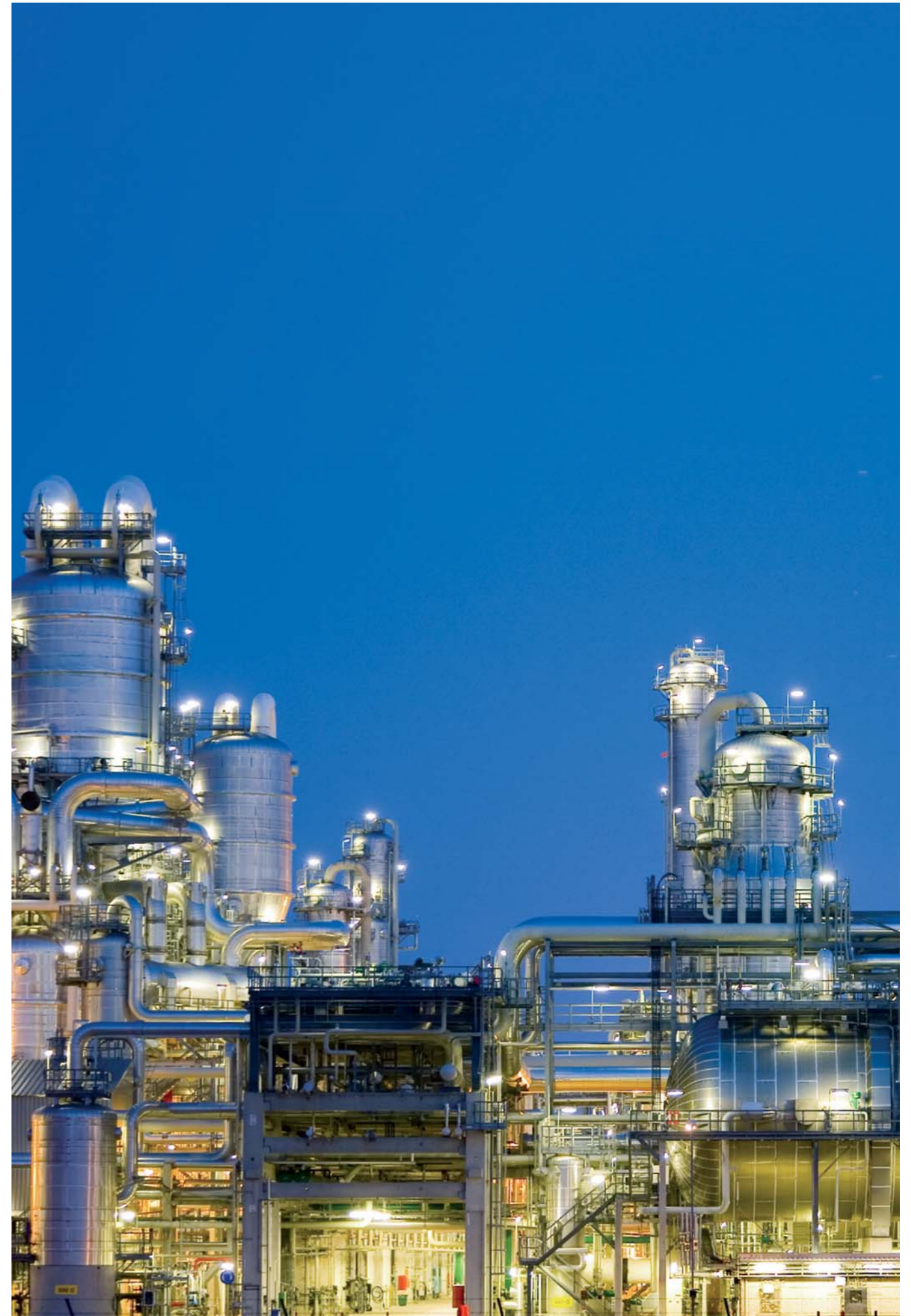
Size	W (mm)	H (mm)	D (mm)	Weight (kg)
S05	214	577	227	15.7
S12	250	622	268	23.3
S15	288	715	366	40
S20	339	842	366	57
S30	359	1008	460	76

### IP54 Front door operation (optional)

A complete set is available for front-door operation, including a potentiometer, an emergency push-button and a key-operated selector switch.

**LOCAL (LOC)** Enables motor speed adjustment via the inverter keypad

**REMOTE (REM)** Controls the inverter based on how it is programmed via terminal board, serial ports or fieldbus.





SUPPLY VOLTAGE  
5T = 500-600 VAC  
6T = 575-690 VAC

## 5-function premium drives for:

- AC three-phase induction motors
- AC three-phase synchronous motors
- Fully sinusoidal regenerative AFE

### from 1.3kW to 1240kW

- Wide power supply voltage range, 500÷690 Vac
- DC power supply range 705÷970 Vdc
- Input frequency 50 - 60 Hz
- Available in Penta Cabinet solutions up to 3000kW
- Enclosure IP00, IP20, IP54
- Full compatibility with the "REMOTE DRIVE" software for remote control

## Technical Highlights

### One product, 5 integrated functions

- **IFD** (Inverter Frequency Drive): vector modulation function for general-purpose applications (V/F pattern).
- **VTC** (Vector Torque Control): sensorless vector function for high-torque demanding applications.
- **FOC** (Field Oriented Control): vector function with encoder for high torque precision and wide speed range.
- **SYN** (Synchronous): vector function for brushless synchronous motors with permanent magnets, high torque precision joined to high energy efficiency level.
- **RGN** (Regenerative): sinusoidal power factor  $\cos\phi=1$ , AC/DC feeder function for direct supply of a series of drives.

- Extremely compact dimensions: one of the best current density [A/m<sup>3</sup>] on the market!
- Widest range of STANDARD I/Os.
- Most encoder inputs directly to control board, no option board required for FOC control.
- Open loop speed precision:  $\pm 0.5\%$  of max. speed. Closed loop (with an encoder) speed precision:  $< 0.01\%$  of max. speed.
- Intelligent cooling system. Through-Hole mounting, segregation of forced air flow channels.
- Integrated braking chopper up to S32 at 100% nominal current.
- Programmable logic blocks.
- Regulation of output frequency from 0 to 1000Hz (depending on models).
- Lower motor noise with random modulation and carrier frequency up to 16kHz (depending on models).
- Integrated EMC filters on the full range in compliance with EN61800-3 2nd ed.
- IP54 models available for all the power ranges

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- Easy commissioning with preset parameters for the most common applications. Special Multipump application.
- Operating parameters saved to removable keypad or PC and possibility of parameter transfer to multiple inverters.
- Control panel with 12 keys and large back-lit LCD.
- Automatic calibration for motor parameters tuning.
- Programmable multiple acceleration and deceleration ramps. Programmable S ramps.
- Automatic DC braking.
- Motor PTC thermal probe control. Integrated motor thermal protection.
- In case of power failure, total control of the motor, down to 0 RPM.
- Master-slave function for the operation of several motors connected to the same drive shaft (VTC and FOC).
- 200% max torque.
- PID Function / Second PID Function / 2-zone PID.
- Skip frequency.
- Integrated digital potentiometer. Integrated multifunction tester.
- Fire Mode function available.
- Trip Log.
- STANDARD I/Os:
  - Encoder feedback
  - 8 programmable inputs and MPL logic
  - 3 programmable analog inputs 0-10 Vdc, 0(4)-20 mA, PTC
  - 4 programmable digital outputs (2 change over contact relays, 1 open-collector, 1 Push-Pull)
  - Auxiliary input frequency 5,000-65,000 Hz, Auxiliary output frequency 5,000-65,000 Hz
  - 3 programmable analog outputs 0-10 Vdc, 0(4)-20 mA.
- Auxiliary output voltage 24 Vdc, 10 Vdc.
- Serial communications RS485 with MODBUS RTU protocol up to 38.400 Baud.

## Special configurations

- 12 impulse bridge: starting from the S65 size, it is possible to supply the drive on 12 impulse bridge configuration.
- STO (Safe Torque Off) Cat.3 EN954-1 available on request.
- Optional boards for Fieldbus communication, Encoder or Resolver interface, Data loggers, RTC, I/O expansion.
- Custom execution in box or cabinets with input and/or DC and/or output inductors, circuit breakers, AFE sensors and switch.



# SINUS PENTA 5T/6T



## Technical data

### Connected Motor power range/voltage range

3~1000kW      575Vac      3phase  
3~1240kW      660÷690Vac      3phase

### Mains Vac supply voltage and frequency

5T    500÷600 Vac, 3phase, -15% +10% 50÷60Hz  
6T    575÷690 Vac, 3phase, -15% +10% 50÷60Hz

### DC supply voltage

5T    705±845 Vdc  
6T    845±970 Vdc

### Overvoltage category

III (refer to EN 61800-5-1)

### Degree of protection/size

IP20 from Size S12 to Size S32,  
IP00 from Size S42 to Size S90,  
IP54 from Size S12 to Size S32

### Ambient temperature

- 10°C to 50°C with no derating (or 2%/°C over 40°C based on the inverter model and the application category)

### Storage temperature

-25 ÷ +70°C

### Humidity

5 ÷ 95% (non condensing)

### Altitude

Standard max. altitude 2000 m a.s.l  
(2000 m ÷ 4000 m, on request)  
Above 1000 m, derate 1%/100 m.

### Vibrations

Lower than 9.8 m/sec<sup>2</sup> (= 1.0G)

### Installation environment

No direct sunlight, conductive dust, corrosive gases, water sprinkling or dripping, or salty environments.

### Operating atmospheric pressure

86 ÷ 106 kPa

### Cooling system

Forced air-cooling



## Dimensions and weight IP20 - IP00 models

Size	W (mm)	H (mm)	D (mm)	Weight (kg)
S12	215	401	225	12.5
S14	270	530	250	23
S22	282.5	813.5	353	52
S32	366.5	881	399	84
S42	500	968	409	136
S52	578	968	409	160
S65	980	1400	560	440
S70	1230	1400	960	440



# SINUS PENTA 5T/6T



**LIGHT OVERLOAD UP TO 120% (60s) OR UP TO 144% (3s)**  
**Power supply up to 690 Vac**

Atomizer Bore pumps Bottle washer Centrifugal damped fan Centrifugal pumps Damped axial fan Dust collector Grinder High pressure fan	Positive displacement pumps Screw compressor, unloaded Slurry pumps Undamped axial fan Undamped centrifugal fan
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Sinus Penta Model	Applicable motor power						Inom. A	Imax A	Ipeak (3s) A
	575 Vac			660-690 Vac					
	kW	HP	A	kW	HP	A			
<b>Size S12 5T - Size S14 6T</b>									
SINUS PENTA 0003	4	5.5	5.7	5.5	7.5	6.3	7	8.5	10
SINUS PENTA 0004	5.5	7.5	7.6	7.5	10	8.4	9	11	13
SINUS PENTA 0006	7.5	10	10	9.2	12.5	10.2	11	13.5	16
SINUS PENTA 0012	9.2	12.5	12.5	11	15	12.1	13	16	19
SINUS PENTA 0018	11	15	14	15	20	16.8	17	21	25
<b>Size S14</b>									
SINUS PENTA 0019	15	20	20	18.5	25	21	21	25	30
SINUS PENTA 0021	18.5	25	25	22	30	23	25	30	36
SINUS PENTA 0022	22	30	28	30	40	33	33	40	48
SINUS PENTA 0024	30	40	39	37	50	39	40	48	58
SINUS PENTA 0032	37	50	47	45	60	46	52	63	76
<b>Size S22</b>									
SINUS PENTA 0042	45	60	55	55	75	56	60	72	86
SINUS PENTA 0051	55	75	70	75	100	78	80	96	115
SINUS PENTA 0062	65	90	83	75	100	78	85	110	132
SINUS PENTA 0069	75	100	95	90	125	94	105	135	162
<b>Size S32</b>									
SINUS PENTA 0076	90	125	115	110	150	113	125	165	198
SINUS PENTA 0088	110	150	138	132	180	133	150	200	240
SINUS PENTA 0131	132	180	168	160	220	158	190	250	300
SINUS PENTA 0164	160	220	198	220	300	220	230	300	360
<b>Size S42</b>									
SINUS PENTA 0181	220	300	275	250	340	250	305	380	420
SINUS PENTA 0201	250	340	300	315	430	310	330	420	420
SINUS PENTA 0218	300	410	358	355	485	350	360	465	560
SINUS PENTA 0259	330	450	395	400	550	390	400	560	560
<b>Size S52</b>									
SINUS PENTA 0290	355	485	420	450	610	440	450	600	720
SINUS PENTA 0314	400	550	480	500	680	480	500	665	798
SINUS PENTA 0368	450	610	532	560	770	544	560	720	850
SINUS PENTA 0401	560	770	630	630	860	626	640	850	850
<b>Size S65 <sup>1)</sup></b>									
SINUS PENTA 0457	630	860	720	710	970	696	720	880	1056
SINUS PENTA 0524	710	970	800	800	1090	773	800	960	1152
SINUS PENTA 0598	800	1090	900	900	1230	858	900	1100	1320
SINUS PENTA 0748	900	1230	1000	1000	1360	954	1000	1300	1140
<b>Size S70 <sup>1)</sup></b>									
SINUS PENTA 0831	1000	1360	1145	1240	1690	1200	1200	1440	1440
Inverter power supply	500-600 Vac; 705-845 Vdc			575-690 Vac; 845-970 Vdc					

<sup>1)</sup> Input reactor and output reactor required.  
**Key** Inom= continuous rated current of the inverter • Imax= inverter maximum current for 60sec every 10 min. • Ipeak= inverter maximum current for 3sec

# SINUS PENTA 5T/6T



**STANDARD OVERLOAD UP TO 140% (60s) OR UP TO 168% (3s)**  
**Power supply up to 690 Vac**

Agitator Bandsaw Calenders Centrifuge Chipper Circular saw Conveyor belt Conveyor roller Crusher cone	Crusher rotary Crusher vertical impact Debarker Drawplates Dryer Edger Extruders Forming machines Hydraulic power pack	Industrial washers Mechanical presses Mixer Palletiser Rotary table Sander Screw compressor, loaded Screw injection moulding machines Separator	Shears Shredder Slicer Slurry pumps Tumbler Twister/Spinner Unloaded piston compressor Winding/unwinding machines
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Sinus Penta Model	Applicable motor power						Inom. A	Imax A	Ipeak (3s) A
	575 Vac			660-690 Vac					
	kW	HP	A	kW	HP	A			
<b>Size S12 5T - Size S14 6T</b>									
SINUS PENTA 0003	4	5.5	5.7	4	5.5	4.8	7	8.5	10
SINUS PENTA 0004	5.5	7.5	7.6	5.5	7.5	6.3	9	11	13
SINUS PENTA 0006	7.5	10	10	7.5	10	8.4	11	13.5	16
SINUS PENTA 0012	7.5	10	10	9.2	12.5	10.2	13	16	19
SINUS PENTA 0018	11	15	14	11	15	12.1	17	21	25
<b>Size S14</b>									
SINUS PENTA 0019	11	15	14	15	20	16.8	21	25	30
SINUS PENTA 0021	15	20	20	18.5	25	21	25	30	36
SINUS PENTA 0022	22	30	28	22	30	23	33	40	48
SINUS PENTA 0024	25	35	32	30	40	33	40	48	58
SINUS PENTA 0032	37	50	47	37	50	39	52	63	76
<b>Size S22</b>									
SINUS PENTA 0042	45	60	55	45	60	46	60	72	86
SINUS PENTA 0051	55	75	70	55	75	56	80	96	115
SINUS PENTA 0062	65	90	83	75	100	77	85	110	132
SINUS PENTA 0069	75	100	95	90	125	94	105	135	162
<b>Size S32</b>									
SINUS PENTA 0076	90	125	115	110	150	113	125	165	198
SINUS PENTA 0088	110	150	135	132	180	133	150	200	240
SINUS PENTA 0131	132	180	168	160	220	158	190	250	300
SINUS PENTA 0164	160	220	198	200	270	198	230	300	360
<b>Size S42</b>									
SINUS PENTA 0181	220	300	275	250	340	250	305	380	420
SINUS PENTA 0201	250	340	300	315	430	310	330	420	420
SINUS PENTA 0218	300	410	358	315	430	310	360	465	560
SINUS PENTA 0259	330	450	395	400	550	390	400	560	560
<b>Size S52</b>									
SINUS PENTA 0290	355	485	420	450	610	440	450	600	720
SINUS PENTA 0314	400	550	480	450	610	440	500	665	798
SINUS PENTA 0368	450	610	532	500	680	480	560	720	850
SINUS PENTA 0401	450	610	532	630	860	626	640	850	850
<b>Size S65 <sup>1)</sup></b>									
SINUS PENTA 0457	560	770	630	630	860	626	720	880	1056
SINUS PENTA 0524	630	860	720	710	970	696	800	960	1152
SINUS PENTA 0598	710	970	800	900	1230	858	900	1100	1320
SINUS PENTA 0748	900	1230	1000	1000	1360	954	1000	1300	1440
<b>Size S70 <sup>1)</sup></b>									
SINUS PENTA 0831	800	1090	900	1000	1360	954	1200	1440	1440
Inverter power supply	500-600 Vac; 705-845 Vdc			575-690 Vac; 845-970 Vdc					

<sup>1)</sup> Input reactor and output reactor required.  
**Key** Inom= continuous rated current of the inverter • Imax= inverter maximum current for 60sec every 10 min. • Ipeak= inverter maximum current for 3 seconds

# SINUS PENTA 5T/6T



**HEAVY OVERLOAD UP TO 175% (60s) OR UP TO 210% (3s)**  
**Power supply up to 690 Vac**

Ball mill  
 Calenders  
 Conveyor belt  
 Conveyor screw  
 Crusher jaw  
 Dryer  
 Elevators  
 Hammer mill  
 Hoists and cranes' translation

injection moulding machines  
 Loaded piston compressor  
 Mill  
 Roller mill  
 Screw injection moulding machines

Sinus Penta Model	Applicable motor power						Inom. A	Imax A	Ipeak (3s) A
	575 Vac			660-690 Vac					
	kW	HP	A	kW	HP	A			
<b>Size S12 5T - Size S14 6T</b>									
SINUS PENTA 0003	3	4	4.4	4	5.5	4.8	7	8.5	10
SINUS PENTA 0004	4	5.5	5.7	4	5.5	4.8	9	11	13
SINUS PENTA 0006	5.5	7.5	7.6	7.5	10	8.4	11	13.5	16
SINUS PENTA 0012	7.5	10	10	7.5	10	8.4	13	16	19
SINUS PENTA 0018	9.2	12.5	12.5	11	15	12.1	17	21	25
<b>Size S14</b>									
SINUS PENTA 0019	11	15	14	11	15	12.1	21	25	30
SINUS PENTA 0021	15	20	20	15	20	16.8	25	30	36
SINUS PENTA 0022	18.5	25	25	22	30	23	33	40	48
SINUS PENTA 0024	22	30	28	22	30	23	40	48	58
SINUS PENTA 0032	30	40	39	37	50	39	52	63	76
<b>Size S22</b>									
SINUS PENTA 0042	37	50	47	37	50	39	60	72	86
SINUS PENTA 0051	45	60	55	55	75	56	80	96	115
SINUS PENTA 0062	55	75	70	55	75	56	85	110	132
SINUS PENTA 0069	55	75	70	75	100	78	105	135	162
<b>Size S32</b>									
SINUS PENTA 0076	75	100	95	90	125	94	125	165	198
SINUS PENTA 0088	110	150	135	110	150	113	150	200	240
SINUS PENTA 0131	110	150	135	160	220	158	190	250	300
SINUS PENTA 0164	132	180	168	185	250	185	230	300	360
<b>Size S42</b>									
SINUS PENTA 0181	185	250	225	220	300	220	305	380	420
SINUS PENTA 0201	200	270	240	250	340	250	330	420	420
SINUS PENTA 0218	220	300	275	315	430	310	360	465	560
SINUS PENTA 0259	280	380	336	355	485	341	400	560	560
<b>Size S52</b>									
SINUS PENTA 0290	300	400	358	400	550	390	450	600	720
SINUS PENTA 0314	330	450	395	450	610	440	500	665	798
SINUS PENTA 0368	355	485	420	500	680	480	560	720	850
SINUS PENTA 0401	400	550	473	560	770	544	640	850	850
<b>Size S65 <sup>1)</sup></b>									
SINUS PENTA 0457	500	680	585	560	770	544	720	880	1056
SINUS PENTA 0524	560	770	630	630	860	626	800	960	1152
SINUS PENTA 0598	630	860	720	710	970	696	900	1100	1320
SINUS PENTA 0748	710	970	800	900	1230	858	1000	1300	1440
<b>Size S70 <sup>1)</sup></b>									
SINUS PENTA 0831	1000	1360	1145	1100	1500	1086	1200	1440	1440
Inverter power supply	500-600 Vac; 705-845 Vdc			575-690 Vac; 845-970 Vdc					

<sup>1)</sup> Input reactor and output reactor required.  
 Key Inom= continuous rated current of the inverter • Imax= inverter maximum current for 60sec every 10 min. • Ipeak= inverter maximum current for 3 seconds

# SINUS PENTA 5T/6T



**STRONG OVERLOAD UP TO 200% (60s) OR UP TO 240% (3s)**  
**Power supply up to 690 Vac**

Axis control  
 Chucks  
 Injection presses  
 Hydraulic power pack  
 Lifting

Sinus Penta Model	Applicable motor power						Inom. A	Imax A	Ipeak (3s) A
	575 Vac			660-690 Vac					
	kW	HP	A	kW	HP	A			
<b>Size S12 5T - Size S14 6T</b>									
SINUS PENTA 0003	3	4	4.4	3	4	3.7	7	8.5	10
SINUS PENTA 0004	4	5.5	5.7	4	5.5	4.8	9	11	13
SINUS PENTA 0006	4	5.5	5.7	5.5	7.5	6.3	11	13.5	16
SINUS PENTA 0012	5.5	7.5	7.6	7.5	10	8.4	13	16	19
SINUS PENTA 0018	7.5	10	10	9.2	12.5	10.2	17	21	25
<b>Size S14</b>									
SINUS PENTA 0019	9.2	12.5	12.5	11	15	12	21	25	30
SINUS PENTA 0021	11	15	14	11	15	12	25	30	36
SINUS PENTA 0022	15	20	20	18.5	25	21	33	40	48
SINUS PENTA 0024	18.5	25	25	22	30	23	40	48	58
SINUS PENTA 0032	25	35	32	30	40	33	52	63	76
<b>Size S22</b>									
SINUS PENTA 0042	30	40	39	30	40	33	60	72	86
SINUS PENTA 0051	37	50	47	45	60	46	80	96	115
SINUS PENTA 0062	45	60	55	55	75	56	85	110	132
SINUS PENTA 0069	45	60	55	55	75	56	105	135	162
<b>Size S32</b>									
SINUS PENTA 0076	55	75	70	75	100	77	125	165	198
SINUS PENTA 0088	75	100	95	90	125	95	150	200	240
SINUS PENTA 0131	90	125	115	110	150	115	190	250	300
SINUS PENTA 0164	110	150	138	132	180	140	230	300	360
<b>Size S42</b>									
SINUS PENTA 0181	160	220	198	200	270	198	305	380	420
SINUS PENTA 0201	160	220	198	220	300	220	330	420	420
SINUS PENTA 0218	200	270	240	250	340	250	360	465	560
SINUS PENTA 0259	220	300	275	315	430	310	400	560	560
<b>Size S52</b>									
SINUS PENTA 0290	250	340	300	355	480	341	450	600	720
SINUS PENTA 0314	280	380	336	375	510	360	500	665	798
SINUS PENTA 0368	315	430	367	400	550	390	560	720	850
SINUS PENTA 0401	355	480	410	500	680	480	640	850	850
<b>Size S65 <sup>1)</sup></b>									
SINUS PENTA 0457	400	550	480	500	680	480	720	880	1056
SINUS PENTA 0524	450	610	532	560	770	544	800	960	1152
SINUS PENTA 0598	560	770	630	630	860	626	900	1100	1320
SINUS PENTA 0748	630	860	720	800	1090	773	1000	1300	1440
<b>Size S70 <sup>1)</sup></b>									
SINUS PENTA 0831	710	970	800	900	1230	858	1200	1440	1440
Inverter power supply	500-600 Vac; 705-845 Vdc			575-690 Vac; 845-970 Vdc					

<sup>1)</sup> Input reactor and output reactor required.  
 Key Inom= continuous rated current of the inverter • Imax= inverter maximum current for 60sec every 10 min. • Ipeak= inverter maximum current for 3 seconds

## SINUS PENTA 5T/6T



S12



S14



S22



S32

## SINUS PENTA IP54 models

- The Sinus series also features an IP54-range suitable for environmental conditions with a strong presence of dust and water (up to SINUS PENTA S32).

- The robust metal enclosure is suitable for outdoor installations, therefore no electric cabinet is required

### Dimensions and weight IP54 models

Size	W (mm)	H (mm)	D (mm)	Weight (kg)
S12	250	622	268	23
S14	310	751	295	31
S22	345	1075	465	86
S32	431	1160	471	113

## IP54 Front door operation (optional)

A complete set is available for front-door operation, including a potentiometer, an emergency push-button and a key-operated selector switch.

**LOCAL (LOC)** Enables motor speed adjustment via the inverter keypad

**REMOTE (REM)** Controls the inverter based on how it is programmed via terminal board, serial ports or fieldbus.

