

Submersible electric pumps with grinder

the spring of life



## Submersible electric pumps with grinder



Sewage water



Domestic use



Industrial use

**TRITUS** submersible shredder pumps are recognised for their reliability and high operational safety: not subject to locking. The grinding unit with its offset cutting system drastically reduces the motor torque requirement. It grinds thoroughly, using less power, and eliminates clogging caused by particularly problematic objects such as plastic, rubber, fabric items, sanitary pads, wet wipes, protective masks, latex gloves and other hygiene products.

These grinder pumpsare therefore recommended where it is necessary to convey wastewater over long distances or through pipes of a compact size, for plants not suited for being fitted with gravity systems or located in areas not served by sewerage systems.

### They are recommended for:

- waste from slaughterhouses
- food industries
- paper mills
- farms
- other manufacturing activities
- for toilet systems
- The shredder is manufactured entirely of high strength AISI 440 C tempered stainless steel
- \* Double mechanical seal with an interposed oil chamber
- All cast iron parts with cataphoresis treatment
- Control box with a manual reset motor protection and with a starting and operating condenser (only for single phase versions)



#### **PERFORMANCE RANGE**

- Flow rate up to 410 l/min (24.6 m³/h)
- Head up to **44.5 m**

### **APPLICATION LIMITS**

- 10 m maximum immersion depth (with a sufficiently long power cable)
- Maximum liquid temperature +40°C
- Suction down to:
  - **85 mm** for TR 0.75, TR 0.9, TR 1.1, TR 1.3
  - 95 mm for TR 1.5, TR 2.2, TR 2.2 AP, TR 3 AP, TR 3, TR 4
- Minimum immersion depth for continuous service:
  - 300 mm for TR 0.75, TR 0.9, TR 1.1, TR 1.3
  - **350 mm** for TR 1.5, TR 2.2, TR 2.2 AP, TR 3 AP, TR 3, TR 4

### **CONSTRUCTION AND SAFETY STANDARDS**

- 10 m long power cable
- External float switch and control box for single-phase versions

#### **INSTALLATION AND USE**

The **TRITUS** series of grinder pumps, built in thick cast iron, exceptional strength, abrasion resistance and durability, are fitted with a **GRINDER in tempered stainless steel of great resistance** which completely grinds up solid bodies and fibres in waste and refluent water from domestic, civil and industrial applications and conveys it under pressure into the sewers through small diameter pipes.

### **PATENTS - TRADEMARKS - MODELS**

- Patent No. EP2313658
- Patent No. IT0001428923
- Registered EU Design
   No. 002501486-0002, 008625685-0005, 008625685-0006
- TRITUS® Registered trademark No. 013017181

### **OPTIONS AVAILABLE ON REQUEST**

- Single-phase electric pumps without a float switch
- Other voltages or 60 Hz frequency

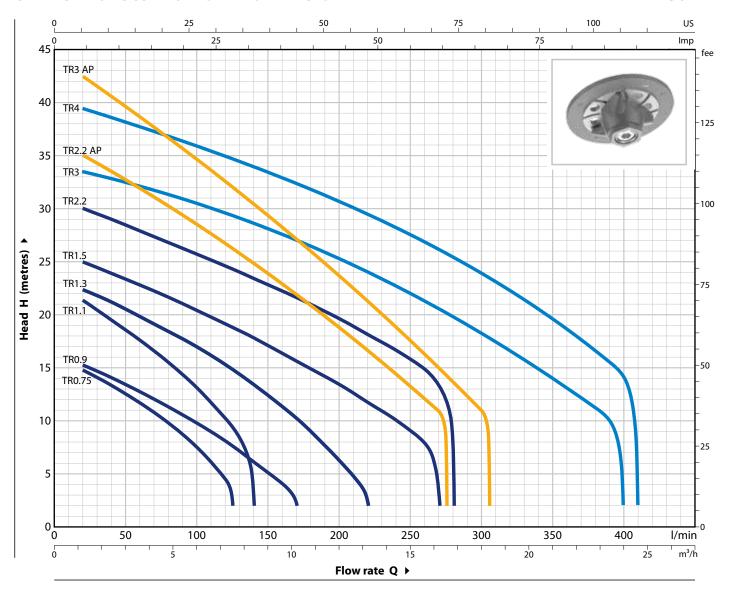
#### **WARRANTY**

2 years as per our general terms and conditions of sale



### **CHARACTERISTIC CURVES AND PERFORMANCE DATA**

### 50 Hz



МО	DEL	POWE	R (P2)	m³/h	0	1.2	2.4	3.6	4.8	6	7.5	8.4	10.2	12	13.2	14.4	16.2	16.8
Single-phase	Three-phase	kW	HP	Q I/min	0	20	40	60	80	100	125	140	170	200	220	240	270	280
TRm 0.75	TR 0.75	0.75	1		16.5	15	13.5	11.8	10	7.5	2							
TRm 0.9	TR 0.9	0.9	1.25		16	15	13.8	12.5	11.1	9.6	7.5	6	2					
TRm 1.1	TR 1.1	1.1	1.5	1	23	21.5	19.5	17.5	15.5	13	9.5	2						
TRm 1.3	TR 1.3	1.3	1.75	H metres	23.5	22.5	21.2	19.8	18.4	17	14.8	13.4	10.2	6.2	2			
TRm 1.5	TR 1.5	1.5	2	1	26	25	24	22.8	21.7	20.4	18.8	17.8	15.6	13.4	11.7	10	2	
_	TR 2.2	2.2	3		31	30	29	28	26.8	25.7	24.3	23.5	21.5	19.5	18	16.5	13.2	2

МО	MODEL POWER (P2)		m³/h	0	1.2	3	6	9	12	15	16.5	18	18.3	
Single-phase	Three-phase	kW	HP	l/min	0	20	50	100	150	200	250	275	300	305
TRm 2.2 AP	TR 2.2 AP	2.2	3		36.5	35	33	28.5	23.8	18.7	13.2	2		
_	TR 3 AP	3	4	<b>H</b> metres	44.5	42.5	40	35	29.5	23.7	17.5	14.3	11	2

MODEL	POWE	R (P2)	m³/h	0	1.2	3	6	9	12	15	16.5	18	21	24	24.6
Three-phase	kW	HP	l/min	0	20	50	100	150	200	250	275	300	350	400	410
TR 3	3	4		34.5	33.5	32.5	30.4	28	25.2	22	20.3	18.4	14.2	2	
TR 4	4	5.5	<b>H</b> metres	40	39.5	38	35.7	33.3	30.6	27.4	25.7	23.8	19.4	14.3	2

# **TRITUS 0.75 ÷ 1.3**

#### POS. COMPONENT

#### **CONSTRUCTION CHARACTERISTICS**

1 PUMP BODY Cast iron with an epoxy electro coating treatment, with threaded port in compliance with ISO 228/1

**2 IMPELLER** Technopolymer open type

**3 GRINDER** Hardened AISI 440C stainless steel

4 MOTOR SHAFT Stainless steel AISI 431

**MOTOR CASING** Cast iron with cataphoresis treatment

#### 6 DOUBLE MECHANICAL SEAL IN OIL CHAMBER

Seal	Shaft	Position		Materials		
Model	Diameter		Stationary ring	Rotational ring	Elastomer	
MG1-14D SIC	Ø 14 mm	Motor side	Silicon carbide	Graphite	NBR	
MG 1-14D SIC	<b>Ø 14</b> mm	Pump side	Silicon carbide	Silicon carbide	NBR	

### 7 BEARINGS

#### 6203 ZZ-C3E

## ELECTRIC MOTOR

TRm: single-phase 230 V - 50 Hz

with thermal overload protector incorporated into the

winding

TR: three-phase 400 V - 50 Hz

Insulation: class FProtection: IP X8

### 9 POWER CABLE

"H07 RN-F" type

Standard length 10 metres

#### 10 EXTERNAL FLOAT SWITCH

(for single-phase versions only)

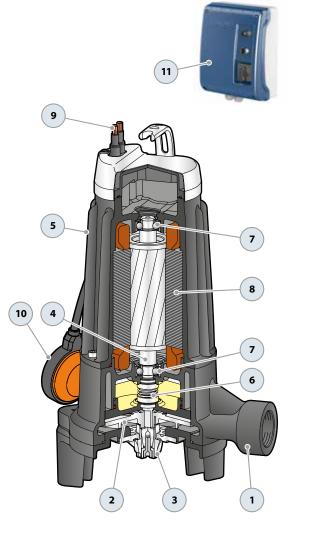
### 11 CONTROL BOX

(for single-phase versions only)

With manual overload cut-out and with starting and operating capacitors.

### Standard equipment Control box

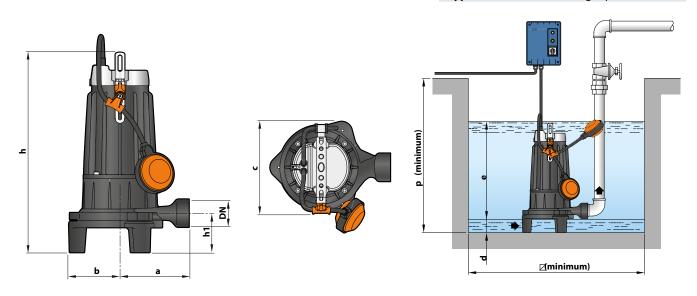
(for single-phase versions only)





### **DIMENSIONS AND WEIGHTS**

### **Typical installation** (for single-phase version)



М	ODEL	PORT	DIMENSIONS mm									kg *	
Single-phase	Three-phase	DN	a	b	С	h	h1	d	e	р		1~	3~
TRm 0.75	TR 0.75								a)		500	24.0	22.0
TRm 0.9	TR 0.9	44/11	1.40	101	100	406		0.5	ap	500		23.9	22.2
TRm 1.1	TR 1.1	11/4"	140	104	186	406	80	80 85	adjust	500	500	25.7	23.2
TRm 1.3	TR 1.3											25.5	23.1

(\* weight of pump without control box)

### **ABSORPTION**

MODEL	VOL	TAGE
Single-phase	230 V	240 V
TRm 0.75	<b>5.5</b> A	<b>5.4</b> A
TRm 0.9	<b>6.0</b> A	<b>5.8</b> A
TRm 1.1	<b>7.4</b> A	<b>7.1</b> A
TRm 1.3	<b>9.0</b> A	<b>8.6</b> A

MODEL	VOLTAGE								
Three-phase	230 V	400 V	240 V	415 V					
TR 0.75	<b>4.3</b> A	<b>2.5</b> A	<b>4.2</b> A	<b>2.4</b> A					
TR 0.9	<b>4.5</b> A	<b>2.6</b> A	<b>4.3</b> A	<b>2.5</b> A					
TR 1.1	<b>5.2</b> A	<b>3.0</b> A	<b>5.0</b> A	<b>2.9</b> A					
TR 1.3	<b>6.6</b> A	<b>3.8</b> A	<b>6.2</b> A	<b>3.6</b> A					

### **PALLETIZATION**

MODEL	GROUPAGE
Single-phase	no. of pumps
TRm 0.75	36
TRm 0.9	36
TRm 1.1	36
TRm 1.3	36

MODEL	GROUPAGE
Three-phase	no. of pumps
TR 0.75	60
TR 0.9	60
TR 1.1	60
TR 1.3	60

### **CAPACITOR**

MODEL	CAPACITY							
Single phase (230 V or 240 V)	Capacitance of the <b>operating</b> capacitor	Capacitance of the <b>starting</b> capacitor						
TRm 0.75								
TRm 0.9	<b>35</b> 5 450 \//	<b>99 5</b> 450\#						
TRm 1.1	<b>25</b> μF 450 VL	<b>80</b> μF 450 VL						
TRm 1.3								

# **TRITUS 1.5 - 2.2**

#### POS. COMPONENT

#### **CONSTRUCTION CHARACTERISTICS**

1 **PUMP BODY** Cast iron with an epoxy electro coating treatment, with threaded port in compliance with ISO 228/1

2 IMPELLER Precision cast stainless steel AISI 304 open type

**3 GRINDER** Hardened AISI 440C stainless steel

4 MOTOR SHAFT Stainless steel AISI 431

5 MOTOR CASING Cast iron with cataphoresis treatment

#### 6 SHAFT WITH DOUBLE MECHANICAL SEAL SEPARATED BY AN OIL CHAMBER

Seal	Shaft	Position		Materials		
Model	Diameter		Stationary ring	Rotational ring	Elastomer	
STA-20	<b>Ø 20</b> mm	Motor side	Ceramic	Graphite	NBR	
STA-19	Ø 19 mm	Pump side	Silicon carbide	Silicon carbide	NBR	

#### **7 BEARINGS**

#### 3304 B-ZZ-C3 / 6304 ZZ-C3

## Standard equipment Control box

(for single-phase versions only)

#### 8 ELECTRIC MOTOR

TRm: single-phase 230 V - 50 Hz

with thermal overload protector incorporated into the

winding

TR: three-phase 400 V - 50 Hz

with thermal overload protector incorporated into the

winding to connect to the control box

Insulation: class FProtection: IP X8

### 9 POWER CABLE

"H07 RN-F" type

Standard length 10 metres

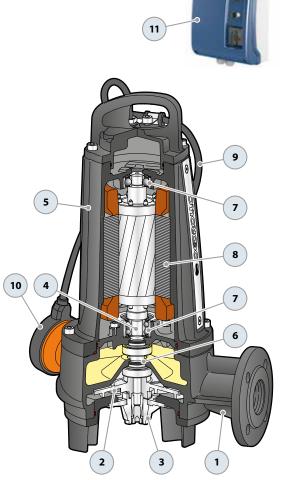
#### 10 EXTERNAL FLOAT SWITCH

(for single-phase versions only)

### 11 CONTROL BOX

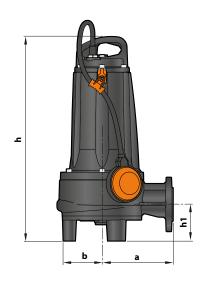
(for single-phase versions only)

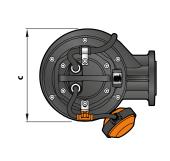
With manual overload cut-out and with starting and operating capacitors.

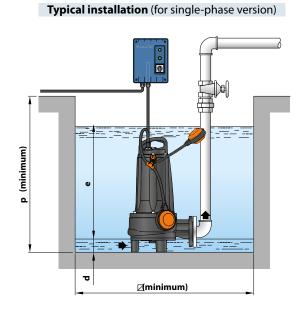




### **DIMENSIONS AND WEIGHTS**



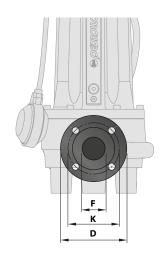




М	ODEL		DIMENSIONS mm									kg	
Single-phase	Three-phase	a	b	С	h	h1	d	e	р		1~	3~	
TRm 1.5	TR 1.5	170	105	224	400	07.5	0.5	- 45 - 4- 1-1-	000	000	45.0	44.0	
_	TR 2.2	172	105	221	489	87.5	95	adjustable	800	800	_	44.0	

### **PORT FLANGE**

MODEL		FLANGE	F	K	D	HOLES		
Single-phase	Three- phase	DN		mm	mm	No.	Ø (mm)	
TRm 1.5	TR 1.5	40	) 1½"	100	130	4	14	
-	TR 2.2	(PN6)						



### **ABSORPTION**

MODEL	VOLTAGE
Single-phase	230 V
TRm 1.5	<b>10.0</b> A

MODEL	VOLTAGE
Three-phase	400 V
TR 1.5	<b>3.7</b> A
TR 2.2	<b>5.5</b> A

### **CAPACITOR**

MODEL	CAPACITY				
Single phase (230 V or 240 V)	Capacitance of the Capacitance of the operating capacitor starting capacitor				
TRm 1.5	<b>50</b> μF 450 VL	<b>80</b> μF 450 VL			

### **PALLETIZATION**

MODEL	PER GROUPAGE			
	no. of pumps			
TRm 1.5	10			
TR 1.5	12			
TR 2.2	12			

# **TRITUS 2.2 ÷ 4**

#### POS. COMPONENT CONSTRUCTION CHARACTERISTICS

1 PUMP BODY	Cast iron with an epoxy electro coating treatment, with threaded port in compliance with ISO 228/1
2 IMPELLER	Precision cast stainless steel AISI 304 open type
3 GRINDER	Hardened AISI 440C stainless steel
4 MOTOR SHAFT	Stainless steel AISI 431
5 MOTOR CASING	Cast iron with cataphoresis treatment
6 MOTOR BRACKET	Cast iron with cataphoresis treatment

#### 7 SHAFT WITH DOUBLE MECHANICAL SEAL SEPARATED BY AN OIL CHAMBER

Seal	Shaft	Position	Materials			
Model	Diameter		Stationary ring	Rotational ring	Elastomer	
STA-24	<b>Ø 24</b> mm	Motor side	Ceramic	Graphite	NBR	
STA-22	Ø 22 mm	Pump side	Silicon carbide	Silicon carbide	NBR	

8 BEARINGS 3305 B-2RS-EA5 / 6204-ZZ-EA3

#### 9 ELECTRIC MOTOR

TRm: single-phase 230 V - 50 Hz

with thermal overload protector incorporated into the

winding

TR: three-phase 400 V - 50 Hz

with thermal overload protector incorporated into the

winding to connect to the control box

Insulation: class FProtection: IP X8

### 10 POWER CABLE

"H07 RN-F" type

**Standard length 10 metres** 

### 11 EXTERNAL FLOAT SWITCH

(for single-phase versions only)

### 12 CONTROL BOX

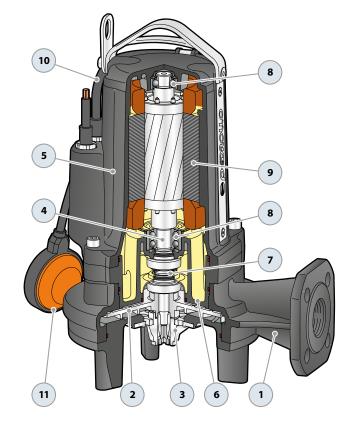
(for single-phase versions only)

With manual overload cut-out and with starting and operating capacitors.

### Standard equipment Control box

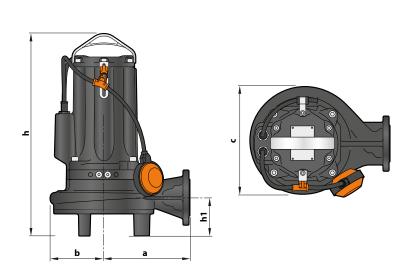
(for single-phase versions only)

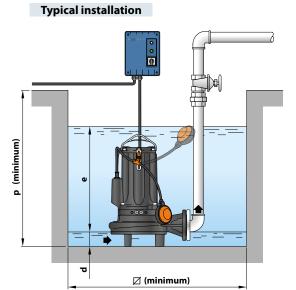






### **DIMENSIONS AND WEIGHTS**

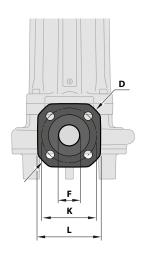




М	ODEL		DIMENSIONS mm							kg				
Single-phase	Three-phase	a	b	С	h	h1	d	e	р	Ø	1~	3~		
TRm 2.2 AP	TR 2.2 AP				480   453						53.5	47.0		
_	TR 3 AP	202	203 126	256	480		00	10	000	000	_	53.0		
	TR 3	203				480	480	90	95	adjustable	800	800	_	53.0
	TR 4										_	54.0		

### **PORT FLANGE**

МО	DEL	FLANGE	F	K	D	L	но	LES
Single-phase	Three-phase	DN		mm	mm	mm	No.	Ø mm
TRm 2.2 AP	TR 2.2 AP							
-	TR 3 AP	<b>40</b> (PN10)		110	150	130	4	18
_	TR 3		11/2"					
_	TR 4							



### **ABSORPTION**

MODEL	VOLTAGE
Single-phase	230 V
TRm 2.2 AP	<b>14.0</b> A

MODEL	VOLTAGE
Three-phase	400 V
TR 2.2 AP	5.5 A
TR 3 AP	<b>6.3</b> A
TR 3	<b>6.3</b> A
TR 4	<b>7.5</b> A

### **CAPACITOR**

MODEL	CAPACITY				
Single-phase (230 V or 240 V)	Capacitance of the operating capacitor	Capacitance of the starting capacitor			
TRm 2.2 AP	<b>60</b> μF 450 VL	<b>120</b> μF 450 VL			

### **PALLETIZATION**

MODEL	PER GROUPAGE
	no. of pumps
TR 2.2 AP	18
TR 3 AP	18
TR 3	18
TR 4	18

## **SEWAGE LIFTING SYSTEM**

#### HORIZONTAL DELIVERY VERSION WITH 34" GUIDE TUBES

For TR 0.75, TR 0.9, TR 1.1, TR 1.3	Code ASSPTRITUS11	DN 2"
For <b>TR 1.5, TR 2.2</b>	Code ASSPTRITUS22	DN 2"

Kit consisting of:

- 1) footing connection
- 2) slide guide (with ring nut and seal for TR 0.75, TR 0.9, TR 1.1, TR 1.3, with screws and seal for TR 1.5 and TR 2.2)
- 3) support for the guide tubes



### **VERTICAL DELIVERY VERSION WITH 34" GUIDE TUBES**

For TR 0.75, TR 0.9, TR 1.1, TR 1.3	Code ASSPTRI- TUS11V	DN 2½"
For <b>TR 1.5, TR 2.2</b>	Code ASSPTRI- TUS22V	DN 21/2"

Kit consisting of:

- 1) footing connection complete with counterflange
- 2) slide guide (with ring nut and seal for TR 0.75, TR 0.9, TR 1.1, TR 1.3, with screws and seal for TR 1.5 e TR 2.2)
- 3) support for the guide tubes



### **ORDERABLE ACCESSORIES**

### **SLIDE GUIDE** (can also be ordered separately)

For <b>TR 0.75, TR 0.9, TR 1.1, TR 1.3</b>	Code ASSFL003
For <b>TR 1.5, TR 2.2</b>	Code ASSFL004

With ring nut and seal for TR 0.75, TR 0.9, TR 1.1, TR 1.3  $\,$ 

With screws and seal for TR 1.5, TR 2.2



For guide tubes Ø ¾"	Code 859SV340INTFA

In order to ensure stability, insert the intermediate support every 2 metres of the guide tube

**GUIDE TUBE** (made of AISI 304 stainless steel)

Guide tube Ø ¾"	Code 54SARTG005

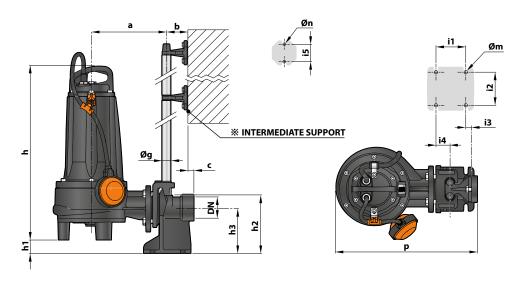
Maximum tube length: 6 metres





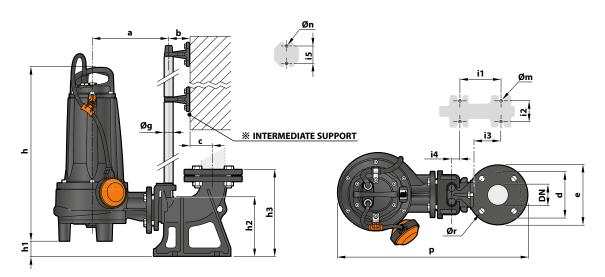


### **DIMENSIONS (horizontal delivery version)**



МО	DEL	PORT	Solids							DIME	NSION	S mm																	
Single-phase	Three-phase	DN	mm	a	b	c	р	h1	h2	h3	i1	i2	i3	i4	i5	Øg	Øm	Øn											
TRm 0.75	TR 0.75				61			50			85		16	40			14	11											
TRm 0.9	TR 0.9	2"		212		17	395		165	120		94			50	3/4"													
TRm 1.1	TR 1.1		Ø7							130																			
TRm 1.3	TR 1.3																												
TRm 1.5	TR 1.5																												
-	TR 2.2	2"	Ø7	215	61	17	400	42.5	165	130	85	94	16	40	50	3/4"	14	11											

### **DIMENSIONS** (vertical delivery version)



МО	PORT	Solids DIMENSIONS mm																			
Single-phase	Three-phase	DN	mm	а	b	c	d	e	р	h1	h2	h3	i1	i2	i3	i4	i5	Øg	Øm	Øn	Ør
TRm 0.75	TR 0.75																				18
TRm 0.9	TR 0.9	21/2"		206	61	51.5	125	165	505	48	163.5 21	.5 215.5 1	120	72	62	3	50	2/4	1.4	11	
TRm 1.1	TR 1.1	21/2			61													3/4	14	11	
TRm 1.3	TR 1.3		Ø7																		
TRm 1.5	TR 1.5															_					
-	TR 2.2	21/2"		211	61	51.5	125	165	514	40	163.5	215.5	120	72	62	3	50	3/4	14	11	18

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## **SEWAGE LIFTING SYSTEM**

### HORIZONTAL DELIVERY VERSION WITH 3/4" GUIDE TUBES

Code ASSPTRITUS61 For TR 2.2. AP, TR 3 AP, TR 3, TR4 DN 2"

Kit consisting of:

- 1) footing connection
- 2) slide guide with screws and seal
- 3) support for the guide tubes



### **VERTICAL DELIVERY VERSION WITH 34" GUIDE TUBES**

Code ASSPTRI-For TR 2.2. AP, TR 3 AP, TR 3, TR4 DN 21/2" TUS61V

Kit consisting of:

- 1) footing connection complete with counterflange
- 2) slide guide with screws and seal
- 3) support for the guide tubes



### **ORDERABLE ACCESSORIES**

**SLIDE GUIDE** (can also be ordered separately)

For TR 2.2. AP, TR 3 AP, TR 3, TR4 Code ASSFL014

With screws and seal



**INTERMEDIATE SUPPORT** (on request)

Code 859SV340INTFA For guide tubes Ø 3/4"

In order to ensure stability, insert the intermediate support every 2 metres of the guide tube

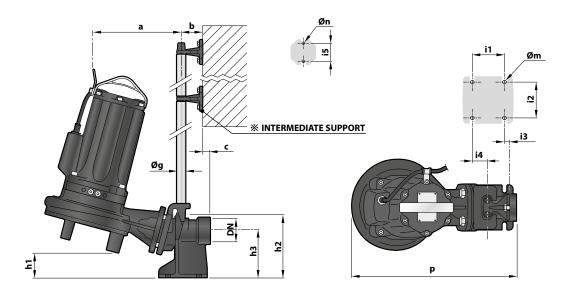
**GUIDE TUBE** (made of AISI 304 stainless steel)

Guide tube Ø 34" Code 54SARTG005

Maximum tube length: 6 metres

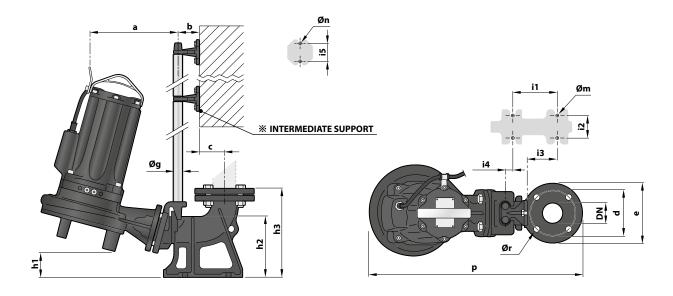


### **DIMENSIONS (horizontal delivery version)**



MODEL	PORT	Solids							DIME	NSION	S mm						
	DN	mm	a	b	c	р	h1	h2	h3	i1	i2	i3	i4	i5	Øg	Øm	Øn
TR 2.2. AP			228														
TR 3 AP	2"	2" Ø 7		<u></u>	17	455		1.55	120	0.5	0.4	16	40	F0	2/4	14	1.1
TR 3			238	61	17	455	71	165	130	85	85 94		40	50	3/4	14	11
TR 4																	

### **DIMENSIONS** (vertical delivery version)

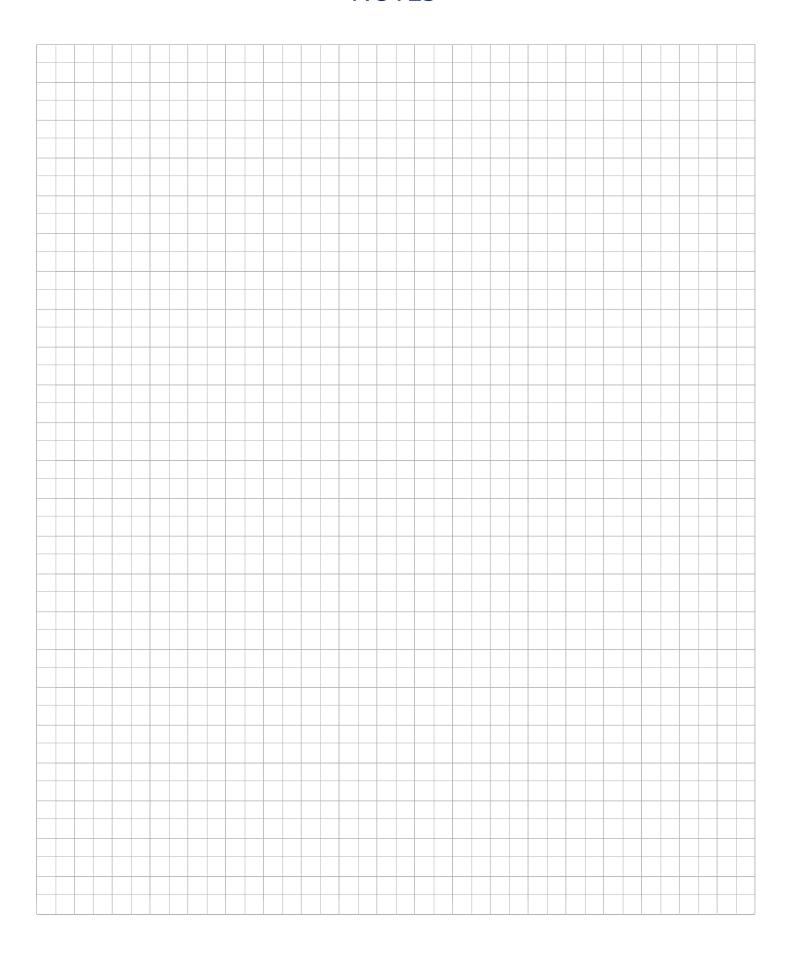


MODEL	PORT	Solids								DI	MENSI	ONS r	nm									
	DN	mm	а	b	c	d	e	р	h1	h2	h3	i1	i2	i3	i4	i5	Øg	Øm	Øn	Ør		
TR 2.2. AP			225																			
TR 3 AP	21/ !!	a=			F1 F	125	165	560	60	162.5	2155	120	70	63	3	F0	2/4	1.4	11	10		
TR 3	21/2"	Ø7	235	235	235	61	51.5	125	165	569	69	163.5	63.5 215.5	5.5 120	72	62	3	50	3/4	14	11	18
TR 4																						

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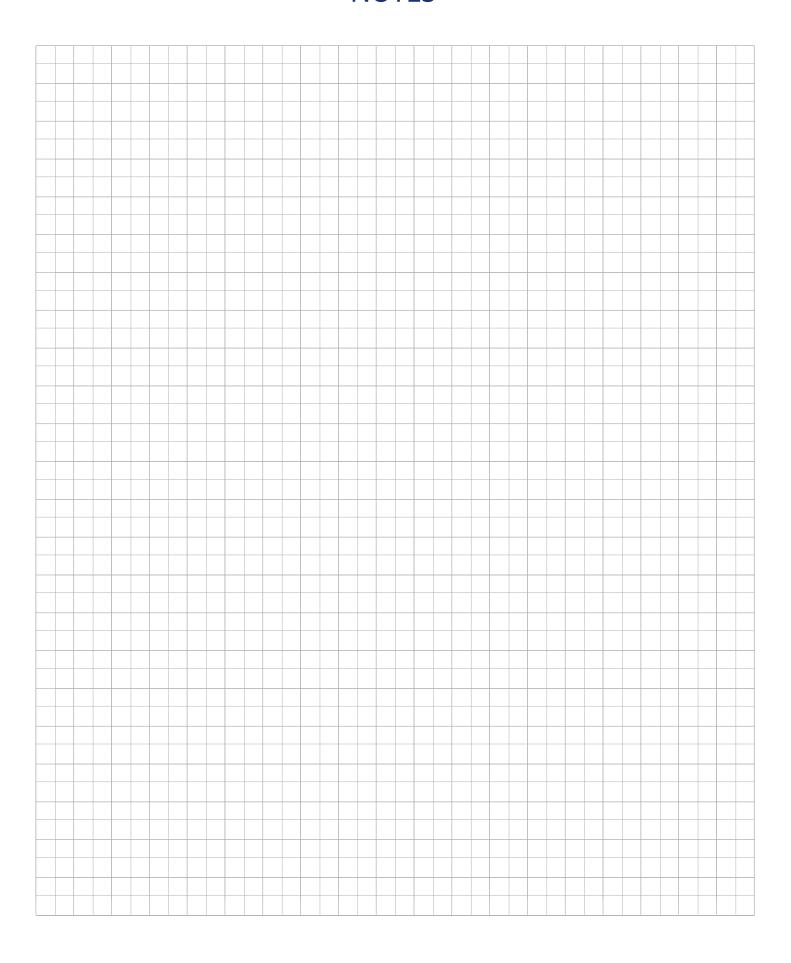


# **NOTES**





# **NOTES**



The data contained in this publication are not to be considered binding.

Pedrollo S.p.A. reserves the right to make any changes it deems appropriate to improve its production. **MADE IN ITALY** Pedrollo S.p.A.

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