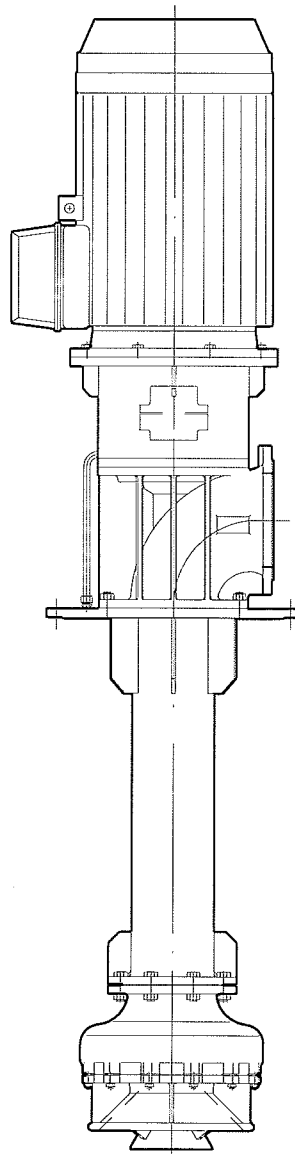


# VST Series

Vertical semi-submersible pumps

OPERATION AND INSTRUCTION MANUAL



**bombas  
azcúe s.a.**



pumps

pumpen

**azcue**

bombas

pompes

## DECLARATION OF CONFORMITY

We **BOMBAS AZCUE, S.A.**, declare under our sole responsibility that the products of the following series :

- **CM**      - **VM**      - **VR**      - **AN**      - **MN**      - **LN**      - **BOB**
- **VB**      - **CP**      - **LD**      - **CA**      - **MO**      - **BR**      - **MA**
- **VRX**    - **BTR**    - **C**       - **MVC**    - **VSS**    - **VST**    - **BT**
- **YE**      - **KB**      - **KL**      - **RA**      - **RKZ**    - **BLOC**   - **VAC**
- **BS**      - **S**

to which this declaration relates are in conformity with the laws of the EEC relating to :

- Machinery (2006/42/EC).
- Standard used : EN 809: 1998
- Electromagnetic compatibility (2004/108/EC)
- Standards used : EN 60204-1: 1997 and EN 60034-1
- Electrical equipment designed for use with certain voltage limits (2006/95/EC)

## DÉCLARATION DE CONFORMITÉ

Nous **BOMBAS AZCUE, S.A.**, déclarons sous notre seule responsabilité, que les produits des séries suivantes :

- **CM**      - **VM**      - **VR**      - **AN**      - **MN**      - **LN**      - **BOB**
- **VB**      - **CP**      - **LD**      - **CA**      - **MO**      - **BR**      - **MA**
- **VRX**    - **BTR**    - **C**       - **MVC**    - **VSS**    - **VST**    - **BT**
- **YE**      - **KB**      - **KL**      - **RA**      - **RKZ**    - **BLOC**   - **VAC**
- **BS**      - **S**

auxquels se réfère cette déclaration, sont conformes à la législation CEE relatives a :

- Machines (2006/42/CE).
- Standard utilisé : EN 809: 1998
- Compatibilité électromagnétique (2004/108/CE)
- Standards utilisés : EN 60204-1 : 1997 et EN 60034-1
- Matériel électrique destiné à employer dans certaines limites de tension (2006/95/EC)

## DECLARACIÓN DE CONFORMIDAD

Nosotros, **BOMBAS AZCUE, S.A.**, declaramos bajo nuestra única responsabilidad que los productos de las series siguientes :

- **CM**      - **VM**      - **VR**      - **AN**      - **MN**      - **LN**      - **BOB**
- **VB**      - **CP**      - **LD**      - **CA**      - **MO**      - **BR**      - **MA**
- **VRX**    - **BTR**    - **C**       - **MVC**    - **VSS**    - **VST**    - **BT**
- **YE**      - **KB**      - **KL**      - **RA**      - **RKZ**    - **BLOC**   - **VAC**
- **BS**      - **S**

a los cuales se refiere esta declaración, son conformes con la legislación de la CEE sobre :

- Máquinas (2006/42/CE).
- Norma aplicada : EN 809: 1998
- Compatibilidad electromagnética (2004/108/CE)
- Normas aplicadas : EN 60204-1: 1997 y EN 600034-1
- Material eléctrico destinado a utilizarse con determinados límites de tensión (2006/95/EC)



Arrona, 12/02/2010

Luis Zendoia  
Technical Manager



# WARRANTY

## WARRANTY CONDITIONS

*BOMBAS AZCUE, S.A., warrants the quality of its products for a period of twelve months, from the date the equipment is delivered to the customer.*

*The warranty comprehends the exchange or the replacement of any part or assembly that the technical services of BOMBAS AZCUE, S.A. could find defective, due to inefficient design, manufacturing of material failure.*

*The disassembly and assembly shall be carried out at the customer's expense, as well as the transport in both directions, which will be invoiced at cost price.*

*The warranty claims will always be done by letter, indicating the type and number of the pump or motor-pump unit, date of delivery and the Sales Agency where it was purchased. The claim may be formulated, either through the Agency or directly to BOMBAS AZCUE, S.A.*

*BOMBAS AZCUE, S.A., does not carry any responsibility over the accidents negligence or abnormal wear in the pump, no matter where the origin of these is, such as unreliable personnel, for having it run dry or pumped water or other products with solutions or materia in suspension, not specified in offer and order.*

*All warranty on rectifications or repairs, conducted without our previous consent, shall be refused as well.*

*In the motor-pump units, our warranty conditions will only be valid when the electrical installation is provided with motor protecting thermal relay, calibrated fuses and discharge shut-off valve on pump outlet, in order to regulate the capacity and so, the motor consumed amperage to the value marked on the motor plate.*

*The repairs or the replacement of the parts under warranty, cannot in any case, extend the expire of the warranty. The pumps or motor-pump units already in use, are not under warranty.*

*The illustrations and data shown in this manual or in publicity catalogues, are not binding.*

*BOMBAS AZCUE, S.A., reserves the right to introduce without any previous notice, and at any moment, the eventual modifications it considers adequate, this being due to market or constructive difficulties without being for that obliged to include the above changes or improvements in all the pumps or motor-pump units actually in the customer's hands or out of the factory.*

## DESCRIPTION AND GENERALITIES

The pump is a centrifugal type lubricating oil pump. It is designed for vertical mounting in a tank.

### Lower bearing

The bearing, always lubricated by the pumped oil, is of bronze bushing type. The shaft is equipped with a hardened replaceable wear ring.

### Upper bearings

The upper bearings consist of two double contact roller bearings lubricated by the pumped oil. They are easy to inspect and to dismantle.

### Pump inlet

The inlet part is specially designed to avoid prerotation of the oil and to ensure that air entrained or solved in the oil is not disturbing the pump function.

### Impeller

The impeller is fixed to the shaft by a key and a threeway locking hub. It is hydraulically balanced releasing the upper ball bearings from order loads than the static weight of the shaft and the pump impeller.

### Fixation flange

The pump is fixed to the tank top trunk through a flange of standard DIN design. This permits the yard to use standard counter flanges and gaskets. The flange is reinforced to withstand vibrations.

### Sealings

The main sealing-unloaded from pump pressure by means of a bushing and a drain pipe to the oil tank- is a radial sealing lubricated by the oil. In order to prevent bilgewater on the top of the tank to penetrate into the oil tank by the still standing standby pump it is additionally equipped with a sealing of V-type.



**bombas  
azcue s.a.**

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DIRECCION POSTAL: Apartado 34.  
20750 ZUMAIA (Guipuzcoa) España

## Coupling

As a transmission piece, it needs some attentions to avoid friction, noise and wear.

Although they are duly aligned on the factory, this point must be checked after pump set installation, as pipe stress or knocks can cause coupling misalignment.

For checking, it is necessary to do as follows:

Check the radial alignment. Maximum allowed misalignment 0,5 mm.

Check the coupling clearance with a thickness gauge. It must be the same in all perimeter. Clearance 2-3mm.

## Lantern piece

Adaptable for all IEC-type of motors. The lantern piece is also equipped with lifting hooks for the pump.

## MOUNTING AND CONNECTION

### Mounting

The pump should always be placed on a stable foundation and mounted so that the pump casing is always in the oil. When mounting the pumps on board ship the oil level in the tank should also be above the pump when the ship rolls. The lubricating oil pump should be designed so that the circulating oil is deaerated efficiently before it is drawn into the pump again.

### Pipe connections

The pipe connections must not cause any strait on the pump. They should therefore be supported as close to the pump as possible. The sealing a valve close to the pump. This valve should also operate as a check valve in order to prevent return flow. Before the diesel engine the pipe must have a regulating valve which can be locked in the required position.

### Pressure Gauge Connections

BSP 1/2" connection for pressure gauge on the delivery branch.

## STARTING AND OPERATION

**The pump must never be run without liquid.**

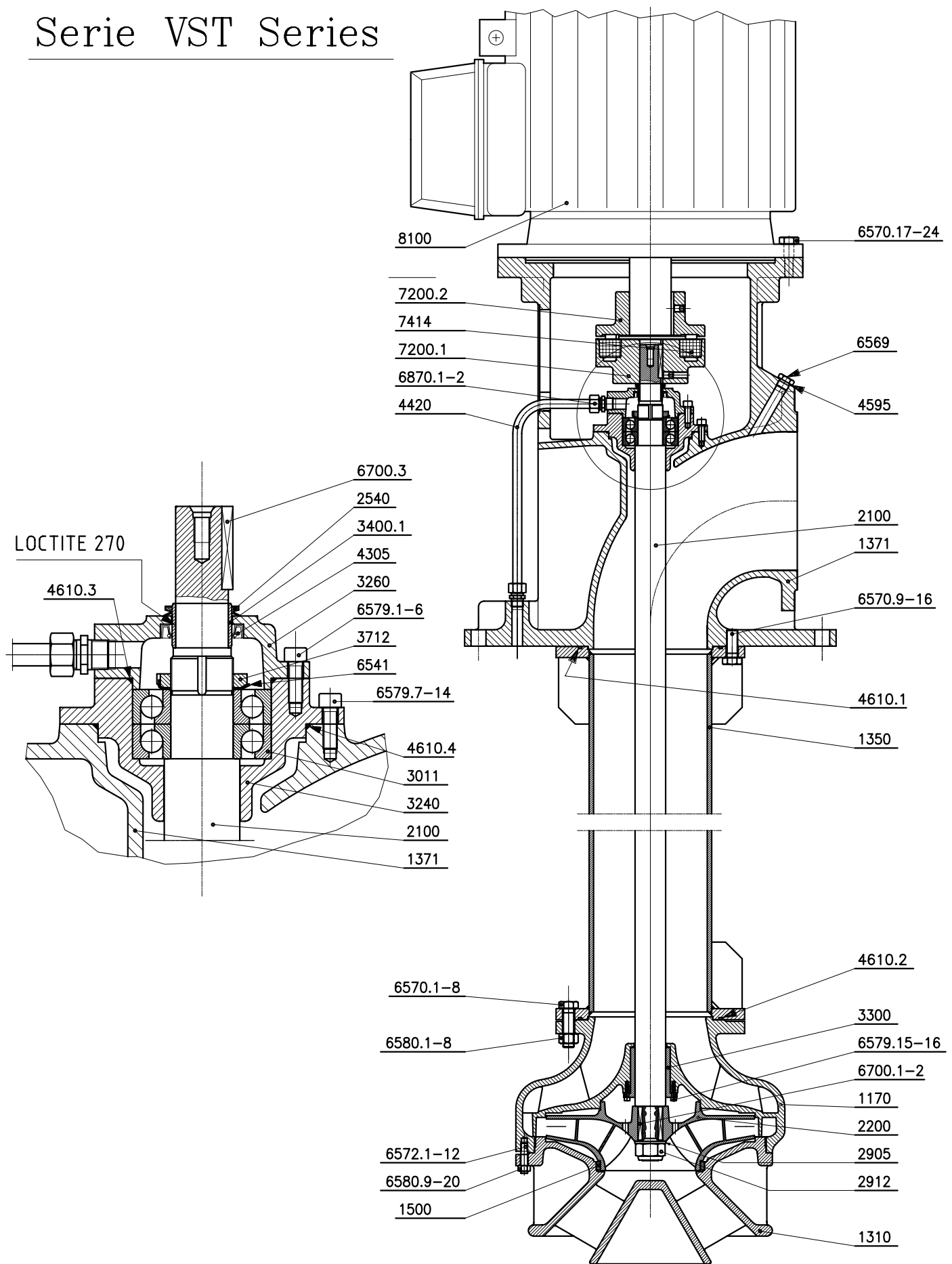
### Starting

- ⇒ Pipes and pump must be clean before the pump is started.
- ⇒ 1 Close the valve on the delivery side of the delivery side of the pump.
- ⇒ 2 Check de direction of rotation.
- ⇒ Start and stop the motor quickly and check that the direction of rotation corresponds with the arrow on the motor frame.
- ⇒ Change over two phase wires in the terminal box, should the direction be wrong.
- ⇒ Check that the guard over the transmission is fitted.
- ⇒ Start the pump.
- ⇒ Open the valve on the delivery side of the pump.

### Measures to be Taken During Operation

The volumetric flow is a regulated by means of the he valve on the delivery side of the pump.  
No special supervision is required during operation.  
The bearings are lubricated by the pumped lubricating oil.

# Serie VST Series



Dibujado	Aguirre	30-8-05
Comprobado	Artetxe	30-8-05

Escala

**Semisubmersed vertical pump**  
**Bomba vertical semisumergida**  
**Pompe verticale semi-immerge**



**azcue**

N. VST-375-M

Item	DENOMINACION / DESCRIPTION / DENOMINATION	Ref.
1	Cuerpo de alabes directrices / Pump bowl / Corps redresseur	1170
2	Campana de aspiracion / Bellmouth / Tulipe d'aspiration	1310
3	Tubo de descarga / Rising main / Tube de colonne montante	1350
4	Codo de salida / Delivery elbow / Coude de refoulement	1371
5	Anillo de desgaste / Casing wear ring / Bague d'usure	1500
6	Eje / Shaft / Arbre	2100
7	Rodete / Impeller / Roue	2200
8	Deflector / Thrower / Deflecteur	2540
9	Arandela / Washer / Rondelle	2905
10	Tuerca de bloqueo del rodete / Impeller nut / Ecrou de blocage de roue	2912
11	Rodamiento radial de bolas / Radial ball bearing / Roulement a billes	3011
12	Alojamiento del cojinete / Bearing carrier / Boitier de roulement	3240
13	Tapa del soporte / Bearing cover / Couvercle de palier	3260
14	Cojinete / Bearing bush / Coussinet	3300
15	Casquillo del eje para el soporte / Bearing sleeve / Chemise d'arbre du palier	3400.1
16	Tuerca del cojinete / Bearing nut / Ecrou de roulement	3712
17	Anillo de estanqueidad del eje / Shaft seal ring / Bague d'etancheite d'arbre	4305
18	Tuberia del liquido de cierre / Sealing pipe / Tuyauterie du liquide de barrage	4420
19	Junta circular / Joint ring circular Joint circulaire	4595
20	Junta torica / O-ring / Joint torique	4610.1
21	Junta torica / O-ring / Joint torique	4610.2
22	Junta torica / O-ring / Joint torique	4610.3
23	Junta torica / O-ring / Joint torique	4610.4
24	Anillo de seguridad / Lockwasher / Frein d'ecrou	6541
25	Tapon / Plug / Bouchon	6569
26	Tornillo / Screw / Vis	6570.1-8
27	Tornillo / Screw / Vis	6570.9-16
28	Tornillo / Screw / Vis	6570.17-24
29	Esparrago / Stud / Goujon filete	6572.1-12
30	Tornillo de exagono interior / Socket head cap screw / Boulon a six pans creux	6579.1-6
31	Tornillo de exagono interior / Socket head cap screw / Boulon a six pans creux	6579.7-14
32	Tornillo de exagono interior / Socket head cap screw / Boulon a six pans creux	6579.15-16
33	Tuerca / Nut / Ecrou	6580.1-8
34	Tuerca / Nut / Ecrou	6580.9-20
35	Chaveta / Key / Clavette	6700.1-2
36	Chaveta / Key / Clavette	6700.3
37	Union para tubos / Pipe union / Raccord de tuyauterie	6870.1-2
38	Semi-acoplamiento / Coupling half / Demi-accouplement	7200.1
39	Semi-acoplamiento / Coupling half / Demi-accouplement	7200.2
40	Amortiguador del acoplamiento / Coupling bush / Garniture de broche d'accouplement.	7414
41	Motor / Moteur	8100

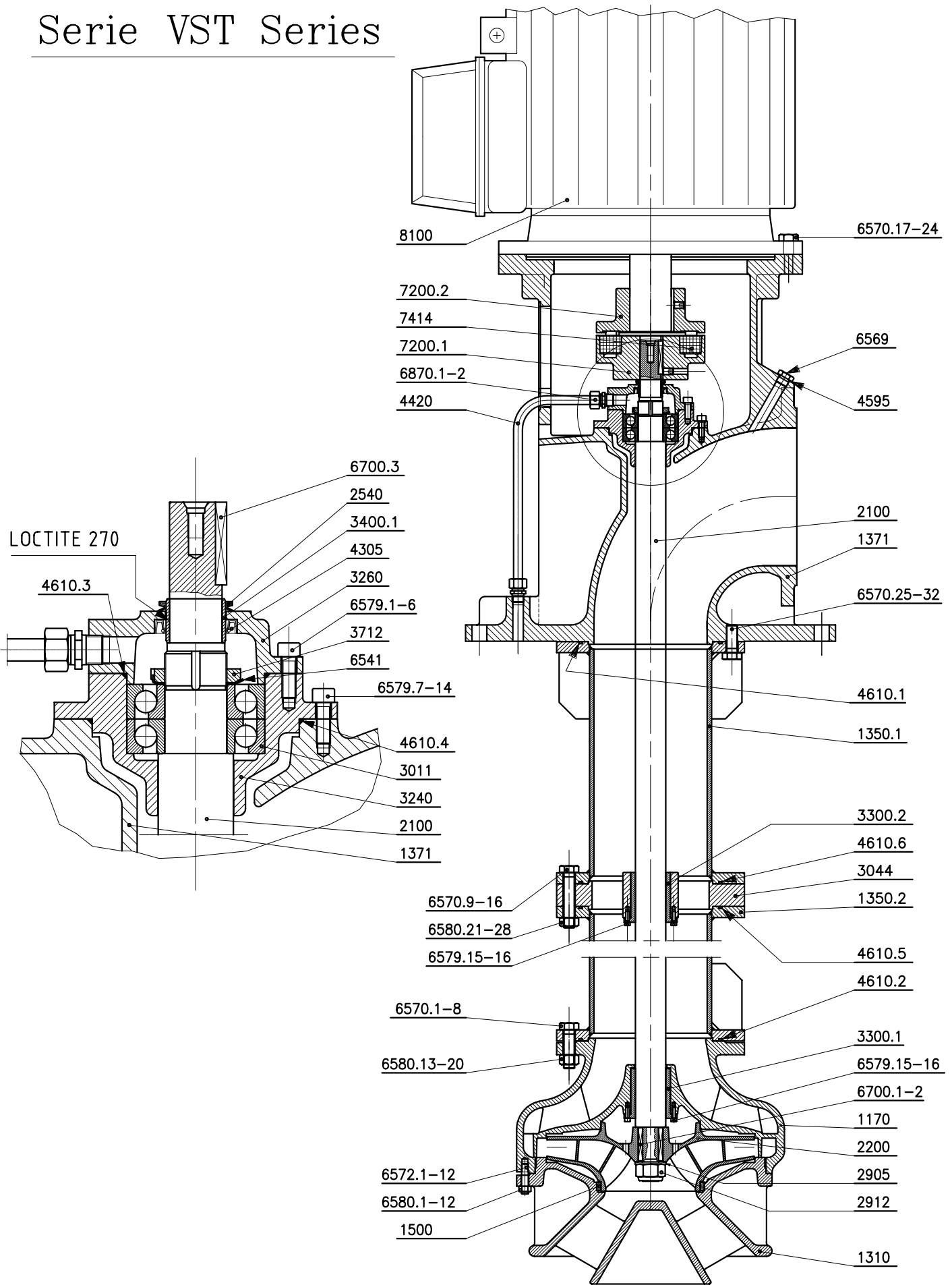
Dibujado	Artetxe	30-8-05
Comprobado	Aguirre	30-8-05

N. VST-375-M





# Serie VST Series



Dibujado	Aguirre	30-8-05
Comprobado	Artetxe	30-8-05


Escala

**Semisubmersed vertical pump**  
**Bomba vertical semisumergida**  
**Pompe verticale semi-immerge**

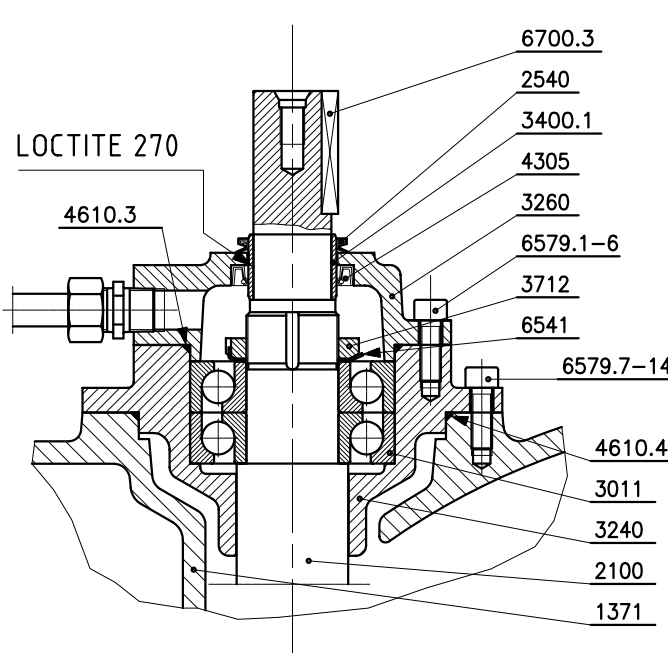
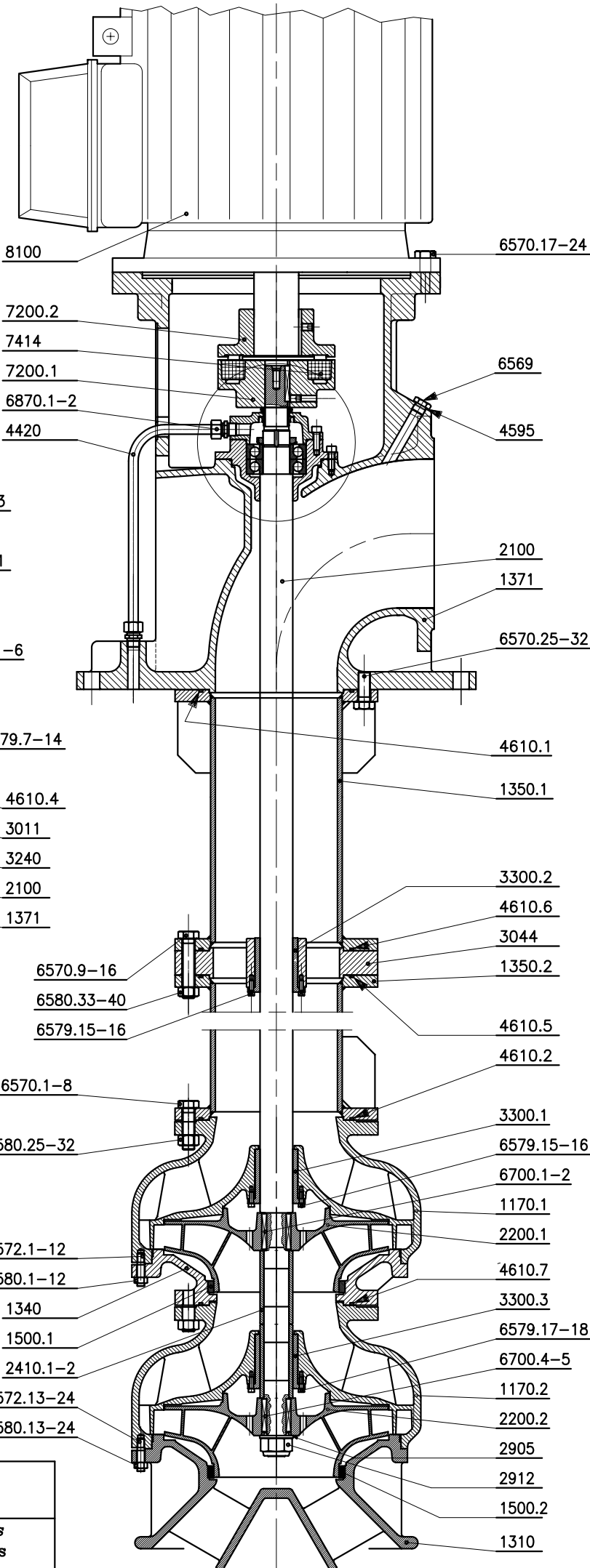


N. VST-376-M

DENOMINACION / DESCRIPTION / DENOMINATION	Ref.
Cuerpo de alabes directrices / Pump bowl / Corps redresseur	1170
Campana de aspiracion / Bellmouth / Tulipe d'aspiration	1310
Tubo de descarga / Rising main / Tube de colonne montante	1350.1
Tubo de descarga / Rising main / Tube de colonne montante	1350.2
Codo de salida / Delivery elbow / Coude de refoulement	1371
Anillo de desgaste / Casing wear ring / Bague d'usure	1500
Eje / Shaft / Arbre	2100
Rodete / Impeller / Roue	2200
Deflector / Thrower / Deflecteur	2540
Arandela / Washer / Rondelle	2905
Tuerca de bloqueo del rodete / Impeller nut / Ecrou de blocage de roue	2912
Rodamiento radial de bolas / Radial ball bearing / Roulement a billes	3011
Soporte intermedio / Intermediate bearing / Palier intermédiaire	3044
Alojamiento del cojinete / Bearing carrier / Boitier de roulement	3240
Tapa del soporte / Bearing cover / Couvercle de palier	3260
Cojinete / Bearing bush / Coussinet	3300.1-2
Casquillo del eje para el soporte / Bearing sleeve / Chemise d'arbre du palier	3400.1
Tuerca del cojinete / Bearing nut / Ecrou de roulement	3712
Anillo de estanqueidad del eje / Shaft seal ring / Bague d'étancheité d'arbre	4305
Tubería del líquido de cierre / Sealing pipe / Tuyauterie du liquide de barrage	4420
Junta circular / Joint ring circular Joint circulaire	4595
Junta torica / O-ring / Joint torique	4610.1-2
Junta torica / O-ring / Joint torique	4610.3
Junta torica / O-ring / Joint torique	4610.4
Junta torica / O-ring / Joint torique	4610.5-6
Anillo de seguridad / Lockwasher / Frein d'ecrou	6541
Tapon / Plug / Bouchon	6569
Tornillo / Screw / Vis	6570.1-8
Tornillo / Screw / Vis	6570.9-16
Tornillo / Screw / Vis	6570.17-24
Tornillo / Screw / Vis	6570.25-32
Esparrago / Stud / Goujon filete	6572.1-12
Tornillo de exagono interior / Socket head cap screw / Boulon a six pans creux	6579.1-6
Tornillo de exagono interior / Socket head cap screw / Boulon a six pans creux	6579.7-14
Tornillo de exagono interior / Socket head cap screw / Boulon a six pans creux	6579.15-16
Tuerca / Nut / Ecrou	6580.1-12
Tuerca / Nut / Ecrou	6580.13-20
Tuerca / Nut / Ecrou	6580.21-28
Chaveta / Key / Clavette	6700.1-2
Chaveta / Key / Clavette	6700.3
Union para tubos / Pipe union / Raccord de tuyauterie	6870.1-2
Semi-acoplamiento / Coupling half / Demi-accouplement	7200.1
Semi-acoplamiento / Coupling half / Demi-accouplement	7200.2
Amortiguador del acoplamiento / Coupling bush / Garniture de broche d'accouplement.	7414
Motor / Moteur	8100


Dibujado	Artetxe	30-8-05	N. VST-376-M	 <b>azcue</b>
Comprobado	Aguirre	30-8-05		

# Serie VST Series



Dibujado	Aguirre	27-5-09	<b>N. VST-391-M</b>
Comprobado	Artetxe	27-5-09	
Escala	<b>Semisubmersed vertical pump 2 stages</b> <b>Bomba vertical semisumergida 2 etapas</b> <b>Pompe verticale semi-immersee 2 étapes</b>		

DENOMINACION / DESCRIPTION / DENOMINATION	Ref.
Cuerpo de alabas directrices / Pump bowl / Corps redresseur	1170.1-2
Campana de aspiracion / Bellmouth / Tulipe d'aspiration	1310
Pieza de union / Adaptor connection piece / Manchette de raccordement	1340
Tubo de descarga / Rising main / Tube de colonne montante	1350.1
Tubo de descarga / Rising main / Tube de colonne montante	1350.2
Codo de salida / Delivery elbow / Coude de refoulement	1371
Anillo de desgaste / Casing wear ring / Bague d'usure	1500.1-2
Eje / Shaft / Arbre	2100
Rodete / Impeller / Roue	2200.1-2
Casquillo entre estadios / Interstage sleeve / Chemise-entretoise	2410.1-2
Deflector / Thrower / Deflecteur	2540
Arandela / Washer / Rondelle	2905
Tuerca de bloqueo del rodete / Impeller nut / Ecrou de blocage de roue	2912
Rodamiento radial de bolas / Radial ball bearing / Roulement a billes	3011
Soporte intermedio / Intermediate bearing / Palier intermédiaire	3044
Alojamiento del cojinete / Bearing carrier / Boitier de roulement	3240
Tapa del soporte / Bearing cover / Couvercle de palier	3260
Cojinete / Bearing bush / Coussinet	3300.1-3
Casquillo del eje para el soporte / Bearing sleeve / Chemise d'arbre du palier	3400.1
Tuerca del cojinete / Bearing nut / Ecrou de roulement	3712
Anillo de estanqueidad del eje / Shaft seal ring / Bague d'etancheite d'arbre	4305
Tuberia del liquido de cierre / Sealing pipe / Tuyauterie du liquide de barrage	4420
Junta circular / Joint ring circular Joint circulaire	4595
Junta torica / O-ring / Joint torique	4610.1-2
Junta torica / O-ring / Joint torique	4610.3
Junta torica / O-ring / Joint torique	4610.4
Junta torica / O-ring / Joint torique	4610.5-6
Junta torica / O-ring / Joint torique	4610.7
Anillo de seguridad / Lockwasher / Frein d'ecrou	6541
Tapon / Plug / Bouchon	6569
Tornillo / Screw / Vis	6570.1-8
Tornillo / Screw / Vis	6570.9-16
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Tornillo de exagono interior / Socket head cap screw / Boulon a six pans creux	6579.7-14
Tornillo de exagono interior / Socket head cap screw / Boulon a six pans creux	6579.15-18
Tuerca / Nut / Ecrou	6580.1-24
Tuerca / Nut / Ecrou	6580.25-32
Tuerca / Nut / Ecrou	6580.33-40
Chaveta / Key / Clavette	6700.1-2
Chaveta / Key / Clavette	6700.3
Chaveta / Key / Clavette	6700.4-5
Union para tubos / Pipe union / Raccord de tuyauterie	6870.1-2
Semi-acoplamiento / Coupling half / Demi-accouplement	7200.1
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Comprobado	Aguirre	27-5-09		