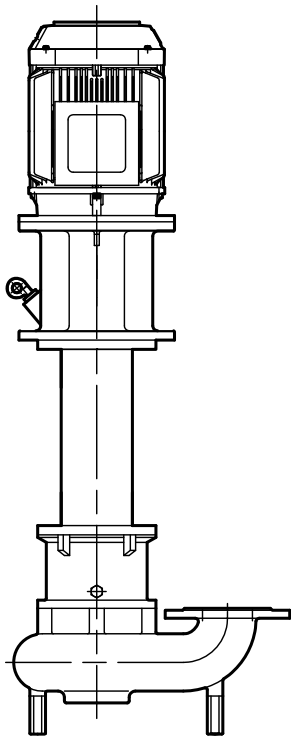


VRX, BTR, VSS Series

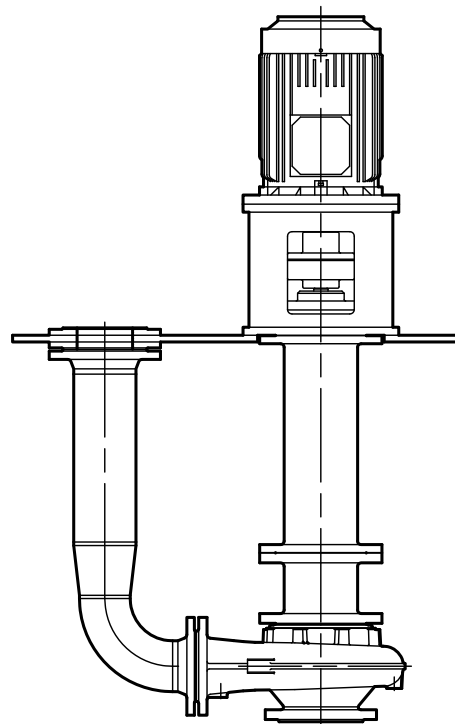
Vertical semi-submersible pumps

INSTRUCTION MANUAL

VRX Series



BTR Series



VSS Series



GARANTIA

CONDICIONES DE LA GARANTIA

BOMBAS AZCUE, S.A., garantiza la calidad de sus fabricados por un período de doce meses partir de la fecha de entrega del material al cliente.

La garantía comprende al cambio o reposición sin cargo, de toda pieza o conjunto que sea reconocido por los servicios técnicos de BOMBAS AZCUE, S.A., como defectuosa por deficiencia de proyecto, fabricación o fallo de material.

El desmontaje y montaje correrán a cargo del cliente, así como el transporte en ambos sentidos, los cuales serán facturados al precio de coste.

La reclamación de la garantía se efectuará siempre por escrito, indicando el tipo y número de la bomba o grupo moto-bomba, fecha de entrega y agente de venta donde lo adquirió. La reclamación puede hacerse tanto a través del agente de venta como directamente a BOMBAS AZCUE, S.A.

BOMBAS AZCUE, S.A., declina toda responsabilidad por los accidentes, negligencias y desgastes anormales en la bomba, provocados por personal incompetente, por haber trabajado sin líquido, o bombeado aguas u otros productos con soluciones o materias en suspensión no detallados en oferta y pedido.

Asimismo se rechazará toda garantía por reparaciones o transformaciones, efectuadas sin nuestro previo consentimiento.

En los grupos motobombas eléctricos, nuestras condiciones de garantía serán válidas únicamente cuando la instalación eléctrica disponga de arrancador guardamotor adecuado con relé térmico de regulación apropiada, fusibles calibrados y llave de compuerta en la tubería de impulsión a la salida de la bomba, para regular el caudal y con ello el consumo del motor al valor en amperios que señala la placa de características.

La reparación o el cambio de las piezas en garantía no puede en ningún caso prolongar o renovar la fecha de la misma. No se concede garantía para las bombas o grupos motobombas usados.

Las ilustraciones y datos contenidos en este manual o en folletos de propaganda son sin compromiso.

BOMBAS AZCUE, S.A., se reserva el derecho de introducir sin previo aviso y en cualquier momento las eventuales modificaciones que crea oportunas por exigencias comerciales o constructivas, sin que por ello, se vea obligada de incluir las modificaciones o mejoras en todas las bombas o grupos motobombas en poder del cliente o fuera de fábrica.

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 wrong design, manufacturing or 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.



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



0 DESCRIPTION AND GENERALITIES

0.1. VRX Series

Vortex impeller with total passage, for muddy waters.

0.2. VSS Series

Centrifugal, closed impeller for clear liquids.

0.3 General description

Submersed pump with motor on surface, with intermediate connection column in different heights, depending on the pit or well depth.

The shaft is assembled with one ball bearing on the upper part, lubricated by grease and one friction bearing, with interchangeable chromed jacket in oil bath, on the lower part. The mechanical seal is also in oil bath. All these features make this pump able to work "dry". That means, they can be running without any liquid pumping. This is an important option when pit or well capacity is small. The pump can be continuously running without any need for level switches, nor many pump starts-stops, and therefore having less energy consumption and less possibilities of pump failure. A flexible coupling connects the pump and motor shafts.

1 CONSTRUCTIVE FEATURES

1.1 Maximum fluid temperature

Standard version: 90 C.

Under requirement: 130 C.

1.2 Shaft seal

Mechanical seal.

1.3 Rotating sense

Clockwise, seen from the motor.

1.4 Rotating speeds

1450, 2900 rpm, for 50 Hz.

1750, 3500 rpm, for 60 Hz.

1.5 Driving

By electric motors, according to IEC, V1 execution.



They can also be driven by pulley and v-bet, hydraulic motor, mechanical or electromagnetic cluthor by diesel or petrol engines.

1.6 Connection flanges

Up to size DN 150 included: DIN 2501 PN 16.
From size DN 200 included : DIN 2501 PN 10.

1.7 Materials

| | | |
|---|---|--|
| Pump casing Cuerpo de bomba | Bronce Bronze G-CuSn5ZnPb (Rg5) | GG25 |
| Impeller Rodete | Bronce Bronze G-CuSn5ZnPb (Rg5) | GG25 |
| Casing cover Tapa del cuerpo | Bronce Bronze G-CuSn5ZnPb (Rg5) | GG25 |
| Shaft Eje | Acero inox.St. steel X5CrNiMo18.10 (Aisi 316) | Acero inox.St.Steel X5CrNiMo18.10 (Aisi 316) |

Under requirement the pump components are available in diferent materials as nodular cast iron, stainless steel, other kinds of bronze, etc.

2 INSTALLATION

2.1 Protecting covers

All pumps are supplied with all inner parts duly lubricated and with protecting covers on suction and discharge flanges. These protections must be removed on the latest possible moment, to avoid foreig matters entrance as weld bits, electrode waste and so, which can put the pump out of operation immediatelly.

2.2 Pipe connection

As a general rule, pipe flange diameters should not only be sized by the suction and discharge flanges. Maximum fluid speed on suction pipe should never be more than 2 m/s. Pipes inside part must be carefully cleaned after installation, to eliminate weld bits, iron



azcue

rust, etc. Also, they have to be connected without stress which may cause strain, breaks or pump set misalignment.

3 STARTING-UP

The pump is supplied **without any lub oil and it must be filled before starting.** The recommended lub oil is SAE30 or equivalent.

Lub oil capacity

| CAPACIDAD / CAPACITY | | | | | |
|--|-------------------------|-----------------|------------------|------------------|------------------|
| Tipo/Type | COLUMNA / COLUMN | | | | |
| | 150 | 300 | 700 | 1100 | 1500 |
| VRX 50/17-80/17 | 2 lts. | 3,3 lts. | 4,2 lts. | 5,1 lts. | 6 lts. |
| VRX 100/23-150/23 | 3,4 lts. | 4,7 lts. | 5,6 lts. | 6,5 lts. | 7,4 lts. |
| VRX 200/30 | - | 12 lts. | 15,6 lts. | 19,3 lts. | 23 lts. |
| VSS 32/160, 32/200, 32/250, 40/125, 40/160, 40/200, 40/250, 50/125, 50/160, 50/200, 50/250, 65/125, 65/160, 65/200, 80/160. | - | 3,3 lts. | 4,2 lts. | 5,1 lts. | 6 lts. |
| VSS 40/315, 50/315, 65/250, 80/200, 80/250, 80/315, 100/160, 100/200, 100/250, 100/315, 125/200, 125/250, 150/200, 150/250 | - | 9,5 lts. | 13,1 lts. | 16,8 lts. | 20,5 lts. |

Check pump rotating sense by setting on operation very shortly.
If there is danger of liquid freezing, pump liquid should be drained.

4. MAINTENANCE

Maintenance during operation.

- Ball bearings supplied are greased on the factory. The ball bearings lubricating grease



should be high quality lithium grease. Under normal conditions, the filling is enough for 15,000 hours or 2 years operation. In case of heavy duty conditions as high temperature, high humidity, dusty air or aggressive industrial environment, they should be controlled, cleaned and lubricated more often. We recommend the following greases:

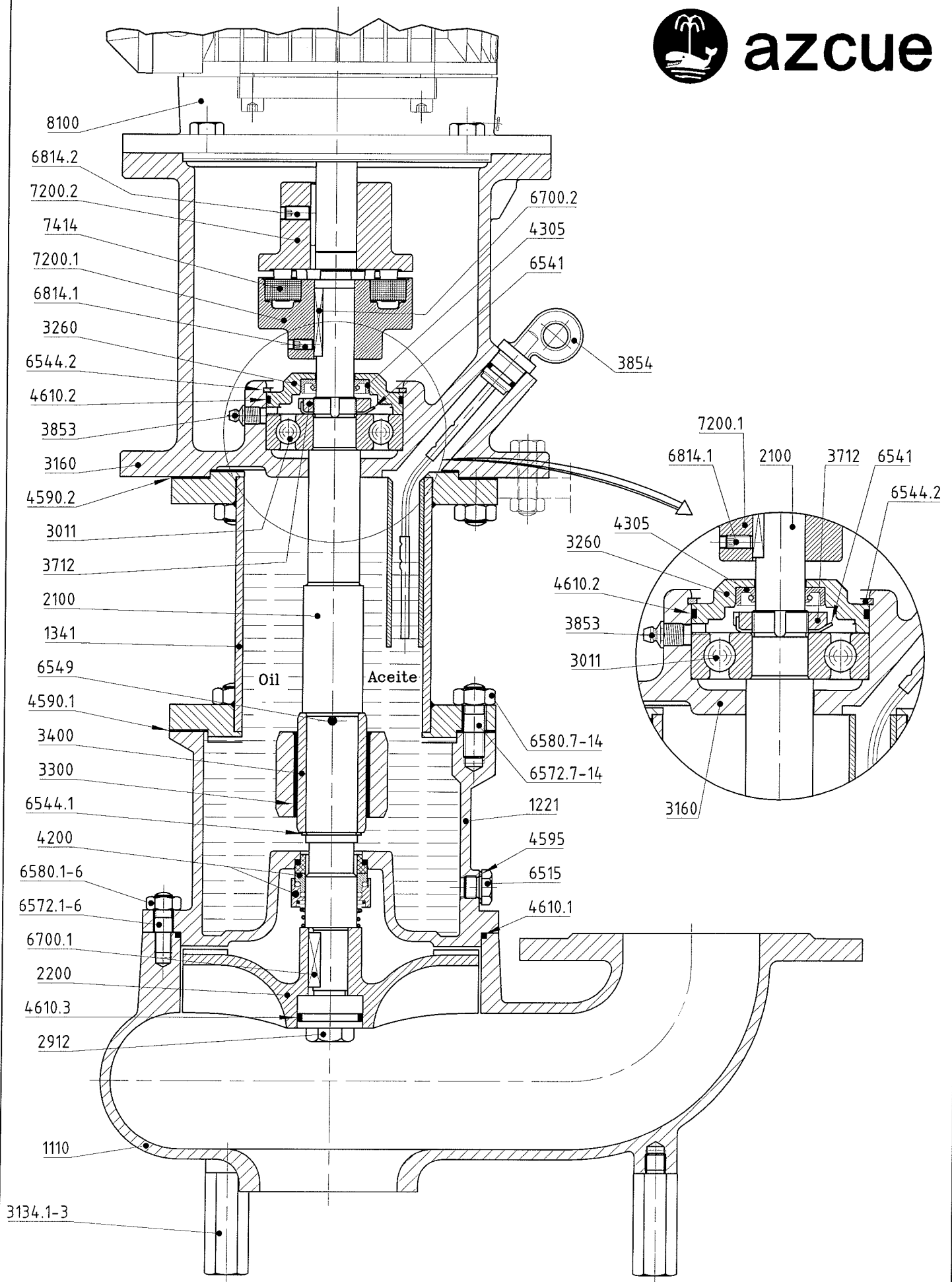
Klüber: Centoplex 2
Shell: Alvania Grease 2 or R2
G.P.M.: Ansulit EP 2
Mobil: Mobilux EP 2
BP: Energrease LS 2

Ball bearing temperature can be 50 C higher than room temperature. However, it must be always below 90 C (measured on ball bearing support outside).

- Shaft sealing: mechanical seal. No maintenance required.
- Reserve pumps should be started once a week.
- Coupling rubber blocks: in case of wear after long time, they should be replaced.
- Check periodically the oil level, which has to be between the maximum and minimum marks.



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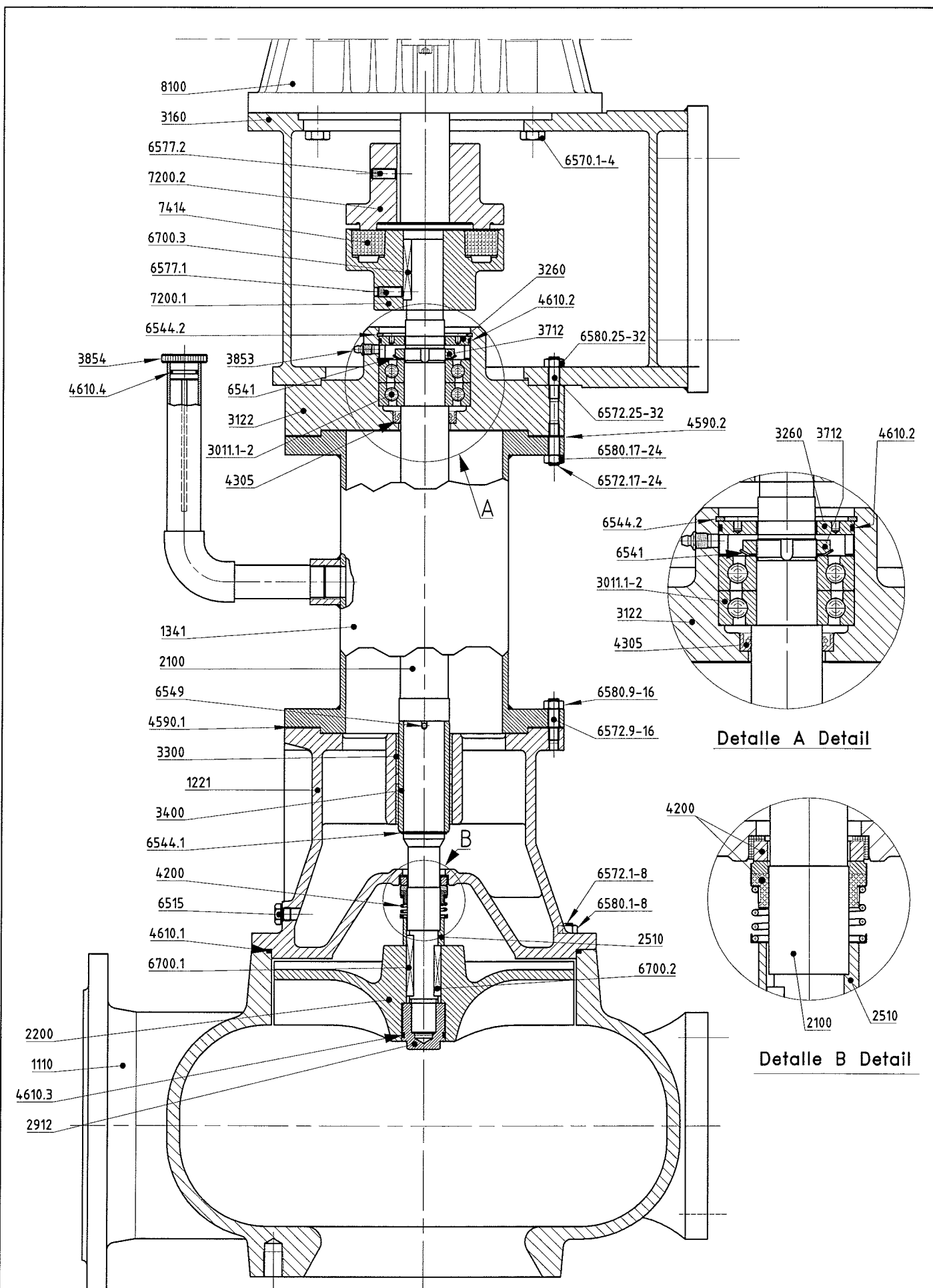
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|--------------------|---------|
| Dibujado Artetxe | 26-6-87 |
| Comprobado Aguirre | 26-6-87 |

VRX Vertical pump assembly
 Despiece de bomba VRX vertical
 Montage pompe VRX vertical

N. VRX-356-M

| DENOMINACION / DESCRIPTION / DENOMINATION | Ref. |
|---|-----------|
| Cuerpo de bomba / Pump casing / Corps de pompe | 1110 |
| Tapa del cuerpo / Casing cover / Couvercle de corps | 1221 |
| Tubo intermedio / Intermediate pipe / Tube intermédiaire | 1341 |
| Eje / Shaft / Arbre | 2100 |
| Rodete / Impeller / Roue | 2200 |
| Tuerca de bloqueo del rodete / Impeller nut / Ecrou de blocage roue | 2912 |
| Rodamiento radial de bolas / Radial ball bearing / Roulement à billes | 3011 |
| Pie de apoyo / Support foot / Béquille | 3134.1.3 |
| Linterna soporte del motor / Motor stool / Lanterne support de moteur | 3160 |
| Tapa del soporte / Bearing cover / Couvercle de palier | 3260 |
| Cojinete / Bearing bush / Coussinet | 3300 |
| Casquillo del eje para el soporte / Bearing sleeve / Chemise d'arbre du palier | 3400 |
| Tuerca del cojinete / Bearing nut / Ecrou de roulement | 3712 |
| Racor de engrase / Grease nipple / Graisseur | 3853 |
| Taón de llenado aceite / Oil filler plug / Bouchon de remplissage d'huile | 3854 |
| Cierre mecánico / Mechanical seal / Garniture mécanique | 4200 |
| Anillo de estanqueidad del eje / Shaft seal ring / Bague d'étanchéité d'arbre | 4305 |
| Junta plana / Gasket / Joint plat | 4590.1-2 |
| Junta circular / Joint ring circular / Joint circulaire | 4595 |
| Junta torica / O-ring / Joint torique | 4610.1 |
| Junta torica / O-ring / Joint torique | 4610.2 |
| Junta torica / O-ring / Joint torique | 4610.3 |
| Tapon de vaciado aceite / Oil drain plug / Bouchon de vidange d'huile | 6515 |
| Anillo de seguridad / Lockwasher / Frein d'écrou | 6541 |
| Circlip | 6544.1 |
| Circlip | 6544.2 |
| Pasador / Split pin / Goupille fendue | 6549 |
| Espárrago / Stud / Goujon fileté | 6572.1.6 |
| Espárrago / Stud / Goujon fileté | 6572.7.14 |
| Tuerca / Nut / Ecrou | 6580.1.6 |
| Tuerca / Nut / Ecrou | 6580.7.14 |
| Chaveta / Key / Clavette | 6700.1 |
| Chaveta / Key / Clavette | 6700.2 |
| Tornillo prisionero / Grub screw / Vis d'arrêt | 6814.1 |
| Tornillo prisionero / Grub screw / Vis d'arrêt | 6814.2 |
| 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'acouplém. | 7414 |
| Motor | 8100 |


| | | | | |
|------------|---------|---------|--------------|--|
| Dibujado | Artetxe | 26-6-87 | N. VRX-356-M |  azcue |
| Comprobado | Aguirre | 26-6-87 | | |



| | | |
|------------|---------|----------|
| Dibujado | Artetxe | 26-01-12 |
| Comprobado | Ruiz | 26-01-12 |

Escala
x/x


VRX 200/30 types vortex pump
Bomba vortex tipo VRX 200/30
VRX 200/30 types vortex pompe

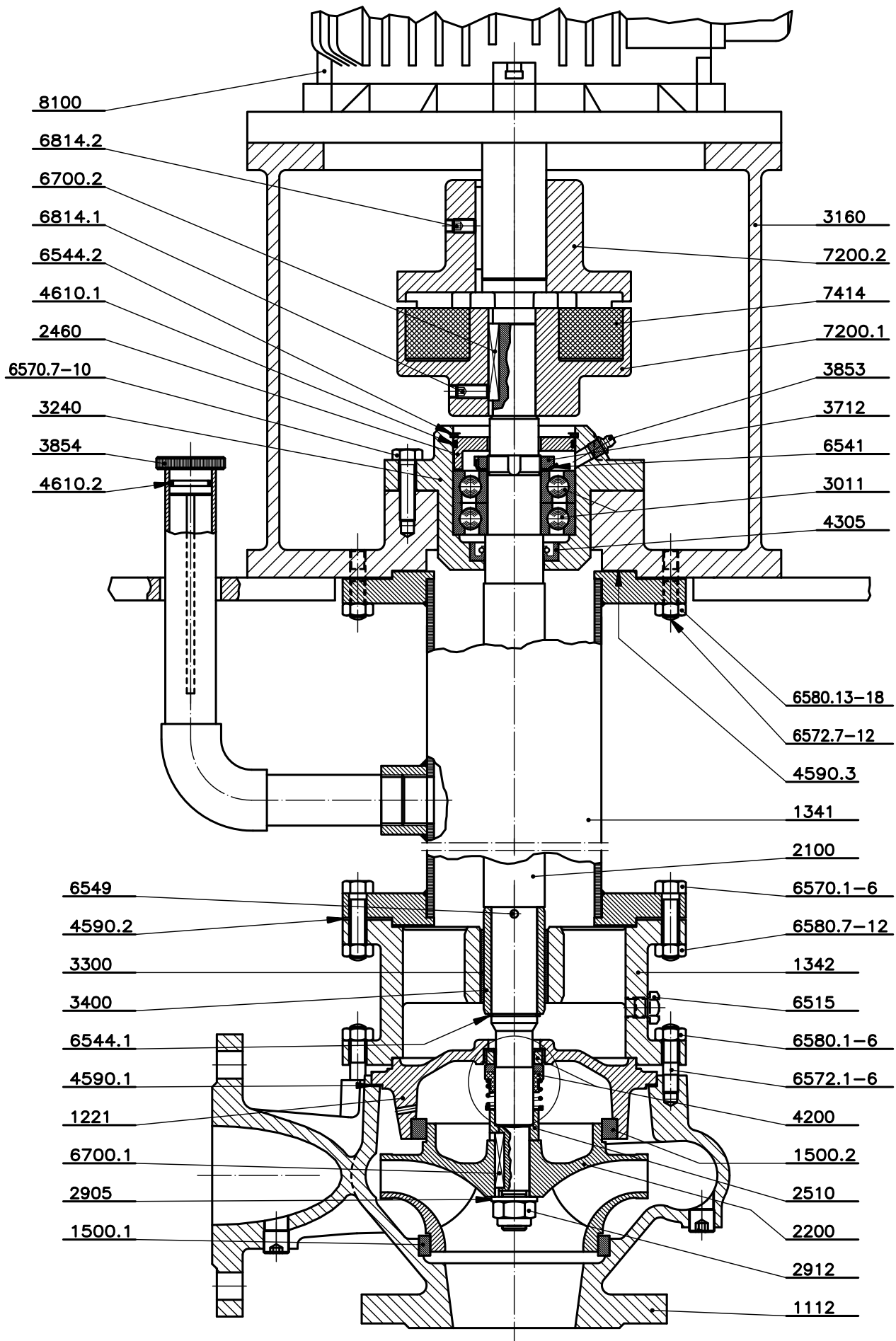


azcue

N. VRX-380-M

| DENOMINACION / DESCRIPTION / DENOMINATION | Ref. |
|---|------------|
| Cuerpo de bomba / Pump casing / Corps de pompe | 1110 |
| Tapa del cuerpo / Casing cover / Couvercle de corps | 1221 |
| Tubo intermedio / Intermediate pipe / Tube intermédiaire | 1341 |
| Eje / Shaft / Arbre | 2100 |
| Rodete / Impeller / Roue | 2200 |
| Anillo distanciador / Spacer ring / Bague-entretoise | 2510 |
| Tuerca de bloqueo del rodete / Impeller nut / Ecrou de blocage roue | 2912 |
| Rodamiento radial de bolas / Radial ball bearing / Roulement à billes | 3011.1-2 |
| Alojamiento del cojinete / Bearing cartridge / Voir | 3122 |
| Linterna soporte del motor / Motor stool / Lanterne support de moteur | 3160 |
| Tapa del soporte / Bearing cover / Couvercle de palier | 3260 |
| Cojinete / Bearing bush / Coussinet | 3300 |
| Casquillo del eje para el soporte / Bearing sleeve / Chemise d'arbre du palier | 3400 |
| Tuerca del cojinete / Bearing nut / Ecrou de roulement | 3712 |
| Racor de engrase / Grease nipple / Graisseur | 3853 |
| Taón de llenado aceite / Oil filler plug / Bouchon de remplissage d'huile | 3854 |
| Cierre mecánico / Mechanical seal / Garniture mécanique | 4200 |
| Anillo de estanqueidad del eje / Shaft seal ring / Bague d'étanchéité d'arbre | 4305 |
| Junta plana / Gasket / Joint plat | 4590.1-2 |
| Junta torica / O-ring / Joint torique | 4610.1 |
| Junta torica / O-ring / Joint torique | 4610.2 |
| Junta torica / O-ring / Joint torique | 4610.3 |
| Junta torica / O-ring / Joint torique | 4610.4 |
| Tapon de vaciado aceite / Oil drain plug / Bouchon de vidange d'huile | 6515 |
| Anillo de seguridad / Lockwasher / Frein d'écrou | 6541 |
| Circlip | 6544.1 |
| Circlip | 6544.2 |
| Pasador / Split pin / Goupille fendue | 6549 |
| Tornillo / Screw / Vis | 6570.1-4 |
| Espárrago / Stud / Goujon fileté | 6572.1-8 |
| Espárrago / Stud / Goujon fileté | 6572.9.16 |
| Espárrago / Stud / Goujon fileté | 6572.17-24 |
| Espárrago / Stud / Goujon fileté | 6572.25-32 |
| Tornillo prisionero / Grub screw / Vis d'arrêt | 6577.1 |
| Tornillo prisionero / Grub screw / Vis d'arrêt | 6577.2 |
| Tuerca / Nut / Ecrou | 6580.1-8 |
| Tuerca / Nut / Ecrou | 6580.9.16 |
| Tuerca / Nut / Ecrou | 6580.17-24 |
| Tuerca / Nut / Ecrou | 6580.25-32 |
| Chaveta / Key / Clavette | 6700.1 |
| Chaveta / Key / Clavette | 6700.2 |
| Chaveta / Key / Clavette | 6700.3 |
| 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'acouplém. | 7414 |
| Motor | 8100 |

| | | | | |
|------------|---------|----------|--------------|--|
| Dibujado | Artetxe | 26-01-12 | N. VRX-380-M |  azcue |
| Comprobado | Ruiz | 26-01-12 | | |



| | | | |
|------------|---|--------|--|
| Dibujado | Artetxe | 3-7-97 | Bombas Azcue, S.A. ARRONA (Guipuzcoa) |
| Comprobado | Aguirre | 3-7-97 | |
| Escala | VSS serie semisubmersed pump Bomba vertical semisumergida serie VSS Pompe verticale semi-immersee serie VSS | | N. VSS-331-M |

| Item | DENOMINACION / DESCRIPTION / DENOMINATION | Ref. |
|------|---|-----------|
| 1 | Voluta / Volute casing / Volute | 1112 |
| 2 | Tapa del cuerpo / Casing / Couvercle | 1221 |
| 3 | Tubo intermedio / Intermediate pipe / Tube intermediaire | 1341 |
| 4 | Linterna intermedia / Intermediate lantern / Lanterne intermediaire | 1342 |
| 5 | Anillo de desgaste / Casing wear ring / Bague d'usure | 1500.1 |
| 6 | Anillo de desgaste / Casing wear ring / Bague d'usure | 1500.2 |
| 7 | Eje / Shaft / Arbre | 2100 |
| 8 | Rodete / Impeller / Roue | 2200 |
| 9 | Casquillo distanciador / Spacer sleeve / Entretoise | 2460 |
| 10 | Anillo distanciador / Spacer ring / Bague-entretoise | 2510 |
| 11 | Arandela / Washer / Rondelle | 2905 |
| 12 | Tuerca de bloqueo del rodete / Impeller nut / Ecrou de blocage roue | 2912 |
| 13 | Rodamiento radial de bolas / Radial ball bearing / Roulement a billes | 3011 |
| 14 | Linterna soporte del motor / Motor stool / Lanterne support de moteur | 3160 |
| 15 | Alojamiento del cojinete / Bearing carrier / Voir | 3240 |
| 16 | Cojinete / Bearing bush / Coussinet | 3300 |
| 17 | Casquillo del eje para el soporte / Bearing sleeve / Chemise d'arbre du palier | 3400 |
| 18 | Tuerca del cojinete / Bearing nut / Ecrou de roulement | 3712 |
| 19 | Engrasador / Oil cup / Graisseur | 3853 |
| 20 | Tapon de llenado de aceite / Oil filler plug / Bouchon de remplissage d'huile | 3854 |
| 21 | Cierre mecanico / Mechanical seal / Garniture mecanique | 4200 |
| 22 | Anillo de estanqueidad del eje / Shaft seal ring / Bague d'etancheite d'arbre | 4305 |
| 23 | Junta plana / Gasket / Joint plat | 4590.1 |
| 24 | Junta plana / Gasket / Joint plat | 4590.2-3 |
| 25 | Junta torica / O-ring / Joint torique | 4610.1 |
| 26 | Junta torica / O-ring / Joint torique | 4610.2 |
| 27 | Tapon de vaciado aceite / Oil drain plug / Bouchon de vidange d'huile | 6515 |
| 28 | Anillo de seguridad / Lockwasher / Frein d'ecrou | 6541 |
| 29 | Circlip | 6544.1 |
| 30 | Circlip | 6544.2 |
| 31 | Pasador / Split pin / Goupille fendue | 6549 |
| 32 | Tornillo / Screw / Vis | 6570.1-6 |
| 33 | Tornillo / Screw / Vis | 6570.7-10 |
| 34 | Esparrago / Stud / Goujon filete | 6572.1-6 |
| 35 | Esparrago / Stud / Goujon filete | 6572.7-12 |
| 36 | Tuerca / Nut / Ecrou | 6580.1-6 |
| 37 | Tuerca / Nut / Ecrou | 6580.7-18 |
| 38 | Chaveta / Key / Clavette | 6700.1 |
| 39 | Chaveta / Key / Clavette | 6700.2 |
| 40 | Tornillo prisionero / Grub screw / Vis d'arret | 6814.1 |
| 41 | Tornillo prisionero / Grub screw / Vis d'arret | 6814.2 |
| 42 | Semi-acoplamiento / Coupling half / Demi-accouplement | 7200.1 |
| 43 | Semi-acoplamiento / Coupling half / Demi-accouplement | 7200.2 |
| 44 | Amortiguador del acoplamiento / Coupling bush / Garniture de broche d'acouplem. | 7414 |
| 45 | Motor | 8100 |

| | | | | |
|------------|---------|--------|--------------|--|
| Dibujado | Artetxe | 3-7-97 | N. VSS-331-M | Bombas Azcue, S.A. ARRONA (Guipuzcoa) |
| Comprobado | Aguirre | 3-7-97 | | |