



NEDERLANDS	5
ENGLISH	11
DEUTSCH	17
FRANÇAIS	23
ESPAÑOL	29
ITALIANO	35
DANSK	41
SVENSKA	47
NORSK	53
SUOMEKSI	59

**Bedieningshandleiding en
installatie instructies**

**Operation manual and
installation instructions**

**Bedienungshandbuch und
Einbauanleitung**

**Manuel d'utilisation et
instructions d'installation**

**Manual de manejo y
instrucciones de instalación**

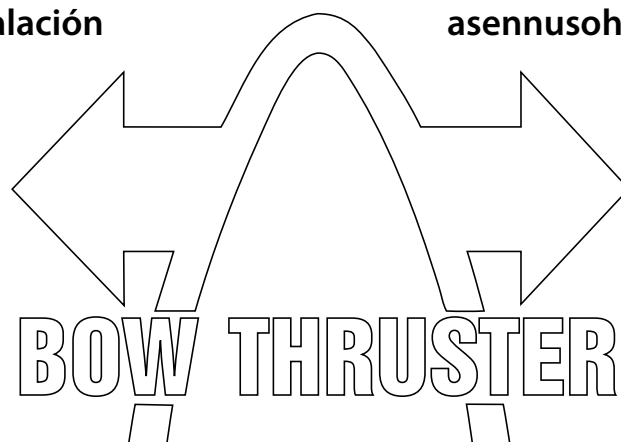
**Manuale per l'uso e
istruzioni per l'installazione**

**Betjeningsvejledning og
installationsinstruktioner**

**Bruksanvisning och
monteringsinstruktioner**

**Bruksanvisning og
installasjonsinstrukser**

**Käyttö- ja
asennusohje**



BOW28548D

285 kgf - ø 300 mm

Inhoud

1	Inleiding	5
2	Veiligheid	5
3	Gebruik	5
4	Inbouw	6
4.1	Vorbereiding	6
4.2	Montage staartstuk en tussenflens	6
4.3	Eindmontage	7
5	Elektrische installatie	8
6	Onderhoud	9
7	Storingen	10
8	Technische gegevens	10
9	Hoofdafmetingen	65
10	Elektrisch schema	66
11	Accucapaciteit, accukabels	68

Content

1	Introduction	11
2	Safety	11
3	Use	11
4	Installation	12
4.1	Preparation	12
4.2	Installation tailpiece and intermediate flange	12
4.3	Final assembly	13
5	Electrical installation	14
6	Maintenance	15
7	Trouble shooting	16
8	Technical data	16
9	Principal dimensions	65
10	Wiring diagram	66
11	Battery capacity, battery cables	68

Inhalt

1	Einleitung	17
2	Sicherheitsbestimmungen	17
3	Gebrauch	17
4	Einbau	18
4.1	Vorbereitung	18
4.2	Befestigung des Unterwasser- teils und des Zwischenflansches	18
4.3	Endmontage	19
5	Elektrische Installation	20
6	Wartung	21
7	Störungen	22
8	Technische daten	22
9	Hauptabmessungen	65
10	Schaltschema	66
11	Akkukapazität, Akkukabel	68

Sommaire

1	Introduction	23
2	Sécurité	23
3	Emploi	23
4	Installation	24
4.1	Préparatifs	24
4.2	Montage de l'embase et de la bride intermédiaire	24
4.3	Montage final	25
5	Installation électrique	26
6	Entretien	27
7	Pannes	28
8	Renseignements techniques	28
9	Dimensions principales	65
10	Circuit électrique	66
11	Capacité de la batterie, câbles de batterie	68

Índice

1	Introducción	29
2	Seguridad	29
3	Uso	29
4	Incorporación	30
4.1	Preparativos	30
4.2	Instalación de la parte posterior y la brida intermedia	30
4.3	Montaje final	31
5	Instalación eléctrica	32
6	Mantenimiento	33
7	Fallos	34
8	Especificaciones técnicas	34
9	Dimensiones principales	65
10	Esquema eléctrico	66
11	Capacidad de las baterías, cables de baterías	68

Indice

1	Introduzione	35
2	Sicurezza	35
3	Funzionamento	35
4	Installazione	36
4.1	Operazioni preliminari	36
4.2	Montaggio del piedino e della flangia intermedia	36
4.3	Assemblaggio finale	37
5	Collegamento elettrico	38
6	Manutenzione	39
7	Guasti	40
8	Dati tecnici	40
9	Dimensioni principali	65
10	Schema elettrico	66
11	Capacità della batteria e cavi della batteria	68

Indhold

1	Indledning	41
2	Sikkerhed	41
3	Brug	41
4	Indbygning	42
4.1	Forberedelse	42
4.2	Montering af endestykke og mellemflange	42
4.3	Slutmontering	43
5	Elektrisk installation	44
6	Vedligeholdelse	45
7	Driftsfejl	46
8	Tekniske specifikationer	46
9	Mål	65
10	Elektrisk skema	66
11	Batteriets kapacitet, batterikabler	68

Innehåll

1	Inledning	47
2	Säkerhet	47
3	Användning	47
4	Montering	48
4.1	Förberedelser	48
4.2	Montering av växelhus och mellanfläns	48
4.3	Slutmontering	49
5	Elektrisk anslutning	50
6	Underhåll	51
7	Felsökning	52
8	Tekniska uppgifter	52
9	Huvudmått	65
10	Kopplingsschema	66
11	Batterikapacitet, batterikablar	68

Innhold

1	Innledning	53
2	Sikkerhet	53
3	Bruk	53
4	Innbygging	54
4.1	Forberedelser	54
4.2	Montering av halestykke og mellomflens	54
4.3	Sluttmontasje	55
5	Elektrisk installasjon	56
6	Vedlikehold	57
7	Feil	58
8	Tekniske data	58
9	Viktigste mål	65
10	Elektrisk skjema	66
11	Batterikapacitet, batterikabler	68

Sisältö

1	Esipuhe	59
2	Turvallisuus	59
3	Käyttö	59
4	Asennus	60
4.1	Esivalmistelu	60
4.2	Kulmavaihteiston ja moottorilaipan asennus	60
4.3	Lopullinen asennus	61
5	Sähköasennukset	62
6	Huolto	63
7	Vian etsintä	64
8	Tekniset tiedot	64
9	Päämitat	65
10	Sähkökaavio	66
11	Akkukapasiteetti, akkukaapelit	68

Boormal

Drill pattern

Bohrschablone

Gabarit

Plantilla de perforación

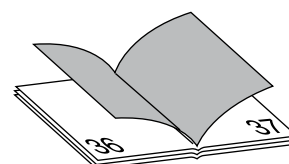
Sagoma di trapanatura

Skabelon

Borrjigg

Boresjablon

Poraussabluuna



1 Introduction

These installation instructions give guidelines for fitting the Vetus bow thruster 'BOW28548D'.

The quality of installation will determine how reliably the bow thruster performs. Almost all faults can be traced back to errors or imprecision during installation. It is therefore imperative that the steps given in the installation instructions are followed in full during the installation process and checked afterwards.

Alterations made to the bow thruster by the user will void any liability on the part of the manufacturer for any damages that may result.

The thrust given by the bow thruster will vary from vessel to vessel depending on the effect of the wind, the water displacement and the shape of the underwater hull.

- The nominal thrust quoted can only be achieved under the most favourable conditions:
- During the installation process the '**Installation recommendations for bow thrusters**', must be followed, specifically concerning:
 - Sufficiently large diameter of the battery cables so that voltage drop is reduced to a minimum.
 - The manner in which the tunnel has been connected to the hull.
 - Use of bars in the tunnel openings.
These bars should only be used where this is strictly necessary (if sailing regularly in severely polluted water.)
 - The bars must have been fitted correctly.

Following the above recommendations will result in longer life and better performance of your bow thruster.

- Carry out the recommended maintenance regularly.
- Never allow the bow thruster to operate for a long period; the maximum length of usage is restricted because of heat release in the electric motor. After use the motor must be allowed to cool off.



NOTE

The maximum continuous length of usage and the thrust as specified in the technical details are based on the recommended battery capacities and battery cables.

If significantly larger batteries in combination with very short battery cables of significantly larger diameter than recommended are used then the thrust will increase. In such cases the maximum length of usage must be reduced in order to prevent damage to the motor.

2 Safety



WARNING!

When using the bow thruster watch out for swimmers or light boats which could be in the near vicinity of the bow thruster tunnel jet openings.

Pass on the safety instructions to others using the bow thruster.

General rules and laws with regard to safety and accident-prevention also need to be applied.

- Never touch the moving ends of the bow thruster whilst in operation.
- Never touch hot parts of the bow thruster and never place flammable materials in the vicinity of the bow thruster.
- Always stop the bow thruster before checking components or adjusting the bow thruster.
- Always detach the battery poles during maintenance work.
- Ensure maintenance work is safe by only using tools suitable for the purpose.
- Always deactivate the main switch when the bow thruster is not in use for long periods.

3 Use

- Switch on the main switch.
- Consult the handbook supplied with the control panels for instructions on using the bow thruster.

Never switch in one movement from starboard to portside or reverse, but wait until the propeller stands still, before giving it a command to operate the electric motor in the opposite direction.



CARE!

If 2 control panels are installed never operate the bow thruster from both panels simultaneously.

- Switch off the main switch when leaving the ship.



Make sure that the user of the vessel is supplied with the owner's manual.

4 Installation

In order to install the tunnel, consult 'Installation recommendations for bow thrusters', Vetus art. code 020571.03.

For overall dimensions see drawing, page 65.

NOTE

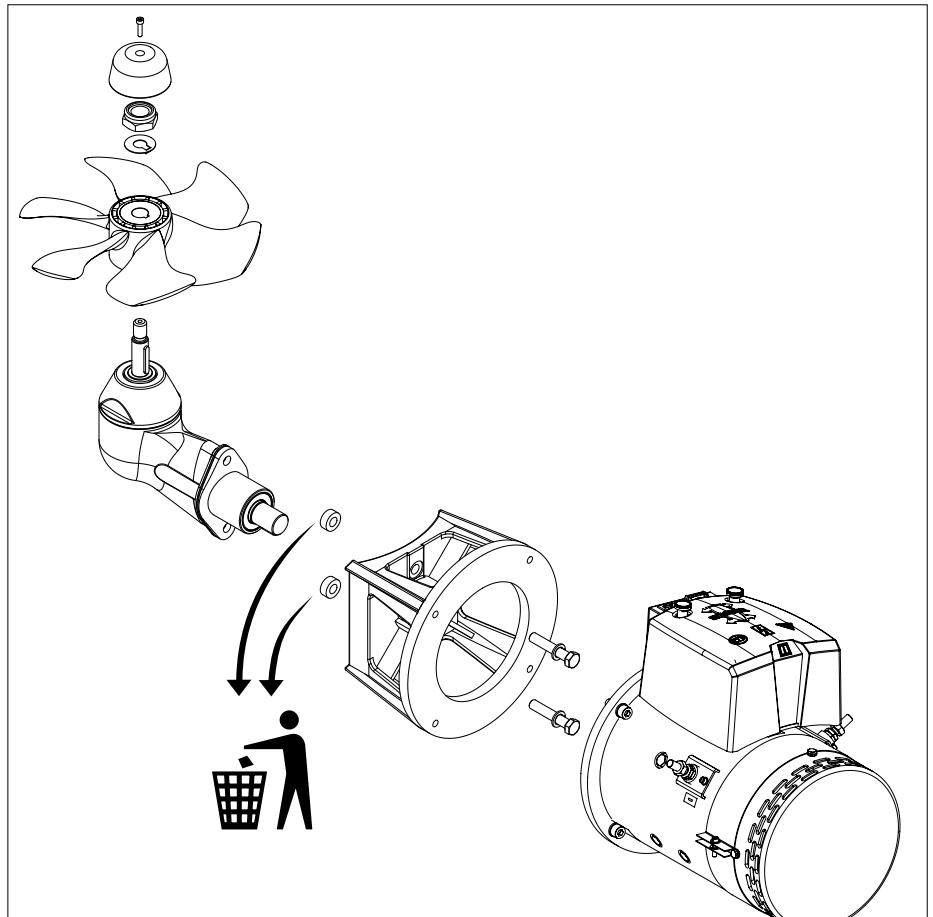
The areas in which the electric motor of the bow thruster and the battery are positioned must be dry and well ventilated.

4.1 Preparation

The bow thruster will be delivered fully assembled. Perform the following steps:

- Remove the propeller.
- Remove the motor from the intermediate flange.
- Remove the intermediate flange from the tail piece.

The 2 bushes are only required for transport and are now no longer needed.

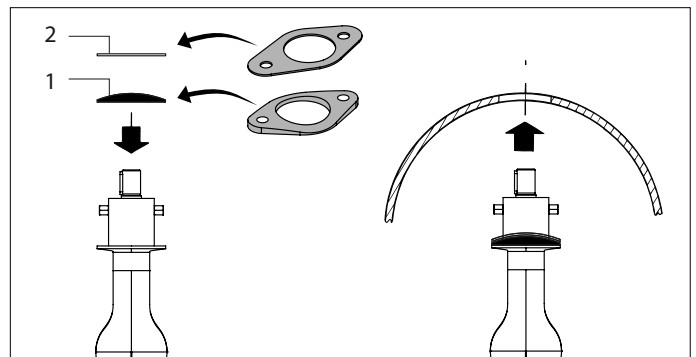


4.2 Installation tailpiece and intermediate flange

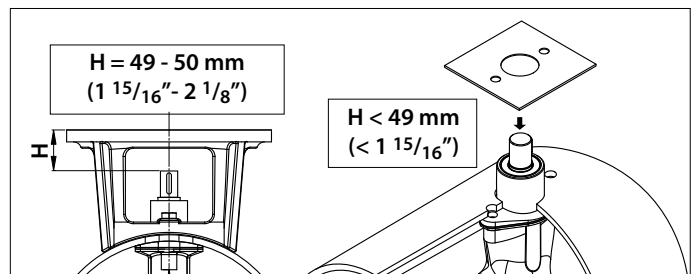
- Ensure that the plastic shim plate (1) has been positioned on the tail piece.
- Place one packing (2) between the tail piece and the tunnel.
- Apply a sealant (e.g. polyurethane or silicone) between the tail piece and packing, and between the packing and the tunnel wall.
- Place the tail piece in the hole in the tunnel.

Any extra packings used should be ones capable of justifying the tail piece.

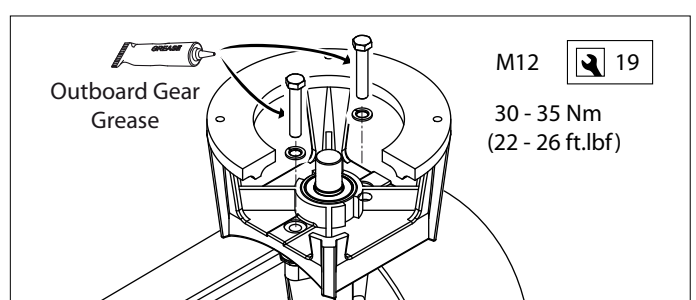
*) e.g. Sikaflex®-292.



- Grease the hole of the intermediate flange and position this flange.
- Check dimension 'H'; it must be between 49 and 54 mm (between 1 15/16" and 2 1/8").
- If the dimension 'H' is less than 49 mm (1 15/16"), fit an additional gasket between the thrust tunnel and the intermediate flange.
- Check again dimension 'H'.



- Now fit the intermediate flange permanently to the tail piece and grease the threads of the bolts with 'outboard gear grease' before inserting and tightening them.

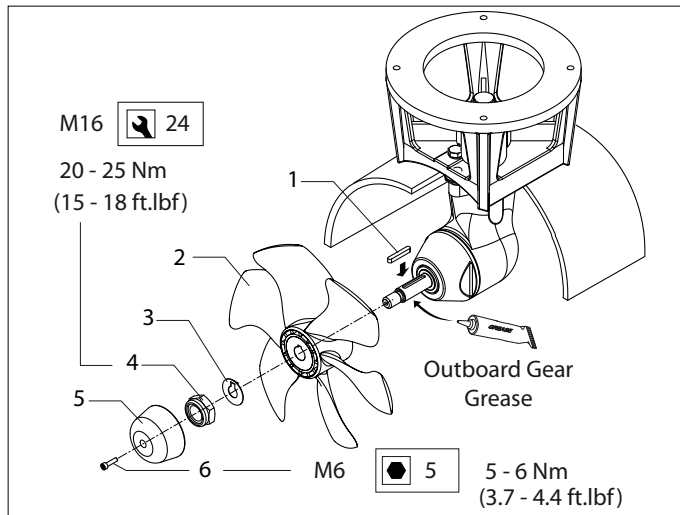
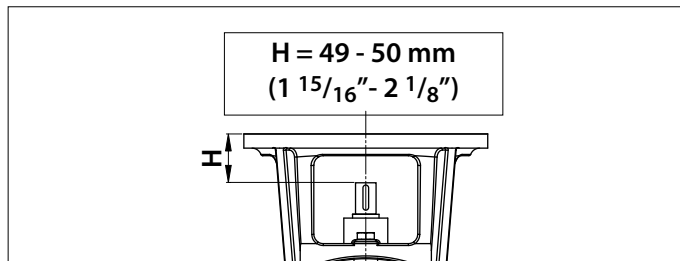


NOTE

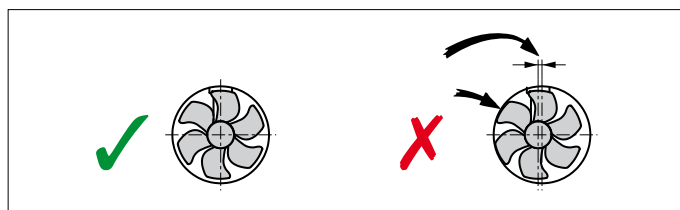
Check for possible leaks immediately the ship returns to water.

4.3 Final assembly

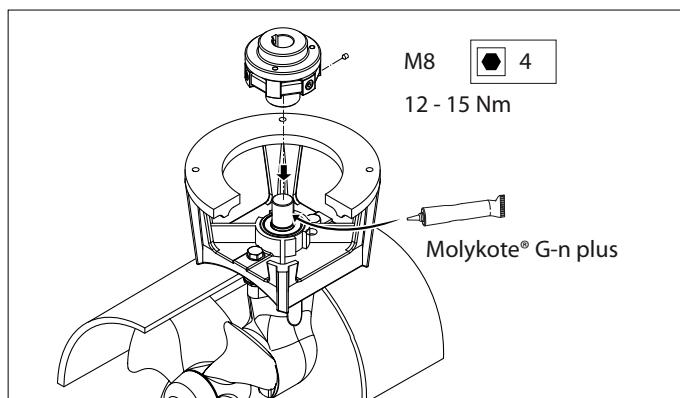
- Check again dimension 'H'.
- Make sure that the key (1) is properly positioned in the keyway of the shaft.
- Grease the shaft with 'outboard gear grease' and install the propeller (2) with the lock washer (3) and the hexagonal nut (4).
- Secure the nut by bending the tag of the washer.
- Fit the zinc anode (5) to the propeller shaft by means of the bolt (6)



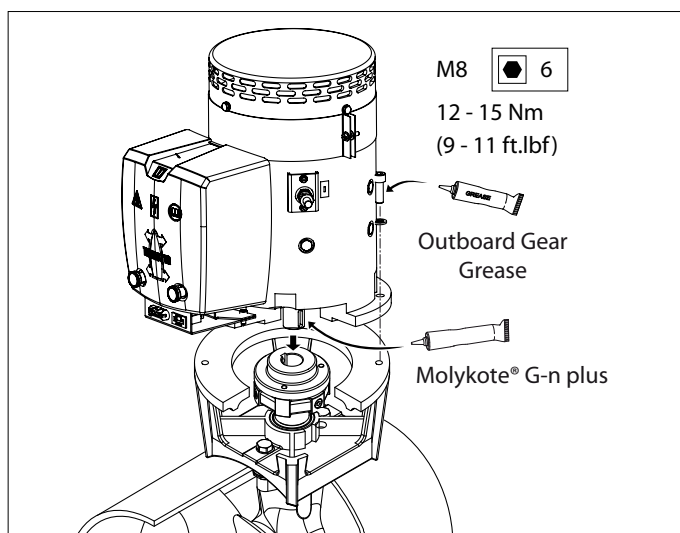
The propeller should run a minimum of 1.5 mm (1/16") free of the thrust tube wall, all round.



- Grease the input shaft with an installation compound, like 'Molykote® G-n plus'
- Fit the flexible coupling to the input shaft of the tail piece and secure the coupling with the locking screw.



- Grease the shaft of the electric motor with an installation compound, like 'Molykote® G-n plus'.
- Grease the threads of the fastenings bolts with 'outboard gear grease' and install the electric motor to the intermediate flange. Use one of these bolts to fasten the relay support as well.
- For a first check, turn the propeller by hand, it should turn easily, whilst being connected to the output spindle of the electric motor.



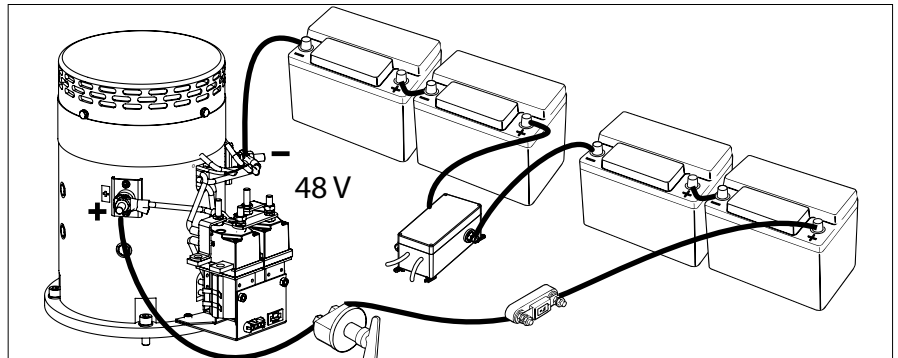
5 Electrical installation

Consult the chapter 'Electrical Management' in 'Installation recommendations for bow thrusters', Vetus art. code 020571.03.

Check that the voltage, recorded on the motor type plate, is in agreement with the vessel's circuit voltage. Position the battery or batteries as close as possible to the bow thruster; the main power supply cables can then be short, which reduces the voltage drop as much as possible.

See page 69 for the applicable battery capacity, the size of main power supply cables and fuse to use.

- Connect the main power supply cables.



Make sure that no other electrical parts come loose when connecting the electric cables.

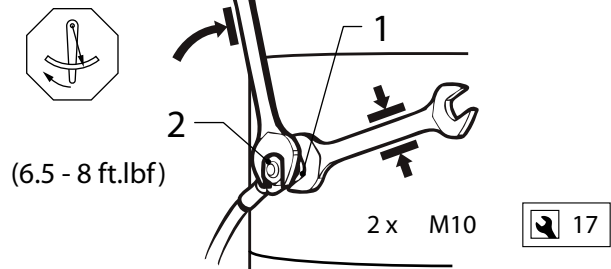
Check all electrical connections after 14 days. Electrical parts (such as bolts and nuts) may come loose as a result of fluctuations in temperature.

NOTE

Be careful not to rotate the bolt and nut 1 while connecting the cables. To prevent this happening, keep an open-ended spanner on nut 1 while screwing on bolt 2, without rotating this spanner. The torque for nut 2 is 9 - 11 Nm (6.5 - 8 ft.lbf).

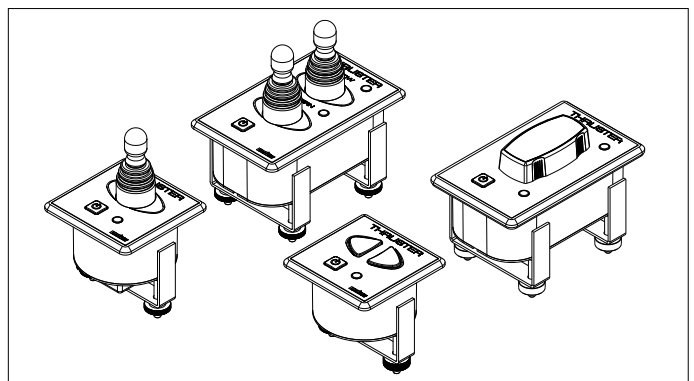
9 - 11 Nm

(6.5 - 8 ft.lbf)



- Fit the control panel next to the steering position. There must be at least 50 mm (2") space behind the panel.

If 2 bow thrusters have to be operated simultaneously, for example on a catamaran, consult the diagram on page 68.

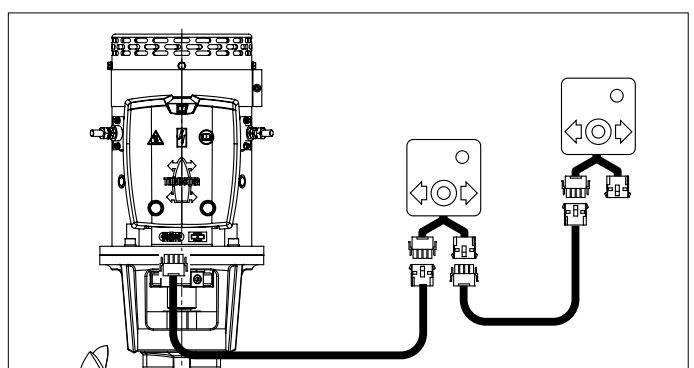


- Fit the control cable between the bow thruster and the control panel through the vessel and connect the jack connections together.

If it is necessary to cut the intermediate cable and reconnect it take care to ensure the correct colours are connected together.

N.B: The colours of the wire cores in the intermediate cable may differ from the wire core colours as used on the bow thruster motor and on the control panel!

If there are two steering positions, the second control panel can be connected to the first one.



If it is found during test running that the thrust direction does not correspond with the direction switch on the control panel then the blue (no. 1) and the white (no. 4) wires on the relay must be interchanged.



WARNING!

Do NOT test the bow thruster while the ship is out of water, unless you are certain that everyone is at a safe distance from the thrust tube.
Never allow the bow thruster to run for longer than 5 seconds with the ship out of water.

6 Maintenance

Check the carbon brushes for wear - in normal use once per year - with very intensive use of the bow thruster, e.g. with hire vessels, once every two months.

- Remove the Protective cover from the relay and then the Protective cover to the brushes.
- Clean the carbon brushes, the holders and the collector. (Blow away the dust coming off the brushes.)
- Check the length of the carbon brushes and replace before the minimum length (L min) is reached. Also check the collector for excessive wear.

For minimum length and art. code, see page 70.

- The brushes can be taken out of the holders by releasing the retaining spring.

The bow thruster tailpiece has long-term lubrication.

The following maintenance should be carried out during a slipway service:

- Check the cathodic Protection and if necessary renew the zinc anode.

For the art. code for the zinc anode, see page 70.

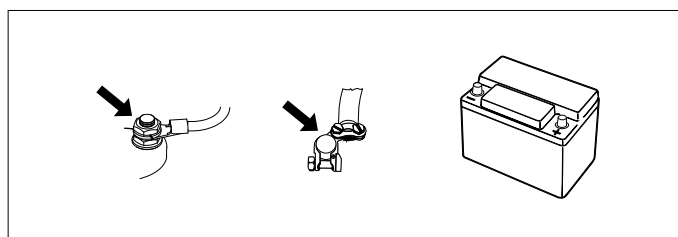
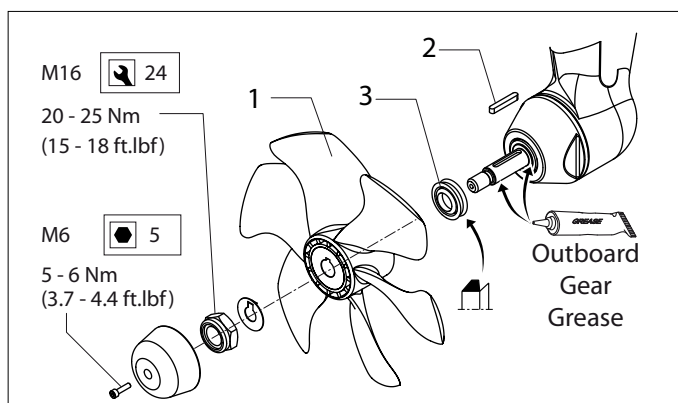
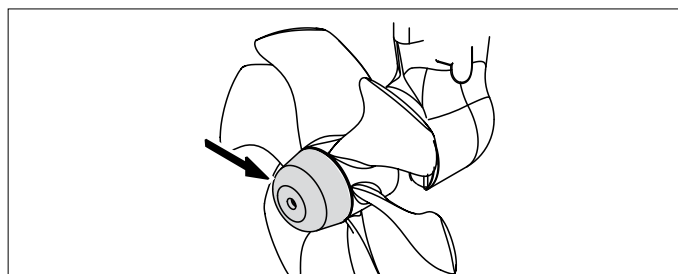
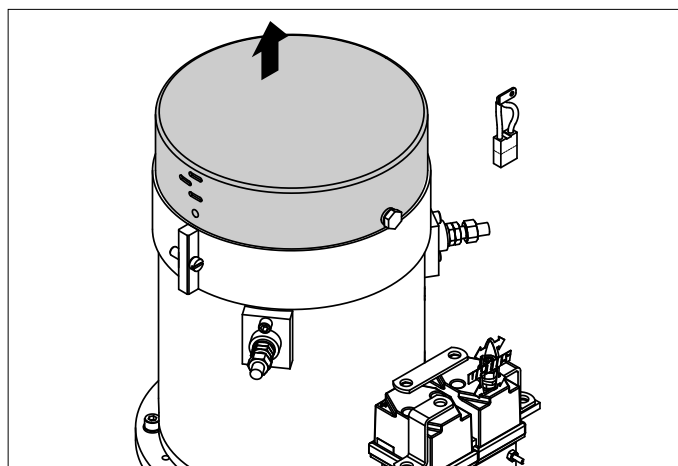
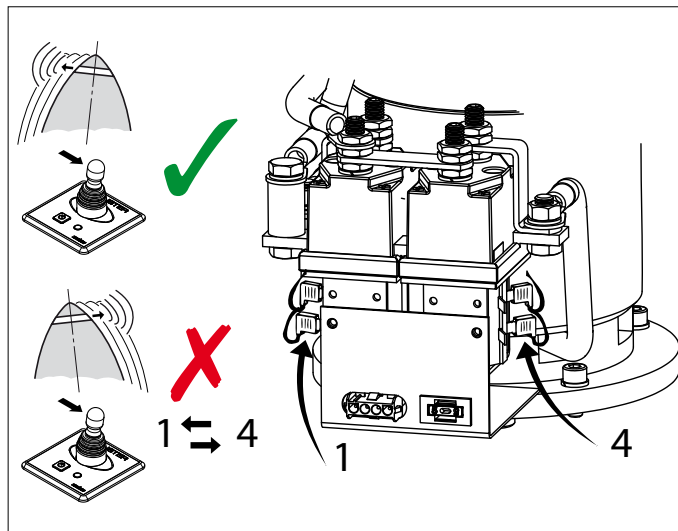
- In turn remove the propeller (1), the key (2) and the V-ring (3).
- Clean the propeller shaft and grease the running surface of the V-ring with 'outboard gear grease'.
- Fit a new V-ring.
- Put the key back in the shaft and refit the propeller.

For the art. code for the V-ring, see page 70

Six weeks after installation and at least once annually thereafter, be sure to check all of the electrical connections between the battery/batteries and the bow thruster, as well as the connections on the motor relays.

If they have been loosened previously, prevent the nut and bolt from turning while connecting the main power supply cables. This is also why you should always use a second wrench when tightening bolts.

The instructions of the manufacturer should be followed for the maintenance of the batteries. Vetus batteries are maintenance free.



7 Trouble shooting

Electric motor does not operate

- Check that the battery main switch is 'ON'.
- Check whether the control panel fuse has burnt out. ^[1]
- Check if the main fuse has burnt out. ^[2]

In all the above cases, the 'POWER' indicator LED is not lit.

- The electric motor has overheated and its thermal Protection has broken the circuit of the control current.

The panel gives a warning signal three times (. . .) and the LED will glow red.

As soon as the motor has cooled down enough, the LED will resume glowing green and the bow thruster can be put back in service.

Check if it is possible to turn the propeller. A piece of wood or similar could have been caught between the propeller and the tunnel.

Electric motor turns slowly

- The battery is flat.
- Bad electrical connection(s) due to e.g. corrosion.
- The carbon brushes are not making proper contact.
- The battery capacity is reduced because of very low temperatures.
- Weed or fishing line has become caught in the propeller.

Control panel fuse is burnt out ^[1]

- Short circuit in the operating circuit; check the wiring.

Electric motor turns (too) fast but there is no thrust

- The blades of the propeller have been damaged by a foreign object having entered the propeller or tunnel.

After pressing the on/off switch on the panel, the panel is not switched on.

- The on/off switch must be pressed a **second** time within 6 seconds.

The LED will then remain green and the buzzer will confirm that the panel is ready for use by giving the signal (- . -).

8 Technical data

Type	:	BOW28548D
Electric motor		
Type	:	reversible DC motor
Voltage	:	48 V DC
Current	:	560 A ^[3]
Rated output	:	16 kW
No. of revolutions	:	2000 rpm
Rating	:	S2 - 3 min. ^[3]
Protection	:	IP21
Motors conform to CE (80/336/EEC, EMC - EN60945)		
Transmission		
Gears	:	Bevel gear helical teeth
Gear ratio	:	1.39 : 1
Lubrication	:	oilbath, approx. 0.2 litre (6.8 fl.oz.) outboard gear oil SAE80W or EP 90
Housing	:	bronze
Propeller		
Diameter	:	295 mm (11 5/8")
No. of blades	:	7
Profile	:	asymmetrical
Material	:	polyacetal (Delrin [®])
Rated thrust	:	2850 N (285 kgf, 640 lbf)
Control circuit		
Fuse	:	Blade type fuse 'ATO' 5 A
Current solenoid switch	:	1.4 A
Control circuit wires	:	1.5 mm ² (14 AWG)
Extension cable	:	6, 10, 16, 18 or 20 m (20', 33', 52', 59', or 65')
Thrust-tunnel		
Steel model		
dimensions	:	O.D. 320 mm, wall thickness 7,5 mm
treatment	:	blasted, coated with: SikaCor Steel Protect. Suitable for all kinds of protection systems.
Plastic model		
dimensions	:	I.D. 300 mm, wall thickness 10 mm
material	:	glass fibre reinforced polyester
Aluminium model		
dimensions	:	I.D. 300 mm, wall thickness 10 mm
material	:	aluminium, 6061 or 6062 (AlMg1SiCu)
Weight		
Excl. thrust-tunnel	:	68 kg (150 lbs)

^[1] The control current fuse is in the bow thruster motor. A spare fuse can be found in the relay cap, see p. 70.

^[2] See table on page 69

Length of usage:

^[3] 3 min. continuously or max. 3 min. per hour at 560 A (48 Volt).

9 Hoofdafmetingen

Principal dimensions

Hauptabmessungen

Dimensions principales

Dimensiones principales

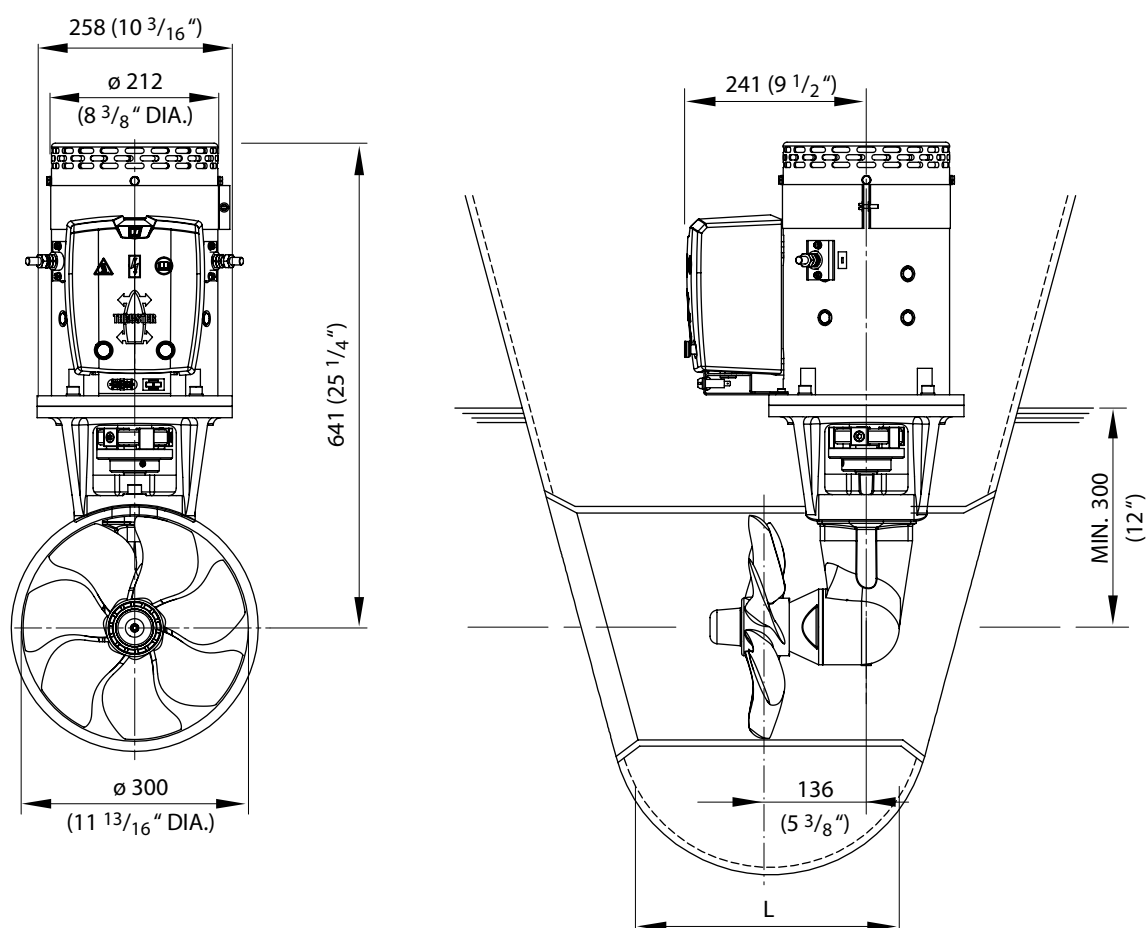
Dimensioni principali

Mål

Huvudmått

Viktigste mål

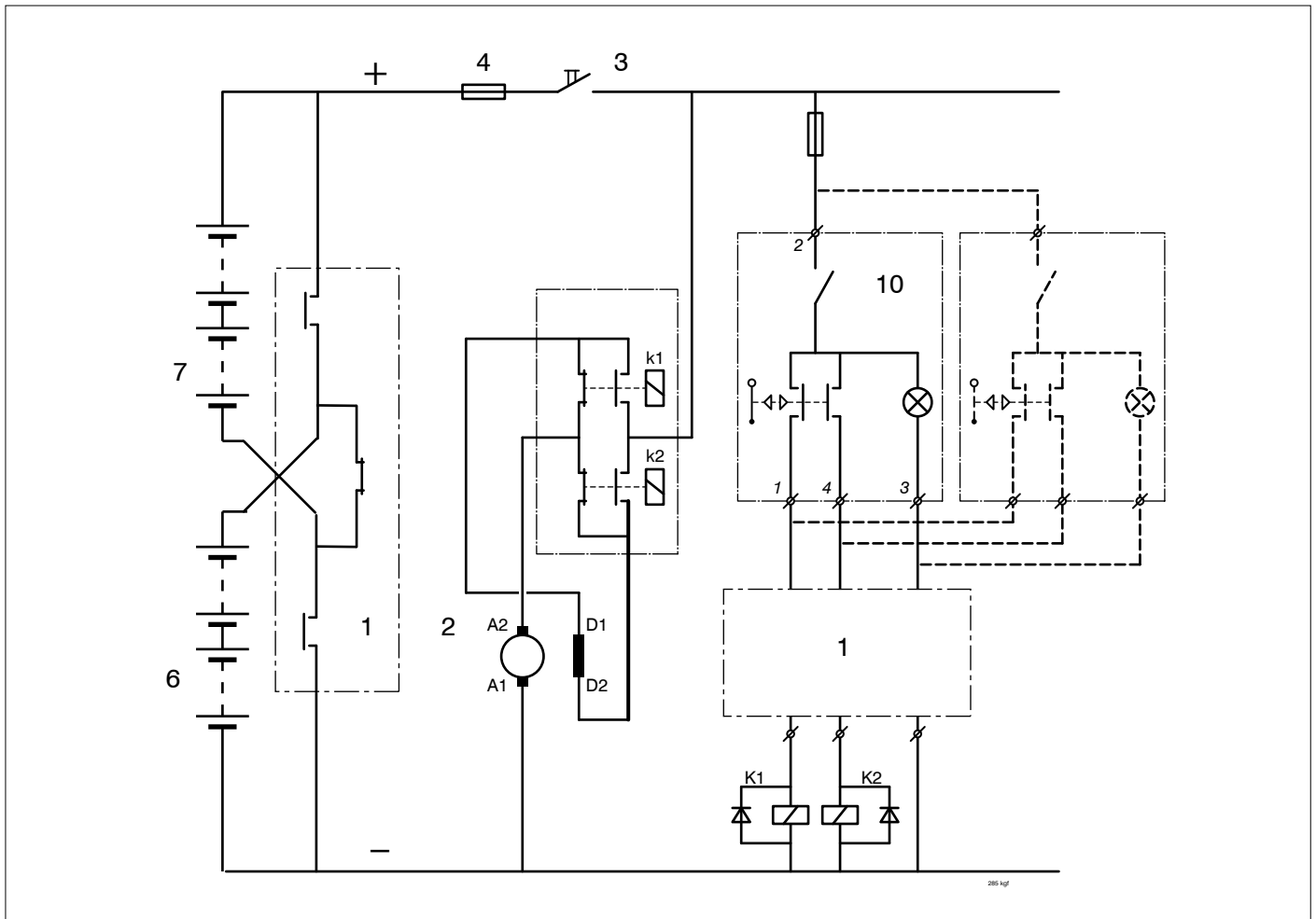
Päämitat



1 : 10

Wiring diagram

Circuit électrique



1	Serie-parallel schakelaar	Series-parallel switch	Serien-Parallel-Schalter	Coupleur série-parallèle	Conmutador de serie-paralelo
2	Boegschroef 16 kW 48 Volt	Bow propeller 16 kW 48 Volt	Bugschraube 16 kW 48 Volt	Hélice de proue 16 kW 48 Volts	Hélice de proa 16 kW 48 voltios
3	Hoofdschakelaar boegschroef	Main switch bow thruster	Hauptschalter Bugschraube	Interrupteur principal de l'hélice de proue	Interruptor principal de la hélice de proa
4	Hoofdzekering	Main fuse	Hauptsicherung	Fusible principal	Fusible principal
5	Dynamo	Alternator	Dynamo	Dynamo	Dínamo
6	Accu-set 1	Battery bank 1	Akkuset 1	Batterie 1	Conjunto de baterías 1
7	Accu-set 2	Battery bank 2	Akkuset 2	Batterie 2	Conjunto de baterías 2
8	Naar 24 Volt gebruikers	To 24 Volt load	Zu den 24-Volt-Abnehmern	Vers les récepteurs de 24 Volts	A consumidores de 24 voltios
9	Tussenkabel	Extension cable	Anschlußkabel	Fil intermédiaire	Cable intermedio
10	Bedieningspaneel	Control panel	Schaltanlage	Panneau de commande	Panel de mandos
11	Diodebrug	Battery isolator	Diodenbrücke	Pont à diodes	Puente de diodo
12	Accu alleen voor 24 Volt gebruikers	Battery for 24 Volt load only	Akku nur für 24-Volt-Abnehmer	Batterie uniquement pour les récepteurs de 24 Volts	Batería exclusivamente para consumo de 24 voltios
13	Hoofdstroomkabels	Main circuit wires	Hauptstromkabel	Fils de courant principal	Cables de corriente principal
14	Laadstroomkabels	Charging wires	Ladestromkabel	Fils de courant de charge	Cables de corriente de carga
15	Scheidingschakelaar	Isolating switch	Trennschalter	Interrupteur-séparateur	Conmutador de aislamiento
16	Thermische beveiliging	Thermal Protection	Thermosicherung	Sécurité thermique	Dispositivo térmico de seguridad

Kleurcode bedrading:	Wiring colour code:	Farbcode für die Bedrähung:	Code de couleur des câbles:	Código de color de los cables:
1 Blauw	Blue	Blau	Bleu	Azul
2 Rood (+)	Red (+)	Rot (+)	Rouge (+)	Rojo (+)
3 Zwart (-)	Black (-)	Schwarz (-)	Noir (-)	Negro (-)
4 Wit	White	Weiß	Blanc	Blanco

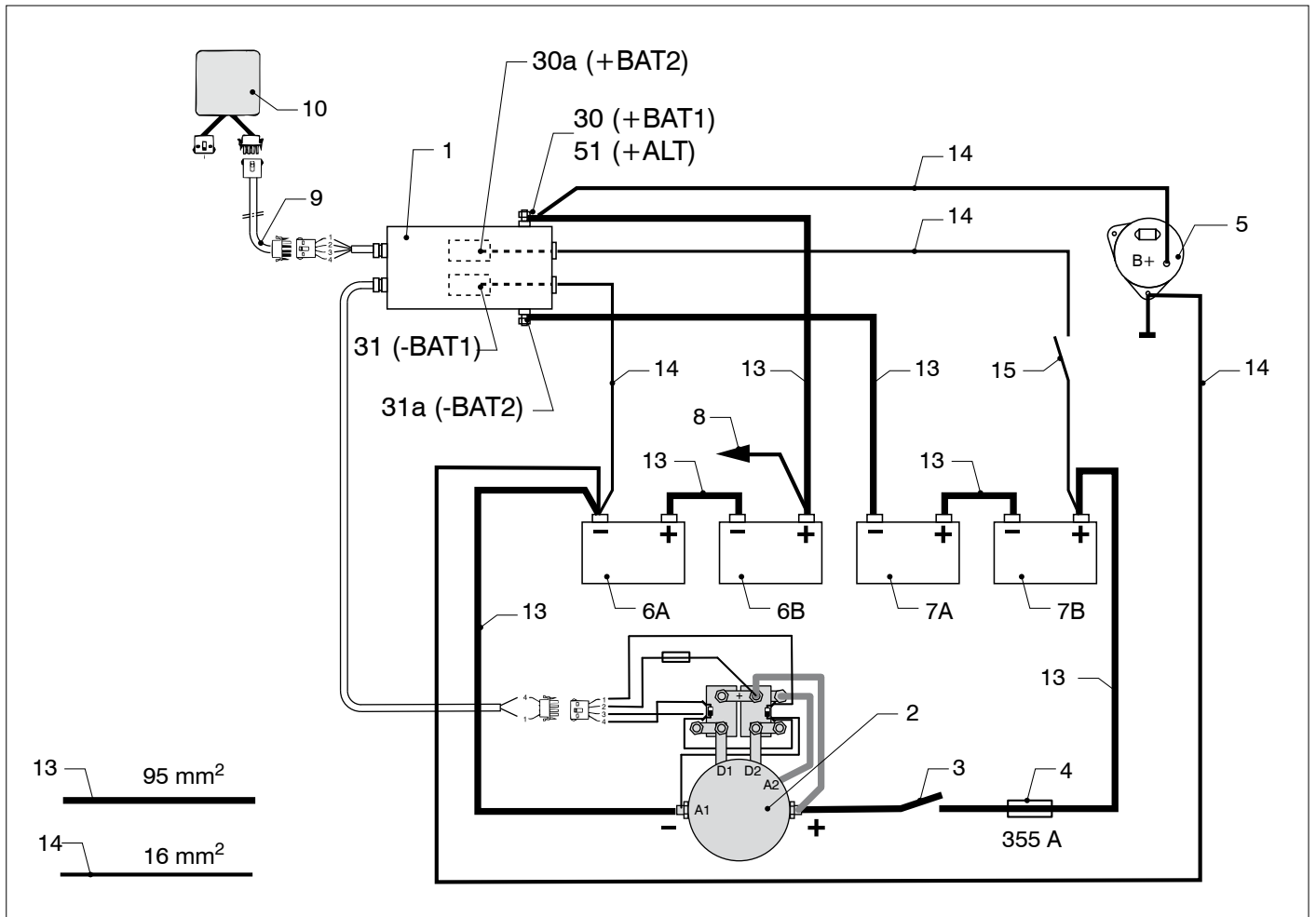
Schema elettrico

Kopplingschema

Sähkökaavio

Elektrisk skema

Elektrisk skjema



1	Commutatore in serie/ in parallelo	Serie-parallelkontakt	Serie-parallellomkopp-lare	Serie-parallellbryter	Sarja-rinnakkaiskytkin
2	Elica di prua da 16 kW e 48 Volt	Bovpropel 16 kW 48 volt	Bogpropeller 16 kW 48 Volt	Baugpropell 16 kW 48 Volt	Keulapotkuri 16 kW 48 V
3	Interruttore principale dell'elica di prua	Hovedafbryder til bov-propel	Huvudströmbrytare bogpropeller	Hovedbryter baugpropell	Keulapotkurin pääkat-kaisin
4	Fusibile principale	Hovedsikring	Huvudsäkring	Hovedsikring	Pääsulake
5	Dinamo	Dynamo	Generator	Dynamo	Dynamo
6	1 Banco batteria	Batterisæt 1	Batteriset 1	Batterisett 1	Akku-sarja 1
7	2 Banco batteria	Batterisæt 2	Batteriset 2	Batterisett 2	Akku-sarja 2
8	A sistemi di utenza da 24 Volt	Til 24 volt forbrugere	Till 24 Volt-användare	Til 24 Volt-brukere	24 Voltin käyttäjille
9	Cavo interposto	Mellemkabel	Mellankabel	Mellomkabel	Välikaapeli
10	Quadro dei comandi	Betjeningspanel	Manöverpanel	Kontrollpanel	Ohjaustaulu
11	Ponticello diodo	Diodebro	Diodbrygga	Diodebru	Diodisilta
12	Batteria esclusivamente per sistemi di utenza da 24 Volt	Batteri kun til 24 volt forbrugere	Batteri endast för 24 Volt-användare	Batteri kun til 24 Volt-brukere	Akku vain 24 Voltin käyttäjille
13	Cavi elettrici principali	Hovedstrømkabler	Huvudströmskablar	Hovedstrømkabler	Päävirtakaapelit
14	Cavi elettrici di caricamento	Ladestrømkabler	Laddströmskablar	Ladestrømkabler	Latausvirtakaapelit
15	Interruttore di separazione	Ledningsadskiller	Skiljebrytare	Skillebryter	Jakokytkin
16	Protezione termica	Termisk beskyttelse	Termiskt skydd	Termisk sikring	Lämpösuojain

Codice colori cavi:	Farvekode til kabler:	Färgkod kablage:	Fargekode ledninger:	Kaapeleiden värikoodit:
1 Blu	Blå	Blå	Blå	Sininen
2 Rosso (+)	Rød (+)	Röd (+)	Rød (+)	Punainen (+)
3 Nero (-)	Sort (-)	Svart (-)	Svart (-)	Musta (-)
4 Bianco	Hvid	Vit	Hvit	Valkoinen

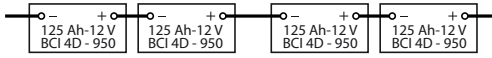
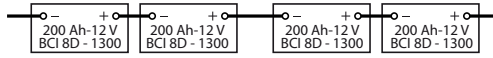
11 Accucapaciteit, accukabels

Battery capacity, battery cables

Akkukapazität, Akkukabel

Capacité de la batterie, câbles de batterie

Capacidad de las baterías, cables de baterías

Boegschroef	Toe te passen accu('s)		
	Minimaal	Aanbevolen	
Bow thruster	Battery capacity required		
	Minimum	Recommended	
Bugschraube	Zu verwendende Akkus		
	Minimum	Empholen	
Hélice d'étrave	Batterie(s) à utiliser		
	Minimum	Recommandé	
Hélice de proa	Batería(s) a aplicar		
	Mínimo	Recomendación	
Elica	Batteria(e) da usare		
	Minimo	Consigliata	
Bovpropel	Batterikapacitet		
	Min.	Anbefalet	
Bogpropeller	Lämpligt batteri		
	Min	Rekommenderas	
Baugpropell	Nødvendig batterikapacitet		
	Min	Anbefalt	
Keulapotkuri	Vaadittava akkukapasiteetti		
	Minimi	Suosittelaaan	
BOW28548D 285 kgf - 48 V	<p>CCA 950 - 48 V</p>  <p>4 x 143 Ah - 12 V 4 x BCI 4D - 950</p>		<p>CCA 1300 - 48 V</p>  <p>4 x 200 Ah - 12 V 4 x BCI 8D - 1300</p>

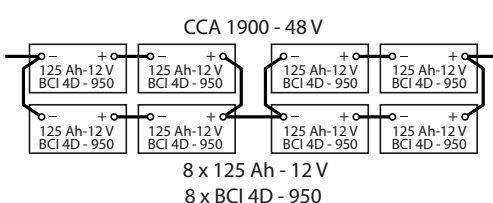
Capacità della batteria e cavi della batteria

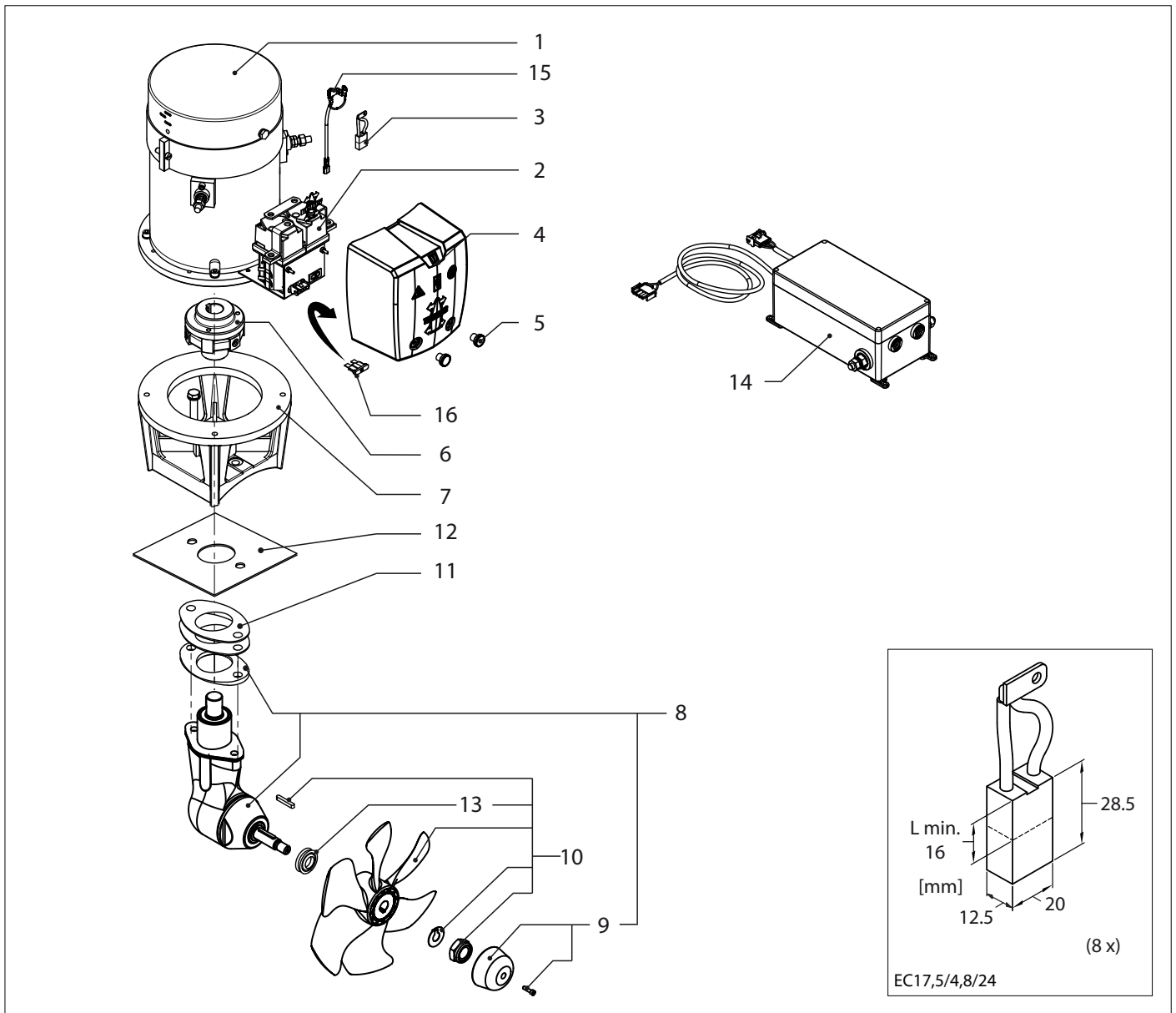
Batterikapasitet, batterikabler

Batteriets kapacitet, batterikabler

Akkukapasiteetti, akkukaapelit

Batterikapacitet, batterikablar

		Totale lengte plus- en minkabel	Draaddoor-snede	Zekering	
Maximaal				'traag'	Vetus art. code
		Total length of plus- and minus cable	Cable cross-section	Fuse	
Maximum				'slow blow'	Vetus art. code
		Gesamtlänge Plus- und Minuskabel	Draht-durchschnitt	Sicherung	
Maximum				'träge'	Artikelnummer
		Longueur totale des câbles plus et moins	Diamètre du câble	Fusible	
Maximum				'lent'	code d'art. Vetus
		Largo total cable positivo y negativo	Diámetro de hilo	Fusible	
Máximo				'lento'	Código de art. Vetus
		Lunghezza totale cavo positivo e negativo	Diametro cavi	Fusibile	
Massimo				'a tempo'	Vetus codigo art.
		Total længde af positiv og negativ batterikabel tilsammen	Tråd-diameter	Sikring	
Max.				'træg'	Vetus artikelnr
		Total längd kabel till plus- och minuspol	Kabelns dimension	Säkring	
Max				'trög'	Vetus artikelnr
		Total lengde pluss- og minuskabel	Ledningt-verrsnitt	Sikring	
Maks				'treg'	Vetus art. kode
		"Miinus"- ja "plus"- kaapeleiden kokonaispituudet	Kaapelikoko	Sulake	
Maksimi				hidas	Vetus koodi
 <p>CCA 1900 - 48 V</p> <p>8 x 125 Ah - 12 V 8 x BCI 4D - 950</p>		0 - 46 m	95 mm ²	355 A	ZE355
		0 - 151 ft	AWG 000		



BOW28548D

Service onderdelen

Service parts

pos.	qty	part	benaming	description
1	1	BP3006	Elektromotor 16 kW - 48 V	Electromotor 16 kW - 48 V
2	1	BP1082	Set relais 24 V	Set of solenoid switches 24 V
3	1	SET0132	Set van 8 stuks koolborstels	Set of 8 pcs of carbon brushes
4	1	BPC00200	Relaiskap	Relais cover
5	1	SET0006	Set van 2 stuks kartelmoeren	Set of 2 pcs knurled nuts
6	1	BP1074	Koppeling	Coupling
7	1	BP1076B	Tussenflens	Intermediate flange
8	1	SET0165	Startaatstuk compl.	Tailpiece compl.
9	1	SET0152	Zinkanode compl. met schroef	Zincanode c/w screw
10	1	BP3019	Schroef compl. met montageset	Propeller c/w mounting set
11	2	BP1069	Pakking 2 mm	Gasket 2 mm
12	1	BP1070	Pakking 1 mm	Gasket 1 mm
13	1	BP1055	V-ring	V-ring
14	1	BP3008	Serie-parallelschakelaar 24 - 48 V	Series-parallel switch 24 - 48 V
15	1	TS95	Thermische beveiliging	Thermal Protection
16	1	BP256	Reserve zekering 5 A	Spare fuse 5 A

VETUS b.v.

FOKKERSTRAAT 571 - 3125 BD SCHIEDAM - HOLLAND
TEL.: +31 0(0)88 4884700 - sales@vetus.nl - www.vetus.com

Printed in the Netherlands
020569.03 2017-01