

# Exalto Marine Wipers

## Built exclusively for marine use

Unlike most wiper systems, Exalto wipers are specially designed for marine use. Many years of experience and knowledge have resulted in the best marine wipers available on the market today. Only the finest materials are used to ensure many years of reliable work in the marine environment.

Exalto offers a wide range of motors, arms, blades, switches and complete electronic controls to ensure a perfect wiper system that meets your demands. Adjustable pantograph arms and adjustable wiping arcs give customized coverage to whatever window sizes and shapes you have.

All wipers have two speeds and are self-parking so, when turned off, arms and blades automatically settle where least obtrusive. In combination with one of the smart wiper controls, the Exalto wiper systems offer an adjustable intermittent wipe and wipe/wash feature.

Exalto wiper systems are designed in our own Research & Development department. The system has the following components: motor, arm, blade, washing system and a control. Exalto wiper systems are mounted on a complete range of boats worldwide. Check for yourself to choose the most complete wiper system that suits your boat!



## Exalto Group

The Exalto Group is subdivided in Exalto B.V, Cuno Nederland B.V, Exalto UK Ltd and Exalto Emirates Ltd. The Exalto wiper systems are a result of twenty years of experience and engineering. Our enthusiasm, innovation and reliability have always distinguished us from competitors.



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# Exalto H.D. wiper motors

To ensure a safe view in rough weather conditions, Exalto engineered the wiper motors in various models. All Exalto wiper motors have two speeds and are self-parking. The wipers have stainless steel shafts, bolts and nuts. The drive shafts run in self lubricating bronze bearings to ensure many hours of trouble free performance.

## Medium sized windows

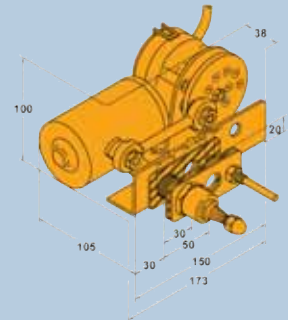
Five types of wipers can be fitted to vessels with windows no taller than 1100 mm (42"). The 235KG, 235KK-HD, 233BD, 223BD and 223BS can drive arms ranging from 450-750 mm in length and blades from 500-800 mm. All five are available in 12V and 24V DC. Please check the technical specifications to notice the differences between the various models.

Features 223BD, 223BS, 235KG, 235KK-HD and 233BD:

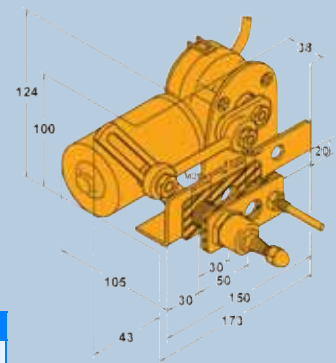
- Two speeds
- Self parking
- Voltage: 12V and 24V
- Glass mounting with 235KG, other models have bulkhead mounting
- 223BS has a steplessly adjustable wiping arc 40-90°, the other models have a wiping arc 40-90° in 5° increments
- Idler spindle/sleeve: 8 mm
- Centre distance: 50 mm
- Single drive shafts
- Compatible pantograph arms: PU type
- Covers available for all wipers, except for the 223BS



223BD



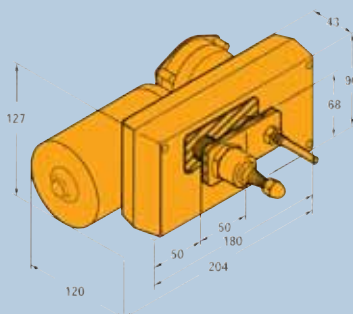
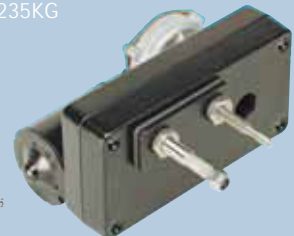
223BS



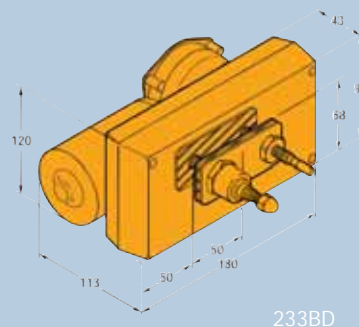
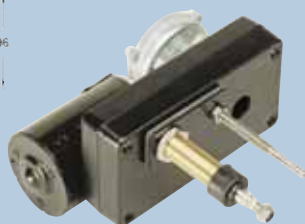
Covers for wipers 223BD

Technical specs	223BD	223BS	235KG	235KK-HD	233BD
Torque	23 Nm	23 Nm	23 Nm	25 Nm	23 Nm
Power consumption	36W	36W	36W	75W	36W
Insulated earth return	Optional	Optional	Yes	Yes	Yes
Negative earth	Yes	Yes			
Max. arm length	750 mm	750 mm	450 mm	750 mm	750 mm
Max. blade length	800 mm	800 mm	500 mm	700 mm	800 mm
Drive shaft sleeve	20 mm	20 mm	11 mm	20 mm	20 mm

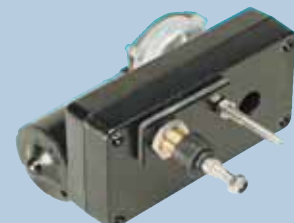
235KG



235KK-HD



233BD



Wipers 233BD and 235KG have the same dimensions.

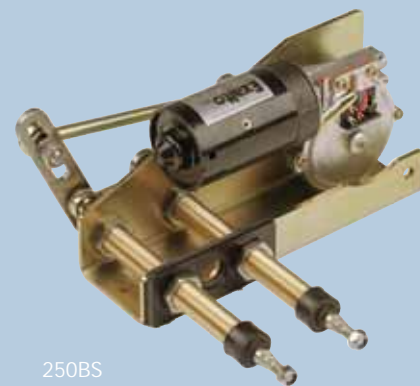
List with catalogue numbers	223BD	223BD	223BS	223BS	235KG	235KG	235KK-HD	235KK-HD	233BD	233BD
Voltage	12V	24V	12V	24V	12V	24V	12V	24V	12V	24V
17 mm bulkhead thickness					2123	2124				
20 mm bulkhead thickness	2165.30	2166.30	2167.30	2168.30			2154.30	2155.30	2151.30	2152.30
35 mm bulkhead thickness	2165.32	2166.32	2167.32	2168.32			2154.32	2155.32	2151.32	2152.32
55 mm bulkhead thickness	2165.35	2166.35	2167.35	2168.35			2154.35	2155.35	2151.35	2152.35
75 mm bulkhead thickness	2165.40	2166.40	2167.40	2168.40			2154.40	2155.40	2151.40	2152.40
100 mm bulkhead thickness							2154.45	2155.45	2151.45	2152.45
125 mm bulkhead thickness							2154.50	2155.50	2151.50	2152.50
Non-standard bulkhead thickness	2109.01	2109.01	2181.04	2181.04			2109.01	2109.01	2109.01	2109.01
Cover for unit, white	2101	2101								
Cover for unit, black	2115	2115								
Cover for unit, grey					2198.25	2198.25	2198.50	2198.50	2198.50	2198.50

## Large sized windows

The wiper motors 250BS and 280BS are designed to clear windshields from 1100-2100 mm (40-84") in height. They can power arms up to 1500 mm (59") and blades up to 1200 mm (47").

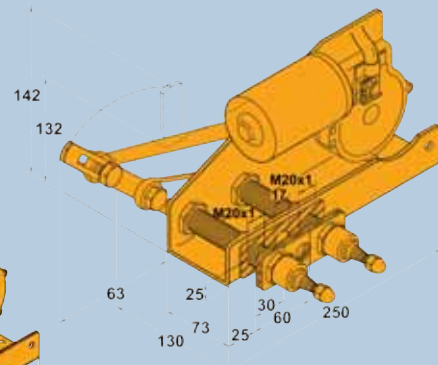
Features 250BS and 280BS:

- Two speeds
- Self parking
- Voltage: the 280BS is only available in 24V, the 250BS in 12V and 24V
- Bulkhead mounting
- Steplessly adjustable wiping arc from 40-90°
- Double brass bearings
- Dual drive shafts
- Centre distance: 60 mm

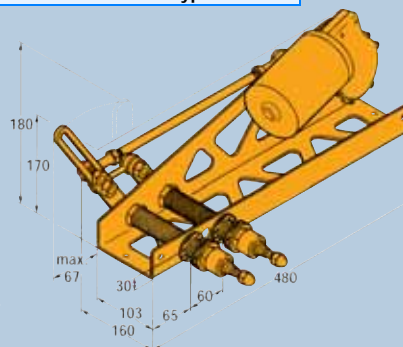


250BS

Technical specs	250BS	280BS
Torque	50 Nm	80 Nm
Power consumption	30W	95W
Insulated earth return	Yes	Optional
Negative earth		Yes
Max. arm length	1000 mm	1500 mm
Max. blade length	1200 mm	1200 mm
Drive shaft sleeve	20 mm	27 mm
Idler spindle/sleeve	20 mm	27 mm
Compatible pantograph arms	P10 type	P12 type



280BS



List with catalogue numbers	250BS	250BS	280BS
Voltage	12V	24V	24V
25 mm bulkhead thickness			2178.30
35 mm bulkhead thickness	2175.30	2176.30	
65 mm bulkhead thickness	2175.35	2176.35	
Non-standard bulkhead thickness	2181.03	2181.03	2181.02

## Exalto wiper blades

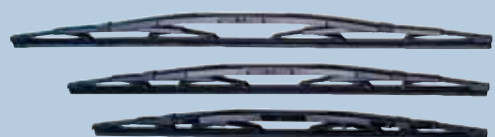
Exalto offers two series of wiper blades in a range of lengths designed specifically to fit the Exalto pantograph arms. The Heavy Duty blades have a reduced lift and a lower profile than the Standard blades. This makes them perfect for applications where a little more pressure is required. The Heavy Duty blades are also more screen friendly due to the use of lower plastic bridges. These bridges ensure that windows cannot be scratched if a blade insert breaks down.

All Exalto blades are manufactured from stainless steel 316 with natural rubber inserts. To prevent reflection, a black coating is applied on all metal parts.

Exalto Standard blades



Exalto Heavy Duty blades



Type	Length (mm)	Cat. no.
Standard	250	2170
Standard	300	2171
Standard	350	2172
Standard	400	2173
Standard	450	2174
Standard	500	2175
Standard	550	2176
Standard	600	2177
Standard	650	2178
Standard	700	2179
Standard	750	2195
Standard	800	2196
Standard	1200	2132

Type	Length (mm)	Cat. no.
H.D.	610	216120
H.D.	650	216121
H.D.	700	216122
H.D.	750	216123
H.D.	800	216124
H.D.	850	216125
H.D.	900	216126
H.D.	950	216127
H.D.	1000	216128
H.D.	1200	216130

# Exalto pantograph arms

All Exalto pantograph arms are manufactured from stainless steel 316 and have bronze heads. On standard arms, a black coating is applied on all metal parts to prevent reflection. However, for special applications, the arms are also available with a polished finish. Due to the adjustable blade clip the position of the blade can be adjusted to the shape of the window in parking position.

## Features PU type:

- Length: up to 750 mm
- Suit blade sizes 300-800 mm
- Centre distance: 50 mm
- One fixed spring, second spring at a surcharge
- Suitable for the wiper models 235KG, 235KK-HD, 233BD, 223BD and 223BS

Panthograph arms	PU type		
Length	270-450 mm	500-600 mm	650-750 mm
Cat. no. black coated arm	2133	2136	2139
Cat. no. polished arm	2133.p	2136.p	2139.p
Cat. no. tubing retainer clip	2133.03	2136.03	2139.03
Cat. no. second spring (surcharge)	2140	2140	2140
Cat. no. black coated arm with adjustable spring pressure			2139.adj

## Features P10 type:

- Length: 750-1000 mm
- Suit blade sizes up to 1200 mm
- Centre distance: 60 mm
- Two fixed springs
- Suitable for wiper model 250BS



## Features P12 type:

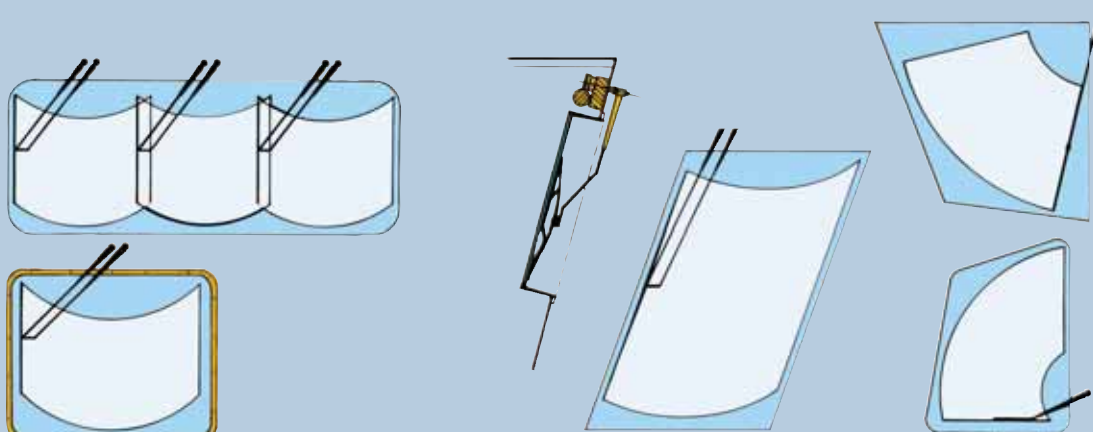
- Length: maximum 1500 mm
- Suit blade sizes up to 1200 mm
- Centre distance: 60 mm
- Two adjustable springs
- Suitable for wiper model 280BS
- Length to be specified when ordering



Gallery with adjustable spring pressure

Panthograph arms	P10 type	P10 type	P12 type
Length	750-1000 mm	750-1000 mm	Max. 1500 mm
Suit blade sizes	300-800 mm	900-1200 mm	900-1200 mm
Cat. no. black coated arm with fixed spring pressure	2142.s	2142.b	
Cat. no. polished arm with fixed spring pressure	2142.sp	2142.bp	2144.bp
Cat. no. black coated arm with adjustable spring pressure	2142.sas	2142.bas	2144.b

Typical examples of Exalto Marine Wipers



# Exalto wiper washing system

We advice fitting a wiper washing system to enable proper window cleaning. Exalto offers washing jets that are fitted to the wiper arm or to the bulkhead above or below the window. Water can be supplied either from a reservoir with built-in pump, a separate pump or the fresh water system on board, using a solenoid valve. In addition, Exalto offers a series of reservoirs, plumbing fittings, solenoid valves and thru-bulkhead connectors to complete the system. When using one of the Exalto switches, all the above mentioned options can be controlled by the switch.

## Reservoirs and solenoid valves

Description	Voltage (V)	Cat. no.
Reservoir 8 l. with pump	12	2193
Reservoir 8 l. with pump	24	2194
Reservoir 20 l. with 3 pumps	24	2192
Solenoid valve without manual override $\frac{1}{8}$ "	12	2137
Solenoid valve without manual override $\frac{1}{8}$ "	24	2138
Solenoid valve without manual override $\frac{1}{4}$ "	12	2142
Solenoid valve without manual override $\frac{1}{4}$ "	24	2143

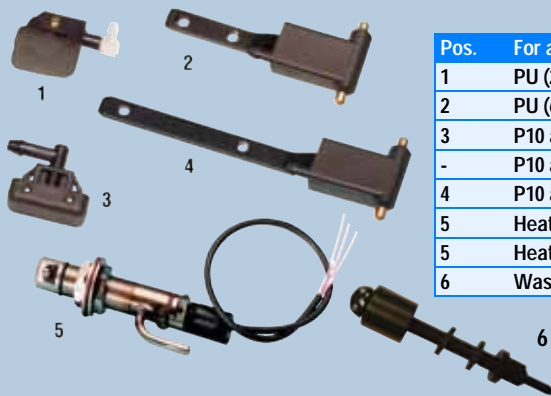


Reservoir



Solenoid without manual override

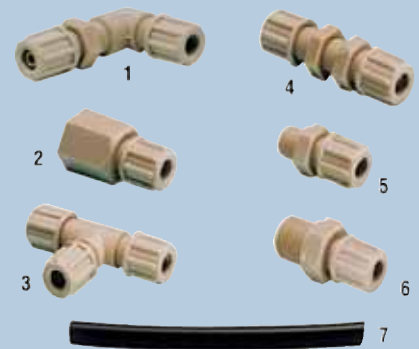
## Washing jets



Pos.	For arm	Cat. no.
1	PU (2 nozzles)	2184
2	PU (6 nozzles)	2110
3	P10 and P12 (4 nozzles) left	2185
-	P10 and P12 (4 nozzles) right	2185L
4	P10 and P12 (6 nozzles)	2111
5	Heated 24V DC, 25W	2148
5	Heated 230V AC, 25W	2149
6	Washing jet bulkhead mount	2151

## Fittings for non-pressurised systems

Pos.	Description	Dimensions	Cat. no.
1	Bent bulkhead connector	4 x 6 mm	2153
2	End coupling female	$\frac{1}{4}$ " B.S.P. x 6 mm	2120
3	T-coupling	6 x 6 x 6 mm	2156
4	Straight bulkhead connector	6 x 6 mm	2150
5	Straight coupling	$\frac{1}{8}$ " B.S.P. x 6 mm	2116
6	Straight coupling	$\frac{1}{4}$ " B.S.P. x 6 mm	2117
7	Plasticized nylon tubing per m. (black)	4 x 6 mm	2157
7	Flexible rubber tubing per m. (black)	4 x 6 mm	2154



## Quick-fit fittings for pressurised systems

Pos.	Description	Dimensions	Cat. no.
1	Elbow	6 x 6 mm	2129
2	Straight bulkhead connector	6 mm	2130
3	T-coupling	6 x 6 x 6 mm	2166
4	Swiveling elbow	6 x 6 mm	2131
5	Straight coupling	$\frac{1}{8}$ " B.S.P. x 6 mm	2118
6	Straight coupling	$\frac{1}{4}$ " B.S.P. x 6 mm	2119
7	Unplasticized nylon tubing per m. (blue)	4 x 6 mm	2167
8	Plastic bulkhead fitting	75 mm	2180
8	Stainless steel bulkhead fitting	125 mm	2181

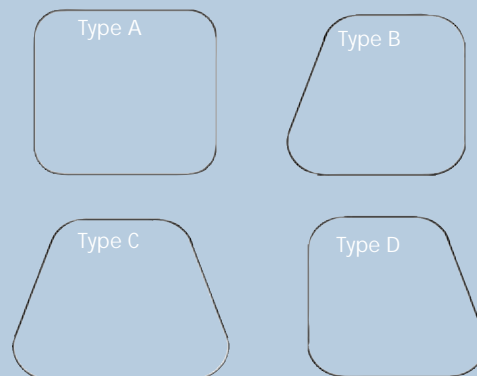
# Wiper Questionnaire

Before ordering one your wiper systems, please make sure you order the best suitable system to your window(s). Please fill in this form before ordering. If you have any questions, don't hesitate to contact someone of our sales team.

General data	
Company name:	Contact:
Address:	Tel.:
Place:	Fax:
Zip code:	E-mail:
Country:	

Technical data	
Power supply:	<input type="checkbox"/> 12V <input type="checkbox"/> 24V
Motor Location:	<input type="checkbox"/> Below window <input type="checkbox"/> Above window
Wiping arc:	°
Torque of motor:	Nm
Length of wiper arm:	mm
Length of wiper blade:	mm

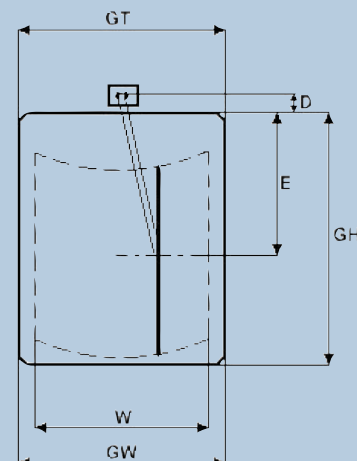
Window types:



Window dimensions (in mm)	Port	Port/Center	Center	Starboard/Center	Starboard
Window type (A, B, C or D, see above)					
Window height (GH)					
Width of glass/top (GT)					
Width of glass/bottom (GW)					
Centre distance (D)*					
Eye level (E)					
Bulkhead thickness					

\*Centre distance is the distance between the top of the glass and the centre of the motor shafts.

If known
Type of motor:
Type of arm:
Type of blade:



Please copy and fax or e-mail this Questionnaire to Exalto.

Fax: +31(0)184-614045  
E-mail: sales@exalto.com

# Windshieldwiper Order Form

General data	
Company name:	Contact:
Address:	Tel.:
Delivery address:	Fax:
Place:	E-mail:
Zipcode	Required delivery date:
Country:	

## Specification of order

Wiper system	Cat. no.	Quantity (pieces)
Type of wiper:		
- Voltage	V DC	
- Torque of motor	Nm	
- Bulkhead thickness	mm	
- Wiping arc	°	
Type of arm:	Length: mm	
Type of blade:	Length: mm	

Washing systems, switches & controls	Cat. no.	Quantity (pieces)
Reservoir 8 l. with pump	<input type="checkbox"/> 2193 (12V)* <input type="checkbox"/> 2194 (24V)*	
Reservoir 20 l. with 3 pumps	2192 (24V)	
Solenoid valve without manual override 1/8"	<input type="checkbox"/> 2137 (12V)* <input type="checkbox"/> 2138 (24V)*	
Solenoid valve without manual override 1/4"	<input type="checkbox"/> 2142 (12V)* <input type="checkbox"/> 2143 (24V)*	
Washing jet for PU with 2 nozzles	2184	
Washing jet for PU with 6 nozzles	2110	
Washing jet for P10 and P12 with 4 nozzles	2185	
Washing jet for P10 and P12 with 6 nozzles	2111	
Heated nozzle 24V DC	2148	
Heated nozzle 230V AC	2149	
Washing jet bulkhead mount	2151	
Fittings non-pressurised systems: Bent bulkhead connector	2153	
Fittings non-pressurised systems: End coupling female	2120	
Fittings non-pressurised systems: T-coupling	2156	
Fittings non-pressurised systems: Straight coupling	<input type="checkbox"/> 2116 (1/8")* <input type="checkbox"/> 2117 (1/4")*	
Fittings non-pressurised systems: Rubber tubing	2154	m
Nylon tubing black (plasticized) or blue (unplasticized)	<input type="checkbox"/> 2157 (black)* <input type="checkbox"/> 2167 (blue)*	m
Fittings pressurised systems: Elbow	2129	
Fittings pressurised systems: Straight bulkhead connector	2130	
Fittings pressurised systems: T-coupling	2166	
Fittings pressurised systems: Swiveling elbow	2131	
Fittings pressurised systems: Straight coupling	<input type="checkbox"/> 2118 (1/8")* <input type="checkbox"/> 2119 (1/4")*	
Fittings pressurised systems: Plastic bulkhead fitting	2180	
Fittings pressurised systems: Stainless steel bulkhead fitting	2181	
Two speed switch for one wiper	2134	
Two speed switch for two wipers	2135	
Combination switch for one wiper	<input type="checkbox"/> 2158 (12V)* <input type="checkbox"/> 2159 (24V)*	
Panel for combination switch	2159.01	
Electronic wiper control CT3EX	216324	
Bulkhead mount for wiper control CT3EX low / high model	<input type="checkbox"/> 216883 (3 mm) <input type="checkbox"/> 216886 (6 mm)	
Electronic wiper control CT3EX Dual Station	216324.DCP	
Electronic wiper control for max. 3 H.D.-wipers	<input type="checkbox"/> 210312 (12V)* <input type="checkbox"/> 210324 (24V)*	
Electronic wiper control for max. 5 H.D.-wipers	<input type="checkbox"/> 210512 (12V)* <input type="checkbox"/> 210524 (24V)*	
Electronic wiper control Dual Station for max. 3 H.D.-wipers	<input type="checkbox"/> 210312.DCP (12V)* <input type="checkbox"/> 210324.DCP (24V)*	

\* Please choose the right catalogue number by ticking the square in front of the wanted number.

Please copy and fax or e-mail this order form to Exalto:

Fax: +31(0)184-614045

E-mail: sales@exalto.com

# Exalto wiper switches and controls

Exalto offers a wide range of controls to operate your windshield wiper system. These vary from simple switches for operating each individual wiper to electronic control units that can control and synchronize up to five wipers.

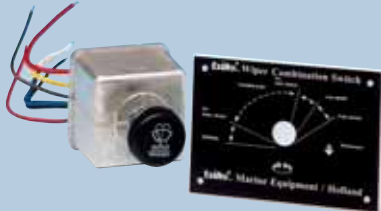
## Electronic wiper switches

Exalto offers two simple dual voltage switches to control one or two motors. They are self parking and have a low speed, a high speed and a push button for washing.

The combination switch is for a single wiper motor. This switch features an adjustable intermittent wipe, two speeds and self-parking control and has a push button for wiper washing. The combination switch is available in 12 and 24V DC and has a connection for a pump or solenoid.



Two speed switches for one (left) and two (right) wipers



Combination switch and panel

Description	Volt	Cat. no.
Two speed switch for one wiper	12 / 24	2134
Two speed switch for two wipers	12 / 24	2135
Combination switch for one wiper	12	2158
Combination switch for one wiper	24	2159
Panel for combination switch		2159.01

## Electronic control panels

Exalto offers two models wiper controls. The multivolt control panel CT3EX can be used for maximum three H.D. wipers. The wipers can be switched individually or in any combination. The control offers two continuous speeds, a three-step intermittent wipe and a wipe / wash feature. The wipers are self-parking and run synchronised in all settings. The wiper control consists of one flush mount panel of 72 x 72 mm and one junction box. To ease the mounting of the panel, two bulkhead mounts are available: a high model of 6 mm and a low model of 3 mm in height. These mounts should be ordered separately.



Wiper control panel CT3EX



Electronic wiper control. This example is suitable for five wipers.

The other electronic wiper control for Exalto marine wipers is available in 12V and 24V DC. This wiper control is suitable for three or for five Exalto H.D. wipers. The number of active wipers can be changed by simply pressing one of the related buttons. All wipers have one continuous speed, three intermittent levels and are self-parking. They run synchronized in the low continuous mode and in all intermittent modes. LED indicators on the panel indicate the selected speed setting. The touch pad of 100 x 100 mm also offers a wipe / wash function. This wipe / wash programme can easily be programmed in such a way that the wiper(s) of your choice can be excluded from the programme. The complete wiper control consists of one flush mount panel, one junction box and 4 m connection cable. Extension cables of 3 and 6 m are available on request.

Both control panels are also available in a dual station version. With this version you can operate the wipers from two stations. The dual stations include one junction box and two control panels connected to the junction box.



Photo: Damen Shipyards Gorinchem

Description	Max. number of HD-wipers	Voltage	Cat. no.
Electronic wiper control CT3EX	3	12/24	216324
Bulkhead mount high (6 mm)	-	-	216886
Bulkhead mount low (3 mm)	-	-	216883
Electronic wiper control CT3EX dual station	3	12/24	216324.DCP
Electronic wiper control	3	12	210312
Electronic wiper control	3	24	210324
Electronic wiper control	5	12	210512
Electronic wiper control	5	24	210524
Dual control panel	3	12	210312.DCP
Dual control panel	3	24	210324.DCP

# Linked wiper systems

When one wiper does not have enough coverage to wipe your whole window, Exalto offers two types of linked wiper systems.

## Type Exalto KW

This linked wiper system is custom made, so in almost every situation the perfect solution can be offered. With one wiper a maximum of four arms can be driven. Main advantage of this wiper system is that the arms are adjustable in length. The arms have a stepless adjustable blade holder, so in self-parking position the blade can be set parallel to the top or the bottom of the window. The type E wiper arms are specially designed for the Exalto KW. We advise you to use the Exalto H.D. blades.

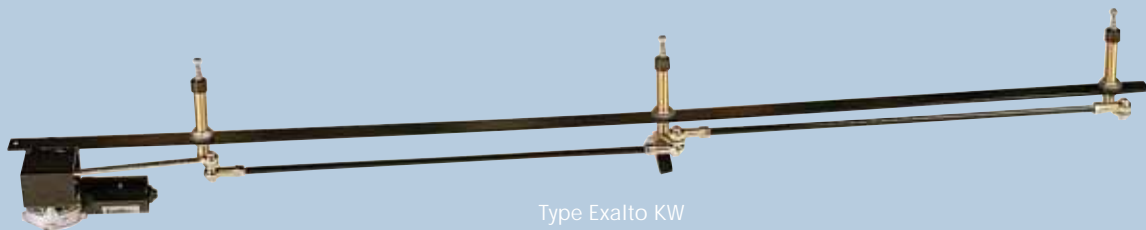
### Features Exalto KW:

- Easy to mount
- Insulated earth return
- Low noise
- Self-parking
- Two speeds
- Available in 12 and 24V
- Torque: 23, 50 or 80Nm
- Power consumption: 30, 36 or 96W
- Stainless steel shafts, bolts and nuts
- Self lubricating bronze bearings
- Available for bulkhead thickness 20, 35, 55, 75, 100 and 125 mm
- Maximum wiping arc 100°
- Three types



Example of a mounted KW4 wiper system

Type	Bulkhead thickness (mm)	Voltage (V)	Torque (Nm)	Power consumption (Watt)	Max. arm length model E (mm)	Max. blade length (mm)
KW2	20, 35, 55, 75, 100, 125	12 and 24	23	36	600	700
KW3	20, 35, 55, 75, 100, 125	12 and 24	50	30	750	750
KW4	20, 35, 55, 75, 100, 125	24	80	96	750	750



Type Exalto KW

## Type E wiper arms

The E-arms are made of stainless steel 316 and have a black coating. The blades have a stepless adjustable blade clip.

Adjustable length (mm)	Cat. no.
350-450	2103
500-600	2106
650-750	2109

Type	Bulkhead thickness (mm)	Voltage (V)	Cat. no.	Voltage (V)	Cat. no.
KW2	20	12	2123.02012	24	2123.02024
KW2	35	12	2123.03512	24	2123.03524
KW2	55	12	2123.05512	24	2123.05524
KW2	75	12	2123.07512	24	2123.07524
KW2	100	12	2123.10012	24	2123.10024
KW2	125	12	2123.12512	24	2123.12524
KW3	20	12	2150.02012	24	2150.02024
KW3	35	12	2150.03512	24	2150.03524
KW3	55	12	2150.05512	24	2150.05524
KW3	75	12	2150.07512	24	2150.07524
KW3	100	12	2150.10012	24	2150.10024
KW3	125	12	2150.12512	24	2150.12524
KW4	20			24	2180.02024
KW4	35			24	2180.03524
KW4	55			24	2180.05524
KW4	75			24	2180.07524
KW4	100			24	2180.10024
KW4	125			24	2180.12524

## Type Exalto 235KJ

This wiper system is also specially designed for wide windows. One motor with a torque of 50 Nm drives two parallel arms at the same time, as they are mechanically linked. When the wiping arc and the length of the linkage has been determined, Exalto can produce a custom-made wiper system. Linkages are available up to 2000 mm in length.

### Features Exalto 235KJ:

- Bulkhead mounting
- Insulated earth return
- Low noise
- Self-parking
- Two speeds
- Available in 12 and 24V DC
- Torque: 50 Nm
- Power consumption: 30 W
- Stainless steel shafts, bolts and nuts
- Bronze bearings
- Available for bulkhead thickness 20, 55, 75, 100 and 125 mm.
- Suitable for type PU-arms up to 700 mm
- Suitable for wiper blades up to 600 mm



Type Exalto 235KJ

Bulkhead thickness (mm)	Voltage (V)	Cat. no.	Voltage (V)	Cat. no.
20	12	210220	24	210230
55	12	210221	24	210231
75	12	210222	24	210232
100	12	210223	24	210233
125	12	210224	24	210234
Surcharge non-standard shaft length. Minimum bulkhead thickness 6 mm.		2109.02		



Photo's of vessels:  
Damen Shipyards Gorinchem



Part of the Exalto Wiper workshop