

# Heavy Duty Hoist

## DH-1200

Industry Duty

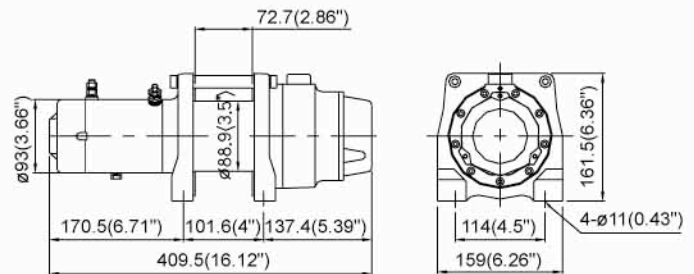
- Heavy duty series wound motor gives high torque and fast line speed
- Detachable control box mounted elsewhere on the vehicle
- High efficiency 3-stage planetary gear train for greater pulling force
- The U.S. Germany, U.K., France, etc patented automatic cone brake holds full load, maintenance with easy. The greater the load on the wire rope, the greater amount of brake that is applied by the mechanism.



### SPECIFICATION

Lifting Load.....	545 kg / 1,200 lb
Motor 12V.....	900 w / 1.2 hp
24V.....	600 w / 0.8 hp
Gear Train.....	3 stage planetary gears
Gear Ratio.....	216 : 1
Brake.....	automatic, full load cone brake
Wire Rope Size.....	ø6.35 x 15.2 m (1/4" x 50')
Wire Rope Type.....	galvanized aircraft A7 x 19
Drum Size.....	ø89 x 72.7 mm (3.5" x 2.86")
Mounting bolt pattern.....	101.6 mm x 114 mm (4" x 4.5")

### DIMENSION mm / in



### LINE SPEED AND AMP. DRAW

(1 st layer of wire rope on the drum)

Lifting Load	Line Speed	Amp. Draw	Percentage Duty Cycle
kg / lb	mpm / fpm	12V / 24V	%ED
0 / 0	12.5 / 41	60 / 35	25
110 / 250	9.5 / 31.2	80 / 50	23
230 / 500	8.0 / 26.2	100 / 60	20
340 / 750	7.0 / 23.0	120 / 68	18
450 / 1,000	6.2 / 20.3	135 / 75	15
545 / 1,200	5.5 / 18.0	150 / 80	13

### LIFTING LOAD, LINE SPEED AND ROPE CAPACITY

Layer of Wire Rope	Lifting Load	Line Speed	Total Rope on the Drum
	kg / lb	mpm / fpm	m / ft
1st Layer	545 / 1,200	5.5 / 18	3.2 / 10.5
2nd Layer	480 / 1,060	6.3 / 20.7	6.9 / 22.6
3rd Layer	430 / 950	7.1 / 23.3	11 / 36.1
4th Layer	390 / 860	7.8 / 25.6	15.2 / 50

### PACKAGE

Winch Weight.....	17 kg / 37.4 lb
Gross Weight.....	20 kg / 44 lb
Box Dimension.....	440 x 287 x 193 mm ( 17.3" x 11.3" x 7.6" )

### PERCENTAGE DUTY CYCLE

Calculate the percentage duty cycle according to the following formula

$$\text{Percentage duty cycle (\%ED)} = \frac{T_b}{T_b + T_s} \times 100\%$$

T<sub>b</sub> : total sum of overall loading operating hours

T<sub>s</sub> : total sum of stopping hours

T<sub>b</sub>+T<sub>s</sub>= approximately 1 to 10 min

### STANDARD ACCESSORIES

- Detachable solenoid pack WA-0812
- Wire rope with hook
- Remote control WA-0310

### WARNING

Hoist are not to be used for the lifting or moving of persons

### WARRANTY

Each new hoist is guaranteed against defects in workmanship and material defects for a period of twelve months from date of purchase.

# Heavy Duty Hoist

## DHC-1600

Industry Duty

- Heavy duty series wound motor gives high torque and fast line speed
- Detachable control box mounted elsewhere on the vehicle
- High efficiency 3-stage planetary gear train for greater pulling force
- The U.S. Germany, U.K., France, etc patents automatic, full-load cone brake PLUS auxiliary inverted current brake hold full load.
- In compliance with standard of ANSI B30.5, D/d ≥ 18, and wire rope safety factor ≥ 3.5
- Provides an answer to the health and safety recommendations for manual lifting

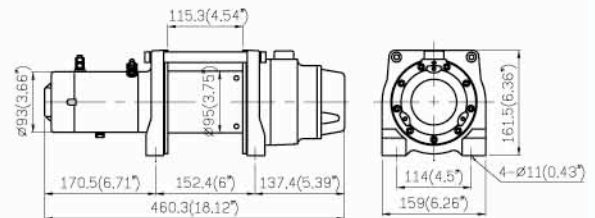


Note:  
Roller fairlead does not mount to winch

### SPECIFICATION

Lifting Load .....	726 kg / 1,600 lb
Motor 12V .....	900 w / 1.2 hp
24V .....	600 w / 0.8 hp
Gear Train .....	3 stage planetary gears
Gear Ratio .....	216 : 1
Brake .....	automatic, full load cone brake PLUS auxiliary inverted current brake
Wire Rope Size .....	ø5.6 x 19.8 m (7/32" x 65')
Wire Rope Type .....	galvanized aircraft A7 x 19
Drum Size .....	ø95 x 115.3 mm (ø3.75" x 4.54")
Mounting Bolts Pattern .....	152.4 mm x 114 mm (6" x 4.5")

### DIMENSION mm / in



### LINE SPEED AND AMP. DRAW

(1 st layer of wire rope on the drum)

Lifting Load	Line Speed	Amp. Draw	Percentage Duty Cycle
kg / lb	mpm / fpm	12V / 24V	% ED
0 / 0	14.0 / 45.9	60 / 35	25
110 / 250	10.6 / 34.8	80 / 60	23
230 / 500	8.9 / 29.2	110 / 80	20
340 / 750	7.7 / 25.3	135 / 90	18
450 / 1,000	6.2 / 20.3	160 / 100	15
545 / 1,200	5.0 / 16.4	180 / 110	13
726 / 1,600	4.5 / 14.8	200 / 120	11

### PERCENTAGE DUTY CYCLE

Calculate the percentage duty cycle according to the following formula

$$\text{Percentage duty cycle (\%ED)} = \frac{T_b}{T_b + T_s} \times 100\%$$

T<sub>b</sub> : total sum of overall loading operating hours

T<sub>s</sub> : total sum of stopping hours

T<sub>b</sub>+T<sub>s</sub>= approximately 1 to 10 min

### LIFTING LOAD, LINE SPEED AND ROPE CAPACITY

Layer of Wire Rope	Lifting Load	Line Speed	Total Rope on the Drum
	kg / lb	mpm / fpm	m / ft
1st Layer	726 / 1,600	4.5 / 14.8	6.6 / 21.7
2nd Layer	657 / 1,448	5.0 / 16.4	13.9 / 45.6
3rd Layer	601 / 1,325	5.5 / 18.0	19.8 / 65.0

### PACKAGE

Winch Weight .....	15 kg / 33 lb
Gross Weight .....	24 kg / 52.8 lb
Box Dimension .....	490 x 287 x 193 mm ( 17.3" x 11.3" x 7.6" )

### WARNING

Hoist are not to be used for the lifting or moving of persons

### WARRANTY

Each new hoist is guaranteed against defects in workmanship and material defects for a period of twelve months from date of purchase.

### STANDARD ACCESSORIES

- Detachable solenoid pack WA-0817
- Remote control WA-0310
- Wire rope with hook



# Heavy Duty Hoist

## DHC-2000

- Heavy duty series wound motor gives high torque and fast line speed
- Detachable control box mounted elsewhere on the vehicle
- High efficiency 3-stage planetary gear train for greater pulling force
- The U.S. Germany, U.K., France, etc patents automatic, full-load cone brake PLUS auxiliary inverted current brake hold full load.
- In compliance with standard of ANSI B30.5, D/d ≥ 18, and wire rope safety factor ≥ 3.5
- Provides an answer to the health and safety recommendations for manual lifting

### SPECIFICATION

Lifting Load .....	907 kg / 2,000 lb
Motor 12V .....	4,175 w / 5.6 hp
24V .....	2,684 w / 3.6 hp
Gear Train.....	3 stage planetary gears
Gear Ratio .....	261 : 1
Brake .....	automatic, full load cone brake PLUS auxiliary inverted current brake
Wire Rope Size.....	ø6.4 x 30.5 m (1/4" x 100')
Wire Rope Type.....	galvanized aircraft A7 x 19
Drum Size.....	ø114.3 x 146.8 mm (ø4.5" x 5.78")
Mounting Bolst Pattern .....	203.2 mm x 114 mm (8" x 4.5")

### LINE SPEED AND AMP. DRAW

(1 st layer of wire rope on the drum)

Lifting Load	Line Speed	Amp. Draw	Percentage Duty Cycle
kg / lb	mpm / fpm	12V / 24V	% ED
0 / 0	10.2 / 33.5	75 / 50	25
230 / 500	7.1 / 23.3	140 / 80	23
450 / 1,000	6.0 / 19.7	170 / 100	20
680 / 1,500	4.9 / 16.1	190 / 120	18
907 / 2,000	4.2 / 13.8	210 / 140	15

### LIFTING LOAD, LINE SPEED AND ROPE CAPACITY

Layer of Wire Rope	Lifting Load	Line Speed	Total Rope on the Drum
	kg / lb	mpm / fpm	m / ft
1st Layer	907 / 2,000	4.2 / 13.8	8.0 / 26.2
2nd Layer	820 / 1,808	4.6 / 15.1	16.8 / 55.1
3rd Layer	748 / 1,649	5.1 / 16.7	26.4 / 86.6
4th Layer	688 / 1,517	5.5 / 18.0	30.5 / 100.0

### PACKAGE

Winch Weight .....	37 kg / 81.6 lb
Gross Weight .....	48 kg / 105.6 lb
Box Dimension .....	620 x 360 x 263 mm ( 24.4" x 14.2" x 10.4" )

### WARNING

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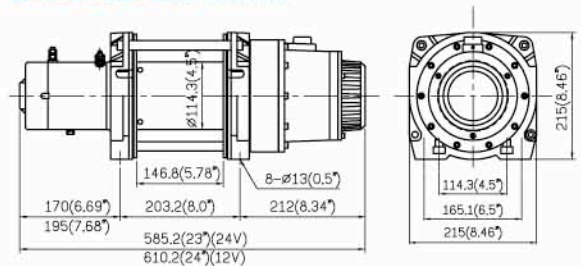
### WARRANTY

Each new hoist is guaranteed against defects in workmanship and material defects for a period of twelve months from date of purchase.

## Industry Duty



### DIMENSION mm / in



### PERCENTAGE DUTY CYCLE

Calculate the percentage duty cycle according to the following formula

$$\text{Percentage duty cycle (\%ED)} = \frac{T_b}{T_b + T_s} \times 100\%$$

T<sub>b</sub> : total sum of overall loading operating hours

T<sub>s</sub> : total sum of stopping hours

T<sub>b</sub>+T<sub>s</sub>= approximately 1 to 10 min

### STANDARD ACCESSORIES

- Detachable solenoid pack WA-0817
- Remote control WA-0310
- Wire rope with hook



# Heavy Duty Hoist

## DHC-3000

- Heavy duty series wound motor gives high torque and fast line speed
- Detachable control box mounted elsewhere on the vehicle
- High efficiency 3-stage planetary gear train for greater pulling force
- The U.S. Germany, U.K., France, etc patents automatic, full-load cone brake PLUS auxiliary inverted current brake hold full load.
- In compliance with standard of ANSI B30.5, D/d ≥ 18, and wire rope safety factor ≥ 3.5
- Provides an answer to the health and safety recommendations for manual lifting

### SPECIFICATION

Lifting Load .....	1,360 kg / 3,000 lb
Motor 12V .....	4,175 w / 5.6 hp
24V .....	2,684 w / 3.6 hp
Gear Train .....	3 stage planetary gears
Gear Ratio .....	315 : 1
Brake .....	automatic, full load cone brake PLUS auxiliary inverted current brake
Wire Rope Size .....	ø8.3 x 22.9 m (21/64" x 75')
Wire Rope Type .....	galvanized aircraft A7 x 19
Drum Size .....	ø141.3 x 146.8 mm (ø5.56" x 5.78")
Mounting Bolt Pattern .....	203.2 mm x 114 mm (8" x 4.5")

### LINE SPEED AND AMP. DRAW

(1 st layer of wire rope on the drum)

Lifting Load	Line Speed	Amp. Draw	Percentage Duty Cycle
kg / lb	mpm / fpm	12V / 24V	% ED
0 / 0	11.7 / 38.4	80 / 50	25
230 / 500	8.8 / 28.9	130 / 75	23
450 / 1,000	7.6 / 24.9	165 / 100	20
680 / 1,500	6.5 / 21.3	190 / 125	18
907 / 2,000	5.6 / 18.4	210 / 140	15
1,135 / 2,500	4.9 / 16.1	230 / 155	14
1,360 / 3,000	4.3 / 14.1	250 / 170	13

### LIFTING LOAD, LINE SPEED AND ROPE CAPACITY

Layer of Wire Rope	Lifting Load	Line Speed	Total Rope on the Drum
	kg / lb	mpm / fpm	m / ft
1st Layer	1,360 / 3,000	4.3 / 14.1	7.5 / 24.6
2nd Layer	1,224 / 2,698	4.8 / 15.8	15.9 / 52.2
3rd Layer	1,113 / 2,454	5.3 / 17.4	22.9 / 75.0

### PACKAGE

Winch Weight .....	40 kg / 88 lb
Gross Weight .....	54.5 kg / 119.7 lb
Box Dimension .....	620 x 360 x 263 mm ( 24.4" x 14.2" x 10.4" )

### WARNING

Hoist are not to be used for the lifting or moving of persons

### WARRANTY

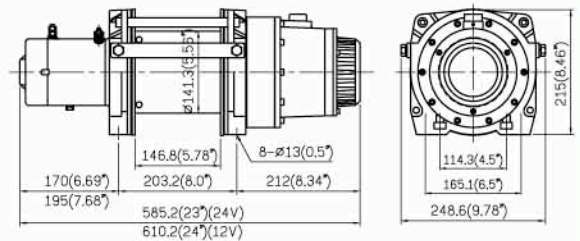
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Industry Duty



Note:  
Roller fairlead does not mount to winch

### DIMENSION mm / in



### PERCENTAGE DUTY CYCLE

Calculate the percentage duty cycle according to the following formula

$$\text{Percentage duty cycle (\%ED)} = \frac{T_b}{T_b + T_s} \times 100\%$$

T<sub>b</sub> : total sum of overall loading operating hours

T<sub>s</sub> : total sum of stopping hours

T<sub>b</sub>+T<sub>s</sub>= approximately 1 to 10 min

### STANDARD ACCESSORIES

- Detachable solenoid pack WA-0817
- Remote control WA-0310
- Wire rope with hook



# Accessories

## Remote Control

WA-0310 Switch W/5 m (17') cord



## DC SOLENOID

WA-0201 12 V for WA-0812 / 0817  
 WA-0202 24 V for WA-0812 / 0817  
 WA-0203 12 V for WA-0815 / 0818  
 WA-0204 24 V for WA-0815 / 0818  
 WA-0205 12 V for WA-0817  
 WA-0206 24 V for WA-0817



WA-0201 WA-0202 WA-0203 WA-0204 WA-0205 WA-0206

## Snatch Block

WA-0401 10,000kg / 22,000lb  
 WA-0404 13,610kg / 30,000lb



WA-0401 WA-0404

## Roller Fairlead

WA-0502 DP-12.5  
 WA-0503 HV-8000SP  
 WA-0504 HV-10000SP / 12000P / 15000P / DP-10000SP  
 WA-0510 Wolf 8.5 / 12.0  
 WA-0513 HV-20000  
 WA-0514 HV-30000



## Mounting Channel

WA-0705 HV-10000SP  
 WA-0706 HV-8000SP



## Detachable Solenoid Pack

WA-0812 for DH-1200  
 WA-0815 for DP-10000ES / DP-12.5  
 WA-0817 for DHC-1600 / 2000 / 3000  
 WA-0818 for Wolf 8.5 / Wolf 12.0



WA-0817 WA-0812 WA-0815 WA-0818  
 (Including each one pce WA-0201 / 0202 & WA-0205 / 0206)

## Cable Tensioner

WA-0902 HV-12000P, HV-15000P, DP-10000ES / DP-12.5  
 WA-0904 HV-20000  
 WA-0905 Wolf 8.5, Wolf 12.0  
 WA-0906 HV-30000  
 WA-0907 HV-8000SP w/flat bar  
 WA-0908 HV-10000SP w/flat bar



## Air Free-Spool

WA-1001 HV-8000SP ~ HV-20000  
 WA-1003 HV-30000



## Over Center Valve

WA-1301 HV-8000SP ~ HV-15000P  
 WA-1302 HV-20000  
 WA-1303 HV-30000



# Engineering Data

## Maximum Line Pull

This is the maximum dead-weight the winch could lift off the ground with a single line on the first layer of wire rope on the drum. They are not suitable for vertical lifting.

## Winching Principles

You need a winch to be powerful enough to pull your vehicle while overcome the added resistance caused by the obstacle, moving water, mud, snow, sand or on a steep hill.

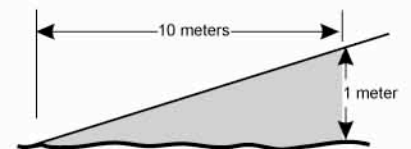
As a general guide you need a winch with a maximum line pull of at least 1.5 times greater than the gross vehicle weight. There are three factors have influenced with the line pull effect required to recover the vehicle. The values and calculations in this section are approximate and are for reference only.

- 1). Gross Vehicle Weight (Wt) :** Contains the vehicle weight and the weight of the supplies and equipments carried.
- 2). Surface Drag (S) :** The characteristics of the terrains or surface to be traversed

Surface Type	Metal	Sand	Gravel	Soft Sand	Mud	Marsh
Surface Drag (S)	0.15	0.18	0.20	0.22	0.32	0.52

- 3). Gradient Resistance :** The incline of grade or slope on which the vehicle is being moved.

Gradient	5 %	10%	20%	30%	50%	70%	100%
Angle (ref.)	3°	6°	11°	17°	26°	35°	45°
Gradient (G)	0.06	0.11	0.2	0.3	0.44	0.58	0.71



A gradient of 10% is a rise of one meter in ten meters

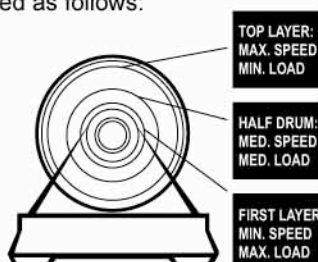
Rolling Pull Effect Required = ( Wt X S ) + ( Wt X G )

For example, if a vehicle weighing 3,000 kg is winched up an incline by 100% on the marsh road, the above formula would be used as follows:

Where

Wt : 3,000 kg ( gross vehicle weight )  
 S : 0.52 ( co-efficient for marsh )  
 G : 0.71 ( gradient value of 100% )

$$\begin{aligned} & ( Wt \times S ) + ( Wt \times G ) \\ & = ( 3,000 \text{ kg} \times 0.52 ) + ( 3,000 \text{ kg} \times 0.71 ) \\ & = 1,560 \text{ kg} + 2,130 \text{ kg} \\ & = 3,690 \text{ kg of effect required to recover the vehicle} \end{aligned}$$



**Winches have been awarded the following patents**

U.S.A.	US6,520,486B2	USD438,358S	USD439,722S
Germany	Nr.20217439.5		
U.K.	GB2387368		
France	REG.0301991		
Taiwan	076737 076815 079943 139158 180221		
	180547 181473 186419 188404 190951		
China	ZL01204721.X ZL01229143.9 ZL01300166.3		
	ZL01300167.1 ZL02241429.0 ZL02338450.6		

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