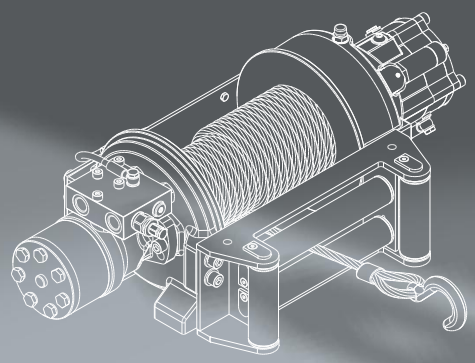
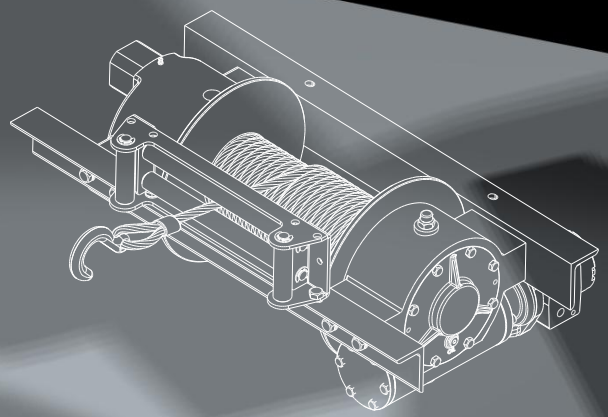
VIME INDUSTRIAL

The Quality is Transparent





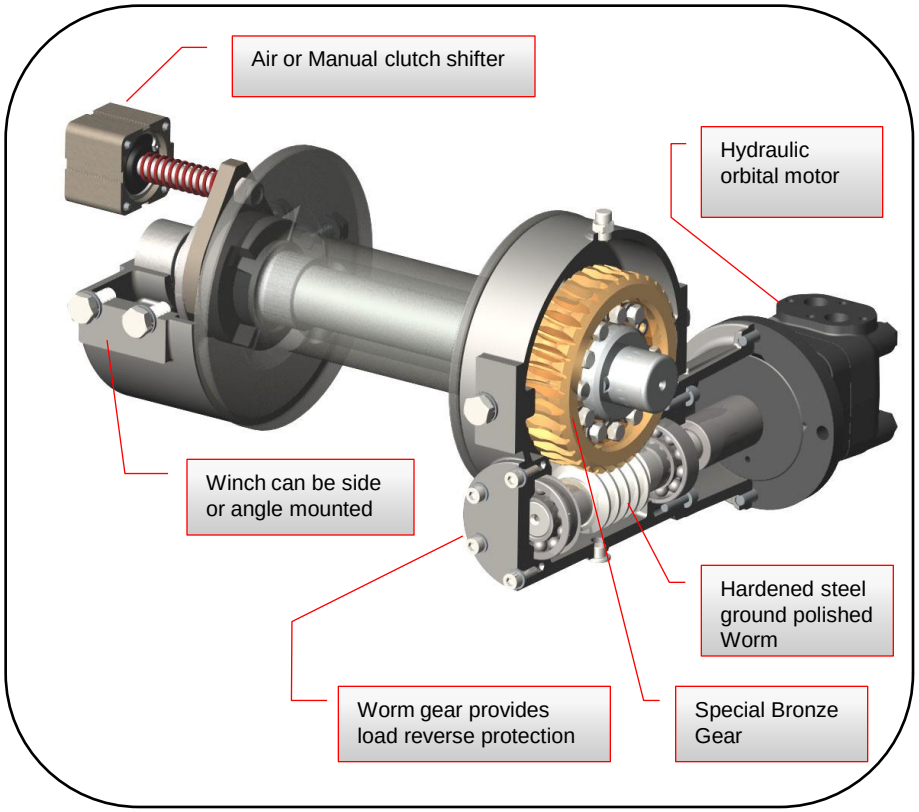
V.I.M.E. srl
Via Gramsci,15 40050 Funo - Bologna (Italy)
Tel. +39 051/861362 Fax +39 051/861961

E-mail : vimeind@tin.it
E-mail : info@vimeindustrial.com
Web: www.vimeindustrial.com
Web: www.vimeindustrial.it

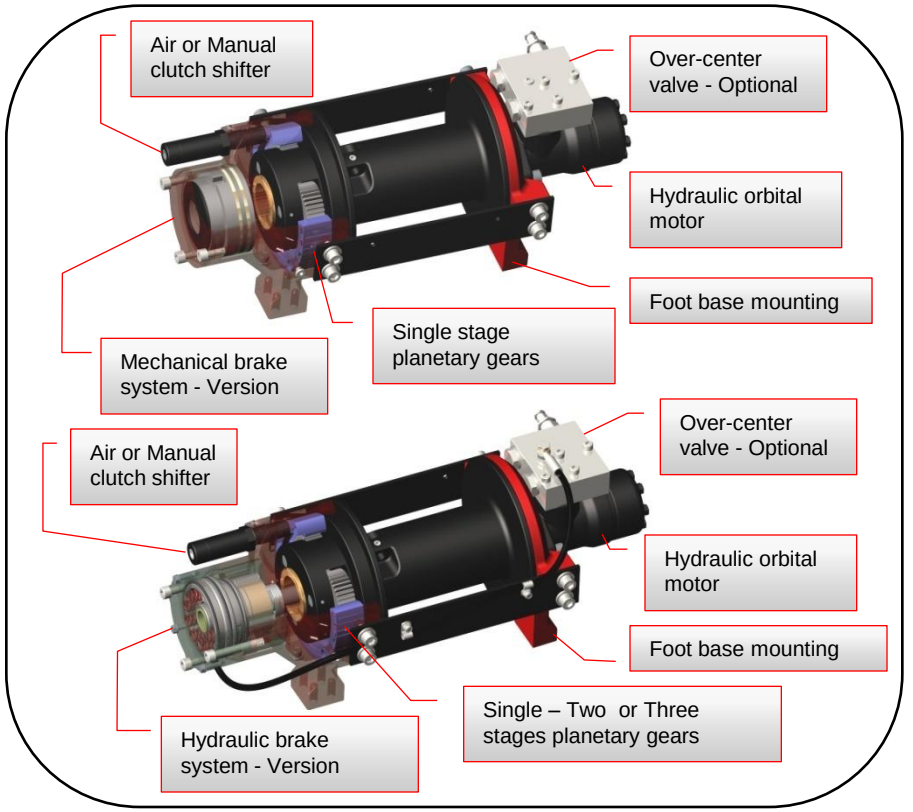
VIME has had a long-standing commitment to producing quality winches throughout its range. Year after year VIME winches have been at the forefront of technology and unequalled performance. Nowadays more European and world industries rely on VIME winches for good performance and uncompromising quality they can offer.

YOUR NEEDS GUIDE OUR CHOICES

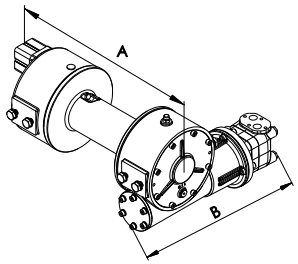
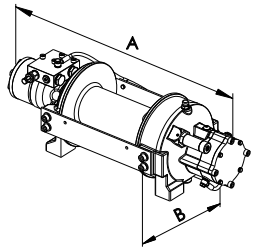
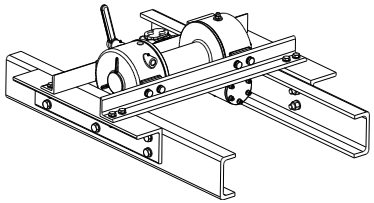
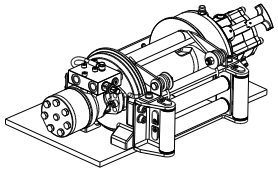
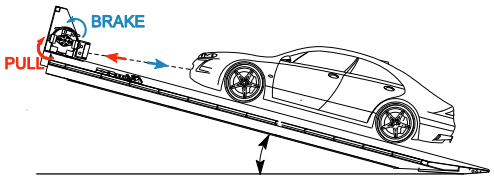
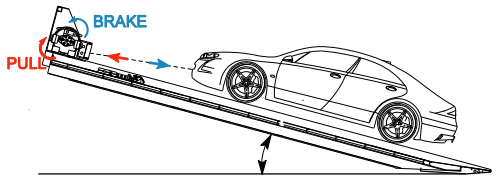
Some operators prefer the heavy duty solid pulling power of a **Worm Gear Winch.** VIME has what they need from 2,2 to 30 tons capacities. Built with the highest quality our Worm Gear Winches have been the "Choice of Professionals" for over 40 years.



Some operators prefer the fast pay out and compact overall dimensions of a **Planetary Gear Winch**. VIME has what they need from 3,6 to 22,5 tons capacities. Built with the highest quality our Planetary Gear Winches claim a reliable brake who offer a smooth control of load.



WORM GEAR OR PLANETARY

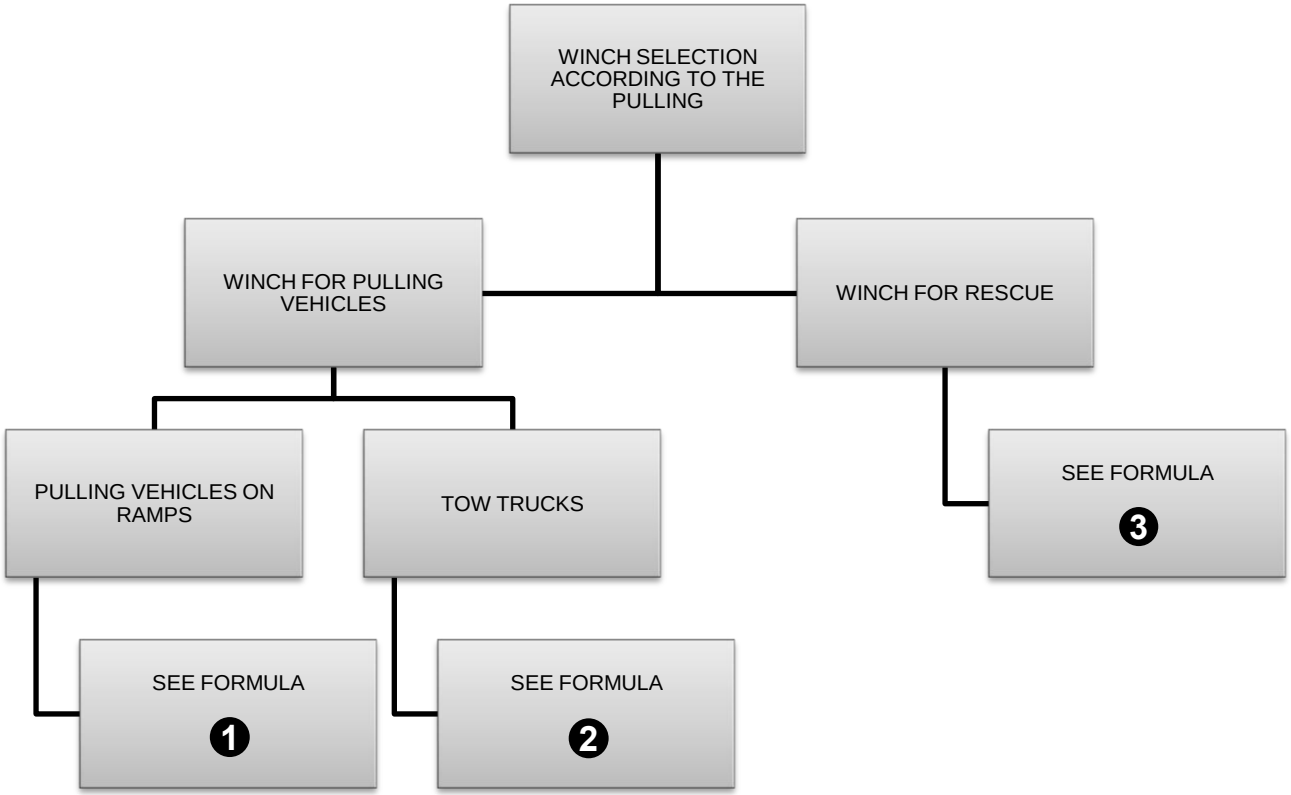
FEATURES	WORM GEAR WINCH		PLANETARY WINCH	
OVERALL DIMENSIONS	COMPACT IN WIDTH **(A)** LARGER IN DEPTH **(B)**		COMPACT IN DEPTH **(B)** LARGER IN WIDTH **(A)**	
MOUNTING	STANDARD MOUNTING ANGLES (not on models WH – NH – PH) HELPING FOR LOW RIGHT WINCH MOUNTING ON VEHICLE CHASSIS		FOOT BASE OR SIDE MOUNTING	
SPEED LINE	SLOWEST PAY OUT		FASTER PAY OUT	
BRAKE	WORM GEAR PROVIDES LOAD REVERSING PROTECTION		EQUIPPED WITH BRAKE SYSTEM : *MECHANICAL : BRAKE* OFFERS A RELIABLE BRAKE CAPACITY *HYDRAULIC BRAKE* OFFERS: A FULL BRAKE CAPACITY	

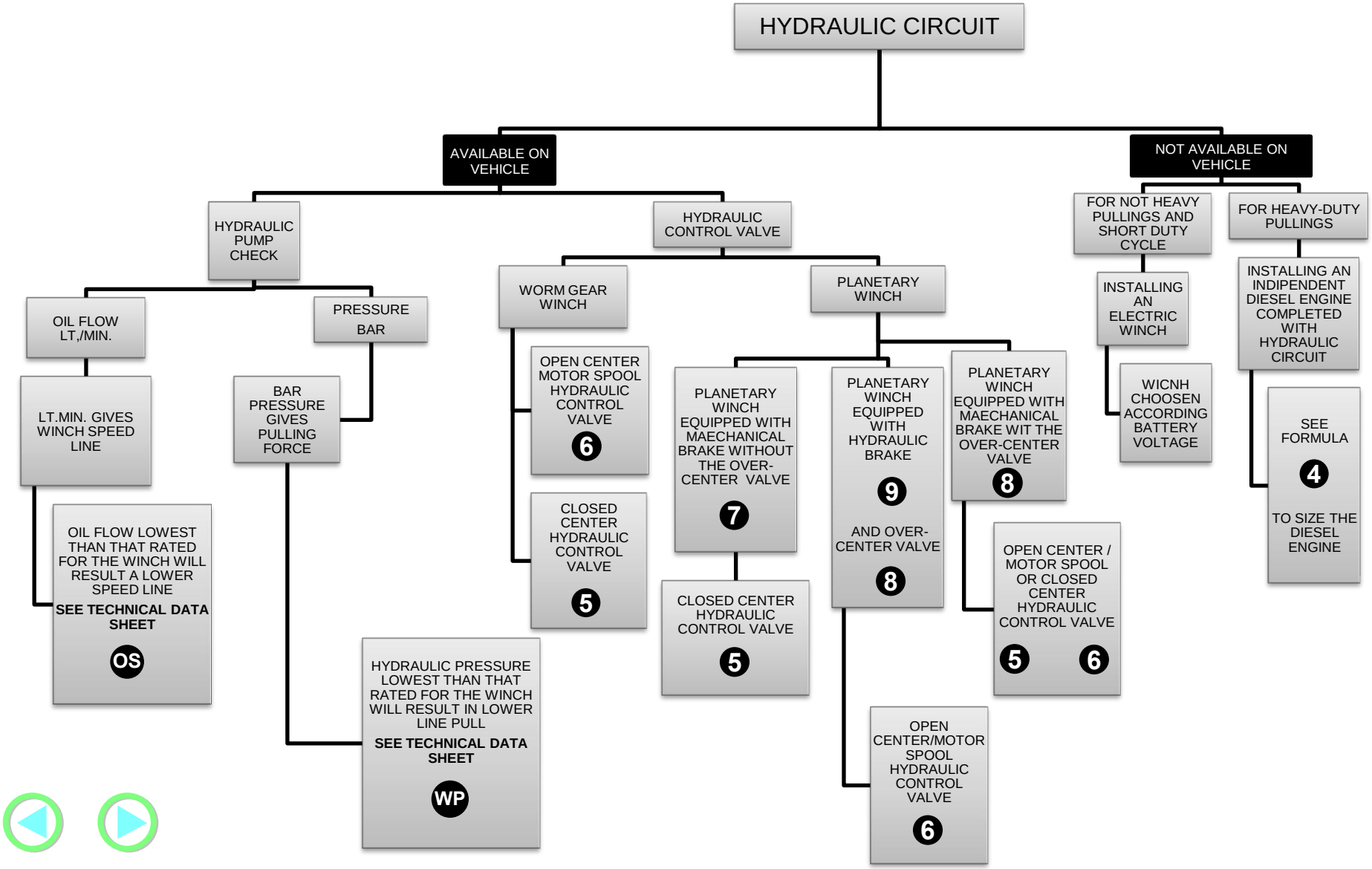
HOW TO SELECT A WINCH

This guide want to be a tool for the winch choice according to :

- Applications
- Performance requested by customer
- Hydraulic system installed or must be installed on vehicle

The data given by this guide, are theoretical*, because many factors can influence the winch pulling.*

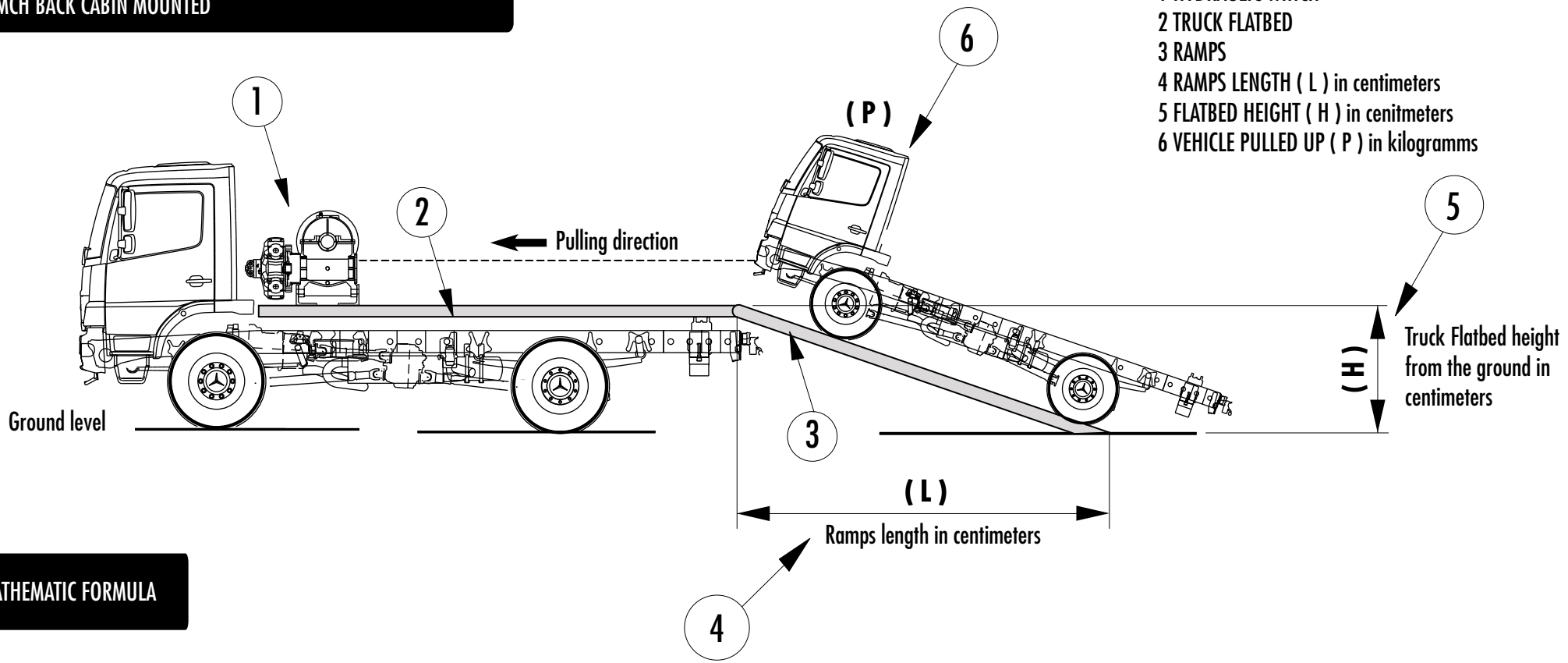



HYDRAULIC CIRCUIT
AVAILABLE ON VEHICLE
NOT AVAILABLE ON VEHICLE
HYDRAULIC PUMP CHECK
HYDRAULIC CONTROL VALVE
OIL FLOW LT,/MIN.
PRESSURE BAR
LT.MIN. GIVES WINCH SPEED LINE
OIL FLOW LOWEST THAN THAT RATED FOR THE WINCH WILL RESULT A LOWER SPEED LINE
SEE TECHNICAL DATA SHEET
OS
BAR PRESSURE GIVES PULLING FORCE
HYDRAULIC PRESSURE LOWEST THAN THAT RATED FOR THE WINCH WILL RESULT IN LOWER LINE PULL
SEE TECHNICAL DATA SHEET
WP
WORM GEAR WINCH
PLANETARY WINCH
OPEN CENTER MOTOR SPOOL HYDRAULIC CONTROL VALVE
6
CLOSED CENTER HYDRAULIC CONTROL VALVE
5
PLANETARY WINCH EQUIPPED WITH MAECHANICAL BRAKE WITHOUT THE OVER-CENTER VALVE
7
CLOSED CENTER HYDRAULIC CONTROL VALVE
5
PLANETARY WINCH EQUIPPED WITH HYDRAULIC BRAKE
9
AND OVER-CENTER VALVE
8
OPEN CENTER/MOTOR SPOOL HYDRAULIC CONTROL VALVE
6
PLANETARY WINCH EQUIPPED WITH MAECHANICAL BRAKE WIT THE OVER-CENTER VALVE
8
OPEN CENTER / MOTOR SPOOL OR CLOSED CENTER HYDRAULIC CONTROL VALVE
5
6
FOR NOT HEAVY PULLINGS AND SHORT DUTY CYCLE
INSTALLING AN ELECTRIC WINCH
WICNH CHOOSEN ACCORDING BATTERY VOLTAGE
FOR HEAVY-DUTY PULLINGS
INSTALLING AN INDIPENDENT DIESEL ENGINE COMPLETED WITH HYDRAULIC CIRCUIT
SEE FORMULA
4
TO SIZE THE DIESEL ENGINE

FORMULA 1

TRUCK EQUIPPED BY FLATBED WITH RAMPS AND HYDRAULIC WINMCH BACK CABIN MOUNTED

1 HYDRAULIC WINCH
2 TRUCK FLATBED
3 RAMPS
4 RAMPS LENGTH (L) in centimeters
5 FLATBED HEIGHT (H) in cenitmeters
6 VEHICLE PULLED UP (P) in kilogramms



MATHEMATIC FORMULA

(2) FLATBED HEIGHT OF THE VEHICLE WHERE THE WINCH IS MOUNTED (H) INDICATED IN CENTIMETERS

(4) VEHICLE RAMPS LENGTH (L) INDICATED IN CENTIMETERS

(6) VEHICLE WEIGHT MUST BE PULLED BY THE WINCH UP TO THE RAMPS (P) INDICATED IN KILOGRAMMS

H : L = the result is a factor, that must be multiply with the vehicle weight (P) must be pulled up (vehicle weight must be indicated in kilogramms).
H : L x P = at the result of that formula must be added a % as friction effort as indicated below:
+ 30% if the vehicle (P) must be pulled up working on tires
+ 50% if the vehicle (P) must be pulled up working on caterpillar

⚠ DANGEROUS
Do not use winch to lift support or otherwise transport personnel.

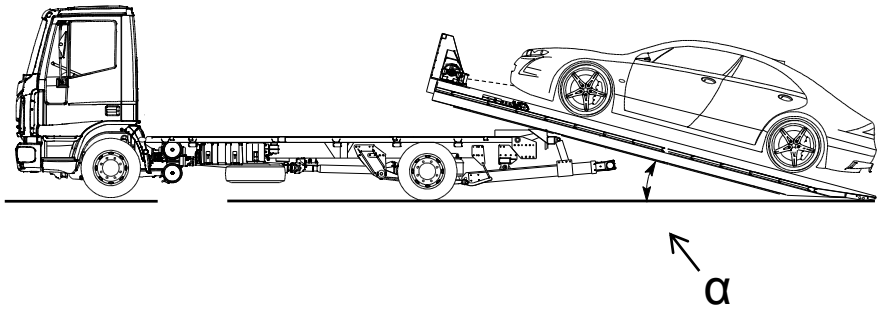
NOTE:
This mathematic formula must be considered such as an approximate and empiric indication of the effort needed to pull up a vehicle onto a truck ramps, becasue many factors must be considered to determine a precise calculation.

FORMULA ❷

The following data are theoretical and must be used as a general suggestion

- **Angle of inclination** – the inclination of loading platform in degrees
- **Coefficient of inclination** – is the factor must be multiplied by the vehicle total weight (in kgs.) who must be winching on loading platform.
- To the result of the calculation above, must be added a % as friction loss :
  +30% for vehicles on free tires
  +50% for vehicles on braked tires

Example : if loading platform as an inclination of 25° the coefficient of inclination will be 0,466. If the vehicle total weight is 2.000 kgs, the approximate resistance to the slide will be 0,466 x 2.000 = 932 kgs. To this value a percentage of 30% or 50% according to the vehicle working conditions must be added.



ANGLE OF INCLINATION RAMP α	COEFFICIENT
5	0,087
10	0,176
15	0,267
20	0,363
25	0,466
30	0,576
35	0,699
40	0,838
45	1

FORMULA ❸

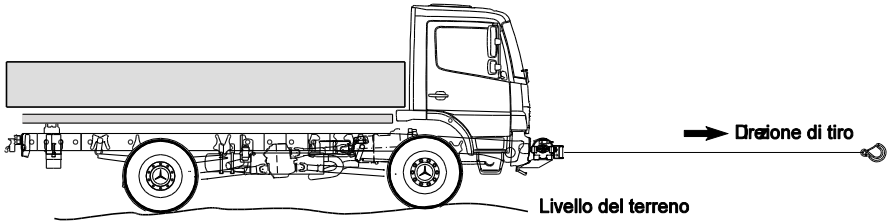
The following data are theoretical and must be used as a general suggestion

- **Total weight** – A vehicle total weight – should include all attributing factors, including fuel, passengers, cargo and equipment
- **Surface drag** – Is the single most significant factor in winching. Assuming the vehicle is in proper working conditions, a flat surface will use approximately 4% of its total weight to initiate motion. In opposition, a restrictive surface can require as much as 50% of the vehicle total weight.

Basic mathematics will indicate the approximate rolling resistance of a vehicle that is functioning properly.

Example : if the surface is gravel, 0,20 is multiplied by the vehicle total weight. If the total weight is 5.000 kgs, then the approximate rolling resistance is 1.000 kgs.
(5.000 kgs. x 0,20= 1.000 kgs.)

This equation is applicable for flat surfaces only.
For all other surfaces, the calculation must include the gradient resistance co-efficient .



SURFACE TYPE	SURFACE DRAG
Hard flat road	0,04
Grass	0,14
Sand (hard wet)	0,17
Gravel	0,20
Sand (soft wet)	0,20
Sand (soft /dry / loose)	0,25
Shallow mud	0,33
Bog	0,50
Marsh	0,50
Clay (clinging)	0,50

FORMULA 4

DIESEL ENGINE PACKAGED

To be able to install an hydraulic winch on a trailer or semi trailer, where PTO and Pump are not available on Tractor.
The only choice is an independent hydraulic circuit powered by a diesel engine
To size the diesel engine in relation to the winch, follow the mathematic formula :

$$\frac{\text{LT. x PRESSURE}}{380} = \text{HP}$$

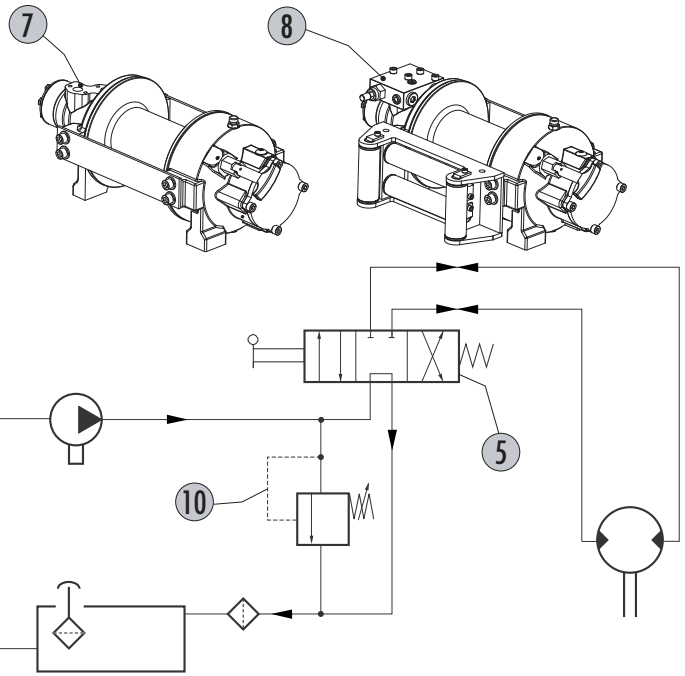
LT. = are Lt./Min. - hydraulic pump oil flow
(Lt./Min. given speed line in Mt./Min.) - see Technical data

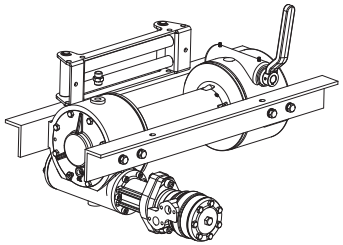
PRESSURE = is the winch working pressure
see Technical data

⚠ DANGEROUS
Do not use winch to lift, support or otherwise transport personnel.

PLANETARY WINCH MODEL EPH - EQUIPPED
WITH MECHANICAL BRAKE WITHOUT OVERCENTER VALVE (7)
WITH MECHANICAL BRAKE WITH OVERCENTER VALVE (8)

WORM GEAR WINCH





CLOSED CENTER HYDRAULIC CONTROL VALVE (5)
FOR PLANETARY WINCH EQUIPPED WITH MECHANICAL BRAKE WITHOUT OVERCENTER VALVE (7)

CLOSED CENTER HYDRAULIC CONTROL VALVE (5)
FOR WORM GEAR WINCH

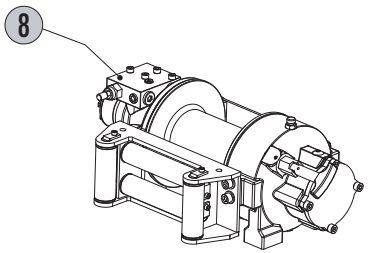
MOTOR SPOOL OR OPEN CENTER HYDRAULIC CONTROL VALVE (6)
FOR PLANETARY WINCH EQUIPPED WITH MECHANICAL BRAKE WITH OVERCENTER VALVE (8)
FOR PLANETARY WINCH EQUIPPED WITH HYDRAULIC BRAKE (9) AND WITH OVERCENTER VALVE (8)

MOTOR SPOOL OR OPEN CENTER HYDRAULIC CONTROL VALVE (6)
FOR WORM GEAR WINCH

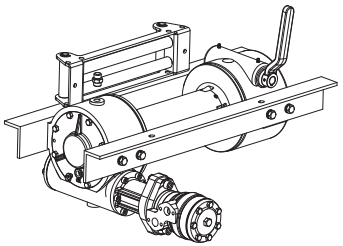
NOTE:

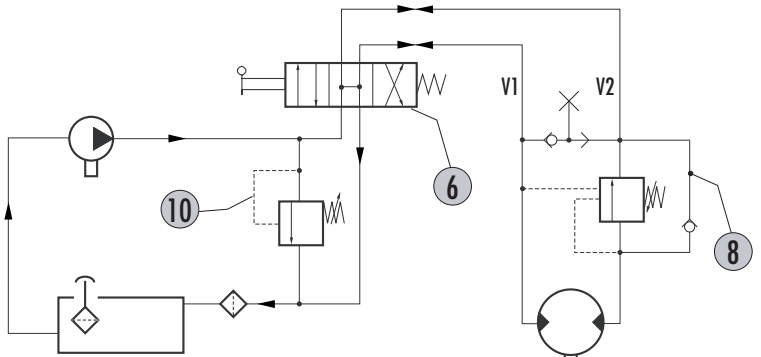
THE RELIEF VALVE (10) MUST BE SET AT THE WINCH WORKING PRESSURE.

PLANETARY WINCH MODEL EPH - EQUIPPED
WITH MECHANICAL BRAKE WITH OVERCENTER VALVE (8)

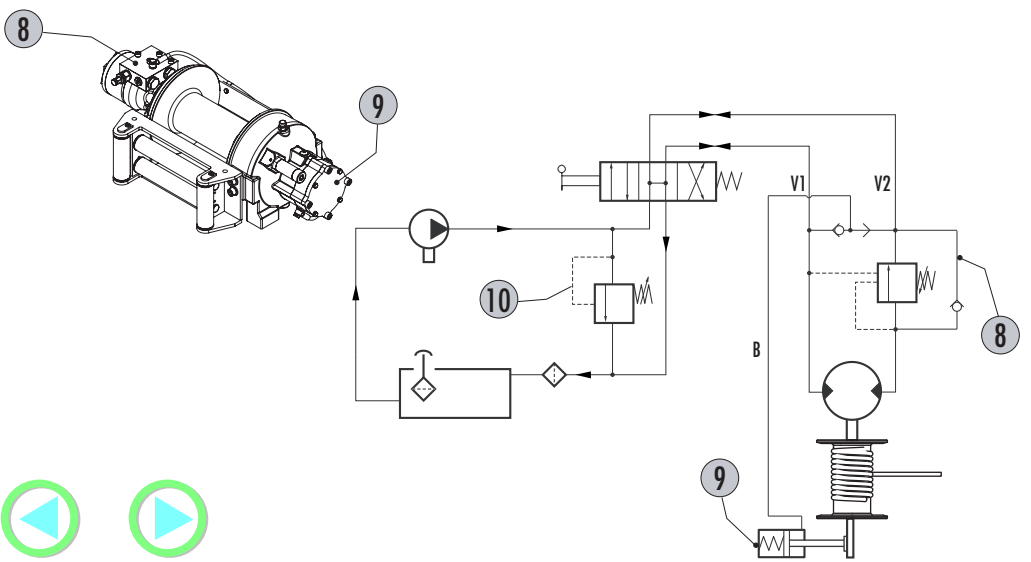


WORM GEAR WINCH

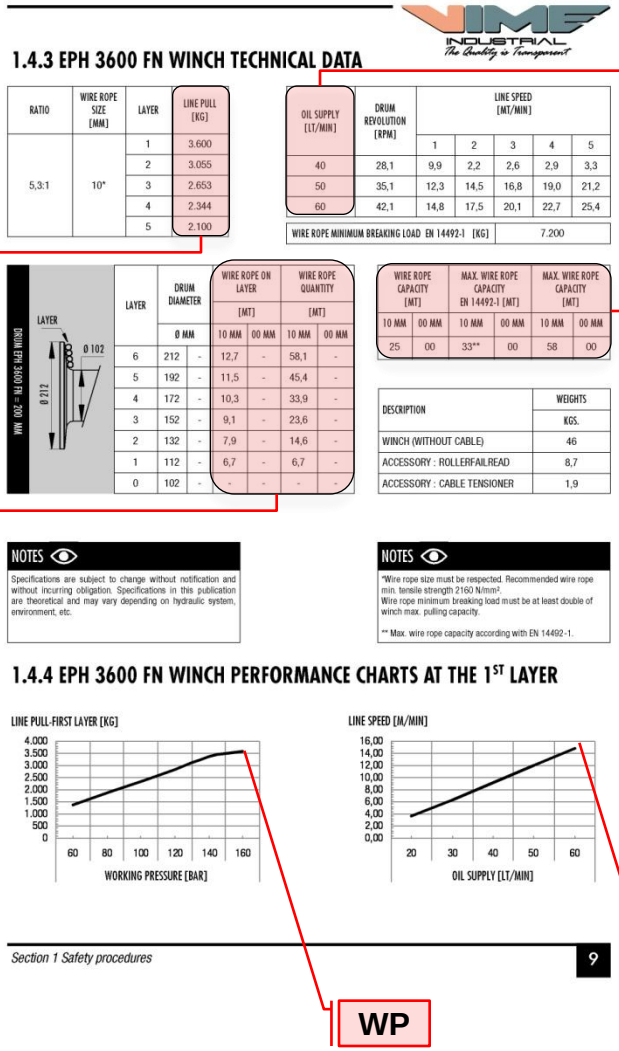




PLANETARY WINCH MODEL EPH FN - EQUIPPED
WITH HYDRAULIC BRAKE (9) AND OVERCENTER VALVE (8)



READING GUIDE OF TEHCNICAL DATA SHEET



1.4.3 EPH 3600 FN WINCH TECHNICAL DATA

RATIO	WIRE ROPE SIZE [MM]	LAYER	LINE PULL [KG]
5,3:1	10*	1	3.600
		2	3.055
		3	2.653
		4	2.344
		5	2.100

OIL SUPPLY [LT/MIN]	DRUM REVOLUTION [RPM]	LINE SPEED [MT/MIN]				
		1	2	3	4	5
40	28,1	9,9	2,2	2,6	2,9	3,3
50	35,1	12,3	14,5	16,8	19,0	21,2
60	42,1	14,8	17,5	20,1	22,7	25,4

WIRE ROPE MINIMUM BREAKING LOAD EN 14492-1 [KG]	7.200

LAYER	DRUM DIAMETER Ø MM		WIRE ROPE ON LAYER [MT] 10 MM	00 MM	WIRE ROPE QUANTITY [MT] 10 MM	00 MM
6	212	-	12,7	-	58,1	-
5	192	-	11,5	-	45,4	-
4	172	-	10,3	-	33,9	-
3	152	-	9,1	-	23,6	-
2	132	-	7,9	-	14,6	-
1	112	-	6,7	-	6,7	-
0	102	-	-	-	-	-

WIRE ROPE CAPACITY [MT] 10 MM	00 MM	MAX. WIRE ROPE CAPACITY EN 14492-1 [MT] 10 MM	00 MM	MAX. WIRE ROPE CAPACITY [MT] 10 MM	00 MM
25	00	33**	00	58	00

DESCRIPTION	WEIGHTS KGS.
WINCH (WITHOUT CABLE)	46
ACCESSORY : ROLLERFAILREAD	8,7
ACCESSORY : CABLE TENSIONER	1,9

NOTES

Specifications are subject to change without notification and without incurring obligation. Specifications in this publication are theoretical and may vary depending on hydraulic system, environment, etc.

NOTES

*Wire rope size must be respected. Recommended wire rope min. tensile strength 2160 N/mm². Wire rope minimum breaking load must be at least double of winch max. pulling capacity.

** Max. wire rope capacity according with EN 14492-1.

1.4.4 EPH 3600 FN WINCH PERFORMANCE CHARTS AT THE 1ST LAYER

Section 1 Safety procedures 9

PULLING CAPACITY
Gives the winch max. pulling capacity for every single rope layer on drum. The 1st rope layer is the layer where the winch gives the max pulling capacity.
As 1st layer is intended the drum empty and all wire rope spooled out.

WIRE ROPE ON LAYER
Gives the wire rope quantity winded on every single layer.
WIRE ROPE QUANTITY
Gives the total wire rope quantity till the layer taken in consideration.
These data are theoretical and based on a wire rope with a perfect circular section and winded onto the drum in an orderly manner.

OS

OIL SUPPLY LT./MIN.
Gives the oil supplied by the hydraulic pump.
Lt./Min. gives winch speed line.
The highest value indicated in the table gives the highest oil flow permitted by the winch hydraulic orbital motor.
Other values constitute suitable intervals to the solo purpose to give an idea of as winch line speed changes to vary some liters per minute. A lowest oil flow will result a lower line speed. Over a certain interval, an oil flow extremely low could influence the hydraulic motor torque with loss of winch performance.

WIRE ROPE CAPACITY
In this table are indicated the following data:
MAX. WIRE ROPE CAPACITY EN 14492-1
Gives max. wire rope quantity winding on winch drum according to the Harmonized rule EN 14492-1.
MAX. WIRE ROPE CAPACITY
Gives max. wire rope quantity winding on winch drum. Corresponding to the full drum condition – this is a theoretical data.

WP

OS