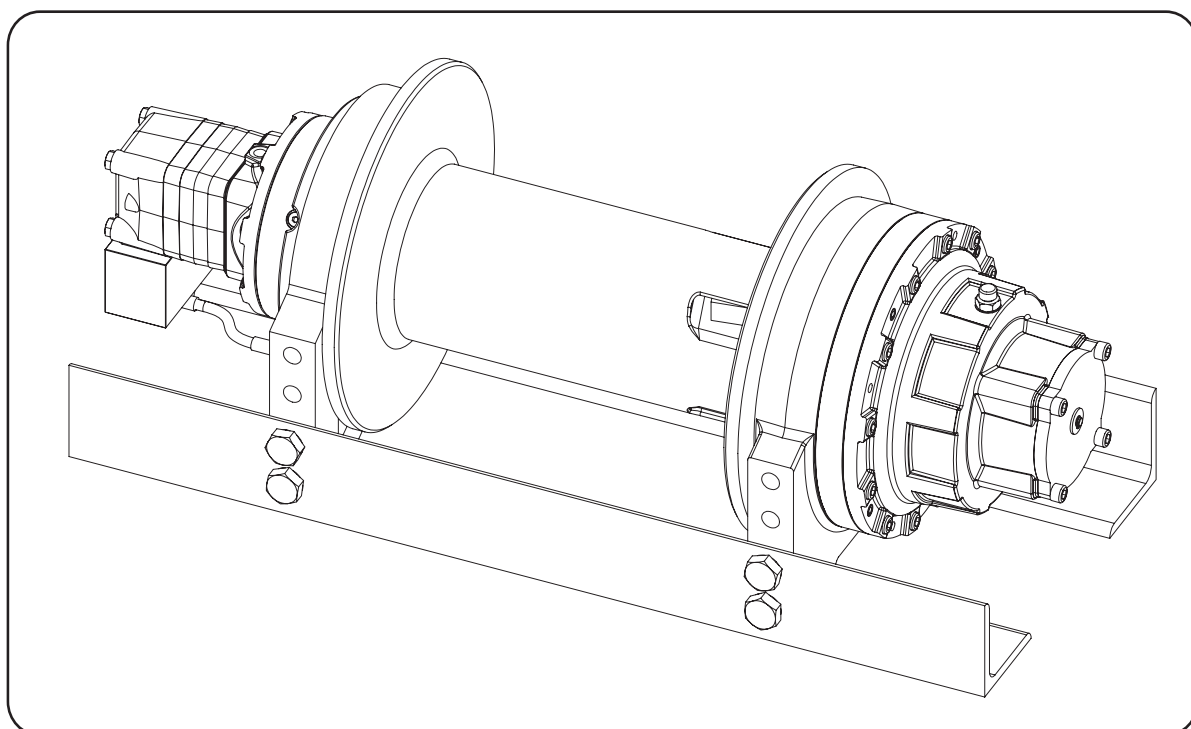


OPERATING SERVICE AND MAINTENANCE MANUAL

**EPHL 100 FN
EPHL 150 FN**

**EPHL 125 FN
EPHL 165 FN**



PLANETARY HYDRAULIC WINCH



Because of continued product improvement, we reserve the right to make changes without notice.

ENGLISH



EN 14492-1



WARNING

Read and understand this manual before installation and operation of winch.

VIME Industrial has no responsibility for physical injury to persons, animals or property damages. That can result from failure to read and apply the instructions contained in the manual supplied with the winch and especially for: failure with global safety aspects - not correct linking to the source of energy - deficiency in the annual and monthly maintenance - improper uses - any alteration, repair or modification from unauthorized personnel.



WARNING

Do not operate this winch until you have fully read this manual.



WARNING

Read and understand this manual before installation and operation of winch.

Many accidents are due for non observance safety procedures. A good reason, most of it can be avoided by knowing causes and taking in advance the opportunity safety.

Model		EPHL 100 FN EPHL 125 FN EPHL 150 FN EPHL 165 FN
Serial Number		
Year		
Rated line pull (single line)	<ul style="list-style-type: none"> • EPHL 100 FN CE • EPHL 125 FN CE • EPHL 150 FN CE • EPHL 165 FN CE 	10.000 Kg 12.500 Kg 15.000 Kg 16.500 Kg
Wire rope	<ul style="list-style-type: none"> • EPHL 100 FN CE • EPHL 125 FN CE • EPHL 150 FN CE • EPHL 165 FN CE 	Dia. 15-16 mm Dia. 15-18 mm Dia. 18 mm Dia. 18 mm
Max. working pressure	<ul style="list-style-type: none"> • EPHL 100 FN CE • EPHL 125 FN CE • EPHL 150 FN CE • EPHL 165 FN CE 	200 bar 200 bar 200 bar 180 bar
Weight (without cable)	<ul style="list-style-type: none"> • EPHL 100 FN CE • EPHL 125 FN CE • EPHL 150 FN CE • EPHL 165 FN CE 	200 Kg 200 Kg 210 Kg 210 Kg

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SECTION 1

SAFETY PROCEDURES



1.1. INTRODUCTION

Manual identified by code No.12/2016 - UK - 13H - EN 14492-1 has 42 pages.



IMPORTANT

At the delivery of this manual check all data and for possible incongruities.

VIME Industrial reserves the right to improve its products through changes in designed or materials as it may seem desirable without being obligated to incorporate such changes in this manual.

This manual contains useful ideas in obtaining the most efficient operation and maintenance from the winch and safety procedures one need to know before operating a winch.

For safety procedures, read carefully safety procedures in chap.1.7.

Manual has to be kept intact and near to the winch for a prompt reading and consultation.



WARNING

In case of misunderstanding of this manual or parts of it, please contact VIME Industrial. For repair service contact VIME Industrial.

For a rapid consultations, manual is being shared in 6 sections:

- Section 1 Safety procedures
- Section 2 Mounting
- Section 3 Operation
- Section 4 Accessories
- Section 5 Maintenance
- Section 6 Trouble shooting guide

Section **1** contains warning symbols, winch description and all data for **SAFETY PROCEDURES**. Section **2** contains note about road traffic, hydraulic system, winch and cable drum installations. Section **3** contains all data for winch operations. Section **4** accessories description. Section **5** is referred to the operator in charge of the winch maintenance. In this section are indicated all procedures as well as the maintenance must be executed in winch life. Section **6** is a guide for a trouble shooting should verify in winching operation. All sections are shared in chapters progressive numbered. Chapters are shared in sub-sections progressive numbered.



IMPORTANT

For a rapid reading see table of contents.

1.2 SYMBOLS

In this manual there are three different symbols to prevent serious injuries.

- “DANGEROUS” symbol



DANGEROUS

Used to indicate dangerous situation and prevent injury.

- “WARNING” symbol



WARNING

Used to indicate dangerous situation for winch efficiency and for operator safety.

- “IMPORTANT” symbol



IMPORTANT

Used to call attention on important information which user must know

In addition to the symbols there is a symbol who gives notes.

- “NOTE” symbol



NOTE

Used to call attention on informations or advices that could help on winching operation.

Symbols and notes are completed with messages and descriptions who warns about dangers or news. And above all indicate recommended procedures and information.

1.3 SYMBOLS

According to EEC Directive Machinery 2006/42/CE, on VIME’s winches there are, in a visible position for the utiliser, the following symbols:



CABLE INJURES KEEP CLEAR
(roller fairlead)



READ CAREFULLY THE OPERATING SERVICE AND MAINTENANCE MANUAL



KEEP SAFETY DISTANCE
(winch identification decal)



WEAR WORKING GLOVES
(winch identification decal)



IMPORTANT

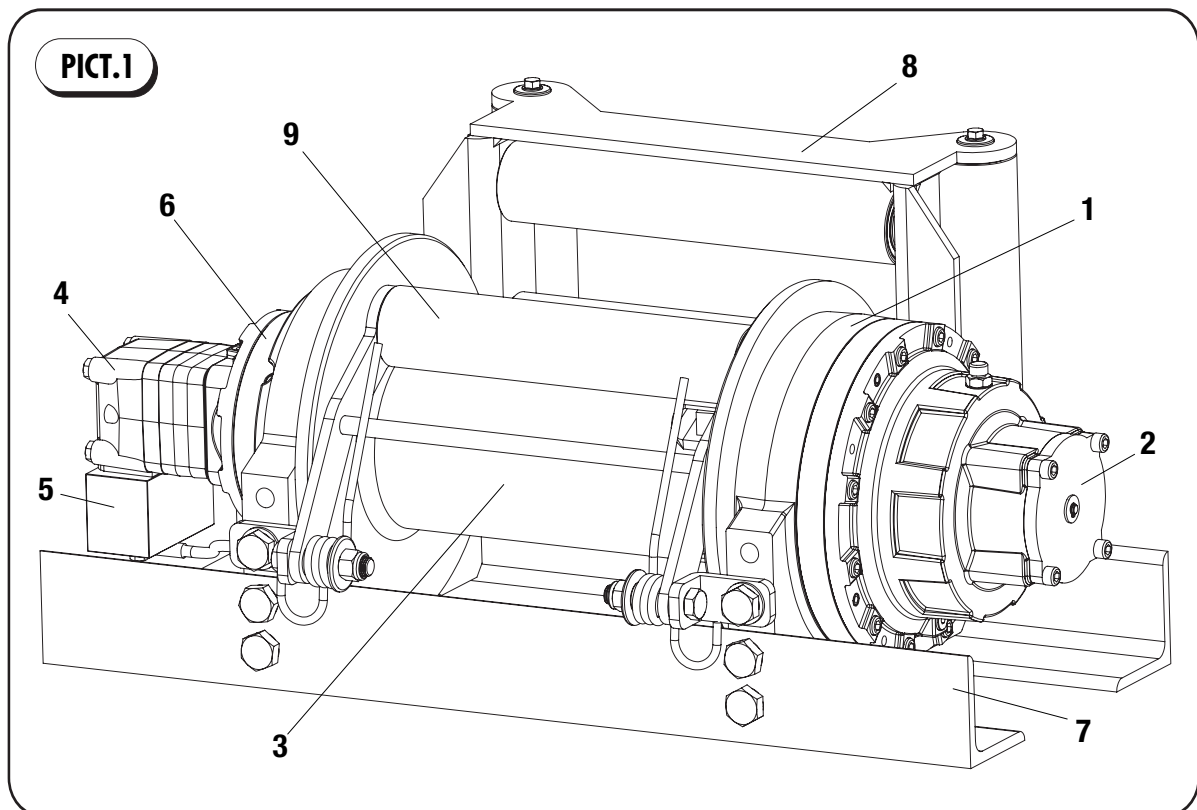
**We recommend to respect the symbols above.
It is necessary to recognize the meaning of symbols and keeping visible and readable.
If decals are damaged or unreadable replace it**

1.4 DESCRIPTION

Model **EPHFN** is a two stages planetary hydraulic winch with spring applied multi disc hydraulic pressure released brake for a reliable and effective brake capacity. The high efficiency two stages planetary gear train assure fast payout and rewind winching operational. Designed and built for a long life and

extended heavy-duty cycle, gives best safe duty. Winches model **EPHFN** are particularly indicated for heavy-duty rear or front truck carrier applications.

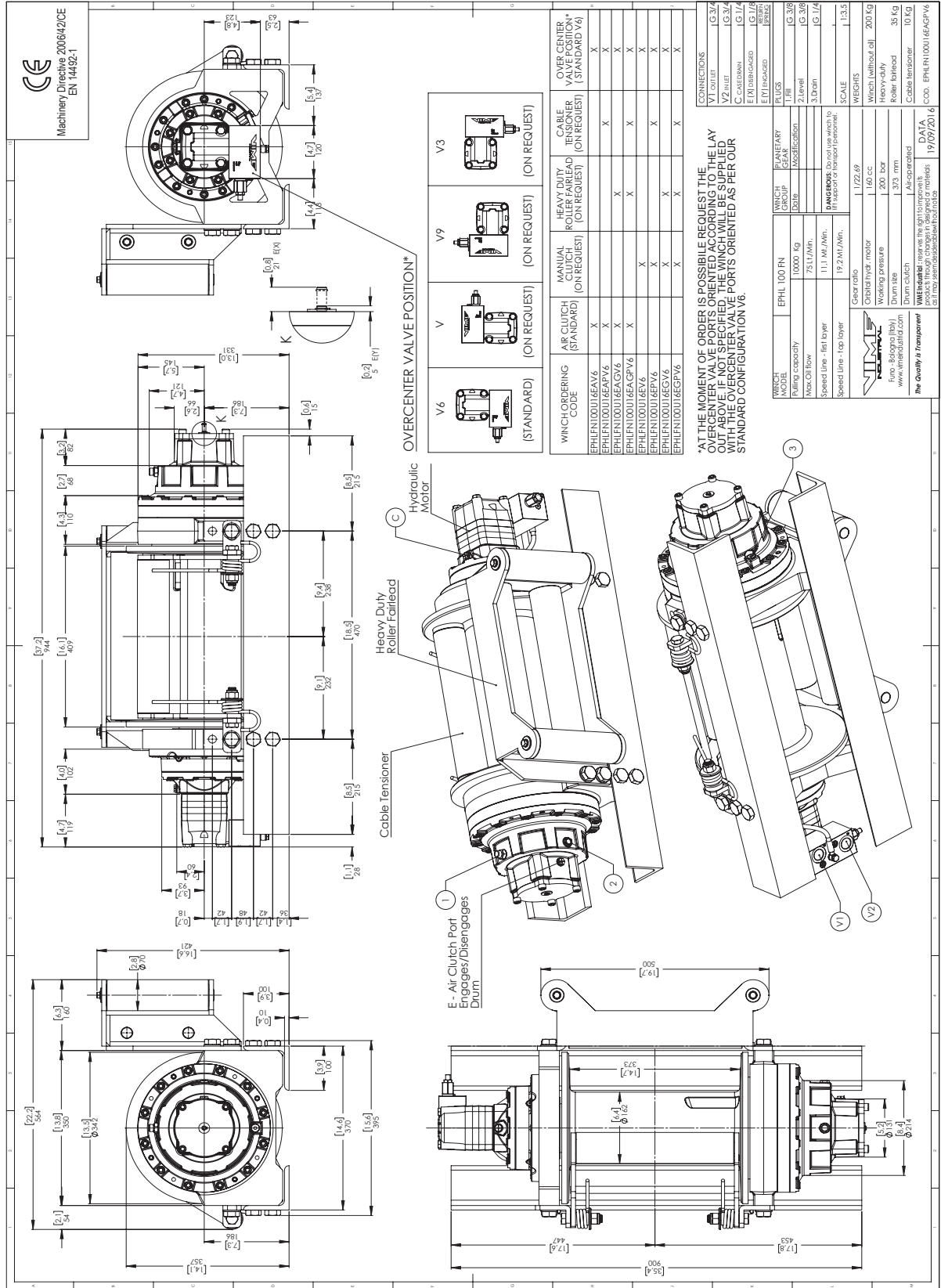
1.4.1 WINCH DESCRIPTION



Components:

- | | |
|---|---|
| 1. Gear housing two stages | 250cc mod. EPHLFN 150 CE |
| 2. Air-cylinder clutch shifter for free spooling. (Manual clutch on request) | 315cc mod. EPHLFN 165 CE |
| 3. Drum size - distance between flanges :
373 mm [14,7 inch] | 5. Overcenter Valve |
| 4. Orbital hydraulic motor:
160cc mod. EPHLFN 100 CE
200cc mod. EPHLFN 125 CE | 6. Multi-disc brake |
| | 7. Standard base mounting angles |
| | 8. Zinc plated Heavy-duty roller fairlead |
| | 9. Zinc plated cable tensioner |

1.4.2 EPHL 100 FN CE WINCH DIMENSIONAL DATA

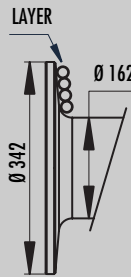


1.4.3 EPHL 100 FN CE TECHNICAL DATA


FEATURES EPHL 100 FN CE (160 cc.)	
LINE PULL FIRST LAYER	10.000 KGF
LINE SPEED FIRST LAYER	11,1 MT/MIN.
MAX. WORKING PRESSURE	200 BAR
MAX. OIL SUPPLY	75 LT/MIN
MIN. OIL SUPPLY	20 LT/MIN
WIRE ROPE SIZE (EN 14492-1)	*15/16 MM
WIRE ROPE MINIMUM BREAKING ROPE (EN 14492-1)	20.000 KG
MAX. WIRE ROPE CAPACITY (EN 14492-1)	**80/60 MT

LINE SPEED [MT/MIN]							
	OIL SUPPLY [LT/MIN]	DRUM REVOLUTION [RPM]	LINE SPEED PER LAYER [MT/MIN]				
			1	2	3	4	5
ROPE 15 MM	40	10,0	5,6	6,5	7,4	8,3	9,1
	60	15,7	8,8	10,1	11,7	13	14,5
	75	20,0	11,1	13	15	16,7	18,6
ROPE 16 MM	40	10,0	5,6	6,6	7,6	8,6	9,6
	60	15,7	8,8	10,3	11,9	13,5	15,1
	75	20,0	11,1	13,2	15,2	17,2	19,2

WIRE ROPE QUANTITY ON LAYER (DRUM LENGTH EPHL FN= 373 MM)							
LAYER	LAYER	DRUM DIAMETER [MM]		WIRE ROPE ON LAYER [MT]		WIRE ROPE QUANTITY [MT]	
		15 MM	16 MM	15 MM	16 MM	15 MM	16 MM
		6	327	338	24,5	23,7	113,4
5	297	306	22,3	21,4	88,9	84,8	
4	267	274	20,0	19,2	66,6	63,4	
3	237	242	17,8	17,0	46,6	44,2	
2	207	210	15,5	14,7	28,8	27,2	
1	177	178	13,3	12,5	13,3	12,5	
0	162	162	-	-	-	-	



LINE PULL [KGF]			
	RATIO	LINE PULL ON [KGF]	
ROPE 15 MM	1/22,69	1	10.000
		2	8.550
		3	7.460
		4	6.600
		5	5.900
ROPE 16 MM	1/22,69	1	10.000
		2	8.470
		3	7.350
		4	6.490
		5	5.800

NOTE 

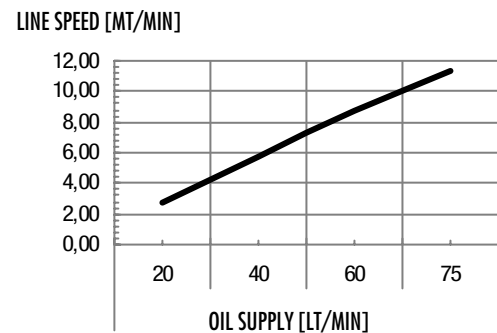
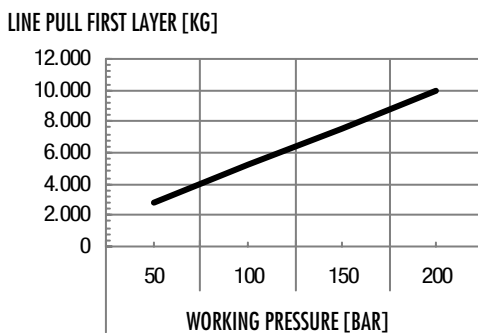
Specifications are subject to change without notification and without incurring obligation. Specifications in this publication are theoretical and may vary depending on hydraulic system, environment, etc.

*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.

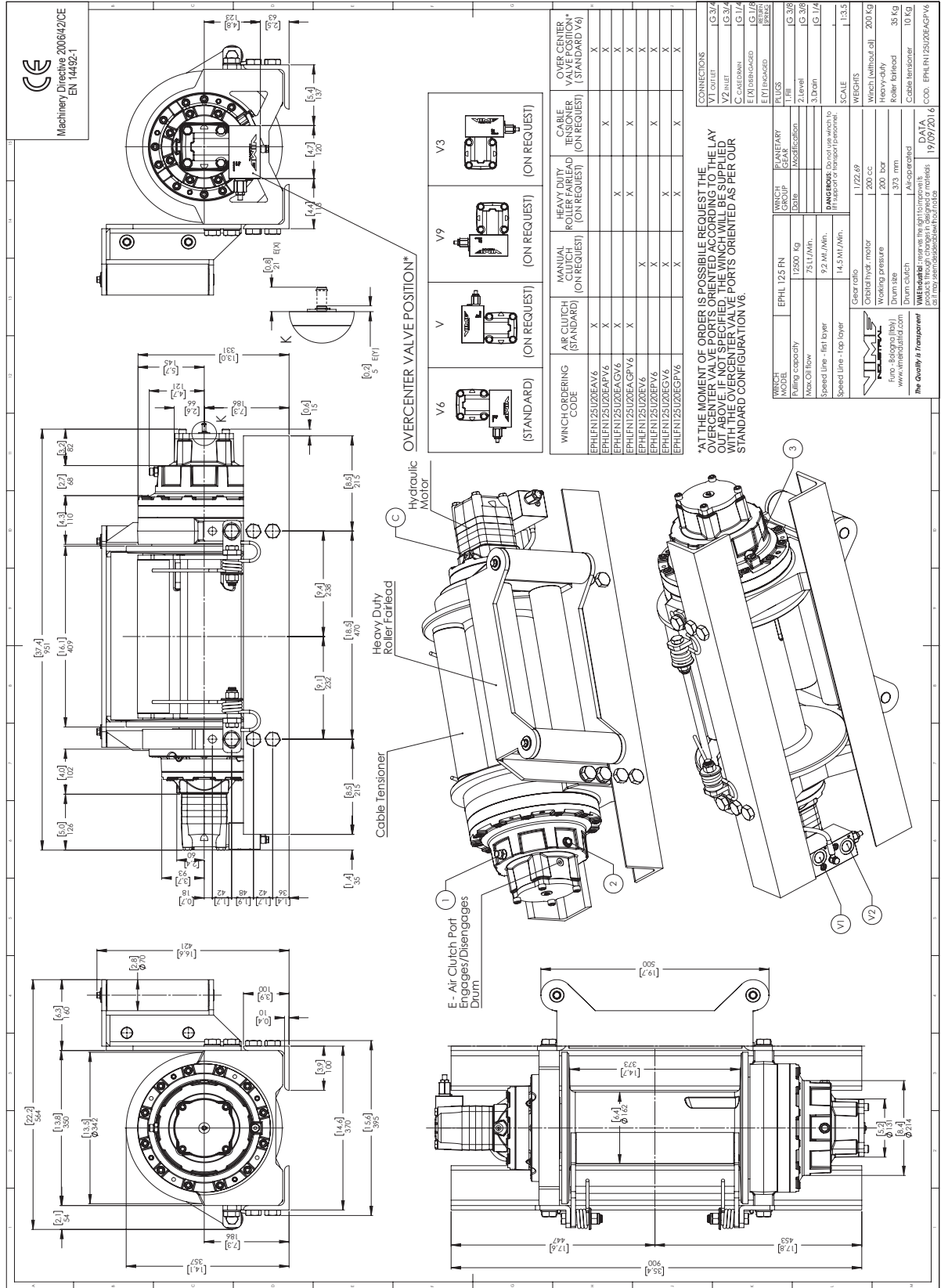
** Max. wire rope capacity according with EN 14492-1.

WEIGHT [KG]	
WINCH (WITHOUT CABLE)	200
ACCESSORY : ROLLERFAIRLEAD	35
ACCESSORY : CABLE TENSIONER	10

1.4.4 EPHL 100 FN CE WINCH PERFORMANCE CHARTS AT THE 1ST LAYER



1.4.5 EPHL 125 FN CE WINCH DIMENSIONAL DATA

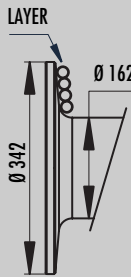


1.4.6 EPHL 125 FN CE TECHNICAL DATA

FEATURES EPHL 125 FN CE (200 cc.)	
LINE PULL FIRST LAYER	12.500 KGF
LINE SPEED FIRST LAYER	9,2 MT/MIN.
MAX. WORKING PRESSURE	200 BAR
MAX. OIL SUPPLY	75 LT/MIN
MIN. OIL SUPPLY	20 LT/MIN
WIRE ROPE SIZE (EN 14492-1)	*15/18 mm
WIRE ROPE MINIMUM BREAKING ROPE (EN 14492-1)	25.000 KG
MAX. WIRE ROPE CAPACITY (EN 14492-1)	**80/55 MT

LINE SPEED [MT/MIN]							
	OIL SUPPLY [LT/MIN]	DRUM REVOLUTION [RPM]	LINE SPEED PER LAYER [MT/MIN]				
			1	2	3	4	5
ROPE 15 MM	40	8,1	4,5	5,1	5,9	6,7	7,3
	60	12,6	7,1	8,1	9,4	10,6	11,6
	75	16	9,1	10,4	12,0	13,5	15,0
ROPE 18 MM	40	8,1	4,6	5,5	6,4	7,3	8,2
	60	12,6	7,2	8,6	10	11,4	12,8
	75	16	9,2	10,9	12,7	14,5	16,3

WIRE ROPE QUANTITY ON LAYER (DRUM LENGTH EPHL FN= 373 MM)							
LAYER	LAYER	DRUM DIAMETER [MM]		WIRE ROPE ON LAYER [MT]		WIRE ROPE QUANTITY [MT]	
		15 MM	18 MM	15 MM	18 MM	15 MM	18 MM
		6	327	-	24,5	-	113,4
5	297	324	22,3	20,1	88,9	78,1	
4	267	288	20,0	17,8	66,6	58	
3	237	252	17,8	15,6	46,6	40,1	
2	207	216	15,5	13,4	28,8	24,5	
1	177	180	13,3	11,2	13,3	11,2	
0	162	162	-	-	-	-	



LINE PULL [KGF]		
RATIO	LAYER	LINE PULL [KGF]
22,69:1	1	12.500
	2	10.680
	3	9.330
	4	8.280
	5	7.440
22,69:1	1	12.500
	2	10.410
	3	8.920
	4	7.810
	5	6.940

NOTE

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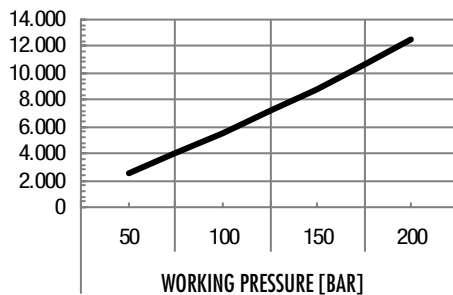
*Wire rope size must be respected. Recommended wire rope min. tensile strength 2160 N/mm². Wire rope minimum breaking load must be at least double of winch max. pulling capacity.

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

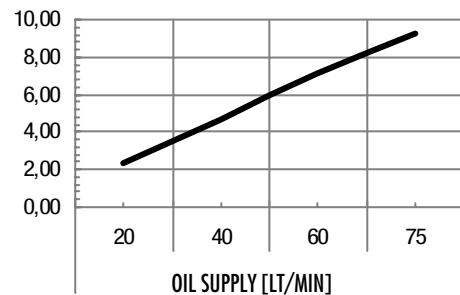
WEIGHT [KG]	
WINCH (WITHOUT CABLE)	200
ACCESSORY : ROLLERFAIRLEAD	35
ACCESSORY : CABLE TENSIONER	10

1.4.7 EPHL 125 FN CE WINCH PERFORMANCE CHARTS AT THE 1ST LAYER

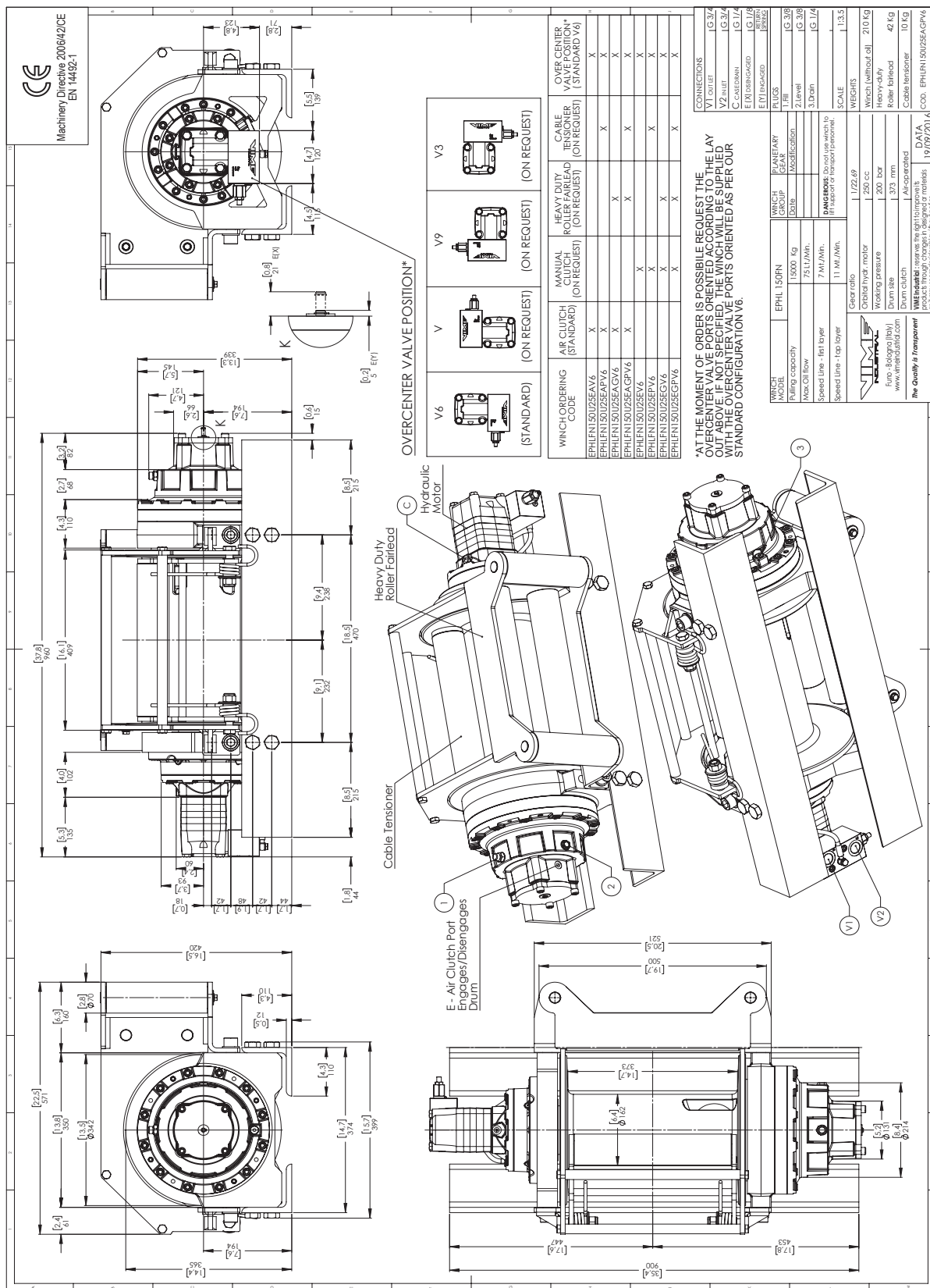
LINE PULL FIRST LAYER [KG]



LINE SPEED [MT/MIN]



1.4.8 EPHL 150 FN CE WINCH DIMENSIONAL DATA

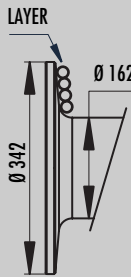


1.4.9 EPHL 150 FN CE TECHNICAL DATA

FEATURES EPHL 150 FN CE (250 cc.)	
LINE PULL FIRST LAYER	15.000 KGF
LINE SPEED FIRST LAYER	7 MT/MIN.
MAX. WORKING PRESSURE	200 BAR
MAX. OIL SUPPLY	75 LT/MIN
MIN. OIL SUPPLY	20 LT/MIN
WIRE ROPE SIZE (EN 14492-1)	*18 MM
WIRE ROPE MINIMUM BREAKING ROPE (EN 14492-1)	30.000 KG
MAX. WIRE ROPE CAPACITY (EN 14492-1)	**55 MT

LINE SPEED [MT/MIN]							
	OIL SUPPLY [LT/MIN]	DRUM REVOLUTION [RPM]	LINE SPEED PER LAYER [MT/MIN]				
			1	2	3	4	5
ROPE 18 MM	40	5,8	3,3	3,9	4,6	5,2	5,9
	60	9,4	5,3	6,4	7,4	8,5	9,6
	75	12,1	7	8,2	9,6	11	12,3
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-

WIRE ROPE QUANTITY ON LAYER (DRUM LENGTH EPHL FN= 373 MM)							
LAYER	LAYER	DRUM DIAMETER [MM]		WIRE ROPE ON LAYER [MT]		WIRE ROPE QUANTITY [MT]	
		18 MM	-	18 MM	-	18 MM	-
	6	-	-	-	-	-	-
	5	324	-	20,1	-	78,1	-
	4	288	-	17,8	-	58	-
	3	252	-	15,6	-	40,1	-
	2	216	-	13,4	-	24,5	-
	1	180	-	11,2	-	11,2	-
	0	162	-	-	-	-	-



LINE PULL [KGF]		
RATIO	LAYER	LINE PULL [KGF]
22,69:1	1	15.000
	2	12.500
	3	10.700
	4	9.370
	5	8.300
	-	-
	-	-
	-	-
	-	-
	-	-

NOTE

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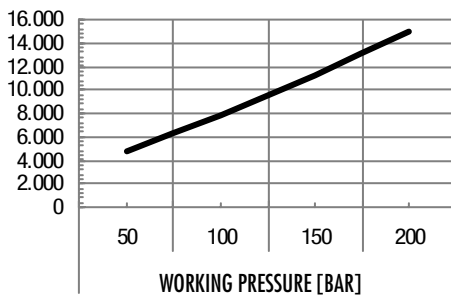
*Wire rope size must be respected. Recommended wire rope min. tensile strength 2160 N/mm². Wire rope minimum breaking load must be at least double of winch max. pulling capacity.

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

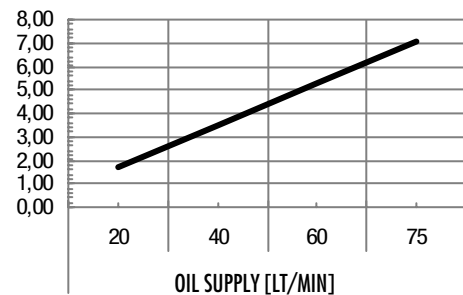
WEIGHT [KG]	
WINCH (WITHOUT CABLE)	210
ACCESSORY : ROLLERFAIRLEAD	42
ACCESSORY : CABLE TENSIONER	10

1.4.10 EPHL 150 FN CE WINCH PERFORMANCE CHARTS AT THE 1ST LAYER

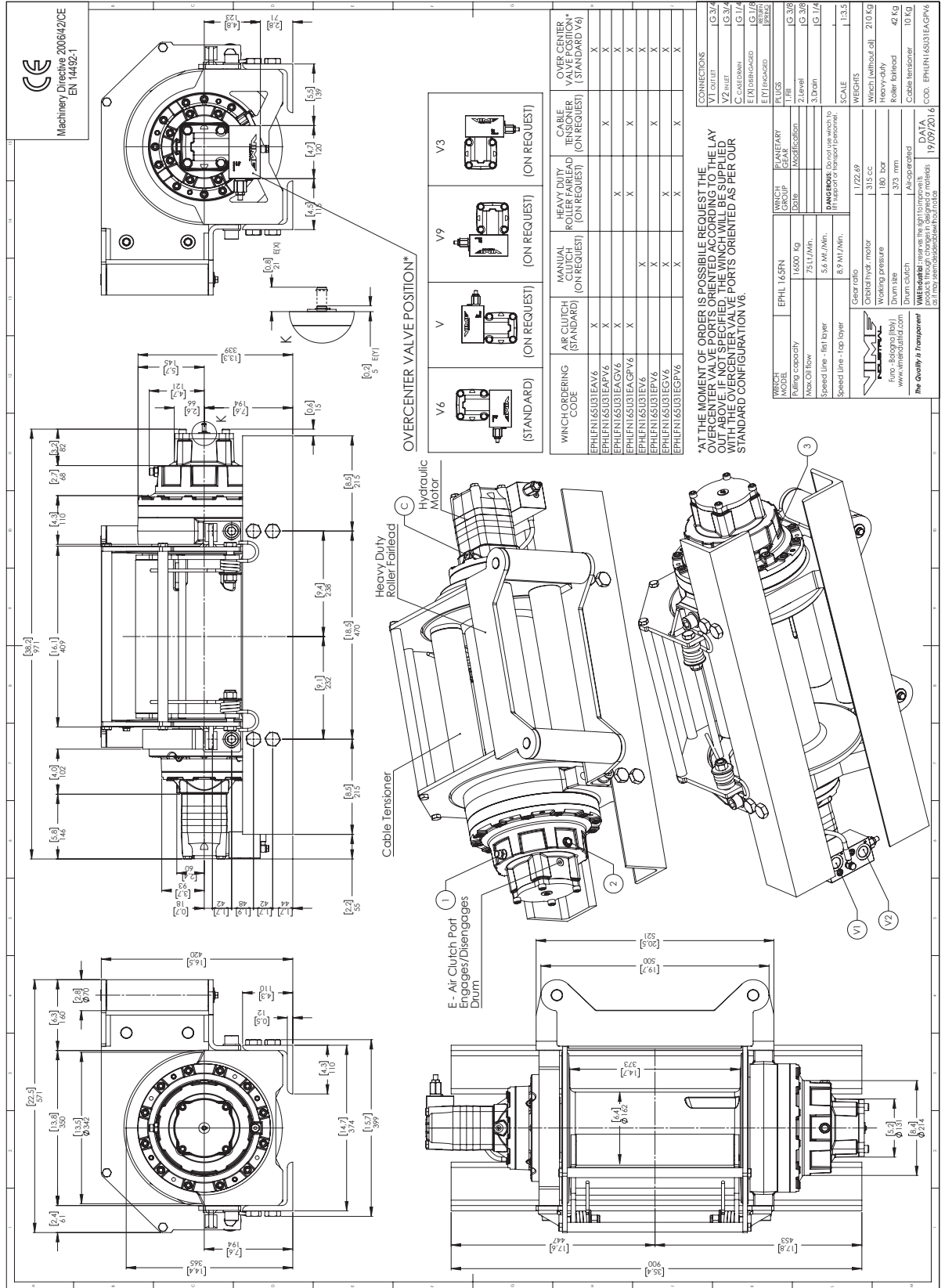
LINE PULL FIRST LAYER [KG]



LINE SPEED [MT/MIN]



1.4.1.1 EPH 165 FN CE WINCH DIMENSIONAL DATA

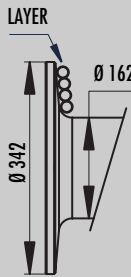


1.4.12 EPHL 165 FN CE TECHNICAL DATA

FEATURES EPHL 165 FN CE (315 cc.)	
LINE PULL FIRST LAYER	16.500 KGF
LINE SPEED FIRST LAYER	5,6 MT/MIN.
MAX. WORKING PRESSURE	180 BAR
MAX. OIL SUPPLY	75 LT/MIN
MIN. OIL SUPPLY	20 LT/MIN
WIRE ROPE SIZE (EN 14492-1)	*18 MM
WIRE ROPE MINIMUM BREAKING ROPE (EN 14492-1)	33.000 KG
MAX. WIRE ROPE CAPACITY (EN 14492-1)	**55 MT

LINE SPEED [MT/MIN]							
	OIL SUPPLY [LT/MIN]	DRUM REVOLUTION [RPM]	LINE SPEED PER LAYER [MT/MIN]				
			1	2	3	4	5
ROPE 18 MM	40	4,9	2,8	3,4	3,9	4,5	5
	60	7,8	4,4	5,3	6,1	7	7,9
	75	9,9	5,6	6,7	7,8	8,9	10,1
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-

WIRE ROPE QUANTITY ON LAYER (DRUM LENGTH EPHL FN= 373 MM)							
LAYER	LAYER	DRUM DIAMETER [MM]		WIRE ROPE ON LAYER [MT]		WIRE ROPE QUANTITY [MT]	
		18 MM	-	18 MM	-	18 MM	-
	6	-	-	-	-	-	-
	5	324	-	20,1	-	78,1	-
	4	288	-	17,8	-	58	-
	3	252	-	15,6	-	40,1	-
	2	216	-	13,4	-	24,5	-
	1	180	-	11,2	-	11,2	-
	0	162	-	-	-	-	-



LINE PULL [KGF]		
RATIO	LAYER	LINE PULL [KGF]
22,69:1	1	16.500
	2	13.750
	3	11.780
	4	10.300
	5	9.160
	-	-
	-	-
	-	-
	-	-
	-	-

NOTE

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.

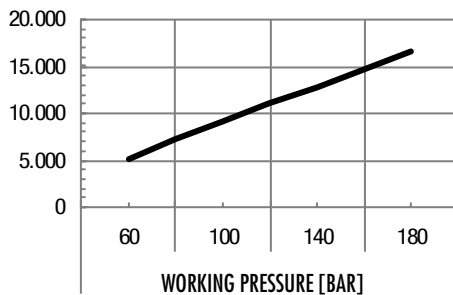
*Wire rope size must be respected. Recommended wire rope min. tensile strength 2160 N/mm². Wire rope minimum breaking load must be at least double of winch max. pulling capacity.

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

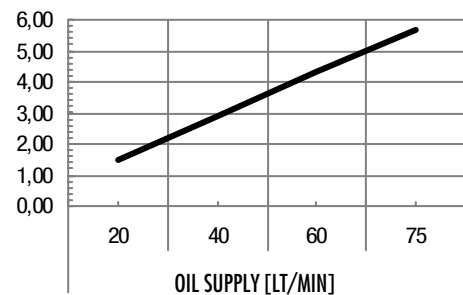
WEIGHT [KG]	
WINCH (WITHOUT CABLE)	210
ACCESSORY : ROLLERFAIRLEAD	42
ACCESSORY : CABLE TENSIONER	10

1.4.13 EPHL 165 FN CE WINCH PERFORMANCE CHARTS AT THE 1ST LAYER

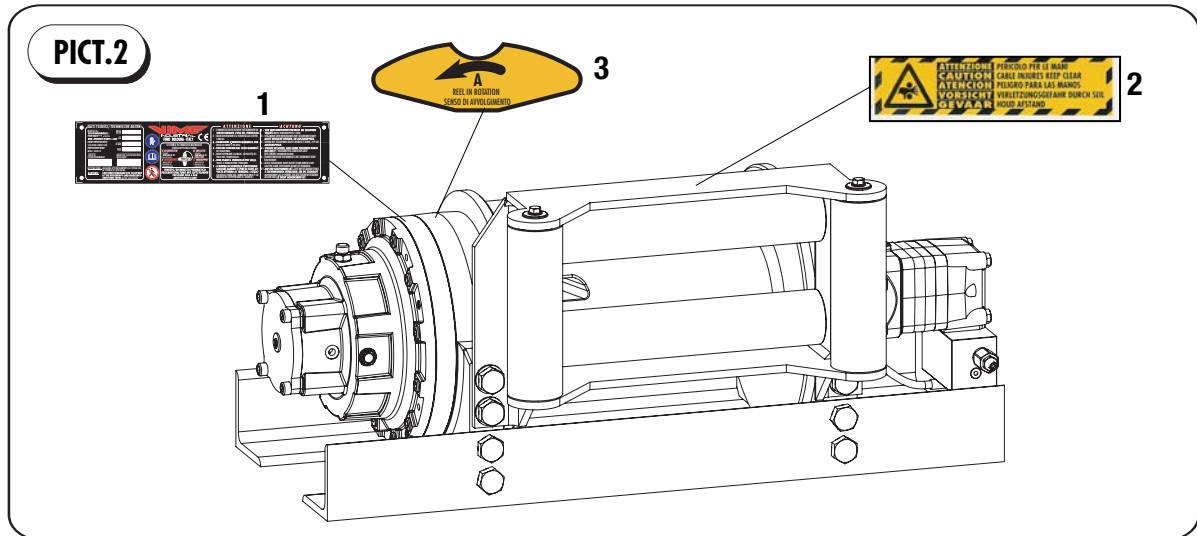
LINE PULL FIRST LAYER [KG]



LINE SPEED [MT/MIN]



1.5 WINCH DECALS. SAFETY ADVICES



A decal (1) onto the top of the gear housing gives: winch model, max. pulling capacity at the first layer, wire rope diameter, max. working pressure, serial number and year of built. A yellow sticker (2) onto the roller fairlead, warns about rotating parts.

IMPORTANT

When ordering replacement parts or contact VIME Industrial customers service, please give winch model, serial number and manufacture year.

If not specified, winch is supplied with counter clockwise cable rotation on the drum called "A Rotation". A label (3) located on the

gear housing indicates the spooling direction of the cable.

IMPORTANT

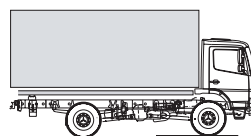
Check if all decals and labels have been fitted and as a maintenance, if decals or labels are damaged or unreadable, replace it.

1.6 CONDITIONS OF SALE

The winch, except special customer requirements is delivered assembled and tested. Wire rope and hook are not included in the standard winch version, only if required are included in the commitment. At the delivery, open carefully the packing. Inspect the winch and see if it is free from defects.

IMPORTANT

In case of damages or missing parts, inform carrier immediately.



1.6.1 PACKAGING

The standard packaging, if supplied, and unless otherwise agreed, is not rainproof and is intended for shipping by ground and not sea, and for areas which are under cover and not humid.



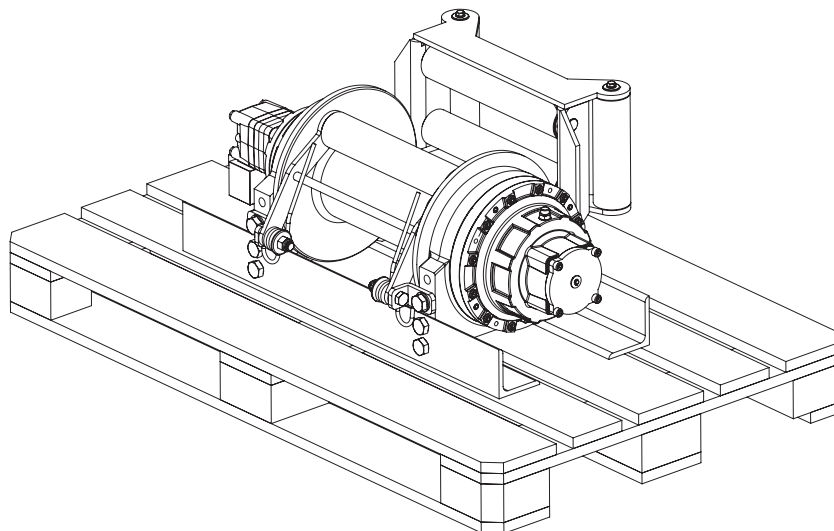
IMPORTANT

Dispose of packaging materials as stipulated by the applicable legislation.



1.6.2 PACKAGING ILLUSTRATION

PICT.3




NOTE

Winches on pallet are wrapped with plastic film. About its rainproof capacity, refer what indicated above.

1.7 SAFETY PROCEDURES

Do not operate this winch until you have carefully read and understand the warnings operation sections of this manual.

 **DANGEROUS**


 **When winching is obligatory wear working gloves.**

- Manual or Air Clutch must be fully engaged before starting the winch.
- Do not disengage manual or air clutch under load.
- Do not exceed maximum line pull ratings.
- In car carrier applications after pulling vehicle on carrier, be sure to secure vehicle to carrier bed. Do not maintain load on winch cable while transporting vehicle. Do not use winch as a tie down.


 **WARNING**

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

 **DANGEROUS**

 **A minimum of 5 wraps of cable around drum barrel is recommended.**

 **DANGEROUS**

 **Stand clear of cable while pulling. A broken cable can cause serious injury or death. Do not try to guide cable. Do not disengage clutch under load.**

SECTION 2 MOUNTING

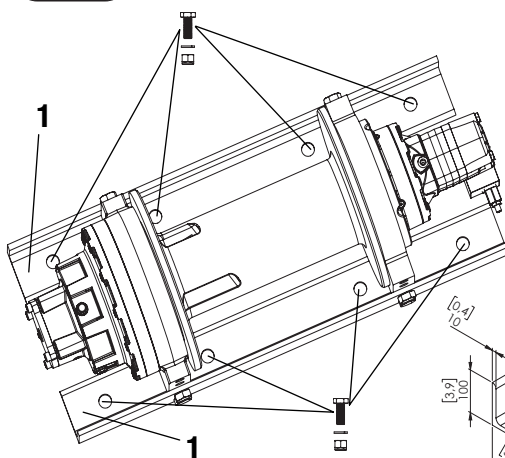
2.1 ROAD TRAFFIC

Winches mod. EPHFN have been designed to be mounted on vehicles frame in compliance with regulation. Many countries require to keep up to date with traffic card. Do not drive

vehicle not in compliance with regulation or not up dated traffic card.

2.2 WINCH MOUNTING

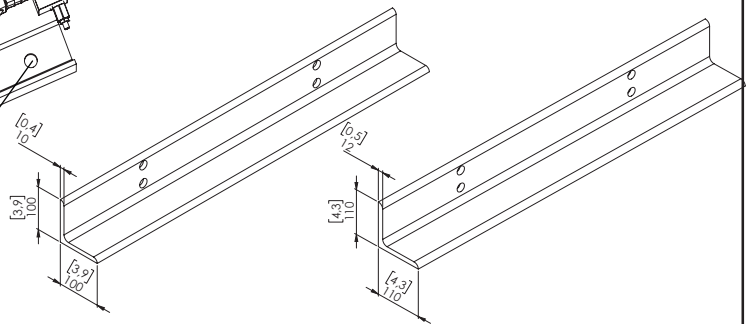
PICT. 4



Standard base angles mounting are delivered fitted on winch body:
Dimension:

mm - [inch] 100x100x10 - [3,9x3,9x0,4] for EPHL 100/125 FN CE

mm - [inch] 110x110x12 - [4,3x4,3x0,5] for EPHL 150/165 FN CE



NOTE

The number 4 mounting angles holes on each side shown in pict.4, are not present at the delivery. Are shown in pict.4 just as demonstration. All others holes are for the accessories mounting.

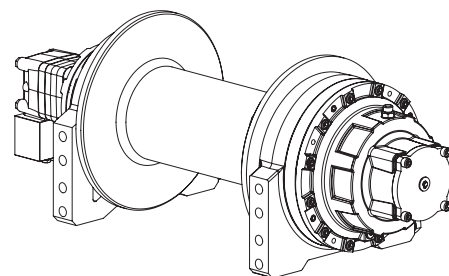
The winch base angles should be securely mounted to the vehicle frame in a manner acceptable to the vehicle manufacturer. It is responsibility of the person(s) installing the winch to make certain that the winch is secured to the vehicle with equivalent or greater strength capscrews then VIME used to secure the winch to the base angles (1). The winch must be fitted horizontally to give best lubrication and securely mounted on a surface who can resist to the winch pulling, without having any flex within the base and the winch while in use.



IMPORTANT

Winch is built up for different model of trucks. Holes on the mounting angles are not present, installer will make it, taking in consideration the right winch position on truck.

Winch can be mounted without the mounting angles.



Winch must no be mounted directly onto the vehicle chassis, it should be better mounting a frame adapter brackets who can resist to the winch pulling. Mounting hole locations, size and thread depth are specified for every winch (pict.5).

! WARNING

Winch must no be mounted directly onto the vehicle chassis.



WARNING

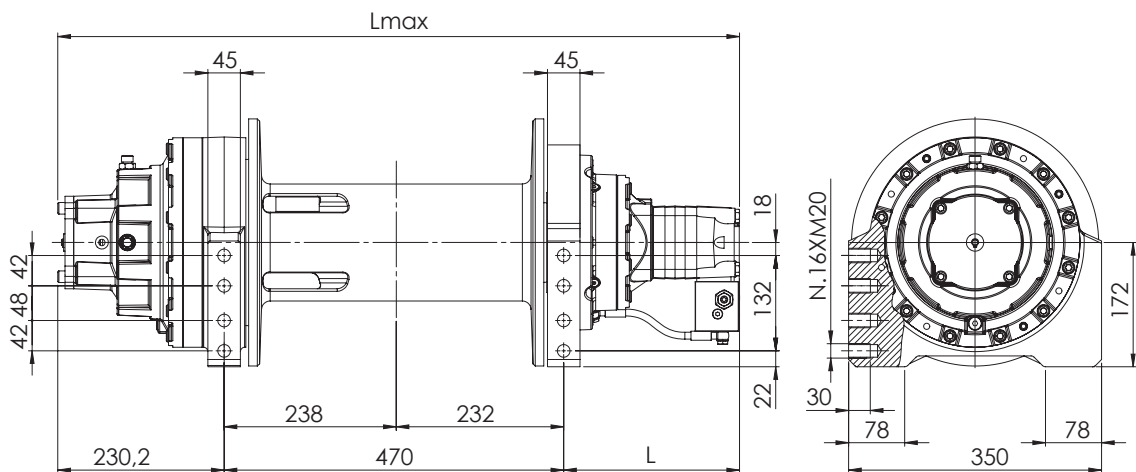
All mounting holes patterns should be used to bolt the winch.



WARNING

Use the mounting hole locations provided on the dimensional data, pair dimensions of surfaces must be respected. A wrong winch mounting reduce winch performance, cause overheating, excessive wear and could damage the winch.

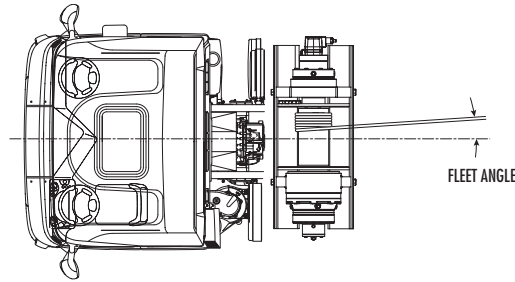
PICT.5



Model	L[MM]	Lmax[MM] (Pneumatic clutch version)
EPHL 100 FN CE	243,5	943,7
EPHL 125 FN CE	250,5	950,7
EPHL 150 FN CE	259,5	959,7
EPHL 165 FN CE	270,5	970,7

2.3 FLEET ANGLE

PICT. 6



Winch should be mounted as close to centre and as perpendicular as possible to the direction of the line pull. This will keep the wire rope fleet angle centred onto the drum as small as possible.

! WARNING

If the proper fleet angle is not maintained,



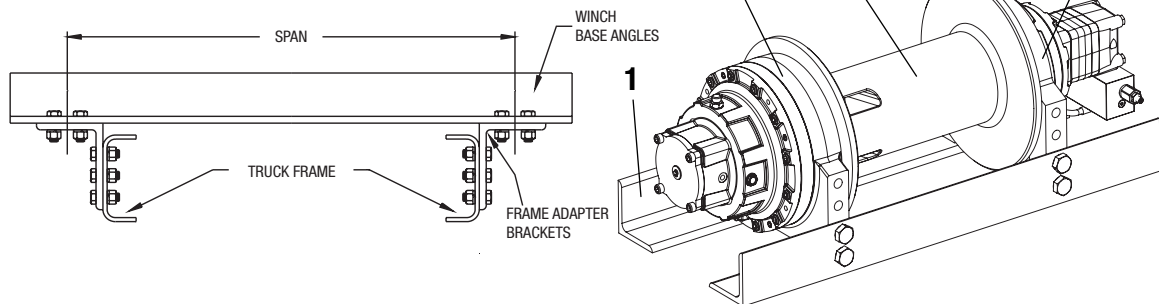
the wire rope could wind onto one side of the drum. This could cause failure of the winch or wire rope, resulting in damage, injury or death.

DANGEROUS

A wrong or inadequate winch mounting could damage the winch.

2.4 BASE MOUNTING ANGLES

PICT. 7



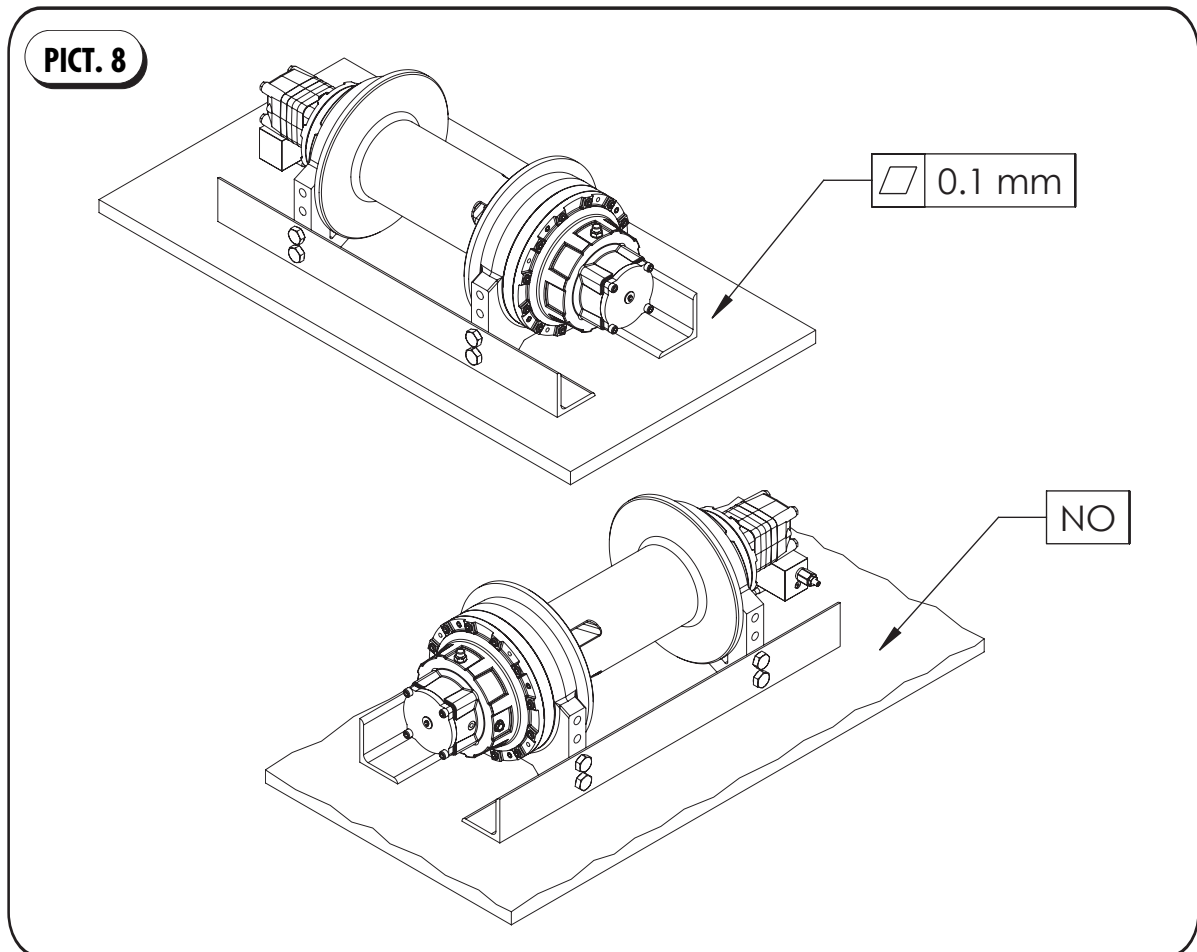
To fit the winch on vehicle chassis it should be better mounting a frame adapter brackets bolted to the winch base mounting angles as close to the gear housing (2) and bearing leg assembly (4) as practicable (SPAN distance) shown in pict.6. This method would provide the greatest strength and minimize distortion by using frame adapter brackets not inferior to the base angle.



WARNING

Winch must never be fastened directly to the frame of the truck.

2.5 FLAT BASE MOUNTING



In case of mounting of the winch on a flat surface, must be rigid enough to withstand full rated line pull without distortion and flat area not superior to 0,1 mm, to insure proper alignment between the gear housing (2), drum (3) and motor end bearing (4) as shown in pict.7-8.

IMPORTANT

Check with great care winch alignment for not compromising winch operation.



WARNING

Mounting surfaces should be co-planar.



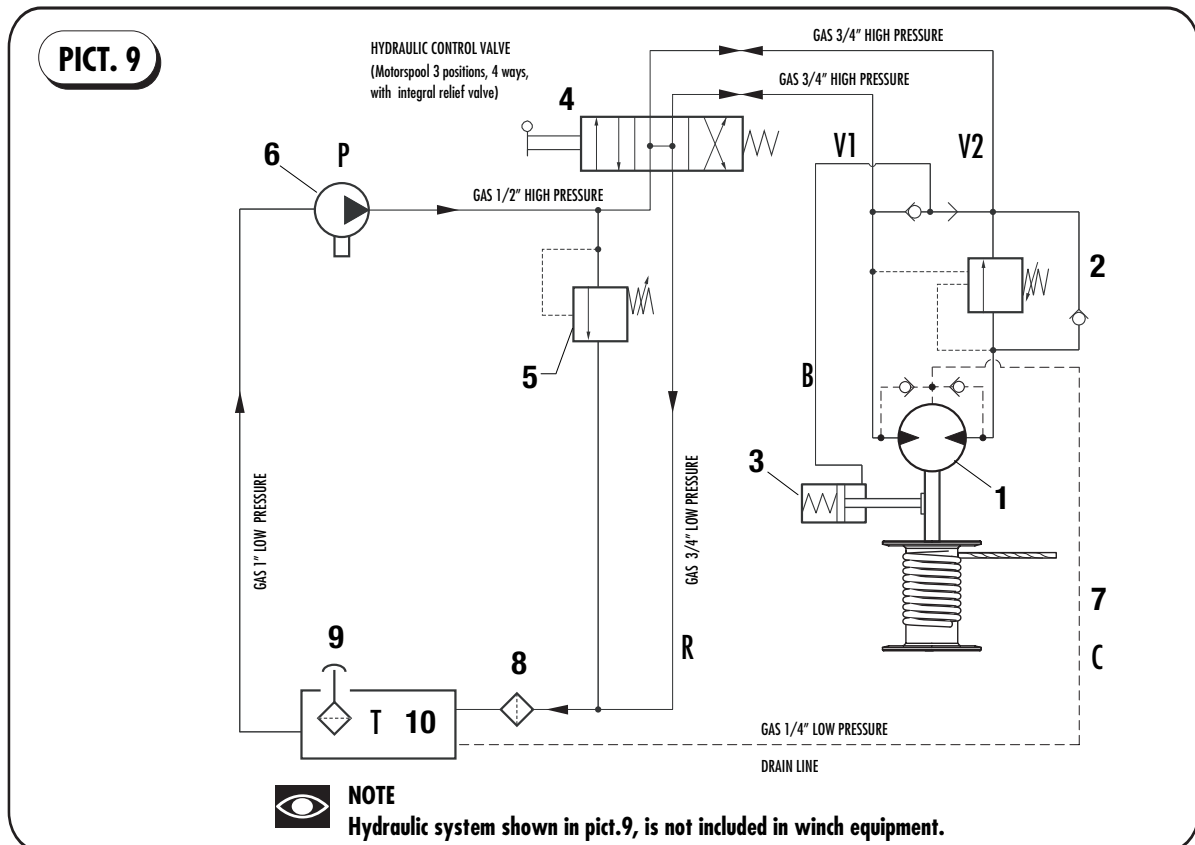
WARNING

VIME has no responsibility in case of winch damages due to a wrong or inadequate mounting.

2.6 HYDRAULIC SYSTEM

Once the winch has been mounted onto the vehicle chassis (chap. 2.2) should be connected to the hydraulic circuit according to the typical lay-out shown below pict.9. If conditions where the hydraulic system has only a winch which is used intermittently, where ambient temperature are moderate, and

where excessive back pressure or internal leakage are not present, a reservoir equal in size to the flow of the system can be used. Hose lengths should be kept as short as possible. Sharp bends in hoses and tubing and 90 degree fittings, should be avoided since they increase back pressure.



- | | |
|---|---|
| <ol style="list-style-type: none"> 1. HORBITAL HYDRAULIC MOTOR
displacement 160 cc/EPHLFN 100;
200 cc/ EPHLFN 125; 250 cc/EPHLFN 150;
315 cc/EPHLFN 180 2. OVERCENTER VALVE oil capacity
75 Lt./Min. (V1,V2 port size 3/4\"G) 3. BRAKE (B) spring applied, pressure
released automatic multi-disc brake. 4. HYDRAULIC CONTROL VALVE | <ol style="list-style-type: none"> 5. RELIEF VALVE 6. HYDRAULIC PUMP (P) 7. DRAINAGE LINE (C) 8. RETURN FILTER: 40 μm absolute / 25 μm
nominal - dirty enviroment and complex
system recommended filtration 20 μm
absolute / 10 μm nominal 9. REFILL OIL FILTER 10. RESERVOIR (T) |
|---|---|

IMPORTANT

The hydraulic system shown (pict.9) must contain an open center or motor spool valve (ref.4) in order for the winch to operate correctly. Failure to use the correct control valve (ref.4) will result in loss of load control, possibly resulting in damage to property, personal injury or death.



WARNING

Do not exceed 75 Lt/min. If exceeded hydraulic motor may be damaged.



WARNING

The relief valve (ref.5 pict.9) must be set so the pressure supplied to the winch doesn't exceed the pressure rating of the winch. If the pressure or flows exceeds those rated for the winch, it could cause damage to the winch, to the wire rope or damage to property, personal injury or death.

IMPORTANT

Hydraulic pressure or flows lower than those rated for the winch will result in lower line pull or lower line speed.

IMPORTANT

Hydraulic motor drainage line (C) is necessary to the oil reservoir 10 (T).

IMPORTANT

Make sure that the system is clean and that all components function properly.



DANGEROUS

Winch control devices should be positioned for safe operation of the winch without hesitation or loss of time. They should also be designed so

the operator or other persons are not exposed to any danger zones.



IMPORTANT

Winch control devices are at exclusive charge of the installer, who will also take care to place all decals, to indicate the different winch function to avoid any misunderstanding to the winch operator while winching.

OIL TYPES: Mineral hydraulic oils are recommended with anti-wear additives, type HLP [DIN 51524 (part.2)] or HM [ISO 6743/4]. The use of different oils, hydraulic motor company must be contacted.

TEMPERATURE: When selecting hydraulic oils, it is very important to consider the operating temperature of the hydraulic system. Oil temperature should lie between +30°C [+85°F] and +60°C [+140°F]. As a general rule, oil life is halved for each +8°C [+15°F] its temperature exceeds 60°C [+140°F].

VISCOSITY: The viscosity of the oil should lie between 20 mm²/S and 75 mm²/S [100 e 370 SUS] when the operating temperature of the system has become stabilized. We recommend the use of an oil type having a viscosity of 35 mm²/S [165 SUS].

FILTERING: It is necessary to keep the level of oil contamination at an acceptable level to ensure problem-free operation. To maintain a correct level of cleanliness is necessary a return filter of 40 µm absolute or 25 µm nominal. In very dirty environments, in complex systems, the recommended filtration is 20 µm absolute or 10 µm nominal. In any case should refer to the vehicle hydraulic system designer recommendation where the winch will be mounted also about maintenance.

2.7 WIRE ROPE MOUNTING

EPHFN winches are available with two different drum rotations to indicate the different spooling direction of the rope “A” or “B”. A Black /Yellow label fitted onto the winch gear housing gives drum rotation (pict.10). If not indicated in the purchase order, it is always intended as “A” rotation.



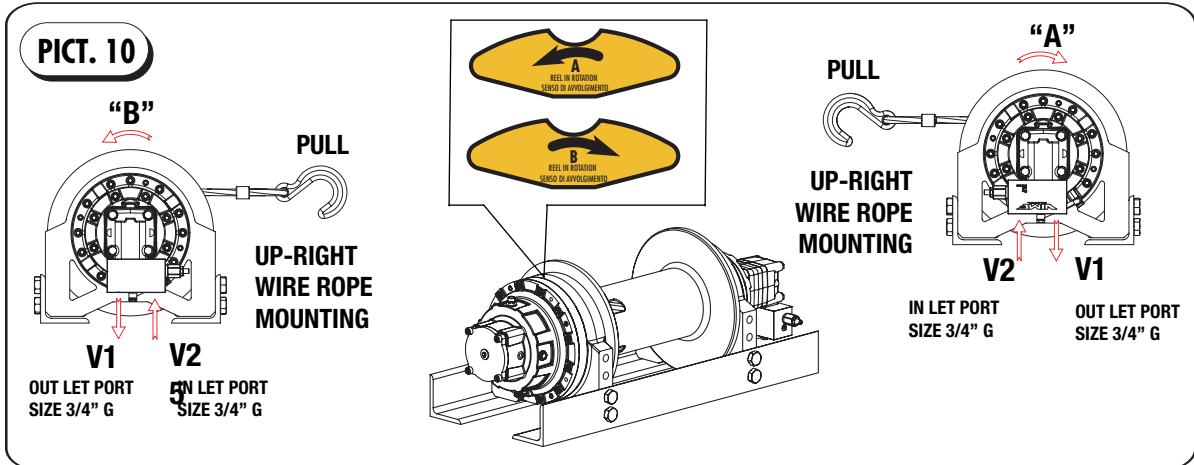
IMPORTANT

Wire rope mounting must be respected.

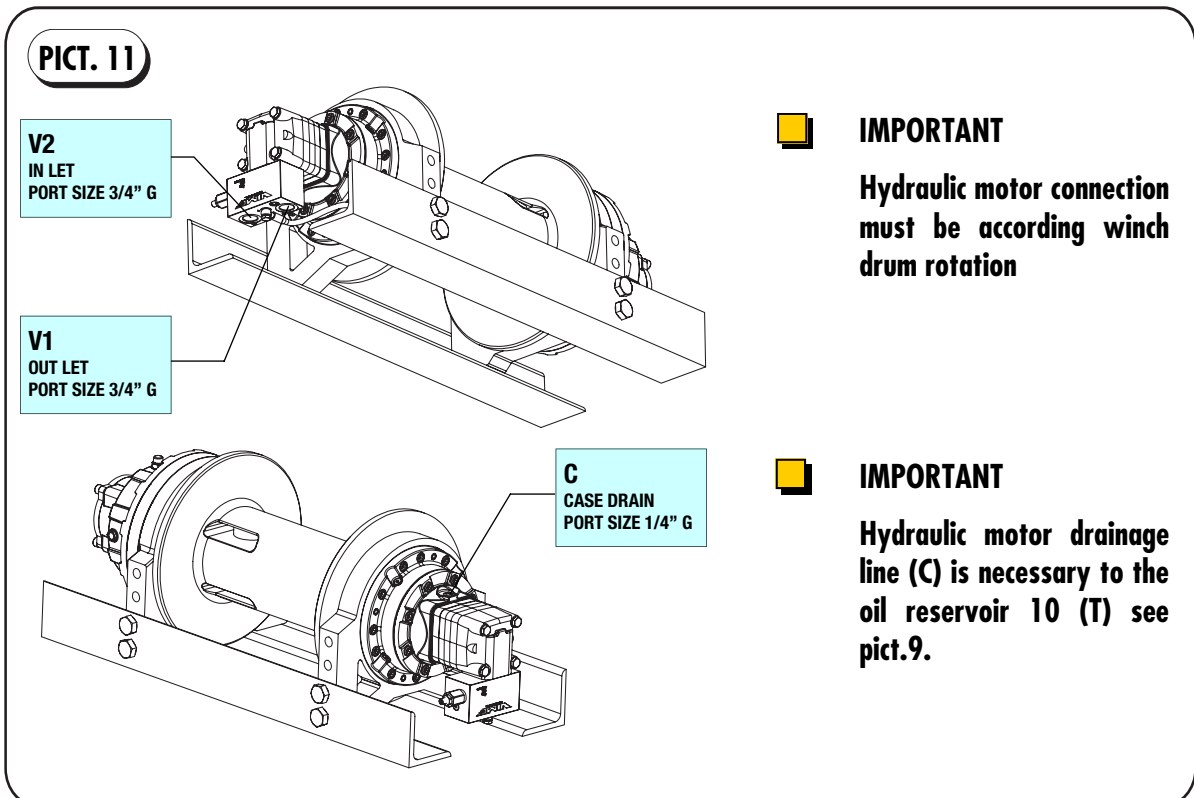


DANGEROUS

If the wire rope is not installed for the correct drum rotation, the winch brake valve will not hold the load.



2.8 HYDRAULIC MOTOR LINKING



IMPORTANT

Hydraulic motor connection must be according winch drum rotation



IMPORTANT

Hydraulic motor drainage line (C) is necessary to the oil reservoir 10 (T) see pict.9.

2.9 AIR-CYLINDER LINKING

Winches model EPHFN are equipped with SINGLE ACTION air-cylinder clutch shifter to power drum free spooling, manual clutch (on request). **The pneumatic system works if air system is available on vehicle only.**

Fit air plastic pipe from the air-cylinder port G1/4" as shown (ref. E pict.12) to the single action air lever valve as shown in typical layout (pict.12a).

HOW DOES IT WORK:

Air flow through (X) port disengage the drum. When air flow ceases spring return within the air cylinder engages the drum.

IMPORTANT

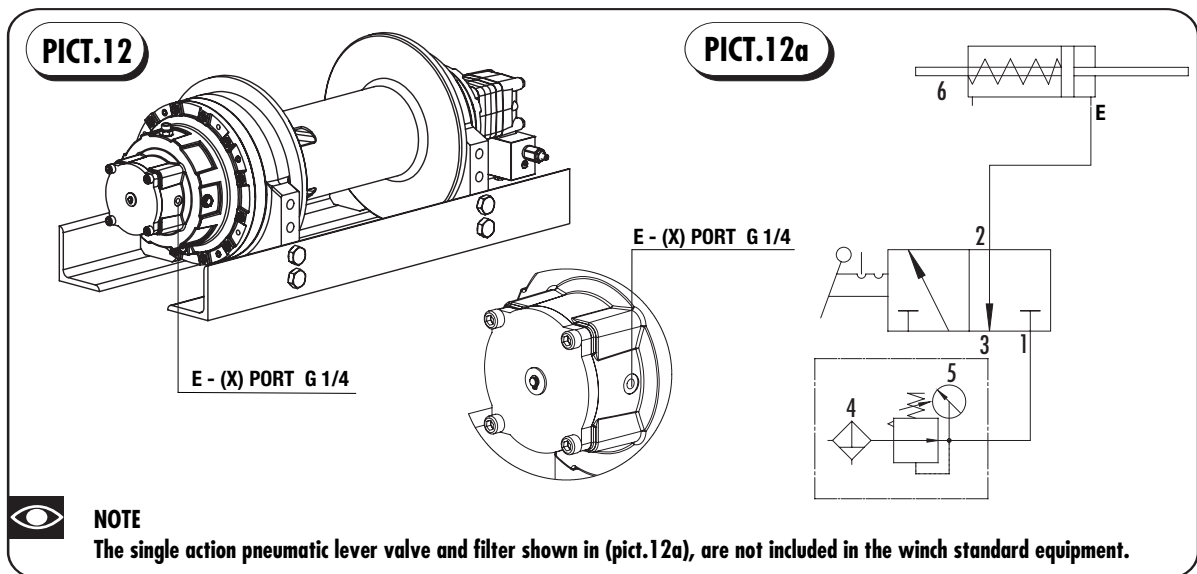
For efficient operation of air-cylinder clutch shifter, utilize air pressure filtered

and dried. It is important to keep moisture from entering the winch. Moisture could cause corrosion. If temperature fall down below 0°, moisture could freeze and render the component inoperable. System works at the minimum pressure 4 bar. Pressure must not exceed 6 bar. The pneumatic system can works with temperature between -20°C and + 50°C.



WARNING

Not utilizing the proper air filters, the air clutch could be damaged, and compromise its function.



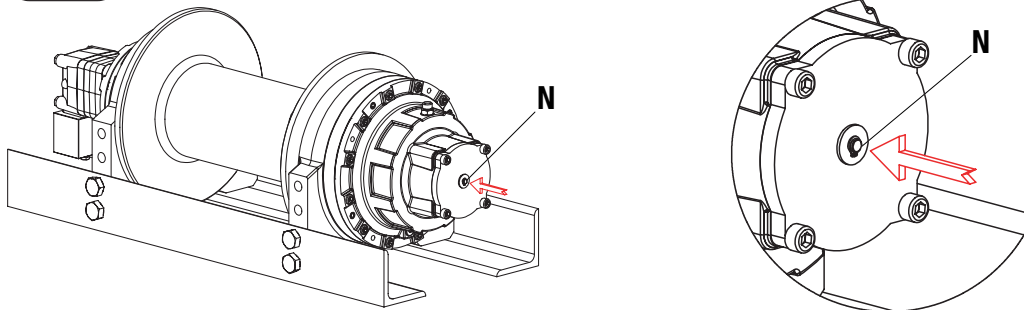
Single action pneumatic lever valve:

- | | |
|--------------------------------|--|
| 1. In let - Air pressure G 1/8 | 5. Pressure regulator
min.4 bar max.6 bar |
| 2. Out let G 1/8 | 6. Air cylinder for drum free spooling port size
E G1/4 |
| 3. Exhaust G 1/8 | |
| 4. Filter 50 µm | |

2.10 CABLE INSTALLATION

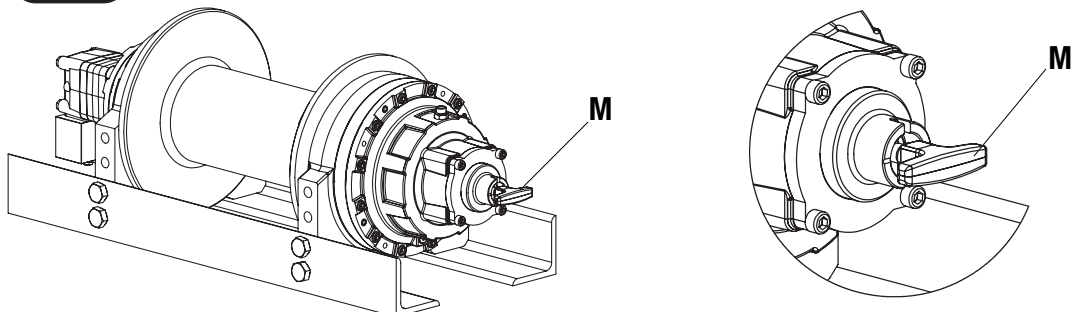
PICT.13

AIR-CYLINDER CLUTCH SHIFTER VERSION DRUM ENGAGED

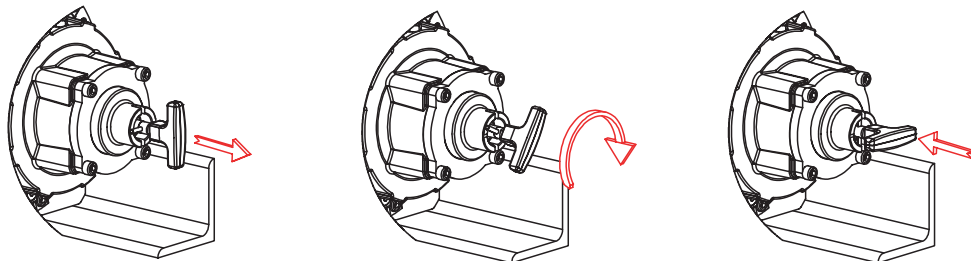


PICT.14

MANUAL CLUTCH SHIFTER VERSION DRUM ENGAGED



HOW TO ENGAGE THE DRUM



1.PULL OUT

2.ROTATE 90°

3.RELEASE

1. Determine the drum rotation (see chap.2.7)
2. Inspect the clutch is fully engaged by checking :

AIR CLUTCH VERSION

Be sure air flow is stopped. When air flow ceases spring return shaft within the air-cylinder engages the drum as mechanically shown by shaft (N) who must be fully in, as shown (pict.13).

MANUAL CLUTCH VERSION

The handle (M) must be fully in, as shown (pict.14); if not, pull the handle (M) out, rotate 90° and release pict.14 (a return spring will help clutch to engage).

3. Unwind cable by rolling it out along the ground to prevent kinking.
4. If the end of the cable opposite to hook has not been properly machined, securely wrap

end of the cable, (opposite hook), with plastic or similar to prevent fraying.

! DANGEROUS

! When this operation has been completed, stop the winch, disengage the drum by pulling out the handle (1). Once drum has been disengaged, manually complete the rope winding onto the winch drum.

! WARNING

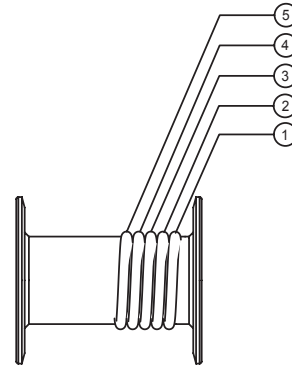
Recommended aircraft cable with class of resistance not lower than 2160 N/mm².

! DANGEROUS

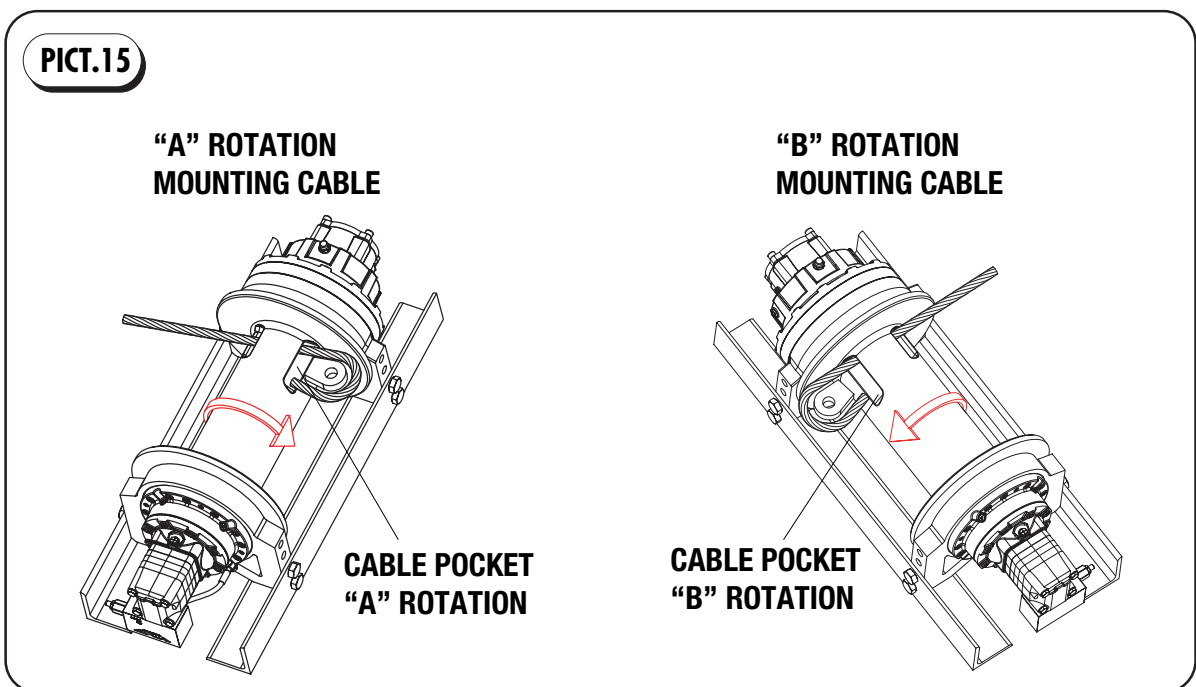
! When winching is obligatory wear working gloves.

! DANGEROUS

A minimum of 5 wraps of cable around drum barrel is recommended.



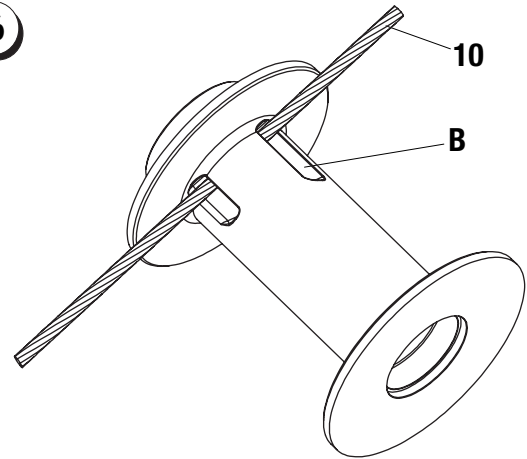
5. As indicated in chapter 2.7 wire rope mounting must be respected. Rope must be mounted onto the drum according drum rotation. On drum there are two wedge pockets for A or B drum rotation (pict.15)



STEP 1

Insert the end of the rope (10) opposite the hook, through the cable pocket (B) by sticking out a rope quantity enough for clamping as shown in pict.16.

PICT.16



DANGEROUS

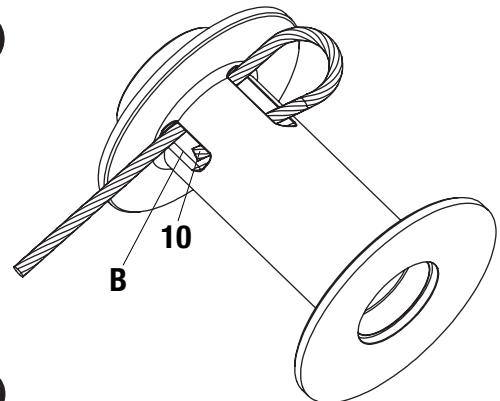


When winching is obligatory wear working gloves.

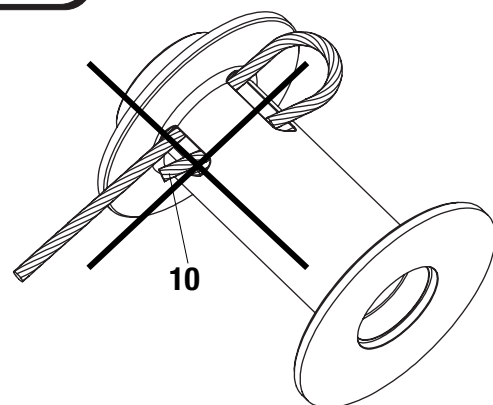
STEP 2

By bringing the end of rope (10) opposite to hook, through the cable pocket (B) as shown in pict.17. While mounting the end rope (10) opposite to hook through the cable pocket (B), take care do not allow wire rope to extend cable pocket (B) of drum as shown in pict.17a.

PICT.17



PICT.17a



DANGEROUS



In rope winding be careful especially when hands are closed to drum and roller fairlead.

STEP 3

Place wedge lock (C) into cable pocket (B) and manually pull the rope out as shown in pict.18.



DANGEROUS

Wire rope must be fully tight fitting to the cable pocket, to assure right mounting.



DANGEROUS

The end rope (10) opposite to hook do not allow wire rope to extend cable pocket (B) of drum as shown in pict.18a-18b.

6. Run winch in the reel in direction. Keeping tension end of cable, spool the cable onto the cable drum taking care to form neatly wrapped layers (pict.19).



DANGEROUS

When winding all cable onto the cable drum keeping tension on it by hand, when the end of cable is near to the drum, stop winch, disengage drum (chapter 3.1, page 30-31, pict.20-21). When the drum is disengaged, turn the drum by hands till the cable is completely wound. Take great care, when hands approach to the drum and roller fairlead.

7. Winch is ready.

PICT.18

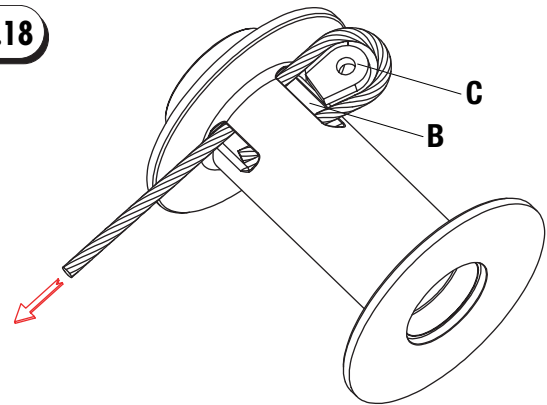


FIG.18a

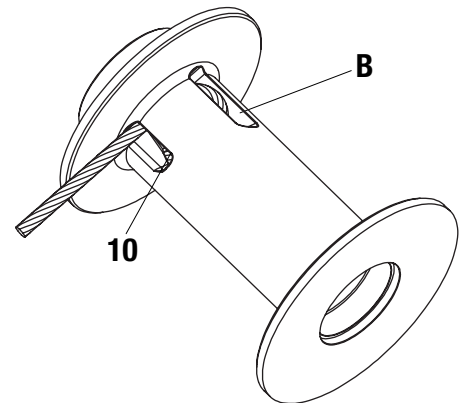
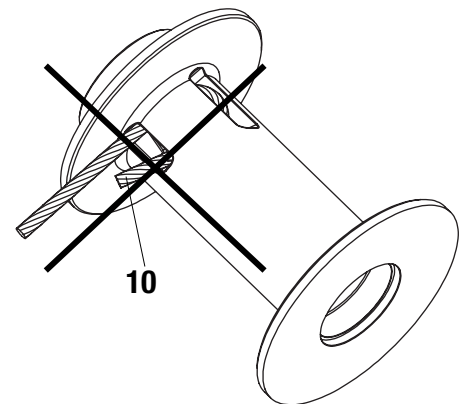
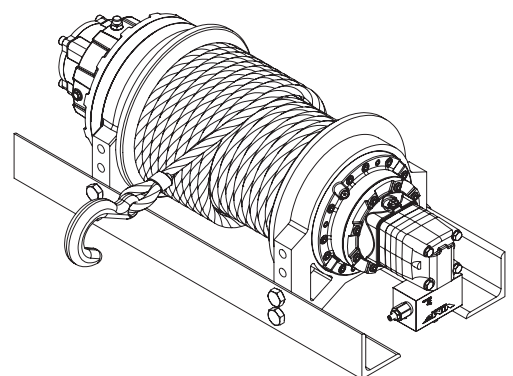


FIG.18b



PICT.19

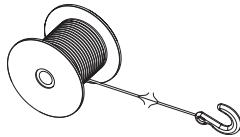


SECTION 3 OPERATION


3.1. OPERATION

 **DANGEROUS**

Before start winching check cable conditions, if cable becomes frayed with broken strands, replace immediately as described on chap. 2.7.



 **DANGEROUS**

 When winching is obligatory wear working gloves.

 **WARNING**



Before operating check oil level and add oil if necessary as shown in chap. 5.1.1.

 **WARNING**

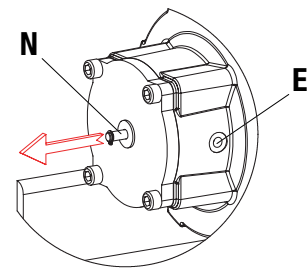
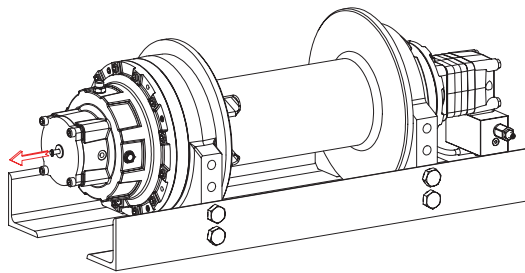
Before start winching, check conditions of manual clutch system for drum freespooling.

 **NOTE**

A warm up procedure is recommended at each start up and is essential at ambient temperatures below +40°F (4°C). The prime mover should be run at its lowest recommended RPM with the hydraulic winch control valve in neutral allowing sufficient time to warm up the system. The winch should be operated at low speeds, forward and reverse, several times to prime all lines with warm hydraulic oil, and to circulate gear lubricant through the worm gear sets.

PICT.20

AIR-CYLINDER CLUTCH SHIFTER VERSION DRUM DISENGAGED



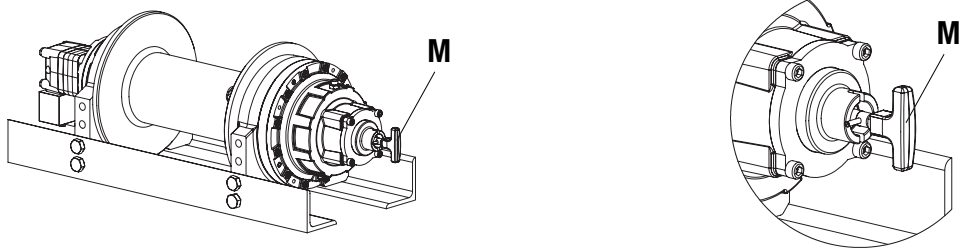
- A) For hooking onto the load rapidly:**
1. Check drum clutch be fully disengaged.

VERSION WITH AIR-CYLINDER CLUTCH SHIFTER air flow through port (E) disengages drum. Drum is fully disengaged when output shaft (N) is out as shown on pict.20.

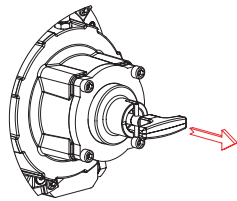
2. **VERSION WITH MANUAL CLUTCH SHIFTER** checking the handle (M) being fully out, if not, pull the handle fully out rotating 90° and lock in place as shown on pict.21. Now freespool by manually pulling out enough wire rope for the winching operation, hook the load in a point who can resist to the traction.

PICT.21

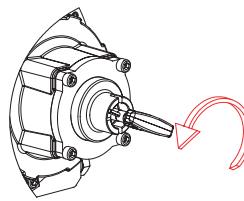
MANUAL CLUTCH SHIFTER VERSION DRUM DISENGAGED



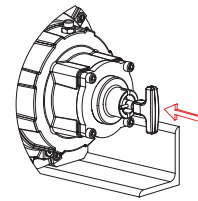
HOW TO DISENGAGE THE DRUM



1.PULL OUT



2.ROTATE

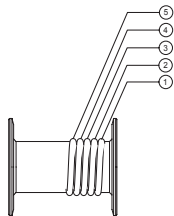


3.RELEASE



DANGEROUS

A minimum of 5 wraps of cable around the drum barrel is recommended.



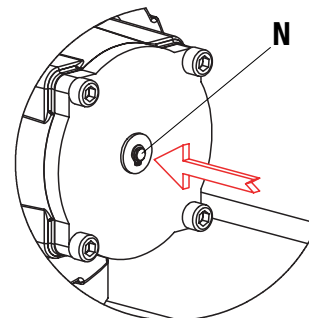
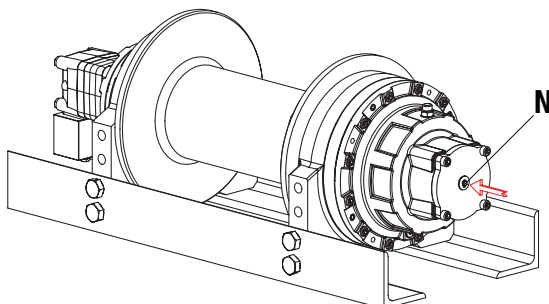
WARNING

Do not exceed maximum line pull ratings.

3. Engage the drum **VERSION WITH AIR-CYLINDER CLUTCH SHIFTER:** when air flow ceases spring return shaft within the air-cylinder engages the drum as mechanically shown by shaft (N) who must be fully in, as shown on pict.22. **VERSION WITH MANUAL CLUTCH SHIFTER:** by pulling out the handle (M), rotating 90° and release having care the pin will be locked in the engaged position (3) as shown on pict.23.
4. Act hydraulic control valve (ref. 4, pict.9), manually or by radio control for winding rope onto the winch drum.

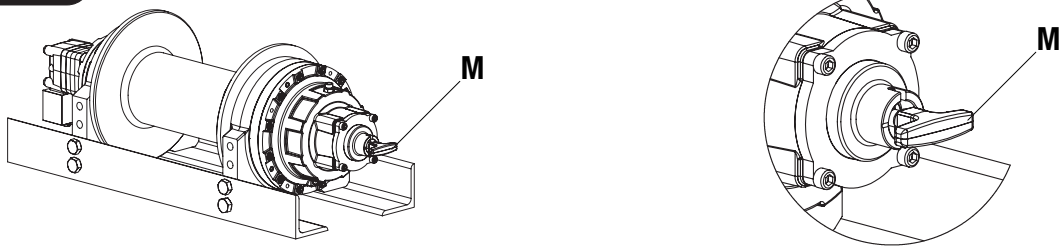
PICT.22

AIR-CYLINDER CLUTCH SHIFTER VERSION DRUM ENGAGED

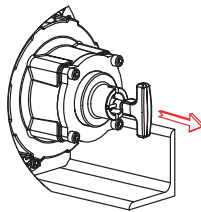


PICT.23

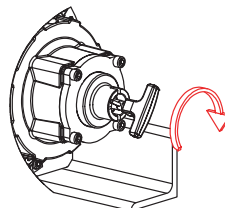
MANUAL CLUTCH SHIFTER VERSION DRUM ENGAGED



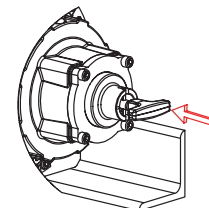
HOW TO ENGAGE THE DRUM



1.PULL OUT



2.ROTATE 90°



3.RELEASE



ATTENTION

Check clutch must be fully engaged as shown below on (pict.24).



DANGEROUS

If clutch has not been fully engaged, in winching operation while is pulling a load, can cause the suddenly drum disengagement and as a consequence the load drifts.



DANGEROUS

Do not disengage clutch under load.



DANGEROUS

Stand clear of cable while pulling. A broken cable can cause serious injury or death. Do not try guide cable.

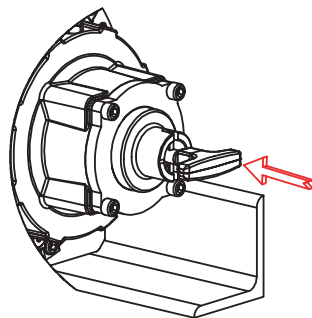


WARNING

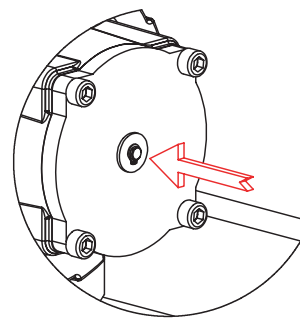
In car carrier applications after pulling vehicle on carrier, be sure to secure vehicle to carrier bed. Do not maintain load on winch cable while transporting vehicle, do not use winch as a tie down.

PICT.24

**MANUAL CLUTCH SHIFTER VERSION
CLUTCH HANDLE FULLY ENGAGED**



**AIR CLUTCH SHIFTER VERSION
CLUTCH FULLY ENGAGED**

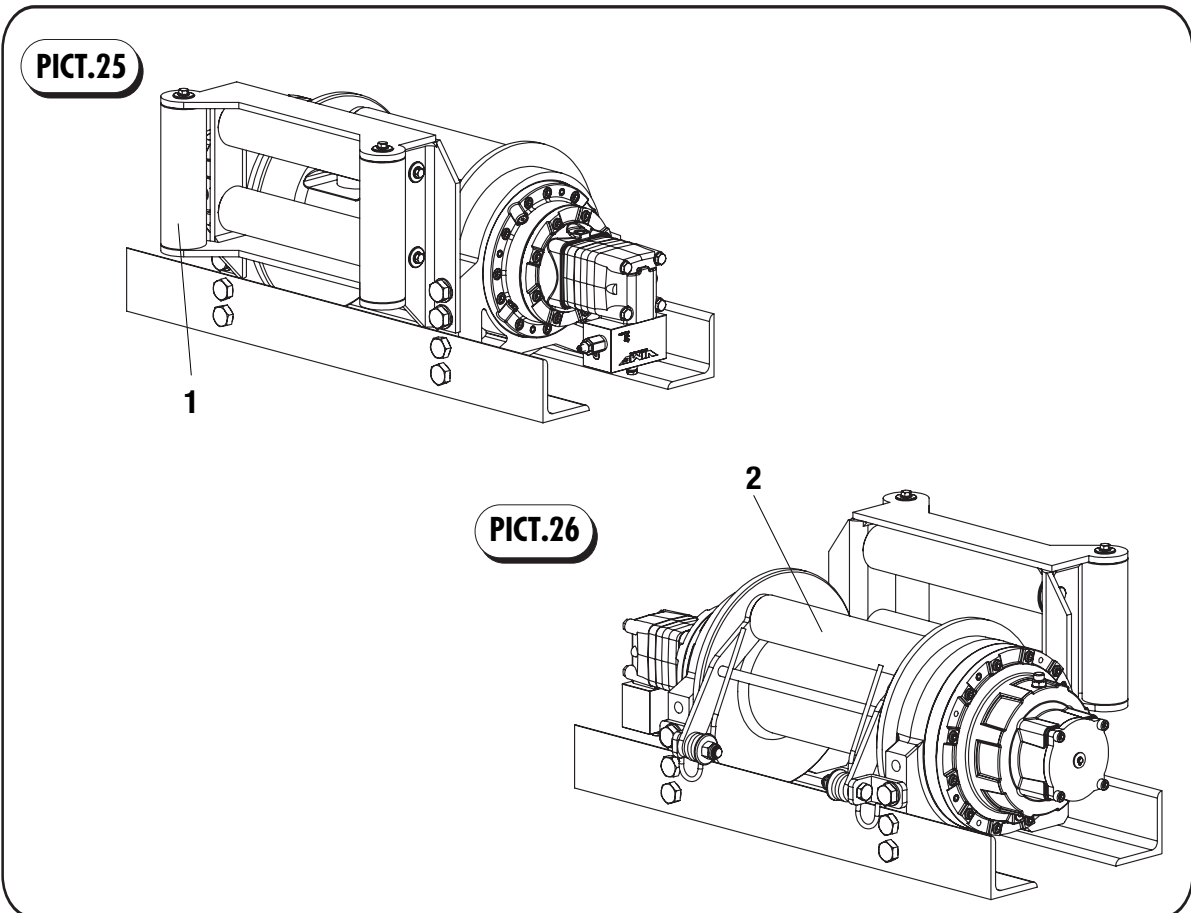


SECTION 4 ACCESSORIES

4.1 ACCESSORIES

EPHFN winches have been designed to be equipped with several accessories such as :

- ◆ Heavy-duty roller fairlead (ref.1 pict.25)
- ◆ Cable tensioner (ref.2 pict.26)



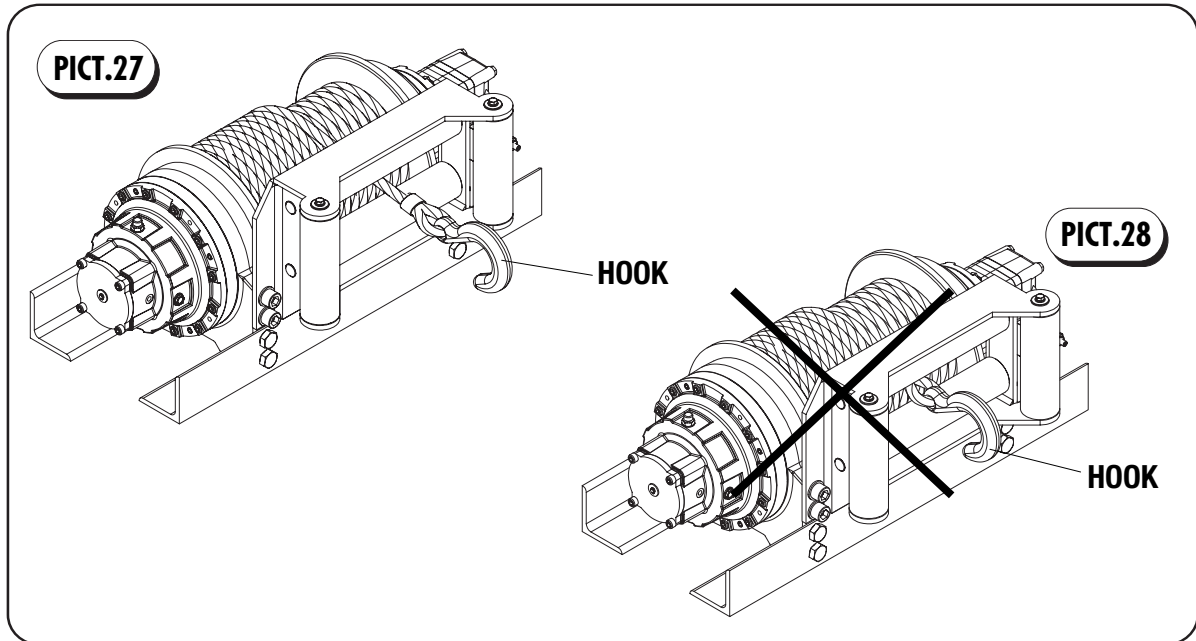
4.1.1 ROLLER FAIRLEAD

Roller fairlead is made up by 2 horizontal rollers and 2 vertical rollers, used for lateral pullings to avoid cable damages to the vehicle where the winch is installed. For EPHFN winches is available Heavy-duty zinc-plated roller fairlead with hardened steel rollers.

4.1.2 CABLE TENSIONER

Cable tensioner is used to keep cable tightened on the drum, while the winch is in freespool mode. Cable tensioner does not insure that the cable will wind onto the drum in orderly manner.

4.2 RECOMMENDATIONS FOR USE



4.2.1 ROLLER FAIRLEAD



IMPORTANT

The use of roller fairlead does not insure that the cable will wind onto the drum in an orderly manner.



IMPORTANT

The proper fleet angle must be maintained for the cable to wind onto the drum in an orderly manner as shown in chapter 2.3.



DANGEROUS

Stop reel-in of cable before hook enters fairlead rollers, as shown in pict.27-28. Failure to do so, may cause damage or breakage to the rope, winch, vehicle and serious injuries.



DANGEROUS



Do not put hands or feet near rotating parts or moving wire rope. Wire rope under tension can cause serious personal injury. Before operator power a winch, he is required to check that the area around the winch and load being hauled is clear.



DANGEROUS

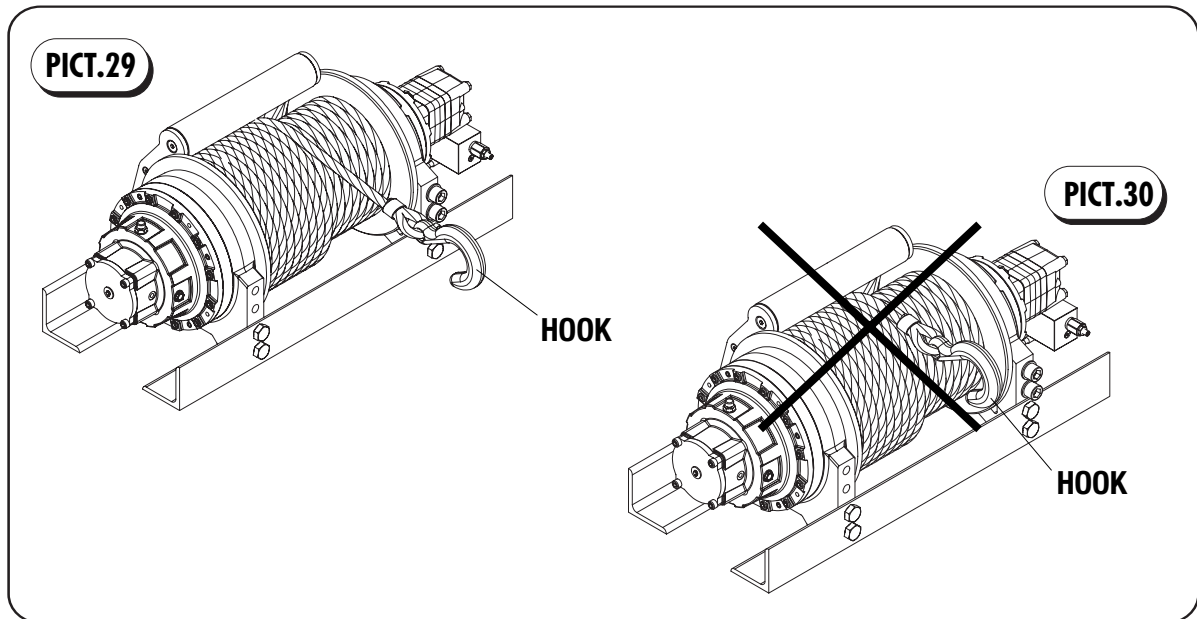


Never try to guide cable while winching.



IMPORTANT

In order that accessories such as roller fairlead and cable tensioner, can work properly a maintenance is recommended, as shown in chapter 5.1.1.



4.2.2 CABLE TENSIONER

IMPORTANT

The use of cable tensioner does not insure that the cable will wind onto the drum in an orderly manner.

IMPORTANT

The proper fleet angle must be maintained for the cable to wind onto the drum in an orderly manner as shown in chapter 2.3.

DANGEROUS

Stop reel-in of cable before hook enters rope tensioner roller, as shown in pict.29-30. Failure to do so, may cause damage or breakage to the rope, winch, vehicle and serious injuries.

DANGEROUS



Do not put hands or feet near rotating parts or moving wire rope. Wire rope under tension can cause serious personal injury. Before operator power a winch, he is required to check that the area around the winch and load being hauled is clear.

DANGEROUS



Never try to guide cable while winching.

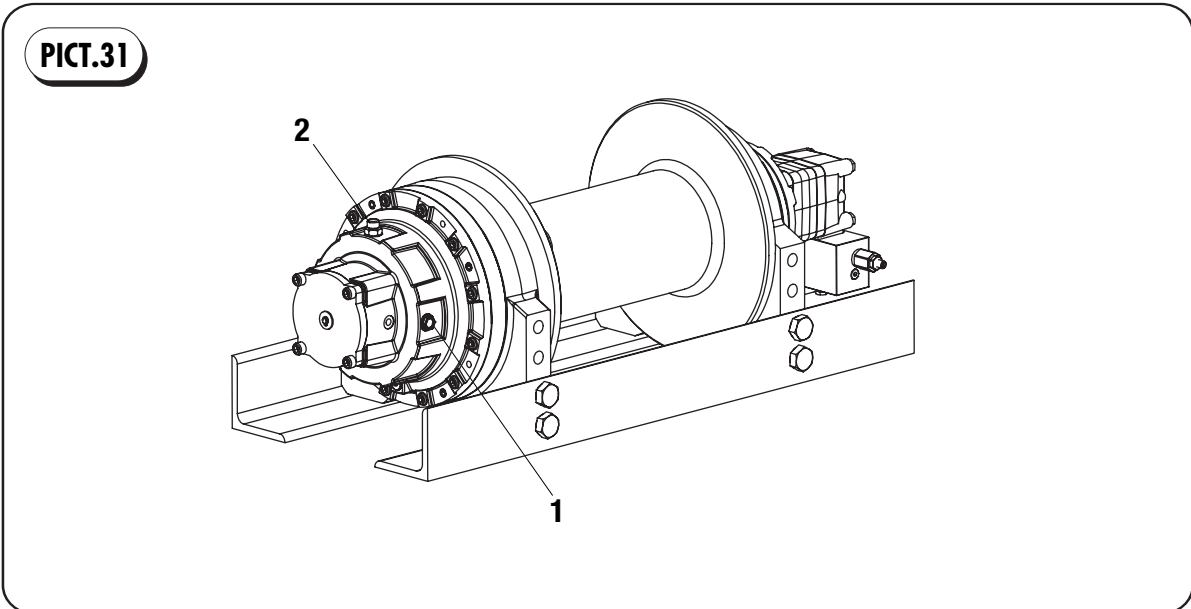
IMPORTANT

In order that accessories such as roller fairlead and cable tensioner, can work properly a maintenance is recommended, as shown in chapter 5.1.1.

SECTION 5 MAINTENANCE

5.1 MONTHLY MAINTENANCE

Winches mod. EPH are designed to reduce maintenance to wire rope and oil level only.



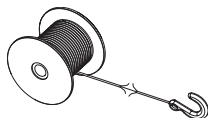
5.1.1 MONTHLY MAINTENANCE



Technical staff required:
Technician or user

Procedure:

1. Inspect the cable for damage and lubricate frequently with viscous oils or light grease with additives adhesive with graphite or bisulfure molybdenum. **If cable becomes frayed with broken strands, replace immediately by following procedure indicated on chap. 2.10.**



2. Planetary gears are bathed in oil. Keep oil to level hole.



3. To check oil level : inspect oil level through transparent oil plug (1). If oil level is below oil level plug(1), remove breather plug (2) and add oil **SHELL ISO VG 46**. Tightening plug (2).



WARNING

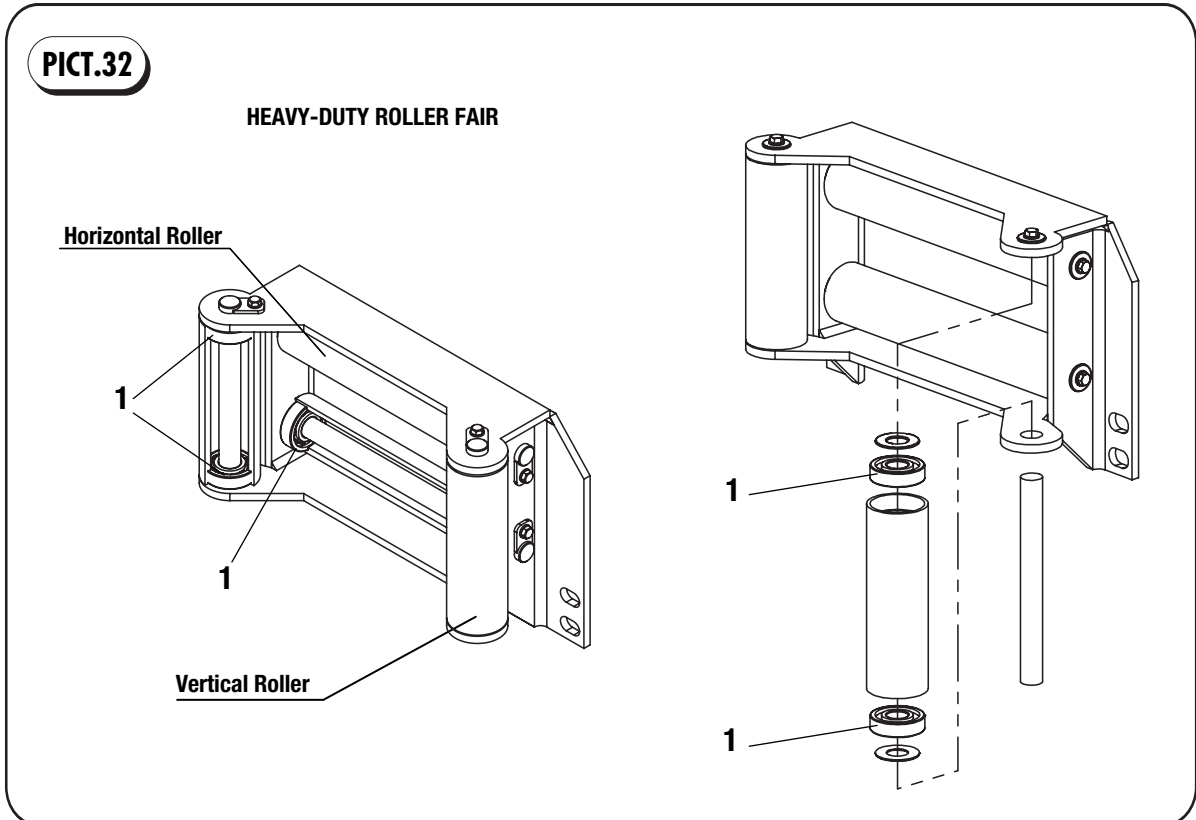
Do not fill up the winch gear housing with more oil than it requires see chart. An excessive oil quantity could cause a winch malfunction or damage it.



WARNING

Periodically inspect rope mounting (chapter 2.10 page 26).

EPHFN winch can be equipped with heavy duty roller fairlead and cable tensioner.



1. The Roller fairlead rollers must roll free to let wire rope slide perfectly. Elements such as: salt, water, oxidation and a bad maintenance can cause the rollers locking, and excessive wire rope wear. The Roller fairlead rollers bad operation, can cause their own rapid wear. We recommend to inspect the horizontal and vertical rollers. If necessary replace bearings(1) as shown in pict.32.



IMPORTANT

Fairlead rollers sliding on wire rope, when show an excessive wear must be replaced.



WARNING

A roller excessively worn, particularly if it has deep stripes, could damage the wire rope.

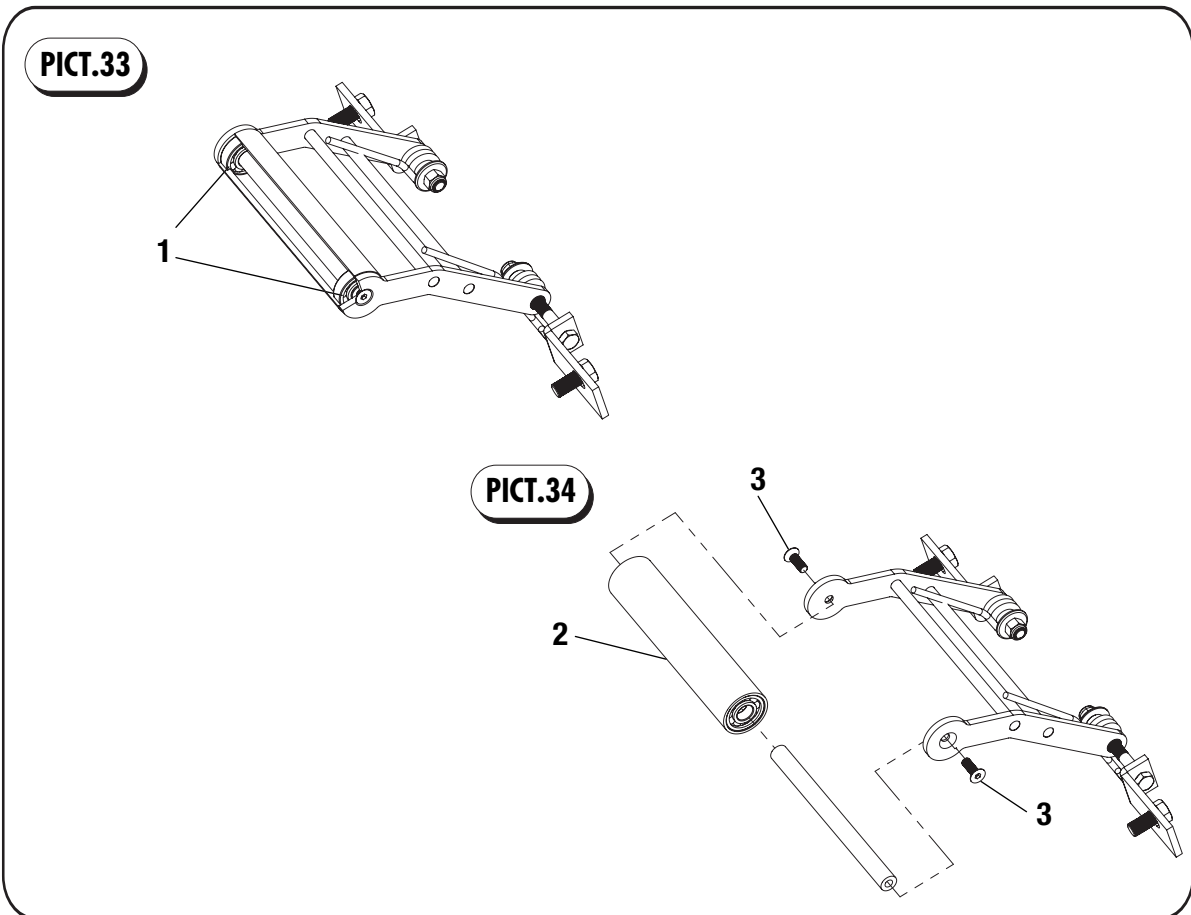


IMPORTANT

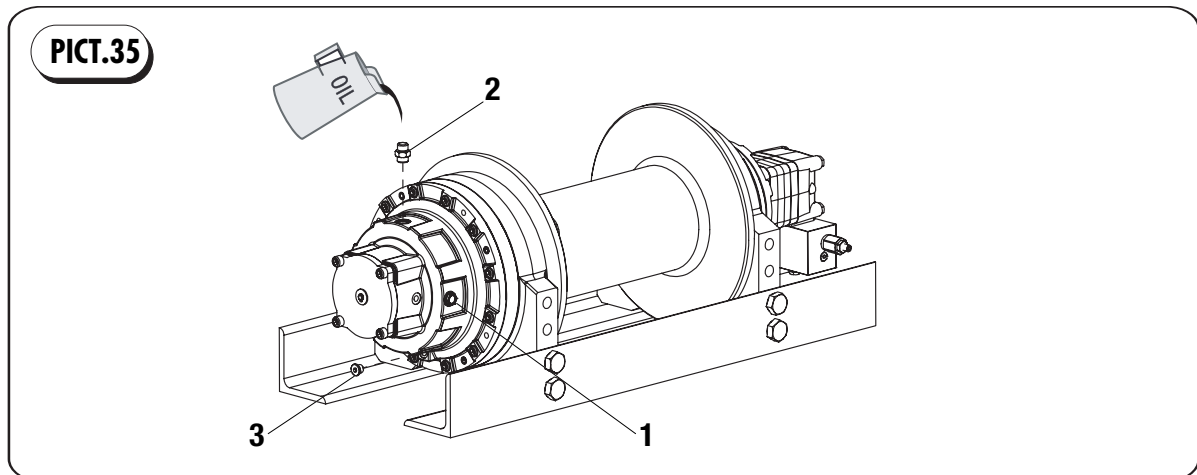
Fairlead rollers are zinc plated. Treatment with time will be removed by rope sliding.

MONTHLY MAINTENANCE

Winches mod. EPHFN can be equipped with cable tensioner. The cable tensioner has roller working on bearings.



4. The Cable tensioner roller must rolls free to let wire rope slide perfectly. Elements such as: salt, water, oxidation and a bad maintenance can cause the roller locking, and excessive wire rope wear. The Cable tensioner roller bad operation, can cause its own rapid wear. We recommend to inspect the roller. If necessary replace bearings(1) as shown in pict.33.
5. In case of excessive locking, cable tensioner roller (2) can be disassembled by loosening the 2 capscrews (3) as shown on pict.34.



5.1.2 ANNUAL MAINTENANCE



Technical staff required:
Technician or user

Recommended oil quantity:

Model	Q.ty
EPHLFN 100 CE	2,3 Lt.
EPHLFN 125 CE	2,3 Lt.
EPHLFN 150 CE	2,3 Lt.
EPHLFN 165 CE	2,3 Lt.

Procedure:

At least once a year, it is necessary inspect oil level. To inspect oil level follow instruction as indicated in chap.5.1.1 step 3. To fully replace the oil do as follow :

1. Remove breather plug (2) (pict.35)
2. Drain oil from winch by removing drain plug (3) taking care to put the oil drained in a container (approx. 4 Lt. capacity).
3. Tighten drain plug (3) and fill up planetary gear housing with new oil **SHELL ISO VG 46** through oil hole (2) till see oil through transparent oil level plug (1) (see table below for oil quantity).
4. Tighten breather plug (2)



WARNING

Do not fill up the winch gear housing with more oil than it requires see chart. An excessive oil quantity could cause a winch malfunction or damage it.



IMPORTANT

To avoid pollution, the oil drained from the winch, must be carried off in compliance with regulation.



WARNING

Inspect mounting capscrews and tighten if necessary.

SECTION 6

TROUBLE SHOOTING GUIDE



6.1 TROUBLE SHOOTING GUIDE

CONDITIONS	POSSIBLE CAUSE	CORRECTION
Drum will not rotate by hand in the free spooling position.	- Winch not mounted squarely causing end bearing to bind up drum.	- Check winch mounting, chap.2.2 on pages 14/17.
Winch will not pull load.	- Load greater than rated capacity of winch. - The hydraulic system pressure is not adequate to power the load, or back pressure is too high. - The brake is not releasing	- Check technical data on page 8-10-12-14. - Check pressure refer to performance charts on page 8-10-12-14. Set relief valve (ref.5, pict.9) on page 22. - Check the pressure at the port of the brake counter balance valve. With the hydraulic system running, the pressure at the brake valve port will be approximately equal to the system pressure. The brake is fully opened at 25 –30 bar. If the pressure at the brake valve port is not correct, replace the brake valve. - If the pressure at brake valve port reads 25-30 bar and the brake doesn't release, the brake may be mechanically bound. This requires disassembly of the motor end to correct the problem. Contact VIME Parts and Service Department before disassembly.
	- Winch is mechanically binding up.	- Check to insure that the winch is mounted on a flat, rigid surface.

TROUBLE SHOOTING GUIDE

CONDITIONS	POSSIBLE CAUSE	CORRECTION
Winch will not pay out	- The brake is not releasing because it is not getting the pilot signal.	- Check the pressure at the port of the brake Over-center valve. With the hydraulic system running, the pressure at the brake valve port will be approximately equal to the system pressure. The brake is fully opened at 25-30 bar. If the pressure at the brake valve port is not correct, replace the brake valve.
	- The brake is mechanically binding up.	- If the pressure at the brake valve port reads 25-30 bar and the brake doesn't release, the brake may be mechanically bound. This requires disassembly of the motor end to correct the problem. Contact VIME Parts and Service Department before disassembly.
Winch runs too slow.	- Low hydraulic system flow rate.	- Check flow rate refer to performance charts on page 8-10-12-14.
	- Hydraulic motor damaged.	- Replace motor
	- Winch misaligned.	- Check winch mounting, chap.2.2 on pages 18– 21.
Drum will not free spool.	- Clutch doesn't disengage.	- Check operation on pages 26 - 28.
	- Winch misaligned.	- Check winch mounting, chap.2.2 on pages 18 - 21. Loosen but not remove, the capscrews that are attaching the winch to the base angles (if mounted).
Oil leakage.	- Damaged oil seals, O-rings.	- Replace oil seals, O-rings.
	- Missed or wrong case drains.	- Check case drain according to hydraulic system typical layout shown (C) on page 22.
	- Oil plugs loosens.	- Tighten oil plugs as shown in chap. 5.1.1 and 5.1.2 .
	- Excessive oil quantity in gear housing.	- Chap. 5.1.2 on page 39.

TROUBLE SHOOTING GUIDE

CONDITIONS	POSSIBLE CAUSE	CORRECTION
Load drifts.	<ul style="list-style-type: none"> - Brake discs worn out. - Not proper winch control valve. 	<ul style="list-style-type: none"> - Replace discs and springs brake. - Check the control valve (ref.4) on page 22. It is obligatory to mount a motorspool control valve 3 positions 4 ways with relief valve. The brake system does not work with close centre control valve.
Excessive noise.	<ul style="list-style-type: none"> - Hydraulic system flow too high. - Oil level too low. 	<ul style="list-style-type: none"> - Check performance charts on page 8-10-12-14. - Check oil level, through oil level plug according instructions (Chap. 5.1.1.) on page 36.
Cable birdnests when clutch is disengaged.	<ul style="list-style-type: none"> - Wire rope too hard. 	<ul style="list-style-type: none"> - Replace wire rope with once who get strands designed to offer more flexibility without compromising the rope class of strength. Mount a cable tensioner.



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- Instalaciones incorrectas a la fuente de energía.
- Carencia de mantenimiento ordinario y extraordinario.
- Usos improprios diversos de los especificados.
- Intervenciones de personal no cualificado.

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- Unsachgemäßer Anschluß an die Energiequellen.
- Fehlende Wartung und Instandsetzung.
- Unzureichender Einsatz des Gerätes.
- Eingriffe durch unqualifiziertes Personal.

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- Incorrect linking to the source of energy .
- Deficiency in annual and monthly maintenance .
- Improper uses .
- Any alteration , repair or modification from unauthorized personnel .

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