Lofrans hydraulics windlasses technical specification

The following document describes the technical specification required for the Lofrans windlasses motorized with a hydraulic motor.

Technical performances							
Model	**Weight (Kgs)**	**Max Pull (Kgs)**	**Speed (Mt/min)**	**Max Pressare (Bar)**	**Min Pressare (Bar)**	**Max Flow (Lt/min)**	**Min Flow (Lt/min)**
Ercole Verticale	160	6500	14	200	170	40	35
X4/SX4	55	2500	16	200	170	32	25
X5/SX5	105	3000	22	200	90	30	25
* Super Ercole A	175	7000	15	200	170	40	35
* Super Ercole B	215	7000	15	200	170	40	35
* Super Ercole C	190	7000	15	200	170	40	35
* Ercole A	155	6500	14	200	170	40	35
* Ercole B	180	6500	14	200	170	40	35
* Ercole C	170	6500	14	200	170	40	35
* Titan A	70	3400	11	200	170	32	25
* Titan B	95	3400	11	200	170	32	25
* Titan C	80	3400	11	200	170	32	25
Capstan ST3500	120	3000	17	200	170	40	35
Capstan T2500/ST2500	40	2500	15	200	170	32	25
Capstan T2000/ST2000	35	2000	15	200	170	32	25
*Dimensional drawing page 3 (Note : where marked * the drawings are the same of the AC-DC version)*							

IMPORTANT NOTES :
The windlass is supplied with the hydraulic motor only so the rest of the hydraulic system is the responsibility of the fitter/installer and must be within the limitations that are described in this document so that it does not damage the windlass.

OIL TYPE :

A. Hydraulic fluid : we strongly recommend to use hydraulic fluid mineral oil base according the regulamentation of ISO/DIN.
B. Viscosity field : recommended from 12 up to 100 mm2/s (cSt)

FILTER
Install an oil filter to keep the oil clean.
We strongly recommend a filtration all along the pipeline before use the windlass . The choice of the input and output filter must be done respecting the degree of contamination indicated below.
We recommend do not mix different types of oil as they could origin the powder of oil circulating in the pipeline.

Degree of contamination :

A. Class NAS 1638 -9
B. Class ISO 4406 – 28/18/15

with filter βxc >= 75 at the pressare of 200 bar : 10 μm

TANK :
The capacity of the tank must be in according with the whole plant (~ 3 times the circulating oil) in order to avoid overheat of the fluid.
Fit an oil cooler or use an oil tank so that the maximum oil temperature is 40 - 50 C°.
In the tank the input and output pipes must be separated to avoid the input oil could be prompt drained again by the pump in the pipeline.

PIPE
Pipe must have a nominal diameter at least the same of the output of the motor and must be oil tight.
To limit the loss reduce the number of hydraulic resistance making the pipeline short as much possible and reducing the curves.
All the input lines must stay below the minimum level of oil in order to avoid to make foam.
Before to connect the pipes remove the caps and be sure they are perfectly cleaned.

VALVE
It is very important to use a hydraulic valve that has flow and pressure limits that are either set within or can be adjusted to be within the limits of the windlass capability. also strongly recommend that a shock valve are fitted and set to 10% - 15% above the chosen maximum pressure set in the valve. This will prevent that the system is damaged if the windlass is blocked by any reason.

changed, as this can seriously damage the gearbox.
This can be done by adding an electronic time lapse / delay safety on the electric control system or by using a valve that has this type of protection built in. The required time delay is 3 second.

OIL DRAINAGE
The case drain line must be fitted and connected directly to the tank.

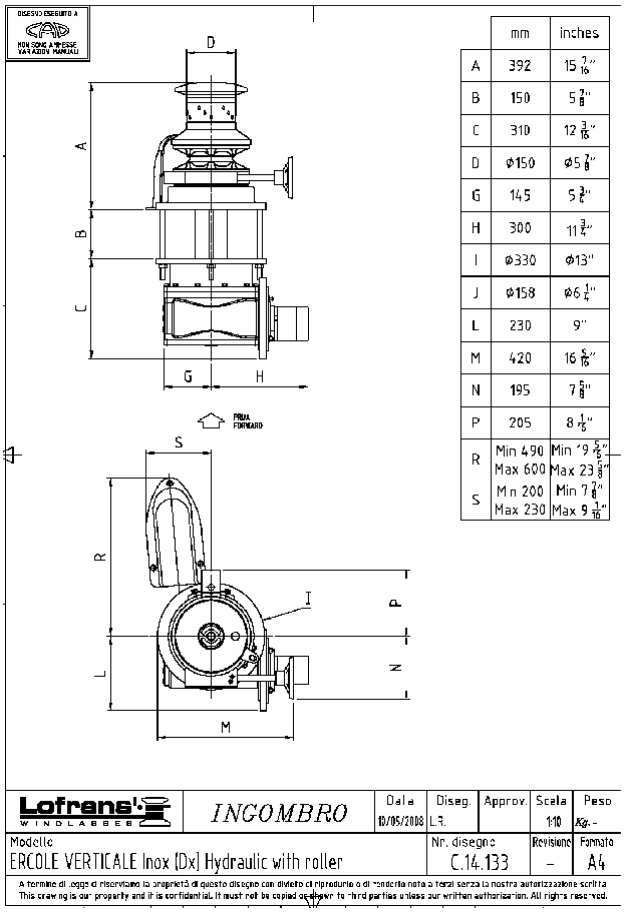
SET UP
A. Be sure that all the connections of the circuit are correct and the plant is in condition of absolute cleaning.
B. Put the oil inside the tank by a filter.
C. Leak the circuit in order to help the filling of the pipeline.
D. Set up the limiter valve to the lowest value.
E. Start the system for some moments at the minimum speed and then leak the circuit again and check the oil level in the tank.
F. If the difference between motor and fluid temperature is more than 10° C, start and stop the system for brief period in order to make a progressive heating.
G. Increase gradually the pressure and the speed of rotation until the catalogue specification data.

MAINTENANCE
Clean the outer surface in the area where of the main shaft and the seal.
The dirty powder may accelerate the wear and tear of the motor and make leak of oil.
Replace the filter periodically to keep the fluid clean.
The level of oil must be controlled periodically and replace it in function of the working conditions.

IMPORTANT: For more information about the hydraulic installation, please contact Lofrans':

https://www.lofrans.com/contact

General Dimensions

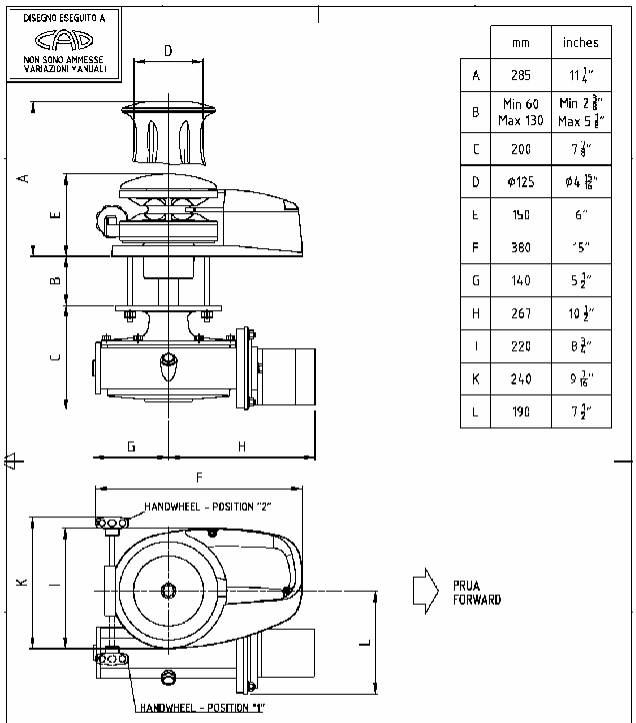


	mm	inches
A	392	15 7/16"
B	150	5 7/8"
C	310	12 3/16"
D	ø150	ø5 7/8"
G	145	5 3/4"
H	300	11 3/4"
I	ø330	ø13"
J	ø158	ø6 1/4"
L	230	9"
M	420	16 5/16"
N	195	7 5/8"
P	205	8 1/16"
R	Min 490 Max 600	Min 19 5/16" Max 23 5/8"
S	Min 200 Max 230	Min 7 7/8" Max 9 1/16"

Lofrans' WINDLASSES — INGOMBRO

Data	Diseg.	Approv.	Scala	Peso
10/05/2008	L.R.		1:10	Kg. -

Modello: ERCOLE VERTICALE Inox (Dx) Hydraulic with roller
Nr. disegno: C.14.133
Revisione: -
Formato: A4

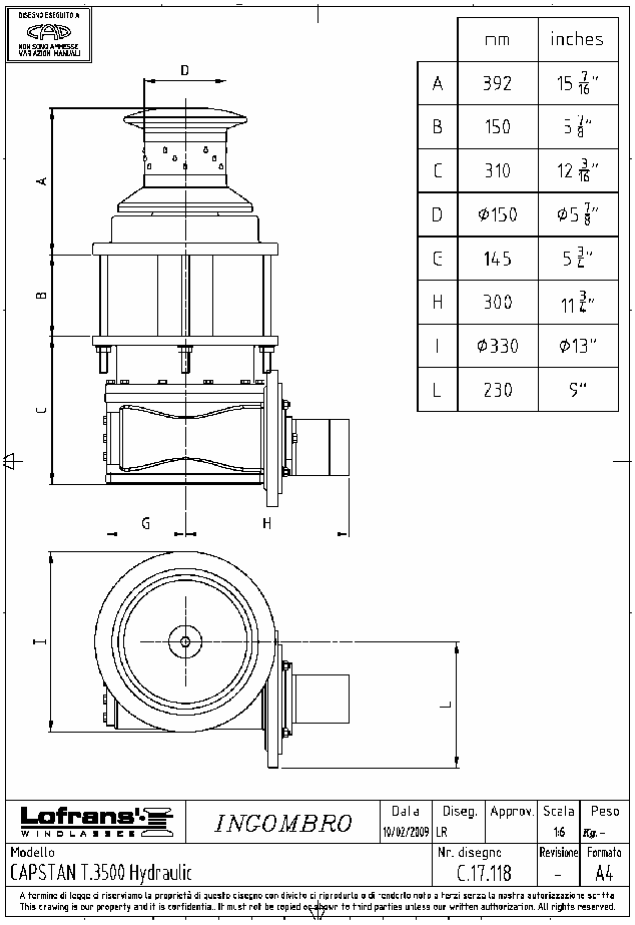


	mm	inches
A	285	11 1/4"
B	Min 60 Max 130	Min 2 3/8" Max 5 1/8"
C	200	7 7/8"
D	ø125	ø4 15/16"
E	150	6"
F	380	15"
G	140	5 1/2"
H	267	10 1/2"
I	220	8 3/4"
K	240	9 7/16"
L	190	7 1/2"

Lofrans' WINDLASSES — INGOMBRO

Data	Diseg.	Approv.	Scala	Peso
17/07/2009	I. Rivolta		1:6	Kg.

Modello: PROJECT 2000/X4 Hydraulic
Nr. disegno: C.26.105
Revisione:
Formato: A4

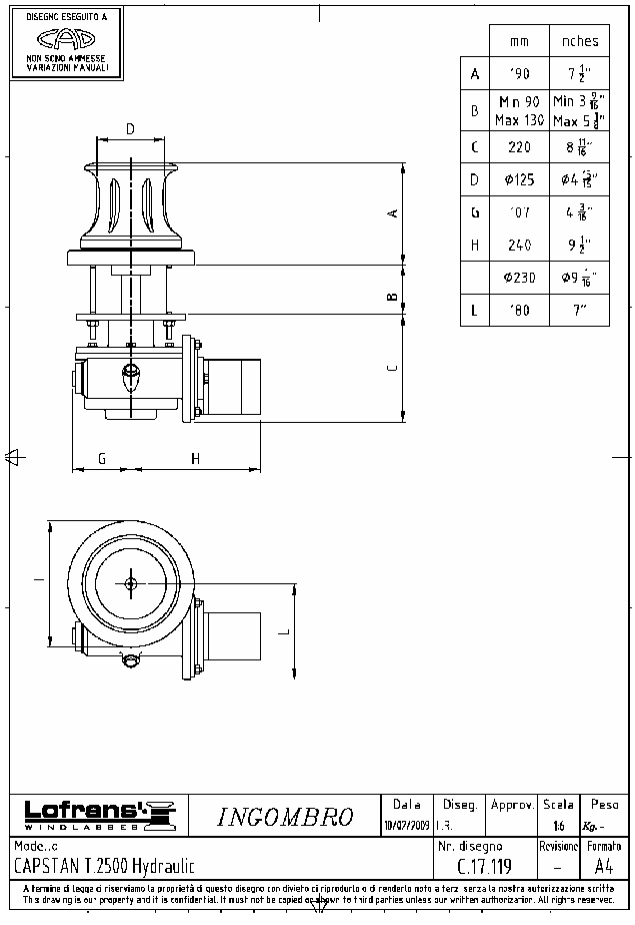


	mm	inches
A	392	15 7/16"
B	150	5 7/8"
C	310	12 3/16"
D	ø150	ø5 7/8"
E	145	5 3/4"
H	300	11 3/4"
I	ø330	ø13"
L	230	9"

Lofrans' WINDLASSES — INGOMBRO

Data	Diseg.	Approv.	Scala	Peso
10/02/2009	LR		1:6	Kg. -

Modello: CAPSTAN T.3500 Hydraulic
Nr. disegno: C.17.118
Revisione: -
Formato: A4



	mm	inches
A	190	7 1/2"
B	Min 90 Max 130	Min 3 9/16" Max 5 1/8"
C	220	8 11/16"
D	ø125	ø4 15/16"
G	107	4 3/16"
H	240	9 1/2"
	ø230	ø9 1/16"
L	180	7"

Lofrans' WINDLASSES — INGOMBRO

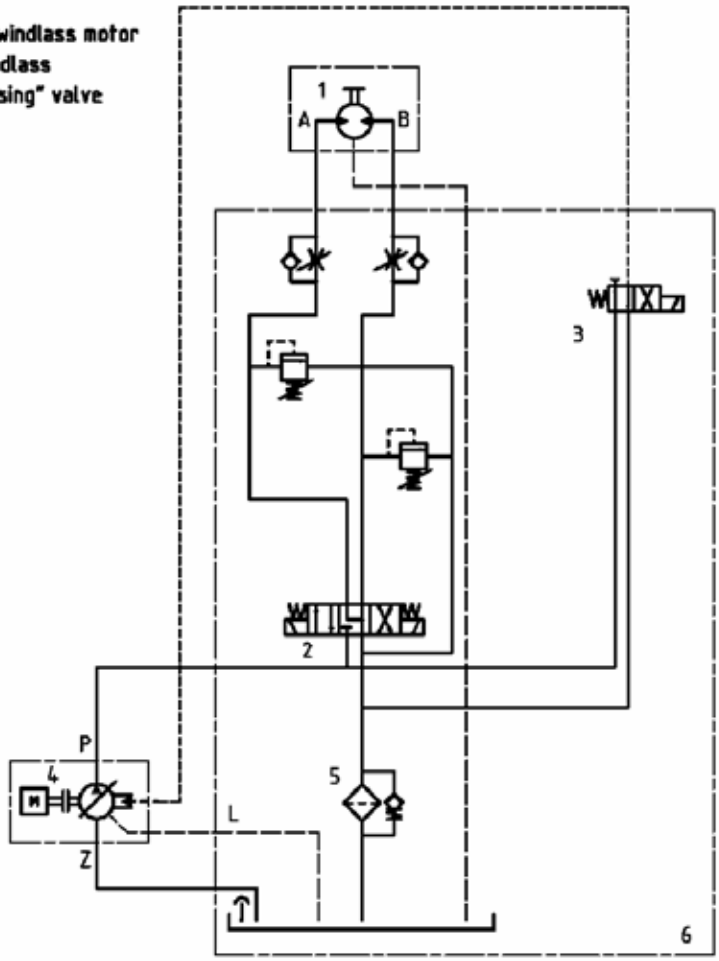
Data	Diseg.	Approv.	Scala	Peso
10/07/2009	I.R.		1:6	Kg. -

Modello: CAPSTAN T.2500 Hydraulic
Nr. disegno: C.17.119
Revisione: -
Formato: A4

Hydraulic diagram

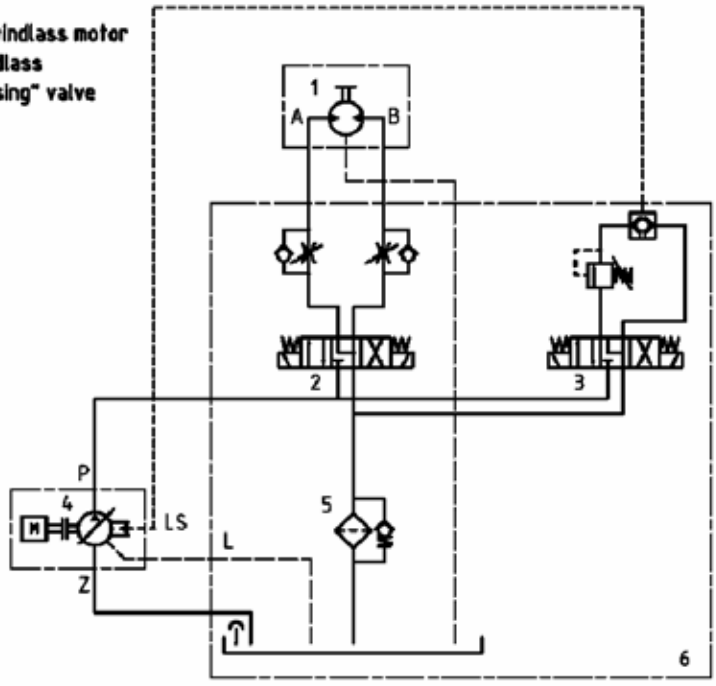
1-step load-sensing

1 Hydraulic anchor windlass motor
2-Valve anchor windlass
3-"1-step load sensing" valve
4-Hydraulic pump
5-Return filter
6-Hydraulic tank



2-step load-sensing

1 Hydraulic anchor windlass motor
2-Valve anchor windlass
3-"2-step load sensing" valve
4-Hydraulic pump
5-Return filter
6-Hydraulic tank



17.24.09.2