Hydraulic Linear Winches

Kley France is specialized in design, manufacturing and installation of linear winches from 10 to 640 T. pulling capacity, and more... Since 1978, and all over the world, Kley France has built about fifty linear winches with a full satisfaction of the customers and operators.

Principal uses

- Pipe Pulling
- Platform Mooring / Anchoring
- Heavy Lifting
- Heavy Handling
- Riser Installation
- J-Tube Pulling
- Heavy Dredging
- Wire Rope Stopper
- Heavy Vehicle Recovery
- FPSO Mooring
- Sheathed Cable Laying
- Etc...

Advantages

- Tremendous pulling capacities
- No bending of rope under load
- Compact dimensions
- Very high load / weight ratio
- Fixed position of pulling axis
- Load holding unlimited in time
- High accuracy of load positioning
- Long wire rope life
- Intrinsically safe
- High mounting flexibility : horizontally, vertically, under water...

Contect : shinyang@shinyangtech.com
Phone : +82-31-737-2147
Fax : +82-31-737-2150

Hydraulic Linear Winches

Description

A linear winch, intermittent or continuous, is constituted with 2 grippers, linked together with 1 (or 2) pair of hydraulic cylinders.

A frame completes the assembly to guide the grippers along its stroke and to attach the winch to the main support (deck, floor, structure, ...).

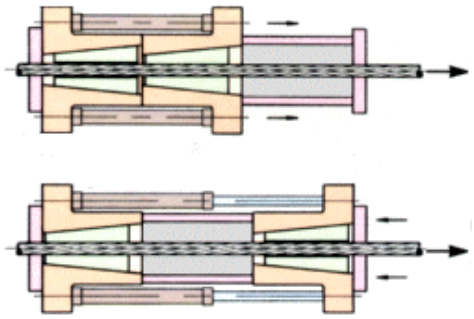
Each gripper is constituted with :

- 2 fixed blocks, machined and bolted to the gripper.
- 2 mobile wedges, machined, to ensure the gripping.
- 2 inserts, in hard steel, with smooth gripping surface to avoid damage to the cable.
  They are interchangeable for several rope diameters.
- 2 roller assemblies, between the fixed blocks and mobile wedges.
  This is the heart of the system which ensure the cable gripping in any situation.
- 4 springs to apply the wedges on the cable.
- 1 wedge hydraulic jack to open the wedges.
- 2 cheek plates for the gripper holding.

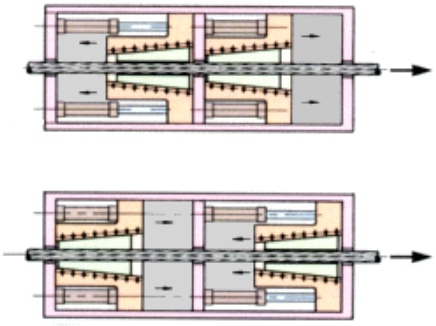
The grippers are specially designed and calculated to give a maximum safety and efficiency and a minimum wire rope wear.

The grippers can be of opening type or non-opening type. With the last one, the rope must be introduced axially through the winch. The opening type permits the cable to be loaded into the winch from the top. As an option, a special design can permit a socket connection to pass through the winch under tension.

Intermittent motion



Continuous motion



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Hydraulic Linear Winches

Security - Reliability

This is the strong point of this winch. The gripper is intrinsically safe, as the internal design ensures a gripping even with greased or dirty cable, high tensions, vibrations, etc...

- The highest the tension is, the better the gripping is.
- Furthermore, 4 springs apply the wedges on the cable.
  In the vertical position, the own weight of the wedges also helps.
- Normally the 2 wedges are in contact with the cable, except in lowering movement. Furthermore, the wedge jack is not able to open the wedge if a load is applied on the winch. In any case, the cable can not be released from the winch even with hydraulic failure.
- In case of failure of the main jacks hydraulic, the security is total :
  a) The jacks are equipped with non-return valves or counterbalance valve.
  b) In hauling, 2 wedges are always in contact with the cable.
  c) In lowering, and in case of a second failure of the non-return valve and if the fixed block is open, the load could be lowered on the stroke of the hydraulic jacks.
- Models for pulling and lifting are identical. Only the safety factor and the area of cylinders are different.
- The wire rope diameter may vary with the type of rope and the required safety factor. Commonly used safety factor is 2.2 for pulling and 3.5 for lifting. But it differs according to the application.

SHINYANG TECHNOLOGY co.,Ltd
Contect : shinyang@shinyangtech.com
Phone : +82-31-737-2147
Fax : +82-31-737-2150
www.shinyangtech.com

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Function

The hydraulic in/out jack movements are automatically given by a hydraulic power unit (280 bars at SWL).

Required power for hydraulic power pack is approximately given by the formula :

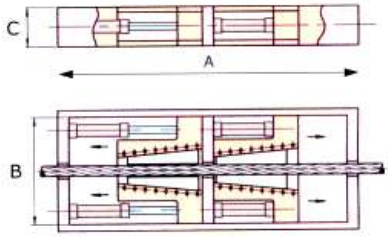
P (HP) = 0,6 x F (tons) x V (m/mn) - Intermittent

P (HP) = 0,3 x F (tons) x V (m/mn) - Continuous

The 2 main jacks are equipped with a counterbalance valve, connected with hard piping, which is used to control the lowering speed and also as a safety valve.

The 2 wedges cylinders are commanded by the power unit and synchronised with 2 limit switches on the winch.

Continuous Hydraulic Linear Winches



The here below chart is only given as indication of size and weight. Please contact us for final proposal.

Pulling model	KTC-40	KTC-96	KTC-160	KTC-240	KTC-320	KTC-640
Line Pull	40 Tonnes 88,000 lbs	96 Tonnes 210,000 lbs	160 Tonnes 350,000 lbs	240 Tonnes 530,000 lbs	320 Tonnes 700,000 lbs	640 Tonnes 1,400,000 lbs
Lifting model	**KLC-40**	**KLC-96**	**KLC-160**	**KLC-240**	**KLC-320**	**KLC-640**
Lifted load	25 Tonnes 55,000 lbs	60 Tonnes 130,000 lbs	100 Tonnes 220,000 lbs	150 Tonnes 330,000 lbs	200 Tonnes 440,000 lbs	400 Tonnes 880,000 lbs
Normal diameter of rope	38 mm 1 1/2"	64 mm 2 1/2"	77 mm 3"	90 mm 3 1/2"	102 mm 4"	140 mm 5 1/2"
Cylinders stroke	435 mm 1'5"	660 mm 2'2"	870 mm 2'10"	1070 mm 3'6"	1220 mm 4'	1400 mm 4'7"
Dimension A	2720 mm 8'11"	4200 mm 13'9"	5440 mm 17'10"	6680 mm 21'11"	7700 mm 25'3"	10,300 mm 33'9"
Dimension B	530 mm 1'9"	860 mm 2'10"	1100 mm 3'7"	1350 mm 4'5"	1550 mm 5'1"	2190 mm 7'2"
Dimension C	260 mm 10"	400 mm 1'4"	510 mm 1'8"	610 mm 2'	710 mm 2'4"	1020 mm 3'4"
Weight	550 kg 1200 lbs	2050 kg 4500 lbs	4400 kg 9700 lbs	8100 kg 18.000 lbs	12.500 kg 27.500 lbs	33.000 kg 73.000 lbs
Speeds commonly used with continuous linear winches are between 0.1 and 6 m/mn						

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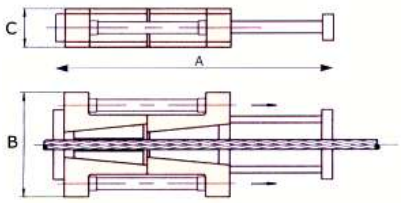
Hydraulic Linear Winches

Function

Intermittent Hydraulic Linear Winches



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Pulling model	KTI-40	KTI-96	KTI-160	KTI-240	KTI-320	KTI-640
Line Pull	40 Tonnes 88,000 lbs	96 Tonnes 210,000 lbs	160 Tonnes 350,000 lbs	240 Tonnes 530,000 lbs	320 Tonnes 700,000 lbs	640 Tonnes 1,400,000 lbs
Lifting model	**KLI-40**	**KLI-96**	**KLI-160**	**KLI-240**	**KLI-320**	**KLI-640**
Lifted load	25 Tonnes 55,000 lbs	60 Tonnes 130,000 lbs	100 Tonnes 220,000 lbs	150 Tonnes 330,000 lbs	200 Tonnes 440,000 lbs	400 Tonnes 880,000 lbs
Normal diameter of rope	38 mm 1 1/2"	64 mm 2 1/2"	77 mm 3"	90 mm 3 1/2"	102 mm 4"	140 mm 5 1/2"
Cylinders stroke	435 mm 4'4"	660 mm 6'9"	870 mm 8'9"	1070 mm 10'8"	1220 mm 12'4"	1400 mm 16'5"
Dimension A	1320 mm 4'4"	2060 mm 6'9"	2670 mm 8'9"	3260 mm 10'8"	3760 mm 12'4"	5000 mm 16'5"
Dimension B	530 mm 1'9"	860 mm 2'10"	1100 mm 3'7"	1350 mm 4'5"	1550 mm 5'1"	2190 mm 7'2"
Dimension C	260 mm 10"	400 mm 1'4"	510 mm 1'8"	610 mm 2'	710 mm 2'4"	1020 mm 3'4"
Weight	400 kg 900 lbs	1500 kg 3300 lbs	3250 kg 7100 lbs	5950 kg 13,000 lbs	9100 kg 20,000 lbs	24.500 kg 54,000 lbs
Speeds commonly used with intermittent linear winches are between 0.1 and 3 m/mn						

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