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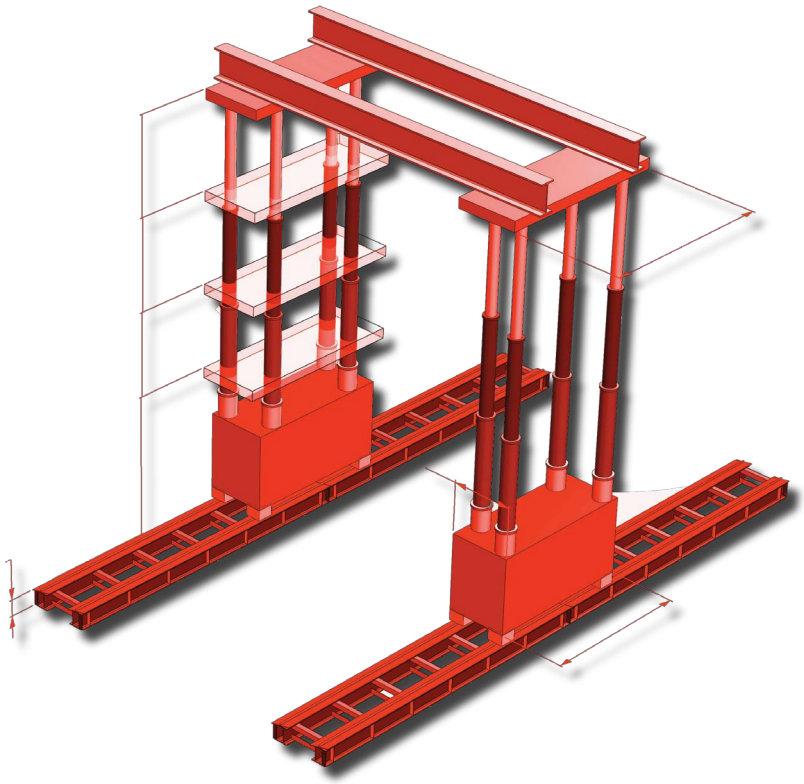

# GANTRY LIFTING SYSTEM

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TECHNICAL BROCHURE

The gantry lifting System is a mobile, self-propelled, variable height, hydraulic lifting frame.It is primarily controlled from a remote, self-contained power module that is positioned away from the gantries. The gantries are designed to be operated on smooth surfaces (steel plates or track) and must be within one degree of true level for proper and safe operation. A side shift mechanism allows to transverse the load giving the system the capacity to move the load in the 3 directions. There are 4 jacking units, supported on wheels having one vertical lift cylinder and a vertical lift boom mounted on top. These units are self-propelled. The cylinders and booms of these jacking units are extended or retracted to lift or lower the load. The jacking units can move longitudinally to transport loads horizontally.

**DESIGN CRITERIA**

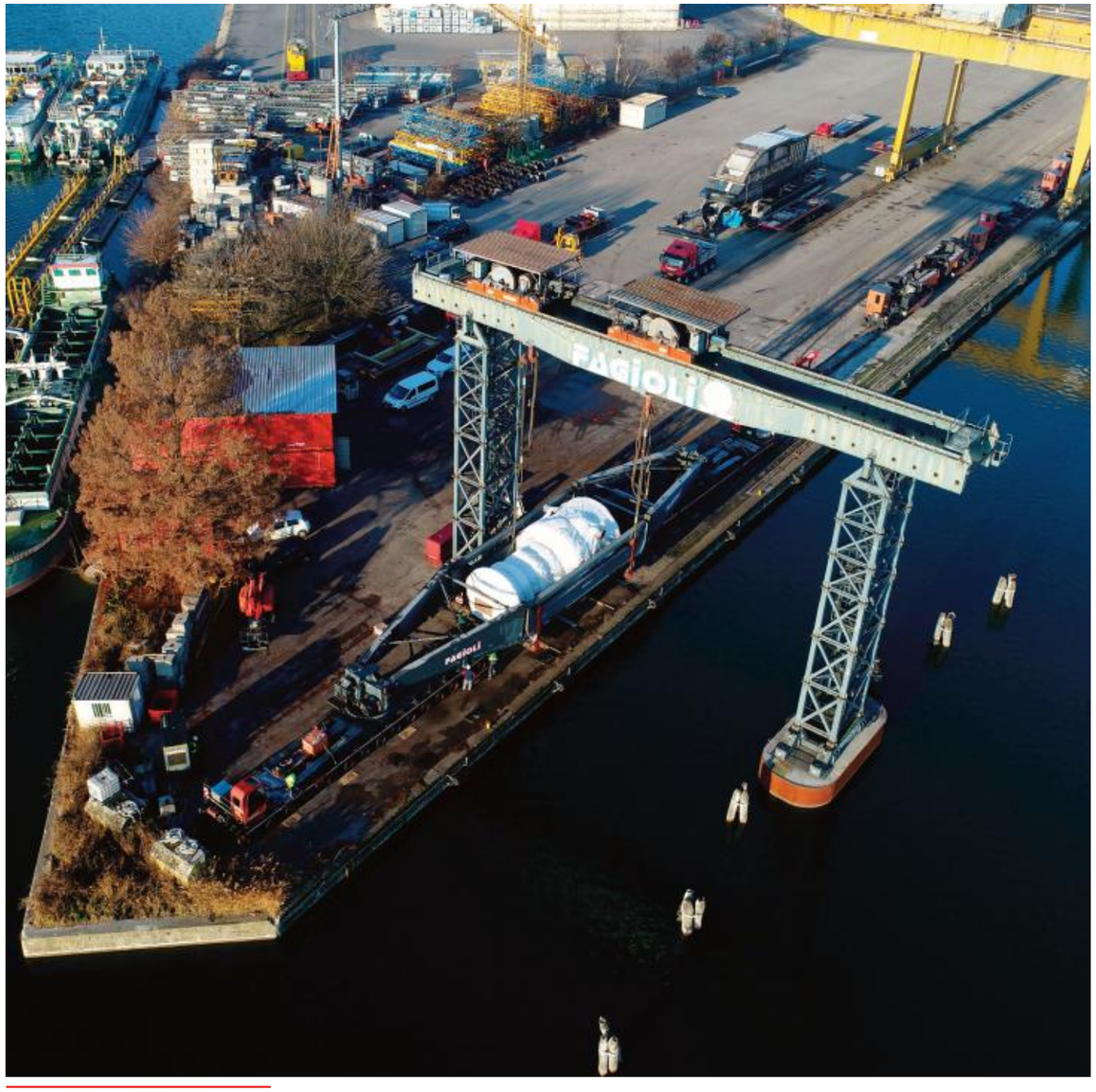
The lift cylinders are telescopic, multiple stage and double acting (pressure extend, pressure retract). They are designed to eliminate the use of troublesome hose reels. Double locking valves built into the lower base of the cylinders and are not subject to any hydraulic hose or tubing failures. An equalized pressure system is created by matching the load rating with maximum system pressure. This ensures that the cannot be overloaded. If a load is over the specified capacity, the system will simply not allow the gantry to lift the load.  The lift telescopic boom is an assembly of nested structural boxes. They are made of square steel tubing with solid steel bars attached on two sides.

GANTRY LIFTING SYSTEM - OVERVIEW

The heavy steel walls and boom overlap ensure that the lift cylinders will not be hindered by any side loading forces. The telescoping of the boom is driven by the lift cylinders. The steel booms protect the cylinders from side loading pressures (which cause them to leak, deteriorate and eventually fail), as well as protecting it from exterior damage to the chromed rods. Nylatron slider pads are fitted in the booms sections to ensure a tight fit and smooth operation avoiding steel on steel friction. The cam lock safety system automatically holds suspended loads indefinitely, when engaged with or without the assistance of lift cylinders. This is done mechanically with eccentric cam locks, cast of high strength steel alloy, that bite into the walls of the booms. This system allows gantries to be locked into place at any extended position, without leaving the lift cylinder pressurized. The cams are cast of high strength alloy steel and are automatically held open hydraulically when the gantry booms are being either raised or lowered. A coil spring engages the locks when the control lever is returned to neutral or if there is ever a loss of system pressure. The beam header plate that firmly holds the lifting beam is mounted on a horizontal spherical bearing. This allows full 360 degrees rotation and side to side oscillation. If the lifting legs are at different heights or if the surface that is supporting the gantries is not perfectly level, the gantries will still firmly hold the lifting beams. The control valving is pressure compensated with proportional controls for inching. This means that when the control levers are activated to the same position, the flow is equalized to each cylinder. Therefore the lifting beam will remain level when a load is unbalanced.

# GANTRY LIFTING SYSTEM - OVERVIEW

The two speed system alerts the operator that the load is being applied to the gantry and at the same time reduces the speed at which the gantry extends. The lift beam is a structural section, usually a wide flange rolled shape or a fabricated box section. This beam is placed on the header plates.
The cross beams, a second set of header beams, are placed across the first set and used to attach the load.
The cross beams are needed because of the lifting arrangements of the installation reels. At the present time we do not have any indication about the lifting lugs of the transport reels, but we do not foresee any problem because of the flexibility of the system. The cross beams sit on an hydraulic side shift system that allows the fine setting of the load on the transversal direction. The lift links are structural fittings that are used to provide points of attachment between the header beams and the rigging attached to the load (wire rope slings, synthetic slings, etc.).
The planetary self propel system is integrally built into each housing and is operated from the control module. This allows the gantry to be propelled on a flat plate or simple channel track. This system can be easily be disengaged to become free-wheeling for tip downs or load centering. The track is an assembly consisting of two parallel beams tied together at regular intervals.




GANTRY LIFTING SYSTEM - OVERVIEW

The beams are wide flange shapes fitted with one structural element that guide the jacking unit's wheels. The beam gage is equal to the transverse wheel spacing of the jacking unit wheel loads over significant clear span. Specially designed junction are provided to connect different sections of tracks.
The tracks are normally laid on timber mats to increase the load spreading effect. The control module is the remote station that provides the energy that actuates the cylinders in the jacking units as well as the planetary propel system. The module incorporates an electric motor, gas, diesel or propane fueled engine as the primary power source. All hydraulic valves and controls for all cylinders and the propel system are operated manually, without electro-hydraulic systems. The pressure compensated operator control valve will direct an equal amount of oil flow to each gantry, regardless of unequal load pressure, when the control levers are moved evenly. This feature makes all gantries lift and propel as equally as possible, regardless of loading. Gantries are connected to the power module by light weight, twin line hose assemblies that are engaged with quick couplers. Each gantry has the capability to be individually controlled via one lever per gantry on the Control Module.On the control panel of the module load sensors/gauges provide the total weight being carried by each jacking unit. An extended wire connected to a digital screen inform the operator about the height of each of the 4 jacking units.

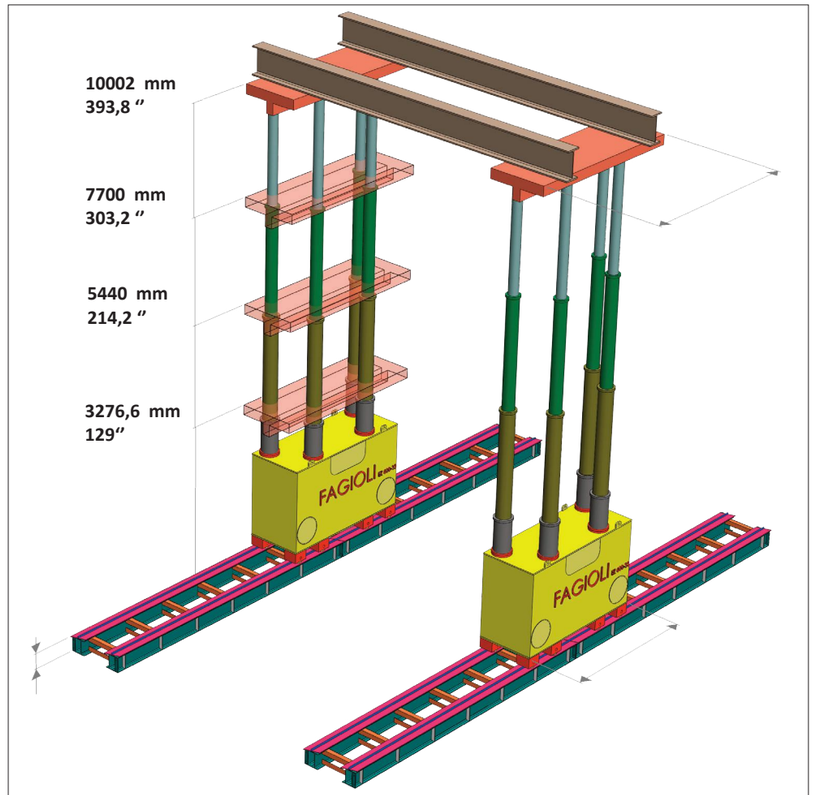
## SBL 1100 (4 LEGS)


| DESCRIZIONE | DESCRIPTION | DETTAGLI | DETAILS |
|---|---|---|---|
| Peso di ogni sollevatore | Weight of each Gantry Crane leg | 12400 kg | 27337 lbs. |
| Lunghezza sollevatore | Length of each Gantry Crane leg | 3310 mm | 130,3'' |
| Larghezza sollevatore | Width of each Gantry Crane leg | 1408 mm | 55,4'' |
| Altezza in posizione chiusa | Retracted Height | 4370 mm | 172'' |
| Altezza 1° sfilo | 1st stage Extended | 7304 mm | 287,6'' |
| Altezza 2° sfilo | 2nd Stage extended | 10068 mm | 396,4'' |
| Altezza 3° sfilo | 3rd Stage extended | 12002 mm | 472,7'' |
| Capacità 1° sfilo / 4 sollevatori | 1st Stage Capacity / 4 Gantry Cranes | 1068 t | 1176 ton "short" |
| Capacità 2° sfilo / 4 sollevatori | 2nd Stage Capacity / 4 Gantry Cranes | 688 t | 760 ton "short" |
| Capacità 3° sfilo / 4 sollevatori | 3rd Stage Capacity / 4 Gantry Cranes | 384 t | 424 ton "short" |
| Pressione massima di esercizio | Max Hydraulic Pressure | 320 bar | 4640 P.S.I. |
| Rollers per ogni sollevatore | Rollers per Gantry Crane leg | 2 | 2 |
| Interasse centraggio rollers | Rollers Guide Rod Centers | 914 mm | 36'' |
| Lunghezza e larghezza rollers | Rollers Length / Width | 2760 x 250 mm | 108,7 x 9,8 " |
| Capacità serbatoio idraulico | Control Module Volume Oil | 4 x 425 L | 4 x 112 GAL. |
| Alimentazione modulo comando | Control Module Power | 360-480 V 50-60 Hz<br>4x7.5 kW 4x16 A | 360-480 V 50-60 Hz<br>4x7.5 kW 4x16 A |
| Dimensione di trasporto | Dimensions to be considered for the transport | 4400 x 1450 x 2300 mm<br>peso 12 t | 173,2'' x 57,1'' x 90,6''<br>weight 19800 lbs. |



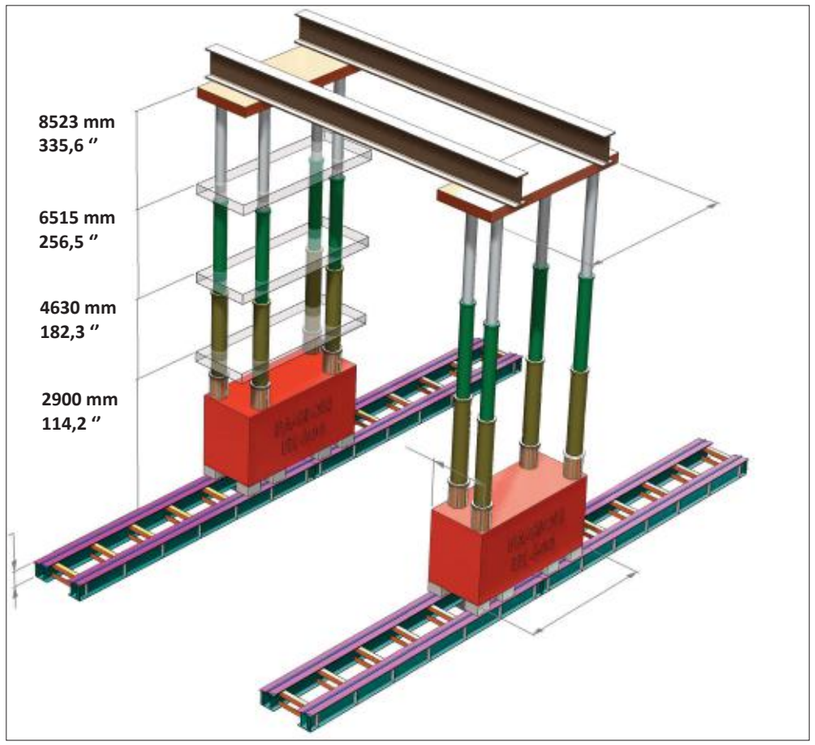


## EZ 600-33 (2 Legs)




| DESCRIZIONE | DESCRIPTION | DETTAGLI | DETAILS |
|---|---|---|---|
| Peso di ogni sollevatore | Weight of each Gantry Crane leg | 12200 kg | 26896,4 lbs. |
| Lunghezza sollevatore | Length of each Gantry Crane leg | 3569 mm | 140,5'' |
| Larghezza sollevatore | Width of each Gantry Crane leg | 1276,4 mm | 50,2'' |
| Altezza in posizione chiusa | Retracted Height | 3276,6 mm | 129'' |
| Altezza 1° sfilo | 1st stage Extended | 5440 mm | 214,2'' |
| Altezza 2° sfilo | 2nd Stage extended | 7700 mm | 303,2'' |
| Altezza 3° sfilo | 3rd Stage extended | 10002 mm | 393,8'' |
| Capacità 1° sfilo / 2 sollevatori | 1st Stage Capacity / 2 Gantry Cranes | 625 t | 689 ton "short" |
| Capacità 2° sfilo / 2 sollevatori | 2nd Stage Capacity / 2 Gantry Cranes | 475 t | 523 ton "short" |
| Capacità 3° sfilo / 2 sollevatori | 3rd Stage Capacity / 2 Gantry Cranes | 325 t | 358 ton "short" |
| Pressione massima di esercizio | Max Hydraulic Pressure | 137 bar | 2000 P.S.I. |
| Quantità di ruote ogni sollevatore | Wheels per Gantry Crane leg | 16 | 16 |
| Interasse centraggio ruote | Wheels Guide Rod Centers | 900,8 mm | 35,5'' |
| Interasse longitudinale ruote | Wheel Base (Center to Center) | 685 x 1350 x 685mm | 27" x 53,1" x 27" |
| Capacità serbatoio idraulico | Control Module Volume Oil | 2 x 1608 L | 2 X 425 GAL. |
| Alimentazione per ogni sollevatore | Power for each Gantry Crane leg | 380v- 50 Hz / 440v- 60Hz<br>15-20 kw - 32 A | 380v- 50 Hz / 440v- 60Hz<br>15-20 kw - 32 A |
| Dimensione di trasporto | Dimensions to be considered for the transport | 3570 x 1280 x 3280 mm<br>peso 12,2 t | 140,6''x 50,4'' x 129,1''<br>weight 26896,4 lbs. |

## EZ 600 (2 Legs)

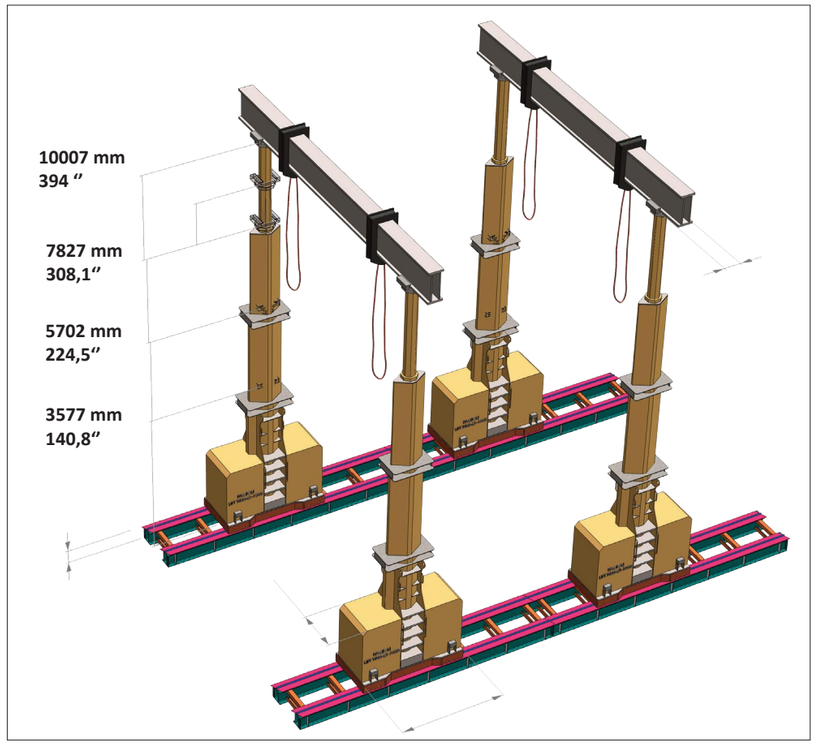



| DESCRIZIONE | DESCRIPTION | DETTAGLI | DETAILS |
|---|---|---|---|
| Peso di ogni sollevatore | Weight of each Gantry Crane leg | 11748 kg | 25900 lbs. |
| Lunghezza sollevatore | Length of each Gantry Crane leg | 3530 mm | 139” |
| Larghezza sollevatore | Width of each Gantry Crane leg | 1250 mm | 49,2” |
| Altezza in posizione chiusa | Retracted Height | 2900 mm | 114,2” |
| Altezza 1° sfilo | 1st stage Extended | 4630 mm | 182,3” |
| Altezza 2° sfilo | 2nd Stage extended | 6515 mm | 256,5” |
| Altezza 3° sfilo | 3rd Stage extended | 8523 mm | 335,6” |
| Capacità 1° sfilo / 2 sollevatori | 1st Stage Capacity / 2 Gantry Cranes | 544 t | 600 ton “short” |
| Capacità 2° sfilo / 2 sollevatori | 2nd Stage Capacity / 2 Gantry Cranes | 364 t | 400 ton “short” |
| Capacità 3° sfilo / 2 sollevatori | 3rd Stage Capacity / 2 Gantry Cranes | 272 t | 300 ton “short” |
| Pressione massima di esercizio | Max Hydraulic Pressure | 124 bar | 1800 P.S.I. |
| Quantità di ruote ogni sollevatore | Wheels per Gantry Crane leg | 16 | 16 |
| Interasse centraggio ruote | Wheels Guide Rod Centers | 915 mm | 36” |
| Interasse longitudinale ruote | Wheel Base (Center to Center) | | |
| Capacità serbatoio idraulico | Control Module Volume Oil | 2 x 1325 L | 2 X 350 GAL. |
| Alimentazione di ogni sollevatore | Power for each Gantry Crane leg | 460v- 60 Hz / 230v- 50Hz<br>15-20 kw - 32 A | 460v- 60 Hz / 230v- 50Hz<br>15-20 kw - 32 A |
| Dimensione di trasporto | Dimensions to be considered<br>for the transport | 3530 x 1250 x 2950 mm<br>peso 11,8 t | 139”x 49,2” x 116,2”<br>weight 26000 lbs. |



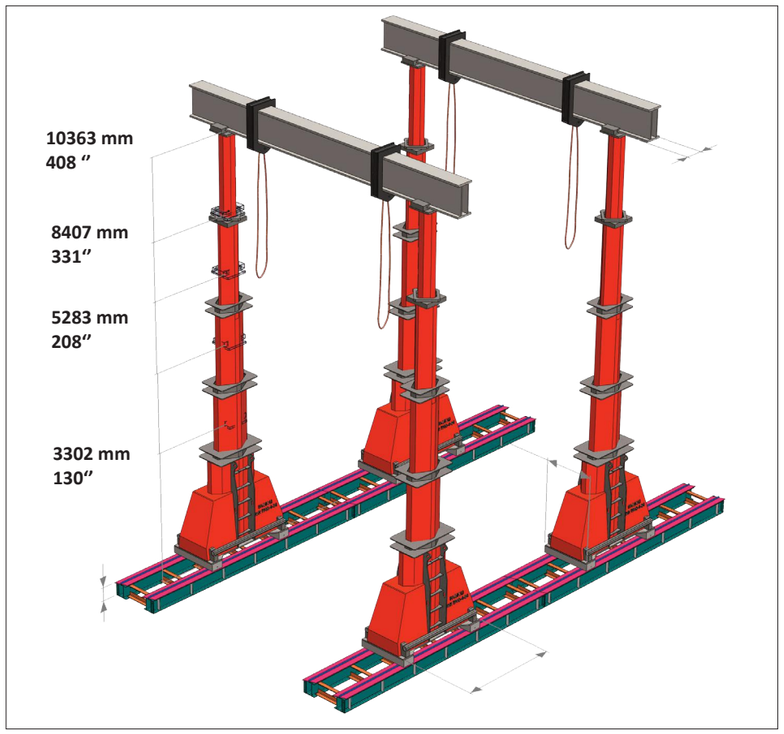


## 400 - 21 - 1000 (4 Legs)




| DESCRIZIONE | DESCRIPTION | DETTAGLI | DETAILS |
|---|---|---|---|
| Peso di ogni sollevatore | Weight of each Gantry Crane leg | 8500 kg | 18750 lbs. |
| Lunghezza sollevatore | Length of each Gantry Crane leg | 2500 mm | 98,4” |
| Larghezza sollevatore | Width of each Gantry Crane leg | 1250 mm | 49,2” |
| Altezza in posizione chiusa | Retracted Height | 3577 mm | 140,8” |
| Altezza 1° sfilo | 1st stage Extended | 5702 mm | 224,5” |
| Altezza 2° sfilo | 2nd Stage extended | 7882 mm | 310,3” |
| Altezza chiusa con mezza estensione manuale | 1/2 Manual extended | 4652 mm | 183,1” |
| Altezza 1° sfilo e mezza estensione manuale | 1st stage & 1/2 Manual Extended | 6777 mm | 266,8” |
| Altezza 2° sfilo e mezza estensione manuale | 2nd stage & 1/2 Manual Extended | 8957 mm | 352,6” |
| Altezza chiusa con estensione manuale | Manual extended | 5702 mm | 224,5” |
| Altezza 1° sfilo e estensione manuale | 1st stage & Manual Extended | 7827 mm | 308,1” |
| Altezza 2° sfilo e estensione manuale | 2nd stage & Manual Extended | 10007 mm | 394” |
| Capacità estensione manuale / 4 sollevatori | Manual Boom Capacity / 4 Gantry Cranes | 400 t | 400 ton “short” |
| Capacità 1° sfilo / 4 sollevatori | 1st Stage Capacity /4 Gantry Cranes | 400 t | 400 ton “short” |
| Capacità 2° sfilo / 4 sollevatori | 2nd Stage Capacity / 4 Gantry Cranes | 200 t | 220 ton “short” |
| Pressione massima di esercizio | Max Hydraulic Pressure | 200 bar | 2900 P.S.I. |
| Quantità di ruote ogni sollevatore | Wheels per Gantry Crane leg | 16 | 16 |
| Interasse centraggio ruote | Wheels Guide Rod Centers | 915 mm | 36” |
| Interasse longitudinale ruote | Wheel Base (Center to Center) | 255 x 1710 x 255 mm | 10” x 67,3” x 10” |
| Capacità serbatoio idraulico | Control Module Volume Oil | 4 x 450 L | 4 X 120 GAL. |
| Alimentazione sollevatori | Power Gantry Cranes | 400 v- 50 Hz<br>32 kw- 60 A | 400 v- 50 Hz<br>32 kw- 60 A |
| Dimensione di trasporto | Dimensions to be considered<br>for the transport | 3750 x 1250 x 2500 mm<br>peso 9 t | 147,6” x 49,2” x 98,4”<br>weight 19800 lbs. |

## T903 - 4- 34 (4 LEGS)




| DESCRIZIONE | DESCRIPTION | DETTAGLI | DETAILS |
|---|---|---|---|
| Peso di ogni sollevatore | Weight of each Gantry Crane leg | 6715 kg | 14800 lbs. |
| Lunghezza sollevatore | Length of each Gantry Crane leg | 2438 mm | 96’’ |
| Larghezza sollevatore | Width of each Gantry Crane leg | 1276 mm | 50,3’’ |
| Altezza in posizione chiusa | Retracted Height | 3302 mm | 130’’ |
| Altezza 1° sfilo | 1st stage Extended | 5283 mm | 208’’ |
| Altezza 2° sfilo | 2nd Stage extended | 6985 mm | 275’’ |
| Altezza 3° sfilo | 3rd Stage extended | 8407 mm | 331’’ |
| Altezza chiusa con estensione manuale | 1/2 Manual extended | 5257 mm | 207’’ |
| Altezza 1° sfilo ed estensione manuale | 1st stage & Manual Extended | 7213 mm | 284’’ |
| Altezza 2° sfilo ed estensione manuale | 2nd stage & Manual Extended | 8940 mm | 352’’ |
| Altezza 3° sfilo ed estensione manuale | 3rd stage & Manual Extended | 10363 mm | 408’’ |
| Capacità estensione manuale / 4 sollevatori | Manual Boom Capacity / 4 Gantry Crane | 408 t | 450 ton “short” |
| Capacità 1° sfilo / 4 sollevatori | 1st Stage Capacity / 4 Gantry Crane | 408 t | 450 ton “short” |
| Capacità 2° sfilo / 4 sollevatori | 2nd Stage Capacity / 4 Gantry Crane | 290 t | 320 ton “short” |
| Capacità 3° sfilo / 4 sollevatori | 3rd Stage Capacity / 4 Gantry Crane | 217 t | 240 ton “short” |
| Pressione massima di esercizio | Max Hydraulic Pressure | 206,8 bar | 3000 P.S.I. |
| Quantità di ruote ogni sollevatore | Wheels per Gantry Crane leg | 8 | 8 |
| Interasse centraggio ruote | Wheels Guide Rod Centers | 914 mm | 36’’ |
| Interasse longitudinale ruote | Wheel Base (Center to Center) | 2108 mm | 83’’ |
| Peso Modulo di Comando | Control Module Weight | 2404 kg | 5300 lbs. |
| Capacità serbatoio idraulico | Control Module Volume Oil | 1136 L | 300 GAL. |
| Alimentazione modulo comando | Control Module Power | 400 v- 50 Hz - 125 A | 400 v- 50 Hz - 125 A |
| Dimensione di trasporto | Dimensions to be considered for the transport | 3400 x 2450 x 1300 mm peso 7 t | 133,9’’ x 96,5’’ x 51,2’’ weight 15500 lbs. |





## SBL 900 (4 Legs)


| DESCRIZIONE | DESCRIPTION | DETTAGLI | DETAILS |
|---|---|---|---|
| Peso di ogni sollevatore | Weight of each Gantry Crane leg | 13.350 kg | 29,432 lbs. |
| Lunghezza sollevatore | Length of each Gantry Crane leg | 4800 mm | 15.75’’ |
| Larghezza sollevatore | Width of each Gantry Crane leg | 1408 mm | 55’’ |
| Altezza in posizione chiusa | Retracted Height | 5004 mm | 197’’ |
| Altezza base | Base Height | 2129 mm | 83.8’’ |
| Lunghezza base | Base Length | 3454 mm | 136’’ |
| Larghezza base | Base Width | 1408 mm | 55.4’’ |
| Massima Altezza 1° sfilo | 1st stage Maximum Height | 8304 mm | 327’’ |
| Massima Altezza 2° sfilo | 2nd stage Maximum Height | 11304 mm | 445’’ |
| Capacità estensione manuale / 4 sollevatori | Manual Boom Capacity / 4 Gantry Cranes | 900 t | 1009 ton “short” |
| Capacità 1° sfilo / 4 sollevatori | 1st Stage Capacity /4 Gantry Cranes | 915 t | 8976 (kN) |
| Capacità 2° sfilo / 4 sollevatori | 2nd Stage Capacity / 4 Gantry Cranes | 604 t | 5924 (kN) |
| Dimensioni trasporto (altezza) | Transport dimensions (Height) | 2258 mm | 88.9’’ |
| Dimensioni trasporto (lunghezza) | Transport dimensions (Length) | 4317 mm | 170’’ |
| Dimensione di trasporto | Dimensions to be considered for the transport | 4317 x 3454 x 2258 mm peso 13.35 t | 170’’ x 136’’ x 88.9’’ weight 29,432 lbs. |

# GANTRY LIFTING SYSTEM

Fagioli have its own medium-range cranes and proprietary gantry systems to conduct heavy-lift assembly and erection activities in different industrial sectors for the final positioning of turbine-generator sets, boiler sections, transformers, storage tanks.
The Fagioli Gantry Crane system provides an economical way to lift heavy items anywhere in a facility with hoisting capacity up to 800 tonne each. Fagioli monitor all the different stages of the project from the erection and assembly schedule, alignment and levelling operations as well as transport from origin to final destination. Gantry cranes are extremely useful in restricted areas. Moreover Fagioli in-house engineering department is able to provide the identification of the most cost effective technical solutions utilizing and optimizing the most appropriate equipment and means to perform all facets of the transport and lifting operations always to the clients total satisfaction and to comply with their high performance targets on all aspects relating to safety, quality and environment, levels of service, budget and schedule maintenance.
All documents issued by Fagioli's Engineering division are prepared in strict compliance and conformity with the HSE and Quality departments "safety-oriented" requirements covering all of the activities executed on site.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